



Planning and Development Committee Report

To: To the Chair and Members of the Planning and Development Committee
From: Arwa Almaflahi, Junior Planner
Date: April 4th, 2023
Report: RPT-0538-22
Subject: CT1-22-AA - Telecommunication Tower Application
Purpose: Review of 'Communication Tower and Communication Antenna Preferred Location Protocol (2020)'

Recommendation

Telecommunication Tower Application **CT1-22-AA** from Shared Tower Inc. c/o LandSquared Agent, on behalf of, on behalf of Paul and Gwen Van Dongen, Applicant/ Owner of Part of Lot 19, Concession 6, County of Brant, in the geographic township of South Dumfries, located at 510 Brant-Waterloo Road proposing a 65-metre (213 ft) steel self-supported tower with lightning protection system, situated within a compound area. The compound area is proposed to be 15 m x 15 m in area (49.2 ft) and will have a 1.8 m (5.9 ft) high chain link security fence.

THAT the Clerk be directed to inform Shared Tower Inc (STC):

- a. That LandSquared on behalf of Shared Tower Inc. (STC) has completed consultation with the County of Brant and the public; and
- b. THAT the Telecommunication Tower as proposed at 510 Brant-Waterloo Road is not in accordance with Section 4.iii – 'Preferred Location Guidelines' of the 'Communication Tower and Communication Antenna Preferred Location Protocol (2020)'.

Key Strategic Priority

Undertaking actions that elevate customer service to those we serve.

Financial Considerations

None.

Executive Summary / Background

The purpose of the report is to provide the Committee with information regarding the details of a new Telecommunication Tower Application proposed within the County of Brant. The proposal aims to support enhanced wireless voice & data coverage and capacity for the surrounding area.

Telecommunication Tower Application **CT1-22-AA** proposes to establish a 65 metre (213 ft) tall, steel, self-supported, lightning protected telecommunication structure, situated within a

15m x 15m (49.2 ft) compound area surrounded by a 1.8m (5.9 ft) chain link security fence.

Section 4.iii of the 'Communication Tower and Communication Antenna Preferred Location Protocol (2020)' outlines 'Preferred Location Guidelines' for new Telecommunication Towers.

Surrounding Land Use	Preferred Setback (3x tower height)	Provided Setback
Residential Use	195 metres (640 ft)	317.6 metres (1043 ft)
Natural Heritage Feature	195 metres (640 ft)	105 metres (344.5 ft)
*The rear portion of the property is zoned and designated Natural Heritage due to the woodland, valley slopes and proximity to the Glen Morris Valley Wetland Complex. GRCA and Environmental Planning Staff have no concerns with impacts to the Natural Heritage.		

This application has completed the following circulation and consultation process:

- October 26, 2022 – Internal / External Departmental Circulation
- December 5, 2022 – Neighbourhood Meeting (Hosted by the Applicant)
- December 6, 2022 – Information Meeting (Planning and Development Committee)
- January 10, 2023 – Recommendation Meeting (Planning and Development Committee)
Deferred until Technical Report was completed concerning impact to nearby AM Tower.

The review of this application focuses on literature reviews of applicable planning policy (i.e. *Planning Act, Provincial Policy Statement, Official Plan*), and public consultation and location preferences as outlined in the County of Brant and the County of Brant '**Communication Tower and Communication Antenna Preferred Location Protocol (2020)**'.

The Telecommunication Tower Application submission consists of the following, attached to this report for Committees consideration:

- Proposed Tower location Plan
- Survey
- Site Selection Justification Report
- Rogers AM Tower Impact: Technical Report
- Public Consultation Summary Report

Review of the 'Communication Tower and Communication Antenna Preferred Location Protocol (2020)' concludes that:

- a. That LandSquared on behalf of Shared Tower Inc. (STC) has completed consultation with the County of Brant and the public;
- b. The Telecommunication Tower as proposed at 510 Brant-Waterloo Road is not in accordance with Section 4.iii – 'Preferred Location Guidelines' of the 'Communication Tower and Communication Antenna Preferred Location Protocol (2020)'.

Location

The subject lands are located east of Pinehurst Road along the south side of Brant-Waterloo Road. The subject lands have a total frontage of 528 metres (1732.3 ft), depth of 112 metres (367.5 ft) and total area of 87 hectares (215 acres).

The subject lands are located within an agricultural area and currently contain an existing residential dwelling and accessory structures associated with a farming operation.

Report

The purpose of the report is to provide the Committee with information regarding the details of a new Telecommunication Tower Application proposed within the County of Brant.

Industrial Canada's Client Procedures Circular 2-0-03:

Industry Canada's Client Procedures Circular 2-0-03, Issue 4, entitled Radio communication and Broadcasting Antenna Systems (CPC-2-0-03) requires proponents of new communication towers to follow the land-use consultation process for the siting of antenna systems, established by the land-use authority, where one exists.

The County established a municipal land-use consultation process and protocol for the siting of communication towers which came into effect on July 4, 2011, revised in 2020 as the '**Communication Tower and Communication Antenna Preferred Location Protocol (2020)**'.

- **Review of the 'Communication Tower and Communication Antenna Preferred Location Protocol (2020)' concludes that:**
 - a. **That LandSquared on behalf of Shared Tower Inc. (STC) has completed consultation with the County of Brant and the public;**
 - b. **The Telecommunication Tower as proposed at 510 Brant-Waterloo Road is not in accordance with Section 4.iii – 'Preferred Location Guidelines' of the 'Communication Tower and Communication Antenna Preferred Location Protocol (2020)'**.

Provincial Policy Statement (2020):

Policy 1.1.1 (g) requires municipalities to ensure that necessary infrastructure and public service facilities are or will be available to meet current and projected needs.

- **This application is consistent with the Provincial Policy Statement (2020) as it proposes to increase the mobile base station infrastructure to fill coverage gaps and increase capacity for current and future wireless users.**

Growth Plan for the Greater Golden Horseshoe (2020)

Section 3.2.1 of the Growth Plan speaks to providing for integrated infrastructure planning through the implementation of the Growth Plan. Staff note that in Section 7: Definitions, "Infrastructure" is defined to include, among other things, communications, and telecommunications facilities.

- **This application is in conformity to the Growth Plan as it proposes to integrate expanding infrastructure.**

County of Brant Official Plan (2012)

The County of Brant Official Plan sets out the goals, objectives and policies to guide development within the municipality. The *Planning Act* requires that all decisions that affect a planning matter shall 'conform to' the local Municipal Policies, including but not limited to the County of Brant Official Plan.

- **The lands subject to this application contain both Agricultural and Natural Heritage designation as outlined in Schedule 'A' of the County of Brant Official Plan.**
- **The proposed tower will be located on the lands designated as Agriculture.**
- **Section 3.16.2(f) of the Official Plan states that communications towers shall not be located within the Natural Heritage System Designation. The applicants have located the tower outside of the Natural Heritage Features.**

Section 5.5 outlines policies related to the advancement of utilities within the County of Brant.

- ***Through the submission of the Site Selection justification report, the application has demonstrated the need for the proposed telecommunication tower expansion.***
- ***Consultation with the County of Brant and members of the public has been completed to review concerns related to the proposed telecommunication tower expansion.***
- ***The location of the proposed tower has been reviewed against the 'Communication Tower and Communication Antenna Preferred Location Protocol (2020)'***.

The application is in conformity with the policies of County of Brant Official Plan.

Zoning By-Law 61-16

The subject lands are zoned Agricultural (A) and Natural Heritage (NH) in the Zoning By-Law 61-16. The following regulations will apply:

Section 4.40(d) (Uses Permitted In All Zones) states that the following uses shall be permitted in all Zones, including those Zones subject to special provisions, unless such use is specifically identified as not being permitted otherwise: *Services and utilities of public agency such as water lines, wastewater lines, gas distribution mains, telecommunications and other cabled services, district energy facilities without cogeneration, pumping stations, and local electric power lines or other communication lines not including electricity generation facilities. However, no goods, material or equipment shall be stored or processed in the open, unless such outside storage or outside processing is specifically permitted in the Zone.*

The application complies with applicable standards of Zoning By-Law 61-16.

Interdepartmental Considerations

The following comments were received from departments/agencies as part of the circulation of this application:

Environmental Planning:

- The rear portion of the property is zoned and designated Natural Heritage due to the Grand River and its associated floodplain and valley system. The proposed tower location is about 240 metres from the top of slope associated with the Grand River and about 65 metres from a minor valley located on the property to the west. Given this distance, Environmental Planning does not have any concerns.

Grand River Conservation Authority (GRCA):

- The Grand River Conservation Authority (GRCA) has no objection to the proposed application.
- GRCA has reviewed this application as per our delegated responsibility from the Province to represent provincial interests regarding natural hazards identified in Section 3.1 of the Provincial Policy Statement (PPS, 2020) and as a regulatory authority under Ontario Regulation 150/06. GRCA has also provided comments as per our Memorandum of Agreement with The County of Brant and as a public body under the Planning Act as per our CA Board approved policies.
- Information currently available at this office indicates that the subject property contains valley slopes and the regulated allowance adjacent to the valley slopes. The property also contains the regulated allowance adjacent to the provincially significant Glen Morris Valley Wetland Complex. Due to the presence of these features, a portion of the property is

regulated by the GRCA under Ontario Regulation 150/06 - Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation. Any future development or other alteration within the regulated area will require prior written approval from GRCA in the form of a permit pursuant to Ontario Regulation 150/06. The proposed telecommunication tower and associated compound is located outside of the GRCA's regulation limit. As such, the GRCA has no objection to the proposed compound and we note that a GRCA permit under Ontario Regulation 150/06 will not be required for the proposed development.

- The proposed telecommunication tower and associated compound is located outside of the GRCA's regulation limit. As such, the GRCA has no objection to the proposed compound, and we note that a GRCA permit under Ontario Regulation 150/06 will not be required for the proposed development. We wish to note that this application may be subject to Growth Plan policies for key hydrologic features and suggest that the County of Brant consider the applicable policies in their review of this application.

Development Engineering

- Staff has reviewed the application for the Communications Tower to be located at 510 Brant Waterloo Road and provide the following comments:
- The east property line of the Subject Lands, adjacent to the Unopened Road Allowance Between Lots 18 & 19, is required to be verified to ensure that the Access & Compound and any fencing is contained within the Subject Lands. The verification of the east property line will be required to be surveyed by a qualified Ontario Land Surveyor.
- The Subject Lands are subject to the Grand River Conservation Authority Regulation Limit.
- All works and related fees are the responsibility of the applicant and must be to the satisfaction of the County of Brant.
- Overhead Hydro wires are present across the proposed entrance.
- An approved Public Works Entrance Permit is required prior to commencing any works within the Municipal Road Allowance.
- The County of Brant Official Plan, Schedule B, section 5.3.2.1.9 identifies Brant Waterloo Road as a Rural Local Road. Rural Local Roads should have a road allowance width between 20 metres to 24 metres. No road widening is required.
- Sight lines were checked at the proposed entrance location and were found to be sufficient.

Mississauga's of the Credit First Nation (MCFN)

- Thank you for sending this RFC our way. I have looked over the package and reviewed it now. In this case, I feel that the proposed are to be impacted by construction (15x15m) is probably too small to warrant an archaeological assessment, from MCFN's perspective. If an archaeological assessment is triggered by any other legislation or body, then MCFN would have an interest in participating.
- MCFN Department of Consultation and Accommodation must be in receipt of all Environmental Assessment reports and must be engaged for all Archaeological Assessments. This engagement includes in-field participation by having MCFN community members present when any archaeological assessments are being conducted and a review of all reports prior to submission to the ministry for clearance. This engagement is at the cost of the proponent.

Technology Services

- No issues with this. Should provide much needed service in the area.

Hydro One

- We are in receipt of your Communication Tower Application, CT1-22-AA dated October 26, 2022. We have reviewed the documents concerning the noted Plan and have no comments or concerns at this time. Our preliminary review considers issues affecting Hydro One's 'High Voltage Facilities and Corridor Lands' only. For proposals affecting 'Low Voltage Distribution Facilities' please consult your local area Distribution Supplier. To confirm if Hydro One is your local distributor please follow the following link: Stormcentre (hydroone.com)

The following departments/agencies did not provide any comments/ concerns as part of the circulation of this application:

- | | |
|------------------------|----------------------------------|
| · Field Services | · Canada Post |
| · Fire | · GIS Mapping / Civic Addressing |
| · Operations | · Parks & Facilities |
| · Building | · Energy Plus: |
| · Economic Development | · Union Gas |
| · Energy Plus | · Imperial Oil |

Public Considerations

Public circulation of notices, by mail and newspaper, was undertaken in accordance with *Section 11(B) – Procedure for Public Consultation* as outlined in the County of Brant '**Communication Tower and Communication Antenna Preferred Location Protocol (2020)**'.

- Notices were sent to all neighbouring residences within 500 metres of the subject lands, 30 days prior to the meeting;
- A notice was published in the Brantford Expositor, 30 days prior to the meeting; and
- A notice sign was posted on the subject lands 20 days prior to the meeting date.

This application has completed the following circulation and public consultation process:

- December 5, 2022 – Neighbourhood Meeting (Hosted by the Applicant)
- December 6, 2022 – Information Meeting (Planning and Development Committee)
- January 10th, 2023 – Recommendation Meeting (Planning and Development Committee) Deferred until technical review as requested by Rogers was undertaken.

Notice of the April 4th public meeting for this application including, contact information and Public Hearing Date was circulated by mail on March 15th, 2023, to all property owners within 500 metres of the subject lands in accordance with the *Planning Act*. A site visit along with the posting of the Public Notice sign was completed on March 15th, 2023.

On January 10th, Rogers Media requested confirmation that the proposed tower would have no negative impact on the CKGL AM Radio Towers located north of the Site. A technical review was completed on January 23rd, 2023 by Octave Communications which demonstrated there will be no impacts to the CKGL Radio AM Tower.

One public comment was received from a neighbouring resident during the Information Meeting on December 5th. The resident raised concerns regarding the tower's location impacting the agricultural land and an Osprey's nest near the proposed location. The applicant advised that the location of the tower was placed with the intent of preserving as much agricultural lands and ensure distance from natural heritage features. Additionally, the osprey is a migratory bird. The applicant has been advised to construct during the winter months when the bird is not present.

At the time of writing this report, no additional public comments or correspondence have been received.

Conclusions and Recommendations

Telecommunication Tower Application CT1-22-AA proposes to establish a 65 metre (213.3 ft) self-supported tower with lightning protection system, situated within a compound area. The compound area is proposed to be 15 m x 15 m (49.2 ft) in area and will have a 1.8 m (5.8 ft) high chain link security fence.

The review of this application focuses on literature reviews of applicable planning policy (i.e. Planning Act, Provincial Policy Statement, Official Plan), and public consultation and location preferences as outlined in the County of Brant 'Communication Tower and Communication Antenna Preferred Location Protocol (2020)'.

Review of the 'Communication Tower and Communication Antenna Preferred Location Protocol (2020)' concludes that:

- a) That LandSquared on behalf of Shared Tower Inc. (STC) has completed consultation with the County of Brant and the public; and
- b) THAT the Telecommunication Tower as proposed at 510 Brant-Waterloo Road is not in accordance with Section 4.iii – 'Preferred Location Guidelines' of the 'Communication Tower and Communication Antenna Preferred Location Protocol (2020)'.

Prepared By:



Arwa Almaflahi
Junior Planner

Reviewed by: Mat Vaughan, BES, MPLAN, MCIP, RPP, CMM3 Director of Planning
Submitted By: Pamela Duesling, PhD, MCIP, RPP, Ec.D., CMM3, General Manager of Development Services

Attachments

1. Zoning Map
2. Official Plan Map
3. Aerial Map
4. Surrounding Land Uses Map
5. Formal Site Selection Justification Report
6. Technical Report
7. Public Consultation Summary Report

Copy to

Pam Duesling, General Manager of Development Services
Mat Vaughan, Director of Development Planning
Alysha Dyjach, Director of Council Services/ Clerk
Alyssa Seitz, Planning Administrative Assistant/Secretary Treasurer to the Committee of Adjustment
Applicant/Agent/ Owner

File # CT1-22-AA

In adopting this report, is a bylaw or agreement required?

If so, it should be referenced in the recommendation section.

By-Law required? (No)

Agreement(s) or other documents to be signed by Mayor and /or Clerk? (No)

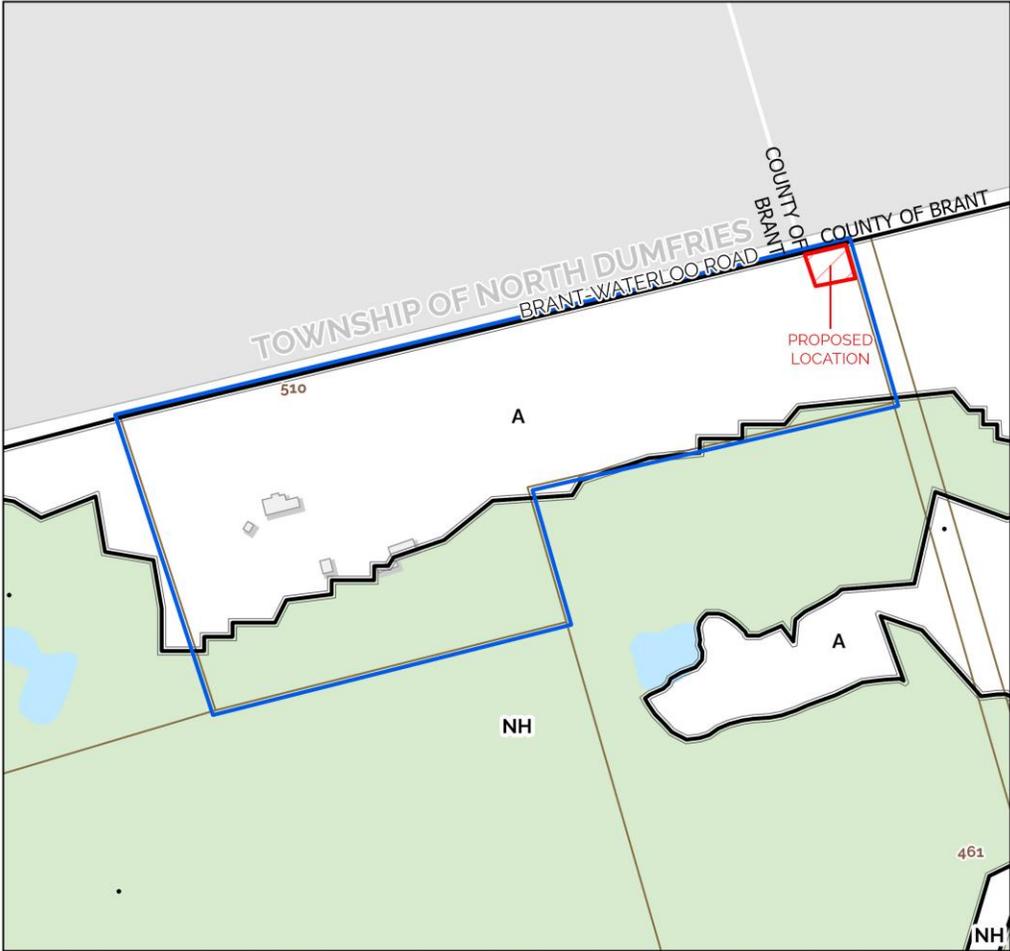
Is the necessary by-law or agreement being sent concurrently to Council? (No)

Attachment 1 - Zoning Map

**MAP 1: ZONING MAP
FILE NUMBER: CT1-22-AA**

510 Brant Waterloo Road
Former Township of
Paris

1:4,000
0 25 50 100 Meters
Date Printed: 2022-10-27



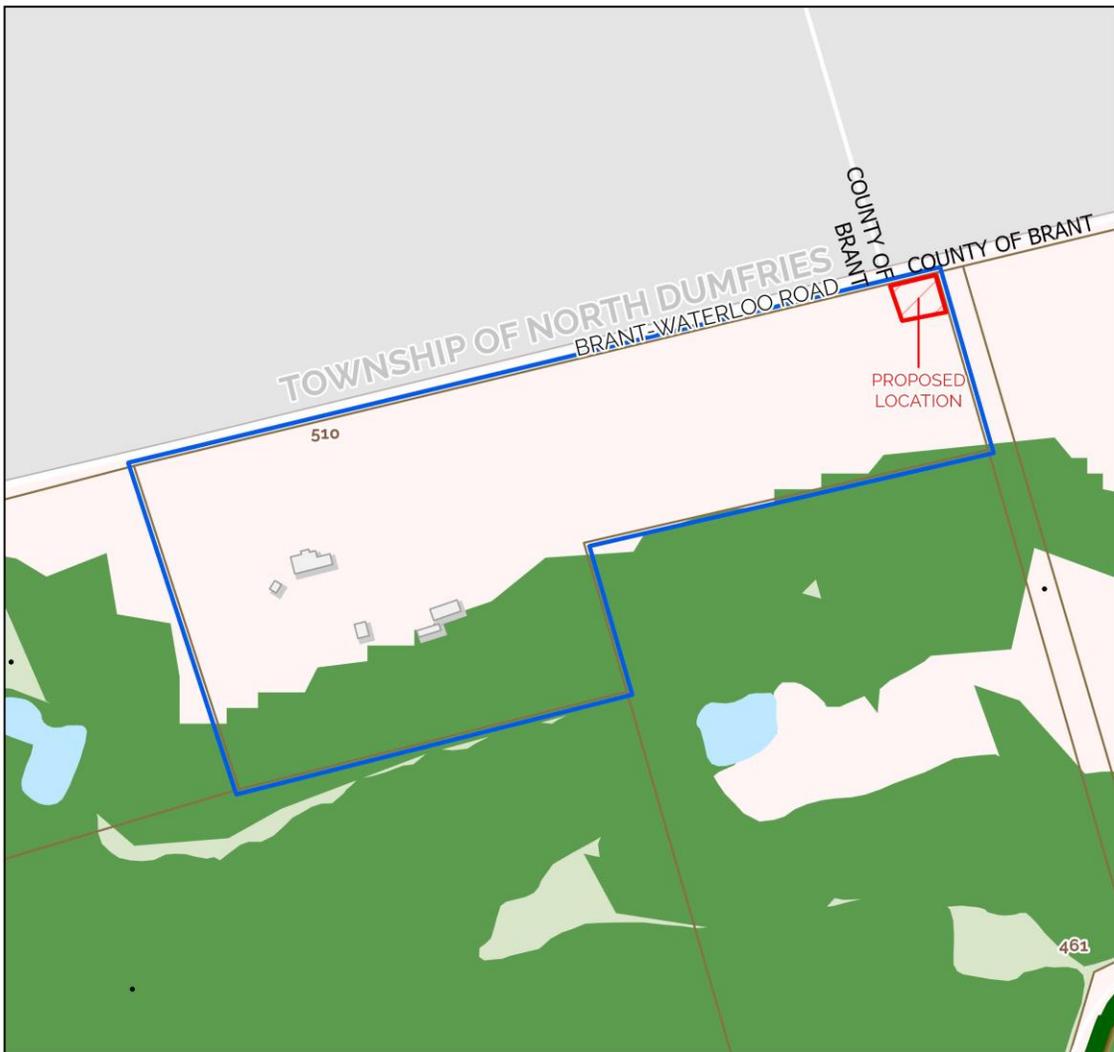
Attachment 2 - Official Plan Map

MAP 2: Official Plan Map
FILE NUMBER: CT1-22-AA

510 Brant Waterloo Road
Former Township of
Paris



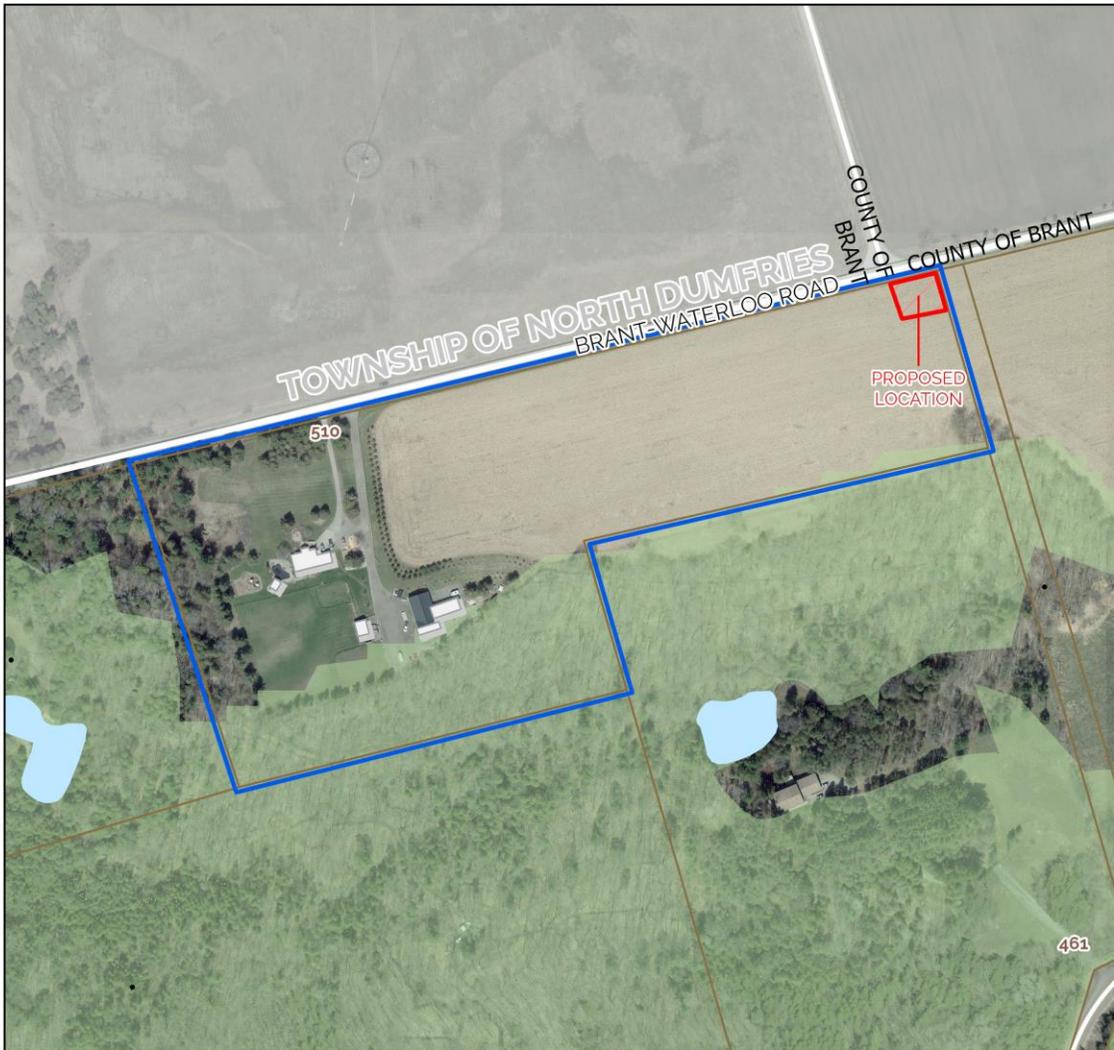
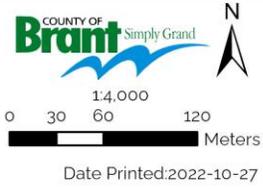
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Attachment 3 - Aerial Map

MAP 3: Aerial Map 2022
FILE NUMBER: CT1-22-AA

510 Brant Waterloo Road
Former Township of
Brant



Attachment 4 – Surrounding Land Uses





SITE SELECTION REPORT

Proposed Telecommunications Tower
510 Brant Waterloo Road, County of Brant
STC0036
43°17'15.5"N 80°20'53.7"W

Prepared by:
Tracey Pillon-Abbs, RPP
Municipal Relations Specialist
tracey@landsquared.com
226-340-1232

October 20, 2022

Introduction:

LandSquared, on behalf of Shared Tower Inc. (STC) strives to constantly improve coverage and network quality.

In the recent past, due to subscriber feedback and other data factors such as dropped calls or quality of calls, we have become aware of coverage deficiencies in the surrounding area.

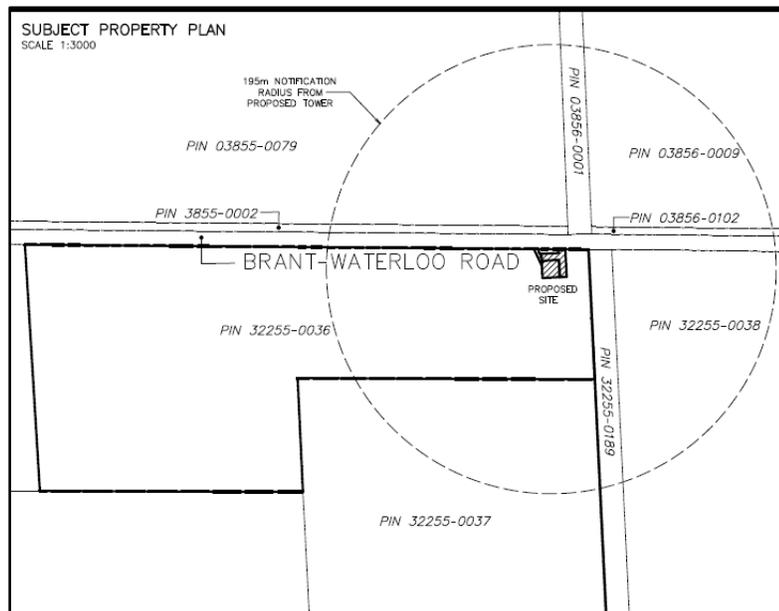
A survey of the surrounding has identified a proposed site that will achieve the necessary engineering coverage objectives for our network.

This justification report intends to provide network, sitting, and technical details relevant to our proposal in accordance with Innovation, Science and Economic Development Canada (ISED), formerly Industry Canada, guidelines set out in CPC-2-0-03 Issue 5; as well as information required by the County of Brant protocol regarding co-location, site design, lighting and setbacks that have been identified thought out this report.

Pre-consultation with County of Brant staff was completed on August 8, 2022.

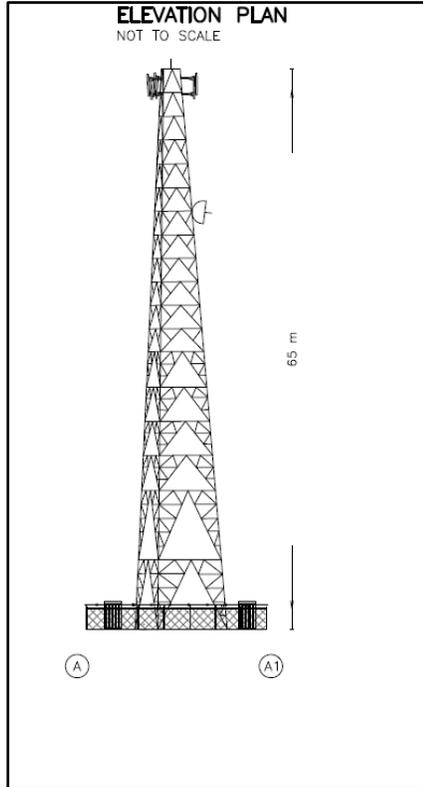
The Proposal:

LandSquared is proposing a telecommunications tower installation at 510 Brant Waterloo Road, County of Brant (see Subject Property Plan).

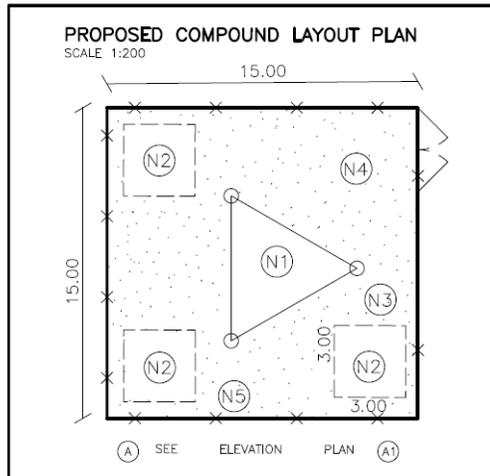


The property is legally described as Part of Lot 19, Concession 6 South Dumfries, County of Brant.

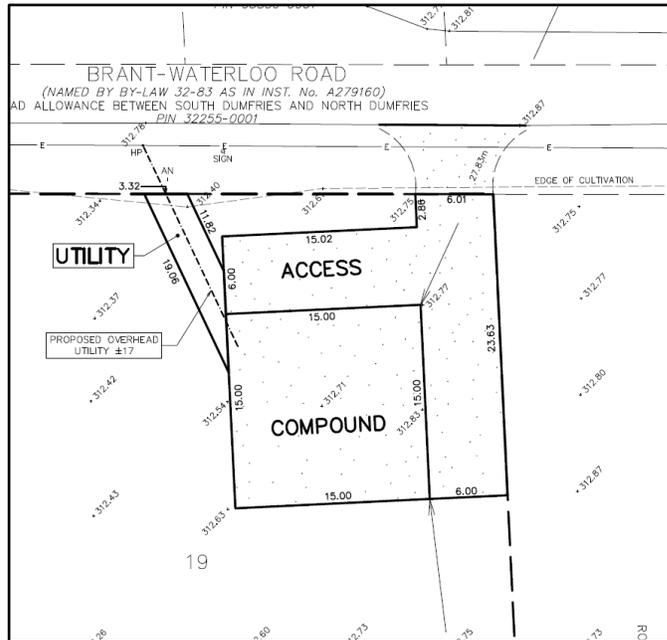
The proposed telecommunication structure is a 65 metre tall steel self support tower with a lightning protection system situated within a compound area (see Elevation Plan).



The compound area is proposed to be located within a 15 metre x 15 metre lease area and will have a 1.8 metre high chain link security fence (see Proposed Compound Layout Area).



Access to the site will be from an existing entrance to the property on the south side of Brant Waterloo Road (see Site Plan).



No trees or vegetation are proposed to be removed to accommodate the location of the proposed tower and the access.

The proposed location of the structure is outside of the Grand River Conservation Authority (GRCA) regulated area.

LandSquared confirms that it has entered into a lease agreement with the owner of the subject lands for the purpose of siting a telecommunication structure.

Justification:

The tower location has been situated based on the anticipated current and future network improvement needs of wireless telecommunication companies. Approval of this tower location would require carriers to co-locate upon the tower instead of constructing their own single carrier installations.

The tower height and compound size will accommodate multiple wireless service providers, including licensed cellular carriers. The tower design will minimize the visual impact on the surrounding area.

The tower is being designed to accommodate equipment, including space for their radio equipment cabinets within the fenced compound at the tower base.

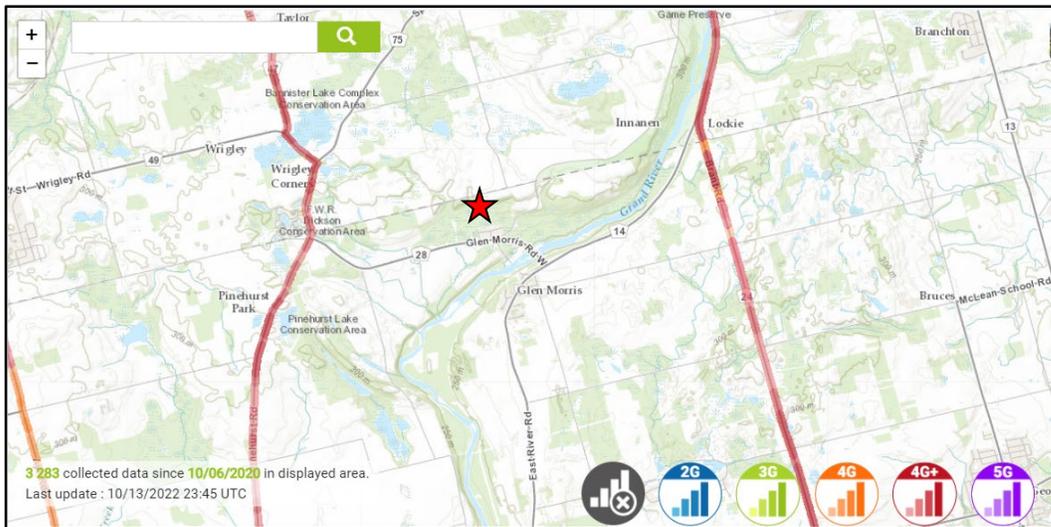
Space on the tower will also be made available for any fixed wireless internet tenants, as well as for municipal/public communication equipment purposes, hence the required tower height.

Coverage Objective

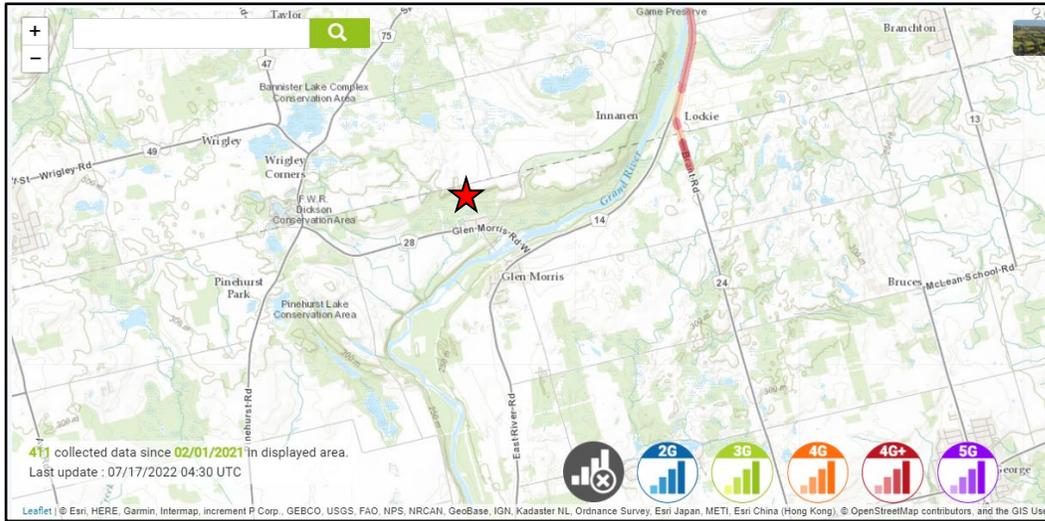
The proposed installation is designed to improve wireless services in the surrounding area of the site.

The coverage of the service depends mainly on the carriers, their antennas and technology they choose to use.

The map below illustrates the current coverage in the area for Rogers Communications (subject site with red star).



The map below illustrates the current coverage in the area for Telus/Koodo (subject site with red star).



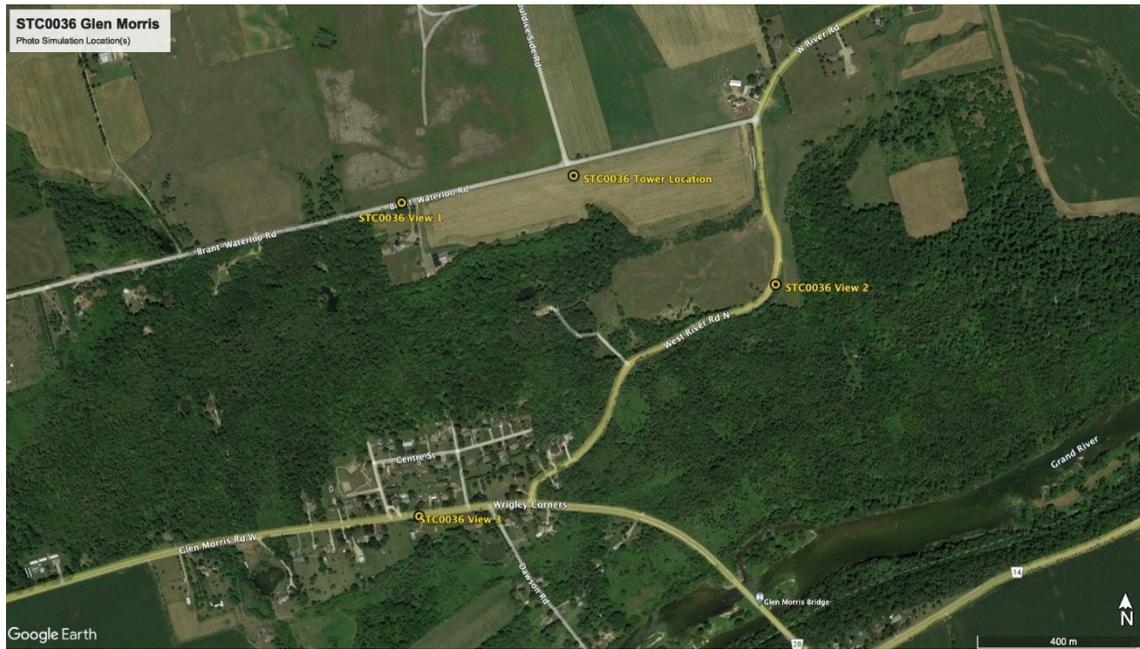
Site Selection / Land Use Considerations

LandSquared has identified the area targeted for improved coverage. The proposed tower location will enable the delivery of signals into the surrounding area while maximizing setbacks from current and future property lines to the extent possible and minimizing the visibility of the site from highly trafficked roadways.

In addition, the property is an industrial parcel and is suitable for a tower installation.

Alternative properties were considered; however, this was deemed to be the most suitable for the installation, given its current use (see photo simulations).

Key Map



View 1– Before (Brant Waterloo Rd looking southeast)



View 1 - After



View 2 – Before (West River Rd looking northwest)



View 2 - After



View 3 – Before (Wrigley Corners looking northeast)

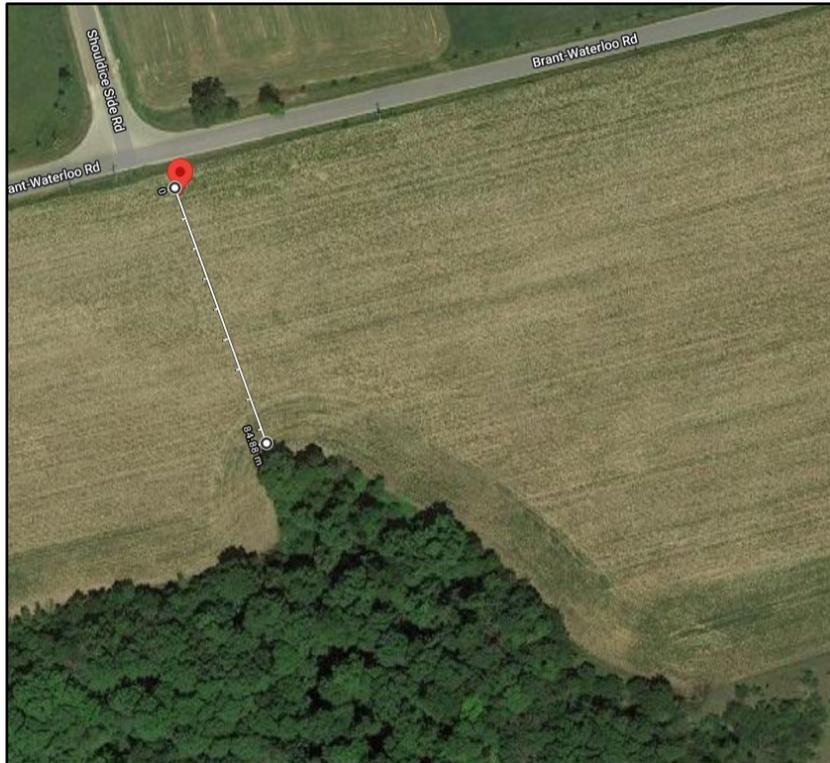


View 3 – After



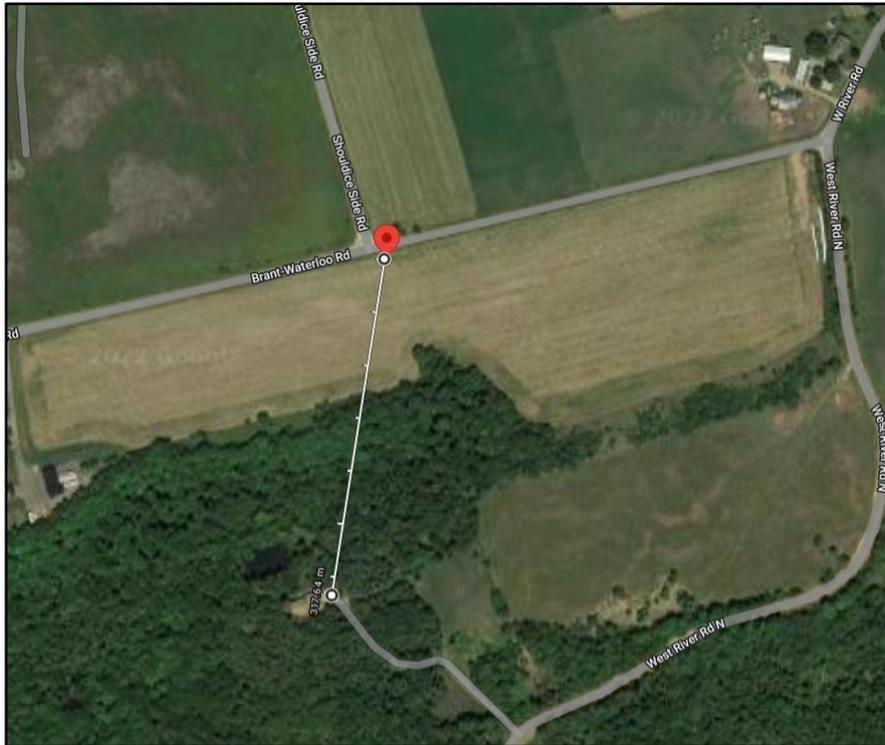
The location of the tower has been selected to preserve as much of the agricultural land as possible in addition to any natural heritage feature.

The proposed tower is setback back approximately 84.88 m from the nearest woodlot to the south and 105 m from the mapped natural heritage feature (see Air Photo).



The proposed tower is an appropriate distance away from existing and proposed residential dwellings in order to minimize the impact on the urban and rural environments.

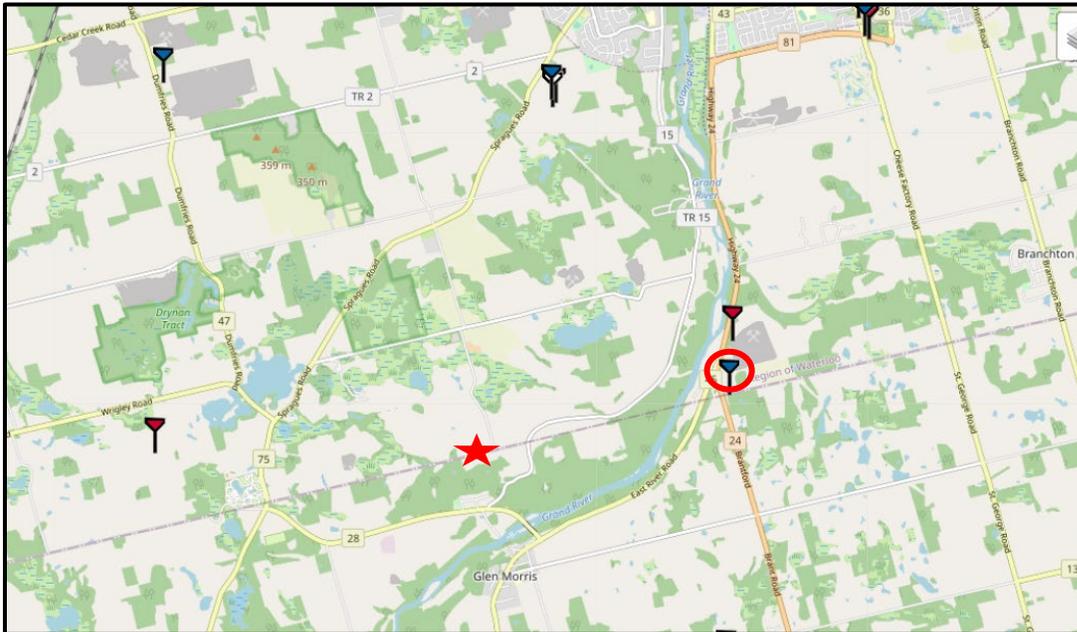
The setback from the nearest residential building, from the proposed tower, is approximately 317.6 m to the southeast (see Air Photo).



Setbacks from Existing Tower Sites / Co-location Opportunities

Before proposing a new telecommunication tower, LandSquared reviewed the location of existing telecommunication installations.

The closest existing tower to the proposed STCO036 facility (red star below) is a 36 m Rogers tower located at N43.2942 W80.3104 south of Lockie Road, approximately 3.17 km to the east (red circle below).



There are no existing structures available in the immediate vicinity of the proposed tower to provide a co-location alternative to a new tower, including existing apartments, etc.

The proposed tower will be engineered specifically to accommodate co-location by multiple service providers / as many carriers are interested. Specifically, this tower will be able to accommodate all 4 national incumbents and municipal services that would benefit from this location.

Compound space at the base of the tower has been designed for the typical equipment cabinet/shelter sizes of the major wireless service. If more space is required, it will be upon request.

Design

A steel self support tower design is proposed at this location with a lightning protection system. Paint colour and lighting are subject to Nav Canada requirements.

Designs, in most case, make co-location of 2 or more carriers troublesome, where in most cases, we have found it would require further tower reinforcement to support the shroud and extra equipment required by the incoming carrier.

The tower design has been selected to provide maximum co-location potential with a relatively small footprint and limited visual impact on the immediate surroundings, including nearby settlement areas.

The proposed design is a compatible design with the rural character of its immediate area. The design allows views through the tower, which blends well with the sky.

Control of Public Access

The site facility proposes to locate the radio equipment within a fenced compound that is electronically monitored.

The fence is proposed to be 1.8 m in height, with chain link security topped with barbed wire surrounding the compound area.

Health Canada's Safety Code 6 Compliance

Health Canada's role is to protect the health of Canadians, so it is the Department's responsibility to research and investigate any possible health effects associated with exposure to electromagnetic energy, such as that coming from cell phones and base stations.

Health Canada has developed guidelines for safe human exposure to Radio Frequency (RF) energy, which are commonly known as Safety Code 6. Safety Code 6 has been adopted by ISED and is included in their regulatory documents on radio communication licensing and operational requirements. ISED requires all proponents and operators to ensure that their installations and apparatus comply with Safety Code 6 at all times.

LandSquared attests that the radio antenna system will comply with Health Canada's Safety Code 6 limits, as may be amended from time to time, for the protection of the general public, including any combined effects of additional carrier co-locations and nearby installations within the local radio environment.

For more information on Safety Code 6, please visit the following Health Canada site: www.healthcanada.gc.ca/radiation.

Impact Assessment Act (IAA)

LandSquared (on behalf of Rogers Communications Inc.) attests that the telecommunication system described in this notification package is excluded from environmental assessment under the Impact Assessment Act (IAA), as the telecommunication system is exempt from review.

Transport Canada's Aeronautical Obstruction Marking Requirements

LandSquared attests that the radio antenna system placed by its tenants will comply with Transport Canada / NAV CANADA aeronautical safety requirements. When Transport Canada / NAV Canada has determined if any aeronautical safety features are required for the installation, such information will be provided to the Municipality.

For additional detailed information, please consult Transport Canada at:

<http://www.tc.gc.ca/eng/civilaviation/regserv/cars/part6-standards-standard621-512.htm>

Engineering Practices

LandSquared attests that the telecommunications structure as proposed for this site will be constructed in compliance with the Canadian Standard Association (CSA), and comply with good engineering practices, including structural adequacy.

Contact Information

As a representative of LandSquared, you can contact me at the following:

Tracey Pillon-Abbs, RPP
1300 Cornwall Road, Unit 101,
Oakville, ON, N6J 7W5m (226) 340-1232
tracey@landsquared.com

Municipal Consultation Process

LandSquared builds and operates shared wireless telecommunications infrastructure designed to ensure that service providers can address their customers' needs in the most efficient manner.

As a federal undertaking, LandSquared is required by ISED to consult with land-use authorities in siting telecommunication infrastructure locations.

The consultation process established under ISED authority is intended to allow the local land-use authorities the opportunity to address land-use concerns while respecting the federal government's exclusive jurisdiction over the siting and operation of wireless and data systems.

LandSquared welcomes comments from the Municipality and its agencies to address any expressed comments that are deemed relevant by ISED CPC-2-0-03 Issue 5.

Innovation, Science and Economic Development Canada

Please be advised that the approval of this site and its design is under the exclusive jurisdiction of the Government of Canada through ISED.

LandSquared is participating in this consultation in accordance with ISED guidelines CPC-2-0-03 Issue 5.

For more information on ISED public consultation guidelines including CPC-2-0-03 contact <http://www.ic.gc.ca/epic/site/smt-gst.nsf/en/sf08777e.html> or the local ISED office:

ISED, Western and Central Ontario District
4475 North Service Road, Suite 100
Burlington, ON L7L 4X7
1-855-465-6307
ic.spectrumcwod-spectredcoo.ic@canada.ca

General information relating to telecommunication is available on ISED website:

<http://www.ic.gc.ca/epic/site/smt-gst.nsf/en/home>

Conclusion

LandSquared sustains that the proposed site is ideally located to address and improve wireless voice and data services for the area.

The proposed site is also situated and designed to minimize impacts on surrounding land uses, as the proposed tower aims to accommodate multiple wireless carrier equipment. It will also minimize the need for multiple additional tower infrastructures in the area in the future.

LandSquared looks forward to working with the County of Brant in providing improved wireless services in the area.

SITE PLAN

(under separate cover)

CKGL AM NEW TOWER SITE IMPACT

Engineering Report

To evaluate the impact of the construction
of a new telecommunication tower in the proximity
of CKGL AM In Kitchener, ON

Submitted by



For the Licensee

Rogers Media Inc.
1 Mount Pleasant
Toronto, ON
M4Y 2Y5

Report Version: OCR-558 v.1.0 (January 23, 2023)

Document Revision History

Rev #	Date	Section	Description
1.0	January 20, 2023	All	Document's creation

Signatures

This Engineering Report has been entirely prepared by the undersigned, who is a member of CABC and whose qualifications are known to the Department of Innovation, Science and Economic Development of Canada.

Report by: _____

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The signed and sealed original version is kept on file at Octave Communications.

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1. Introduction

Rogers Media Inc (hereafter « the CKGL ») has mandated the engineering firm Octave Communications to evaluate the potential impact of the construction of a new telecommunication tower in the vicinity of the existing CKGL AM site in Kitchener, ON.

This document consists of the explanation of the potential impact of the proposed new construction, and a simulation of the potential pattern distortion that can arise from this construction of the new tower at the proposed location.

The simulations have been completed by Kintronic Labs, an American engineering and AM product manufacturing company based in Bristol Tennessee. They are one of the longest standing (founded in 1949) and most renown AM radio design, manufacturing and engineering company in the world. Their report regarding this project has been provided at Appendix A.

2. Source of Documents

The following documents are considered as the primary source of information for this report:

1. Landsquared, STC 0036 Formal Site Selection, October 20, 2022
2. Landsquared, STC 0036 Mailing Document FINAL, December 5, 2022
3. Kintronic Labs, CKGL Engineering Study – Added Cell Tower 1 18 23, January 18, 2023
4. Hahn Broadcast Engineering, CKGL Supplementary Proof of Performance, August 30, 2011
5. Hahn Broadcast Engineering, CKGL AM Sector Augmentation Application, March 28, 2013

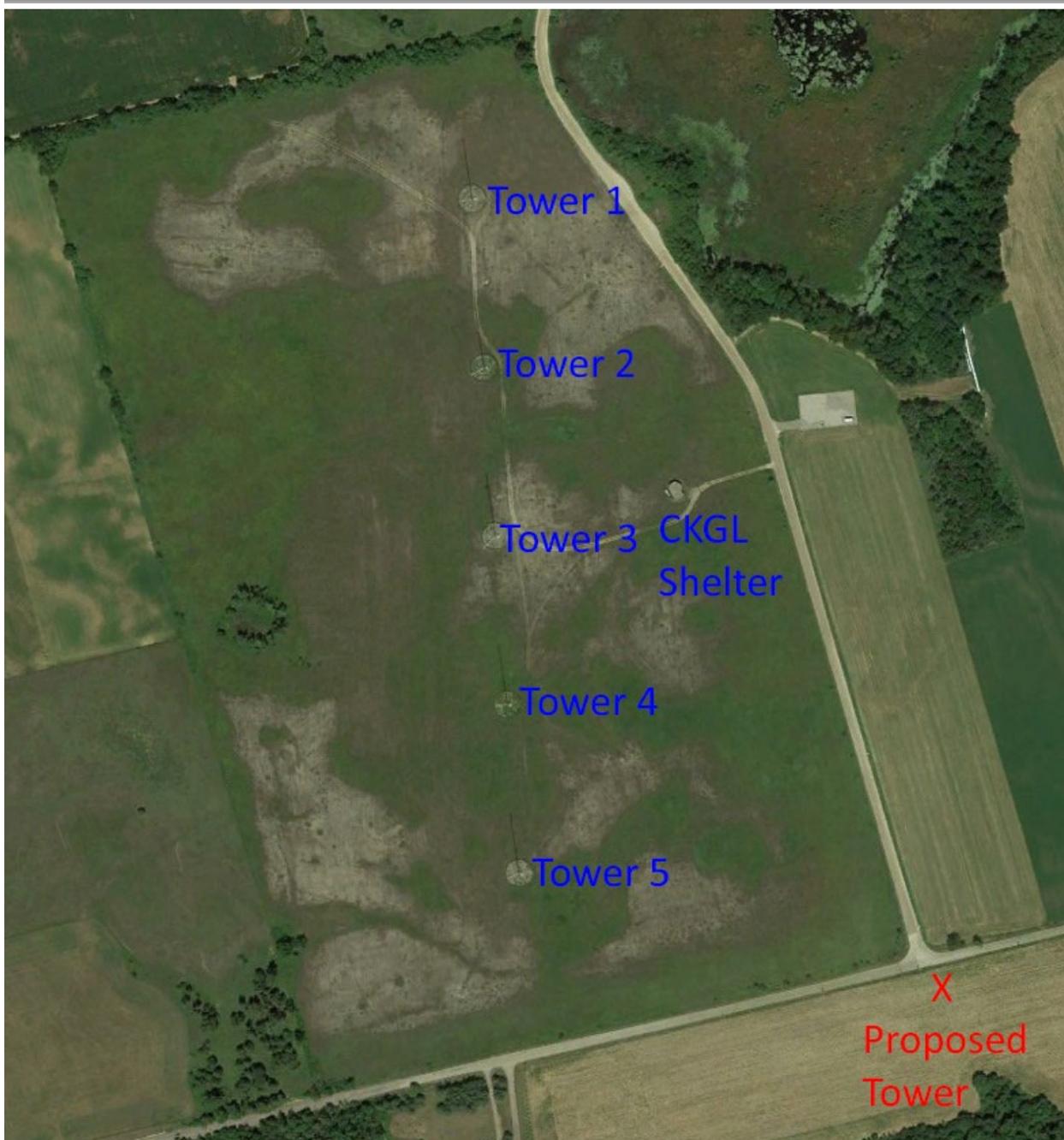
3. Analysis of the Proposed LandSquared Application

3.1 Basic theory of AM Antenna Array Operation

LandSquared is proposing a new telecommunication tower to be installed at 510 Brant Waterloo Road in order to address signal deficiencies in the region.

The following image from Google Map provides the proposed location of the new telecommunication tower in relation to the CKGL AM directional array:

CKGL AM NEW TOWER SITE IMPACT

**FIGURE 1: PROPOSED NEW TOWER LOCATION**

To understand the impact of the new proposed tower, one must understand how an AM broadcasting array is working. The CKGL station operates at 570 kHz. At this frequency, the wavelength is about 525m. In order to operate a station in Canada, most of the AM sites (other than clear channels) have to protect their unwanted transmission toward other operators on the same or adjacent frequencies. For most Canadian station, this generally means that they need to protect the signal toward the USA (to the south).

CKGL AM NEW TOWER SITE IMPACT

In order to create this protection, we need to make an interference pattern so that the energy broadcasted goes toward the target community, generally in the north of the station. This interference pattern is created by installing towers at some fraction of electrical degrees (in this case, each CKGL towers are spaced by 95 degrees, which corresponds to 138 meters, for a total span from tower 1 to tower 5 of 552 meters).

Then, by applying well calculated power ratio and phases, we can create the directional array. In the case of CKGL, the resulting radiation pattern is represented here below:

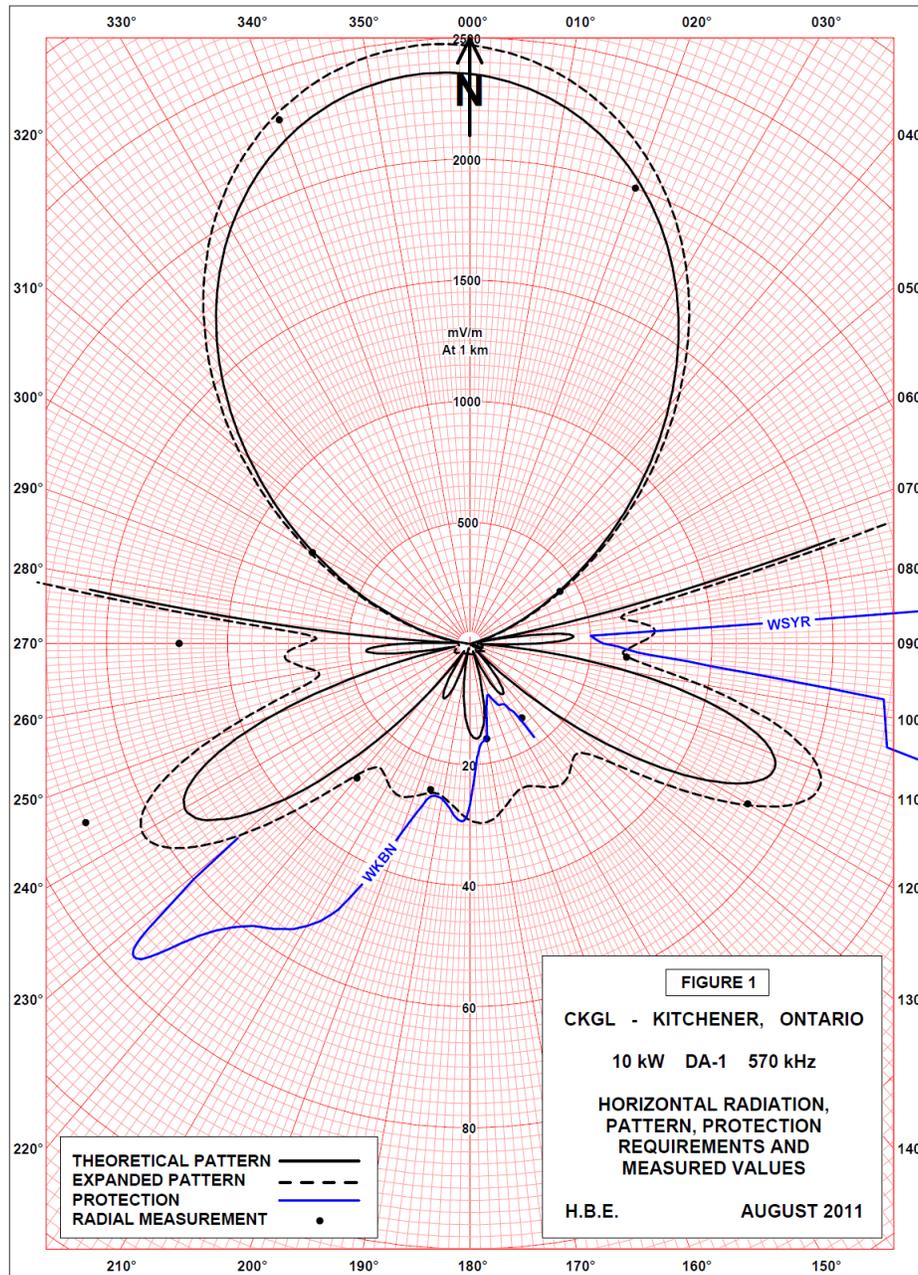


FIGURE 2: CKGL RADIATION PATTERN

CKGL AM NEW TOWER SITE IMPACT

In the previous figure 2, we can clearly see that most of the energy is directed toward the north. Additionally, we can see the blue line representing the maximum power that can be sent toward the American station WSYR and WKBN. This means that if the radiation pattern exceeds in one of those directions, the incumbent US station can complain to the FCC, which in turn to ISED who will ask the broadcaster to remedy to the situation (by retuning the array, lowering its transmitted power or by modifying its radiation pattern). In all cases, this might result in a loss of its primary coverage, which will degrade the reception quality by its listeners.

In the case of CKGL, one can see that the measurement points (dots on the Figure 2) are all very close on the extended pattern in that direction. This means that any modification to the array can cause these points to be augmented, which will cause interference to the other stations.

Then comes the impact of the proposed new tower, located at 368 m from tower 5 (which is less than 1 wavelength). This tower will act as a re-radiator (meaning that it will act as an antenna that receives the power from CKGL station and rebroadcast it, those distorting the radiation pattern).

As indicated in the Technical Note 102¹ from LBA Group:

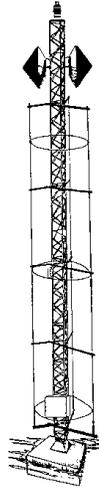
In the AM broadcast band, stations are licensed to maintain very specific radiated field intensities from their antenna systems. This is true of both directional and non-directional systems. The extensive interference range of AM stations, coupled with crowded band conditions, make the AM allocation problem a complex one. Very tight radiation pattern tolerances on the order of 0.5 dB are not uncommon. The extensive near field of an AM antenna further complicates the problem. Near-field effects may extend to two miles or more, compared to dozens of feet at VHF, and measurements used to determine the station antenna pattern may extend out as far as 20 miles. To compound matters, tower heights typically used in land mobile and microwave are a significant portion of a typical AM broadcast wavelength. Thus, they are all too frequently excellent reradiators of the AM signal.

As described in this document, it might be costly or even impossible to retune an AM array once the pattern is distorted by a new tower installation in its vicinity. Fortunately, it is possible to “detune” the new tower, which means installing a second antenna “skirt” surrounding it and ensuring that the power received is drained to the ground and not reradiated.

This antenna “skirt” looks like the following figure:

¹ LBA Group, [Detuning Communications Tower Solves AM Reradiation Problem – Technical Note 102](https://www.lbagroup.com/resources/detuning-communications-towers-solves-am-reradiation-problem-technical-note-102), <https://www.lbagroup.com/resources/detuning-communications-towers-solves-am-reradiation-problem-technical-note-102>, accessed on January 20, 2023.

CKGL AM NEW TOWER SITE IMPACT

**FIGURE 3: ANTENNA SKIRT TO DETUNE A TOWER****3.2 Evaluation of the Impact of the New Tower on the Pattern of CKGL AM**

We have tasked Kintronic Labs to simulate the potential impact of the new tower on the existing CKGL AM radiation pattern. The complete study is available at Appendix A.

The conclusion of this report reads as per the following:

The modeled results are also consistent with the short height of the tower (44.5°) which typically does not require detuning when not collocated with an array. That the new tower is very close the direction of a null region for the pattern also contributes low level of induced current, and as a result of re-radiation from that tower.

In summary, the modeled results show that the theoretical pattern of the CKGL array should not be impacted by the addition of the 65m tall cell tower at the location described.

The simulation techniques and the vast knowledge from Kintronic Labs are well known and consists of the industry standards for modelling and evaluation of impacts as such. Therefore we accept their results.

Nevertheless, due to the very tight coordination requirements has indicated on Figure 2, and has recommend by Kintronic in their last paragraph. a Supplementary Proof of Performance (SPOP, see BPR-2² for details) should be undertaken prior and after the construction of the new tower. This would allow for an assessment of the real impact of the new tower on the array and,

² ISED, BPR-2 – Application Procedures and Rules for AM Broadcasting Undertakings, <https://ised-isde.canada.ca/site/spectrum-management-telecommunications/en/official-publications/procedures/broadcasting-procedures-and-rules-bpr/bpr-2-application-procedures-and-rules-am-broadcasting-undertakings>, accessed on January 20, 2023.

CKGL AM NEW TOWER SITE IMPACT

as Kintronic Labs have indicated, it should be possible to retune the CKGL array so that any impact should be minimized by a retuning of the array alone.

We are in the same conclusion that a detuning of the new tower should not be required, but only the SPOP will determine the real-life impact of the new tower.

4. Conclusion and Recommendations

In conclusion, we believe that the impact of the new proposed telecommunication tower on the existing operation of CKGL AM will be minimal in terms of pattern distortion or population coverage losses.

Nevertheless, due to the existing tight coordination with other USA station, the only way to fully assess the impact of the tower is by performing a Supplementary Proof of Performance of the CKGL AM station after the construction of the telecommunication tower is completed.

If the SPOP demonstrate any degradation of the pattern, we believe that the CKGL AM array should be tunable in order to compensate for the impact of the new tower and no detuning "skirts" should be required at the new tower.

Appendix A – Kintronic Labs CKGL AM Study



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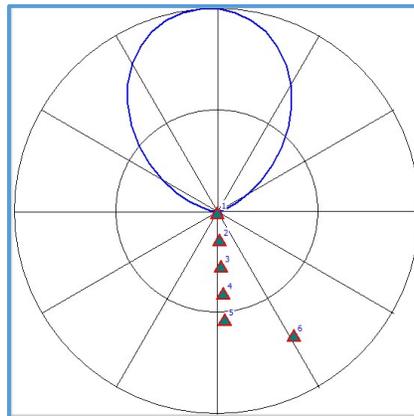
Engineering Study – Projected Impact of Added Cell Tower For Directional Pattern of CKGL

1/20/2023

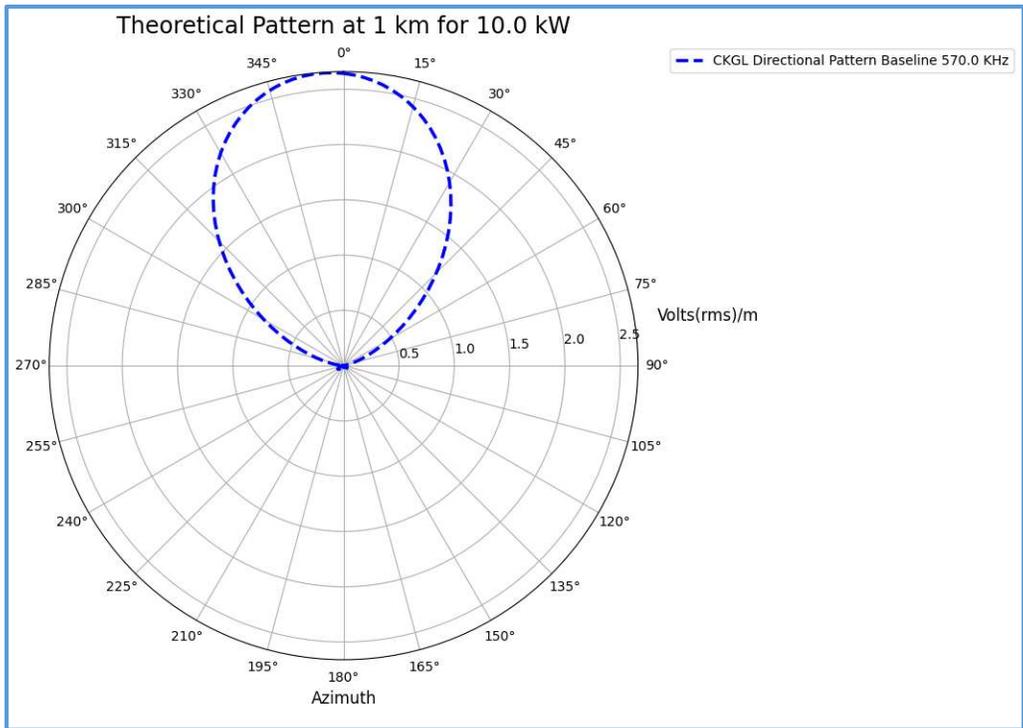
A study was undertaken to model the potential impact of the addition of a 65m tall cell tower in the proximity behind the existing CKGL array. The CKGL array operates directionally with a five tower array on 570 KHz with 10KW for both the day and night patterns. The field parameters as filed in the FCC database match those in the Supplementary Proof of Performance for the station dated August 30, 2011. They are displayed in the following table and were used in the study. The theoretical pattern is shown below, along with the pattern plotted on a 10x scale to better show the rear lobe structure.

Twr #	Field Parameters		Spacing	Orientation	Ref	Height	Top Loading
	Ratio	Phase	Degrees	Degrees		Degrees	Degrees
1	1.000	0.00	0.00	0.00	0	87.6	
2	3.000	138.06	95.00	176.00	0	87.6	
3	4.200	276.50	190.00	176.00	0	89.7	
4	3.000	54.94	285.00	176.00	0	87.6	
5	1.000	193.00	380.00	176.00	0	87.6	

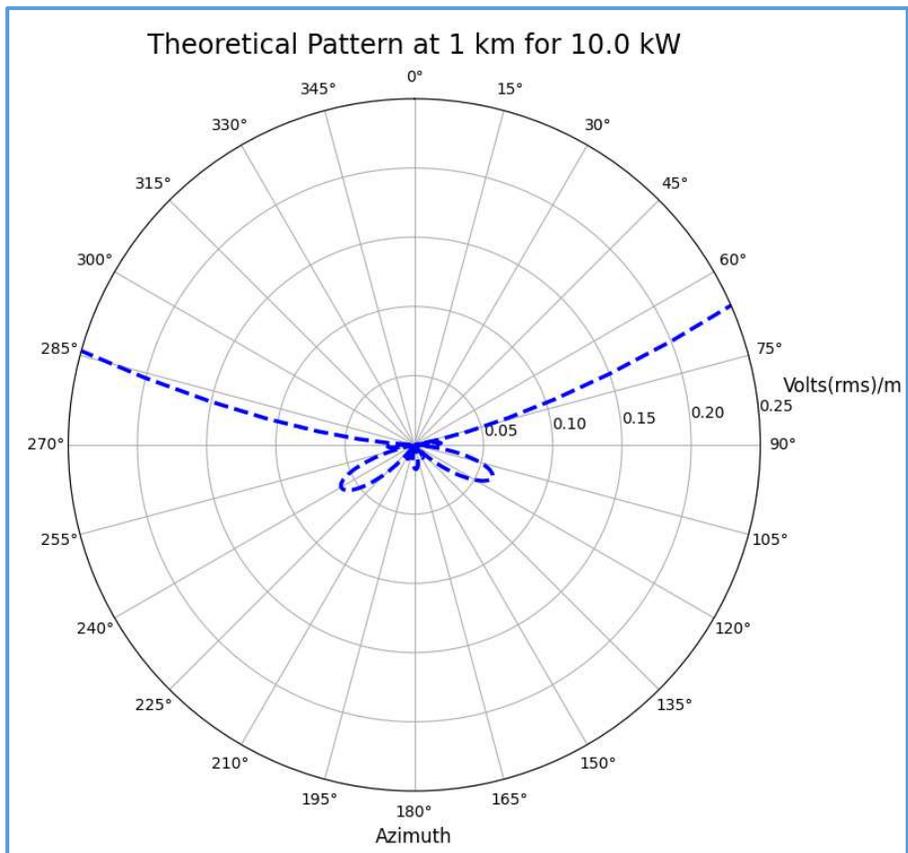
The towers in the CKGL array have electrical heights of 87.6° (128.0 m for towers 1,2,4 and 5) and 89.7° (131.1m for tower 3) on 570 KHz. The proposed cell tower has a physical height of 65m which corresponds to an electrical height of 44.5° at 570 KHz. The relative position of the cell tower with respect to the southern tower (tower 5) in the array was estimated to be at a distance of 368m (251.9° at 570 KHz) with a bearing of 103° from north. A tower with that height and location was placed in the model as a sixth tower. The model was then evaluated with and without the additional tower. The additional tower was grounded, as expected in practice, for the comparison.



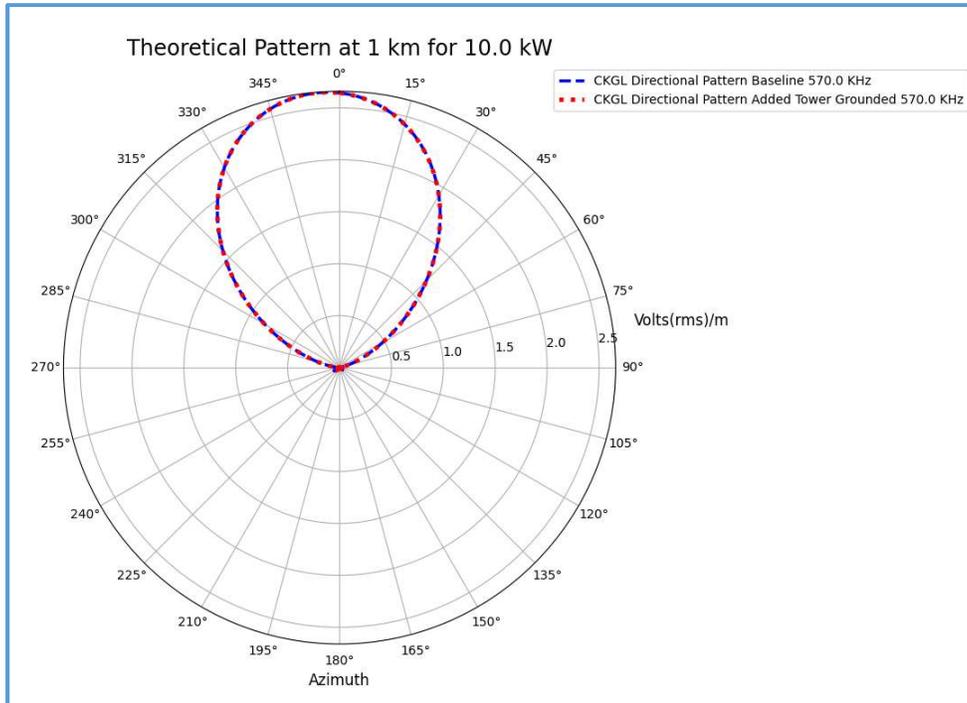
Five Tower CKGL Array with Cell Tower Added as a 6th Tower



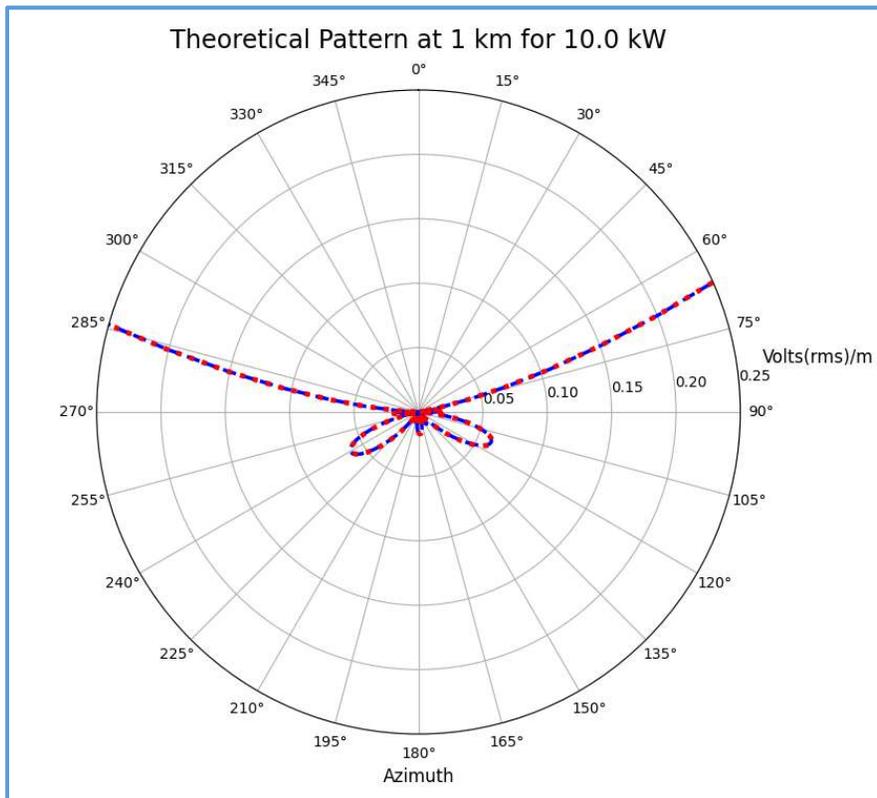
Baseline CKGL Directional Pattern



Baseline CKGL Pattern Rear Lobes at 10x Zoom



Comparison: CKGL Directional Pattern with Cell Tower Grounded



CKGL Pattern Rear Lobes With Cell Tower Grounded at 10x Zoom

The addition of the cell tower did not affect the directional pattern. As a further check, the power division and drive impedances of the tower for the two cases were compared. There was also no indication of coupling between the towers of the array and the grounded cell tower. The power division and drive point impedances of the towers were unchanged when the grounded tower was added. The induced current on the cell tower was calculated to be less than 0.1 Amps peak at carrier when the array was operated at 10 KW. The low level of the induced current is consistent with there being no visible effect in the pattern due to the added tower.

The modeled results are also consistent with the short height of the tower (44.5°) which typically does not require detuning when not collocated with an array. That the new tower is very close the direction of a null region for the pattern also contributes low level of induced current, and as a result of re-radiation from that tower.

In summary, the modeled results show that the theoretical pattern of the CKGL array should not be impacted by the addition of the 65m tall cell tower at the location described.

The August 30, 2011 Supplemental Proof of Performance shows an expanded pattern with higher field strength than that of the theoretical pattern in the direction of the new cell tower. The measured field values fall on the expanded pattern curve in the azimuth region of the proposed cell tower. This is not expected to be an issue, but if the protection null is especially critical or if the measured value has shifted from the 2011 value, assurance that there is not an issue can be accomplished by supplementary measurements in that region, both prior to the construction of the cell tower and afterwards. Such measurements would also provide verification that there is no issue if the actual cell tower position is different from the position indicated in this report.

Respectfully submitted:

Jim Moser, MSEE
Senior Staff Engineer
Kintronic Labs
January 20, 2023



February 2, 2023

County of Brant
Development Services Division
66 Grand River Street North
Paris, ON N3L 2M2

**Re: Proposed STC0036 Telecommunications Tower
510 Brant Waterloo Road
County of Brant**

Attention: Arwa Almaflahi

LandSquared, on behalf of Shared Tower Inc. (STC), is pleased to provide the formal request for a letter of concurrence pertaining to the above-noted proposed telecommunication tower as set out in the County of Brant protocol.

The proposed structure is a 65 metre self support telecommunications tower, situated within a proposed 15 metre x 15 metre compound with equipment cabinets. The compound area will have a 1.8 metre high chain link security fence. Access will be from Brant Waterloo Road.

Municipal Consultation

There were no concerns raised by Administration.

Public Consultation

I confirm that a public notice appeared in the Brantford Depositor newspaper, on November 3, 2022.

A sign was posted on the subject property on November 3, 2022.

A Public Information Package was mailed to all recipients within the prescribed 500m radius on November 4, 2022.

A Public Information Session (PIS) was held electronically on December 5, 2022 from 6:00 pm to 7:00 pm. One resident attended but had no comments or questions.

The deadline for comments was December 5, 2022. No comments were received by this date.



A public meeting was held by the County of Brant on December 6, 2022. One resident asked about the farmland and the location of a nearby Ospery's Nest. As it relates to the farmland, the tower is being located to not minimize the amount of farmland that is impacted. And as it relates to the nest, it is recommended by County staff that since they are a migratory bird that migrates to this area in the spring, it would be ideal if construction could occur in the wintertime for this tower. LandSquared supports this recommendation.

Planning and Development Committee Meeting

At the January 10, 2023 Committee meeting, Rogers Media Inc. had attended asking for confirmation that the proposed tower was not going to have a negative impact on the CKGL AM Radio Towers located north of the Site. Rogers requested time to undertake a technical review. The request for the proposed tower was deferred.

An Engineering Report, dated January 23, 2023, prepared by Octave Communications has now been completed to evaluate the impact of the construction of the new telecommunication tower in the proximity of the CKGL AM Radio Towers.

The report concluded that there should be no impact on CKGL's array.

Request for Concurrence

LandSquared feels that the proposed site is well located to provide improved wireless voice and data services in the targeted area.

The proposed site is also situated and designated to have minimal impact on surrounding land uses.

At this time, to conclude the municipal and public consultation process, LandSquared is respectfully requesting that the municipality issues a 'letter of concurrence' to Innovation, Science and Economic Development Canada (ISED), the governing body for installations of this type of telecommunication installation.

We look forward to providing enhanced wireless services to residents, businesses, and visitors to the County of Brant and the surrounding area.

Please let me know if you require anything further at this time.

Yours truly,

A handwritten signature in black ink, appearing to read "Tracey Pillon-Abbs".

Tracey Pillon-Abbs, RPP
tracey@landsquared.com
226-340-1232