



19500 Highway 12, Greenbank

Proposed Telecommunication Tower





Shared Tower

Who we are:



Welcome to

Shared Tower

- **Carrier-Neutral**
Telecommunications real estate and infrastructure
- **Backed by the major carriers to deliver telecommunications infrastructure**
- **Developed 1,500 sites across the country**
- **Leaders in the field**

Who Approves the Tower?

- Innovation, Science and Economic Development Canada (ISED) is the governing body for installations of this type of telecommunication installation
- It is federally regulated and exempt from Planning Act, Heritage Act, Building Code

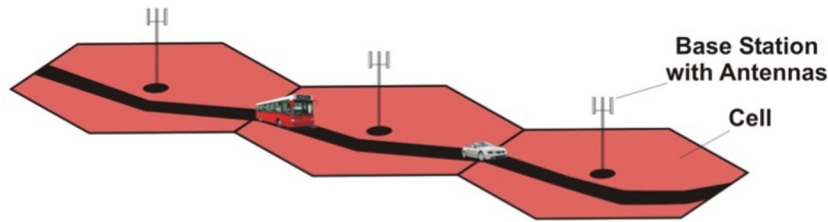


Wireless Technology – Overview

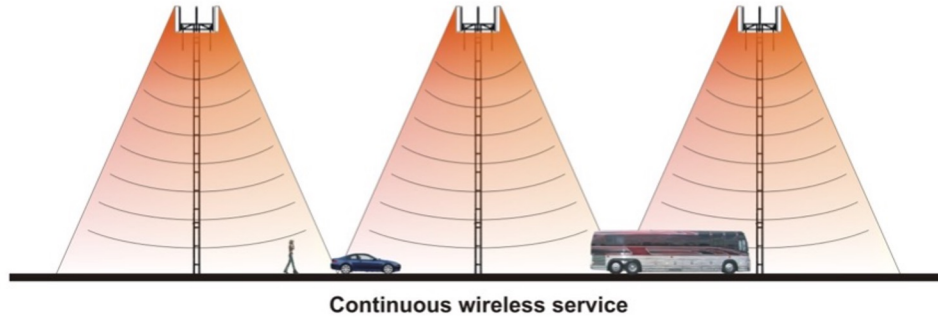
- Today, wireless technology is responsible for delivering many relied upon communications services such as;
 - Internet of Things (IoT) (occurs between internet enabled devices and systems –cellphone, tablet, or a smart car all talking to each other)
 - EMS Response
 - Police & Fire Response
 - Voice (Cellular phone, Conferencing)
 - Data (Text, E-mail)
- Other services include:
 - Internet Service (Web-browsing)
 - On-demand Content
 - GPS & Location Services
 - P.O.S Systems
 - Healthcare
 - Education Services
- In order to provide wireless technology communications services, each carrier must establish a wireless network.



Network Growth



This illustration demonstrates how towers work to create a continuous wireless service that is constant and reliable.



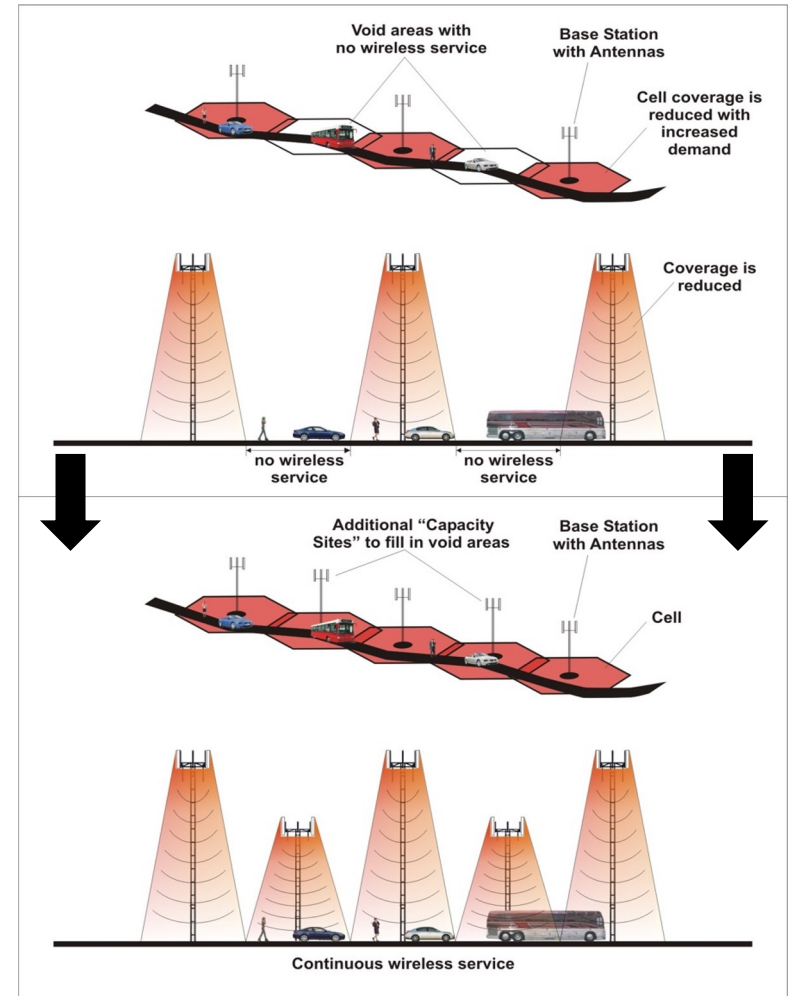
There are no gaps in service and everyone is afforded the same level of service despite differences in geographical location.

Network Growth *Expansion*

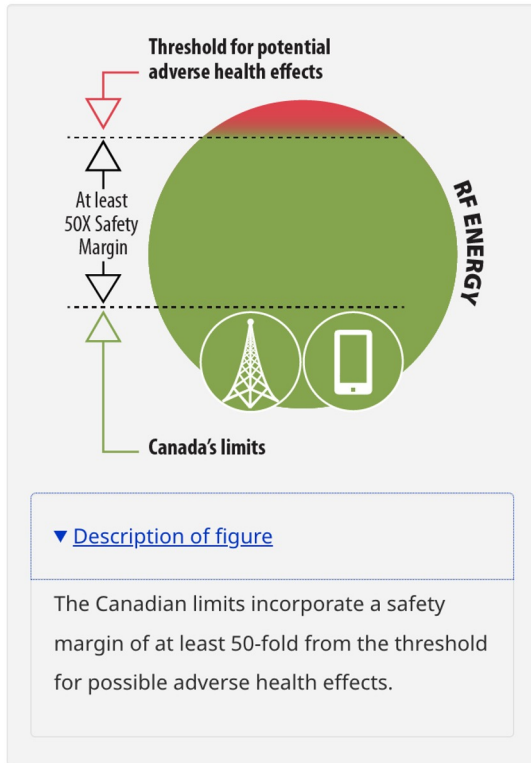
As population increases and municipalities continue to expand, there are gaps in service that develop, limiting their access to basic network usage.

Shared Tower takes this opportunity to establish towers that would:

- Alleviate gaps in service in order to provide a continuous level of reliable service
- Support collocation
- Increase network capacity and supports network traffic as more residential, commercial and institutional developments are constructed

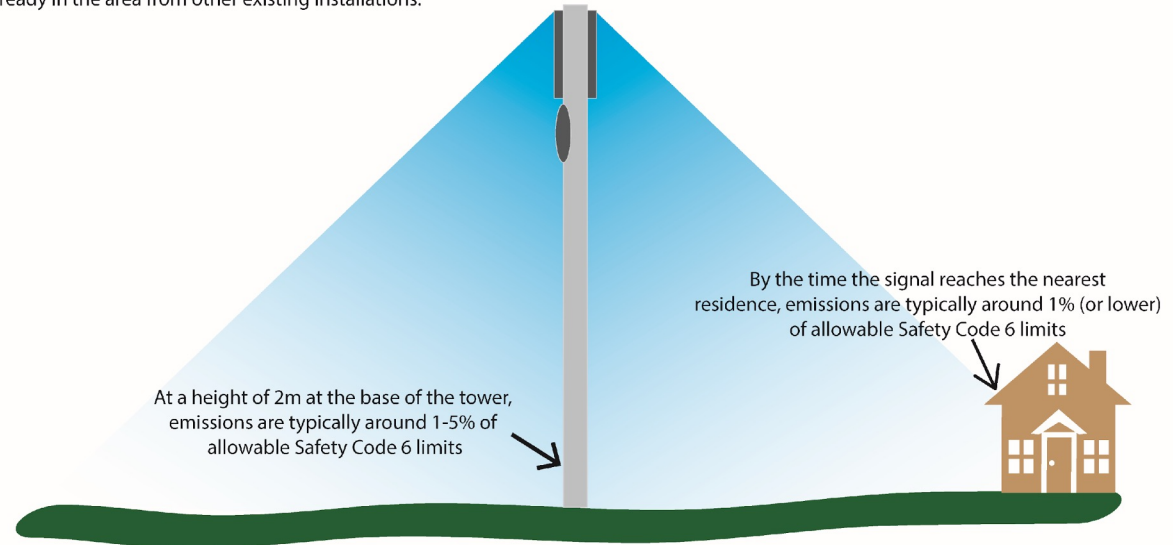


Health Canada's Safety Code 6



Health and Safety

Health Canada regulates electromagnetic and microwave emissions for antenna installations (known as "Safety Code 6"). Cellular antenna tower installations commonly emit significantly lower levels than are considered safe by Health Canada. These emission level calculations include those already in the area from other existing installations.



About RF Energy

What is radiofrequency (RF) energy?

RF energy, also referred to as “RF emission,” “RF wave” or “RF field,” is one form of electromagnetic energy that is part of the electromagnetic spectrum. There are both natural and human-made sources of electromagnetic energy.

Examples of natural sources of electromagnetic energy:



Earth's natural field (which makes a compass point to North)



Visible light



Lightning

Examples of human-made sources of electromagnetic energy:



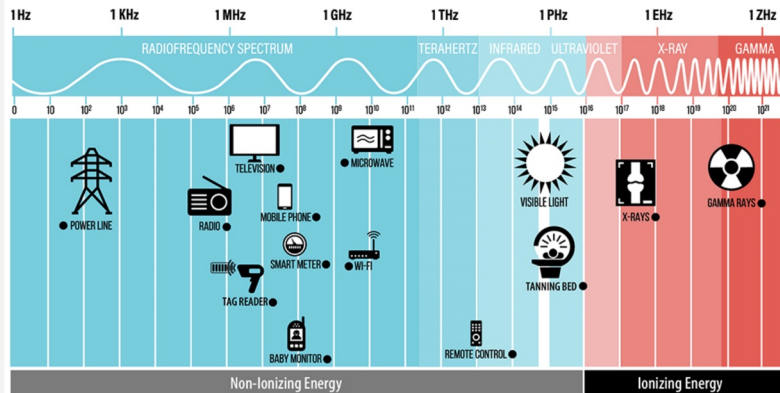
Electric appliances such as microwaves



Wireless devices (cell phones, Wi-Fi, Bluetooth)



Commercial broadcasting (AM/FM radio and television)



► Description of figure

Non-ionizing and ionizing energy

Two types of energy are shown on the electromagnetic spectrum: non-ionizing and ionizing.

What is non-ionizing energy?

Non-ionizing energy is electromagnetic energy that does not break down the bonds between atoms and molecules, which means it does not break down chemical bonds within cells and tissues. Examples of non-ionizing energy include visible light and RF energy used in wireless communication.

What is ionizing energy?

Ionizing energy is electromagnetic energy that may have enough energy to break down the bonds between atoms and molecules. Examples of ionizing energy include X-rays and gamma rays, which are both used in some medical treatments under medical supervision.

Health & Safety Code 6

- Safety Code 6 sets out recommended safety limits for human exposure to radiofrequency electromagnetic fields (EMF)
- Health Canada continuously reviews this safety code to determine new adverse health effects
- **Shared Tower Inc. attests that the national carrier(s) collocating on the telecommunication structure will comply with Health Canada's Safety Code 6 limits**
- Questions pertaining to Safety Code 6 can be addressed to Health Canada directly to Health Canada Office at hcinfo.infosc@Canada.ca or 613-957-2991.
- Further, additional info on the subject can also be obtained at <https://www.canada.ca/en/services/health/health-risks-safety/radiation.html>

UNDERSTANDING SAFETY CODE 6

ABOUT SAFETY CODE 6

Safety Code 6 is a document that sets out recommended safety limits for human exposure to radiofrequency electromagnetic fields (EMF) in the frequency range from 3 kHz to 300 GHz.

This range covers the frequencies used by communications devices and equipment that emit radiofrequency EMF such as:

- › Wi-Fi
- › cell phones
- › smart meters
- › cell phone towers
- › those using 5G technology

Safety Code 6 is reviewed on a regular basis to confirm that it continues to provide protection against all known potentially adverse health effects.



ABOUT THE SAFETY LIMITS

The safety limits in the code:

- › protect against all established adverse health effects related to radiofrequency EMF, no matter the source
- › incorporate large safety margins to provide a significant level of protection for all Canadians, including those working near RF sources
- › provide protection for people of all ages and sizes, from exposure to all forms of radiofrequency EMF on a continuous (24 hours a day/7 days a week) basis

The exposure limits in Safety Code 6 are based on:

- › Health Canada research
- › an ongoing review of published scientific studies on potential adverse health effects

You are **protected** from the combined exposure of radiofrequency EMF from multiple sources with Safety Code 6 exposure limits in place. Safety Code 6 takes into account the total exposure from all sources of radiofrequency EMF in the range of 3kHz to 300 GHz. This includes those that may be used in 5G technology.

Site Selection

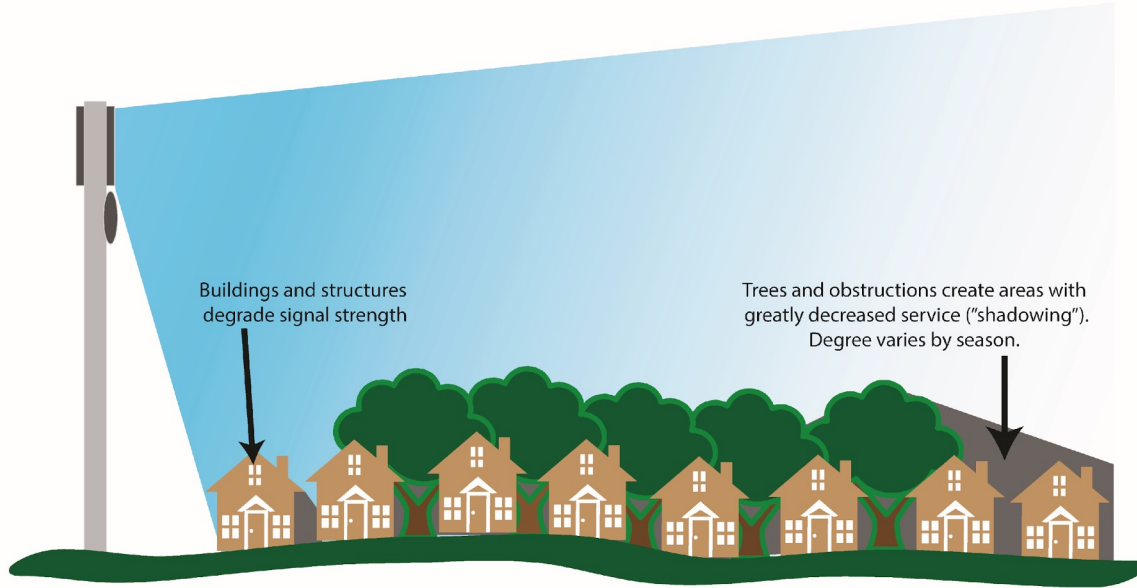
The siting of tower locations is dependent on a number of factors. Among the factors considered are:

- 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



Signal Strength Considerations

A degraded signal can result in dropped calls and slow data speeds.



Buildings and structures degrade signal strength

Trees and obstructions create areas with greatly decreased service ("shadowing"). Degree varies by season.

A high number of users accessing network on the same antenna installation can also reduce the quality of the connection.

Need and Coverage

The cell network is an intricate puzzle. If a site was placed too far away from the search area, there would be the following issues:

- area(s) of coverage overlap
- area(s) with poor coverage
- the requirement for additional tower(s)

Subject Site

Shared Tower is proposing a 60m self-support style tower at **19500 Highway 12 Greenbank, Scugog.**



Closest Existing Telecommunication Towers

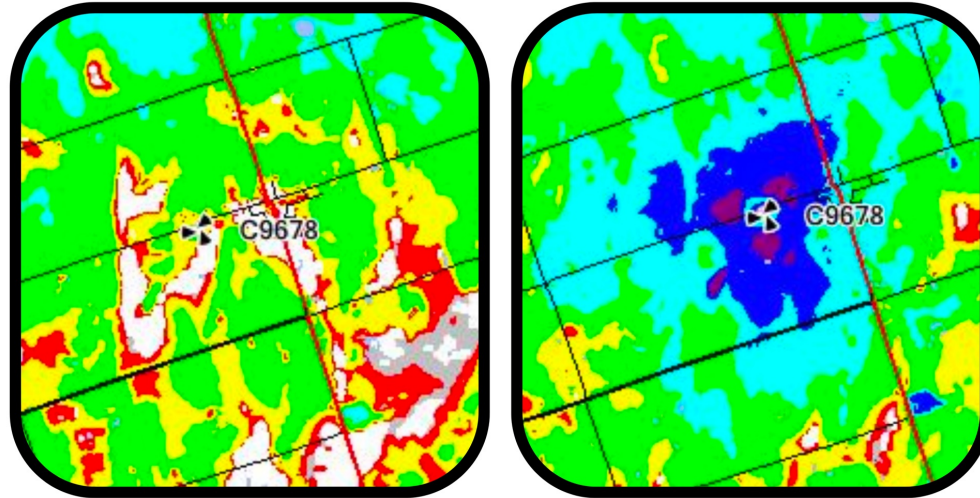


Along with “Shadowing” from surrounding buildings and/or topography, a network’s signal degrades over space so the further away from the tower, the weaker it becomes.

As more of the population uses the network for work, school, and personal use, further support is required to ensure the same level of service.

Propagation Study Comparison - Rogers

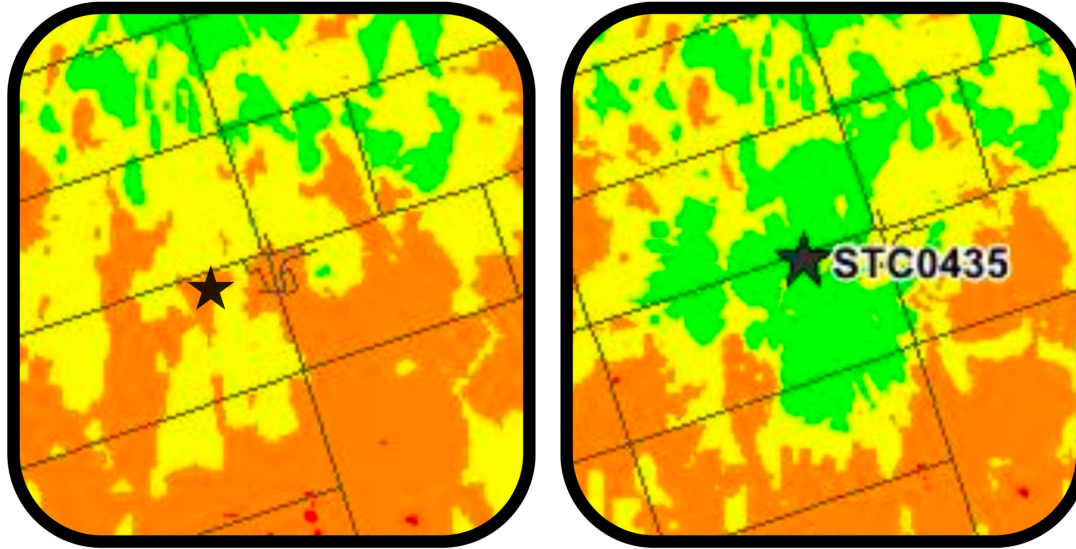
Study completed by Rogers



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	

Propagation Study Comparison - Bell

Study completed by YRH, Montreal

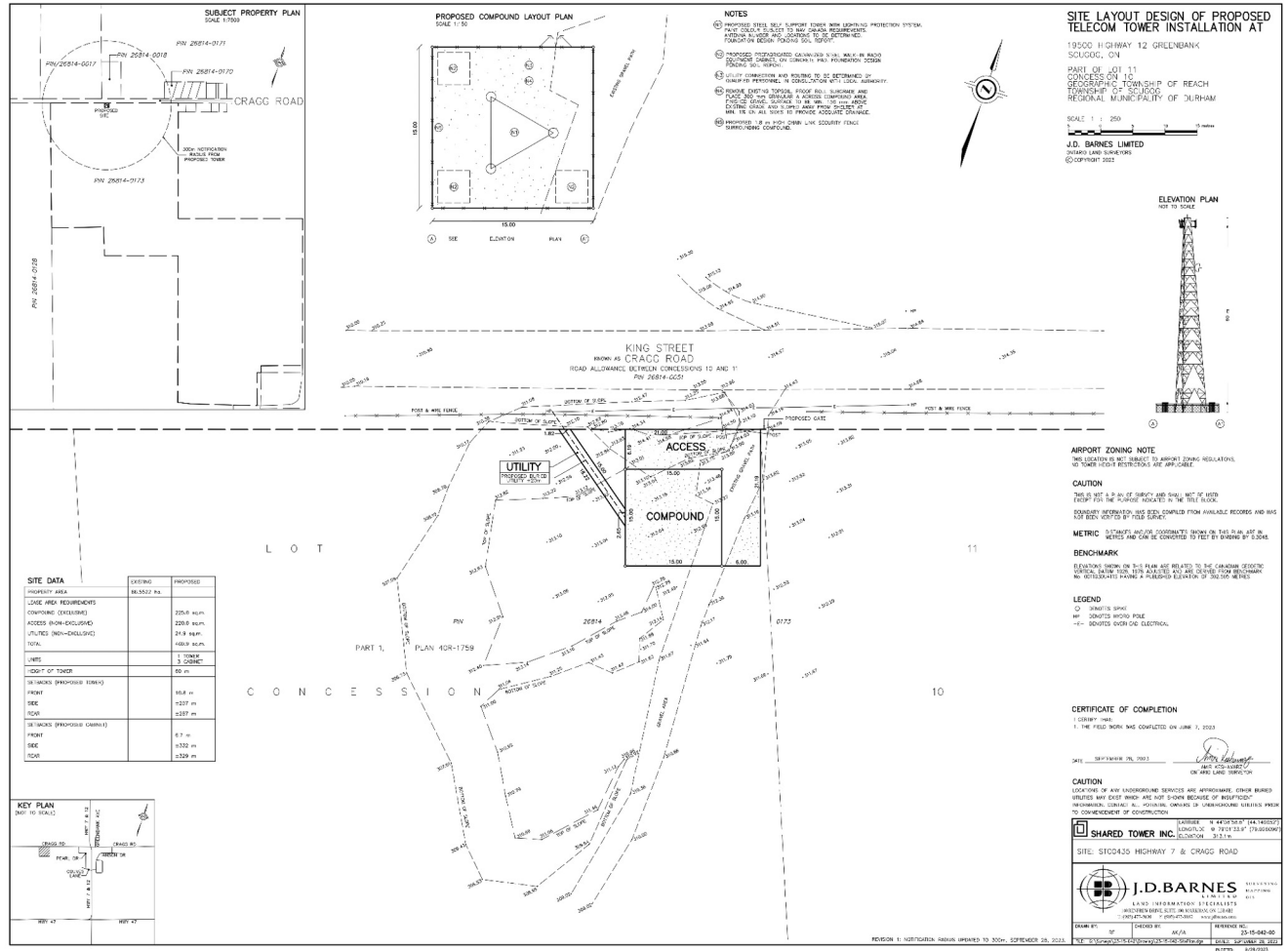


Downlink RSRP	Color	
-125 to -115 dBm	Grey	Very poor coverage - minimal voice call capabilities
-115 to -105 dBm	Red	
-105 to -95 dBm	Orange	Poor coverage - voice call capabilities
-95 to -85 dBm	Yellow	Adequate coverage - voice calls, low throughput data streaming
-85 to 0 dBm	Green	Great coverage - voice calls, high throughput data streaming

Plan

Shared Tower is proposing a 60m self-support style tower at 19500 Highway 12 Greenbank, Scugog.

This tower will allow multi-carrier collocation opportunities in the area.





**STC0435 – Highway 7 & Cragg Rd.
Site Rendering**

STC0435 – Highway 7 & Cragg Rd. Site Rendering



Q & A

I am happy to have this opportunity to speak with the public and would like to open the floor to those of you who have joined us today.

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