

September 19, 2017

CFN 51973

BY E-MAIL ONLY (janet.amos2016@gmail.com)

Janet Amos
Amos Environment + Planning
1236 Butter & Egg Road
Bracebridge, ON P1L 1X4

Dear Ms. Amos:

**Re: Response to Draft Environmental Study Report
Seaton Arterial and Collector Roads
Municipal Class Environmental Assessment – Schedule C
Duffins Creek Watershed; City of Pickering; Regional Municipality of Durham**

Toronto and Region Conservation Authority (TRCA) staff received the draft Environmental Study Report (ESR) including digital copies dated July 2017, on July 27, 2017.

It is our understanding that the Master Environmental Servicing Plan Amendment (MESPA) addressed Phases 1 and 2 of the Municipal Class Environmental Assessment (EA) process and that this Environmental Study Report (ESR) is expected to address Phases 3 and 4. The focus of the ESR is to assess alternative design options for each of three (3) City of Pickering local roads (Roads I, IV and VI). There are twelve crossings of the NHS as it relates to these three (3) roads. The recommended design concept involves 2 through lanes for all three (3) roads, turning lanes for roads I and IV only, separated bike lanes and a multi-use path on the south side of road VI, and on both sides of roads I and IV.

TRCA Review

TRCA staff has reviewed the draft ESR and detailed comments are provided in Appendix A. Comments were sent as “Draft for Discussion” on September 8, 2017 and a meeting was held on September 18, 2017 to discuss these comments which have now been finalized. As the ESR was filed prior to receiving TRCA comments, it is our expectation that a response to this letter and comments will be provided. The comments will need to be addressed in full at the pre-design or detailed design phase of each project as noted in Appendix A.

The Class EA document was difficult to review as topics are addressed in text with figures and tables in different sections of the document (e.g., watercourse crossings are addressed in Table 3.7, Road Checklists (Appendix 3-3), the Beacon Geomorphic Assessment (Appendix 3-2-3), and Figures in Appendix 4-2-3). Further, many figures in the report are too small to read or review. Crossing spans will need to be re-examined in full during the next phase of work including the need for wildlife passage, pedestrian passage or crossings and watercourse realignments. There is also insufficient information provided regarding the geotechnical and hydrogeology impacts, and compensation has not been addressed.

It is also important moving forward that clear direction be provided regarding how stormwater management (SWM) will be addressed for the entire road(s) and who will be responsible for addressing SWM through the various road segments. This is required to ensure SWM infrastructure (i.e., ponds) is sized accordingly and will need to be addressed and reviewed prior to TRCA staff accepting design submissions for any of the road segments. Detailed comments are provided in Appendix A. Where information is absent, high level comments are provided.

Costing

Costing related to the additional studies and road design changes should not be based on the Final ESR, as the information feeding into the designs for each crossing within the Natural Heritage System (NHS) is incomplete. Costings should be based on the additional analysis required to address the items identified in this letter, and those that have been deferred to the design stage as noted in the draft ESR.

Next Steps

As sufficient time was not provided for TRCA comments to be addressed and incorporated into the final ESR, prior to filing for public review, it is our expectation that these comments will be responded to by the City, and posted with the response letter on the City's website together with the Notice of Completion and our response to the Final ESR. Additionally, it is TRCA staff's expectation that these comments will be carried forward to the next phase of work. Permits will not be issued until such time as TRCA requirements have been met.

TRCA staff also received hard copies and digital copies of the final ESR on September 8, 2017, as well as the Notice of Study Completion. It is our understanding that the text provided in Appendix B of this letter, as agreed to by the developers group and City of Pickering, has been included in the final ESR. TRCA staff will provide a response to the final ESR for the file record, once a formal response to the comments in this letter has been provided.

Should you have any questions please contact me at extension 5717 or at slingertat@trca.on.ca.

Yours truly,

Sharon Lingertat
Senior Planner, Environmental Assessment Planning
Planning and Development

BY E-MAIL

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APPENDIX A: TRCA COMMENTS ON DRAFT ESR

#	TRCA COMMENTS (SEPTEMBER 19, 2017)	PROPONENT RESPONSE
Natural Heritage System and Compensation		
1	The ESR does not provide the necessary analysis related to the natural environment. While some background information from the MESPA and the NFSSRs was summarized in the ESR, no new natural heritage information was presented. The Data Gap Checklist – Natural Heritage on page 22 of Appendix 3 states that there are no data gaps for the natural heritage system. The NFSSRs and MESPA however, identified areas where more study was required, such as at crossings 4 and 9. Furthermore, while the impacts to forest and wetland ELC communities were shown on the NHS crossing plans provided in Appendix 4, this information was not summarized or analyzed in the ESR. Detailed information regarding impacts to the natural heritage system will need to be presented at detailed design in order to identify where mitigation measures, such as retaining walls and edge management plans, will be required.	
2	Table 3.7 lists the crossing type as “type not provided” for crossings 12, 16, 17, 18, 19 and 21. Furthermore, the wildlife passage section states “ecological study to be completed” to finalize the crossing structure size for crossings 4 and 9, however, no further ecological study has been completed. As the ESR did not provide new natural heritage information regarding the crossing structures and did not complete the required analysis, all crossing structures will need to be finalized. The results of this analysis should be used to inform the design for each project area, and as such the design information presented in the ESR may need to be revised at the pre-design and detailed design stages.	
3	The issue of compensating for impacts to features in the natural heritage system has not been addressed in the ESR. In order to maintain the ecological function of the natural heritage system, natural features that are removed from the landscape will need to be quantified and compensated for either on site or at another location in the Seaton natural heritage system. Compensation should have been discussed in the ESR, however, will now need to be calculated on a site specific basis at the detailed design stage using future TRCA standards, recognizing that these may change from the time of ESR filing.	
4	As part of the EA consultation process, a dripline was staked along the north end of FC3 and FC4. This dripline was field verified to ensure that there was enough room between the employment collector and the forest to allow for LIDs to provide water to the forest and watercourses south of the road, once the upstream drainage area is cut off by development. This staked dripline does not appear to have been included in the ESR and an estimate for the space required to accommodate the future LIDs has not been identified. It is thus unclear at this time whether the road alignment allows for these LIDs to be constructed without impacts to the forest edge. While this analysis will have to be completed at detailed design, it should have been completed at the ESR stage, as revisions to the road through this area may be necessary. The LIDs will also require the construction of pipes under the road to bring water to the LIDs. Appendix C6-A Figure 2 in the MESPA states: “road is immediately north of Headwater Reaches WA15-1 (HDFC11) and W15-1 (HDFC12); the water balance of each to be addressed during road design.” Please also note that on page 6-23 and 6-24, the notes state that Janet Amos has “revised the survey file sent by Barnes to exclude stake D20”. It is not appropriate to revise a survey file to remove a stake and the original line should be used for any future discussions in this area. This will need to be satisfied at pre-design .	
Stormwater Management		
5	Section 4.6.1 states that “...details pertaining to stormwater management facility permits are most appropriately completed at the detailed design stage.” However, given that various proponents will be responsible for designing stormwater management measures it is important that the Class EA contains clear direction regarding how stormwater management is to be addressed moving forward and who is responsible. In responding to this letter , please identify in text and on a figure who will be responsible for each road segment as per Figure 4.3 to ensure SWM requirements are addressed in a comprehensive manner for the entirety of the road as part of the subdivision/pond work or elsewhere. These details should be addressed now to avoid delays at the detailed design/permitting stage. It is also imperative at this stage to ensure property requirements needed to implement on site SWM controls are acquired.	
6	The quantity control criteria documented in Section 4.6 and Table 4.9 are incorrect. As per the 2012 Duffins Creek Hydrology Update (Aquafor Beech	

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	Ltd.), catchments draining to the main branch of the West Duffins Creek do not require quantity control. However, quantity control is required for other subcatchments which drain to smaller tributaries and to the Whitevale Creek subcatchment. In responding to this letter, please correct the quantity criteria found in the ESR , confirm with TRCA staff that the changes have been made and use the correct criteria at the pre-design stage.	
7	The erosion control criteria documented in Section 4.6.1 and Table 4.9 should specify extended detention of the 25 mm rainfall event for 120 hours, and a release rate of 0.6 L/s/ha and storage volume of 250 m ³ /imp.ha. Please update the erosion control criteria in the ESR, confirm with TRCA staff that the changes have been made and use the correct criteria in the pre-design stage.	
8	There are a number of road segments identified in the MESPA or an NFSSR as being directed to a SWMF which are not identified in the Class EA, Figure 4.3 (Appendix 4) as road drainage to be directed to a SWMF. As part of the pre-design , please provide documentation to support Figure 4.3, including descriptions of why certain road segments cannot be directed to a SWMF.	
9	There are a number of road segments identified on Figure 4.3 (Appendix 4) as having potential for over-control within a nearby SWMF. In responding to this letter , please outline how the assessment of this potential will be coordinated so that opportunities to effectively mitigate erosion and quantity control are not missed.	
10	A number of the Ganatsekiagon SWMF's, identified on Figure 4.3 (Appendix 4) as providing direct stormwater management or having potential for over-control for the City roads, discharge to watercourse reaches with Redside Dace requirements under the Endangered Species Act. Through the subdivision development process, it has been flagged that the SWMF blocks for several subdivisions with approved draft plans are too small. In responding to this letter , please outline how this issue be coordinated.	
Watercourse Crossings - General		
11	It is not clear from Table 3.7 or from the Road Checklists (Appendix 3-3) which criteria are controlling the crossing dimensions. Please clarify and include this information for all watercourse crossings, recognizing that all information will need technical review at the pre-design and detailed design stages and that no crossing dimensions proposed in the ESR are be considered acceptable to TRCA staff.	
12	As per the Road Checklists (Appendix 3-3), the hydraulic analysis from the NFSSRs (2013) have not been updated for this Class EA. TRCA staff did not complete a full review of any of the NFSSRs. Therefore any analysis from a NFSSR which is used for the design of a crossing should be updated and included as an appendix. Please include the hydraulic analysis for all crossings as part of the pre-design work. Without reviewing this information, TRCA staff cannot confirm that flood risk will not increase as a result of the proposed crossings or confirm that the MESPA criteria have been met. As such, no crossings proposed in the ESR should be considered acceptable to TRCA staff.	
East-West Arterial Road, Crossing 2		
13	The Road Checklists (Appendix 3-3) list a length of 53 m while Table 3.7 lists a length of 50 m. Please review for consistency and address at the pre-design stage.	
14	Please add the existing and proposed floodline, 100 year erosion limit, and the meander belt width to Figure CR2 (Appendix 4-2-3). Please address at the pre-design stage.	
15	Section 2.2.2.2 of the Beacon Geomorphic Assessment (Appendix 3-2-3) states that the N19 FSSR (2013) recommended a span of 12.81 m based on the 100 year erosion limit. TRCA staff did not complete a full review of any of the NFSSRs; therefore, any analysis from a NFSSR should be included as an appendix in this report. Section 4.1.2 of the Beacon Geomorphic Assessment (Appendix 3-2-3) references the meander amplitude and concludes that the recommended span of 12.81 m is sufficient. This updated assessment is not adequate as the updated assessment must show that the recommended width is sufficient to span the 100 year erosion limit. The 100 year erosion limit was identified in Section C6.4.2 of the MESPA as the minimum criteria to minimize the risks of damage to the bridge / culvert from watercourse channel migration, erosion and scour, and avoid the need for future channel realignment or hardening. As such, this crossing as proposed in the ESR should not be considered acceptable to TRCA staff and will need to be addressed at the pre-design stage.	
16	TRCA staff noted that this reach was identified as Redside Dace contributing habitat. At a minimum, this ESR should identify the regulatory requirements under the Endangered Species Act to ensure the proposed sizes are reasonable for coordination and budgeting purposes. TRCA staff	

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	respects that this will be addressed in consultation with MNRF staff when this project moves forward to pre-design .	
17	The Road Checklists (Appendix 3-3) states that the N19 FSSR (2013) recommended that stormwater from the road at crossing 2 could be directed to a SWMF (potentially #40 or #41). Table 3.7 states that stormwater management is to be determined at detailed design. Figure 4.3 (Appendix 4) identified potential quantity control for uncontrolled collector road to be accommodated through over-control within SWMF #40 to be confirmed at detailed design. The Road Checklists (Appendix 3-3) states that there is potential for quantity control at SWMF #40. <u>Thus, it is not clear what is being proposed or what recommendations should be explored by whom.</u> If possible, drainage from the road should be directed to a SWMF to provide quality, erosion, and quantity control. If it is not feasible to direct drainage from the road to a SWMF, then over-control should be explored. However, over-control is not ideal because quality and erosion control shall still need to be addressed through on-site control measures. It is important for coordinating and budgeting that the preliminary SWM plan identifies feasible opportunities otherwise chances to properly mitigate quality, erosion, and flooding impacts may be missed. As such, no crossings proposed in the ESR should be considered acceptable to TRCA staff and will need to be addressed at the pre-design stage .	
East-West Arterial Road, Crossing 3		
18	The Road Checklists (Appendix 3-3) lists a length of 25 m while Table 3.7 lists a length of 45 m. Please review for consistency and confirm that flood risk will not increase as a result of the proposed crossing. Please review for consistency and address at the pre-design stage .	
19	Please add the existing and proposed floodline, 100 year erosion limit, and the meander belt width to Figure CR3 (Appendix 4-2-3). Please address at the pre-design stage .	
20	Section 2.2.2.2 of the Beacon Geomorphic Assessment (Appendix 3-2-3) states that the N18&19 FSSR (2013) recommended a span of 6 m based on a risk based approach. TRCA staff did not complete a full review of any of the NFSSRs; therefore, any analysis from a NFSSR should be included as an appendix in this report. Section 4.1.2 of the Beacon Geomorphic Assessment (Appendix 3-2-3) concludes that the recommended span of 6 m is sufficient. However, the risk based approach does not achieve the 100 year erosion limit, which was identified in Section C6.4.2 of the MESPA as the minimum. In addition, it is not clear why five times the bankfull width was used. As such, no crossings proposed in the ESR should be considered acceptable to TRCA staff and will need to be addressed at the pre-design stage .	
21	TRCA staff noted that this reach was identified as Redside Dace contributing habitat. At a minimum, this EA should identify the regulatory requirements under the Endangered Species Act to ensure the proposed sizes are reasonable for coordination and budgeting purposes. TRCA staff respects that this will be addressed in consultation with MNRF staff when this project moves forward to pre-design .	
East-West Arterial road, Crossing 4		
22	The Road Checklists (Appendix 3-3) lists a length of 50 m and a width of 1.9 m while Table 3.7 lists a length of 42 m and a width of 1.85 m. Please review for consistency and address at the pre-design stage .	
23	Please add the existing and proposed floodline to Figure CR4 (Appendix 4-2-3). Further, as per the recommended design from Table 3.7, Figure CR4 should show two culverts. Please address at the pre-design stage .	
24	The Road Checklists (Appendix 3-3) states that the N18 FSSR (2013) recommended that stormwater from the road at crossing 4 could be directed to SWMF #18. Table 3.7 states that stormwater management is to be determined at detailed design. Figure 4.3 (Appendix 4) identified potential quantity control for uncontrolled collector road to be accommodated through over-control within SWMF #36. The Road Checklists (Appendix 3-3) states that there is potential for quantity control at SWMF #36. Thus, it is not clear what is being proposed or what recommendations should be explored moving forward. If possible, drainage from the road should be directed to a SWMF to provide quality, erosion, and quantity control. If it is not feasible to direct drainage from the road to a SWMF, then over-control should be explored. However, over-control is not ideal because quality and erosion control shall still need to be addressed through on-site control measures. These details should be addressed at the pre-design stage to avoid delays at the detailed design/permitting stage. It is also imperative at this stage to ensure property requirements needed to implement on site SWM controls are acquired.	

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East-West Arterial road, Crossing 9		
25	The Road Checklists (Appendix 3-3) lists a length of 53 m while Table 3.7 lists a length of 48 m. Further, the Road Checklists (Appendix 3-3) and Figure CR-9 includes a recommendation for an open bottom which is not included on Table 3.7. Please review for consistency and address at the pre-design stage .	
26	Please add the existing and proposed floodline, and the 100 year erosion limit to Figure CR9 (Appendix 4-2-3). Please address at the pre-design stage .	
27	Section 2.2.2.2 of the Beacon Geomorphic Assessment (Appendix 3-2-3) states that the N18 FSSR (2013) recommended a span of 7 m but it is not clear how this recommendation was determined. TRCA staff did not complete a full review of any of the NFSSRs; therefore, any analysis from a NFSSR should be included as an appendix in this report. Section 4.1.2 of the Beacon Geomorphic Assessment (Appendix 3-2-3) concludes that the recommended span of 7 m is sufficient. This updated assessment is not adequate as the updated assessment must show that the recommended width is sufficient to span the 100 year erosion limit. As such, no crossings proposed in the ESR should be considered acceptable to TRCA staff and will need to be addressed at the pre-design stage .	
28	The Road Checklists (Appendix 3-3) states that the N18 FSSR (2013) recommended that stormwater from the road at crossing 9 could be directed to a SWMF (potentially #18 or #31). Table 3.7 states that stormwater management is to be determined at detailed design. Figure 4.3 (Appendix 4) identified potential quantity control for uncontrolled collector road to be accommodated through over-control within SWMF #31. The Road Checklists (Appendix 3-3) states that there is potential for quantity control at SWMF #31. Thus, it is not clear what is being proposed or what recommendations should be explored moving forward. If possible, drainage from the road should be directed to a SWMF to provide quality, erosion, and quantity control. If it is not feasible to direct drainage from the road to a SWMF, then over-control should be explored. However, over-control is not ideal because quality and erosion control shall still need to be addressed through on-site control measures. These details should be addressed at the pre-design stage to avoid delays at the detailed design/permitting stage. It is also imperative at this stage to ensure property requirements needed to implement on site SWM controls are acquired.	
Sideline 24, Crossing 11		
29	The Road Checklists (Appendix 3-3) lists a width of 5.0 m while Table 3.7 lists a width of 7.0 m. Please review for consistency and document how the span of 7.0 m was determined. Please review for consistency and address at the pre-design stage .	
30	Please add the existing and proposed floodline to Figure CR11 (Appendix 4-2-3). Please address at the pre-design stage .	
31	TRCA staff have noted that this reach was identified as Redside Dace contributing habitat. At a minimum, this EA should identify the regulatory requirements under the Endangered Species Act to ensure the proposed sizes are reasonable for coordination and budgeting purposes. TRCA staff respects that this will be addressed in consultation with MNR staff when this project moves forward to pre-design .	
32	The Road Checklists (Appendix 3-3) states that the N16 FSSR (2013) recommended that stormwater from the road at crossing 11 could potentially be directed to a SWMF or on-site treatment within the mixed use block on the north side of Taunton Rd (potentially SWMF #12). Table 3.7 states that stormwater management is to be determined at detailed design and list some options for on-site quality treatment. Thus, it is not clear what is being proposed or what recommendations should be explored by whom moving forward. If possible, drainage from the road should be directed to a SWMF to provide quality, erosion, and quantity control. If it is not feasible to direct drainage from the road to a SWMF, then over-control should be explored. However, over-control is not ideal because quality and erosion control shall still need to be addressed through on-site control measures. The proposed stormwater mitigation measures must address quality, erosion, and flooding. These details should be addressed at the pre-design stage to avoid delays at the detailed design/permitting stage. It is also imperative at this stage to ensure property requirements needed to implement on site SWM controls are acquired.	
Sideline 24, Crossing 12		
33	Please add the existing and proposed floodline, 100 year erosion limit, and meander belt width to Figure CR12 (Appendix 4-2-3). Please address at the pre-design stage .	

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34	Section 2.2.2.2 of the Beacon Geomorphic Assessment (Appendix 3-2-3) states that the N19 FSSR (2013) recommended a span of 15 m. Section 4.1.2 of the Beacon Geomorphic Assessment (Appendix 3-2-3) references the meander amplitude and 100 year erosion limit and recommends a span of 19 m. Please provide documentation so that TRCA staff can verify the recommended span. In addition, the Road Checklists (Appendix 3-3) lists a width of 19 m but Table 3.7 lists a width of 15 m. Figure CR12 lists a width of 18.6 m. Please review for consistency. As such, no crossings proposed in the ESR should be considered acceptable to TRCA staff and will need to be addressed at the pre-design stage .	
35	TRCA staff have noted that this reach was identified as Redside Dace occupied habitat. It is our understanding that MNFR's requirement under the Endangered Species Act will be to span the meander belt width. Thus, please include documentation of the meander belt width to ensure the proposed span is reasonable for coordination and budgeting purposes. TRCA staff respects that this will be addressed in consultation with MNRF staff when this project moves forward to pre-design .	
36	The Road Checklists (Appendix 3-3) states that the N19 FSSR (2013) recommended that quantity control for the road at crossing 12 could be provided with over-control in SWMF #22a. Then the Checklist states that the Class EA finding is that over-control cannot be provided. Additional information, including grading constraints and/or pond block constraints, is needed to document this new finding. It is not clear what is being proposed or what recommendations should be explored by whom moving forward. It is important for coordinating and budgeting that the preliminary SWM plan identifies feasible opportunities otherwise chances to properly mitigate quality, erosion, and flooding impacts may be missed. These details should be addressed at the pre-design stage to avoid delays at the detailed design/permitting stage. It is also imperative at this stage to ensure property requirements needed to implement on site SWM controls are acquired.	
Employment Collector Road, Crossing 16		
37	Please document how the recommendation in Table 3.7 for three 250 mm culverts was determined since it does not match the hydraulic findings of the N21 FSSR which are documented in the Road Checklists (Appendix 3-3). Please review for consistency. As such, no crossings proposed in the ESR should be considered acceptable to TRCA staff and will need to be addressed at the pre-design stage .	
Employment Collector Road, Crossing 17		
38	Please add the existing and proposed floodline, and 100 year erosion limit to Figure CR17 (Appendix 4-2-3). Please address at the pre-design stage .	
39	Section 2.2.2.2 of the Beacon Geomorphic Assessment (Appendix 3-2-3) states that the N21 FSSR (2013) concluded the hydraulic span of 6.0 m was sufficient. However, Table 4 the Beacon Geomorphic Assessment lists a NFSSR span recommendation of 10 m. Please clarify what is recommended in the N21 FSSR for this crossing. TRCA staff did not complete a full review of any of the NFSSRs; therefore, any analysis from a NFSSR should be included as an appendix in this report. Further please demonstrate that the crossing will span the 100 year erosion limit. As such, no crossings proposed in the ESR should be considered acceptable to TRCA staff and will need to be addressed at the pre-design stage .	
Employment Collector Road, Crossing 18		
40	Please add the existing and proposed floodline, and 100 year erosion limit to Figure CR18 (Appendix 4-2-3). Please address at the pre-design stage .	
41	Section 2.2.2.2 of the Beacon Geomorphic Assessment (Appendix 3-2-3) states that the N21 FSSR (2013) concluded a span of 3.6 m was sufficient based on a risk based approach. However, Table 4 the Beacon Geomorphic Assessment lists a NFSSR span recommendation of 25 m. TRCA staff did not complete a full review of any of the NFSSRs; therefore, any analysis from a NFSSR should be included as an appendix in this report. Further, the crossing span must show that the recommended width is sufficient to span the 100 year erosion limit. As such, no crossings proposed in the ESR should be considered acceptable to TRCA staff and will need to be addressed at the pre-design stage .	
42	The Road Checklists (Appendix 3-3) states that the N21 FSSR (2013) recommended that stormwater from the road at crossing 18 could be directed to SWMF #36. Table 3.7 states that stormwater management is to be determined at detailed design. Figure 4.3 (Appendix 4) identified potential quantity control for uncontrolled road to be accommodated through over-control within SWMF #63. The Road Checklists (Appendix 3-3) states that there is potential for quantity control at SWMF #63. Thus, it is not clear what is being proposed or what recommendations should be explored by	

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	whom moving forward. If possible, drainage from the road should be directed to a SWMF to provide quality, erosion, and quantity control. If it is not feasible to direct drainage from the road to a SWMF, then over-control should be explored. However, over-control is not ideal because quality and erosion control shall still need to be addressed through on-site control measures. It is important for coordinating and budgeting that the preliminary SWM plan identifies feasible opportunities otherwise chances to properly mitigate quality, erosion, and flooding impacts may be missed. These details should be addressed at the pre-design stage to avoid delays at the detailed design/permitting stage. It is also imperative at this stage to ensure property requirements needed to implement on site SWM controls are acquired.	
Employment Collector Road, Crossing 19		
43	Please add the existing and proposed floodline, 100 year erosion limit, and the meander belt width to Figure CR19 (Appendix 4-2-3). Please address at the pre-design stage .	
44	Section 2.2.2.2 of the Beacon Geomorphic Assessment (Appendix 3-2-3) states that the N19 FSSR (2013) concluded the span should be based on hydraulic and wildlife passage. TRCA staff did not complete a full review of any of the NFSSRs; therefore, any analysis from a NFSSR should be included as an appendix in this report. Further, the crossing span must show that the recommended width is sufficient to span the 100 year erosion limit. As such, no crossings proposed in the ESR should be considered acceptable to TRCA staff and will need to be addressed at the pre-design stage .	
45	TRCA staff noted that this reach was identified as Redside Dace contributing habitat. At a minimum, this EA should identify the regulatory requirements under the Endangered Species Act to ensure the proposed sizes are reasonable for coordination and budgeting purposes. TRCA staff respects that this will be addressed in consultation with MNRF staff when this project moves forward to pre-design .	
Employment Collector Road, Crossing 21		
46	Please add the existing and proposed floodline, 100 year erosion limit, and the meander belt width to Figure CR21 (Appendix 4-2-3). Please address at the pre-design stage .	
47	Section 2.2.2.2 of the Beacon Geomorphic Assessment (Appendix 3-2-3) states that the N19 FSSR (2013) recommended a span of 9.3 m based on a risk based approach. Section 4.1.2 of the Beacon Geomorphic Assessment (Appendix 3-2-3) references the meander amplitude and 100 year erosion limit and recommends a span of 13 m. Please provide documentation so that TRCA staff can verify the recommended span. As such, no crossings proposed in the ESR should be considered acceptable to TRCA staff and will need to be addressed at the pre-design stage .	
48	TRCA staff have noted that this reach was identified as Redside Dace contributing habitat. At a minimum, this EA should identify the regulatory requirements under the Endangered Species Act to ensure the proposed sizes are reasonable for coordination and budgeting purposes. TRCA staff respects that this will be addressed in consultation with MNRF staff when this project moves forward to pre-design .	
49	The Road Checklists (Appendix 3-3) states that the N19 FSSR (2013) recommended that stormwater from the road at crossing 21 could be directed to a SWMF #54. Table 3.7 states that stormwater management is to be determined at detailed design. Figure 4.3 (Appendix 4) identified potential quantity control for uncontrolled collector road to be accommodated through over-control within SWMF #54 to be confirmed at detailed design. The Road Checklists (Appendix 3-3) states that there is potential for quantity control at SWMF #54. Thus, it is not clear what is being proposed or what recommendations should be explored by whom moving forward. If possible, drainage from the road should be directed to a SWMF to provide quality, erosion, and quantity control. If it is not feasible to direct drainage from the road to a SWMF, then over-control should be explored. However, over-control is not ideal because quality and erosion control shall still need to be addressed through on-site control measures. It is important for coordinating and budgeting that the preliminary SWM plan identifies feasible opportunities otherwise chances to properly mitigate quality, erosion, and flooding impacts may be missed. These details should be addressed at the pre-design stage to avoid delays at the detailed design/permitting stage. It is also imperative at this stage to ensure property requirements needed to implement on site SWM controls are acquired.	
Trails		
50	Table 3.6 notes that trail design will need to be considered as a part of this work. It then goes on to reference the Road Crossing checklist which defers the trail work to detailed design. As noted above, road design and crossing spans will need to be re-examined in the next phase of work to	

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	determine whether pedestrian passage is also required at each of the crossings within the NHS. This will need to be addressed at pre-design .	
51	Section 3.2.9 c) references the Seaton Natural Heritage System Management Plan and Master Trails Plan. The Master Plan identifies several primary trail connections. Please ensure all connections as identified in that report are carried forward into the pre-design stage and that crossing structures will be sized to accommodate the trail users throughout as part of the proposed sustainable community design within Seaton.	
Hydrogeology		
52	Please refer to 'Hydrogeological Assessment Submissions : Conservation Authority Guidelines for Development Applications' for guidance in preparing the detailed design submission. It is available at the following weblink : http://www.trca.on.ca/dotAsset/214690.pdf . In particular, Table 1 should provide a useful checklist of general expectations.	
53	The draft ESR does not clearly identify areas in which groundwater concerns are anticipated. Key areas, such as where infrastructure proposed in or adjacent to wetland areas, should be identified. In addition, areas of groundwater upwellings should be identified at the predesign stage to ensure costing and design for crossing structures is evaluated.	
54	While undertaking geotechnical investigation borings, laboratory testing and analyses may be deferred to detailed design to finalize design and construction recommendations. However, at a minimum a desktop geotechnical/hydrogeological analysis should be undertaken utilizing existing boreholes and monitoring wells in the area. This should be conducted at the outset of detailed design for all project areas.	
55	As part of the desktop geotechnical/hydrogeological analysis, water table elevations (including seasonal fluctuations), groundwater flow direction, groundwater quality, nearby receiving surface waters (wetlands, watercourses, or other significant features), etc. should be described, so that potential changes to water table elevation, groundwater flow direction, reduction to baseflow, impacts on water quality, etc. can be evaluated especially in areas such as where infrastructure is proposed in or adjacent to wetland properties. This should be conducted at the outset of detailed design for all project areas.	
56	The draft ESR does not clearly identify how maintenance of recharge and maintenance of ground water quality will be achieved. Please be advised that the subject property appears to fall within a Highly Vulnerable Aquifer under the Credit Valley-Toronto & Region-Central Lake Ontario Source Protection Plan (CTC SPP). TRCA supports the legislated protection of municipal drinking water sources through the Clean Water Act and acts as a technical advisor to municipalities in their role for implementing some aspects of the CTC SPP. For more information please visit http://www.ctcswp.ca/ . This should be addressed at the outset of detailed design for all project areas.	
57	Infrastructure construction below the water table should involve the use of cut-off collars or clay plugs to provide barriers to flow to prevent groundwater movement along granular bedding and erosion of the backfilled material. This should be conducted at the outset of detailed design for all project areas.	
58	Please consider Appendix C: Water Balance and Recharge of TRCA's Stormwater Management Criteria when designing LIDs (http://sustainabletechnologies.ca/wp/wp-content/uploads/2013/01/SWM-Criteria-2012.pdf). TRCA staff further requires a plan view and a cross section complete with borehole / monitoring wells schematic of layout for LIDs at this time to evaluate the feasibility of implementing the proposed LIDS. Please also consider potential adverse impacts of infiltrating water potentially affected by road salting especially in relation to source water protection considerations. This should be conducted at the outset of detailed design for all project areas.	
59	The borehole logs should provide geodetic information and static groundwater elevations. In order to evaluate groundwater conditions relative to the proposed infrastructure construction, especially when reviewing the proposed profiles / cross-sections, TRCA staff recommends that the groundwater elevations be included on the profiles for analysis at the detailed design stage.	
Geotechnical (Detailed Design Comments)		
60	A detailed geotechnical study is required in support of the proposed undertaking to assess the ground conditions along the alignments and to provide the geotechnical design recommendations for the various components of the proposed undertaking.	
61	Where valley slopes exist, a slope stability and erosion hazard assessment is required to ensure that the proposed work is not undermined by an erosion hazard in the long-term or does not destabilize the valleys. The position of the Long-Term Stable Top of Slope needs to be delineated with a	

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	minimum safety factor of 1.50 to define the setback required from the existing top of bank/slope. Please provide.	
62	Where any stabilization is required due to active erosion in the valleys, the stabilization should be designed by geotechnical engineer to ensure that a minimum safety factor of 1.50 is met after stabilization. Please provide.	
63	Any retaining walls, abutments and wing walls should be designed by a qualified engineer using geotechnical information. The global stability should also be checked for the walls to confirm that a minimum safety factor of 1.50 is met against global instability. Please provide as part of the design plans for review.	
64	The culverts should be designed by a qualified engineer using relevant geotechnical information. Suitable foundations are required for the culverts as per the ground conditions. Please provide as part of the design plans for review.	
65	Cross-sections should be provided along the alignments in adequate intervals, which shows the proposed grade with respect to the existing ground. Cross-sections should be extended enough to show all the features and slopes/banks where existing. The extent of the proposed grading should also be shown along the alignment.	
66	Any proposed embankments should be studied and designed by geotechnical engineer. A stability assessment is required for the embankments to ensure that a minimum safety factor of 1.50 is achieved.	
67	Any proposed cuts should be studied by geotechnical engineer. A stability assessment is required to confirm that the proposed side slopes for the cuts satisfies a minimum safety factor of 1.50.	
68	All engineering drawings for any retaining walls, abutments and wing walls, culverts, stabilization works, embankments and cuts should be prepared showing all necessary details and specifications and submitted as signed and sealed by Licensed Professional Engineer.	
69	Where the work is in proximity to steep slopes and valleys, the construction methodology and sequencing should be presented to ensure that the surrounding ground/slope is not adversely impacted during the construction.	
70	Where work requires construction access into the steep slopes and valleys, the cross-sections and profile should be presented for the access. A slope stability assessment is required to study the cross-sections (cuts and fills) and to confirm that slope stability is met. The slope stability analyses should also account for the heavy machinery/equipment loads and vibrations.	
71	If the construction results in alterations and disturbance into slopes and valleys, stabilization is required to be reviewed by the geotechnical engineer. Given the slope geometry and the extent of the alterations, the stabilization may require to be engineered (e.g. engineering structures) to ensure that the stabilization remains stable in long-term with a minimum safety factor of 1.50. Further, all necessary engineering details, cross-sections should be prepared by geotechnical engineer and submitted as signed and sealed by Licensed Professional Engineer	
72	Where any trenchless installation for infrastructure below the watercourse is required (utility, water, wastewater relocations/work), the pertinent geotechnical studies should be conducted to provide the required site characterization. The trenchless installation should be designed by specialty consultant or contractor using the geotechnical information and recommendations. The adequate cover from the bottom of the watercourse should be determined as per the design. The cross-sections and site plan showing the alignment and entry and exit pits/shafts and the cover from the bottom of the watercourse and other infrastructures should be also submitted in support of the proposed undertaking. The design should also ensure that the proposed trenchless installation does not cause the inadvertent return of drilling fluid (frac-out) or excess settlement on the ground along the alignment. Further, the shafts or pits required for the proposed trenchless installation should be properly stabilized by the means of shoring or other techniques. The details of such stabilization should be also prepared by qualified engineer and submitted as signed and sealed by Licensed Professional Engineer.	
General Comments on the Draft ESR		
73	Section 1.1.5 indicates that the third NFSSR submission was used for the purposes of the ESR. It was noted at several of our meetings and in email correspondence that we will not be reviewing the submission against the NFSSR documents as they were never approved by the TRCA or City, as identified to the landowners during the OMB process. The NFSSR's should only have been used as a starting point on which further analysis should have been undertaken to inform decisions made in this ESR.	

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74	The costing provided for each road in Section 1.2 may change based on the requirements noted in this letter and related studies which have yet to be completed. It is imperative that the City/developers groups note this as part of their budgeting process as these studies should have been completed as part of the ESR, but have been deferred to the design stage. It should also be clarified that costing at this time is unknown, particularly at the crossing locations within the NHS as these studies have not been completed.	
75	Tables 3.1 and 4.3: The Data Gap Analysis table and Summary of Evaluation Criteria table appears to be missing stormwater, hydraulics, flooding and fluvial geomorphology. This will need to be assessed fully in the next phase of work.	
76	Table 3.6 references a HADD under the Fisheries section. This section does not reflect the current Fisheries Act. Designs will need to re-examine impacts in relation to this legislation to ensure it is both current and relevant.	
77	Section 6, Pg 4-13, TRCA Policies: The detailed designs will need to meet our policies for infrastructure for not only the section mentioned, but all pertinent sections including those that deal with recreational uses (trails), stormwater and natural features for instance. Please refer to TRCA's The Living City Policies for all relevant sections including but not limited to 7.4.1.1 (Stormwater Management), 7.4.1.2 (Source Water Protection), 7.4.2.1 (Natural Features and Areas Management Policies), 7.4.3 (Natural Hazard Management) and 7.4.4.1 (General Policies for Infrastructure) for example.	
78	Section 4.5 notes that the ESR does not identify and consider multiple design concepts as would normally be done in a Phase 3 and 4 ESR, but that the design concepts evolved through discussions with the City and Region. Review of the options was difficult to follow as Table 4.4 did not show how the recommended alternative was chosen based on evaluation of all socio-economic and environmental impacts. We also typically see an evaluation of each option including information on how those options will impact the NHS (watercourses, wetlands), flood plain, etc. It is unclear if this has been done. Please advise how this will be addressed when responding to this letter.	
79	Page 4-27: It is noted that four lanes cannot be accommodated at the majority of the intersections as a result of property constraints identified in existing draft plans. Is it the City's intention to keep these roads as two lanes in perpetuity?	
80	Page 6-19, Agency Meeting #4: If the ESR will be filed prior to this meeting date then please remove from the ESR or revise the paragraph accordingly. We trust this has been updated in the final ESR.	
81	Please ensure all TRCA correspondence is included in the ESR and available as part of the record for future reference at the pre-design/design stages. Table 6.5 is missing some of the edits to the minutes. Comments provided at the May 1, 2015 meeting and on the March 6, 2017 meeting have also not been fully incorporated into the table. In addition, Appendix 6, Meeting Minutes of March 6, 2017, please ensure the TRCA email correspondence sent March 27, 2017 regarding comments on the minutes is included. Other email correspondence, for instance, Steve Heuchert's email of May 21, 2015 regarding the status of the NFSSR documents cannot be located in the EA. Please advise when responding to this letter.	
82	Section 7.2 of the ESR notes that "Upon completion of this study and upon compliance with the MEDEI Public Work Class EA parcels required for NHS crossings by the subject roads will be transferred to the municipality", and that "This study demonstrates compliance with the MEDEI Public Work Class EA (Public Work Class EA) for disposition of lands...". Please note that as per the comments above, it remains unclear as to how much land is required to be transferred as there is a substantial amount of work that still needs to be completed which may impact land requirements.	
83	Section 8.3 Approvals and Permits, Toronto and Region Conservation Authority (TRCA) – Please note that work within any TRCA regulated area including wetlands and valleys will also require permits. In addition, permits will need to address and meet our requirements for the five (5) tests under the Conservation Authorities Act for flooding, erosion, dynamic beaches, pollution and conservation of lands.	
84	On page 8-5, the Migratory Bird Convention Act is discussed. Sections 10 and 12 provide different dates for when tree removals should be avoided. Please note that tree clearing should occur between September and March, however, additional restrictions on the timing of removals may be needed to protect endangered bat species. The final timing window will be determined at the detailed design stage based on the relevant legislation, guidelines and mitigation measures. Please note that if grading, including grubbing, is undertaken in conjunction with tree removals, then a permit from TRCA is required for works in regulated areas.	
85	It would appear that watercourse realignments will be required as a part of this work. As this analysis has not been completed at this stage, more in	

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	depth analysis will be required in the next phase of work. TRCA should be contacted at the pre-design stage to ensure appropriate studies are completed as there may be budget impacts and as such the structures proposed in this ESR should not be used for costing purposes.	
86	The gap analysis appears to be missing a few key components. In addition, to identifying the gaps, the ESR should have addressed some of this missing information in the form of studies to provide a clearer move forward approach for the design stage. As it stands, this work is deferred to the design team. Refer to the comments provided above and all items in the EA deferred to the design stage. Again this may result in significant changes to infrastructure costing. As such, crossings should not be determined using the information in the ESR, but should be deferred to the pre-design stage and detailed design stages once appropriate studies have been completed and a 30% design prepared and approved in principle by TRCA.	
87	Several of the figures in the ESR are too small to be legible (e.g., Figures 4.2 and 4.3) Please ensure future figures provided to support and guide functional design assessments are legible.	
88	Site visits will be required in the next phase of work for all crossings within the NHS. It is recommended that these site visits occur at the outset of the pre-design stage or prior to commencement of detailed design and used to confirm study requirements.	

APPENDIX B - Section to be added to the Seaton Local Roads EA

The Seaton Roads (Phases 3-4) Class EA Study represents the culmination of the environmental planning process for the three subject City roads in accordance with the Municipal Class EA (as amended 2015). The general location of the City roads has been established through the MESPA and Municipal Class EA.

Prior to detailed design of the subject City roads the proponent, TRCA and City agree to prepare, review and approve a signed agreement known as the TRCA-City protocol. It is agreed that this protocol will be authorized in a timely manner by all parties immediately following the completion of the EA. It is recognized by all parties that where the road is associated with a draft plan of subdivision that has been approved by the Ontario Municipal Board the approved draft plan conditions will prevail.

The City and TRCA will require the preparation of Functional Servicing and Stormwater Reports (FSSRs) to be prepared by the proponents for each development and the related City roads, including the crossing structures. The preparation of the FSSRs and detailed design process will both occur in consultation with and to satisfaction of the City of Pickering and TRCA with respect to the road design/construction through the Seaton NNS.

In addition, permits in accordance with Ontario Regulation 166/06 are required from TRCA prior to project construction. In advance of the permit submission, a Pre-Design Brief summarizing all TRCA requirements and technical commitments made during the EA stage will need to be completed and submitted, in draft, to TRCA for review together with a copy of the TRCA permit application form. The *TRCA Pre-Design Brief Checklist for Proponents* is attached, and should be used as a guide for submission. The draft Pre-Design Brief should also identify how the comments provided by TRCA on the draft and final ESR's will be addressed.

The mitigation measures and permits established as commitments by the proponent in Section 8, Implementation of this Environmental Study Report will be undertaken with special attention to the Design Considerations for City Roads through the Natural Heritage System (NHS), found in Table 3.6, the comments provided by TRCA on the draft and final ESR's and any additional comments related to TRCA's review at the design/permitting stage, including but not limited to:

- A detailed evaluation of the NHS within any area of disturbance to fully identify potential mitigation requirements and losses as a result of construction
- Compensation requirements as a result of impacts to the natural heritage system, to the City and TRCA's satisfaction
- Analysis of each of the crossing structures within the NHS including:
 - ecological studies to determine whether wildlife passage is required
 - confirmation from the City of Pickering, TRCA and Durham Region if the crossing structures need to accommodate pedestrian trails
 - Geotechnical studies
 - Updated fluvial geomorphic studies, if required
 - Hydraulic analysis for all watercourse crossings
 - Hydrogeology studies
- Survey of the existing watercourses to confirm location of features at the design stage to inform the location and design of the crossing structures
- A report to indicate how the crossing project(s) ensure(s) that coordinated quality, quantity, erosion control, and measures to mitigate flooding impacts will be implemented.

Refinements to the technical, environmental or social aspects of the projects or their mitigation measures will be based on the above and may continue to be refined in accordance with the TRCA-City protocol. Permits in accordance with TRCA's Ontario Regulation 166/06 will not be issued until such time as all requirements have been addressed in the design.

It is further understood that new or emerging legislation, regulations or guidelines may affect design requirements, final construction details, restoration/compensation and anticipated costing to construct the roads, crossing structures (bridges/culverts) and other associated infrastructure. TRCA may also update its pre-design brief. As such an update to the copy should be requested. Further, TRCA advises that it should be consulted in order to ensure appropriate studies are commissioned and completed prior to the start of the design process.