Village of Arlington Heights
Plan Commission
Board Room, 3rd Floor
Arlington Heights Village Hall, 33 S. Arlington Heights Rd.
January 24, 2024
7:30 PM

I. CALL TO ORDER

II. ROLL CALL

III. APPROVAL OF MINUTES

A. Ramen USA - 926-928 W. Algonquin Rd. - 1/10/24

B. Annual Review of the Comprehensive Plan - 1/10/24

IV. PUBLIC HEARINGS

A. Verizon Wireless Cell Tower - 1500 W. Shure Dr. - PC#23-017 Special Use Permit(s) to allow a permanent Commercial Antenna on the principal building facade and a temporary Commercial Antenna in the parking lot, Variation from landscaping requirement

V. OTHER BUSINESS

A. Public Comment

VI. PUBLIC COMMENTS

VII. ADJOURNMENT

Persons with disabilities requiring auxiliary aids or services, such as an American Sign Language interpreter or written materials in accessible formats, should contact Erin Mercado, at 33 S. Arlington Heights Road, Arlington Heights, Illinois 60005, emercado@vah.com or (847)368-5793.

Plan Commission
1/24/2024

Item: Ramen USA - 926-928 W. Algonquin Rd. - 1/10/24

Department: Planning & Community Development Department

ATTACHMENTS:

Description	Type
Ramen USA - 926-928 W Algonquin Rd - 1/10/24	Minutes

PLAN
COMMISSION

REPORT OF THE PROCEEDINGS OF A PUBLIC HEARING
BEFORE THE VILLAGE OF ARLINGTON HEIGHTS
PLAN COMMISSION

RE: RAMEN USA - 926 & 928 WEST ALGONQUIN ROAD - PC #23-018
LAND USE VARIATION FOR BAKERY PRODUCTS, WHOLESALE AND PRODUCTION IN THE B-2 DISTRICT

REPORT OF PROCEEDINGS had before the Village of Arlington Heights Plan Commission Meeting taken at the Arlington Heights Village Hall, 33 South Arlington Heights Road, 3rd Floor Board Room, Arlington Heights, Illinois on the 10th day of January, 2024 at the hour of 7:30 p.m.

MEMBERS PRESENT:

SUSAN DAWSON, Chairperson
MARY JO WARSKOW
JOE LORENZINI
BRUCE GREEN
GEORGE DROST
TERRY ENNES
JAY CHERWIN

ALSO PRESENT:

HAILEY NICHOLAS, Assistant Planner
SAM HUBBARD, Development Planner
MICHAEL LYSICATOS, Assistant Director, Planning and Community Development

DRAFT

CHAIRPERSON DAWSON: Welcome to the Plan Commission meeting.
Pledge allegiance.
(Pledge of Allegiance recited.)
CHAIRPERSON DAWSON: All right, roll call, please.
MR. LYSICATOS: Yes, sorry about that. Okay, Chair Dawson.
CHAIRPERSON DAWSON: Here.
MR. LYSICATOS: Commissioner Cherwin.
COMMISSIONER CHERWIN: Here.
MR. LYSICATOS: Commissioner Drost.
COMMISSIONER DROST: Here.
MR. LYSICATOS: Commissioner Ennes.
COMMISSIONER ENNES: Here.
MR. LYSICATOS: Commissioner Green.
COMMISSIONER GREEN: Here.
MR. LYSICATOS: Commissioner Jensen.
(No response.)
MR. LYSICATOS: Commissioner Lorenzini.
COMMISSIONER LORENZINI: Here.
MR. LYSICATOS: Commissioner Sigalos.
(No response.)
MR. LYSICATOS: And Commissioner Warskow.
COMMISSIONER WARSKOW: Here.
CHAIRPERSON DAWSON: All right, first order of business, approval of the minutes from the last meeting.
COMMISSIONER GREEN: I'd like to make a motion to approve those minutes.
COMMISSIONER ENNES: I second.
CHAIRPERSON DAWSON: All in favor?
(Chorus of ayes.)
CHAIRPERSON DAWSON: Any abstentions or opposed?
COMMISSIONER WARSKOW: I guess I should abstain since I didn't attend that meeting.
CHAIRPERSON DAWSON: Okay, so we have the first petition on the agenda. Which one is first? Ramen. Is Ramen, is the Petitioner present? Yes. Would you like to come up to the podium please?
First of all, have all public notices been given?
MS. NICHOLAS: Yes.
CHAIRPERSON DAWSON: Thank you.
I need to swear in anyone who'll be testifying. Even if you're not going to, if you think you might, let's just get you sworn in. Just you or would the two behind you be potentially testifying? It's all right.
MR. KIMORI: I'm KC, owner of the business, and I brought one of my employees. She's the operation manager and she's going to do the presentation today.
MR. PENAVIC: I'm just representing the ownership and here as moral support.
CHAIRPERSON DAWSON: Okay, so why don't we just swear you two in,

and then if for some reason ownership needs to stand up, we will swear you in later.

(Witnesses sworn.)

CHAIRPERSON DAWSON: Terrific. Then go ahead and give us your report. If you don't mind stating your name and spelling your last name for the record, that would be great.

MR. KIMORI: Okay, I'm KC Kimori, owner of the business. Thank you very much for your time today.

CHAIRPERSON DAWSON: Could you spell the last name? Spell the last name for the record.

MR. KIMORI: Spelling is K-o-i-c-h-i-r-o, my first name Koichiro, and last name is K-i-m-o-r-i, Kimori.

CHAIRPERSON DAWSON: Great, thank you. Do you have a presentation for us? If you don't, that's fine.

MR. KIMORI: Yes, just, again, thank you for your time. I'm here for the petition of the land use variation and bakery and the wholesale. I brought Kristie Toondarack, the Operations Manager, and she's very familiar with the operations so she's going to do this presentation.

CHAIRPERSON DAWSON: Okay, terrific.

MR. KIMORI: The first page, there's the petition for the land use variation, I'm repeating in saying this, in the B-2 District. There you go.

MS. TOONDARACK: Hi, thank you, everybody. Thank you for joining us tonight and, you know, I really appreciate your time with us, spending this chilly Wednesday night, and of course, you know, next week we're going to be ending up in the negatives, but anyway, we do appreciate you guys joining us.

CHAIRPERSON DAWSON: Can I interrupt? State your name and spell your last name, just it helps the court reporter.

MS. TOONDARACK: Sure. My name is Kristie Toondarack, and the first name is spelled K-r-i-s-t-i-e, last name T-o-o-n-d-a-r-a-c-k.

CHAIRPERSON DAWSON: Great, thank you so much.

MS. TOONDARACK: Yes, no problem. Okay. All right, so first and foremost, I've been working with KC since 2020 up until now. I have a pretty extensive knowledge about the restaurant business. My family has been in the restaurant business since I was a child. Up until now for at least eight years, I've been very familiar with these operations and it's been a great journey working with Mr. Kimori and, you know, we are here to continue our journey and we're hoping to expand our business.

So, in the first slide, you can see we will be talking about our business milestones, a little bit about our history. At this time, right now our restaurant Ramen USA, we're currently operating as a full and dine-in restaurant as well as doing takeout orders. Sorry, I'm just going to adjust the microphone.

So, now first and foremost, we started our business in 2020, and we started as a takeout lunch pack operations. Of course during 2020, the pandemic presented a lot of, you know, natural, you know, due to the nature of the circumstances of, you know, COVID-19, we faced many challenges as with other businesses as well such as, you know, having to face the minimal capacity of people, lots of social distancing, and trying to keep sanitation up to par. During this time, we were also having Mitsuwa Marketplace as one of our clients helping us, or not helping us but more so we were providing them packing services during the time of 2020.

During 2020, our takeout service at the restaurant, our retail and restaurant as well was not doing so well, but throughout these years we've seen a lot of progressive growth in our restaurant and retail business, and more rapidly so as we've seen growth in the Mitsuwa Marketplace as we were packaging our products to Mitsuwa Marketplace. Up until now we've seen a rapid growth, and since we've seen the demand to rapidly grow, we need more space to expand.

Okay, and our second slide, now I would like to point out why we need more space. Know that Mr. KC submitted a building permit application for the new unit of 926, and this location was previously used as a State Farm office. Some alterations that we are looking to do to expand our business is install like simple hand sinks replacements or new hand sinks, prep tables, refrigerators and wire shelving. Our main purpose of using this space is of course to expand our space for packaging operations and additional storage space in order to compensate with the increasing rapid orders we are receiving from Mitsuwa Marketplace.

Okay, now you can see here this is our architect floor plan. Some couple of points I would like to point, that we are looking to do some minor alternations, it would be like to demolish the old furniture, tiles, you know, replace some new power plugs, new hand sink, floor tiles, wire shelving, refrigerator, appliances, prep tables, and also allowing accesses throughout all the units. Of course all of our equipment is NSF certified, and also we have submitted the fire safety and egress plans. So, everything is up to code, and of course we talk with health inspectors and building inspectors and we've done everything to keep everything up to code.

MR. KIMORI: The left side drawing in this before, the left side drawing, all the prep tables and shelvings and refrigerators, that's after the alterations.

MS. TOONDARACK: All right, thank you. Now, here we'd like to kind of visualize our work environment and our operational volumes. So, under our present circumstances right now, we are, excuse me, we are, for the majority of our operations, we are either doing any type of cook, prep, pack, process or any deliveries. Our labor costs and revenues and hours of operations, this is between the wholesale and restaurant business, as you can see below, and of course our percentages are, you know, are various depending on seasonal customer volume, holiday traffic, and of course depending on our manpower situation. Here, we have Mr. Kimori putting out our ratios.

MR. KIMORI: Yes, the operation volumes means how much stuff that our employees do it in timely schedules. Operation volumes is 50/50. Wholesale is when we package for the Mitsuwa Marketplace, that's the wholesale part, and the restaurant part is 50 percent, 50/50 operation volumes. Labor costs, they're 40/60.

In the restaurant business, in the Ramen side, the restaurant business, it needs more manpower. That's why the labor cost is higher than the wholesale business. The revenue, Mitsuwa is the last variable. We're doing everyday packaging, so its volume is higher than the restaurant business, but the restaurant, we are picking it up more, more sales. So, down the road is, hopefully, like 50/50, 60/40.

Then the hours of operation, the packaging, all the preparations for the Mitsuwa Marketplace, it's only the morning time. On the right-hand side, there's a diagram. So, package work, molding, boxing, delivery, cleaning stuff, it's morning time. We start it from 6:00 a.m. to 11:30, and after 11:30 we start doing the preparation for the Ramen restaurant business.

MS. TOONDARACK: Okay, pictures. All right, so here above, you can see this is our restaurant menu. From my left side, I believe your left as well, you can see those are

some samples of our ramen menu. Ramen in Japanese, this is just ramen noodle bowls or, yes, noodle soup bowls. Then addressing to the right, you can see we do have like a Japanese poke style fish over rice and Japanese curry. Like I said, these are the items that we offer at our restaurant location.

Below, what we see are, this is our packaged products that we deliver to Mitsuwa Marketplace. As you can see, we have some sushi, in the middle we have, those are, we call it rice bowls or uni kyuri. To the third picture, we also do rice bowls and also more varieties of sushi.

MR. KIMORI: Oh, then the salaries. Like I said, Mitsuwa's operation is only 6:00 a.m. to 11:30, and after that 11:45 to 2:00 p.m. for the lunch restaurant business, and dinnertime 5:00 to 9:00. So, the last site, the other business owner, I really appreciate letting us doing the business in Arlington Heights. This is, it really got challenging after the pandemic.

Actually, I used to do another Japanese restaurant in Rolling Meadows, and right before the pandemic I closed it. I've been through a few years helping our friends' restaurants. Finally, I found his property and then we started up the new business in Arlington Heights. This is our first time in Arlington Heights.

So, our goal is to satisfy customers, and our motto is to keep the good quality of our products and service. I believe there is mutual benefit for our experience and for our customers in Arlington Heights. Thank you very much.

CHAIRPERSON DAWSON: Thank you so much. Just one question, have you read the Staff report, and do you agree to the conditions of approval?

MR. KIMORI: Yes.

CHAIRPERSON DAWSON: You do, all right. Great, thank you. Thank you so much. We'll move to Staff report now and if there's questions we'll call you back up in a minute.

MS. TOONDARACK: Okay, thank you.

CHAIRPERSON DAWSON: All right, Hailey?

MS. NICHOLAS: All right, thank you. Today I'll be providing the Staff presentation for Project #23-018, Ramen USA.

So, the subject property is 926 and 928 West Algonquin Road which is located in the B-2 General Business District. The Comprehensive Plan designates this property as appropriate for commercial land uses. The Petitioner is requesting a land use variation to allow bakery products, wholesale and production facility in the B-2 District, and there are no variations requested.

This image provides an aerial view of the subject property which is located within the Surrey Ridge Shopping Center. This shopping center is a planned unit development that was approved in 1975 which includes the Lowe's to the northwest, also the southeast, the bank and the auto repair business next to the outlined red parcel which is the subject property. Access to the site comes from three curb cuts on Algonquin Road and one curb cut on Golf Road, and the parking is shared among all businesses within the planned unit development with a total of 685 parking spaces on site.

Ramen USA has operated their existing restaurant since 2020 at 932 West Algonquin Road. They received a special use waiver to expand their operations into 928 West Algonquin Road in March of 2023. At that time, it was not clear that Unit 928 was used for the preparation, packaging and storage of food products to be delivered to the Mitsuwa Marketplace, a local grocery store, where it's then sold as a retail food item. Now, the Petitioner

is looking to expand this operation into 926 West Algonquin Road, and this expansion requires a land use variation for bakery products, wholesale and production.

The Petitioner has indicated that their primary business activities include cooking, preparing, packaging and storing food products as listed here and mentioned by the Petitioner previously with lovely pictures. Once these products are prepared and packaged, the food is delivered daily to Mitsuwa Marketplace using two delivery vehicles owned and operated by the Petitioner. The vehicles are not kept on site overnight.

The hours of operation are before the restaurant opens from 6:00 a.m. to 11:30 a.m., Monday through Sunday. Loading and delivery occurs between 8:45 and 11:00 a.m. There are 10 employees total, and four of which are responsible for the food production and processing side of the business.

This is the site plan. I'm showing the subject property, particularly the three units that the Petitioner will be occupying, two of which they currently occupy, 932 and 928. Loading and delivery will occur in the rear of the building through the backdoors of Units 926 and 928.

This is the floor plan for the business. They currently occupy 932 and 928, so 932 is the existing restaurant floor plan, and 928 is their current processing and storage production, and 926 is where they plan to expand. As you can see in the picture here, they plan to open some walls between the units to create open access among all three units and some other work as they had previously mentioned. To expand into Unit 926, the Petitioner will be working with their contractors and they're already working with the Building Department to obtain permits for all of this remodel work.

These are the parking requirements for the planned unit development as calculated by Staff. There's an overall surplus of three spaces, and with all tenant spaces currently occupied, Staff has determined that there is sufficient parking on site to support all uses within this development. That being said, as required for a Plan Commission application, a parking survey was submitted by the Petitioner and this was then combined with a survey submitted by another business in the shopping center.

The Petitioner surveyed the parking area for the shopping center within the development shown in this aerial image so it wasn't the entire parking lot. So, they surveyed the 110 spaces that were closest to the unit which was determined by Staff. This table shows six days of survey data in which the highest utilization was 56 percent. Staff has reviewed the survey and conducted site visits and did not observe any issues with parking availability.

The Petitioner has responded to the criteria of approval for variation requests. Staff is recommending a condition of approval for this petition to confirm compliance with these conditions and the Comprehensive Plan. As mentioned, the subject property is designated as appropriate for commercial land uses. That being said, the proposed use, bakery products, wholesale and production, is classified as a manufacturing land use in the Zoning Code. However, due to the connection and association with the Petitioner's existing restaurant, Ramen USA, Staff concurs with the Petitioner that the proposed use will not alter the character of the shopping center, and that the proposed use generally complies with the intent of the Comprehensive Plan.

The Staff Development Committee recommends approval of the application subject to the conditions, the first addressing what I had previously mentioned, that the Petitioner or a future tenant must keep the restaurant or another comparable use in order for the bakery products, wholesale and production facility to remain in operation. Therefore, if a

future facility were to occupy the space without having an associated restaurant or comparable use, they will not be permitted to do so without securing their own zoning approvals. The final condition is that the Petitioner shall comply with all applicable regulations and policies. That concludes the Staff presentation.

CHAIRPERSON DAWSON: Great, thank you.

Do I have a motion to approve the Staff presentation?

COMMISSIONER LORENZINI: I'll make that motion.

COMMISSIONER DROST: I'll second it.

CHAIRPERSON DAWSON: Did you catch that? Because I don't know who said what. Who has the motion and who has the second?

MS. NICHOLAS: Lorenzini motioned.

COMMISSIONER LORENZINI: I had the motion.

CHAIRPERSON DAWSON: Commissioner Lorenzini has the motion. Commissioner Drost, you're the second?

COMMISSIONER DROST: And I was the second, yes.

CHAIRPERSON DAWSON: Okay, wow.

All right, all in favor?

(Chorus of ayes.)

CHAIRPERSON DAWSON: Any opposed? Any abstentions?

(No response.)

CHAIRPERSON DAWSON: All right, motion passes. Terrific. So, then we'll go ahead and go to questions.

Let's start with you, Commissioner Warskow.

COMMISSIONER WARSKOW: I think it's a wonderful project and I have no questions.

CHAIRPERSON DAWSON: Great.

Commissioner Lorenzini?

COMMISSIONER LORENZINI: I agree, it's a good project and no questions.

CHAIRPERSON DAWSON: Commissioner Green?

COMMISSIONER GREEN: Thumbs up, no questions.

CHAIRPERSON DAWSON: Commissioner Drost?

COMMISSIONER DROST: Thumbs up. Just a question as to the vacancy, maybe the owner, the moral supporter here. What was the former tenant in that location at 928?

CHAIRPERSON DAWSON: If he's going to --

COMMISSIONER DROST: He needs to be sworn in.

CHAIRPERSON DAWSON: Come on up.

COMMISSIONER DROST: I wanted to get you into the role here, you know, so you're showing value.

MR. PENAVIC: Thank you.

(Witness sworn.)

CHAIRPERSON DAWSON: All right, and then state your name and spell your last name please.

MR. PENAVIC: Yes. My first name is Tin, T-i-n, last name is Penavic, P-e-n-a-v-i-c, and I represent the ownership. We've been the owner since 2016. So, when we bought the Surrey Ridge Shopping Center, it was occupied by an existing Japanese restaurant

which was on the corner. Then right next to it was the State Farm office which had been there for about 32 years, and then after that was a gadget repair store.

The gadget repair store was the first to vacate after we took over due to lack of staffing and no business. They in turn leased it to another gadget store. They also were impacted directly by the pandemic by the time we took over and had them as a second tenant in 2019, so they didn't renew. Then from 2019 through 2021, that space was vacant and I couldn't get anybody even interested in a gadget store, especially if it was going to be the same style of use.

The State Farm store as well, people found out that they didn't want to pay and have a State Farm office when most of them were doing their office work remotely during COVID. Having a franchise agent, you know, meant a lot more paperwork and legwork for a lot of these agents, so they just decided not to renew as well.

COMMISSIONER DROST: Yes, so we're getting retail basically instead of office use.

MR. PENAVIC: I think so, yes.

COMMISSIONER DROST: So, this is going to be a boost to sales tax as well.

MR. PENAVIC: It will be a boost to sales tax because the existing mart that he also just got approved on which is the M Cafe, that will be open soon, and that was a mart that was a vacant space when we took over and that was a Mediterranean bakery for three years, but they opted not to renew. So, he's been my only tenant and I've been in this business now since I was child, I've been doing this with my family. I've only seen one tenant and he's the only one that's grown from one space to two spaces to three spaces to four spaces.

COMMISSIONER DROST: He'll soon take over the whole center then.

MR. PENAVIC: We're already in negotiations that I'm ready to, you know, when the time comes, but --

COMMISSIONER DROST: Okay, just wanted to get this for the record so that, you know --

MR. PENAVIC: -- Mr. Kimori has been an excellent tenant of excellent character. I couldn't have been happier that when he came, he came at the right time, and he always made his payments and everything, even during, you know, the impact of the COVID-19 pandemic. When other tenants were asking me for breaks, he was still paying on time. I never had an issue with his character or how he was conducting business. Those of us that have tried his food have always come back for seconds. I recommend it to you guys as well.

COMMISSIONER DROST: Yes, and that's a disappointment because the pictures certainly whetted my appetite.

MR. PENAVIC: Yes, exactly.

COMMISSIONER DROST: Yes.

MR. PENAVIC: So, we hope to see you all there.

COMMISSIONER DROST: Yes. So, Mr. Kimori, could you come to the microphone please? Your business is developing into more of a wholesale business. This requires less staffing and from the chart that you looked at, it looks like the business to be in; is that right?

MR. KIMORI: Yes, sounds right, but I'm trying to develop all the businesses I'm doing. So, just the Mitsuwa Marketplace wholesale business, they're a larger scale business so that we're trying to develop the wholesale side but also the retail side. Mainly I wanted to do

the restaurant business, but the Mitsuwa Marketplace, after the pandemic time, they helped us and they gave us more business. So, I try to keep both business improved.

COMMISSIONER DROST: Yes, and the wholesale is like an insurance policy in case there's another pandemic, or it basically allows you to sell off site.

MR. KIMORI: Yes.

COMMISSIONER DROST: So, you don't have to have a restaurant clientele.

MR. KIMORI: Yes.

COMMISSIONER DROST: One final question. On sales tax, is there any differentiation between the wholesale and retail restaurant? You charge the same amount, correct?

MR. KIMORI: I file the tax, when my accountants --

COMMISSIONER DROST: I don't need to know your personal tax, but just from the standpoint as a business operator, the sales tax that's generated off of wholesale and the retail is the same, is that a correct statement?

MR. KIMORI: Same as in percentage-wise?

COMMISSIONER DROST: Yes, if you're getting 10 percent, or --

MR. KIMORI: Right.

COMMISSIONER DROST: Yes, so the point I'm making is that if you're making more wholesale volume, you're getting more sales tax for less space.

MR. KIMORI: Right.

COMMISSIONER DROST: So, all right, that's the point. Thanks.

CHAIRPERSON DAWSON: Any other questions or comments, Commissioner Drost?

COMMISSIONER DROST: No, I'm done. I announced no more. I'm going to save you all, yes.

CHAIRPERSON DAWSON: Okay, I just want to make sure.

Commissioner Ennes?

COMMISSIONER ENNES: I don't. I think it's a great project and I like to see businesses expanded in Arlington Heights.

CHAIRPERSON DAWSON: Okay, Commissioner Cherwin?

COMMISSIONER CHERWIN: Yes, I would add, I mean, it's great to have Mitsuwa here but it's just really great to have you here, too, Mr. Kimori. It sounds like you're a great tenant and a great part of the business community in Arlington Heights so we're happy to have you. I can't wait to go over there and try out the restaurant. I live right in the neighborhood and I can't believe I haven't been there yet. So, I've got to get over there.

COMMISSIONER DROST: Yes, what time do you close?

COMMISSIONER CHERWIN: Yes, right.

COMMISSIONER DROST: You've got an hour left.

COMMISSIONER CHERWIN: Welcome now.

COMMISSIONER DROST: Yes, there you go.

COMMISSIONER CHERWIN: No, I'm happy to support it. In fact, I would make a motion.

CHAIRPERSON DAWSON: No, we have to open to public commentary.

COMMISSIONER CHERWIN: Oh, I forgot about that, yes.

CHAIRPERSON DAWSON: That's okay.

COMMISSIONER CHERWIN: We do that first, sorry.
CHAIRPERSON DAWSON: All right, first, I'm going to quickly ask anyone in the audience, I'm looking at you, Mr. Moens, any?
(No response.)
CHAIRPERSON DAWSON: Okay, with that, I'm going to close public commentary.
Commissioner Cherwin, you had a motion?
COMMISSIONER CHERWIN: Yes, I would make a motion.

A motion to recommend to the Village Board of Trustees <u>approval</u> of PC #23-018, a Land Use Variation to allow a 1,616 square-foot of *Bakery Products, Wholesale and Production* facility in the B-2 District.

This recommendation is subject to resolution of the following:

1. **The Petitioner, or any future tenant(s), must keep the restaurant, or a comparable use, in order for the bakery products, wholesale and production facility to remain in operation. If at any point the restaurant, or comparable use, ceases operation, the bakery products, wholesale and production facility must cease operation as well.**
2. **The Petitioner shall comply with all federal, state, and Village codes, regulations and policies.**

COMMISSIONER ENNES: I'll second that.
CHAIRPERSON DAWSON: All right, any discussion?
(No response.)
CHAIRPERSON DAWSON: All right, roll call.
MS. NICHOLAS: Commissioner Drost.
COMMISSIONER DROST: Aye.
MS. NICHOLAS: Commissioner Green.
COMMISSIONER GREEN: Yes.
MS. NICHOLAS: Commissioner Lorenzini.
COMMISSIONER LORENZINI: Yes.
MS. NICHOLAS: Commissioner Warskow.
COMMISSIONER WARSKOW: Yes.
MS. NICHOLAS: Commissioner Ennes.
COMMISSIONER ENNES: Yes.
MS. NICHOLAS: Commissioner Cherwin.
COMMISSIONER CHERWIN: Yes.
MS. NICHOLAS: And Chair Dawson.
CHAIRPERSON DAWSON: Yes.
All right, congratulations, that's a unanimous approval.
MR. KIMORI: Thank you.
CHAIRPERSON DAWSON: We are a recommending body only. You need to go forward to the Village Trustees, but you do have our unanimous recommendation of approval. So, good luck to you. Congratulations.
MR. KIMORI: Thank you very much.

(Whereupon, at 8:02 p.m., the public hearing on the above-mentioned petition was adjourned.)

DRAFT

Plan Commission
1/24/2024

Item: Annual Review of the Comprehensive Plan - 1/10/24

Department: Planning & Community Development Department

ATTACHMENTS:

Description	**Type**
Annual Review of Comp Plan - 1/10/24	Minutes

PLAN
COMMISSION

REPORT OF THE PROCEEDINGS OF A PUBLIC HEARING
BEFORE THE VILLAGE OF ARLINGTON HEIGHTS
PLAN COMMISSION

RE: ANNUAL REVIEW OF THE COMPREHENSIVE PLAN

REPORT OF PROCEEDINGS had before the Village of Arlington Heights Plan Commission Meeting taken at the Arlington Heights Village Hall, 33 South Arlington Heights Road, 3rd Floor Board Room, Arlington Heights, Illinois on the 10th day of January, 2024 at the hour of 8:02 p.m.

MEMBERS PRESENT:

SUSAN DAWSON, Chairperson
MARY JO WARSKOW
JOE LORENZINI
BRUCE GREEN
GEORGE DROST
TERRY ENNES
JAY CHERWIN

ALSO PRESENT:

HAILEY NICHOLAS, Assistant Planner
SAM HUBBARD, Development Planner
MICHAEL LYSICATOS, Assistant Director, Planning and Community Development

DRAFT

CHAIRPERSON DAWSON: All right, next item on the agenda is the annual review of the Comprehensive Plan.

MR. LYSICATOS: Thank you, Chair.

Good evening, everyone. So, I come to you with our annual review of the Comprehensive Plan, as you mentioned, and it's pursuant to Chapter 6 of the Municipal Code which requires the Plan Commission do an annual review of the Comprehensive Plan and the Official Map, and report findings to the Village Board if there's any recommendations for changes.

So, during the 2023 year, in the report I provided context of what amendments were made through the year and we only had the two. The first was the Westgate School Building Expansion which amended the classification in the Comprehensive Map to be a "School" classification for that, which is relatively straightforward. It came under the number of the expansion projects that came recently through the school districts. Then we also had the HANA Downsizing which was a relatively recent application that was amended, a number of the residential properties in St. James, and there was one on Chestnut as well, which changed the Comprehensive Plan Map to be "Single-Family Detached" zone.

So, those are the two changes that came during 2023, and as a staff, we didn't recommend any additional Comprehensive Map changes at this time. But what we wanted to do is use the report as an opportunity to sort of broach the discussion of the "Red Flag" resolution which was adopted by the Village Board in December, I believe December 18th. Originally, the Village Board directed the Staff to look into this, to look into the "Red Flag" resolution to possibly rezone, look at the Comprehensive and Downtown Plan, and possibly Overlay District in that same area where the HANA Downsizing was completed. It's really bordered by St. James Street towards the south and across from the Eastman property which received a development approval, and it's bounded by Northwest Highway, Vail Avenue and Walnut Avenue to the west. Really, the resolution asked Staff and the Plan Commission to look at that area and consider changes that might need to be done that are sensitive to some of the concerns that came up through that 116-120 Eastman process.

We've already started compiling information as a staff to look at the properties and what's already zoned, what's possible in those districts. The resolution requires that the Plan Commission hold a hearing within 90 days of adoption of that resolution, so we're looking at somewhere around mid March is when we need to put out notice. What we're going to do between now and that time is to start approaching some of the property owners, some of the neighborhood associations, and present some of our data and findings which we're doing right now hopefully within the next two to three months, so that when the public hearing comes, it isn't the be-all end-all of the discussion. We hope to have some feedback already from those business owners what they're thinking about those properties currently and in the future, what the neighborhood goals and concerns are, so that when we get to the hearing there is more of a report of findings and the folks that are going to be involved in those discussions are having a more informative and constructive conversation when the hearing is actually held.

Tonight isn't really sort of the forum for that. What we want to do is sort of lay out the process for the Plan Commission so there isn't any surprises. Potentially, it will involve both of your subcommittees, looking at the Comprehensive Plan and possibly the Zoning Plan, the Zoning Ordinance I should say, but that really all depends on what comes out of those conversations. It is a relatively small number of properties, so it isn't hundreds and hundreds of properties to consider. But still, we're going to spend the time that's needed to look at it in a

constructive way and guide the Plan Commission through those deliberations and hearings in the future.

So, at this time, I'll take any comments or questions you might have about the 2023 report and the process moving forward with the "Red Flag" Ordinance.

CHAIRPERSON DAWSON: I'll start with you, Commissioner Cherwin.

COMMISSIONER CHERWIN: I guess I have to probably look at the issue. Again, we'll do it over the next few weeks or next few months. What is the status right now of that Eastman redevelopment project?

MR. LYSICATOS: So, Eastman has received Board approval at this point, so they're into the building permit process.

COMMISSIONER CHERWIN: Yes, that's what I thought, okay.

MR. LYSICATOS: And so, we're waiting to see the submission of the building permit, demolition permit at this point, but they did go through and receive approval from the Village Board.

COMMISSIONER CHERWIN: Okay, and so that kind of precipitated this whole discussion around that neighborhood in particular?

MR. LYSICATOS: Yes, and I think, well, and we also had the HANA Downsizing itself.

COMMISSIONER CHERWIN: Right, yes.

MR. LYSICATOS: Which was through that organization, kind of sparked through that organization in that neighborhood. So, I think when it came to the Village Board, there was, you know, a robust discussion of the impact of that development on the neighboring community. Yes, there was a concern and a concerted effort from the Board to engage Staff to say, okay, let's look at the surrounding properties so that everybody is really heard out before that process. That process was, in the end, very productive.

COMMISSIONER CHERWIN: Yes.

MR. LYSICATOS: In that developer engaged with HANA and that they really did go back and forth and negotiate and really came together on a solution for that building that I think heard the community's concerns. So, this is more preemptive, this process will be a little more preemptive when it comes to some of the other future redevelopments.

COMMISSIONER CHERWIN: Yes, well, I don't have an issue with it. I guess I'm just, you know, I guess there are other large sites in the Village that may be going under redevelopment that, you know, would benefit from a process, you know, I guess more engaging process such as this. So, I was just curious as to this particular site as opposed to other sites in the Village that would also be looked at but, you know, I don't have any other questions other than just that.

CHAIRPERSON DAWSON: Commissioner Ennes?

COMMISSIONER ENNES: I do have a comment. I don't know how much this will impact us in the near term, and I understand that the U.S. Supreme Court is hearing a case tomorrow that involves property owner rights and development requirements that are placed on property owners that could be affecting this. One area that was mentioned is in the ability of local municipalities to require certain developers to include affordable and low income housing in the development projects.

MR. LYSICATOS: Right. I'm not sure what the specific deliberations are going to be or what's presented to the court. Again, we stay up with all the requirements that come down from any case laws, so we'll vet that appropriately through our counsel as we get

through these deliberations. I think part of this process is really just finding out what the goals of those landowners, what the community is, and then what that, if there's a potential conversation when it comes to our Comprehensive Plan and rezoning, that's when we'll get into those discussions; are there any impacts from case laws. It does create a moving landscape for what we do as planners, so it is something, yes, we regularly get training services and keep up with our certification maintenance with APA. So, yes, we'll definitely keep that in mind.

COMMISSIONER ENNES: It sounds like the catalyst for this is certain development fees that were required for a property owner/developer and it's expanded into all these other issues.

MR. LYSICATOS: Yes, okay. Sure, and that happens from time to time. There have been a number of cases in the last decade or so that have been pretty substantial when it comes to redevelopment. So, we'll definitely keep our eyes on it.

COMMISSIONER ENNES: Just a thought.

MR. LYSICATOS: No, thank you.

COMMISSIONER DROST: I don't have any comments or questions.

CHAIRPERSON DAWSON: Commissioner Green?

COMMISSIONER GREEN: No questions.

CHAIRPERSON DAWSON: Commissioner Lorenzini?

COMMISSIONER LORENZINI: Yes, I've got a question. Going back to the Eastman property.

MR. LYSICATOS: Yes.

COMMISSIONER LORENZINI: If we're talking about a possible overlay zone, what are the mechanics of that? How would that work and what would that solve?

MR. LYSICATOS: Well, it's just one of the tools in the toolbox. So, if the discussions that happen during the "Red Flag" process and that lead into the public hearing and come out of the public hearing, if that's one of the tools that will help us, the Village, meet the goals and concerns that come out of that process, that will be something that we would consider through the Plan Commission and hopefully to the Village Board. But it's just a list of these are all the available kind of tools through code and through ordinances that are available to us. So, it's just one of those things that was mentioned specifically by the Village Board as a consideration.

COMMISSIONER LORENZINI: But what does that actually do, if you did put in the Overlay District?

MR. LYSICATOS: If you put in an Overlay District, no, of course, so an Overlay District would allow you to sort of stack the zoning. So, it would allow you to add extra pieces of, you know, requirements, it could change some of the bulk requirements that are in a zone, it can even modify some of the use requirements in a zone. So, you'd have the underlying zone, you could add or subtract pieces to that zoning by adding an overlay to an entire district. So, you may have a number of zones that now get the same added considerations through an overlay.

COMMISSIONER CHERWIN: So, it's customized for the particular site, right?

MR. LYSICATOS: Yes. Yes, instead of individually changing zoning, you can have an overlay that has all the considerations that you want to add to it. Many downtowns have overlay zoning, I think our downtown has an overlay zone. So, there's a lot of considerations that you can add to an Overlay District.

COMMISSIONER LORENZINI: And that's kind of what I figured but I just

DRAFT

wanted to hear your official response.

MR. LYSICATOS: Absolutely.

COMMISSIONER LORENZINI: Thank you.

MR. LYSICATOS: You're welcome.

COMMISSIONER WARSKOW: And I just wanted to kind of piggyback on to Commissioner Cherwin, that I understand that these homeowners did take the time and effort to organize and to come as a group to the Village to voice their concerns. However, I would prefer not to see there be preferences for certain areas of homeowners over others because there are many areas where there are developments happening that the areas don't necessarily agree with.

MR. LYSICATOS: Yes.

COMMISSIONER WARSKOW: So, I do have some concerns about giving preferential treatment to this particular neighborhood.

MR. LYSICATOS: No, absolutely. I think when it comes to the process itself, first and foremost, we work with the landowners, you know, their core constituents since there is a limited sort of bundle of properties that we're looking at, but to hear everyone out. The beauty of the public hearing process is everybody gets heard, people who live in that neighborhood, who live in another part of the town, who they don't necessarily have to even be from the Village. They could be people who come to the downtown or just concerned about the issues.

So, the public hearing process will shine light on having everybody have an opportunity to do that. In this particular instance, we obviously mentioned the community in that neighborhood because that was sort of the directive that came from the Village Board, and it is in reaction to that proximity to that residential neighborhood to these potential redevelopment properties and the extension of the downtown. So, it's sort of an evolution and what's happening to the downtown. I think Eastman was an interesting process and that was one of the first, one of the latest developments in the downtown in quite sometime outside of Park Place in terms of market rate units.

COMMISSIONER WARSKOW: And what are the planned public outreach? I mean, I know there will be the formal public notice, but what are the other ways that you're planning on engaging the public to bring them in on this discussion?

MR. LYSICATOS: Sure. We haven't firmed it up completely, but again we will have individual meetings with property owners, especially in those redevelopment properties, to hear them out, just what are their plans, what are their concerns. I think HANA provides an opportunity to have an organized community meeting and we can hear sort of their perspective that we'll organize in a sense, but I think we'll have also a larger community meeting because it's not just one organization to find out just what there might be as far as concerns from residents in any sort of aspect of development and sort of impacts of development. There's a lot of different externalities that we try to take into account, whether it's parking or traffic or noise or just development at the downtown, just sort of how that evolves.

I think there's been a robust discussion which, as a planner, I think is a positive. It allows us to vet things out before they get pen on paper which is easier.

COMMISSIONER WARSKOW: I totally agree. I just want to make sure that we're providing outreach.

MR. LYSICATOS: Yes.

COMMISSIONER WARSKOW: So, that we do get many different

perspectives --

MR. LYSICATOS: Absolutely.

COMMISSIONER WARSKOW: -- and not just the Village and HANA.

MR. LYSICATOS: I agree.

CHAIRPERSON DAWSON: Great, thanks. I think that we've covered all the questions. I believe just from a procedural, we're not opening up to public commentary on this particular, correct?

MR. LYSICATOS: I think you can. I know we are asking for a resolution just to adopt the plan with no specific recommendations to change it, but I'm not, from a process standpoint, I'm not a 100 percent sure, but I think we're okay with it.

CHAIRPERSON DAWSON: I can open it up because we have this large crowd that's here.

COMMISSIONER DROST: Yes. Obviously, they're clamoring.

CHAIRPERSON DAWSON: Would anyone in the public like to speak? Oh, thank you.

COMMISSIONER DROST: And notice was --

CHAIRPERSON DAWSON: And even though it seems probably unnecessary because you are well known to all of us, please state your name and spell your last name for the record.

PUBLIC COMMENTARY ON ANNUAL REVIEW OF THE COMPREHENSIVE PLAN

MR. MOENS: Keith Moens, M-o-e-n-s, I'm with Arlington Heights. Yes, I would just agree with the comment on this "Red Flag" being of a particular area and where it just seemed like you're reacting to one project, one group in town and that you need to get their comments across the board on all things. That's my only comment on the "Red Flag."

CHAIRPERSON DAWSON: Right, thank you so much.

MR. MOENS: Thank you.

CHAIRPERSON DAWSON: So, with that I'll close public commentary. I think that's a great comment, I am in agreement with that comment.

Anybody, any other further commentary or do I have a motion?

COMMISSIONER CHERWIN: I will make a motion.

A motion that, pursuant to Chapter 6, Section 6-201(e) of the Municipal Code, the Plan Commission has conducted an annual review of the Comprehensive Plan and Official Map for the Village of Arlington Heights and recommends no additional amendments at this time.

CHAIRPERSON DAWSON: Do I have a second?

COMMISSIONER GREEN: Second.

CHAIRPERSON DAWSON: Do we roll call or we voice vote?

MR. LYSICATOS: I can do roll call.

CHAIRPERSON DAWSON: Do roll call.

MR. LYSICATOS: Sure. Commissioner Cherwin.

COMMISSIONER CHERWIN: Yes.

MR. LYSICATOS: Commissioner Drost.

COMMISSIONER DROST: Aye.
MR. LYSICATOS: Commissioner Ennes.
COMMISSIONER ENNES: Yes.
MR. LYSICATOS: Commissioner Green.
COMMISSIONER GREEN: Yes.
MR. LYSICATOS: Commissioner Lorenzini.
COMMISSIONER LORENZINI: Yes.
MR. LYSICATOS: Commissioner Warskow.
COMMISSIONER WARSKOW: Yes.
MR. LYSICATOS: And Chair Dawson.
CHAIRPERSON DAWSON: Yes.
MR. LYSICATOS: All right.
CHAIRPERSON DAWSON: All right, with that, I am going to open it up to general public commentary.

(No response.)

CHAIRPERSON DAWSON: And I see none, I will close general public commentary.

Do I have a motion to adjourn?
COMMISSIONER DROST: Motion to adjourn.
CHAIRPERSON DAWSON: Thank you, Commissioner Drost.
COMMISSIONER CHERWIN: Second.
CHAIRPERSON DAWSON: Commissioner Cherwin.
All in favor?
(Chorus of ayes.)
CHAIRPERSON DAWSON: We are adjourned.

(Whereupon, at 8:18 p.m., the public hearing on the above-mentioned petition was adjourned.)

DRAFT

Plan Commission
1/24/2024

Item: Verizon Wireless Cell Tower - 1500 W. Shure Dr. - PC#23-017

Department: Planning & Community Development Department

Requested Action

• Special Use Permit to allow for a permanent commercial antenna on the principal building façade, and a temporary commercial antenna in the parking lot.

Variations Required

• Variation from Chapter 28, Section 6.14-2.2(b) for relief from requirement of a landscaping plan for the temporary commercial antenna installation.

RECOMMENDATION

The Staff Development Committee (SDC) reviewed the proposed Special Use Permit to allow for a permanent commercial antenna on the principal building façade, and a temporary commercial antenna in the parking lot, as well as the following variation from Chapter 28 of the Municipal Code:

• Chapter 28, Section 6.14-2.2(b) for relief from requirement of a landscaping plan for the temporary commercial antenna installation.

The Staff Development Committee recommends APPROVAL of the application subject to the following conditions:

1. The petitioner shall mitigate the aesthetic impacts of the permanent installation on the building façade by painting the antennas to match the building.

2. The petitioner shall remove the temporary antenna installation according to the Proceed At Own Risk Declaration (2023-61) executed with the Village of Arlington Heights.

3. The petitioner will remove all abandoned or unused antenna equipment from the building façade upon completion of the permanent antenna installation.

4. The petitioner shall comply with all Federal, State, and Village Codes, Regulations, and Policies.

ATTACHMENTS:

Description	Type
PC Staff Report	Board or Commission Report
Legal Notice	Exhibits
Aerial	Exhibits
CPRC Minutes 1/10/24 - DRAFT	Minutes
Perm Site - Narrative	Correspondence
Temp Site - Narrative	Correspondence
Plat of Survey	Exhibits
SUP Justification	Correspondence
Perm Site - Rendering	Exhibits
Perm Site - Structural Drawings 11-16-23	Exhibits
Perm Site - Construction Drawings 1-2-24	Exhibits
Temp Site - Proceed at Own Risk Agreement	Exhibits
Temp Site - Structural Drawings	Exhibits
Temp Site - Construction Drawings 6-20-23	Exhibits
Department Comments - Round 1	Correspondence
Department Comments - Round 1 Petitioner Response	Correspondence

VILLAGE OF ARLINGTON HEIGHTS

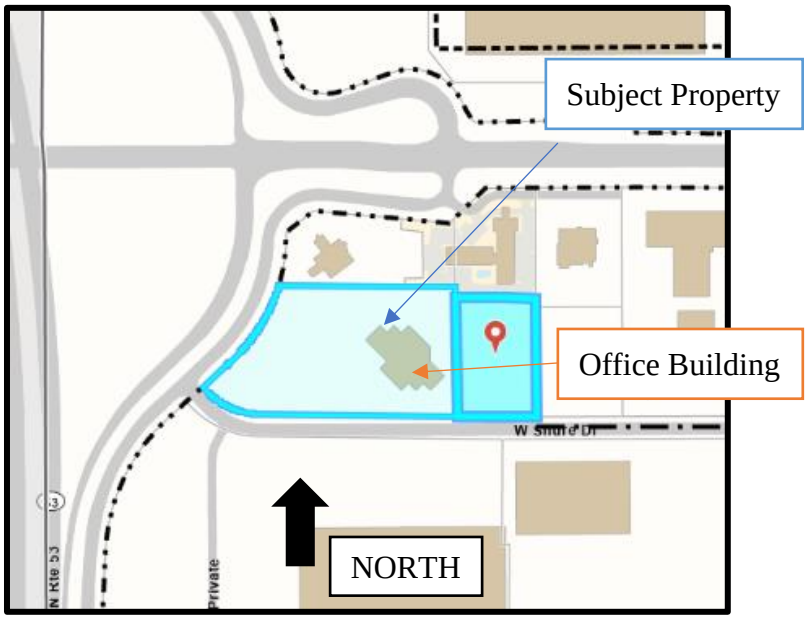
STAFF DEVELOPMENT COMMITTEE REPORT

***Project Number**: PC 23-017*
***Project Title**: Verizon Wireless*
***Address**: 1500 W Shure Drive*
***PIN**: 03-07-102-013-0000*
03-07-102-008-0000

***To**: Plan Commission*
***Prepared By**: Michael Lysicatos, Assistant Director*
***Meeting Date**: January 24, 2024*
***Date Prepared**: January 18, 2024*

***Petitioner**: Rachael Ceckowski*
Verizon Wireless
***Address**: 1701 Golf Rd. Tower 2, Suite 400*
Rolling Meadows, IL 60008

***Existing Zoning**: M-1, Research, Development, and Light Industrial District*
***Comprehensive Plan**: Offices Only*



Surrounding Zoning :

Direction	Zoning	Existing Land-Use	Comprehensive Plan
North	B-3, General Service, Wholesale, & Motor Vehicle District	Professional Offices (Amita Health Medical Group)	Commercial
South	M-1, Research, Development and Light Industrial District	Professional Offices (United Airlines Offices/Operations)	R&D, Mfr. Warehouse
East	B-3, General Service, Wholesale, & Motor Vehicle District	Professional Offices (Vtech)	Commercial
West	IDOT Right-of-Way / Palatine Border	Highway Interchange, Route 53	N/A

Requested Action:

- Special Use Permit to allow for a permanent commercial antenna on the principal building façade, and a temporary commercial antenna in the parking lot.

Variations Required:

- Variation from Chapter 28, Section 6.14-2.2(b) for relief from requirement of a landscaping plan for the temporary commercial antenna installation.

Project Background:

The subject property is two parcels of property that make up One North Arlington, an existing eight-story office building at 1500 W. Shure Drive. The property is bounded by W. Shure Drive to the south and N. Wilke Road to the west. The site is approximately 7.36 acres and has direct access to both W. Shure Drive through two separate two-way driveways and N. Wilke Road with one two-way driveway.

The petitioner, Verizon Wireless, is proposing two new telecommunication antenna installations. The petitioner states that the installations are necessary due to the fact that an existing telecommunications tower has been decommissioned and removed a little over a half-mile from the site which provides cell phone service to the public and first responders in this area. The site at 1500 W. Shure Drive was selected due to its ability to provide coverage in the gaps left from the facility closing in Palatine.

The petitioner is proposing the installation of a new telecommunication antenna array on the façade of the penthouse wall on the roof level of the existing office building in addition to existing equipment previously approved and installed by a separate cell phone carrier.

The petitioner is also proposing a temporary, mobile telecommunications tower in the northeastern section of the parking lot of 1500 W. Shure Drive. The purpose of the temporary antenna is to provide cell phone coverage in the areas impacted by the tower removed in Palatine until the permanent installation is complete on the façade of the office building. This antenna has already been installed and is the subject of a Procced At Own Risk Declaration executed with the Village of Arlington Heights. The Declaration states that the temporary tower be removed if the tenant does not file an application for the temporary or permanent installations, the Village Board of Trustees deny approval for the temporary or permanent installations, the permanent installation is completed, or by March 31, 2024. A copy of the agreement is in the agenda packet.

Zoning and Comprehensive Plan

The subject property is zoned M-1, Research, Development and Light Industrial District. Use of existing antenna structure can often apply for a Special Use Waiver but the nature of the new installation associated with a temporary installation necessitated the new to apply for a Special Use Permit for the installation of both antennas.

Section 6.14-2.2(a) of the Zoning Code requires the petitioner to demonstrate that there is not technically suitable space available on an existing tower or structure within the geographic area to be served. The petitioner has analyzed the vicinity and stated that there are no structures of a suitable height to mount antenna that would provide the coverage needed by Verizon Wireless. In addition, the petitioner has submitted propagation maps that show an existing gap in coverage within the Verizon Wireless network in the vicinity, as well as the coverage that would be provided should the permanent antenna structure be installed.

The Comprehensive Plan classifies the property as appropriate for "Offices Only" land uses, therefore the existing land use and the associated antennas are compatible with the designation.

The petitioner has provided a written response addressing each of the three criteria necessary for Special Use Permit approval, which have been included below for reference.

- **That said special use is deemed necessary for the public convenience at this location.**
- **That such case will not, under any circumstances of the particular case, be detrimental to the health, safety, morals or general welfare of persons residing or working in the vicinity.**
- **That the proposed use will comply with the regulations and conditions specified in this ordinance for such use, and with the stipulations and conditions made a part of the authorization granted by the Village Board of Trustees.**

The Staff Development Committee concurs with the petitioner that the necessary standards for approval have been met as the permanent antenna would normally be eligible for a Special Use Waiver and there have been no issues with the temporary antenna which was installed under a Proceed At Own Risk agreement with the Village.

The petitioner will also need a variation from Chapter 28, Section 6.14-2.2(b) for relief from requirement of a landscaping plan for the temporary commercial antenna installation. Staff is also in support of this variation request as the location of the structure in the parking lot does not warrant landscaping.

Building, Site and Landscaping

The petitioner is not proposing any changes to the exterior of the site. There are no new permanent structures proposed on the site as part of this application. As soon as the permanent cell phone equipment is installed on the façade of the building and is operational, the temporary equipment will be removed from the site as per the Notice to Proceed Agreement.

As was mentioned the proposed antennas on the building façade in addition to existing equipment previously approved and installed by a separate cell phone carrier. Staff has concerns about over concentration of antennas on the building and may restrict future requests based on the visual and physical impacts on the building and surrounding area.

Staff identified one variation that would be relief from landscaping of the temporary antenna installation. This tower is located in the parking lot area which is offset from surrounding properties. Requiring plantings would be inappropriate for the reuse of the parking lot after the removal of the temporary use and would create a negative impact if required.

The petitioner provided a response and updated plans in response to Round 1 Comments from staff. The response has addressed all the issues identified in the design.

Traffic Parking and Loading

There are no concerns in regards to traffic as the proposed uses will not generate traffic. The existing parking lot provides 530 parking spaces where 608 are required by code to support the existing office building. This leaves a 78-space deficit along with an additional 14 spaces that have been occupied by the temporary antenna in the eastern parking lot. Staff acknowledges the code required parking deficiency but is not seeking a variation. There is not enough supporting data to properly analyze if a variation from the standards is warranted due to the high vacancy rate of the office building results in very low utilization of the parking lot areas. The proposed uses through the Special Use Permit have negligible impact on the parking utilization outside of the spaces that will be occupied by the temporary tower. The property would continue in a non-conforming state.

RECOMMENDATION

The Staff Development Committee (SDC) reviewed the proposed Special Use Permit to allow for a permanent commercial antenna on the principal building façade, and a temporary commercial antenna in the parking lot, as well as the following variation from Chapter 28 of the Municipal Code:

- Chapter 28, Section 6.14-2.2(b) for relief from requirement of a landscaping plan for the temporary commercial antenna installation

The Staff Development Committee recommends **APPROVAL** of the application subject to the following conditions:

1. The petitioner shall mitigate the aesthetic impacts of the permanent installation on the building façade by painting the antennas to match the building.
2. The petitioner shall remove the temporary antenna installation according to the Proceed At Own Risk Declaration (2023-61) executed with the Village of Arlington Heights.
3. The petitioner will remove all abandoned or unused antenna equipment from the building façade upon completion of the permanent antenna installation.
4. The petitioner shall comply with all Federal, State, and Village Codes, Regulations, and Policies.

_____ January 18, 2024
Michael Lysicatos, Assistant Director of Planning and Community Development

Cc: Randy Recklaus, Village Manager
All Department Heads

NOTICE OF PUBLIC HEARING

NOTICE IS HEREBY GIVEN THAT THE PLAN COMMISSION OF THE VILLAGE OF ARLINGTON HEIGHTS WILL CONDUCT A PUBLIC HEARING ON January 24, 2024, AT 7:30 P.M. in the Municipal Building, 33 South Arlington Heights Road, Arlington Heights, Illinois to consider Petition#23-017 a request for approval of a Special Use Permit(s) (Chapter 28, Section 28-8 Special Uses) to allow for a permanent commercial antenna on the principal building façade, and a temporary commercial antenna in the parking lot and for a variation from Chapter 28, Section 6.14-2.2(b) for relief from the requirement for a landscaping plan for the temporary commercial antenna installation. The subject property is located at 1500 W. Shure Drive in Arlington Heights, Illinois. The PINs for the subject property are 03-01-102-013-0000 and 03-07-102-008-0000

The subject property is legally described as follows:

PARCEL 1: LOT 2 IN BILL KNAPP'S RESUBDIVISION ACCORDING TO THE PLAT THEREOF RECORDED JULY 12, 1983 AS DOCUMENT 26683318, BEING A RESUBDIVISION OF LOT 4 IN ARLINGTON INDUSTRIAL AND RESEARCH CENTER UNIT 12, BEING A SUBDIVISION IN PART OF THE NORTHWEST ¼ OF SECTION 7, TOWNSHIP 42 NORTH, RANGE 11, EAST OF THE THIRD PRINCIPAL MERIDIAN, IN COOK COUNTY, ILLINOIS.

PARCEL 3: LOT 3 IN ARLINGTON INDUSTRIAL AND RESEARCH CENTER UNIT 12, BEING A SUBDIVISION IN PART OF THE NORTHWEST ¼ OF SECTION 7, TOWNSHIP 42 NORTH, RANGE 11, EAST OF THE THIRD PRINCIPAL MERIDIAN, ACCORDING TO THE PLAT THEREOF RECORDED JULY 13, 1978 AS DOCUMENT NO. 24533497, IN COOK COUNTY, ILLINOIS.

As part of said petition the applicant is request the following variations from Chapter 28 of the Municipal Code:

- Section 6.14-2.2(b) for relief from the requirement for a landscaping plan for the temporary commercial antenna installation.

The Plan Commission will consider any zoning and Subdivision actions or relief from Chapter 28 and 29 that may be necessary or convenient to allow development of the type described in this notice, or development that is less dense than the type described in this notice, including, without limitation, special use permits, variations, map or text amendments, or other special approvals. Complete list of all final zoning actions and staff report may be viewed at www.vah.com.

At the public hearing, the Plan Commission will accept and consider all testimony and evidence pertaining to the application.

All persons desiring to be heard shall be given the opportunity to be heard. Should any individual need auxiliary aid or service, such as a sign language interpreter or materials in alternative formats, please contact the Health Department at 33 South Arlington Heights Road, Arlington Heights, Illinois 60005, (847) 368-5760, TDD# (847) 368-5794.

Susan Dawson, Chair
ARLINGTON HEIGHTS PLAN COMMISSION
Published in Daily Herald January 9, 2024 (4610269)

CERTIFICATE OF PUBLICATION

Paddock Publications, Inc.

Northwest Suburbs
Daily Herald

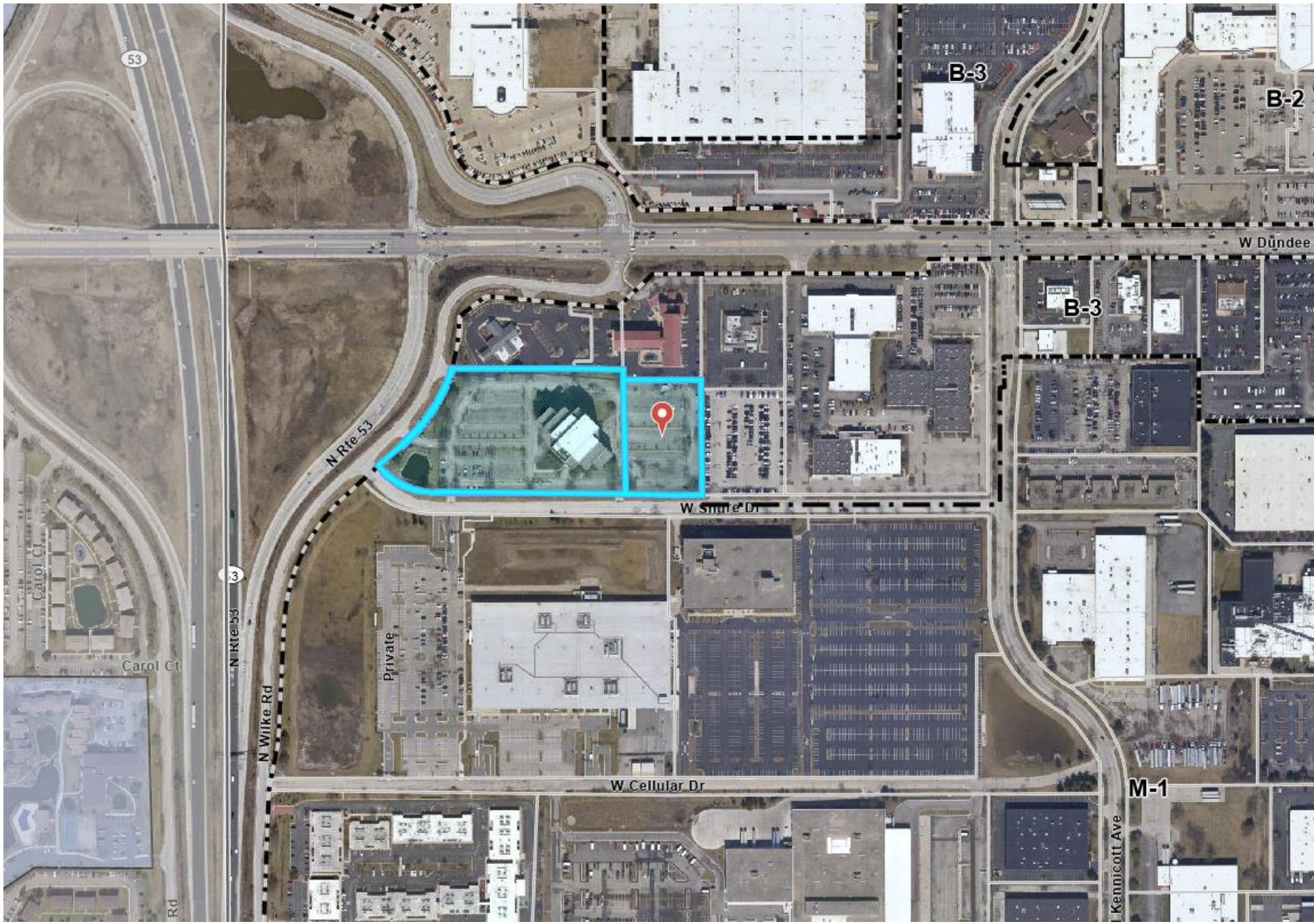
Corporation organized and existing under and by virtue of the laws of the State of Illinois, DOES HEREBY CERTIFY that it is the publisher of the **Northwest Suburbs DAILY HERALD**. That said **Northwest Suburbs DAILY HERALD** is a secular newspaper, published in Arlington Heights, Cook County, State of Illinois, and has been in general circulation daily throughout Cook County, continuously for more than 50 weeks prior to the first Publication of the attached notice, and a newspaper as defined by 715 ILCS 5/5.

I further certify that the **Northwest Suburbs DAILY HERALD** is a newspaper as defined in "an Act to revise the law in relation to notices" as amended in 1992 Illinois Compiled Statutes, Chapter 715, Act 5, Section 1 and 5. That a notice of which the annexed printed slip is a true copy, was published 01/09/2024 in said **Northwest Suburbs DAILY HERALD**. This notice was also placed on a statewide public notice website as required by 5 ILCS 5/2.1.

BY Paula Baltzman
Designee of the Publisher of the Daily Herald

Control # 4610269

PADDOCK PUBLICATIONS, INC. Corporate SEAL ILLINOIS


B-3
B-2
W Dundee
B-3
N Rte 53
W Shine Dr
Carol Ct
Carol Ct
N Rte 53
N Wilke Rd
Private
W Cellular Dr
M-1
Kennicott Ave

REPORT OF THE PROCEEDINGS OF

THE CONCEPTUAL PLAN REVIEW COMMITTEE

OF THE VILLAGE OF ARLINGTON HEIGHTS PLAN COMMISSION

A MEETING HELD ON: January 10, 2024

Project Title: Verizon Wireless Cell Antenna

Address: 1500 W. Shure Dr.

Petitioner: Rachael Ceckowski
Verizon Wireless

Address: 1701 Golf Rd.
Rolling Meadows, IL 60008

Requested Action:

1. Special Use Permit to allow for a permanent commercial antenna on the principal building façade, and a temporary commercial antenna in the in the parking lot.

Variations Required:

1. Variation from Chapter 28, Section 6.14-2.2(b) for relief from requirement of a landscaping plan for the temporary commercial antenna installation.

Attendees: Ari Rosenthal, Legal Counsel for Verizon Wireless
Jay Cherwin, Plan Commissioner
George Drost, Plan Commissioner
Bruce Green, Plan Commissioner
Michael Lysicatos, Planning Department
Sam Hubbard, Planning Department

DRAFT

Project Summary:

The subject property is two parcels of property that make up One North Arlington, an existing eight-story office building at 1500 W. Shure Drive. The property is bounded by W. Shure Drive to the south and N. Wilke Road to the west. The site is approximately 7.36 acres and has direct access to both W. Shure Drive through two separate two-way driveways and N. Wilke Road with one two-way driveway.

The petitioner, Verizon Wireless, is proposing two new telecommunication antenna installations. The petitioner states that the installations are necessary due to the fact that an existing telecommunications tower has been decommissioned and removed a little over a half-mile from the site which provides cell phone service to the public and first responders in this area. The site at 1500 W. Shure Drive was selected due to its ability to provide coverage in the gaps left from the facility closing in Palatine.

The petitioner is proposing the installation of a new telecommunication antenna array on the façade of the penthouse wall on the roof level of the existing office building in addition to existing equipment previously approved and installed by a separate cell phone carrier.

The petitioner is also proposing a temporary, mobile telecommunications tower in the northeastern section of the parking lot of 1500 W. Shure Drive. The purpose of the temporary antenna is to provide cell phone coverage in the areas impacted by the tower removed in Palatine until the permanent installation is complete on the façade of the office building. This antenna has already installed and is the subject of a Procced at Own Risk Declaration executed with the Village of Arlington Heights. The Declaration states that the temporary tower be removed if the tenant does not file an application for the temporary or permanent installations, the Village Board of Trustees deny approval for the temporary or permanent installations, the permanent installation is completed, or by March 31, 2024. A copy of the agreement is in the agenda packet.

Meeting Discussion:

Mr. Rosenthal – stated they are here to discuss two requests that have been submitted. The first is a temporary facility that already exists, the agreement that we have with Village has been driven by our loss of the site in an adjacent municipality. This created a loss in coverage, but the more critical issue is permanent use needed to port equipment, antenna, and accessory equipment on the roof and façade of the existing building that will serve as the tower. Another carrier was previously using this building, and we are here to answer any questions.

Mr. Lysicatos – explained there's two special use permits that are being applied for, one for a temporary tower, which is installed at this point and with a subject of a Proceed at Own Risk agreement with the Village Board that was executed in October and a second permit for a permanent tower. The property is in the M1 research, development and light industrial district. One variation is also required for the relief from the requirement that landscaping around any ground mounted tower and staff is recommending that be waived. The tower is currently surrounded by a fence. There are two parcels on the property that make up One North Arlington, the existing eight story office building is there now is on one parcel. The temporary tower is located in the parking lot, which is in the eastern parcel of the property. A total of about 7.36 acres, N. Wilke Road is on the west side and Shore Dr. is on the southern edge of the property with access on both roads.

Verizon approached the village several months ago, provided information on why the tower was needed. The current. communication tower and Palatine has been decommissioned as of this point. Verizon was leasing a tower that was being removed from the property, the timing was out of their control and the agreement with the Village and the temporary towers were based on applying for the special use permits which they have at this point, receiving approval for the permanent tower. If Verizon does not receive approval for the permanent tower, the temporary tower is removed, or March 31st, whichever one comes first. At this time Verizon is seeking the conceptual plan review approval and then will move forward with the full application, which is slated for the next Planning Commission meeting two weeks from today.

The code requires that the petitioner demonstrate that there's technically suitable space available for the existing tower or the structure. Verizon has analyzed and submitted information to staff, we did not share it with the commission, because it has trade secrets, and they did not want that to be part of a public document. This information has been reviewed with our staff, our engineering staff, which legitimately showed a gap in cell service for customers, but also first responders. Verizon has responded to the criteria necessary for the special use permit in their full application. The building and landscaping have no proposed change to the building itself, except for the installation of the antennas on the facade of the parapet walls that sit on the actual top story that surrounds the roof, which hides any of the equipment that's up there. They've been provided preliminary comments from planning and engineering and all the rest of our departments on both the temporary and the permanent installation. There were no comments on the temporary installation and it is up at this point.

With regards to traffic, parking, and loading the existing office building by code requires 608 spaces. Currently, they are providing 530 spaces, leaving a 78-space deficit. They have lost 14 spaces with the temporary tower, however once the temporary tower is removed, they will regain those 14 spaces. Staff is not recommending a variance at this time, as the uses that are being proposed now do not really have a substantial impact on parking. Currently only about 25% of the parking is utilized at the office building at this point.

The recommendation is that this does move forward to the full Planning Commission. Staff is asking that the petitioner mitigate the aesthetic impacts of the permanent installation by painting the antennas, removing any of the antennas that are not in use, and then the temporary tower get removed following the proceed at their own risk agreement. If that has to be amended because of timing, we will go back to the Village Board.

Commissioner Cherwin – tell me more about the 25% utilization of the parking lot. Is that generally consistent with the current situation of the building? What is the current situation of building? Owned by?

Mr. Lysicatos – the building is not fully being used and the temporary tower does not impact any parking deficit, so staff does not feel there is a need for a variation. The building is not owned by Verizon, separate property owner.

Commissioner Cherwin – inquired about the viability of the building and the term of the lease.

Mr. Lysicatos – the owner had previously inquired with the Village about truck parking on the site, however never pursued with Plan Commission. Staff is focusing on trying to come up with long term viability for the building. Staff does not have a lot of information on the owner's efforts in marketing or tenant recruiting.

Mr. Rosenthal – it is typically five years with options.

Commissioner Cherwin – shared his concerns with the building not being utilized to capacity, if the owner was in a situation where the building went into disrepair, the Village and the owner were trying to work something out the presence of the cell tower could cause a burden of further development.

Mr. Rosenthal – Verizon has worked with places that it is the landlord is wanting to completely change the use for the variability and it just won't work to have a carrier. We've certainly seen other situations where that's occurring. We've agreed to some kind of buyout and we look for another site.

Commissioner Drost – inquired about the science and the safety. There have been occasions where residents have been concerned with the throw off of whatever it emits from a cell tower. For the record are those concerns? What's the science?

Mr. Rosenthal – Federal law actually prohibits being considered for viewing on whether it's approved or denied, but I think that the logic is that the SEC basically regulates that and they've done the studies, and as long as we're in compliance, which we would have to be under your permitting approvals with the FCC, there should not be.

There currently is another provider already on the tower, and Verizon will utilize the Sprint space. Any unused equipment will be taken down and decommissioned. Per the lease, we have a duty to remove what's there.

Commissioner Cherwin – inquired about Verizon not serving his home with wi-fi in South Arlington Heights.

Mr. Rosenthal – he agreed that he does not have it at his home either, not a tower close enough to provide coverage. Sales people look at customers inquiring about coverage and then the engineering team has to look for availability.

Commissioner Green – expressed they have three thumbs up and should move forward to Plan Commission in two weeks.

RECOMMENDATION

The Conceptual Plan Review Committee encouraged the petitioner to proceed forward with their application.

Bruce Green, Chair
CONCEPTUAL PLAN REVIEW COMMITTEE
Kendra Maher, Recorder

DRAFT

November 10, 2023

Village of Arlington Heights
Attn: Dept. of Planning & Community Development
33 S. Arlington Heights Road
Arlington Heights, IL 60005

RE: Project Description for Special Use Permit Application – Verizon Wireless Permanent Rooftop Wireless Communications Facility on Parcel # 03-07-102-013-0000 – 1500 W. Shure Drive (Rand & 53_Perm Site)

Dear Michael Lysicatos,

Verizon is proposing to locate antennas and ancillary equipment to the rooftop of 1500 W. Shure Drive in Arlington Heights. The proposed antennas will be mounted to three separate sectors of the rooftop's exterior at centerline heights of 90 feet to 95 feet. Equipment cabinets will be located on the southern portion of the rooftop within a 40 square foot area. The purpose of the proposed facility is to allow Verizon to improve its customer experience of the surrounding area.

For any questions regarding the proposed project, please contact Rachael Ceckowski at rceckowski@mountainltd.com or 847-254-3209.

Sincerely,

Rachael Ceckowski

Rachael Ceckowski
Agent on Behalf of Verizon Wireless
MOUNTAIN LTD.

November 10, 2023

Village of Arlington Heights
Attn: Dept. of Planning & Community Development
33 S. Arlington Heights Road
Arlington Heights, IL 60005

RE: Project Description for Special Use Permit Application – Verizon Wireless Temporary Wireless Communications Facility on Parcel # 03-07-102-013-0000 – 1500 W. Shure Drive (Rand & 53_Perm Site)

Dear Michael Lysicatos,

Verizon is proposing to locate a temporary cell tower within the parking lot of 1500 W. Shure Drive in Arlington Heights. The proposed antennas will be mounted on two separate masts of a cell on light truck at centerline heights of 50 feet to 57.5 feet. The proposed temporary compound area is 3,000 square feet on the east side of the parcel and will be surrounded by fencing. The purpose of the proposed facility is to allow Verizon to improve its customer experience of the surrounding area prior to completion of the permanent installation.

For any questions regarding the proposed project, please contact Rachael Ceckowski at rceckowski@mountainltd.com or 847-254-3209.

Sincerely,

Rachael Ceckowski

Rachael Ceckowski
Agent on Behalf of Verizon Wireless
MOUNTAIN LTD.

BUFFALO GROVE NORTH
LOC. #269303

SURVEYOR'S NOTE

THE PARENT PARCEL BOUNDARY OF THIS DRAWING IS ILLUSTRATED FROM RECORD INFORMATION AND IS APPROXIMATE.

THE TOPOGRAPHICAL SURVEY FOR THIS MAP WAS PERFORMED ON OCTOBER 29, 2019.

NOT TO BE USED AS CONSTRUCTION DRAWINGS.

ELEVATION DATUM

ALL ELEVATIONS ARE BASED ON NAVD 88 DATUM.

CONTOURS ARE ILLUSTRATED AT 1.0' INTERVALS.

BASIS OF BEARINGS

LATITUDE AND LONGITUDE OF SITE REFERENCE POINT ARE BASED ON THE HARN (HIGH ACCURACY REFERENCE NETWORK) NAD83 (CORS 96)

BEARINGS ARE BASED ON ILLINOIS STATE PLANE, IL EAST 1201 TO ORIENT DRAWING TO TRUE NORTH, ROTATE CLOCKWISE 00°13'19.53".

EASEMENTS, COVENANTS, CONDITIONS, AND RESTRICTIONS

THE TITLE COMMITMENT ISSUED BY NEAR NORTH NATIONAL TITLE LLC, ISSUING AGENT FOR CHICAGO TITLE INSURANCE COMPANY, AS COMMITMENT NO. IL1909132, DATED SEPTEMBER 17, 2019 LISTS THE FOLLOWING EASEMENTS, COVENANTS, CONDITIONS, AND RESTRICTIONS, THAT ARE MATTERS OF SURVEY, AFFECTING THE PARENT PARCEL UNDER "SCHEDULE B":

SEE SHEET 2

ZONING DATA

ACCORDING TO THE SITE CANDIDATE INFORMATION PACKAGE THIS SITE IS ZONED:
M-1 (LIGHT MANUFACTURING DISTRICT)
SETBACKS:
FRONT: N/A
REAR: N/A
SIDE: N/A

PROPRIETOR

YPI ARLINGTON LLC
12377 MERIT DR. #250
DALLAS, TX 75251-3201

FLOOD PLAIN INFORMATION

WE HAVE CONSULTED THE FEDERAL EMERGENCY MANAGEMENT AGENCY NATIONAL FLOOD INSURANCE MAP AS PREPARED FOR THE VILLAGE OF ARLINGTON HEIGHTS, COOK COUNTY, ILLINOIS, COMMUNITY PANEL NUMBER 17031C0044J DATED AUGUST 19, 2008, AND FIND THAT THE PROJECT SITE IS IN ZONE X (UNSHADED).

LEGAL DESCRIPTION

PARENT PARCEL

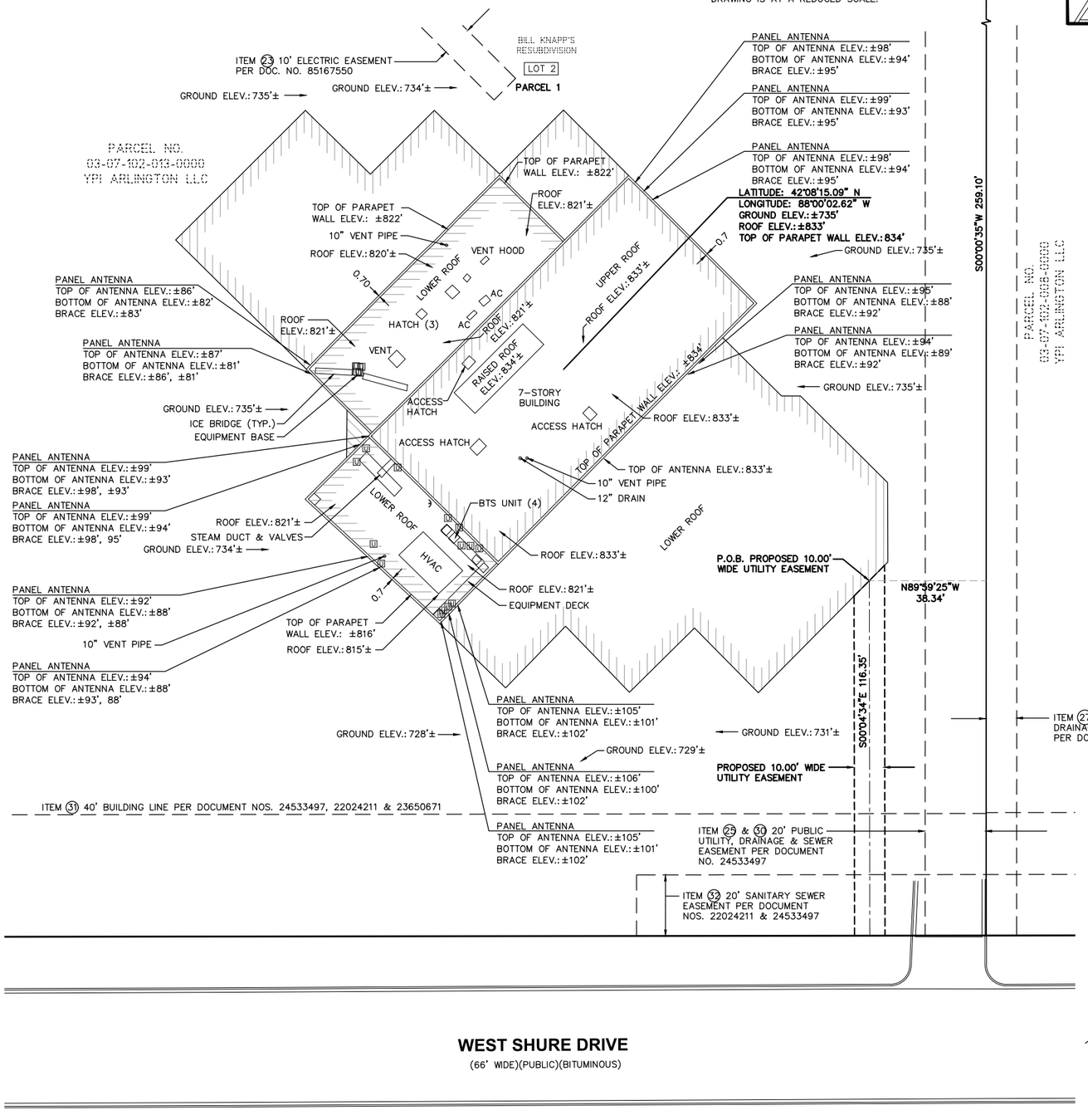
PARCEL 1: LOT 2 IN BILL KNAPP'S RESUBDIVISION ACCORDING TO THE PLAT THEREOF RECORDED JULY 12, 1983 AS DOCUMENT 26683318, BEING A RESUBDIVISION OF LOT 4 IN ARLINGTON INDUSTRIAL AND RESEARCH CENTER UNIT 12, BEING A SUBDIVISION IN PART OF THE NORTHWEST 1/4 OF SECTION 7, TOWNSHIP 42 NORTH, RANGE 11, EAST OF THE THIRD PRINCIPAL MERIDIAN, IN COOK COUNTY, ILLINOIS.
PARCEL 2: EASEMENT FOR THE BENEFIT OF PARCEL 1 AS CREATED BY EASEMENT AGREEMENT RECORDED JULY 12, 1983 AS DOCUMENT 26684378 FOR THE PURPOSE OF ACCESS OVER THE SOUTH 17.5 FEET OF THE WEST 170 FEET OF LOT 1 (AS MEASURED ALONG THE SOUTH LINE OF SAID LOT 1) IN BILL KNAPP'S RESUBDIVISION ACCORDING TO THE PLAT THEREOF RECORDED JULY 12, 1983 AS DOCUMENT 26683318, IN THE NORTHWEST 1/4 OF SECTION 7, TOWNSHIP 42 NORTH, RANGE 11, EAST OF THE THIRD PRINCIPAL MERIDIAN, IN COOK COUNTY, ILLINOIS.
PARCEL 3: LOT 3 IN ARLINGTON INDUSTRIAL AND RESEARCH CENTER UNIT 12, BEING A SUBDIVISION IN PART OF THE NORTHWEST 1/4 OF SECTION 7, TOWNSHIP 42 NORTH, RANGE 11, EAST OF THE THIRD PRINCIPAL MERIDIAN, ACCORDING TO THE PLAT THEREOF RECORDED JULY 13, 1978 AS DOCUMENT NO. 24533497, IN COOK COUNTY, ILLINOIS

This map was made from the above legal description which was given to us as a complete description of the property. Both map and description should be compared with the Abstract of Title or Title Policy for any exceptions, easements or differences in description.

LEGAL DESCRIPTION

PROPOSED 10.00' WIDE UTILITY EASEMENT

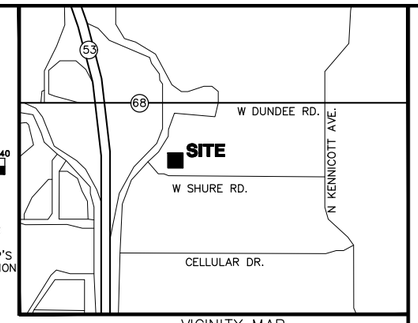
A 20.00 foot wide easement in that part of Lot 2 of Bill Knapp's Resubdivision, being a part of Arlington Industrial & Research Center Unit 12, Lot 4, being a part of the Northwest 1/4 of Section 7, Town 49, Range 9, Cook County, Illinois, the centerline of which is described as; Commencing at a found iron at the northeast corner of said Lot 2; thence South 00°00'35" West 259.10 feet along the easterly line of said Lot 2 thence; thence North 89°59'25" West 38.34 feet to a point on the southeasterly face of a 7-story building for THE PLACE OF BEGINNING OF THIS CENTERLINE DESCRIPTION; thence South 00°04'34" East 116.35 feet to the northerly right of way of West Shure Drive (66 feet wide) for the place of ending of this centerline description. The sidelines are to be lengthened and/or shortened to terminate at aforesaid 7-story building and at said northerly right of way.



04°±
MAGNETIC
TRUE
TRUE NORTH
0 20 40
SCALE IN FEET

CALL CHICAGO DIGGERS HOTLINE
1-312-744-7000
OR JULIE, INC. TOLL FREE
1-800-892-0126
REQUIRES MIN. OF 3 WORK DAYS NOTICE BEFORE YOU EXCAVATE

NOTE:
THE ORIGINAL SCALE (1"=20') OF THIS DRAWING WAS PREPARED AS A 24"X36" DRAWING ANY OTHER SIZE DRAWING IS AT A REDUCED SCALE.



VICINITY MAP
N.T.S.

LEGEND

- TRAVERSE POINT
- WELL
- HIGHWAY
- MONUMENT
- MONUMENT BOX
- RIGHT OF WAY MARKER
- SET WOODSTAKE
- XCUT
- PK NAIL
- FOUND IRON STAKE
- SET IRON STAKE
- SIGN
- RR SIGN
- GUY POLE
- GUY ANCHOR
- UTILITY POLE
- LIGHT POLE
- ORNAMENTAL LIGHT POLE
- POST
- U.G. UTILITY MARKER
- GROUND ROD
- SOIL BORING
- MAILBOX
- SATELLITE DISH
- HAND HOLE
- AC UNIT
- U.G. UTILITY MARKER
- FIRE HYDRANT
- POST INDICATOR VALVE
- WATER VALVE
- GAS VALVE
- UST FILL PORT
- GAS PUMP
- GAS METER
- WATER METER
- TELEPHONE RISER
- ELECTRIC METER
- ELECTRIC TRANSFORMER
- CABLE TV RISER
- CATCH BASIN
- ROUND CATCH BASIN
- UTILITY MANHOLE
- STORM MANHOLE
- SANITARY MANHOLE
- ELECTRIC MANHOLE
- TELEPHONE MANHOLE
- WATER MANHOLE
- HANDICAP PARKING SPACE
- SHRUB
- TREE
- PINE TREE
- (ELEV) EXISTING CONTOURS
- TELEPHONE UTILITY LINE
- ELECTRIC UTILITY LINE
- WATER UTILITY LINE
- GAS UTILITY LINE
- STEAM UTILITY LINE
- STORM UTILITY LINE
- SANITARY UTILITY LINE
- FIBER OPTIC UTILITY LINE
- OVERHEAD UTILITY LINE
- FENCE LINE
- GUARD RAIL

All utilities as shown are approximate locations derived from actual measurements and available records. They should not be interpreted to be in exact location nor should it be assumed that they are the only utilities in the area.

PROFESSIONAL LAND SURVEYOR
SAMUEL ABRAHAM MILES
035-003984
GRAND RAPIDS MICHIGAN
STATE OF ILLINOIS

I, Samuel A. Miles, do hereby certify that the drawing shown hereon is a correct representation of a survey performed at and under my direction.

All dimensions shown are in feet and decimal parts thereof.

Given under my hand and seal this 11th day of June, 2020.

Samuel A. Miles
Samuel A. Miles
Illinois Professional Land Surveyor No. 035.003984
Expires November 30, 2020

Note: This certification only applies to improvements within the lease site and easements as shown hereon.
ILLINOIS REGISTERED DESIGN FIRM
LICENSE NUMBER 184.007034
LICENSE EXPIRES: APRIL 30, 2021

CHICAGO SMSA
limited partnership
d/b/a VERIZON WIRELESS

BUFFALO GROVE NORTH LOC. #269303

Survey Prepared for:

TERRA CONSULTING GROUP, LTD.
600 Busse Highway
Park Ridge, IL 60068
Ph: 847/698-6400
FAX: 847/698-6401
Project Manager: Tom Zimmermann

REVISIONS		
NO.	DESCRIPTION	DATE
1	FINALIZE	05/19/20
2	ADDED TITLEWORK	06/11/20

williams&works
engineers | surveyors | planners
616.224.1500 phone
549 Ottawa Ave NW
http://williams-works.com
Grand Rapids, MI 49503

NW | NE
SW | SE
7-42-9

DATE: 10/29/19	DWG. BY: E.C.V.
SCALE: 1"=20'	SURVEYED: R.P./B.P.
UPDATE: ECV061120	CHKD BY: S.A.M.
PROJECT NO.: 211005.852	

SITE NAME

BUFFALO GROVE NORTH

LOCATION NUMBER

LOC. #269303

SITE ADDRESS

1500 W SHURE DR. ARLINGTON HEIGHT, IL 60004

SHEET TITLE

PS-1

BUFFALO GROVE NORTH
LOC. #269303

SURVEYOR'S NOTE

THE PARENT PARCEL BOUNDARY OF THIS DRAWING IS ILLUSTRATED FROM RECORD INFORMATION AND IS APPROXIMATE.

THE TOPOGRAPHICAL SURVEY FOR THIS MAP WAS PERFORMED ON OCTOBER 29, 2019.

NOT TO BE USED AS CONSTRUCTION DRAWINGS.

EASEMENTS, COVENANTS, CONDITIONS, AND RESTRICTIONS

THE TITLE COMMITMENT ISSUED BY NEAR NORTH NATIONAL TITLE LLC, ISSUING AGENT FOR CHICAGO TITLE INSURANCE COMPANY, AS COMMITMENT NO. IL1909132, DATED SEPTEMBER 17, 2019 LISTS THE FOLLOWING EASEMENTS, COVENANTS, CONDITIONS, AND RESTRICTIONS, THAT ARE MATTERS OF SURVEY, AFFECTING THE PARENT PARCEL UNDER "SCHEDULE B":

12. Memorandum of First Amendment to Site Lease Agreement recorded February 1, 2010 as document 1003203004 made by and between Emergency Service, Inc. and SprintCom, Inc.
Note: No Original Memorandum instrument was previously recorded with the County of Cook to memorialize the Agreement. AFFECTS THE SUBJECT PROPERTY; LOCATION CANNOT BE DETERMINED FROM RECORD DOCUMENT.

13. Subordination Agreement – Lease dated July 27, 2017 and recorded October 6, 2017 as document 1727913077 made and executed among Emergency Service, Inc to Sprintcom, Inc; YPI Arlington, LLC and Royal Business Bank.
Note: This document refers to 1003203004 the First Amendment to Site Lease Agreement. AFFECTS THE SUBJECT PROPERTY BLANKET IN NATURE.

14. Memorandum of Amendment No 3 to Site Lease Acknowledgement recorded June 15, 2018 as document number 1816649022 made by and between Emergency Radio and SprintCom, Inc. AFFECTS THE SUBJECT PROPERTY BLANKET IN NATURE.

16. Unrecorded lease made by One North Arlington, LLC in favor of Amcol International Corporation, fka American Colloid Company, dated September 29, 1986, demising a portion of the land, and all rights thereunder of the lessee and of any parson or party claiming by, through or under said lessee. DOCUMENT NOT PROVIDED.

17. Unrecorded lease made by One North Arlington, LLC, in favor of State Farm Automobile insurance company, dated December 31, 2003. DOCUMENT NOT PROVIDED.

18. Lease made by Emergency Service, Inc.., an Indiana corporation to Sprintcom, Inc., A Kansas corporation, dated October 21, 1998, a Memorandum of First Amendment to site lease acknowledgement which was recorded February 1, 2010 as document No. 1003203004, demising a portion of the land, which amendment extends the terms of the agreement for five years commencing November 1, 2008, with one additional 5 year renewal option,
and all rights thereunder of, and all acts done or suffered thereunder by, said lessee or by any party claiming by, through, or under said lessee. AFFECTS THE SUBJECT PROPERTY; LOCATION CANNOT BE DETERMINED FROM RECORD DOCUMENT.

19. Right, title and interest of Emergency Service, Inc., an Indiana corporation, in and to the land, as disclosed by their execution of the Memorandum of First Amendment to site lease acknowledgement recorded as document 1003203004, noted above, and of all parties claiming thereunder. AFFECTS THE SUBJECT PROPERTY; LOCATION CANNOT BE DETERMINED FROM RECORD DOCUMENT.

20. Note: the following item, while appearing on this commitment, is provided solely for your information. Assignment of parking agreement recorded June 22, 1988 as document 88272894 made by and between American National Bank and Trust Company, as trustee under trust number 62164 and North Arlington Towers Partnership relating to 17 parking spaces referred in in the parking agreement letter dated April 27, 1987 from Bill Knapp to Richard H. Levy for the use of Ronald J. Benach, as agent. BENEFITS THE SUBJECT PROPERTY WITH 17 PARKING SPACES ON LOT 1; LOCATION CANNOT BE DETERMINED FROM THE RECORD DOCUMENT.

21. Reciprocal easement for an access road as set forth in the easement Agreement executed by and between LaSalle National Bank, as trustee under trust agreement dated August 24, 1977 known as trust number 53022 and Dundee Wilke Venture, an Illinois general partnership (beneficiary) and Bill Knapp's Properties, Inc., a Michigan corporation, recorded July 12, 1983 as document 26684378, and the terms and provisions relating thereto. Rights of the adjoining owner or owners to the concurrent use of said easement. (Easement is 35 feet in even width, the centerline of which is described as Follows: beginning at the intersection of the a line common to lots 1 and 2 in Bill Knapp's Resubdivision, with the west line of said subdivision and running thence easterly along said common line, a distance of 170 feet to a point of termination. Said easement to intersect the west line of said subdivision) AFFECTS THE SUBJECT PROPERTY AS SHOWN; SAME AS PARCEL 2.

22. Note: the following item, while appearing on this commitment/policy, is provided solely for your information. the following environmental disclosure document(s) for transfer of real property appear of record which include a description of the land insured or a part thereof:
Document number: 90344744 date of recording: July 18, 1990
Document number: 90344745 recorded on July 18, 1990
Document number: 0010341579 recorded on April 26, 2001
AFFECTS THE SUBJECT PROPERTY BLANKET IN NATURE.

23. Easement in favor of the Illinois Bell Telephone Company and the Commonwealth Edison Company, and their respective successors and assigns, to install, operate and maintain all equipment necessary for the purpose of serving the land and other property, together with the right of access to said equipment, and the provisions relating thereto contained in the grant recorded/filed as document no.85167550, affecting the north line of lot 2 as shown on Exhibit A attached. AFFECTS THE SUBJECT PROPERTY AS SHOWN.

24. Order establishing freeway and route location decision, both recorded August 29, 1962 as documents 18576703 and 18576704, respectively, purporting to give notice by the Department of Public Works and Buildings, Division of Highways, State of Illinois, of the intent of said body to establish a freeway on, over, across or contiguous to the land in a manner which will permit access between said freeway and abutting lands only at entrances provided for said purposes. (Affects underlying) AFFECTS THE SUBJECT PROPERTY.

25. We have examined the plat of Bill Knapp's Resubdivision, being a Resubdivision of Lot 4 in Arlington Industrial and Research Center Unit 12, being a subdivision in part of the northwest 1/4 of Section 7, Township 42 North, Range 11 East of the Third Principal Meridian, according to the plat therefore recorded July 13, 1978 as document 24533497, relative thereto, we note the following:
(A) Easement over the land in favor of Northern Illinois Gas Company, its successors and assigns, for the installation, maintenance, relocation, renewal and removal of gas mains and appurtenances thereto, as shown on the plat of resubdivision aforesaid recorded July 12, 1983 as document 26683318.
(B) Easement over the land for the purpose of installing and maintaining all equipment necessary for the purpose of serving the subdivision and other land with telephone and electric service, together with right to overhang aerial service wires and also with right of access thereto, as granted to the the Illinois Bell Telephone Company, the Commonwealth Edison Company and Cablenet and as shown on the plat of resubdivision recorded July 12, 1983 as document 26683318.

CONTINUED

(C) Reservation and grant of a non–exclusive access right to the Village of Arlington Heights and their respective successors and assigns for the installation, maintenance, relocation, renewal and removal of manholes, inlets, catch basins, sanitary lines and appurtenances, storm sewer lines and appurtenances, watermains and appurtenances, and all other equipment and appurtenances necessary for the purpose of providing the subdivision and adjoining property with sanitary, storm and water services, over, under and upon the land as shown on the plat of resubdivision aforesaid
(D) Easement over the north 17.5 feet of the west 170 feet, said 170 feet as measured on the north line of lot 2 for ingress and egress, construction, maintenance and upkeep as shown on plat of resubdivision aforesaid and as created by agreement recorded July 12, 1983 as document26684378.
(E) Private sanitary sewer easement over the north 50 feet of the east 20 feet As shown on plat of resubdivision aforesaid.
(F) Drainage easement over the land as shown on plat of resubdivision aforesaid. (Affects that part of lot 2 described as follows: beginning at the point of intersection of southeasterly line of Illinois Route 53 and the northerly line of southeasterly line of Illinois route 53 and the northerly line of Shure Drive being the point of beginning of this description; thence northeasterly along the southeasterly line of Illinois route 53, 35 feet; thence south to a point on the northerly line of Shure Drive 18.73 feet as measured on the northerly line of Shure Drive, southeasterly of the intersection of the southeasterly line of Illinois Route 53 and the north line of Shure Drive; thence northwesterly along the northerly line of Shure Drive to the point of beginning.
(G) Easement to enter upon the land and other property reserved and granted to the Commonwealth Edison Company, the Illinois Bell Telephone Company and Cable Net, Inc, their successors and assigns, with right to cut, trim or remove trees and bushes and roots as may be reasonable required as shown on plat of subdivision
(H) A 20 foot public utilities, sewer and drainage easement as shown on the Plat of resubdivision aforesaid over the east line of lot 2 (Affects Parcel 1) AFFECTS THE SUBJECT PROPERTY AS SHOWN.

26. Easement over the land for the purpose of installing and maintaining all equipment necessary to serve the subdivision and other property with telephone and electric service, together with the right to overhang aerial service wires and the right of access to such wires, as created by grant to the Illinois Bell Telephone Company and the Commonwealth Edison Company and their respective successors and assigns and as shown on plat of Arlington Industrial and Research Center Unit 12 recorded July 13, 1978 as document 24533497 (Affects Parcel 3) AFFECTS THE SUBJECT PROPERTY AS SHOWN.

27. 10 foot public utilities and drainage easement as shown on plat of resubdivision recorded as document 24533497 over west line of lot 3. (Affects Parcel 3) AFFECTS THE SUBJECT PROPERTY AS SHOWN.

CONTINUED

28. Easement to enter upon the land reserved and granted to the Commonwealth Edison Company, the Illinois Bell Telephone Company, Northern Illinois Gas Company, their respective successors and assigns, together with right to cut, trim or remove trees, bushes and roots as may be reasonably required as shown on the Plat of Arlington Industrial and Research Center Unit No. 6 recorded August 22, 1972 as document 22024211. (Affects land underlying Parcel 3) PROVIDED DOCUMENT NOT LEGIBLE.

29. Notice requirements for storm water detention recorded March 9, 1977 as document 23844485. AFFECTS THE SUBJECT PROPERTY, BLANKET IN NATURE.

30. 20 foot public utilities, sewer and drainage easement as shown on plat of resubdivision recorded as document 24533497 over the east line of lot 2. (Affects Parcel 1) AFFECTS THE SUBJECT PROPERTY AS SHOWN

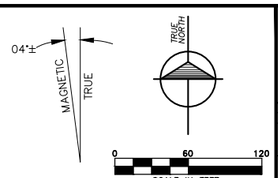
31. A 40 foot building line over the south and westerly lines of lot 2 aforesaid and over the south line of lot 3 aforesaid as shown on plats of subdivision recorded as documents 24533497, 22024211 and 23650671 (Affects Parcels 1 and 3) AFFECTS THE SUBJECT PROPERTY AS SHOWN

32. A 20 foot sanitary sewer easement over part of the south line of lot 2 aforesaid and all of the south line of lot 3 aforesaid as shown on plats of subdivision recorded as documents 22024211 and 24533497. (Affects Parcels 1 and 3) AFFECTS THE SUBJECT PROPERTY AS SHOWN

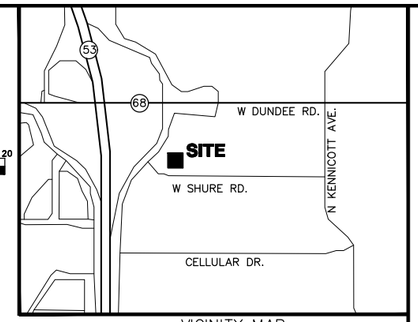
33. A 15 foot sanitary sewer easement over the north 15 feet of lot 3 aforesaid as shown on plats of subdivision recorded as documents 23650671 and 24533497 (Affects Parcel 3) AFFECTS THE SUBJECT PROPERTY AS SHOWN

34. Covenants, restrictions and agreements contained in unrecorded cross easement agreement and grant of license between Kohl–Fredericks Development Corp, as agent for the owner of property known as 1500 West Shure Drive, Dunhill Partners, owner of property known as 1530 West Shure Drive, and American Colloid Company as licensee. Licensee being a tenant of both properties. Either Kohl or Dunhill may revoke license at any time following 30 days notice. The license will automatically cease and be of no further force or effect upon the expiration of licensee's lease with either Kohl or Dunhill. DOCUMENT NOT PROVIDED.

35. Memorandum of License dated September 14, 2017 and recorded February 22, 2018 as document number 1805346069 entered into between YPI Arlington LLc and T–Mobile central LLC. AFFECTS THE SUBJECT PROPERTY BLANKET IN NATURE.



CALL CHICAGO DIGGERS HOTLINE
1-312-744-7000
OR JULIE, INC. TOLL FREE
1-800-892-0126
REQUIRES MIN. OF 3 WORK DAYS NOTICE BEFORE YOU EXCAVATE



VICINITY MAP
N.T.S.

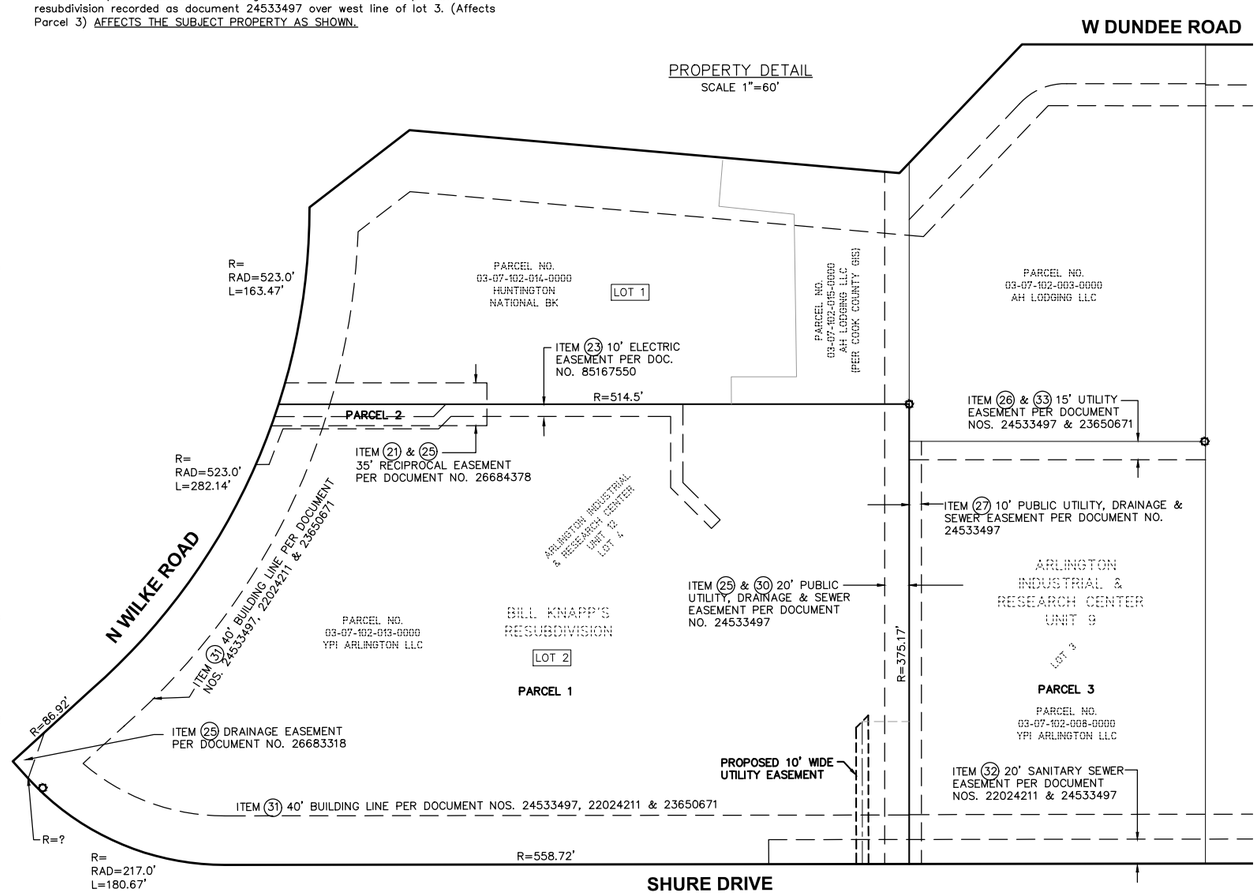
NOTE:
THE ORIGINAL SCALE (1"=20') OF THIS DRAWING WAS PREPARED AS A 24"X36" DRAWING ANY OTHER SIZE DRAWING IS AT A REDUCED SCALE.

LEGEND

- TRAVERSE POINT
- WELL
- HIGHWAY
- MONUMENT
- MONUMENT BOX
- RIGHT OF WAY MARKER
- SET WOODSTAKE
- XCUT
- PK NAIL
- FOUND IRON STAKE
- SET IRON STAKE
- SIGN
- RR SIGN
- GUY POLE
- GUY ANCHOR
- UTILITY POLE
- LIGHT POLE
- ORNAMENTAL LIGHT POLE
- POST
- U.G. UTILITY MARKER
- GROUND ROD
- SOIL BORING
- MAILBOX
- SATELLITE DISH
- HAND HOLE
- AC UNIT
- U.G. UTILITY MARKER
- FIRE HYDRANT
- POST INDICATOR VALVE
- WATER VALVE
- GAS VALVE
- UST FILL PORT
- GAS PUMP
- GAS METER
- WATER METER
- TELEPHONE RISER
- ELECTRIC METER
- ELECTRIC TRANSFORMER
- CABLE TV RISER
- CATCH BASIN
- ROUND CATCH BASIN
- UTILITY MANHOLE
- STORM MANHOLE
- SANITARY MANHOLE
- ELECTRIC MANHOLE
- TELEPHONE MANHOLE
- WATER MANHOLE
- HANDICAP PARKING SPACE
- SHRUB
- TREE
- PINE TREE
- (ELEV) EXISTING CONTOURS
- TELEPHONE UTILITY LINE
- ELECTRIC UTILITY LINE
- WATER UTILITY LINE
- GAS UTILITY LINE
- STEAM UTILITY LINE
- STORM UTILITY LINE
- SANITARY UTILITY LINE
- FIBER OPTIC UTILITY LINE
- OVERHEAD UTILITY LINE
- FENCE LINE
- GUARD RAIL

All utilities as shown are approximate locations derived from actual measurements and available records. They should not be interpreted to be in exact location nor should it be assumed that they are the only utilities in the area.

PROPERTY DETAIL
SCALE 1"=60'



I, Samuel A. Miles, do hereby certify that the drawing shown hereon is a correct representation of a survey performed at and under my direction.

All dimensions shown are in feet and decimal parts thereof.

Given under my hand and seal this 11th day of June, 2020.

Samuel A. Miles

Samuel A. Miles
Illinois Professional Land Surveyor No. 035.003984
Expires November 30, 2020

Note: This certification only applies to improvements within the lease site and easements as shown hereon.

ILLINOIS REGISTERED DESIGN FIRM
LICENSE NUMBER 184.007034
LICENSE EXPIRES: APRIL 30, 2021

CHICAGO SMSA
limited partnership
d/b/a VERIZON WIRELESS

BUFFALO GROVE NORTH
LOC. #269303

Survey Prepared for:

TERRA CONSULTING GROUP, LTD.
600 Busse Highway
Park Ridge, IL 60068
Ph: 847/698-6400
FAX: 847/698-6401

Project Manager: Tom Zimmermann

REVISIONS		
NO.	DESCRIPTION	DATE
1	FINALIZE	05/19/20
2	ADDED TITLEWORK	06/11/20

williams&works
engineers | surveyors | planners
616.224.1500 phone
549 Ottawa Ave NW
http://williams-works.com
Grand Rapids, MI 49503

NW | NE
SW | SE
7-42-9

DATE: 10/29/19	DWG. BY: E.C.V.
SCALE: 1"=60'	SURVEYED: R.P./B.P.
UPDATE: ECV061120	CHKD BY: S.A.M.
PROJECT NO.: 211005.852	

SITE NAME

BUFFALO GROVE NORTH

LOCATION NUMBER

LOC. #269303

SITE ADDRESS

1500 W SHURE DR. ARLINGTON HEIGHT, IL 60004

SHEET TITLE

PS-2

SHEET 2 OF 2

RECEIVED
NOV 29 2023
PLANNING & ZONING / COMMUNITY DEVELOPMENT DEPARTMENT

verizon

Written Justification - Special Use Permit–Communications Facility located at 1500 Shure Drive, Arlington Heights, Illinois

Including Verizon Wireless Temporary Communications Facility and proposed Permanent Installation on an existing building structure

In accordance with the requirements of the Village of Arlington Heights Criteria for Special Uses contained in Chapter 28 of the Village zoning ordinance, the applicant is requesting a Special Use to allow the construction of a temporary communications facility and a permanent communications facility on an existing seven story building ("Building"). Below are addressed the applicable conditions related to this request for a Special Use:

1. That said special use is deemed necessary for public convenience at this location.

   The addition of the proposed antenna installation will provide reliable and more stable wireless service to Village residents, employees and those visiting adjacent community and businesses, vehicles traveling on Dundee Road, Wilke Road, Route 53 and other nearby roadways, as well as improved 9-1-1 responsivity of emergency vehicles working in this area. Enhanced wireless communication will have a positive influence on the economic desirability of this area in keeping with the long-range goals of the Village. We note that the temporary facility is necessary due to the loss of a nearby Verizon Wireless network site which has created a gap in service and capacity to the area.

2. That such case will not, under any circumstance of the particular case, be detrimental to the health, safety, morals or general welfare of persons residing or working in the vicinity.

   The proposed installation is a minor addition to a large, existing developed parcel in a fully developed area and will not impede or impact surrounding properties in any way. We note that the temporary facility shall be placed within a rear parking lot area that serves Building. For the permanent site, Verizon Wireless has selected co-location of antennas on the Building to ensure that it does not need to install a new structure for permanent use to serve the area. The locations and design of the permanent facility were chosen to minimize any impact to the nearby community and to the future development of the subject parcel.

   The proposed installation is an unmanned and automated utility-type addition to the property requiring only infrequent visits by a single technician and will thus have no impact on the use, development, or value of adjacent and nearby properties or result in increased traffic to the Property. Access will be afforded using the existing paved driveway servicing the subject site and

BEFORE

AFTER

NOTE: THIS PHOTO SIMULATION IS A VISUAL INTERPRETATION OF THE PROPOSED DESIGN. FINAL CONSTRUCTION MAY DIFFER FROM WHAT IS PRESENTED HERE.

RAND & 53_RELO

View from Southwest looking Northeast

TERRA CONSULTING GROUP
600 Busse Highway, Park Ridge, IL 60068
Phone: 847.698.6400 Fax: 847.698.6401
TCG #: 33-3608

verizon

BEFORE

AFTER

NOTE: THIS PHOTO SIMULATION IS A VISUAL INTERPRETATION OF THE PROPOSED DESIGN. FINAL CONSTRUCTION MAY DIFFER FROM WHAT IS PRESENTED HERE.

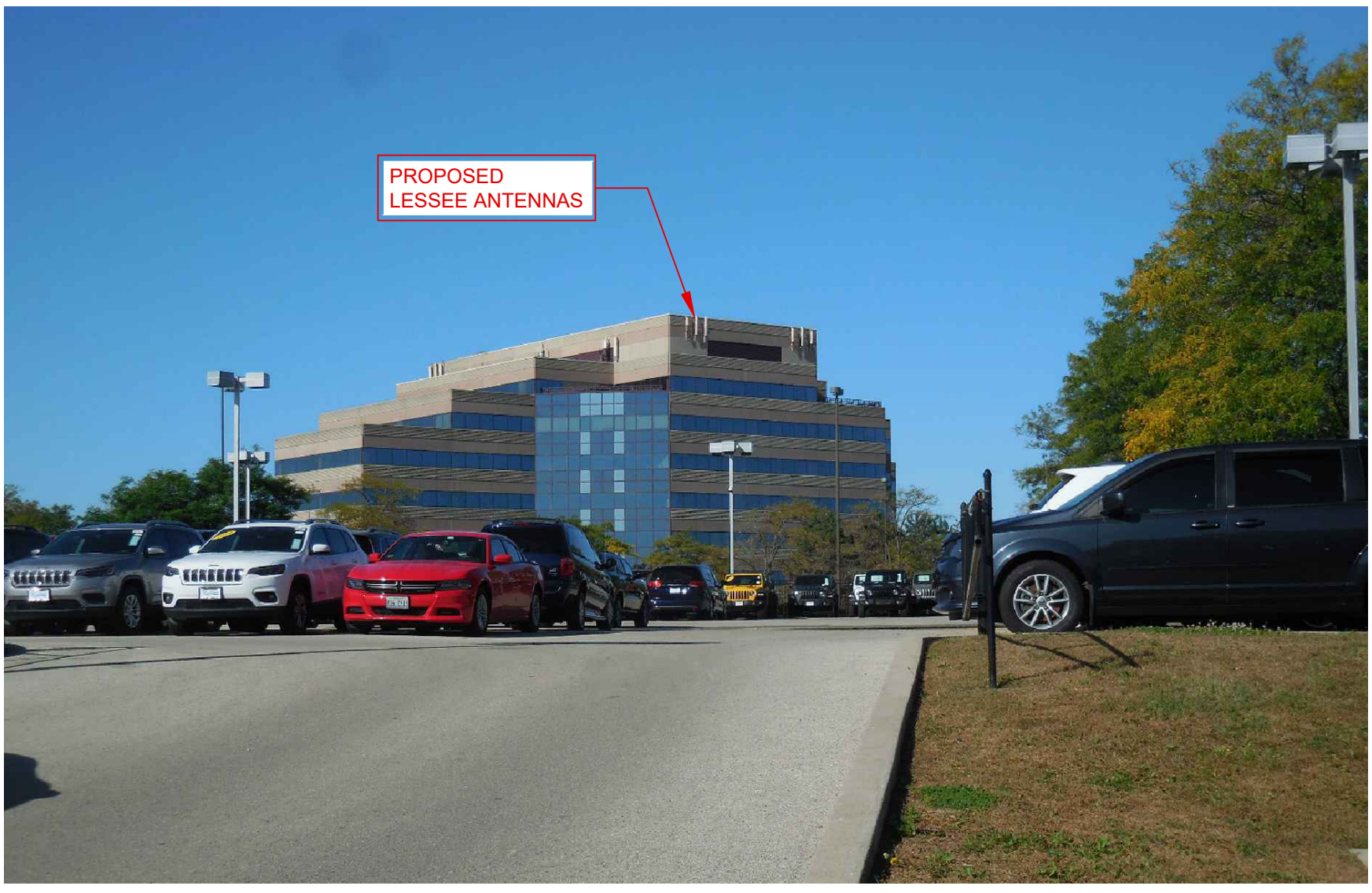
RAND & 53_RELO

View from West looking East

TERRA CONSULTING GROUP
600 Busse Highway, Park Ridge, IL 60068
Phone: 847.698.6400 Fax: 847.698.6401
TCG #: 33-3608

verizon

BEFORE



AFTER

NOTE: THIS PHOTO SIMULATION IS A VISUAL INTERPRETATION OF THE PROPOSED DESIGN. FINAL CONSTRUCTION MAY DIFFER FROM WHAT IS PRESENTED HERE.

RAND & 53_RELO

View from East looking West

TERRA CONSULTING GROUP
600 Busse Highway, Park Ridge, IL 60068
Phone: 847.698.6400 Fax: 847.698.6401
TCG #: 33-3608

verizon

32 W 273 Army Trail Road, Suite # 100, Wayne, IL 60184
HUTTER TRANKINA ENGINEERING
CONSULTING STRUCTURAL ENGINEERS
Phone: 630-513-6711
htedesign.com

June 16, 2023
Revised: November 16, 2023

Mr. Dan Szlaga
Terra Consulting Group, Ltd.
600 Busse Highway, 2nd Floor
Park Ridge, IL 60068-2568

Re: VZN: Rand & 53 Relo
Loc. # 766005 / Terra # 333608
Hutter Trankina # 20243B

Dear Mr. Szlaga:

Per your request, we have analyzed the above-referenced site, which is located at 1500 West Shure Drive in Arlington Heights, Illinois. The following paragraphs summarize our findings.

PURPOSE

The purpose of this analysis was to design antenna mounts and verify the structural adequacy of the existing supporting structure for the proposed equipment as specified by Verizon.

DESCRIPTION

The antennas are to be mounted to single pipe mounts on the side of the existing precast wall. Per the landlord's request, new mounts will be installed at the Alpha and Gamma sectors, and the existing mounts will be re-used at the Beta sector. The analysis was based on the Verizon RFDS dated 5/4/2023, a site visit performed by HTE on 3/11/2020, and information provided by your office.

ANALYSIS RESULTS AND CONCLUSION

From our analysis, the following capacity ratings were determined:

Proposed Pipe Mounts:	PASS
Existing Pipe Mounts (Beta):	**FAIL**
Existing Building:	PASS

Based on the performed calculations, the existing mounts at the Beta sector **cannot be verified as structurally acceptable** to resist the wind loads imposed by the proposed equipment. The type and depth of anchorage is unknown per the mapping provided. Please see the attached sketches for the antenna / equipment mounts at the Alpha and Gamma sectors.

Should you have any questions regarding this report or require further analysis, please feel free to contact us.

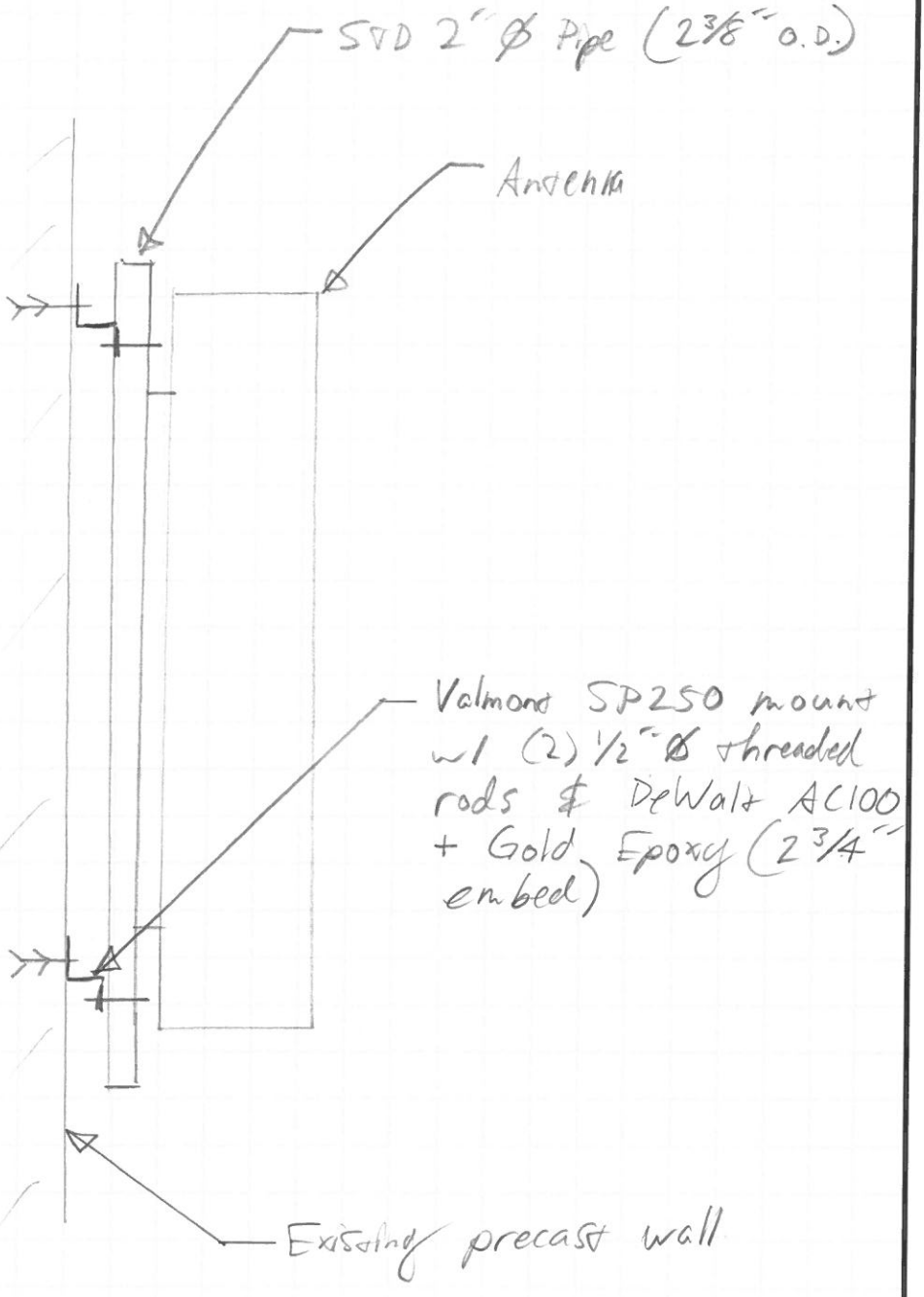
Sincerely,

Josh D. Rak
Project Engineer

John L. Trankina
President

Attachment: Alpha/Gamma Mount Design

* All new steel shall be galvanized



(1) Antenna Mount – Proposed @ Alpha/Gamma
N.T.S.

HUTTER TRANKINA ENGINEERING, PC

Consulting Structural Engineers

32 W 273 ARMY TRAIL ROAD
SUITE # 100
WAYNE, ILLINOIS 60184

Phone (630) 513-6711

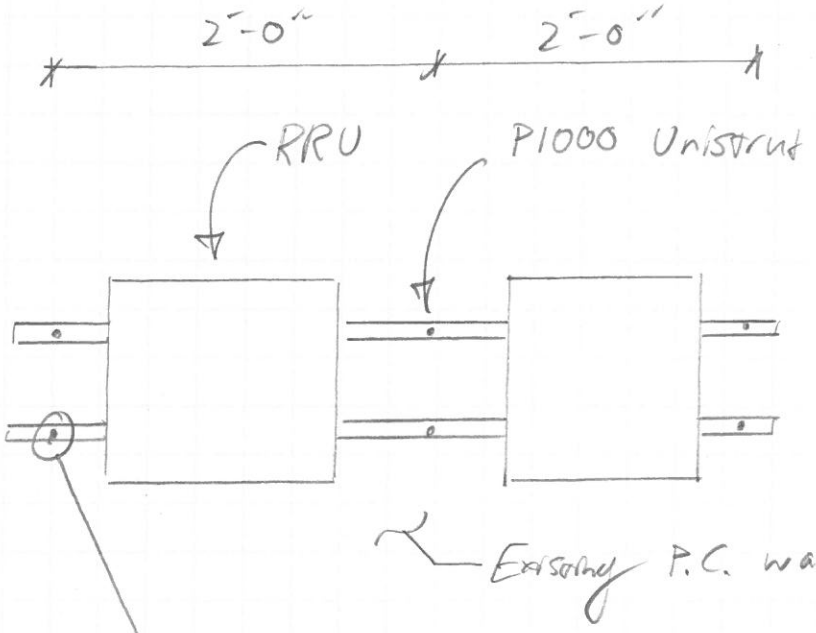
JOB 20243B

SHEET NO. _____ OF _____

CALCULATED BY _____ DATE _____

CHECKED BY _____ DATE _____

SCALE _____



(2) RRU Wall mount
N.T.S

* All new steel shall be galvanized

HUTTER TRANKINA ENGINEERING, PC

Consulting Structural Engineers

32 W 273 ARMY TRAIL ROAD
SUITE # 100
WAYNE, ILLINOIS 60184

Phone (630) 513-6711

JOB 202478

SHEET NO. _____ OF _____

CALCULATED BY _____ DATE _____

CHECKED BY _____ DATE _____

SCALE _____

Structural Calculations

For

Verizon Loc. # 766005

Rand & 53 Relo

1500 West Shure Drive
Arlington Heights, Illinois

June 16, 2023
Revised: November 16, 2023

PREPARED BY:
HUTTER TRANKINA ENGINEERING
32 W 273 Army Trail Road, Suite 100, Wayne, IL 60184

Phone: 630-513-6711
htedesign.com

Project # 20243B

PURPOSE: DESIGN WALL MOUNTS FOR ANTENNAS AND ASSOCIATED EQUIPMENT

CODES, SPEC'S, REF: EIA-TIA-222-H

EQUIPMENT: PER VERIZON RFDS DATED 11/8/2023

ITEM	NO.			
Commscope NHH-65C-R2B	6			
KRE105281	3			
AIR6449	3			
Ericsson 8843	3			
Ericsson 4449	3			
Raycap 3315	3			

RESULTS:

PROPOSED MOUNTS: PASS
EXISTING MOUNTS: **FAIL**
EXISTING BUILDING: PASS

HUTTER
TRANKINA
ENGINEERING CO., P.C.
Consulting Structural Engineers
32W273 ARMY TRAIL ROAD, SUITE 100
WAYNE, ILLINOIS 60187
Tel. (630) 513-6711

JOB:	20243B		
CALC BY:	JDR	DATE:	
CHECK BY:		DATE:	
SHEET NO:	1	OF	CRITERIA
DESCRIPTION:	TELECOM PROJECT CRITERIA		

REV H - DETERMINATION OF WIND LOADS FOR MOUNT ANALYSIS

z = h =	**95.00 ft**	Z_g =	900
Exp =	**C**	α =	9.5
Risk Category=	**2**	$K_{z\,min}$ =	0.85
K_e=	**1.00** (ground elevation factor)	$K_Z = 2.01(z/z_g)^{2/a}$ =	**1.25**
V =	**107 mph**	$q_Z = 0.00256K_zK_{zt}K_dK_eK_sV^2$ =	**34.9 psf**
G_H =	**1.00** See section 2.6.9 - 3rd paragraph	$G_H\,q_z$ =	**34.9 psf**
K_{zt} =	**1.0** (topographic factor)		
K_d =	**0.95** (directionality factor)	$K_{iz} = (z/33)^{0.10} < 1.4$ =	**1.11**
K_s=	**1.00** (rooftop speed-up factor)	$t_{iz} = t_i I_{ice_t} K_{iz}(K_{zt})^{0.35}$ =	**1.67 in**
V_{ice} =	**40 mph**	$q_{Zice} = 0.00256K_zK_{zt}K_dK_eK_sV^2$ =	**4.9 psf**
t_i =	**1.50 in**	$G_H\,q_{zice}$ =	**4.9 psf**

Manufacturer	Antenna	L (in)	W (in)	D (in)	Wt (lbs)	L/W	Ca	Front CaAa	L/D	Ca	Side CaAa	CaAa (ice)	CaAa (ice)	1.67 Ice Wt.
Andrew	NHH-65C-R2B	96	11.9	7.1	52	8.07	1.44	11.39	13.52	1.62	7.66	14.48	10.61	249
Ericsson	AIR 6449 VZE01-Sub6	30.4	15.9	8.1	82	1.91	1.20	4.03	3.75	1.26	2.15	5.41	3.31	114
Ericsson	KRE 10528 / 4408	8.4	7.9	4.9	11	1.06	1.20	0.55	1.71	1.20	0.34	1.10	0.81	25
Ericsson	8843 or 4449	18	13.2	10.9	72	1.36	1.20	1.98	1.65	1.20	1.64	2.94	2.53	79
Raycap	RCMDC-3315-PF-48	19.18	15.73	10.25	32	1.22	1.20	2.51	1.87	1.20	1.64	3.58	2.55	89
Misc	2" DIA X 8' PIPE	96	2.38	2.38	29	40.34	1.20	1.90	40.34	1.20	1.90	4.73	4.73	69

	Qty	Front Area Exp. Factor	Front CaAa	Side CaAa	Wt.	Front CaAa (ice)	Side CaAa (ice)	1.67 Ice Wt.
Antenna 1								
NHH-65C-R2B	1	1.00	11.39	7.66	52.0	14.48	10.61	249
Σ =			**11.39**	**7.66**	**52.0 lbs**	**14.48**	**10.61**	**249 lbs**
Wind =			35 psf	35 psf		4.9 psf	4.9 psf	
F =			**397 lbs**	**267 lbs**		**71 lbs**	**52 lbs**	
F (30) =			**364 lbs**			**66 lbs**		
F(60) =			**299 lbs**			**56 lbs**		

	Qty	Front Area Exposure Factor	Front CaAa	Side CaAa	Wt.	Front CaAa (ice)	Side CaAa (ice)	1.67 Ice Wt.
Antenna 2								
AIR 6449 VZE01-Sub6	1	1.00	4.03	2.15	82.0	5.41	3.31	114
KRE 10528 / 4408	1	1.00	0.55	0.34	11.0	1.10	0.81	25
Σ =			**4.58**	**2.49**	**93.0 lbs**	**6.51**	**4.11**	**138 lbs**
Wind =			35 psf	35 psf		4.9 psf	4.9 psf	
F =			**160 lbs**	**87 lbs**		**32 lbs**	**20 lbs**	
F (30) =			**141 lbs**			**29 lbs**		
F(60) =			**105 lbs**			**23 lbs**		

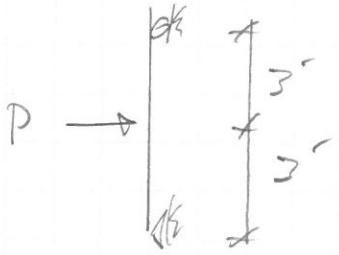
	Qty	Front Area Exposure Factor	Front CaAa	Side CaAa	Wt.	Front CaAa (ice)	Side CaAa (ice)	1.67 Ice Wt.
Antenna - 3								
8843 or 4449	1	1.00	1.98	1.64	72.0	2.94	2.53	79
Σ =			**1.98**	**1.64**	**72.0 lbs**	**2.94**	**2.53**	**79 lbs**
Wind =			35 psf	35 psf		4.9 psf	4.9 psf	
F =			**69 lbs**	**57 lbs**		**14 lbs**	**12 lbs**	
F (30) =			**66 lbs**			**14 lbs**		
F(60) =			**60 lbs**			**13 lbs**		

Wall Mount

$P = 397(0.6) = 238\#$

↑ Ant 1 ASD controls

$M = \frac{Pl}{4} = 358'-\#$



Use 2" SCD Pipe
$M_{cap} = 1{,}230'-\#$ ✓

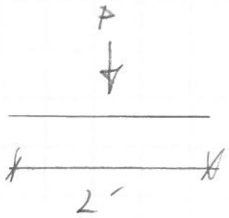
Use Valmont SP250 mount w/ (2) 1/2" Ø threaded rods & DeWalt AC100+ Gold epoxy (2 3/4" embed) ✓

RRU Mount

$P_w = 69\#$

$P_d = 72$

$M = 40'-\#$



$M_{cap} = \frac{F_y S_x}{\Omega} = \frac{(40)(0.262)/12}{1.67} = 471'-\#$ ✓

Use P1000 Unistrut w/ same anchors ↗

HUTTER TRANKINA ENGINEERING, PC

Consulting Structural Engineers

32 W 273 ARMY TRAIL ROAD
SUITE # 100
WAYNE, ILLINOIS 60184

Phone (630) 513-6711

JOB 20243B

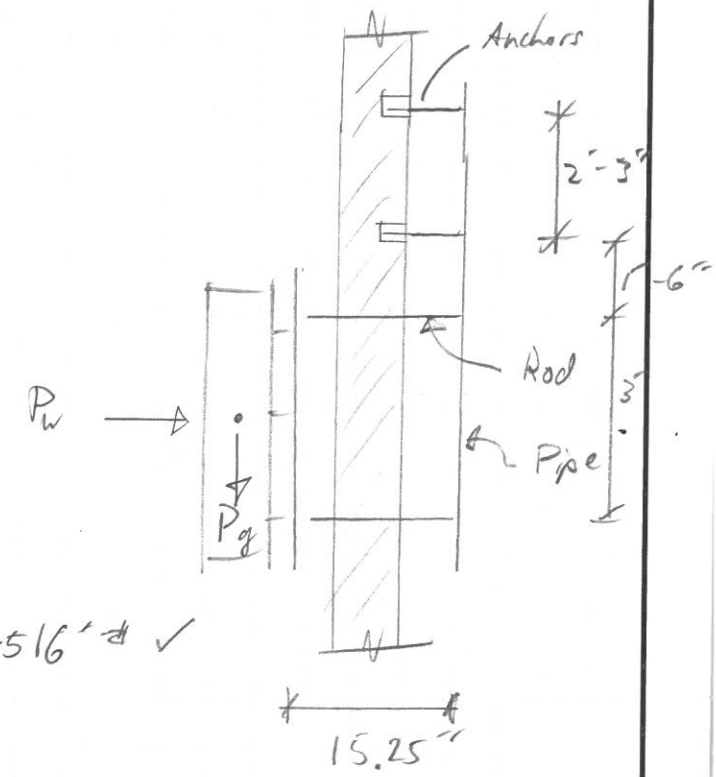
SHEET NO. 3 OF

CALCULATED BY DATE

CHECKED BY DATE

SCALE

(E) Wall Mount (Beta Sector)



Wind - no ice

$P_w = 397 \times 0.6 = 238^{\#}$

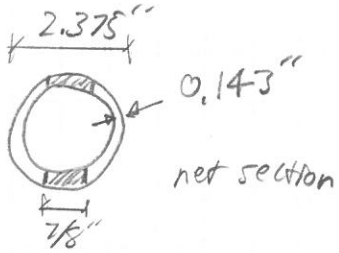
$P_g = 52^{\#}$

• Rod: 3/4"Ø (36 ksi assumed)

$M = P_g \, 15.25/12 = 66'\text{-}\#$

$\frac{M_n}{\Omega} = \frac{F_y Z}{\Omega} = \frac{(36^{ksi})(0.75")^3/6}{1.67} = 1{,}516'\text{-}\# \checkmark$

• Pipe – 2" STD pipe assumed (2 3/8" O.D.) ← Approx, not mapped



net section $M = P_w \times 1.5' + P_g \times 2'$

$M = 461'\text{-}\#$

$M_n/\Omega = 1{,}250'\text{-}\# - \frac{F_y(A_i \bar{y}_{pi})}{\Omega}$ ← Z_x of shaded area b/c rod penetration

- $F_y = 33^{ksi}$
- $A = 0.12859\ in^2$ (AutoCAD)
- $\bar{y}_p = 1.09375"$

$M_n/\Omega = 1{,}250'\text{-}\# - \frac{(33^{ksi})(0.12859\,in^2 \times 1.09375 \times 2)}{1.67}\ 1/12"$

$M_n/\Omega = 1{,}250'\text{-}\# - 491'\text{-}\#$

$M_n/\Omega = 759'\text{-}\# > M_u \checkmark$

HUTTER TRANKINA ENGINEERING, PC

Consulting Structural Engineers

32 W 273 ARMY TRAIL ROAD
SUITE # 100
WAYNE, ILLINOIS 60184

Phone (630) 513-6711

JOB 20243B

SHEET NO. 4 OF

CALCULATED BY DATE 10/18/23

CHECKED BY DATE

SCALE

- Pipe (cond.)

gross section

$M = P_w \times 3' + P_g \times 2'$

$M = 818'\text{-}\#$

$\frac{M_n}{\Omega} = 1{,}250'\text{-}\# > M$ ✓

- Anchors (5/8" Ø anchors)

$\text{Max } V = \sqrt{(P_{sw}/4)^2 + (P_g/4)^2} = 68\#/\text{bolt}$

$\rightarrow P_{sw} = 267 \times 0.6 = 160\#$

$\text{Max } T = [P_w\ 5.25'/2.25]/2\text{bolts} + P_g\ 2'/2.25 = 324\#$

Anchors adhesive unknown cannot pass!

HUTTER TRANKINA ENGINEERING, PC

Consulting Structural Engineers

32 W 273 ARMY TRAIL ROAD
SUITE # 100
WAYNE, ILLINOIS 60184

Phone (630) 513-6711

JOB 20243B

SHEET NO. 5 OF

CALCULATED BY DATE

CHECKED BY DATE

SCALE

Wind – with ice

$P_w = 71^{\#} \times 0.6 = 43^{\#}$

$P_g = 249^{\#}$

- Rod: $M = P_g \; 15.25/12 = 316'\text{-}\#$

  $M_n/\Omega = 1{,}516'\text{-}\#$ ✓

- Pipe: $M = P_w \times 1.5' + P_g \times 2' = 563'\text{-}\#$

  net section $\frac{M_n}{\Omega_b} = 759'\text{-}\#$ (net section)

  gross section $M = P_w \times 3' + P_g \times 2' = 627'\text{-}\#$

  $\frac{M_n}{\Omega} = 1{,}250'\text{-}\#$ ✓

- Anchors:

  $\text{Max } V = \sqrt{(P_{sw}/4)^2 + (P_g/4)^2} = 63^{\#}/\text{bolt}$

  $\rightarrow P_{sw} = 52 \times 0.6 = 31^{\#}$

  $\text{Max } T = P_w \; 5.25/2.25/2 \text{ bolts} + P_g \; 2'/2.25' = 258^{\#}/\text{bolt}$

Epoxy unknown cannot pass! NG

HUTTER TRANKINA ENGINEERING, PC

Consulting Structural Engineers

32 W 273 ARMY TRAIL ROAD
SUITE # 100
WAYNE, ILLINOIS 60184

Phone (630) 513-6711

JOB 20243B

SHEET NO. 6 OF

CALCULATED BY DATE

CHECKED BY DATE

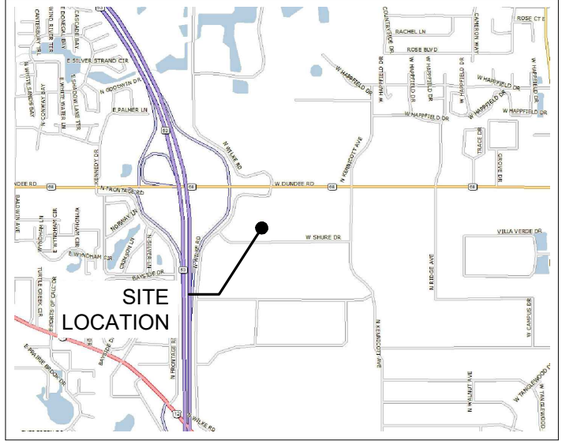
SCALE

CONSULTANT TEAM

PROJECT CONSULTANT:	TERRA CONSULTING GROUP, LTD. 600 BUSSE HIGHWAY PARK RIDGE, IL 60068 (847) 698-6400
SURVEYOR:	WILLIAMS AND WORKS 549 OTTAWA AVE NW GRAND RAPIDS, MI 49503 (616) 224-1500
STRUCTURAL: (TOWER ANALYSIS)	HUTTER TRANKINA ENGINEERING 32 W 273 ARMY TRAIL RD, SUITE #100 WAYNE, IL 60184 (630) 513-6711
STRUCTURAL ANALYSIS DATE:	

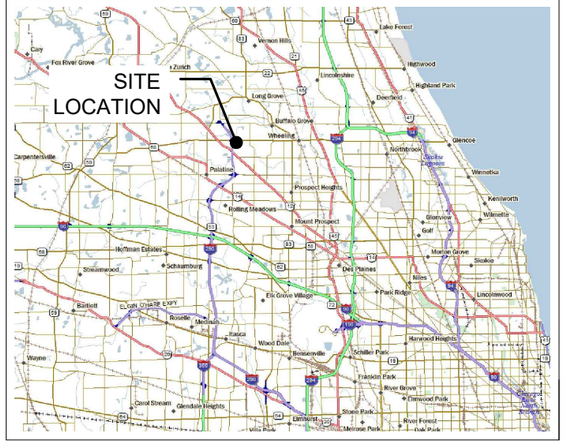
VICINITY MAP

N.T.S.



REGIONAL MAP

N.T.S.



PROJECT TYPE

PROPOSED ANTENNAS AND EQUIPMENT PLATFORM INSTALLATION ON EXISTING BUILDING.

PROJECT INFORMATION

SITE COORDINATES:	LATITUDE: 42° 08' 15.09" N (FROM 1A) LONGITUDE: 88° 00' 02.62" W (FROM 1A)
ELEVATION:	±735' (FROM 1A)
P.I.N. #:	03-07-102-008-0000, 03-07-102-013-0000
ADDRESS:	1500 W SHURE DR ARLINGTON HEIGHTS, IL 60004
UTILITIES:	POWER: HOUSE POWER FIBER: TRANSPORT BY OTHERS
JURISDICTION:	VILLAGE OF ARLINGTON HEIGHTS
OCCUPANCY:	UNINHABITED
ZONING:	M-1 LIGHT MANUFACTURING DISTRICT
CONSTRUCTION TYPE:	CO LO
LANDLORD:	ERS WIRELESS
CONTACT PERSON:	KEN HARTSOUGH PHONE: (260) 894-4145 EX. 2235 CELLPHONE: (260) 318-0900 EMAIL: KHARTSOUGH@ERSWIRELESS.COM
APPLICANT:	VERIZON WIRELESS 1515 WOODFIELD ROAD SCHAUMBURG, IL 60173
CONSTRUCTION MANAGER:	JEREMIAH SAURIOL (847) 706-7721
REAL ESTATE MANAGER:	DANNY PEREZ (847) 706-1765
GENERATOR TYPE:	N/A

verizon

1701 GOLF ROAD, TOWER 2, SUITE 400
ROLLING MEADOWS, ILLINOIS 60008
PHONE: (847) 619-5397
FAX: (847) 706-7415

verizon

1701 GOLF ROAD, TOWER 2, SUITE 400
ROLLING MEADOWS, ILLINOIS 60008
PHONE: (847) 619-5397 FAX: (847) 706-7415

LICENSED PROFESSIONAL ENGINEER
JOHN V ZIMMERMANN
062-047267
OF ILLINOIS
1/2/2024
Exp 11/30/2025

MDG LOCATION NUMBER: 5000916957

LOCATION NUMBER: 766005

SITE NAME: RAND & 53_RELO

1500 W SHURE DR
ARLINGTON HEIGHTS, IL 60004

OPERATES 24 HOURS
A DAY 365 DAYS A YEAR

Call Before You Dig
JULIE
ILLINOIS ONE CALL SYSTEM

CALL JULIE TOLL FREE
1(800) 892-0123
48 HOURS BEFORE
YOU DIG

DRAWING INDEX

SHEET	DRAWING INDEX	REVISION
T-1	TITLE SHEET	1,3,4
LP	LOCATION PLAN	1
A-1	ROOF PLAN	1,3
A-2	ENLARGED ROOF PLAN	1
A-3	PROPOSED CABLE ROUTE	3
A-4	SITE DETAILS	-
EQ-1	EQUIPMENT DETAILS	-
EQ-2	EQUIPMENT DETAILS	-
ANT-1	SITE ELEVATION	1
ANT-1A	SITE ELEVATION	1
ANT-1B	SITE ELEVATION	1,3
ANT-1C	SITE ELEVATION	3
ANT-2	ANTENNA INFORMATION	1,4
ANT-2A	EQUIPMENT INFORMATION	1,4
ANT-2B	ANTENNA INFORMATION	1,4
ANT-3	ANTENNA LAYOUT PLAN	1
ANT-4	SITE DETAILS	-
S-1	STRUCTURAL PLAN AND DETAILS	-
S-2	ANTENNA & EQUIPMENT MOUNTING DETAILS	-
E-1	OVERALL UTILITY ROUTING PLAN (AT ROOF LEVEL)	1,3
E-1A	PARTIAL UTILITY ROUTING PLAN	3
E-2	GROUNDING PLAN	1,3
E-3	ELECTRICAL AND GROUNDING DETAILS	3
E-4	PLATFORM LIGHTING PLAN	-
E-5	SINGLE LINE DIAGRAM & PANEL SCHEDULE	3
SP-1	SPECIFICATIONS	-
SP-2	SPECIFICATIONS	-
P-1	BUILDING PHOTOS	-

22" x 34" IS FULL SCALE.
11" x 17" IS HALF SCALE.

	ATTACHMENTS	
PS-1	SITE SURVEY RFDS (BY OTHERS)	-

TERRA CONSULTING GROUP, LTD.
600 BUSSE HIGHWAY
PARK RIDGE, IL 60068
PH: 847-698-6400
FAX: 847-698-6401

REVISIONS

NO.	DESCRIPTION	DATE	BY
-	ISSUED FOR REVIEW	05/16/23	TJS
0	ISSUED FOR FINAL	06/16/23	APD
1	REVISED PER RF COMMENTS	07/05/23	TJS
2	ISSUED FOR REVIEW	08/15/23	JJR
3	REVISED PER LANDLORDS COMMENTS	10/25/23	JJR
4	REVISED PER NEW RFDS	11/17/23	JJR
5	ADDITION OF NORTHEAST ELEVATION	01/02/24	JJR

LOC. #766005

RAND &
53_RELO

MDG LOC. #
5000916957

1500 W SHURE DR
ARLINGTON HEIGHTS, IL
60004

DRAWN BY:	TJS
CHECKED BY:	DSS
DATE:	05/15/23
PROJECT #:	33-3608

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

LEGEND

- TRAVERSE POINT
- WELL
- MONUMENT
- MONUMENT BOX
- SIGN
- GUY ANCHOR
- UTILITY POLE
- LIGHT POLE
- POST
- U.G. UTILITY MARKER
- SATELLITE DISH
- HAND HOLE
- U.G. UTILITY MARKER
- FIRE HYDRANT
- WATER METER
- TELEPHONE RISER
- ELECTRIC METER
- ELECTRIC TRANSFORMER
- ROUND CATCH BASIN
- STORM MANHOLE
- SANITARY MANHOLE
- ELECTRIC MANHOLE
- TELEPHONE MANHOLE
- WATER MANHOLE

- UGT — TELEPHONE UTILITY LINE
- UGE — ELECTRIC UTILITY LINE
- STORM UTILITY LINE
- SANITARY UTILITY LINE
- UGF — FIBER OPTIC UTILITY LINE
- OHE — OVERHEAD UTILITY LINE

SURVEY PERFORMED BY:

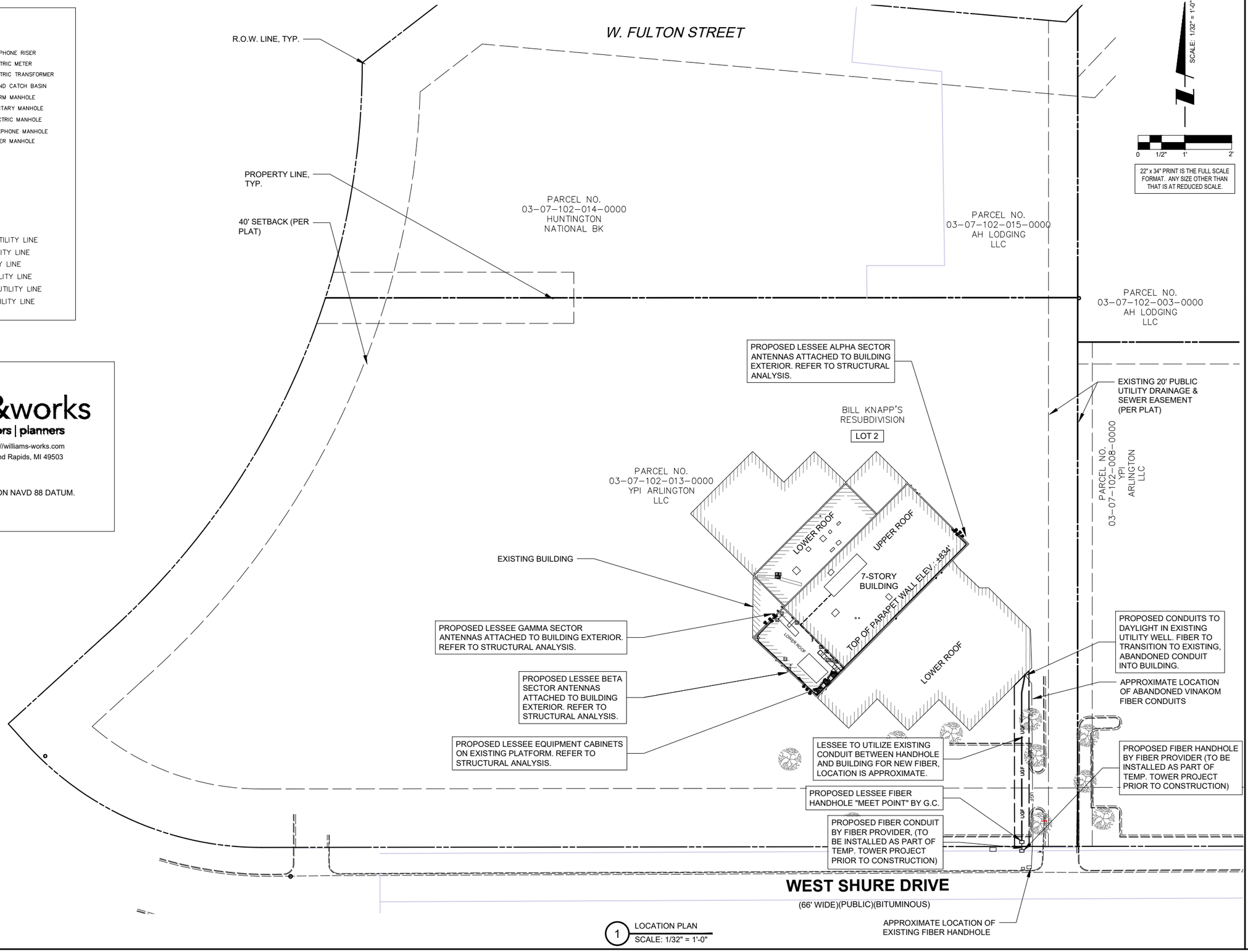
williams&works
engineers | surveyors | planners

616.224.1500 phone
549 Ottawa Ave NW
http://williams-works.com
Grand Rapids, MI 49503

ALL ELEVATIONS ARE BASED ON NAVD 88 DATUM.

OPERATES 24 HOURS
A DAY 365 DAYS A YEAR

Call Before You Dig
JULIE
ILLINOIS ONE CALL SYSTEM
CALL JULIE TOLL FREE
1(800) 892-0123
48 HOURS BEFORE
YOU DIG



1 LOCATION PLAN
SCALE: 1/32" = 1'-0"

SCALE: 1/32" = 1'-0"
0 1/2" 1' 2'

22" x 34" PRINT IS THE FULL SCALE FORMAT. ANY SIZE OTHER THAN THAT IS AT REDUCED SCALE.

verizon
1701 GOLF ROAD,
TOWER 2, SUITE 400
ROLLING MEADOWS, IL 60008
PHONE: (847) 619-5397
FAX: (847) 706-7415

TERRA CONSULTING GROUP, LTD
600 BUSSE HIGHWAY
PARK RIDGE, IL 60068
PH: 847-698-6400
FAX: 847-698-6401

REVISIONS

NO.	DESCRIPTION	DATE	BY
-	ISSUED FOR REVIEW	05/16/23	TJS
0	ISSUED FOR FINAL	06/16/23	APD
1	REVISED PER RF COMMENTS	07/05/23	TJS
2	ISSUED FOR REVIEW	08/15/23	JJR
3	REVISED PER LANDLORDS COMMENTS	10/25/23	JJR
4	REVISED PER NEW RFDS	11/17/23	JJR
5	ADDITION OF NORTHEAST ELEVATION	01/02/24	JJR

LOC. #766005

RAND & 53_RELO

MDG LOC. # 5000916957

1500 W SHURE DR
ARLINGTON HEIGHTS, IL 60004

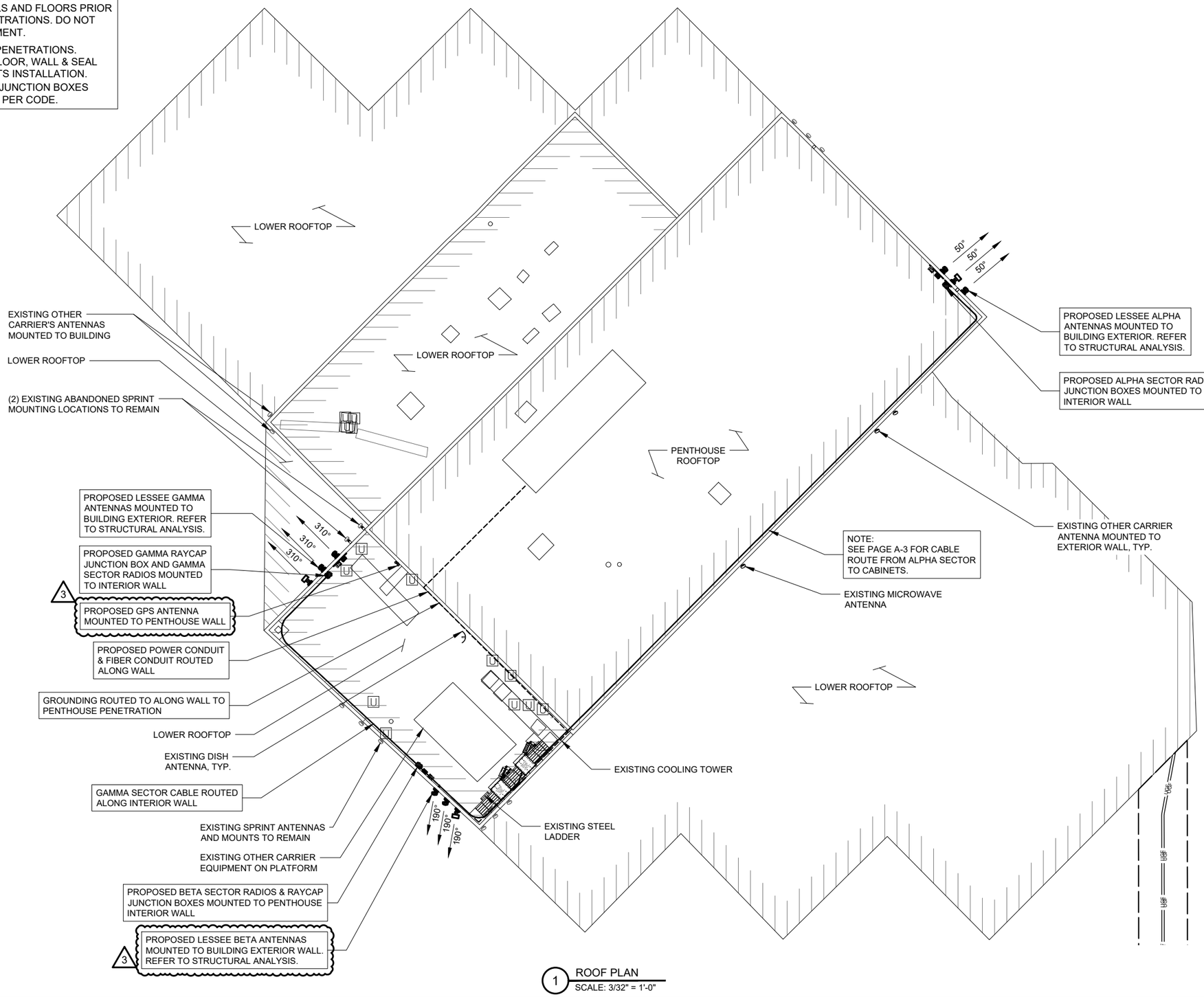
DRAWN BY:	TJS
CHECKED BY:	DSS
DATE:	05/15/23
PROJECT #:	33-3608

SHEET TITLE
LOCATION PLAN

SHEET NUMBER
LP

NOTE:
* CONTRACTOR TO UTILIZE NON-DESTRUCTIVE INVESTIGATION METHODS TO DETECT AND LOCATE EXISTING REINFORCEMENT AND/OR UTILITIES IN WALLS AND FLOORS PRIOR TO MAKING PENETRATIONS. DO NOT CUT REINFORCEMENT.

* FIRE STOP ALL PENETRATIONS.
  * CORE DRILL FLOOR, WALL & SEAL AFTER CONDUITS INSTALLATION.
  * INSTALL PULL/JUNCTION BOXES AS NECESSARY PER CODE.



1 ROOF PLAN
SCALE: 3/32" = 1'-0"

SCALE: 3/32" = 1'-0"

0 1/2" 1' 2'

22" x 34" PRINT IS THE FULL SCALE FORMAT. ANY SIZE OTHER THAN THAT IS AT REDUCED SCALE.

verizon
1701 GOLF ROAD,
TOWER 2, SUITE 400
ROLLING MEADOWS, IL 60008
PHONE: (847) 619-5397
FAX: (847) 706-7415

TERRA CONSULTING GROUP LTD
600 BUSSE HIGHWAY
PARK RIDGE, IL 60068
PH: 847-698-6400
FAX: 847-698-6401

REVISIONS

NO.	DESCRIPTION	DATE	BY
-	ISSUED FOR REVIEW	05/16/23	TJS
0	ISSUED FOR FINAL	06/16/23	APD
1	REVISED PER RF COMMENTS	07/05/23	TJS
2	ISSUED FOR REVIEW	08/15/23	JJR
3	REVISED PER LANDLORDS COMMENTS	10/25/23	JJR
4	REVISED PER NEW RFDS	11/17/23	JJR
5	ADDITION OF NORTHEAST ELEVATION	01/02/24	JJR

LOC. #766005

RAND & 53_RELO

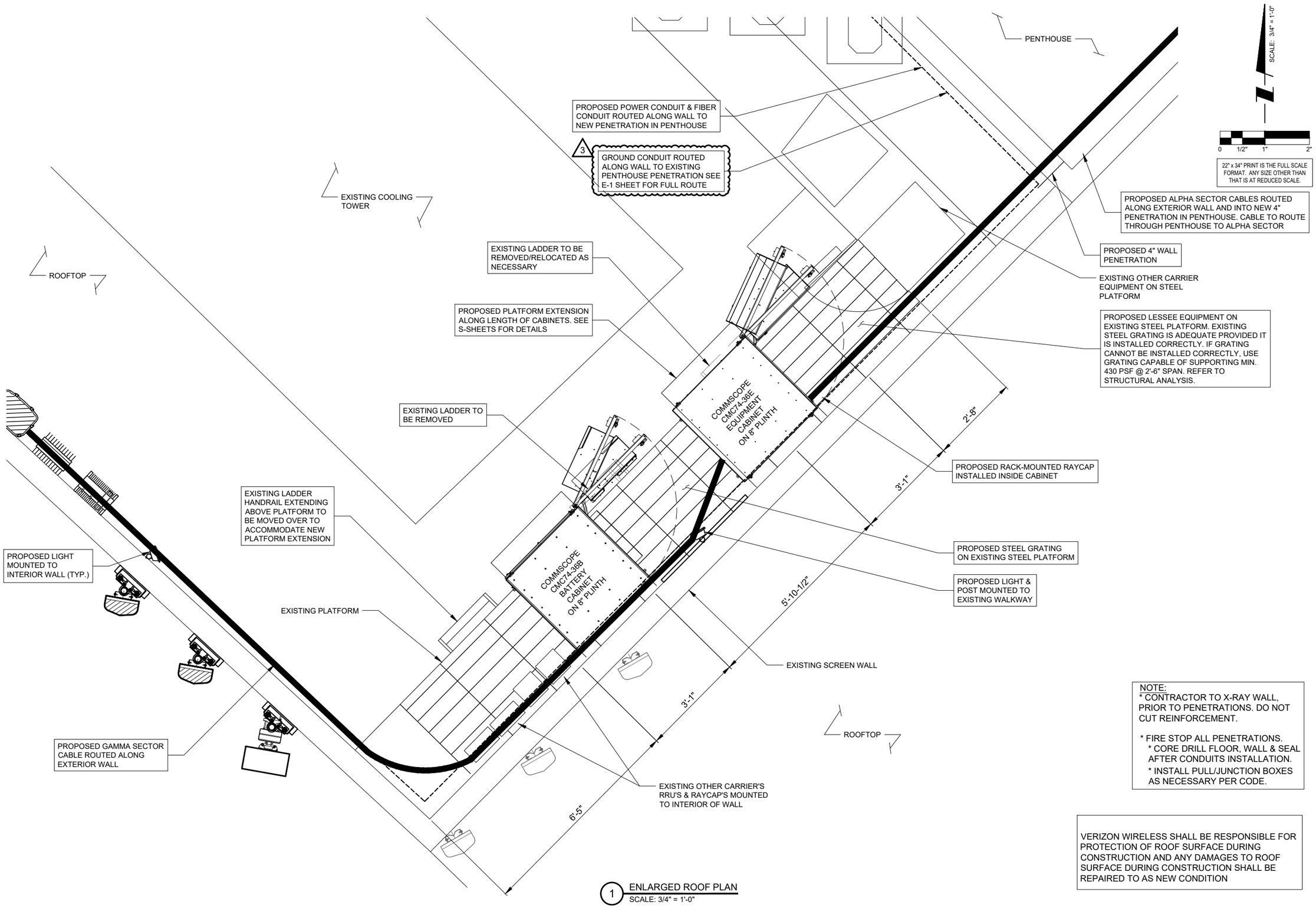
MDG LOC. # 5000916957

1500 W SHURE DR
ARLINGTON HEIGHTS, IL 60004

DRAWN BY:	TJS
CHECKED BY:	DSS
DATE:	05/15/23
PROJECT #:	33-3608

SHEET TITLE
ROOF PLAN

SHEET NUMBER
A-1



1 ENLARGED ROOF PLAN
SCALE: 3/4" = 1'-0"

NOTE:
* CONTRACTOR TO X-RAY WALL, PRIOR TO PENETRATIONS. DO NOT CUT REINFORCEMENT.

* FIRE STOP ALL PENETRATIONS.
  * CORE DRILL FLOOR, WALL & SEAL AFTER CONDUITS INSTALLATION.
  * INSTALL PULL/JUNCTION BOXES AS NECESSARY PER CODE.

VERIZON WIRELESS SHALL BE RESPONSIBLE FOR PROTECTION OF ROOF SURFACE DURING CONSTRUCTION AND ANY DAMAGES TO ROOF SURFACE DURING CONSTRUCTION SHALL BE REPAIRED TO AS NEW CONDITION

verizon
1701 GOLF ROAD,
TOWER 2, SUITE 400
ROLLING MEADOWS, IL 60008
PHONE: (847) 619-5397
FAX: (847) 706-7415

TERRA CONSULTING GROUP, LTD
600 BUSSE HIGHWAY
PARK RIDGE, IL 60068
PH: 847-698-6400
FAX: 847-698-6401

REVISIONS

NO.	DESCRIPTION	DATE	BY
-	ISSUED FOR REVIEW	05/16/23	TJS
0	ISSUED FOR FINAL	06/16/23	APD
1	REVISED PER RF COMMENTS	07/05/23	TJS
2	ISSUED FOR REVIEW	08/15/23	JJR
3	REVISED PER LANDLORDS COMMENTS	10/25/23	JJR
4	REVISED PER NEW RFDS	11/17/23	JJR
5	ADDITION OF NORTHEAST ELEVATION	01/02/24	JJR

LOC. #766005

RAND & 53_RELO

MDG LOC. # 5000916957

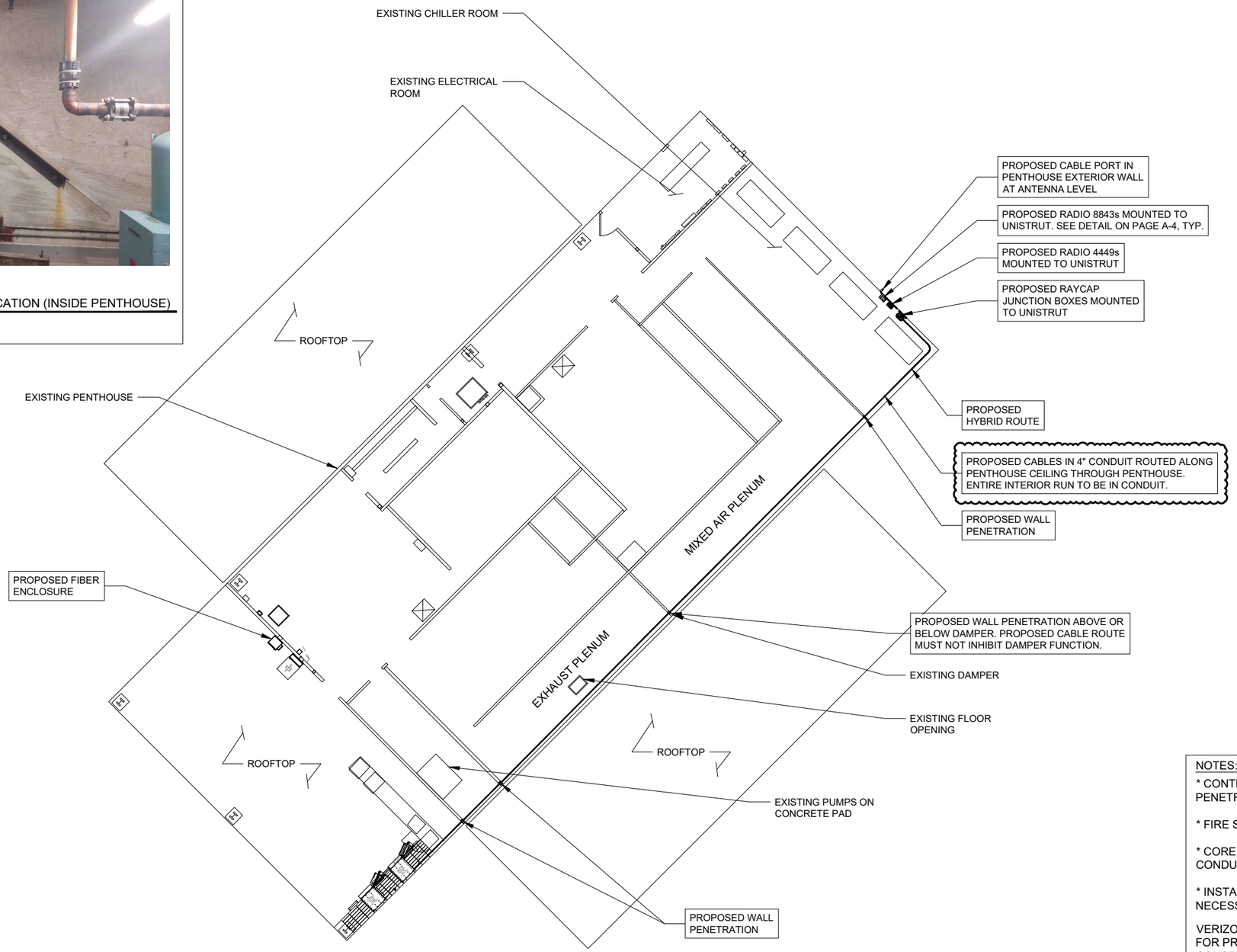
1500 W SHURE DR
ARLINGTON HEIGHTS, IL 60004

DRAWN BY:	TJS
CHECKED BY:	DSS
DATE:	05/15/23
PROJECT #:	33-3608

SHEET TITLE
ENLARGED ROOF PLAN

SHEET NUMBER
A-2

2 PROPOSED EQUIPMENT LOCATION (INSIDE PENTHOUSE)
SCALE: N.T.S.



1 PROPOSED CABLE ROUTE (PENTHOUSE)
SCALE: 1/8" = 1'-0"

SCALE: 1/8" = 1'-0"

0 1/2" 1" 2"

22" x 34" PRINT IS THE FULL SCALE FORMAT. ANY SIZE OTHER THAN THAT IS AT REDUCED SCALE.

NOTES:

* CONTRACTOR TO X-RAY WALL, PRIOR TO PENETRATIONS. DO NOT CUT REINFORCEMENT.

* FIRE STOP ALL PENETRATIONS.

* CORE DRILL FLOOR, WALL & SEAL AFTER CONDUITS INSTALLATION.

* INSTALL PULL/JUNCTION BOXES AS NECESSARY PER CODE.

VERIZON WIRELESS SHALL BE RESPONSIBLE FOR PROTECTION OF ROOF SURFACE DURING CONSTRUCTION AND ANY DAMAGES TO ROOF SURFACE DURING CONSTRUCTION SHALL BE REPAIRED TO AS NEW CONDITION.

ALL PENETRATIONS THROUGH EXTERIOR WALLS TO BE PLACED DIRECTLY BEHIND ANTENNA MOUNTS.

3 EXTERIOR CABLE PENETRATIONS TO BE SLOPED 10 DEGREES DOWNWARD TO THE OUTSIDE.

verizon
1701 GOLF ROAD,
TOWER 2, SUITE 400
ROLLING MEADOWS, IL 60008
PHONE: (847) 619-5397
FAX: (847) 706-7415

TERRA CONSULTING GROUP, LTD
600 BUSSE HIGHWAY
PARK RIDGE, IL 60068
PH: 847-698-6400
FAX: 847-698-6401

REVISIONS

NO.	DESCRIPTION	DATE	BY
-	ISSUED FOR REVIEW	05/16/23	TJS
0	ISSUED FOR FINAL	06/16/23	APD
1	REVISED PER RF COMMENTS	07/05/23	TJS
2	ISSUED FOR REVIEW	08/15/23	JJR
3	REVISED PER LANDLORDS COMMENTS	10/25/23	JJR
4	REVISED PER NEW RFDS	11/17/23	JJR
5	ADDITION OF NORTHEAST ELEVATION	01/02/24	JJR

LOC. #766005

RAND & 53_RELO

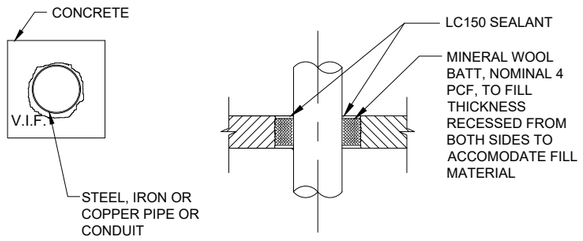
MDG LOC. # 5000916957

1500 W SHURE DR
ARLINGTON HEIGHTS, IL 60004

DRAWN BY:	TJS
CHECKED BY:	DSS
DATE:	05/15/23
PROJECT #:	33-3608

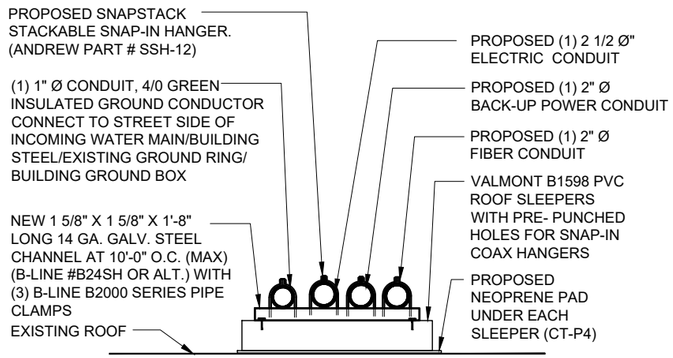
SHEET TITLE
PROPOSED CABLE ROUTE

SHEET NUMBER
A-3

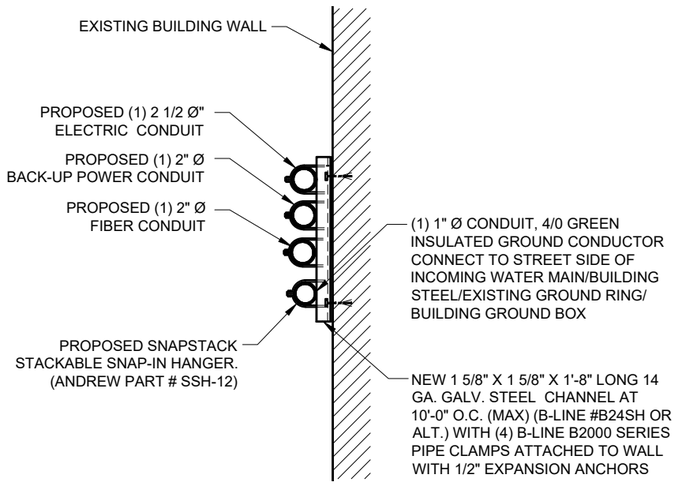


PENETRANT	MAXIMUM TRADE SIZE (IN.)	SEALANT DEPTH (IN.)	MINERAL WOOL (IN.)	ANNULUS (IN.)	
				MINIMUM	MAXIMUM
STEEL OR IRON	24	1/2	3	POINT CONTACT	2
STEEL OR IRON	4	1	NONE REQ'D.	POINT CONTACT	1-1/2
COPPER	4	1/2	3	POINT CONTACT	2

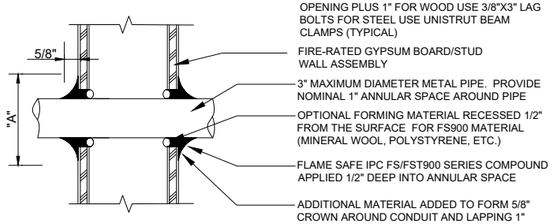
3 UL C-AJ-1213 FIRE STOP DETAIL (FOR ALL PENETRATIONS)
N.T.S.



4 ROOF MOUNTED CONDUIT SUPPORT
SCALE: N.T.S.



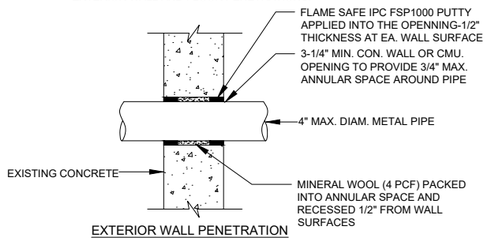
5 WALL MOUNTED CONDUIT SUPPORT
N.T.S.



FRAMED WALL PENETRATION

NOTE:
1. CONTRACTOR SHALL EXAMINE (ULTRASOUND OR EQUAL) TO LOCATE EXISTING REBAR OR CONDUITS PRIOR TO DRILLING OR CORING. DO NOT CUT REBAR.

2. CONTRACTOR SHALL ENSURE WATER-TIGHTNESS AT ALL EXTERIOR WALL AND FLOOR PENETRATIONS.



EXTERIOR WALL PENETRATION

1 CONDUIT WALL PENETRATION
N.T.S.

FIRESTOPPING SPECIFICATIONS

1.1 DESCRIPTION
A. CLOSURES OF OPENINGS IN WALLS, FLOORS, AND ROOF DECKS AGAINST PENETRATION OF FLAME, HEAT, AND SMOKE OR GASES IN FIRE RESISTANT RATED CONSTRUCTION.
B. CLOSURE OF OPENINGS IN WALLS AGAINST PENETRATION OF GASES OR SMOKE IN SMOKE PARTITIONS.

1.2 GUARANTEE
FIRESTOPPING WORK SUBJECT TO THE TERMS OF THE ARTICLE GUARANTY OF SECTION GENERAL CONDITIONS, EXCEPT EXTEND THE GUARANTY PERIOD TO FIVE YEARS.

1.3 QUALITY ASSURANCE FM, UL, OR WH OR OTHER APPROVED LABORATORY TESTED PRODUCTS WILL BE ACCEPTABLE.

1.4 APPLICABLE PUBLICATIONS
PUBLICATIONS LISTED BELOW FORM A PART OF THIS SPECIFICATION TO THE EXTENT REFERENCED. PUBLICATIONS ARE REFERENCED IN THE TEXT BY THE BASIC DESIGNATION ONLY.
A. AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM): E84-99 SURFACE BURNING CHARACTERISTICS OF BUILDING MATERIALS E814-97 FIRE TESTS OF THROUGH-PENETRATION FIRE STOPS.

B.FACTORY MUTUAL ENGINEERING AND RESEARCH CORPORATION (FM): ANNUAL ISSUE APPROVAL GUIDE BUILDING MATERIALS.

C. UNDERWRITERS LABORATORIES, INC. (UL): ANNUAL ISSUE BUILDING MATERIALS DIRECTORY ANNUAL ISSUE FIRE RESISTANCE DIRECTORY 1479-98 FIRE TESTS OF THROUGH-PENETRATION FIRESTOPS.

D. WARNOCK HERSEY (WH): ANNUAL ISSUE CERTIFICATION LISTINGS.

PART 2 - PRODUCTS

2.1 FIRESTOP SYSTEMS
A. USE EITHER FACTORY BUILT (FIRESTOP DEVICES) OR FIELD ERECTED (THROUGH-PENETRATION FIRESTOP SYSTEMS) TO FORM A SPECIFIC BUILDING SYSTEM MAINTAINING REQUIRED INTEGRITY OF THE FIRE BARRIER AND STOP THE PASSAGE OF GASES OR SMOKE.
B. THROUGH-PENETRATION FIRESTOP SYSTEMS AND FIRESTOP DEVICES TESTED IN ACCORDANCE WITH ASTM E814 OR UL 1479 USING THE "F" OR "T" RATING TO MAINTAIN THE SAME RATING AND INTEGRITY AS THE FIRE BARRIER BEING SEALED. "T" RATINGS ARE NOT REQUIRED FOR PENETRATIONS SMALLER THAN OR EQUAL TO 100 MM
(4 IN) NOMINAL PIPE OR 0.01 M2 (16 SQ. IN.) IN OVERALL CROSS SECTIONAL AREA.
C. PRODUCTS REQUIRING HEAT ACTIVATION TO SEAL AN OPENING BY ITS INTUMESCENCE SHALL EXHIBIT A DEMONSTRATED ABILITY TO FUNCTION AS DESIGNED TO MAINTAIN THE FIRE BARRIER.
D. FIRESTOP SEALANTS USED FOR FIRESTOPPING OR SMOKE SEALING SHALL HAVE FOLLOWING PROPERTIES:
1. CONTAIN NO FLAMMABLE OR TOXIC SOLVENTS.
2. HAVE NO DANGEROUS OR FLAMMABLE OUTGASSING DURING THE DRYING OR CURING OF PRODUCTS.
3. WATER-RESISTANT AFTER DRYING OR CURING AND UNAFFECTED BY HIGH HUMIDITY, CONDENSATION OR TRANSIENT WATER EXPOSURE.
4. WHEN USED IN EXPOSED AREAS, SHALL BE CAPABLE OF BEING SANDED AND FINISHED WITH SIMILAR SURFACE TREATMENTS AS USED ON THE SURROUNDING WALL OR FLOOR SURFACE.
E. FIRESTOPPING SYSTEM OR DEVICES USED FOR PENETRATIONS BY GLASS PIPE, PLASTIC PIPE OR CONDUITS, UNENCLOSED CABLES, OR OTHER NON-METALLIC MATERIALS SHALL HAVE FOLLOWING PROPERTIES:
1. CLASSIFIED FOR USE WITH THE PARTICULAR TYPE OF PENETRATING MATERIAL USED.
2. PENETRATIONS CONTAINING LOOSE ELECTRICAL CABLES, COMPUTER DATA CABLES, AND COMMUNICATIONS CABLES PROTECTED USING FIRESTOPPING SYSTEMS THAT ALLOW UNRESTRICTED CABLE CHANGES WITHOUT DAMAGE TO THE SEAL.
3. INTUMESCENT PRODUCTS WHICH WOULD EXPAND TO SEAL THE OPENING AND ACT AS FIRE, SMOKE, TOXIC FUMES, AND, WATER SEALANT.
F. MAXIMUM FLAME SPREAD OF 25 AND SMOKE DEVELOPMENT OF 50 WHEN TESTED IN ACCORDANCE WITH ASTM E84.
G.FM, UL, OR WH RATED OR TESTED BY AN APPROVED LABORATORY IN ACCORDANCE WITH ASTM E814.
H. MATERIALS TO BE ASBESTOS FREE.

PART 3 - EXECUTION

3.1 PREPARATION
A. REMOVE DIRT, GREASE, OIL, LOOSE MATERIALS, OR OTHER SUBSTANCES THAT PREVENT ADHERENCE AND BONDING OR APPLICATION OF THE FIRESTOPPING OR SMOKE STOPPING MATERIALS.
B. REMOVE INSULATION ON INSULATED PIPE FOR A DISTANCE OF 150 MM (SIX INCHES) ON EITHER SIDE OF THE FIRE RATED ASSEMBLY PRIOR TO APPLYING THE FIRESTOPPING MATERIALS UNLESS THE FIRESTOPPING MATERIALS ARE TESTED AND APPROVED FOR USE ON INSULATED PIPES.

3.2 INSTALLATION
A. DO NOT BEGIN WORK UNTIL THE SPECIFIED MATERIAL DATA AND INSTALLATION INSTRUCTIONS OF THE PROPOSED FIRESTOPPING SYSTEMS HAVE BEEN SUBMITTED AND APPROVED.
B. INSTALL FIRESTOPPING SYSTEMS WITH SMOKE STOPPING IN ACCORDANCE WITH FM, UL, WH, OR OTHER APPROVED SYSTEM DETAILS AND INSTALLATION INSTRUCTIONS.
C. INSTALL SMOKE STOPPING SEALS IN SMOKE PARTITIONS.

2 FIRE STOP NOTES
N.T.S.

verizon
1701 GOLF ROAD,
TOWER 2, SUITE 400
ROLLING MEADOWS, IL 60008
PHONE: (847) 619-5397
FAX: (847) 706-7415

TERRA CONSULTING GROUP LTD
600 BUSSE HIGHWAY
PARK RIDGE, IL 60068
PH: 847-698-6400
FAX: 847-698-6401

REVISIONS

NO.	DESCRIPTION	DATE	BY
-	ISSUED FOR REVIEW	05/16/23	TJS
0	ISSUED FOR FINAL	06/16/23	APD
1	REVISED PER RF COMMENTS	07/05/23	TJS
2	ISSUED FOR REVIEW	08/15/23	JJR
3	REVISED PER LANDLORDS COMMENTS	10/25/23	JJR
4	REVISED PER NEW RFDS	11/17/23	JJR
5	ADDITION OF NORTHEAST ELEVATION	01/02/24	JJR

LOC. #766005

RAND & 53_RELO

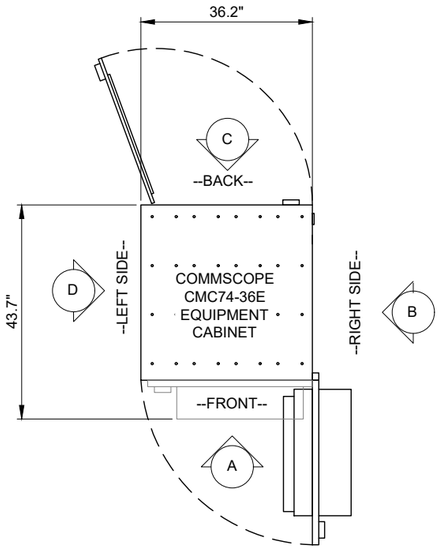
MDG LOC. # 5000916957

1500 W SHURE DR
ARLINGTON HEIGHTS, IL 60004

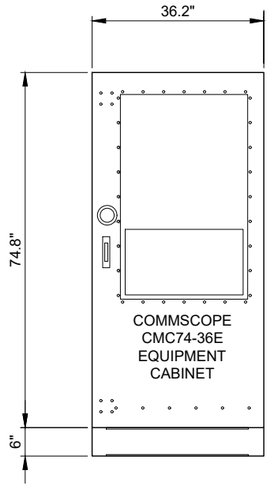
DRAWN BY:	TJS
CHECKED BY:	DSS
DATE:	05/15/23
PROJECT #:	33-3608

SHEET TITLE
SITE DETAILS

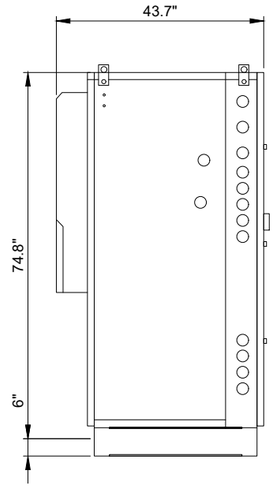
SHEET NUMBER
A-4



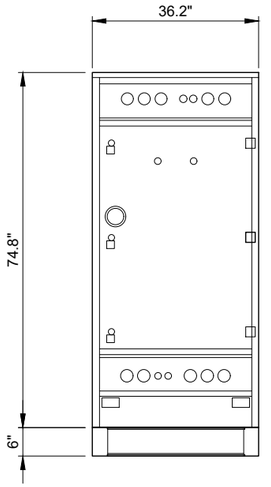
TOP VIEW



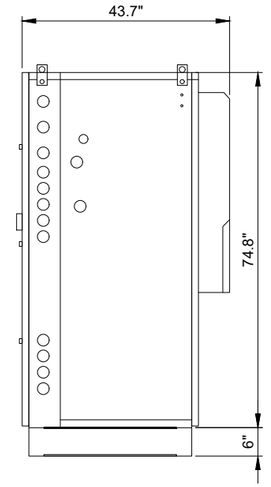
CABINET ELEVATION A



CABINET ELEVATION B



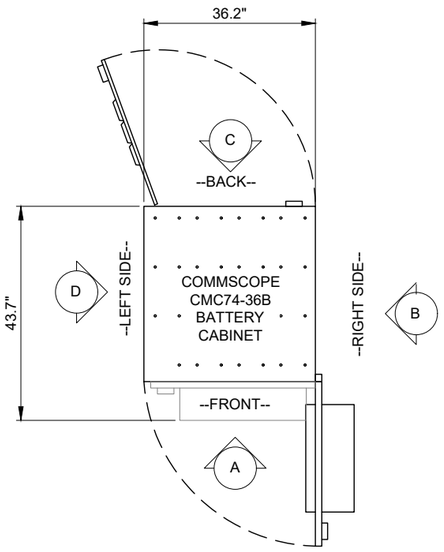
CABINET ELEVATION C



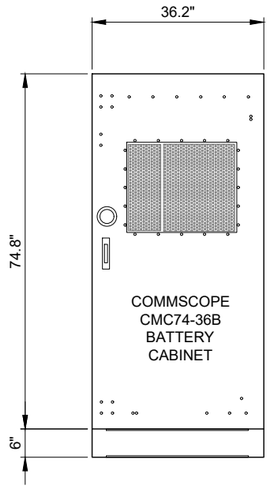
CABINET ELEVATION D

COMMSCOPE CMC74-36E EQUIPMENT CABINET	
DIMENSIONS	36.2"W x 43.7"D x 6'-9"H
WEIGHT	385LBS (EMPTY CABINET WITHOUT PLINTH,UNPACKAGED)
WEIGHT W/EQUIP	_____ LBS (TYP.)
19" RACK SPACE	40RU 70" Horizontal (Extra 19" 9RU vertical RHS)
Or 23" RACK SPACE	40RU 70" horizontal (Extra 19" 3RU vertical RHS)

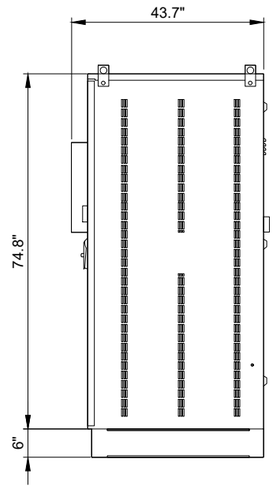
1 COMMSCOPE CMC74-36E EQUIPMENT CABINET INFORMATION
N.T.S.



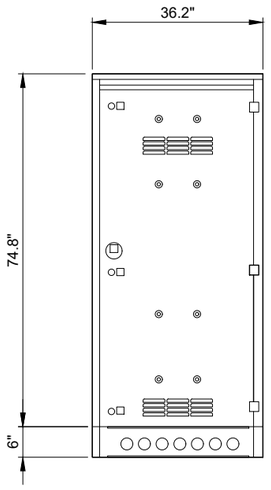
TOP VIEW



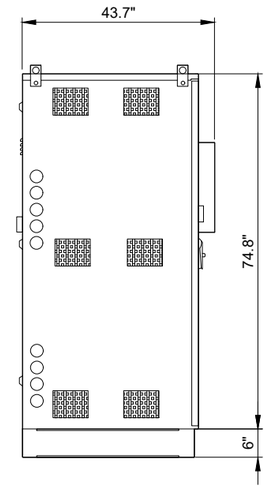
CABINET ELEVATION A



CABINET ELEVATION B



CABINET ELEVATION C



CABINET ELEVATION D

COMMSCOPE CMC74-36B BATTERY CABINET	
DIMENSIONS	36.2"W x 43.7"D x 6'-9"H
WEIGHT	1237.5 LBS (EMPTY)
WEIGHT W/BATT	_____ LBS (TYP.)

2 COMMSCOPE CMC74-36B BATTERY CABINET INFORMATION
N.T.S.

verizon
1701 GOLF ROAD,
TOWER 2, SUITE 400
ROLLING MEADOWS, IL 60008
PHONE: (847) 619-5397
FAX: (847) 706-7415

TERRA CONSULTING GROUP, LTD
600 BUSSE HIGHWAY
PARK RIDGE, IL 60068
PH: 847-698-6400
FAX: 847-698-6401

REVISIONS

NO.	DESCRIPTION	DATE	BY
-	ISSUED FOR REVIEW	05/16/23	TJS
0	ISSUED FOR FINAL	06/16/23	APD
1	REVISED PER RF COMMENTS	07/05/23	TJS
2	ISSUED FOR REVIEW	08/15/23	JJR
3	REVISED PER LANDLORDS COMMENTS	10/25/23	JJR
4	REVISED PER NEW RFDS	11/17/23	JJR
5	ADDITION OF NORTHEAST ELEVATION	01/02/24	JJR

LOC. #766005

RAND &
53_RELO

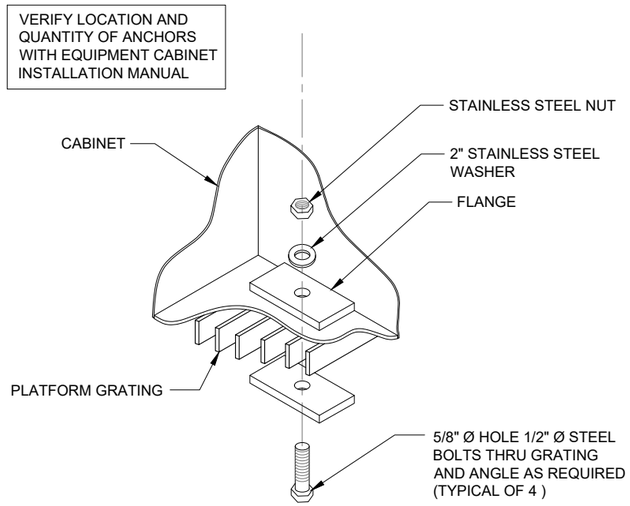
MDG LOC. #
5000916957

1500 W SHURE DR
ARLINGTON HEIGHTS, IL
60004

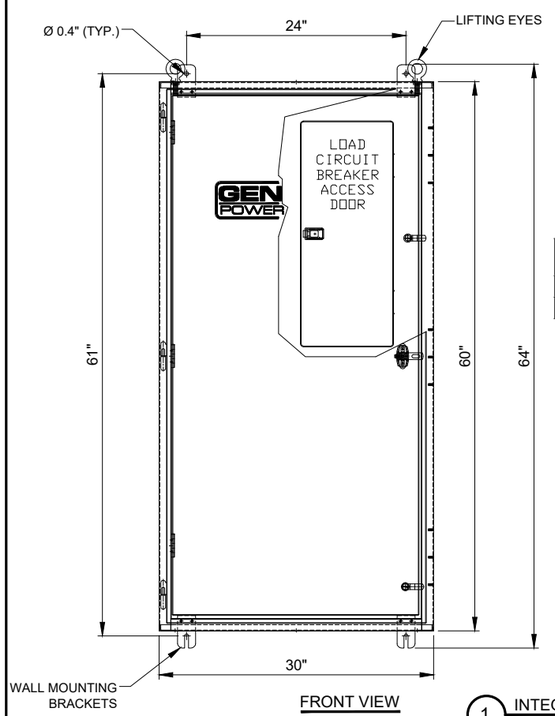
DRAWN BY:	TJS
CHECKED BY:	DSS
DATE:	05/15/23
PROJECT #:	33-3608

SHEET TITLE
EQUIPMENT CABINET DETAILS

SHEET NUMBER
EQ-1

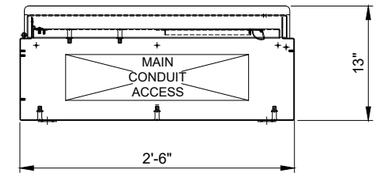


1 TYPICAL CABINET ANCHORING DETAIL
SCALE: N.T.S



FRONT VIEW

ILC RATED AMPS	Voltage	Phase	Enclosure Height	Enclosure Width	Enclosure Depth	Weight (lbs.)
200	120/240	1	60"	30"	10"	350
200	120/208	3	60"	30"	10"	350

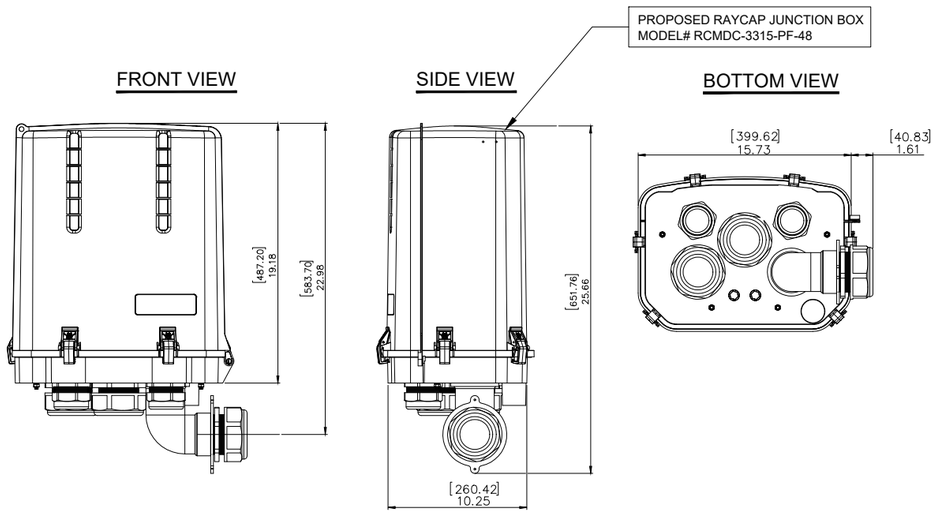


BOTTOM VIEW

1 INTEGRATED LOAD CENTER
SCALE: N.T.S

SPECIFICATIONS	DC SURGE PROTECTION FOR RRU/INTEGRATED ANTENNA RADIO HEAD
APPLICATION:	TOWER / BASE / ROOFTOP / ROOFTOP DISTRIBUTION MODELS
WEIGHT:	32LBS (14.51 KG)

[mm]
INCHES



2 RAYCAP JUNCTION BOX DETAIL
SCALE: N.T.S.

verizon
1701 GOLF ROAD,
TOWER 2, SUITE 400
ROLLING MEADOWS, IL 60008
PHONE: (847) 619-5397
FAX: (847) 706-7415

TERRA CONSULTING GROUP LTD
600 BUSSE HIGHWAY
PARK RIDGE, IL 60068
PH: 847-698-6400
FAX: 847-698-6401

REVISIONS

NO.	DESCRIPTION	DATE	BY
-	ISSUED FOR REVIEW	05/16/23	TJS
0	ISSUED FOR FINAL	06/16/23	APD
1	REVISED PER RF COMMENTS	07/05/23	TJS
2	ISSUED FOR REVIEW	08/15/23	JJR
3	REVISED PER LANDLORDS COMMENTS	10/25/23	JJR
4	REVISED PER NEW RFDS	11/17/23	JJR
5	ADDITION OF NORTHEAST ELEVATION	01/02/24	JJR

LOC. #766005

RAND & 53_RELO

MDG LOC. # 5000916957

1500 W SHURE DR
ARLINGTON HEIGHTS, IL 60004

DRAWN BY:	TJS
CHECKED BY:	DSS
DATE:	05/15/23
PROJECT #:	33-3608

SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
EQ-2

NOTE:

* ANTENNAS TO BE PAINTED TO MATCH PENTHOUSE EXTERIOR. COLOR TO BE FIELD VERIFIED.

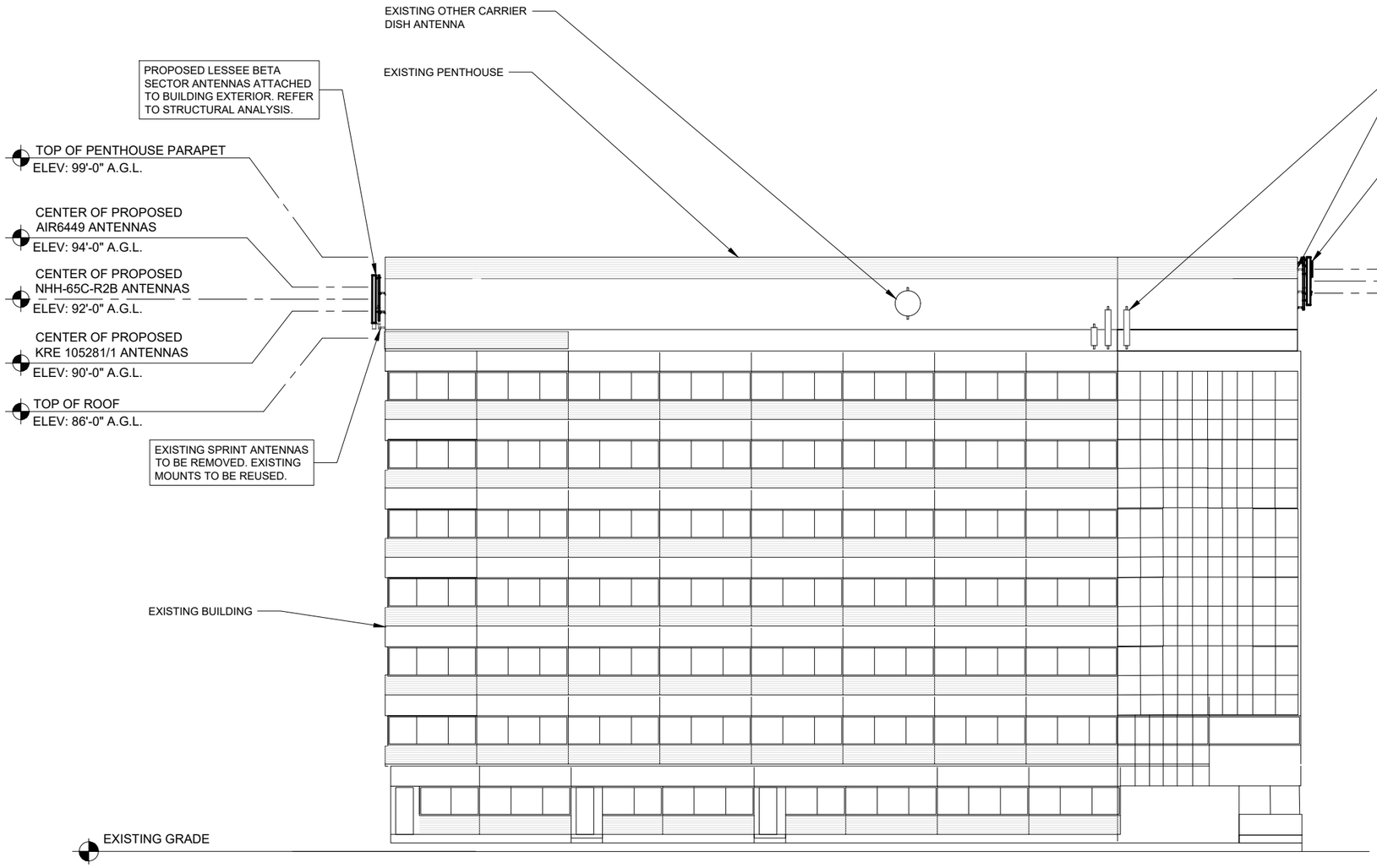
* VERIZON WIRELESS SHALL BE RESPONSIBLE FOR PROTECTION OF ROOF SURFACE DURING CONSTRUCTION AND ANY DAMAGES TO ROOF SURFACE DURING CONSTRUCTION SHALL BE REPAIRED TO AS NEW CONDITION.

* SEE SHEET ANT-3 FOR ENLARGED ANTENNA PLANS.

0 1/2" 1" 2"

SCALE: 3/32" = 1'-0"

22" x 34" PRINT IS THE FULL SCALE FORMAT. ANY SIZE OTHER THAN THAT IS AT REDUCED SCALE.



1 SOUTHEAST ELEVATION
SCALE: 3/32" = 1'-0"

verizon
1701 GOLF ROAD,
TOWER 2, SUITE 400
ROLLING MEADOWS, IL 60008
PHONE: (847) 619-5397
FAX: (847) 706-7415

TERRA CONSULTING GROUP LTD
600 BUSSE HIGHWAY
PARK RIDGE, IL 60068
PH: 847-698-6400
FAX: 847-698-6401

REVISIONS

NO.	DESCRIPTION	DATE	BY
-	ISSUED FOR REVIEW	05/16/23	TJS
0	ISSUED FOR FINAL	06/16/23	APD
1	REVISED PER RF COMMENTS	07/05/23	TJS
2	ISSUED FOR REVIEW	08/15/23	JJR
3	REVISED PER LANDLORDS COMMENTS	10/25/23	JJR
4	REVISED PER NEW RFDS	11/17/23	JJR
5	ADDITION OF NORTHEAST ELEVATION	01/02/24	JJR

LOC. #766005

RAND & 53_RELO

MDG LOC. # 5000916957

1500 W SHURE DR
ARLINGTON HEIGHTS, IL 60004

DRAWN BY:	TJS
CHECKED BY:	DSS
DATE:	05/15/23
PROJECT #:	33-3608

SHEET TITLE
SITE ELEVATION

SHEET NUMBER
ANT-1

NOTE:

* ANTENNAS TO BE PAINTED TO MATCH PENTHOUSE EXTERIOR. COLOR TO BE FIELD VERIFIED.

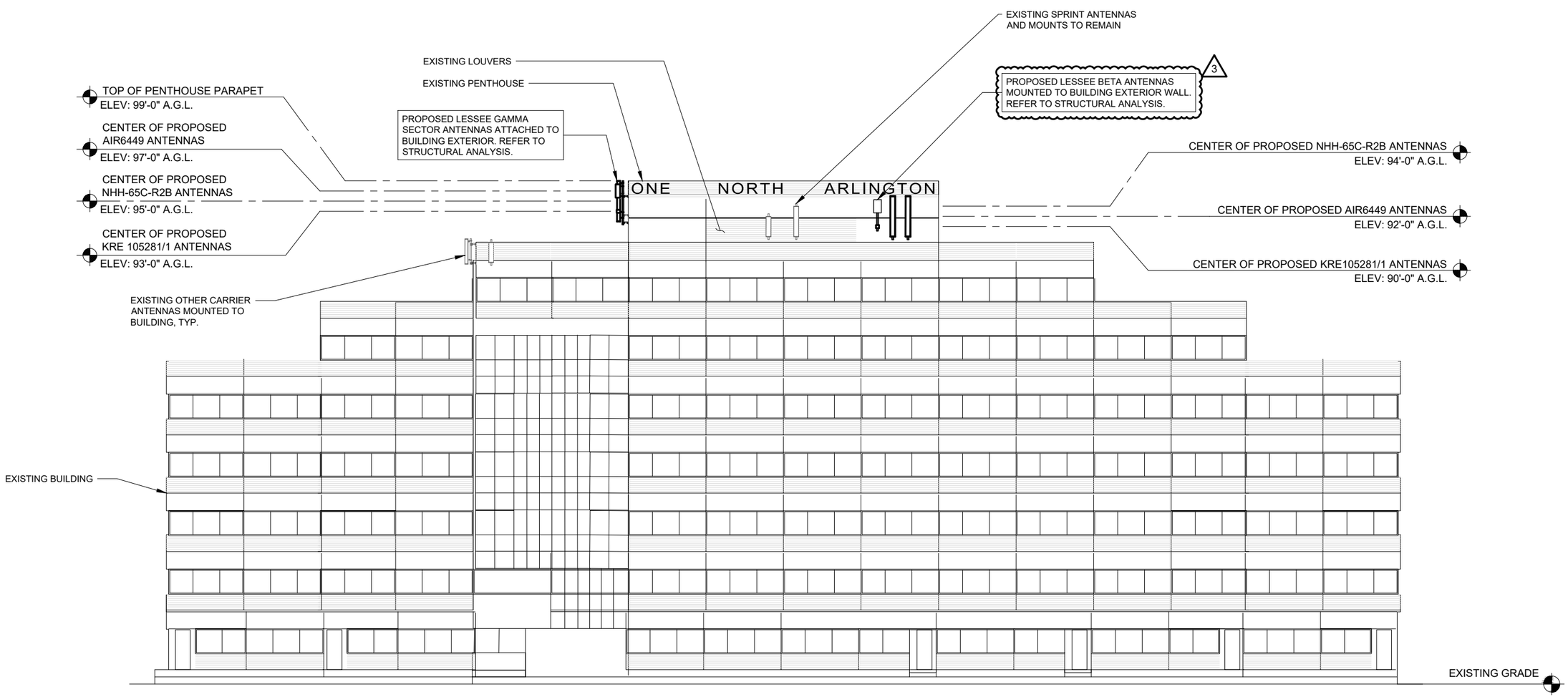
* VERIZON WIRELESS SHALL BE RESPONSIBLE FOR PROTECTION OF ROOF SURFACE DURING CONSTRUCTION AND ANY DAMAGES TO ROOF SURFACE DURING CONSTRUCTION SHALL BE REPAIRED TO AS NEW CONDITION.

* SEE SHEET ANT-3 FOR ENLARGED ANTENNA PLANS.

0 1/2" 1" 2"

SCALE: 3/32" = 1'-0"

22" x 34" PRINT IS THE FULL SCALE FORMAT. ANY SIZE OTHER THAN THAT IS AT REDUCED SCALE.



1 SOUTHWEST ELEVATION
SCALE: 3/32" = 1'-0"

verizon
1701 GOLF ROAD,
TOWER 2, SUITE 400
ROLLING MEADOWS, IL 60008
PHONE: (847) 619-5397
FAX: (847) 706-7415

TERRA CONSULTING GROUP, LTD
600 BUSSE HIGHWAY
PARK RIDGE, IL 60068
PH: 847-698-6400
FAX: 847-698-6401

REVISIONS

NO.	DESCRIPTION	DATE	BY
-	ISSUED FOR REVIEW	05/16/23	TJS
0	ISSUED FOR FINAL	06/16/23	APD
1	REVISED PER RF COMMENTS	07/05/23	TJS
2	ISSUED FOR REVIEW	08/15/23	JJR
3	REVISED PER LANDLORDS COMMENTS	10/25/23	JJR
4	REVISED PER NEW RFDS	11/17/23	JJR
5	ADDITION OF NORTHEAST ELEVATION	01/02/24	JJR

LOC. #766005

RAND & 53_RELO

MDG LOC. # 5000916957

1500 W SHURE DR
ARLINGTON HEIGHTS, IL 60004

DRAWN BY:	TJS
CHECKED BY:	DSS
DATE:	05/15/23
PROJECT #:	33-3608

SHEET TITLE
SITE ELEVATION

SHEET NUMBER
ANT-1A

NOTE:

* ANTENNAS TO BE PAINTED TO MATCH PENTHOUSE EXTERIOR. COLOR TO BE FIELD VERIFIED.

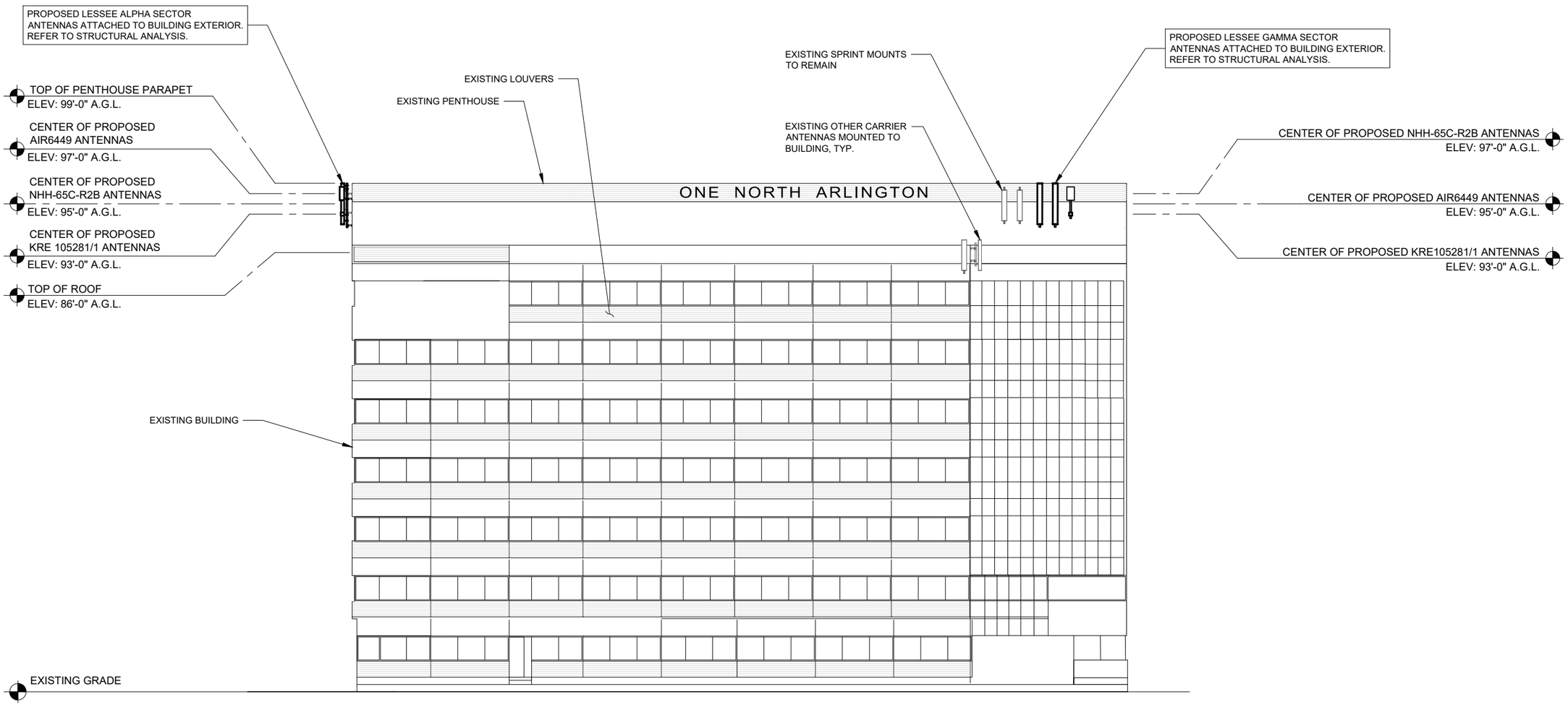
* VERIZON WIRELESS SHALL BE RESPONSIBLE FOR PROTECTION OF ROOF SURFACE DURING CONSTRUCTION AND ANY DAMAGES TO ROOF SURFACE DURING CONSTRUCTION SHALL BE REPAIRED TO AS NEW CONDITION.

* SEE SHEET ANT-3 FOR ENLARGED ANTENNA PLANS.

0 1/2" 1" 2"

SCALE: 3/32" = 1'-0"

22" x 34" PRINT IS THE FULL SCALE FORMAT. ANY SIZE OTHER THAN THAT IS AT REDUCED SCALE.



1 NORTHWEST ELEVATION
SCALE: 3/32" = 1'-0"

verizon
1701 GOLF ROAD,
TOWER 2, SUITE 400
ROLLING MEADOWS, IL 60008
PHONE: (847) 619-5397
FAX: (847) 706-7415

TERRA CONSULTING GROUP, LTD
600 BUSSE HIGHWAY
PARK RIDGE, IL 60068
PH: 847-698-6400
FAX: 847-698-6401

REVISIONS

NO.	DESCRIPTION	DATE	BY
-	ISSUED FOR REVIEW	05/16/23	TJS
0	ISSUED FOR FINAL	06/16/23	APD
1	REVISED PER RF COMMENTS	07/05/23	TJS
2	ISSUED FOR REVIEW	08/15/23	JJR
3	REVISED PER LANDLORDS COMMENTS	10/25/23	JJR
4	REVISED PER NEW RFDS	11/17/23	JJR
5	ADDITION OF NORTHEAST ELEVATION	01/02/24	JJR

LOC. #766005

RAND & 53_RELO

MDG LOC. # 5000916957

1500 W SHURE DR
ARLINGTON HEIGHTS, IL 60004

DRAWN BY:	TJS
CHECKED BY:	DSS
DATE:	05/15/23
PROJECT #:	33-3608

SHEET TITLE
SITE ELEVATION

SHEET NUMBER
ANT-1B

NOTE:

* ANTENNAS TO BE PAINTED TO MATCH PENTHOUSE EXTERIOR. COLOR TO BE FIELD VERIFIED.

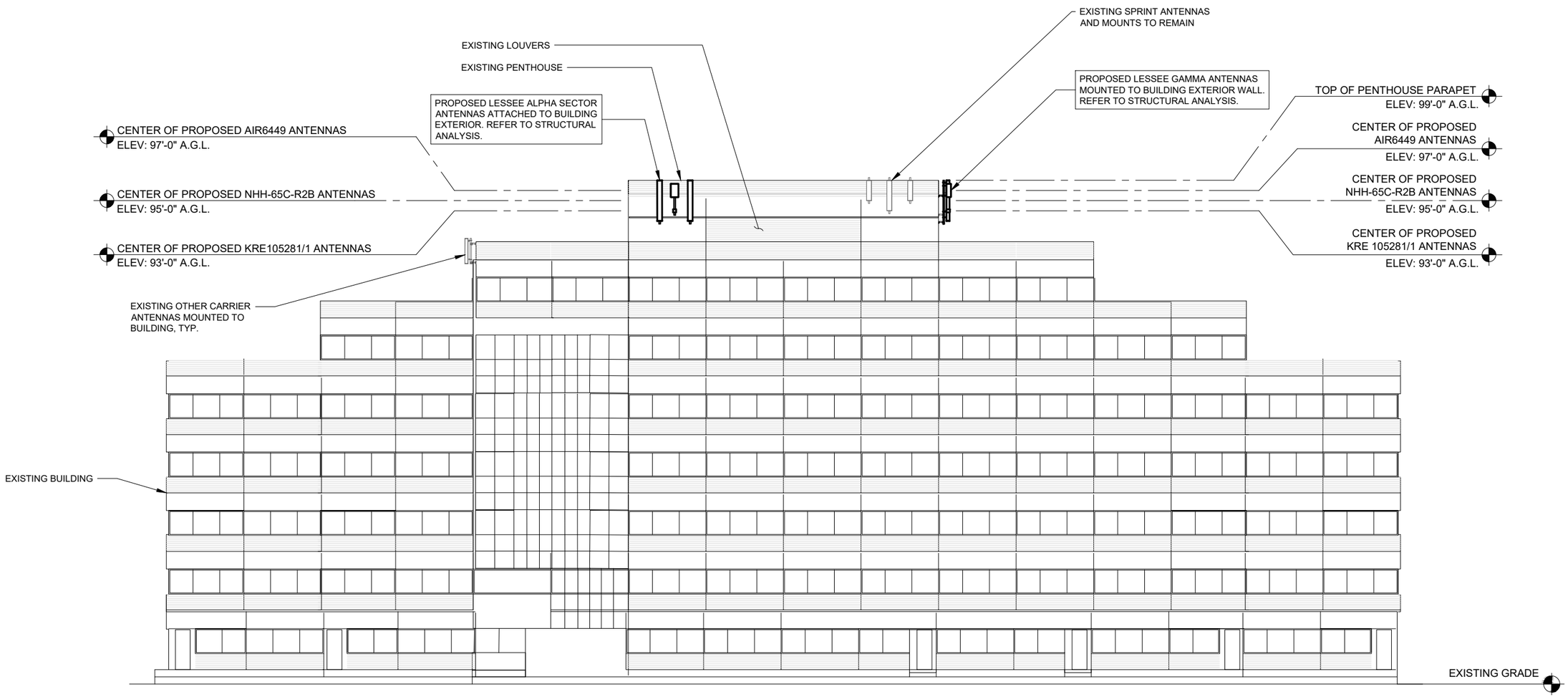
* VERIZON WIRELESS SHALL BE RESPONSIBLE FOR PROTECTION OF ROOF SURFACE DURING CONSTRUCTION AND ANY DAMAGES TO ROOF SURFACE DURING CONSTRUCTION SHALL BE REPAIRED TO AS NEW CONDITION.

* SEE SHEET ANT-3 FOR ENLARGED ANTENNA PLANS.

0 1/2" 1" 2"

SCALE: 3/32" = 1'-0"

22" x 34" PRINT IS THE FULL SCALE FORMAT. ANY SIZE OTHER THAN THAT IS AT REDUCED SCALE.



1 NORTHEAST ELEVATION
SCALE: 3/32" = 1'-0"

verizon
1701 GOLF ROAD,
TOWER 2, SUITE 400
ROLLING MEADOWS, IL 60008
PHONE: (847) 619-5397
FAX: (847) 706-7415

TERRA CONSULTING GROUP, LTD
600 BUSSE HIGHWAY
PARK RIDGE, IL 60068
PH: 847-698-6400
FAX: 847-698-6401

REVISIONS

NO.	DESCRIPTION	DATE	BY
-	ISSUED FOR REVIEW	05/16/23	TJS
0	ISSUED FOR FINAL	06/16/23	APD
1	REVISED PER RF COMMENTS	07/05/23	TJS
2	ISSUED FOR REVIEW	08/15/23	JJR
3	REVISED PER LANDLORDS COMMENTS	10/25/23	JJR
4	REVISED PER NEW RFDS	11/17/23	JJR
5	ADDITION OF NORTHEAST ELEVATION	01/02/24	JJR

LOC. #766005

RAND & 53_RELO

MDG LOC. # 5000916957

1500 W SHURE DR
ARLINGTON HEIGHTS, IL 60004

DRAWN BY:	TJS
CHECKED BY:	DSS
DATE:	05/15/23
PROJECT #:	33-3608

5

SHEET TITLE
SITE ELEVATION

SHEET NUMBER
ANT-1C

Antenna Summary

Added

700	850	1900	AWS	CBRS	L-Sub6	Make	Model	Centerline	Tip Height	Azimuth	RET	4xRx	Inst. Type	Quantity	Item ID
LTE	LTE 5G	LTE	LTE			COMMSCOPE	NHH-65C-R2B	95	99	50(0001) 50(01)		false	PHYSICAL	2	000000001900056293
LTE	LTE 5G	LTE	LTE			COMMSCOPE	NHH-65C-R2B	96	100	190(0002) 190(02) 310(0003) 310(03)		false	PHYSICAL	4	000000001900056293
				LTE		ERICSSON INC	KRE105281/1	93	93.3	50(19)		false	PHYSICAL	1	1900055217
				LTE		ERICSSON INC	KRE105281/1	94	94.3	190(20) 310(21)		false	PHYSICAL	2	1900055217
					5G	ERICSSON INC	KRD901206/11	97	98.3	50(0001)		false	PHYSICAL	1	1900068484
					5G	ERICSSON INC	KRD901206/11	98	99.3	190(0002) 310(0003)		false	PHYSICAL	2	1900068484

Removed

700	850	1900	AWS	CBRS	L-Sub6	Make	Model	Centerline	Tip Height	Azimuth	RET	4xRx	Inst. Type	Quantity	Item ID
No data available.															

Retained

700	850	1900	AWS	CBRS	L-Sub6	Make	Model	Centerline	Tip Height	Azimuth	RET	4xRx	Inst. Type	Quantity	Item ID
No data available.															

Added: 12 **Removed:** 0 **Retained:** 0

1 ANTENNA SUMMARY
N.T.S.

verizon
1701 GOLF ROAD,
TOWER 2, SUITE 400
ROLLING MEADOWS, IL 60008
PHONE: (847) 619-5397
FAX: (847) 706-7415

TERRA CONSULTING GROUP, LTD
600 BUSSE HIGHWAY
PARK RIDGE, IL 60068
PH: 847-698-6400
FAX: 847-698-6401

REVISIONS

NO.	DESCRIPTION	DATE	BY
-	ISSUED FOR REVIEW	05/16/23	TJS
0	ISSUED FOR FINAL	06/16/23	APD
1	REVISED PER RF COMMENTS	07/05/23	TJS
2	ISSUED FOR REVIEW	08/15/23	JJR
3	REVISED PER LANDLORDS COMMENTS	10/25/23	JJR
4	REVISED PER NEW RFDS	11/17/23	JJR
5	ADDITION OF NORTHEAST ELEVATION	01/02/24	JJR

LOC. #766005

RAND &
53_RELO

MDG LOC. #
5000916957

1500 W SHURE DR
ARLINGTON HEIGHTS, IL
60004

DRAWN BY:	TJS
CHECKED BY:	DSS
DATE:	05/15/23
PROJECT #:	33-3608

SHEET TITLE
ANTENNA INFORMATION

SHEET NUMBER
ANT-2

Equipment Summary

Added

Equipment Type	Location	700	850	1900	AWS	CBRS	L-Sub6	Make	Model	Cable Length	Cable Size	Install Type	Quantity	Item ID
RRU	Tower	LTE	LTE 5G					ERICSSON INC	KRC161749/1			PHYSICAL	3	1900068756
RRU	Tower						5G	ERICSSON INC	KRD901206/11			PHYSICAL	3	1900068484
RRU	Tower					LTE		ERICSSON INC	KRC161746/1			PHYSICAL	3	1900068745
RRU	Tower			LTE	LTE			ERICSSON INC	KRC161707/2			PHYSICAL	3	1900068904
Power Plants	Ground (Outdoor)							ABB	109163473			PHYSICAL	6	0000000019004360
Power Plants	Ground (Outdoor)							COMMSCOPE	760237263			PHYSICAL	2	0000000019000630
Shelter/Cabinets	Ground (Outdoor)							CHARLES INDUSTRIES LTD	760250058			PHYSICAL	1	1900393048
Shelter/Cabinets	Ground (Outdoor)							COMMSCOPE	760250933			PHYSICAL	2	0000000019000630
Power Plants	Ground (Outdoor)							ABB POWER ELECTRONICS INCDBA GE ENERGY	760242451			PHYSICAL	1	1900452342
Power Plants	Ground (Outdoor)							ABB POWER ELECTRONICS INCDBA GE ENERGY	760242451			PHYSICAL	1	1900073751
Power Plants	Ground (Outdoor)							ABB POWER ELECTRONICS INCDBA GE ENERGY	760242451			PHYSICAL	2	1900153743
Power Plants	Ground (Outdoor)							ABB POWER ELECTRONICS INCDBA GE ENERGY	760242451			PHYSICAL	1	1900153449
Power Plants	Ground (Outdoor)							ABB POWER ELECTRONICS INCDBA GE ENERGY	760242451			PHYSICAL	1	1900153751
Alarm	Ground (Outdoor)							ASENTRIA	1900070746			PHYSICAL	1	1900070746
Alarm	Ground (Outdoor)							ASENTRIA	1900076600			PHYSICAL	1	1900076600
Alarm	Ground (Outdoor)							ASENTRIA	1900076812			PHYSICAL	1	1900076812
Alarm	Tower							RAYCAPINC-001	3315-ALM-RS485			PHYSICAL	3	0000000019000700
Alarm	Ground (Outdoor)							ASENTRIA	S3406CRANCAB1			PHYSICAL	1	0000000019000770
BBU	Ground (Outdoor)							Ericsson	KDU1370015/11			PHYSICAL	1	0000000019000810
BBU	Ground (Outdoor)							Ericsson	KDU137848/11			PHYSICAL	1	0000000019001850
Battery	Ground (Outdoor)							COMMSCOPE	760250540			PHYSICAL	1	0000000019000640
Cell Site Routers	Ground (Outdoor)							NOKIAOFAME-001	3HE15386AA			PHYSICAL	1	0000000019001820
Hybrid Cable	Tower							COMMSCOPET-001	HFT1206-24SV4-xxxG			PHYSICAL	3	
OVP Box	Ground (Outdoor)							RAYCAP	1900410978			PHYSICAL	2	1900410978
OVP Box	Shelter							RAYCAP	3315-ALM-RS485			PHYSICAL	3	0000000019000700
OVP Box	Tower							RAYCAPINC-001	RVZDC-3315-PF-48		1-5/8 inch	PHYSICAL	3	0000000019004220
OVP Box	Ground (Outdoor)							RAYCAP	RVZDC-4520-RM-48			PHYSICAL	2	0000000019004100
Other	Ground (Outdoor)							COMMSCOPE	760246443			PHYSICAL	1	0000000019000090
Upconverter	Ground (Outdoor)							JOHNMEZZAL-002	PB-PSU-COV-BB			PHYSICAL	2	0000000019004000
Shelter/Cabinets	Ground (Outdoor)							COMMSCOPE	SK-BSP-STDV-FIU			PHYSICAL	4	0000000019000780
Upconverter	Ground (Outdoor)							JOHNMEZZAL-002	PB-19-SYS-16-BB			PHYSICAL	1	0000000019004000
Upconverter	Ground (Outdoor)							JOHNMEZZAL-002	PB-PSU-162-BB			PHYSICAL	6	0000000019004000

Removed

Equipment Type	Location	700	850	1900	AWS	CBRS	L-Sub6	Make	Model	Cable Length	Cable Size	Install Type	Quantity	Item ID
No data available.														

Retained

Equipment Type	Location	700	850	1900	AWS	CBRS	L-Sub6	Make	Model	Cable Length	Cable Size	Install Type	Quantity	Item ID
No data available.														

1 EQUIPMENT SUMMARY
N.T.S.

verizon
1701 GOLF ROAD,
TOWER 2, SUITE 400
ROLLING MEADOWS, IL 60008
PHONE: (847) 619-5397
FAX: (847) 706-7415

TERRA CONSULTING GROUP, LTD
600 BUSSE HIGHWAY
PARK RIDGE, IL 60068
PH: 847-698-6400
FAX: 847-698-6401

REVISIONS

NO.	DESCRIPTION	DATE	BY
-	ISSUED FOR REVIEW	05/16/23	TJS
0	ISSUED FOR FINAL	06/16/23	APD
1	REVISED PER RF COMMENTS	07/05/23	TJS
2	ISSUED FOR REVIEW	08/15/23	JJR
3	REVISED PER LANDLORDS COMMENTS	10/25/23	JJR
4	REVISED PER NEW RFDS	11/17/23	JJR
5	ADDITION OF NORTHEAST ELEVATION	01/02/24	JJR

LOC. #766005

RAND & 53_RELO

MDG LOC. # 5000916957

1500 W SHURE DR
ARLINGTON HEIGHTS, IL 60004

DRAWN BY:	TJS
CHECKED BY:	DSS
DATE:	05/15/23
PROJECT #:	33-3608

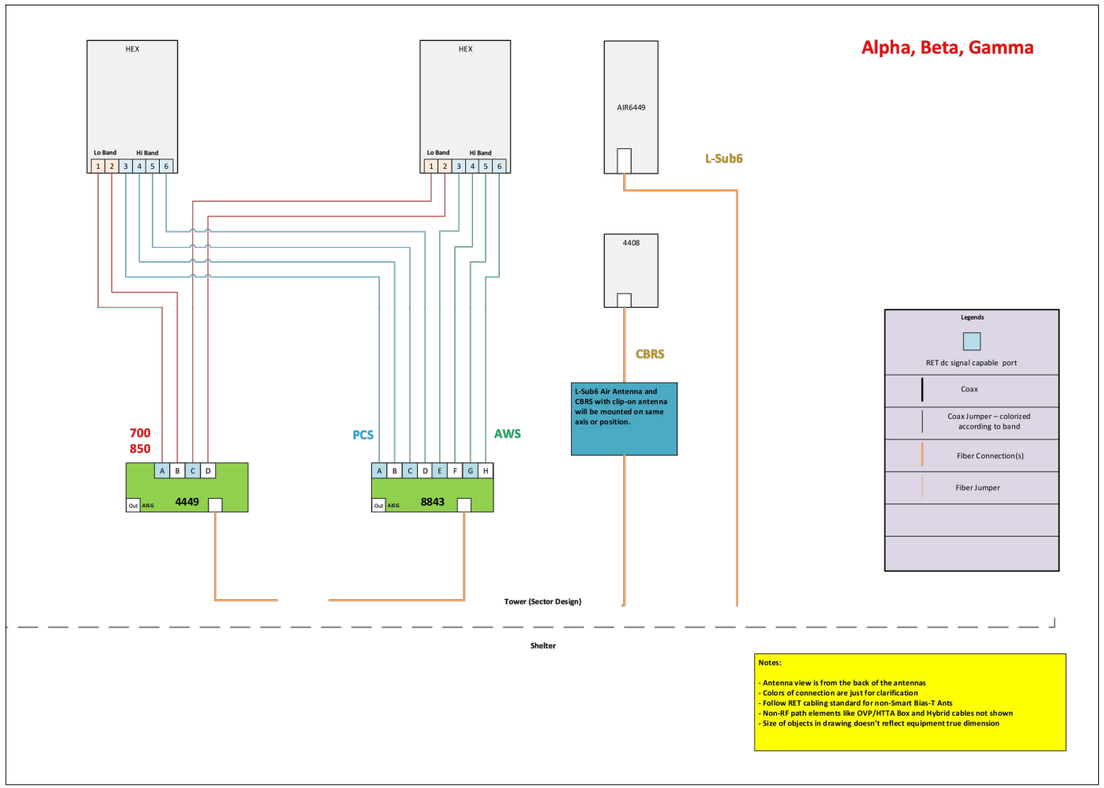
SHEET TITLE
EQUIPMENT INFORMATION

SHEET NUMBER
ANT-2A

RF EMISSIONS REPORT REQUIRED

☐ YES ☐ NO

DATE OF REPORT: _____



1 CABLE DIAGRAM
N.T.S.

	HYBRID LENGTH ON ROOFTOP		
SECTOR	HOR (±)	VER (±)	TOTAL (±)
ALPHA	141'	9'	150'
BETA	84'	9'	93'
GAMMA	43'	9'	52'

NOTE TO RF, G.C. & IMPLEMENTATION:
RAYCAP CHART IS CURRENTLY BEING UPDATED BY VERIZON WIRELESS. PRIOR TO FINAL AND CONSTRUCTION, CHART TO BE INSERTED. G.C. TO NOTIFY VERIZON WIRELESS IF THIS NOTE IS STILL ON THE DRAWINGS PRIOR TO CONSTRUCTION.

Raycap Layout - Raycap Per Sector

POWER

3	700 RRU	6	700 RRU2/A2
2	PCSLT RRU	5	PCSLT RRU2/A2
1	AWS RRU	4	AWS RRU2/A2

FIBER

1	2	3	4	5	6
AWS RRU	AWS RRU2/A2	PCSLTE RRU	PCSLTE RRU/A2	700 RRU	700 RRU/A2
7	**8**	**9**	**10**	**11**	**12**

2 RAYCAP TABLE
N.T.S.

verizon
1701 GOLF ROAD,
TOWER 2, SUITE 400
ROLLING MEADOWS, IL 60008
PHONE: (847) 619-5397
FAX: (847) 706-7415

TERRA CONSULTING GROUP LTD
600 BUSSE HIGHWAY
PARK RIDGE, IL 60068
PH: 847-698-6400
FAX: 847-698-6401

REVISIONS

NO.	DESCRIPTION	DATE	BY
-	ISSUED FOR REVIEW	05/16/23	TJS
0	ISSUED FOR FINAL	06/16/23	APD
1	REVISED PER RF COMMENTS	07/05/23	TJS
2	ISSUED FOR REVIEW	08/15/23	JJR
3	REVISED PER LANDLORDS COMMENTS	10/25/23	JJR
4	REVISED PER NEW RFDS	11/17/23	JJR
5	ADDITION OF NORTHEAST ELEVATION	01/02/24	JJR

LOC. #766005

RAND & 53_RELO

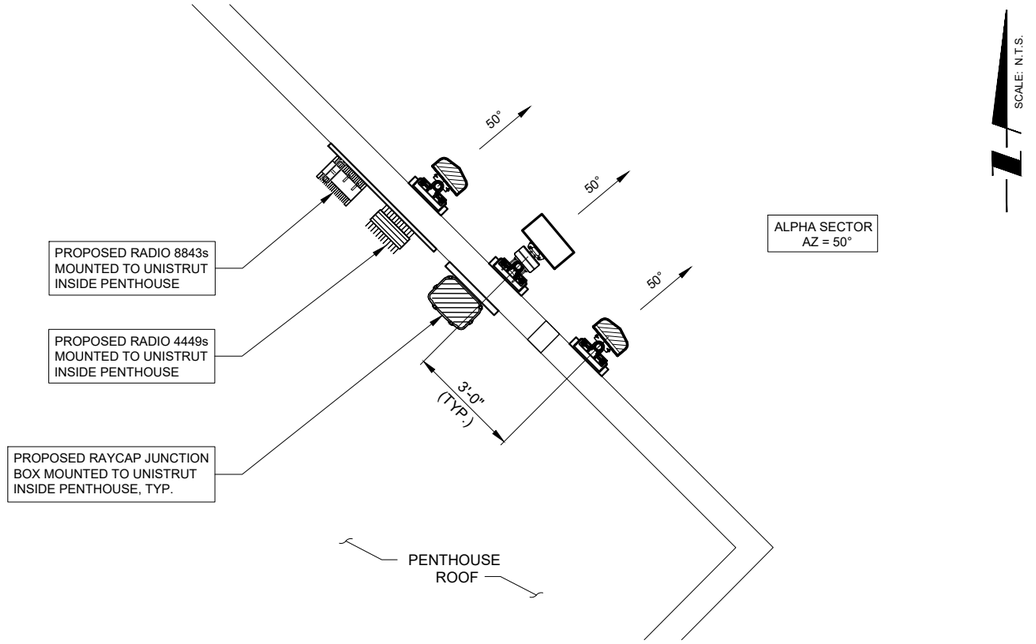
MDG LOC. # 5000916957

1500 W SHURE DR
ARLINGTON HEIGHTS, IL 60004

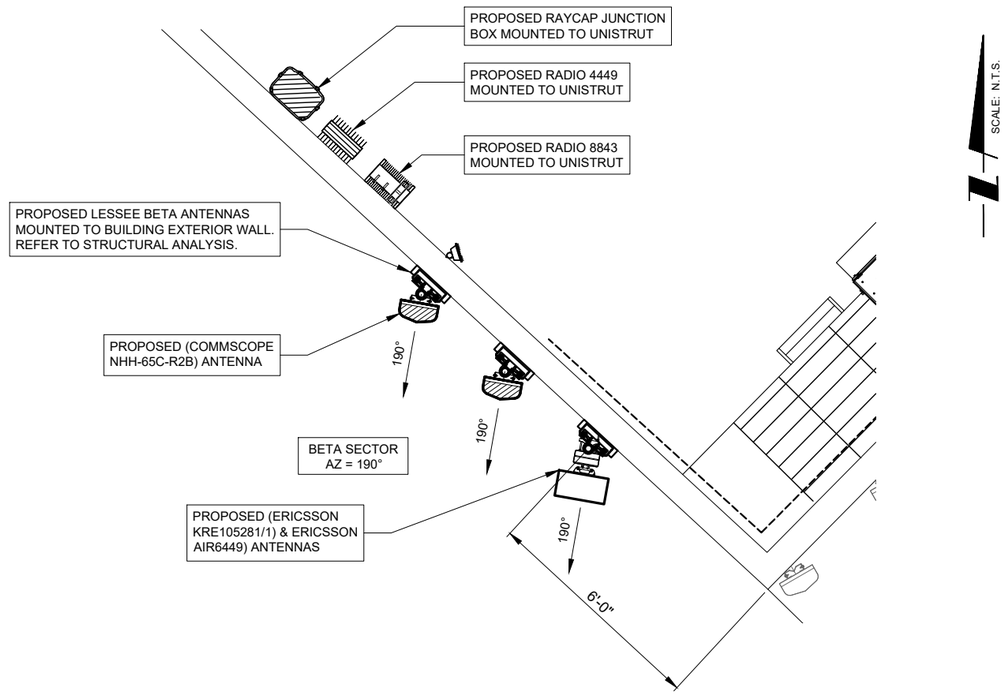
DRAWN BY:	TJS
CHECKED BY:	DSS
DATE:	05/15/23
PROJECT #:	33-3608

SHEET TITLE
ANTENNA INFORMATION

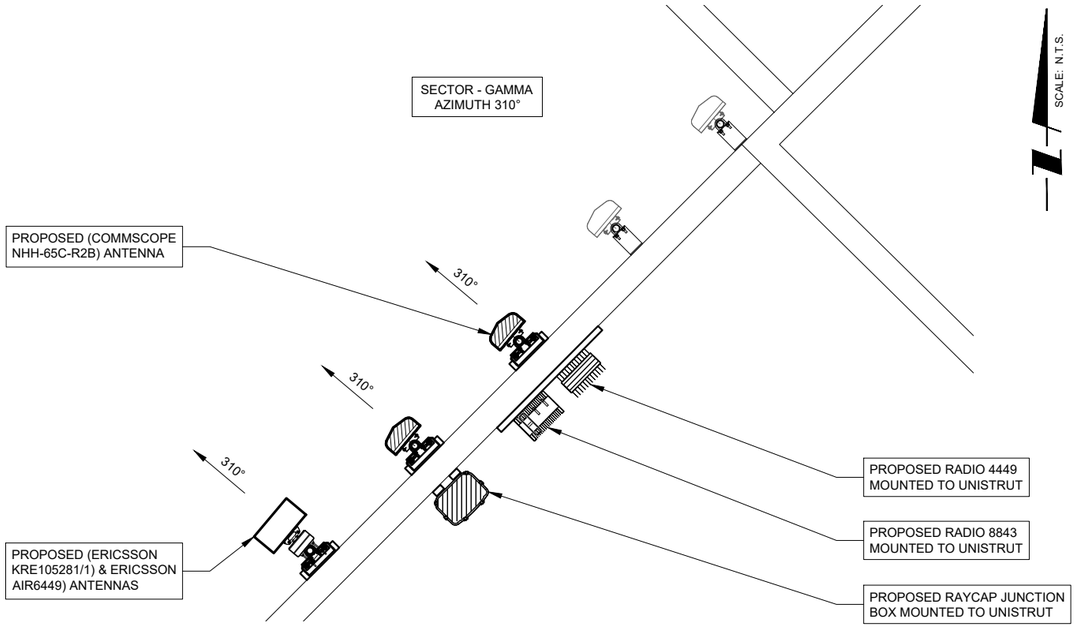
SHEET NUMBER
ANT-2B



1 PROPOSED ANTENNA LAYOUT @ ALPHA SECTOR
N.T.S.



2 PROPOSED ANTENNA LAYOUT @ BETA SECTOR
N.T.S.



3 PROPOSED ANTENNA LAYOUT @ GAMMA SECTOR
N.T.S.

verizon
1701 GOLF ROAD,
TOWER 2, SUITE 400
ROLLING MEADOWS, IL 60008
PHONE: (847) 619-5397
FAX: (847) 706-7415

TERRA CONSULTING GROUP LTD
600 BUSSE HIGHWAY
PARK RIDGE, IL 60068
PH: 847-698-6400
FAX: 847-698-6401

REVISIONS

NO.	DESCRIPTION	DATE	BY
-	ISSUED FOR REVIEW	05/16/23	TJS
0	ISSUED FOR FINAL	06/16/23	APD
1	REVISED PER RF COMMENTS	07/05/23	TJS
2	ISSUED FOR REVIEW	08/15/23	JJR
3	REVISED PER LANDLORDS COMMENTS	10/25/23	JJR
4	REVISED PER NEW RFDS	11/17/23	JJR
5	ADDITION OF NORTHEAST ELEVATION	01/02/24	JJR

LOC. #766005

RAND &
53_RELO

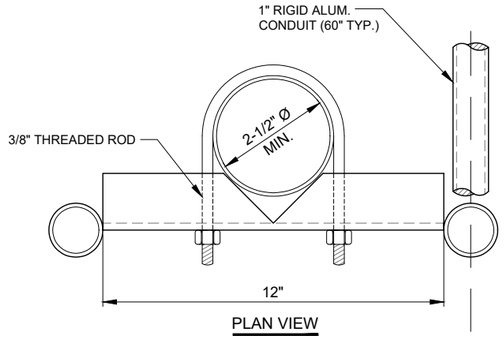
MDG LOC. #
5000916957

1500 W SHURE DR
ARLINGTON HEIGHTS, IL
60004

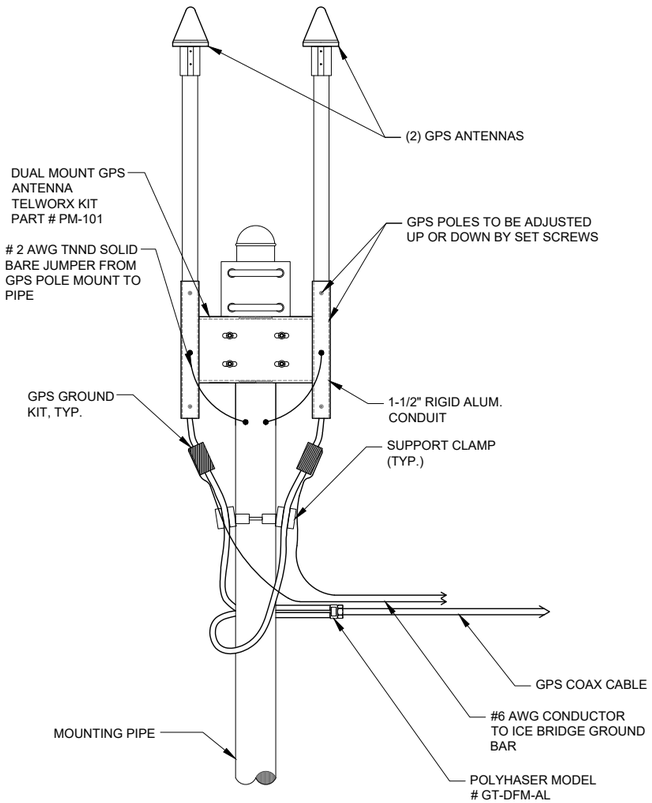
DRAWN BY:	TJS
CHECKED BY:	DSS
DATE:	05/15/23
PROJECT #:	33-3608

SHEET TITLE
ANTENNA LAYOUT
PLAN

SHEET NUMBER
3
ANT-3

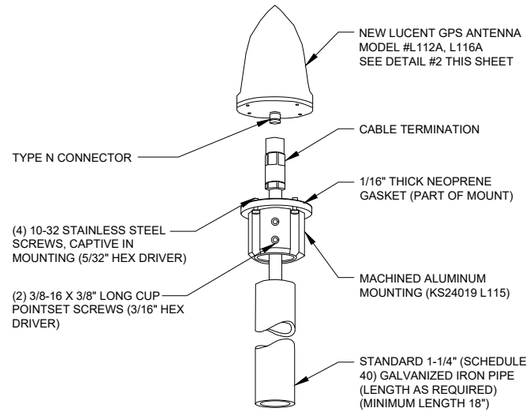


PLAN VIEW



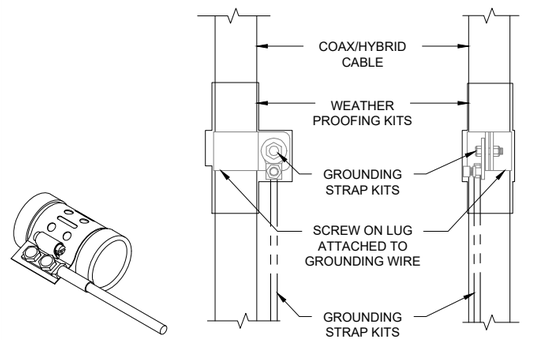
1 GPS MOUNTING DETAIL
N.T.S.

NOTE:
INSTALL EACH GPS ON THE
CLOSEST ICE BRIDGE POSTS TO
SHELTER (TYP. AT 2 LOCATIONS).



2 TYPICAL GPS DETAIL
N.T.S.

NOTES:
1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
2. THIS DETAIL IS TYPICAL FOR EACH CABLE WHERE IT IS SPECIFIED TO BE GROUNDED
3. CABLE TO BE GROUNDED AT ANTENNA LEVEL AND PRIOR TO ENTERING EQUIPMENT ROOM/ PLATFORM ENTRY PANEL.
4. CABLE ALSO TO BE GROUNDED TO GROUND BAR AT TOWER BASE IF APPLICABLE.
5. USE ONLY TIN PLATED GROUNDING KITS.



4 COAX / HYBRID CABLE GROUND KIT DETAIL
SCALE: N.T.S.

verizon
1701 GOLF ROAD,
TOWER 2, SUITE 400
ROLLING MEADOWS, IL 60008
PHONE: (847) 619-5397
FAX: (847) 706-7415

TERRA CONSULTING GROUP LTD
600 BUSSE HIGHWAY
PARK RIDGE, IL 60068
PH: 847-698-6400
FAX: 847-698-6401

REVISIONS

NO.	DESCRIPTION	DATE	BY
-	ISSUED FOR REVIEW	05/16/23	TJS
0	ISSUED FOR FINAL	06/16/23	APD
1	REVISED PER RF COMMENTS	07/05/23	TJS
2	ISSUED FOR REVIEW	08/15/23	JJR
3	REVISED PER LANDLORDS COMMENTS	10/25/23	JJR
4	REVISED PER NEW RFDS	11/17/23	JJR
5	ADDITION OF NORTHEAST ELEVATION	01/02/24	JJR

LOC. #766005

RAND &
53_RELO

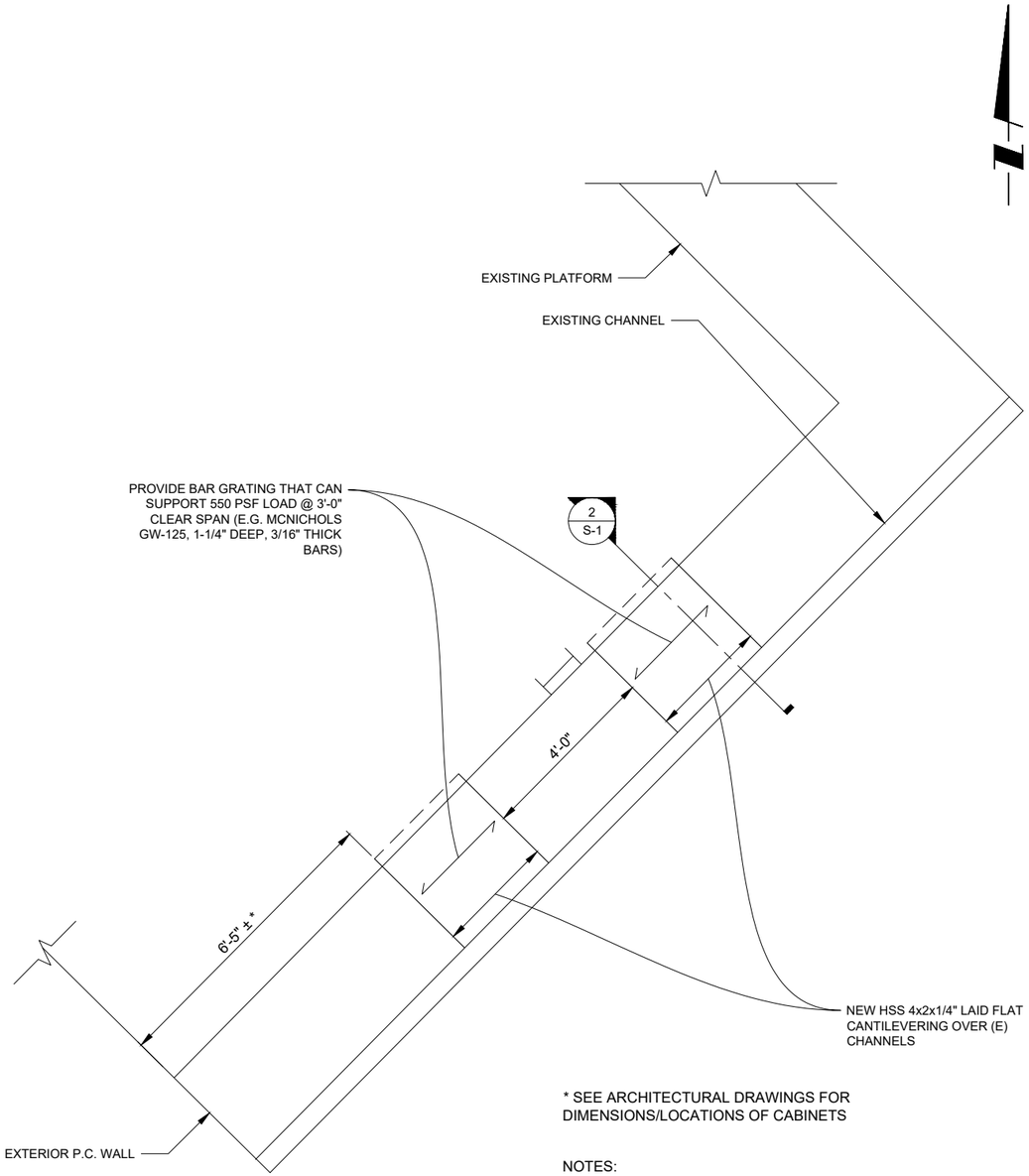
MDG LOC. #
5000916957

1500 W SHURE DR
ARLINGTON HEIGHTS, IL
60004

DRAWN BY:	TJS
CHECKED BY:	DSS
DATE:	05/15/23
PROJECT #:	33-3608

SHEET TITLE
SITE DETAILS

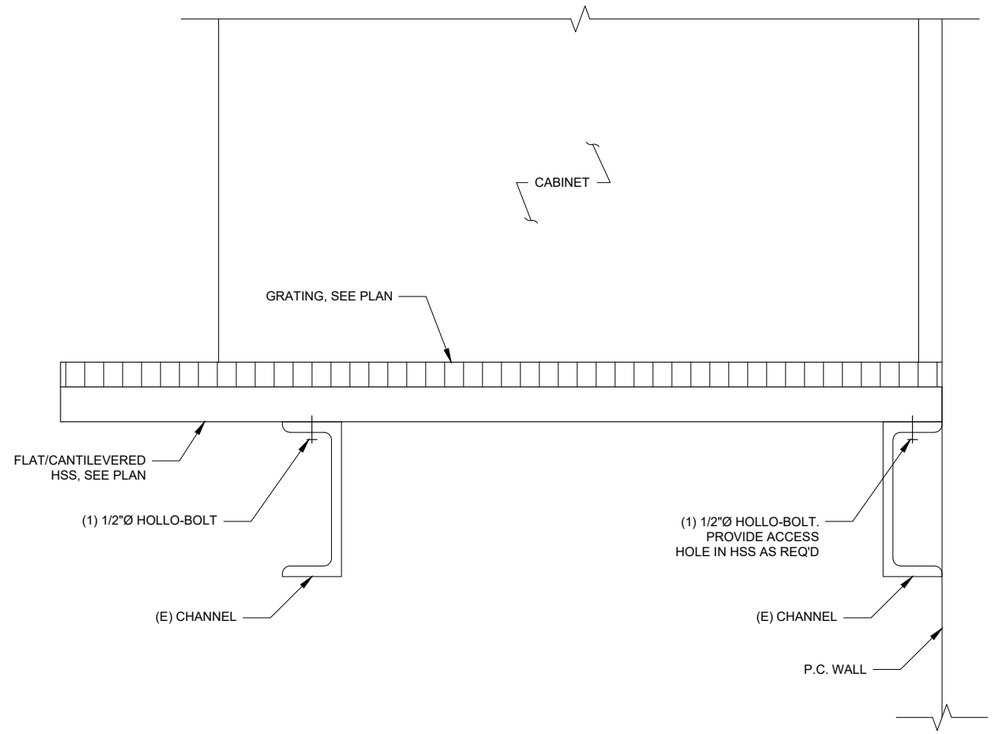
SHEET NUMBER
ANT-4



* SEE ARCHITECTURAL DRAWINGS FOR DIMENSIONS/LOCATIONS OF CABINETS

NOTES:
ALL NEW STEEL SHALL BE GALVANIZED
4,796# & 1,596# CABINET LOCATIONS ARE INTERCHANGEABLE

1 STRUCTURAL PLAN
SCALE: N.T.S.



1 SECTION
SCALE: N.T.S.

verizon
1701 GOLF ROAD,
TOWER 2, SUITE 400
ROLLING MEADOWS, IL 60008
PHONE: (847) 619-5397
FAX: (847) 706-7415

TERRA CONSULTING GROUP LTD
600 BUSSE HIGHWAY
PARK RIDGE, IL 60068
PH: 847-698-6400
FAX: 847-698-6401

REVISIONS

NO.	DESCRIPTION	DATE	BY
-	ISSUED FOR REVIEW	05/16/23	TJS
0	ISSUED FOR FINAL	06/16/23	APD
1	REVISED PER RF COMMENTS	07/05/23	TJS
2	ISSUED FOR REVIEW	08/15/23	JJR
3	REVISED PER LANDLORDS COMMENTS	10/25/23	JJR
4	REVISED PER NEW RFDS	11/17/23	JJR
5	ADDITION OF NORTHEAST ELEVATION	01/02/24	JJR

LOC. #766005

RAND & 53_RELO

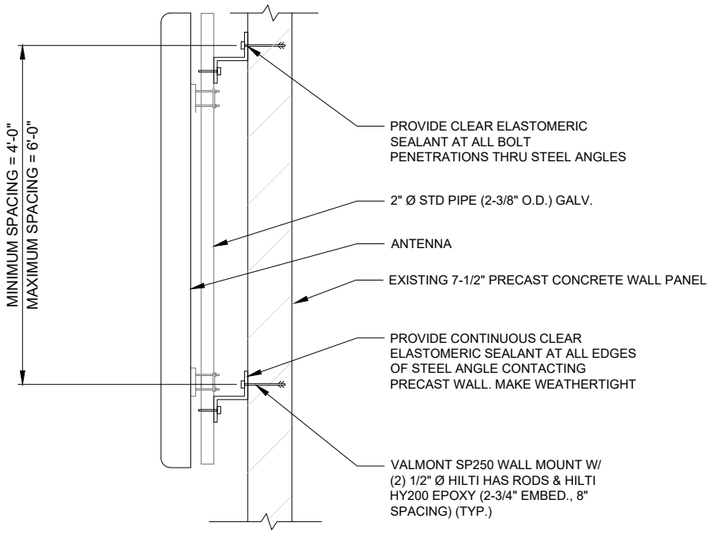
MDG LOC. # 5000916957

1500 W SHURE DR
ARLINGTON HEIGHTS, IL 60004

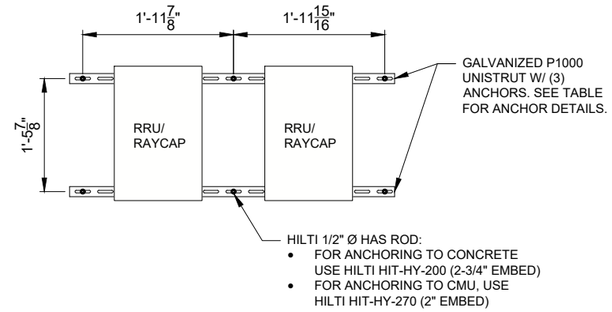
DRAWN BY:	TJS
CHECKED BY:	DSS
DATE:	05/15/23
PROJECT #:	33-3608

SHEET TITLE
STRUCTURAL PLAN AND DETAILS

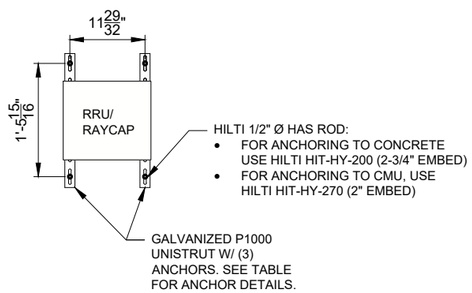
SHEET NUMBER
S-1



1 ANTENNA MOUNT DETAIL AT SECTOR 3
SCALE: N.T.S.



2 DOUBLE RAYCAP/RRU EQUIPMENT MOUNT DETAIL AT SECTOR
SCALE: N.T.S.



3 SINGLE RAYCAP/RRU EQUIPMENT MOUNT DETAIL AT SECTOR
SCALE: N.T.S.

verizon
1701 GOLF ROAD,
TOWER 2, SUITE 400
ROLLING MEADOWS, IL 60008
PHONE: (847) 619-5397
FAX: (847) 706-7415

TERRA CONSULTING GROUP, LTD
600 BUSSE HIGHWAY
PARK RIDGE, IL 60068
PH: 847-698-6400
FAX: 847-698-6401

REVISIONS

NO.	DESCRIPTION	DATE	BY
-	ISSUED FOR REVIEW	05/16/23	TJS
0	ISSUED FOR FINAL	06/16/23	APD
1	REVISED PER RF COMMENTS	07/05/23	TJS
2	ISSUED FOR REVIEW	08/15/23	JJR
3	REVISED PER LANDLORDS COMMENTS	10/25/23	JJR
4	REVISED PER NEW RFDS	11/17/23	JJR
5	ADDITION OF NORTHEAST ELEVATION	01/02/24	JJR

LOC. #766005

RAND & 53_RELO

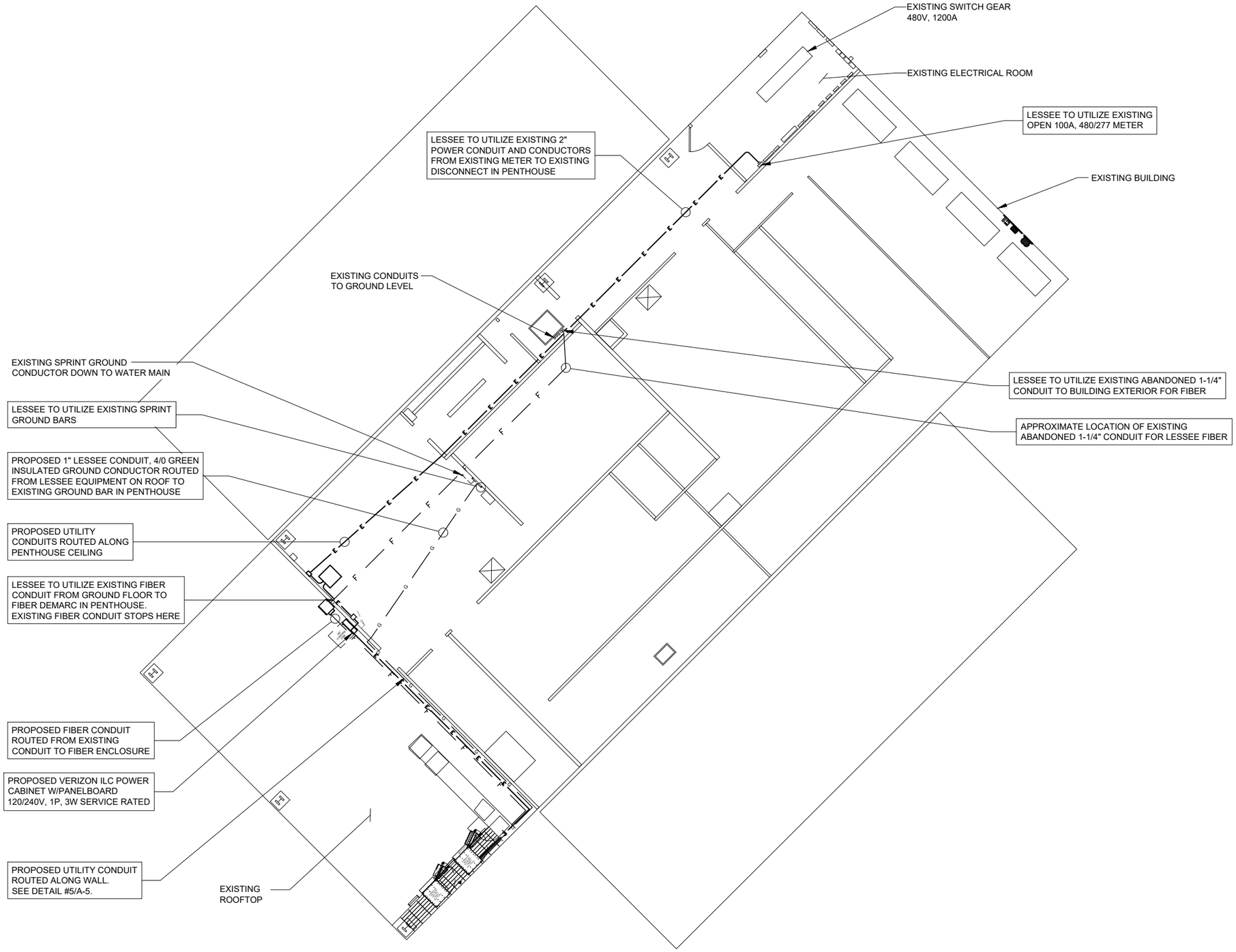
MDG LOC. # 5000916957

1500 W SHURE DR
ARLINGTON HEIGHTS, IL 60004

DRAWN BY:	TJS
CHECKED BY:	DSS
DATE:	05/15/23
PROJECT #:	33-3608

SHEET TITLE
ANTENNA & EQUIPMENT MOUNTING DETAILS

SHEET NUMBER
S-2



1 OVERALL UTILITY ROUTING PLAN AT PENTHOUSE LEVEL
SCALE: 1/8" = 1'-0"

NOTE:
CONTRACTOR TO FIREPROOF ALL PENETRATIONS. SEE DETAILS ON SHEET A-5

verizon
1701 GOLF ROAD,
TOWER 2, SUITE 400
ROLLING MEADOWS, IL 60008
PHONE: (847) 619-5397
FAX: (847) 706-7415

TERRA CONSULTING GROUP LTD
600 BUSSE HIGHWAY
PARK RIDGE, IL 60068
PH: 847-698-6400
FAX: 847-698-6401

REVISIONS

NO.	DESCRIPTION	DATE	BY
-	ISSUED FOR REVIEW	05/16/23	TJS
0	ISSUED FOR FINAL	06/16/23	APD
1	REVISED PER RF COMMENTS	07/05/23	TJS
2	ISSUED FOR REVIEW	08/15/23	JJR
3	REVISED PER LANDLORDS COMMENTS	10/25/23	JJR
4	REVISED PER NEW RFDS	11/17/23	JJR
5	ADDITION OF NORTHEAST ELEVATION	01/02/24	JJR

LOC. #766005

RAND &
53_RELO

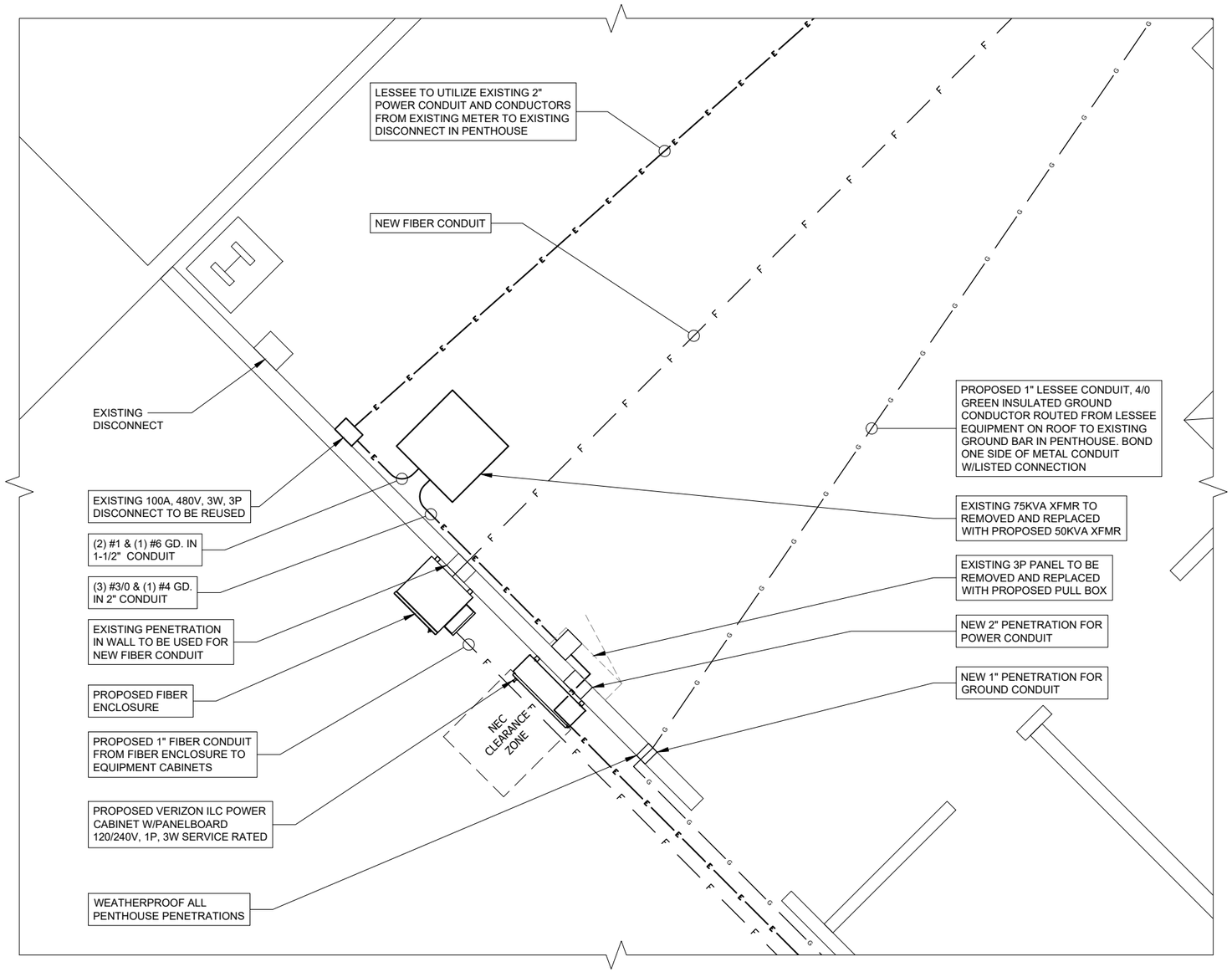
MDG LOC. #
5000916957

1500 W SHURE DR
ARLINGTON HEIGHTS, IL
60004

DRAWN BY:	TJS
CHECKED BY:	DSS
DATE:	05/15/23
PROJECT #:	33-3608

SHEET TITLE
OVERALL UTILITY
ROUTING PLAN

SHEET NUMBER
E-1



1 PARTIAL UTILITY ROUTING PLAN AT PENTHOUSE LEVEL
SCALE: 1/2" = 1'-0"

NOTE:
CONTRACTOR TO FIREPROOF ALL PENETRATIONS. SEE DETAILS ON SHEET A-5

verizon
1701 GOLF ROAD,
TOWER 2, SUITE 400
ROLLING MEADOWS, IL 60008
PHONE: (847) 619-5397
FAX: (847) 706-7415

TERRA CONSULTING GROUP, LTD
600 BUSSE HIGHWAY
PARK RIDGE, IL 60068
PH: 847-698-6400
FAX: 847-698-6401

REVISIONS

NO.	DESCRIPTION	DATE	BY
-	ISSUED FOR REVIEW	05/16/23	TJS
0	ISSUED FOR FINAL	06/16/23	APD
1	REVISED PER RF COMMENTS	07/05/23	TJS
2	ISSUED FOR REVIEW	08/15/23	JJR
3	REVISED PER LANDLORDS COMMENTS	10/25/23	JJR
4	REVISED PER NEW RFDS	11/17/23	JJR
5	ADDITION OF NORTHEAST ELEVATION	01/02/24	JJR

LOC. #766005

RAND & 53_RELO

MDG LOC. # 5000916957

1500 W SHURE DR
ARLINGTON HEIGHTS, IL 60004

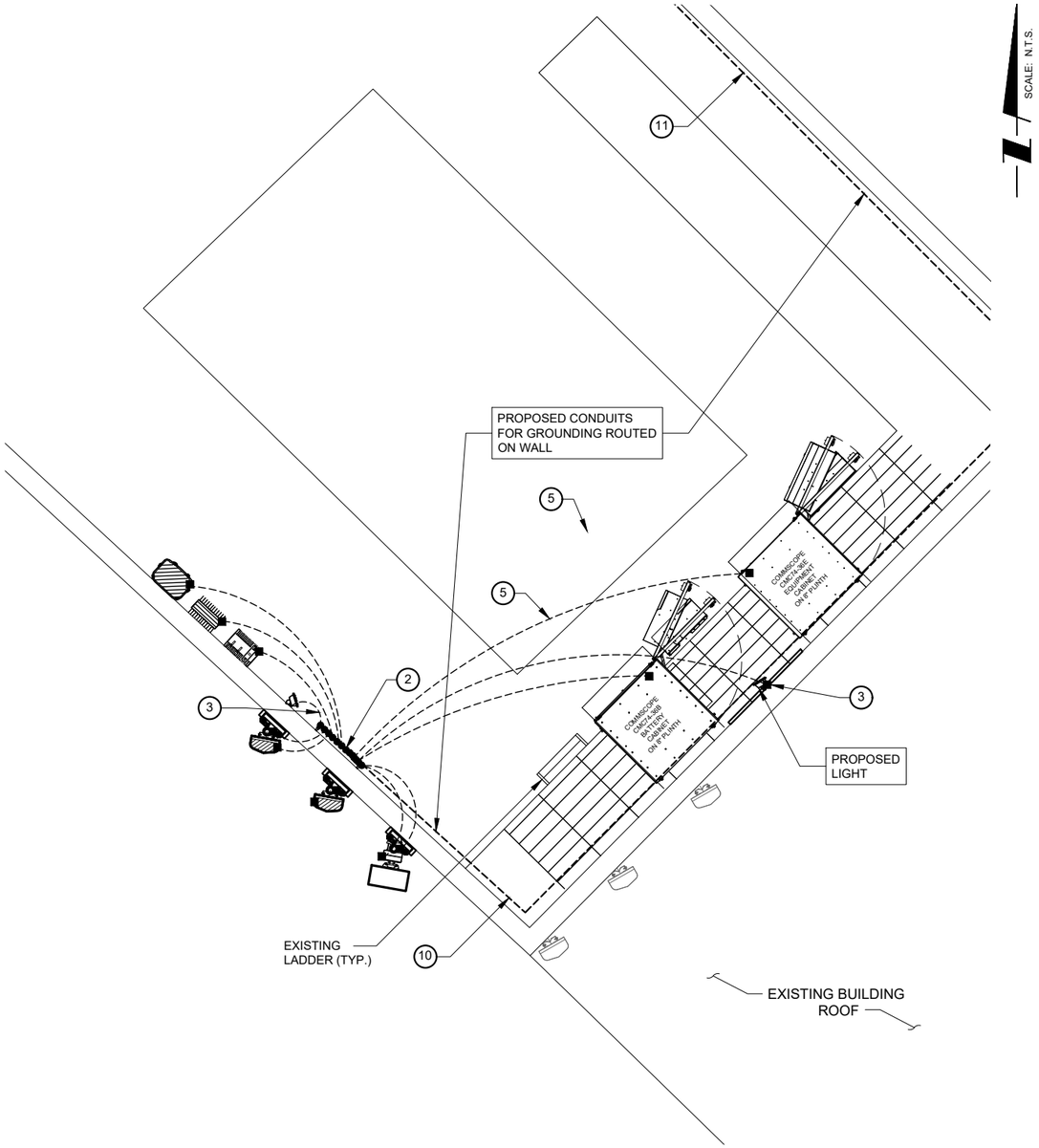
DRAWN BY:	TJS
CHECKED BY:	DSS
DATE:	05/15/23
PROJECT #:	33-3608

SHEET TITLE
PARTIAL UTILITY ROUTING PLAN

SHEET NUMBER
E-1A

GROUNDING REFERENCE NOTES

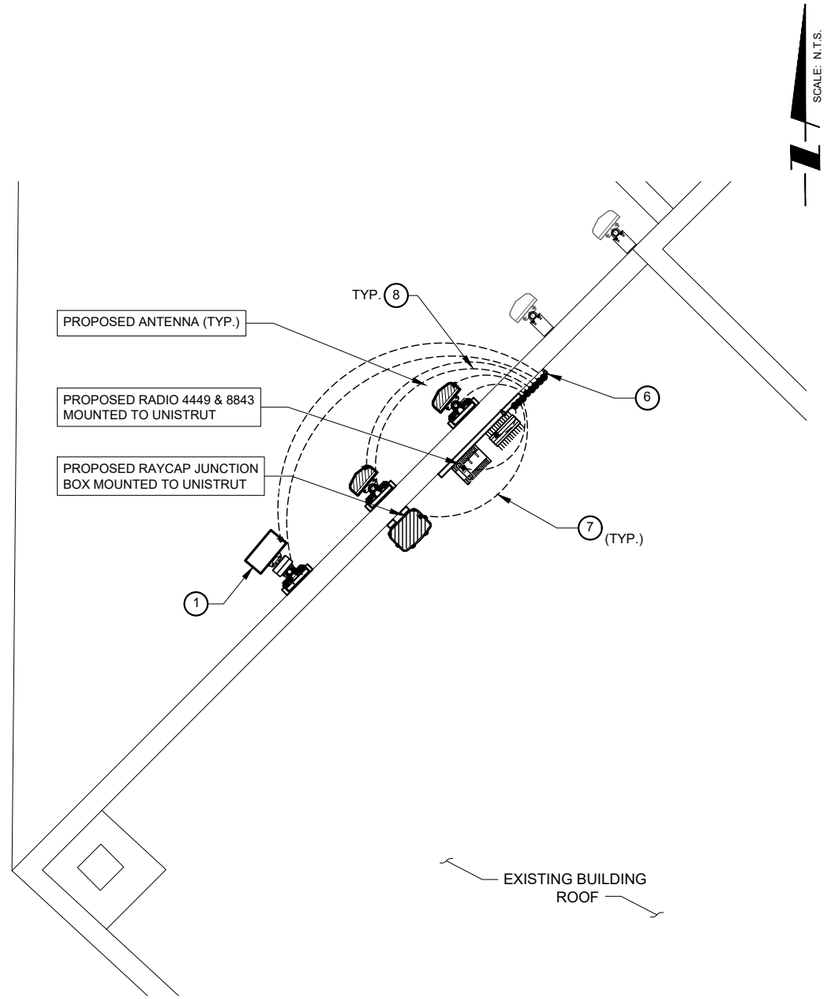
1. REFER TO STRUCTURAL AND ARCHITECTURAL DRAWINGS FOR EXACT LOCATION OF ANTENNA(S), PLATFORM AND ANTENNA SUPPORT FRAMES.
2. PROVIDE MASTER GROUND BAR (HARGER 1/4"x4"x24") AT STEEL PLATFORM.
3. #2 AWG INSULATED GROUND WIRE FROM MASTER GROUND BAR TO LIGHT
4. #2 AWG INSULATED GROUND WIRE FROM MASTER GROUND BAR TO GPS ANTENNA
5. (2) #2 AWG INSULATED GROUND WIRES TO EQUIPMENT CABINET FROM MASTER GROUND BAR.
6. PROVIDE SECTOR GROUND BAR (HARGER 1/4"x4x12). BOND ANTENNA CABLE GROUNDING KITS TO SECTOR GROUND BAR. CONNECTION SHALL BE RESPONSIBILITY OF THE ANTENNA CABLE INSTALLER. BOND SECTOR GROUND BAR TO MASTER GROUND BAR AT EQUIPMENT PLATFORM USING #2 AWG INSULATED HOME RUN GROUND WIRE.
7. #2 AWG INSULATED GROUND WIRE CONNECTION TO RAYCAP OR RRU MODULE
8. #2 AWG INSULATED GROUND WIRE FROM SECTOR GROUND BAR TO ANTENNA PIPE AND ANTENNA MOUNTING BRACKET.
9. EXOTHERMIC WELD AT ANTENNA SUPPORT FRAME. SUPPORT CONDUCTOR AS REQUIRED EVERY TWO (2) FEET MINIMUM.
10. 1" CONDUIT, 4/0 GREEN INSULATED GROUND CONDUCTOR ROUTED ALONG BUILDING WALL
11. 1" CONDUIT, 4/0 GREEN INSULATED GROUND CONDUCTOR ROUTED ALONG EXTERIOR/INTERIOR BUILDING WALL TO EXISTING GROUND SYSTEM
12. #2 AWG INSULATED GROUND WIRE CONNECTION TO PROPOSED LLC
13. #2 AWG INSULATED GROUND WIRE CONNECTION TO UTILITY RACK
14. #2 AWG INSULATED GROUND WIRE CONNECTION TO PROPOSED FIBER BOX



1 PROPOSED EQUIPMENT PLATFORM PLAN
SCALE: N.T.S.

SYMBOLS LEGEND

- GROUND ROD WITH ACCESS
- GROUND ROD
- EXOTHERMIC CONNECTION
- MECHANICAL CONNECTION
- GROUND BAR
- GROUND WIRE



2 PROPOSED ANTENNA GROUNDING PLAN AT GAMMA SECTOR (ALL SECTORS TYPICAL)
SCALE: N.T.S.

verizon
1701 GOLF ROAD,
TOWER 2, SUITE 400
ROLLING MEADOWS, IL 60008
PHONE: (847) 619-5397
FAX: (847) 706-7415

TERRA CONSULTING GROUP, LTD
600 BUSSE HIGHWAY
PARK RIDGE, IL 60068
PH: 847-698-6400
FAX: 847-698-6401

REVISIONS

NO.	DESCRIPTION	DATE	BY
-	ISSUED FOR REVIEW	05/16/23	TJS
0	ISSUED FOR FINAL	06/16/23	APD
1	REVISED PER RF COMMENTS	07/05/23	TJS
2	ISSUED FOR REVIEW	08/15/23	JJR
3	REVISED PER LANDLORDS COMMENTS	10/25/23	JJR
4	REVISED PER NEW RFDS	11/17/23	JJR
5	ADDITION OF NORTHEAST ELEVATION	01/02/24	JJR

LOC. #766005

RAND & 53_RELO

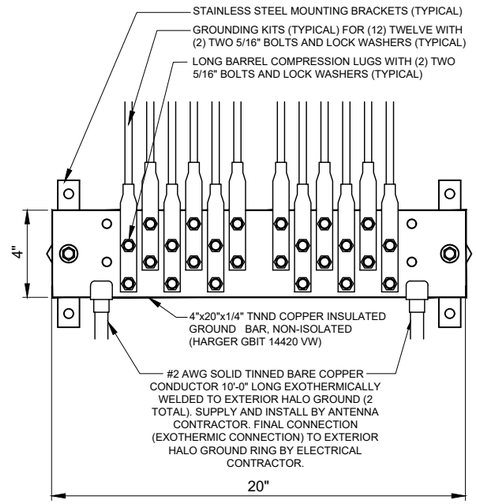
MDG LOC. # 5000916957

1500 W SHURE DR
ARLINGTON HEIGHTS, IL 60004

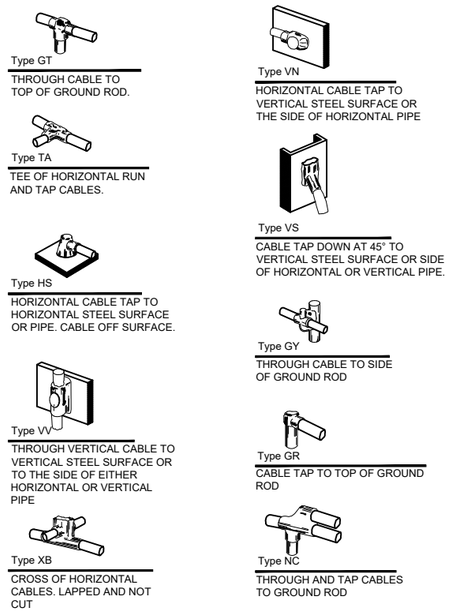
DRAWN BY:	TJS
CHECKED BY:	DSS
DATE:	05/15/23
PROJECT #:	33-3608

SHEET TITLE
GROUNDING PLAN

SHEET NUMBER
E-2



1 EXTERIOR GROUND BAR DETAIL
N.T.S.

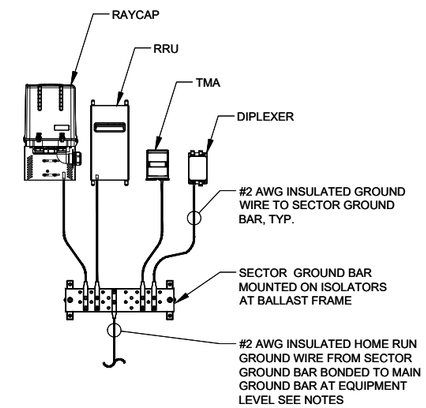


2 EXOTHERMIC WELD DETAILS
EXOTHERMIC AND HARGER ULTRAWELD OR APPROVED EQUAL

THIS DETAIL IS CONCEPTUAL TO DEMONSTRATE GROUNDING AT THE ANTENNA LEVEL. VERIFY EQUIPMENT, MOUNTING, AND AZIMUTH WITH ANT-1 SHEET & ECR.

NOTES:

1. GROUND CONNECTIONS MUST BE DOUBLE HOLE CONNECTION. SPECIAL EXCEPTION ONLY TO EQUIPMENT THAT WILL NOT ALLOW FOR A DOUBLE HOLE CONNECTION.



3 TYPICAL APPURTENANCE GROUNDING AT ANTENNA LEVEL
N.T.S.

4 NOT USED
SCALE: N.T.S.

verizon
1701 GOLF ROAD,
TOWER 2, SUITE 400
ROLLING MEADOWS, IL 60008
PHONE: (847) 619-5397
FAX: (847) 706-7415

TERRA CONSULTING GROUP, LTD
600 BUSSE HIGHWAY
PARK RIDGE, IL 60068
PH: 847-698-6400
FAX: 847-698-6401

REVISIONS

NO.	DESCRIPTION	DATE	BY
-	ISSUED FOR REVIEW	05/16/23	TJS
0	ISSUED FOR FINAL	06/16/23	APD
1	REVISED PER RF COMMENTS	07/05/23	TJS
2	ISSUED FOR REVIEW	08/15/23	JJR
3	REVISED PER LANDLORDS COMMENTS	10/25/23	JJR
4	REVISED PER NEW RFDS	11/17/23	JJR
5	ADDITION OF NORTHEAST ELEVATION	01/02/24	JJR

LOC. #766005

RAND & 53_RELO

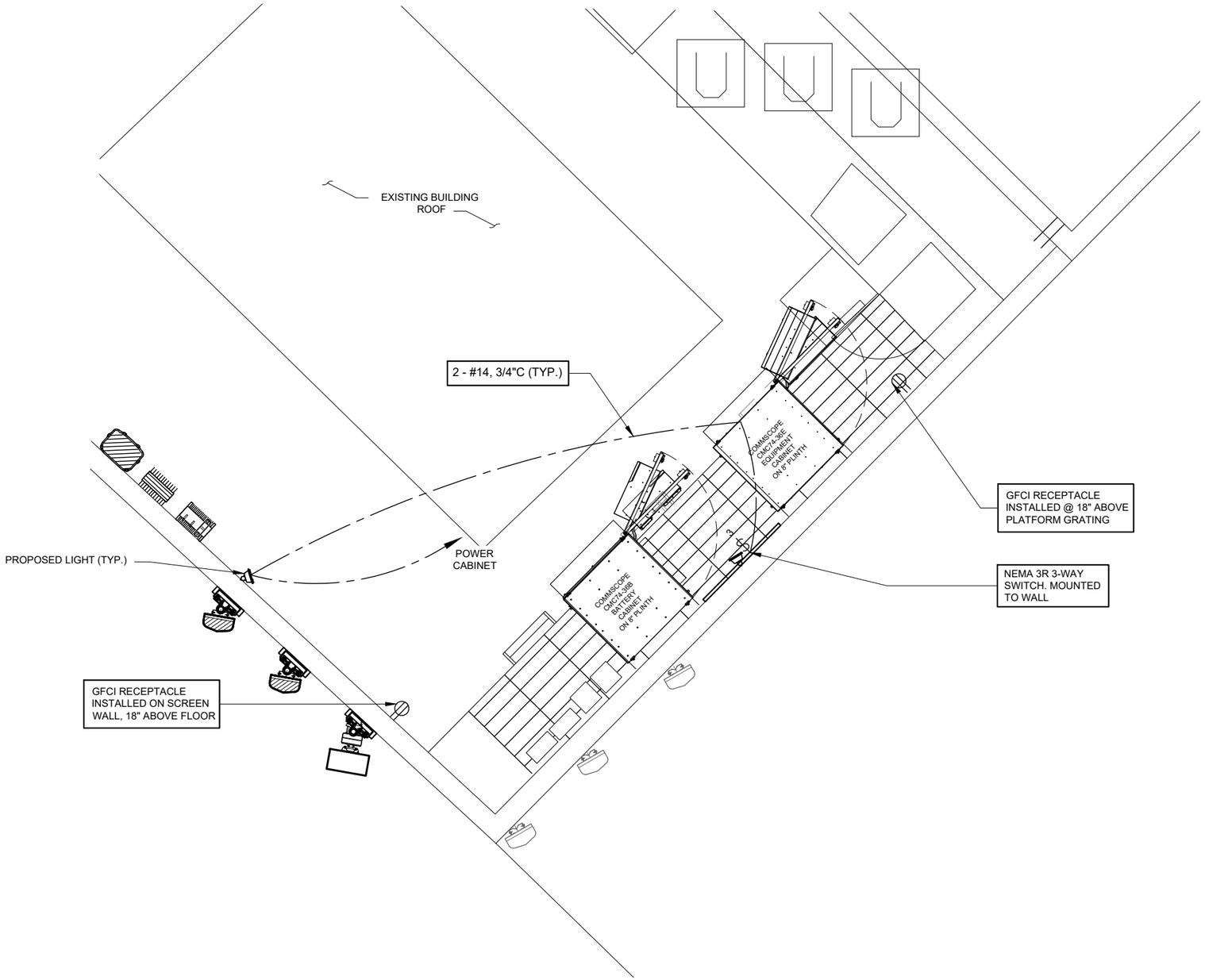
MDG LOC. # 5000916957

1500 W SHURE DR
ARLINGTON HEIGHTS, IL 60004

DRAWN BY:	TJS
CHECKED BY:	DSS
DATE:	05/15/23
PROJECT #:	33-3608

SHEET TITLE
ELECTRICAL & GROUNDING DETAILS

SHEET NUMBER
E-3



1 PLATFORM LIGHTING PLAN
SCALE: N.T.S.

SCALE: N.T.S.

verizon
1701 GOLF ROAD,
TOWER 2, SUITE 400
ROLLING MEADOWS, IL 60008
PHONE: (847) 619-5397
FAX: (847) 706-7415

TERRA CONSULTING GROUP, LTD
600 BUSSE HIGHWAY
PARK RIDGE, IL 60068
PH: 847-698-6400
FAX: 847-698-6401

REVISIONS

NO.	DESCRIPTION	DATE	BY
-	ISSUED FOR REVIEW	05/16/23	TJS
0	ISSUED FOR FINAL	06/16/23	APD
1	REVISED PER RF COMMENTS	07/05/23	TJS
2	ISSUED FOR REVIEW	08/15/23	JJR
3	REVISED PER LANDLORDS COMMENTS	10/25/23	JJR
4	REVISED PER NEW RFDS	11/17/23	JJR
5	ADDITION OF NORTHEAST ELEVATION	01/02/24	JJR

LOC. #766005

RAND & 53_RELO

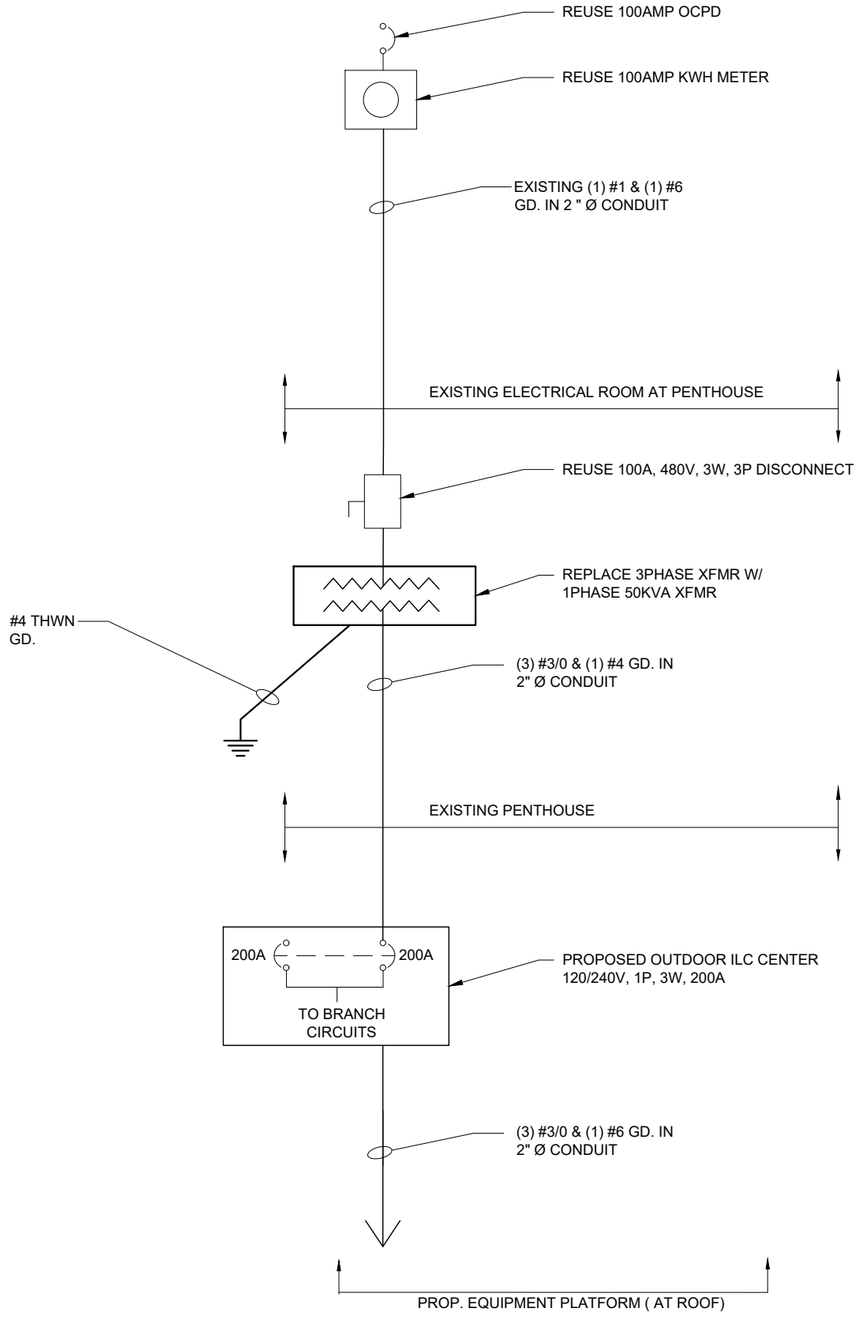
MDG LOC. # 5000916957

1500 W SHURE DR
ARLINGTON HEIGHTS, IL 60004

DRAWN BY:	TJS
CHECKED BY:	DSS
DATE:	05/15/23
PROJECT #:	33-3608

SHEET TITLE
PLATFORM LIGHTING PLAN

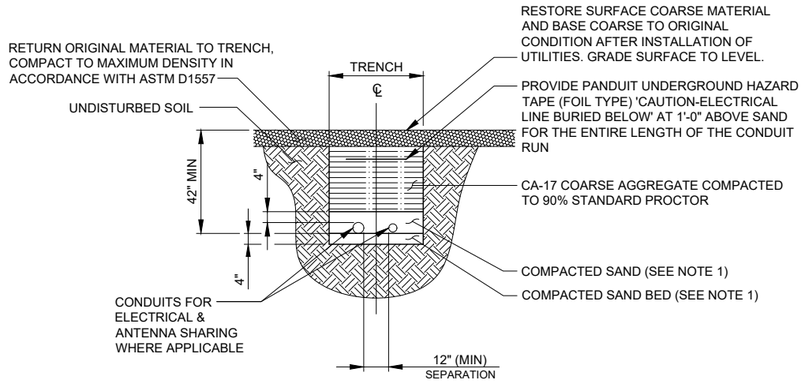
SHEET NUMBER
E-4



1 ONE LINE DIAGRAM
SCALE: N.T.S.

DIGGER
CHICAGO UTILITY ALERT NETWORK
312-774-7000
www.cityofchicago.org/transportation

NOTES:
1. LEAN CONCRETE, RED-COLORED TOP, MAY BE USED IN PLACE OF COMPACTED SAND.
2. BURY CONDUITS 42" BELOW GRADE OR 6" BELOW FROST LINE, WHICHEVER IS GREATER
3. CONDUIT SIZE, TYPE, QUANTITY AND SEPARATION DIMENSION TO BE VERIFIED WITH LOCAL UTILITY COMPANY REQUIREMENTS



3 UTILITY TRENCH DETAIL
SCALE: N.T.S.

VERIZON WIRELESS PANEL "A" SCHEDULE

MAIN: 200A VOLTAGE: 120/240 PHASE: 1 WIRE: 3

TO AUTOMATIC TRANSFER SWITCH — 200A/2

DESCRIPTION	BRKR.	WATTS	S/C	A	B	S/N	WATTS	BRKR.	DESCRIPTION
RECTIFIER 1	40/2	1250 1250	1 3			2 4	1250 1250	40/2	RECTIFIER 5
RECTIFIER 2	40/2	1250 1250	5 7			6 8	1250 1250	40/2	RECTIFIER 6
RECTIFIER 3	40/2	1250 1250	9 11			10 12	1250 1250	40/2	RECTIFIER 7
RECTIFIER 4	40/2	1250 1250	13 15			14 16	1250 1250	40/2	RECTIFIER 8
SPACE			17			18		20/1	SPARE
SPACE			19			20		20/1	SPARE
SPACE			21			22			SPACE
SPACE			23			24			SPACE
SPACE			25			26			SPACE
SPACE			27			28			SPACE
SPACE			29			30			SPACE
SPACE			31			32			SPACE
SPACE			33			34			SPACE
SPACE			35			36			SPACE
SPARE	20/1		37			38	360	20/1	GFCI RECEPTACLE *
SPARE	20/1		39			40	1200	20/1	EQUIPMENT
GEN BATTERY CHARGER *	20/1	1000	41			42	1000	20/1	GEN. GFCI RECEPTACLE *
			SURGE ARRESTOR						
SUBTOTALS:		6000 5000					6360 6200		
TOTAL:							23.56kW (98.2A)		

SURFACE MOUNTED NEMA 3R w/ DOOR
22K AIC BREAKERS
(CONTRACTOR SHALL VERIFY AIC RATINGS W/ LOCAL POWER CO.)

2 PANEL BOARD SCHEDULE
N.T.S.

NOTE:
1. VERIZON WIRELESS EQUIPMENT ENGINEERING TO SUPPLY BREAKER FOR RADIO AND POWER CABINETS
2. GENERAL CONTRACTOR TO SUPPLY BREAKERS NOTED WITH " * "

verizon
1701 GOLF ROAD,
TOWER 2, SUITE 400
ROLLING MEADOWS, IL 60008
PHONE: (847) 619-5397
FAX: (847) 706-7415

TERRA CONSULTING GROUP, LTD
600 BUSSE HIGHWAY
PARK RIDGE, IL 60068
PH: 847-698-6400
FAX: 847-698-6401

REVISIONS

NO.	DESCRIPTION	DATE	BY
-	ISSUED FOR REVIEW	05/16/23	TJS
0	ISSUED FOR FINAL	06/16/23	APD
1	REVISED PER RF COMMENTS	07/05/23	TJS
2	ISSUED FOR REVIEW	08/15/23	JJR
3	REVISED PER LANDLORDS COMMENTS	10/25/23	JJR
4	REVISED PER NEW RFDS	11/17/23	JJR
5	ADDITION OF NORTHEAST ELEVATION	01/02/24	JJR

LOC. #766005

RAND &
53_RELO

MDG LOC. #
5000916957

1500 W SHURE DR
ARLINGTON HEIGHTS, IL
60004

DRAWN BY:	TJS
CHECKED BY:	DSS
DATE:	05/15/23
PROJECT #:	33-3608

SHEET TITLE
SINGLE LINE DIAGRAM
& PANEL SCHEDULE

SHEET NUMBER
E-5

GENERAL

THE CONSTRUCTION DOCUMENT DRAWINGS ARE INTERRELATED. WHEN PERFORMING THE WORK, EACH CONTRACTOR MUST REFER TO ALL DRAWINGS. COORDINATION IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR.

DIVISION 1: GENERAL REQUIREMENTS

SECTION 01700 - PROJECT CLOSEOUT

PART 1 - GENERAL

A. OBTAIN AND SUBMIT RELEASES ENABLING THE OWNER UNRESTRICTED USE OF THE WORK AND ACCESS TO SERVICES AND UTILITIES; INCLUDE OCCUPANCY PERMITS, OPERATING CERTIFICATES AND SIMILAR RELEASES.

B. SUBMIT RECORD DRAWINGS, DAMAGE OR SETTLEMENT SURVEY, PROPERTY SURVEY, AND SIMILAR FINAL RECORD INFORMATION.

C. COMPLETE FINAL CLEAN UP REQUIREMENTS. TOUCH UP AND OTHERWISE REPAIR AND RESTORE MARRED EXPOSED FINISHES.

PART 2 - FINAL CLEANING

1. COMPLETE THE FOLLOWING CLEANING OPERATIONS BEFORE REQUESTING INSPECTION FOR CERTIFICATION OF COMPLETION.
   a. CLEAN THE PROJECT SITE, YARD AND GROUNDS, IN AREAS DISTURBED BY CONSTRUCTION ACTIVITIES, INCLUDING LANDSCAPE DEVELOPMENT AREAS, OF RUBBISH, WASTE MATERIALS, LITTER AND FOREIGN SUBSTANCES. SWEEP PAVED AREAS BROOM CLEAN. REMOVE PETRO-CHEMICAL SPILLS, STAINS AND OTHER FOREIGN DEPOSITS, RAKE GROUNDS THAT ARE NEITHER PLANTED NOR PAVED, TO A SMOOTH EVEN-TEXTURED SURFACE.
   b. REMOVE TOOLS, CONSTRUCTION EQUIPMENT, MACHINERY AND SURPLUS MATERIAL FROM THE SITE
   c. REMOVE SNOW AND ICE TO PROVIDE SAFE ACCESS TO THE SITE AND EQUIPMENT ENCLOSURE.
   d. CLEAN EXPOSED EXTERIOR AND INTERIOR HARD-SURFACED FINISHES TO A DIRT-FREE CONDITION, FREE OF STAINS, FILMS AND SIMILAR FOREIGN SUBSTANCES. AVOID DISTURBING NATURAL WEATHERING OF EXTERIOR SURFACES.
   e. REMOVE DEBRIS FROM LIMITED ACCESS SPACES, INCLUDING ROOFS, EQUIPMENT ENCLOSURE, MANHOLES, AND SIMILAR SPACES.
   f. TOUCH-UP AND OTHERWISE REPAIR AND RESTORE MARRED EXPOSED FINISHES AND SURFACES. REPLACE FINISHES AND SURFACES THAT CAN NOT BE SATISFACTORILY REPAIRED OR RESTORED, OR THAT SHOW EVIDENCE OF REPAIR OR RESTORATION. DO NOT PAINT OVER “UL” AND SIMILAR LABELS, INCLUDING ELECTRICAL NAME PLATES.
   g. LEAVE THE PROJECT CLEAN AND READY FOR OCCUPANCY
2. REMOVAL OF PROTECTION: REMOVE TEMPORARY PROTECTION AND FACILITIES INSTALLED DURING CONSTRUCTION TO PROTECT PREVIOUSLY COMPLETED INSTALLATIONS DURING THE REMAINDER OF THE CONSTRUCTION PERIOD.

DIVISION 2: SITE WORK

SECTION 02200 - EARTHWORK AND DRAINAGE

PART 1 - GENERAL

1. WORK INCLUDED: SEE SITE PLAN.
2. SEQUENCING
   a. CONSTRUCT TEMPORARY CONSTRUCTION AREA ALONG EAST FENCE LINE.
   b. GRADE, SEED, FERTILIZE, AND MULCH ALL AREAS DISTURBED BY CONSTRUCTION (INCLUDING UNDERGROUND UTILITY EASEMENTS) IMMEDIATELY AFTER BRINGING LEASE AREA AND ACCESS DRIVE W/ TURNAROUND TO BASE COURSE ELEVATION, WATER TO ENSURE GROWTH

PART 2 - EXECUTION

1. INSPECTIONS: LOCAL BUILDING INSPECTORS SHALL BE NOTIFIED NO LESS THAN 48 HOURS IN ADVANCE OF CONCRETE POURS, UNLESS OTHERWISE SPECIFIED BY JURISDICTION.
2. PREPARATION
   a. CLEAR TREES, BRUSH AND DEBRIS FROM SITE AS REQUIRED.
   b. PRIOR TO OTHER EXCAVATION AND CONSTRUCTION, GRUB ORGANIC MATERIAL TO A MINIMUM OF SIX INCHES (6”) BELOW GRADE.
   c. UNLESS OTHERWISE INSTRUCTED BY OWNER, TRANSPORT ALL REMOVED TREES, BRUSH AND DEBRIS FROM THE PROPERTY TO AN AUTHORIZED LANDFILL.
   d. PRIOR TO PLACEMENT OF FILL OR BASE MATERIALS, ROLL THE SOIL.
   e. WHERE UNSTABLE SOIL CONDITIONS ARE ENCOUNTERED, LINE THE AREAS WITH STABILIZER MAT PRIOR TO PLACEMENT OF FILL OR BASE MATERIAL.
3. INSTALLATION
   a. GRADE OR FILL THE SITE AS REQUIRED IN ORDER THAT UPON DISTRIBUTION OF SOILS, RESULTING FROM EXCAVATIONS, THE RESULTING GRADE WILL CORRESPOND WITH SAID SUB-BASE COURSE. ELEVATIONS ARE TO BE CALCULATED FROM BENCHMARK, FINISHED GRADES, OR INDICATED SLOPES.
   b. CLEAR EXCESS SPOILS, IF ANY, FROM JOB SITE AND DO NOT SPREAD BEYOND THE LIMITS OF PROJECT AREA UNLESS AUTHORIZED BY PROJECT MANAGER AND AGREED TO BY LANDOWNER.
   c. AVOID CREATING DEPRESSIONS WHERE WATER MAY POND.
   d. THE CONTRACT SHALL INCLUDE GRADING, BANKING, AND DITCHING, UNLESS OTHERWISE INDICATED.
   e. PLACE FILL OR STONE IN SIX INCH (6”) MAXIMUM LIFTS, AND COMPACT BEFORE PLACING NEXT LIFT.
   f. THE TOP SURFACE COURSE, SHALL EXTEND A MINIMUM OF ONE FOOT (1') BEYOND THE SITE FENCE (UNLESS OTHERWISE NOTED) AND SHALL COVER THE AREA AS INDICATED.
   g. APPLY SEED, FERTILIZER, AND STRAW COVER TO ALL OTHER DISTURBED AREAS, DITCHES, AND DRAINAGE SWALES, NOT OTHERWISE RIPRAP.
   h. UNDER NO CIRCUMSTANCES WILL DITCHES, SWALES, OR CULVERTS BE PLACED SO THAT THEY DIRECT WATER TOWARDS, OR PERMIT STANDING WATER IMMEDIATELY ADJACENT TO SHELTER OR EQUIPMENT. IF DESIGNS OR ELEVATIONS ARE IN CONFLICT WITH THIS, ADVISE CONSTRUCTION MANAGER IMMEDIATELY.
   i. APPLY SEED, FERTILIZER, AND STRAW COVER TO ALL OTHER DISTURBED AREAS, DITCHES, AND DRAINAGE SWALES, NOT OTHERWISE RIPRAP.
   j.
   k. IN DITCHES WITH SLOPES GREATER THAN 10% MOUND DIVERSIONARY HEADWALLS IN THE DITCH AT CULVERT ENTRANCES. POSITION THE HEADWALL AT AN ANGLE NO GREATER THAN THAT 60° OFF THE DITCH LINE. RIPRAP THE UPSTREAM SIDE OF THE HEADWALL AS WELL AS THE DITCH FOR SIX FEET (6') ABOVE THE CULVERT ENTRANCE.
   l. APPLY SEED AND FERTILIZER TO SURFACE CONDITIONS WHICH WILL ENCOURAGE ROOTING. RAKE AREAS TO BE SEEDED TO EVEN THE SURFACE AND LOOSEN THE SOIL.
   m. SOW SEED IN TWO DIRECTIONS IN TWICE THE QUANTITY RECOMMENDED BY THE SEED PRODUCER.
   n. ENSURE GROWTH OF SEEDED AND LANDSCAPED AREAS, BY WATERING, UP TO THE POINT OF RELEASE FROM THE CONTRACT. CONTINUE TO REWORK THE BARE AREAS UNTIL COMPLETE COVERAGE IS OBTAINED.
4. FIELD QUALITY CONTROL: COMPACT SOILS TO MAXIMUM DENSITY IN ACCORDANCE WITH ASTM D-1557. AREAS OF SETTLEMENT WILL BE EXCAVATED AND REFILLED AT CONTRACTOR'S EXPENSE. INDICATE PERCENTAGE OF COMPACTION ACHIEVED ON AS-BUILT DRAWINGS.
5. PROTECTION
   a. PROTECT SEEDED AREAS FROM EROSION BY SPREADING STRAW TO A UNIFORM LOOSE DEPTH OF 1-2 INCHES, STAKE AND TIE DOWN AS REQUIRED. USE OF EROSION CONTROL MESH OR MULCH NET WILL BE AN ACCEPTABLE ALTERNATIVE.
   b. PROTECT ALL EXPOSED AREAS AGAINST WASHOUTS AND SOIL EROSION. PLACE STRAW BALES AT THE INLET APPROACH TO ALL NEW OR EXISTING CULVERTS. WHERE THE SITE OR ROAD AREAS HAVE BEEN ELEVATED IMMEDIATELY ADJACENT TO THE RAIL LINE, STAKE EROSION CONTROL FABRIC FULL LENGTH IN THE SWALE TO PREVENT CONTAMINATION OF THE RAIL BALLAST. ALL EROSION CONTROL METHODS SHALL CONFORM TO APPLICABLE BUILDING CODE REQUIREMENTS.

SECTION 02830 - FENCING AND GATE(S)

PART 1 - GENERAL

1. WORK INCLUDED - SEE PLAN FOR SITE AND LOCATION OF FENCE
2. QUALITY ASSURANCE
   a. ALL STEEL MATERIALS UTILIZED IN CONJUNCTION WITH THIS SPECIFICATION WILL BE GALVANIZED OR STAINLESS STEEL. WEIGHT OF ZINC COATING ON THE FABRIC SHALL NOT BE LESS THAN 12 OUNCES PER SQUARE FOOT OF MATERIAL COVERED. POSTS SHALL BE HOT-DIPPED IN GRADE “E” ZINC, 18 OUNCES PER SQUARE FOOT.
3. SEQUENCING
   a. IF THE SITE AREA HAS BEEN BROUGHT UP TO SURFACE COURSE ELEVATION (PRIOR TO THE FENCE CONSTRUCTION), FENCE POST EXCAVATION SPOILS MUST BE CONTROLLED TO PRECLUDE CONTAMINATION OF SAID SURFACE COURSE.
4. SUBMITTALS
   a. MANUFACTURER'S DESCRIPTIVE LITERATURE.
   b. CERTIFICATE OR STATEMENT OF COMPLIANCE WITH THE SPECIFICATIONS.

PART 2 - PRODUCTS

1. FENCE MATERIAL
   a. ALL FABRIC WIRE, RAILS, HARDWARE, AND OTHER STEEL MATERIALS SHALL BE HOT-DIPPED GALVANIZED.
   b. FABRIC SHALL BE SEVEN-FOOT (7') HIGH OR TO MATCH EXISTING FENCE TWO-INCH CHAIN LINK MESH OF NO. 9 GAUGE (0.148”) WIRE. THE FABRIC SHALL HAVE A KNUCKLED FINISH FOR THE TOP SELVAGES. FABRIC SHALL CONFORM TO THE SPECIFICATIONS OF ASTM A-392 CLASS 1.
   c. ALL POSTS SHALL BE SCHEDULE - 40 MECHANICAL SERVICE PIPE AND SHALL BE TYPE 1 ASTM A-128 AND OF THE FOLLOWING DIAMETER
      i. LINE 2” SCHEDULE 40 (2 3/8” O.D.)
      ii. CORNER 3” SCHEDULE 40 (3 1/2” O.D.)
      iii. GATE 3” SCHEDULE 40 (3 1/2” O.D.)
   d. ALL TOP AND BRACE RAILS SHALL BE 1" DIAMETER SCHEDULE - 40 MECHANICAL - SERVICE PIPE.
   e. GATE FRAMES AND BRACES SHALL BE 1.90 INCH DIAMETER SCHEDULE 40 MECHANICAL - SERVICE PIPE. FRAMES SHALL HAVE WELDED CORNERS.
   f. GATE FRAMES SHALL HAVE A FULL-HEIGHT VERTICAL BRACE, AND A FULL-WIDTH HORIZONTAL BRACE, SECURED IN PLACE BY USE OF GATE BRACE CLAMPS.
   g. GATE HINGES SHALL BE MERCHANTS METAL MODEL 64386 HINGE ADAPTER WITH MODEL 6409, 188-DEGREE ATTACHMENT.
   h. A NO. 7 GAUGE ZINC COATED TENSION WIRE SHALL BE USED AT THE BOTTOM OF THE FABRIC, TERMINATED WITH BAND CLIPS AT CORNER AND GATE POSTS.
   i. A SIX-INCH BY 1/2-INCH DIAMETER EYEBOLT TO HOLD TENSION WIRE SHALL BE PLACED AT LINE POSTS.
   j. STRETCHER BARS SHALL BE 3/16-INCH BY 3/4-INCH OR HAVE EQUIVALENT CROSS-SECTIONAL AREA.
   k. ALL CORNER GATE AND PANELS SHALL HAVE A 3/8-INCH TRUSS ROD WITH TURNBUCKLES.
   l. ALL POST EXCEPT GATE POSTS SHALL HAVE A COMBINATION CAP AND BARBED WIRE SUPPORTING ARM. GATE POSTS SHALL HAVE A DOME CAP.
   m. OTHER HARDWARE INCLUDES BUT MAY NOT BE LIMITED TO TIE CLIPS, BAND CLIPS, AND TENSION BAND CLIPS.
   n. ALL CAPS SHALL BE MALLEABLE IRON, DOME OR ACORN SHAPED AS REQUIRED BY PIPE SIZE.

PART 3 - EXECUTION

1. INSPECTION: TO CONFIRM PROPER DEPTH AND DIAMETER OF POST HOLE EXCAVATIONS. ALL POST HOLES WILL BE EXCAVATED AS PER CONSTRUCTION DOCUMENTS,
2. INSTALLATION
   a. FOUNDATIONS SHALL HAVE A MINIMUM SIX INCH (6”) CONCRETE COVER UNDER POST.
   b. ALL FENCE POSTS SHALL BE VERTICALLY PLUMB; ON QUARTER INCH (1/4”)
   c. AT CORNER POSTS, GATE POSTS, AND SIDES OF GATE FRAME, FABRIC SHALL BE ATTACHED WITH STRETCHER AND TENSION BAND-CLIPS AT FIFTEEN (15) INCH INTERVALS.
   d. AT LINE POSTS, FABRIC SHALL BE ATTACHED WITH BAND-CLIPS AT FIFTEEN (15) INCH INTERVALS.
   e. FABRIC SHALL BE ATTACHED TO BRACE RAILS, TENSION WIRE AND TRUSS RODS WITH TIE-CLIPS AT TWO FOOT (2') INTERVALS.
   f. A MAXIMUM GAP OF ONE INCH WILL BE PERMITTED BETWEEN TIE CHAIN LINE FABRIC AND THE FINAL GRADE.
   g. GATE SHALL BE INSTALLED SO LOCKS ARE ACCESSIBLE FROM BOTH SIDES.
   h. GATE HINGE BOLTS SHALL HAVE THEIR THREADS PEENED OR WELDED TO PREVENT UNAUTHORIZED REMOVAL.
   i. CONCRETE TO BE A MINIMUM OF 4,000 PSI AT 7 DAYS. CEMENT SHALL EXCEED ASTM C150, TYPE IIIA.
3. PROTECTION: UPON COMPLETION OF ERECTION, INSPECT FENCE MATERIAL AND PAINT FIELD CUTS OR GALVANIZING BREAKS WITH ZINC-BASED PAINT, COLOR TO MATCH THE GALVANIZED METAL. APPLICABLE STANDARDS:

ASTM-A120	SPECIFICATION FOR PIPE, STEEL, BLACK AND HOT-DIPPED ZINC COATED (GALVANIZED) WELDED AND SEAMLESS, FOR ORDINARY USES.
ASTM-A123	ZINC (HOT-DIP GALVANIZED) COATING ON IRON AND STEEL PRODUCTS.
ASTM-A153	STANDARD SPECIFICATION FOR ZINC COATING (HOT-DIP) ON IRON AND STEEL HARDWARE.
ASTM-A392	SPECIFICATION FOR ZINC-COATED STEEL CHAIN LINK FENCE FABRIC.
ASTM-A491	SPECIFICATION FOR ALUMINUM-COATED STEEL CHAIN LINK FENCE FABRIC
ASTM-A525	STANDARD SPECIFICATION FOR STEEL SHEET ZINC COATED (GALVANIZED) BY THE HOT-DIPPED PROCESS.
ASTM-A570	SPECIFICATION FOR HOT-ROLLED CARBON STEEL SHEET AND STRIP. STRUCTURAL QUALITY.

A. FEDERAL SPECIFICATION RR-F-191-FENCING, WIRE AND POST METAL (AND GATES, CHAIN LINK FENCE FABRIC, AND ACCESSORIES)

DIVISION 3: CONCRETE

SECTION 03000 - BASIC CONCRETE MATERIALS AND METHODS

PART 1 - GENERAL

1. WORK INCLUDED: FORMWORK, REINFORCEMENT, ACCESSORIES, CAST-IN-PLACE CONCRETE, FINISHING, AND CURING.
2. INSPECTIONS
   a. CONTRACTOR IS RESPONSIBLE FOR SCHEDULING BUILDING DEPARTMENT INSPECTIONS REQUIRED FOR HIS SCOPE OF WORK.
   b. ALL REINFORCING STEEL SHALL BE INSPECTED AND APPROVED BY THE LESSEE'S CONSTRUCTION MANAGER PRIOR TO PLACEMENT OF CONCRETE.
   c. THE LESSEE'S CONSTRUCTION MANAGER SHALL BE NOTIFIED NO LESS THAN 48 HOURS IN ADVANCE OF CONCRETE POURS.
3. QUALITY ASSURANCE
   a. CONSTRUCT AND ERECT CONCRETE FORMWORK IN ACCORDANCE WITH ACI 301 AND ASTM 318.
   b. PERFORM CONCRETE REINFORCING WORK IN ACCORDANCE WITH ACI 301, ACI 318, AND ASTM A184.
   c. PERFORM CAST-IN-PLACE CONCRETE WORK IN ACCORDANCE WITH ACI 301, ACI 318, AND ACI 117-90.
   d. OPEN FOUNDATION TRENCHES SHALL BE INSPECTED BY MES PRIOR TO CONCRETE INSTALLATION.
4. SUBMITTALS: SUBMIT CONCRETE MIX AND REINFORCING STEEL SHOP DRAWINGS FOR APPROVAL BY LESSEE CONSTRUCTION MANAGER/ENGINEER. THE SHOP DRAWING SHALL BE SUBMITTED IN THE FORM OF TWO (2) CONCRETE MIX DESIGN INFORMATION SHEETS AND TWO (2) BLUELINE DRAWINGS FOR REINFORCING STEEL.

PART 2 - PRODUCTS

1. REINFORCEMENT MATERIALS
   a. REINFORCEMENT STEEL, ASTM A615, 60 ksi YIELD GRADE, DEFORMED BILLET STEEL BARS, PLAIN FINISH.
   b. WELDED STEEL WIRE FABRIC ASTM A185 PLAIN TYPE IN FLAT SHEETS, PLAIN FINISH.
   c. CHAIRS, BOLSTERS, BAR SUPPORTS, SPACERS. SIZED AND SHAPED FOR SUPPORTS OR REINFORCING.
   d. FABRICATE CONCRETE REINFORCING IN ACCORDANCE WITH ACI 315, ACI 318, ASTM A184.
2. CONCRETE MATERIALS
   a. CEMENT: ASTM C150, PORTLAND TYPE
   b. FINE AND COURSE AGGREGATES: ASTM C33 - MAXIMUM SIZE OF CONCRETE AGGREGATE SHALL NOT EXCEED; ONE INCH (1”) SIZE SUITABLE FOR INSTALLATION METHOD UTILIZED OR ONE-THIRD (1/3) CLEAR DISTANCE BEHIND OR BETWEEN REINFORCING.
   c. WATER: CLEAN AND NOT DETRIMENTAL TO CONCRETE
   d. AIR ENTRAINING ADMIXTURE: ASTM C260
   e. BONDING AGENT: LATEX EMULSION FOR BONDING NEW TO OLD CONCRETE AS MANUFACTURED BY DAYTON SUPERIOR.
   f. NON-SHRINK GROUT: PREMIXED COMPOUND CONSISTING OF NONMETALLIC AGGREGATE. CEMENT, WATER REDUCING AND PLASTICISING AGENTS.
3. CONCRETE MIX
   a. CONCRETE MATERIALS SHALL CONFORM TO THE APPROPRIATE A.C.I. REQUIREMENTS FOR EXPOSED STRUCTURAL CONCRETE.
   b. MIX AND DELIVER CONCRETE IN ACCORDANCE WITH ASTM C94, ALT. 3.
   c. PROPORTIONS OF CONCRETE MATERIALS SHALL BE SUITABLE FOR THE INSTALLATION METHOD UTILIZED AND SHALL RESULT IN DURABLE CONCRETE FOR LOCAL ANTICIPATED AGGRESSIVE ACTIONS. THE DURABILITY REQUIREMENTS OF ACI 318 CHAPTER 4 SHALL BE SATISFIED BASED ON THE CONDITIONS EXPECTED AT THE SITE. PROVIDE CONCRETE AS FOLLOWS:
      i. COMPRESSIVE STRENGTH: 4000 psi AT 7 DAYS. SEE SHEET 2-1 FOR CAISSON CONCRETE COMPRESSIVE STRENGTH.
      ii. SLUMP: 3 INCHES

PART 3 - EXECUTION

1. INSERTS, EMBEDDED COMPONENTS AND OPENINGS
   a. THE CONSTRACTOR SHALL COORDINATE AND CROSS-CHECK ARCHITECTURAL, BUILDING & ELECTRICAL DRAWINGS FOR OPENINGS, SLEEVES, ANCHORS, HANGERS, AND OTHER ITEMS RELATED TO CONCRETE WORK AND SHALL ASSUME FULL RESPONSIBILITY FOR THE PROPER LOCATION BEFORE PLACING CONCRETE.
   b. PROVIDE FORMED OPENINGS WHERE REQUIRED FOR WORK TO BE EMBEDDED IN AND PASSING THROUGH CONCRETE MEMBERS.
   c. COORDINATE WORK OF OTHER SECTIONS IN FORMING AND SETTING OPENING, SLOTS, RECESSES, CHASES, SLEEVES, BOLTS, ANCHORS, AND OTHER INSERTS.
   d. INSTALL CONRETE ACCESSORIES STRAIGHT, LEVEL AND PLUMB.
2. REINFORCEMENT PLACEMENT
   a. PLACEMENT REINFORCEMENT, SUPPORTED AND SECURED AGAINST DISPLACEMENT.
   b. ENSURE REINFORCING IS CLEAN, FREE OF LOOSE SCALE, DIRT, OR OTHER FOREIGN COATINGS.
   c. WELDING IS PROHIBITED ON REINFORCING STEEL AND EMBEDMENTS.
   d. MINIMUM CONCRETE COVER FOR REINFORCING SHALL BE THREE INCHES (3”) UNLESS OTHERWISE NOTED.
   e. CONCRETE COVER FROM TOP OF FOUNDATION TO ENDS OF VERTICAL REINFORCEMENT SHALL NOT EXCEED THREE INCHES (3”) NOR BE LESS THAN TWO INCHES (2”).
3. PLACING CONCRETE
   a. VIBRATE ALL CONCRETE.
   b. ALL CONCRETE WORK SHALL ADHERE TO THE LATEST A.C.I. STANDARDS FOR WINTER POURING AND CURING PROCECURES IF SEASONAL CONDITIONS APPLY.
4. CURING
   a. AFTER PLACEMENT, PROTECT CONCRETE FROM PREMATURE DRYING.
   b. MAINTAIN CONCRETE WITH MINIMAL MOISTURE LOSS AT RELATIVELY CONSTANT TEMPERATURE FOR A PERIOD NECESSARY FOR HYDRATION OF CEMENT AND HARDENING OF CONCRETE.
5. PROVIDE HAND RUBBED SMOOTH FINISH TO ALL EXPOSED VERTICAL FORMED CONCRETE SURFACES.
6. FIELD QUALITY CONTROL
   a. SUBMIT THREE (3) CONCRETE TEST CYLINDERS - TAKEN FOR EVERY 15 CUBIC YARD OR LESS. SUBMIT CONCRETE TESTS TO THE PROJECT MANAGER IN ACCORDANCE WITH ASTM, C-31 AND C-39.
   b. SUBMIT ONE (1) ADDITIONAL TEST CYLINDER - TAKEN DURING COLD WEATHER POURS, AND CURED ON JOB SITE UNDER SAME CONDITIONS AS CONCRETE IT REPRESENTS.
   c. SUBMIT ONE (1) SLUMP TEST - TAKEN FOR EACH SET OF TEST CYLINDERS TAKEN.
7. DEFECTIVE CONCRETE: MODIFY OR REPLACE CONCRETE NOT CONFORMING TO REQUIRED LINES, DETAILS OR ELEVATIONS AT COST OF GC, AS DIRECTED BY ARCHITECT/ENGINEER.

verizon
1701 GOLF ROAD,
TOWER 2, SUITE 400
ROLLING MEADOWS, IL 60008
PHONE: (847) 619-5397
FAX: (847) 706-7415

TERRA CONSULTING GROUP, LTD
600 BUSSE HIGHWAY
PARK RIDGE, IL 60068
PH: 847-698-6400
FAX: 847-698-6401

REVISIONS

NO.	DESCRIPTION	DATE	BY
-	ISSUED FOR REVIEW	05/16/23	TJS
0	ISSUED FOR FINAL	06/16/23	APD
1	REVISED PER RF COMMENTS	07/05/23	TJS
2	ISSUED FOR REVIEW	08/15/23	JJR
3	REVISED PER LANDLORDS COMMENTS	10/25/23	JJR
4	REVISED PER NEW RFDS	11/17/23	JJR
5	ADDITION OF NORTHEAST ELEVATION	01/02/24	JJR

LOC. #766005

RAND & 53_RELO

MDG LOC. # 5000916957

1500 W SHURE DR
ARLINGTON HEIGHTS, IL 60004

DRAWN BY:	TJS
CHECKED BY:	DSS
DATE:	05/15/23
PROJECT #:	33-3608

SHEET TITLE

SPECIFICATIONS

SHEET NUMBER

SP-1

DIVISION 5: METALS

SECTION 05000 – METALS

PART 1 – GENERAL

1. SECTION INCLUDES:
   STRUCTURAL STEEL FRAMING MEMBERS, BASE PLATES, PLATES, BARS AND GROUTING UNDER BASE PLATES.
2. SUBMITTALS:
   SHOP DRAWINGS: INDICATE SIZES, SPACING, AND LOCATIONS OF STRUCTURAL MEMBERS, OPENINGS, CONNECTIONS, CAMBERS, LOADS, AND WELDED SECTIONS.
3. QUALITY ASSURANCE
   A. FABRICATE STRUCTURAL STEEL MEMBERS IN ACCORDANCE WITH AISC SPECIFICATIONS FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS.
   B. PERFORM DESIGN UNDER DIRECT SUPERVISION OF A PROFESSIONAL STRUCTURAL ENGINEER LICENSED IN THE STATE.

PART 2 – PRODUCTS

1. MATERIALS:

A.	STRUCTURAL STEEL MEMBERS:	ASTM A572, GRADE 50
B.	STRUCTURAL TUBING:	ASTM A500, GRADE B
C.	PIPE:	ASTM A53, TYPE E OR S, GRADE B
D.	BOLTS, NUTS, AND WASHERS:	ASTM A325
E.	ANCHOR BOLTS:	ASTM A307
F.	WELDING MATERIALS:	AWS D1.1, TYPE REQUIRED FOR MATERIALS BEING WELDED
G.	GROUT:	NON–SHRINK TYPE, PREMIXED COMPOUND CONSISTING OF NONMETALLIC AGGREGATE, CEMENT, WATER REDUCING AND PLASTICIZING ADDITIVES, CAPABLE OF DEVELOPING A MINIMUM COMPRESSIVE STRENGTH OF 7000 psi AT 28 DAYS.
H.	SHOP AND TOUCH–UP PRIMER:	SSPC 15, TYPE 1, RED OXIDE
I.	TOUCH–UP PRIMER FOR GALV. SURFACES:	ZINC RICH TYPE

2. FABRICATION:
   CONTINUOUSLY SEAL JOINTED MEMBERS BY CONTINUOUS WELDS. GRIND EXPOSED WELDS SMOOTH.
3. FINISH:
   A. PREPARE STRUCTURAL COMPONENT SURFACES IN ACCORDANCE WITH SSPC SP–1 TO SP–10 PROCEDURES.
   B. STRUCTURAL STEEL MEMBERS SHALL BE HOT DIPPED GALVANIZED.

PART 3 – EXECUTION

1. EXAMINATION AND PREPARATION:
   VERIFY THAT THE FIELD CONDITIONS ARE ACCEPTABLE.
2. ERECTION:
   A. ALLOW FOR ERECTION LOADS. PROVIDE TEMPORARY BRACING TO MAINTAIN FRAMING IN ALIGNMENT UNTIL COMPLETION OF ERECTION AND INSTALLATION OF PERMANENT BRIDGING AND BRACING.
   B. FIELD WELD COMPONENTS INDICATED ON SHOP DRAWINGS.
   C. DO NOT FIELD CUT OR ALTER STRUCTURAL MEMBERS WITHOUT APPROVAL OF THE ARCHITECT/ENGINEER.
   D. AFTER ERECTION, TOUCH–UP WELDS, ABRASIONS, AND SURFACES NOT SHOP PRIMED OR GALVANIZED WITH TOUCH–UP PRIMERS AS SPECIFIED UNDER SECTION 05000,–METALS, PART 2 – PRODUCTS, H & I. SURFACES TO BE IN CONTACT WITH CONCRETE NOT INCLUDED.
3. FIELD QUALITY CONTROL:
   FIELD INSPECTION OF MEMBERS, CONNECTIONS, WELDS AND TORQUING.

DIVISION 16: ELECTRICAL

SECTION 16050 – BASIC ELECTRICAL MATERIALS AND METHODS

1. CONTRACTOR SHALL REVIEW THE CONTRACT DOCUMENTS PRIOR TO ORDERING THE ELECTRICAL EQUIPMENT AND STARTING THE ACTUAL CONSTRUCTION. CONTRACTOR SHALL ISSUE A WRITTEN NOTICE OF ALL FINDINGS TO THE ARCHITECT LISTING ANY DISCREPANCIES OR CONFLICTING INFORMATION.
2. ELECTRICAL PLANS, DETAILS AND DIAGRAMS ARE DIAGRAMMATIC ONLY. VERIFY EXACT LOCATIONS AND MOUNTING HEIGHTS OF ELECTRICAL EQUIPMENT WITH OWNER PRIOR TO INSTALLATION.
3. EACH CONDUCTOR OF EVERY SYSTEM SHALL BE PERMANENTLY TAGGED IN EACH PANELBOARD, PULLBOX, JUNCTION BOX, SWITCH BOX, ETC. THE TYPE OF TAGGING METHODS SHALL BE IN COMPLIANCE WITH OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (O.S.H.A.).
4. ALL MATERIALS AND EQUIPMENT SHALL BE NEW AND IN GOOD WORKING CONDITION WHEN INSTALLED AND SHALL BE OF THE BEST GRADE AND OF THE SAME MANUFACTURER THROUGHOUT FOR EACH CLASS OR GROUP OF EQUIPMENT. MATERIALS SHALL BE LISTED "J" WHERE APPLICABLE. MATERIALS SHALL MEET WITH APPROVAL OF ALL GOVERNING BODIES HAVING JURISDICTION. MATERIALS SHALL BE MANUFACTURED IN ACCORDANCE WITH APPLICABLE STANDARDS ESTABLISHED BY ANSI, NEMA, NBFU AND "UL" LISTED.
5. ALL CONDUIT SHALL HAVE A PULL CORD.
6. PROVIDE PROJECT MANAGER WITH ONE SET OF COMPLETE ELECTRICAL "AS INSTALLED" DRAWINGS AT THE COMPLETION OF THE JOB, SHOWING ACTUAL DIMENSIONS, ROUTINGS, AND CIRCUITS.
7. ALL CIRCUIT BREAKERS, FUSES AND ELECTRICAL EQUIPMENT SHALL HAVE AN INTERRUPTING SHORT CIRCUIT CURRENT TO WHICH THEY MAY BE SUBJECTED, AND A MINIMUM OF 10,000 A.I.C.
8. THE ENTIRE ELECTRICAL INSTALLATION SHALL BE GROUNDED AS REQUIRED BY UBC, NEC AND ALL APPLICABLE CODES.
9. PATCH, REPAIR AND PAINT ANY AREA THAT HAS BEEN DAMAGED IN THE COURSE OF THE ELECTRICAL WORK.
10. PLASTIC PLATES FOR ALL SWITCHES, RECEPTACLES, TELEPHONE AND BLANKED OUTLETS SHALL HAVE ENGRAVED LETTERING WHERE INDICATED ON THE DRAWINGS. WEATHERPROOF RECEPTACLES SHALL HAVE SIERRA #WPD–8 LIFT COVERPLATES.

SECTION 16400 – SERVICE AND DISTRIBUTION

1. WIRE AND CABLE CONDUCTORS SHALL BE COPPER, 600V, TYPE THHN OR THWN, WITH A MIN. SIZE OF #12 AWG, COLOR CODED. ALL RECTIFIER DROPS SHALL BE STRANDED TO ACCEPT CRIMP CONNECTORS.
2. ALL CHEMICAL GROUND RODS SHALL BE "UL" APPROVED.
3. METER SOCKET AMPERES, VOLTAGE, NUMBER OF PHASES SHALL BE AS NOTED ON THE DRAWINGS. MANUFACTURED BY MILBANK OR APPROVED EQUAL, AND SHALL BE UTILITY COMPANY APPROVED.
4. CONDUIT:
   A. RIGID CONDUIT SHALL BE U.L. LABEL GALVANIZED ZINC COATED WITH GALVANIZED ZINC INTERIOR AND SHALL BE USED WHEN INSTALLED IN OR UNDER CONCRETE SLABS, IN CONTACT WITH THE EARTH, UNDER PUBLIC ROADWAYS, IN MASONRY WALLS OR EXPOSED ON BUILDING EXTERIOR. RIGID CONDUIT IN CONTACT WITH EARTH SHALL BE 1/2 LAPPED WRAPPED WITH HUNTS WRAP PROCESS NO. 3.
   B. ELECTRICAL METALLIC TUBING SHALL HAVE U.L. LABEL, FITTING SHALL BE GLAND RING COMPRESSION TYPE.
   C. FLEXIBLE METALLIC CONDUIT SHALL HAVE U.L. LISTED LABEL AND MAY BE USED WHERE PERMITTED BY CODE. FITTINGS SHALL BE "JAKE" OR "SQUEEZE" TYPE. ALL FLEXIBLE CONDUITS SHALL HAVE FULL LENGTH GROUND WIRE.
   D. ALL UNDERGROUND CONDUIT SHALL BE AS NOTED ON THE DRAWINGS AT A MINIMUM DEPTH OF 42" BELOW GRADE. IT IS REQUIRED AND WILL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR TO NOTIFY J.U.L.I.E. AT 1–800–892–0123 OR OTHER SUCH NOTIFYING AGENCY FORTY–EIGHT (48) HOURS PRIOR TO DIGGING.
5. CONTRACTOR TO COORDINATE WITH UTILITY COMPANY FOR CONNECTION OF TEMPORARY AND PERMANENT POWER TO THE SITE. THE TEMPORARY POWER AND ALL HOOKUP COSTS ARE TO BE PAID BY THE CONTRACTOR.
6. ALL ELECTRICAL EQUIPMENT SHALL BE LABELED WITH PERMANENT ENGRAVED PLASTIC LABELS WITH WHITE ON BLUE BACKGROUND LETTERING (MINIMUM LETTER HEIGHT SHALL BE ONE FORTH INCH (1/4"). NAMEPLATES SHALL BE FASTENED WITH STAINLESS STEEL SCREWS, NOT ADHESIVE.
7. UPON COMPLETION OF WORK, CONDUCT CONTINUITY, SHORT CIRCUIT, AND FALL POTENTIAL GROUNDING TESTS BY AN INDEPENDENT TESTING SERVICE ENGAGED BY THE CONTRACTOR SHALL BE SUBMITTED FOR APPROVAL. SUBMIT TEST REPORTS TO PROJECT MANAGER. CLEAN PREMISES OF ALL DEBRIS RESULTING FROM WORK AND LEAVE WORK IN A COMPLETE AND UNDAMAGED CONDITION.
8. GROUNDING ELECTRODE SYSTEM
   A. PREPARATION
      1. SURFACE PREPARATION:
         ALL CONNECTIONS SHALL BE MADE TO BARE METAL. ALL PAINTED SURFACES SHALL BE FIELD INSPECTED AND MODIFIED TO ENSURE PROPER CONTACT. NO WASHERS ARE ALLOWED BETWEEN THE ITEMS BEING GROUNDED. ALL CONNECTIONS ARE TO HAVE A NON–OXIDIZING AGENT APPLIED PRIOR TO INSTALLATION.
      2. GROUND BAR PREPARATION:
         ALL COPPER GROUND BARS SHALL BE CLEANED, POLISHED AND A NON–OXIDIZING AGENT APPLIED. NO FINGERPRINTS OR DISCOLORED COPPER WILL BE PERMITTED.
      3. SLEEVES:
         ALL GROUNDING CONDUCTORS SHALL RUN THROUGH PVC SLEEVES WHEREVER CONDUCTORS RUN THROUGH WALLS, FLOORS OR CEILINGS. IF CONDUCTORS MUST RUN THROUGH EMT, BOTH ENDS OF CONDUIT SHALL BE GROUNDED. SEAL BOTH ENDS OF CONDUIT WITH SILICONE CAULK.

B. GROUND BARS

1. ALL GROUND BARS SHALL BE ONE FORTH INCH (1/4") THICK TINNED COPPER PLATE AND OF SIZE INDICATED ON DRAWINGS.
2. ALL CONNECTIONS TO THE GROUND BAR SHALL OBSERVE THE FOLLOWING SEQUENCE:
   A. BOLT–HEAD
   B. 2–HOLE LUG
   C. TINNED COPPER BUSS BAR
   D. STAR WASHER
   E. NUT

C. EXTERNAL CONNECTIONS

1. ALL BURIED GROUNDING CONNECTIONS SHALL BE MADE BY THE EXOTHERMIC WELD PROCESS. CONNECTIONS SHALL INCLUDE ALL CABLE TO CABLE, SPLICES, TEE'S, CROSSES, ETC. ALL CABLE TO GROUND RODS, GROUND ROD SPLICES AND LIGHTNING PROTECTION SYSTEMS ARE TO BE AS INDICATED. ALL MATERIALS USED (MOLDS, WELDING METAL, TOOLS, ETC.) SHALL BE BY "CADWELD" AND INSTALLED PER MANUFACTURER'S RECOMMENDED PROCEDURES.
2. ALL ABOVE GRADE GROUNDING AND BONDING CONDUCTORS SHALL BE CONNECTED BY TWO HOLE CRIMP TYPE (COMPRESSION) CONNECTIONS (EXCEPT FOR THE ACEG AND GROUND ROD) MECHANICAL CONNECTIONS, FITTINGS OR CONNECTIONS THAT DEPEND SOLELY ON SOLDER SHALL NOT BE USED. ALL CABLE TO CABLE CONNECTIONS SHALL BE HIGH PRESSURE DOUBLE CRIMP TYPE CONNECTIONS. CONNECTIONS TO STRUCTURAL STEEL SHALL BE EXOTHERMIC WELDS.

D. GROUND RODS

ALL GROUND RODS SHALL BE 5/8–INCH DIAMETER X 10'–0" LONG "COPPERWELD" OR APPROVED EQUAL, OF THE NUMBER AND LOCATIONS INDICATED. GROUND RODS SHALL BE DRIVEN FULL LENGTH VERTICAL IN UNDISTURBED EARTH.

E. GROUND CONDUCTORS

ALL GROUND CONDUCTORS SHALL BE STANDARD TINNED SOLID BARE COPPER ANNEALED, AND OF SIZE INDICATED ON DRAWINGS UNLESS NOTED OTHERWISE.

F. LUGS

1. LUGS SHALL BE 2–HOLE, LONG BARREL, STRAND COPPER UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS. LUGS SHALL BE THOMAS AND BETTS SERIES #548_ _BE OR EQUIVALENT

A.	535 MCM DLO	54880BE
B.	262 MCM DLO	54872BE
C.	#1/0 DLO	54862BE
D.	#4/0 THWN AND BARE	54866BE
E.	#2/0 THWN	54862BE
F.	#2 THHN	54207BE
G.	#6 DLO	54205BE

2. WHEN THE DIRECTION OF THE CONDUCTOR MUST CHANGE, IT SHALL BE DONE GRADUALLY. THE CURVATURE OF THE TURN SHALL BE DONE IN ACCORDANCE WITH THE FOLLOWING CHART:

GROUNDING CONDUCTOR SIZE	MINIMUM BENDING RADIUS TO INSIDE EDGE
NO. 6 AWG TO NO. 4 AWG	6 INCHES
NO. 2 AWG TO NO. 1/0 AWG	8 INCHES
NO. 2/0 AWG TO 4/0 MCM	12 INCHES
250 MCM TO 750 MCM	24 INCHES

G. GROUND RING

1. THE EXTERNAL GROUND RING ENCIRCLING THE TOWER (IF APPLICABLE) AND BETWEEN THE EQUIPMENT SHELTER PLATFORM ANCHORS SHALL BE MINIMUM NO. 2 A.W.G. SOLID TINNED BARE COPPER CONDUCTOR IN DIRECT CONTACT WITH THE EARTH AT THE DEPTH INDICATED ON THE DRAWINGS. CONDUCTOR BENDS SHALL HAVE A MINIMUM BENDING RADIUS OF EIGHT INCHES (8").
2. ALL EXTERNAL GROUND RINGS ARE TO BE JOINED TOGETHER AND ALL CONNECTIONS MUST BE CADWELDED. NO LUGS OR CLAMPS WILL BE ACCEPTED.

H. FENCE/GATE

GROUND EACH GATE POST, CORNER POST AND GATE AS INDICATED ON DRAWING GROUND CONNECTIONS TO FENCE POSTS AND ALL OTHER CONNECTIONS FOR THE GROUND GRID SYSTEM SHALL BE MADE BY EXOTHERMIC WELD PROCESS, AND INSTALLED PER MANUFACTURER'S RECOMMENDATIONS AND PROCEDURES, AND SPRAYED WITH COLD–GALVANIZED PAINT.

9. I.E.E.E. FALL POTENTIAL TESTS

A. FOR RAW LAND SITE

1. GROUND TESTS SHALL BE PERFORMED AS INDICATED ON DRAWINGS. A BIDDLE GROUND OHMER OR THE METHOD OF USING TWO AUXILIARY GROUND RODS (AS DESCRIBED IN I.E.E.E. STANDARDS NO. 81–1983, PART 1) MAY BE USED. THE I.E.E.E. METHOD REQUIRES THE USE OF AN A.C. TEST CURRENT. THE AUXILIARY TEST RODS MUST BE SUFFICIENTLY FAR AWAY FROM THE ROD UNDER TEST SO THAT THE REGIONS IN WHICH THEIR RESISTANCE IS LOCALIZED DO NOT OVERLAP. THE TEST POINT WILL BE THE GROUND ROD AND WILL CONSIST OF THE THREE POINT FALL OF POTENTIAL MEGGER TEST METHOD, USING THE BIDDLE NULL–BALANCE EARTH TESTER (MEGGER #250220–2 OR EQUIVALENT)
2. CONTRACTOR TO CONDUCT GROUND RESISTANCE TEST IN THE FORMAT AS FOLLOWS:

B. EQUIPMENT PAD

1. FIRST TEST – SHALL BE WITH FOUR GROUND RODS INSTALLED, ONE AT EACH CORNER OF THE PAD BUT NOT CONNECTED TO THE MAIN GROUNDING BUS. FURNISH WIRE TO CONNECT (TEMPORARY CLAMP) ALL FOUR GROUND RODS TOGETHER TO MAKE A SYSTEM TEST AFTER EACH ROD IS INDIVIDUALLY TESTED. IF ANY INDIVIDUAL ROD TESTS 25 OHMS OR MORE, THE ELECTRICAL CONTRACTOR AND OWNER'S REPRESENTATIVE SHOULD BE NOTIFIED SO THAT THE ROD CAN BE DRIVEN DEEPER UNTIL ALL FOUR RODS HAVE A RESISTANCE OF 10 OHMS OR LESS ON A DRY DAY.
2. SECOND TEST – SHALL BE WITH THE GROUND RODS CONNECTED, WITH DRY SOIL AND WHEN NO STANDING WATER HAS BEEN PRESENT FOR THE PAST TEN (10) DAYS. THE MAXIMUM ALLOWABLE READING IS 5 OHMS TO GROUND. IF THE RESISTANCE OF THE ENTIRE SYSTEM EXCEEDS 5 OHMS, NOTIFY THE CONTRACTOR AND OWNER'S REPRESENTATIVE SO THAT ADDITIONAL AND/OR DEEPER RODS CAN BE INSTALLED.

C. TOWER

1. FIRST TEST – SHALL BE WITH THREE GROUND RODS INSTALLED (MINIMUM), EQUALLY SPACED AROUND THE TOWER FOUNDATION, BUT NOT CONNECTED TO THE SHELTER PAD EXTERNAL GROUND RING. FURNISH WIRE TO CONNECT (TEMPORARY CLAMP) ALL THREE GROUND RODS TOGETHER TO MAKE A SYSTEM TEST AFTER EACH ROD IS INDIVIDUALLY TESTED. IF ANY INDIVIDUAL ROD TESTS 25 OHMS OR MORE, NOTIFY THE CONTRACTOR AND OWNER'S REPRESENTATIVE SO THAT THE ROD CAN BE DRIVEN DEEPER UNTIL ALL THREE (3) RODS HAVE A RESISTANCE OF 10 OHMS OR LESS ON A DRY DAY.
2. SECOND TEST – SHALL BE WITH THE GROUND RODS CONNECTED, WITH DRY SOIL AND WHEN NO STANDING WATER HAS BEEN PRESENT FOR THE PAST TEN (10) DAYS , THE MAXIMUM ALLOWABLE READING IS 5 OHMS TO GROUND. IF THE RESISTANCE OF THE ENTIRE SYSTEM EXCEEDS 5 OHMS THE ELECTRICAL CONTRACTOR AND OWNER'S REPRESENTATIVE SHOULD BE NOTIFIED SO THAT EITHER ADDITIONAL AND/OR DEEPER RODS CAN BE INSTALLED.

D. EQUIPMENT PAD AND TOWER

1. AFTER THE EQUIPMENT PAD AND TOWER GROUND RESISTANCE TEST IS COMPLETED, CONTRACTOR SHALL TIE EQUIPMENT PAD EXTERNAL GROUND RING AND TOWER EXTERNAL GROUND RING TOGETHER. AFTER FIRST AND SECOND TEST ALL CONNECTIONS MUST BE MADE USING EXOTHERMIC WELD. NO LUGS OR CLAMPS WILL BE ACCEPTED.
2. AFTER ALL THE EXTERNAL GROUND RINGS ARE TIED TOGETHER, COMPLETE A MEGGER CHECK OF THE GROUND SYSTEM SHOULD BE DONE. THE MAXIMUM ALLOWABLE LEADING IS 5 OHMS TO GROUND.

10. GROUNDING RESISTANCE TEST REPORT

UPON COMPLETION OF THE TESTING FOR EACH SITE, A TEST REPORT SHOWING RESISTANCE IN OHMS WITH AUXILIARY POTENTIAL ELECTRODES AT 5 FEET AND 10 FEET INTERVALS UNTIL THE AVERAGE RESISTANCE STARTS INCREASING AND ALSO NOTE THAT 10–15 PHOTOS MUST BE TAKEN TO PROOF ENTIRE EXTERNAL GROUND RING SYSTEM BEFORE BACKFILL. TWO (2) SETS OF TEST DOCUMENTS ARE OF THE INDEPENDENT TESTING SERVICE TO BE BOUND AND SUBMITTED WITHIN ONE (1) WEEK OF WORK COMPLETION.

SECTION 16503 – POLES, POSTS, AND STANDARDS (SINGLE MAST AND SELF SUPPORTING TOWERS)

1. GENERAL
   A. LIGHTNING ROD AND EXTENSION PIPE INCLUDING ALL APPURTENANCES, TO BE FURNISHED BY OWNER, IF REQUIRED.
   B. PROVIDE TEMPORARY LIGHTING FOR TOWER AS PER FAA REGULATIONS DURING CONSTRUCTION, IF REQUIRED.
   C. GROUNDING:
      GROUND TOWER WITH A MINIMUM OF #2 AWG TINNED SOLID BARE COPPER CONDUCTOR CADWELDED TO TOWER BASE PLATE. TWO (2) GROUNDING LEADS PER TOWER BASE PLATE.
      NO EXOTHERMIC WELDS SHALL BE ATTACHED DIRECTLY TO THE MONOPOLE TOWER SHAFT.

SECTION 16745 – TELECOMMUNICATIONS WIRING COMPONENTS (COAXIAL ANTENNA CABLE)

1. GENERAL
   A. ALL MATERIALS, PRODUCTS OR PROCEDURES INCORPORATED INTO WORK SHALL BE NEW AND OF STANDARD COMMERCIAL QUALITY.
   B. CERTAIN MATERIALS AND PRODUCTS WILL BE SUPPLIED BY THE OWNER (REFER TO GENERAL CONDITIONS FOR THE LIST OF OWNER FURNISHED EQUIPMENT, MATERIALS AND SUPPLIES FOR THESE ITEMS). THE CONTRACTOR IS RESPONSIBLE FOR PICKUP AND DELIVERY OF ALL SUCH MATERIALS
   C. ALL OTHER MATERIALS AND PRODUCTS SPECIFIED IN THE CONTRACT DOCUMENTS SHALL BE SUPPLIED BY THE CONTRACTOR.
2. MATERIALS:
   A. COAXIAL CABLE:
      1. INSTALL COAXIAL CABLE AND TERMINATIONS BETWEEN ANTENNAS AND EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS WITH COAXIAL CABLES SUPPORTED AT NO MORE THAN 3'–0" O.C. WEATHERPROOF ALL CONNECTORS BETWEEN THE ANTENNA AND EQUIPMENT PER MANUFACTURERS' REQUIREMENTS. TERMINATE ALL COAXIAL CABLE THREE FEET (3') IN EXCESS OF EQUIPMENT LOCATION UNLESS OTHERWISE STATED.
      2. ALL COAX RUN LENGTHS GREATER THAN 175 FEET SHALL BE 1–5/8", ALL COAX. RUN LENGTH BETWEEN 101 FEET AND 174 FEET SHALL BE 1–1/4", AND IN LENGTH LESS THAN OR EQUAL TO 100 FEET SHALL BE 7/8".
3. ANTENNA AND COAXIAL CABLE GROUNDING
   A. ALL COAXIAL CABLE GROUNDING KITS ARE TO BE INSTALLED ON STRAIGHT RUNS OF COAXIAL CABLE (NOT WITHIN BENDS)
4. COAXIAL CABLE IDENTIFICATION
   A. TO PROVIDE EASY IDENTIFICATION AND UNIFORM MARKING OF ANTENNA CABLING, PLASTIC TAGS SHALL BE USED AT THE FOLLOWING LOCATIONS:
      1. FIRST LOCATION IS AT THE END OF THE COAX NEAREST THE ANTENNA (WHERE THE COAXIAL CABLE AND JUMPER ARE CONNECTED).
      2. SECOND LOCATION IS INSIDE THE EQUIPMENT SHELTER NEAR THE WAVEGUIDE ENTRY PORT.
   B. USE ANDREW CABLE TIES (PT.# 27290) TO SECURE IDENTIFICATION TAGS.
5. TESTING
   LESSEE SHALL PROVIDE AN INDEPENDENT TESTING AGENCY TO PERFORM THE COAXIAL SWEEP TEST & REPORT. THE CONTRACTOR IS TO PROVIDE ONE CLIMBER / QUALIFIED PERSONNEL TO ASSIST IN ANY REPAIRS AND WEATHERPROOFING ONCE THE TEST IS COMPLETE. THE CONTRACTOR IS TO PROVIDE LESSEE WITH A MINIMUM OF 48 HOURS NOTICE PRIOR TO THE TIME OF THE SWEEP TEST.

verizon
1701 GOLF ROAD,
TOWER 2, SUITE 400
ROLLING MEADOWS, IL 60008
PHONE: (847) 619-5397
FAX: (847) 706-7415

TERRA CONSULTING GROUP LTD
600 BUSSE HIGHWAY
PARK RIDGE, IL 60068
PH: 847-698-8400
FAX: 847-698-8401

REVISIONS

NO.	DESCRIPTION	DATE	BY
-	ISSUED FOR REVIEW	05/16/23	TJS
0	ISSUED FOR FINAL	06/16/23	APD
1	REVISED PER RF COMMENTS	07/05/23	TJS
2	ISSUED FOR REVIEW	08/15/23	JJR
3	REVISED PER LANDLORDS COMMENTS	10/25/23	JJR
4	REVISED PER NEW RFDS	11/17/23	JJR
5	ADDITION OF NORTHEAST ELEVATION	01/02/24	JJR

LOC. #766005

RAND & 53_RELO

MDG LOC. # 5000916957

1500 W SHURE DR
ARLINGTON HEIGHTS, IL 60004

DRAWN BY:	TJS
CHECKED BY:	DSS
DATE:	05/15/23
PROJECT #:	33-3608

SHEET TITLE
SPECIFICATIONS

SHEET NUMBER
SP-2

1 EXISTING BUILDING
SCALE: N.T.S.

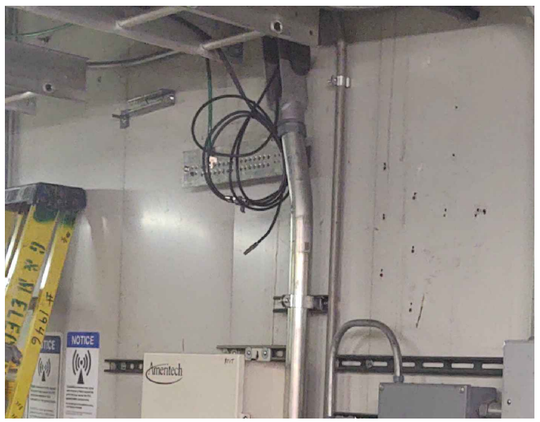
2 EXISTING METER
SCALE: N.T.S.

3 EXISTING WATER MAIN
SCALE: N.T.S.

4 EXISTING STEEL PLATFORM
SCALE: N.T.S.

5 PROPOSED CABLE ROUTE
SCALE: N.T.S.

6 EXISTING DISCONNECT
SCALE: N.T.S.



7 EXISTING GROUND BAR
SCALE: N.T.S.

8 EXISTING FIBER CONDUIT DAYLIGHT OUTSIDE
SCALE: N.T.S.

verizon
1701 GOLF ROAD,
TOWER 2, SUITE 400
ROLLING MEADOWS, IL 60008
PHONE: (847) 619-5397
FAX: (847) 706-7415

TERRA CONSULTING GROUP, LTD
600 BUSSE HIGHWAY
PARK RIDGE, IL 60068
PH: 847-698-6400
FAX: 847-698-6401

REVISIONS

NO.	DESCRIPTION	DATE	BY
-	ISSUED FOR REVIEW	05/16/23	TJS
0	ISSUED FOR FINAL	06/16/23	APD
1	REVISED PER RF COMMENTS	07/05/23	TJS
2	ISSUED FOR REVIEW	08/15/23	JJR
3	REVISED PER LANDLORDS COMMENTS	10/25/23	JJR
4	REVISED PER NEW RFDS	11/17/23	JJR
5	ADDITION OF NORTHEAST ELEVATION	01/02/24	JJR

LOC. #766005
RAND & 53_RELO
MDG LOC. # 5000916957

1500 W SHURE DR
ARLINGTON HEIGHTS, IL 60004

DRAWN BY:	TJS
CHECKED BY:	DSS
DATE:	05/15/23
PROJECT #:	33-3608

SHEET TITLE
BUILDING PHOTOS

SHEET NUMBER
P-1

BUFFALO GROVE NORTH
LOC. #269303

SURVEYOR'S NOTE

THE PARENT PARCEL BOUNDARY OF THIS DRAWING IS ILLUSTRATED FROM RECORD INFORMATION AND IS APPROXIMATE.

THE TOPOGRAPHICAL SURVEY FOR THIS MAP WAS PERFORMED ON OCTOBER 29, 2019.

NOT TO BE USED AS CONSTRUCTION DRAWINGS.

ELEVATION DATUM

ALL ELEVATIONS ARE BASED ON NAVD 88 DATUM.

CONTOURS ARE ILLUSTRATED AT 1.0' INTERVALS.

BASIS OF BEARINGS

LATITUDE AND LONGITUDE OF SITE REFERENCE POINT ARE BASED ON THE HARN (HIGH ACCURACY REFERENCE NETWORK) NAD83 (CORS 96)

BEARINGS ARE BASED ON ILLINOIS STATE PLANE, IL EAST 1201 TO ORIENT DRAWING TO TRUE NORTH, ROTATE CLOCKWISE 00°13'19.53".

EASEMENTS, COVENANTS, CONDITIONS, AND RESTRICTIONS

THE TITLE COMMITMENT ISSUED BY NEAR NORTH NATIONAL TITLE LLC, ISSUING AGENT FOR CHICAGO TITLE INSURANCE COMPANY, AS COMMITMENT NO. IL1909132, DATED SEPTEMBER 17, 2019 LISTS THE FOLLOWING EASEMENTS, COVENANTS, CONDITIONS, AND RESTRICTIONS, THAT ARE MATTERS OF SURVEY, AFFECTING THE PARENT PARCEL UNDER "SCHEDULE B":

SEE SHEET 2

ZONING DATA

ACCORDING TO THE SITE CANDIDATE INFORMATION PACKAGE THIS SITE IS ZONED:
M-1 (LIGHT MANUFACTURING DISTRICT)
SETBACKS:
FRONT: N/A
REAR: N/A
SIDE: N/A

PROPRIETOR

YPI ARLINGTON LLC
12377 MERIT DR. #250
DALLAS, TX 75251-3201

FLOOD PLAIN INFORMATION

WE HAVE CONSULTED THE FEDERAL EMERGENCY MANAGEMENT AGENCY NATIONAL FLOOD INSURANCE MAP AS PREPARED FOR THE VILLAGE OF ARLINGTON HEIGHTS, COOK COUNTY, ILLINOIS, COMMUNITY PANEL NUMBER 17031C0044J DATED AUGUST 19, 2008, AND FIND THAT THE PROJECT SITE IS IN ZONE X (UNSHADED).

LEGAL DESCRIPTION

PARENT PARCEL

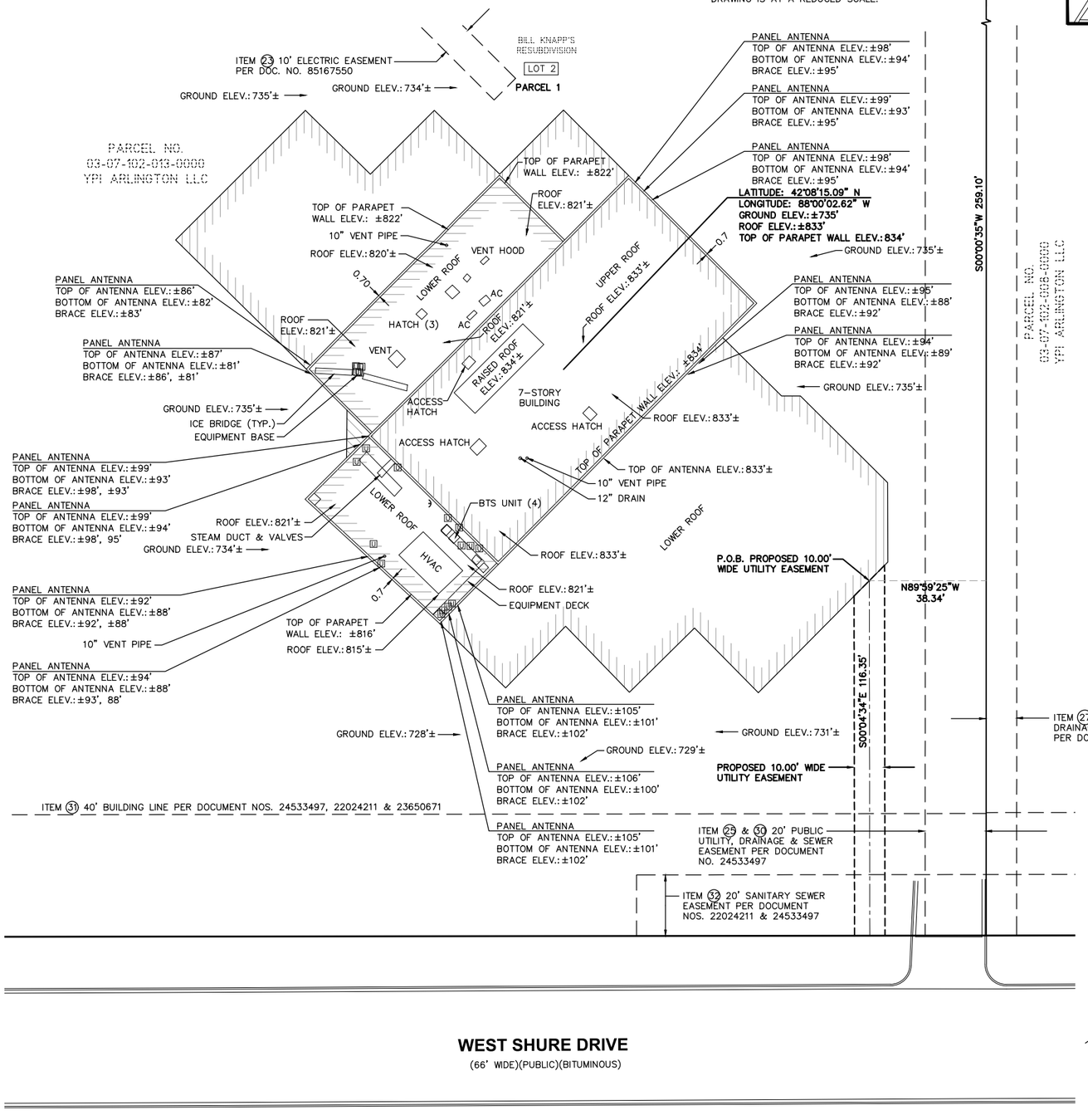
PARCEL 1: LOT 2 IN BILL KNAPP'S RESUBDIVISION ACCORDING TO THE PLAT THEREOF RECORDED JULY 12, 1983 AS DOCUMENT 26683318, BEING A RESUBDIVISION OF LOT 4 IN ARLINGTON INDUSTRIAL AND RESEARCH CENTER UNIT 12, BEING A SUBDIVISION IN PART OF THE NORTHWEST 1/4 OF SECTION 7, TOWNSHIP 42 NORTH, RANGE 11, EAST OF THE THIRD PRINCIPAL MERIDIAN, IN COOK COUNTY, ILLINOIS.
PARCEL 2: EASEMENT FOR THE BENEFIT OF PARCEL 1 AS CREATED BY EASEMENT AGREEMENT RECORDED JULY 12, 1983 AS DOCUMENT 26684378 FOR THE PURPOSE OF ACCESS OVER THE SOUTH 17.5 FEET OF THE WEST 170 FEET OF LOT 1 (AS MEASURED ALONG THE SOUTH LINE OF SAID LOT 1) IN BILL KNAPP'S RESUBDIVISION ACCORDING TO THE PLAT THEREOF RECORDED JULY 12, 1983 AS DOCUMENT 26683318, IN THE NORTHWEST 1/4 OF SECTION 7, TOWNSHIP 42 NORTH, RANGE 11, EAST OF THE THIRD PRINCIPAL MERIDIAN, IN COOK COUNTY, ILLINOIS.
PARCEL 3: LOT 3 IN ARLINGTON INDUSTRIAL AND RESEARCH CENTER UNIT 12, BEING A SUBDIVISION IN PART OF THE NORTHWEST 1/4 OF SECTION 7, TOWNSHIP 42 NORTH, RANGE 11, EAST OF THE THIRD PRINCIPAL MERIDIAN, ACCORDING TO THE PLAT THEREOF RECORDED JULY 13, 1978 AS DOCUMENT NO. 24533497, IN COOK COUNTY, ILLINOIS

This map was made from the above legal description which was given to us as a complete description of the property. Both map and description should be compared with the Abstract of Title or Title Policy for any exceptions, easements or differences in description.

LEGAL DESCRIPTION

PROPOSED 10.00' WIDE UTILITY EASEMENT

A 20.00 foot wide easement in that part of Lot 2 of Bill Knapp's Resubdivision, being a part of Arlington Industrial & Research Center Unit 12, Lot 4, being a part of the Northwest 1/4 of Section 7, Town 49, Range 9, Cook County, Illinois, the centerline of which is described as; Commencing at a found iron at the northeast corner of said Lot 2; thence South 00°00'35" West 259.10 feet along the easterly line of said Lot 2 thence; thence North 89°59'25" West 38.34 feet to a point on the southeasterly face of a 7-story building for THE PLACE OF BEGINNING OF THIS CENTERLINE DESCRIPTION; thence South 00°04'34" East 116.35 feet to the northerly right of way of West Shure Drive (66 feet wide) for the place of ending of this centerline description. The sidelines are to be lengthened and/or shortened to terminate at aforesaid 7-story building and at said northerly right of way.



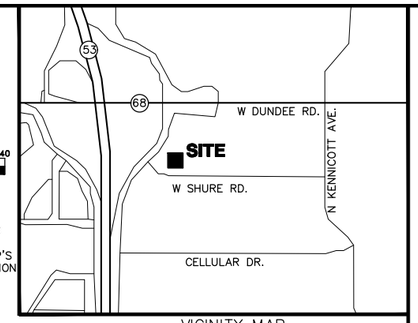
04°± MAGNETIC TRUE

TRUE NORTH

0 20 40
SCALE IN FEET

CALL CHICAGO DIGGERS HOTLINE
1-312-744-7000
OR JULIE, INC. TOLL FREE
1-800-892-0126
REQUIRES MIN. OF 3 WORK DAYS NOTICE BEFORE YOU EXCAVATE

NOTE:
THE ORIGINAL SCALE (1"=20') OF THIS DRAWING WAS PREPARED AS A 24"X36" DRAWING ANY OTHER SIZE DRAWING IS AT A REDUCED SCALE.



VICINITY MAP
N.T.S.

LEGEND

- TRAVERSE POINT
- WELL
- HIGHWAY
- MONUMENT
- MONUMENT BOX
- RIGHT OF WAY MARKER
- SET WOODSTAKE
- XCUT
- PK NAIL
- FOUND IRON STAKE
- SET IRON STAKE
- SIGN
- RR SIGN
- GUY POLE
- GUY ANCHOR
- UTILITY POLE
- LIGHT POLE
- ORNAMENTAL LIGHT POLE
- POST
- U.G. UTILITY MARKER
- GROUND ROD
- SOIL BORING
- MAILBOX
- SATELLITE DISH
- HAND HOLE
- AC UNIT
- U.G. UTILITY MARKER
- FIRE HYDRANT
- POST INDICATOR VALVE
- WATER VALVE
- GAS VALVE
- UST FILL PORT
- GAS PUMP
- GAS METER
- WATER METER
- TELEPHONE RISER
- ELECTRIC METER
- ELECTRIC TRANSFORMER
- CABLE TV RISER
- CATCH BASIN
- ROUND CATCH BASIN
- UTILITY MANHOLE
- STORM MANHOLE
- SANITARY MANHOLE
- ELECTRIC MANHOLE
- TELEPHONE MANHOLE
- WATER MANHOLE
- HANDICAP PARKING SPACE
- SHRUB
- TREE
- PINE TREE
- (ELEV) EXISTING CONTOURS
- TELEPHONE UTILITY LINE
- ELECTRIC UTILITY LINE
- WATER UTILITY LINE
- GAS UTILITY LINE
- STEAM UTILITY LINE
- STORM UTILITY LINE
- SANITARY UTILITY LINE
- FIBER OPTIC UTILITY LINE
- OVERHEAD UTILITY LINE
- FENCE LINE
- GUARD RAIL

All utilities as shown are approximate locations derived from actual measurements and available records. They should not be interpreted to be in exact location nor should it be assumed that they are the only utilities in the area.

PROFESSIONAL LAND SURVEYOR
SAMUEL ABRAHAM MILES
035-003984
GRAND RAPIDS MICHIGAN
STATE OF ILLINOIS

I, Samuel A. Miles, do hereby certify that the drawing shown hereon is a correct representation of a survey performed at and under my direction.

All dimensions shown are in feet and decimal parts thereof.

Given under my hand and seal this 11th day of June, 2020.

Samuel A. Miles
Samuel A. Miles
Illinois Professional Land Surveyor No. 035.003984
Expires November 30, 2020

Note: This certification only applies to improvements within the lease site and easements as shown hereon.
ILLINOIS REGISTERED DESIGN FIRM
LICENSE NUMBER 184.007034
LICENSE EXPIRES: APRIL 30, 2021

CHICAGO SMSA
limited partnership
d/b/a VERIZON WIRELESS

BUFFALO GROVE NORTH LOC. #269303

Survey Prepared for:

TERRA CONSULTING GROUP, LTD.
600 Busse Highway
Park Ridge, IL 60068
Ph: 847/698-6400
FAX: 847/698-6401
Project Manager: Tom Zimmermann

REVISIONS		
NO.	DESCRIPTION	DATE
1	FINALIZE	05/19/20
2	ADDED TITLEWORK	06/11/20

williams&works
engineers | surveyors | planners
616.224.1500 phone
549 Ottawa Ave NW
http://williams-works.com
Grand Rapids, MI 49503

NW | NE
SW | SE
7-42-9

DATE: 10/29/19	DWG. BY: E.C.V.
SCALE: 1"=20'	SURVEYED: R.P./B.P.
UPDATE: ECV061120	CHKD BY: S.A.M.
PROJECT NO.: 211005.852	

SITE NAME

BUFFALO GROVE NORTH

LOCATION NUMBER

LOC. #269303

SITE ADDRESS

1500 W SHURE DR. ARLINGTON HEIGHT, IL 60004

SHEET TITLE

PS-1

BUFFALO GROVE NORTH
LOC. #269303

SURVEYOR'S NOTE

THE PARENT PARCEL BOUNDARY OF THIS DRAWING IS ILLUSTRATED FROM RECORD INFORMATION AND IS APPROXIMATE.

THE TOPOGRAPHICAL SURVEY FOR THIS MAP WAS PERFORMED ON OCTOBER 29, 2019.

NOT TO BE USED AS CONSTRUCTION DRAWINGS.

EASEMENTS, COVENANTS, CONDITIONS, AND RESTRICTIONS

THE TITLE COMMITMENT ISSUED BY NEAR NORTH NATIONAL TITLE LLC, ISSUING AGENT FOR CHICAGO TITLE INSURANCE COMPANY, AS COMMITMENT NO. IL1909132, DATED SEPTEMBER 17, 2019 LISTS THE FOLLOWING EASEMENTS, COVENANTS, CONDITIONS, AND RESTRICTIONS, THAT ARE MATTERS OF SURVEY, AFFECTING THE PARENT PARCEL UNDER "SCHEDULE B":

12. Memorandum of First Amendment to Site Lease Agreement recorded February 1, 2010 as document 1003203004 made by and between Emergency Service, Inc. and SprintCom, Inc.
Note: No Original Memorandum instrument was previously recorded with the County of Cook to memorialize the Agreement. AFFECTS THE SUBJECT PROPERTY; LOCATION CANNOT BE DETERMINED FROM RECORD DOCUMENT.

13. Subordination Agreement – Lease dated July 27, 2017 and recorded October 6, 2017 as document 1727913077 made and executed among Emergency Service, Inc to Sprintcom, Inc; YPI Arlington, LLC and Royal Business Bank.
Note: This document refers to 1003203004 the First Amendment to Site Lease Agreement. AFFECTS THE SUBJECT PROPERTY BLANKET IN NATURE.

14. Memorandum of Amendment No 3 to Site Lease Acknowledgement recorded June 15, 2018 as document number 1816649022 made by and between Emergency Radio and SprintCom, Inc. AFFECTS THE SUBJECT PROPERTY BLANKET IN NATURE.

16. Unrecorded lease made by One North Arlington, LLC in favor of Amcol International Corporation, fka American Colloid Company, dated September 29, 1986, demising a portion of the land, and all rights thereunder of the lessee and of any parson or party claiming by, through or under said lessee. DOCUMENT NOT PROVIDED.

17. Unrecorded lease made by One North Arlington, LLC, in favor of State Farm Automobile insurance company, dated December 31, 2003. DOCUMENT NOT PROVIDED.

18. Lease made by Emergency Service, Inc.., an Indiana corporation to Sprintcom, Inc., A Kansas corporation, dated October 21, 1998, a Memorandum of First Amendment to site lease acknowledgement which was recorded February 1, 2010 as document No. 1003203004, demising a portion of the land, which amendment extends the terms of the agreement for five years commencing November 1, 2008, with one additional 5 year renewal option,
and all rights thereunder of, and all acts done or suffered thereunder by, said lessee or by any party claiming by, through, or under said lessee. AFFECTS THE SUBJECT PROPERTY; LOCATION CANNOT BE DETERMINED FROM RECORD DOCUMENT.

19. Right, title and interest of Emergency Service, Inc., an Indiana corporation, in and to the land, as disclosed by their execution of the Memorandum of First Amendment to site lease acknowledgement recorded as document 1003203004, noted above, and of all parties claiming thereunder. AFFECTS THE SUBJECT PROPERTY; LOCATION CANNOT BE DETERMINED FROM RECORD DOCUMENT.

20. Note: the following item, while appearing on this commitment, is provided solely for your information. Assignment of parking agreement recorded June 22, 1988 as document 88272894 made by and between American National Bank and Trust Company, as trustee under trust number 62164 and North Arlington Towers Partnership relating to 17 parking spaces referred in in the parking agreement letter dated April 27, 1987 from Bill Knapp to Richard H. Levy for the use of Ronald J. Benach, as agent. BENEFITS THE SUBJECT PROPERTY WITH 17 PARKING SPACES ON LOT 1; LOCATION CANNOT BE DETERMINED FROM THE RECORD DOCUMENT.

21. Reciprocal easement for an access road as set forth in the easement Agreement executed by and between LaSalle National Bank, as trustee under trust agreement dated August 24, 1977 known as trust number 53022 and Dundee Wilke Venture, an Illinois general partnership (beneficiary) and Bill Knapp's Properties, Inc., a Michigan corporation, recorded July 12, 1983 as document 26684378, and the terms and provisions relating thereto. Rights of the adjoining owner or owners to the concurrent use of said easement. (Easement is 35 feet in even width, the centerline of which is described as Follows: beginning at the intersection of the a line common to lots 1 and 2 in Bill Knapp's Resubdivision, with the west line of said subdivision and running thence easterly along said common line, a distance of 170 feet to a point of termination. Said easement to intersect the west line of said subdivision) AFFECTS THE SUBJECT PROPERTY AS SHOWN; SAME AS PARCEL 2.

22. Note: the following item, while appearing on this commitment/policy, is provided solely for your information. the following environmental disclosure document(s) for transfer of real property appear of record which include a description of the land insured or a part thereof:
Document number: 90344744 date of recording: July 18, 1990
Document number: 90344745 recorded on July 18, 1990
Document number: 0010341579 recorded on April 26, 2001
AFFECTS THE SUBJECT PROPERTY BLANKET IN NATURE.

23. Easement in favor of the Illinois Bell Telephone Company and the Commonwealth Edison Company, and their respective successors and assigns, to install, operate and maintain all equipment necessary for the purpose of serving the land and other property, together with the right of access to said equipment, and the provisions relating thereto contained in the grant recorded/filed as document no.85167550, affecting the north line of lot 2 as shown on Exhibit A attached. AFFECTS THE SUBJECT PROPERTY AS SHOWN.

24. Order establishing freeway and route location decision, both recorded August 29, 1962 as documents 18576703 and 18576704, respectively, purporting to give notice by the Department of Public Works and Buildings, Division of Highways, State of Illinois, of the intent of said body to establish a freeway on, over, across or contiguous to the land in a manner which will permit access between said freeway and abutting lands only at entrances provided for said purposes. (Affects underlying) AFFECTS THE SUBJECT PROPERTY.

25. We have examined the plat of Bill Knapp's Resubdivision, being a Resubdivision of Lot 4 in Arlington Industrial and Research Center Unit 12, being a subdivision in part of the northwest 1/4 of Section 7, Township 42 North, Range 11 East of the Third Principal Meridian, according to the plat therefore recorded July 13, 1978 as document 24533497, relative thereto, we note the following:
(A) Easement over the land in favor of Northern Illinois Gas Company, its successors and assigns, for the installation, maintenance, relocation, renewal and removal of gas mains and appurtenances thereto, as shown on the plat of resubdivision aforesaid recorded July 12, 1983 as document 26683318.
(B) Easement over the land for the purpose of installing and maintaining all equipment necessary for the purpose of serving the subdivision and other land with telephone and electric service, together with right to overhang aerial service wires and also with right of access thereto, as granted to the the Illinois Bell Telephone Company, the Commonwealth Edison Company and Cablenet and as shown on the plat of resubdivision recorded July 12, 1983 as document 26683318.

CONTINUED

(C) Reservation and grant of a non–exclusive access right to the Village of Arlington Heights and their respective successors and assigns for the installation, maintenance, relocation, renewal and removal of manholes, inlets, catch basins, sanitary lines and appurtenances, storm sewer lines and appurtenances, watermains and appurtenances, and all other equipment and appurtenances necessary for the purpose of providing the subdivision and adjoining property with sanitary, storm and water services, over, under and upon the land as shown on the plat of resubdivision aforesaid
(D) Easement over the north 17.5 feet of the west 170 feet, said 170 feet as measured on the north line of lot 2 for ingress and egress, construction, maintenance and upkeep as shown on plat of resubdivision aforesaid and as created by agreement recorded July 12, 1983 as document26684378.
(E) Private sanitary sewer easement over the north 50 feet of the east 20 feet As shown on plat of resubdivision aforesaid.
(F) Drainage easement over the land as shown on plat of resubdivision aforesaid. (Affects that part of lot 2 described as follows: beginning at the point of intersection of southeasterly line of Illinois Route 53 and the northerly line of southeasterly line of Illinois route 53 and the northerly line of Shure Drive being the point of beginning of this description; thence northeasterly along the southeasterly line of Illinois route 53, 35 feet; thence south to a point on the northerly line of Shure Drive 18.73 feet as measured on the northerly line of Shure Drive, southeasterly of the intersection of the southeasterly line of Illinois Route 53 and the north line of Shure Drive; thence northwesterly along the northerly line of Shure Drive to the point of beginning.
(G) Easement to enter upon the land and other property reserved and granted to the Commonwealth Edison Company, the Illinois Bell Telephone Company and Cable Net, Inc, their successors and assigns, with right to cut, trim or remove trees and bushes and roots as may be reasonable required as shown on plat of subdivision
(H) A 20 foot public utilities, sewer and drainage easement as shown on the Plat of resubdivision aforesaid over the east line of lot 2 (Affects Parcel 1) AFFECTS THE SUBJECT PROPERTY AS SHOWN.

26. Easement over the land for the purpose of installing and maintaining all equipment necessary to serve the subdivision and other property with telephone and electric service, together with the right to overhang aerial service wires and the right of access to such wires, as created by grant to the Illinois Bell Telephone Company and the Commonwealth Edison Company and their respective successors and assigns and as shown on plat of Arlington Industrial and Research Center Unit 12 recorded July 13, 1978 as document 24533497 (Affects Parcel 3) AFFECTS THE SUBJECT PROPERTY AS SHOWN.

27. 10 foot public utilities and drainage easement as shown on plat of resubdivision recorded as document 24533497 over west line of lot 3. (Affects Parcel 3) AFFECTS THE SUBJECT PROPERTY AS SHOWN.

CONTINUED

28. Easement to enter upon the land reserved and granted to the Commonwealth Edison Company, the Illinois Bell Telephone Company, Northern Illinois Gas Company, their respective successors and assigns, together with right to cut, trim or remove trees, bushes and roots as may be reasonably required as shown on the Plat of Arlington Industrial and Research Center Unit No. 6 recorded August 22, 1972 as document 22024211. (Affects land underlying Parcel 3) PROVIDED DOCUMENT NOT LEGIBLE.

29. Notice requirements for storm water detention recorded March 9, 1977 as document 23844485. AFFECTS THE SUBJECT PROPERTY, BLANKET IN NATURE.

30. 20 foot public utilities, sewer and drainage easement as shown on plat of resubdivision recorded as document 24533497 over the east line of lot 2. (Affects Parcel 1) AFFECTS THE SUBJECT PROPERTY AS SHOWN

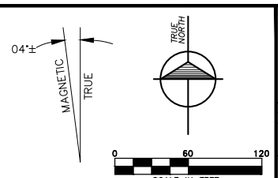
31. A 40 foot building line over the south and westerly lines of lot 2 aforesaid and over the south line of lot 3 aforesaid as shown on plats of subdivision recorded as documents 24533497, 22024211 and 23650671 (Affects Parcels 1 and 3) AFFECTS THE SUBJECT PROPERTY AS SHOWN

32. A 20 foot sanitary sewer easement over part of the south line of lot 2 aforesaid and all of the south line of lot 3 aforesaid as shown on plats of subdivision recorded as documents 22024211 and 24533497. (Affects Parcels 1 and 3) AFFECTS THE SUBJECT PROPERTY AS SHOWN

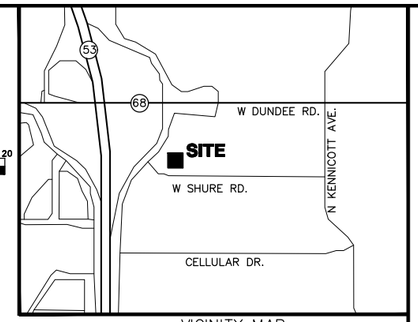
33. A 15 foot sanitary sewer easement over the north 15 feet of lot 3 aforesaid as shown on plats of subdivision recorded as documents 23650671 and 24533497 (Affects Parcel 3) AFFECTS THE SUBJECT PROPERTY AS SHOWN

34. Covenants, restrictions and agreements contained in unrecorded cross easement agreement and grant of license between Kohl–Fredericks Development Corp, as agent for the owner of property known as 1500 West Shure Drive, Dunhill Partners, owner of property known as 1530 West Shure Drive, and American Colloid Company as licensee. Licensee being a tenant of both properties. Either Kohl or Dunhill may revoke license at any time following 30 days notice. The license will automatically cease and be of no further force or effect upon the expiration of licensee's lease with either Kohl or Dunhill. DOCUMENT NOT PROVIDED.

35. Memorandum of License dated September 14, 2017 and recorded February 22, 2018 as document number 1805346069 entered into between YPI Arlington LLc and T–Mobile central LLC. AFFECTS THE SUBJECT PROPERTY BLANKET IN NATURE.



CALL CHICAGO DIGGERS HOTLINE
1-312-744-7000
OR JULIE, INC. TOLL FREE
1-800-892-0126
REQUIRES MIN. OF 3 WORK DAYS NOTICE BEFORE YOU EXCAVATE



VICINITY MAP
N.T.S.

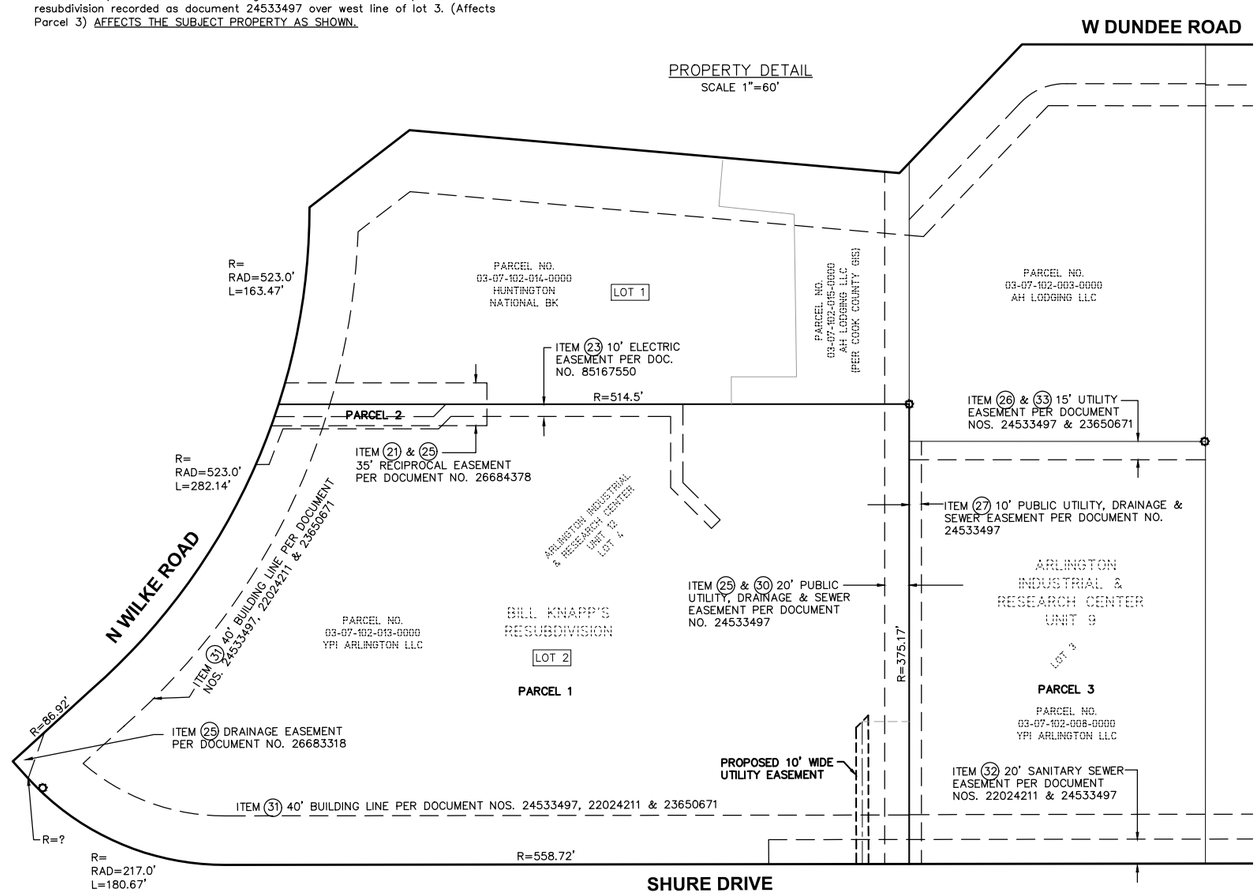
NOTE:
THE ORIGINAL SCALE (1"=20') OF THIS DRAWING WAS PREPARED AS A 24"X36" DRAWING ANY OTHER SIZE DRAWING IS AT A REDUCED SCALE.

LEGEND

- TRAVERSE POINT
- WELL
- HIGHWAY
- MONUMENT
- MONUMENT BOX
- RIGHT OF WAY MARKER
- SET WOODSTAKE
- XCUT
- PK NAIL
- FOUND IRON STAKE
- SET IRON STAKE
- SIGN
- RR SIGN
- GUY POLE
- GUY ANCHOR
- UTILITY POLE
- LIGHT POLE
- ORNAMENTAL LIGHT POLE
- POST
- U.G. UTILITY MARKER
- GROUND ROD
- SOIL BORING
- MAILBOX
- SATELLITE DISH
- HAND HOLE
- AC UNIT
- U.G. UTILITY MARKER
- FIRE HYDRANT
- POST INDICATOR VALVE
- WATER VALVE
- GAS VALVE
- UST FILL PORT
- GAS PUMP
- GAS METER
- WATER METER
- TELEPHONE RISER
- ELECTRIC METER
- ELECTRIC TRANSFORMER
- CABLE TV RISER
- CATCH BASIN
- ROUND CATCH BASIN
- UTILITY MANHOLE
- STORM MANHOLE
- SANITARY MANHOLE
- ELECTRIC MANHOLE
- TELEPHONE MANHOLE
- WATER MANHOLE
- HANDICAP PARKING SPACE
- SHRUB
- TREE
- PINE TREE
- (ELEV) EXISTING CONTOURS
- TELEPHONE UTILITY LINE
- ELECTRIC UTILITY LINE
- WATER UTILITY LINE
- GAS UTILITY LINE
- STEAM UTILITY LINE
- STORM UTILITY LINE
- SANITARY UTILITY LINE
- FIBER OPTIC UTILITY LINE
- OVERHEAD UTILITY LINE
- FENCE LINE
- GUARD RAIL

All utilities as shown are approximate locations derived from actual measurements and available records. They should not be interpreted to be in exact location nor should it be assumed that they are the only utilities in the area.

PROPERTY DETAIL
SCALE 1"=60'



I, Samuel A. Miles, do hereby certify that the drawing shown hereon is a correct representation of a survey performed at and under my direction.

All dimensions shown are in feet and decimal parts thereof.

Given under my hand and seal this 11th day of June, 2020.

Samuel A. Miles

Samuel A. Miles
Illinois Professional Land Surveyor No. 035.003984
Expires November 30, 2020

Note: This certification only applies to improvements within the lease site and easements as shown hereon.

ILLINOIS REGISTERED DESIGN FIRM
LICENSE NUMBER 184.007034
LICENSE EXPIRES: APRIL 30, 2021

CHICAGO SMSA
limited partnership
d/b/a VERIZON WIRELESS

BUFFALO GROVE NORTH
LOC. #269303

Survey Prepared for:

TERRA CONSULTING GROUP, LTD.
600 Busse Highway
Park Ridge, IL 60068
Ph: 847/698-6400
FAX: 847/698-6401

Project Manager: Tom Zimmermann

REVISIONS		
NO.	DESCRIPTION	DATE
1	FINALIZE	05/19/20
2	ADDED TITLEWORK	06/11/20

williams&works
engineers | surveyors | planners
616.224.1500 phone
549 Ottawa Ave NW
http://williams-works.com
Grand Rapids, MI 49503

NW | NE
SW | SE
7-42-9

DATE: 10/29/19	DWG. BY: E.C.V.
SCALE: 1"=60'	SURVEYED: R.P./B.P.
UPDATE: ECV061120	CHKD BY: S.A.M.
PROJECT NO.: 211005.852	

SITE NAME

BUFFALO GROVE NORTH

LOCATION NUMBER

LOC. #269303

SITE ADDRESS

1500 W SHURE DR. ARLINGTON HEIGHT, IL 60004

SHEET TITLE

PS-2

SHEET 2 OF 2

verizon fuze | RFDS

MIDWEST > Upper Midwest > Illinois/Wisconsin > Northern IL > RAND&53_RELO

RF Submit by: Mcdaniel, Jessie - jessie.mcdaniel@verizonwireless.com - 11/8/2023, 7:58:56 AM

EE Submit by: Tutt, Bradley - bradley.tutt@verizonwireless.com - 4/14/2023, 11:36:17 AM

Project Details

FUZE Project ID:	17073197
Project Name:	TRADITIONAL RELO
Project Alt Name:	RAND&53_RELO LSub6 New Build
Project Type:	Initial Build
Modification Type:	
Designed Sector Carrier 4G:	26
Designed Sector Carrier 5G:	3
Additional Sector Carrier 4G:	N/A
Additional Sector Carrier 5G:	N/A
FP Solution Type & Tech Type:	MCR;4G_700,4G_850,4G_AWS,4G_CBRS,4G_PCS,5G_850,5G_L-Sub6
Carrier Aggregation:	false
MPT Id:	
eCIP-0:	false
Suffix:	

Location Information

Site ID:	617344184
E-NodeB ID:	
MDG Location ID:	5000916957
PSLC:	766005
Switch Name:	
Tower Owner:	
Tower Type:	Rooftop
Site Type:	MACRO
Site Sub Type:	TRADITIONAL
Street Address:	1500 W Shure Drive
City:	Arlington Heights
State:	IL
Zip Code:	60004
County:	Cook
Latitude:	42.137539 / 42° 8' 15.1404" N
Longitude:	-88.000764 / 88° 0' 2.7504" W

RFDS Project Scope:

Antenna Summary

Added

700	850	1900	AWS	CBRS	L-Sub6	Make	Model	Centerline	Tip Height	Azimuth	RET	4xRx	Inst. Type	Quantity	Item ID
LTE	LTE 5G	LTE	LTE			COMMSCOPE	NHH-65C-R2B	95	99	50(0001) 50(01)		false	PHYSICAL	2	000000001900056293
LTE	LTE 5G	LTE	LTE			COMMSCOPE	NHH-65C-R2B	96	100	190(0002) 190(02) 310(0003) 310(03)		false	PHYSICAL	4	000000001900056293
				LTE		ERICSSON INC	KRE105281/1	93	93.3	50(19)		false	PHYSICAL	1	1900055217
				LTE		ERICSSON INC	KRE105281/1	94	94.3	190(20) 310(21)		false	PHYSICAL	2	1900055217
					5G	ERICSSON INC	KRD901206/11	97	98.3	50(0001)		false	PHYSICAL	1	1900068484
					5G	ERICSSON INC	KRD901206/11	98	99.3	190(0002) 310(0003)		false	PHYSICAL	2	1900068484

Removed

700	850	1900	AWS	CBRS	L-Sub6	Make	Model	Centerline	Tip Height	Azimuth	RET	4xRx	Inst. Type	Quantity	Item ID

No data available.

Retained

700	850	1900	AWS	CBRS	L-Sub6	Make	Model	Centerline	Tip Height	Azimuth	RET	4xRx	Inst. Type	Quantity	Item ID

No data available.

Added: 12 | Removed: 0 | Retained: 0

Equipment Summary

Added

Equipment Type	Location	700	850	1900	AWS	CBRS	L-Sub6	Make	Model	Cable Length	Cable Size	Install Type	Quantity	Item ID
RRU	Tower	LTE	LTE 5G					ERICSSON INC	KRC161749/1			PHYSICAL	3	1900068756
RRU	Tower						5G	ERICSSON INC	KRD901206/11			PHYSICAL	3	1900068484
RRU	Tower					LTE		ERICSSON INC	KRC161746/1			PHYSICAL	3	1900068745
RRU	Tower			LTE	LTE			ERICSSON INC	KRC161707/2			PHYSICAL	3	1900068904
Power Plants	Ground (Outdoor)							ABB	109163473			PHYSICAL	6	000000001900436
Power Plants	Ground (Outdoor)							COMMSCOPE	760237263			PHYSICAL	2	000000001900063
Shelter/Cabinets	Ground (Outdoor)							CHARLES INDUSTRIES LTD	760250058			PHYSICAL	1	1900393048
Shelter/Cabinets	Ground (Outdoor)							COMMSCOPE	760250933			PHYSICAL	2	000000001900063
Power Plants	Ground (Outdoor)							ABB POWER ELECTRONICS INCDBA GE ENERGY	760242451			PHYSICAL	1	1900452342
Power Plants	Ground (Outdoor)							ABB POWER ELECTRONICS INCDBA GE ENERGY	760242451			PHYSICAL	1	1900073751
Power Plants	Ground (Outdoor)							ABB POWER ELECTRONICS INCDBA GE ENERGY	760242451			PHYSICAL	2	1900153743
Power Plants	Ground (Outdoor)							ABB POWER ELECTRONICS INCDBA GE ENERGY	760242451			PHYSICAL	1	1900153449
Power Plants	Ground (Outdoor)							ABB POWER ELECTRONICS INCDBA GE ENERGY	760242451			PHYSICAL	1	1900153751
Alarm	Ground (Outdoor)							ASENTRIA	1900070746			PHYSICAL	1	1900070746
Alarm	Ground (Outdoor)							ASENTRIA	1900076600			PHYSICAL	1	1900076600
Alarm	Ground (Outdoor)							ASENTRIA	1900076812			PHYSICAL	1	1900076812
Alarm	Tower							RAYCAPINC-001	3315-ALM-RS485			PHYSICAL	3	000000001900070
Alarm	Ground (Outdoor)							ASENTRIA	S3406CRANCAB1			PHYSICAL	1	000000001900077
BBU	Ground (Outdoor)							Ericsson	KDU137015/11			PHYSICAL	1	000000001900081

BBU	Ground (Outdoor)							Ericsson	KDU137848/11			PHYSICAL	1	000000001900185
Battery	Ground (Outdoor)							COMMSCOPE	760250540			PHYSICAL	1	000000001900064
Cell Site Routers	Ground (Outdoor)							NOKIAOFAME-001	3HE15386AA			PHYSICAL	1	000000001900182
Hybrid Cable	Tower							COMMSCOPET-001	HFT1206-24SV4-xxxG			PHYSICAL	3	
OVP Box	Ground (Outdoor)							RAYCAP	1900410978			PHYSICAL	2	1900410978
OVP Box	Shelter							RAYCAP	3315-ALM-RS485			PHYSICAL	3	000000001900070
OVP Box	Tower							RAYCAPINC-001	RVZDC-3315-PF-48		1-5/8 inch	PHYSICAL	3	000000001900422
OVP Box	Ground (Outdoor)							RAYCAP	RVZDC-4520-RM-48			PHYSICAL	2	000000001900410
Other	Ground (Outdoor)							COMMSCOPE	760246443			PHYSICAL	1	000000001900009
Upconverter	Ground (Outdoor)							JOHNMEZZAL-002	PB-PSU-COV-BB			PHYSICAL	2	000000001900400
Shelter/Cabinets	Ground (Outdoor)							COMMSCOPE	SK-BSP-STDV-FIU			PHYSICAL	4	000000001900078
Upconverter	Ground (Outdoor)							JOHNMEZZAL-002	PB-19-SYS-16-BB			PHYSICAL	1	000000001900400
Upconverter	Ground (Outdoor)							JOHNMEZZAL-002	PB-PSU-162-BB			PHYSICAL	6	000000001900400

Removed

Equipment Type	Location	700	850	1900	AWS	CBRS	L-Sub6	Make	Model	Cable Length	Cable Size	Install Type	Quantity	Item ID

No data available.

Retained

Equipment Type	Location	700	850	1900	AWS	CBRS	L-Sub6	Make	Model	Cable Length	Cable Size	Install Type	Quantity	Item ID

No data available.

Service Info

CBRS 3.5 GHz

Sector	CAND		
	19	19	19
Azimuth	50	50	50
Cell / ENode B ID	203390	203390	203390
Antenna Model	KRE105281/1	KRE105281/1	KRE105281/1
Antenna Make	ERICSSON	ERICSSON	ERICSSON
Antenna Centerline(Ft)	93	93	93
Mechanical Down-Tilt(Deg.)	0	0	0
Electrical Down-Tilt	8	8	8
Tip Height	93.3	93.3	93.3
Regulatory Power	28.03	28.03	28.03
DLEARFCN	55790	56090	55990
Channel Bandwidth(MHz)	10	10	10
Total ERP (W)	38.44	38.44	38.44
TMA Make			
TMA Model			
RRU Make	Ericsson	Ericsson	Ericsson
RRU Model	4408 B48 DC	4408 B48 DC	4408 B48 DC
Number of Tx, Rx Lines	4,4	4,4	4,4
Position			
Transmitter Id	15259281	15259290	15259287
Source	ATOLL_API	ATOLL_API	ATOLL_API

	19	20	20
	50	190	190
	203390	203390	203390
	KRE105281/1	KRE105281/1	KRE105281/1
	ERICSSON	ERICSSON	ERICSSON
	93	94	94
	0	0	0
	8	8	8
	93.3	94.3	94.3
	28.03	28.03	28.03
	55890	55790	56090
	10	10	10
	38.44	38.44	38.44
	Ericsson	Ericsson	Ericsson
	4408 B48 DC	4408 B48 DC	4408 B48 DC
	4,4	4,4	4,4
	15259284	15259282	15259291
	ATOLL_API	ATOLL_API	ATOLL_API

	20	20	21
	190	190	310
	203390	203390	203390
	KRE105281/1	KRE105281/1	KRE105281/1
	ERICSSON	ERICSSON	ERICSSON
	94	94	94
	0	0	0
	8	8	8
	94.3	94.3	94.3
	28.03	28.03	28.03
	55990	55890	55790
	10	10	10
	38.44	38.44	38.44
	Ericsson	Ericsson	Ericsson
	4408 B48 DC	4408 B48 DC	4408 B48 DC
	4,4	4,4	4,4
	15259288	15259285	15259283
	ATOLL_API	ATOLL_API	ATOLL_API

	21
	310
	203390
	KRE105281/1
	ERICSSON
	94
	0
	8
	94.3
	28.03
	55990
	10
	38.44
	Ericsson
	4408 B48 DC
	4,4
	15259292
	ATOLL_API

	21	21
	310	310
	203390	203390
	KRE105281/1	KRE105281/1
	ERICSSON	ERICSSON
	94	94
	0	0
	8	8
	94.3	94.3
	28.03	28.03
	55990	55890
	10	10
	38.44	38.44
	Ericsson	Ericsson
	4408 B48 DC	4408 B48 DC
	4,4	4,4
	15259289	15259286
	ATOLL_API	ATOLL_API

700 MHz LTE

Sector	CAND		
	01	02	03
Azimuth	50	190	310
Cell / ENode B ID	203390	203390	203390
Antenna Model	NHH-65C-R2B	NHH-65C-R2B	NHH-65C-R2B
Antenna Make	COMMSCOPE	COMMSCOPE	COMMSCOPE
Antenna Centerline(Ft)	95	96	96
Mechanical Down-Tilt(Deg.)	0	0	0
Electrical Down-Tilt	4	2	2
Tip Height	99	100	100
Regulatory Power	147.76	147.83	147.83
DLEARFCN	5230	5230	5230
Channel Bandwidth(MHz)	10	10	10
Total ERP (W)	1329.84	1330.45	1330.45
TMA Make			
TMA Model			
RRU Make	Ericsson	Ericsson	Ericsson
RRU Model	4449	4449	4449
Number of Tx, Rx Lines	4,4	4,4	4,4
Position			
Transmitter Id	15258617	15258620	15258623
Source	ATOLL_API	ATOLL_API	ATOLL_API

850 MHz LTE

Sector	CAND		
	01	02	03
Azimuth	50	190	310
Cell / ENode B ID	203390	203390	203390
Antenna Model	NHH-65C-R2B	NHH-65C-R2B	NHH-65C-R2B
Antenna Make	COMMSCOPE	COMMSCOPE	COMMSCOPE
Antenna Centerline(Ft)	95	96	96
Mechanical Down-Tilt(Deg.)	0	0	0
Electrical Down-Tilt	4	2	2
Tip Height	99	100	100
Regulatory Power	382.66	382.66	382.66
DLEARFCN	2561	2561	2561
Channel Bandwidth(MHz)	10	10	10
Total ERP (W)	860.99	860.99	860.99
TMA Make			
TMA Model			
RRU Make	Ericsson	Ericsson	Ericsson
RRU Model	4449	4449	4449
Number of Tx, Rx Lines	4,4	4,4	4,4
Position			
Transmitter Id	15258614	15258615	15258616
Source	ATOLL_API	ATOLL_API	ATOLL_API

850 MHz SGNR

Sector	CAND		
	0001	0002	0003
Azimuth	50	190	310
Cell / ENode B ID	2039200	2039200	2039200
Antenna Model	NHH-65C-R2B	NHH-65C-R2B	NHH-65C-R2B
Antenna Make	COMMSCOPE	COMMSCOPE	COMMSCOPE
Antenna Centerline(Ft)	95	96	96
Mechanical Down-Tilt(Deg.)	0	0	0
Electrical Down-Tilt	4	2	2
Tip Height	99	100	100
Regulatory Power	382.66	382.66	382.66
DLEARFCN	2561	2561	2561
Channel Bandwidth(MHz)	10	10	10
Total ERP (W)	860.99	860.99	860.99
TMA Make			
TMA Model			
RRU Make	Ericsson	Ericsson	Ericsson
RRU Model	4449	4449	4449
Number of Tx, Rx Lines	4,4	4,4	4,4
Position			
Transmitter Id	15258614	15258615	15258616
Source	ATOLL_API	ATOLL_API	ATOLL_API

1900 Mhz LTE

	CAND		
Sector	**01**	**02**	**03**
Azimuth	50	190	310
Cell / ENode B ID	203390	203390	203390
Antenna Model	NHH-65C-R2B	NHH-65C-R2B	NHH-65C-R2B
Antenna Make	COMMSCOPE	COMMSCOPE	COMMSCOPE
Antenna Centerline(Ft)	95	96	96
Mechanical Down-Tilt(Deg.)	0	0	0
Electrical Down-Tilt	2	1	2
Tip Height	99	100	100
Regulatory Power	719.1	719.1	719.1
DLEARFCN	925	925	925
Channel Bandwidth(MHz)	5	5	5
Total ERP (W)	1972.42	1972.42	1972.42
TMA Make			
TMA Model			
RRU Make	Ericsson	Ericsson	Ericsson
RRU Model	8843	8843	8843
Number of Tx, Rx Lines	4,4	4,4	4,4
Position			
Transmitter Id	15258618	15258621	15258624
Source	ATOLL_API	ATOLL_API	ATOLL_API

2100 Mhz LTE

	CAND		
Sector	**01**	**02**	**03**
Azimuth	50	190	310
Cell / ENode B ID	203390	203390	203390
Antenna Model	NHH-65C-R2B	NHH-65C-R2B	NHH-65C-R2B
Antenna Make	COMMSCOPE	COMMSCOPE	COMMSCOPE
Antenna Centerline(Ft)	95	96	96
Mechanical Down-Tilt(Deg.)	0	0	0
Electrical Down-Tilt	2	1	2
Tip Height	99	100	100
Regulatory Power	228.31	228.31	228.31
DLEARFCN	2050	2050	2050
Channel Bandwidth(MHz)	20	20	20
Total ERP (W)	2504.96	2504.96	2504.96
TMA Make			
TMA Model			
RRU Make	Ericsson	Ericsson	Ericsson
RRU Model	8843	8843	8843
Number of Tx, Rx Lines	4,4	4,4	4,4
Position			
Transmitter Id	15258619	15258622	15258625
Source	ATOLL_API	ATOLL_API	ATOLL_API

nl-Sub6

	CAND		
Sector	**0001**	**0002**	**0003**
Azimuth	50	190	310
Cell / ENode B ID			
Antenna Model	AIR6449	AIR6449	AIR6449
Antenna Make	Ericsson	Ericsson	Ericsson
Antenna Centerline(Ft)	97	98	98
Mechanical Down-Tilt(Deg.)	0	0	0
Electrical Down-Tilt	6	6	6
Tip Height	98.3	99.3	99.3
Regulatory Power	1365.07	1365.07	1365.07
DLEARFCN	648672	648672	648672
Channel Bandwidth(MHz)	60	60	60
Total ERP (W)	23713.74	23713.74	23713.74
TMA Make			
TMA Model			
RRU Make	Ericsson	Ericsson	Ericsson
RRU Model	AIR6449	AIR6449	AIR6449
Number of Tx, Rx Lines	2,2	2,2	2,2
Position			
Transmitter Id	15258626	15258627	15258628
Source	ATOLL_API	ATOLL_API	ATOLL_API

Service Comments

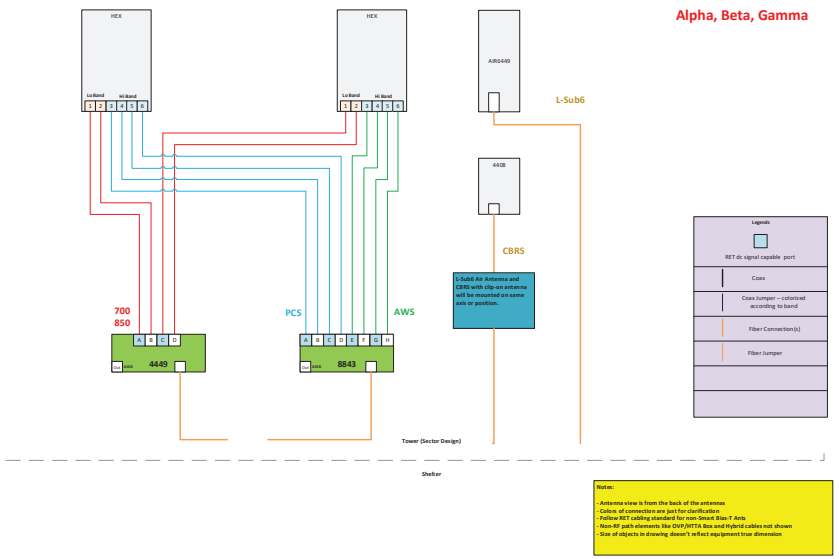
Callsigns Per Antenna

Sector	Antenna Make	Antenna Model	Ant CL Height AGL	Tip Height	Azimuth (TN)	Elec Tilt	Mech Tilt	Gain	Beam Width	Regulatory Power	Callsigns						
											700	850	1900	2100	28 GHz	31 GHz	39 GHz
0001	COMMSCOPE	NHH-65C-R2B	95	99	50	4	0	13.651	58.75	382.66 - PSD		KNKA200					
01	COMMSCOPE	NHH-65C-R2B	95	99	50	2	0	16.280001	65.25	228.31				WQGA952 WQGB264			
01	COMMSCOPE	NHH-65C-R2B	95	99	50	4	0	13.948	64.75	147.76	WQJQ691						
19	ERICSSON	KRE105281/1	93	93.3	50	8	0	8.848	62	28.03							
20	ERICSSON	KRE105281/1	94	94.3	190	8	0	8.848	62	28.03							
01	COMMSCOPE	NHH-65C-R2B	95	99	50	2	0	15.65	68.75	719.1			KNLF207				
01	COMMSCOPE	NHH-65C-R2B	95	99	50	4	0	13.651	58.75	382.66 - PSD		KNKA200					
03	COMMSCOPE	NHH-65C-R2B	96	100	310	2	0	13.495	58.5	382.66 - PSD		KNKA200					
19	ERICSSON	KRE105281/1	93	93.3	50	8	0	8.848	62	28.03							
19	ERICSSON	KRE105281/1	93	93.3	50	8	0	8.848	62	28.03							
0002	Ericsson	AIR6449	98	99.3	190	6	0	22.95	95	1365.07							
0002	COMMSCOPE	NHH-65C-R2B	96	100	190	2	0	13.495	58.5	382.66 - PSD		KNKA200					
20	ERICSSON	KRE105281/1	94	94.3	190	8	0	8.848	62	28.03							
0003	Ericsson	AIR6449	98	99.3	310	6	0	22.95	95	1365.07							
02	COMMSCOPE	NHH-65C-R2B	96	100	190	2	0	13.495	58.5	382.66 - PSD		KNKA200					
03	COMMSCOPE	NHH-65C-R2B	96	100	310	2	0	13.909	65.25	147.83	WQJQ691						
21	ERICSSON	KRE105281/1	94	94.3	310	8	0	8.848	62	28.03							
03	COMMSCOPE	NHH-65C-R2B	96	100	310	2	0	15.65	68.75	719.1			KNLF207				
21	ERICSSON	KRE105281/1	94	94.3	310	8	0	8.848	62	28.03							
21	ERICSSON	KRE105281/1	94	94.3	310	8	0	8.848	62	28.03							
0001	Ericsson	AIR6449	97	98.3	50	6	0	22.95	95	1365.07							
02	COMMSCOPE	NHH-65C-R2B	96	100	190	1	0	15.65	67.75	719.1			KNLF207				
03	COMMSCOPE	NHH-65C-R2B	96	100	310	2	0	16.280001	65.25	228.31				WQGA952 WQGB264			
02	COMMSCOPE	NHH-65C-R2B	96	100	190	2	0	13.909	65.25	147.83	WQJQ691						
0003	COMMSCOPE	NHH-65C-R2B	96	100	310	2	0	13.495	58.5	382.66 - PSD		KNKA200					
02	COMMSCOPE	NHH-65C-R2B	96	100	190	1	0	16.21	65.25	228.31				WQGA952 WQGB264			
19	ERICSSON	KRE105281/1	93	93.3	50	8	0	8.848	62	28.03							
20	ERICSSON	KRE105281/1	94	94.3	190	8	0	8.848	62	28.03							
20	ERICSSON	KRE105281/1	94	94.3	190	8	0	8.848	62	28.03							
21	ERICSSON	KRE105281/1	94	94.3	310	8	0	8.848	62	28.03							

Callsigns

Callsign	Market	Radio Code	Market Number	Block	State	County	Licensee Name	Wholly Owned	Total MHZ	Freq Range 1	Freq Range 2	Freq Range 3	Freq Range 4	Regulatory Power	Threshold (W)	POPs /Sq Mi	Status	Action	Approved for Insvc
WRLD570	*D17031 - Cook, IL*	*PL*	*D17031*	*0*	*17031*	*Cook*	*Verizon Wireless Network Procurement LP*	*Yes*	*100.000*	*3550.000-3650.000*	*.000-.000*	*.000-.000*	*.000-.000*	*28.03*	*501*	*5580.63*	*Active*	*added*	*Yes*
WQJQ691	*Great Lakes*	*WU*	*REA003*	*C*	*17031*	*Cook*	*Cellco Partnership*	*Yes*	*22.000*	*746.000-757.000*	*776.000-787.000*	*.000-.000*	*.000-.000*	*147.83*	*1000*	*5580.63*	*Active*	*added*	*Yes*
WRNE596	*Chicago, IL*	*PM*	*PEA003*	*A1*	*17031*	*Cook*	*Cellco Partnership*	*Yes*	*20.000*	*3700.000-3720.000*	*.000-.000*	*.000-.000*	*.000-.000*	*868.59*	*1640*	*5580.63*	*Active*	*added*	*Yes*
WRHD633	Chicago, IL	UU	PEA003	M2	17031	Cook	Cellco Partnership	Yes	100.000	37700.000-37800.000	.000-.000	.000-.000	.000-.000		0	5580.63	Active		Yes
WRHD638	Chicago, IL	UU	PEA003	M7	17031	Cook	Cellco Partnership	Yes	100.000	38200.000-38300.000	.000-.000	.000-.000	.000-.000		0	5580.63	Active		Yes
CBRS_CALL	*UNLICENSED*	*3.5 GHz*	*UNLICEI*	*UNLICI*	*UNLICI*	*Cook*	*UNLICENSED*	*UNLICI*	*UNLICEI*	*UNLICENSED-UNLICENSED*	*UNLICENSED-UNLICENSED*	*UNLICENSED-UNLICENSED*	*UNLICENSED-UNLICENSED*	*28.03*	*0*	*5580.63*	*Active*	*added*	*No*
WRNE597	*Chicago, IL*	*PM*	*PEA003*	*A2*	*17031*	*Cook*	*Cellco Partnership*	*Yes*	*20.000*	*3720.000-3740.000*	*.000-.000*	*.000-.000*	*.000-.000*	*868.59*	*1640*	*5580.63*	*Active*	*added*	*Yes*
WRHD636	Chicago, IL	UU	PEA003	M5	17031	Cook	Cellco Partnership	Yes	100.000	38000.000-38100.000	.000-.000	.000-.000	.000-.000		0	5580.63	Active		Yes
WRNE598	*Chicago, IL*	*PM*	*PEA003*	*A3*	*17031*	*Cook*	*Cellco Partnership*	*Yes*	*20.000*	*3740.000-3760.000*	*.000-.000*	*.000-.000*	*.000-.000*	*868.59*	*1640*	*5580.63*	*Active*	*added*	*Yes*
WRHD637	Chicago, IL	UU	PEA003	M6	17031	Cook	Cellco Partnership	Yes	100.000	38100.000-38200.000	.000-.000	.000-.000	.000-.000		0	5580.63	Active		Yes
WRNE602	*Chicago, IL*	*PM*	*PEA003*	*B2*	*17031*	*Cook*	*Cellco Partnership*	*Yes*	*20.000*	*3820.000-3840.000*	*.000-.000*	*.000-.000*	*.000-.000*	*369.01*	*1640*	*5580.63*	*Active*	*added*	*Yes*
WRHD639	Chicago, IL	UU	PEA003	M8	17031	Cook	Cellco Partnership	Yes	100.000	38300.000-38400.000	.000-.000	.000-.000	.000-.000		0	5580.63	Active		Yes
WQGB264	*Chicago, IL*	*AW*	*CMA003*	*A*	*17031*	*Cook*	*Cellco Partnership*	*Yes*	*20.000*	*1710.000-1720.000*	*2110.000-2120.000*	*.000-.000*	*.000-.000*	*228.31*	*1640*	*5580.63*	*Active*	*added*	*Yes*
KNLF207	*Chicago*	*CW*	*MTA003*	*B*	*17031*	*Cook*	*Cellco Partnership*	*Yes*	*10.000*	*1880.000-1885.000*	*1960.000-1965.000*	*.000-.000*	*.000-.000*	*681.25*	*1640*	*5580.63*	*Active*	*added*	*Yes*
WRLD569	*D17031 - Cook, IL*	*PL*	*D17031*	*0*	*17031*	*Cook*	*Verizon Wireless Network Procurement LP*	*Yes*	*100.000*	*3550.000-3650.000*	*.000-.000*	*.000-.000*	*.000-.000*	*28.03*	*501*	*5580.63*	*Active*	*added*	*Yes*
WRHD634	Chicago, IL	UU	PEA003	M3	17031	Cook	Cellco Partnership	Yes	100.000	37800.000-37900.000	.000-.000	.000-.000	.000-.000		0	5580.63	Active		Yes
WRLD571	*D17031 - Cook, IL*	*PL*	*D17031*	*0*	*17031*	*Cook*	*Verizon Wireless Network Procurement LP*	*Yes*	*100.000*	*3550.000-3650.000*	*.000-.000*	*.000-.000*	*.000-.000*	*28.03*	*501*	*5580.63*	*Active*	*added*	*Yes*
WRNE603	*Chicago, IL*	*PM*	*PEA003*	*B3*	*17031*	*Cook*	*Cellco Partnership*	*Yes*	*20.000*	*3840.000-3860.000*	*.000-.000*	*.000-.000*	*.000-.000*	*369.01*	*1640*	*5580.63*	*Active*	*added*	*Yes*
WRLD572	*D17031 - Cook, IL*	*PL*	*D17031*	*0*	*17031*	*Cook*	*Verizon Wireless Network Procurement LP*	*Yes*	*100.000*	*3550.000-3650.000*	*.000-.000*	*.000-.000*	*.000-.000*	*28.03*	*501*	*5580.63*	*Active*	*added*	*Yes*
WRNE600	*Chicago, IL*	*PM*	*PEA003*	*A5*	*17031*	*Cook*	*Cellco Partnership*	*Yes*	*20.000*	*3780.000-3800.000*	*.000-.000*	*.000-.000*	*.000-.000*	*868.59*	*1640*	*5580.63*	*Active*	*added*	*Yes*

WQGA952	*Chicago-Gary-Kenosha, IL-IN-WI*	*AW*	*BEA064*	*B*	*17031*	*Cook*	*Cellco Partnership*	*Yes*	*20.000*	*1720.000-1730.000*	*2120.000-2130.000*	*.000-.000*	*.000-.000*	*228.31*	*1640*	*5580.63*	*Active*	*added*	*Yes*
WRHD631	Chicago, IL	UU	PEA003	M1	17031	Cook	Cellco Partnership	Yes	100.000	37600.000-37700.000	.000-.000	.000-.000	.000-.000		0	5580.63	Active		Yes
WRBA756	Chicago, IL	UU	BTA078	L1	17031	Cook	Cellco Partnership	Yes	75.000	27850.000-27925.000	.000-.000	.000-.000	.000-.000		0	5580.63	Active		Yes
KNKA200	*Chicago, IL*	*CL*	*CMA003*	*B*	*17031*	*Cook*	*Chicago SMSA LP*	*No*	*25.000*	*835.000-845.000*	*880.000-890.000*	*846.500-849.000*	*891.500-894.000*	*382.66 - PSD*	*400*	*5580.63*	*Active*	*added*	*Yes*
WRBA757	Chicago, IL	UU	BTA078	L2	17031	Cook	Cellco Partnership	Yes	125.000	27925.000-28050.000	.000-.000	.000-.000	.000-.000		0	5580.63	Active		Yes
WRHD632	Chicago, IL	UU	PEA003	M10	17031	Cook	Cellco Partnership	Yes	100.000	38500.000-38600.000	.000-.000	.000-.000	.000-.000		0	5580.63	Active		Yes
WRHD640	Chicago, IL	UU	PEA003	M9	17031	Cook	Cellco Partnership	Yes	100.000	38400.000-38500.000	.000-.000	.000-.000	.000-.000		0	5580.63	Active		Yes
WRHD635	Chicago, IL	UU	PEA003	M4	17031	Cook	Cellco Partnership	Yes	100.000	37900.000-38000.000	.000-.000	.000-.000	.000-.000		0	5580.63	Active		Yes
WRNE599	*Chicago, IL*	*PM*	*PEA003*	*A4*	*17031*	*Cook*	*Cellco Partnership*	*Yes*	*20.000*	*3760.000-3780.000*	*.000-.000*	*.000-.000*	*.000-.000*	*868.59*	*1640*	*5580.63*	*Active*	*added*	*Yes*
WRNE601	*Chicago, IL*	*PM*	*PEA003*	*B1*	*17031*	*Cook*	*Cellco Partnership*	*Yes*	*20.000*	*3800.000-3820.000*	*.000-.000*	*.000-.000*	*.000-.000*	*369.01*	*1640*	*5580.63*	*Active*	*added*	*Yes*



Prepared by and return to:

Village of Arlington Heights
33 S. Arlington Heights Road
Arlington Heights, Illinois 60005
Attention: Village Clerk

PROCEED AT OWN RISK DECLARATION

BY

YPI ARLINGTON, LLC AND
CHICAGO SMSA LIMITED PARTNERSHIP D/B/A VERIZON WIRELESS

(1500 Shure Drive, Arlington Heights, Illinois
Property Index Number 03-07-102-013)

A2023-61

license and building permits; and (d) Tenant is not entitled to its Requested Approvals by the Village, regardless of expenditures incurred by Owner and Tenant in proceeding prior to the date of, or pursuant to, this Declaration, unless and until Tenant has satisfied all of the terms and conditions of this Declaration, or imposed in connection with the approval of any of the Requested Approvals, or required by all other applicable Village codes and ordinances.

2. Owner and Tenant acknowledge and agree that the Village's consent to this Declaration is not to be deemed or construed as requiring the Village to either: (a) issue any further approvals for operation of the Temporary Use or the Permanent Use on the Property; or (b) approve any or all of the Requested Approvals.

3. The Temporary Use may not be carried out except in strict compliance with: (a) the terms of any and all Village approvals including, without limitation, a special use permit, issued therefor; and (b) this Declaration.

4. The Village has the right to enter the Property at all times from and after the execution of this Declaration to ascertain compliance with the terms, conditions, restrictions, and limitations contained in this Declaration.

5. Tenant must continuously and promptly apply for and pursue every approval required for the Temporary Use and Permanent Use including, without limitation, the Requested Approvals.

6. The Temporary Use must cease upon the earliest of the following to occur:

a. Tenant failing to file an application for the Requested Approvals on or before October 30, 2023, or a later date at the sole discretion of the Village Manager;

b. The Village President and Board of Trustees denying the Temporary Use portion of the Requested Approvals;

c. The Village President and Board of Trustees denying the Permanent Use portion of the Requested Approvals;

d. The Permanent Use commencing; or

e. March 31, 2024.

When the Temporary Use is required to cease, Tenant and Owner at their sole cost and expense, must perform, or cause to be performed, all remedial actions necessary to bring the Property into compliance with the Zoning Code, in a manner satisfactory to the Village

7. Owner and Tenant acknowledge and agree that the remedial actions that may be required pursuant to Paragraph 6 of this Declaration will include, without limitation, the ceasing of the Temporary Use and removal from the Property of all equipment, fixtures, and improvements related to the Temporary Use.

8. In the event that Owner or Tenant fail to perform, or cause to be performed, all remedial actions that may be required pursuant to Paragraph 6 of this Declaration, the Village will have the right, but not the obligation, to: (a) enter the Property and cause to be performed all such remedial actions; (b) charge Owner and Tenant for all costs incurred by the Village in the course

of such remediation, plus an administrative fee of 20% of such costs, which sum will be owed jointly and severally by Owner and Tenant (collectively, the ***"Remediation Costs"***); and (c) record and enforce a lien against the Property for the Remediation Costs.

9. Owner and Tenant expressly acknowledge and agrees that they are jointly and severally and absolute liable and responsible, and the Village has no liability or responsibility whatsoever, for the costs and expenses incurred in connection with the remediation that may be required pursuant to Paragraph 6 of this Declaration.

10. Owner and Tenant each hereby agree to release, indemnify, defend, and hold harmless the Village, its agents, servants, officials, attorneys, and employees from and against any and all injuries, damages, claims, liabilities, demands, causes of action, losses, suits, expenses, liabilities, and judgments of any and all nature and kind whatsoever, including without limitation costs, expenses, and attorneys' fees, arising out of, occasioned by, connected with, or in any way attributable to: (a) this Declaration; (b) any action taken by the Village pursuant to or in connection with this Declaration; or (c) the review and approval by the Village of the Requested Approvals.

11. Owner and Tenant agree to reimburse the Village, promptly upon receipt of an invoice therefor, for the costs and expenses incurred by the Village, including specifically legal fees, in connection with the drafting and execution of this Declaration.

12. This Declaration may not be modified, amended, or annulled without the express, prior written approval of the Village Manager.

13. The provisions of this Declaration run with and bind the Property, and are binding upon Owner and Tenant, and their respective heirs, successors, assigns, agents, licensees, invitees, and representatives, including, without limitation, all subsequent owners of any portion of the Property, and all persons claiming under them. If any of the rights or restrictions imposed by this Declaration would otherwise be unlawful or void for violation of (a) the rule against perpetuities or some analogous statutory provision, (b) the rule restricting restraints on alienation, or (c) any other statutory or common law rules imposing time limits, then such provision will continue only until 21 years after the death of the survivor of the now living lawful descendants of the current President of the United States as of the date of this Declaration.

14. This Declaration will be recorded with the Cook County Clerk's Recording Division, Illinois, and all conveyances relating to the Property, or any part thereof, are subject to the provisions of this Declaration.

[SIGNATURE PAGE FOLLOWS]

IN WITNESS WHEREOF, Owner and Tenant have caused this Declaration to be executed by a duly authorized representative on the date first above written.

OWNER:

ATTEST:

By:_____

Its:_____

YPI ARLINGTON, LLC

By:_____

Its: President

TENANT:

CHICAGO SMSA LIMITED PARTNERSHIP D/B/A VERIZON WIRELESS

ATTEST:

By:_____

Its:_____

By: Cellco Partnership, its General Partner

By:_____

Its: Director - Engineering

Accepted this 25 day of September, 2023.

Randall R. Recklaus
Village Manager
Village of Arlington Heights

ACKNOWLEDGEMENT – OWNER

STATE OF California)
) SS
COUNTY OF Los Angeles)

I, Sally Neuberg, a Notary Public, in and for the County and State aforesaid, DO HEREBY CERTIFY that 26 of 5. Years and _____, who are personally known to me to be the same persons whose names are subscribed to the foregoing instrument on behalf of Tenant, appeared before me this day in person and acknowledged to me that they, being thereunto duly authorized, signed and delivered said instrument as their own free and voluntary acts, for the uses and purposes set forth therein.

GIVEN under my hand and notarial seal this 12th day of October, 2023.

Notary Public

My Commission expires: 12/05/2024

SALLY NEUBERG
Notary Public - California
Los Angeles County
Commission # 2339245
My Comm. Expires Dec 5, 2024

CALIFORNIA ALL-PURPOSE ACKNOWLEDGEMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California

County of Los Angeles

On 10.12.2023 (DATE) before me, Sally Neuberg, Notary Public (NAME, TITLE OF OFFICER - E.G., "JANE DOE, NOTARY PUBLIC")

personally appeared Zaya S. Younan (NAME(S) OF SIGNER(S))

who proved to me on the basis of satisfactory evidence to be the person(s)whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies) and that by his/her/their signature(s)on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

SALLY NEUBERG
Notary Public - California
Los Angeles County
Commission # 2339245
My Comm. Expires Dec 5, 2024

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature _____

OPTIONAL

Though the data below is not required by law, it may prove valuable to persons relying on the documents and could prevent fraudulent reattachment of this form.

CAPACITY CLAIMED BY SIGNED

- ☐ INDIVIDUAL
- ☐ CORPORATE OFFICER

_____ (TITLE(S))

- ☐ LIMITED PARTNER(S)
- ☐ GENERAL PARTNER(S)
- ☐ ATTORNEY-IN-FACT
- ☐ TRUSTEE(S)
- ☐ GUARDIAN/CONSERVATOR

DESCRIPTION OF ATTACHED DOCUMENT

proceed at own risk Agr. (TITLE OR TYPE OF DOCUMENT)

_____ (NUMBER OF PAGES)

_____ (DATE OF DOCUMENT)

ACKNOW

ACKNOWLEDGEMENT – TENANT

STATE OF Illinois)
) SS
COUNTY OF Cook)

I, Patrice Lewis, a Notary Public, in and for the County and State aforesaid, DO HEREBY CERTIFY that Sunny Shah and _____, who are personally known to me to be the same persons whose names are subscribed to the foregoing instrument on behalf of Tenant, appeared before me this day in person and acknowledged to me that they, being thereunto duly authorized, signed and delivered said instrument as their own free and voluntary acts, for the uses and purposes set forth therein.

GIVEN under my hand and notarial seal this 17th day of October, 2023.

Patrice Lewis
Notary Public

My Commission expires: 7/5/2027

Official Seal
PATRICE C LEWIS
Notary Public, State of Illinois
Commission No. 974407
My Commission Expires July 5, 2027

EXHIBIT A

LEGAL DESCRIPTION OF THE PROPERTY

PARCEL 1:

LOT 2 IN BILL KNAPP'S RESUBDIVISION ACCORDING TO THE PLAT THEREOF RECORDED JULY 12, 1983 AS DOCUMENT 26683318, BEING A RESUBDIVISION OF LOT 4 IN ARLINGTON INDUSTRIAL AND RESEARCH CENTER UNIT 12, BEING A SUBDIVISION IN PART OF THE NORTHWEST 1/4 OF SECTION 7, TOWNSHIP 42 NORTH, RANGE 11, EAST OF THE THIRD PRINCIPAL MERIDIAN, IN COOK COUNTY, ILLINOIS.

PARCEL 2:

EASEMENT FOR THE BENEFIT OF PARCEL 1 AS CREATED BY EASEMENT AGREEMENT RECORDED JULY 12, 1983 AS DOCUMENT 26684378 FOR THE PURPOSE OF ACCESS OVER THE SOUTH 17.5 FEET OF THE WEST 170 FEET OF LOT 1 (AS MEASURED ALONG THE SOUTH LINE OF SAID LOT 1) IN BILL KNAPP'S RESUBDIVISION ACCORDING TO THE PLAT THEREOF RECORDED JULY 12, 1983 AS DOCUMENT 26683318, IN THE NORTHWEST 1/4 OF SECTION 7, TOWNSHIP 42 NORTH, RANGE 11, EAST OF THE THIRD PRINCIPAL MERIDIAN, IN COOK COUNTY, ILLINOIS.

PARCEL 3:

LOT 3 IN ARLINGTON INDUSTRIAL AND RESEARCH CENTER UNIT 12, BEING A SUBDIVISION IN PART OF THE NORTHWEST 1/4 OF SECTION 7, TOWNSHIP 42 NORTH, RANGE 11, EAST OF THE THIRD PRINCIPAL MERIDIAN, ACCORDING TO THE PLAT THEREOF RECORDED JULY 13, 1978 AS DOCUMENT NO. 24533497, IN COOK COUNTY, ILLINOIS.

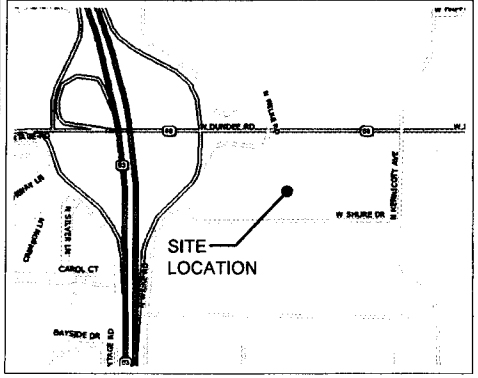
Property Index Number 03-07-102-013

Commonly known as: 1500 Shure Drive, Arlington Heights, Illinois

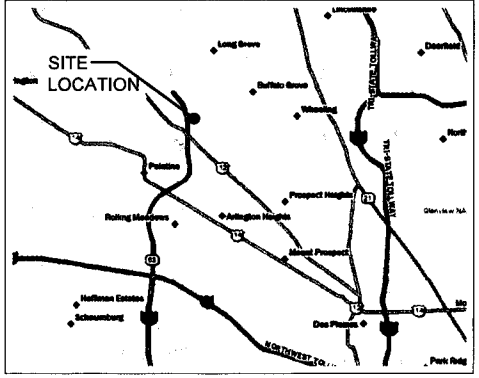
CONSULTANT TEAM

PROJECT CONSULTANT:	TERRA CONSULTING GROUP, LTD. 600 BUSSE HIGHWAY PARK RIDGE, IL 60068 (847) 696-6400
STRUCTURAL: (TOWER ANALYSIS)	HUTTER TRANKINA ENGINEERING 32 W 273 ARMY TRAIL RD, SUITE #100 WAYNE, IL 60184 (630) 513-6711
STRUCTURAL ANALYSIS DATE:	06/20/2023

VICINITY MAP N.T.S.



REGIONAL MAP N.T.S.



PROJECT TYPE

PROPOSED VERIZON ANTENNAS TO BE MOUNTED ON TEMPORARY COLT.

PROJECT INFORMATION

SITE COORDINATES:	LATITUDE: 42° 08' 15.57" N LONGITUDE: 87° 59' 58.81" W
ADDRESS:	1500 SHURE DRIVE ARLINGTON HEIGHTS, IL 60004
JURISDICTION:	VILLAGE OF ARLINGTON HEIGHTS
OCCUPANCY:	UNINHABITED
CONSTRUCTION TYPE:	COLT
PROPERTY OWNER:	VILLAGE OF ARLINGTON HEIGHTS
TOWER OWNER:	VERIZON WIRELESS 1701 GOLF ROAD, TOWER 2 SUITE 400 ROLLING MEADOWS, IL 60008
APPLICANT:	VERIZON WIRELESS 1701 GOLF ROAD, TOWER 2 SUITE 400 ROLLING MEADOWS, IL 60008
REAL ESTATE MANAGER:	ALLEN WAITES (630) 291-7845
CONSTRUCTION MANAGER:	JEREMIAH SAURIOL (847) 706-1765

verizon

1701 GOLF ROAD, TOWER 2, SUITE 400
ROLLING MEADOWS, IL 60008
PHONE: (847) 619-5397 FAX: (847) 706-7415

MGD LOCATION NUMBER: 5000926022

SITE NAME: RAND & 53_TEMP_ASSET

1500 SHURE DRIVE
ARLINGTON HEIGHTS, IL 60004

OPERATES 24 HOURS A DAY 365 DAYS A YEAR

Call Before You Dig
JULIE ILLINOIS ONE CALL SYSTEM
CALL JULIE TOLL FREE 1(800) 892-0123 48 HOURS BEFORE YOU DIG

6/30/2023
Exp 11/30/2023

SHEET	DRAWING INDEX	REVISION
T-1	TITLE SHEET	1,2,3
A-1	SITE PLAN	1
A-2	ENLARGED SITE PLAN	1
ANT-1	SITE ELEVATION	-
ANT-1A	ANTENNA ORIENTATION (PLAN VIEWS)	-
ANT-2	ANTENNA INFORMATION	3
E-1	GROUNDING DETAILS	-

22" x 34" IS FULL SCALE | 11" x 17" IS HALF SCALE

ATTACHMENTS

RFFS (BY OTHERS)

verizon
1701 GOLF ROAD, TOWER 2, SUITE 400
ROLLING MEADOWS, IL 60008
PHONE: (847) 619-5397
FAX: (847) 706-7415

TERRA
600 BUSSE HIGHWAY
PARK RIDGE, IL 60068
PH: 847-696-6400
FAX: 847-696-6491

REVISIONS

NO.	DESCRIPTION	DATE	BY
-	ISSUED FOR REVIEW	05/09/23	JJR
1	UPDATE PER REVISED COMPOUND SIZE/DISCONNECT LOCATION	05/22/23	JJR
2	ISSUED FOR FINAL	06/12/23	APD
3	REVISED PER NEW RFDS	06/20/23	TJS

MGD LOC. # 5000926022

RAND & 53_ TEMP_ASSET

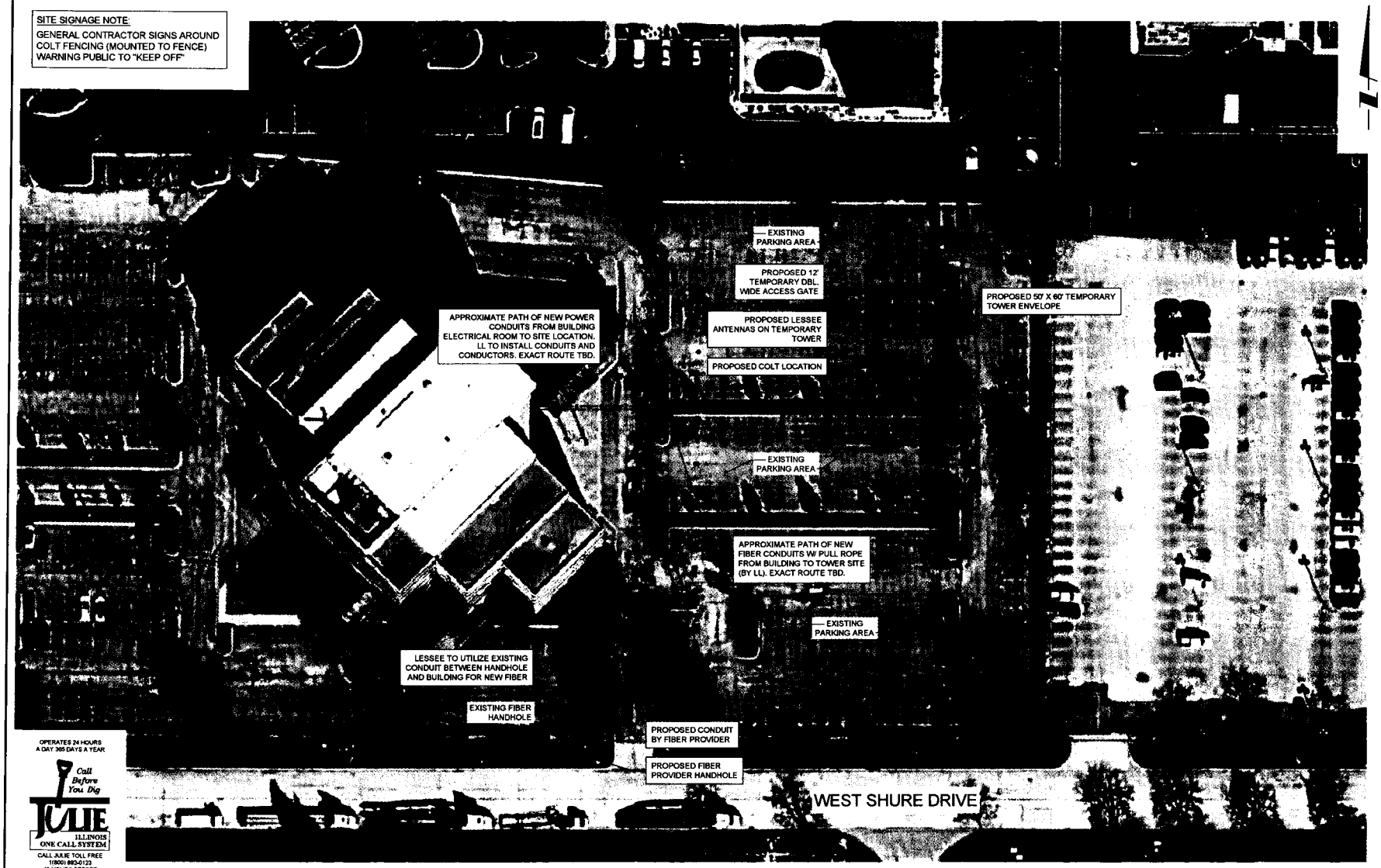
1500 SHURE DR. ARLINGTON HEIGHTS, IL 60004

DRAWN BY:	JJR
CHECKED BY:	DS
DATE:	04/19/23
PROJECT #:	194-072

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

SITE SIGNAGE NOTE:
GENERAL CONTRACTOR SIGNS AROUND COLT FENCING (MOUNTED TO FENCE) WARNING PUBLIC TO "KEEP OFF"



OPERATES 24 HOURS A DAY, 365 DAYS A YEAR

Call Before You Dig
JULIE
ILLINOIS ONE CALL SYSTEM
CALL JULIE TOLL FREE 1(800) 892-0123 48 HOURS BEFORE YOU DIG

THIS SITE PLAN WAS CREATED OFF OF FIELD MEASUREMENTS BY THE DESIGNER, AS BOUNDARY SURVEY WAS NOT SUPPLIED FOR PURPOSES OF SITE LAYOUT.

1 SITE PLAN
SCALE: 1" = 50'

POWER INFORMATION:
PRIMARY POWER:
PROVIDED BY LANDLORD

FIBER INFORMATION:
FIBER:
PROVIDED BY LANDLORD

verizon
1701 GOLF ROAD,
TOWER 2, SUITE 400
ROLLING MEADOWS, IL 60008
PHONE: (847) 619-5397
FAX: (847) 706-7415

TERRA
[redacted]

REVISIONS			
NO.	DESCRIPTION	DATE	BY
-	ISSUED FOR REVIEW	05/09/23	JJR
1	UPDATE PER REVISED COMPOUND SIZE/DISCONNECT LOCATION	05/22/23	JJR
2	ISSUED FOR FINAL	06/22/23	APD
3	REVISED PER NEW RDS	08/30/23	TJS

MGD LOC. # 5000926022

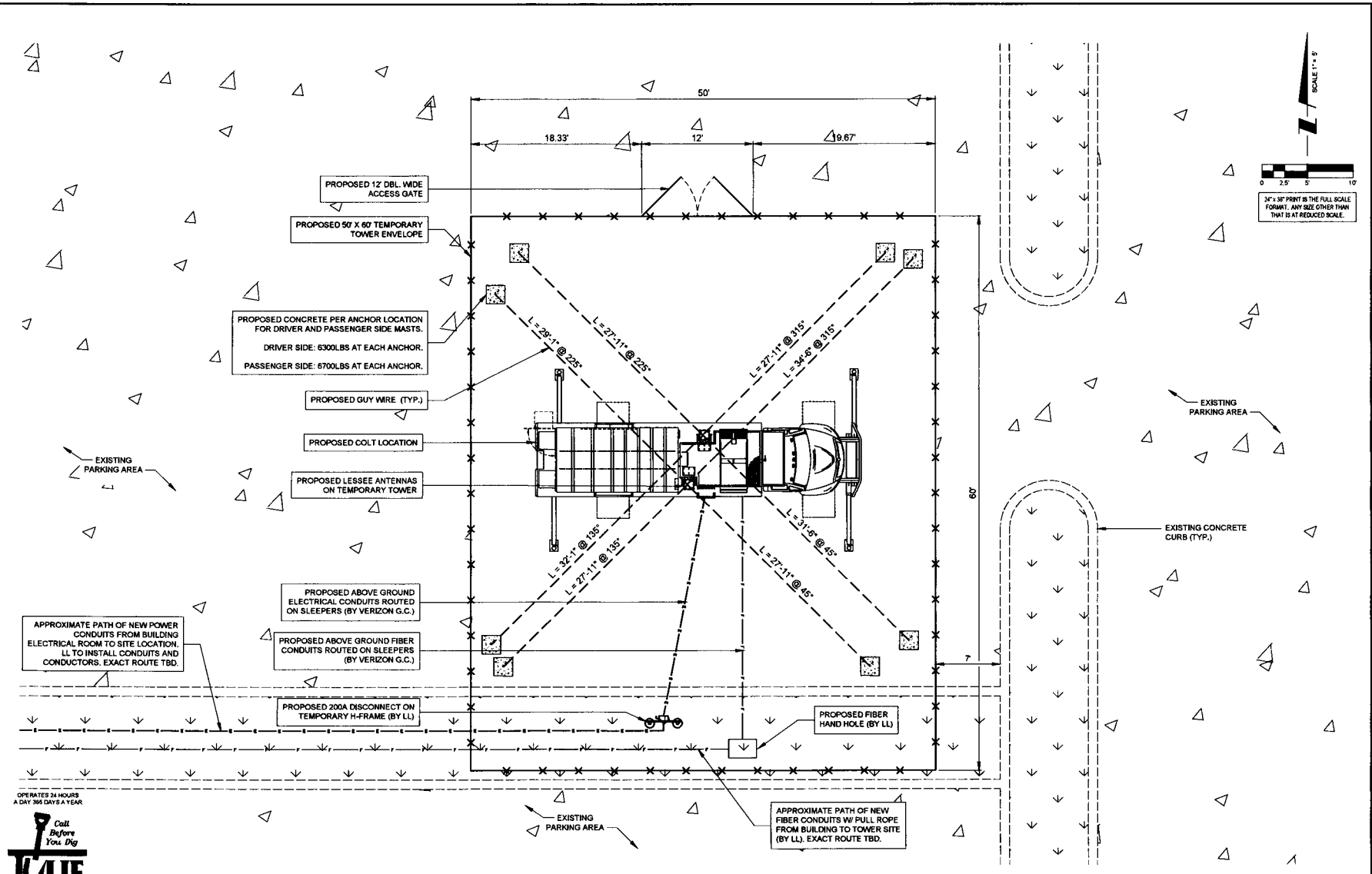
RAND & 53_ TEMP_ASSET

1500 SHURE DR.
ARLINGTON HEIGHTS, IL 60004

DRAWN BY:	JJR
CHECKED BY:	DS
DATE	04/19/23
PROJECT #	194-072

SHEET TITLE
SITE PLAN

SHEET NUMBER
A-1



OPERATES 24 HOURS A DAY 365 DAYS A YEAR

Call Before You Dig
JULIE
ILLINOIS ONE CALL SYSTEM
CALL JULIE TOLL FREE 1(800) 892-0123 48 HOURS BEFORE YOU DIG

1 ENLARGED SITE PLAN
SCALE: 1" = 5'

POWER INFORMATION:

PRIMARY POWER:
PROVIDED BY LANDLORD

FIBER INFORMATION:

FIBER:
PROVIDED BY LANDLORD

verizon
1701 GOLF ROAD,
TOWER 2, SUITE 400
ROLLING MEADOWS, IL 60008
PHONE: (847) 806-5300
FAX: (847) 706-7415

TERRA
565 BUSINESS CENTER DRIVE
PARK RIDGE, IL 60068
PH: 847-698-6400
FAX: 847-698-6401

REVISIONS

NO.	DESCRIPTION	DATE	BY
-	ISSUED FOR REVIEW	05/09/23	JJR
1	UPDATE PER REVISED COMPOUND SIDE/DISCONNECT LOCATION	05/22/23	JJR
2	ISSUED FOR FINAL	06/22/23	AFD
3	REVISED PER NEW RFDS	08/30/23	TJS

MGD LOC. # 5000926022

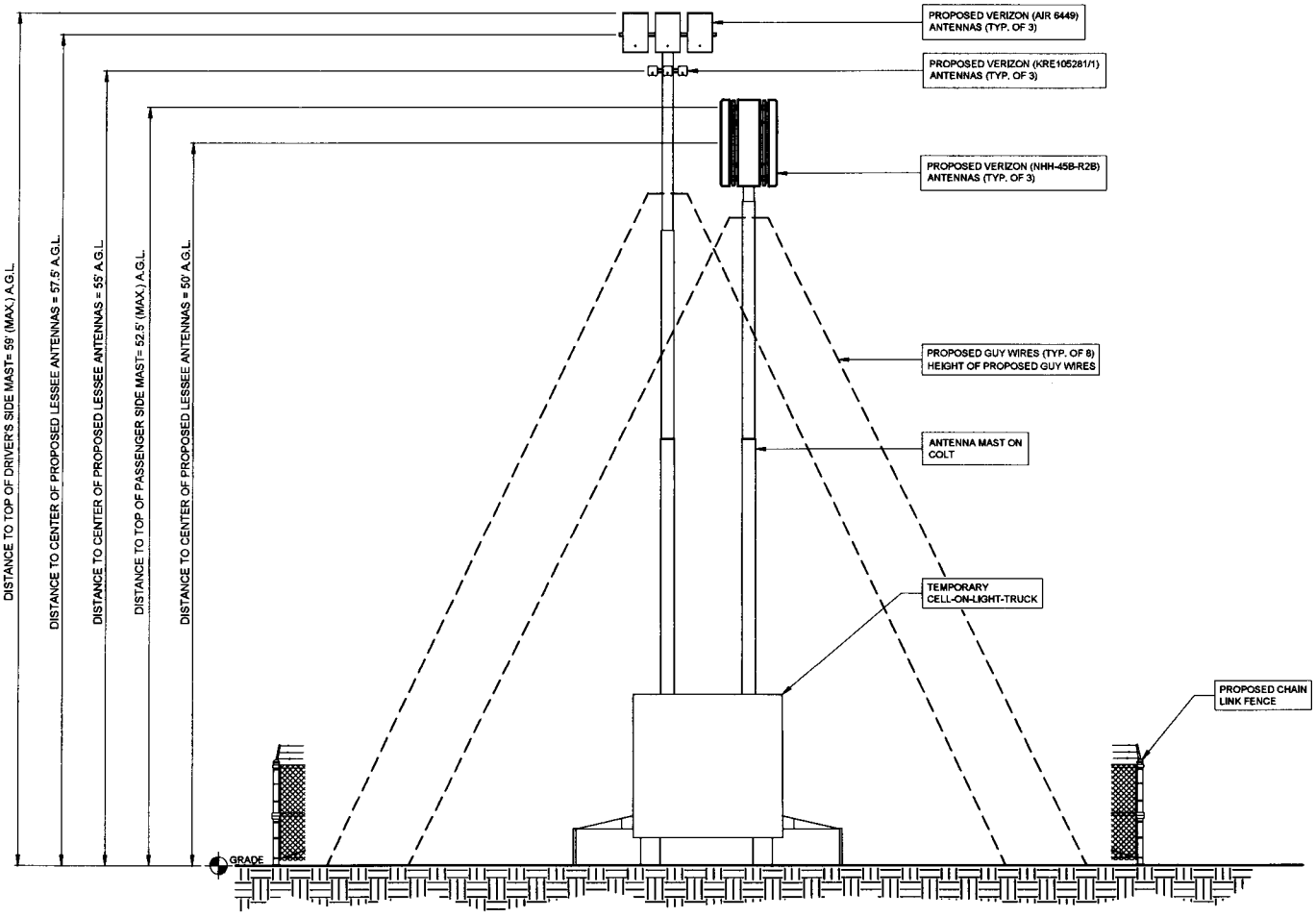
RAND & 53_ TEMP_ASSET

1500 SHURE DR.
ARLINGTON HEIGHTS, IL 60004

DRAWN BY:	JJR
CHECKED BY:	DS
DATE	04/19/23
PROJECT #:	194-072

SHEET TITLE
ENLARGED SITE PLAN

SHEET NUMBER
A-2



1 SITE ELEVATION
SCALE: 1/4" = 1'-0"

verizon
1701 GOLF ROAD
TOWER 2, SUITE 400
ROLLING MEADOWS, IL 60008
PHONE: (847) 619-5397
FAX: (847) 706-7415

TERRA
PARK RIDGE, IL 60068
PH: 847-698-6490
FAX: 847-698-6491

REVISIONS

NO.	DESCRIPTION	DATE	BY
-	ISSUED FOR REVIEW	05/05/23	JJR
1	UPDATE PER REVISED COMPOUND SIZE/DISCONNECT LOCATION	05/22/23	JJR
2	ISSUED FOR FINAL	05/22/23	APD
3	REVISED PER MEM RFDS	06/30/23	TJS

MGD LOC. # 5000926022

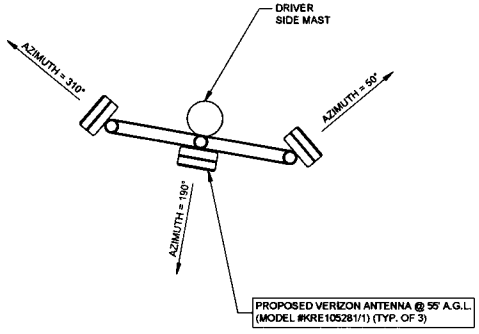
RAND & 53_ TEMP_ASSET

1500 SHURE DR.
ARLINGTON HEIGHTS, IL 60004

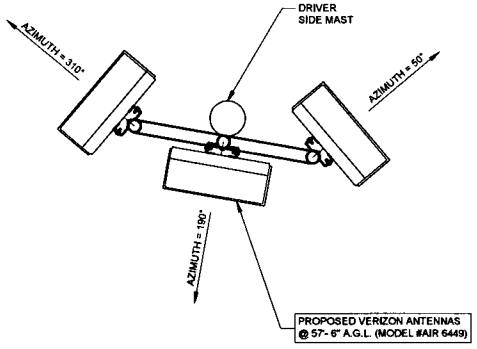
DRAWN BY:	JJR
CHECKED BY:	DS
DATE:	04/19/23
PROJECT #:	194-072

SHEET TITLE
SITE ELEVATION

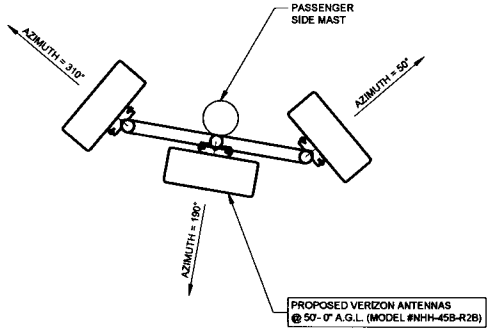
SHEET NUMBER
ANT-1



1 DRIVER SIDE MAST:
ELEVATION @ 55'-0"
SCALE: 1" = 1'-0"



2 DRIVER SIDE MAST:
ELEVATION @ 57'-6"
SCALE: 1" = 1'-0"



3 PASSENGER SIDE MAST:
ELEVATION @ 50'-0"
SCALE: 1" = 1'-0"

verizon
1701 GOLF ROAD,
TOWER 3, SUITE 400,
ROLLING MEADOWS, IL 60008
PHONE (847) 619-3397
FAX: (847) 706-7415

TERRA
[illegible]
PH: 847-[illegible]
FAX: 847-[illegible]

REVISIONS

NO.	DESCRIPTION	DATE	BY
-	ISSUED FOR REVIEW	05/08/23	JJR
1	UPDATE PER REVISED COMPOUND SIZE/EQUIPMENT LOCATION	05/22/23	JJR
2	ISSUED FOR FINAL	04/20/23	APD
3	REVISED PER NEW RFDS	05/30/23	TLS

MGD LOC. #
5000926022

RAND & 53_
TEMP_ASSET

1500 SHURE DR.
ARLINGTON HEIGHTS, IL 60004

DRAWN BY:	JJR
CHECKED BY:	DS
DATE:	04/19/23
PROJECT #:	194-072

SHEET TITLE
ANTENNA ORIENTATION
(PLAN VIEWS)

SHEET NUMBER
ANT-1A

verizon
NPP RFDS

WEST > Upper Midwest > Illinois/Wisconsin > Elgin-1 > RAND&53 Temp Asset
Mcdaniel, Jessie - jessie.mcdaniel@verizonwireless.com - 20230627_102037

Project Details		Location Information	
Carrier Abbreviation	M	Site Id	617286675
Echo	N	Search Ring#	
Project Name	COW SPECIAL EVENT	E-Hosted ISR	null
Project Alt Name	COW SPECIAL EVENT	Site ID	E
Project Id	1700001	Switch Name	Elgin-1
Deployed Sector Carrier 4G	24	Tower Type	
Deployed Sector Carrier 5G	0	Site Type	TEMPORARY
Additional Sector Carrier 4G	0	Street Address	1500 Shure Drive
Additional Sector Carrier 5G	0	City	Arlington Heights
Suffix		State	IL
FP Solution Type & Tech Type	MIDH/O, FR4/O, 4449B, 4894B, AIR6449, 4890B/B, LTE/5G, LTE/5G, FCS	Zip Code	60004
		County	Cook
		Latitude	42.11750
		Longitude	-87.99997

1 RFDS TITLE SHEET
N.T.S.

Antenna Summary

Added Antennas

LTE	5G/LTE	LTE	LTE			COMMSCOPE	NHH-65B-R2B	30	30	65C(1),180(2),3 19(3)	PHYSICAL	3
				LTE		ERICSSON	KRE101281/1	56	56.3	65C(B),190(2),3 ,19(21)	PHYSICAL	3
					5G	Ericsson	AIR6449	67.5	69.8	65C(1),190(2),3 19(3)	PHYSICAL	3

Removed Antennas

Retained Antennas

Added: 6	Removed: 0	Retained: 0

2 ANTENNA SUMMARY
N.T.S.

Non Antenna Summary

Added Non Antennas

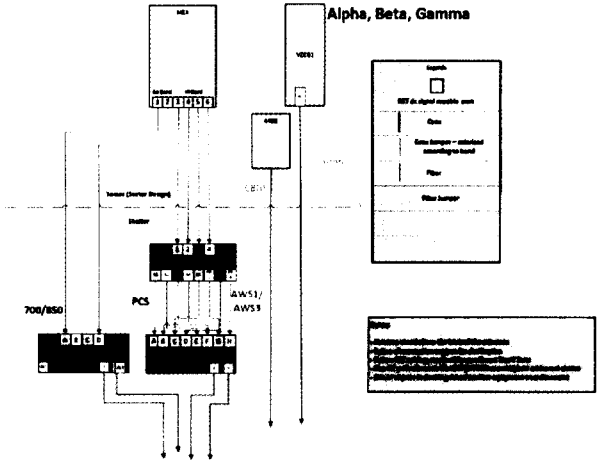
Hybrid Cable	Tower						N/A	1x1 Hybrid Jumper	PHYSICAL	6
Ustilizer	Ground (Outdoor						Commscope	UXR182SO-DB-43	PHYSICAL	3
Coaxial Cables	Tower						N/A	1/2" Coax	PHYSICAL	15
RRU	Tower				LTE		Ericsson	4408,B46,DC	PHYSICAL	3
RRU	Tower		LTE	LTE			Ericsson	8843	PHYSICAL	3
RRU	Tower	LTE	5G/LTE				Ericsson	4449	PHYSICAL	3
RRU	Tower					5G	Ericsson	AIR6449	PHYSICAL	3

Removed Non Antennas

Retained Non Antennas

Added: 39	Removed: 0	Retained: 0

3 EQUIPMENT SUMMARY
N.T.S.



4 CABLE DIAGRAM
N.T.S.

verizon
1701 GOLF ROAD
TOWER 1, SUITE 400
ROLLING MEADOWS, IL 60008
PHONE: (847) 619-2397
FAX: (847) 706-7415

TERRA
999 SHURE DRIVE
PARK RIDGE, IL 60068
PH: 847-698-6400
FAX: 847-698-6401

REVISIONS

NO.	DESCRIPTION	DATE	BY
-	ISSUED FOR REVIEW	05/08/23	JJR
1	UPDATE PER REVISED COMPOUND SIZE/DISCONNECT LOCATION	05/22/23	JJR
2	ISSUED FOR FINAL	06/02/23	APD
3	REVISED PER NEW RFDS	06/30/23	TJS

MGD LOC. # 5000926022

RAND & 53_ TEMP_ASSET

1500 SHURE DR.
ARLINGTON HEIGHTS, IL 60004

DRAWN BY:	JJR
CHECKED BY:	DS
DATE:	04/19/23
PROJECT #:	194-072

SHEET TITLE
ANTENNA INFORMATION

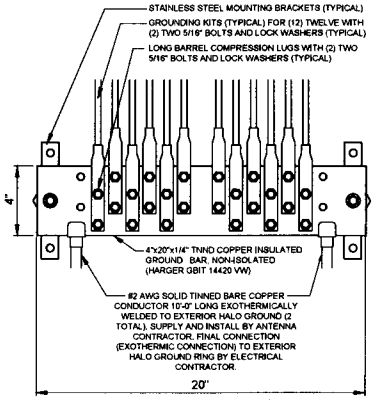
SHEET NUMBER
ANT-2

GROUNDING ELECTRODE SYSTEM NOTES:

1. ALL GROUNDING CONNECTIONS SHALL BE MADE BY THE EXOTHERMIC PROCESS CONNECTIONS SHALL INCLUDE ALL CABLE TO CABLE, SPLICES, ETC. ALL CABLE TO GROUND RODS, GROUND RODS SPLICES AND LIGHTNING PROTECTION SYSTEM AS INDICATED. GROUND FOUNDATION ONLY AS INDICATED BY PM. ALL MATERIALS USED (MOLDS, WELDING, METAL, TOOLS, ETC.) SHALL BE BY EXOTHERMIC PROCESS AND INSTALLED PER MANUFACTURERS RECOMMENDATIONS AND PROCEDURES.GROUND CONDUCTOR SHALL HAVE A MINIMUM 24" BENDING RADIUS.
2. ALL EXOTHERMIC CONNECTIONS ON GALVANIZED SURFACES SHALL BE CLEANED THOROUGHLY AND COLORED TO MATCH SURFACE WITH (2) TWO COATS OF SHERWIN-WILLIAMS GALVITE (WHITE) PAINT B50W3 (OR EQUAL) OR SHERWIN- WILLIAMS SILVERBRITE (ALUMINUM) B56B11 (OR EQUAL). ALL ELECTRICAL & MECHANICAL GROUND CONNECTIONS SHALL HAVE ANTI-OXIDANT COMPOUND APPLIED TO CONNECTION
3. FENCE/GATE: GROUND FENCE POSTS WITHIN 6 FEET OF ENCLOSURE AND 25 FEET OF TOWER AS INDICATED ON DRAWINGS. GROUND EACH GATE POST AND CORNER POST. GROUND CONNECTIONS TO FENCE POSTS SHALL BE MADE BY THE EXOTHERMIC PROCESS AND INSTALLED PER MANUFACTURER'S RECOMMENDATIONS AND PROCEDURES. ALL OTHER CONNECTIONS FOR THE GROUND GRID SYSTEM SHALL BE MADE BY THE EXOTHERMIC PROCESS, AND INSTALLED PER MANUFACTURER'S RECOMMENDATIONS AND PROCEDURES.
4. AFTER INSTALLATION OF THE CANOPY AT THE DOOR, GC/EC IS TO BOND THE CANOPY TO THE DOOR FRAME WITH A #2 CONDUCTOR. USE DOUBLE-LUG CONNECTION. PREP AND PAINT SURFACE TO MATCH AFTER INSTALLATION.
5. UTILITY COMPANY COORDINATION: ELECTRICAL CONTRACTOR SHALL CONFIRM THAT ALL WORK IS IN ACCORDANCE WITH THE RULES OF THE LOCAL UTILITY COMPANY BEFORE SUBMITTING THE BID, THE CONTRACTOR SHALL CHECK WITH THE UTILITY COMPANIES SUPPLYING SERVICE TO THIS PROJECT AND SHALL DETERMINE FROM THEM ALL EQUIPMENT AND CHARGES WHICH THEY WILL REQUIRE AND SHALL INCLUDE THE COST IN THE BID.
6. GROUND TEST: GROUND TESTS SHALL BE PERFORMED AS REQUIRED BY LESSEE STANDARD PROCEDURES. GROUND GRID RESISTANCE SHALL NOT EXCEED 5 OHMS.
7. CONTRACTOR SHALL SUBMIT THE GROUND RESISTANCE TEST REPORT AS FOLLOWS:
   ONE (1) COPY TO OWNER REPRESENTATIVE
   ONE (1) COPY TO ENGINEER
   ONE (1) COPY TO KEEP INSIDE EQUIPMENT ENCLOSURE

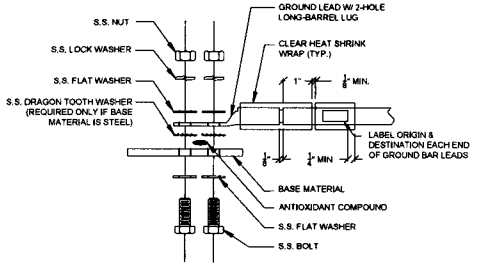
NOTE:

DO NOT ATTACH GROUND BARS ON ANY OF THE TANKS COATED SURFACES

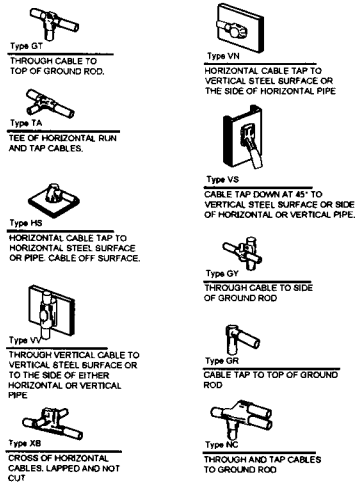


1 EXTERIOR GROUND BAR DETAIL
N.T.S.

NOTES:
1. ALL HARDWARE 18-8 STAINLESS STEEL INCLUDING BELLEVILLES. COAT ALL SURFACES WITH KOPR-SHIELD BEFORE MATING.
2. FOR GROUND BOND TO STEEL ONLY: INSERT A DRAGON TOOTH WASHER BETWEEN LUG AND STEEL, COAT ALL SURFACES WITH KOPR-SHIELD.
3. GROUND BARS, INSTALL BOLT HEAD TOWARD WALL
4. ENCLOSURES, INSTALL BOLT HEAD ON OUTSIDE OF ENCLOSURE

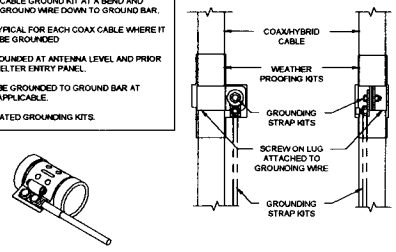


2 GROUND LUG INSTALLATION DETAIL
N.T.S.

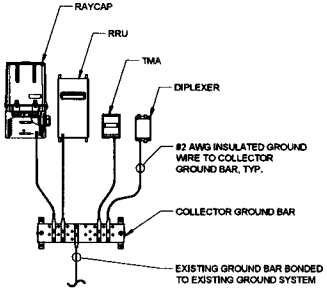


3 EXOTHERMIC WELD DETAILS
EXOTHERMIC AND HARGER ULTRAWELD OR APPROVED EQUAL

NOTES
1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
2. THIS DETAIL IS TYPICAL FOR EACH COAX CABLE WHERE IT IS SPECIFIED TO BE GROUNDED
3. CABLE TO BE GROUNDED AT ANTENNA LEVEL AND PRIOR TO ENTERING SHELTER ENTRY PANEL.
4. CABLE ALSO TO BE GROUNDED TO GROUND BAR AT TOWER BASE IF APPLICABLE.
5. USE ONLY TIN PLATED GROUNDING KITS.



4 COAX / HYBRID CABLE GROUND KIT DETAIL
N.T.S.



NOTES:
1. DETAIL IS CONCEPTUAL ONLY. PLEASE SEE ECR AND LAYOUT SHEETS FOR ACTUAL EQUIPMENT CONFIGURATION.
2. GROUND CONNECTIONS MUST BE DOUBLE HOLE CONNECTION. SPECIAL EXCEPTION ONLY TO EQUIPMENT THAT WILL NOT ALLOW FOR A DOUBLE HOLE CONNECTION.

5 TYPICAL APPURTENANCE GROUNDING
SCALE: N.T.S.

verizon
1701 GOLF ROAD,
TOWER 2, SUITE 400
ROLLING MEADOWS, IL 60008
PHONE: (847) 427-7000
FAX: (847) 706-7415

TERRA

REVISIONS

NO.	DESCRIPTION	DATE	BY
-	ISSUED FOR REVIEW	05/04/23	JJR
1	UPDATE PER REVISED COMPOUND SIZE/EXISTING CONNECT LOCATION	05/22/23	JJR
2	ISSUED FOR FINAL	06/22/23	KPD
3	REVISED PER NEW RFDS	06/30/23	TJS

MGD LOC. # 5000926022

RAND & 53_ TEMP_ASSET

1500 SHURE DR.
ARLINGTON HEIGHTS, IL 60004

DRAWN BY:	JJR
CHECKED BY:	DS
DATE:	04/19/23
PROJECT #:	194-072

SHEET TITLE
GROUNDING DETAILS

SHEET NUMBER
E-1

verizon
NPP RFDS

WEST > Upper Midwest > Illinois/Wisconsin > Elgin-1 > RAND&3_Temp_Asset

Mcdaniel, Jesse - jesse.mcdaniel@verizonwireless.com - 20230627_102037

Project Details		Location Information	
Carrier Abbreviation	N	Site Id	617386575
Eclp	N	Branch Route	
Project Name	COW SPECIAL EVENT	E-NodeB ID#	null
Project Alt Name	COW SPECIAL EVENT	PSLCR	0
Project Id	17084021	Switch Name	Elgin-1
Designed Sector Carrier 4G	24	Tower Type	
Designed Sector Carrier 5G	6	Site Type	TEMPORARY
Additional Sector Carrier 4G	0	Street Address	1650 Shure Drive
Additional Sector Carrier 5G	0	City	Arlington Heights
Suffix		State	IL
FP Solution Type & Tech Type	MCR:4G_700:4G_850:5G_850:4G_AWS:4G_CBRS:5G_L-Band:5G_PCS	Zip Code	60004
		County	Cook
		Latitude	42.13765
		Longitude	-87.99987

Project Scope

Antenna Summary

Added Antenna

Sector	Antenna Technology	Antenna Type	Technology	Band	Band Class	Antenna Model	Antenna Make	Azimuth	Mechanical Downtilt	Port Configuration	Antenna Type	Number of Ports
LTE	5G,LTE	LTE	LTE			COMMSCOPE	NHH-45B-R2B	50	53	50(1),190(2),310(3)	PHYSICAL	3
				LTE		ERICSSON	KRE105281/1	55	55.3	50(18),190(20),310(21)	PHYSICAL	3
					5G	Ericsson	AIR6449	57.6	58.9	50(1),190(2),3 10(3)	PHYSICAL	3

Removed Antenna

Sector	Sector Id	Band	Antenna Technology	Antenna Type	Technology	Band Class	Antenna Model	Antenna Make	Azimuth	Mechanical Downtilt	Port Configuration	Antenna Type	Number of Ports

Retained Antenna

Sector	Sector Id	Band	Antenna Technology	Antenna Type	Technology	Band Class	Antenna Model	Antenna Make	Azimuth	Mechanical Downtilt	Port Configuration	Antenna Type	Number of Ports

Added: 9	Removed: 0	Retained: 0

Non Antenna Summary

Added Non Antenna

Equipment Type	Location	Sector	Band	Band Class	Band	Band Class	Sector Id	Make	Model	Cable Type	Number of Ports
Hybrid Cable	Tower							N/A	1x1 Hybrid Jumper	PHYSICAL	6
Diplexer	Ground (Outdoor							Commscope	CDX1923Q-DS-43	PHYSICAL	3
Coaxial Cables	Tower							N/A	1/2"" Coax	PHYSICAL	18
RRU	Tower					LTE		Ericsson	4408 B48 DC	PHYSICAL	3
RRU	Tower			LTE	LTE			Ericsson	8843	PHYSICAL	3
RRU	Tower	LTE	5G,LTE					Ericsson	4449	PHYSICAL	3
RRU	Tower						5G	Ericsson	AIR6449	PHYSICAL	3

Removed Non Antenna

Equipment Type	Location	Sector	Band	Band Class	Band	Band Class	Sector Id	Make	Model	Cable Type	Number of Ports

Retained Non Antenna

Equipment Type	Location	Sector	Band	Band Class	Band	Band Class	Sector Id	Make	Model	Cable Type	Number of Ports

Added: 39	Removed: 0	Retained: 0

Services

1900 LTE	CAND		
Sector	01	02	03
Azimuth	50	190	310
CellBarredId			
Antenna Model	NHH-45B-R2B	NHH-45B-R2B	NHH-45B-R2B
Antenna Make	COMMSCOPE	COMMSCOPE	COMMSCOPE
CellBarring	50	50	50
DLEARFCN	925	925	925
Mech DownTilt	0	0	0
Elec DownTilt	2	1	2
Tip Height	53	53	53
Reg Max Power	1111.70 (W/MHz) EIRP	1111.70 (W/MHz) EIRP	1111.70 (W/MHz) EIRP
Cell Max Power	47.78 dBm	47.78 dBm	47.78 dBm
TAC1 Value			
TAC2 Value			
RRU Make	Ericsson	Ericsson	Ericsson
RRU Model	8843	8843	8843
Number of Ports	4 , 4	4 , 4	4 , 4
Position			
TransMode Id	16806590	16806593	16806596
Source	VZNPP	VZNPP	VZNPP
Structure	5	5	5
Ant. Dimensions H x W x Depth	72.0 x 17.99 x 7.0	72.0 x 17.99 x 7.0	72.0 x 17.99 x 7.0
Weight(lbs)	73.44	73.44	73.44

Services			
700 LTE	CAND		
Sector	01	02	03
Azimuth	50	190	310
Cell/Sector-Id			
Antenna Model	NHH-45B-R2B	NHH-45B-R2B	NHH-45B-R2B
Antenna Make	COMMSCOPE	COMMSCOPE	COMMSCOPE
Centerline	50	50	50
DL EARFCN	5230	5230	5230
Mech Down-tilt	0	0	0
Elec Down-tilt	4	2	2
Tip Height	53	53	53
Regulatory Power	167.40 (W/MHz) ERP	167.40 (W/MHz) ERP	167.40 (W/MHz) ERP
Cell Max Power	47.78 dBm	47.78 dBm	47.78 dBm
TMA Make			
TMA Model			
RRU Make	Ericsson	Ericsson	Ericsson
RRU Model	4449	4449	4449
Number of TX/RX	4 , 4	4 , 4	4 , 4
Position			
Transmitter Id	16806589	16806592	16806595
Status	VZNPP	VZNPP	VZNPP
Bandwidth	10	10	10
Ant. Dimensions H x W x D(mm)	72.0 x 17.99 x 7.0	72.0 x 17.99 x 7.0	72.0 x 17.99 x 7.0
Weight(lb)	73.44	73.44	73.44

Services			
850 LTE	CAND		
Sector	01	02	03
Azimuth	50	190	310
Cell/Sector-Id			
Antenna Model	NHH-45B-R2B	NHH-45B-R2B	NHH-45B-R2B
Antenna Make	COMMSCOPE	COMMSCOPE	COMMSCOPE
Centerline	50	50	50
DL EARFCN	2561	2561	2561
Mech Down-tilt	0	0	0
Elec Down-tilt	4	2	2
Tip Height	53	53	53
Regulatory Power	392.48 (W/MHz) ERPSD	392.48 (W/MHz) ERPSD	392.48 (W/MHz) ERPSD
Cell Max Power	44.7 dBm	44.7 dBm	44.7 dBm
TMA Make			
TMA Model			
RRU Make	Ericsson	Ericsson	Ericsson
RRU Model	4449	4449	4449
Number of TX/RX	4 , 4	4 , 4	4 , 4
Position			
Transmitter Id	16806610	16806611	16806612
Status	VZNPP	VZNPP	VZNPP
Bandwidth	10	10	10
Ant. Dimensions H x W x D(mm)	72.0 x 17.99 x 7.0	72.0 x 17.99 x 7.0	72.0 x 17.99 x 7.0
Weight(lb)	73.44	73.44	73.44

Services			
850 NR	CAND		
Sector	0001	0002	0003
Azimuth	50	190	310
Cell/Sector-Id			
Antenna Model	NHH-45B-R2B	NHH-45B-R2B	NHH-45B-R2B
Antenna Make	COMMSCOPE	COMMSCOPE	COMMSCOPE
Centerline	50	50	50
DL EARFCN	2561	2561	2561
Mech Down-tilt	0	0	0
Elec Down-tilt	4	2	2
Tip Height	53	53	53
Regulatory Power	392.48 (W/MHz) ERPSD	392.48 (W/MHz) ERPSD	392.48 (W/MHz) ERPSD
Cell Max Power	44.7 dBm	44.7 dBm	44.7 dBm
TMA Make			
TMA Model			
RRU Make	Ericsson	Ericsson	Ericsson
RRU Model	4449	4449	4449
Number of TX/RX	4 , 4	4 , 4	4 , 4
Position			
Transmitter Id	16806610	16806611	16806612
Status	VZNPP	VZNPP	VZNPP
Bandwidth	10	10	10
Ant. Dimensions H x W x D(mm)	72.0 x 17.99 x 7.0	72.0 x 17.99 x 7.0	72.0 x 17.99 x 7.0
Weight(lb)	73.44	73.44	73.44

Services			
AWS LTE	CAND		
Sector	01	02	03
Azimuth	50	190	310
Cell/Sector-Id			
Antenna Model	NHH-45B-R2B	NHH-45B-R2B	NHH-45B-R2B
Antenna Make	COMMSCOPE	COMMSCOPE	COMMSCOPE
Centerline	50	50	50
DL EARFCN	2050	2050	2050
Mech Down-tilt	0	0	0
Elec Down-tilt	2	1	2
Tip Height	53	53	53
Regulatory Power	327.21 (W/MHz) EIRP	327.21 (W/MHz) EIRP	327.21 (W/MHz) EIRP
Cell Max Power	47.78 dBm	47.78 dBm	47.78 dBm
TMA Make			
TMA Model			
RRU Make	Ericsson	Ericsson	Ericsson
RRU Model	8843	8843	8843
Number of TX/RX	4 , 4	4 , 4	4 , 4
Position			
Transmitter Id	16806591	16806594	16806597
Status	VZNPP	VZNPP	VZNPP
Bandwidth	20	20	20
Ant. Dimensions H x W x D(mm)	72.0 x 17.99 x 7.0	72.0 x 17.99 x 7.0	72.0 x 17.99 x 7.0
Weight(lb)	73.44	73.44	73.44

Services			
CBAND NR		CAND	
[redacted]		0001	0002	0003
[redacted]		50	190	310
[redacted]				
[redacted]		AIR6449	AIR6449	AIR6449
[redacted]		Ericsson	Ericsson	Ericsson
[redacted]		57.6	57.6	57.6
[redacted]		648672	648672	648672
[redacted]		0	0	0
[redacted]		6	6	6
[redacted]		58.9	58.9	58.9
[redacted]		1365.07 (W/MHz) EIRP	1365.07 (W/MHz) EIRP	1365.07 (W/MHz) EIRP
[redacted]		50.8 dBm	50.8 dBm	50.8 dBm
[redacted]				
[redacted]				
[redacted]		Ericsson	Ericsson	Ericsson
[redacted]		AIR6449	AIR6449	AIR6449
[redacted]		2 , 2	2 , 2	2 , 2
[redacted]				
[redacted]		16806613	16806614	16806615
[redacted]		VZNPP	VZNPP	VZNPP
[redacted]		60	60	60
[redacted]		30.8 x 16.1 x 10.8	30.8 x 16.1 x 10.8	30.8 x 16.1 x 10.8
[redacted]		88.0	88.0	88.0

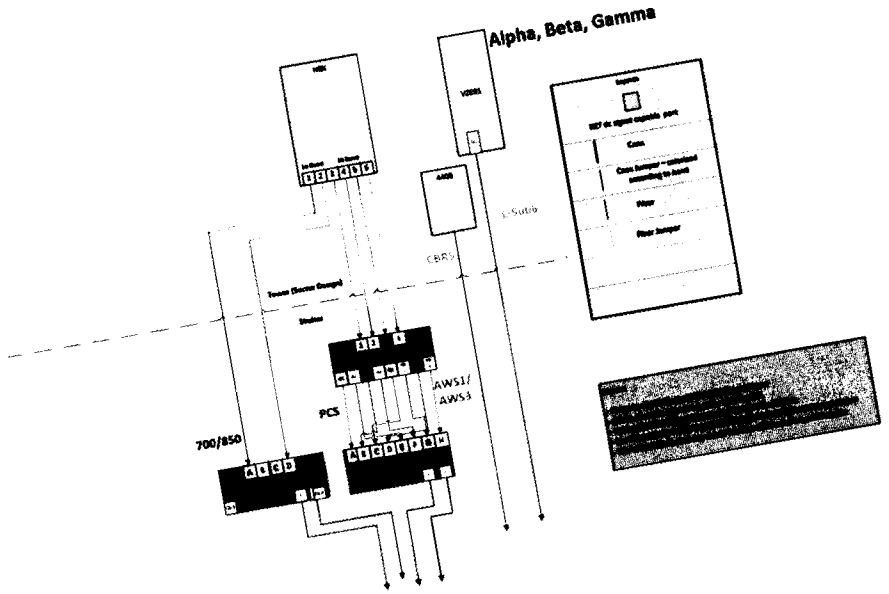
Services			
CBRS LTE		CAND	
[redacted]		19	20	21
[redacted]		50	190	310
[redacted]				
[redacted]		KRE105281/1	KRE105281/1	KRE105281/1
[redacted]		ERICSSON	ERICSSON	ERICSSON
[redacted]		55	55	55
[redacted]		55790, 55890, 55990, 56090	55790, 55890, 55990, 56090	55790, 55890, 55990, 56090
[redacted]		0	0	0
[redacted]		8, 8, 8, 8	8, 8, 8, 8	8, 8, 8, 8
[redacted]		55.3	55.3	55.3
[redacted]		28.03 (W/MHz) EIRPSD	28.03 (W/MHz) EIRPSD	28.03 (W/MHz) EIRPSD
[redacted]		37.0 dBm	37.0 dBm	37.0 dBm
[redacted]				
[redacted]				
[redacted]		Ericsson	Ericsson	Ericsson
[redacted]		4408 B48 DC	4408 B48 DC	4408 B48 DC
[redacted]		4 , 4	4 , 4	4 , 4
[redacted]				
[redacted]		16806598, 16806599, 16806600, 16806601	16806602, 16806603, 16806604, 16806605	16806606, 16806607, 16806608, 16806609
[redacted]		VZNPP	VZNPP	VZNPP
[redacted]		10, 10, 10, 10	10, 10, 10, 10	10, 10, 10, 10
[redacted]		7.87 x 7.87 x 0.98	7.87 x 7.87 x 0.98	7.87 x 7.87 x 0.98
[redacted]		1.76	1.76	1.76

Callsigns Per Antenna

Sector	Radio	Model	Port (TX/RX) A	Port (TX/RX) B	Azimuth	Mech. Downtilt	Elec. Downtilt	Beamwidth H-Plane	Beamwidth V-Plane	Tilt	Band	Radio	Radio	Radio	Antenna	Antenna	Antenna
00	ERICSSON	KRE105281/1	55	56,1	190	3	0	8.9dB	83	28.03							
10	ERICSSON	KRE105281/1	55	56,1	60	3	0	8.9dB	83	28.03							
0003	COMMSCOPE	NHH-45B-R3B	50	53	310	2	0	65.0B	42.75	327.21		XMLF207					
21	ERICSSON	KRE105281/1	56	56,1	310	3	0	8.9dB	83	28.03							
20	COMMSCOPE	NHH-45B-R3B	50	53	190	2	0	65.0B	42.75	327.21		XMLF207					
01	COMMSCOPE	NHH-45B-R3B	50	53	50	2	0	17.5dB	44.5	1111.7							
03	COMMSCOPE	NHH-45B-R3B	50	53	310	2	0	14.3dB	47.4	167.4	MIDUO881						
30	ERICSSON	KRE105281/1	55	56,1	190	3	0	8.9dB	83	28.03							
11	ERICSSON	KRE105281/1	55	56,1	50	3	0	8.9dB	83	28.03							
23	ERICSSON	KRE105281/1	56	56,1	310	3	0	8.9dB	83	28.03							
0002	Ruckus	AIR6449	57,4	58,1	190	4	0	27.0B	90	1366.07							
03	COMMSCOPE	NHH-45B-R3B	50	53	310	3	0	17.5dB	44.5	1111.7		XMLF207					
03	COMMSCOPE	NHH-45B-R3B	50	53	310	3	0	14.3dB	47.4	167.4	MIDUO881						
0002	Ruckus	AIR6449	57,4	58,1	190	4	0	27.0B	90	1366.07							
01	COMMSCOPE	NHH-45B-R3B	50	53	50	4	0	14.3dB	47.4	167.4	MIDUO881						
02	COMMSCOPE	NHH-45B-R3B	50	53	190	2	0	14.3dB	47.4	167.4	MIDUO881						
10	ERICSSON	KRE105281/1	56	56,1	50	3	0	8.9dB	83	28.03							
31	ERICSSON	KRE105281/1	56	56,1	310	3	0	8.9dB	83	28.03							
0001	COMMSCOPE	NHH-45B-R3B	50	53	50	4	0	16.1dB	43	387.48		XMLF207					
0001	Ruckus	AIR6449	57,4	58,1	50	4	0	27.0B	90	1366.07							
01	COMMSCOPE	NHH-45B-R3B	50	53	50	4	0	16.1dB	43	387.48		XMLF207					
20	ERICSSON	KRE105281/1	56	56,1	190	3	0	8.9dB	83	28.03							
0003	Ruckus	AIR6449	57,4	58,1	310	4	0	27.0B	90	1366.07							
02	COMMSCOPE	NHH-45B-R3B	50	53	190	1	0	17.0B3	38.75	327.21				WDGA852,WDB264			
30	ERICSSON	KRE105281/1	56	56,1	190	3	0	8.9dB	83	28.03							
21	ERICSSON	KRE105281/1	56	56,1	310	3	0	8.9dB	83	28.03							
02	COMMSCOPE	NHH-45B-R3B	50	53	190	1	0	17.5dB	44.5	1111.7		XMLF207					
01	COMMSCOPE	NHH-45B-R3B	50	53	50	2	0	18.1dB	36.25	327.21				WDGA852,WDB264			
03	COMMSCOPE	NHH-45B-R3B	50	53	310	2	0	18.1dB	36.25	327.21				WDGA852,WDB264			
10	ERICSSON	KRE105281/1	56	56,1	50	3	0	8.9dB	83	28.03							

Callsigns

Callsign	Market	Market Code	Emission	Mkt Type	Block	Frequency	Market Name	Unlicensed	Bandwidth	Block Boundary	Block 2	Block 3	Block 4	Population	Uncovered Pop	Area	Status	Action	Callsign Version
WQJO681	Great Lakes	WU	KEA003	C	IL	17031	Cellco Partnership	Yes	22,000	746,000 - 767,900.000 - .000	776,000 - 797,900.000 - .000	746,000 - 757,000.000 - .000	776,000 - 787,900.000 - .000	167.4	1000	6580.63	proposed	added	1
KNRA208	Chicago, IL	CL	CMA003	B	IL	17031	Chicago SMSA LP	No	25,000	846,000 - 845.00494 6,900 - 849,000	881,000 - 880.00499 1,900 - 884,000	846,000 - 880.00494 6,900 - 849,000	881,000 - 880.00499 1,900 - 884,000	387.48	400	6580.63	proposed	added	1
XMLF207	Chicago	CW	MTA003	B	IL	17031	Cellco Partnership	Yes	10,000	1880,000 - 1885,000.000 - .000	1900,000 - 1905,000.000 - .000	1880,000 - 1885,000.000 - .000	1900,000 - 1905,000.000 - .000	1111.7	1940	6580.63	proposed	added	1
CBRS_CALLSIGN	UNLICENSED	3.5 GHz	UNLICENSED	UNLICENSED	IL	UNLICENSED	UNLICENSED	UNLICENSED	UNLICENSED	UNLICENSED UNLICENSED UNLICENSED D-UNLICENSED	UNLICENSED UNLICENSED UNLICENSED D-UNLICENSED	-/-	-/-	28.03		6580.63	proposed	added	
WRLD648	D17031 - Cook, IL	PL	D17031	0	IL	17031	Verizon Wireless Network Procurement LP	Yes	100,000	3660,000 - 3695,000.000 - .000	.000 - .000,000 - .000	3660,000 - 3695,000.000 - .000	.000 - .000,000 - .000	28.03	501	6580.63	proposed	added	1
WRLD671	D17031 - Cook, IL	PL	D17031	0	IL	17031	Verizon Wireless Network Procurement LP	Yes	100,000	3660,000 - 3695,000.000 - .000	.000 - .000,000 - .000	3660,000 - 3695,000.000 - .000	.000 - .000,000 - .000	28.03	501	6580.63	proposed	added	1
WRLD670	D17031 - Cook, IL	PL	D17031	0	IL	17031	Verizon Wireless Network Procurement LP	Yes	100,000	3660,000 - 3695,000.000 - .000	.000 - .000,000 - .000	3660,000 - 3695,000.000 - .000	.000 - .000,000 - .000	28.03	501	6580.63	proposed	added	1
WRLD672	D17031 - Cook, IL	PL	D17031	0	IL	17031	Verizon Wireless Network Procurement LP	Yes	100,000	3660,000 - 3695,000.000 - .000	.000 - .000,000 - .000	3660,000 - 3695,000.000 - .000	.000 - .000,000 - .000	28.03	501	6580.63	proposed	added	1
WQOB364	Chicago, IL	AW	CMA003	A	IL	17031	Cellco Partnership	Yes	20,000	1710,000 - 1720,000.000 - .000	2110,000 - 2120,000.000 - .000	1710,000 - 1720,000.000 - .000	2110,000 - 2120,000.000 - .000	327.21	1940	6580.63	proposed	added	1
WRNE696	Chicago, IL	PM	PEA003	A1	IL	17031	Cellco Partnership	Yes	20,000	3700,000 - 3720,000.000 - .000	.000 - .000,020 - .000	3700,000 - 3720,000.000 - .000	.000 - .000,020 - .000	1366.07	1940	6580.63	proposed	added	1
WRNE697	Chicago, IL	PM	PEA003	A2	IL	17031	Cellco Partnership	Yes	20,000	3720,000 - 3740,000.000 - .000	.000 - .000,020 - .000	3720,000 - 3740,000.000 - .000	.000 - .000,020 - .000	1366.07	1940	6580.63	proposed	added	1
WRNE698	Chicago, IL	PM	PEA003	A3	IL	17031	Cellco Partnership	Yes	20,000	3740,000 - 3760,000.000 - .000	.000 - .000,020 - .000	3740,000 - 3760,000.000 - .000	.000 - .000,020 - .000	1366.07	1940	6580.63	proposed	added	1
WQGA852	Chicago-Gary-Kenosha - IL-IN-WI	AW	BEA004	B	IL	17031	Cellco Partnership	Yes	20,000	1720,000 - 1730,000.000 - .000	2130,000 - 2140,000.000 - .000	1720,000 - 1730,000.000 - .000	2120,000 - 2130,000.000 - .000	327.21	1940	6580.63	proposed	added	1


Alpha, Beta, Gamma
MBC
V2001
A009
L-Sub
CBR
AWS1/
AWS3
PCS
700/850

32 W 273 Army Trail Road, Suite # 100, Wayne, IL 60184
HUTTER TRANKINA ENGINEERING
CONSULTING STRUCTURAL ENGINEERS
Phone: 630-513-6711
htedesign.com

June 7, 2023
Revised: June 20, 2023

Mr. Dan Szlaga
Terra Consulting Group, Ltd.
600 Busse Highway
2nd Floor
Park Ridge, IL 60068-2568

Re: VZN: Rand and 53
Loc. # 5000926022/ Terra # 194072
Hutter Trankina # 23126

Dear Mr. Szlaga:

Per your request, we have analyzed the above-referenced Colt truck, which will be at 1500 Shure Drive in Arlington Heights, Illinois. The following paragraphs summarize our findings.

PURPOSE

The purpose of this analysis was to verify the structural adequacy of a Colt truck and attached masts to resist proposed equipment loads as specified by Verizon.

DESCRIPTION

- **Masts**

  The truck is equipped with a 59'-0" mast on the driver side and a 60'-0" mast on the passenger side. The 59'-0" mast is comprised of (7) sections with a base diameter of 13.5" and a top diameter of 7.5". This mast was deployed to a maximum height of 61'-0" above grade for our analysis. The 60'-0" mast is comprised of (8) sections with a base diameter of 11.25" and a top diameter of 5.25". This mast was deployed to a maximum height of 54'-6" above grade for our analysis. The masts are made of 6061-T6 aluminum alloy (Fy = 35 ksi). For our analysis of both masts, the smallest diameter section was deployed first with the next smallest diameter section deployed next and so on. The mast information was provided by the manufacture, Will-Burt.

- **Guy Wires and Anchor Bolts**

  Four 1/4" diameter EHS guy wires shall be attached at elevations 52'-4" and 46'-8" above grade for the driver side (59'-0") and passenger side (60'-0") masts, respectively. **For the driver side mast (59'-0'), the guy wires shall be weighed down with 6,300 pounds of concrete weight at each anchor location. For the passenger side mast (60'-0"), the guy wires shall be weighed down with 6,700 pounds of concrete weight at each anchor location. Alternatively, a helix**

- **Guy Wires and Anchor Bolts – Cont'd.**

  anchor, aligned in the direction of the wire, may be used with a minimum working capacity of 2,900 pounds and 2,900 pounds for the drive side mast (59'-0") and passenger side mast (60'-0'), respectively. See attached Plan 1 for anchor locations. The base of masts are attached into the chassis of the truck with (4) ⅜" dimeter bolts assumed to be of A307 grade steel (Fy = 36 ksi). The base of each mast shall be supported per attached Section 2.

- **Truck Chassis**

  The truck chassis consists of (2) 10" steel channels running the full length and are assumed to be of A36 steel (Fy = 36 ksi). The truck weighs approximately 31,020 pounds. Outriggers are attached to the chassis and shall be deployed the full length of 18'-8".

ANTENNA CONFIGURATION

The following antenna layout was employed in the analysis:

59'-0" MAST ON DRIVER SIDE

Elevation	Antenna or Appurtenance	Qty.
57''-6"	Ericsson AIR 6449	3
55'-0"	Ericsson KRE105281/4408	3
4'-0"/55'-0"	Hybrid cable	3
4'-0"/57'-6"	Hybrid cable	3

60'-0" MAST ON PASSENGER SIDE

Elevation	Antenna or Appurtenance	Qty.
50'-0"	NHH-45B-R2B	3
4'-0"/50'-0"	½" coax*	18

**coax to be attached to the side of the mast and stacked in rows of (6)*

ANALYSIS PROCEDURE AND RESULTS

The existing structure was subjected to the TIA/EIA-222-H Code standards. The analysis considered a maximum deployment period of six (6) months. The following two (2) loading cases were considered:

I. Forces due to a ultimate wind speed of 86 mph;

II. Forces due to an ultimate wind speed of 32 mph and 1 ½" ice thickness; and

III. Service wind of 60 mph.

The following stress ratios were determined:

59'-0" Mast	40%
60'-0" Mast	92%
Truck Chassis	Pass

CONCLUSION

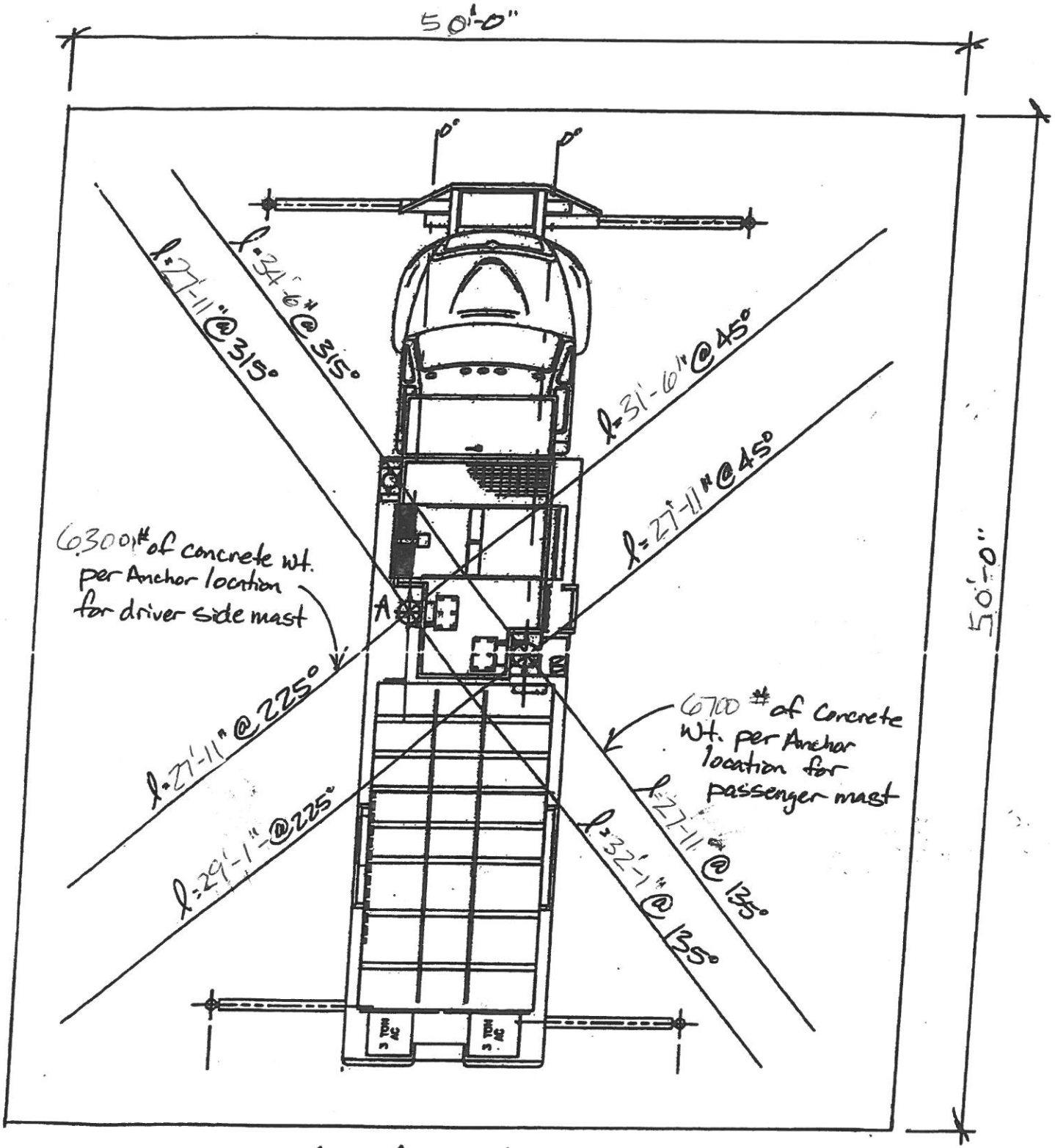
Based on the performed calculations, the Colt truck and attached masts are **structurally acceptable** to resist the wind loads imposed by the proposed equipment. Please note: the maximum deployment period shall not exceed six (6) months.

Should you have any questions regarding this report or require further analysis, please feel free to contact us.

Sincerely,

John C. Matzke
Project Engineer

John L. Trankina
President



① Guy Anchor Layout
N.T.S.

A: 59'-0" Mast
B: 60'-0" Mast

HTE# 23126
Sketch 1

Structural Calculations

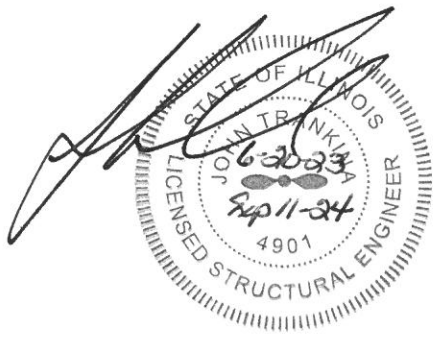
For

Verizon Loc. # 5000926022

Rand and 53

1500 Shure Dr
Arlington Heights, IL

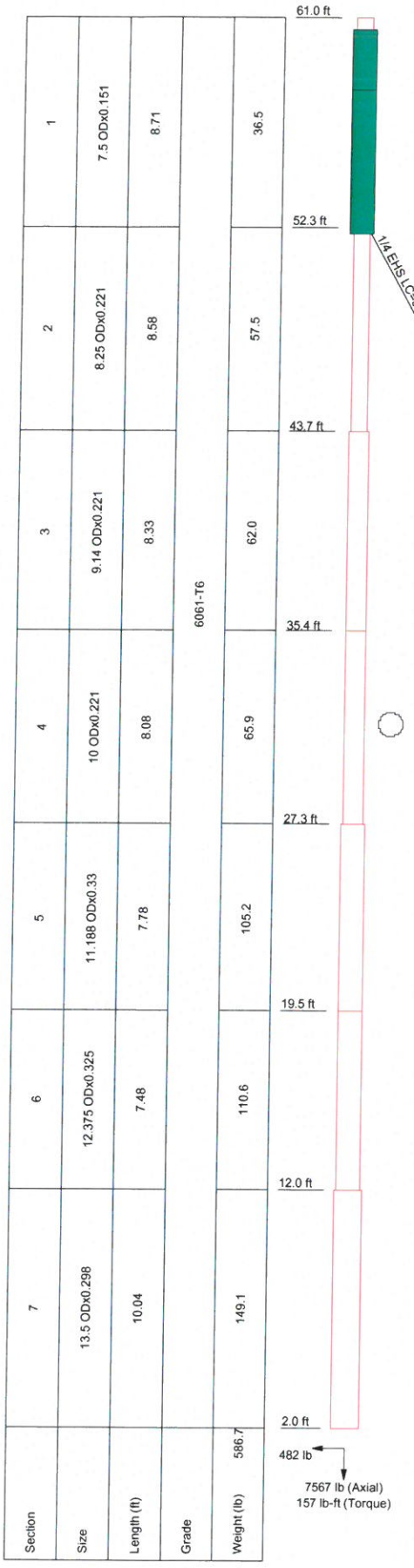
June 7, 2023
Revised: June 20, 2023

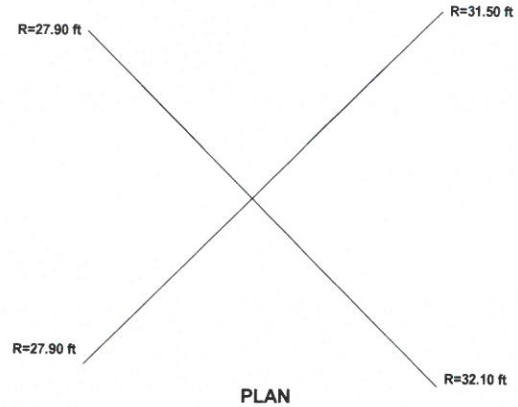


PREPARED BY:
HUTTER TRANKINA ENGINEERING
32 W 273 Army Trail Road, Suite 100, Wayne, IL 60184

Phone: 630-513-6711
htedesign.com

Project # 23126





PLAN

DESIGNED APPURTENANCE LOADING

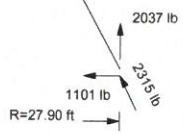
TYPE	ELEVATION	TYPE	ELEVATION
Ericsson AIR6449	57.5	Ericsson 4408 / KRE 105281 w/ 6' pipe	55
Ericsson AIR6449	57.5	Ericsson 4408 / KRE 105281 w/ 6' pipe	55
Ericsson AIR6449	57.5		
Ericsson 4408 / KRE 105281 w/ 6' pipe	55		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
6061-T6	35 ksi	42 ksi			

TOWER DESIGN NOTES

1. Tower is located in Winnebago County, Wisconsin.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 86 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 32 mph basic wind with 1.50 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 58.2%



ALL REACTIONS ARE FACTORED

Hutter Trankina Engineering
32W273 Army Trail Road
Wayne, IL 60184
Phone: 630-53-6711
FAX:
www.htedesign.com

Job: VZN Rand & 53 TEMP (HTE# 23126) 59'-0" Mast			
Project: Arlington Hts, IL			
Client: Terra Consulting Group	Drawn by: John Matzke	App'd:	
Code: TIA-222-H	Date: 06/20/23	Scale: NTS	
Path: M:\Current HTE\2023 Projects\23126 VZN Rand & 53 Temp Asset Loc #60008628\22 TCG #19407\Celoxia\tia Mast\23126 59' Mast.eri		Dwg No. E-1	

Tower Input Data

The tower is a monopole.
This tower is designed using the TIA-222-H standard.
The following design criteria apply:

Tower is located in Winnebago County, Wisconsin.
Tower base elevation above sea level: 2.00 ft.
Basic wind speed of 86 mph.
Risk Category II.
Exposure Category C.
Simplified Topographic Factor Procedure for wind speed-up calculations is used.
Topographic Category: 1.
Crest Height: 0.00 ft.
Nominal ice thickness of 1.5000 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 32 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 mph.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.
Safety factor used in guy design is 1.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

	Consider Moments - Legs		Distribute Leg Loads As Uniform		Use ASCE 10 X-Brace Ly Rules
	Consider Moments - Horizontals		Assume Legs Pinned	√	Calculate Redundant Bracing Forces
	Consider Moments - Diagonals	√	Assume Rigid Index Plate		Ignore Redundant Members in FEA
	Use Moment Magnification	√	Use Clear Spans For Wind Area		SR Leg Bolts Resist Compression
√	Use Code Stress Ratios	√	Use Clear Spans For KL/r	√	All Leg Panels Have Same Allowable
√	Use Code Safety Factors - Guys	√	Retension Guys To Initial Tension		Offset Girt At Foundation
	Escalate Ice	√	Bypass Mast Stability Checks		Consider Feed Line Torque
	Always Use Max Kz	√	Use Azimuth Dish Coefficients		Include Angle Block Shear Check
	Use Special Wind Profile	√	Project Wind Area of Appurt.		Use TIA-222-H Bracing Resist. Exemption
√	Include Bolts In Member Capacity	√	Autocalc Torque Arm Areas		Use TIA-222-H Tension Splice Exemption
√	Leg Bolts Are At Top Of Section		Add IBC .6D+W Combination		Poles
√	Secondary Horizontal Braces Leg		Sort Capacity Reports By Component		Include Shear-Torsion Interaction
	Use Diamond Inner Bracing (4 Sided)	√	Triangulate Diamond Inner Bracing	√	Always Use Sub-Critical Flow
	SR Members Have Cut Ends		Treat Feed Line Bundles As Cylinder		Use Top Mounted Sockets
	SR Members Are Concentric		Ignore KL/ry For 60 Deg. Angle Legs		Pole Without Linear Attachments
					Pole With Shroud Or No Appurtenances
					Outside and Inside Corner Radii Are Known

Pole Section Geometry

Section	Elevation ft	Section Length ft	Pole Size	Pole Grade	Socket Length ft
L1	61.00-52.29	8.71	7.5 ODx0.151	6061-T6 (35 ksi)	
L2	52.29-43.71	8.58	8.25 ODx0.221	6061-T6 (35 ksi)	
L3	43.71-35.38	8.33	9.14 ODx0.221	6061-T6 (35 ksi)	
L4	35.38-27.30	8.08	10 ODx0.221	6061-T6 (35 ksi)	
L5	27.30-19.52	7.78	11.188 ODx0.33	6061-T6 (35 ksi)	
L6	19.52-12.04	7.48	12.375 ODx0.325	6061-T6 (35 ksi)	
L7	12.04-2.00	10.04	13.5 ODx0.298	6061-T6 (35 ksi)	

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 61.00-52.29				1	1	1			
L2 52.29-43.71				1	1	1			
L3 43.71-35.38				1	1	1			
L4 35.38-27.30				1	1	1			
L5 27.30-19.52				1	1	1			
L6 19.52-12.04				1	1	1			
L7 12.04-2.00				1	1	1			

Guy Data

Guy Elevation ft	Guy Grade		Guy Size	Initial Tension lb	%	Guy Modulus ksi	Guy Weight plf	L_u ft	Anchor Radius ft	Anchor Azimuth Adj. °	Anchor Elevation ft	End Fitting Efficiency %
52.29	EHS	A	1/4	665.00	10%	21000	0.121	59.07	27.90	0.0000	0.00	100%
		B	1/4	665.00	10%	21000	0.121	60.83	31.50	0.0000	0.00	100%
		C	1/4	665.00	10%	21000	0.121	61.14	32.10	0.0000	0.00	100%
		D	1/4	665.00	10%	21000	0.121	59.07	27.90	0.0000	0.00	100%

Guy Data*(cont'd)*

Guy Elevation ft	Mount Type	Torque-Arm Spread ft	Torque-Arm Leg Angle °	Torque-Arm Style	Torque-Arm Grade	Torque-Arm Type	Torque-Arm Size
52.29	Corner						

Guy Data *(cont'd)*

Guy Elevation ft	Diagonal Grade	Diagonal Type	Upper Diagonal Size	Lower Diagonal Size	Is Strap.	Pull-Off Grade	Pull-Off Type	Pull-Off Size
52.29	A572-50 (50 ksi)	Solid Round			No	A572-50 (50 ksi)	Solid Round	1 1/4

Guy Data *(cont'd)*

Guy Elevation ft	Cable Weight A lb	Cable Weight B lb	Cable Weight C lb	Cable Weight D lb	Tower Intercept A ft	Tower Intercept B ft	Tower Intercept C ft	Tower Intercept D ft
52.29	7.15	7.36	7.40	7.15	0.32 1.0 sec/pulse	0.34 1.0 sec/pulse	0.34 1.0 sec/pulse	0.32 1.0 sec/pulse

Guy Data *(cont'd)*

Guy Elevation ft	Calc K Single Angles	Calc K Solid Rounds	Torque Arm K_x	Torque Arm K_y	Pull Off K_x	Pull Off K_y	Diagonal K_x	Diagonal K_y
52.29	No	No			1	1	1	1

Guy Data *(cont'd)*

Guy Elevation ft	Torque-Arm Bolt Size in	Torque-Arm Number	Torque-Arm Net Width Deduct in	Torque-Arm U	Pull Off Bolt Size in	Pull Off Number	Pull Off Net Width Deduct in	Pull Off U	Diagonal Bolt Size in	Diagonal Number	Diagonal Net Width Deduct in	Diagonal U
52.29	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75

Guy Pressures

Guy Elevation ft	Guy Location	z ft	q_z psf	q_z Ice psf	Ice Thickness in
52.29	A	26.15	17	2	1.4655
	B	26.15	17	2	1.4655
	C	26.15	17	2	1.4655
	D	26.15	17	2	1.4655

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
Andrew HFT1206-24S49	D	Yes	Surface Ar (CaAa)	55.00 - 4.00	6	6	0.000 0.000	1.5000		1.60
Andrew HFT1206-24S49	D	Yes	Surface Ar (CaAa)	57.50 - 55.00	3	3	0.000 0.000	1.5000		1.60

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
L1	61.00-52.29	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
		D	0.000	0.000	3.564	0.000	38.02
L2	52.29-43.71	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
		D	0.000	0.000	7.722	0.000	82.37
L3	43.71-35.38	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
		D	0.000	0.000	7.497	0.000	79.97
L4	35.38-27.30	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
		D	0.000	0.000	7.272	0.000	77.57
L5	27.30-19.52	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
		D	0.000	0.000	7.002	0.000	74.69
L6	19.52-12.04	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
		D	0.000	0.000	6.732	0.000	71.81
L7	12.04-2.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
		D	0.000	0.000	7.236	0.000	77.18

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
L1	61.00-52.29	A	1.583	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
		D		0.000	0.000	6.517	0.000	106.84
L2	52.29-43.71	A	1.557	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
		D		0.000	0.000	12.993	0.000	218.27
L3	43.71-35.38	A	1.527	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
		D		0.000	0.000	12.552	0.000	209.07
L4	35.38-27.30	A	1.492	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
		D		0.000	0.000	12.104	0.000	199.57
L5	27.30-19.52	A	1.449	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
		D		0.000	0.000	11.572	0.000	188.40
L6	19.52-12.04	A	1.393	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
		D		0.000	0.000	11.021	0.000	176.47
L7	12.04-2.00	A	1.285	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
		D		0.000	0.000	11.628	0.000	180.14

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L1	4	Andrew HFT1206-24S49	52.29 - 55.00	1.0000	1.0000
L1	5	Andrew HFT1206-24S49	55.00 - 57.50	1.0000	1.0000
L2	4	Andrew HFT1206-24S49	43.71 - 52.29	1.0000	1.0000
L3	4	Andrew HFT1206-24S49	35.38 - 43.71	1.0000	1.0000
L4	4	Andrew HFT1206-24S49	27.30 - 35.38	1.0000	1.0000
L5	4	Andrew HFT1206-24S49	19.52 - 27.30	1.0000	1.0000
L6	4	Andrew HFT1206-24S49	12.04 - 19.52	1.0000	1.0000
L7	4	Andrew HFT1206-24S49	4.00 - 12.04	1.0000	1.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
Ericsson AIR6449	B	From Face	1.00 0.00 0.00	-40.0000	57.50	No Ice 1/2" Ice 1" Ice 2" Ice	4.13 4.40 4.67 5.24	2.88 3.10 3.34 3.83	88.00 122.74 161.44 251.46
Ericsson AIR6449	C	From Face	1.00	10.0000	57.50	No Ice	4.13	2.88	88.00

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
			0.00			1/2" Ice	4.40	3.10	122.74
			0.00			1" Ice	4.67	3.34	161.44
						2" Ice	5.24	3.83	251.46
Ericsson AIR6449	D	From Face	1.00	40.0000	57.50	No Ice	4.13	2.88	88.00
			0.00			1/2" Ice	4.40	3.10	122.74
			0.00			1" Ice	4.67	3.34	161.44
						2" Ice	5.24	3.83	251.46
Ericsson 4408 / KRE 105281 w/ 6' pipe	B	From Face	1.00	-40.0000	55.00	No Ice	1.80	1.69	31.90
			0.00			1/2" Ice	2.34	2.26	52.62
			0.00			1" Ice	2.76	2.71	76.50
						2" Ice	3.67	3.65	137.05
Ericsson 4408 / KRE 105281 w/ 6' pipe	C	From Face	1.00	10.0000	55.00	No Ice	1.80	1.69	31.90
			0.00			1/2" Ice	2.34	2.26	52.62
			0.00			1" Ice	2.76	2.71	76.50
						2" Ice	3.67	3.65	137.05
Ericsson 4408 / KRE 105281 w/ 6' pipe	D	From Face	1.00	40.0000	55.00	No Ice	1.80	1.69	31.90
			0.00			1/2" Ice	2.34	2.26	52.62
			0.00			1" Ice	2.76	2.71	76.50
						2" Ice	3.67	3.65	137.05

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice+1.0 Guy
3	1.2 Dead+1.0 Wind 45 deg - No Ice+1.0 Guy
4	1.2 Dead+1.0 Wind 90 deg - No Ice+1.0 Guy
5	1.2 Dead+1.0 Wind 135 deg - No Ice+1.0 Guy
6	1.2 Dead+1.0 Wind 180 deg - No Ice+1.0 Guy
7	1.2 Dead+1.0 Wind 225 deg - No Ice+1.0 Guy
8	1.2 Dead+1.0 Wind 270 deg - No Ice+1.0 Guy
9	1.2 Dead+1.0 Wind 315 deg - No Ice+1.0 Guy
10	1.2 Dead+1.0 Ice+1.0 Temp+Guy
11	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp+1.0 Guy
12	1.2 Dead+1.0 Wind 45 deg+1.0 Ice+1.0 Temp+1.0 Guy
13	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp+1.0 Guy
14	1.2 Dead+1.0 Wind 135 deg+1.0 Ice+1.0 Temp+1.0 Guy
15	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp+1.0 Guy
16	1.2 Dead+1.0 Wind 225 deg+1.0 Ice+1.0 Temp+1.0 Guy
17	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp+1.0 Guy
18	1.2 Dead+1.0 Wind 315 deg+1.0 Ice+1.0 Temp+1.0 Guy
19	Dead+Wind 0 deg - Service+Guy
20	Dead+Wind 45 deg - Service+Guy
21	Dead+Wind 90 deg - Service+Guy
22	Dead+Wind 135 deg - Service+Guy
23	Dead+Wind 180 deg - Service+Guy
24	Dead+Wind 225 deg - Service+Guy
25	Dead+Wind 270 deg - Service+Guy
26	Dead+Wind 315 deg - Service+Guy

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
L1	61 - 52.29	Pole	Max Tension	23	0.01	-0.15	-0.00
			Max. Compression	17	-1360.73	-100.70	3.34
			Max. Mx	4	-525.32	-2224.06	-23.64
			Max. My	2	-525.87	-173.24	1949.54
			Max. Vy	4	463.35	-2224.06	-23.64
			Max. Vx	2	-446.39	-173.24	1949.54
			Max. Torque	6			156.58
L2	52.29 - 43.71	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	13	-5028.13	181.38	-0.17
			Max. Mx	8	-3756.76	-2952.85	25.17
			Max. My	6	-3871.26	-154.60	2911.44
			Max. Vy	4	-580.95	-1599.88	-20.07
			Max. Vx	6	-576.77	-172.67	-1380.73
			Max. Torque	6			157.00
		Guy A	Bottom Tension	5	2315.13		
			Top Tension	5	2321.34		
			Top Cable Vert	5	2054.15		
			Top Cable Norm	5	1081.24		
			Top Cable Tan	5	0.35		
			Bot Cable Vert	5	-2036.83		
			Bot Cable Norm	5	1100.53		
			Bot Cable Tan	5	0.35		
		Guy B	Bottom Tension	7	2094.02		
			Top Tension	7	2100.26		
			Top Cable Vert	7	1806.45		
			Top Cable Norm	7	1071.36		
			Top Cable Tan	7	0.23		
			Bot Cable Vert	7	-1788.24		
			Bot Cable Norm	7	1089.55		
			Bot Cable Tan	7	0.23		
		Guy C	Bottom Tension	9	2085.70		
			Top Tension	9	2091.94		
			Top Cable Vert	9	1790.35		
			Top Cable Norm	9	1082.05		
			Top Cable Tan	9	0.19		
			Bot Cable Vert	9	-1772.01		
			Bot Cable Norm	9	1100.05		
			Bot Cable Tan	9	0.19		
		Guy D	Bottom Tension	3	2294.44		
			Top Tension	3	2300.65		
			Top Cable Vert	3	2035.95		
			Top Cable Norm	3	1071.41		
			Top Cable Tan	3	0.38		
			Bot Cable Vert	3	-2018.63		
			Bot Cable Norm	3	1090.69		
			Bot Cable Tan	3	0.38		
L3	43.71 - 35.38	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	13	-5493.42	741.51	0.62
			Max. Mx	8	-3930.67	-5631.54	21.69
			Max. My	6	-4045.10	-129.99	5611.75
			Max. Vy	4	-421.05	2734.29	-18.95
			Max. Vx	6	-415.48	-154.88	2911.46
			Max. Torque	6			156.98
L4	35.38 - 27.3	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	13	-5956.89	999.59	0.88

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
			Max. Mx	8	-4103.56	-6671.75	17.19
			Max. My	6	-4217.93	-100.83	6664.92
			Max. Vy	4	-230.65	5480.03	-16.37
			Max. Vx	6	-225.45	-130.09	5611.74
			Max. Torque	6			156.92
L5	27.3 - 19.52	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	13	-6460.51	976.10	0.87
			Max. Mx	8	-4134.24	-6691.73	16.50
			Max. My	6	-4248.60	-96.41	6686.19
			Max. Vy	8	-149.24	-6205.73	12.21
			Max. Vx	6	148.71	-69.86	6204.82
			Max. Torque	6			156.88
L6	19.52 - 12.04	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	13	-6959.23	713.45	0.64
			Max. Mx	8	-4317.52	-6205.76	12.21
			Max. My	6	-4431.82	-69.72	6204.82
			Max. Vy	8	-321.36	-4436.92	7.10
			Max. Vx	6	321.25	-39.16	4437.90
			Max. Torque	6			156.88
L7	12.04 - 2	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	13	-7566.59	-0.90	-0.00
			Max. Mx	8	-4533.59	-4436.98	7.09
			Max. My	6	-4647.82	-39.02	4437.92
			Max. Vy	8	-560.18	0.03	-0.10
			Max. Vx	6	560.37	2.60	-0.07
			Max. Torque	6			156.87

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Mast	Max. Vert	13	7566.86	-68.14	0.34
	Max. H_x	8	4809.45	482.24	-0.37
	Max. H_z	2	4904.49	4.58	478.64
	Max. M_x	1	0.00	2.70	-0.04
	Max. M_z	1	0.00	2.70	-0.04
	Max. Torsion	6	156.89	5.50	-478.45
	Min. Vert	1	3787.05	2.70	-0.04
	Min. H_x	4	5087.28	-470.69	0.55
	Min. H_z	6	4923.77	5.50	-478.45
	Min. M_x	1	0.00	2.70	-0.04
	Min. M_z	1	0.00	2.70	-0.04
	Min. Torsion	2	-156.74	4.58	478.64
Guy D @ 27.9 ft Elev 0 ft Azimuth 225 deg	Max. Vert	7	-100.12	-29.72	29.71
	Max. H_x	7	-100.12	-29.72	29.71
	Max. H_z	3	-2018.63	-771.51	770.97
	Min. Vert	3	-2018.63	-771.51	770.97
	Min. H_x	3	-2018.63	-771.51	770.97
	Min. H_z	7	-100.12	-29.72	29.71
Guy C @ 32.1 ft Elev 0 ft Azimuth 135 deg	Max. Vert	5	-74.31	24.61	24.62
	Max. H_x	9	-1772.01	777.72	777.99
	Max. H_z	9	-1772.01	777.72	777.99

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
	Min. Vert	9	-1772.01	777.72	777.99
	Min. H_x	5	-74.31	24.61	24.62
	Min. H_z	5	-74.31	24.61	24.62
Guy B @ 31.5 ft Elev 0 ft Azimuth 45 deg	Max. Vert	3	-76.48	24.87	-24.89
	Max. H_x	7	-1788.24	770.27	-770.59
	Max. H_z	3	-76.48	24.87	-24.89
	Min. Vert	7	-1788.24	770.27	-770.59
	Min. H_x	3	-76.48	24.87	-24.89
	Min. H_z	7	-1788.24	770.27	-770.59
Guy A @ 27.9 ft Elev 0 ft Azimuth -45 deg	Max. Vert	9	-101.34	-30.18	-30.16
	Max. H_x	9	-101.34	-30.18	-30.16
	Max. H_z	9	-101.34	-30.18	-30.16
	Min. Vert	5	-2036.83	-778.44	-777.95
	Min. H_x	5	-2036.83	-778.44	-777.95
	Min. H_z	5	-2036.83	-778.44	-777.95

Tower Mast Reaction Summary

Load Combination	Vertical lb	$Shear_x$ lb	$Shear_z$ lb	Overturning Moment, M_x lb-ft	Overturning Moment, M_z lb-ft	Torque lb-ft
Dead Only	3787.05	-2.70	0.04	0.00	0.00	-0.00
1.2 Dead+1.0 Wind 0 deg - No Ice+1.0 Guy	4904.49	-4.58	-478.64	0.00	0.00	156.74
1.2 Dead+1.0 Wind 45 deg - No Ice+1.0 Guy	5045.31	331.05	-336.17	0.00	0.00	106.76
1.2 Dead+1.0 Wind 90 deg - No Ice+1.0 Guy	5087.28	470.69	-0.55	0.00	0.00	-5.98
1.2 Dead+1.0 Wind 135 deg - No Ice+1.0 Guy	5063.85	330.22	335.32	0.00	0.00	-115.33
1.2 Dead+1.0 Wind 180 deg - No Ice+1.0 Guy	4923.77	-5.50	478.45	0.00	0.00	-156.89
1.2 Dead+1.0 Wind 225 deg - No Ice+1.0 Guy	4840.00	-341.41	338.71	0.00	0.00	-106.34
1.2 Dead+1.0 Wind 270 deg - No Ice+1.0 Guy	4809.45	-482.24	0.37	0.00	0.00	6.12
1.2 Dead+1.0 Wind 315 deg - No Ice+1.0 Guy	4828.37	-340.92	-338.25	0.00	0.00	114.90
1.2 Dead+1.0 Ice+1.0 Temp+Guy	7439.25	-11.54	-0.07	0.00	0.00	-0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp+1.0 Guy	7521.20	-12.46	-81.30	0.00	0.00	30.90
1.2 Dead+1.0 Wind 45 deg+1.0 Ice+1.0 Temp+1.0 Guy	7556.76	44.62	-57.70	0.00	0.00	21.39
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp+1.0 Guy	7566.86	68.14	-0.34	0.00	0.00	-0.84
1.2 Dead+1.0 Wind 135 deg+1.0 Ice+1.0 Temp+1.0 Guy	7563.61	44.02	56.71	0.00	0.00	-22.57
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp+1.0 Guy	7526.67	-12.61	80.80	0.00	0.00	-30.91
1.2 Dead+1.0 Wind 225 deg+1.0 Ice+1.0 Temp+1.0 Guy	7486.99	-70.12	57.72	0.00	0.00	-21.38
1.2 Dead+1.0 Wind 270	7482.60	-93.75	-0.15	0.00	0.00	0.84

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	lb	lb	lb	lb-ft	lb-ft	lb-ft
deg+1.0 Ice+1.0 Temp+1.0 Guy						
1.2 Dead+1.0 Wind 315 deg+1.0 Ice+1.0 Temp+1.0 Guy	7483.96	-69.99	-58.05	0.00	0.00	22.55
Dead+Wind 0 deg - Service+Guy	3811.04	-2.78	-212.27	0.00	0.00	68.27
Dead+Wind 45 deg - Service+Guy	3799.30	146.83	-150.26	0.00	0.00	46.48
Dead+Wind 90 deg - Service+Guy	3796.85	208.63	-0.18	0.00	0.00	-2.64
Dead+Wind 135 deg - Service+Guy	3798.51	146.56	150.01	0.00	0.00	-50.23
Dead+Wind 180 deg - Service+Guy	3809.47	-3.17	212.29	0.00	0.00	-68.30
Dead+Wind 225 deg - Service+Guy	3818.08	-152.76	150.31	0.00	0.00	-46.41
Dead+Wind 270 deg - Service+Guy	3826.21	-214.54	0.20	0.00	0.00	2.66
Dead+Wind 315 deg - Service+Guy	3819.44	-152.49	-150.01	0.00	0.00	50.14

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX lb	PY lb	PZ lb	PX lb	PY lb	PZ lb	% Error
1	0.00	-1477.03	0.00	0.32	1477.03	-0.00	0.022%
2	-4.57	-1766.72	-1558.18	4.68	1766.71	1557.63	0.024%
3	1110.55	-1765.95	-1099.08	-1110.44	1765.95	1098.94	0.007%
4	1574.41	-1765.24	4.57	-1573.97	1765.23	-4.57	0.018%
5	1116.94	-1765.86	1105.47	-1116.83	1765.85	-1105.33	0.008%
6	4.57	-1766.53	1558.18	-4.51	1766.52	-1557.86	0.014%
7	-1110.55	-1767.30	1099.08	1110.40	1767.29	-1098.95	0.008%
8	-1574.41	-1768.01	-4.57	1574.02	1768.00	4.58	0.016%
9	-1116.94	-1767.39	-1105.47	1116.80	1767.39	1105.35	0.008%
10	0.00	-5129.27	0.00	-0.77	5129.26	-0.14	0.015%
11	-0.47	-5129.44	-433.51	0.21	5129.44	434.28	0.016%
12	308.74	-5128.09	-307.11	-309.60	5128.08	307.74	0.021%
13	435.82	-5126.82	0.47	-436.90	5126.82	-0.46	0.021%
14	309.28	-5127.91	307.64	-309.81	5127.91	-308.06	0.013%
15	0.47	-5129.09	433.51	-0.73	5129.09	-434.33	0.017%
16	-308.74	-5130.45	307.11	309.26	5130.45	-307.97	0.019%
17	-435.82	-5131.71	-0.47	436.68	5131.71	0.43	0.017%
18	-309.28	-5130.62	-307.64	309.78	5130.62	308.42	0.018%
19	-1.99	-1477.07	-678.61	1.99	1477.06	677.99	0.038%
20	483.66	-1476.74	-478.66	-483.25	1476.72	478.22	0.037%
21	685.67	-1476.42	1.99	-685.06	1476.41	-1.99	0.038%
22	486.44	-1476.69	481.45	-486.04	1476.68	-481.00	0.037%
23	1.99	-1476.99	678.61	-2.01	1476.97	-677.98	0.038%
24	-483.66	-1477.32	478.66	483.24	1477.31	-478.27	0.035%
25	-685.67	-1477.63	-1.99	685.05	1477.62	2.00	0.038%
26	-486.44	-1477.36	-481.45	486.03	1477.35	481.07	0.034%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	6	0.00000001	0.00005042
2	Yes	17	0.00000001	0.00014641
3	Yes	18	0.00000001	0.00011571
4	Yes	18	0.00000001	0.00011292
5	Yes	18	0.00000001	0.00011965
6	Yes	18	0.00000001	0.00008634
7	Yes	17	0.00000001	0.00010387
8	Yes	17	0.00000001	0.00008614
9	Yes	17	0.00000001	0.00009799
10	Yes	13	0.00000001	0.00005512
11	Yes	16	0.00000001	0.00005813
12	Yes	16	0.00000001	0.00007810
13	Yes	16	0.00000001	0.00007825
14	Yes	17	0.00000001	0.00005108
15	Yes	16	0.00000001	0.00006147
16	Yes	15	0.00000001	0.00006715
17	Yes	15	0.00000001	0.00005817
18	Yes	15	0.00000001	0.00006205
19	Yes	13	0.00000001	0.00008248
20	Yes	13	0.00000001	0.00007599
21	Yes	13	0.00000001	0.00007113
22	Yes	13	0.00000001	0.00007692
23	Yes	13	0.00000001	0.00008309
24	Yes	13	0.00000001	0.00007419
25	Yes	13	0.00000001	0.00007176
26	Yes	13	0.00000001	0.00007402

Guy Design Data

Section No.	Elevation ft	Size	Initial Tension lb	Breaking Load lb	Actual T_u lb	Allowable ϕT_n lb	Required S.F.	Actual S.F.
L2	52.29 (A) (11)	1/4 EHS	665.00	6649.98	2321.34	3990.00	1.000	1.719 ✔
	52.29 (B) (10)	1/4 EHS	665.00	6649.98	2100.26	3990.00	1.000	1.900 ✔
	52.29 (C) (9)	1/4 EHS	665.00	6649.98	2091.94	3990.00	1.000	1.907 ✔
	52.29 (D) (8)	1/4 EHS	665.00	6649.98	2300.65	3990.00	1.000	1.734 ✔

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb
L1	61 - 52.29 (1)	7.5 ODx0.151	8.71	0.00	0.0	3.4862	-525.32
L2	52.29 - 43.71 (2)	8.25 ODx0.221	8.58	0.00	0.0	5.5745	-3787.44
L3	43.71 - 35.38	9.14 ODx0.221	8.33	0.00	0.0	6.1924	-3961.31

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb
	(3)						
L4	35.38 - 27.3 (4)	10 ODx0.221	8.08	0.00	0.0	6.7895	-4134.13
L5	27.3 - 19.52 (5)	11.188 ODx0.33	7.78	0.00	0.0	11.2568	-4416.08
L6	19.52 - 12.04	12.375 ODx0.325	7.48	0.00	0.0	12.3033	-4568.78
	(6)						
L7	12.04 - 2 (7)	13.5 ODx0.298	10.04	0.00	0.0	12.3596	-4782.56

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} lb-ft	M_{uy} lb-ft
L1	61 - 52.29 (1)	7.5 ODx0.151	2224.18	0.00
L2	52.29 - 43.71	8.25 ODx0.221	2970.46	0.00
	(2)			
L3	43.71 - 35.38	9.14 ODx0.221	5650.88	0.00
	(3)			
L4	35.38 - 27.3 (4)	10 ODx0.221	6689.66	0.00
L5	27.3 - 19.52 (5)	11.188 ODx0.33	6649.32	0.00
L6	19.52 - 12.04	12.375 ODx0.325	6186.09	0.00
	(6)			
L7	12.04 - 2 (7)	13.5 ODx0.298	4429.06	0.00

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u lb	Actual T_u lb-ft
L1	61 - 52.29 (1)	7.5 ODx0.151	463.38	6.14
L2	52.29 - 43.71	8.25 ODx0.221	435.06	106.39
	(2)			
L3	43.71 - 35.38	9.14 ODx0.221	247.65	106.36
	(3)			
L4	35.38 - 27.3 (4)	10 ODx0.221	52.64	106.33
L5	27.3 - 19.52 (5)	11.188 ODx0.33	43.04	106.75
L6	19.52 - 12.04	12.375 ODx0.325	172.54	106.75
	(6)			
L7	12.04 - 2 (7)	13.5 ODx0.298	345.04	106.75

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
		Guy A@52.29	1/4	11	2321.34	3990.00	58.2	Pass
		Guy B@52.29	1/4	10	2100.26	3990.00	52.6	Pass
		Guy C@52.29	1/4	9	2091.94	3990.00	52.4	Pass
		Guy D@52.29	1/4	8	2300.65	3990.00	57.7	Pass
							Summary	
						Guy A (L2)	58.2	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
						Guy B (L2)	52.6	Pass
						Guy C (L2)	52.4	Pass
						Guy D (L2)	57.7	Pass
						RATING =	**58.2**	**Pass**

CHECK ROUND ALUMINUM POLE AT BOTT OF L1

Mu = 2.24 ft-kip
Pu = 0.53 kip
Vu = 0.46 kip
Tu = .00 ft-kip
B2 = 1.000
L = 8.71 ft

Diameter = 7.50 in
t = 0.1510 in
6061-T6 Tempered

A = 3.49 in^2
S = 6.3 in^3
I = 23.5 in^4
rg = 2.60 in

Ref Table 6.4.1-1
Fty = 35 ksi
Fcy = 35 ksi
Fsy = 20 ksi
E = 10100 ksi
Ftu = 38 ksi
Fsu = 24 ksi

Ref Table 6.6.2-1
kt = 1

Buckling Constants

Flex. Comp.-Circ. Sect		Axial Comp.-Circ. Sect		Shear in flat elements	
Btb =	64.8 ksi	Bt =	43.2 ksi	Bs =	25.8 ksi
Dtb =	4.458 ksi	Dt =	1.56 ksi	Ds =	0.131 ksi
Ctb =	55.4	Bc =	39.4 ksi	Cs =	81.0
		Dc =	0.25 ksi		
		Cc =	65.7		

Flexure

Local Bucking - Table 6.5.1-8 - Eq. 6.5.1-35 — ϕ_f = 0.9

$\lambda = R_b/t$ = 24.3 < $\lambda 1$ = 28.6 — ϕF_b = 38.5 ksi

Flexural Compressive Yielding- Table 6.5.1-5- Eq. 6.5.1-20 — ϕF_b = 36.9 ksi

Flexural Tensile Yielding- Table 6.5.1-2- Eq. 6.5.1-7 — ϕF_b = 36.9 ksi

Flexural Tensile Rupture- Table 6.5.1-2- Eq. 6.5.1-8 (ϕ_f = 0.75) — ϕF_b = 35.3 ksi

ϕF_b = 35.3 ksi

Compression

Member Bucking - Table 6.5.1-3 - Eq. 6.5.1-11 — ϕ_c = 0.9

$\lambda = kL/r$ = 0 < $\lambda 2 = Cc$ = 65.7 — ϕF_c = 30.1 ksi

Local Bucking - Table 6.5.1-8 - Eq. 6.5.1-34

$\lambda = R_b/t$ = 24.3 < $\lambda 1$ = 27.6 — ϕF_c = 31.5 ksi

ϕF_c = 30.1 ksi

Shear

Table 6.5.1-9 - Eq. 6.5.1-37 — ϕ_v = 0.9

λ = 49.2 < $\lambda 1$ = 64 — **ϕF_s = 18.0 ksi**

< $\lambda 2$ = 65

Combined Force Check

Table 6.5.1-12 - Eq. 6.5.1-48

fc = Pu/A =	0.2 ksi	$\phi F'_c$ = 30.1 ksi	fc / $\phi F'_c$ = 0.005
fb = Mu/S =	4.3 ksi	$\phi F'_b$ = 35.3 ksi	B_2*fb / $\phi F'_b$ = 0.121
fs = Vu/(A/2) =	0.3 ksi	$\phi F'_s$ = 18.0 ksi	fs / $\phi F'_s$ = 0.015

i.c. = 0.126 **OK (12.6% Cap)**

HUTTER TRANKINA ENGINEERING
Consulting Structural Engineers
32W273 Army Trail Rd. Suite 100
WAYNE, ILLINOIS 60184
Tel. (630) 513-6711

JOB:	23126		
JOB NO:		REV:	
CALC BY:	JCM	DATE:	6/20/2023
CHECK BY:		DATE:	
SHEET NO:	14	OF	
DESCRIPTION:			

CHECK ROUND ALUMINUM POLE AT BOTT OF L2

Mu = 2.97 ft-kip
Pu = 3.79 kip
Vu = 0.25 kip
Tu = .00 ft-kip
B2 = 1.000
L = 50.30 ft

Diameter = 8.25 in
t = 0.2210 in
6061-T6 Tempered

A = 5.57 in^2
S = 10.9 in^3
I = 45.0 in^4
rg = 3.46 in

Ref Table 6.4.1-1
Fty = 35 ksi
Fcy = 35 ksi
Fsy = 20 ksi
E = 10100 ksi
Ftu = 38 ksi
Fsu = 24 ksi

Ref Table 6.6.2-1
kt = 1

Buckling Constants

Flex. Comp.-Circ. Sect		Axial Comp.-Circ. Sect		Shear in flat elements	
Btb =	64.8 ksi	Bt =	43.2 ksi	Bs =	25.8 ksi
Dtb =	4.458 ksi	Dt =	1.56 ksi	Ds =	0.131 ksi
Ctb =	55.4	Bc =	39.4 ksi	Cs =	81.0
		Dc =	0.25 ksi		
		Cc =	65.7		

Flexure

Local Bucking - Table 6.5.1-8 - Eq. 6.5.1-35 — ϕ_f = 0.9

$\lambda = R_b/t$ = 18.2 < $\lambda 1$ = 28.6 — ϕF_b = 41.2 ksi

Flexural Compressive Yielding- Table 6.5.1-5- Eq. 6.5.1-20 — ϕF_b = 36.9 ksi

Flexural Tensile Yielding- Table 6.5.1-2- Eq. 6.5.1-7 — ϕF_b = 36.9 ksi

Flexural Tensile Rupture- Table 6.5.1-2- Eq. 6.5.1-8 (ϕ_f = 0.75) — ϕF_b = 35.3 ksi

ϕF_b = 35.3 ksi

Compression

Member Bucking - Table 6.5.1-3 - Eq. 6.5.1-11 — ϕ_c = 0.9

$\lambda = kL/r$ = 174 > $\lambda 2 = Cc$ = 65.7 — ϕF_c = 2.5 ksi

Local Bucking - Table 6.5.1-8 - Eq. 6.5.1-34

$\lambda = R_b/t$ = 18.2 < $\lambda 1$ = 27.6 — ϕF_c = 31.5 ksi

ϕF_c = 2.5 ksi

Shear

Table 6.5.1-9 - Eq. 6.5.1-37 — ϕ_v = 0.9

λ = 62.2 < $\lambda 1$ = 64 — **ϕF_s = 18.0 ksi**

< $\lambda 2$ = 65

Combined Force Check

Table 6.5.1-12 - Eq. 6.5.1-48

fc = Pu/A =	0.7 ksi	$\phi F'_c$ = 2.5 ksi	$fc / \phi F'_c$ = 0.271
fb = Mu/S =	3.3 ksi	$\phi F'_b$ = 35.3 ksi	$B_2 * fb / \phi F'_b$ = 0.093
fs = Vu/(A/2) =	0.1 ksi	$\phi F'_s$ = 18.0 ksi	$fs / \phi F'_s$ = 0.005

i.c. = 0.364 **OK (36.4% Cap)**

HUTTER TRANKINA ENGINEERING
Consulting Structural Engineers
32W273 Army Trail Rd. Suite 100
WAYNE, ILLINOIS 60184
Tel. (630) 513-6711

JOB:	23126		
JOB NO:		REV:	
CALC BY:	JCM	DATE:	6/20/2023
CHECK BY:		DATE:	
SHEET NO:	15	OF	
DESCRIPTION:			

CHECK ROUND ALUMINUM POLE AT BOTT OF L3

Mu = 5.65 ft-kip
Pu = 3.96 kip
Vu = 0.25 kip
Tu = .00 ft-kip
B2 = 1.000
L = 50.30 ft

Diameter = 9.14 in
t = 0.2210 in
6061-T6 Tempered

A = 6.19 in^2
S = 13.5 in^3
I = 61.6 in^4
rg = 3.46 in

Ref Table 6.4.1-1
Fty = 35 ksi
Fcy = 35 ksi
Fsy = 20 ksi
E = 10100 ksi
Ftu = 38 ksi
Fsu = 24 ksi

Ref Table 6.6.2-1
kt = 1

Buckling Constants

Flex. Comp.-Circ. Sect		Axial Comp.-Circ. Sect		Shear in flat elements	
Btb =	64.8 ksi	Bt =	43.2 ksi	Bs =	25.8 ksi
Dtb =	4.458 ksi	Dt =	1.56 ksi	Ds =	0.131 ksi
Ctb =	55.4	Bc =	39.4 ksi	Cs =	81.0
		Dc =	0.25 ksi		
		Cc =	65.7		

Flexure

Local Bucking - Table 6.5.1-8 - Eq. 6.5.1-35 — ϕ_f = 0.9

$\lambda = R_b/t$ = 20.2 < $\lambda 1$ = 28.6 — ϕF_b = 40.3 ksi

Flexural Compressive Yielding- Table 6.5.1-5- Eq. 6.5.1-20 — ϕF_b = 36.9 ksi

Flexural Tensile Yielding- Table 6.5.1-2- Eq. 6.5.1-7 — ϕF_b = 36.9 ksi

Flexural Tensile Rupture- Table 6.5.1-2- Eq. 6.5.1-8 (ϕ_f = 0.75) — ϕF_b = 35.3 ksi

ϕF_b = 35.3 ksi

Compression

Member Bucking - Table 6.5.1-3 - Eq. 6.5.1-11 — ϕ_c = 0.9

$\lambda = kL/r$ = 174 > $\lambda 2 = Cc$ = 65.7 — ϕF_c = 2.5 ksi

Local Bucking - Table 6.5.1-8 - Eq. 6.5.1-34

$\lambda = R_b/t$ = 20.2 < $\lambda 1$ = 27.6 — ϕF_c = 31.5 ksi

ϕF_c = 2.5 ksi

Shear

Table 6.5.1-9 - Eq. 6.5.1-37 — ϕ_v = 0.9

λ = 64.7 > $\lambda 1$ = 64 — **ϕF_s = 17.8 ksi**

< $\lambda 2$ = 65

Combined Force Check

Table 6.5.1-12 - Eq. 6.5.1-48

fc = Pu/A =	0.6 ksi	$\phi F'_c$ = 2.5 ksi	fc / $\phi F'_c$ = 0.255
fb = Mu/S =	5.0 ksi	$\phi F'_b$ = 35.3 ksi	B_2*fb / $\phi F'_b$ = 0.142
fs = Vu/(A/2) =	0.1 ksi	$\phi F'_s$ = 17.8 ksi	fs / $\phi F'_s$ = 0.004

i.c. = 0.398 **OK (39.8% Cap)**

HUTTER TRANKINA ENGINEERING
Consulting Structural Engineers
32W273 Army Trail Rd. Suite 100
WAYNE, ILLINOIS 60184
Tel. (630) 513-6711

JOB:	23126		
JOB NO:		REV:	
CALC BY:	JCM	DATE:	6/20/2023
CHECK BY:		DATE:	
SHEET NO:	16	OF	
DESCRIPTION:			

CHECK ROUND ALUMINUM POLE AT BOTT OF L4

Mu = 6.69 ft-kip
Pu = 4.13 kip
Vu = 0.05 kip
Tu = .00 ft-kip
B2 = 1.000
L = 50.30 ft

Diameter = 10.00 in
t = 0.2210 in
6061-T6 Tempered

A = 6.79 in^2
S = 16.2 in^3
I = 81.2 in^4
rg = 3.46 in

Ref Table 6.4.1-1
Fty = 35 ksi
Fcy = 35 ksi
Fsy = 20 ksi
E = 10100 ksi
Ftu = 38 ksi
Fsu = 24 ksi

Ref Table 6.6.2-1
kt = 1

Buckling Constants

Flex. Comp.-Circ. Sect		Axial Comp.-Circ. Sect		Shear in flat elements	
Btb =	64.8 ksi	Bt =	43.2 ksi	Bs =	25.8 ksi
Dtb =	4.458 ksi	Dt =	1.56 ksi	Ds =	0.131 ksi
Ctb =	55.4	Bc =	39.4 ksi	Cs =	81.0
		Dc =	0.25 ksi		
		Cc =	65.7		

Flexure

Local Bucking - Table 6.5.1-8 - Eq. 6.5.1-35 — ϕ_f = 0.9

$\lambda = R_b/t$ = 22.1 < $\lambda 1$ = 28.6 — ϕF_b = 39.4 ksi

Flexural Compressive Yielding- Table 6.5.1-5- Eq. 6.5.1-20 — ϕF_b = 36.9 ksi

Flexural Tensile Yielding- Table 6.5.1-2- Eq. 6.5.1-7 — ϕF_b = 36.9 ksi

Flexural Tensile Rupture- Table 6.5.1-2- Eq. 6.5.1-8 (ϕ_f = 0.75) — ϕF_b = 35.3 ksi

ϕF_b = 35.3 ksi

Compression

Member Bucking - Table 6.5.1-3 - Eq. 6.5.1-11 — ϕ_c = 0.9

$\lambda = kL/r$ = 175 > $\lambda 2 = Cc$ = 65.7 — ϕF_c = 2.5 ksi

Local Bucking - Table 6.5.1-8 - Eq. 6.5.1-34

$\lambda = R_b/t$ = 22.1 < $\lambda 1$ = 27.6 — ϕF_c = 31.5 ksi

ϕF_c = 2.5 ksi

Shear

Table 6.5.1-9 - Eq. 6.5.1-37 — ϕ_v = 0.9

λ = 67.0 > $\lambda 1$ = 64 — **ϕF_s = 16.6 ksi**

> $\lambda 2$ = 65

Combined Force Check

Table 6.5.1-12 - Eq. 6.5.1-48

fc = Pu/A =	0.6 ksi	$\phi F'_c$ = 2.5 ksi	fc / $\phi F'_c$ = 0.243
fb = Mu/S =	4.9 ksi	$\phi F'_b$ = 35.3 ksi	B_2*fb / $\phi F'_b$ = 0.140
fs = Vu/(A/2) =	0.0 ksi	$\phi F'_s$ = 16.6 ksi	fs / $\phi F'_s$ = 0.001

i.c. = 0.383 **OK (38.3% Cap)**

HUTTER TRANKINA ENGINEERING
Consulting Structural Engineers
32W273 Army Trail Rd. Suite 100
WAYNE, ILLINOIS 60184
Tel. (630) 513-6711

JOB:	23126		
JOB NO:		REV:	
CALC BY:	JCM	DATE:	6/20/2023
CHECK BY:		DATE:	
SHEET NO:	17	OF	
DESCRIPTION:			

CHECK ROUND ALUMINUM POLE AT BOTT OF L5

Mu = 6.65 ft-kip
Pu = 4.42 kip
Vu = 0.04 kip
Tu = .00 ft-kip
B2 = 1.000
L = 50.30 ft

Diameter = 13.50 in
t = 0.2980 in
6061-T6 Tempered

A = 12.36 in^2
S = 39.9 in^3
I = 269.4 in^4
rg = 3.46 in

Ref Table 6.4.1-1
Fty = 35 ksi
Fcy = 35 ksi
Fsy = 20 ksi
E = 10100 ksi
Ftu = 38 ksi
Fsu = 24 ksi

Ref Table 6.6.2-1
kt = 1

Buckling Constants

Flex. Comp.-Circ. Sect		Axial Comp.-Circ. Sect		Shear in flat elements	
Btb =	64.8 ksi	Bt =	43.2 ksi	Bs =	25.8 ksi
Dtb =	4.458 ksi	Dt =	1.56 ksi	Ds =	0.131 ksi
Ctb =	55.4	Bc =	39.4 ksi	Cs =	81.0
		Dc =	0.25 ksi		
		Cc =	65.7		

Flexure

Local Bucking - Table 6.5.1-8 - Eq. 6.5.1-35 — ϕ_f = 0.9

$\lambda = R_b/t$ = 22.2 < $\lambda 1$ = 28.6 — ϕF_b = 39.4 ksi

Flexural Compressive Yielding- Table 6.5.1-5- Eq. 6.5.1-20 — ϕF_b = 36.9 ksi

Flexural Tensile Yielding- Table 6.5.1-2- Eq. 6.5.1-7 — ϕF_b = 36.9 ksi

Flexural Tensile Rupture- Table 6.5.1-2- Eq. 6.5.1-8 (ϕ_f = 0.75) — ϕF_b = 35.3 ksi

ϕF_b = 35.3 ksi

Compression

Member Bucking - Table 6.5.1-3 - Eq. 6.5.1-11 — ϕ_c = 0.9

$\lambda = kL/r$ = 174 > $\lambda 2 = Cc$ = 65.7 — ϕF_c = 2.5 ksi

Local Bucking - Table 6.5.1-8 - Eq. 6.5.1-34

$\lambda = R_b/t$ = 22.2 < $\lambda 1$ = 27.6 — ϕF_c = 31.5 ksi

ϕF_c = 2.5 ksi

Shear

Table 6.5.1-9 - Eq. 6.5.1-37 — ϕ_v = 0.9

λ = 62.2 < $\lambda 1$ = 64 — **ϕF_s = 18.0 ksi**

< $\lambda 2$ = 65

Combined Force Check

Table 6.5.1-12 - Eq. 6.5.1-48

fc = Pu/A =	0.4 ksi	$\phi F'_c$ = 2.5 ksi	fc / $\phi F'_c$ = 0.143
fb = Mu/S =	2.0 ksi	$\phi F'_b$ = 35.3 ksi	B_2*fb / $\phi F'_b$ = 0.057
fs = Vu/(A/2) =	0.0 ksi	$\phi F'_s$ = 18.0 ksi	fs / $\phi F'_s$ = 0.000

i.c. = 0.199 **OK (19.9% Cap)**

HUTTER TRANKINA ENGINEERING
Consulting Structural Engineers
32W273 Army Trail Rd. Suite 100
WAYNE, ILLINOIS 60184
Tel. (630) 513-6711

JOB:	23126		
JOB NO:		REV:	
CALC BY:	JCM	DATE:	6/20/2023
CHECK BY:		DATE:	
SHEET NO:	18	OF	
DESCRIPTION:			

CHECK ROUND ALUMINUM POLE AT BOTT OF L6

Mu = 6.19 ft-kip
Pu = 4.57 kip
Vu = 0.17 kip
Tu = .00 ft-kip
B2 = 1.000
L = 50.30 ft

Diameter = 12.38 in
t = 0.3250 in
6061-T6 Tempered

A = 12.30 in^2
S = 36.1 in^3
I = 223.5 in^4
rg = 3.46 in

Ref Table 6.4.1-1
Fty = 35 ksi
Fcy = 35 ksi
Fsy = 20 ksi
E = 10100 ksi
Ftu = 38 ksi
Fsu = 24 ksi

Ref Table 6.6.2-1
kt = 1

Buckling Constants

Flex. Comp.-Circ. Sect		Axial Comp.-Circ. Sect		Shear in flat elements	
Btb =	64.8 ksi	Bt =	43.2 ksi	Bs =	25.8 ksi
Dtb =	4.458 ksi	Dt =	1.56 ksi	Ds =	0.131 ksi
Ctb =	55.4	Bc =	39.4 ksi	Cs =	81.0
		Dc =	0.25 ksi		
		Cc =	65.7		

Flexure

Local Bucking - Table 6.5.1-8 - Eq. 6.5.1-35 — ϕ_f = 0.9

$\lambda = R_b/t$ = 18.5 < $\lambda 1$ = 28.6 — ϕF_b = 41.0 ksi

Flexural Compressive Yielding- Table 6.5.1-5- Eq. 6.5.1-20 — ϕF_b = 36.9 ksi

Flexural Tensile Yielding- Table 6.5.1-2- Eq. 6.5.1-7 — ϕF_b = 36.9 ksi

Flexural Tensile Rupture- Table 6.5.1-2- Eq. 6.5.1-8 (ϕ_f = 0.75) — ϕF_b = 35.3 ksi

ϕF_b = 35.3 ksi

Compression

Member Bucking - Table 6.5.1-3 - Eq. 6.5.1-11 — ϕ_c = 0.9

$\lambda = kL/r$ = 174 > $\lambda 2 = Cc$ = 65.7 — ϕF_c = 2.5 ksi

Local Bucking - Table 6.5.1-8 - Eq. 6.5.1-34

$\lambda = R_b/t$ = 18.5 < $\lambda 1$ = 27.6 — ϕF_c = 31.5 ksi

ϕF_c = 2.5 ksi

Shear

Table 6.5.1-9 - Eq. 6.5.1-37 — ϕ_v = 0.9

λ = 56.9 < $\lambda 1$ = 64 — **ϕF_s = 18.0 ksi**

< $\lambda 2$ = 65

Combined Force Check

Table 6.5.1-12 - Eq. 6.5.1-48

fc = Pu/A =	0.4 ksi	$\phi F'_c$ = 2.5 ksi	fc / $\phi F'_c$ = 0.148
fb = Mu/S =	2.1 ksi	$\phi F'_b$ = 35.3 ksi	B_2*fb / $\phi F'_b$ = 0.058
fs = Vu/(A/2) =	0.0 ksi	$\phi F'_s$ = 18.0 ksi	fs / $\phi F'_s$ = 0.002

i.c. = 0.206 **OK (20.6% Cap)**

HUTTER TRANKINA ENGINEERING
Consulting Structural Engineers
32W273 Army Trail Rd. Suite 100
WAYNE, ILLINOIS 60184
Tel. (630) 513-6711

JOB:	23126		
JOB NO:		REV:	
CALC BY:	JCM	DATE:	6/20/2023
CHECK BY:		DATE:	
SHEET NO:	19	OF	
DESCRIPTION:			

CHECK ROUND ALUMINUM POLE AT BOTT OF L7

Mu = 4.43 ft-kip
Pu = 4.78 kip
Vu = 0.35 kip
Tu = .00 ft-kip
B2 = 1.000
L = 50.30 ft

Diameter = 13.50 in
t = 0.2980 in
6061-T6 Tempered

A = 12.36 in^2
S = 39.9 in^3
I = 269.4 in^4
rg = 3.46 in

Ref Table 6.4.1-1
Fty = 35 ksi
Fcy = 35 ksi
Fsy = 20 ksi
E = 10100 ksi
Ftu = 38 ksi
Fsu = 24 ksi

Ref Table 6.6.2-1
kt = 1

Buckling Constants

Flex. Comp.-Circ. Sect		Axial Comp.-Circ. Sect		Shear in flat elements	
Btb =	64.8 ksi	Bt =	43.2 ksi	Bs =	25.8 ksi
Dtb =	4.458 ksi	Dt =	1.56 ksi	Ds =	0.131 ksi
Ctb =	55.4	Bc =	39.4 ksi	Cs =	81.0
		Dc =	0.25 ksi		
		Cc =	65.7		

Flexure

Local Bucking - Table 6.5.1-8 - Eq. 6.5.1-35 — ϕ_f = 0.9

$\lambda = R_b/t$ = 22.2 < $\lambda 1$ = 28.6 — ϕF_b = 39.4 ksi

Flexural Compressive Yielding- Table 6.5.1-5- Eq. 6.5.1-20 — ϕF_b = 36.9 ksi

Flexural Tensile Yielding- Table 6.5.1-2- Eq. 6.5.1-7 — ϕF_b = 36.9 ksi

Flexural Tensile Rupture- Table 6.5.1-2- Eq. 6.5.1-8 (ϕ_f = 0.75) — ϕF_b = 35.3 ksi

ϕF_b = 35.3 ksi

Compression

Member Bucking - Table 6.5.1-3 - Eq. 6.5.1-11 — ϕ_c = 0.9

$\lambda = kL/r$ = 174 > $\lambda 2 = Cc$ = 65.7 — ϕF_c = 2.5 ksi

Local Bucking - Table 6.5.1-8 - Eq. 6.5.1-34

$\lambda = R_b/t$ = 22.2 < $\lambda 1$ = 27.6 — ϕF_c = 31.5 ksi

ϕF_c = 2.5 ksi

Shear

Table 6.5.1-9 - Eq. 6.5.1-37 — ϕ_v = 0.9

λ = 62.2 < $\lambda 1$ = 64 — **ϕF_s = 18.0 ksi**

< $\lambda 2$ = 65

Combined Force Check

Table 6.5.1-12 - Eq. 6.5.1-48

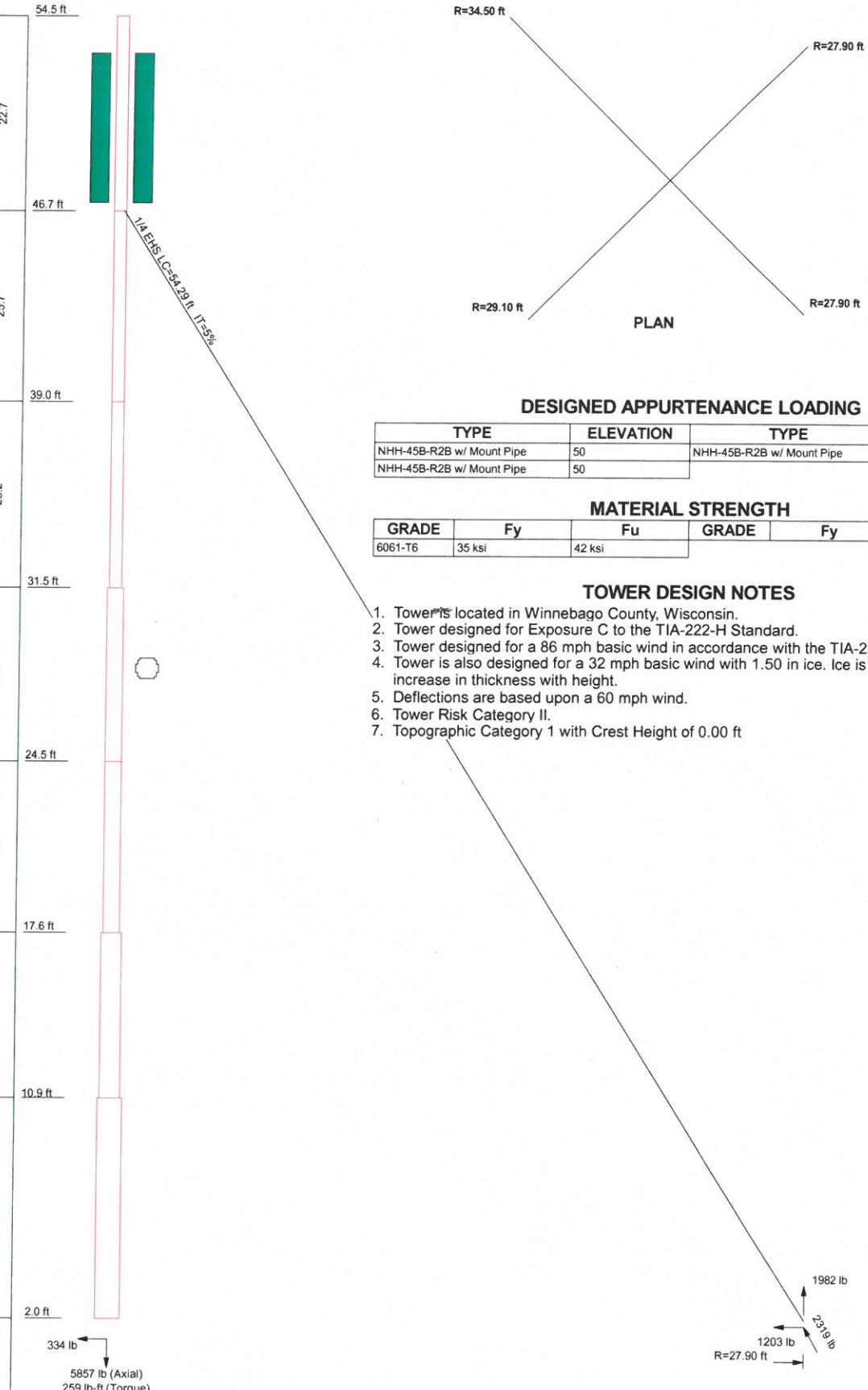
fc = Pu/A =	0.4 ksi	$\phi F'_c$ = 2.5 ksi	fc / $\phi F'_c$ = 0.154
fb = Mu/S =	1.3 ksi	$\phi F'_b$ = 35.3 ksi	B_2*fb / $\phi F'_b$ = 0.038
fs = Vu/(A/2) =	0.1 ksi	$\phi F'_s$ = 18.0 ksi	fs / $\phi F'_s$ = 0.003

i.c. = 0.192 **OK (19.2% Cap)**

HUTTER TRANKINA ENGINEERING
Consulting Structural Engineers
32W273 Army Trail Rd. Suite 100
WAYNE, ILLINOIS 60184
Tel. (630) 513-6711

JOB:	23126		
JOB NO:		REV:	
CALC BY:	JCM	DATE:	6/20/2023
CHECK BY:		DATE:	
SHEET NO:	20	OF	
DESCRIPTION:			

Section	Size	Length (ft)	Grade	Weight (lb)
1	5.25 ODx0.151	7.80	6061-T6	22.7
2	6 ODx0.151	7.70		25.7
3	6.75 ODx0.151	7.50		28.2
4	7.5 ODx0.151	7.00		29.3
5	8.25 ODx0.221	6.90		46.2
6	9.14 ODx0.221	6.70		49.8
7	11.25 ODx0.361	8.90		132.0
				334.0



PLAN

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
NHH-45B-R2B w/ Mount Pipe	50	NHH-45B-R2B w/ Mount Pipe	50
NHH-45B-R2B w/ Mount Pipe	50		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
6061-T6	35 ksi	42 ksi			

TOWER DESIGN NOTES

1. Tower is located in Winnebago County, Wisconsin.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 86 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 32 mph basic wind with 1.50 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.00 ft

ALL REACTIONS ARE FACTORED

Hutter Trankina Engineering
32W273 Army Trail Road
Wayne, IL 60184
Phone: 630-53-6711
FAX:
www.htedesign.com

Job: VZN VZN Rand & 53 TEMP (HTE# 23126) 60'-0" Mast		
Project: Arlington Hts		
Client: Terra Consulting Group	Drawn by: John Matzke	App'd:
Code: TIA-222-H	Date: 06/20/23	Scale: NTS
Path: M:\Current HTE\2023 Projects\23126 VZN Rand & 53 Temp Asset Loc #500926023 TCG #184072\Calcs\60' Mast\23126 60' Mast mod.eri		Dwg No. E-1

Tower Input Data

The tower is a monopole.
This tower is designed using the TIA-222-H standard.
The following design criteria apply:

Tower is located in Winnebago County, Wisconsin.
Tower base elevation above sea level: 2.00 ft.
Basic wind speed of 86 mph.
Risk Category II.
Exposure Category C.
Simplified Topographic Factor Procedure for wind speed-up calculations is used.
Topographic Category: 1.
Crest Height: 0.00 ft.
Nominal ice thickness of 1.5000 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 32 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 mph.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.
Safety factor used in guy design is 1.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Pole Section Geometry

Section	*Elevation* *ft*	*Section Length* *ft*	*Pole Size*	*Pole Grade*	*Socket Length* *ft*
L1	54.50-46.70	7.80	5.25 ODx0.151	6061-T6 (35 ksi)	
L2	46.70-39.00	7.70	6 ODx0.151	6061-T6 (35 ksi)	
L3	39.00-31.50	7.50	6.75 ODx0.151	6061-T6 (35 ksi)	
L4	31.50-24.50	7.00	7.5 ODx0.151	6061-T6 (35 ksi)	
L5	24.50-17.60	6.90	8.25 ODx0.221	6061-T6 (35 ksi)	
L6	17.60-10.90	6.70	9.14 ODx0.221	6061-T6 (35 ksi)	
L7	10.90-2.00	8.90	11.25 ODx0.361	6061-T6 (35 ksi)	

Tower Elevation *ft*	*Gusset Area (per face)* ft^2	*Gusset Thickness* *in*	*Gusset Grade*	*Adjust. Factor* A_f	*Adjust. Factor* A_r	*Weight Mult.*	*Double Angle Stitch Bolt Spacing Diagonals* *in*	*Double Angle Stitch Bolt Spacing Horizontals* *in*	*Double Angle Stitch Bolt Spacing Redundants* *in*
L1 54.50-46.70				1	1	1			

Tower Elevation ft	Gusset Area (per face) ft²	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L2 46.70-39.00				1	1	1			
L3 39.00-31.50				1	1	1			
L4 31.50-24.50				1	1	1			
L5 24.50-17.60				1	1	1			
L6 17.60-10.90				1	1	1			
L7 10.90-2.00				1	1	1			

Guy Data

Guy Elevation ft	Guy Grade		Guy Size	Initial Tension lb	%	Guy Modulus ksi	Guy Weight plf	L_u ft	Anchor Radius ft	Anchor Azimuth Adj. °	Anchor Elevation ft	End Fitting Efficiency %
46.7	EHS	A	1/4	332.50	5%	21000	0.121	57.91	34.50	0.0000	0.00	100%
		B	1/4	332.50	5%	21000	0.121	54.26	27.90	0.0000	0.00	100%
		C	1/4	332.50	5%	21000	0.121	54.26	27.90	0.0000	0.00	100%
		D	1/4	332.50	5%	21000	0.121	54.88	29.10	0.0000	0.00	100%

Guy Data(cont'd)

Guy Elevation ft	Mount Type	Torque-Arm Spread ft	Torque-Arm Leg Angle °	Torque-Arm Style	Torque-Arm Grade	Torque-Arm Type	Torque-Arm Size
46.7	Corner						

Guy Data (cont'd)

Guy Elevation ft	Diagonal Grade	Diagonal Type	Upper Diagonal Size	Lower Diagonal Size	Is Strap.	Pull-Off Grade	Pull-Off Type	Pull-Off Size
46.70	A572-50 (50 ksi)	Solid Round			No	A572-50 (50 ksi)	Solid Round	1 1/4

Guy Data (cont'd)

Guy Elevation ft	Cable Weight A lb	Cable Weight B lb	Cable Weight C lb	Cable Weight D lb	Tower Intercept A ft	Tower Intercept B ft	Tower Intercept C ft	Tower Intercept D ft
46.7	7.01	6.57	6.57	6.64	0.61	0.53	0.53	0.54

Guy Elevation ft	Cable Weight A lb	Cable Weight B lb	Cable Weight C lb	Cable Weight D lb	Tower Intercept A ft	Tower Intercept B ft	Tower Intercept C ft	Tower Intercept D ft
					1.3 sec/pulse	1.3 sec/pulse	1.3 sec/pulse	1.3 sec/pulse

Guy Data *(cont'd)*

Guy Elevation ft	Calc K Single Angles	Calc K Solid Rounds	Torque Arm K_x	Torque Arm K_y	Pull Off K_x	Pull Off K_y	Diagonal K_x	Diagonal K_y
46.7	No	No			1	1	1	1

Guy Data *(cont'd)*

Guy Elevation ft	Torque-Arm Bolt Size in	Torque-Arm Number	Torque-Arm Net Width Deduct in	Torque-Arm U	Pull Off Bolt Size in	Pull Off Number	Pull Off Net Width Deduct in	Pull Off U	Diagonal Bolt Size in	Diagonal Number	Diagonal Net Width Deduct in	Diagonal U
46.7	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75

Guy Pressures

Guy Elevation ft	Guy Location	z ft	q_z psf	q_z Ice psf	Ice Thickness in
46.7	A	23.35	17	2	1.4490
	B	23.35	17	2	1.4490
	C	23.35	17	2	1.4490
	D	23.35	17	2	1.4490

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
1/2	B	Yes	Surface Ar (CaAa)	50.00 - 4.00	18	6	-0.500 0.500	0.5800		0.25

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
L1	54.50-46.70	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	1.148	0.000	14.85
		C	0.000	0.000	0.000	0.000	0.00
		D	0.000	0.000	0.000	0.000	0.00
L2	46.70-39.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	2.680	0.000	34.65
		C	0.000	0.000	0.000	0.000	0.00
		D	0.000	0.000	0.000	0.000	0.00
L3	39.00-31.50	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	2.610	0.000	33.75
		C	0.000	0.000	0.000	0.000	0.00
		D	0.000	0.000	0.000	0.000	0.00
L4	31.50-24.50	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	2.436	0.000	31.50
		C	0.000	0.000	0.000	0.000	0.00
		D	0.000	0.000	0.000	0.000	0.00
L5	24.50-17.60	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	2.401	0.000	31.05
		C	0.000	0.000	0.000	0.000	0.00
		D	0.000	0.000	0.000	0.000	0.00
L6	17.60-10.90	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	2.332	0.000	30.15
		C	0.000	0.000	0.000	0.000	0.00
		D	0.000	0.000	0.000	0.000	0.00
L7	10.90-2.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	2.401	0.000	31.05
		C	0.000	0.000	0.000	0.000	0.00
		D	0.000	0.000	0.000	0.000	0.00

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
L1	54.50-46.70	A	1.566	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	2.727	0.000	54.76
		C		0.000	0.000	0.000	0.000	0.00
		D		0.000	0.000	0.000	0.000	0.00
L2	46.70-39.00	A	1.540	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	6.313	0.000	126.11
		C		0.000	0.000	0.000	0.000	0.00
		D		0.000	0.000	0.000	0.000	0.00
L3	39.00-31.50	A	1.510	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	6.094	0.000	120.96
		C		0.000	0.000	0.000	0.000	0.00
		D		0.000	0.000	0.000	0.000	0.00
L4	31.50-24.50	A	1.476	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	5.627	0.000	110.90
		C		0.000	0.000	0.000	0.000	0.00
		D		0.000	0.000	0.000	0.000	0.00
L5	24.50-17.60	A	1.434	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	5.475	0.000	106.97
		C		0.000	0.000	0.000	0.000	0.00
		D		0.000	0.000	0.000	0.000	0.00
L6	17.60-10.90	A	1.379	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	5.225	0.000	100.90
		C		0.000	0.000	0.000	0.000	0.00
		D		0.000	0.000	0.000	0.000	0.00

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
L7	10.90-2.00	A	1.274	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	5.199	0.000	98.19
		C		0.000	0.000	0.000	0.000	0.00
		D		0.000	0.000	0.000	0.000	0.00

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L1	1	1/2	46.70 - 50.00	1.0000	1.0000
L2	1	1/2	39.00 - 46.70	1.0000	1.0000
L3	1	1/2	31.50 - 39.00	1.0000	1.0000
L4	1	1/2	24.50 - 31.50	1.0000	1.0000
L5	1	1/2	17.60 - 24.50	1.0000	1.0000
L6	1	1/2	10.90 - 17.60	1.0000	1.0000
L7	1	1/2	4.00 - 10.90	1.0000	1.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
NHH-45B-R2B w/ Mount Pipe	B	From Leg	1.00 0.00 0.00	-40.0000	50.00	No Ice 1/2" Ice 1" Ice 2" Ice	11.40 11.89 12.38 13.39	6.71 7.66 8.49 10.20	95.90 177.38 267.02 474.05
NHH-45B-R2B w/ Mount Pipe	C	From Leg	1.00 0.00 0.00	10.0000	50.00	No Ice 1/2" Ice 1" Ice 2" Ice	11.40 11.89 12.38 13.39	6.71 7.66 8.49 10.20	95.90 177.38 267.02 474.05
NHH-45B-R2B w/ Mount Pipe	D	From Leg	1.00 0.00 0.00	40.0000	50.00	No Ice 1/2" Ice 1" Ice 2" Ice	11.40 11.89 12.38 13.39	6.71 7.66 8.49 10.20	95.90 177.38 267.02 474.05

Load Combinations

Comb. No.	Description

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice+1.0 Guy
3	1.2 Dead+1.0 Wind 30 deg - No Ice+1.0 Guy
4	1.2 Dead+1.0 Wind 60 deg - No Ice+1.0 Guy
5	1.2 Dead+1.0 Wind 90 deg - No Ice+1.0 Guy
6	1.2 Dead+1.0 Wind 120 deg - No Ice+1.0 Guy
7	1.2 Dead+1.0 Wind 150 deg - No Ice+1.0 Guy
8	1.2 Dead+1.0 Wind 180 deg - No Ice+1.0 Guy
9	1.2 Dead+1.0 Wind 210 deg - No Ice+1.0 Guy
10	1.2 Dead+1.0 Wind 240 deg - No Ice+1.0 Guy
11	1.2 Dead+1.0 Wind 270 deg - No Ice+1.0 Guy
12	1.2 Dead+1.0 Wind 300 deg - No Ice+1.0 Guy
13	1.2 Dead+1.0 Wind 330 deg - No Ice+1.0 Guy
14	1.2 Dead+1.0 Ice+1.0 Temp+Guy
15	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp+1.0 Guy
16	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp+1.0 Guy
17	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp+1.0 Guy
18	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp+1.0 Guy
19	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp+1.0 Guy
20	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp+1.0 Guy
21	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp+1.0 Guy
22	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp+1.0 Guy
23	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp+1.0 Guy
24	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp+1.0 Guy
25	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp+1.0 Guy
26	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp+1.0 Guy
27	Dead+Wind 0 deg - Service+Guy
28	Dead+Wind 30 deg - Service+Guy
29	Dead+Wind 60 deg - Service+Guy
30	Dead+Wind 90 deg - Service+Guy
31	Dead+Wind 120 deg - Service+Guy
32	Dead+Wind 150 deg - Service+Guy
33	Dead+Wind 180 deg - Service+Guy
34	Dead+Wind 210 deg - Service+Guy
35	Dead+Wind 240 deg - Service+Guy
36	Dead+Wind 270 deg - Service+Guy
37	Dead+Wind 300 deg - Service+Guy
38	Dead+Wind 330 deg - Service+Guy

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
L1	54.5 - 46.7	Pole	Max Tension	8	0.01	-0.37	-0.10
			Max. Compression	25	-1397.75	-100.48	-212.09
			Max. Mx	5	-411.37	-2172.27	-212.40
			Max. My	8	-389.86	-207.82	-2224.85
			Max. Vy	5	606.88	-2172.27	-212.40
			Max. Vx	8	626.99	-207.82	-2224.85
			Max. Torque	9			262.29
L2	46.7 - 39	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	25	-4306.71	-1343.37	-988.99
			Max. Mx	11	-3495.61	-2975.75	-35.78
			Max. My	3	-3160.20	1196.59	-2254.22
			Max. Vy	11	664.74	1543.48	-41.84
			Max. Vx	13	538.75	781.59	1456.61
			Max. Torque	9			260.04
		Guy A	Bottom Tension	6	2016.27		

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
			Top Tension	6	2021.83		
			Top Cable Vert	6	1631.50		
			Top Cable Norm	6	1194.15		
			Top Cable Tan	6	0.12		
			Bot Cable Vert	6	-1614.50		
			Bot Cable Norm	6	1207.77		
			Bot Cable Tan	6	5.50		
		Guy B	Bottom Tension	10	2220.00		
			Top Tension	10	2225.52		
			Top Cable Vert	10	1913.73		
			Top Cable Norm	10	1136.04		
			Top Cable Tan	10	1.14		
			Bot Cable Vert	10	-1898.03		
			Bot Cable Norm	10	1151.45		
			Bot Cable Tan	10	6.72		
		Guy C	Bottom Tension	12	2318.78		
			Top Tension	12	2324.30		
			Top Cable Vert	12	1998.17		
			Top Cable Norm	12	1187.29		
			Top Cable Tan	12	1.11		
			Bot Cable Vert	12	-1982.47		
			Bot Cable Norm	12	1202.71		
			Bot Cable Tan	12	6.69		
		Guy D	Bottom Tension	4	2153.68		
			Top Tension	4	2159.22		
			Top Cable Vert	4	1836.34		
			Top Cable Norm	4	1135.82		
			Top Cable Tan	4	0.10		
			Bot Cable Vert	4	-1820.37		
			Bot Cable Norm	4	1150.90		
			Bot Cable Tan	4	5.49		
L3	39 - 31.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	25	-4584.12	-1958.92	-1354.58
			Max. Mx	11	-3583.72	-5735.62	-31.85
			Max. My	3	-3246.05	2495.88	-4486.47
			Max. Vy	11	482.82	-2975.73	-36.35
			Max. Vx	13	394.05	-1334.94	-2206.66
			Max. Torque	9			259.83
L4	31.5 - 24.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	25	-4849.87	-2036.79	-1372.63
			Max. Mx	11	-3659.51	-6558.82	-25.92
			Max. My	13	-3416.17	-3045.36	-5194.66
			Max. Vy	11	230.93	-5735.61	-32.17
			Max. Vx	9	-195.36	-2753.93	4225.05
			Max. Torque	9			259.16
L5	24.5 - 17.6	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	25	-5134.97	-1715.47	-1137.87
			Max. Mx	11	-3659.49	-6558.84	-25.99
			Max. My	13	-3416.19	-3045.40	-5194.76
			Max. Vy	11	-198.24	-5842.58	-17.44
			Max. Vx	3	-153.92	2637.49	-4661.73
			Max. Torque	9			258.75
L6	17.6 - 10.9	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	25	-5419.76	-1114.51	-731.42
			Max. Mx	11	-3746.79	-5842.61	-17.40
			Max. My	13	-3504.19	-2729.64	-4671.14
			Max. Vy	11	-373.19	-3902.65	-7.64
			Max. Vx	13	-298.58	-1829.22	-3137.73
			Max. Torque	9			258.70
L7	10.9 - 2	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	25	-5855.50	0.35	0.44

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
			Max. Mx	11	-3835.36	-3902.69	-7.56
			Max. My	13	-3593.60	-1829.64	-3138.01
			Max. Vy	11	-500.16	-0.06	7.26
			Max. Vx	13	-403.88	3.28	-1.50
			Max. Torque	9			258.71

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Mast	Max. Vert	25	5857.49	62.47	38.62
	Max. H_x	11	4043.31	328.72	-0.04
	Max. H_z	3	3705.45	-161.49	278.90
	Max. M_x	1	0.00	1.77	1.73
	Max. M_z	1	0.00	1.77	1.73
	Max. Torsion	9	258.90	164.48	-275.29
	Min. Vert	1	1974.31	1.77	1.73
	Min. H_x	5	3740.16	-330.34	3.07
	Min. H_z	7	3495.50	-160.01	-276.15
	Min. M_x	1	0.00	1.77	1.73
	Min. M_z	1	0.00	1.77	1.73
	Min. Torsion	3	-257.45	-161.49	278.90
Guy D @ 29.1 ft Elev 0 ft Azimuth 225 deg	Max. Vert	35	-33.54	-12.00	13.73
	Max. H_x	35	-33.54	-12.00	13.73
	Max. H_z	3	-1812.54	-805.55	815.02
	Min. Vert	4	-1820.37	-817.69	809.93
	Min. H_x	4	-1820.37	-817.69	809.93
	Min. H_z	34	-34.08	-13.96	12.24
Guy C @ 27.9 ft Elev 0 ft Azimuth 135 deg	Max. Vert	31	-44.30	15.82	17.55
	Max. H_x	12	-1982.47	855.18	845.71
	Max. H_z	13	-1974.42	842.15	851.51
	Min. Vert	12	-1982.47	855.18	845.71
	Min. H_x	31	-44.30	15.82	17.55
	Min. H_z	32	-44.80	17.76	16.02
Guy B @ 27.9 ft Elev 0 ft Azimuth 45 deg	Max. Vert	29	-37.95	13.17	-14.88
	Max. H_x	10	-1898.03	818.95	-809.45
	Max. H_z	28	-38.17	14.99	-13.25
	Min. Vert	10	-1898.03	818.95	-809.45
	Min. H_x	29	-37.95	13.17	-14.88
	Min. H_z	9	-1890.16	806.49	-814.69
Guy A @ 34.5 ft Elev 0 ft Azimuth -45 deg	Max. Vert	37	-23.90	-10.12	-11.83
	Max. H_x	37	-23.90	-10.12	-11.83
	Max. H_z	38	-24.15	-11.95	-10.24
	Min. Vert	6	-1614.50	-857.91	-850.13
	Min. H_x	6	-1614.50	-857.91	-850.13
	Min. H_z	7	-1608.07	-846.40	-854.71

Tower Mast Reaction Summary

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	lb	lb	lb	lb-ft	lb-ft	lb-ft
Dead Only	1974.31	-1.77	-1.73	0.00	0.00	-0.00
1.2 Dead+1.0 Wind 0 deg - No Ice+1.0 Guy	3636.45	0.33	-174.20	0.00	0.00	201.54
1.2 Dead+1.0 Wind 30 deg - No Ice+1.0 Guy	3705.45	161.49	-278.90	0.00	0.00	257.45
1.2 Dead+1.0 Wind 60 deg - No Ice+1.0 Guy	3576.95	287.58	-169.43	0.00	0.00	248.37
1.2 Dead+1.0 Wind 90 deg - No Ice+1.0 Guy	3740.16	330.34	-3.07	0.00	0.00	172.10
1.2 Dead+1.0 Wind 120 deg - No Ice+1.0 Guy	3439.77	287.69	163.90	0.00	0.00	50.40
1.2 Dead+1.0 Wind 150 deg - No Ice+1.0 Guy	3495.50	160.01	276.15	0.00	0.00	-85.53
1.2 Dead+1.0 Wind 180 deg - No Ice+1.0 Guy	3475.43	-3.27	171.75	0.00	0.00	-202.64
1.2 Dead+1.0 Wind 210 deg - No Ice+1.0 Guy	3675.20	-164.48	275.29	0.00	0.00	-258.90
1.2 Dead+1.0 Wind 240 deg - No Ice+1.0 Guy	3740.53	-288.84	164.52	0.00	0.00	-248.52
1.2 Dead+1.0 Wind 270 deg - No Ice+1.0 Guy	4043.31	-328.72	0.04	0.00	0.00	-170.86
1.2 Dead+1.0 Wind 300 deg - No Ice+1.0 Guy	3786.08	-286.37	-164.88	0.00	0.00	-49.06
1.2 Dead+1.0 Wind 330 deg - No Ice+1.0 Guy	3799.99	-160.73	-275.62	0.00	0.00	85.82
1.2 Dead+1.0 Ice+1.0 Temp+Guy	5713.43	-3.99	-5.18	0.00	0.00	-0.09
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp+1.0 Guy	5808.89	-3.56	-57.40	0.00	0.00	30.11
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp+1.0 Guy	5797.87	30.19	-63.11	0.00	0.00	37.51
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp+1.0 Guy	5777.47	56.12	-39.09	0.00	0.00	36.36
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp+1.0 Guy	5753.94	65.73	-4.99	0.00	0.00	25.73
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp+1.0 Guy	5746.18	56.61	29.58	0.00	0.00	8.10
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp+1.0 Guy	5753.73	30.41	54.20	0.00	0.00	-11.93
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp+1.0 Guy	5768.52	-3.96	48.04	0.00	0.00	-30.32
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp+1.0 Guy	5809.40	-37.26	53.54	0.00	0.00	-37.67
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp+1.0 Guy	5829.06	-62.73	29.19	0.00	0.00	-36.53
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp+1.0 Guy	5837.66	-71.96	-4.88	0.00	0.00	-25.89
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp+1.0 Guy	5857.49	-62.47	-38.62	0.00	0.00	-8.24
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp+1.0 Guy	5851.29	-36.99	-62.61	0.00	0.00	11.72
Dead+Wind 0 deg - Service+Guy	2230.80	-0.96	-118.93	0.00	0.00	89.01
Dead+Wind 30 deg - Service+Guy	2289.01	81.59	-144.93	0.00	0.00	114.96

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	lb	lb	lb	lb-ft	lb-ft	lb-ft
Dead+Wind 60 deg - Service+Guy	2271.60	146.71	-87.49	0.00	0.00	110.69
Dead+Wind 90 deg - Service+Guy	2228.89	169.48	-2.63	0.00	0.00	76.87
Dead+Wind 120 deg - Service+Guy	2213.87	146.11	82.53	0.00	0.00	22.40
Dead+Wind 150 deg - Service+Guy	2220.92	80.35	140.68	0.00	0.00	-38.18
Dead+Wind 180 deg - Service+Guy	2185.81	-2.66	115.36	0.00	0.00	-89.18
Dead+Wind 210 deg - Service+Guy	2301.30	-85.22	141.15	0.00	0.00	-115.18
Dead+Wind 240 deg - Service+Guy	2310.75	-150.27	83.63	0.00	0.00	-110.80
Dead+Wind 270 deg - Service+Guy	2326.48	-172.71	-0.96	0.00	0.00	-76.72
Dead+Wind 300 deg - Service+Guy	2333.07	-149.31	-85.79	0.00	0.00	-22.16
Dead+Wind 330 deg - Service+Guy	2334.90	-83.65	-143.88	0.00	0.00	38.24

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX	PY	PZ	PX	PY	PZ	% Error
	lb	lb	lb	lb	lb	lb	
1	0.00	-855.44	0.00	-0.33	855.41	-0.31	0.052%
2	-25.83	-1020.43	-1190.77	25.79	1020.41	1190.45	0.020%
3	738.44	-1020.92	-1330.68	-739.05	1020.93	1330.63	0.033%
4	1325.25	-1021.80	-766.27	-1325.41	1021.81	766.83	0.031%
5	1544.39	-1022.29	25.83	-1544.08	1022.27	-25.79	0.017%
6	1350.34	-1022.11	810.60	-1350.28	1022.12	-811.05	0.024%
7	782.77	-1021.94	1355.77	-783.21	1021.94	-1355.69	0.024%
8	25.83	-1021.91	1190.77	-25.89	1021.90	-1190.51	0.017%
9	-738.44	-1021.41	1330.68	738.90	1021.43	-1330.83	0.026%
10	-1325.25	-1020.54	766.27	1325.23	1020.55	-766.88	0.033%
11	-1544.39	-1020.04	-25.83	1544.09	1020.02	25.83	0.016%
12	-1350.34	-1020.22	-810.60	1350.40	1020.24	811.23	0.034%
13	-782.77	-1020.39	-1355.77	783.31	1020.41	1355.84	0.029%
14	0.00	-3909.79	0.00	0.41	3909.78	0.38	0.014%
15	-1.06	-3908.48	-379.15	1.28	3908.48	379.61	0.013%
16	214.56	-3909.36	-373.74	-214.62	3909.35	374.29	0.014%
17	374.02	-3910.90	-217.95	-374.31	3910.89	218.46	0.015%
18	431.11	-3911.77	1.06	-431.55	3911.76	-0.69	0.015%
19	373.78	-3911.46	219.05	-374.25	3911.45	-219.13	0.012%
20	215.67	-3911.15	373.50	-215.69	3911.15	-373.98	0.012%
21	1.06	-3911.09	379.15	-0.60	3911.09	-379.35	0.013%
22	-214.56	-3910.22	373.74	215.01	3910.22	-373.99	0.013%
23	-374.02	-3908.68	217.95	374.51	3908.68	-218.03	0.013%
24	-431.11	-3907.81	-1.06	431.66	3907.81	1.27	0.015%
25	-373.78	-3908.12	-219.05	374.26	3908.13	219.45	0.016%
26	-215.67	-3908.43	-373.50	216.05	3908.43	373.96	0.015%
27	-11.35	-855.11	-582.55	11.31	855.10	582.25	0.030%
28	334.68	-855.33	-602.39	-334.60	855.31	602.11	0.027%
29	600.66	-855.71	-347.29	-600.44	855.70	347.16	0.024%
30	699.79	-855.93	11.35	-699.49	855.92	-11.39	0.027%
31	611.69	-855.85	366.78	-611.39	855.84	-366.67	0.029%
32	354.17	-855.78	613.42	-354.06	855.76	-613.13	0.028%

Load Comb.	Sum of Applied Forces PX lb	PY lb	PZ lb	Sum of Reactions PX lb	PY lb	PZ lb	% Error
33	11.35	-855.76	582.55	-11.43	855.75	-582.24	0.032%
34	-334.68	-855.54	602.39	334.52	855.53	-602.16	0.026%
35	-600.66	-855.16	347.29	600.44	855.15	-347.23	0.021%
36	-699.79	-854.94	-11.35	699.47	854.93	11.34	0.029%
37	-611.69	-855.02	-366.78	611.48	855.01	366.69	0.021%
38	-354.17	-855.10	-613.42	354.07	855.08	613.22	0.020%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	11	0.00000001	0.00000001
2	Yes	26	0.00000001	0.00006344
3	Yes	30	0.00000001	0.00006858
4	Yes	29	0.00000001	0.00006691
5	Yes	30	0.00000001	0.00004893
6	Yes	28	0.00000001	0.00003764
7	Yes	28	0.00000001	0.00004242
8	Yes	25	0.00000001	0.00005931
9	Yes	30	0.00000001	0.00005743
10	Yes	31	0.00000001	0.00006006
11	Yes	33	0.00000001	0.00004079
12	Yes	31	0.00000001	0.00003714
13	Yes	31	0.00000001	0.00003498
14	Yes	28	0.00000001	0.00000001
15	Yes	32	0.00000001	0.00000001
16	Yes	32	0.00000001	0.00000001
17	Yes	31	0.00000001	0.00000001
18	Yes	29	0.00000001	0.00000001
19	Yes	27	0.00000001	0.00000001
20	Yes	27	0.00000001	0.00000001
21	Yes	28	0.00000001	0.00000001
22	Yes	32	0.00000001	0.00000001
23	Yes	33	0.00000001	0.00000001
24	Yes	33	0.00000001	0.00000001
25	Yes	34	0.00000001	0.00000001
26	Yes	34	0.00000001	0.00000001
27	Yes	20	0.00000001	0.00006929
28	Yes	21	0.00000001	0.00008781
29	Yes	21	0.00000001	0.00008158
30	Yes	21	0.00000001	0.00006324
31	Yes	20	0.00000001	0.00000001
32	Yes	20	0.00000001	0.00000001
33	Yes	19	0.00000001	0.00007153
34	Yes	21	0.00000001	0.00009007
35	Yes	22	0.00000001	0.00006777
36	Yes	22	0.00000001	0.00007246
37	Yes	22	0.00000001	0.00000001
38	Yes	22	0.00000001	0.00000001

Guy Design Data

Section No.	Elevation ft	Size	Initial Tension lb	Breaking Load lb	Actual T_u lb	Allowable ϕT_n lb	Required S.F.	Actual S.F.
L2	46.70 (A) (11)	1/4 EHS	332.50	6649.98	2021.83	3990.00	1.000	1.973 ✔
	46.70 (B) (10)	1/4 EHS	332.50	6649.98	2225.52	3990.00	1.000	1.793 ✔
	46.70 (C) (9)	1/4 EHS	332.50	6649.98	2324.30	3990.00	1.000	1.717 ✔
	46.70 (D) (8)	1/4 EHS	332.50	6649.98	2159.22	3990.00	1.000	1.848 ✔

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb
L1	54.5 - 46.7 (1)	5.25 ODx0.151	7.80	0.00	0.0	2.4189	-408.32
L2	46.7 - 39 (2)	6 ODx0.151	7.70	0.00	0.0	2.7747	-3495.61
L3	39 - 31.5 (3)	6.75 ODx0.151	7.50	0.00	0.0	3.1304	-3583.72
L4	31.5 - 24.5 (4)	7.5 ODx0.151	7.00	0.00	0.0	3.4862	-3659.51
L5	24.5 - 17.6 (5)	8.25 ODx0.221	6.90	0.00	0.0	5.5745	-3666.97
L6	17.6 - 10.9 (6)	9.14 ODx0.221	6.70	0.00	0.0	6.1924	-3754.39
L7	10.9 - 2 (7)	11.25 ODx0.361	8.90	0.00	0.0	12.3494	-3847.30

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} lb-ft	M_{uy} lb-ft
L1	54.5 - 46.7 (1)	5.25 ODx0.151	2365.34	0.00
L2	46.7 - 39 (2)	6 ODx0.151	2975.97	0.00
L3	39 - 31.5 (3)	6.75 ODx0.151	5735.71	0.00
L4	31.5 - 24.5 (4)	7.5 ODx0.151	6558.88	0.00
L5	24.5 - 17.6 (5)	8.25 ODx0.221	6558.89	0.00
L6	17.6 - 10.9 (6)	9.14 ODx0.221	5842.63	0.00
L7	10.9 - 2 (7)	11.25 ODx0.361	3902.70	0.00

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u lb	Actual T_u lb-ft
L1	54.5 - 46.7 (1)	5.25 ODx0.151	654.49	87.29
L2	46.7 - 39 (2)	6 ODx0.151	515.30	171.72
L3	39 - 31.5 (3)	6.75 ODx0.151	267.90	171.15
L4	31.5 - 24.5 (4)	7.5 ODx0.151	23.39	170.76
L5	24.5 - 17.6 (5)	8.25 ODx0.221	33.50	170.74

Section No.	Elevation ft	Size	Actual V_u lb	Actual T_u lb-ft
L6	17.6 - 10.9 (6)	9.14 ODx0.221	228.98	170.69
L7	10.9 - 2 (7)	11.25 ODx0.361	390.74	170.70

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
		Guy A@46.7	1/4	11	2021.83	3990.00	50.7	Pass
		Guy B@46.7	1/4	10	2225.52	3990.00	55.8	Pass
		Guy C@46.7	1/4	9	2324.30	3990.00	58.3	Pass
		Guy D@46.7	1/4	8	2159.22	3990.00	54.1	Pass
							Summary	
						Guy A (L2)	50.7	Pass
						Guy B (L2)	55.8	Pass
						Guy C (L2)	58.3	Pass
						Guy D (L2)	54.1	Pass
						RATING =	**58.3**	**Pass**

Program Version 8.1.1.0 - 6/3/2021 File:M:/Current HTE/2023 Projects/23126 VZN Rand & 53_Temp_Asset Loc #5000926022 TCG #194072/Calcs/60' Mast/23126 60' Mast mod.eri

CHECK ROUND ALUMINUM POLE AT BOTT OF L1

Mu = 2.37 ft-kip
Pu = 0.41 kip
Vu = 0.65 kip
Tu = .00 ft-kip
B2 = 1.000
L = 7.80 ft

Diameter = 5.25 in
t = 0.1510 in
6061-T6 Tempered

A = 2.42 in^2
S = 3.0 in^3
I = 7.9 in^4
rg = 1.80 in

Ref Table 6.4.1-1
Fty = 35 ksi
Fcy = 35 ksi
Fsy = 20 ksi
E = 10100 ksi
Ftu = 38 ksi
Fsu = 24 ksi

Ref Table 6.6.2-1
kt = 1

Buckling Constants

Flex. Comp.-Circ. Sect		Axial Comp.-Circ. Sect		Shear in flat elements	
Btb =	64.8 ksi	Bt =	43.2 ksi	Bs =	25.8 ksi
Dtb =	4.458 ksi	Dt =	1.56 ksi	Ds =	0.131 ksi
Ctb =	55.4	Bc =	39.4 ksi	Cs =	81.0
		Dc =	0.25 ksi		
		Cc =	65.7		

Flexure

Local Bucking - Table 6.5.1-8 - Eq. 6.5.1-35 — ϕ_f = 0.9

$\lambda = R_b/t$ = 16.9 < $\lambda 1$ = 28.6 — ϕF_b = 41.8 ksi

Flexural Compressive Yielding- Table 6.5.1-5- Eq. 6.5.1-20 — ϕF_b = 36.9 ksi

Flexural Tensile Yielding- Table 6.5.1-2- Eq. 6.5.1-7 — ϕF_b = 36.9 ksi

Flexural Tensile Rupture- Table 6.5.1-2- Eq. 6.5.1-8 (ϕ_f = 0.75) — ϕF_b = 35.3 ksi

ϕF_b = 35.3 ksi

Compression

Member Bucking - Table 6.5.1-3 - Eq. 6.5.1-11 — ϕ_c = 0.9

$\lambda = kL/r$ = 0 < $\lambda 2 = Cc$ = 65.7 — ϕF_c = 30.1 ksi

Local Bucking - Table 6.5.1-8 - Eq. 6.5.1-34

$\lambda = R_b/t$ = 16.9 < $\lambda 1$ = 27.6 — ϕF_c = 31.5 ksi

ϕF_c = 30.1 ksi

Shear

Table 6.5.1-9 - Eq. 6.5.1-37 — ϕ_v = 0.9

λ = 41.8 < $\lambda 1$ = 64 — **ϕF_s = 18.0 ksi**

< $\lambda 2$ = 65

Combined Force Check

Table 6.5.1-12 - Eq. 6.5.1-48

fc = Pu/A =	0.2 ksi	$\phi F'_c$ = 30.1 ksi	fc / $\phi F'_c$ = 0.006
fb = Mu/S =	9.5 ksi	$\phi F'_b$ = 35.3 ksi	B_2*fb / $\phi F'_b$ = 0.268
fs = Vu/(A/2) =	0.5 ksi	$\phi F'_s$ = 18.0 ksi	fs / $\phi F'_s$ = 0.030

i.c. = 0.274 **OK (27.4% Cap)**

HUTTER TRANKINA ENGINEERING
Consulting Structural Engineers
32W273 Army Trail Rd. Suite 100
WAYNE, ILLINOIS 60184
Tel. (630) 513-6711

JOB:	23126		
JOB NO:		REV:	
CALC BY:	JCM	DATE:	6/20/2023
CHECK BY:		DATE:	
SHEET NO:	35	OF	
DESCRIPTION:			

CHECK ROUND ALUMINUM POLE AT BOTT OF L2

Mu = 2.98 ft-kip
Pu = 3.50 kip
Vu = 0.52 kip
Tu = .00 ft-kip
B2 = 1.000
L = 44.70 ft

Diameter = 6.00 in
t = 0.1510 in
6061-T6 Tempered

A = 2.77 in^2
S = 4.0 in^3
I = 11.9 in^4
rg = 2.84 in

Ref Table 6.4.1-1
Fty = 35 ksi
Fcy = 35 ksi
Fsy = 20 ksi
E = 10100 ksi
Ftu = 38 ksi
Fsu = 24 ksi

Ref Table 6.6.2-1
kt = 1

Buckling Constants

Flex. Comp.-Circ. Sect		Axial Comp.-Circ. Sect		Shear in flat elements	
Btb =	64.8 ksi	Bt =	43.2 ksi	Bs =	25.8 ksi
Dtb =	4.458 ksi	Dt =	1.56 ksi	Ds =	0.131 ksi
Ctb =	55.4	Bc =	39.4 ksi	Cs =	81.0
		Dc =	0.25 ksi		
		Cc =	65.7		

Flexure

Local Bucking - Table 6.5.1-8 - Eq. 6.5.1-35 — ϕ_f = 0.9

$\lambda = R_b/t$ = 19.4 < $\lambda 1$ = 28.6 — ϕF_b = 40.6 ksi

Flexural Compressive Yielding- Table 6.5.1-5- Eq. 6.5.1-20 — ϕF_b = 36.9 ksi

Flexural Tensile Yielding- Table 6.5.1-2- Eq. 6.5.1-7 — ϕF_b = 36.9 ksi

Flexural Tensile Rupture- Table 6.5.1-2- Eq. 6.5.1-8 (ϕ_f = 0.75) — ϕF_b = 35.3 ksi

ϕF_b = 35.3 ksi

Compression

Member Bucking - Table 6.5.1-3 - Eq. 6.5.1-11 — ϕ_c = 0.9

$\lambda = kL/r$ = 189 > $\lambda 2 = Cc$ = 65.7 — ϕF_c = 2.1 ksi

Local Bucking - Table 6.5.1-8 - Eq. 6.5.1-34

$\lambda = R_b/t$ = 19.4 < $\lambda 1$ = 27.6 — ϕF_c = 31.5 ksi

ϕF_c = 2.1 ksi

Shear

Table 6.5.1-9 - Eq. 6.5.1-37 — ϕ_v = 0.9

λ = 68.0 > $\lambda 1$ = 64 — **ϕF_s = 16.1 ksi**

> $\lambda 2$ = 65

Combined Force Check

Table 6.5.1-12 - Eq. 6.5.1-48

fc = Pu/A =	1.3 ksi	$\phi F'_c$ = 2.1 ksi	fc / $\phi F'_c$ = 0.589
fb = Mu/S =	9.0 ksi	$\phi F'_b$ = 35.3 ksi	B_2*fb / $\phi F'_b$ = 0.255
fs = Vu/(A/2) =	0.4 ksi	$\phi F'_s$ = 16.1 ksi	fs / $\phi F'_s$ = 0.023

i.c. = 0.845 **OK (84.5% Cap)**

HUTTER TRANKINA ENGINEERING
Consulting Structural Engineers
32W273 Army Trail Rd. Suite 100
WAYNE, ILLINOIS 60184
Tel. (630) 513-6711

JOB:	21129C		
JOB NO:		REV:	
CALC BY:	JCM	DATE:	6/20/2023
CHECK BY:		DATE:	
SHEET NO:	30	OF	
DESCRIPTION:			

CHECK ROUND ALUMINUM POLE AT BOTT OF L3

Mu = 5.74 ft-kip
Pu = 3.58 kip
Vu = 0.27 kip
Tu = .00 ft-kip
B2 = 1.000
L = 44.70 ft

Diameter = 6.75 in
t = 0.1510 in
6061-T6 Tempered

A = 3.13 in^2
S = 5.1 in^3
I = 17.0 in^4
rg = 2.84 in

Ref Table 6.4.1-1
Fty = 35 ksi
Fcy = 35 ksi
Fsy = 20 ksi
E = 10100 ksi
Ftu = 38 ksi
Fsu = 24 ksi

Ref Table 6.6.2-1
kt = 1

Buckling Constants

Flex. Comp.-Circ. Sect		Axial Comp.-Circ. Sect		Shear in flat elements	
Btb =	64.8 ksi	Bt =	43.2 ksi	Bs =	25.8 ksi
Dtb =	4.458 ksi	Dt =	1.56 ksi	Ds =	0.131 ksi
Ctb =	55.4	Bc =	39.4 ksi	Cs =	81.0
		Dc =	0.25 ksi		
		Cc =	65.7		

Flexure

Local Bucking - Table 6.5.1-8 - Eq. 6.5.1-35 — ϕ_f = 0.9

$\lambda = R_b/t$ = 21.9 < $\lambda 1$ = 28.6 — ϕF_b = 39.5 ksi

Flexural Compressive Yielding- Table 6.5.1-5- Eq. 6.5.1-20 — ϕF_b = 36.9 ksi

Flexural Tensile Yielding- Table 6.5.1-2- Eq. 6.5.1-7 — ϕF_b = 36.9 ksi

Flexural Tensile Rupture- Table 6.5.1-2- Eq. 6.5.1-8 (ϕ_f = 0.75) — ϕF_b = 35.3 ksi

ϕF_b = 35.3 ksi

Compression

Member Bucking - Table 6.5.1-3 - Eq. 6.5.1-11 — ϕ_c = 0.9

$\lambda = kL/r$ = 189 > $\lambda 2 = Cc$ = 65.7 — ϕF_c = 2.1 ksi

Local Bucking - Table 6.5.1-8 - Eq. 6.5.1-34

$\lambda = R_b/t$ = 21.9 < $\lambda 1$ = 27.6 — ϕF_c = 31.5 ksi

ϕF_c = 2.1 ksi

Shear

Table 6.5.1-9 - Eq. 6.5.1-37 — ϕ_v = 0.9

λ = 71.2 > $\lambda 1$ = 64 — **ϕF_s = 14.7 ksi**

> $\lambda 2$ = 65

Combined Force Check

Table 6.5.1-12 - Eq. 6.5.1-48

fc = Pu/A =	1.1 ksi	$\phi F'_c$ = 2.1 ksi	fc / $\phi F'_c$ = 0.535
fb = Mu/S =	13.6 ksi	$\phi F'_b$ = 35.3 ksi	B_2*fb / $\phi F'_b$ = 0.385
fs = Vu/(A/2) =	0.2 ksi	$\phi F'_s$ = 14.7 ksi	fs / $\phi F'_s$ = 0.012

i.c. = 0.921 **OK (92.1% Cap)**

HUTTER TRANKINA ENGINEERING
Consulting Structural Engineers
32W273 Army Trail Rd. Suite 100
WAYNE, ILLINOIS 60184
Tel. (630) 513-6711

JOB:	23126		
JOB NO:		REV:	
CALC BY:	JCM	DATE:	6/20/2023
CHECK BY:		DATE:	
SHEET NO:	37	OF	
DESCRIPTION:			

CHECK ROUND ALUMINUM POLE AT BOTT OF L4

Mu = 6.56 ft-kip
Pu = 3.66 kip
Vu = 0.02 kip
Tu = .00 ft-kip
B2 = 1.000
L = 44.70 ft

Diameter = 7.50 in
t = 0.1510 in
6061-T6 Tempered

A = 3.49 in^2
S = 6.3 in^3
I = 23.5 in^4
rg = 2.84 in

Ref Table 6.4.1-1
Fty = 35 ksi
Fcy = 35 ksi
Fsy = 20 ksi
E = 10100 ksi
Ftu = 38 ksi
Fsu = 24 ksi

Ref Table 6.6.2-1
kt = 1

Buckling Constants

Flex. Comp.-Circ. Sect		Axial Comp.-Circ. Sect		Shear in flat elements	
Btb =	64.8 ksi	Bt =	43.2 ksi	Bs =	25.8 ksi
Dtb =	4.458 ksi	Dt =	1.56 ksi	Ds =	0.131 ksi
Ctb =	55.4	Bc =	39.4 ksi	Cs =	81.0
		Dc =	0.25 ksi		
		Cc =	65.7		

Flexure

Local Bucking - Table 6.5.1-8 - Eq. 6.5.1-35 — ϕ_f = 0.9

$\lambda = R_b/t$ = 24.3 < $\lambda 1$ = 28.6 — ϕF_b = 38.5 ksi

Flexural Compressive Yielding- Table 6.5.1-5- Eq. 6.5.1-20 — ϕF_b = 36.9 ksi

Flexural Tensile Yielding- Table 6.5.1-2- Eq. 6.5.1-7 — ϕF_b = 36.9 ksi

Flexural Tensile Rupture- Table 6.5.1-2- Eq. 6.5.1-8 (ϕ_f = 0.75) — ϕF_b = 35.3 ksi

ϕF_b = 35.3 ksi

Compression

Member Bucking - Table 6.5.1-3 - Eq. 6.5.1-11 — ϕ_c = 0.9

$\lambda = kL/r$ = 189 > $\lambda 2 = Cc$ = 65.7 — ϕF_c = 2.1 ksi

Local Bucking - Table 6.5.1-8 - Eq. 6.5.1-34

$\lambda = R_b/t$ = 24.3 < $\lambda 1$ = 27.6 — ϕF_c = 31.5 ksi

ϕF_c = 2.1 ksi

Shear

Table 6.5.1-9 - Eq. 6.5.1-37 — ϕ_v = 0.9

λ = 74.1 > $\lambda 1$ = 64 — **ϕF_s = 13.6 ksi**

> $\lambda 2$ = 65

Combined Force Check

Table 6.5.1-12 - Eq. 6.5.1-48

fc = Pu/A =	1.0 ksi	$\phi F'_c$ = 2.1 ksi	fc / $\phi F'_c$ = 0.491
fb = Mu/S =	12.5 ksi	$\phi F'_b$ = 35.3 ksi	B_2*fb / $\phi F'_b$ = 0.355
fs = Vu/(A/2) =	0.0 ksi	$\phi F'_s$ = 13.6 ksi	fs / $\phi F'_s$ = 0.001

i.c. = 0.846 **OK (84.6% Cap)**

HUTTER TRANKINA ENGINEERING
Consulting Structural Engineers
32W273 Army Trail Rd. Suite 100
WAYNE, ILLINOIS 60184
Tel. (630) 513-6711

JOB:	23126		
JOB NO:		REV:	
CALC BY:	JCM	DATE:	6/20/2023
CHECK BY:		DATE:	
SHEET NO:	38	OF	
DESCRIPTION:			

CHECK ROUND ALUMINUM POLE AT BOTT OF L5

Mu = 6.56 ft-kip
Pu = 3.67 kip
Vu = 0.03 kip
Tu = .00 ft-kip
B2 = 1.000
L = 44.70 ft

Diameter = 8.25 in
t = 0.2210 in
6061-T6 Tempered

A = 5.57 in^2
S = 10.9 in^3
I = 45.0 in^4
rg = 2.84 in

Ref Table 6.4.1-1
Fty = 35 ksi
Fcy = 35 ksi
Fsy = 20 ksi
E = 10100 ksi
Ftu = 38 ksi
Fsu = 24 ksi

Ref Table 6.6.2-1
kt = 1

Buckling Constants

Flex. Comp.-Circ. Sect		Axial Comp.-Circ. Sect		Shear in flat elements	
Btb =	64.8 ksi	Bt =	43.2 ksi	Bs =	25.8 ksi
Dtb =	4.458 ksi	Dt =	1.56 ksi	Ds =	0.131 ksi
Ctb =	55.4	Bc =	39.4 ksi	Cs =	81.0
		Dc =	0.25 ksi		
		Cc =	65.7		

Flexure

Local Bucking - Table 6.5.1-8 - Eq. 6.5.1-35 — ϕ_f = 0.9

$\lambda = R_b/t$ = 18.2 < $\lambda 1$ = 28.6 — ϕF_b = 41.2 ksi

Flexural Compressive Yielding- Table 6.5.1-5- Eq. 6.5.1-20 — ϕF_b = 36.9 ksi

Flexural Tensile Yielding- Table 6.5.1-2- Eq. 6.5.1-7 — ϕF_b = 36.9 ksi

Flexural Tensile Rupture- Table 6.5.1-2- Eq. 6.5.1-8 (ϕ_f = 0.75) — ϕF_b = 35.3 ksi

ϕF_b = 35.3 ksi

Compression

Member Bucking - Table 6.5.1-3 - Eq. 6.5.1-11 — ϕ_c = 0.9

$\lambda = kL/r$ = 189 > $\lambda 2 = Cc$ = 65.7 — ϕF_c = 2.1 ksi

Local Bucking - Table 6.5.1-8 - Eq. 6.5.1-34

$\lambda = R_b/t$ = 18.2 < $\lambda 1$ = 27.6 — ϕF_c = 31.5 ksi

ϕF_c = 2.1 ksi

Shear

Table 6.5.1-9 - Eq. 6.5.1-37 — ϕ_v = 0.9

λ = 60.4 < $\lambda 1$ = 64 — **ϕF_s = 18.0 ksi**

< $\lambda 2$ = 65

Combined Force Check

Table 6.5.1-12 - Eq. 6.5.1-48

fc = Pu/A =	0.7 ksi	$\phi F'_c$ = 2.1 ksi	$fc / \phi F'_c$ = 0.308
fb = Mu/S =	7.2 ksi	$\phi F'_b$ = 35.3 ksi	$B_2 * fb / \phi F'_b$ = 0.204
fs = Vu/(A/2) =	0.0 ksi	$\phi F'_s$ = 18.0 ksi	$fs / \phi F'_s$ = 0.001

i.c. = 0.512 **OK (51.2% Cap)**

HUTTER TRANKINA ENGINEERING
Consulting Structural Engineers
32W273 Army Trail Rd. Suite 100
WAYNE, ILLINOIS 60184
Tel. (630) 513-6711

JOB:	23126		
JOB NO:		REV:	
CALC BY:	JCM	DATE:	6/20/2023
CHECK BY:		DATE:	
SHEET NO:	39	OF	
DESCRIPTION:			

CHECK ROUND ALUMINUM POLE AT BOTT OF L6

Mu = 5.84 ft-kip
Pu = 3.75 kip
Vu = 0.23 kip
Tu = .00 ft-kip
B2 = 1.000
L = 44.70 ft

Diameter = 9.14 in
t = 0.2210 in
6061-T6 Tempered

A = 6.19 in^2
S = 13.5 in^3
I = 61.6 in^4
rg = 2.84 in

Ref Table 6.4.1-1
Fty = 35 ksi
Fcy = 35 ksi
Fsy = 20 ksi
E = 10100 ksi
Ftu = 38 ksi
Fsu = 24 ksi

Ref Table 6.6.2-1
kt = 1

Buckling Constants

Flex. Comp.-Circ. Sect		Axial Comp.-Circ. Sect		Shear in flat elements	
Btb =	64.8 ksi	Bt =	43.2 ksi	Bs =	25.8 ksi
Dtb =	4.458 ksi	Dt =	1.56 ksi	Ds =	0.131 ksi
Ctb =	55.4	Bc =	39.4 ksi	Cs =	81.0
		Dc =	0.25 ksi		
		Cc =	65.7		

Flexure

Local Bucking - Table 6.5.1-8 - Eq. 6.5.1-35 — ϕ_f = 0.9

$\lambda = R_b/t$ = 20.2 < $\lambda 1$ = 28.6 — ϕF_b = 40.3 ksi

Flexural Compressive Yielding- Table 6.5.1-5- Eq. 6.5.1-20 — ϕF_b = 36.9 ksi

Flexural Tensile Yielding- Table 6.5.1-2- Eq. 6.5.1-7 — ϕF_b = 36.9 ksi

Flexural Tensile Rupture- Table 6.5.1-2- Eq. 6.5.1-8 (ϕ_f = 0.75) — ϕF_b = 35.3 ksi

ϕF_b = 35.3 ksi

Compression

Member Bucking - Table 6.5.1-3 - Eq. 6.5.1-11 — ϕ_c = 0.9

$\lambda = kL/r$ = 189 > $\lambda 2 = Cc$ = 65.7 — ϕF_c = 2.1 ksi

Local Bucking - Table 6.5.1-8 - Eq. 6.5.1-34

$\lambda = R_b/t$ = 20.2 < $\lambda 1$ = 27.6 — ϕF_c = 31.5 ksi

ϕF_c = 2.1 ksi

Shear

Table 6.5.1-9 - Eq. 6.5.1-37 — ϕ_v = 0.9

λ = 62.8 < $\lambda 1$ = 64 — **ϕF_s = 18.0 ksi**

< $\lambda 2$ = 65

Combined Force Check

Table 6.5.1-12 - Eq. 6.5.1-48

fc = Pu/A =	0.6 ksi	$\phi F'_c$ = 2.1 ksi	$fc / \phi F'_c$ = 0.284
fb = Mu/S =	5.2 ksi	$\phi F'_b$ = 35.3 ksi	$B_2 * fb / \phi F'_b$ = 0.147
fs = Vu/(A/2) =	0.1 ksi	$\phi F'_s$ = 18.0 ksi	$fs / \phi F'_s$ = 0.004

i.c. = 0.431 **OK (43.1% Cap)**

HUTTER TRANKINA ENGINEERING
Consulting Structural Engineers
32W273 Army Trail Rd. Suite 100
WAYNE, ILLINOIS 60184
Tel. (630) 513-6711

JOB:	23126		
JOB NO:		REV:	
CALC BY:	JCM	DATE:	6/20/2023
CHECK BY:		DATE:	
SHEET NO:	40	OF	
DESCRIPTION:			

CHECK ROUND ALUMINUM POLE AT BOTT OF L7

Mu = 3.90 ft-kip
Pu = 3.85 kip
Vu = 0.39 kip
Tu = .00 ft-kip
B2 = 1.000
L = 44.70 ft

Diameter = 10.00 in
t = 0.2210 in
6061-T6 Tempered

A = 6.79 in^2
S = 16.2 in^3
I = 81.2 in^4
rg = 2.84 in

Ref Table 6.4.1-1
Fty = 35 ksi
Fcy = 35 ksi
Fsy = 20 ksi
E = 10100 ksi
Ftu = 38 ksi
Fsu = 24 ksi

Ref Table 6.6.2-1
kt = 1

Buckling Constants

Flex. Comp.-Circ. Sect		Axial Comp.-Circ. Sect		Shear in flat elements	
Btb =	64.8 ksi	Bt =	43.2 ksi	Bs =	25.8 ksi
Dtb =	4.458 ksi	Dt =	1.56 ksi	Ds =	0.131 ksi
Ctb =	55.4	Bc =	39.4 ksi	Cs =	81.0
		Dc =	0.25 ksi		
		Cc =	65.7		

Flexure

Local Bucking - Table 6.5.1-8 - Eq. 6.5.1-35 — ϕ_f = 0.9

$\lambda = R_b/t$ = 22.1 < $\lambda 1$ = 28.6 — ϕF_b = 39.4 ksi

Flexural Compressive Yielding- Table 6.5.1-5- Eq. 6.5.1-20 — ϕF_b = 36.9 ksi

Flexural Tensile Yielding- Table 6.5.1-2- Eq. 6.5.1-7 — ϕF_b = 36.9 ksi

Flexural Tensile Rupture- Table 6.5.1-2- Eq. 6.5.1-8 (ϕ_f = 0.75) — ϕF_b = 35.3 ksi

ϕF_b = 35.3 ksi

Compression

Member Bucking - Table 6.5.1-3 - Eq. 6.5.1-11 — ϕ_c = 0.9

$\lambda = kL/r$ = 189 > $\lambda 2 = Cc$ = 65.7 — ϕF_c = 2.1 ksi

Local Bucking - Table 6.5.1-8 - Eq. 6.5.1-34

$\lambda = R_b/t$ = 22.1 < $\lambda 1$ = 27.6 — ϕF_c = 31.5 ksi

ϕF_c = 2.1 ksi

Shear

Table 6.5.1-9 - Eq. 6.5.1-37 — ϕ_v = 0.9

λ = 65.0 > $\lambda 1$ = 64 — **ϕF_s = 17.7 ksi**

> $\lambda 2$ = 65

Combined Force Check

Table 6.5.1-12 - Eq. 6.5.1-48

fc = Pu/A =	0.6 ksi	$\phi F'_c$ = 2.1 ksi	fc / $\phi F'_c$ = 0.265
fb = Mu/S =	2.9 ksi	$\phi F'_b$ = 35.3 ksi	B_2*fb / $\phi F'_b$ = 0.082
fs = Vu/(A/2) =	0.1 ksi	$\phi F'_s$ = 17.7 ksi	fs / $\phi F'_s$ = 0.007

i.c. = 0.347 **OK (34.7% Cap)**

HUTTER TRANKINA ENGINEERING
Consulting Structural Engineers
32W273 Army Trail Rd. Suite 100
WAYNE, ILLINOIS 60184
Tel. (630) 513-6711

JOB:	23126		
JOB NO:		REV:	
CALC BY:	JCM	DATE:	6/20/2023
CHECK BY:		DATE:	
SHEET NO:	41	OF	
DESCRIPTION:			

Base PL Conn.: (4) 3/8"Φ Bolts (Assume A307)

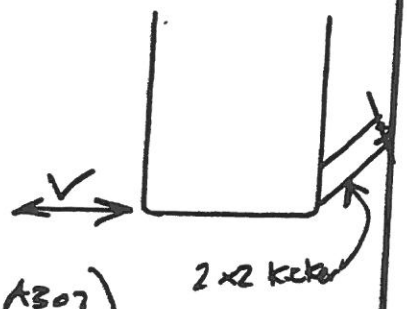
$V_U = 0.1^K$ $V_{cap.} = 4 Anch \times 27 ksi \times 0.11 in^2 \times .75 = 8.9^K$

Check HSS2x2 Kicker @ 59' Mast

$K\ell = 3.5'$ Assume HSS 2x2x3/16

$C_U = T_U = \frac{0.5^K}{\cos 35^\circ} = 0.6^K$

$\phi_c P_n = 39^K$ $\phi_t P_n = 41.5^K$



(2) 1/2"Φ Bolts (Assume A307)

$T_{cap} = 2 Anch \times 45 ksi \times 0.2 in^2 \times .75 = 13.5^K$

$V_{cap.} = 2 Anch \times 27 \times 0.2 in^2 \times 0.75 = 8.1^K$

$V_U = \sqrt{0.6^2 - 0.5^2} = 0.3^K$

Check HSS2x2 Kicker @ 100' Mast

$K\ell = 2.0'$ $C_U = T_U = \frac{0.3^K}{\cos 32} = 0.4^K$ OK

HUTTER TRANKINA ENGINEERING, PC

Consulting Structural Engineers

32 W 273 ARMY TRAIL ROAD
SUITE # 100
WAYNE, ILLINOIS 60184
Phone (630) 513-6711

JOB #23126

SHEET NO. 42 OF

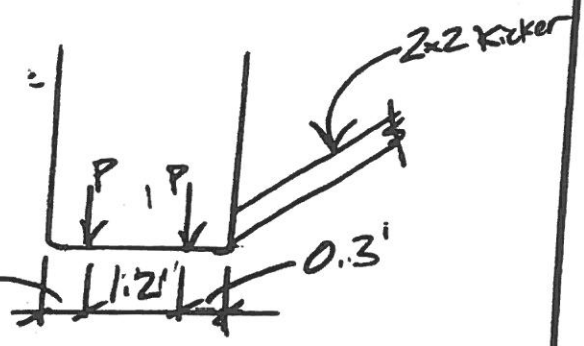
CALCULATED BY DATE

CHECKED BY DATE

SCALE

Saddle PL Conn. @ 59' Mast:

$P_U = \frac{7.6^K}{2} = 3.8^K$



$M_U = 3.8^K \times 0.3' = 1.1^{K\text{-}FT}$

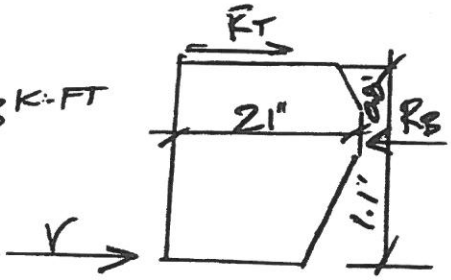
$f_b = \frac{1.1^{K\text{-}FT} \times 12}{\frac{15" \times 2 \times (0.28)^2}{6}} = 42 ksi < 1.5 \times 36 ksi \times 0.9 = 49 ksi$

Side PL tension! $T_U = 3.8^K$

$\phi P_n = 36 ksi \times 0.32" \times 10" \times 0.9 = 105^K$

(2) 1/2"ϕ Bolts $V_{cap} = 8.1^K > 3.8^K$

$V_U = \frac{0.5^K}{2 \text{ sides}} = 0.3^K$ $M_U = 0.3^K \times 1.1' = 0.33^{K\text{-}FT}$



$f_b = \frac{0.33^{K\text{-}FT} \times 12}{\frac{0.32" \times 21^2}{6}} = 0.2 ksi$ $\frac{Lbd}{t^2} > \frac{1.9E}{F_y}$

$F_b = \frac{1.9 \times 29000 ksi}{\frac{13 \times 21}{0.32^2}} \times 0.9 = 19 ksi > 0.2 ksi$

$R_T = 0.3^K \times 1.1'/0.8' = 0.4^K$

$R_B = 0.3^K \times \frac{1.9'}{0.8'} = 0.7^K$ (Factored)

HUTTER TRANKINA ENGINEERING, PC

Consulting Structural Engineers
32 W 273 ARMY TRAIL ROAD
SUITE # 100
WAYNE, ILLINOIS 60184
Phone (630) 513-0711

JOB #23126

SHEET NO. 43 OF

CALCULATED BY DATE

CHECKED BY DATE

SCALE

Saddle Conn. Cont:

@ R_B: ½"Ø Bolt $T_{cap.} = 45\,ksi \times 0.2\,in^2 \times 0.75 = 6.8^k$

@ R_T: (2) ½"Ø Bolt $V_{cap.} = 8.1^k$ 0.7^k

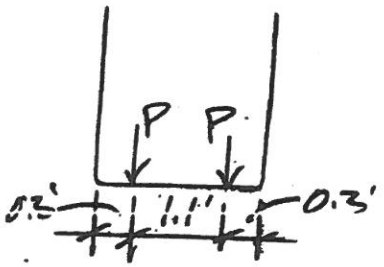
$> \sqrt{0.4^2 + 3.8^2} = 3.8^k$

Bending of Chassis Channel: $d = 10"$ $t_f = 0.4"$ $b_f = 3.5$

$$f_b = \frac{0.7^k \times 9"}{\frac{20" \times 0.4^2}{6}} = 12\,ksi < 1.5 \times 36\,ksi \times 0.9 = 49\,ksi$$

Saddle Conn. @ 60' Mast:

$P_u = \frac{5.9^k}{2} = 3.0^k$



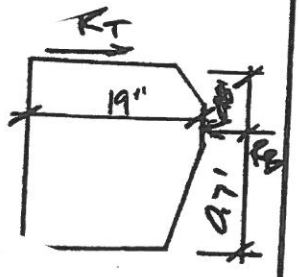
$M_u = 3.0^k \times 0.3' = 0.9^{k\cdot ft}$

$$f_b = \frac{0.9^{k\cdot ft} \times 12}{\frac{15" \times 2 \times 0.21^2}{6}} = 49\,ksi < 1.5 \times 36\,ksi \times 0.9 = 49\,ksi$$

$V_u = \frac{0.3^k}{2\,sides} = 0.2^k$ $M_u = 0.2^k \times 0.7' = 0.14^{k\cdot ft}$

$$f_b = \frac{0.14^{k\cdot ft} \times 12}{\frac{0.21" \times 19^2}{6}} = 0.13\,ksi$$

$$F_b \quad \frac{29{,}000\,ksi}{\frac{8" \times 19}{0.21^2}} \times 0.9 = 14\,ksi > 0.1\,ksi$$



(factored) $R_B = 0.2^k \times \frac{1.5'}{0.8'} = 0.4^k$ $R_T = 0.2^k \times \frac{0.7'}{0.8'} = 0.2^k$ ✓OK

HUTTER TRANKINA ENGINEERING, PC

Consulting Structural Engineers

32 W 273 ARMY TRAIL ROAD
SUITE # 100
WAYNE, ILLINOIS 60184
Phone (630) 513-6711

JOB #23120

SHEET NO. 44 OF 44

CALCULATED BY _____ DATE _____

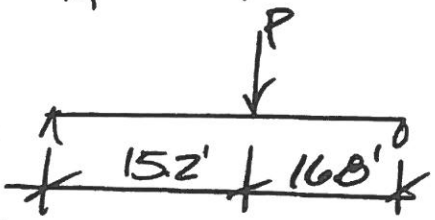
CHECKED BY _____ DATE _____

SCALE _____

Check Chassis Channel: $A = 6.5\,in^2$ $Z_x = 21.9\,in^3$ $Z_y = 4.6\,in^3$
$d = 10"$ $b_f = 3.5"$ $t_f = 0.4"$

Weak axis: $P_U = 0.5K$

$$M_U = \frac{0.5 \times 15.2' \times 16.8'}{32'} = 4.0\,K\text{-}FT$$



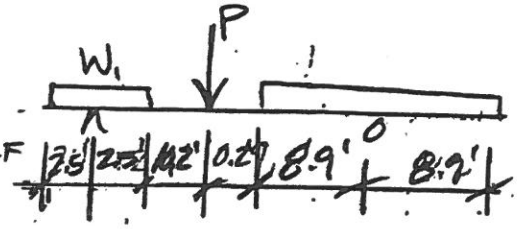
$$\phi M_n = \frac{36\,ksi \times 4.6\,in^3 \times 0.9}{12} = 12.4\,K\text{-}FT$$

Strong axis:

$P_U = 7.6K$

Frontaxel wt: $W_{1_U} = \frac{12{,}100\#}{2 \times 5'} \times 1.2 = 1452\,PLF$

Rearaxel wt.: $W_{2_U} = \frac{18920\#}{2 \times 17.8} \times 1.2 = 638\,PLF$



$M_U^+ = 40K\text{-}FT$ $M_U^- = 24\,K\text{-}FT$

$$\phi M_n^+ = \frac{0.9 \times 36\,ksi \times 23.8\,in^3}{12} = 59\,K\text{-}FT$$

$\phi M_n^- = 36.5K\text{-}FT$ @ $C_b = 1.43$

Combined @ Max Weak axis moment:

$$= \frac{4.0}{12.4} + \frac{40}{59} = 1.0 \leq 1.0$$

√OK

HUTTER TRANKINA ENGINEERING, PC

Consulting Structural Engineers

32 W 273 ARMY TRAIL ROAD
SUITE # 100
WAYNE, ILLINOIS 60184
Phone (630) 513-6711

JOB #23126

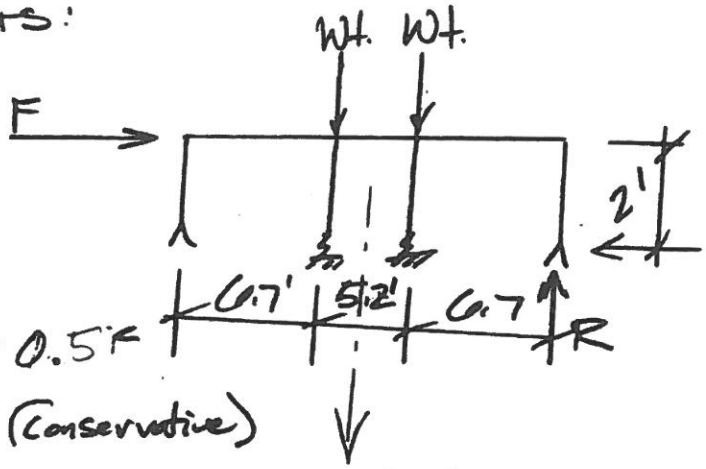
SHEET NO. 45 OF

CALCULATED BY DATE

CHECKED BY DATE

SCALE

Check outriggers:



$F_u = 0.5^K \times 2 \times \frac{16.8'}{32'} = 0.5^K$

$F_n = 0.5^K$ (Conservative)

$Wt. = \frac{12.1^K}{2} = 6.1^K$ Front axel wt.

$R = 0.5^K \times \frac{2'}{6.7' + 5.2'/2} = 0.1^K$

$M = 0.1^K \times 6.7' = 0.7^{K\cdot FT}$

HSS 5×5×1/4 $\frac{M_n}{\Omega_b} = 19^{K\text{-}FT}$ ✓OK

@59' Mast:

Conc. block Wt.: $\frac{2.0^K}{0.9} + \frac{1.1^K}{0.3 \times 0.9} = 6.3^K$

Helix Anch = $\frac{2.3^K}{1.6} \times 2 = 2.9^K$

@60' Mast:

Conc block Wt = $\frac{2.0^K}{0.9} + \frac{1.2^K}{0.3 \times 0.9} = 6.7^K$

Helix Anch = $\frac{2.3}{1.6} \times 2 = 2.9^K$

HUTTER
TRANKINA
ENGINEERING, PC

Consulting Structural Engineers
32 W 273 ARMY TRAIL ROAD
SUITE # 100
WAYNE, ILLINOIS 60184
Phone (630) 513-6711

JOB #23126

SHEET NO. 46 OF

CALCULATED BY DATE

CHECKED BY DATE

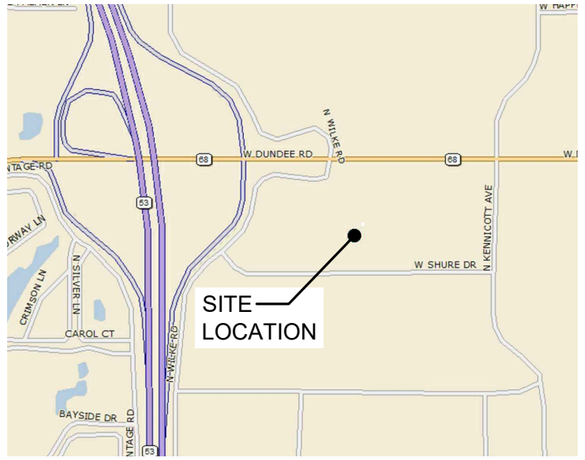
SCALE

CONSULTANT TEAM

PROJECT CONSULTANT:	TERRA CONSULTING GROUP, LTD. 600 BUSSE HIGHWAY PARK RIDGE, IL 60068 (847) 698-6400
STRUCTURAL: (TOWER ANALYSIS)	HUTTER TRANKINA ENGINEERING 32 W 273 ARMY TRAIL RD, SUITE #100 WAYNE, IL 60184 (630) 513-6711
STRUCTURAL ANALYSIS DATE:	06/20/2023

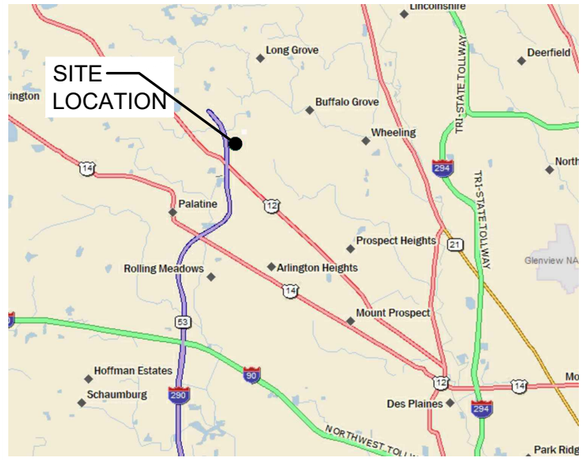
VICINITY MAP

N.T.S.



REGIONAL MAP

N.T.S.



PROJECT TYPE

PROPOSED VERIZON ANTENNAS TO BE MOUNTED ON TEMPORARY COLT.

PROJECT INFORMATION

SITE COORDINATES:	LATITUDE: 42° 08' 15.57" N LONGITUDE: 87° 59' 58.81" W
ADDRESS:	1500 SHURE DRIVE ARLINGTON HEIGHTS, IL 60004
JURISDICTION:	VILLAGE OF ARLINGTON HEIGHTS
OCCUPANCY:	UNINHABITED
CONSTRUCTION TYPE:	COLT
PROPERTY OWNER:	VILLAGE OF ARLINGTON HEIGHTS
TOWER OWNER:	VERIZON WIRELESS 1701 GOLF ROAD, TOWER 2 SUITE 400 ROLLING MEADOWS, IL 60008
APPLICANT:	VERIZON WIRELESS 1701 GOLF ROAD, TOWER 2 SUITE 400 ROLLING MEADOWS, IL 60008
REAL ESTATE MANAGER:	ALLEN WAITES (630) 291-7845
CONSTRUCTION MANAGER:	JEREMIAH SAURIOL (847) 706-1765

SHEET	DRAWING INDEX	REVISION
T-1	TITLE SHEET	1,2,3
A-1	SITE PLAN	1
A-2	ENLARGED SITE PLAN	1
ANT-1	SITE ELEVATION	-
ANT-1A	ANTENNA ORIENTATION (PLAN VIEWS)	-
ANT-2	ANTENNA INFORMATION	3
E-1	GROUNDING DETAILS	-

22" x 34" IS FULL SCALE | 11" x 17" IS HALF SCALE

ATTACHMENTS

RFFS (BY OTHERS)

verizon

1701 GOLF ROAD, TOWER 2, SUITE 400
ROLLING MEADOWS, ILLINOIS 60008
PHONE: (847) 619-5397 FAX: (847) 706-7415

MGD LOCATION NUMBER: 5000926022
SITE NAME: RAND & 53_TEMP_ASSET
1500 SHURE DRIVE
ARLINGTON HEIGHTS, IL 60004

OPERATES 24 HOURS
A DAY 365 DAYS A YEAR

Call Before You Dig
JULIE
ILLINOIS ONE CALL SYSTEM
CALL JULIE TOLL FREE
1(800) 892-0123
48 HOURS BEFORE
YOU DIG

LICENSED PROFESSIONAL ENGINEER
JOHN ZIMMERMANN
062-047267
STATE OF ILLINOIS

6/30/2023
Exp 11/30/2023

TERRA CONSULTING GROUP, LTD.
600 BUSSE HIGHWAY
PARK RIDGE, IL 60068
PH: 847-698-6400
FAX: 847-698-6401

REVISIONS

NO.	DESCRIPTION	DATE	BY
-	ISSUED FOR REVIEW	05/08/23	JJR
1	UPDATE PER REVISED COMPOUND SIZE/DISCONNECT LOCATION	05/22/23	JJR
2	ISSUED FOR FINAL	06/22/23	APD
3	REVISED PER NEW RFDS	06/30/23	TJS

MGD LOC. # 5000926022

RAND & 53_ TEMP_ASSET

1500 SHURE DR.
ARLINGTON HEIGHTS, IL 60004

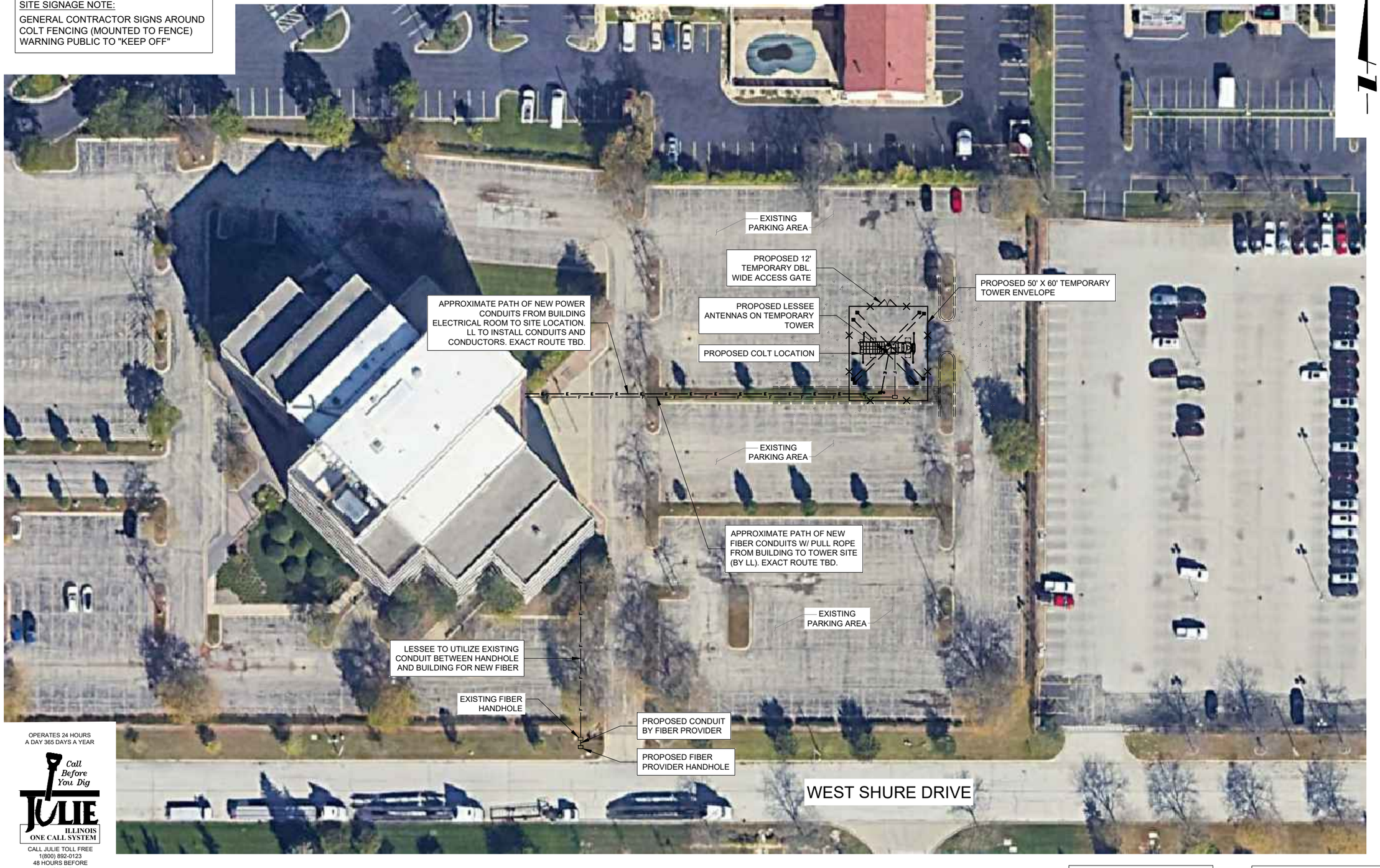
DRAWN BY:	JJR
CHECKED BY:	DS
DATE:	04/19/23
PROJECT #:	194-072

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

SITE SIGNAGE NOTE:

GENERAL CONTRACTOR SIGNS AROUND COLT FENCING (MOUNTED TO FENCE) WARNING PUBLIC TO "KEEP OFF"



OPERATES 24 HOURS
A DAY 365 DAYS A YEAR

Call Before You Dig
JULIE
ILLINOIS ONE CALL SYSTEM

CALL JULIE TOLL FREE
1(800) 892-0123
48 HOURS BEFORE
YOU DIG

THIS SITE PLAN WAS CREATED OFF OF FIELD MEASUREMENTS BY THE DESIGNER, AS BOUNDARY SURVEY WAS NOT SUPPLIED FOR PURPOSES OF SITE LAYOUT.

1 SITE PLAN
SCALE: 1" = 50'

POWER INFORMATION:

PRIMARY POWER:
PROVIDED BY LANDLORD

FIBER INFORMATION:

FIBER:
PROVIDED BY LANDLORD

verizon
1701 GOLF ROAD,
TOWER 2, SUITE 400
ROLLING MEADOWS, IL 60008
PHONE: (847) 619-5397
FAX: (847) 706-7415

TERRA CONSULTING GROUP, LTD.
600 BUSSE HIGHWAY
PARK RIDGE, IL 60068
PH: 847-698-6400
FAX: 847-698-6401

REVISIONS

NO.	DESCRIPTION	DATE	BY
-	ISSUED FOR REVIEW	05/08/23	JJR
1	UPDATE PER REVISED COMPOUND SIZE/DISCONNECT LOCATION	05/22/23	JJR
2	ISSUED FOR FINAL	06/22/23	APD
3	REVISED PER NEW RFDS	06/30/23	TJS

MGD LOC. # 5000926022

RAND & 53_ TEMP_ASSET

1500 SHURE DR.
ARLINGTON HEIGHTS, IL 60004

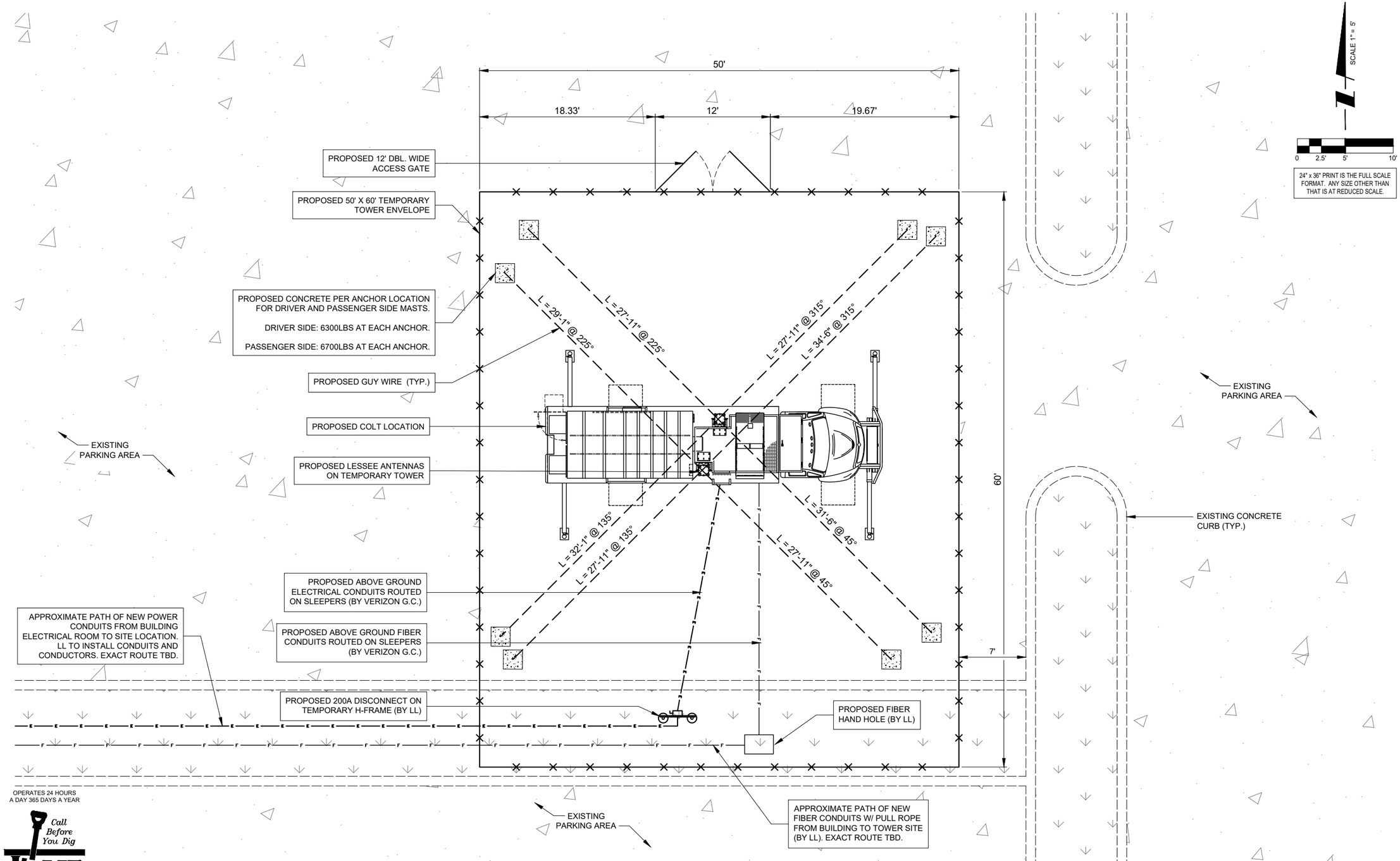
DRAWN BY:	JJR
CHECKED BY:	DS
DATE:	04/19/23
PROJECT #:	194-072

SHEET TITLE

SITE PLAN

SHEET NUMBER

A-1



OPERATES 24 HOURS
A DAY 365 DAYS A YEAR

Call Before You Dig
JULIE
ILLINOIS ONE CALL SYSTEM
CALL JULIE TOLL FREE
1(800) 892-0123
48 HOURS BEFORE YOU DIG

1 ENLARGED SITE PLAN
SCALE: 1" = 5'

POWER INFORMATION:

PRIMARY POWER:
PROVIDED BY LANDLORD

FIBER INFORMATION:

FIBER:
PROVIDED BY LANDLORD

verizon
1701 GOLF ROAD,
TOWER 2, SUITE 400
ROLLING MEADOWS, IL 60008
PHONE: (847) 619-5397
FAX: (847) 706-7415

TERRA CONSULTING GROUP, LTD.
600 BUSSE HIGHWAY
PARK RIDGE, IL 60068
PH: 847-698-6400
FAX: 847-698-6401

REVISIONS

NO.	DESCRIPTION	DATE	BY
-	ISSUED FOR REVIEW	05/08/23	JJR
1	UPDATE PER REVISED COMPOUND SIZE/DISCONNECT LOCATION	05/22/23	JJR
2	ISSUED FOR FINAL	06/22/23	APD
3	REVISED PER NEW RFDS	06/30/23	TJS

MGD LOC. # 5000926022

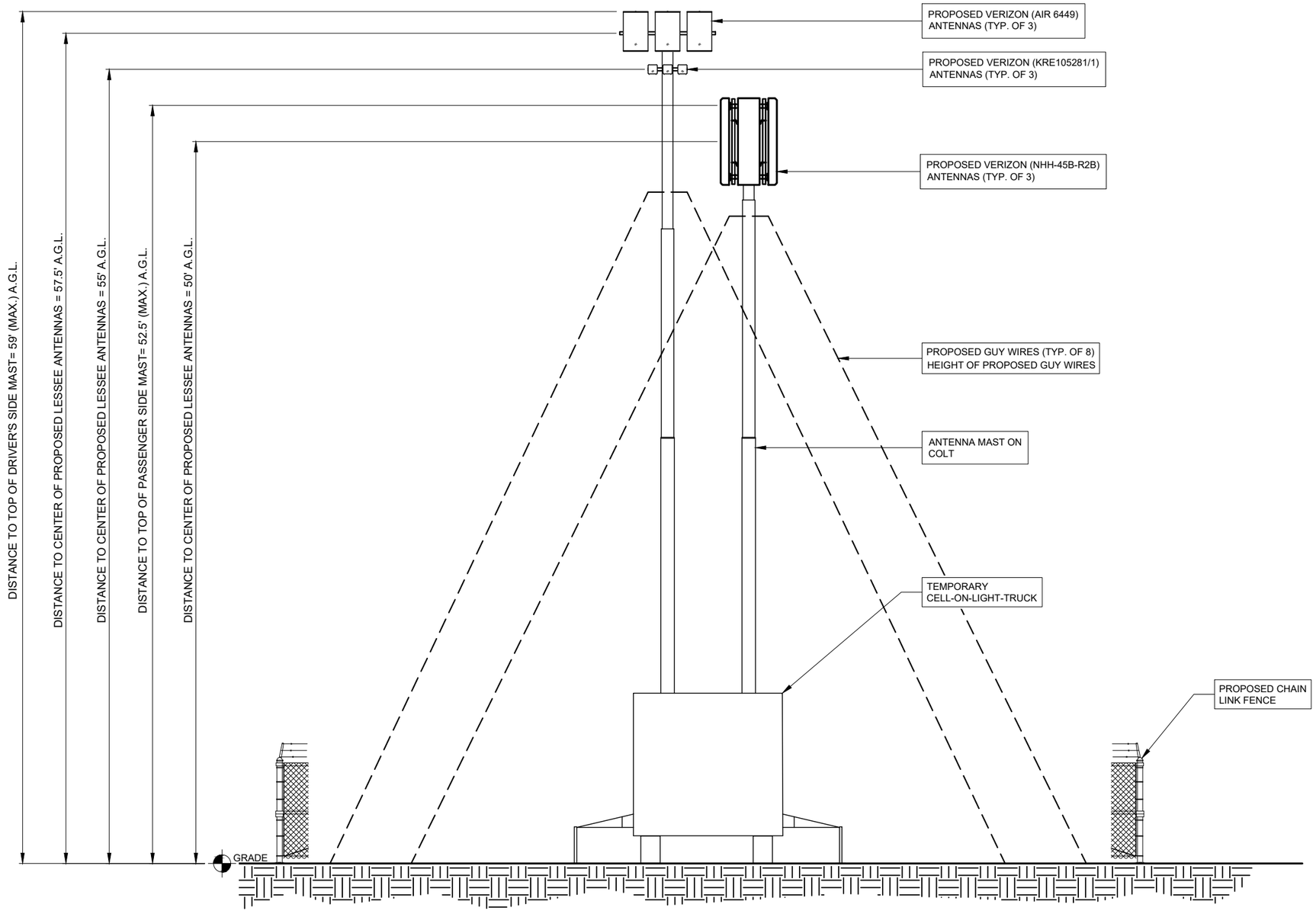
RAND & 53_ TEMP_ASSET

1500 SHURE DR.
ARLINGTON HEIGHTS, IL 60004

DRAWN BY:	JJR
CHECKED BY:	DS
DATE:	04/19/23
PROJECT #:	194-072

SHEET TITLE
ENLARGED SITE PLAN

SHEET NUMBER
A-2



1 SITE ELEVATION
SCALE: 1/4" = 1'-0"

verizon
1701 GOLF ROAD,
TOWER 2, SUITE 400
ROLLING MEADOWS, IL 60008
PHONE: (847) 619-5397
FAX: (847) 706-7415

TERRA CONSULTING GROUP, LTD.
600 BUSSE HIGHWAY
PARK RIDGE, IL 60068
PH: 847-698-6400
FAX: 847-698-6401

REVISIONS

NO.	DESCRIPTION	DATE	BY
-	ISSUED FOR REVIEW	05/08/23	JJR
1	UPDATE PER REVISED COMPOUND SIZE/DISCONNECT LOCATION	05/22/23	JJR
2	ISSUED FOR FINAL	06/22/23	APD
3	REVISED PER NEW RFDS	06/30/23	TJS

MGD LOC. # 5000926022

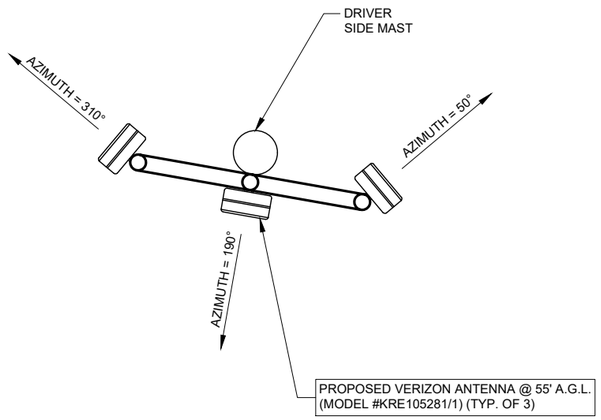
RAND & 53_ TEMP_ASSET

1500 SHURE DR.
ARLINGTON HEIGHTS, IL 60004

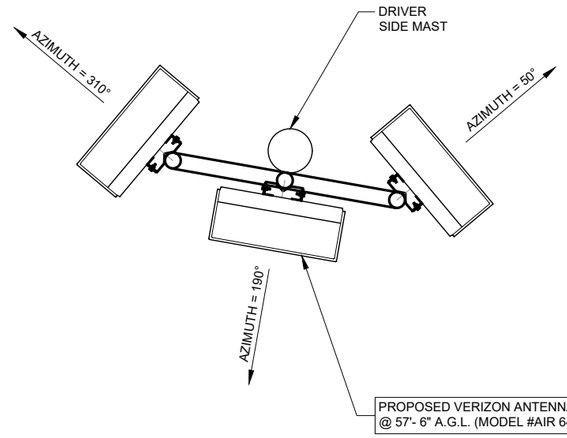
DRAWN BY:	JJR
CHECKED BY:	DS
DATE:	04/19/23
PROJECT #:	194-072

SHEET TITLE
SITE ELEVATION

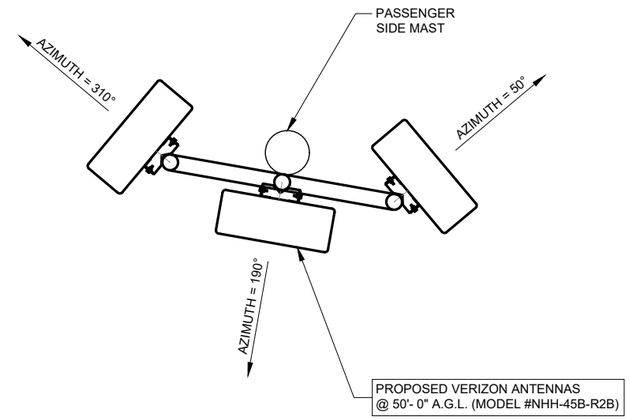
SHEET NUMBER
ANT-1



1 DRIVER SIDE MAST:
ELEVATION @ 55'-0"
SCALE: 1" = 1'-0"



2 DRIVER SIDE MAST:
ELEVATION @ 57'-6"
SCALE: 1" = 1'-0"



3 PASSENGER SIDE MAST:
ELEVATION @ 50'-0"
SCALE: 1" = 1'-0"

verizon
1701 GOLF ROAD,
TOWER 2, SUITE 400
ROLLING MEADOWS, IL 60008
PHONE: (847) 619-5397
FAX: (847) 706-7415

TERRA CONSULTING GROUP, LTD.
600 BUSSE HIGHWAY
PARK RIDGE, IL 60068
PH: 847-698-6400
FAX: 847-698-6401

REVISIONS

NO.	DESCRIPTION	DATE	BY
-	ISSUED FOR REVIEW	05/08/23	JJR
1	UPDATE PER REVISED COMPOUND SIZE/DISCONNECT LOCATION	05/22/23	JJR
2	ISSUED FOR FINAL	06/22/23	APD
3	REVISED PER NEW RFDS	06/30/23	TJS

MGD LOC. #
5000926022

RAND & 53_
TEMP_ASSET

1500 SHURE DR.
ARLINGTON HEIGHTS, IL 60004

DRAWN BY:	JJR
CHECKED BY:	DS
DATE:	04/19/23
PROJECT #:	194-072

SHEET TITLE
ANTENNA ORIENTATION
(PLAN VIEWS)

SHEET NUMBER
ANT-1A

verizon
NPP RFDS

WEST > Upper Midwest > Illinois/Wisconsin > Elgin-1 > RAND&53_Temp_Asset

Mcdaniel, Jessie - jessie.mcdaniel@verizonwireless.com - 20230627_102037

Project Details		Location Information	
Carrier Aggregation	N	Site Id	617386575
Ecip	N	Search Ring#	
Project Name	COW SPECIAL EVENT	E-NodeB ID#	null
Project Alt Name	COW SPECIAL EVENT	PSLC#	0
Project Id	17064021	Switch Name	Elgin-1
Designed Sector Carrier 4G	24	Tower Type	
Designed Sector Carrier 5G	6	Site Type	TEMPORARY
Additional Sector Carrier 4G	0	Street Address	1500 Shure Drive
Additional Sector Carrier 5G	0	City	Arlington Heights
Suffix		State	IL
FP Solution Type & Tech Type	MCR;4G_700;4G_850;5G_850;4G_AWS;4G_CBRS;5G_L-Sub6;4G_PCS	Zip Code	60004
		County	Cook
		Latitude	42.13765
		Longitude	-87.99967

1 RFDS TITLE SHEET
N.T.S.

Antenna Summary

Added Antenna

700	850	1900	AWS	CBRS	L-Sub6	Make	Model	Center line	Tip Height	Azimuth	Install Type	Quanti ty
LTE	5G,LTE	LTE	LTE			COMMSCOPE	NHH-45B-R2B	50	53	50(1),190(2),3 10(3)	PHYSICAL	3
				LTE		ERICSSON	KRE105281/1	55	55.3	50(19),190(20) ,310(21)	PHYSICAL	3
					5G	Ericsson	AIR6449	57.6	58.9	50(1),190(2),3 10(3)	PHYSICAL	3

Removed Antenna

700	850	1900	AWS	AWS3	CBRS	LAA	L-Sub	28GHz	31GHz	39GHz	Make	Model	Cente rline	Tip Heigh	Azimuth	Instal l Type	Quant ity

Retained Antenna

700	850	1900	AWS	AWS3	CBRS	LAA	L-Sub	28GHz	31GHz	39GHz	Make	Model	Cente rline	Tip Heigh	Azimuth	Instal l Type	Quant ity

Added: 9	Removed: 0	Retained: 0

2 ANTENNA SUMMARY
N.T.S.

Non Antenna Summary

Added Non Antenna

Equipment Type	Locatio	700	850	1900	AWS	CBRS	L-Sub6	Make	Model	Install Type	Quantit
Hybrid Cable	Tower							N/A	1x1 Hybrid Jumper	PHYSICAL	6
Diplexer	Ground (Outdoor							Commscope	CDX1923Q-DS-43	PHYSICAL	3
Coaxial Cables	Tower							N/A	1/2"" Coax	PHYSICAL	18
RRU	Tower					LTE		Ericsson	4408 B48 DC	PHYSICAL	3
RRU	Tower			LTE	LTE			Ericsson	8843	PHYSICAL	3
RRU	Tower	LTE	5G,LTE					Ericsson	4449	PHYSICAL	3
RRU	Tower						5G	Ericsson	AIR6449	PHYSICAL	3

Removed Non Antenna

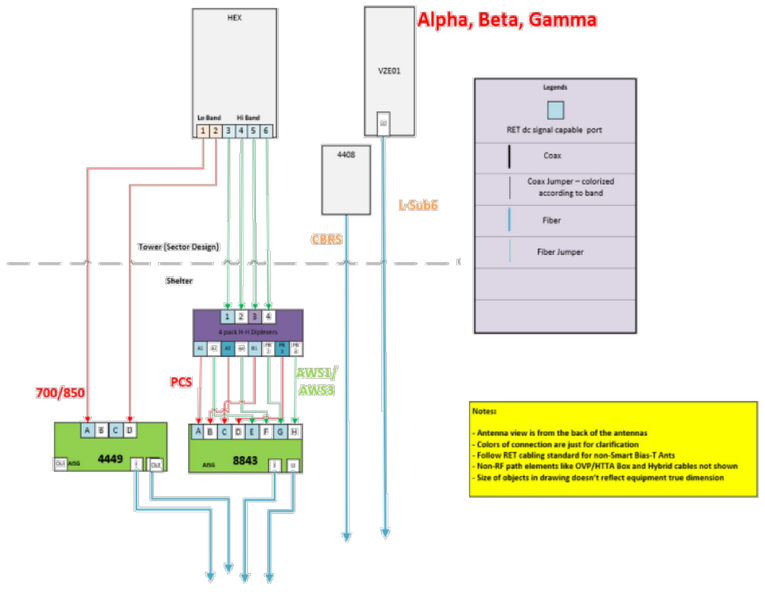
Equipment Type	Location	700	850	1900	AWS	AWS3	CBRS	LAA	L-Sub	28GHz	31GHz	39GHz	Make	Model	Cable Lengt	Cable Size	Instal l Type	Quant ity

Retained Non Antenna

Equipment Type	Location	700	850	1900	AWS	AWS3	CBRS	LAA	L-Sub	28GHz	31GHz	39GHz	Make	Model	Cable Lengt	Cable Size	Instal l Type	Quant ity

Added: 39	Removed: 0	Retained: 0

3 EQUIPMENT SUMMARY
N.T.S.



4 CABLE DIAGRAM
N.T.S.

verizon
1701 GOLF ROAD,
TOWER 2, SUITE 400
ROLLING MEADOWS, IL 60008
PHONE: (847) 619-5397
FAX: (847) 706-7415

TERRA CONSULTING, LTD.
600 BUSSE HIGHWAY
PARK RIDGE, IL 60068
PH: 847-698-6400
FAX: 847-698-6401

REVISIONS

NO.	DESCRIPTION	DATE	BY
-	ISSUED FOR REVIEW	05/08/23	JJR
1	UPDATE PER REVISED COMPOUND SIZE/DISCONNECT LOCATION	05/22/23	JJR
2	ISSUED FOR FINAL	06/22/23	APD
3	REVISED PER NEW RFDS	06/30/23	TJS

MGD LOC. # 5000926022

RAND & 53_ TEMP_ASSET

1500 SHURE DR.
ARLINGTON HEIGHTS, IL 60004

DRAWN BY:	JJR
CHECKED BY:	DS
DATE:	04/19/23
PROJECT #:	194-072

SHEET TITLE
ANTENNA INFORMATION

SHEET NUMBER
ANT-2

GROUNDING ELECTRODE SYSTEM NOTES:

1. ALL GROUNDING CONNECTIONS SHALL BE MADE BY THE EXOTHERMIC PROCESS CONNECTIONS SHALL INCLUDE ALL CABLE TO CABLE, SPLICES, ETC. ALL CABLE TO GROUND RODS, GROUND RODS SPLICES AND LIGHTNING PROTECTION SYSTEM AS INDICATED. GROUND FOUNDATION ONLY AS INDICATED BY PM. ALL MATERIALS USED (MOLDS, WELDING, METAL, TOOLS, ETC.) SHALL BE BY EXOTHERMIC PROCESS AND INSTALLED PER MANUFACTURERS RECOMMENDATIONS AND PROCEDURES.GROUND CONDUCTOR SHALL HAVE A MINIMUM 24" BENDING RADIUS.

2. ALL EXOTHERMIC CONNECTIONS ON GALVANIZED SURFACES SHALL BE CLEANED THOROUGHLY AND COLORED TO MATCH SURFACE WITH (2) TWO COATS OF SHERWIN-WILLIAMS GALVITE (WHITE) PAINT B50W3 (OR EQUAL) OR SHERWIN- WILLIAMS SILVERBRITE (ALUMINUM) B59S11 (OR EQUAL). ALL ELECTRICAL & MECHANICAL GROUND CONNECTIONS SHALL HAVE ANTI-OXIDANT COMPOUND APPLIED TO CONNECTION

3. FENCE/GATE: GROUND FENCE POSTS WITHIN 6 FEET OF ENCLOSURE AND 25 FEET OF TOWER AS INDICATED ON DRAWINGS. GROUND EACH GATE POST AND CORNER POST. GROUND CONNECTIONS TO FENCE POSTS SHALL BE MADE BY THE EXOTHERMIC PROCESS AND INSTALLED PER MANUFACTURER'S RECOMMENDATIONS AND PROCEDURES. ALL OTHER CONNECTIONS FOR THE GROUND GRID SYSTEM SHALL BE MADE BY THE EXOTHERMIC PROCESS, AND INSTALLED PER MANUFACTURER'S RECOMMENDATIONS AND PROCEDURES.

4. AFTER INSTALLATION OF THE CANOPY AT THE DOOR, GC/EC IS TO BOND THE CANOPY TO THE DOOR FRAME WITH A #2 CONDUCTOR. USE DOUBLE-LUG CONNECTION. PREP AND PAINT SURFACE TO MATCH AFTER INSTALLATION.

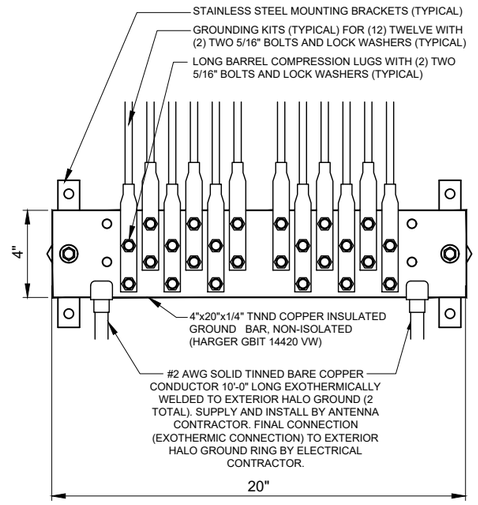
5. UTILITY COMPANY COORDINATION: ELECTRICAL CONTRACTOR SHALL CONFIRM THAT ALL WORK IS IN ACCORDANCE WITH THE RULES OF THE LOCAL UTILITY COMPANY BEFORE SUBMITTING THE BID, THE CONTRACTOR SHALL CHECK WITH THE UTILITY COMPANIES SUPPLYING SERVICE TO THIS PROJECT AND SHALL DETERMINE FROM THEM ALL EQUIPMENT AND CHARGES WHICH THEY WILL REQUIRE AND SHALL INCLUDE THE COST IN THE BID.

6. GROUND TEST: GROUND TESTS SHALL BE PERFORMED AS REQUIRED BY LESSEE STANDARD PROCEDURES. GROUND GRID RESISTANCE SHALL NOT EXCEED 5 OHMS.

7. CONTRACTOR SHALL SUBMIT THE GROUND RESISTANCE TEST REPORT AS FOLLOWS:
   ONE (1) COPY TO OWNER REPRESENTATIVE
   ONE (1) COPY TO ENGINEER
   ONE (1) COPY TO KEEP INSIDE EQUIPMENT ENCLOSURE

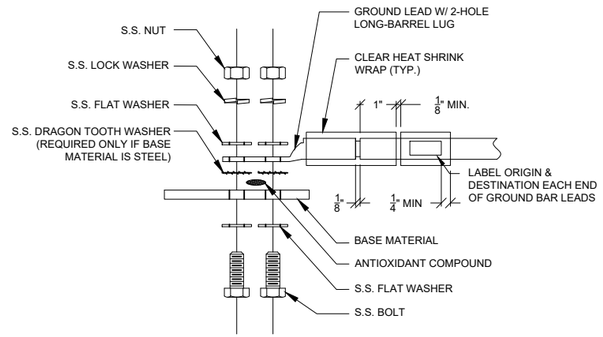
NOTE:

DO NOT ATTACH GROUND BARS ON ANY OF THE TANKS COATED SURFACES



1 EXTERIOR GROUND BAR DETAIL
N.T.S.

NOTES:
1. ALL HARDWARE 18-8 STAINLESS STEEL INCLUDING BELLEVILLES. COAT ALL SURFACES WITH KOPR-SHIELD BEFORE MATING.
2. FOR GROUND BOND TO STEEL ONLY: INSERT A DRAGON TOOTH WASHER BETWEEN LUG AND STEEL, COAT ALL SURFACES WITH KOPR-SHIELD.
3. GROUND BARS, INSTALL BOLT HEAD TOWARD WALL
4. ENCLOSURES, INSTALL BOLT HEAD ON OUTSIDE OF ENCLOSURE



2 GROUND LUG INSTALLATION DETAIL
N.T.S.

verizon
1701 GOLF ROAD,
TOWER 2, SUITE 400
ROLLING MEADOWS, IL 60008
PHONE: (847) 619-5397
FAX: (847) 706-7415

TERRA CONSULTING GROUP, LTD.
600 BUSSE HIGHWAY
PARK RIDGE, IL 60068
PH: 847-698-6400
FAX: 847-698-6401

REVISIONS

NO.	DESCRIPTION	DATE	BY
-	ISSUED FOR REVIEW	05/08/23	JJR
1	UPDATE PER REVISED COMPOUND SIZE/DISCONNECT LOCATION	05/22/23	JJR
2	ISSUED FOR FINAL	06/22/23	APD
3	REVISED PER NEW RFDS	06/30/23	TJS

MGD LOC. # 5000926022

RAND & 53_ TEMP_ASSET

1500 SHURE DR.
ARLINGTON HEIGHTS, IL 60004

DRAWN BY:	JJR
CHECKED BY:	DS
DATE:	04/19/23
PROJECT #:	194-072

SHEET TITLE
GROUNDING DETAILS

SHEET NUMBER
E-1

Type GT
THROUGH CABLE TO TOP OF GROUND ROD.

Type TA
TEE OF HORIZONTAL RUN AND TAP CABLES.

Type HS
HORIZONTAL CABLE TAP TO HORIZONTAL STEEL SURFACE OR PIPE. CABLE OFF SURFACE.

Type VV
THROUGH VERTICAL CABLE TO VERTICAL STEEL SURFACE OR TO THE SIDE OF EITHER HORIZONTAL OR VERTICAL PIPE

Type XB
CROSS OF HORIZONTAL CABLES. LAPPED AND NOT CUT

Type VN
HORIZONTAL CABLE TAP TO VERTICAL STEEL SURFACE OR THE SIDE OF HORIZONTAL PIPE

Type VS
CABLE TAP DOWN AT 45° TO VERTICAL STEEL SURFACE OR SIDE OF HORIZONTAL OR VERTICAL PIPE.

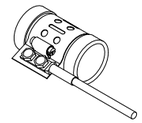
Type GY
THROUGH CABLE TO SIDE OF GROUND ROD

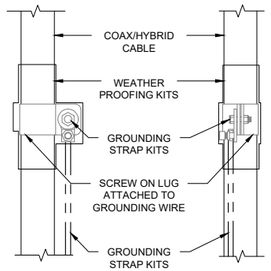
Type GR
CABLE TAP TO TOP OF GROUND ROD

Type NC
THROUGH AND TAP CABLES TO GROUND ROD

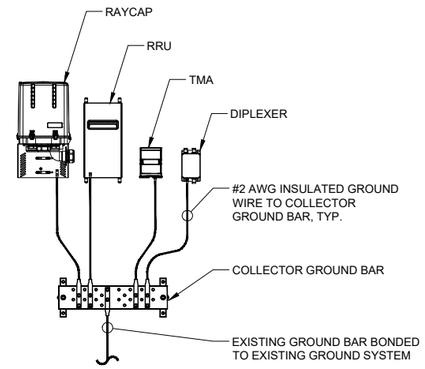
3 EXOTHERMIC WELD DETAILS
EXOTHERMIC AND HARGER ULTRAWELD OR APPROVED EQUAL

NOTES:
1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
2. THIS DETAIL IS TYPICAL FOR EACH COAX CABLE WHERE IT IS SPECIFIED TO BE GROUNDED
3. CABLE TO BE GROUNDED AT ANTENNA LEVEL AND PRIOR TO ENTERING SHELTER ENTRY PANEL.
4. CABLE ALSO TO BE GROUNDED TO GROUND BAR AT TOWER BASE IF APPLICABLE.
5. USE ONLY TIN PLATED GROUNDING KITS.





4 COAX / HYBRID CABLE GROUND KIT DETAIL
N.T.S.



NOTES:
1. DETAIL IS CONCEPTUAL ONLY. PLEASE SEE ECR AND LAYOUT SHEETS FOR ACTUAL EQUIPMENT CONFIGURATION.
2. GROUND CONNECTIONS MUST BE DOUBLE HOLE CONNECTION. SPECIAL EXCEPTION ONLY TO EQUIPMENT THAT WILL NOT ALLOW FOR A DOUBLE HOLE CONNECTION.

5 TYPICAL APPURTENANCE GROUNDING
SCALE: N.T.S.

verizon
NPP RFDS

WEST > Upper Midwest > Illinois/Wisconsin > Elgin-1 > RAND&53_Temp_Asset

Mcdaniel, Jessie - jessie.mcdaniel@verizonwireless.com - 20230627_102037

Project Details		Location Information	
Carrier Aggregation	N	Site Id	617386575
Ecip	N	Search Ring#	
Project Name	COW SPECIAL EVENT	E-NodeB ID#	null
Project Alt Name	COW SPECIAL EVENT	PSLC#	0
Project Id	17064021	Switch Name	Elgin-1
Designed Sector Carrier 4G	24	Tower Type	
Designed Sector Carrier 5G	6	Site Type	TEMPORARY
Additional Sector Carrier 4G	0	Street Address	1500 Shure Drive
Additional Sector Carrier 5G	0	City	Arlington Heights
Suffix		State	IL
FP Solution Type & Tech Type	MCR;4G_700;4G_850;5G_850;4G_AWS;4G_CBRS;5G_L-Sub6;4G_PCS	Zip Code	60004
		County	Cook
		Latitude	42.13765
		Longitude	-87.99967

Project Scope

Non Antenna Summary

Added Non Antenna

Equipment Type	Locatio	700	850	1900	AWS	CBRS	L-Sub6	Make	Model	Install Type	Quantit
Hybrid Cable	Tower							N/A	1x1 Hybrid Jumper	PHYSICAL	6
Diplexer	Ground (Outdoor							Commscope	CDX1923Q-DS-43	PHYSICAL	3
Coaxial Cables	Tower							N/A	1/2"" Coax	PHYSICAL	18
RRU	Tower					LTE		Ericsson	4408 B48 DC	PHYSICAL	3
RRU	Tower			LTE	LTE			Ericsson	8843	PHYSICAL	3
RRU	Tower	LTE	5G,LTE					Ericsson	4449	PHYSICAL	3
RRU	Tower						5G	Ericsson	AIR6449	PHYSICAL	3

Removed Non Antenna

Equipment Type	Location	700	850	1900	AWS	AWS3	CBRS	LAA	L-Sub	28GHz	31GHz	39GHz	Make	Model	Cable Lengt	Cable Size	Install Type	Quantity

Retained Non Antenna

Equipment Type	Location	700	850	1900	AWS	AWS3	CBRS	LAA	L-Sub	28GHz	31GHz	39GHz	Make	Model	Cable Lengt	Cable Size	Install Type	Quantity

Added: 39	Removed: 0	Retained: 0

Antenna Summary

Added Antenna

700	850	1900	AWS	CBRS	L-Sub6	Make	Model	Center line	Tip Height	Azimuth	Install Type	Quantity
LTE	5G,LTE	LTE	LTE			COMMSCOPE	NHH-45B-R2B	50	53	50(1),190(2),310(3)	PHYSICAL	3
				LTE		ERICSSON	KRE105281/1	55	55.3	50(19),190(20),310(21)	PHYSICAL	3
					5G	Ericsson	AIR6449	57.6	58.9	50(1),190(2),310(3)	PHYSICAL	3

Removed Antenna

700	850	1900	AWS	AWS3	CBRS	LAA	L-Sub	28GHz	31GHz	39GHz	Make	Model	Centerline	Tip Heigh	Azimuth	Install Type	Quantity

Retained Antenna

700	850	1900	AWS	AWS3	CBRS	LAA	L-Sub	28GHz	31GHz	39GHz	Make	Model	Centerline	Tip Heigh	Azimuth	Install Type	Quantity

Added: 9	Removed: 0	Retained: 0

Services

1900 LTE	CAND		
Sector	01	02	03
Azimuth	50	190	310
Cell/Enodeb-Id			
Antenna Model	NHH-45B-R2B	NHH-45B-R2B	NHH-45B-R2B
Antenna Make	COMMSCOPE	COMMSCOPE	COMMSCOPE
Centerline	50	50	50
DLEARFCN	925	925	925
Mech Down-tilt	0	0	0
Elect Down-tilt	2	1	2
Tip Height	53	53	53
Regulatory Power	1111.70 (W/MHz) EIRP	1111.70 (W/MHz) EIRP	1111.70 (W/MHz) EIRP
Cell Max Power	47.78 dBm	47.78 dBm	47.78 dBm
TMA Make			
TMA Model			
RRU Make	Ericsson	Ericsson	Ericsson
RRU Model	8843	8843	8843
Number of Tx,Rx	4 , 4	4 , 4	4 , 4
Position			
Transmitter Id	16806590	16806593	16806596
Source	VZNPP	VZNPP	VZNPP
Bandwidth	5	5	5
Ant. Dimensions H x W x D(inch)	72.0 x 17.99 x 7.0	72.0 x 17.99 x 7.0	72.0 x 17.99 x 7.0
Weight(lb)	73.44	73.44	73.44

Services				
700 LTE		**CAND**		
Sector		01	02	03
Azimuth		50	190	310
Cell/Enodeb-Id				
Antenna Model		NHH-45B-R2B	NHH-45B-R2B	NHH-45B-R2B
Antenna Make		COMMSCOPE	COMMSCOPE	COMMSCOPE
Centerline		50	50	50
DLEARFCN		5230	5230	5230
Mech Down-tilt		0	0	0
Elect Down-tilt		4	2	2
Tip Height		53	53	53
Regulatory Power		167.40 (W/MHz) ERP	167.40 (W/MHz) ERP	167.40 (W/MHz) ERP
Cell Max Power		47.78 dBm	47.78 dBm	47.78 dBm
TMA Make				
TMA Model				
RRU Make		Ericsson	Ericsson	Ericsson
RRU Model		4449	4449	4449
Number of Tx,Rx		4 , 4	4 , 4	4 , 4
Position				
Transmitter Id		16806589	16806592	16806595
Source		VZNPP	VZNPP	VZNPP
Bandwidth		10	10	10
Ant. Dimensions H x W x D(inch)		72.0 x 17.99 x 7.0	72.0 x 17.99 x 7.0	72.0 x 17.99 x 7.0
Weight(lb)		73.44	73.44	73.44

Services				
850 NR		**CAND**		
Sector		0001	0002	0003
Azimuth		50	190	310
Cell/Enodeb-Id				
Antenna Model		NHH-45B-R2B	NHH-45B-R2B	NHH-45B-R2B
Antenna Make		COMMSCOPE	COMMSCOPE	COMMSCOPE
Centerline		50	50	50
DLEARFCN		2561	2561	2561
Mech Down-tilt		0	0	0
Elect Down-tilt		4	2	2
Tip Height		53	53	53
Regulatory Power		392.48 (W/MHz) ERPSD	392.48 (W/MHz) ERPSD	392.48 (W/MHz) ERPSD
Cell Max Power		44.7 dBm	44.7 dBm	44.7 dBm
TMA Make				
TMA Model				
RRU Make		Ericsson	Ericsson	Ericsson
RRU Model		4449	4449	4449
Number of Tx,Rx		4 , 4	4 , 4	4 , 4
Position				
Transmitter Id		16806610	16806611	16806612
Source		VZNPP	VZNPP	VZNPP
Bandwidth		10	10	10
Ant. Dimensions H x W x D(inch)		72.0 x 17.99 x 7.0	72.0 x 17.99 x 7.0	72.0 x 17.99 x 7.0
Weight(lb)		73.44	73.44	73.44

Services				
850 LTE		**CAND**		
Sector		01	02	03
Azimuth		50	190	310
Cell/Enodeb-Id				
Antenna Model		NHH-45B-R2B	NHH-45B-R2B	NHH-45B-R2B
Antenna Make		COMMSCOPE	COMMSCOPE	COMMSCOPE
Centerline		50	50	50
DLEARFCN		2561	2561	2561
Mech Down-tilt		0	0	0
Elect Down-tilt		4	2	2
Tip Height		53	53	53
Regulatory Power		392.48 (W/MHz) ERPSD	392.48 (W/MHz) ERPSD	392.48 (W/MHz) ERPSD
Cell Max Power		44.7 dBm	44.7 dBm	44.7 dBm
TMA Make				
TMA Model				
RRU Make		Ericsson	Ericsson	Ericsson
RRU Model		4449	4449	4449
Number of Tx,Rx		4 , 4	4 , 4	4 , 4
Position				
Transmitter Id		16806610	16806611	16806612
Source		VZNPP	VZNPP	VZNPP
Bandwidth		10	10	10
Ant. Dimensions H x W x D(inch)		72.0 x 17.99 x 7.0	72.0 x 17.99 x 7.0	72.0 x 17.99 x 7.0
Weight(lb)		73.44	73.44	73.44

Services				
AWS LTE		**CAND**		
Sector		01	02	03
Azimuth		50	190	310
Cell/Enodeb-Id				
Antenna Model		NHH-45B-R2B	NHH-45B-R2B	NHH-45B-R2B
Antenna Make		COMMSCOPE	COMMSCOPE	COMMSCOPE
Centerline		50	50	50
DLEARFCN		2050	2050	2050
Mech Down-tilt		0	0	0
Elect Down-tilt		2	1	2
Tip Height		53	53	53
Regulatory Power		327.21 (W/MHz) EIRP	327.21 (W/MHz) EIRP	327.21 (W/MHz) EIRP
Cell Max Power		47.78 dBm	47.78 dBm	47.78 dBm
TMA Make				
TMA Model				
RRU Make		Ericsson	Ericsson	Ericsson
RRU Model		8843	8843	8843
Number of Tx,Rx		4 , 4	4 , 4	4 , 4
Position				
Transmitter Id		16806591	16806594	16806597
Source		VZNPP	VZNPP	VZNPP
Bandwidth		20	20	20
Ant. Dimensions H x W x D(inch)		72.0 x 17.99 x 7.0	72.0 x 17.99 x 7.0	72.0 x 17.99 x 7.0
Weight(lb)		73.44	73.44	73.44

Services			
CBAND NR		**CAND**	
Sector	0001	0002	0003
Azimuth	50	190	310
Cell/Enodeb-Id			
Antenna Model	AIR6449	AIR6449	AIR6449
Antenna Make	Ericsson	Ericsson	Ericsson
Centerline	57.6	57.6	57.6
DLEARFCN	648672	648672	648672
Mech Down-tilt	0	0	0
Elect Down-tilt	6	6	6
Tip Height	58.9	58.9	58.9
Regulatory Power	1365.07 (W/MHz) EIRP	1365.07 (W/MHz) EIRP	1365.07 (W/MHz) EIRP
Cell Max Power	50.8 dBm	50.8 dBm	50.8 dBm
TMA Make			
TMA Model			
RRU Make	Ericsson	Ericsson	Ericsson
RRU Model	AIR6449	AIR6449	AIR6449
Number of Tx,Rx	2 , 2	2 , 2	2 , 2
Position			
Transmitter Id	16806613	16806614	16806615
Source	VZNPP	VZNPP	VZNPP
Bandwidth	60	60	60
Ant. Dimensions H x W x D(inch)	30.8 x 16.1 x 10.8	30.8 x 16.1 x 10.8	30.8 x 16.1 x 10.8
Weight(lb)	88.0	88.0	88.0

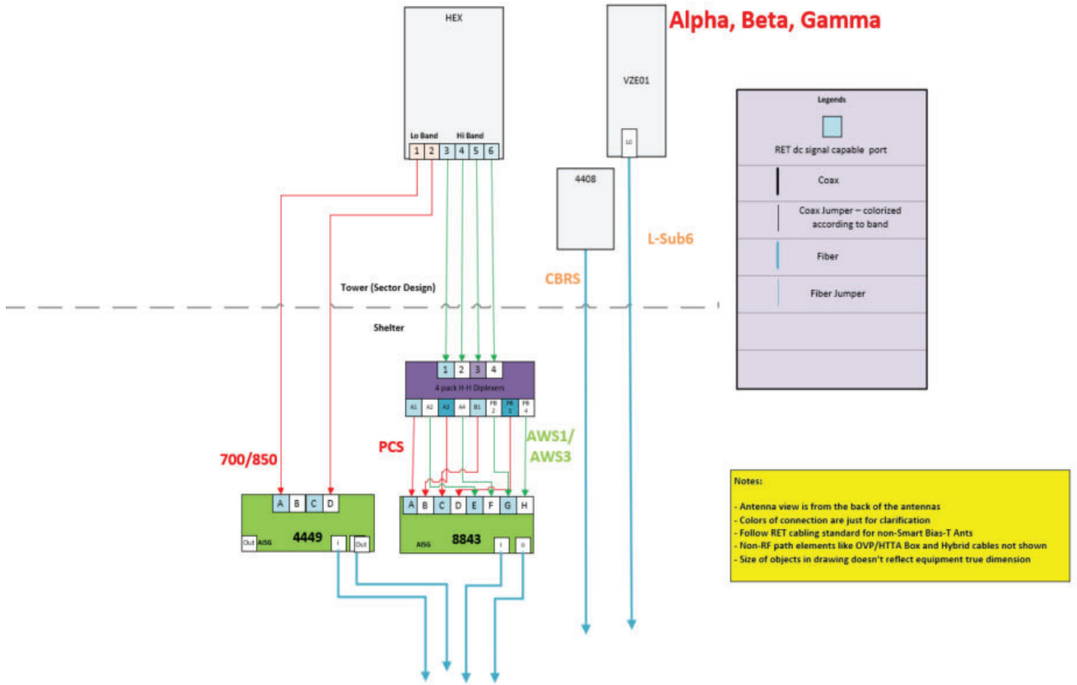
Services			
CBRS LTE		**CAND**	
Sector	19	20	21
Azimuth	50	190	310
Cell/Enodeb-Id			
Antenna Model	KRE105281/1	KRE105281/1	KRE105281/1
Antenna Make	ERICSSON	ERICSSON	ERICSSON
Centerline	55	55	55
DLEARFCN	55790, 55890, 55990, 56090	55790, 55890, 55990, 56090	55790, 55890, 55990, 56090
Mech Down-tilt	0	0	0
Elect Down-tilt	8, 8, 8, 8	8, 8, 8, 8	8, 8, 8, 8
Tip Height	55.3	55.3	55.3
Regulatory Power	28.03 (W/MHz) EIRPSD	28.03 (W/MHz) EIRPSD	28.03 (W/MHz) EIRPSD
Cell Max Power	37.0 dBm	37.0 dBm	37.0 dBm
TMA Make			
TMA Model			
RRU Make	Ericsson	Ericsson	Ericsson
RRU Model	4408 B48 DC	4408 B48 DC	4408 B48 DC
Number of Tx,Rx	4 , 4	4 , 4	4 , 4
Position			
Transmitter Id	16806598, 16806599, 16806600, 16806601	16806602, 16806603, 16806604, 16806605	16806606, 16806607, 16806608, 16806609
Source	VZNPP	VZNPP	VZNPP
Bandwidth	10, 10, 10, 10	10, 10, 10, 10	10, 10, 10, 10
Ant. Dimensions H x W x D(inch)	7.87 x 7.87 x 0.98	7.87 x 7.87 x 0.98	7.87 x 7.87 x 0.98
Weight(lb)	1.76	1.76	1.76

Callsigns Per Antenna

Sector	Make	Model	Ant CL Height AG	Ant Tip Height	Azimuth	Elect Down-tilt	Mech Down-tilt	Gain	Bandwidth	Regulatory Power	700	850	1900	2100	28 GHz	31 GHz	39 GHz
20	ERICSSON	KRE105281/1	55	55.3	190	8	0	8 848	62	28.03							
19	ERICSSON	KRE105281/1	55	55.3	50	8	0	8 848	62	28.03							
0003	COMMSCOPE	NHH-45B-R2B	50	53	310	2	0	15.09	42.75	392.48		KNKA200					
21	ERICSSON	KRE105281/1	55	55.3	310	8	0	8 848	62	28.03							
02	COMMSCOPE	NHH-45B-R2B	50	53	190	2	0	15.09	42.75	392.48		KNKA200					
01	COMMSCOPE	NHH-45B-R2B	50	53	50	2	0	17.531	44.5	1111.7			KNLF207				
03	COMMSCOPE	NHH-45B-R2B	50	53	310	2	0	14.365	47.5	167.4	WQJQ691						
20	ERICSSON	KRE105281/1	55	55.3	190	8	0	8 848	62	28.03							
19	ERICSSON	KRE105281/1	55	55.3	50	8	0	8 848	62	28.03							
21	ERICSSON	KRE105281/1	55	55.3	310	8	0	8 848	62	28.03							
0002	Ericsson	AIR6449	57.6	58.9	190	6	0	22.95	95	1365.07							
03	COMMSCOPE	NHH-45B-R2B	50	53	310	2	0	17.531	44.5	1111.7			KNLF207				
03	COMMSCOPE	NHH-45B-R2B	50	53	310	2	0	15.09	42.75	392.48		KNKA200					
0002	COMMSCOPE	NHH-45B-R2B	50	53	190	2	0	15.09	42.75	392.48		KNKA200					
01	COMMSCOPE	NHH-45B-R2B	50	53	50	4	0	14.399	47.5	167.4	WQJQ691						
02	COMMSCOPE	NHH-45B-R2B	50	53	190	2	0	14.365	47.5	167.4	WQJQ691						
19	ERICSSON	KRE105281/1	55	55.3	50	8	0	8 848	62	28.03							
21	ERICSSON	KRE105281/1	55	55.3	310	8	0	8 848	62	28.03							
0001	COMMSCOPE	NHH-45B-R2B	50	53	50	4	0	15.184	43	392.48		KNKA200					
0001	Ericsson	AIR6449	57.6	58.9	50	6	0	22.95	95	1365.07							
01	COMMSCOPE	NHH-45B-R2B	50	53	50	4	0	15.184	43	392.48		KNKA200					
20	ERICSSON	KRE105281/1	55	55.3	190	8	0	8 848	62	28.03							
0003	Ericsson	AIR6449	57.6	58.9	310	6	0	22.95	95	1365.07							
02	COMMSCOPE	NHH-45B-R2B	50	53	190	1	0	17.982	39.75	327.21				WQGA952,WQB264			
20	ERICSSON	KRE105281/1	55	55.3	190	8	0	8 848	62	28.03							
21	ERICSSON	KRE105281/1	55	55.3	310	8	0	8 848	62	28.03							
02	COMMSCOPE	NHH-45B-R2B	50	53	190	1	0	17.458	44.5	1111.7			KNLF207				
01	COMMSCOPE	NHH-45B-R2B	50	53	50	2	0	18.149	39.25	327.21				WQGA952,WQB264			
03	COMMSCOPE	NHH-45B-R2B	50	53	310	2	0	18.149	39.25	327.21				WQGA952,WQB264			
19	ERICSSON	KRE105281/1	55	55.3	50	8	0	8 848	62	28.03							

Callsigns

Callsign	Market	Radio Code	Market #	Block	State	County	License Name	Wholly Owner	Total MHZ	Freq Range 1	Freq Range 2	Freq Range 3	Freq Range 4	Regulatory Power	Threshold (W)	POPs/Sq. mil	Status	Action	Approve for lnsvc
WQJQ691	Great Lakes	WU	REA003	C	IL	17031	Cellco Partnershi	Yes	22.000	746.000 - 757.000/.000 - .000	776.000 - 787.000/.000 - .000	746.000 - 757.000/.000 - .000	776.000 - 787.000/.000 - .000	167.4	1000	5580.63	proposed	added	1
KNKA200	Chicago, IL	CL	CMA003	B	IL	17031	Chicago SMSA LP	No	25.000	835.000 - 845.000/84 6.500 - 849.000	880.000 - 890.000/89 1.500 - 894.000	835.000 - 845.000/84 6.500 - 849.000	880.000 - 890.000/89 1.500 - 894.000	392.48	400	5580.63	proposed	added	1
KNLF207	Chicago	CW	MTA003	B	IL	17031	Cellco Partnershi	Yes	10.000	1880.000 - 1885.000/.000 - .000	1960.000 - 1965.000/.000 - .000	1880.000 - 1885.000/.000 - .000	1960.000 - 1965.000/.000 - .000	1111.7	1640	5580.63	proposed	added	1
CBRS_CALLSIGN	UNLICENSED	3.5 GHz	UNLICENSED	UNLICENSED	IL	UNLICENSED	UNLICENSED	UNLICENSED	UNLICENSED	UNLICENSED /UNLICENSED - UNLICENSED	UNLICENSED /UNLICENSED - UNLICENSED	- / -	- / -	28.03		5580.63	proposed	added	
WRLD569	D17031 - Cook, IL	PL	D17031	0	IL	17031	Verizon Wireless Network Procurement LP	Yes	100.000	3550.000 - 3650.000/.000 - .000	.000 - .000/.000 - .000	3550.000 - 3650.000/.000 - .000	.000 - .000/.000 - .000	28.03	501	5580.63	proposed	added	1
WRLD571	D17031 - Cook, IL	PL	D17031	0	IL	17031	Verizon Wireless Network Procurement LP	Yes	100.000	3550.000 - 3650.000/.000 - .000	.000 - .000/.000 - .000	3550.000 - 3650.000/.000 - .000	.000 - .000/.000 - .000	28.03	501	5580.63	proposed	added	1
WRLD570	D17031 - Cook, IL	PL	D17031	0	IL	17031	Verizon Wireless Network Procurement LP	Yes	100.000	3550.000 - 3650.000/.000 - .000	.000 - .000/.000 - .000	3550.000 - 3650.000/.000 - .000	.000 - .000/.000 - .000	28.03	501	5580.63	proposed	added	1
WRLD572	D17031 - Cook, IL	PL	D17031	0	IL	17031	Verizon Wireless Network Procurement LP	Yes	100.000	3550.000 - 3650.000/.000 - .000	.000 - .000/.000 - .000	3550.000 - 3650.000/.000 - .000	.000 - .000/.000 - .000	28.03	501	5580.63	proposed	added	1
WQGB264	Chicago, IL	AW	CMA003	A	IL	17031	Cellco Partnershi	Yes	20.000	1710.000 - 1720.000/.000 - .000	2110.000 - 2120.000/.000 - .000	1710.000 - 1720.000/.000 - .000	2110.000 - 2120.000/.000 - .000	327.21	1640	5580.63	proposed	added	1
WRNE596	Chicago, IL	PM	PEA003	A1	IL	17031	Cellco Partnershi	Yes	20.000	3700.000 - 3720.000/.000 - .000	.000 - .000/.000 - .000	3700.000 - 3720.000/.000 - .000	.000 - .000/.000 - .000	1365.07	1640	5580.63	proposed	added	1
WRNE597	Chicago, IL	PM	PEA003	A2	IL	17031	Cellco Partnershi	Yes	20.000	3720.000 - 3740.000/.000 - .000	.000 - .000/.000 - .000	3720.000 - 3740.000/.000 - .000	.000 - .000/.000 - .000	1365.07	1640	5580.63	proposed	added	1
WRNE598	Chicago, IL	PM	PEA003	A3	IL	17031	Cellco Partnershi	Yes	20.000	3740.000 - 3760.000/.000 - .000	.000 - .000/.000 - .000	3740.000 - 3760.000/.000 - .000	.000 - .000/.000 - .000	1365.07	1640	5580.63	proposed	added	1
WQGA952	Chicago-Gary-Kenosha, IL-IN-WI	AW	BEA064	B	IL	17031	Cellco Partnershi	Yes	20.000	1720.000 - 1730.000/.000 - .000	2120.000 - 2130.000/.000 - .000	1720.000 - 1730.000/.000 - .000	2120.000 - 2130.000/.000 - .000	327.21	1640	5580.63	proposed	added	1


HEX
Lo Band
Hi Band
1 2 3 4 5 6
VZE01
Alpha, Beta, Gamma
4408
L-Sub6
CBRS
Tower (Sector Design)
Shelter
1 2 3 4
4 pack H-H Diplexers
700/850
PCS
AWS1/
AWS3
A B C D
4449
A B C D E F G H
8843
Legends
RET dc signal capable port
Coax
Coax Jumper – colorized according to band
Fiber
Fiber Jumper
Notes:
- Antenna view is from the back of the antennas
- Colors of connection are just for clarification
- Follow RET cabling standard for non-Smart Bias-T Ants
- Non-RF path elements like OVP/HTTA Box and Hybrid cables not shown
- Size of objects in drawing doesn't reflect equipment true dimension

Village of Arlington Heights
33 South Arlington Heights Road
Arlington Heights, Illinois 60005-1499
(847) 368-5000
Website: www.vah.com

December 22, 2023

Rachel Ceckowski
Mountain Ltd., as agent for Verizon
52 Farm View Drive, Suite 201
New Gloucester, ME 04260

RE: Plan Commission Application, Round 1 Comments – Verizon Wireless, 1500 W Shure Road – Case# PC-23-017

Dear Ms. Ceckowski,

On December 5th, 2023, a complete Plan Commission application packet was submitted to the Department of Planning and Community Development along with payment. The application packet for both the temporary and permanent cell phone towers were circulated for preliminary review by the relevant department. This does not preclude departments from submitting new or amended comments during the Conceptual Plan Review, Plan Commission or Village Board processes. Below, please find the preliminary Round 1 comments. Please provide any response to these comments so that they are received by our office by **January 5, 2024** in order for staff to have the appropriate time to share the information with the Conceptual Plan Review Committee and Plan Commission.

Planning and Community Development

1. It is recommended that options be explored for placing the antennas on the rooftop instead of the face of the building.
2. If the antennas are placed on the face of the building, the antennas must be painted to match the existing building. Provide renderings to confirm the visual impact of the installation.
3. Remove the temporary installations as per the agreement.
4. Please provide the renderings of the Northeast elevation that were missing from the submitted plans.
5. Remove all abandoned or unused communication equipment from the building façade.
6. Any future installations should be ideally located on the roof and screened by the parapet walls.

Engineering Department

7. The petitioner is notified that these comments are being provided to ensure that the project meets the requirements for submittal to the Plan Commission. Approval by the Plan Commission is not an endorsement or approval of these documents to obtain the required building permits, engineering approval, or permits required by other government or permitting agencies for construction. Detailed plan review with associated comments will be provided upon submittal of plans for a building permit. The petitioner shall acknowledge that they accept this understanding.
8. The temporary site has already been installed. The Public Works Department and Engineering Division have no comments on the temporary site.

9. The Village GIS information shows the following utilities in the vicinity of the proposed conduit:
    a) A 12" sanitary sewer is located north of the property line in an easement. The location of the sanitary sewer and the manholes in the area of the proposed work should be shown on the engineering plans. Provide the invert elevations for the manholes.
    b) Street light conduit located behind the curb on the north side of Shure Dr. Provide a note on the plans.
    c) Water meter located in a meter pit approximately 7 ft west of the parking lot curb. Show the location of the water meter pit and the water service for the building.
    d) The location of the conduit may need to be adjusted to avoid conflicts with the existing utilities.
    e) These items can be addressed at permit.
10. The Public Works Department and Engineering Division have no additional comments.

Building and Life Safety

- No objections or comments.

Health Department

- No comments.

Police Department

- No concerns with this application.

Fire Department

- No comments at this time

Sincerely,

Michael Lysicatos, AICP – Assistant Director
Department of Planning and Community Development

C: Charles Witherington-Perkins, Director of Planning & Community Development
Sam Hubbard, Development Planner
File PC 23-0197

From: Chris Lee
To: Lysicatos, Michael
Cc: Rachael Ceckowski; Hubbard, Sam; "allen.waites@verizonwireless.com"; DeWalt, Jessica; danny.perez2@VerizonWireless.com; Ari Rosenthal; Dans@terraltd.com; Mark Biesiada
Subject: FW: PC 23-017, 1500 W Shure Dr, Arlington Heights - Round 1 Review and Pencil Date Letter
Date: Friday, January 5, 2024 3:56:19 PM
Attachments: image001.png
image002.png
Rand & 53-Relo_Rev 5_01022024.pdf
Rand & 53_Relo_Photosim_REV A.pdf
Rand & 53_Public Notice Letter Mailing List.xlsx
Rand & 53_Notice of Public Hearing Letter Draft.pdf
Rand & 53_Notice of Public Hearing Sign Draft.pdf
EXTERNAL EMAIL Verizon Wireless Application - Arlington Heights.msg

---

You don't often get email from clee@mountainltd.com. Learn why this is important

[**NOTICE:** This message originated outside of Village of Arlington Heights email system -- **DO NOT CLICK** on **links** or open **attachments** unless you are sure the content is safe.]

Michael, to address the comments rec'd on 12/22/23 see attached and below in green. Thanks,

Response to Planning and Community Development comments:

1. It is recommended that options be explored for placing the antennas on the rooftop instead of the face of the building. Installing the antennas on the penthouse rooftop would be much more visually intrusive and the owners of the building have prohibited this type of installation. The existing parapet walls and exiting lower levels would require the antennas to be installed on tripods or some other supporting structure raising the antennas to a height above the roofline so that the parapet walls do not interfere with the signal. The only way to screen the antennas would be to move them back from the edge of the roofline and parapet walls, however, the further the antennas are moved back the higher they must be mounted to avoid shadowing the signal.

2. If the antennas are placed on the face of the building, the antennas must be painted to match the existing building. Provide renderings to confirm the visual impact of the installation. See attached before/after photo simulations. The antennas will be painted to match.

3. Remove the temporary installations as per the agreement. Temporary installations will be removed as agreed.

4. Please provide the renderings of the Northeast elevation that were missing from the submitted plans. Northeast elevation has been added to the attached CDs, see page ANT-1C.

5. Remove all abandoned or unused communication equipment from the building façade. Acknowledged.

6. Any future installations should be ideally located on the roof and screened by the parapet walls. See response to #1 above.

Response to Engineering Department Comments:

7. The petitioner is notified that these comments are being provided to ensure that the project meets the requirements for submittal to the Plan Commission. Approval by the Plan Commission is not an endorsement or approval of these documents to obtain the required building permits, engineering approval, or permits required by other government or permitting agencies for construction. Detailed plan review with associated comments will be provided upon submittal of plans for a building permit. The petitioner shall acknowledge that they accept this understanding.
Acknowledged.

8. The temporary site has already been installed. The Public Works Department and Engineering Division have no comments on the temporary site.

9. The Village GIS information shows the following utilities in the vicinity of the proposed conduit:

a) A 12" sanitary sewer is located north of the property line in an easement. The location of the sanitary sewer and the manholes in the area of the proposed work should be shown on the engineering plans. Provide the invert elevations for the manholes.

b) Street light conduit located behind the curb on the north side of Shure Dr. Provide a note on the plans.

c) Water meter located in a meter pit approximately 7 ft west of the parking lot curb. Show the location of the water meter pit and the water service for the building.

d) The location of the conduit may need to be adjusted to avoid conflicts with the existing utilities.

e) These items can be addressed at permit. Acknowledged. We have not been able to find any GIS utility data available online. We have a request for the City to provide this information but the online portal says it will take 5-21 days. Could your Engineering Department provide what they are looking at that generated these comments? This would be very helpful in updating our plans.

10. The Public Works Department and Engineering Division have no additional comments.

Per public notice requirements outlined on Thursday 1/4/24 see attached Mailing list, Letter Draft, and Sign Draft. These will be mailed and sign posted prior to January 9th, 2024 (15 days prior to Plan Commission Public Hearing). Please let me know as soon as possible if any changes are needed to the letter draft or sign draft.

Also, within 1 day after notification has been completed the below items will be provided.

1) Signed and notarized Notification Affidavit (see Plan Commission application packet).
2) 1 Copy of the signed Public Hearing Notification Letter that was sent to nearby property owners.
3) A list of all addresses and associated PIN numbers where the notification letter was sent.
4) Photographs of the posted Public Hearing signage on the property.

If any further questions or concerns, please don't hesitate to reach out.

Thanks,

Chris Lee
Director of Wireless

MOUNTAIN, LTD.
EXPLORE YOUR POSSIBILITIES.
Cell: 813.727.2484

11315 Corporate Blvd, Suite 220
Orlando, FL 32817
www.MOUNTAINLTD.com | LinkedIn
EOE, AA.

FOLLOW US ON LINKEDIN

From: Lysicatos, Michael <mlysicatos@vah.com>
Sent: Friday, December 22, 2023 5:10 PM
To: Rachael Ceckowski <rceckowski@mountainltd.com>; Chris Lee <clee@mountainltd.com>; Hubbard, Sam <shubbard@vah.com>
Cc: allen.waites@verizonwireless.com; Dewalt, Jessica <jessica.dewalt@verizonwireless.com>; danny.perez2@VerizonWireless.com; Ari Rosenthal <arosenthal@ginsbergjacobs.com>; Dan Szlaga <DanS@terraltd.com>; Mark Biesiada <mbiesiada@ginsbergjacobs.com>
Subject: [EXTERNAL EMAIL] PC 23-017, 1500 W Shure Dr, Arlington Heights - Round 1 Review and Pencil Date Letter

EXTERNAL EMAIL: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe. If you are unsure and require assistance, please submit a help desk ticket.

Rachael,

Good afternoon. Attached please find our Round 1 review of the Plan Commission Application for 1500 W Shure Road. Please keep in my mind that these are preliminary comments and that staff may add or amend these comments as the review moves forward. Please provide any formal response or changes by January 5th so staff is prepared with up to date reports to the Conceptual Plan Review Committee, and Plan Commission. I have also provided a Pencil Date Letter with the dates of aforementioned meetings for your review. If these dates are not acceptable or you have conflicts, please contact me as soon as possible. I look forward to hearing back and please reach out to me if you would like to discuss the comments.

Have a Happy Holidays.

Best regards,

Michael Lysicatos, AICP
Assistant Director
Department of Planning and Community Development
Village of Arlington Heights,IL
847-368-5211
www.vah.com
www.discoverarlington.com
Please consider the Environment before printing this e-mail