

**ELECTRONIC MAIL**

January 24, 2023

Clean Environment Commission  
305-155 Carlton Street  
Winnipeg MB R3C 3H8

**RE: Vivian Sand Extraction Project (File # 6119.00) – Notice of Revised Extraction Plan**

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Dear Clean Environment Commission Panel,

A revised Extraction Plan for the Vivian Sand Extraction Project is proposed as shown in Attachment A. This updated plan is based on recommendations and revised parameters provided by our geotechnical consultant team (Stantec) as outlined in the responses to public comments for the EAP<sup>1</sup>.

The primary benefit of this revised extraction plan is that the overall number of wells have been reduced by over 400 wells compared to the original extraction plan. Well clusters are also reduced from seven wells to a variable number of wells, but less than six, depending upon cap rock thickness in the extraction area. For example, some clusters are now as few as one single well while others may be as high as five wells. Please refer to the new Extraction Plan figure shown in Attachment A.

This revised Extraction Plan also includes the exclusion of some previously identified mining areas, as represented by the cross hatching in the revised Extraction Plan figures (Attachment A). The total land surface that has been removed from the original proposed extraction area has been reallocated a short distance away to Bru 82 claim SV12665, S ½ 19-010-08E, Bru 81 claim SV12664, N ½ & SE ¼ 18-010-08 E1 and Bru 13 claim SV12565, SE ¼ 13-010-07 E1 and does not exceed the total original land surface area.

Please see the included letter of Environmental Assessment of Revised Extraction Plan (Attachment B) based on AECOM's assessment of the new plan. No new potential environmental concerns have been identified or are anticipated.

Regards,

A black rectangular redaction box covering the signature of the sender.

Laura Weeden P. Eng.  
VP Operations

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<sup>1</sup> See Attachment A for the Responses to Public comments to the EAP titled: Geotechnical Analysis for Sio Silica Extraction Project included in the Vivian Sand Extraction Project (the 'Project') file # 6119.00 filed to Manitoba Conservation and Climate, Environmental Approvals Branch January 2022

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cc- Manitoba Environment, Climate and Parks, Environmental Approvals

**Attachments:**

Attachment A – Revised Extraction Plan

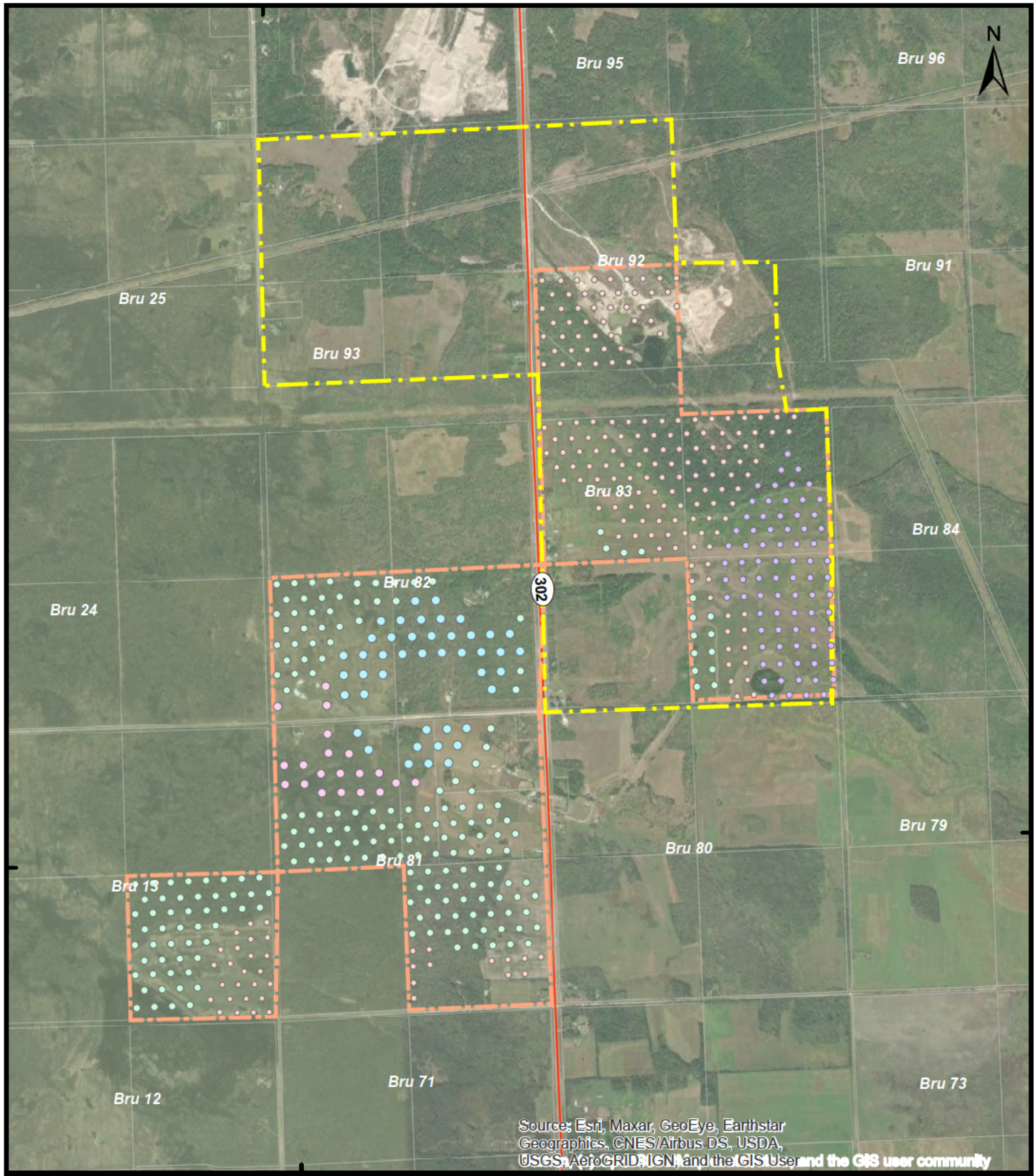
Attachment B - Environmental Assessment of Revised Extraction Plan

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**Attachment A**

Revised Extraction Plan

96°30'0"W



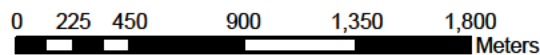
Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS user community

**Map Features**

- 1 Well
- 2 Wells
- 3 Wells
- 4 Wells
- 5 Wells
- Original Project Area - 649Ha
- Proposed New Project Area - 633 Ha



**Revised Extraction Plan**



Projection - NAD 83 UTM Zone 14

Drawn by TN  
01/2023

**Attachment B**

Environmental Assessment of Revised Extraction

January 24, 2023

**Our Reference**  
Project No. 60640258Laura Weeden P. Eng.  
Sio Silica Corporation  
Suite 1930, 440-2<sup>nd</sup> Ave SW  
Calgary, AB T2P 5E9**RE: Vivian Sand Extraction Project (File # 6119.00)– Revised Extraction Plan Environmental Assessment**

Dear Ms. Weeden,

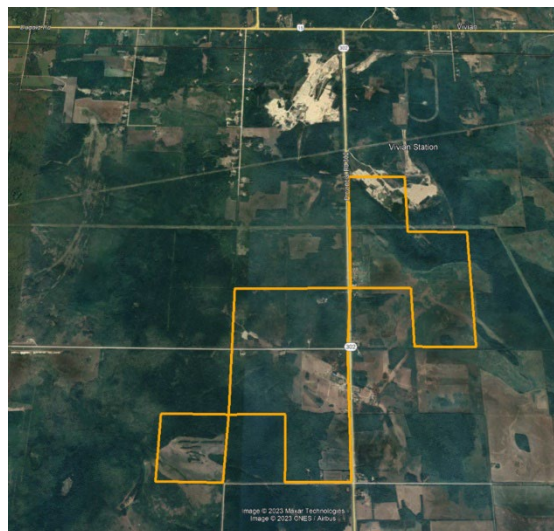
AECOM understands that Sio Silica Corporation (Sio) will be revising the Vivian Sand Extraction Project ('Project') sand extraction plan, including the proposed Project Site boundary as described in your letter to the Clean Environment Commission dated January 24, 2023. This letter provides information on how the environmental assessment provided for the original Vivian Sand Extraction Project Environment Act Proposal (EAP, [AECOM 2021](#)) has changed with the revisions to the sand extraction plan.

**1. Summary of Revised Extraction Plan**

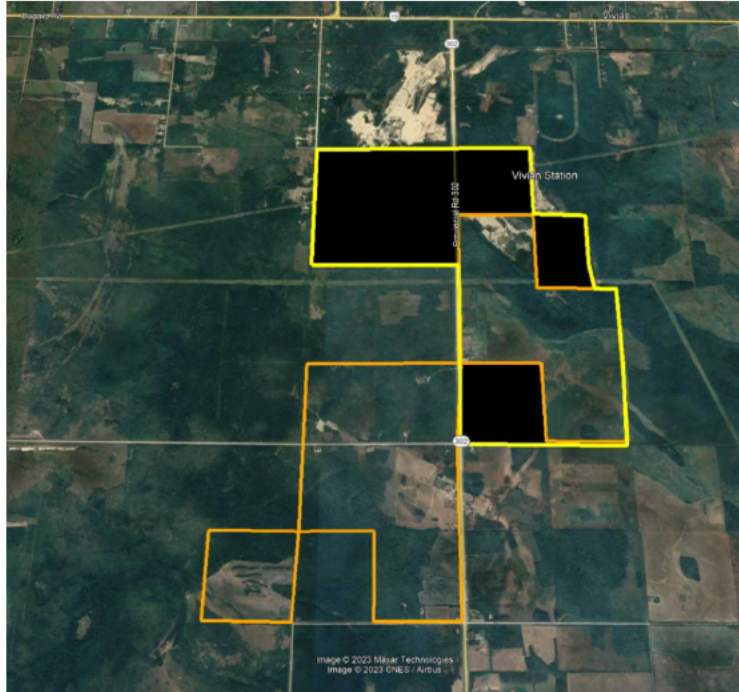
The sand extraction plan is proposed to be revised as follows:

- Overall number of wells has been reduced (by over 400 wells) compared to the original extraction plan;
- The number of wells in each well cluster has also been reduced from seven wells to a variable number of wells, but less than six, depending upon cap rock thickness in the extraction area;
- Project Site boundary within which sand extraction activities will be conducted has been revised to exclude some from the original proposed extraction area, and has been reallocated a short distance away as shown in the figures below;
- The overall revised Project Site area (633 ha) is slightly smaller than the original Project site area (649 ha).

A comparison of the 'old' (yellow boundary) vs. 'new' (orange) Project Site boundary is provided below:



This image below overlaps the 'old' (yellow boundary) and 'new' (orange) Project Site boundaries for clarification (blacked-out areas are now excluded from the 'new' Project Site boundaries).



**2. Environmental Assessment of Revised Extraction Plan**

In consideration of the revised sand extraction plan as described in **Section 1** above, the following **Table 2-1** explains if the original environmental assessment conclusions for each of the environmental and socio-economic components assessed in the EAP (AECOM 2021) have changed. For example, changes to the original environmental assessment conclusions may result if there is expected to be substantial additional residual environmental effects after the implementation of mitigation measures as described in the EAP for each environmental and socio-economic component. Rationale for the revised extraction plan environmental assessment conclusions for each environmental and socio-economic component is also provided in **Table 2-1**.

**Table 2-1: Determination of Changes to Original Project Environmental Assessment**

Environmental or Socio-Economic Component	Original Assessment in Environment Act Proposal (AECOM 2021)	Change to Original Assessment with Revised Extraction Plan? (Yes or No)	Rationale
Geology/Topography	<p><b>EAP Section 6.2.1:</b>  <b>Magnitude of Effect:</b> Minor (Topography and Geology)  <b>Direction of Effect:</b> Adverse  <b>Duration of Effect:</b> Long term  <b>Frequency:</b> Intermittent</p>	No	The overall number of wells has been reduced compared to the original extraction plan, the overall Project Site boundary has been reduced from 649 ha to 633 ha, and the new extraction plan targets areas with thicker competent caprock. Therefore, no additional

Environmental or Socio-Economic Component	Original Assessment in Environment Act Proposal (AECOM 2021)	Change to Original Assessment with Revised Extraction Plan? (Yes or No)	Rationale
	<p><b>Scope of Effect:</b> Project Site  <b>Reversibility:</b> Reversible (Topography); Irreversible (Geology)</p>		<p>mitigation measures beyond those described in the EAP (Section 6.2.1) are recommended in consideration of the revised Project Site boundary. For these reasons, the magnitude of the effect on geology/topography remains as 'minor' and the environmental assessment conclusion described in the EAP (Section 6.2.1) remains unchanged.</p>
Soils	<p><b>EAP Section 6.2.2:</b>  <b>Magnitude of Effect:</b> Minor  <b>Direction of Effect:</b> Adverse  <b>Duration of Effect:</b> Long term  <b>Frequency:</b> Intermittent  <b>Scope of Effect:</b> Project Site  <b>Reversibility:</b> Reversible</p>	No	<p>The overall number of wells has been reduced compared to the original extraction plan, the overall Project Site boundary has been reduced from 649 ha to 633 ha, and no additional mitigation measures beyond those described in the EAP (Section 6.2.2) are recommended in consideration of the revised Project Site boundary. Therefore, the magnitude of the effect on soils remains as 'minor' and the environmental assessment conclusion described in the EAP (Section 6.2.2) remains unchanged.</p>
Groundwater	<p><b>EAP Section 6.2.3:</b>  <b>Magnitude of Effect:</b> Minor  <b>Direction of Effect:</b> Adverse (quantity); Positive to Adverse (quality)  <b>Duration of Effect:</b> Long term  <b>Frequency:</b> Intermittent (i.e., seasonal)  <b>Scope of Effect:</b> Project Region  <b>Reversibility:</b> Reversible (aquifer will recharge over time)</p>	No	<p>The overall number of wells has been reduced compared to the original extraction plan, and the proposed new locations of extraction wells have been revised, but remain in proximity to the originally proposed extraction area. This change regarding the reduction in the number of wells and locations of extraction wells has been qualitatively assessed based on professional judgement and will be confirmed through numerical groundwater modeling. Given the proximity of the new extraction plan to the previous extraction plan, the original environmental assessment regarding effects on groundwater are anticipated to be similar considering that the schedule of operations (seasonal), number of wells, size of wells, and other operational plans will not be substantially changed. For this reason, no additional mitigation measures beyond those described in the EAP (Section 6.2.3) are recommended in consideration of the revised Project Site boundary and revised sand extraction plan. Therefore, at this time the magnitude of the effect on groundwater remains as 'minor' and the environmental assessment conclusion</p>

Environmental or Socio-Economic Component	Original Assessment in Environment Act Proposal (AECOM 2021)	Change to Original Assessment with Revised Extraction Plan? (Yes or No)	Rationale
			described in the EAP (Section 6.2.3) remains unchanged.
Air Quality	<p><b>EAP Section 6.3.1:</b>  <b>Magnitude of Effect:</b> Minor to Negligible  <b>Direction of Effect:</b> Adverse  <b>Duration of Effect:</b> Long term  <b>Frequency:</b> Intermittent  <b>Scope of Effect:</b> Project Regional Area  <b>Reversibility:</b> Reversible</p>	No	The overall number of wells has been reduced compared to the original extraction plan, the overall Project Site boundary has been reduced from 649 ha to 633 ha, and no additional mitigation measures beyond those described in the EAP (Section 6.3.1) are recommended in consideration of the revised Project Site boundary. Therefore, the magnitude of the effect on air quality remains as 'minor' and the environmental assessment conclusion described in the EAP (Section 6.3.1) remains unchanged.
Climate/Greenhouse Gases (GHGs)	<p><b>EAP Section 6.3.2:</b>  <b>Magnitude of Effect:</b> Negligible  <b>Direction of Effect:</b> Adverse  <b>Duration of Effect:</b> Long term  <b>Frequency:</b> Intermittent  <b>Scope of Effect:</b> Beyond the Project Regional Area  <b>Reversibility:</b> Irreversible</p>	No	See rationale above regarding air quality. Therefore, Project contributions to the total annual emissions of GHGs provincially and federally remains as negligible.
Noise	<p><b>EAP Section 6.3.3:</b>  <b>Magnitude of Effect:</b> Minor to Moderate  <b>Direction of Effect:</b> Adverse  <b>Duration of Effect:</b> Short-term  <b>Frequency:</b> Intermittent  <b>Scope of Effect:</b> Variable due to changing annual locations of Project activities within the Project Site  <b>Reversibility:</b> Reversible</p>	No	The overall number of wells has been reduced compared to the original extraction plan, the overall Project Site boundary has been reduced from 649 ha to 633 ha, and no additional mitigation measures beyond those described in the EAP (Section 6.3.3) are recommended in consideration of the revised Project Site boundary. Therefore, the magnitude of the effect on noise remains as 'minor' and the environmental assessment conclusion described in the EAP (Section 6.3.3) remains unchanged.
Surface Water	<p><b>EAP Section 6.4.1:</b>  <b>Magnitude of Effect:</b> Negligible  <b>Direction of Effect:</b> Adverse  <b>Duration of Effect:</b> Short term  <b>Frequency:</b> Intermediate  <b>Scope of Effect:</b> Local Project Area  <b>Reversibility:</b> Reversible</p>	No	As with the original Project Site boundary, the revised Project Site and immediately adjacent area does not have natural waterbodies that would be potentially affected by Project activities. With the mitigation measures that will be applied as described in the EAP (Section 6.4.1), impacts on surface water remain negligible.

Environmental or Socio-Economic Component	Original Assessment in Environment Act Proposal (AECOM 2021)	Change to Original Assessment with Revised Extraction Plan? (Yes or No)	Rationale
Fish and Fish Habitat	<p><b><u>EAP Section 6.4.2:</u></b> Project related impacts on fish and fish habitats are not anticipated due to the lack of potential fish habitat within the Project Site (<b>EAP, Section 4.3.2</b>), no expected impacts on surface water quantity (<b>EAP, Section 6.4.1</b>) and application of an Erosion and Sediment Control Plan as indicated in <b>EAP, Section 6.2.2</b>.</p>	No	As with the old Project Site, Project related impacts on fish and fish habitats are not anticipated due to the lack of potential fish habitat within the new Project Site, negligible impacts on surface water quantity (as described above) and application of an Erosion and Sediment Control Plan as indicated in EAP, Section 6.2.2 (Soils).
Vegetation	<p><b><u>EAP Section 6.5.1:</u></b> <b>Magnitude of Effect:</b> Minor (Project Site) to Negligible (Local Project Area) <b>Direction of Effect:</b> Adverse <b>Duration of Effect:</b> Long term <b>Frequency:</b> Intermittent <b>Scope of Effect:</b> Project Site (vegetation clearing) to Local Project Area (dust deposition) <b>Reversibility:</b> Reversible</p>	No	The overall number of wells has been reduced compared to the original extraction plan and the overall Project Site boundary has been reduced from 649 ha to 633 ha. The percentage of previously disturbed land (including developed and agricultural land) remains very similar between the old Project Site (44%) and the new Project Site (43%). Although there is more forested land in the new Project Site (51%) compared to the old Project Site (45%), with the application of mitigation measures as described in the EAP (Section 6.5.1), the magnitude of the effect on vegetation remains as minor (Project Site) to negligible (Local Project Area) and the environmental assessment conclusion described in the EAP (Section 6.5.1) remains unchanged.
Wildlife	<p><b><u>EAP Section 6.5.2:</u></b> <b>Magnitude of Effect:</b> Negligible <b>Direction of Effect:</b> Adverse <b>Duration of Effect:</b> Long term <b>Frequency:</b> Intermittent <b>Scope of Effect:</b> Regional Project Area <b>Reversibility:</b> Reversible</p>	No	The overall number of wells has been reduced compared to the original extraction plan and the overall Project Site boundary has been reduced from 649 ha to 633 ha. As with the old Project Site, limited average annual amount of natural vegetation clearing within the new Project Site is required for Project activities which is unlikely to substantially affect wildlife populations within the Regional Project Area for the reasons described in the EAP (Section 6.5.2). Therefore, with the mitigation measures that will be applied as described in the EAP (Section 6.5.2), impacts on regional wildlife populations remain negligible.
Species of Conservation	<p><b><u>EAP Section 6.5.3:</u></b> <b>Magnitude of Effect:</b> Minor to Negligible</p>	No	With the revised Project Site boundary, the predicted magnitude of effect on Species of

Environmental or Socio-Economic Component	Original Assessment in Environment Act Proposal (AECOM 2021)	Change to Original Assessment with Revised Extraction Plan? (Yes or No)	Rationale
Concern	<b>Direction of Effect:</b> Adverse <b>Duration of Effect:</b> Long term <b>Frequency:</b> Intermittent <b>Scope of Effect:</b> Regional Project Area <b>Reversibility:</b> Reversible		Conservation concern remained unchanged for the reasons described above for vegetation and wildlife.
Labour Force and Employment	<u><b>EAP Section 6.6.1:</b></u> <b>Magnitude of Effect:</b> Minor <b>Direction of Effect:</b> Positive <b>Duration of Effect:</b> Long term <b>Frequency:</b> Intermittent <b>Scope of Effect:</b> Regional Project Area <b>Reversibility:</b> Reversible	No	The anticipated labour force required for the Project will not change with the revised extraction plan.
Infrastructure and Services	<u><b>EAP Section 6.6.2:</b></u> <b>Magnitude of Effect:</b> Minor <b>Direction of Effect:</b> Neutral/Adverse <b>Duration of Effect:</b> Long term <b>Frequency:</b> Intermittent <b>Scope of Effect:</b> Regional Project Area <b>Reversibility:</b> Reversible	No	No substantial additional residual effects to infrastructure and services are expected due to the revised extraction plan. Therefore, with the application of mitigation measures as described in the EAP (Section 6.6.2), the magnitude of the effect on infrastructure and services remains as 'minor' and the environmental assessment conclusion described in the EAP (Section 6.6.2) remains unchanged.
Land and Resource Use	<u><b>EAP Section 6.6.3:</b></u> <b>Magnitude of Effect:</b> Minor <b>Direction of Effect:</b> Adverse <b>Duration of Effect:</b> Short term <b>Frequency:</b> Intermittent <b>Scope of Effect:</b> Project Site <b>Reversibility:</b> Reversible	No	The overall number of wells has been reduced compared to the original extraction plan and the overall Project Site boundary has been reduced from 649 ha to 633 ha. Therefore, the magnitude of effect on land and resource use as described in the EAP (Section 6.6.3) remains as minor and short term.
Human Health	<u><b>EAP Section 6.6.4:</b></u> <b>Magnitude of Effect:</b> Negligible <b>Direction of Effect:</b> Adverse <b>Duration of Effect:</b> Long Term <b>Frequency:</b> Intermittent <b>Scope of Effect:</b> Local and Regional Project Areas <b>Reversibility:</b> Reversible	No	The overall number of wells has been reduced compared to the original extraction plan and the overall Project Site boundary has been reduced from 649 ha to 633 ha. Therefore, the magnitude of effects on human health as linked to traffic (emissions; accident potential; EAP Section 6.7) and dust and noise (see above regarding air quality and noise) generated by Project activities remains as negligible.
Indigenous and Treaty Rights	<u><b>EAP Section 6.6.5:</b></u> The Project is not expected to adversely impact the exercise of Indigenous or	No	The minor revisions to the Project Site boundary are not expected to adversely impact the exercise of Indigenous or Treaty rights

Environmental or Socio-Economic Component	Original Assessment in Environment Act Proposal (AECOM 2021)	Change to Original Assessment with Revised Extraction Plan? (Yes or No)	Rationale
	<p>Treaty rights because:</p> <ul style="list-style-type: none"> <li>• The Project Site consists of private land covered under private surface rights that do not have public access unless by permission;</li> <li>• No fish or fish habitat will be affected by the Project (EAP, Section 6.4.2);</li> <li>• The residual environmental impact of the Project on vegetation beyond the Project Site is assessed to be negligible (EAP, Section 6.5.1); and</li> <li>• The residual environmental impact of the Project on regional wildlife populations is assessed to be negligible (EAP, Section 6.5.2).</li> </ul>		<p>because:</p> <ul style="list-style-type: none"> <li>• The revised Project Site consists of private land covered under private surface rights that do not have public access unless by permission;</li> <li>• No fish or fish habitat will be affected by the Project (see above for fish and fish habitat);</li> <li>• The residual environmental impact of the Project on vegetation beyond the Project Site is assessed to be negligible (see above regarding vegetation); and</li> <li>• The residual environmental impact of the Project on regional wildlife populations is assessed to be negligible (see above regarding wildlife).</li> </ul>
Heritage Resources	<p><b><u>EAP Section 6.6.6:</u></b>  <b>Magnitude of Effect:</b> Minor  <b>Direction of Effect:</b> Adverse  <b>Duration of Effect:</b> Long Term  <b>Frequency:</b> Intermittent  <b>Scope of Effect:</b> Project Site  <b>Reversibility:</b> Irreversible</p>	No	<p>The revised Project Site boundary and planned extraction areas will be submitted to Historic Resources Branch (HRB) for review. Should the HRB identify areas of potential historic resources concern, CPS will retain a qualified archaeologist to conduct a HRIA that maybe required, and will abide by any recommended mitigation measures as outlined in a HRIA (as was done for the original Project Site; EAP, Appendix G). Therefore, under the assumptions that any known historic resources will be avoided as advised by the HRB, and any recommended mitigation measures as outlined in a HRIA will be applied, the magnitude of effect on historic resources remains as minor.</p>
Traffic	<p><b><u>EAP Section 6.7:</u></b>  <b>Magnitude of Effect:</b> Minor  <b>Direction of Effect:</b> Adverse  <b>Duration of Effect:</b> Long Term  <b>Frequency:</b> Intermittent  <b>Scope of Effect:</b> Regional Project Area  <b>Reversibility:</b> Reversible</p>	No	<p>The overall number of wells has been reduced compared to the original extraction plan and the overall Project Site boundary has been reduced from 649 ha to 633 ha. The increase in Regional Project Area traffic resulting from the Project will not change substantially due to the revised Project Site. Therefore, the magnitude of overall annual increased use of regional roads remains as minor.</p>
Aesthetics	<p><b><u>EAP Section 6.8:</u></b>  <b>Magnitude of Effect:</b> Minor  <b>Direction of Effect:</b> Adverse</p>	No	<p>The overall number of wells has been reduced compared to the original extraction plan and the overall Project Site boundary has been</p>

Environmental or Socio-Economic Component	Original Assessment in Environment Act Proposal (AECOM 2021)	Change to Original Assessment with Revised Extraction Plan? (Yes or No)	Rationale
	<b>Duration of Effect:</b> Long Term <b>Frequency:</b> Continuous <b>Scope of Effect:</b> Project Site <b>Reversibility:</b> Reversible		reduced from 649 ha to 633 ha. Therefore, the magnitude of effect on aesthetics as described in the EAP (Section 6.8) remains as minor.

### 3. Conclusion

Impacts to the environmental and socio-economic components as described in the EAP will not be substantially changed by the revision of the Project Site boundary to reflect the updated Vivian Sand Extraction Project plan. This is primarily due to the overall reduced number of wells, reduced Project Site boundary (649 ha to 633 ha), and the overall similar landcover of the new Project Site compared to the original Project Site that was considered in the EAP. Therefore, no additional mitigation measures and follow-up plans beyond what are described in the EAP are recommended as being required due to the updated Project Site boundary and extraction plan.

Yours sincerely,



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cc: Feisal Somji (Sio)