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September 11, 2020

Impact Assessment Agency of Canada
Prairie and Northern Region/Région des Prairies et du Nord
Canada Place
Suite 1145, 9700 Jasper Avenue
Edmonton, Alberta T5J 4C3

RE: CanWhite Sands Corp response to IAAC letters received August 17th and 28th, 2020

CanWhite Sands Corporation (CWS) respectfully submits the following response to the two letters received from IAAC on August 17th and 28th, 2020. This response is broken down into 4 sections:

1. Based upon a discussion between Feisal Somji and Ayesha Sohail on September 4th, 2020 we would like to give you a general overview of the Project as a whole. We believe there are many misconceptions about our Project and we understand from this conversation that there is a misunderstanding of the Project scope.
2. CWS has reviewed the submissions received by IAAC from the Brokenhead Ojibway Nation, which is largely relying on submission made by Mr. LeNeveu and Mr. Sullivan. There are many statements made that are simply untrue and these submissions show a real lack of understanding of our Project. We also believe that many of the items stated in their letters are purposefully exaggerated for effect and we will under this section outline these errors and correct them for the benefit of IAAC review.
3. A response to letter received August 17th, 2020.
4. A response to letter received August 28th, 2020.

Firstly, I would like to clarify that the Environment Act Proposal (EAP) application made by CWS to Manitoba Conservation and Climate, Environmental Approvals Branch (MBCC, EAB) thus far is only for the Processing Facility and associated rail loop. The EAP application does not include the mining (harvesting) and extraction of the sand, and one does not depend on the other. The associated facility would be able to process other sand from various sources in addition to other agriculture products.

The Facility will be reviewed by MBCC under The Environment Act as a “manufacturing and industrial plant” which is a Class 2 development in section 3 of the Classes of Development Regulation under

group 4 “Manufacturing”. The extraction (harvesting) of the sand resource will constitute “mining” which must be licensed under *The Environment Act* as a Class 2 development and which is subject to the closure planning and financial assurance provisions of *The Mines and Minerals Act* and to the specific regulation applicable to drilling and closing boreholes. CanWhite’s intention is to propose an extraction project for licensing later this year while construction of the Processing Facility is underway.

CanWhite is proposing the Processing Facility separately and in advance of extraction because:

- The Processing Facility consists of a permanent building and related infrastructure similar to other manufacturing operations located in urban or semi-urban settings;
- By contrast, CanWhite anticipates that special license conditions will have to be contemplated for extraction which will involve changing of extraction sites on a relatively frequent basis, which is not typical for Environment Act Licenses and which will not be relevant to the Processing Facility;
- In the future, the Processing Facility could be operated on a commercial basis to process and transfer sand that is not mined by the same owner provided that the sand is of the same nature and quality as the resource to which CanWhite’s subsidiary has rights; and
- Construction of the Processing Facility will take time to achieve, whereas extraction involves portable drills which will move frequently and for which no construction season is required.

CWS is currently completing an extensive hydrogeological study of the aquifer and the potential impacts (if any) from the extraction process with Golder Associates Ltd. Again, this is not part of the current EAP application. Once this study is completed, we will commence public engagement and then CWS will prepare and submit an EAP for mining (harvesting) and extraction. At the time of the public engagement phase the Company can answer all the concerns about the extraction process and the impact on the aquifer. CWS cannot answer these questions as of today as the study is not yet completed. This report is not part of the current Processing Facility EAP as this application does not involve extraction of the sand.

Section 1

Overview of the CanWhite Process

CWS is positioned to become the world’s most environmentally friendly silica sand producer. CWS will harvest the sand through 25 cm sized vertical wells. No open pits, no use of chemicals within the aquifer, no acid rock drainage, no surface discharge, no truck traffic, and no production or transportation dust.

The CWS methodology prioritizes land preservation and environmental stewardship.

Three key components of the CWS process include;

- 1- Temporary, portable harvest sites with immediate ongoing reclamation;
- 2- Dustless sand transport by slurry line to the Vivian Facility;
- 3- Fully enclosed, negative pressure sand drying and screening facility.

Component 1 - Harvest site and Methodology

Water well drillers around the world, and more specifically in Manitoba, utilize air to clean out sand from newly drilled and producing water wells. This method has been used for over 50 years and is proven to not harm the formation or water quality. Building upon this process CWS has developed a patented sand

lift system where sand is brought to surface with air and associated aquifer water is left in the aquifer. A net zero solution, CWS has proven the ability to not remove aquifer water while harvesting the sand, therefore there is no anticipated water draw from the aquifer or need for water disposal or discharge at surface.

On private lands under access agreement, a standard 25 cm well is drilled to formation and cemented in place to preserve the existing aquitard. A second 15 cm extraction tube is placed inside the wellbore to the formation. Inside the 15 cm extraction tube an air introduction tube is placed. The air introduction tube is shorter than the extraction tube so the air stays within the extraction tube. As air is introduced into the extraction tube it immediately rises to surface. This movement creates momentum to the surface bringing up the associated fluid and solids. The movement creates a suction effect at the bottom of the extraction tube due to a natural lower pressure inside the extraction tube versus the natural pressure of the geologic formation. This pressure differential allows the formation to “push” the sand into the extraction tube. The end result is very similar to drinking a slush drink with a straw. As the sand is removed the associated water returns to the formation through the annular space between the 25 cm and 15cm tubing. At no time is the formation subject to overpressure and as the sand is delivered wet no dust is generated.

The Harvest process takes an estimated 5 days per well after which the wells are abandoned under the standards defined by the Manitoba’s *Mines and Minerals Act*, Drilling Regulation, 1992, and the surface is immediately remediated. As the harvest sites are temporary and portable, the site returns to its natural state within weeks of CWS harvest completion. No traditional mining activities take place and therefore there are no open pits and no underground operations.

Of note, under 5% of the total resource will be extracted using an engineered room and pillar methodology, therefore there are no risks or concerns for subsidence

Component 2 – Dustless temporary transport by slurry

When the sand is available at surface it is placed into a temporary, movable water transportation loop. The continuous water loop accepts the sand up to 15% by volume and transports the sand to the facility where the sand is removed from the loop and the water recycled and returned to transport more sand. As the sand is wet and contained within equipment and introduced into a water loop, no dust is present or generated.

At the facility the sand is deposited wet into a Work In Process (WIP) pile on an engineered surface which contains the equivalent of French Drains allowing full containment of any water discharge. The water, rain and snow melt are captured and recycled for WIP pile wetting and continuous water loop

The continuous water loop is comprised of high-density poly pipe (equivalent to the pipe used by municipalities for water distribution) and portable pumps. This allows the movement of slurry transport to match operational sites and minimizes surface disturbance. Surface crossing will be over private lands under surface use agreements.

The use of the continuous loop eliminates the need for any trucking and allows complete equipment removal from the harvest site allowing full remediation of the lands. CWS will eliminate legacy reclamations as all sites are immediately reclaimed through borehole abandonment and equipment removal.

Component 3 – Negative Pressure Process Facility

The CWS facility is comprised of a dryer, screeners and baghouse. Once sand enters the facility it remains enclosed within a negative air environment within all aspects of the equipment handling and is no longer subject to standard atmospheric pressures. The negative air environment is created by the baghouse which acts as a large multipurpose vacuum system throughout the sand handling process. The processed sand is moved from the facility to loadout silos over the railway loop and transfer to railcars are done under a dustless negative pressure loading facility.

The dryer is dual fuel and will originally operate on propane and later converted to natural gas. CWS as part of the facility development will work with Manitoba Hydro to bring in a high-pressure natural gas line. As the cost of the High Pressure Natural Gas transmission line will be borne CWS the community opportunity for residents east of Dugald to Vivian will be the opportunity to gasify their residences with a more environmentally friendly heating fuel option without the capital costs of the mainline installation.

Section 2

Incorrect assumptions made and relied upon within the contents of the Brokenhead Ojibway Nation (BON) letter to you on August 24, 2020.

On July 16, 2020, CWS submitted an Environmental Act Proposal for the development of a sand Processing Facility located near Vivian, Manitoba. Within the application a discussion of how the sand is transported at 15% by volume is presented. This is not how the sand is extracted from the formation and the BON letter incorrectly calculates extracted water based on this 15% volume. As noted above, CWS has developed a net zero water balance during extraction (harvesting).

When the sand itself is produced at the extraction point, the sand is placed into a water transportation loop system at 15% sand by volume, the water in the loop already exists as we recycle the water. Think if it like a water park ride, the slide always has water flowing through it and the rider merely enters the slide, rides the water and exits when the trip is over. The closed loop acts like a water ride for the sand from the extraction site to the facility, then the water is returned to pick up and transport more sand.

The wet plant does not require any additional water for washing the sand as the source water in the plant is from the continuous loop and recycled. There is no requirement for discharge of produced water. The water within the loop is fully recycled.

For clarity;

- The extraction is not part of the current EAP and no discussion on the extraction process or methodology was included in the Processing Facility EAP;
- The calculation by Mr. LeNeveu and Mr. Sullivan of amount of water produced is erroneous and incorrect and not from CWS;
- No water is discharged to surface at anytime;
- The Facility in the EAP is clearly stated to consume 200-300 USG per day only;
- The wet plant does not require additional water and acts as a sand depositor and water filtration system for recycling the water in the loop;
- The transportation loop is a continuous loop and uses recycled water;

- The sand piles at the facility are placed on engineered surfaces to capture any water run off should it exist, including rain and snow melt and recycle the water;
- The sand minerology has been provided to Manitoba Mines Branch for review.

With the greatest respect to the letters submitted by CanWhite's opponents the statements made are materially and factually incorrect. It would not be possible for one individual to be an expert or be familiar with the materials and studies being worked on or completed by the hundreds of people involved on this Project who are all third party from Internationally recognized firms specializing in the fields required to bring this Project to fruition.

The following are responses outlining incorrect information within the submitted letters found in the Canadian Impact Assessment's Registry relating to the Vivian Sand Processing Project. The Response Items discuss each letter on the registry and refer to the contents and figures within the associated documents.

Response Item #1

Title: Comments on Vivian Sand Facility Project Public Registry no. 6057

Author: D.M. LeNeveu

Date: August 24, 2020

Introduction Comments

- CWS is not solution mining
- Sustainable yield is not affected as produced water is net zero at formation
- Acid will not be produced. Minerology has been presented to the Manitoba Mines Branch and the claims of acid generation are false. Air has been used for water well drilling and water well cleanout for over 50 years in Manitoba with no adverse effects
- The air from compressors are used daily in water well drilling throughout Manitoba with no leaking of oil. The air is scrubbed of all particles and materials and oil less dry screw compressors are available.
- CWS wells are properly sealed and inspected with sealing reports filed on each well. CWS retained Friesen Drilling in addition to their own site inspections and found no irregularities with abandoned sites other than vandalism which has been addressed.
- Surface subsidence does not exist. Our sites are in fields where perfectly flat surfaces do not exist and farm equipment travel over these surfaces is common. Natural land depressions exist as well as mechanical from farm equipment working the soil. To conclude a subsidence occurred using a three foot level is not an accurate measurement. All former sites of CWS have been inspected in 2020 with no subsidence present. Stantec have verified the borehole design.
- The continuous loop water is recycled through a filtering plant and no water is discharged to surface. Should a flocculant be needed, it would be food grade, biodegradable flocculant will be used which has been proven to be environmentally inert and in current use for the production of domestic drinking water in plants throughout North America.
- No water is being discharged from any part of the CWS process and excess slurry water does not exist
- No surface discharge occurs, and the Brokenhead River is not at risk
- CWS is located within an industrial zoned area bordered by two provincial highways and one of CN rails main lines across Canada. CWS studies indicate property values will increase with the plant development.

- Mr. LeNeveu's opinion of markets are just that, an opinion. CWS is willing to make its investment within the current market conditions as CWS is a high purity industrial sand project and not a fracking supply company. No environmental legacies exist as borehole mining require active closure plans and all wells will be immediately abandoned upon completion of sand harvesting.
- Sand Sieve analysis has been provided to Manitoba Mines Branch and Manitoba Health and the sand size had been proven to not be a health threat. As the sand is produce wet, transported wet and processed in a negative pressure environment CWS air quality studies show no risk to adjacent properties.
- CWS have entered discussions with a couple of Indigenous groups and Mr. LeNeveu has not been a party to these discussions so has no knowledge or facts to comment on CWS consultations
- CWS use several independent qualified experts to review the project including but not limited to; Stantec/AECOM/Golder/Process Engineers and Equipment/Industrial Accessory Company/Friesen Drillers. These reports and studies have been and will be shared with the appropriate stakeholders as they are completed.

Figure 1, the resource claim although extensive will never be developed to it full extent. A 24 year mine life, under a separate and yet to be filed EAP would only encompass approximately 10% of these mineral claims.

Water Draw on the Sandstone Aquifer

- Slurry sand content is not 15%. As noted above this is the sand to water ratio within the closed loop slurry line system. The sand extraction process is a net zero water consumption process. The water calculation and comparison for river dredging in Japan is not accurate or relevant;
- Sand is harvested at ratios as high as 90% sand and the associated water is left in the formation;
- A complete study on the harvesting and extraction process will be presented to public when available, then the EAP submission will be prepared and submitted;
- CWS has no knowledge of how the water calculation was made by Mr. LeNeveu. Regardless these numbers are incorrect;
- The current EAP does not discuss the closed loop slurry line as the continuous loop slurry line is part of the Extraction Project;
- CWS has spent 3 years and over 5 million dollars designing the now patented extraction process. It is not possible for Mr. LeNeveu to comment on its effectiveness and ability to produce a high density slurry;
- Figure 3a is a sampling tank and not a piece of equipment that would be used in permanent sand harvesting;
- Figure 3b is a clearing for Seismic and not a drainage path;
- 2019 had excessive rains with severe weather and flash flooding. The surface water from picture taken while trespassing on private land are from annual precipitation. In addition, this area is an exploration site and not a permanent facility;
- Numerous references are taken from unrelated industry, businesses and practices which are not applicable.

Pyrite and Aquifer Contamination

- CWS will not, and never has, harvested sand from the Black Island Member where pyrite could exist. Figure 5 is not a complete detail of the Winnipeg Formation. The upper member is called the Carmen member and is comprised of white silica sandstone. This is the member CWS harvests sand from. The lower members containing Pyrite are the Black Island members, these are layers CWS do not harvest sand from;
- CWS does not excavate or take sand from the Black Island members so Figure 6 and claims of Acid drainage are incorrect and not relevant;
- Any comparison to Black Island is not relevant as it is an entirely different minerology;
- Figure 8, Figure 9 are from an entirely different company, project and sand layer and has no relevance to CWS;
- Figure 10 CWS have extensive minerology tests conducted on the Vivian Sands which have been shared with relevant authorities. The results in Figure 10 are not representative of the sand minerology, nor can the sampling authenticity be verified;
- pH of the CWS sand was taken at 7.4 to 7.6 and comparing it to the Black Island sand is not scientifically correct;
- Figure 11a,b have nothing to do with CWS;
- Using the NI 43 101 report from another company, in another area, in another deposit has no relevancy to CWS;
- Figure 12 is not consistent with the material recovered by CW;
- Comparing Manitoba to California is not relevant and CWS is not pumping the Winnipeg Formation.

Improperly Sealed Boreholes

- CWS is working with the Manitoba Mine Branch and work has been properly documented and filed by Friesen Drillers.
- Figure 17 these wells are grouted and cemented as per the well reports filed with Manitoba regulatory bodies. Again, these wells are on private lands.
- CWS utilizes cement in the abandonment process preserving existing aquitards, formation separation, and impermeable barriers in accordance with Manitoba's *Groundwater and Water Well Act* the *Mines and Minerals Act*, Drilling Regulation, 1992 and the Mine Closure Regulation, 1999.
- Figure 21 a,b is not a borehole but a domestic small diameter water well. The picture clearly shows manual manipulation by shovel by non CWS representatives and standing groundwater.

Additional items within submission

- Figure 15 is not representative as the shale is not brought up by solution mining and the natural placement of shale is within a wet environment where it remains strong and intact.
- Figure 16 is from Arizona and is not relevant
- Figure 17 shows monitoring wells and a test well which are drilled to Manitoba guidelines using cement and proper grouting techniques. These wells have been abandoned to regulations.
- Figure 22 is not from sand within the Vivian area and is not representative of the minerology which has been proven repeatedly and shared with the Manitoba Mines Branch.
- Figure 23 is for sand in Michigan and not CWS sand.
- Figure 24 CWS is not a provider of sand to the Permian market and slide 24 is for in basin sand which is a different sand. CWS is a High Purity Industrial Silica deposit.
- Figure 25 is not an accurate representation of the high Purity Silica sand market.

- CWS has a High Purity deposit and defined uptake markets outside the fracking industry and is business modelled on the High Purity Industrial uses.
- Figure 26 is a centrifugal water pump used on a jet pump test. This piece of equipment was used for a short period of time during an exploration program. This piece is incorrectly identified as a compressor and is not used in the CWS process.
- Figure 27 is not representative of the Vivian sands and a sieve analysis of the sand from Vivian was processed and results given to Manitoba Mines Branch where the size distribution did not pose a health risk.
- CWS sites received two safety inspections in the Spring of 2020 and the site was deemed to not pose any health risk, including silicosis. Despite the favorable result CWS removed the surface piles of sand.

Response Item #2

Title: Environmental Impact Alert- Risk Assessment of CanWhite Sands (CWS) Project – Our Line in the Sand, Citizens Group

Author: Janine G. Gibson

Date: September 5, 2020

Critical Risk #1

- Nowhere in the EAP does it state 7.7 million cubic meters of water will be withdrawn. This is an errant and incorrect calculation by a non-qualified individual who has disseminated false and fake information on social media. CWS is unaware of how this calculation was completed;
- The plant uses 200-300 gallons per day of water.

Critical Risk #2

- High Pressure air is not use and the formation is vented to atmosphere making it impossible to overpressure the formation. The same technique and air supply used by water well drillers to drill water wells and clean out sand for over 50 years is used in lifting the sand to surface;
- CWS has many minerology studies showing no sulfides in the sand. Again, comparison to different formation members, different projects, different companies by non-experts on social media have provided false and incorrect information which is being regurgitated in this letter.

Critical Risk #3

- CWS, if required will use a food grade proven environmentally friendly flocculant which is used in the production of drinking water at facilities across North America;
- The study referred look at oilfield application, sludge and dewatering and agricultural issues with a flocculant. The application is not representative of a CWS process.

Critical Risk #4

- CWS has no surface discharge;
- CWS is not an open pit and does not have tailings ponds;
- CWS does not generate any leaching;
- CWS does not have the minerology in the sand to produce the claims made.

Critical Risk #5

- The water calculation is wrong;
- CWS process will not collapse the sandstone aquifer;
- CWS has a patent pending net zero process leaving the water in the formation;
- All of this information along with independent reports will be shared during the public engagement phase prior to a mining (harvesting) EAP submission.

Critical Risk #6

- The shale and sands are quite stable;
- The Shale Aquitard is preserved, and sink holes will not form;
- CWS will take less than 5% of the sand in place through a properly independent engineered methodology;
- All of this information along with independent reports will be shared during the public engagement phase prior to a mining (harvesting) EAP submission.

Critical Risk #7

- Freshly mined silica is cleaner than beach sand as it has been washed for hundreds of millions of years;
- Slurry extraction removes fines and wet sand cannot produce dust;
- There is a greater risk for health issues from the surface sands at beaches and parks throughout Manitoba.

Response Item #3

Title: Letter to Minister of the Environment and Climate Change, The Hon, Jonathan Wilkinson

Author: Don Sullivan

Date: August 18, 2020

The contents of Mr. Sullivan's letter are incorporated in the letters responded to above. To reiterate, the calculation of water is materially incorrect and assumed. No surface discharge is within the CWS methodology; therefore, the Brokenhead River cannot be impacted.

Response Item #4

Title: The Project is a physical activity based on the potential for the diversion of more than 10 million cubic meters of water from a natural water body to another natural water body

Author: Dennis LeNeveu

Date: September 6, 2020

- The CWS extraction process is designed to be net zero;
- The calculation of water is incorrect and from incorrect assumptions made by the author.

Response Item #5

Title: The species at risk Chestnut Lamprey Eel extant in the Brokenhead River will be endangered by this Project

Author: Dennis LeNeveu

Date: September 6, 2020

- The CWS methodology and process has no surface discharge;
- The minerology of the Vivian Sand does not generate toxic acid or heavy metal runoff.

Response Item #6

Title: Air injection into the sandstone aquifer of the Winnipeg Formation

Author: Dennis LeNeveu

Date: September 6, 2020

- Improper comparison to gas storage caverns;
- The air used in the CWS process is not high pressure air;
- The air injection is designed to stay within the extraction tube and not openly injected into the formation.

Response Item #6

Title: Comments on Manitoba Public Registry 6057 - Vivian Sand Facility Project by D.M. LeNeveu for the Manitoba public Review Process

Author: Dennis LeNeveu

Date: September 3, 2020

- Mr. LeNeveu is not aware of CWS initiatives or discussions with key Stakeholders;
- The Vivian Sand Processing Facility is located on private lands;
- Acid drainage is not possible from the minerology and more importantly the fact that CWS will not have surface discharge;
- The mineral rights of CWS are extensive but only a small percentage of the claims will be brought to market through the Vivian Sand Processing Facility.

In conclusion, CWS respectfully asks that the facts, science and independent works of the 3rd party experts be considered over the exaggerated, unrelated and incorrect assumptions and calculations.

Section 3**Response to August 17th, 2020 letter questions:****1. *Proposed water withdrawal, use, discharge and final disposal;***

The processing facility is proposed to use 200 – 300 US gallons/day (757 – 1,136 L/day), which is the approximate daily usage of a household of four to six people based on local water usage data. Water usage at the facility is limited to sinks, toilets, staff kitchen and fire suppression. Water used in the facility daily (approximately 760 to 1,135 litres per day) will be directed to a septic system that will include a septic tank and drain field/leach field. The septic system will be installed, and regularly maintained and

monitored for correct functioning, in accordance with the Onsite Wastewater Management Systems Regulation made under *The Environment Act*.

2. *The proposed area of the railway yard (loop) component of the Project;*

The rail loop is proposed to be 7.4 hectares. The centre of the loop is planned to remain as is, with tree coverage and foliage, therefore the area inside the loop was not accounted for in calculations. For information purposes, when the inner area of the loop is added, the area is 47.1 hectares, which includes the spur line to the CN Rail. It should be noted that this spur line is under ownership care and control of CN and was not included in the Processing Facility EAP. For further details on the loop design please refer to the letter, 'Updated Rail Loop Design Information' filed with the Manitoba Conservation and Climate Environmental, Approvals Branch on September 10th 2020.

3. *Any further information that you care to provide to support the Agency's understanding of the Project as proposed.*

As outlined above in Section 1 and 2.

Section 4

Response to August 24th, 2020 letter questions:

1. *Information about key project activities, maps and layouts of the location of project components, land tenure, zoning, and estimated timelines for planning, construction, operation, decommissioning and abandonment for both the Vivian Sand Processing Facility Project and the Vivian Sand Extraction Project.*

Vivian Sand Facility Project

Key Project Activities include:

- A sand wash and dry facility that will include a 'Wet Plant', a 'Dry Plant' and the following
- associated components;
 - Two outdoor stockpiles of wet sand ready to be processed;
 - One overs sand reject pile (outdoor) associated with the Wet Plant
 - One overs/fines sand reject pile (enclosed) associated with the Dry Plant;
 - Four fully enclosed storage silos for dry sand product;
 - Ancillary structures, including permanent office, staff kitchen, washrooms, operator control centre, maintenance building and storage buildings;
 - Rail loop track (approximately 3.5 km length) connecting with a Rail Load Out for direct sand product loading to enclosed railcars, and for railcar storage; and
 - A 5 m wide single-lane gravel access road approximately 1 km in length to the Project site, with 1 m wide shoulders on either side for passing.

Maps and Layouts:

Please refer to **Appendix A** of this document as well as outlined in detail in the EAP submitted to Manitoba Conservation and Climate, Environmental Approvals Branch (MBCC, EAB) in July 2020.

Appendix A contains the following figures:

- Figure 1-2 Project Site Location and Land Ownership, with original rail loop (as seen in Vivian Sand Facility EAP)
- Figure 2-2 Processing Facility Components (as seen in Vivian Sand Facility EAP)
- Figure 4-8 Land Use within the Local Project Area (as seen in Vivian Sand Facility EAP)
- Rail Concept Option 4 – drawing: Figure 1
- Rail Concept Option 4- drawing: Figure 2

Land Tenure

The Project will be located within the Rural Municipality (RM) of Springfield on private land (no Crown land is associated to this project) as illustrated in **Figure 1-2 in Appendix A**, and within the following land parcels:

- o NE-32-10-8E1
- o SE-32-10-8E1
- o SW-32-10-8E1
- o NW-29-10-8E1
- o NE-29-10-8E1

CanWhite has entered into agreements which will entitle CanWhite to purchase all privately-owned land.

Zoning

The Project site is conditionally zoned for industrial use which contemplates the proposed Project components and activities. Currently, there are agriculture and historic and active open pit aggregate/quarry operations in the local area.

Estimated Timelines

Project Phases and Activity	Proposed Schedule (subject to the results of Regulatory review)
Construction	
Site preparation (clearing vegetation, grubbing, grading, leveling) and construction of the Processing Facility and associated infrastructure	Q4 2020 to Q1 2021
Operation	
Commissioning the Wet Plant and Dry Plant; sand product production	Q1 2021 Production: Year-round; 24 hours/day, 7 days/week
Decommissioning	
Processing Facility dismantling and site reclamation	At end of Project Life (24 years): 2045

Note: QX = year quarter (e.g. Q4 = October through December timeframe)

2. *A list of all regulatory approvals (federal, provincial, municipal, other) and any federal financial assistance that would be required for the Projects and the associated components or activities.*

- Environment Act Licence – Vivian Sand Facility Project (Provincial)
- Water rights license(s) (Provincial)
- RM of Springfield - Conditional Use application for the Facility Project (Municipal)
- RM of Springfield – Development Agreement (Municipal)
- RM of Springfield – Building Permit(s) (Municipal)

3. *a) For each regulatory approval that would be required, please provide the following information:*

i. Name of the licence, permit, authorization or approval, the associated legislative framework, and the responsible jurisdiction. Whether it would involve an assessment of any of the effects outlined in the paragraphs above, and if so, a general description of the assessment that you intend to undertake. Would conditions be set and if yes, what effects would those conditions address?

- Environment Act Licence - Vivian Sand Facility Project (Provincial)
 - Approval by: Manitoba Conservation and Climate, Environmental Approvals Branch
 - Assessment as “manufacturing and industrial plant” which is a class 2 development in section 3 of the Classes of Development Regulation made under *The Environment Act*.
 - Assessment by all impacted departments including but not limited to; Manitoba Health, Manitoba Infrastructure, Forestry, Wildlife and Fisheries Branch, Agriculture and Resource Development, Environmental Compliance and Enforcement, Lands Branch.
 - Assessment evaluates, description of proposed development, description of existing environment within the project area, description of environmental and human health effects of proposed development, mitigation measures and residual environmental effects, and follow-up plans including monitoring and reporting.
 - Further details in **Appendix B** – Environment Act Proposal Report Guidelines.
- Water rights license(s) (Provincial)
 - Approval by: Manitoba Conservation and Climate - Drainage and Water Rights Licensing Branch
 - Authorization under *The Water Rights Act* to withdraw and divert groundwater for 2 domestic wells located on the facility site for fire suppression, sinks, toilets etc.
 - Assessment includes; volume to be pumped, rate of pumping, duration, location of wells, size and depth of well, impact on local users.

- RM of Springfield - Conditional Use application for the Facility Project (Municipal)
 - Approval by: RM of Springfield Municipal Council.
 - Required under the Springfield Zoning By-law No. 08-01. Public hearing required in accordance with the Provincial *Planning Act*.
 - Assessment includes; a) relationship to and compliance with the RM of Springfield Development Plan and Council policy; b) compatibility with surrounding development in terms of land use function and scale of development; c) traffic impacts; d) relationship to, or impacts on utility services and public facilities such as recreational facilities and schools; e) relationship to Municipal land, right-of-way or easement regulations; f) effect on stability, retention and rehabilitation of desirable existing uses, buildings, or both in the area; g) relationship to the documented concerns and opinions of area residents regarding the application; h) groundwater and soil conditions; and i) topographical, physical and natural features, and others.
 - Conditions stipulated by council may include; a) additional buffering measures such as increased yard setbacks, berms and fencing; b) performance standards dealing with such potential impacts as noise, odour and vibration; c) limiting the hours of operation; d) imposing design and siting regulations including landscaping, outdoor lighting, refuse and storage areas, and building design and architectural appearance; e) the owner/applicant upgrading certain municipal services such as roads and ditches; f) a letter of credit related to municipal improvements such as road or drainage works; g) liability insurance protecting the municipality from any future legal claims, including environmental contamination to water sources; or h) the owner/applicant entering into a development agreement with the Municipality and others.
- RM of Springfield – Development Agreement/Permit (Municipal)
 - Approval by: RM of Springfield Municipal Council.
 - Required under the Springfield Development plan, in accordance with the Provincial *Planning Act*.
 - Assessment includes timing of construction of any proposed buildings or structures; the control of traffic; and the construction and maintenance of roads, fencing, landscaping, shelter belts, manure storage facility covers or site drainage works by or at the expense of the proponent
- RM of Springfield – Building Permit(s) (Municipal)
 - Approval by: RM of Springfield Municipal Council.
 - Required for applicable building codes and standards.

iii. *Whether public and/or Indigenous consultation would be required and if yes, provide information on the approach you intend to take (if any steps have been taken, please provide a summary, including issues raised as well as your responses).*

The Project Site is located within Treaty No. 1 area (Indian and Northern Affairs Canada, 2017). There are no First Nation reserve lands within the Local or Regional Project Area. The closest First Nation reserve lands to the Project Site is the Brokenhead Ojibway Nation's Na-Sha-Ke-Penais Indian Reserve (3 ha) surrounded by East St. Paul and located 40 km northwest of the Project Site.

The Regional Project Area is within an area recognized by the Manitoba Metis Federation as an area for Metis Natural Resource Harvesting (The Metis Economic Development Organization, 2018) which corresponds with the Manitoba Conservation and Climate Game Hunting Area (GHA) number 35 within which the Project Site is located (Manitoba Sustainable Development 2019).

The Project Site is comprised of land held in fee simple by private landowners and/or land used for municipal and public purposes and is currently zoned for 'aggregate' by the RM of Springfield. No aspects of the Project will involve Crown land. Therefore, the Project Site itself is not currently available for the exercise of Indigenous or Treaty rights.

CanWhite has to date met with the Manitoba Métis Federation (May 30, 2019 and August 19, 2020) and with a representative from the Southern Chief's Organization. The Company also intends to reach out and provide details on the Project to the Brokenhead Ojibway Nation and will take into account their concerns.

The following additional Public consultations are required per each provincial or municipal approval:

- Environment Act Licence – Vivian Sand Facility Project (Provincial)
 - Public Engagement required. All steps taken are outlined in Section 5 Engagement Program of the Vivian Sand Facility Project Environment Act Proposal filing. The following engagement steps have been taken:
 - Initial public meetings occurred in 2017 with general project meetings to introduce the company.
 - In April 2019, additional general meetings were held in La Broquerie, Anola and Richer to share general overview that sand was being targeted by the project.
 - A Project email (info@viviansandproject.com) launched May 11, 2020
 - A Project toll-free number: 1-888-436-5238 launched May 11, 2020
 - Information Flyers sent out May 11, 2020
 - Newspaper advertisement posted in *The Clipper* local newspaper on May 14, 2020
 - A Project website www.viviansandproject.com launched May 18th, 2020
 - Mail-out information packages sent out May 21, 2020
 - A Virtual Open House presentation held May 26, 2020, 7:00 pm
 - A briefing with the RM of Springfield Council was held prior to the formal Virtual Open House event on May 19, 2020 at 12:00 PM. During this briefing, the engagement plan, public presentation, website and information package materials were presented to Council for review.

- Water rights license(s) (Provincial)
 - None required.
- RM of Springfield - Conditional Use application for the Facility Project (Municipal)
 - Public hearing required. All formal documentation has been filed with the Municipality, awaiting a date for public hearing.
- RM of Springfield – Development Agreement (Municipal)
 - None required.
- RM of Springfield – Building Permit(s) (Municipal)
 - None required.

b) Identify whether any licence, permit, authorization or approval listed above would address any of the following matters:

i. Issues raised by the requester a. Impacts due to water withdrawal quantity

Water required for the project will be limited to sinks, toilets, and fire suppression, and this water will be obtained from two domestic wells located on site. CanWhite does not anticipate any impacts or effects on the water quality.

b. Impacts on water quality due to releases or accidents

The two wells on the facility site used for fire suppression, sinks and toilets for employees will be constructed, operated and decommissioned in accordance with the provincial regulations. They will be sealed on surface to protect from any foreign particles entering that may result from any release or accident on surface as is standard practice for domestic and other facility water wells.

c. Impacts on soil quality

An assessment of soil impacts has already been conducted and outlined in Section 6.2.2 of the Vivian Sand Facility Project Environment Act Proposal filing as the following:

Magnitude of Effect: Minor

Direction of Effect: Adverse

Duration of Effect: Long term

Frequency: Intermittent

Scope of Effect: Project Site

Reversibility: Reversible

Construction activities have the potential to cause soil erosion, including clearing, levelling, and construction of the site access road, Wet Plant and Dry Plant, rail loop and associated Project components. Soil erosion can potentially increase during high wind and precipitation events, which are expected to be most frequent during the months of May to September. Soil erosion may affect other environmental components, such as air quality (e.g. dust from soil disturbance), water quality, and vegetation.

To mitigate the effects of soil erosion, the following measures will be incorporated:

- An Erosion and Sediment Control Plan will be implemented for the construction and decommission phases of the Project.
- Areas disturbed during the construction phase that are not required for the Project operation phase (e.g. equipment laydown areas) will be revegetated as quickly as feasible to stabilize the soil and minimize soil erosion.
- During the Project decommissioning phase, after Project components have been removed, the landscape will be leveled and graded, and disturbed areas will be revegetated as quickly as feasible to stabilize the soil and minimize soil erosion.

With the application of the above measures, the potential for soil erosion and associated adverse impacts to the surrounding environment are anticipated to be minor and restricted to the Project Site.

d. Contamination of fish bearing waters

There are no lakes, rivers or streams within the Project Site. The Brokenhead River is the closest major waterbody which is located approximately 6 km east of the Project Site. Although the Local Project Area has some wetlands, artificial ponds and ephemeral drainage areas primarily associated with aggregate quarries and other developments in the area which are not directly connected with permanent natural waterways. Due to the absence of fish bearing waters, no Project related impacts on fish and fish habitat are anticipated.

There is a misconception that fish bearing waterways will be affected by discharge from the facility. As previously stated, there is no water discharge from the facility. All water is contained and recycled, therefore there is no credible potential impact to the Brokenhead River.

e. Impacts on air quality and atmospheric environment, including noise and light pollution

An extensive air quality model and study, noise model and study and overall assessment of impacts has been conducted. The facility Project is not anticipated to impact air quality, or the atmospheric environment, due to its location away from residential, and surrounding of trees, as well as a dust management plan as well as noise and dust monitoring programs in development.

Please see **Appendix C** for the full assessment completed in the Facility Project Environment Act Proposal.

f. Impacts to human health, and socioeconomic conditions

Human health and wellbeing as well as socioeconomic conditions were thoroughly assessed and detailed in Section 6.6 - Socioeconomics and 6.6.4 Human Health of the Vivian Sand Facility Project Environment Act Proposal Human health was found to be negligible due to the noise and dust monitoring, as well as the high safety standards and training to be implemented throughout the life of the project. The socioeconomic conditions were assessed to be positive or negligible for all other assessment items, such as land and resource use, infrastructure services, and labour force and employment, effects on Indigenous and Treaty Rights and heritage resources.

Please see **Appendix C** for the full assessment completed in the Facility Project Environment Act Proposal.

ii. If yes, discuss, in general, the benchmarks or standards that you intend to meet (or would be expected to meet).

iii. If the Projects are anticipated to result in permanent changes or cumulative effects, how you intend to manage those impacts

The Project is expected to last 24 years prior to decommissioning. At the Project end of life, the facility site which contains permanent structures etc. for the Project, will be returned to a natural state to the extent feasible. The decommissioning of the facility site will generally include the following activities:

- Removal of buildings, and foundations as applicable;
- Removal and disposal of miscellaneous infrastructure (e.g. power lines, generators);
- Removal of fuel and oil tanks, as applicable;
- Testing and remediation of contaminated soils, as required;
- Decommissioning (sealing) of the two on-site Processing Facility water wells;
- Re-grading and contouring of previously disturbed areas; and
- Revegetation of disturbed areas to restore the landscape to native conditions to the extent feasible.

Following revegetation through reseeding efforts at the decommissioned facility site, the establishment of shrubs and trees is expected to be evident within 5 to 10 years following closure.

4. For all federal licences, permits, authorizations, approvals, and/or financial assistance that may be provided for the Projects, describe any anticipated adverse direct or incidental effects (including changes to health, social and economic conditions) that may occur as a result.

No federal licences, permits, authorizations, approvals or financial assistance will be required or sought for the Project. The Project is not anticipated to cause any negative adverse effects to the health, social or economic conditions. Steps are being taken at every stage of the Project to prevent and protect any danger to humans or the environment. Industry standards, provincial regulations and safety precautions are strictly adhered to at all work sites. These include but are not limited to a dust mitigation plan, dust and noise monitoring, personnel safety training, driving safety, wildlife awareness, waste and hazardous waste disposal and ground water monitoring and management.

5. What steps have you taken to consult with the public? What steps do you plan to undertake during all phases of the Projects? Are you aware of any public concerns in relation to this projects? If yes, provide an overview of the key issues and the way in which (in general terms) you intend to address these matters?

To date, public engagement has occurred in phases and different forms. In April 2019 during the early planning phase, CanWhite held public meetings in Anola, Richer and La Broquerie, Manitoba to introduce CanWhite and provide information about the potential for a future silica sand project in their regional areas. The proposed location for the Processing Facility had not been determined at that time; therefore, formal public feedback regarding a proposed silica sand processing facility was not obtained during these early public engagement meetings.

A formal engagement process for the processing facility was initiated in 2020. As previously described above, all forms of communication were used to share information about the Project. An advertisement was published on May 14, 2020 in the local newspaper (The Clipper) informing the public about the Project, Virtual Open House, project website launch date (May 18th, 2020), Project email and toll-free CanWhite contact number. Members of the public that were interested in more information, looking to register for the Virtual Open House or to provide any comments and/or questions were directed to the Project website to send an email to info@viviansandproject.com or to call the toll-free number 1-888-436-5238.

Information packages were mailed to any local residents who requested hard copies of the information presented on the website. Additionally, 20 information packages were mailed to the RM of Springfield municipal office on May 21, 2020 for general public to pick up.

A Virtual Open House in the form of a live Project presentation by CanWhite followed by a question and answer session was held on May 26, 2020 from 7:00 PM to 9 PM. This was held online as a webinar format due to the coronavirus restrictions and previously approved by provincial regulators as acceptable. It featured a presentation on the facility Project plans followed by a question and answer period where attendees could submit questions to be answered live.

CanWhite maintained a record of correspondences throughout the engagement phase to track and respond to all emails and/or calls pertaining to the Project. Emails received were provided with an immediate autoreply informing the public that their inquiry would be responded to within two business days. Phone calls received after the Virtual Open House was held were provided with a reply within two business days. CanWhite's to respond to all inquires as received.

CanWhite is aware of some key issues and concerns of the public, including water quality, water usage, dust, noise and overall environmental impact. CanWhite has taken steps to mitigate each one of these concerns with various measures, studies and general operating procedures as outlined in the Facility Project Environment Act Proposal and above. Many of the latest concerns from the public arise from inaccurate information being presented by members of the public about the water usage and overall plans that CanWhite has not yet released. It has been communicated that once information is available CWS will engage with the public in the community including the Brokenhead Ojibway Nation, then the Extraction Project Environment Act Proposal will be prepared and submitted.

6. *What steps have you taken to consult with Indigenous communities? What steps do you plan to undertake during all phases of the Projects? Are you aware of any Indigenous community concerns in relation to these projects? If yes, provide an overview of the key issues and the way in which (in general terms) you plan to address these matters?*

The Project Site is located within Treaty No. 1 area (Indian and Northern Affairs Canada, 2017). There are no First Nation reserve lands within the Local or Regional Project Area. The closest First Nation reserve lands to the Project Site is the Brokenhead Ojibway Nation's Na-Sha-Ke-Penais Indian Reserve (3 ha) surrounded by East St. Paul and located 40 km northwest of the Project Site.

The Regional Project Area is within an area recognized by the Manitoba Metis Federation as an area for Metis Natural Resource Harvesting (The Metis Economic Development Organization, 2018) which

corresponds with the Manitoba Conservation and Climate Game Hunting Area (GHA) number 35 within which the Project Site is located (Manitoba Sustainable Development 2019).

The Project Site is comprised of land held in fee simple by private landowners and/or land used for municipal and public purposes and is currently zoned for 'aggregate' by the RM of Springfield. No aspects of the Project will involve Crown land. Therefore, the Project Site itself is not currently available for the exercise of Indigenous or Treaty rights.

CWS has to date met with the Manitoba Métis Federation (May 30, 2019 and August 19, 2020) and with a representative from the Southern Chief's Organization.

The Company also intends to reach out and provide details on the Project to the Brokenhead Ojibway Nation and will take into account their concerns. CWS was not aware of any concerns by any Indigenous Communities until the issuance of this letter, as no communication has been received.

7. *Do you have any other comments in relation to environmental effects or impacts to the public or Indigenous peoples and how you intend to address and manage those?*

At this time no environmental effect or impacts to the public or Indigenous people are expected from the Facility Project. All potential effects are mitigated as previously mentioned including but not limited to; a dust mitigation plan, dust and noise monitoring, personnel safety training, driving safety, wildlife awareness, waste and hazardous waste disposal and ground water monitoring and management.

8. *Explain your views on whether the Projects should be designated under the IAA.*

Thank you for the opportunity to state our position in this regard. The impacts to be taken into account in accordance with the *Impact Assessment Act* are those deemed in the Act to be within federal jurisdiction, as described in section 7 of the Act. Based on the information summarized above, there is no credible pathway for any of these effects to occur. The environmental baseline information described in the submission to Manitoba will apply equally to any future extraction project.

In response to the specific matters set out in section 7(1)(b), both the proposed Processing Facility Project and the Extraction Project, will be carried out in Manitoba on land held in fee simple by private owners. There will be no Crown Land usage for any aspect of the Project. We do not anticipate adverse effects outside the very limited geographic scope of the Projects, which are certainly well within Manitoba, either on or immediately adjacent to the land to be used for the processing plant project.

Neither project will require any federal permit, approval or license and there is no federal funding involved.

With respect to section 7(1) (a) (i) and (ii), there is no potential interaction between either Project and any surface water or other area that otherwise could be characterized as fish habitat as previously outlined above.

When CWS proceeds with the Extraction Project EAP, a public engagement process, including any Indigenous community interested in the Projects, will be carried out to inform and include input from potentially affected or otherwise interested communities. Specifically, with respect to the matters covered in section 7(1)(c), there is no possibility of any such impact, since both projects will be carried out on privately-owned land to which Indigenous communities would not at this time have a right of access.

Similarly, there is no credible pathway for any interaction between either project and the health, social or economic conditions of Indigenous peoples. Any conclusion to the contrary could be based only on misunderstandings, which we have outlined in Section 2 of this response and are taking steps to correct publicly.

Concerning 7(1) (a) (iii), all activities will be carried out respecting regulatory guidelines that apply to migratory birds and no impact of any nature is anticipated to occur on migratory birds.

If you require any additional information or would like further clarity on any aspect of our submission, please do not hesitate to reach out to me.

Best Regards,
<original signed by>

Feisal Somji, B.Sc., MBA
President and CEO
CanWhite Sands Corp.

cc:

Jennifer Winsor P. Eng. (Manitoba Conservation and Climate, Environmental Approvals)
Siobhan Burland Ross (Manitoba Conservation and Climate, Environmental Approvals)

Attachments:

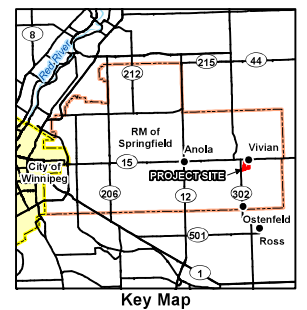
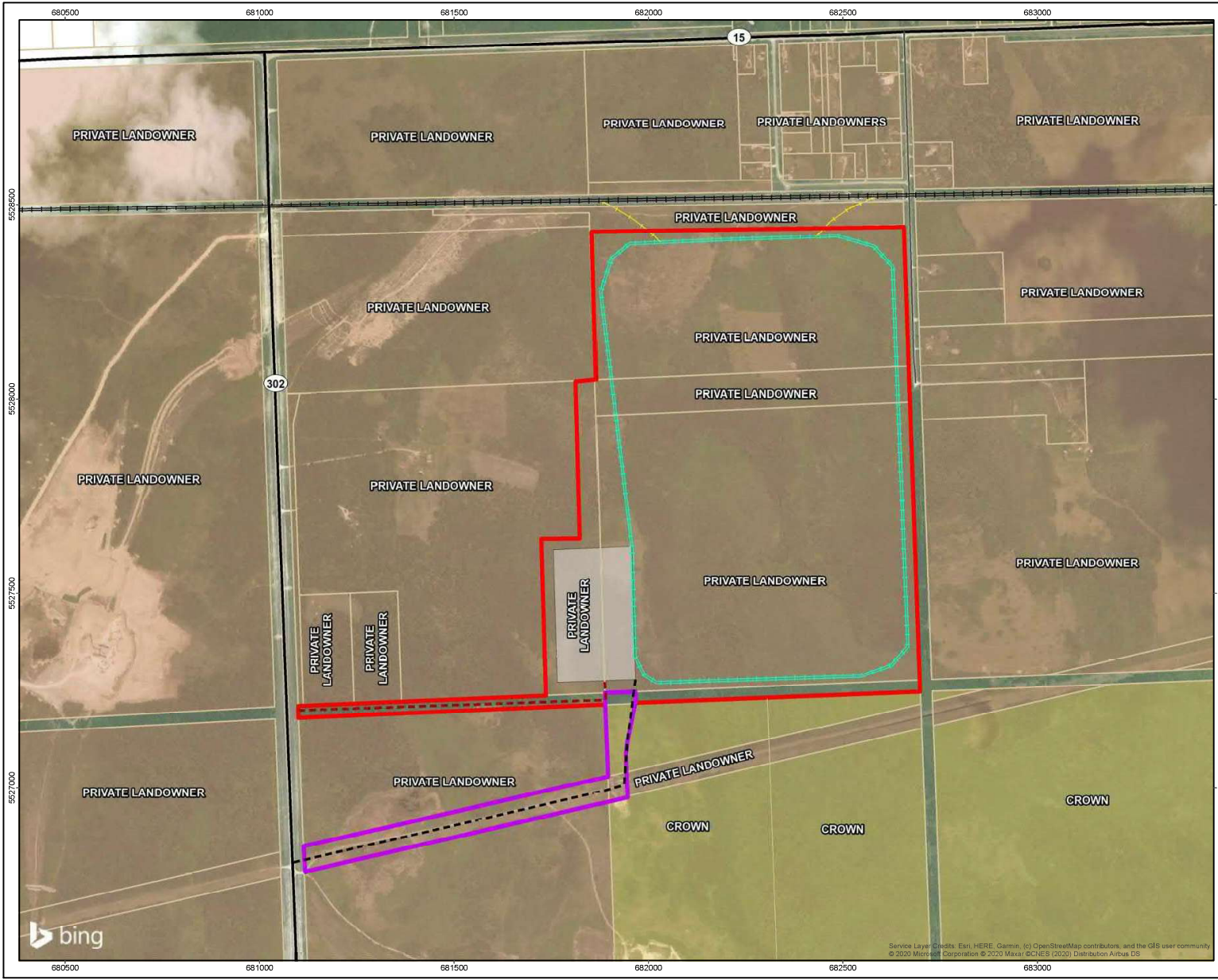
- Appendix A – Maps and Layouts
- Appendix B – Environment Act Proposal Report Guidelines
- Appendix C – Section 6.0 - Environmental Assessment and Mitigation Measures - of Vivian Sand Facility Project – Environment Act Proposal (EAP) Application



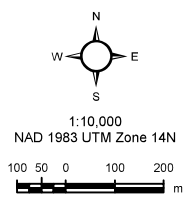
Appendix A

Maps, Layouts

Last saved by: PAUL.CROSSMAN (2020-06-30) Last Plotted: Tue Jun 30, 2020
 File Name: L:\ENVIRONMENT\GIS\STEPHANIE CLARKE\MINNIEGWAMA_6862985602_LANDS\WVWVW SAND FACILITY PROJECT\1001-2-3_6862985602_SITELLOCATION\LANDOWNERS\PRJ.MXD
 Project Management Initials: Designer: Checked: Approved:
 5528000 5528000 5528000 5528000 5528000 5528000
 ANS B 279-4mm x 431.8mm



- Legend**
- ▭ Project Site
 - ▭ Project Site – Temporary Use
- Project Components**
- ▭ Wet Plant and Dry Plant Location
 - ▭ Rail Loop
 - ▭ Train Spurs
 - ▭ Permanent Access Road
 - ▭ Temporary Access Road
- Land Ownership**
- ▭ Crown Land
 - ▭ Private Land
- General Features**
- ▬ Highway
 - ▬ Road
 - ▬ Canadian National Railway
 - ▭ Land Parcels

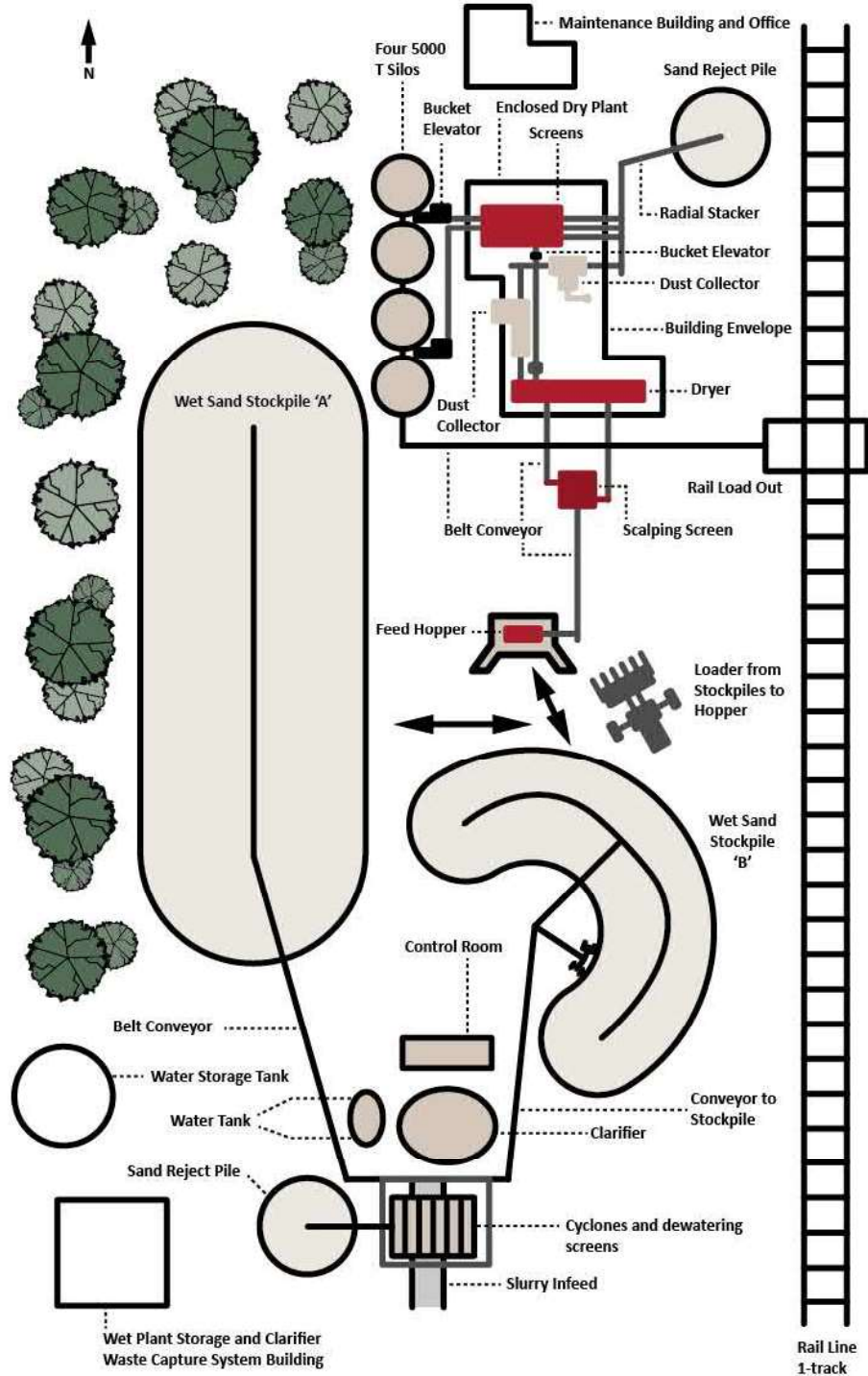


Basemap: Canvec; CanWhite Sands Corp., 2019

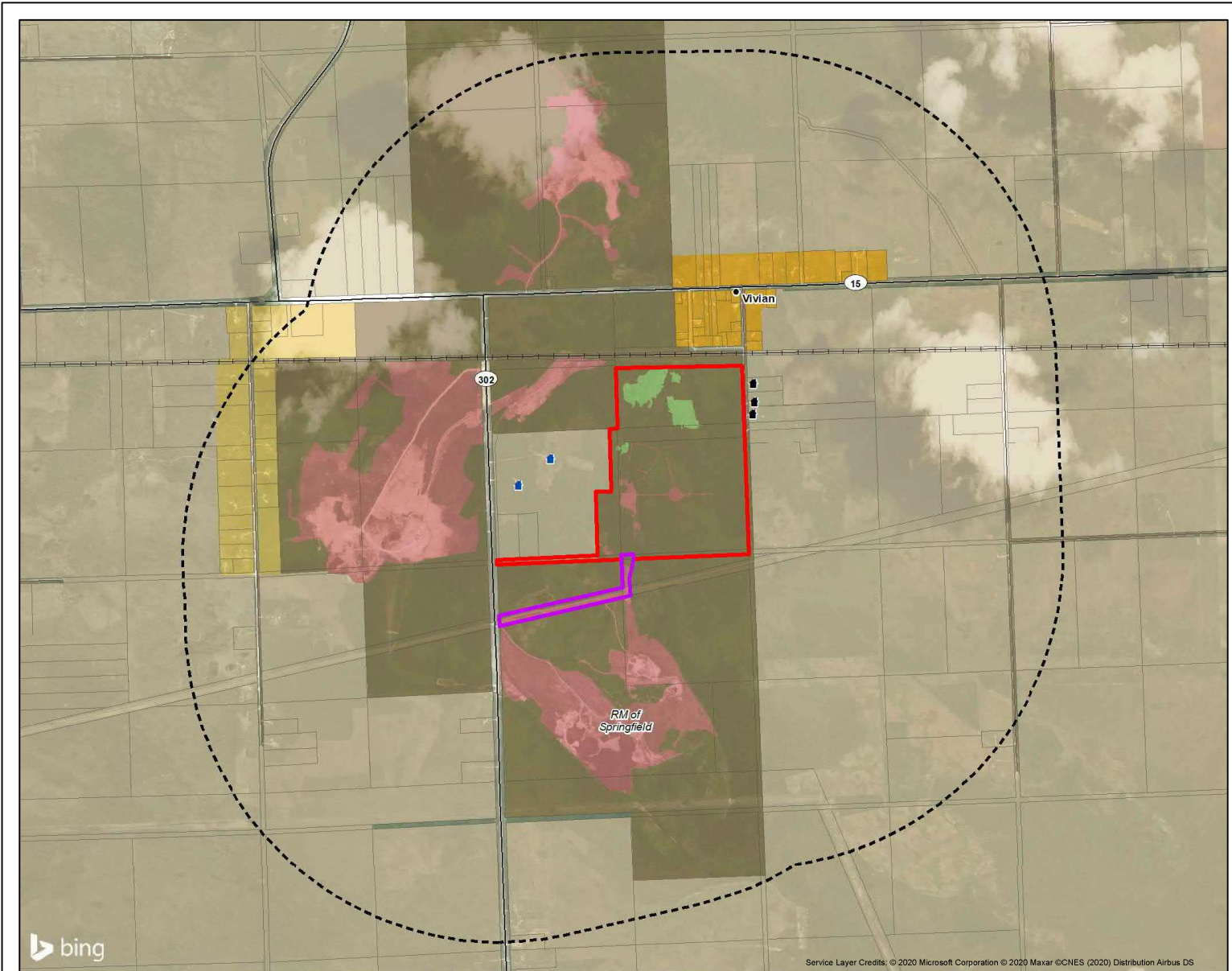
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AECOM
Vivian Sand Facility Project
Project Site Location and Land Ownership
 CanWhite Sands Corp.
Figure: 1-2

Figure 2-2: Processing Facility Components



*Not to Scale.



Legend

- Project Site
- Project Site – Temporary Use
- Local Project Area

Land Use

- Rural/Agricultural
- Rural Residential
- Settlement Centre
- Industrial
- Quarry and Mineral Exploration Activities
- Previous Tree Cutting / Harvesting Activities in the Project Site Area

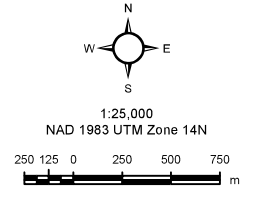
Nearest Residences

- Nearest Residences to the Rail Loop* Infrastructure
- Nearest Residences to the Wet Plant and Dry Plant* General Site Area

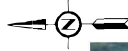
General Features

- Highway
- Road
- Railway
- Assessment Parcel

NOTE:
* Refer to Figure 2-2 for the locations of Processing Facility Components



Basemap: Manitoba Government; Carvec; NRCan
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LEGEND

	AREA BOUND BY OUTER LOOP =7.4ha
	AREA BOUND BY INNER LOOP =39.5ha
	AREA BOUND BY CN R/W =0.2ha
TOTAL = 47.1ha	

Figure 1

*DISPLAYED SCALES ARE ONLY ACCURATE WHEN PLOTTED AS ANSI D SIZE (22"x34"). SCALES SHALL BE DOUBLED WHEN PLOTTED ON ANSI B SIZE (11"x17")

NOTES:
1. COORDINATES SHOWN ARE FOR REFERENCE AND HAVE NOT BEEN SURVEYED.

REV.	REVISION DESCRIPTION	BY	DATE	CHD	APPD
A	ISSUED FOR APPROVAL	SM	2020-09-04		

ENGINEER'S STAMP

PERMIT NO.:

PROJECT NO.: XXX.01.01				
	DRAWN	CHECKED	DESIGN	APPROVED
BY	SM			
DATE	2020-09-04			

TRANSENERGY		
RAIL CONCEPT OPTION 4 RAIL LAYOUT OVERALL SITE PLAN AREA SKETCH		
SCALE 1/2500	DRAWING NUMBER XXX0101-RL-SPN-00002	REV. A

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 LAST SAVED DATE: 2020-09-09 4:39:24 PM BY: JSCOT
 PLOTTED DATE: 2020-09-09 4:46:29 PM BY: JSCOT



TRACK LENGTHS
 A/D TRACK 1 = 2,611m
 A/D TRACK 2 = 1,882m
 SERVICE TRACK 1 = 411m
 SERVICE TRACK 2 = 561m
 CONNECTION TRACK = 304m
 ENTIRE LOOP TRACK LENGTH = 2,611m

Figure 2

*DISPLAYED SCALES ARE ONLY ACCURATE WHEN PLOTTED AS ANSI D SIZE (22"x34"), SCALES SHALL BE DOUBLED WHEN PLOTTED ON ANSI B SIZE (11"x17")

NOTES:
 1. COORDINATES SHOWN ARE FOR REFERENCE AND HAVE NOT BEEN SURVEYED.

REV.	REVISION DESCRIPTION	BY	DATE	CHD	APPD
A	ISSUED FOR APPROVAL	SM	2020-09-04		

ENGINEER'S STAMP

PERMIT NO.:



PROJECT NO.: XXX.01.01

DRAWN	CHECKED	DESIGN	APPROVED
BY	SM		
DATE	2020-09-04		

TRANSENERGY		
RAIL CONCEPT OPTION 4 RAIL LAYOUT OVERALL SITE PLAN SKETCH		
SCALE 1/2500	DRAWING NUMBER XXX0101-RL-SPN-00001	REV. A



Appendix B

Environmental Act Proposal Report Guidelines

These guidelines apply to all Environment Act Proposals (EAPs) under The Environment Act. They prescribe what is required in report(s) supporting the EAP, and the quantity and types of copies required.

Separate, supplementary guidelines exist for certain types of developments, indicating additional information required. These guidelines are available on the Environmental Approvals Branch (EAB) webpage (<http://www.gov.mb.ca/sd/eal>) or by contacting the EAB.

DEVELOPMENT ENVIRONMENTAL ASSESSMENT (EA) REPORT

This information is based on the Licensing Procedures Regulation (Manitoba Regulation 163/88). Note that where Imperial measurements are used, metric equivalents must be listed as well.

The EA Report typically contains the following:

- Executive summary
- Introduction and background
- Description of proposed development, including construction, operation, maintenance, and decommissioning if applicable
- Description of existing environment in the project area
- Description of environmental effects of the proposed development
- Description of the human health effects of the proposed development
- Mitigation measures to protect the environment and human health, and residual environmental effects
- Follow-up plans, including monitoring and reporting
- Conclusions

Definitions

“environment” means

- (a) air, land and water, or
- (b) plant and animal life, including humans

“environmental health” means those aspects of human health that are or can be affected by pollutants or changes in the environment

“pollutant” means any solid, liquid, gas, smoke, waste, odour, heat, sound, vibration, radiation, or a combination of any of them that is foreign to or in excess of the natural constituents of the environment, and

- (a) affects the natural, physical, chemical, or biological quality of the environment, or
- (b) is or is likely to be injurious to the health or safety of persons, or injurious or damaging to property or plant or animal life, or
- (c) interferes with or is likely to interfere with the comfort, well being, livelihood or enjoyment of life by a person.

Introduction and Background

- Need or rationale for the development, purpose, and alternatives; may include one or more of the following depending on the development:

- products or services to be provided and process technologies to be used;
- quantitative information on the volumes or amounts of products or services as applicable;
- current population trends, if a specified population is to be served by the development; and
- reference to previous studies and activities relating to feasibility, exploration, or project siting and prior authorization received from other government agencies.

Description of Proposed Development

- Certificate of Title showing the owner(s) and legal description of the land upon which the development will be constructed; or, in the case of highways, rail lines, electrical transmission lines, or pipelines, a map or maps at a scale no less than 1:50,000 showing the location of the proposed development.
- Owner of land upon which the development is intended to be constructed, and of mineral rights beneath the land, if different from surface owner.
- Existing land use on the site and on land adjoining it, as well as changes that will be made in such land use for the purposes of the development.
- Land use designation for the site and adjoining land as identified in a development plan adopted under The Planning Act or The City of Winnipeg Act, and the zoning designation as identified in a zoning by-law, if applicable.
- Description of proposed development and schedule for stages of the development, including proposed dates for planning, design, construction, commissioning, operation, and decommissioning and/or termination of operation (if known), identifying major components and activities of the development as applicable (e.g. access road, airstrip, processing facility, waste disposal area, etc.).
- Funding, including the name and address of any government agency or program (federal, provincial or otherwise) from which a grant or loan of capital funds have been requested (where applicable).
- Other federal, provincial or municipal approvals, licences, permits, authorizations, etc. known to be required for the proposed development, and the status of the project's application or approval. (Information on federal approval requirements may be obtained from the Canadian Environmental Assessment Agency at <http://www.ceaa-acee.gc.ca/default.asp?lang=En&n=D75FB358-1>.)
- Results of any public consultations undertaken or to be undertaken in conjunction with project planning.

Description of Existing Environment in the Project Area

- The biophysical environment as related to the development, including topographic and base maps and aerial photographs as necessary, as follows:
 - description of the local area and regional setting including important terrain features such as hills, valleys, lakes, rivers, shorelines, etc;
 - description of the prevailing climate and meteorological conditions, and identification of any nearby climate monitoring stations;
 - identification and description of local and regional surface waterbodies (lakes, rivers, wetlands, etc.) and description of the regional groundwater conditions including aquifers, recharge areas, quality, wells, etc.;
 - description of the aquatic environment including fish resources, fish habitat, benthic invertebrates, aquatic macrophytes, etc. for each waterbody that could be affected by the proposed development;
 - description of the terrestrial environment including vegetation, wildlife (mammals, birds, amphibians, reptiles, etc.), wildlife habitat, etc. that could be affected by the proposed development;
 - identification and description of any rare, threatened or endangered species or any important or sensitive species and/or habitats, particularly if federally and/or provincially protected; and

- identification and description of the existing land and resource uses in the region including agriculture, forestry, mining, hydroelectric, oil and gas, recreation, tourism, etc.
- The socioeconomic environment as related to the development, including topographic and base maps and aerial photographs as necessary, as follows:
 - identification of any existing public safety and human health risks in the development area;
 - identification and description of protected areas (e.g. national and provincial parks);
 - heritage resources (e.g. archaeological and historic sites), etc; and
 - identification of Indigenous communities in the vicinity of the proposed development.

Existing environmental information may come from sources such as site visits, previous studies, environmental databases, baseline data, ecological land classification, and traditional ecological knowledge.

Description of Environmental and Human Health Effects of the Proposed Development

- Potential impacts of the development on the environment, including, but not necessarily limited to:
 - impact on biophysical environment, including wildlife, fisheries, surface water, groundwater, and forestry resources;
 - type, quantity and concentration of pollutants (emissions, effluents and solid wastes) to be released, and the technologies proposed to contain or treat the waste streams;
 - information on the storage, transportation and disposal of any hazardous wastes that may be produced;
 - identification of any storage of gasoline or associated products (e.g. diesel fuel, used oil, heating oil, aviation gas, solvents, isopropanol, methanol, acetone, etc.);
 - impact on heritage resources;
 - socio-economic implications resulting from environmental impact; and
 - climate change implications including a greenhouse gas inventory calculated according to guidelines developed by Environment Canada (<http://www.ghgreporting.gc.ca/GHGInfo/Pages/page15.aspx>) and the United Nations (<http://www.ipcc-nggip.iges.or.jp/public/index.html>).
- Potential impacts of the development on human health and safety, including, but not necessarily limited to:
 - potential impact on human health and safety resulting from any release of pollutants, including a human health risk assessment.
- Potential impacts of the development on Indigenous communities, including, but not necessarily limited to:
 - direct impacts on communities in the project area;
 - resource use, including hunting, fishing, trapping, gathering, etc.;
 - cultural or traditional activities in the project area.

Mitigation Measures and Residual Environmental Effects

- Proposed environmental management and risk mitigation practices to be employed to prevent or mitigate adverse implications from the impacts identified above, having regard to, where applicable:
 - mitigation incorporated at the planning and design stages;
 - containment, handling, monitoring, storage, treatment, and final disposal of pollutants;
 - conservation and protection of natural or heritage resources;
 - environmental restoration and rehabilitation of the site upon decommissioning; and
 - protection of environment and human health.
- Residual environmental effects remaining after the application of mitigation measures, to the extent possible expressed in quantitative terms relative to baseline conditions.
- Description of control technology as compared to best available control technology.

Follow-up Plans, including Monitoring and Reporting

- Proposed follow-up activities that will be required at any stage of development (e.g. monitoring, inspection, surveillance, audit, etc.)
-

COPIES:

For EAP reports, submit the following:

- 2 hard (paper) copies; and
- 1 electronic copy (CD)

Additional hard copies may be required for proposals in locations where internet access is limited.

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 - The content and order of the electronic copy must be identical to the hard copy. Include tables, pictures, figures, drawings, etc. in the same locations throughout the document as they would be in the hard copy. If the Table of Contents lists them as separate documents, include them as separate electronic files.
 - File names must be in lower case letters with no spaces. Numbers and underscores (_) are acceptable (e.g. "eap_sec1.pdf").
 - If GIS data were used to create any maps or drawings included in the submission, include digital data files compatible with ESRI software (e.g. Shapefile, Coverage or DXF format) along with base metadata (author/date/datum/projection/accuracy).
-

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Appendix C

Environmental Assessment and Mitigation Measures

6. Environmental Assessment and Mitigation Measures

This section identifies the potential Project effects on the biophysical and socioeconomic environmental components, describes mitigation measures included in the design of the Project to avoid or minimize potential Project effects and determines the residual adverse impacts remaining, if any, after the application of mitigation measures.

The scope of this environmental assessment regarding spatial and temporal boundaries and the environmental components to be assessed has been described in Section 3.

6.1 Effects Assessment Methods

Table 6-1 identifies the biophysical and socioeconomic components that may be potentially affected by the Project due to the potential for interactions with the Project activities and components. Potential interactions were identified based on:

- Professional judgement;
- An understanding of Project components, construction methods, operation processes and the assumption that standard environmentally responsible construction techniques and operating procedures will be applied in the course of project construction, operation and decommissioning/closure; and
- Input received from local communities, the public, stakeholders and communications with regulators (Section 5).

Table 6-1: Environmental Component Potential Interactions with the Project

ACTIVITY	BIOPHYSICAL COMPONENTS										SOCIO-ECONOMIC COMPONENTS						
	Physical			Atmospheric			Terrestrial			Aquatic			Heritage Resources	Land and Resource Use	Human Health and Well-being	Indigenous and Treaty Rights**	
	Topography	Soil	Groundwater	Air Quality (dust, noise)	Climate / Greenhouse Gases	Vegetation	Wildlife	Species of Conservation Concern	Surface Water Quality	Fish and Fish Habitat*							
CONSTRUCTION																	
Mobilizing construction equipment, materials and crew to and from Project Site including improvement of existing construction access road as needed	X			X	X	X	X	X	X	X	X	X	X	X	X		
Vegetation clearing, grubbing and leveling for facility and other infrastructure	X			X	X	X	X	X	X	X	X	X	X	X	X		
Stockpiling cleared woody debris/organics/soil	X			X	X	X	X	X	X	X	X	X	X	X	X		
Disposing of large woody debris (trees)	X			X	X	X	X	X	X	X	X	X	X	X	X		
Drilling two groundwater wells for Processing Facility use (i.e. emergency fire suppression; sinks, showers and toilets)	X			X	X	X	X	X	X	X	X	X	X	X	X		
Construction of Processing Facility, including rail loop	X			X	X	X	X	X	X	X	X	X	X	X	X		
Disposing of miscellaneous construction wastes	X																
OPERATION and MAINTENANCE																	
Mobilizing operations and maintenance equipment, materials and crew to and from Project Site				X	X		X	X	X								X
Sand processing including Processing Facility domestic groundwater use			X	X	X												X
Transporting sand to main CN rail line from the Processing Facility via railcars, rail loop and railway spurs				X	X		X	X									X
Disposing of miscellaneous operation and maintenance wastes		X					X	X									X
DECOMMISSIONING/CLOSURE																	
Mobilizing decommissioning/closure equipment, materials and crew to and from Project Site				X	X		X	X									X
Dismantling or demolishing, and removal of, Processing Facility components				X	X		X	X									X
Spreading organics/soil and revegetating previously disturbed areas	X	X		X	X		X	X									X
Disposing and recycling of waste materials	X	X					X	X									X

* No fish habitat occurs within the Project Site. Therefore, Project related activities are not anticipated to interact with fish or fish habitat. Protected spaces such as parks and other protected areas do not occur within the Project Site.

** Project activities are not anticipated to adversely impact Indigenous and Treaty Rights (Section 6.6.5).

The framework for determining environmental impacts of the Project on environmental components includes the following:

- Determine potential adverse effects of the Project on environmental components;
- Apply mitigation measures to avoid or minimize potential adverse effects;
- Determine the residual environmental impacts, which are those adverse environmental effects that remain after the application of mitigation measures; and
- Evaluate the residual environmental impacts based on defined effects evaluation criteria.

The criteria used to evaluate residual environmental impacts are defined in **Table 6-2**, noting that the defined criteria is used as a general guide and may be modified to more appropriately evaluate impacts to specific environmental components.

Table 6-2: Environmental Effects Assessment Criteria

Criteria Term	Definition			
Magnitude of Effect:	Refers to the estimated percentage of population or resource that may be affected by activities associated with the construction, operation and decommissioning/closure of the Project. Where possible and practical, the population or resource base has been defined in quantitative or ordinal terms (e.g. hectares of soil types, units of habitat). Magnitude of effect has been classified as less than (<) 1%, 1% to 10%, or greater than (>) 10% of the population or resource base.			
	Where the magnitude of an effect was determined as virtually immeasurable or represented a potential change that was within the natural variation of population or resource levels, the effect was considered Negligible. An exception to this is regarding human health effects where, for example adverse health issues due to the Project and affecting 1% of the population would still be considered major			
	Negligible (immeasurable)	Minor (<1%)	Moderate (1 to 10%)	Major (>10%)
Direction of Effect:	Refers to whether an effect on a population or a resource is considered to have a positive, adverse or neutral effect			
	Positive	Adverse	Neutral	
Duration of Effect:	Refers to the time it takes a population or resource to recover from the effect. If quantitative information was lacking, duration was identified as short term (<1 year), Moderate term (1 to 10 years) and long term (>10 years)			
	Short term (<1 year)	Moderate (1 to 10 years)	Long term (>10 years)	
Frequency:	Refers to the number of times an activity occurs over the Project phase and is identified as once, rare, intermittent or continuous			
	Once	Rare	Intermittent	Continuous
Scope of Effect:	Refers to the spatial area potentially affected by the effect and categorized as Project Site, Local Project Area or Regional Project Area as defined in Section 3.2 . Where possible, quantitative estimates of the resource affected are provided			
	Project Site	Local Project Area	Regional Project Area	
Reversibility:	Refers to if an adverse effect is likely to be reversed after completion of the activity or Project decommissioning/closure			
	Reversible		Irreversible	

The significance of residual environmental impacts is commented on where applicable regulatory criteria exist such as a regulatory threshold (e.g. air quality guidelines are exceeded due to Project activities). In the absence of such regulatory thresholds, an overall characterization of the impact is provided, taking into consideration the assessment criteria as described above in **Table 6-2**.

Environmental effects that may be caused as a result of accidents and malfunctions are discussed separately in Section 6.9.

6.2 Physical Environment

6.2.1 Geology/Topography

Magnitude of Effect: Minor

Direction of Effect: Adverse

Duration of Effect: Long term

Frequency: Intermittent

Scope of Effect: Project Site

Reversibility: Reversible

Project construction activities including clearing, levelling, construction of laydown areas, and construction of the Processing Facility and permanent access road (**Figure 1-2**) will have a temporary effect on the Project Site topography. The establishment of two on-site water wells will have a minor impact on the Project Site geological layers in the locations of two well sites. Wet sand stockpiles and sand reject piles will vary in height during project operations, peaking in the fall each year, as wet sand is transferred to the Dry Plant (Section 2.1.1). Sand reject piles, that will not exceed an average height above ground of 8.5 m (28 ft) (Section 2.3.2), will also vary in size as reject sand is disposed of in accordance with regulations. As is the case with buildings and other Project components, the stockpiles are not considered part of the natural topography.

The following measures will be implemented to avoid or minimize Project effects on topography:

- Where applicable, existing roads, trails and other previously disturbed areas will be utilized to minimize disturbance to the natural topography.
- Levelling and grading will occur upon Project decommissioning to return the landscape to elevations typical to the surrounding area.

While measurable disturbances will be imposed on topographic features, disturbances will be limited to the Project Site. With the application of the above described mitigation measures, impacts on topography have been assessed as being minor.

6.2.2 Soils

Magnitude of Effect: Minor

Direction of Effect: Adverse

Duration of Effect: Long term

Frequency: Intermittent

Scope of Effect: Project Site

Reversibility: Reversible

Construction activities have the potential to cause soil erosion, including clearing, levelling, and construction of the site access road, Wet Plant and Dry Plant, rail loop and associated Project components. Soil erosion can potentially increase during high wind and precipitation events, which are expected to be most frequent during the months of May to September. Soil erosion may affect other environmental components, such as air quality (e.g. dust from soil disturbance), water quality, and vegetation.

To mitigate the effects of soil erosion, the following measures will be incorporated:

- An Erosion and Sediment Control Plan will be implemented for the construction and decommission phases of the Project.
- Areas disturbed during the construction phase that are not required for the Project operation phase (e.g. equipment laydown areas) will be revegetated as quickly as feasible to stabilize the soil and minimize soil erosion.
- During the Project decommissioning phase, after Project components have been removed, the landscape will be leveled and graded, and disturbed areas will be revegetated as quickly as feasible to stabilize the soil and minimize soil erosion.

With the application of the above measures, the potential for soil erosion and associated adverse impacts to the surrounding environment are anticipated to be minor and restricted to the Project Site.

6.2.3 Groundwater

Magnitude of Effect: Negligible

Direction of Effect: Adverse

Duration of Effect: Short term

Frequency: Intermittent

Scope of Effect: Project Site

Reversibility: Reversible

Withdrawal of groundwater has the potential to adversely affect regional aquifer quantity and quality.

The local water usage in the area is 52.8 US Gallons/day/person (200 L/day/person) (Friesen Drillers, 2019). Therefore, a household of four, would use approximately 211 US gallons/day (800 L/day). The Processing Facility is proposed to use 200 – 300 US gallons/day (757 – 1,136 L/day). The Processing Facility is proposed to use 200 – 300 US gallons/day (757 – 1,136 L/day), which is the approximate daily usage of a household of four to six people. It is anticipated that the water well will be completed in the Red River Formation carbonate aquifer which is known to be relatively thick and permeable beneath the Project Site.

Groundwater required for the Processing Facility will be drawn using a standard submersible water well pump as is typically used for any domestic, industrial or commercial water well. The water supply well will be constructed by a licensed well drilling contractor in accordance with the Manitoba *Groundwater and Water Well Act* and its supporting regulations, including the Groundwater and Water Well Regulation and the Well Standards Regulation.

Pumping tests were performed on the Project Site in 2019 by CanWhite and Friesen Drillers to determine the effects of continuous water usage at the Project Site for the estimated Project Facility pumping rates of 200 – 300 US gallons per day (757 – 1,136 L/day).

Results of this testing indicated that drawdown effects were localized, occurring only at the Project Site, with limited to no effects within 31 m (100 ft) of the pumping well to the monitoring well. All water levels were continuously recorded with transducers in the monitoring well located on the Project Site as well as domestic wells on surrounding properties. During testing, little to no decline in water levels was observed in the wells at the Project Site. Further, no impact was observed on water levels in any of the nearby domestic wells.

The following measures are expected to minimize the need for more than the proposed quantity of water to be withdrawn from the wells on the Project Site:

- Process water will be recycled into the Wet Plant for reuse in a continuous loop.
- Excess water not required for the sand wash process (Wet Plant) or dust control activities will be recycled back into the slurry loop system in a dedicated enclosed return water pipe, removing the need for any draw of groundwater for Wet Plant usage.
- Water not required for recycling will be stored in a surface water tank for reuse as required.
- Low flow toilets and sinks will be installed for employee usage.

The following measures are expected to effectively mitigate risks to groundwater quality posed by groundwater withdrawal on the Project Site:

- Groundwater wells established at the Project Site for the Processing Facility will be decommissioned (sealed) when no longer required in accordance with applicable regulation.
- Groundwater wells will be constructed by a licensed well drilling contractor in accordance with the Groundwater and Water Well Regulation and the Well Standards Regulation.
- Operations will incorporate the measures described in Section 6.9.2 designed to prevent leaks and spills of substances which could affect groundwater quality.

Based on the understanding of the hydrogeology of the area surrounding the Project Site and in consideration of the results of the groundwater testing described above and with the application of the above mitigation measures, utilization of groundwater at the Project Site is expected to be at rates that will not exceed the ability of the aquifer to recharge and are therefore sustainable. The potential risks to groundwater quality are assessed to be adequately mitigated. Therefore, impacts on groundwater are assessed to be negligible. The effects are expected to be short term because groundwater levels in the aquifer are anticipated to recover quickly following cessation of pumping, which will occur over winter months each year. The seasonal operation of the Processing Facility will allow for aquifer recovery during periods of time when operations have stopped and following closure.

6.3 Atmospheric Environment

6.3.1 Air Quality

Magnitude of Effect: Minor to Negligible

Direction of Effect: Adverse

Duration of Effect: Long term

Frequency: Continuous

Scope of Effect: Local to Regional Project Area

Reversibility: Reversible

Regional air quality may be potentially affected by Project components and activities that generate dust (stockpiles; gravel roads), greenhouse gasses (e.g. vehicles used during all phases of the Project; Processing Facility equipment) and through the potential for the generation of fugitive dust from Project construction and decommissioning activities.

6.3.1.1 Air Dispersion Modelling Results

Air dispersion modeling was performed to estimate air quality at sensitive receptors (nearest residents to the Processing Facility) under the worst-case scenario conditions that could occur for this Project (**Appendix B**). The Project operations were assessed in accordance with the Draft Guidelines for Air Quality Dispersion Modelling Manitoba (Manitoba Conservation 2006) using the AERMOD air dispersion

model to predict maximum ground-level concentrations, as well as maximum predicted concentrations at selected nearby sensitive receptors, of the following:

- Dust (including silica dust):
 - Particulate Matter with a diameter of 2.5 micrometres and less (PM_{2.5})
 - Particulate Matter with a diameter of 10 micrometres and less (PM₁₀)
 - Total Suspended Particulate (TSP)
- Other air quality parameters:
 - Carbon Monoxide (CO)
 - Nitrogen Dioxide (NO₂)
 - Sulfur Dioxide (SO₂)

Model results were compared with the Manitoba Ambient Air Quality Criteria (MAAQC 2005). The results of the air dispersion modeling, including description of assumptions and mitigation measures factored into the assessment, are provided in **Appendix B** (Air Quality Assessment Report).

In summary, the modelled concentrations of the above-listed air quality parameters were well below the MAAQC provincial guidelines at sensitive receptors. Distances to nearest residences (sensitive receptors) from the CanWhite property line vary from 54 m to 1,115 m (refer to Figure 1 and Table 3 in **Appendix B**).

The air dispersion modeling considered the mitigation measures included in the design of the Project to minimize potential Project effects to air quality which are as follows:

- Overs/fines sand reject pile associated with the Wet Plant and the overs/fines sand reject pile associated with the Dry Plant (**Figure 2-2**) will be kept damp by misting with additional water to mitigate the potential for fugitive dust generation, as needed (e.g. during hot, dry and windy weather); during the winter months, these sand reject piles will be covered with a mesh system (similar to a fishing net) that will allow snow and ice to accumulate on sand reject piles to act as a natural containment to control dust.
- The sand Dry Plant, including all dry sand conveyors and transfer points, will be enclosed with all transfer points under negative pressure to mitigate dust. The dryer is equipped with a baghouse to capture dust generated from the drying process.
- The dry sand product will be loaded into covered grain hopper-type railcars using a retractable sand transfer spout; a method designed to control fugitive dust.
- Natural vegetation buffers will be left around the Processing Facility to limit the potential for dust dispersion to the Local Project Area and reduce wind impact.
- During hot, dry weather, wet sand will be continuously deposited along the length of the stockpiles.
- Appropriate speed limits will be posted on the permanent Processing Facility access road (30 km/hr) and within the Project Site to minimize the potential for dust generation.
- Water will be applied to the permanent Processing Facility access road to minimize dust generation as needed (e.g. during hot, dry weather).
- Emissions will be minimized by regularly maintaining equipment and vehicles and minimizing idling of vehicles.

Although the height of the sand stockpiles may exceed the height of the surrounding treeline at times during the operation phase, dispersion modelling has predicted that dust from the stockpiles will not exceed MAAQC provincial guidelines at any of the sensitive receptors.

The modelling predicted that exceedances of the MAAQC would occur only 0.3% of the time that the Processing Facility is in operation (between one and five exceedances every five years), and only under

the worst-case emissions scenario. The extent of any exceedance will be limited to within 20 m to 70 m (up to approximately 2/3 length of a football field) from the CanWhite property boundary. The point of this potential exceedance is more than 450 m from the nearest residence. There is no exceedance beyond the property boundary in any other direction or circumstance.

The model does not incorporate natural dust suppression that can occur from rain and snow. During the fall/winter months, the surface of the wet sand stockpiles will freeze which will act as a natural containment to control dust. The model considers the worst-case scenario of hot, dry wind, when sand stockpiles are at their maximum heights. Therefore, predicted concentrations that occur during fall/winter months (when sand stockpiles have the highest potential to be at their maximum height) have been over-estimated.

The reject sand piles, which include the fines sand reject pile that is most prone to airborne dispersion during dry and windy conditions, will not exceed the height of the surrounding treeline. Dust from the fines sand reject pile will also be kept wet by stockpiling the reject sand in a wet (not dry) condition and misting the sand reject piles with water during non-winter months.

With the incorporation of dust from the permanent gravel access road into the air dispersion modeling, the results showed potential exceedances of MAAQC provincial guidelines for particulate matter (gravel road dust) up to 300 m beyond the future CanWhite property line.

However, the potential effects of the access road on air quality were modelled very conservatively, with all traffic on the road simultaneously. Precipitation is expected to reduce access road emissions on about one-third of days in summer and this mitigative effect also was not included in the modelling.

6.3.1.2 Dust Management and Monitoring

As an additional measure to further mitigate the potential for off-site migration of dust from the stockpiles and access road, CanWhite will develop and implement a Dust Management Plan. This Plan, which will be in place during all phases of the Project, will provide procedures for the implementation of measures to control Project related dust, and will include provisions for monitoring and cleanup of the localized migration of fugitive dust from the stockpiles should this occur.

Components of the Dust Management Plan will include the following:

- Dust (particulate matter) will be monitored in the ambient air during the Project construction and operation phases to confirm that mitigation measures that have been put in place are effective and to allow for the implementation of additional engineering and/or operational controls to further control dust if required.
- The monitoring program will include the periodic collection of air samples at sampling stations established throughout the Processing Facility and at the nearby sensitive receptors as identified during air quality modelling.
- The monitoring program will also include sampling and testing for silica dust (total quartz and respirable crystalline) to ensure the potential for silica dust exposure is effectively controlled and mitigated.
- CanWhite will consult with MBCC prior to initiation of construction to determine an acceptable monitoring frequency for both the general (total) dust and silica dust monitoring programs.

The Dust Management Plan will be prepared and submitted to MBCC for review and approval prior to the initiation of construction activities.

6.3.1.3 Summary of Impacts on Air Quality

Based on the above air dispersion modeling results, assumptions as outlined in the detailed report (**Appendix B**), and application of the above mitigation measures, the impacts of the Project on air quality in the Regional Project Area are assessed as negligible to minor. The results of the modeling predict no exceedances of air quality guidelines at the nearest residences under the worst-case scenario conditions for any of the parameters that were modeled (e.g. dust, including silica dust; **Appendix B**). Impact assessment information for greenhouse gas (GHG) emissions is summarized in Section 6.3.2.

6.3.2 Climate/Greenhouse Gases

Magnitude of Effect: Negligible

Direction of Effect: Adverse

Duration of Effect: Long term

Frequency: Continuous

Scope of Effect: Beyond the Regional Project Area

Reversibility: Irreversible

To estimate the annual emissions of greenhouse gases (GHG), emissions of carbon dioxide (CO₂), methane (CH₄) and Nitrous Oxide (N₂O) were estimated from onsite activities associated with the long-term Project operation after the natural gas line is installed in one to two years post-construction (**Appendix B**). Estimated GHG emissions associated with Project equipment are summarized in **Table 6-3**.

Table 6-3: Greenhouse Gas Annual Emissions (CO₂e)

Emission Sources	Annual Usage Rate	CO ₂ e (tonnes/year)
Direct Emissions		
Propane Combustion Dryer (Year 1-2)	4,949,422 m ³	27,791
Natural Gas Combustion Dryer (after Year 2)	12,090,044 m ³	24,837
Equipment Exhaust	Variable-dependng on engine size and annual utilization	1,053
Vehicles on the Access Road	Variable-dependng on engine size and annual utilization	35
Total Direct (Year 1-2)		28,879
Total Direct (after Year 2)		25,925
Indirect Emissions		
Electricity Usage (annual total)	19,998,337 kWh	8,399
Total Indirect		8,399
Total per Annum (Year 1-2)		37,278
Total per Annum (after Year 2)		34,324

The following measures to minimize the production of GHG emissions will be applied:

- Emissions will be minimized by regularly maintaining equipment and vehicles and minimizing idling of vehicles.
- Vehicles and equipment will meet required emission standards.
- Power use for the long-term operation of the project will be obtained from hydropower via a planned power line and planned installation of a natural gas line which will minimize the need for power from GHG-emitting diesel generators.

Overall, the project is estimated to generate approximately 34,324 tonnes of CO₂e annually during dryer operations with natural gas which is 0.00016% of the reported emissions in 2018 which were 21.8 Mt

CO₂e from Manitoba, and 0.000005% of the reported 729 Mt CO₂e from Canada in 2018 (**Appendix B**). Therefore, the impact of the Project on GHG contributions to the atmosphere is assessed as negligible.

6.3.3 Noise

Magnitude of Effect: Negligible

Direction of Effect: Adverse

Duration of Effect: Long term

Frequency: Continuous

Scope of Effect: Local Project Area

Reversibility: Reversible

Noise generated by Project activities has the potential to adversely affect wildlife (Section 6.5.2) and could result in nuisance noise to people living within the Local Project Area. A Noise Impact Assessment was completed for this Project to predict the potential noise level generated by Project components and activities at the nearest points of reception representative of the most exposed noise sensitive residential dwellings surrounding the Project Site in each direction (**Appendix C**). Project components expected to generate noise that may contribute to noise levels at the nearest points of reception are described in **Appendix C**. Examples of the noise-generating components modeled include the primary sources of noise associated with the Project operations in the Wet Plant and Dry Plant such as dewatering cyclones/screens and sprays, pumps, dryers and dry screens, and combustion fans, earth-moving equipment (e.g. wheel loader, dozers, grader, and backhoe) and sand transferring and handling equipment including conveyors, trippers and radial stackers. Sources of noise associated with the Rail Load Out and rail loop components of the Project (e.g. train car loading and movements) were also included in the noise modeling predictions.

The noise assessment (**Appendix C**) evaluated the worst-case scenarios that may occur during one hour of operation to determine the maximum potential noise impact at the points of reception. The noise assessment concluded that Project activities during the construction and operation phases are predicted to not exceed the Manitoba Guidelines for Sound Pollution limits at the eight nearest residences to the Project which range in distance from 720 m west of the Processing Facility to 2.5 km southeast of the Processing Facility (see Table 3-1 and Figure 3-1 in **Appendix C**).

The surrounding Project Site consisting primarily of forest (Section 4.4.1) is anticipated to attenuate (reduce) noise generated by the Processing Facility at the points of reception. In addition to the noise attenuation effect of the forest vegetation surrounding the Project Site, the following measures will be implemented to reduce noise generated from Project activities:

- The Dry Plant will be an enclosed building which will minimize dry sand processing noise.
- The shape of the rail loop will allow the locomotive to pull the train right through the Rail Load Out without the need to regularly decouple or couple individual cars which would be a source of noise; a smaller railcar mover will be used if a railcar needs to be removed or added to the train (e.g. for maintenance).
- Construction equipment and vehicles will be kept well maintained and will be fitted with mufflers, and other noise mitigation equipment as required.
- Unnecessary idling and revving of engines will be avoided.
- Noise monitoring will be conducted during Project commissioning to determine if any noise mitigation (e.g. berms) will be needed.

In consideration of the above measures to minimize noise levels due to Project operations and predicted results of the Noise Impact Assessment (**Appendix C**), it is anticipated that potential noise levels at the

nearest residences will be adequately attenuated. Noise disturbances to wildlife are expected to be moderate in the vicinity of Project construction and operation activities but are not expected to measurably affect wildlife populations within the Interlake Plain Ecoregion within which the Project is located. Based on the results of the Noise Impact Assessment (**Appendix C**), expected noise levels at receptors within the Local Project Area are assessed as negligible.

6.4 Aquatic Environment

6.4.1 Surface Water Quality

Magnitude of Effect: Negligible

Direction of Effect: Adverse

Duration of Effect: Short term

Frequency: Intermittent

Scope of Effect: Local Project Area

Reversibility: Reversible

Residual effects from clearing, levelling, compacting, and construction of the Processing Facility have the potential to increase surface water runoff within the Project Site and Local Project Area. Removal of existing vegetation also can pose a risk to surface water quality as more sediment will be exposed to surface water drainage, potentially resulting in sediment laden runoff water.

As indicated in Section 4.3.1, the Project Site contains no surface water apart from roadside ditches. The Local Project Area has some wetlands, artificial ponds and ephemeral drainage areas primarily associated with aggregate quarries and other developments in the area, but these surface waters are not directly connected with permanent natural waterways.

The following mitigation measures will be implemented to avoid or minimize potential effects on surface water quality:

- Construction of ditching within the Project Site, as required, will assist in directing runoff flow and maintaining natural drainage pathways through low areas and will contain water runoff from disturbed areas.
- Construction of the permanent access road to the Processing Facility will include the installation of culverts to equalize surface water flow and maintain natural drainage pathways as required.
- No harmful chemicals will be used in the processing of sand.
- As per Section 2.3.1, wastewater from staff washrooms, shower facilities and staff kitchen will be directed to a septic system that will be regularly maintained and monitored for correct functioning.
- As per Section 6.2.2, an approved Erosion and Sediment Control Plan will be implemented for the construction and decommissioning phases of the Project.

With the application of the above described mitigation measures, the impacts on surface water are assessed as negligible.

6.4.2 Fish and Fish Habitat

Project related impacts on fish and fish habitat are not anticipated due to the lack of fish habitat within the Project Site and Local Project Area (Section 4.3.2), and application of an Erosion and Sediment Control Plan as indicated in Section 6.2.2.

6.5 Terrestrial Environment

6.5.1 Vegetation

Magnitude of Effect: Minor (Project Site) to Negligible (Local Project Area)

Direction of Effect: Adverse

Duration of Effect: Long term

Frequency: Intermittent

Scope of Effect: Project Site (vegetation clearing) to Local Project Area (dust deposition)

Reversibility: Reversible

Approximately 17 hectares (ha) of naturally vegetated area is expected to be cleared within the Project Site to construct the Project, but excluding the temporary access road which currently exists (**Section 2.5**). That area to be cleared is approximately 15 times smaller than a section of farmland which is 260 ha. The estimated Project footprint area is provided in **Table 6-4**.

Table 6-4: Estimated Area of the Project Footprint

Project Components	
Permanent Components	Area (ha)
Processing Facility including the Wet Plant, Dry Plant and associated components as listed in Section 1.1	6.9
Permanent access road (7 m wide x 1 km long)	0.7
Rail loop (approximate 30 m width footprint to accommodate curvature of loop line of sight X 3.5 km rail track length)	10.5
Total Project Footprint Area	18.1
Total Previously Cleared / Disturbed Area with Project Footprint Area	1.1
Total Naturally Vegetated Area Requiring Clearing to accommodate the Project Footprint	17.0

Note: Total land area within the Project Site within which project components will be located is 114 ha.

Approximately 15% of the land within the Project Site will need to be cleared of natural vegetation to accommodate the construction and operation of the Project. Land within the centre of the rail loop which consists mostly of forested land that will be partly cleared for line of sight at the rail loop curves. The types of naturally vegetated land cover that will be cleared (i.e., forest, meadow and willow/alder) are common within the Regional Project Area (**Section 4.4.1**).

The following mitigation measures will be implemented to avoid or minimize potential effects of clearing on vegetation:

- Areas to be cleared of vegetation will be minimized to the extent feasible and will be clearly marked to avoid clearing more than required.
- Usable trees/wood will be cut and stacked at the Project Site for local use as firewood for no longer than one year or disposed of in accordance with applicable regulations.
- Areas disturbed during Project construction, not required for Project operations, will be allowed to revegetate naturally and will be augmented using an approved native seed mixture and native plantings if required.
- A Revegetation Monitoring Program will be implemented after Project construction to determine the success of the revegetation program and determine if follow-up reseedling or replanting is required. The monitoring program will include monitoring during the growing season until the seedlings appear to be established.

Clearing impacts on vegetation are limited to the Project Site and are assessed as minor due to:

- Limited amount of clearing required for Project construction; and
- The site reclamation and revegetation procedures that will occur during Project decommissioning to return the landscape to pre-construction conditions to the extent feasible.

Vegetation within the Project Site and Local Project Area can also be harmed by dust deposition on the surface of plants which may prevent adequate photosynthesis and other life functions of vegetation (Farmer, 1993). Dust will be generated during the construction, operation and closure phases of the Project as follows:

- During the construction phase, dust generation will result from the construction of the Processing Facility and associated infrastructure primarily due to clearing and levelling activities;
- During the construction and operation phases of the Project, use of a gravel road to access the Project Site and Processing Facility by employees will contribute to dust emissions; and
- During the decommissioning phase, dust deposition will be generated from cleanup and removal of the Processing Facility.

Effects of dust deposition are assessed to be minor due to the application of the mitigation measures listed in the air quality Section 6.3.1 to control dust.

With the application of the above mitigation measures, the overall Project impacts to vegetation are assessed as minor within the Project Site and negligible within the Local Project Area.

6.5.2 *Wildlife*

Magnitude of Effect: Negligible

Direction of Effect: Adverse

Duration of Effect: Long term

Frequency: Intermittent

Scope of Effect: Regional Project Area

Reversibility: Reversible

Project activities that disrupt the natural environment (e.g. vegetation clearing, noise) are the primary contributors to potential effects on wildlife. Wildlife management focuses on regional wildlife populations because wildlife populations (e.g. deer) are typically not measurably affected if only an individual or small number of individuals are affected within a relatively small spatial area (e.g. the home range of a deer). Therefore, the spatial scope of the assessment of the Project impacts on wildlife has been conducted in consideration of the Regional Project Area. The availability of nearby alternative habitat for wildlife is also taken into consideration when assessing the potential effects of a development on wildlife.

The limited amount of natural vegetation clearing within the Project Site that is required for Project construction (17 ha; Section 6.5.1) is unlikely to substantially affect wildlife populations within the Regional Project Area because:

- The Project Site currently provides sub-optimal wildlife habitat (generally) due to existing disturbances from previous tree cutting activities, recent aggregate quarry and exploration activities such as trails and mineral exploration sites, and the current adjacent aggregate and agriculture land use activities and adjacent roadways (Section 4.6.4);
- The types of landcover used by wildlife that will be cleared during Project construction are common in the Regional Project Area (Section 4.4.1);

- The amount of naturally vegetated area that will be cleared for the Project is approximately 0.07% of the naturally vegetated area that occurs within the Regional Project Area which consists of approximately 33% previously disturbed landcover due to human development such as agriculture, residential areas and aggregate quarries.

Noise generated during Project construction, operation and decommissioning phases is expected to influence wildlife behaviour (e.g. area avoidance) to varying degrees within the Project Site and Local Project Area depending on the type of wildlife (U.S. National Parks Service, 2018). Noise generated within the Project Site is not expected to be of a magnitude that would substantially affect wildlife populations within the Regional Project Area because:

- Project-generated noise is not expected to be substantial beyond the Project Site (**Appendix C**); and
- Wildlife species present in the vicinity of the Project are anticipated to be accustomed (habituated) to some level of noise (U.S. National Parks Service, 2018) due to the presence of existing developments (e.g. aggregate quarries; CN rail line; Provincial Roads).

Additional potential effects of the Project on wildlife include the following:

- Light pollution emanating from the Processing Facility within the Project Site can also disturb wildlife and alter natural wildlife behaviour for wildlife that may be present within the zone of influence of site lighting (e.g. Dominoni, 2017).
- The minor increase in vehicle traffic in the Regional Project Area as a result of Project construction and operation activities (Section 6.7) is anticipated to result in a minor increase the risk of vehicle collisions with wildlife given the relatively small spatial scale of the Project Site and overall minor increase in Regional Area traffic.

The following measures will be applied to minimize potential adverse effects to wildlife resulting from Project activities:

- Areas to be cleared of vegetation will be minimized to the extent feasible and will be clearly marked to avoid clearing more than required.
- Vegetation clearing will take place outside of the spring and summer months to the maximum extent feasible to avoid disturbance to breeding birds and other spring breeding wildlife species.
- Vegetation clearing will not take place during the peak breeding bird season for this ['Zone B4'](#) area: April 25 – August 15 (when 90% of bird species in the area are known to nest); pre-clearing nest searches will be conducted no more than 5 days prior to clearing during the 'shoulder' nesting season outside of this 'peak' nesting timeframe (i.e., April 14 – 24 and August 16 – 24; Government of Canada, 2018), as needed.
- Areas disturbed during Project construction, not required for Project operations, will be allowed to revegetate naturally and will be augmented using an approved native seed mixture and native plantings if required.
- Noise mitigation as proposed in Section 6.3.3 will be applied.
- Measures to control dust generation will be applied as described in Section 6.3.1.
- Fully shielded directional lighting fixtures will be used to focus light specifically to work areas, parking lot and the Processing Facility to minimize the dispersal of light to the surrounding Project Site.
- The permanent Project Site access road will have a posted speed limit of 30 km/hr.
- Employees and contractors will be required not to feed or harass wildlife.

With the application of the above mitigation measures, Project impacts to the Regional Project Area wildlife populations are assessed as negligible. The Project is also not anticipated to have a measurable effect on wildlife populations within the Interlake Plain Ecoregion.

6.5.3 Species of Conservation Concern

Magnitude of Effect: Minor to Negligible

Direction of Effect: Adverse

Duration of Effect: Long term

Frequency: Once

Scope of Effect: Regional Project Area

Reversibility: Reversible

Species of conservation concern that potentially occur in the Regional Project Area (Section 4.4.3; **Appendix E**) are not expected to experience a substantial decrease in regional populations as a result of Project activities due to:

- The limited amount of cleared vegetation/habitat that will be required for the Project (Section 6.5.1);
- Prevalence of similar cover types within the Regional Project Area, and the application of measures indicated in Sections 6.5.1 and 6.5.2 to mitigate adverse effects of the Project on vegetation and wildlife in general.

Therefore, the Project impacts to regional populations of species of conservation concerns are assessed as minor to negligible, depending on the species of conservation concern and their habitat preferences.

6.6 Socioeconomic Environment

6.6.1 Labour Force and Employment

Magnitude of Effect: Moderate

Direction of Effect: Positive

Duration of Effect: Long term

Frequency: Continuous

Scope of Effect: Regional Project Area

Reversibility: Reversible

According to the labour force and education/training statistics provided in Section 4.6.2, there will be potentially employable people in the Local and Regional Project Areas having the skills, training and experience required for Project employment positions. Other supply and services contracts associated with the construction and operation of the Project will provide additional long-term economic opportunities.

As indicated in Section 2.6, approximately 20 to 30 people will be employed under contract for site clearing and Project construction. The need for local suppliers and other business to support the construction phase is likely to provide indirect employment for up to 60 additional people. Once construction is complete, there will be approximately 40 to 50 people employed for the Processing Facility operations. Employment opportunities associated with the Project will be advertised as needed within the Regional Project Area and will be a positive, long-term and continuous benefit for the Regional Project Area.

6.6.2 *Infrastructure and Services*

6.6.2.1 *Emergency Services*

Magnitude of Effect: Minor

Direction of Effect: Neutral/Adverse

Duration of Effect: Long term

Frequency: Continuous

Scope of Effect: Regional Project Area

Reversibility: Reversible

Emergency services (i.e., fire, policing and ambulance) in the Regional Project Area have the potential to be utilized more often potentially resulting in limitations to the current availability and response times for these regional services. To mitigate potential adverse effects of the Project on Regional Project Area emergency services, CanWhite will incorporate the following measures:

- An Emergency Response Plan will be available on-site during Project construction and operation that will clearly outline appropriate emergency response protocol.
- An on-site groundwater well will be dedicated to emergency fire suppression.
- CanWhite will notify the RM of Springfield emergency services when Project construction and operation will begin.
- Measures to avoid accidents and malfunctions as described in Section 6.9 will be applied.

With the application of the above measures, the Project impacts on regional emergency services are anticipated to be minor.

6.6.2.2 *Community Services*

Magnitude of Effect: Moderate (benefit)

Direction of Effect: Neutral to Positive

Duration of Effect: Long term

Frequency: Continuous

Scope of Effect: Local and Regional Project Area

Reversibility: Reversible

Water requirements for the Processing Facility will be sustainably sourced from two wells on the Processing Facility property with water quantities used in accordance with regulatory requirements, as applicable.

Existing Local or Regional Project Area wastewater treatment systems will not be used. Wastewater from staff washrooms, shower facilities and staff kitchen will be directed to a septic system that will be regularly maintained and monitored for correct functioning (Section 2.3.1).

Solid waste will be transported by a licensed local contractor to be disposed at a local licenced landfill to an amount that would be sustainable for the local landfill. Otherwise, solid waste will be transported 63 km to the Brady Road Landfill managed by the City of Winnipeg.

CanWhite may initiate agreements for local / regional community services that would be beneficial for both the RM of Springfield and the Project. Examples of services and supplies that would be needed for the Project that could be supplied by local and/or regional community services include: uniform and laundry services; shop supplies; janitorial services; fuel, oil and grease supply; grounds keeping and

snow removal; small tools and equipment supply; garbage removal; office supplies; Project road maintenance; catering; health, safety supplies; shipping and expediting.

CanWhite will require natural gas services to be installed to the Project site which will provide opportunities for others to utilize this natural gas line that will be brought into the Local Project Area.

The Project will likely require upgraded communications services that may require an additional cell tower in the local area. As part of discussions with communication services companies, CanWhite will discuss the requirement logistics and options which may include an additional cell tower capable of accommodating improved internet services or installation of fibre optics cables along a natural gas line for the Project which would improve internet services.

The RM of Springfield community services (e.g. municipality water system upgrades) would potentially benefit from the additional tax revenue realized from the Project being located within the RM of Springfield.

In consideration of the benefits to the Local and Regional Project Area from the opportunity for local business to supply required goods and services, there is anticipated to be an overall moderate positive impact to community services.

6.6.3 Land and Resource Use

Magnitude of Effect: Minor

Direction of Effect: Adverse/ Positive

Duration of Effect: Long term

Frequency: Continuous

Scope of Effect: Project Site to Local and Regional Project Areas

Reversibility: Reversible

As indicated in **Figure 4-9**, the Project Site is currently designated for industrial use and will continue to be used for industrial purposes.

Use of the permanent gated portion of the Project Site will be limited to CanWhite operations and access will be controlled accordingly. As indicated in Section 2.5, the Project Site access road will be gated at the CanWhite property line to control access to the Project Site. Other existing trails will be blocked (e.g. with pre-cast concrete blocks) appropriately signed to control access to the CanWhite property and Processing Facility as a public safety measure.

During the time when CanWhite will be using the Manitoba Hydro power line access road easement with the permission of Manitoba Hydro during the Project construction phase (expected to be four months to a year), there will be a temporary increase in vehicle traffic along that segment of road which is also used by Manitoba Hydro, snowmobilers and other recreational off-road vehicles (Section 4.6.4.4). The potential for disruption to recreational users will cease on completion of the permanent Processing Facility access road (in a different location described in Section 2.5).

Based on an extensive previous study of property values in the vicinity of silica sand extraction and processing facility locations in the United States, which found that there were “no documented circumstances of industrial sand mining causing a community-wide reduction of property values” (The Heartland Institute, 2016), property values in the Local Project Area are not expected to be adversely affected by the Project. CanWhite will be bringing in a new natural gas line and will likely be requiring

improved cellular service to the Local Project Area which is expected to benefit local properties in the vicinity of these services.

6.6.4 Human Health

Magnitude of Effect: Negligible

Direction of Effect: Adverse

Duration of Effect: Long Term

Frequency: Continuous

Scope of Effect: Local and Regional Project Areas

Reversibility: Reversible

Project activities have the potential to adversely affect human health through:

- Increased traffic due to employees and contractors accessing the Project Site;
 - Emissions from vehicles affecting air quality; and
 - Higher potential for traffic accidents;
- Dust and noise generated by Project activities.

Mitigation measures that will avoid or minimize potential adverse effects on human health are the following:

- Measures to avoid or minimize adverse effects on air quality (Section 6.3.1) and effects on climate (Section 6.3.2) will be applied.
- Measures to control noise will be applied (Section 6.3.3).
- All CanWhite employees will abide by the standards, procedures and training required under *The Workplace Safety and Health Act* as well as CanWhite's internal Health and Safety Program and Emergency Response Plan.
- Employee Orientation and Safety training will be mandated for all new hires in addition to required yearly safety reviews for existing staff.
- In accordance with Part 12 of Hearing Conservation and Noise Control Regulation, an initial noise exposure assessment will be undertaken prior to commissioning of the facility, and appropriate measures implemented (such as hearing protection), depending on the results of the assessment. During operation and closure, a reassessment will be done if any alterations, renovations or repairs of the workplace are undertaken.
- Applicable personal protective equipment (PPE) will be provided to employees. Where required, visitor orientation and PPE will be provided when visitors enter employee only areas.
- Special training in relation to the handling of silica will be administered to all employees.

Through the implementation of the measures referenced above, impacts to human health are assessed as negligible.

6.6.5 Effects on Indigenous and Treaty Rights

The Project is not expected to adversely impact the exercise of Indigenous or Treaty rights because:

- No fish or fish habitat will be affected by the Project (Section 6.4.2);
- The Project Site is private land, accessible only for the purposes of the Project;
- The residual environmental impact of the Project on vegetation beyond the Project Site is assessed to be negligible (Section 6.5.1); and
- The residual environmental impact of the Project on regional wildlife populations is assessed to be negligible (Section 6.5.2).

6.6.6 Heritage Resources

Magnitude of Effect: Minor

Direction of Effect: Adverse

Duration of Effect: Long Term

Frequency: Continuous

Scope of Effect: Project Site

Reversibility: Irreversible

Activities related to Project construction and operations that disturb the land may have the potential to disturb or destroy heritage resources (e.g. unknown archaeological sites). Project activities that disturb the land include clearing and grubbing to prepare the site for Project construction.

A Project Site screening request was submitted to the Manitoba Historic Resources Branch (HRB) to determine the need for a Heritage Resources Impact Assessment (HRIA). HRB determined that a HRIA was required for the Project Site prior to the land being disturbed due to Project activities (**Appendix F**). A HRIA was conducted in the Project Site on May 12 and 13, 2020. The HRIA report documenting the results of the HRIA is provided in **Appendix G** with a summary of the findings provided in Section 4.6.5. The on-site archaeological investigation found that there is a low potential for undiscovered heritage resources to be disturbed as a result of Project activities.

The HRIA report provided in **Appendix G** provides recommended mitigation measures to protect unknown heritage resources that may be discovered at the Project Site. As recommended in the HRIA report, CanWhite will have a Heritage Resources Protection Plan in place prior to the initiation of Project construction activities which will provide guidance to construction contractors to protect heritage resources. If heritage resources are discovered within the Project Site, work will be stopped, HRB will be advised, and the discovered historic resources will be recorded by an archaeologist and adequately protected as required.

With the application of the above described mitigation measures, the impacts on heritage resources are assessed as minor.

6.7 Traffic

Magnitude of Effect: Minor

Direction of Effect: Adverse

Duration of Effect: Long Term

Frequency: Continuous

Scope of Effect: Regional Project Area

Reversibility: Reversible

The increase in Local and Regional Project Area traffic will be not substantial for the following reasons:

- The sand will not be transported by haul truck which will limit traffic associated with the Project to contractors and Processing Facility operation staff during the Project construction and operation phases.
- Processing Facility staff will be limited to approximately 20 to 30 personnel during the construction phase and approximately 40 to 50 personnel during the operation phase of the Project (Section 2.6) with staff arrivals and departures being staggered daily to accommodate the 24 hours, seven days/week operation schedule. Additional minor traffic will be related to weekly supply/parts deliveries and contractors for services such as waste disposal.

- Most traffic will travel along a Processing Facility access road less than 1 km in length, then will travel two km on PR 302 north to PTH 15. Therefore, the use of local roads beyond the short section of PR 302 will be minor.

6.8 Aesthetics

Magnitude of Effect: Minor

Direction of Effect: Adverse

Duration of Effect: Long Term

Frequency: Continuous

Scope of Effect: Project Site

Reversibility: Reversible

The impact of the Project on the aesthetics of the Local Project Area is anticipated to be minor for the following reasons:

- Treed areas adjacent to public roads, local residences and within the Project Site are expected to provide a line of sight barrier to the Project components (e.g. sand silos; stockpiles). Therefore, there will not be a clear view of the Processing Facility from a public road or residence.
 - Most the Project Site area will remain forested and clearing to accommodate the Project footprint will be minimized to the extent feasible (refer to mitigation described in Section 6.5.1 'Vegetation').
- The transmission line towers (approximately 34 m tall) that are present along the proposed temporary access road within the Manitoba Hydro easement (Section 2.5 'Access') are not visible within the Local Project Area except when looking down the cleared transmission line corridor, or the area immediately adjacent to the corridor. Therefore, the tallest Project components (i.e. the sand silos at 42 m tall each and maximum height of sand stockpiles during fall at 28.7 m tall) are also not expected to be visible from a public road or residence given the distance from the Project components to public roads and residences and treed areas blocking the line of sight.
 - Distances to the nearest residences are provided in **Appendix B** (Air Quality Report) and **Appendix C** (Noise Impact Assessment Report).
 - Distance from the centre of the Wet Plant and Dry Plant area where stockpiles and silos will be located to the nearest public road is approximately 790 m to the west (to PR 302), and 450 m north to the road/trail along the Manitoba Hydro transmission line easement that is used by the public for recreational purposes (e.g. snowmobiling).

6.9 Accidents and Malfunctions

To minimize the probability of accidents and malfunctions, the proposed Project phases will be conducted in accordance with applicable regulatory requirements. The following sections provide additional details on precautionary measures that will be implemented by CanWhite to further minimize the potential for accidents and malfunctions to occur.

6.9.1 Worker Health and Safety

Worker protection in Manitoba is regulated through standards, procedures and training under *The Workplace Safety and Health Act*, Workplace Safety and Health Regulation M.R. 217/2006. Safety equipment and personal protective equipment will be supplied to employees and workers. Contractors

and visitors will be subject to site specific environmental health and safety orientation for all phases of the Project.

6.9.2 Spills and Leaks

Environmental effects may occur due to fuel and chemical spills from diesel fuel, lubricants, oils and hydraulic fluids. An accidental release of hazardous materials and/or equipment fluids could occur from improper storage and handling procedures. Accidental releases have the potential to affect air, surface water, groundwater and soils, with consequential effects on vegetation, aquatic resources and possibly human health and safety.

The following standard procedures will be implemented to prevent spills from occurring during Project activities:

- Diesel tanks used on-site will be self-contained aboveground storage tank(s);
- When servicing requires drainage or pumping of lubricating oils or other fuels from equipment, a groundsheet of suitable material and size will be spread on the ground to catch all fluid in the event of a leak or spill. An adequate supply of suitable absorbent material and any other supplies and equipment necessary to immediately clean up spills will also be available;
- Storage and disposal of liquid wastes and filters from equipment maintenance, and residual material from spill clean-up will be contained in an environmentally safe manner and in accordance with existing regulations;
- Waste oils, fuels, and other hazardous wastes will be handled in a safe manner. Staff will be required to transport, store and handle all such substances as recommended by the suppliers and/or manufacturers and in compliance with applicable federal, provincial and municipal regulations. Manitoba Conservation and Climate will be notified immediately if a reportable spill occurs;
- Fuels, oils or other hazardous materials will be stored in designated areas;
- Storage sites will be inspected regularly for compliance;
- Personnel on-site will be trained in how to deal with spills, including knowledge of how to properly deploy site spill kit materials which will be available on-site;
- Spill kits will be stationed and readily available for easy access;
- Service and repairs of equipment will be performed by trained personnel;
- Vehicles and Equipment will have pre shift inspections and walk arounds to ensure no fluid leaks, primarily from the fuel system and/or hydraulics. Any detected leak will result in the unit being pulled from service until repaired. All service and repairs will be logged and tracked in the units operating and maintenance logs. A manufacturer defined maintenance and preventative care will be practiced by CanWhite and its employees; and
- Fuel and chemical handlers will be trained and qualified, and appropriate emergency response measures will be in place and readily available.

Taking into account application of the above mitigation measures as necessary, and assuming the implementation of safe work practices, the risk of spills and leaks is considered to be appropriately mitigated.

6.9.3 Fires and Explosions

The presence of mechanical equipment, fuels and other hazardous materials creates a potential for fires and explosions. Such incidents can harm on-site personnel, cause equipment damage and lead to a release of contaminants, resulting in consequent effects to other environmental components (air, surface water, groundwater, plants, wildlife, aquatic resources and aesthetics).

Necessary precautions will be taken to prevent fire hazards at the Project Site; including but not limited to:

- Removal of flammable waste on a regular basis and disposal at a licenced disposal facility;
- Workers will be provided with appropriate fire prevention training;
- Appropriate fire extinguishers will be available on the Project Site. Such equipment will comply with and be maintained to the manufacturers' standards and employees will be appropriately trained in their use;
- Storage, transportation and use of hazardous materials, including flammable waste, will comply with regulatory requirements;
- On-site fire prevention/response equipment will be checked on a routine basis and in accordance with local fire safety regulations to maintain proper working order;
- CanWhite will have a dedicated groundwater well on-site for fire suppression protection which will be regularly inspected for compliance;
- Greasy or oily rags or materials subject to spontaneous combustion will be deposited and stored in appropriate receptacles. This material will be removed from the Project Site on a regular basis and be disposed of at licenced waste disposal facility; and
- Smoking will be restricted to designated areas.

With the measures outlined above, and assuming implementation of safe work practices, the risk of fires and explosions is assessed to be appropriately mitigated.

6.9.4 Transportation Accidents

An increase in traffic due to employee and contractor traffic to and from the Project Site has the potential to increase the likelihood for transportation accidents. Transportation accidents can consequently result in the release of pollutants to the environment such as fuel and oils, or materials that the vehicles colliding are transporting (e.g. silica sand; construction wastes). Such accidental releases to the environment could potentially result in secondary effects on other environmental components (e.g. groundwater contamination through seepage, decline in surface water quality through runoff) or tertiary effects on vegetation (e.g. decline of growth potential due to soil contamination), wildlife, aquatic resources and human health.

The following measures will be employed to reduce the risk of transportation accidents:

- The sand product will be transported from the Processing Facility directly by rail to markets rather than using transport trucks.
- The rail loop component of the Project will be constructed in accordance with the most recent applicable engineering specifications.
- Personnel retained to drive and operate vehicles and construction equipment will have a valid appropriate-Class Manitoba Driver's License with a copy provided to CanWhite.
- Speed limits on access roads, local road and Provincial Highways will continue to be implemented. Signage and speed limits on the PR 302 and PTH 15 are regulated by the Province of Manitoba.

The above noted measures are assessed to appropriately mitigate the potential risk of transportation accidents during all phases of the Project.

6.9.5 Power Failure

Backup power for critical infrastructure and equipment during the Project phases will be supplied to the Project Site via two diesel generators (Section 2.8).

The supply of backup power is anticipated to appropriately mitigate the potential risks of a power failure that may result in malfunctions and accidents, and adverse effects to the environment during all Project phases.

6.10 Summary of Environmental Effects and Mitigation Measures

Table 6-5 summarizes potential environmental effects of the proposed Project and the design features, standard operating procedures and other mitigation measures that will be implemented.

Table 6-6 summarizes potential accidents and malfunctions and measures to reduce the risk of such occurrences.

With the application of proposed mitigation measures, adverse environmental impacts of the Project are expected to be sufficiently mitigated summarizes potential environmental effects of the proposed Project and the design features, standard operating procedures and other mitigation measures that will be implemented.

Table 6-5: Summary of Environmental Assessment and Mitigation Measures

Environmental and Social Component	Project Phase	Sources of Potential Effects	Summary of Measures *	Residual Adverse Impact
Geology / Topography	Construction	Clearing, levelling, construction of laydown areas, and construction of the sand Processing Facility including access road improvements as needed.	Where applicable, existing roads and trails and other previously disturbed areas will be utilized to minimize disturbance to the natural topography.	Minor
	Decommissioning	Removal of Project infrastructure and rehabilitation of disturbed areas.	Levelling and grading will occur upon Project decommissioning to return the landscape to elevations typical to the surrounding area.	
Soil Erosion	Construction	Clearing, levelling, construction of laydown areas, and construction of the sand Processing Facility including access road improvements as needed.	An Erosion and Sediment Control Plan will be implemented for the construction and decommission phases of the Project. Areas disturbed during the construction phase that are not required for the Project operation phase (e.g. equipment laydown areas) will be revegetated as quickly as feasible to stabilize the soil and minimize soil erosion.	Minor
	Decommissioning	Removal of Project infrastructure and rehabilitation of disturbed areas.	During the Project decommissioning phase, after Project components have been removed, the landscape will be leveled and graded, and disturbed areas will be revegetated as quickly as feasible to stabilize the soil and minimize soil erosion.	
Groundwater	Operation	Withdrawing quantities of groundwater water that exceed capacity of the source aquifer may potentially affect the regional groundwater aquifer and potentially affect regional aquifer quantity and quality.	Process water will be recycled into the Wet Plant for reuse in a continuous loop. Excess water not required for the sand wash process (Wet Plant) or dust control activities will be recycled back into the slurry loop system in a dedicated enclosed return water pipe, removing the need for any draw of groundwater for Wet Plant usage. Water not required for recycling will be stored in a surface water tank for reuse as required. Low flow toilets and sinks will be installed for employee usage.	Negligible

Environmental and Social Component	Project Phase	Sources of Potential Effects	Summary of Measures *	Residual Adverse Impact
ATMOSPHERIC ENVIRONMENT				
Air Quality	Construction, Operation and Decommissioning	<p>Generation of greenhouse gases from Project equipment.</p> <p>Dust generation from construction traffic along the main roads and temporary trails, and during other Project activities.</p>	<p>Groundwater wells established at the Project Site for the Processing Facility will be decommissioned (sealed) when no longer required in accordance with applicable regulations.</p> <p>Groundwater wells will be constructed by a licensed well drilling contractor in accordance with the Groundwater and Water Well Regulation and the Well Standards Regulation.</p> <p>Operations will incorporate the measures described in Section 6.9.2 designed to prevent accidents or spills of substances which could affect groundwater quality.</p>	
			<p>Overs/fines sand reject pile associated with the Wet Plant and the overs/fines sand reject pile associated with the Dry Plant will be kept damp by misting with additional water to mitigate the potential for fugitive dust generation, as needed (e.g. during hot, dry and windy weather); during the winter months, these sand reject piles will be covered with a mesh system (similar to a fishing net) that will allow snow and ice to accumulate on sand reject piles to act as a natural containment to control dust.</p> <p>The sand Dry Plant, including all dry sand conveyors and transfer points, will be enclosed with all transfer points under negative pressure to mitigate dust. The dryer is equipped with a baghouse to capture dust generated from the drying process.</p> <p>The dry sand product will be loaded into covered grain hopper-type railcars using a retractable sand transfer spout; a method designed to control fugitive dust</p> <p>Natural vegetation buffers will be left around the Processing Facility to limit the potential for dust dispersion to the Local Project Area.</p> <p>Appropriate speed limits will be posted on the permanent Processing Facility access road (30 km/hr) and within the Project Site to minimize the potential for dust generation.</p> <p>Water will be applied to the permanent Processing Facility access road to minimize dust generation as needed (e.g. during hot, dry weather).</p> <p>Emissions will be minimized by regularly maintaining equipment and vehicles and minimizing idling of vehicles.</p> <p>A Dust Management Plan will be in place during all phases of the Project. This Plan will provide procedures for the implementation of measures to control dust at the Processing Facility and will include provisions for</p>	Minor to Negligible

Environmental and Social Component	Project Phase	Sources of Potential Effects	Summary of Measures *	Residual Adverse Impact
Climate / Greenhouse Gases	Construction, Operation, and Decommissioning	Processing Facility operations including use of diesel and natural gas fuel sources; use of heavy machinery, equipment, vehicles, locomotive and railcar mover and any additional tools or equipment that consumes fuel.	<p>monitoring and cleanup of the localized migration of fugitive dust from stockpiles should this occur. The Plan will also include a dust monitoring program that will include sampling and testing for silica dust (total quartz and respirable crystalline) to ensure the potential for silica dust exposure is effectively controlled and mitigated.</p> <p>Emissions will be minimized by regularly maintaining equipment and vehicles and minimizing idling of vehicles.</p> <p>Vehicles and equipment will meet required emission standards.</p> <p>Power use for the long-term operation of the project will be obtained from hydropower via a planned power line and planned installation of a natural gas line which will minimize the need for power from GHG-emitting diesel generators.</p>	Negligible
Noise	Construction, Operation and Decommissioning	Noise from the Processing Facility, including rail, operations and sources of noise from heavy equipment during Project construction and decommissioning such as bulldozers and excavators.	<p>The Dry Plant will be an enclosed building which will minimize dry sand processing noise.</p> <p>The shape of the rail loop will allow the locomotive to pull the train right through the Rail Load Out without the need to regularly decouple or couple individual cars which would be a source of noise; a smaller railcar mover will be used if a railcar needs to be removed or added to the train (e.g. for maintenance).</p> <p>Construction equipment and vehicles will be kept well maintained and will be fitted with mufflers, and other noise mitigation equipment as required.</p> <p>Unnecessary idling and revving of engines will be avoided.</p> <p>Noise monitoring will be conducted during Project commissioning to determine if any noise mitigation (e.g. berms) will be needed.</p>	Negligible
AQUATIC ENVIRONMENT				
Surface Water Quality	Construction, Operation, and Decommissioning	Clearing, leveling, compacting, ditching for water drainage as required; stockpiling materials during site preparation and establishment of	<p>Construction of ditching within the Project Site, as required, will assist in directing runoff flow and maintaining natural drainage pathways through low areas and will contain water runoff from disturbed areas.</p> <p>Construction of the permanent access road to the Processing Facility will include the installation of culverts to equalize surface water flow and maintain natural drainage pathways as required.</p> <p>No harmful chemicals will be used in the processing of sand.</p>	Negligible

Environmental and Social Component	Project Phase	Sources of Potential Effects	Summary of Measures *	Residual Adverse Impact
		associated laydown areas; stockpiling wet sand and overs/fines; removal of Project infrastructure and rehabilitation of disturbed areas.	Wastewater from staff washrooms, shower facilities and staff kitchen will be directed to a septic system that will be regularly maintained and monitored for correct functioning. An approved Erosion and Sediment Control Plan will be implemented for all phases of the Project.	
Fish and Fish Habitat	Construction, Operation and Decommissioning	Not applicable.	Due to the lack of fish habitat within the Project Site and Local Project Area, and application of an Erosion and Sediment Control Plan, Project related impacts on fish and fish habitat are not anticipated.	None
TERRESTRIAL ENVIRONMENT				
Vegetation	Construction, Operation and Decommissioning	Clearing, leveling, compacting, ditching for water drainage as required; operation of machinery and activities that produce dust; removal of Project infrastructure and rehabilitation of disturbed areas.	Areas to be cleared of vegetation will be minimized to the extent feasible and will be clearly marked to avoid clearing more than required. Usable trees/wood will be cut and stacked at the Project Site for local use as firewood for no longer than one year or disposed of in accordance with applicable regulations. Areas disturbed during Project construction, not required for Project operations, will be allowed to revegetate naturally and will be augmented using an approved native seed mixture and native plantings if required. A Revegetation Monitoring Program will be implemented after Project construction to determine the success of the revegetation program and determine if follow-up reseeding or replanting is required. The monitoring program will include monitoring during the growing season until the seedlings appear to be established. Mitigation measures to control dust (see Air Quality component in this table) will be applied to minimize accumulation of dust on vegetation. Areas to be cleared of vegetation will be minimized to the extent feasible and will be clearly marked to avoid clearing more than required. Vegetation clearing will take place outside of the spring and summer months to the maximum extent feasible to avoid disturbance to breeding birds and other spring breeding wildlife species. Vegetation clearing will not take place during the peak breeding bird season for this 'Zone B4' area: April 25 – August 15 (when 90% of bird species in the area are known to nest); pre-clearing nest searches will be conducted no more than 5 days prior to clearing during the 'shoulder' nesting season	Minor (Project Site) to Negligible (Local Project Area)
Wildlife	Construction, Operation, and Decommissioning	Vegetation clearing; human presence and noise related to Project construction, operation and decommissioning activities such as operation of machinery; increased human presence at the Project		Negligible

Environmental and Social Component	Project Phase	Sources of Potential Effects	Summary of Measures *	Residual Adverse Impact
		Site Area and increased traffic at the Project Site and adjacent Local Project Area.	<p>outside of this 'peak' nesting timeframe (i.e., April 14 – 24 and August 16 – 24; Government of Canada, 2018), as needed.</p> <p>Areas disturbed during Project construction, not required for Project operations, will be revegetated using an approved native seed mixture and native plantings as required.</p> <p>Mitigation measures to control noise (see Noise component in this table) and dust (see Air Quality component in this table) will be applied.</p> <p>Fully shielded directional lighting fixtures will be used to focus light specifically to work areas, parking lot and the Processing Facility to minimize the dispersal of light to the surrounding Project Site.</p> <p>The permanent Project Site access road will have a posted speed limit of 30 km/hr.</p> <p>Employees and contractors will be required not to feed or harass wildlife.</p> <p>Mitigation measures as listed for the Vegetation and Wildlife components above will be applied.</p>	
Species of Conservation Concern	Construction, Operation, and Decommissioning	As above for the Vegetation and Wildlife components.		Minor to Negligible
SOCIOECONOMIC ENVIRONMENT				
Labour Force and Employment	Construction, Operation and Decommissioning	Employment and contract services required for Project construction, operation and decommissioning phases.	Employment opportunities associated with the Project will be advertised as needed within the Regional Project Area.	None (adverse) to Moderate (benefit)
Emergency Services	Construction, Operation, and Decommissioning	Accidents, malfunctions and extreme natural events such as storms.	<p>An Emergency Response Plan will be available on-site during Project construction and operation that will clearly outline appropriate emergency response protocol.</p> <p>An on-site groundwater well will be dedicated to emergency fire suppression.</p> <p>CanWhite will notify the RM of Springfield emergency services when Project construction and operation will begin.</p> <p>Measures to avoid accidents and malfunctions as described in Section 6.9 will be applied.</p>	Minor
Community Services	Construction, Operation, and Decommissioning	Requirement for use of Local and Regional Project Area goods and services (contractor services); utility services	Water requirements for the Processing Facility will be sustainably sourced from two wells on the Processing Facility property with water quantities used in accordance with regulatory requirements, as applicable	None (adverse) to Moderate (benefit)
			Existing Local or Regional Project Area wastewater treatment systems will not be used. Wastewater from staff washrooms, shower facilities and staff	

Environmental and Social Component	Project Phase	Sources of Potential Effects	Summary of Measures *	Residual Adverse Impact
		(electricity; natural gas; cellular services).	<p>kitchen will be directed to a septic system that will be regularly maintained and monitored for correct functioning.</p> <p>Solid waste will be transported by a licensed local contractor to be disposed at a local licenced landfill to an amount that would be sustainable for the local landfill. Otherwise, solid waste will be transported 63 km to the Brady Road Landfill managed by the City of Winnipeg.</p> <p>CanWhite will require natural gas services to be installed to the Project site which will provide opportunities for others to utilize this natural gas line that will be brought into the Local Project Area.</p> <p>CanWhite will discuss the requirement logistics and options which may include an additional cell tower capable of accommodating improved internet services or installation of fibre optics cables along a natural gas line for the Project which would improve internet services.</p> <p>The RM of Springfield community services (e.g. municipality water system upgrades) would potentially benefit from the additional tax revenue realized from the Project being located within the RM of Springfield.</p>	
Land and Resource Use	Construction, Operation, and Decommissioning	Use of the Project Site for the construction and operation of the Project and temporary use of Manitoba Hydro easement.	<p>CanWhite will be using the Manitoba Hydro power line access road easement with the permission of Manitoba Hydro during the Project construction phase (expected to be four months to a year), there will be a temporary increase in vehicle traffic along that segment of road which is also used by Manitoba Hydro, snowmobilers and other recreational off-road vehicles. The potential for disruption to recreational users will cease on completion of the permanent Processing Facility access road (in a different location described in Section 2.5)</p> <p>CanWhite will be bringing in a new natural gas line and will likely be requiring improved cellular service to the Local Project Area which is expected to benefit local properties in the vicinity of these services.</p>	Minor (adverse); Minor (benefit)
Human Health	Construction, Operation, and Decommissioning	Increased traffic due to employees and contractors accessing the Project Site; dust and noise generated by Project activities; light pollution from the Processing Facility;	<p>Mitigation measures that will avoid or minimize potential adverse effects on human health are those that will be implemented to control noise (See Noise component in this table), avoid or minimize effects on air quality (see Air Quality component in this table) and avoid or minimize effects on climate (see Climate/Greenhouse Gasses component in this table).</p> <p>All CanWhite employees will abide by the standards, procedures and training required under The Workplace Safety and Health Act as well as CanWhite's internal Health and Safety Program and Emergency Response Plan.</p>	Negligible

Environmental and Social Component	Project Phase	Sources of Potential Effects	Summary of Measures *	Residual Adverse Impact
		<p>altered viewscape (aesthetics) of the land; disruption to previous uses of the Project Site and adjacent Local Project Area land.</p>	<p>Employee Orientation and Safety training will be mandated for all new hires in addition to required yearly safety reviews for existing staff.</p> <p>In accordance with Part 12 of Hearing Conservation and Noise Control Regulation, an initial noise exposure assessment will be undertaken prior to commissioning of the facility, and appropriate measures implemented (such as hearing protection), depending on the results of the assessment. During operation and closure, a reassessment will be done if any alterations, renovations or repairs of the workplace are undertaken.</p> <p>Applicable personal protective equipment (PPE) will be provided to employees. Where required, visitor orientation and PPE will be provided when visitors enter employee only areas.</p> <p>Special training in relation to the handling of silica will be administered to all employees.</p>	
<p>Effects on Indigenous and Treaty Rights</p>	<p>Construction, Operation, and Decommissioning</p>	<p>Potential effects as above Land and Resource Use and Health and Well-being components.</p>	<p>The Project is not expected to adversely impact the exercise of Indigenous or Treaty rights because:</p> <ul style="list-style-type: none"> • No fish or fish habitat will be affected by the Project (Section 6.4.2); • The Project Site is private land, accessible only for the purposes of the Project; • The residual environmental impact of the Project on vegetation beyond the Project Site is assessed to be negligible (Section 6.5.1); and • The residual environmental impact of the Project on regional wildlife populations is assessed to be negligible (Section 6.5.2). 	<p>None anticipated⁶</p>
<p>Heritage Resources</p>	<p>Construction and Decommissioning</p>	<p>Clearing, leveling, compacting, ditching for water drainage as required; removal of Project infrastructure and rehabilitation of disturbed areas</p>	<p>CanWhite will apply mitigation measures to protect potential heritage resources as required by the HRB and as indicated in an Environment Act Licence for the Project.</p> <p>If heritage resources are discovered within the Project Site, work will be stopped, HRB will be advised, and the discovered historic resources will be recorded by an archaeologist and adequately protected as required.</p> <p>A Heritage Resources Protection Plan will be in place prior to the initiation of Project construction activities which will provide guidance to construction contractors to protect heritage resources.</p>	<p>Minor</p>

⁶ Note: there are no First Nation reserve lands within the Local or Regional Project Area.

Table 6-6: Summary of Potential Accidents and Malfunctions and Measures to Mitigate Risk of Occurrence

Risks Associated with Accidents and Malfunctions	Project Phase	Possible Consequences	Measures to Reduce Risk of Occurrence	Conclusion
Worker Health and Safety	Construction, Operation and Decommissioning	Risk of workplace accidents affecting worker health.	<p>Worker protection in Manitoba is regulated through standards, procedures, and training under the Workplace Safety and Health Regulation, M.R. 217/2006.</p> <p>Safety equipment and personal protective equipment will be supplied to employees and workers.</p> <p>Contractors and visitors will be subject to site specific environmental health and safety orientation for all phases of the Project.</p>	Risk is assessed to be appropriately mitigated
Spills and Leaks	Construction, Operation and Decommissioning	Spills and leaks from diesel fuel, lubricants, oils, hydraulic fluids, and other hazardous materials can have adverse effects to air quality, water quality, groundwater quality, wildlife, plants and human health and safety.	<p>Diesel tanks used on-site will be self-contained aboveground storage tank(s).</p> <p>When servicing requires drainage or pumping of lubricating oils or other fuels from equipment, a groundsheet of suitable material and size will be spread on the ground to catch all fluid in the event of a leak or spill. An adequate supply of suitable absorbent material and any other supplies and equipment necessary to immediately clean up spills will also be available.</p> <p>Storage and disposal of liquid wastes and filters from equipment maintenance, and residual material from spill clean-up will be contained in an environmentally safe manner and in accordance with existing regulations.</p> <p>Waste oils, fuels, and other hazardous wastes will be handled in a safe manner. Staff will be required to transport, store, and handle all such substances as recommended by the suppliers and/or manufacturers and in compliance with applicable federal, provincial, and municipal regulations. Manitoba Conservation and Climate will be notified immediately if a reportable spill occurs.</p> <p>Fuels, oils, or other hazardous materials will be stored only in designated areas.</p> <p>Storage sites will be inspected regularly for compliance.</p> <p>Personnel on-site will be trained in how to deal with spills, including knowledge of how to properly deploy site spill kit materials which will be available on-site.</p> <p>Spill kits will be stationed and readily available for easy access.</p> <p>Service and repairs of equipment will only be performed by trained personnel.</p> <p>Vehicles and Equipment will have pre shift inspections and walk arounds to ensure no fluid leaks, primarily from the fuel system and/or hydraulics. Any detected leak will result in the unit being pulled from service until repaired. All service and repairs will be logged and tracked in the units operating and maintenance logs. A manufacturer defined maintenance and preventative care will be practiced by CanWhite and its employees.</p>	Risk is assessed to be appropriately mitigated

Risks Associated with Accidents and Malfunctions	Project Phase	Possible Consequences	Measures to Reduce Risk of Occurrence	Conclusion
Fires and Explosions	Construction, Operation and Closure	Accidental fires and explosions from mechanical equipment, fuels, and other hazardous materials may result in loss of equipment and infrastructure, worker health and safety risk, and deterioration or loss of natural habitat.	<p>Fuel and chemical handlers will be trained and qualified, and appropriate emergency response measures will be in place and readily available.</p> <p>Removal of flammable waste on a regular basis and disposal at a licenced disposal facility.</p> <p>Workers will be provided with appropriate fire prevention training.</p> <p>Appropriate fire extinguishers will be available on the Project Site. Such equipment will comply with and be maintained to the manufacturers' standards, and employees will be appropriately trained in their use.</p> <p>Storage, transportation and use of hazardous materials, including flammable waste, will comply with regulatory requirements.</p> <p>On-site fire prevention/response equipment will be checked on a routine basis and in accordance with local fire safety regulations to maintain proper working order.</p> <p>CanWhite will have a dedicated groundwater well on-site for fire suppression protection which will be regularly inspected for compliance.</p> <p>Greasy or oily rags or materials subject to spontaneous combustion will be deposited and stored in appropriate receptacles. This material will be removed from the Project Site on a regular basis and be disposed of at licenced waste disposal facility.</p> <p>Smoking will be restricted to designated areas.</p>	Risk is assessed to be appropriately mitigated
Transportation Accidents	Construction, Operation and Decommissioning	Vehicular collisions (human health and safety, traffic disruption, road closure, release of contaminants) and wildlife collisions (loss of wildlife, human health and safety, road closures).	<p>The sand product will be transported from the Processing Facility directly by rail to markets rather than using transport trucks.</p> <p>The rail loop component of the Project will be constructed in accordance with the most recent applicable engineering specifications.</p> <p>Personnel retained to drive and operate vehicles and construction equipment will have a valid appropriate-Class Manitoba Driver's License with a copy provided to CanWhite.</p> <p>Speed limits on access roads, local road and Provincial Highways will continue to be implemented. Signage and speed limits on the PR 302 and PTH 15 are regulated by the Province of Manitoba.</p>	Risk is assessed to be appropriately mitigated
Power Failure	Construction, Operation and Decommissioning	Loss of power potentially leading to equipment malfunctions and accidents.	<p>Backup power for all critical infrastructure and equipment will be supplied to the Project Site via two diesel generators.</p>	Risk is assessed to be appropriately mitigated