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Date:
May 26, 2017

Project No.:
351312

Subject:
Alternative Methods and Cumulative Effects Review of Walker Environmental
Group Southwestern Landfill Environmental Assessment Submissions

1.0 Introduction

We have been retained by the Town of Ingersoll as an expert on environmental planning in connection with the proposed Southwestern Landfill Proposal (the Walker Environmental Group (WEG) landfill or waste disposal site).¹ Specifically, we have been retained to provide comments on reports prepared by or for WEG under the ongoing *Environmental Assessment Act* approval process for the WEG landfill.

In preparation of this memorandum, we have reviewed the following WEG documents:

- Walker Environmental Group Inc., Alternative Methods Interim Report: Southwestern Landfill Proposal, Draft January 3, 2017.
- Walker Environmental Group Inc., Work Plan: Cumulative Effects Assessment In the Southwestern Landfill EA – Draft For Discussion, January 12, 2017.

¹ The Curriculum Vitae of the authors of this report is attached as Appendices A.

- Walker Environmental Group Inc., Southwestern Landfill Proposal: Approved Amended Terms of Reference, May 10, 2016.

The following other documents were also reviewed in conjunction with the documents above:

- Memorandum - Review of Interim Report – Alternative Methods Working Draft (January 3, 2017) and Facility Characteristics Assumptions (January 3, 2017), February 1, 2017, Nisha Shirali.
- Joint Municipal Coordinating Committee, Peer Review Report – Review of Walker Environmental Group Southwest Landfill, Environmental Assessment, Alternative Methods Interim Report (Dated January 3, 2017).

We have limited our review to aspects specific to environmental planning and cumulative effects aspects, where discussed, in these documents.

2.0 Background

The purpose of this review was to determine whether the evaluation of alternative methods and cumulative effects were conducted in a manner consistent with the requirements of the Environmental Assessment (EA) Terms of Reference (ToR) as approved by the Minister of the Environment and Climate Change on March 17, 2016 as well as consistent with the principles of good EA planning outlined in the Code of Practice for Preparing and Reviewing Environmental Assessments in Ontario (January 2014).

This review is primarily focused on the EA process and planning principles, not on the technical validity of predicted impacts, as separate technical reviews of work plans specific to issues such as hydrogeology, air quality, noise, geotechnical engineering, landfill design, ecological risks, human health risks, etc. are being conducted under separate cover.

Comments on alternative methods and cumulative effects are discussed separately below..

3.0 General Observations and Comments

Alternative Methods

Section 7 of the Approved Amended Terms of Reference for the EA for the proposed Southwestern Landfill, as prepared by WEG, sets out the range of alternatives that are to be considered during the EA, in accordance with the Ontario *Environmental Assessment Act (R.S.O. 1990)* and the guidance provided in the Ministry's Code of Practice. Walker had concluded in the Approved Amended TOR that there are no feasible "alternatives to" the proposed undertaking that can reasonably be considered aside from the 'do nothing' alternative which is carried forward in the EA as the baseline to the assessment of the proposed undertaking.

The following five candidate "alternative methods" were presented in the Approved Amended TOR for evaluating the proposed undertaking in the EA:

- Landfill Footprint;
- Landfill Design Alternatives;
- Leachate Treatment Alternatives;

- Landfill Gas Management Alternatives;
- Haul Route/Site Entrance Alternatives.

The Alternative Methods Interim Report is consistent with the Approved Amended TOR, in that it evaluated the five alternative methods identified above. These methods are discussed in sufficient details in the Report to allow for technical review.

Section 8.1 of the Approved Amended TOR sets out a seven-step process for generating and evaluating alternatives in the EA. These are:

1. Prepare a description of, and rationale for, the alternative methods.
2. Evaluate the alternatives against specified feasibility screening criteria.
3. Evaluate each of the environmental assessment criteria listed in Appendix B of the Approved TOR against specified screening criteria.
4. Prepare a description of the environment potentially affected by each of the short list alternatives.
5. Develop comparative evaluation indicators for each of the short list of comparative evaluation criteria.
6. Describe the net effects on the environment for each alternative relative to the other short list alternatives, taking into account reasonable mitigation methods.
7. Evaluate the advantages and disadvantages to the environment for each of the short list of alternatives, and prepare a rationale for the preferred alternative(s).

The first step in this process focuses on generating a reasonable range of alternatives. The second step screens alternatives to determine which alternatives should be carried forward for detailed analysis. The Interim Report is focused on steps 1 and 2. Steps 3-7 outline the process for detailed analysis, including net effects on the environment, and it is expected that these would be detailed in the EA document.

Consistency with the Code of Practice

Section 3.1 of the Code of Practice identifies a number of environmental assessment principles which are key to successful planning and approval under the *Environmental Assessment Act*. The principles include:

- consult with potentially affected and other interested persons;
- consider a reasonable range of alternatives;
- consider all aspects of the environment;
- systematically evaluate net environmental effects; and
- provide clear, complete documentation.

The following sections addresses whether the Alternative Methods Interim Report is consistent with these principles.

Consult with potentially affected and other interested persons

The Alternatives Methods Interim Report states that during the development and assessment of the alternative methods, consultation was undertaken with First Nations representatives, various interested members of the public and local government agencies through the Community Liaison Committee (CLC) as well as a series of public events consisting of an open house and workshops. In particular, section 4.4

states that a brief summary is provided of some of the key input received regarding the landfill footprint alternatives, and its influence on the assessment”.

It is recommended that the Report should state approximately how many stakeholder comments specific to each alternative were received. Are the comments in the report tables the sum total of all the comments received on each specific candidate alternative method, or were these comments selected from a larger list of comments? This should be clearly stated in the report. In addition, details should be provided with respect to what events were held and when. WEG should also provide additional details on the First Nations consultation that occurred (which groups were consulted and when).

Consider a reasonable range of alternatives

The range of alternatives presented in the Report is consistent with the Approved Amended TOR. However, it is anticipated that a more critical technical review of this aspect will be provided separately by other technical expert reviewers who are focused on aspects such as design and engineering alternatives, hydrogeology, haul route alternatives, etc.

Consider all aspects of the environment

It appears that the Alternatives Methods Interim Report has taken all aspects of the environment into consideration. It is recommended, however, that potential impact of noise on sensitive receptors from on-site and off-site truck routes be assessed as part of the discussion in section 8.3.1 of the report and be addressed in section 8.3.2 (Mitigation).

Systematically evaluate net environmental effects

It appears that the Alternatives Methods Interim Report demonstrates a systematic approach to evaluating net environmental effects. However, the technical validity of the net effects assessment should be addressed separately in the individual technical review reports on the technical work plans.

Provide clear, complete documentation

The Alternatives Methods Interim Report is generally clear and the rationale for decisions making is well explained. However, it is not clear whether the documentation is complete. For example, it is unclear if all of the stakeholder comments are included in the report, or where and when certain types of stakeholder events were held. Another example, section 6.2, in the Feasibility Screening section of the leachate disposal alternatives, WEG concludes that hauling leachate outside of Oxford County to treatment facilities in Brantford or London is cost prohibitive, and thus this option is screened out. The section does not provide any comparison of costs between haulage, and the selected preferred alternative of constructing an on-site leachate treatment plant.

“Do Nothing” Alternative

Walker is proposing a landfill site that would accept up to 850,000 tonnes of waste per year (plus daily cover), a total of approximately 17 million tonnes over a 20-year operating period. If approved, this would make the Walker Southwest Landfill one of the largest landfills ever approved in Ontario's history. A

proposed TOR for the landfill was submitted to the MOECC on August 30, 2013, and the TOR was approved by the Minister, with amendments, on March 17, 2016. The Minister specified 15 tasks to be carried by Walker as part of the environmental assessment process. Of these, Task 9 states that “Walker shall consider and evaluate alternative methods for the separation, at source, at the landfill or by other method, of Industrial, Commercial and Institutional waste such as, but not limited to, recyclables and organics that may have other end uses outside of final landfill disposal.” In addition, in a MOECC document titled “Understanding the Environmental Assessment Process: The Proposed Walker Southwest Landfill”, the MOECC summarized this task as an assessment of alternative methods to source separation of waste either at source, at the landfill, or by other method *in response to the ministry’s draft Waste Strategy*”.

Section 2 of the Alternative Methods Interim Report states that “based on its assessment, Walker concluded in the Approved Amended Terms of Reference that there are no feasible “alternatives to” the proposed landfill at the Carmeuse Beachville Operations in Oxford County that can reasonably be considered by Walker in this EA, aside from the ‘do nothing’ alternative which is carried forward in the EA as the baseline to the assessment of the proposed undertaking.” The Report further states that “Walker will continue to pursue and implement additional waste diversion opportunities separately from, and in addition to, the proposed landfill, as these opportunities become economically viable.”

Ontario’s new waste management strategy is reflected in the *Waste-Free Ontario Act, 2016* which was proclaimed in late 2016, comprised of the *Resource Recovery and Circular Economy Act* and the *Waste Diversion Transition Act*. According to the Environment Minister, “at the heart of the legislation is the idea that producers should be responsible for the end-of-life management of their products and packaging.” As part of this strategy, the MOECC is developing an action plan to reduce the amount of food and organic waste entering landfills. Development of the action plan was included as a commitment in Ontario’s “Strategy for Waste-Free Ontario: Building the Circular Economy”, the final version of which was released in February 2017. As part of the development of the action plan, the ministry is considering a number of policy tools, including a disposal ban on select materials such as food waste.

According to the MOECC, the *Act* will:

- *encourage innovation in recycling processes and require producers to take full responsibility for their products and packaging;*
- *lower recycling costs and give consumers access to more convenient recycling options;*
- *help fight climate change by reducing greenhouse gas pollution that results from the landfilling of products that could otherwise be recycled or composted;*
- *overhaul Waste Diversion Ontario into the Resource Productivity and Recovery Authority, a strong oversight body with new compliance and enforcement powers that will oversee the new approach and existing waste diversion programs until transition is complete.*

Stakeholders meetings held with the MOECC in relation to the *Act* have highlighted the need for bans to be implemented to discourage the use of landfills. An organics ban has been discussed along with potential bans of paper and corrugated materials. If these latter bans are implemented there may be up to a 30 to 40% reduction in waste generation in the ICI stream.

The MOECC has indicated that the ICI sector has a lower diversion rate than the residential sector. Based on this, and as indicated by the MOECC, it appears highly likely that new initiatives based on the *Waste-*

Free Ontario Act, 2016 will focus on reducing the ICI waste stream. It is noteworthy that the ICI waste stream is the primary source of waste for the proposed Walker Southwestern Landfill. If the *Waste-Free Ontario Act, 2016* is implemented with respect to ICI waste, as promised by the MOECC, the need for the Walker Southwest Landfill would largely disappear.

Most recently the Minister of the MOECC has questioned the need and subsequent initiatives for additional landfill space given the mandate of the *Waste Free Ontario Act, 2016*. In addition, the MOECC has quite recently released a RFP to do a detailed study of landfill capacity in Ontario. Furthermore, it is well known that there is significant landfill capacity in neighbouring US states.

Given all of the above issues, there may not be any need for additional landfill capacity within Ontario. As part of its examination of the "Do Nothing" alternative, Walker should carefully evaluate the impact of the *Waste-Free Ontario Act, 2016* and the above-noted issues upon the need for this landfill.

Furthermore, Walker should address the following issues, at a minimum:

- Organics are estimated to comprise 40-50% of the residential waste stream in Ontario. Is "do nothing" a reasonable baseline for the proposed landfill taking into consideration developments such as the action plan to reduce the amount of food and organic waste entering landfills, and stakeholder calls for landfill disposal bans of paper and corrugated materials?
- Is it reasonable to assume that diversion of food, organic and other wastes from landfills in Ontario within the next several years requires the consideration of a baseline with lower landfill waste quantities? Existing source separation programs in Ontario, such as "The Blue Box" program for recyclables and "Green Bin" for food wastes, have had a high rate of public participation in areas where they have been implemented.
- Is there a need for a landfill of the size being proposed by Walker in light of the potential for waste diversion under the *Waste-Free Ontario Act*? The new *Act* is likely to drastically change the way that waste is managed in Ontario.
- How does Walker intend to "pursue and implement additional waste diversion opportunities" within the context of new strategy required under The *Waste-Free Ontario Act*, and what are the implications for the proposed landfill?
- Would Walker reduce the size of the proposed Southwestern Landfill should a proper needs analysis, and the MOECC study on landfill capacity reveal higher capacity levels than were assumed by Walker for its proposal?

Other General Comments

- The screening of the alternatives in some cases seem "high level" and it is not clear what level of technical expertise in areas such as geotechnical engineering, hydrology, ecological risks, etc., were applied in the selection of the preferred alternatives, for example landfill design. It is understood that the information is summarized, however, the technical disciplines involved in the analysis and evaluation should at least be appropriately acknowledged in the report.
- It is not clear how cumulative effects are specifically incorporated into the assessment of alternatives. For the most part, it appears that each alternative is being assessed independently of the operational quarry. A cumulative effects assessment is important for determining the cumulative impact of the present quarry use and the proposed landfill use on both existing sensitive land uses,

as well as other “zoned for” sensitive land uses that are currently permitted by the current Official Plan and Zoning By-law to establish in close proximity to the quarry and proposed landfill but are not yet established in the study area.

Cumulative Effects

Amendment 12 of the Approved Amended ToR for the EA for the proposed Southwestern Landfill stipulates that Walker shall also prepare a cumulative effects assessment work plan and implement the following activities:

- *Prior to finalizing the cumulative effects assessment work plan, Walker shall be required to consult with the Ministry of the Environment and Climate Change in the development of a draft cumulative effects assessment work plan on the method and how the assessment of cumulative effects should be presented in the environmental assessment. Walker shall also consider the guidance document Addressing Cumulative Environmental Effects under the Canadian Environmental Assessment Act (CEAA, 2007) when drafting its cumulative effects assessment work plan. In addition, Walker shall use cumulative effects assessment guidance documents issued by the Ministry of the Environment and Climate Change in the environmental assessment, if and when available.*
- *Walker shall be required to post the draft cumulative effects assessment work plan on the project website, communicate the availability of the draft cumulative effects assessment work plan for review and comment by government agencies, Aboriginal Communities and interested members of the public in conjunction with the proposed public Open Houses or a Drop-In Exhibit (Terms of Reference, Section 10.2, pages 68), circulate copies of the work plan ministry's Technical Review Team, the Ministry of Natural Resources and Forestry, the Conservation Authority, Aboriginal communities and the Committee Peer Review Team for review and comment.*
- *Arrange meetings/workshops, where requested to discuss the draft cumulative effects assessment work plan.*
- *Consult with the Ministry of the Environment and Climate change on the finalization of the cumulative effects assessment work plan.*
- *Post the final cumulative effects assessment work plan on the project website.*

It appears that the approach outlined in the WEG Cumulative Effects Work Plan, January 12, 2017, is consistent with the requirements above as set out in the Approved Amended ToR.

4.0 Specific Observations and Comments

Following are specific observations and comments on the documents reviewed.

Alternative Methods

The section identifies some of the specific observations and comments pertaining to the review of the WEG Alternative Methods Interim report. They are:

- It is recommended that the report recognize that the proponent of the landfill, which is a new use, needs to assess the potential impact on existing sensitive land uses. This is in keeping with the approach in Guideline D-4. Guideline D-4 protects the health, safety, convenience and welfare of residents from the potential adverse effects of landfills and dumps, by restricting or controlling land

use in their vicinity. It is also to be considered when looking for locations to establish a landfill in Ontario.

- Amendment #9 to the Approved Amended ToR states that “as part of the environmental assessment, Walker shall consider and evaluate alternative methods for the separation, at source, at the landfill or by other method, of Industrial, Commercial and Institutional waste such as, but not limited to, recyclables and organics that may have other end uses outside of final landfill disposal.” The Alternatives Methods Interim Report does not address source separation. Source separation should be addressed, or a rationale for its omission should be provided.
- Sections 4.2.2 and 4.2.3 of the report screens out Landfill Footprint Alternative 2: East Quarry and Landfill Footprint Alternative 4: Former Southwest Quarry & Stone Plant, from further consideration as a potential footprint location at least in part due to non-compliance with the *Environmental Protection Act (EPA)*. Section 27.(3.1) of the *EPA* prohibits the establishment and operation of a waste disposal site where waste is deposited in a lake. The report notes that the body of water contained in the East Quarry (labeled as 2a in Figure 2) and the Former Southwest Quarry (labeled 4a in Figure 2) constitute “lakes” for this purpose. However, under Section 27. (3.2 (d) of the *EPA*, if the area of land identified as a “lake” was less than one hectare in area on the day that this subsection came into effect (which was June 17, 2004) then the area is not subject to this landfilling exclusion. Walker needs to provide evidence, including historical data, in the report to demonstrate that the bodies of water labeled as 2a and 4a in Figure 2 are indeed lakes. If this evidence does not exist, then these bodies of water should be included in the footprint for Landfill Footprint Alternative 2: East Quarry and Alternative 4: Former Southwest Quarry & Stone Plant.
- The first sentence under section 5.1.6 (Deep Design Alternative) references a truly “entombed” design which is describe as not being “a possibility for this site since the Landfill Standards require that the landfill cap permit a certain minimum amount of infiltration”. The rest of the section was focused on the Deep Design Alternative, and Table 4: Summary – Screening of the Alternative Landfill Design Concepts, does not include the entombed option. Should the entombed design alternative be described further, included in Table 4, then screed out?

Cumulative Effects

This section reviews cumulative effects from a broader environmental planning perspective. It is expected that discipline-specific comments on aspects such as hydrogeology, human health risk, landfill design, etc., will be provided under separate cover.

According to section 1 of the report, the document presents the draft work plan required under Minister’s Amendment #12 (a) to the Approved Amended ToR. Walker indicated that it was prepared for review and discussion among various stakeholders to the EA, and that Walker will carefully consider the input received in finalizing the work plan and carrying out the impact assessment studies during the EA.

Walker noted that the purpose of the report was to describe how cumulative environmental effects are to be analyzed and documented in the Southwestern Landfill EA, with particular reference to the federal guidelines regarding cumulative effects assessment.

Walker has opted to follow the guidance of the five-step methodology pursuant to CEAA, 2012. The steps are:

- Step 1: Scoping
- Step 2: Analysis
- Step 3: Mitigation
- Step 4: Significance
- Step 5: Follow-up

Regulatory Requirements and Guidance

The report correctly acknowledges that cumulative effects assessment is neither explicitly required nor defined under the Ontario *Environmental Assessment Act*, nor is there any specific procedural guidance provided in the associated Code of Practice. In light of this, Walker has indicated that the guidance provided by the federal government regarding cumulative effects assessment under the former *Canadian Environmental Assessment Act (CEAA)* and CEAA 2012 is available and was consulted. This seems to be a reasonable approach.

Overall Approach

- The reviewer agrees that the five-step methodology outlined above is a reasonable approach to take for this EA.
- The reviewer agrees, as noted in the Executive Summary, that the Southwestern Landfill EA should be designed from the outset as a cumulative effects assessment; and that it be embedded in the EA methodology rather than a separate study or additional step in the EA process.

Stakeholder Consultation

Though not a requirement, it is not clear whether stakeholders were consulted specific to the preparation of the cumulative effects assessment work plan. It is acknowledged that Walker had some consultation with government agencies, Aboriginal Communities and interested members of the public on these during the preparation of ToR and other draft technical work plans, but it is not clear whether specific input was sought for this draft. Please clarify.

Scoping

- In section 5.1 (Scoping), under “Examining Physical Activities That Will Be Carried Out”, Walker should at least provide a partial list of activities that could potentially interact to cause cumulative effects such as on-Site and in the site vicinity; along the haul routes; and wider area.
- Walker should confirm if each technical discipline will develop a worst-case scenario for assessing cumulative effects.
- How would Walker verify future operations for Carmuse Quarry in order to establish future environmental baseline conditions, from which to extrapolate cumulative effects?

Analysis

As per section 5.2, the reviewer acknowledges that the methodology will vary from study to study (i.e., either quantitative or qualitative), depending on the nature of the effect. It is recommended, however, that quantitative methodology be used to the greatest extent possible, especially since the proposed landfill would be adjacent to an active and operational Carmeuse Quarry. Walker should make all reasonable efforts to obtain information/data from the quarry owner in order to conduct quantitative cumulative effects analyses. Without this information/data, the true cumulative effects of the proposed landfill cannot be known.

Significance

The last two paragraphs in section 5.3 are somewhat confusing and should be rewritten so that they could be clearly understood. The concepts of, and relationships between criteria, indicators and thresholds should be more thoroughly explained. While it is stated in this section “that many of the indicators were already developed and proposed, and subject to review and comment by government agencies, Aboriginal groups and the public, as part of the preliminary draft work plans for each of the technical studies”, it is apparent the WEG is only going to present these indicators with the EA report. This approach is reasonable, but would require careful peer review of each technical supporting report document to ensure that the appropriate indicators were applied.

Frederick Bernard

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Peter Klaassen, MBA, P.Eng.
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Tetra Tech Canada, Inc.

APPENDIX A

Curriculum Vitae

Fred Bernard

Peter Klaassen

Education

M.A., Environmental Geography, 1992, University of Toronto

B.A., Environmental Studies, 1986, University of Toronto (Honours Specialist)

Years of Experience

Total – 30

Frederick D. Bernard, M.A.

Principal Environmental Consultant, Environmental Planning and Permitting

Frederick D. Bernard, M.A., Principal Environmental Consultant, Environmental Planning and Permitting, has close to 30 years of EA experience working on a variety of projects covering waste management, energy, transportation, etc. Mr. Bernard has been involved in many landfill projects in Ontario, working either as an EA specialist or technical expert (noise) for assessments conducted for existing landfills relating to grade modification, expansion, extension of use, increase in fill rate, addition of energy-to-waste components, etc. His experience includes work carried out at landfills in St. Catharines, Haldimand-Norfolk, Sudbury, Lindsay, Sarnia, Ottawa, Maple, Elliot Lake, etc. In addition, Mr. Bernard has participated as an EA expert on solid waste projects including landfills, internationally in Trinidad and Tobago, Guyana, St. Kitts, to name a few. He is familiar with the environmental and socioeconomic issues pertaining to landfills and has been involved in stakeholder engagement activities.

Related Project Experience

At Arcadis Canada Inc. 1988-Present:

Recently retained by Serpent River First Nation in Ontario to undertake a review of the City of Elliot Lake Solid Waste Management Master Plan. The peer review determined whether or not: the study area and baseline conditions were properly identified; the study was conducted in accordance with appropriate provincial legislation; the appropriate Environmental Assessment (EA) process was followed; alternatives were appropriately evaluated; the appropriate stakeholders were consulted, including First Nations; stakeholder concerns were taken into consideration; appropriate decisions were made regarding the existing landfill; etc.

Part of the consulting team providing services to Metropolitan Toronto for the environmental assessment of the former Adams Mine open pit mine for use as a 40 million tonne solid waste landfill. The assignment included: development of a detailed design and operations plan; preparation of assessment methodology and site development cost estimates; multidisciplinary impact assessment; preparation of public consultation materials for presentation to the public; responding to peer review comments; and preparation of EA Overview Documents.

Assisted the Ontario Ministry of the Environment as part of the province's Solid Waste Interim Steering Committee (SWISC) project, in a study designed to select candidate areas for future solid waste landfill sites in Ontario. Duties included reviewing numerous Waste Management Master Plans of districts and municipalities throughout Ontario to determine and compare selection criteria used for assessing candidate areas.

Involved in site selection work for Metro Toronto's Solid Waste Environmental Assessment Plan (SWEAP) project. The end product was a report detailing a list of possible sites for various solid waste management facilities (excluding landfills) in Metro Toronto and the Regions of Durham and York. Duties included data collection, constraint mapping and report preparation.

Monitored and assessed noise levels at operational and proposed landfill sites in the cities of Sarnia and St. Catharines, the Regional Municipalities of Haldimand-Norfolk, Kirkland Lake and Sudbury, and the Town of Lindsay to determine the noise impact for the purpose of satisfying requirements for Certificates of Approval. Also assessed noise for two proposed recycling facilities in Etobicoke, and a transfer facility in Etobicoke and compost treatment facility in Newmarket.

Team member retained to provide consultancy services for the Hazardous Industrial and Healthcare Waste Management component of the Georgetown Solid Waste Management Programme (GSWMP). Also managed the preparation of an environmental and social impact assessment for the implementation of a hazardous waste management facility and the new landfill site in the Georgetown area.

Project Co-ordinator of an OECS study to undertake the detailed design and construction supervision for sanitary landfills for St. Kitts and Nevis. Responsibilities include liaising with the Team Leader and sub-consultants, report preparation and review.

Team Member involved in a study to design a new landfill and sewage disposal site on Montserrat. Responsibilities include assistance to the Team Leader in the areas of information retrieval, document review, client liaison and sub-consultant liaison.

Project Manager of an OECS study to assess the cost-effectiveness of Grenada's waste collection system and to undertake an economic comparison of direct haul versus the construction of a transfer station on the eastern section of the island. Responsibilities included a fact-finding mission to Grenada to assess the entire waste collection system, consultations with the Grenada Solid Waste Management Authority Collection Inspectors, waste haulers and various other stakeholders, liaising with sub-consultants and report preparation.

Currently international team Project Manager for IDB funded project to develop an integrated a solid waste management plan for Trinidad and Tobago. The project involves assessing the waste collection systems on both islands, visiting and evaluating all landfill sites to evaluate environmental and social aspects, determining opportunities for waste reduction, reuse, recycling, etc., liaising with all key stakeholders, and formulating an action plan, including the closure and remediation of at least three existing landfills.

PRIVILEGED AND CONFIDENTIAL

To: William Tiggert
Town of Ingersoll

Date: May 25, 2017

c: Jack Coop and Joel Farber
Fogler, Rubinoff LLP

Memo No.:

From: Peter Klaassen, MBA, P.Eng.

File:

Subject: Financial Review of Walker Environmental Group
Southwestern Landfill Environmental Assessment Submissions

1.0 INTRODUCTION

Tetra Tech Canada Inc. (Tetra Tech) was retained by the Town of Ingersoll (the Town) to provide technical peer review services of the submissions made by Walker Environmental Group (WEG) for its Environmental Assessment Act approval of its Southwestern Landfill development.

The scope of work as outlined in our proposal for this work is the technical review of submissions made by WEG for its proposed development of a landfill site at the Carneuse Lime site in Zorra Township, directly adjacent to the eastern boundary of the Town.

This review is limited to findings from reviewing the following document relating to the Ontario Environmental Assessment Act approval process for the WEG Southwestern landfill proposal:

- Economic/Financial Assessment Workplan, Kier Corp, January 5, 2017

2.0 BACKGROUND

The primary purpose of this review is to provide comments on the Economic and Financial work plan as it relates to the Town, its residents and its respective stakeholders. The work plan and subsequent study should include four areas of impacts: the pre-construction phase, the time of construction, the operational phase, and the post operational phase. Each of these phases will have inherent unique aspects that may impact the Town.

3.0 GENERAL OBSERVATIONS AND COMMENTS

Comments regarding the overall approach and information that has not been included in the report are provided in the following sections.

3.1 Study Area

There are several references within the work plan to specific areas of impact. While physical impacts such as air and noise decrease as distance from the source increases, financial and economic impact may not be solely predicated on distance from the source.

The work plan focuses on three impact areas: On Site and in the Site Vicinity, Along the Haul Routes, and Wider Area. The Town has expressed concern with the proximity of the landfill to town. As such the entire town should be included in the area denoted as Site Vicinity since residents may travel and use services throughout the town including close proximity to the proposed site.

Similarly, WEG has designated a band of 500 m around the Haul Routes which excludes the potential increased traffic on the emergency haul routes. The haul routes would be used in times of weather issues or accidents along Hwy 401 and should be included in the same category.

3.2 Future Development

Future development plans may be impacted by the proximity of either a future or ongoing landfill site. Resultantly, the location of current development may not be reflective of how the Town expands.

The work plan should include a comprehensive study of how anticipated and constructed waste facilities, including landfills and haulage routes (including emergency routes) have impacted development around the respective locations.

3.3 Regulatory Impacts

There are two recently enacted regulatory initiatives Bill 151 (Waste Free Ontario Act, 2016) and the Cap and Trade Program Regulation and Quantification, Reporting and Verification of Greenhouse Gas Emissions Regulation that may have significant impact on the viability of the proposed WEG landfill. Accompanying Bill 151 the government of Ontario has also outlined its strategy with initiatives with a goal to reduce waste generation, increase diversion (from landfills) and reduce the amount of greenhouse gas generation from waste.

The Financial/Economic work plan should include a comprehensive review of the impact of these two regulations, as there may be both regulatory and strategic initiatives to discourage the use of landfills in Ontario.

4.0 PROPERTY VALUE

Property value may change in different periods of time as the impact of development moves forward. As the Municipal Property Assessment Corporation does evaluations every four years, the actual information related to properties may be out of date in relation to the perception of value in the four different stages of the potential WEG project.

In lieu of this, the Financial/Economic Work Plan should incorporate both historic impacts of similar projects and consult with independent real estate agents who understand and can assess the impact within the Town.

5.0 COST TO CUSTOMER

There are several elements that impact the value and cost of disposal within the region. These elements include the cost of diversion, the long term environmental cost of landfilling, the cost of disposal to competitive landfill sites (including the US), the cost of transportation, and the potential loss of revenue to surrounding municipal landfill sites. All these aspects should be considered in the overall value to both regional and surrounding customers to the site.

6.0 COMPENSATION

One-time and ongoing financial compensation has been given to neighbours of other waste processing and disposal sites. The Economic/Financial Assessment should include formulas and examples that have been used in past in both Ontario and outside Ontario. All impacted residents of Ingersoll must be satisfied with an agreed upon formula for compensation prior to an approval under the Environmental Assessment.

Review of "Economic/Financial Assessment Work Plan"

Section 3 Environmental Assessment Criteria – (Page 6)

- Two periods are contemplated (Operational Period, Post-Closure Period) and should be expanded to four and should now include pre-construction phase, and construction phase.

Section 4 Study Areas (Pages 7 and 8)

- On Site Vicinity should now include the Town of Ingersoll.
- Hauls Routes should include 500 m around Emergency Routes.

Section 6.2.2 – (Page 15)

- Should include potential that the Town will expand into surrounding townships and the work plan should examine the possibility that eastward expansion will be discouraged.

Section 7.1 Ontario Ministry of Environment and Climate Change – (Page 18)

- Background data should include Bill 151, supportive MOECC strategy and legislation and potential ban to specific materials to disposal.

Section 7.2 Field Data Collection – (Page 19)

- Key Stakeholder Interviews should include residents in Site Vicinity and along Haul Routes.

Section 8 Data Analysis – Property Value Impact Assessment – (Page 20 – 22)

- Paragraph 1 – property value should be expanded to include all of the Town of Ingersoll.
- Paragraph 2 – revised assessment should include annual updates to ensure most recent values are used.
- Paragraph 3 – the relationship between the term “zones” and Site Vicinity should be clarified.

List of Recommendations to mitigate and or otherwise manage potential ... add bullet:

- Review of Compensation mechanisms at other waste landfill/processing sites.

7.0 CONCLUSION

Please note that the comments denoted in this review reflect the most recent information provided to date and may be modified to reflect changes made to the Workplan.

Respectfully submitted,
Tetra Tech Canada Inc.


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Solid Waste Management Practice
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Enclosure: Curriculum Vitae – Peter Klaassen



EXPERIENCE SUMMARY

Mr. Klaassen is a Vice President for the Waste Management Group in Ontario. He is a senior environmental professional, with more than 26 years of solid waste experience undertaking projects in Canada, US, Caribbean, North Africa, Middle East and Central Asia.

Mr. Klaassen has a variety of experience in many aspects of waste management, including system design, waste management planning, environmental planning, environmental assessment, waste management engineering, financial and proforma analysis (capital, operational and cash flow projections), assembly of terms of reference, tenders, contracts and negotiations for both private and government clients.

RELEVANT EXPERIENCE

WASTE MANAGEMENT

Due Diligence of Target Acquisitions and Start-ups ~ Client: Various

- In the purchase of businesses throughout both Canada and the US, Mr. Klaassen has provided both environmental and fiscal advice to clients trying to determine the expansion and risks to their respective businesses. Typically, these have been Phase 1 for the environmental assessment, and detailed cash flow/capital investment analysis through proformas. Research for some clients has included an overview of the business opportunities and options for any geographic area. (One study included the potential for waste management opportunities throughout Canada for a French owned waste management company)

EPR Strategies ~ Client: various

- Mr. Klaassen is currently engaged on several projects related to the implementation of EPR/IPR waste regulations. One project included the design and subsequent waste ECA application for a tire recycler located in Ontario. Processing ¼ of the waste tires generated in Ontario, the project included numerous stakeholder meetings and discussions with the current steward, OTS. The ECA was granted and the client is currently getting financing for the operation. The second project was a comprehensive study of processing and recycling efficiency rates for a battery steward organization. The result of the work was presented over a series of committee meetings hosted by Waste Diversion Ontario. The work then led to participation of a RFP team to attain bids for collection, sorting and processing of all waste battery types throughout North America. This work is ongoing. Finally, Mr. Klaassen most recently led an RWDI team for a proposal to undertake a financial and operational audit of Stewardship Ontario's Blue Box and MHSW programs. The client, WDO selected the RWDI team and work is ongoing. The work is expected to provide Best Practice strategies for the regulations derived from MOECC's Bill 151 in Ontario.

Biomedical Waste Strategy ~ Client: Manitoba Health

- Mr. Klaassen led the project to close 16 hospital incinerators located throughout Manitoba, and operate one facility to be located in Brandon. The work included a comprehensive study of waste generation rates, potential locations of the new treatment facility, selection of technologies, and a financial review of the respective options. Manitoba Health chose to have Mr. Klaassen lead an RWDI team to continue work with a detailed Environmental Assessment tied to a license

EDUCATION

1986 - B. Eng., (Engineering Physics), McMaster University, Hamilton, ON, Canada

1994 - M.B.A., (Finance & International. Business), McMaster University, Hamilton, ON, Canada

AREA OF EXPERTISE

- Technical Oversight on Waste issues
- Client Liaison
- Project Leadership/Management

REGISTRATIONS/ AFFILIATIONS

- APEO (association of Professional Engineers of Ontario), designated professional engineer
- Member of AWMA (Air Waste Management Association)
- Member of OWMA (Ontario Waste Management Association)
- Member of ONEIA (Ontario Environment Industry Association)

TRAINING/CERTIFICATIONS

- First Aid
- CPR

OFFICE

Ontario

YEARS OF EXPERIENCE

26+

YEARS WITHIN FIRM

<1

CONTACT

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application. This phase included a review of transportation requirement to bring biomedical waste from 66 remote clinics and hospitals to Brandon. The work has now progressed to detailed design and Terms of Reference for the building construction and equipment purchase. The facility is expected to be operational in 2017.

Collection Strategies and Contracts ~ Client: City of Hamilton

- Mr. Klaassen provided several facets of consultation for the City of Hamilton over a period of 6 years in their collection of garbage, recyclable waste and green waste. The work included the splitting of the city into 2 similar areas with 3 distinct waste generation zones, for the purpose of determining a comparison between city (municipal) workers, and private contract workers. The City of Hamilton has a population of 500,000 people and includes large industrial entities within the City. Further work for the City involved a review of collection routes, the use of multi-chamber collection vehicles (co-collection), organic and MRF facilities, the writing of Terms of Reference for various collection, construction and operating contracts, the issuance of RFPs, their respective evaluation matrix, selection of the winning contractors and negotiations with the respective contractors. The work included presentations to stakeholders, City Council, and required in-depth financial analysis to allow the City to understand the financial impact of various options.

MRF (Material Recycling Facility) Options for the City of Hamilton ~ Client: City of Hamilton

- Mr. Klaassen was requested to review the different options for processing of recyclable materials collected in the blue box program for the city of Hamilton. The analysis included the issuance of Terms of Reference and subsequent RFP for a 60,000 tpy facility, its respective evaluation and the selection of a preferred candidate. Against this, the City also requested an analysis of upgrading the then existing MRF to modern standards with the existing contractor. Through extensive technical and financial analysis, it was determined that the most viable option was the retention of the existing facility.

Organic (Compost) Facility Study and Selection ~ Client: Various

- Mr. Klaassen has provided consultation for several municipal (City of Hamilton, City of Toronto, several private companies in Canada, and the GCC), on the feasibility, assessment and design of compost facilities. For the City of Hamilton, Mr. Klaassen led a team that assembled the TOR, subsequent RFP, evaluation, selection of a winning candidate and subsequent negotiations with the successful proponent. The final facility was one of the most successful compost facilities built in Canada. Mr. Klaassen assisted the City of Toronto with the assessment of private compost proposals for the disposition of compost waste in the Region of Durham. A range of aerobic and anaerobic (technology) options were presented by private companies, these being evaluation for technical and financial merit, and a recommendation made to the municipal authorities. Mr. Klaassen has reviewed several private operation combined sorting and compost facilities throughout the Middle East, in most cases using European technologies. The analysis involved rigorous proforma review of the respective options.

EFW (Incineration) Study and Recommendations ~ Client: Various

- Mr. Klaassen has provided consultation and reviews of several municipal and hazardous waste operations throughout Canada. These studies have ranged from preliminary studies of potential scenarios, to modifications of existing facilities to re-engineering of existing facilities and providing operating principles to enhance the existing facilities (including bringing incinerators to within the regulatory requirements set out in their respective permits). The work has involved engineering assessment, engineering design and detailed financial analysis of the respective options. He is currently providing both financial and engineering consulting services to Veresen for the WTE and District Energy facility located in PEI.

Hazardous Waste Studies throughout Canada (and the GCC) ~ Client: Various

- Mr. Klaassen has provided studies for both municipal and private clients throughout Canada, on the flow, handling and disposition of hazardous waste. In one study, the client requested an understanding of then hazardous waste flow between Canada and the US over a 10 year period. The primary determinant from this study was that the exchange rate between the currencies, and the respective cost to dispose waste in either Canada or the US was the primary driver for the direction and quantity of waste going across the borders. Mr. Klaassen also undertook an extensive study of used oil generated and processed throughout the province of Ontario.

Waste Management Master Planning ~ Client: Various

- Project managed the development of Waste Management Master Plans for various municipalities, including Istanbul Turkey, Baku Azerbaijan, Ras Laffan City (Qatar). The studies included waste flow and characterization, siting, collection study and recommendations, waste processing study and recommendations. Some studies included social, cultural and religious parameters. Average value of each respective plan was approximately \$250,000.

Mediouna Landfill Site Remediation ~ Client: JECO / Casablanca Municipality

- The project involved the study of the existing Casablanca City Municipal landfill located south of the city in the community of Mediouna. This is an open 60 ha site located on an old quarry, primary filled with garbage in an uncontrolled manner. Mr. Klaassen was the project manager leading a team of hydrogeologists and landfill designers through a landfill characterization, waste characterization, site assessment, hydrogeology assessment, closing plan and siting for a new landfill. The study also included recommendations on cultural and health impacts (the area was saturated with leachate).

Abu Dhabi Municipal Waste Management System ~ Client: Kharafi National / Abu Dhabi Municipality

- Mr. Klaassen was the project director for various components of the replacement of the existing waste processing system for all waste (except Al Ain) regions of the Emirate of Abu Dhabi. The work included a base line environmental assessment of all facilities including the new sorting plant, two new organic landfills, one C&D landfill, three composting facilities and 5 transfer stations. The team was also responsible for the design of the landfills, and oversight on the technologies used for the sorting plant, the compost facilities and the transfer stations. This project represented leading edge North American/European technologies in first of the kind applications in the GCC area.

Ras Laffan City Waste Management Master Plan ~ Client: Qatar Petroleum / Ras Laffan City HSE department)

- Mr. Klaassen led a team of waste management experts in the development of a waste management plan for the industrial complex of Ras Laffan City. This 106 sq km site houses some of the largest LNG and GTL facilities in the world, with such companies as Shell, ExxonMobil, Total and Dolphin. The City currently has a temporary waste management system that has addressed the past needs, but the plan devised by the team utilizes state of the art solutions combining both technology and management systems. The study included preliminary financial analysis for the purpose of selecting the best value options going forward.

Construction and Demolition Waste Management Plans ~ Client: Various

- Several clients in the UAE have required business and technical plans for the treatment of Construction and Construction and Demolition waste. In all cases the analysis consisted of a review of current generation rates, their respective composition, treatment alternatives and financial scenarios for the respective options. In all cases, the primary goal was to reduce amount of waste transported to the landfill, and to reuse as much of this material in new construction as possible.

Other Practice Areas**Qatar Greenhouse Gas Study ~ Client: Qatar Petroleum**

- Mr. Klaassen led on one of the first comprehensive greenhouse has studies in the Middle East, providing information on the current GHG impacts on the State of Qatar, information on the GHG footprint of the Qatar Petroleum facility, and potential remedial measures for the facility to reduce its carbon footprint.

District Energy ~ Client: Envida (Guelph Hydro)

- Mr. Klaassen led an RWDI and subcontract team in a project in downtown Guelph for the installation of heating and cooling pipes. The work included a review of heating and cooling loads for various end customers, pipe layout and included design of ETS units in the respective end customer sites.