The Corporation of Loyalist Township
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July 4, 2018

Algonquin Power Co.
345 Davis Road
Oakville, ON
L6J 2X1

Attn: Ariel Bautista, Project Manager

Dear Mr. Bautista:

Re: Amherst Island Road Deficiencies

In an effort to assist Algonquin Power in the cleanup and completion of the Windlectric project, the Township has initiated a review of the road conditions, with the assistance of our consultant. Appended to this document is a detailed listing prepared, on a road-by-road basis, by Jewell Engineering.

The Township has some general comments and we provide herewith an initial list of deficiencies, as follows:

- All roads subject to the road improvements should be graded such that they have 2% crossfall from the center line for a normal lane width of 3.0 metres and the shoulder graded at 6%.
- All driveways that access the municipal roads which were subject to road improvements must be restored to match the former grades at the property line and the longitudinal grades must be blended to match the shoulder of the roads and any sharp breakpoints must be eliminated.
- The geotextile and lumber used to provide the turtle and erosion protection currently located at roadsides must be removed.
- It has been observed that the shoulders on Stella Forty-Foot Road have been removed. These shoulders must be reinstated to match the original width of the roadway.
- Any areas that are not vegetated should be seeded and vegetation restored.
- Ditches are to be restored to pre-road improvement condition, specifically but not limited to the following:
    - All ruts should be removed
    - Inverts of ditches should be graded to flow
    - Ditches should be provided with stable side slopes
- Our consultant has determined that there are several locations where Combigrid installation has not been completed. The Combigrid must be installed in these locations. Please refer to the attached detailed document prepared by Jewell Engineering.

- The Township has initiated a Granular A gradation sampling program for the roads subject to road improvements, and will advise Algonquin of the results when received.
- Widenings for all service road entrances need to be removed, the area restored with topsoil and seeded and drainage systems operating as per pre construction condition.

Should you require any clarification with respect to this correspondence, please contact the undersigned.

Yours truly,

David MacPherson, C.Tech.
Public Works Manager
DM/ka

CC: Murray Beckel, Interim Chief Administrative Officer
David C. Thompson, Director of Infrastructure Services
Tony Fleming, Cunningham Swan
Dan Fencott, G.D. Jewell Engineering

June 29, 2018

AMHERST ISLAND CULVERT DEFICIENCIES

Notes:

1. All culverts within the project limits were not covered with Combigrid. Combigrid was stopped and started either side of each pipe.

South Shore Road:

CULV: #	STA	REMARKS
2	0+490	Concrete culvert replaced with 450mm CSP. Not installed as per OPSD 803
3	0+535	Concrete culvert replaced with 450mm CSP. Not installed as per OPSD 803
4	0+685	1200mm CSP. Not replaced as per Stantec recommendation
6	1+035	450mm CSP. Not replaced as per Stantec recommendation
7	1+085	550mm CSP. Not replaced as per Stantec recommendation.
8	1+148	400mm CSP South Invert exposed. North invert buried
9	1+290	400mm CSP. Not replaced as per Stantec recommendation.
13	1+885	400mm CSP. North invert damaged, South Invert ok. Barrell ok.
15	2+115	400mm CSP minor corrosion. Not replaced as per Stantec recommendation.
16	2+180	400mm CSP. Both ends are buried. Unable to inspect.
17	2+200	300mm CSP. North end damaged. South end ok.
22	2+940	400mm CSP. Both ends are ok. Barrell ok. North end needs extension
23	3+085	400mm CSP. North end needs extension, South end ok. Barrell ok
25	3+245	400mm CSP. North end buried, South end ok. Barrell ok
28	3+810	400mm CSP. North end damaged, South end ok. Barrell ok
29	4+010	400/300 CSP & 300mm Concrete pipe. Concrete pipe not replaced with CSP. Buried under S14 access road. Needs to be replaced once access restored
30	4+160	North end buried requires extension, South end ok.
31	4+195	400mm CSP. North end damaged. South end requires extension.

Lower 40' Road:

CULV: #	STA	REMARKS
32	4+545	300mm CSP. Concrete East & West ends covered. Unable to inspect
33	5+318	600mm CSP. Extension required on both ends of pipe
34	5+320	600mm CSP. Extension required on both ends of pipe
35	5+455	400 CSP. Culvert not replaced as per Stantec recommendation
36	5+780	800 CSP. Culvert not replaced as per Stantec recommendation

Front Road:

CULV: #	STA	REMARKS
39 A/B	6+260 6+264	2 pipes side by side: 1st pipe- 2.3m extension added. Road plates installed but not full width as per design 2nd pipe-2.7m extension added. 2nd pipe not replaced as per Stantec recommendation. Road plates installed but not full width as per design
A	16+112	South end damaged. North end ok. Needs cleanout.
40	15+480	600mm CSP. Both ends damaged.
41	15+945	2500mm X 1250mm Box culvert. Not replaced as per Stantec recommendation. Tiger tail damaged NW End.
42	15+478	600mm CSP. Both ends damaged. Rusty barrel. Culvert not inspected by Stantec.
43	15+095	400mm CSP. North end buried & deformed. South end requires cleanout. Further inspection required once pipe cleaned out.
44	14+280	350mm CSP. To be reinstated after radius removal.

Stella 40' Road:

CULV: #	STA	REMARKS
84	40+845	500mm CSP. Road plate in north bound lane only. Not replaced as per Stantec recommendation.
85	41+340	550mm CSP. Roof sag. Minor damaged on obverts. Stantec report said to monitor during heavy loads.

2nd Concessions:

CULV: #	STA	REMARKS
D	25+595	New 400mm CSP. Not installed as per OPSD 803. Needs clean out and ditching
86	25+510	New 400mm CSP not installed as per OPSD 803. North Invert ok. South invert above grade. Ditching required. Culvert installed approximately 4-5" high, resulting in trapped water
87	25+265	Both ends of pipe covered with rip-rap. Unable to inspect to determine if it is a new pipe.
88	24+390	600mm CSP. Not replaced as per Stantec recommendation.
89	24+380	600mm CSP. Not replaced as per Stantec recommendation.
90	24+105	450mm CSP. Not replaced as per Stantec recommendation
91	23+790	300mm CSP. North end buried in radius to Dump Road. South end ok. Inspection required once radius removed
92	23+218	400mm CSP. North end damaged. South end ok. Not inspected in Stantec report.
E	22+845	1030 X 740mm CSPA. North end ok. Crushed in middle. South end damaged. Culvert was not protected during heavy loads. Culvert needs to be replaced. Culvert was not inspected in Stantec's report

F	22+850	1030 X 740mm CSPA. North end ok. South end damaged. Barrell ok
93	22+425	900mm CSP. Not replaced as per Stantec recommendation
G	21+420	400mm CSP. North End damaged. South end ok. Barrell ok. Culvert was not inspected in Stantec report
H	20+575	800mm CSP. North end crushed. South end ok. Barrell ok. Culvert was not inspected in Stantec report.

3rd Concession:

CULV: #	STA	REMARKS
B	30+435	400mm CSP. South end requires ditching. North end ok. Barrell ok.
63	30+658	400mm CSP. South end requires extension. North end ok. Barrell ok.
62	30+610	400mm CSP. South end ok. North end crushed. Extension required. Culvert was not inspected in Stantec report but needs to be replaced
64	30+845	400mm CSP. South end requires cleanout and extension. North end ok. Barrell ok.
65	31+670	450mm CSP. North & South ends minor damage. Extensions required
67	32+150	500mm CSP. North end damaged, extension required. South end ok. Barrell ok
68	32+280	500mm CSP. North & South end damaged. Deformed centreline. Culvert needs to be replaced due to heavy loads
69	32+490	600mm CSP. North & South end minor damage. Barrell ok.
70	32+740	400mm CSP. North & South ends ok. Not installed as per OPSD 803.
71	33+095	400 CSP. North end top damaged. South end ok. Barrell ok.
72	33+285	400 CSP. South end damaged. Hole in top of culvert in the right tire track North end ok
73	33+618	400 CSP. South end damaged ½ full dirt. North end ok. Requires cleanout.
74	33+810	400 CSP. East & West ends damaged, extension required on both sides
75	34+065	400 CSP. North & South ends damaged. Was not inspected in Stantec report. Replace
76	34+170	400 CSP. North & South ends damaged. Barrel ok.
77	34+245	400 CSP. North end damaged minor repair. South end ok
78	34+595	400 CSP. Not installed as per OPSD 803. North end requires extension. South end ok
79	34+790	400 CSP. North end blocked. South end requires cleanout
80	34+900	400 CSP. North & South ends ok. Requires cleanout
C	35+260	400 CSP. Minor damage both ends. Barrell ok.

AMHERST ISLAND ROAD DEFICIENCIES

NOTES:

1. This deficiency list is a living document and additional items may be added as work progresses.
2. Currently Jewell Engineering is awaiting results of a number of granular samples. These samples may generate additional deficiencies.
3. This list has been generated based on the Township accepting the new road widths and elevations laid out by Algonquin.
4. 2nd Concession is approximately 0.3m to 0.4m higher then the original design elevation through the low area west of the laydown yard. The road grade deviates from the approved plan from stations 24+250 to 24+650.
5. Cross fall slope checks were completed on all roads. Cross fall ranged 1.5% to 1.8%.
6. Some areas along South Shore Road & 3rd Concession have cross fall of 0% to 0.2%.
7. All turbine entrance roads and by pass roads need to be returned to their designated post construction width

SOUTH SHORE ROAD

STATION	REMARKS
0+430	Isolated centreline soft spot
0+500-0+525	East bound lane chevron reinstatement required
0+590	Isolated soft spot
Civic #3850	South edge of road has collapsed due to truck traffic
0+855	Pull-pit. Combigrid was not reinstated
0+982	Isolated soft spot in road
1+353	South edge of road has slumped towards the lake
1+410	Isolated soft spot
1+650 -1+700	Combigrid damaged by grader
THROUGHOUT	All steel beam guide rail requires cleanup to remove granular's and debris from between posts
1+785-1+845	Civic #2650 soft road
Civic #2450	Wa-33R object marker sign to be reinstated east bound lane
2+115	Combigrid exposed in road platform
Marshal rd.	Entrance to be cut down & regraded
2+530-2+540	Combigrid exposed in road platform
4+200	Combigrid damaged by grader
THROUGHOUT	Road cleanup required for ditches and shoulders, Including: removal of excess material, reinstating ditches and shoulders to pre-construction condition or better.
THROUGHOUT	Alligator cracking over entire length of road

LOWER 40' ROAD

STATION	REMARKS
THROGHOUT	Alligator cracking throughout
4+959	Isolated soft spot, Combigrid exposed

4+615	Isolated soft spot
4+660	Isolated soft spot, Combigrid exposed
4+825	Isolated soft spot, Combigrid exposed
5+125	2 steel plates lengthwise 6m long installed to prevent pumping of sub base material. Plates need to be removed from centreline of road and sub base excavated to remove soft spot. No culvert present in this location.
5+845	Isolated soft spot and cracking
5+875	Road alligator cracking
5+905	Missing Combigrid and proper overlap in trenching operation from 5+905 to 5+840.
THROUGHOUT	Road cleanup required for ditches and shoulders, Including: removal of excess material, reinstating ditches and shoulders to pre-construction condition or better.

FRONT ROAD

STATION	REMARKS
THROUGHOUT	Road cleanup required for ditches and shoulders, Including: removal of excess material, reinstating ditches and shoulders to pre-construction condition or better.
Civic #1900	West side of barn entrance requires grading to stop ponding.
Full length	Shoulder grading required
10+030	Road crossing from Algonquin ferry dock to laydown yard has been depressed due to heavy loads.

CONCESSION 2

STATION	REMARKS
THROUGHOUT	Road cleanup required for ditches and shoulders, Including: removal of excess material, reinstating ditches and shoulders to pre-construction condition or better.
Stella	Remove by pass road on radius from Stella to 2nd Conc.
Full length	Alligator cracking throughout
24+030	Centre line soft spot with exposed combi grid
23+060	Combigrid is 10cm below the surface of the road
22+175 R	Subgrade material is 10cm below the road surface. Combigrid was not observed
S34	Ditching required east and west side of access road
S22	Ditching required east and west
S16	Ditching required to the west
21+855	Isolated soft spot
21+785	Isolated soft spot
21+735	Combigrid exposed with centreline cracking
23+700 – 25+600	Combigrid is not installed properly over cabling trench

CONCESSION 3

STATION	REMARKS

THROUGHOUT	Road cleanup required for ditches and shoulders, Including: removal of excess material, reinstating ditches and shoulders to pre-construction condition or better.
30+355	Soft spot @ Civic #4875
30+725 R	Combigrid is 150mm below surface of the road
30+660 – 31+850	Exposed combi grid. Additional sections damaged by grading operations
31+250	Centre line soft spot
throughout	Alligator cracking
32+950	Exposed Combigrid
33+250	Isolated centre line soft spot
33+870	Combigrid is exposed at the centreline of the road
33+880 R	Combigrid is 80cm below the surface of the road
Stella @ 3rd	Remove by pass road on radius from Stella to 3rd Concession

STELLA 40' ROAD

STATION	REMARKS
throughout	Road cleanup required for ditches and shoulders, Including: removal of excess material, reinstating ditches and shoulders to pre-construction condition or better.
throughout	Alligator cracking
40+845	Steel plates installed above culvert. Do not total 6m total width as required by design.
Combigrid locations	Combigrid is on the east side of Stella from 2nd to half way up church hill (41+850 to 41+175 approx.) and on the west side of Stella up to bypass (41+175 to 40+150). 1.5m with no Combigrid or overlap