

Justification Report

For Proposed Telecommunication Antenna

File No. STC0435

19500 Highway 12 Greenbank,
Scugog, ON L0C 1B0

November 22nd, 2023

Prepared for:



Township of Scugog
181 Perry Street,
Port Perry, ON L9L 1A7

Prepared by:



Shared Tower

Shared Tower Inc.
1300 Cornwall Rd., Unit 101
Oakville, ON L6J 7W5



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Township of Scugog
181 Perry Street,
Port Perry, ON L9L 1A7

Re: Proposed Telecommunication Antenna Structure at 19500 Highway 12 Greenbank

Shared Tower Inc. (Shared Tower) is pleased to submit this Telecommunication Tower application for a Letter of Concurrence to the Township of Scugog.

The proposed tower is a 60 metre self-support tower structure designed to support multiple co-location opportunities. The tower is proposed to be located at 19500 Highway 12 Greenbank, Scugog, ON L0C 1B0, on an AG (Agricultural) zoned property, currently occupied by private residents.

Although the Federal Government, through Innovation, Science and Economic Development (ISED) Canada is responsible for the final regulatory decision to approve the location of the tower, Shared Tower looks forward to working with the Township of Scugog to ensure that its community objectives are met.

Please do not hesitate to contact me directly if you have any questions or if we can provide any further information.

Sincerely,

Sandra Hallig
Planning Coordinator
Shared Tower Inc.
(416) 388-1263
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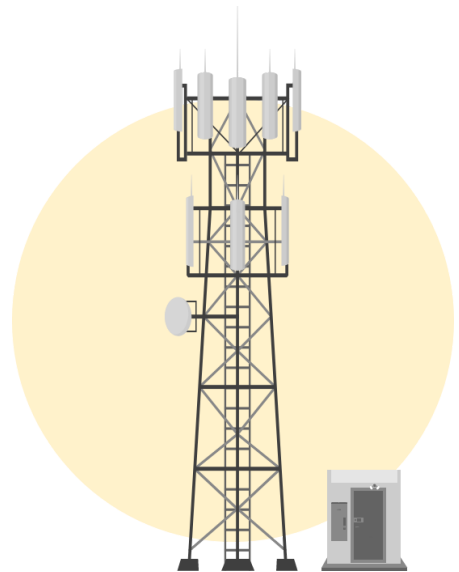


Shared Tower

1. Introduction

The telecommunications industry plays an essential role in connecting Canadians with wireless and wireline services from coast to coast. These services facilitate the growth of local economies by providing easy access to information and connectivity for residents, businesses, visitors, and public bodies. As demand for telecommunications services continues to grow, more network infrastructure is required to keep pace with this demand.

Shared Tower is proposing a new tower at 19500 Highway 12 Greenbank, Scugog, ON L0C 1B0 (Subject Site). The subject property is an AG (Agricultural) zoned site, approximately 865,608.19 square meters in area or approximately 213.89 acres. The proposed tower is intended to strengthen the telecommunications network to better support increased demands for consumer connectivity, the digital economy, and health and safety measures in the community.





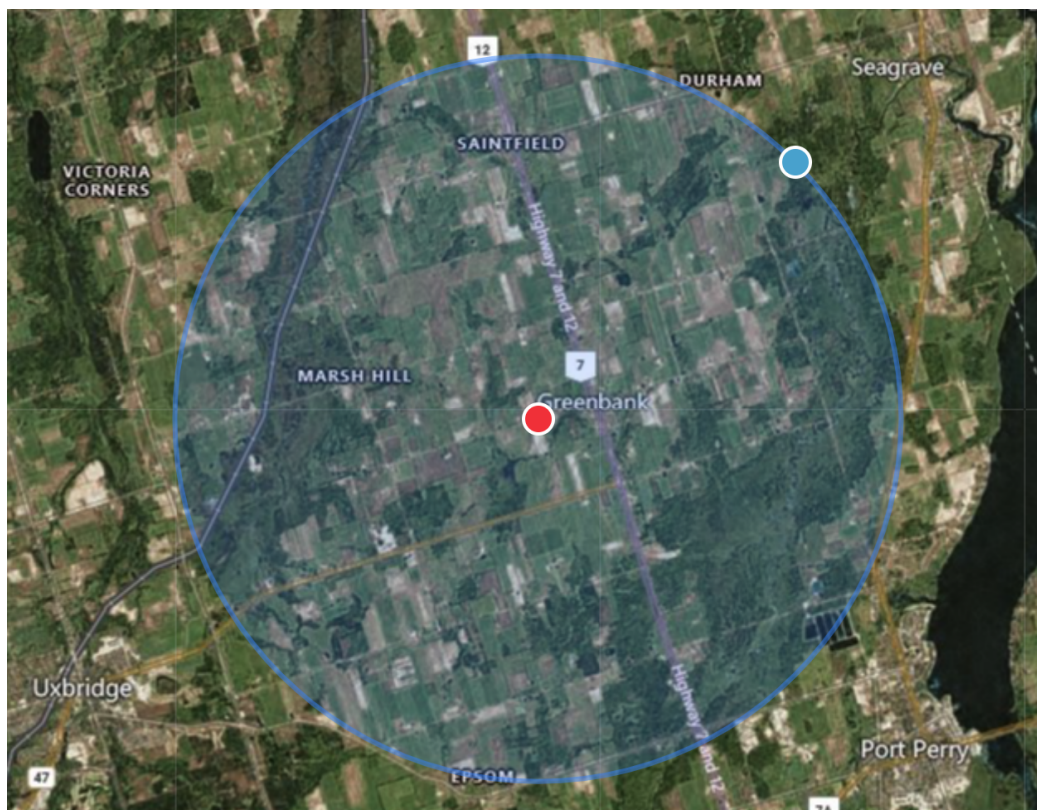
2. Coverage Objective

Broadly, Shared Tower has identified a need for improved telecommunications network coverage in the Township of Scugog and surrounding areas. The proposed tower is a 60-metre self-support tower installation, engineered to accommodate initial and future loading for three cellular service providers and additional fixed wireless equipment as required, thereby limiting the need for additional infrastructure to service the area.

The location of the tower will ensure separation from the residential properties along with coverage and network capacity for all major wireless network providers. There are currently no suitable telecommunication structures in close proximity that would sustain sufficient connectivity for the Township of Scugog. At 60 metres in height, the proposed tower is anticipated to address coverage issues in the area.

As of the date of this application, national wireless carriers have expressed interest in locating on the tower.

Figure 1: Anticipated Telecommunications Network Coverage





3. Subject Site and Land Use Considerations

The Subject Site, as shown in *Figure 2* is, located at 19500 Highway 12 Greenbank, Scugog, ON LOC 1B0 (legal description: PT LT 11-12 CON 10 REACH AS IN D552083 (FIRSTLY DESCRIBED) EXCEPT PT 3 40R5798 TOWNSHIP OF SCUGOG (LRO# Durham 40). The tower coordinates are 44.149218, -79.026476.

The Subject Site is located in an Agricultural zone near the Greenbank community and comprises of approximately 213.89 acres of land. The proposed tower's location is setback from the majority of residential development and is visually less disruptive to its immediate surroundings. Access to the tower location from Cragg Road also takes into consideration the MTO regulated area along Highway 7.

Figure 2: Subject Site and Tower Location



4. Subject Site Selection Justification

Existing Telecommunications Towers

Prior to proposing a new tower, Shared Tower reviewed the location of existing telecommunications towers for co-location opportunities. As shown in *Figure 3*, there are 3 existing telecommunications towers closest to the proposed tower. One is located to the North of the Subject Site approximately 4.7km away and another is located to the Southwest 7.4km away. The final tower is located to the Southeast approximately 6.9 km away. As each tower provides coverage for other communities such as Port Perry and Uxbridge, the distances between each tower may contain areas not receiving adequate cellular coverage.

Signal strength is also dependent on the distance between a tower/installation and the user. The distances between the existing towers and this specific area result in coverage gaps similar to what is shown in *Figure 4: Gaps in Wireless Service*. A proposed tower on the subject site is necessary to provide continuous wireless service that is constant and reliable.

Figure 3: Subject Site Relative to Closest Telecommunications Towers

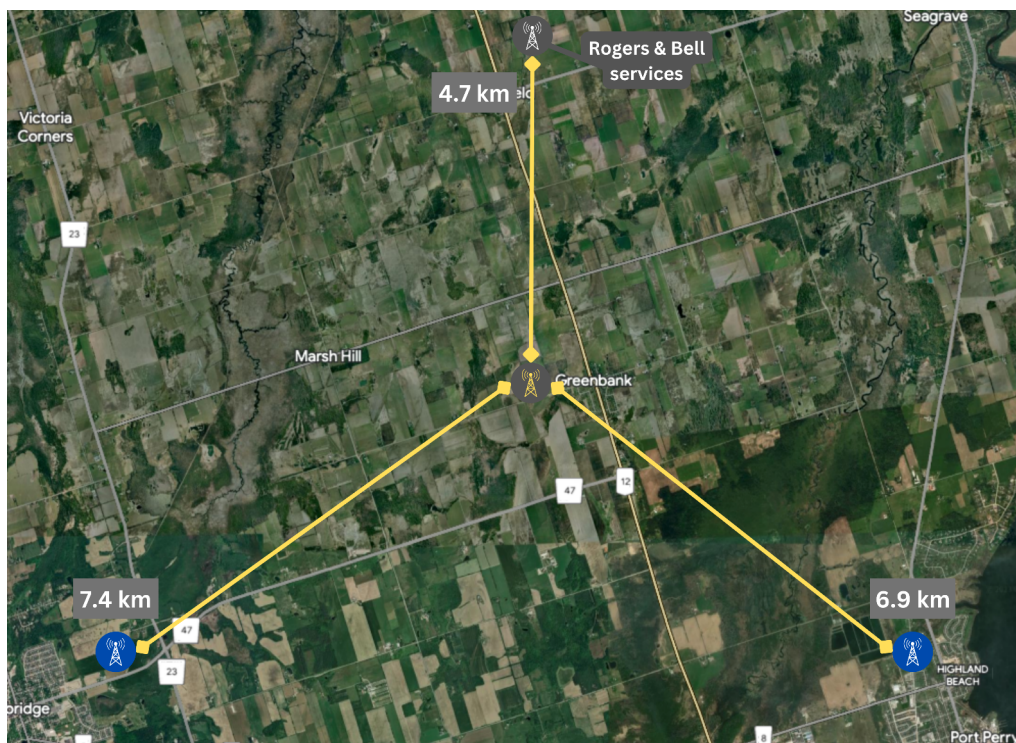
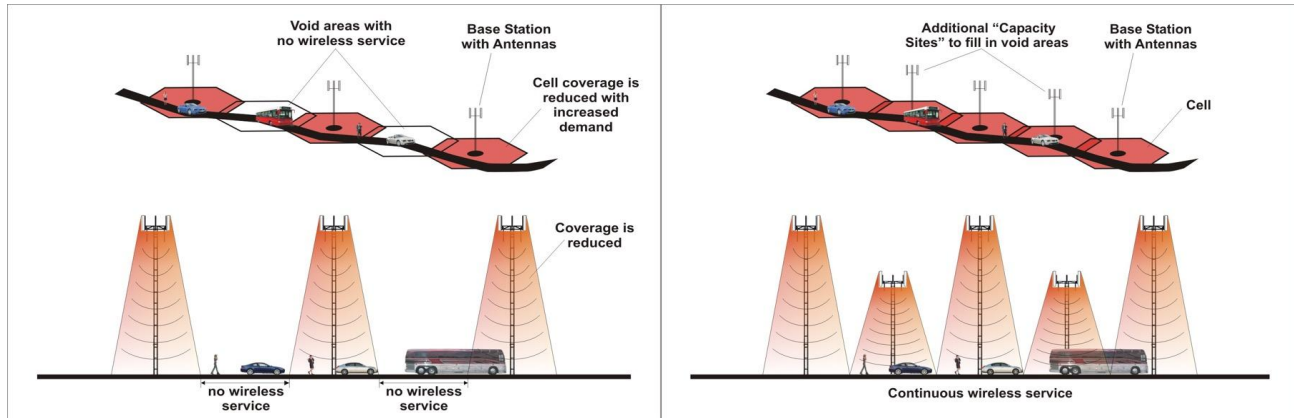


Figure 4: Gaps in Wireless Service



Other Co-location Opportunities

A review of other suitable existing structures, such as rooftops, utility poles, and transmission towers for co-location opportunities was also undertaken. There were no rooftops or utility poles of sufficient height within the search radius to adequately provide additional network coverage.

Detailed Rationale for Need of Improved Network Coverage in the Area

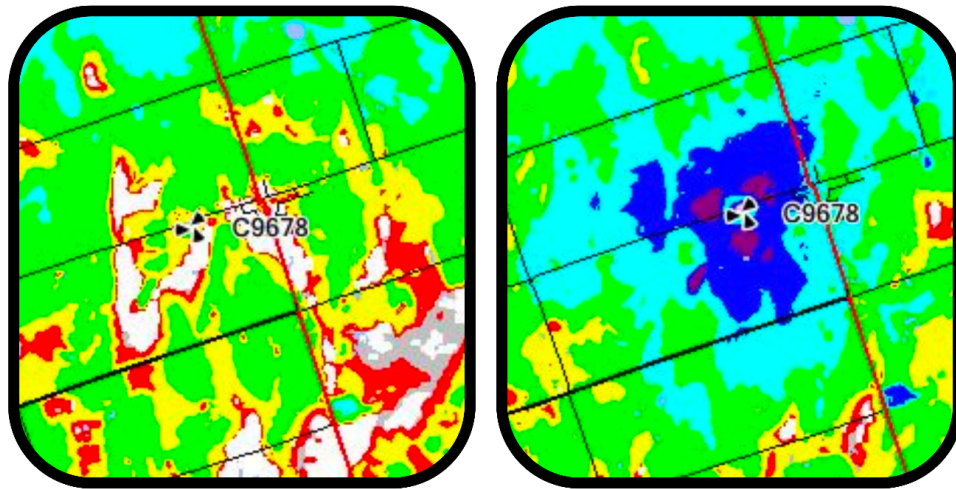
The use of wireless technology goes beyond uses such as on-demand streaming or internet browsing. Wireless technology is being increasingly used for our day-to-day activities. We rely on it for important communication services such as EMS response, Police & Fire response, voice calls, text messages, emails, and the increasing use of the Internet of Things (internet-enabled devices communicating with one another). We also rely on wireless technology for GPS & location services, P.O.S systems, healthcare, and education services. With this increased use of wireless technology, each carrier must establish a strong wireless network. A tower in this proposed location, along with its collocation opportunities, will contribute greatly to the existing wireless network within the Township of Scugog.



To further investigate the need for improved network coverage in the area, Shared Tower Inc. has requested a Propagation Study from third parties. These reports analyze the current network coverage for major carriers and how the proposed Shared Tower site would contribute to these existing networks. In this application process, the need for improved coverage is identified by carriers. As the service provider, the carriers carry out the role of identifying areas with poor coverage based on data factors such as quality of calls, dropped calls, and subscriber feedback. As the land-use authority's role is not to determine or confirm if a network issue exists, the following details have been provided to the Township of Scugog for informational purposes.

As shown in *Figure 5*, current Rogers network coverage is considered to be in the very poor category, which would only allow for minimal voice call capabilities. The image to the right in *Figure 5* shows the improvement in network coverage with the proposed tower. The area has now transitioned from having very poor to great coverage with adequate coverage in the outer core. The proposed tower will allow for quality voice call capabilities, as well as, high throughput data streaming uses.

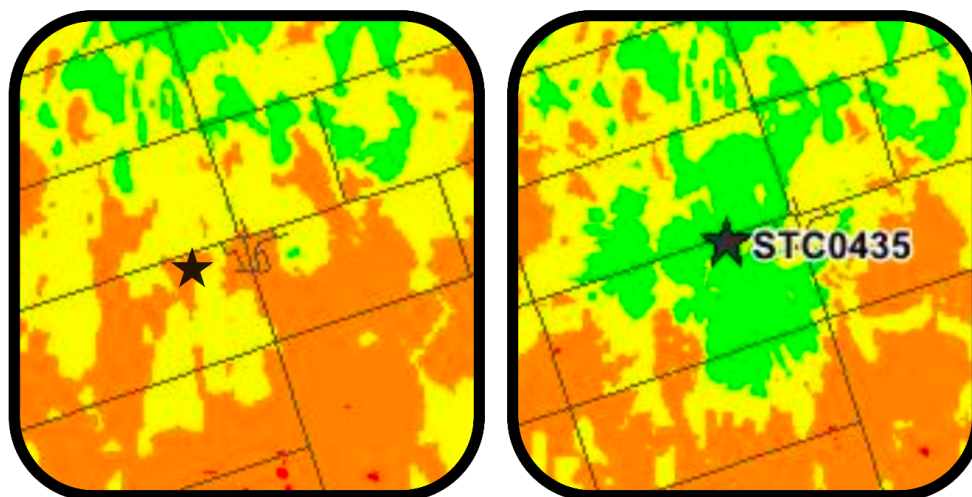
Figure 5: Comparison of Network Coverage - Rogers
Propagation Study completed by Rogers



Clutter Margin	RSRP Range	
Benchmarking	-78 dBm or Greater	Great coverage - voice calls, high throughput data streaming
In-Building Dense	-88 to -78 dBm	Adequate coverage - voice calls, low throughput data streaming
In-Building Light	-98 to -88 dBm	Poor coverage - voice call capabilities
In-Car	-110 to -98 dBm	
On Street	-116 to -110 dBm	
Minimum	-119 to -116 dBm	Very poor coverage - minimal voice call capabilities
Fringe	Less than -119 dBm	

Current Bell network coverage is considered to be poor to adequate in the area which would allow for voice call capabilities and low throughput data streaming, as shown in *Figure 6*. Similarly to the Rogers coverage map in *Figure 5*, the placement of the tower would allow network coverage to transition from having poor to adequate coverage to great coverage, allowing for quality voice call capabilities, as well as, high throughput data streaming uses.

Figure 6: Comparison of Network Coverage - Bell
Propagation Study done by YRH, Montreal



Downlink RSRP	Color	
-125 to -115 dBm	Grey	Very poor coverage - minimal voice call capabilities
-115 to -105 dBm	Red	Poor coverage - voice call capabilities
-105 to -95 dBm	Yellow	Adequate coverage - voice calls, low throughput data streaming
-95 to -85 dBm	Light Green	Great coverage - voice calls, high throughput data streaming

Though network coverage may currently seem satisfactory, the Township of Scugog will continue to grow and welcome new residents, visitors and/or businesses in the area of the Subject Site or in communities such as Uxbridge and Port Perry. This growth can put a strain on the current wireless network resulting in capacity issues for each existing tower and limiting network coverage residents receive. Network coverage can also be limited by surrounding hills, valleys, built and natural features such as houses and trees. A proposed tower in this location will alleviate coverage gaps, provide constant and reliable service, increase network capacity, and in turn, support network traffic for any new residents, visitors, or businesses in the area.



Distance from Residential and Comprehensive Development Sites

The nearest residential use zoned property to the Subject Site is located approximately 129 metres to the North at 1025 Cragg Road, Uxbridge.

Distance from Nearby Airfield/Airport and Aviation Safety

A landmark close to the Subject Site is the Greenbank-Uxbridge-Port Perry Airfield located approximately 1.9 km to the South at 1140 Hwy 47 East, Uxbridge. Additionally, our research found Seagrave Airfield approximately 7.5 km to the East at 2290 Clements Rd, Seagrave.

Airport Zoning Regulations appear on title under a subject property's Parcel Report. Only regulated airports under the *Aeronautics Act* are subject to Airport Zoning regulations. As there are no regulated airports under the *Aeronautics Act* in proximity to the Subject Site, this location is not subject to Airport Zoning regulations as noted in the Ontario Land Surveyors Site Plan attached to this application. To account for existing air navigation and smaller flight clubs, farmer runways, and other aerodromes such as helicopter pads at a hospital, Shared Tower applies to both Transport Canada and Navigation Canada who determines the requirements.

Transport Canada will perform an assessment of the proposal concerning the potential hazard to air navigation and will notify proponents of any painting and/or lighting requirements for the antenna system. Navigation Canada will comment on whether the proposal has an impact on the provision of their national air navigation system, facilities, and other services located off-airport. When the aforementioned parties have determined if any aeronautical safety features are required for the proposed tower, this information will be provided to the Township of Scugog.

Impact on Fibre and Internet Providers

The proposed tower is not anticipated to impact existing or future fiber builds and internet providers in the area such as Durham OneNet. The construction of telecommunication towers complements fiber builds and internet services to ensure that users have a seamless experience as they travel to different locations such as work, on the road, and home. User devices that were latched onto the nearest cell tower while on the road would have a seamless handover to the wifi installed inside their home or at their destination.



While fiber builds are beneficial for users looking for high-speed home internet and digital TV services, cellular infrastructure must still be put in place to ensure connectivity for our cellular devices and beyond the home. Though wifi connectivity may be strengthened in a particular location, infrastructure is necessary for wireless technology uses such as phone calls, text messaging, emergency services, etc.

Land Use & Public Realm Considerations

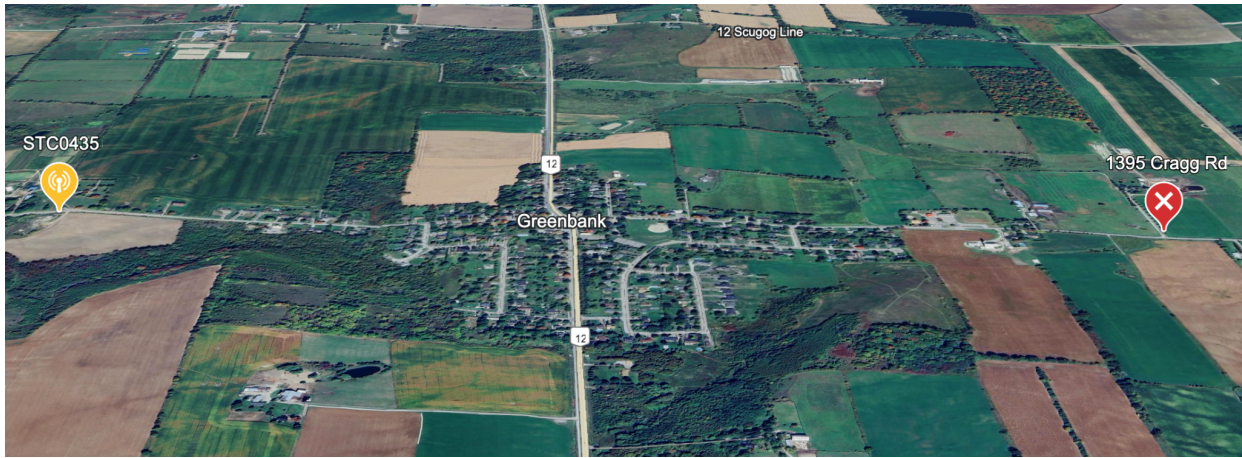
The Subject Site is located in a rural setting away from the majority of residential development and is currently used for agricultural (“AG”) zoning purposes. Regarding site selection, there are many factors that are considered in the process. Due to subscriber feedback and other data factors such as dropped calls or quality of calls, we were made aware of coverage deficiencies in the surrounding area. A survey of this area identified a proposed site that will achieve the necessary engineering coverage objectives for the network. The siting of tower locations is dependent on a number of factors. Among the factors considered are:

- expected usage patterns of service and proximity to users
- local topography and building types
- interaction with existing and future sites
- line-of-sight requirements for high-quality communications
- opportunities to use existing structures
- availability of a willing Landlord
- the industry’s commitment to high service standards and customer satisfaction

An alternative location was investigated at 1395 Cragg Road but was disqualified, being mindful of the existing topography of the area. As shown in *Figure 7: Alternative Location*, 1395 Cragg Road is placed in a valley with a lower elevation and would not meet line-of-sight requirements to ensure high-quality communications. The proposed location was chosen as it meets the carrier’s requirements for coverage while being sufficiently setback away from sensitive land uses, resulting in the site being the best option.



Figure 7: Alternative Location



Source: Google Earth, 2023

For this particular subject site, the Agricultural zoning is beneficial for the proposed tower as it can accommodate for its height and style with minimized impact on its surroundings, as opposed to being placed in the hamlet of Greenbank within Scugog. Additionally, the Subject Site is not a location of topographic prominence that would affect public views, nor is it located in the line of sight of any views or vistas of significant natural or human-made features.

The placement of the proposed tower on the Subject Site is not anticipated to negatively affect any sensitive land uses, such as heritage sites, parks, areas of significant vegetation, shorelines, or water bodies. Overall, the addition of the proposed tower would result in little to no impact on the area's current land uses nor would it detract from the overall public realm.

5. Proposed Telecommunication Antenna Structure

Shared Tower is proposing to construct a 60-metre self-support tower on the Subject Site.

Preferred Tower Type

The self-support tower design has been selected as the most efficient tower type to support equipment for three future co-location services and the elevation required to meet the aforementioned application objective. This tower type is consistent with the typical structures installed in rural areas and ensures minimal visual impact.



Preferred Tower Height

The proposed self-support tower has been designed at a height of 60 metres. This height is required to provide optimal coverage to the area for voice and data use. Additionally, this height would prevent shadowing issues that can occur from taller trees and other obstructions that can create areas with greatly decreased service. More importantly, this height will also allow other carriers to co-locate on the proposed tower in the future, which will limit the overall number of tower structures required in the Township of Scugog and surrounding areas.

Control of Public Access

The proposed tower will include a locked and electronically monitored mechanical equipment shelter. Fencing will be installed around the base of the tower and the equipment shelter will include one locked gated access point.

Decibel Range

With consideration of sounds from its surrounding environment, equipment located inside the tower’s electronically monitored mechanical equipment shelters is anticipated to emit below 55 decibels of sound. As shown in *Figure 8: Decibel Sound Spectrum*, this would be similar to light rain, a computer hum, a quiet office environment, and/or a refrigerator.

Figure 8: Decibel Sound Spectrum

Decibels	Example
0	Silence
10	Breathing, ticking watch
20	Rustling leaves, mosquitos
30	Whispering
40	Light rain, computer hum
50	Quiet office, refrigerator
60	Normal conversation, air conditioner
70	Shower, toilet flush, dishwasher
80	City traffic, vacuum cleaner
90	Music in headphones, lawn mower
100	Motorcycle, hand drill
110	Rock concert, chain saw
120	Thunderclap
130	Maximum stadium crowd noise
140	Aeroplane taking off
150	Fighter jet take off
160	Shot gun
170	Fireworks
180	Rocket launch



Design Considerations & Screening

The tower structure is proposed to be located on the Northeastern area of the Subject Site. The proposed tower is placed at the coordinates: 44.149652, -79.026096 which is approximately 10.8 m setback from Cragg Road. Though telecommunication towers are not subject to local planning controls such as zoning bylaws or municipal setback requirements, an effort was made to increase this setback after hearing concerns from nearby residents.

During a site visit, the civil construction team confirmed that placing the tower further away from Cragg Road would mean placement on uneven ground as there is a downward slope as shown in *Figure 9: Topography of Tower Location*. This would also mean a lower elevation of the tower which can be a barrier for line-of-sight requirements to ensure high-quality communications. Trees or other vegetation may be required to be removed or disturbed during the installation or operation of the proposed tower.

Figure 9: Topography of Tower Location

Source: Google Earth, 2023





6. Federal Policy

The Federal Government, through Innovation, Science and Economic Development Canada (ISED) is responsible for the final regulatory decision to approve the location of the tower. ISED has adopted a policy (CPC-2-0-03 – Radiocommunication and Broadcasting Antenna Systems) which applies to anyone who is planning to install or modify a tower. This policy has been reviewed to ensure Shared Tower's proposed tower complies. A review of the required public consultation process and several required declarations follow.

CPC-2-0-03 – Radiocommunication and Broadcasting Antenna Systems (2014)

Public Consultation

The Township of Scugog has an established process under which this proposed tower application will proceed. The Township of Scugog's public consultation process was reviewed to ensure requirements will be met by Shared Tower.

Health Canada's Safety Code 6 Compliance

Shared Tower attests that the proposed tower described in this Letter of Rationale will at all times 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 carrier co-locations and nearby installations. Safety Code 6 takes into account the total exposure from all sources of radiofrequency electric and magnetic fields in the range of 3kHz to 300 GHz. This includes those that may be used in 5G technology.

Shared Tower has requested a Safety Code 6 Report completed by a third party for this site application. It goes through an in-depth analysis of radiofrequency exposure with the proposed tower location. The analysis is based on the most recent Safety Code 6 (2015) guidelines. As confirmed in the Safety Code 6 Report the site is compliant with the maximum exposure limits established in Health Canada's Safety Code 6 for uncontrolled environments.

Canadian Environmental Assessment Act (2012)

Shared Tower attests that the proposed tower described in this Letter of Rationale is excluded from environmental assessment under the Canadian Environmental Assessment Act.

Aeronautical Safety

Shared Tower attests that the proposed tower described in this Letter of Rationale will comply with Transport Canada/NAV Canada aeronautical safety requirements. When the aforementioned parties have determined if any aeronautical safety features are required for the proposed tower, this information will be provided to the Township of Scugog.



Shared Tower

Engineering Practices

Shared Tower Inc. attests that the radio antenna system as proposed for this site will be constructed in compliance with the applicable Canadian Standard Association (CSA) standards for telecommunications tower sites and comply with good engineering practices including structural adequacy.

Innovation, Science, and Economic Development Canada's Spectrum Management

Please be advised that the approval of this site and its design is under the exclusive jurisdiction of the Government of Canada through Innovation, Science, and Economic Development Canada (formerly Industry Canada). For more information on ISED's public consultation guidelines, including CPC-2-0-03, please visit this [website](#), or contact the local ISED office at:

Toronto District Office

175A Admiral Blvd,

Mississauga, Ontario, L5T 2T3

Telephone: 1-855-465-6307

Fax: 416-954-3553

Email: spectrumtoronto-spectretoronto@ised-isde.gc.ca

General information relating to antenna systems is available on ISED's Spectrum Management and Telecommunication [website](#).

7. Conclusion

Shared Tower has proposed a new tower in the Township of Scugog to strengthen the local telecommunications network. Prior to submitting this request, a thorough search for existing co-location opportunities was conducted, however, no feasible options were available.

Shared Tower believes this proposal:

- Works toward bridging the urban-rural connectivity divide by filling an identified network need in the Township of Scugog and the surrounding area;
- Provides co-location opportunities that will reduce the overall number of towers required in the community;
- Is designed to be as visually unobtrusive as possible and blend in on the Subject Site;
- Has no impact on the adjacent land uses or public realm;
- Is aligned with and supports several layers of municipal and federal policy; and,
- Justifies the issuance of a Statement of Concurrence by the Township of Scugog.

As a reminder, the land-use authority's role is not to determine if a network issue exists.

As per ISED's land-use authority consultation guidelines:

The aim of this consultation is to:

- *discuss site options, ensure that local processes related to antenna systems are respected*
- *address reasonable and relevant concerns (see section 4.2) from both the land-use authority and the community they represent*
- *obtain land-use authority concurrence in writing*

Land-use authorities are encouraged to establish reasonable, relevant, and predictable consultation processes specific to antenna systems that consider such things as:

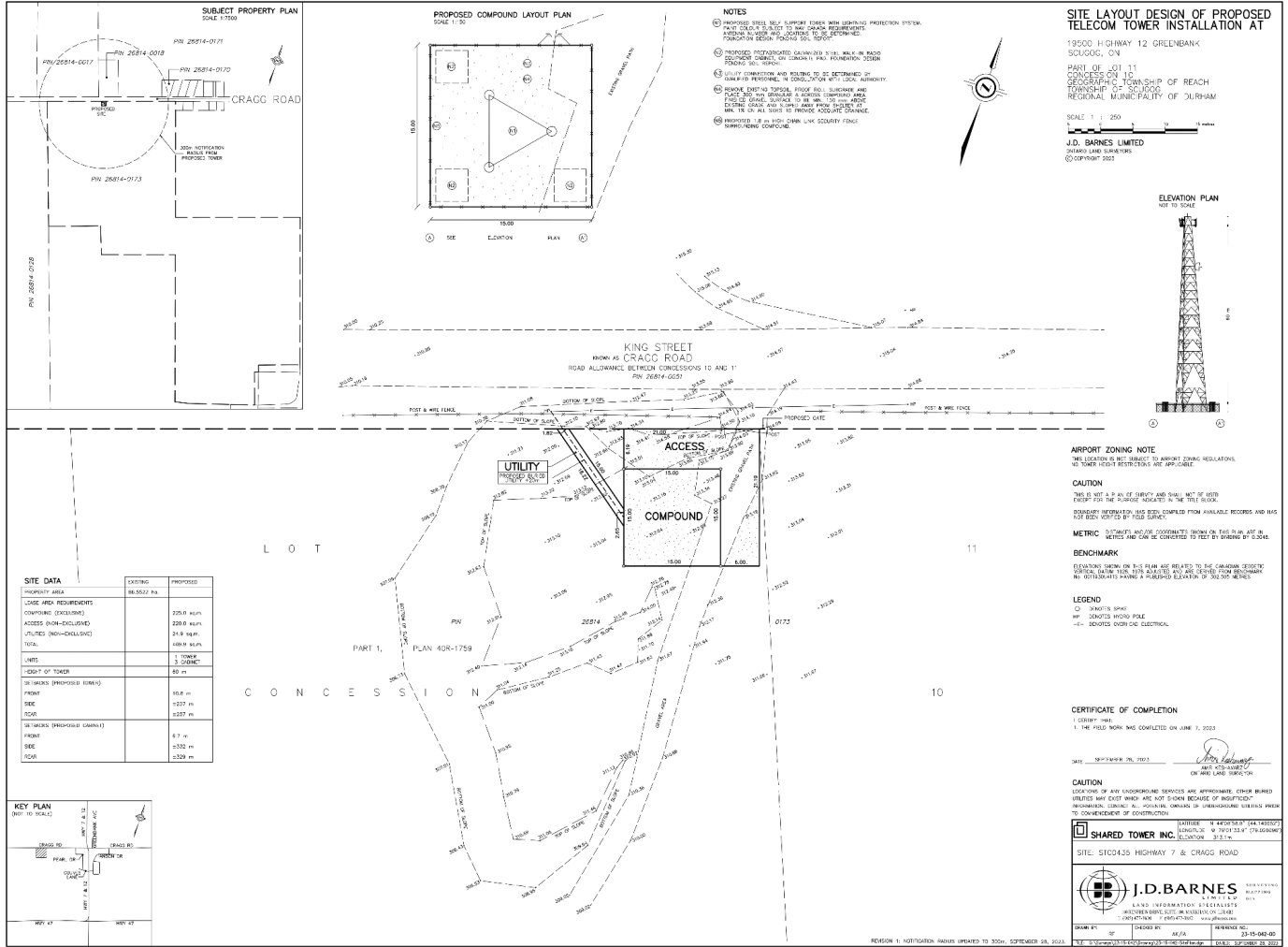
- *the designation of suitable contacts or responsible officials*
- *proposal submission requirements*
- *public consultation*
- *documentation of the concurrence process*
- *the establishment of milestones to ensure consultation process completion within 120 days*

Although ISED is responsible for the final regulatory decision to approve the proposed tower, Shared Tower is committed to effective and meaningful municipal and community consultation. We look forward to working with the Township of Scugog to continue to build an efficient telecommunications network for the community while ensuring its objectives are met.

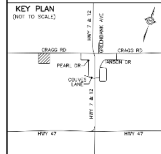


Shared Tower

Appendix A: Site Plan



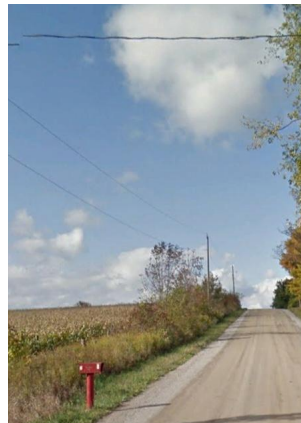
SITE DATA	
EXISTING	PROPOSED
PROPERTY AREA	88,532 m ²
LOADING REQUIREMENTS	220.0 kN/m ²
COMPILING (EXCLUDED)	220.0 kN/m ²
ACCESS (NON-EXCLUDED)	21.8 kN/m ²
UTILITIES (NON-EXCLUDED)	21.8 kN/m ²
TOTAL	220.0 kN/m ²
UNIT	1 DIMENSION 3 DIMENSION
HEIGHT OF TOWER	50 m
UTILITIES (PROPOSED HOMES)	
PIPING	10.0 m
SEE	2327 m
ROAD	2327 m
UTILITIES (PROPOSED LOTS)	
PIPING	4.7 m
SEE	2332 m
ROAD	2329 m





Shared Tower

Appendix B: Site Renderings





Shared Tower

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