

File 121191

July 14, 2021

Adele Arbour
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Re: Dewdney Mountain Farms ZBA, Municipality of Trent Lakes
Review of Engineering Submission

Dear Adele:

As requested, we have reviewed the following documents as they relate to the above noted development application:

- *Noise Study Traffic Report* (Tranplan Associates, March 2020);
- *Dewdney Mountain Farms Quarry Road/Ledge Road Improvements* design brief (Lakeview Engineering, December 3, 2020);
- *Dewdney Mountain Quarry Road Improvements* design drawings (Lakeview Engineering Inc., May 1, 2020); and
- *Proposed Dewdney Mtn Farms Quarry Proposed Road Improvements* sketch.

To provide the appropriate context to the above, we have also reviewed the November 24, 2020 memo from Municipal Planning Services to the Township Council, which summarized the application timeline and history, the road improvement plans, site plan requirements and agreement requirements.

Our comments are provided below.

NOISE STUDY TRAFFIC REPORT

NO.	REPORT REFERENCE	COMMENT
1.	2.1	The level of future development as assumed in the report through to the 2030 horizon year (ie. 1 new residence on each of Ledge Road and Quarry Road) should be confirmed by the Municipality as appropriate.
2.	2.1	There is no mention of existing or future development on Ties Mountain Road which is served by Quarry Road.

NO.	REPORT REFERENCE	COMMENT
3.	2.1	In absence of trip generation data for a hunt camp, the study assumed 25% of the single family detached rates. We believe this is an appropriate assumption.
4.	2.2	There is no information or details regarding the quarry operations which form the basis for establishing the daily traffic profile for the Dewdney Mountain Quarry (ie. annual extraction, operating days per year, truck size, etc.). It is understood that a 1.2M tonne license was considered in the 2012 traffic study, but this has been reduced to address noise issues. Additional information is required in this regard to confirm the appropriateness of the 74 loads per day trip basis.
5.	2.2	<p>While the operating hours are 7:00 to 19:00, the report notes “However, trucks and employees will begin arriving on-site during the hour preceding the opening of operations at 7AM.” In other words, empty trucks will arrive earlier than 7:00. The daily profile illustrates the arrival of 4 heavy trucks to the site prior to 7:00.</p> <p>It is typical that the haul route agreement preclude early arrivals to avoid impacts to the surrounding developments and avoid queuing of truck traffic on the road system or on the site access. Such a restriction should be considered and the traffic profile adjusted accordingly.</p>
6.	2.2	What was the basis for establishing the daily profile of Dewdney Mountain Quarry traffic (ie. how were the traffic volumes distributed throughout the day)?
7.	3.0	Reference to quarry traffic prior to 7:00 to be addressed based on Comment 5.
8.	4.0	The 2030 projections were based on 2021 projections from the <i>2012 Traffic Impact Study</i> which in turn were based on traffic data considered current at that time. In this regard, the basis for the 2030 projections is likely ± 10 years old. Traffic data is typically valid for a 2-3 year period. Updated traffic counts would be appropriate.
9.	4.0	An annual growth rate of 2.0% was assumed for traffic on County Road 36. There is no basis for this assumption (ie. historical growth, future population projections, etc.).
10.	4.0	Further to the annual growth, consideration should be given to any specific area development that might otherwise increase traffic volumes through the area, as reported by the Municipality and/or County.
11.	4.0	Projections were only provided for the PM peak hour. Typically, quarry operations will be busiest the first hours of the day. Commentary should be provided with respect to the AM peak hour.
12.	4.0	There are no details provided as to the assumed distribution of site truck traffic at the intersection with County Road 36 (ie. 60% to/from the west and 40% to/from the east) and the basis for such.
13.	5.0	The report notes “The DMQ profiles have been developed through considerable discussion with the proponent.” The details on these discussions as they relate to informing the derivation of the site traffic volumes should be detailed in the report.



DEWDNEY MOUNTAIN FARMS QUARRY ROAD/LEDGE ROAD IMPROVEMENTS DESIGN BRIEF

NO.	REPORT REFERENCE	COMMENT
14.	-	The report should address the overall design criteria and design speed relating to the County and Municipal works (ie. what design speed has been assumed and what design standards have been employed?).
15.	Page 1 Paragraph 4	There is reference to the introduction of acceleration and deceleration lanes. It should be clarified if the intent is to simply pave the shoulder to provide a paved surface for acceleration and deceleration, or if separate lanes are to be created. There is no pavement marking plan that would otherwise clarify this.
16.	Section 1 Bullet 1	The report notes the north shoulder will be paved for a distance of ±180m east and west of the intersection to provide acceleration and deceleration lanes. Dwg 02 reflects a 100m acceleration lane + 60m taper and a 60m deceleration lane + 60m taper (as opposed to 180m). What is the basis for the dimensions noted, particularly the 100m acceleration lane in context of the average truck size (which could amount to +20m).
17.	Section 1 Bullet 2	How was the new Quarry Road cross culvert sized (800mm x 580mm)? We note the driveway culvert immediately downstream is a reduced size (450mm) - this should be confirmed as appropriate in light of the larger, upstream culvert.
18.	Section 1 Bullet 4	The comment notes resurfacing to a distance of 180m, whereas the drawing shows only 140m to the east.
19.	Section 1 Bullet 7	The text notes "The location of the mailboxes will remain." whereas the drawings and cost estimate indicate they are to be relocated.
20.	Section 3 Bullet 5	Typically a road is constructed in the centre of the right-of-way to ensure sufficient boulevard space for ditching, utilities, buffer, snow storage, etc. The appropriateness of shifting the road as far east as possible should be confirmed by the Municipality. Unless otherwise recommended by the noise study, we do not believe there is significant benefit to this shift.
21.	Appendix 5	The cost estimate should be reviewed in consideration of the comments provided, particularly as they relate to confirmation of the scope and extent of the road works. In addition, the unit prices do not seem to reflect current industry pricing and some of the quantities appear to be grossly understated in context of our understanding of the work (ie. if the road alignment is to be shifted, a full or partial reconstruction will be required).
22.	Appendix 6	Line Item 12 indicates 50mm HL1 for surface course whereas the design drawings indicate 40mm HL3.
23.	Appendix 6	Line Item 13 indicates Scarify 50mm, which should be Mill 40mm.



NO.	REPORT REFERENCE	COMMENT
24.	Appendix 6	Line Item 16 indicates 50mm HL1 overlay whereas the drawings reflect 40mm HL3.
25.	Appendix 6	Line Item 18 makes no mention of end treatments. Are these included in the unit prices?
26.	Appendix 6	There is no drawings or details with respect to pavement markings (Item 21) or relocation of existing signage (Item 22).

DEWDNEY MOUNTAIN QUARRY ROAD IMPROVEMENTS DESIGN DRAWINGS

NO.	REPORT REFERENCE	COMMENT
27.	Dwg 02	The 15.0m radius on the NE corner should be confirmed in context of truck turning movements and requirement to accommodate WB right turn with a SB truck stopped at the intersection (a compound curve may be more appropriate).
28.	Dwg 02	How were the configurations of the acceleration and deceleration lanes established?
29.	Dwg 02	The guiderail is to be placed along the back of the shoulder and will require a 1.0m rounding to ensure appropriate support.
30.	Dwg 02	Additional details are required with respect to the proposed steel beam guiderail end treatments and method of connection or overlap with the existing cable guiderail.
31.	Dwg 02	There appears to be missing road sign at approximately Station 0+293.
32.	Dwg 03	Confirm design speed (k values) for the vertical curves upon approach to County Road 36.
33.	Dwg 03	Prior to application of Double Surface Treatment (DST), the road should be regraded to ensure appropriate crossfall, with additional Granular A added as required. A note should be added to the drawings.
34.	Dwg 05	Confirm the proposed design grade of 280.94 at Sta 0+675 as the centreline grade is 281.5.
35.	Dwg 05	Cross-sections should be provided at driveways to confirm integration with the roadworks. At 0+675, the road design grade is reduced by 0.5m which will have impacts to the driveway grade.
36.	Dwg 05	Given the change in vertical alignment from 0+640 to 0+800, full reconstruction is required.



NO.	REPORT REFERENCE	COMMENT
37.	Dwg 06	Confirm the 15.0 metre radius in context of truck turning envelopes and ability to accommodate 2 trucks turning in opposite directions.
38.	Dwg 06	It is recommended that the hammerhead be hard surfaced (eg. double surface treatment or asphalt) to minimize impacts to the gravel surface from buses completing their 3 point turn.
39.	Dwg 07	Grading extends outside of the ROW in the area of 0+100.
40.	Dwg 07	Location of the road within the ROW should be confirmed (ie. it is not centred in the ROW which is the preferred approach).
41.	Dwg 07	Confirm where full reconstruction of the road is required (ie. where a new alignment is required) or where adding additional granular and resurfacing is appropriate.
42.	Dwg 17	Confirm radius at the site access.
43.	Dwg 18 Site Note 5	Reference is made to placement of siltation and erosion control measures, yet there is no indication of such on the drawings.
44.	Dwg 18 Site Note 5	Reference is made to DM Wills as the engineer.
45.	Dwg 18 Site Note 7	The note refers to Detail 1 regarding saw cutting of asphalt. Detail 1 only pertains to lap joint and does not indicate requirement for saw cuts.
46.	Dwg 18 Detail 1	The detail notes "Toe Coat" - this should be "Tack Coat".
47.	Dwg 18 Detail 2, 3 & 4	Note 3 in each detail indicates that the pavement specifications as contained in the latest geotechnical reports take precedence over the detail. The details on the engineering drawings should reflect the recommendations as required to allow the works to be constructed as per the drawings.
48.	All	The drawings do not address roadside drainage and ditches. Ditches should be shown in the profile.
49.	All	K values for the vertical curves should be confirmed in context of the design speeds employed.
50.	All	There are several drawings on which the existing road and hydro lines are located outside of the indicated ROW. How was the ROW identified? As an example, at 0+180, the proposed ROW does not appear to reflect actual property lines (as per the property bar on the west side and fence line on the south side, assuming both are reflective of the existing property lines).



NO.	REPORT REFERENCE	COMMENT
51.	All	Through several areas, the road has been shifted laterally from its current location (ie. a new alignment is being implemented). The profile should include the existing grades along the new, proposed road centreline. In such cases, a reconstruction of the road will be required.
52.	All	The drawings should be clear as to the intended scope of work on the road. For example, this could include: <ol style="list-style-type: none"> <li>1. regrade and resurface <li>2. widen and resurface (if the existing road can be maintained) <li>3. full reconstruction (if the existing road is not suitable or if a new alignment is required)
53.	Other	Confirmation, through a geotechnical investigation and recommendation, is required to ensure that the road cross-sections as proposed, including double surface treatment and gravel surface, are suitable to accommodate the projected truck volumes. The geotechnical report should also provide confirmation of the existing road conditions and recommendations regarding its suitability for reuse.
54.	Other	Road cross-sections on 20m intervals would be useful to address existing and proposed conditions, and potential impacts of such (ie. will clearly indicate how the proposed works can be integrated with existing conditions).
55.	Other	Typical road cross-sections should also be provided to reflect the intended scope of work in consideration of existing conditions. These should show the full arrangement within the right of way (eg. lanes, shoulders, ditches, etc.) and also the full road composition (eg. depth of surface, granulars, maintaining existing granular, etc.). Separate cross-sections should be provided for each scope of work (full reconstruction, widen and resurface, resurface only, etc.).
56.	Other	A pavement marking and signage plan should be provided.

As detailed in the above comments, there is some uncertainty as to the scope of road works being proposed. In consideration of the current road section of Ledge Road (narrow road serving a limited number of residences and hunt camps), it is unlikely that it is suitable for reuse. In this regard, full reconstruction is anticipated, subject to confirmation from geotechnical investigations. Similarly, if the alignment is to change, reconstruction will be required.

If the intent is simply to resurface Quarry Road with Double Surface Treatment, the suitability of such should also be confirmed in consideration of its existing condition and geotechnical investigation. Otherwise, full reconstruction is required. Where the road profile is to be lowered, full reconstruction would be expected.



PROPOSED DEWDNEY MTN FARMS QUARRY PROPOSED ROAD IMPROVEMENTS SKETCH

The proponent has prepared a sketch to illustrate the possible realignment of Ledge Road immediately north of Ties Mountain Road, to place it within what appears to be an existing road allowance. As per the excerpt from the Peterborough County GIS mapping (see below), there appears to be an unevaluated wetland in the area of the realignment which would likely have bearing on the viability of it.

In addition, based on the contour lines, there appears to be significant topographic relief towards both limits of the realigned road. Although we are not familiar with the history of Ledge Road, its current alignment was likely established in consideration of the above constraints and thus most likely reflects the preferred alignment. If the realignment is to be pursued, additional study and investigations would be required, including but not limited to topographic survey, natural environment review, geotechnical study and Class Environmental Assessment.



excerpt from Peterborough County GIS showing Ledge Road road allowance



CLOSING

If you have any questions or would like to discuss any of the comments further, please do not hesitate to contact us. Otherwise we recommend the above comments be forwarded to the applicant for response and the drawings revised/updated accordingly.

Yours truly,

Tatham Engineering Limited



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