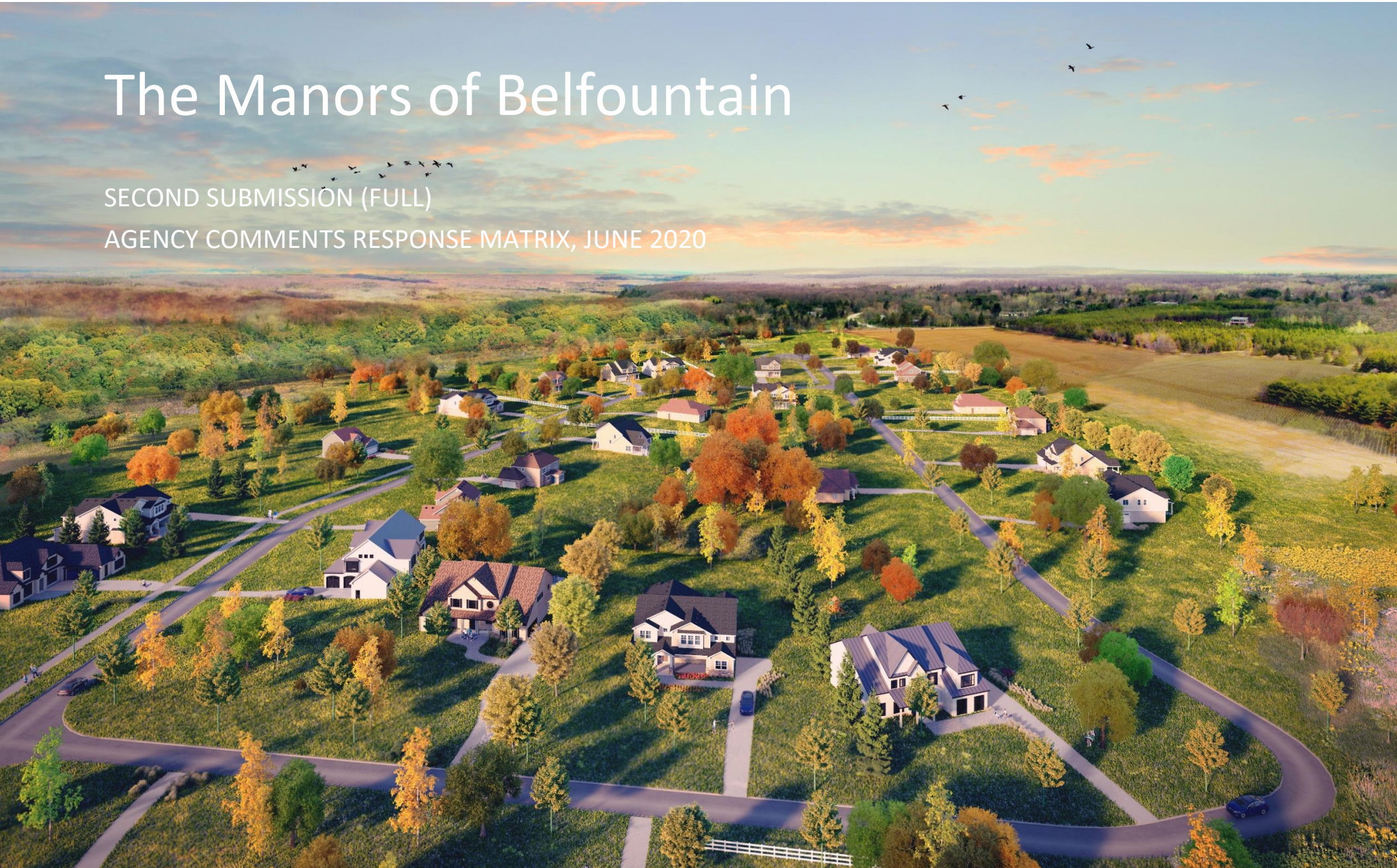
The Manors of Belfountain

SECOND SUBMISSION (FULL)

AGENCY COMMENTS RESPONSE MATRIX, JUNE 2020



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Niagara Escarpment Commission (NEC) Comments

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Niagara Escarpment Commission September 21st, 2018		Nancy Mott, Senior Strategic Advisor Office: (905)-877-8363 | nancy.mott@ontario.ca		
No.	**Comment:**	**Comment by:**	**Response by:**	**Responses:**
	Stage 1 and 2 Archaeological Assessment			
1	Although no archaeological resources were located, the report notes that there is "potential for the presence of pre-contact aboriginal and Euro-Canadian archaeological resources". Have you consulted with First Nations or provided them with a copy of this report and the Cultural Heritage Resource Assessment? If not, NEC staff will provide a copy of the reports to the appropriate First Nation and invite their comments.	NEC	MDTR	The MTCS provided comments in their letter of May 6, 2019 and deemed the archaeological assessment prepared by ASI (dated March 12, 2019) to be satisfactory. No further archaeological assessment of the subject property is recommended. A copy of this letter is provided under separate cover for reference. The NEC has consulted First Nations communities for comments and confirmed none.
2	The Recommendations of the report indicate that the MTCS may require documentation indicating that development cannot take place on Block 78. Although these lands are in the Escarpment Natural Area designation, development is not prohibited. Since zoning is not in effect on these lands, how does your client intend to address the recommendation to prohibit development? If the lands are conveyed to CVC, would an easement agreement be placed on the property or would your client be prepared to enter into a Development Permit agreement pursuant to Section 24.(2.1) to restrict the use of that Block?	NEC	MDTR	The applicant would consider either an easement agreement with CVC or enter into a permit pursuant to s. 24 (2.1) to restrict the use of Block 78.

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	Cultural Heritage Resource Assessment (CHRA)			
3	The January 2018 version of the CHRA did not contain an analysis of the policies of the Niagara Escarpment Plan, 2017 (NEP 2017). A revised version was provided by the applicant on July 30 but the policy analysis is lacking. The NEC was established in 1973 and the first Plan came into effect in 1985. Rather than simply referencing the policies in the NEP, NEC staff are seeking an analysis of how the development is not in conflict with NEP policies, particularly with respect to Part 2.10.2. The CHRA suggests that the heritage impact assessment (HIA) could be a condition of draft plan approval. NEC staff are of the opinion that NEP requires the submission of the HIA now, in order to inform a decision on the Development Permit application, which precedes subdivision approval.	NEC	ASI	The CHRA (Section 2) provided in the May 2019 submission was updated to include policy analysis for NEP. Further, the following was included in Section 2.2 of the CHIS: *Section 2.10.2 of the Niagara Escarpment Plan (2017) states that "Where proposed development is likely to impact cultural heritage resources or areas of archaeological potential . . . [t]he proponent must demonstrate that heritage attributes will be conserved through implementation of proposed mitigative measures and/or alternative development approaches". As identified in Tables 3 and 4, the proposed development includes significant mitigative measures and approaches to conserve identified heritage attributes throughout the site*. HIA was included as part of the May 2019 submission. The current submission includes an addendum letter to the CHRA and HIA speaking to the updated draft plan.
4	NEC staff has provided a copy of the comments from the MTCS for review. There will be ongoing discussions with respect to the need for additional study in response to those comments.	NEC	ASI	Please refer to responses to MTCS comments on this Matrix. Also refer to response to comment no. 1 above Documents will be updated as needed following receipt of any subsequent MTCS comments.

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	Noise Impact Study			
5	**Introduction**: report does not acknowledge that a development permit is also required and incorrectly refers to Shaws Creek Road rather than Shaws Creek	NEC	Swallow Thornton Tomasetti	Development permit is mentioned in Section 1 in the revised report dated April 2019. Road name has been corrected to Shaws Creek Road throughout the report.
6	**Site:** the only land uses in the area that are acknowledged are residential, agricultural and institutional; parks, conservation areas, commercial and aggregate extraction uses are not mentioned	NEC	Swallow Thornton Tomasetti	Parks, conservation areas, commercial and aggregate extraction land uses are acknowledged in Section 2 in the revised report dated April 2019. However, these land uses are far from the site and do not have any noise impact to the Project. The Project also does not cause any significant noise impact to these land uses. These findings have not changed with the revised draft plan.
7	**Noise Sources**: the report notes "two rooftop units" on top of the school and says noise was not audible; if these were AC units, they would not be operating in December	NEC	Swallow Thornton Tomasetti	Potential noise impact from the two rooftop units in the school is assessed in Section 5 Stationary Noise Impact in the revised report of April 2019. It has been found that the rooftop units do not have any noise impact to the Project. These findings have not changed with the revised draft plan.
8	The report contains no analysis of the noise that could be generated by the subdivision on the existing community of Belfountain and whether any mitigation is required.	NEC	Swallow Thornton Tomasetti	Potential noise impact from the subdivision on the existing community of Belfountain is discussed in Section 5.5 in the revised report. There is no significant noise impact to adjacent developments. These findings have not changed with the revised draft plan.
9	What would be the implications of the paving or widening of Shaws Creek Road on the proposed dwellings?	NEC	Swallow Thornton Tomasetti	Paved road is assumed in traffic noise analysis. It is our understanding that there is no plan for increasing the number of lanes. Widening the road alone will not affect the traffic sound levels. These findings have not changed with the revised draft plan.

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10	Does the haul route from the James Dick pit use Shaws Creek Road and if so, what are the noise implications?	NEC	Swallow Thornton Tomasetti	The haul route does not pass through Belfountain or use Shaws Creek Road.
	Traffic Impact Study			
11	The introductory letter incorrectly notes that this study is in support of a zoning by-law amendment and site plan application, neither of which is correct.	NEC	Nextrans	Acknowledged. The study is in support of a Development Permit and Draft Plan of Subdivision Application.
12	The volume of traffic estimated to be generated by the subdivision seems low. Did the analysis take into account the type of development? In the case of estate homes, there could be additional traffic from household staff, gardening services, parents driving children to school (if the walkway to the school is not supported), and parents commuting outside the area for work.	NEC	Nextrans The Manors of Belfountain Corp.	As per the Town of Caledon TIS Terms of Reference and Guidelines dated March 2017, all trip generation, trip distribution, assignment and transit use assumptions should be in accordance pslawith the industry standard such as the ITE Trip Generation Manual, accepted techniques and based on local parameters. The methodology used to calculate the site generated trips is derived from the information contained in the Trip Generation Manual, 9th Edition published by the Institute of Transportation Engineers (ITE) for “Single-Family Detached Housing” (LUC 210) as established in the TOR approved by the Region of Peel and Town of Caledon, provided in Appendix B. It should be noted that the ITE Manual does not distinguish between types of single-family detached developments. Furthermore, the morning peak hour calculation considers 292 studies for single-family detached homes on individual lots and the afternoon peak hour calculation considers 321 studies for single-family detached homes on individual lots. This land use included data from a wide variety of units with difference sizes, price ranges, locations and ages and a typical site surveyed is a suburban subdivision. On this basis,

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				it is Nextrans opinion that the number of trips generated during the peak hours is representative of the proposed land use. As a conservative approach, the volume of traffic estimated to be generated by the subdivision has been doubled to ensure the road network continues to operate at acceptable levels of service. Refer to sections 4.1 and 5.1.
13	The fall colours season attracts large numbers of visitors to the area on weekends; was this factored into the traffic analysis?	NEC	Nextrans	Although the TOR approved by the Town of Caledon did not mention fall seasonal counts to be undertaken, we note that the survey was undertaken in November which overlaps with “fall colors”. The TOR is provided in Appendix B. Similar to the Niagara Escarpment Commission comment #12 above, the volume of traffic estimated to be generated by the subdivision has been doubled, as well as a conservative annual growth rate of 2% to represent existing conditions (3 year growth from 2017 to 2020) and future conditions/full buildout to 2031 (11 year growth) was applied to the through movements to ensure the road network continues to operate at acceptable levels of service. Refer to sections 4.1 and 5.1.
14	Did the consultant review any traffic data from the EA undertaken by the Region to verify the single day traffic count?	NEC	Nextrans	A review of the Peel Region EA was undertaken to verify the single day traffic counts. The volumes in the Peel Region EA are similar to the counts captured in our TMCs dated November 15, 2017. In addition, the James Dick Erin Pit Extension Haul Route was reviewed and is outside of our study area. See Figure 1.

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15	What are the implications of widening Shaws Creek Road on the hedgerow on the east side of the road?	NEC	Nextrans	As discussed with the Town at the January 2019 agency comments review meeting, this future road widening shall not impact the hedgerows. Though Block 80 is dedicated to the Town for the purpose of a road widening, it is our opinion that a road widening will not be required to support the proposed development. Refer to response to Town Comment B Item #2 regarding the VIA Report, as stated by BTI, tree removals, where required, shall be replaced at compensation as requested by the Town.
16	**Trip distribution:** the report assumes that traffic will be going south on Shaws Creek Road to The Grange Sideroad. If Shaws Creek is not paved beyond the subdivision, would the traffic more likely go north through the village to Mississauga Road resulting in the need to widen Bush Street?	NEC	Nextrans	As per conversation with Town staff, the road paving on Shaws Creek Road south of the subject site limit may proceed as per the Town's DC Background study which recommends that Shaws Creek Road be urbanized. The site traffic has been reassigned to go northbound on Shaws Creek Road through the village to Mississauga Road. The sensitivity analysis is provided in the third submission. The results do not require a road widening for Bush Street. See Section 4.0.
17	**Parking Assessment:** the report concludes that there will be adequate parking for each dwelling but does not address whether the Town would require the provision of parking for the proposed parks and where such parking would be located.	NEC	Nextrans	The parks are intended to serve the subject lands and the broader community of Belfountain, and the majority of visitors will be pedestrian or active transportation. Additionally, as discussed at the March 24, 2020 agency comments review meeting, parking will be provided within the park block. Detailed design will be provided in later submission when facility fit plan is to be completed.

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18	**Site Plan Review:** the report concludes that a large vehicle could navigate the proposed streets. Did this analysis consider the terminus of Street C? Could a large vehicle turn around in the cul de sac without having to back up? Will there be a barrier at the end of Street C or is vehicle access to the park proposed?	NEC	Nextrans	The cul-de-sac conforms to Town Standard Drawing No. 216, as per Town staff comments. The AutoTURN analysis demonstrates that the Regional waste collection and emergency vehicle can turn around in the cul-de-sac without reversing per the Waste Collection Design Standards Manual and Region Design Standards. As mentioned above, parking spaces are being proposed for the park as part of the facility fit plan and vehicle access will be provided to the proposed park. In this respect, the draft plan is to be updated in a future submission if required.
19	**Pedestrian circulation:** the report proposes a footpath through the Escarpment Natural Area to Old Main Street. NEC staff is concerned about the impact of such path on the natural environment. If this path is not allowed, did the consultant consider other means of active transportation to allow residents of the proposed subdivision to get to the village? (e.g. cycling routes--need for bike lane on Shaws Creek Road)	NEC	Nextrans.	Proposed trail will be converting an existing farm lane which connects to a proposed pedestrian improvement corridor of Bush Street/Mississauga Road as shown on Figure 3-4 of Peel Region long-range transportation plan. Should the proposed trail connection not be allowed, residents will be able to access Shaws Creek Road through the subdivision sidewalks and walk north.
20	**Conclusion:** the report concludes that no external road improvements are necessary but page 2 of the report anticipates that Shaws Creek Road would need to be widened and paved.	NEC	Nextrans	The Town's DC By-Law Study recommends reconstruction of Shaws Creek Road from the southern limits of Belfountain to Bush Street, which encompasses the frontage of the subject site. Notwithstanding this, Shaws Creek Road does not need to be widened to support the proposed development based on our findings. This has been revised and addressed in the resubmission.
21	Appendix F is missing from our copy of the report.	NEC	Nextrans	Acknowledged and addressed in resubmission.

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	Lighting Report			
22	The letter assesses municipal street lighting based on an 18 metre right of way. The traffic report states that Shaws Creek Road would need to be widened to 26 metres. How does this impact the conclusion of the letter?	NEC	MDTR	A revised lighting report will be provided at detailed design, once the layout of the draft plan has been finalized.
23	Is it proposed that the Town parks would have lighting and could this include lit sports fields? If so, what are the implications for visual impact?	NEC	MDTR	The Town has advised that a park facility fit plan will be deferred to a later date when the lot layout is closer to being finalized. Visual impacts will also be considered at detailed design.
24	How would the illumination of houses and residential properties be controlled to reduce excessive lighting (e.g. vanity lights under eaves, driveway runway lights)?	NEC	Weston	The following is from Section 4.3.1 of the UDAG: *Residential lighting shall conform to the dark sky friendly recommended allowable light levels under the Model Lighting ordinance (ML) prepared by the IES (Illumination Engineering Society of North America).*
25	The EIS states that the proposed path through the Escarpmental Natural Area would be unlit. In the EIS (p. 43) the proposed path to the School is suggested to be lit. What type of lighting is proposed in this area?	NEC	MDTR	This pathway to the school has been removed.
	Tree Inventory Report			
26	Page 7 of the report suggests that the existing driveway, through the Escarpment Natural Area, would remain for construction access. NEC staff does not support	NEC	BTI	Noted. Existing driveway on Mississauga Road will not be used for construction access.

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	construction access through this area. Access would have to be from Shaws Creek Road.			
27	The tree inventory was completed in 2014. The report should be updated to confirm the inventory and hence the amount of compensation. Many trees could have been lost to storms or disease in the 4 year period.	NEC	BTI	A new inventory was completed in February 2019, which was included in the May 2019 submission. The revised Tree Preservation Plan dated May 2020 is based on this updated inventory.
28	Please provide a larger version of the Tree Inventory and Preservation Plan.	NEC	BTI	A large copy (24x36") is included in this submission.
	Scoped EIS			
29	Appendix C to the report is missing; NEC staff requested a copy but still have not received it.	NEC	MDTR	Appendix C of the Savanta Scoped EIS is included in this submission
30	The report only lists significant wetlands as key natural heritage features (KNHF). The NEP includes all wetlands as KNHF (NEP Part 2.7). How has this policy been addressed?	NEC	BEACON	Please refer to p. 3 and 6 of the EIS Addendum with reference to Part 2.7 of the NEP. Nevertheless, the wetlands are over 200 m from the edge of the proposed development and, through the SWM plan, the hydrology of wetlands on and adjacent to the subject property will not be impacted.
31	Section 1.4.3 of the report should have been part of Part 1.4.5 as the Niagara Escarpment Plan and the *Niagara Escarpment Planning and Development Act* are provincial legislation. This section of the report does not mention Development Criteria relating to Steep Slopes and Water Resources (Parts 2.5 and 2.6 of the NEP) both of which are applicable to the proposed development. The reference to the Minor Urban Centre policies is incorrect. See Part 1.6.8.3 where the Objective is "development growth and should avoid	NEC	BEACON	Noted. These lots do not propose disturbance in the EPA and a restrictive covenant will be placed on title for lots 50-55. The revised FSR prepared by COLE includes a Functional Grading Plan showing structural envelopes. See also response to comment 37. Steep slopes will be preserved within Block 84, thereby increasing the habitat available to open country species at risk birds (Bobolink and Eastern Meadowlark).

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	Escarpment Protection Areas". Given that a number of lots extend into the Escarpment Protection Area (Lots 49-52) and the Ministry of Natural Resources and Forestry has expressed concern (Kowalyk email August 3, 2018), please demonstrate how the applicable policy has been satisfied.			
32	Section 4.1 indicates that the general physiography of Peel Region has a north to south drainage pattern but Section 4.3.3 states that the subject lands flow south to north.	NEC	BEACON	That is correct. The detailed Hydrogeolgy Investigation Report and Function Servicing Report completed by Cole Engineering concluded that the site's topography slopes from south to north **(Section 2 and Figure ST, Pre-Development Drainage Area Plan of FSR).** Peel Region as a whole generally exhibits a north to south drainage; the topography and drainage of smaller sites within the Region may vary.
33	A compensation ratio of 3:1 is proposed for removal of trees in good condition (page 40). What ratio will be used to compensate for trees or other vegetation deemed in poor condition?	NEC	BEACON	2:1 tree compensation is proposed irrespective of tree condition, per Town requirements. It is likely that streetscaping and landscaping associated with SWMFs will result in a greater ratio being planted, however this will be confirmed at detailed design.
34	Staff of the MNRF has advised in their comments (Kowalyk email August 13, 2018) that the grassland habitat be protected from development but the EIS on page 40 suggested that the project will only be registered under the *Endangered Species Act.*	NEC	BEACON	The grassland habitat (3.15 ha) plus additional adjacent lands are proposed to be preserved in Block 84 (4.13 ha).

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35	**Table 14, p. 6:** The analysis of all the applicable NEP policies is lacking. No rationale for allowing lots within the Escarpment Protection Area is provided.	NEC	BEACON	Lots extend into the EPA, however, as per discussion with staff at NEC appropriate warning clause and title restrictions will be used to be sure that future owners will not disturb the area. Please refer to discussion on p. 5 of the EIS addendum.
36	**Section 7.5.1:** The EIS indicates that grading will be limited to the house envelope and within 5 metres of the house. What about grading for accessory buildings or structures, driveways and the septic system?	NEC	BEACON	Revised FSR provides representational cross sections of building envelopes to provide scope of grading (see Figure 4-1 and Figure 4-2).
37	**Section 7.5.4:** Development of an Erosion and Sediment Control Plan is proposed at site alteration permit stage. This would likely be a condition of Development Permit at an earlier stage in the approval process. Further discussion is required. This section of the report also speaks to mitigation of erosion on steep slopes. If erosion is anticipated on steep slopes, how does this address NEP policies in Part 2.5?	NEC	BEACON	The revised development plan avoids slopes 25% or greater per NEP Part 2.5. Slopes >25% are preserved within Block 84.
38	**Section 7.5.6:** the NEP, Part 2.2.12 limits the use of signage. Further discussion will be needed on the size, location of signs and the need for a permit for such signage.	NEC	BEACON	Noted. The applicant is in discussions with CVC regarding the trail in open space Blocks 77 and 78 to be conveyed to CVC. It is anticipated that discussions regarding this matter relating to signage will be addressed at detailed design.
39	**Section 8:** while we support monitoring during and post-construction, there is no discussion about thresholds and actions to be taken if there are negative impacts on natural heritage or water resources	NEC	BEACON	The EIS addendum contains recommendations for adaptive monitoring and management. Please refer to p. 8-9.

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	resulting from the development. This needs further discussion.			
40	**References:** the citation for the Niagara Escarpment Plan 2017 is incorrect.	NEC	BEACON	Noted.
41	Figure 2 is incorrect. Lands west and south of the subject lands are outside the Niagara Escarpment Plan Area and are not designated Escarpment Recreation Area.	NEC	BEACON	Noted.
	Geotechnical Investigation			
42	Page 8 suggests that topsoil would be removed from the site. Would the topsoil not be retained on the property in accordance with the NEP, Part 2.13.8?	NEC	EXP	For the proposed subdivision development, the existing topsoil within future building footprints (houses) and pavement areas will be required to be removed. The stripped topsoil does not necessarily require off-site disposal. It is understood that the stripped topsoil can be reused on site for landscaping purposes. This conclusion remains applicable to the revised draft plan dated April 2020.
43	Page 11 of the report suggests slopes of no steeper than 1:1.Part 2.5.4 of the NEP does not permit development on slopes in excess of 25% (1:4 slope). Part 2.12.2 of the NEP (Infrastructure) states that finished slopes should have grades no steeper than 50% 1:2 slope. How have these policies been addressed in the design of the subdivision?	NEC	EXP	With the revised draft plan, development is proposed on slopes less than 25%. Slopes greater than 25% are preserved in Block 84.
44	Page 12 of the report deals with fill quality and depth. Further discussions will be necessary with respect to	NEC	EXP	The revised FSR proposes minimal cut and fill, and repurposing of fill on-site, however this will be confirmed at

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	the amount and location of imported fill. NEP Policy requires that any imported fill that may be allowed, must meet Table 1 standards. (NEP Part 2.13.10)			detail design. It is understood that as stated in NEP Part 2.123.10, a fill imported onto the site shall meet Table 1 of the Soil and Groundwater and Sediment Standards for Use under Part XV.1 of the Environmental Protection Act, R.S.O 1990, c.E.19.
45	Section 7 of the Report implies that insufficient testing was done to inform decisions regarding the subdivision layout. No boreholes were taken in the area of steepest slopes according to Drawing 1 (northern boundary of the property). This requires further discussion.	NEC	EXP	Subsurface conditions (soil and groundwater) can change from one borehole location to other, our statement in Section 7, is a standard cautionary statement for all our reports. It does not imply insufficient testing and this covers the uncertainty about subsurface conditions from one borehole to another. No development is proposed in the northwestern area of the property, the revised draft plan preserves this area as Open Space Block 84.
	Functional Servicing Report			
46	Page 2: given that the design of the proposed development is intended to be based on infiltration and low impact design, how would the conclusions and assumptions of the report be altered if the subdivision and Shaws Creek Road had sidewalks and curb and gutter as requested in Town of Caledon comments?	NEC	COLE	The proposed SWM strategy continues to rely on infiltration, however it is no longer based on LIDs. The proposed subdivision roads do include mountable curb and gutter, with outlets to ditches, and in some cases sidewalks along the boulevards, therefore there would be no change to the conclusions and assumptions of the Functional Servicing Report in this respect. Shaws Creek Road is currently a rural road and future road improvements could include curb and gutter and sidewalks without any implication to the preliminary design, conclusions or assumptions of the FSR, provided that future road improvements continue to utilize

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				a roadside ditch to facilitate conveyance of drainage as shown in Figure 4-3 (Drawing DET-3).
47	Page 3 (Proposed Grading): the report indicates that detailed lot grading would be dealt with at detailed design but given that a Development Permit will be required before subdivision approval, how does the design of the subdivision meet the policies of the NEP, Part 2.5.4 with respect to development on steep slopes?	NEC	COLE	Part 2.5.4. of the NEP policy states: "Development shall not be permitted on slopes in excess of 25 per cent (1:4 slope) or if the stability of the slope or ravine is in question, unless an engineering report has been prepared by the applicant that demonstrates the future stability of the slope would not be affected." Accordingly, the proposed Draft Plan has been laid out such that proposed roads and lots are not situated on any lands that exhibit an existing slope of 25% or steeper.
48	Page 4 (existing Conditions): the report states that during certain large storms there could be overflow on properties to the north. The NEP Part 2.6.10 states that changes to natural drainage should be avoided. How is this to be achieved on the steeper lots so as not to conflict with the NEP? How would detention/infiltration swales be protected from alteration or development by the individual homeowner or the municipality in the case of the proposed swale on Blocks 71 and 74? If the park is re-located to a more central location, as per Town of Caledon comments, who would maintain the swale on the Open Space blocks?	NEC	COLE	The proposed draft plan has undergone significant revision and the updated Functional Servicing Report no longer proposes to discharge stormwater overflow to the north. The existing 'pre-development' drainage divide through the site matches the post-development drainage divide line; whereby all excess overland stormwater flows are directed westerly towards Shaws Creek Road, as per existing conditions. The new stormwater management strategy involves dry ponds and roadside swales that will be conveyed to the Town. Please refer to Section 5.8 for discussion on maintenance. The park is to remain in the proposed east end location.
49	Page 11: If it is not known whether a septic system can be accommodated on a lot with a significant slope (e.g. Lots 19, 22, 32 and 51), the matter cannot be deferred until building permit stage. Further discussion is warranted. How would the recommendation for	NEC	COLE	The proposed draft plan has undergone significant revision since the previous submission and the reference to Lots 19, 22, 32 and 51 is no longer applicable as these either no longer exist or the septic system has been relocated to flatter ground, with sloped areas exceeding 25% preserved

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	ultraviolet water disinfection be implemented; through the subdivision agreement?			as Open Space Block 84. Typically, site specific recommendations are generally carried forward from the Functional Servicing Report, to the detailed engineering design, and where the municipality deems necessary are included within the eventual Subdivision Agreement. A recommendation such as ultraviolet disinfection for private water well treatment, could be included in the Subdivision Agreement, which is entirely at the discretion of the Town of Caledon.
50	Page 12: the NEC would normally require an Erosion and Sediment Control Plan through a Development Permit condition, prior to any site alteration permit application that the Town may require.	NEC	COLE	Acknowledged. Preparation of Erosion and Sediment Control Plans are typical at the detailed engineering design stage and will be a requirement of the Town of Caledon to support issuance of their Site Alteration Permit.
51	Appendix C: proposed storage and infiltration swale is missing from the legend on drawings ST-2 and ST-3	NEC	COLE	Storage and infiltration swales no longer form part of the proposed stormwater management strategy.
52	Appendix D: is the NEC considered an "Intended User" who can rely on the Report or does the Manors of Belfountain and Cole Engineering extend 3rd party reliance to the NEC?	NEC	COLE	Reliance statement is included in revised report.

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	Hydrogeological Investigation			
54	Statement of Conditions: is the NEC (and the MECP who are reviewing the report on behalf of the NEC) considered an "Intended User" who can rely on the Report or does the Manors of Belfountain and Cole Engineering extend 3rd party reliance to the NEC?	NEC	COLE	Reliance statement is included in revised report.
55	In conducting the hydrogeological investigation, were offsite undertakings taken into consideration regarding impact on water resources? NEP policy, Part 2.6 requires that hydrologic features and functions are to be protected at the local and watershed level. Were the Erin sewage treatment plant which is proposed to outlet into the Credit River upstream of the subject lands or the proposed expansion of the James Dick Erin pit north of the subject lands taken into account in characterising impacts to the ground and surface water regime? If these were not taken into consideration , how do you conclude that there is not significant potential for impacts to groundwater users and does that conclusion only apply to future residents of the proposed development or also to existing residents of the Belfountain Minor Urban Centre?	NEC	COLE	Based on the provided reports and information regarding the James Dick Erin pit, along with the calculated radius of influence (approximately 30 m) and the presence of a geological groundwater divide separating the projects, there is no anticipated hydrogeological impact overlap between the this project and the Site. The proposed Erin Sewage Treatment plant is located > 1 km west of the Site and treated effluent discharges directly to the West Credit River. An assimilative capacity was completed (see Ainley 2019 report) which indicated that the Total Phosphorous (a limiting parameter) was fully mixed to below PWQO concentrations within 150 m of the Site.
56	On page 10 of report it is noted that previous well testing found that the "water supply from shallow dug wells had generally poor quality and quantity". How many properties in Belfountain have dug wells?	NEC	COLE	The report references the Terraprobe report from 1990. Based on MECP well records and ORM Groundwater Progam mapping, three dug wells remain downgradient of the Site. COLE is available to verify presence of dug wells during field

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				survey to be scheduled later in 2020, for properties within 500 m, pending adjoining landowners approval.
57	On page 14 there is discussion of the potential for karst in the area and a statement that it is difficult to prove its existence. If a karstic condition exists, is there potential for effluent from the septic systems entering the above-noted poor quality shallow wells in Belfountain and thereby causing the water quality in those wells to drop below Ontario Drinking Water Standards (ODWS)? Could additional testing be undertaken to prove that there is no groundwater connection between the subject lands and offsite wells in order to support the conclusion on page 23 of the report that "negative impacts to groundwater quality for surrounding groundwater users are not anticipated?"	NEC	COLE	Based on zone of influence calculations, offsite wells will not be affected by the proposed development. The closest surrounding groundwater user is approximately 125 m from the nearest proposed supply well on Lot 48, well outside the anticipated radius of influence of this well (30 m). The underlying dolostone (Amabel) aquifer is in an area of suspected karst based on OGS mapping and some degree if karstification (dissolution) is possible, however identifying karst within the area is difficult as the significant overburden thickness reduces the ability to identify individual karst features (see Section 5.2.2).The depth to groundwater across the Site ranges from about 12 to 20 m. The depth to bedrock (where karst could occur) ranges from 8 to 30 m. karst formation is not consistent with high infiltration rate achieved throughout the site. Travel time through the unsaturated zone (in overburden) is expected to range from 4 to 10 years using the unsaturated zone advection time or UZAT (MECP, 2006). Based on this travel time, septic effluent will be attenuated long before it reaches the bedrock. Please also refer to response by COLE to MECP comment no. 6.

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58	On page 15 of the report an updated well survey for the area surrounding the site is recommended. When will this take place and how many properties would be included?	NEC	COLE	Proposed for Spring 2020, subject to obtaining consent from homeowners. Permission letters were sent to residents within 500m of the property in November 2019.
59	Why did the climate data used in the water balance analysis stop in 2010 (report page 16)? Is there no more recent data which might better show the impacts of climate change?	NEC	COLE	A 30-year "climate normal" period from 1981-2010 was selected to be representative of averages. The pre- and post- development water balances have been updated using 2010-2015 data for the Orangeville MOE station. This is the most recent, up to date climate data. A climate normal period post 2010 has not been established for the Orangeville climate station. It should be noted that the water balance using the 2010-2015 dataset was similar to the available 30-year climate normal.
60	Please explain why runoff was estimated to be higher from the wooded areas than the agricultural lands on page 17.	NEC	COLE	The wooded area is associated with steeper slopes than the agricultural area, where outwash soils have been mapped. In the northeastern portion of the Site where most of the wooded area occurs, the topography slopes of up to 50 m/km compared with the predominantly flat topography of the agricultural portions of the Site, where topographic slopes ranging between 0 m/km to 2 m/km were observed. Please refer to Section 6.1.4.
61	Please explain the conclusion that nitrates may decline over time (p. 19). What would be the long-term effect of residential application of fertilizer/herbicides?	NEC	COLE	Based on similar development projects in the area, particularly the development of a subdivision of south Erin Village with similar underlying geology, including Amabel Formation dolostone, located at the intersection of Wellington Road 52 and 9th Line in Erin, approximately 4 km

				to the west of the Site, demonstrates the natural reduction of nitrate concentrations due to conversion from agricultural land to residential subdivision under existing geological conditions. Nitrate concentrations in this area were greater than 30 mg/L at select monitoring locations in the late 1990s when the area was used as agricultural area where there was a turkey operation. Following development and conversion to a subdivision of Erin Village, over the last 10 years, nitrate concentrations have declined to an average of approximately 3.5 mg/L (CVC 2011). Previous consultants (Terraprobe) also reference the Caledon Mountain Estates subdivision, located across Mississauga Road, to the east of the site, constructed in the mid-1970s, which is also underlain by coarse overburden overlying dolostone and shale. Groundwater quality samples collected from within the boundary of this subdivision identified nitrate concentrations ranging between 0.6 mg/L and 2.4 mg/L, providing another data set of empirical evidence that sufficient dilution occurs in the subsurface in this geological setting (Terraprobe 1990). As current nitrate concentrations are expected to be a result of current and historic agricultural activities on-site and surrounding the site, a similar reduction can be reasonably anticipated, following residential development, even after accounting for reasonably expected newly introduced

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				residential uses. The majority of land upgradient of the Site to the groundwater divide associated with the Paris Moraine are not in agricultural use so there should be limited upgradient inputs of nitrate to the groundwater system.
62	Given the exceedances of OWDS as mentioned on page 19 of report, water treatment for individual homes are recommended. How would homeowners be notified of the water quality issue? How would the requirement for tertiary treatment be imposed on prospective homeowners?	NEC	COLE	COLE understands that the requirement for tertiary treatment would be imposed through a condition of the subdivision agreement. Appropriate warning clauses will be included in APS and the subdivision agreement once registered will give notice to all future owners
63	How would the limitations on the placement of wells on Lots 50 to 55 be imposed on the homeowner as set out on page 19 of the report?	NEC	COLE	COLE understands that well locations for lots 53-57 and lot 75 will be restricted to west of the nitrate line as shown on the April 2020 draft plan and this will be a condition of the subdivision agreement and building permit applications
64	Does the estimated long-term pumping rate take into consideration the effect of the possible installation of in-ground sprinkler systems (p. 20)? Does the Town of Caledon prohibit such systems and using wells to fill swimming pools? If not, could that pumping rate be much higher for estate properties?	NEC	COLE	Appropriate warning clauses and restrictions on title will prohibit use of groundwater for swimming pool use and limit irrigation. Refer to Section 6.3.1 of HIS for analysis on conservative pumping rates. The report assumes a pumping rate about 5 times greater than D-5-5 criteria.
65	Did Cole take into consideration other land uses in the area that might affect the re-charge to the site or the long-term effects of climate change? (p. 21)	NEC	COLE	Surrounding land uses were considered in the design of the Site. COLE notes that the built-in safety factors present throughout the assumptions and calculations in the report

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				are sufficient to offset potential climate change-based effects.
66	How will the requirement to place wells 30 metres apart be imposed? (p. 22)	NEC	COLE	COLE understands that this will be a condition of the subdivision agreement and it is also a building permit requirement
67	On page 23 of report it states that residential wells in Belfountain are commonly completed in the dolostone and should therefore have adequate supply. However, page 10 of the report indicates that there are wells in the area that are shallow dug wells of poor quality. The proposed baseline well survey of Belfountain will be necessary to determine with reasonable accuracy what the characteristics of local wells are (quality and quantity of water and well construction) to support the report's conclusions.	NEC	COLE	Pg 23 of the report actually said "residential wells in Belfountain are commonly completed in the dolostone / sandstone units associated with the Manitoulin and Whirlpool Formations, which underlie the Amabel Formation and Cabot Head Formation shales." No comment on the adequacy of this water supply was provided in the report. This is a different aquifer than the Amabel aquifer that underlies the Site. Proposed update survey in Spring 2020. Region of Peel standard conditions of approval require base line surveys before any site disturbance takes place and continued report monitoring during construction phase COLE to verify presence of dug wells during field survey, for properties within 500 m.
68	Additional infiltration tests are recommended at the detailed design stage, on page 28 of the report. Does this mean after Development Permit and draft plan approval? What if the additional information does not support the report's conclusions but 67 lots have already been approved?	NEC	COLE	Additional infiltration tests were completed in November 2019 and incorporated into the updated report.

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69	NEC staff has sought comments from the MECP on the Hydrogeological Investigation Report. Their comments are anticipated in early October and will be shared when available.	NEC	COLE	Acknowledged, included are the responses to MECP comments
70	Additional discussion with respect to the Source Protection comments of the Region of Peel will be necessary.	NEC	COLE	Acknowledged, included are the responses to Region of Peel comments with respect to Source Water Protection.
	Planning Justification Report (PJR)			
71	As the conclusions about policy conformity in the PJR are based on the assumptions in the other studies, NEC staff are not providing comments on the PJR at this time until the questions outlined in this letter have been addressed.	NEC	MDTR	A PJR Addendum supporting the revised draft plan and reviewing the 2018 PJR and applicable policies, including updated provincial plans, has been prepared and included in this submission.
	Visual Impact Assessment (VIA), August 10th 2018			
72	Preliminary comments on the VIA have been provided under separate correspondence from our landscape architect. A meeting will be necessary and other interested agencies will be invited.	NEC	BTI	The applicant has been advised by staff at the NEC that a revised VIA can be deferred to a later submission until agencies have had an opportunity to provide comments to the revised plan. Please see responses from BTI regarding how the comments will be addressed in the future revision

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Niagara Escarpment Commission August 10th, 2018		Linda Laflamme, Landscape Architect Office: (905)-877-8363 | linda.laflamme@ontario.ca	
No.	**Comment:**	**Response by:**	**Responses :**
	Visual Impact Assessment		
1	Table of Contents: an appendix is noted but no appendices attached. Please provide:	BTI	All documents identified in the appendix will be provided in the next submission. Please refer to response to NEC letter dated September 21, 2018, comment 72. A revised VIA will be provided once the lot layout has been finalized.
a.	The list refers to items found in the body of the report and it would be of assistance if the page numbers for the bulleted items was provided.	BTI	Please refer to response to NEC letter dated September 21, 2018, comment 72. A revised VIA will be provided once the lot layout has been finalized.
b.	To scale hard copy and high-resolution digital copies of all plans/drawings/line of sight cross sections within the report (see other comments).	BTI	Please refer to response to NEC letter dated September 21, 2018, comment 72. A revised VIA will be provided once the lot layout has been finalized.
2	**Site Context & Characteristics:** the site context includes lands in the Niagara Escarpment Plan (NEP) and those outside the NEP. Documenting, on the supporting maps, matters discussed in the body of the report is recommended**:**	BTI	Please refer to response to NEC letter dated September 21, 2018, comment 72. A revised VIA will be provided once the lot layout has been finalized.
a.	Add to the Google Map on page 3 the boundary of the NEP and locate the features, on the map, described in the accompanying paragraphs;	BTI	Please refer to response to NEC letter dated September 21, 2018, comment 72. A revised VIA will be provided once the lot layout has been finalized.
b.	NEC base map; provide a map at a higher resolution & as above label features discussed. A digital version of the NEC map utilized can be provided upon request.	BTI	Please refer to response to NEC letter dated September 21, 2018, comment 72. A revised VIA will be provided once the lot layout has been finalized.
3	**Scenic quality:**	BTI	

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a.	**Clarification;** the VIA report refers to scenic ratings versus rankings. Unfortunately the NEC Landscape Evaluation Maps incorrectly identify scenic rankings as 'ratings'. As the Niagara Escarpment Plan, in its policies and appendices, uses the term scenic rankings this would be the correct term to utilize going forward. We apologize for any confusion and will be revising the NEC Landscape Evaluation Maps in the near future.	BTI	Please refer to response to NEC letter dated September 21, 2018, comment 72. A revised VIA will be provided once the lot layout has been finalized.
b.	The overview provided in this section is generally acceptable but:	BTI	Please refer to response to NEC letter dated September 21, 2018, comment 72. A revised VIA will be provided once the lot layout has been finalized
i.	We would flag that the proper terminology to describe any of the landscape units referenced would be: a landscape unit with a scenic ranking of Attractive; versus '*a landscape considered visually attractive*'.	BTI	Please refer to response to NEC letter dated September 21, 2018, comment 72. A revised VIA will be provided once the lot layout has been finalized
ii.	It is recommended some basic information regarding the categories scored to establish landscape units & their scenic rankings be included. NEC staff would be pleased to assist with the wording.	BTI	Please refer to response to NEC letter dated September 21, 2018, comment 72. A revised VIA will be provided once the lot layout has been finalized
iii.	Of note Landscape Unit # 108 Forks of the Credit is the only unit ranked as 'Outstanding', in the NEP, south of Highway 89. All other 'Outstanding' units, in the NEP, are found north of Highway 89.	BTI	Please refer to response to NEC letter dated September 21, 2018, comment 72. A revised VIA will be provided once the lot layout has been finalized
c.	The location of each photo provided on page 7 should be labeled as to the part of the site they are high lighting (resolution is fine).	BTI	Please refer to response to NEC letter dated September 21, 2018, comment 72. A revised VIA will be provided once the lot layout has been finalized
d.	Regarding the first paragraph on page 7; is the sense of enclosure provided when on the site or viewing the site from surrounding public areas (roads etc.)?	BTI	Please refer to response to NEC letter dated September 21, 2018, comment 72. A revised VIA will be provided once the lot layout has been finalized

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4	**NEP Area Designations and Parks and Open Space System:** this section presents the existing land use designations with a related excerpt from NEP Map 4. Analysis of any related policies is not included in this section and is noted to be found in a separate document the Urban Design and Architectural Guidelines. Comments on the relevant parts of the UDG will be provided under separate cover upon completion of the review of the VIA.	BTI	Please refer to response to NEC letter dated September 21, 2018, comment 72. A revised VIA will be provided once the lot layout has been finalized
5	**Site and Proposed Development:** this section describes the proposal; the resolution on the digital version of the Draft Plan provided is acceptable.	BTI	Please refer to response to NEC letter dated September 21, 2018, comment 72. A revised VIA will be provided once the lot layout has been finalized
6	**Visibility of Site:** this section would benefit greatly from a corresponding map locating the elements discussed; also**:**	BTI	Please refer to response to NEC letter dated September 21, 2018, comment 72. A revised VIA will be provided once the lot layout has been finalized
a.	It is not clear where 'the Wilkens property' is located (see also resolution of mapping); please clarify.	BTI	Please refer to response to NEC letter dated September 21, 2018, comment 72. A revised VIA will be provided once the lot layout has been finalized
b.	Identify where on Bush Street the views have been investigated from;	BTI	Please refer to response to NEC letter dated September 21, 2018, comment 72. A revised VIA will be provided once the lot layout has been finalized
c.	It is not entirely clear if this section is describing the existing site visibility or visibility of the proposed development;	BTI	Please refer to response to NEC letter dated September 21, 2018, comment 72. A revised VIA will be provided once the lot layout has been finalized
d.	See also comments on viewshed mapping	BTI	Please refer to response to NEC letter dated September 21, 2018, comment 72. A revised VIA will be provided once the lot layout has been finalized

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7	**Methodology:** Development Master Plan: generally the principles followed to coordinate the existing conditions with the proposed layout and grading, so as to minimize landform changes and protect the existing vegetation, is acceptable. However the quality and scale of some of the drawings limits their use and resubmission of to scale, high resolution drawings is needed. There are also areas of clarification needed:	BTI	Please refer to response to NEC letter dated September 21, 2018, comment 72. A revised VIA will be provided once the lot layout has been finalized
a.	Page 15 item a) Draft Plan of Subdivision; clarify what parts of the proposed development are being referred to as naturalized that will be preserved.	BTI	Please refer to response to NEC letter dated September 21, 2018, comment 72. A revised VIA will be provided once the lot layout has been finalized
b.	Page 16 item c) see resolution of mapping & location of Wilkens property	BTI	Please refer to response to NEC letter dated September 21, 2018, comment 72. A revised VIA will be provided once the lot layout has been finalized
c.	Page 16 references to a ridge; identify the contour interval(s) that form the top of the ridge and where on the Draft Plan of Subdivision & Grading Plan the ridge elevation/contour is found.	BTI	Please refer to response to NEC letter dated September 21, 2018, comment 72. A revised VIA will be provided once the lot layout has been finalized
d.	Drawings SK1, SK2 & SK3 (plans) are referenced in this section and provided as small inserts within the body of the document on pages 37 & 38. As noted in order to continue the review of the VIA the NEC will need to scale, legible drawings (hard copy & digital) of Drawings SK1, SK2 and SK3.	BTI	Please refer to response to NEC letter dated September 21, 2018, comment 72. A revised VIA will be provided once the lot layout has been finalized
8	**Methodology:** largely the technical aspects set out on pages 22 through 31 as well as the associated tables are all satisfactory including (but not limited to):	BTI	Please refer to response to NEC letter dated September 21, 2018, comment 72. A revised VIA will be provided once the lot layout has been finalized

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a.	the applications utilized and processes followed to create the simulations and 3D modeling	BTI	Please refer to response to NEC letter dated September 21, 2018, comment 72. A revised VIA will be provided once the lot layout has been finalized
b.	the sources of the topographic data base	BTI	Please refer to response to NEC letter dated September 21, 2018, comment 72. A revised VIA will be provided once the lot layout has been finalized
c.	Line of Sight Cross sections	BTI	Please refer to response to NEC letter dated September 21, 2018, comment 72. A revised VIA will be provided once the lot layout has been finalized
d.	measures to reconcile different data sources & applications	BTI	Please refer to response to NEC letter dated September 21, 2018, comment 72. A revised VIA will be provided once the lot layout has been finalized
e.	field location of the viewpoints examined & documented	BTI	Please refer to response to NEC letter dated September 21, 2018, comment 72. A revised VIA will be provided once the lot layout has been finalized
f.	acknowledgement that revisions to the layout or grading would necessitate revisions to the modeling.	BTI	Please refer to response to NEC letter dated September 21, 2018, comment 72. A revised VIA will be provided once the lot layout has been finalized
g.	There is one question regarding the size of the proposed plant material as modeled in the simulations. Are the tree and shrub sizes noted on page 29 the planting sizes?	BTI	Please refer to response to NEC letter dated September 21, 2018, comment 72. A revised VIA will be provided once the lot layout has been finalized
9	**Methodology - Viewshed Mapping:** there are two sections titled viewshed mapping. The comments that follow reflect a preliminary review of both sections. Generally the viewshed mapping component that extends beyond the immediate area of the subject lands (2-5km) presents a number of questions. These are	BTI	Please refer to response to NEC letter dated September 21, 2018, comment 72. A revised VIA will be provided once the lot layout has been finalized

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	identified below. If further clarification or discussion needed we would be pleased to meet with BTi.		
a.	Pages 19 to 21; the consultant presents a methodology similar to the NEC Guideline method of detailed viewshed mapping which is an accepted methodology for examining the visibility of a site and proposed development. However, the process and steps followed to identify areas of visibility per existing or proposed conditions is not clear based upon the description provided. Among matters that require clarification are those that demonstrate & document the investigation was carried out in an objective and replicable manner; including but not limited to:	BTI	Please refer to response to NEC letter dated September 21, 2018, comment 72. A revised VIA will be provided once the lot layout has been finalized
i.	How was the visibility from the roads determined; it is known the routes travelled outwards from the site at 2 & 5km but how was the determination of visibility assessed & documented? Those views documented near the subject lands where simulations were provided are noted and the timing as off leaf. There appears to be no documentation of findings beyond the roads abutting the subject lands and the three viewpoints identified by the Town & NEC as areas of concern.	BTI	Please refer to response to NEC letter dated September 21, 2018, comment 72. A revised VIA will be provided once the lot layout has been finalized
ii.	How were the viewing points selected where the consultant stopped and got out of the vehicle?	BTI	Please refer to response to NEC letter dated September 21, 2018, comment 72. A revised VIA will be provided once the lot layout has been finalized
iii.	What measures were included in the reconnaissance?	BTI	Please refer to response to NEC letter dated September 21, 2018, comment 72. A revised VIA will be provided once the lot layout has been finalized

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iv.	Were all of the trails walked and views towards the site examined out to 5km?	BTI	Please refer to response to NEC letter dated September 21, 2018, comment 72. A revised VIA will be provided once the lot layout has been finalized
v.	In what time of year (on leaf or off leaf) was this aspect of the investigation carried out; if on leaf how were off leaf conditions factored?	BTI	Please refer to response to NEC letter dated September 21, 2018, comment 72. A revised VIA will be provided once the lot layout has been finalized
vi.	Visibility of the site (existing conditions) is one matter but how was the visibility of the proposed built form determined in an accurate and replicable manner from the catchment area? The proposed buildings would be higher in the landscape - potentially above the tree line or in areas to be opened up with tree removal.	BTI	Please refer to response to NEC letter dated September 21, 2018, comment 72. A revised VIA will be provided once the lot layout has been finalized
vii.	Photographs from the areas investigated are needed to document the conditions found in the examination of the 5 km catchment area.	BTI	Please refer to response to NEC letter dated September 21, 2018, comment 72. A revised VIA will be provided once the lot layout has been finalized
viii.	Reference to an Appendix is made but there are no appendices.	BTI	Please refer to response to NEC letter dated September 21, 2018, comment 72. A revised VIA will be provided once the lot layout has been finalized
b.	The viewshed mapping section recommences on page 32; where extensive field reconnaissance is noted with reference back to the visual catchment area process (pages 19-22). Given the questions associated with the process outlined on pages 19 to 21 the NEC will need to have the questions answered before any detailed comments can be provided on those parts of the Analysis and Assessment of Impact section (page 32 etc.) that relies upon the earlier work. Also what are areas of significance and what established the basis for them to be considered significant for the purposes of the investigation i.e., visibility of	BTI	Please refer to response to NEC letter dated September 21, 2018, comment 72. A revised VIA will be provided once the lot layout has been finalized

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	development, quality of naturalness (LES), open landscape character, heritage etc.?		
c.	Viewpoints selected for further investigation; in previous correspondence (2016) NEC staff requested the viewshed mapping be provided to scale and it was understood the individual viewsheds would be mapped (viewshed – total surface area visible per individual viewpoint examined). This has not been provided and is required prior to further review of this aspect of the report.	BTI	Please refer to response to NEC letter dated September 21, 2018, comment 72. A revised VIA will be provided once the lot layout has been finalized
10	Relationship of Distance versus Size of Landscape Elements, page 34:	BTI	Please refer to response to NEC letter dated September 21, 2018, comment 72. A revised VIA will be provided once the lot layout has been finalized
a.	this section presents a series of not to scale 3D sketch up models from an unknown viewpoint at 1 kilometre to 5 kilometers. The sketches are presented to demonstrate the further one is from an object the smaller it gets. The fractions of views noted as visible, from different distances, do not appear to be supported by any field work or photographs of the view used in the example and are not placed in the landscape relative to topographic surrounding features. Further when one is present in the landscape the scale of the view and objects within the view are significantly larger than those shown in the modeled examples.	BTI	Please refer to response to NEC letter dated September 21, 2018, comment 72. A revised VIA will be provided once the lot layout has been finalized
b.	There is no argument elements in the landscape get smaller as one moves further away. However, NEC documents provided to the consultant identify it is the agencies position foreground views are considered up to and including 2 kilometers from the viewer. Within the 2 kilometers details of objects can be clearly identified. This has been observed in the field to include structures, residential buildings along	BTI	Please refer to response to NEC letter dated September 21, 2018, comment 72. A revised VIA will be provided once the lot layout has been finalized

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	with their individual windows, roof and building colours etc. Views beyond 2 kilometers are considered background views but details remain discernible beyond the 2 kilometer zone. Even at 5 kilometers structures that skyline above the horizon line can be seen distinctly. As such NEC staff do not concur with the opinions expressed in this section.		
11	As a tool for the internal design of the subdivision the 3D modeling on pages 39 to 41 appears to be quite informative (see comments on development design / working with the existing landscape). It does not however provide any further insight into the investigation beyond the property limits; see comments on visual catchment area and viewshed mapping	BTI	Please refer to response to NEC letter dated September 21, 2018, comment 72. A revised VIA will be provided once the lot layout has been finalized
12	The description of the process to produce the simulations is very well done. With the provision of a high resolution digital file for the 5 stages of the simulations, for each viewpoint examined, and answers to the questions posed herein NEC staff should be in a position to provide final comments. Note the July 24/18 submission did not include this part of the report.	BTI	Please refer to response to NEC letter dated September 21, 2018, comment 72. A revised VIA will be provided once the lot layout has been finalized
13	Shaws Creeek Road:	BTI	
a.	For each of the viewpoints examined along Shaws Creek Road and Mississauga Road please delineate where (in the model) the vegetation relied upon for screening is on either on the subject lands or within the road allowance. Subsequently identify where, if either road was widened, the resultant extent of vegetation and where additional screen planting would be needed.	BTI	Please refer to response to NEC letter dated September 21, 2018, comment 72. A revised VIA will be provided once the lot layout has been finalized

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b.	The majority of the existing vegetation along Shaws Creek Road, included in the simulations, is not included on the Tree Inventory & Preservation Plan. As such the composition of the hedgerows is not known. If there is a high percentage of Ash or Elm in the hedgerows additional screen planting may be necessitated given the ultimate demise of both of these species.	BTI	Please refer to response to NEC letter dated September 21, 2018, comment 72. A revised VIA will be provided once the lot layout has been finalized
14	Line of Sight cross sections (LOS); please provide copies (hard copy & digital) of the key plan and LOS to scale.	BTI	Please refer to response to NEC letter dated September 21, 2018, comment 72. A revised VIA will be provided once the lot layout has been finalized
15	Establishing a peak of roof maximum, in metres above sea level (MASL) should be considered for each residence and /or other proposed structure per individual lot.	BTI	Please refer to response to NEC letter dated September 21, 2018, comment 72. A revised VIA will be provided once the lot layout has been finalized

2

Town of Caledon (Town) Comments

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Town of Caledon August 15, 2018; November 2, 2018		Rob Hughes, Manager of Development West Office: (905)-584-2272 x4228 | Email: rob.hughes@caledon.ca		
No.	**Comment:**	**Comment by:**	**Response by:**	**Responses:**
A. Corporate Services, Legal Services, May 28, 2018				
	Staff request following conditions be added as part of the draft approved conditions. These conditions are to be cleared by the Legal Services Office prior to final approval and registration of the M-plan.	Legal	The Manors of Belfountain Corp.	Agreed
1	The Owner shall enter into a Town of Caledon Subdivision Agreement or any other necessary agreements executed by the Owner, the Town and the Region or any other appropriate authority prior to any development within the plan to satisfy all financial, legal and engineering matters including land dedications, grading, easements, fencing, landscaping, provision of roads, stormwater management facilities, installation of municipal services, securities, parkland and cash contributions, and other matters of the Town and the Region respecting the development of these lands in accordance with the latest standards, including the payment of Town and Regional development charges in accordance with their applicable Development Charges By-laws.	Legal	The Manors of Belfountain Corp.	Agreed
2	Prior to the preparation of any agreement, the Owner shall pay to the Town all fees and costs set out in the Fees By-law for the preparation and registration of the agreement and all documents necessary to give effect to the approval of the Plan of Subdivision.	Legal	The Manors of Belfountain Corp.	Agreed
3	The Owner shall convey/dedicate, gratuitously and free and clear of all encumbrances, any required parks, open space, trails, road or highway widenings, 0.3m (1 ft.) reserves, walkways, daylight triangles, buffer blocks, stormwater management facilities, maintenance blocks and utility or drainage easements or any other easements as required to the satisfaction of the Town, the Region or other authority	Legal	The Manors of Belfountain Corp.	Shown on plan

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4	The Owner shall provide the Town with postponements of any outstanding encumbrances in favour of the Subdivision Agreement.	Legal	The Manors of Belfountain Corp.	Agreed
5	Prior to assumption, the Owner shall provide:		.	
a.	a chart outlining all the terms and conditions of the Subdivision Agreement that must be fulfilled prior to assumption; and	Legal	The Manors of Belfountain Corp	Agreed
b.	evidence of compliance with all terms and conditions of the subdivision agreement and any other applicable agreement, at its sole cost and expense.	Legal	The Manors of Belfountain Corp	Agreed
B. Community Services, Open Space Design, July 5, 2018				
	The first submission for the Manors of Belfountain Subdivision has been reviewed for landscape and open space requirements. Comments on the material provided are detailed below. Please note that, any items below that pertain to the conditions of draft approval are in addition to our standard comments and development standards. Additional comments may apply on all future re-submissions.	Open Space Design	MDTR	Noted. The applicant has been advised by the NEC that a revised VIA can be deferred to a later submission until agencies have had an opportunity to provide comments to the revised plan. Please see email from Nancy Mott dated April 11, 2019.
	Visual Impact Assessment Report, March 5, 2018 by BTI:	Open Space Design		
1	Views from Mississauga can be further mitigated through planting within the Park Block, subject to final Park Block location. The condition of the existing hedgerows along the southern boundary (particularly rear of lots 56 to 60) are to be further assessed through the Tree Inventory Report by BTI.	Open Space Design	BTI	See revised Tree Preservation Plan.

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2	A planting buffer along the property line adjacent Shaw's Creek Road shall be considered at either the subdivision or site plan stage	Open Space Design	BTI	Noted. Existing hedgerows are preserved as much as possible, and where removed for structural envelope, infrastructure and grading purposes, 2:1 tree compensation will be provided as per Town's request.
	Urban Design and Architectural Guidelines, February 2018 by BTI, Architecture Unfolded and Weston Consulting:	Open Space Design		
3	See marked up document attached.	Open Space Design	Weston	Please see responses provided by Weston to Peer Reviewer.
	Tree Inventory Report, February 6, 2018 by BTI:	Open Space Design		
4	Add the following note to the document: 'During construction and prior to Assumption of the subdivision by the Town, the consulting Arborist along with appropriate Town staff shall inspect the entire site. Any noted hazardous trees must be identified and removed prior to assumption.'	Open Space Design	BTI	Note added to arborist report.
5	Add the following note to the document: 'Any trees located on the property line or on the adjacent property that are proposed to be removed or pruned, will require written consent from the adjacent property owner. All correspondence is to be forwarded to the Town prior to final approval.'	Open Space Design	BTI	Note added to arborist report.
6	Add the following note to the document: '2:1 tree compensation will be required for all tree a removals. Tree compensation planting will be in addition to the standard required planting. In the event that tree compensation cannot be accommodated for in the planting design, financial compensation shall be collected at a rate (per tree) as determined by the Town.' The compensation ratio noted in this statement may be subject to change based on further discussions between the Town and the CVC	Open Space Design	BTI	Note added to arborist report.

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7	Add the nesting note from section 7.5.2 in the SEIS by Savanta (March, 2018).	Open Space Design	BTI	Note added to arborist report.
8	All trees 15cm (6") DBH and above are to be reviewed and included into the document. In addition, all trees included in the current document are to be reviewed again since many changes may have occurred since the last assessment performed in 2014.	Open Space Design	BTI	A new inventory was completed. This is included in this submission.
9	The assessment of the large woodlot can be generalized, but any individual hazard trees adjacent the proposed lots are to be assessed accordingly.	Open Space Design	BTI	Noted.
10	Vine removals are to be proposed along any existing hedgerows that are to be preserved	Open Space Design	BTI	Note added to arborist report.
11	See marked up plan (TR1) attached, showing potential trees and hedgerows that should be reviewed and considered for preservation. The marked up plan is only a guideline. Please indicate if any other trees can be preserved on site	Open Space Design	BTI	Noted. Revised draft plan to show protection measures of trees and hedgerows
12	Drawing ST1 from Cole shows the existing individual trees on the plan. This drawing may be a good reference for the updated TR1 drawing	Open Space Design	BTI	Cole drawings updated to match BTI
	Scoped Environmental Impact Study, March 2018 by Savanta:	Open Space Design		
13	Section 4.4.2: Information to be modified once the Tree Inventory Report by BTI is updated.	Open Space Design	BEACON	To be addressed in next revision
14	Section 7.5.6: Confirm trail upgrades with CVC. They typically do not accept conveyance of lands with proposed infrastructure. The pathway between lots 16/17 is not encouraged. Preference is to have a sidewalk along the East side of Shaw's Creek Road to the existing school.	Open Space Design	BEACON	The applicant is in discussion with CVC regarding the proposed trail and Open Space Blocks 77, 78. The intent is to use the existing farm lane/trail within Blocks 76, 77, 78 as shown on the revised Draft Plan (April 2020). All previously proposed pathways between lots have been removed.

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15	Section 8.0: Third paragraph pertaining to woodlot trail to be adjusted based on CVC comments.	Open Space Design	BEACON	Noted
	Drawing ST-3 External Area Drainage Plan, January 2018 by Cole:	Open Space Design		
16	This drawing shows a rather large drainage area from the adjacent lands to the south into the proposed park block. How will this impact the potential park block location in terms of flow rates? If so, will any mitigation measures by required?	Open Space Design	Cole	The External Storm Drainage Area Plan has been updated to include a significantly larger drainage area entering the site from the south. The proposed draft plan has been revised to situate a quantity control SWM facility at the location where external drainage enters the property.
	General Comments:	Open Space Design		
17	Consider relocating the park block (Block 74) to a more centralized location within the plan. This will improve access to the park and increase the probability of obtaining a minimum of 50% street access as per our standards	Open Space Design	MDTR	Proposed park location (block 76) is preferable as it allows pedestrian connections to the proposed trail in Block 78 to the existing broader community, achieving Region of Peel healthy community policies requiring connectivity.
18	Block 71 shall not be considered parkland. Consider merging with Open Space block 75	Open Space Design	MDTR.	Former Block 71 is no longer parkland.
19	Blocks 69 & 70 shall not be considered parkland. Consider merging with Open Space block 74	Open Space Design	MDTR	Removed
20	The stub of Park block 74 in behind lots 54 & 55 shall not be considered parkland. Consider merging this stub with Open Space block 73.	Open Space Design	MDTR	The proposed trail is located in this area thus it has been designated parkland.
21	The Town will not accept the conveyance of Open Space block 73.	Open Space Design	MDTR	This is now OS block 78 and will be conveyed to CVC.

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22	Remove Walkway block 72 into the existing school block. A sidewalk connection from either Street C or A along the east side of Shaw's Creek Road to the existing school block should be considered.	Open Space Design	MDTR	Walkway to school has been removed. Continuous sidewalk from Street A to F has been added.
23	Depending on the LID design within the internal ROW's, street trees in the boulevard may be considered along Street A & Street C (ending at Street B) off of Shaw's Creek road.	Open Space Design	MDTR	Noted. The revised FSR no longer involves LIDs and instead utilizes a network of dry ponds with dry wells and roadside ditches.
24	All chain link & page wire fencing is to be installed entirely on private property adjacent all town, region and conservation authority owned lands.	Open Space Design	MDTR	Noted
25	The landscape construction drawings shall be completed in accordance with the Town of Caledon Official Plan, Recreation and Parks Masterplan, Site Specific Design Guidelines and the most current version of the Town of Caledon Development Standards	Open Space Design	BTI	Noted
26	Prior to executing the servicing agreement, the Owner shall prepare detailed landscape design, grading and construction drawings including all tender documents for park blocks for approval by the Town.	Open Space Design	The Manors of Belfountain Corp.	Noted
27	A clause in the subdivision agreement should indicate that the Owner shall implement the base park conditions to the satisfaction of the Town without any reimbursements by any means including development charges. The required base park condition items will be finalized at the time of final draft plan approval.	Open Space Design	The Manors of Belfountain Corp.	Noted

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28	A clause in the subdivision agreement should indicate that the Owner will be responsible to maintain the park block including grass cutting and debris removal until park construction or assumption, whichever comes first.	Open Space Design	The Manors of Belfountain Corp.	Noted
29	A clause shall be included in the grading, servicing and subdivision agreements stating that the park block shall not be used for stock piling or storage of any construction materials, including topsoil.	Open Space Design	The Manors of Belfountain Corp.	Noted
30	The landscape consultant is to submit a park facility fit plan. The consulting landscape architect should follow up with Town staff to confirm requirements.	Open Space Design	The Manors of Belfountain Corp.	We were advised by the Town of Caledon that a park facility fit plan can be deferred to a later submission.
31	The owner shall pay cash-in-lieu of parkland dedication (CIL) to the Town for the portion of parkland that is under dedicated from the required parkland for the subdivision development. In order to determine the amount of CIL payment, the applicant shall have a market appraisal completed by an AACI certified appraiser. Prior to registration, the Owner shall reimburse the Town for the cost of any necessary peer review of the appraisal.	Open Space Design	The Manors of Belfountain Corp.	Noted
32	If gateways or entry ways are being proposed, they must be located on a separate block. In this instance, the Town shall secure twice the cost of the construction value to the Town for future maintenance/replacement purposes.	Open Space Design	The Manors of Belfountain Corp.	Noted and to be addressed when lot layout is finalized.
33	A warranty buyout option for replacement trees may be considered at time of Assumption. Wording of the clause will be finalized at time of Draft Plan Approval.	Open Space Design	The Manors of Belfountain Corp.	Noted

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	C. Community Services, Urban Design, May 14, 2018			
1	See attached comments from John G. Williams Limited	Urban Design	Weston	Please refer to responses to peer reviewer
	D. Legislative Services, Accessibility, May 3, 2018			
1	Please note that the Town will require as a condition of draft approval, that prior to offering units for sale and in a place readily available to the public, the owner will display information regarding universal design options that may be available for purchase within the development prior to offering units for sale.	Accessibility	The Manors of Belfountain Corp.	Noted
2	Exterior travel routes (sidewalks) shall be a minimum of 1.5 m wide as per the Design of Public Spaces legislation of the AODA, pertaining to exterior travel routes	Accessibility	MDTR	Noted
3	All sidewalks shall be connected when crossing over to another street with accessible features, such as tactile surfaces and curb ramps.	Accessibility	MDTR	Noted and to be addressed in detailed design.
4	Lighting on exterior routes of travel shall comply with the Town's lighting standard	Accessibility	RTG	Noted
5	If a community mail box is installed, the area shall be well lit via a light standard and a curb depression from the sidewalk and/or roadway to the mail box landing area.	Accessibility	MDTR	Noted
6	The park space shall have a travel route that is firm, stable and slip resistant	Accessibility	BTI	Noted. To be addressed in park facility fit plan.
7	If a play structure is incorporated into the park space area, accessibility features shall be incorporated into the design of the play structure, such as sensory and active play components for children and caregivers with various abilities.	Accessibility	BTI	Noted. To be addressed in park facility fit plan.

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	E. Community Services - Fire & Emergency Services, June 18, 2018			
1	Please note that any building constructed under the requirements of Part '3' of the Ontario Building Code shall be required to provided adequate water supply for firefighting (OBC 3.2.5.6.) and fire department access (OBC3.2.5.7)	Fire & Emergency Services	MDTR	Town staff has advised the applicant that a fire cistern is not required for dwellings up to 600m2 in GFA. The proposed architectural guidelines will limit the building footprint of dwellings to be a maximum GFA of 600 m2.
2	The adequate water supply for firefighting would be on private property and would be on a lot to lot or building to building basis, as this subdivision does not require municipal water supply under the official plan.	Fire & Emergency Services	MDTR	
	F. Finance and Infrastructure Services – Transportation, May 18, 2018			
1	Sight distance analysis of the TIS report indicates a sightline concern at the intersection of Street C and Shaws Creek Road. This needs to be addressed during the next submission, and mitigation measures should be provided.	Finance & Infrastructure Services Transportation	Nextrans	Based on our review, the proposed intersections allow for the design vehicles to safely make all maneuvers that are permitted by the layout without significantly affecting vehicles travelling along Shaws Creek Road with the exception of the South approach to Street 'C'. On this basis, it is recommended to implement an advisory warning sign for speed reduction to 50 km/h in accordance with TAC Figure 2.3.3.4, Sight Distance for Turning Movements from Stop. Refer to Section 8.0 of revised TIS.

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2	From a transportation perspective and as directed by the Caledon Transportation Master Plan, the consultant should review and provide the recommendations on the appropriate Cycling Facilities within the subdivision according to OTM Book 18. Also, the sidewalk should be provided on the local roads based on the AODA standard. The findings should be provided in a drawing.	Finance & Infrastructure Services Transportation	Nextrans	Refer to draft plan and Figure 9-1 for locations of sidewalk and sharrows. AODA compliant grades cannot be provided for sidewalks as the proposed development will be conserving existing landforms as much as possible. Bike lanes are not provided, however, sharrows are provided for the internal subdivision network.
3	Town will require a 3 metre widening along the frontage of Shaws Creek Road. The ultimate right of way width of this road is 26 metres as per Schedule K of the Official Plan.	Finance & Infrastructure Services Transportation	Nextrans	Requirement met. Refer to draft plan, shown as Block 86. Further to Ryan Grodecki's email dated August 26, 2020 requesting confirmation if a dedicated southbound left-turn lane is required as part of a traffic assessment, no exclusive left turn lane into Street A or C will be required as traffic is very minimal.Refer to Sections 8.1 and 8.2 of the TIS addendum.
4	Sidewalks are needed in the internal subdivision network, even in an estate subdivision. This requirement is because of the safety of foot traffic (i.e. going to the Canada Post mailbox unit, walking/jogging, walking the dogs, people with baby strollers, people with accessibility aids or wheelchair, etc…). We confirmed with staff that once sidewalks have put in, there will be arrangement to undertake winter maintenance.	Finance & Infrastructure Services Transportation	Nextrans	A continuous sidewalk from Street A to Street E is proposed. Refer to draft plan and circulation plan.
	G. Community Services - Policy & Sustainability, Heritage, August 14, 2018			
	The following comments are in reference to the Cultural Heritage Resource Assessment: Built Heritage Resources and Cultural Heritage Landscapes, ASI file: 17CH-100, December 2017 (revised January 2018):			

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1	No grading, clearing or grubbing on site until the requested CHIS or BHR has been submitted to the Town and recommendations agreed upon by the Heritage Resource Officer.	Policy & Sustainability, Heritage	ASI	Noted
2	Please check reference to dates of maps in 3.2 (1859 and 1877?)	Policy & Sustainability, Heritage	ASI	Confirmed in CHIS
3	Please ensure all heritage dates, references and are correct	Policy & Sustainability, Heritage	ASI	Revised
4	Agree with recommendation points 1, 3, 4, 5, 6, 7, and 8.	Policy & Sustainability, Heritage	ASI	Noted
5	Stronger protection of the development boundary identified in point 4 is required.	Policy & Sustainability, Heritage	ASI	Draft concept plan has been revised to retain trees in CHL4. Please see p. 25 and 26.
6	Amend point 7 to read " …….submitted to Douglas McGlynn, Heritage Resource Officer at the Town of Caledon ……"	Policy & Sustainability, Heritage	ASI	Revised

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7	CHL2 identifies the remnants of a farm complex with some of the remains to be substantial, including an intact silo. How will these be mitigated in the green space once the development has been completed? As noted, a CHIS or a Built Heritage Inventory report identifying all built heritage resources (including stone mounds and walls) should be conducted for the identified CHL 2.	Policy & Sustainability, Heritage	ASI	The remnant farm complex, including the existing silo, barn structure, concrete foundations and central driveway (farm path) shall be preserved in-situ and identified with interpretive signage. Should the Plan of Subdivision for the subject property be approved, a Conservation Plan will be prepared by a qualified heritage consultant for the long-term maintenance and conservation of the remnant farm-scape (CHL 2) within the subject property.
8	Heritage Resources that have been acknowledged as tree lines, hedgerows and fence lines that identify the demarcation of fields will be maintained. However, further identification of the rubble stone mounds from the de-stoning of fields and the rubble stone walls that also demarcate fieldpatterns specifically on the west half of the site need to be included in the Cultural Heritage Resource Assessment, ASI file: 17CH-100, December 2017 (Revised January 2018) or will require a separate CHIS recommending appropriate inclusion and retention in the development.	Policy & Sustainability, Heritage	ASI	Stone mounds shall be preserved in situ throughout the development site wherever possible. Stone mounds that cannot be preserved in situ as a result of proposed infrastructure, including roadways and stormwater facilities, shall be repurposed into features for the proposed park. Existing vegetation along the south lot line of CHL 4 to maintain a visual and physical buffer.
9	Recommendations will note that the identified heritage resources outlined in the CHRA will be avoided wherever possible and maintained/preserved throughout the development through protection strategies such as tree protection zones. These should be incorporated wherever possible in the design.	Policy & Sustainability, Heritage	ASI	Noted, recommendation to preserve features wherever possible included in CHIS. Tree protection zones will be considered once all of the agencies have had an opportunity to comment on a finalized layout.

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10	Once included in the CHRA the stone mounds and walls will require protection and should be mapped until appropriate recommendations for their inclusion in the project are brought forward. Where possible the stone mounds and walls will be preserved, however, should this strategy prove to be too inhibitive then mitigation of the stone mounds and stone fence lines as landscape features throughout the development such as property demarcation, stone landscape features, etc. will be designed into the development.	Policy & Sustainability, Heritage	ASI	Agreed

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H. Community Services - Planning & Development, Engineering, July 25, 2018				
	Below are attached comments			
1	The proposed road cross section is not a cross section that would be acceptable to the Town. Our approved cross section includes curb and gutter, sidewalks etc. In addition to the above Council recently adopted a Master Transportation plan that lays out requirements for local needs.	Engineering	Cole	The proposed ROW cross section now includes curb/gutter, and sidewalk where provided from Street A to F, but continues to maintain the rural nature through the use of roadside ditches for stormwater conveyance.
2	**Grading:**			
a.	Excessive grading is proposed within a significant hummocky depression in the north central section of the development whereby cutting and filling is in the range of 5.0m over 400m length. Should grading occur within this area, this unique landform would be destroyed. It is highly unlikely future lots in this area could be certified to meet Town's grading criteria, as steep slopes would result thus requiring excessive amount of retaining walls. It is unclear if adequate slopes across septic fields could be achieved for many lots. It is the opinion of Development Engineering that this area should remain undisturbed due to its unique characteristic as it likely falls under the Niagara Escarpment Landform Conservation criteria.	Engineering	Cole	Revised draft plan preserves this area as Open Space Block 84.
b.	The grading drawings indicate the elevation of Block 74, which is to be used for stormwater infiltration for a 48ha area, is approximately 403.00m. The plan and profile drawings indicate that Street B at this location along with surrounding lots would in fact be 1.0m lower than Block 74.	Engineering	Cole	The SWM strategy, road alignments and proposed grading has been significantly revised in this current submission.

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c.	The design includes individual low points within the lots that would make the lot prone to flooding.	Engineering	Cole	Low points within proposed lots would be drained by rear-yard catchbasin and storm sewer system. The road grading surrounding lots with low rear yards has been designed such that a maximum of 1.0m deep ponding would be permitted in rear yards (in the event of 100% blockage of the RLCB's), prior to overtopping to an adjacent roadway.
d.	The FSR indicates that most hedgerows would remain intact--it is our opinion that much of the hedgerows would actually be removed.	Engineering	Cole	Hedgerows would remain intact in areas where no grading activity would be proposed.
e.	Detailed grading drawings showing cut/fill areas, centre-line road elevations, and proposed lot elevation along with a Landform Conservation Plan similar to what is required in reviewing developments within the Palgrave Estates Residential Community would assist in any review of this development. Many lots will require detailed cross sections to accurately assess the impact grading will have on the landscape.	Engineering	Cole	The Grading Plan includes additional grading detail along road centerline and lot lines. A Cut/Fill drawing has been included on the revised FSR indicating extent of earthworks along proposed roads and SWM Ponds. In addition, as agreed with Town staff, two sample cross sections have been included through the lots to depict the relationship between existing ground, proposed ground, house footprint, amenity space and septic system. We suggest that detailed design level of lot grading and cut/fill analysis within the lots be produced at the post-draft plan approval stage.
f.	Please confirm the accuracy of the grading plan contours as it was acquired over twenty years ago.	Engineering	Cole	The existing ground topography for the site has been updated based on purchase of aerial topography from First Base Solutions. The aerial topo was flown in 2002.

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3	**Town does not support proposed stormwater design:**	Engineering	Cole	
a.	FIS needs to comment on maintenance of cell detention and dry wells (within the right of way and on private lots)	Engineering	Cole	The SWM strategy has been revised significantly such that dry wells are only used for redundancy purposes within the proposed SWM Ponds. Commentary on maintenance requirements for all proposed stormwater management features has been included in the revised FSR.

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b.	FSR needs to address existing and proposed storage volumes and the effect the Regional Storm would have on the development, including during frozen ground conditions. In addition, there should also be discussion about whether or not the hydraulic conductivity of the soils would change due to the cut/fill operation.	Engineering	Cole	The Regional storm was included in the VO model simulation. The SWM ponds will be sized using a back-to-back 100-year storm and checked using the Regional storm to ensure the ponds will provide enough storage for a 100-year storm and can safely pass the Regional storm over the pond's spillway. The existing storage volume of depression areas on site and off-site are shown on the Pre and Post Development Storm Drainage Area Plans. The existing depression storage volumes on site are irrelevant since they are not proposed for stormwater storage. Proposed stormwater storage volume is shown and provided within the two new SWM facilities. Since the two newly proposed SWM facilities are designed to rely solely on infiltration, dry wells have been included at the base of the SWM Facilities for redundancy and to allow infiltration during frozen ground conditions. We would not expect any change in the hydraulic conductivity of the soils at the base of the proposed SWM Facilities since these are constructed entirely from earth cut operation and would not be subjected to engineered fill/compaction. Furthermore, the soil hydraulic conductivity, which defines the infiltration rate for calculating the SWM pond outlet capacity is a factor of soil texture. Two measures were proposed in the FSR to ensure the infiltration rates applied in the FSR were conservative: First, 1.5 safety factor was

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				applied in the calculation; and the second, 15 cm clear stone was to be install at the bottom of SWM ponds. Those two measures can mitigate largely the uncertain impacts on infiltration rate calculations caused by soil hydraulic conductivity.
4	**Rapid filtration**: it is unknown of dry wells are proposed on private lots, and if so, there is no guarantee homeowners would maintain this infrastructure. FIS needs to comment on this design.	Engineering	Cole	Dry wells are not proposed within private lots.
5	**Town does not support proposed major storm drainage system:**	Engineering	Cole	
a.	Design does not provide for adequate outlet in three locations:	Engineering	Cole	
i.	There is no outlet for Block 74 depression area that is designed for a drainage area of 48ha. As previously noted, this Block is higher than the road and surrounding lots.	Engineering	Cole	The southerly depression area is proposed to be regraded/excavated to form a SWM Facility for quantity control (Dry Pond). The overland spill outlet is directed westerly towards Shaws Creek Road to mimic existing conditions spill route through the site and enhance the existing recharge function.
ii.	Overland flow is being directed across lots 19 and 20, then onto external properties	Engineering	Cole	Overland flow is no longer directed across proposed lots at the north limit of the site.

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iii.	Overland flow from Street A is being directed to Shaws Creek Road r.o.w. which there is no defined drainage course. The FSR needs to demonstrate how Shaws Creek Road currently drains and what effect the development will have on Shaws Creek and downstream properties. It is unclear if the existing ditch on Shaws Creek is capable of accommodating this flow--a plan and profile of the road and ditch is required.	Engineering	Cole	The draft plan has been revised such there is no longer any drainage from Street A directed to Shaws Creek Road. The revised FSR provides spot elevations along the centerline of Shaws Creek Road to depict the high and low point of the road and direction of drainage along Shaws Creek. In addition, a cross section for the east side of Shaws Creek Road has been included in the revised FSR to demonstrate that a defined ditch will be required along the site frontage to contain storm runoff to the existing low point, approximately at the mid-way location of the site frontage. Currently there is no defined ditch along Shaws Creek Road, road runoff flows into the neighboring private properties.
b.	Please note the Town's Development Standards Sections 3.2.3.10 and 3.2.1 clearly identify that overland flow routes must be established. All outlets would require the consent from receiving land owners.	Engineering	Cole	The site is deemed to have no storm outlet. No new storm outlets are proposed from the site, other than utilizing the infiltration capabilities of the soil to drain the two proposed SWM facilities.
6	It is the opinion of Development Engineering that a peer review of the Hydrogeolocial Investigation Report not commence until it is clearly understood how stormwater will be addressed.	Engineering	Cole	Responses to peer review letter dated September 30, 2019 provided under peer review comments.

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7	While the Town does support LID measures, we do not support this proposed stormwater design for the Belfountain subdivision as it relies solely on LID and there is no redundancy in the design.	Engineering	Cole	The stormwater management strategy has been significantly revised and now includes on-site stormwater storage facilities to control 2 - 100-year storm events occuring back to back.
8	LID measures can be utilized as part of the treatment train, however, since the site does not have a defined outlet, a stormwater management facility is required that can control a back to back 100 year storm. Any emergency overland flow path from the pond(s) will be identified on the M-Plan as a Block and dedicated to the Town.	Engineering	Cole	Two stormwater management facilities are now proposed to control 2 - 100-year back to back storm events. Emergency overland flow route is provided through a proposed Channel Block 81 to be taken into public ownership.
9	The Town does not support infiltration dry wells within the right of way, especially the amount as the number of cells/dry wells to maintain would not only be problematic for Town staff to operate, but would be costly to maintain. In regards to the private side, there is no guarantee that the homeowners would maintain and operate this system and would likely fall on the Town to maintain. Additionally, there is no guarantee that the Town will have the expertise to operate and maintain the dry wells.	Engineering	Cole	Dry wells are no longer proposed within either municipal R.O.W.'s or private lots.
10	The current proposal indicates that there will be overland flow leaving the site onto private and public property. All overland flow is to be directed to the pond(s) and is to be controlled on site.	Engineering	Cole	The proposed grading design depicts overland flow directed to either of the two proposed SWM Facilities.

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11	The Town will not permit orifice plates on driveway culverts within the Town's right of way as this is extra infrastructure that the Town will be responsible to maintain.	Engineering	Cole	Orifice plates on driveway culverts have been removed; however to promote infiltration within the ditches, the driveway culverts are proposed to be perched 0.3m above the ditch invert.

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12	The Town's Development Standards, Policies and Guidelines do not allow for ponding depths greater than 0.3 meters and open channels are to have a maximum velocity of 1.5 m/s.	Engineering	Cole	An exception to the max ponding depth has been confirmed with Town staff to allow 1.0m deep ponding in rear yards where existing depressions exist. Velocity of water in the proposed Open Channel Block does not exceed 1.5 m/s.
13	Infiltration trenches on private property are not to be included as quantity control for stormwater management as there is no guarantee the homeowners will maintain them and their functionality. The Town will not be taking easement over infiltration trenches proposed on private property.	Engineering	Cole	Infiltration trenches are no longer proposed within private property. Quantity control for stormwater runoff will be accommodated within two municipally owned SWM Facilities.
14	Hydrogeolocial report is to indicate if there will be an impact on water quality by the proposed dry wells and/or stormwater management facility.	Engineering	Cole	Oil/grit separators are proposed to be installed at each stormwater pond outfall, which will help mitigate potential groundwater contamination from surface spills. The ponds are currently sized for 80% total suspended solids removal as per MECP requirements and only “clean” water is anticipated to infiltrate through the dry wells. Potential water quality impacts are discussed in the revised hydrogeological report (Section 6).

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15	Proposed stormwater management designs are to take into consideration that the Town will be requiring an urban cross section with sidewalks on one side for all roads within the subdivision.	Engineering	Cole	The proposed R.O.W. cross section includes elements of an urban cross section such as curbs/gutter and sidewalk and elements of a rural cross section (road side ditches). It is our understanding that the intent of utilizing ditches has already been established by the Town as an acceptable means of stormwater conveyance.
I. Finance and Infrastructure Services - Engineering Services, July 30, 2018				
	Below are attached comments			
1	The Town supports the use of Low Impact Development techniques in regard to storm water management, however it is only one aspect of the SWM treatment train and by itself is not acceptable. There is no redundancy to this design and is not resilient to Climate Change.	Engineering Services	Cole	The stormwater management strategy has been significantly revised and now includes on-site stormwater storage facilities to control 2 - 100-year storm events occuring back to back.
2	There are a series of detention cells and rapid infiltration dry wells both on private and public property. The number of proposed cells on Town owned lands will be difficult to operate and costly to maintain. The proposed orifice plates present their own issues and would not be acceptable. For the cells and infiltration wells on private property, as the Town **will not** be taking easements, there will be no mechanism to ensure that they are properly maintained by the homeowners. Therefore any proposed facilities on private property **cannot** be used in water balance calculations or quantity control requirements.	Engineering Services	Cole	There are no dry wells proposed on private property and only a few dry wells proposed for redundancy in the SWM Facilities. Orifice plates on the driveway culverts are no longer proposed.

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3	The Functional Servicing Report needs to address the effect of a Regional storm on the system and needs to identify an overland flow route leaving the site. The FSR also needs to address the effect of a winter thaw when we have a snow pack, frozen ground and a rain event. Two such events occurred this past winter.	Engineering Services	Cole	The Regional storm was included in the VO model simulation. The SWM ponds will be sized using a back to back 100-year storm and checked using the Regional storm to ensure the ponds will provide enough storage for a back to back 100-year storm and can safely pass the Regional storm over the pond's spillway. A continuous overland flow route along proposed municipally owned lands has been designed as part of the revised draft plan and FSR; out-letting towards Shaws Creek Road, to mimic existing pre-development overland flow conditions.
4	With regard to the major storm drainage system, the submission does not provide an adequate outlet in three locations. Designing an overland flow route across private property is not acceptable. In addition the existing condition of Shaw's Creek Road may not accommodate overland flows for this development. The FSR needs to address this issue.	Engineering Services	Cole	The Regional storm was included in the VO model simulation. The SWM ponds will be sized using a back to back 100-year storm and checked using the Regional storm to ensure the ponds will provide enough storage for a 100-year storm and can safely pass the Regional storm over the pond's spillway. A continuous overland flow route along proposed municipally owned lands has been designed as part of the revised draft plan and FSR; out-letting towards Shaws Creek Road, to mimic existing pre-development overland flow conditions.
A. Planning & Development, November 2, 2018				

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	The Planning Justification Report and relevant reports and plans require revisions to address the following comments:	Planning & Development		
1	To determine whether the development is compatible and meets the growth and development criteria outlined in Sub-section 1.6.8.9 of the NEP and Town of Caledon Official Plan policies, the application must satisfy the various technical requirements related to impacts on the natural environment, cultural heritage, the surrounding community and satisfying the Town's stormwater management requirements. Please update the Planning Justification Report to describe how the proposed development meets the NEP Development and Growth Objectives	Planning & Development	MDTR	A PJR Addendum is provided with this submission. Please refer to Section 3.3 of the report with regards to how the proposed development supports NEP Minor Urban Centre Growth Objectives and Section 3.4 for Town OP policies. The revised draft plan has significant improvements in natural heritage protection and site-specific stormwater management, integration with the surrounding community and continues to provide cultural heritage conservation.

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2	Further justification is required to demonstrate that the proposed minimum parcel/lot size is sufficient to accommodate the dwelling, private servicing and amenity space. Also, consideration must be given to the adequate separation of private wells and septic systems between lots across the draft plan. It is recommended that appropriate staff from the Town of Caledon and Region of Peel meet to discuss any legislation and/or guidelines that must be adhered to when determining the minimum parcel/lot size. Given the rolling topography and proposed private water and wastewater servicing for each lot, Town staff have an interest in establishing structural envelopes for each lot that identifies the optimal area of the lot for structures and provide ample space for estate residential and accessory uses including all associated necessary lot grading; the proposed house and driveway locations; protection of heritage fencing "hedgerow features"; and soil absorption area for sewage disposal.	Planning & Development	MDTR	Lots range from 0.39 ha to 0.55 ha (except Lot 18, 0.72 ha, which contains a preserved woodlot), with an average lot size of 0.4 ha. The proposed dwellings shall have maximum GFA of 600 m2. The balance of 0.33 ha to 0.494 ha per lot (average 0.34 ha) will be able to accommodate amenity space, potential estate residential and accessory uses, adequate separation of private wells and septic systems, and the necessary absorption area for sewage disposal. Please refer to Section 2.1 of the PJR Addendum and Functional Grading Plan by COLE.
3	According to the Town of Caledon Official Plan, Hamlets rely on Villages and Rural Service Centres for most services. Consideration must be given to the availability of soft services within nearby Villages and Rural Service Centre, including but not limited to commercial, medical, and community services to support the additional anticipated population. It is recommended that the Planning Justification Report examine the availability of soft services to the new proposed community.	Planning & Development	MDTR	The population allocation for Belfountain is 520 people. The additional population from this proposal (236, from 75 singles at 3.15 ppu) would stay within this allocation, totaling 445 people for the new population of Belfountain on ultimate built out

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4	The "Urban Design and Architectural Design Guidelines", prepared by BTI, Architecture Unfolded and Weston, dated February 2018, states that the Sustainability Feasibility Study is to be completed at detailed design. However, it is important that the Urban Design and Architectural Design Guidelines and Sustainability Feasibility Study be completed together at this time to provide the overall guidance for the design for both the subdivision layout and the construction of the individual homes.	Planning & Development	Weston	Please refer to the UD/ADG. There is an expectation of a high number of custom estate home designs within the community, prohibiting the evaluation until those designs are submitted at the Site Plan stage. Each new dwelling will be assessed by the Control Architect for applicable best practice standards and will be in compliance with the guidelines.
5	It appears that Lots 49, 50, 51 and 52 are partially within the "Escarpment Protection Area" designation, which does not permit multiple severances. Please update Figure 7 – Development Plan and Environmental Constraints map, within the "Scoped Environmental Impact Study" (EIS), to include the environmental policy overlays and ensure the proposed development does not encroach into the policy areas: a. NEP Escarpment Natural Area and Escarpment Protection Area; b. Region of Peel Core Area of the Greenlands System; and c. Town of Caledon Environmental Policy Area.	Planning & Development	MDTR	Revised draft plan does not propose disturbance in Escarpment Protection Areas. Appropriate restrictions will be registered on title to protect the lot area within the EPA, as per discussion with NEC.
6	The EIS identifies a large Significant Woodland patch at the north-east of the subject lands that contains Jefferson Salamander habitat and the associated regulated habitat area. Also, the EIS identifies a small portion of a Significant Woodland at the south-west portion of the property. Ministry of Natural Resources and Forestry (MNRF) staff recommends that the	Planning & Development	Beacon	Comment noted. Though 30 m vegetation protection zones from significant woodlands are a requirement of the Oak Ridges Moraine Conservation Plan and the Greenbelt Plan, they are not required outside of these areas. The proposed 10 m buffer satisfies all buffer requirements contained within the Niagara

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	minimum Vegetation Protection Zone (VPZ) for the significant woodlands be 30 m, which is consistent with the VPZ requirements within the Greenbelt Plan, 2017, and the Provincial "Natural Heritage Assessment Guide for Renewable Energy Projects". In order to confirm the development limits from the natural heritage features and areas, please provide further evidence within the EIS that would demonstrate that a VPZ less than the recommended 30 m by MNRF is appropriate, as per Sub-section 2.7.6 and 2.7.7 of the NEP.			Escarpment Plan, as well as the Official Plans of the Town of Caledon and the Region of Peel. Section 7.5.5 of the EIS speaks to buffers, and impacts on the significant woodland are addressed within Table 14 of the EIS. Potential impacts to the significant woodlands will be partly mitigated through the proposed development pattern. As a low density, estate residential development, there will only be 7 residential lots that directly abut the woodland, and on each of those, the proposed residence will be located a minimum of 30 m away from the dripline of the feature. Five of these lots will abut cultural plantation units of the significant woodland, which are considered to be more tolerant to adjust development. The remaining two lots abut a remnant portion of deciduous forest community that has been heavily impacted by previous agricultural land clearing such that though connected to the larger woodland to the south, essentially exists as a small 0.25 ha triangle of woodland on the Subject Lands, and would therefore provide minimal ecological function. Given the low density of development in proximity to these features, and the existing nature of these features as previously discussed, potential impacts as

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				a result of noise and light from the nearby residences is considered to be minimal, and will likely not have a measurable impact on wildlife use of the features. To satisfy the requirement of the Niagara Escarpment Plan, the minimum vegetation protection zone, or buffer, should be of sufficient width to protect and where possible enhance the key natural heritage feature and its functions from the impacts of the proposed change and associated activities that may occur before, during, and after, construction. The proposed 10 m buffer will ensure that critical root zones of individual trees within the woodland community are protected from potential impacts during construction. The 10 m buffer will also enhance the feature through restoration of natural self-sustaining vegetation on lands that have been maintained in row crop agricultural production. The buffer will also provide some measure of protection against ad-hoc access to the feature from neighbouring residents and pets, however the key preventative measures in this regard will be education of new landowners. To this end, it is proposed that educational materials be prepared for new residents to ensure they are aware of the importance of the

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				system and the potential impacts that ad-hoc access, dumping, or pet intrusion into the feature may cause. In addition, signage will be installed along the proposed foot path to identify the benefits of staying on the trail and keeping pets on leash. There would be no expectation that a buffer of larger width would provide further protection to the significant woodlands from ad-hoc access or pets. Given the above, the proposed 10 m buffer is considered to be sufficient to both protect and enhance the significant woodland, when implemented in association with other mitigation measures identified above.
	B. Community Services, Development Engineering, October 3, 2018			
1	Development Engineering has reviewed the stormwater proposal provided by Cole Engineering to utilize a similar strategy currently used in a subdivision near Snow Valley, and provide the following comments. The subdivision near Snow Valley utilizes ditches and infiltration trenches in combination with office plates on culverts to promote infiltration for up to the 5 year storm. Flows above the 5 year storm are conveyed to a dry pond where the release is controlled. While the Town does support LID measures, we do not support this proposed stormwater design for the Belfountain subdivision as it relies solely on LID and there is no redundancy in the design. In addition to the issue of solely	Development Engineering	Cole	The updated stormwater management strategy within the revised Functional Servicing Report is premised on a different design concept and includes two SWM Facilities (Dry Ponds) to provide quantity control for all storms up to and including two 100-year storms back-to-back events. Quality control for road runoff is provided by the vegetated roadside ditches in combination with Oil/Grit Separators.

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	controlling with LID methods, the Town has prepared the following comments and concerns with the proposed design:			
2	LID measures can be utilized as part of the treatment train, however, since the site does not have a defined outlet, a stormwater management facility is required that can control a back to back 100 year storm. Any emergency overland flow path from the pond(s) will be identified on the M-Plan as a Block and dedicated to the Town.	Development Engineering	Cole	A treatment train approach using the roadside ditches and Oil/Grit Separators is proposed to achieve required SWM quality control. For quantity control, two Stormwater Management Facilities have been proposed as Blocks 79 and 80 on the current draft plan. The two SWM Facilities have been sized to provided sufficient quantity control for two 100-yr storms back-to-back. An Emergency spill route, designated as Block 81 functions as the emergency overland flow route from Block 79 to Block 80 and will be identified on the future M-Plan as a Block and dedicated to the Town.
3	The Town does not support infiltration dry wells within the right of way, especially the amount as the number of cells/dry wells to maintain would not only be problematic for Town staff to operate, but would be costly to maintain. In regards to the private side, there is no guarantee that the homeowners would maintain and operate this system and would likely fall on the Town to maintain. Additionally, there is no guarantee that the Town will have the required expertise to operate and maintain the dry wells.	Development Engineering	Cole	Dry wells are no longer proposed within the right-of-ways or on private property. Only a limited number of dry wells continue to be proposed, as a redundancy measure, at the base of the two stormwater management facilities to ensure SWM pond infiltration performance can occur during frozen ground conditions. A section discussing the maintenance requirements of the dry wells has been added to the FSR under Section 5.6. The FSR indicates that a SWM Operation and Maintenance Manual will be prepared and submitted during the detailed design stage.

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4	The current proposal indicates that there will be overland flow leaving the site onto private and public property. All overland flow is to be directed to the pond(s) and is to be controlled on site.	Development Engineering	Cole	As per the current stormwater management strategy, all overland flow will be captured and conveyed into either of the two SWM Facilities (Dry Ponds).
5	The Town will not permit orifice plates on driveway culverts within the Town's right of way as this is extra infrastructure that the Town will be responsible to maintain	Development Engineering	Cole	Noted, and no orifice plates have been proposed on driveway culverts, however, the driveway culverts are proposed to be perched 300mm above the ditch invert to promote infiltration.
6	The Town's Development Standards, Polices and Guidelines do not allow for ponding depths greater than 0.3 meters and open channels are to have a maximum velocity of 1.5 m/s.	Development Engineering	Cole	As per recent discussions with Town of Caledon staff, the maximum ponding depth allowed within rear yards will be 1.0m, which would occur under emergency situations only should the rear lot catchbasin(s) become completed blocked. All rear yard ponding areas would spill to either the proposed pond blocks, emergency conveyance channel, or the municipal right-of-ways to prevent the ponding depths from exceeding 1.0m. The flow velocity of the emergency spill route channel is less than 1.5 m/s, refer to Section 5.4.2 of the updated FSR.
7	Infiltration trenches on private property are not to be included as quantity control for stormwater management as there is no guarantee the homeowners will maintain them and their functionally. The Town will not be taking easement over infiltration trenches proposed on private property.	Development Engineering	Cole	The use of infiltration trenches no longer forms part of the proposed stormwater management strategy.

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8	Hydrogeological report is to indicate if there will be an impact on water quality by the proposed dry wells and/or stormwater management facility.	Development Engineering	Cole	In summary, it has been evaluated that no impacts are anticipated on water quality. Please refer to Sections 6 & 7 of the updated Hydrogeology Report for analysis of stormwater infiltration impacts to groundwater quality.
9	Proposed stormwater management designs are to take into consideration that the Town will be requiring an urban cross section with sidewalks on one side for all roads within the subdivision.	Development Engineering	Cole	We believe the comment intended to state the requirement for a 'semi-urban' cross section which includes curb/gutter and sidewalks in conjunction with roadside ditches. The VO model for site stormwater accounts for the additional hard surface that a sidewalk will represent. The current Draft Plan proposes both 18.0m wide R.O.W. (with no sidewalk) and 20.0m R.O.W. (with sidewalk).
C. Community Services, Heritage & Urban Design, October 30th, 2018 (via email)				
1	Although the majority of the stone walls are overgrown, there are places where they are easier to locate, and in some instance the stone mounds are between six and eight feet in height. As the onset of winter continues, these natural heritage features will become more prominent and may require a future site visit to confirm their true mass and complexity. The stone walls and tree lined rows are an indication of the development of the field system for agricultural use over time and play an important part of our understanding of the development of this field structure. As some of the walls are substantive in size, they could be utilized in the development of the proposed subdivision to provide natural lot lines throughout.	Heritage & Urban Design	BTI	See updated tree preservation plan. Heritage features are preserved wherever possible.

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2	Where the stone walls cross proposed roads, the stones could be re-appropriated to form landscape features in specific areas. An evaluation of the trees within these field boundaries should also be undertaken to establish their condition as they are also indicative of not only the development of the agricultural field systems but they show intent to help prevent crop damage by the weather, especially wind and driving rain or snow by providing a buffer across the landscape.	Heritage & Urban Design	BEACON BTI	Refer to revised tree preservation plan and report for extent of stone walls to be preserved and removed. The latest draft plan responds wherever possible to this comment by incorporating the cultural resources into the lot fabric.
3	The stone walls and tree lines are not an insignificant heritage feature on the site and having reviewed the photographic documentation from Sally Drummond's site visit with the Town of Caledon team, the stone walls and tree lines are prominent throughout the site. In order to accommodate these significant heritage features, mitigation could involve a slight re-alignment of the lot boundaries to line through with the locations of the walls and trees in various locations throughout the subdivision. It is imperative that these natural heritage features feature in any revised and updated CHIS report.	Heritage & Urban Design	BTI	See revised tree preservation plan as well as CHIS prepared by ASI. Heritage features are preserved wherever possible.
	D. External Comments			
1	The Belfountain area is subject to seasonal influx of visitors and vehicle traffic which is drawn to this area to enjoy the local businesses and natural features which at times already strain existing roadway infrastructure. Further residential development in this area will bring additional vehicle traffic, associated noise, and parking issues onto existing local Town and Regional roads in the area and consideration will have to be given to how this additional traffic will impact roads such as Main Street and Bush	OPP Oct 29, 2018 (Email)	Nextrans	Existing patterns have been detailed in Table 4.2. Similar to the Niagara Escarpment Commission comment #2 above, the volume of traffic estimated to be generated by the subdivision has been doubled to ensure the road network continues to operate at acceptable levels of service. Refer to sections 4.1 and 5.1. As such, there are no traffic concerns in the area. The development is proposing a park with parking

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	Street and their intersection in downtown Belfountain, as well as increased traffic on Shaw's Creek road which is at present an unpaved dirt road and likely unsuitable to accommodate a significant increase in traffic volumes. Based on current requests and calls for service to the Police and Town Bylaw from residents in relation to existing traffic, noise, and parking concerns in this area, any significant increase in daily vehicle traffic and associated noise in this area will no doubt lead to an increase in requests for Police and Town Bylaw assistance in this area. A detailed and careful review of existing traffic patterns and noise levels and the potential impact of any new development on them should be considered prior to approval.			spaces located on-site (site plan to be updated in future submission). Additionally, the Belfountain Conservation Area is located approximately 500-m from the proposed development. As such, it is our opinion that residents can walk/cycle to these parks, without creating additional trips to the road network, as it is within a comfortable distance. Alternatively, outsiders can utilize the proposed park, which will reduce the current parking issues on the existing road network
2	Rogers Communications Canada Inc., has aerial and buried coaxial plant in this area, as indicated on the attached plans. Caution is advised. Use Vac truck and expose ducts. Maintain minimum of 0.6 m clearance. Hand dig when crossing or within 1 m of Rogers plant. Note: Plant is to approximation. Locates are required. Call for locates at 1-800-738-7893.	Rogers November 1, 2018	The Manors of Belfountain Corp.	Noted

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Hydrogeology Peer Review (Terra Dynamics Consulting) Comments

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Terra-Dynamics Consulting Inc. September 30th, 2019		Jayme Campbell, P. Eng. 905-646-7931 | jcampbell@terra-dynamics.com
No.	**Comment:**	**Responses by COLE Engineering:**
3.2 Confirmation the study followed standard acceptable industry practice		
3.2.1 Water Quality Impact Risk Assessment		
3.2.1 (1)	The Water Quality Impact Risk Assessment (i.e. future sewage system impacts to groundwater, wells and surface water) generally followed standard acceptable industry practice of the three-step process of Procedure D-5-4 (Technical Guideline for Individual On-site Sewage Systems: Water Quality Risk Assessment, MECP, 1996a): 1) Step One: Lot Size Considerations 2) Step Two: System Isolation Considerations 3) Step Three: Contaminant Attenuation Considerations a) Predictive Assessment - Residential Development	Noted
3.2.1 (2)	However, it was noted by Cole Engineering (Section 5.7 Groundwater Quality) that: "The on-Site areas with higher nitrate concentrations are likely a result of the historical and current agricultural activities occurring both on-Site and up gradient of the Site. Development of the Site will result in a reduction of the agricultural areas suspected of contributing to the on-Site nitrate concentrations by approximately 67%. Thus, development of the Site is expected to lead to a long term decrease in nitrate concentration on-Site."	The 67% in the report refers to the surface area of previously agricultural lands being converted to residential, not a quantitative evaluation of nitrate concentration reduction due to change in land use type. The intent was to ballpark a conversion of agricultural land mass. The suggestion being that decrease in total land area being used for agricultural is expected to lead to a long-term decrease in nitrates, which is supported by empirical evidence from similar neighboring development projects.

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3.2.1 (3)	It is recommended Cole Engineering provide references for the conclusions that: (i) on-site residential nitrogen loads will be 2/3rds less than agricultural nitrogen loads; and (ii) up-gradient agricultural loads will not increase, e.g. a change in crop type that could increase upgradient agricultural nitrogen loading.	Reference to a subdivision in south Erin Village, located in the same geological setting as our site, approximately 4 km west of the Site is provided. Elevated nitrate concentrations, a result of historical agricultural turkey operations, were observed to decrease from a maximum of 30 mg/L in select monitoring locations to an average of approximately 3.5 mg/L over a 10-year span following development of the subdivision. Previous consultants (Terraprobe) also reference the Caledon Mountain Estates subdivision, located across Mississauga Road, to the east of the site, constructed in the mid-1970s, which is also underlain by coarse overburden overlying dolostone and shale. Groundwater quality samples collected from within the boundary of this subdivision identified nitrate concentrations ranging between 0.6 mg/L and 2.4 mg/L, providing another data set of empirical evidence that sufficient dilution occurs in the subsurface in this geological setting (Terraprobe 1990). However, a before-concentration was not provided from this case study. Note there is no agriculture upgradient of the Site (other than a small area to northeast of the Site) to the groundwater divide associated with the height of the Paris Moraine. The change of land use to residential will therefore eliminate nearly all agricultural fertilizer inputs to groundwater at the Site.
3.2.1 (4)	Also of potential concern, is the calculated Site water balance under developed conditions, given The Town of Caledon's Development Engineering's comments on the proposed stormwater proposal (Town of Caledon, 2018). It is recommended the Site water balance be updated, as well as	A post-development water balance has been added to the updated report, based on the current grading plan. Similarly, predictive sewage impacts have been re-assessed based on current design and data.

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	the predictive assessment of sewage impacts, once the stormwater proposal has been revised to the satisfaction of the Town of Caledon.	
3.2.1 (5)	It is noted that the proposed development area is greater than 300 m from the West Credit River, which is good because this is the minimum recommended separation distance to ensure there are no appreciable effects to surface water quality from un-ionized ammonia or phosphorus loadings (MECP, 2008).	Noted
	3.2.2 Water Supply Assessment	
3.2.2 (1)	According to provincial procedure D-5-5 for water supplies (MECP, 1996b), the minimum number of test wells for the water supply site assessment of the 42.24 hectares of residential estates would be six (6) test wells. This criteria was met through water quantity testing completed by R. J. Burnside, and analyzed and reported on by Cole Engineering in their report. The water quantity supply assessment generally followed standard industry accepted practice.	Understood
3.2.2 (2)	However, it would have been preferable if the potential for water quantity interference had been determined using monitored wells (private or water supply) rather than by theoretical calculations, e.g. particularly where there are existing water supply wells off-site. Cole Engineering's recommendation for an "updated survey of private wells" should also include consideration of (a) potential water supply interference concerns and (b) if there are dug wells or	Updated door-to-door survey is currently scheduled for Spring 2020 subject to consents being received from home owners. The presence of dug wells will be evaluated as part of this survey event

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	spring supplies, which could be vulnerable regarding water quality concerns. This would further address the RFQ direction to characterize private wells in Belfountain.	
3.2.2 (3)	With respect to water quality testing, provincial procedure D-5-5 (MECP, 1996b) states "The consultant must obtain and analyze sufficient water quality samples during each pumping test in order to determine the physical, chemical and bacteriological quality of the water". General water quality samples were collected by R. J. Burnside with results tabulated and discussed in the Cole Engineering report. The water quality supply assessment generally followed standard industry accepted practice, however the Cole Engineering report did not:	Noted
a)	present the methodology of R.J. Burnside's water quality collection procedures, e.g. were these water quality samples collected during pumping tests? "At least one of these samples must be collected during the last hour of the test" (MECP, 1996b), or collected following the removal of three to five well volumes or another methodology such as consistent specific conductance and temperature values during well development;	Water samples were collected at the end of the pumping period per Burnside "Belfountain Water Supply Assessment", dated March 30, 2015
b)	present bacteriological water quality results; this is particularly important as a number of wells had elevated turbidity results, e.g. TW1, TW8 and TW10, as elevated turbidity can "indicate problems in well construction or a naturally occurring problem; (that) may interfere with water treatment … the consultant must note that if turbidity is	Bacteriological parameters were included in the Spring 2020 sampling program and the results incorporated into the updated hydrogeology report.

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	present, particular care must be taken during testing to ensure that the bacteria requirements of Table 1 are met " (MECP, 1996b)	
c)	test for any pesticides or herbicides likely applied to the on-site and up-gradient agricultural land, "The consultant must also determine whether conditions specific to the site or its surrounding area require the inclusion of additional parameters" (MECP, 1996b)	Pesticides and herbicides were included in the Spring 2020 sampling program and the results incorporated into the updated hydrogeology report.
3.2.2 (4)	While total organic carbon was substituted for dissolved organic carbon as listed in Table 3 (MECP, 1996b) there were no exceedances of this aesthetic objective (MECP, 2003).	Understood
3.2.2 (5)	It would also be recommended for Cole Engineering to address elevated sulphate at Test Well TW12 (875 and 896 mg/L) in greater detail as Provincial procedure D-5-5 (MECP, 1996b) states it is "not considered reasonably treatable above the limit (500 mg/L)". This was the only location with elevated sulphate concentrations although no water quality was presented west or southwest of TW12.	TW12 drilled into underlying shale and poor water quality is interpreted to be derived from shale. All new wells will be completed in the Amabel Fm.
	3.2.3 Other	
3.2.3 (1)	The RFQ also mentioned consideration of post construction monitoring. Post-construction water table level monitoring should annually show changes in recharge to the groundwater system through the overburden, however there will be a lag in any changes to groundwater quality. It is estimated changes to groundwater quality will take 4 to 10	

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	years to be initially detected at the groundwater table from a land use change from agriculture to rural residential. This amount of time was calculated as the unsaturated zone advection time or UZAT (MECP, 2006). Consequently, it is recommended select onsite wells (monitoring or water supply) be recommended by Cole Engineering for:	
i.	installation of datalogging pressure transducers to monitor water level recharge conditions, and	Noted, a network of monitoring wells will be selected to provide water levels throughout and following construction
ii.	groundwater quality monitoring occur at 3 year intervals following initiation of construction, e.g. nitrogen species laboratory analyses at 3, 6, 9 and 12 years and other parameters useful in evaluation of sewage effluent impacts.	Noted, a groundwater quality monitoring program will be initiated following the start of construction. Parameters to be included include nitrogen species, chloride, routine and physical water parameters, which will help compliment and alleviate several comments and concerns raised by different agencies
3.2.3 (2)	It is recommended the Town of Caledon have a development agreement whereby approvals for phased development correspond to favourable analysis and reporting of the water level and water quality monitoring as being in compliance with safe sustainable water supply requirements as calculated to occur in Cole's reporting.	Understood and agreed, staged development should only progress should the 3-year monitoring interval reports demonstrate and confirm no unacceptable impacts
3.2.3 (3)	In addition, it is recommended the Town of Caledon have the development agreement include an annual report requirement whereby the treated effluent quality results from the tertiary/level IV systems installed are reviewed.	We understand a maintenance agreement would form part of the development / subdivision agreement.
3.3 Review of Study compliance with Town of Caledon requirements		

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3.3 (1)	It is our understanding that the Town currently allows Level IV/Tertiary treatment systems for private sewage systems but does not complete annual review of the effluent monitoring or enforcement of remedial measures. As mentioned in Section 3.2.3, it is recommended effluent treatment be reviewed for compliance with the values used in the hydrogeological report.	Same as above
3.3 (2)	We agree with the Town of Caledon that the Cole Engineering hydrogeological report should be updated "to indicate if there will be an impact on water quality by the propose dry wells and/or stormwater management facility" (Town of Caledon, 2018).	Potential impact on water quality by the proposed stormwater measures is included in Section 6 of the updated hydrogeology report. Note, the revised FSR only has dry wells in the SWM ponds.
3.4 Review of Study compliance with the MECP and other relevant agency criteria, tests, guidelines, policies and procedures		
3.4.1 MECP comment letter dated October 16, 2018		
3.4.1 (1)	With respect to the Memorandum from Trevor Bell (MECP) to Nancy Mott (Niagara Escarpment Commission) we have the following comments for consideration by the Town:	
i.	It appears the MECP were mistaken regarding the 1988 Terraprobe borehole logs being logged by drillers as the report states "The drilling, sampling and standpipe installations were supervised on a full-time basis by a member of our engineering staff." (Terraprobe, 1990).	Noted
ii.	The information provided in the Cole Engineering report indicates there is sufficient overburden thickness that surficial karst conditions should not be present at the site.	Agreed, based on observed site conditions, local karst at surface does not appear to be present at the Site. Reference to regional-scale presence of potential karstic features, associated with the

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		dolomite underlying the Site, were included in the report to acknowledge known literature, but are unlikely to apply in this case.
iii.	It is reasonable to request additional information regarding the assumption of a long term decline in nitrate concentrations.	Based on similar development projects in the area, particularly the development of a subdivision of south Erin Village with similar underlying geology, including Amabel Formation dolostone, located at the intersection of Wellington Road 52 and 9th Line in Erin, approximately 4 km to the west of the Site, demonstrates the natural reduction of nitrate concentrations due to conversion from agricultural land to residential subdivision under existing geological conditions. Nitrate concentrations in this area were greater than 30 mg/L at select monitoring locations in the late 1990s when the area was used as agricultural area where there was a turkey operation. Following development and conversion to a subdivision of Erin Village, over the last 10 years, nitrate concentrations have declined to an average of approximately 3.5 mg/L (CVC 2011). Previous consultants (Terraprobe) also reference the Caledon Mountain Estates subdivision, located across Mississauga Road, to the east of the site, constructed in the mid-1970s, which is also underlain by coarse overburden overlying dolostone and shale. Groundwater quality samples collected from within the boundary of this subdivision identified nitrate concentrations ranging between 0.6 mg/L and 2.4 mg/L, providing another data set of empirical evidence that sufficient dilution occurs in the subsurface in this geological setting (Terraprobe 1990). As current nitrate concentrations are expected to be a result of current and historic agricultural activities on-site and surrounding the site, a similar reduction can be reasonably anticipated, following residential development.

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		The highest nitrate levels found on site are east of the identified nitrate line where the overburden is thinner. As development will take place west of this line, it is COLE's opinion that even if nitrate levels do not subside the development will not be adversely impacted. Nitrate levels are anticipated to go down over time and monitoring shall take place as part of the progression of the development
iv.	It is reasonable to request an updated water supply survey that considers potential impacts to off-site users through development of the Site.	Noted, updated door-to-door survey is currently scheduled for 2020 subject to consents being given by home owners
v.	It does not seem reasonable to require additional pumping tests unless potential at-risk water supplies are identified within 200 m of the Site (Halton Region, 2014) from the updated water supply survey. Water supplies identified within 200 m of the Site should be evaluated as to their sensitivity to well interference, e.g. where the predicted drawdown exceeds 0.5 metres, Cole should measure the available water above the pump under pumping conditions at these off-site wells and if less than 2 m, complete a pumping test using the nearest test well.	COLE and Peer Reviewer are in agreement that an additional combined pumping test is un-necessary and unreasonable.
vi.	It is reasonable to request Cole Engineering to estimate irrigation water demands being accounted for in the Provincial procedure D-5-5 analysis (MECP, 1996b).	Appropriate restrictions on title will prohibit use of groundwater for swimming pool use and limit irrigation. Irrigation and peak summer day demands are addressed in the revised hydrogeology report (Section 6.3).
vii.	The Cole Engineering report geologic cross-sections show at least 8 metres of overburden across the Site which is a	Noted, no further COLE action

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	sufficient thickness to attenuate any pathogens before the bedrock aquifer.	
viii.	It is agreed that the water quality impact assessment would be more robust if completed using Class IV system loading (effluent nitrate-nitrogen concentration of 40 mg/L). It is recommended the Cole Engineering report include this assessment.	This will be enforced through subdivision agreement. The calculation being completed using a concentration of 20 mg/L of effluent is representative of expected actual conditions.In subsequent discussions, it was agreed to proceed with the proposed tertiary treatment (20 mg/L).
3.4.2 Belfountain Community Organization (BCO) comment letter dated May 18, 2018		
3.4.2 (1)	The BCO could be advised that the MECP (1995) provides the following clarification regarding the Ministry's stated concern with "areas with high infiltration rates". "The concern … is that there is adequate protection of ground water resources. Of note is the concern about increased mobility of pathogens through highly permeable materials."	Noted
3.4.2 (2)	The letter mentions discussions with Dr. Ken Howard and provides transcription of his observations. Dr. Howard is recorded as being concerned about nitrates from future development flowing to potable wells in the old village area. Cole Engineering has indicated nitrate loading will be less to the subsurface after land use changes to rural residential from agriculture. With respect to Dr. Howard's other concerns regarding (i) water supply takings, (ii) changes in the regional gradient and (iii) well set-backs, a potential solution is to develop the property in phases beginning with the southern portion. Confirmatory monitoring of water quantity and quality could	COLE is in general agreement that a monitoring program during construction would allow all parties to adequately assess the long-term viability of the development.

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	then inform sustainability of the physical environment for future development of the northern portion of the community (see Section 3.2.3).	
4.0 Adequacy of Water Supply		
4.1 Identification of long and short-term quantity and quality impacts to down-gradient private water supply wells from the proposed development		
	This was generally completed as part of the provincial procedure D-5-4 and D-5-5 analyses. However, as noted earlier some areas of further improvement and clarification are recommended to inform this following completion of the updated water use survey.	Responses provided above
4.2 Identification of long and short-term quantity and quality impacts to private water supply wells within the subdivision		
	This was generally completed as part of the provincial procedure D-5-4 and D-5-5 analyses. However, as noted earlier some areas of further improvement and clarification are recommended.	Responses provided above
4.3 If proposed mitigation measures for any potential impacts are acceptable.		
4.3 (1)	The only measures mentioned under mitigation in the Cole Engineering report are the use of tertiary/level IV systems. It would be our opinion that they are an acceptable mitigation measure only if the Town of Caledon is prepared to monitor the annual effluent sampling results and enforce remedial measures where necessary, e.g. improvements to tertiary/Level IV system operation such as changes to effluent recirculation rates.	It is understood that the use of tertiary systems has been agreed upon in principle.
4.3 (2)	We suggest an additional mitigation measure for consideration by the Town of Caledon and Cole Engineering;	Cisterns are being considered in case of droughts. However, it is COLE's opinion that the Amabel Formation will be able to adequately support water supply needs. As noted in the

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	the use of cisterns to meet water supply needs. These are a very common solution in other regions of Ontario and can be utilized in variety of ways, e.g.(i) filled by wells to buffer peak demand times, or (ii) filled by water truck, or (iii) roof leaders removing the need for private wells entirely. It would be expected that cistern supplied homes would have a disinfection system and cisterns can be constructed below garages and have separate sections for potable and grey water use if desired. We have spoken with the Town of Caledon, and the Region of Peel, and no concerns or policies prohibiting the use of cisterns have been identified.	Expert Panel Report on Water Well Sustainability in Ontario, the bedrock aquifers bordering the west side of the Niagara Escarpment (including the Amabel Formatio) makes up Ontario's most extensive and productive bedrock aquifers (Novakowski et al., 2006).
5. Adequacy of Hydrogeological Study		
5 (1)	Cole Engineering's Hydrogeological Investigation Report (February 2018) generally followed standard industry practice. However, there are a number of areas recommended for further study and documentation by Cole Engineering in their updated report. They include:	
1	References for the conclusion of residential nitrogen loads being 2/3rds less than agricultural loads and that up-gradient agricultural loads will not increase;	Based on the area of the Site vs the area under agriculture, upgradient of the site to the GW divide in a hummocky area of the Paris Moraine which appears to be used for rural residential housing. Due to the topography in this area, it is unlikely this would be converted to agricultural use.
2	Updated water balance under developed conditions reflecting the updated stormwater management plan, this includes any changes to the assessment of sewage impacts;	A post-development water balance has been added to the updated report, based on the current grading plan

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3	Completion of an updated water supply survey and updated assessment of potential water supply interference with those off-site supplies including water quality concerns;	To be completed in 2020 to participating residents.
4	Future potential water quantity interference be assessed using monitored wells, particularly in reference to any private wells identified off-site;	Based on zone of influence calculations, offsite wells will not be affected by the proposed development. The closest surrounding groundwater user is approximately 125 m from the nearest proposed supply well on Lot 48, well outside the anticipated radius of influence of this well (30 m).
5	The methodology of R.J. Burnside's water quality collection;	Water samples were collected at the end of the pumping period per Burnside "Belfountain Water Supply Assessment", dated March 30, 2015
6	Collection of (a) bacteriological water quality, including interpretation with respect to elevated turbidity, and (b) testing for pesticides and herbicides with respect to the Site and upgradient land activities;	Bacteriological parameters, pesticides and herbicides have been assessed as part of the 2020 Sampling Program and the results incorporated into the updated hydrogeology report.
7	Addressing elevated sulphate at Test Well TW12;	TW12 was resampled in spring 2020 and the results were similar. This well was completed into the underlying shale bedrock which is interpreted to have had an impact on the water quality results. The results have been presented in the revised hydrogeology report. All proposed domestic wells should be completed in the Amabel Formation.
8	Identification of wells for post-construction monitoring, including for a phased development approach south to north; (i) wells for datalogging pressure transducers to monitor water level recharge conditions and (ii) 3 year interval nitrogen species and sewage effluent impact water quality monitoring;	A post-construction monitoring program is discussed in previous comments.

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9	Analysis of impacts on water quality by dry wells and/or stormwater management facility;	Refer to Section 6.2.3 of the updated hydrogeology report.
10	Estimation of irrigation water demands being accounted for in the Provincial procedure D-5-5 analysis;	Based on a study in Carlisle (2010) completed for a similar type of development, an irrigation peaking factor of 1.6 has been applied and a safe yield analysis was completed. This has been incorporated into the updated hydrogeology report (Section 6.3.2).
11	Water quality impact assessment include results if completed using Class IV system loading (effluent nitrate-nitrogen concentration of 40 mg/L)	As mentioned in previous comments, above, this will be enforced through subdivision agreement. The calculation being completed using a concentration of 20 mg/L of effluent is representative of expected actual conditions.
5 (2)	In addition, it is recommended the Town of Caledon have a development agreement to	
a)	Phase development based upon review of water levels and water quality being in compliance with predicted protection of water supplies and the aquifer.	Monitoring reports during the construction phase of the development will determine the mitigative steps to be taken if necessary.
b)	have an annual report prepared reviewing the treated effluent quality results from the tertiary/level IV systems installed.	It is our understanding that this would be implemented as part of a maintenance agreement of the tertiary systems forming part of the development agreement.

4

Urban Design Peer Review (John G. Williams) Comments

Comments Response Matrix
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John G. Willams Ltd. May 14th, 2018		David Stewart, MCIP, RPP Office: (905) 780-0500 | Email: dstewart@williamsarch.com	
No.	**Comment:**	**Response by:**	**Responses:**
	Section 4.3 - Landscape and Streetscape Design Guidelines		
1	Although the design criteria is generally adequate and appropriate, we have the following minor comments/concerns:		
a.	Photos 27-29 depict driveway options. However, the homes shown in these photos do not support the intended architectural character (styles not compatible with Belfountain; garages are too dominant; cladding materials are not appropriate). In order to not mislead users of the UD/ADG, it would be helpful to either crop the buildings out of the photos or use examples with context-appropriate dwellings.	BTI Weston	Buildings cropped out on page 37 Figures 27 to 29
b.	Photo 28 is stated in the text portion as “Tar and Chip”; the photo shows “textured concrete”	BTI Weston	Figure 28 revised to show Tar and Chip driveway
c.	Photo 29 is stated in the text portion as “patterned / textured concrete” the photo shows “granular”. The use of granular driveways should generally be avoided unless required for infiltration purposes.	BTI Weston	Figure 30 revised to show patterned/textured concrete
2	Section 4.3.3 (Model Repetition / Façade Variety) states that 4 manor models are available for this development. Although these models were used for the purposes of the VIA report, suggesting the use of only 4 models is not appropriate for a	Weston	Noted and Section 4.3.3 revised accordingly on p. 44

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	site this size. This section needs to be revised to broaden the variety and place more stringent requirements for the allowable repetition of facades within the streetscape in order to support the desired development vision.		
a.	At least 8-10 different model types with 2 alternate façade treatments shall be made available in order to create visual interest and avoid monotonous streetscapes.	Weston	Four sample models are used with the anticipation of additional models in the future as identified in Section 4.3.3 of the UD/ADG
b.	There shall be a minimum of 3 different models between identical facades (currently shows 2 unit separation); The TWDG (Sec. 13.4 – Estate Housing) stipulates a maximum of 20% of the streetscape comprised of the same façade;	Weston	See response to comment 2a
c.	Identical facades shall not be permitted directly opposite one another;	Weston	See response to comment 2a
d.	Identical models shall not be placed adjacent to one another (currently allows for this).	Weston	See response to comment 2a
e.	Each home shall be carefully designed and sited to appropriately respond to its location within the community through attention to architectural style, building orientation, massing, articulation, materials and site conditions.	Weston	See response to comment 2a
	Section 4.4 - Architectural Design Criteria		
1	This section provides architectural guidelines to govern the design of new built form within the community. While it offers basic design criteria better suited to a typical subdivision than an executive estate development,	Weston	"Section 4.4.1 Architectural Style" on page 52 revised to include these recommendations.

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	it does not provide sufficient specific design criteria to support the vision of a "…high quality, heritage inspired architecture that will respect and complement the existing character of Belfountain."		
2	Text should be revised throughout Section 4.4 to strengthen terms such as "should" and "encourage" in favour of more prescriptive terms such as "shall" and "will", where appropriate.	Weston	Revised accordingly
3	The guidelines rely on and promote the same 4 proposed models (fig. 54-57) used for the purposes of the VIA report. As noted for Sec. 4.3.3 above, these models are insufficient in achieving the desired architectural image that respects the established character of Belfountain.	Weston	See response to Section 4.3 comment 2a.
4	A broader analysis of appropriate façade treatments (using representative photos, sketches and demonstration plans) is required to provide a clearer vision of the desired built form outcome and promote a unique sense of place.	Weston	See response to Section 4.3 comment 2a.
a.	New homes should not try to directly imitate historic styles but rather to add a new layer of architectural history and variety to Belfountain.	Weston	See response to Section 4.3 comment 2a.
b.	New dwellings will provide heritage-inspired character as per the development vision but should also include the use of high quality contemporary materials (windows, railings, stone, etc.).	Weston	See response to Section 4.3 comment 2a.
c.	Alternatively, new buildings may have a contemporary design but incorporate traditional materials, proportions, roof form,	Weston	See response to Section 4.3 comment 2a.

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	massing, etc. to complement the character of homes within the hamlet.		
d.	To assist, we have included some examples of housing concepts that reflect how modern day estate homes can be designed with historical influences that would be appropriate for development within the rural heritage context of Belfountain.	Weston	Noted
5	Sections 4.4.1 (Architectural Style) and 4.4.2 (Elevations and Facades) should be expanded to incorporate the following criteria:	Weston	Section 4.4.1 and 4.4.2 revised accordingly.
a.	House designs and architectural character will be evaluated on their ability to convey the image of a distinctive country home with a modern aesthetic and local historic vernacular influences to suit the local site context and design vision for the Manors of Belfountain.	Weston	See response to comment 5.
b.	The goal is to combine a timeless architectural character that reflects the area's rural heritage, with the elements and conveniences homeowners' desire in a modern home. This will include: -Simplicity of design - streamlined rural character with contemporary elements. -Large window / door openings; -Large covered porches; -Rich material palettes with accents that enliven the streetscape; -Building massing that promotes harmony with the natural	Weston	See response to comment 5.

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	landscape of the local area. -Well-articulated facades and roof forms; -Variation in building setbacks to avoid the look a standard subdivision and to create landscaping opportunities that will help individualize each property.		
c.	Dwellings shall be designed to take advantage of views to the adjacent open space areas and promote physical connections between indoor and outdoor.	Weston	See response to comment 5.
d.	All elevations of the dwelling shall be given an equivalent level of design treatment (including side and rear elevations). Where side or rear elevations are not publicly visible, these elevations may be simplified.	Weston	See response to comment 5.
e.	Include relevant diagrams / photos / sketches to support the above guidelines.	Weston	See response to comment 5.
6	The UD/ADG does not provide criteria to guide the design of roof form. Roof form is an essential component in the individual and collective massing of homes within the community. Since it is important to minimize negative visual impacts, it is recommended that appropriate height restrictions be incorporated into the UD/ADG and the zoning by-law. The Visual Impact Assessment analyzed prototypical models with a maximum height of 11m to the roof peak / ridge. A new section (Roofs) that deals specifically with roof form is required and should include:	Weston	A new section 4.4.3 titled Roof Form is incorporated in the UD/ADG with the reccommended guidelines. Figure 64 illustrates the maximum allowable height of 11 metres.

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a.	A variety of distinctive roof forms, consistent with the architectural style of the dwelling, will be encouraged.	Weston	See response to comment 6.
b.	The second storey (or a portion of it) shall be incorporated into the roof form to minimize building height;	Weston	See response to comment 6.
c.	The maximum building height shall be 11.0m to the roof peak (with allowances for dwellings with walk-out basements and other grade-affected dwellings);	Weston	See response to comment 6.
d.	Main roof side slopes less than 10:12 (and front-to-back slopes less than 6:12) are discouraged unless it can be demonstrated that a lower pitch is in keeping with the heritage architectural style of the home;	Weston	See response to comment 6.
e.	The use of upgraded roofing materials is required. Use premium roofing materials such as cedar shingles or shakes, standing seam metal, copper, heavy shadow asphalt and synthetic slate, where feasible.	Weston	See response to comment 6.
f.	Plumbing stacks, gas flues and roof vents should be located on the rear slope of the roof, wherever possible, and should be coloured to blend with the roof.	Weston	See response to comment 6.
g.	Include relevant diagrams / photos / sketches to support the above guidelines.	Weston	See response to comment 6.
7	Section 4.4.6 (Exterior Material Colours) should be expanded to include the following:	Weston	Exterior Materials and Colours now Section 4.4.7 is expanded with illustrations as recommended.

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a.	A high standard of quality, design and detail for wall cladding is required to attain a harmonious blend of textures and colours within the community.	Weston	See response to comment 7.
b.	Colour schemes and material selections shall be carefully coordinated for visual harmony with the adjacent natural area and for consistency with the architectural style of the dwelling.	Weston	See response to comment 7.
c.	In order to avoid monotonous streetscapes, neighbouring dwellings shall not have the same exterior colours. Identical main wall cladding shall be separated by at least 3 dwelling units and shall not be located on directly opposite sides of the street.	Weston	See response to comment 7.
d.	The following main wall cladding materials, or combinations of these, are permitted: -Clay Brick: May have a weathered rustic or smooth appearance. -Stone: May include random ashlar, fieldstone, smooth-cut limestone or linear modern appearance (natural, cultured stone or manufactured). -Stucco: It should be in natural tones with appropriate moulded trim detailing. -Siding: High quality cement-fibre (“Hardi” or equivalent), prefinished wood siding (“Maibec” or equivalent) or thick gauge metal siding (“Longboard” or equivalent) in either shiplap or board + batten profiles.	Weston	See response to comment 7.

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e.	The use of vinyl siding, concrete block or stucco board (crezone panelling) as a main cladding material is not permitted.	Weston	See response to comment 7.
f.	When using a combination of materials, special care shall be given to transitioning of materials. Material transitions occurring near the front corners of the dwelling shall return along the side walls to a logical transition point, such as a wall jog, downspout or wall opening. The minimum return shall be 1200mm (4ft) from the front corner.	Weston	See response to comment 7.
g.	Grading shall be coordinated with dwelling foundation design and construction to ensure that no more than approximately 300mm (12”) of foundation walls above grade is exposed. Where sloping finished grades occur, finished wall materials and foundations shall be stepped accordingly to minimize exposed foundation walls.	Weston	See response to comment 7.
h.	Include relevant diagrams / photos / sketches to support the above guidelines.	Weston	See response to comment 7.
8	The UD/ADG does not provide criteria to guide the design of windows. A new section (Windows) should be added:	Weston	A new Section on Windows provided. Section 4.4.8 with photos of examples on page 64.
a.	The design and placement of windows shall reflect the internal spaces, suit the influencing architectural style of the home and address the streetscapes and views to open space areas.	Weston	See response to comment 8.
b.	Large windows, consistent with the architectural style of the dwelling, shall be provided to take advantage of the views and vistas within the development area.	Weston	See response to comment 8.

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c.	High quality window styles are required. Fenestration quality and style shall be consistent on all elevations of the dwelling.	Weston	See response to comment 8.
d.	The use of mullions and muntin bars which visually divide the windows into smaller panes of glass may be provided dependent on the architectural style of the dwelling. Use of taped muntin bars is not permitted.	Weston	See response to comment 8.
e.	Window sills and lintels shall be designed for consistency with the architectural style of the dwelling.	Weston	See response to comment 8.
f.	Coloured window frames, compatible with the colour scheme of the dwelling, is required.	Weston	See response to comment 8.
g.	Include relevant diagrams / photos / sketches to support the above guidelines.	Weston	See response to comment 8.
9	Section 4.4.9 (Garages) does not include any direction for garage design other than street-facing garages. Given the large lot frontages (25m to 90m+) within the Manors of Belfountain development, a variety of design options are feasible to diminish the visual dominance and massing of the garage within the streetscape. This section should be revised to incorporate the following:	Weston	Revised design directions on Garages provided in Section 4.4.11 on page 66 with illustrative sketches and images.
a.	A variety of garage designs shall be provided to avoid the monotony of street-facing garages located at the front of the home.	Weston	See response to comment 9.
b.	The preferred design is to have the garage doors oriented away from the street.	Weston	See response to comment 9.

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c.	Design criteria, including diagrams, should be provided for: street-facing garages; side-facing garages; rear yard garages (detached or attached). Other garage options will be reviewed upon their merits. The primary goal is to ensure the garage does not dominate the dwelling.	Weston	See response to comment 9.
d.	Where front facing garages are proposed, they shall be recessed by at least 1.5m from the front main wall face of the dwelling	Weston	See response to comment 9.
e.	A maximum of 3 garage bays may face the street, provided the width of the garage is less than 40% the width of the dwelling. Where additional garage space is desired, the use of tandem garages is encouraged to minimize the number of garage doors facing the street. Where three car garages are proposed facing the street, the wall shall be articulated (for example, one baystaggered by 0.6m - 1.2m).	Weston	See response to comment 9.
f.	Garage front walls should be designed to provide wall and roof articulation.	Weston	See response to comment 9.
g.	Include relevant diagrams / photos / sketches to support the above guidelines.	Weston	See response to comment 9.
10	An “Implementation” section should be added for clarity for end users of the UD/ADG stating the required process for architectural control review / approval in addition to all other procedures that may apply	BTI ARCH Unfolded Weston	A new 'Section 5 Implementation' is included in the UD/ADG on page 72.

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Regional Councillor Comments

Comments Response Matrix
June 2020

Regional Councillor Ward 1 June 18th, 2019		Ian Sinclair T: 547-542-5624 | E: ian.sinclair@caledon.ca	
No.	**Comment:**	**Response by:**	**Responses:**
	A. Road Salt		
1	How will ice melting chemicals and spills on subdivision roads be captured and treated before either infiltrating into the groundwater or Provincially Significant Wetlands located on adjacent private properties?	COLE	Currently, all proposed dry wells are placed at the bottom of the stormwater management ponds. Oil/grit separators are proposed to be installed at each stormwater pond outfall, which will help mitigate potential groundwater contamination from surface spills. The ponds are currently sized for 80% total suspended solids removal as per MECP requirements and only "clean" water is anticipated to infiltrate through the dry wells. In addition, COLE does not anticipate an increased chloride concentration, a dissolved parameter commonly associated with the application of road salts on roadways, to detrimentally affect groundwater quality at the Site or to off-Site receptors. These are discussed further in Section 6 of the updated hydrogeology report.
	B. Sewage Treatment		
2	70 estate lots are proposed to be serviced by individual septic systems and wells. How will safe distances between potable wells and septic tile fields both on the same lot and neighbouring lots be established and maintained in order to prevent ground water contamination?	COLE	The proposed lots have an average size of 0.4 ha and this will accommodate the OBC minimum clearance separation requirement of 15m on each lot. Additional discussion is provided in the revised FSR.

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3	Tertiary Septic Systems are recommended for all 70 houses which may remove 65% of nitrates. What is the estimated cumulative, 70 lot, nitrate loading on the groundwater per year of the 35% of nitrates not removed by the tertiary septic systems?	COLE	The conservative lower end of the treatment systems performance range (50%) was used in its calculations. Based on the revised proposed 75 lots, the cumulative additional nitrate load was estimated to bel 2.52 mg/L at the Site boundaries. This complies with applicable requirements.
4	In addition, what are the estimated annual nitrogen inputs from application of lawn fertilizers over time for 70 estate houses?	COLE	Nitrogen inputs from lawn fertilizers are anticipated to be lower than nitrate loading from current agricultural operations.
5	How will the tertiary septic systems be enforced to be installed on all 70 houses?	COLE	Operation and maintenance agreements are a regulatory requirement for all tertiary treatment systems. A 10-year maintenance agreement with the manufacturer would be implemented through the subdivision agreement.
6	Ultra-violet disinfectant has been recommended by consultants for each house. Why?	COLE	UV water disinfection and other measures, as necessary, would be implemented through the subdivision agreement as a conservative safety measure. The results of water quality testing that would be required after the completion of each domestic well and before the building permit is issued would guide the water treatment requirements for each lot.
7	How will the high maintenance of the tertiary septic systems be enforced on each household?	COLE	Operation and maintenance agreements are a regulatory requirement for all tertiary treatment systems. A 10-year maintenance agreement with the manufacturer would be implemented through the subdivision agreement.
8	How will septic systems be built on steep sloping lots?	COLE	Development is proposed in areas less than 25% slope as per NEP policies. Therefore, steep slopes are not anticipated to be an issue. Terraced septic systems will be used where necessary, however, the intent is to minimize grading of existing landforms.

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9	Is there any possibility of septic effluent from the proposed 70 lot development entering the ground water supply to the house wells in the core area of Belfountain?	COLE	The proposed Tertiary Septic System combined with dilution from infiltration will provide adequate treatment. Boundary conditions have been calculated in Section 6 of the updated report. See also response to Peer Review comment vii.
	C. Potable Water Supply		
10	What is the estimated total groundwater taking L/day peak rates during dry summer months when all 70 houses will be occupied, topping up swimming pools, irrigating, etc.?	COLE	Appropriate restrictions on title will prohibit use of groundwater for swimming pool use and limit irrigation. Cisterns are recommended to augment the water supply in case of droughts. Using MECP Procedure D-5-5, it is estimated that the proposed development will use 168,750 L/day (450 L/day * 5 persons * 75 units).
11	What proportion of the aquifer will be taken at peak rates during dry summer months when all 70 houses will be occupied, toping up swimming pools, irrigating, etc.?	COLE	Based on a water supply study for the Town of Carlisle, Hamilton (Stantec 2010), dry summer day water consumption showed a peaking factor of 1.6 (60% higher) (270,000 L/day). Considering daily average infiltration (546,734L/day) and water entering the Site (1,344,930 L/day), the takings under peak dry summer months represent approximately 14% of anticipated daily input to the aquifer.
12	Has the local Guelph-Amabel dolostone aquifer been clearly demonstrated to provide sufficient water for all 70 houses and the PSWs, especially in the longer term?	COLE	Yes and peer reviewer is of same opinion as well. Please also refer to the Expert Panel Report - Water Well Sustainability in Ontario (Novakowski et al., 2006) for a general overview of the water supply potential of the Amabel Formation.
13	The total groundwater taking of all 70 houses will likely cause a combination of water table decline, pumping drawdown and well losses may cause serious problems in individual wells under peak pumping condition. Has the cumulative groundwater impact of the complete development been fully assessed?	COLE	The peer reviewer is also of the opinion that there is sufficient groundwater for the water supply of the proposed development. As a comparison, two municipal wells in Erin (E7 and E8) are installed in the same aquifer as the proposed domestic wells. These wells are permitted to take 2,159,998 L/day (E7) and 1,967,998 L/day (E8). The average reported takings in 2016 were 335,342 L/day and 432,689 L/day, respectively.

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14	Region of Peel comments include the requirement for, "A combined pumping test must be performed, where all proposed supply wells together with private wells must be pumped at maximum rate to prove there is enough water supply to avoid impact on neighbouring wells. Monitoring stations in the wetlands and surface water features must be added as well." When will this work be accomplished?	COLE	COLE and the peer reviewer in agreement that this combined pumping test is unnecessary and unreasonable. Potential impacts to wetlands, surface water features and/or existing users have been evaluated and are not anticipated.
15	What is the groundwater flow function of the St. Thomas Till layer noted as located above the Guelph-Amabel dolostone aquifer?	COLE	No reference of the St. Thomas Till layer is made. The St. Thomas Till is not a mapped till in Ontario and it is believed the Port Stanley Till is being referred to. The Port Stanley till may act as an aquitard, but based on borehole logs, appears present in only select portions of the Site. The till is a silty / sandy till and is not as impermeable as other tills below the escarpment (e.g., Halton Till, Newmarket Till). Therefore, infiltration through this layer, where present, will not be negligible and not expected to limit or restrict infiltration to the groundwater table.
16	What are the groundwater sources for the individual wells supplying houses in the Hamlet of Belfountain?	COLE	The individual wells in the Hamlet are supplied by a shale and or sandstone aquifer, which is different from the water supply of the proposed development, the dolostone aquifer (Amabel Formation). All available geological mapping supports this interpretation, as do the water well record database. This is discussed further in COLE's revised report. Refer to Section 5 and Figure 8 of the revised hydrogeology report.
17	A baseline well survey of the individual wells supplying houses in the Hamlet of Belfountain was both offered by MoB and requested by commenting agencies. Has the survey been completed?	COLE	Local residents within 500 m of the Site have been sent a letter inviting them to participate in a door-to-door well survey. To date, only one resident has indicated that they are willing to participate. Survey is

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			currently scheduled for 2020, subject to receiving consent from landowners.
D. Provincially Significant Wetlands			
18	PSWs are located both on the MoB site on the northern side and also along the northern abutting properties. What are the source waters feeding the wetlands? What volume of waters are required to sustain the wetlands?	BEACON COLE	The wetlands located at the northern periphery of the site are not PSWs. These units have been evaluated to be fed by surface water runoff, with possible contribution from shallow groundwater in the overburden (refer to cross sections A-A' and B-B'). Based on the results of the hydrogeological investigation, these are not hydraulically connected to the underlying dolostone aquifer. Water taking from this aquifer is not expected to affect the water quality or quantity in these features.
19	In the event the 70 lot subdivision proposal is approved and built, how will nitrate contamination of groundwater supplies to the PSWs be avoided?	BEACON COLE	As noted above, the wetlands located on the northern periphery of the subject lands are not PSWs. Policy analysis and mitigation with regards the wetlands are provided in the EIS Addendum on p. 3 and 6. The proposed Tertiary Septic System combined with dilution from infiltration will provide adequate treatment. Boundary conditions have been calculated in Section 6.2 of the updated hydrogeology report. In addition, denitrification (conversion of any nitrate to N2 gas) by denitrifying bacteria is a common occurrence in organic rich wetlands under anaerobic conditions.
E. Overall Subdivision Grading			

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20	The proposed subdivision site is on top of a wide, deep gravel deposit, part of the Caledon Outwash Channel. The gravel deposit is so coarse that no precipitation event since the glaciers melted has cut a stream channel across the deposit. Waters immediately percolate into the ground all over the site. The site is characterized by rolling topography with small knolls and depressions. The plan of subdivision generally flattens the site filling the many depressions where waters briefly collect prior to infiltration. Why has the development proposal not designed grading and housing to take advantage of natural site drainage?	COLE	The updated FSR minimizes grading to preserve the landform and rolling topography characteristics and incorporates the existing depressions into the stormwater management design.

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Region of Peel (Region) Comments

Comments Response Matrix
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Region of Peel July 31st, 2018			Larissa Svirplys-Howe, Manager, Development Services Office: (905)-791-7800 x4568 | Email: larissa.svirplyshowe@peelregion.ca	
No.	**Comment:**	**Comment by:**	**Response by:**	**Responses:**
	Planning and Development			
1	**Healthy Development Assessment (HDA)**	Planning and Development		
a.	Large-scale HDA required to be completed as proposal is draft plan. Small-scale HDA was completed.		MDTR	Revised
b.	It is our understanding that comments from several agencies may lead to a revision in the proposed street network. In designing the street network, the Region recommends that connectivity be promoted to the nearby school and the Hamlet of Belfountain.		MDTR	Refer to draft plan. Connectivity has been promoted to the school and surrounding community through proposed sidewalks and trail.
2	**Natural Heritage: Grassland habitat and existing hedgerow/woodlot crossing proposed Lots 5, 6, 7 must be further examined**	Planning and Development	BEACON	Refer to the updated draft plan. Grassland habitat is proposed to be preserved as part of Block 84, with additional lands south of the bird habitat also preserved in open space Block 84. The hedgerow parallel to Shaw's Creek Road does not qualify as a woodland per the Town of Caledon's OP or Regional OP. Nevertheless, it is proposed that the hedgerow be retained to the extent possible within lots 9-12, with building envelopes proposed 11 m from the dripline of trees and driveways cited such as to reduce the amount of grading and tree removals required.

MDTR

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3	**Noise Study:** Region not concerned with road traffic as significant noise source as Mississauga Road is separated from Lots 49 through 56 by existing sizeable woodlot.	Planning and Development	Swallow Thornton Tomasetti	Noted
	Source Water Protection			
4	Wellhead Protection Area (WHPA) E for Credit River and Peel's Inglewood wells overlaps small portion of property at northern border. Land use is not proposed to be changed, is encompassed by Open Space 73	Source Water Protection	COLE	Acknowledged, the development will not touch this portion of the Site
	C. Transportation			
5	Proposed development abuts Mississauga Road, Regional Road 1.	Transportation		
a.	Region will not permit any changes to grading within the Mississauga Road right-of-way along the frontage of proposed development.		COLE	Understood
b.	No lots or blocks shall have direct access to Mississauga Road. Any future access shall be in accordance with the Region's Access Control By-law.		MDTR	Proposed development will not have direct access to Mississauga Road
c.	Storm water flow shall be looked at in a holistic manner for all developments along Regional roadways. The relocation of storm systems across Regional roadways shall be done symmetrically, so that the distance between the inlet and outlet of the system onto the		COLE	Proposed development will not adjust any storm systems or drainage features related to Regional roadways.

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	Regional roadway are the same or less as compared to the pre-development condition. Under no circumstance should the flow of storm water be diverted along the Regional right-of-way (by pipe or channel), in order to accomplish the relocation of a drainage feature with-in or adjacent to the Regional right of way, without the prior written consent of the Region			
6	**Land Dedications:** The Developer shall dedicate, free and clear of all encumbrances and to the satisfaction of the Region:	Transportation		
a.	A road widening pursuant to the Region's Official Plan along Mississauga Road (Regional Road #1). The Region's Official Plan road widening requirement for mid-block along Mississauga Road is 30 metres right-ofway (15.0 metres from the centerline). An additional 5.5 metres of property as per the Official Plan requirements will be required within 245 metres of intersections as a result of design necessities to protect for the provision of but not limited to; utilities, sidewalks, multiuse pathways and transitbay/ shelters. The total right of way required is 35.5 metres for a single left turn lane intersection		MDTR	Noted. This is indicated as Block 79 on revised Draft Plan.

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	configuration (17.75 metres from the centerline of Mississauga Road).			
b.	A 0.3 metre reserve along the frontage of Mississauga Road behind the property line		MDTR	Requirement met. Refer to draft plan
c.	Draft plan must be revised to show above		MDTR	Revised
7	**Capital Project:** The Developer is advised that the Region has recently undertaken design for road improvements along Mississauga Road under project #14-4065. It is recommended the applicant contact the Region to clarify specific road improvement requirements prior to preparation of detailed engineering plans and/or reports. The capital project is currently at the 30% Detailed Design stage.	Planning and Development	MDTR	Noted
	Servicing			
8	This site does not have frontage on existing municipal sanitary or water services as there are no services in close proximity. The applicant is proposing private individual wells and septic systems to service each dwelling.	Servicing	COLE	Correct
	Water and Wastewater Program Planning			
9	The water balance is based on the results from previous studies as follows: a. Terraprobe: Hydrogeological Investigation - 1988 and 1989	Water & Wastewater Program Planning	COLE	A post-development water balance has been added to the updated hydrogeology report, based on the current grading plan

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	b. Beatty Associates: Assessment of water supply based on the Terraprobe study - 2002 c. RJ Burnside: Information on a monitoring program from 2014 to 2017 and pumping tests performed to five wells in 2014 and two wells in 2016			
10	A review of the well water records database dated 2017 is provided, but there is not updated door-to-door survey within the 500-metre area of influence.	Water & Wastewater Program Planning	COLE	Updated door-to-door survey is currently scheduled for 2020 subject to consents being given by home owners
11	Cole Engineering is not clear on the specific sources of water proposed to be used for the development and did not provide information on the location of the wells in relation to the proposed design	Water & Wastewater Program Planning	COLE	A revised draft plan is included in an appendix in the revised hydrogeology report. The revised FSP also illustrates the proposed lot layout and well placement. All proposed wells shall only be installed into the Amabel Formation dolostone aquifer. Issues related to potential water qaulity impacts related to chlorides, SWM ponds, dry ponds, etc. are addressed in Section 6 of the revised hydrogeology report.
12	The report is based on very general information from the site	Water & Wastewater Program Planning	COLE	COLE is of the opinion that extensive aquifer testing and soil characterization has historically been completed at the site and a strong understanding of geological and hydrogeological conditions at the site has been developed.
13	The report must be reviewed and adjusted to the most up to date information.	Water & Wastewater Program Planning	COLE	The report has been updated with the most up-to-date information. Please note that the hydrogeology report has been revised following additional water quality testing completed at wells on-site in Spring 2020.

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14	A pumping test relevant to the proposed water takings must be performed and designed according to the depth of the wells to properly determine potential impact to the aquifer and the private wells being supplied by the same aquifer.	Water & Wastewater Program Planning	COLE	MECP Procedure D-5-5 - Technical Guideline for Private Wells: Water Supply Assessment was followed. As indicated by the 2019 independent peer review of the COLE report (Terra-Dynamics Consulting Inc.) "According to provincial procedure D-5-5 for water supplies (MECP, 1996b), the minimum number of test wells for the water supply site assessment of the 42.24 hectares of residential estates would be six (6) test wells. This criteria was met through water quantity testing completed by R. J. Burnside, and analyzed and reported on by Cole Engineering in their report. The water quantity supply assessment generally followed standard industry accepted practice." Each individual water supply well on each property will need to be constructed by a licensed contractor using licensed well technicians following the requirements of O.Reg.903.
15	A combined pumping test must be performed, where all proposed supply wells together with private wells must be pumped at maximum rate to prove there is enough water supply to avoid impact on neighbouring wells. Monitoring stations in the wetlands and surface water features must be added as well	Water & Wastewater Program Planning	COLE	COLE and Peer Reviewer are in agreement that an additional combined pumping test is unnecessary. Provincial requirements (Procedure D-5-5) for conducting a water supply assessment for private were followed. As pre- and post-development conditions will be maintained, the proposed development will not impact the wetlands.
16	A calculation of the water balance must be provided based on the most up to date information.	Water & Wastewater Program Planning	COLE	A post-development water balance has been added to the updated hydrogeology report, based on the current grading plan. The water balance was also checked using the most up to date climate data available (2010-2015), as well as the available 30- year climate normal.

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	Waste Management			
17	Waste Collection Vehicle Access Route	Waste Management	Nextrans	
a.	All roads shall be designed to have a minimum width of 6 metres		Nextrans	Proposed pavement width is 6.5m
b.	Road layouts shall be designed to permit a waste collection vehicle to drive forward without reversing for waste collection. Where the requirements for a road layout permitting forward movement of a waste collection vehicle cannot be met, a cul-de-sac or a T-turnaround shall be provided in accordance with the specifications shown in Appendices 2 and 3, respectively (Waste Collection Design Standards Manual).		Nextrans	The AutoTURN demonstrates that the waste collection vehicle does not need to reverse for collection. Refer to Section 7.0
c.	Internal roadways must be constructed of a hard surface material, such as asphalt, concrete or lockstone, and designed to support a minimum of 35 tonnes, the weight of a fully loaded waste collection vehicle.		Nextrans MDTR	Noted
d.	The turning radius from the centre line must be a minimum of 13 metres on all turns. This includes the turning radii to the entrance and exit of the site. Please show and label the turning radii in subsequent submissions.		Nextrans	Requirement met. Refer to draft plan

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e.	The proposed cul-de-sac on the East side of the site by Lot 55 and Lot 56 must have a minimum 13 metre turning radius from the centre line. Please show and label the turning radius from the centre line in subsequent submissions.		Nextrans	Requirement met. Refer to draft plan.
18	Curbside Collection Area	Waste Management		
a.	Each dwelling unit within a development must have its own identifiable collection point. See Appendix 9 (Waste Collection Design Standards Manual) for an example of a collection point		MDTR	Requirement met. Refer to draft plan
b.	The set-out area along the curb, adjacent to the driveway must be at least 3 square metres per unit in order to provide sufficient space for the placement of two carts: maximum 1 large garbage or recycling cart (360 litres) and 1 organics cart (100 litres), overflow waste (i.e. additional bags), yard waste receptacles and bulky items. Each unit within a development must have its own identifiable waste collection point (distinct set out area along the curb or the sod that cannot be shared with neighbouring units) as approved by Public Works Commissioner or Delegate.		MDTR	Requirement met. Refer to draft plan.
c.	The waste set out location is to be as close as possible to the travelled portion of the		MDTR	Requirement met. Refer to draft plan

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	roadway, directly adjacent to the private property of the unit occupier/owner, directly accessible to the waste collection vehicle and free of obstructions like parked cars and sidewalks.			
d.	Please show and label the designated set-out area for each dwelling in subsequent submissions.		MDTR	Requirement met. Refer to lot layout plan in PJR Addendum. Please note set out locations appear relatively small as lots are generally over 30m-50m wide.

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Ministry of Environment, Conservation & Parks (MECP) Comments

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Ministry of Environment, Conservation and Parks October 16th, 2018			Trevor Bell, Environmental Resource Planner & Regional EA Coordinator Office: (416)-326-3577 | Email: trevor.bell@ontario.ca
No.	**Comment:**	**Response by:**	**Response:**
1	In general, the report (HG, Cole, 2018) is based on several past sources of information regarding groundwater conditions at the site, which do not provide systematic, and consistent information related to groundwater and soil conditions.	COLE	Extensive aquifer testing and soil characterization has historically been completed at the site and a strong understanding of geological and hydrogeological conditions at the site can be derived from that information. To date, approximately 80 boreholes have been drilled across the Site using either rotary or auger drill rigs. This has provided a wealth of information related to the subsurface conditions across the Site. In addition, COLE is a subscriber to the Oak Ridges Moraine Groundwater Program online program and has used information and interpretations from that program to augment the local data. This ORM program is coordinated by nine conservation authorities (CAMC), including the CVC, as well as the Regions of York, Peel and Durham, and the City of Toronto (YPDT).
2	The majority of the soil unit descriptions for the site provided within the report (HG, Cole, 2018) are based on BH logs (Terraprobe, 1989) that were logged by the drillers, and the well records provided assumed to be logged by drillers as well. Additional assessment (including systematic sampling, description, texture, consolidation, grain size analysis of representative samples, etc.) of overburden deposits at the site with sufficient details for the local soil profile and stratigraphic descriptions is strongly recommended for the overburden deposits across the site. Grain size analysis results should be also considered to refine assumptions related to	COLE	Extensive aquifer testing and soil characterization has historically been completed at the site and a strong understand of geological and hydrogeological conditions at the site can be derived. As noted above, of the roughly 80 boreholes drilled on the site, approximately 50 are from auger rigs where split spoon samples (e.g. relatively undisturbed core) have been obtained. A Geotechnical report was completed by EXP Services in 2017, including BH logs and grain size results. COLE is of the opinion that the Site the data collected to date has allowed for a reasonable characterization of subsurface conditions.

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	infiltration, storm water management options, and water balance evaluation. The additional detailed site specific soil conditions will also further support related technical evaluation and engineering design.		
3	Based on additional soil and groundwater information, the preparation of detailed hydrostratigraphic cross-sections are recommended to better identify local aquifers, overburden unit details, bedrock and water table.	COLE	COLE is of the opinion that the two cross sections presented adequately represent the local hydro- stratigraphy. The results corroborate cross sections that can be produced by the ORM Groundwater Program's online mapping portal.
4	Groundwater level data provided in the report (HG, Cole, 2018) mainly reflects the groundwater conditions within the bedrock formation (only few on site wells are screened with the overburden unit).	COLE	Based on the borehole logs and characterization that has been completed at the site, a significant overburden aquifer does appears to be present. The geological composition of the outwash overburden does not support a confined shallow overburden aquifer.
5	The shallow groundwater regime within the overburden unit above the bedrock formation should be further assessed laterally across the site. Additional overburden monitoring wells (along with soil profile records at the well locations in sufficient detail) should be installed to further understand the shallow groundwater conditions and flow across the site.	COLE	Depth to groundwater has been interpreted to range from approximately 12 to 20 m. Over much of the site except for the south western quadrant where the depth to bedrock, is deeper, the observed water level has been within the bedrock. Further, Terraprobe installed > 30 monitoring wells in the overburden in high quality boreholes (auger boreholes) and all but two were dry. Based on this, additional monitoring wells in the overburden are considered unnecessary.
6	To further understand the local groundwater regime and potential karstic conditions below the site, seasonal groundwater level monitoring within the overburden is recommended	COLE	COLE is of the opinion that significant karst is not expected at the site due to the overburden thickness. Note that over 30 monitoring wells in the overburden have been previously found to be dry. Based on the monitoring data collected to date, the depth to groundwater is reasonably well understood.
7	The rapid infiltration of the on-site water feature and runoff may be indicative of potential karstic conditions below the	COLE	The infiltration of the site is indicative of the relatively coarse-grained outwash in the area, not karst. Water budget mapping completed by the

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	site. The evaluation of the potential impacts of septic systems and on-site storm water management within a karstic bedrock groundwater system is recommended.		ORM Groundwater Program illustrate areas of high recharge in areas corresponding with the mapped outwash deposits. Rapid infiltration is a result of the high recharge rates associated with outwash sediments. ORM mapping shows recharge rates of > 500 mm/yr. in some areas of the site. Moderate recharge values correspond with areas of mapped Wentworth Till (associated with the Paris Moraine). The underlying dolostone (Amabel) aquifer is in an area of suspected karst based on OGS mapping and some degree of karstification (dissolution) is possible. This secondary porosity is, in part, why the Amabel Formation is such a good aquifer. Regardless, the depth to groundwater across the Site ranges from about 12 to 20 m. The depth to bedrock (where karst could occur) ranges from 8 to 30 m. Travel time through the unsaturated zone (in overburden) is expected to range from 4 to 10 years using the unsaturated zone advection time or UZAT (MECP, 2006). Based on this, if karst were present, it would be difficult to explain the infiltration rates across the site.
8	The assumption that there will be a "long term" decline of nitrate concentration following the change of the site land use is recommended to be evaluated. It should be demonstrated that there will not be an initial increase ("short term") of the nitrate from the additional loading from septics and lawn fertilizers.	COLE	Based on similar development projects in the area, particularly the development of a subdivision of south Erin Village with similar underlying geology, including Amabel Formation dolostone, located at the intersection of Wellington Road 52 and 9th Line in Erin, approximately 4 km to the west of the Site, demonstrates the natural reduction of nitrate concentrations due to conversion from agricultural land to residential subdivision under existing geological conditions. Nitrate concentrations in this area were greater than 30 mg/L at select

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			monitoring locations in the late 1990s when the area was used as agricultural area where there was a turkey operation. Following development and conversion to a subdivision of Erin Village, over the last 10 years, nitrate concentrations have declined to an average of approximately 3.5 mg/L (CVC 2011). Previous consultants (Terraprobe) also reference the Caledon Mountain Estates subdivision, located across Mississauga Road, to the east of the site, constructed in the mid-1970s, which is also underlain by coarse overburden overlying dolostone and shale. Groundwater quality samples collected from within the boundary of this subdivision identified nitrate concentrations ranging between 0.6 mg/L and 2.4 mg/L, providing another data set of empirical evidence that sufficient dilution occurs in the subsurface in this geological setting (Terraprobe 1990). As current nitrate concentrations are expected to be a result of current and historic agricultural activities on-site and surrounding the site, a similar reduction can be reasonably anticipated, following residential development.
9	An up to date door to door water supply well survey in the vicinity within a minimum of 500 metres of the development site should identify existing wells, including the source (shallow, bedrock) of groundwater, drawdown buffer of the intake, well construction, water quality and other details.	COLE	Updated door-to-door survey is currently scheduled for Spring 2020, subject to consents being given by home owners
10	When evaluating the long-term effects (reduction of infiltration, increased runoff, reduction of groundwater recharge, on-site pumping for water supply, decline of	COLE	Water supplies from small surface sources are generally susceptible to contamination from surface runoff and are highly reactive to precipitation events. Based on the stormwater management design of the Site, runoff is

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	shallow water table, impacts to local hydraulic gradient) on the shallow groundwater regime at the site and vicinity, cumulative impacts as a result of development at the site and vicinity should be also evaluated/discussed (stripping of topsoil, site grading, subsurface infrastructure installations, construction of houses, road networks, etc.). The cumulativve effects of the development at the site and vicinity may result in negative impacts to existing water supply well users dependant on shallow groundwater. The evaluation should demonstrate that existing shallow water sources (dug wells) can be maintained.		expected to be managed by proposed stormwater ponds, which are designed for 80% TSS removal. Runoff along the northern portion of the Site will generally mirror pre-development conditions and, given that the dolostone aquifer is not hydraulically connected to surface water features, no significant changes to shallow groundwater resource quality or quantity are expected.
11	Several key conclusions related to possible impacts (groundwater recharge, dilution of effluent discharge, existing water users), as well as assumptions and sustainability of long-term groundwater pumping at the site are based on maintenance of a pre-development infiltration level. Currently proposed is a low impact development approach of storm water management, which is to retain current infiltration rates and no water leaving the site post-development. Final groundwater impact assessment evaluation should be based on confirmed storm water management plan design (finalized FSR to fulfill Town/Region engineering/maintenance requirements) and finalized estimates of post-development infiltration and water retention, and an up-to-date water balance.	COLE	A post-development water balance has been added to the updated report, based on the current grading plan
12	The completion of additional infiltration testing across the site is recommended to further evaluate the on-site infiltration	COLE	Additional infiltration tests were completed in November 2019 and incorporated into the updated report

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	capacity. In loading and water balance calculations, more conservative average infiltration rate than actual average test results should be considered (such as 240 mm/year)		
13	It appears the completed pumping tests were designed to evaluate the individual well yields, and did not fully evaluate the potential for on-site and off-site impacts. It is recommended that additional testing be completed at select locations (specific intake depths, combined pumping at a number of locations, altered rates, and adequate monitoring network) to gather data to better evaluate potential impacts and interference. Pumping test data should also be used to confirm hydraulic conductivity estimates currently assumed in the evaluation and assessment of impacts. The test well depths should be of similar depth as that for the proposed on site supply wells.	COLE	COLE and Peer Reviewer are in agreement that an additional combined pumping test is unnecessary. The pumping tests completed to date have been in accordance with Procedure D-5-5.
14	The irrigation water use should be carefully considered within water supply analysis and lot/site water demand evaluation.	COLE	Appropriate restrictions on title may prohibit use of groundwater for swimming pool use and limit irrigation. Summer demands have been considered in the revised analysis. Cisterns are recommended to augment the water supply in case of droughts or if well levels are found to drop during monitoring.
15	In assessing septic effluent impacts, the thickness of overburden across the site should be considered. It should be demonstrated that the overburden thickness across the site is sufficient to prevent effluent penetrating into the bedrock.	COLE	A depth to bedrock (i.e., overburden thickness) map has been added to the report. Based on wells intersecting bedrock across the Site, the overburden thickness ranges from 8 to 30 m. In Ontario, the Ontario Building Code (OBC) governs nearly all rural septic systems and would apply to septic systems installed on the Site. According to the OBC, the leaching beds must be a minimum of 900 mm (0.9 m)

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			above the water table or bedrock. This criteria is easily met at the Site. It is estimated changes to groundwater quality will take 4 to 10 years to be initially detected at the groundwater table from a land use change from agriculture to rural residential. This amount of time was calculated as the unsaturated zone advection time or UZAT (MECP, 2006). This is sufficient time for the natural destruction of bacteria and viruses in the sewage. The porous, aerobic conditions of the overburden (sand and gravel) at the Site also lend favorably to natural attenuation
16	The assumption of nitrate loading of 20 g/lot/day is based on implementation of tertiary (Level IV) treatment system (Waterloo Biofilter Systems). It is also assumed that treatment system will only produce nitrate and nitrification is assumed to be completed in the treatment system, therefore no estimates of groundwater concentrations for nitrate and un-ionized ammonia are completed. Considering long-term regular maintenance of tertiary (Level IV) treatment systems may be a challenge (implementation of maintenance schedule, few enforcement options), nitrate loading of 40 g/lot /day should be used in calculations for the loading estimates and the evaluation of impacts.	COLE	Operation and maintenance agreements are a regulatory requirement for all tertiary treatment systems. If not the manufacturer, the homeowner would need to acquire another approved service provider. A 10-year maintenance agreement with the manufacturer would be implemented through the subdivision agreement.
17	Assessment of impacts should insure that combined effluent discharge from all individual on-site sewage systems within the proposed development will have minimum impacts on groundwater supply for current and potential feature use at the site and at adjacent properties.	COLE	This has been assessed in Section 6.2 in the report

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Ministry of Natural Resources & Forestry (MNRF) Comments

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Ministry of Natural Resources and Forestry July 12 & 17, 2018; August 13, 2018				
No.	**Comment:**	**Comment by:**	**Response by:**	**Responses:**
	EIS - March 2018 Submission			
1	New lots should not extend into the Escarpment Protection Area. In the proposed subdivision, new lots 49, 50, 51 and 52 extend in the EPA.	B. Kowalyk July 12, 2018	BEACON	Lots 50-55 are proposed partially within the EPA, however appropriate restrictions on title would direct development outside of the EPA.
2	The Ministry of Natural Resources and Forestry generally recommends a minimum buffer of at least 30 metres from significant woodlands, particularly those that are covered by provincial plans. Lots 9, 40, 51-55 and possibly others enroach within such a buffer.	B. Kowalyk July 12, 2018	BEACON	Comment noted. Though 30 m vegetation protection zones from significant woodlands are a requirement of the Oak Ridges Moraine Conservation Plan and the Greenbelt Plan, they are not required outside of these areas. The proposed 10 m buffer satisfies all buffer requirements contained within the Niagara Escarpment Plan, as well as the Official Plans of the Town of Caledon and the Region of Peel. Section 7.5.5 of the EIS speaks to buffers and impacts on the significant woodland are addressed within Table 14 of the EIS. Potential impacts to the significant woodlands will be partly mitigated through the proposed development pattern. As a low density, estate residential development, there will only be 7 residential lots that directly about the woodland, and on each of those, the proposed residence will be located a minimum of

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				30 m away from the dripline of the feature. Five of these lots will abut cultural plantation units of the significant woodland, which are considered to be more tolerant to adjust development. The remaining two lots abut a remnant portion of deciduous forest community that has been heavily impacted by previous agricultural land clearing such that though connected to the larger woodland to the south, essentially exists as a small 0.25 ha triangle of woodland on the Subject Lands, and would therefore provide minimal ecological function. Given the low density of development in proximity to these features, and the existing nature of these features as previously discussed, potential impacts as a result of noise and light from the nearby residences is considered to be minimal, and will likely not have a measurable impact on wildlife use of the features. To satisfy the requirement of the Niagara Escarpment Plan, the minimum vegetation protection zone, or buffer, should be of sufficient width to protect and where possible enhance the key natural heritage feature and its functions from the impacts of the proposed change and associated activities that may occur before, during, and after, construction.

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				The proposed 10 m buffer will ensure that critical root zones of individual trees within the woodland community are protected from potential impacts during construction. The 10 m buffer will also enhance the feature through restoration of natural self-sustaining vegetation on lands that have been maintained in row crop agricultural production. The buffer will also provide some measure of protection against ad-hoc access to the feature from neighbouring residents and pets, however the key preventative measures in this regard will be education of new landowners. To this end, it is proposed that educational materials be prepared for new residents to ensure they are aware of the importance of the system and the potential impacts that ad-hoc access, dumping, or pet intrusion into the feature may cause. In addition, signage will be installed along the proposed foot path to identify the benefits of staying on the trail and keeping pets on leash. There would be no expectation that a buffer of larger width would provide further protection to the significant woodlands from ad-hoc access or pets. Given the above, the proposed 10 m buffer is considered to be sufficient to both protect and enhance the significant woodland, when implemented

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				in association with other mitigation measures identified above.
3	The "hedgerow" on the east side of Shaws Creek Road (lots 5-7) needs closer examination on whether parts of it are at least 40 metres wide and can be identified as significant by connection with other woodlands west of the road over an opening less than 20 metres wide.	B. Kowalyk July 12, 2018	BEACON	The hedgerow in question is less than 30 m in width (approx.) at its widest point, <0.5 ha in area and does not provide a linkage function. The Town of Caledon's OP requires that woodlands be a minimum of 40 m in width; no criteria for minimum gap/opening size is provided. Accordingly, the hedgerow does not meet the Town of Caledon's criteria as a significant woodland / Core woodland or the Regional Official Plan and MNRF guidelines. Nevertheless, structural envelopes are proposed a minimum of 11 m away from the dripline of trees within the hedgerow, and tree removals aside from those required to accommodate driveways and SWM facilities fronting on Shaw's Creek Rd are not proposed (details to be determined at a subsequent planning stage). Refer to revised draft plan, Tree Inventory and Preservation Plan and urban design and architectural design guidelines (section 3.3, p. 31).
4	Confirmation is needed that all trees, including small seedlings, within 25 metres from proposed lots were checked for the possible presence of endangered Butternut.	B. Kowalyk July 12, 2018	BEACON	Confirmed. No Butternut, including small seedlings, were identified within 25 m of proposed lots.
5	There is proposed removal by the subdivision (lots 19, 20, 21, 22, 23, 32 and 33) of 3.1 ha of confirmed Bobolink and Eastern Meadowlark (threatened) habitat. Some adjacent remaining lands also appear suitable for these species, and	B. Kowalyk July 12, 2018	MDTR	Refer to revised draft plan. This area has been proposed to be preserved within Block 84 (4.13 ha).

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	their habitat quality will be damaged by removal of the 3.1 ha. A fuller accounting is needed of all the habitat that will be damaged or destroyed by the proposed activity.			
6	I would be interested in seeing the location of the identified Nothern Mountain-ash (Sorbus decora) on photomap as it has not been previously confirmed as a natural occurrence in the Greater Toronto Area.	B. Kowalyk July 12, 2018	BEACON	This was a typographic error in the list. This should have read Sorbus aucuparia.
1	Annual infiltration estimated at 291 mm/year. It should be noted in the EIS that this is a modelled estimate and that in the current condition, surface runoff does not leave the site. Precipitation either infiltrates and/or evaporates depending on the season.	M. Heaton July 17, 2018	BEACON	Comment noted. Please refer to FSR and HG prepared by COLE for water balance.
2	RA1 is a brook trout stream immediately to the north of the study area. Recharge function of RB1 feeds groundwater to RA1 and springs further to the north that discharge along the south valley wall of the West Credit River.	M. Heaton July 17, 2018	BEACON	Comment noted. The recharge function of RB1 is maintained if not enhanced. These comments are identified in various points throughout section 4.3.
3	Impact assessment did not include potential for chloride contamination of the shallow groundwater table and local watercourses supporting brook trout. Chloride contamination would arise from use of road salt and household water softeners. The development should be restricted to use of salt-free water softeners--this should be documented in the EIS.	M. Heaton July 17, 2018	BEACON	Please refer to section 6.1.6 of Hydrogeology Investigation Report by COLE engineering.
4	Impact assessment did not include adjacent lands implications of PC5 removal. Bobolink/meadowlark habitat extends beyond the subject property and removal of PC5 (lots	M. Heaton July 17, 2018	MDTR	Refer to revised draft plan. SAR bird habitat (3.15 ha) has been proposed to be preserved as part of Open Space Block 84 (4.13 ha).

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	19, 20, 21, 22 and 33) would result in negative impacts to adjacent habitat, likely rending it non-useable for the species. This current proposal would, therefore, likely not meet qualifications of Sections 23.2 or 23.6 of the ESA. 2014 Map attached. Previous communication from consultant in May of 2015 regarding development on this property: We have informed our client that through our 2014 SAR surveys, their lands have confirmed breeding Bobolink habitat (3.15 ha) and that habitat replacement, management, monitoring and reporting is required as per O. Reg. 242/08, under Section 23.6 prior to development Bobolink habitat also extends onto adjacent landowners to the north (~1.99 ha) and east (~2.37 ha). The removal of BOBO habitat on the client's land, will impact the remaining BOBO habitat patch size and configuration on adjacent landowners. As well, the remaining BOBO habitat will in the future be directly adjacent to urban land use. Adjacent landowner BOBO habitat may be considered damaged under the Regulation, as its patch size and configuration is shrinking with removal of client BOBO habitat, and due to future adjacent urban land use. The client has been advised that MNRF may require that they provide replacement habitat for the size of the entire Bobolink habitat (on their lands and on adjacent lands). See attached map			

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5	Did not see any reference to groundwater extraction for potable uses in the EIS. Proposed groundwater extraction for servicing of the lots needs to be described. What is the proposed source? Will there be impacts to the local shallow water table? Will there be impacts on local coldwater streams or wetlands?	M. Heaton July 17, 2018	COLE	All proposed wells shall only be installed into the dolostone aquifer. The hydrogeology peer reviewer is in agreement that the dolostone aquifer can adequately support the development. No impacts are anticipated, please refer to post development water balance provided in the revised hydrogeology report.
1	Upon further review, it is recommended that the identified grassland habitat of Bobolink and Eastern Meadowlark be protected from development. In addition to threatened species habitat value, this sloping area is also a groundwater recharge area in proximity to a brook trout stream to the northeast and contributes to the adjacent protected Natural Heritage System.	B. Kowalyk August 13, 2018	Beacon	Refer to revised draft plan. This area has been proposed to be preserved by Block 84.
2	The hydrogeology report is lacking in analysis of potential contamination from road salts and water softeners of the shallow aquifer feeding wetlands and neighboring streams.	B. Kowalyk August 13, 2018	COLE	Section 6 of the updated report considers potential additional chloride input from the proposed development. Empirical evidence from the site and similar neighboring development projects suggest that chloride impacts to the groundwater and nearby surface water resources are not anticipated. Further, Section 6.of the revised report presents a mass balance loading assessment based on chloride inputs from road salt and water softeners. Cumulative analysis has been assessed and

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				incorporated into the updated hydrogeological report.

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Credit Valley Conservation (CVC) Comments

Comments Response Matrix
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Credit Valley Conservation July 26, 2018		Lisa Hosale, Planner Office: (905)-670-1615 x268 | Email: lisa.hosale@cvc.ca	
No.	**Comment:**	**Response by:**	**Responses:**
	Stormwater Management		
1	CVC SWM permit not required at this time. Permitting requirements will apply if emergency outlet is established (as per Town requirements) which drains to CVC regulated watercourse.	MDTR	Noted
2	To expedite review process, include brief detailed cover letter outlining how each item was addressed in resubmittal. Include updates to each of the materials being reflected in the others, as necessary.	MDTR	Please refer to this matrix.
3	CVC staff recommend that a successful resubmittal would be built around a stormwater management plan that is redesigned in close consultation with the Town of Caledon to meet their engineering requirements, including establishment of an emergency outlet, facility for pre-treatment, and overall system design that works with the Town's maintenance capabilities post-assumption. CVC staff also recognize the unique conditions of the site, including soils and depression storage, and applaud the applicant's willingness to incorporate LID's into their SWM strategy to build from the site's existing conditions. We would like to offer our strong support for use of LID's in this proposal through working group meetings with the applicant and Town, bringing our LID	COLE	The Town of Caledon has indicated that existing depression storage located on private property cannot be used for quantity control and the Town's preference is for quantity control for stormwater to be consolidated into centralized SWM facilities, as per the revised FSR and draft plan.

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	expertise to th table to support the LID portion of the revised SWM strategy.		
	Existing Site Conditions		
1	CVC staff support the concept of preserving the existing depression area (Block 74), woodlot (Block 75) and valleyland (Block 73).	MDTR	Noted
2	We recommend that resubmission identify additional natural areas to be preserved within the subdivision, and that this approach would work to address the overlapping policy concerns of multiple agencies. For example, preserving additional natural areas with their features in tact (vegetation, soils, and depression storage) could serve to: -Reduce the size of engineered SWM facilities that would be necessary within the subdivision; -Reduce the amount of stormwater to be handled in the emergency outlet; -Protect the habitat of threatened and endangered species; -Conserve existing Escarpment Landforms; and -Form the backbone of a robust and connected Natural Heritage System through the site.	BEACON COLE	Noted. The revised plan considers retention of existing hedgerows, depressions and landforms within lots to the extent possible, preservation of SAR bird habitat (3.15 ha) within Block 84 (4.13 ha), preservation of groundwater recharge functions of the HDF, and protection of significant natural heritage features.
3	We recommend that the Grassland Habitat would be an ideal candidate in this respect, and that additional areas should be identified as the technical reports are revised as per our recommendations in Appendix A.	BEACON	Noted. The draft plan has been revised to preserve Grassland Habitat (3.15 ha) within Block 84 (4.13 ha).
	Functional Servicing Report (Appendix A)		

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1	Ensure that maintenance easements are provided to cover any portion of the SWM proposal, including LID's, proposed on private lots.	COLE	All components of stormwater management will be located within either municipally owned R.O.W.'s or municipally owned blocks. Based on the revised stormwater management design strategy, a few lots will require maintenance easements as a result of rear yard catchbasins required to ensure proper drainage while minimizing changes to topography (refer to Section 4.6 of FSR)
2	Ensure that appropriate agreements are in place to cover legal outlets necessary to convey stormwater off-property. All new outlets off-property should have consent from the receiving property owner.	COLE	Storm runoff will be conveyed to roadside ditches or rear yard catchbasins and discharged into Stormwater management facilities (Dry Ponds). There is no runoff proposed to discharge to adjacent properties. All stormwater up to and including the back-to-back 100-year storm event will be retained in SWM ponds and discharged via infiltration. As per pre-development overland spill conditions, an emergency spill point has been identified at the low point of Shaws Creek Road, should the on-site SWM facilities receive storm runoff in excess of the back-to-back 100-year storms.
3	Complete existing and proposed conditions hydrologic modelling for the entire property. Establish existing conditions storage volumes during all storm events (including the 100-Year and Regional Storm) and determine whether the property spills onto neighbouring properties under the existing condition.	COLE	A comprehensive hydrologic modelling using Visual OttHYMO was completed. The model includes the external area, the lots and the downstream SWM ponds. The VO model scheme and the parameters are provided in the revised FSR. The volume was modelled under post-development conditions, up to 100-year storm. Given the new proposed SWM scheme, there are no spills, or controls, at the lot level. The runoff generated based on the post-development condition will be total captured and conveyed to the SWM ponds, which was sized to retain two 100-year storm back to back and all infiltrated on-site. The need to determine whether the property spills onto neighboring properties under the existing condition should no longer be necessary since the Town's requirement to contain all storm flow on-site for two 100-year

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			back-to-back storms governs and supersedes the need to calculate a pre-development release rate from the site; however storage volumes of the existing depressions on-site are depicted on the 'Pre-Development Storm Drainage Area Plan'. The existing 'pre-development' drainage divide through the site matches the post-development drainage divide line; whereby all excess overland stormwater flows are directed westerly towards Shaws Creek Road, as per existing conditions.
4	The submitted hydrologic modelling appears to be scoped to individual lots. Provide additional hydrologic modelling that addresses the entire property. The analysis should consider all downstream receivers including (but not limited to) internal depression storage areas and proposed emergency outlets that drain off-property.	COLE	Please refer to response to comment 3. Please refer to post development conditions and external catchment drawing (ST-3).
5	Given the outlet constraints onsite, the hydrologic analysis at minimum should incorporate the Regional Storm within the analysis and the proposed infiltration designs.	COLE	Regional storm was included in the VO model simulation as per the comments. As per the Town's requirement, the SWM ponds were sized to retain two 100-year storms back to back given that regular outlet structures are not provided. As per the model simulation, the SWM ponds will be filled up during the Regional storm and emergency spillway will ensure the SWM ponds are safe and the private property will NOT be impacted.
6	The completed hydrologic modelling assumes lot level controls to a single lot assuming a CN number of 50. Provide additional lot analysis and justification for the CN number used under proposed conditions. Confirm why the curve numbers used within the undeveloped external lands (south of the development) assumes a higher CN value than the adjacent development.	COLE	No lot level controls are proposed and the SWM control are provided via SWM ponds. The CN number was determined based on soil map and land use. The dominant soil type is HSG (AMCII) type A with Pasture/Range land cover. The CN numbers for external area were adjusted based on the dominant soil and land use for each sub-catchment. The CN numbers for the site was determined based on the HSG Type A soil and land use type of

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			lawn. As a results, the CN number for the site and the external areas are compatible.
7	Address interim drainage conditions assuming that portions of the development will be graded and left undeveloped for a period of time.	COLE	The FSR now includes a statement indicating that at the detailed design stage, interim drainage conditions should be considered in the final design drawings if build out of the lots will be phased while the site grading would be completed in a single stage of construction. Typical measures to address interim drainage conditions include hydroseeding undeveloped lands, creation of temporary cut-off swales and diverting storm runoff to temporary sediment ponds/traps for pre-treatment, prior to release to the ultimate SWM facilities. These measures are typically designed and demonstrated in stages on the Erosion & Sediment Control Plans to be prepared with detail design submission.
8	Provide additional analysis/details of the existing depression areas and depression storage capacities for the entire site in the existing (pre-development) condition.	COLE	The existing on-site depression areas were delineated using the newly obtained existing ground topographic information (First Base Solutions; aerial survey) and existing storage volumes were then calculated for each; refer to the "Pre-Development Storm Drainage Area Plan". The sum total of the existing on-site depression storage volume is less than the total volume of new stormwater storage provided within the two SWM Facilities (Dry Ponds).
9	Discuss the extent of ponding/standing water that would occur onsite in the proposed condition with available storage volumes during the Regional Storm to demonstrate that proposed residential properties would not be impacted.	COLE	Ponding/standing water is only expected to accumulate in the two SWM Facilities (Dry Ponds) after rain events. Ponding depth in the large SWM Facility after a single 100-year storm event is approxiamtely 0.30m, while the ponding depth in the small SWM Facility is 0.6m. Allowance for ponding water to occur in the rear yards up to 1.0m deep has been confirmed with the Town of Caledon (should rear yard catchbasins become completely blocked), provided that houses, amenity area, septic tanks and private wells are all situated outside the 1.0m deep ponding footprint. Refer to the

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			drawing "Post-Development Storm Drainage Area Plan" for depiction of the 1.0m deep ponding footprint within rear yards.
10	If drywells are proposed, demonstrate that the wells meet MOECC design requirements with regard to sizing and drawdown	COLE	Drywells are only proposed within the base of the two SWM Facilities (Dry Ponds) to provide redundancy to the approach of utilizing infiltration as the pond outlet; to facilitate a rate of infiltration under frozen ground conditions.
11	If drainage is directed towards existing depression areas under proposed conditions, provide analysis/details of the following:	COLE	Stormwater runoff is not directed towards existing depression areas under proposed conditions as a means of providing stormwater quantity control. The Town of Caledon has confirmed that quantity control can only occur within municipally owned blocks, which is the basis for the revised stormwater management strategy.
a.	Availability of active storage within the depression under the proposed condition	COLE	Under the proposed condition, stormwater drainage is now directed towards two dedicated stormwater management facilities, and no longer proposes to utilize existing on-site depressions to provide stormwater quantity control. Notwithstanding, storage volumes within each depression is provided in Pre-development condition Drawing ST-1.
b.	The amount of active storage required to handle the drainage area directed towards the depression	COLE	See the response to item 11. a.
c.	Confirm whether there is sufficient storage volume within the depression during all storm events	COLE	See the response to item 11. a.
d.	Discuss the need for an emergency outlet	COLE	Two pond blocks, Block 81 and Block 82, have been provided for stormwater management purposes. Block 81 is situated at a higher elevation and it has been provided with an emergency spill channel in the form of Block 83, which cascades into Block 82 SWM pond. The emergency spill for Block 82 SWM pond is directed to Shaws Creek Road under

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			emergency conditions, which conveys across the road to the west and mimics the pre-development emergency overflow from the site.
e.	Provide drawdown times within the depression for all storm events	COLE	No existing on-site depression areas are utilized for SWM quantity control. The Draw-down time for the SWM pond is 11.5 hours, however, a pond was sized to handle two 100-year storm back to back, so the down-down time for the first 100-year storm is proximately 8.6 hours.
f.	Confirm whether the depression area is capable of providing quantity control in back-to-back storm events	COLE	Existing on-site depression areas are not utilized for quantity control. Two SWM facility blocks have been sized to provide sufficient quantity control for the two 100-year storms back-to-back.
g.	Consider partially frozen ground conditions in the sizing and drawdown analysis	COLE	The bottoms of the SWM facilities are proposed to install 15 to 30 cm clear stone. A series of dry wells will be installed at the base of the SWM pond blocks to ensure limited infiltration capacity under frozen ground conditions. Under normal operations, the ponds will stay empty through the winters since the draw downtime for the ponds are less than 24 hours during large storms. During the winter storms when the SWM pond bottom is still frozen, the flow will be taken into the stone layer via the dry wells installed and evenly distributed through the stone layer, and infiltrated. The infiltration rate in winters due to frozen ground maybe slower than that in summers, however, the runoff volume won't be as large as ONE 100-year storm in summers. Given the SWM ponds were sized to retain TWO 100-year storms back to back, they can easily handle a less significant storm, e.g., 5-year storm + some snowmelt volume, using a slower infiltration rate.
h.	Demonstrate that the depression would not spill onto neighbouring properties during all storm events.	COLE	The existing 'pre-development' drainage divide through the site matches the post-development drainage divide line; whereby all excess overland stormwater flows are directed westerly towards Shaws Creek Road, as per existing conditions. No existing on-site depressions were utilized for

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			stormwater quantity control. Rear yards that will contain existing depressions in the post-development condition will be allowed to pond up to 1.0m deep should rear yard catchbasins become completely blocked and would outlet to adjacent municipal lands (either SWM Pond, Channel or R.O.W.). The permitted depth of ponding has been confirmed with Town of Caledon staff.
12	Provide a maintenance and monitoring plan for all aspects of the SWM proposal over the long term	COLE	Operation and Maintenance requirements for the proposed stormwater management facilities is discussed at a high level in the revised FSR, Section 5.6. A statement is made in Section 5.6 indicating that a detailed Operation and Maintenance Manual will be required at the detailed design stage to support the final design.
13	Ensure that updates to the FSR are reflected in the other technical reports, as necessary.	MDTR	Noted.
Environmental Impact Study (Appendix A)			
1	Prepare a single comprehensive figure of the site's existing natural heritage and/or hydrological features and buffers, including: -Seeps -Headwater drainage features -Habitat of Threatened or Endangered Species (i.e. Grassland Bird Habitat) -Significant Wildlife Habitat -Significant Woodlands -Significant Wetlands	BEACON	Please see Figure 6 of Savanta EIS (2018).
2	Provide an adequate description of the Grassland Bird Habitat, and demonstrate avoidance-first principles to achieve	BEACON	Noted. The draft plan has been revised to preserve Grassland Habitat (3.15 ha) within Block 84 (4.13 ha)

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	no negative imapct to this Habitat of Endangered or Threatened Species (bobolink/meadowlark)		
3	Discuss how a robust and connected Natural Heritage System is established through the site, including how existing features are incorporated in the NHS. Prepare a relevant figure of the NHS. Ensure that the NHS is coordinated with the development concept and detailed grading plan.	BEACON	Please see EIS addendum (Beacon, 2020).The natural heritage system includes significant woodlands, wetlands, habtiat for species at risk, areas of steep slopes, Environmental Protection Areas (in part) and applicable buffers. Retained hedgerows and a robust series of connected LID SWM blocks present opportunities for naturalization and enhancement of connectivity within and adjacent to the subject property.
4	If hedgerows are proposed for retention and inclusion in the NHS, ensure that this is coordinated with the development concept and technically possible given the detailed grading plan.	BTI	Hedgerows will be preserved to the extent possible and most will be integrated into the development fabric. Retention opportunities are shown in tree preservation plan prepared by BTI which has been coordinated with grading plan.
5	It does not appear that the small woodlot along Shaw's Creek is a hedgerow. Discuss the feature in more detail, including its composition, connectivity, and applicable policy protectcions.	BEACON	The hedgerow in question is less than 30 m in width (approx.) at its widest point, >0.5 ha in area and does not provide a linkage function. The Town of Caledon's OP requires that woodlands be a minimum of 40 m in width; no criteria for minimum gap/opening size is provided. Accordingly, the hedgerow does not meet the Town of Caledon's criteria as a significant woodland / Core woodland. Nevertheless, structural envelopes are proposed a minimum of 11 m away from the dripline of trees within the hedgerow, and tree removals aside from those required to accommodate driveways fronting on Shaw's Creek Rd are not proposed (details to be determined at a subsequent planning stage). Refer to revised draft plan, Tree Inventory and Preservation Plan and urban design and architectural design guidelines (p. 30). Please note that MNRF criteria are not applicable to this site.

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6	Discuss the revised SWM strategy, and ensure that SWM facilities and outfall locations do not result in negative impacts to natural heritage and/or hydrological features.	BEACON	While site infiltration conditions are enhanced, the revised SWM strategy will not result in negative impacts to natural heritage and hydrological features.
7	Remove discussion of the upgraded footpath or any programming within the Open Space (Block 73). CVC Lands is interested in acquiring Block 73, and in this event, intends to manage the land as part of Belfountain Conservation Area Management Plan that is currently under development.	BEACON	Following conversations with CVC (Feb 2020), it is understood that there are outstanding concerns regarding the safety of structures within Block 78, and that it is preferred that trails follow the existing farm lane/trail within Blocks 76, 77 and 78. Accordingly, a 3 m wide public trail is proposed within the footprint of the existing farm lane/trail. Building safety will be addressed at detailed design.
8	Ensure that updates to the EIS are reflected in the other technical reports, as necessary.	BEACON	Noted
	Hydrogeological Investigation		
1	Re-evaluate the groundwater contribution to weltand (SWT3-2) given that the northern headwater drainage feature (RA1 from EIS) receives groundwater discharge and the hydrograph reports shallow groundwater.	COLE	COLE notes that SWT3-2 and RA1 are distinct hydrologic units, separated by a groundwater/drainage divide. SWT3-2 is expected to receive its discharge from perched pockets and surface water contributions.
2	Provide complete pre- and post-development water balance calculations for the entire subdivision area, with pre- to post-results summarized and compared.	COLE	Pre and post development water balance summaries were completed and were based on the most recent climate data are included in the updated report. Please refer to Secton 6 of the revised hydrogeology report.
3	Discuss the total annual nitrate load for the entire subdivision area, and discuss the cumulative impacts that this would have on the quality of groundwater discharging to the West Credit River.	COLE	Section 6 of the revised hydrogeology report suggests that a 2.52 mg/L nitrate concentration is estimated at the Site boundaries This will result in no negative impact to groundwater or surface water resources, including the West Credit River

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4	The subdivision borders WHPA-E and is within the HVA. The applicant should consult further with the Region of Peel/Town of Caledon in this regard, and document that all Source Water Protection Plan requirements are addressed. Please include relevant correspondence as an appendix.	COLE	The Town of Caledon and Region of Peel have no further comments pertaining to Source Water Protection. The Region of Peel has noted that the portion of the Site bordering the WHPA-E will not be touched by the development.
5	Discuss how the LID's included in the SWM strategy impact the quality of septic system discharge (i.e. nitrate concentration of 2.17 mg/L). Include a groundwater monitoring program that includes monitoring of LID's.	COLE	The revised FSR proposes two SWM ponds that are being designed to retain and infiltrate runoff on-site from all events up to and including the back-to-back 100 year storm event. As such, the pre-development recharge will be maintained.
6	Discuss how the potential for chloride contamination of the shallow groundwater table, and how this relates to local watercoursese supporting brook trout (including RA1 EIS).	COLE	This is discussed in detail in Section 6 of the updated hydrogeology report. In summary, potential increased chloride loading from the proposed development is not expected to result in adverse impacts at the West Credit River. The Town of Caledon has enforced a new salt management plan which uses sand with less salt concentration and limits road salt application to freezing conditions.
7	Ensure that updates to the Hydrogeological Investigation are reflected in the other technical reports, as necessary.	COLE	COLE has coordinated internally to ensure consistency between the updated FSR and HG reports. COLE will coordinate with third-parties as required, to ensure the most up-to-date information is reflected in the appropriate reports

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Ministry of Tourism, Culture & Sport (MTCS) Comments

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Ministry of Tourism, Culture and Sport August 31, 2018		Dan Minkin, Heritage Planner Office: (416)-314-7147 | Email: dan.minkin@ontario.ca	
No.	**Comment**	**Response by:**	**Responses:**
MTCS Heritage August 31st, 2018			
1	The proponent has completed a Stage 1 and 2 Archaeological Assessment report in support of this project. The report states archaeological resources were encountered during the Stage 2 field survey and does not recommend further investigation. This report has not yet been reviewed by the Archaeological Program Unit at MTCS. Until a review letter is issued indicating that the report has been entered into the Register, development approval should not be finalized.	ASI	A review letter has been issued by MTCS dated May 6, 2019. MTCS comments indicated that no further archaeological assessment of the subject property is recommended. A copy of this letter is provided under separate cover for reference.
2	It is unclear from proponent's CHRA report how potential cultural heritage resources were evaluated, and how CHL 3 was evaluated and identified	ASI	Text added on pg 7-8 to clarify methodology, inventory table revised to include 9/06 evaluation criteria
a.	Although Section 2.3 of the CHRA describes a field review process based on criteria similar to O.R. 9/06, the report does not provide any evaluation of potential previously unrecognized cultural heritage resources based on these criteria	ASI	Inventory revised to use 9/06 criteria for all resources, including CHL 3
3	In circumstances where a planning application subject to review by Provincial body requires an assessment of potential impacts to BHRs and CHLs, MTCS recommends that potential resources be evaluated using criteria in O.R. 9/06. A report	ASI	Added justification on p. 7-8. No Statement provided, however inventory table expanded to include headings for historical, design, and contextual value for all potential resources. CHL 3 subject to 9/06 eval in HIA.

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	fulfilling this expectation would need to demonstrate how properties were screened and then evaluated for cultural heritage value or interest. It should provide a statement of cultural heritage value for newly identified cultural heritage resources, and a rationale for those resources that were found not to have cultural heritage value or interest.		
4	MTCS recommends that the NEC, in consultation with the Town of Caledon, require that CHRA be revised to include:	ASI	
a.	A clear set of screening guidelines used in the field review to select potential previously unrecognized built heritage resources (BHRs) and cultural heritage landscapes (CHLs)	ASI	Please see pg 7-8
b.	A rationale for how CHL 3 meets the criteria of Ontario Regulation 9/06	ASI	Inventory table revised to include headings for 9/06 critera for historical, design, and contextual values for all potential resources, including CHL 3.
c.	A rationale for how other potential sources, as selected for evaluation through screening, do not meet these criteria	ASI	Clarified on pg 8
5	MTCS recommends NEC consider setting conditions on approval to the effect that the recommendations of the Cultural Heritage Resource Assessment are implemented.	ASI	Noted

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Belfountain Community Organization (BCO) Comments

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Belfountain Community Organization May 18, 2018		Judy Mabee, President secretary@belfountain.ca	
No.	**Comment**	**Response By:**	**Response:**
	A. The Water Policy Disconnect		
1	Manors of Belfountain [MOB] is proposing a 67-lot subdivision serviced by Class 4 — a septic tank system for sewage and private wells on each approximately 1.5-acre lot. A problem with current approvals for private sewage treatment systems where the Ontario Building Code [OBC] only deals with approvals one lot by one lot and does not provide policy direction to assess the capacity of an overall site to sustainably attenuate sewage over time without causing health or pollution issues.	COLE	The applicant has consulted the Region of Peel for servicing alternatives and has been directed to proceed with private individual servicing. Site conditions are favorable for sustainable attenuation of septic effluent (see response to MECP comment no. 15). Refer to overall site nitrate calculations contained in the revised Hydrogeological Investigation Study, which report values lower than the limits acceptable to CVC (Section 6.2.1.2).
2	The Land Use and Planning Protection Act, 1996, removed the involvement of the Ministry of Environment Climate Change [MOECC] from the process of evaluating small scale sewage treatment systems and shifted the environmental responsibility to the individual municipalities via the OBC. The Ministry of Environment [MoE] had issued a Manual of Policy and Procedures and Guidelines for on Site Sewage Systems [MoE Manual] in 1982 which contained Chapter 15, Policy for Assessment of New Lots discussing, in detail, how new subdivisions serviced by Class 4 systems must be assessed for carrying capacity. Referring to the O. Reg. 332/12: BUILDING CODE above, the assessment has been reduced to that of a suitable percolation rate on a lot by lot basis. Due to the weak	COLE	Please refer to response above. The hydrogeological assessment has assessed the viability of the proposed development, as presented in the draft plan of subdivision, and found it to be acceptable.

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	site assessment requirements under the OBC, the policies dealing with water resources contained in the Provincial Policy Statement [PPS] Section 2.2 and Niagara Escarpment Plan 2017 [NEP] 1.6 Minor Urban Centre and 2.6 Development Affecting Water Resources, must be rigorously relied on for direction in assessing the overall MOB project proposal for sustainable production of groundwater and assimilative capacity for sewage treatment. Reliance on the OBC Sec. 8.2.1.2, lot by lot, is an insufficient site assessment for an entire subdivision. The MoE Manual cautioned a minimum lot size of 1 hectare [2.47 acre] for estate residential housing will not support a sewage system when all other residential uses of the lot are considered [house, driveway, parking, pool, tennis court, and out buildings]. MOB proposes roughly 1.5-acre lot sizes for estate residential.		
	Soil Conditions		
3	The MOB consultant observations indicate the site is quite unusual in the coarseness of soils to the effect that no watercourses have formed on site since the last glaciation. The high infiltration rates characteristic of the MOB site has important limitations on the proposed private Class 4 sewage systems proposed.	Cole Engineering	The Ministry's primary concern with areas of high infiltration is summarized as: “The concern … is that there is adequate protection of ground water resources. Of note is the concern about increased mobility of pathogens through highly permeable materials.” For our site, the depth to water table and high infiltration rates serve to better provide natural attenuative conditions for effluent discharge. It is estimated changes to groundwater quality will take 4 to 10 years to be initially detected at the groundwater table from a land use change from agriculture to rural residential. This amount of time was calculated as the unsaturated zone advection time or UZAT (MECP, 2006). This is sufficient time for the natural destruction of bacteria and viruses in the sewage. The porous, aerobic conditions of the overburden (sand and gravel) at the site also lend favorably to natural attenuation

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4	BCO has been in discussions with a renowned hydrogeologist, Ken Howard, M.Sc., Ph.D., P.HG., P.Geo FGC, CGeol FGS, to review the hydrogeological studies conducted in support of the proposed MOB development. He read us a section of his observations regarding the soil conditions; *"The Port Stanley Till is described by Cole as "a stoney sandy silt till with low plasticity" that "results in lower infiltration rates and may act as a confining unit". Its presence is clearly confirmed by the geologic sections shown in the hydrogeology report. However, no studies have been conducted to determine its hydrogeologic function. This is a serious omission. Soil zone infiltration may be high across the site, but only a small proportion of this water may be reaching the target aquifer due to the sealing effects of the till. Similarly, any attempts to replenish the aquifer using rapid-infiltration dry wells and enhanced-infiltration ditches and swales will be unsuccessful if the till is extensive. I am especially concerned that the potential role of the Port Stanley as a confining bed has not been established, as the transient response of the wells to pumping is likely to be strongly influenced by the aquifer's confined/unconfined condition."*	Cole Engineering	Based on site data, the Port Stanley Till is ~~possibly~~ present in only a few areas of the site. Of the more than 20 boreholes that intersected bedrock, the wells with a possible deeper till are PW1 and OW2, TW12 and OW4 locations. At those locations, the till was noted with gravel and sand. Recent work by the OGS (e.g. Burt 2017) suggest that the Port Stanley is more prevalent north of the site. As described the till is a silty / sandy till and is not as impermeable as other tills below the escarpment (e.g., Halton, Newmarket Till). Therefore, infiltration through this layer, where present, will not be negligible. The abundance of domestic water wells (including some high capacity wells (per OGS Groundwater Program mapping) in areas of mapped Port Stanley Till demonstrates that water can infiltrate through this unit. As a result, the Port Stanley Till, if and where present at the Site, would not stop recharge reaching the underlying bedrock aquifer. Further, the presence of nitrate in the sampled test wells (bedrock wells) also suggests that this till layer, if present, is not acting as a comprehensive seal across the development site.
5	*The Port Stanley Till layer's confining role may be an explanation for the abundant springs and seeps appearing along the north side of the MOB site which supply waters to the wetlands and streams inside the Belfountain Hamlet. If the confining role is correct, then any nitrates resulting from the proposed 67 lot sewage systems will eventually flow out northward into the old village area where many potable wells are located.*	Cole Engineering	As discussed above, the Port Stanley Till does not act as a confining layer underlying the site. COLE's opinion is that the test data from the site is sufficient in showing that infiltration will reach the bedrock aquifer and potential negative impacts from this have already been assessed and found to be acceptable during this investigation. As illustrated on Cross Section A-A' (Figure 8 of 2018 report), the shallow water levels in the wetland area associated with shallow groundwater in the outwash and are interpreted to be associated with a seepage face where the Amabel Formation pinches out along the escarpment. Further, a D-5-4 assessment of potential nitrate

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			impacts was completed and this showed that nitrate would be attenuated to acceptable concentrations at the downgradient property boundary. Any nitrate in groundwater is expected to be denitrified by bacteria associated with organic matter in wetlands, which is a well documented process.
	Household Demand		
6	Using Cole's pumping rate of 1.56 L/min/house, 1.56 L/min = 93.6 L/ hour = 2246.4 L/day. 2246.4 L/ day/ house X 67 houses = 150,508.8 L/ day for the whole development.	Cole Engineering	Section 6.3 has been updated based on the most recent 75 house design. (450L/day * 5 persons) *75 units = 168,750 L/day for development using average day rates
7	MOE Manual recommends 3000 L/day for estate house water use. A range of water use between 2246 and 3000 L/day/house should be considered for estimating and testing the ability of the supply aquifer to meet demand. Using MOECC Procedure D-5-5 with the assumption of a peak pumping rate of 3.75 L/min/person in a four bedroom house the rate is 2700 L/day/house and 180,900 L/day for all 67 houses.	Cole Engineering	2,250 L/day/house has been used. However, peak pumping rates (18.75 L/min/house) were also considered in the report (Section 6.3). An MOE publication "Water Wells and Groundwater Supplies in Ontario" estimated the per person daily water demand to be 450 L (2,250 L/day for a four bedroom house). Ministry of Environment (MOE) Design Guidelines for Large Drinking Water Systems (Design Guidelines) suggest that average per capita water usage ranges from 270 to 450 Lpd. As noted above, 168,750 L/day was calculated based on recent 75 house design, rationale is presented in Section 6.3 as to why the average rate is used instead of peak.
8	It is important to agree on the peak rate of ground water extraction in order to determine the sustainability of the ground water aquifer to produce potable water supplies over time.	Cole Engineering	Peak rates are only expected to occur for up to 120 minutes/day. Average rates are considered to be more representative of expected long-term conditions. Regardless, both peak rates and a summer 'peaking factor' are considered and discussed in the revised hydrogeology report.
9	The MOB consultants do not appear to have considered irrigation uses for the proposed estate residential lots. The large lot, prestige housing proposal located in Belfountain, Caledon will be trophy houses associated with well set, green landscapes requiring extensive irrigation in dry summer periods. The Terraprobe 1992, Comprehensive Servicing Study for Enterac Property Corporation [pg.26], [A previous developer	The Manors of Belfountain Corp.	Terraprobe 1992, p. 26 considered water supply for a communal well and found that the peak water demand of 500,000 L/day during the summer would be supported by the communal well. COLE understands that irrigation demands may be limited through appropriate restrictions on the title. However, summer peak rates have been considered in the revised report (Section 6.3). Summer peak rates provided in a 2010 Carlisle Water Supply report prepared for the City of Hamilton are reviewed in the report. Cisterns may be used in case of droughts or if well levels are found to drop

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	of the subject lands] considered irrigation use of 9000 L/day/house. Using their estimate of 9000 L the 67 lots X 9000 L= 603,000 L/day for the whole subdivision. If a common weather condition of a three week dry warm period in the summer months occurs, then a cumulative ground water taking of 150,508.8 L/ day + 603,000 L/day irrigation = 7,535,508.8 L, a substantial water taking all in close proximity from the same Dolostone aquifer. Terraprobe 1992 did not provide any assumptions for their estimate of irrigation water demand.		during monitoring. Based on nearby permitted water users, presented in Table 2.1, the Amabel aquifer has historically demonstrated the ability to support this level of water taking. The above referenced City of Hamilton report was reviewed to assess summer water demands. A peaking factor of 1.6 was used to assess safe yield for the development and included in the updated report. The actual sustained water takings are anticipated to be much less than this assumed volume.
10	BCO has been in discussions with a qualified hydrogeologist, Ken Howard, to review the hydrogeological studies conducted in support of the proposed MOB development. He read us a section of his observations regarding water demand; “Given that the hydraulic gradient at the site (around 1 km wide) is approximately 1.3%, a Darcy’s Law throughput calculation shows that the volume of water passing beneath the site is around 395,000 L/day; i.e. the proposed development will intercept close to 40% of the water passing through the aquifer. This is a substantial percentage and is well beyond the value of 10% that many would consider “safe” in terms of aquifer yield. In all likelihood, even the best-designed well field would find it difficult to intercept 40% of groundwater flow. However, should this percentage be attainable: 1) There will be a 40% reduction in the volume of water that enters downstream watercourses, wetlands and similar groundwater dependent ecosystems. The	Cole Engineering	Appropriate warning clauses and restrictions on title will prohibit use of groundwater for swimming pool use and limit irrigation, in which circumstance this number is closer to 9%. Further, much of the water taking will be returned to the groundwater system via treated sewage effluent or irrigation. Lastly cisterns are being considered for droughts. When also accounting for the proposed stormwater management designs for the Site, aimed at enhancing infiltration particularly in the upgradient portions of the Site, COLE is of the opinion that it has been demonstrated that the aquifer can safely support the proposed development in the long term. Based on a gradient of 0.013, an average aquifer thickness of 15.92 m, a length of 1,000 m, and an average K of 7.52 x 10-5 m/s, gives a flow through of ~1,344,930 L/day. Average daily takings represent ~ 12.5% of this. However, recharge on the Site (based on the updated water balance, assuming pre-development infiltration is maintained) is approximately 546,734 L/day. The takings are approximately 9% of this combined total. In general, the drawdown cone at a well will expand until the water taking

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	resulting impacts are likely to be significant but have not been evaluated by the proponent. 2) A new water table equilibrium will be established such that the hydraulic gradient across the site will reduce by 40% to around 0.8 %. The resulting water table decline (likely amounting to 4m for parts of the site) has not been considered in any of the analysis. The combination of regional water table decline, pumping drawdown, well losses and addition drawdown due to local reductions in the saturated thickness of the aquifer, threatens to cause serious problems in wells under peak pumping conditions. The regional water table decline will also affect offsite wells."		equals the recharge of the area of the drawdown cone. Under average day conditions, the radius was calculated to be approximately 30 m. Potential impacts to wetlands, surface water features and/or existing users have been evaluated and are not anticipated. ~~There should be N~~o changes are anticipated to the groundwater regime outside of the respective zones of influence. As noted above, the actual taking is much less than the 40% stated. Further, the existing data suggests that water input to the wetlands are largely from surface water. Lastly, the wetlands will be outside of the zone of influence of pumping so ~~there should be no~~ water table decline in those areas is unlikely. However, a long-term monitoring program during construction of the development, will be put in place to monitor groundwater quantity through groundwater level and flow measurements. Consideration for a south to north staged development can be given, at the Client and Town's discretion, should data from interim impacts be deemed required . Based on the pumping tests completed at the site, the calculated drawdown after 50 years only approaches 4 m within the zone of influence for a small portion of the site. This drawdown using peak pumping rate values is highly conservative, as the site will not reasonably see pumping rate at peak rates for 50 consecutive years. The average is considered to be a more appropriate and representative evaluation of adequate water supply. This is discussed in Section 6.3. The reduction in hydraulic gradient under this scenario is negligible.
11	It appears clear to BCO that significantly more work is required with additional investigation of wells, pumping tests and water quality data, to fully assess the resource and the number of residences the site can support.	Cole Engineering	Additional water quality data has been obtained as part of the 2020 Sampling Program and incorporated into the updated report COLE and Peer Reviewer are in agreement that sufficient pumping data is available for the site
12	Ken Howard gave BCO an oral opinion that, "the proponents have failed to demonstrate that aquifers beneath the site can adequately sustain the development's proposed drinking water	Cole Engineering	The peer reviewer is of the opinion that the dolostone aquifer can adequately support the development. It should be noted that in an Expert Panel Report on Water Well Sustainability in Ontario (Novakowski et al.,

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	requirements. Significant water quality issues (nitrate and sulphate) affect parts of the site and serious questions must be raised regarding the ability of the target aquifer to provide sufficient water, especially in the longer term."		2006), the Amabel and Guelph Formations are described as the most extensive and productive bedrock aquifers in Ontario. Nitrate levels across the site are compliant with MECP and CVC guidelines, but COLE has designed with safety factors in mind. We also note that these concentrations are expected to naturally decrease over time, following conversion from agricultural land use to rural residential. Elevated sulphate (and hardness, TDS, turbidity and iron) was observed at TW12. As indicated in the borehole log, this was drilled into a "shale limestone", which is interpreted to be part of the underlying Clinton-Cataract Group and not the Amabel Formation. The well record database indicates that, in general, groundwater from bedrock wells completed in the Amabel Formations were almost exclusively reported as fresh, although occasional wells were reported to be sulphurous. All proposed wells shall be installed only in the Amabel Formation.
	Nitrates		
13	BCO has been in discussions with a qualified hydrogeologist, Ken Howard, to review the hydrogeological studies conducted in support of the proposed MOB development. He read us a section of his observations regarding nitrate concentrations in the MOB groundwater; "If water quantity concerns are not serious enough, water quality concerns certainly are. Groundwater quality analysis was conducted at twelve (12) on-site wells and results indicate severe, ongoing water quality issues. Elevated nitrate is probably the greatest concern. Values ≥ 3.43 mg/L NO3-N were found at 6 of the 12 sites; at 1 site NO3-N reached 8.52 mg/L which is within 15% of the Ontario health-related drinking water quality standard of 10 mg/L. The standard is set due to the risk of methemoglobinemia in	Cole Engineering	All tested wells have historically met the ODWS for nitrate. As discussed above, concentrations are expected to naturally decrease over time, post-development due to the change in land use from agricultural to residential. Various safety factors were built into the original calculation. The original transmissivity value used was taken from TW1, located on the southwest corner of the property. Using a more appropriately relevant average transmissivity value from the general area of observed elevated nitrate concentrations of 167.3 m2/day, this nitrate setback line is reduced to only approximately 2.6 metres. As outlined in the revised hydrogeology report, transmissivity values for test wells on the east portion of the Site are 403 m2/day (TW4), 26.6 m2/day (TW5), and 72.1 m2/day (TW6). Based on the average T value used, and the fact that peak pumping will only occur for 120 minutes/day, the calculated 7 m setback line is reasonable. The

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	infants, also known as blue-baby syndrome. I commend and support Cole's recommendation that concern over nitrate issue can be reduced by avoiding placement of wells close to the affected zone (i.e. where, NO3-N exceeds 7 mg/L). However, the proposed 7m setback is clearly insufficient, even to a casual observer. The value of 7m was calculated correctly with the exception that an average pumping rate was used. This is inappropriate since the task is to avoid drawing water from the high nitrate zone under all pumping scenarios, and not simply the "average". Recalculation of the required setback using a more appropriate "peak pumping rate" provides a value of 83m. Moreover, the hydraulic gradient can be expected to decrease over time by as much as 40% due to the interception of the regional groundwater flow by the development. When this is taken into account, the setback needs to be increased a further 55m to around 140m. This would ensure high nitrate water is not drawn into site wells but, as a result, effectively excludes the northeastern part of the site from development, thereby eliminating close to a dozen or so lots. This is necessary and appropriate. I should note, that contrary to suggestions made, there is no evidence to support the notion that the magnitude of the nitrate problem will decline in the future. If anything, the application of nitrate fertilizer by residents to their lawns, vegetable plots and grassland, together with the nitrogen loading from septic systems will cause a further deterioration of water quality."		setback line under various scenarios is discussed further in section 6.3. Based on similar development projects in the area, particularly the development of a subdivision of south Erin Village with similar underlying geology, including Amabel Formation dolostone, located at the intersection of Wellington Road 52 and 9th Line in Erin, approximately 4 km to the west of the Site, demonstrates the natural reduction of nitrate concentrations due to conversion from agricultural land to residential subdivision under existing geological conditions. Nitrate concentrations in this area were greater than 30 mg/L at select monitoring locations in the late 1990s when the area was used as agricultural area where there was a turkey operation. Following development and conversion to a subdivision of Erin Village, over the last 10 years, nitrate concentrations have declined to an average of approximately 3.5 mg/L (CVC 2011). Previous consultants (Terraprobe) also reference the Caledon Mountain Estates subdivision, located across Mississauga Road, to the east of the site, constructed in the mid-1970s, which is also underlain by coarse overburden overlying dolostone and shale. Groundwater quality samples collected from within the boundary of this subdivision identified nitrate concentrations ranging between 0.6 mg/L and 2.4 mg/L, providing another data set of empirical evidence that sufficient dilution occurs in the subsurface in this geological setting (Terraprobe 1990). As current nitrate concentrations are expected to be a result of current and historic agricultural activities on-site and surrounding the site, a similar reduction can be reasonably anticipated, following residential development. It should be noted that the Paris Moraine just south of the site is not being used for agricultural purposes between the site and the groundwater divide associated with the height of the moraine. As such, most of the nitrate in groundwater at the site is

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			attributed to agricultural on-site (and the small parcel between the site boundary and moraine).
14	PPS [2014] 2.2.1.c and 2.2.1.e [2] policies require the identification of water resource systems necessary for the ecological and hydrological integrity of the watershed and protect, improve or restore vulnerable surface and ground water, sensitive surface water features and sensitive ground water features, and their hydrologic functions with sensitive defined in regard to surface water features and ground water features, means areas that are particularly susceptible to impacts from activities or events including, but not limited to, water withdrawals, and additions of pollutants. With regard to the MOB consultant reports and the BCO's hydrogeologist's comments along with the clear PPS directions, far more detailed work is required before the MOB development proposal may be fully considered.	COLE	Impact assessment for natural features, groundwater quality and current and existing water users are addressed throughout the report. Please refer to Sections 6 and 7 of the revised hydrogeology reports.
	PPS		
15	The PPS 2.2 Water policies provide an imperative for planning authorities to protect, improve or restore the quality and quantity of all surface and ground water, not to make deals or to treat water issues with indifference. The MOB lands and abutting lands are characterized with unique geology and aquifers requiring care in any development decisions. BCO has legitimate expectations that planning authorities will request all relevant information required by the PPS, Niagara Escarpment Plan and all other Provincial Plans in order to fully assess the essential need to protect, improve and restore the quality of	COLE	All relevant planning authorities are involved and actively providing feedback and comments.

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	surface and ground water which the residents of Belfountain drink.		
	NEP		
16	The lands abutting the MOB site boundaries are characterized with key hydrologic features within the meaning of N.E. Plan: permanent and intermittent streams; seepage areas and springs; Credit River cold water fishery and Provincially Significant wetlands.	BEACON	It is the opinion of BEACON that the proposed development will not impact the natural heritage features identified. Please refer to responses by BEACON to NEC and MNRF comments as well as the 2020 EIS addendum. Please note that wetlands were erroneously characterized as PSWs in the 2018 EIS.
17	The MOB development proposal is within 120 metres of a key hydrologic feature and has the potential, via substantial ground water withdrawal and sewage disposal, to result in a negative impact on the features and/or their functions. NE Plan policies 2.6.3 requiring extensive and intensive water studies must be implemented for the MOB development proposal.	BEACON	
18	BCO notes the MOB development proposal of a grid pattern layout of internal roads and geometric lots requires massive levelling of the rolling landforms including filling in of natural hollows currently functioning as on-site ground water recharge areas. The massive re-grading of the entire MOB site is contrary to N.E. Plan policy, 2.6.10 protecting natural drainage landforms.	COLE	Refer to revised draft plan. The proposed road network is in slopes less than 25% as per NEP Part 2.5.4 and maintains hummocky nature of the site, preserving natural drainage landforms.