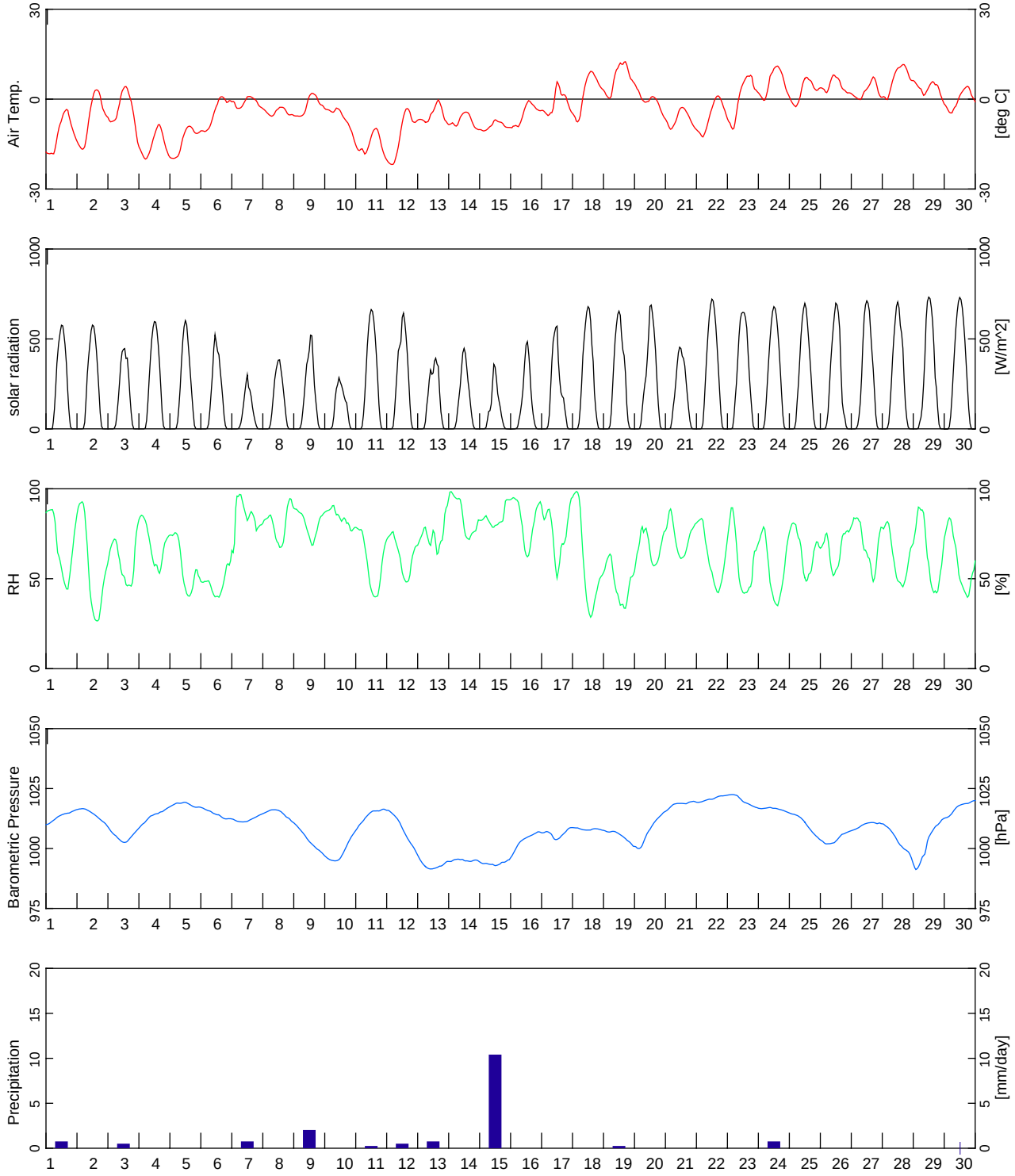


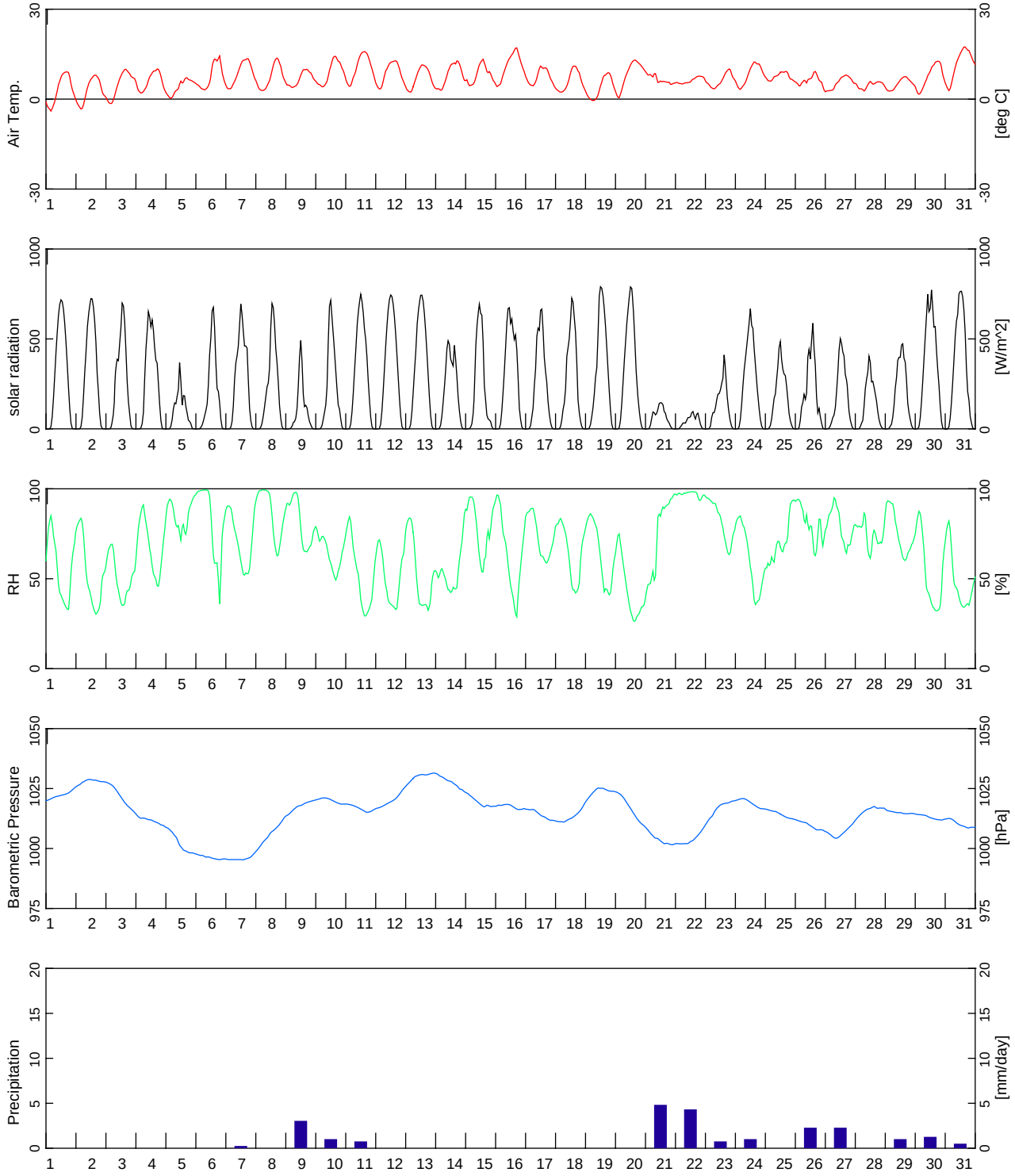
HAY & COMPANY CONSULTANTS

TYHEE NWT CORP.

YELLOWKNIFE GOLD PROJECT
HYDROLOGY AND METEOROLOGY

APR. 2006 WEATHER
SITE #7 TYHEE STATION

FIG. D-4



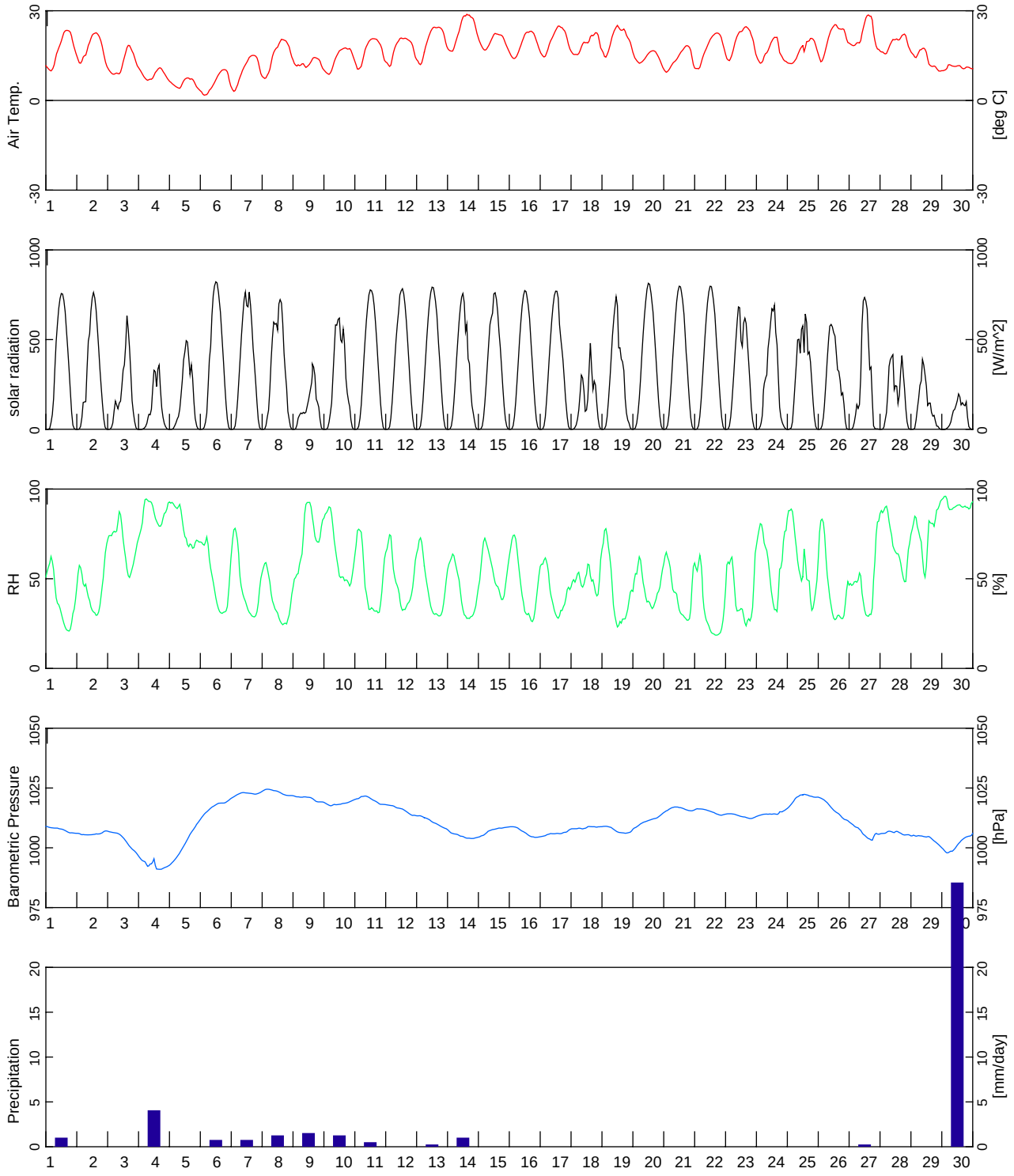
HAY & COMPANY CONSULTANTS

TYHEE NWT CORP.

YELLOWKNIFE GOLD PROJECT
HYDROLOGY AND METEOROLOGY

MAY 2006 WEATHER
SITE #7 TYHEE STATION

FIG. D-5



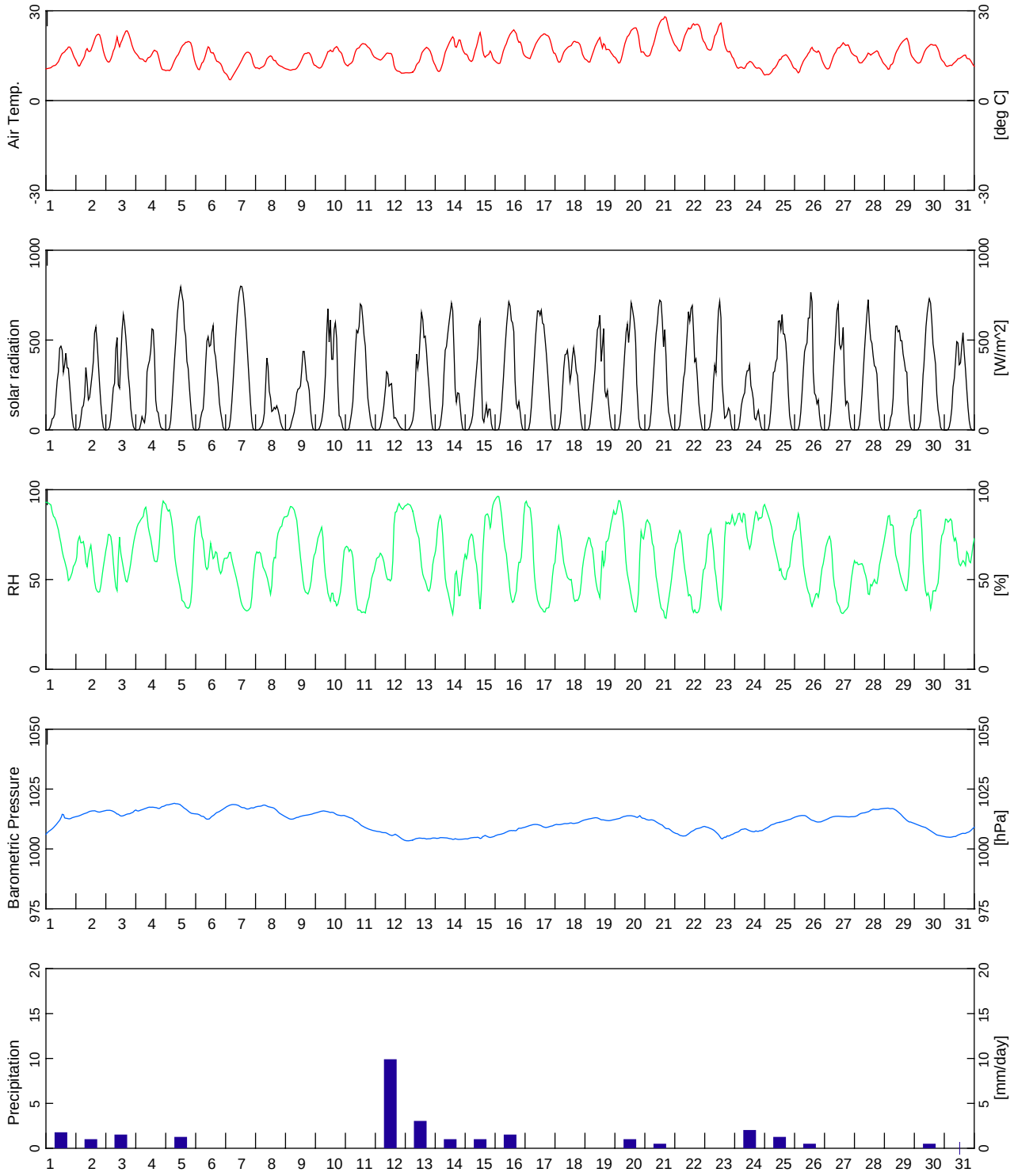
HAY & COMPANY CONSULTANTS

TYHEE NWT CORP.

YELLOWKNIFE GOLD PROJECT
HYDROLOGY AND METEOROLOGY

JUN. 2006 WEATHER
SITE #7 TYHEE STATION

FIG. D-6



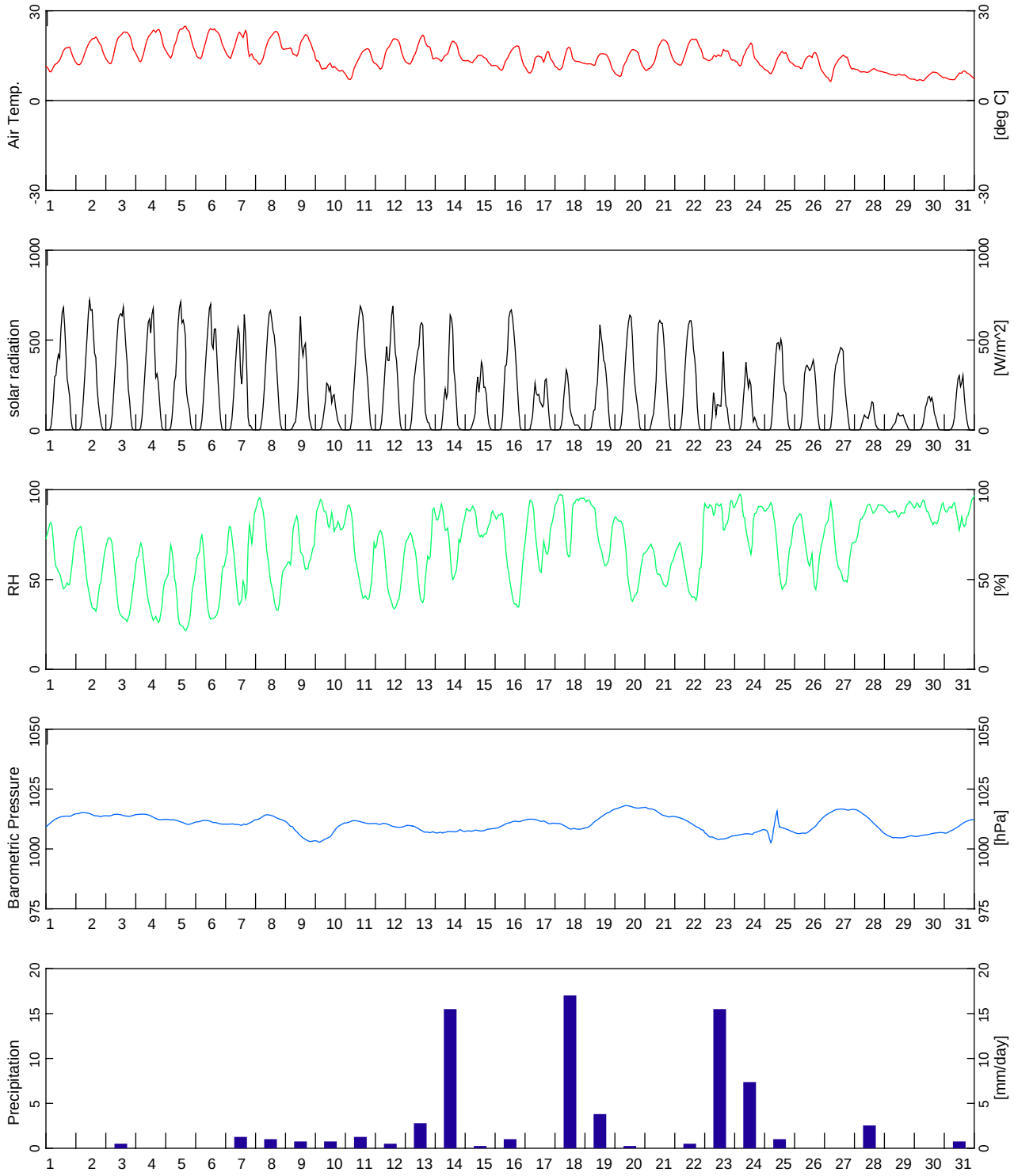
HAY & COMPANY CONSULTANTS

TYHEE NWT CORP.

YELLOWKNIFE GOLD PROJECT
HYDROLOGY AND METEOROLOGY

JUL. 2006 WEATHER
SITE #7 TYHEE STATION

FIG. D-7



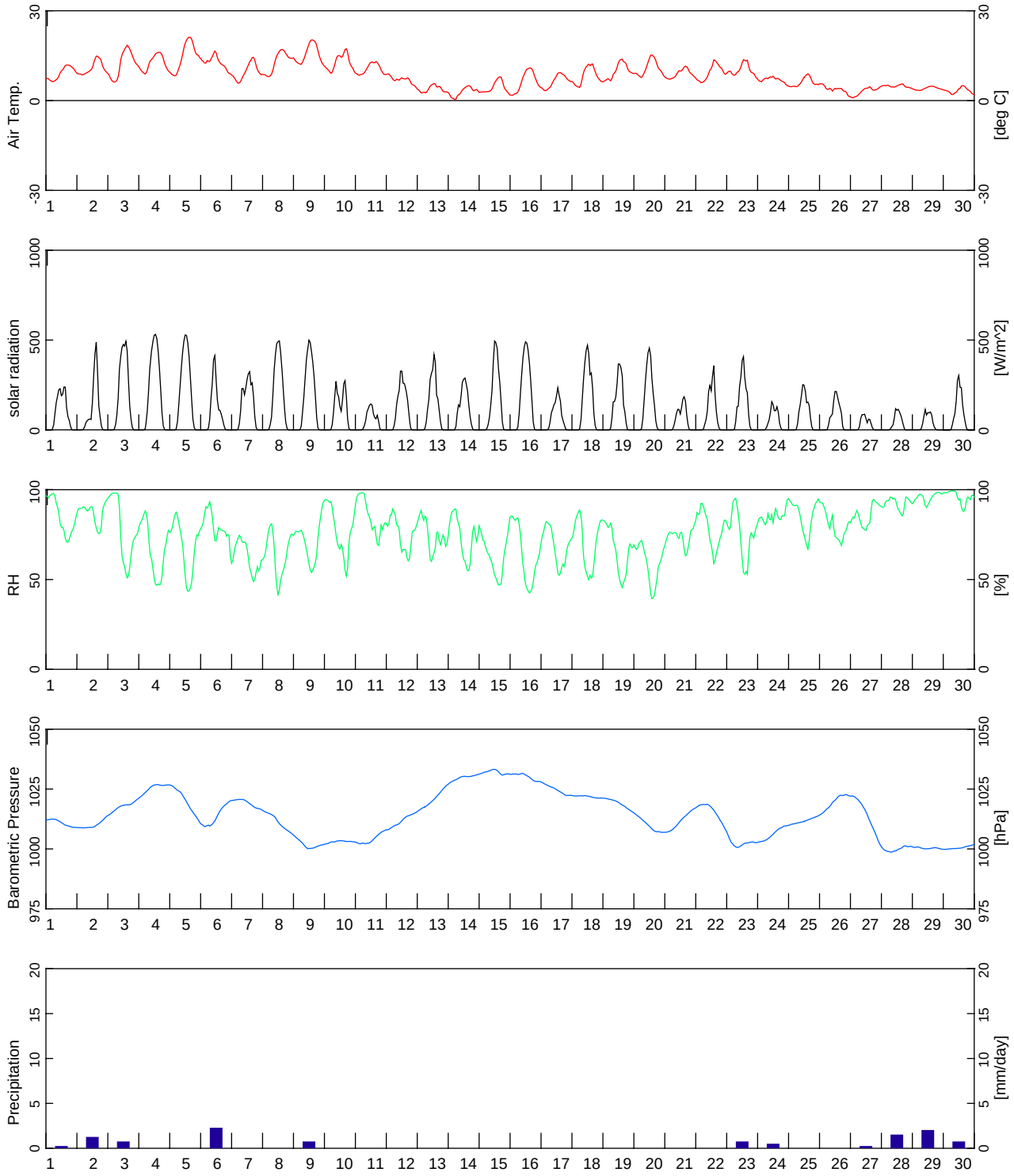
HAY & COMPANY CONSULTANTS

TYHEE NWT CORP.

YELLOWKNIFE GOLD PROJECT
HYDROLOGY AND METEOROLOGY

AUG. 2006 WEATHER
SITE #7 TYHEE STATION

FIG. D-8



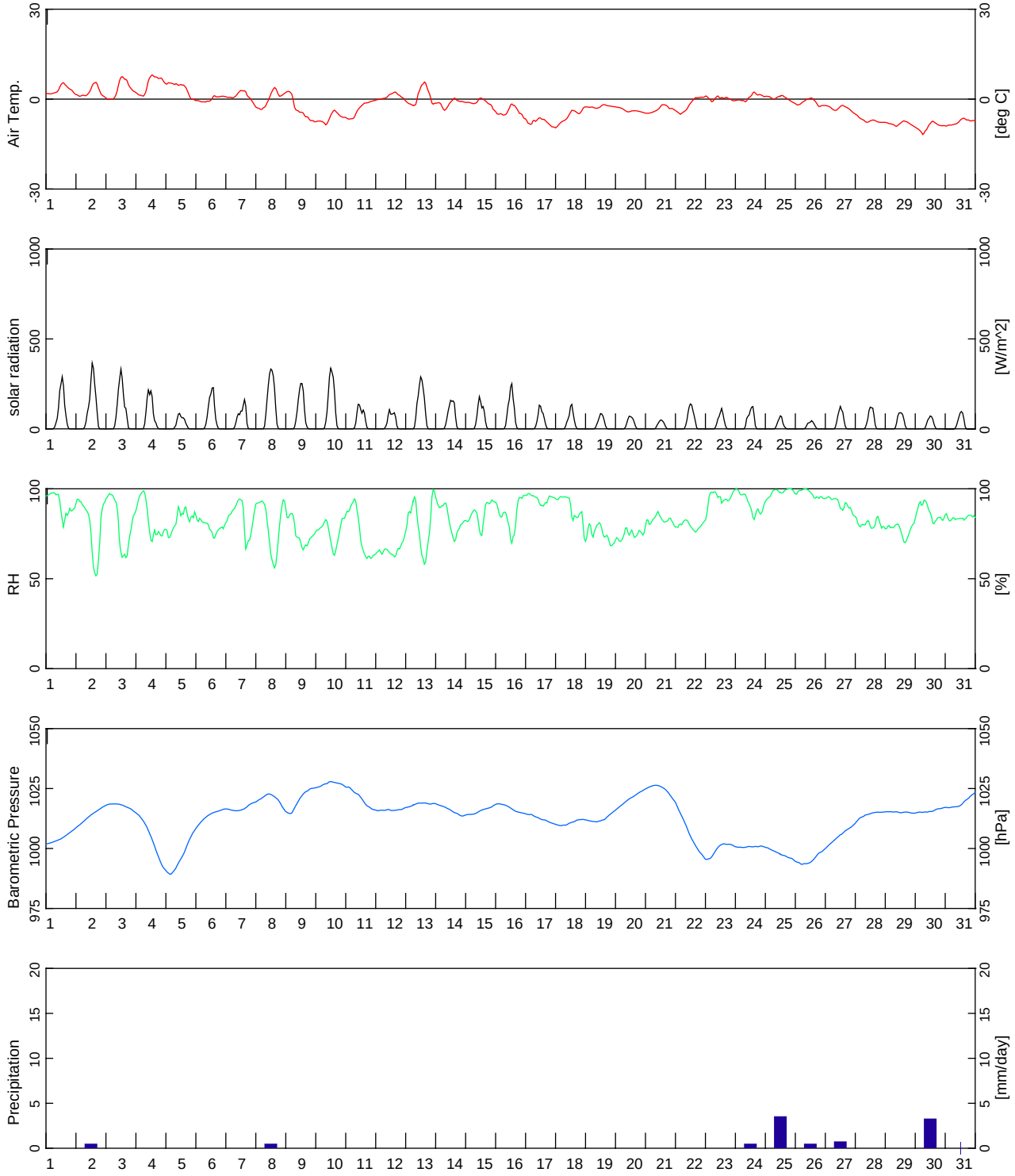
HAY & COMPANY CONSULTANTS

TYHEE NWT CORP.

YELLOWKNIFE GOLD PROJECT
HYDROLOGY AND METEOROLOGY

SEP. 2006 WEATHER
SITE #7 TYHEE STATION

FIG. D-9



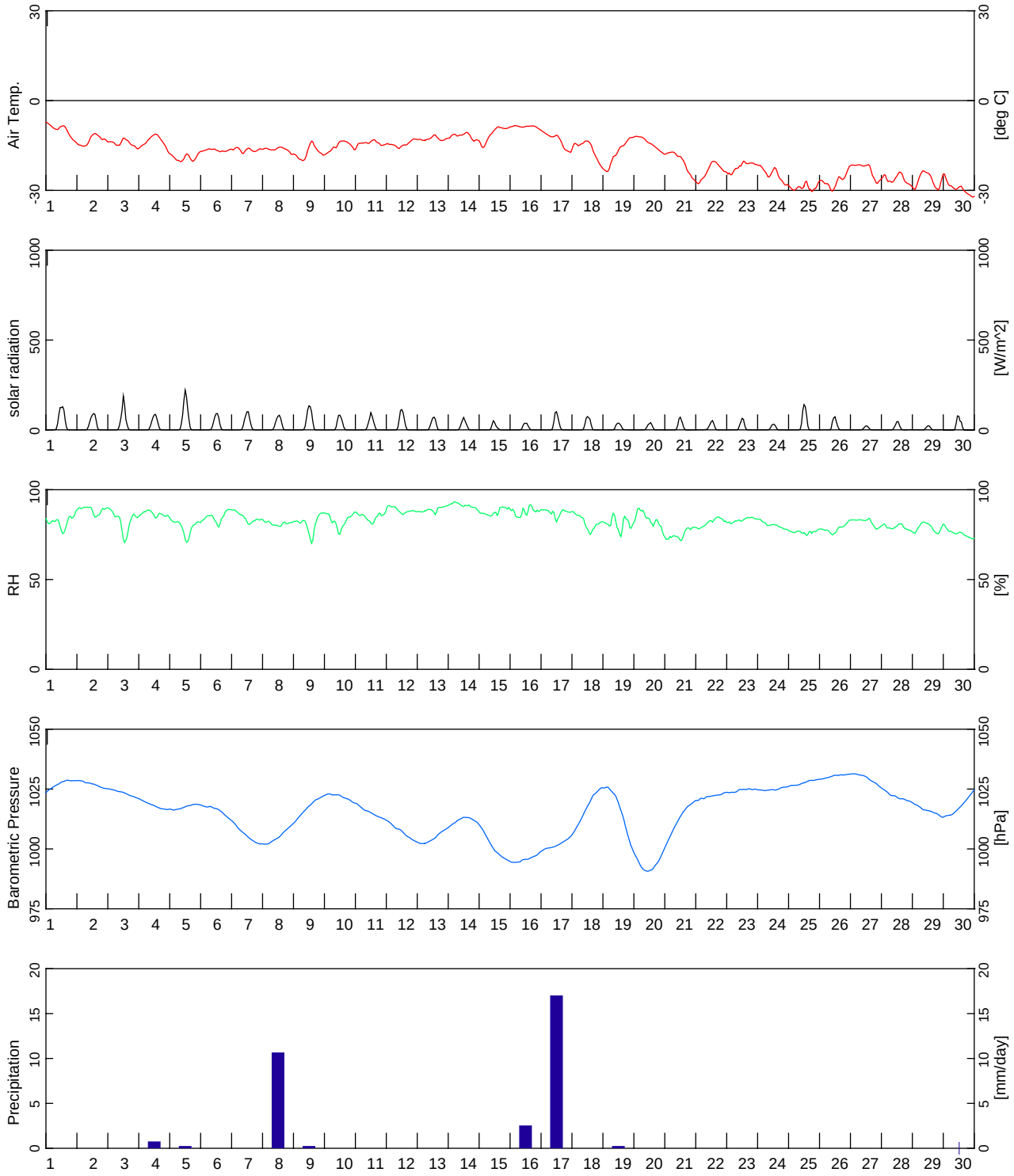
HAY & COMPANY CONSULTANTS

TYHEE NWT CORP.

YELLOWKNIFE GOLD PROJECT
HYDROLOGY AND METEOROLOGY

OCT. 2006 WEATHER
SITE #7 TYHEE STATION

FIG. D-10



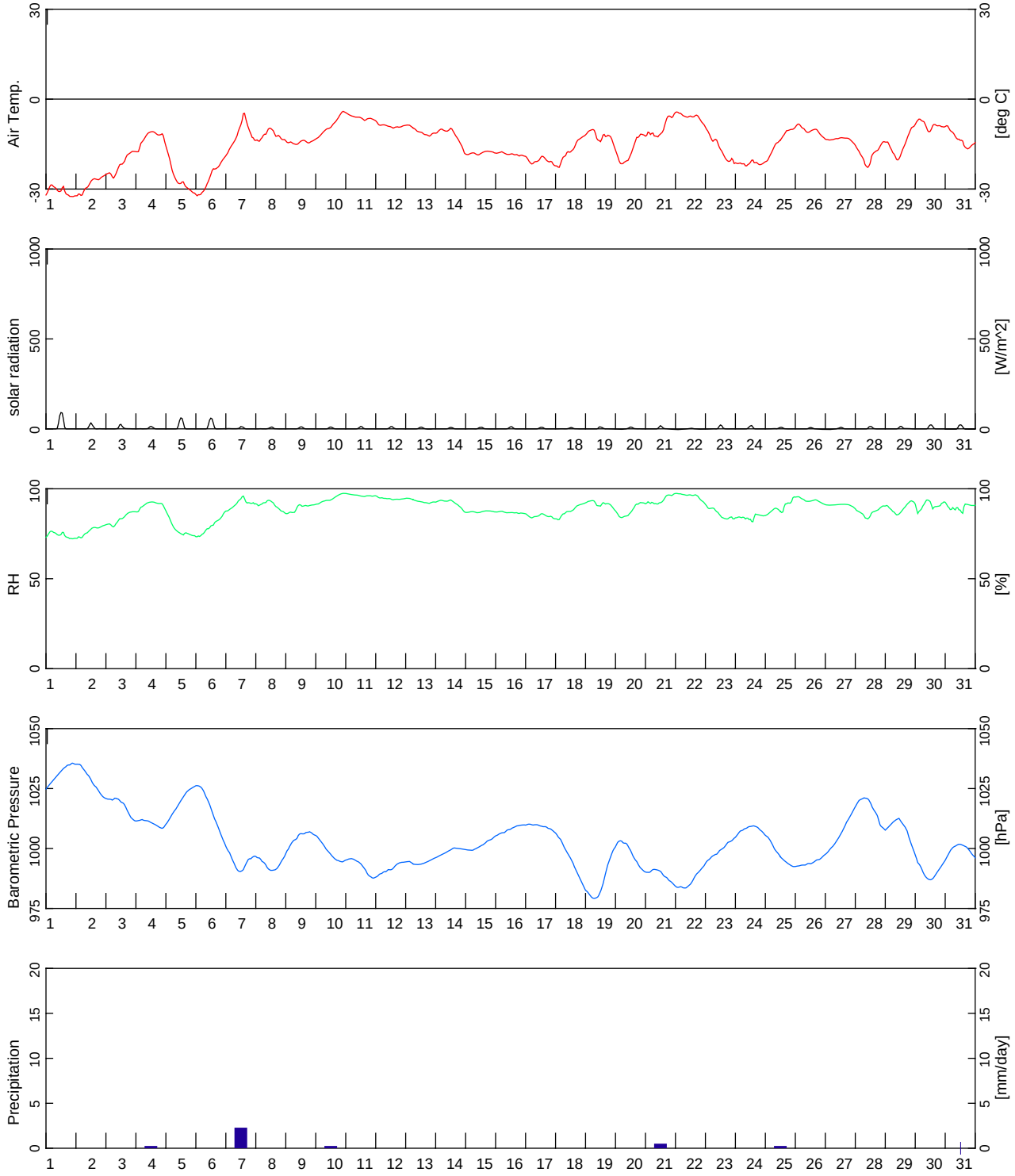
HAY & COMPANY CONSULTANTS

TYHEE NWT CORP.

YELLOWKNIFE GOLD PROJECT
HYDROLOGY AND METEOROLOGY

NOV. 2006 WEATHER
SITE #7 TYHEE STATION

FIG. D-11



HAY & COMPANY CONSULTANTS

TYHEE NWT CORP.

YELLOWKNIFE GOLD PROJECT
HYDROLOGY AND METEOROLOGY

DEC. 2006 WEATHER
SITE #7 TYHEE STATION

FIG. D-12

APPENDIX

APPENDIX E DESCRIPTION OF DATA FILES ON THE REPORT CD

Description of the Data Files for the Yellowknife Gold Projects 2006 Data Report

The data directory section of the Yellowknife Gold Project 2006 Data Report CD contains all the field data with respect to meteorology and hydrology that was collected by Hay & Company consultants over the period from January 1 to December 31, 2006. The data is contained in two directories, meteorological data and hydrological data.

1.0 METEOROLOGICAL DATA

There are three meteorological station files included with this CD. They contain the data from the Hay & Company installed meteorological station located on the northeast end the Yellowknife Gold Project Airstrip.

1.1 HOURLY METEOROLOGICAL DATA

The data file named "**2006_Tyhee_hourly_met_data.csv**" contains comma separated meteorological data for each hour over the period of January 1 to December 31, 2006. The data was collected at 15-minute intervals and was filtered such that only the hourly data is contained in this file.

The file format is such that each row represents one sample time period.

The 8 data columns identified from left to right are Date / Time, wind speed [m/s], wind direction [degrees], standard deviation of wind direction [degrees], air temperature [C^o], relative humidity [%], barometric pressure at sea level [hPa], and incident solar radiation [W/m^2].

1.2 HOURLY METEOROLOGICAL DATA

The data file named "**2006_Tyhee_daily_met_data.csv**"is the daily mean, maximum and minimum data saved at midnight each day for 2006.

The 13 data columns identified from left to right are date, maximum wind speed [m/s], 3 columns for mean, maximum and minimum sea level equivalent barometric pressure [hPa], precipitation [mm/day of water], 3 columns for mean, maximum and minimum relative humidity, 3 columns for mean, maximum and minimum air temperature [^{o}C] and the last column is incident solar radiation [W/m^2].

1.3 15 MINUTE PRECIPITATION DATA

The data file named "**2006_Tyhee_15_min_precip_data.csv**" contains the 15 minute water equivalent precipitation data collected from the all weather precipitation gauge installed a the Yellowknife Gold Project site for the period from January 1 to December 31, 2006.

The 2 data columns identified from left to right are date and water equivalent precipitation [mm/15 min].

1.4 DAILY EVAPORATION DATA

The data file named "**2006_Tyhee_daily_evapdata.csv**" contains the daily evaporation data collected from the evaporation pan installed at the Yellowknife Gold Project site for the summer of 2006.

The comma separated variable file contains 3 data columns, identified from left to right as date, 24-hour evaporation rate [mm/day] and a 7 day running average of the 24-hour evaporation rate [mm/day].

2.0 HYDROLOGICAL DATA

This directory contains the 3 stream flow data file for the stations (Narrow, Winter and Round Lake Outlets) that were monitored over the period from June 9 to September 19, 2006.

The Narrow Lake discharge data is contained in the file **"2006_Narrow_lake_discharges.csv"**.

The Winter Lake discharge data is contained in the file **"2006_Winter_lake_discharge.csv"**.

The Round Lake discharge data is contained in the file **"2006_Round_lake_discharges.csv"**.

Each comma separated data file contains 3 data columns identified from left to right as date/time, outlet stage [m], and outlet discharge [L/s].

APPENDIX

APPENDIX F PROJECT REPORT – GENERAL CONDITIONS

PROJECT REPORT – GENERAL CONDITIONS

This Report incorporates and is subject to these "General Conditions".

1.0 PURPOSE

These General Conditions apply to this Report, which Hay & Company Consultants, a Division of EBA Engineering Consultants Ltd. (Hayco) has prepared in fulfillment of certain project specific requirements that have been previously agreed to by Hayco and its Client. The Report may include plans, drawings, profiles and other support documents that collectively constitute the Report.

2.0 USE OF REPORT

This Report pertains to a specific site, a specific development, and a specific scope of work. The Report and all supporting documents are intended for the sole use of Hayco's client. Hayco does not accept any responsibility for the accuracy of any of the data, analyzes or other contents of the Report when it is used or relied upon by any party other than Hayco's Client, unless authorized in writing by Hayco. Any unauthorized use of the Report is at the sole risk of the user.

3.0 CALCULATIONS AND DESIGNS

Hayco has undertaken design calculations and has prepared project specific recommendations or designs in accordance with terms of reference that were previously set out in consultation with, and agreement of, Hayco's client. These recommendations or designs have been prepared to a standard that is consistent with industry practice. Notwithstanding, if any error or omission is detected by Hayco's client or any party that is authorized to use the Report, the error or omission should be immediately drawn to the attention of Hayco.

4.0 ENVIRONMENTAL & REGULATORY ISSUES

Unless so stipulated in the Report, Hayco was not retained to investigate, address or consider, and has not investigated, addressed or considered any environmental or regulatory issues associated with the project specific design.

5.0 STANDARD OF CARE

Services that Hayco provided to complete this Report have been undertaken in a manner that is consistent with the approach ordinarily exercised by members of the profession currently practising under similar conditions in the jurisdiction in which the services were provided. Engineering judgement has been applied in developing design elements that are integral to this Report. No other warranty or guarantee, expressed or implied, is made concerning the content of this Report.

6.0 ALTERNATE REPORT FORMAT

Where Hayco submits both electronic file and hard copy versions of reports, drawings and other project-related documents and deliverables (collectively termed Hayco's instruments of professional service), the Client agrees that only the signed and sealed hard copy versions shall be considered final and legally binding. The hard copy versions submitted by Hayco shall be the original documents for record and working purposes, and, in the event of a dispute or discrepancies, the hard copy versions shall govern over the electronic versions. Furthermore, the Client agrees and waives all future right of dispute that the original hard copy signed version archived by Hayco shall be deemed to be the overall original for the Project.

The Client agrees that both electronic file and hard copy versions of Hayco's instruments of professional service shall not, under any circumstances, no matter who owns or uses them, be altered by any party except Hayco. The Client warrants that Hayco's instruments of professional service will be used only and exactly as submitted by Hayco.

The Client recognizes and agrees that electronic files submitted by Hayco have been prepared and submitted using specific software and hardware systems. Hayco makes no representation about the compatibility of these files with the Client's current or future software and hardware systems.

Tyhee NWT Corp.

ISSUED FOR USE

YELLOWKNIFE GOLD PROJECT
2007 HYDROLOGY AND METEOROLOGY REPORT

Y22101002

February 2008

EBA Engineering Consultants Ltd.
p. 604.685.0275 • f. 604.684.6241 • Oceanic Plaza, 9th Floor
1066 West Hastings Street • Vancouver, British Columbia V6E 3X2 • CANADA

Tyhee NWT Corp.

ISSUED FOR REVIEW

YELLOWKNIFE GOLD PROJECT
2007 HYDROLOGY AND METEOROLOGY REPORT

Y22101002

February 2008

EBA Engineering Consultants Ltd.
p. 604.685.0275 • f. 604.684.6241 • Oceanic Plaza, 9th Floor
1066 West Hastings Street • Vancouver, British Columbia V6E 3X2 • CANADA

EXECUTIVE SUMMARY

Foreword

Tyhee NWT Corp. is conducting baseline environmental studies on its Yellowknife Gold Project site as part of the development of a gold mine in the area. In 2004, Hay & Company Consultants, a division of EBA Engineering Consultants Ltd., began the hydrology and meteorology baseline studies for the Yellowknife Gold Project.

This report is a summary of the meteorological and hydrological data collected on site during 2007 and is a continuation of the report submitted to Tyhee NWT Corp. in April of 2007 by Hay & Company Consultants entitled "Yellowknife Gold Project 2006 Hydrology and Meteorology Report".

Only a single field survey was conducted during 2007. This was required for servicing of the Parshall flumes initially installed on the outlets of Narrow, Winter and Round Lakes during the summer of 2005.

The period of record for the 2007 Narrow Lake hydrology survey was from May 21 to September 28, 2007. The maximum measured outlet discharge of 132.3 ℓ/s occurred on May 21, 2007. The average measured daily total discharge from the Narrow Lake basin for 2007 was 1132 m^3/day. The Narrow Lake basin runoff for 2007 was 38.7 mm.

The Winter Lake Hydrology survey period of record was from May 19 to September 28, 2007. The maximum recorded outlet discharge was 64.2 ℓ/s, which occurred on May 25, 2007. The measured average daily discharge for the Winter Lake basin for the summer of 2007 was 1005 m^3/day. In 2007 the Winter Lake basin runoff was 30.4 mm.

The period of record for the 2007 Round Lake hydrology survey was from May 19 to September 28, 2007. The maximum measured outlet discharge of 11.9 ℓ/s occurred on June 1, 2007. The average daily total discharge for the summer of 2007 was 188 m^3/day. For 2007 the Round Lake basin runoff was 20.4 mm.

The Nicholas Lake hydrology survey period of record was from June 5 to September 30, 2007. The maximum recorded outlet discharge was 11.9 ℓ/s and occurred on May 31, 2007. The minimum recorded discharge was 0.0 ℓ/s on July 4, 2007. The measured average daily discharge for the Nicholas Lake basin for the summer of 2007 was 1056 m^3/day. In 2007 the Nicholas Lake basin runoff was 18.8 mm.

The objective of the meteorological component of the study was to continuously record weather conditions at the Tyhee property site. The meteorological station installed on September 28, 2004 continuously recorded meteorological parameters for 2007. These parameters are wind speed and direction, air temperature, relative humidity, incident solar radiation and precipitation. Typical maximum daily wind gusts were in the range of 6 to 10 m/s, however, wind gust speeds near 16.0 m/s were recorded. Air temperatures at camp are typically 10 to 25°C during the summer with a maximum recorded temperature of 27°C on June 28, 2007. Typical winter temperatures range from -5 to -40°C and the lowest recorded temperature for 2007 was -41.9°C, which occurred on January 13, 2007. On site barometric pressure converted to equivalent sea level pressure is

typically 1012 hPa but can vary from 1042 to 976 hPa. Relative humidity is typically near 90%, but frequently it can drop to as low as 30% for periods of up to a day. Peak incident solar radiation during the summer is in the vicinity of 900 W/m^2. However, during December and January the radiation is near 50 W/m^2. The total precipitation recorded for 2007 was 130.0 mm but this is only for a 9.2 month period in 2007 as the precipitation gauge was not functioning from January 1 to March 22, 2007.

Evaporation rates determined at the meteorological station by an evaporation pan are 4.1 mm/day with a total of 431.4 mm over the period of record from June 3 to September 15, 2007. The estimated lake evaporation rates determined using a factor of 0.7 (Chow, 1964) are 2.9 mm/day with a total evaporation of 302 mm for the period of record.

TABLE OF CONTENTS

PAGE

TABLE OF CONTENTS

PAGE

TABLE OF CONTENTS

TABLES

FIGURES

TABLE OF CONTENTS

FIGURES

APPENDICES

1.0 INTRODUCTION

Tyhee NWT Corp. has been conducting baseline environmental studies on its Yellowknife Gold Project site as part of the development of a gold mine in the area. In 2004, Hay & Company Consultants, a division of EBA Engineering Consultants Ltd., began hydrology and meteorology baseline studies for the Yellowknife Gold Project. This report is a summary of the meteorological and hydrological data collected at the site during 2007 and is a supplement to earlier reports, submitted to Tyhee NWT Corp. in April of 2007 and April of 2006 by Hay & Company Consultants entitled "Yellowknife Gold Project 2006 Hydrology and Meteorology Report" and "Yellowknife Gold Project Hydrology and Meteorology Report".

A single field survey was conducted during 2007 to service the Parshall flumes that had previously been installed in the summer of 2005 on the outlets from Narrow, Winter and Round Lakes. These flumes are factory calibrated discharge measurement devices that do not require field calibrations. This means there is no need for repeated site visits to develop a stage-discharge relationship for each creek outlet. Nicholas Lake hydrometric station already has a developed stage discharge relationship and it was only necessary to verify the relationship was still valid.

The tasks for the field survey conducted on June 10 and 11, 2007 were:

1. Inspect the three hydrometric station flumes and repair any damage that may have occurred over the winter to either the flume or the bulkhead.
2. Verify that pressure transducers and data loggers had been installed in the three Parshall flume sites by Tyhee staff and were operational.
3. Install a pressure transducer and data logger in the previously installed housing at the Nicholas Lake Outlet site.
4. Collect stage discharge data to validate the existing stage discharge relationship.
5. Photograph and document the four sites for the 2007 study.
6. Inspect and download the meteorological station installed at the project site.
7. Verify the evaporation pan had been installed to enable pan evaporation rates to be determined during the summer of 2007.
8. Verify Tyhee staff had been trained with respect to downloading hydrometric and meteorological station data and accurate collection of evaporation data.

In 2006, hydrometric study sites located at Brien Lake Outlet (Site #2), Northeast Brien Lake (Site #5) and Nicholas Lake (Site #6) were dropped from the hydrology program at the request of Tyhee NWT Corp. In 2007, the hydrometric station at Nicholas Lake was re-activated and included in the 2007 hydrometric study. Figure 1.1 is a

site location map showing a portion of a 1:50,000 scale topographic map of the area on which the sites are indicated. Both active and inactive sites are shown. Table 1.1 lists the GPS positions for each site. The four hydrometric sites and the meteorological station site that were monitored during 2007 are listed below along with the purpose of each station.

- Site #1 – Narrow Lake Outlet, collection of creek discharge and stage data.
- Site #3 – Winter Lake Outlet, collection of creek discharge and stage data.
- Site #4 – Round Lake Outlet, collection of creek discharge and stage data.
- Site #6 – Outlet of Nicholas Lake, collection of creek discharge, water temperatures and stage data
- Site #7 – Meteorological station, recording of various weather parameters.

Further detailed information on these sites has been provided in the site description documents included in Appendix A. Section 2 of this report presents the hydrological component of the study program, Section 3 discusses the meteorological component and Section 4 outlines the recommendations.

2.0 HYDROLOGY

2.1 METHOD

To gain an understanding of the hydrological conditions at the Yellowknife Gold Project study area, hydrometric stations were installed at the four sites identified above. The Parshall flumes that were installed at three of the sites during the summer of 2005 were re-activated for the 2007 study. A Parshall flume is installed in a creek such that all flow passes through it. The flume has a unique design that enables the determination of creek discharge by measuring the depth of water in the upstream part of the flume and applying a factory calibration relationship. The creek stage upstream of the flume is recorded by a data logger every 15 minutes and the data is used in the flume calibration relationship to determine creek discharge.

The hydrometric station at Nicholas Lake Outlet, which was originally installed in 2005, was reactivated for the 2007 study. The creek stage is recorded by a data logger every 15 minutes and the data is used in combination with the stage-discharge relationship, previously determined in the 2005 study, and further refined in 2007, to calculate creek discharge.

Note that discharges that occurred after spring thaw, before the hydrometric station instruments were installed, as well as discharges that occurred after the instrumentation was removed prior to the winter freeze, were not monitored by the hydrometric station. Therefore, the actual flow through the station will be greater than the estimated discharges stated in this report. The combined basin average runoff and mean daily discharge will also be greater.

2.2 OUTLET OF NARROW LAKE (SITE #1)

The outlet of Narrow Lake is located at the southwest end of the lake and consists of two creeks that enter a small pond about 100 m southwest of the lake, near the existing winter road. A single creek flows out of this pond. The hydrometric station is located on this single creek, in a well-defined channel, about 10 m downstream of the pond. Downstream of the station, there is no well-defined channel and the flow meanders generally southwest through muskeg and stunted growth of birch and conifers. Discharge from the Narrow Lake basin flows southwest to Morris Lake (el. 278 m), and eventually to the Yellowknife River.

An aerial view of the Narrow Lake Outlet hydrometric station and photos of the 12-inch Parshall flume and staff gauge installed in the Narrow Lake Outlet creek is located in the Narrow Lake Station site description in Appendix A.

2.2.1 Station History

The stage recorder was installed for the 2007 hydrological study on May 21, at 9:30 AM. The Parshall flume and bulkhead were inspected for damage or leakage during the field visit on June 10. Small leaks were observed around the sides of the bulkhead. Sandbags were used to repair the leaks. The repair work was sufficient to prevent stream flow from escaping around the sides during periods of low flow; however leakage may still occur during high flows. The instrumentation was removed for the season on September 28, at 4:45 PM.

A complete history of the Narrow Lake Outlet hydrometric station, including installation notes, activation and de-activation dates, and repair work is located in the site description in Appendix A.

2.2.2 Stage Measurements

The 2007 freshet began in late May, near the time of the installation of the automatic stage recorder. Narrow Lake Outlet Parshall flume data were recorded every 15 minutes over the summer until the logger was removed, prior to the outlet freezing up for the winter. The 2007 period of record for this site was 131.1 days.

The pressure transducer/logger combination enabled the determination of creek stages at the location of the hydrometric site. A fixed value, representing the vertical distance from the upstream floor of the flume to the creek bed, was added to the depth of water in the flume recorded by the data logger to determine creek stages. The time history of Narrow Lake Outlet stages during 2007 is presented in Figure 2.1.

2.2.3 Narrow Lake Parshall Flume Calibration

The Parshall flume installed at Narrow Lake Outlet has a throat width of 30.48 cm (12 inches) and a flow measurement range of between 3.0 ℓ/s and 455 ℓ/s. Figure 2.2 represents the calibration curve for this flume.

The Narrow Lake Parshall flume calibration formula, used to calculate discharge from the flume head is:

$$Q = 690.917 \times H^{1.522}$$

Where Q = outlet discharge (ℓ/s)

H = recorded water depth (flume head) (m)

2.2.4 Time History of Discharge

The period of record for the 2007 Narrow Lake hydrology survey was from May 21 to September 28, 2007. The 2007 time history of discharge is shown in Figure 2.3 as a solid blue line.

The maximum measured outlet discharge of 132.3 ℓ/s occurred on May 21, 2007. However, judging from the downwards trend in the discharge data on May 21 it is likely that Narrow Lake Outlet discharges prior to May 21, 2007 were slightly higher. The minimum measured discharge of 0.8 ℓ/s occurred on September 19, 2007.

It is estimated that flow seepage through the Narrow Lake Outlet flume bulkhead over the period of record ranged from 3 to 8 ℓ/s depending on the creek stage.

The creek does not flow during the winter months from approximately November to mid May.

Based on the time history of the Narrow Lake Outlet creek discharges for the data collected in 2007, the following observations were made:

1. The creek was flowing prior to the May 21, 2007 installation of the hydrometric station instrumentation.
2. The peak discharges were likely not recorded in 2007 however the hydrometric station was installed very near the date of the peak flow. Note that the peak flow from Winter and Round Lakes occurred on May 26 and June 1, 2007 after the installation of the Narrow Lake hydrometric station.
3. From May 21 to June 30 the flow reduced from 131 ℓ/s to about 8 ℓ/s.
4. From July 1 to the end of August outlets flows gradually decreased from 8 ℓ/s to 1 ℓ/s.
5. From September 1 to the end of the record on September 19, 2007 flows remained less than 1 ℓ/s, but on a slight downward trend as there was only 5.3 mm of precipitation during this period.

2.2.5 Narrow Lake Basin Characteristics

The Narrow Lake basin is approximately 3.9 km by 1.5 km and has a catchment area of 3.8 km^2. The elevation of Narrow Lake is approximately 282 m above mean sea level (asl) and the maximum elevation in the basin is approximately 350 m asl.

The data collected from the Narrow Lake hydrometric station enables the total volume of water that has passed the gauging station over the recording period to be calculated. To enable direct comparison between the three linked basins (Narrow Winter and Round Lakes) a common time period was used. The period selected was from 09:30 AM on May 21 to 9:15 AM on September 28, 2007. For this 130 day period a total of 302,184 m^3 passed through the Narrow Lake hydrometric station. However this flow consists of inputs from not only the Narrow Lake drainage basin (3.8 km^2) but from Winter (4.3 km^2) and Round Lake (1.2 km^2) drainage basins as well. The Narrow Lake drainage basin alone contributed 147,137 m^3 to the total yearly discharge at the hydrometric station.

The calculated average runoff for the Narrow Lake basin is estimated at 38.7 mm and the Narrow Lake basin contribution to the average total daily volume of water passing the hydrometric station is estimated at 1,132 m^3/day. A summary of the drainage basin observations for 2007 is contained in Tables 2.1a and 2.1b.

2.3 WINTER LAKE OUTLET (SITE #3)

Winter Lake Outlet flows from the northwest portion of Winter Lake at a location about 10 m to the south of the existing winter road between Winter and Narrow Lakes. The creek channel is typically 30 to 60 cm wide by 15 to 20 cm deep at the hydrometric station. The creek meanders southwest through a vegetated creek bed until about midway between Winter and Narrow Lakes, where it aligns with the existing winter road and flows to Narrow Lake along a poorly-defined diffuse route.

An aerial view of the Winter Lake Outlet hydrometric station and photos of the 9-inch Parshall flume and staff gauge installed in the Winter Lake Outlet creek is located in the Winter Lake Outlet hydrometric site description in Appendix A.

2.3.1 Station History

The stage recorder/data logger was installed for the 2007 hydrological study on May 19, at 11:00 AM. The Parshall flume and bulkhead were inspected for damage and leakage during the field visit on June 10. Some seepage through the bulkhead was noted as well as a potential for leakage at higher flows. The attempt to stop the seepage and potential leakage was not completely successful. The seepage was estimated at 2 to 5 ℓ/s. This correction to the discharge has not been included in the data presented for this station. The instrumentation was removed for the season on September 28, at 15:45 PM.

A complete history of the Winter Lake Outlet hydrometric station, including installation notes, activation and de-activation dates, and repair work can be found in the site description in Appendix A.

2.3.2 Stage Measurements

Creek stages just upstream of the 9 inch Parshall flume were recorded every 15 minutes by a pressure transducer and saved in the data logger over the 133.2 day period of record.

The stages presented in Figure 2.4 approximate the maximum creek depth directly upstream of the Parshall flume, which, over the period of record, fluctuated around 0.25 m.

2.3.3 Winter Lake Parshall Flume Calibration

The Parshall flume installed at Winter Lake has a throat width of 22.9 cm (9 inches) and a flow measurement range of between 2.8 and 251.0 ℓ/s. Figure 2.5 represents the calibration curve for this flume.

The Winter Lake Parshall flume calibration formula, used to calculate discharge from the flume head is:

$$Q = 535.343 \times H^{1.53}$$

Where Q = outlet discharge (ℓ/s)

H = recorded water depth (flume head) (m)

2.3.4 Time History of Discharge

The record for the time history of discharge for the Winter Lake Outlet began after the Parshall flume was re-instrumented on May 19, 2007, just prior to the occurrence of the peak freshet flow. The corresponding discharges are presented in Figure 2.6. The blue line is the discharge determined by the Parshall flume.

Based on the time history of the Winter Lake Outlet creek discharges for the data collected in 2007, the following observations were made:

1. The creek was flowing prior to the May 19, 2007 installation of the hydrometric station instrumentation but flows had not yet peaked.
2. From May 19 to May 25, 2007 the discharge increased from 57.6 ℓ/s to over 64.2 ℓ/s.
3. The peak freshet discharge of 64.2 ℓ/s was recorded on May 25, 2007.
4. From May 25 to June 1, 2007 the flows gradually reduced from 64.2 ℓ/s to about 56 ℓ/s.
5. From June 1 to July 1, 2007 the creek discharge decreased from 56 ℓ/s to 10 ℓ/s. The four small rises in flow over this period are attributed to precipitation events.
6. From July 1 to July 27, 2007 the discharge continued to decrease, but at a reduced rate, from 10 ℓ/s to less than 1 ℓ/s.
7. The precipitation events of 7 mm on July 27, 2.3 mm on July 28, and 13 mm on July 31 resulted in the Winter Lake outlet discharge increasing from less than 1 ℓ/s to 3.0 ℓ/s by July 31, 2007.
8. By August 8, 2007 the discharge had reduced from 3 ℓ/s to near 0 ℓ/s.
9. From August 8 to September 24, 2007 the measured discharge was 0 ℓ/s.

2.3.5 Winter Lake Basin Characteristics

Winter Lake basin is approximately 4.3 km by 1.4 km and has a catchment area of 4.3 km^2. The elevation of Winter Lake is approximately 285 m above mean sea level (asl) and the maximum elevation in the basin is approximately 330 m asl.

For the 130 day period of record of discharge monitoring (the same period used for the Narrow Lake basin analysis as discussed in Section 2.1.5) a total of 155,047 m^3 passed through the hydrometric station. This flow consists of inputs from not only the Winter Lake drainage basin (3.8 km^2) but from the Round Lake (1.2 km^2) drainage basin as well. The Winter Lake drainage basin alone contributed 130,598 m^3 to the total yearly discharge at the hydrometric station.

The calculated runoff for the Winter Lake basin for the period of record is estimated at 30.4 mm and this basin's contribution to the total daily volume of water passing this hydrometric station is estimated at 1,005 m^3/day. Tables 2.1a and 2.1b provide a summary of the drainage basin observations for 2007.

2.4 ROUND LAKE OUTLET (SITE #4)

The outlet from Round Lake, which flows into Winter Lake, is situated on the northwest side of Round Lake. There is no distinct flow channel out of Round Lake but rather a diffuse flow through the muskeg into a small marsh approximately 5 m downstream of the lake. The outlet creek flows southwest into Winter Lake, typically as a subsurface flow, through the muskeg and willow. At one point, about 25 m southwest of the Round Lake Outlet the flow is contained in a single channel. This site was selected for the hydrometric station.

An aerial view of the Round Lake Outlet hydrometric station and photos of the 12-inch Parshall flume and staff gauge installed in the Round Lake Outlet creek are located in the Round Lake Station site description in Appendix A.

2.4.1 Station History

The stage recorder was re-installed for the 2007 hydrological study on May 19, at 10:00 AM. The Parshall flume and bulkhead were inspected for damage and leakage during the field visit on June 10. Some seepage through the bulkhead was noted as well as a potential for leakage, near the ends of the bulkhead, at higher station flows. The attempt to stop the seepage and potential leakage was not completely successful. The seepage was estimated as less than 2 to 4 ℓ/s. This correction to the discharge has not been included in the data presented for this station. The instrumentation was removed for the season on September 28, at 9:15 AM.

A complete history of the Round Lake Outlet hydrometric station, including installation notes, activation and de-activation dates, and repair work are located in the site description in Appendix A.

2.4.2 Stage Measurements

Using the Parshall flume instrumentation, Round Lake Outlet stages were logged every 15 minutes over the period of record of 132.9 days. Figure 2.7 summarizes the creek stages recorded in 2007. The stage was determined by adding a fixed value, representing the measured distance from the floor of the flume to the deepest part of the creek bed, to the flume depth recorded by the data logger/pressure transducer combination. Creek stages were typically 0.3 m.

2.4.3 Round Lake Parshall Flume Calibration

The Parshall flume installed at Round Lake has a throat width of 15.24 cm (6 inches) and a flow measurement range of between 1.6 and 110.0 ℓ/s. Figure 2.8 represents the calibration curve for this flume.

The Round Lake Parshall flume calibration formula, used to calculate discharge from the flume head is:

$$Q = 381.206 \times H^{1.58}$$

Where Q = outlet discharge (ℓ/s)

H = recorded water depth (flume head) (m)

2.4.4 Time History of Discharge

The record for the time history of discharge for the Round Lake Outlet began after the Parshall flume was instrumented on May 19, 2007, just prior to the occurrence of the peak freshet flow. The corresponding discharges are presented in Figure 2.9. The blue line is the discharge determined by the Parshall flume.

Based on the time history of the Round Lake Outlet creek discharges for the data collected in 2007, the following observations were made:

1. The creek was flowing prior to the May 19, 2007 installation of the hydrometric station instrumentation but flows had not yet peaked.
2. From May 19 to May 29, the discharge fluctuated between 8 ℓ/s and 10 ℓ/s caused by the diurnal melting of snow, with peaks occurring late in the day and troughs occurring early in the morning.
3. From May 29 to June 1, the discharge increased from 9 ℓ/s to the peak freshet discharge of just over 11.9 ℓ/s.
4. From June 1 to June 7 the flows gradually reduced from 11.9 ℓ/s to 9 ℓ/s.
5. By June 12, the diurnal fluctuation in flow disappeared as most of the snow had melted.
6. From June 13 to July 5, 2007, creek discharge decreased from 9 ℓ/s to less than 1 ℓ/s.

7. From July 5 to September 21 the measured discharge was 0.0 ℓ/s. However, some flow is likely passing the station as seepage through the bulkhead. This seepage is estimated at 2 to 4 ℓ/s.

2.4.5 Round Lake Basin Characteristics

Round Lake basin is about 1.8 km by 0.8 km with a catchment area of 1.2 km^2. The estimated elevation of Round Lake is 288 m asl and basin elevations extend up to approximately 330 m asl. Inflows to Round Lake consist only of Round Lake drainage basin runoff.

For the 130 day period from June 19 to September 19, 2007 of a total of 24,449 m^3 passed through the hydrometric station.

The calculated average runoff for the Round Lake basin is estimated at 20.4 mm and this basin's total daily volume of water passing this hydrometric station is estimated at 188 m^3/day. Tables 2.1a and 2.1b provide a summary of the drainage basin observations for 2007.

2.5 NICHOLAS LAKE OUTLET(SITE #6)

The Nicholas Lake drainage basin is approximately 6 km by 2 km, with a total area of 6.28 km^2. Nicholas Lake is at an elevation of 325 m asl and elevations in the basin range up to about 370 m asl.

The Nicholas Lake outlet is located at the western end of the northwest arm of Nicholas Lake and conveys all flow leaving the Nicholas Lake drainage basin. Where the flow leaves the lake, there is a clearly defined channel about 30 cm deep by 1.5 m wide. Within 30 m of the lake outlet the creek bed is filled with large boulders and there is little evidence of surface flow. The flow travels through boulders for about 700 m prior to discharging into a small lake, and then flows west to Eclipse Lake (el. 311 m) before eventually reaching the Yellowknife River via numerous small lakes, ponds and bogs.

The hydrometric station was installed in the creek approximately 10 m downstream from the Nicholas Lake outlet. Stage discharge flow gauging techniques were utilized for this hydrometric station.

An aerial view of the Nicholas Lake Outlet hydrometric station and photos of the installed hydrometric station are located in the Nicholas Lake Station site description in Appendix A.

2.5.1 Station History

The Nicholas Lake hydrometric station was re-activated for the 2007 Yellowknife Gold Project hydrological study. The stage and temperature recorder and data logger were installed in the existing housing on June 10, at 3:45 PM. The instrumentation was removed for the season on September 30, at 9:00 AM.

A complete history of the Nicholas Lake Outlet hydrometric station, including installation notes, activation and de-activation dates, and repair work can be located in the site description in Appendix A.

2.5.2 Stage Measurements

Nicholas Lake outlet stage-discharge data were recorded on June 10 and 11, 2007, during the site visit. This data was added to flow data collected between May 31, 2004 and August 6, 2005 and is summarized in Table 2.2.

2.5.3 Stage Discharge Relationship

A stage-discharge relationship for the site was developed using the stage data in conjunction with the measured discharge data for the outlet. This relationship is presented in Figure 2.11. The relationship would be improved by more data for medium and low flows, as there are only four stage discharge measurements for discharges below 20 ℓ/s.

The exponential relationship that best fits the data set as of June 11, 2007 is:

$$Q = 4.289e^{3.1071x}$$

Where Q = Nicholas Lake Outlet Discharge (ℓ/s)

x = Depth of water over the pressure transducer (m)

2.5.4 Time History of Discharge

The stages recorded by the hydrometric station were used in conjunction with the stage discharge relationship to produce a time history of discharge for 2007. This time history of the outflows from Nicholas Lake is presented in Figure 2.12. The maximum flows, in the order of 25 ℓ/s, were recorded on the same day as the station was instrumented. This indicates that Nicholas Lake Outlet discharges were likely larger than 25 ℓ/s prior to the June 10, 2007 installation.

Based on the time history of the Nicholas Lake Outlet creek discharges for the data collected in 2007, the following observations were made:

1) From June 10, 2007, the date the hydrometric station was instrumented, to July 31 the discharge reduced from 25 ℓ/s to 12 ℓ/s.

2) On July 31 the discharge increased from 11.4 ℓ/s to 11.7 ℓ/s in response to a 13 mm precipitation event as recorded by the camp precipitation gauge.

3) From August 1 to September 21, 2007 the discharge reduced from 11.7 ℓ/s to 6.8 ℓ/s.

4) From September 21 to the end of the record on September 30, 2007 the discharge remained at 6.9 ℓ/s.

2.5.5 Time History of Creek Water Temperatures

Nicholas Lake Outlet water temperatures were recorded between June 10 and September 30, 2007. This was possible because the pressure/temperature transducers were physically located in the active flow area of the site and therefore accurate water temperatures were recorded. The creek temperature data are presented as a red line in Figure 2.12. Water temperatures exhibit a diurnal temperature fluctuation of about 2ºC over the entire period of record. On a daily basis the minimum water temperatures occur in the morning from 6:00 to 8:00 AM and the highest temperatures occur in the late afternoon from 5:00 to 7:00 PM.

2.5.6 Nicholas Lake Basin Characteristics

Nicholas Lake basin is about 6.0 km by 2.0 km with a catchment area of 6.28 km^2. The estimated elevation of Nicholas Lake is 325 m asl and basin elevations extend up to approximately 370 m asl. Inflows to Nicholas Lake consist only of Nicholas Lake drainage basin runoff.

For the 111.7 day period from June 10 to September 31, 2007 of a total of 118,003 m^3 passed through the hydrometric station. This flow consists only of runoff from the Nicholas Lake drainage basin.

The calculated average runoff for the Nicholas Lake basin is estimated at 18.8 mm and this basin's total daily volume of water passing the hydrometric station is estimated at 1056 m^3/day. Tables 2.1a and 2.1b provide a summary of the drainage basin observations for 2007.

2.6 DRAINAGE BASIN CHARACTERISTICS

Table 2.1a is a summary of each basin or combined basin hydrological parameters for the period of record from June 10 to September 31, 2007. The parameters of total annual discharge, total annual basin runoff and the average daily discharge have been discussed briefly in their respective sections in this report. The two combined basins consist of Winter and Round Lake together and Narrow, Winter and Round Lake basins combined.

Total basin runoff is computed by dividing the annual discharge by the basin area and is given in mm of water. Narrow Lake basin has a total basin runoff of 38.7 mm, larger than that of Winter (30.4 mm) or Round (20.4 mm) Lakes. This is attributed to the fact that a good portion of Narrow Lake basin consists of exposed rock, which tends to be somewhat impervious, supports less vegetation and hence has a higher runoff. Both Round and Winter Lake basins have fewer rock outcrops and more swampy and vegetated terrain, which increase infiltration and evapotransporation rates.

An estimate of the basin losses can be made when the runoff is compared to the precipitation including snow pack, which accumulates over the winter and then melts during the spring. The basin losses are mainly due to ground water infiltration, evapotransporation and sublimation of the snow pack. The recorded precipitation from the fall of 2006 to September 31, 2007 was 169 mm. The basin loss estimates for each basin and both

combined basins are summarized in Table 2.1b. Note that these are based on only partial annual runoff estimates, as indicated earlier.

3.0 METEOROLOGY

On September 28 2004, a meteorological station was installed at the Yellowknife Gold Project site at a location approximately 50 m east of the north end of the airstrip. The NAD 27 GPS coordinates for the station are provided in Table 1.1 and in the station description in Appendix A.

The station measures wind speed and direction, air temperature, barometric pressure, relative humidity, incident solar radiation, precipitation and during the summer period, evaporation. Meteorological data, with the exception of evaporation data, is logged at 15-minute intervals and a 24-hour daily summary is produced at the conclusion of each day. Data is retrieved from the logger by downloading, at convenient times, using a laptop computer.

3.1 METEOROLOGICAL STATION INSTRUMENTATION

The weather station consists of a standard 10 metre meteorological tower with instrumentation to measure the above mentioned parameters with the exception of evaporation. The meteorological station is powered by a 12 V DC battery and 20 watt solar panel. Data are recorded to a Campbell Scientific CR10X data logger.

Brief descriptions and specifications of the instruments installed on the weather station, a map showing the station location and a picture of the meteorological station showing the 10 metre tower, evaporation pan and the all-weather precipitation gauge are contained in the site description for the meteorological station in Appendix A.

3.2 WIND

Wind data for the Yellowknife Gold Project site has been collected continuously since the installation of the meteorological station on September 28, 2004. The data collected during 2007 has been summarized and presented in three different forms, as described below.

3.2.1 Maximum Wind Speed

The maximum gust wind speed for the day is recorded by the meteorological station at midnight. This data, collected over the period between January 1, 2007 and December 31, 2007 is displayed in Figure 3.1.

The maximum wind gust recorded by the station in 2007 was 16.0 m/s on July 20. A yearly trend in average maximum daily wind gusts is evident, with faster average maximum gusts occurring between April and October on the order of 8 to 9 m/s. Between November and March, average maximum wind gusts are slightly lower, in the range of 6 to 7 m/s.

3.2.2 Wind Speed and Direction Stick Plots

Figure 3.2 displays wind data recorded at Tyhee station for August 2007. It is an example of the 12 wind figures presented in Appendix B, which display hourly wind conditions for the period of January to December 2007. Each figure consists of three panels.

The upper panel is a stick plot which displays the hourly wind vector. Direction is indicated by the angle of each hourly stick, with true north towards the top of the page. The wind speed is indicated by the length of the stick according to the scale in m/s, which is given at the left and right of the plot. The central panel indicates the hourly wind speed in m/s. This panel is useful as an indicator of windstorms or periods of calm. The lower panel shows the hourly wind direction.

In Figure 3.2, between August 17 and 19, winds were generally light, coming from the south at a speed of about 2 m/s, with short period increases to 5 m/s. Early in the day on August 20, there was a change in wind direction with winds coming from the east-northeast. Wind speeds increased throughout the day, reaching 6 m/s in the evening, and continuing until late in the day on August 21.

3.2.3 Wind Roses

A wind rose is a useful tool that can display an entire period of recorded wind data on a single graph. The total duration of wind occurring within a specified speed range and compass direction is determined as a percentage of the total period of record. Wind speeds are grouped into ranges from 0 to 1 m/s (calm), 1 to 3 m/s, 3 to 6 m/s etc., in 3 m/s ranges to 18+ m/s. The wind direction is also grouped into 16 compass direction ranges of 22.5 degrees starting at true north. These data are summarized in the wind speed and direction frequency distribution table, which is located in the lower right of the figure. The wind rose displays graphically the data contained within the table.

Figure 3.3 is the wind rose for the period of January 1 to December 31, 2007, based on wind conditions recorded by the Tyhee meteorological station. The length of the line in a particular compass direction is indicative of the duration of winds coming from that direction over the period of record. The thickness and color of each portion of the line represents the different categories of wind speeds. In Figure 3.3 for example, winds came from the east 14.38% of the time. Easterly winds were between 1 and 3 m/s, indicated by the thin grey line, 9.54% of the time, between 3 and 6 m/s, indicated by the slightly thicker blue line, 3.76% of the time and between 6 and 9 m/s, indicated by the thicker navy blue line, 1.08% of the time.

Winds at the Tyhee meteorological station site came predominantly from the northeast quadrant (14.38% E; 10.08% ENE; 15.32% NE and 9.95% NNE) in 2007. The wind was calm (less than 1 m/s) for 14.92% of the time. For the remaining 35.35%, the wind was blowing from the other 12 compass directions at greater than 1 m/s.

The percentage of time the wind blows at a specific speed, irrespective of direction, can be determined by viewing the "Total %" row at the bottom of the frequency distribution table.

At the Tyhee meteorological station site, during 2007, the wind speed from all directions was between 1 and 3 m/s 63.04% of the time, between 3 and 6 m/s for 20.83%, between 6 and 9 m/s for 1.21% of the time. There were no extended periods when the wind speed was greater than 9 m/s.

The wind rose for 2007 is very similar to the wind roses for the periods of September 28, 2004 to March 2, 2006 and January 2006 to December 2006 and presented in the hydrology field reports entitled "Yellowknife Gold Project Hydrology and Meteorology Report" previously submitted in April 2006 and April 2007 respectively by Hay & Company Consultants. This is indicative of the consistency of the wind regime for the site.

Appendix C contains 12 wind rose figures, one for each month in 2007. A comparison of these monthly wind roses, and those in previous reports, indicates the prevailing winds are from the northeast and that there is little to no seasonal variability in the wind direction, although winds considered as calm (less than 1 m/s) seem to occur with a higher frequency in the winter months (November to March).

3.3 OTHER METEOROLOGICAL PARAMETERS

The 12 monthly weather figures contained in Appendix D show the meteorological parameters of air temperature, solar radiation, relative humidity, barometric pressure, and precipitation recorded by the Tyhee meteorological station between January 1 and December 31, 2007. An analysis of the meteorological data recorded at the site can give an idea as to the weather conditions that existed at any given time.

Figure 3.4 is the plot of these parameters for the month of August 2007. The lower panel in Figure 3.4 indicates that 14.5 mm of precipitation fell on August 20, and another 4 mm fell on August 21. Incident solar radiation (second panel from top) on August 20 was less than 200 W/m^2, indicative of cloud cover. On a clear day, as was the case on August 18 and 19, incident solar radiation was approximately 700 W/m^2.

The air temperature plot in the top panel indicates a strong diurnal pattern during the period of August 17, 18 and 19, with a maximum and minimum temperature difference of more than 10°C. Daytime highs increased each day (18.6°C on August 17, 21.6°C on August 18 and 23.7°C on August 19). During the precipitation event and cloud cover on August 20 and 21, daytime high temperatures dropped to 17.4°C and 10.5°C respectively, which is cooler than the normal for that period, and the diurnal pattern observed in the previous three days is much less evident.

The relative humidity plot in the middle panel shows a strong diurnal pattern during the period of August 17 to 19, with fluctuations on the order of 40% occurring between early morning maximums (90%) and late afternoon minimums (50%). With the onset of cloud cover and precipitation on August 20, this diurnal pattern is not evident, as relative humidity fluctuated around 90% until falling to 60% late in the day on August 21.

The barometric pressure plot in the fourth panel from the top shows a gradual drop in air pressure from 1021 hPa in the morning of August 17 to 999 hPa around midday on

August 20. This would coincide with the onset of the precipitation event observed in the lower panel and noted above.

3.3.1 Air Temperature

Air temperatures are presented in terms of daily extreme and mean temperatures as well as hourly data.

3.3.1.1 Daily Extremes for Air Temperature

The maximum, minimum and mean air temperatures for each day are recorded by the meteorological station at midnight. The data summarized in Figure 3.5 is for the period of January 1 to December 31, 2007 and show the mean air temperatures for each day as a thick orange line bounded thin red lines indicating the maximum and minimum temperatures for the day. Generally, the daily variation is $\pm 10^{o}$C from the mean daily air temperature.

A sinusoidal yearly pattern to air temperature is evident. The summer period is from May to August with temperatures ranging from 27 to 2^{o}C. The warmest period occurs between late June and early August, with a mean temperature of 15°C and overnight temperatures rarely dropping below 10°C. In late August, temperatures begin to drop to the winter normals.

The coldest period for the site occurs between late November and late February. During this period, the mean daily temperature is approximately -25^{o}C, however the lowest temperature recorded in 2007 was -42^{o}C on January 13 and 14. Generally, temperatures rarely rise above -15^{o}C during the winter period, however the highest winter period temperature observed in 2007 was -8.2°C on January 1. Temperatures begin to increase in February or March to the normal summer temperatures.

3.3.1.2 Hourly Air Temperatures

The air temperature recorded by the station for each hour of the day in 2007 is indicated by the red line in the upper panel in the figures in Appendix D. These figures are useful for viewing temperature trends for a particular day or over a short period of time.

3.3.2 Incident Solar Radiation

Incident solar radiation is presented in terms of daily extremes as well as hourly data.

3.3.2.1 Daily Extremes for Incident Solar Radiation

At the conclusion of each day, the station records the maximum incident solar radiation in W/m^2 for the day. The minimum daily incident solar radiation should always be zero as at this latitude, as it gets dark for at least a short period each day. Figure 3.6 shows the daily maximum recorded incident solar radiation plotted over 2007.

There is a strong sinusoidal pattern to the data set. Over the winter period, the sun is lowest in the sky, hence solar radiation is at a minimum, in the order of less than 100 W/m^2.

During this winter period, daily variations to the maximum incident solar radiation are usually less than 50 W/m^2.

During the summer period, incident solar radiation is at it highest, with peak values averaging about 900 W/m^2. The highest maximum solar incident radiation recorded in 2007 was 1281 W/m^2, which occurred on June 19. During the summer months, cloud cover can cause large variations in daily maximums. This cloud cover can reduce the maximum amount of solar radiation received in the day to less than 400 W/m^2.

3.3.2.2 Hourly Incident Solar Radiation

The incident solar radiation measured by the station, for each hour of the day in 2007 is indicated by the black line in the second panel from the top in the figures in Appendix D.

Peaks typically occur at midday, when the sun is at its highest point. Solar incident radiation drops to zero overnight.

The data can be used to determine the number of daylight hours at the site for any day of the year, or to determine the incident solar radiation at any point in time. It is also useful in determining periods of cloud cover on a given day.

3.3.3 Relative Humidity

Relative humidity is presented in terms of daily extremes and means as well as hourly data.

3.3.3.1 Daily Extremes for Relative Humidity

At the conclusion of each day, the station records the maximum, mean and minimum relative humidity for the day. Figure 3.7 shows the relative humidity data plotted for 2007. The thick blue line in the figure represents the mean relative humidity for the day. The maximums and minimums are indicated by black lines.

There is a slight sinusoidal yearly pattern to mean relative humidity at the site. During the winter months, mean %RH fluctuates between 80% and 90%. A gradual decrease in mean %RH begins to occur in late February. The lowest mean %RH is observed in June and July, fluctuating between 50% and 60%. Mean relative humidity begins to increase in early August to the winter period normals, which begin in late October.

The variation of relative humidity is indicated by the envelope of maximum and minimum relative humidity. Over the winter period, maximum and minimum relative humidity vary only ±15% from the mean. However, during the summer period, the daily variation of relative humidity can be as much as ±40%. Over the period of record, the relative humidity varied from a low of 16.1% on June 28, to a high of 100%, which occurred at various times during the year.

3.3.3.2 Hourly Relative Humidity

The relative humidity measured by the station, for each hour of the day in 2007 is indicated by the blue line in the middle panel in the figures in Appendix D.

The data can be used to indicate an increase in moisture in the air, relative to the air temperature.

3.3.4 Barometric Pressure

Barometric pressure is presented in terms of daily extremes, means and hourly data.

The barometric pressure recorded by the meteorological station has been corrected to represent the equivalent air pressure referenced to mean sea level. This is a standard meteorological convention used to enable direct comparison of meteorological station data regardless of the station elevation. To correct the barometric pressures presented in this report to the actual barometric pressures experienced at site, it is necessary to reduce the stated pressure by 35.525 hPa. (hPa is the metric equivalent to a millibar (mbar) and represents 0.1 kPa pressure.)

3.3.4.1 Daily Extremes for Barometric Pressure

At the conclusion of each day, the station records the maximum, mean and minimum barometric pressure in hPa for the day. Figure 3.8 shows the maximum, mean and minimum barometric pressure data recorded at the site for 2007. The thick green line in the figure represents the mean barometric pressure for the day. The maximum and minimum barometric pressures are indicated by black lines bounding the mean pressure.

Barometric pressure at the site typically varies from a low of 975 hPa to a high of 1045 hPa. The lowest barometric pressure recorded in 2007 was 975 hPa on May 8, 2007. The highest pressure of 1043 hPa occurred on April 3, 2007. There is little seasonal variation to barometric pressure and the yearly mean is near 1010 hPa. On a day-to-day basis the barometric pressure can change by more than 30 hPa.

A yearly pattern to the data is evident. Day-to-day changes in barometric pressure are much less pronounced during the summer period than during the winter months. During the summer, mean barometric pressure fluctuates around 1010 hPa, with daily variations of less than ±5 hPa. During the winter, day-to-day fluctuations can be as large as ±30 hPa.

The variation of barometric pressure for a single day is indicated by the maximum and minimum barometric pressure shown as black lines on Figure 3.8. Daily variation of pressure is typically ±10 hPa from the mean.

3.3.4.2 Hourly Barometric Pressure

The barometric pressure measured by the station for each hour of the day in 2007 is indicated by the green line in the fourth panel from the top in the figures in Appendix D.

Hourly barometric pressure data can be used to give an idea as to the type of weather conditions that existed at the site at any given time. High pressure would tend to indicate clearer conditions while lower pressure would tend to indicate an intrusion of a moister air mass. On a day-to-day basis, the data can be helpful in inferring the movement of weather patterns over the site.

3.3.5 Precipitation

Precipitation at the site can occur as either rain or snow. Generally, the precipitation is in the form of rain between June and August, and as snow from October to April. During May and September there is a possibility of either rain or snow or both. The type of precipitation that fell at a particular time can be established by examining the hourly air temperature data for the day using the figures contained in Appendix D.

3.3.5.1 Recorded Precipitation

Precipitation was recorded by the meteorological station in 2007 at a sample period of 15 minutes. Both rain and snow are recorded by this gauge as water equivalent. The instrumentation for the continuous measurement of all forms of precipitation is outlined in Appendix A of this report.

The all-weather precipitation gauge was not functional during the period of January 1 to March 22, as the dilute antifreeze contained in the precipitation gauge reservoir from the previous winter had not been replaced in September, 2007 and during the cold period of January to March the fluids froze. The problem was reported to on site Tyhee staff and the situation was corrected on March 22, 2007. Precipitation data from Yellowknife Airport meteorological station, operated by Meteorological Service of Canada, was used to provide an estimate of precipitation over the period of missing data.

A summary of daily precipitation is presented in Figure 3.9 as a histogram. The maximum precipitation recorded in one day in 2007 was 16.0 mm of rain on August 20. Generally, the amount of precipitation falling during a rainy day is about 2 to 3 mm. Heavy precipitation days usually occur during the summer months, but can also occasionally occur as snowfall.

Daily precipitation data collected over 2007 has been summarized in Table 3.1. The total amount of water-equivalent precipitation for the month is shown at the bottom of each column. 169 mm of precipitation was estimated to have fallen at the site during 2007.

The bottom panel in the figures in Appendix D shows the amount of daily precipitation recorded by the station during each day in 2007.

3.4 EVAPORATION

On June 2, 2007 the evaporation pan was re-installed near the meteorological station, and data was recorded from this date until September 16, 2007 when the pan was decommissioned due to the onset of freezing temperatures. The water level in the pan was typically measured daily at 07:00 hours using a point gauge, accurate to ±0.5 mm.

Daily evaporation was calculated by determining the change in the pan water level and subtracting the increase in the pan depth due to precipitation for the same period. For the days the point gauge was read at times other than at 07:00 hours, a ratio of 24 hours to the time difference between the two consecutive readings was used to correct the evaporation to a 24 hour period.

The equivalent daily evaporation rate is shown as a black line in Figure 3.10. On days when the evaporation is less than zero, it is assumed that water was added to the pan by condensation. The pink line in Figure 3.10 is a seven-day running average of the daily evaporation rate.

Table 3.1 summarizes the pan evaporation daily rates and totals for each month over the period the evaporation pan was operational.

The average pan evaporation rate for the summer of 2007 was 4.0 mm/day and the total pan evaporation was 431.4 mm for the same period (June 3 to September 15, 2007).

Research into evaporation pan rates has shown that lake evaporation rates are lower than pan evaporation rates by a factor of 0.7 to 0.8. A factor of 0.7 was used to convert the pan evaporation data to the lake evaporation rate and the results are summarized in Table 3.1. The lake evaporation rate for the summer of 2007 was 2.9 mm/day and the total lake evaporation rate was 302.0 mm.

4.0 RECOMMENDATIONS

It is recommended that the hydrology and meteorology programs be continued through 2008, so as to extend the period of record for both flows and weather parameters. Tyhee NWT Corp. has indicated that the mineral resource at Nicholas Lake will likely be developed in conjunction with the Ormsby resource; therefore, the Nicholas Lake hydrometric station should be re-installed and activated for the 2008 hydrological field program.

The hydrometric installations involving the Parshall flumes on Round, Winter and Narrow Lake need to be repaired. The bulkheads which exhibited some leakage during the 2007 site visit require maintenance to minimize the potential for leakage around the bulkheads and seepage through the bulkhead. The original installations were intended as temporary stations designed to last two to three years, which they have done. If the discharge data is required for the anticipated life of the mine, consideration should be given to installing permanent stations if the development of the mine is approved.

5.0 CLOSURE

We trust this report meets your requirements. Should you have any questions or comments, please contact the undersigned at your convenience.

Yours sincerely,
Hay & Company Consultants
(a division of EBA Engineering Consultants Ltd.)

Report prepared by:

ISSUED FOR REVIEW

R.E. Draho, B.Sc.
Senior Project Scientist

ISSUED FOR REVIEW

Travis Miguez, B.Sc.
Project Scientist

Reviewed by:

ISSUED FOR REVIEW

Dr. A.G. Chantler, P.Eng.
Principal

and

ISSUED FOR REVIEW

R.A.W. Hoos, M.Sc. R.P. Bio
Principal Consultant

REFERENCES

Chow, V.T. 1964. Handbook of Applied Hydrology. McGraw-Hill Book Company, New York, USA.

TABLES

TABLE 1.1: HYDROMETRIC AND METEOROLOGICAL STATION COORDINATES							
Site #	Site Name	Longitude			Latitude		
		deg	min	sec	deg	min	sec
1	Narrow Lake Outlet	63	9	16.4	113	57	7.3
3	Winter Lake Outlet	63	10	4.8	113	55	38.5
4	Round Lake Outlet	63	10	30.3	113	54	27.2
6	Nicholas Lake Outlet	63	15	20.1	113	46	4.4
7	Tyhee Meteorological Station	63	11	6.2	113	53	40.2

Note: All coordinates are referenced to NAD 27

TABLE 2.1a: SUMMARY OF YELLOWKNIFE GOLD PROJECT DRAINAGE PARAMETERS 2007								
Gauging Station Site ID	Basin Name	*Length (m)	*Width (m)	*Drainage Area (m^2)	Total Station Volume (m^3)	Basin Discharge Volume (m^3)	Total Basin Runoff (mm)	Average Basin Daily Flow (m^3/day)
Individual Basins								
Site #1	[1]Narrow Lake	3900	1500	3.80E+06	302184	147137	38.7	1132
Site #2	[1]Winter Lake	4300	1400	4.30E+06	155047	130598	30.4	1005
Site #3	[1]Round Lake	1800	800	1.20E+06	24449	24449	20.4	188
Site #6	[2]Nicholas Lake	6000	2000	6.28E+06	118003	118003	18.8	1056
Combined Basins								
Site #3 + #4	Winter - Round Lakes	4600	1700	5.50E+06	n/a	155047	28.2	1193
Site #1+#3+#4	Narrow - Winter Round Lakes	4600	3400	9.30E+06	n/a	302184	32.5	2324

* Note basin areas, lengths and widths are determined only up to the location of the gauging station

[1] Based on the period of record from May 21at 09:30 hr to September 28 09:15hr , 2007- a total of 130 days

[2]Nicholas Based on the period of record from June 5 @ 16:00hr to September 30 @ 9:15hr - a total of 111.7 days

TABLE 2.1b: SUMMARY OF YELLOWKNIFE GOLD PROJECT DRAINAGE BASIN LOSSES 2007			
Gauging Station Site ID	Basin or Combined Basin Name	[3] Basin Precipitation (mm)	[4] Basin Losses (mm)
Individual Basins			
Site #1	Narrow Lake	169	130
Site #3	Winter Lake	169	139
Site #4	Round Lake	169	149
Site #6	Nicholas Lake	169	150
Combined Basins			
Site #3+#4	Winter - Round Lake	169	141
Site #1+#3+#4	Narrow - Winter - Round Lake	169	137

[3] Basin Precipitation refers to the water equivalent precipitation recorded by the meteorological station from October 1, 2006 to the end of the 2007 hydrological monitoring program period of record on September 28, 2007 @ 9:15hr. Meteorological Services of Canada operated Yellowknife Airport Meteorological Station data was used to provide an estimate of the missing precipitation data from the site for January to March 2007.

[4] Basin losses are calculated by taking the difference between the precipitation and the runoff.

TABLE 2.2: SUMMARY OF DISCHARGE MEASUREMENTS			
Site#6 - Nicholas Lake Outlet			
Date/time MDST	Staff Gauge Reading m	Discharge ℓ/s	Comments
2004			
May 19/04 16:00	Not installed	0.0	Ice filled creek bed
May 31/04 15:53	0.470	22.4	
May 31/04 16:39	0.470	21.0	
Jun 01/04 14:04	0.478	26.4	
Jun 01/04 14:26	0.478	22.0	
Jun 02/04 13:34	0.487	25.5	
Jun 02/04 13:57	0.487	30.3	
Sep 30/04 14:26	0.229	10.5	
Sep 30/04 14:52	0.228	10.4	
Oct 01/04 08:52	0.231	11.3	
Oct 01/04 09:02	0.231	11.2	
2005			
May 23/05 08:10	n/a	0.0	Ice filled creek bed
Aug 06/05 09:06	0.390	13.6	
Aug 06/05 09:28	0.390	14.8	
2007			
Jun 10/07 17:12	0.480	19.9	
Jun 10/07 17:32	0.480	22.8	
Jun 11/07 8:29	0.500	21.7	
Jun 11/07 8:39	0.500	24.7	

TABLE 3.1 : EVAPORATION RATES FOR 2007 - YELLOWKNIFE GOLD PROJECT			
Month	Total Pan Evaporation (mm)	Daily Rate (mm/day)	Comments
May 2007			No data
June 2007	157.3	6.0	Missing Jun 1 & 2
July 2007	161.1	5.2	Full Month
August 2007	90.0	2.7	Full Month
September 2007	23.0	1.7	September 1 to 15
June 3 to Sep 15, 2007	**431.4**	**4.1**	Period of record
Month	**Total Lake Evaporation (mm)**	**Daily Rate (mm/day)**	**Comments**
May 2007			No data
June 2007	110.1	4.2	Missing Jun 1 & 2
July 2007	112.8	3.6	Full Month
August 2007	63.0	1.9	Full Month
September 2007	16.1	1.2	September 1 to 15
June 3 to Sep 15, 2007	**302.0**	**2.9**	Period of record

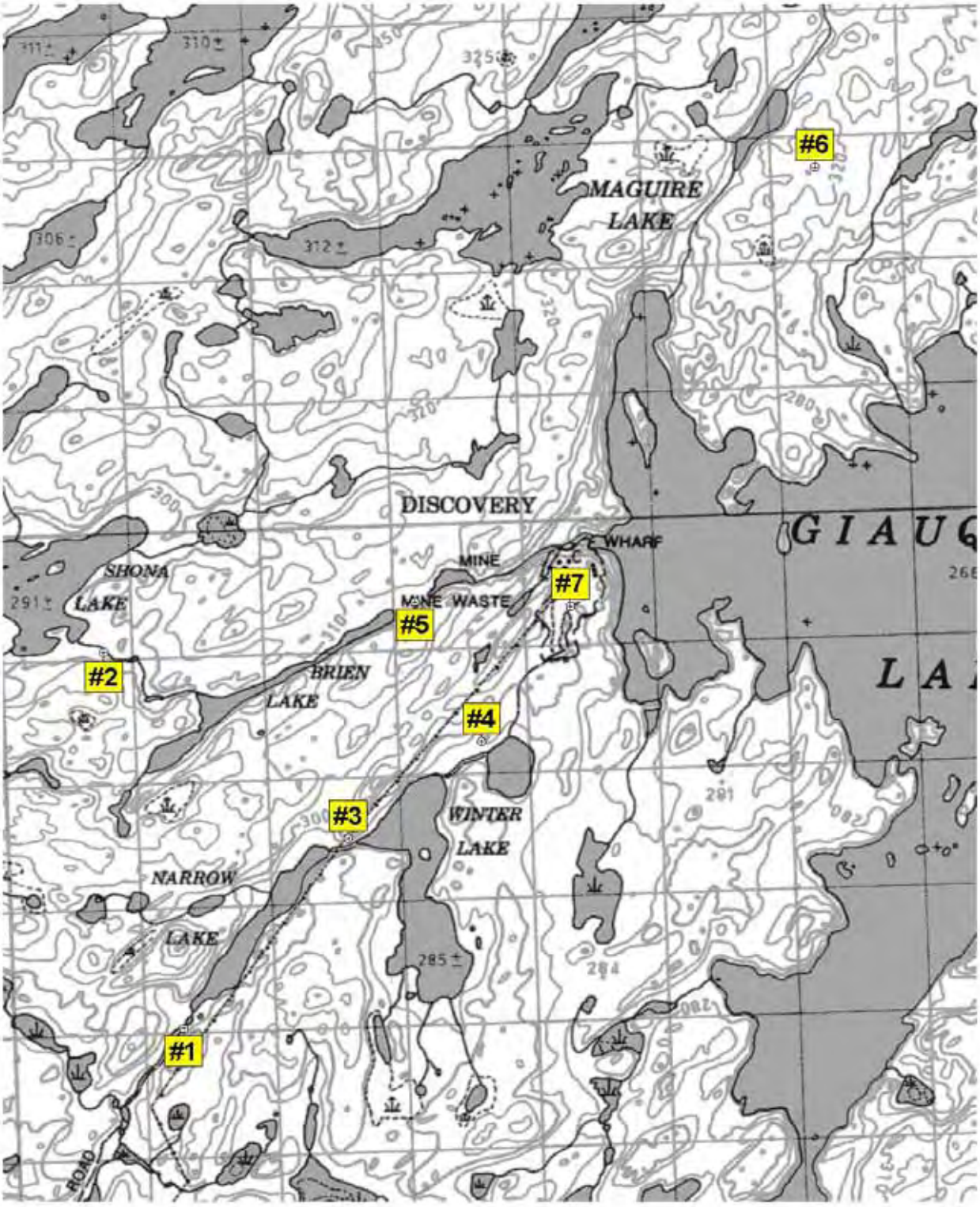
Note: A factor of 0.7 has been used to convert pan evaporation to lake evaporation

TABLE 3.2: DAILY PRECIPITATION FOR 2007 - YELLOWKNIFE GOLD PROJECT												
Day	Jan mm	Feb mm	Mar mm	Apr mm	May mm	Jun mm	Jul mm	Aug mm	Sep mm	Oct mm	Nov mm	Dec mm
1				-	-	-	0.25	1.27	-	-	-	-
2				-	-	-	-	0.76	0.25	2.03	-	-
3				-	-	-	-	0.25	0.25	-	0.25	-
4				-	-	-	-	-	-	-	-	-
5				-	-	-	-	-	-	3.81	-	-
6				-	-	-	-	-	-	1.78	-	-
7				-	0.25	-	-	-	-	-	-	-
8				0.25	-	-	-	-	-	3.56	-	-
9				0.25	0.25	-	-	0.25	-	0.51	-	-
10				-	-	-	-	-	0.25	1.02	-	-
11				-	1.02	0.51	-	1.52	-	1.02	1.02	-
12				-	3.30	0.76	2.54	1.78	-	-	1.02	-
13				3.56	0.25	-	-	-	-	-	0.25	-
14				-	0.51	-	0.25	0.51	-	0.25	0.51	0.51
15				-	-	-	-		-	-	0.25	0.25
16				-	1.27	0.25	-	0.25	-	-	-	6.60
17				-	-	-	-	0.51	-	-	3.05	-
18				-	-	-	-	0.51	-	-	-	4.06
19				-	1.02	-	-	-	-	-	0.51	-
20				0.25	-	-	-	16.00	-	-	1.27	-
21				-	-	-	0.25	1.52	0.51	1.78	1.27	-
22				-	-	-	2.54	0.51	-	0.25	-	-
23			-	-	0.76	1.27	1.02	-	-	-	-	-
24			0.25	-	0.51	-	0.25	0.51	2.03	-	-	-
25			-	-	0.51	-	0.25	-	0.51	0.25	-	-
26			-	-	0.25	-	0.51	-	0.76	0.25	-	-
27			0.25	-	-	-	6.86	-	0.51	2.54	-	-
28			1.02	1.02	-	-	2.29	-	-	-	-	-
29			-	2.54	-	-	0.51	0.25	2.03	-	-	-
30			-	0.76	-	-	-	-	-	1.27	-	-
31			-		-		12.95	-		2.03		-
Total			***1.52***	**8.64**	**9.91**	**2.79**	**30.48**	**26.40**	**7.11**	**22.35**	**9.40**	**11.43**

total water equivalent precipitation over period of March 23 - December 31, 2007 =* ***130.0* *mm*

**all weather precipitation gauge was unserviceable for period of January 1 to March 22, 2007. No precipitation data was recorded during this period.*

FIGURES



NOTES

Site #1 - Narrow Lake Outlet
Site #2 - Brien Lake Outlet (discontinued)
Site #3 - Winter Lake Outlet
Site #4 - Round Lake Outlet
Site #5 - Northeast Brien Lake (discontinued)
Site #6 - Nicholas Lake Outlet
Site #7 - Tyhee Meteorological Station

Tyhee Development Corp

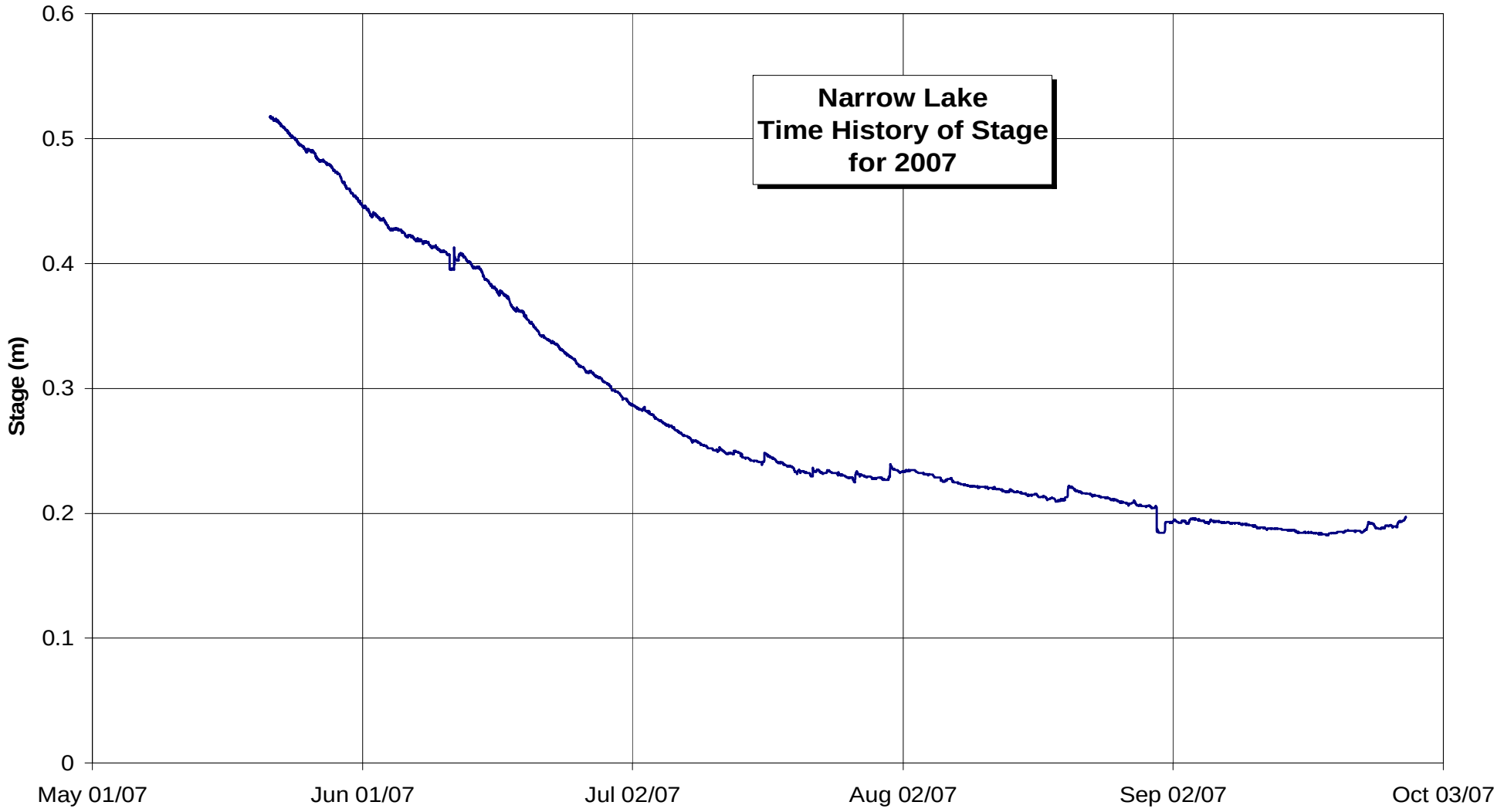
HAY & COMPANY CONSULTANTS A DIVISION OF EBA

TYHEE DEVELOPMENT CORPORATION
YELLOWKNIFE GOLD PROJECT

Site Location Map

PROJECT NO.	DWN	CHK	REV
Y22101002	TM	JAS	0
OFFICE	DATE		
EBA-VANC	January 2008		

Figure 1.1



NOTES

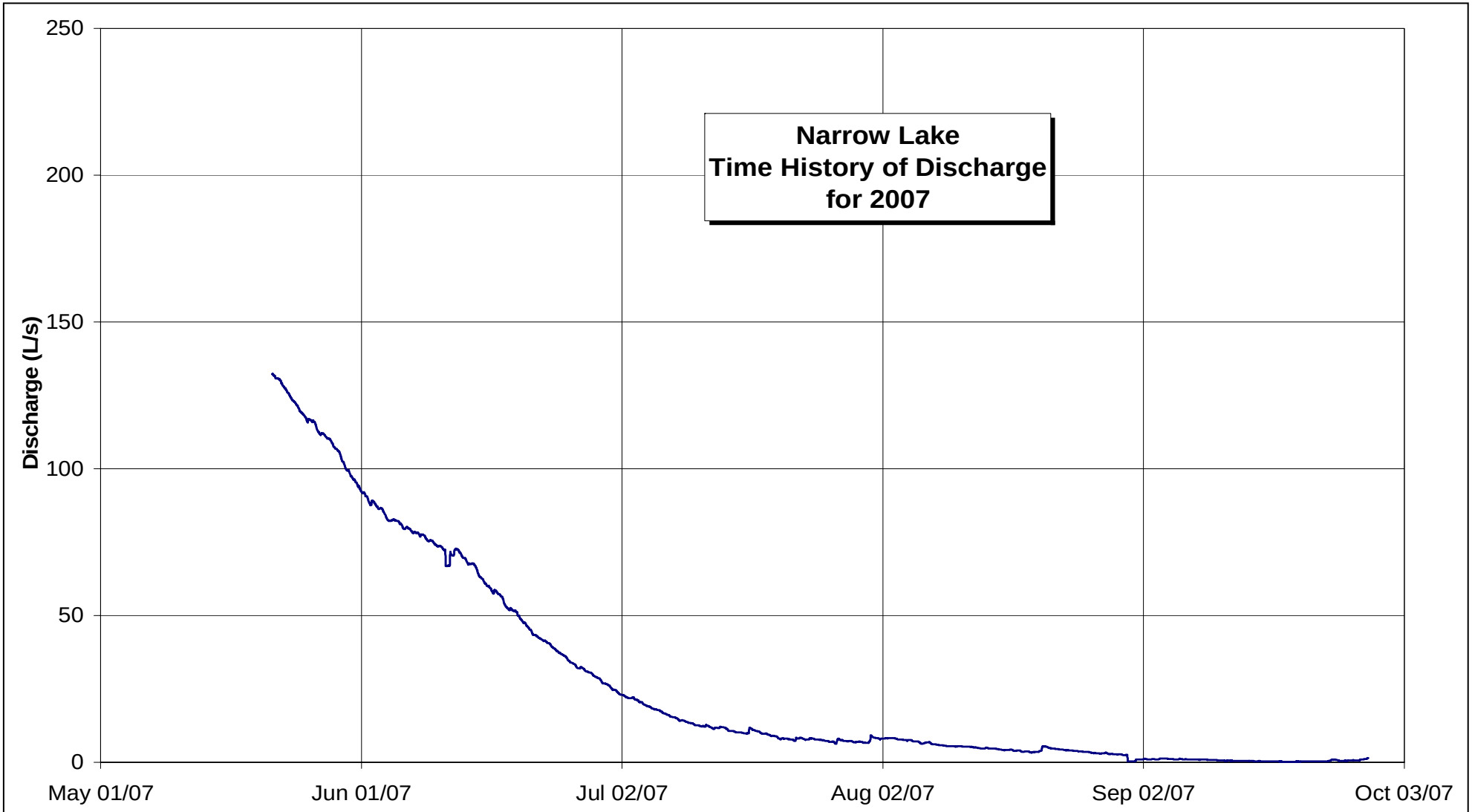
TYHEE DEVELOPMENT CORPORATION
YELLOWKNIFE GOLD PROJECT

Narrow Lake
Time History of Stage
2007

HAY & COMPANY CONSULTANTS A DIVISION OF EBA

PROJECT NO.	DWN	CKD	REV
Y22101002	TM	RED	
OFFICE: EBA-VANC	DATE: January 2008		

Figure 2.1



NOTES

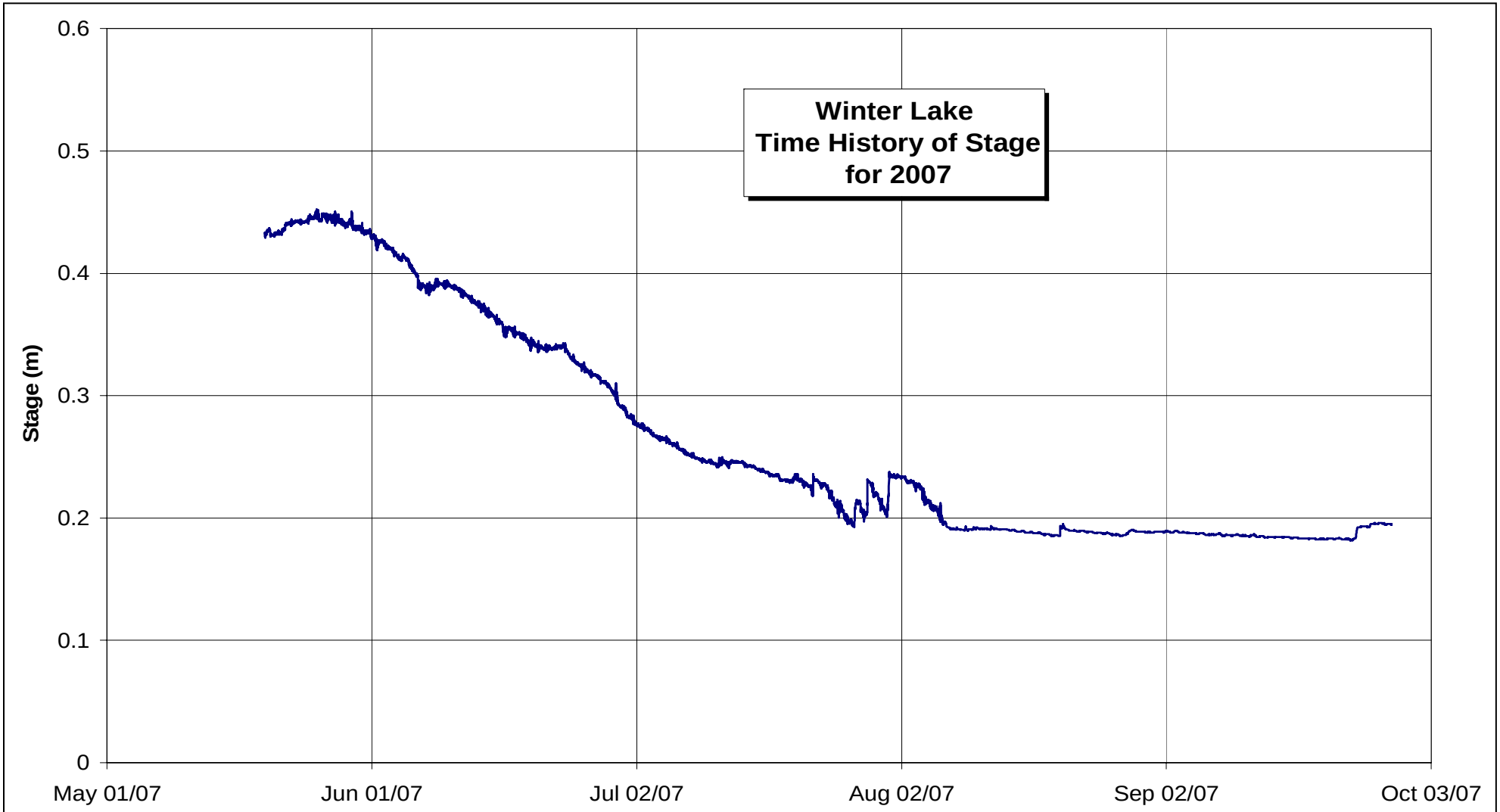
TYHEE DEVELOPMENT CORPORATION
YELLOWKNIFE GOLD PROJECT

Narrow Lake
Time History of Discharge
2007

HAY & COMPANY CONSULTANTS A DIVISION OF EBA

PROJECT NO.	DWN	CKD	REV
Y22101002	TM	RED	
OFFICE: EBA-VANC	DATE: January 2008		

Figure 2.3



NOTES

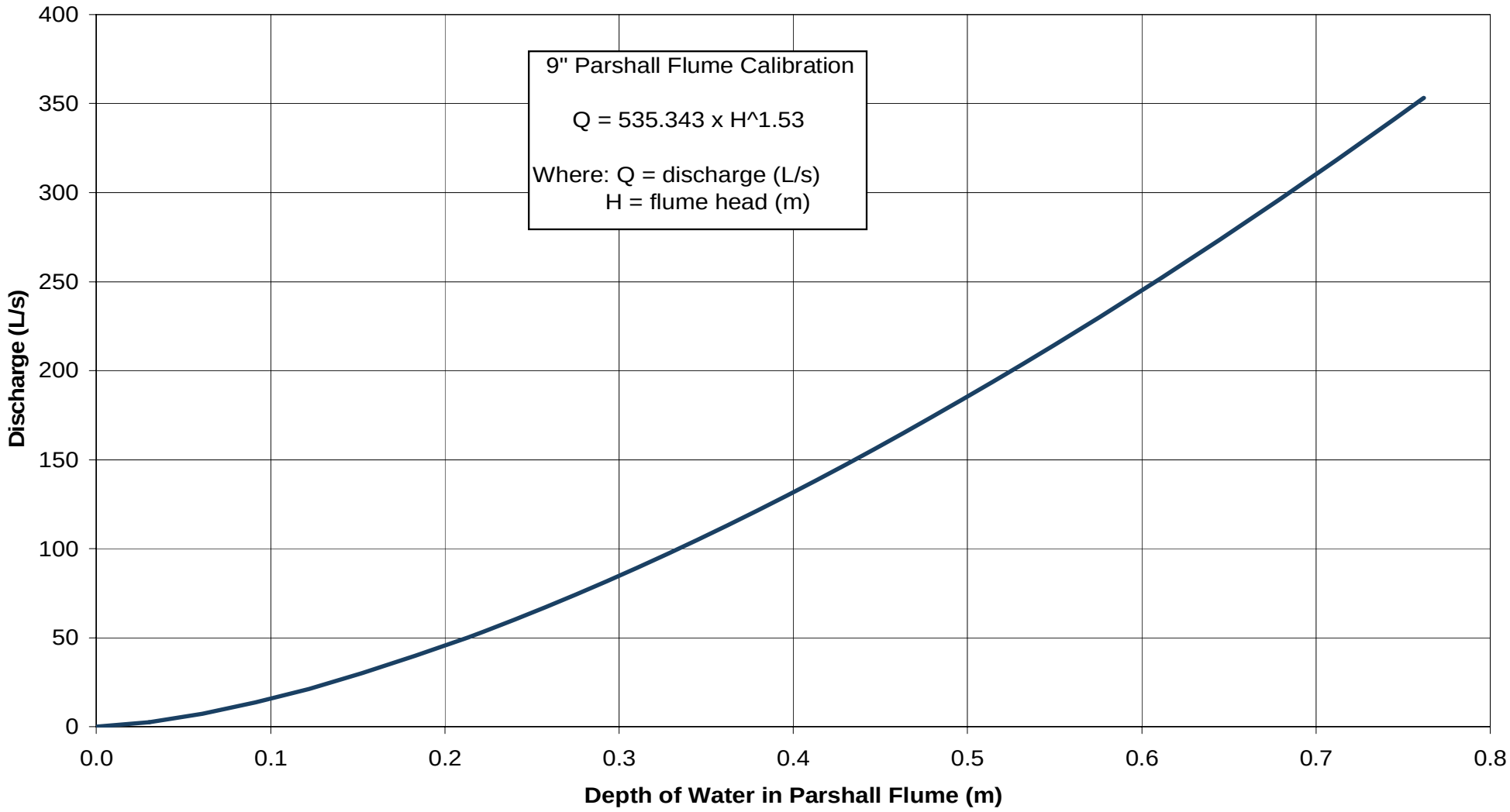
TYHEE DEVELOPMENT CORPORATION
YELLOWKNIFE GOLD PROJECT

Winter Lake
Time History of Stage
2007

HAY & COMPANY CONSULTANTS A DIVISION OF EBA

PROJECT NO.	DWN	CKD	REV
Y22101002	TM	RED	
OFFICE	DATE		
EBA-VANC	January 2008		

Figure 2.4



NOTES

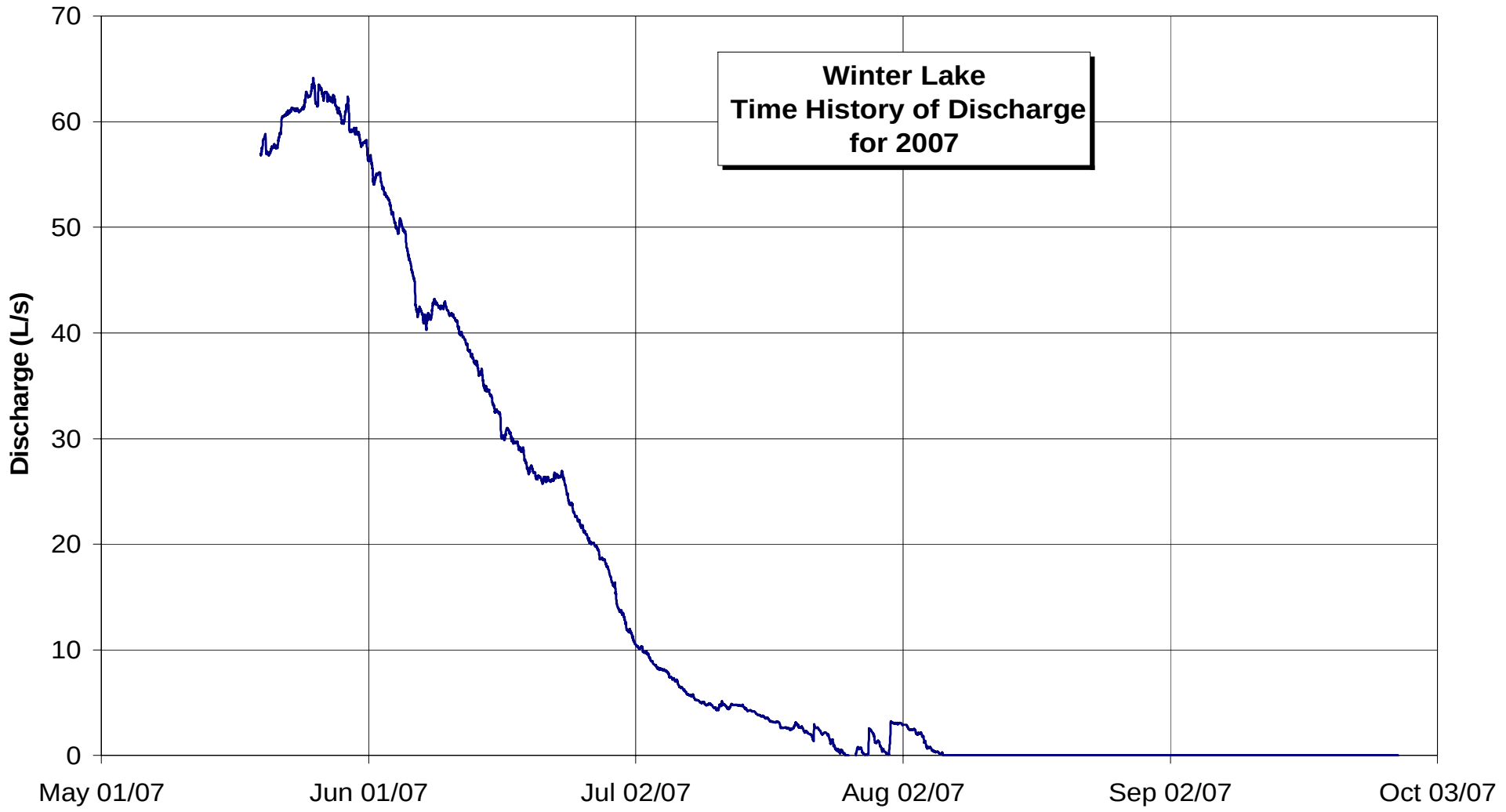
TYHEE DEVELOPMENT CORPORATION
YELLOWKNIFE GOLD PROJECT

9" Parshall Flume Calibration
Site #3 – Winter Lake Outlet

HAY & COMPANY CONSULTANTS A DIVISION OF EBA

PROJECT NO.	DWN	CKD	REV
Y22101002	TM	RED	
OFFICE	DATE		
EBA-VANC	January 2008		

Figure 2.5



NOTES

TYHEE DEVELOPMENT CORPORATION
YELLOWKNIFE GOLD PROJECT

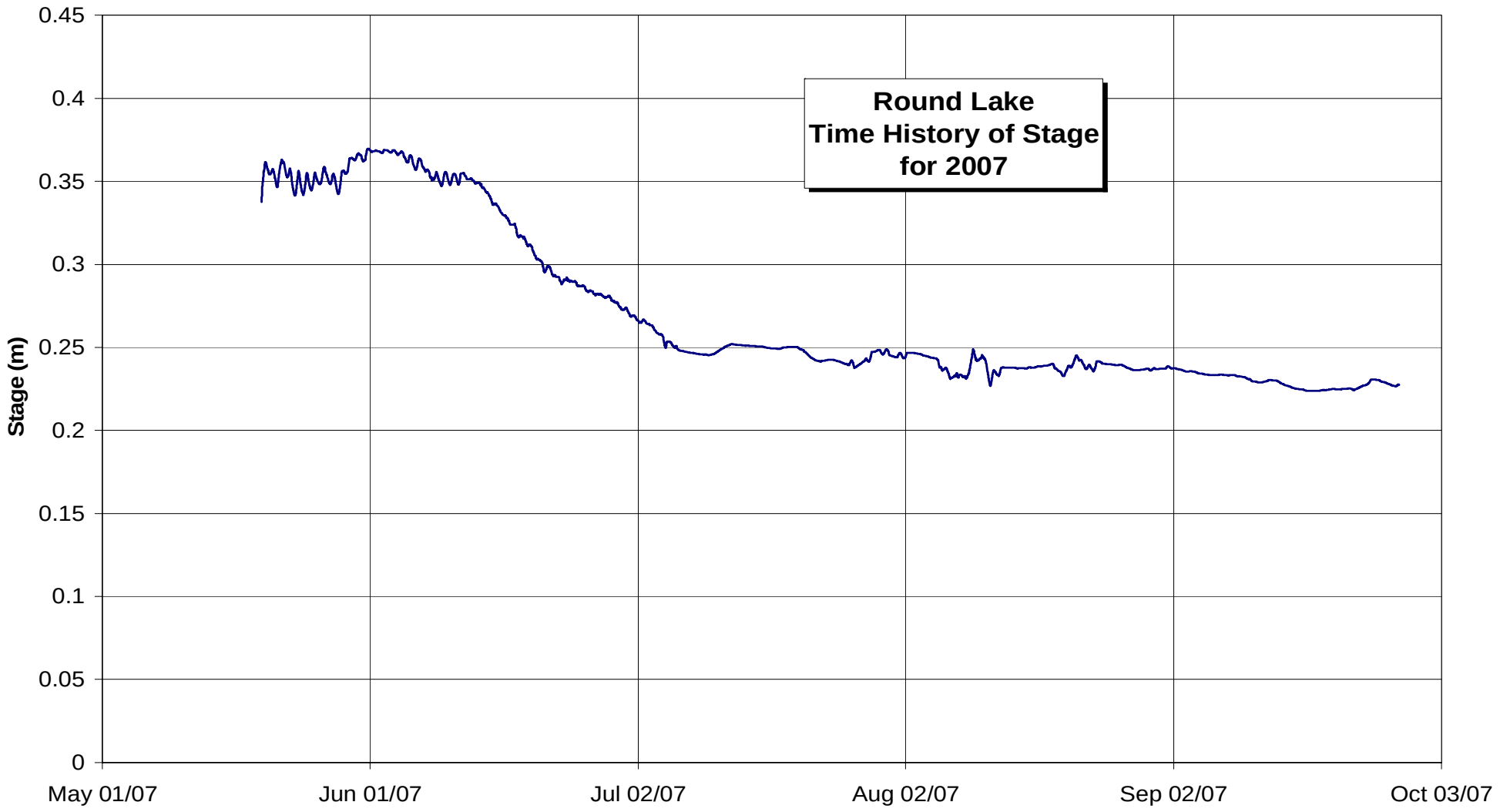
Winter Lake
Time History of Discharge
2007

PROJECT NO.	DWN	CKD	REV
Y22101002	TM	RED	

OFFICE: EBA-VANC
DATE: January 2008

HAY & COMPANY CONSULTANTS A DIVISION OF EBA

Figure 2.6



NOTES

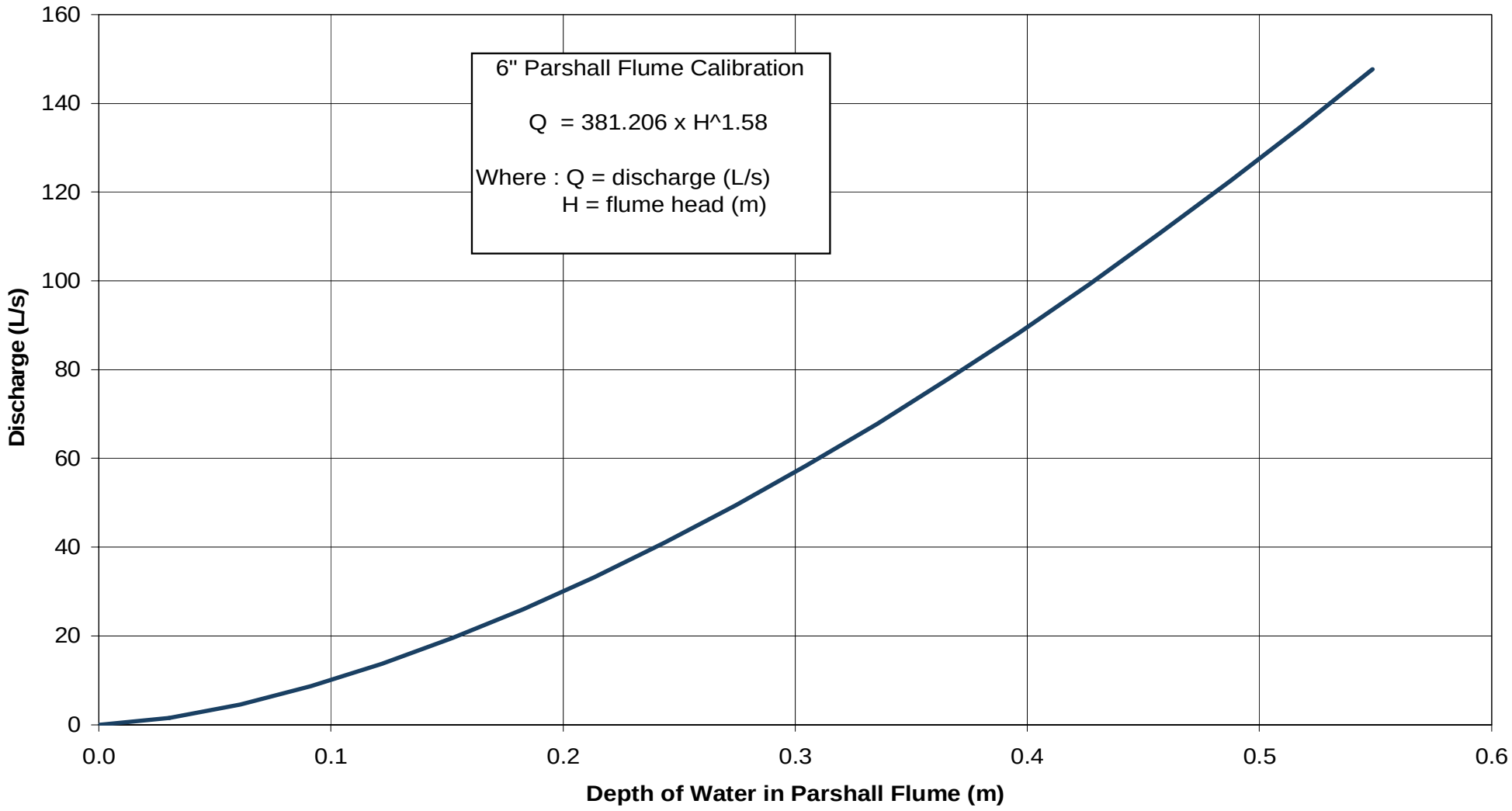
TYHEE DEVELOPMENT CORPORATION
YELLOWKNIFE GOLD PROJECT

Round Lake
Time History of Stage
2007

HAY & COMPANY CONSULTANTS A DIVISION OF EBA

PROJECT NO.	DWN	CKD	REV
Y22101002	TM	RED	
OFFICE	DATE		
EBA-VANC	January 2008		

Figure 2.7



NOTES

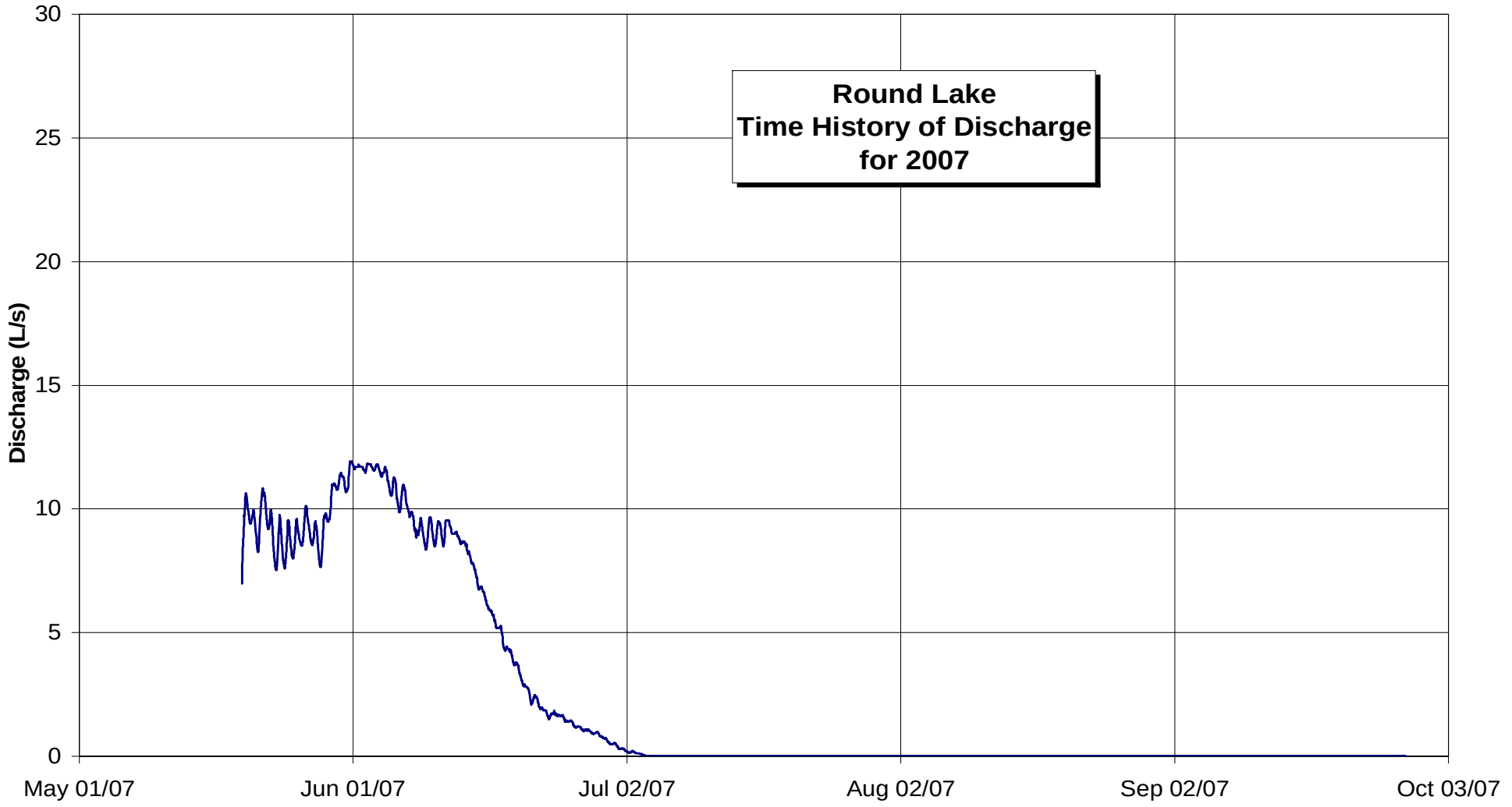
TYHEE DEVELOPMENT CORPORATION
YELLOWKNIFE GOLD PROJECT

6" Parshall Flume Calibration
Site #3 – Round Lake Outlet

HAY & COMPANY CONSULTANTS A DIVISION OF EBA

PROJECT NO.	DWN	CKD	REV
Y22101002	TM	RED	
OFFICE	DATE		
EBA-VANC	January 2008		

Figure 2.8



NOTES

TYHEE DEVELOPMENT CORPORATION
YELLOWKNIFE GOLD PROJECT

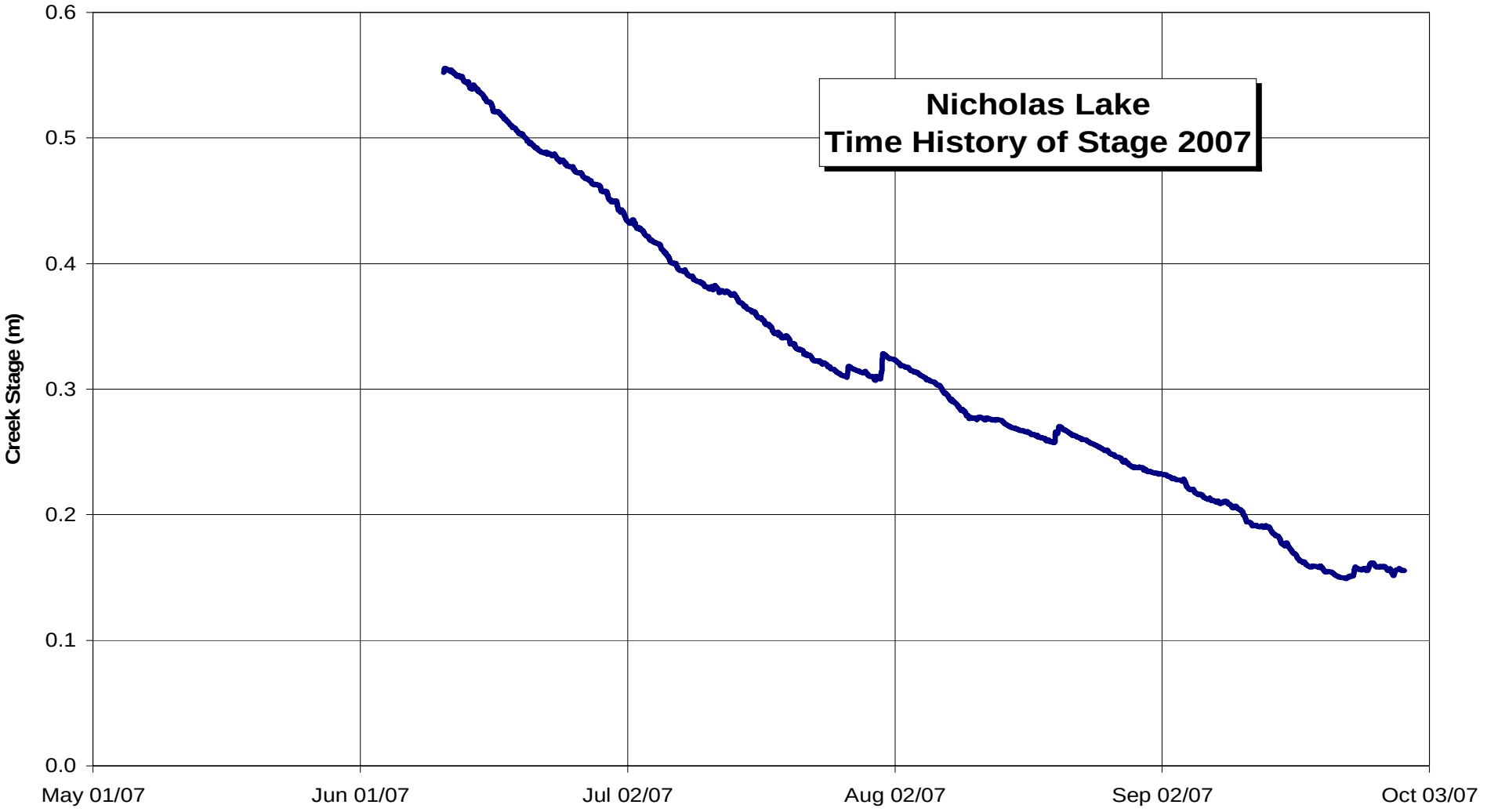
Round Lake
Time History of Discharge
2007

PROJECT NO.	DWN	CKD	REV
Y22101002	TM	RED	

OFFICE: EBA-VANC
DATE: January 2008

HAY & COMPANY CONSULTANTS A DIVISION OF EBA

Figure 2.9



NOTES

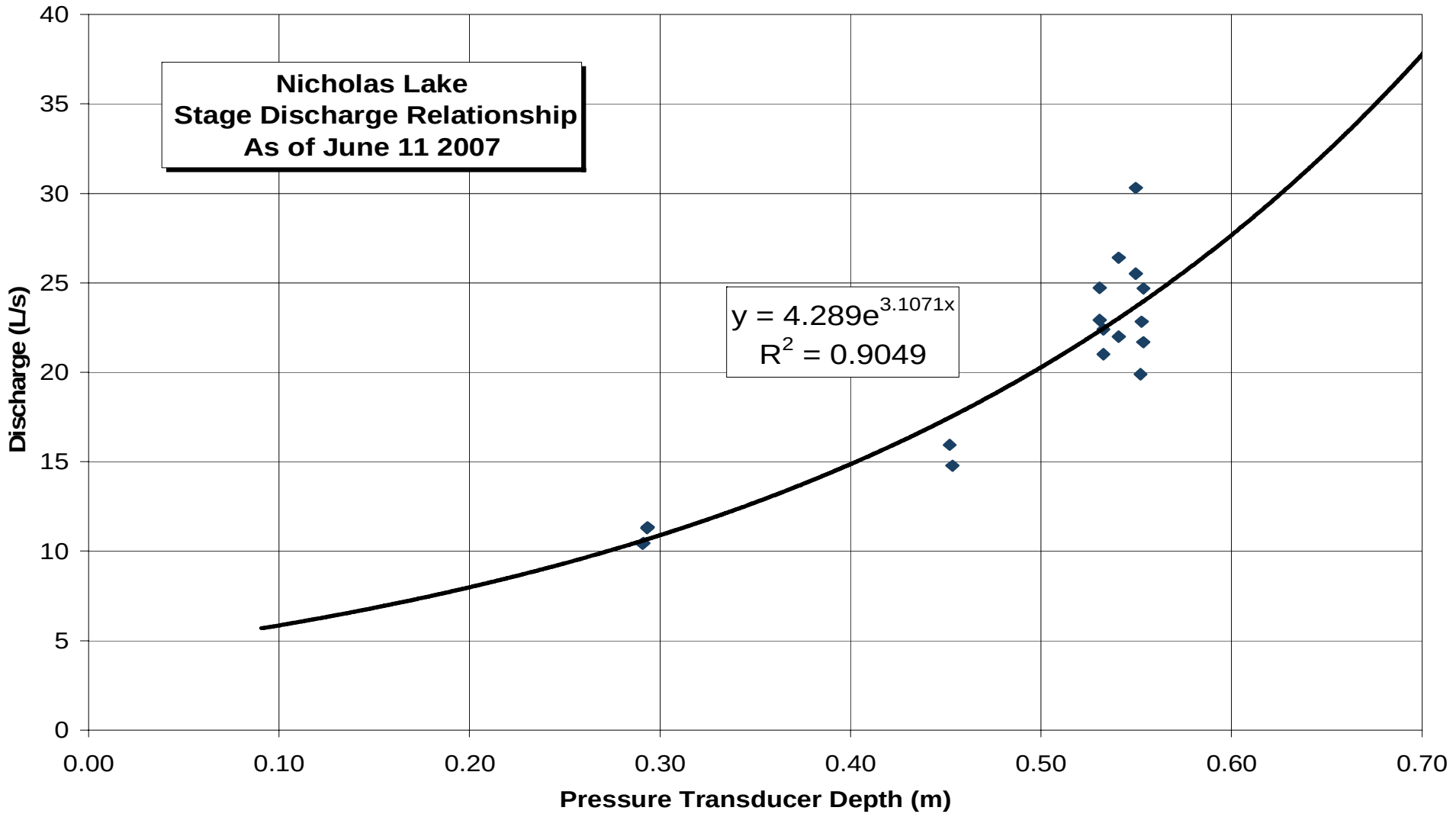
TYHEE DEVELOPMENT CORPORATION
YELLOWKNIFE GOLD PROJECT

Nicholas Lake
Time History of Stage
2007

HAY & COMPANY CONSULTANTS A DIVISION OF EBA

PROJECT NO.	DWN	CKD	REV
Y22101002	TM	RED	
OFFICE	DATE		
EBA-VANC	January 2008		

Figure 2.10



NOTES

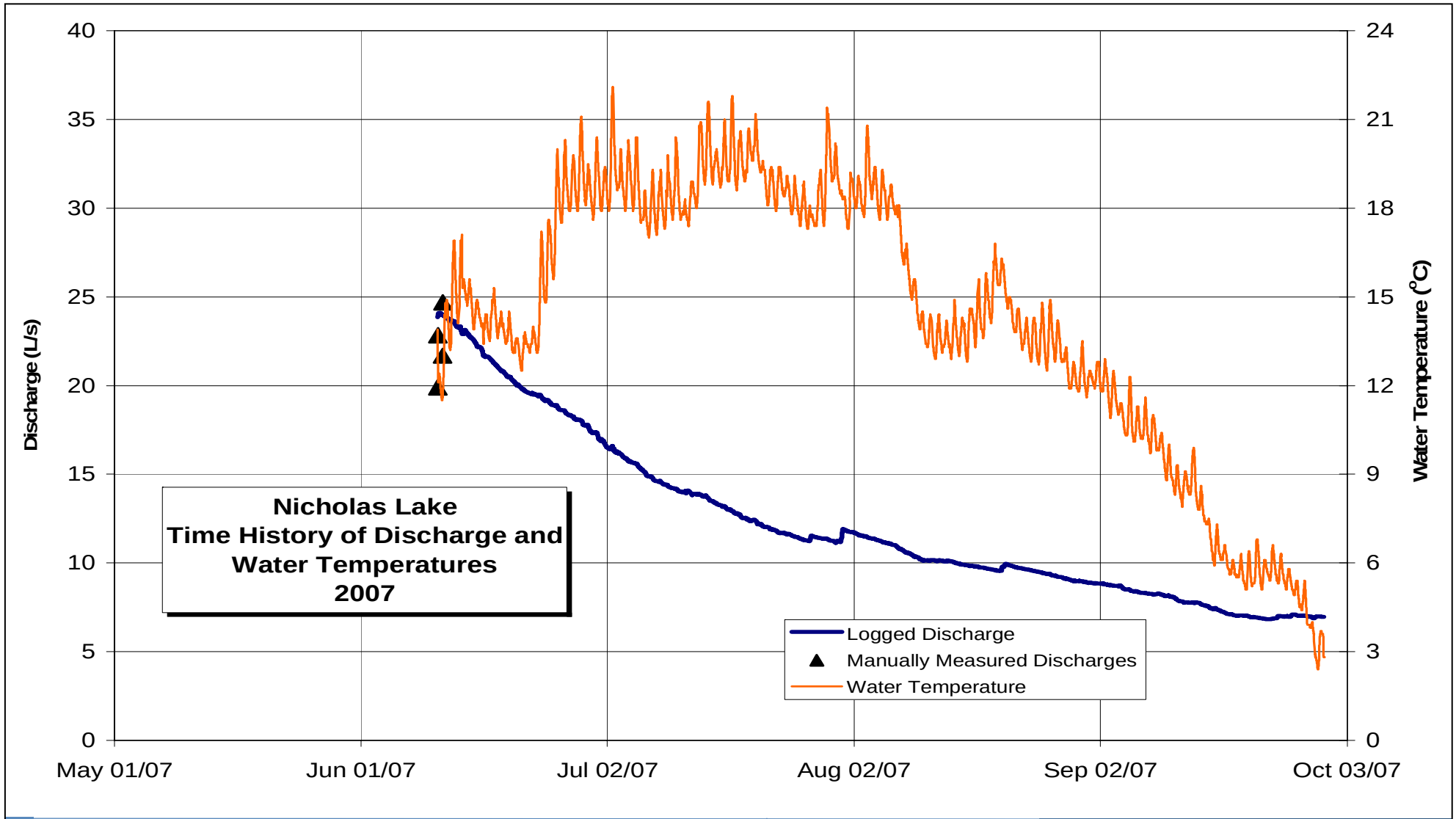
TYHEE DEVELOPMENT CORPORATION
YELLOWKNIFE GOLD PROJECT

Nicholas Lake
Stage DischargeRelationship
as of June 11 2007

HAY & COMPANY CONSULTANTS A DIVISION OF EBA

PROJECT NO.	DWN	CKD	REV
Y22101002	TM	RED	
OFFICE	DATE		
EBA-VANC	January 2008		

Figure 2.11



NOTES

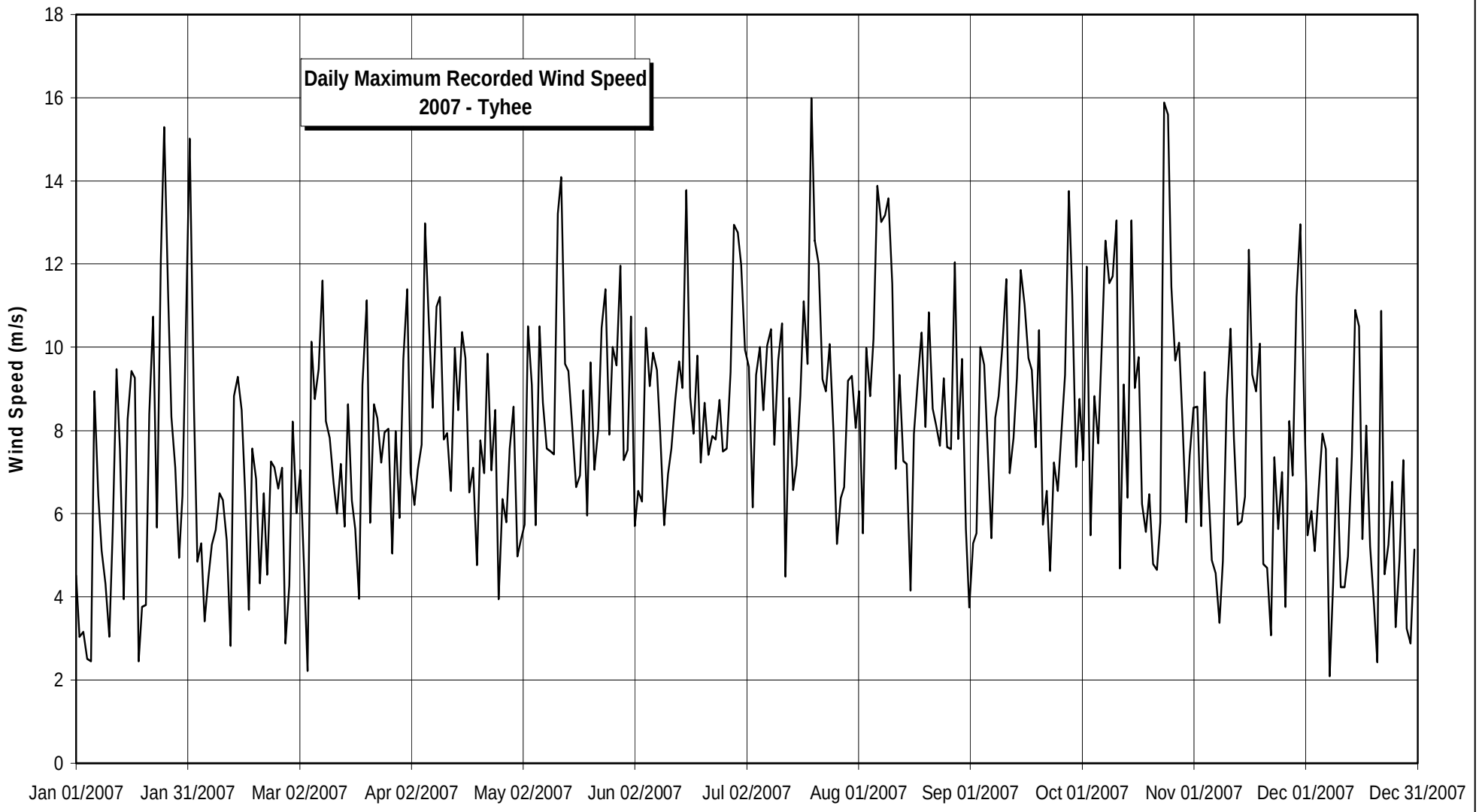
TYHEE DEVELOPMENT CORPORATION
YELLOWKNIFE GOLD PROJECT

Nicholas Lake
Time History of Discharge and
WaterTemperatures 2007

HAY & COMPANY CONSULTANTS A DIVISION OF EBA

PROJECT NO.	DWN	CKD	REV
Y22101002	TM	RED	
OFFICE	DATE		
EBA-VANC	January 2008		

Figure 2.12



NOTES

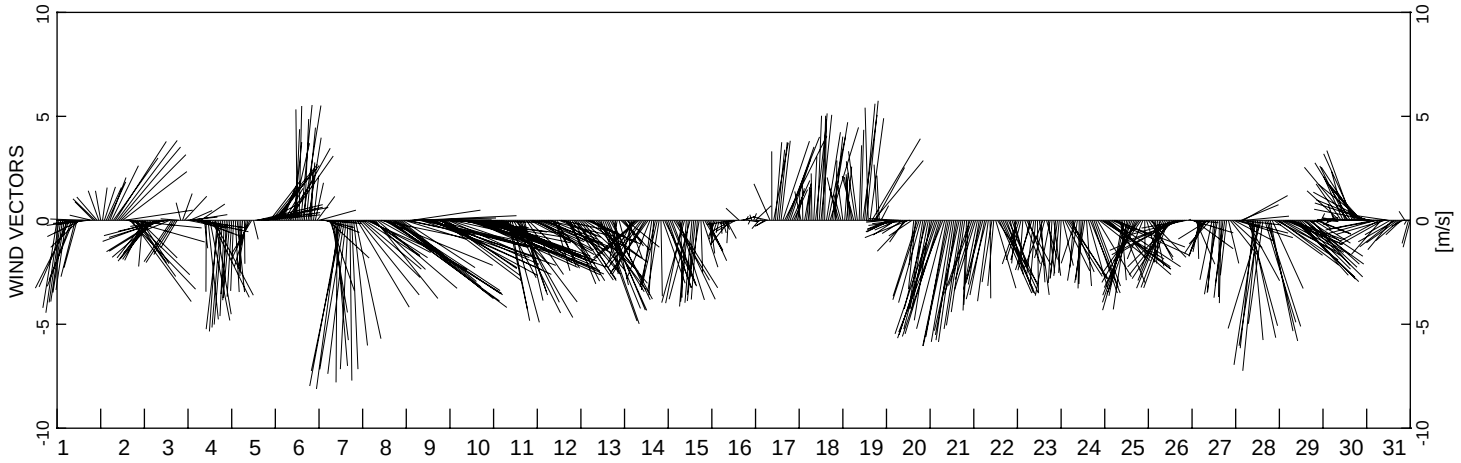
TYHEE DEVELOPMENT CORPORATION
YELLOWKNIFE GOLD PROJECT

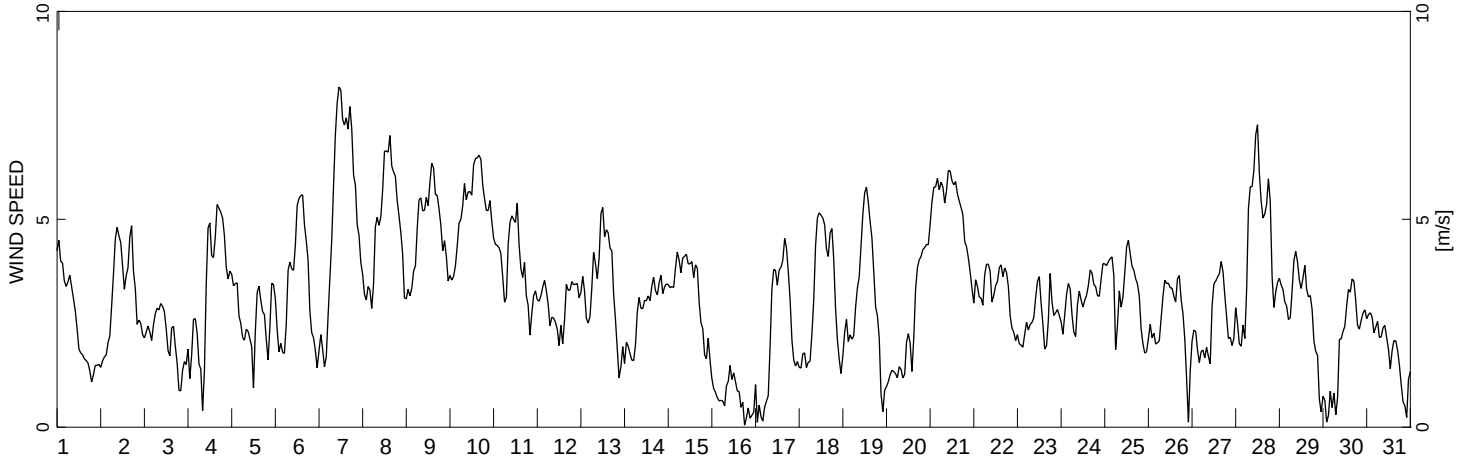
Daily Maximum Recorded
Wind Speeds
2007 - Tyhee

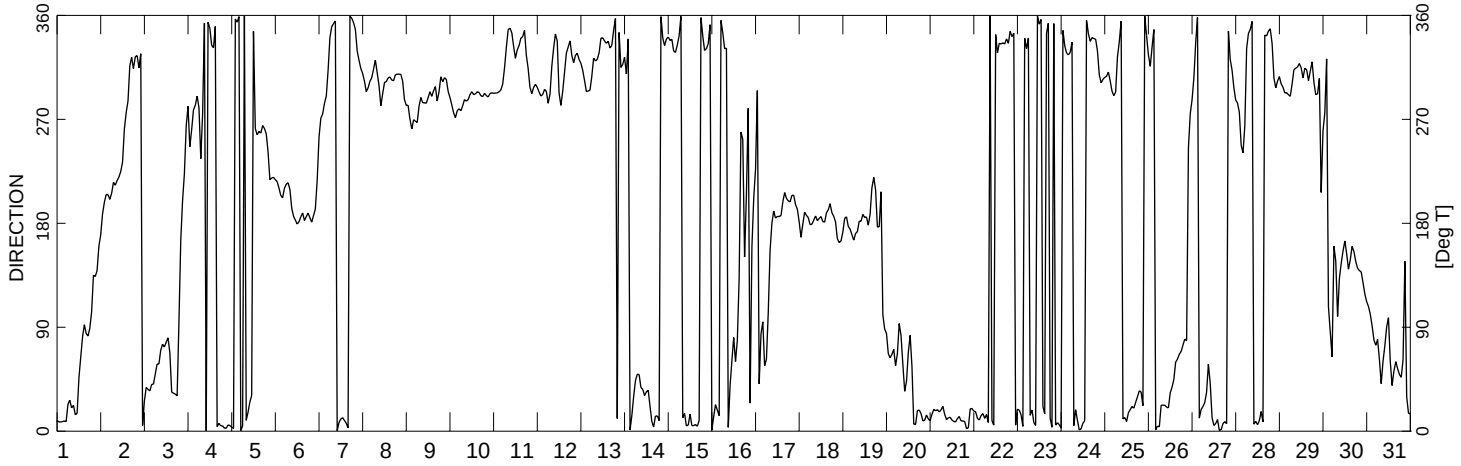
HAY & COMPANY CONSULTANTS A DIVISION OF EBA

PROJECT NO.	DWN	CKD	REV
Y22101002	TM	RED	
OFFICE	DATE		
EBA-VANC	January 2008		

Figure 3.1







CLIENT

Tyhee Development Corp

TYHEE DEVELOPMENT CORP.
YELLOWKNIFE GOLD PROJECT

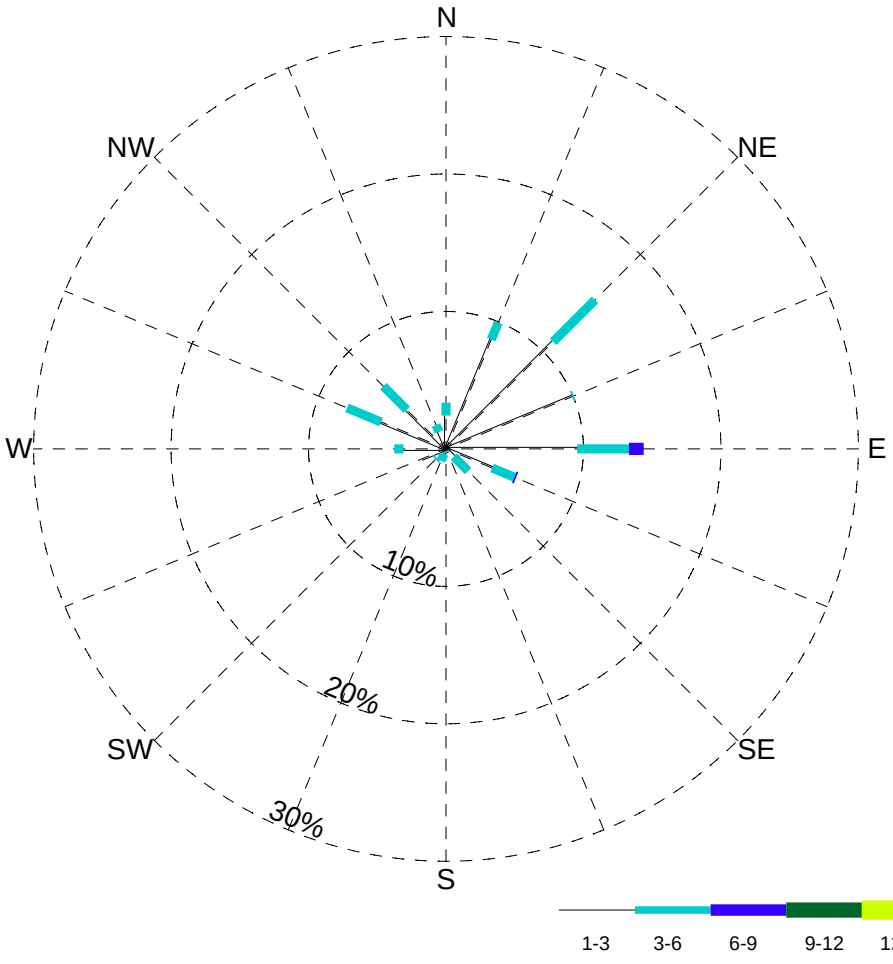
TYHEE
WIND DATA
AUGUST 2007

HAY & COMPANY CONSULTANTS A DIVISION OF EBA

PROJECT NO.	DWN	CHK	REV
Y22101002	TM	JAS	0
OFFICE: EBA-VANC	DATE: January 2008		

Figure 3.2

Thu Jan 24 16:11:52 2008:Q:\Vancouver\Environmental\Y221\Projects\Y22101002_Tyhee_2007\Working\RED\Meteorology\2007_data



Station Name: Tyhee
NAD 27 location:
N63° 11' 6.2" W113° 53' 40.2"
Elevation above SL: 300 m
Tower Height: 10 m
Record Length: 365 days
Start Date: Jan. 01, 2007
End Date: Dec. 31, 2007

Wind Speed & Direction Frequency Distribution Table

	Percent Occurrence (%)								
Direction	0-1 m/s	1-3 m/s	3-6 m/s	6-9 m/s	9-12 m/s	12-15 m/s	15-18 m/s	18+ m/s	Total (%)
ENE	-	9.95	0.13	-	-	-	-	-	10.08
NE	-	11.02	4.30	-	-	-	-	-	15.32
NNE	-	8.60	1.34	-	-	-	-	-	9.95
N	-	2.42	0.94	-	-	-	-	-	3.36
NNW	-	1.34	0.54	-	-	-	-	-	1.88
NW	-	4.03	2.42	-	-	-	-	-	6.45
WNW	-	5.11	2.69	-	-	-	-	-	7.80
W	-	3.09	0.67	-	-	-	-	-	3.76
WSW	-	1.88	-	-	-	-	-	-	1.88
SW	-	0.94	0.13	-	-	-	-	-	1.08
SSW	-	0.40	0.54	-	-	-	-	-	0.94
S	-	0.13	-	-	-	-	-	-	0.13
SSE	-	0.13	0.13	-	-	-	-	-	0.27
SE	-	0.81	1.48	-	-	-	-	-	2.29
ESE	-	3.63	1.75	0.13	-	-	-	-	5.51
E	-	9.54	3.76	1.08	-	-	-	-	14.38
Calm	14.92	-	-	-	-	-	-	-	14.92
Total (%)	14.92	63.04	20.83	1.21	-	-	-	-	100.00

CLIENT

TYHEE DEVELOPMENT CORP.
YELLOWKNIFE GOLD PROJECT

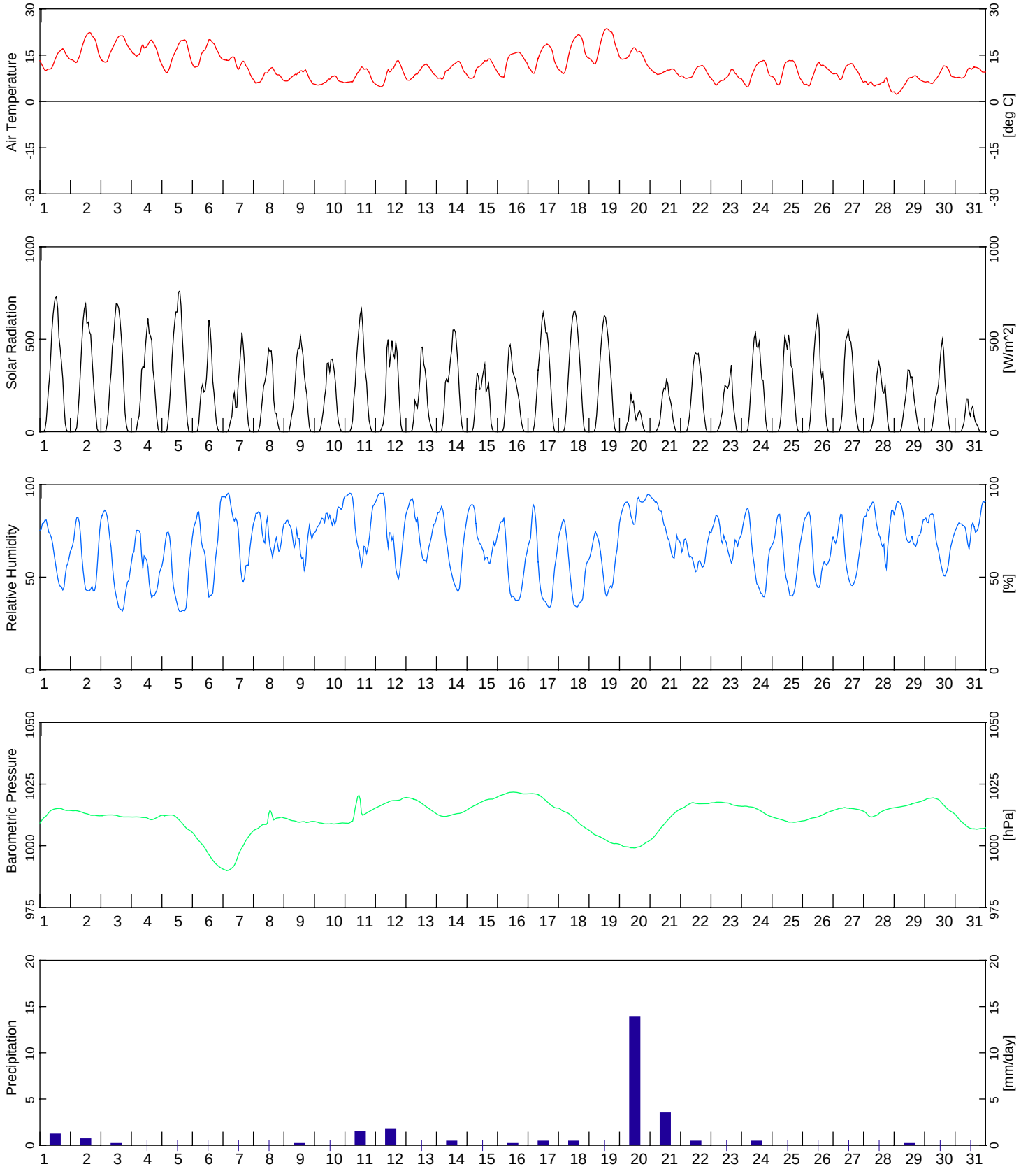
TYHEE
WIND ROSE
JANUARY to DECEMBER 2007

HAY & COMPANY CONSULTANTS A DIVISION OF EBA

PROJECT NO.	DWN	CHK	REV
Y22101002	TM	JAS	0

OFFICE: EBA-VANC
DATE: January 2008

Figure 3.3



CLIENT

Tyhee Development Corp

TYHEE DEVELOPMENT CORP.
YELLOWKNIFE GOLD PROJECT

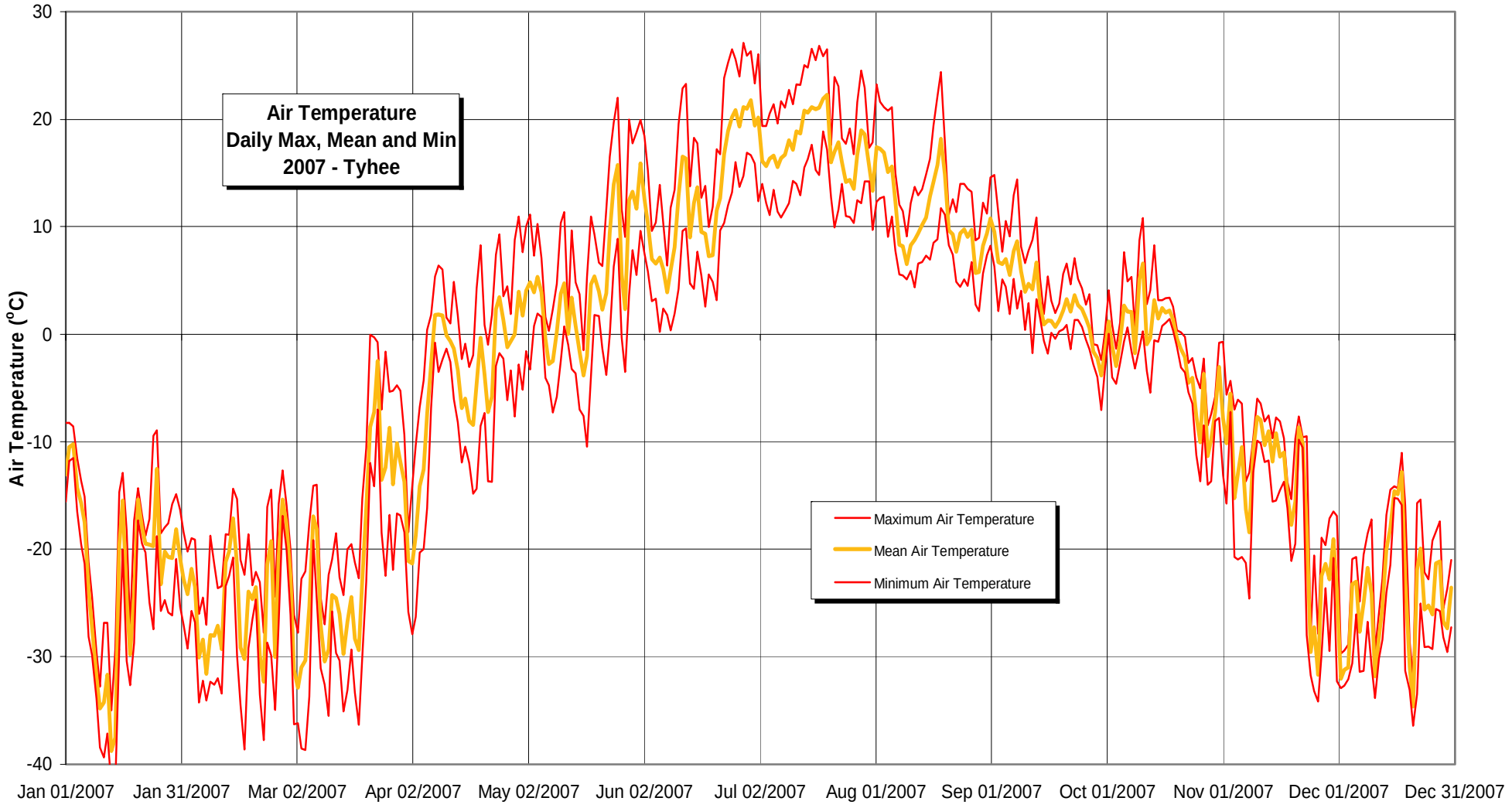
TYHEE
WEATHER
AUGUST 2007

HAY & COMPANY CONSULTANTS A DIVISION OF EBA

PROJECT NO.	DWN	CHK	REV
Y22101002	TM	JAS	0
OFFICE: EBA-VANC	DATE: January 2008		

Figure 3.4

Fri Jan 25 11:47:07 2008:Q:\Vancouver\Environmental\Y221\Projects\Y22101002_Tyhee_2007\Working\RED\Meteorology\2007_data



NOTES

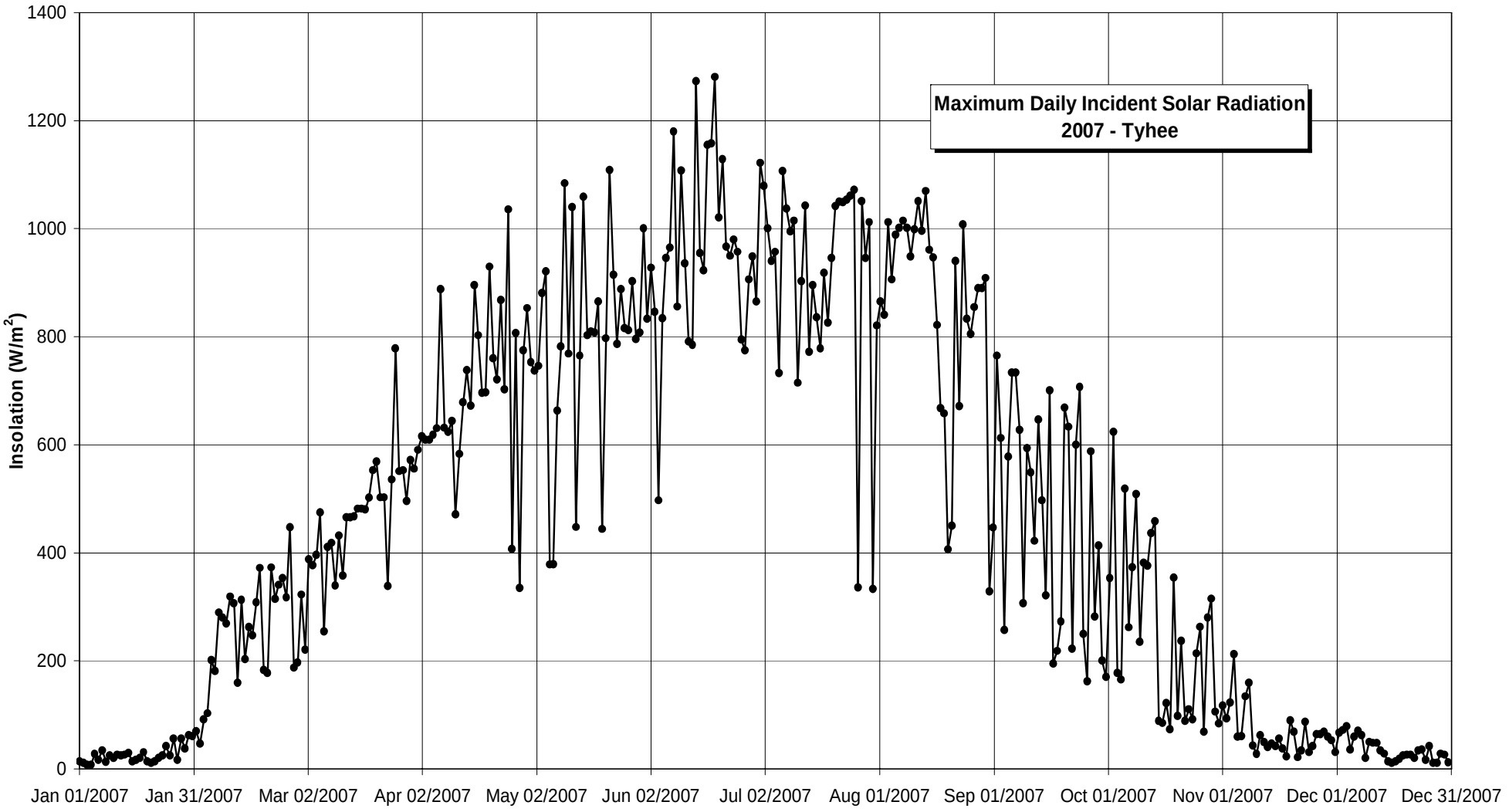
TYHEE DEVELOPMENT CORPORATION
YELLOWKNIFE GOLD PROJECT

Air Temperature
Daily Max, Mean & Min
2007 - Tyhee

HAY & COMPANY CONSULTANTS A DIVISION OF EBA

PROJECT NO.	DWN	CKD	REV
Y22101002	TM	RED	
OFFICE	DATE		
EBA-VANC	January 2008		

Figure 3.5



NOTES

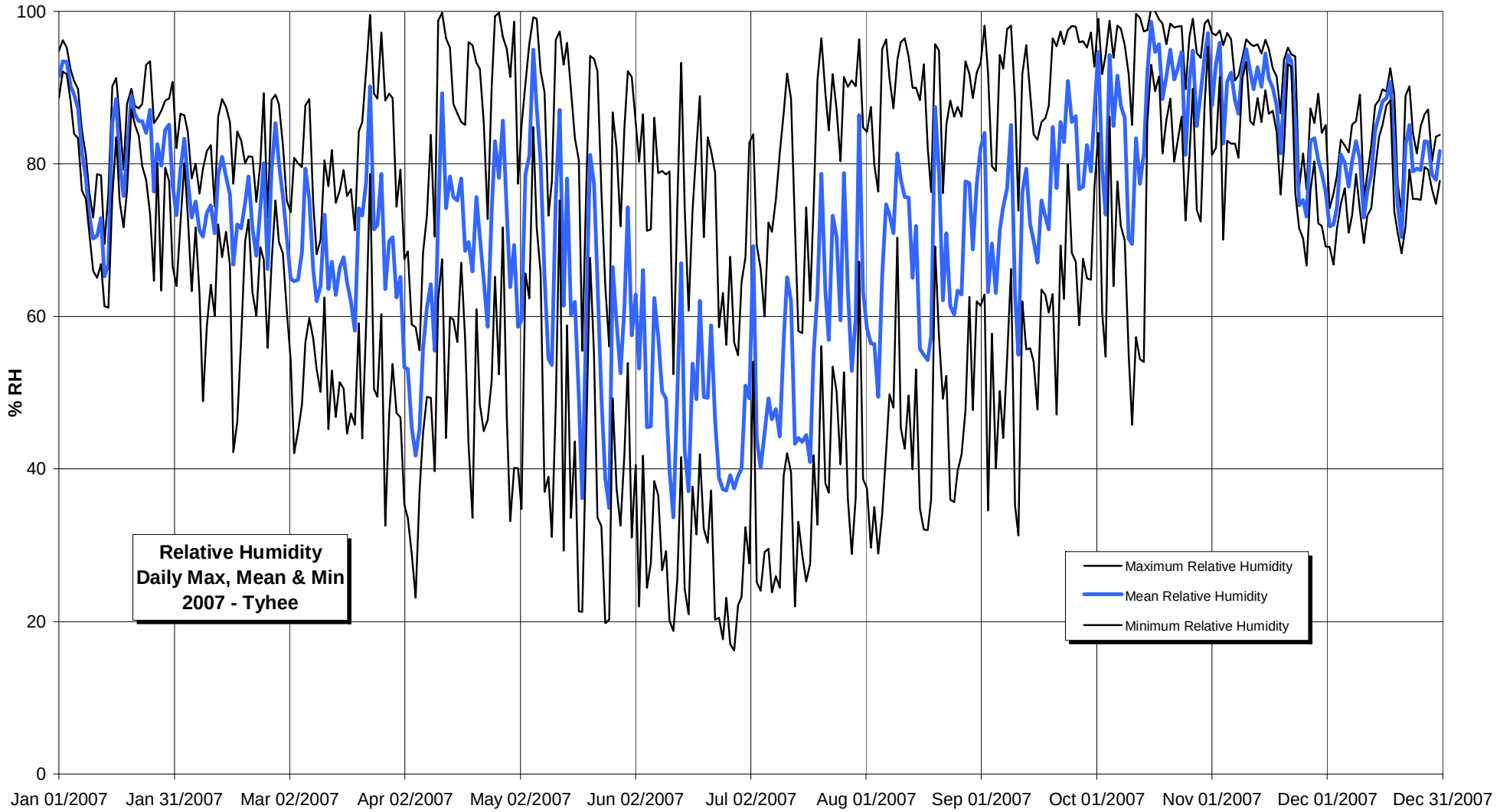
TYHEE DEVELOPMENT CORPORATION
YELLOWKNIFE GOLD PROJECT

Maximum Daily
Incident Solar Radiation
2007 -Tyhee

HAY & COMPANY CONSULTANTS A DIVISION OF EBA

PROJECT NO.	DWN	CKD	REV
Y22101002	TM	RED	
OFFICE	DATE		
EBA-VANC	January 2008		

Figure 3.6



NOTES

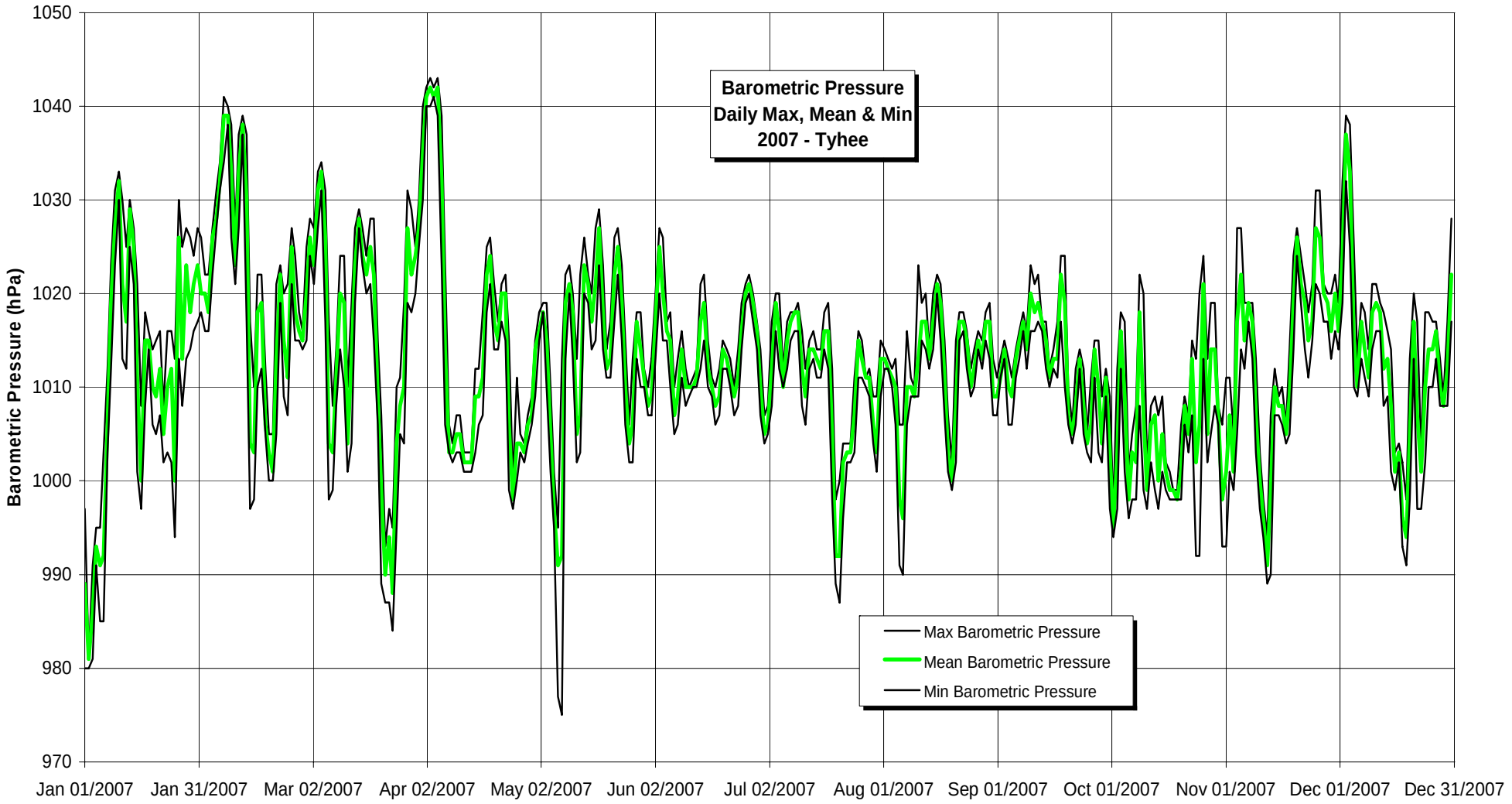
TYHEE DEVELOPMENT CORPORATION
YELLOWKNIFE GOLD PROJECT

Relative Humidity
Daily Max, Mean & Min
2007 -Tyhee

HAY & COMPANY CONSULTANTS A DIVISION OF EBA

PROJECT NO.	DWN	CKD	REV
Y22101002	TM	RED	
OFFICE	DATE		
EBA-VANC	January 2008		

Figure 3.7



NOTES

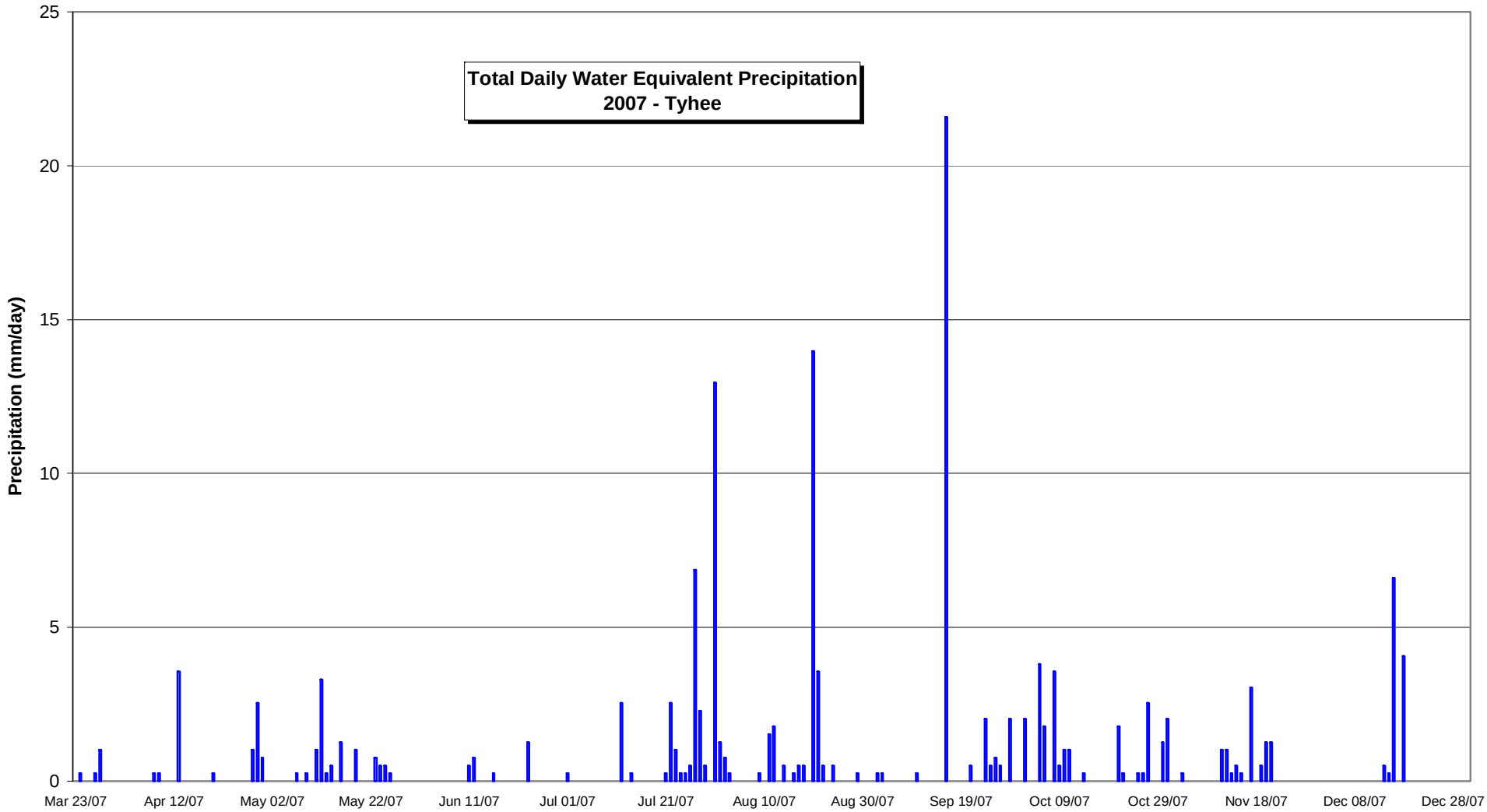
TYHEE DEVELOPMENT CORPORATION
YELLOWKNIFE GOLD PROJECT

Barometric Pressure
Daily Max, Mean & Min
2007 - Tyhee

HAY & COMPANY CONSULTANTS A DIVISION OF EBA

PROJECT NO.	DWN	CKD	REV
Y22101002	TM	RED	
OFFICE	DATE		
EBA-VANC	January 2008		

Figure 3.8



NOTES

Daily precipitation data does not exist for period of January 1 to March 22, 2007. Total water-equivalent precipitation for the period of March 23 to December 31, 2007 is 151.1 mm.

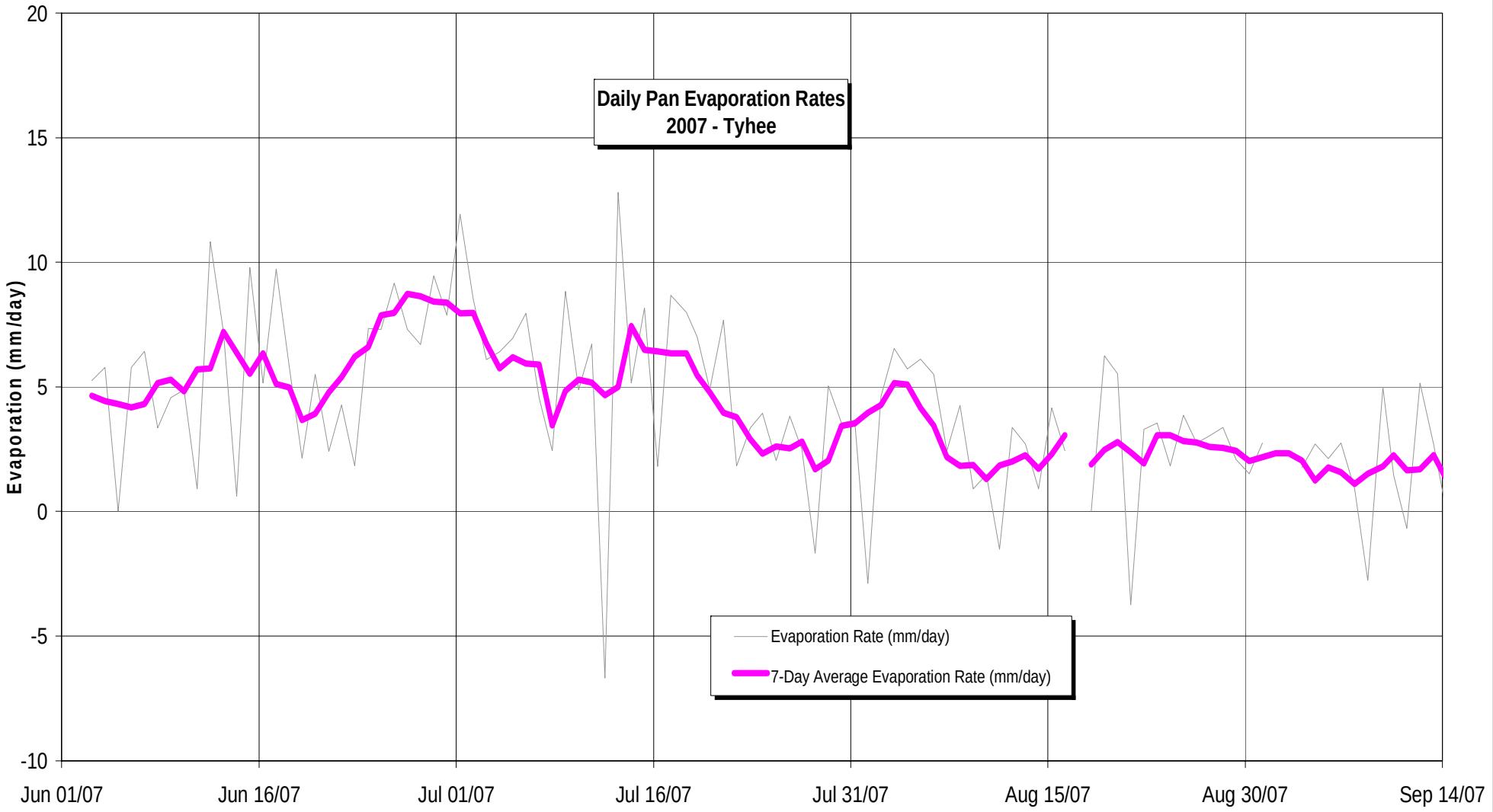
TYHEE DEVELOPMENT CORPORATION
YELLOWKNIFE GOLD PROJECT

Total Daily
Water Equivalent Precipitation
2007 -Tyhee

HAY & COMPANY CONSULTANTS A DIVISION OF EBA

PROJECT NO.	DWN	CKD	REV
Y22101002	TM	RED	
OFFICE	DATE		
EBA-VANC	January 2008		

Figure 3.9



NOTES

Data is for the period between June 3 and September 15, 2007. Evaporation data is missing for August 17, 2007. Data from September 1 and 2 was erroneous and excluded from the plot.

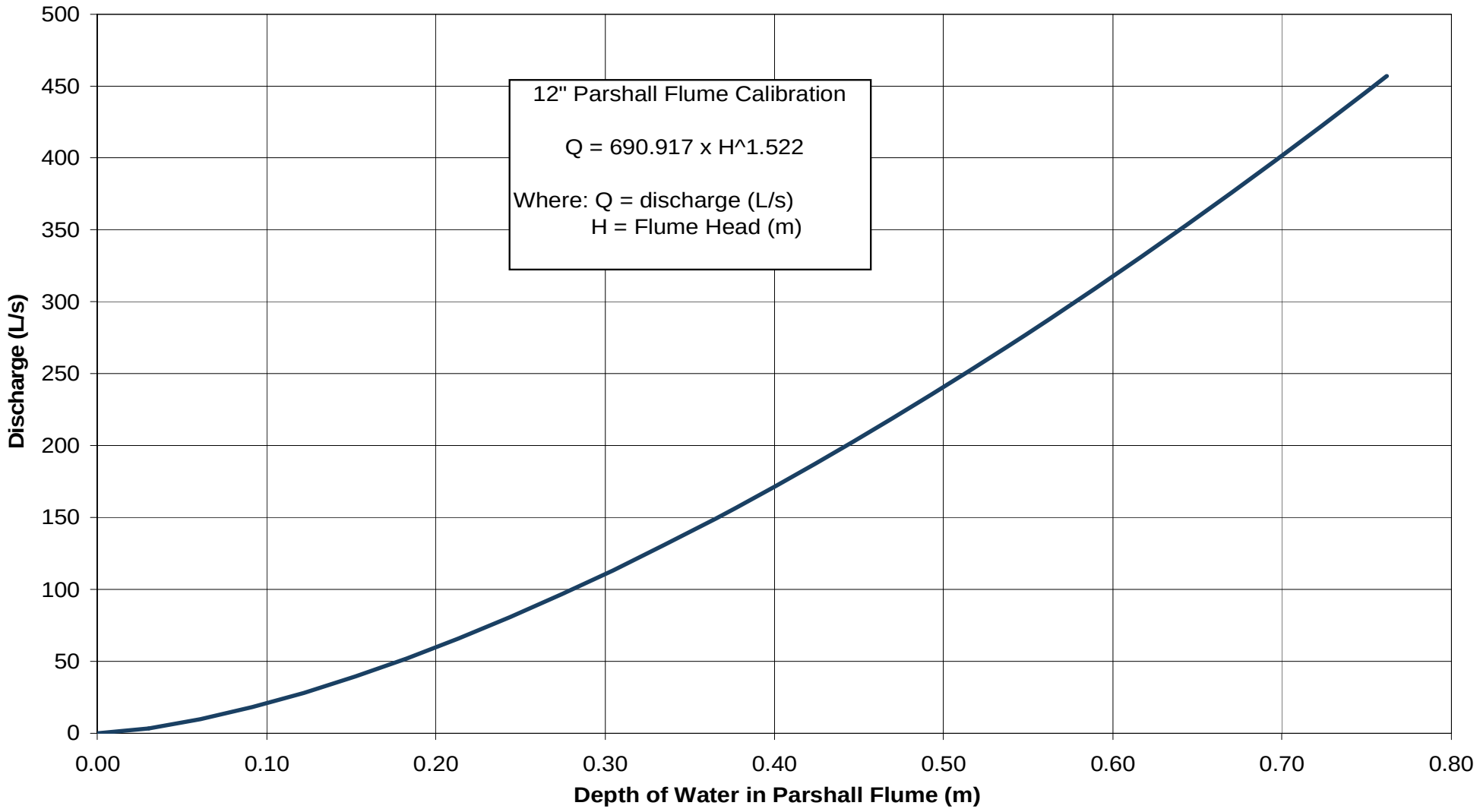
TYHEE DEVELOPMENT CORPORATION
YELLOWKNIFE GOLD PROJECT

Daily Pan Evaporation Rates
2007 - Tyhee

HAY & COMPANY CONSULTANTS A DIVISION OF EBA

PROJECT NO.	DWN	CKD	REV
Y22101002	TM	RED	
OFFICE	DATE		
EBA-VANC	January 2008		

Figure 3.10



NOTES

TYHEE DEVELOPMENT CORPORATION
YELLOWKNIFE GOLD PROJECT

12" Parshall Flume Calibration
Site #1 – Narrow Lake Outlet

HAY & COMPANY CONSULTANTS A DIVISION OF EBA

PROJECT NO.	DWN	CKD	REV
Y22101002	TM	RED	
OFFICE: EBA-VANC	DATE: January 2008		

Figure 2.2

APPENDIX

APPENDIX A SITE DESCRIPTIONS

Station Name: **Site #1: Narrow Lake Outlet**

Station Coordinates (NAD27): North 63° 9' 16.4 "
West 113° 57' 7.3"

Basin Catchment Area: 9.3 km²

SITE LOCATION

The station is located on the southwest end of Narrow Lake. It is about 10 m north of the winter road at the junction of the creek with the road. There are two small creeks, which flow out of Narrow Lake. Both creeks enter a small pond. A single creek flows out of this pond and for the first 50 m, the flow is along a well-defined channel. The Narrow Lake outlet hydrometric Site #1 is located in this channel about 10 m downstream of the pond.

STATION DESCRIPTION

Two creeks flow southwest from Narrow Lake and merge again into a small pond. A single creek flows out of the southwest side of the pond. The creek bed is about 0.5 m below the typical bank elevation and is typically about 1 to 3 m in width. After approximately 100 m of defined creek channel, the channel disappears and the creek flow is diffuse in nature and in general, meanders through stunted growth of birch, pine trees, willow shrubs and long grass.

INSTRUMENTATION

The hydrometric station installed at this site includes a Parshall Flume, a water level and temperature sensor and a data logger which records data at 15 minute intervals. A staff gauge is located at the cross section where the creek is gauged, just upstream of the Parshall Flume.

STATION HISTORY

The Narrow Lake Outlet flow monitoring station was established shortly after the spring thaw in 2004. During the summer of 2004, a staff gauge was installed at the site and spot measurements of flow and stage were recorded manually.

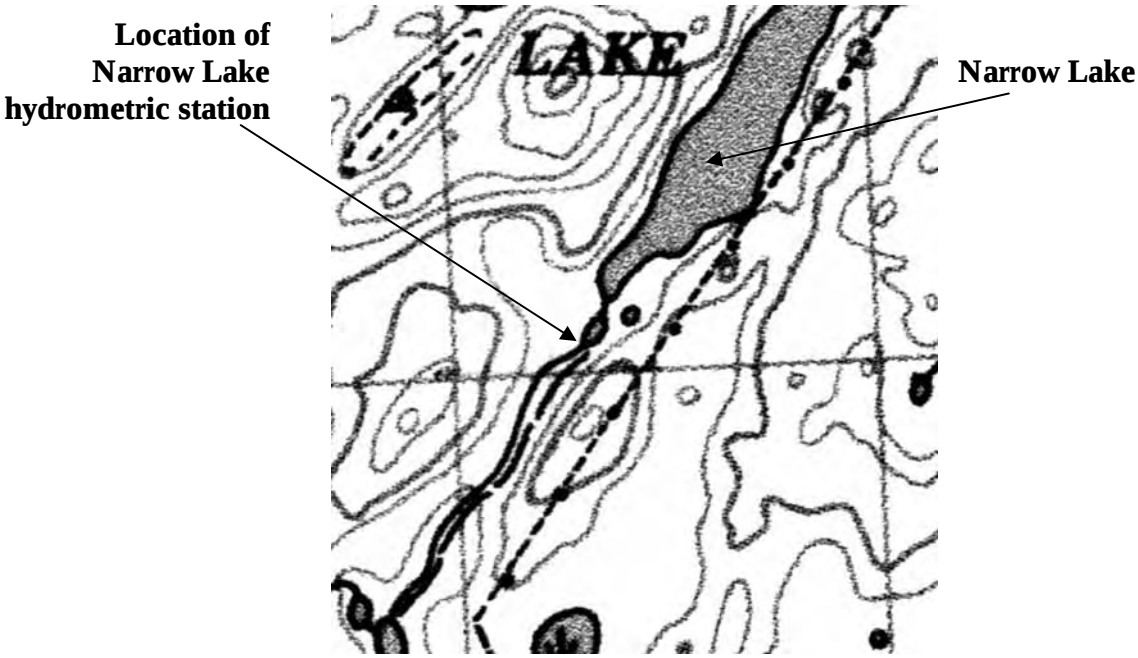
- May 22, 2005 - an automated stage and temperature recorder was installed at this station. A survey monument was also installed at this site, to provide a known reference point, for elevation surveys of the site instrumentation. This station was removed from service on July 15, 2005 to accommodate site improvements.
- July 17, 2005 - the hydrometric station was upgraded by installing a Parshall flume.

- June 9, 2006 - the Parshall flume and bulkhead was inspected for damage or leakage. No problems were observed and the pressure transducer and data logger were reinstalled to collect discharge data over the summer of 2006.
- September 19, 2006 - the instrumentation was removed for the season.
- May 11, 2007 – instrumentation was re-installed to collect discharge data over the summer of 2007.
- June 10, 2007 – the Parshall flume and bulkhead was inspected damage or leakage. Leaks were plugged on both sides of flume. It was observed that during high flows, leaks may occur around the sides of the bulkhead.
- September 28, 2007 - the instrumentation was removed for the season.

SPECIFICATIONS

Pressure Transducer / Data Logger Serial Number	2434006
Parshall Flume Throat Diameter	12.00 in
Parshall Flume Transducer Well Offset	-0.010 psi
Transducer Zero Offset	0.102 psi
Flume Calibration Algorithm Multiplier	690.917
Flume Calibration Algorithm Exponent	1.522

MAP OF NARROW LAKE OUTLET HYDROMETRIC STATION



PHOTOGRAPHS OF NARROW LAKE OUTLET HYDROMETRIC STATION

Aerial view looking upstream to the northeast to Narrow Lake

Parshall Flume – Narrow Lake Outlet Hydrometric Station

Parshall Flume – Narrow Lake Outlet Hydrometric Station (downstream)

Station Name: **Site #3: Winter Lake Outlet**

Station Coordinates (NAD27): North 63° 10' 4.8 "
West 113° 55' 38.5"

Basin Catchment Area: 5.5km²

SITE LOCATION

The site is located between Narrow Lake to the southwest and Winter Lake to the northeast. The Winter Lake outlet is located on the northwest portion of Winter Lake about 10 m to the south of the winter road. The hydrometric station is located 60 m downstream from the outlet.

STATION DESCRIPTION

The creek flows along the south side of the winter road to the midway point between Winter and Narrow Lakes. Over this reach of the creek, the channel is typically 30 to 60 cm wide by 15 to 20 cm deep. Over the rest of the distance to Narrow Lake, the creek flows along a poorly defined diffuse route down the winter road and discharges to Narrow Lake.

INSTRUMENTATION

The hydrometric station installed at this site includes a Parshall flume, a water level and temperature sensor and a data logger which records data at 15 minute intervals. A staff gauge is located at the cross section where the creek is gauged, just upstream of the Parshall Flume.

STATION HISTORY

A site was selected for the Winter Lake hydrometric station on May 20, 2005 during the first hydrometric site visit of that year. Only manually determined discharges were recorded during the 2005 field survey. A Parshall flume was sized and ordered as well as the necessary hydrometric station instrumentation.

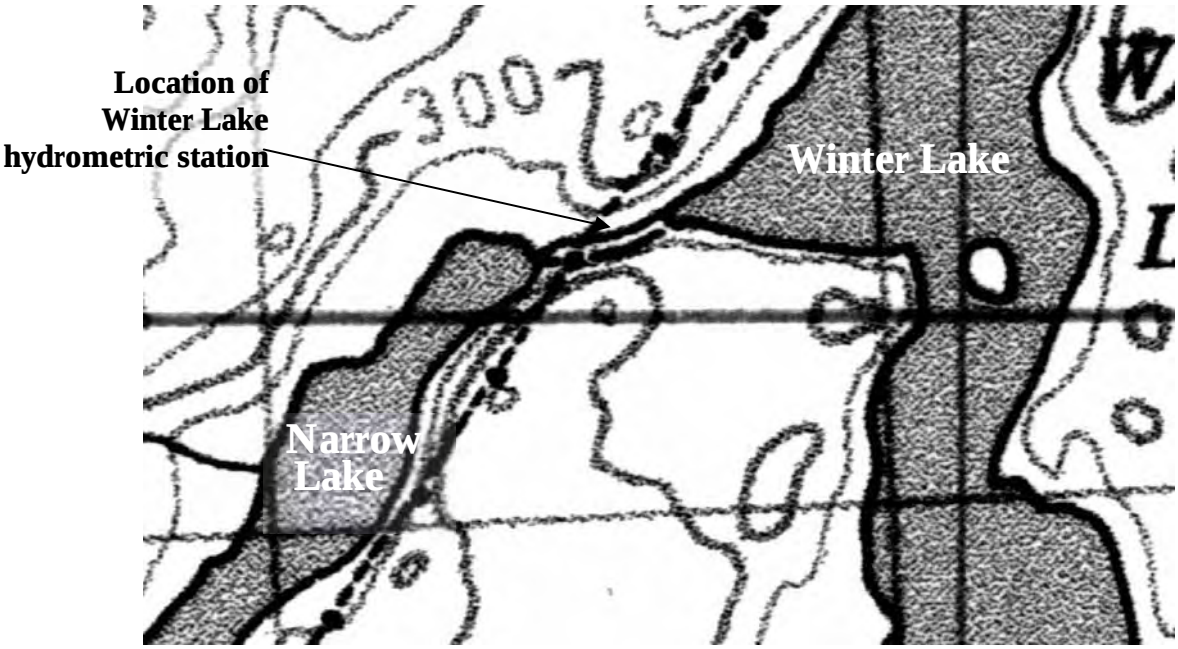
- July 14, 2005 - the hydrometric station was upgraded by installing a Parshall flume.
- June 9, 2006 - the Parshall flume and bulkhead was inspected for damage and leakage. No problems were observed and the pressure transducer and data logger were reinstalled to collect discharge data over the summer of 2006.
- September 19, 2006 - the instrumentation was removed for the season.
- May 19, 2007 – instrumentation was re-installed to collect discharge data over the summer of 2007.

- June 10, 2007 – the Parshall flume and bulkhead was inspected for damage and leakage. Leakage at higher flows around the flume was observed to be possible and attempts at repairs made. Next season further repairs to the flume construction are necessary to prevent further leakage and erroneous flow data.
- September 28, 2007 - the instrumentation was removed for the season.

SPECIFICATIONS

Pressure Transducer / Data Logger Serial Number	2434007
Parshall Flume Throat Diameter	9.00 in
Parshall Flume Transducer Well Offset	0.048 psi
Transducer Zero Offset	0.111 psi
Flume Calibration Algorithm Multiplier	535.343
Flume Calibration Algorithm Exponent	1.53

MAP OF WINTER LAKE OUTLET HYDROMETRIC STATION



PHOTOGRAPHS OF WINTER LAKE OUTLET HYDROMETRIC STATION

Aerial view from Winter Lake looking southwest across site to Narrow Lake

Parshall Flume – Winter Lake Outlet Hydrometric Station (upstream)

Parshall Flume – Winter Lake Outlet Hydrometric Station (downstream)

Station Name: **Site #4: Round Lake Outlet**

Station Coordinates (NAD27): North 63° 10' 30.3 "
West 113° 54' 27.2"

Basin Catchment Area: 1.2 km²

SITE LOCATION

The site is located between Winter Lake to the southwest and Round Lake to the east. The station is located on the north side of the winter road, 75 m northeast from the point the winter road intersects Round Lake. The flow outlet is situated on the northwest side of the Round Lake.

STATION DESCRIPTION

There is no distinct flow channel out of Round Lake but rather a diffuse flow through the muskeg into a small marsh approximately 5 m downstream from the lake. The outlet from this marsh flows southwest into Winter Lake, typically as a vadose flow, through the muskeg and willow shrubs. At one point, about 25 m southwest of the Round Lake outlet, the flow is contained in a single channel. The hydrometric station was installed here.

INSTRUMENTATION

The hydrometric station installed at this site includes a Parshall Flume, a water level and temperature sensor and a data logger which records data at 15 minute intervals. A staff gauge is located at the cross section where the creek is gauged, just upstream of the Parshall Flume.

STATION HISTORY

A site was selected for the Round Lake hydrometric station on May 21, 2005 during the first hydrometric site visit of that year. Only manually-determined discharges were recorded during this field survey.

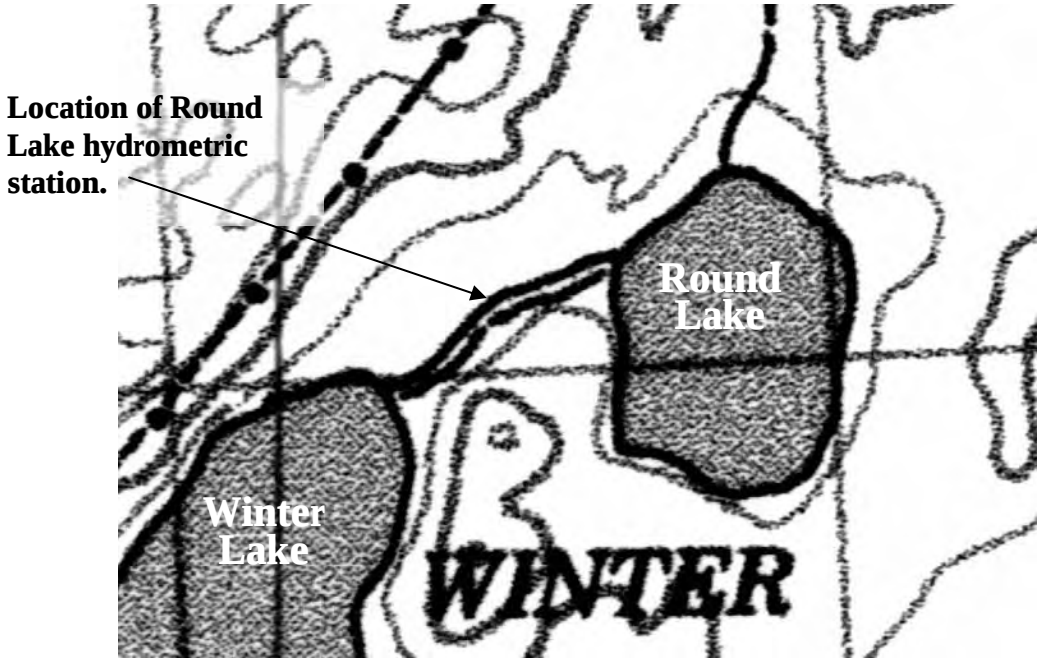
- July 18, 2005 - a Parshall flume was installed and instrumented.
- September 12, 2005 – instrumentation was removed for the season.
- June 9, 2006 - the Parshall flume and bulkhead was inspected for damage or leakage. A leak in the bulkhead was repaired and the pressure transducer and data logger were reinstalled to collect discharge data over the summer of 2006.
- October 3, 2006 - the instrumentation was removed for the season.

- May 19, 2007 – instrumentation was re-installed to collect discharge data over the summer of 2007.
- June 11, 2007 – the Parshall flume and bulkhead was inspected damage and leakage. The bulkhead needs repair work, as during high flows, leakage could occur around the sides, however at low flows, there is no apparent leakage.
- September 28, 2007 - the instrumentation was removed for the season.

SPECIFICATIONS

Pressure Transducer / Data Logger Serial Number	2516008
Parshall Flume Throat Diameter	6.00 in
Parshall Flume Transducer Well Offset	-0.007 psi
Transducer Zero Offset	0.069psi
Flume Calibration Algorithm Multiplier	381.206
Flume Calibration Algorithm Exponent	1.580

MAP OF ROUND LAKE OUTLET HYDROMETRIC STATION



PHOTOGRAPHS OF ROUND LAKE OUTLET HYDROMETRIC STATION

Aerial view from Round Lake southwest across site to Winter Lake.

Parshall Flume – Round Lake Outlet Hydrometric Station (downstream)

Station Name: **Site #6: Nicholas Lake Outlet**

Station Coordinates (NAD27): North 63° 15' 20.1"
West 113° 46' 4.4"

Basin Catchment Area: 6.28 km²

SITE LOCATION

The site is located at the western end of the Northwest arm of Nicholas Lake just downstream of Nicholas Lake outlet. The discharge gauging station and staff gauge are located about 10 m downstream of the creek outlet at Nicholas Lake, in the open and well-defined channel. 5 m further downstream from the staff gauge, the hydrometric stage recorder housing is attached to a vertical rock face so that the sensor is submerged.

STATION DESCRIPTION

The creek exits in a well-defined bedrock channel. Within 30 m from the outlet of the lake, large boulders begin to occupy the streambed. Within 100 m of the outlet, boulders almost completely fill the creek channel, restricting the flow area. Flow occurs around and under the numerous boulders. There are only small areas where the flow is visible under the rock-filled channel. The rock-filled channel extends the rest of the length of the creek.

INSTRUMENTATION

The hydrometric station installed at this site includes a water level and temperature sensor and a data logger which records data at 15 minute intervals. A staff gauge is located at the cross section where the creek is gauged, just upstream of the station.

STATION HISTORY

The Nicholas Lake Outlet flow monitoring station was established shortly after the spring thaw in 2004. A staff gauge was installed on the Nicholas Lake outlet on May 31, 2004, and spot measurements of flow and stage were recorded manually.

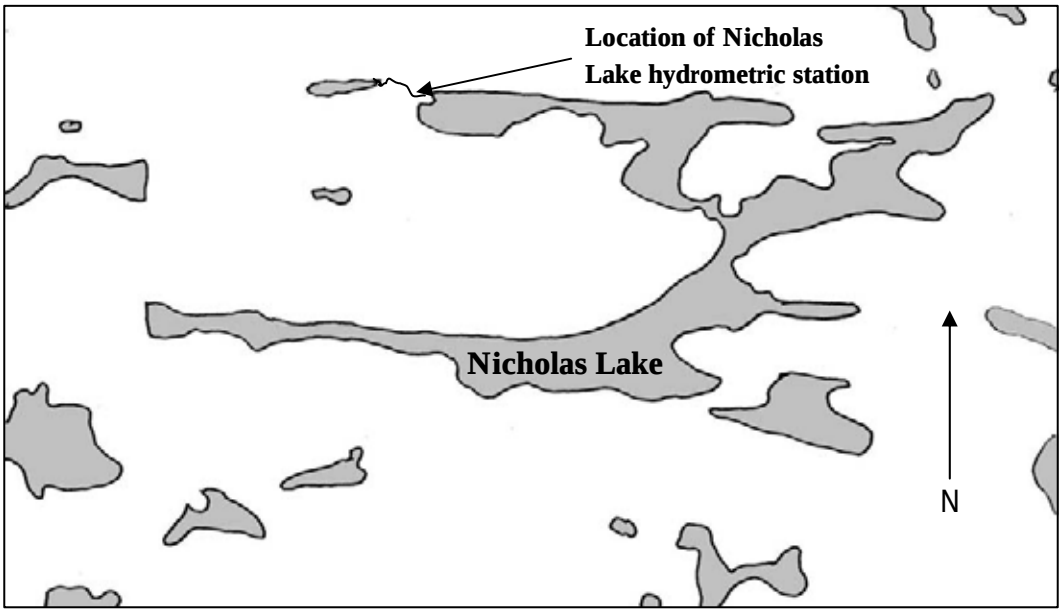
- July 13, 2005 - an automated stage and temperature recorder was installed at this station. A survey monument was also installed at this site, to provide a known reference point, for elevation surveys of the site instrumentation.
- September 13, 2005 – the instrumentation was removed for the season.
- Spring 2006 - Nicholas Lake Outlet was excluded from the hydrological study for 2006 and no flow data was collected.

- June 10, 2007 - Nicholas Lake Outlet was re-included into the hydrology study for 2007, and instrumentation was re-installed to collect discharge data over the summer of 2007.
- September 30, 2007 - the instrumentation was removed for the season.

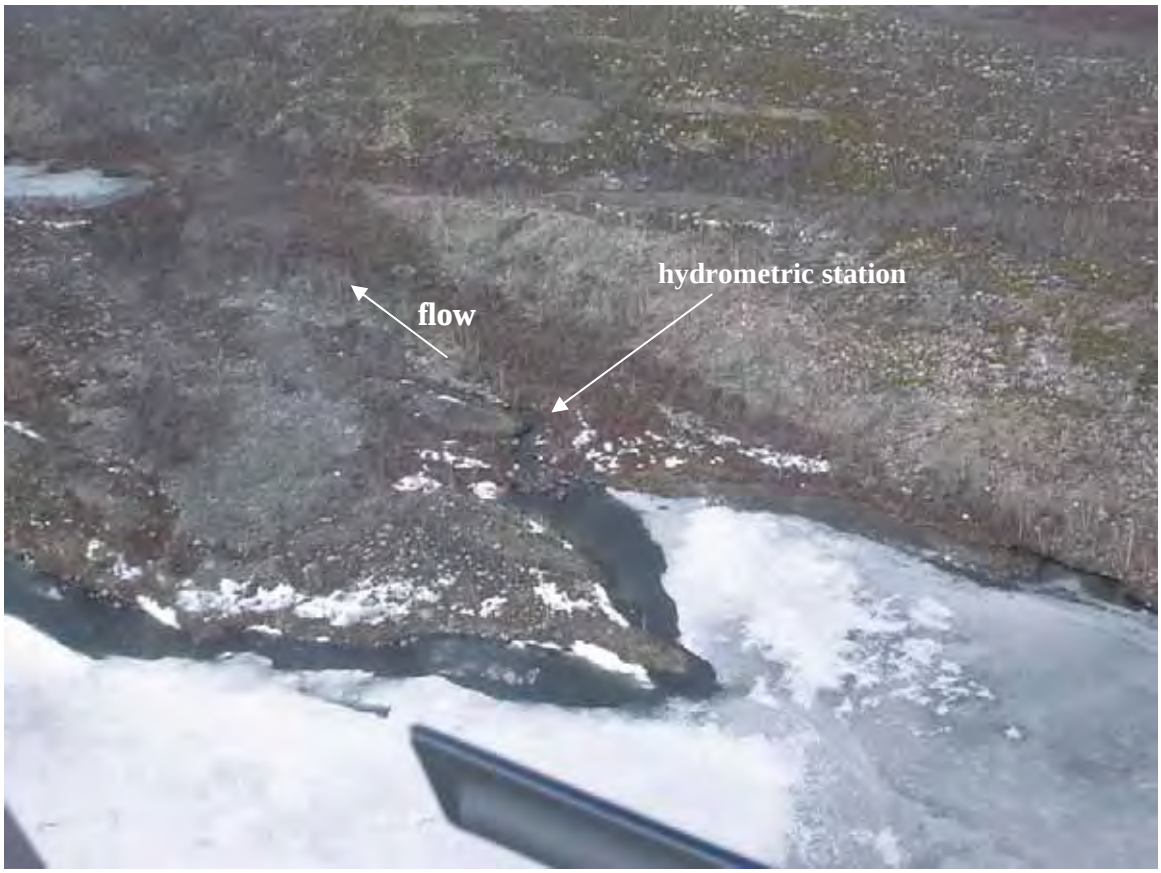
SPECIFICATIONS

Pressure Transducer / Data Logger Serial Number	2434009
sea level, benchmark elevation at the site (assumed)	1000.000 m
sea level, elevation of zero reading on staff gauge (assumed)	997.707 m
difference in elevation from BM to staff gauge zero reading	2.293 m
difference in elevation from BM to the pressure transducer	2.356 m
transducer elevation (assumed)	997.645 m
Transducer zero offset	0.054 psi

MAP OF NICHOLAS LAKE OUTLET HYDROMETRIC STATION



PHOTOGRAPHS OF NICHOLAS LAKE OUTLET HYDROMETRIC STATION



Aerial view from Nicholas Lake northwest across site

Staff gauge and discharge gauging station

Pressure transducer and data logger

Station Name: **Site #7: Tyhee**
Station Coordinates (NAD27): North 63° 11' 6.2 "
West 113° 53' 40.2"
Magnetic Deviation: 22.83° or TN=337.17°

Date of Installation: Sep. 28/04
Tower Height: 10 m
Site elevation above sea level: 300 m
North alignment pole set to 337.2°

STATION DESCRIPTION

The weather station consists of a standard 10 meter meteorological tower with instrumentation to measure wind speed and direction, air temperature, relative humidity, barometric pressure, and incident solar radiation, an all-weather precipitation gauge and an evaporation pan. The station is powered by a 12 Vdc 8 Ahr battery with a 20-watt solar panel for charging. Data is recorded to a Campbell Scientific CR10X data logger. The data collection cycle is 5 seconds and the data is averaged over a 15 minute archiving period and saved to the logger memory. Station memory capacity exceeds one year of data at the current sampling rate.

STATION LOCATION

The station was installed at a site overlooking Giauque Lake to the east. It is located about 50 metres to the east of the north end of the Tyhee airstrip and just southeast of the old Discovery Mine site. The elevation of the station is 300 meters asl.

INSTALLATION NOTES

The tower base supports are fixed to a 1 cubic meter block of concrete. The tower legs are bolted to the base supports. Three guy lines secure the top of the tower and prevent the tower from swaying under high winds. The wind anemometer is located near the top of the tower, just below the lightning rod. The remaining instrumentation is located near the base.

The precipitation gauge is located 5 meters southeast from the tower. It is mounted on a concrete slab to enable support of the tipping bucket rain gauge and the alter wind screen. The support table for the evaporation pan is located beside the precipitation gauge.

RECORDED DATA

The two tables below show examples of the data collected every 15 minutes, as well as a 24 hour summary of the daily maximums and minimums and information on the status of the data logger and the battery.

15 Minute Record

Date / Time	Wind Speed (m/s)	Wind Dir (degrees)	SD Wind dir (degrees)	Air Temp (°C)	Relative Humidity (%)	Barometric Pressure (hPa)	Precip-itation (mm)	Pyrano-meter (W/m²)
Sep. 21/07 11:00	2.947	290.5	10.28	-0.942	93.9	1008.9	0	98.2
Sep. 21/07 11:15	2.348	289.7	12.79	-0.884	94.1	1009	0.254	89.2
Sep. 21/07 11:30	2.369	300	10.36	-0.775	93.7	1008.8	0.508	120.6
Sep. 21/07 11:45	2.01	298.3	13.13	-0.547	92.6	1008.8	0	151.9

Daily Summary

Date	Speed	Daily Barometric Pressure			Precip-	Daily Relative humidity			Daily Air Temperature			Pyrano
	Max (m/s)	Mean (hPa)	Max (hPa)	Min (hPa)	atation (mm/day)	Mean (%)	Max (%)	Min (%)	Mean (%)	Max (%)	Min (%)	meter (W/m²)
May 23/2007	8.02	1025	1027	1022	0.762	64.71	92.2	33.64	3.786	11.62	-3.771	915
May 24/2007	10.47	1019	1023	1015	0.508	49.53	76.5	32.49	9.47	16.51	-0.063	787
May 25/2007	11.39	1010	1015	1006	0.508	38.71	63.98	19.75	13.94	19.69	6.32	888
May 26/2007	7.9	1004	1006	1002	0.254	34.86	56.04	20.22	15.76	21.98	8.88	816

Internal Logger Temperature		Battery Voltage	Station	Battery Voltage	Low 12Vdc	Program	Watch Dog
Max (°C)	Min (°C)	Min (Vdc)	ID	Min (Vdc)	Counts	Signature	Errors
12.72	-5.116	12.81	2	3.134	0	1168	0
17.29	-1.775	12.76	2	3.134	0	1168	0
20.28	4.066	12.74	2	3.134	0	1168	0
22.81	8.21	12.76	2	3.134	0	1168	0

METEOROLOGICAL STATION INSTRUMENTATION PARAMETERS

Instrument	Model	Measuring Range	Sensitivity/Accuracy
Wind Monitor	05103AP-10 R.M. Young	0 to 60 m/s 0 to 100 m/s gusts	Accuracy ±0.3 m/s Threshold wind = 1.0 m/s
		0 to 355 degrees	±1.4°
Relative Humidity /Air Temperature Probe	HMP45C212-L Vaisala	Relative Humidity 0.8 to 100% non-condensing	Accuracy at 20 °C ±2% RH (0-90% RH) ±3% RH (90-100% RH)
		Air Temperature -50° to +50°C	Accuracy at 20 °C ± 0.2 °C
Barometric Pressure Sensor	61205V R.M. Young	600 – 1100 hPa (mb)	±0.1 hPa (mb)
Pyranometer	CM3-L Kipp & Zonen	Spectral Waveband. 305-2800 nm	2.5% Non linearity (at 1000 W/m²) 1.0% Non stability (% change/year)
All-Weather Precipitation Gauge	TE525WS CS705 Alter Screen 51	Each tip of the bucket is 0.254 mm of precipitation	<10 mm/hr ±1.0% 10-20 mm/hr -3.0% 20-30 mm/hr -5.0%

Wind Speed and Direction Monitor

The Model 05103-10-L wind speed and direction monitor is manufactured by R.M. Young. It is composed of a four-blade propeller mounted on a torpedo-shaped wind vane. Rotation of the propeller produces an alternating current with a frequency that is directly proportional to the wind speed. Wind direction is sensed by a potentiometer that is excited by an applied voltage. The potentiometer produces a voltage that is directly proportional to the azimuth angle. Wind data are collected every five seconds and the mean wind vector magnitude and direction are calculated and stored at 15-minute intervals. The standard deviation of wind direction is also computed and indicates the variability of wind direction over the archiving period.

Temperature and Relative Humidity Probe

The HMP25C212-L relative humidity and air temperature probe contains a Vaisala capacitive relative humidity sensor and a YSI 44212 thermistor. Both sensors are enclosed in a 10-plate gill radiation shield designed to shield the sensors from rainfall and solar radiation.

Barometric Pressure Sensor

A 61205V barometric pressure sensor is enclosed inside the data logger housing. A hydrophobic filter and entry seal prevents moisture and insects from entering the housing, while allowing the inside of the housing to maintain atmospheric pressure.

Pyranometer

A pyranometer is a device used to measure incident solar radiation. The CM3 Kipp & Zonen pyranometer consists of a thermopile sensor coated with a black absorbent coating, which converts the incident solar radiation to heat. The resultant temperature difference is converted to a voltage by a copper-constantan thermocouple. The thermopile is encapsulated inside the pyranometer's glass dome such that it has a field of view of 180 degrees. It has a flat spectral sensitivity between 300 and 3000 nm.

All-Weather Precipitation Gauge

The all-weather precipitation gauge consists of 3 devices. These are a tipping bucket for the measurement of water equivalent precipitation, a precipitation adaptor to convert snowfall to water, and a device to ensure catchment of all snow and rainfall.

The TE525WS is an adaptation of the standard US Weather Bureau tipping bucket rain gauge. The output is a switch closure for each bucket tip. Each tip represents 0.254 mm of water equivalent precipitation.

To enable the TE525WS gauge to measure snowfall a CS705 precipitation adaptor is mounted on top of the tipping bucket rain gauge. The CS705 consists of a catch tube, antifreeze reservoir and overflow tube. Snow is captured in the catch tube and melts into the antifreeze solution contained in the reservoir and as the snow melts the level in the reservoir rises causing the water antifreeze mix to flow through the overflow tube onto the tipping bucket, thereby measuring the quantity of precipitation.

The Alter windscreen is to prevent snow and rain from blowing past the rain gauge catch tube during periods of high wind velocities. The Alter windscreen prevents strong updrafts and induces turbulence around the rain gauge catch tube. This aids in reducing airflow streams over the rain gauge resulting in better collection of precipitation during windy periods and, therefore, increasing the accuracy of the precipitation measurements.

DATA STORAGE

Data are recorded to a Campbell Scientific CR10X-2M data logger. The archiving interval for all parameters, except evaporation, is 15 minutes but this can be adjusted to suit specific data collection requirements. At a 15-minute sample frequency, the station will log up to one year of data before filling the memory. Meteorological data on all instruments are

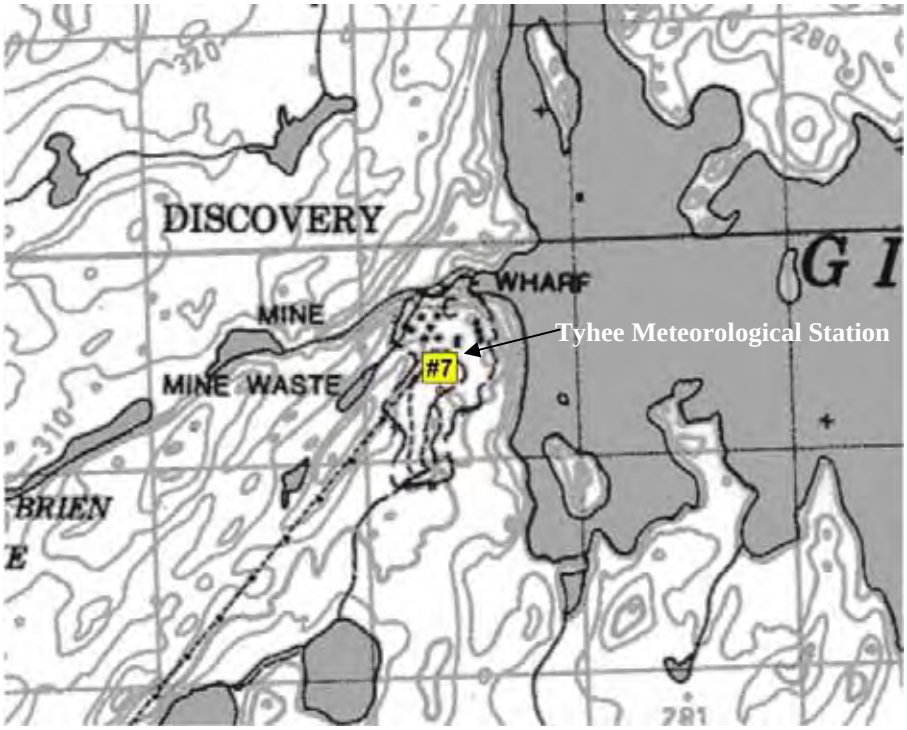
collected at 5-second intervals, then averaged over the archiving period and saved to the logger memory.

At the conclusion of each 24-hour period a daily summary of the meteorological data is saved to the logger memory. Other variables, which are indicative of the status of the meteorological station, such as battery power, internal temperatures and low voltage counts are also saved. Refer to the site description document in Appendix A for further information on the daily summary.

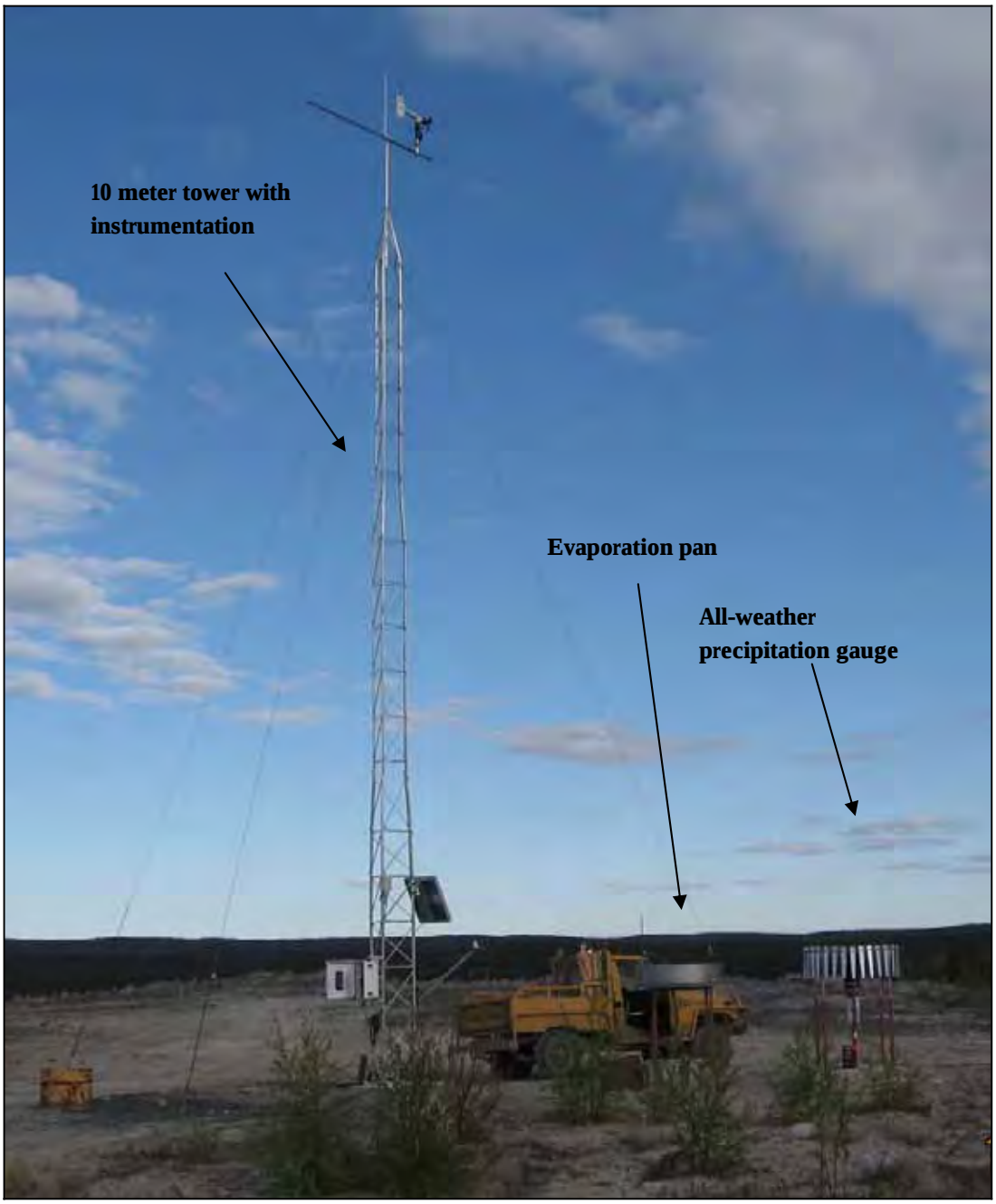
STATION POWER

The meteorological station is powered by a 12 V DC battery, a 20 watt solar panel and a charge regulator, all of which are attached to the 10 m tower. With this power configuration the station can run unattended for more than a year.

MAP OF TYHEE METEOROLOGICAL STATION



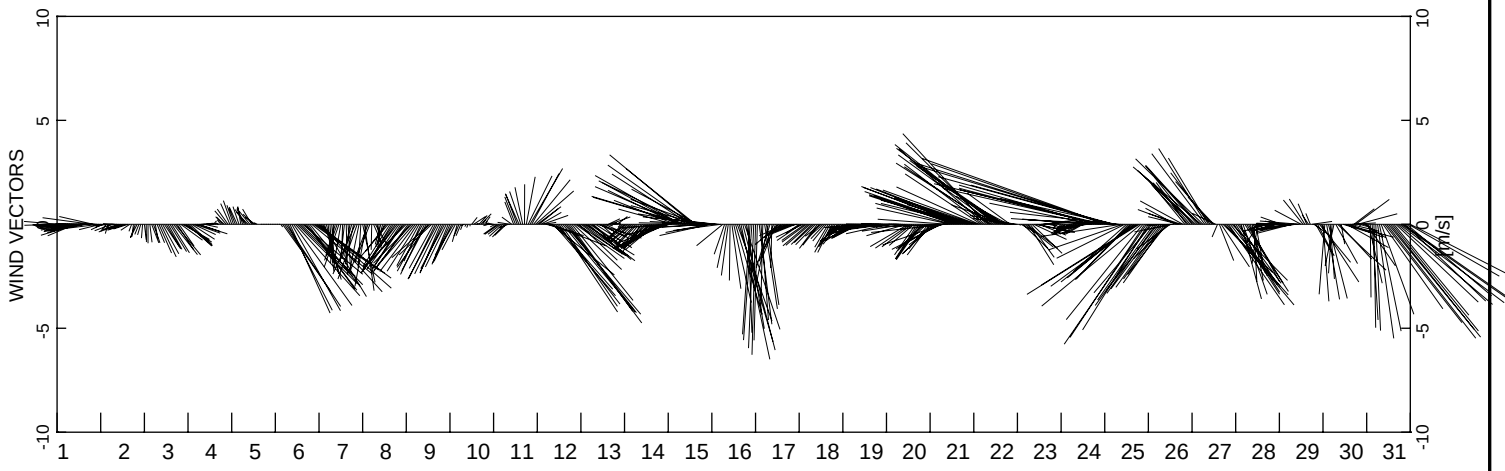
PHOTOGRAPH OF TYHEE METEOROLOGICAL STATION

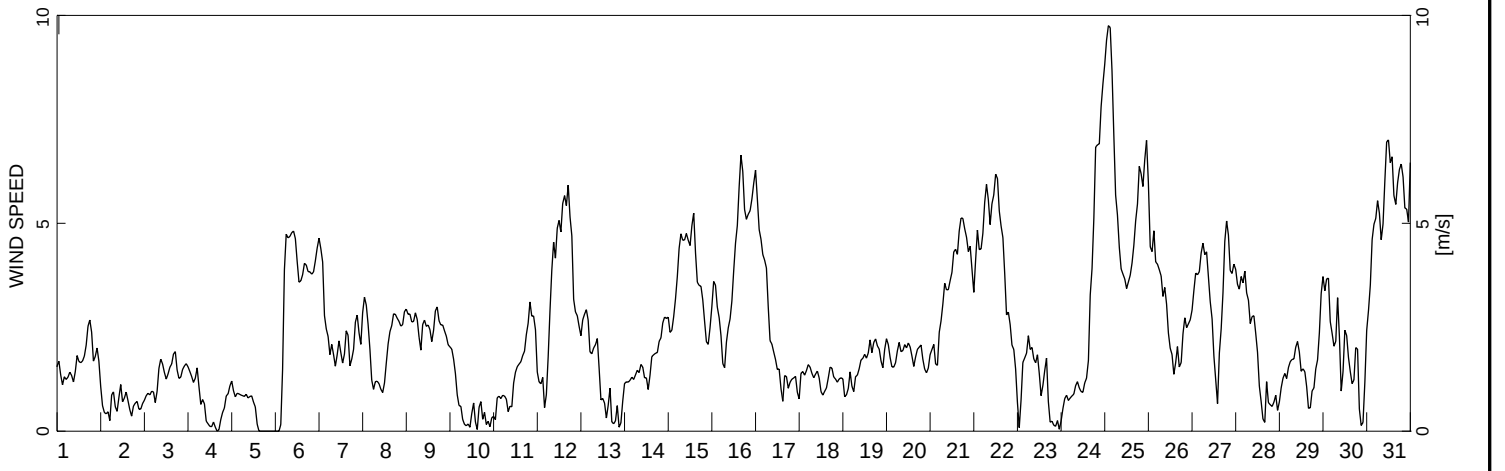


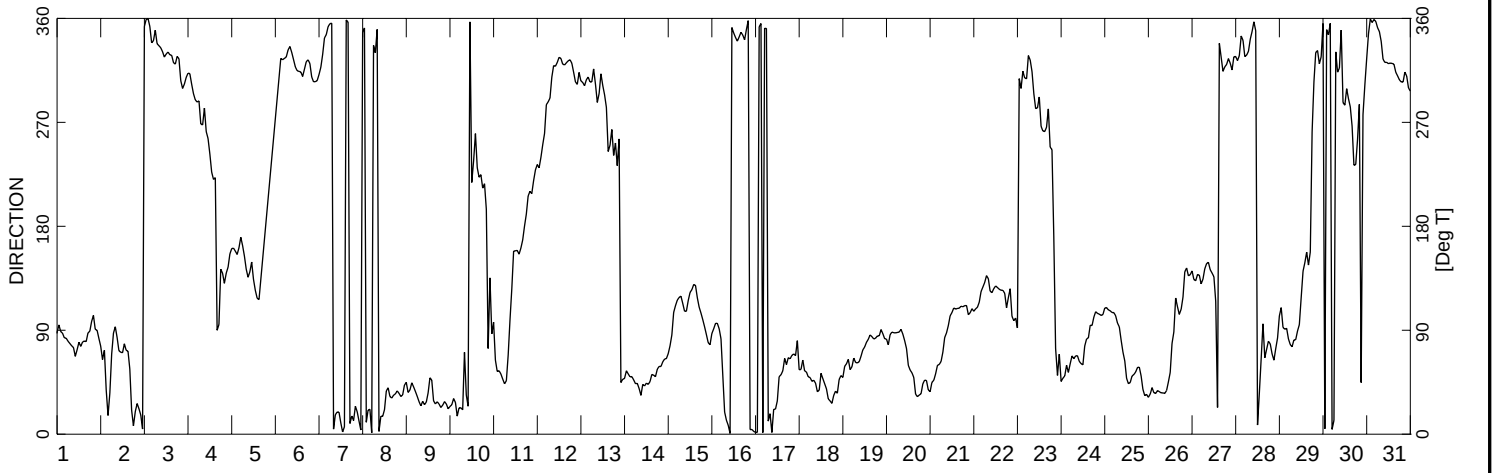
Site #7: View of the Tyhee Meteorological Station

APPENDIX

APPENDIX B MONTHLY WIND SUMMARIES – JANUARY 2007 TO DECEMBER 2007







CLIENT

Tyhee Development Corp

TYHEE DEVELOPMENT CORP.
YELLOWKNIFE GOLD PROJECT

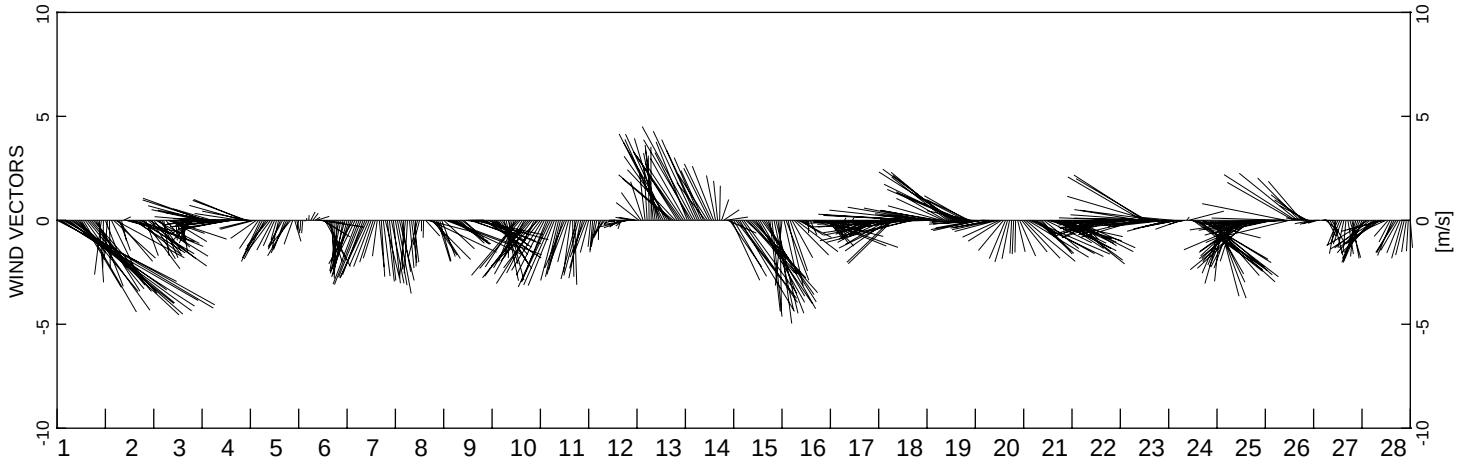
TYHEE
WIND DATA
JANUARY 2007

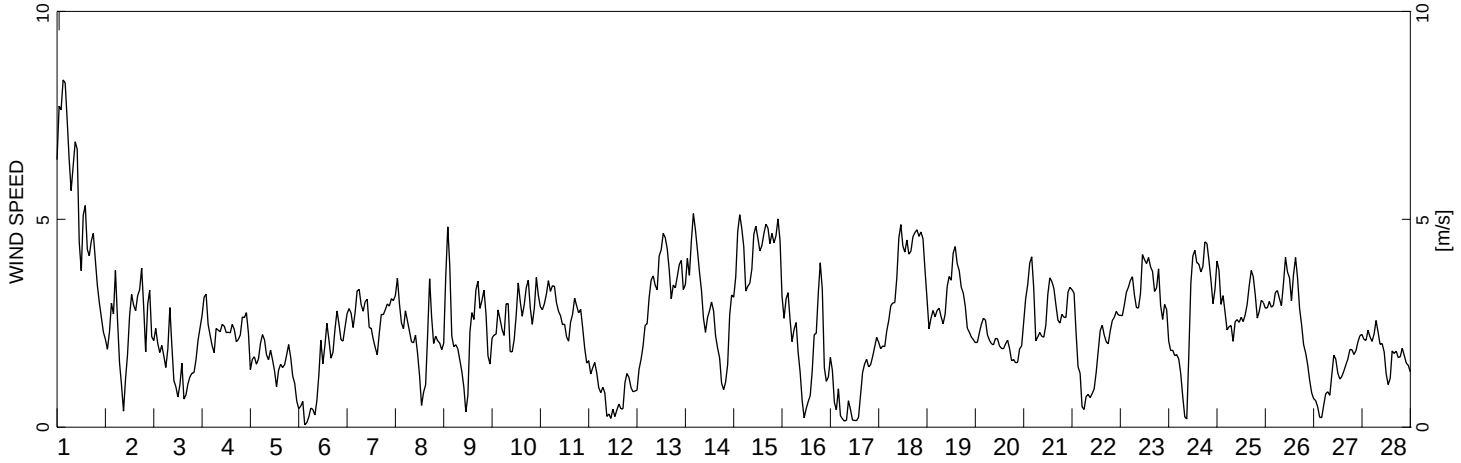
HAY & COMPANY CONSULTANTS A DIVISION OF EBA

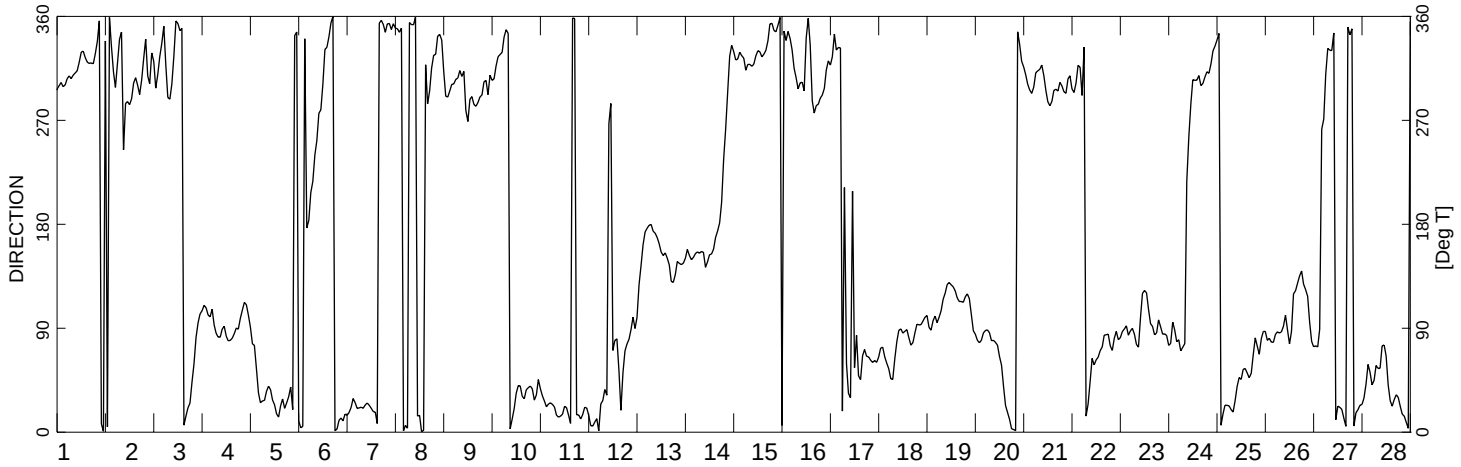
PROJECT NO.	DWN	CHK	REV
Y22101002	TM	JAS	0
OFFICE: EBA-VANC	DATE: January 2008		

Figure B-01

Wed Jan 16 17:19:57 2008:Q:\Vancouver\Environmental\Y221\Projects\Y22101002_Tyhee_2007\Working\RED\Meteorology\2007_data







CLIENT

Tyhee Development Corp

TYHEE DEVELOPMENT CORP.
YELLOWKNIFE GOLD PROJECT

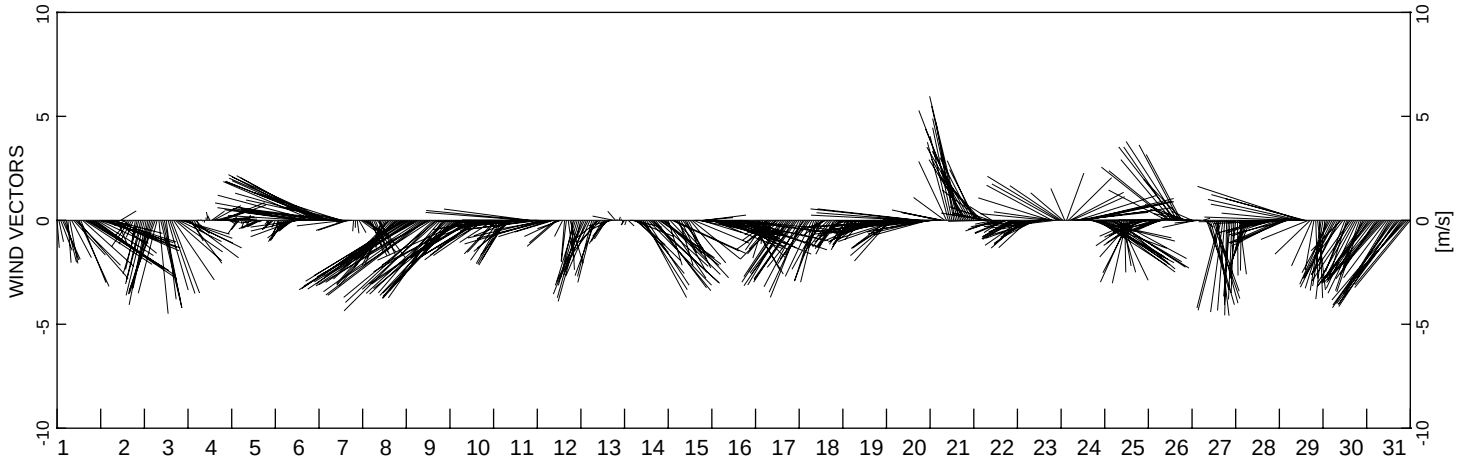
TYHEE
WIND DATA
FEBRUARY 2007

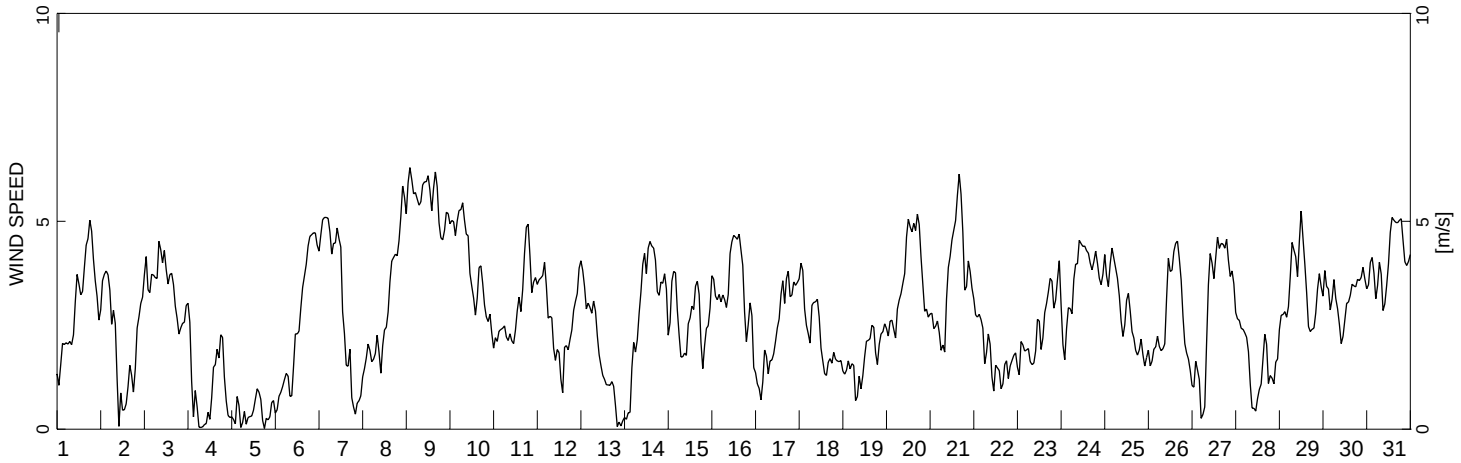
HAY & COMPANY CONSULTANTS A DIVISION OF EBA

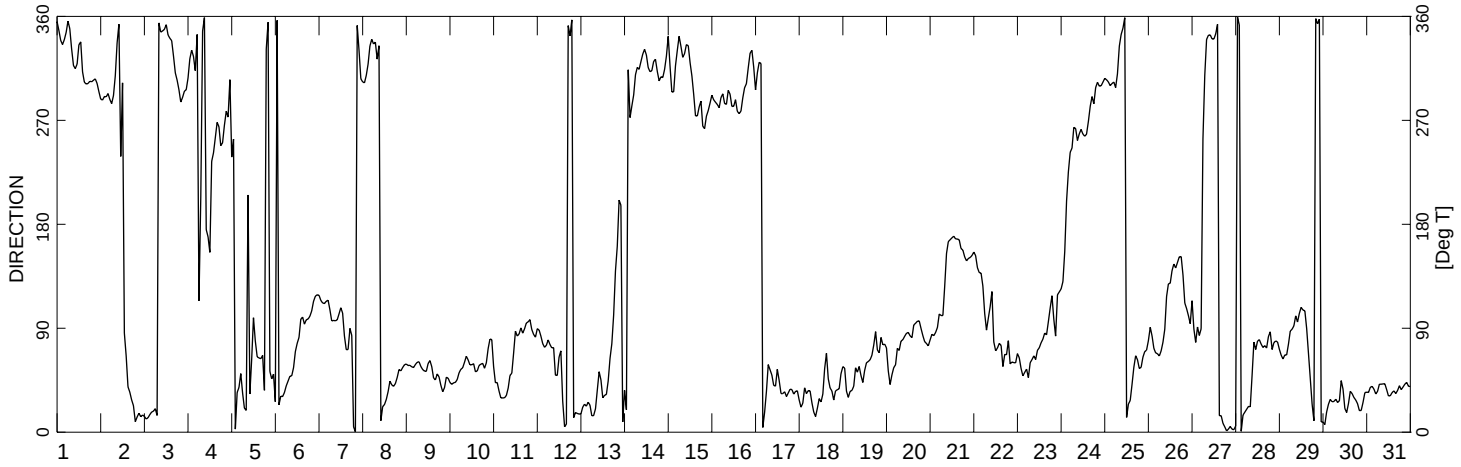
PROJECT NO.	DWN	CHK	REV
Y22101002	TM	JAS	0
OFFICE: EBA-VANC	DATE: January 2008		

Figure B-02

Wed Jan 16 17:20:00 2008:Q:\Vancouver\Environmental\Y221\Projects\Y22101002_Tyhee_2007\Working\RED\Meteorology\2007_data







CLIENT

Tyhee Development Corp

TYHEE DEVELOPMENT CORP.
YELLOWKNIFE GOLD PROJECT

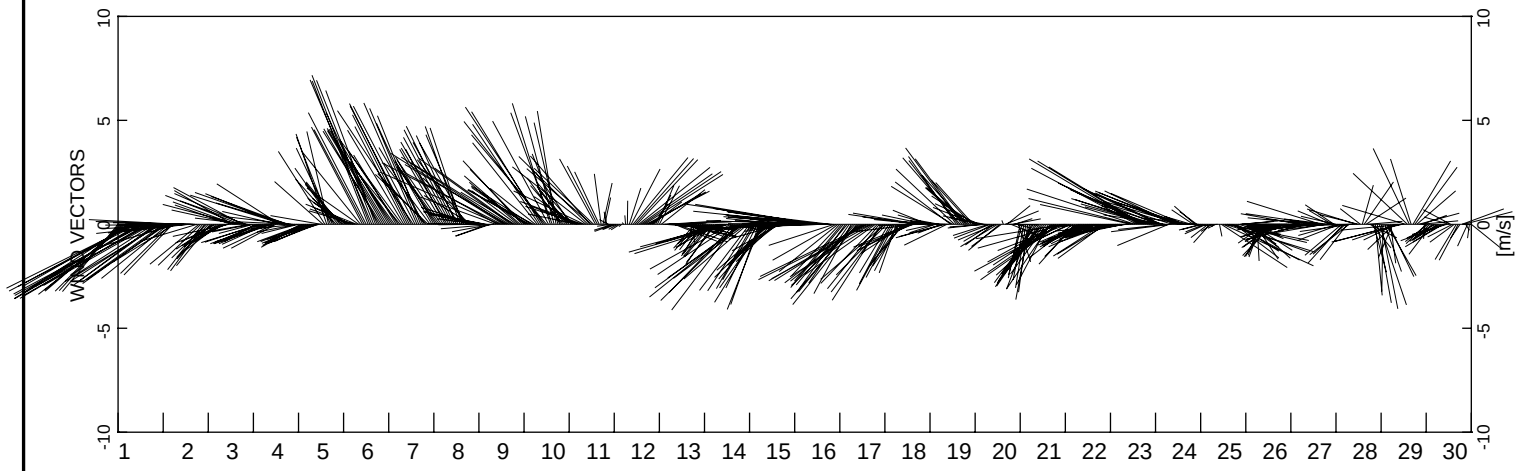
TYHEE
WIND DATA
MARCH 2007

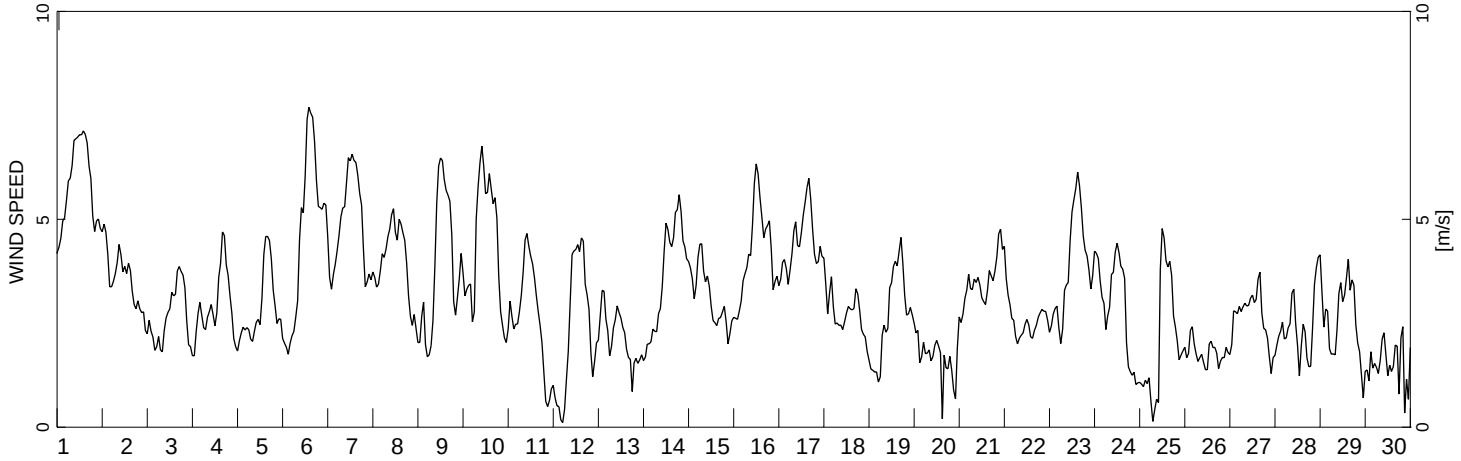
HAY & COMPANY CONSULTANTS A DIVISION OF EBA

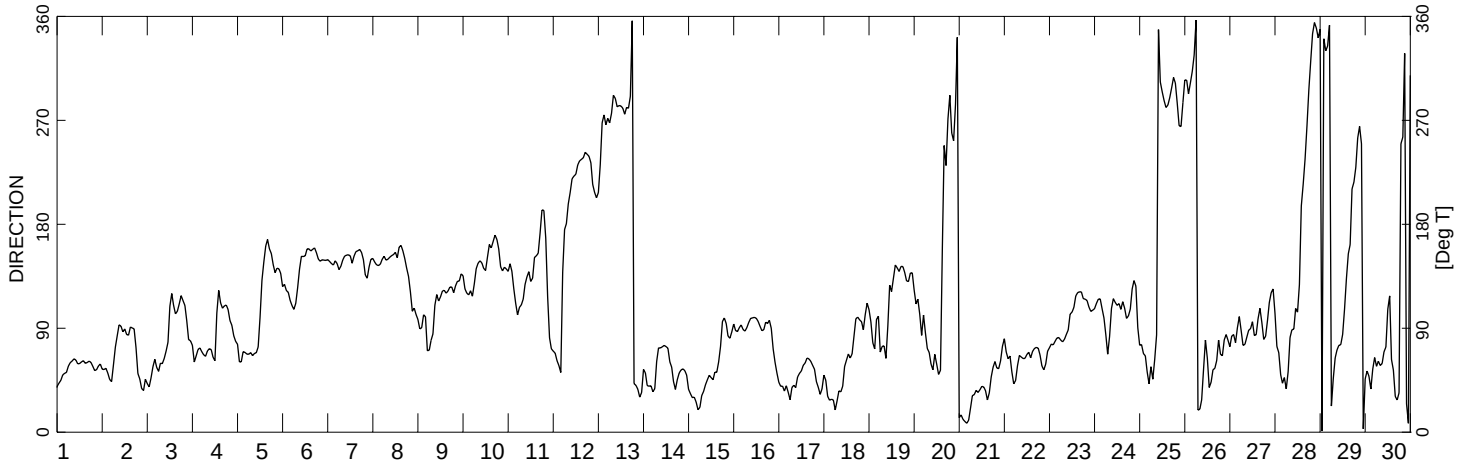
PROJECT NO.	DWN	CHK	REV
Y22101002	TM	JAS	0
OFFICE: EBA-VANC	DATE: January 2008		

Figure B-03

Wed Jan 16 17:20:02 2008:Q:\Vancouver\Environmental\Y221\Projects\Y22101002_Tyhee_2007\Working\RED\Meteorology\2007_data







CLIENT

Tyhee Development Corp

TYHEE DEVELOPMENT CORP.
YELLOWKNIFE GOLD PROJECT

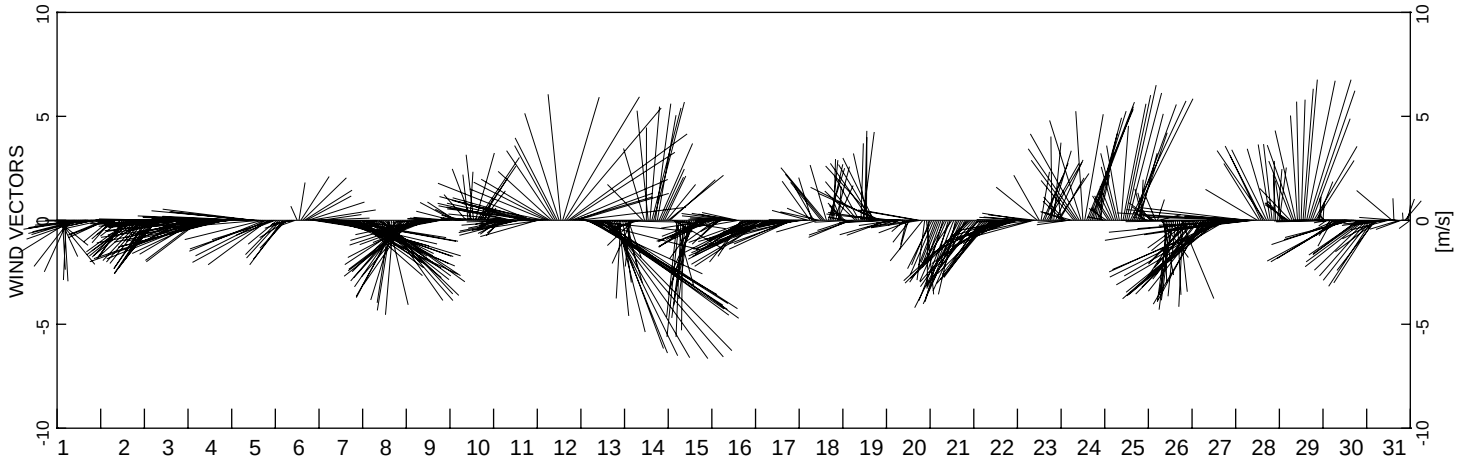
TYHEE
WIND DATA
APRIL 2007

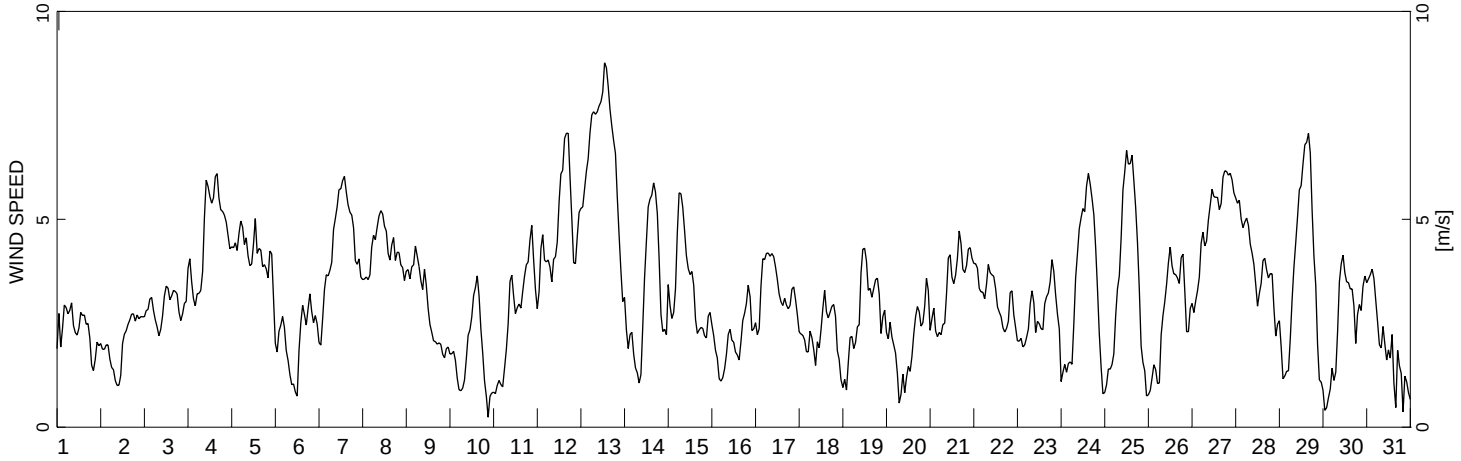
HAY & COMPANY CONSULTANTS A DIVISION OF EBA

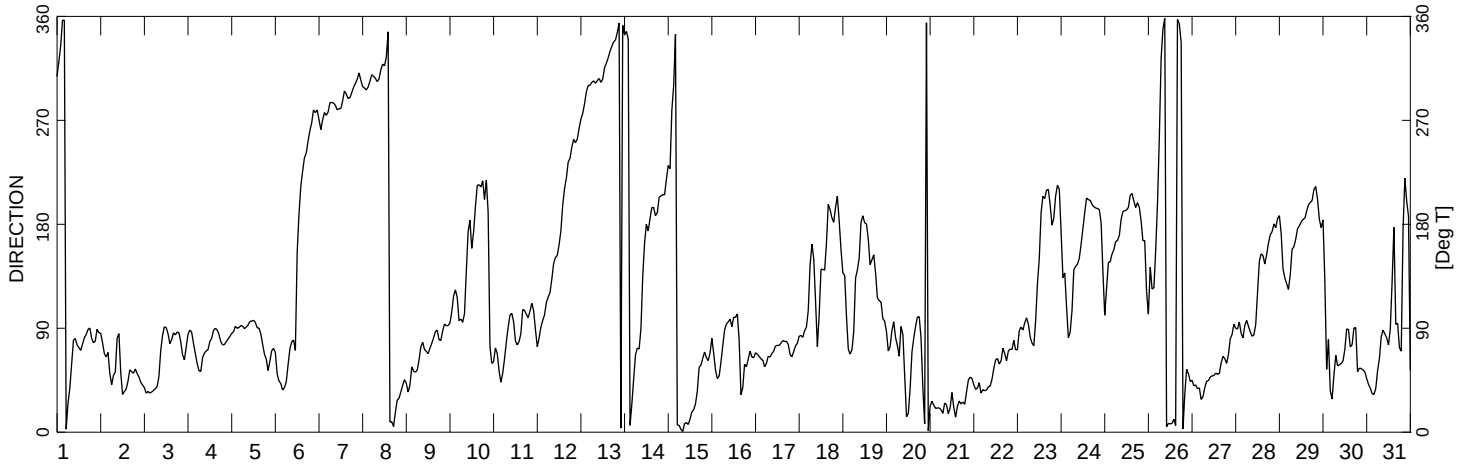
PROJECT NO.	DWN	CHK	REV
Y22101002	TM	JAS	0
OFFICE: EBA-VANC	DATE: January 2008		

Figure B-04

Wed Jan 16 17:20:04 2008:Q:\Vancouver\Environmental\Y221\Projects\Y22101002_Tyhee_2007\Working\RED\Meteorology\2007_data







CLIENT

Tyhee Development Corp

TYHEE DEVELOPMENT CORP.
YELLOWKNIFE GOLD PROJECT

TYHEE
WIND DATA
MAY 2007

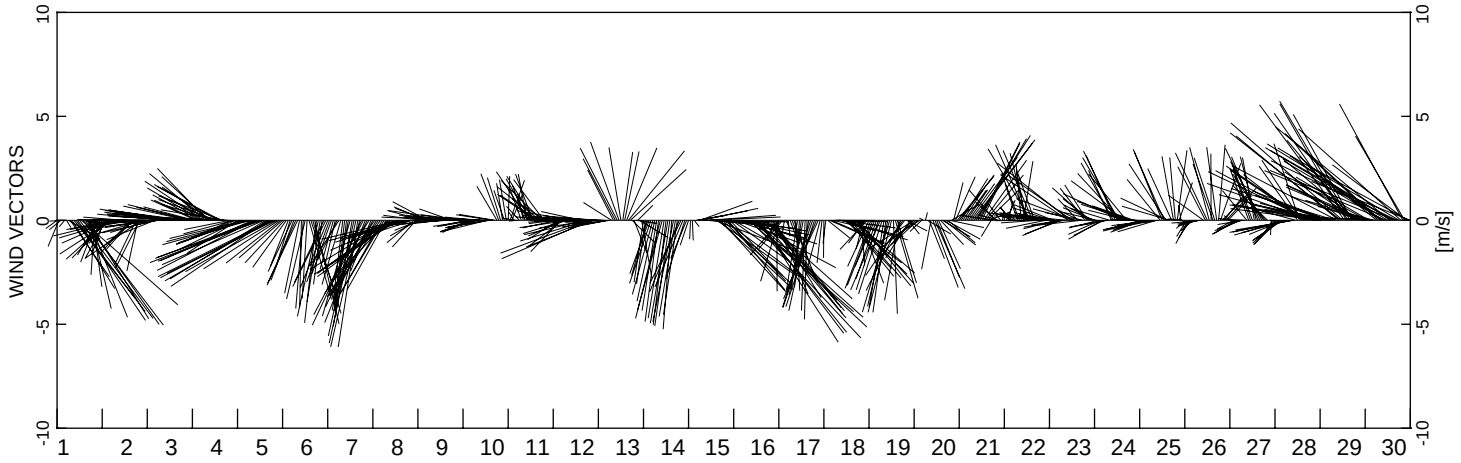
HAY & COMPANY CONSULTANTS A DIVISION OF EBA

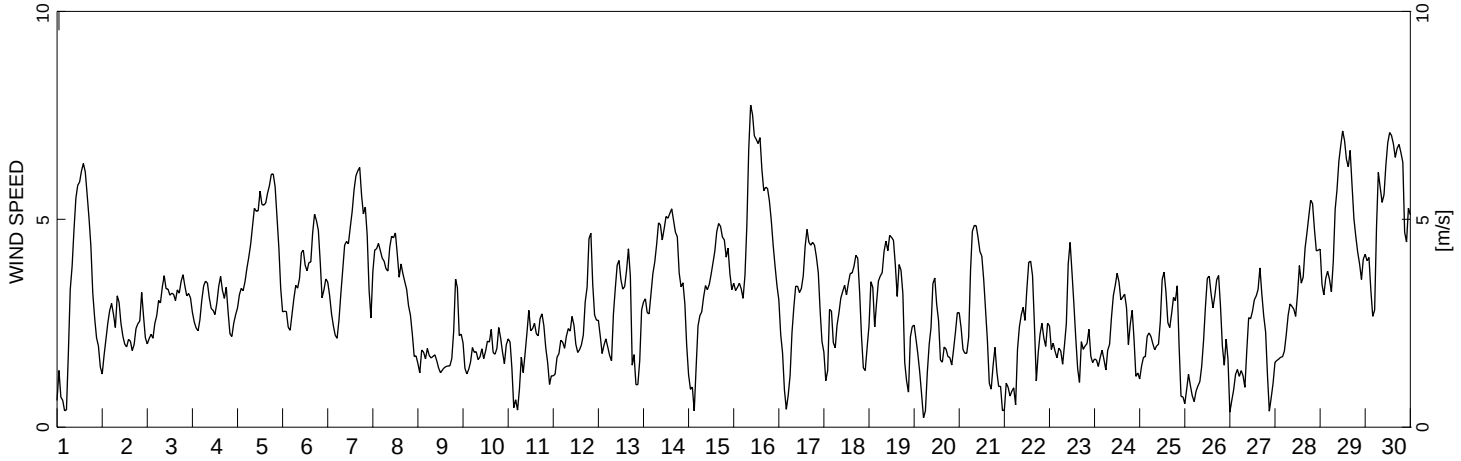
PROJECT NO.	DWN	CHK	REV
Y22101002	TM	JAS	0

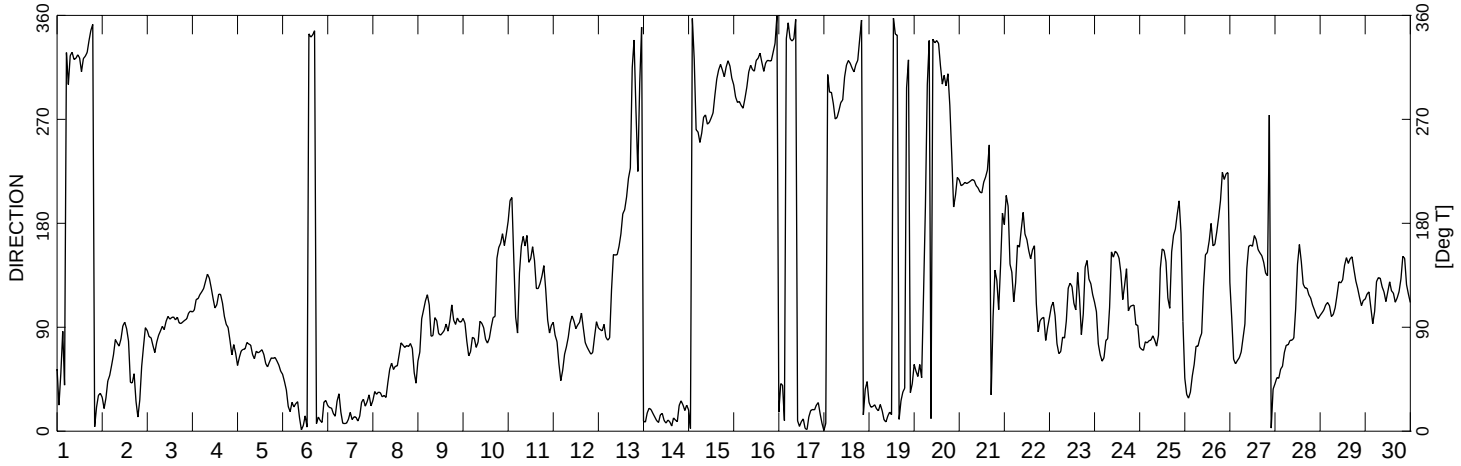
OFFICE	DATE
EBA-VANC	January 2008

Figure B-05

Wed Jan 16 17:20:06 2008:Q:\Vancouver\Environmental\Y221\Projects\Y22101002_Tyhee_2007\Working\RED\Meteorology\2007_data







CLIENT

Tyhee Development Corp

TYHEE DEVELOPMENT CORP.
YELLOWKNIFE GOLD PROJECT

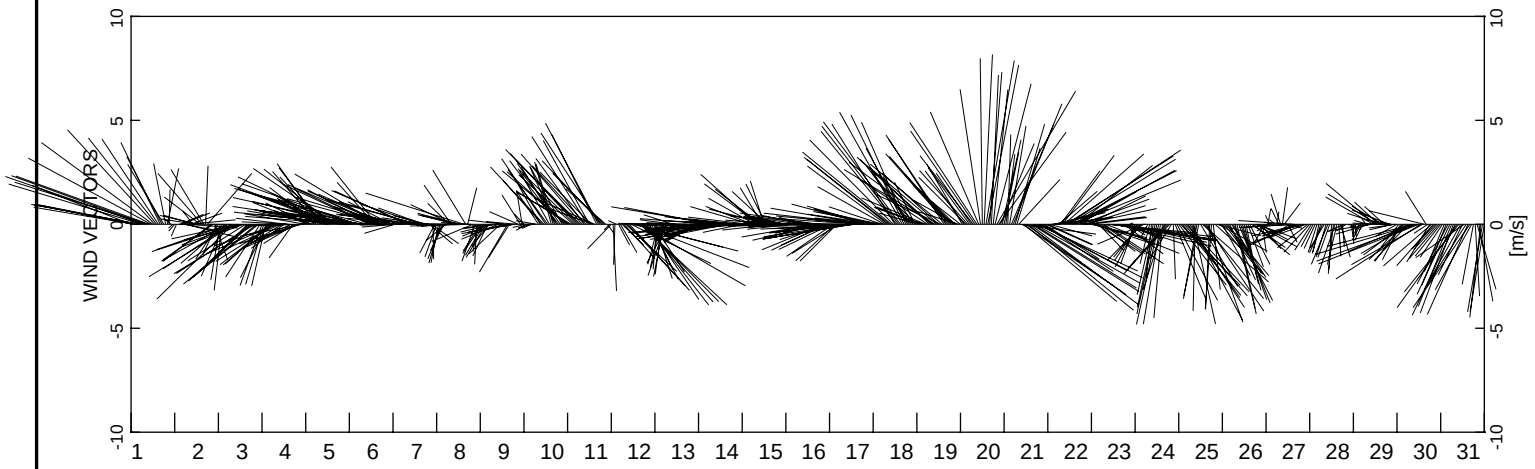
TYHEE
WIND DATA
JUNE 2007

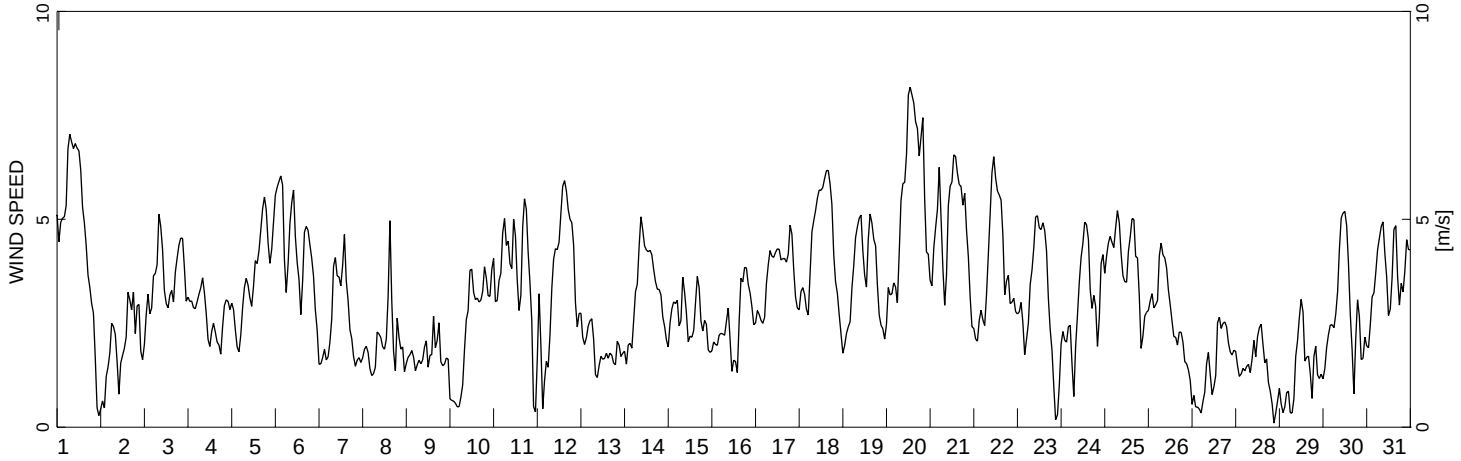
HAY & COMPANY CONSULTANTS A DIVISION OF EBA

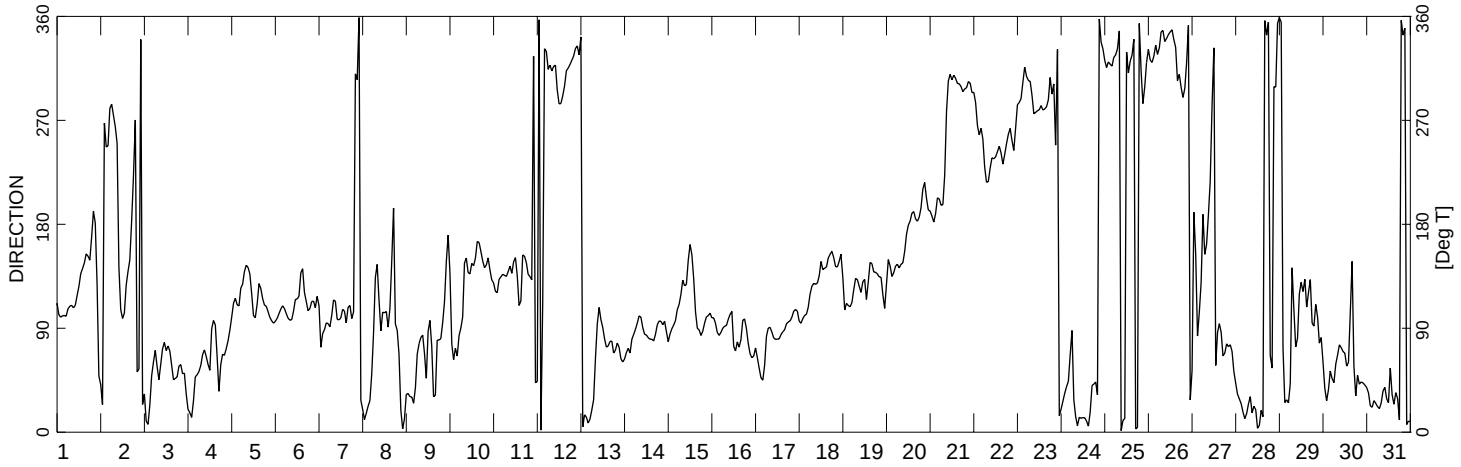
PROJECT NO.	DWN	CHK	REV
Y22101002	TM	JAS	0
OFFICE: EBA-VANC	DATE: January 2008		

Figure B-06

Wed Jan 16 17:20:08 2008:Q:\Vancouver\Environmental\Y221\Projects\Y22101002_Tyhee_2007\Working\RED\Meteorology\2007_data







CLIENT

Tyhee Development Corp

TYHEE DEVELOPMENT CORP.
YELLOWKNIFE GOLD PROJECT

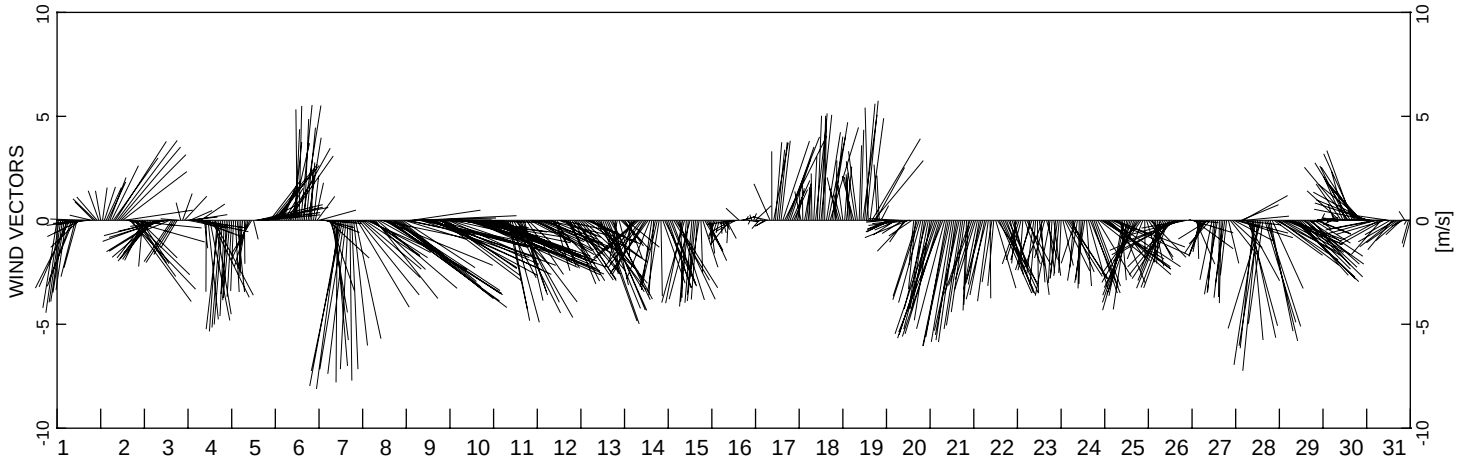
TYHEE
WIND DATA
JULY 2007

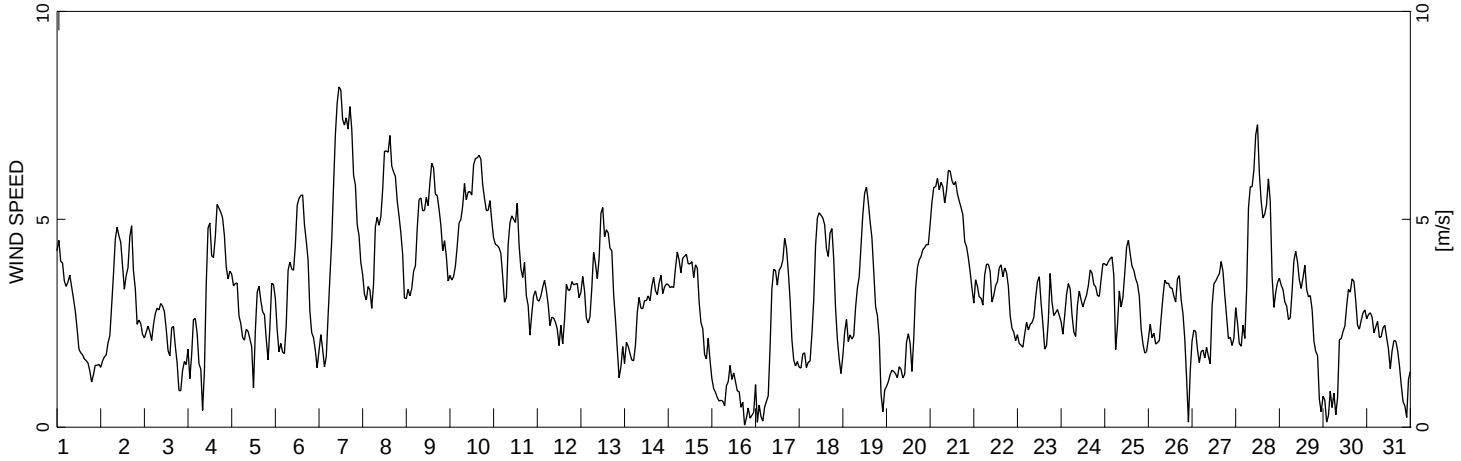
HAY & COMPANY CONSULTANTS A DIVISION OF EBA

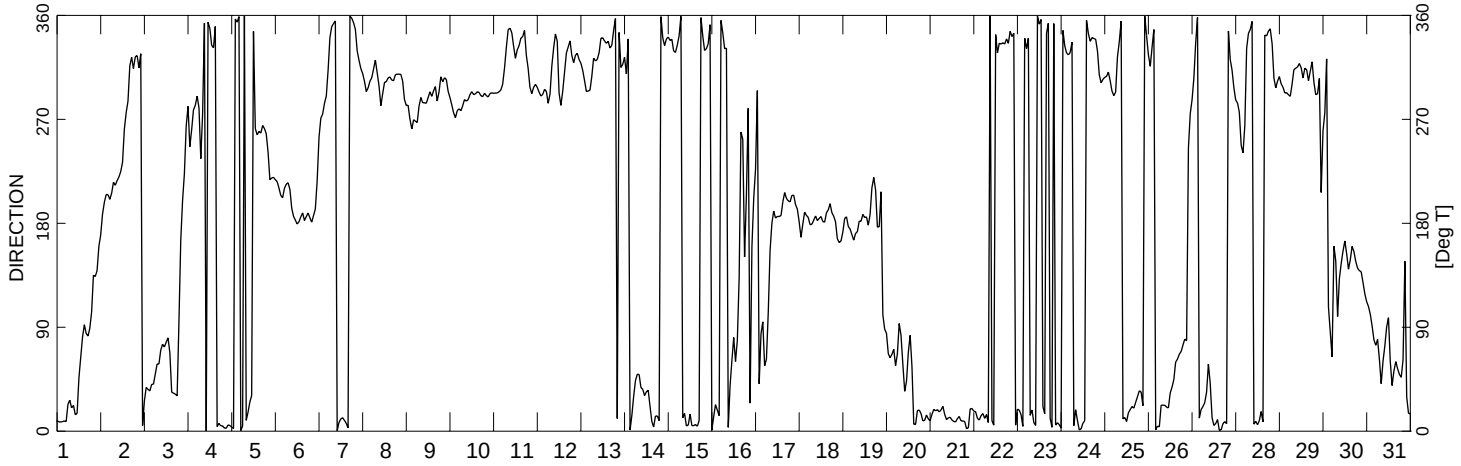
PROJECT NO.	DWN	CHK	REV
Y22101002	TM	JAS	0
OFFICE: EBA-VANC	DATE: January 2008		

Figure B-07

Wed Jan 16 17:20:09 2008:Q:\Vancouver\Environmental\Y221\Projects\Y22101002_Tyhee_2007\Working\RED\Meteorology\2007_data







CLIENT

Tyhee Development Corp

TYHEE DEVELOPMENT CORP.
YELLOWKNIFE GOLD PROJECT

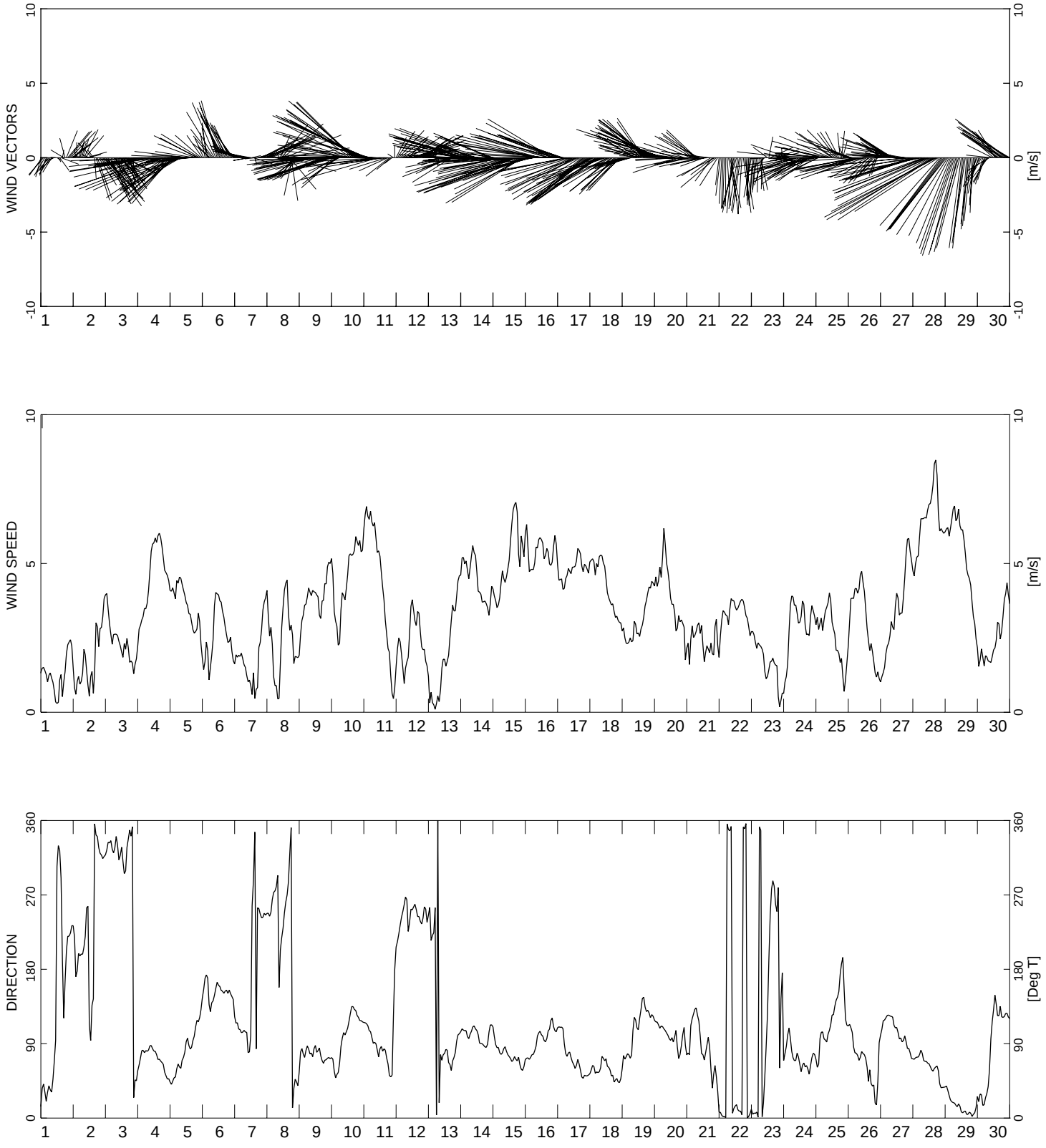
TYHEE
WIND DATA
AUGUST 2007

HAY & COMPANY CONSULTANTS A DIVISION OF EBA

PROJECT NO.	DWN	CHK	REV
Y22101002	TM	JAS	0
OFFICE: EBA-VANC	DATE: January 2008		

Figure B-08

Wed Jan 16 17:20:11 2008:Q:\Vancouver\Environmental\Y221\Projects\Y22101002_Tyhee_2007\Working\RED\Meteorology\2007_data



CLIENT

Tyhee Development Corp

TYHEE DEVELOPMENT CORP.
YELLOWKNIFE GOLD PROJECT

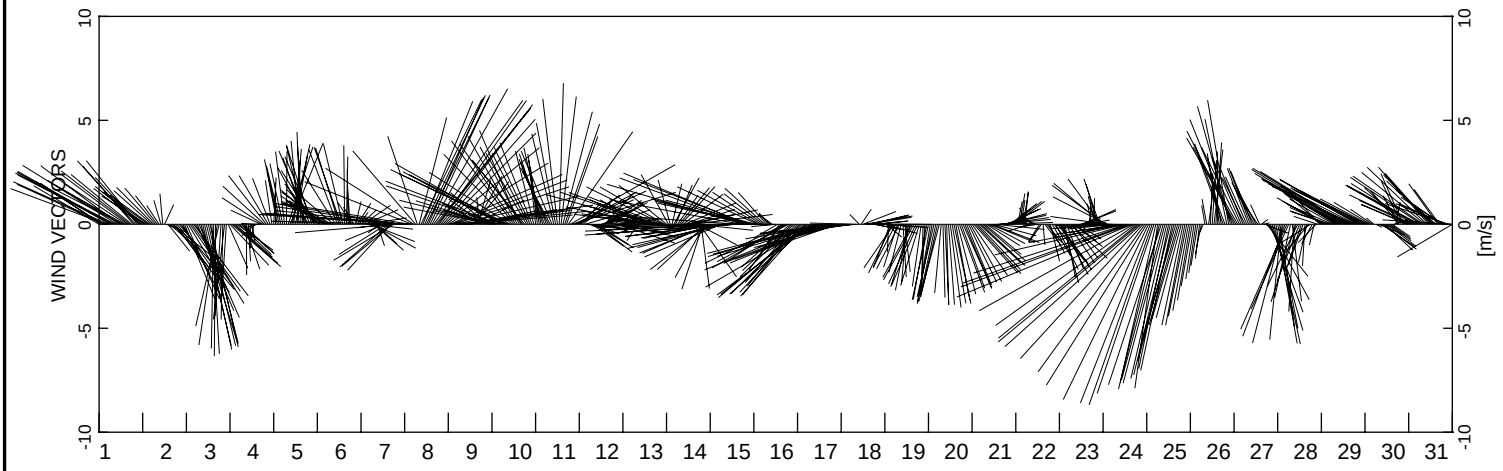
TYHEE
WIND DATA
SEPTEMBER 2007

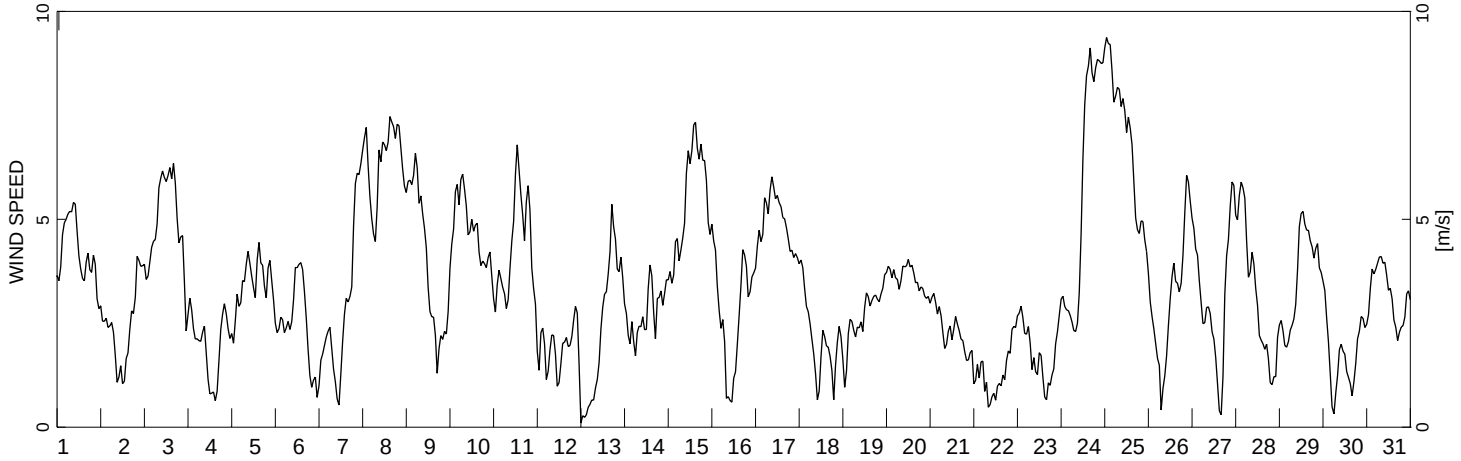
HAY & COMPANY CONSULTANTS A DIVISION OF EBA

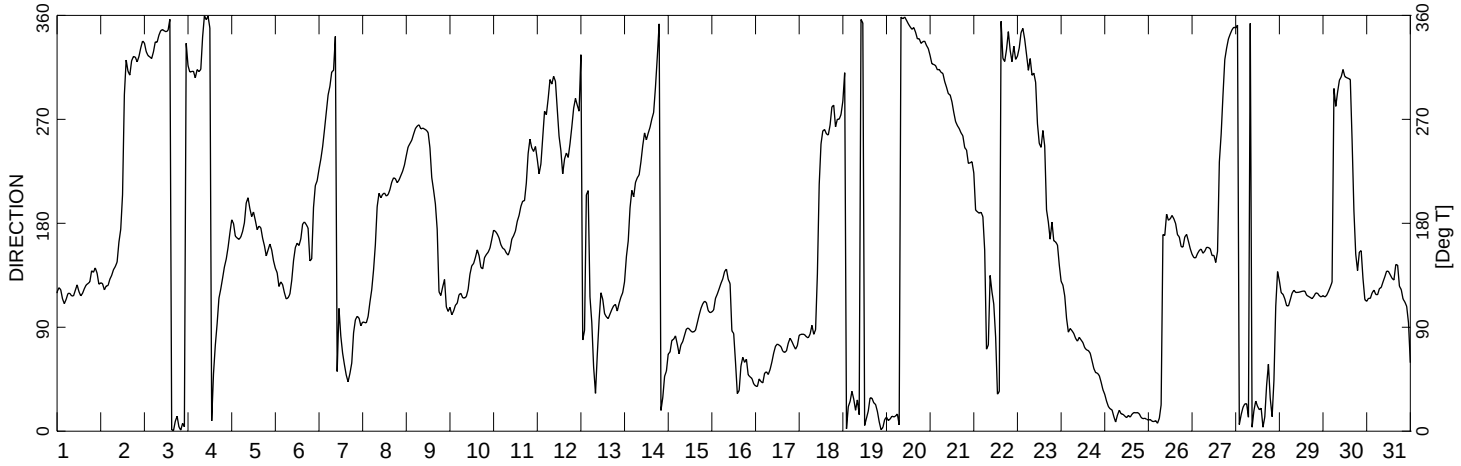
PROJECT NO.	DWN	CHK	REV
Y22101002	TM	JAS	0
OFFICE: EBA-VANC	DATE: January 2008		

Figure B-09

Wed Jan 16 17:20:12 2008:Q:\Vancouver\Environmental\Y221\Projects\Y22101002_Tyhee_2007\Working\RED\Meteorology\2007_data







CLIENT

Tyhee Development Corp

TYHEE DEVELOPMENT CORP.
YELLOWKNIFE GOLD PROJECT

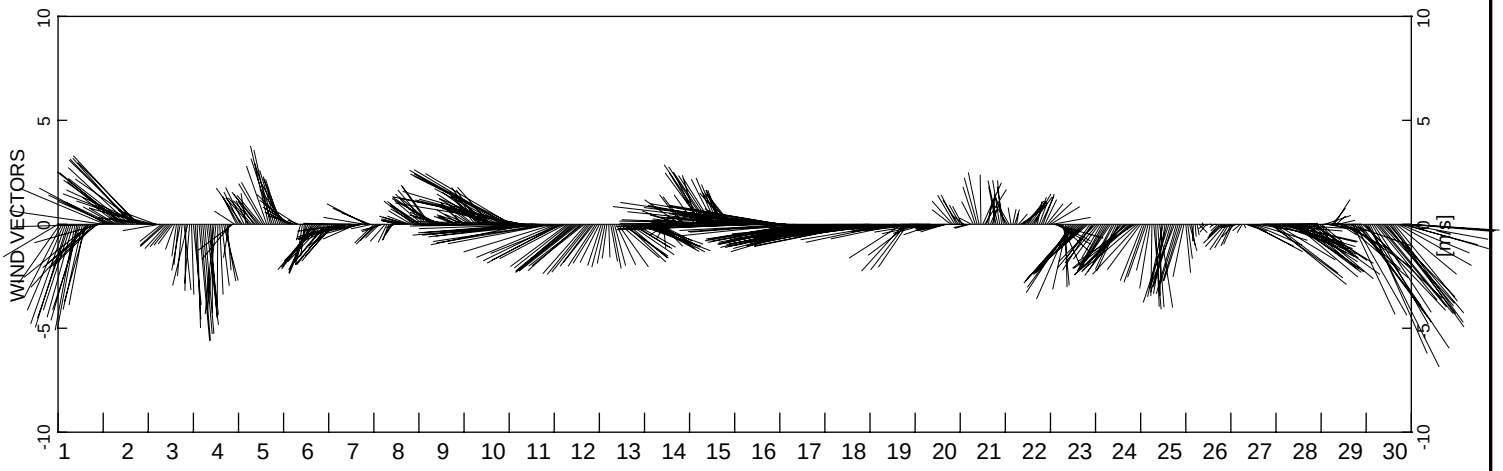
TYHEE
WIND DATA
OCTOBER 2007

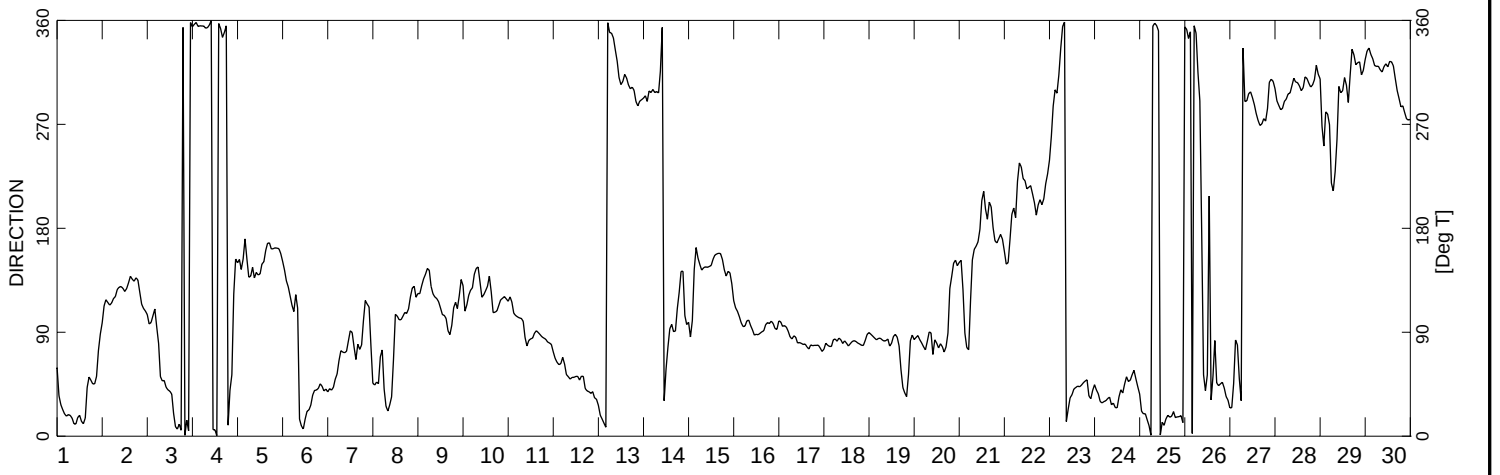
HAY & COMPANY CONSULTANTS A DIVISION OF EBA

PROJECT NO.	DWN	CHK	REV
Y22101002	TM	JAS	0
OFFICE: EBA-VANC	DATE: January 2008		

Figure B-10

Wed Jan 16 17:20:14 2008:Q:\Vancouver\Environmental\Y221\Projects\Y22101002_Tyhee_2007\Working\RED\Meteorology\2007_data





CLIENT

Tyhee Development Corp

TYHEE DEVELOPMENT CORP.
YELLOWKNIFE GOLD PROJECT

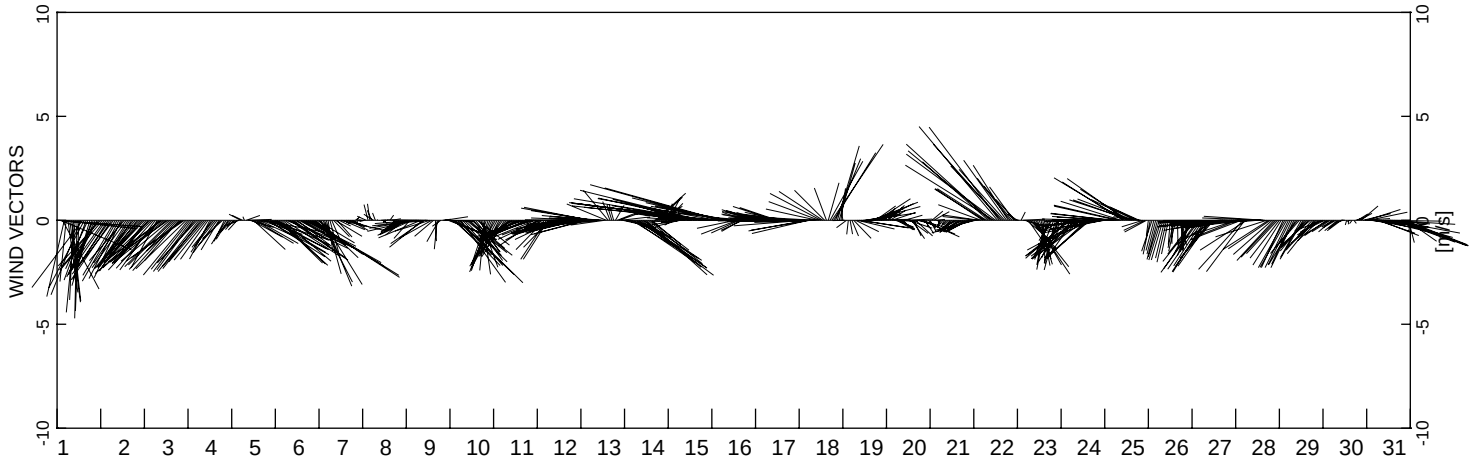
TYHEE
WIND DATA
NOVEMBER 2007

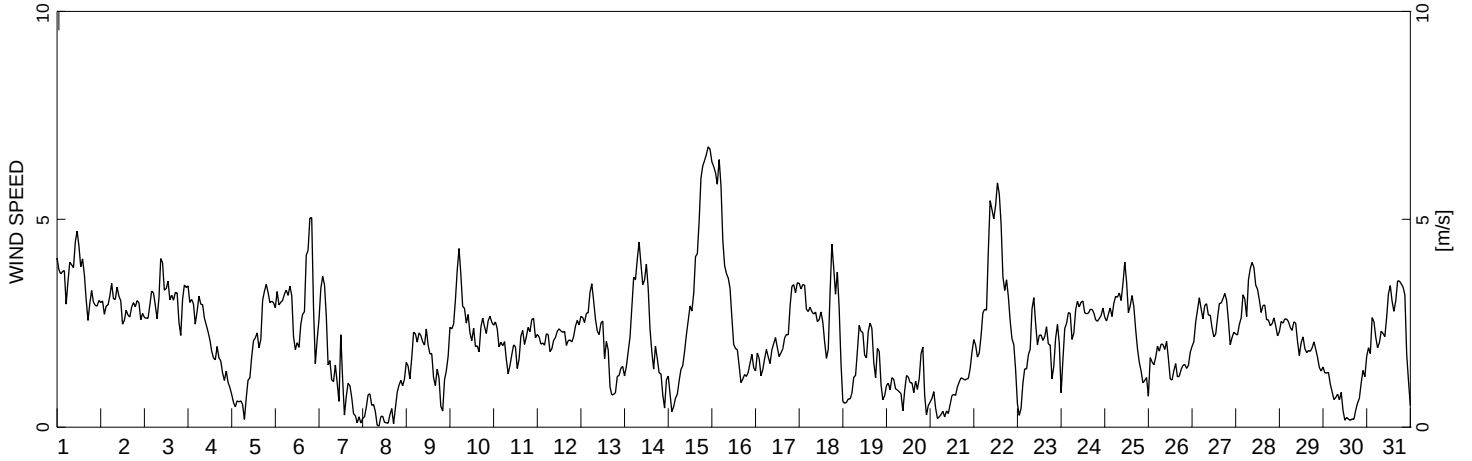
HAY & COMPANY CONSULTANTS A DIVISION OF EBA

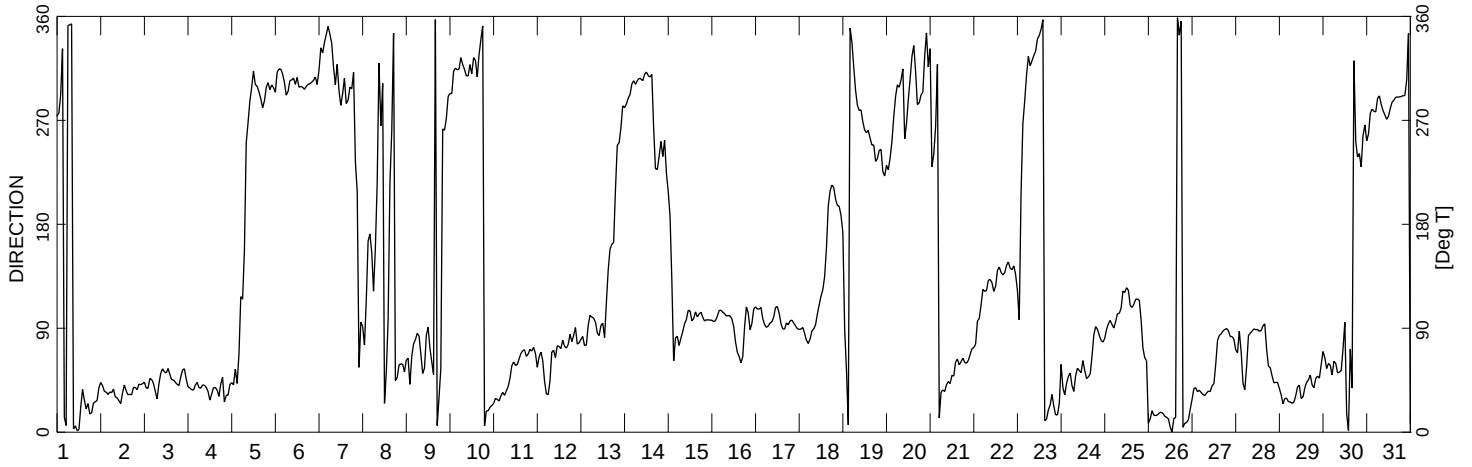
PROJECT NO.	DWN	CHK	REV
Y22101002	TM	JAS	0
OFFICE: EBA-VANC	DATE: January 2008		

Figure B-11

Wed Jan 16 17:20:16 2008:Q:\Vancouver\Environmental\Y221\Projects\Y22101002_Tyhee_2007\Working\RED\Meteorology\2007_data







CLIENT

Tyhee Development Corp

TYHEE DEVELOPMENT CORP.
YELLOWKNIFE GOLD PROJECT

TYHEE
WIND DATA
DECEMBER 2007

HAY & COMPANY CONSULTANTS A DIVISION OF EBA

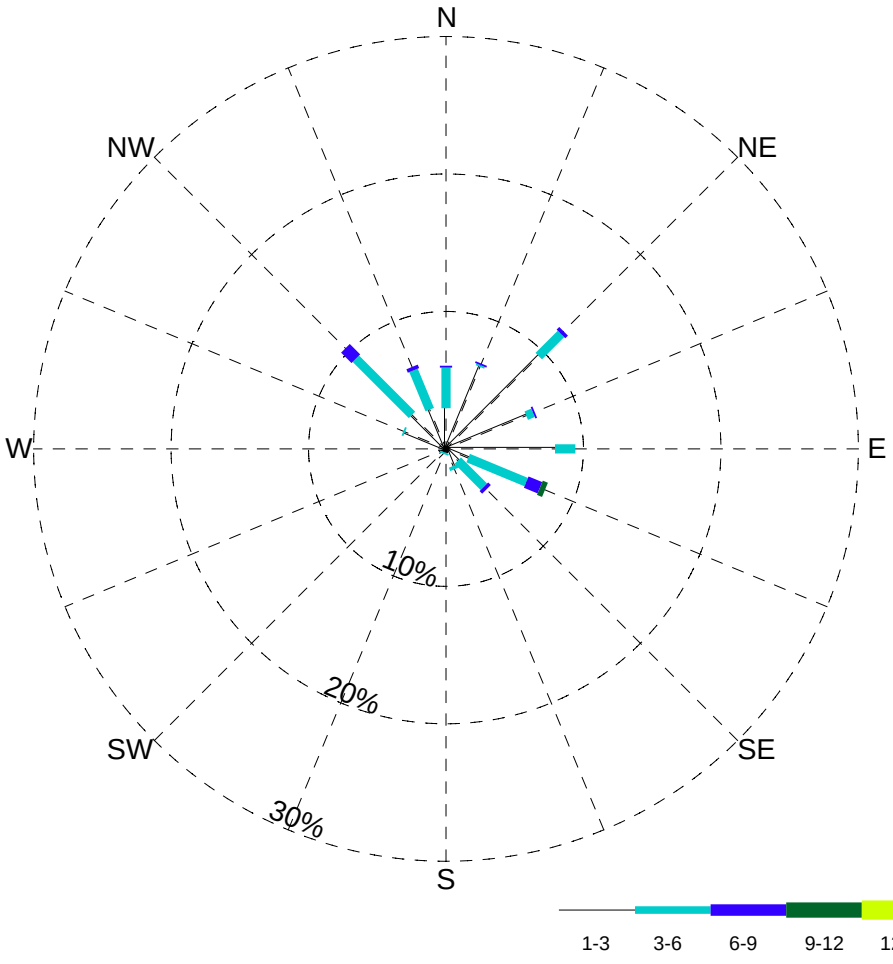
PROJECT NO.	DWN	CHK	REV
Y22101002	TM	JAS	0
OFFICE: EBA-VANC	DATE: January 2008		

Figure B-12

Wed Jan 16 17:20:18 2008:Q:\Vancouver\Environmental\Y221\Projects\Y22101002_Tyhee_2007\Working\RED\Meteorology\2007_data

APPENDIX

APPENDIX C MONTHLY WIND ROSES – JANUARY 2007 TO DECEMBER 2007



Station Name: Tyhee
NAD 27 location:
N63° 11' 6.2" W113° 53' 40.2"
Elevation above SL: 300 m
Tower Height: 10 m
Record Length: 31 days
Start Date: Jan. 01, 2007
End Date: Jan. 31, 2007

Wind Speed & Direction Frequency Distribution Table

	Percent Occurrence (%)								
Direction	**0-1 m/s**	**1-3 m/s**	**3-6 m/s**	**6-9 m/s**	**9-12 m/s**	**12-15 m/s**	**15-18 m/s**	**18+ m/s**	**Total (%)**
ENE	-	6.32	0.54	0.13	-	-	-	-	6.99
NE	-	9.54	2.29	0.27	-	-	-	-	12.10
NNE	-	6.45	0.13	0.13	-	-	-	-	6.72
N	-	2.96	2.96	0.13	-	-	-	-	6.05
NNW	-	3.09	3.09	0.27	-	-	-	-	6.45
NW	-	3.49	5.78	1.08	-	-	-	-	10.35
WNW	-	3.23	0.13	-	-	-	-	-	3.36
W	-	0.54	-	-	-	-	-	-	0.54
WSW	-	0.54	-	-	-	-	-	-	0.54
SW	-	0.81	-	-	-	-	-	-	0.81
SSW	-	0.27	0.13	-	-	-	-	-	0.40
S	-	0.27	-	-	-	-	-	-	0.27
SSE	-	1.34	0.27	-	-	-	-	-	1.61
SE	-	1.21	2.69	0.27	-	-	-	-	4.17
ESE	-	1.75	4.57	1.08	0.40	-	-	-	7.80
E	-	7.93	1.48	-	-	-	-	-	9.41
Calm	22.45	-	-	-	-	-	-	-	22.45
Total (%)	22.45	49.73	24.06	3.36	0.40	-	-	-	100.00

CLIENT

Tyhee Development Corp

HAY & COMPANY CONSULTANTS A DIVISION OF EBA

TYHEE DEVELOPMENT CORP.
YELLOWKNIFE GOLD PROJECT

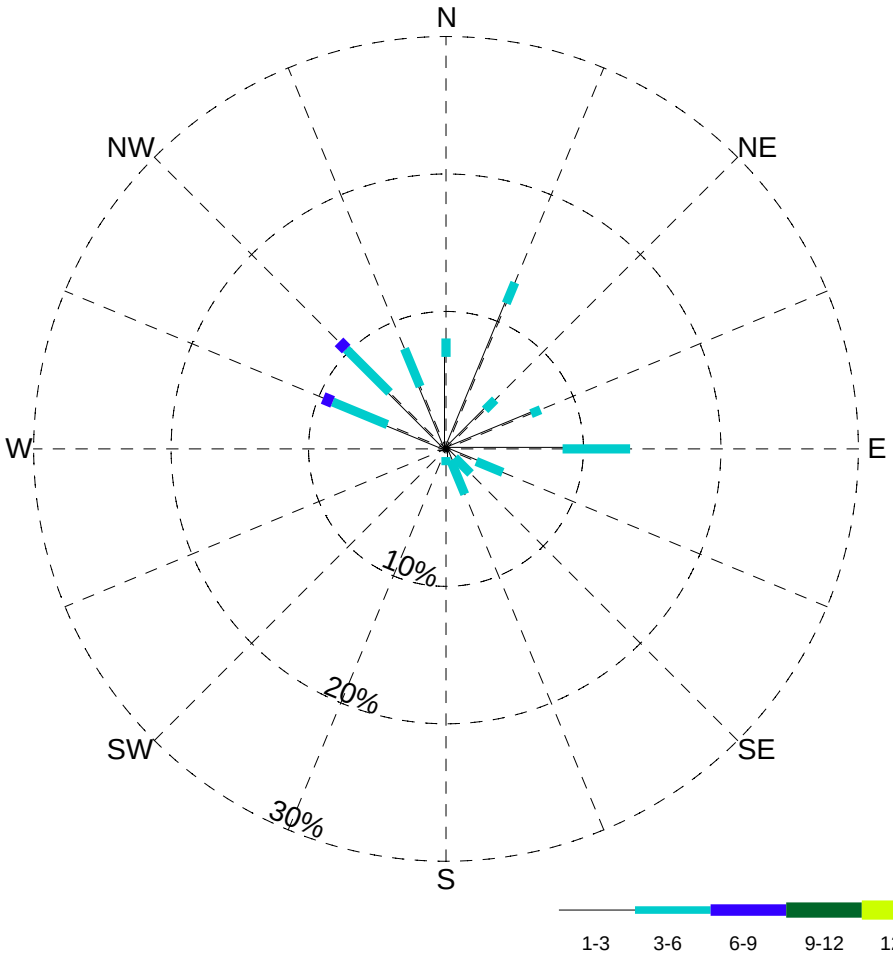
TYHEE
WIND ROSE
JANUARY 2007

PROJECT NO.	DWN	CHK	REV
Y22101002	TM	JAS	0

OFFICE: EBA-VANC
DATE: January 2008

Figure C-01

Wed Jan 23 10:03:42 2008:Q:\Vancouver\Environmental\Y221\Projects\Y22101002_Tyhee_2007\Working\RED\Meteorology\2007_data\Wind_roses\2007



Station Name: Tyhee
NAD 27 location:
N63° 11' 6.2" W113° 53' 40.2"
Elevation above SL: 300 m
Tower Height: 10 m
Record Length: 28 days
Start Date: Feb. 01, 2007
End Date: Feb. 28, 2007

Wind Speed & Direction Frequency Distribution Table

	Percent Occurrence (%)								
Direction	**0-1 m/s**	**1-3 m/s**	**3-6 m/s**	**6-9 m/s**	**9-12 m/s**	**12-15 m/s**	**15-18 m/s**	**18+ m/s**	**Total (%)**
ENE	-	6.70	0.74	-	-	-	-	-	7.44
NE	-	4.02	1.04	-	-	-	-	-	5.06
NNE	-	11.46	1.64	-	-	-	-	-	13.10
N	-	6.70	1.34	-	-	-	-	-	8.04
NNW	-	4.91	2.98	-	-	-	-	-	7.89
NW	-	5.80	4.46	0.74	-	-	-	-	11.01
WNW	-	4.61	4.32	0.74	-	-	-	-	9.67
W	-	0.60	-	-	-	-	-	-	0.60
WSW	-	0.15	-	-	-	-	-	-	0.15
SW	-	-	-	-	-	-	-	-	-
SSW	-	0.15	-	-	-	-	-	-	0.15
S	-	0.60	0.60	-	-	-	-	-	1.19
SSE	-	0.89	2.68	-	-	-	-	-	3.57
SE	-	0.89	1.64	-	-	-	-	-	2.53
ESE	-	2.38	2.08	-	-	-	-	-	4.46
E	-	8.48	4.91	-	-	-	-	-	13.39
Calm	11.76	-	-	-	-	-	-	-	11.76
Total (%)	11.76	58.33	28.42	1.49	-	-	-	-	100.00

CLIENT

Tyhee Development Corp

HAY & COMPANY CONSULTANTS A DIVISION OF EBA

TYHEE DEVELOPMENT CORP.
YELLOWKNIFE GOLD PROJECT

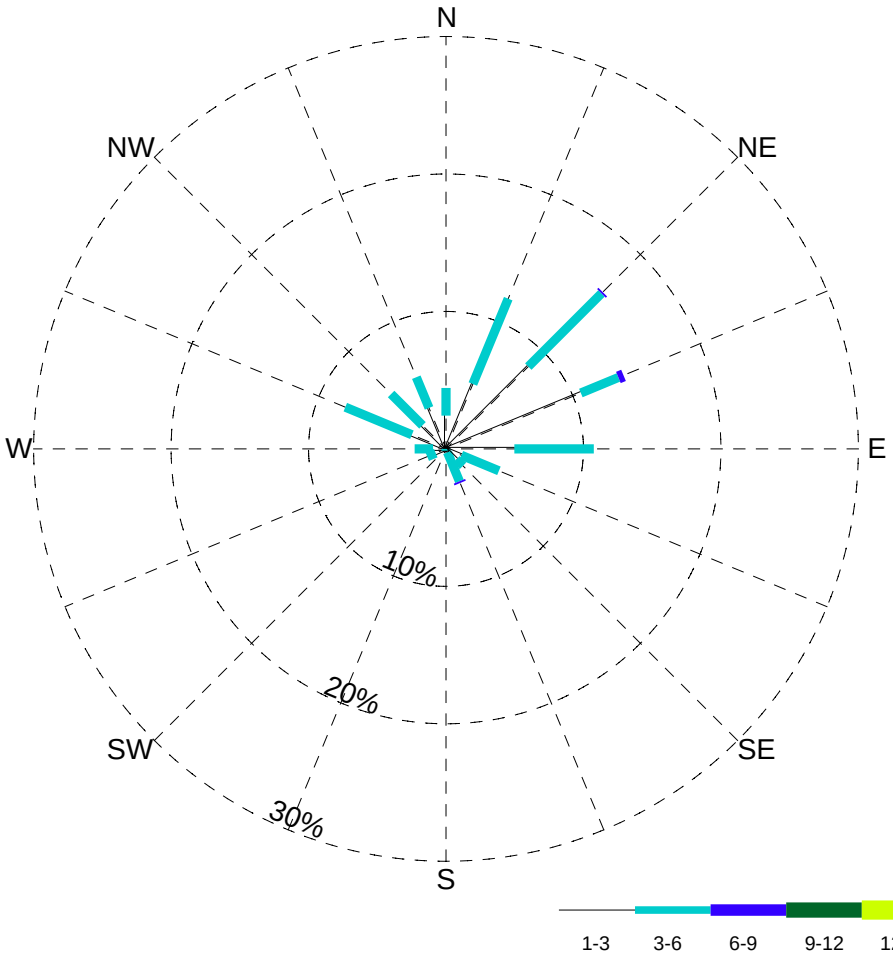
TYHEE
WIND ROSE
FEBRUARY 2007

PROJECT NO.	DWN	CHK	REV
Y22101002	TM	JAS	0

OFFICE: EBA-VANC
DATE: January 2008

Figure C-02

Thu Jan 10 10:07:42 2008:Q:\Vancouver\Environmental\Y221\Projects\Y22101002_Tyhee_2007\Working\RED\Meteorology\2007_data\Wind_roses\2007



Station Name: Tyhee
NAD 27 location:
N63° 11' 6.2" W113° 53' 40.2"
Elevation above SL: 300 m
Tower Height: 10 m
Record Length: 31 days
Start Date: Mar. 01, 2007
End Date: Mar. 31, 2007

Wind Speed & Direction Frequency Distribution Table

	Percent Occurrence (%)								
Direction	**0-1 m/s**	**1-3 m/s**	**3-6 m/s**	**6-9 m/s**	**9-12 m/s**	**12-15 m/s**	**15-18 m/s**	**18+ m/s**	**Total (%)**
ENE	-	10.62	2.96	0.40	-	-	-	-	13.98
NE	-	8.47	7.53	0.13	-	-	-	-	16.13
NNE	-	5.11	6.72	-	-	-	-	-	11.83
N	-	2.42	2.02	-	-	-	-	-	4.43
NNW	-	3.23	2.42	-	-	-	-	-	5.64
NW	-	2.42	3.23	-	-	-	-	-	5.64
WNW	-	2.69	5.24	-	-	-	-	-	7.93
W	-	0.94	1.34	-	-	-	-	-	2.29
WSW	-	0.81	0.67	-	-	-	-	-	1.48
SW	-	0.13	-	-	-	-	-	-	0.13
SSW	-	0.13	-	-	-	-	-	-	0.13
S	-	-	0.13	-	-	-	-	-	0.13
SSE	-	0.27	2.29	0.13	-	-	-	-	2.69
SE	-	1.08	0.67	-	-	-	-	-	1.75
ESE	-	1.21	2.96	-	-	-	-	-	4.17
E	-	4.97	5.78	-	-	-	-	-	10.75
Calm	10.89	-	-	-	-	-	-	-	10.89
Total (%)	10.89	44.49	43.95	0.67	-	-	-	-	100.00

CLIENT

Tyhee Development Corp

TYHEE DEVELOPMENT CORP.
YELLOWKNIFE GOLD PROJECT

TYHEE
WIND ROSE
MARCH 2007

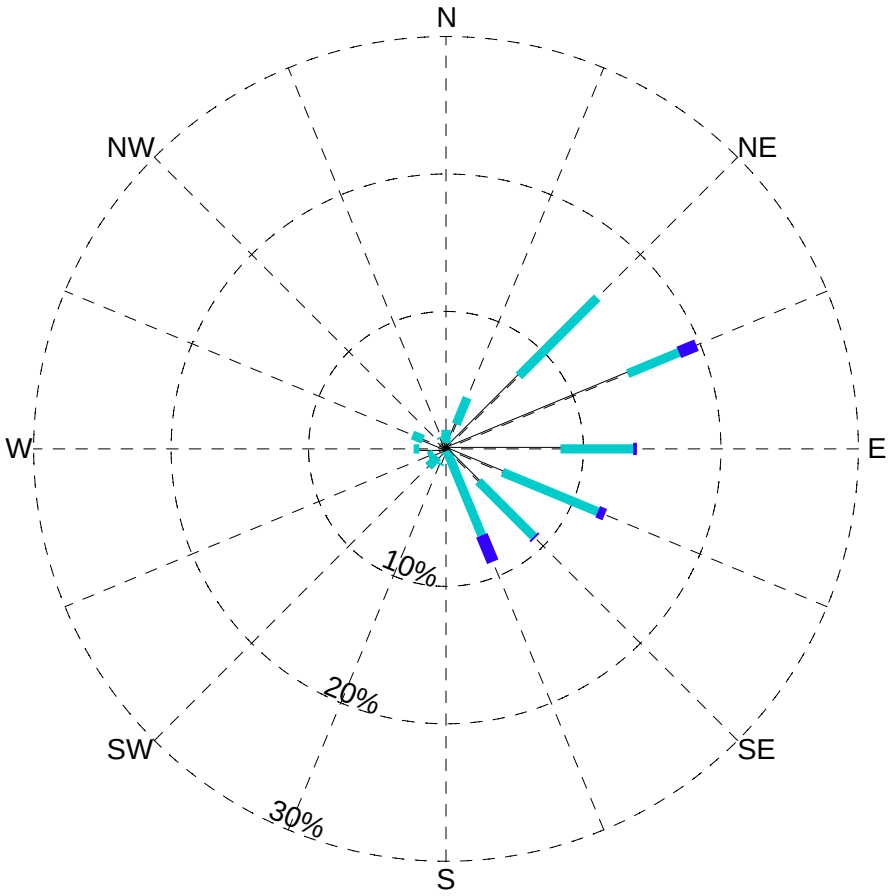
HAY & COMPANY CONSULTANTS A DIVISION OF EBA

PROJECT NO.	DWN	CHK	REV
Y22101002	TM	JAS	0

OFFICE: EBA-VANC
DATE: January 2008

Figure C-03

Thu Jan 10 10:07:43 2008:Q:\Vancouver\Environmental\Y221\Projects\Y22101002_Tyhee_2007\Working\RED\Meteorology\2007_data\Wind_roses\2007



Station Name: Tyhee
NAD 27 location:
N63° 11' 6.2" W113° 53' 40.2"
Elevation above SL: 300 m
Tower Height: 10 m
Record Length: 30 days
Start Date: Apr. 01, 2007
End Date: Apr. 30, 2007

Wind Speed & Direction Frequency Distribution Table

	Percent Occurrence (%)								
Direction	**0-1 m/s**	**1-3 m/s**	**3-6 m/s**	**6-9 m/s**	**9-12 m/s**	**12-15 m/s**	**15-18 m/s**	**18+ m/s**	**Total (%)**
ENE	-	14.31	4.03	1.39	-	-	-	-	19.72
NE	-	7.50	8.06	-	-	-	-	-	15.56
NNE	-	1.94	2.08	-	-	-	-	-	4.03
N	-	0.42	0.97	-	-	-	-	-	1.39
NNW	-	0.83	0.14	-	-	-	-	-	0.97
NW	-	0.69	-	-	-	-	-	-	0.69
WNW	-	1.81	0.83	-	-	-	-	-	2.64
W	-	1.94	0.42	-	-	-	-	-	2.36
WSW	-	0.97	0.42	-	-	-	-	-	1.39
SW	-	0.83	0.97	-	-	-	-	-	1.81
SSW	-	1.11	0.14	-	-	-	-	-	1.25
S	-	0.28	0.14	-	-	-	-	-	0.42
SSE	-	0.14	6.67	2.08	-	-	-	-	8.89
SE	-	3.33	5.69	0.14	-	-	-	-	9.17
ESE	-	4.44	7.50	0.56	-	-	-	-	12.50
E	-	8.33	5.28	0.28	-	-	-	-	13.89
Calm	3.33	-	-	-	-	-	-	-	3.33
Total (%)	3.33	48.89	43.33	4.44	-	-	-	-	100.00

CLIENT

Tyhee Development Corp

TYHEE DEVELOPMENT CORP.
YELLOWKNIFE GOLD PROJECT

TYHEE
WIND ROSE
APRIL 2007

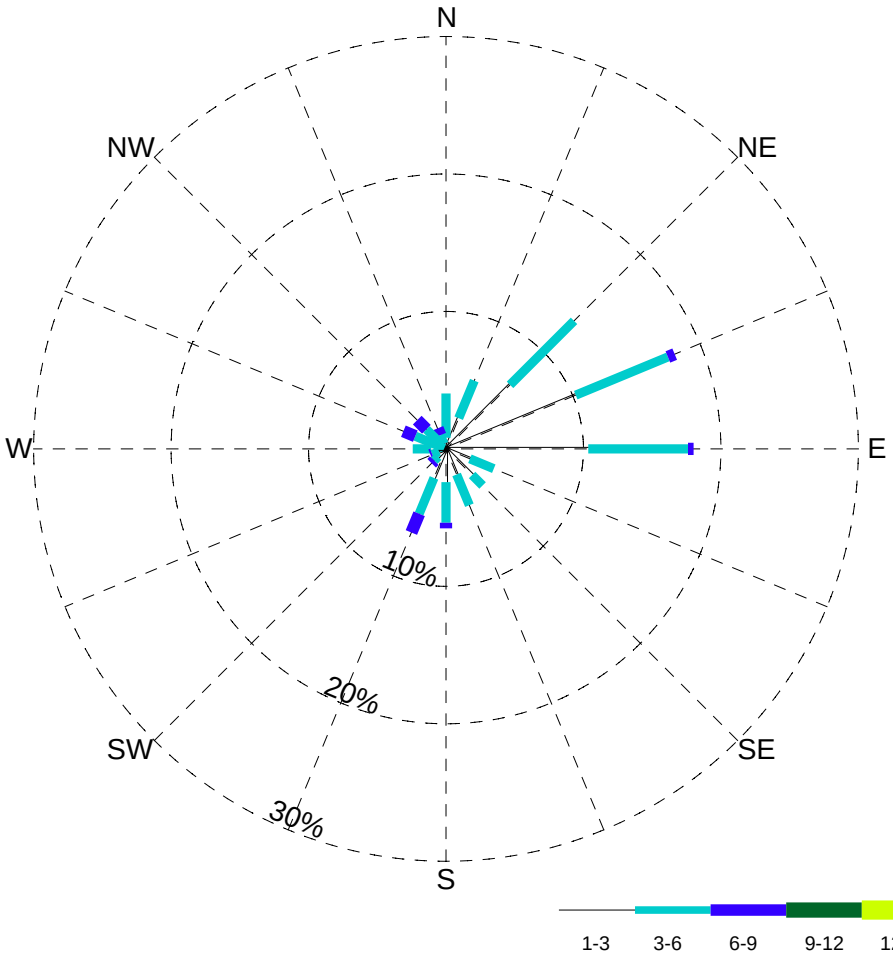
HAY & COMPANY CONSULTANTS A DIVISION OF EBA

PROJECT NO.	DWN	CHK	REV
Y22101002	TM	JAS	0

OFFICE: EBA-VANC
DATE: January 2008

Figure C-04

Thu Jan 10 10:20:44 2008:Q:\Vancouver\Environmental\Y221\Projects\Y22101002_Tyhee_2007\Working\RED\Meteorology\2007_data\Wind_roses\2007



Station Name: Tyhee
NAD 27 location:
N63° 11' 6.2" W113° 53' 40.2"
Elevation above SL: 300 m
Tower Height: 10 m
Record Length: 31 days
Start Date: May. 01, 2007
End Date: May. 31, 2007

Wind Speed & Direction Frequency Distribution Table

	Percent Occurrence (%)								
Direction	0-1 m/s	1-3 m/s	3-6 m/s	6-9 m/s	9-12 m/s	12-15 m/s	15-18 m/s	18+ m/s	Total (%)
ENE	-	10.22	7.26	0.54	-	-	-	-	18.01
NE	-	6.59	6.59	-	-	-	-	-	13.17
NNE	-	2.42	2.96	-	-	-	-	-	5.38
N	-	0.81	3.23	-	-	-	-	-	4.03
NNW	-	0.40	0.67	0.54	-	-	-	-	1.61
NW	-	0.40	1.61	0.94	-	-	-	-	2.96
WNW	-	0.13	2.29	0.94	-	-	-	-	3.36
W	-	1.08	1.34	-	-	-	-	-	2.42
WSW	-	0.54	0.54	0.13	-	-	-	-	1.21
SW	-	0.81	0.40	0.27	-	-	-	-	1.48
SSW	-	2.29	2.82	1.48	-	-	-	-	6.59
S	-	2.42	2.96	0.40	-	-	-	-	5.78
SSE	-	2.02	2.42	-	-	-	-	-	4.43
SE	-	2.69	1.08	-	-	-	-	-	3.76
ESE	-	1.88	1.88	-	-	-	-	-	3.76
E	-	10.35	7.26	0.40	-	-	-	-	18.01
Calm	4.03	-	-	-	-	-	-	-	4.03
Total (%)	4.03	45.03	45.30	5.64	-	-	-	-	100.00

CLIENT

TYHEE DEVELOPMENT CORP.
YELLOWKNIFE GOLD PROJECT

TYHEE
WIND ROSE
MAY 2007

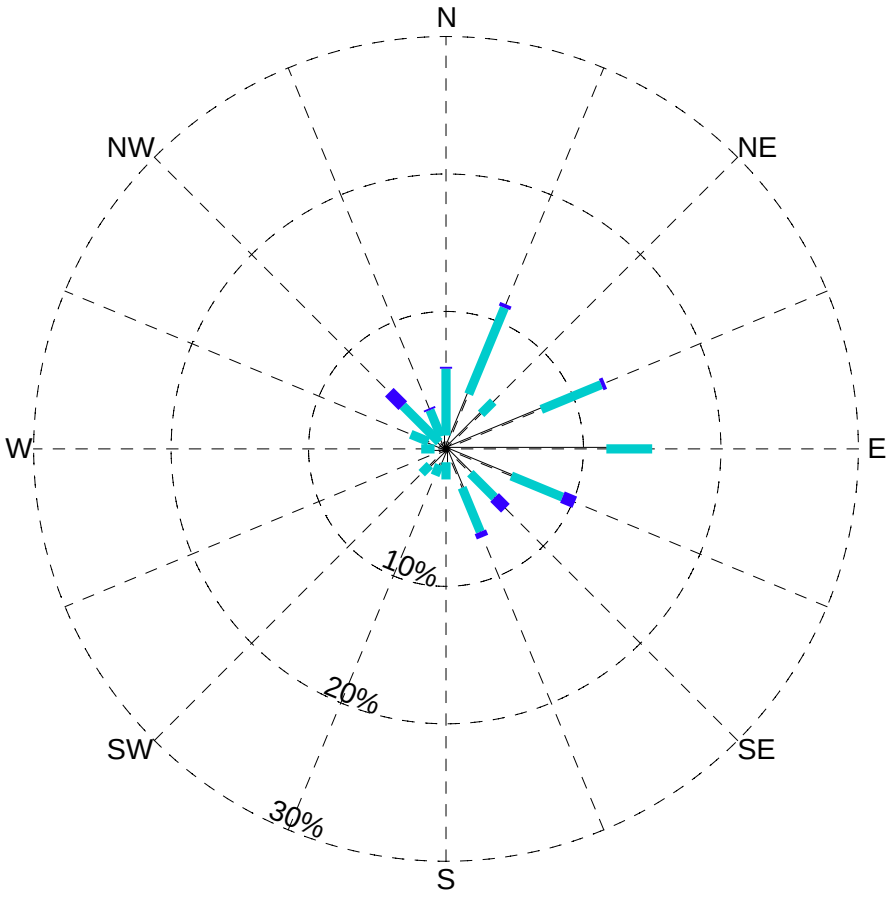
HAY & COMPANY CONSULTANTS A DIVISION OF EBA

PROJECT NO.	DWN	CHK	REV
Y22101002	TM	JAS	0

OFFICE: EBA-VANC
DATE: January 2008

Figure C-05

Thu Jan 10 10:20:44 2008:Q:\Vancouver\Environmental\Y221\Projects\Y22101002_Tyhee_2007\Working\RED\Meteorology\2007_data\Wind_roses\2007



Station Name: Tyhee
NAD 27 location:
N63° 11' 6.2" W113° 53' 40.2"
Elevation above SL: 300 m
Tower Height: 10 m
Record Length: 30 days
Start Date: June 01, 2007
End Date: June 30, 2007

Wind Speed & Direction Frequency Distribution Table

	Percent Occurrence (%)								
Direction	0-1 m/s	1-3 m/s	3-6 m/s	6-9 m/s	9-12 m/s	12-15 m/s	15-18 m/s	18+ m/s	Total (%)
ENE	-	7.50	4.72	0.28	-	-	-	-	12.50
NE	-	3.61	1.25	-	-	-	-	-	4.86
NNE	-	4.31	6.81	0.28	-	-	-	-	11.39
N	-	0.97	4.86	0.14	-	-	-	-	5.97
NNW	-	0.97	2.08	0.14	-	-	-	-	3.19
NW	-	0.69	3.75	1.39	-	-	-	-	5.83
WNW	-	1.39	1.39	-	-	-	-	-	2.78
W	-	0.83	0.97	-	-	-	-	-	1.81
WSW	-	0.56	-	-	-	-	-	-	0.56
SW	-	1.67	0.83	-	-	-	-	-	2.50
SSW	-	1.25	0.83	-	-	-	-	-	2.08
S	-	0.97	1.25	-	-	-	-	-	2.22
SSE	-	3.06	3.47	0.42	-	-	-	-	6.94
SE	-	2.50	2.50	1.11	-	-	-	-	6.11
ESE	-	5.14	4.03	0.97	-	-	-	-	10.14
E	-	11.67	3.33	-	-	-	-	-	15.00
Calm	6.11	-	-	-	-	-	-	-	6.11
Total (%)	6.11	47.08	42.08	4.72	-	-	-	-	100.00

CLIENT

TYHEE DEVELOPMENT CORP.
YELLOWKNIFE GOLD PROJECT

TYHEE
WIND ROSE
JUNE 2007

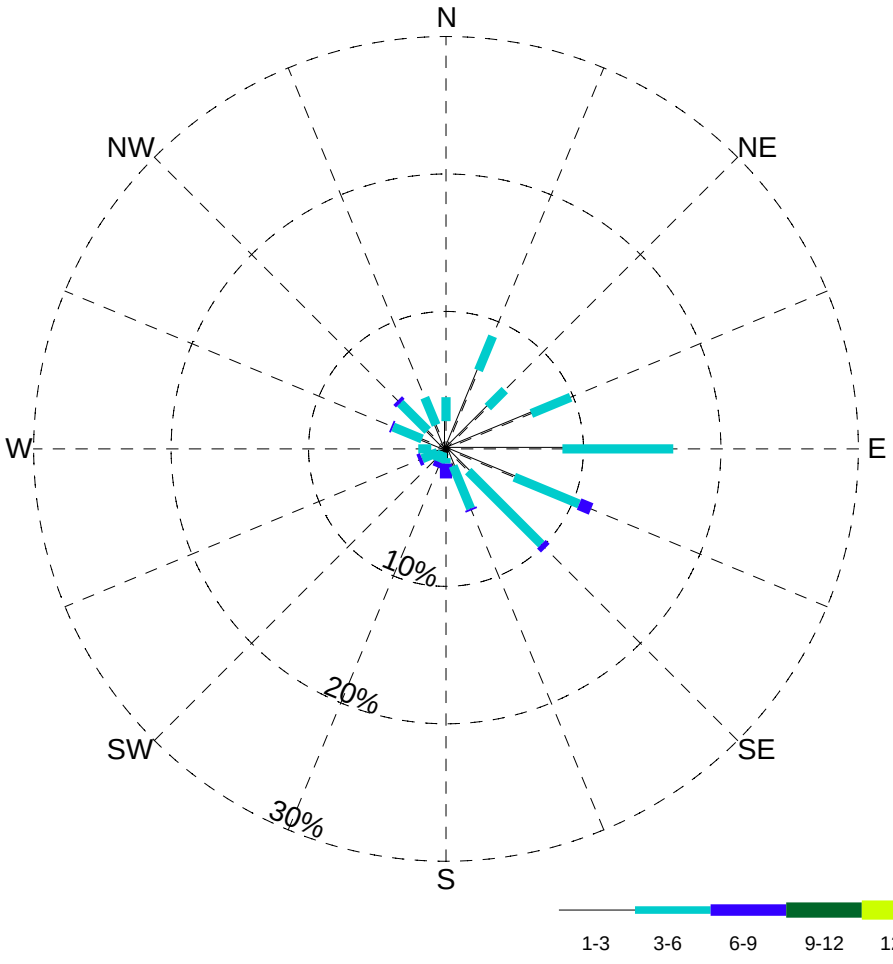
HAY & COMPANY CONSULTANTS A DIVISION OF EBA

PROJECT NO.	DWN	CHK	REV
Y22101002	TM	JAS	0

OFFICE: EBA-VANC
DATE: January 2008

Figure C-06

Thu Jan 10 10:07:45 2008:Q:\Vancouver\Environmental\Y221\Projects\Y22101002_Tyhee_2007\Working\RED\Meteorology\2007_data\Wind_roses\2007



Station Name: Tyhee
NAD 27 location:
N63° 11' 6.2" W113° 53' 40.2"
Elevation above SL: 300 m
Tower Height: 10 m
Record Length: 31 days
Start Date: July 01, 2007
End Date: July 31, 2007

Wind Speed & Direction Frequency Distribution Table

	Percent Occurrence (%)								
Direction	**0-1 m/s**	**1-3 m/s**	**3-6 m/s**	**6-9 m/s**	**9-12 m/s**	**12-15 m/s**	**15-18 m/s**	**18+ m/s**	**Total (%)**
ENE	-	6.72	3.09	-	-	-	-	-	9.81
NE	-	4.30	1.75	-	-	-	-	-	6.05
NNE	-	6.18	2.69	-	-	-	-	-	8.87
N	-	2.02	1.75	-	-	-	-	-	3.76
NNW	-	1.88	2.15	-	-	-	-	-	4.03
NW	-	1.88	2.82	0.27	-	-	-	-	4.97
WNW	-	1.88	2.29	0.13	-	-	-	-	4.30
W	-	1.08	0.94	-	-	-	-	-	2.02
WSW	-	0.67	1.21	0.27	-	-	-	-	2.15
SW	-	0.40	0.81	-	-	-	-	-	1.21
SSW	-	0.27	0.81	0.40	-	-	-	-	1.48
S	-	0.67	0.40	1.08	-	-	-	-	2.15
SSE	-	1.34	3.36	0.13	-	-	-	-	4.84
SE	-	2.29	7.53	0.40	-	-	-	-	10.22
ESE	-	5.38	5.11	0.94	-	-	-	-	11.43
E	-	8.47	8.06	-	-	-	-	-	16.53
Calm	6.18	-	-	-	-	-	-	-	6.18
Total (%)	6.18	45.43	44.76	3.63	-	-	-	-	100.00

CLIENT

Tyhee Development Corp

TYHEE DEVELOPMENT CORP.
YELLOWKNIFE GOLD PROJECT

TYHEE
WIND ROSE
JULY 2007

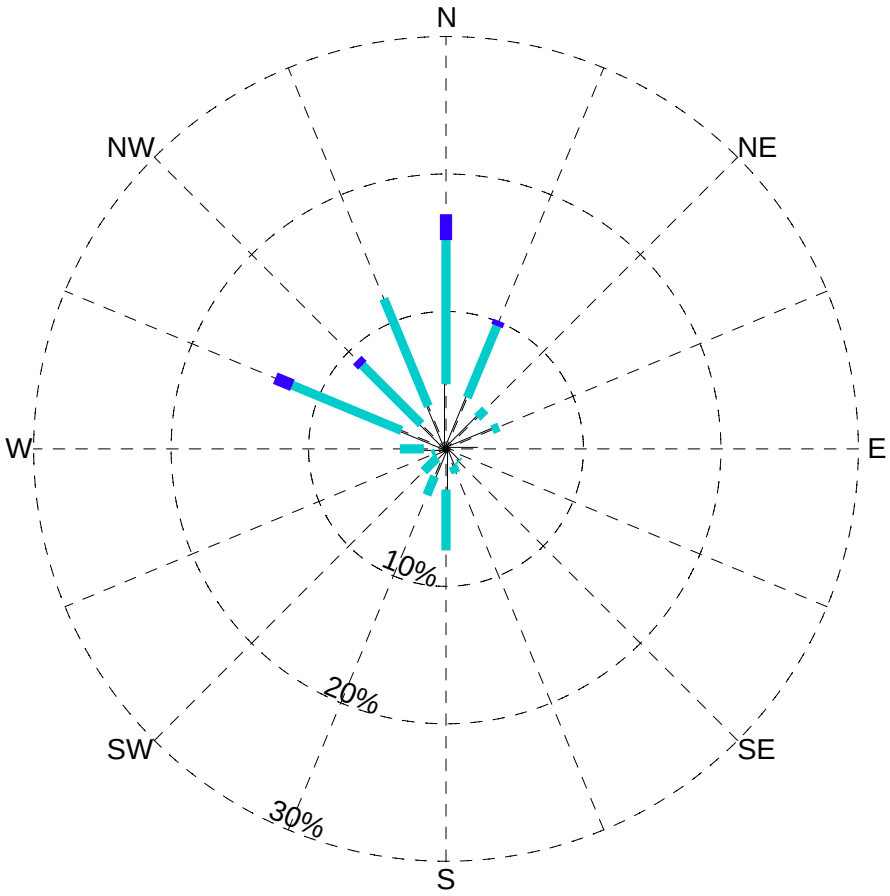
HAY & COMPANY CONSULTANTS A DIVISION OF EBA

PROJECT NO.	DWN	CHK	REV
Y22101002	TM	JAS	0

OFFICE: EBA-VANC
DATE: January 2008

Figure C-07

Thu Jan 10 10:07:46 2008:Q:\Vancouver\Environmental\Y221\Projects\Y22101002_Tyhee_2007\Working\RED\Meteorology\2007_data\Wind_roses\2007



Station Name: Tyhee
NAD 27 location:
N63° 11' 6.2" W113° 53' 40.2"
Elevation above SL: 300 m
Tower Height: 10 m
Record Length: 31 days
Start Date: Aug. 01, 2007
End Date: Aug. 31, 2007

Wind Speed & Direction Frequency Distribution Table

	Percent Occurrence (%)								
Direction	0-1 m/s	1-3 m/s	3-6 m/s	6-9 m/s	9-12 m/s	12-15 m/s	15-18 m/s	18+ m/s	Total (%)
ENE	-	3.63	0.54	-	-	-	-	-	4.17
NE	-	3.23	0.81	-	-	-	-	-	4.03
NNE	-	4.03	5.64	0.40	-	-	-	-	10.08
N	-	4.70	10.48	1.88	-	-	-	-	17.07
NNW	-	3.36	8.47	-	-	-	-	-	11.83
NW	-	2.55	6.05	0.54	-	-	-	-	9.14
WNW	-	3.49	8.60	1.34	-	-	-	-	13.44
W	-	1.61	1.75	-	-	-	-	-	3.36
WSW	-	0.81	0.27	-	-	-	-	-	1.08
SW	-	0.94	1.34	-	-	-	-	-	2.29
SSW	-	2.15	1.48	-	-	-	-	-	3.63
S	-	2.96	4.43	-	-	-	-	-	7.39
SSE	-	1.34	0.54	-	-	-	-	-	1.88
SE	-	1.21	0.13	-	-	-	-	-	1.34
ESE	-	0.54	-	-	-	-	-	-	0.54
E	-	2.29	-	-	-	-	-	-	2.29
Calm	6.45	-	-	-	-	-	-	-	6.45
Total (%)	6.45	38.84	50.54	4.17	-	-	-	-	100.00

CLIENT

Tyhee Development Corp

HAY & COMPANY CONSULTANTS A DIVISION OF EBA

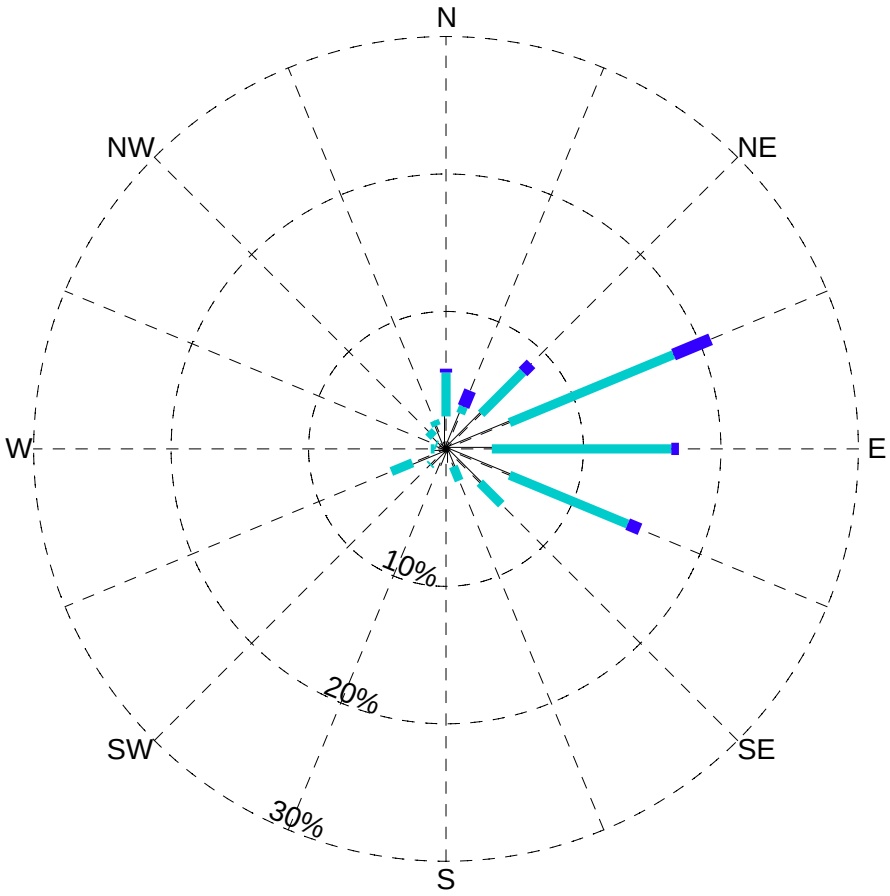
TYHEE DEVELOPMENT CORP.
YELLOWKNIFE GOLD PROJECT

TYHEE
WIND ROSE
AUGUST 2007

PROJECT NO.	DWN	CHK	REV
Y22101002	TM	JAS	0

OFFICE: EBA-VANC
DATE: January 2008

Figure C-08



Station Name: Tyhee
NAD 27 location:
N63° 11' 6.2" W113° 53' 40.2"
Elevation above SL: 300 m
Tower Height: 10 m
Record Length: 30 days
Start Date: Sep. 01, 2007
End Date: Sep. 30, 2007

Wind Speed & Direction Frequency Distribution Table

	Percent Occurrence (%)								
Direction	0-1 m/s	1-3 m/s	3-6 m/s	6-9 m/s	9-12 m/s	12-15 m/s	15-18 m/s	18+ m/s	Total (%)
ENE	-	5.00	12.92	2.92	-	-	-	-	20.83
NE	-	3.61	4.31	0.83	-	-	-	-	8.75
NNE	-	2.78	0.56	1.25	-	-	-	-	4.58
N	-	2.36	3.19	0.28	-	-	-	-	5.83
NNW	-	1.81	0.42	-	-	-	-	-	2.22
NW	-	1.25	0.56	-	-	-	-	-	1.81
WNW	-	0.69	0.14	-	-	-	-	-	0.83
W	-	0.83	0.28	-	-	-	-	-	1.11
WSW	-	2.64	1.67	-	-	-	-	-	4.31
SW	-	1.53	0.14	-	-	-	-	-	1.67
SSW	-	1.25	-	-	-	-	-	-	1.25
S	-	0.97	-	-	-	-	-	-	0.97
SSE	-	1.39	1.11	-	-	-	-	-	2.50
SE	-	3.47	2.22	-	-	-	-	-	5.69
ESE	-	5.00	9.31	0.97	-	-	-	-	15.28
E	-	3.33	13.06	0.56	-	-	-	-	16.94
Calm	5.42	-	-	-	-	-	-	-	5.42
Total (%)	5.42	37.92	49.86	6.81	-	-	-	-	100.00

CLIENT

Tyhee Development Corp

TYHEE DEVELOPMENT CORP.
YELLOWKNIFE GOLD PROJECT

TYHEE
WIND ROSE
SEPTEMBER 2007

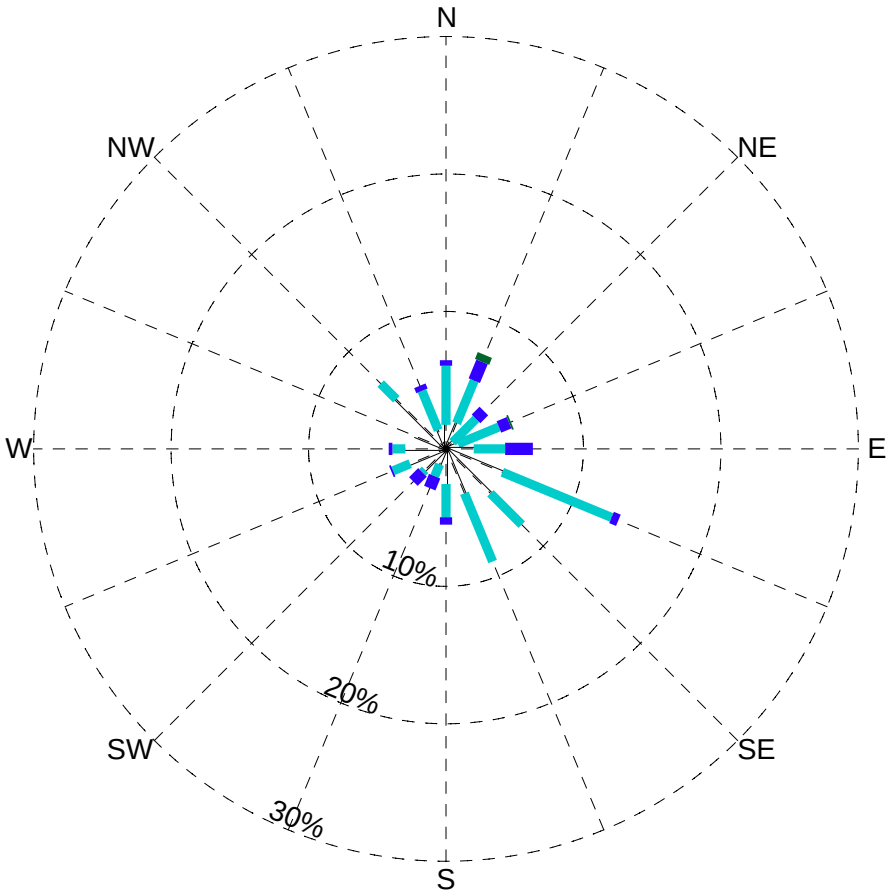
HAY & COMPANY CONSULTANTS A DIVISION OF EBA

PROJECT NO.	DWN	CHK	REV
Y22101002	TM	JAS	0

OFFICE: EBA-VANC
DATE: January 2008

Figure C-09

Thu Jan 10 10:07:47 2008:Q:\Vancouver\Environmental\Y221\Projects\Y22101002_Tyhee_2007\Working\RED\Meteorology\2007_data\Wind_roses\2007



Station Name: Tyhee
NAD 27 location:
N63° 11' 6.2" W113° 53' 40.2"
Elevation above SL: 300 m
Tower Height: 10 m
Record Length: 31 days
Start Date: Oct. 01, 2007
End Date: Oct. 31, 2007

Wind Speed & Direction Frequency Distribution Table

	Percent Occurrence (%)								
Direction	0-1 m/s	1-3 m/s	3-6 m/s	6-9 m/s	9-12 m/s	12-15 m/s	15-18 m/s	18+ m/s	Total (%)
ENE	-	0.94	3.23	0.81	0.13	-	-	-	5.11
NE	-	0.67	2.42	0.81	-	-	-	-	3.90
NNE	-	2.02	3.36	1.48	0.54	-	-	-	7.39
N	-	1.75	4.30	0.40	-	-	-	-	6.45
NNW	-	1.48	3.09	0.40	-	-	-	-	4.97
NW	-	5.11	1.61	-	-	-	-	-	6.72
WNW	-	2.42	-	-	-	-	-	-	2.42
W	-	2.96	0.94	0.27	-	-	-	-	4.17
WSW	-	2.82	1.34	0.13	-	-	-	-	4.30
SW	-	2.15	0.27	0.94	-	-	-	-	3.36
SSW	-	1.21	0.94	0.94	-	-	-	-	3.09
S	-	2.55	2.42	0.54	-	-	-	-	5.51
SSE	-	3.49	5.38	-	-	-	-	-	8.87
SE	-	4.57	3.23	-	-	-	-	-	7.80
ESE	-	4.43	8.60	0.54	-	-	-	-	13.57
E	-	2.02	2.29	2.02	-	-	-	-	6.32
Calm	6.05	-	-	-	-	-	-	-	6.05
Total (%)	6.05	40.59	43.41	9.27	0.67	-	-	-	100.00

CLIENT

TYHEE DEVELOPMENT CORP.
YELLOWKNIFE GOLD PROJECT

TYHEE
WIND ROSE
OCTOBER 2007

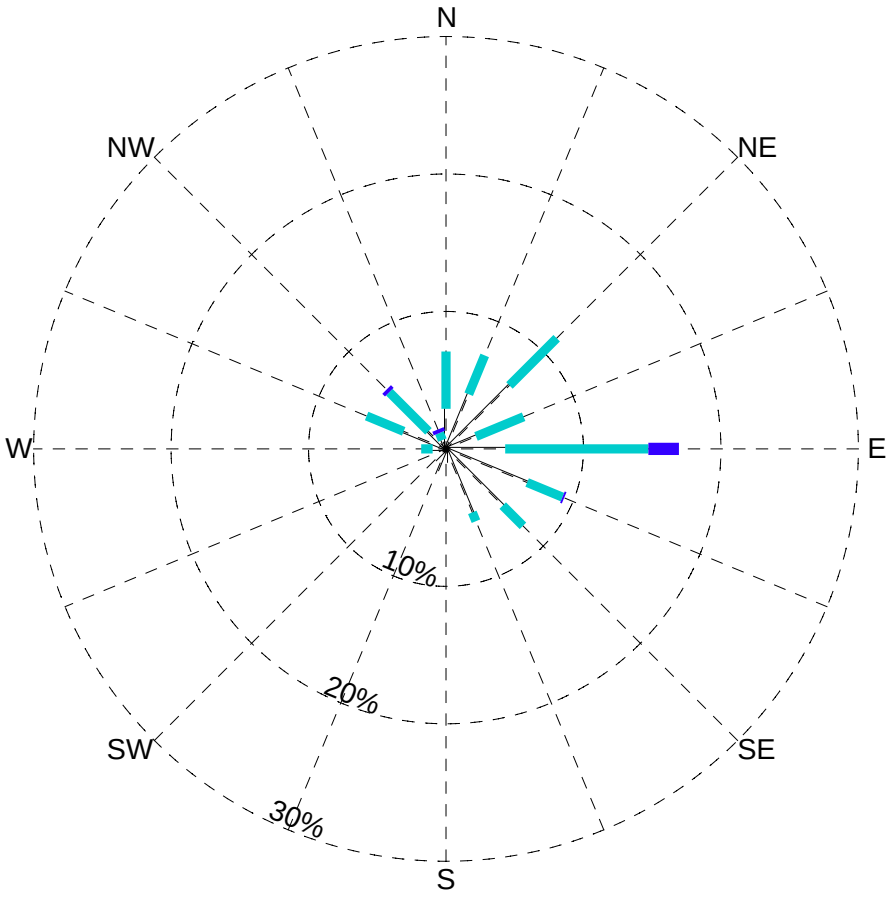
HAY & COMPANY CONSULTANTS A DIVISION OF EBA

PROJECT NO.	DWN	CHK	REV
Y22101002	TM	JAS	0

OFFICE: EBA-VANC
DATE: January 2008

Figure C-10

Thu Jan 10 10:07:47 2008:Q:\Vancouver\Environmental\Y221\Projects\Y22101002_Tyhee_2007\Working\RED\Meteorology\2007_data\Wind_roses\2007



Station Name: Tyhee
NAD 27 location:
N63° 11' 6.2" W113° 53' 40.2"
Elevation above SL: 300 m
Tower Height: 10 m
Record Length: 30 days
Start Date: Nov. 01, 2007
End Date: Nov. 30, 2007

Wind Speed & Direction Frequency Distribution Table

	Percent Occurrence (%)								
Direction	**0-1 m/s**	**1-3 m/s**	**3-6 m/s**	**6-9 m/s**	**9-12 m/s**	**12-15 m/s**	**15-18 m/s**	**18+ m/s**	**Total (%)**
ENE	-	2.36	3.75	-	-	-	-	-	6.11
NE	-	6.53	4.86	-	-	-	-	-	11.39
NNE	-	4.31	3.06	-	-	-	-	-	7.36
N	-	2.92	4.17	-	-	-	-	-	7.08
NNW	-	0.69	0.56	0.28	-	-	-	-	1.53
NW	-	1.81	4.03	0.28	-	-	-	-	6.11
WNW	-	3.33	2.92	-	-	-	-	-	6.25
W	-	0.97	0.83	-	-	-	-	-	1.81
WSW	-	0.28	-	-	-	-	-	-	0.28
SW	-	1.11	-	-	-	-	-	-	1.11
SSW	-	1.67	-	-	-	-	-	-	1.67
S	-	0.97	-	-	-	-	-	-	0.97
SSE	-	5.00	0.69	-	-	-	-	-	5.69
SE	-	5.83	2.08	-	-	-	-	-	7.92
ESE	-	6.39	2.78	0.14	-	-	-	-	9.31
E	-	4.31	10.42	2.22	-	-	-	-	16.94
Calm	8.47	-	-	-	-	-	-	-	8.47
Total (%)	8.47	48.47	40.14	2.92	-	-	-	-	100.00

CLIENT

TYHEE DEVELOPMENT CORP.
YELLOWKNIFE GOLD PROJECT

TYHEE
WIND ROSE
NOVEMBER 2007

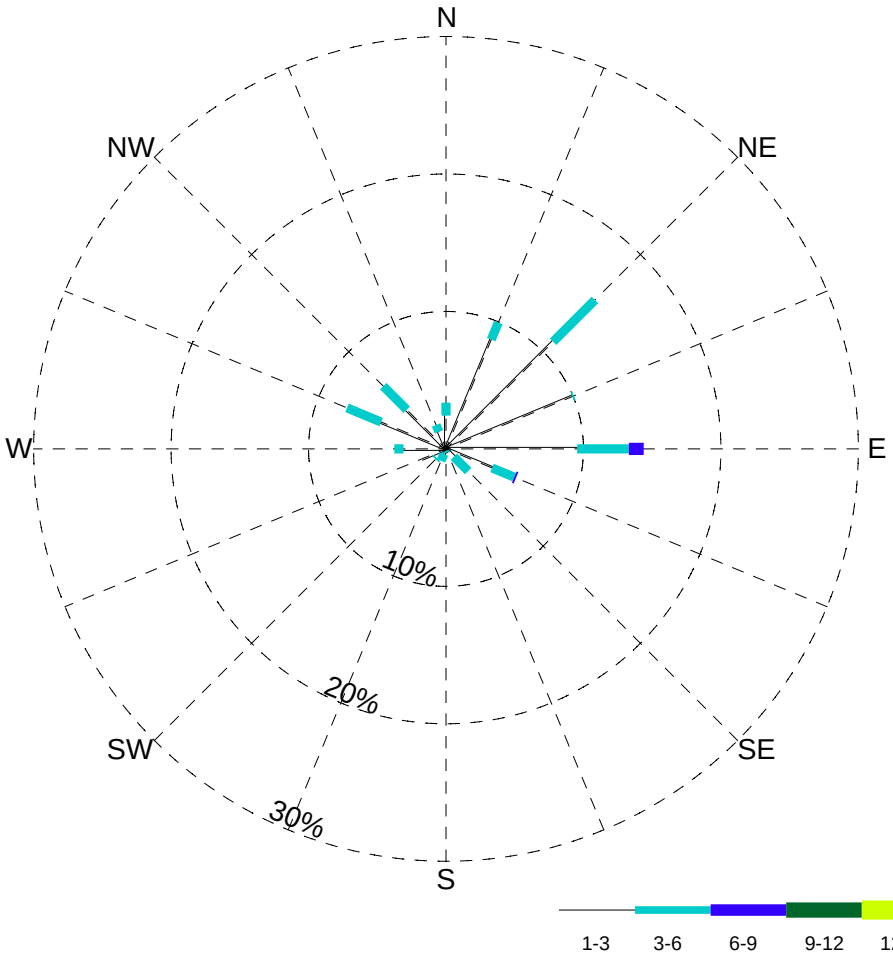
HAY & COMPANY CONSULTANTS A DIVISION OF EBA

PROJECT NO.	DWN	CHK	REV
Y22101002	TM	JAS	0

OFFICE: EBA-VANC
DATE: January 2008

Figure C-11

Thu Jan 10 10:07:48 2008:Q:\Vancouver\Environmental\Y221\Projects\Y22101002_Tyhee_2007\Working\RED\Meteorology\2007_data\Wind_roses\2007



Station Name: Tyhee
NAD 27 location:
N63° 11' 6.2" W113° 53' 40.2"
Elevation above SL: 300 m
Tower Height: 10 m
Record Length: 31 days
Start Date: Dec. 01, 2007
End Date: Dec. 31, 2007

Wind Speed & Direction Frequency Distribution Table

	Percent Occurrence (%)								
Direction	0-1 m/s	1-3 m/s	3-6 m/s	6-9 m/s	9-12 m/s	12-15 m/s	15-18 m/s	18+ m/s	Total (%)
ENE	-	9.95	0.13	-	-	-	-	-	10.08
NE	-	11.02	4.30	-	-	-	-	-	15.32
NNE	-	8.60	1.34	-	-	-	-	-	9.95
N	-	2.42	0.94	-	-	-	-	-	3.36
NNW	-	1.34	0.54	-	-	-	-	-	1.88
NW	-	4.03	2.42	-	-	-	-	-	6.45
WNW	-	5.11	2.69	-	-	-	-	-	7.80
W	-	3.09	0.67	-	-	-	-	-	3.76
WSW	-	1.88	-	-	-	-	-	-	1.88
SW	-	0.94	0.13	-	-	-	-	-	1.08
SSW	-	0.40	0.54	-	-	-	-	-	0.94
S	-	0.13	-	-	-	-	-	-	0.13
SSE	-	0.13	0.13	-	-	-	-	-	0.27
SE	-	0.81	1.48	-	-	-	-	-	2.29
ESE	-	3.63	1.75	0.13	-	-	-	-	5.51
E	-	9.54	3.76	1.08	-	-	-	-	14.38
Calm	14.92	-	-	-	-	-	-	-	14.92
Total (%)	14.92	63.04	20.83	1.21	-	-	-	-	100.00

CLIENT

TYHEE DEVELOPMENT CORP.
YELLOWKNIFE GOLD PROJECT

TYHEE
WIND ROSE
DECEMBER 2007

HAY & COMPANY CONSULTANTS A DIVISION OF EBA

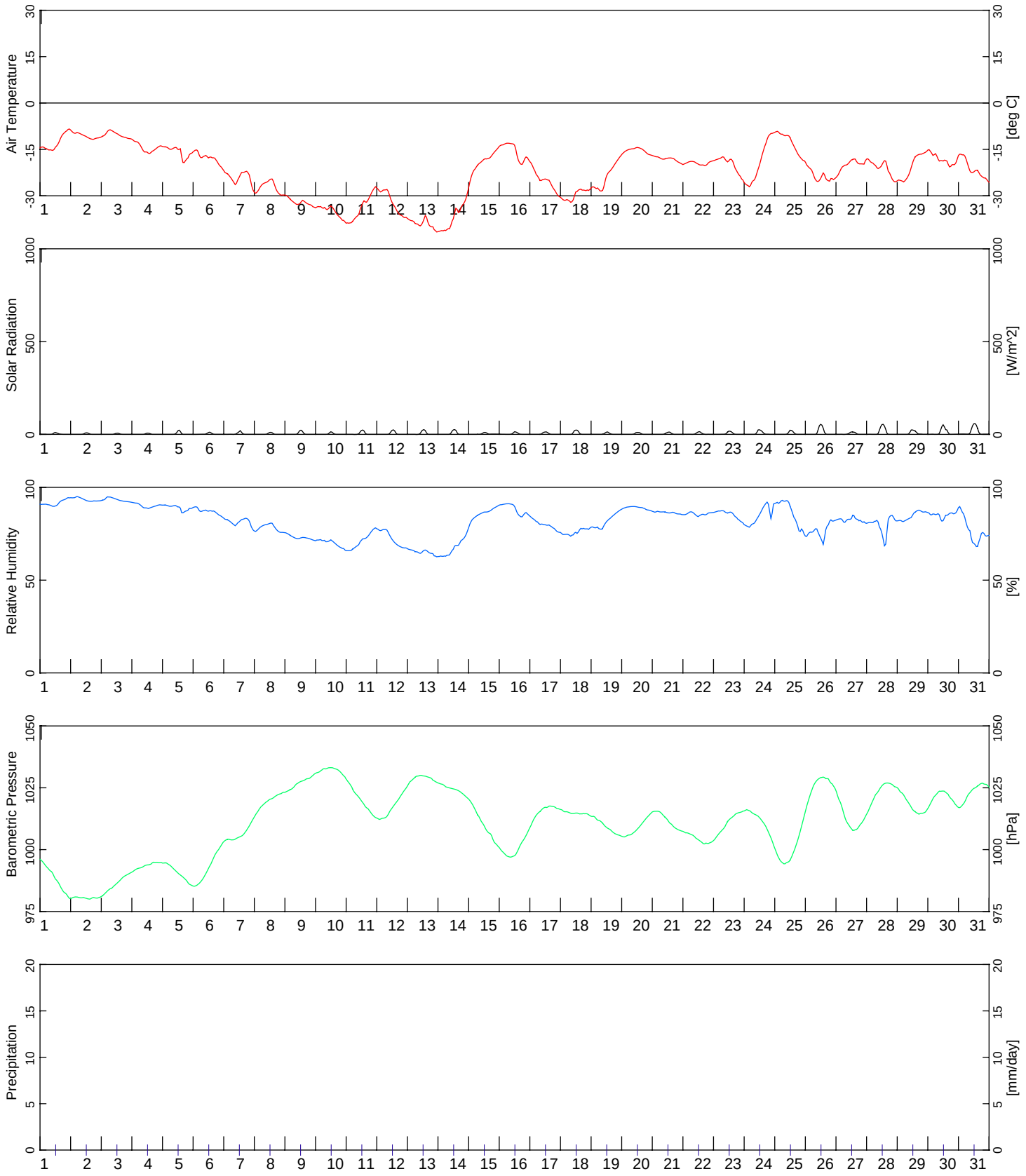
PROJECT NO.	DWN	CHK	REV
Y22101002	TM	JAS	0

OFFICE: EBA-VANC
DATE: January 2008

Figure C-12

APPENDIX

APPENDIX D SUMMARY OF WEATHER PARAMETERS – JANUARY 2007 TO DECEMBER 2007



Precipitation data does not exist
for period of January 1 to March 22, 2007.

CLIENT

Tyhee Development Corp

TYHEE DEVELOPMENT CORP.
YELLOWKNIFE GOLD PROJECT

TYHEE
WEATHER
JANUARY 2007

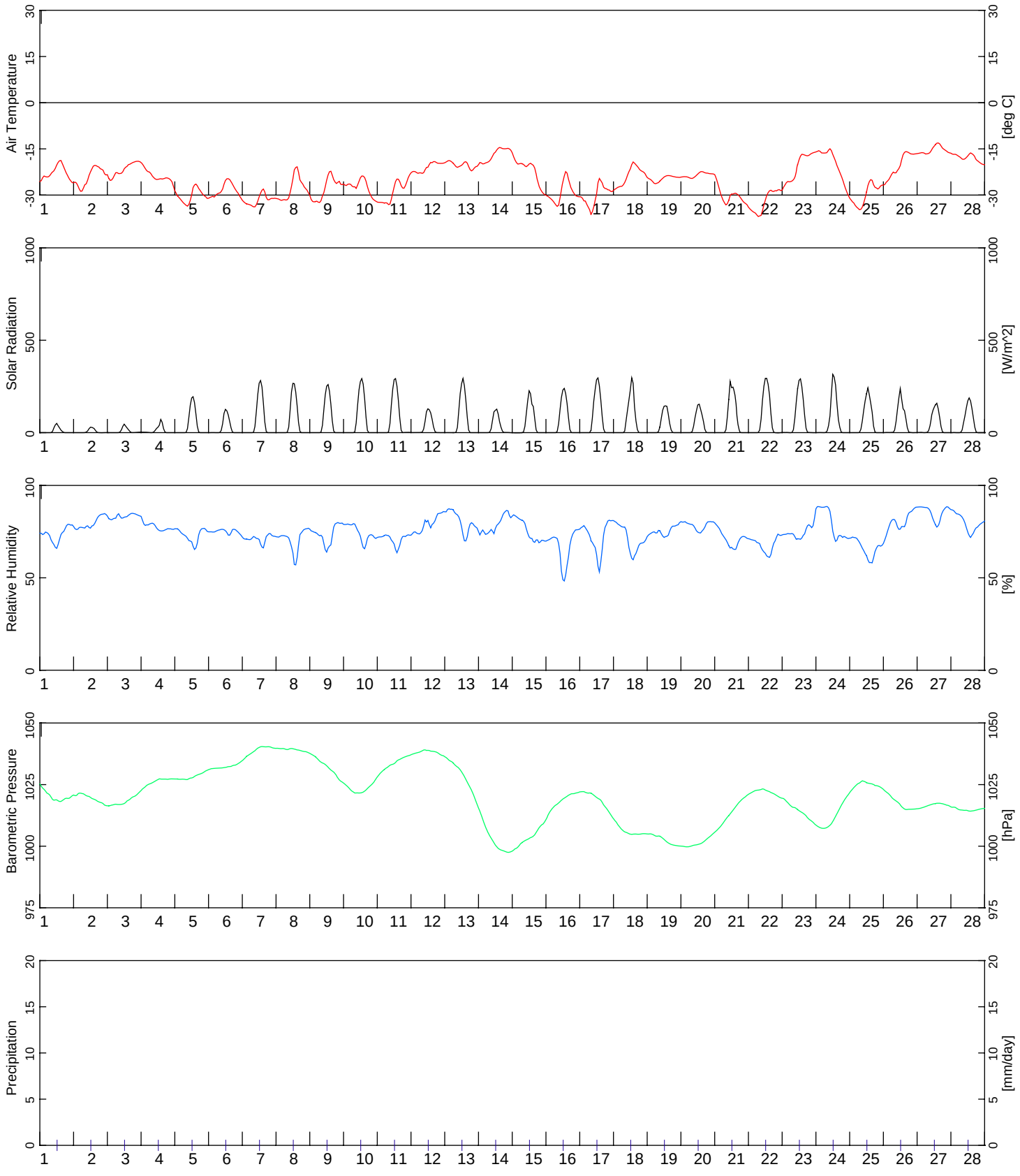
HAY & COMPANY CONSULTANTS A DIVISION OF EBA

PROJECT NO.	DWN	CHK	REV
Y22101002	TM	JAS	0

OFFICE	DATE
EBA-VANC	January 2008

Figure D-01

Thu Jan 31 13:58:29 2008:Q:\Vancouver\Environmental\Y221\Projects\Y22101002_Tyhee_2007\Working\RED\Meteorology\2007_data



Precipitation data does not exist
for period of January 1 to March 22, 2007.

CLIENT

Tyhee Development Corp

TYHEE DEVELOPMENT CORP.
YELLOWKNIFE GOLD PROJECT

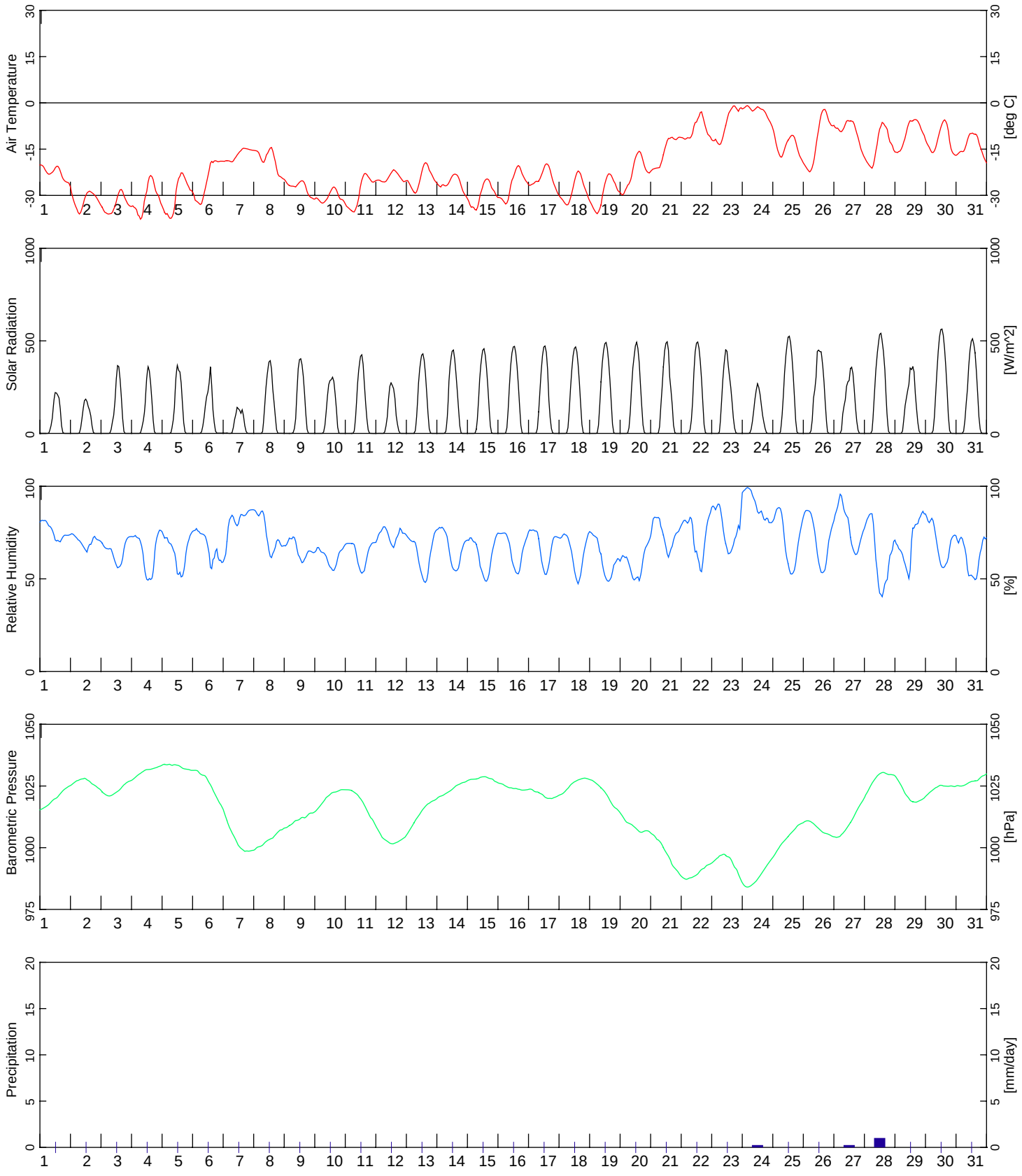
TYHEE
WEATHER
FEBRUARY 2007

HAY & COMPANY CONSULTANTS A DIVISION OF EBA

PROJECT NO.	DWN	CHK	REV
Y22101002	TM	JAS	0
OFFICE: EBA-VANC	DATE: January 2008		

Figure D-02

Thu Jan 31 14:01:27 2008:Q:\Vancouver\Environmental\Y221\Projects\Y22101002_Tyhee_2007\Working\RED\Meteorology\2007_data



Precipitation data does not exist
for period of January 1 to March 22, 2007.

CLIENT

Tyhee Development Corp

TYHEE DEVELOPMENT CORP.
YELLOWKNIFE GOLD PROJECT

TYHEE
WEATHER
MARCH 2007

HAY & COMPANY CONSULTANTS A DIVISION OF EBA

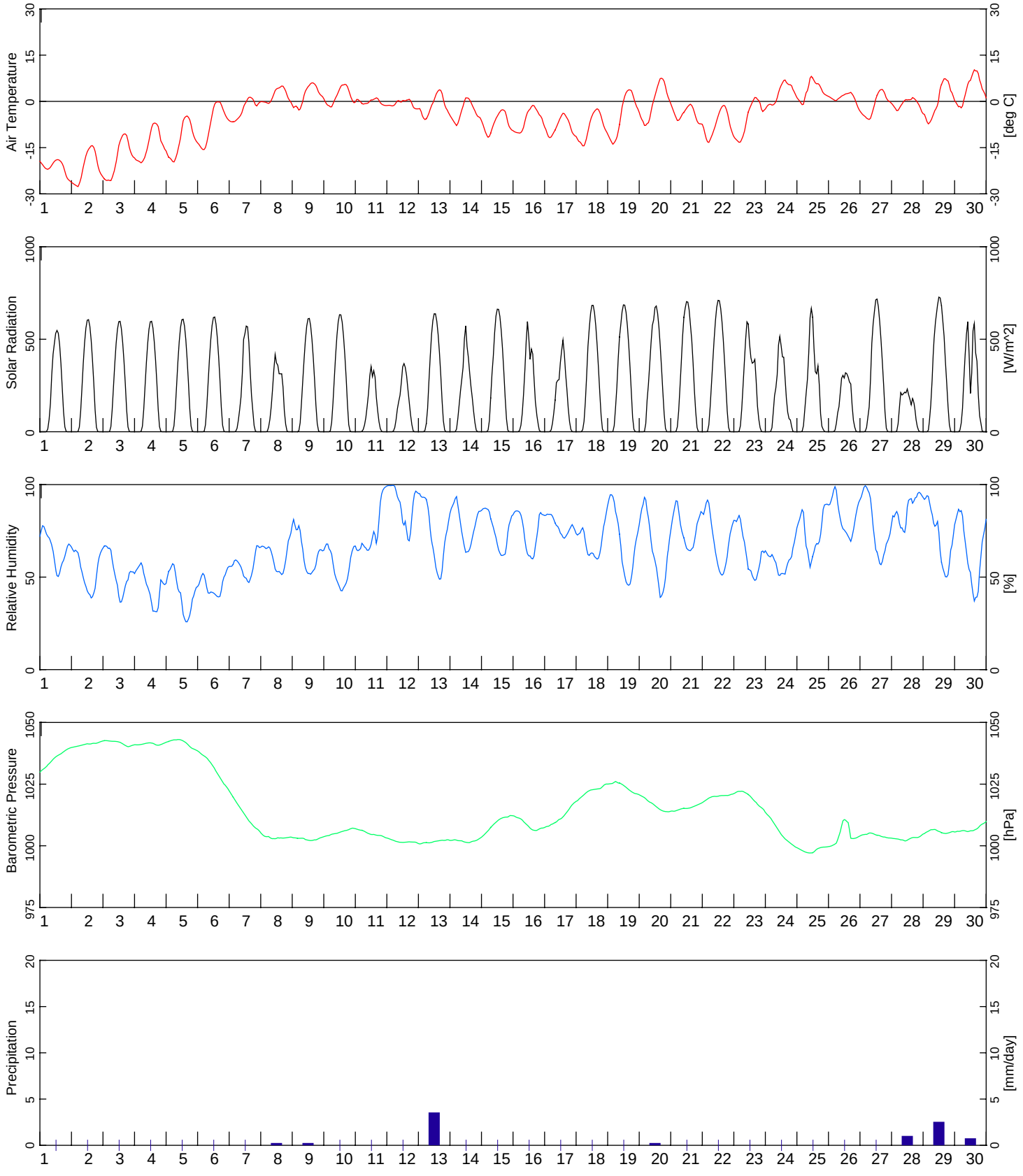
PROJECT NO.	DWN	CHK	REV
Y22101002	TM	JAS	0

OFFICE: EBA-VANC

DATE: January 2008

Figure D-03

Thu Jan 31 14:02:27 2008:Q:\Vancouver\Environmental\Y221\Projects\Y22101002_Tyhee_2007\Working\RED\Meteorology\2007_data



CLIENT

Tyhee Development Corp

TYHEE DEVELOPMENT CORP.
YELLOWKNIFE GOLD PROJECT

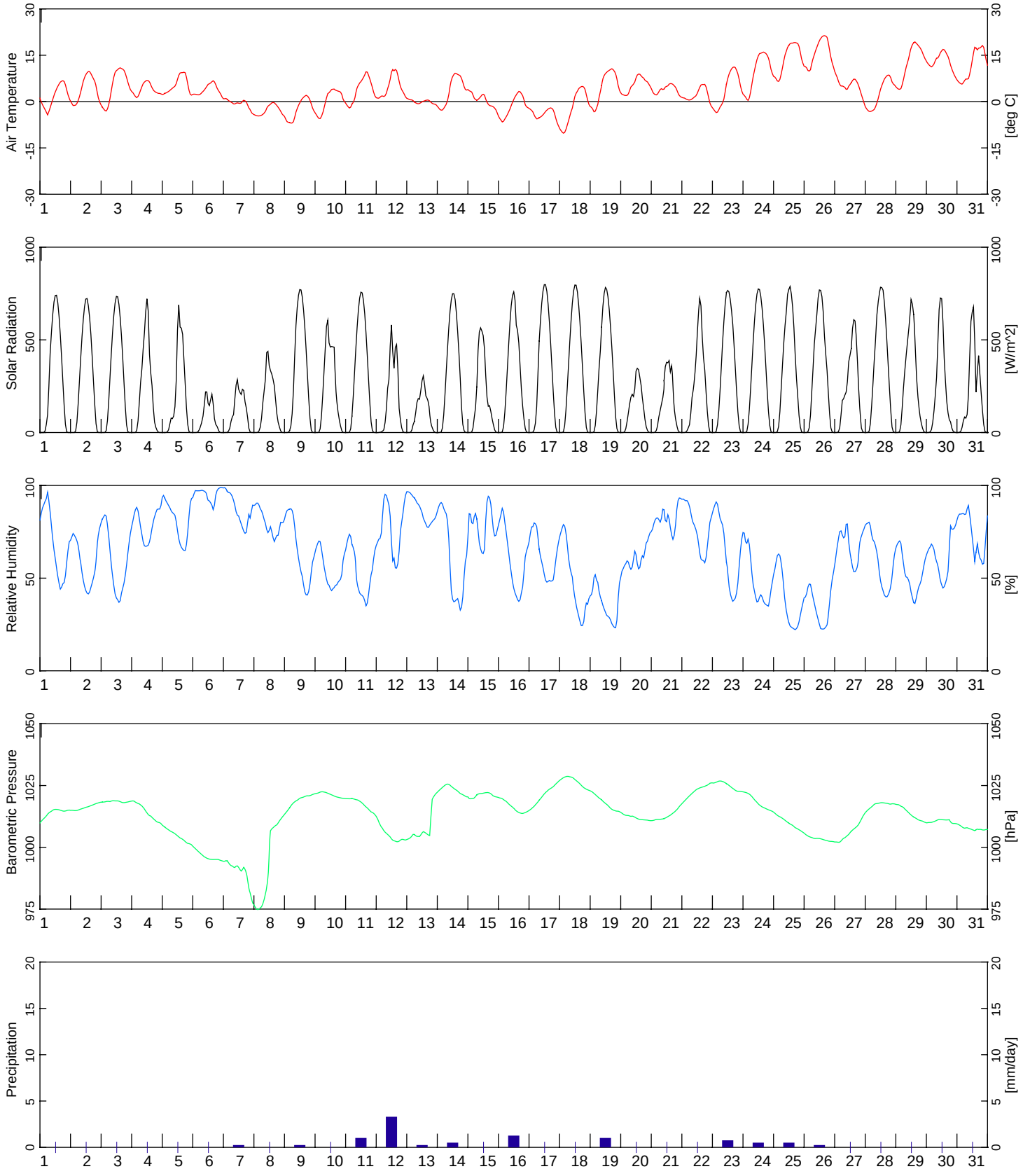
TYHEE
WEATHER
APRIL 2007

HAY & COMPANY CONSULTANTS A DIVISION OF EBA

PROJECT NO.	DWN	CHK	REV
Y22101002	TM	JAS	0
OFFICE: EBA-VANC	DATE: January 2008		

Figure D-04

Fri Jan 25 11:43:20 2008:Q:\Vancouver\Environmental\Y221\Projects\Y22101002_Tyhee_2007\Working\RED\Meteorology\2007_data



CLIENT

Tyhee Development Corp

TYHEE DEVELOPMENT CORP.
YELLOWKNIFE GOLD PROJECT

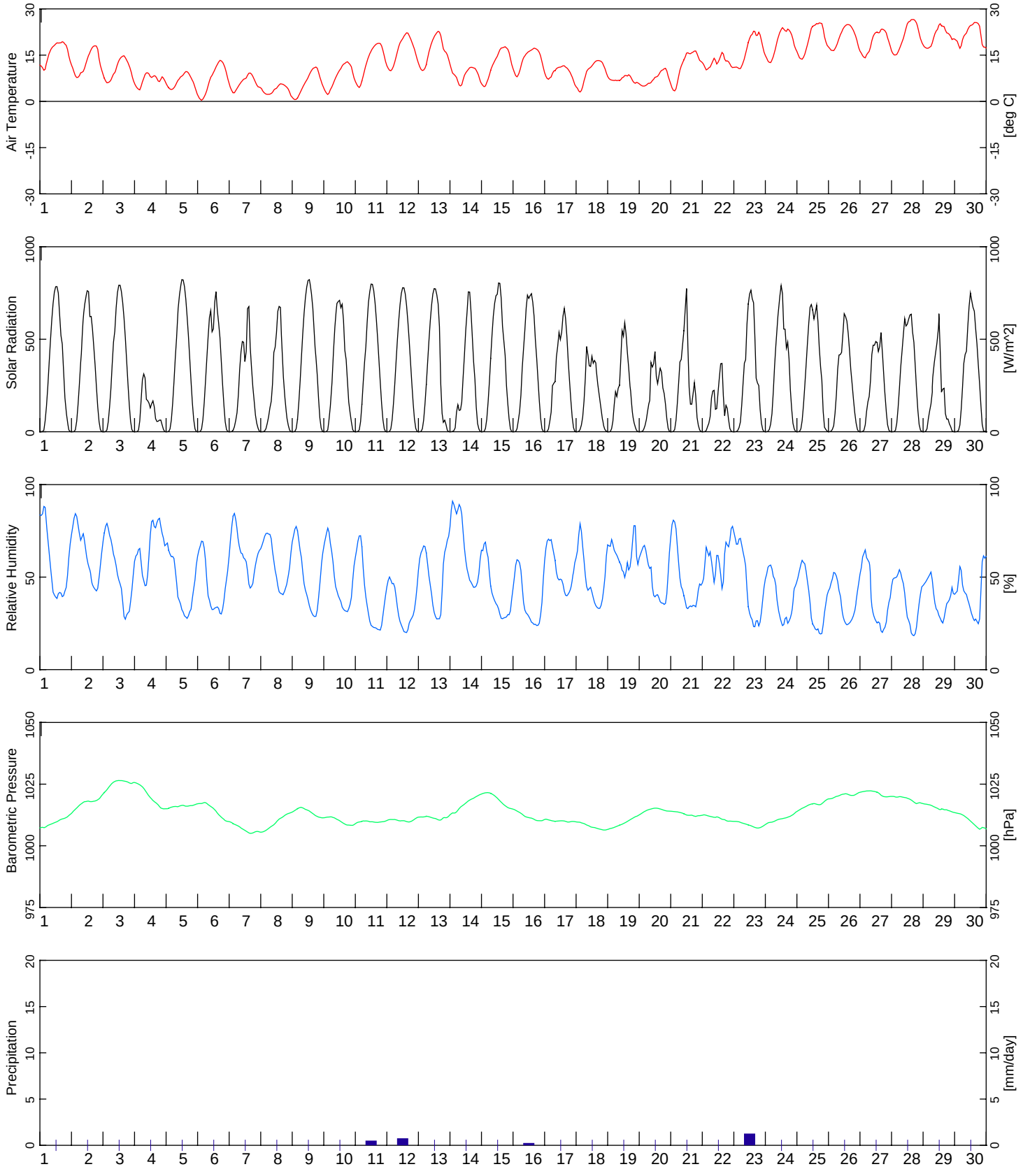
TYHEE
WEATHER
MAY 2007

HAY & COMPANY CONSULTANTS A DIVISION OF EBA

PROJECT NO.	DWN	CHK	REV
Y22101002	TM	JAS	0
OFFICE: EBA-VANC	DATE: January 2008		

Figure D-05

Fri Jan 25 11:43:21 2008:Q:\Vancouver\Environmental\Y221\Projects\Y22101002_Tyhee_2007\Working\RED\Meteorology\2007_data



CLIENT

TYHEE DEVELOPMENT CORP.
YELLOWKNIFE GOLD PROJECT

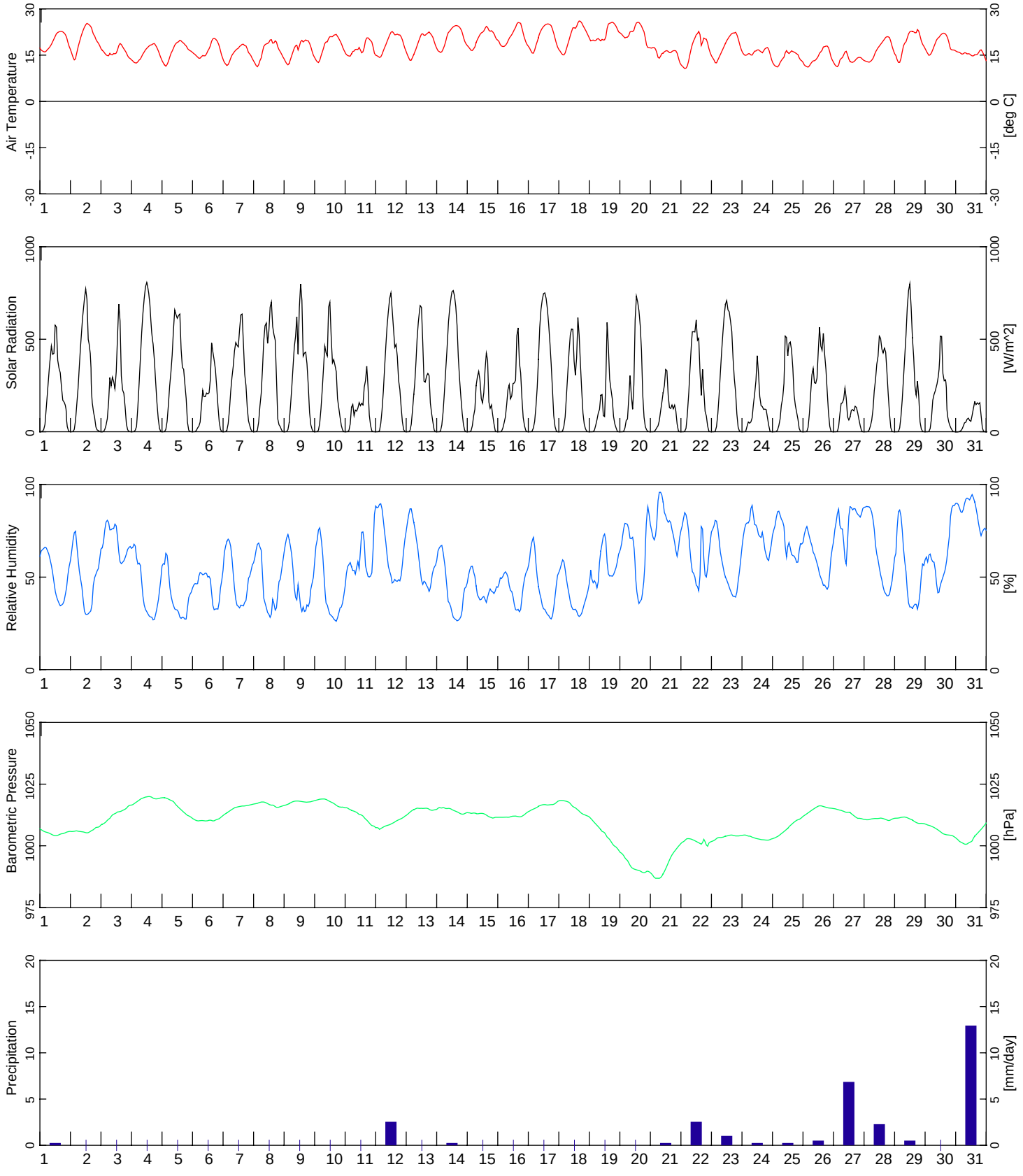
TYHEE
WEATHER
JUNE 2007

HAY & COMPANY CONSULTANTS A DIVISION OF EBA

PROJECT NO.	DWN	CHK	REV
Y22101002	TM	JAS	0
OFFICE: EBA-VANC	DATE: January 2008		

Figure D-06

Fri Jan 25 11:43:22 2008:Q:\Vancouver\Environmental\Y221\Projects\Y22101002_Tyhee_2007\Working\RED\Meteorology\2007_data



CLIENT

Tyhee Development Corp

TYHEE DEVELOPMENT CORP.
YELLOWKNIFE GOLD PROJECT

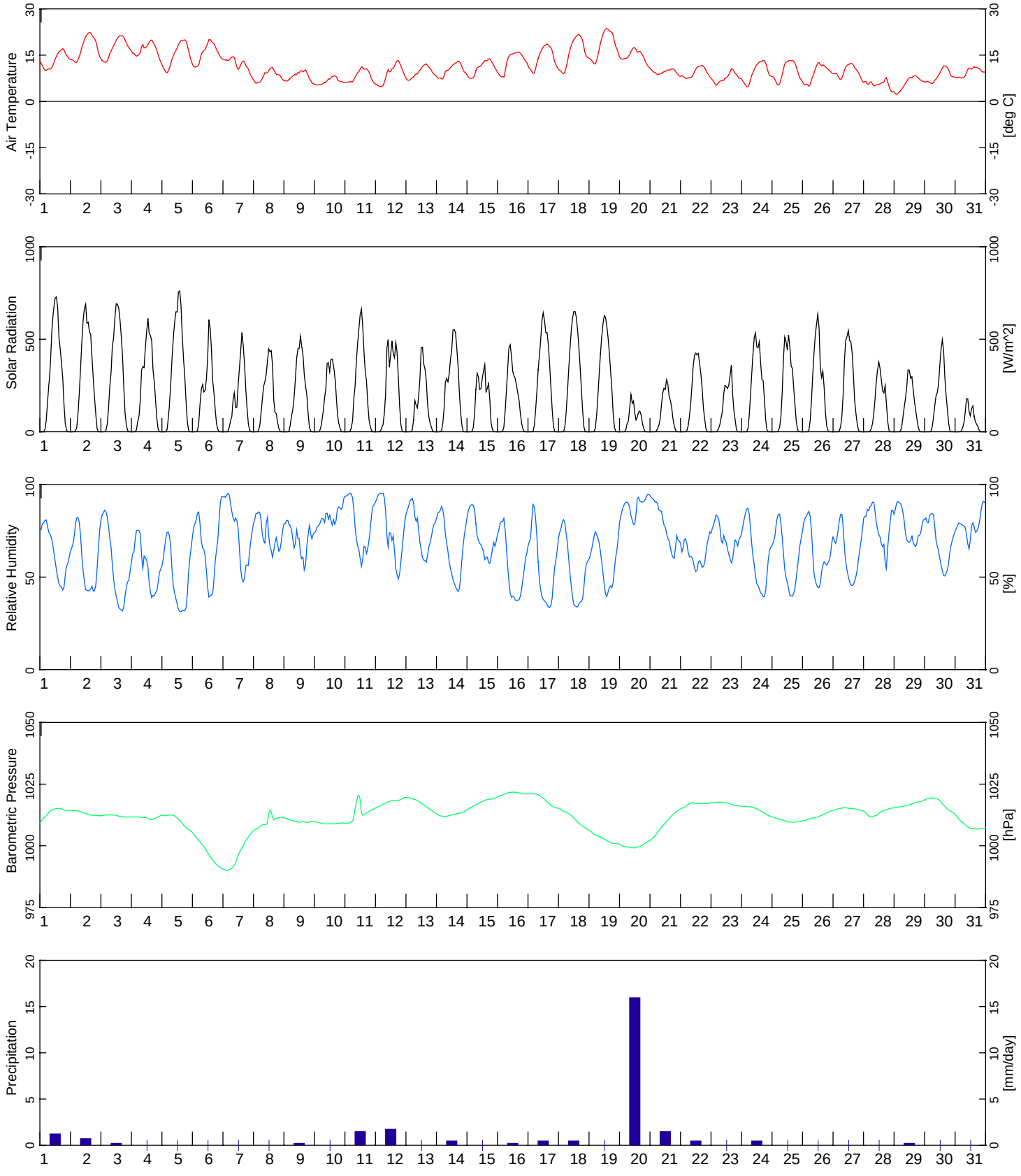
TYHEE
WEATHER
JULY 2007

HAY & COMPANY CONSULTANTS A DIVISION OF EBA

PROJECT NO.	DWN	CHK	REV
Y22101002	TM	JAS	0
OFFICE: EBA-VANC	DATE: January 2008		

Figure D-07

Fri Jan 25 11:43:24 2008:Q:\Vancouver\Environmental\Y221\Projects\Y22101002_Tyhee_2007\Working\RED\Meteorology\2007_data



CLIENT

Tyhee Development Corp

TYHEE DEVELOPMENT CORP.
YELLOWKNIFE GOLD PROJECT

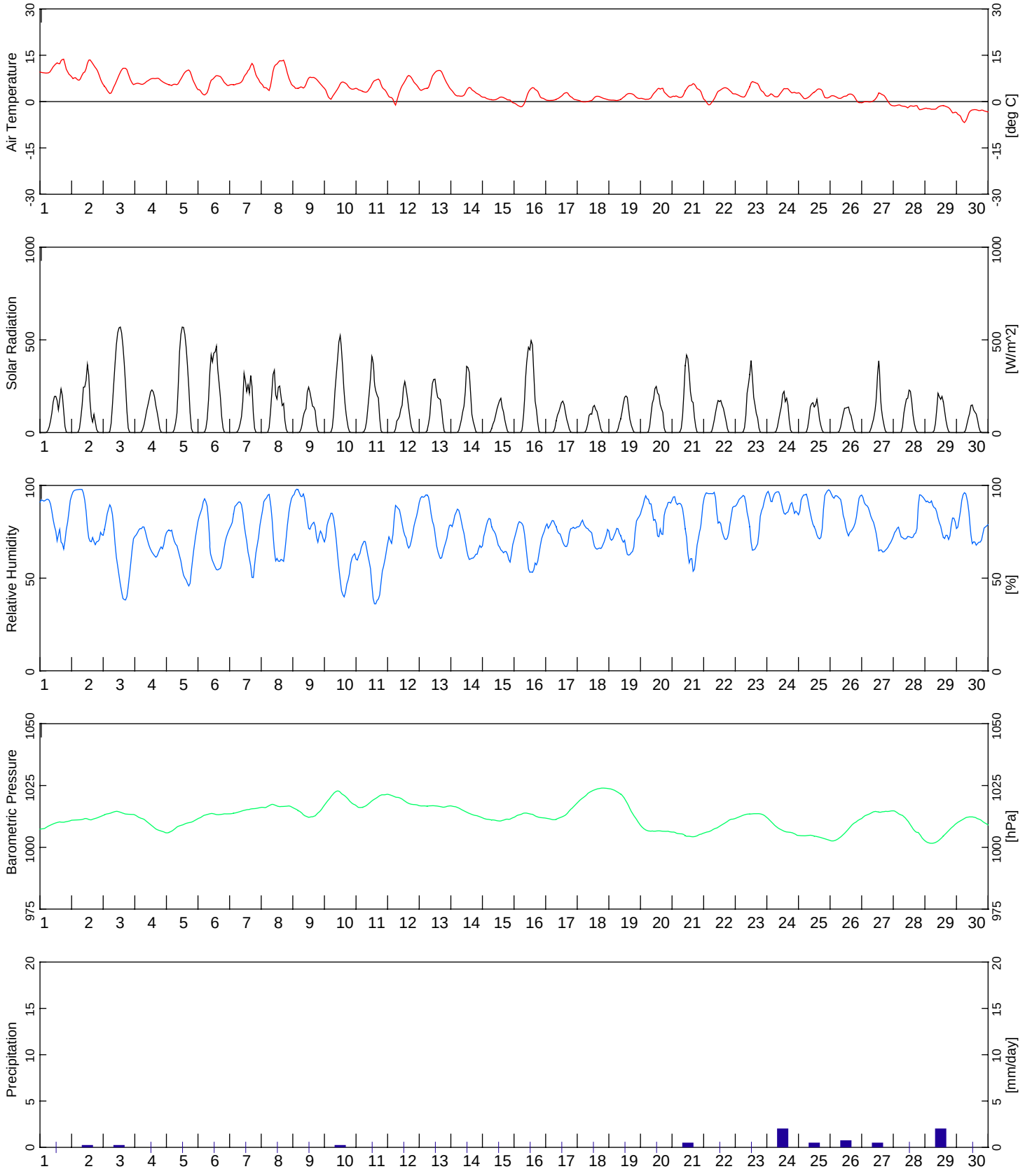
TYHEE
WEATHER
AUGUST 2007

HAY & COMPANY CONSULTANTS A DIVISION OF EBA

PROJECT NO.	DWN	CHK	REV
Y22101002	TM	JAS	0
OFFICE: EBA-VANC	DATE: January 2008		

Figure D-08

Thu Feb 07 12:06:43 2008:Q:\Vancouver\Environmental\Y221\Projects\Y22101002_Tyhee_2007\Working\RED\Meteorology\2007_data



CLIENT

Tyhee Development Corp

TYHEE DEVELOPMENT CORP.
YELLOWKNIFE GOLD PROJECT

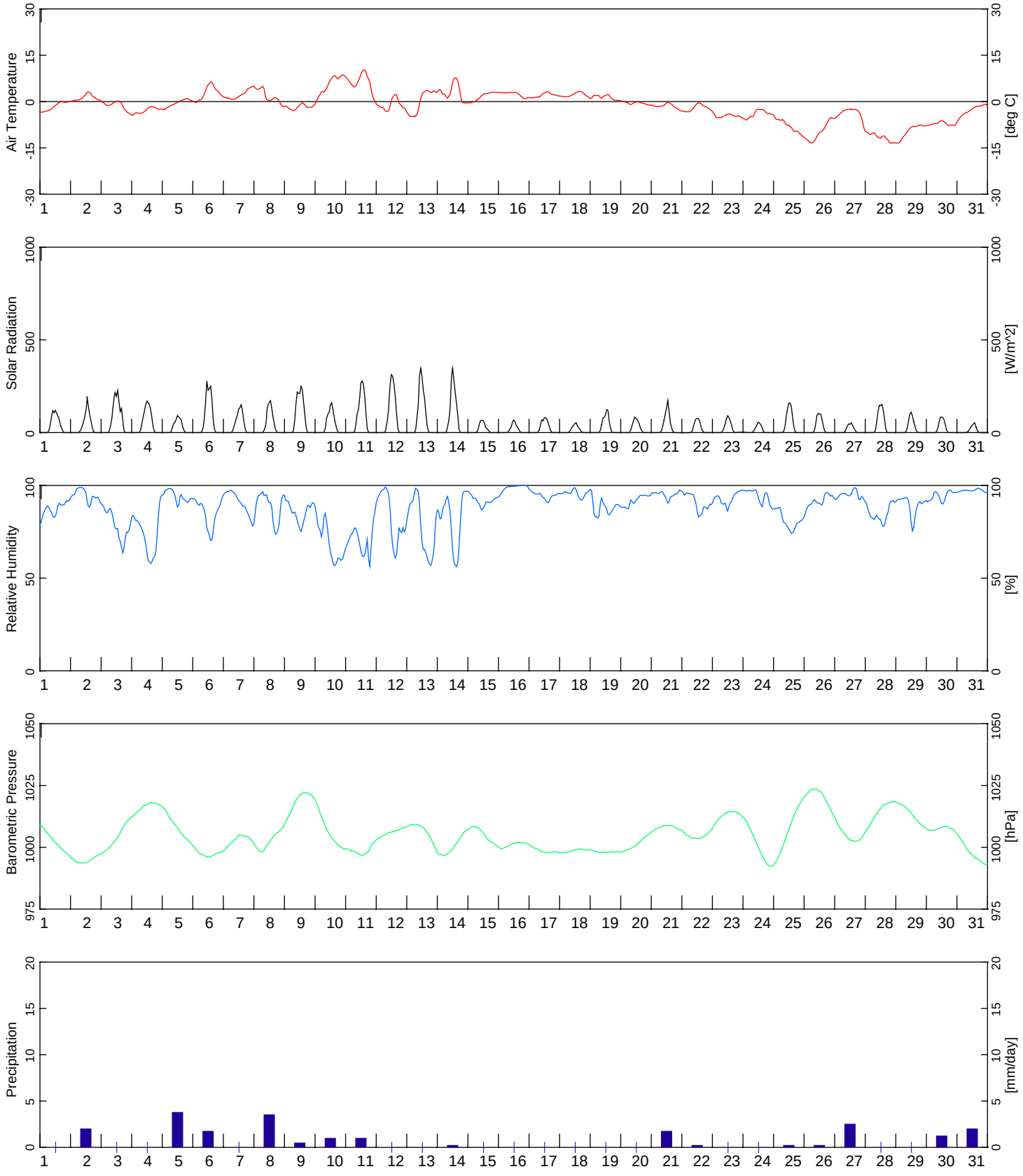
TYHEE
WEATHER
SEPTEMBER 2007

HAY & COMPANY CONSULTANTS A DIVISION OF EBA

PROJECT NO.	DWN	CHK	REV
Y22101002	TM	JAS	0
OFFICE: EBA-VANC	DATE: January 2008		

Figure D-09

Thu Feb 07 12:06:44 2008:Q:\Vancouver\Environmental\Y221\Projects\Y22101002_Tyhee_2007\Working\RED\Meteorology\2007_data



CLIENT

Tyhee Development Corp

TYHEE DEVELOPMENT CORP.
YELLOWKNIFE GOLD PROJECT

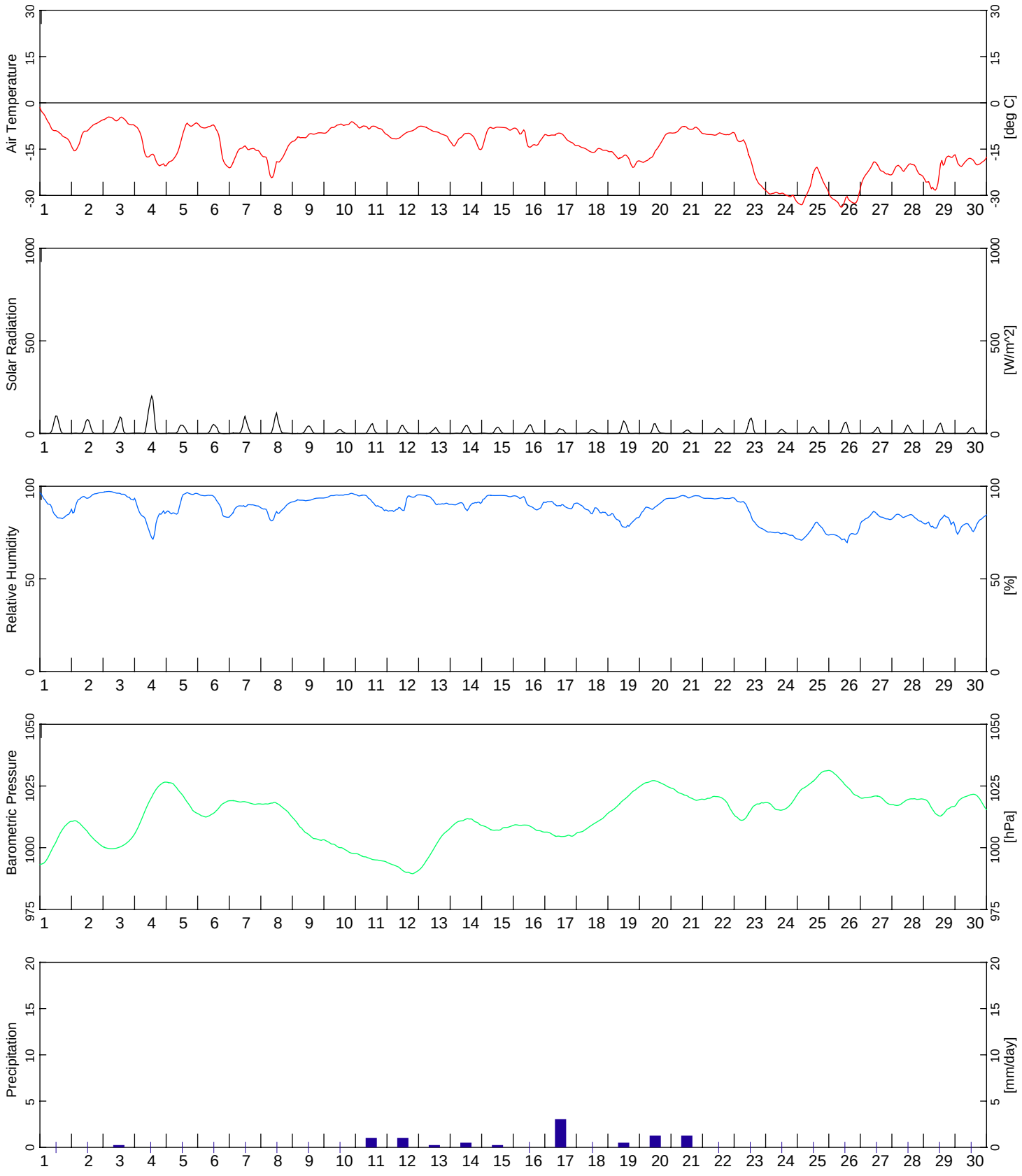
TYHEE
WEATHER
OCTOBER 2007

HAY & COMPANY CONSULTANTS A DIVISION OF EBA

PROJECT NO.	DWN	CHK	REV
Y22101002	TM	JAS	0
OFFICE: EBA-VANC	DATE: January 2008		

Figure D-10

Fri Jan 25 11:43:28 2008:Q:\Vancouver\Environmental\Y221\Projects\Y22101002_Tyhee_2007\Working\RED\Meteorology\2007_data



CLIENT

Tyhee Development Corp

TYHEE DEVELOPMENT CORP.
YELLOWKNIFE GOLD PROJECT

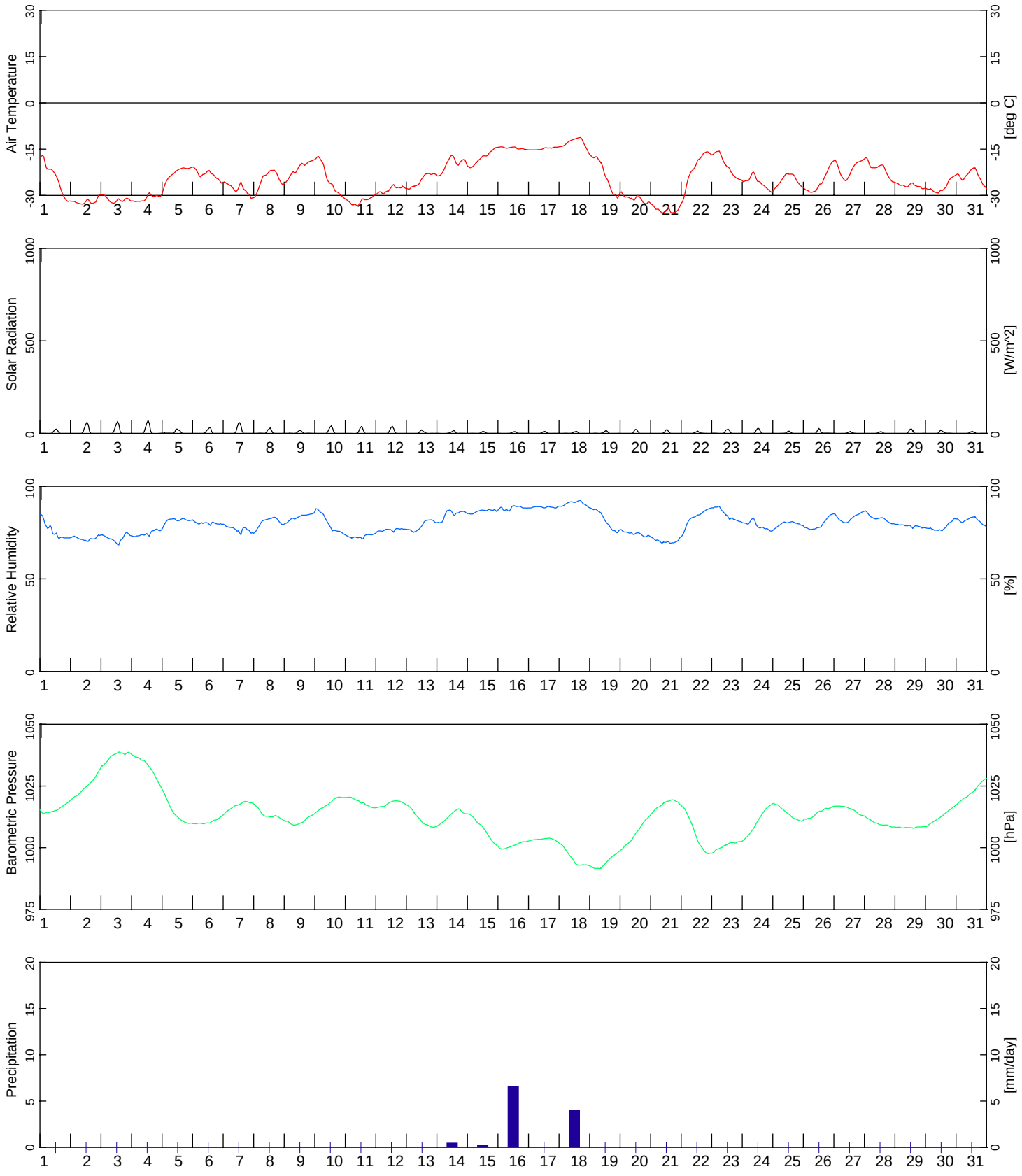
TYHEE
WEATHER
NOVEMBER 2007

HAY & COMPANY CONSULTANTS A DIVISION OF EBA

PROJECT NO.	DWN	CHK	REV
Y22101002	TM	JAS	0
OFFICE: EBA-VANC	DATE: January 2008		

Figure D-11

Fri Jan 25 11:43:29 2008:Q:\Vancouver\Environmental\Y221\Projects\Y22101002_Tyhee_2007\Working\RED\Meteorology\2007_data



CLIENT

Tyhee Development Corp

TYHEE DEVELOPMENT CORP.
YELLOWKNIFE GOLD PROJECT

TYHEE
WEATHER
DECEMBER 2007

HAY & COMPANY CONSULTANTS A DIVISION OF EBA

PROJECT NO.	DWN	CHK	REV
Y22101002	TM	JAS	0
OFFICE: EBA-VANC	DATE: January 2008		

Figure D-12

Fri Jan 25 11:43:31 2008:Q:\Vancouver\Environmental\Y221\Projects\Y22101002_Tyhee_2007\Working\RED\Meteorology\2007_data

APPENDIX

APPENDIX E DESCRIPTION OF DATA FILES ON THE REPORT CD

DESCRIPTION OF THE DATA FILES FOR THE YELLOWKNIFE GOLD PROJECT'S 2007 DATA REPORT

The data directory section of the Yellowknife Gold Project 2007 Data Report CD contains all the field data with respect to meteorology and hydrology that was collected by Hay & Company Consultants over the period from January 1 to December 31, 2007. The data is contained in two directories: meteorological data and hydrological data.

1.0 METEOROLOGICAL DATA

There are three meteorological station files included with this CD. They contain the data recorded by the meteorological station Hay & Company installed located on the northeast end the Yellowknife Gold Project Airstrip.

1.1 HOURLY METEOROLOGICAL DATA

The data file named "2007_Tyhee_hourly_met_data.csv" contains comma separated meteorological data for each hour over the period of January 1 to December 31, 2007. The data was collected at 15-minute intervals and was filtered such that only the hourly data is contained in this file.

The file format is such that each row represents one sample time period.

The 8 data columns identified from left to right are Date / Time, wind vector [u], wind vector [v], standard deviation of wind, air temperature [Co], relative humidity [%], barometric pressure at sea level [hPa], and incident solar radiation [W/m²].

1.2 HOURLY METEOROLOGICAL DATA

The data file named "**2007_Tyhee_daily_met_data.csv**"is the daily mean, maximum and minimum data saved at midnight each day for 2007.

The 13 data columns identified from left to right are date, maximum wind speed [m/s], 3 columns for mean, maximum and minimum sea level equivalent barometric pressure [hPa], precipitation [mm/day of water], 3 columns for mean, maximum and minimum relative humidity, 3 columns for mean, maximum and minimum air temperature [ºC] and the last column is incident solar radiation [W/m²].

1.3 15 MINUTE PRECIPITATION DATA

The data file named "**2007_Tyhee_15_min_precip_data.csv**" contains the 15 minute water equivalent precipitation data collected from the all-weather precipitation gauge installed at the Yellowknife Gold Project site for the period from January 1 to December 31, 2007.

The 2 data columns identified from left to right are date and water equivalent precipitation [mm/15 min].

1.4 DAILY EVAPORATION DATA

The data file named "**2007_Tyhee_daily_evapdata.csv**" contains the daily evaporation data collected from the evaporation pan installed at the Yellowknife Gold Project site for the summer of 2007.

The comma separated variable file contains 3 data columns, identified from left to right as date, 24-hour evaporation rate [mm/day] and a 7 day running average of the 24-hour evaporation rate [mm/day].

2.0 HYDROLOGICAL DATA

This directory contains the four stream flow data file for the stations (Narrow, Winter and Round Lake Outlets) that were monitored over the 2007 study period.

- The Narrow Lake discharge data is contained in the file **"2007_Narrow_lake_discharges.csv"**.
- The Winter Lake discharge data is contained in the file **"2007_Winter_lake_discharges.csv"**.
- The Round Lake discharge data is contained in the file **"2007_Round_lake_discharges.csv"**.
- The Nicholas Lake discharge data is contained in the file **"2007_Nicholas_lake_discharges.csv"**.

Each comma separated data file contains 3 data columns identified from left to right as date/time, outlet stage [m], and outlet discharge [ℓ/s].

APPENDIX

APPENDIX F PROJECT REPORT – GENERAL CONDITIONS

ENVIRONMENTAL REPORT – GENERAL CONDITIONS

This report incorporates and is subject to these "General Conditions".

1.0 USE OF REPORT

This report pertains to a specific site, a specific development, and a specific scope of work. It is not applicable to any other sites, nor should it be relied upon for types of development other than those to which it refers. Any variation from the site or proposed development would necessitate a supplementary investigation and assessment.

This report and the assessments and recommendations contained in it are intended for the sole use of EBA's client. EBA does not accept any responsibility for the accuracy of any of the data, the analysis or the recommendations contained or referenced in the report when the report is used or relied upon by any party other than EBA's client unless otherwise authorized in writing by EBA. Any unauthorized use of the report is at the sole risk of the user.

This report is subject to copyright and shall not be reproduced either wholly or in part without the prior, written permission of EBA. Additional copies of the report, if required, may be obtained upon request.

2.0 LIMITATIONS OF REPORT

This report is based solely on the conditions which existed on site at the time of EBA's investigation. The client, and any other parties using this report with the express written consent of the client and EBA, acknowledge that conditions affecting the environmental assessment of the site can vary with time and that the conclusions and recommendations set out in this report are time sensitive.

The client, and any other party using this report with the express written consent of the client and EBA, also acknowledge that the conclusions and recommendations set out in this report are based on limited observations and testing on the subject site and that conditions may vary across the site which, in turn, could affect the conclusions and recommendations made.

The client acknowledges that EBA is neither qualified to, nor is it making, any recommendations with respect to the purchase, sale, investment or development of the property, the decisions on which are the sole responsibility of the client.

2.1 INFORMATION PROVIDED TO EBA BY OTHERS

During the performance of the work and the preparation of this report, EBA may have relied on information provided by persons other than the client. While EBA endeavours to verify the accuracy of such information when instructed to do so by the client, EBA accepts no responsibility for the accuracy or the reliability of such information which may affect the report.

3.0 LIMITATION OF LIABILITY

The client recognizes that property containing contaminants and hazardous wastes creates a high risk of claims brought by third parties arising out of the presence of those materials. In consideration of these risks, and in consideration of EBA providing the services requested, the client agrees that EBA's liability to the client, with respect to any issues relating to contaminants or other hazardous wastes located on the subject site shall be limited as follows:

1. With respect to any claims brought against EBA by the client arising out of the provision or failure to provide services hereunder shall be limited to the amount of fees paid by the client to EBA under this Agreement, whether the action is based on breach of contract or tort;
2. With respect to claims brought by third parties arising out of the presence of contaminants or hazardous wastes on the subject site, the client agrees to indemnify, defend and hold harmless EBA from and against any and all claim or claims, action or actions, demands, damages, penalties, fines, losses, costs and expenses of every nature and kind whatsoever, including solicitor-client costs, arising or alleged to arise either in whole or part out of services provided by EBA, whether the claim be brought against EBA for breach of contract or tort.

4.0 JOB SITE SAFETY

EBA is only responsible for the activities of its employees on the job site and is not responsible for the supervision of any other persons whatsoever. The presence of EBA personnel on site shall not be construed in any way to relieve the client or any other persons on site from their responsibility for job site safety.

5.0 DISCLOSURE OF INFORMATION BY CLIENT

The client agrees to fully cooperate with EBA with respect to the provision of all available information on the past, present, and proposed conditions on the site, including historical information respecting the use of the site. The client acknowledges that in order for EBA to properly provide the service, EBA is relying upon the full disclosure and accuracy of any such information.

6.0 STANDARD OF CARE

Services performed by EBA for this report have been conducted in a manner consistent with the level of skill ordinarily exercised by members of the profession currently practicing under similar conditions in the jurisdiction in which the services are provided. Engineering judgement has been applied in developing the conclusions and/or recommendations provided in this report. No warranty or guarantee, express or implied, is made concerning the test results, comments, recommendations, or any other portion of this report.

7.0 EMERGENCY PROCEDURES

The client undertakes to inform EBA of all hazardous conditions, or possible hazardous conditions which are known to it. The client recognizes that the activities of EBA may uncover previously unknown hazardous materials or conditions and that such discovery may result in the necessity to undertake emergency procedures to protect EBA employees, other persons and the environment. These procedures may involve additional costs outside of any budgets previously agreed upon. The client agrees to pay EBA for any expenses incurred as a result of such discoveries and to compensate EBA through payment of additional fees and expenses for time spent by EBA to deal with the consequences of such discoveries.

8.0 NOTIFICATION OF AUTHORITIES

The client acknowledges that in certain instances the discovery of hazardous substances or conditions and materials may require that regulatory agencies and other persons be informed and the client agrees that notification to such bodies or persons as required may be done by EBA in its reasonably exercised discretion.

9.0 OWNERSHIP OF INSTRUMENTS OF SERVICE

The client acknowledges that all reports, plans, and data generated by EBA during the performance of the work and other documents prepared by EBA are considered its professional work product and shall remain the copyright property of EBA.

10.0 ALTERNATE REPORT FORMAT

Where EBA submits both electronic file and hard copy versions of reports, drawings and other project-related documents and deliverables (collectively termed EBA's instruments of professional service), the Client agrees that only the signed and sealed hard copy versions shall be considered final and legally binding. The hard copy versions submitted by EBA shall be the original documents for record and working purposes, and, in the event of a dispute or discrepancies, the hard copy versions shall govern over the electronic versions. Furthermore, the Client agrees and waives all future right of dispute that the original hard copy signed version archived by EBA shall be deemed to be the overall original for the Project.

The Client agrees that both electronic file and hard copy versions of EBA's instruments of professional service shall not, under any circumstances, no matter who owns or uses them, be altered by any party except EBA. The Client warrants that EBA's instruments of professional service will be used only and exactly as submitted by EBA.

The Client recognizes and agrees that electronic files submitted by EBA have been prepared and submitted using specific software and hardware systems. EBA makes no representation about the compatibility of these files with the Client's current or future software and hardware systems.

eba.ca

Tyhee NWT Corp

Tyhee NWT Corp.

ISSUED FOR USE

YELLOWKNIFE GOLD PROJECT
2008 HYDROMETEOROLOGICAL REPORT

July 2009

Y22101057

creating & delivering
better solutions

eba

Tyhee NWT Corp.

ISSUED FOR USE

YELLOWKNIFE GOLD PROJECT
2008 HYDROMETEOROLOGICAL REPORT

Y22101057

July 2009

EBA Engineering Consultants Ltd.
p. 604.685.0275 • f. 604.684.6241 • Oceanic Plaza, 9th Floor
1066 West Hastings Street • Vancouver, British Columbia V6E 3X2 • CANADA

EXECUTIVE SUMMARY

Foreword

Tyhee NWT Corp. is conducting baseline environmental studies on its Yellowknife Gold Project site as part of the development of a gold mine in the area. In 2004, Hay & Company Consultants, a division of EBA Engineering Consultants Ltd., began the hydrology and meteorology baseline studies for the Yellowknife Gold Project.

This report is a summary of the meteorological and hydrological data collected on site during 2008 and is a continuation of the report submitted to Tyhee NWT Corp. in April of 2008 by EBA Engineering Consultants Ltd. entitled "Yellowknife Gold Project 2007 Hydrology and Meteorology Report". This report contains all the hydrometeorological data collected at site since 2005. Only hourly meteorology data recorded in 2008 is presented in hard copy in Appendices B through D. Hourly data from previous years is contained on the data disk accompanying this report.

Two field surveys were conducted during 2008. The first trip in early June 2008 was conducted for the purpose of inspecting the hydrometric station installations, recording outlet discharges, reinstalling the evaporation pan, and maintenance of the meteorological station. During this trip the Parshall flumes and bulkheads on Narrow, Winter, and Round Lake Outlet were repaired to minimize leakage around the flumes.

The second trip, which occurred during the first week of August, was for a similar purpose as the first trip. During this trip the Parshall flumes and bulkheads were completely removed from the Winter and Round Lake Outlets. A new bulkhead was fabricated and installed along with the Parshall flumes.

The period of record for the 2008 Yellowknife Gold Project hydrology survey was from May 26 to September 26, 2008.

The maximum recorded discharges at the Narrow Lake Outlet, Winter Lake Outlet and Round Lake Outlet were 150 ℓ/s, 33 ℓ/s and 51 ℓ/s, respectively. The peak discharges were the result of a large precipitation event occurring on September 26, 2008. Recorded maximums may not reflect the absolute peak discharges resulting from this event as the water-level sensors on Narrow and Winter Lake were taken out prior to the peak response to the storm.

The average daily total discharge for the Narrow Lake outlet was 1043 m^3/day. The total Narrow, Winter and Round lake basin runoff was 12.8 mm.

The average daily total discharge for the Winter Lake outlet was 493 m^3/day. The total Winter and Round Lake basin runoff was 11.3 mm.

The average daily total discharge for the Round Lake basin was 295 m^3/day. The total Round Lake basin runoff was 22.7 mm.

The maximum recorded discharge at the Nicholas Lake Outlet was 17 m^3/s, which occurred on May 26, 2008. The maximum occurred the day the hydrometric station was reinstalled and may not reflect the peak freshet flow for 2008. The measured average daily discharge for the Nicholas Lake basin for the summer of 2008 was 870 m^3/day. Total basin runoff was 16.7 mm.

The meteorological station, installed at the Yellowknife Gold Property has continuously recorded the meteorological parameters of wind speed and direction, air temperature, relative humidity, incident solar radiation and precipitation since its installation on September 28, 2004 until the present.

In 2008, typical maximum daily wind gusts were in the range of 6 to 10 m/s, however, wind gust speeds near 16.0 m/s were recorded. Average wind speeds were commonly in the range of 2 to 4 m/s. Air temperatures were typically 10 to 25°C during the summer with a maximum recorded temperature of 31.3°C on August 10, 2008. Typical winter temperatures ranged from -5 to -40°C and the lowest recorded temperature for 2008 was -45.1°C, occurring on January 29, 2008. Average sea-level equivalent barometric pressure was 1012 hPa, varying from a maximum of 1042 to a minimum of 976 hPa. Relative humidity averaged approximately 90%, but frequently dropped to as low as 30% for periods of up to a day. Peak incident solar radiation during the summer was in the vicinity of 900 W/m^2. During December and January peak daily values rarely exceeded 50 W/m^2. The total precipitation recorded for 2008 was 287.8 mm.

Average daily evaporation rates determined from evaporation pan data were 3.8 mm/day with a total of 406.6 mm over the period of record from June 1 to September 16, 2008.

TABLE OF CONTENTS

PAGE

TABLE OF CONTENTS

PAGE

TABLES

TABLE OF CONTENTS

FIGURES

TABLE OF CONTENTS

APPENDICES

1.0 INTRODUCTION

Tyhee NWT Corp. has been conducting baseline environmental studies on its Yellowknife Gold Project site as part of the development of a gold mine in the area. In 2004, Hay & Company Consultants, a division of EBA Engineering Consultants Ltd., began hydrology and meteorology baseline studies for this project. This report is a summary of the meteorological and hydrological data collected at the site during 2008 and is a supplement to earlier reports, submitted to Tyhee NWT Corp. in April 2006 and April 2007 by Hay & Company Consultants entitled "Yellowknife Gold Project 2006 Hydrology and Meteorology Report" and "Yellowknife Gold 2007 Project Hydrology and Meteorology Report".

Two field surveys were conducted in 2008. The first was conducted in early June to inspect the hydrometric station installations, record discharges for Narrow, Winter, Round and Nicholas Lake outlets, install the evaporation pan and conduct maintenance and downloading of the meteorological station. The second trip, conducted in late July, was for the repair/overhaul of the Parshall flume bulkheads on Winter and Round Lake hydrometric stations, record outlet discharges at all stations and to maintain and download the meteorological station.

Figure 1.1 is a site location map showing a portion of a 1:50,000 scale topographic map of the area on which the sites are indicated. Both active and inactive sites are shown. Table 1.1 lists the GPS coordinates for each site. The four hydrometric sites and the meteorological station that were monitored during 2008 are listed below along with the purpose of each station.

- Site #1 – Narrow Lake Outlet, collection of creek discharge and stage data.
- Site #3 – Winter Lake Outlet, collection of creek discharge and stage data.
- Site #4 – Round Lake Outlet, collection of creek discharge and stage data.
- Site #6 – Nicholas Lake Outlet, collection of creek discharge, water temperatures and stage data.
- Site #7 – Tyhee Meteorological station, recording of various weather parameters.

Further detailed information on these sites has been provided in the site description documents included in Appendix A. Section 2 of this report presents the hydrological component of the study program, Section 3 discusses the meteorological component and Section 4 outlines the recommendations.

2.0 HYDROLOGY

2.1 METHOD

To gain an understanding of the hydrological conditions of the Yellowknife Gold Project study area, hydrometric stations were installed at the four previously identified sites. Parshall flumes that were installed at three of the sites during the summer of 2005 were reactivated for the 2008 study. A Parshall flume is installed in a creek such that all flow passes through it. The flume has a unique design that enables the determination of creek discharge by measuring the depth of water in the upstream part of the flume and applying a factory calibration relationship. The creek stage upstream of the flume is recorded by a pressure transducer and data logger every 15 minutes and the data is used in the flume calibration relationship to determine creek discharge.

The hydrometric station at Nicholas Lake outlet, originally installed in 2005, was reactivated for the 2008 study. The creek stage is recorded by a data logger every 15 minutes and the data is used in combination with the stage-discharge relationship, previously determined in the 2005 and 2007 study, and further refined in 2008, to calculate creek discharge.

Note that discharges that occurred after spring thaw, before the hydrometric station instruments were installed, as well as discharges that occurred after the instrumentation was removed prior to the winter freeze, were not monitored by the hydrometric station. Therefore, the actual volume of flow through the station will be slightly greater than the estimates stated in this report. The combined basin average runoff and mean daily discharge will also be slightly greater.

2.2 OUTLET OF NARROW LAKE (SITE #1)

Narrow Lake basin is approximately 3.9 km by 1.5 km and has a catchment area of 3.8 km^2. The elevation of Narrow Lake is approximately 282 m above mean sea level (asl) and the maximum elevation in the basin is approximately 350 m asl.

The outlet of Narrow Lake is located at the southwest end of the lake and consists of two creeks that enter a small pond about 100 m southwest of the lake, near the existing winter road. A single creek flows out of this pond. The hydrometric station is located on this creek, in a well-defined channel, about 10 m downstream of the pond. Downstream of the station, there is no well-defined channel and the flow meanders generally southwest through muskeg and stunted growth of birch and conifers. Discharge from the Narrow Lake basin flows southwest to Morris Lake (el. 278 m), and eventually to the Yellowknife River.

An aerial view of the Narrow Lake outlet hydrometric station and photos of the 12-inch Parshall flume and staff gauge installed in the creek is located in the Narrow Lake Station site description in Appendix A.

2.2.1 Station History for 2008

The stage recorder was installed for the 2008 hydrological study on June 4, at 8:14 AM. The Parshall flume and bulkhead were inspected and there were no damage or leakage observed at this time. The instrumentation was removed for the season on September 26, at 11:45 AM.

A complete history of the Narrow Lake outlet hydrometric station, including installation notes, activation and deactivation dates, and repair work is located in the site description in Appendix A.

2.2.2 Stage Measurements

The 2008 freshet began in late May, near the time of the installation of the automatic stage recorder. Narrow Lake outlet Parshall flume data were recorded every 15 minutes over the summer until the logger was removed, prior to the outlet freezing up for the winter. The 2008 period of record for this site was 114 days.

The pressure transducer/logger combination enabled the determination of creek stages at the location of the hydrometric site. A fixed value, representing the vertical distance from the upstream floor of the flume to the creek bed, was added to the depth of water in the flume recorded by the data logger to determine creek stages. The Narrow Lake outlet stage hydrograph for all years on record (2005 to 2008) is presented in Figure 2.1.

2.2.3 Narrow Lake Parshall Flume Calibration

The Parshall flume installed at Narrow Lake outlet has a throat width of 30.48 cm (12 inches) and a flow measurement range of 3 ℓ/s to 455 ℓ/s.

The Narrow Lake Parshall flume calibration formula, used to calculate discharge from the flume head is:

$$Q = 690.917 \times H^{1.522}$$

where: Q = outlet discharge (ℓ/s)

H = recorded water depth (flume head) (m)

2.2.4 Narrow Lake Outlet Discharge Hydrograph

The period of record for the 2008 Narrow Lake hydrology survey was from June 4 to September 26, 2008. The 2008 hydrograph is shown in Figure 2.2 as a solid black line. The hydrographs from the previous four years are included on this same graph for the purposes of comparing Narrow Lake outlet discharges for each year on record.

The maximum measured outlet discharge of 150 ℓ/s occurred on September 26, 2008. This high autumn discharge was a result of 62 mm of precipitation recorded from September 22 to September 26. The effects of this large rain event on the local

creeks flows was further augmented by saturated soil conditions due to 3 to 5 mm of precipitation falling daily over the 12 day period just prior to the start of the event on September 22, 2008 (see Appendix D Figure D-49 for daily precipitation rates). The minimum measured discharge of 0.7 ℓ/s occurred on July 29, 2008.

It is estimated that flow seepage through the Narrow Lake outlet flume bulkhead over the period of record ranged from 1 to 3 ℓ/s, depending on the creek stage.

The creek does not flow during the winter months from approximately October to mid May.

Based on the Narrow Lake outlet discharge hydrographs from 2004 to 2008, the following observations were made:

1. The creek typically begins to flow between May 1 and May 17.
2. Once the creek begins flowing, discharge increases rapidly, typically over a span of less than two weeks, to peak freshet flow, which occurs during the last week of May to the first week of June.
3. Peak freshet flows have ranged from less than 50 ℓ/s to over 200 ℓ/s. Typical maximum freshet flow is estimated at 140 ℓ/s.
4. 2008 was an atypical year (dry year) in that peak freshet flows were much less than normal. The highest recorded flow for the spring of 2008 was only 23 ℓ/s.
5. After the freshet, creek discharge reduces rapidly until the end of June, at which time typical discharges are on the order of 50 ℓ/s. At this time snowmelt is no longer the major factor in determining creek flows.
6. From July 1 to the end of August outlet flows gradually decrease from 50 ℓ/s to less than 20 ℓ/s. During this period the hydrograph shows evidence of precipitation events affecting discharge.
7. From September 1 to the end of the record in late September, flows typically increase slightly and are more variable in nature as increased precipitation events during this period becomes the dominant control on discharge levels.

The following are comments specific to the 2008 hydrograph:

1. Recorded discharges were substantially lower than those recorded in previous years. This is as a result of substantially less snowfall over the winter of 2007/2008. In years with a typical snowfall, precipitation over the period from November to May was 110 mm but during the winter of 2007/2008 precipitation over the same period was 66 mm, or 40% less stored water.
2. By July 1, after the snow had melted and run off, the 2008 hydrograph fell more in line with previous annual hydrographs, but still indicated lower that normal flow rates.

3. Between September 4 and September 24, Narrow Lake outlet flow increased from 2 ℓ/s to 15 ℓ/s. From September 24 to the end of the record, discharge dramatically increased to 150 ℓ/s as a result of a large precipitation event.

The Narrow Lake hydrometric station data enables the total volume of water that has passed the gauging station over the recorded period to be calculated. The period of record for 2008 was from 8:14 hours on June 4, 2008 to 11:44 hours on September 26, 2008. Over this 114-day period, a total of 119,043 m^3 passed through the hydrometric station. This flow consisted of discharges from the Narrow Lake drainage basin (3.8 km^2), the Winter Lake (4.3 km^2) and the Round Lake (1.2 km^2) drainage basins. Average Narrow Lake outlet discharge for the 2008 monitoring period was 12 ℓ/s.

The calculated average runoff for the combined Narrow, Winter and Round Lake basins is estimated at 12.8 mm for the period of record. This represents an average daily flow volume of 1,043 m^3. A summary of the Narrow Lake outlet drainage basin observations for 2005 to 2008 is contained in Tables 2.1 to 2.3.

2.3 WINTER LAKE OUTLET (SITE #3)

Winter Lake basin is approximately 4.3 km by 1.4 km and has a catchment area of 4.3 km^2. The elevation of Winter Lake is approximately 285 m asl and the maximum elevation in the basin is approximately 330 m asl.

Winter Lake outlet flows from the northwest portion of Winter Lake at a location about 10 m south of the existing winter road between Winter and Narrow Lakes. The creek channel is typically 30 to 60 cm wide and 15 to 20 cm deep at the hydrometric station. The creek meanders southwest in a vegetated creek bed until about midway between Winter and Narrow Lakes, where it aligns with the existing winter road and flows to Narrow Lake along a poorly-defined diffuse route.

An aerial view of the Winter Lake outlet hydrometric station and photos of the 9-inch Parshall flume and staff gauge installed in the Winter Lake outlet creek is located in the Winter Lake outlet hydrometric site description in Appendix A.

2.3.1 Station History

The stage recorder/data logger was installed for the 2008 hydrological study on May 22, at 14:45 hours. The Parshall flume and bulkhead were inspected for damage and leakage during the field visit on June 3. Some seepage through the bulkhead was noted as well as a potential for leakage at higher flows. The attempt to stop the seepage and potential leakage was only partially successful. The seepage was estimated at 2 to 5 ℓ/s. This correction for seepage has not been included in the discharge data presented for this station.

During the second trip to site on July 31, 2008 the bulkhead and Parshall flume were completely removed, a new bulkhead was constructed and the flume reinstalled. No leaks were observed after construction was completed. After the installation the measured

discharge was noted to have increased 1.8 ℓ/s from 0.7 ℓ/s to 2.5 ℓ/s. This is a good indicator of the amount of bulkhead leakage which had been occurring prior to the repair.

The instrumentation was removed for the season on September 26, at 8:00 AM.

A complete history of the Winter Lake outlet hydrometric station, including installation notes, activation and deactivation dates, and repair work, can be found in the site description in Appendix A.

2.3.2 Stage Measurements

Creek stages just upstream of the 9-inch Parshall flume were recorded every 15 minutes by a pressure transducer and saved in the data logger over the 126-day period of record. The stages presented in Figure 2.3 approximate the maximum creek depth directly upstream of the Parshall flume, which, over the period of record, fluctuated around 0.25 m.

2.3.3 Winter Lake Parshall Flume Calibration

The Parshall flume installed at Winter Lake has a throat width of 22.9 cm (9 inches) and a flow measurement range of between 3 and 251 ℓ/s. The Winter Lake Parshall flume calibration formula, used to calculate discharge from the flume head is:

$$Q = 535.343 \times H^{1.53}$$

where Q = outlet discharge (ℓ/s)

H = recorded water depth (flume head) (m)

2.3.4 Winter Lake Outlet Discharge Hydrograph

The discharge record for the Winter Lake outlet began after the water level recorder was reinstalled into the Parshall flume on May 22, 2008. The 2008 discharge hydrograph is presented as a solid black line in Figure 2.4, along with the hydrographs from the previous four years.

Based on the Winter Lake outlet hydrographs for the data collected from 2005 to 2008, the following general observations were made:

1. The creek typically begins to flow in early May.
2. Once the creek begins flowing, discharge increases rapidly to peak freshet flow, which occurs during the later part of May.
3. Measured freshet flows have ranged from less than 15 ℓ/s to 70 ℓ/s.
4. As previously mentioned, 2008 was an atypical year in that peak freshet flows were much lower than normal. The highest recorded flow for the spring of 2008 was 15 ℓ/s.

5. After peak freshet, the discharge reduces until the end of June, at which time discharges are on the order of 20 ℓ/s. Snowmelt is no longer the major factor for determining the creek flow.
6. From July 1st to the end of August, the outlet flow decreases from 20 ℓ/s to less than 10 ℓ/s. During this period, hydrographs show a response to precipitation events which temporarily increase discharge.
7. From September 1st to the end of the record in late September, flows typically increase slightly and are more variable in nature, as an increase in precipitation events becomes a more dominant control of discharge levels.

The following are comments specific to the 2008 hydrograph:

1. The creek was flowing prior to the May 22 installation of the hydrometric station instrumentation, but flows had not yet peaked.
2. From May 22 to May 25 the discharge increased from 10 ℓ/s to over 15 ℓ/s.
3. The peak freshet discharge of 15 ℓ/s was recorded on May 29.
4. From May 29 to July 1, flows gradually reduced from 15 ℓ/s to approximately 9 ℓ/s.
5. After the snow pack had melted by July 1, the 2008 hydrograph behaved similar in nature to the previous years on record, but reflected lower than normal discharges.
6. From July 1 to August 1 the discharge decreased from 9 ℓ/s to less than 2 ℓ/s.
7. From August 1 to September 21, the measured discharge decreased to 1 ℓ/s.
8. From September 22 to the end of the record, a large storm event increased outlet flows from 1 ℓ/s to over 32 ℓ/s.

Over the 126-day period of record, a total of 61,954 m^3 passed through the hydrometric station. This flow consists of inputs from the Winter Lake drainage basin (3.8 km^2) and the Round Lake (1.2 km^2) drainage basin.

The calculated runoff for the combined Winter and Round Lake basin for the period of record in 2008 is 11.3 mm and the average flow was 493 m^3/day. The average discharge through the station during the 2008 period of record was 5.7 ℓ/s. Tables 2.4 to 2.6 provide a summary of the drainage basin observations for all years on record.

2.4 ROUND LAKE OUTLET (SITE #4)

Round Lake basin is approximately 1.8 km by 0.8 km with a catchment area of 1.2 km^2. The estimated elevation of Round Lake is 288 m asl and basin elevations extend up to approximately 330 m asl. Inflows to Round Lake consist only of Round Lake drainage basin runoff.

The outlet from Round Lake, which flows into Winter Lake, is situated on the northwest side of Round Lake. There is no distinct flow channel out of Round Lake, but rather a diffuse flow through the muskeg into a small marsh approximately 5 m downstream of the lake. The outlet creek flows southwest into Winter Lake, typically as a subsurface flow, through the muskeg and willow. At one point, about 25 m southwest of the Round Lake outlet, the flow is contained in a single channel. This site was selected for the hydrometric station.

An aerial view of the Round Lake outlet hydrometric station and photos of the 6-inch Parshall flume installed in the Round Lake outlet creek are located in the Round Lake station site description in Appendix A.

2.4.1 Station History

The stage recorder was reinstalled for the 2008 hydrological study on May 22, at 14:30 hours. The Parshall flume and bulkhead were inspected for damage and leakage during the field visit on June 10. Some seepage was noted as well the potential for leakage around the ends of the bulkhead, at higher flows. An attempt to repair the flumes to stop the seepage and eliminate the chance for potential leakage was only partially successful. The seepage was estimated at 2 to 4 ℓ/s, depending on the creek stage. A correction to discharge has not been included in the data presented for this station.

During the second field trip to site on July 31, 2008, the bulkhead and Parshall flume were completely removed, a new bulkhead was constructed and the flume was reinstalled. No leaks were observed after construction was completed.

The water level recorder was removed for the season on September 26, at 7:42 hours.

A complete history of the Round Lake outlet hydrometric station, including installation notes, activation and deactivation dates, and repair work are located in the site description in Appendix A.

2.4.2 Stage Measurements

Round Lake outlet stages were logged by the Parshall flume instrumentation every 15 minutes over a period of record of 92 days. Figure 2.5 summarizes the creek stages recorded over the study periods from 2005 to 2008. Creek stage was determined by adding a fixed value (representing the measured distance from the floor of the flume to the deepest part of the creek bed) to the flume depth recorded by the data logger/pressure transducer combination.

2.4.3 Round Lake Parshall Flume Calibration

The Parshall flume installed at Round Lake has a throat width of 15.24 cm (6 inches) and a flow measurement range of between 2 and 110 ℓ/s.

The Round Lake Parshall flume calibration formula, used to calculate discharge from the flume head is:

$$Q = 381.206 \times H^{1.58}$$

where Q = outlet discharge (ℓ/s)

H = recorded water depth (flume head) (m)

2.4.4 Round Lake Outlet Discharge Hydrograph

The discharge record for the Round Lake outlet began when the water level recorder was installed in the Parshall flume on May 22, 2008, just prior to the occurrence of the peak freshet flow. The discharges corresponding to water levels recorded by the sensor are presented in Figure 2.6. The black line indicates the discharge determined by the Parshall flume for 2008.

The abbreviated period of record (92 days) is due to the fact that the July discharge data were dropped from the period of record. This was because the bulkhead seepage estimated at less than 1 ℓ/s, was greater than the outlet discharge and hence no flow was recorded passing through the flume. After the flume and bulkhead were repaired, the station recorded flows of 0.27 ℓ/s, providing a good estimate of the bulkhead seepage which had been occurring.

Based on the Round Lake Outlet discharge hydrographs for 2005 to 2008, the following general observations were made:

1. The creek typically begins to flow in early May.
2. Freshet flows have ranged from less than 10 ℓ/s to 20 ℓ/s. Typical freshet flows for this creek are 15 ℓ/s.
3. After the peak freshet, discharge typically decreases until the end of June, at which time discharges are at a seasonal minimum, on the order of 1 to 3 ℓ/s. Snowmelt is no longer the major factor in determining creek flow.
4. From early July until the end of August, flows remain less than 1 ℓ/s.
5. From September 1 to September 20, flows typically increase slightly and are more variable in nature, as an increase in precipitation events becomes a dominant control on discharge levels.

The following are comments specific to the 2008 hydrograph:

1. Freshet peak flow occurred during the first week of June with a flow of 12 ℓ/s.
2. After the freshet peak, discharge decreased until the end of June, at which time discharges were less than 1 ℓ/s.

3. From July 1 until the beginning of August, outlet flows were less that the bulkhead seepage and hence the gauge indicated no flow through the flume. No data is presented for the month of July 2008.
4. On July 31, the bulkhead and flume were overhauled. Following the repairs, the flume recorded flows less than 1 ℓ/s until September.
5. On September 22, a large precipitation event increased outlet flows from less than 1 ℓ/s to 33 ℓ/s.

Over the 92 day period from May 22, 2008 to September 26, 2008, a total of 27,203 m^3 passed through the hydrometric station. Note that the month of July was not included in this analysis, however with the assumption that flows were typically less than 1 ℓ/s, its contribution to the total overall volume would be less than 10%.

The average runoff for the Round Lake basin is estimated at 22.7 mm and the average outflow is estimated at 295 m^3/day or 3.4 ℓ/s. Tables 2.7 to 2.9 provide a summary of the Round Lake outlet drainage basin observations from 2005 to 2008.

2.5 NICHOLAS LAKE OUTLET (SITE #6)

The Nicholas Lake drainage basin is approximately 6 km by 2 km, with a total area of 6.28 km^2. Nicholas Lake is at an elevation of 325 m asl and elevations in the basin range up to about 370 m asl.

The Nicholas Lake outlet is located at the western end of the northwest arm of Nicholas Lake and conveys all flow leaving the Nicholas Lake drainage basin. At the lake outlet, there is a clearly defined channel about 30 cm deep and 1.5 m wide. Within 30 m of the lake outlet, the creek bed consists of large boulders and there is little evidence of surface flow. The flow travels through boulders for about 700 m prior to discharging into a small lake, and then flows west into Eclipse Lake (el. 311 m) before eventually reaching the Yellowknife River via numerous small lakes, ponds and bogs.

The hydrometric station was installed approximately 10 m downstream of the Nicholas Lake outlet. Stage discharge flow gauging techniques were utilized for this hydrometric station.

An aerial view of the Nicholas Lake outlet hydrometric station and photos of the installed hydrometric station are located in the Nicholas Lake station site description in Appendix A.

2.5.1 Station History

The Nicholas Lake hydrometric station was reactivated for the 2008 hydrological study. The stage and temperature recorder and data logger were installed in the existing housing on May 26, 2008 at 12:51 hours. The instrumentation was removed for the season on September 26, 2008 at 11:51 hours.

A complete history of the Nicholas Lake outlet hydrometric station, including installation notes, activation and deactivation dates, and repair work can be found in the site description in Appendix A.

2.5.2 Stage Measurements

Nicholas Lake outlet stage-discharge data were recorded on June 4 and August 2, 2008. This data was added to flow data collected between May 31, 2004 and June 11, 2007 and is summarized in Table 2.10. Figure 2.7 shows the stage hydrographs at the Nicholas Lake outlet recorded from 2005 to 2008. Note that there was no hydrometric program for this station in 2006.

2.5.3 Stage-Discharge Relationship

A stage-discharge relationship was developed using the stage data and the measured discharge data. This relationship is presented in Figure 2.8.

The exponential relationship that best fits the data set as of August 2, 2008 is:

$$Q = 3.787e\ 3.2485^{x}$$

where Q = Nicholas Lake outlet discharge (ℓ/s)

x = depth of water over the pressure transducer (m).

The correlation coefficient (r^2) is 0.9377.

2.5.4 Nicholas Lake Outlet Discharge Hydrograph

The recorded stages were used in conjunction with the stage-discharge relationship to produce the 2008 discharge hydrograph, see Figure 2.9.

For the 121 day period from May 26 to September 26, a total of 105,123 m^3 passed through the hydrometric station. This flow consists only of runoff from the Nicholas Lake drainage basin.

The average runoff for the Nicholas Lake basin over the recorded period in 2008 was 16.7 mm and the average flow was 870 m^3/day or 10.1 ℓ/s. Tables 2.11 and 2.14 provide a summary of the drainage basin observations for all three years of record.

Based on the discharge hydrographs of the Nicholas Lake Outlet for 2004 to 2008, the following observations were made:

1. Nicholas Lake outlet typically begins to flow in early May. Peak freshet flows typically occur during late May.
2. Measured peak freshet flows have ranged from 20 ℓ/s to 30 ℓ/s over the 4 years of recorded discharge data. Typical peak freshet flows for this creek are estimated at 25 ℓ/s.

3. After peak freshet, discharge typically decreases until the end of July, at which time discharges are near the seasonal minimum and are on the order of 7 to 15 ℓ/s.
4. During the month of September, recorded flows remain in the range of 7 to 15 ℓ/s, but are more variable in nature as precipitation becomes the dominant control on discharge levels.

The following are comments specific to the 2008 hydrograph:

1. From May 26, when the water level recorder was installed in the hydrometric station, to July 31, discharge decreased from 17 ℓ/s to 8 ℓ/s.
2. From August 1 to September 26, discharge remained relatively constant at approximately 8 ℓ/s.
3. On September 22, discharge increased rapidly to 12 ℓ/s as a result of the large precipitation event that began on that day.

2.5.5 Water Temperature Records

Nicholas Lake outlet water temperatures were recorded over the summers of 2005, 2007 and 2008. This was possible because the pressure/temperature transducers were located in the active flow area of the creek and therefore accurate water temperatures could be recorded. The entire record of creek temperatures is presented in Figure 2.10. The water temperature records for the three years are quite consistent. Water temperatures exhibit a diurnal temperature fluctuation of about 2ºC over the entire period of record. Diurnal minimum water temperatures occur between 6:00 and 8:00 hours, with maximums occurring between 17:00 and 19:00 hours.

At peak freshet in May, the water temperature is typically less that 10ºC. Water temperatures increase to 18 to 20ºC in early July and remain constant until the second week in August when they begin to cool. By late September, water temperatures are typically less that 5ºC.

3.0 METEOROLOGY

On September 28, 2004, a meteorological station was installed at a location approximately 50 m east of the north end of the airstrip. The NAD 27 GPS coordinates for the station are provided in Table 1.1 and in the station description in Appendix A.

The station measures wind speed and direction, air temperature, barometric pressure, relative humidity, incident solar radiation and water-equivalent precipitation. Meteorological data is logged at 15-minute intervals as an average of instantaneous measurements recorded every 5 seconds. A 24-hour daily summary is produced at the end of each day which includes the daily maximum, mean and minimum for each measured parameter. Data is retrieved from the logger with a laptop computer.

Evaporation is measured using an evaporation pan, installed 5 m from the meteorological station.

3.1 METEOROLOGICAL STATION INSTRUMENTATION

The weather station consists of a standard 10 m meteorological tower with instrumentation to measure the previously mentioned parameters, with the exception of evaporation. The meteorological station is powered by a 12 V DC battery and 20 watt solar panel. Data are recorded to a Campbell Scientific CR10X data logger.

Brief descriptions and specifications of the instruments installed on the weather station, a map showing the station location and a picture of the meteorological station showing the 10 m tower, evaporation pan and the all-weather precipitation gauge are contained in the site description for the meteorological station in Appendix A.

3.2 WIND

Wind data has been collected continuously since the installation of the meteorological station. Data collected during 2008 has been summarized and presented in three different forms, as described below.

3.2.1 Maximum and Average Wind Speed

The average daily wind speed is calculated from 15-minute wind data. The maximum instantaneous gust wind speed for the day is recorded by the meteorological station at midnight. These data, collected over the period between January 1, 2008 and December 31, 2008 are displayed in Figure 3.1 with the maximum daily gust plotted in black and the average daily wind speed plotted in grey. Figure 3.2 displays wind speed summary data over the entire period of record.

Data presented in Figure 3.1 shows that the mean daily maximum gust speed recorded in 2008 was 8.0 m/s. The maximum wind gust was 18.8 m/s on May 15, which is identified in Figure 3.2 as the highest recorded wind speed observed over the entire period record. The mean annual wind speed in 2008 was 2.9 m/s, with a maximum daily average of 9.2 m/s occurring on September 23. This was also the highest daily average over the 4-year period of record (Figure 3.2).

Monthly averages for wind speeds and maximum daily gusts, based on data recorded over the entire period of record are summarized in Table 3.1. Wind speeds exhibit a yearly trend, with the lowest monthly averages occurring during the winter months. The mean wind speed in December was 2.0 m/s while during July it was 3.4 m/s. Daily peak gusts also exhibit a strong yearly pattern, with the highest average daily maximums occurring in August (9.4 m/s), and the lowest occurring in December (5.6 m/s).

3.2.2 Wind Speed and Direction Stick Plots

Hourly wind data for 2008 is contained in Figures B-41 through B-53 in Appendix B. Each figure consists of three panels.

The upper panel is a stick plot which displays the hourly wind vector. Direction is indicated by the angle of each hourly stick, with true north towards the top of the page. The wind speed is indicated by the length of the stick according to the scale in m/s, which is given at the left and right of the plot. The central panel indicates the hourly wind speed in m/s. This panel is useful as an indicator of windstorms or periods of calm. The lower panel shows the hourly wind direction.

Hourly wind data figures for previous months of the record appear chronologically in Figures B-1 through B-40 in Appendix B contained in the accompanying data DVD.

3.2.3 Wind Roses

A wind rose displays an entire period of recorded wind data on a single graph. The total duration of wind occurring within a specified speed range and compass direction is determined as a percentage of the total period of record. Wind speeds are grouped into ranges from: 0 to 1 m/s (calm); 1 to 3 m/s; 3 to 6 m/s etc.; in 3 m/s ranges to 18+ m/s. The wind direction is grouped into 16 compass direction ranges of 22.5 degrees. These data are summarized in the wind speed and direction frequency distribution table, which is located in the lower right of the figure. The wind rose displays graphically the data contained within the table.

The wind rose for the entire period of record is shown in Figure 3.3. The length of the line in a particular compass direction is indicative of the duration of winds coming from that direction over the period of record. The thickness and colour of each portion of the line represents the different categories of wind speeds. Figure 3.3 shows that winds came predominantly from the east (12.8% frequency of occurrence) and the east-northeast (11.0%). Winds were least common from the southwest and west-southwest (2.0% and 1.9%, respectively). Winds were in excess of 6 m/s only 5.0% of the time. Calm winds occurred over 10.6% of the record.

The percentage of time the wind blows at a specific speed, irrespective of direction, can be determined by viewing the "Total %" row at the bottom of the frequency distribution table. During 2007, the wind speed from all directions was between 1 and 3 m/s 63.04% of the time, between 3 and 6 m/s for 20.83%, between 6 and 9 m/s for 1.21% of the time. There were no extended periods when the wind speed was greater than 9 m/s.

Monthly wind rose figures for each month of 2008 are contained in Figures C-41 through C-53 in Appendix C.

Wind rose figures for previous months of the record are contained chronologically in Figures C-1 through C-40 in Appendix C on the accompanying data DVD.

A preliminary analysis of the monthly figures reveals a slight annual variability in wind behaviour at the site with much more prominent easterly wins occurring in the spring

and summer, in particular, in April and May. Calmer periods are much more common in December and January (frequency of occurrence typically in the range of 15% to 25%) than during the rest of the year. The similarity of monthly wind patterns in 2005, 2006 and 2007, indicates consistency in the wind regime at the site over the record period.

3.3 OTHER METEOROLOGICAL PARAMETERS

Monthly meteorological data for 2008 plotted in Figures D-41 through D-53 in Appendix D display hourly observations of air temperature, solar radiation, relative humidity, barometric pressure, and water-equivalent precipitation recorded at the meteorological station. Daily summary plots shown in Figures 3.4 through 3.14 display the daily maximum, mean and minimum of each measured parameter. Meteorological parameters are described in detail in the following sections.

3.3.1 Air Temperature

Air temperatures are summarized in terms of daily extreme and mean temperatures and presented as hourly observations.

3.3.1.1 Daily Extremes for Air Temperature

Daily maximum, minimum and mean air temperatures are recorded by the meteorological station at midnight. The data is summarized in Figure 3.4 is for the period of January 1 to December 31, 2008 and shows the mean daily air temperatures as a thick red line bounded thin black lines indicating the daily maximum and minimum temperatures. Daily maximum, mean and minimum air temperatures are plotted for the entire period of record in Figure 3.5.

Figures 3.4 and 3.5 indicate a strong sinusoidal annual pattern to air temperature. The summer period can be defined as the period where daily temperatures typically remain above 0°C, and runs from mid-May through late-September. Monthly average summaries in Table 3.1 show that the warmest month is July, with a mean temperature of 16°C and typical diurnal temperature extremes of 21°C and 12°C. The coldest month of the year is January with a mean daily temperature of -25°C, and extremes of -21°C and -29°C. The highest temperature recorded at the site was 31.3°C on August 10, 2008. The lowest temperature recorded at the site was -45.1°C on January 29, 2008.

Generally, the daily variation is $\pm 5^{o}$C from the mean daily air temperature, with a slightly larger variation during the summer months.

3.3.1.2 Hourly Air Temperatures

The air temperature recorded hourly over the entire period of record is indicated by the red line in the upper panel in the figures in Appendix D. These figures are useful for viewing temperature trends for a particular day or over a short period of time.

3.3.2 Relative Humidity

Relative humidity is summarized in terms of daily extremes and means and presented as hourly observations.

3.3.2.1 Daily Extremes for Relative Humidity

Figure 3.6 shows the relative humidity data plotted for 2008. The thick blue line in the figure represents the mean relative humidity for the day. The maximums and minimums are indicated by black lines. Maximum, mean and minimum relative humidity is plotted for the entire period of record in Figure 3.7.

A sinusoidal yearly pattern to mean relative humidity is evident. During the winter months, mean daily %RH typically fluctuates between 80% and 90%. During the summer months, mean %RH has a much larger variance, typically fluctuating between 45% and 80%. Table 3.1 shows that the lowest daily mean %RH levels occur in May, June and July (63%, 54% and 60%, respectively). The highest levels occur in October, November and December (86%, 87% and 82%, respectively).

The fluctuation in daily relative humidity is indicated by the envelope of daily maximums and minimums. Daily extremes also exhibit a seasonal variance, with a larger variance occurring during the summer. Over the summer period, daily maximum and minimum relative humidity typically varies ±30% from the mean. However, during the winter period, the typical diurnal variation of relative humidity is less than ±10%. Over the period of record, the relative humidity varied from an extreme minimum of 16.1% on June 28, 2007 to a high of 100%, which occurred numerous times throughout the record.

3.3.2.2 Hourly Relative Humidity

Daily relative humidity for the entire period of record is indicated by the blue line in the second panel in the figures in Appendix D.

The data can be used to identify an increase in moisture in the air, relative to air temperature.

3.3.3 Barometric Pressure

Barometric pressure is summarized in terms of daily extremes, means and presented as hourly observations.

Barometric pressure has been corrected to represent the equivalent pressure at mean sea level. This is a standard meteorological convention used to enable direct comparison of meteorological station data regardless of the station elevation. To correct barometric pressures presented in this report to actual barometric pressures at site, it is necessary to reduce the stated pressure by 36 hPa. (hPa is the metric equivalent to a millibar and represents 0.1 kPa.)

3.3.3.1 Daily Extremes for Barometric Pressure

The station records the daily maximum, mean and minimum barometric pressures at midnight. Figure 3.8 shows the daily maximum, mean and minimum barometric pressures recorded in 2008. The thick green line in the figure represents the mean daily barometric pressure. Daily maximum and minimum barometric pressures are indicated by black lines. Figure 3.9 displays the daily mean and extremes over the entire period of record.

Annually, barometric pressure at the site typically varies from a low of 990 hPa to a high of 1040 hPa (sea-level-equivalent). The lowest barometric pressure recorded in 2008 was 953 hPa on October 26th, almost 40 hPa lower than normal. This was the lowest barometric pressure recorded over the entire monitoring period, lower than the previous minimum by 22 hPa. Barometric pressure records from Environment Canada's automated meteorological station at Yellowknife Airport also show strong low pressure over the same period of time. The highest pressure recorded in 2008 was 1038 hPa on April 20th. The highest pressure recorded over the entire period was 1044 hPa on February 16, 2006.

Figures 3.8 and 3.9 show a seasonal variation in barometric pressure, with a much wider day-to-day range of pressures occurring during the winter months. Typical variances during the summer are in the range of ±3 hPa while during the winter they are (±10 hPa). Table 3.1 shows that the months with the highest mean barometric pressure are February through May. The yearly mean is 1012 hPa.

3.3.3.2 Hourly Barometric Pressure

Hourly barometric pressure over the entire period of record is indicated by the green line in the third panel in the figures in Appendix D.

Hourly barometric pressure data can be used to give an idea as to the type of weather conditions at the site at any given time. High pressure would tend to indicate clearer conditions while lower pressure would tend to indicate an intrusion of a moister air mass. The data can be helpful in inferring the movement of weather patterns over the site.

3.3.4 Incident Solar Radiation

Incident solar radiation is summarized in terms of daily maximums and presented as hourly observations. Monthly solar radiation at the site is also provided in Table 3.1 as an approximate percentage of the latitude-dependent theoretical maximum under clear skies.

3.3.4.1 Daily Extremes for Incident Solar Radiation

The daily maximum instantaneous incident solar radiation is recorded at midnight. The minimum daily incident solar radiation should always be zero at 63° 11' N, because the sun is below the horizon for at least a short period each day throughout the year. Figure 3.10 shows the 2008 daily maximum incident solar radiation. Maximum incident solar radiation for the entire period of record is plotted in Figure 3.11.

Due to the latitude of the Yellowknife Gold Project site, there is an obvious sinusoidal pattern to the data set. During December, the sun is lowest in the sky, and incident solar radiation is at a minimum. Table 3.1 shows that the average daily maximum is 48 W/m^2. During December, daily variations in the maximum are usually less than 30 W/m^2.

During the summer, incident solar radiation is at its highest, with peak values averaging 930 W/m^2 in July. The highest amount of solar radiation received at the site in 2008 was 1245 W/m^2, which occurred on June 14th. The highest recorded over the entire period was 1281 W/m^2 on June 19, 2007. During the summer months, cloud cover can cause large variations from the theoretical maximum on the order of daily maximums, dropping peak daily values below 400 W/m^2.

Percentage of received theoretical solar radiation is an estimate that provides some information on the annual and monthly cloud cover. Theoretical incident radiation at the site is calculated for each hour of the year as a function of latitude and longitude. The percentage is approximate only, as atmospheric dispersion is estimated at 20% and is held constant throughout the year. Based on a comparison of theoretical and recorded values at the site, March and April are the sunniest months of the year with less than 40% of solar insolation attenuated by cloud or smoke. The lowest monthly percentages occur between October and January, when less than 30% of all incoming solar radiation is received at the surface. The annual average over the period of record was 44%.

3.3.4.2 Hourly Incident Solar Radiation

Hourly incident solar radiation for the entire period of record is indicated by the black line in the fourth panel in the figures in Appendix D.

In the absence of cloud cover, smoke or air pollution, daily peaks occur when the sun is at its highest point in the sky. At 113° 53' W, the sun's zenith occurs at 12:36 pm. Incident solar radiation drops to zero overnight.

Hourly insolation data is useful for determining the amount of daylight the site receives on a given day. Based on the data, the site, receives approximately 20 hours of daylight at the summer solstice and approximately four hours at the winter solstice. Hourly insolation data is also useful in determining periods of cloud cover on a given day.

3.3.5 Precipitation

Precipitation at the site can occur as either rain or snow. Generally, the precipitation is in the form of rain between June and August, and as snow from October to April. During May and September there is a possibility of either rain or snow or both. The type of precipitation that fell during a particular hour can be established by cross-referencing with the hourly air temperature using the figures contained in Appendix D.

3.3.5.1 Recorded Precipitation

Precipitation is recorded at 15 minute intervals. Both rain and snow are recorded by the gauge as water-equivalent. The instrumentation for the continuous measurement of all forms of precipitation is outlined in Appendix A.

The 2008 summary of daily precipitation is presented in Figure 3.12 as a histogram and in tabular form as Table 3.6. The maximum precipitation recorded in one day in 2008 was 34.5 mm on September 23rd which, when cross-referenced with air temperatures, was determined to have fallen as a mixture of rain and snow. This was also the largest single-day precipitation event of the entire monitoring period. Figure 3.13 shows daily precipitation amounts over the entire period of record. Tabulated records for 2004 to 2007 are contained in Tables 3.2 to 3.5 inclusive. The amount of precipitation associated with a typical rain event is about 1 to 3 mm and it generally lasts between 1 and 2 hours. Heavy precipitation days tend to occur more commonly during the summer months in the form of rain, but can also occasionally occur as snowfall during the winter months.

Daily precipitation data collected over the period of record has been summarized as monthly and annual averages in Table 3.1 The all-weather precipitation gauge was not functional during the period of January 1 to March 22, 2007 (see Yellowknife Gold Project - 2007 Hydrology and Meteorology Report, EBA 2008). Based on the 4 years of recorded data, the site receives, on average, 273 mm of precipitation annually. The most precipitation fell in July, August & September (35 mm, 52 mm & 49 mm per month, respectively). The least fell in March (6.5 mm per month).

The bottom panel in the figures in Appendix D show the amount of daily precipitation recorded over the entire period of record.

3.4 EVAPORATION

On June 1, 2008 the evaporation pan was reinstalled near the meteorological station, and data was recorded from this date until September 16, 2008, when the pan was decommissioned due to the onset of freezing temperatures. The water level in the pan was typically measured daily at 07:00 hours using a point gauge, accurate to ±0.5 mm. Daily evaporation was calculated by determining the change in the pan water level and subtracting the increase in the water depth due to precipitation for the same period. For days when the point gauge was read at times other than at 07:00 hours, a ratio of 24 hours to the time difference between the two consecutive readings was used to correct the evaporation to a 24 hour period.

The equivalent daily evaporation rate is shown as a black line in Figure 3.14. On days when the evaporation is less than zero, it is assumed that water was added to the pan by condensation. The pink line in Figure 3.14 is a seven-day running average of the daily evaporation rate.

Table 3.7 is a summary of the evaporation collection period for each year, and the number of days of data collected for each month.

Tables 3.8 and 3.9 summarize the daily pan evaporation rates and totals for each month over the period the evaporation pan was operational for all years on record. Table 3.8 summarizes the average pan evaporation rates for the data collected from 2005 to 2008. The average site pan evaporation for the four years was 4.12 mm/day. There was very little change in the average evaporation for each of the four years. Average monthly pan evaporation rates are included in this table.

Table 3.9 is a summary of the total pan evaporation for all four years of record both on a monthly basis and the total for each year. The four-year average total pan evaporation for the summer (June to mid September) was 427 mm.

Research into evaporation pan rates has shown that lake evaporation rates are lower than pan evaporation rates by a factor of 0.6 to 0.8 (Chow, 1964).

4.0 RECOMMENDATIONS

It is recommended that the hydrology and meteorology programs be continued through 2009, so as to extend the period of record for both flows and weather parameters. Tyhee NWT Corp. has indicated that the mineral resource at Nicholas Lake will likely be developed in conjunction with the Ormsby resource; therefore, the Nicholas Lake hydrometric station should be reinstalled and activated for the 2009 hydrological field program.

5.0 LIMITATIONS OF REPORT

This report and its contents are intended for the sole use of Tyhee NWT Corp. and their agents. EBA does not accept any responsibility for the accuracy of any of the data, the analysis or the recommendations contained or referenced in the report when the report is used or relied upon by any Party other than Tyhee NWT Corp., or for any Project other than the proposed development at the subject site. Any such unauthorized use of this report is at the sole risk of the user. Use of this report is subject to the terms and conditions stated in EBA's Services Agreement and in the General Conditions provided in Appendix F of this report.

6.0 CLOSURE

We trust this report meets your requirements. Should you have any questions or comments, please contact the undersigned at your convenience.

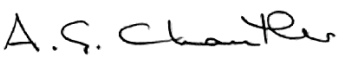
Yours sincerely,
Hay & Company Consultants
(a division of EBA Engineering Consultants Ltd.)

Report prepared by:

Robert E. Draho, B.Sc.
Senior Project Scientist
Direct Line: 604.875.6391 x245
bdraho@eba.ca

Travis Miguez, B.Sc.
Project Scientist
Direct Line: 604. 875.6391x294
tmiguez@eba.ca

Reviewed by:



Adrian Chantler, Ph.D., P.Eng.
Principal
Direct Line: 604.685.0275 x258
achantler@hayco.com

RED/rbt

REFERENCES

Chow, V.T. 1964. Handbook of Applied Hydrology. McGraw-Hill Book Company, New York, USA.

TABLES

TABLE 1.1: HYDROMETRIC AND METEOROLOGICAL STATION COORDINATES							
Site #	Site Name	Longitude			Latitude		
		deg	min	sec	deg	min	sec
1	Narrow Lake Outlet	63	9	16.4	113	57	7.3
3	Winter Lake Outlet	63	10	4.8	113	55	38.5
4	Round Lake Outlet	63	10	30.3	113	54	27.2
6	Nicholas Lake Outlet	63	15	20.1	113	46	4.4
7	Tyhee Meteorological Station	63	11	6.2	113	53	40.2

Note: All coordinates are referenced to NAD 27

TABLE 2.1: NARROW LAKE OUTLET - HYDROMETRIC DATA - PERIODS OF RECORD								
Year		Days of Recorded Data for Each Month				*Period of Record for Year		
	May	June	July	August	September	Length	Start Date	End Date
	(days)	(days)	(days)	(days)	(days)	(days)		
2005	10	30	30	31	12	112	May 22/05 11:11	Sep 12/05 14:59
2006		22	31	31	19	102	Jun 09/06 09:42	Sep 19/06 14:12
2007	11	30	31	31	28	130	May 21/07 09:27	Sep 28/07 16:42
2008		27	31	31	25	114	Jun 04/08 08:14	Sep 26/08 11:44

* POR Refers to period of recorded data for each year.
Note: Shaded areas indicate incomplete months of data

TABLE 2.2: NARROW LAKE OUTLET - MEAN MONTHLY DISCHARGES						
Year	May	June	July	August	September	*POR
	(L/s)	(L/s)	(L/s)	(L/s)	(L/s)	(L/s)
2005	173.6	156.4	44.3	21.6	27.9	77.4
2006		71.8	35.6	19.9	28.5	37.2
2007	113.5	58.6	11.9	4.8	0.6	26.8
2008		22	9.40	1.92	17	12.07

* POR Refers to period of recorded data for each year.
Note: Shaded areas indicate incomplete months of data

TABLE 2.3: NARROW LAKE BASIN - RUNOFF ESTIMATES						
Year	May	June	July	August	September	*POR
	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)
2005	15.4	43.6	12.3	6.2	3.0	80.5
2006		14.4	10.3	5.7	4.9	35.3
2007	11.2	16.3	3.4	1.4	0.2	32.5
2008		5.5	2.7	0.6	4.1	12.8

* POR Refers to period of recorded data for each year.
Note: Shaded areas indicate incomplete months of data

TABLE 2.4: WINTER LAKE OUTLET - HYDROMETRIC DATA - PERIODS OF RECORD								
Year		Days of Recorded Data for Each Month				*Period of Record for Year		
	May	June	July	August	September	Length	Start Date	End Date
	(days)	(days)	(days)	(days)	(days)	(days)		
2005			17	31	11	60	Jul 14/05 14:26	Sep 12/05 10:26
2006		22	31	31	19	102	Jun 09/06 11:10	Sep 19/06 13:40
2007	13	30	31	31	28	132	May 19/07 11:04	Sep 28/07 15:49
2008	9	30	31	30	25	126	May 22/08 14:45	Sep 26/08 08:00

Note: Shaded areas indicate incomplete months of data

TABLE 2.5: WINTER LAKE OUTLET - MEAN MONTHLY DISCHARGES						
Year	May	June	July	August	September	*POR
	(L/s)	(L/s)	(L/s)	(L/s)	(L/s)	(L/s)
2005			20.1	13.6	16.5	16.0
2006		31.0	13.8	8.0	14.8	15.9
2007	60.3	33.7	4.1	0.3	0.0	14.4
2008	13.5	11.1	4.0	1.7	3.4	5.71

* POR Refers to period of recorded data for each year.

Note: Shaded areas indicate incomplete months of data

TABLE 2.6: WINTER LAKE BASIN - RUNOFF ESTIMATES						
Year	May	June	July	August	September	*POR
	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)
2005			5.5	6.6	3.0	15.1
2006		10.5	6.7	3.9	4.3	25.5
2007	15.2	20.3	2.6	0.2	0.0	38.3
2008	2.0	5.2	1.9	0.8	1.3	11.3

* POR Refers to period of recorded data for each year.

Note: Shaded areas indicate incomplete months of data

TABLE 2.7: ROUND LAKE OUTLET - HYDROMETRIC DATA - PERIODS OF RECORD								
Year	Days of Recorded Data for Each Month					*Period of Record for Year		
	May	June	July	August	September	Length	Start Date	End Date
	(days)	(days)	(days)	(days)	(days)	(days)		
2005			14	31	11	56	Jul 18/05 09:32	Sep 12/05 09:32
2006		21	31	31	30	113	Jun 09/06 16:29	Sep 30/06 23:59
2007	13	30	3			46	May 19/07 10:04	Jul 04/07 09:04
2008	9	26		31	25	92	May 22/08 14:30	Sep 26/08 07:42

Note: Shaded areas indicate incomplete months of data.

TABLE 2.8: ROUND LAKE OUTLET - MEAN MONTHLY DISCHARGES						
Year	May	June	July	August	September	*POR
	(L/s)	(L/s)	(L/s)	(L/s)	(L/s)	(L/s)
2005			7.0	2.5	3.0	3.7
2006		8.1	3.5	1.7	5.3	4.4
2007	0.3	0.2	0.0			0.2
2008	6.6	5.1		0.2	4.5	3.40

* POR Refers to period of recorded data for each year.

Note: Shaded areas indicate incomplete months of data.

TABLE 2.9: ROUND LAKE BASIN - RUNOFF ESTIMATES						
Year	May	June	July	August	September	*POR
	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)
2005			6.9	5.5	2.5	14.8
2006		12.5	7.9	3.8	11.5	35.7
2007	8.6	13.0	0.0			21.7
2008	4.4	9.7		0.3	8.2	22.7

* POR Refers to period of recorded data for each year.

Note: Shaded areas indicate incomplete months of data.

TABLE 2.10: SUMMARY OF DISCHARGE MEASUREMENTS			
Site#6 - Nicholas Lake Outlet			
Date/time MDST	Staff Gauge Reading m	Discharge l/s	Comments
2004			
May 19/04 16:00	Not installed	0.0	Ice filled creek bed
May 31/04 15:53	0.470	22.4	
May 31/04 16:39	0.470	21.0	
Jun 01/04 14:04	0.478	26.4	
Jun 01/04 14:26	0.478	22.0	
Jun 02/04 13:34	0.487	25.5	
Jun 02/04 13:57	0.487	30.3	
Sep 30/04 14:26	0.229	10.5	
Sep 30/04 14:52	0.228	10.4	
Oct 01/04 08:52	0.231	11.3	
Oct 01/04 09:02	0.231	11.2	
2005			
May 23/05 08:10	n/a	0.0	Ice filled creek bed
Aug 06/05 09:06	0.390	13.6	
Aug 06/05 09:28	0.390	14.8	
2007			
Jun 10/07 17:12	0.480	19.9	
Jun 10/07 17:32	0.480	22.8	
Jun 11/07 8:29	0.500	21.7	
Jun 11/07 8:39	0.500	24.7	
2008			
Jun 04/08 13:51	0.497	14.4	
Jun 04/08 14:04	0.497	13.0	
Jun 04/08 14:39	0.497	13.8	
Jun 04/08 14:50	0.497	14.5	
Aug 02/08 09:34	0.310	7.6	
Aug 02/08 09:53	0.310	7.3	

TABLE 2.11: NICHOLAS LAKE OUTLET - HYDROMETRIC DATA - PERIODS OF RECORD								
Year		Days of Recorded Data for Each Month				*Period of Record for Year		
	May	June	July	August	September	Length	Start Date	End Date
	(days)	(days)	(days)	(days)	(days)	(days)		
2005			19	31	12	62	Jul 13/05 10:17	Sep 13/05 16:17
2006								
2007		20	31	31	29	112	Jun 10/07 15:51	Sep 30/07 09:06
2008	5	30	31	31	23	121	May 26/08 12:51	Sep 26/08 11:51

* POR Refers to period of recorded data for each year.
Note: Shaded areas indicate incomplete months of data which occur at the start and end of the POR
No hydrometric data was collected at this site during 2006

TABLE 2.12: NICHOLAS LAKE OUTLET - MEAN MONTHLY DISCHARGES						
Year	May	June	July	August	September	*POR
	(L/s)	(L/s)	(L/s)	(L/s)	(L/s)	(L/s)
2005			18.8	15.2	14.7	16.16
2006						
2007		19.4	12.4	9.3	6.9	14.25
2008	16.2	13.4	10.1	7.7	7.6	10.06

* POR Refers to period of recorded data for each year.
Note: Shaded areas indicate incomplete months of data which occur at the start and end of the POR
No hydrometric data was collected at this site during 2006

TABLE 2.13: NICHOLAS LAKE OUTLET - MEAN WATER TEMPERATURES						
Year	MAY	June	July	August	September	*POR
	(^{o}C)	(^{o}C)	(^{o}C)	(^{o}C)	(^{o}C)	(^{o}C)
2005			16.7	14.4	11.5	14.5
2006						
2007		15.6	18.9	14.9	7.7	14.3
2008	7.4	13.6	18.5	17.4	9.0	14.6

* POR Refers to period of recorded data for each year.
Note: Shaded areas indicate incomplete months of data which occur at the start and end of the POR
No hydrometric data was collected at this site during 2006

TABLE 2.14: NICHOLAS LAKE BASIN - RUNOFF ESTIMATES						
Year	May	June	July	August	September	*POR
	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)
2005			4.8	6.5	2.6	13.8
2006						
2007		5.4	5.3	3.9	2.8	17.5
2008	1.2	5.5	4.3	3.3	2.4	16.7

* POR Refers to period of recorded data for each year.
Note: Shaded areas indicate incomplete months of data which occur at the start and end of the POR
No hydrometric data was collected at this site during 2006

TABLE 3.1: SUMMARY OF TYHEE STATION MONTHLY AVERAGE METEOROLOGICAL OBSERVATIONS													
Parameter	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Wind													
†Average Wind Speed (m/s)	2.4	2.5	2.8	3.3	3.3	3.4	3.0	3.2	3.2	3.4	3.0	2.0	**2.9**
Average Daily Maximum Wind Gust (m/s)	6.0	6.6	7.2	8.5	8.5	9.1	9.1	9.4	8.3	8.9	7.6	5.6	**7.9**
Air Temperature													
Extreme Daily Maximum Temperature (°C)	-3.2	-3.9	4.8	13.4	25.5	30.1	29.0	31.3	21.6	15.8	1.0	-2.7	**31.3**
Average Daily Maximum (°C)	-21.0	-19.4	-11.4	0.7	9.6	18.1	20.9	17.3	8.3	0.7	-11.1	-18.6	**-0.5**
Average Daily Mean (°C)	-24.7	-23.6	-17.3	-5.1	4.4	13.1	16.2	13.0	5.1	-1.9	-14.1	-22.2	**-4.8**
Average Daily Minimum (°C)	-28.9	-27.8	-22.8	-10.9	-1.0	7.9	11.8	9.0	2.4	-4.5	-17.6	-25.9	**-9.0**
Extreme Daily Minimum Temperature (°C)	-45.1	-44.5	-40.5	-34.4	-13.0	-0.8	4.3	2.1	-7.2	-16.8	-38.3	-42.5	**-45.1**
Relative Humidity													
Average Daily Maximum (%)	84.1	83.4	84.0	86.7	85.4	79.4	84.4	90.1	92.8	94.8	91.9	86.3	**94.8**
Average Daily Mean (%)	79.7	76.9	70.7	67.9	63.1	54.1	60.3	69.5	78.4	85.5	87.3	82.2	**73.0**
Average Daily Minimum (%)	74.5	68.2	53.2	47.4	40.8	32.8	37.1	46.6	59.3	72.5	81.3	77.6	**32.8**
Barometric Pressure													
Average Daily Maximum (hPa)	1015	1020	1019	1017	1018	1013	1011	1012	1014	1011	1015	1015	**1020**
Average Daily Mean (hPa)	1011	1016	1016	1013	1015	1011	1009	1009	1011	1007	1011	1011	**1012**
Average Daily Minimum (hPa)	1006	1012	1012	1010	1012	1009	1007	1007	1008	1002	1007	1006	**1002**
Incident Solar Radiation													
Average Daily Maximum (W/m^2)	48	221	490	685	835	915	929	791	495	268	88	35	**483**
Extreme Daily Maximum (W/m^2)	152	472	786	1056	1174	1281	1207	1093	924	650	303	165	**1281**
‡Percentage Received of Theoretical	28%	54%	63%	62%	55%	53%	48%	46%	37%	28%	25%	30%	**44%**
Precipiation Totals													
Average Monthly Total (mm)	14.9	22.3	6.5	12.9	10.5	23.4	34.7	52.1	49.2	17.4	20.1	8.7	**272.7**
Average Daily Total (mm)	0.48	0.79	0.21	0.43	0.34	0.78	1.12	1.68	1.64	0.56	0.67	0.28	**0.75**
Extreme Daily Maximum (mm)	11.2	18.0	2.8	10.4	4.8	29.5	21.1	17.0	34.5	7.9	17.0	6.6	**34.5**

Averages based on 24-hour summary data between September 29, 2004 and December 31, 2008

†Average wind speeds calculated using 15-minute data

‡Based on calculation of theoretical daily incident solar radiation with respect to latitude (63° 11' 6.2" N)

TABLE 3.2: YELLOWKNIFE GOLD PROJECT DAILY PRECIPITATION FOR 2004												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Date	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)
1										0.76	0.25	-
2										1.52	4.32	-
3										1.27	0.76	-
4										-	3.30	-
5										-	-	-
6										3.56	-	-
7										1.02	0.25	-
8										1.02	-	-
9										2.79	0.25	-
10										1.02	-	-
11										-	0.51	-
12										-	0.51	-
13										1.27	0.25	0.76
14										-	1.27	4.32
15										-	4.32	0.76
16										-	-	0.76
17										-	-	-
18										-	-	0.25
19										-	0.25	2.29
20										-	0.25	-
21										0.25	-	-
22										0.25	-	-
23										1.78	-	1.78
24										2.03	0.25	2.29
25										-	-	0.51
26										-	-	-
27										5.33	-	0.25
28										1.27	-	-
29									4.32	-	-	-
30									1.02	1.27	-	-
31										0.25		-
Total									**5.33**	**26.67**	**16.76**	**13.97**

Total water equivalent precipitation measured over the period from September 29, 2004 to December 31, 2004 was **62.74** mm

indicates days with no precipitation data

TABLE 3.3: YELLOWKNIFE GOLD PROJECT DAILY PRECIPITATION FOR 2005												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Date	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)
1	0.25	0.25	-	0.25	-	0.76	-	-	2.79	0.51	0.25	-
2	0.25	1.52	0.25	-	-	0.51	-	1.52	1.27	-	-	-
3	-	-	-	1.27	-	-	1.02	1.78	2.79	-	0.51	-
4	1.02	-	-	-	-	-	-	0.25	0.76	1.02	-	-
5	11.18	0.25	2.79	1.52	-	-	-	-	1.02	-	-	-
6	-	0.51	-	0.51	-	-	-	0.51	-	-	3.81	-
7	-	2.79	1.78	-	-	1.02	4.32	-	-	-	0.25	-
8	-	-	1.02	-	-	-	1.02	-	-	-	3.05	-
9	-	4.06	0.51	2.29	-	-	1.52	0.51	-	-	0.76	2.03
10	-	0.25	-	2.54	-	0.25	-	0.51	-	3.81	1.02	-
11	-	1.52	-	-	-	0.51	0.76	0.51	7.62	0.25	-	-
12	-	0.25	-	-	-	0.51	0.25	0.25	0.25	0.51	-	-
13	-	0.25	0.51	-	-	-	-	-	0.76	-	0.51	0.25
14	-	-	0.51	2.03	-	11.94	-	0.51	-	-	4.32	-
15	-	1.02	-	-	-	3.81	-	1.27	-	-	-	-
16	-	-	-	-	-	-	21.08	-	9.65	3.30	-	0.25
17	-	-	1.02	-	-	0.51	2.03	0.51	0.25	2.29	-	0.76
18	-	1.27	-	-	-	1.27	-	-	-	-	-	1.52
19	1.02	1.27	0.25	0.76	0.51	0.51	-	-	0.25	0.76	0.76	-
20	1.02	0.25	-	0.25	1.02	2.03	-	-	-	1.52	0.76	-
21	-	0.25	-	0.51	-	0.51	-	11.68	1.02	-	-	0.76
22	0.25	0.25	-	1.02	0.25	-	-	-	9.14	0.76	7.62	1.02
23	0.25	0.51	-	0.51	-	0.51	-	-	-	1.02	-	0.51
24	0.25	2.79	1.78	1.52	-	-	-	0.25	0.51	-	-	0.51
25	0.76	-	-	-	0.76	-	-	0.25	6.86	-	-	0.76
26	3.56	0.25	-	-	-	-	-	0.25	0.25	-	-	0.51
27	1.78	-	-	-	0.25	0.25	0.76	-	-	-	-	-
28	-	1.78	-	-	0.76	-	2.29	12.95	1.52	-	-	-
29	-		-	-	1.27	0.51	-	8.38	2.79	-	-	-
30	-		-	-	0.25	-	13.21	0.51	-	-	-	0.76
31	5.84		-		1.27		2.79	-		-		-
Total	**27.44**	**21.34**	**10.41**	**14.99**	**6.35**	**25.40**	**51.05**	**42.41**	**49.53**	**15.75**	**23.62**	**9.65**

Total water equivalent precipitation measured over the period from January 1, 2005 to December 31, 2005 was **297.94** mm

TABLE 3.4: YELLOWKNIFE GOLD PROJECT DAILY PRECIPITATION FOR 2006												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Date	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)
1	1.02	1.02	-	0.76	-	1.02	1.78	-	0.25	-	-	-
2	0.51	1.02	-	-	-	-	1.02	-	1.27	0.51	-	-
3	-	4.57	-	0.51	-	-	1.52	0.51	0.76	-	-	-
4	-	-	-	-	-	4.06	-	-	-	-	0.76	0.25
5	-	-	-	-	-	-	1.27	-	-	-	0.25	-
6	-	-	-	-	-	0.76	-	-	2.29	-	-	-
7	-	-	-	0.76	0.25	0.76	-	1.27	-	-	-	2.29
8	-	1.78	-	-	-	1.27	-	1.02	-	0.51	10.67	-
9	-	1.27	-	2.03	3.05	1.52	-	0.76	0.76	-	0.25	-
10	-	1.02	-	-	1.02	1.27	-	0.76	-	-	-	0.25
11	-	-	-	0.25	0.76	0.51	-	1.27	-	-	-	-
12	-	-	-	0.51	-	-	9.91	0.51	-	-	-	-
13	-	-	-	0.76	-	0.25	3.05	2.79	-	-	-	-
14	-	-	-	-	-	1.02	1.02	15.49	-	-	-	-
15	-	-	-	10.41	-	-	1.02	0.25	-	-	-	-
16	-	-	-	-	-	-	1.52	1.02	-	-	2.54	-
17	-	-	-	-	-	-	-	-	-	-	17.02	-
18	-	-	-	-	-	-	-	17.02	-	-	-	-
19	-	-	-	0.25	-	-	-	3.81	-	-	0.25	-
20	-	-	-	-	-	-	1.02	0.25	-	-	-	-
21	-	-	-	-	4.83	-	0.51	-	-	-	-	0.51
22	0.51	-	-	-	4.32	-	-	0.51	-	-	-	-
23	-	-	-	-	0.76	-	-	15.49	0.76	-	-	-
24	-	-	-	0.76	1.02	-	2.03	7.37	0.51	0.51	-	-
25	0.76	-	-	-	-	-	1.27	1.02	-	3.56	-	0.25
26	1.52	-	-	-	2.29	-	0.51	-	-	0.51	-	-
27	-	-	-	-	2.29	0.25	-	-	0.25	0.76	-	-
28	0.25	-	0.51	-	-	-	-	2.54	1.52	-	-	-
29	0.76		2.79	-	1.02	-	-	-	2.03	-	-	-
30	0.25		-	-	1.27	29.46	0.51	-	0.76	3.30	-	-
31	0.51		1.52		0.51		-	0.76		-		-
Total	**6.10**	**10.67**	**4.83**	**17.01**	**23.37**	**42.16**	**27.94**	**74.42**	**11.18**	**9.65**	**31.75**	**3.56**

Total water equivalent precipitation measured over the period from January 1, 2006 to December 31, 2006 was **262.63** mm

TABLE 3.5: YELLOWKNIFE GOLD PROJECT DAILY PRECIPITATION FOR 2007												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Date	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)
1	-	-	1.00	-	-	-	0.25	1.27	-	-	-	-
2	-	-	0.60	-	-	-	-	0.76	0.25	2.03	-	-
3	-	-	0.60	-	-	-	-	0.25	0.25	-	0.25	-
4	0.20	-	-	-	-	-	-	-	-	-	-	-
5	0.20	-	-	-	-	-	-	-	-	3.81	-	-
6	5.20	-	-	-	-	-	-	-	-	1.78	-	-
7	-	-	1.80	-	0.25	-	-	-	-	-	-	-
8	-	-	0.20	0.25	-	-	-	-	-	3.56	-	-
9	-	-	1.60	0.25	0.25	-	-	0.25	-	0.51	-	-
10	0.20	-	1.40	-	-	-	-	-	0.25	1.02	-	-
11	-	-	-	-	1.02	0.51	-	1.52	-	1.02	1.02	-
12	0.20	0.20	1.80	-	3.30	0.76	2.54	1.78	-	-	1.02	-
13	-	-	-	3.56	0.25	-	-	-	-	-	0.25	-
14	-	0.40	0.40	-	0.51	-	0.25	0.51	-	0.25	0.51	0.51
15	1.20	-	-	-	-	-	-	-	-	-	0.25	0.25
16	1.20	-	-	-	1.27	0.25	-	0.25	-	-	-	6.60
17	-	-	-	-	-	-	-	0.51	-	-	3.05	-
18	-	0.60	-	-	-	-	-	0.51	-	-	-	4.06
19	-	1.40	-	-	1.02	-	-	-	-	-	0.51	-
20	0.20	4.00	-	0.25	-	-	-	13.97	-	-	1.27	-
21	-	-	0.80	-	-	-	0.25	3.56	0.51	1.78	1.27	-
22	-	-	-	-	-	-	2.54	0.51	-	0.25	-	-
23	-	1.00	-	-	0.76	1.27	1.02	-	-	-	-	-
24	1.80	1.00	0.25	-	0.51	-	0.25	0.51	2.03	-	-	-
25	9.40	-	-	-	0.51	-	0.25	-	0.51	0.25	-	-
26	-	1.20	-	-	0.25	-	0.51	-	0.76	0.25	-	-
27	-	0.40	0.25	-	-	-	6.86	-	0.51	2.54	-	-
28	-	0.40	1.02	1.02	-	-	2.29	-	-	-	-	-
29	1.80		-	2.54	-	-	0.51	0.25	2.03	-	-	-
30	-		-	0.76	-	-	-	-	-	1.27	-	-
31	-		-		-		12.95	-		2.03		-
Total	**21.60**	**10.60**	**11.72**	**8.64**	**9.91**	**2.79**	**30.48**	**26.42**	**7.11**	**22.35**	**9.40**	**11.43**
			*** 1.52**									

1) Total water equivalent precipitation measured over the period from January 1, 2006 to December 31, 2006 was **172.44** mm

2) The all weather precipitaion gauge was unservicable for period of January 1 to March 22, 2007. No site precipitation data was recorded during this period.

3) Daily precipitation totals for this period are provided by Envirinment Canada as recorded at the Yellowknife Airport. This data is indicated by the lightly shaded cells.

TABLE 3.6: YELLOWKNIFE GOLD PROJECT DAILY PRECIPITATION FOR 2008												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Date	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)
1	-	-	-	0.51	-	7.87	2.03	5.59	1.02	-	6.86	-
2	1.52	-	-	-	-	1.27	0.25	5.84	0.51	-	-	-
3	-	-	-	-	-	-	10.41	1.27	3.05	0.25	-	-
4	0.25	-	-	-	-	-	1.78	1.02	1.02	0.51	0.25	-
5	1.52	0.76	-	-	-	0.25	-	0.51	-	0.25	-	-
6	1.27	0.76	-	-	-	0.76	-	0.51	0.51	7.87	0.76	-
7	-	15.49	1.02	-	-	-	-	0.51	1.27	-	1.27	-
8	-	-	0.51	1.02	-	0.25	-	0.25	0.25	1.02	-	-
9	-	-	-	-	-	-	0.25	0.51	-	-	0.25	-
10	-	-	0.51	1.27	-	-	0.25	-	1.27	-	1.78	-
11	-	-	-	-	-	0.25	3.56	5.33	1.52	0.51	-	-
12	-	-	-	0.76	-	5.33	2.54	-	1.02	-	1.02	-
13	3.81	-	-	-	-	0.25	0.76	14.22	2.03	-	-	-
14	-	-	-	-	-	-	0.25	13.97	0.25	-	0.25	-
15	-	-	-	-	-	0.25	2.54	0.25	3.56	-	1.02	-
16	-	-	-	1.02	0.25	1.27	-	-	0.51	-	0.76	4.57
17	-	-	-	1.78	-	0.76	-	-	2.79	-	-	-
18	-	-	-	-	-	1.27	-	-	1.78	-	-	-
19	-	-	-	-	-	0.76	0.25	-	0.25	-	-	-
20	-	-	-	-	-	-	1.02	-	0.51	-	-	-
21	0.76	-	-	1.02	-	0.25	1.02	-	1.02	-	-	-
22	0.51	-	1.78	-	-	-	1.52	-	13.21	-	2.03	-
23	0.76	-	0.25	-	0.51	-	0.25	-	34.54	-	-	-
24	0.25	-	0.25	-	0.51	-	-	2.79	6.86	-	1.52	-
25	-	-	0.51	-	-	0.25	0.25	2.29	6.60	-	-	-
26	-	-	-	0.76	1.02	-	-	1.02	0.51	0.25	1.78	-
27	-	-	-	-	-	1.02	0.25	-	0.25	-	-	-
28	-	-	-	-	-	0.51	-	-	0.76	-	-	-
29	-	-	-	2.54	-	1.02	-	-	0.51	-	-	-
30	-		-	-	-	-	-	5.33	-	2.29	-	-
31	-		-		-		-	3.81		-		-
Total	**10.67**	**17.01**	**4.83**	**10.67**	**2.29**	**23.62**	**29.21**	**65.02**	**87.37**	**12.95**	**19.56**	**4.57**

Total water equivalent precipitation measured over the period from January 1, 2008 to December 31, 2008 was **287.76** mm

TABLE 3.7: TYHEE STATION PAN EVAPORATION - PERIOD OF RECORD							
Year	Days of Recorded Data for Each Month				*Period of Record for Year		
	June (days)	July (days)	August (days)	September (days)	Length (days)	Start Date	End Date
2005	30	31	31	13	105	Jun 01/05	Sep 13/05
2006	20	31	31	20	102	Jun 09/06	Sep 21/06
2007	28	31	31	15	105	Jun 02/07	Sep 15/07
2008	29	31	31	16	107	Jun 01/08	Sep 16/08

* POR Refers to period of recorded data for each year.
Shaded areas indicate incomplete months of data which occur at the start and end of the POR

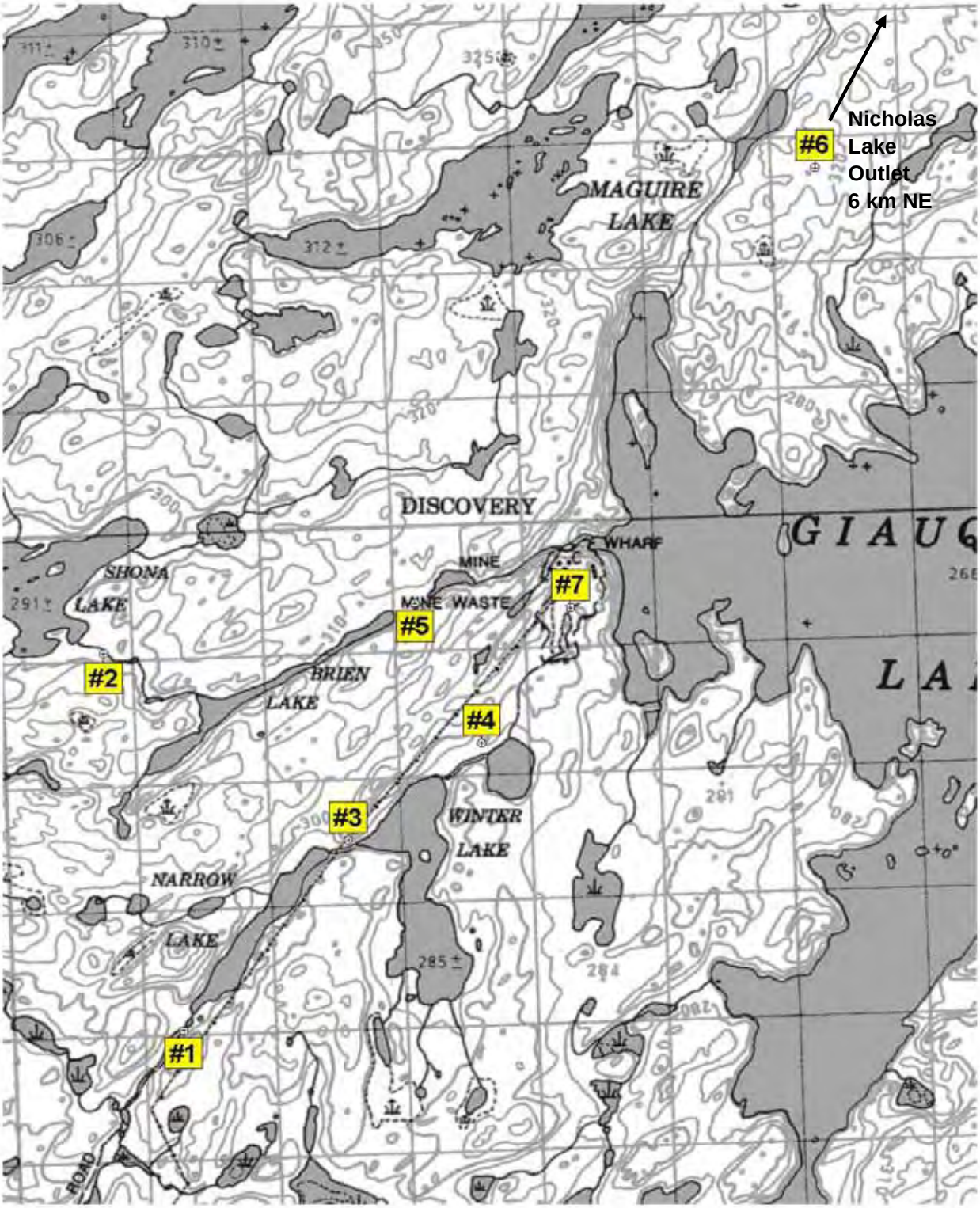
TABLE 3.8: MONTHLY PAN EVAPORATION RATES					
Year	June (mm/day)	July (mm/day)	August (mm/day)	September (mm/day)	*POR (mm/day)
2005	4.5	3.5	3.6	1.6	3.78
2006	7.3	5.1	3.6	2.1	4.42
2007	6.0	5.2	2.7	1.7	4.11
2008	4.6	5.3	2.9	0.9	3.83

* POR Refers to period of recorded data for each year.
Shaded areas indicate incomplete months of data which occur at the start and end of the POR

TABLE 3.9: MONTHLY PAN EVAPORATION TOTALS					
Year	June (mm)	July (mm)	August (mm)	September (mm)	*POR (mm)
2005	136.4	91.2	96.0	19.1	377.5
2006	138.4	156.7	112.6	43.2	450.9
2007	157.4	160.9	82.8	22.3	423.5
2008	137.9	164.9	90.7	12.9	406.6

* POR Refers to period of recorded data for each year.
Shaded areas indicate incomplete months of data which occur at the start and end of the POR

FIGURES



NOTES

Site #1 - Narrow Lake Outlet
Site #2 - Brien Lake Outlet (discontinued)
Site #3 - Winter Lake Outlet
Site #4 - Round Lake Outlet
Site #5 - Northeast Brien Lake (discontinued)
Site #6 - Nicholas Lake Outlet
Site #7 - Tyhee Meteorological Station

Tyhee NWT Corp

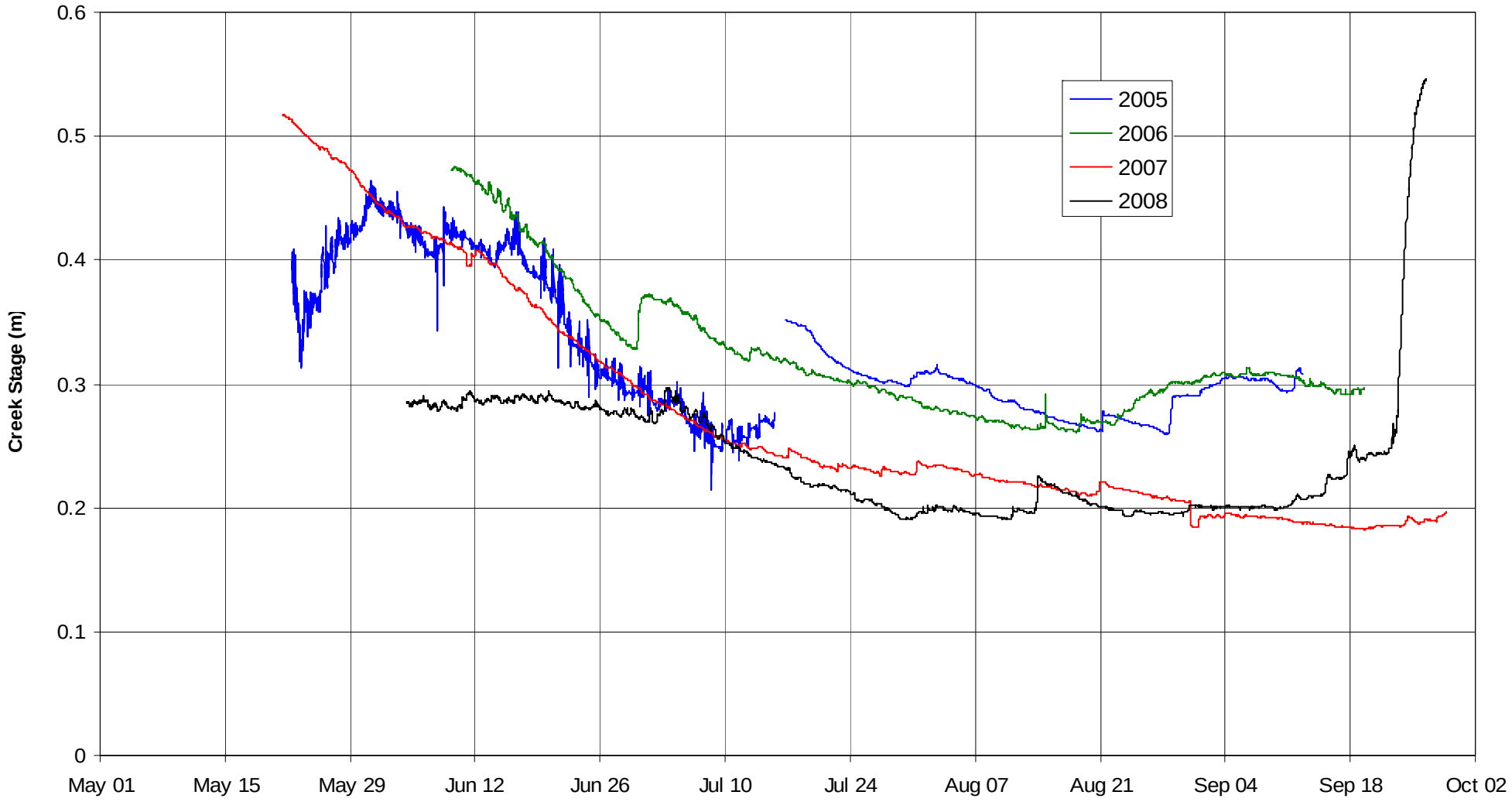
TYHEE NWT CORP.
YELLOWKNIFE GOLD PROJECT

Site Location Map

EBA Engineering Consultants Ltd.

PROJECT NO.	DWN	CHK	REV
Y221101057	RED	JAS	0
OFFICE	DATE		
EBA-VANC	July, 2009		

Figure 1.1



NOTES

CLIENT

Tyhee NWT Corp

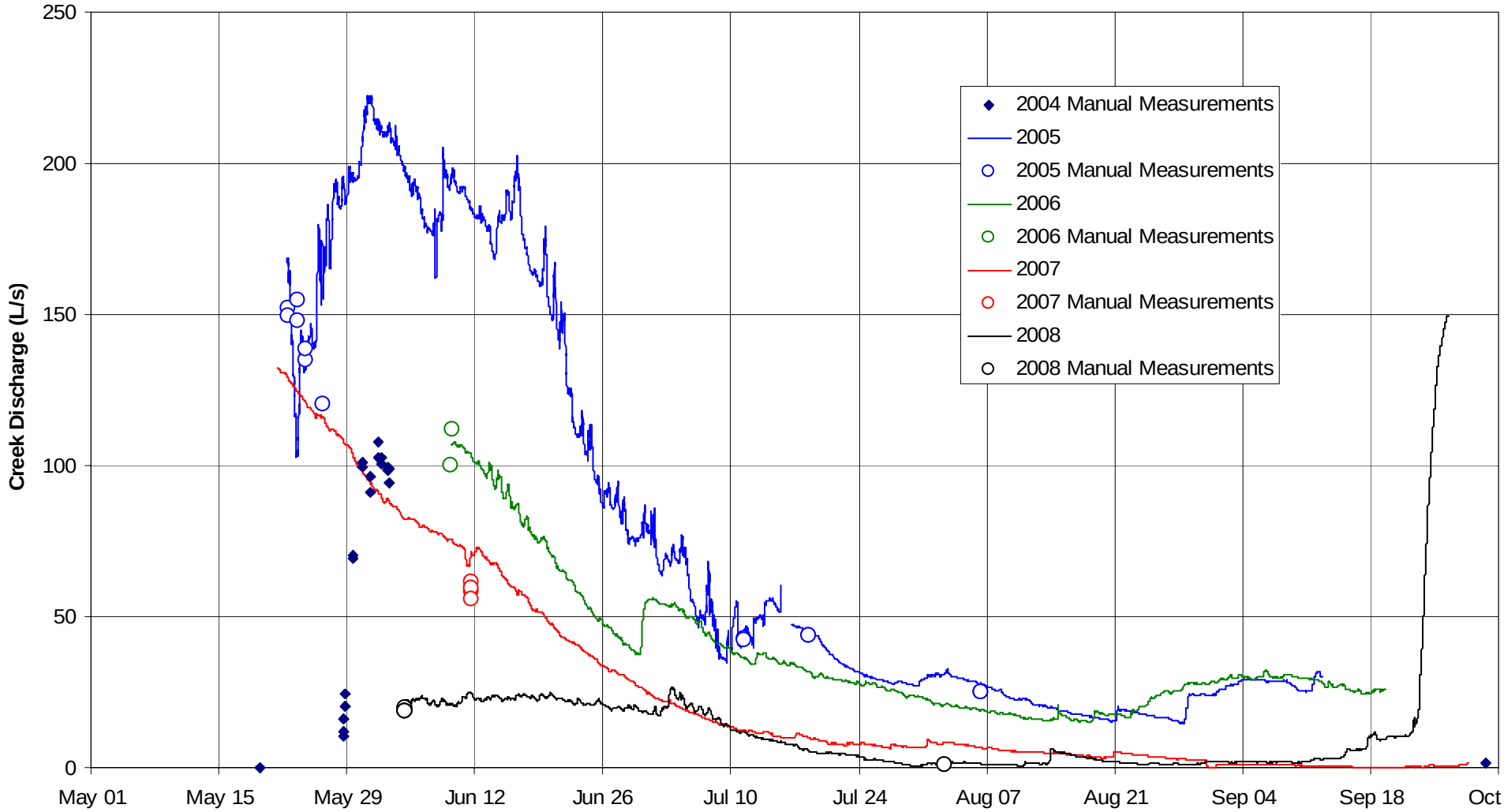
TYHEE NWT CORP.
YELLOWKNIFE GOLD PROJECT

Narrow Lake Outlet
Stage Hydrograph
2005 to 2008

EBA Engineering Consultants Ltd.

PROJECT NO.	DWN	CKD	REV
Y22101057	RED	JAS	0
OFFICE	DATE		
EBA-VANC	July 2009		

Figure 2.1



NOTES

CLIENT

Tyhee NWT Corp

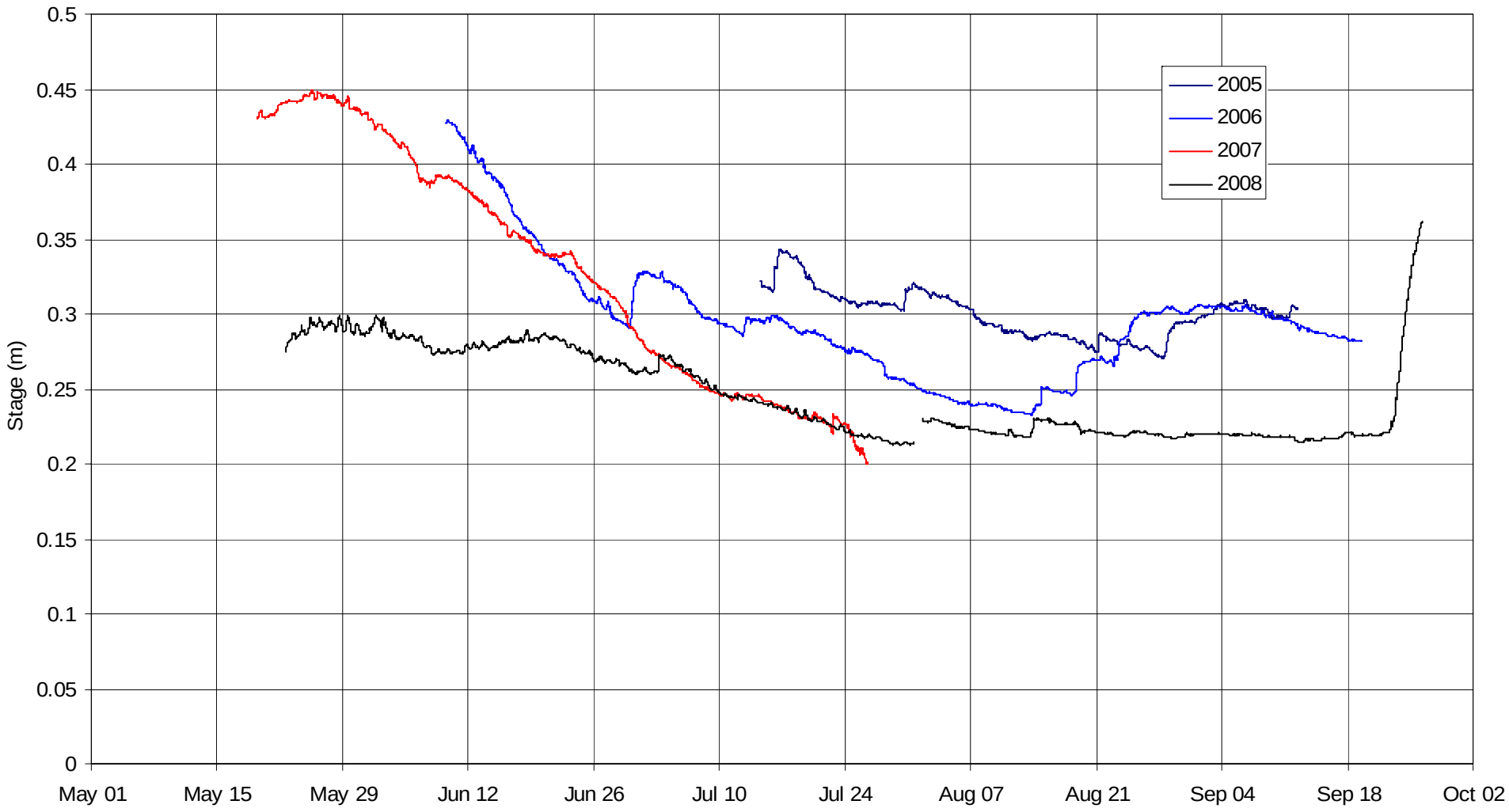
TYHEE NWT CORP.
YELLOWKNIFE GOLD PROJECT

Narrow Lake Outlet
Discharge Hydrograph
2004 to 2008

EBA Engineering Consultants Ltd.

PROJECT NO.	DWN	CKD	REV
Y22101057	RED	JAS	0
OFFICE	DATE		
EBA-VANC	July 2009		

Figure 2.2



NOTES

CLIENT

Tyhee NWT Corp

EBA Engineering Consultants Ltd.

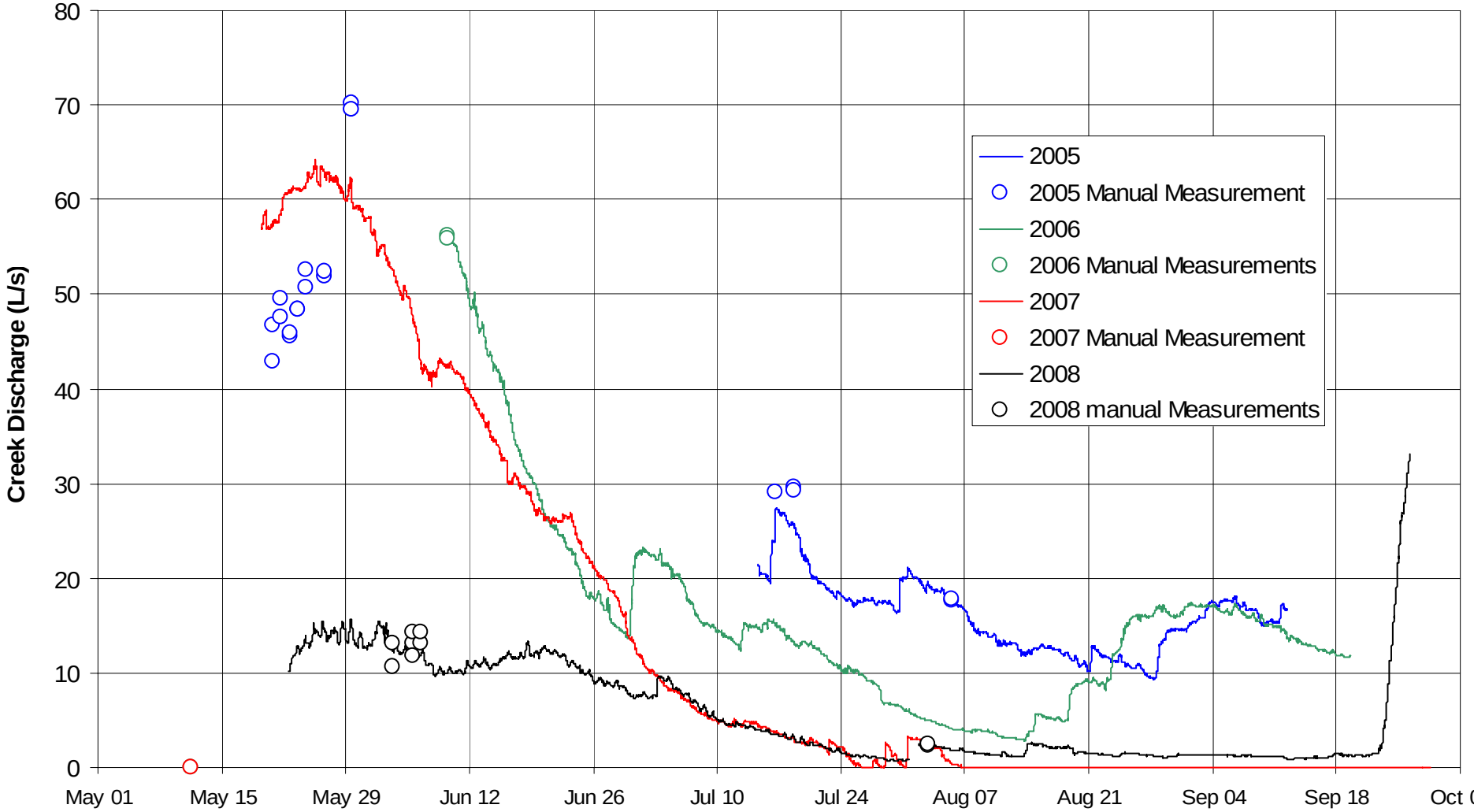
TYHEE NWT CORP.
YELLOWKNIFE GOLD PROJECT

Winter Lake Outlet
Stage Hydrograph
2005 to 2008

PROJECT NO.	DWN	CKD	REV
Y22101057	RED	JAS	0

OFFICE	DATE
EBA-VANC	July 2009

Figure 2.3



NOTES

CLIENT

Tyhee NWT Corp

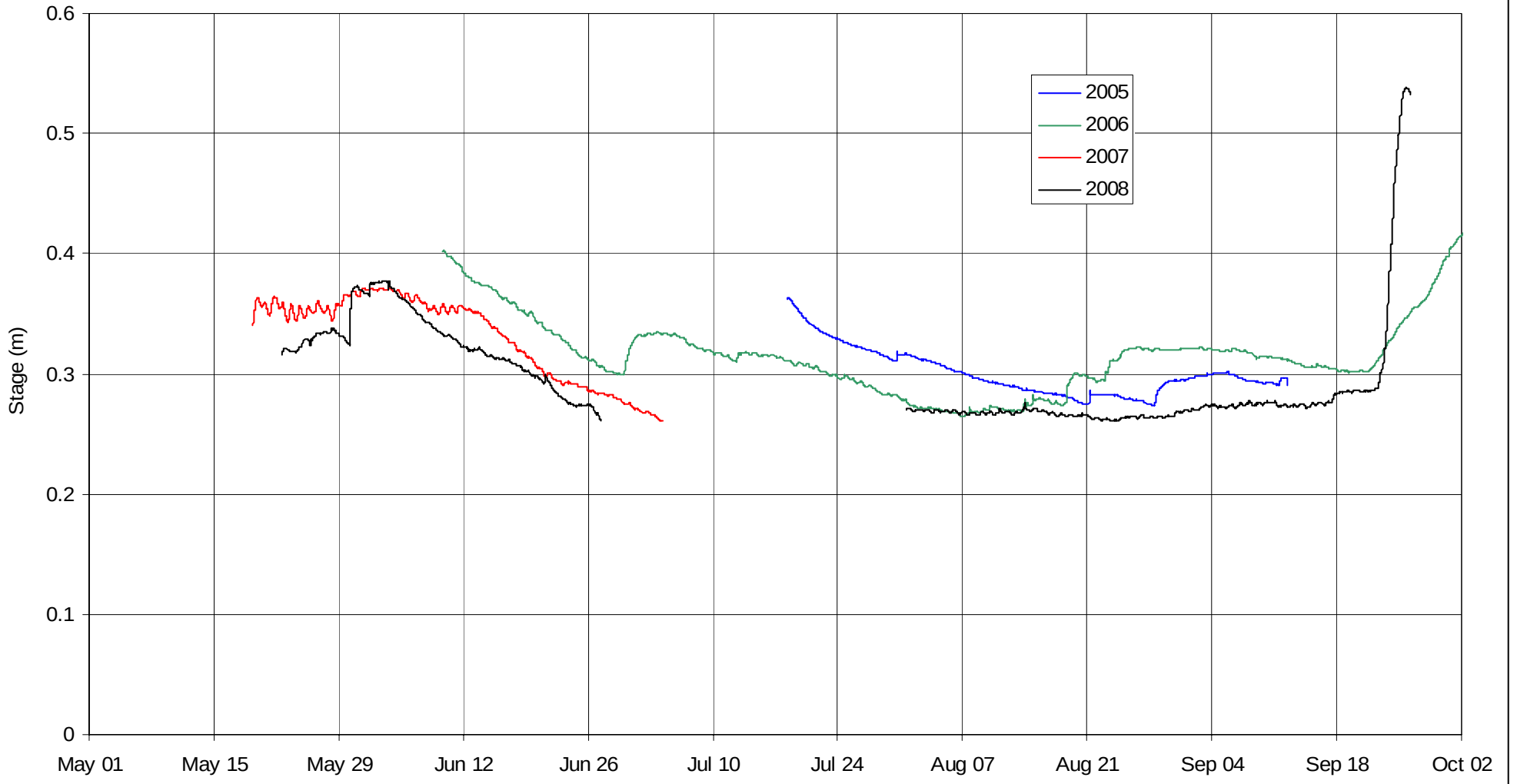
TYHEE NWT CORP.
YELLOWKNIFE GOLD PROJECT

Winter Lake Outlet
Discharge Hydrograph
2004 to 2008

EBA Engineering Consultants Ltd.

PROJECT NO.	DWN	CKD	REV
Y22101057	RED	JAS	0
OFFICE	DATE		
EBA-VANC	July 2009		

Figure 2.4



NOTES

CLIENT

Tyhee NWT Corp

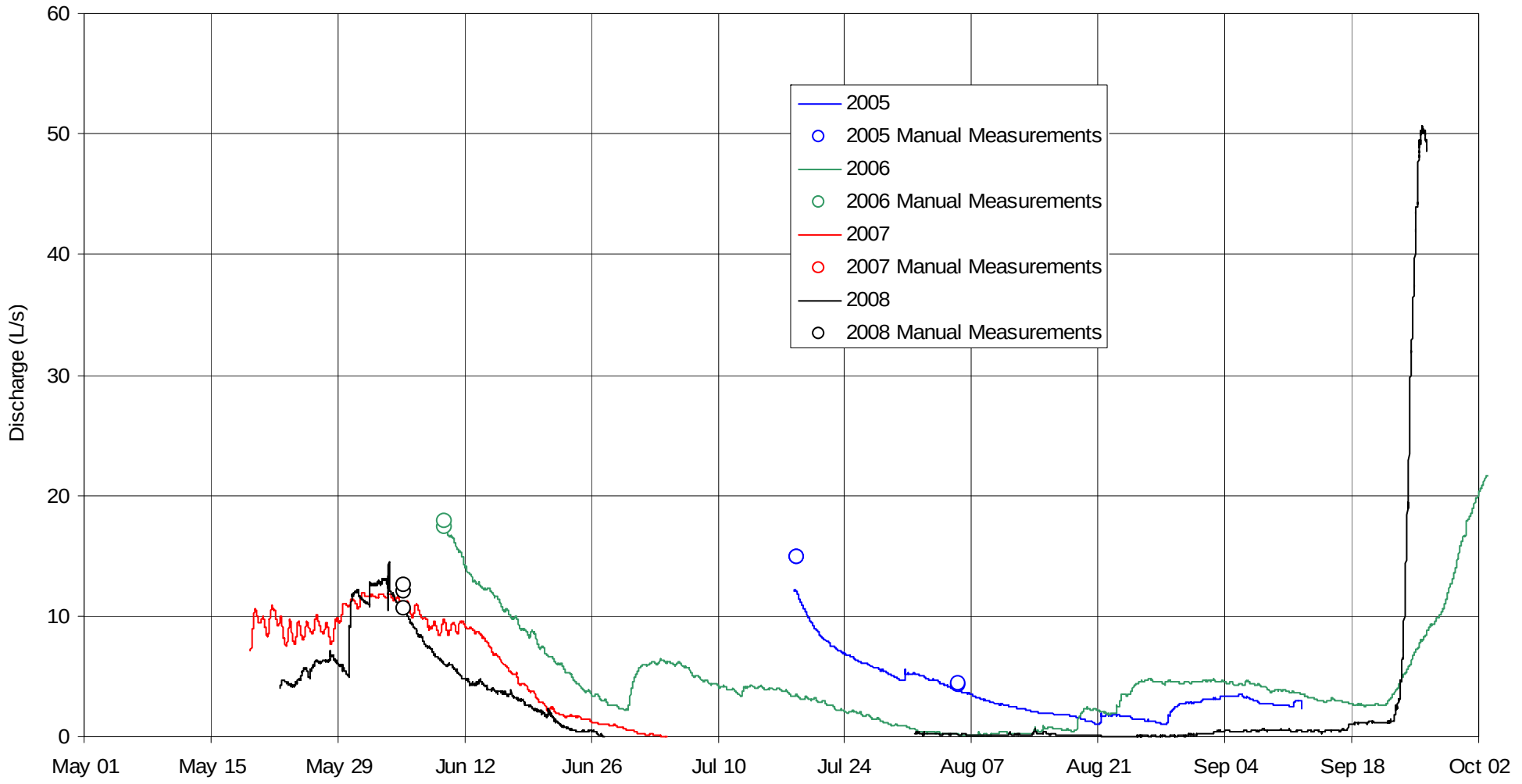
TYHEE NWT CORP.
YELLOWKNIFE GOLD PROJECT

Round Lake Outlet
Stage Hydrograph
2005 to 2008

EBA Engineering Consultants Ltd.

PROJECT NO.	DWN	CKD	REV
Y22101057	RED	JAS	0
OFFICE	DATE		
EBA-VANC	July 2009		

Figure 2.5



NOTES

CLIENT

Tyhee NWT Corp

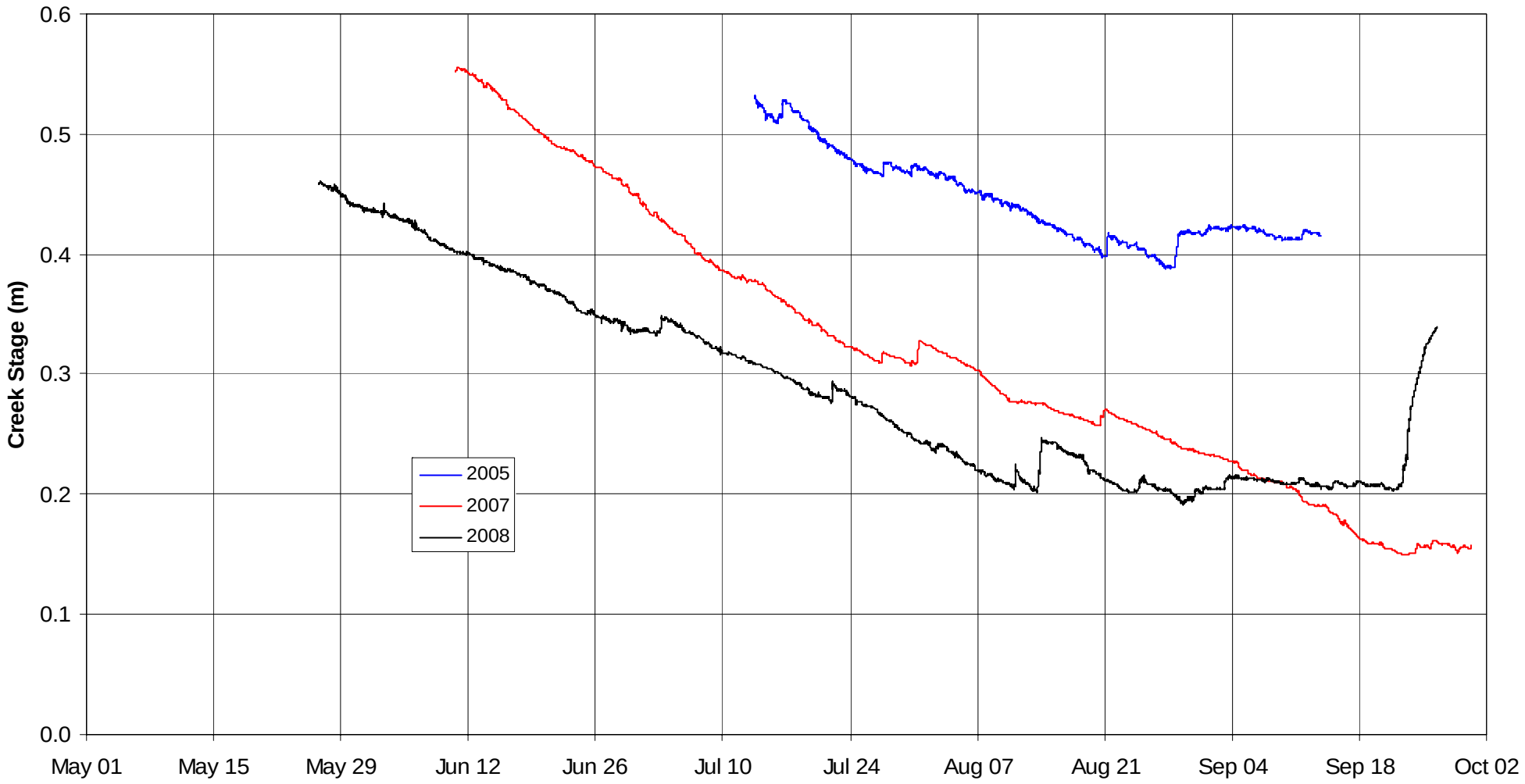
EBA Engineering Consultants Ltd.

TYHEE NWT CORP.
YELLOWKNIFE GOLD PROJECT

Round Lake Outlet
Discharge Hydrograph
2004 to 2008

PROJECT NO.	DWN	CKD	REV
Y22101057	RED	JAS	0
OFFICE	DATE		
EBA-VANC	July 2009		

Figure 2.6



NOTES

CLIENT

Tyhee NWT Corp

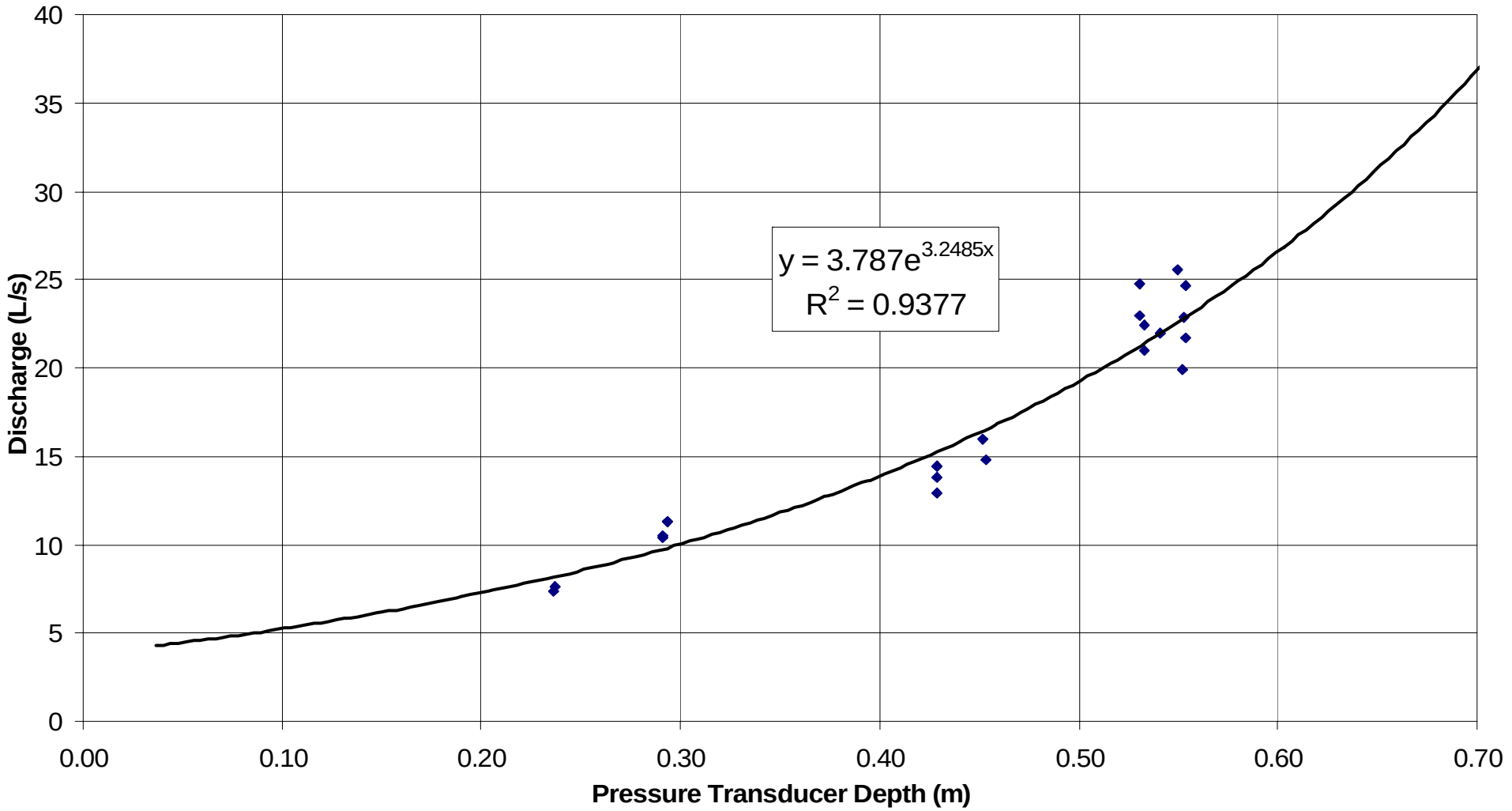
EBA Engineering Consultants Ltd.

TYHEE NWT CORP.
YELLOWKNIFE GOLD PROJECT

Nicholas Lake Outlet
Stage Hydrograph
2005 to 2008

PROJECT NO.	DWN	CKD	REV
Y22101057	RED	JAS	0
OFFICE	DATE		
EBA-VANC	July 2009		

Figure 2.7



NOTES

CLIENT

Tyhee NWT Corp

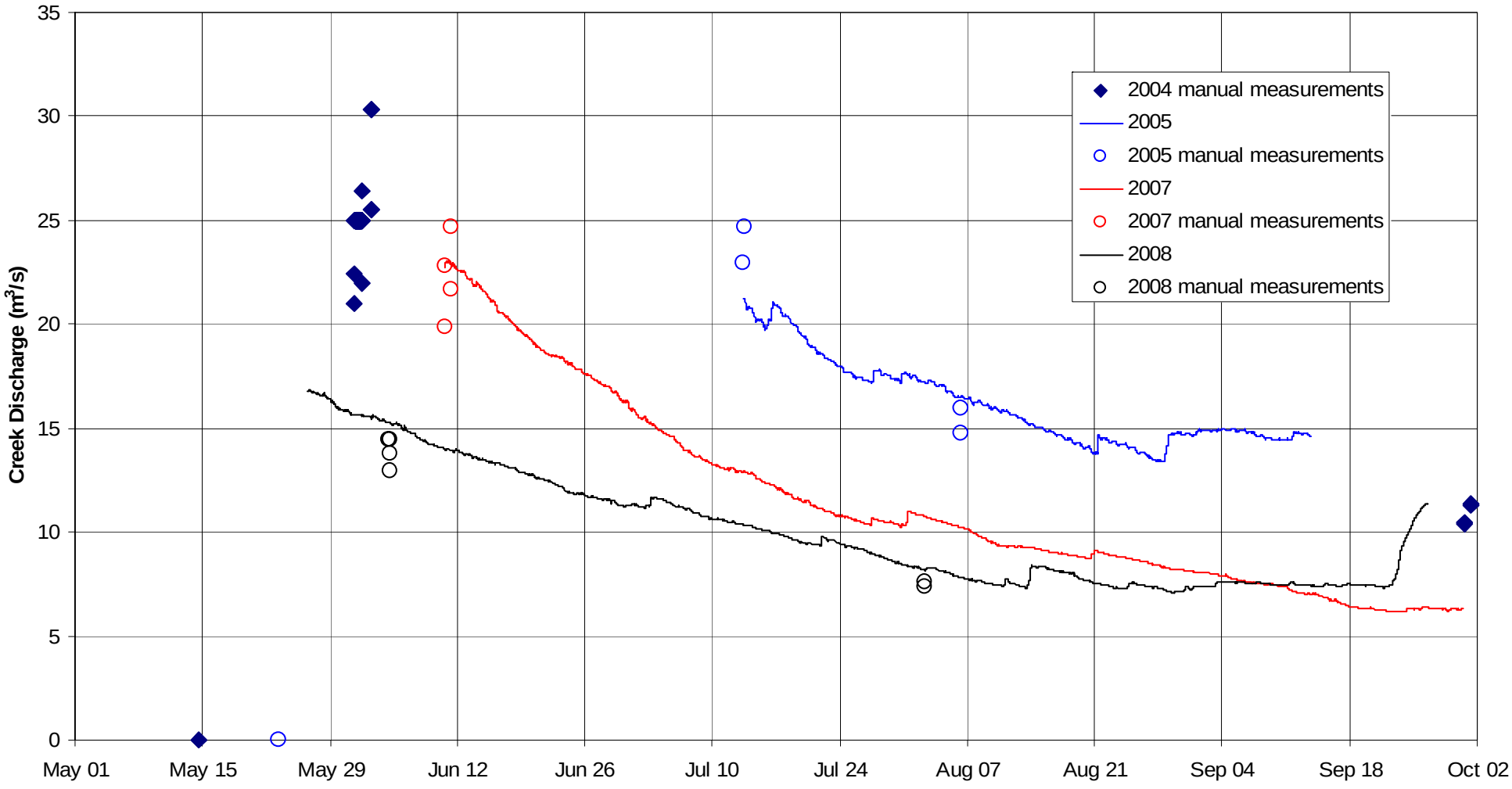
TYHEE NWT CORP.
YELLOWKNIFE GOLD PROJECT

Nicholas Lake Outlet
Stage-Discharge Relationship
As of August 2, 2008

EBA Engineering Consultants Ltd.

PROJECT NO.	DWN	CKD	REV
Y22101057	RED	JAS	0
OFFICE	DATE		
EBA-VANC	July 2009		

Figure 2.8



NOTES

CLIENT

Tyhee NWT Corp

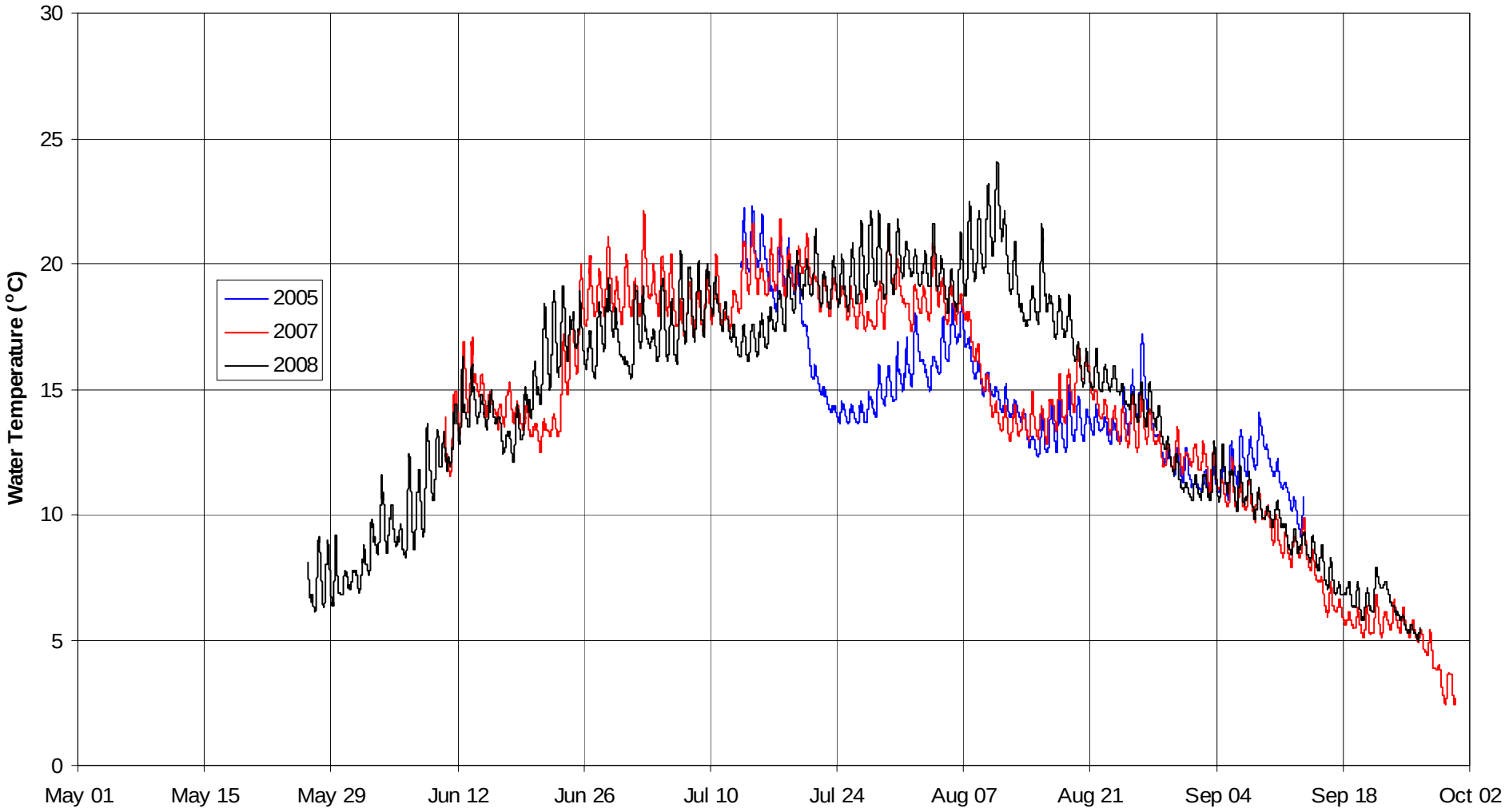
TYHEE NWT CORP.
YELLOWKNIFE GOLD PROJECT

Nicholas Lake Outlet
Discharge Hydrograph
2004 to 2008

EBA Engineering Consultants Ltd.

PROJECT NO.	DWN	CKD	REV
Y22101057	RED	JAS	0
OFFICE	DATE		
EBA-VANC	July 2009		

Figure 2.9



NOTES

CLIENT

Tyhee NWT Corp

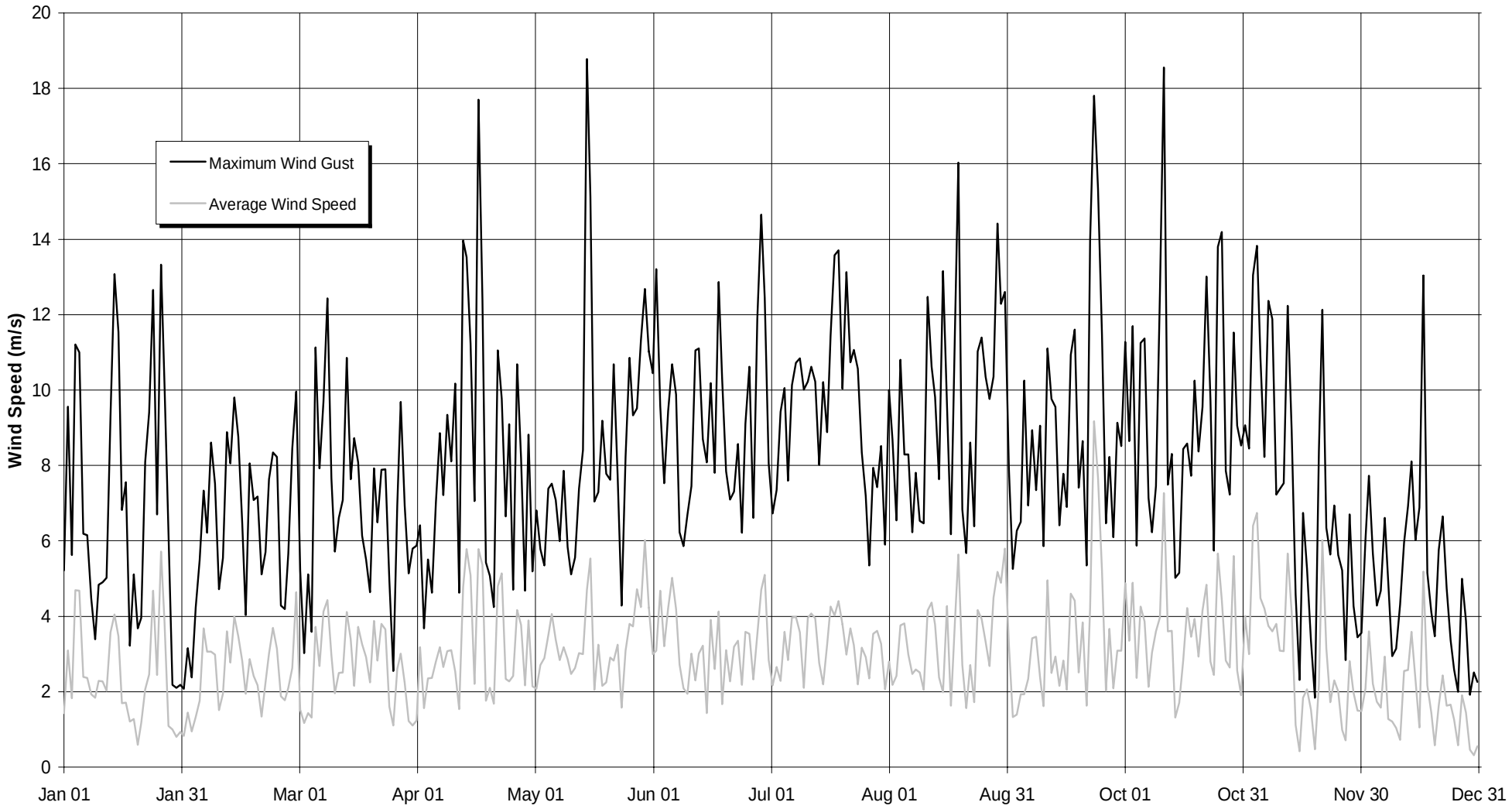
TYHEE NWT CORP.
YELLOWKNIFE GOLD PROJECT

Nicholas Lake Outlet
Water Temperatures
2005 to 2008

EBA Engineering Consultants Ltd.

PROJECT NO.	DWN	CKD	REV
Y22101057	RED	JAS	0
OFFICE	DATE		
EBA-VANC	July 2009		

Figure 2.10



NOTES

CLIENT

Tyhee NWT Corp

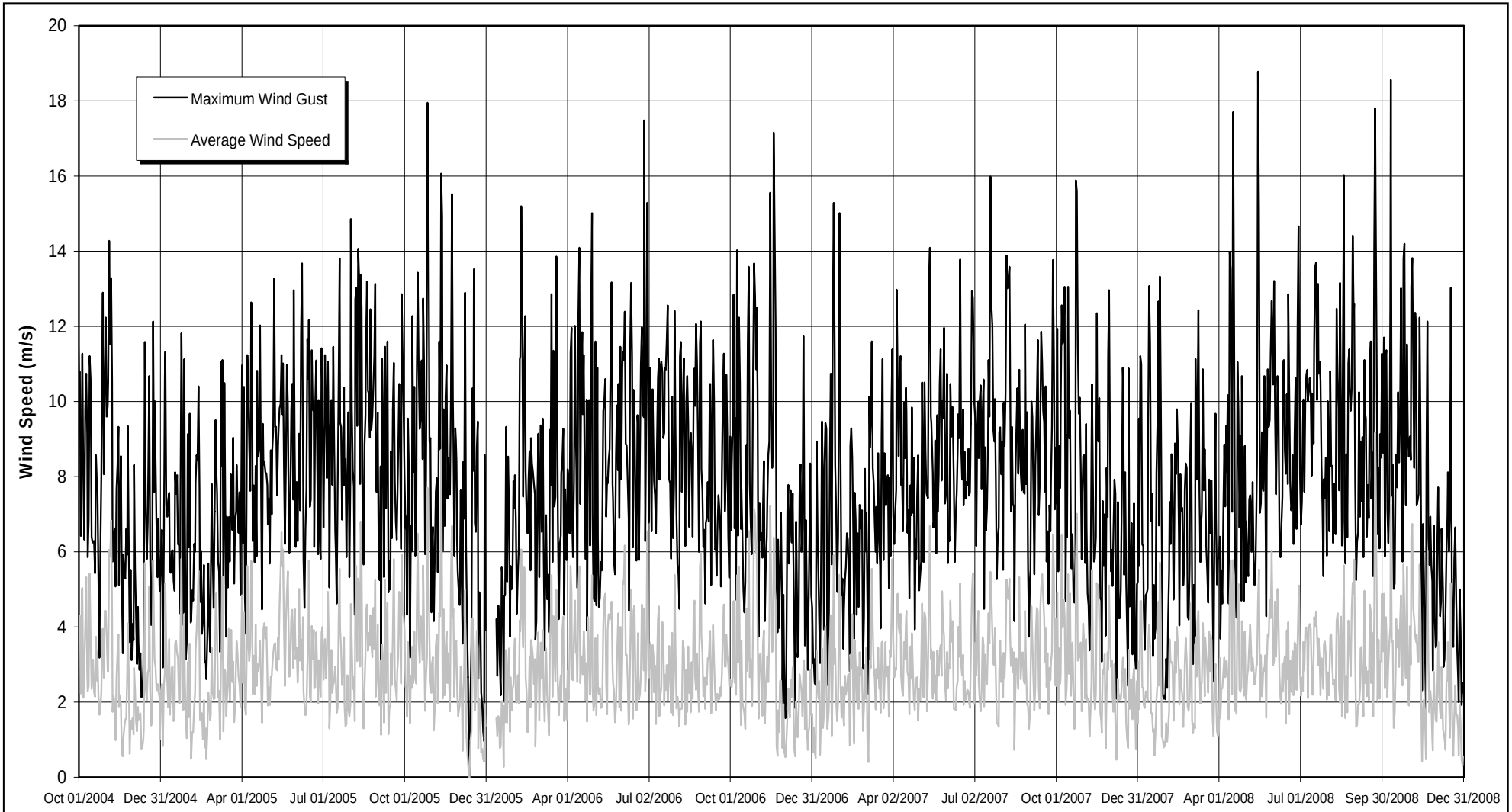
TYHEE NWT CORP.
YELLOWKNIFE GOLD PROJECT

Tyhee Station
Average Daily Wind Speed &
Maximum Daily Wind Gust - 2008

EBA Engineering Consultants Ltd.

PROJECT NO.	DWN	CKD	REV
Y22101057	TM	JAS	0
OFFICE	DATE		
EBA-VANC	July 2009		

Figure 3.1



NOTES

CLIENT

Tyhee NWT Corp

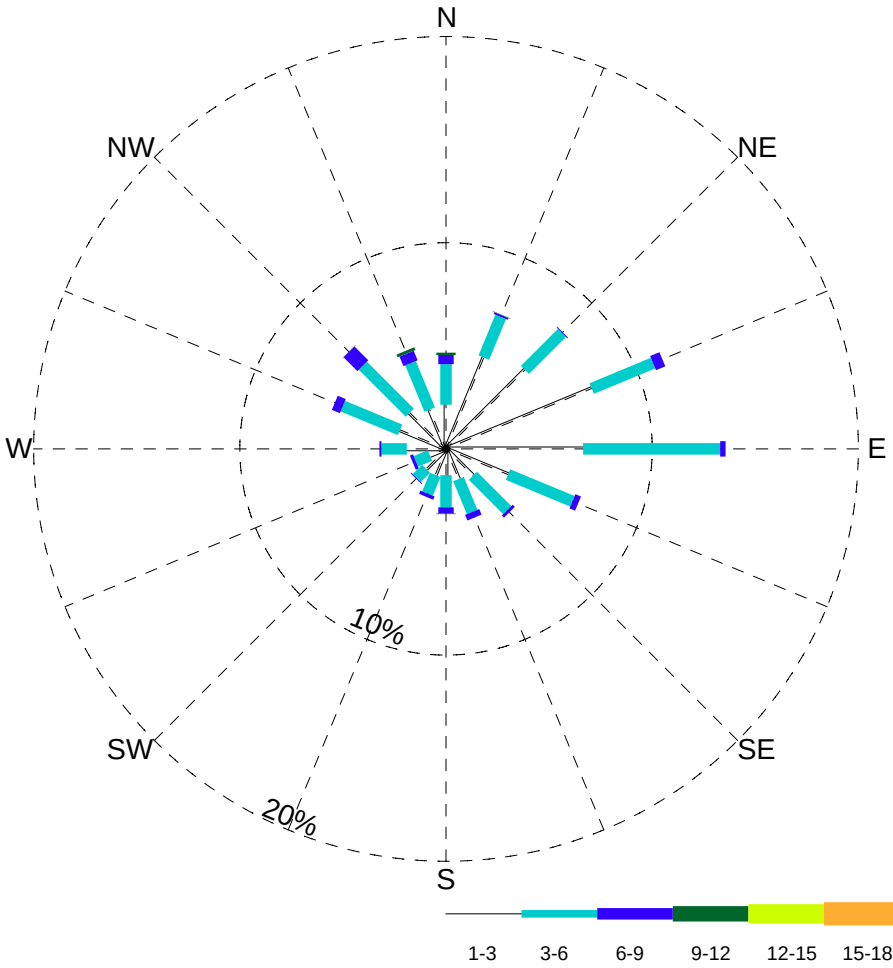
TYHEE NWT CORP.
YELLOWKNIFE GOLD PROJECT

Tyhee Station
Average Daily Wind Speed & Maximum Daily Wind Gust - Period of Record

EBA Engineering Consultants Ltd.

PROJECT NO.	DWN	CKD	REV
Y22101057	TM	JAS	0
OFFICE	DATE		
EBA-VANC	July 2009		

Figure 3.2



Station Name: Tyhee
NAD 27 location:
N63° 11' 6.2" W113° 53' 40.2"
Elevation above SL: 300 m
Tower Height: 10 m
Record Length: 1545 days*
Start Date: Sep. 28, 2004
End Date: Dec. 31, 2008

Wind Speed & Direction Frequency Distribution Table

	Percent Occurrence (%)								
Direction	0-1 m/s	1-3 m/s	3-6 m/s	6-9 m/s	9-12 m/s	12-15 m/s	15-18 m/s	18+ m/s	Total (%)
ENE	-	7.65	3.22	0.49	-	-	-	-	11.36
NE	-	5.42	2.54	0.05	-	-	-	-	8.00
NNE	-	4.79	2.14	0.09	0.02	-	-	-	7.05
N	-	2.14	1.97	0.44	0.11	-	-	-	4.67
NNW	-	2.06	2.44	0.50	0.15	-	-	-	5.14
NW	-	2.48	3.22	0.96	0.01	-	-	-	6.67
WNW	-	2.41	3.01	0.42	-	-	-	-	5.84
W	-	1.90	1.23	0.10	-	-	-	-	3.23
WSW	-	0.84	0.74	0.16	-	-	-	-	1.74
SW	-	1.37	0.64	0.05	-	-	-	-	2.05
SSW	-	1.37	0.98	0.17	-	-	-	-	2.52
S	-	1.27	1.56	0.30	0.03	-	-	-	3.16
SSE	-	1.58	1.73	0.30	-	-	-	-	3.61
SE	-	1.84	2.36	0.15	-	-	-	-	4.35
ESE	-	3.26	3.38	0.30	-	-	-	-	6.93
E	-	6.65	6.65	0.26	-	-	-	-	13.56
Calm	10.12	-	-	-	-	-	-	-	10.12
Total (%)	10.12	47.03	37.79	4.72	0.33	-	-	-	100.00

NOTES
*Excluding January 1 to 12th, 2006.

CLIENT
Tyhee NWT Corp

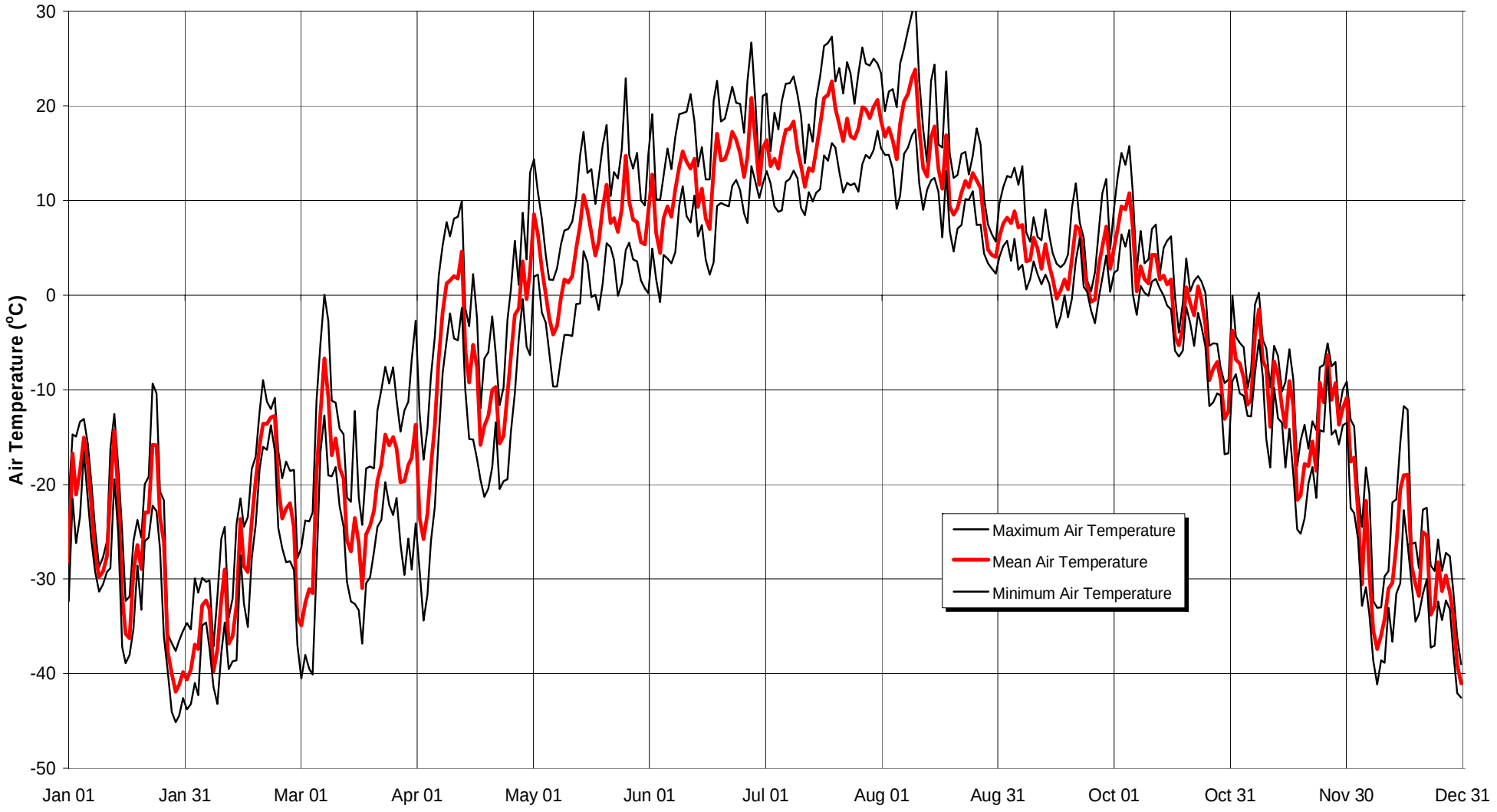
YELLOWKNIFE GOLD PROJECT
2008 HYDROMETEOROLOGICAL REPORT

Tyhee Station
Wind Rose
Period of Record

EBA Engineering Consultants Ltd.

PROJECT NO.	DWN	CHK	REV
Y22101057	TM	JAS	0
OFFICE: EBA-VANC	DATE: July 2009		

Figure 3.3



NOTES

CLIENT

Tyhee NWT Corp

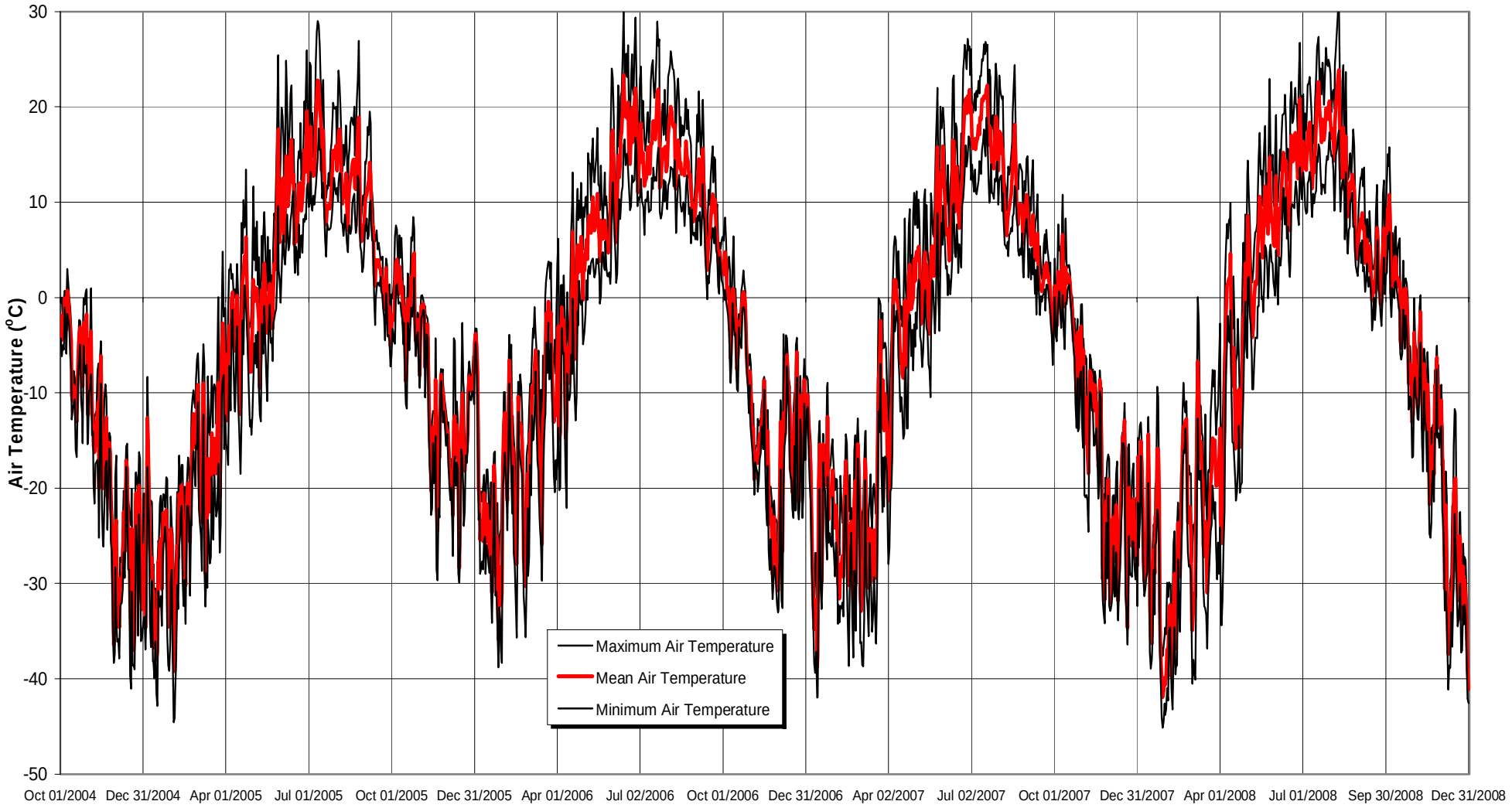
TYHEE NWT CORP.
YELLOWKNIFE GOLD PROJECT

Tyhee Station
Air Temperature
Daily Maximum, Mean & Minimum – 2008

EBA Engineering Consultants Ltd.

PROJECT NO.	DWN	CKD	REV
Y22101057	TM	JAS	0
OFFICE	DATE		
EBA-VANC	July 2009		

Figure 3.4



NOTES

CLIENT

Tyhee NWT Corp

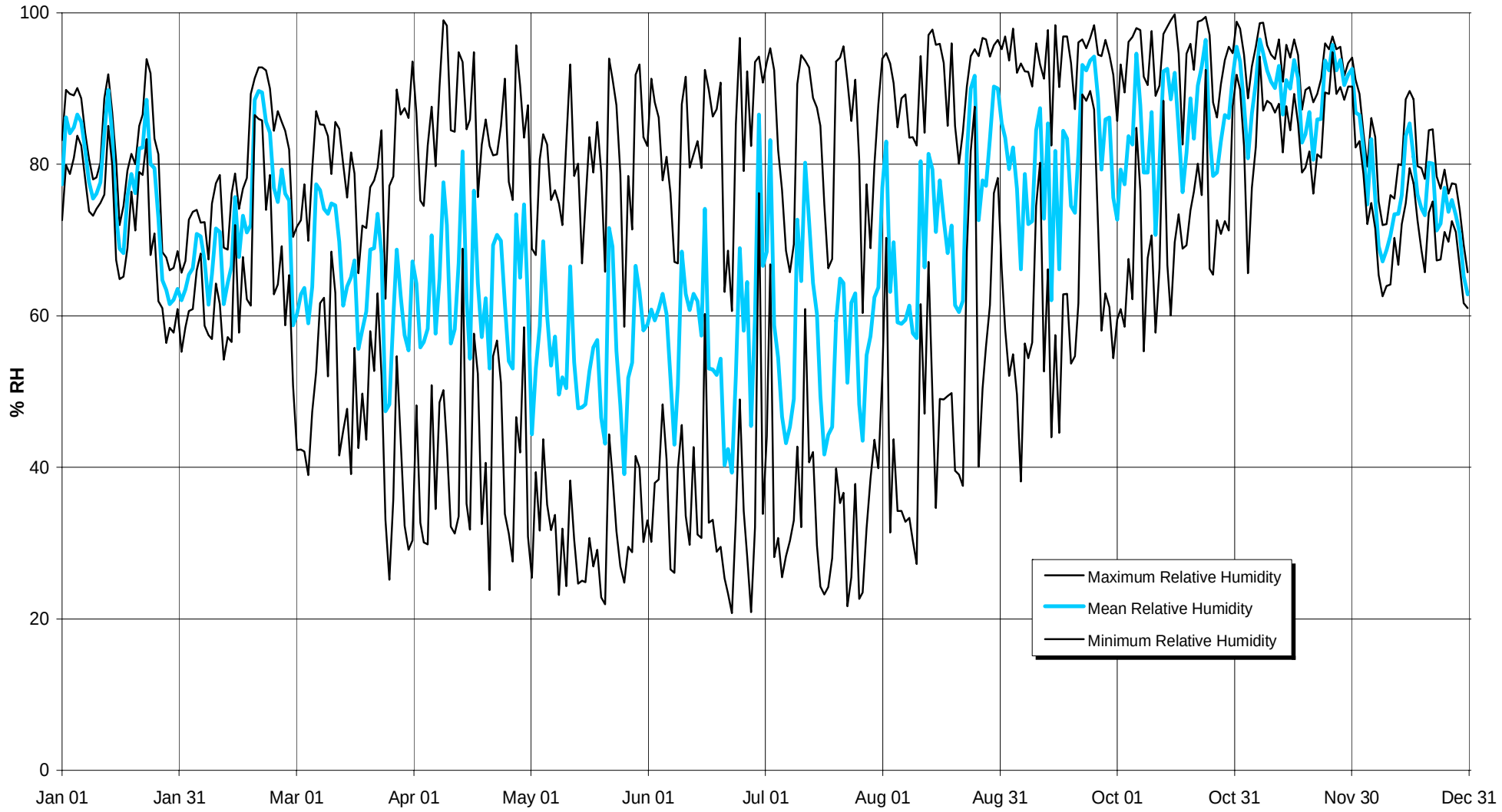
TYHEE NWT CORP.
YELLOWKNIFE GOLD PROJECT

Tyhee Station
Air Temperature - Daily Maximum, Mean & Minimum – Period of Record

EBA Engineering Consultants Ltd.

PROJECT NO.	DWN	CKD	REV
Y22101057	TM	JAS	0
OFFICE	DATE		
EBA-VANC	July 2009		

Figure 3.5



NOTES

CLIENT

Tyhee NWT Corp

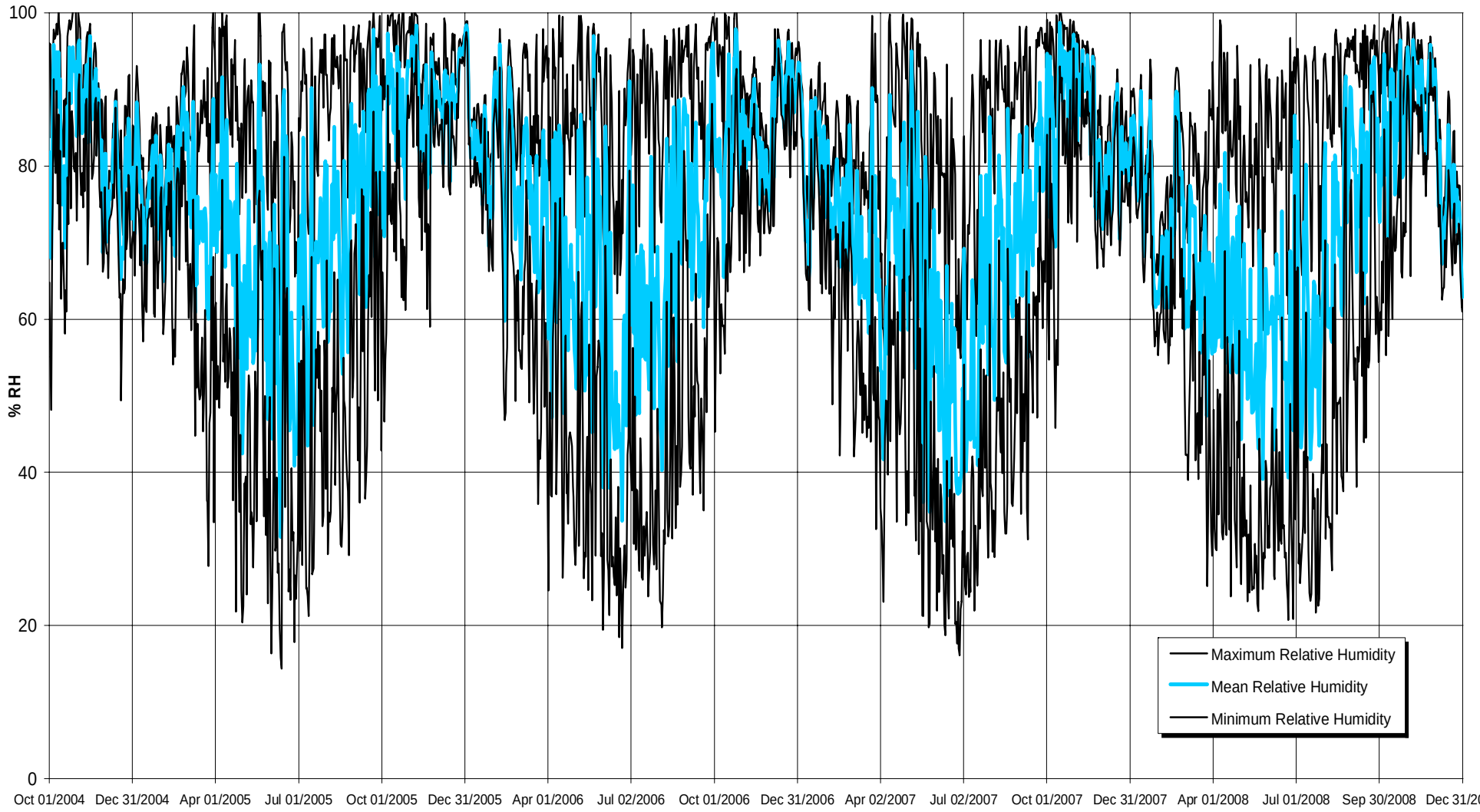
TYHEE NWT CORP.
YELLOWKNIFE GOLD PROJECT

Tyhee Station
Relative Humidity
Daily Maximum, Mean & Minimum – 2008

EBA Engineering Consultants Ltd.

PROJECT NO.	DWN	CKD	REV
Y22101057	TM	JAS	0
OFFICE	DATE		
EBA-VANC	July 2009		

Figure 3.6



NOTES

CLIENT

Tyhee NWT Corp

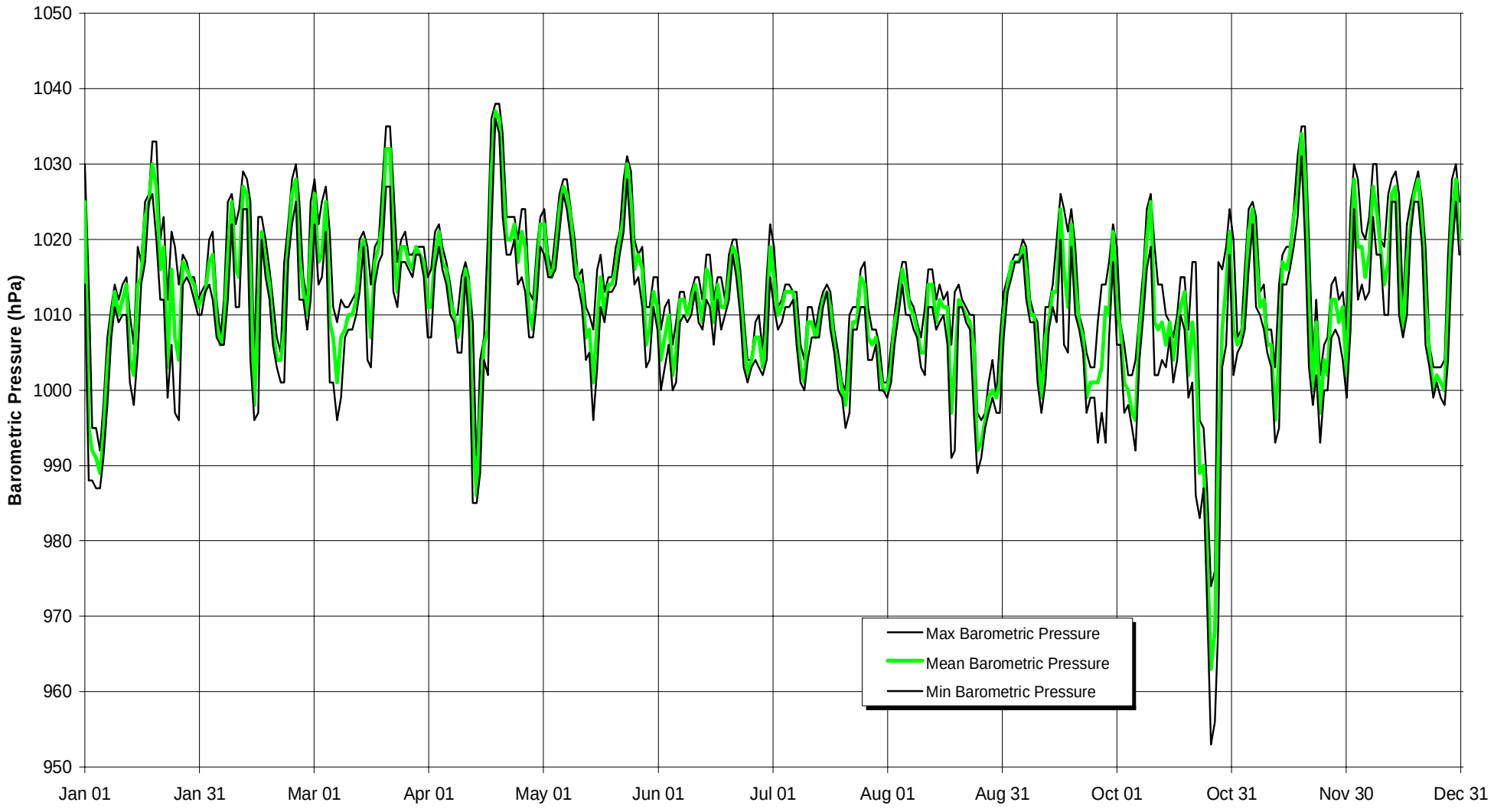
EBA Engineering Consultants Ltd.

TYHEE NWT CORP.
YELLOWKNIFE GOLD PROJECT

Tyhee Station
Relative Humidity - Daily Maximum, Mean & Minimum – Period of Record

PROJECT NO.	DWN	CKD	REV
Y22101057	TM	JAS	0
OFFICE	DATE		
EBA-VANC	July 2009		

Figure 3.7



NOTES

CLIENT

Tyhee NWT Corp

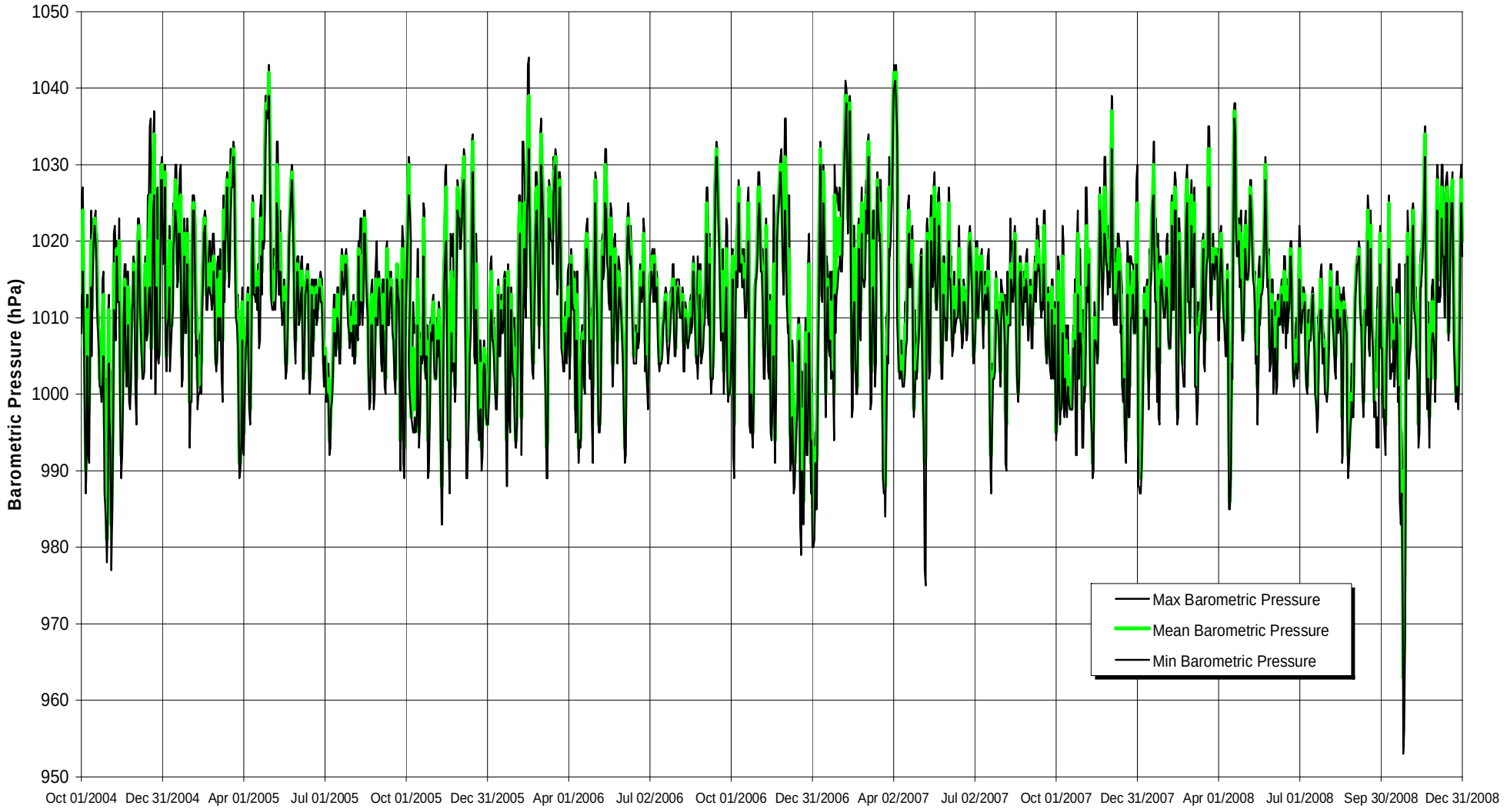
TYHEE NWT CORP.
YELLOWKNIFE GOLD PROJECT

Tyhee Station
Barometric Pressure
Daily Maximum, Mean & Minimum – 2008

EBA Engineering Consultants Ltd.

PROJECT NO.	DWN	CKD	REV
Y22101057	TM	JAS	0
OFFICE	DATE		
EBA-VANC	July 2009		

Figure 3.8



NOTES

CLIENT

Tyhee NWT Corp

TYHEE NWT CORP.
YELLOWKNIFE GOLD PROJECT

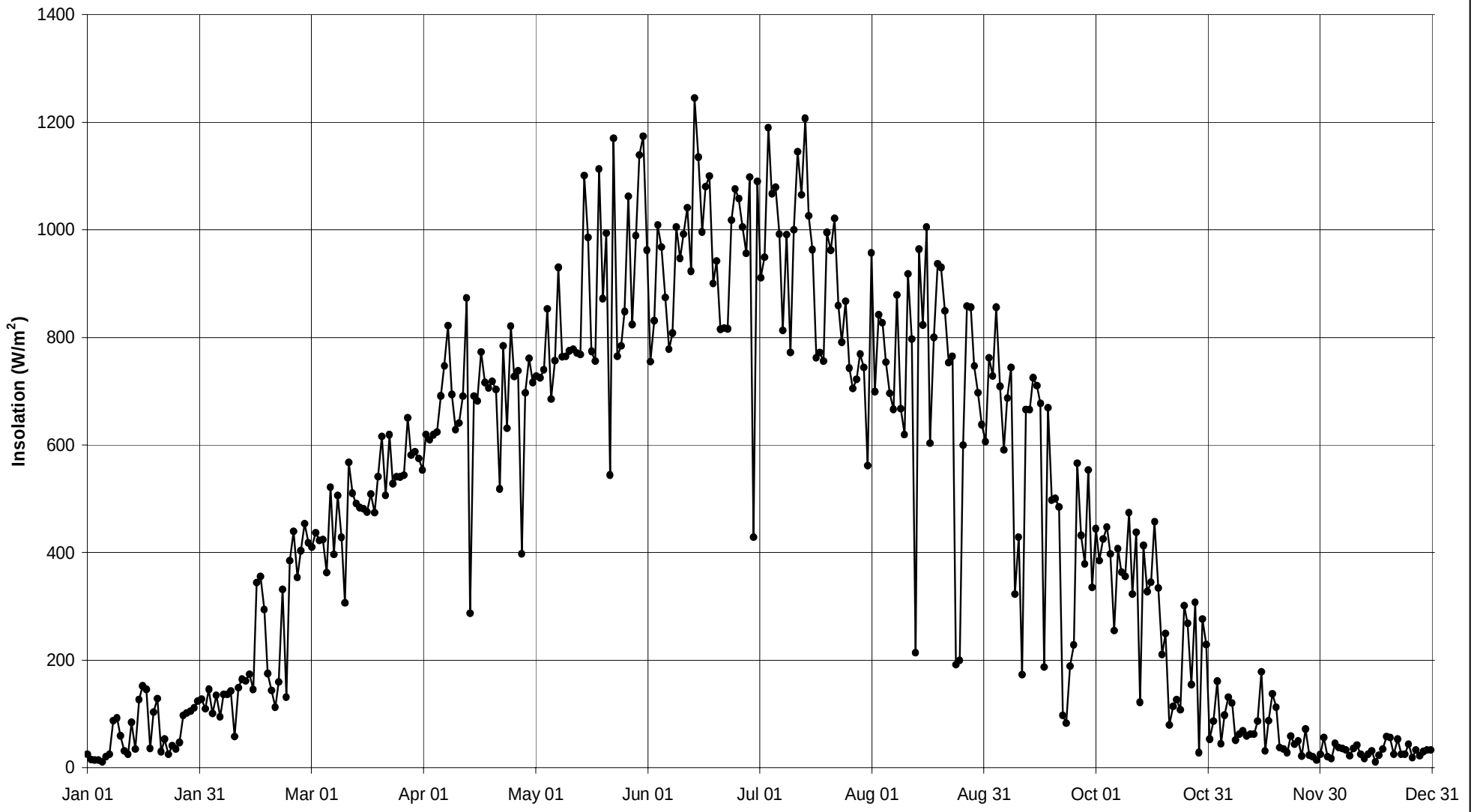
Tyhee Station

Barometric Pressure - Daily Maximum, Mean & Minimum – Period of Record

EBA Engineering Consultants Ltd.

PROJECT NO.	DWN	CKD	REV
Y22101057	TM	JAS	0
OFFICE	DATE		
EBA-VANC	July 2009		

Figure 3.9



NOTES

CLIENT

Tyhee NWT Corp

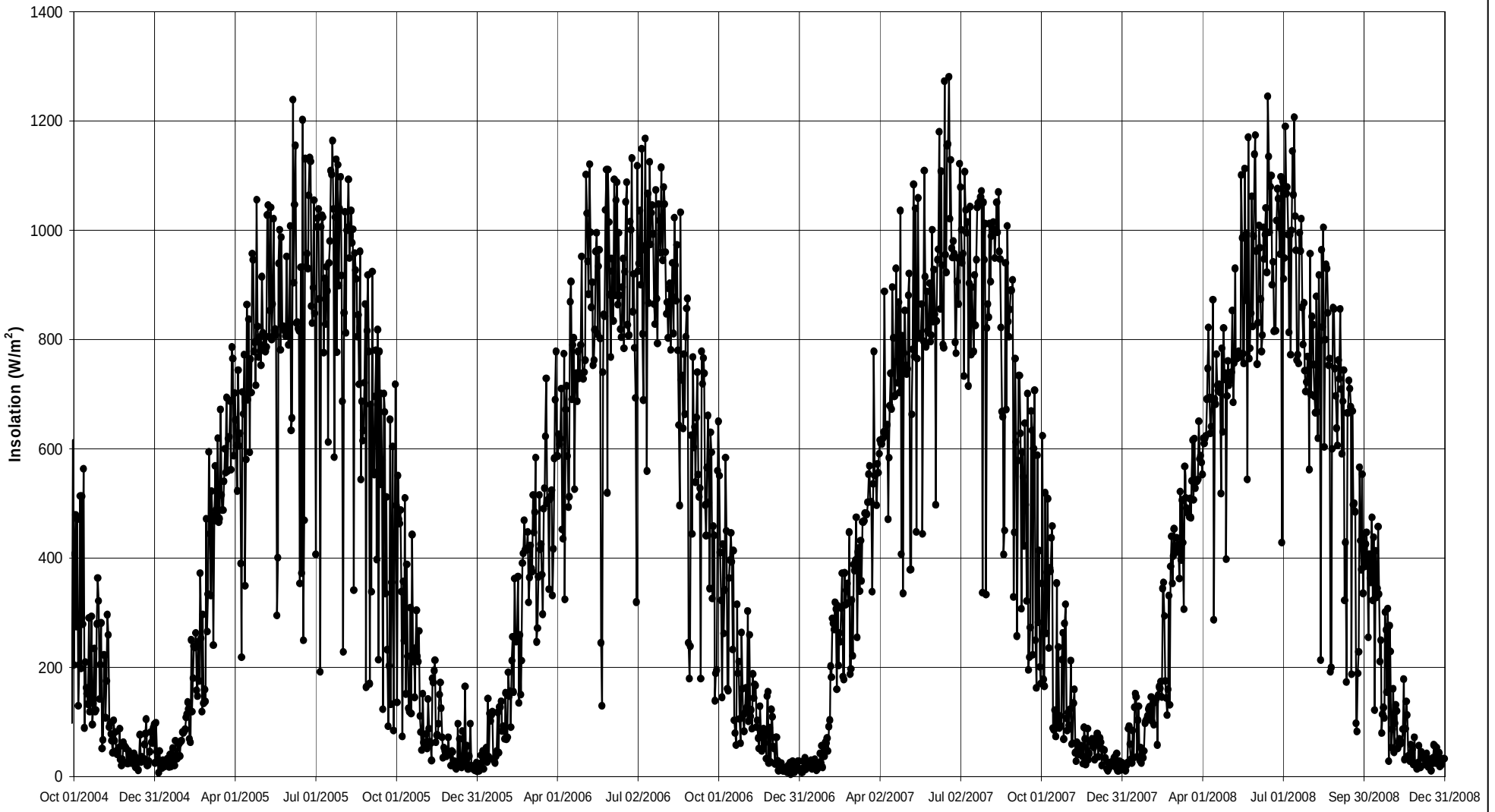
TYHEE NWT CORP.
YELLOWKNIFE GOLD PROJECT

Tyhee Station
Daily Maximum Incident Solar Radiation
2008

EBA Engineering Consultants Ltd.

PROJECT NO.	DWN	CKD	REV
Y22101057	TM	JAS	0
OFFICE	DATE		
EBA-VANC	July 2009		

Figure 3.10



NOTES

CLIENT

Tyhee NWT Corp

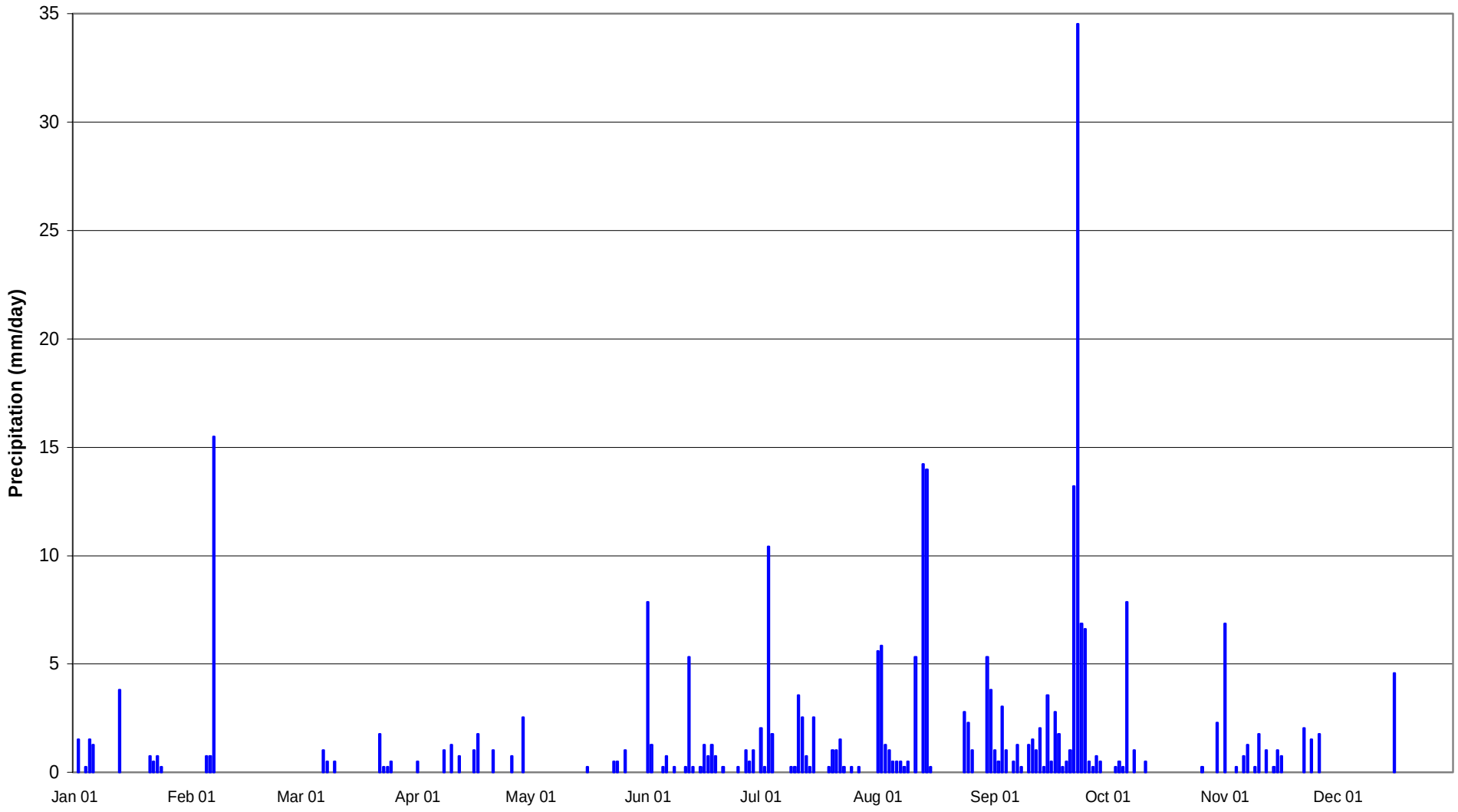
TYHEE NWT CORP.
YELLOWKNIFE GOLD PROJECT

Tyhee Station
Daily Maximum Incident Solar Radiation
Period of Record

EBA Engineering Consultants Ltd.

PROJECT NO.	DWN	CKD	REV
Y22101057	TM	JAS	0
OFFICE	DATE		
EBA-VANC	July 2009		

Figure 3.11



NOTES

CLIENT

Tyhee NWT Corp

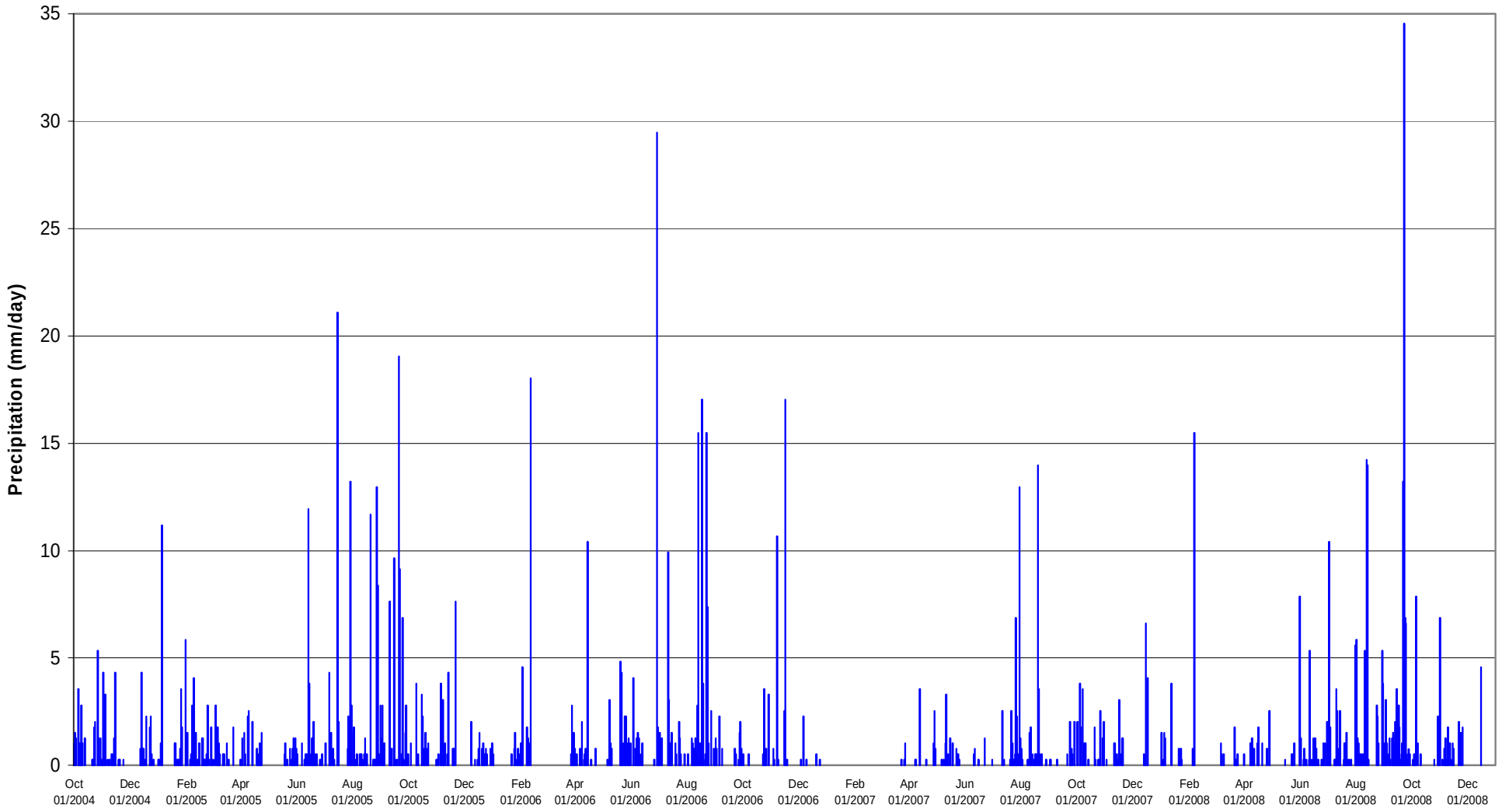
TYHEE NWT CORP.
YELLOWKNIFE GOLD PROJECT

Tyhee Station
Daily Water-Equivalent Precipitation
2008

EBA Engineering Consultants Ltd.

PROJECT NO.	DWN	CKD	REV
Y22101057	TM	JAS	0
OFFICE: EBA-VANC	DATE: July 2009		

Figure 3.12



NOTES

CLIENT

Tyhee NWT Corp

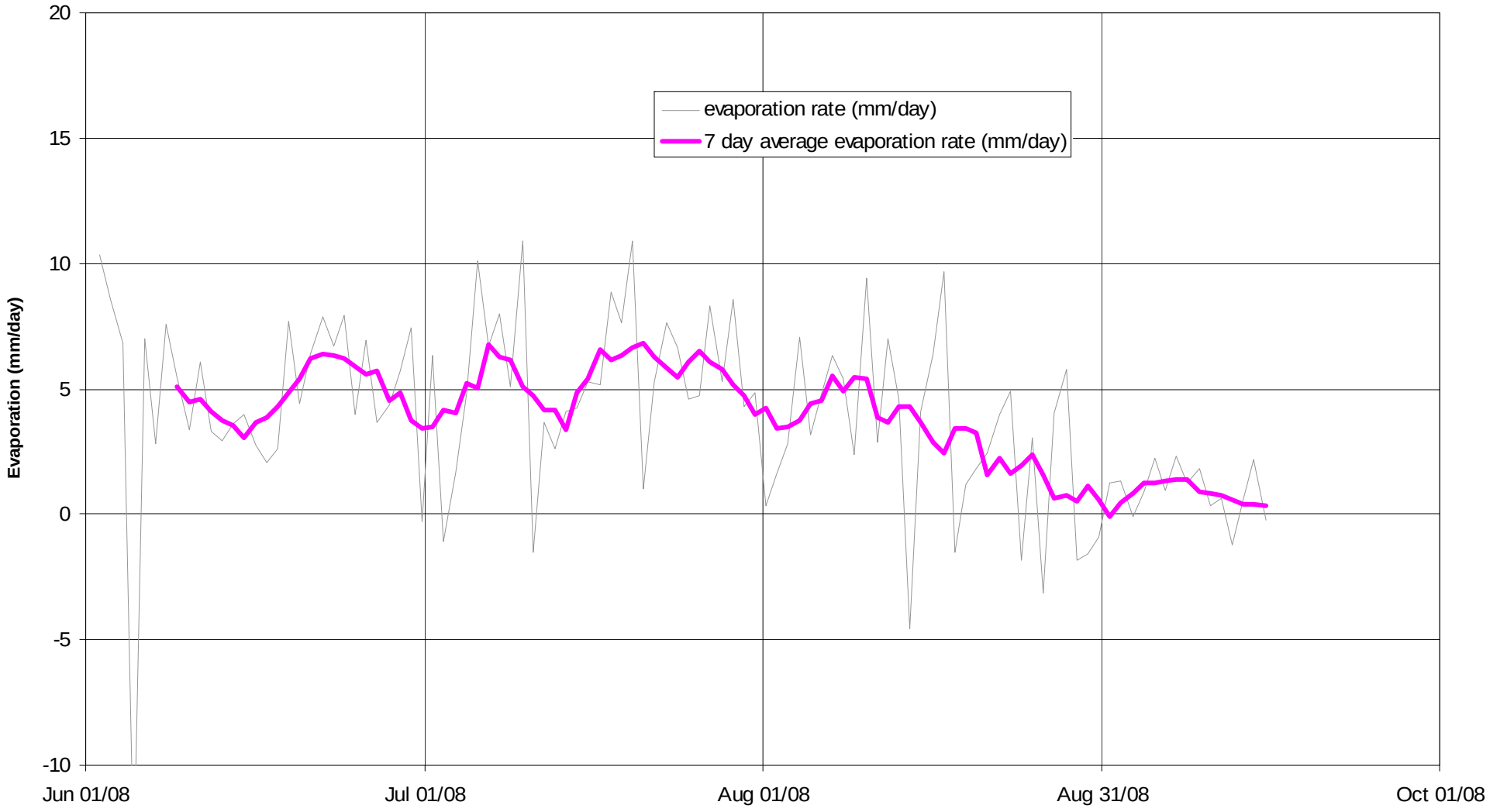
TYHEE NWT CORP.
YELLOWKNIFE GOLD PROJECT

Tyhee Station
Daily Water-Equivalent Precipitation
Period of Record

EBA Engineering Consultants Ltd.

PROJECT NO.	DWN	CKD	REV
Y22101057	TM	JAS	0
OFFICE	DATE		
EBA-VANC	July 2009		

Figure 3.13



NOTES

CLIENT

Tyhee NWT Corp

TYHEE NWT CORP.
YELLOWKNIFE GOLD PROJECT

Tyhee Station
Pan Evaporation
2008

EBA Engineering Consultants Ltd.

PROJECT NO.	DWN	CKD	REV
Y22101057	RED	JAS	0
OFFICE	DATE		
EBA-VANC	July 2009		

Figure 3.14

APPENDIX

APPENDIX A SITE DESCRIPTIONS

Site Identification:	**Site #1: Narrow Lake Outlet**	Installation Date:	July 17, 2005
Site GPS Coordinates:	North 63° 9' 16.4 "	Basin Area:	9.3 km²
	West 113° 57' 7.3" (NAD 27)		

1.0 STATION LOCATION

The station is located on the southwest end of Narrow Lake. It is about 10 m north of the winter road at the junction of the creek with the road. There are two small creeks, which flow out of Narrow Lake. Both creeks enter a small pond. A single creek flows out of this pond and for the first 50 m the flow is along a well-defined channel. The Narrow Lake outlet hydrometric Site #1 is located in this channel about 10 m downstream of the pond.

2.0 SITE DESCRIPTION

Two creeks flow southwest from Narrow Lake and merge again into a small pond. A single creek flows out of the southwest side of the pond. The creek bed is about 0.5 m below the typical bank elevation and is typically about 1 to 3 m in width. After approximately 100 m of defined creek channel, the channel disappears and the creek flow is diffuse in nature and in general, meanders through stunted growth of birch, pine trees, willow shrubs and long grass.

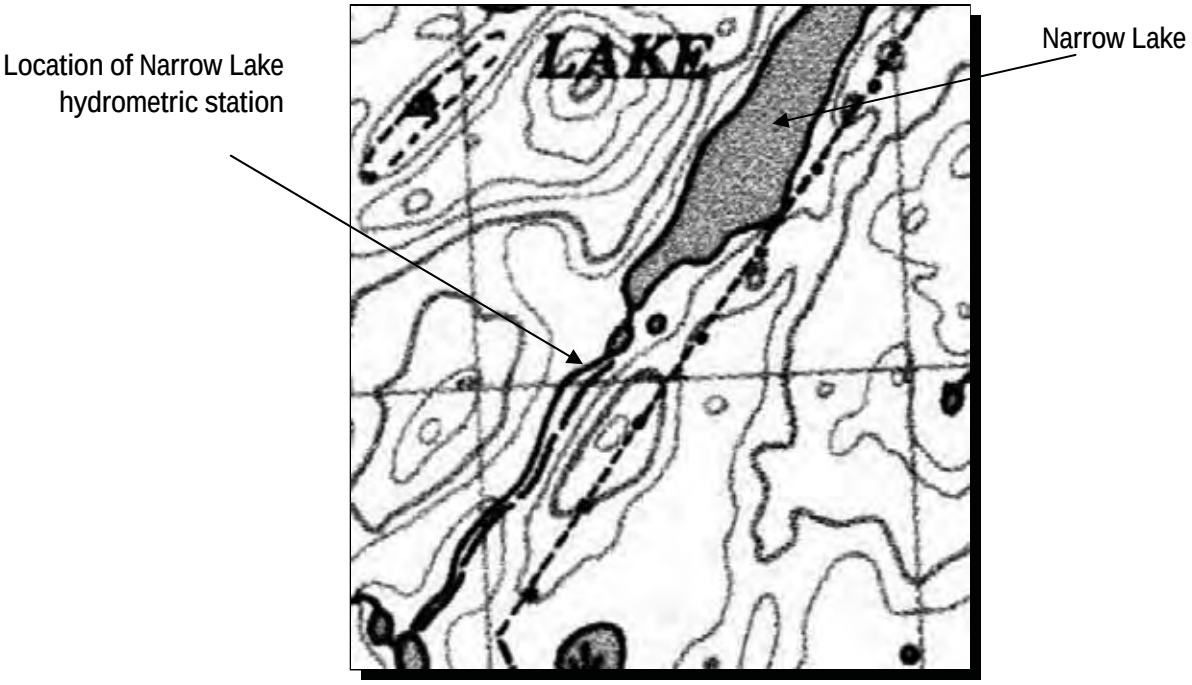
3.0 INSTRUMENTATION

The hydrometric station installed at this site includes a Parshall Flume, a water level and temperature sensor and a data logger which records data at 15 minute intervals. A staff gauge is located at the cross section where the creek is gauged, just upstream of the Parshall Flume.

4.0 SPECIFICATIONS

Equipment Specifications	
2434006	Pressure Transducer / Data Logger Serial Number
12.00 in	Parshall Flume Throat Diameter
0.07 psi	Parshall Flume Transducer Well Offset
0.159 psi	Transducer Zero Offset
690.917	Flume Calibration Algorithm Multiplier for ℓ/s discharge
1.522	Flume Calibration Algorithm Exponent

5.0 MAP OF NARROW LAKE OUTLET HYDROMETRIC STATION



6.0 SITE PHOTOGRAPHS

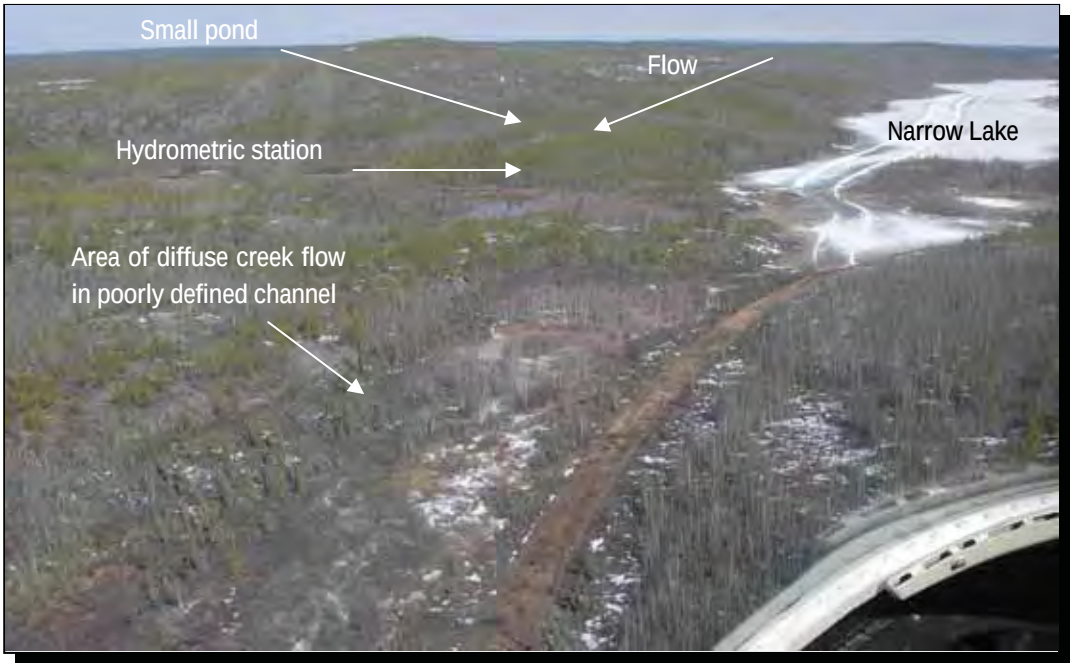


Photo 1
Aerial view looking upstream to the northeast to Narrow Lake

Photo 2
Parshall Flume – Narrow Lake Outlet Hydrometric Station Photo Caption

Photo 3
Parshall Flume – Narrow Lake Outlet Hydrometric Station (downstream)

7.0 STATION HISTORY

The Narrow Lake Outlet flow monitoring station was established shortly after the spring thaw in 2004. During the summer of 2004, a staff gauge was installed at the site and spot measurements of flow and stage were recorded manually.

- May 22, 2005 – an automated stage and temperature recorder was installed at this station. A survey monument was also installed at this site, to provide a known reference point, for elevation surveys of the site instrumentation. This station was removed from service on July 15, 2005 to accommodate site improvements.
- July 17, 2005 – the hydrometric station was upgraded by installing a Parshall flume.
- June 9, 2006 – the Parshall flume and bulkhead was inspected for damage or leakage. No problems were observed and the pressure transducer and data logger were reinstalled to collect discharge data over the summer of 2006.
- September 19, 2006 – the instrumentation was removed for the season.
- May 11, 2007 – instrumentation was re-installed to collect discharge data over the summer of 2007.
- June 10, 2007 – the Parshall flume and bulkhead was inspected damage or leakage. Leaks were plugged on both sides of flume. It was observed that during high flows, leaks may occur around the sides of the bulkhead.
- September 28, 2007 – the instrumentation was removed for the season.
- June 4, 2008 – the Parshall flume and bulkhead was inspected and there was no damage or leakage. Instrumentation re-installed for the summer and discharge measurements collected for flume calibration.
- July 29, 2008 – the Parshall flume and bulkhead was inspected and there was no damage or leakage. Flume calibrations data collected.
- September 26, 2008 – the instrumentation was removed for the season.

Site Identification:	**Site #3: Winter Lake Outlet**	Installation Date:	July 14, 2005
Site GPS Coordinates:	North 63° 10' 4.8 "	Basin Area:	5.5 km²
	West 113° 55' 38.5" (NAD 27)		

1.0 STATION LOCATION

The site is located between Narrow Lake to the southwest and Winter Lake to the northeast. The Winter Lake outlet is located on the northwest portion of Winter Lake about 10 m to the south of the winter road. The hydrometric station is located 60 m downstream from the outlet.

2.0 SITE DESCRIPTIONS

The creek flows along the south side of the winter road to the midway point between Winter and Narrow Lakes. Over this reach of the creek, the channel is typically 30 to 60 cm wide by 15 to 20 cm deep. Over the rest of the distance to Narrow Lake, the creek flows along a poorly defined diffuse route down the winter road and discharges to Narrow Lake.

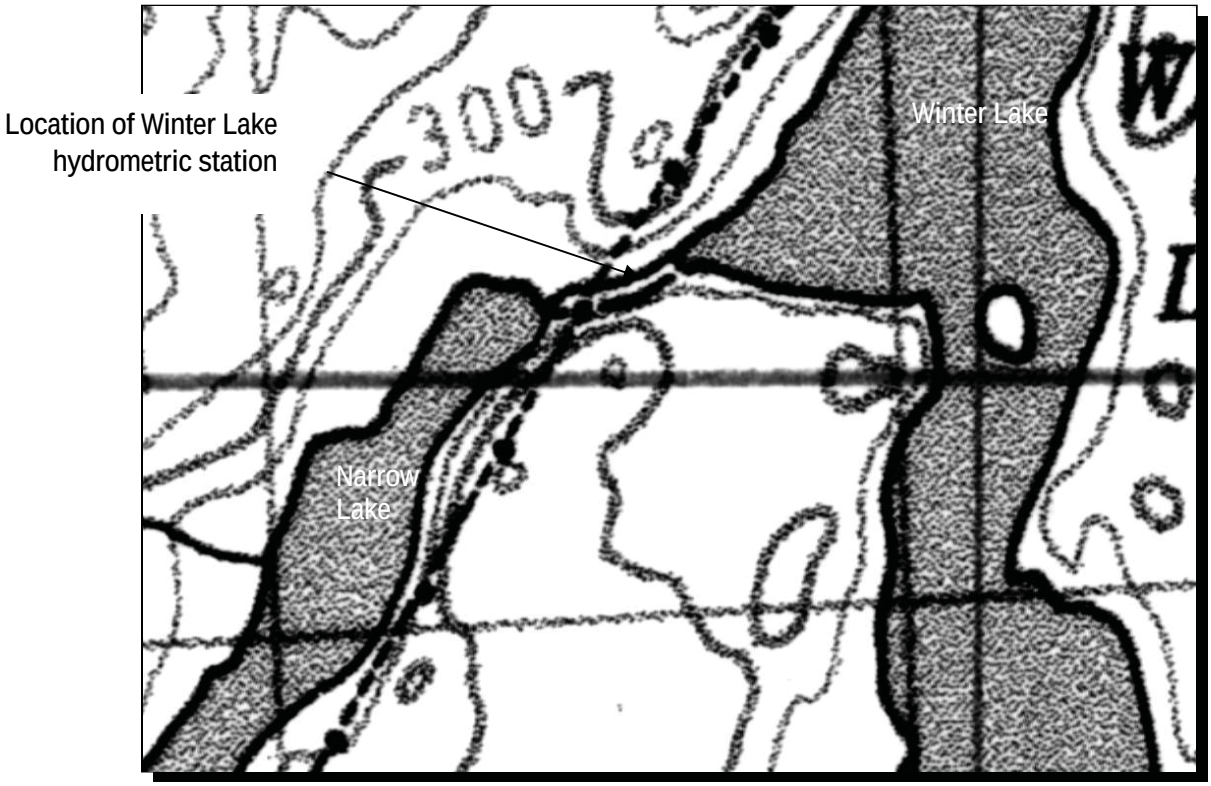
3.0 INSTRUMENTATION

The hydrometric station installed at this site includes a Parshall flume, a water level and temperature sensor and a data logger which records data at 15 minute intervals. A staff gauge is located at the cross section where the creek is gauged, just upstream of the Parshall Flume.

4.0 SPECIFICATIONS

Equipment Specifications	
2434007	Pressure Transducer / Data Logger Serial Number
9.00 in	Parshall Flume Throat Diameter
0.048 psi	Parshall Flume Transducer Well Offset
0.156 psi	Transducer Zero Offset
535.343	Flume Calibration Algorithm Multiplier
1.53	Flume Calibration Algorithm Exponent

5.0 MAP OF WINTER LAKE OUTLET HYDROMETRIC STATION



6.0 PHOTOGRAPHS OF WINTER LAKE OUTLET HYDROMETRIC STATION

Photo 1
Aerial view from Winter Lake looking southwest across site to Narrow Lake

7.0 SITE PHOTOGRAPH

Photo 2
Parshall Flume – Winter Lake Outlet Hydrometric Station (upstream)

8.0 STATION HISTORY

A site was selected for the Winter Lake hydrometric station on May 20, 2005 during the first hydrometric site visit of that year. Only manually determined discharges were recorded during the 2005 field survey. A Parshall flume was sized and ordered as well as the necessary hydrometric station instrumentation.

- July 14, 2005 - the hydrometric station was upgraded by installing a Parshall flume.
- June 9, 2006 - the Parshall flume and bulkhead was inspected for damage and leakage. No problems were observed and the pressure transducer and data logger were reinstalled to collect discharge data over the summer of 2006.
- September 19, 2006 - the instrumentation was removed for the season.
- May 19, 2007 – instrumentation was re-installed to collect discharge data over the summer of 2007.
- June 10, 2007 – the Parshall flume and bulkhead was inspected for damage and leakage. Leakage at higher flows around the flume was observed to be possible and attempts at repairs made. Next season further repairs to the flume construction are necessary to prevent further leakage and erroneous flow data.
- September 28, 2007 - the instrumentation was removed for the season.
- May 27, 2008 - the instrumentation was installed for the summer of 2008.
- June 3, 2008 - Leakage at higher flows around the flume was observed to be possible and attempts at repairs made. Plans made to completely overhaul the flume and bulkhead.
- July 29, 2008 – The flume and bulkhead were removed from the station and the flume and new bulkhead installed. The flume was installed approximately 10 cm lower than the previous installation to minimize potential backwater effects. Discharge data collected to check the calibration of the flume.
- September 26, 2008 - the instrumentation was removed for the season.

Site Identification:	**Site #4: Round Lake Outlet**	Installation Date:	July 18, 2005
Site GPS Coordinates:	North 63° 10' 30.3"	Basin Area:	1.2 km²
	West 113° 54' 27.2" (NAD 27)		

1.0 STATION LOCATION

The site is located between Winter Lake to the southwest and Round Lake to the east. The station is located on the north side of the winter road, 75 m northeast from the point the winter road intersects Round Lake. The flow outlet is situated on the northwest side of Round Lake.

2.0 SITE DESCRIPTIONS

There is no distinct flow channel out of Round Lake but rather a diffuse flow through the muskeg into a small marsh approximately 5 m downstream from the lake. The outlet from this marsh flows southwest into Winter Lake, typically as a vadose flow, through the muskeg and willow shrubs. At one point, about 25 m southwest of the Round Lake outlet, the flow is contained in a single channel. The hydrometric station was installed here.

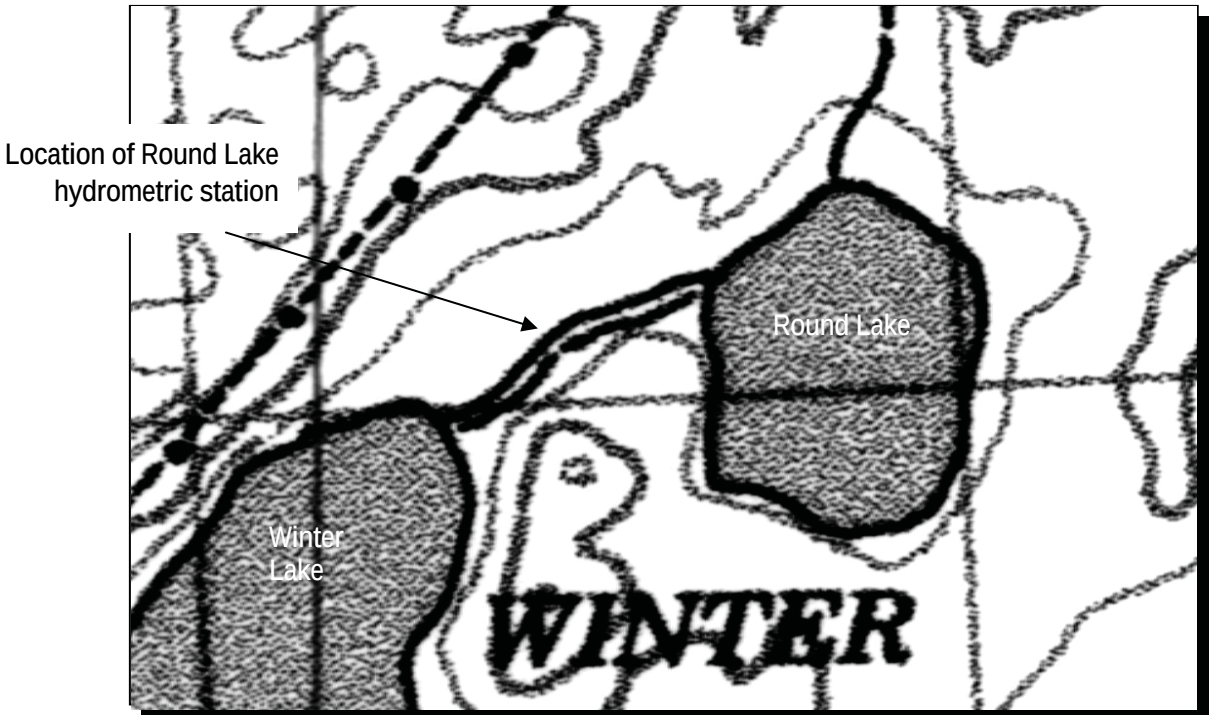
3.0 INSTRUMENTATION

The hydrometric station installed at this site includes a Parshall Flume, a water level and temperature sensor and a data logger which records data at 15 minute intervals. A staff gauge is located at the cross section where the creek is gauged, just upstream of the Parshall Flume.

4.0 SPECIFICATIONS

Equipment Specifications	
2516008	Pressure Transducer / Data Logger Serial Number
6.00 in	Parshall Flume Throat Diameter
0.049 psi	Parshall Flume Transducer Well Offset
0.214 psi	Transducer Zero Offset
381.206	Flume Calibration Algorithm Multiplier
1.580	Flume Calibration Algorithm Exponent

5.0 MAP OF ROUND LAKE OUTLET HYDROMETRIC STATION



6.0 PHOTOGRAPHS OF ROUND LAKE OUTLET HYDROMETRIC STATION

Photo 1
Aerial view from Round Lake southwest across site to Winter Lake

Photo 2
Parshall Flume – Round Lake Outlet Hydrometric Station (downstream)

7.0 STATION HISTORY

A site was selected for the Round Lake hydrometric station on May 21, 2005 during the first hydrometric site visit of that year. Only manually-determined discharges were recorded during this field survey.

- July 14, 2005 – the hydrometric station was upgraded by installing a Parshall flume.
- July 18, 2005 – a Parshall flume was installed and instrumented.
- September 12, 2005 – instrumentation was removed for the season.
- June 9, 2006 – the Parshall flume and bulkhead was inspected for damage or leakage. A leak in the bulkhead was repaired and the pressure transducer and data logger were reinstalled to collect discharge data over the summer of 2006.
- October 3, 2006 – the instrumentation was removed for the season.
- May 19, 2007 – instrumentation was re-installed to collect discharge data over the summer of 2007.
- June 11, 2007 – the Parshall flume and bulkhead was inspected for damage and leakage. The bulkhead needs repair work, as during high flows, leakage could occur around the sides, however at low flows, there is no apparent leakage.
- September 28, 2007 – the instrumentation was removed for the season.
- May 22, 2008 – the instrumentation was installed for the season.
- June 4, 2008 – the Parshall flume and bulkhead was inspected for damage and leakage. The bulkhead needs repair work and it is scheduled for the next field trip to site in July.
- July 29, 2008 – the Parshall flume and bulkhead was completely removed and the flume re-installed with a new bulkhead. Discharge measurements were collected to check flume calibration.
- September 26, 2008 – the instrumentation was removed for the season.

Site Identification:	**Site #6: Nicholas Lake Outlet**		Installation Date:	July 13, 2005
Site GPS Coordinates:	North	63° 15' 20.1"	Basin Area:	6.28 km²
	West	113° 46' 4.4" (NAD 27)		

1.0 STATION LOCATION

The site is located at the western end of the Northwest arm of Nicholas Lake just downstream of Nicholas Lake outlet. The discharge gauging station and staff gauge are located about 10 m downstream of the creek outlet at Nicholas Lake, in the open and well-defined channel. Five metres further downstream from the staff gauge, the hydrometric stage recorder housing is attached to a vertical rock face so that the sensor is submerged.

2.0 SITE DESCRIPTIONS

The creek exits in a well-defined bedrock channel. Within 30 m from the outlet of the lake, large boulders begin to occupy the streambed. Within 100 m of the outlet, boulders almost completely fill the creek channel, restricting the flow area. Flow occurs around and under the numerous boulders. There are only small areas where the flow is visible under the rock-filled channel. The rock-filled channel extends the rest of the length of the creek.

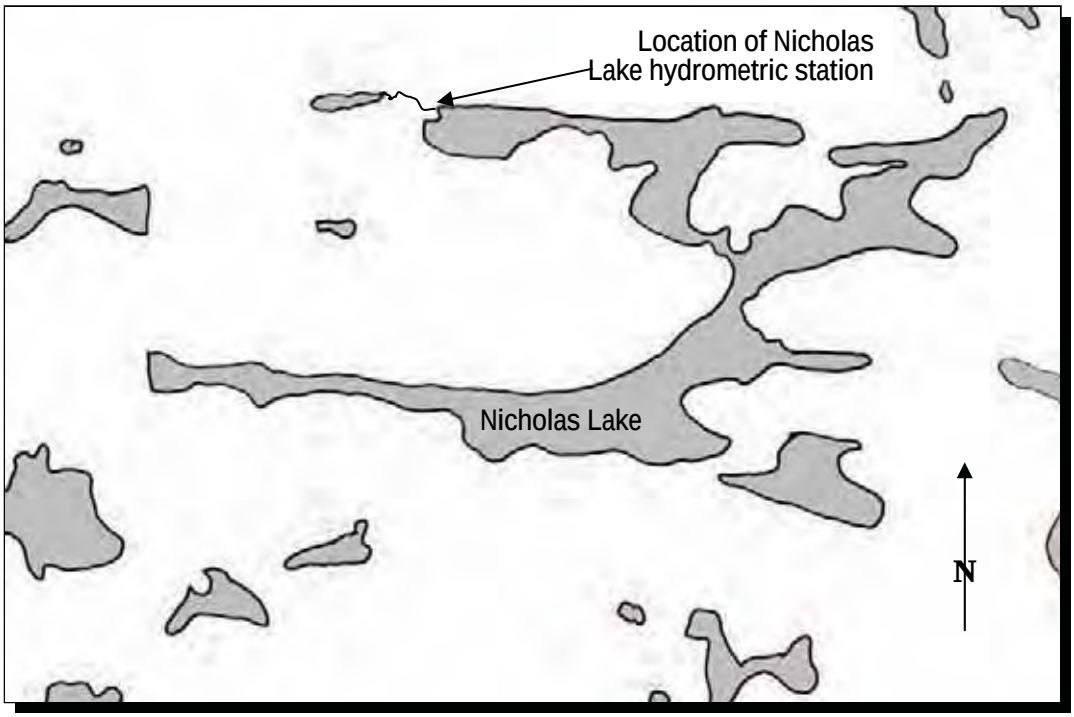
3.0 INSTRUMENTATION

The hydrometric station installed at this site includes a water level and temperature sensor and a data logger which records data at 15 minute intervals. A staff gauge is located at the cross section where the creek is gauged, just upstream of the station.

4.0 SPECIFICATIONS

Equipment Specifications	
2434009	Pressure Transducer / Data Logger Serial Number
1000.000 m	Sea level, benchmark elevation at the site (assumed)
997.707 m	Sea level, elevation of zero reading on staff gauge (assumed)
2.293 m	Difference in elevation from BM to staff gauge zero reading
2.356 m	Difference in elevation from BM to the pressure transducer
997.645 m	Transducer elevation (assumed)

5.0 MAP OF NICHOLAS LAKE OUTLET HYDROMETRIC STATION



Map 1
Nicholas Lake Hydrometric Station

6.0 PHOTOGRAPH OF NICHOLAS LAKE OUTLET HYDROMETRIC STATION

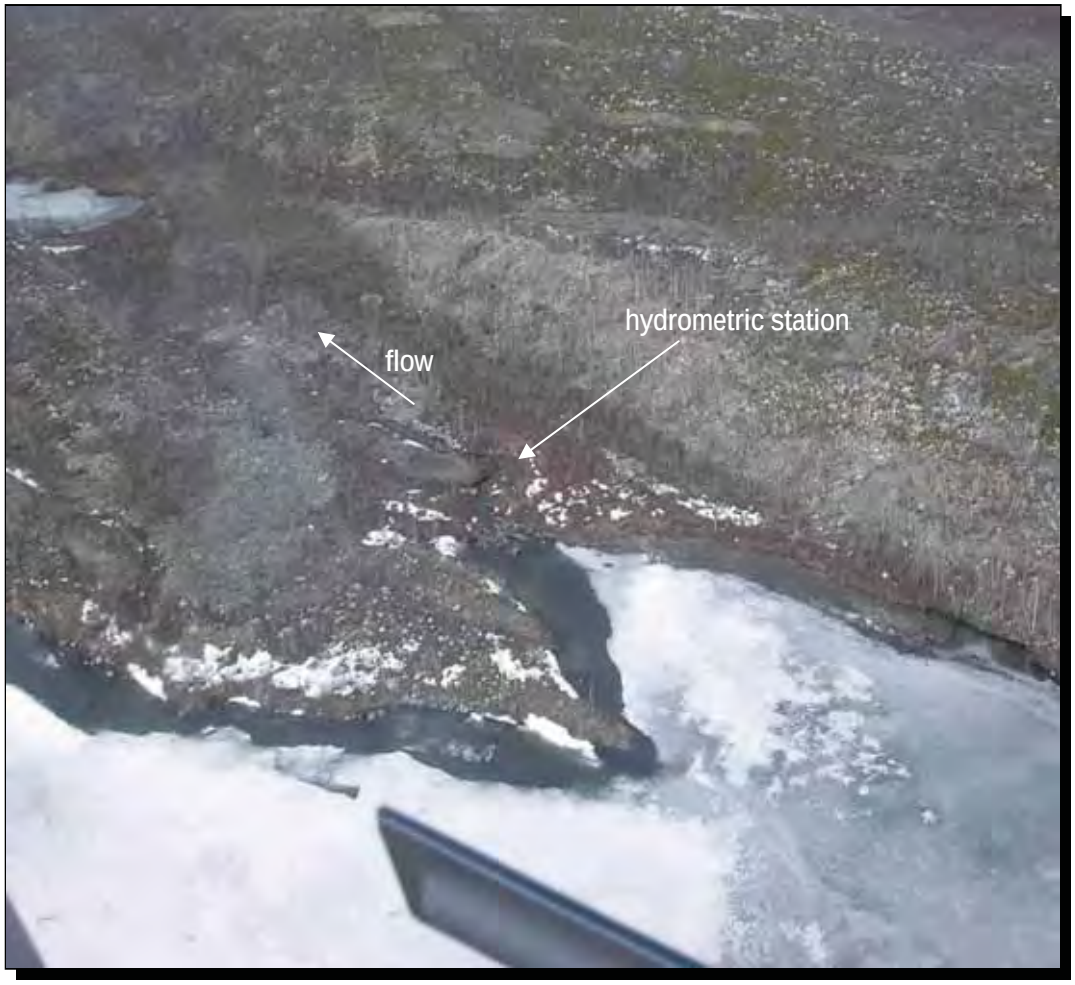


Photo 1
Arial view from Nicholas Lake northwest across site

7.0 SITE PHOTOGRAPHS

Photo 2
Staff gauge and discharge gauging station

Photo 3
Pressure transducer and data logger

8.0 STATION HISTORY

The Nicholas Lake Outlet flow monitoring station was established shortly after the spring thaw in 2004. A staff gauge was installed on the Nicholas Lake outlet on May 31, 2004, and spot measurements of flow and stage were recorded manually.

- July 13, 2005 – an automated stage and temperature recorder was installed at this station. A survey monument was also installed at this site, to provide a known reference point, for elevation surveys of the site instrumentation.
- September 13, 2005 – the instrumentation was removed for the season.
- Spring 2006 – Nicholas Lake Outlet was excluded from the hydrological study for 2006 and no flow data was collected.
- June 10, 2007 – Nicholas Lake Outlet was re-included into the hydrology study for 2007, and instrumentation was re-installed to collect discharge data over the summer of 2007.
- September 30, 2007 – the instrumentation was removed for the season.

Site Identification:	**Site #7: Tyhee**			Installation Date:	Sept 28, 2004
Site GPS Coordinates:	North	63° 11' 6.2"		Tower Height:	10 m
	West	113° 53' 40.2"	(NAD 27)	Site elevation above sea level: 300 m	
Magnetic Deviation:	22.83°	or TN=337.17°		North alignment pole set to 337.2 °	

1.0 STATION LOCATION

The station was installed at a site overlooking Giauque Lake to the east. It is located about 50 metres to the east of the north end of the Tyhee airstrip and just southeast of the old Discovery Mine site. The elevation of the station is 300 metres asl.

2.0 SITE DESCRIPTION

The weather station consists of a standard 10 metre meteorological tower with instrumentation to measure wind speed and direction, air temperature, relative humidity, barometric pressure, and incident solar radiation, an all-weather precipitation gauge and an evaporation pan. The station is powered by a 12 Vdc 8 Ahr battery with a 20-watt solar panel for charging. Data is recorded to a Campbell Scientific CR10X data logger. The data collection cycle is 5 seconds and the data is averaged over a 15 minute archiving period and saved to the logger memory. Station memory capacity exceeds one year of data at the current sampling rate.

3.0 INSTALLATION NOTES

The tower base supports are fixed to a 1 cubic metre block of concrete. The tower legs are bolted to the base supports. Three guy lines secure the top of the tower and prevent the tower from swaying under high winds. The wind anemometer is located near the top of the tower, just below the lightning rod. The remaining instrumentation is located near the base.

The precipitation gauge is located 5 metres southeast from the tower. It is mounted on a concrete slab to enable support of the tipping bucket rain gauge and the alter wind screen. The support table for the evaporation pan is located beside the precipitation gauge.

4.0 RECORDED DATA

The two tables below show examples of the data collected every 15 minutes, as well as a 24 hour summary of the daily maximums and minimums and information on the status of the data logger and the battery.

15 Minute Record

Date / Time	Wind Speed (m/s)	Wind Dir (degrees)	SD Wind dir (degrees)	Air Temp (°C)	Relative Humidity (%)	Barometric Pressure (hPa)	Precip-itation (mm)	Pyrano-meter (W/m²)
Sep. 21/07 11:00	2.947	290.5	10.28	-0.942	93.9	1008.9	0	98.2
Sep. 21/07 11:15	2.348	289.7	12.79	-0.884	94.1	1009	0.254	89.2
Sep. 21/07 11:30	2.369	300	10.36	-0.775	93.7	1008.8	0.508	120.6
Sep. 21/07 11:45	2.01	298.3	13.13	-0.547	92.6	1008.8	0	151.9

Daily Summary

	Speed	Daily Barometric Pressure			Precip-	Daily Relative humidity			Daily Air Temperature			Pyrano
	Max	Mean	Max	Min	atation	Mean	Max	Min	Mean	Max	Min	meter
Date	(m/s)	(hPa)	(hPa)	(hPa)	(mm/day)	(%)	(%)	(%)	(%)	(%)	(%)	(W/m²)
May 23/2007	8.02	1025	1027	1022	0.762	64.71	92.2	33.64	3.786	11.62	-3.771	915
May 24/2007	10.47	1019	1023	1015	0.508	49.53	76.5	32.49	9.47	16.51	-0.063	787
May 25/2007	11.39	1010	1015	1006	0.508	38.71	63.98	19.75	13.94	19.69	6.32	888
May 26/2007	7.9	1004	1006	1002	0.254	34.86	56.04	20.22	15.76	21.98	8.88	816

Internal Logger Temperature		Battery Voltage		Battery Voltage	Low		Watch
Max	Min	Min	Station	Min	12Vdc	Program	Dog
(°C)	(°C)	(Vdc)	ID	(Vdc)	Counts	Signature	Errors
12.72	-5.116	12.81	2	3.134	0	1168	0
17.29	-1.775	12.76	2	3.134	0	1168	0
20.28	4.066	12.74	2	3.134	0	1168	0
22.81	8.21	12.76	2	3.134	0	1168	0

5.0 METEOROLOGICAL STATION INSTRUMENTATION PARAMETERS

Instrument	Model	Measuring Range	Sensitivity/Accuracy
Wind Monitor	05103AP-10 R.M. Young	0 to 60 m/s 0 to 100 m/s gusts	Accuracy ±0.3 m/s Threshold wind = 1.0 m/s
		0 to 355 degrees	±1.4°
Relative Humidity /Air Temperature Probe	HMP45C212-L Vaisala	Relative Humidity 0.8 to 100% non-condensing	Accuracy at 20 °C ±2% RH (0-90% RH) ±3% RH (90-100% RH)
		Air Temperature -50° to +50°C	Accuracy at 20 °C ± 0.2 °C

Instrument	Model	Measuring Range	Sensitivity/Accuracy
Barometric Pressure Sensor	61205V R.M. Young	600 – 1100 hPa (mb)	±0.1 hPa (mb)
Pyranometer	CM3-L Kipp & Zonen	Spectral Waveband. 305-2800 nm	2.5% Non linearity (at 1000 W/m^2) 1.0% Non stability (% change/year)
All-Weather Precipitation Gauge	TE525WS CS705 Alter Screen 51	Each tip of the bucket is 0.254 mm of precipitation	<10 mm/hr ±1.0% 10-20 mm/hr -3.0% 20-30 mm/hr -5.0%

5.1 WIND SPEED AND DIRECTION MONITOR

The Model 05103-10-L wind speed and direction monitor is manufactured by R.M. Young. It is composed of a four-blade propeller mounted on a torpedo-shaped wind vane. Rotation of the propeller produces an alternating current with a frequency that is directly proportional to the wind speed. Wind direction is sensed by a potentiometer that is excited by an applied voltage. The potentiometer produces a voltage that is directly proportional to the azimuth angle. Wind data are collected every five seconds and the mean wind vector magnitude and direction are calculated and stored at 15-minute intervals. The standard deviation of wind direction is also computed and indicates the variability of wind direction over the archiving period.

5.2 TEMPERATURE AND RELATIVE HUMIDITY PROBE

The HMP25C212-L relative humidity and air temperature probe contains a Vaisala capacitive relative humidity sensor and a YSI 44212 thermistor. Both sensors are enclosed in a 10-plate gill radiation shield designed to shield the sensors from rainfall and solar radiation.

5.3 BAROMETRIC PRESSURE SENSOR

A 61205V barometric pressure sensor is enclosed inside the data logger housing. A hydrophobic filter and entry seal prevents moisture and insects from entering the housing, while allowing the inside of the housing to maintain atmospheric pressure.

5.4 PYRANOMETER

A pyranometer is a device used to measure incident solar radiation. The CM3 Kipp & Zonen pyranometer consists of a thermopile sensor coated with a black absorbent coating, which converts the incident solar radiation to heat. The resultant temperature difference is converted to a voltage by a copper-constantan thermocouple. The thermopile is encapsulated inside the pyranometer's glass dome such that it has a field of view of 180 degrees. It has a flat spectral sensitivity between 300 and 3000 nm.

5.5 ALL-WEATHER PRECIPITATION GAUGE

The all-weather precipitation gauge consists of 3 devices. These are a tipping bucket for the measurement of water equivalent precipitation, a precipitation adaptor to convert snowfall to water, and a device to ensure catchment of all snow and rainfall.

The TE525WS is an adaptation of the standard US Weather Bureau tipping bucket rain gauge. The output is a switch closure for each bucket tip. Each tip represents 0.254 mm of water equivalent precipitation.

To enable the TE525WS gauge to measure snowfall a CS705 precipitation adaptor is mounted on top of the tipping bucket rain gauge. The CS705 consists of a catch tube, antifreeze reservoir and overflow tube. Snow is captured in the catch tube and melts into the antifreeze solution contained in the reservoir and as the snow melts the level in the reservoir rises causing the water antifreeze mix to flow through the overflow tube onto the tipping bucket, thereby measuring the quantity of precipitation.

The Alter windscreen is to prevent snow and rain from blowing past the rain gauge catch tube during periods of high wind velocities. The Alter windscreen prevents strong updrafts and induces turbulence around the rain gauge catch tube. This aids in reducing airflow streams over the rain gauge resulting in better collection of precipitation during windy periods and, therefore, increasing the accuracy of the precipitation measurements.

5.6 DATA STORAGE

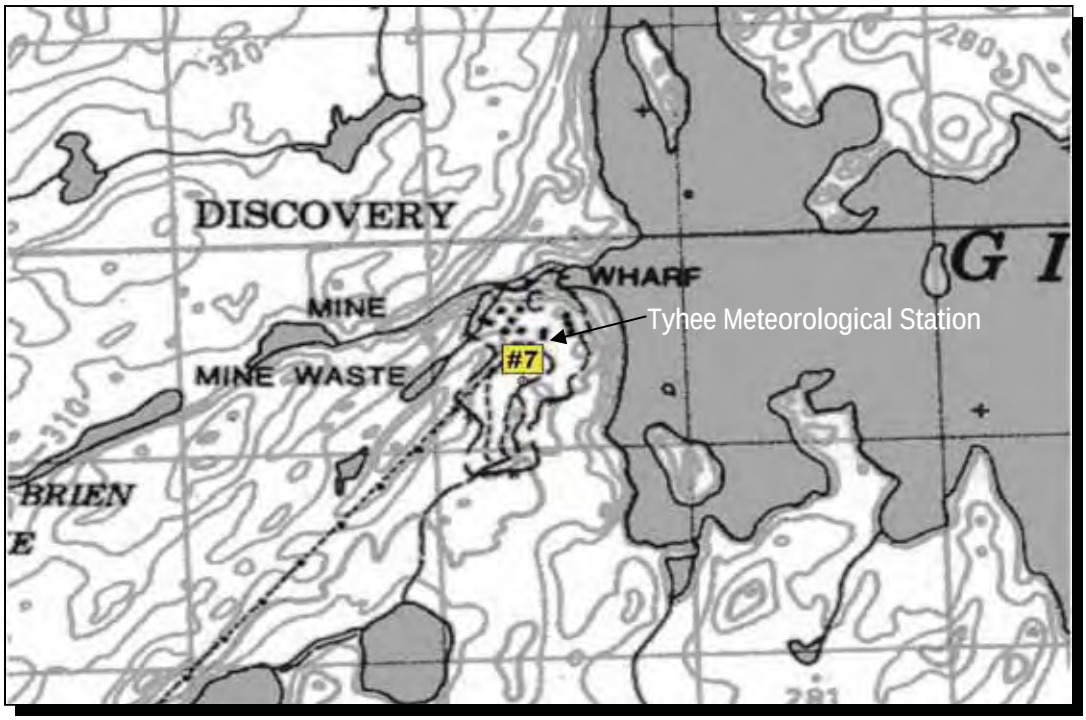
Data are recorded to a Campbell Scientific CR10X-2M data logger. The archiving interval for all parameters, except evaporation, is 15 minutes but this can be adjusted to suit specific data collection requirements. At a 15-minute sample frequency, the station will log up to one year of data before filling the memory. Meteorological data on all instruments are collected at 5-second intervals, then averaged over the archiving period and saved to the logger memory.

At the conclusion of each 24-hour period a daily summary of the meteorological data is saved to the logger memory. Other variables, which are indicative of the status of the meteorological station, such as battery power, internal temperatures and low voltage counts are also saved. Refer to the site description document in Appendix A for further information on the daily summary.

5.7 STATION POWER

The meteorological station is powered by a 12 V DC battery, a 20 watt solar panel and a charge regulator, all of which are attached to the 10 m tower. With this power configuration the station can run unattended for more than a year.

6.0 MAP OF TYHEE METEOROLOGICAL STATION



Map 1
Map of Tyhee Meteorological Station

7.0 PHOTOGRAPH OF WINTER LAKE OUTLET HYDROMETRIC STATION

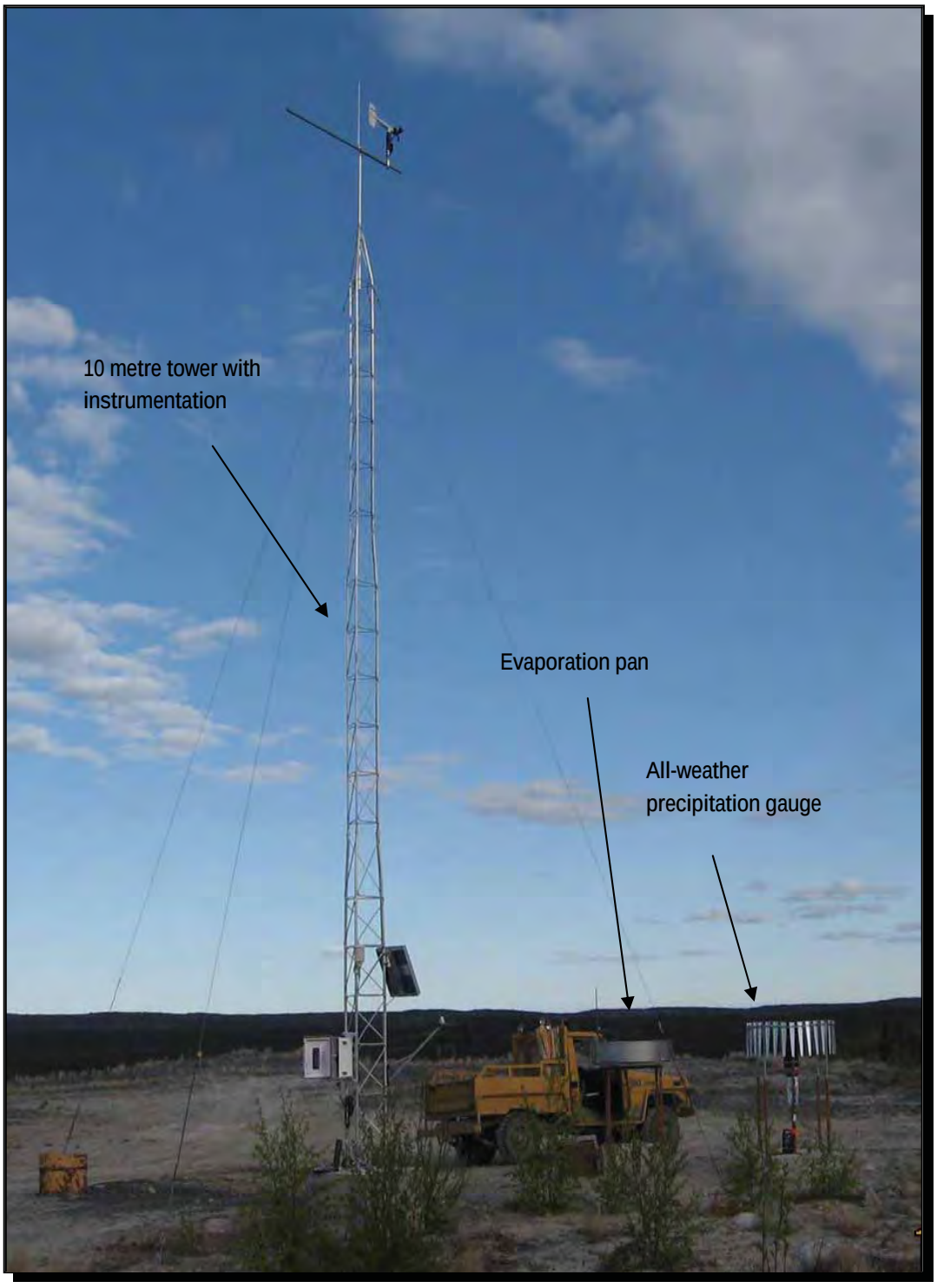
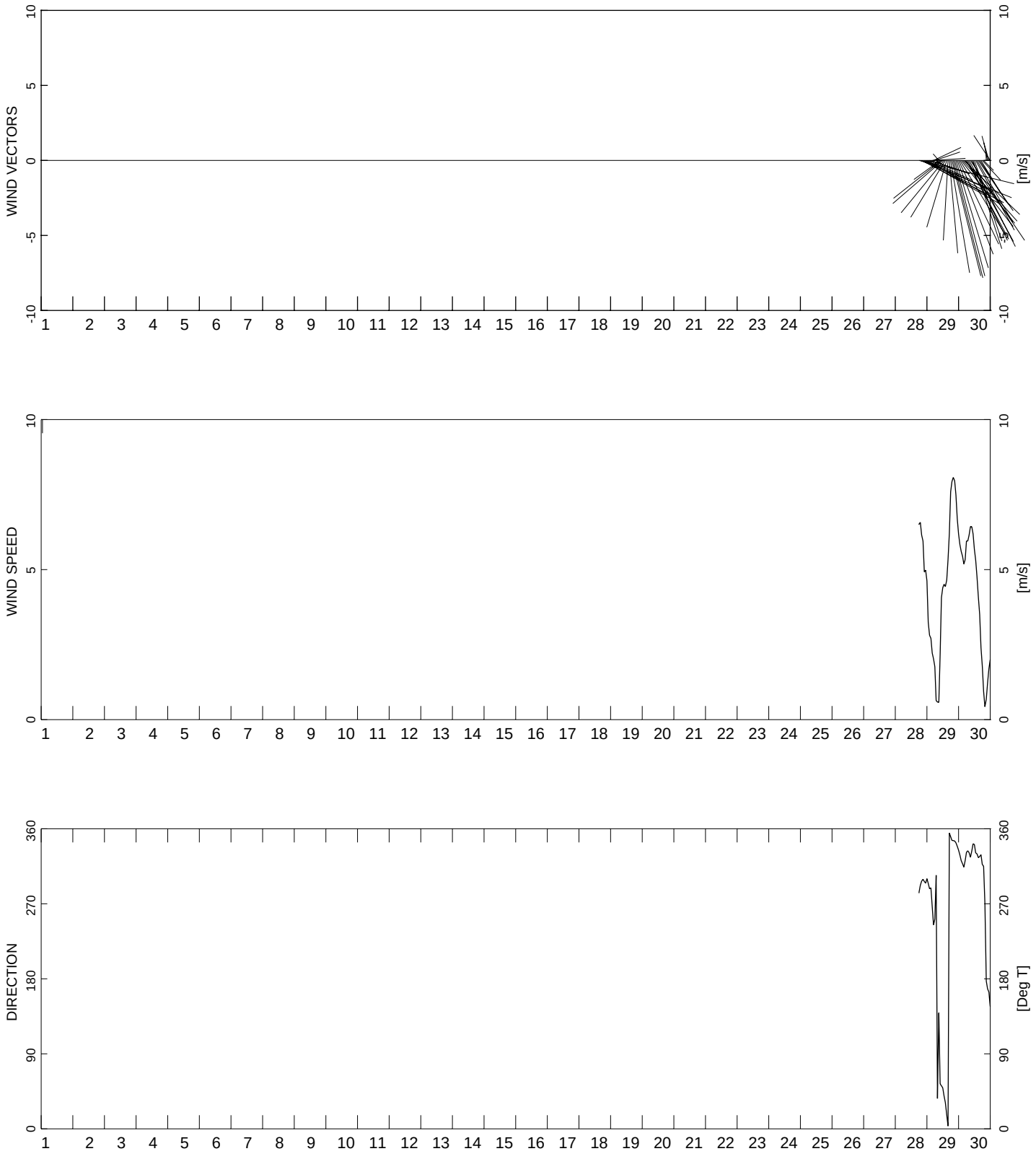


Photo 1
Site #7: View of the Tyhee Meteorological Station

APPENDIX

APPENDIX B MONTHLY WIND SUMMARIES – SEPTEMBER 2004 TO DECEMBER 2008



NOTES

CLIENT

Tyhee NWT Corp

EBA Engineering Consultants Ltd.

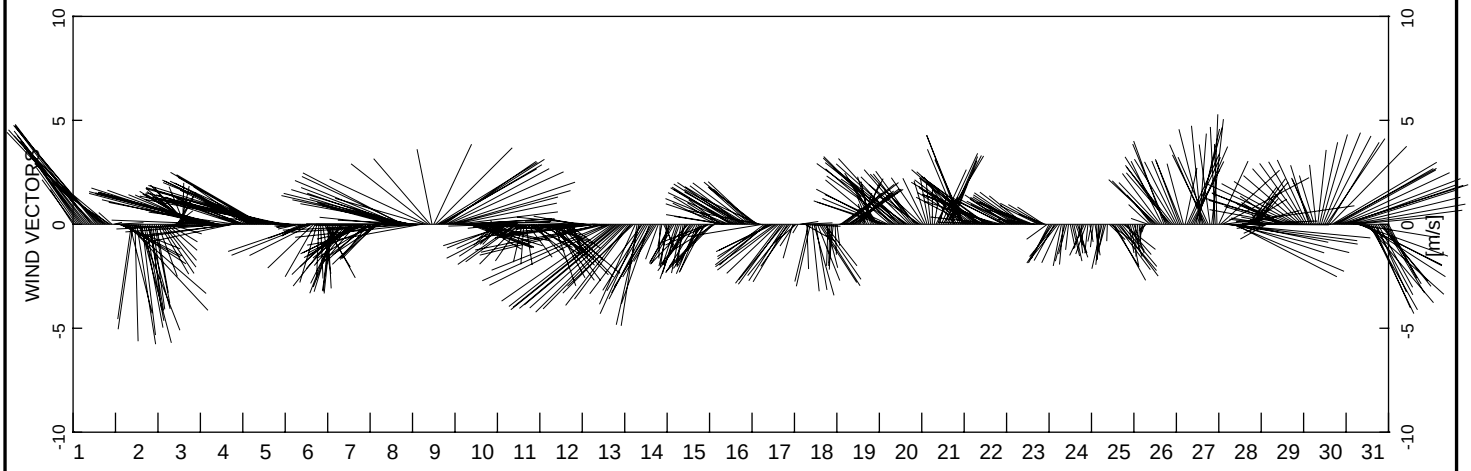
YELLOWKNIFE GOLD PROJECT
2008 HYDROMETEOROLOGICAL REPORT

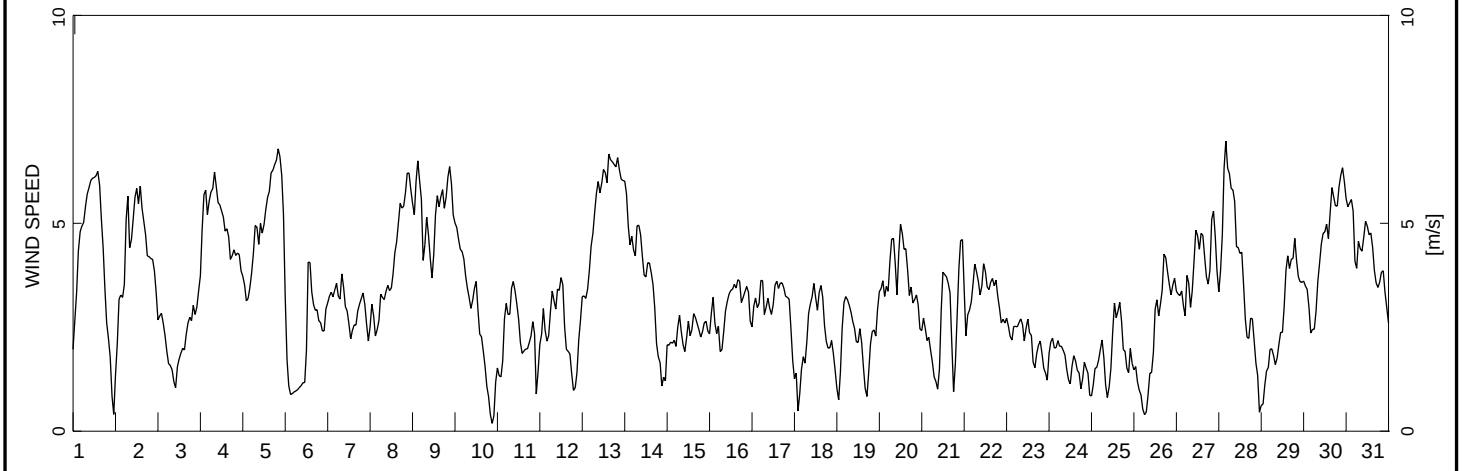
Tyhee Station
Wind Data
September 2004

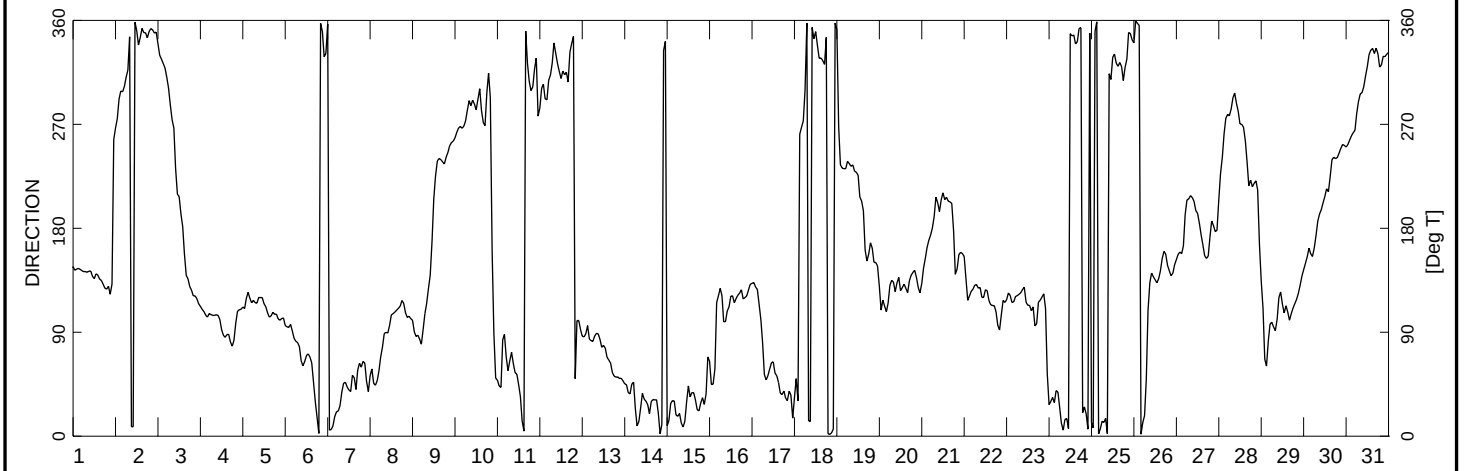
PROJECT NO.	DWN	CHK	REV
Y22101057	RED	JAS	0
OFFICE: EBA-VANC	DATE: July 2009		

Figure B-01

Wed Aug 05 10:41:28 2009:Q:\Vancouver\Engineering\V132\Projects\Y22101057- Tyhee_2008\Working\Meteorology\data_reduction_programs







NOTES

CLIENT

Tyhee NWT Corp

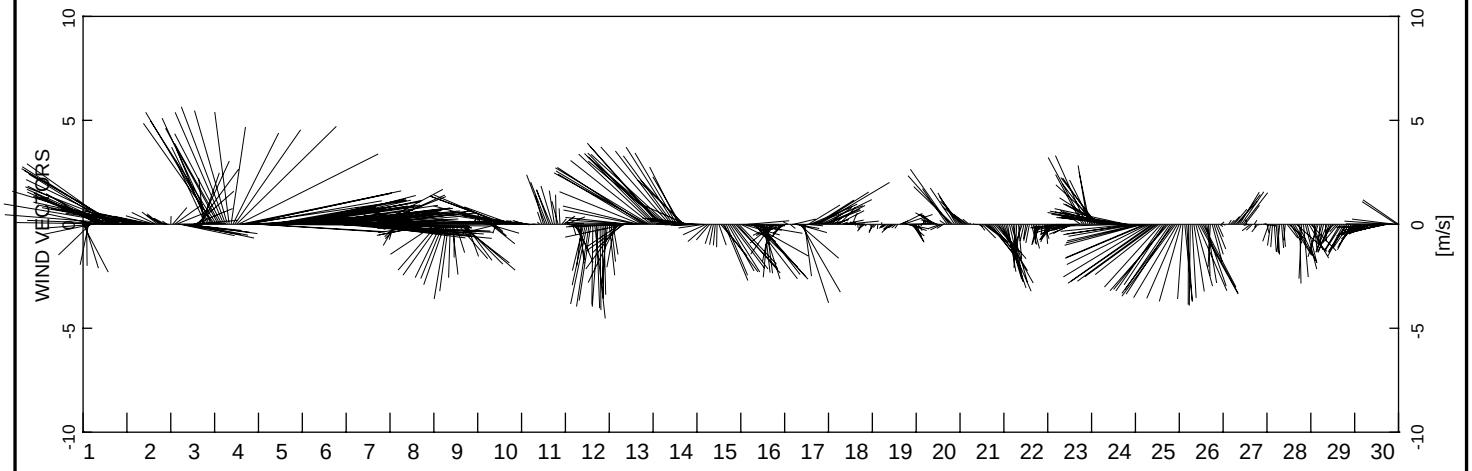
EBA Engineering Consultants Ltd.

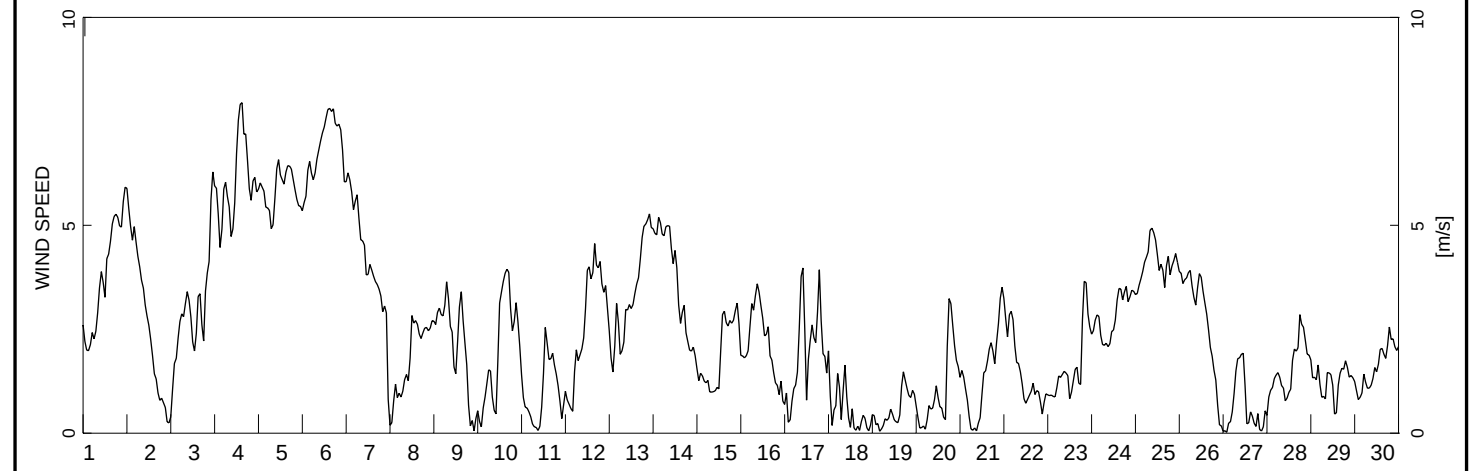
YELLOWKNIFE GOLD PROJECT
2008 HYDROMETEOROLOGICAL REPORT

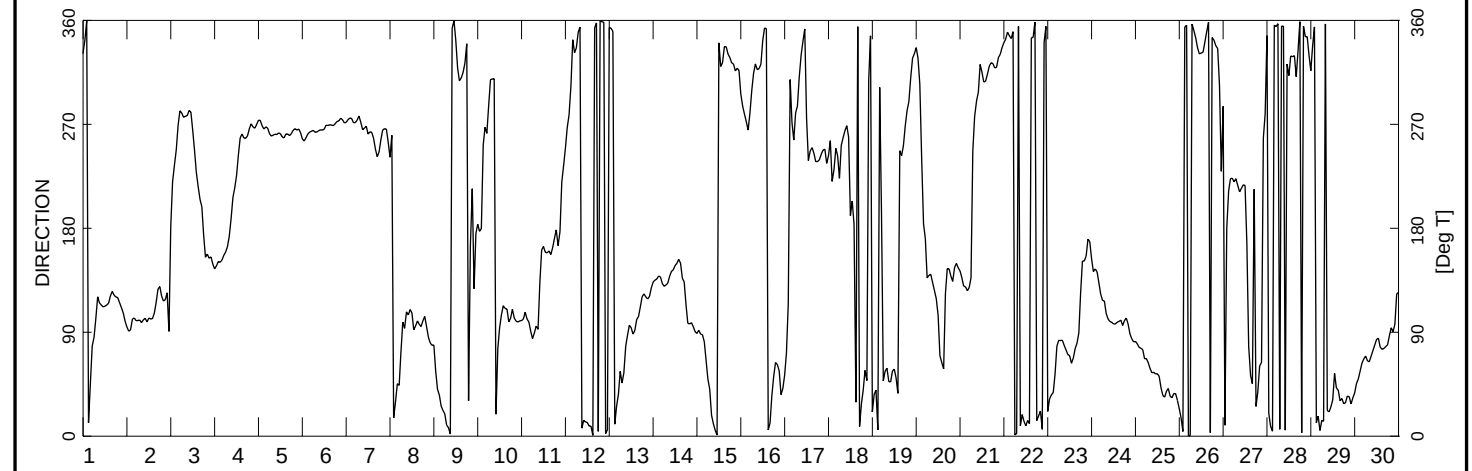
Tyhee Station
Wind Data
October 2004

PROJECT NO.	DWN	CHK	REV
Y22101057	RED	JAS	0
OFFICE: EBA-VANC	DATE: July 2009		

Figure B-02







NOTES

CLIENT

Tyhee NWT Corp

EBA Engineering Consultants Ltd.

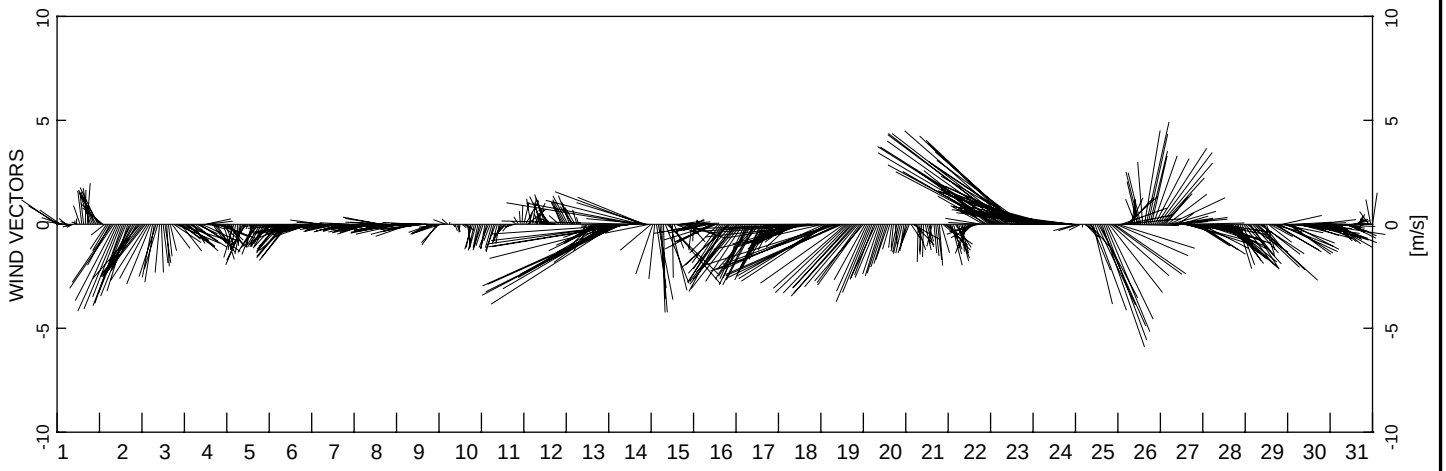
YELLOWKNIFE GOLD PROJECT
2008 HYDROMETEOROLOGICAL REPORT

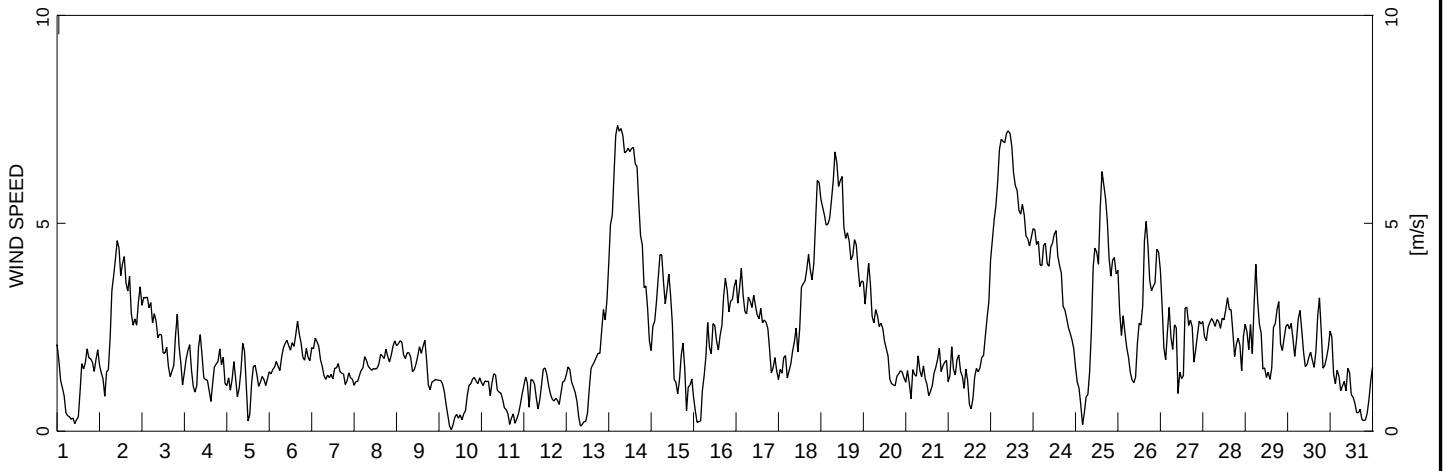
Tyhee Station
Wind Data
November 2004

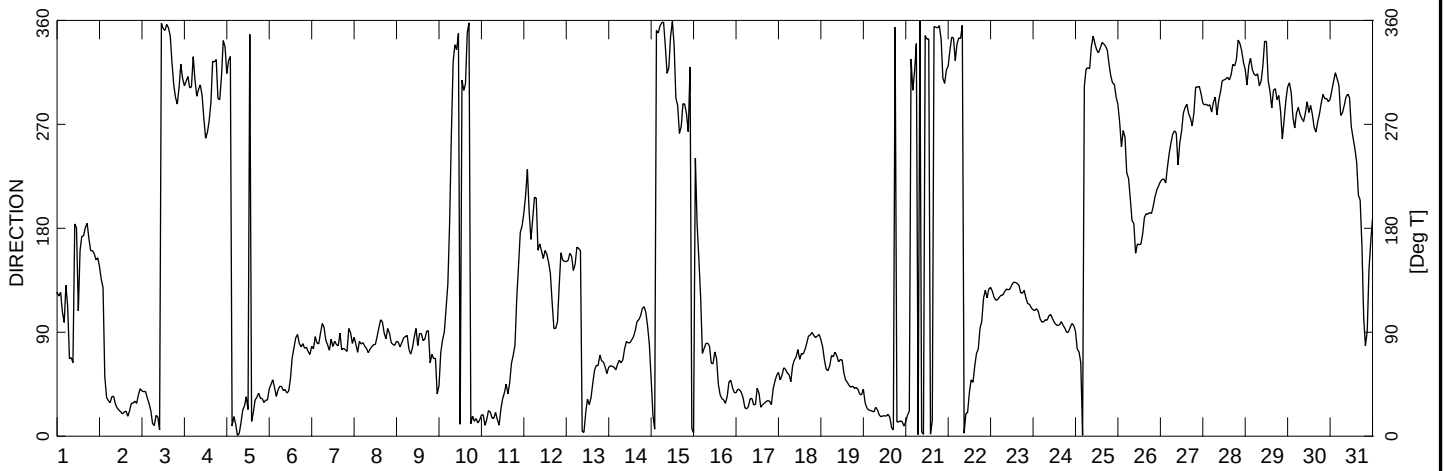
PROJECT NO.	DWN	CHK	REV
Y22101057	RED	JAS	0
OFFICE: EBA-VANC	DATE: July 2009		

Figure B-03

Wed Aug 05 10:41:30 2009:Q:\Vancouver\Engineering\V132\Projects\Y22101057- Tyhee_2008\Working\Meteorology\data_reduction_programs







NOTES

CLIENT

Tyhee NWT Corp

EBA Engineering Consultants Ltd.

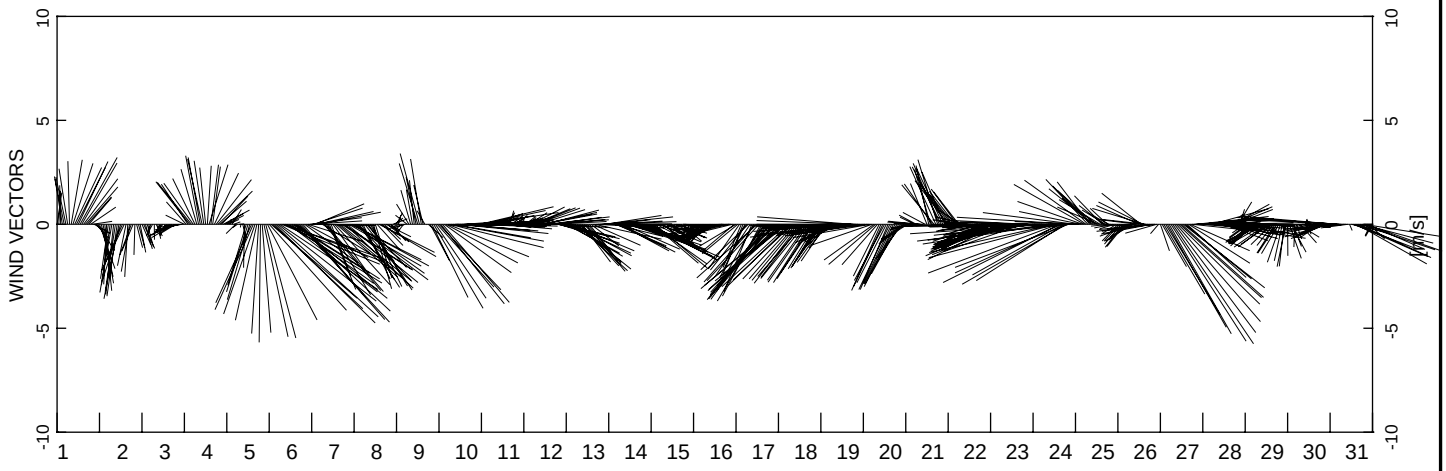
YELLOWKNIFE GOLD PROJECT
2008 HYDROMETEOROLOGICAL REPORT

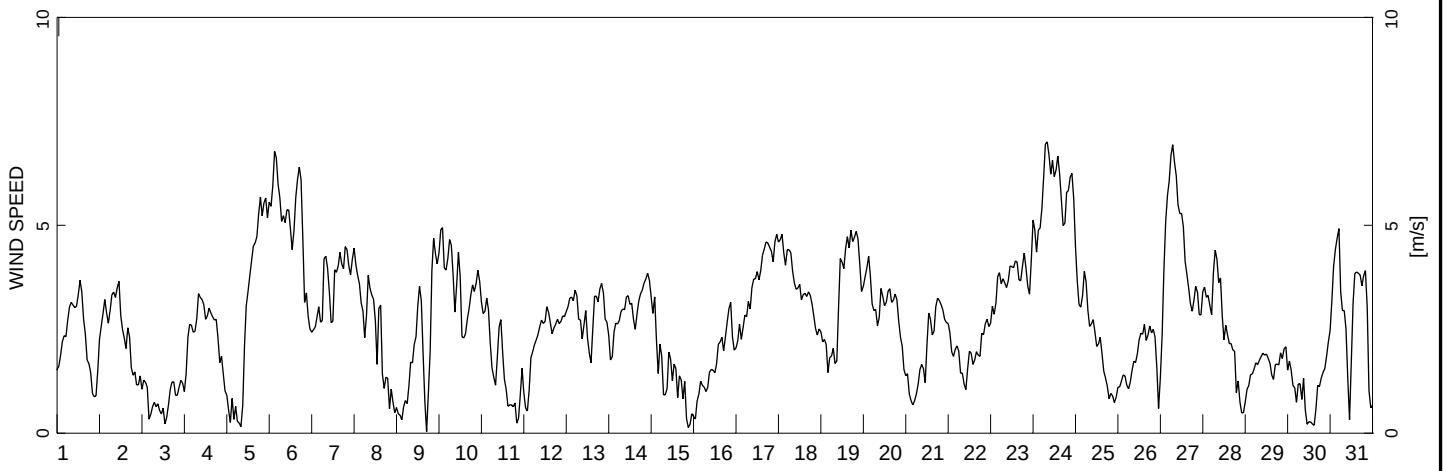
Tyhee Station
Wind Data
December 2004

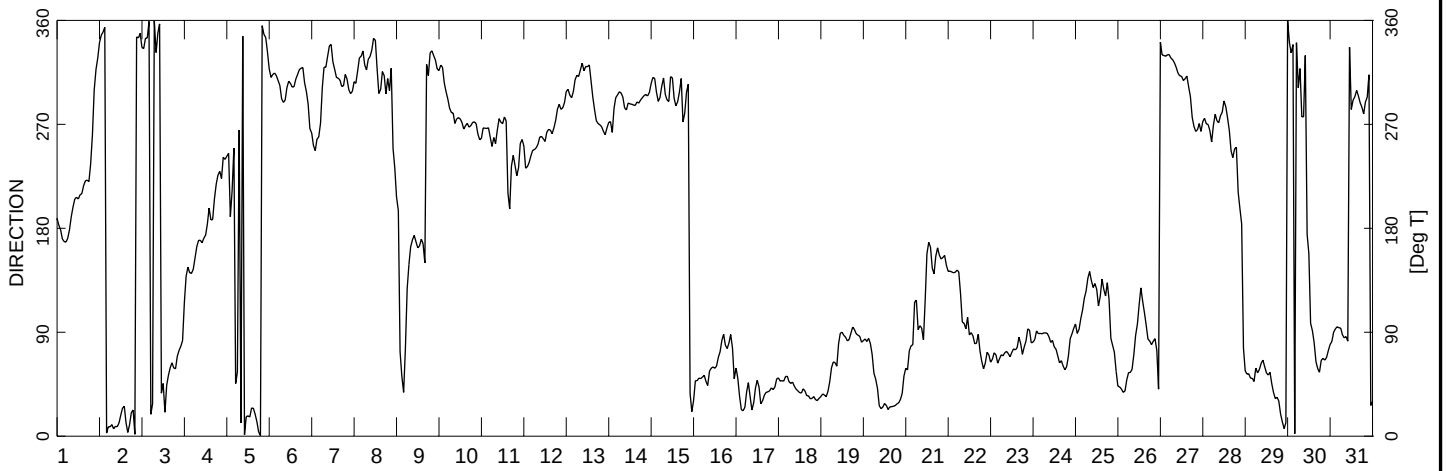
PROJECT NO.	DWN	CHK	REV
Y22101057	RED	JAS	0
OFFICE: EBA-VANC	DATE: July 2009		

Figure B-04

Wed Aug 05 10:41:32 2009:Q:\Vancouver\Engineering\V132\Projects\Y22101057- Tyhee_2008\Working\Meteorology\data_reduction_programs







NOTES

CLIENT

Tyhee NWT Corp

YELLOWKNIFE GOLD PROJECT
2008 HYDROMETEOROLOGICAL REPORT

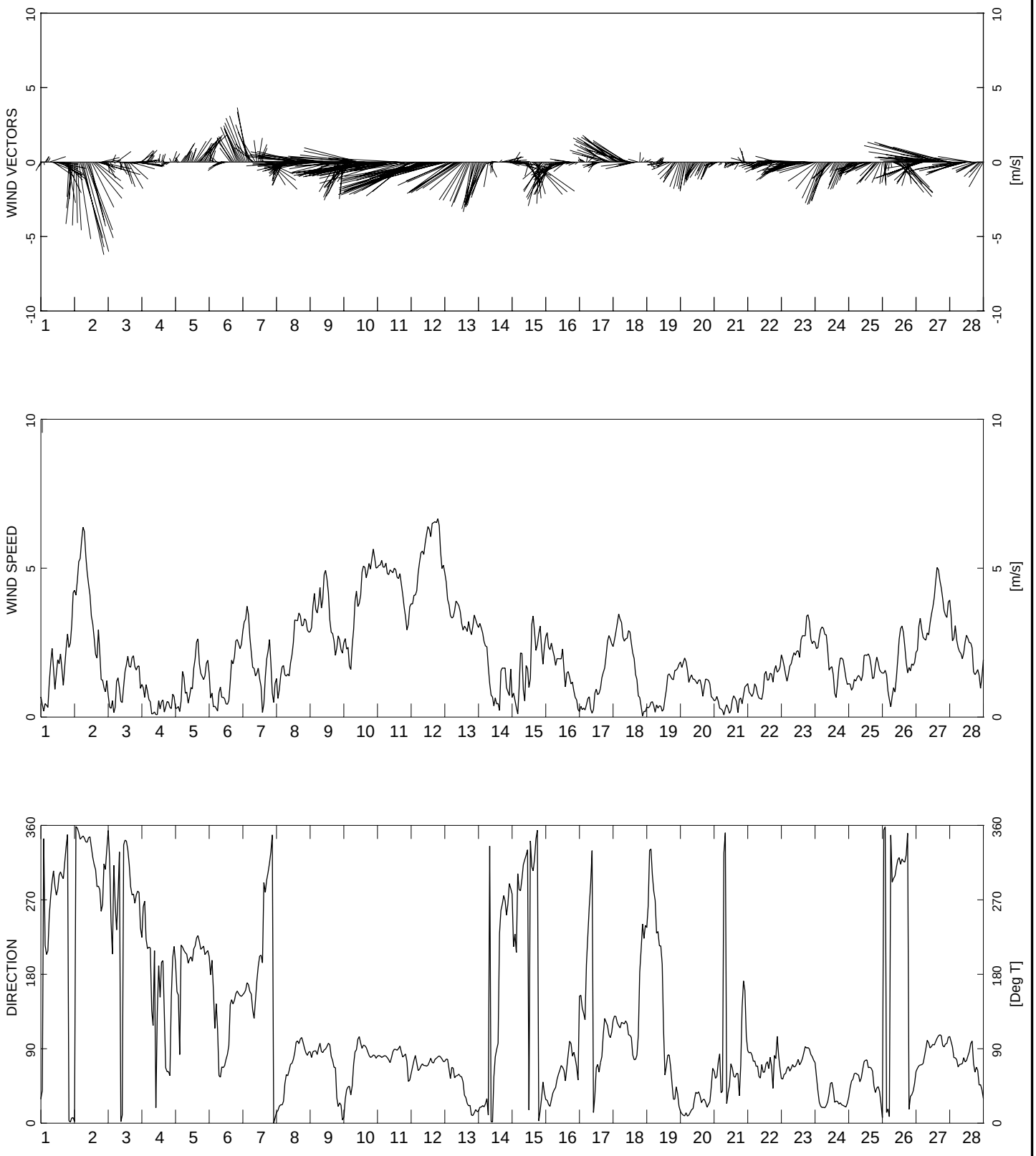
Tyhee Station
Wind Data
January 2005

EBA Engineering Consultants Ltd.

PROJECT NO.	DWN	CHK	REV
Y22101057	RED	JAS	0
OFFICE: EBA-VANC	DATE: July 2009		

Figure B-05

Wed Aug 05 10:44:18 2009:Q:\Vancouver\Engineering\V132\Projects\Y22101057- Tyhee_2008\Working\Meteorology\data_reduction_programs



NOTES

CLIENT

Tyhee NWT Corp

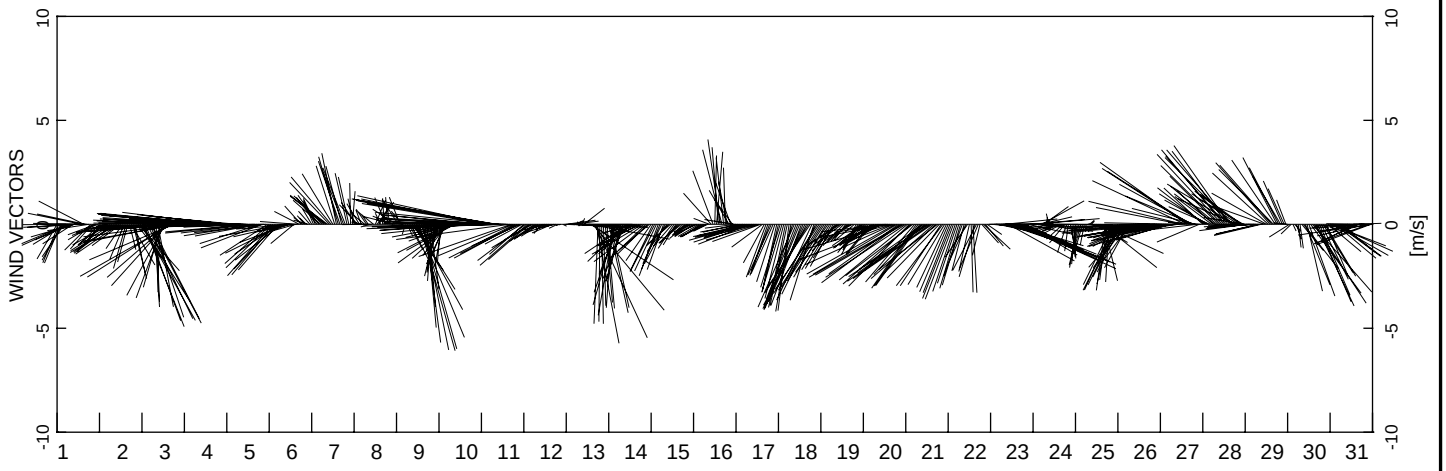
EBA Engineering Consultants Ltd.

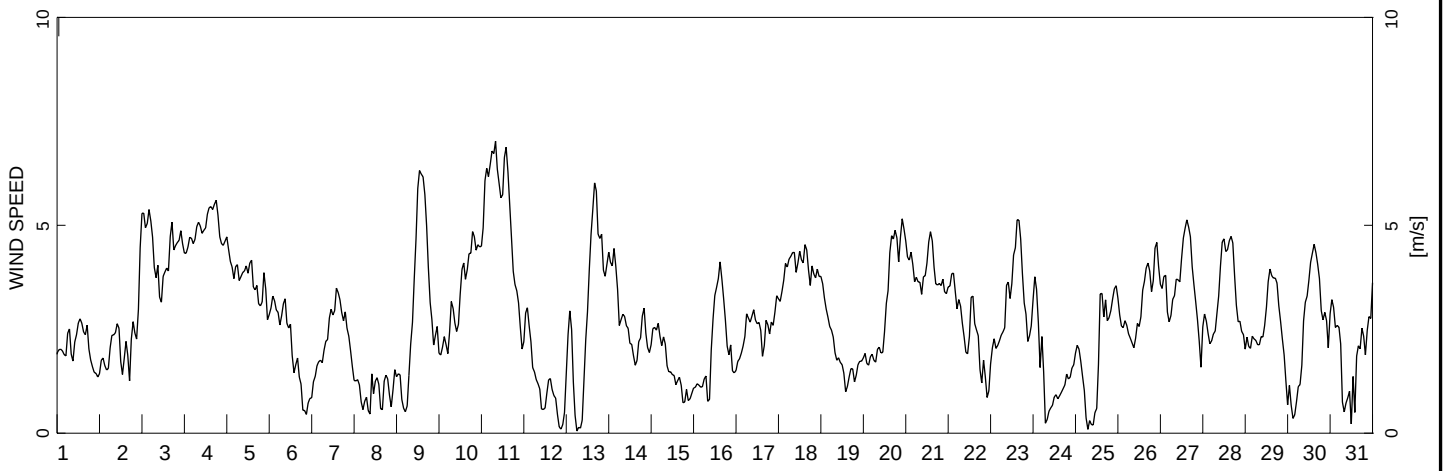
YELLOWKNIFE GOLD PROJECT
2008 HYDROMETEOROLOGICAL REPORT

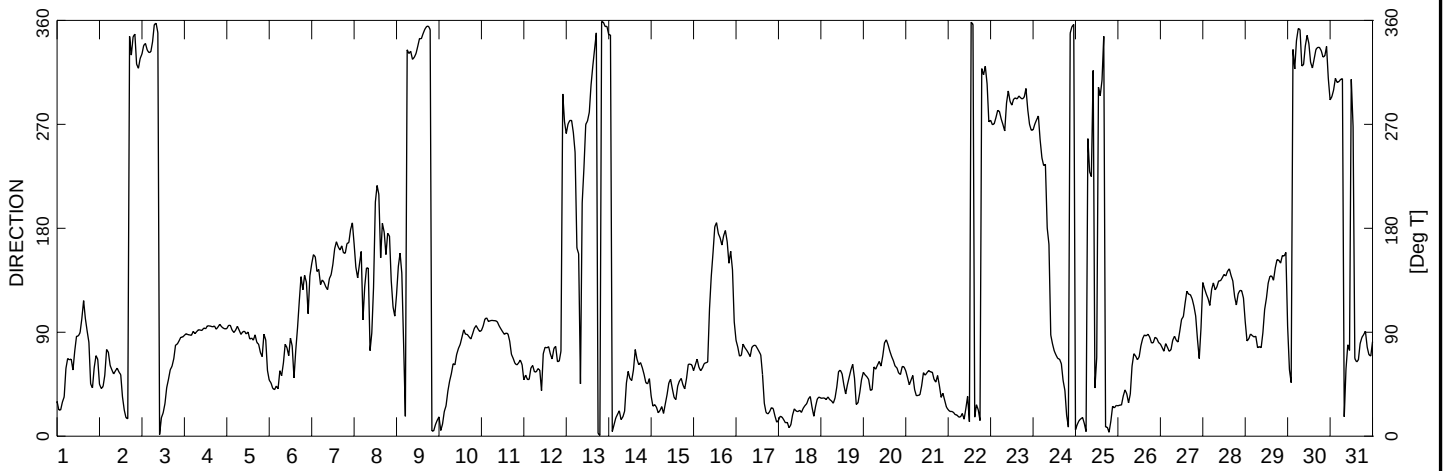
Tyhee Station
Wind Data
February 2005

PROJECT NO.	DWN	CHK	REV
Y22101057	RED	JAS	0
OFFICE: EBA-VANC	DATE: July 2009		

Figure B-06







NOTES

CLIENT

Tyhee NWT Corp

YELLOWKNIFE GOLD PROJECT
2008 HYDROMETEOROLOGICAL REPORT

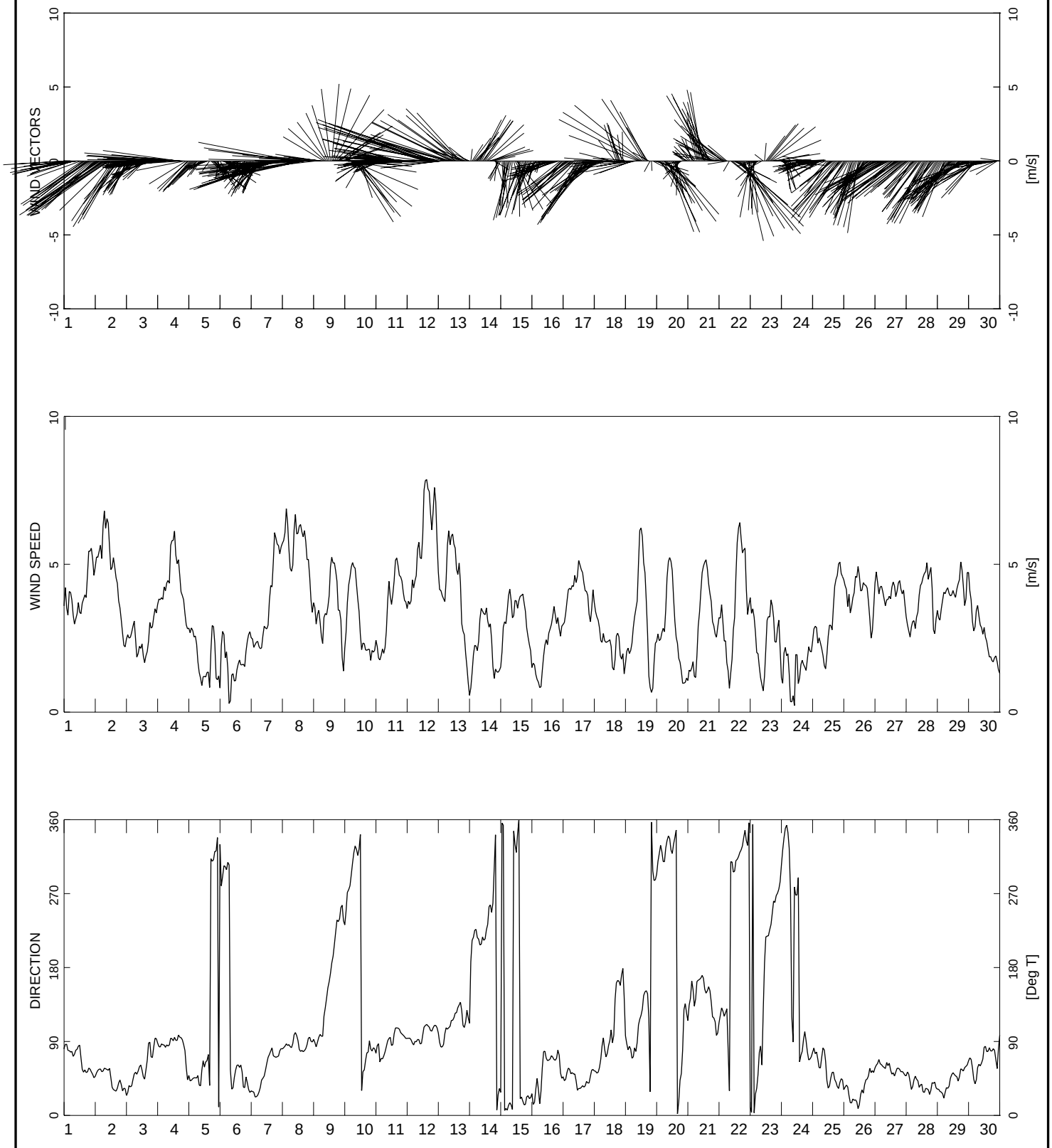
Tyhee Station
Wind Data
March 2005

EBA Engineering Consultants Ltd.

PROJECT NO.	DWN	CHK	REV
Y22101057	RED	JAS	0
OFFICE: EBA-VANC	DATE: July 2009		

Figure B-07

Wed Aug 05 10:44:22 2009:Q:\Vancouver\Engineering\V132\Projects\Y22101057- Tyhee_2008\Working\Meteorology\data_reduction_programs



NOTES

CLIENT

Tyhee NWT Corp

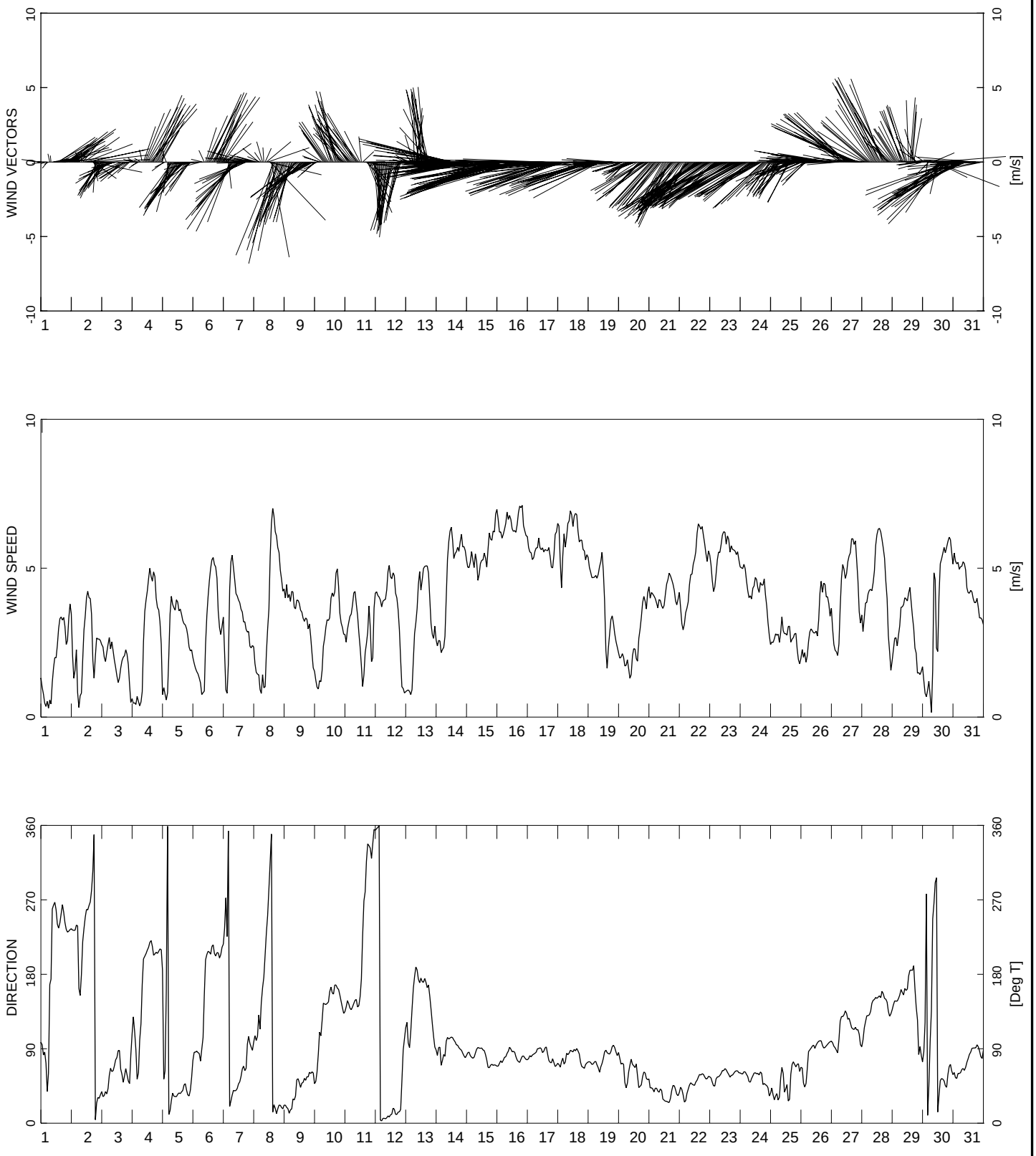
EBA Engineering Consultants Ltd.

YELLOWKNIFE GOLD PROJECT
2008 HYDROMETEOROLOGICAL REPORT

Tyhee Station
Wind Data
April 2005

PROJECT NO.	DWN	CHK	REV
Y22101057	RED	JAS	0
OFFICE: EBA-VANC	DATE: July 2009		

Figure B-08



NOTES

CLIENT

Tyhee NWT Corp

YELLOWKNIFE GOLD PROJECT
2008 HYDROMETEOROLOGICAL REPORT

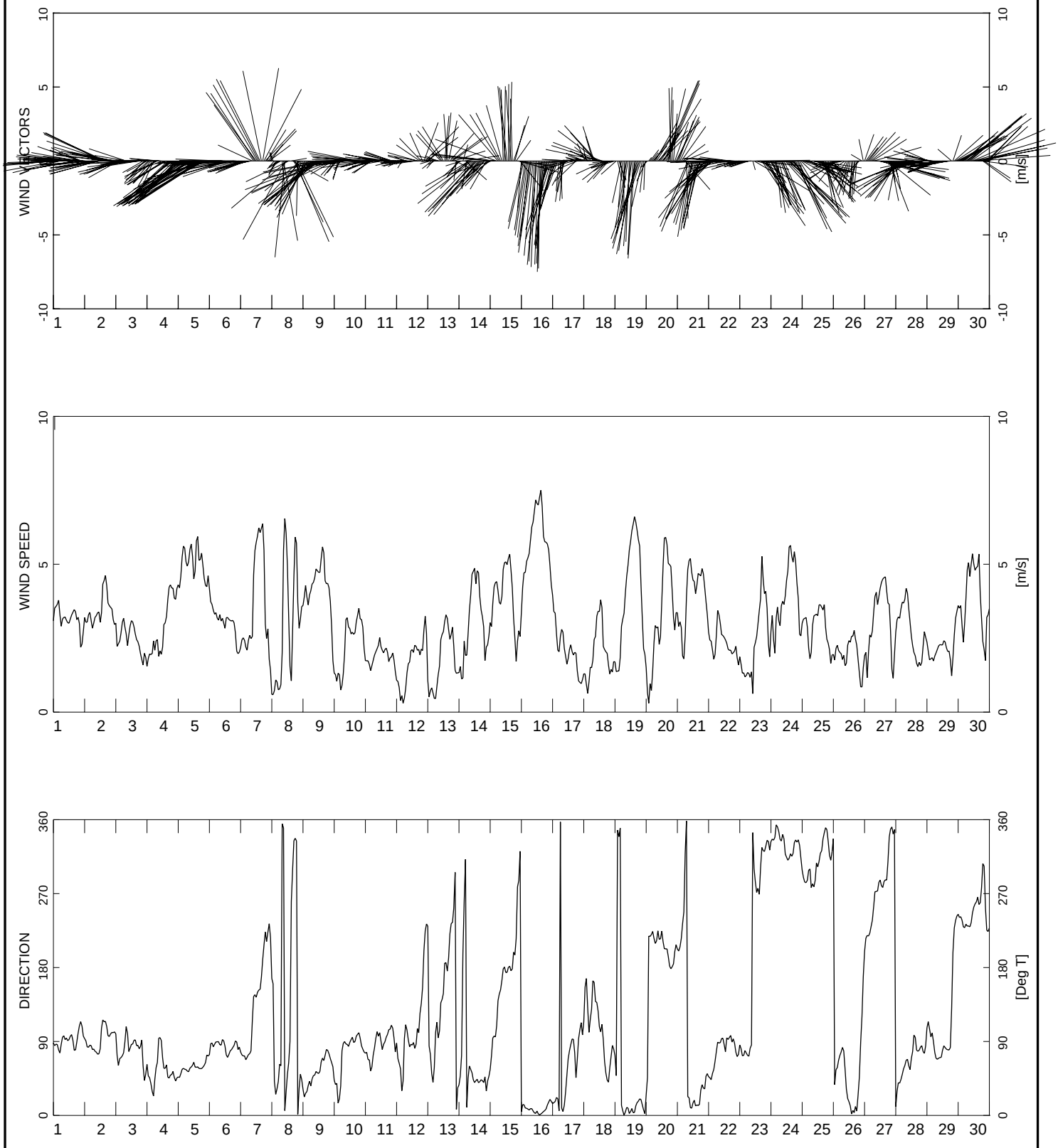
Tyhee Station
Wind Data
May 2005

EBA Engineering Consultants Ltd.

PROJECT NO.	DWN	CHK	REV
Y22101057	RED	JAS	0
OFFICE: EBA-VANC	DATE: July 2009		

Figure B-09

Wed Aug 05 10:44:25 2009:Q:\Vancouver\Engineering\V132\Projects\Y22101057- Tyhee_2008\Working\Meteorology\data_reduction_programs



NOTES

CLIENT

Tyhee NWT Corp

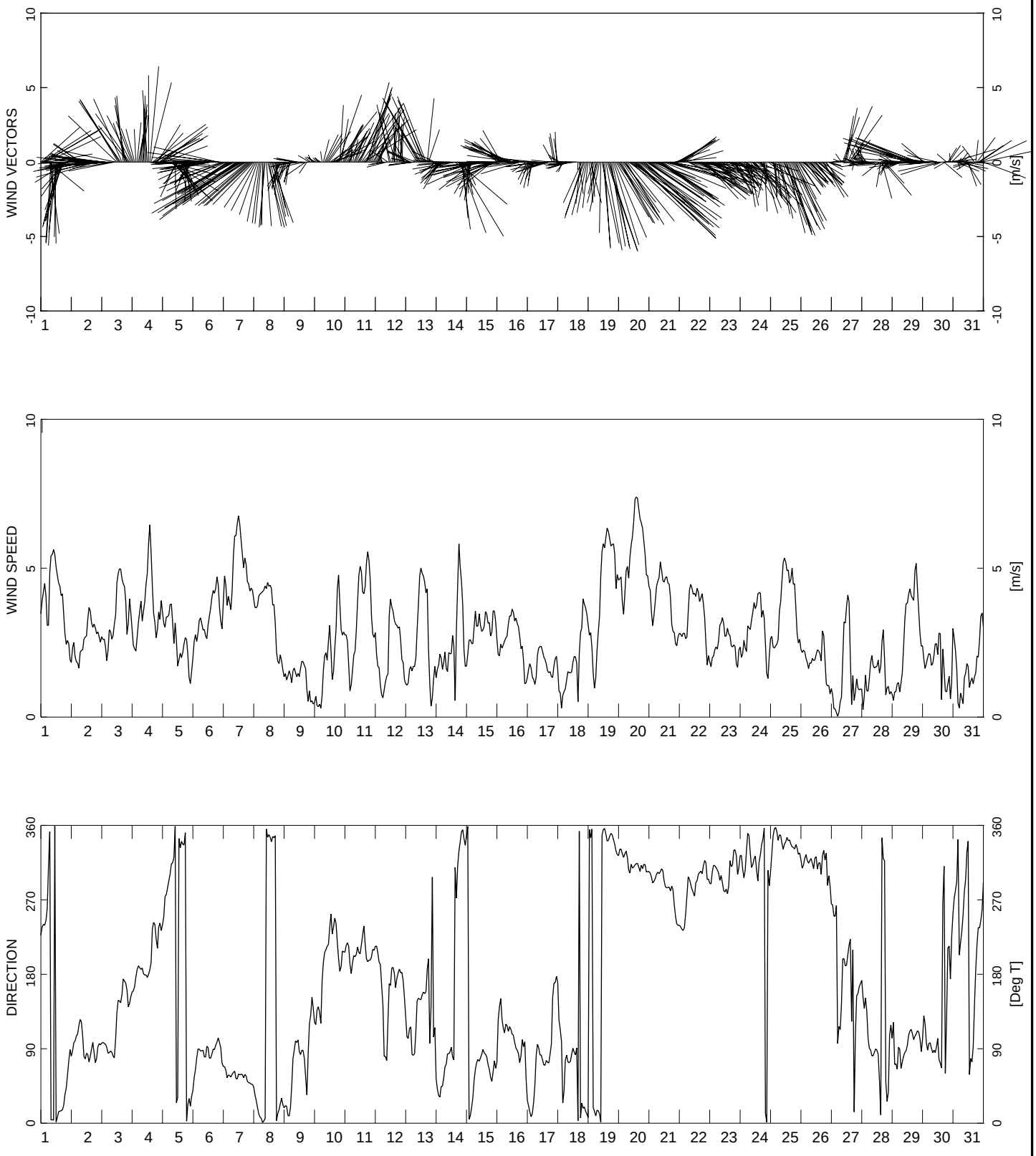
EBA Engineering Consultants Ltd.

YELLOWKNIFE GOLD PROJECT
2008 HYDROMETEOROLOGICAL REPORT

Tyhee Station
Wind Data
June 2005

PROJECT NO.	DWN	CHK	REV
Y22101057	RED	JAS	0
OFFICE: EBA-VANC	DATE: July 2009		

Figure B-10



NOTES

CLIENT

Tyhee NWT Corp

YELLOWKNIFE GOLD PROJECT
2008 HYDROMETEOROLOGICAL REPORT

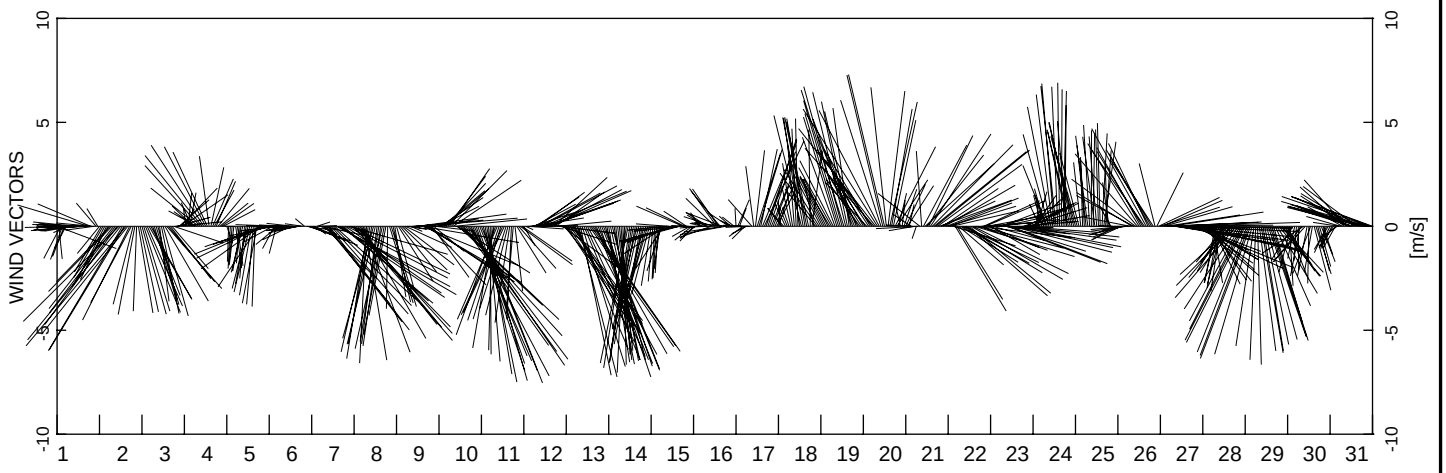
Tyhee Station
Wind Data
July 2005

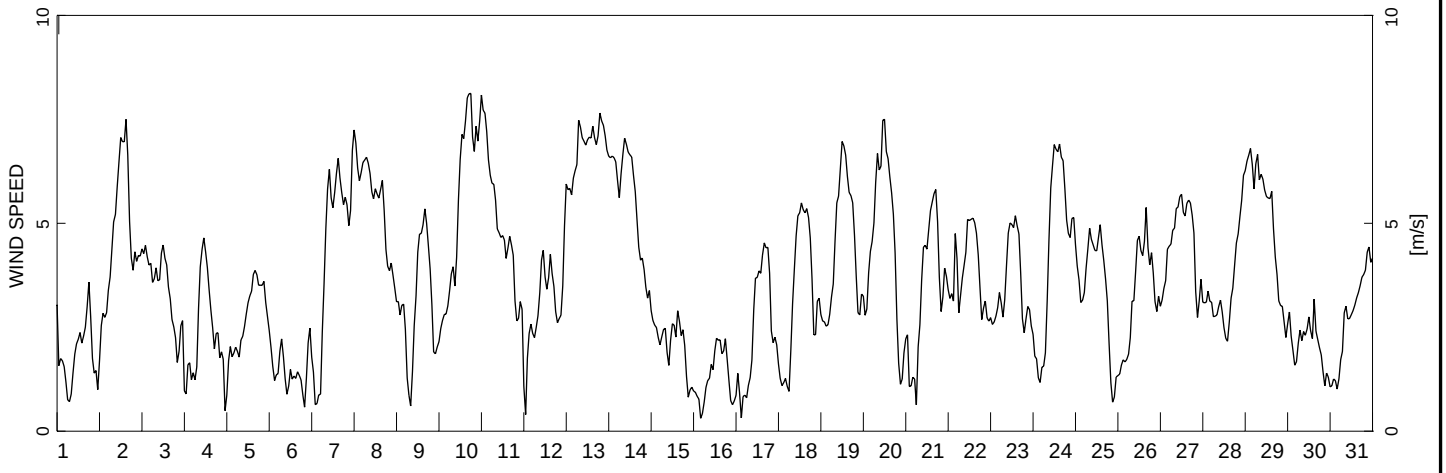
EBA Engineering Consultants Ltd.

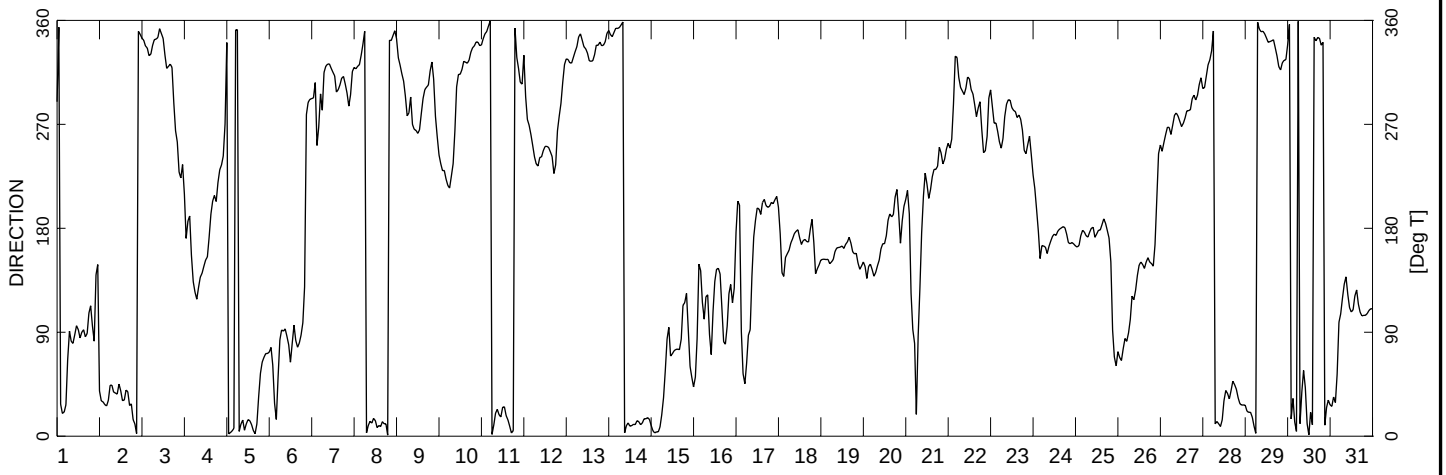
PROJECT NO.	DWN	CHK	REV
Y22101057	RED	JAS	0
OFFICE: EBA-VANC	DATE: July 2009		

Figure B-11

Wed Aug 05 10:44:28 2009:Q:\Vancouver\Engineering\V132\Projects\Y22101057- Tyhee_2008\Working\Meteorology\data_reduction_programs







NOTES

CLIENT

Tyhee NWT Corp

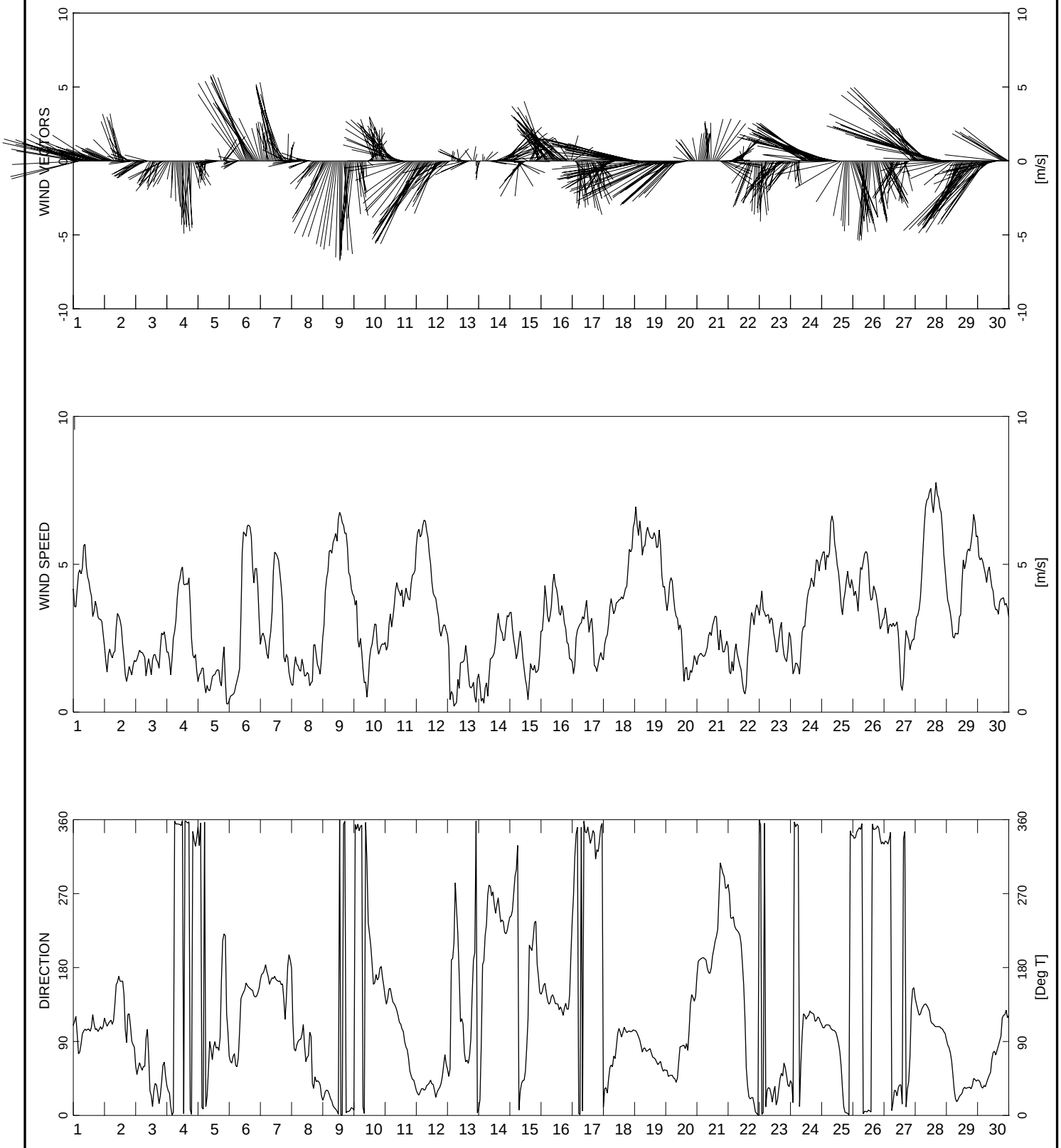
EBA Engineering Consultants Ltd.

YELLOWKNIFE GOLD PROJECT
2008 HYDROMETEOROLOGICAL REPORT

Tyhee Station
Wind Data
August 2005

PROJECT NO.	DWN	CHK	REV
Y22101057	RED	JAS	0
OFFICE: EBA-VANC	DATE: July 2009		

Figure B-12



NOTES

CLIENT

Tyhee NWT Corp

EBA Engineering Consultants Ltd.

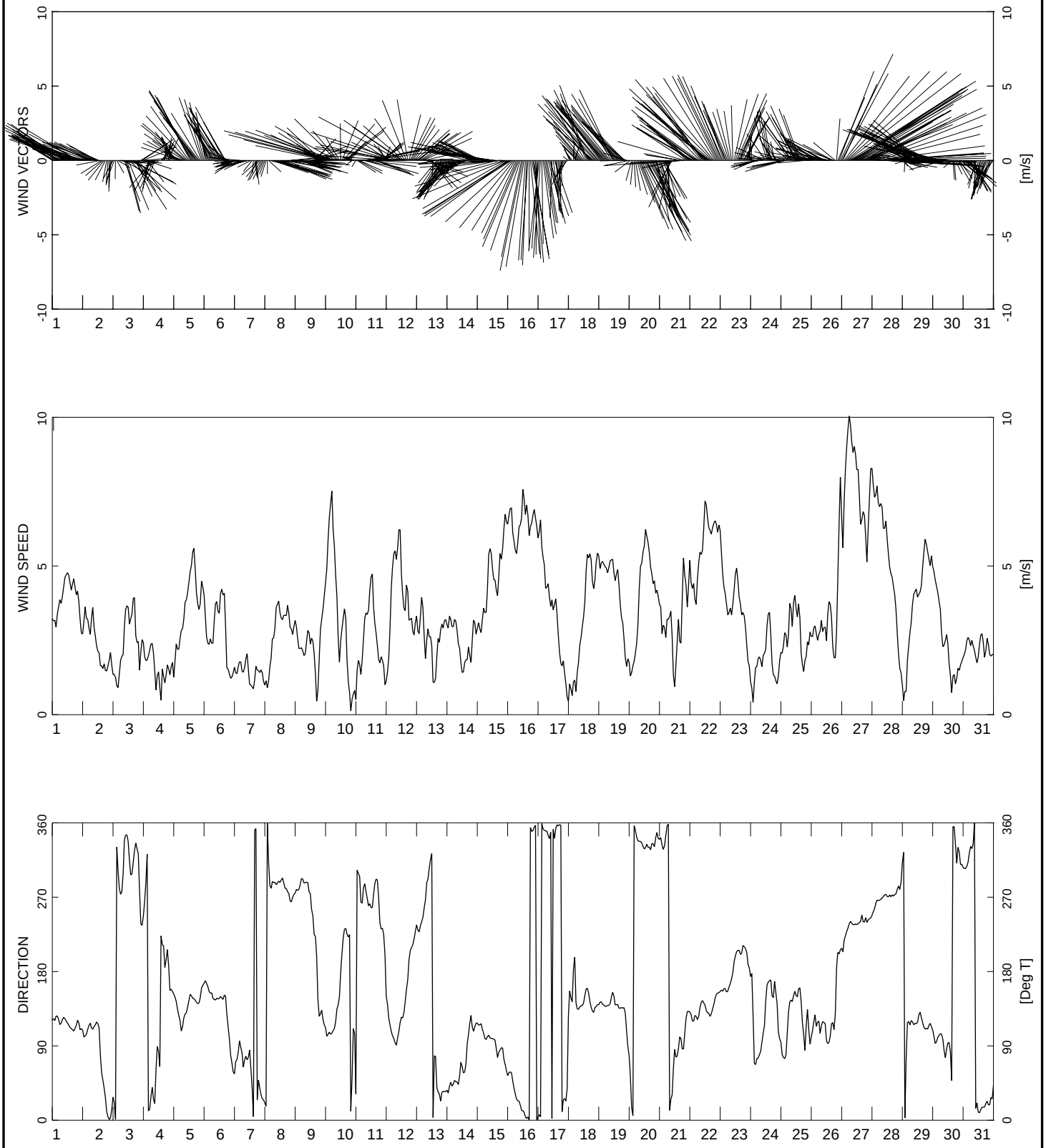
YELLOWKNIFE GOLD PROJECT
2008 HYDROMETEOROLOGICAL REPORT

Tyhee Station
Wind Data
September 2005

PROJECT NO.	DWN	CHK	REV
Y22101057	RED	JAS	0
OFFICE: EBA-VANC	DATE: July 2009		

Figure B-13

Wed Aug 05 10:44:32 2009:Q:\Vancouver\Engineering\V132\Projects\Y22101057- Tyhee_2008\Working\Meteorology\data_reduction_programs



NOTES

CLIENT

Tyhee NWT Corp

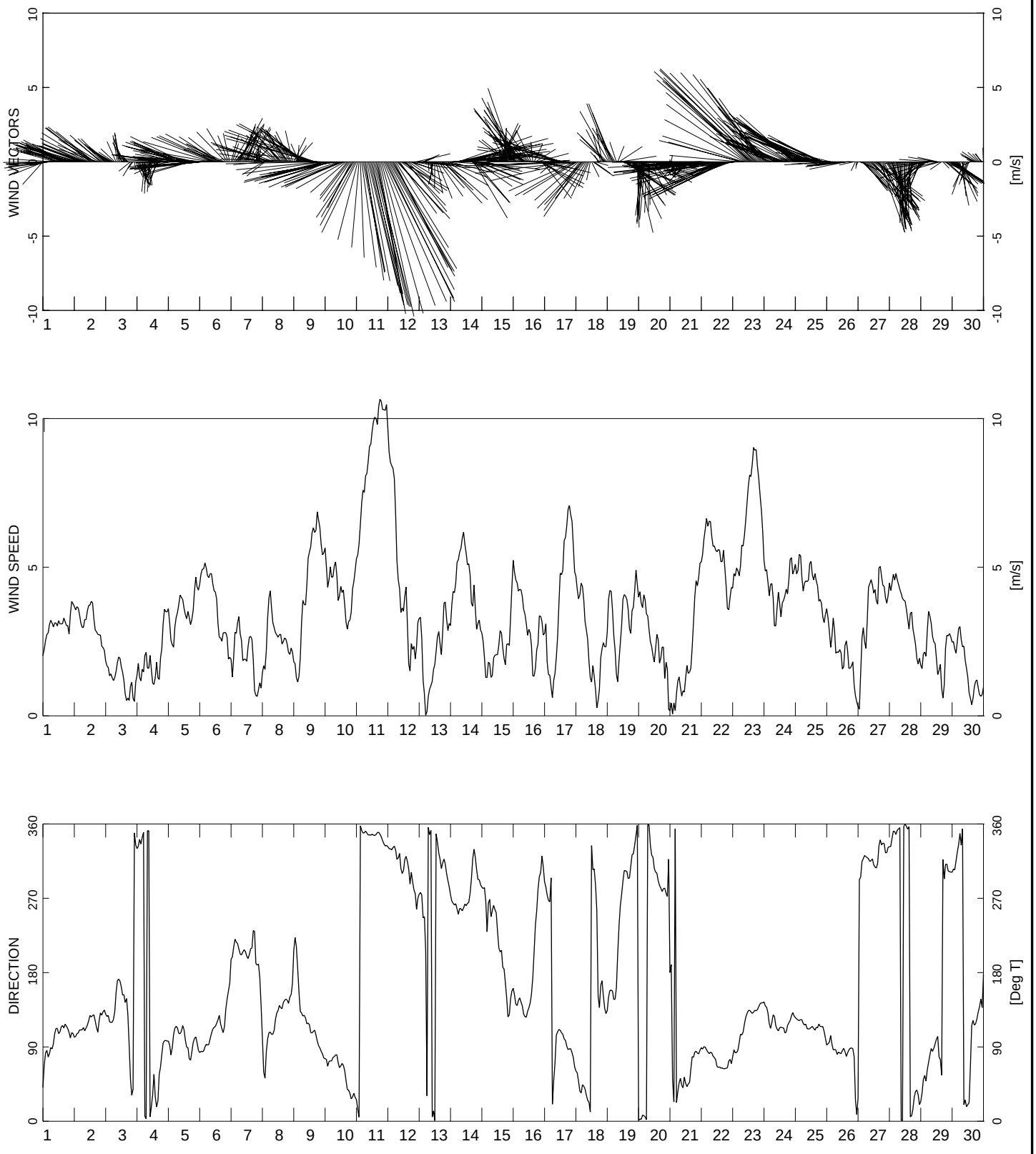
YELLOWKNIFE GOLD PROJECT
2008 HYDROMETEOROLOGICAL REPORT

Tyhee Station
Wind Data
October 2005

EBA Engineering Consultants Ltd.

PROJECT NO.	DWN	CHK	REV
Y22101057	RED	JAS	0
OFFICE: EBA-VANC	DATE: July 2009		

Figure B-14



NOTES

CLIENT

Tyhee NWT Corp

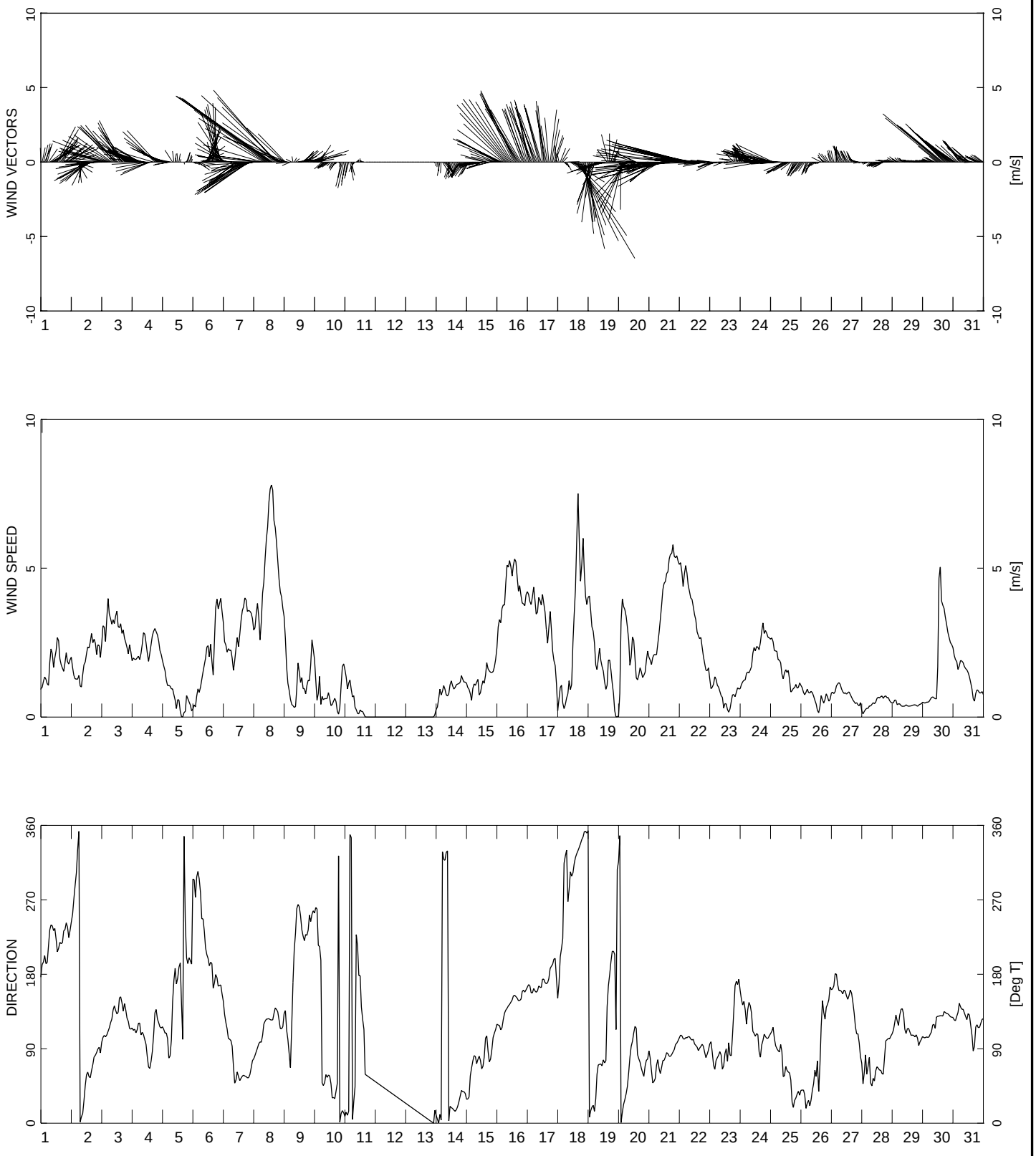
EBA Engineering Consultants Ltd.

YELLOWKNIFE GOLD PROJECT
2008 HYDROMETEOROLOGICAL REPORT

Tyhee Station
Wind Data
November 2005

PROJECT NO.	DWN	CHK	REV
Y22101057	RED	JAS	0
OFFICE: EBA-VANC	DATE: July 2009		

Figure B-15



NOTES

CLIENT

Tyhee NWT Corp

EBA Engineering Consultants Ltd.

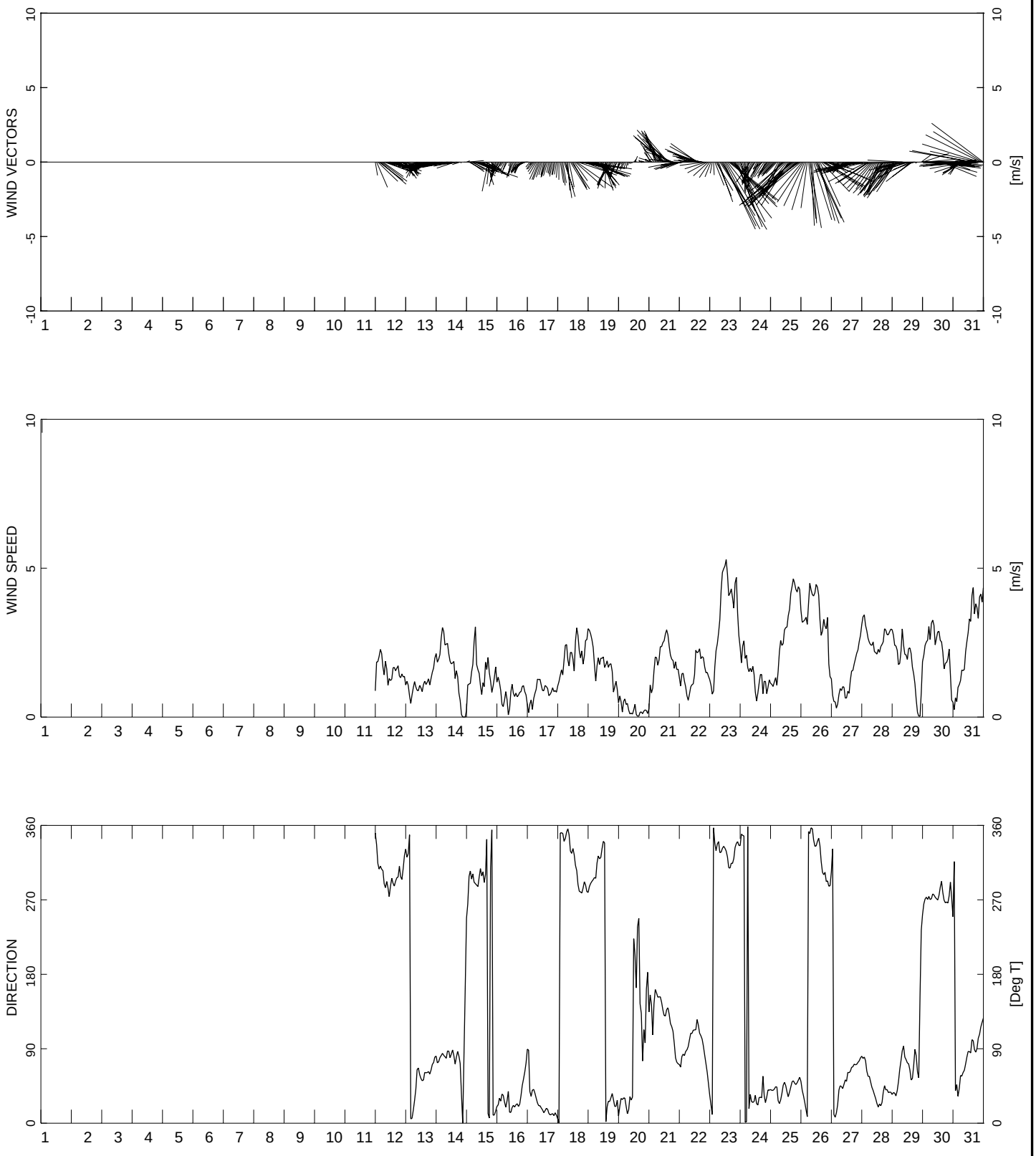
YELLOWKNIFE GOLD PROJECT
2008 HYDROMETEOROLOGICAL REPORT

Tyhee Station
Wind Data
December 2005

PROJECT NO.	DWN	CHK	REV
Y22101057	RED	JAS	0
OFFICE: EBA-VANC	DATE: July 2009		

Figure B-16

Wed Aug 05 10:44:37 2009:Q:\Vancouver\Engineering\V132\Projects\Y22101057- Tyhee_2008\Working\Meteorology\data_reduction_programs



NOTES

Suspected erroneous wind data between January 1st and 12th has been removed from the record.

CLIENT

Tyhee NWT Corp

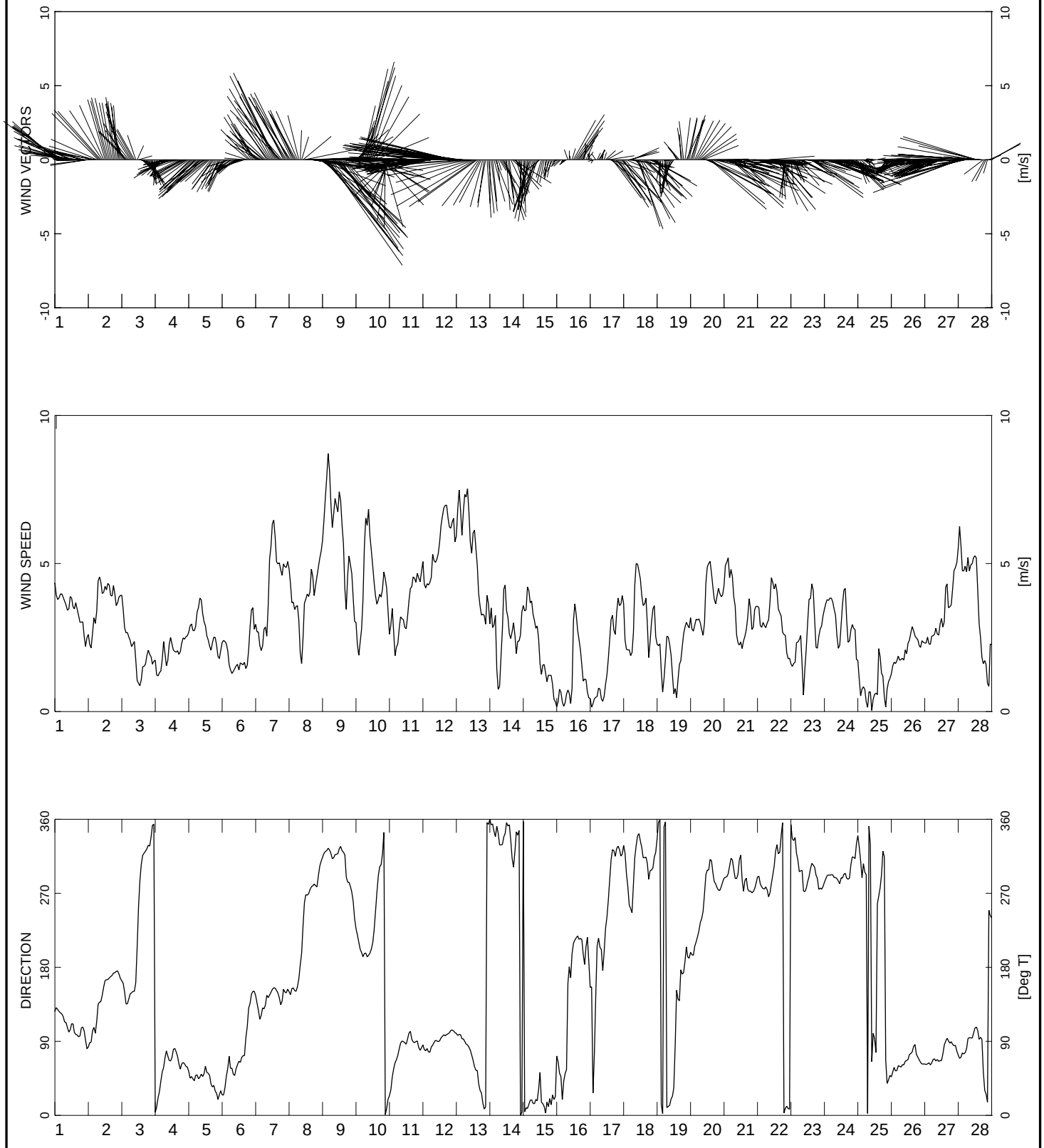
EBA Engineering Consultants Ltd.

YELLOWKNIFE GOLD PROJECT
2008 HYDROMETEOROLOGICAL REPORT

Tyhee Station
Wind Data
January 2006

PROJECT NO.	DWN	CHK	REV
Y22101057	RED	JAS	0
OFFICE: EBA-VANC	DATE: July 2009		

Figure B-17



NOTES

CLIENT

Tyhee NWT Corp

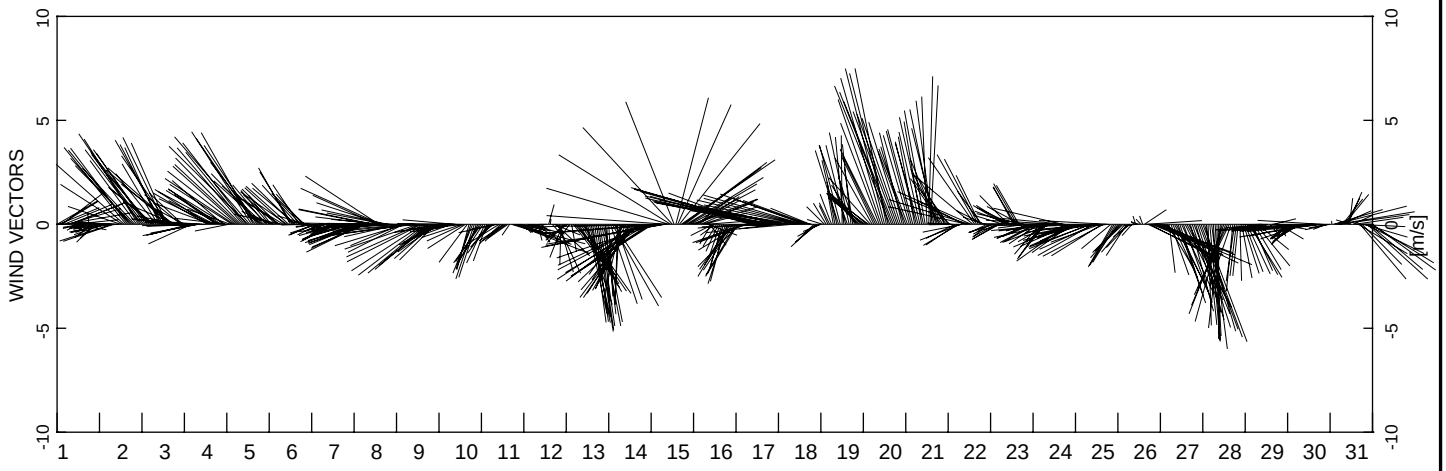
EBA Engineering Consultants Ltd.

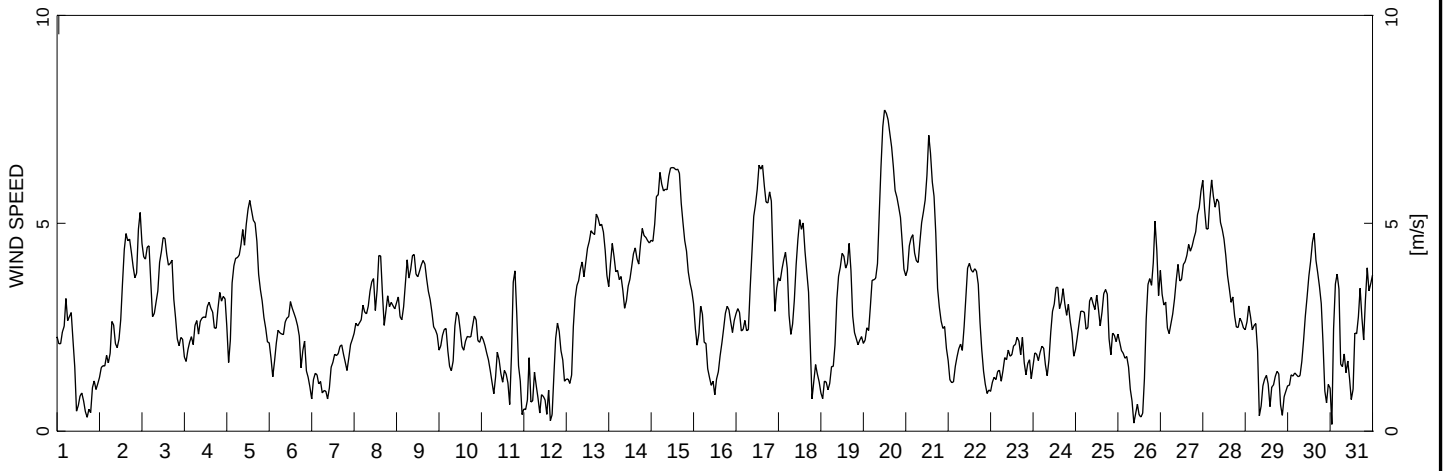
YELLOWKNIFE GOLD PROJECT
2008 HYDROMETEOROLOGICAL REPORT

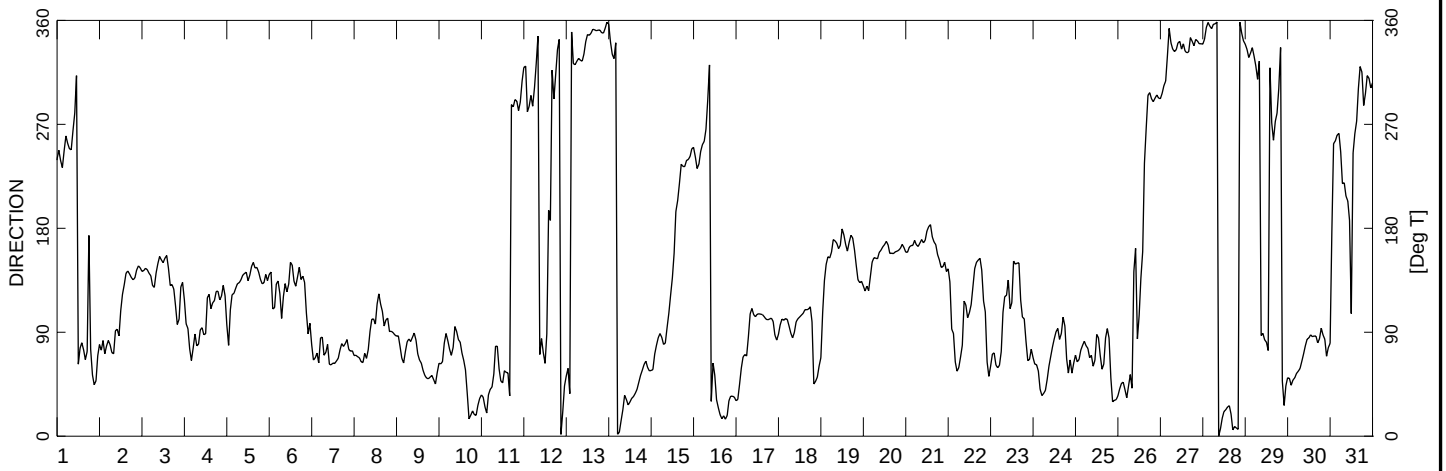
Tyhee Station
Wind Data
February 2006

PROJECT NO.	DWN	CHK	REV
Y22101057	RED	JAS	0
OFFICE: EBA-VANC	DATE: July 2009		

Figure B-18







NOTES

CLIENT

Tyhee NWT Corp

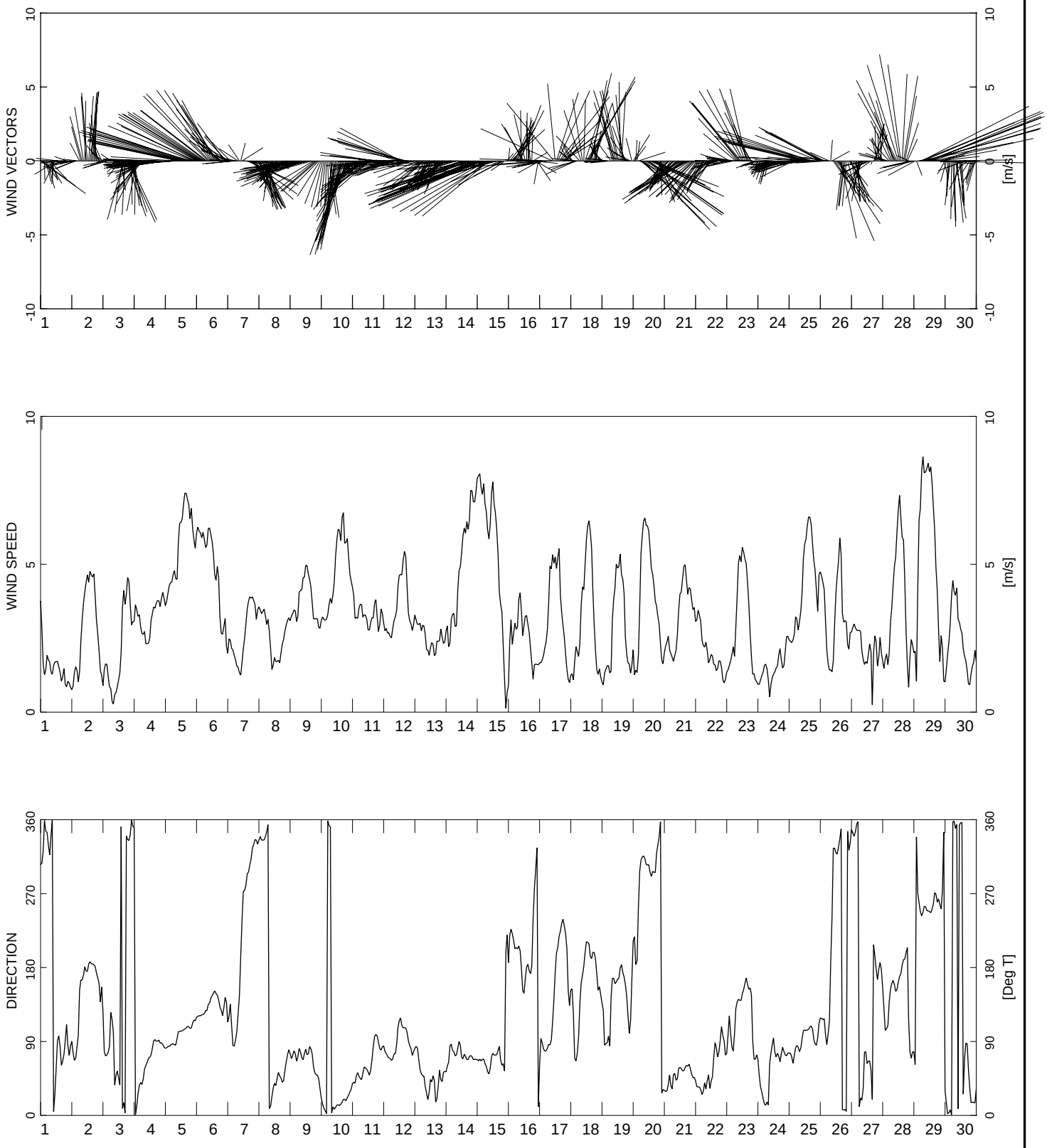
YELLOWKNIFE GOLD PROJECT
2008 HYDROMETEOROLOGICAL REPORT

Tyhee Station
Wind Data
March 2006

EBA Engineering Consultants Ltd.

PROJECT NO.	DWN	CHK	REV
Y22101057	RED	JAS	0
OFFICE: EBA-VANC	DATE: July 2009		

Figure B-19



NOTES

CLIENT

Tyhee NWT Corp

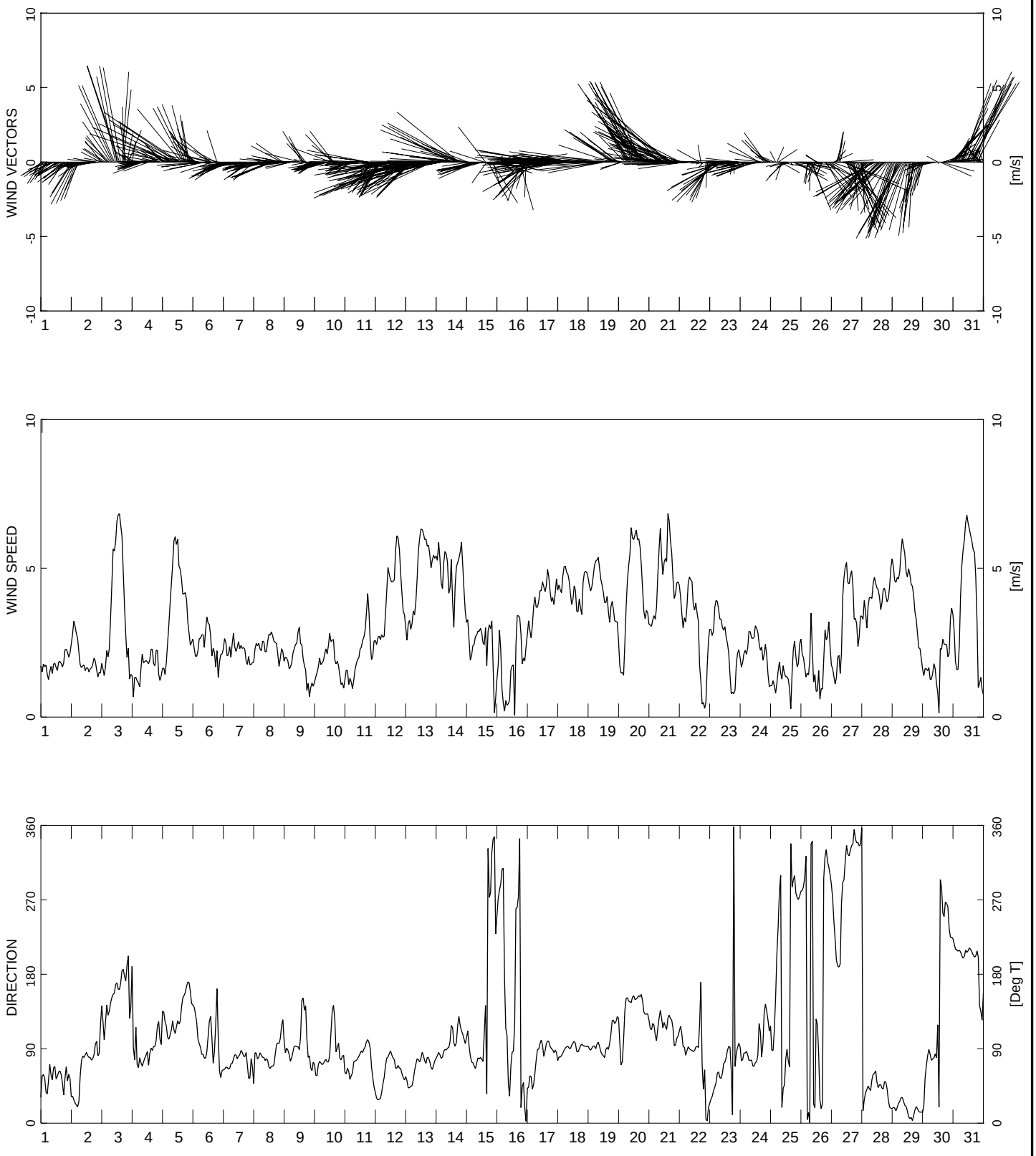
EBA Engineering Consultants Ltd.

YELLOWKNIFE GOLD PROJECT
2008 HYDROMETEOROLOGICAL REPORT

Tyhee Station
Wind Data
April 2006

PROJECT NO.	DWN	CHK	REV
Y22101057	RED	JAS	0
OFFICE: EBA-VANC	DATE: July 2009		

Figure B-20



NOTES

CLIENT

Tyhee NWT Corp

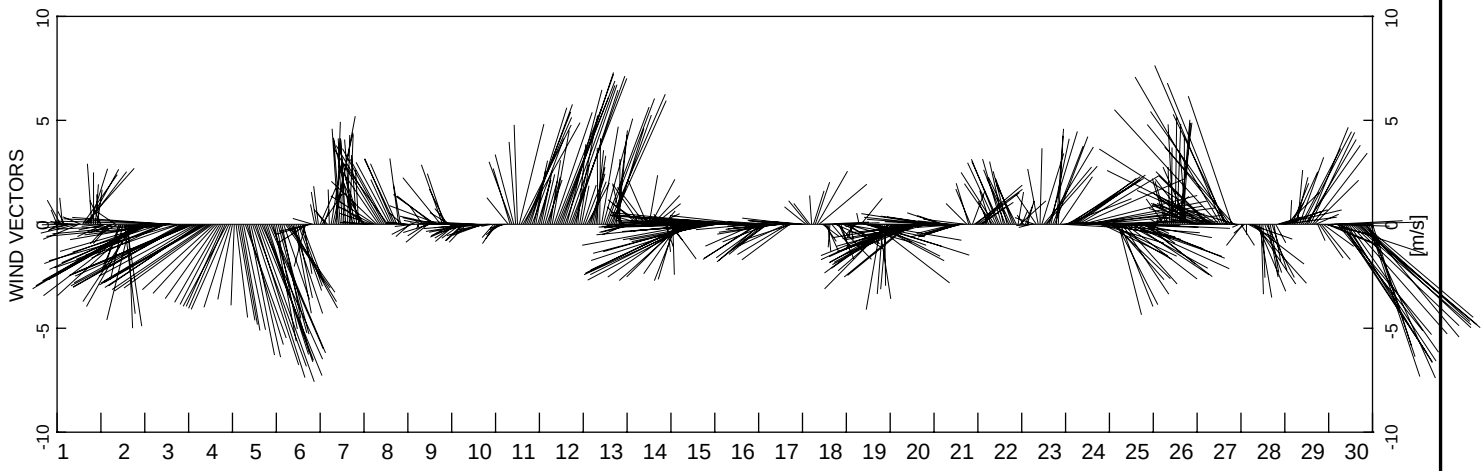
EBA Engineering Consultants Ltd.

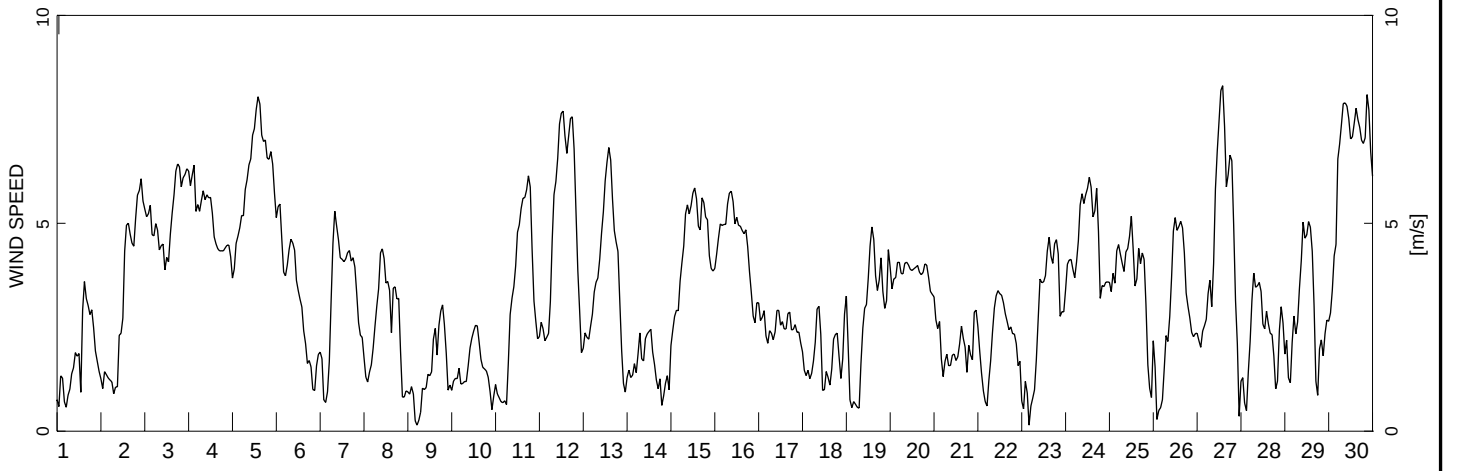
YELLOWKNIFE GOLD PROJECT
2008 HYDROMETEOROLOGICAL REPORT

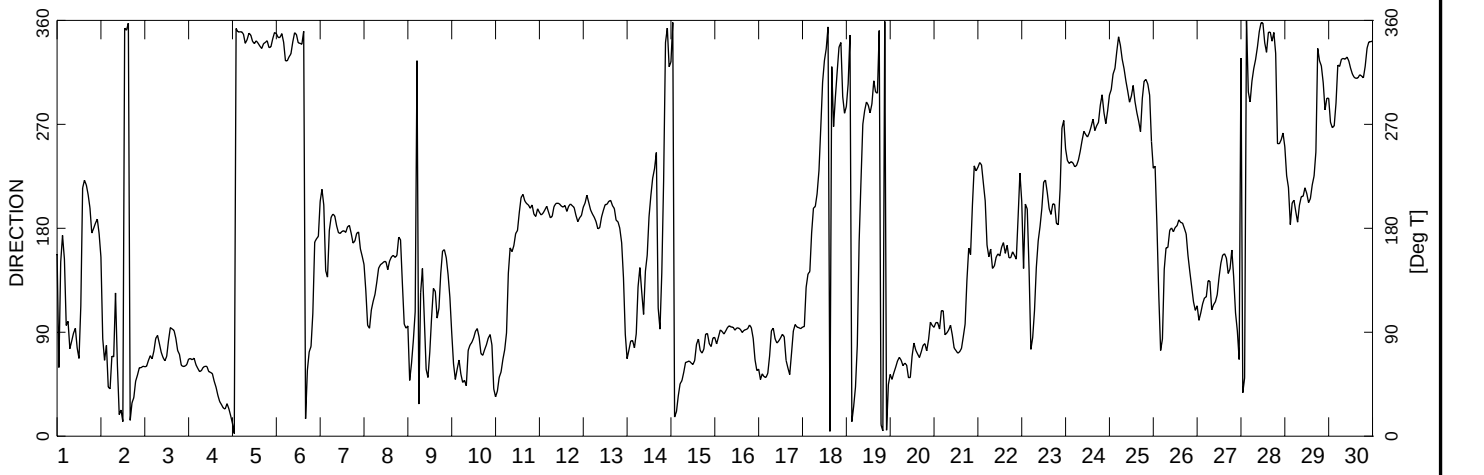
Tyhee Station
Wind Data
May 2006

PROJECT NO.	DWN	CHK	REV
Y22101057	RED	JAS	0
OFFICE: EBA-VANC	DATE: July 2009		

Figure B-21







NOTES

CLIENT

Tyhee NWT Corp

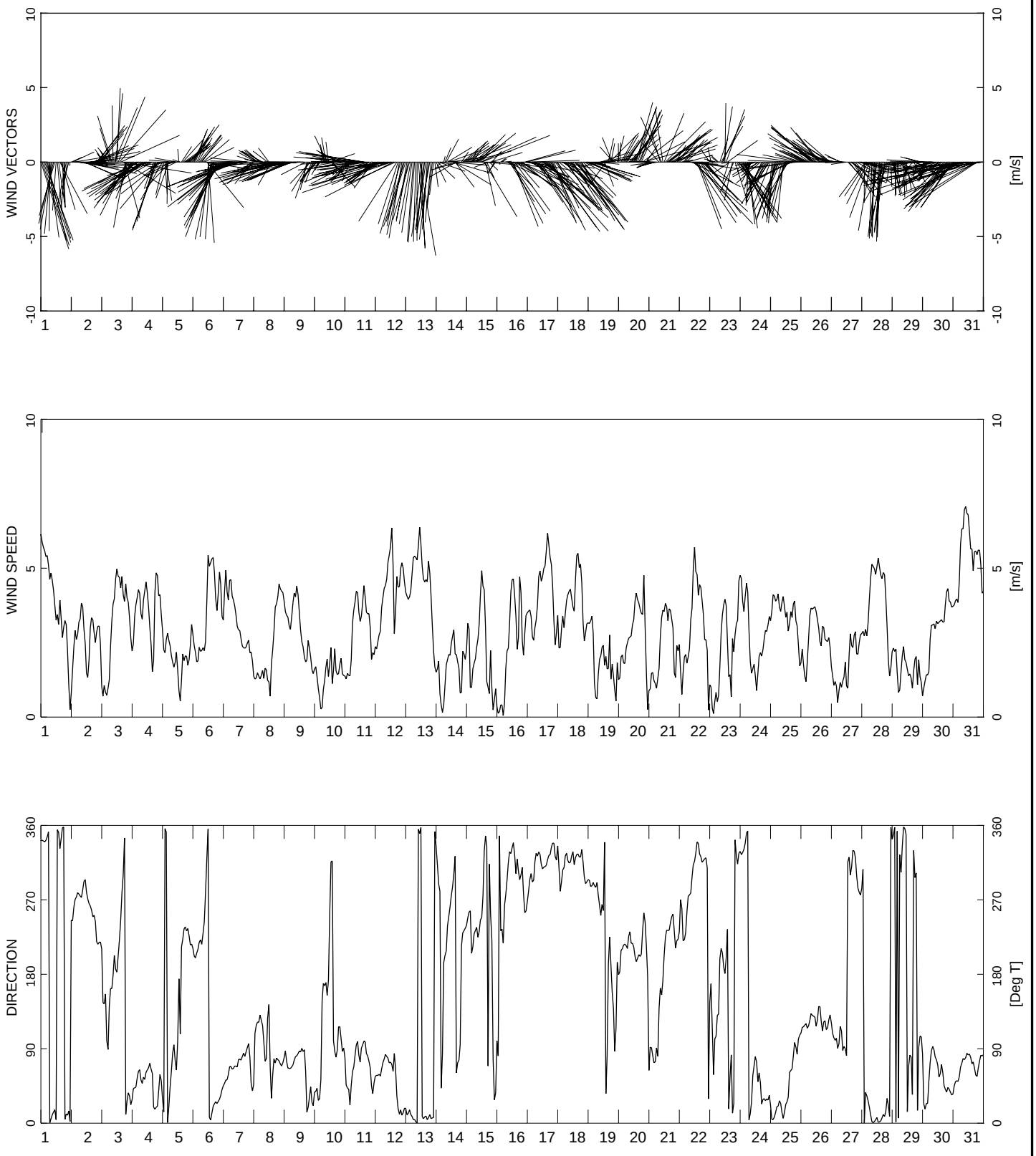
EBA Engineering Consultants Ltd.

YELLOWKNIFE GOLD PROJECT
2008 HYDROMETEOROLOGICAL REPORT

Tyhee Station
Wind Data
June 2006

PROJECT NO.	DWN	CHK	REV
Y22101057	RED	JAS	0
OFFICE: EBA-VANC	DATE: July 2009		

Figure B-22



NOTES

CLIENT

Tyhee NWT Corp

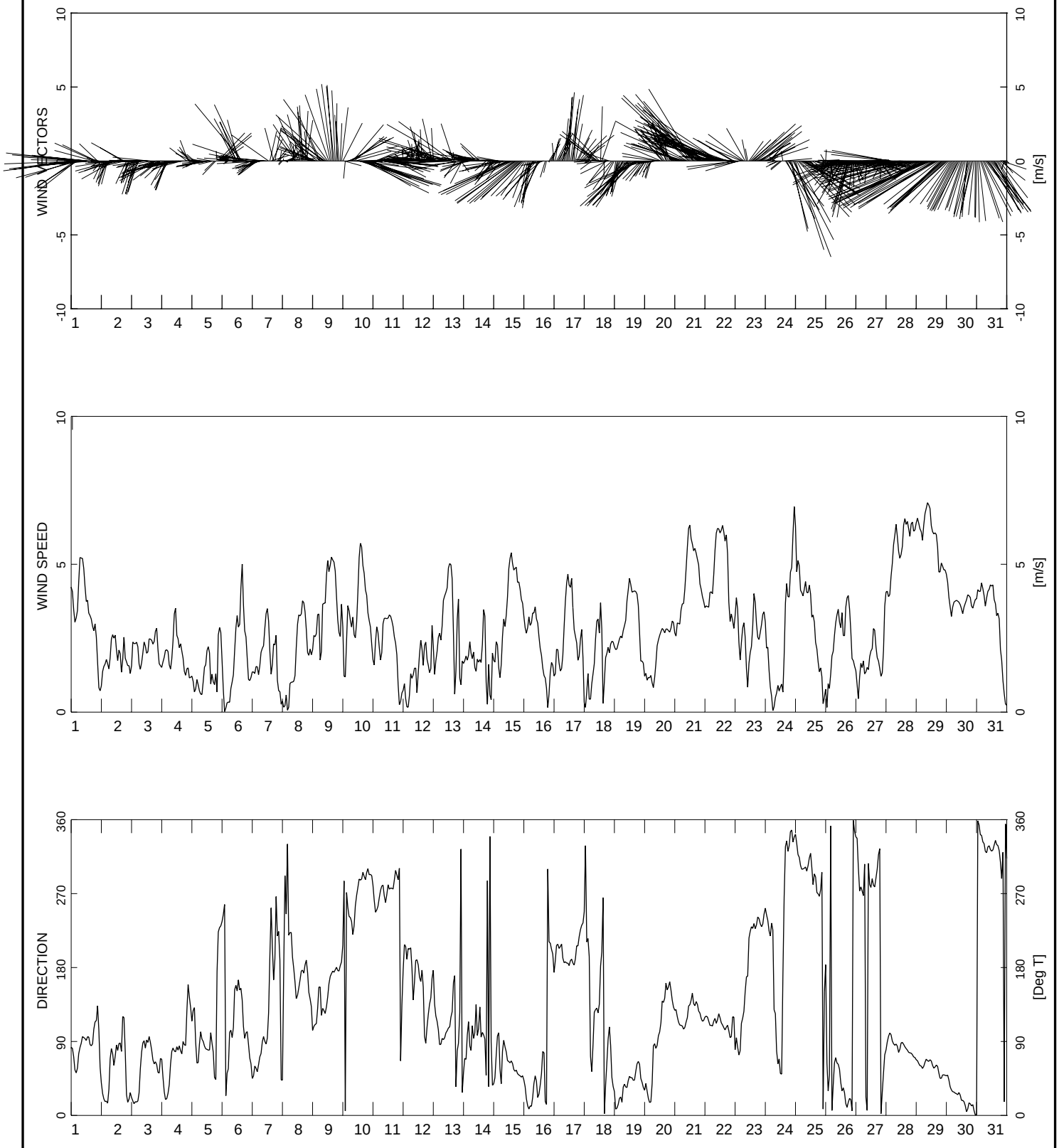
YELLOWKNIFE GOLD PROJECT
2008 HYDROMETEOROLOGICAL REPORT

Tyhee Station
Wind Data
July 2006

EBA Engineering Consultants Ltd.

PROJECT NO.	DWN	CHK	REV
Y22101057	RED	JAS	0
OFFICE: EBA-VANC	DATE: July 2009		

Figure B-23



NOTES

CLIENT

Tyhee NWT Corp

EBA Engineering Consultants Ltd.

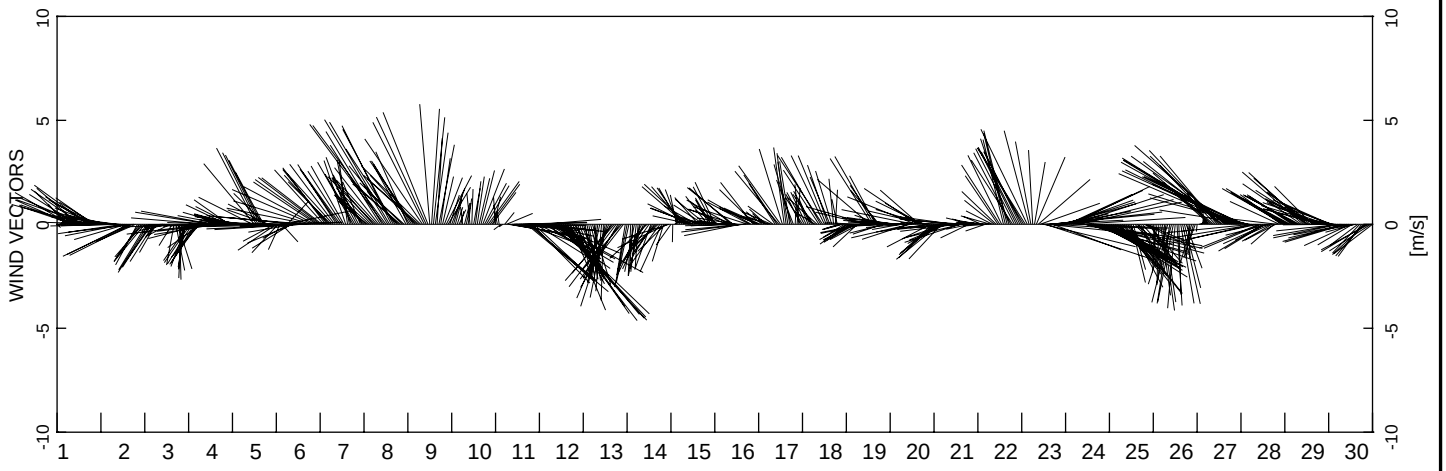
YELLOWKNIFE GOLD PROJECT
2008 HYDROMETEOROLOGICAL REPORT

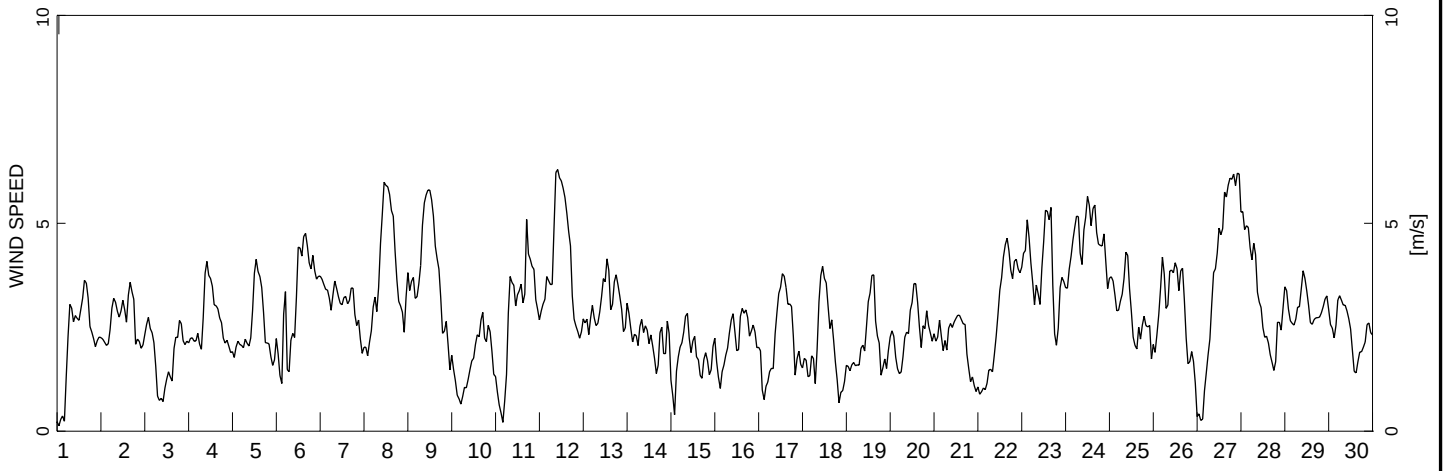
Tyhee Station
Wind Data
August 2006

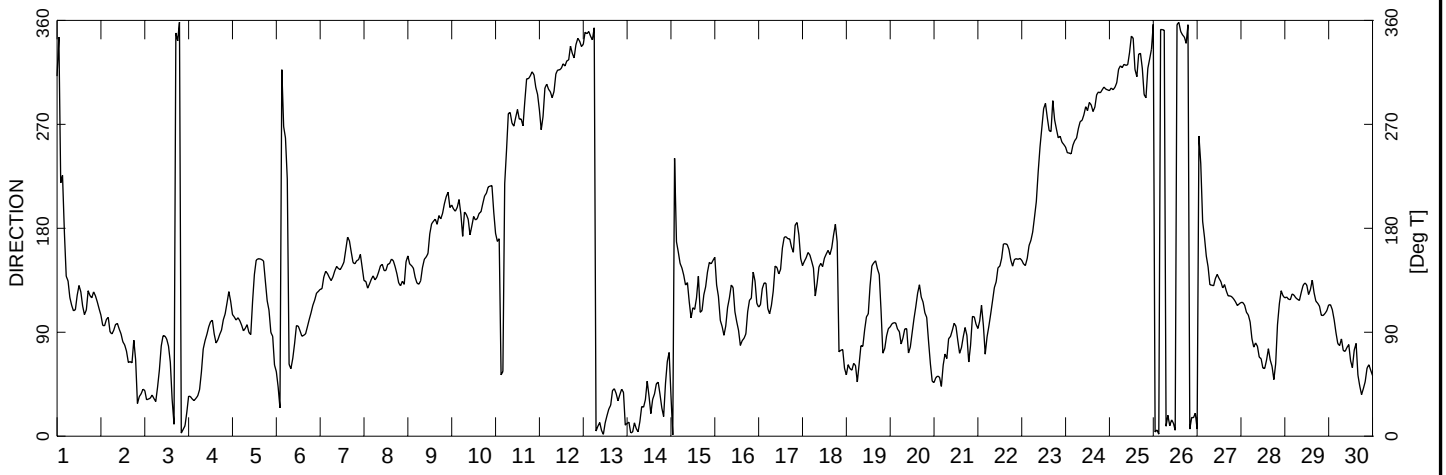
PROJECT NO.	DWN	CHK	REV
Y22101057	RED	JAS	0
OFFICE: EBA-VANC	DATE: July 2009		

Figure B-24

Wed Aug 05 10:46:57 2009:Q:\Vancouver\Engineering\V132\Projects\Y22101057- Tyhee_2008\Working\Meteorology\data_reduction_programs







NOTES

CLIENT

Tyhee NWT Corp

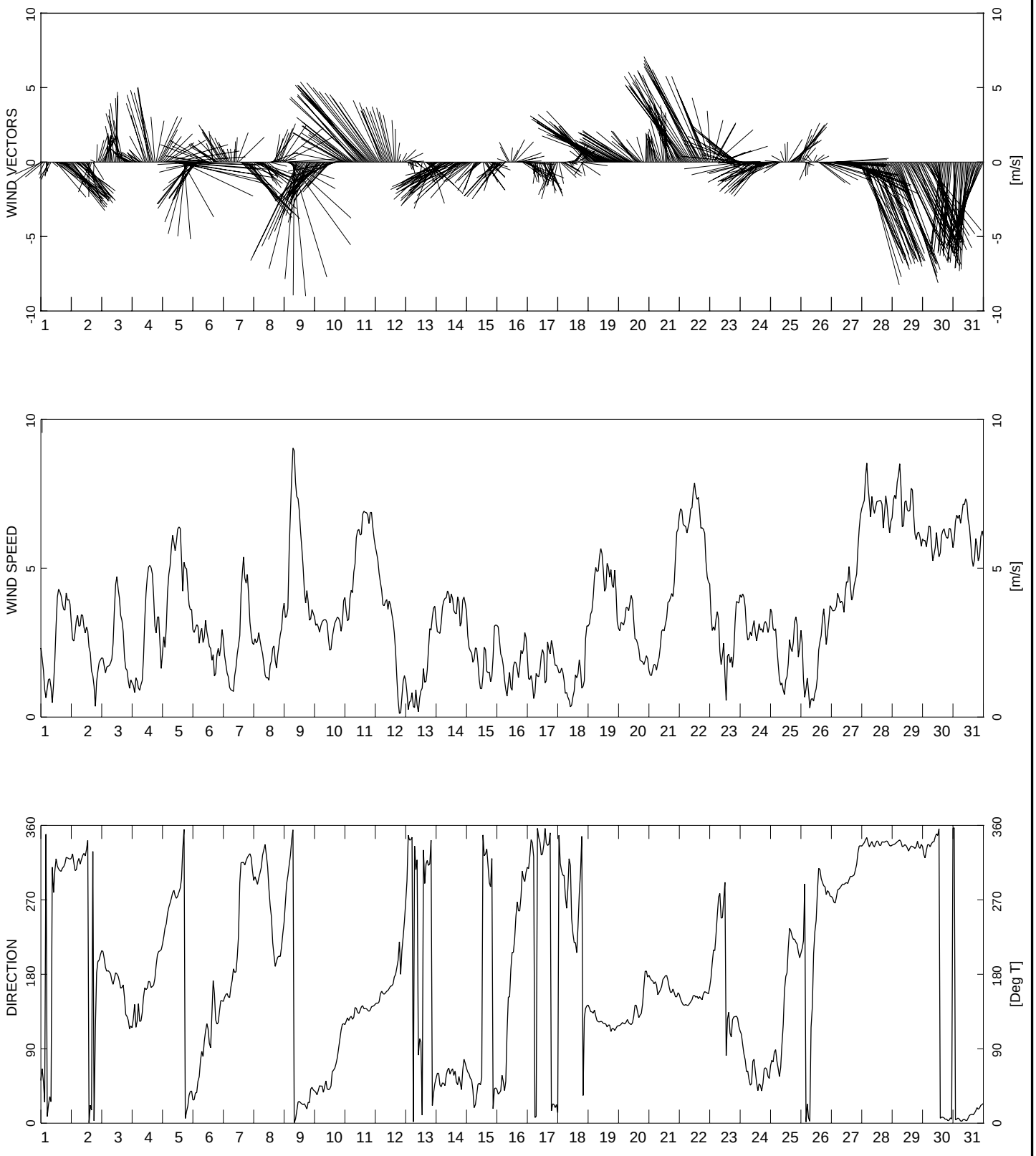
EBA Engineering Consultants Ltd.

YELLOWKNIFE GOLD PROJECT
2008 HYDROMETEOROLOGICAL REPORT

Tyhee Station
Wind Data
September 2006

PROJECT NO.	DWN	CHK	REV
Y22101057	RED	JAS	0
OFFICE: EBA-VANC	DATE: July 2009		

Figure B-25



NOTES

CLIENT

Tyhee NWT Corp

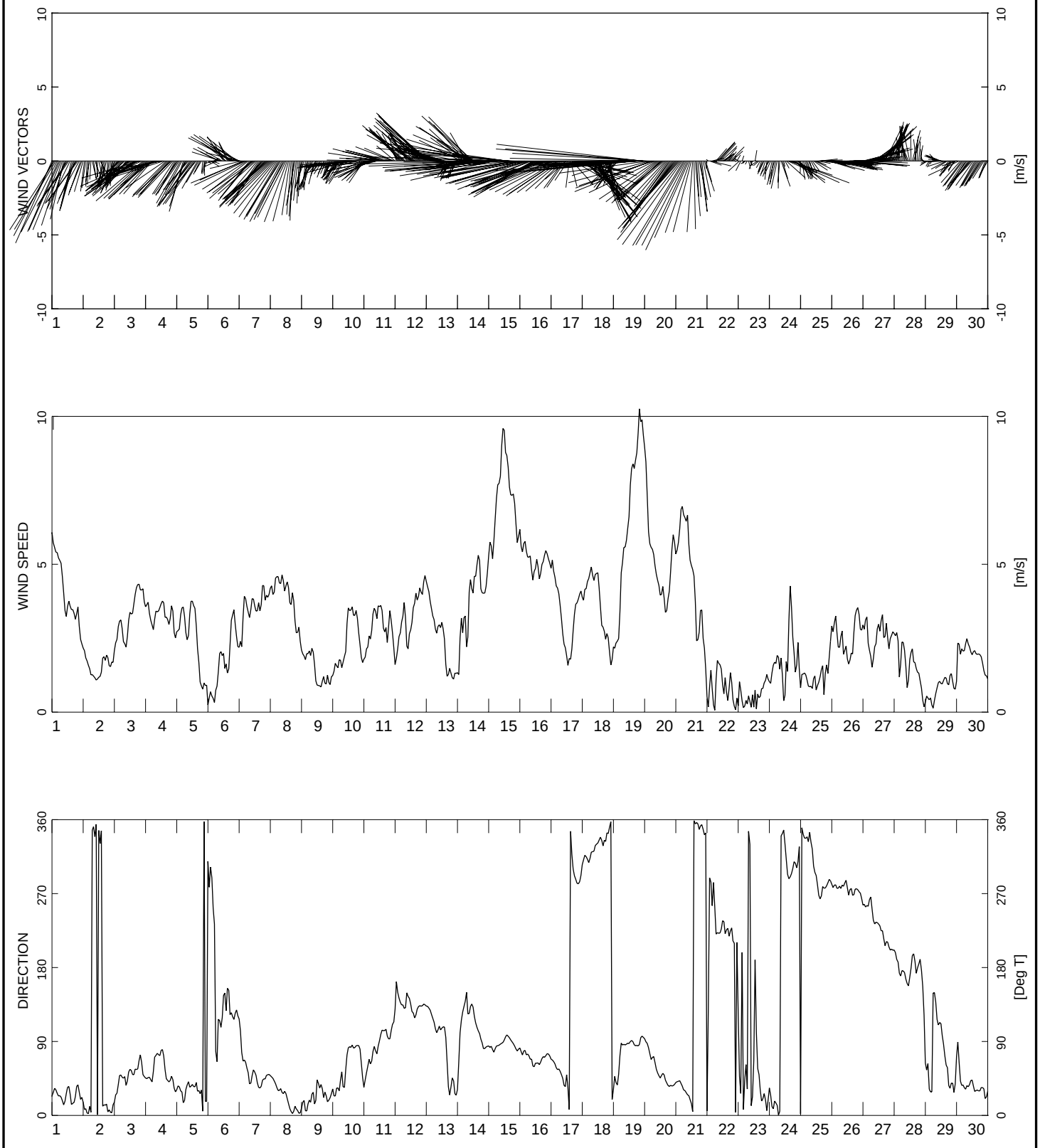
YELLOWKNIFE GOLD PROJECT
2008 HYDROMETEOROLOGICAL REPORT

Tyhee Station
Wind Data
October 2006

EBA Engineering Consultants Ltd.

PROJECT NO.	DWN	CHK	REV
Y22101057	RED	JAS	0
OFFICE: EBA-VANC	DATE: July 2009		

Figure B-26



NOTES

CLIENT

Tyhee NWT Corp

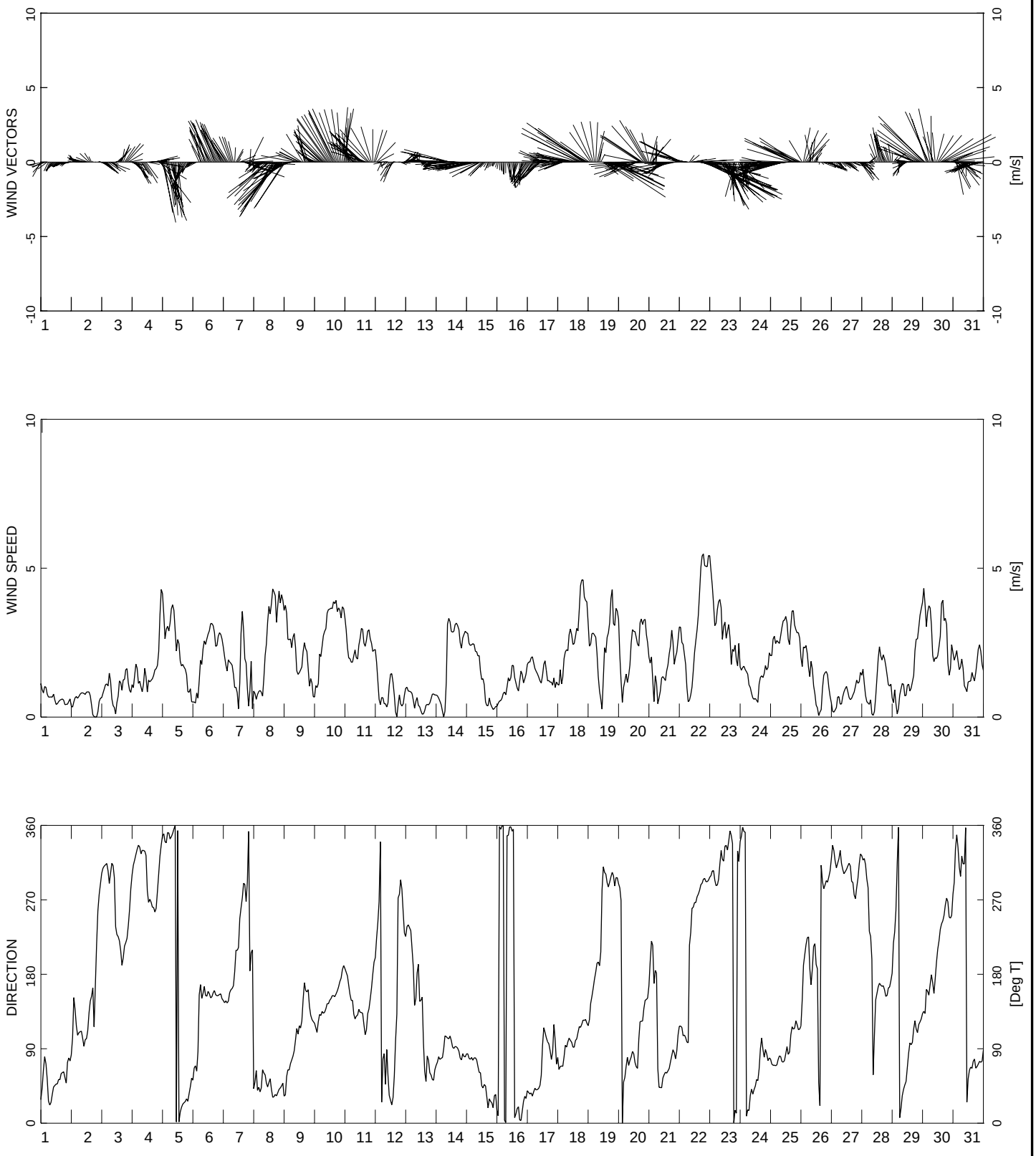
EBA Engineering Consultants Ltd.

YELLOWKNIFE GOLD PROJECT
2008 HYDROMETEOROLOGICAL REPORT

Tyhee Station
Wind Data
November 2006

PROJECT NO.	DWN	CHK	REV
Y22101057	RED	JAS	0
OFFICE: EBA-VANC	DATE: July 2009		

Figure B-27



NOTES

CLIENT

Tyhee NWT Corp

EBA Engineering Consultants Ltd.

YELLOWKNIFE GOLD PROJECT
2008 HYDROMETEOROLOGICAL REPORT

Tyhee Station
Wind Data
December 2006

PROJECT NO.	DWN	CHK	REV
Y22101057	RED	JAS	0
OFFICE: EBA-VANC	DATE: July 2009		

Figure B-28

Wed Aug 05 10:47:04 2009:Q:\Vancouver\Engineering\V132\Projects\Y22101057- Tyhee_2008\Working\Meteorology\data_reduction_programs