DRAFT

AECOM

Wanipigow Sand Extraction Project

Notice of Alteration

Canadian Premium Sand Inc.

60669757

November 2022

Delivering a better world

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Canadian Premium Sand Inc. (CPS)
2000, 715 5th Avenue SW
Calgary, Alberta T2P 2X6

November 10, 2022

Project #
60669757

Subject: Wanipigow Sand Extraction Project – Notice of Alteration

Dear Mr. Knox:

Please find enclosed the Notice of Alteration and supporting information for the Wanipigow Sand Extraction Project (Environment Act Licence No. No. 3285) located substantially within the boundary of the Incorporated Community of Seymourville, Manitoba.

Should you have any questions regarding the Project or content in this report, please do not hesitate to contact Cliff Samoiloff at 204-928-7427.

Sincerely,
AECOM Canada Ltd.

[redacted]

Cliff Samoiloff, B.Sc., EP(CEA)
Senior Scientist, Project Manager

CS:ag
Encl.

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AECOM: 2015-04-13

Quality Information

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Senior Scientist, Project Manager

Revision History

Rev #	Revision Date	Revised By:	Revision Description

Distribution List

# Hard Copies	PDF Required	Association / Company Name
	✓	Canadian Premium Sand Inc.
	✓	Manitoba Environment, Climate and Parks, Environmental Approval Branch
	✓	AECOM Canada Ltd.

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1. General Information

1.1 Introduction and Background

Canadian Premium Sand Inc. (CPS) was issued an Environment Act Licence (EAL) No. 3285 on May 16, 2019, for the Wanipigow Sand Extraction Project (the Project). The EAL was issued based on Project description information provided in an Environment Act Proposal (EAP) submitted to Manitoba Sustainable Development (now Manitoba Environment, Climate and Parks [MECP]), Environmental Assessment Branch (EAB) on December 18, 2018, and subsequent additional information provided to the EAB throughout the EAP review process. Pertinent documentation regarding the review and licencing of this Project, including a copy of the EAP (AECOM 2018) is available in the Manitoba Sustainable Development[1] Public Registry.

The purpose of this Notice of Alteration (NoA) to the EAB is to describe proposed alterations to the Project, and to assess the environmental and human health effects resulting from the alterations. Project alterations that CPS is requesting approval from the EAB for are described in **Section 2**.

1.2 Proponent Contact Information

Table 1-1: Proponent Contact Information

Name of Proponent	Canadian Premium Sand Inc.
Address of Proponent	2000, 715 5th Avenue SW Calgary, Alberta T2P 2X6
Principal Contact Person for the NOA	**Alasdair Knox, VP Project Engineering** Ph: 1-403-990-0961 Email: alasdair.knox@cpsmail.com

[1] *Manitoba Government websites are in the process of revision to reflect new government department names.*

2. Description of Proposed Alterations

The originally proposed Project as described in the EAP (AECOM 2018), and subsequent NoA (March 18, 2019) for a transload facility at 999 Redonda St. in Winnipeg, is proposed to be altered to:

- Eliminate the need for a transload facility;
- Reduce the overall scope of the Project in terms of annual sand extraction activities and resulting sand transport traffic;
- Eliminate the dry plant component at the Project site;
- Modify wet plant design to focus wet sand processing on reducing iron content in the silica sand;
- Stockpile processed 'wet' sand (i.e., sand with a minimum moisture/water content of 3%) in a covered structure and use dust control measures for temporary, uncovered 'work in progress' stockpiles where and when needed (using water sprayers; tarps);
- Revise the Project process flow, stockpiles and layout of Project components within the previously proposed Project site;
- Modify how sand is transported from the quarry to the wet sand processing facility (use of water and slurry lines); and
- Add water and wastewater management components within the previously proposed Project site.

Proposed alterations to the Project are primarily due to the revised purpose of the Project which is to provide silica sand to the proposed CPS Solar Glass Manufacturing Facility (hereafter: 'solar glass plant') in Selkirk, Manitoba. The solar glass plant project will be reviewed by the EAB under a separate Environment Act Licence application as a Class 2 manufacturing facility.

In summary, the scope of Project alterations described in this NoA include changes to:

- Production capacity (annual sand extraction rate substantially reduced)
- Silica sand production process
  - Wet plant size reduced
  - Dry plant no longer required
  - Covered bulk wet sand storage (silos for long-term bulk storage of dry sand product no longer required)
- Method of stockpiling (dust mitigation measures applied to open stockpiles)
- The access road (minor adjustment to the alignment) due to the dry plant no longer being required and length modified from a conceptually estimated 6 km to 7.9 km during the advanced design stage
- Traffic volumes (reduced)
- Water and wastewater management (additional components)
- Ancillary facilities
- Employees (for construction and operation phases)
- Water use (reduced)
- Power use (reduced)
- Equipment use
- Project schedule

The Project will require the addition of the following components within the Project site:

- The following ponds for managing active quarry infiltration / runoff water if required, wet plant processes and dust control:
  - Freshwater pond
  - Sediment pond
  - Up to four settling/retention ponds
- A slurry pipeline to transport sand slurry from a working stockpile at the active quarry cell to the wet sand processing plant

- A sand processing facility (wet plant) for sorting and cleaning sand for use at the solar glass plant
- One groundwater well to provide make-up water to the site
- Stockpiles:
  - Quarry working stockpile to provide a buffer between mining activities and the wet plant operations
  - Waste stockpile(s) to store sand rejected from the wet plant prior to the return of this waste sand to the quarry during reclamation
  - Covered product stockpile to store the final sand product prior to transport to the glass facility
- A maintenance shop to support maintenance of equipment and systems at the site
- A fuel tank for refuelling of mobile equipment
- Single story modular ATCO type building housing offices for the site operating staff and security staff (responsible for monitoring of incoming vehicles and the Project site in general) along with sand testing equipment
- A parking area for mobile vehicles (including staff vehicles)

An updated Project site layout is provided in **Figure 2-1**.

The following sections describe the proposed alterations to the licenced Project that require approval from the EAB in accordance with *The Environment Act*.

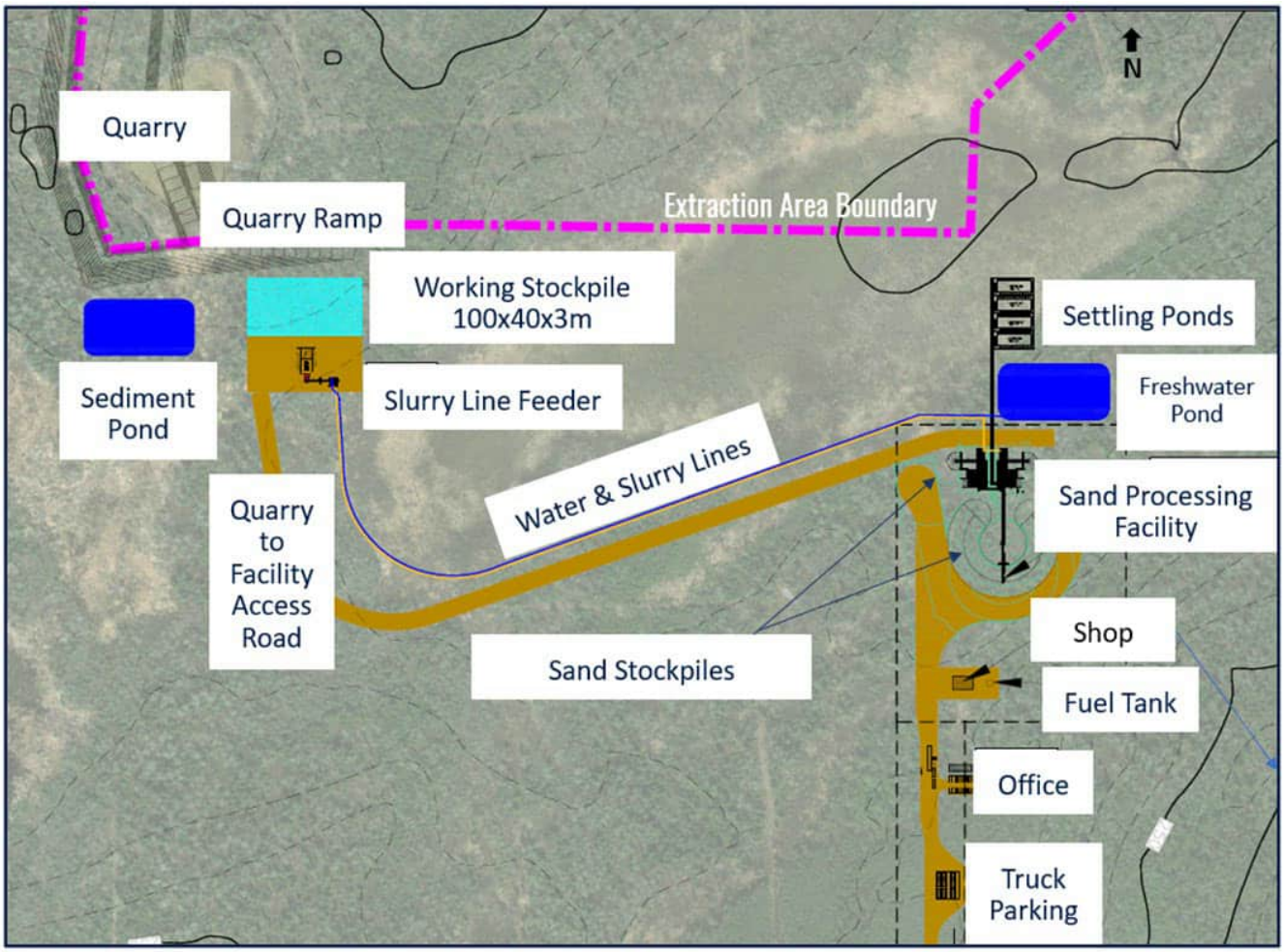


Figure 2-1: Updated Project Site Layout

2.1 Production Capacity

The Project production capacity will be altered from the originally proposed estimated annual production rate of approximately one million tonnes of silica sand, to an estimated annual production rate of approximately 300,000 tonnes of silica sand (i.e., approximately 70% less sand per year).

2.2 Quarrying

Due to the substantially reduced annual production capacity (**Section 2.1**), the quarry method and required quarry equipment will also be revised as described in **Sections 2.2.1** and **2.2.2**.

2.2.1 Quarry Method

The quarry method will remain as described in the EAP (AECOM 2018) except for the sand quarrying frequency.

Original Project design:

- Sand quarrying taking place 24 hours per day, seven days per week year-round except during extreme weather events.

New Project design:

- Sand quarrying taking place 10 hours per day, seven days per week for approximately seven months per year except during extreme weather events.

The sand extractions areas for the new Project design (for the approximate 35-year life of the Project) compared to the old Project design are illustrated in **Figure 2-2**.

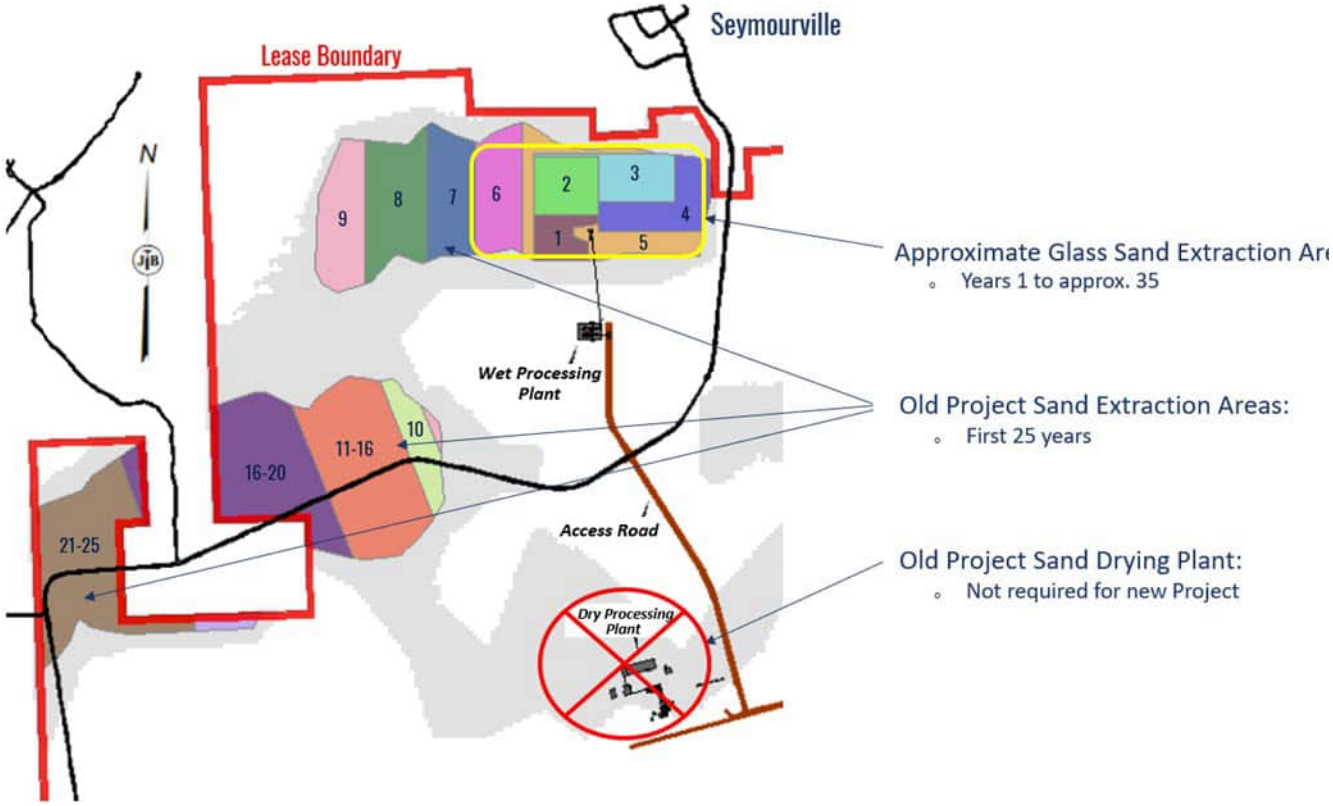


Figure 2-2: Updated Sand Extraction Areas

2.2.2 Quarry Equipment

Large quarry equipment estimated to be required for the new Project design will be revised as described below:

Original Project design:	New Project Design:
• Two D11 track dozers • Two 3 m^3 front-end loaders • Two articulated dump trucks	• One 36-tonne excavator • Three 24-tonne articulated trucks • Two loaders • One D6 dozer • One grader • One 500-gallon water truck

2.3 Silica Sand Production Process

2.3.1 Wet Plant

The original Project design included a sand processing facility which included both a wet plant and dry plant (AECOM 2018). The new Project design sand processing facility will include only the wet plant component which will have a similar footprint area as the originally proposed wet sand processing facility. The revised wet plant design will not be contained within a building as was the original Project design. The footprint areas for the new Project design components as compared to the original Project design components are provided in **Section 2.12**.

Updated Wet Sand Processing

The purpose of the revised wet sand processing plant is to produce sand of the correct grain size and reduced iron content suitable for solar glass production. The sand does not need to be dried (and therefore will not be dried) at the Project site before being transported by truck to the proposed solar glass plant in Selkirk, Manitoba.

A detailed diagram illustrating the wet sand processing flow is provided in **Appendix A.** A simplified version of the sand processing flow is illustrated in **Figure 2-3** and is summarized below.

Sand will be excavated from the active extraction pit by an excavator and is likely to be extremely wet. It will be deposited in a working stockpile which will be maintained close to the slurry line feeder to ensure there is always sand available for the process.

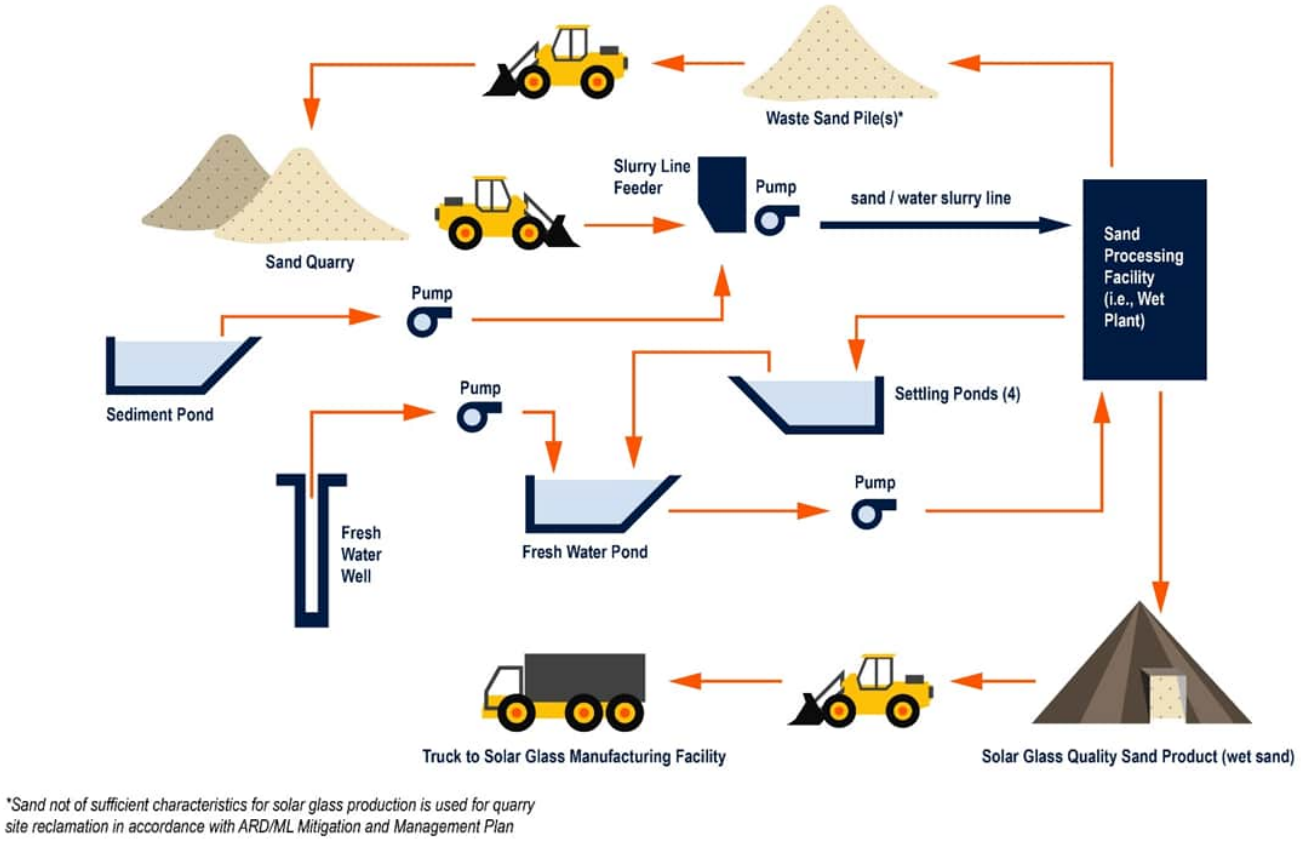
Sand will be placed in the slurry feeder along with water to be pumped in a slurry through a pipe (the 'slurry line') to the first stage of the wet sand process.

Water used in the wet plant processing (see **Section 2.9**) will be recycled in a closed-loop system for wet plant process reuse. Make-up water will be obtained from Project site sources (e.g., groundwater well; not from a fish-bearing waterbody).

Once the wet sand is transported via slurry line from the excavation pit, the wet sand is processed in stages as explained below.

Stage 1:

The first stage of the process is screening which removes larger-sized sand grains or other larger debris that accompanies the sand from the quarry. These oversize screenings will be transported back to the quarry for use in site reclamation.



*Sand not of sufficient characteristics for solar glass production is used for quarry site reclamation in accordance with ARD/ML Mitigation and Management Plan

Figure 2-3: Simplified Anticipated Process Flow Diagram

Stage 2:

The next stage is attrition scrubbing. In principle, attrition scrubbers are tanks with stirrers in which a thick sand and water (slurry) suspension is subjected to very strong shear stresses. These stresses are caused by the stirrers rotating in opposite direction to each other, which generate strong turbulence in the suspension. The high suspension concentration ensures that each sand grain is given the opportunity to scrub against other sand grains. The shear forces and scrubbing action remove unwanted/waste components (e.g., iron) from the surface of the sand grains. Disposal of waste components will be done in accordance with an Acid Rock Drainage and Metal Leaching (ARD/ML) Mitigation and Management Plan (**Appendix B**).

Stage 3:

After the attrition scrubbers, the sand is piped to spiral concentrators which separate sand grains of different gravity through density separation. Heavier sand grains that likely contain trace amounts of iron are transported back to the quarry site for site reclamation, and in accordance with an ARD/ML Mitigation and Management Plan (**Appendix B**).

Stage 4:

After the first three stages, the sand is still expected to contain some free iron particles and so the last stage in the process is magnetic separation. This process takes advantage of the difference in magnetic properties between the silica sand and iron and is used to separate the magnetic iron from the valuable nonmagnetic quartz. Again, the unwanted iron content is transported back to the quarry site for site reclamation, and in accordance with an ARD/ML Mitigation and Management Plan (**Appendix B**).

Stage 5:

The cleaned silica sand (approximately 3% to 5% moisture) is stockpiled under cover (see **Section 2.3.3**) for transportation to the solar glass plant site via truck.

Plant Operating Schedule

The wet sand processing plant will operate during the warm parts of the year, approximately seven months from April or May to October or November depending on weather conditions. During those months the plant will operate for a maximum of 20 hours per day, seven days per week.

2.3.2 Dry Plant – Eliminated

The sand processing facility as originally described the EAP (AECOM 2018) will no longer include a 'dry plant' component because a dry sand 'product' is not required for transportation to the final destination for the excavated sand, which is now the proposed solar glass plant in Selkirk, Manitoba.

2.3.3 Stockpiles

The four dry sand storage silos (capacity: 2,000 tonnes each) will no longer be required for the new Project design because a dry silica sand product will no longer be produced and stored at the Project Site.

For the new Project design, wet sand will be stockpiled on site prior to truck transport to the proposed solar glass plant in Selkirk, Manitoba. Stockpiles required on site as part of the wet sand processing are shown in **Figure 2-1** and described as follows:

- **Working pile** –will be in the quarry pit and will only be present during the operational months (April to October) of the wet sand processing plant.
  - Approximately 100 m long x 40 m wide x 3 m deep
- **Sand waste stockpiles** - that occur because of the wet sand processing steps (Section **2.3.1**) are located at the wet sand processing facility and will continually be returned to the quarry pit or mixed and stored with the overburden. Approximately 130,000 tonnes of sand waste will be generated yearly.
  - Will be temporary, with material from waste stockpiles returned to the active quarry pit or stored with overburden every few days or daily as needed
  - Up to three stockpiles, each approximately 540 m^2 in area and up to 10 m tall (and not likely to exceed the height of surrounding treeline); temporary waste stockpile will be at-surface during initial year of operations with waste piles being below-grade within the quarry pit during subsequent operation years
  - Waste stockpiles will be drawn-down on a regular basis to back-fill extracted areas of the active quarry pit in accordance with an ARD/ML Mitigation and Management Plan (**Appendix B**).
- **Final wet sand product stockpile** - will be located at the wet sand processing facility for transportation by truck to the solar glass plant in Selkirk.
  - This stockpile will reach its maximum estimated height and size in November, then will gradually be reduced over the winter as sand from this stockpile is transported by truck to the proposed solar glass manufacturing facility in Selkirk, Manitoba. The covered stockpile, which will be a seven-month supply of sand, will remain below tree height and will contain approximately 150,000 tons of sand (approximately 100,000 m^3)
  - This stockpile will be located inside a covered structure

The Project site stockpiles will not be sources of potentially harmful airborne silica sand dust because:

- The size of the sand grains retained for use in the solar glass manufacturing process are larger than those that are harmful; and the wet sand product stockpile will be located inside a covered structure

- Water from a water truck and/or sprinklers will be sprayed on open stockpiles as needed during active quarry operational months to prevent the stockpiles, especially the outside surface, from drying out and allowing the potential for silica sand particulates to become airborne
- During winter, remaining stockpiles will be removed

In addition to the above-described 'process' stockpiles, overburden from the active annual quarry cell will be stockpiled (approximately 15 m tall and 6 ha footprint area) adjacent to the active quarry cell for use in annual sequential (progressive) reclamation of quarry cells. Overburden stockpiles will be covered with topsoil.

2.4 Access Roads

Minor adjustments to the alignment of the Project site access roads as originally described in the EAP (AECOM 2018) will be needed to accommodate the removal of the dry plant from the Project scope. **Table 2-1** describes how access roads will be revised for the new Project design as compared to the original Project design.

Table 2-1: Access Roads - Alterations

Original Project Design	New Project Design
New Access Roads:	
• A 6 km main access road (paved) to access the Project site that will intersect with the existing Hollow Water Main Road	• Access road will be gravel rather than paved; mitigation measures to control road dust will be applied; minor alignment adjustments comparted to original road alignment; access road now includes a 1.5 km section of existing (gravel) road previously proposed to be used for the construction phase and emergency use (see **Figure 2-4**)
• Improvements to an existing 1.5 km road, which will be a gravel road, for construction phase access to the Project site and for emergency use during Project operation	• A gravel construction access and emergency road to the old dry plant site is no longer required
Access Control:	
• Both access roads will be gated to control Project Site access.	• Same as original Project design (the Project site access road will be gated at Seymourville to control access) • Gates may also be located where the main access road intersects Seymourville Road and Hollow Water Road (to be discussed with Manitoba Infrastructure)
Improvements to Existing Road:	
• CPS will be upgrading the section of Hollow Water Main Road required for truck transport of the silica sand product to Winnipeg (improvements needed to be discussed with Manitoba Infrastructure)	• Same as original Project design • Transport of sand will be to Selkirk rather than Winnipeg

The main access road for the updated Project will be:

- gravel rather than paved (with seasonal road dust control);
- will have minor adjustment to the alignment (due to the dry plant no longer being required); and
- the total length has been modified from a conceptually estimated 6 km to 7.9 km during the advanced design stage.

The updated access road alignment compared to an iteration of advanced design for the old Project is shown in **Figure 2-4**.

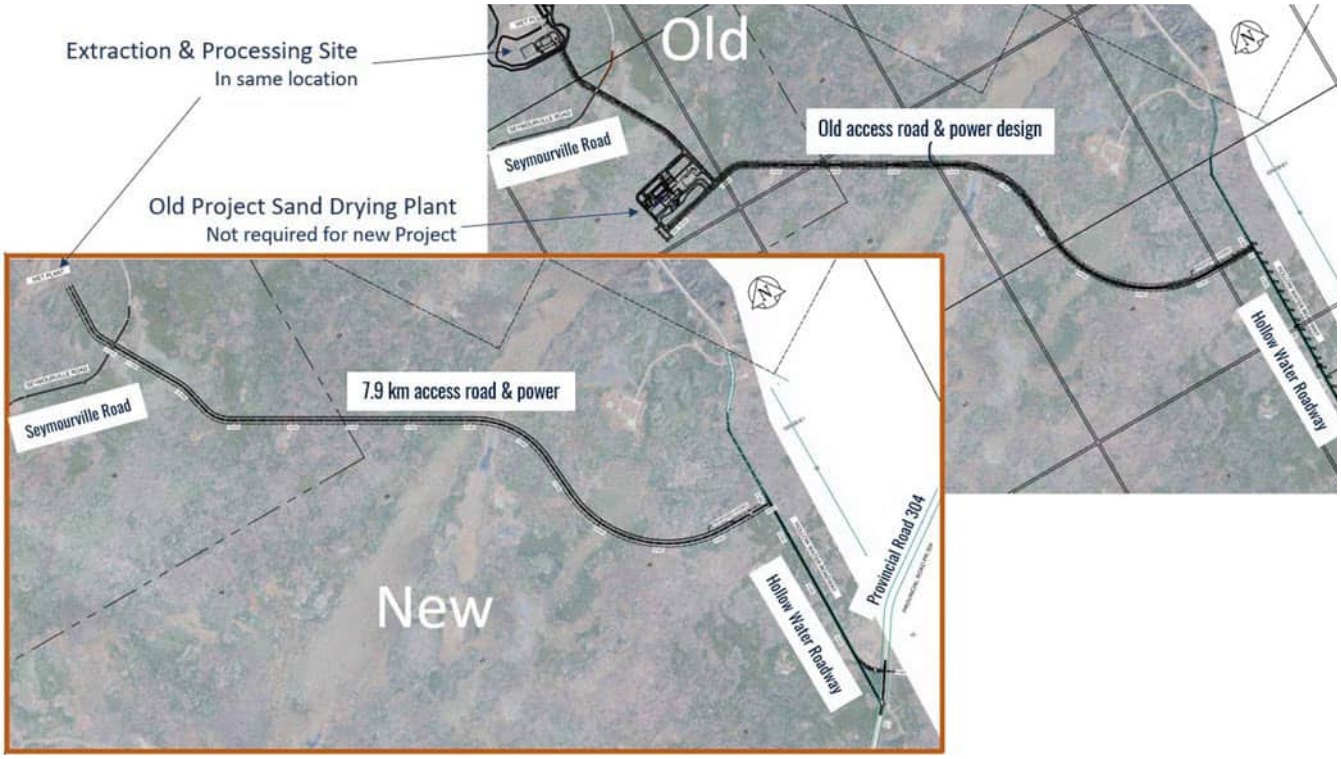


Figure 2-4: Updated Main Access Road vs. Previous (old) Alignments

2.5 Traffic Volumes

The original Project design involved transportation of dry silica sand product in trucks having completely contained waterproof sealed load covers (AECOM 2018). The sand being transported to the solar glass plant will have a moisture content of approximately 3% to 5% and will be transported in trucks with a system that covers the top of the trailers 100%. The loads will not require the use of waterproof sealed load covers because the sand being transported is not a 'dry sand product' but rather is a wet sand product with sufficient moisture content to mitigate the potential for the generation of potentially harmful airborne silica sand dust during transport when the load is covered with a standard load cover.

The original Project design required sand to be transported by 40 tonne capacity trucks to a transload facility in Winnipeg 24 hours a day, seven days a week, year-round after the initial production year. Three to four trucks per hour were required for loading sand at the Project site sand processing facility.

The new Project design using the same type 40 tonne capacity trucks to transport wet sand directly to the proposed solar glass plant in Selkirk 10 to 20 hrs per day, five to seven days per week, up to 12 months per year. Between two and three trucks per hour will be required to load sand at the Project site sand processing facility.

2.6 Waste Management

2.6.1 Water/Wastewater Management

Water for the sand wash process will be maintained within a closed-loop system and will be sourced from dewatering of the active quarry pit (via the sediment pond) and groundwater as described in **Section 2.9** 'Water Use'. Water for Project operations including the slurry line and the sand wash process will be stored in a freshwater pond approximately 2.2 ha in size (122 m x 183 m). The freshwater pond will be topped up from groundwater. Wastewater from the sand processing will enter the settling ponds with sediment being retained and clean water being returned to the freshwater pond.

The following water management ponds will be required:

- Sediment Pond
  - This pond will be in the low section of the active quarry pit to collect runoff from overburden stockpiles and other water accumulation at the quarry pit.
  - The size of the sediment pond required will vary and will be determined by an engineer as sand extraction operations proceed each year (expected to be approximately 0.8 ha).
  - Water from this pond will be used to transport sand to the wet plant as appropriate.
- Settling Ponds
  - Used to settle out fines in the closed-loop system used in the sand processing plant.
  - During subsequent operation years, the settling ponds maybe located within the active quarry pit.
  - Up to three to four settling ponds may be active during each year of operations.
  - Each settling pond will be approximately 30 m x 9.5 m in size, up to approximately 2.5 m deep, and appropriately lined as required.
  - After sediment has settled from the water in the settling ponds, the clear water will be pumped to the freshwater pond for use in the sand wash process.
  - Sediment ponds will be cleaned of sediment on an ongoing basis with the sediment being used as quarry backfill material in accordance with an ARD/ML Mitigation and Management Plan (**Appendix B**) which was developed in consideration of an ARD/ML characterization and assessment report (**Appendix C**).
- Freshwater Pond
  - Used to store water for use in the sand wash process.
  - Fed from the Settling Ponds and topped up (as required) from groundwater.

The wet plant will operate as a closed loop with respect to water balance. Some water will be bound to the final sand product or sand waste piles because of the sand wash process. Process water will be recovered at the end of the sand wash process and will be recycled to the sand wash process start. Any water drained from the various waste or stockpile locations will be directed to a sump area and reused in the wet plant.

On-site wastewater management will comply with provisions of the Onsite Wastewater Management Systems Regulatory 83/2003 (and future amendments) pursuant to *The Environment Act*.

2.6.2 Quarry Waste Management

Disposal of quarry overburden (waste rock and soil) generated during sand extraction operations, and sand waste generated during silica sand processing, will be managed in accordance with an ARD/ML Mitigation and Management Plan (**Appendix B**) which was developed based on recommendations in an ARD/ML assessment report (**Appendix C**) for the Project site.

2.7 Ancillary Facilities

The original Project design required the following ancillary facilities:

- Maintenance shop
  - Including fabrication shop, truck shop and warehouse
- Operations and administration building
  - 2-story building
- Fuel depot
  - Housing one 18,927 L (5,000 U.S. liquid gallon) fuel tank with secondary containment as per applicable guidelines and regulations.
- Propane Tank Storage
  - One 10,000 L horizontal propane tank with proper containment as per applicable guidelines and regulations
- Other ancillary facilities
  - Within the wash and dry facility (i.e., change room, cafeteria, quality control lab, offices)

The new Project design will require the following ancillary facilities:

- Maintenance shop
  - Including fabrication shop, truck shop and warehouse
- Operations and administration building
  - Single-story building with propane for HVAC
  - Includes change room, cafeteria, quality control lab, offices
- Fuel tank
  - Housing one 18,927 L (5,000 U.S. liquid gallon) fuel tank with secondary containment as per applicable guidelines and regulations
- Water management ponds
  - As described in **Section 2.6**
- Sand and water slurry line and slurry line feeder
  - Sand is mixed with water to form a slurry that is then pumped from the quarry area to the sand wash plant area through a pipe (i.e., slurry line)
  - As shown in **Figure 2-1**

2.8 Employees

As with the original Project design, the new Project design will not have a worker camp on site. Information on how the number of employees will change with the new Project design is provided below in **Sections 2.8.1** and **2.8.2**.

2.8.1 Construction

The original Project design estimated that approximately 30 people were required for Project site clearing and construction of the original sand wash and dry facility and associated infrastructure including access roads and powerline (AECOM 2018).

For the new Project design, the employees required for the Project site clearing and construction phase will not substantially change from the original Project design.

2.8.2 Operation

The original Project design estimated that approximately 75 people would be employed for Project operations, and that transporting the sand product to Winnipeg would require up to 50 truck drivers (AECOM 2018).

With the new Project design, the type of employment positions will remain largely as originally described in the EAP (AECOM 2018). However due to the overall reduced production capacity of the new Project design, approximately

17 people would be employed on site daily for Project operations and transporting the sand to Selkirk would require up to 20 truck drivers.

2.9 Water Use

The original Project design described water for the processing of silica sand would be sustainably sourced from a combination of groundwater, water from seepage within the annual open quarry pit, and supplemental water (as required) that will be trucked to the Project site from a licenced source (AECOM 2018).

With the new Project design, water for Project operations will be sourced from dewatering of the active quarry pit and a new groundwater well. It is anticipated that the dewatering of the active quarry pit will supplement sand processing water requirements and will offset the amount of groundwater required. During periods where the sediment pond has run low, the make-up water from the groundwater well is anticipated to reach 78 m^3/hr. The groundwater well will be established, operated, and decommissioned in accordance with *The Groundwater and Water Well Act*, and *The Water Rights Act* as applicable.

Table 2-2 describes how water use and storage will be revised for the new Project design as compared to the original Project design.

Table 2-2: Water Use Changes

Original Project Design	New Project Design
Water Use:	
• 1,817 m^3/hour (8,000 US gpm) of water	• 1,500m^3/hr (6,500 US gpm) of water
• The process water will be recycled within the wet plant, with the addition of 'make-up' water required at a maximum rate of 45 m^3/hour (200 US gpm) to account for water loss primarily due to evaporation	• The process water will be recycled through settling ponds, with the addition of 'make-up' water required at a maximum rate of approximately 78 m^3/hour (350 US gpm) to account for water loss from the process, for dust control use and from evaporation. • The sand will be transported from the quarry to the wet plant through a slurry line. Water for the slurry line will come from the sediment pond and (if required) from the freshwater pond.
Water Storage:	
• If **required**, two 3 m tall x 30.5 m diameter water storage tanks will be installed on-site to provide supplementary water for plant processes.	• A Freshwater Pond (**Section 2.6**) will be constructed on-site to provide a water source for plant processes, dust control and evaporation replacement.

2.10 Power Use

As with the original Project design, the new Project design will include power being supplied to the Project site via a powerline that will run along the main access road corridor.

The original Project design required 5,966 kW (8,000 hp) of power, with 1,119 kW (1,500 hp) of that power needed to operate pumps (AECOM 2018).

The new Project design will require 3,236 kW (4,300 hp) of power, with 514 kW (690 hp) of that power needed to operate pumps.

Power to the Project site will be sourced from a Manitoba Hydro owned and operated 66 kV line serving a customer owned conventional 66 kV to 12 kV substation complete with security fencing. This substation will serve approximately 7 km of 3 phase 12.47 kV (12.47 kV phase to phase/ 7.2 kV to ground) overhead line. This line will be set on 12 to 15 metre (40 to 50 foot) hydro poles complete with crossarms on an average of 60 metre (197 foot) spans following the proposed Project site access road. The power line will exceed minimum ground clearances required under the most current version of the Canadian Standards Association (CSA) standard for overhead power systems (CSA22.3.1). Conceptual design will be for a 10-metre right-of-way to maintain tree clearance.

As with the original Project design, the new Project design will have two diesel generators at the Project site during construction. Back-up power for the sand wash process is not anticipated to be required.

2.11 Equipment Use

The revised Project components and reduction in sand production capacity as compared to the original Project design will result in changes to heavy equipment needed. **Table 2-3** describes the heavy equipment use required for the new Project design as compared to the original Project design.

Table 2-3: Changes to Project Heavy Equipment Use

Original Design		New Design	
Equipment	**Units***	**Equipment**	**Units***
Construction Phase			
Track dozers	2	Track dozers	2
Feller bunchers	4	Feller bunchers	4
Concrete batch plant	1	Concrete batch plant	1
Grader	2	Grader	2
4 x 4 pick-up trucks	8	4 x 4 pick-up trucks	8
Cranes	4	Cranes	4
Man-lift	2	Man-lift	4
		Diesel generators	2
Operation Phase			
Silica Sand Transportation Trucks	30	Silica Sand Transportation Trucks	8
Track dozers	2	Track dozer	1
Articulated dump trucks	2	Articulated dump trucks	3
Grader	1	Grader	1
4 x 4 pick-up trucks	4	4 x 4 pick-up trucks	2
Front-end loaders	2	Front-end loaders	2
		Water Wagon/Truck	1
Decommissioning/Closure Phase			
Track dozers	2	Track dozers	2
Articulated dump trucks	2	Articulated dump trucks	2
Cranes	4	Cranes	4
Grader	2	Grader	2
4 x 4 pick-up trucks	8	4 x 4 pick-up trucks	8

*Not all operating simultaneously during any given phase.

2.12 Project Footprint Area

The original Project design was described as having a footprint area of 353 hectares (ha) where project activities and components would be located (AECOM 2018). Changes to the footprint area with the new Project design components as compared with the original Project design are listed in **Table 2-4**.

Table 2-4: Estimated Revised Project Footprint Area

Original Design		New Design	
Components	**Area (ha)**	**Components**	**Area (ha)**
Wash and Dry Facility and Associated Infrastructure	15	Wet Plant (sand wash facility) and associated infrastructure including water management ponds and sand processing-related stockpiles – dry plant eliminated	18
Main Access Road Right-of-Way (conceptual design estimated 60 m wide x 6 km long)	36	Main Access Road Right-of-Way (advanced design mostly along the same alignment with some adjustments: 60 m wide x 7.9 km long)	47.4
Powerline Right-of-Way (adjacent to main access road estimated 30 m wide x 6 km long)	18	Powerline Right-of-Way Way (10 m wide) adjacent to advanced design main access road (7.9 km long)	7.9
Construction and Emergency Use Access Road Right-of-Way (estimated 60 m wide x 1.5 km long)	9	Construction and Emergency Use Access Road Right-of-Way not required (this 1.5 km of existing road is now incorporated into the Main Access Road Right-of-Way)	0
Annual Disturbed Quarry Area			
Active Quarry Site Area (maximum disturbed area in any given year with previous year active areas under rehabilitation)	5	Active Quarry Site Area as originally described	5
Total Disturbed Footprint Area in any given year of the life of Project (54 years)	83	Total Disturbed Footprint Area in any given year of the life of Project (approximately 35 years)	78.3
Total Footprint Area during life of Project (including all sequentially used and progressively rehabilitated quarry areas, i.e., 5 ha x 54 years)	353	Total Footprint Area during life of Project (including all sequentially used and progressively rehabilitated quarry areas, i.e., 5 ha x 35 years)	248.3

2.13 Revised Project Schedule

Project construction activities have been delayed to Q2 2023 due to repurposing the silica sand product for use in solar glass production in Manitoba (and associated Project alterations required for this purpose) and in consideration of the regulatory review timeline for the proposed solar glass plant, and the EAL Notice of Alteration regulatory review process for the Wanipigow Sand Extraction Project. As such, **Table 2-5** provides an updated Project schedule in comparison to the previously proposed Project schedule presented as Table 2-2 in Section 2.13 of the EAP.

Table 2-5: Proposed Revised Project Schedule

Project Phases and Activity	Original Proposed Schedule (from the EAP)	Updated Project Schedule
Construction		
Site preparation (clearing vegetation[2], grubbing, grading, leveling)	February-March, 2019	Q1, 2023
Improvements to existing 1.5 km access road for construction and emergency use	Q2, 2019	Not required (this 1.5 km of existing road is now incorporated into the Main Access Road Right-of-Way)
Construction of main access road and powerline	Q2 – Q3, 2019	Q1 – Q4, 2023
Construction of the wash and dry facility and associated infrastructure	March - October, 2019	Q1 – Q4 2023 (excluding dry facility)
Operation		
Testing and commissioning the wash and dry facility	November - December 2019	Q3 & Q4, 2023 (excluding dry facility)
Quarrying	Initial production year: Q3 – Q4, 2019 Each production year thereafter: (year-round; 24 hours/day, 7 days/week)	Initial production year: Q3 2023 Each production year thereafter: (10 hours/day, 7 days/week for approximately 7 months per year)
Wet sand processing	Initial production year: November 2019 Each production year thereafter: (year-round; 24 hours/day, 7 days/week)	Initial production year: Q3, 2023 Each production year thereafter: (20 hours/day, 7 days/week for approximately 7 months per year; April to October)
Transporting silica sand from sand extraction Project site	Initial production year: November 2019 (transportation to Winnipeg for distribution to markets) Each production year thereafter: (year-round; 24 hours/day, 7 days/week)	Initial production year: Q3, 2023 (transportation to solar glass plant in Selkirk, MB) Each production year thereafter: (as above; 10-20 hours/day, 5 to 7 days/week for up to 12 months per year)
Reclamation and Closure	- Annual sequential (progressive) reclamation of quarry cells - Project Site reclamation (closure) at end of Project Life (54 years): **2073**	- Annual sequential (progressive) reclamation of quarry cells - Project Site reclamation (closure) at end of Project Life* (approximately 35 years): **2059**

* Assumes an approximate 35-year solar glass plant life from 2024 (which the sand is supplying).

[2] *Note that Project Site vegetation clearing was conducted by Hollow Water First Nation under their Forestry Licence, in 2018 except for approximately 2 ha of clearing required in the vicinity of the previously proposed wash and dry facility location.*

3. Engagement Program and Community Outreach Update

Once revisions to the Project were confirmed based on the new Project purpose (i.e., to supply silica sand for a proposed CPS solar glass manufacturing facility in Selkirk, Manitoba), CPS engaged with local communities and stakeholders to provide updated Project information.

A community information session was held in the community of Seymourville at the Seymourville Hall on May 25, 2022. The event was advertised in the Winnipeg Free Press on May 14, 2022. Representatives from CPS and AECOM were available to guide participants through the storyboards and answer questions asked by participants.

The community information session was drop-in format and was designed to provide attendees with the opportunity to:

- Review Project update information;
- Discuss the revised Project with representatives from CPS and AECOM; and
- Collect public feedback regarding the proposed Project alterations.

The community information session was well-attended, with 24 participants that signed-in, and an additional 11 participants that preferred not to sign-in. In total, approximately 35 people attended the community information session.

3.1 Communication Materials

In addition to publishing the community information session event notice in the Winnipeg Free Press, the notice was also posted within local communities and hand-delivered to local community representatives 10 days (most notifications) to one week prior to the event (**Table 3-1**). Communication materials at the community information session are provided in **Appendix D** and included storyboards, a 2-page 'Fact Sheet', a 'Frequently Asked Questions' document and a voluntary questionnaire available for participants to document their feedback on the proposed Project alterations.

Table 3-1: Local Communities and Stakeholders Directly Notified of Community Information Session Event

Community / Stakeholder / Group	Notice Communication Method
Hollow Water First Nation	• Hand-delivered to Chief and Council
	• Posted on Hollow Water First Nation bulletin board and posed on social media website page
	• Posted on local store bulletin board
Seymourville	• Hand-delivered to Seymourville administrator
	• Posted on bulletin board
Manigotagan	• Emailed to Manigotagan Council
	• Posted on bulletin board at post office
Blueberry Point Cottages	• Hand-delivered to available cottagers (approximately 10)
	• Cottagers association was contacted (they indicated the notice would be distributed via email to cottagers)
Pelican Harbour Cottages (gated community)	• Notice sent via email to cottagers association general email address

Community / Stakeholder / Group	Notice Communication Method
Ayers Cove	• Emailed to condo association
Camp Morning Star (Non-government local organization) – key participants	• Hand delivered to Kelvin Ramsay
	• Sent to Lisa Raven via social media
	• Notice left in mailbox of Marcel Hardisty

3.2 Public Input Received

A total of 11 questionnaires were received from the attendees at the community information session. To protect the privacy of the attendees, copies of the questionnaire sheets are not provided in this report; however, a sample questionnaire can be found in **Appendix D**. The following subsections summarize the comments received.

3.2.1 Comments on How People Heard about the Event

Attendees were asked how they heard about the community information session, through the newspaper, word of mouth, social media (e.g., Facebook) or email communication. Results are provided in **Figure 3-1**.

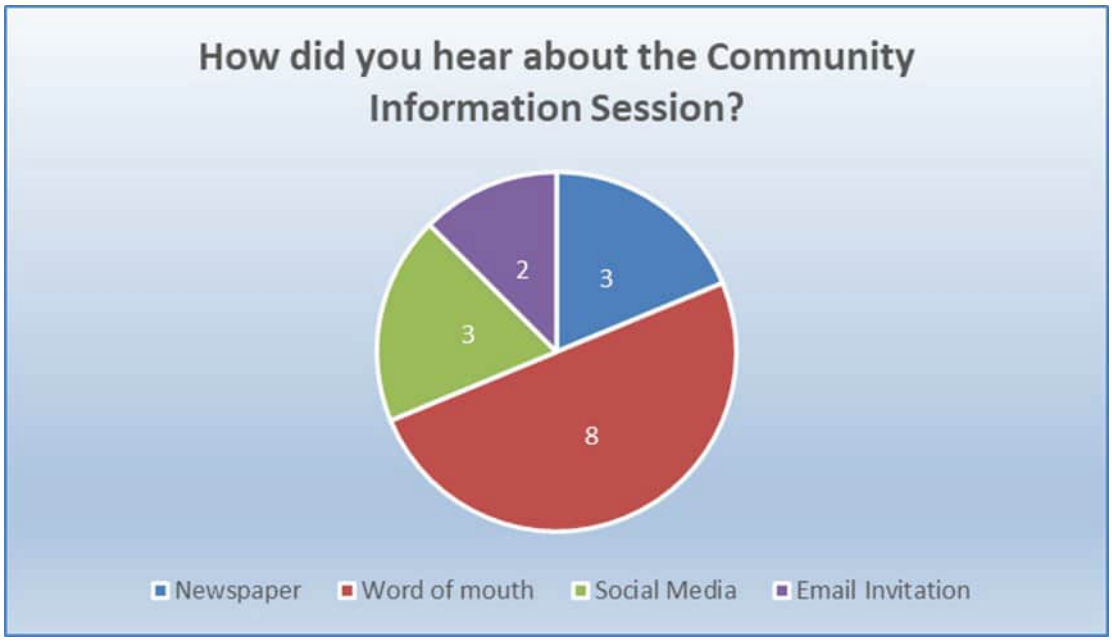


Figure 3-1: How did you hear about the Community Information Session?

Note: Respondents had the option of selecting more than one answer

3.2.2 Thoughts on the 'New' vs. 'Old' Project

Respondents were asked to provide their thoughts on "the New vs. the Old Project". Of the 11 respondents, most (72%) expressed positive thoughts regarding the new Project compared to the old Project (e.g., using words such as 'interesting', 'impressive' and 'good' or 'better' to describe their thoughts). Several respondents expressed interest in job opportunities with the new Project or indicated that the new Project would be "good for the community" (45%). One respondent indicated 'not much difference' regarding the old vs. new Project and two respondents (18%) expressed negative views on the new Project (i.e., "cancel the project" and "…I have no idea what is correct…"). One respondent liked that the end use of the sand was not for fracking and another respondent pointed out that less traffic would be associated with the new Project and liked that the sand would be used for solar panels.

3.2.3 Environmental Concerns

Respondents were asked if they had any outstanding concerns regarding the 'New' Project. Of the 11 respondents, three (27%) indicated that they had no outstanding environmental concerns. For those respondents indicating that they had outstanding concerns, respondents were asked to select their top three concerns from a list of environmental components listed in **Figure 3-2**. Respondents had the option of selecting any of the environmental components listed.

Of the eight respondents that had outstanding environmental concerns, a few respondents selected their top three concerns, while others selected either more or less than three concerns. The top concern indicated was regarding air pollution/noise (75% of the eight respondents; **Figure 3-2**). The next top three concerns were regarding water quality, animals and fish/fish habitat (63% of the eight respondents).

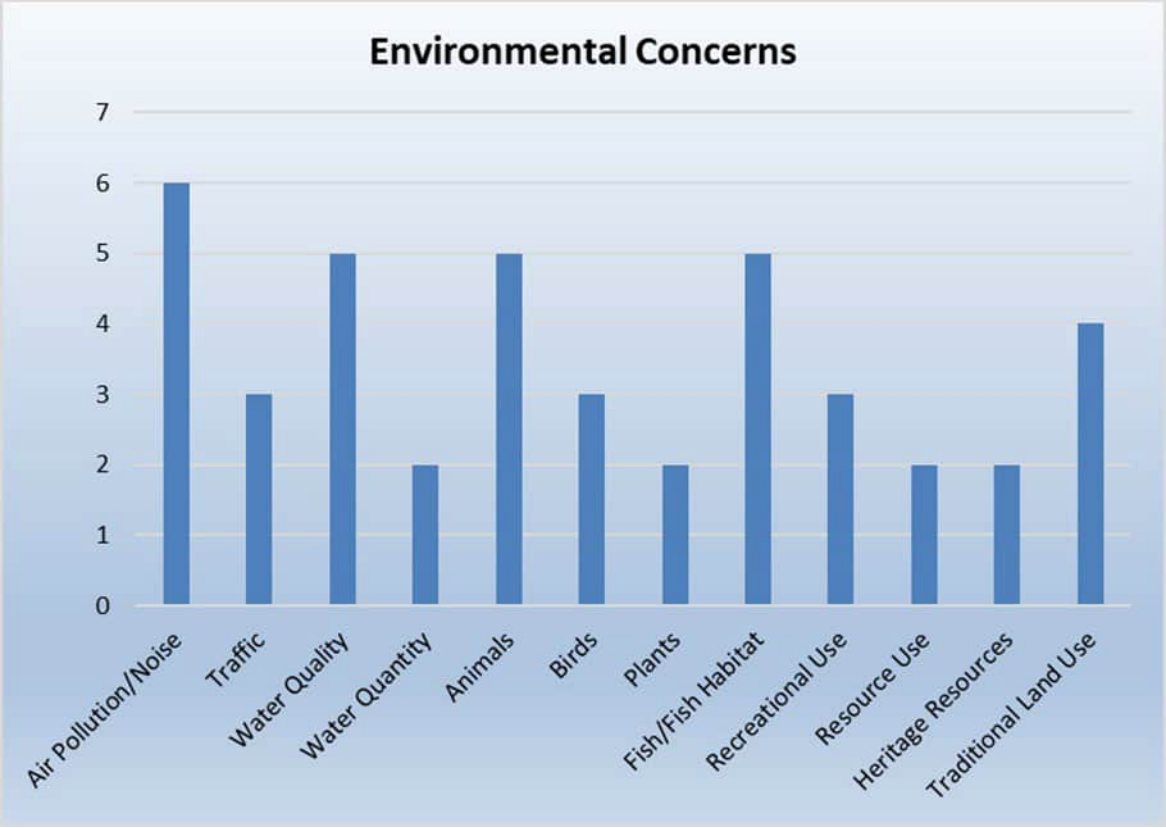


Figure 3-2: Environmental Concerns

3.2.4 Project Related Interests Moving Forward

Respondents were asked if they have any specific interests related to the Project going forward. Three of the 11 people who completed questionnaires did not indicate any specific interests moving forward. One respondent indicated interest in traditional land use, while most respondents (7 [64%]) indicated interest in employment opportunities.

3.2.5 Availability of Information at the Community Information Session

Respondents were asked if they found the storyboards informative and if someone was available to answer questions. Most respondents (82% of 11 respondents) thought the storyboards were informative, and most respondents (64%) indicated that someone was able to answer their questions.

3.2.6 Additional Comments and Questions

Attendees were asked if they had any additional comments on the Project. Of the 11 respondents with additional comments, three (27%) were related to employment/training opportunities. Most of the respondents (eight [73%]) were either supportive or did not indicate opposition to the new Project. One of the 11 respondents indicated that they were opposed to the new Project. Two questions were asked: one requesting copies of the storyboards and one asking if CPS would be offering on-site training.

3.3 Additional Community Outreach

In addition to the letters of support provided for the original (old) Project from the local communities of Seymourville, Manigotagan, Aghaming and Hollow Water First Nation (AECOM 2018), CPS received a letter of support for the revised (new) Project from Hollow Water First Nation for the updated (new) Project (**Appendix E**).

Recent on-going communications by CPS with potentially interested Indigenous communities / groups regarding the Project after the Community Information Session was held on May 25, 2022 (**Section 3.2**) are summarized in **Table 3-2**.

Table 3-2: Summary of Additional Indigenous Outreach

DATE	ENTITY	CONTACTS / ATTENDEES	SUBJECT DISCUSSED / INFORMATION SHARED	COMMUNICATION METHOD	COMMENTS CONCERNS
October 28, 2022	Manitoba Métis Federation	President David Chartrand	Request for engagement with Manitoba Métis Federation regarding the Project	Letter, email	Ongoing communications
October 25, 2022	Brokenhead First Nation	Chief Gordon Bluesky	Discussed Project	Phone call, travelled to community and email	Ongoing communications; concerned about Camp Morning Star; would like an Information Session in community which is currently being scheduled
October 20, 2022	Community of Seymourville	Mayor Audrey Seymour Town Manager Keith Seymour	CPS Wanipigow Sand Extraction Project update	Phone call, email	No concerns expressed; ongoing communications
September 22, 2022	Peguis First Nation	Chief Glen Hudson	Project details and meeting/point-of-contact logistics	Phone call, email	Duty to consult; ongoing communications
September 13, 2022	Hollow Water	Councillor Geoff Bushie	Discussed Project	Phone call, email	Ongoing communications

DATE	ENTITY	CONTACTS / ATTENDEES	SUBJECT DISCUSSED / INFORMATION SHARED	COMMUNICATION METHOD	COMMENTS CONCERNS
September 13, 2022	Manitoba Métis Federation (MMF) - Selkirk local	No response	Voicemail left regarding CPS Wanipigow Extraction Project update	Email and phone call	No response to voicemail; ongoing communications
September 13, 2022	Hollow Water	Councillor Geoff Bushie	Discussed Project	Phone call, email	No concerns expressed
September 9, 2022	Sagkeeng	Chief Derrek Henderson, Councillor Dylan Courchene	Discussed Project	Phone call, email, in person	Ongoing communications
September 8, 2022	Southeast Resource Development Council Corp. (SRDC)	Executive Director Doug Mercer, Adrea Asham Exec Assist.	Vincent Fontaine (Ishkonigan) met with leadership to discuss the Project	Email, in person	Ongoing communications
September 3, 2022 - Ongoing	Brokenhead First Nation	Chief Gordon Bluesky	Project details and meeting/point-of-contact logistics	Text, phone call, email	Duty to consult; ongoing communications
September 1, 2022	Black River	Chief Sheldon Kent	Discussed Project	Travelled to community of Black River, phone call and email	Ongoing communications
August 31, 2022	Treaty 1	Chief Executive Officer Whelan Sutherland	Vincent Fontaine (Ishkonigan) met with leadership to discuss the Project	Email, in person	Was informed that Treaty 1 will defer to individual First Nations (FNs) to interact
August 23, 2022 - Ongoing	Peguis First Nation	Chief Glen Hudson, Mike Sutherland	Emailed Project information	Email, phone call	Ongoing communications
July 7, 2022	Grand Council Treaty 3	Ogichidaa Grand Chief Francis Kavanaugh	Left information on voicemail regarding Project update; emailed Project information	Phone call, email	Was informed that Treaty 3 will defer to individual First Nations (FNs) to interact

4. Changes to Environmental Effects

This section identifies the potential effects of the proposed Project alterations on the biophysical and socioeconomic environmental components, and associated linkages to potential human health effects. Also described are mitigation measures included in the design of the Project alterations to avoid or minimize potential adverse environmental and associated human health effects, and residual adverse impacts remaining, if any, after the application of mitigation measures.

4.1 Scope of the Assessment

To assess the potential environmental impact of the Project and future planned improvements, spatial and temporal boundaries are defined as follows:

4.1.1 Temporal Boundaries

The temporal boundaries for the planned Project in consideration of proposed Project alterations are as follows:

- **Construction Phase**: Includes clearing for, and construction of, infrastructure required for Project operations including the sand wash facility and site access roads.
  - Q1-2023 – Q4 2023
- **Operation Phase**: Includes sequential sand quarrying, sand washing (processing) and sand hauling to the proposed solar glass plant in Selkirk, Manitoba.
  - Q3 2023 – Q4 2054
- **Decommissioning Phases**:
  - **Sequential Sand Quarry Decommissioning (Progressive Rehabilitation):** Each sand extraction cell (not exceeding 5 ha at any one time) will remain open during the Operation Phase for approximately 12 months and will overlap with the opening of the next adjacent sand extraction cell area. The new sand extraction cell area will remain open for a similar time period after which each sand extraction cell will be backfilled with stockpiled substrate. Stockpiled soil will be spread to initiate revegetation efforts.
  - **Project Decommissioning and Closure:** After the expected life of the Project (approximately 35 years), the wash facility and associated infrastructure will be removed, and previously disturbed areas leveled and rehabilitated as described above for decommissioning of the final sand extraction cell. After the life of the Project, future use of access roads and powerline to the Project Site will be discussed with the local communities and Manitoba Hydro to determine if the communities would like to repurpose and assume long-term maintenance of these components. Should the local communities not require the Project access roads and/or powerline, they will be decommissioned, and disturbed areas will be rehabilitated as per other disturbed areas associated with Project components.

4.1.2 Spatial Boundaries

Spatial boundaries used for the assessment are as previously described in the EAP (AECOM 2018) and include:

- **Project Site:** includes the footprint of the Project, including proposed alterations, which is the area that will encompass the land on which project components are located and immediate surround the area that will be directly affected by the Project. The footprint of all Project alterations will be within the previously described Project Site boundary approximately 4 km southeast of the wet plant location.
- **Local Project Area**: is comprised of an area that is 2 km beyond the Project Site, which is intended to account for the majority of direct and indirect effects of the Project on Environmental Components (ECs) such as noise, vehicle emissions and traffic.
- **Regional Project Area**: is comprised of an area that is up to 10 km beyond the Project Site, which is intended to account for the maximum spatial extent of any potential Project effects on ECs or Social Components (SCs) and associated impacts unless otherwise indicated.

4.1.3 Biophysical and Socioeconomic Components

In accordance with the Manitoba Sustainable Development *Information Bulletin – Alterations to Developments with Environment Act Licences* (August 2021), the effects resulting from the alteration should be described in the context of the potential effects on the terrestrial, aquatic and atmospheric environments, and potential effects on human health.

The scope of the environmental assessment has been limited to those biophysical and socioeconomic components expected to be affected (i.e., interact with or be changed) by the Project alterations. **Table 4-1** provides a list of biophysical and socioeconomic components, indicates which components would be potentially affected by the alterations, and rationale for if the component was carried forward for the assessment of effects.

Table 4-1: Scoping of Biophysical and Socioeconomic Components for Environmental Assessment

Component	Potential for Project Interaction*	Potential for Additional Adverse Effects Requiring Additional Mitigation** and Therefore Carried Forward for Environmental Assessment?	Rationale for Inclusion or Exclusion in Environmental Assessment
Physical Environment			
Geology/ Topography	Yes	No	The footprint area of topology or geology disturbance resulting from Project alterations will occur within the previously described Project Site boundary and will be less than originally described in the EAP over the life of the Project (AECOM 2018). Refer to **Section 2.12**.
Soil	Yes	No	The footprint area of soil disturbance resulting from Project alterations will occur within the previously described Project Site boundary and will be less than originally described in the EAP over the life of the Project (AECOM 2018). Refer to **Section 2.12**. The standard erosion and sedimentation mitigation measures as described in the EAP (AECOM 2018) will be applied where needed to prevent erosion of soil. Therefore, incremental adverse effects on soil erosion due to Project alterations are not anticipated.
Groundwater	Yes	**Yes**	The substantially reduced annual sand production capacity and associated reduced size of the wash facility will reduce the quantity of water required from groundwater for the sand wash process (Refer to **Sections 0** and **2.3**). There is potential for impact from ARD/ML associated with material excavated from the quarry and from disposal of waste sand with iron content. This potential impact will be mitigated through appropriate measures for the management of quarry and sand waste materials with elevated potential for ARD/ML (**Section 2.6**).

Component	Potential for Project Interaction*	Potential for Additional Adverse Effects Requiring Additional Mitigation** and Therefore Carried Forward for Environmental Assessment?	Rationale for Inclusion or Exclusion in Environmental Assessment
			The same mitigation measures as described in the EAP (AECOM 2018) will be applied to mitigate groundwater withdrawal effects and potential for groundwater contamination.
Atmospheric Environment			
Air Quality	Yes	**Yes**	The following mitigation measure described in Section 6.5.1 of the EAP to minimize silica sand dust dispersion will no longer be applied as previously described, i.e.: • *The silica sand wash and dry facility, including all conveyors and transfer points, will be enclosed and under negative pressure to allow fines to be collected in a bag house fabric filter dust collection system to minimize dust projection*. Although the dry facility is no longer a Project component, mitigation to avoid or minimize the dispersion of silica sand dust will be altered for the modified sand wash facility, conveyors, and transfer points (**Section 2.3**). Silica sand will be stockpiled (not contained in silos as described in the EAP) due to the temporary nature of the stockpiles, moisture content within the stockpiles (which will minimize dust generation) and alterations to mitigation measures to mitigate dust dispersion (**Section 2.3.3**).
Noise	Yes	**Yes**	Although the measures described in Section 6.5.2 of the EAP to mitigate noise generation will still be applied (noting that the dry plant component will be eliminated), the need for a reassessment of noise generation is required to determine if changes to the Project design, such as having a gravel rather than paved access road, will require additional mitigation to avoid or minimize potential adverse effects of noise due to Project alterations.
Climate/Greenhouse Gases (GHGs)	Yes	No	Due to the overall reduction of Project activities as described in **Section 2**, the generation of GHGs associated with the altered Project (e.g., from sand haul trucks and sand excavation machinery) will be substantially reduced from what was originally assessed in the EAP (AECOM 2018).
Aquatic Environment			
Surface Water	Yes	**Yes**	The altered Project design will now include new surface water components: a sedimentation pond to manage excavation pit water (if required), a freshwater pond to

Component	Potential for Project Interaction*	Potential for Additional Adverse Effects Requiring Additional Mitigation** and Therefore Carried Forward for Environmental Assessment?	Rationale for Inclusion or Exclusion in Environmental Assessment
			store make-up water for the sand and water and slurry line feeding the wet facility and up to four settling ponds to remove fines from the sand processing water in the closed loop water system within the wet facility. Additional mitigation measures will be required to: • Manage inadvertent water overflow and resulting potential erosion and sedimentation from the freshwater pond, sediment pond and settling ponds. There is potential for impact from ARD/ML associated with material excavated from the quarry and from disposal of waste sand with iron content. This potential impact will be mitigated through appropriate measures for the management of quarry and sand waste materials with elevated potential for ARD/ML (**Section 2.6**).
Fish and Fish Habitat	No	No	As indicated in the EAP (AECOM 2018), due to the absence of fish habitat within the Project Site and application of an Erosion and Sediment Control Plan, impacts on fish and fish habitat are not anticipated due to the Project as originally described in the EAP, or the Project alterations as described in **Section 2** of this NoA.
Terrestrial Environment			
Vegetation	Yes	No	The footprint area of vegetation clearing resulting from Project alterations will occur within the previously described Project Site boundary and will be less than originally described in the EAP over the life of the Project (AECOM 2018). Refer to **Section 2.12**. The mitigation measures originally proposed in the EAP (AECOM 2018) to minimize adverse effects on vegetation will be applied. Therefore, incremental adverse effects on vegetation due to Project alterations are not anticipated.
Wildlife	Yes	No	The footprint area of vegetation clearing (wildlife habitat alteration and disturbance) resulting from Project alterations will occur within the previously described Project Site boundary and will be less than originally described in the EAP over the life of the Project (AECOM 2018). Refer to **Section 2.12**. The mitigation measures originally proposed in the EAP (AECOM 2018) to minimize adverse effects on wildlife will be applied. Additional measures described in this NoA in

Component	Potential for Project Interaction*	Potential for Additional Adverse Effects Requiring Additional Mitigation** and Therefore Carried Forward for Environmental Assessment?	Rationale for Inclusion or Exclusion in Environmental Assessment
			Sections 4.2.1 and **4.2.2** to mitigate the potential for incremental adverse effects regarding air quality and noise will be applied which will also minimize adverse effects on wildlife. Additionally, the reduction in sand transport traffic due to Project alterations will reduce the potential for wildlife mortality due to collisions with Project-related traffic. Therefore, incremental adverse effects on wildlife due to Project alterations are not anticipated.
Socioeconomic Environment			
Labour Force and Employment	Yes	No	Planned alterations to the Project will require a reduced labour force for construction and operation (**Section 2.8**). However, the reduced labour force is does not represent a material change in potential adverse environmental effects or human health effects from the licenced Project.
Infrastructure and Services	Yes	No	Planned alterations will result in decreased Project-related traffic and associated effects on existing road infrastructure, and environmental and human health related effects (**Section 2.5**).
Land and Resource Use	Yes	No	Planned alterations will be constructed within the previously assessed Project Site footprint. Therefore, no additional effects on land and resource use due to Project alterations are expected.
Recreation and Tourism	Yes	No	Planned alterations will be constructed within the previously assessed Project Site footprint. Therefore, no additional effects on recreation and tourism due to Project alterations are expected.
Human Health and Well-being	Yes	**Yes**	The potential effects of planned alterations to the Project have the potential to change adverse effects related to air quality, noise, groundwater and surface water, which are linked to human health and well-being.
Indigenous and Treaty Rights	No	No	Planned alterations will be constructed within the Project Site boundary. A previously assessed in the EAP (AECOM 2018), Indigenous and Treaty Rights are not anticipated to be impacted. Therefore, no effects on Indigenous and Treaty Rights are expected due to Project alterations.
Heritage Resources	Yes	No	The footprint area of land disturbance resulting from Project alterations will occur within the previously described Project Site boundary and will be less than originally described in the EAP over the life of the Project (AECOM 2018). Refer to Refer to **Section 2.12**. Therefore, the potential for incremental adverse effects on heritage resources due to Project alterations are not anticipated.
Aesthetics	No	No	As indicated in the EAP (AECOM 2018), changes in the

Component	Potential for Project Interaction*	Potential for Additional Adverse Effects Requiring Additional Mitigation** and Therefore Carried Forward for Environmental Assessment?	Rationale for Inclusion or Exclusion in Environmental Assessment
			aesthetics of the Local and Regional Project Areas which are normally viewed on a daily basis by the public and local communities are not anticipated to be substantially changed. Proposed Project alterations will not change this conclusion. Stockpiles will be below surrounding tree heights and therefore will not be normally visible on a daily basis by the public and local communities.

* *Potential for changes to alterations to result in a measurable incremental change beyond effects previously described in the EAP (AECOM 2018)*

** *Expected need for additional mitigation to avoid or minimize potential adverse effects beyond the mitigation measured described in the EAP and the required mitigation measures stipulated in the Project EAL*

4.2 Environmental Effects and Mitigation for Proposed Alterations

The scoping of potential Project effects on biophysical and socioeconomic components described in **Section 4.1.3** has identified that Project alterations have the potential to result in additional adverse effects on the following components:

- Air quality
- Noise
- Groundwater
- Surface water
- Human health and well-being (linked to the above components)

In consideration of the environmental assessment methods, conclusions and supporting rationale as described in the EAP (AECOM 2018) for the originally described Project, the following **Sections 4.2.1** to **4.2.4** describe the incremental potential effects of Project alterations on the above-listed components and the mitigations measures that will be applied to avoid or reduce adverse environmental effects.

4.2.1 Air Quality

An air quality assessment was conducted for the revised (new) Project design and is provided in **Appendix F**. The dispersion modelling assessment predicted no exceedances of the Manitoba Ambient Air Quality Criteria (MAAQC) for particulate matter (TSP, PM_{10}, and $PM_{2.5}$) or gases from combustion (CO, NO_2 and SO_2) at any location near the quarry and wet plant.

There is no MAAQC for silica dust, therefore Ontario criteria was used. The assessment predicted the criteria for silica may be exceeded no more than 1.7% of the time for five years of meteorological data (31 days in 1,826 of modelled days). However, all exceedances were predicted close to the working pile and/or wet plant (no exceedances were predicted around the quarry and Seymourville; **Appendix F**).

In conclusion, the operations phase of the revised (new) Project is likely to have minimal impacts on the air quality of the region, and no residences are predicted to experience air quality exceedances. The model used in the assessment is generally considered to be conservative as the effect of vegetation as a barrier in the air dispersion modeling at nearest residences was underestimated, and the effects of precipitation to reduce emissions was not considered (**Appendix F**). Therefore, the incremental potential effects of Project alterations on air quality beyond those assessed for the old Project design (AECOM 2018) are predicted to be negligible.

4.2.2 Noise

A noise impact assessment was conducted for the revised (new) Project design and is provided in **Appendix G**. Considering that activities within the sand quarry (overburden stripping and sand excavation) will occur during the daytime period, with other activities (e.g., wet plant operation) occurring during daytime and into nighttime hours, Project operations are predicted to meet the Manitoba Guidelines for Sound Pollution Limits at nearest dwellings (e.g., residences; mobile homes). Overburden and topsoil material will be stripped and stockpiled along the north side of the quarry area to form an approximate 6 ha, 15 m high berm which will act as a noise barrier during quarry operations. The modeling used in the noise impact assessment predictions was conservative and assumed that the surrounding forest would not buffer the sound of Project activities (i.e., the 'worst-case' scenario was assessed). Therefore, the incremental potential effects of Project alterations on noise beyond those assessed for the old Project design (AECOM 2018) are predicted to be negligible.

4.2.3 Groundwater

The overburden excavated during operations and the sand waste generated from silica sand processing may have adverse impacts on groundwater depending on their potential to generate acid rock drainage (ARD) and or release elevated concentrations of metals or total suspended solids into the environment, if not mitigated. Available geologic data suggest that there is low potential for acid generation from the overburden, but its metal leaching (ML) is not well known and will be investigated during future studies. The data also indicate that there is potential for the release of elevated concentrations of iron and total suspended solids from mine sand waste due to density and magnetic separation processes used to purify the sand product. All waste rock and soil generated during sand extraction operations will be adequately handled and mitigated to eliminate potential impacts on groundwater. Proposed mitigations measures include the storage of reactive material in lined and covered stockpiles suitably constructed in locations offering the best protection of the environment. Groundwater monitoring will also be developed, and corrective measures implemented where needed. These mitigations and control measures are outlined in the ARD/ML Mitigation and Management Plan (**Appendix B**). Therefore, the incremental potential effects of Project alterations on groundwater beyond those assessed for the old Project design (AECOM 2018) are predicted to be negligible.

4.2.4 Surface Water

The potential impacts of the ARD/ML on surface water are predicted to be similar to those potentially affecting groundwater, thus the proposed mitigations apply equally (Refer **Section 4.2.3**). In addition to the mitigation options outlined above, surface water specific control measures will be implemented. These measures include the construction of water management structures (i.e., ditches, channels, ponds) to manage clean water around the site and waste rock stockpiles, and to collect and treat contact water before discharging into the receiving environment (AECOM 2022). Therefore, the incremental potential effects of Project alterations on surface water beyond those assessed for the old Project design (AECOM 2018) are predicted to be negligible.

4.2.5 Human Health and Well-being

Potential effects on human health and well-being regarding the revised (new) Project design are linked to potential effects on air quality, noise, groundwater and surface water as assessed above in **Sections 4.2.1** to **4.2.4**. Considering that the revised Project is not expected to result in incremental potential effects on air quality, noise, groundwater and surface water beyond those assessed for the old Project design (AECOM 2018), the incremental

potential effects of Project alterations on human health and well-being are also predicted to be negligible beyond those assessed for the old Project design (AECOM 2018).

5. Monitoring and Follow-up

CPS will comply with the environmental monitoring and follow-up requirements, and all other requirements, as described in the Environment Act Licence No. 3285 issued for the original project and including any additional requirements that may be stipulated in a revised EAL for the altered (updated) Project as described in this Notice of Alteration.

From the Environment Act Licence No. 3285, the required environmental plans include:

- Environmental Management Program (EMP) including the following plans:
  - Erosion and Sediment Control Plan
  - Surface Water Management Plan
  - Heritage Resources Management Plan
  - Emergency Response Plan
  - Dust Management Plan
  - Air Quality Monitoring Plan
  - Progressive Rehabilitation Plan
  - Wildlife Monitoring Plan
  - Groundwater Monitoring Plan
  - Revegetation Monitoring Plan

In addition to the above EMP plans, an ARD/ML Mitigation and Management Plan will be implemented (**Appendix B**), and an Annual Operating Plan will be submitted to the Director for approval 60 days prior to commencing operations.

6. Conclusion

Considering that the scope of the revised (new) Project design will be substantially reduced overall compared to the original Project design (AECOM 2018), Project alterations will not change the conclusions regarding impacts on environmental and human health components as assessed for the original Project design (AECOM 2018) as those previous conclusions were based on a larger operation with a larger operational footprint. Project alterations requiring mitigation measures to avoid or minimize adverse Project effects will be detailed in the Environmental Management Program plans required for the original Project design as stipulated in the Environment Act Licence No. 3285. Additionally, an ARD/ML Mitigation and Management Plan will be implemented, and an Annual Operating Plan will be submitted to the Director for approval 60 days prior to commencing operations. Therefore, potential adverse effects of the altered Project on environmental and human health components are predicted to be adequately mitigated.

7. References

AECOM Canada Ltd. (AECOM). 2018. Wanipigow Sand Extraction Project. Environment Act Proposal. Prepared for Canadian Premium Sand Inc. Dec. 18, 2021. Access at: https://www.gov.mb.ca/sd/eal/registries/5991wanipigow/index.html

AECOM Canada Ltd. (AECOM). 2022. Wanipigow Sand Extraction Project. Acid Rock Drainage and Metal Leaching Mitigation and Management Plan. Prepared for Canadian Premium Sand Inc. August 26, 2022.

Appendix A

Wet Sand Processing Flow Diagram

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Appendix B

Acid Rock Drainage and Metal Leaching (ARD/ML) Mitigation and Management Plan

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Appendix C

Acid Rock Drainage and Metal Leaching (ARD/ML) Assessment Report

Appendix D

Public Information Session – Project Update Communication Materials May 25, 2022

Appendix E

Letter of Support for Project Alterations

Appendix F

Air Quality Assessment Report Update

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Appendix G

Noise Impact Assessment Report Update

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