INTERLAKEN TOWN
PO BOX 1048
MIDWAY, UT 84049
(435) 565-3812

SPECIAL USE PERMIT APPLICATION

For Office Use Only

STAFF DETERMINATION	ADMINISTRATIVE STAFF	APPLICATION #
APPROVED _____	_____	DATE RECEIVED _____
DENIED _____		EXPIRATION _____

PROJECT INFORMATION

NAME: Soper Amateur Radio Antenna Support Structure

ADDRESS: 333 Bern Way, Midway, UT 84049

LOT #: Interlaken Estates, Parcel III,m Lot #119

APPLICANT INFORMATION

NAME: Michael B. Soper

MAILING ADDRESS: P.O. Box 40, Midway, UT 84049

PHONE #: 435-654-5896 (Home) 435-602-0206 (cellphone)

EMAIL: msoper@teamsoper.com

APPLICANT REPRESENTATIVE INFORMATION

NAME: _____

PHONE #: _____-

EMAIL: _____

SUBMITTAL REQUIREMENTS – All of the following items must be included in order for the Town Administrator to take the application.

1. Completed and signed application form.

2. Provide a written statement describing the request and any other supplementary information pertaining to the proposed project as requested by the Town Administrator.

3. Town Administrative fees: $ 100.00 per application. (Paid)

4. If applicable, Town Engineer Plan Review fee: $ 100.00 (Paid)

5. If applicable, Town Engineer Inspection fee - $ 250.00 (Paid)

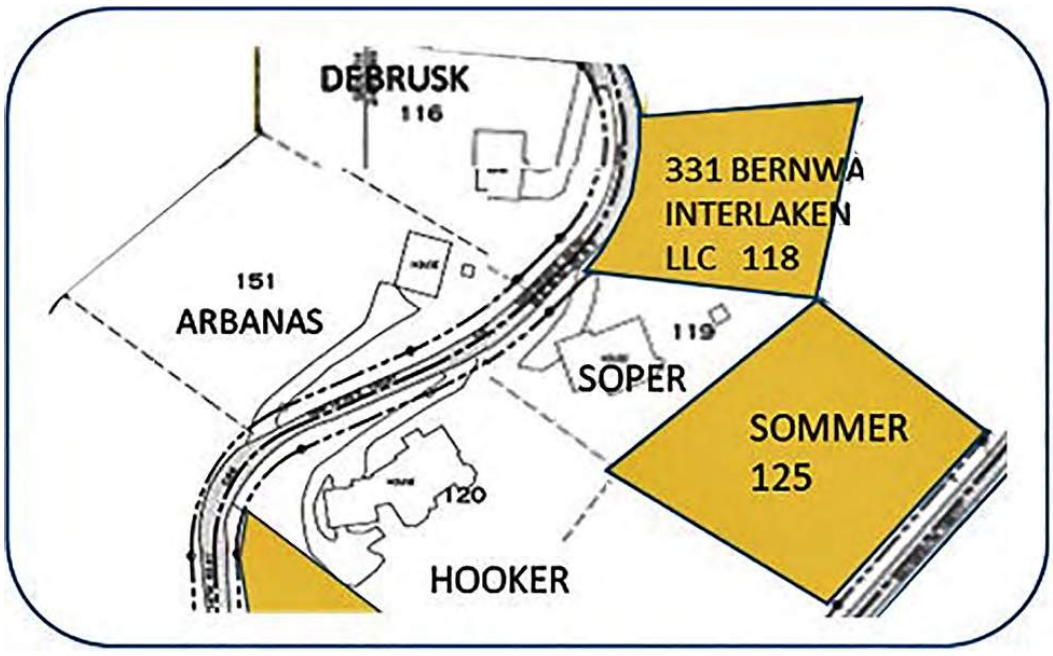
6. If applicable, a complete plan set in digital format, to be submitted to the Town Engineer. Contact the Town Engineer for more information (Epic Engineering, Josh Call, 435-654-6600).

7. Any additional information pertaining to compliance with the Land Use Code relating to the specific criteria for the requested use as described in the Land Use Code contained in applicable zoning district and supplemental regulation.

8. List of property owners, names, and addresses of adjacent properties.

Property owners, names, and addresses of adjacent properties.

Last Name	First	First	Addr	Addr St.	Lot #	Type	Mail Address	Mail Town
DeBrusk	Chris	Wayne	332	Bern Way	116	House	171 85th St.	Brooklyn, NY 11209
Witt	Russ	Cathy	331	Bern Way	118	Empty	1245 S 1200 West	Heber City, UT 84032
Hooker	Kyle	Kristen	335	Bern Way	120	House	P.O. Box 1474	Midway, UT 84049
Sommer	Richard B.	Trudy	332	Interlaken Dr.	125	Empty	2384 N. Iris Lane	Escondido, CA 92026-1221
Arbanas	Glenn	Jackie	334	Bern Way	151	House	2891 Katherine Circle	Salt Lake City, UT 84109



PROJECT INFORMATION

1. Type of application: Request for a reasonable accomodation to construct a HAM radio tower.

   What I believe you are asking: Request to erect an amateur radio antenna support structure.

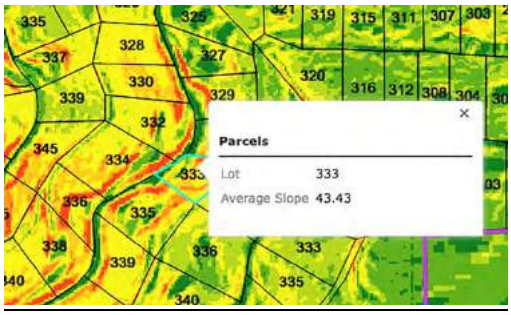
2. On a separate sheet of paper, give a general description of the proposal and attach it to the application (See Submittal Requirement #2). Description shall also indicate the project's compliance with any applicable criteria as described in the Land Use Code contained in applicable zoning district and supplemental regulation.

   Origional Letter Requesting Antenna Support Structure Approval is attached as an appendix.

   No applicable zoning regulations apply.

3. Existing Zoning: **Residential**

4. Is the project within the Sensitive Lands Overlay? Yes **X** No _____



5. Current use of the property: **Residence . Home**

6. Total Project Area: 0.000206612 acres 9 square feet [Concrete Foundation 3' x 3']

SUPPLEMENTARY INFORMATION

If applicable, a separate document requesting Supplementary Information for Permit Application must be submitted with this application.

The following Supplementary Information is required for this application:

Ham Radio Antenna Installation / Modification Supplement

I believe the following statements are responsive to your questions.

HAM RADIO ANTENNA INSTALLATION/MODIFICATION SUPPLEMENT

a) What is the height of your existing Antenna?

a) Reference drawing in answer to question "F."

b) 10-Feet … the base of which is roughly 32-feet down a 43% grade to the base of the proposed 55-foot tower & antenna.

b) What problems are you encountering that require a new or modified antenna?

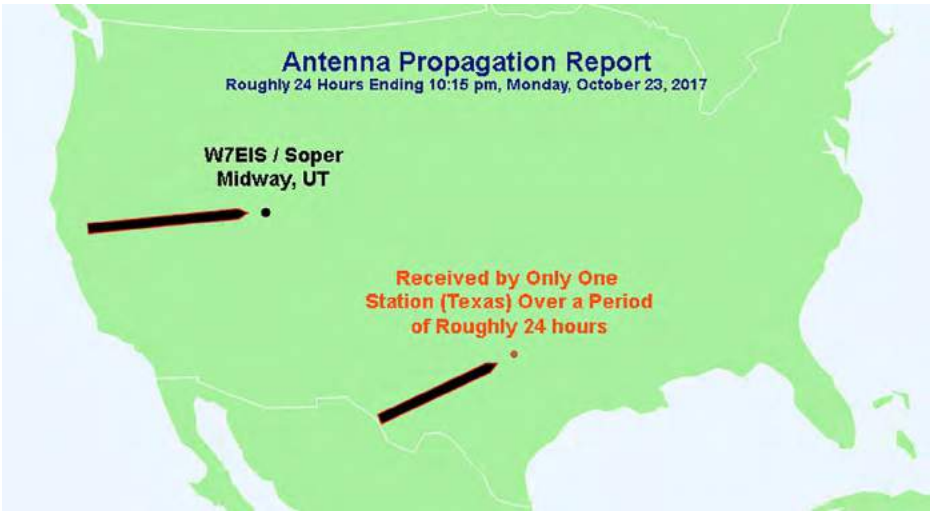
What I believe you are asking is: What amateur radio communication problems are you encountering that require a new or modified antenna support structure?

1. **Certified amateur radio operator, FCC Registration Number (FRN): 0024400327.**
2. **$10,000 invested in amateur radio station, including current antenna on a 10-foot tower.**
3. **At current tower height, with current hex-shaped, directional antenna, the system is able to accomplish digital messaging only, which is basically 30 second coded bursts.**
4. **Cannot, with very rare exceptions, achieve voice communication, which was the primary reason for making the investment. Voice is generally the preferred mode for emergency communications.**

Antenna height is critical to all forms of radio communications. Because of surrounding mountains and the relative low power (e.g. 1,500 watts maximum vs. 5,000,000 watts maximum for UHF television transmitters), receiving and transmitting amateur radio signals is even more dependent on antenna height.

Currently, I am unable to communicate on high-frequency bands (1.8 – 30 MHz). On the high-frequency bands (HF), I am unable to hear many stations using a state-of-the-art receiver. If I can't hear them, I can't communicate with them. I can't reach others I can hear, using the voice (SSB) mode.

With a very-high (VHF) and ultra-high frequency (UHF) antenna on the peak of my roof, I am unable to reach the local repeater network, which is necessary for disaster / emergency communications.



c) Height of the tower - The Town will require you to provide us with proof from a government/agency as to the necessary minimum height that will allow you to efficiently communicate based on your intended use.

1. **Current antenna mast height is about 11 feet tall. The antenna support structure and multi-beam antenna are in the backyard as shown on the attached site plan, with the base of the tower at 6,038 feet elevation.**

2. **The new antenna support structure, which has already been purchased, is 50 feet tall and will be placed six feet below the garage level beside the existing garage.**

Additional Details: There is no government / agency that will provide The Town with proof as to the necessary minimum height that will allow me to efficiently communicate based on my intended use.

The Federal Law, PRB-1 states: "Because amateur station communications are only as effective as the antennas employed, antenna height restrictions directly affect the effectiveness of amateur communications."

No specific amateur radio antenna height-limit can be imposed in the determination of whether to approve or disapprove an antenna support structure.

The Federal Communications Commission governs all radio / television communications. It is the responsibility of the amateur radio operator to determine what is required for effective communication. This is the essence of "reasonable accommodation."

The FCC further ordered that Town's regulations be the very minimum required, "so that such regulations will not impinge on the needs of amateur operators to engage in communications."

The height and location of the new tower meet all of the requirements of the Federal Aviation Administration (FAA). Detailed requirements of the FAA are provided as an appendix to this application.

d) Please identify what type of communications you are requiring – Domestic / International, Voice, Video, or Data?

Both domestic and international communication, using voice (single sideband – SSB on HF and FM on VHF/UHF), Morris Code (CW) and digital modes (JT-65, JT-9, FT-8, and others), potentially using a maximum of 1,500 watts.

e) Your obligation pursuant to Part 97 Rules, is to perform an RF Safety study and provide the results of that study to the Town Council showing that your proposed installation would be safe and not cause radio frequency (RF) interference to neighbors.

What I believe you are asking is: Your obligation pursuant to Part 97 Rules, is to perform an RF Safety Study or to submit a report based on RF modeling that the use of this antenna support structure will be free of health and safety risks to the community and especially to adjacent neighbors.

The Estimated RF Power Density above is far below the FCC's Maximum Permissible Exposure (MPE) if a six-foot person was standing directly below the top of the 50-foot antenna support structure.

The antennas to be located on the new tower are BELOW the Federal Communications Commission's (FCC) radio frequency transmission power safety exposure levels.

A table containing the RF Power Density for W7EIS is shown in Appendix F.

The above Interlaken Town requirement confuses the RF Safety (a responsibility of the amateur radio operator) and radio frequency interference (RFI). Would I personally help mitigate interference someone perceived to be coming from me? Sure. Would I be contractually required to provide this? No.

The FCC has jurisdiction over RFI (radio frequency interference) and while I would take every possible step to help correct it (basically low pass filters), I can't actually do work on other's televisions or other devices.

The FCC regulates many consumer electronic products to make sure they don't interfere and to protect them against outside interference. For the most part, consumer electronics meets FCC's regulations. If they are receiving RFI, a low-cost filter will generally eliminate it.

f) Specifications and details of how the tower will be erected must be reviewed and approved by Town Engineer, to insure the structure is safe for the public, and to identify location, size, height, (wind/snow/elevation/grade), at your cost. The structure must be designed in compliance with all applicable building and construction codes.

Tower foundation, structure and installation method to ensure safety:

1. **The new tower is a Rohn model 25G. Manufacturers literature, including foundation and installation plans, is attached.**

2. **The tower will be attached to the garage with "Rohn Heavy Duty House Bracket," the standard attachment as specified by the manufacturer.**

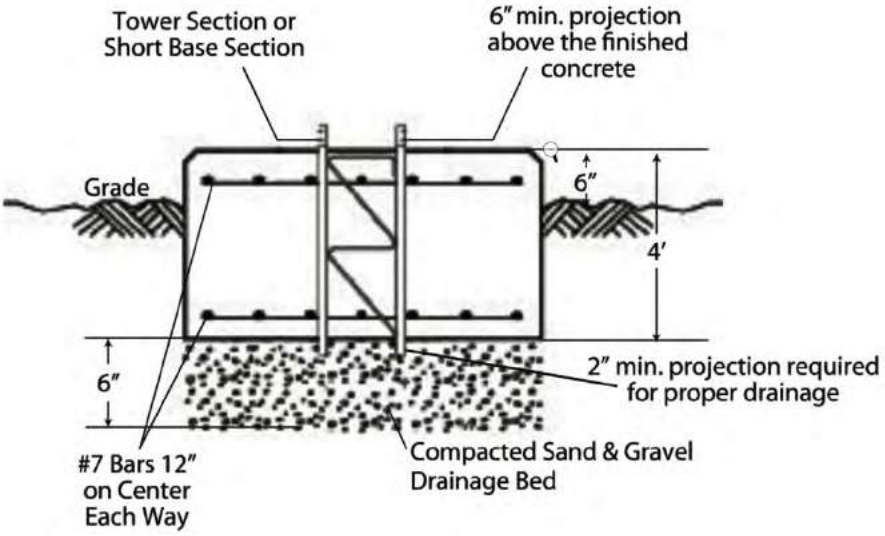
3. **We are considering adding two guy wires for additional security, beyond the manufacturer's specifications.**

4. **Since the foundation and installation specifications are provided by the manufacturer, there should be no need for an Epic Engineering review.**

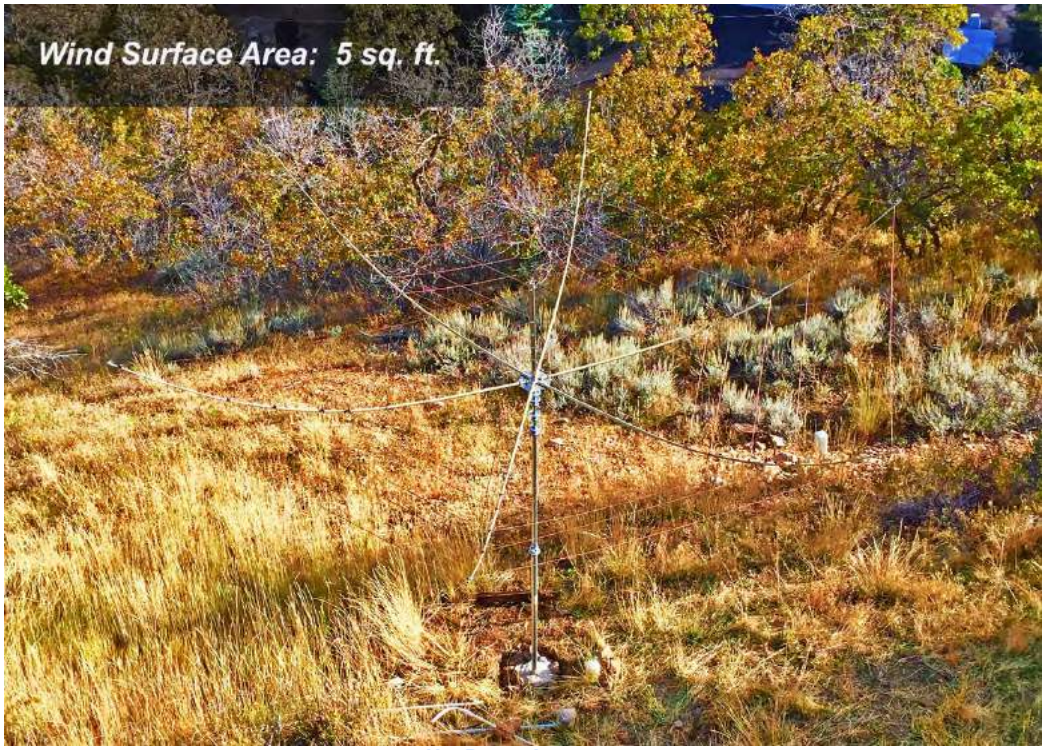
Additional Details: The antenna support structure will be mounted in a one and one-third cubic yard, concrete foundation (3' x 3' x 4' deep) adjacent to the foundation on the West side of my home. The structure will be connected with a heavy-duty steel house-bracket near the peak of my roof to provide additional structural support. The roof peak from the foundation is roughly 30-feet high.

Rohn, the antenna support structure, manufacturer had documented the specification of the Rohn 25g as being erected from a 2'6" in diameter hole that's 4-feet deep for the foundation (I'd probably do 3-feet in diameter or a square).

Rohn states that a rebar cage or horizontal rebar in a cross-hatch pattern with a special, short-section of the structure buried in the concrete can be used in the foundation.



With heavy duty house brackets, the 50-foot tower will handle 6.8 sq. feet of wind load at 90 MPH with 3-second gusts of 100 MPH. Other wind speed specs are shown at the top of the attached page 161. As shown in my application, my HexBeam antenna is 5 sq. feet of wind loading … below the 6.8 sq. feet shown above.



HexBeam Antenna

25G BRACKETED
ALLOWABLE ANTENNA AREAS

Tower Height (FT.)	Bracket Elevations		Allowable Antenna Areas (SQ. FT.)		
	Upper (FT.)	Lower (FT.)	70 [85] MPH	80 [95] MPH	90 [105] MPH
40	30.0	15.0	15.3	11.3	7.7
50	36.0	18.0	14.6	10.0	6.8
60	46.0	23.0	14.0	8.9	5.9
70	56.0	28.0	13.5	8.3	5.5
80	66.0	33.0	13.1	7.7	5.0
90	66.0	33.0	6.8	4.9	-
100	66.0	33.0	1.7	-	-

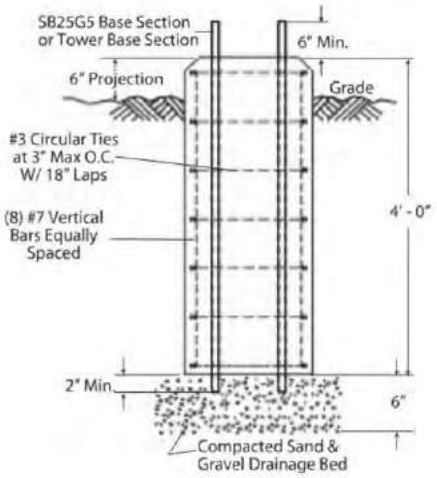
25G

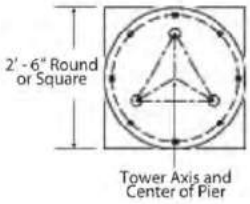
1. Tower designs are in accordance with ANSI/EIA-222-F. Wind speeds indicated as fastest mile [3-second gust].
2. All towers must have "fixed bases" with both bracket elevations. Pinned bases must not be used.
3. Designs assume one 5/8" transmission line on each face (total=3), symmetrically placed.
4. Antennas and mounts assumed symmetrically placed at tower apex.
5. Allowable antenna areas assume all round antenna members.
6. Allowable flat-plate antenna areas, based on EIA RS-222-C, may be obtained by multiplying areas shown by 0.6.
7. All brackets are to be ROHN (P/N HBUTVRO).
8. The interface of tower brackets to supporting structure is to be designed by others and must support a minimum horizontal force of 815 lbs.
9. Foundation designs are in accordance with ANSI/TIA/EIA-222-F, "Structural Standards for Steel Antenna Towers and Antenna Supporting Structures", Section 7, for "Normal" soil conditions. "Normal" soil is defined as dry, cohesive soil with an allowable net vertical bearing capacity of 4000 PSF and an allowable net horizontal pressure of 400 PSF per linear foot of depth to a maximum of 4000 PSF.

Antenna Supporting Structures

Refer to pages 147-153 for General Installation and Foundation Notes.

FOUNDATION INFORMATION



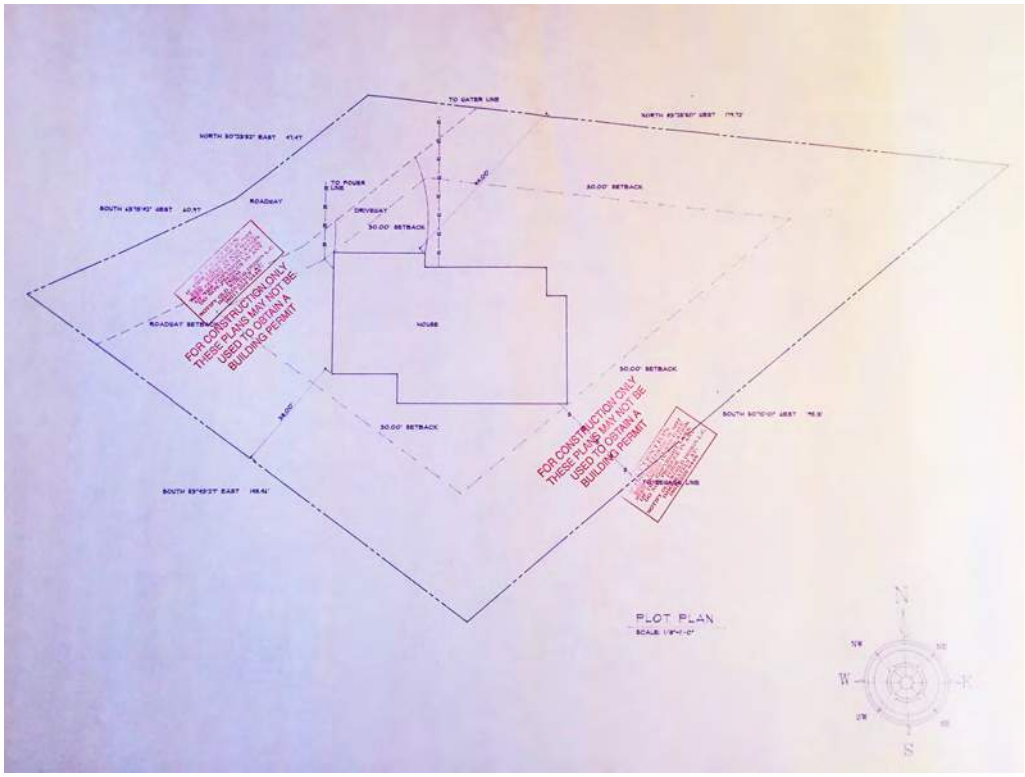


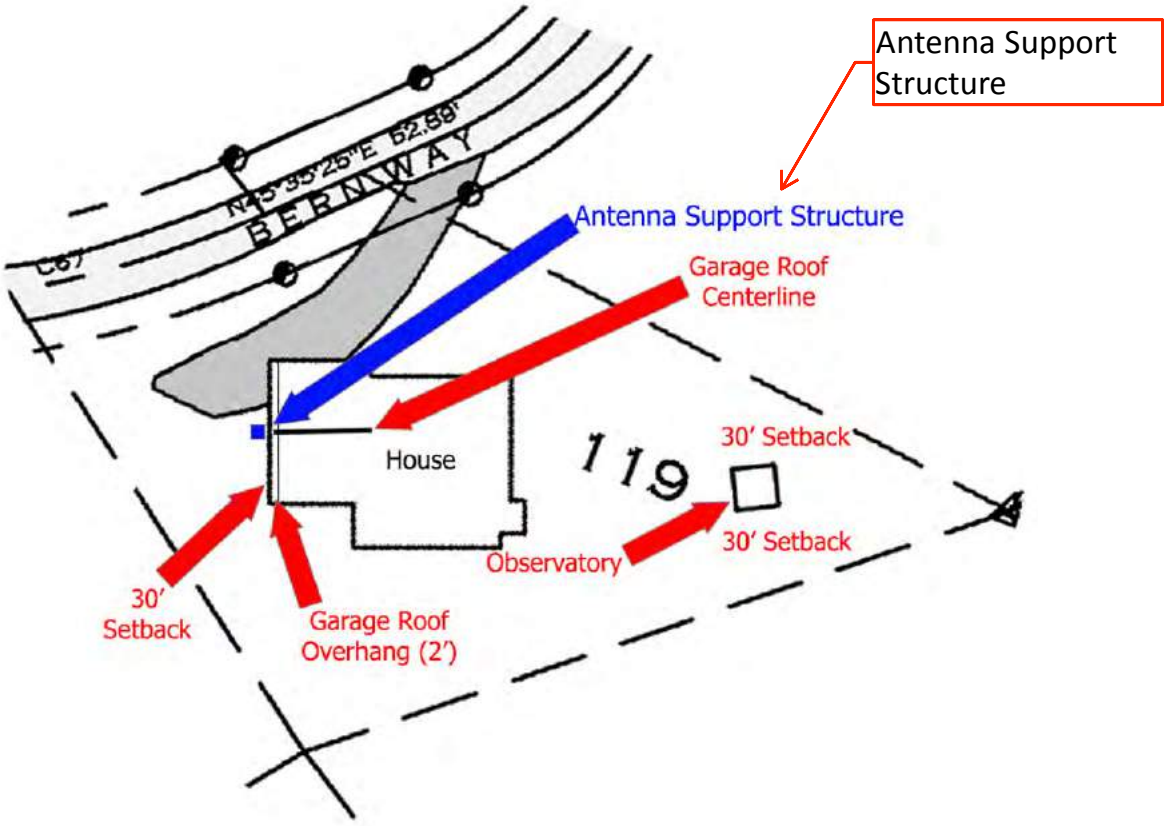
VOLUME OF CONCRETE

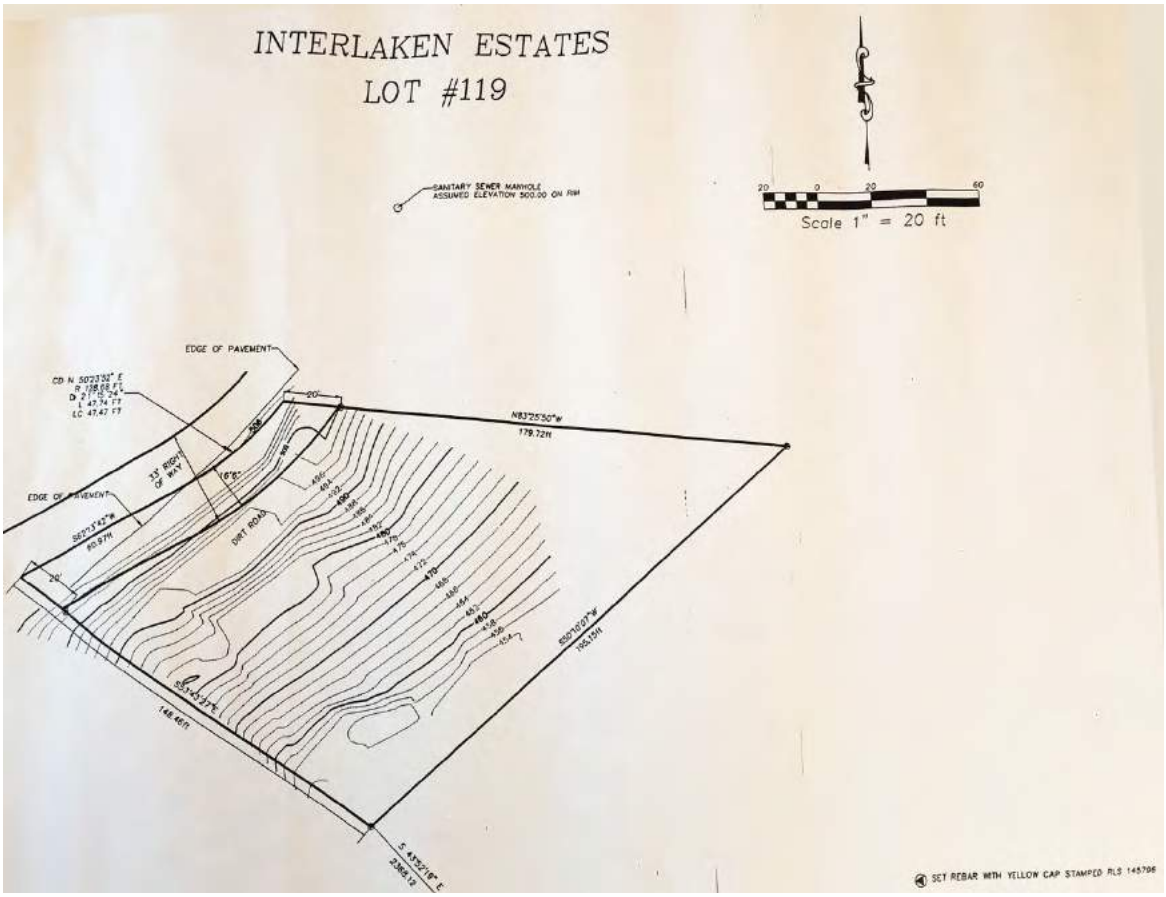
Square Pier = 1.0 cu. yds.
Round Pier = 0.8 cu. yds.

This information is available on Rohn's website <http://www.rohnnet.com/bracketed>.

SITE PLAN


PLOT PLAN
FOR CONSTRUCTION ONLY
THESE PLANS MAY NOT BE
USED TO OBTAIN A
BUILDING PERMIT


Antenna Support Structure
N15°35'25"E 52.59'
RUNWAY
C67
Antenna Support Structure
Garage Roof
Centerline
House
119
30' Setback
30' Setback
Observatory
30'
Setback
Garage Roof
Overhang (2')



g) If tower is approved, will it be erected as a stand-alone tower or attached to your home?

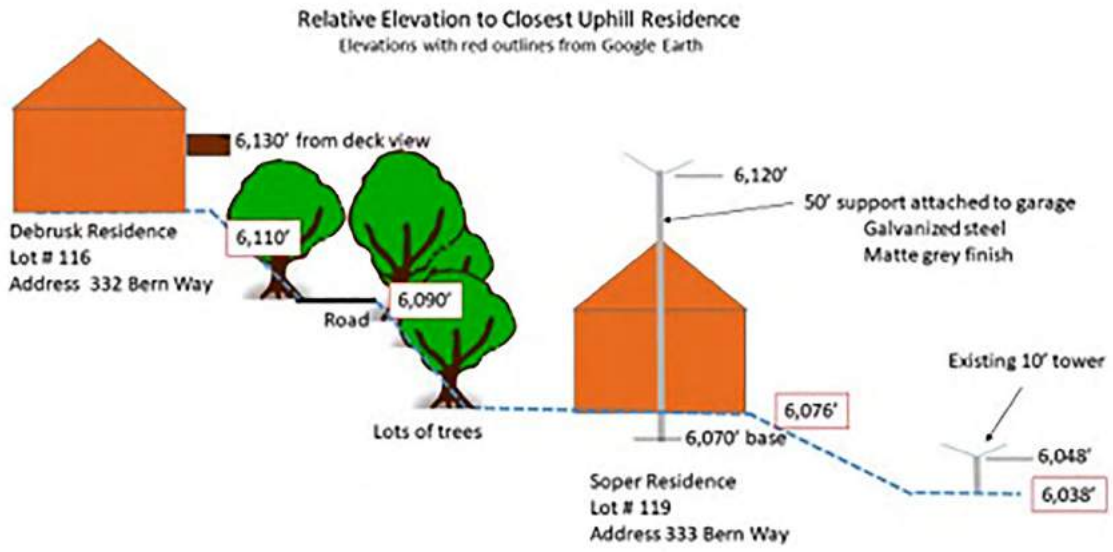
As described above, the structure will be attached to my home

h) If tower is approved it must be screened w/ evergreen or foliage coverage.

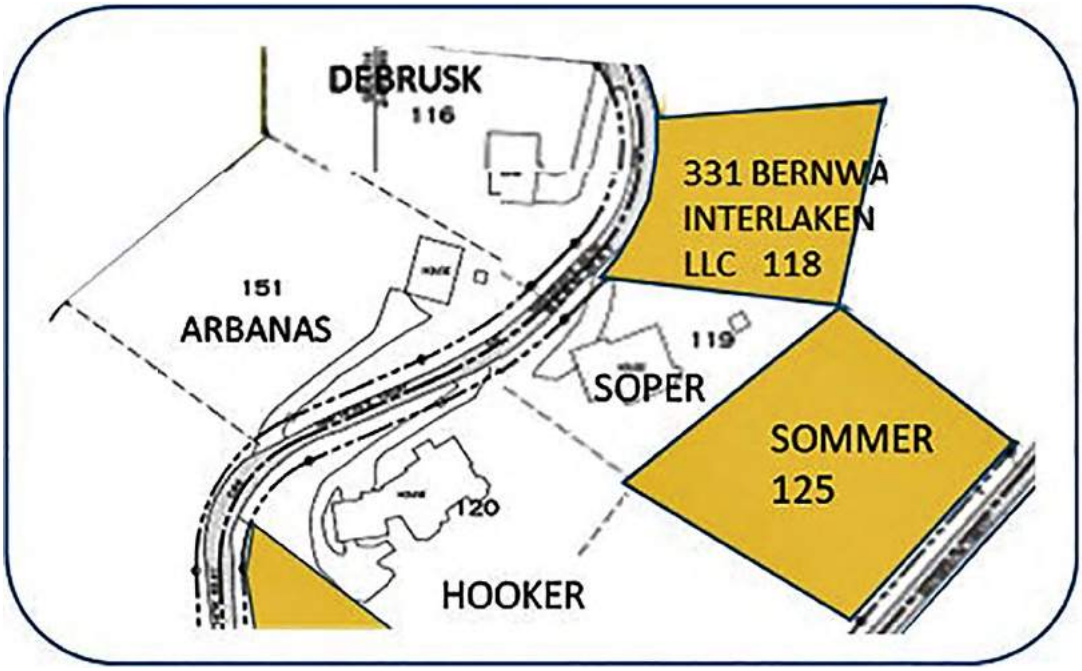
FCC further ordered that Town's regulations be the very minimum required, "so that such regulations will not impinge on the needs of amateur operators to engage in communications."

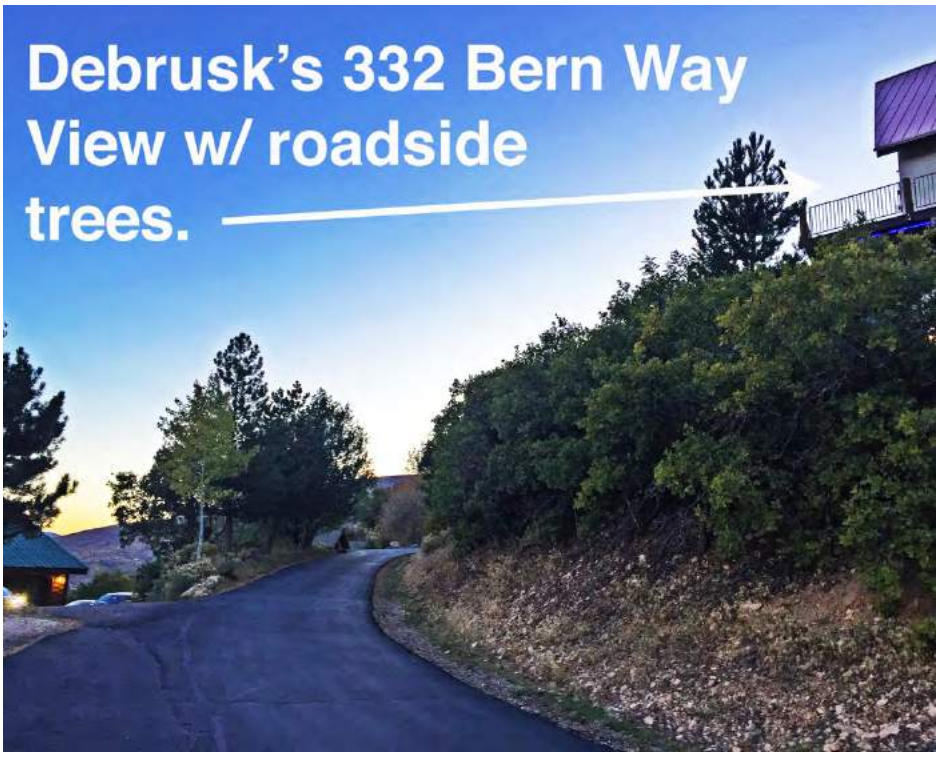
In addition, the addition of evergreen or foliage would make the antenna support structure far more visible. The structure alone consists of three legs of galvanized steel (flat gray) supports with 5/16-inch lattice of galvanized steel rod to create a 11-inch triangular support.

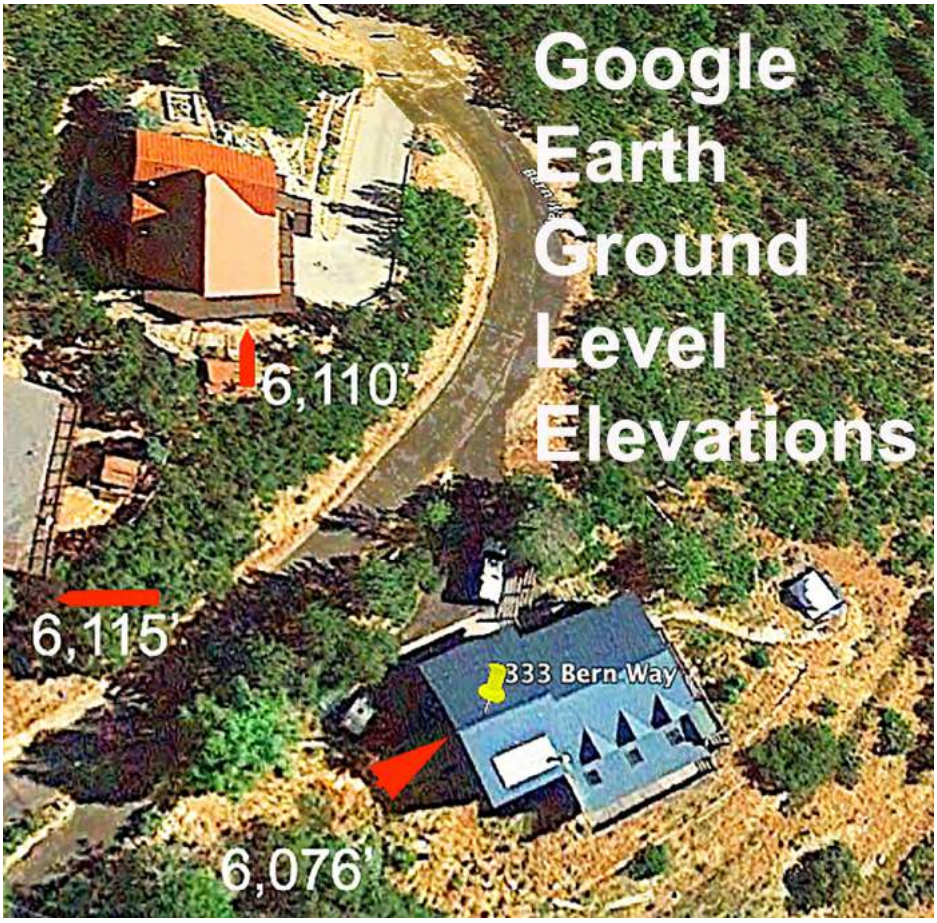
i) If tower is approved it must be placed in a location that does not impede other homeowners views.



The antenna support structure should be a minimal visual obstruction to other homeowners' views because of the steep slope of the terrain, the fact it will be connected to my home, and because of tall trees along the road at the top of my property.




Debrusk's 332 Bern Way
View w/ roadside
trees.


Google
Earth
Ground
Level
Elevations
6,110'
6,115'
333 Bern Way
6,076'

The FCC rejected balancing tests, stating the local authority may NOT balance the interests of the community against those of the amateur, as the FCC has already done the balancing and issued a Federal rule.

The FCC further ordered that Town's regulations be the very minimum required, "so that such regulations will not impinge on the needs of amateur operators to engage in communications." See the State of Utah Code attached as an appendix to this application.

j) Will you regularly participate in disaster preparedness training exercises and drills?

Yes. Amateur radio operators are often called upon in disaster or other emergency situations to provide communication when other services, including the internet and cellphone services is no longer available.

It is my goal to provide communications to this community in an emergency situation. I have an automatic battery backup power supply, two generators, and a Teardrop Camper all capable of supporting communications in a disaster or emergency.

k) How will you document and communicate your participation in disaster preparedness to the town (annually) and clarify how this benefits the Town?

While amateur radio operators are granted certain rights because they may individually or collectively, provide communications in disaster and / or emergency situations. However, no amateur radio operator can be obligated by contractual or other means to provide that communications.

While I have no formal plans to document and communicate my disaster preparedness to the Town, I can provide informal, verbal updates on my emergency operations capabilities, if and when requested.

l) Are you part of any of the following:

FEMA's Citizen's Corps	YES / **NO**
Community Emergency Response Teams (CERT)	YES / **NO**
ARRL's Amateur Radio Emergency Service® (ARES ®)	YES / **NO**
SKYWARN	YES / **NO**
Military Affiliate Radio Service (MARS)	YES / **NO**
RACES (radio amateur civil emergency service)	YES / **NO**

No. I explored joining both ARES and MARS, but am unable to participate because my current antenna height prevents me from communicating with other stations, especially through the local repeater, essential for disaster and emergency communication.

m) A Special Use Permit is granted only for the intended use stated by the applicant and granted exclusively to the applicant. This special use permit terminates when the property changes ownership and/or if the antenna is no longer actively used for its intended purpose. The applicant will be responsible for removing the structure and restoring the affected property to its condition prior to installation or modification of the antenna.

I agree. I request that the Town allow any amateur radio antenna support structures to be included in home sales to another, active amateur radio operator for continued use.

ACKNOWLEDGEMENT OF RESPONSIBILITY

This is to certify that I am making an application for the described action by the Town and that I am responsible for complying with all Town requirements with regard to this request. This application should be processed in my name and I am a party whom the Town should contact regarding any matter pertaining to this application.

I have read and understood the instructions supplied by Interlaken Town for processing this application. The documents and/or information I have submitted are true and correct to the best of my knowledge. I understand that my application is not deemed complete until a Town Administrator has reviewed the application and has notified me that it has been deemed complete.

I further understand that additional fees may be charged for the Town's review of the proposal. Any additional analysis required would be processed through the Town's staff with an estimate of time/expense provided prior to an authorization with the study.

Signature of Applicant: _____ Date: Oct. 28, 2017

Name of Applicant: Michael B. Soper

Mailing Address: P.O. Box 40, Midway, UT 84049

Phone: 435-654-5896 (h) 435-602-0206 (c) Fax: _____

Email: msoper@teamsoper.com

AFFIRMATION OF SUFFICIENT INTEREST

I hereby affirm that I am the fee title owner of the below described property or that I have written authorization from the owner to pursue the described action.

Name of Owner: Michael B. Soper

Mailing Address: P.O. Box 40, Midway, UT 84049

Street Address/ Legal Description of Subject Property:

333 Bern Way, Midway, UT 84049

Interlaken Estates, Parcel III,m Lot #119

Signature: _____ Date: Oct. 28, 2017

1. If you are not the fee owner attach a copy of your authorization to pursue this action provided by the fee owner.

2. If a corporation is fee titleholder, attach copy of the resolution of the Board of Directors authorizing the action.

3. If a joint venture or partnership is the fee owner, attach a copy of agreement authorizing this action on behalf of the joint venture or partnership.

Please note that this affirmation is not submitted in lieu of sufficient title evidence. You will be required to submit a title opinion, certificate of title, or title insurance policy showing your interest in the property prior to Final Action if requested by the Town.

Entry No. ...568 Recorded at request of Burton M. Todd Fee 5.00
Date ... 1968 ... Ezra Van Wagoner ... Book 86 Page 36-37
By Mary S. Chipman ...

RESERVATIONS, RESTRICTIONS, AND PROTECTIVE COVENANTS PERTAINING TO INTERLAKEN ESTATES SUBDIVISION

THIS AGREEMENT to convey is subject to the following restrictions which will subsequently be filed as restrictive covenants relating to the INTERLAKEN ESTATES SUBDIVISION.

NOW, THEREFORE, in order to protect the natural beauty and to develop a harmonious and well-regulated summer home area, and for the benefit and protection of the present owners of the property and of future owners of various tracts and lots therein, it is, therefore, declared by the owners that all lots or tracts within the above-described property are held and shall hereafter be sold, conveyed, leased, occupied, mortgaged, and held subject to the following restrictions, covenants, and agreements between the owners and the various subsequent owners and purchasers of said lot or tracts, as between themselves, their heirs, assigns, and successors, and to observe the same for a period of fifty (50) years from this date.

All of said restrictions, conditions, covenants, and agreements shall be made for the direct, mutual, and reciprocal benefit of each and every lot or tract included in the above-described property and shall be intended to create mutual and equitable servitudes upon each of said lots or tracts in favor of each of the other lots or tracts, and to create reciprocal rights and obligations between the respective owners of all of said lots or tracts and to create a privity of contract and estate between the owners, their grantees, their heirs, successors and assigns and shall operate as covenants running with the land.

The undersigned, its successors or assigns, or any owner or owners, their heirs, successors, or assigns shall have the right to sue for and obtain an injunction prohibitive or mandatory to prevent the breach of or to enforce the above restrictions. This right shall be in addition to the ordinary legal actions available hereunder, providing that the failure to enforce any of the restrictions, agreements, or covenants herein shall not operate as a waiver of the right to enforce them:

1. No buildings other than one dwelling house and one garage shall be erected on the lots hereby conveyed; no other structures of any kind, type, or style whatsoever shall be erected or placed thereo

2. In order to assure reasonably attractive homes and desirable over-all appearance, a Building Committee shall be set up, composed of a representative of Interlaken Estates and two other lot owners, appointed by Interlaken Estates initially for a two-year period, which lot owners and representatives shall thereafter be appointed for two-year terms by majority votes of the Committee, and all building plans for the lots shall be approved by a majority of that committee, before construction starts. There shall be no minimum cost required.

3. All dwelling houses erected on the premises hereby conveyed shall have inside plumbing and shall have proper sewage connections. No outbuildings shall be constructed or used for waste or sewage purposes.

4. No temporary dwelling or structure of any kind shall be erected on the premises. No trailer house or similar portable dwelling unit shall be kept or occupied on any lot or tract except while construction of a dwelling on that lot or tract is in progress.

5. No dwelling house or garage shall be erected or placed on the premises hereby conveyed nearer than 30 feet from the exterior line of said premises.

6. No excavating shall be done on said premises further than is necessary to place said lot on grade or for building a dwelling and/or garage.

7. No business of any description shall be conducted upon said premises, or in connection therewith.

8. No animals or fowls shall be kept, raised, or housed upon any lot or tract, excepting the usual house pets.

9. The property will not be used in any manner which will be loud and boisterous, such as to disturb the peace and quiet of the aujoining neighborhood.

10. The lot owner will provide closed containers for garbage, paper, and other waste, and will not permit the same to accumulate on the property.

11. All tracts or lots shall be maintained in their original size and shape, and no lot or tract shall be divided or subdivided or partitioned.

12. No firearms shall be used within the boundaries of Interlaken Estates. Use of firearms in the Wasatch State Park areas surrounding Interlaken Estates is prohibited by law.

13. No fires shall be made on any lot or tract in Interlaken Estates except in incinerators, firepits, fireplaces, or other structures providing adequate protection.

14. Water provided through the pipeline system installed by Interlaken Estates will be used for culinary purposes only. Other

water uses must be provided for by irrigation, except by special permission of the officers of the water, roads, and sewer committee of Interlaken Estates.

Should any of the restrictions, covenants, or agreements herein contained be found to be invalid, such invalidation shall not in any way affect the remaining restrictions, covenants, or agreements.

IN WITNESS WHEREOF, we have set our hands and seals hereto this 7th day of November, 1972.

INTERLAKEN ESTATES

By Burton M. Todd

_____
Buyers

_____
Agent

(Agreement to be signed in duplicate; one copy to be retained by buyers, one by agent.)

Appendix 03

Subject: On-going questions & ever-evolving criteria . . .

Date: Tuesday, November 28, 2017 6:10:00 PM Mountain Standard Time

From: Mr. Michael B. Soper

To: Interlaken Clerk

CC: Mr. Greg & Sarah Harrigan, Scott Neuner, Ms. Sue O'Nan, Mr. Chuck O'Nan, Ms. Lisa Simpkins, Ms. Elizabeth Hora-Cook Ph.D., Ms. Susanna Littell, Mr. John & Susanna Dunty, Laura & Bob Marshall, Mr. Kenneth Lougee

Hi Bart, cc: Town Council, Planning Commission & Ken Lougee

Your question is another example of why your approach on behalf of our Town is flawed.

Your questions and requests are ever-evolving as are the parameters by which the Town would judge my SUP application to be approved.

Today's Question: Do you know how the antenna would be connected to the antenna support structure?

Yesterday's Question: Do you know the weight of your hex bean antenna?

If you were asking about antenna wind-load, I agree — you asked the wrong question. It has very little to do with weight. It has everything to do with the wind exposure area. The HexBeam, one of the least visible high frequency antennas, has a wind load of 5 sqft . . . much less than beam antennas erected by many other amateur radio operators.

Many amateur radio operators would use a 10-foot section of mast to put the antenna well above the antenna support. In my case, I would use a TIA-222 approved aircraft aluminum mast that extends approximately 1-foot above the antenna support. I the HexBeam and minimal / short mast precisely to minimize the impact of my antenna.

The Town's existing antenna codes (11.9) are likely to be interpreted as applying to commercial microwave, commercial cell phone and commercial radio applications. It is unlikely that 11.9 would be judged to include amateur radio, especially given the Town's existing Land Use Codes ignore and FCC / Federal regulations and the State of Utah Codes that supersede those of Municipalities.

I believe that my antenna and antenna support will not be judged as a building or structure like a home, eliminating the need for detailed drawings such as those required for a house. Given the Town has approved homes, sheds, and concrete landscaping retaining walls applications with far less detail, I believe the Town is discriminating against me, placing an undue burden on application and my time.

I have been more than patient in responding to your continuing questions, but you and the Town Council have answered only one of my questions. Here's a summary of those questions and requests for additional information to which I am awaiting answers:

- Please provide me confirmation that the Interlaken Estates CC&R's supersede the current Town ordinances.

- Please highlight the definition of "structure" in the Interlaken Estates CC&R's and in our Town's ordinances and Land Use Codes and explain how an antenna can be defined as a structure.

- Please provide documentation from the Town Council showing ordinances that require that Interlaken Town to regulate based on the Interlaken Estates CC&R's ("An additional concern is the Interlaken Estates CC&Rs that prohibit the construction of a structure besides "one dwelling house and one garage.").

- If the Interlaken Estates CC&R's are still in effect and, given the CC&R's make no limitations on antennas or how they might apply with or without the FCC regulations, please provide a copy of your legal opinion as to why those CC&R's are of concern to the Town.

- Does the Town Council believe that publically acknowledging owner-against-owner CC&R-based lawsuits is in the best interests of all Town members, including myself?

- Please provide a copy of any / all e-mails sent to my neighbors by you, the Mayor, or members of the Town Council prior to the November 6th Town Council Meeting.

- Please provide evidence the Town Clerk was given authority, during a Town Council meeting by vote of the council, to prepare and disseminate this information without prior review by me.

- If the Town recognizes the Federal statute / regulation, including both of the above limitation on Interlaken Town and other municipalities, how do you explain the never-ending questions and long protracted process?

- Please explain the ordinance that grants the town the right to examine the evidence you refer to in the first sentence ("… the Town can examine the evidence regarding tower height, location, and issues regarding the visual impact of the tower.").

- Please provide me with the Town Council Minutes documenting the Council's decision to disregard the recommendation of its Planning Commission and assign authority for my SUP review and recommendation to the Town Clerk. In addition, please supply the Minutes showing passage of a motion that the Town Council accepted the Town Clerk's review and recommendation.

I expect to receive the Town Council's response to the above questions and others submitted in my e-mail of November 14, 2017, in the next 16-days.

Best wishes, Michael

Michael B. Soper [redacted]

Appendix 04

Date: Sat, Jul 29, 2017 at 2:02 PM
Subject: Amateur Radio Antenna . . .
To: "Mr. Bart Smith" <dont_know@msn.com>
Cc: "Ms. Lisa Simpkins" <lksimpkins7669@gmail.com>

Hi Bart, cc: Lisa

A couple of years ago, as I moved into retirement, I renewed my amateur (ham) radio license (*W7EIS*). My goal was to return to the hobby I enjoyed at age 14 . . . and to provide emergency communication to the Interlaken community and the valley in the event of a disaster.

I've used my existing antenna masts, but have discovered it's close to impossible to communicate with others. Experienced operators have told me that the only solution is to raise my antenna.

Having volunteered for the Land Use Committee, I reviewed my documents and noted the exception for amateur radio antennas: "*Section 11.9.3-B-1; Exceptions: This Chapter shall not govern any tower, or the installation of any antenna, that is under the maximum building height of the zoning district in which such structure is located and which is solely used by a federally licensed amateur radio station operator.*"

As a result, I purchased an antenna support structure last year that will connect it to the peak of the roof on the west-side of my home. For reasonable reception / communication in normal and emergency situations, the antenna will be 20 to 30-feet above the peak of my metal roof – this translates into roughly 38 to 48 feet above ground level. Currently there is an antenna at the roof peak.

Given the new antenna height, the steep slope of the hillside, and the tall pine trees along Bern Way, I don't expect this antenna to be any significant visual impact. This structure will also allow me to remove one or two of my existing antenna masts.

While I don't quite understand how maximum building height applies or how it's calculated on Interlaken's severe slopes, I wanted to share my plans as I move forward.

Because my current antenna severely limits my ability to communicate with other amateur radio operators, I'm moving forward to complete the installation before Fall / Winter.

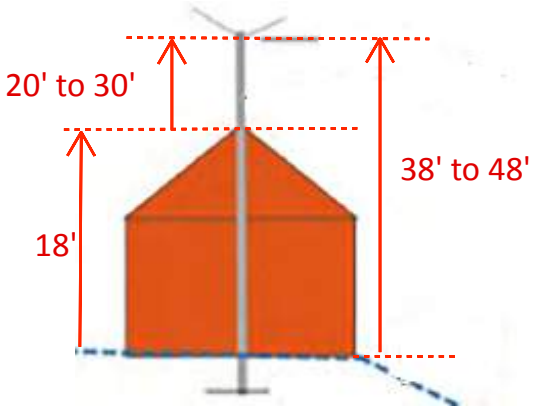
Best wishes, Michael

Michael B. Soper P. [redacted]

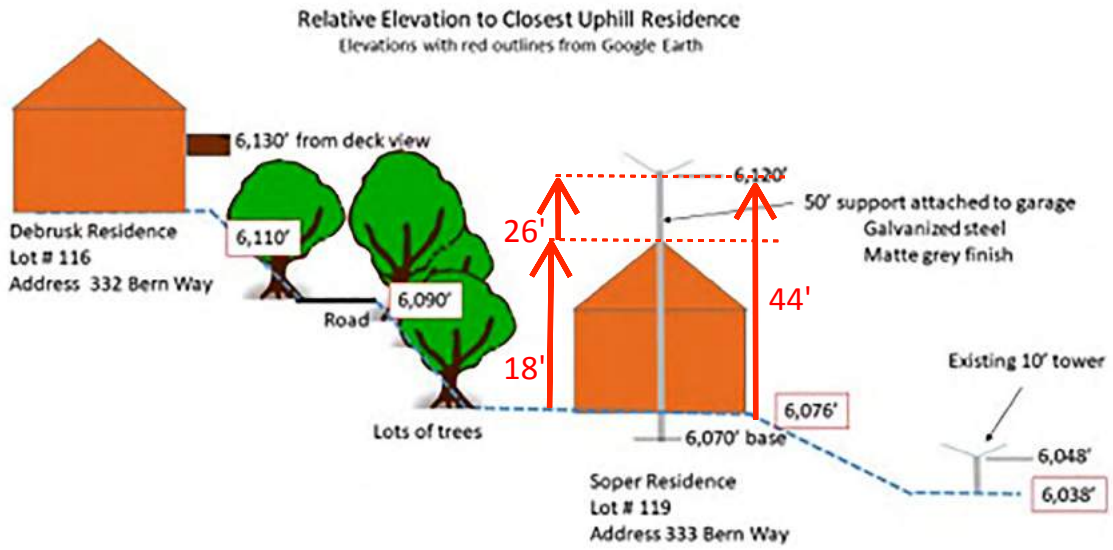
Appendix 05

Soper Email July 29, 2017

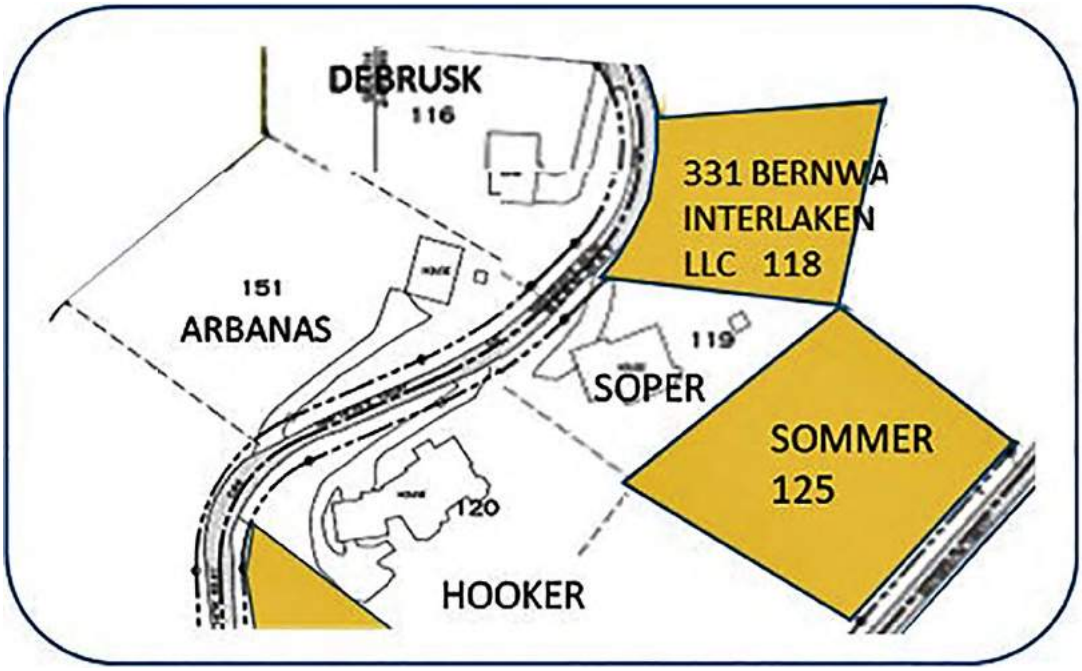
…the antenna will be 20 to 30-feet above the peak of my metal roof - this translates into roughly 38 to 48 feet above ground level.



i) If tower is approved it must be placed in a location that does not impede other homeowners views.



The antenna support structure should be a minimal visual obstruction to other homeowners' views because of the steep slope of the terrain, the fact it will be connected to my home, and because of tall trees along the road at the top of my property.



7. Approval of 09/27/17 Council Meeting Minutes.

Motion: Council Member Sue O'Nan moved to approve the 09/27/17 meeting minutes.
Second: Council Member Harrigan seconded the motion.
Discussion: no discussion
Vote: The motion was approved with the Council Members unanimously voting Aye.

8. Soper - Request for Reasonable Accommodation for Radio Tower Application

Clerk Smith presented a staff report, dated 11/3/17, entitled "Review of Mr. Soper's application for reasonable accommodation to construct an amateur radio support structure." The report is attached to these minutes. In summary, Smith recommended "Mr. Soper and the town explore alternative heights and locations for a radio tower before the Town formally considers his request." Following his presentation, Mayor Simpkins opened the meeting to public comment.

Heidi Knight, 327 Bern Way. Heidi noted that her dad was a HAM radio operator and she understands the value a HAM radio may provide. She also expressed her opposition to the proposed radio tower. She believes that "a 55 foot radio tower would greatly impact the character of our town and quite possibly destroy the view shed for other residents of the mountain." She requested Mr. Soper do a balloon fly to assess the visual impact of the tower. Heidi's letter is attached to these minutes.

Wayne DeBrusk, 332 Bern Way. Wayne's home is directly across the street, uphill from the Soper home. Wayne noted that his son, Chris, has written a letter to clerk Smith expressing his views on the tower. Chris bought the house specifically for the views it provides. This letter is attached to these minutes. Both Wayne and his son are concerned that the tower would obstruct the view from both the main house and the hot tub located down the hill. Both are totally against the tower as proposed.

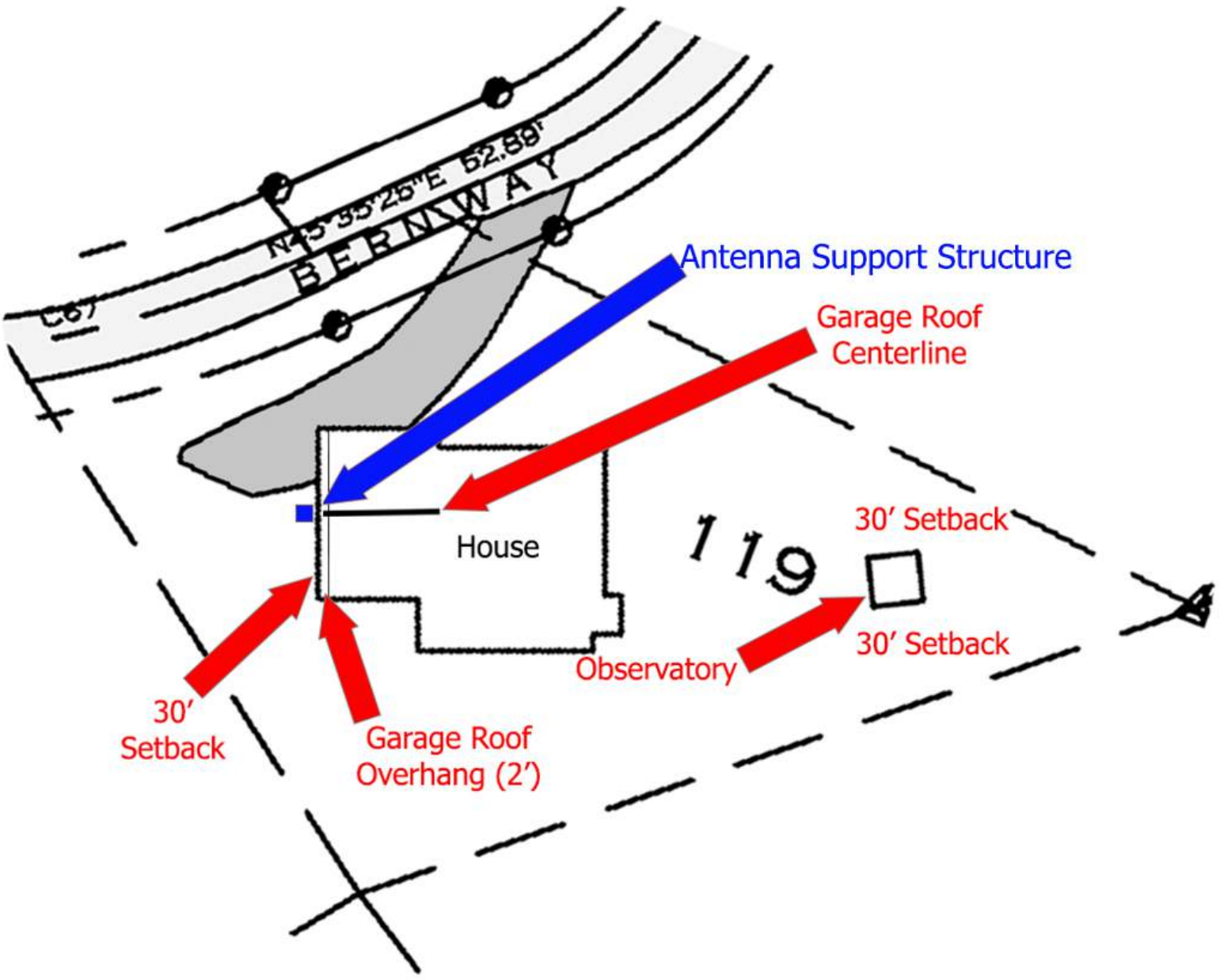
Glenn Arbanas, 334 Bern Way. Glenn expressed that the tower would destroy the view. He bought the home because of the view. He's heard the argument that it wouldn't be taller than the trees, but it's not a tree, it's a man-made structure.

Michael Soper, 333 Bern Way. Michael asked how much time the group had spent asking him questions. Harrigan asked him if his description of the tower, as 20 to 30 feet above the peak of his roof was accurate. Michael stated yes, that was accurate. He expressed that he didn't understand why the google earth elevations didn't work. The structure would be installed below his driveway level. At least half of the structure would be below the roof peak. Simpkins asked how tall his house was. Michael responded that he believed his roof peak was 26 feet high above the driveway, and the tower would be installed 4 or 5 feet below the driveway.

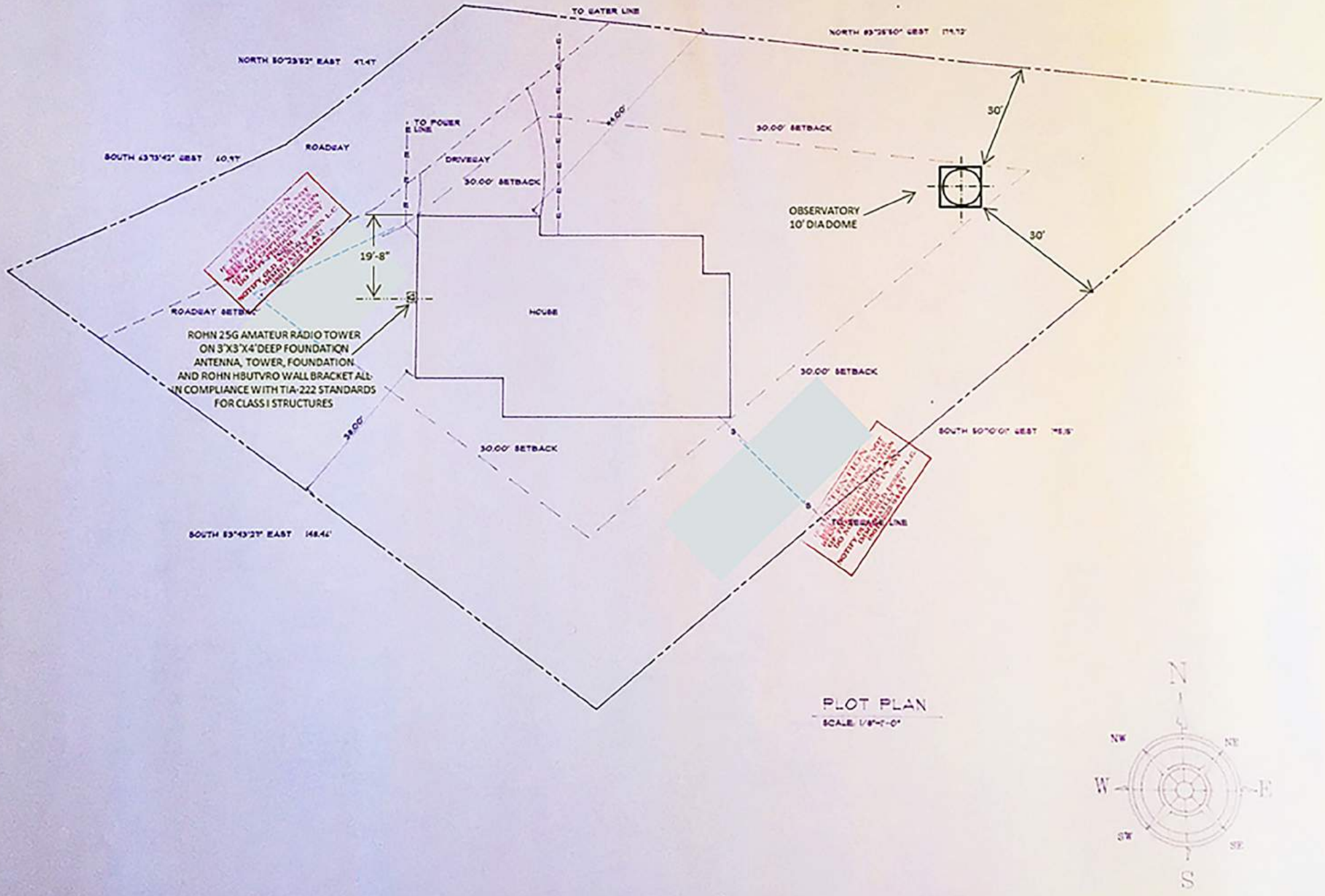
Chuck O'Nan asked Michael how many antennas he currently has on his lot. He stated that he has 4 antennas on his property. Two are used at the end of a 30 foot dipole antenna. One will be taken out. The fourth one was knocked down by a micro-burst, but will be installed on the proposed tower. Chuck asked how many antennas or masts would be installed on the proposed tower structure. Michael stated that the Hex Beam antenna would be installed at the top of the tower, on top of a short mast section, another 4.5 foot antenna would be mounted on the side.

Harrigan asked if Michael would agree to float a balloon to assess the visual impact. Michael agreed. Harrigan expressed his concern about the impact of such a tower on property values. Michael stated that there is a study that has shown that there has never been an impact on real estate values by a tower. Harrigan expressed that no one wanted to stop him from pursuing his hobby. He has neighbors who are concerned that the tower will impact their views. Harrigan asked Michael if he had looked at other sites on his property to accomplish his communication goals, through the use of repeaters for example. Michael responded that he didn't know if the town had funding for repeaters, but he would

Appendix 09


BERNWAY
N45°35'25"E 52.89'
C67
Antenna Support Structure
Garage Roof
Centerline
House
119
30' Setback
30' Setback
Observatory
30'
Setback
Garage Roof
Overhang (2')

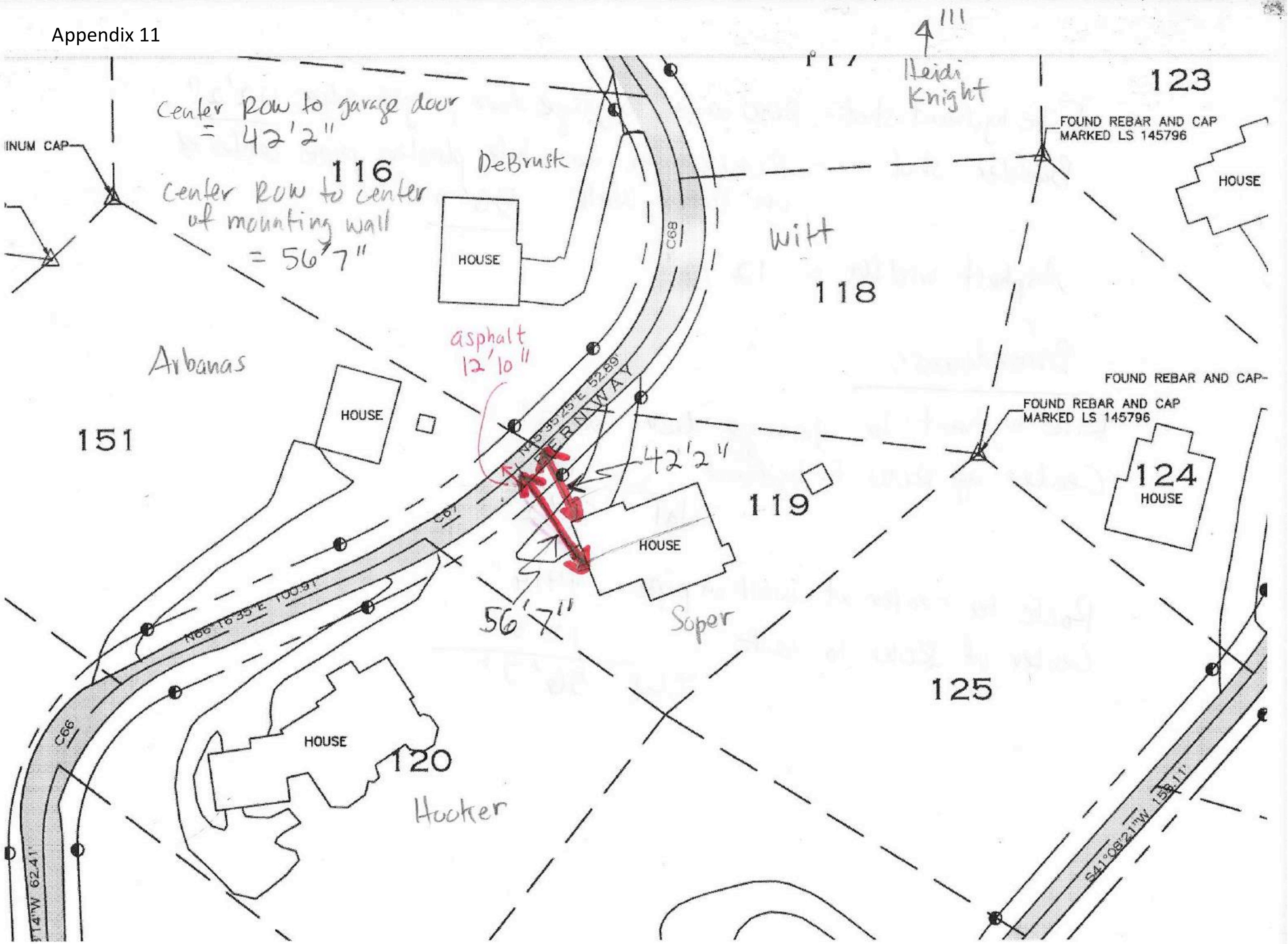
Appendix 10



PLOT PLAN

SCALE 1/8"=1'-0"

Appendix 11


4'''
Heidi Knight
123
Center Row to garage door = 42'2"
INUM CAP
116
DeBrusk
Center Row to center of mounting wall = 56'7"
HOUSE
C68
Witt
118
FOUND REBAR AND CAP MARKED LS 145796
HOUSE
asphalt 12'10"
Arbanas
HOUSE
151
N45°35'25"E 52.89'
FERN WAY
FOUND REBAR AND CAP
FOUND REBAR AND CAP MARKED LS 145796
42'2"
124
HOUSE
119
C67
HOUSE
N66°16'35"E 100.91'
56'7"
Soper
125
C66
HOUSE
120
Hooker
S41°08'21"W 158.11'

Interlaken Town
P.O. Box 1256
Midway, UT 84049
(435) 565-3812

December 11, 2017

From: Bart Smith, Interlaken Town Clerk
Staff Report: Review and recommendation for Mr. Soper's application for reasonable accommodation to construct an amateur radio support structure

To: Interlaken Town Council

This report provides an update on the status of the application submitted by Mr. Soper for reasonable accommodation to construct an amateur radio antenna support structure. The original status report pertaining to this application, dated November 3, 2017, was presented to the council and Mr. Soper in its final form on November 6, 2017 at the Interlaken Town Council meeting. It is the intent of this current report to provide the council with an update on the issues raised in the earlier report, and to make a recommendation to the council regarding the application.

It is important that the council understand the implications of the FCC regulation (PRB-1) on its decision regarding the issue of "reasonable accommodation." Based on an initial review of case law, the regulations, FCC opinions, and other materials, by our town attorney, the Town is obligated to make a reasonable accommodation to Mr. Soper's request; however, the town is not obligated to approve the applicant's desired tower configuration. The Tenth Circuit Court of Appeals, which has jurisdiction over Utah, has held:

> Even though the FCC has the power to enact regulations which would preempt conflicting local ordinances, it specifically stated "[t]he cornerstone on which we will predicate our decision [PRB–1] is that a reasonable accommodation may be made ***between the two sides***." In fact, in PRB–1 the FCC expressed its desire to give deference to the local authorities: "We are confident ... that state and local governments will endeavor to legislate in a manner that affords appropriate recognition to the important federal interest at stake here." Therefore, the FCC has decided to permit local regulatory behavior which accomplishes the local agency's legitimate purposes through the minimum practicable regulation.
>
> . . .
>
> PRB–1 recognizes that regulations affecting the placement, screening and

> height of antennas are permissible when based on health, safety or aesthetic considerations, as long as they reasonably accommodate amateur communications with the minimum practicable regulation necessary. Thus, the County's justification of preserving the aesthetic views was acknowledged by PRB–1 as a legitimate local concern.

Evans v. Bd. of County Comm'rs. Of Boulder County, 994 F.2d 755, 762 (10th Cir. 1993).

The main concerns regarding the proposed tower configuration, as noted in the earlier staff report, can be summarized as follows:

- Aesthetic concerns – the tower's visual impact on views from neighboring lots
- Health and safety – potential hazards and safety risks due to the tower's size, location, and proximity to adjacent lots and the public roadway right of way
- Necessity for the proposed structure, including height and placement – alternative proposals for a tower/antenna configuration that would provide adequate communication that would address the aesthetic and health and safety concerns of the town
- Incomplete plan set – a dimensional site plan and elevation drawing have not yet been submitted. In addition, the town engineer has expressed concern that the plan set does not include necessary engineered drawings and specs to perform a plan review.

I will address each of these issues separately and summarize my recommendations at the end of the report. Additional supporting information is provided in the appendices attached to the report.

Aesthetic Concerns

In Mr. Soper's application, on page 11, Appendix A, he states that the tower:

> "…should be a minimal visual obstruction to other homeowners' views because of the steep slope of the terrain, the fact that it will be connected to my home, and because of tall trees along the road at the top of my property."

In Mr. Soper's original email request dated July 29, 2017, Appendix B, he states:

> "…the antenna will be 20 to 30-feet above the peak of my metal roof – this translates into roughly 38 to 48 feet above ground level."

In Appendix C, there are photos, facing south, taken from two neighboring homes: 332 Bern Way and 334 Bern Way. Both photos were taken from the deck of the homes, in a typical line of sight. The Soper home appears in both photos with a green metal roof, partially obscured by a stand of conifers located on the south side of Bern Way. The proposed tower would be attached to the west side of the house, centered on the west wall, extending past the peak of the roof. According to Mr. Soper's description of his tower, as 20 to 30 feet above the peak of his roof, or 38 to 48 feet above ground level, that would indicate that he estimates the height of the roof peak as 18 feet from ground level. If that is the case, then the tower would extend upwards somewhere between a minimum height of twice the roof peak height in the photo, to approximately two and two-thirds the roof peak height in the photo. The bottom portion of the tower would be blocked from view by the conifers, but a significant portion of the tower would be viewable from both homes. Without accurate data describing the measured height of the building, I can only estimate the height of the tower structure in these photos. Using an approximate scale based on the building height, I've indicated a best estimate of the minimum height of the tower on the photos. Note that the antenna structure mounted on top of the tower, described on the company's website as having a 10.8 foot turning radius, may add additional height, as well as create a larger visual impact.

Mr. Soper provided a diagram in his application, which shows an estimated elevation drawing for the proposed tower, Appendix A. In the application, Mr. Soper states that the elevation data was acquired from Google Earth. In my previous status report, dated 11/3/17, I stated:

> "The elevation data provided by Mr. Soper appears to have been obtained using Google maps. This data may not accurately represent the actual elevations and relationships between the structures and sight lines. I recommend Mr. Soper provide written documentation from his neighbors, supporting his opinion that the tower would not impact their views, as well as provide more detailed information and drawings illustrating the sight lines and how the proposed tower will impact the site lines on the neighboring properties."

The inaccuracy of Google Earth topographical data is well documented on several Internet sites and case studies. In appendix D, you'll find a case study that documents these inaccuracies. Region 3 in this case study most closely approximates the terrain surrounding Mr. Soper's lot, with height variations of 25 meters or more. On page 96 of

the study, Table 1 indicates an RMS error of 5.69 meters (18.7 feet) in Region 3 terrain. Google Earth elevation data in this type of terrain is only accurate with 18.7 feet.

I have requested a dimensional site plan and elevation drawings on numerous occasions from Mr. Soper. In the 11/3/17 report, I stated:

> "The site plans shown in Mr. Soper's application do not provide an accurate, dimensional representation of the buildings, lot lines, roads, and existing antenna structures on his property. In addition, there is no dimensional drawing showing the elevation aspect of his tower in relationship to his home, neighboring homes, the placement of the tower support, or any detail regarding how the supports would be attached to the house."

Appendix E shows some of the history of my requests for a dimensional site plan. In an email sent by Mr. Soper on 10/28/17, the site plan shows no dimensional data, and Mr. Soper states:

> "Just finished my Site Plan. It's below. May not be to your standards, but it's the best I can do. As I've said before, I provided a description and longitude and latitude that would locate the 11-inch triangular antenna support structure."

In a later email dated 11/17/17, Mr. Soper attached a site plan, which he referred to as "Antenna Site Plan-FINAL." This site plan had some dimensional data with respect to his house and observatory, but lacked data showing the location of the tower with respect to lot lines and the roadway right of way. The provided plan was difficult to read and did not provide elevation data.

Mr. Soper did provide a photo of the Hex-Beam antenna he intends to mount on his support structure. In Appendix F you'll find his photo along with photo provided by the manufacturer that shows the antenna in profile. Mr. Soper has indicated that in addition to this Hex Beam antenna, other antennas may be mounted on his tower. To date, there hasn't been a representation of those antennas on any drawing or photo supplied by Mr. Soper. I believe the town should ask for clarity on the exact configuration of antennas and masts to be mounted on the tower, to adequately assess the visual impact of the final structure.

At the town council meeting on 11/6/17, Mr. Soper agreed to perform a balloon height test at the request of neighboring lot owners to demonstrate the impact of the tower

on their views. In Appendix G, the email thread indicates that Mr. Soper was initially willing to perform the test, but abandoned the project. Note that affected lot owners were given only a one-hour notice to attend the test.

Health and Safety

Without dimensional data that describes the location of the tower structure with respect to the roadway right of way and neighboring lot lines, it is difficult to determine the impact the tower might have in case of a failure in a windstorm or other severe weather. Of special concern is the Hex Beam antenna and any other structures that would be mounted on top of the tower. In the case of a windstorm, significant pressure could be exerted on these structures and if their mounting connections failed, they could be launched into the road or a neighboring lot.

Appendix H contains an email thread in which I requested more information regarding the connection of the antenna to the supporting tower. Mr. Soper declined to give any detail about the actual connection plan. This issue remains one of concern.

Appendix I contains a report authored by myself, that models the force on the Hex Beam center of mass from a wind gust of a specific velocity and duration, and the resulting horizontal flight distance in the event the antenna breaks free. There are model assumptions and simplifications factored into the flight distance calculations, but the force calculations are based on a well-accepted wind load force formula, and use data supplied by the Hex Beam manufacturer to calculate wind loads.

The table of results indicates that the Hex Beam antenna could be subject to a force of over 191 lbs. for a wind gust of 60 mph. This underlines the importance of the structural connection between the antenna mast and the tower. For this same wind speed, the horizontal travel could be as high as 117 feet, clearly enough travel to bring the antenna into the roadway right of way or a neighboring lot.

Mr. Soper has provided information that indicates that his support tower can handle an antenna area of up to 6.8 sq ft in gusts of up to 105 mph, Appendix J. The Hex Beam antenna has a wind load area of 5.1 sq ft. However, he has not provided any details as to how the support tower will be connected to his house, and if that connection is up to spec to support that wind load.

Appendix K shows an email from Josh Call, dated 10/26/17, stating his concerns:

"I have spoken with John Riley, our structural engineer, he recommends that Mr.

Soper hire a structural engineer to do the drawings and calculations. In Mr. Soper's latest email, he stated, 'I have a log home, so no worries about securing the heavy duty house bracket to framing.' Unfortunately this does not work for an engineering review, as town engineer we need to be certain that this structure will not cause structural issues to the home. I am struggling with how to communicate this with Mr. Soper, as we haven't begun official review and I can't really spend time on this without having to bill it somewhere. In answer to your question, I think it is in the town's best interest to know exactly how tall this tower will be above the home, and that should be identified in the SUP."

Necessity for the Proposed Structure

Mr. Soper responded to the 11/3/17 staff report in an email and attached document, Appendix M, commenting on specific issues raised in the report section titled "Review of the Application." In response to the recommendation that Mr. Soper explore an alternative height and location of his tower, to alleviate concerns regarding visual impact and safety, Mr. Soper responded, on page 4 and 5:

"The Town has, more than once, been provided adequate information to support the need for the requested tower height. Repeating the same answers is unreasonable."

"The town has, more than once, been provided adequate information to support the need for the requested tower location at the given elevation. Moving it to any lower position on the lot would require a taller tower to reach the same overall elevation as needed for adequate transmission and reception. Repeating the same answers is unreasonable."

Mr. Soper's application does not include any calculations that specifically show that his proposed tower height and location is the only way to achieve his desired transmission and reception.

Incomplete Plan Set

Mr. Soper's submitted plans lack the following documents that are necessary to review his application:

- A dimensional site plan, showing the measured locations and footprints of all structures on his lot, his proposed tower, the road right of way, and his lot lines.
- A dimensional elevation drawing that shows the height of his roof, the point of attachment of the tower to the house, the height of the tower and the size and location of any antennas or equipment to be attached to the tower.
- Engineered drawings and specifications necessary for Epic to do a plan review.

Mr. Soper has been asked repeatedly for the site plan and elevation drawing and has not produced a document that has measured, dimensional data.

On page 8 of Mr. Soper's response to the 11/3/17 staff report, Appendix L, Mr. Soper states in response to Epic's concern regarding lack of detail in Mr. Soper's submitted plans:

> "As explained above, the entire system, including tower, foundation and support brackets, has been designed and built to TIA-222. This satisfies any applicable codes and therefore does not require a design review by the town engineer."

Summary and Recommendations

As detailed in the above sections of this report, Mr. Soper's application is missing critical information that would allow the Town to properly evaluate his request for a reasonable accommodation to construct an amateur radio support structure. To summarize, this is the information the town needs to evaluate and make a decision regarding approval of his application:

- A dimensional site plan, showing the measured locations and footprints of all structures on his lot, his proposed tower, the road right of way, and his lot lines.
- A dimensional elevation drawing that shows the height of his roof, the point of attachment of the tower to the house, the location and height of the tower, the size and location of any antennas or equipment to be attached to the tower, and the elevation of the roadway right of way.
- A plan and drawing of the final configuration of all antennas to be mounted on the support structure.
- Engineered drawings and specifications necessary for Epic to do a plan review, including specifics regarding the tower's connection to the house and all mounted antennas and accessories connections to the tower structure.
- Evidence, including calculations, that his proposed tower configuration is the only possible configuration that would accomplish his stated communication goals. Alternatively, Mr. Soper could provide an alternative configuration that addresses the town's concerns regarding aesthetics and the health and safety risks associated with his proposed tower configuration. Mr. Soper has also not responded to requests to provide the Town with information about alternative locations for his Tower that will not adversely affect his neighbors' views. Ideally, I would like Mr. Soper to provide the Town with information from an independent third party exploring alternative locations and configurations that will allow him to effectively communicate.

These issues were raised in my earlier staff report, dated 11/3/17, Appendix M. Mr.

Soper did not adequately address the concerns expressed in that report in his response, Appendix L, and as a result, my recommendation at this time is that the council request Mr. Soper to provide the information listed above to the council, before considering a decision to approve his application.

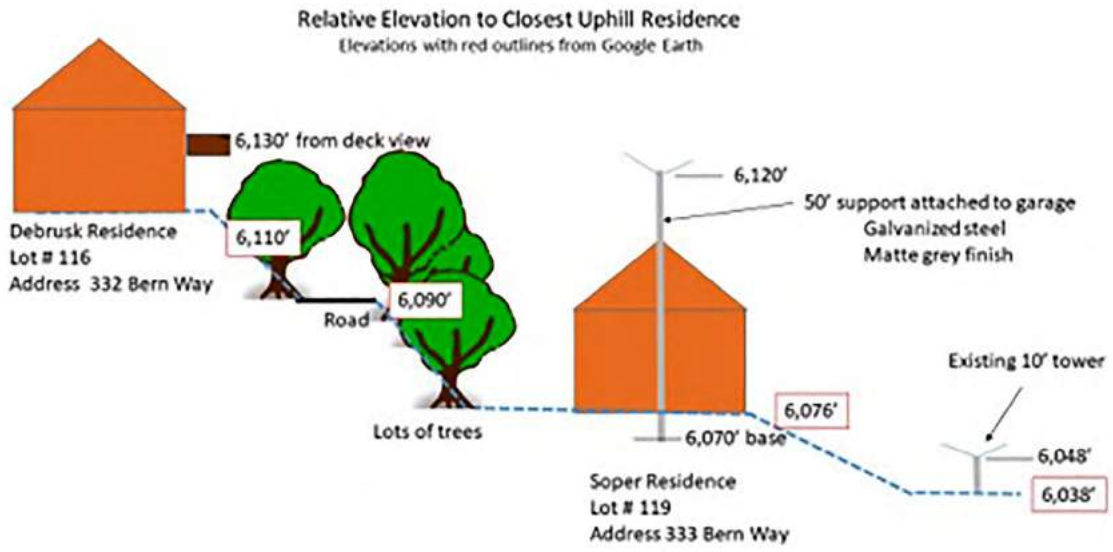
In addition, Epic has voiced their concern over the lack of detail provided by Mr. Soper's plans, and their inability to perform an adequate engineering review based on the provided information. Mr. Soper is free to communicate with Epic regarding his plans. But he has been instructed that additional time spent consulting with Epic may be charged to him directly. Mr. Soper is also free to contract with an engineer of his choosing to prepare complete plans that will allow the Town to adequately review his request. His $100 plan review fee does not include consulting fees from Epic, but only a routine plan review.

Sincerely,

Bartlett K. Smith

Bart Smith, Interlaken Town Clerk

i) If tower is approved it must be placed in a location that does not impede other homeowners views.



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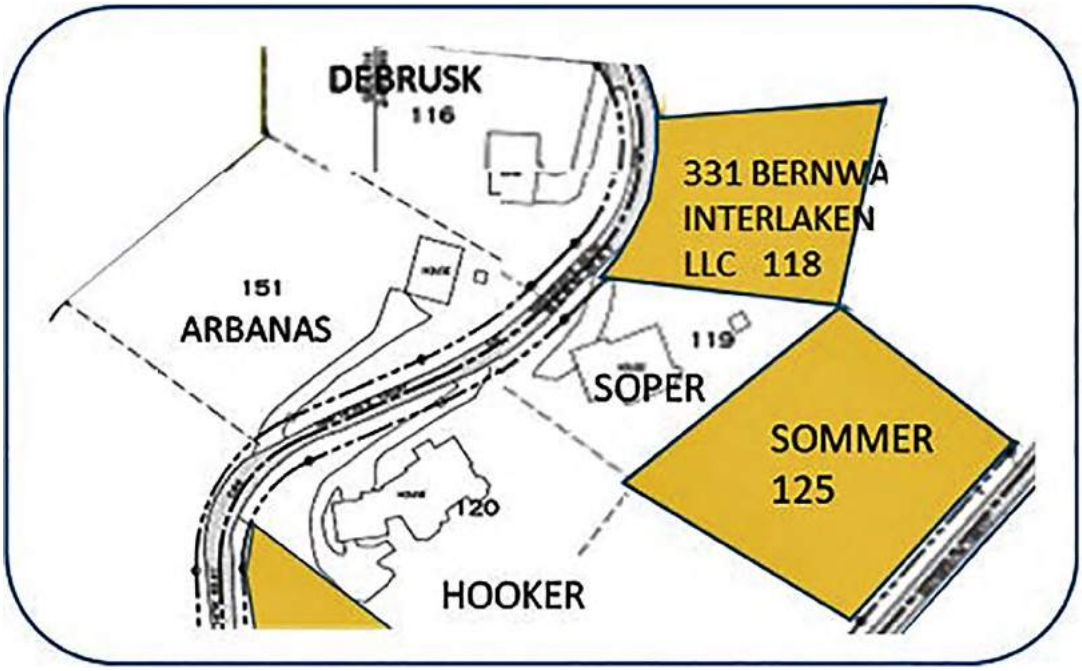

Appendix B

Date: Sat, Jul 29, 2017 at 2:02 PM
Subject: Amateur Radio Antenna . . .
To: "Mr. Bart Smith" <dont_know@msn.com>
Cc: "Ms. Lisa Simpkins" <lksimpkins7669@gmail.com>

Hi Bart, cc: Lisa

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I've used my existing antenna masts, but have discovered it's close to impossible to communicate with others. Experienced operators have told me that the only solution is to raise my antenna.

Having volunteered for the Land Use Committee, I reviewed my documents and noted the exception for amateur radio antennas: "*Section 11.9.3-B-1; Exceptions: This Chapter shall not govern any tower, or the installation of any antenna, that is under the maximum building height of the zoning district in which such structure is located and which is solely used by a federally licensed amateur radio station operator.*"

As a result, I purchased an antenna support structure last year that will connect it to the peak of the roof on the west-side of my home. For reasonable reception / communication in normal and emergency situations, the antenna will be 20 to 30-feet above the peak of my metal roof – this translates into roughly 38 to 48 feet above ground level. Currently there is an antenna at the roof peak.

Given the new antenna height, the steep slope of the hillside, and the tall pine trees along Bern Way, I don't expect this antenna to be any significant visual impact. This structure will also allow me to remove one or two of my existing antenna masts.

While I don't quite understand how maximum building height applies or how it's calculated on Interlaken's severe slopes, I wanted to share my plans as I move forward.

Because my current antenna severely limits my ability to communicate with other amateur radio operators, I'm moving forward to complete the installation before Fall / Winter.

Best wishes, Michael

Michael B. Soper P. 435-654-5896 C. 435-602-0206 <msoper@teamsoper.com>
333 Bern Way, P.O. Box 40, Midway, UT 84049-0040

Appendix C


Estimated Minimum Tower
Height - 334 Bern Way

Appendix D

ARTIFICIAL SATELLITES, Vol. 51, No. 3 – 2016
DOI: 10.1515/arsa-2016-0008

INVESTIGATION OF THE ACCURACY OF GOOGLE EARTH ELEVATION DATA

Dr Khalid L.A. El-Ashmawy
Al-Matria Faculty of Engineering, Department of Civil Engineering,
Helwan University, Cairo, Egypt
khalid85_2002@yahoo.com

ABSTRACT. Digital Elevation Models (DEMs) comprise valuable source of elevation data required for many engineering applications. Contour lines, slope - aspect maps are part of their many uses. Moreover, DEMs are used often in geographic information systems (GIS), and are the most common basis for digitally-produced relief maps. This paper proposes a method of generating DEM by using Google Earth elevation data which is easier and free. The case study consisted of three different small regions in the northern beach in Egypt. The accuracy of the Google earth derived elevation data are reported using root mean square error (RMSE), mean error (ME) and maximum absolute error (MAE). All these accuracy statistics were computed using the ground coordinates of 200 reference points for each region of the case study. The reference data was collected with total station survey. The results showed that the accuracies for the prepared DEMs are suitable for some certain engineering applications but inadequate to meet the standard required for fine/small scale DEM for very precise engineering study. The obtained accuracies for terrain with small height difference can be used for preparing large area cadastral, city planning, or land classification maps.

In general, Google Earth elevation data can be used only for investigation and preliminary studies with low cost. It is strongly concluded that the users of Google Earth have to test the accuracy of elevation data by comparing with reference data before using it.

Keywords: Google Earth; Elevation Data Accuracy; Digital Elevation Model; Surfer; Terrain Zonum

1. INTRODUCTION

Topographic data is important for many Civil Engineering applications such as construction of canal, drainage, dams, bridges, highways, etc.

One of the most important data in topographic information is elevation. The success of the project sometimes required highly accurate elevation data with sufficient detail. Currently, several methods are available for obtaining the terrain elevation data of a given topography. Some of the most common practices being the conventional or modern land survey methods, aerial photogrammetry, satellite photogrammetry, radar interfermometry, Lidar scanning, global positioning system (GPS) etc. Some of the global elevation data obtained using any of these methods are publically available. The public availability of elevation data has

revolutionized the entire process of topographic data collection for engineering research and application.

Since its launch in June 2005, GoogleEarth® has enjoyed ever increasing popularity as the go-to application for map lovers, navigators and armchair explorers. Free for download and installation on every computer system – PC, Mac and Linux – Google has made GoogleEarth® a portable, within-grasp virtual globe one is free to explore at one's leisure (Google, 2015).

Google Earth is a virtual globe based on 3D maps and geographical information program. It facilitate mapping of the Earth by the superimposition of images obtained from satellite imagery, aerial photography and geographic information system (GIS) 3D globe. Google Earth uses digital elevation model (DEM) data collected by NASA's Shuttle Radar Topography Mission (SRTM) enabling 3D view of the whole earth. Google Earth also supports managing 3D Geospatial data through Keyhole Markup Language (KML). Google Earth is useful for many applications such as earth resource mapping, visualizing earth feature, 3-D renderings of structures, town planning, simulation of disaster event such as of earthquakes using the Google Earth model, to monitor traffic speeds and congestion etc.

Google Earth provides high-resolution elevation data using the virtual globe system, which started in June 2005 and used Shuttle Radar Topography Mission (SRTM) data for its elevation baseline. Google Earth^{TM,}s elevation data are at a resolution 5 to 20 times higher than available South African 1:50 000 Chief Directorate Surveys and Mapping (CDSM) datasets (Hoffmann and Winde, 2010). However, at some places the RMSE error of SRTM DEM is more than its specified accuracy of ± 16m (Sharma et al., 2010). If the terrain is highly vegetated, slope steeply than accuracy may be further reduced. Although SRTM data underlie the Google Earth elevation data, it has undergone continuous refinement through successive addition of high resolution data from various sources as they become available. In view of the above facts it is imperative to carry out an accuracy assessment elevation data available with Google Earth.

This study presents a method to extract elevation data from Google Earth using online free web tool, to generate DEMs for the extracted data using Surfer Software (Golden Software, 2012) and to investigate the accuracy of Google Earth elevations using total station survey derived elevation data as a reference data.

2. CASE STUDY

Elevation data in this study were collected in three different small regions in north coast of Egypt. These regions are Region 1, Region 2 and Region 3 and lie in Dabaa, El-Alamain and Marsa Mattroh cities respectively. The study regions are uninhabited and desert and have elevation differences of 5, 15 and 25m respectively as shown in Figure 1.

Each region of the case study has two GPS control points. The control point numbers, ground coordinates and standard errors are available.

For assessing the elevation accuracy of Google Earth, each region has 200 reference points. Determination of the ground coordinates of the reference points will be explained later.

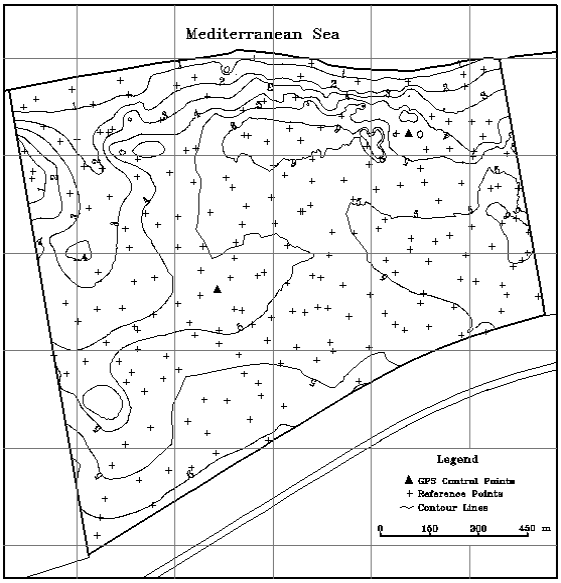

Fig. 1(a). Region 1

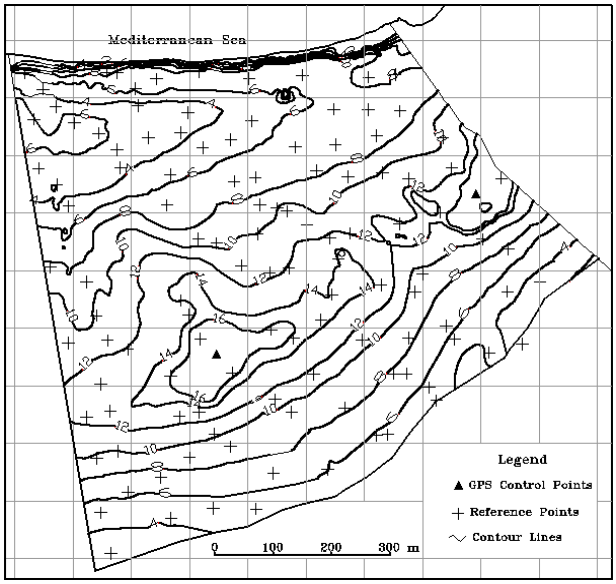

Fig. 1(b). Region 2

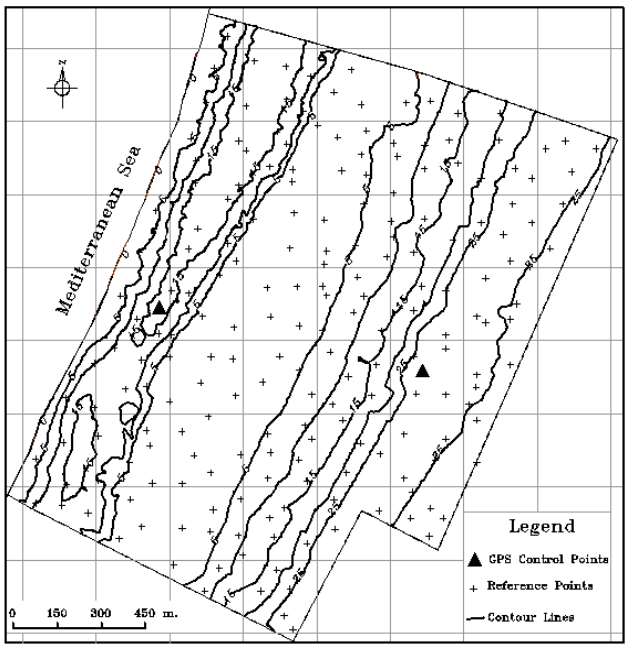

Fig. 1(c). Region 3

Fig. 1. Location of GPS control and Reference points in Study Regions

3. METHODOLOGY

The followed methodology to achieve the objectives of this study is shown in Figure 2.

Fig. 2. The brief process of the methodology

3.1 Getting the Reference data

For each region of the case study, total station survey was used for getting the ground coordinates of two hundreds reference points.

Topcon GTS710 Total Station (Topcon, 2013) was used for data acquisition. This total station has the possibility to measure points up to 2400 meters on hard rock surface. Also, the total station has a large amount of memory to record all the data from the field. Besides this, the TS has software allows the surveyors to download the recorded data to a computer.

The collection of information on case study area was performed in two steps. The first step was started by accurate positioning of the instrument on the GPS ground control points, accurate leveling the instrument using a plate bubble and electronic level and measuring the

instrument height to relate the location of the instrument to the known ground coordinates. The back sight target was positioned over a known ground control point and its height was measured to relate the target location to the ground coordinates. The back sight target was observed by the total station to orientate the survey.

The second step consisted of the observation of the desired points of the real natural terrain points, called side shots, by moving the prism with its pole on the ground. From these side shots, three-dimensional coordinates can be computed for the reference points. The two steps were repeated until surveying all reference points and recording the surveyed points for later processing.

All data obtained from the field was downloaded into computer using the capabilities of the available software with the total station. The coordinates of the interested points were exported to an ASCII file for post processing application.

3.2 Exporting the elevation data of Google Earth

Google Earth elevation data of each region were extracted using free source online tool named Terrain Zonum (Terrain Zonum, 2015) via this website http://www.zonums.com/gmaps/terrain.php as following:

1. Going to http://www.zonums.com/gmaps/terrain.php?action=sample
   a. Using the "Terrain" option to select the desired points in the selected region area using UNIFORM GRID. In this case, the number of rows and columns have to be specified. The maximum points should be not more than 5000 points i.e. 5000 elevation data. If detail elevation data is required, smaller area can be chosen and selecting bigger sampling points.
   b. The "Extent" option is used to insert the maximum and minimum latitude and longitude of the region area. The used coordinate system is WGS 84.
2. Clicking on GET ELEVATION button to sample the elevation points. The sampled points are described by latitude and longitude in decimal degrees and elevation in meters
3. After completing the 'sampling process', copy and paste the sampled data in Notepad and save as text file for further processing.

3.3 Transformation of WGS84 latitude and longitude to UTM East and North coordinates

A position on the Earth is given by the UTM zone number and the easting and northing coordinate pair in that zone. The point of origin of each UTM zone is the intersection of the equator and the zone's central meridian.

The transformation formulas are truncated version of Transverse Mercator: flattening series, which were described in Bomford, 1977. The WGS 84 spatial reference system describes Earth as an oblate spheroid along Equatorial axis of a = 6378173.00 m, Polar axis of b= 6356 752.3142 m and an inverse flattening of 1/f=298.257223563.

For a point of latitude φ and of longitude λ, a reference meridian of longitude λ_0, the north N_0 and east E_0 coordinates of the origin point are N_0=0.0 in the northern hemisphere or N_0=1000 km in the southern hemisphere and E_0=500km, and the scale factor S_0=0.9996, its UTM coordinates can be determined using the following formulas:

$$E = E_0 + S_0.\nu.[A + (1 - T + C)\frac{A^3}{6} + (5 - 18T + T^2 + 72C - 58\bar{e}^2)\frac{A^5}{120}] \quad (1)$$

$$N = N_0 + S_0[M - M_0 + \nu.\tan\phi(\frac{A^2}{2} + (5 - T + 9C + 4C^2)\frac{A^4}{24} + (61 - 58T + T^2 + 600C - 330\bar{e}^2)\frac{A^6}{720})] \quad (2)$$

Where:

$$T = \tan^2\varphi$$
$$e^2 = (a^2 - b^2)/a^2$$
$$\bar{e}^2 = \frac{e^2}{1 - e^2}$$
$$C = \bar{e}^2\cos^2\varphi$$
$$A = (\lambda - \lambda_0)\cos\varphi$$
$$M = a.[(1 - \frac{e^2}{4} - \frac{3e^4}{64} - \frac{5e^6}{256} - ....)\varphi - (\frac{3e^2}{8} + \frac{3e^4}{32} + \frac{45e^6}{1024} + ...)\sin 2\varphi + (\frac{15e^4}{256} + \frac{45e^6}{1024} + ...)\sin 4\varphi - (\frac{35e^6}{3072} + ...)\sin 6\varphi + ...] \quad (3)$$

Based on the above mentioned formulation, menu based software is developed. The software reads the coordinates of points in the form of WGS84 latitude and longitude and transforms the coordinates to UTM E and N coordinates.

The developed software has been implemented using Visual C++ Compiler V6.0 (Gregory, 1998) and designed to be flexible and portable to 32-bit Windows platforms. The software needs a minimum of 2 gigabytes of RAM memory and approximately 100 megabytes of disk space on the hard disk. It is released on DVD-ROM with a reference manual.

3.4 Generating the DEM for each region Using the sampled data

A DEM is a means or representing the shape of natural surfaces in digital form suitable for storage in a computer (Milne, 1987). To form a DEM, a detail survey is carried out in the area for which the DEM is required. Since the shape of natural surfaces varies in a random way, the network of points surveyed to represent the shape of the ground will usually form a random pattern consisting of horizontal coordinates with associated heights.

A DEM is usually formed from the field data using one of the following techniques.

- A square grid DEM is one in which data points are obtained at the nodes of a square grid. This model is formed by the computer interpolating the height of each grid node from the field data provided.
- A triangular grid DEM is one in which data points are interpolated at the corners of linked triangles which are positioned to give the best representation of the ground surface.

Representation of the DEM as a grid is quite common, as this format lends itself well to computer computations. This research is concerned solely with gridded DEMs. Here, the term DEM will refer to elevation represented by a regular gridded matrix. The quality of the DEM can vary greatly depending on the data source and the interpolation technique.

The DEM from the sampled points for each region was created using Surfer Software (Golden Software, 2012) to establish comparison consistency. Surfer is one of the well-known software packages used for contour and DEM generations. It is a product of Golden, Inc., Colorado, U.S.A.

Surfer software reads the input data in the form of X, Y, Z ground coordinates of the irregularly and regularly spaced data points and creates a regularly gridded DTM for each region from which quasi-continuous surfaces could be produced. Grid density may be specified by either the number of grid lines along each side of the grid (X or Y) or the distance between grid lines in X or Y data units along each side of the grid. Furthermore, the software allows the user to specify the interpolation method (griding method) to be used. There are twelve different interpolation methods available and the full description of these interpolation methods is explained by Golden Software, 2012. Out of the different methods of grid interpolation of Surfer software, Kriging method is recommended (El-Ashmawy and Azeez, 2005) and used in this research. After generating the grids file, DEM can be easily generated and viewed.

The results of using Surfer software are three grids files for the case study regions namely Region_1.grd, Region_2.grd and Region_3.grd. These files can be used for predicating the elevation of any point within the case study regions.

3.5 Predication of the elevations of the reference data points using the generating DEM

The Grid | Residuals command of the Surfer software can compute Z value (elevation) of any point on a gridded surface. The operation can be performed as following:

- Creating an XYZ data file that contains the X and Y coordinates for the reference data points and values of "0" for the Z coordinate.
- Selecting the grid and XYZ data files in the Open Grid dialog.
- Specifying, In the Grid Residuals dialog, the columns for X, Y, and Z and the column to which the residual values will be written in the worksheet.
- Using the Data | Transform command and multiply the reported residual values by negative one (-1) to get the actual Z value of the surface at the points specified in the data file.

3.6 Accuracy Assessment

Once the elevations of the reference data points are known from the total station survey and Google Earth data, the elevation accuracy can be assessed in terms of Maximum Absolute Error (MAE), Mean Error (ME) and Root Mean Square Error (RMSE) and can be computed as following:

$$Absolute\ Error = \left| known\ \ elevation - predicated\ elevation \right| \tag{4}$$

$$Mean\ Error = \left(\sum_{i=1}^{n} (known\ \text{elevation} - predicated\ \text{elevation})_i \right) / n \tag{5}$$

$$RMSE = \sqrt{\sum_{i=1}^{n} (known\ \text{elevation} - predicated\ \text{elevation})_i^2 / n} \tag{6}$$

Where n is the number of reference data points.

4. RESULTS AND DISCUSSION

The obtained accuracy is the performance indicator key for the overall surveying operations. The accuracy is highly dependent on the surveying application, data, technique and the expected resulted production. The obtained accuracies of this research are shown in Table 1.

Table 1. Reference data points elevation accuracy for the case study regions

Method	Region_1	Region_2	Region_3
Maximum Elevation Difference (m)	5	15	25
Maximum Absolute Error (m)	3.72	6.39	8.78
Mean Error (m)	0.51	1.13	1.52
RMSE (m)	1.85	3.57	5.69

From results of Table 1, it can be note that:

- Google Earth provides elevations with an accuracy of approximately of 1.85m as a result of computing RMSE for height.
- Google Earth elevation data is more accurate in small height difference, or flat, area with 1.85 m RMSE value and error range less than 3.72m and some findings less than 1m.
- Increasing the difference in height leads to decrease the obtained accuracy. For example increasing the height difference from 5 to 25 m increases the RMSE values from 1.85 to 5.69m.

The values of the obtained RMSE in Table 1 were compared with the permissible limits according to the specifications of ASPRS (American Society for Photogrammetry and Remote Sensing) (ASPRS, 1993) as tabulated in Table 2.

Table 2. ASPRS topographic elevation accuracy requirement for well-defined points

Contour Interval in Meters	ASPRS Limiting Root Mean Square Error in Meters Spot or Digital Terrain Model Elevation Points		
	Class I*	Class II	Class III
0.5	0.08	0.16	0.25
1.0	0.17	0.33	0.5
2.0	0.33	0.67	1.0
4.0	0.67	1.33	2.0
5.0	0.83	1.67	2.5

* The maps are divided into three classes:

Class I holds the highest accuracies. Site plans for construction fit this category.

Class II has half the overall accuracy of Class I. Typical projects may include excavation, road grading, or disposal operations.

Class III has one third the accuracy or three times the allowable error of Class I maps. Large area cadastral, city planning, or land classification maps are typically in this category.

The following conclusions can be drawn:

- The obtained results for a terrain of 5m height difference are suitable for generating contours map of contour interval 4.0 m or greater.
- The accuracies of the terrain of height difference greater than 5m are unsuitable for generating contour map of any tabulated value of contour interval.

5. CONCLUSION

Google Earth is an easy tool and is able to provide imagery and aerial view of the earth. The elevation data provided along with it may be used for preparing DEM.

The proposed method of this paper is simple for generating DEM from the extracted elevation data from Google Earth.

The obtained accuracies for the prepared DEMs are suitable for some engineering application but inadequate to meet the standard required for fine/small scale DEM for very precise engineering study. The accuracies for terrain with small height difference (1.85 m RMSE) meet the vertical accuracy requirements of the ASPRS (1993) for the production of "Class III" contour maps. For this case, Google Earth can be used for preparing large area cadastral, city planning, or land classification maps. Furthermore, the results show that the accuracy requirements of ASPRS for generating contour maps cannot be met for the terrain of height difference greater than 5m (RMSE > 2.5 m).

However, Google Earth elevation data can be used for investigation and preliminary studies with low cost. It is strongly concluded that the users of Google Earth have to test the accuracy of elevation data by comparing with reference data before using it.

6. REFERENCES

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Received: 2016-04-29,
Reviewed: 2016-05-30 and 2016-06-14,
Accepted: 2016-09-15.

Appendix E

Subject: Re: Special Use Permit Application > Soper's Antenna Support Structure . . .
Date: Monday, September 25, 2017 9:19:45 PM Mountain Daylight Time
From: Interlaken Clerk
To: Mr. Michael B. Soper
CC: Ms. Lisa Simpkins, Greg Harrigan, Ms. Sue O'Nan, Scott Neuner, O'Nan: Chuck S181 Grp B

Michael-
With a quick review of your app, I have the following comments and questions. I am not approving or disproving your application, as I am not the land use authority that has that authority. I am commenting only on the application itself, not on the approval status or the opinion of the town council. These are my comments only, as the official tasked with receiving and reviewing the application content.

1. Along with the application, you'll need to submit a check for $750 to cover Epic Engr and town admin fees. There may be additional fees associated with your application. If you contact Epic directly, you will be billed for any time that they charge.
2. We have been advised that you are required to provide proof that your 55 foot tower and antenna are necessary to provide the necessary signal strength to use your radio. This would also be true of the power output at 1500 watts.
3. As the radio tower is an additional structure, you will need to provide a site plan which includes all structures on your lot, including any existing antennas.
4. Will you remove existing antennas before adding the new tower/antenna?
5. How can we know that your antenna will not generate RF interference in town, disrupting other's RF devices? You state that the "FCC rules indicate amateurs are to use the least power necessary to enable communications with a desired party?" What is "the least power necessary" for your application? Isn't 1500 Watts excessive?
6. Your tower may have engineering specs, but the actual placement, attachment to your house, specs for the concrete pad, bracketing, guy wires, etc will have to be reviewed by Epic Engineering. They may also require more data and a drawing if what the manufacturer provides is not adequate for their review.
7. If the antenna is not to be screened by foliage, what other measures will you take to reduce the visual impact of a 55 foot structure on the hillside?
8. From your drawing, your tower is only 5' below the deck level of your uphill neighbor's home. How does that not impede that homeowner's view? I disagree with your analysis on this issue.
9. Item n) from the Supplementary Information stipulates that the tower and antenna be removed if you sell your property or no longer reside on your property. The SUP will be issued to you and you alone. If you cease to use the tower for it's intended application, you will have to remove the structure. You may not modify the antenna without going through the SUP process again.
10. I did not see any information about the electrical wiring for the device. Epic needs to review this as well.

As I mentioned earlier, this is not a complete list of issues/questions. The TC may have more to add. Our next meeting is this Wed 9/27. I will have the agenda ready tomorrow. At this time, I cannot tell you what is on the agenda.

Bart Smith
Interlaken Town Clerk
(435) 565-3812
P.O. Box 1256
Midway, UT 84049

From: ' Michael Soper' [redacted]
Date: Monday, September 25, 2017 5:30 PM
To: Interlaken Clerk <interlakenclerk@gmail.com>
Cc: Lisa Simpkins <lksimpkins7669@gmail.com>, Greg Harrigan <greg@parkcityrealestateguide.com>, Sue

Onan <sonan333@q.com>, "Neuner: Scott S162 Grp B" <neuner.scott@gmail.com>
Subject: Special Use Permit Application > Soper's Antenna Support Structure . . .

Hi Bart, cc: Lisa Simpkins, Greg Harrigan, Sue / Chuck O'Nan & Scott Neuner

At the last Interlaken Town Council Meeting, the Planning Commission offered to review my Special Use Permit Application for approval to install an amateur radio antenna support structure. I believe the Planning Commission discussed my application. Bill Goodall suggested I forward it to the Town Council for review and, hopefully, approval. My thanks to Bill and other members of the Planning Commission.

My application for a Special Use Permit is attached in a "pdf" document. I have attempted to answer the questions you and the Town's attorney raised, even those where I believe Federal and State law might supersede the Town's current 11.9 (Telecommunications) section of its own Land Use Codes.

While I plan to clarify Epic Engineering's fees to certify and inspect the installation when I'm back in Utah this Friday, I believe the Town Council now has sufficient information to approve my request at its meeting this Thursday, September 27th, allowing me to move forward with construction before more snow or winter weather prevents it.

I appreciate the you, Lisa, and the Town Council taking time to review my application. My responses to the Town's requirement cover the first dozen or so pages. The remainder are appendices, including the Federal and State laws applying to amateur radio antenna support structures, and an article that might prove useful should you decide now — or in the future — to redraft provision 11.9 (Telecommunications) of the Interlaken Land Use Code.

Bart, if you, Lisa, or Town Council members require clarification or additional information prior to Thursday evening's Town Council Meeting, just let me know. I should be able to reply to you anytime ahead of this Thursday, when I'll be flying back to Utah.

Thanks again for assistance.

Best wishes, Michael

Michael B. Soper **W7EIS** [redacted]

Subject: SUP application for radio tower
Date: Monday, October 23, 2017 2:47:43 PM Mountain Daylight Time
From: Interlaken Clerk
To: Soper: Michael B.& Sandra B. S119 Grp C

Michael-
Thanks for your application. I've attached your SUP with my comments along with the original SUP that I sent you. Thanks for the detail you provided. Some portions of the application appear complete, but in some cases you are missing required information. I also noticed that in some cases you edited the original application and altered the content. For example, you edited item n) from the Supplementary Information section, where you altered the terms of the agreement. You also deleted the signature page from the original application (originally page 5). Any such modifications must be removed or corrected, restoring the application to its original content.

As you'll see in my comments, there are areas where the information you provide should be moved to an appendix. In some cases the same information appears in the application and in an appendix, and is repeated 3 or 4 times. This makes the application harder to read, and at over 90 pages long, will most likely incur additional costs to you when reviewed by the town engineer.

Besides the above mentioned issues, your plan set appears to be incomplete. As I state in my review comments, the plan set needs to be presented in a single packet or appendix. Otherwise the town engineer will have difficulty finding and reviewing the details of your project. Again, you will incur additional costs from Epic for a review if this information is not cleanly separated from other material. From an engineering perspective, I've attachedEpic's initial response to what you provided (attached at the end of this email).

From a TC point of view, you will also need to provide more detail with regard to the following:

- A site plan, which includes the locations and dimensions of all structures on your lot as well as the lot lines, setbacks, and adjacent roadways . If you are unfamiliar with the contents of a site plan, I can forward you an example. You may also consult Epic Engineering at your own cost.
- All drawings and specs required for an engineering review and stamp. This would include drawings that show how the structure is attached to you house. Again, if you are unfamiliar with this requirement, you may have to contact Epic Engineering at your own cost.
- More details regarding the impact on your neighbors' site lines.

As I stated in an earlier email, my review is preliminary. In it's current state, I cannot recommend the council accept the application as complete. If and when you can address the issues I brought up, I can look at it again.

Thanks for you patience and diligence,
Bart Smith
Interlaken Town Clerk

From: Josh Call <jcall@epiceng.net>
Date: Monday, October 9, 2017 1:53 PM
To: Interlaken Clerk <interlakenclerk@gmail.com>
Subject: RE: Sopers Plans and Specs

Hello Bart,

I had my engineer and inspector take a quick look at the provided documentation and the provided

documents do not meet the requirements to perform a review. Mr. Soper needs to provide calculations for the structure, the foundation, dimensions, material specifications, etc.

Thank you,

Josh C.

Bart Smith
Interlaken Town Clerk
(435) 565-3812
P.O. Box 1256
Midway, UT 84049

Subject: Re: Sopers Plans and Specs . . .
Date: Wednesday, October 25, 2017 5:51:34 PM Mountain Daylight Time
From: Interlaken Clerk
To: Mr. Michael B. Soper

Michael -
This is a pretty good primer on what site plans:
https://en.wikipedia.org/wiki/Site_plan

A site plan is a top view, bird's eye view of a property that is drawn to scale.

- Property lines
- Outline of existing and proposed buildings and structures
- Distance between buildings
- Distance between buildings and property lines (setbacks)
- Parking lots, indicating parking spaces
- Driveways
- Surrounding streets
- Landscaped areas (probably not necessary)
- Easements (if applicable)
- Utilities (source of power for tower)

Bart Smith
Interlaken Town Clerk
(435) 565-3812
P.O. Box 1256
Midway, UT 84049

From: ' Michael Soper'[redacted]
Date: Wednesday, October 25, 2017 10:43 AM
To: "Mr. Josh Call" <jcall@epiceng.net>
Cc: Interlaken Clerk <interlakenclerk@gmail.com>
Subject: Re: Sopers Plans and Specs . . .

Hi Josh, cc: Bart

I talked to Rohn. J.D. Long pointed me to a page in their catalog with additional specs.

I've attached that page, which shows a 2'6" in diameter hole that's 4-feet deep for the foundation (I'd probably do 3-feet in diameter or a square). This is shown at the bottom of the attached page 161. JD said I should be able to use a rebar cage or horizontal rebar in a cross-hatch pattern for the foundation.

With heavy duty house brackets, the 50-foot tower will handle 6.8 sq. feet of wind load at 90 MPH with 3-second gusts of 100 MPH. Other wind speed specs are shown at the top of the attached page 161. As shown in my application, my HexBeam antenna is 5 sq. feet of wind loading … below the 6.8 sq. feet shown above.

This information is available on Rohn's website <http://www.rohnnet.com/bracketed>.

I'm just trying to get all the information necessary for Bart to support my SUP application.

Does this give you all the specs you would need?

Best wishes, Michael

Michael B. Soper [redacted]

On Oct 24, 2017, at 2:16 PM, Josh Call <jcall@epiceng.net> wrote:

Hello Michael,

We have not begun an “official review” of the SUP application to install a tower. I did correspond with Bart in regards to our structural engineer’s concern over the documents provided.

In order to expedite the review, I encourage you to contact the manufacturer to obtain structural plans and calculations, at first glance, their drawings seemed to be lacking dimensions, material specifications and loading calculations. The foundation plans need to show concrete and reinforcing.

In addition to the plans, our structural engineer will need to see framing plans for your home showing structural framing to ensure that the tower will be supported by the wall bracket.

We appreciate your willingness to work with us to ensure the safe installation of your antenna.

Thanks,

Josh C.

Michael B. Soper [redacted]

Subject: Re: Power levels / Site Plan . . .

Date: Friday, October 27, 2017 1:44:30 PM Mountain Daylight Time

From: Mr. Michael B. Soper

To: Interlaken Clerk

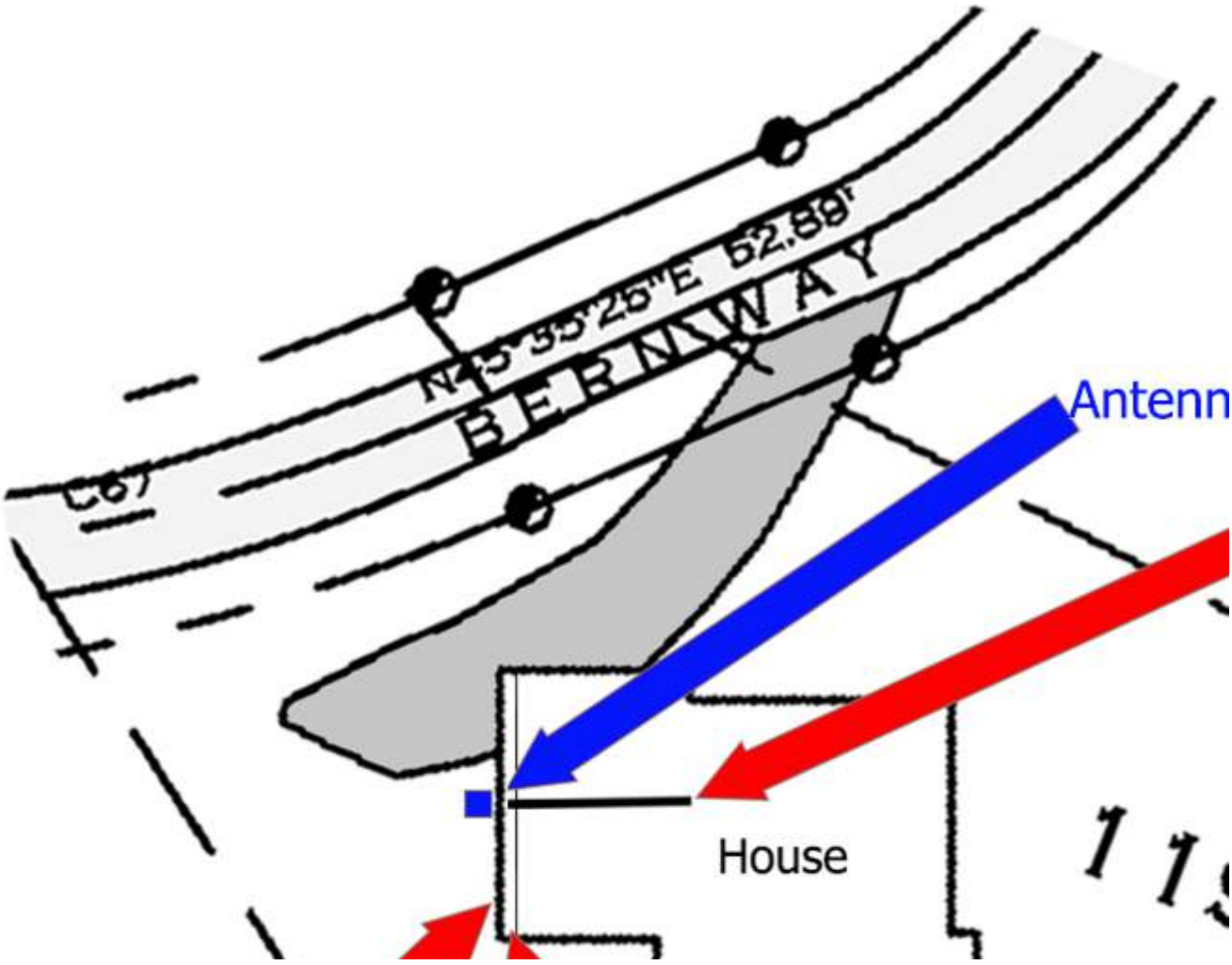
Hi Bart,

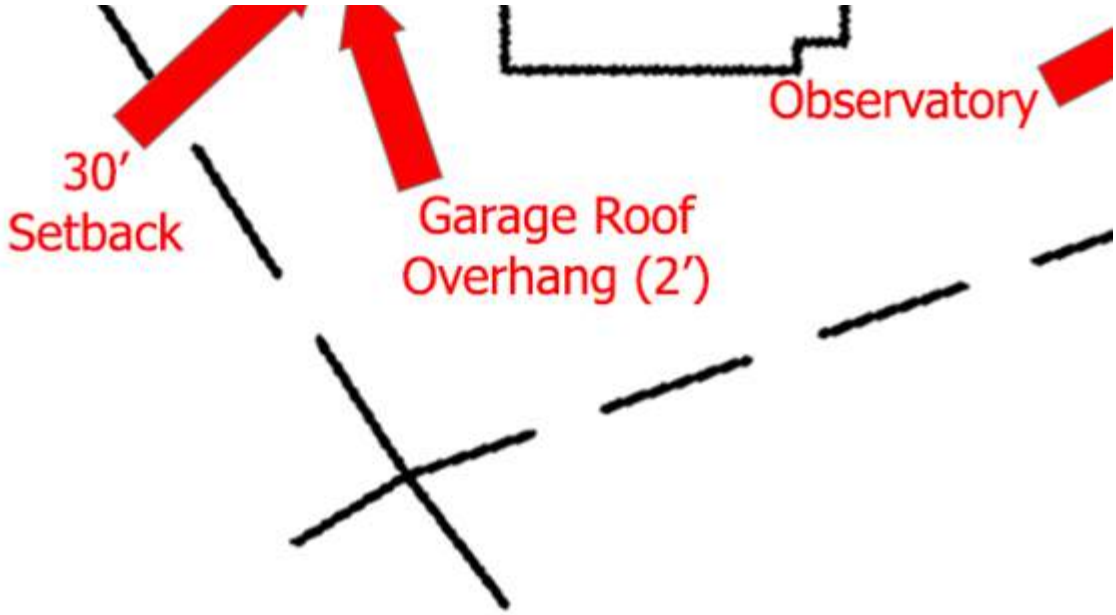
Got it. At this point, I'll skip the explanation, but I do understand the relationship between distance and power levels. Mine are absolutely "worst case."

Just finished my **Site Plan**. It's below. May not be to your standards, but it's the best I can do. As I've said before, I provided a description and longitude and latitude that would locate the 11-inch triangular antenna support structure.

Best wishes, Michael

Michael B. Soper [redacted]





On Oct 27, 2017, at 12:09 PM, Interlaken Clerk <interlakenclerk@gmail.com> wrote:

Michael – just trying to help. Sorry, I am a bit of a stickler for math and physics. I have a BS in applied physics and a masters in atmospheric science. If you're interested, I could explain the difference between an exponential function and an inverse function and an inverse relationship. Otherwise we can leave it as is. Since you put it in the application, I thought it was worth mentioning, especially since it is a factor in determining radiation exposure.

I think the site plan is critical – it's probably best to get to me as soon as possible so we can review it. Epic also has issues regarding your engineering specs and drawings, but I would start with the site plan so we can look at that first.
Thanks,
Bart Smith
Interlaken Town Clerk
(435) 565-3812
P.O. Box 1256
Midway, UT 84049

From: ' Michael Soper' [redacted]
Date: Friday, October 27, 2017 11:40 AM
To: Interlaken Clerk <interlakenclerk@gmail.com>
Subject: Re: Power levels . . .

Hi Bart,

I believe that defines an exponentially decreasing (inverse … or divided by) function. Something to the power of 2 is an exponent, If it's being used to divide something else, it's an inverse relationship. If it's an equation it is a function. Since I gave you the formula, I'm not sure it matters if we don't agree on a phrase.

Honestly, I sure hope you, the Mayor, and Town Council worked this hard analyzing other home and landscape plans. Because, if not, then I am being treated unfairly.

Subject: Antenna & Support > Additional Drawings . . .
Date: Friday, November 17, 2017 4:07:10 PM Mountain Standard Time
From: Mr. Michael B. Soper
To: Mr. Bart Smith
CC: Mr. Josh Call

Hi Bart, cc: Josh

Here are some additional engineering drawings from Rohn.

Also attached an electrical drawing no 120 vac to the tower.

Only low voltage rotor and RF coax goes to the tower.

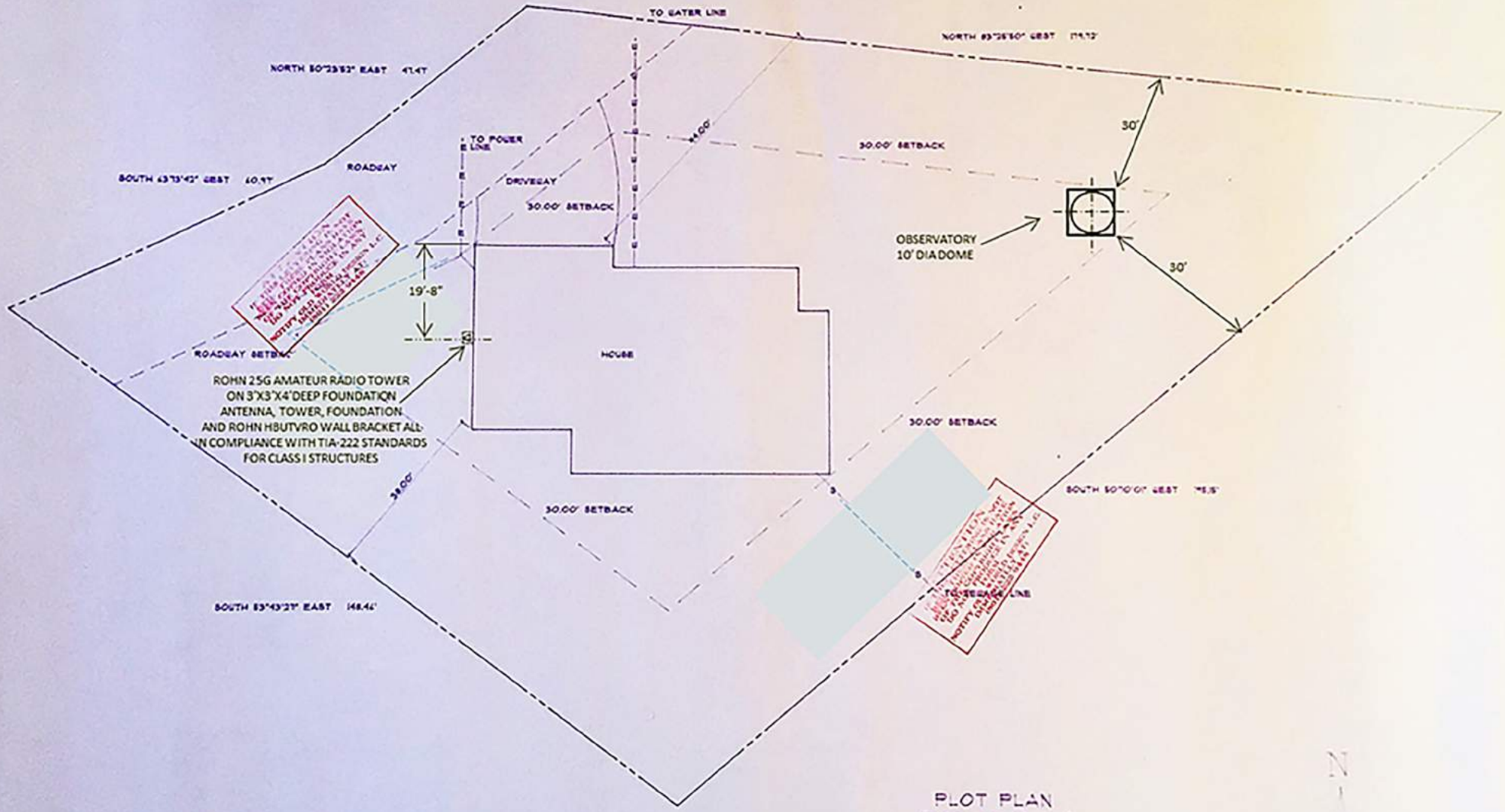
A refined site plan is also attached showing the antenna support location.

Rohn certifies that the tower and heavy duty house bracket meet TIA-222 specs.

If poured correctly, the Rohn Short Base and concrete foundation will also meet those specs.

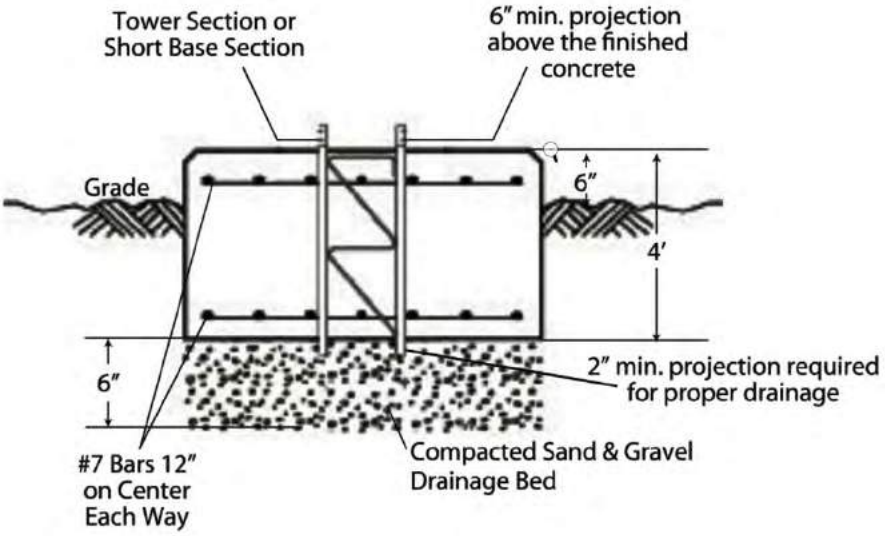
Best wishes, Michael

Michael B. Soper [redacted]

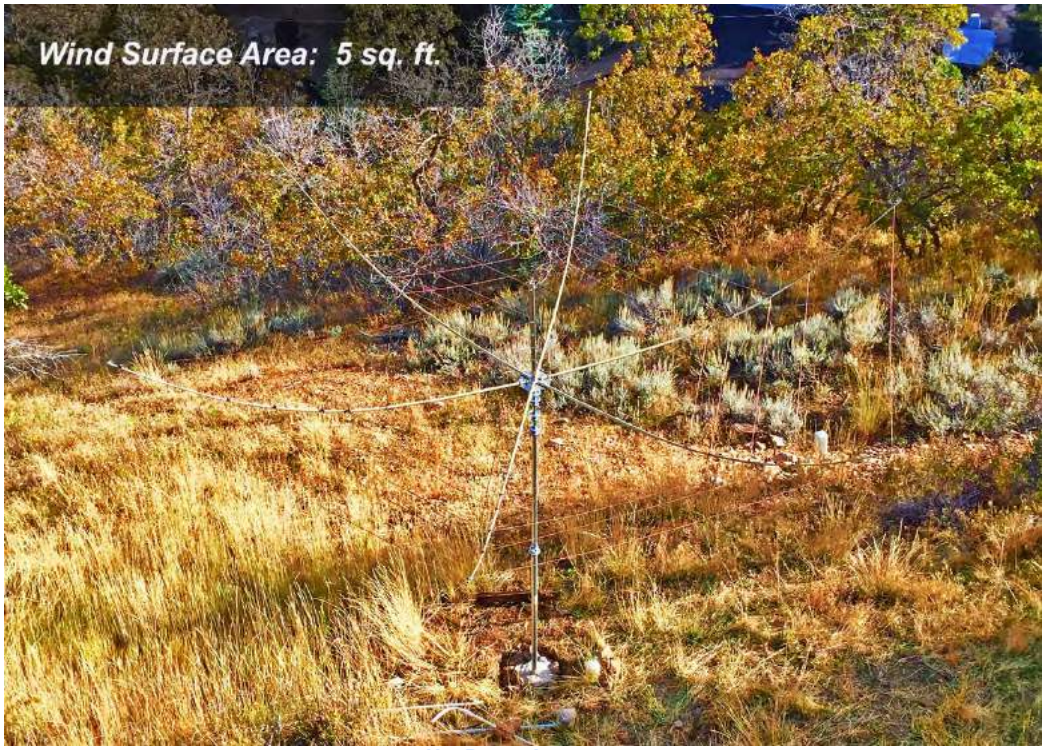


PLOT PLAN

SCALE 1/8"=1'-0"



With heavy duty house brackets, the 50-foot tower will handle 6.8 sq. feet of wind load at 90 MPH with 3-second gusts of 100 MPH. Other wind speed specs are shown at the top of the attached page 161. As shown in my application, my HexBeam antenna is 5 sq. feet of wind loading … below the 6.8 sq. feet shown above.



HexBeam Antenna

KIO Technology Broadband Hexagonal Beam Antenna

Reviewed by Bill Kennamer, K5FUV
k5fuv@prodigy.net

A few years ago, we moved back to Arkansas, bringing a truckload of monoband Yagi antennas. After 3 years of searching, we finally found a suitable location, but no house — so we started building. After 10 more years, the house is shaping up nicely, the antenna farm not so much. When we started building, my wife decreed that the house must be finished before any towers could be erected. However, as completion nears, we have jointly made the decision that it's just too much house for retired people to maintain, so we also decided that no permanent towers go up at this location.

Wanted: A Lightweight, Multiband Beam

Because I had a push-up TV mast available, and my wife was okay with that, I began to search for a suitable antenna. This antenna would have to be light, with a reasonably small footprint that could work on a TV mast. I also wanted coverage of 17 and 12 meters, in addition to the other bands. My search led me to two or three possibilities, and the one that seemed to be the best fit was the Broadband Hexagonal Beam from KIO Technology. I chose the five-band model (20, 17, 15, 12, and 10 meters) with an optional 6-meter kit and a BAL-8 balun kit. Within 5 days, it turned up at the house in two FedEx packages.

Bottom Line

Compact and lightweight, the KIO Technology Broadband Hexagonal Beam offers good performance on 20 – 6 meters.

The original Hex-Beam was designed and manufactured by Traffie Technology in the late 1990s. Viewed from above, Traffie's design resembled an M over a W in wire configuration. This antenna had a smaller footprint, but also a narrower bandwidth due to more folding of the element wires. Steve Hunt, G3TXQ, made enhancements to the original design that improved the bandwidth, thus improving overall operation away from the original design frequency. Now the wires resemble an M over a large U. This improvement slightly increased the size, but significantly improved overall operating performance. This is the design chosen by Leo Shoemaker, K4KIO, of KIO Technology, and published in the March 2009 issue of *QST*.[8]

Assembly

Upon receiving my packages, I opened them and inventoried the parts. I was pleasantly surprised to find all parts were there, the antenna was partly assembled, and all parts were neatly labeled within their own packaging. I was also pleased with the obvious quality of parts and construction and with the clarity of the instructions provided. Assembly would be very straightforward. Note: following instructions is always best.

KIO recommends painting the fiberglass spreaders for protection from the Sun. Because we have a lot of sunshine down here, that was my first step. If I were taking the antenna on a DXpedition, I'd probably skip this step. I then gathered tools — a 7⁄16 wrench, a 3⁄16 nut driver for adjusting the hose clamps, pliers, and a small adjustable wrench.

The base plate and the L-shaped bot-

[8]L. Shoemaker, K4KIO, "Building a Five Band G3TXQ Broadband Hexagonal Beam," *QST*, Mar. 2009, pp. 30 – 33.

Appendix G

Subject: Re: Amateur Radio Antenna Support > Balloon Float . . .

Date: Thursday, November 9, 2017 2:03:22 PM Mountain Standard Time

From: Mr. Michael B. Soper

To: Interlaken Clerk, Heather & Chris Haavaldsrud-DeBrusk, Mr. & Ms. Glenn & Jackie Arbanas, Ms. Heidi Knight, Heather & Chris Haavaldsrud-DeBrusk

CC: Ms. Lisa Simpkins, Mr. Greg & Sarah Harrigan, Scott Neuner, Ms. Sue O'Nan, Mr. Chuck O'Nan

Hello Bart, Glen, Chris & Heidi, cc: Town Council & Mayor

Why so little notice? Because I had to guess the winds would be calm, buy a balloon, and notify all of you.

Give me a break! I spent more than an hour trying to float a balloon on a 50 foot line. The winds were coming from the southwest and then alternating to coming from the northeast. Once or twice the balloon floated straight up, but I was never able to get photos. The only photos I got, were with some wind and, therefore, the photos are worthless.

Perhaps Heidi or her dad didn't live on a hillside with our winds when she suggested I float a balloon. Or, perhaps Bart will suggest that I hire a certified professional balloon float company.

That said, there is simply no way for me to:

- Forecast exactly when the winds will be calm several days in advance;
- Notify all of you of the day / time of the balloon float, and;
- Purchase and launch a balloon when everyone has gather.

I gave it my best effort. At that point, I was reaching through rose bushes thorns, climbing up and down the hill, falling on my recently fractured left kneecap, etc.

Therefore, if any of you wish to float a balloon, you are welcome to do so. I'm not putting myself at risk again.

I'm happy to show you from where to fly it. I'm sure you'll be more successful … and I really hope that's the case.

Best wishes, Michael

P.S. The width of the antenna support (11-inches) is smaller than that of a balloon!

Michael B. Soper [redacted]

On Nov 9, 2017, at 10:17 AM, Interlaken Clerk <interlakenclerk@gmail.com> wrote:

Michael – A 1 hour advanced notice is not enough time for me to rearrange my schedule. I also feel that the town council should be involved and I noticed they weren't copied on your email.
Bart Smith
Interlaken Town Clerk
(435) 565-3812
P.O. Box 1256
Midway, UT 84049

From: [redacted]
Date: Thursday, November 9, 2017 12:13 PM
To: "DeBrusk: Chris S116 Grp A" [redacted], ' Michael Soper' [redacted], <Interlakenclerk@gmail.com>
Cc: "Arbanas: Glenn & Jackie S151 Grp A" [redacted], "DeBrusk: Wayne S116 Grp A" [redacted]
Subject: RE: Amateur Radio Antenna Support > Balloon Float . . .

Mike,

I would actually like to be present as well and I have no ability to drop what I'm doing now and head up to Interlaken. I'm in favor of scheduling a time when all involved parties are able to be present as well.

Vr,
Glenn

From: Chris DeBrusk [redacted]
Sent: Thursday, November 09, 2017 11:03 AM
To: Mr. Michael B. Soper [redacted]; Bart Smith <Interlakenclerk@gmail.com>
Cc: Arbanas, Glenn [redacted] Glenn & Jackie Arbanas [redacted]; Ms. Heidi Knight [redacted]; Heather & Chris Haavaldsrud-DeBrusk [redacted]
Subject: Re: Amateur Radio Antenna Support > Balloon Float . . .

You can certainly launch the balloon Micheal but if I'm not there to see it, any results will be irrelevant from my perspective. Pictures will not be acceptable.

I would suggest this process needs to be scheduled at a time that all involved parties are able to be present.

On Nov 9, 2017, at 12:37 PM, Mr. Michael B. Soper [redacted] wrote:

All,

At last Monday's Town Council Meeting, Heidi Knight, who's father was an amateur radio operator, suggested a balloon float.

The purpose of this balloon float would be for people to see the height of my proposed antenna.

If the winds remain stable, I will launch the balloon in the next hour and try to keep it aloft as long as possible.

Given that not every neighbor who attended the Town Council Meeting may be able to view the balloon, I will

Appendix H

Subject: On-going questions & ever-evolving criteria . . .

Date: Tuesday, November 28, 2017 6:10:00 PM Mountain Standard Time

From: Mr. Michael B. Soper

To: Interlaken Clerk

CC: Mr. Greg & Sarah Harrigan, Scott Neuner, Ms. Sue O'Nan, Mr. Chuck O'Nan, Ms. Lisa Simpkins, Ms. Elizabeth Hora-Cook Ph.D., Ms. Susanna Littell, Mr. John & Susanna Dunty, Laura & Bob Marshall, Mr. Kenneth Lougee

Hi Bart, cc: Town Council, Planning Commission & Ken Lougee

Your question is another example of why your approach on behalf of our Town is flawed.

Your questions and requests are ever-evolving as are the parameters by which the Town would judge my SUP application to be approved.

Today's Question: Do you know how the antenna would be connected to the antenna support structure?

Yesterday's Question: Do you know the weight of your hex bean antenna?

If you were asking about antenna wind-load, I agree — you asked the wrong question. It has very little to do with weight. It has everything to do with the wind exposure area. The HexBeam, one of the least visible high frequency antennas, has a wind load of 5 sqft . . . much less than beam antennas erected by many other amateur radio operators.

Many amateur radio operators would use a 10-foot section of mast to put the antenna well above the antenna support. In my case, I would use a TIA-222 approved aircraft aluminum mast that extends approximately 1-foot above the antenna support. I the HexBeam and minimal / short mast precisely to minimize the impact of my antenna.

The Town's existing antenna codes (11.9) are likely to be interpreted as applying to commercial microwave, commercial cell phone and commercial radio applications. It is unlikely that 11.9 would be judged to include amateur radio, especially given the Town's existing Land Use Codes ignore and FCC / Federal regulations and the State of Utah Codes that supersede those of Municipalities.

I believe that my antenna and antenna support will not be judged as a building or structure like a home, eliminating the need for detailed drawings such as those required for a house. Given the Town has approved homes, sheds, and concrete landscaping retaining walls applications with far less detail, I believe the Town is discriminating against me, placing an undue burden on application and my time.

I have been more than patient in responding to your continuing questions, but you and the Town Council have answered only one of my questions. Here's a summary of those questions and requests for additional information to which I am awaiting answers:

- Please provide me confirmation that the Interlaken Estates CC&R's supersede the current Town ordinances.

- Please highlight the definition of "structure" in the Interlaken Estates CC&R's and in our Town's ordinances and Land Use Codes and explain how an antenna can be defined as a structure.

- Please provide documentation from the Town Council showing ordinances that require that Interlaken Town to regulate based on the Interlaken Estates CC&R's ("An additional concern is the Interlaken Estates CC&Rs that prohibit the construction of a structure besides "one dwelling house and one garage.").

- If the Interlaken Estates CC&R's are still in effect and, given the CC&R's make no limitations on antennas or how they might apply with or without the FCC regulations, please provide a copy of your legal opinion as to why those CC&R's are of concern to the Town.

- Does the Town Council believe that publically acknowledging owner-against-owner CC&R-based lawsuits is in the best interests of all Town members, including myself?

- Please provide a copy of any / all e-mails sent to my neighbors by you, the Mayor, or members of the Town Council prior to the November 6th Town Council Meeting.

- Please provide evidence the Town Clerk was given authority, during a Town Council meeting by vote of the council, to prepare and disseminate this information without prior review by me.

- If the Town recognizes the Federal statute / regulation, including both of the above limitation on Interlaken Town and other municipalities, how do you explain the never-ending questions and long protracted process?

- Please explain the ordinance that grants the town the right to examine the evidence you refer to in the first sentence ("… the Town can examine the evidence regarding tower height, location, and issues regarding the visual impact of the tower.").

- Please provide me with the Town Council Minutes documenting the Council's decision to disregard the recommendation of its Planning Commission and assign authority for my SUP review and recommendation to the Town Clerk. In addition, please supply the Minutes showing passage of a motion that the Town Council accepted the Town Clerk's review and recommendation.

I expect to receive the Town Council's response to the above questions and others submitted in my e-mail of November 14, 2017, in the next 16-days.

Best wishes, Michael

Michael B. Soper [redacted]

Appendix I

Report: Effects of Wind Gusts on a Hex Beam Antenna Mounted on a Support Structure

Prepared by Bart Smith, B.S. Applied and Enginnering Physics, Cornell University, M.S. Atmospheric Sciences, Oregon State University
December 7, 2017

Model Assumptions and Simplifications:

No viscous drag effects in model - if included, flight time would be increased, distance would increase.

Momentum transfer calculated as a single impulse, not a continuous force - if included as a time varying force, horizontal velocity would be higher, resulting in an increase in distance.

Effects of turbulence not included - if included, could reduce or increase flight time and distance. Difficult to predict as it would be a function of small scale turbulent eddies, terrain, etc. Larger scale eddies generated by southernly uphill gusts could generate lift, thus increasing flight time and horizontal distance.

Density of air is based on standard atmospheric considerations. If there was higher humidity or precipitation, the wind force could increase, resulting in longer travel time.

Area used for wind load of antenna assumes a "clean" antenna. If antenna was covered in ice, the effective area could increase, resulting in a larger wind force and longer travel.

Average velocity of flight equated to intial velocity as a function of momentum transfer. If impulse time used is less than flight time, this is a reasonable assumption, as acceleration would continue throughout flight. Note the initial velocity is significantly less than the wind gust speed, indicating momentum transfer was not complete.

Horizontal Travel Distance (ft) and Force (lbs) for Object forced by a Wind Gust Impulse of a Specific Duration

Tower Drop Height = 40 feet

Flight Time = 1.6 seconds

Wind Gust Speed (mph)	Wind Gust Duration (sec)					
	0.5		1.0		1.5	
	Horiz. Travel (ft)	Force (lbs)	Horiz. Travel (ft)	Force (lbs)	Horiz. Travel (ft)	Force (lbs)
5	0.3	1.3	0.5	1.3	0.8	1.3
10	1.1	5.3	2.2	5.3	3.2	5.3
15	2.4	12.0	4.9	12.0	7.3	12.0
20	4.3	21.3	8.7	21.3	13.0	21.3
25	6.8	33.2	13.5	33.2	20.3	33.2
30	9.7	47.9	19.5	47.9	29.2	47.9
35	13.3	65.2	26.5	65.2	39.8	65.2
40	17.3	85.1	34.7	85.1	52.0	85.1
45	21.9	107.7	43.9	107.7	65.8	107.7
50	27.1	133.0	54.1	133.0	81.2	133.0
55	32.8	160.9	65.5	160.9	98.3	160.9
60	39.0	191.5	78.0	191.5	117.0	191.5
65	45.8	224.8	91.5	224.8	137.3	224.8
70	53.1	260.7	106.1	260.7	159.2	260.7
75	60.9	299.2	121.8	299.2	182.7	299.2
80	69.3	340.5	138.6	340.5	207.9	340.5
85	78.2	384.4	156.5	384.4	234.7	384.4
90	87.7	430.9	175.4	430.9	263.2	430.9

25G BRACKETED
ALLOWABLE ANTENNA AREAS

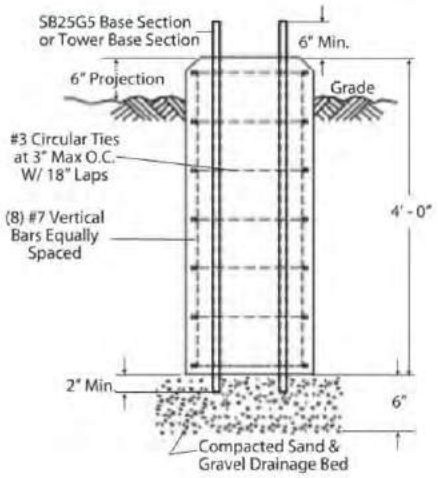
Tower Height (FT.)	Bracket Elevations		Allowable Antenna Areas (SQ. FT.)		
	Upper (FT.)	Lower (FT.)	70 [85] MPH	80 [95] MPH	90 [105] MPH
40	30.0	15.0	15.3	11.3	7.7
50	36.0	18.0	14.6	10.0	6.8
60	46.0	23.0	14.0	8.9	5.9
70	56.0	28.0	13.5	8.3	5.5
80	66.0	33.0	13.1	7.7	5.0
90	66.0	33.0	6.8	4.9	-
100	66.0	33.0	1.7	-	-

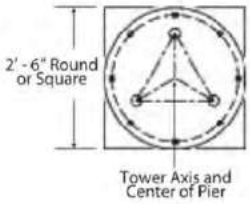
25G

1. Tower designs are in accordance with ANSI/EIA-222-F. Wind speeds indicated as fastest mile [3-second gust].
2. All towers must have "fixed bases" with both bracket elevations. Pinned bases must not be used.
3. Designs assume one 5/8" transmission line on each face (total=3), symmetrically placed.
4. Antennas and mounts assumed symmetrically placed at tower apex.
5. Allowable antenna areas assume all round antenna members.
6. Allowable flat-plate antenna areas, based on EIA RS-222-C, may be obtained by multiplying areas shown by 0.6.
7. All brackets are to be ROHN (P/N HBUTVRO).
8. The interface of tower brackets to supporting structure is to be designed by others and must support a minimum horizontal force of 815 lbs.
9. Foundation designs are in accordance with ANSI/TIA/EIA-222-F, "Structural Standards for Steel Antenna Towers and Antenna Supporting Structures", Section 7, for "Normal" soil conditions. "Normal" soil is defined as dry, cohesive soil with an allowable net vertical bearing capacity of 4000 PSF and an allowable net horizontal pressure of 400 PSF per linear foot of depth to a maximum of 4000 PSF.

Refer to pages 147-153 for General Installation and Foundation Notes.

FOUNDATION INFORMATION





VOLUME OF CONCRETE

Square Pier = 1.0 cu. yds.
Round Pier = 0.8 cu. yds.

This information is available on Rohn's website <http://www.rohnnet.com/bracketed>.

Subject: RE: Sopers Plans and Specs . . .
Date: Thursday, October 26, 2017 8:49:47 AM Mountain Daylight Time
From: Josh Call
To: Interlaken Clerk

Hello Bart,

I have spoken with John Riley, our structural engineer, he recommends that Mr. Soper hire a structural engineer to do the drawings and calculations. In Mr. Soper's latest email, he stated, "I have a log home, so no worries about securing the heavy duty house bracket to framing." Unfortunately this does not work for an engineering review, as town engineer we need to be certain that this structure will not cause structural issues to the home. I am struggling with how to communicate this with Mr. Soper, as we haven't begun official review and I can't really spend time on this without having to bill it somewhere. In answer to your question, I think it is in the town's best interest to know exactly how tall this tower will be above the home, and that should be identified in the SUP.

Thanks,

Josh C.

From: Interlaken Clerk [mailto:interlakenclerk@gmail.com]
Sent: Wednesday, October 25, 2017 6:00 PM
To: Josh Call <jcall@epiceng.net>
Subject: Re: Sopers Plans and Specs . . .

Josh – I'm also asking for a site plan from Soper including the placement of all buildings, lot lines, streets, and the actual location of the proposed tower. Do you feel an elevation drawing is necessary as well to show how the tower is connected to the house?
Bart Smith
Interlaken Town Clerk
(435) 565-3812
P.O. Box 1256
Midway, UT 84049

From: ' Michael Soper' [redacted]
Date: Wednesday, October 25, 2017 10:43 AM
To: "Mr. Josh Call" <jcall@epiceng.net>
Cc: Interlaken Clerk <interlakenclerk@gmail.com>
Subject: Re: Sopers Plans and Specs . . .

Hi Josh, cc: Bart

I talked to Rohn. J.D. Long pointed me to a page in their catalog with additional specs.

I've attached that page, which shows a 2'6" in diameter hole that's 4-feet deep for the foundation (I'd probably do 3-feet in diameter or a square). This is shown at the bottom of the attached page 161. JD said I should be able to use a rebar cage or horizontal rebar in a cross-hatch pattern for the foundation.

With heavy duty house brackets, the 50-foot tower will handle 6.8 sq. feet of wind load at 90 MPH with 3-second

gusts of 100 MPH. Other wind speed specs are shown at the top of the attached page 161. As shown in my application, my HexBeam antenna is 5 sq. feet of wind loading … below the 6.8 sq. feet shown above.

This information is available on Rohn's website <http://www.rohnnet.com/bracketed>.

I'm just trying to get all the information necessary for Bart to support my SUP application.

Does this give you all the specs you would need?

Best wishes, Michael

Michael B. Soper [redacted]

On Oct 24, 2017, at 2:16 PM, Josh Call <jcall@epiceng.net> wrote:

Hello Michael,

We have not begun an "official review" of the SUP application to install a tower. I did correspond with Bart in regards to our structural engineer's concern over the documents provided.

In order to expedite the review, I encourage you to contact the manufacturer to obtain structural plans and calculations, at first glance, their drawings seemed to be lacking dimensions, material specifications and loading calculations. The foundation plans need to show concrete and reinforcing.

In addition to the plans, our structural engineer will need to see framing plans for your home showing structural framing to ensure that the tower will be supported by the wall bracket.

We appreciate your willingness to work with us to ensure the safe installation of your antenna.

Thanks,

Josh C.

Michael B. Soper [redacted]

Tuesday, November 14, 2017

Michael Soper's Response & Request for Additional Information

Regarding Bart Smith, Interlaken Town Clerk, Staff Report: review of Mr. Soper's application for reasonable accommodation to construct an amateur radio support structure; dated November 3, 2017

GENERAL COMMENTS

Soper: Interlaken Town is continuing to ignore both Federal regulations and the State of Utah codes that specify:

(1) A municipality may not enact or enforce an ordinance that does not comply with the ruling of the Federal Communications Commission in "Amateur Radio Preemption, 101 FCC 2nd 952 (1985)" or a regulation related to amateur radio service adopted under 47 C.F.R. Part 97.

(2) If a municipality adopts an ordinance involving the placement, screening, or height of an amateur radio antenna based on health, safety, or aesthetic conditions, the ordinance shall:

(a) reasonably accommodate amateur radio communications; and

(b) represent the minimal practicable regulation to accomplish the municipality's purpose. Renumbered and Amended by Chapter 254, 2005 General Session.

I have been advised that you are likely in violation of both provisions above. A copy of Interlaken Town's Land Use Code 11.9 Wireless Telecommunications is attached at the end of this document.

The notice you sent created a number of serious concerns you and the council members need to be aware of and address. First, you improperly indicated this report was sent to me and the Town Council. In fact, I was only provided a copy as a handout because I attended the Town Council Meeting on November 6, 2017. That is misrepresentation and resulted in me not being as prepared as I might for questions from both Council members and neighbors.

In addition, no resident seeking approval from the Town Council should discover that e-mails have been sent to neighbors without having had the opportunity to review and provide comments / suggestions. At the very least, I should have had an opportunity to correct your numerous misunderstandings and misrepresentations.

I found your e-mail notification of my proposal to erect an antenna support sent to my neighbors before my SUP Application had even been accepted by the Town to be very offensive as well as an egregious overstepping of the authority of a paid employee of the town. You, as an apparent representative of the Town, are destroying friendships and isolating me from the community, creating undue stress and emotional hardship.

You will please find below specific responses to your review. In general, this entire process appears to be a continuous delaying action and I have been extremely patient

to supply answers to the clerk's unending questions. How much has been spent so far on the clerk's time and legal fees just to continue stalling?

I expect to hear from you in the next two-weeks regarding all of the following questions or requests for additional information.

Sincerely,

Michael B. Soper

Michael Soper's Response & Request for Additional Information

Regarding Bart Smith, Interlaken Town Clerk, Staff Report: review of Mr. Soper's application for reasonable accommodation to construct an amateur radio support structure; dated November 3, 2017

Michael Soper's responses and requests for additional information are provided below, indented and in dark-blue. Items in **BOLD** relate to responses and / or additional information requests of Interlaken Town.

Town Clerk:

Date: November 3, 2017
From: Bart Smith, Interlaken Town Clerk Staff Report: review of Mr. Soper's application for reasonable accommodation to construct an amateur radio support structure
To: Michael Soper (333 Bern Way) and the Interlaken Town Council

This report is a summary of my review of Mr. Soper's application, received with changes, on October 28, 2017. Interlaken Town's Ordinances prohibit the construction of the amateur radio support structure as proposed in Mr. Soper's application, but the town recognizes a federal statute requiring municipalities to make a "reasonable accommodation" for individuals wishing to construct an amateur radio tower and antenna.

In determining what is reasonable, the town can examine the evidence regarding tower height, location, and issues regarding the visual impact of the tower. In addition, once those issues have been addressed, the structure will have to meet all building codes and engineering and structural specifications as determined by the town engineer.

> Soper: **Please explain the ordinance that grants the town the right to examine the evidence you refer to in the first sentence**.
>
> Building codes and structural specifications are not "pulled out of a hat" by the Town engineer; there are international codes adopted by the town that must be applied, unless you can show me an ordinance that states the town can make them up as we go along.
>
> Given you have not specified what codes apply, I will inform you. There is no mention of tower codes in the IRC. The IRC states they must comply with TIA-222. Amateur radio towers are Class I. There is no structural review or recalculation required and I should not need to pay for one. The installation method, including the

foundation and brackets for attachment to the house, is according to the manufacturer specifications, which should not require recalculation of the work already done by the manufacturer. Rohn, who manufactured the tower and designed the foundation and wall brackets has supplied written confirmation these are all in compliance with TIA-222.

This is a simple request to erect a low height amateur radio tower/antenna of only 55 feet. Most towers sold are from 50 to 80 feet tall, with some installed towers in the Heber Valley over 100 feet in height.

Town Clerk: The Town has the obligation and right to examine the evidence and make an administrative decision regarding reasonable accommodation for this proposed project.

An additional concern is the Interlaken Estates CC&Rs that prohibit the construction of a structure besides "one dwelling house and one garage." The CC&Rs remain in effect until November 7, 2022. The FCC ruling requiring "reasonable accommodation" does not apply to CC&Rs. The town's legal council is currently reviewing this issue and will make a recommendation to the town.

Soper: **Please provide me a copy of the Interlaken Estates CC&Rs**.

Also, please provide me confirmation that the CC&Rs supersede the current Town ordinances.

In addition, please highlight the definition of "structure" in each of these and explain how an antenna can be defined as a structure.

Town Clerk: Regarding the Mr. Soper's application, I have the following comments and recommendations for the town council.

Review of the Application

1. Tower Height. I recommend the council consider the evidence provided by Mr. Soper regarding the necessity of his proposed tower/antenna height of 55 feet, as well as consult other radio operators or sources in the vicinity to determine what constitutes reasonable accommodation, based upon Mr. Soper's intended use.

The Town would like additional information to see if Mr. Soper can meet his communication goals by constructing a shorter tower. It may also be possible for Mr. Soper to use an existing tower in the valley, with repeaters, to accomplish his communication goals.

Soper: The Town has, more than once, been provided adequate information to support the need for the requested tower height. Repeating the same answers is unreasonable.

Town Clerk:

2. Tower Placement. Mr. Soper's documentation does not demonstrate he needs to attach the tower to his house. Mr. Soper's application suggests constructing the tower in the proposed location attached to the west side of his house "should be a minimal visual obstruction to other homeowners' views" (page 11). As both the value and enjoyment of Interlaken properties are directly linked to the availability of views of the surrounding mountains, valleys, lakes, and other natural features, this issue should be more closely investigated.

Mr. Soper should examine if there are alternative locations on his property that will minimize or eliminate the visual impact of the tower on adjacent properties. Further, the site plan provided by Mr. Soper does not provide enough detail to show the relationship of the tower to the uphill residence at 322 Bern Way.

> Soper: The Town has, more than once, been provided adequate information to support the need for the requested tower location at the given elevation. Moving it to any lower position on the lot would require a taller tower to reach the same overall elevation as needed for adequate transmission and reception. Repeating the same answers is unreasonable.

Town Clerk: The elevation data provided by Mr. Soper appears to have been obtained using Google maps. This data may not accurately represent the actual elevations and relationships between the structures and sight lines.

> Soper: If the Town will provide plans for all the neighbors' houses, including elevations from a known survey marker, it would be possible to provide additional support. This degree of investigation is unreasonable.

Town Clerk: I recommend Mr. Soper provide written documentation from his neighbors, supporting his opinion that the tower would not impact their views, as well as provide more detailed information and drawings illustrating the sight lines and how the proposed tower will impact the site lines on the neighboring properties.

> Soper: The recommendation of written documentation from neighbors is unreasonable.
>
> The Town has already created stressful and animosity with some of our neighbors by sending them this unsupported recommendation letter even before providing it to me.
>
> **Please provide evidence the Town Clerk was given authority, during a Town Council meeting by vote of the council, to prepare and disseminate this information without prior review by me.**

Town Clerk: Mr. Soper's current antenna is mounted downhill from his house. If this location was adequate for his current antenna structure, it may also be suited for his new tower. There may be other locations on his property that serve his needs with less impact on his neighbors' views.

I also recommend that Mr. Soper invite the council to visit his lot and inspect the

property to help ascertain the impact of the tower on his neighbors' views.

Soper: I have repeatedly asked members of the Town Council, the Mayor, and the Town Clerk to meet face-to-face.

The town has, more than once, been provided adequate information to support the need for the requested tower location at the given elevation.

Moving it to any lower position on the lot would require a taller tower to reach the same overall elevation as needed for adequate transmission and reception. Provided I have already invested in 50' of tower material and the wall brackets for attachment to our garage, as recommended by the tower manufacturer, the town is welcome (and has been invited multiple times) to recommend an alternative location provided the town will pay any additional cost of an alternative location. Otherwise, repeating the same answers is unreasonable.

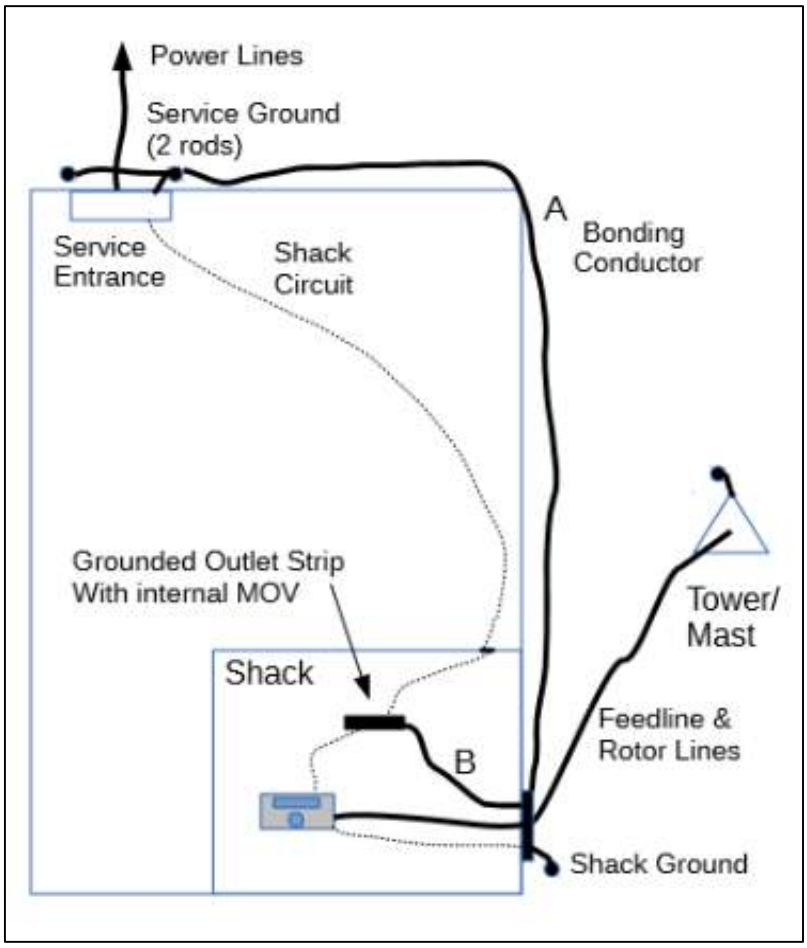
Town Clerk:

3. Site Plan. The site plans shown in Mr. Soper's application do not provide an accurate, dimensional representation of the buildings, lot lines, roads, and existing antenna structures on his property. In addition, there is no dimensional drawing showing the elevation aspect of his tower in relationship to his home, neighboring homes, the placement of the tower support, or any detail regarding how the supports would be attached to the house.

Also missing from his application is an electrical plan showing the power source to the antenna structure. As per Interlaken code, in compliance with the IRC, his plans should show how electricity is to be provided to the structure.

Soper: This question has already been asked and answered, however, in an effort to go well beyond reasonable, please find below a sketch of a typical HAM wiring setup. In our case the "shack" is actually a room in our house. All 120V power is supplied from an outlet that is part of the existing internal circuitry.

There is an antenna cable (non-powered), a rotor cable (low voltage) that connects to an internal controller just like any other antenna in town, and a ground cable connected to the house service ground.



Town Clerk: Engineered drawings and tower specifications. In addition to the concerns expressed in item 3) above, I have received some concerns from Epic Engineering regarding the information provided by Mr. Soper in his application.

From Josh Call, October 26, 2017:

I have spoken with John Riley, our structural engineer, he recommends that Mr. Soper hire a structural engineer to do the drawings and calculations. In Mr. Soper's latest email, he stated, "I have a log home, so no worries about securing the heavy duty house bracket to framing." Unfortunately this does not work for an engineering review, as town engineer we need to be certain that this structure will not cause structural issues to the home. I am struggling with how to communicate this with Mr. Soper, as we haven't begun official review and I can't really spend time on this without having to bill it somewhere. In answer to your question, I think it is in the town's best interest to know exactly how tall this tower will be above the home, and that should be identified in the SUP.

Soper: The Town's position that Epic Engineering and I cannot communicate regarding this request without costs beyond those in the Town code has created an unreasonable communication gap that could easily be remedied by allowing me to talk with Epic, as any other citizen is able to do when submitting plans.

As explained above, the entire system, including tower, foundation, and support brackets, has been designed and built to TIA-222. This satisfies any applicable codes and therefore does not require a design review by the Town Engineer.

Town Clerk:

Summary

The above issues lead me to conclude that Mr. Soper's current application does not provide the town with the necessary information to make a decision regarding "reasonable accommodation" for his tower.

In addition, Epic has voiced their concern over the lack of detail provided by Mr. Soper's plans, and their inability to perform an adequate engineering review based on the provided information. Epic has been instructed by the town not to begin their plan review until the council reviews and accepts the application. This process was implemented in order to allow the council to review the site plan and other aspects of the application, prior to passing the plans to Epic for review. This is Epic's preferred approach, as it saves the applicant the expense of reviewing a plan that may not meet council approval.

Soper: The Town's position that Epic Engineering and I cannot communicate regarding this request without costs beyond those in the town code has created an unreasonable communication gap that could easily be remedied by allowing me to talk with Epic, as any other citizen is able to do when submitting plans.

Please show me where, in the Town code, is a requirement for Epic Engineering to hold off a plan review until the Town Council accepts the application.

It is my understanding that prior practice has been for Epic to begin plan review as soon as they receive an application and related plans. I understand this practice was followed for most or all permit applications to date (including the Mayor's landscaping).

Please provide me the Town Council minutes showing adoption of this process change and the effectiveness date.

As explained above, the entire system, including tower, foundation and support brackets, has been designed and built to TIA-222. This satisfies any applicable codes and therefore does not require a design review by the town engineer.

Town Clerk: In this case, Epic Engineering recommends that Mr. Soper hire an outside engineer to provide the necessary documents for his application. However, prior to submitting engineering drawings to Epic for review, Mr. Soper should first work with the town to discuss whether the town can reasonably accommodate Mr. Soper by approving a shorter tower, and explore whether there is alternative location for the tower. If the town can accommodate Mr. Soper by approving a smaller tower in a different location, thereby minimizing the visual impact of the tower, the town could protect the aesthetic value of neighborhood and facilitate Mr. Soper's radio communications.

Soper: The necessary documents, in accordance with TIA-222, have been provided. If Epic requires further information they should ask me rather than communicating to the Town Clerk as this would actually reduce spending for the Town.

The Town's position that Epic Engineering and I cannot communicate regarding this request without costs beyond those in the Town code has created an unreasonable communication gap that could easily be remedied by allowing me to talk with Epic, as any other citizen is able to do when submitting plans.

The Town has, more than once, been provided adequate information to support the need for the requested tower location at the given elevation at the requested location. Repeating the same answers is unreasonable.

Town Clerk: Once the tower height and location have been determined, Mr. Soper can submit engineering drawings and calculations for Epic to review. It is in everybody's interest to explore potential alternatives before the Town considers Mr. Soper's request for a reasonable accommodation and before Mr. Soper hires an engineer to complete the drawings.

Soper: The Town's position that Epic Engineering and I cannot communicate regarding this request without costs beyond those in the town code has created an unreasonable communication gap that could easily be remedied by allowing me to talk with Epic, as any other citizen is able to do when submitting plans.

Please show me where, in the Town code, it is a requirement for Epic Engineering to hold off a plan review until the Town Council accepts the application.

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As explained above, the entire system, including tower, foundation and support brackets, has been designed and built to TIA-222. This satisfies any applicable

codes and therefore does not require a design review by the Town engineer.

Town Clerk: Based upon my review the application materials submitted thus far, it is my recommendation that Mr. Soper and the town explore alternative heights and locations for a radio tower before the Town formally considers his request.

Sincerely,
Bart Smith, Interlaken Town Clerk

Soper: Input to the Town Council has already been provided by the Town Planning Commission.

Please provide me the Town Council Minutes documenting assignment of authority for permit review and recommendation to the Town Clerk.

CHAPTER 11.09 WIRELESS TELECOMMUNICATIONS

Section 11.09.010 Purpose and Intent

The purpose of this Chapter is to establish general guidelines for the site locating of wireless communications towers and antennas.

Section 11.09.020 Permitted Uses

A. General. The uses listed in this Section are deemed to be permitted uses and shall not require a special use permit.

B. Permitted Uses are for Municipal purposes only.

Section 11.09.030 Non-Conforming Uses

A. No Expansion of Nonconforming Use Towers that are constructed, and antennas that are installed in accordance with the provisions of this Chapter, shall not be deemed to constitute the expansion of a nonconforming use or structure.

B. Pre-existing towers. Pre-existing towers shall be allowed to continue their usage as they presently exist. Routine maintenance shall be permitted on such preexisting towers. New construction other than routine maintenance on a preexisting tower shall comply with the requirements of this chapter.

C. Rebuilding damaged or destroyed nonconforming towers or antennas. Notwithstanding other provisions of this Chapter, bona fide nonconforming towers or antennas that are damaged or destroyed may be rebuilt without having to first obtain a special use permit and without having to meet the separation requirements specified in this Chapter. The type, height, and location of the tower on-site shall be of the same type and intensity as the original facility approval; provided, however, that any destroyed lattice or guyed tower shall be replaced with a monopole structure only. Building permits to rebuild the facility shall comply with the then- applicable building codes and shall be obtained within 90 days from the date the facility is damaged or destroyed. If no permit is obtained or if said permit expires, the tower or antenna shall be deemed abandoned as specified in this Chapter.

Appendix M

Interlaken Town
P.O. Box 1256
Midway, UT 84049
(435) 565-3812

November 3, 2017

From: Bart Smith, Interlaken Town Clerk
Staff Report: review of Mr. Soper's application for reasonable accommodation to construct an amateur radio support structure

To: Michael Soper (333 Bern Way) and the Interlaken Town Council

This report is a summary of my review of Mr. Soper's application, received with changes, on October 28, 2017. Interlaken Town's Ordinances prohibit the construction of the amateur radio support structure as proposed in Mr. Soper's application, but the town recognizes a federal statute requiring municipalities to make a "reasonable accommodation" for individuals wishing to construct an amateur radio tower and antenna. In determining what is reasonable, the town can examine the evidence regarding tower height, location, and issues regarding the visual impact of the tower. In addition, once those issues have been addressed, the structure will have to meet all building codes and engineering and structural specifications as determined by the town engineer. The town has the obligation and right to examine the evidence and make an administrative decision regarding reasonable accommodation for this proposed project.

An additional concern is the Interlaken Estates CC&Rs that prohibit the construction of a structure besides "one dwelling house and one garage." The CC&Rs remain in effect until November 7, 2022. The FCC ruling requiring "reasonable accommodation" does not apply to CC&Rs. The town's legal council is currently reviewing this issue and will make a recommendation to the town.

Regarding the Mr. Soper's application, I have the following comments and recommendations for the town council.

Review of the Application

1. Tower Height. I recommend the council consider the evidence provided by Mr. Soper regarding the necessity of his proposed tower/antenna height of 55 feet, as well as consult other radio operators or sources in the vicinity to determine what constitutes reasonable accommodation, based upon Mr. Soper's intended use. The Town would like additional information to see if Mr. Soper can meet his communication goals by constructing a shorter tower. It may also be possible for Mr. Soper to use an existing

tower in the valley, with repeaters, to accomplish his communication goals.

2. Tower Placement. Mr. Soper's documentation does not demonstrate he needs to attach the tower to his house. Mr. Soper's application suggests constructing the tower in the proposed location attached to the west side of his house "should be a minimal visual obstruction to other homeowners' views" (page 11). As both the value and enjoyment of Interlaken properties are directly linked to the availability of views of the surrounding mountains, valleys, lakes, and other natural features, this issue should be more closely investigated. Mr. Soper should examine if there are alternative locations on his property that will minimize or eliminate the visual impact of the tower on adjacent properties. Further, the site plan provided by Mr. Soper does not provide enough detail to show the relationship of the tower to the uphill residence at 322 Bern Way. The elevation data provided by Mr. Soper appears to have been obtained using Google maps. This data may not accurately represent the actual elevations and relationships between the structures and sight lines. I recommend Mr. Soper provide written documentation from his neighbors, supporting his opinion that the tower would not impact their views, as well as provide more detailed information and drawings illustrating the sight lines and how the proposed tower will impact the site lines on the neighboring properties.

   Mr. Soper's current antenna is mounted downhill from his house. If this location was adequate for his current antenna structure, it may also be suited for his new tower. There may be other locations on his property that serve his needs with less impact on his neighbors' views. I also recommend that Mr. Soper invite the council to visit his lot and inspect the property to help ascertain the impact of the tower on his neighbors' views.

3. Site Plan. The site plans shown in Mr. Soper's application do not provide an accurate, dimensional representation of the buildings, lot lines, roads, and existing antenna structures on his property. In addition, there is no dimensional drawing showing the elevation aspect of his tower in relationship to his home, neighboring homes, the placement of the tower support, or any detail regarding how the supports would be attached to the house. Also missing from his application is an electrical plan showing the power source to the antenna structure. As per Interlaken code, in compliance with the IRC, his plans should show how electricity is to be provided to the structure.

4. Engineered drawings and tower specifications. In addition to the concerns expressed in item 3) above, I have received some concerns from Epic Engineering regarding the information provided by Mr. Soper in his application. From Josh Call, October 26, 2017: I have spoken with John Riley, our structural engineer, he recommends that Mr. Soper hire a structural engineer to do the drawings and calculations. In Mr. Soper's latest email, he stated, "I have

a log home, so no worries about securing the heavy duty house bracket to framing." Unfortunately this does not work for an engineering review, as town engineer we need to be certain that this structure will not cause structural issues to the home. I am struggling with how to communicate this with Mr. Soper, as we haven't begun official review and I can't really spend time on this without having to bill it somewhere. In answer to your question, I think it is in the town's best interest to know exactly how tall this tower will be above the home, and that should be identified in the SUP.

Summary

The above issues lead me to conclude that Mr. Soper's current application does not provide the town with the necessary information to make a decision regarding "reasonable accommodation" for his tower. In addition, Epic has voiced their concern over the lack of detail provided by Mr. Soper's plans, and their inability to perform an adequate engineering review based on the provided information. Epic has been instructed by the town not to begin their plan review until the council reviews and accepts the application. This process was implemented in order to allow the council to review the site plan and other aspects of the application, prior to passing the plans to Epic for review. This is Epic's preferred approach, as it saves the applicant the expense of reviewing a plan that may not meet council approval.

In this case, Epic Engineering recommends that Mr. Soper hire an outside engineer to provide the necessary documents for his application. However, prior to submitting engineering drawings to Epic for review, Mr. Soper should first work with the town to discuss whether the town can reasonably accommodate Mr. Soper by approving a shorter tower, and explore whether there is alternative location for the tower. If the town can accommodate Mr. Soper by approving a smaller tower in a different location, thereby minimizing the visual impact of the tower, the town could protect the aesthetic value of neighborhood and facilitate Mr. Soper's radio communications.

Once the tower height and location have been determined, Mr. Soper can submit engineering drawings and calculations for Epic to review. It is in everybody's interest to explore potential alternatives before the Town considers Mr. Soper's request for a reasonable accommodation and before Mr. Soper hires an engineer to complete the drawings.

Based upon my review the application materials submitted thus far, it is my recommendation that Mr. Soper and the town explore alternative heights and locations for a radio tower before the Town formally considers his request.

Sincerely,

Bart Smith, Interlaken Town Clerk

Current Setback References in Interlaken Municipal Code and CC&Rs

CC&R References to Setbacks

5. No dwelling house or garage shall be erected or placed on the premises hereby conveyed nearer than 30 feet from the exterior line of said premises.

References to Setbacks from Title 11 "Land Use" revised 2016-09-12

CHAPTER 11.02 DEFINITIONS

For the purpose of this Title, the following words and phrases shall, unless defined differently in a particular section, have the meanings respectively ascribed to them:

1. Building. Any structure built for the support, shelter, or enclosure of persons, animals, or property of any kind.
    a. Main building. The principal building upon a lot.
    b. Setback line requirement. A line requirement designating the minimum distance which buildings must be set back from a street or lot line.
    c. Building, accessory. A subordinate building, the use of which is incidental to that of the main building

…

27. Lot Width. The distance between the two (2) side lot lines of a parcel measured at the required minimum building setback.
28. Manufactured Home. See State of Utah law and definitions.
29. Modular Home. See State of Utah law and definitions.
30. Non-Complying Structure. A structure that: (a) legally existed before its current land use designation; and (b) because of one or more subsequent land use ordinance changes, does not conform to the setback, height restrictions, or other regulations, excluding those regulations which govern the use of land.

…

38. Setback. The shortest distance between the property line and the foundation, wall, or a framing member of the building supporting a floor or roof (a deck shall not be considered a floor; however, a support for a roof over a deck shall be the point for measuring setbacks).

Section 11.04.070 Location Requirements

A. The main dwelling unit shall be set back at least 30 feet from all lot lines or 30 feet from the closest edge of the roadway right of way.

B. The accessory building shall be set back at least 30 feet from all lot lines, or 30 feet from the center of the roadway right of way.

C. A 10 foot setback shall be permitted along the property line that abuts an entity other than Interlaken property, such as the State Park boundary.

D. For corner lots, the main dwelling and any accessory building shall be set back from the rear property line a distance of at least 30 feet.

Section 11.06.120 Exception to Front and Side Setback Requirements

The setback from the street for any dwelling located between two existing dwellings in any residential zone may be the same as the average for the said two dwellings, provided the existing dwellings are on the same side of the street and are located within 150 feet of each other. However, no dwelling shall be located closer than 30 feet from the street surveyed road right of way.

Section 11.12.030 Notice Regarding Changes to Zoning Ordinance Requirements

A. For public hearings to hear proposed changes to General Plan provisions or Land Use requirements for any one or more of the following subjects, the Town shall provide notice as required in this Chapter:

1. A ten percent or more increase or decrease in the number of square feet or units that may be developed.
2. A ten percent or more increase or reduction in the allowable height of a building.
3. An increase or reduction in the allowable number of stories.
4. A ten percent or more increase or decrease in the setback or open space requirements.
5. An increase or reduction in permitted uses.
6. Rezoning proceedings that may change the zoning classification of an individual real property owner's property.

Code Change Recommendations Regarding Setbacks in Title 11 "Land Use"

Goals:

- Make the setback requirements the same for both main dwellings and accessory buildings to avoid confusion between 2 standards, and ambiguities between attached garages and detached garages.
- Reduce setbacks in order to avoid big hillside dig outs for uphill sloped lots.
- Reduce setbacks in order to avoid steep driveways and excessive excavation for downhill sloped lots.
- Bring setback restrictions closer to those prescribed in the CC&Rs, and what was allowed historically.

Suggested Edits:

Section 11.04.070 Location Requirements

A. The main dwelling unit shall be set back at least 30 feet from all lot lines or 30 feet from the ~~closest edge of the~~ center of the roadway right of way.

B. The accessory building shall be set back at least 30 feet from all lot lines, or 30 feet from the center of the roadway right of way.

C. A 10 foot setback shall be permitted along the property line that abuts an entity other than Interlaken property, such as the State Park boundary.

~~D. For corner lots, the main dwelling and any accessory building shall be set back from the rear property line a distance of at least 30 feet.~~

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The remaining references to setbacks in Title 11 "Land Use" in the current revision may be left intact. There are no other references to setbacks in Title 9.

Interlaken Town
P.O. Box 1256
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12/11/17 TC Agenda #12

Water System Staff Report Update
Bart Smith, Interlaken Town Clerk
December 11, 2017

RE: Water Rate Adjustments
TO: Interlaken Town Council

This is a follow-up report to an earlier staff report dated November 19, 2017. In that earlier report, I presented various scenarios regarding the impact of an increased water master salary on the FY2018 budget for the Interlaken Town water system. In that report, I divided our water system expenses into two categories:

Operating Expenses – costs to be paid in full by lot owners with water connections or active building permits. Currently, there are 143 connected lots.

System Maintenance and Capital Investment – costs to be shared between both connected and unconnected lot owners. Currently, there are 41 lots with no connections.

Refer to **Table A. FY2018 Water System Expenses**, to see how water system expenses are assigned to these two categories.

Table A. FY2018 Water System Expenses

Expense Line Item	Fund	Description	Total Line Amount	Operating Expenses	System Maint. & Investment	Who Pays	# of Shares
20-109	Water Rev-General	Trfr to General Fund for Water System Admin Expenses	$ (30,550)		$ (30,550)	All Lots	184
105-154	Water Rev-Water System Reserves	Trfr to Reserve Capital Fund for 5-yr plan improvements (DWB 5% minimum requirement)	$ (7,770)		$ (7,770)	All Lots	184
114	Water Revenue	Water Bond Payment	$ (77,732)		$ (77,732)	All Lots	184
116,123	Water Revenue	Total Payroll & Taxes for Water Master & Asst	$ (20,000)	$ (14,000)	$ (6,000)	70%/30%	184
117	Water Revenue	Meter Repair/Replacement	$ (4,700)	$ (4,700)		Connected	143
118	Water Revenue	Chemicals & Monitoring	$ (2,300)	$ (2,300)		Connected	143
119	Water Revenue	Telemetry System Operating Costs	$ (1,127)	$ (1,127)		Connected	143
120	Water Revenue	Water Share fee/education	$ (800)	$ (800)		Connected	143
121	Water Revenue	Gas Heat	$ (350)	$ (350)		Connected	143
122	Water Revenue	Electricity	$ (6,000)	$ (6,000)		Connected	143
123a	Water Revenue	Misc. Water Expenses	$ (492)	$ (492)		Connected	143
126	Water Revenue	Pump Replacements, Telemetry System Upgrades	$ (8,400)		$ (8,400)	All Lots	184
126a	Water Revenue	General Maintenance & Repair	$ (5,000)		$ (5,000)	All Lots	184
95	Water Revenue	Charge for Services: Metered Water (overages)	$ 7,500	$ 7,500		Connected	143
		TOTALS	**$ (157,721)**	**$ (22,269)**	**$ (135,452)**		

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At the November 6th town council meeting, the council reviewed the November 19 report and suggested the town budget for an increase in combined water master salary (water master plus assistant) from the current budget allocation of $10,400 ($8,800 in salary, $1,600 in payroll taxes) to $30,000 total, including payroll taxes. The $30,000 annual salary more closely reflects what the town expects to pay for a replacement for Mac and Herb. Since that meeting, the town has located two candidates for the water master position, and hired them for a salary of $1,400 per month, to be shared equally. This annual expense, plus payroll taxes, is expected to cost the town $20,000 annually.

It was also suggested at that meeting that the water master salary expense be split between 70% assigned to operating expenses, and 30% assigned to system maintenance and capital investment. In Table A. this split is shown as ($14,000) for operating expenses and ($6,000) for system maintenance and investment.

Dividing up the water system expenses in such a way produces the following totals for each category. Note that in Table A. the budgeted $7,500 water overage revenue has been subtracted from the Operating Expenses and the total expenses for the Water System:

$ (22,269)	Operating Expenses
$(135,452)	System Maintenance & Investment
$(157,721)	TOTAL Water System Expenses

Note that in the current FY2018 budget, the total budgeted water system expenses were $(148,121). The expense increase of $(9,600) is due to the increased water master salary as noted above.

Refer to Table B. Water Rates Adjusted for Increase in Water System Expenses, to see how water system expenses are partitioned between connected lots and unconnected lots.

- **Unconnected** lots pay **$62** per month, rounded up.
- **Connected** lots pay **$75** per month, rounded up.

Table B. Water Rates Adjusted for Increase in Water System Expenses

Lot Status	# Lots	Annual Lot Pmt	Monthly Lot Pmt Rounded	Total Fees Collected
Unconnected Lots pay 1/184 of System Maintenance & Investment	41	$ (736.15)	$ (62.00)	$ (30,504)
Connected Lots pay 1/184 of System Maint. & Investment, plus 1/143 of Operating Expenses.	143	$ (891.88)	$ (75.00)	$ (128,700)
			TOTAL	**$ (159,204)**

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Note that the total amount collected $(159,204) exceeds the budgeted expense of $(157,721) because the monthly payments have been rounded up.

Refer to Table C. Adjusted Water Rates for Increased Water Master Salary for a comparison between the resulting new annual base water rate and the current rate.

- **Unconnected** lots pay **$744** annually – up from **$696.**
- **Connected** lots pay **$900** annually – up from **$828**.

Table C. Adjusted Water Rates for Increased Water Master Salary						
Water Master Salary - 70% Operating, 30% System Main. & Investment						
	Current Base Fee		New Base Fee		Avg Base Fee	
Lots	$	696	$	744	$	720
Annual Base Water Fee - Connected Lots	$	828	$	900	$	864

If the council increases the rates by ordinance, and makes the rate increase effective January 1, 2018, there remains a shortfall in the water system budget going forward. The new water rates would only apply to the second half of fiscal year 2018 (January 1, 2018 through June 30, 2018), while the current rates would be in effect in the first half of fiscal year 2018 (July 1, 2017 through December 31, 2017). The average base fee, $720 for unconnected lots, $864 for connected lots, is the rate that would be charged given the timing of the rate increase.

This leaves a shortfall to fund the water system in the first half of fiscal year 2019, beginning July 1, 2018. Recall that water system revenue is collected in the middle of the fiscal year, and funds must be carried over to pay for system expenses for the first half of the following fiscal year.

Table D. FY2019 Budget Estimated Water System Deficit shows the estimated deficit going forward from July 1, 2018, due to water system expenses in the first half of FY2019.

Table D. FY2019 Budget Estimated Water System Deficit		
Total Water Revenue Collected if new rates enacted January 1, 2018.	$	153,072
Budgeted Total Water System Expenses	$	(157,721)
Deficit from Increased Salary	$	(4,649)

Rather than further increase the water rates to make up this FY2019 deficit of $(4,649), another option would be for the town to collect a one-time surcharge to cover the costs of the additional water master salary going forward. This surcharge could be collected along with the water overage charges and the annual base water fee with the January 2018 billing. The surcharge would be collected only once. Going forward, the newly adopted water rates would cover the water system expenses, provided those expenses remain stable.

Interlaken Town
P.O. Box 1256
Midway, UT 84049
(435) 565-3812

The surcharge should match the same percentage rates as the budgeted salary – 70% for connected lots, 30% for unconnected lots.

Table E. Required Surcharge for Salary Increase shows what this surcharge would be for each type of lot:

Table E. Required surcharge for salary increase		
The surcharge covers the additional expense for the water master for the 1st half of FY2019		
Unconnected Lots	$	12
Connected Lots	$	29

Table F. Total Annual Billing shows the resulting total water base fee billing, to be collected in January, 2018. The surcharge along with the rate adjustment increases the fees for unconnected lots by $36 and $65 for connected lots.

Table F. Total Annual Billing - Base rate plus surcharge (not including overage charges)		
Unconnected Lots	$	732
Connected Lots	$	893
Increase from current water rates, including surcharge		
Unconnected Lots	$	36
Connected Lots	$	65

In summary, an increase in water master salary would require an increase in rates. An additional shortfall for FY2019, not covered by a FY2018 rate increase beginning January 1, 2018, could be addressed by collecting a water utility surcharge in January 2018, along with the water system base fee, and any overage charges.

This report is meant to inform the council about the impact of the water master salary on our budget and to propose a water rate increase and water utility surcharge as a solution.

Sincerely,

Bartlett K. Smith

Bart Smith
Interlaken Town Clerk

INTERLAKEN TOWN
WASATCH COUNTY, UTAH

AMENDED WATER RATE ORDINANCE
DECEMBER 11, 2017

ORDINANCE NO. 6

AN ORDINANCE AMENDING THE INTERLAKEN TOWN WATER USAGE RATES

WHEREAS, Interlaken Town (the "Town") has undertaken certain improvements to acquire a culinary water system from the Interlaken Mutual Water Company and finance those improvements in part with a loan from the State of Utah, Department of Environmental Quality, Drinking Water Board (the "DWB") which would require that the Town establish water rates to cover debt service on the loan and otherwise comply with the conditions of the loan; and

WHEREAS, the Town Council held this day a properly noticed public hearing on the issue of establishing or raising its water rates for purposes of complying with the conditions and requirements of the loan commitment from the DWB; and

WHEREAS, the Town Council has received and heard all comments on the proposed water rate increase submitted for its consideration.

NOW, THEREFORE, it is hereby ordained by the Town Council of Interlaken Town, Wasatch County, Utah, (the "Town Council") as follows:

Section 1. Water rates to be charged by the Town shall be as follows for all lots within the Town which are connected to the Interlaken Town Water System on or before January 1st, in the current fiscal year:

First 10,000 gallons per month (basic rate)	$75.00 per month
Next 5,000 gallons	$ 7.50 per 1000 gallons
Next 5,000 gallons	$ 10.00 per 1000 gallons
Next 10,000 gallons	$12.50 per 1000 gallons
Over 30,000 gallons	$ 25.00 per 1000 gallons
January 2018 additional surcharge per lot	$29 one-time fee

Water rates to be charged by the Town shall be as follows for all lots within the Town which have been issued an active building permit on or before January 1st, in the current fiscal year:

First 10,000 gallons per month (basic rate)	$75.00 per month
Next 5,000 gallons	$ 7.50 per 1000 gallons
Next 5,000 gallons	$ 10.00 per 1000 gallons
Next 10,000 gallons	$12.50 per 1000 gallons
Over 30,000 gallons	$ 25.00 per 1000 gallons
January 2018 additional surcharge per lot	$29 one-time fee

Water rates to be charged by the Town shall be as follows for all lots within the Town which are NOT connected to the Interlaken Town Water System and have NOT been issued an active building permit on or before January 1st, in the current fiscal year:

Base rate for undeveloped lots without a building permit	$62.00 per month
January 2018 additional surcharge per lot	$12 one-time fee

Section 2, The Town Council finds the rates listed in Section 1 of this Ordinance to be necessary and desirable, which rates are hereby found and determined to be just, reasonable and necessary charges for the use of municipal water services.

Section 3. The list of rates provided in Section 1 of this Ordinance shall remain in effect until revised from time to time by the Town Council by ordinance or by resolution.

Section 4. The water rates designated in Section 1 of this Ordinance shall become effective January 1, 2018.

Section 5. The Town Council hereby adopts the Water Conservation Plan prepared for water system of the Interlaken Mutual Water Company, pursuant to the acquisition of said system. All resolutions, or ordinances or parts thereof in conflict herewith are, to the extent of such conflict, hereby repealed.

Section 6. The Town Clerk is directed to complete and execute the Record of Proceedings attached hereto as Exhibit A to officially record the proceedings at which this Water Rate Ordinance was considered for adoption.

Section 7. The Town Clerk is directed to publish a copy of this ordinance in the newspaper and this ordinance shall take effect as of January 1, 2018.

APPROVED AND ADOPTED: December 11, 2017.

Mayor

ATTEST:

Town Clerk

INTERLAKEN TOWN SEAL UTAH

(SEAL)

EXHIBIT A

RECORD OF PROCEEDINGS

The Town Council (the "Council") of Interlaken Town, Utah (the "Issuer"), met in public session at the regular meeting place of the Council in Interlaken, Utah, on December 11, 2017 (the "Meeting"), at the hour of 7:00 p.m., or as soon thereafter as feasible, with the following members of the Council being present:

Lisa Simpkins	Mayor
Susan Marie O'Nan	Councilmember/Treasurer
Chuck O' Nan	Councilmember
Greg Harrigan	Councilmember
Scott Neuner	Councilmember

Also present:

Bartlett Smith	Town Clerk

Absent: None

which constituted all the members thereof.

After the Meeting had been duly called to order and after other matters were discussed, the foregoing ordinance (the "Ordinance") was introduced in written form and fully discussed.

A motion to adopt the Ordinance was then duly made by Councilmember Susan O'Nan and seconded by Councilmember Greg Harrigan, and the Ordinance was put to a vote and carried, the vote being as follows:

Those voting YEA: Lisa Simpkins
Susan O'Nan
Chuck O'Nan
Greg Harrigan
Scott Neuner

Those voting NAY: none.

Those Abstaining: none.

Other business not pertinent to the Ordinance appears in the minutes of the Meeting. Upon the conclusion of all business on the Agenda and motion duly made and carried, the Meeting was adjourned.

CERTIFICATE OF ACTING TOWN CLERK

I, Bartlett Smith, the duly appointed and qualified Acting Town Clerk of Interlaken Town, Utah (the "Issuer"), do hereby certify that the attached Ordinance is a true, accurate and complete copy thereof as adopted by the Town Council of the Issuer at a public meeting duly held on December 11, 2017 (the "Meeting"). The persons present and the result of the vote taken at the Meeting are all as shown above. The Ordinance, with all exhibits attached, was deposited in my office on December 11, 2017 and is officially of record in my possession.

IN WITNESS WHEREOF, I have hereunto subscribed my signature and impressed hereon the official seal of the Issuer, this December 11, 2017.

Bartlett C. Smith

Town Clerk

(SEAL)

CERTIFICATE OF COMPLIANCE WITH
OPEN MEETING LAW

I, Bartlett Smith, the undersigned Town Clerk of Interlaken Town, Utah (the "Issuer"), do hereby certify, according to the records of the Issuer in my official possession, and upon my own knowledge and belief, that in accordance with the requirements of Section 52-4- 202, Utah Code Annotated 1953, as amended, I gave not less than twenty-four (24) hours public notice of the agenda, date, time and place of the December 11, 2017, public meeting (the "Meeting") held by the governing body of the Issuer as follows:

(a) By causing a notice, in the form attached hereto (the "Meeting Notice"), to be posted at the principal office of the Issuer at least twenty-four (24) hours prior to the convening of the Meeting, the Meeting Notice having continuously remained so posted and available for public inspection until the completion of the Meeting; and

(b) By causing a copy of the Meeting Notice to be delivered to a newspaper of general circulation in the geographic jurisdiction of the Issuer at least twenty-four (24) hours prior to the convening of the Meeting; and

(c) By causing the Meeting Notice to be posted on the Utah Public Notice Website at least twenty-four (24) hours prior to the convening of the Meeting.

(d) By giving notice to each member of the Town Council.

IN WITNESS WHEREOF, I have hereunto subscribed my official signature this December 11, 2017.

Bartlett C. Smith

Town Clerk

(SEAL)

(Attach Meeting Notice including proof of posting thereof on the Utah Public Notice Website)

Entity: Interlaken Town

Body: Interlaken Town Council

Subject:	Budgeting
Notice Title:	Interlaken Town Council Water Rate and Budget Ammendment Hearing
Meeting Location:	Town Pump House 236 Luzern Rd. Midway 84049
Event Date & Time:	December 11, 2017 December 11, 2017 07:00 PM - December 11, 2017 08:00 PM
Description/Agenda:	1. Call To Order. 2. Roll Call. 3. Presentations Presentation of proposed Town Ordinance No. 6 Amended Water Rates. Presentation of Proposed FY2018 Budget Amendment. 4. Public Comment. Comments will be taken on the proposed Amended Water Rate Ordinance and the proposed Budget Ammendment. Comments are limited to three minutes per speaker. Those wishing to comment should stand, state their full name and address, whom they represent and the subject matter to be addressed. Total time allocated to public comments will be no more than 60 minutes. 5. Council Comments. 6. Adjournment.
Notice of Special Accommodations:	In compliance with the Americans with Disabilities Act, individuals needing special accommodations (including auxiliary communicative aids and services) during this meeting should notify Bart Smith at 435-565-3812.
Notice of Electronic or telephone participation:	NA
Other information:	
Contact Information:	Bart Smith (435)565-3812 interlakenclerk@gmail.com
Posted on:	December 03, 2017 09:11 PM
Last edited on:	December 03, 2017 09:11 PM

licitating bids for the new construction of the Midway City Public Works maintenance shop. It is the metal portion for a new equipment maintenance shop. We would like to have the structure purchased, delivered and ready for installation by Thursday March 1, 2018. We have enclosed a copy of the architecture drawings for review.

Bids must include a set of engineered plans and purchase prices of the materials required to build the metal portion of this new building.

Bids are due by 2pm on Thursday December 7, 2017. Bids can be submitted in the following ways.

Mail in to:
Midway City
PO Box 277 Midway, UT 84049
Hand delivered to:

Legal Notices

Notice for Land use hearing on December 11, 2017
Notice for water rate & budget hearing on December 11, 2017

Should you have any questions please contact Shane Owens at 435-503-5739 or at sowens@midwaycityut.org

Thank you for taking time to bid our project, we look forward to working with you.

Mayor Colleen Bonner
Shane Owens
MCPW Administrative Lead
Published in The Wasatch Wave December 6, 13 and 20, 2017.

PUBLIC NOTICE

PUBLIC NOTICE is hereby given that the Wasatch County Special Service District #9 mineral lease, will hold a public hearing on December 21, 2017 at 6 p.m. the meeting will be held at 25 North Main Street Heber City Utah. The purpose of the hearing is to hear and approve the 2018 budget and amendments to the 2017 as needed. The board will also hear and possibly approve the following; minutes of past meetings, meeting schedule for 2018 and other matters. Public welcome.

Brent R. Titcomb
Board member
Published in The Wasatch Wave December 6, 13 and 20, 2017.

NOTICE

Heber Valley Tourism and Economic Development will hold a public budget meeting on Monday, December 11, 2017 at 4:00 pm. The meeting will take place at the Heber Valley Visitor's Center, 475 N Main Street, Heber City, UT 84032. The purpose of this meeting is to receive public input for the 2017 budget.

Published in The Wasatch Wave December 6, 2017.

NOTICE OF BUDGET HEARING
Wasatch County Fire District

Public notice is hereby given that on December 12, 2017 at 6:00 pm, a public budget hearing for the Wasatch County Fire District will be held at the Wasatch County Administration Building, located at 25 N Main in Heber City, Utah. The purpose of the hearing is to adopt the 2018 calendar year budget for the Fire District. A

available on the Fire District Web Site wasatchcountyfire.com. The District Board will also open the Wasatch County Fire District 2017 calendar year budget to allow for the adjustment of any additional revenue and expenses.

Ernie Giles, Fire Chief
Published in The Wasatch Wave December 6, 2017.

PUBLIC NOTICE OF LAND USE HEARING

The Interlaken Town Planning Commission will hold a public hearing on Monday, December 11, 2017 at 6:00pm, at the Town Pump House, 236 Luzern Rd,. Midway, UT to consider approval of proposed revisions to the Interlaken Municipal Land Use Ordinances. The text of the proposed changes will be available from the Interlaken Town Clerk ten days prior to the hearing. Comments and questions may be submitted to the Interlaken Town Clerk at (435) 565-3812 or interlakenclerk@gmail.com.

Published in The Wasatch Wave November 29, and December 6, 2017.

PUBLIC NOTICE

Interlaken Town will hold a Public Hearing on the proposed Amended Water Rate Ordinance and Amended Fiscal Year 2018 Town Budget on December 11, 2017 at 6:30 p.m. at the Town Pump House located at 236 Luzern Rd., Midway, UT. For more information contact the town clerk at (435) 565-3812 or interlakenclerk@gmail.com.

Bart Smith
Interlaken Town Clerk
Published in The Wasatch Wave November 29, and December 6, 2017.

NOTICE TO WATER USERS

The applications below were filed with the Division of Water Rights unless otherwise designated).

These are informal proceedings per Rule R655-6-2. Protests concerning an application must be legibly written or typed, contain the name and mailing address of the protesting party, STATE THE APPLICATION NUMBER PROTESTED, CITE

hours on or before DECEMBER 26, 2017. Please visit waterrights.utah.gov or call (801)538-7240 for additional information.

CHANGE APPLICATION(S)

55-12868 (a43086): Jordan M. Dursa, South Kamas Irrigation Company propose(s) using 1.0 ac-ft from groundwater (Southwest of Woodland) for IRRIGATION; STOCKWATERING; DOMESTIC.

EXTENSION(S)

55-9346 (a22519): C. David and Adrienne Warren, Kris and Christine Pollock, Timpanogos Irrigation Company is/are filing an extension for 3.15 ac-ft from groundwater (2 miles East of Heber) for IRRIGATION; STOCKWATERING; DOMESTIC.

Kent L. Jones, P.E.
STATE ENGINEER
Published in The Wasatch Wave November 29, and December 6, 2017.

NOTICE OF PUBLIC HEARINGS

Notice is hereby given that a public hearing will be held by the Midway City Council on Wednesday, 13 December 2017, 6:00 p.m., in the City Council Chambers, Midway Community Center, 160 West Main Street, Midway, Utah. Time will be allowed for public comment regarding the following item:

Sunburst Ranch PUD / Master Plan Amendment (Steve Condie) – A Request to Amend the Master Plan for the Sunburst Ranch PUD Located at Ranch Way and Swiss Alpine Road (Zoning is R-1-22 and RA-1-43). Recommended without Conditions by the Midway City Planning Commission.

Copies of the above item may be obtained from the Midway City Recorder at 75 North 100 West, Midway (Midway City Office Building). Midway City is happy to provide reasonable accommodations for individuals with disabilities. For assistance, please contact the Midway City Recorder at 654-3223 x118.

Published in The Wasatch Wave November 29, and December 6, 2017.

Registered Voters: 3,019; Ballots Cast: 2,016; Voter Participation: 66.8%; all eligible absentee and provisional ballots were counted.

Mayor: Colleen Bonner, 853 votes, 42.69% and Celeste T. Johnson, 1,145 votes, 57.31%.

City Council: Don Huggard, 826 votes, 24.73%; Jeff Drury, 1,298 votes, 38.86%; Jared (JC) Simonsen, 858 votes, 25.69%; W. Kent Kohler, 358 votes, 10.72%.

Brad Wilson
Midway City Recorder
Published in the Wasatch Wave November 29, and December 6, 2017.

PUBLIC NOTICE

Charleston Water Conservancy District Notice of December 2017 Meeting & Public Hearing to Adopt the 2018 Budget. Notice is hereby given that the Charleston

Water Conservancy District has re-scheduled it's December 2017 meeting to December 7, 2017 at 7:00 pm. held at the Charleston Town Hall to consider and adopt the 2018 Budget.

Published in The Wasatch Wave November 22 and 29, and December 6, 2017.

WASATCH COUNTY SOLID WASTE DISPOSAL DISTRICT

Public Notice is hereby given that the Wasatch County Solid Waste Disposal District will hold a public hearing on December 12, 2017 at 6:00 pm. The purpose of the hearing is to hear and approve the 2018 budget and amendments to the 2017 budget. The location of the hearing is 25 North Main Street, Heber City, Utah.

Kelly Christensen
District Manager
Published in The Wasatch Wave November 22 and 29, and December 6, 2017.

PUBLIC NOTICE

Public Notice is hereby given that the Wasatch County Parks and Recreation Special Service District #21 will hold a public hearing on December 12, 2017. The purpose of the hearing is to hear and approve the 2018 budget and amendments from

cil will hold a public hearing on December 6, 2017. The purpose of the hearing is to hear comment from the public and discuss possible approval of a 3% cost of living for the following elected and appointed office, Treasurer, Recorder, Surveyor, Clerk/Auditor, Attorney, Sheriff, Assessor, County Council and County Manager. The hearing time is 6:00 P.M.; location of the hearing is 25 North Main Street, Heber City, Utah.

Brent R. Titcomb
Wasatch County Clerk/Auditor
Published in The Wasatch Wave November 22 and 29, and December 6, 2017.

PUBLIC NOTICE

Public Notice is hereby given that the Wasatch County Council will hold a public hearing on December 6, 2017. The purpose of the hearing is to hear and approve the 2018 general fund budget and other funds and amendments from the 2017 budget. The hearing time is 6:00 P.M. location of the hearing is 25 North Main Street, Heber City Utah.

Brent R. Titcomb
Wasatch County Clerk/Auditor
Published in, The Wasatch Wave on November 22 and 29, and December 6, 2017.

Interlaken Town
P.O. Box 1256
Midway, UT 84049
(435) 565-3812

FY2018 Budget Staff Report Update
Bart Smith, Interlaken Town Clerk
December 22, 2017

RE: Proposed FY2018 Budget Amendment
TO: Interlaken Town Council

This is a summary of FY2018 Budget amendment proposals.

Line 30: Transfers into Building Fund. An error was made in this line item for transfers from the General Fund into the Building Fund. The purpose of this transfer to cover expenses for Epic Engineering for services to the town: attending meetings and special projects.

Proposal: Increase Line 30 from ($6,000) to ($10,000) to match budgeted transfer amount.

Line 92: Annual Water Utility Base Usage Fee. Increase this revenue amount to match billing for base water fees. Amount depends on the new water master salary.

Proposal: Increase Line 92 to match collected water base fee revenue, $157,721.

Line 116: Payroll – Water Master & Asst Water Master. This expense will increase starting January 1, 2018 with hiring of new water masters.

Line 123: Payroll Taxes – Water Master & Asst Water Master. This expense will increase starting January 1, 2018 with hiring of new water masters.

Proposal: Increase Line 116 to match new water master salary, $16,800.

Proposal: Increase Line 123 to match new water master payroll taxes, at approximately 18% of salary, $3,200.

Sincerely,

Bartlett K. Smith

Bart Smith
Interlaken Town Clerk

Interlaken Town
P.O. Box 1256
Midway, UT 84049
(435) 565-3812

Staff Report, Bart Smith, Interlaken Town Clerk
November 19, 2017

RE: State Auditor Reports for years ending June 30, 2016 and June 30, 2017 and corrective action letter from Jeremy Walker of the Office of the UT State Auditor, dated November 9, 2017.
TO: Interlaken Town Council, Jeff Stockman, and Kristine Olsen

The letter from Jeremy Walker requiring the town to submit a corrective action plan and self-evaluation report (see attachment) is a result of the state auditor's review of the town's financial report for fiscal year ending June 30, 2016. The letter from the auditor stated:

> "The Interlaken Town's unrestricted fund in the general fund is in excess of the maximum allowed by State Law. Utah Code 10-5-113 states that the unrestricted general fund balance may not exceed 75% of the total revenue of the general fund."

Jeff Stockman, the town's CPA, and I discussed this issue with regard to the FY2016 budget and statement of revenue while meeting on November 17, 2017. The submitted report, which Jeff authored, complies with the State auditor's financial reporting requirements. The problem with the excess unrestricted general fund balance is an issue resulting from how Interlaken collected its revenue in FY2016. It should be noted that the same issue would appear in the reporting for FY2017.

In FY2016 and FY2017, Interlaken town collected revenue as fees for service for both the water system and the road system. As a result, this collected revenue was assigned to the "Charges for Services" (line 21) under Enterprise funds in the report's Income Statement. For FY2016, this amount, $212,626, included all the assessment revenue collected from individual lot owners. For the same year, the revenue collected for the general fund as sales tax and interest was only $9,861. From the FY2016 Income Statement:

Interlaken Town
Unaudited Income Statement
June 30, 2016

	Description	Governmental Funds			Enterprise Funds	TOTALS
		General Fund	Capital Projects	Permanent Trust	Sewer / Water / Garbage, Etc	
	REVENUES					
19	Property Taxes					-
20	Sales Taxes	9,649				9,649
21	Charges for Services				212,626	212,626
22	B & C Road Funds				11,719	11,719
23	State Grants					-
24	Federal Grants					-
25	Interest	212				212
26	Transfers from other Funds					-
27	Other (specify):					
						-
						-
	Total Revenues	9,861	-	-	224,345	234,206

Interlaken Town
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Midway, UT 84049
(435) 565-3812

The fund balances in the FY2016 report indicate the unrestricted fund balance for the General fund at year-end was $28,666 (line 17). From the FY2016 Balance Sheet:

		Governmental Funds			Enterprise Funds	
	ASSETS	General Fund	Capitol Projects	Permanent Trust	Sewer / Water / Garbage / Funds, Etc	TOTALS
3	Cash	28,666	432,020		25,029	485,715
4	Investments				3,774	3,774
5	Receivables					-
	Capital Assets					
6	Land	16,965				16,965
7	Buildings	4,628				4,628
8	Equipment	2,866			2,357,012	2,359,878
9	Less Accumulated Depreciation (enter as a negative amount)	(5,410)			(1,100,462)	(1,105,872)
10	Other (Specify):					
	Water Rights				37,508	37,508
						-
	Total Assets	47,715	432,020	-	1,322,861	1,802,596
	LIABILITIES					
11	Accounts Payable				6,035	6,035
12	CIB Loans					-
13	Other (Specify):					
	Note Payable UT Div of Finance				553,000	553,000
						-
	Total Liabilities	-	-	-	559,035	559,035
	FUND BALANCE					
14	Capital Assets	19,049			735,023	754,072
15	Restricted				11,719	11,719
16	Committed		432,020			432,020
17	Unrestricted	28,666			17,084	45,750
	Ending Fund Balance	47,715	432,020	-	763,826	1,243,561
	Total Liabilities & Fund Balance	47,715	432,020	-	1,322,861	1,802,596
18	Check Figure = 0	-	-	-	-	-

Compliance with state law requires that the unrestricted general fund balance ($28,666) not exceed 75% of the total general fund revenue (75% x $9,861 = $7,396). In fact, the general fund balance was 290% of the general fund revenue.

In a phone call with Jeremy Walker on November 15, 2017, Mr. Walker advised me that the town could address the general fund balance issue by submitting a letter indicating the corrective actions the town is taking to address the issue. The state is currently withholding tax revenue from the town until this issue is addressed. I propose drafting a letter for review by Mayor Simpkins, the town's chief financial officer, and submitting the letter along with the requested self-evaluation form to the state.

Interlaken Town
P.O. Box 1256
Midway, UT 84049
(435) 565-3812

The town has already begun taking corrective action in FY2018 by collecting revenue for road maintenance and road capital improvements through a Wasatch County tax. The FY2018 county tax to be collected is estimated to be $73,860. The town will book this revenue in governmental funds, not as fees for service in an enterprise fund. A portion of this general fund revenue will be transferred to the town's capital improvement fund for roads (Transportation Reserves Zion account) prior to FY2018 year-end (June 30, 2018). This will be entered in state reporting under "Capital Projects," not "General Fund." In addition, the town's expenses for road maintenance in FY2018 will reduce the general fund unrestricted year-end balance to a number significantly less than the general fund revenue for FY2018. In other words, general fund revenue will increase, and expenses will also increase, making the ratio of general fund balance to revenue significantly less than 75%. The FY2018 budget estimates this ratio as approximately $23,009/$76,515 = 30%. Note that the general fund revenue of $76,515 has been adjusted from the budgeted amount of $119,515 to $76,515 because the B&C road tax revenue ($18,000) and the general fund revenue allocated for road capital improvements ($25,000) have been subtracted out. These revenue sources will be attributed to capital projects, not general fund revenue.

In summary, the town's state reporting for FY2016 and FY2017 was encumbered by the method the town used in these years to collect revenue. This was considered a temporary measure to be used until the town was able to move from a fee for service revenue model, to a Wasatch County tax. For FY2018 and the future, the town will collect revenue in accordance with state policy. Revenue collected for road maintenance and improvements will be collected through a Wasatch County tax into governmental funds – General Fund and Capital Projects Fund. The revenue apportioned to the General Fund will remain in the Zion account named "General Fund." The Capital Projects portion will be transferred from the Zion General Fund account into the Zion Transportation Reserves account.

Revenue collected for our water system will continue to be collected as a "fee for service" into an Enterprise Fund, consisting of the Water Revenue Fund, Bond Sinking Fund, and Water System Reserves.

Please give me your feedback regarding this issue, and I will proceed with the corrective action letter for the state. Greg Harrigan has agreed to complete the self-evaluation report required by the state. I will assist Greg in compiling the financial reports and information required to complete this report. Mr. Walker has advised us that both the corrective action letter and the self-evaluation report should be completed within 60 days of the state's letter.

Sincerely,

Bartlett K. Smith

Bart Smith
Interlaken Town Clerk

OFFICE OF THE
STATE AUDITOR

November 9, 2017

60 Day Warning
Per *Utah Code 67-3-1(8)*, this letter serves as the required 60 day notice of our intent to withhold state-allocated funds and property tax for failure to comply with reporting requirements.

Lisa Simpkins
Interlaken Town
P.O. Box 1256
Midway, Utah 84049

Dear Lisa Simpkins:

We have reviewed the financial reports submitted by Interlaken Town for the fiscal year ended June 30, 2016. Our review was made to verify substantial compliance with generally accepted accounting principles (GAAP), Government Auditing Standards (GAS), and finance-related provisions of State law. A description of the financial reports required to be submitted to our office can be found at auditor.utah.gov/local-government-2/reporting-requirements.

Because of issues noted below, further action is required in order for Interlaken Town's financial report submission to be considered complete.

General Fund Balance Limitations
The Interlaken Town's unrestricted fund in the general fund is in excess of the maximum allowed by State law. Utah Code 10-5-113 states that the unrestricted general fund balance may not exceed 75% of the total revenue of the general fund. Please submit a corrective action plan to our office via stateauditor@utah.gov detailing how Interlaken Town *will reduce the unrestricted general fund balance to comply with State law.*

Self-Evaluation Form Report
The financial report submission did not include a "Self-Evaluation Form". This form can found on our website at https://auditor.utah.gov/local-government-2/publications/forms-for-local-governments/. Please complete this form and submit it via our website reporting.auditor.utah.gov.

Failure to properly correct all the issues noted above within 60 days of this letter could result in state-allocated funds and property taxes being withheld.

We appreciate your efforts and those of your staff. Please contact our office if you have any questions.

Sincerely,

Jeremy A. Walker, CPA
Manager, Local Governments Division
801-538-1040
jeremywalker@utah.gov

Interlaken Town

Unaudited Income Statement

June 30, 2016

	Description	Governmental Funds			Enterprise Funds	TOTALS
		General Fund	Capital Projects	Permanent Trust	Sewer / Water / Garbage, Etc	
	REVENUES					
19	Property Taxes					-
20	Sales Taxes	9,649				9,649
21	Charges for Services				212,626	212,626
22	B & C Road Funds				11,719	11,719
23	State Grants					-
24	Federal Grants					-
25	Interest	212				212
26	Transfers from other Funds					-
27	Other (specify):					
						-
						-
	Total Revenues	9,861	-	-	224,345	234,206
	EXPENSES					
28	Salaries and Benefits				21,820	21,820
29	Supplies and materials				3,735	3,735
30	Maintenance & Repair				21,411	21,411
31	Utilities				1,671	1,671
32	Contracted Services	1,207			31,750	32,957
33	Depreciation				32,245	32,245
34	Transfers to Other Funds					-
35	Other (specify):					
	Legal	6,210				6,210
	Office Expenses	153			7,764	7,917
	Total Expenses	7,570	-	-	120,396	127,966
	Net Income (Loss)	2,291	-	-	103,949	106,240
36	Fund Balances - Beginning (prior year ending)	45,424	432,020		659,877	1,137,321
	Fund Balances - Ending (current year)	47,715	432,020	-	763,826	1,243,561
37	Check Figure = 0	-	-	-	-	-
38	Capitol Outlay					-

Basic Information

Please fill in entity name and year end in red cells below before completing balance sheet.

Entity Name:	Interlaken Town
Year End (mm/dd/yyyy):	6/30/16

Interlaken Town

Unaudited Balance Sheet

June 30, 2016

		Governmental Funds			Enterprise Funds	
	ASSETS	**General Fund**	**Capitol Projects**	**Permanent Trust**	**Sewer / Water / Garbage / Funds, Etc**	**TOTALS**
3	Cash	28,666	432,020		25,029	485,715
4	Investments				3,774	3,774
5	Receivables					-
	Capital Assets					
6	Land	16,965				16,965
7	Buildings	4,628				4,628
8	Equipment	2,866			2,357,012	2,359,878
9	Less Accumulated Depreciation (enter as a negative amount)	(5,410)			(1,100,462)	(1,105,872)
10	Other (Specify):					
	Water Rights				37,508	37,508
						-
	Total Assets	47,715	432,020	-	1,322,861	1,802,596
	LIABILITIES					
11	Accounts Payable				6,035	6,035
12	CIB Loans					-
13	Other (Specify):					
	Note Payable UT Div of Finance				553,000	553,000
						-
	Total Liabilities	-	-	-	559,035	559,035
	FUND BALANCE					
14	Capital Assets	19,049			735,023	754,072
15	Restricted				11,719	11,719
16	Committed		432,020			432,020
17	Unrestricted	28,666			17,084	45,750
	Ending Fund Balance	47,715	432,020	-	763,826	1,243,561
	Total Liabilities & Fund Balance	47,715	432,020	-	1,322,861	1,802,596
18	Check Figure = 0	-	-	-	-	-

Interlaken Town
P.O. Box 1256
Midway, UT 84049
(435) 565-3812

Interlaken Town Corrective Action Plan

November 21, 2017

RE: State Auditor Report for the year ended June 30, 2016 and corrective action letter from Jeremy Walker of the Office of the State Auditor, dated November 9, 2017.
TO: Office of the State Auditor, Jeremy Walker

Dear State Auditor and Mr. Walker,

Interlaken Town received a letter dated November 9, 2017 from the Office of the State Auditor requesting the town submit a corrective action plan to address the following issue identified in the town's financial reports for the fiscal year ended June 30, 2016.

General Fund Balance Limitations

> "The Interlaken Town's unrestricted fund in the general fund is in excess of the maximum allowed by State Law. Utah Code 10-5-113 states that the unrestricted general fund balance may not exceed 75% of the total revenue of the general fund."

Interlaken Town was incorporated in May of 2015. In the town's first two fiscal years ending June 30, 2016 and June 30, 2017, the town collected all revenue through an annual assessment, paid directly by lot owners. This was the same way revenue was collected prior to becoming a town, as a water company. A portion of this revenue was held in the bank account tied to the general fund, and was used for general fund expenses, including road maintenance and repair and administrative expenses. Another portion of this revenue was transferred to the water revenue fund, the water reserves fund, and the bond sinking fund, all enterprise funds, to be used for the operation, capital investment, and debt service of the municipal water system.

The state reporting for these first two years designates all this collected assessment revenue as "charges for services," in the Enterprise Funds, even though a significant portion of this revenue went into the general fund to pay for administrative and road system expenses. Since this revenue was collected as a fee for service for both the roads and the water system, the state reporting is consistent with the instructions provided by the state.

For fiscal year ending June 30, 2018, and future years, the town will collect all revenue for its road system through a Wasatch County tax. For FY2018, the budgeted revenue from the road tax, booked as general fund revenue, is $73,860. The budgeted unrestricted fund balance for the general fund at year-end is $23,009, well below the 75% limit stated in Utah Code 10-5-113.

In the current year and future years, the town will continue to collect revenue through a Wasatch County tax, and will make certain that the general fund balance limitation is not exceeded. It is likely that the annual report for the year ended June 30, 2017 will also show excess in the general fund unrestricted funds as that year's revenue was collected in the same fashion as the previous year. The corrective action plan for the year ended June 30, 2017 would be identical to this plan. Thank you for your guidance and help in resolving this issue.

Sincerely,
Lisa Simpkins, Interlaken Town Mayor

OFFICE OF THE
STATE AUDITOR

November 9, 2017

60 Day Warning
Per *Utah Code 67-3-1(8)*, this letter serves as the required 60 day notice of our intent to withhold state-allocated funds and property tax for failure to comply with reporting requirements.

Lisa Simpkins
Interlaken Town
P.O. Box 1256
Midway, Utah 84049

Dear Lisa Simpkins:

We have reviewed the financial reports submitted by Interlaken Town for the fiscal year ended June 30, 2016. Our review was made to verify substantial compliance with generally accepted accounting principles (GAAP), Government Auditing Standards (GAS), and finance-related provisions of State law. A description of the financial reports required to be submitted to our office can be found at auditor.utah.gov/local-government-2/reporting-requirements.

Because of issues noted below, further action is required in order for Interlaken Town's financial report submission to be considered complete.

General Fund Balance Limitations
The Interlaken Town's unrestricted fund in the general fund is in excess of the maximum allowed by State law. Utah Code 10-5-113 states that the unrestricted general fund balance may not exceed 75% of the total revenue of the general fund. Please submit a corrective action plan to our office via stateauditor@utah.gov detailing how Interlaken Town *will reduce the unrestricted general fund balance to comply with State law.*

Self-Evaluation Form Report
The financial report submission did not include a "Self-Evaluation Form". This form can found on our website at https://auditor.utah.gov/local-government-2/publications/forms-for-local-governments/. Please complete this form and submit it via our website reporting.auditor.utah.gov.

Failure to properly correct all the issues noted above within 60 days of this letter could result in state-allocated funds and property taxes being withheld.

We appreciate your efforts and those of your staff. Please contact our office if you have any questions.

Sincerely,

Jeremy A. Walker, CPA
Manager, Local Governments Division
801-538-1040
jeremywalker@utah.gov

Interlaken Town.
Year ending June 30, 2016

Revised May 2016

Financial and Compliance Self-Evaluation Form for LOCAL GOVERNMENT ENTITIES with Total Annual Revenues or Expenses Less than $350,000

For years ending June 30, 2015 and later

SECTION 1. BACKGROUND: Governing boards are responsible for ensuring that entity resources are used in an efficient, effective and lawful manner. As such, board/council members should take a proactive role in monitoring and evaluating the entity's financial and compliance processes.

The Office of the Utah State Auditor (OSA) developed the following procedures to assist governing boards with:

- improving or implementing good business practices;
- complying with policies, procedures, and laws; and
- limiting the potential for misuse of resources.

SECTION 2. INSTRUCTIONS:

This self-evaluation must be completed by a member of the governing body (Evaluator), such as a town council member or district board member, **who does not handle the entity's finances**. For example, in an entity with only three board members where the board chair also serves as the chief administrative officer, and the other two board members serve as the clerk and treasurer, the board chair would be the Evaluator and perform the procedures on this form. For procedures and questions where 'financial staff' are referenced, using the previous example, 'financial staff' would be the board members who serve as the clerk and treasurer. Otherwise, financial staff are those individuals who are charged with maintaining the entity's finances.

The Evaluator will examine financial documents (see Section 3 below for a list of documents), inquire with financial staff, and then address the form questions. The questions are designed so that "No" responses indicate weaknesses or noncompliance. **For all "No" responses, the Evaluator must provide, in the designated column, a corrective action plan that will remedy the weakness or noncompliance going forward.**

We anticipate the time to complete this form to be 4 to 8 hours; however, completion may take only 2 hours if the entity is very well organized. **The completed form is required to be submitted to the OSA within 180 days after the fiscal year end as part of the annual reporting package via our reporting website:** reporting.auditor.utah.gov. Please note that your uploaded form will be available to the public, and the answers provided on this form are subject to audit by the OSA or its designee.

NOTE: The entity may choose to contract with a CPA or other finance professional who does not handle the entity's finances to complete this form.

For help completing this form, please contact Ryan Roberts (Local and Special Service Districts) at 801-538-1721 or ryanroberts@utah.gov or Jeremy Walker (Cities and Towns) at 801-538-1040 or jeremywalker@utah.gov.

SECTION 3: DOCUMENTS NEEDED TO COMPLETE THE SELF-EVALUATION PROCEDURES

To reduce the amount of time in completing this form, the Evaluator should obtain the following documents **before** performing the self-evaluation procedures:

1. Written financial policies and procedures.
2. The original budget, any amended budgets, and the final budget.
3. Newspaper notices or information from the Utah Public Notice Website (pmn.utah.gov) of all budget hearings.
4. The year-end financial report (also referred to as the "financial statements" or "Financial Survey").
5. The accounting records worksheet—for example, the check book register; the ledger; or transactions maintained in a spreadsheet, QuickBooks, or other electronic software.
6. Copies of all financial reports presented to the board/council during the year.
7. Copies of bank statements and bank reconciliations for all entity accounts for the entire fiscal year.
8. Copies of all cash receipt logs or receipt books for the year.
9. Copies of all credit card or purchasing card statements for the entire fiscal year.
10. Board/Council meeting minutes for the year, including budget hearings.
11. Copies of the Treasurer's Fidelity Bond documents (see question 31 for more information).

SECTION 4. PROCEDURES & QUESTIONS:

- Every question must be marked as either "Yes", "No," or "N/A" if appropriate.
- For any "No" responses, describe how the weakness will be corrected in the comments / corrective action column. Please attach any additional information as needed to detail the corrective action.

Entity Name: Interlaken Town

For Fiscal Period Ending: June 30, 2016

Procedures & Questions	Yes	No	N/A	Comments / Corrective Action
GENERAL				
Procedure: Obtain copies of, or access to, the entity's written financial policies and procedures. (Note: Policies should be written. If no written policies exist, question #1 below should be answered with 'No'.)				
1. Do the policies and procedures address the following:				
a. Receiving, recording, and timely deposit of funds?		✓		Interlaken is developing a financial procedures
b. Purchasing?		✓		document to be completed in January 2018.
c. Approval of disbursements?		✓		
d. Records requests (GRAMA) – adoption of a uniform fee schedule if fees are being charged?		✓		
e. Record retention?		✓		
Procedure: Ask financial staff questions about the policies above to determine their knowledge of the policies.				
2. Per your discussion, are staff knowledgeable of the policies?	✓			
Procedure: Ask the financial staff how they keep up to date on new State, accounting, and compliance requirements and about any training they have received during the past year. Review any certificates or other training materials if available.				
3. If financial expertise is lacking, has help been sought from peers, auditors, or outside consultants?	✓			
BUDGET				
Procedure: Obtain copies of (1) the original budget, any amended budgets, and the final budget presented at budget hearings; (2) the related budget hearing meeting minutes and (3) the newspaper notices for those meetings (or information of the meeting notices from the Utah Public Notice Website at pmn.utah.gov).				
4. Was the required 7-day notice given to the public for all budget hearings (i.e., for original, amended, and final budget)? EXCEPTION: Notice is not required to amend an enterprise fund budget.	✓			
5. Was the original budget approved by the governing body before the start of the fiscal year?	✓			
6. Did the original budget include three columns of data – (1) actual revenues/expenses from the last completed fiscal year, (2) estimated total revenues/expenses for the current fiscal year (i.e. the year about to end at the time the budget was created), and (3) budget estimates for the upcoming fiscal year? (see example below)	✓			

Procedures & Questions	Yes	No	N/A	Comments / Corrective Action

EXAMPLE BUDGETS

Budget for FYE 12/31/15 (prepared in Nov 2014)

	1	2	3
Description	Actual Amts of Last Completed Fiscal Year	Estimated Current Fiscal Year Amts	Budget Estimates for Upcoming Fiscal Year
Property Taxes	$56,852	$55,450	$56,000
Building Permits	$42,139	$39,271	$43,000
	This is the entity's final, end-of-year amount from FYE 12/31/13	This is what was estimated would be the final, end-of-year amount for FYE 12/31/14	This is the entity's estimate for FYE 6/30/15

For Entities with FYE 6/30/16 (budget prepared in May 2015)

	1	2	3
Description	Actual Amts of Last Completed Fiscal Year	Estimated Current Fiscal Year Amts	Budget Estimates for Upcoming Fiscal Year
Property Taxes	$56,852	$55,450	$56,000
Building Permits	$42,139	$39,271	$43,000
	This is the entity's final, end-of-year amount from FYE 6/30/14	This is what was estimated would be the final, end-of-year amount for FYE 6/30/15	This is the entity's estimate for FYE 6/30/16

7. If any amendments were necessary, was the budget amended BEFORE payments were made that exceeded the budget and not just at the end of the year?			✓	No amendments were necessary.
YEAR-END FINANCIAL REPORT/STATEMENTS or OSA FINANCIAL SURVEY				
Procedure: Obtain a copy of 1) the final budget and 2) the year-end financial report/statements or OSA Financial Survey				
8. Did the entity's expenses stay within the amount appropriated in the final budget?	✓			
9. **Municipalities only:** Was the entity's unrestricted general fund balance (calculated as assets less liabilities less restricted funds such as funds set aside for B&C roads) less than **25% for cities** or **75% for towns** of the total revenue of the general fund for the year?		✓		In FY2016, most revenue was collected as fees for service into an enterprise fund. Going forward, road revenue is collected as a Wasatch Cty tax in General Fund.

Procedures & Questions	Yes	No	N/A	Comments / Corrective Action
10. **Local and Special Service Districts who receive most of their funds from property taxes only:** Was the entity's unrestricted general fund balance (amount in all checking and saving accounts at the end of the year) less than: a. 100% of the current year's property tax revenue; ***or*** b. 25% of the total general fund revenues, if the annual general fund budget is greater than $100,000; ***or*** c. 50% of the total general fund revenues, if the annual general fund budget is equal to or less than $100,000.			✓	
REPORTING				
Procedure: Look through the accounting records worksheet (e.g. the check book register; the ledger; or the transactions maintained in a spreadsheet, QuickBooks, or other electronic software). Then look over the supporting documentation maintained by the financial staff.				
11. Does it appear that financial records (documentation) are maintained to support transactions, balances, adjustments, etc., and the preparation of the financial reports?	✓			
Procedure: Obtain copies of all financial reports presented to the board/council during the year.				
12. Were financial reports prepared and presented to the governing body monthly (municipalities) or quarterly (districts)?	✓			
13. Did the reports include a comparison of actual expenses/revenues to budgeted amounts?	✓			
Procedure: Select at least two financial reports presented to the board/council during the year. From each report, select at least 5 line items from the report and compare those lines to the check book register or ledger, bank statement, and approved budget.				
14. Do the financial records match the reports presented to the board/council?	✓			
BANK STATEMENTS				
Procedure: Obtain copies of bank statements and bank reconciliations for all accounts for the entire year. Ensure that the bank statements include copies of cancelled checks.				
15. Are reconciliations (i.e., a comparison between the bank statement and the entity's books) being performed monthly for all bank and investment accounts?	✓			
16. If the person performing the bank reconciliation can also write checks and make deposits, does someone else also perform a detailed review of the monthly bank/investment reconciliations?			✓	Two different people perform these tasks.

Procedures & Questions	Yes	No	N/A	Comments / Corrective Action
Procedure: Obtain the cash receipt logs or receipt books for the year. Select at least 10% or 5 (whichever is less, but at least 5) of receipts issued during the year.				
17. For each individual receipt selected, review the corresponding bank statement and determine that the receipt was deposited into the bank. (Note: individual receipts may have been batched together into a deposit, so also obtain the corresponding deposit listing, if applicable).	✓			
Procedure: From the monthly bank statements, select at least 10% or 25 (whichever is less, but at least 5) of the payments made during the year. Be sure to include checks, debit card purchases, and other withdrawal transactions in your selection. For each selection:				
18. Review the cancelled checks (if applicable). • Were they signed by only those who are authorized?	✓			
• Were they signed by persons other than the person to whom the check is made payable?	✓			
19. Were the payments supported by invoices and other documentation detailing the items/services purchased or funds transferred?	✓			
20. Were the transactions consistent with the entity's purpose?	✓			
Procedure: Obtain copies of all credit card or purchasing card statements for the year. Look through the supporting receipts and other applicable documentation.				
21. Are purchasing/credit card transactions reviewed by someone other than the card holder for appropriateness and for supporting documents such as receipts?			✓	No credit cards are used.
22. Does it appear that purchase card holders are required to submit receipts for all purchases made?			✓	
PUBLIC MEETINGS ACT				
Procedure: Obtain the schedule of meetings for the board/council for the year. Select at least two of the meetings and obtain copies of the meeting minutes, including the agenda. Find the notice of each meeting on the Utah Public Notice Website (pmn.utah.gov).				
23. For meetings held *after* April 30, 2015, did the entity give proper notice of the meeting at least 24 hours before each meeting by posting the notice on the Utah Public Notice Website?	✓			
24. Did the governing body take final actions *only* on those topics listed as agenda items?	✓			
25. **Municipalities only:** Within three days of the meeting minutes being approved, were the minutes posted to the Utah Public Notice Website? (EXCEPTIONS: 5th class cities and towns were encouraged, but not required, to comply for meetings held prior to January 2015).		✓		To date, all minutes are posted on the Interlaken website. In the future, all minutes will also be posted on utah.gov.

Procedures & Questions	Yes	No	N/A	Comments / Corrective Action
26. If a portion of the meeting was closed to the public, answer the following questions: a. *Before the meeting was closed*, was the reason for holding the closed meeting documented in the meeting minutes and a roll call vote taken?			✓	
b. Was the reason for closing the meeting permitted under statute? Meetings may be closed for only the following: • Discussion of the character, professional competence or health of an individual. • Strategy sessions for: o Collective bargaining o Pending or imminent litigation o Purchase, exchange, lease or sale of real property including water rights and shares • Discussion of security personnel, devices or systems. • Investigations regarding allegations of criminal conduct.			✓	
c. Was an audio recording of the closed meeting made, **-or-** if the meeting was closed to discuss (a) the character, professional competence, or health of an individual or (b) the deployment of security personnel, devices, or systems, did the person presiding at the meeting sign a sworn statement affirming that the sole purpose for closing the meeting was to discuss those matters.			✓	
27. Per your knowledge or review of the board/council meeting minutes, did the presiding officer of the governing body ensure that members of the governing body were provided with annual training on the requirements of open and public meetings? NOTE: This training can be accomplished through various means, including in-house training, online sources, etc.		✓		Council members will attend ULCT training in January, 2018.
OTHER COMPLIANCE				
Procedure: Inquire of management and financial staff, or make observations, as to whether the following occurred:				
28. Is the entity compliant with State nepotism and hiring laws and the entity's own policies and procedures regarding nepotism? Generally, no public officer may employ, appoint, vote for, or recommend a relative for employment. Further, no public officer may directly supervise any appointee who is a relative. Relative means father, mother, grandfather, grandmother, stepchild, husband, wife, son, daughter, sister, brother, aunt, uncle, nephew, niece, first cousin, mother-in-law, father-in-law, brother-in-law, sister-in-law, son-in-law, or daughter-in-law.	✓			

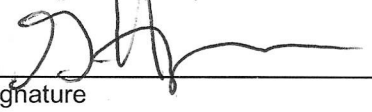
Procedures & Questions	Yes	No	N/A	Comments / Corrective Action
29. Did the entity's designated records officer complete an online training course on the requirements of GRAMA (should be completed annually)? (Obtain the copy of the training certificate to verify.)		✓		Town Clerk will complete training in January, 2018.
30. **Local and Special Service Districts only:** Did each member of the board of trustees, within one year after taking office, complete training provided by the Office of the Utah State Auditor? (Obtain the copy of the training certificate to verify.)				
Procedure: Obtain copies of the Treasurer's fidelity bond documents. 'Treasurer' is defined as the person who has the responsibility for the safekeeping of the entity's funds. This could be an elected or appointed treasurer, clerk, or financial secretary. A fidelity bond is a form of insurance protection that covers losses that may occur as a result of fraudulent acts by the Treasurer.				
31. Is the Treasurer properly bonded in accordance with Utah Administrative Code R628-4-4 for the Money Management Council which states that for an entity with a revenue budget between: • $0 and $10,000 no bond is required. • $10,001 and $100,000 the bond should equal 9% of total revenues or $5,000, whichever is greater. • $100,001 and $500,000 the bond should equal 8% of total revenues or $9,000, whichever is greater. The basis used should be all budgeted gross revenue for the previous fiscal year (final budget). Budgeted gross revenue is further defined by the Money Management Council as also including proceeds from the sale of assets, borrowing proceeds, revenues of fiduciary funds and any other revenues collected or handled by the treasurer. Bonds must be issued by a corporate surety licensed to do business in the State of Utah and rated XII or better by the latest issue of Best's Rating Guide. Bonds should be effective as of the date the treasurer assumes the duties of the office or is sworn in.	✓			
FRAUD, ILLEGAL ACTS, OR NONCOMPLIANCE ISSUES				
Procedure: Ask the financial staff and management if they are aware of any fraud, illegal acts, or noncompliance issues occurring. Also review board/council meeting minutes for the same. Per your discussion, review, and personal knowledge, if you find that any fraud, illegal acts, or noncompliance occurred, inquire what the financial staff and management have done to correct the issues. Further, ask them what procedures they have put in place to prevent or detect the same from happening in the future.				
32. Has the entity been free of acts of fraud, illegal acts, or noncompliance?	✓			
33. If fraud, illegal acts, or noncompliance occurred, was sufficient action taken to minimize the risk of reoccurrence of fraud, illegal acts, or noncompliance?			✓	
CORRECTIVE ACTION PLAN				
34. For any "No" responses, have corrective actions been detailed above or in attached documentation?	✓			

SECTION 5. CERTIFICATION:

I confirm to the best of my knowledge, and in the acting capacity of my responsibilities as a member of the stated local government's governing body, that I performed the procedures enumerated above; or I have reviewed the work of the designee who assisted in the preparation of this form and I take responsibility for the accuracy of the work; and that the information provided in this form is correct.

BOARD/COUNCIL MEMBER:

Greg Harrigan
Name (please print)


Signature

Interlaken Town Council Member
Title

greg@parkcityrealestateguide.com
Email Address

(435)714-0909
Phone Number

11/26/2017
Date Evaluation was Completed

Interlaken Town
Local Government Entity Name

June 30, 2016
For Year Ending

1.5 hours
Amount of Time to Complete Form

If prepared by a CPA or Finance Professional:

Name of preparer

Signature

Email Address

Phone Number

Interlaken Town
P.O. Box 1256
Midway, UT 84049
(435) 565-3812

Interlaken Town Corrective Action Plan

November 21, 2017

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TO: Office of the State Auditor, Jeremy Walker

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In the current year and future years, the town will continue to collect revenue through a Wasatch County tax, and will make certain that the general fund balance limitation is not exceeded. It is likely that the annual report for the year ended June 30, 2017 will also show excess in the general fund unrestricted funds as that year's revenue was collected in the same fashion as the previous year. The corrective action plan for the year ended June 30, 2017 would be identical to this plan. Thank you for your guidance and help in resolving this issue.

Sincerely,
Lisa Simpkins, Interlaken Town Mayor