

Staff Report

To: Board of Directors

From: Glenn MacMillan, General Manager, Development, Engineering and Restoration and
Ashlea Brown, Director, Development Services

Date: February 23, 2024

Subject:

Georgina Island Fixed Link Project Update

Recommendation:

That Staff Report No. 11-24-BOD regarding an update on staff's review and involvement with the Georgina Island Fixed Link project be received for information.

Purpose of this Staff Report:

The purpose of this Staff Report No. 11-24-BOD is to provide the Board of Directors with an update on staff's review of the Georgina Island Fixed Link Project and the recent technical study submissions.

Background:

In December 2023, Indigenous Aware provided an overview of the status of the Fixed Link project to the Conservation Authority's Board of Directors. At that time, it was advised that initial studies were being completed and public meetings would ensue in January 2024.

At the end of December 2023, the Conservation Authority received the initial draft Coastal Engineering report prepared by WSP. Also received were the draft Terrestrial and Aquatic monitoring report and the Geotechnical and Civil Engineering Summaries for review.

Conservation Authority staff reviewed the draft technical reports and provided technical comments back to the project team as of January 24, 2023.

Issues:

The draft technical studies are available for public review on the [Georgina Island Fixed Link](#) webpage. Conservation Authority staff reviewed and commented on the project in the same manner as a development proposal and provided additional comments from a Lake Science perspective. The focus of review included:

- Impacts on Natural Hazard features (Coastal processes such as flooding due to wave up-rush and wind set up, ice piling and erosion);

- Impacts of Natural Heritage features such as wetlands, as well as providing comments on potential impacts to woodlands and aquatic and terrestrial species such as birds, bats, fish, amphibians, benthics etc.
- Impacts to Water quality.
- Invasive species and invasive species management

Approvals are not required from the Conservation Authority for the proposed fixed link as it falls under Federal jurisdiction.

The Conservation Authority provided detailed technical comments on the draft reports and supporting material. Primary comments included the recommendation for the completion of a sensitivity analysis, specifically showing post development impacts from engineering and ecology in consideration to pre-development. Also recommended is specifically assessing changes to sediment transport, deposition and erosion, ice piling, thermal impacts, water depths, habitat and spawning impacts for species, invasive species, and water quality. Additionally, a Monitoring and Adaptive Management Plan was recommended to identify issues, concerns, as well how they will be addressed. This needs to be long term, possibly in perpetuity, as potential impacts may occur over longer time periods.

Additional detailed comments and questions about specifics of the report were provided and discussed in a meeting with the consultants on January 15, 2024.

Georgina Island Fixed Link held a public Technical Town Hall in Sutton on January 24, 2024. Additionally, it is understood that there was to be a Georgina Island First Nation presentation and Open House on January 31, 2024, as well as an elder engagement meeting and a youth engagement meeting on February 6, 2024.

Currently, staff have reviewed all draft reports and documents provided and have provided recommendation and technical comments for consideration. Next steps will be determined by Georgina Island First Nations and communicated through the project team either through additional consultation or the Impact Assessment Agency of Canada process. At the time of writing of this report the Impact Assessment Agency of Canada process has been paused but is expected to recommence in later winter / early spring.

Relevance to Conservation Authority Policy:

The Conservation Authority has no legislative or regulatory authority over this project. The project is governed by the Federal Government. The *Conservation Authorities Act* and the *Lake Simcoe Protection Act* and Plan are provincial legislation and as such are not applicable to the proposed undertaking.

The Conservation Authority is undertaking the review at the request of the Fixed Link project team (representing the Georgina Island First Nation), as well as providing input to the Impact

Assessment Agency of Canada. This review is referred to as a “voluntary review process” and is similar to input provided on provincial infrastructure projects such as the Bradford Bypass.

Impact on Conservation Authority Finances:

There are no significant financial implications directly associated with this project. While Conservation Authority staff time is being utilized, partial funding through the Planning Phase of the Impact Assessment was received for staff time spent in the initial review, and additional funding may be available if the project is subject to a full Environmental Impact Assessment. If this proposed project requires a full federal Environmental Impact Assessment, there could be potential for additional work and therefore required dialogue regarding cost recovery.

Summary and Recommendations:

The Georgina Island Fixed Link proposal is clearly a substantial infrastructure in the heart of Lake Simcoe and as such requires significant technical and environmental assessment, clear understanding of any impacts and how they may be addressed, as well as appropriate monitoring and adaptive management should it proceed.

The Conservation Authority, through the review of the proposed undertaking, is providing objective technical comments, opinions, and identification of issues for consideration. The ultimate decision rests with the federal government represented by the Impact Assessment Agency of Canada.

It is therefore **Recommended that** Staff Report No. 11-24-BOD regarding an update on staff review and involvement with the Georgina Island Fixed Link project be received for information.

Pre-Submission Review:

This Staff Report has been reviewed by the General Manager, Development, Engineering and Restoration, and the Chief Administrative Officer.

Signed by:

Glenn MacMillan
General Manager, Development,
Engineering and Restoration

Signed by:

Rob Baldwin
Chief Administrative Office

Attachments:

1 – Technical Comments Letter



January 24, 2024

Michael Jacobs, Chief Executive Officer
CIPS, Cambium Indigenous Professional Services
1109 Mississauga Street
Curve Lake First Nation, Ontario K0L 1R0

RE: Technical Comments – Georgina Island Fixed Link

Mr. Jacobs,

Thank you for meeting with staff of the LSRCA to discuss the technical reports submitted in support of the fixed link, a bridge and causeway proposed to connect Georgina Island to the mainland in Georgina. Staff reviewed the draft reports including the draft coastal engineering report, draft ecological reports (terrestrial and aquatics) as well as the supporting Geotechnical and Civil Engineering summaries. Based on our review we provide the following comments which were discussed during our January 15th, 2024, meeting.

Comments:

1. We recommend that a sensitivity analysis be completed for this project. Post development impacts from engineering and ecology should be considered to pre-development and these differences should be clearly shown. We recommend including changes to sediment transport, deposition and erosion, ice piling, thermal impacts, water depths, habitat and spawning impacts for species, invasive species, and water quality. The most sensitive areas should be highlighted in this report and bridge design should occur mitigating any impacts. Justification for the input factors should be provided.
2. We recommend that the Coastal Engineering Study and Report completed by WSP be peer reviewed by another Coastal Engineering Firm. This review should include considerations of impacts to the LSRCA's Regulatory limits on shore and any differences in the shoreline hazards should be identified. Please note, the LSRCA's shoreline study is currently being updated by BAIRD. You may wish to discuss this process with them directly. It is recommended that the Coastal Engineering study be peer reviewed for items such as, but not limited to the following:
 - Confirm assumptions
 - Climate change impacts
 - Data (sources, time periods, accuracy, etc.)

- Modelling (setup, methodology, resolution, calibration, scenarios, results etc.)
 - Conclusions (basis, general vs specific, numerical, scientific, observation based, traditional knowledge, etc.)
3. A project of the scale of the Fixed Link requires a detailed and expansive Monitoring and Adaptive Management Plan to identify issues, concerns, and how will they be addressed. This needs to be long term, possibly in perpetuity, as potential impacts may occur over longer time periods. The plan should address:
- a. Shore and lake ecology
 - b. Hydrodynamic processes and coastal processes, erosion, littoral zone change, sediment movement, and more. The area of influence should be a minimum of 1km in any direction. The use of multiple ADCP's is recommended.
 - c. Water quality parameters collected across a distributed network in the same area of influence of coastal processes. The use of multiple deployable sonde units is recommended. Detailed focus on chlorides should be required.
 - d. Monitoring of local climate conditions should be included with a focus on wind and impacts / changes associated with the presence of the Fixed Link.
 - e. Ice monitoring and safety monitoring is required. A safe alternate route may be required to be established to allow for winter on-ice traffic.
 - f. The adaptive management plan should outline the process on how issues may be addressed and reported.
 - g. An annual reporting summary should be required, and a "real time" monitoring dashboard should be implemented.
4. The Sand Islands area adjacent to the Fixed Link is an area of dynamic sand sediment movement linked to hydrodynamic, coastal, and climatic processes. The fixed link becoming a large permanent structure (causeway) directly on the eastern edge of this dynamic area may result in significant changes to the Sand Islands. We have concerns that the causeway will influence the ability for a dynamic area such as the Sand Islands to function. The limited modeling and collected data should clearly address potential short- or long-term impacts or changes in this area.
5. The area to the east of the causeway section may have limited mixing during prevailing winds, typically out of a westerly direction. This may lead to impaired local ecology,

increased macrophyte and algal growth and organic sediment deposition. This condition has been observed in other locations in the lake where hydrodynamic and coastal processes have been altered anthropogenically. The limited modeling and collected data was included, this information should clearly address potential short- or long-term impacts or changes in this area.

6. An assessment of the impacts of “lighting” the Fixed Link for safety appears not to have been conducted. This should consider not just local ecological impacts but social impacts as well.
7. It appears that flow will be completely blocked from just south of the sand island to Georgina Island due to the construction of the causeway. We would recommend looking at options to maintain flows throughout the entire span of the structure. Specifically, blocking flows in this area has the potential to create a lagoon and breeding ground for invasive species. If utilizing culverts to maintain flow, justification for the number of culverts to be used and sizing should be provided.
8. Potential impacts of the development should be clearly defined, and mitigation measures should be determined. Detailed Ecological comments are attached.
9. When completing detailed design, Storm Water Management should be included. Concerns with run-off and source water protection were discussed and we understand further detailed information will be provided around drainage and water quality.
10. It is recommended that the report and detailed design of the causeway and bridge assess the potential impacts of the structure to the following, including mitigation measures.
 - Ice formation, movement and breakup
 - Shoreline ice piling/buildup
 - Wind impacts
 - Snow accumulation
11. It is recommended that additional clarification should be included in the report to confirm the suitability for the use of 2017 Water Level data for model calibration. Please consider requesting the full 2022 data from Parks Canada.

12. Additional clarification should be included in the report related to flow velocity changes/impacts along the mainland shoreline, adjacent to the proposed causeway/bridge.
13. Further to the above, it is recommended that an additional observation location be included, east of Location 7 and the proposed bridge, to clarify impacts to the shoreline, point and sand spit areas.
14. The report states the proposed causeway significantly alters the wave behavior in the project area, specifically in the vicinity of the sand islands.

Additional clarification should be provided in the report for the future wave height changes in the vicinity of mainland shoreline (e.g. east of the proposed causeway/bridge and spit area) and applicable impacts to the LSRCA regulated shoreline Hazard and shoreline study (wave uprush, wind setup, erosion hazard, and overall hazard limit- see comment 4 as well).
15. Additional clarification should be included in the report to confirm the suitability of modelling one (1) year of erosion/sedimentation after the causeway/bridge construction. It is recommended that a longer modelling duration, such as 20-30 years, be considered.
16. The report states that shoreline accretion/erosion patterns near the proposed land connection causeway are likely to be similar to existing Sub-reach III-B to III-D.

Additional clarification and detail should be provided in the report related to estimated future potential shoreline accretion/erosion changes (e.g., 20-30 years in the vicinity of the proposed causeway, including Sub-reach areas III-E, III-F & III-G).
17. It is recommended that alternate bridge/causeway configuration options (e.g., causeway shortening, bridge lengthening, additional bridge sections and/or openings along the causeway) be explored in the report with associated sensitivity analysis and modelling to demonstrate that impacts from the proposed structure are minimized.

Further to above, the report and future detailed design should consider removing the mainland causeway portion, extending the bridge south to the mainland and north, close to southern tip of Sand Islands, to minimize impacts to currents, waves, sedimentation, erosion, ice, and navigation.

18. The mitigation hierarchy of avoid, minimize, mitigate, compensate should be followed when assessing impacts and finalizing the alignment and location of infrastructure, with rationale given for moving from one stage of the hierarchy to the next. For example, all opportunities to avoid direct impacts to the Provincially Significant Wetlands should be explored, followed by minimizing (such as spanning) impacts to the wetland, and mitigating and compensating for any residual impacts.

As impacts to the woodland on the West Property are likely to be unavoidable, all opportunities to minimize the footprint of infrastructure should be explored and the alignment should avoid sensitive habitats to the extent possible. For unavoidable losses, compensation plantings to achieve a net gain of woodland habitat should be undertaken such that it expands existing forest and increases interior forest habitat. Other habitat enhancements to provide for lost functions may be warranted as well.

19. Provincially Significant Wetlands (PSW) should be considered high concern areas due to their significance at a broad landscape scale. The Provincial Policy Statement Provincially Significant Wetlands (PSW) should be considered high concern areas due to their significance at a broad landscape scale. The Provincial Policy Statement prohibits development and site alteration within PSWs.

High concern should also extend to features that are rare in the landscape and high quality, intact habitats with a high proportion of native species. Other woodlands and wetlands should be increased from low to moderate concern. Low concern should be applied only to low quality habitats, such as cultural ELC communities and those with a high existing level of disturbance and invasive species.

Tree/shrub and ground colonially nesting birds are described as intolerant of human disturbance in the Significant Wildlife Habitat Decision Support Tool. The Tool also asserts that due to the limited number of bat maternity colony sites, the loss of any such site has significant impacts on bat populations. These SWH types should be included under high concern areas.

20. Results for BBS-I3, BBS-I9, BBS-B1, BBS-B4, BBS-B5, BBS-B6, BBS-W5, BBS-W9, BBS-W10 all contain SWH listed species, but are described as not containing SWH listed species under Notable Observations in Table 8. Clarification is warranted because while they may not be SWH listed species for the habitat type in which the point is located, they are listed SWH species for adjacent habitat. For example, where forest birds were recorded at meadow point counts (forest adjacent), they should be identified as SWH listed species in Notable Observations, linked to the appropriate SWH type.

21. Please note that when confirmed significant wildlife habitat (SWH) criteria are met (i.e. the presence of the listed indicator species in the defining quantities), significant wildlife Please note that when confirmed significant wildlife habitat (SWH) criteria are met (i.e. the presence of the listed indicator species in the defining quantities), significant wildlife habitat is considered confirmed despite not satisfying the more general candidate SWH criteria (i.e. minimum size).

Five-minute point counts with incidental observations between points are not designed to obtain the highest level of breeding evidence of a species or confirm number of nesting pairs. Therefore, nesting by defining quantities of SWH listed species cannot be ruled out based on absence of breeding evidence obtained during the point counts. Where there is potential or confirmed breeding by a sufficient number of SWH listed species, the habitat should be considered candidate Woodland Area-Sensitive Bird Breeding Habitat.

The forest communities within the study area on the island are separated by less than 30m of road from the larger contiguous forest to the east, increasing the amount of interior forest available. Where overall forest cover is very high, patch size matters less for area-sensitive species.

Woodland Area-Sensitive Bird Breeding Habitat should be considered Candidate on Bayvista and the Island.

22. Detections of Barred Owl and Broad-winged Hawk on the West Property are still a form of breeding evidence – species present in suitable habitat in breeding season (possible). Woodland Raptor Nesting SWH cannot therefore be ruled out. Surveys earlier in the season may garner higher breeding evidence.
23. Section 4.8.1.11, page 97 states Woodland Area-sensitive Bird Breeding SWH is absent from Island and Bayvista but it is mapped as candidate on these properties on Figure 39. Please clarify.
24. The plant list includes a number of species that are considered rare in the Lake Simcoe watershed and/or in York Region. Please refer to *Vascular Plants of the Lake Simcoe Watershed* (MNR 2015) and *Distribution and Status of the Vascular Plants of the Greater Toronto Area* (Varga et al. 2000) and include watershed/regional status in Appendix I. Should rare species be located in an area that will be impacted, a plan to transplant/relocate these plants to a suitable habitat should be prepared at detailed design.

25. The likely Northern Goshawk pair observation (noted as being likely the same pair observed a week prior which suggests they are on territory and described as possibly nesting in communities I1 or I2) should be included and discussed in Section 4.8.1.5.2 and 4.8.1.11.
26. While Schedule 6E indicates an area of 30-100 m from the nesting area of turtles be included in the Turtle Nesting Area SWH, the area recommended in the report is 30 m within forested areas, and 50 m for open areas where there is a greater exposure to disturbance. Rationale for applying 50 m in these instances out of a potential area up to 100 m should be given.
27. According to Schedule 6E, for bat maternity colonies, "The area of the habitat includes the entire woodland or a forest stand ELC Ecosite or an Eco-element containing the maternity colonies". As locations of maternity colonies (if present) are not known, candidate SWH should include the entire wooded area as all surveyed areas met the density threshold for snags and bat passes were detected in ELC units not currently mapped as candidate SWH on the figures (e.g. W2).
28. As the Sand Islands were not sampled due to access restrictions, an assessment of bat habitat should be undertaken when access is possible if impacts to sand islands are anticipated.
29. Feature-based water balances should be undertaken at detailed design to ensure potential hydrologic impacts to sensitive features (wetlands, watercourses, woodlands) and the species they support are addressed.
30. LSRCA understands from the meeting on January 15th, 2024 that an impact assessment is forthcoming and will provide comments on that assessment and mitigation measures following that submission.
31. At a minimum, spawning surveys should be completed at these sites (B, C, & E-G) targeted to species that may use the area for spawning based on the habitat present to establish baseline data. If unable to complete spawning surveys, presence should be assumed based on background data of species known to spawn in these areas.

32. At a minimum, 1 year of benthic sampling following OBBN protocols should be completed for the shoreline sites to establish baseline data of existing habitat quality and functioning.
33. While the preferred alignment does not cross any tributaries, there is a creek on Georgina Island west of the preferred alignment. Spring spawning surveys are recommended to be completed for this area, specifically as it has been identified as potential pike spawning habitat. Electrofishing and benthic sampling should also be done, if possible, to establish baseline data of the ecological functioning of the watercourse and to anticipate any potential impacts to these functions from the development.
34. Given the sensitivity of site A for the preferred alignment, presence of potential pike spawning habitat and PSW with high vegetation diversity, it is recommended that the works be shifted to the east in order to avoid the PSW and better spawning habitat.

Considering the shoreline wetland habitat within Site A would be hard to recreate, consideration should be given for classifying this area as a high sensitivity fish habitat.
35. Comment on potential impacts to fish habitat based on the preferred alignment and the anticipated changes to flow, ice coverage, sediment input, water chemistry, temperature, etc. Associated with potential impacts should be mitigation measures proposed to address any potential negative impacts to fish habitat. Comparisons should be made specifically for anticipated impacts to fish habitat from a causeway versus a bridge. In particular, a bridge should be considered at shoreline areas and where quality fish habitat exists and where spawning has been recorded/observed.
36. The detailed traffic study appears to be deficient regarding construction traffic and the significant volume of truck traffic that will occur to provide the required fill material for the causeway section of the project.

We would be happy to further consult or discuss any of the above comments on the draft reports provided or on the design as that phase of the project begins.

Sincerely,

<Original signed by>

Ashlea Brown

Director, Development Services

Lake Simcoe Region Conservation Authority

Copy: Corey Kinsella, Indigenous aware

Brianna Barnhart, Indigenous aware

Glenn MacMillian, Lake Simcoe Region Conservation Authority