

**NOTICE OF MEETING
VILLAGE OF FOX POINT
VILLAGE BOARD MEETING**

**SCHWEMER HALL – MUNICIPAL BUILDING
7200 N. SANTA MONICA BLVD
FOX POINT, WI 53217**

**TUESDAY
January 10, 2023
7:00 P.M.**

NOTE: THE VILLAGE BOARD WILL BE MEETING IN PERSON AT VILLAGE HALL, WITH A REMOTE ATTENDANCE OPTION, PER THE HYBRID MEETING PROCEDURES FURTHER DESCRIBED IN SECTION 19-32 D. OF THE VILLAGE CODE. THIS MEETING IS OPEN TO ALL CITIZENS IN PERSON AT VILLAGE HALL, OR THROUGH THE ZOOM PARTICIPANT INFORMATION SHOWN BELOW, SUBJECT TO THE FOLLOWING: NO ASSURANCE IS PROVIDED TO THOSE GOVERNING BODY MEMBERS AND CITIZENS INTENDING TO ATTEND REMOTELY THAT THE TECHNOLOGY WILL PERFORM SUFFICIENTLY TO ALLOW FOR THEIR PARTICIPATION AND THE MEETING WILL PROCEED REGARDLESS. PUBLIC OFFICIALS AND CITIZENS WISHING TO ENSURE THEY CAN PARTICIPATE ARE ENCOURAGED TO ATTEND IN PERSON. CITIZENS ARE ENCOURAGED TO SUBMIT ANY COMMENTS IN WRITING IN ADVANCE OF THE MEETING TO THE VILLAGE MANAGER AT sbotcher@villageoffoxpoint.com.

Zoom Participant Information
<https://us02web.zoom.us/j/82072334567>
Meeting ID: 820 7233 4567
Dial: (312) 626-6799

AGENDA

- 1. Roll Call**
- 2. Persons desiring to be heard**

At this time, individuals can address the Village Board on one or more topics for up to three-minutes with time extensions at the Village President's discretion. Citizen comment when agenda items are called will be heard at the discretion of the chair, subject to the overall three-minute limit. In connection with non-agenda items, no action will be taken except for possible referrals to individuals or committees. NOTE: No comments will be heard during this agenda item concerning a pending application for a zoning code amendment, as the appropriate time for such comments will be at the duly noticed public hearing, so that all interested persons can hear the comments and due process is preserved.

3. Committee Reports

a. Plan Commission

1. The Village Board will receive a report regarding the Plan Commission's review and recommendation regarding the minor modification to the existing wireless facility at 8615 N Port Washington Road.
2. The Village Board will receive a report regarding the Plan Commission's review and recommendation regarding increasing the height of arbors from 8'7" to 10 feet in Chapter 745-7(3)(h), Fence/Arbor Ordinance.

- 4. Consent Agenda** – All items listed under the Consent Agenda will be approved in one motion without discussion unless any Board member requests that the item be removed for individual

discussion and possible action. Any item(s) so removed shall be considered individually prior to consideration of any New Business agenda items in the same order in which they were originally listed in the Consent Agenda.

- a. Approve the minutes of the December 13, 2022 Village Board meeting.
- b. Approve Dish Wireless, LLC's application for a minor modification to the existing Wireless facility at 8615 N Port Washington Road, based on Plan Commission's recommendation.
- c. Approve WE Energies easement through portion of North Shore Water Commission property
- d. Confirm President Frazer's appointments of Elizabeth Aelion as Chair of the Water/Sewer Utility Committee, as a member of the Finance Committee, and as a member of the Audit Committee.
- e. Adopt Resolution to designate International Migratory Bird Day to be on May 6, 2023 in the Village of Fox Point.
- f. Approve the quote of Brooks Tractor Inc in the amount of \$178,995 for the purchase of a new John Deere wheel loader plus an additional \$1,005 for graphics and miscellaneous equipment and authorize the Village Manager to sign the purchase order on behalf of the Village.
- g. Approve payment of the bills in the amount of \$849,283.11 for the period December 1, 2022 through December 31, 2022 per the report submitted by the Village Manager.

5. Unfinished Business

- a. **Consideration of potential enforcement action against Melinda B Wagner, 7515 N Boyd Way**

The Village Board may consider and may act on possible enforcement action against Melinda B Wagner, 7515 N Boyd Way, for alleged violations of the Fox Point Municipal Code relating to maintenance of property, regarding the chimney and garage. This item may include an appearance by Melinda B. Wagner and/or a representative of Melinda B. Wagner.

6. New Business

- a. **Presentation by Rob Henken of Wisconsin Policy Forum on North Shore Joint Policing Study performed on behalf of the City of Glendale**

The Village Board will hear a presentation from Mr. Henken of the Wisconsin Policy Forum regarding the North Shore Joint Policing Study performed on behalf of the City of Glendale. The Board take any action it deems appropriate, or, may take no action at all.

- b. **Consideration of Initial Borrowing Resolution Authorizing the Borrowing of \$4,350,000 and Providing for the Issuance and Sale of General Obligation Promissory Notes, Series 2023A (Lake revetment project)**

The Village Board will consider and may take action on an "Initial Resolution Authorizing the Borrowing of Not to Exceed \$4,350,000 and Providing for the Issuance and Sale of General Obligation Promissory Notes, Series 2023A".

7. Future Agenda Items

The Village Board will act on any Trustee requests to place additional matters on an upcoming agenda, without discussion.

8. Closed Session

It is anticipated the Village Board will convene into closed session for the following reason(s):

- a. Pursuant to State Statutes Section 19.85(1)(c), to consider employment, promotion, compensation or performance evaluation data of any public employee over which the governmental body has jurisdiction or exercises responsibility, more specifically concerning the Village Manager. Participating in this portion of the closed session will be the Village Board and Village Manager.

9. Reconvene into Open Session

The Village Board will reconvene into open session and may take action by duly adopted motion or resolution on the above-described matters which were considered in closed session.

10. Announcements

The following individuals will be given the opportunity to make announcements at the meeting in regard to (i) actions taken since the previous Village Board meeting on behalf of the Village, (ii) future Village activities and (iii) communications received from citizens. These matters will not be discussed or acted on, and Board members shall not comment on matters announced by others. Referrals may be made to committees and/or individuals.

- a. Village President Frazer
- b. Trustee Fonstad
- c. Trustee Symchych
- d. Trustee Sumner
- e. Trustee Ollman
- f. Trustee Anderson Knight
- g. Trustee Aelion
- h. Village Manager Scott Botcher

11. Adjournment

NEXT REGULAR VILLAGE BOARD MEETING:

February 14, 2023 7:00 P.M.

PLEASE NOTE:

Upon reasonable notice, efforts will be made to accommodate the needs of disabled individuals through sign language interpreters or other auxiliary aids. Also, upon reasonable notice, best efforts will be used to ensure that members of the public lacking access to the virtual meeting platform are provided alternative reasonable methods to attend. For additional information or to request these services, contact the Village Clerk at (414) 351-8900. "Persons requiring an interpreter or other assistance should contact the Village Clerk's office 72 hours prior to the meeting. Notice is hereby given that a majority any other board, commission or committee may be present at the meeting to gather information about a subject in which they are interested. This constitutes a meeting of any other board, commission or committee pursuant to State ex rel. Badke v. Greendale Village Bd., 173 Wis. 2d 553, 494 2d 408 (1993), and must be noticed as such, although said boards, commissions or committees will not take any formal action at this meeting."



VILLAGE OF FOX POINT

MILWAUKEE COUNTY
WISCONSIN

VILLAGE HALL
7200 N. SANTA MONICA BLVD.
FOX POINT 53217-3505
414-351-8900
FAX 414-351-8909

To: Village Board
From: Scott A Botcher, Village Manager *SAB*
cc: Kelly Meyer, Clerk-Treasurer
Date: January 5, 2023
Re: Miscellaneous Agenda Items

A few items on the agenda would be well served with some backstory, so I will attempt to do that here.

Item 4c: (North Shore Water Commission easement): WE Energies would like a small easement along the edge of the Water Treatment Facility for electrical purposes. The document included has been reviewed by Attorney Fuchs on behalf of the North Shore Water Commission (NSWC). According to the NSWC agreement, each governing body needs to approve the granting of this easement for it to be approved. Each member of the NSWC will receive \$200 for the grant once executed.

Item 5: (Wagner garage matter): Mike Rakow and I met with the Wagner's on Thursday morning to receive an update and to communicate probable next steps. At that time, there was no change in the Wagner's situation insofar as securing someone to perform the demo work.

In anticipation of this probability, I asked Mr. Larson to prepare a stipulation and order for them to consider. This stipulation would be their agreement to allow the Village to perform or have performed the demolition work. Subsequently to the execution of the stipulation, the Court would grant an order authorizing the work.

I provided a copy to the Wagner's and asked them to read it and seek whatever counsel they wish, but, if they wanted to proceed with the stipulation, they should sign and return it by 7 pm Tuesday. Further, I explained that should they not wish to sign the stipulation (which I fully explained is their prerogative) but there was no signed contract with someone else to do the necessary work, that this item was on the agenda and, while I never guarantee what any governing body may do, the Board may be in a position to direct Mr. Larson and Staff to move ahead with a raze order.

I will obviously report more at the meeting depending on what they decide.

Item 6(a) (North Shore Joint Policing Study): Mr. Rob Henken, President of the Wisconsin Policy Forum (WPF), will be present to give a synopsis of the North Shore Joint Policing Study the WPF performed on behalf of their client the City of Glendale.

No action is being requested of the Board on this matter, but, as always, the Board may take almost any action it deems appropriate.

Full disclosure: I in my personal capacity am a donor and a member of the Chairman's Club of the Wisconsin Policy Forum.

Item 6(b) Initial Borrowing Resolution: This is the initial Resolution necessary to begin the financing process to fund the revetment project you approved last month. I touched on a few scenarios last month and one of those is being recommended with a small modification. Justin Fisher from Baird will be in attendance to present the proposed financing and answer any questions you may have.

In a nutshell, the Village would issue a short-term note, due April 1, 2026. As we discussed several times, this is done as so to apply the \$1.6 M to the project costs as soon as possible following receipt. Once this financing matures or is eligible for refinancing, the balance (generally the \$2.75M financing shown in the middle of page 2 of the Baird presentation) would be made part of a longer term (probably a 10-year instrument) and more permanent financing, either stand alone or part of a larger issue, which is determined to be in the Village's best interests in 2024.

The one difficulty in this is going to our standard "competitive bid" process with a slightly different financing structure. In order to enhance our chances of a successful financing, which, coincidentally saves the Village financing expenses, this deal is structured with Baird as the underwriter. In exchange for this, Baird would waive their fiscal agency fee, and receive the standard underwriting fee, which every issue pays anyway. While not common, it is done on occasion, and, much like the private placement we did a year ago, this is the opportunity for it.

Thank you for your patience in reading through this and reach out with any questions as you see fit.

**VILLAGE OF FOX POINT
VILLAGE BOARD MEETING MINUTES
DECEMBER 13, 2022**

A meeting of the Fox Point Village Board was held by a combination of in-person and virtual attendance via telephonic and video conferencing on Tuesday, December 13, 2022 in Schwemer Hall, 7200 N. Santa Monica Boulevard. President Frazer called the meeting to order at 7:00 p.m. and asked the Village Manager to take roll call. Roll Call of the Village Board present included:

Village President Douglas H. Frazer
Trustee Eric Fonstad
Trustee Christine Symchych
Trustee Liz Sumner
Trustee Greg Ollman
Trustee Catie Anderson Knight
Trustee Liz Aelion

Also, present were Village Attorney Eric Larson (via Zoom), Village Manager Scott Botcher, Public Works Director Scott Brandmeier, Assistant Village Manager Kevin Ausman (via Zoom), and Village Clerk Treasurer Kelly Meyer.

Notice of the meeting was provided to the North Shore Now and to all others as required by State open meetings laws and posted on the official bulletin board at 7200 N Santa Monica Boulevard, as well as the village website at www.villageoffoxpoint.com, as per 2015 Wisconsin Act 79 and as described in Village Ordinance Chapter 116-2, 116-2(C).

PERSONS DESIRING TO BE HEARD

Bill Hudson 7419 N Lombardy-Does not support moving pool

Mike McDonagh 7425 N Beach Ct-Mary Nohl proposal does not meet the zoning ordinance required "four standards" and is opposed

Michele Tierney 7308 N Beach Drive-Opposed to Nohl plan

Douglas Gregor 7275 N Beach Drive- Opposed to Nohl. Property tax given up could go to other purposes.

Kathe Lake 7471 N Beach-Opposed to plan. Concerned Kohler could keep buying properties

Nathan Bernstein 7425 N Lombardy-stated the pool is an amenity. People in Fox Point bought into a certain lifestyle

Dr. Marnie Pearsall 8044 N Santa Monica-opposed to Nohl proposal

Paul Keyser 8300 N Links Way-Current pool is serviceable and we should keep going

Nicki Meyer 7433 N Beach Court-need for quiet enjoyment; opposed to Cultural Overlay

Lori Grindel 7615 N Beach Drive-Opposed to Nohl proposal. Traffic safety on hill is concern

Louise Petering 7229 N Santa Monica-Opposed to moving the pool. Some who want to are not listening to the citizens

**VILLAGE OF FOX POINT
VILLAGE BOARD MEETING MINUTES
DECEMBER 13, 2022**

Douglas Gregor 7275 N Beach Drive-Money given up for pool could be used for pool.

Ken Friedman 8001 N Links Way-enjoys pool. Longacre neighborhood did not expect pool; Santa Monica residents did

Hope Oliva 7426 N Crossway-opposed Longacre for pool. Does not want to listen to kids; wants small community pool.

Terese Gripentrog 8145 N Navajo-supports pools in community. Supports pool but not private funding component

Sandy Hurley 7334 N Longacre-Opposes pool at Longacre. Noise traffic and safety concerns

David Petering 7229 N Santa Monica-submitted written comments

Dan Knopp 7510 N Fairchild-avid swimmer loves fundraising, probably wouldn't contribute with only 4 lane pool.

David Miller 7401 N Crossway-Supports pool but only at Santa Monica location

COMMITTEE REPORTS –None

PUBLIC HEARINGS

Motion by Frazer, seconded by Fonstad, and carried by roll call vote (7-0), to cancel the public hearings regarding the Ordinance to Repeal and Re-create Chapter 285 Article III Relating to Stormwater Management Regulations of the Municipal Code and the Ordinance to Repeal and Re-Creat Chapter 285 Article IV Relating to Construction Site Erosion Control of the Municipal Code until the WDNR has finalized the flood zone maps.

CONSENT AGENDA

- a. Approve the minutes of the November 8, 2022 Village Board meeting.
- b. Approve the minutes of the November 21, 2022 Budget Public Hearing.
- c. Approval of President's appointment of Lucille Sells to the Building Board for a term ending in 2024.
- d. Accept the bid of Mid-City Corporation in the amount of \$222,067.50 for the Port Washington Road water main relocation and authorize the Village President and Village Clerk/Treasurer to sign the contract per the Director of Public Works' memorandum dated December 7, 2022.
- e. Accept the proposal of Wachtel Tree Science in an amount not to exceed \$45,630 for the 2023 Forestry Services and authorize the Village President and Village Clerk/Treasurer to sign the contract per the Director of Public Works' memorandum dated December 6, 2022.
- f. Accept the proposal of Wachtel Tree Science in an amount not to exceed \$15,000 for the administration of the 2023 Emerald Ash Borer initiative and authorize the Village President

**VILLAGE OF FOX POINT
VILLAGE BOARD MEETING MINUTES
DECEMBER 13, 2022**

and Village Clerk/Treasurer to sign the contract per the Director of Public Works' memorandum dated December 6, 2022.

- g. Accept the proposal of Ruekert and Mielke in an amount not to exceed \$41,240 for the performance of continuing work within the GIS database for activities performed throughout the year and authorize the Village President and Village Clerk/Treasurer to sign the contract per the Director of Public Works' memorandum dated December 6, 2022.
- h. Accept the proposal of Kapur & Associates in an amount not to exceed \$22,909 to design the rehabilitation of sanitary sewers in Bason Nos. 2, 4, and 6 authorize the Village President and Village Clerk/Treasurer to sign the contract per the Director of Public Works' memorandum dated December 6, 2022.
- i. Accept the proposal of Kapur & Associates in an amount not to exceed \$28,910 for the inspection and design of 145 sanitary manholes in Basin No. 4 and authorize the Village President and Village Clerk/Treasurer to sign the contract per the Director of Public Works' memorandum dated December 6, 2022.
- j. Accept the proposal of Kapur & Associates in an amount not to exceed \$23,750 for the televising of approximately 20,000 linear feet of sanitary sewers and authorize the Village President and Village Clerk/Treasurer to sign the contract per the Director of Public Works' memorandum dated December 6, 2022.
- k. Accept the proposal of Marek Landscaping in the amount of \$12,516.00 for control of invasive species, native planting and monitoring for Indian Creek and authorize the Village President and Village Clerk/Treasurer to sign the proposal pursuant to the Director of Public Works' memorandum dated December 6, 2022.
- l. Approval of Resolution Adopting Amended Rubbish Special Pickup Fees for the Village of Fox Point.
- m. Approval of Resolution to Adopt Amended Stormwater Fees for the Village of Fox Point
- n. Approval of Resolution to Adopt Amended Sewer Fees for the Village of Fox Point
- o. Approval of Resolution to Adopt Amended Mailbox Post Fees for the Village of Fox Point
- p. Authorize Village Manager to sign Flock Camera purchase order pursuant to Chiefs memo dated December 5, 2023
- q. Approve and Adopt Resolution Determining Certain Funds as Unassigned and Moving to General Fund Balance.
- r. Approve payment of the bills in the amount of \$645,420.61 for the period November 1, 2022 through November 30, 2022 per the report submitted by the Village Manager.
- s. Adopt Resolution confirming Obligation to Contribute to North Shore Fire Department's Budget to Pay Debt Service on Bonds Issued by the City of Glendale on Behalf of the North Shore Fire Department.
- t. Adopt Resolution approving a "Single or Multi-Year Capital" Budget for Glendale Station 82 Project.

**VILLAGE OF FOX POINT
VILLAGE BOARD MEETING MINUTES
DECEMBER 13, 2022**

Trustee Aelion requested the removal of agenda item 5d.

Motion by President Frazer, seconded by Fonstad and carried by roll call vote (7-0), to approve the consent agenda, absent items 5d.

UNFINISHED BUSINESS

Aquatic Recreation Facilities Discussion and Possible Action

No action was taken. Staff will report back in February or March with updated cost estimates and report on a massing analysis of Village owned property along Santa Monica.

Resolution of Appreciation - Farmers Market Founders Mary and James LaCharite

Motion by Sumner, seconded by Fonstad and carried by roll call vote (7-0), to adopt the Resolution of Appreciation to Farmers Market Founders Mary and James LaCharite, as set forth on page 92.

NEW BUSINESS

Consent Agenda Item 5d.

Motion by Frazer, seconded by Ollman, and carried by roll call vote (7-0), to

Approval of revised North Shore Health Department agreement

Motion by Frazer, seconded by Symchych, and carried by roll call vote (7-0), to approve the revised North Shore Health Department agreement, as set forth on pages 93-110 of the agenda packet.

Accept the bid of Michels Foundations, a Division of Michels Corporation, for the Beach Drive Coastal Resiliency Project

Citizen Comments-

Kathe Lake 7471 N Beach Drive-asked if a path was on northern and southern part of project.

Judy Herbst 8050 N Beach Ct-opposes to public access

Douglas Gregor 7275 N Beach Drive-opposed to path

Doug Schmitz 7600 N Beach Drive-prefers status quo in terms of path. Secure public works benefits. Riparian rights must be respected but must also must respect rights of those residents who do not live on Beach Drive.

Mark Levin 7415 N Beach Drive-current look is neighborhood when they bought home. Supports status quo in terms of path.

Terese Gripenrog 8145 N Navajo-In favor of path. It's a public coastline.

Nicky Meyer 7433 N Beach Court-Path is superfluous. Opposed.

**VILLAGE OF FOX POINT
VILLAGE BOARD MEETING MINUTES
DECEMBER 13, 2022**

Marge Kinney 7575 N Beach Drive-Path is unnecessary

Dan Knopp 7510 N Fairchild-Maintain access with status quo

Manmet Singh 8035 N Beach Drive-Opposed to path

Tom Simeone 8045 N Beach Drive-opposed to path and access. No plan to manage traffic

Motion by Fonstad, seconded by Ollman, and carried by roll call vote (6-1, Frazer opposed), to accept the bid of Michels Foundations, a Division of Michels corporation, for the Beach Drive Coastal Resiliency Project, approving the alternate bid to remove the proposed gravel path along the shoreline which would result in a project cost of \$3,595,951.07, as set forth on pages 111-117 of the agenda packet.

Approve Amendment No. 5 from MSA for the Beach Drive Coastal Resiliency Project

Motion by Frazer, seconded by Fonstad, and carried by roll call vote (7-0) to award Amendment No. 5 to MSA in an amount not to exceed \$183,536.25 for construction administration and other tasks associated with the Beach Drive Coastal Resiliency Project, as set forth on pages 118-133 of the agenda packet, and contingent on the Costello's signing the charge back form so as to reimburse the Village for identified costs.

Discussion of Clear-Cutting ordinance

The Board had a discussion regarding the Clear-Cutting ordinance; no action was taken.

Approval of Resolution recognizing service of Officer Daniel Obremski

Motion by Frazer, seconded by Symchych, and carried by roll call vote (7-0) to Adopt the resolution recognizing service of Officer Daniel Obremski, as set forth on page 135 of the agenda packet.

Receipt and Referral to Plan Commission for public hearing on the application of Creation and Preservation Partners, Inc to create a Cultural Overlay District at 7254 and 7328 North Beach Drive (Mary Nohl House)

Motion by Frazer, seconded by Ollman, and carried by roll call vote (6-1, Fonstad opposed) to refer to Plan Commission and hold a public hearing regarding the application of Creation and Preservation Partners, Inc to create a Cultural Overlay District at 7254 and 7328 North Beach Drive (Mary Nohl House), as set forth on pages 136-169 of the agenda packet, with further instruction to Staff to poll the Village Board and Plan Commission seeking to hold a joint meeting (public hearing) in mid to late January so as to hear evidence together.

FUTURE AGENDA ITEMS - None

ANNOUNCEMENTS

Trustee Fonstad-No Announcements

Trustee Symchych-No Announcements

**VILLAGE OF FOX POINT
VILLAGE BOARD MEETING MINUTES
DECEMBER 13, 2022**

Trustee Sumner-No Announcements

Trustee Ollman-No Announcements

Trustee Anderson-No Announcements

Trustee Aelion-No Announcements

Village President Frazer-No Announcements

Village Manager Scott Botcher-No Announcements

ADJOURN

Motion made by President Frazer, second by Ollman, and carried by roll call vote (7-0) to adjourn the Village Board meeting at 10:25 p.m.

Respectfully submitted,

Kelly A. Meyer, WCMC/CMC/CMTW
Village Clerk Treasurer

December 15, 2022

Nathan L. Schafer
Deputy Clerk-Treasurer
Village of Fox Point
7200 N. Santa Monica Blvd
Fox Point, WI 53217

**RE: Letter of Intent for Plan Commission Review – DISH Wireless Co-location
8615 Port Washington Rd., Fox Point WI Site # MWMKE00252B**

Mr. Schafer

On behalf of GPD Group, Crown Castle (Tower Owner) and DISH Wireless request the necessary approvals for the addition of DISH Wireless equipment to the existing wireless telecom facility at the above referenced location.

DISH Wireless will be adding their antennas and associated equipment at 115' on the existing 130' monopole. The ground support equipment will be housed in the existing basement equipment area. There will be no increase in height to the tower, or expansion of the ground lease area. Per attached plans and letter from Crown Castle, this minor modification qualifies as an Eligible Facilities Request under 6409.

This proposed new DISH Wireless Network co-location will be unmanned and only requires use of existing power and fiber already at the site. There will be no traffic generated by this proposed use. It will be remotely monitored 24/7 and serviced approximately once a month by a technician in a small pick-up or van.

The proposed site will help build the DISH Wireless 5G Internet Network in the Village of Fox Point area. This technology will keep customers connected to the internet. From driverless cars to the millions of wearables, devices, and sensors currently in use, DISH Wireless will help run the Smart Cities of the future and the "Internet of Things". *See attached Quick Facts and Dish Story

We have requested to have this project reviewed/approved at the January 3, 2023, Plan Commission Meeting.

Thank you very much in advance for your help with this project.

Regards,

Tony Phillips

Tony Phillips
Zoning & Permitting Manager
Kendall Communications for GPD Group
tony@kendallcommunications.net
847-331-3659



9045 River Rd,
Indianapolis, IN 46240

Phone: (317) 249-2028
www.crowncastle.com

December 15, 2022

WI – Village of Fox Point
Nathan L. Schafer - Deputy Clerk
7200 N. Santa Monica Blvd
Fox Point, WI 53217

*******NOTICE OF ELIGIBLE FACILITIES REQUEST*******

RE: Request for Minor Modification to Existing Wireless Facility – Section 6409

Site Address: 8615 Port Washington Rd., Fox Point, WI 53217

Crown Site Number: 827008/ Crown Site Name: 827008

Customer Site Number: MWMKE00252B

Attn Planning & Zoning Dept.

On behalf of DISH Wireless L.L.C. ("Dish Wireless" or "Applicant"), Crown Castle USA Inc. ("Crown Castle") is pleased to submit this request to modify the existing wireless facility noted above through the collocation, replacement and/or removal of the Applicant's equipment as an eligible facilities request for a minor modification under Section 6409¹ and the rules of the Federal Communications Commission ("FCC").²

Section 6409 mandates that state and local governments must approve any eligible facilities request for the modification of an existing wireless tower or base station that does not substantially change the physical dimensions of such tower or base station. Under Section 6409, to toll the review period, if the reviewing authority determines that the application is incomplete, it must provide written notice to the applicant within 30 days, which clearly and specifically delineates all missing documents or information reasonably related to whether the request meets the federal requirements.³ Additionally, if a state or local government, fails to issue any approvals required for this request within 60 days, these approvals are deemed granted. The FCC has clarified that the 30-day and 60-day deadlines begins when an applicant: (1) takes the first step required under state or local law; and (2) submits information sufficient to inform the jurisdiction that this modification qualifies under the federal law⁴. Please note that with the submission of this letter and enclosed items, the thirty and sixty-day review periods have started. Based on this filing, the deadline for written notice of incomplete application is January 15, 2022, and the deadline for issuance of approval is February 15 2023.

¹ Middle Class Tax Relief and Job Creation Act of 2012, Pub. L. No. 112-96, § 6409 (2012) (codified at 47 U.S.C. § 1455).

² *Acceleration of Broadband Deployment by Improving Wireless Facility Siting Policies*, 29 FCC Rcd. 12865 (2014) (codified at 47 CFR § 1.6100); and *Implementation of State & Local Governments' Obligation to Approve Certain Wireless Facility Modification Requests Under Section 6409(a) of the Spectrum Act of 2012*, WT Docket No. 19-250 (June 10, 2020).

³ See 47 CFR § 1.6100 (c)(3). ⁴ See 2020 Upgrade Order at paragraph 16.



9045 River Rd,
Indianapolis, IN 46240

Phone: (317) 249-2028
www.crowncastle.com

Proposed Scope of work will be: Addition of New DISH Wireless Equipment to existing wireless telecom facility. Antennas and ancillary equipment added at 115' on existing 130' monopole. Ground support equipment to be located within existing equipment area.

At the end of this letter is a checklist of the applicable substantial change criteria under Section 6409. Additionally, please find enclosed the following information in support of this request:

- (1) Letter of Intent
- (2) Construction Drawings;
- (3) Structural Analysis; and
- (4) Section 6409 Substantial Change Checklist.

As these documents indicate, (i) the modification involves the collocation, removal or replacement of transmission equipment; and (ii) such modification will not substantially change the physical dimensions of such tower or base station. As such, it is an "eligible facilities request" as defined in the FCC's rules to which the 60-day deadline for approval applies. Accordingly, Applicant requests all authorization necessary for this proposed minor modification under Section 6409.

Our goal is to work with you to obtain approvals earlier than the deadline. We will respond promptly to any request for related information you may have in connection with this request. Please let us know how we can work with you to expedite the approval process. We look forward to working with you on this important project, which will improve wireless telecommunication services in your community using collocation on existing infrastructure. If you have any questions, please do not hesitate to contact me.

Regards,

Tony Phillips

Tony Phillips
Agent for Applicant

847-331-3659

Tony@KendallCommunications.net



9045 River Rd,
Indianapolis, IN 46240

Phone: (317) 249-2028
www.crowncastle.com

Section 6409 Substantial Change Checklist
Towers Outside of the Public Right of Way

The Federal Communications Commission has determined that a modification substantially changes the physical dimension of a wireless tower or base station under 47 U.S.C. § 1455(a) if it meets one of six enumerated criteria under 47 C.F.R. § 1.6100.

Criteria for Towers Outside the Public Rights of Way

YES/NO NO	Does the modification increase the height of the tower by more than the greater of: (a) 10% (b) or, the height of an additional antenna array plus separation of up to 20 feet from the top of the nearest existing antenna?
YES/NO NO	Does the modification add an appurtenance to the body of the tower that would protrude from the edge of the tower more than 20 feet or more than the width of the tower structure at the level of the appurtenance, whichever is greater?
YES/NO NO	Does the modification involve the installation of more than the standard number of new equipment cabinets for the technology involved or add more than four new equipment cabinets?
YES/NO NO	Does the modification entail any excavation or deployment outside the current site by more than 30 feet in any direction, not including any access or utility easements?
YES/NO NO	Does the modification defeat the concealment elements of the eligible support structure?
YES/NO NO	Does the modification violate conditions associated with the siting approval with the prior approval the tower or base station other than as specified in 47 C.F.R. § 1.6100(c)(7)(i) – (iv)?

If all questions in the above section are answered "NO," then the modification does not constitute a substantial change to the existin

Quick Facts



Provides services to approximately
19 million customers



Offers the highest quality service
and value on the market



Annual revenue of more than \$17
billion



Publicly traded on the NASDAQ
Exchange, ticker symbol DISH



Delivers consumer wireless
services through Boost Mobile
and other brands



Building America's First Smart
Network™ to redefine the way
people and things connect.



Employs more than 14,000
people in the U.S.



Headquartered in Englewood,
Colo.

Our Story

Our journey began with a bold idea: to bring TV to rural America.

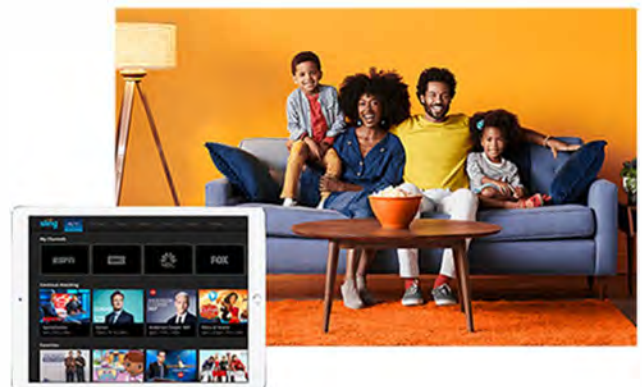
DISH was founded on adventure and an unshakable desire to win. It's what drove us to launch satellites into space when people said we couldn't. To take on the world's largest industrial corporation when people said we shouldn't. And to connect millions of Americans to the TV they love when the cable companies wouldn't.



We created a connectivity company that's built to serve and transform.

We believe TV- and technology-loving families shouldn't have to work in IT to operate a remote, mortgage the house to pay for cable, or jump through hoops to watch the shows they love. It's why we invented the world's first DVR, introduced the 2-Year TV Price Guarantee, developed the voice remote and launched Remote Finder. It's why we gave our customers the power to watch TV anywhere and skip the commercials. And it's why our customer satisfaction scores are some of the highest in the industry.

We even disrupted pay TV, the very industry we created.



Embracing adventure means embracing change and finding opportunity. We have a storied history of thinking long term and fearlessly innovating in the name of the consumer. So it wasn't long before we started planning for how the internet would revolutionize pay TV. We launched SLING TV, the world's first live TV streaming platform, in 2015. SLING TV is the leading live, over-the-top (OTT) platform, featuring a cloud DVR and robust add-on programming packages. When integrated with AirTV, SLING TV provides the best mix of live, recorded, pay-per-view and local programming on the OTT market.



Our adventure is just beginning. Our best days are ahead of us.

Over the years, we transformed how generations embrace television. From satellite delivery in rural America to people who stream in urban America.

We continue to strive to innovate our core business and are advancing upon our greatest challenge: We are going to disrupt the wireless industry and change the way the world communicates.

In 2020, we officially entered the consumer wireless industry with the acquisition of Boost Mobile, a company synonymous with value and innovation. Together, we're building a multi-brand wireless telco to upend the retail market and deliver groundbreaking new experiences for all.

We're also building the nation's first cloud-native, Open RAN-compliant 5G network to run the smart cities of the future. 5G will be the lifeblood of a new-world economy, improving quality of life, economic growth, and sustainability for all. Over the next 10 years, we'll be strategically positioned to power the smart cities of the future – smart homes, factories, driverless cars and artificial intelligence – plus the millions upon millions of wearables, sensors, devices and robots that will support them. The 5G Internet of Everything will launch an era of innovation that will revolutionize the world.



December 8, 2022

Nathan L. Schafer
Deputy Clerk-Treasurer
Village of Fox Point
7200 N. Santa Monica Blvd
Fox Point, WI 53217

RE: Planning Review Fee Submittal – DISH Wireless Co-location
8615 Port Washington Rd., Fox Point WI Site # MWMKE00252B

Mr. Schafer

Enclosed please find a \$300.00 Application Fee Check for the above referenced project to be heard at the January 3, 2023 Plan Commission Meeting.

Please send me an e-mail confirmation upon receipt of this check.

Thank you very much for your help with this project.

Regards,

Tony Phillips

Tony Phillips
Zoning & Permitting Manager
Kendall Communications for GPD Group
tony@kendallcommunications.net
847-331-3659



814-950-0596

www.kendallcommunications.net

360 Kendall Drive, Columbus, OH 43201

VILLAGE OF FOX POINT
7200 N. SANTA MONICA BLVD
FOX POINT WI 53217

414-351-8900

Receipt No: 1.058404

Dec 13, 2022

8615 N Port Washington Road

Previous Balance:	.00
LICENSES & PERMITS - OTHER PERMIT	300.00
10-44540 OTHER PERMIT	

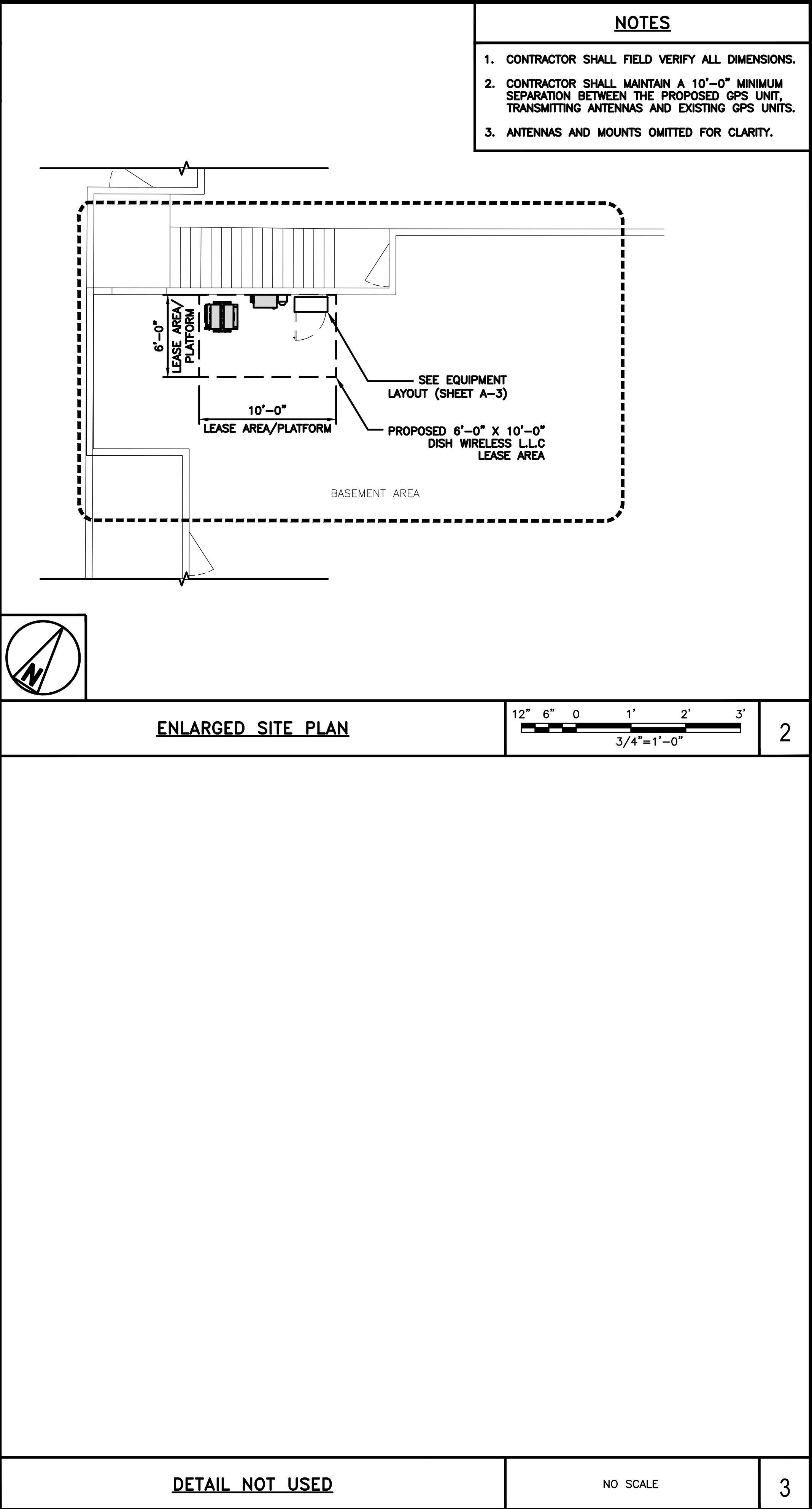
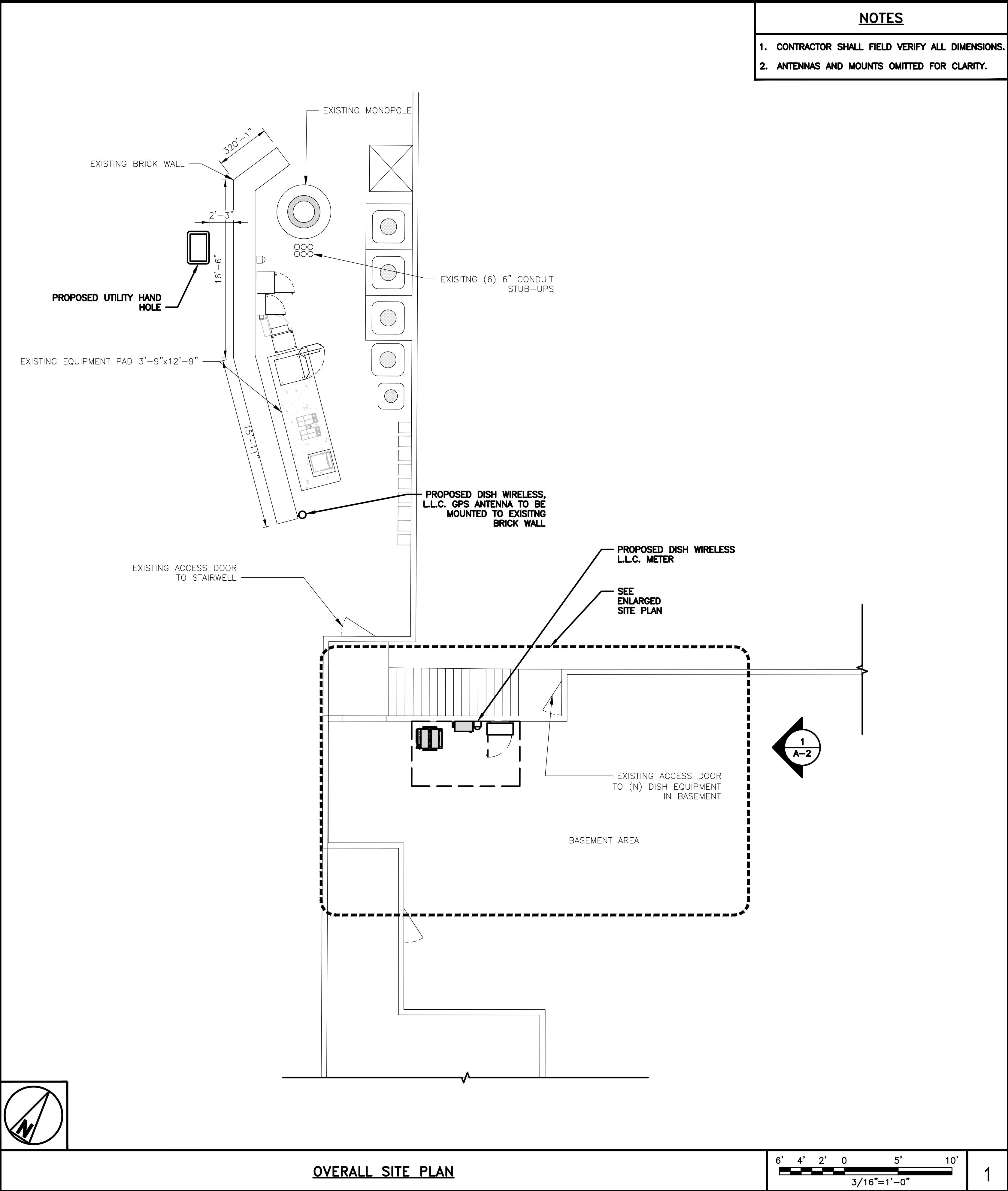
Total:	300.00
--------	--------

CHECK	Check No: 2336	300.00
Payor: Kendall Communications		

Total Applied:	300.00
----------------	--------

Change Tendered:	.00
------------------	-----

12/13/2022 1:35 PM



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



520 South Main Street, Suite 2531
Akron, OH 44311
330.572.2100 Fax 330.572.2101

IT IS A VIOLATION OF LAW FOR ANY PERSON,
UNLESS THEY ARE ACTING UNDER THE DIRECTION
OF A LICENSED PROFESSIONAL ENGINEER,
TO ALTER THIS DOCUMENT.

DRAWN BY:	CHECKED BY:	APPROVED BY:
ACM	CJM	MRL

RFDS REV #: ---

PRELIMINARY DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
A	08/08/2022	ISSUED FOR REVIEW

A&E PROJECT NUMBER
2021724.75.827008.02

DISH Wireless L.L.C.
PROJECT INFORMATION

MWMKE00252B
8615 N PORT WASHINGTON RD
FOX POINT, WI 53217

SHEET TITLE
OVERALL AND ENLARGED
SITE PLAN

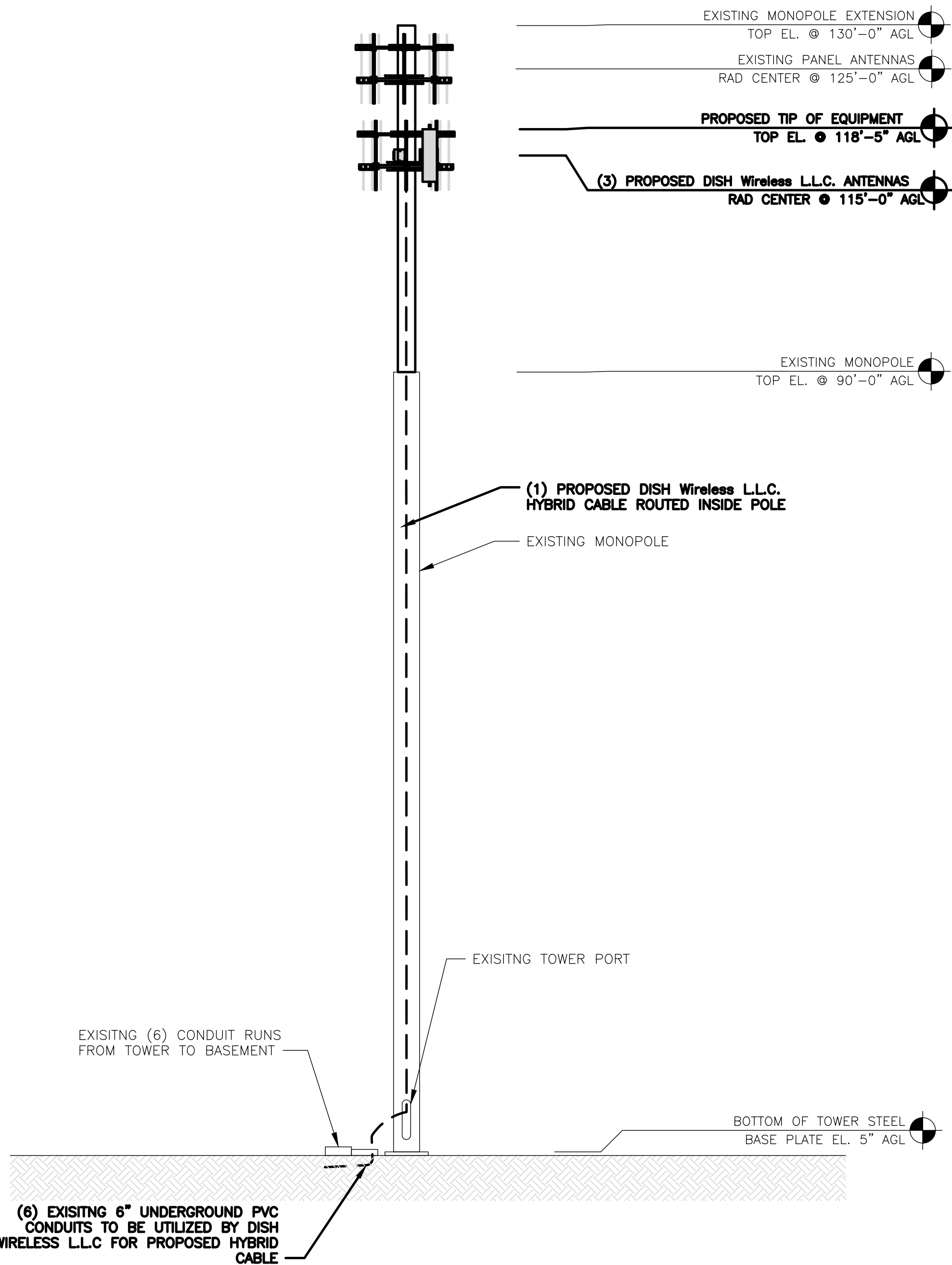
SHEET NUMBER

A-1

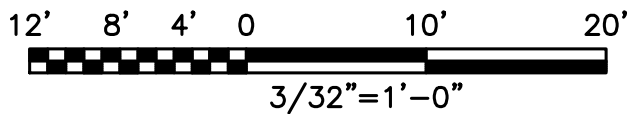
- NOTES
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.

2. ANTENNA AND MW DISH SPECIFICATIONS REFER TO ANTENNA SCHEDULE AND TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS

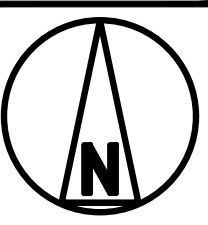
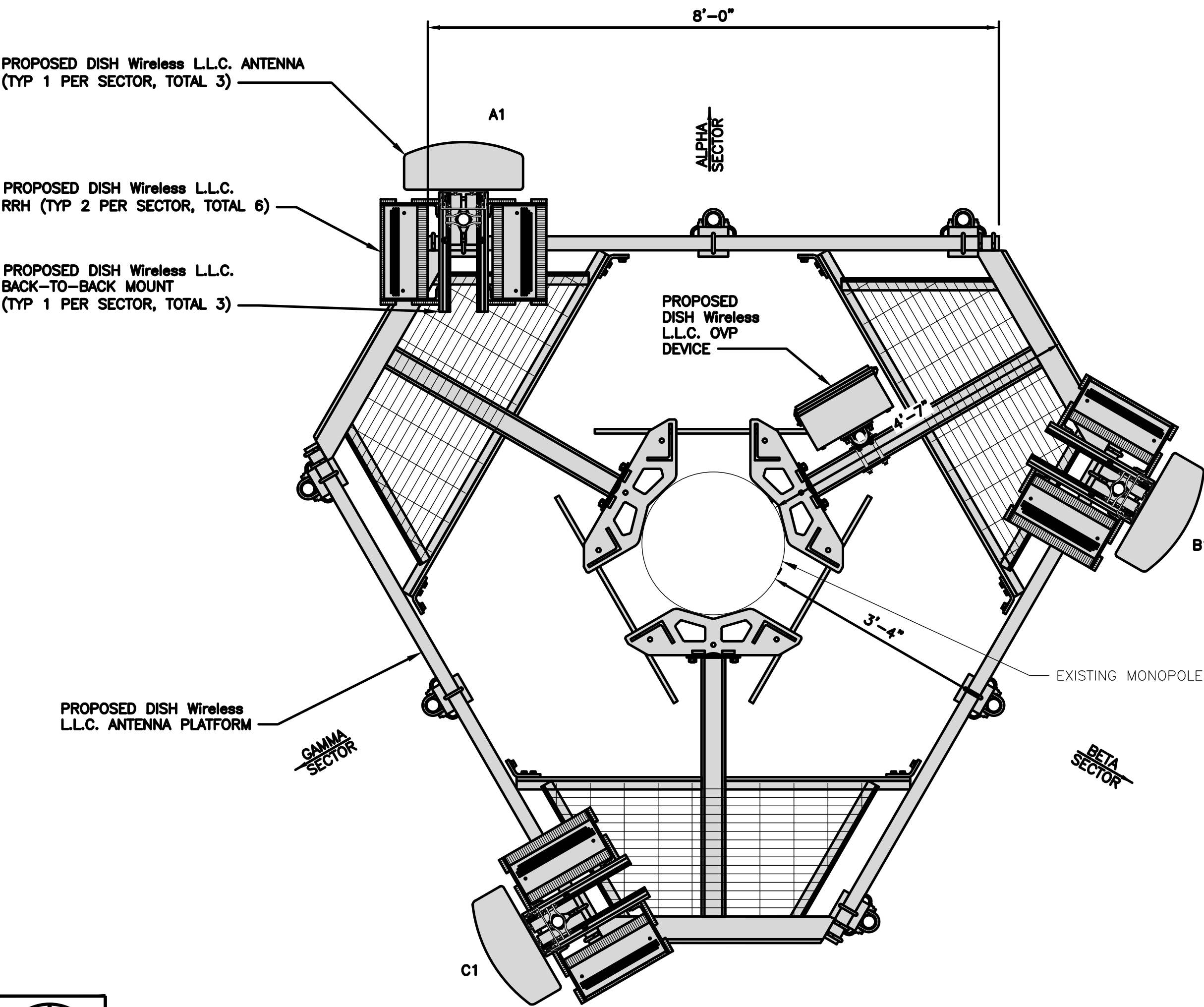
3. EXISTING EQUIPMENT AND FENCE OMITTED FOR CLARITY.



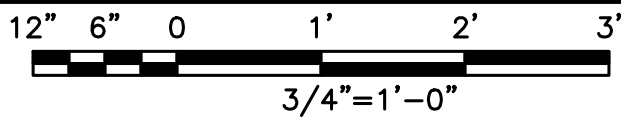
PROPOSED NORTHEAST ELEVATION



1



ANTENNA LAYOUT



2

SECTOR	POSITION	ANTENNA						TRANSMISSION CABLE
		EXISTING OR PROPOSED	MANUFACTURER – MODEL NUMBER	TECHNOLOGY	SIZE (HxW)	AZIMUTH	RAD CENTER	FEED LINE TYPE AND LENGTH
ALPHA	A1	PROPOSED	JMA – MX08FR0665–21	5G	72.0" x 20.0"	0°	115'–0"	(1) HIGH–CAPACITY HYBRID CABLE (200' LONG)
BETA	B1	PROPOSED	JMA – MX08FR0665–21	5G	72.0" x 20.0"	120°	115'–0"	
GAMMA	C1	PROPOSED	JMA – MX08FR0665–21	5G	72.0" x 20.0"	240°	115'–0"	
SECTOR	POSITION	RRH		NOTES 1. CONTRACTOR TO REFER TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS. 2. ANTENNA AND RRH MODELS MAY CHANGE DUE TO EQUIPMENT AVAILABILITY. ALL EQUIPMENT CHANGES MUST BE APPROVED AND REMAIN IN COMPLIANCE WITH THE PROPOSED DESIGN AND STRUCTURAL ANALYSES.				
		MANUFACTURER – MODEL NUMBER	TECHNOLOGY					
ALPHA	A1	FUJITSU – TA08025–B604	5G					
	A1	FUJITSU – TA08025–B605	5G					
BETA	B1	FUJITSU – TA08025–B604	5G					
	B1	FUJITSU – TA08025–B605	5G					
GAMMA	C1	FUJITSU – TA08025–B604	5G					
	C1	FUJITSU – TA08025–B605	5G					

ANTENNA SCHEDULE

NO SCALE

3



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



520 South Main Street, Suite 2531
Akron, OH 44311
330.572.2100 Fax 330.572.2101

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

DRAWN BY:	CHECKED BY:	APPROVED BY:
ACM	CJM	MRL

RFDS REV #: ---

PRELIMINARY DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
A	08/08/2022	ISSUED FOR REVIEW

A&E PROJECT NUMBER
2021724.75.827008.02

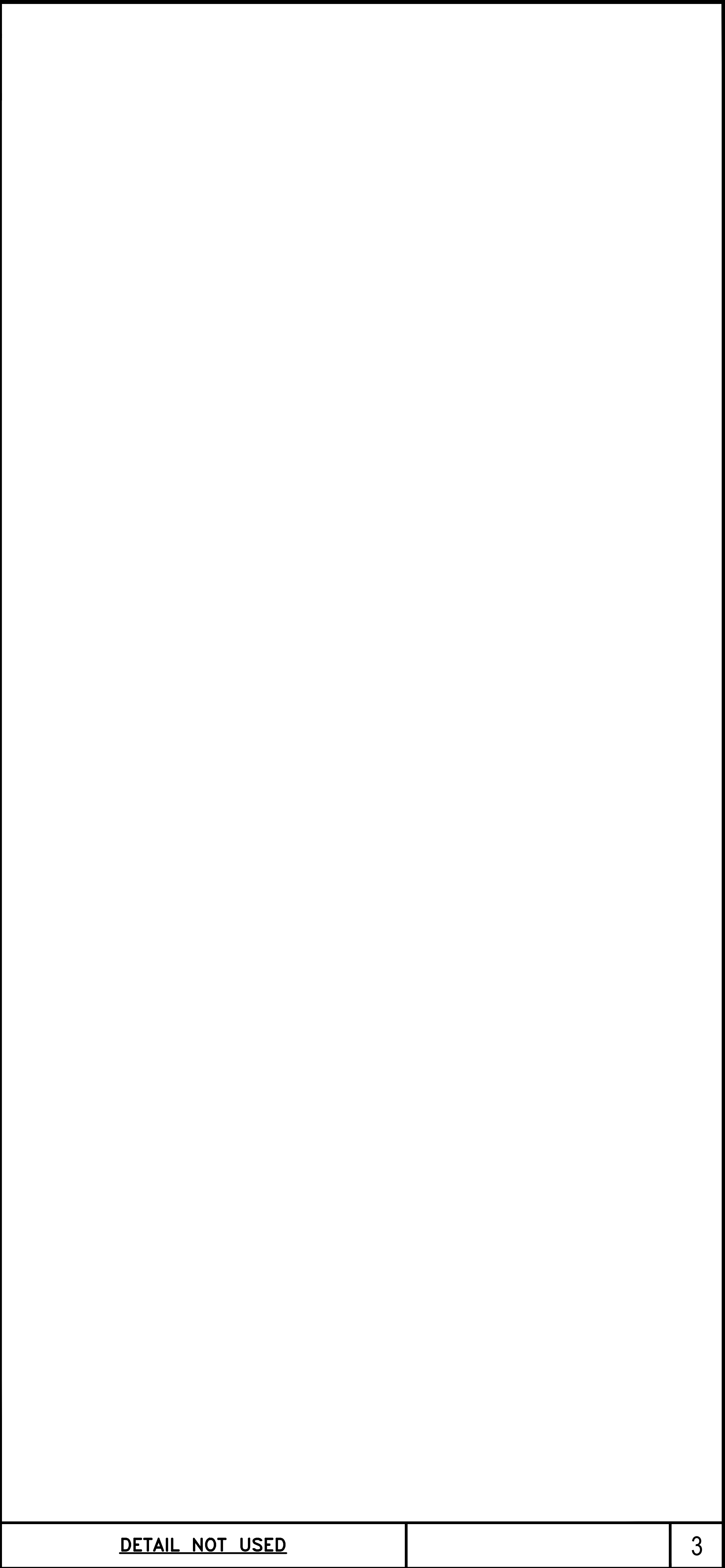
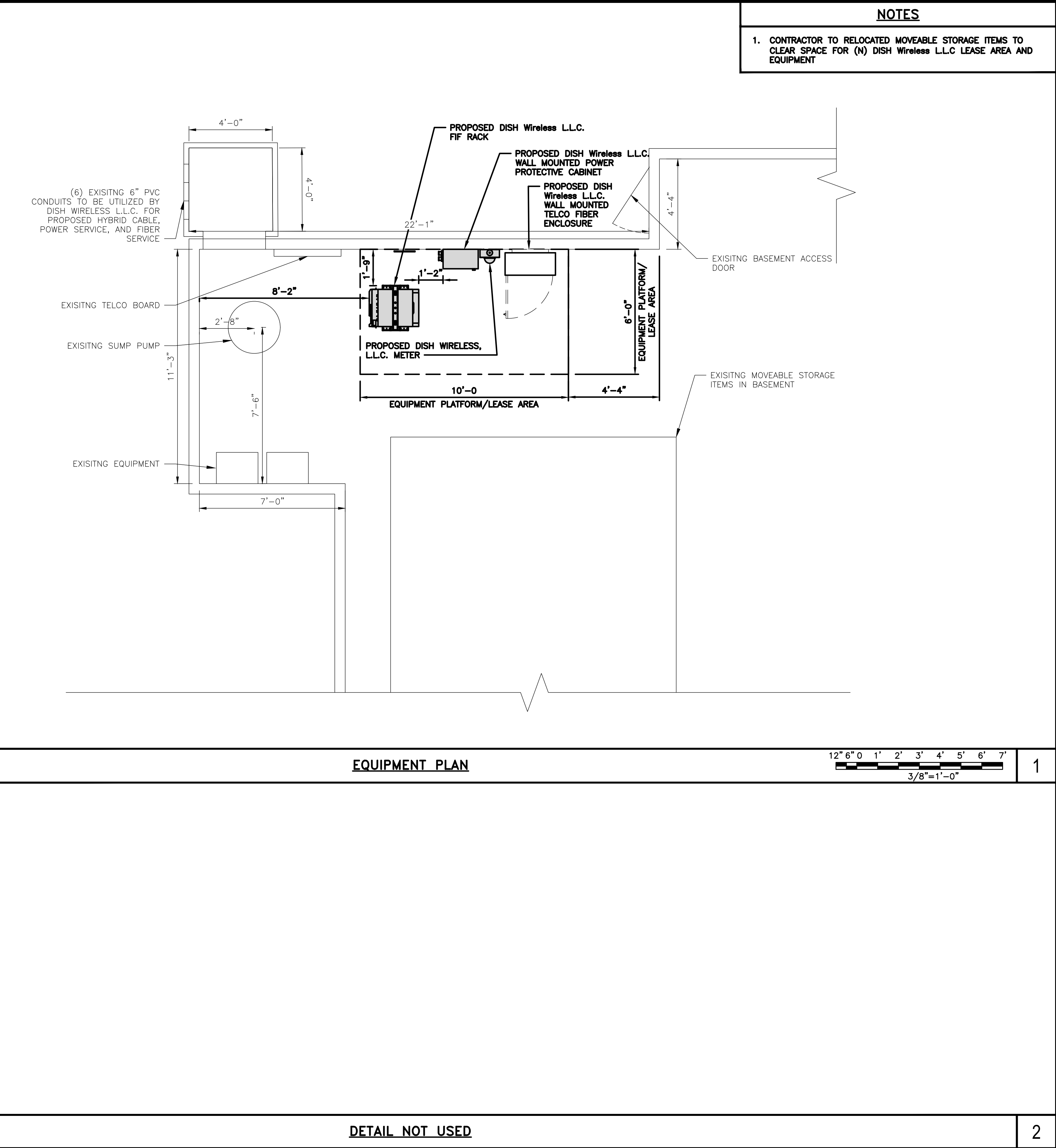
DISH Wireless L.L.C.
PROJECT INFORMATION

MWMKE00252B
8615 N PORT WASHINGTON RD
FOX POINT, WI 53217

SHEET TITLE
ELEVATION, ANTENNA
LAYOUT AND SCHEDULE

SHEET NUMBER

A-2



dish

wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

GPD GROUP, INC.®

520 South Main Street, Suite 2531
Akron, OH 44311
330.572.2100 Fax 330.572.2101

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

DRAWN BY:ACM

CHECKED BY:CJM

APPROVED BY:MRL

RFDS REV #:---

PRELIMINARY DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	08/08/2022	ISSUED FOR REVIEW

A&E PROJECT NUMBER

2021724.75.827008.02

DISH Wireless L.L.C.
PROJECT INFORMATION

MWMKE00252B
8615 N PORT WASHINGTON RD
FOX POINT, WI 53217

SHEET TITLE

EQUIPMENT PLAN

SHEET NUMBER

A-3

FIF RACK
LOADED

DIMENSIONS (HxWxD):83.99"x26"x28.5"

WEIGHT:±800 lbs

PLAN

SIDE

FRONT

PROPOSED 1/2"Ø STAINLESS STEEL
HILTI KWIK BOLT T22 ANCHOR WITH
3-1/4" EFFECTIVE EMBEDMENT (ICC
ESR-4266)

PROPOSED FIF RACK

PROPOSED SHIM PLATES AS
NECESSARY OR IF REQUIRED

EXISTING PRECAST
CONCRETE SHELTER
FLOOR (F.V.)

3 1/4"
EMBEDMENT

FIF RACK DETAIL

NO SCALE

1

FIF RACK ANCHORAGE

NO SCALE

2

NOT USED

NO SCALE

3

EATON METER SOCKET
UNRRS213BEUSE

METER SOCKET TYPERING

ENCLOSURE DIM (HxWxD)16"x12"x6"

MAIN AMPERE RATING200A

WEIGHT18 LBS

PLAN

SIDE

BACK

FRONT

CHARLES CFIT-PF2020DSH1
FIBER TELCO ENCLOSURE

ENCLOSURE DIMS (HxWxD)20"x20"x9"

ENCLOSURE WEIGHT20 lbs

MOUNTINGWALL

COMPLIANCETYPE 4

FRONT

SIDE

BACK

FRONT

METER SOCKET DETAIL

NO SCALE

4

NOT USED

NO SCALE

5

FIBER TELCO ENCLOSURE DETAIL

NO SCALE

6

RAYCAP PPC
RDIAC-2465-P-240-MTS

ENCLOSURE DIMENSIONS (HxWxD):39"x22.855"x12.593

WEIGHT:80 lbs

OPERATING AC VOLTAGE240/120 1 PHASE 3W+G

TOP

BACK

SIDE

FRONT

SIDE

POWER PROTECTION CABINET (PPC) DETAIL

NO SCALE

7

NOT USED

NO SCALE

8

NOT USED

NO SCALE

9

DISH Wireless L.L.C. TEMPLATE VERSION 38 – 07/23/2021

dish
wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

REFERENCE
ONLY

IT IS A VIOLATION OF LAW FOR ANY PERSON,
UNLESS THEY ARE ACTING UNDER THE DIRECTION
OF A LICENSED PROFESSIONAL ENGINEER,
TO ALTER THIS DOCUMENT.

DRAWN BY:ACM

CHECKED BY:CJM

APPROVED BY:MRL

RFDS REV #:---

PRELIMINARY
DOCUMENTS

SUBMITTALS

REVDATEDESCRIPTION

A08/08/2022ISSUED FOR REVIEW

A&E PROJECT NUMBER

2021724.75.827008.02

DISH Wireless L.L.C.
PROJECT INFORMATION

MWMKE00252B
8615 N PORT WASHINGTON RD
FOX POINT, WI 53217

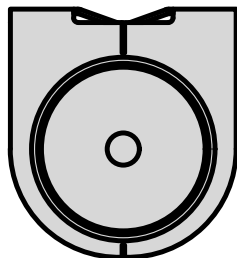
SHEET TITLE

EQUIPMENT DETAILS

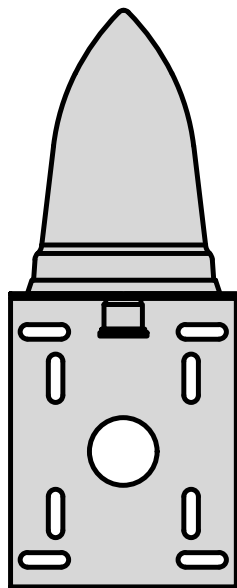
SHEET NUMBER

A-4

PCTEL GPSGL-TMG-SPI-40NCB	
DIMENSIONS (DIAxH) MM/INCH	81x184mm 3.2"x7.25"
WEIGHT W/ACCESSORIES	075 lbs
CONNECTOR	N-FEMALE
FREQUENCY RANGE	1590 ± 30MHz

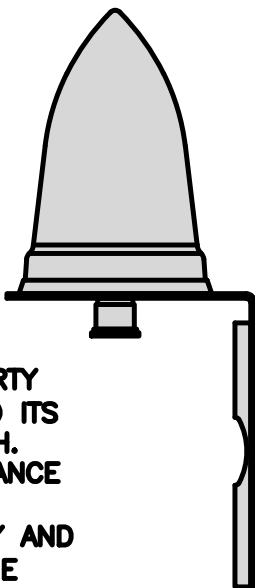


TOP

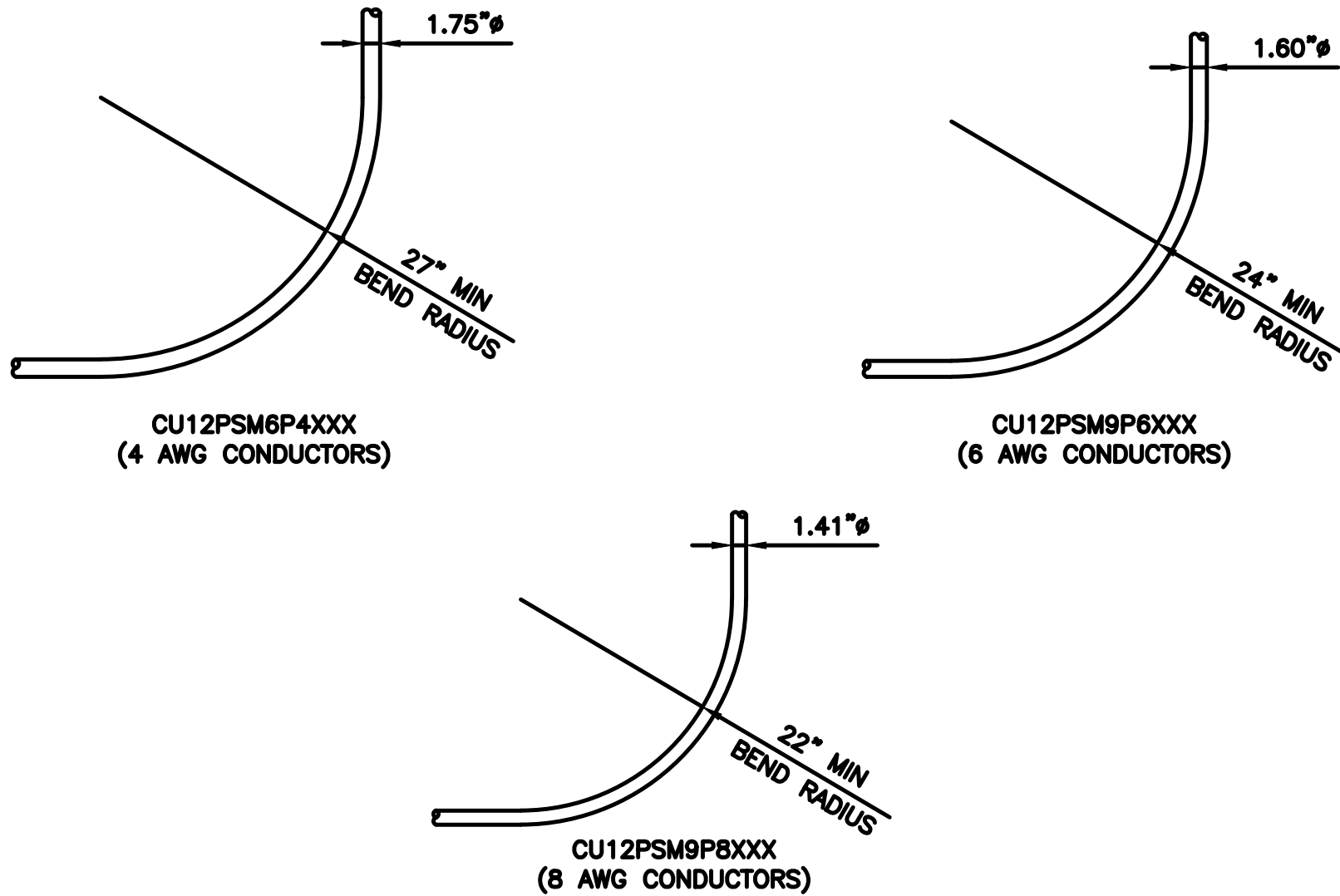
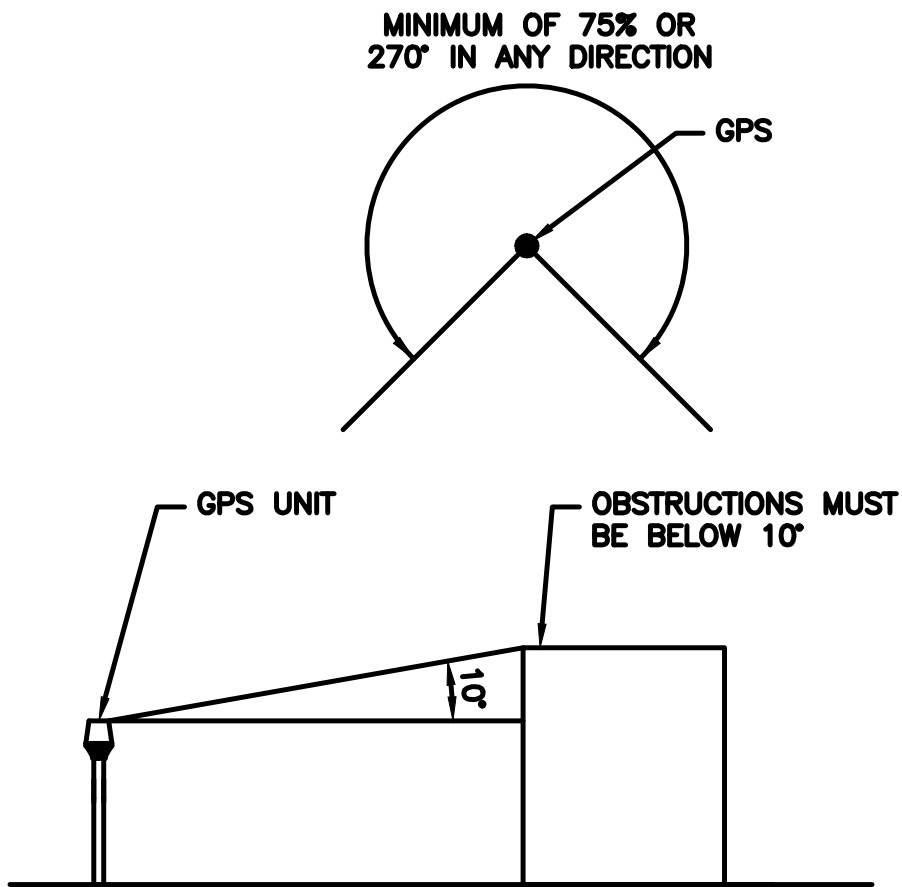


SIDE

THIS DETAIL HAS NOT BEEN REVIEWED BY THE STAMPING PARTY. THEREFORE, THE STAMPING PARTY MAKES NO REPRESENTATION(S) WITH RESPECT TO ITS CONTENTS, AND SHALL NOT BE LIABLE FOR SUCH. THIS DETAIL IS FOR REFERENCE ONLY. ANY RELIANCE ON THIS DETAIL SHALL BE AT THE RELYING PARTY(IES)'S OWN RISK AND HEREBY WAIVES ANY AND ALL CLAIM(S) RELATED TO THE EXISTENCE OF THE STAMP OR OTHERWISE.



BACK



GPS DETAIL

NO SCALE

1

GPS MINIMUM SKY VIEW REQUIREMENTS

NO SCALE

2

CABLES UNLIMITED HYBRID CABLE
MINIMUM BEND RADIUSES

NO SCALE

3

NOT USED

NO SCALE

4

NOT USED

NO SCALE

5

NOT USED

NO SCALE

6

NOT USED

NO SCALE

7

NOT USED

NO SCALE

8

NOT USED

NO SCALE

9



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



520 South Main Street, Suite 2531
Akron, OH 44311
330.572.2100 Fax 330.572.2101

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

DRAWN BY:	CHECKED BY:	APPROVED BY:
ACM	CJM	MRL

RFDS REV #: ---

PRELIMINARY DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
A	08/08/2022	ISSUED FOR REVIEW

A&E PROJECT NUMBER
2021724.75.827008.02

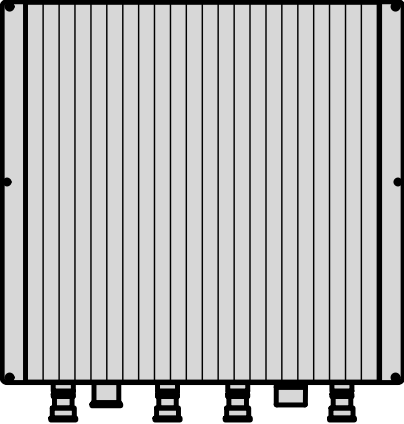
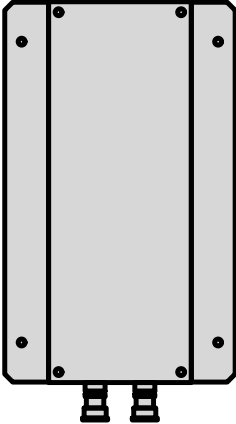
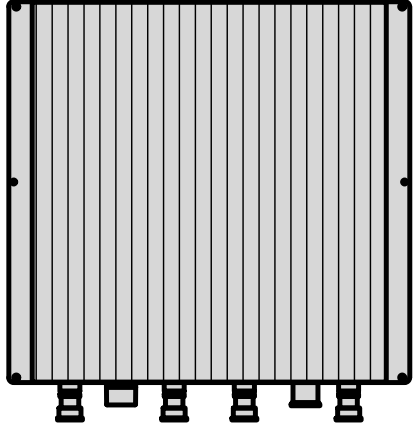
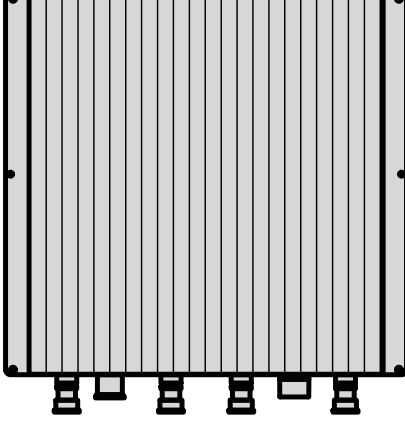
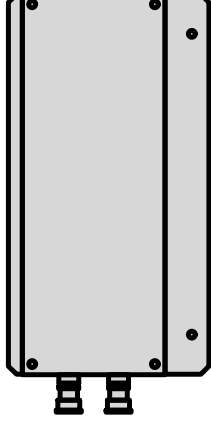
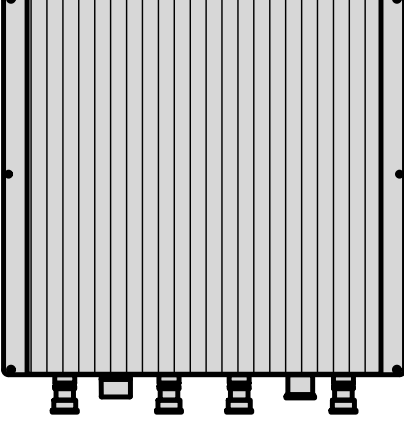
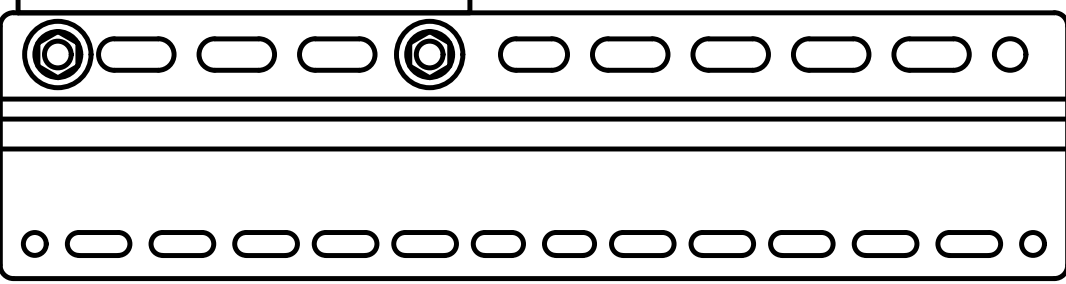
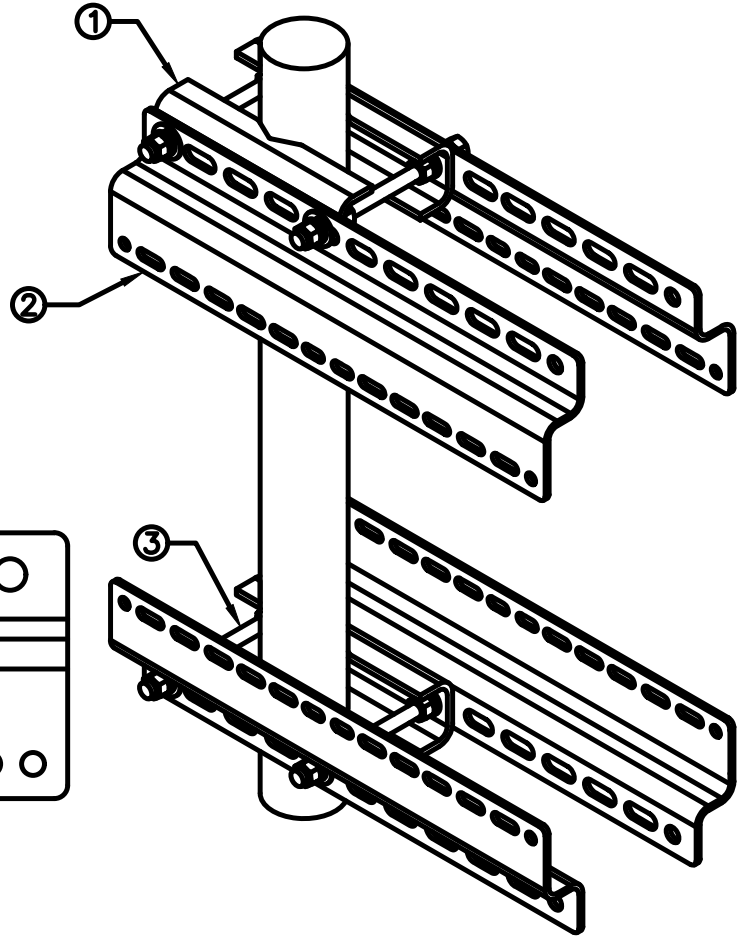
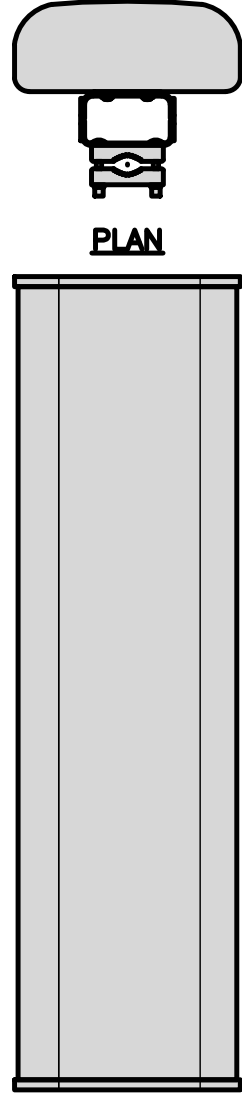
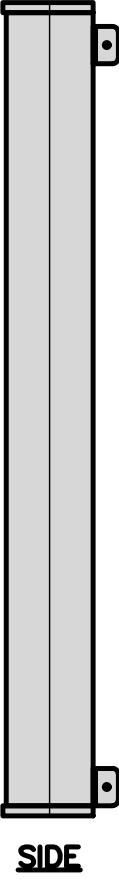
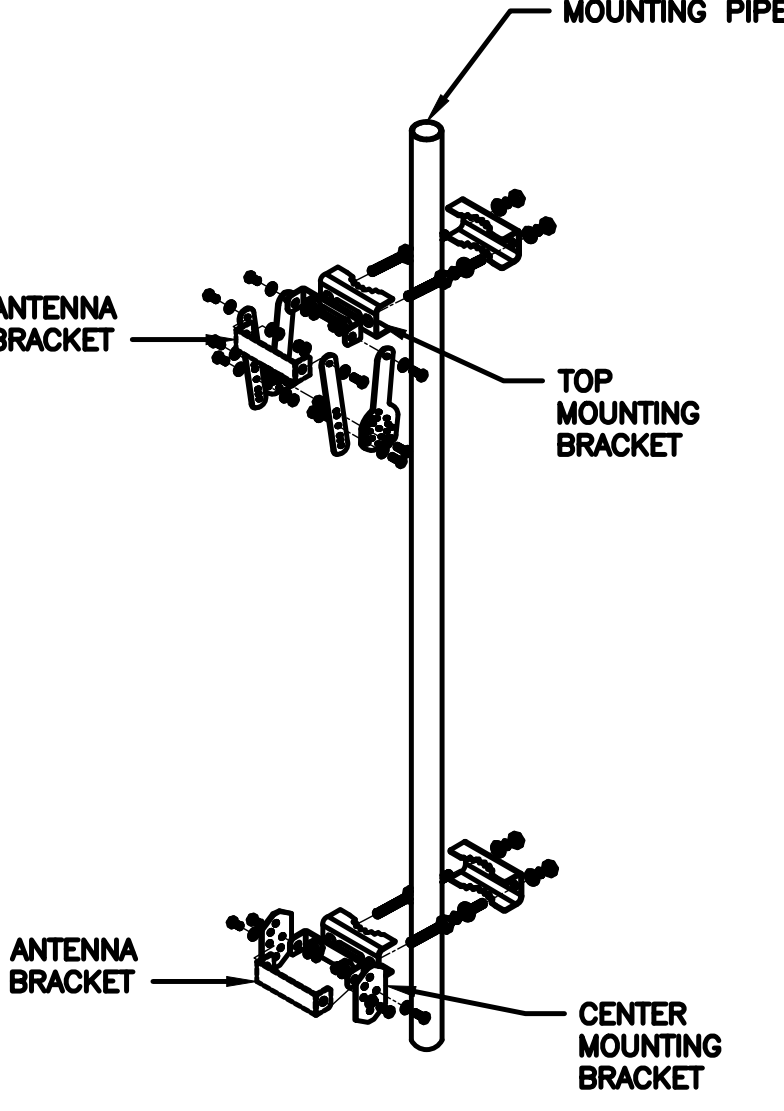
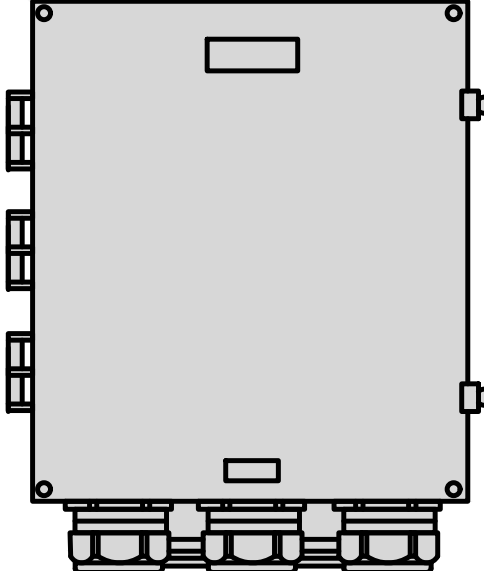
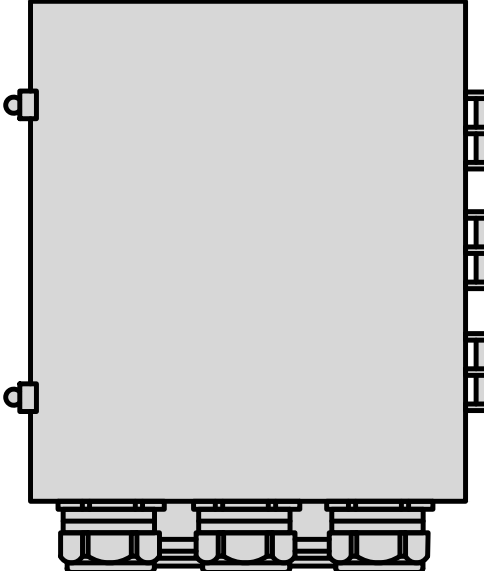
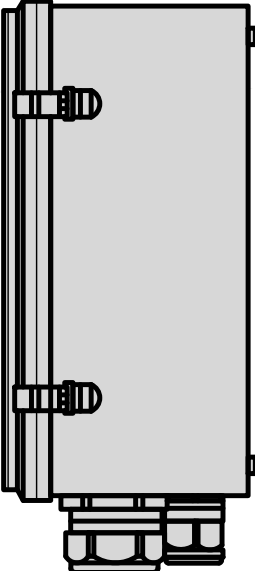
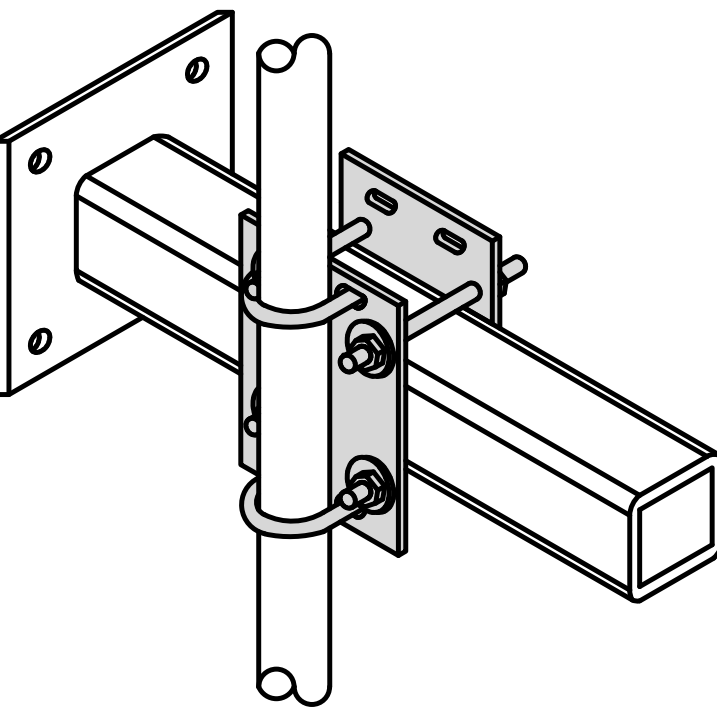
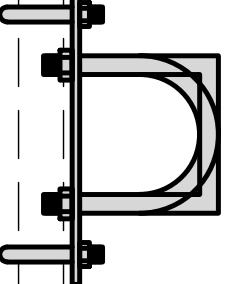
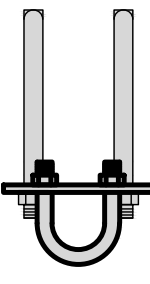
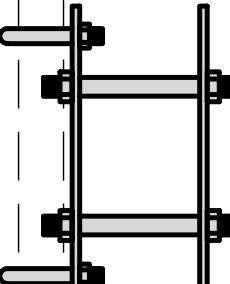
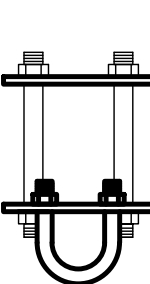
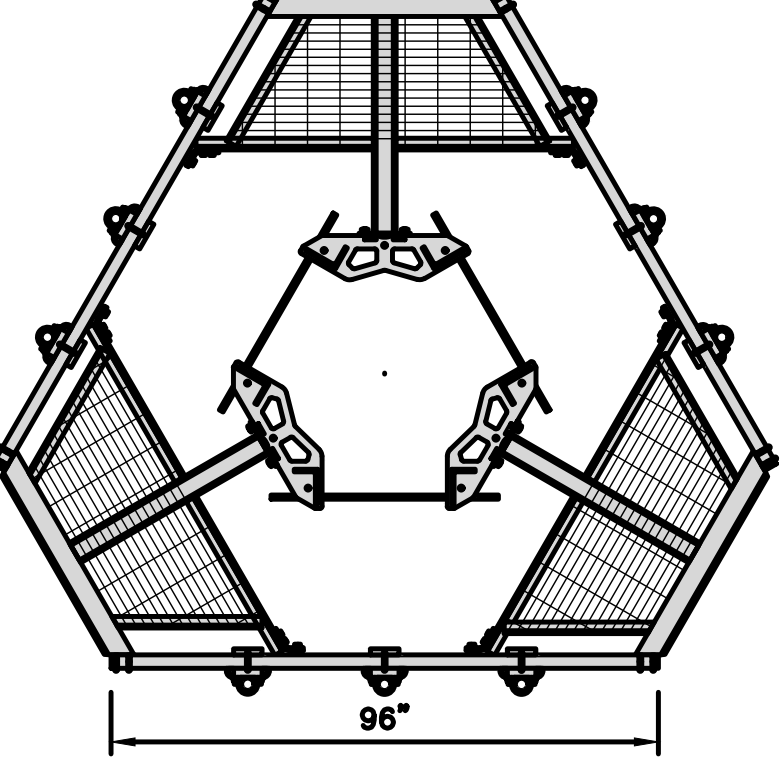
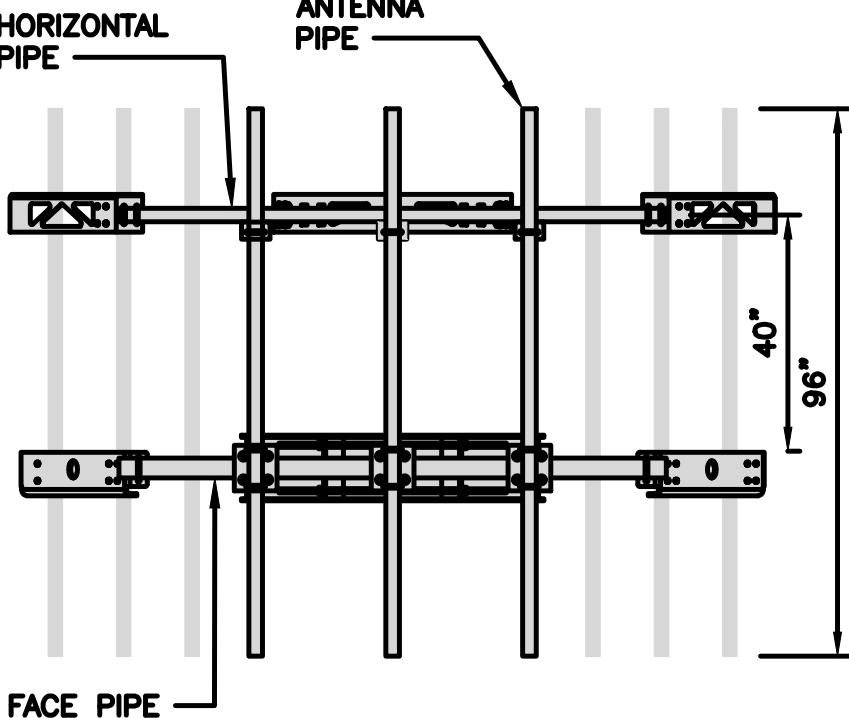
DISH Wireless L.L.C.
PROJECT INFORMATION

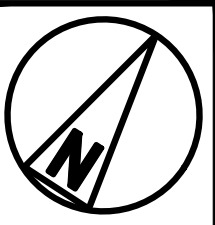
MWMKE00252B
8615 N PORT WASHINGTON RD
FOX POINT, WI 53217

SHEET TITLE
EQUIPMENT DETAILS

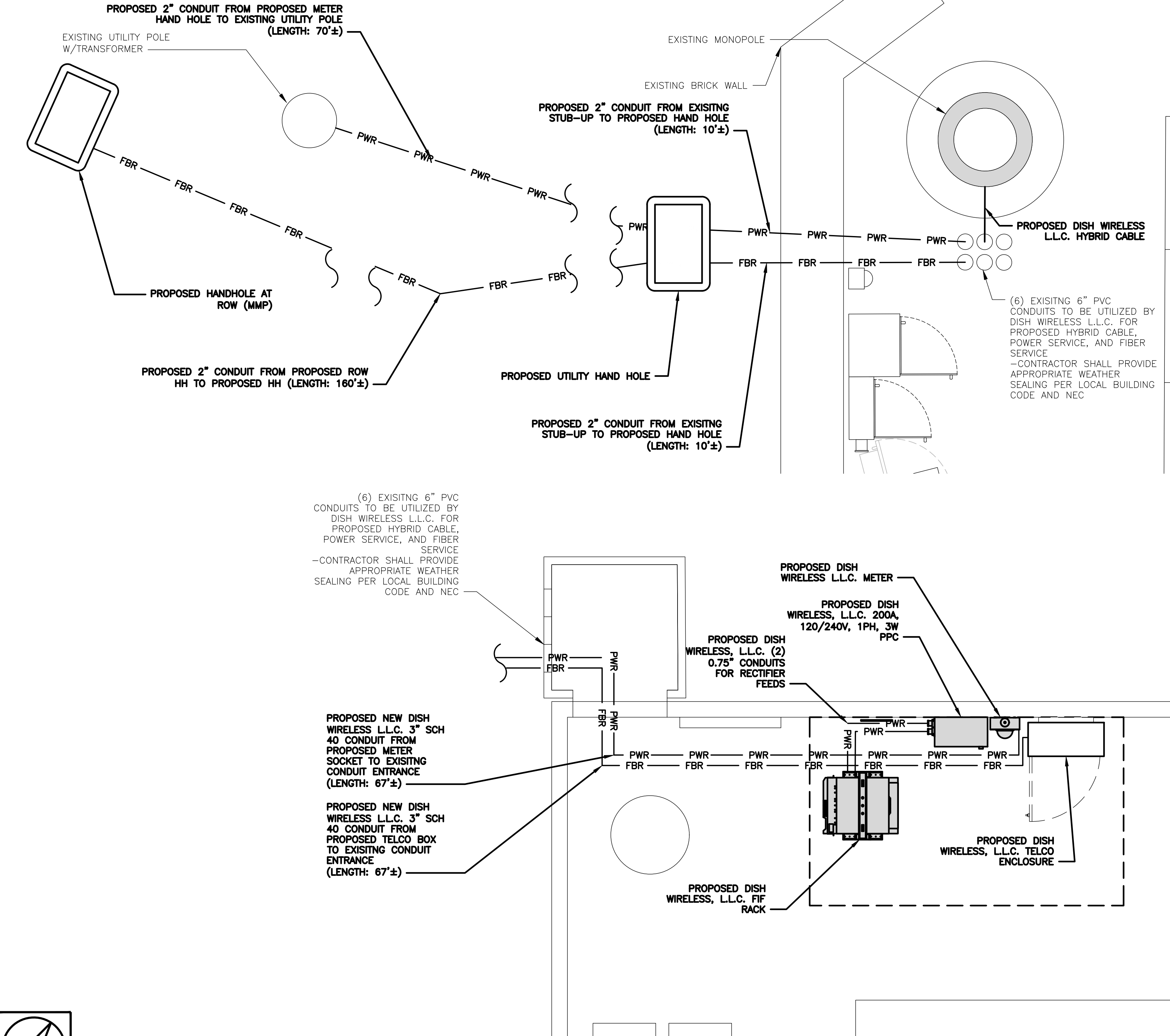
SHEET NUMBER

A-5

<table><tr><td colspan="2">FUJITSU TRIPLE BAND TA08025-B605</td></tr><tr><td>DIMENSIONS (HxWxD)</td><td>14.9"x15.7"x9"</td></tr><tr><td>WEIGHT</td><td>74.95 lbs</td></tr><tr><td>CONNECTOR TYPE</td><td>4.3-10 RF CONNECTOR</td></tr><tr><td>POWER SUPPLY</td><td>DC -58~-36V</td></tr></table>  PLAN			FUJITSU TRIPLE BAND TA08025-B605		DIMENSIONS (HxWxD)	14.9"x15.7"x9"	WEIGHT	74.95 lbs	CONNECTOR TYPE	4.3-10 RF CONNECTOR	POWER SUPPLY	DC -58~-36V	<table><tr><td colspan="2">FUJITSU DUAL BAND TA08025-B604</td></tr><tr><td>DIMENSIONS (HxWxD)</td><td>14.9"x15.7"x7.8"</td></tr><tr><td>WEIGHT</td><td>63.9 lbs</td></tr><tr><td>CONNECTOR TYPE</td><td>4.3-10 RF CONNECTOR</td></tr><tr><td>POWER SUPPLY</td><td>DC -58~-36V</td></tr></table>  PLAN			FUJITSU DUAL BAND TA08025-B604		DIMENSIONS (HxWxD)	14.9"x15.7"x7.8"	WEIGHT	63.9 lbs	CONNECTOR TYPE	4.3-10 RF CONNECTOR	POWER SUPPLY	DC -58~-36V	<table><tr><td colspan="2">SABRE DOUBLE Z-BRACKET C10123155</td></tr><tr><td>DIMENSIONS (HxWxD) (1 BRACKET)</td><td>5"x20"x1-13/16"</td></tr><tr><td>WEIGHT (FULL ASSEMBLY)</td><td>35.79 lbs</td></tr><tr><td>PACKAGE QUANTITY</td><td>4</td></tr></table> <table><tr><td>#</td><td>DESCRIPTION</td></tr><tr><td>1</td><td>PLATE, CHANNEL BRACKET</td></tr><tr><td>2</td><td>RRH Z BRACKET, 3/16"</td></tr><tr><td>3</td><td>THREADED ROD ASSEMBLY 1/2"x12"</td></tr></table>   NOTE: OR DISH Wireless L.L.C. APPROVED EQUIVALENT			SABRE DOUBLE Z-BRACKET C10123155		DIMENSIONS (HxWxD) (1 BRACKET)	5"x20"x1-13/16"	WEIGHT (FULL ASSEMBLY)	35.79 lbs	PACKAGE QUANTITY	4	#	DESCRIPTION	1	PLATE, CHANNEL BRACKET	2	RRH Z BRACKET, 3/16"	3	THREADED ROD ASSEMBLY 1/2"x12"	<table><tr><td colspan="2">RRH DETAIL</td><td>NO SCALE</td><td>1</td></tr></table>			RRH DETAIL		NO SCALE	1	<table><tr><td colspan="2">RRH DETAIL</td><td>NO SCALE</td><td>2</td></tr></table>			RRH DETAIL		NO SCALE	2	<table><tr><td colspan="2">RRH MOUNT DETAIL</td><td>NO SCALE</td><td>3</td></tr></table>			RRH MOUNT DETAIL		NO SCALE	3
FUJITSU TRIPLE BAND TA08025-B605																																																																	
DIMENSIONS (HxWxD)	14.9"x15.7"x9"																																																																
WEIGHT	74.95 lbs																																																																
CONNECTOR TYPE	4.3-10 RF CONNECTOR																																																																
POWER SUPPLY	DC -58~-36V																																																																
FUJITSU DUAL BAND TA08025-B604																																																																	
DIMENSIONS (HxWxD)	14.9"x15.7"x7.8"																																																																
WEIGHT	63.9 lbs																																																																
CONNECTOR TYPE	4.3-10 RF CONNECTOR																																																																
POWER SUPPLY	DC -58~-36V																																																																
SABRE DOUBLE Z-BRACKET C10123155																																																																	
DIMENSIONS (HxWxD) (1 BRACKET)	5"x20"x1-13/16"																																																																
WEIGHT (FULL ASSEMBLY)	35.79 lbs																																																																
PACKAGE QUANTITY	4																																																																
#	DESCRIPTION																																																																
1	PLATE, CHANNEL BRACKET																																																																
2	RRH Z BRACKET, 3/16"																																																																
3	THREADED ROD ASSEMBLY 1/2"x12"																																																																
RRH DETAIL		NO SCALE	1																																																														
RRH DETAIL		NO SCALE	2																																																														
RRH MOUNT DETAIL		NO SCALE	3																																																														
<table><tr><td colspan="2">JMA MX08FR0665-21</td></tr><tr><td>DIMENSIONS (HxWxD)</td><td>72"x20.0"x8.0"</td></tr><tr><td>RF PORTS, CONNECTOR TYPE</td><td>8 x 4.3-10 FEMALE</td></tr><tr><td>WEIGHT</td><td>64.5 lbs</td></tr><tr><td>WEIGHT WITH BRACKETS</td><td>82.5 lbs</td></tr></table>  PLAN			JMA MX08FR0665-21		DIMENSIONS (HxWxD)	72"x20.0"x8.0"	RF PORTS, CONNECTOR TYPE	8 x 4.3-10 FEMALE	WEIGHT	64.5 lbs	WEIGHT WITH BRACKETS	82.5 lbs				<table><tr><td colspan="2">JMA ANTENNA MOUNT BRACKET #91900318</td></tr><tr><td>TOTAL WEIGHT (WITH BRACKETS)</td><td>18 lbs (8.18 Kg)</td></tr><tr><td>POLE DIAMETER RANGE</td><td>2.5" TO 4.5"</td></tr></table> NOTE: KIT #91900318: TOP AND BOTTOM BRACKETS FOR 4-, 6-, AND 8-FOOT ANTENNAS ANTENNA BRACKET NOT PART OF KIT  NOTE: OR DISH Wireless L.L.C. APPROVED EQUIVALENT			JMA ANTENNA MOUNT BRACKET #91900318		TOTAL WEIGHT (WITH BRACKETS)	18 lbs (8.18 Kg)	POLE DIAMETER RANGE	2.5" TO 4.5"	<table><tr><td colspan="2">ANTENNA DETAIL</td><td>NO SCALE</td><td>4</td></tr></table>			ANTENNA DETAIL		NO SCALE	4	<table><tr><td colspan="2">NOT USED</td><td>NO SCALE</td><td>5</td></tr></table>			NOT USED		NO SCALE	5	<table><tr><td colspan="2">ANTENNA BRACKET DETAIL</td><td>NO SCALE</td><td>6</td></tr></table>			ANTENNA BRACKET DETAIL		NO SCALE	6																				
JMA MX08FR0665-21																																																																	
DIMENSIONS (HxWxD)	72"x20.0"x8.0"																																																																
RF PORTS, CONNECTOR TYPE	8 x 4.3-10 FEMALE																																																																
WEIGHT	64.5 lbs																																																																
WEIGHT WITH BRACKETS	82.5 lbs																																																																
JMA ANTENNA MOUNT BRACKET #91900318																																																																	
TOTAL WEIGHT (WITH BRACKETS)	18 lbs (8.18 Kg)																																																																
POLE DIAMETER RANGE	2.5" TO 4.5"																																																																
ANTENNA DETAIL		NO SCALE	4																																																														
NOT USED		NO SCALE	5																																																														
ANTENNA BRACKET DETAIL		NO SCALE	6																																																														
<table><tr><td colspan="2">RAYCAP RDIDC-9181-PF-48 DC SURGE PROTECTION (OVP)</td></tr><tr><td>DIMENSIONS (HxWxD)</td><td>18.98"x14.39"x8.15"</td></tr><tr><td>WEIGHT</td><td>21.82 LBS</td></tr></table>  PLAN			RAYCAP RDIDC-9181-PF-48 DC SURGE PROTECTION (OVP)		DIMENSIONS (HxWxD)	18.98"x14.39"x8.15"	WEIGHT	21.82 LBS	<table><tr><td colspan="2">COMMSCOPE XP-2040 CROSSOVER PLATE</td></tr><tr><td>DIMENSIONS (HxW)</td><td>10"x12"</td></tr><tr><td>WEIGHT</td><td>11 lbs</td></tr></table>  NOTE: OR DISH Wireless L.L.C. APPROVED EQUIVALENT			COMMSCOPE XP-2040 CROSSOVER PLATE		DIMENSIONS (HxW)	10"x12"	WEIGHT	11 lbs	<table><tr><td colspan="2">COMMSCOPE MC-PK8-DSH</td></tr><tr><td>FACE WIDTH</td><td>96"</td></tr><tr><td>WEIGHT</td><td>1373.08 lbs</td></tr><tr><td colspan="2">NOTE: 15" TO 38" O.D.</td></tr></table>  NOTE: OR DISH Wireless L.L.C. APPROVED EQUIVALENT			COMMSCOPE MC-PK8-DSH		FACE WIDTH	96"	WEIGHT	1373.08 lbs	NOTE: 15" TO 38" O.D.		<table><tr><td colspan="2">SURGE SUPPRESSION DETAIL (OVP)</td><td>NO SCALE</td><td>7</td></tr></table>			SURGE SUPPRESSION DETAIL (OVP)		NO SCALE	7	<table><tr><td colspan="2">RRH/OVP MOUNT DETAIL</td><td>NO SCALE</td><td>8</td></tr></table>			RRH/OVP MOUNT DETAIL		NO SCALE	8	<table><tr><td colspan="2">ANTENNA PLATFORM DETAIL</td><td>NO SCALE</td><td>9</td></tr></table>			ANTENNA PLATFORM DETAIL		NO SCALE	9																
RAYCAP RDIDC-9181-PF-48 DC SURGE PROTECTION (OVP)																																																																	
DIMENSIONS (HxWxD)	18.98"x14.39"x8.15"																																																																
WEIGHT	21.82 LBS																																																																
COMMSCOPE XP-2040 CROSSOVER PLATE																																																																	
DIMENSIONS (HxW)	10"x12"																																																																
WEIGHT	11 lbs																																																																
COMMSCOPE MC-PK8-DSH																																																																	
FACE WIDTH	96"																																																																
WEIGHT	1373.08 lbs																																																																
NOTE: 15" TO 38" O.D.																																																																	
SURGE SUPPRESSION DETAIL (OVP)		NO SCALE	7																																																														
RRH/OVP MOUNT DETAIL		NO SCALE	8																																																														
ANTENNA PLATFORM DETAIL		NO SCALE	9																																																														



UTILITY ROUTE PLAN



NOTES

1. CONTRACTOR SHALL FIELD VERIFY ALL PROPOSED UNDERGROUND UTILITY CONDUIT ROUTE.
2. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.
3. DUE TO UTILITY EASEMENT RIGHTS SPECIFIED IN THE GROUND LEASE, CUSTOMER MAY INSTALL EQUIPMENT WITHIN SPECIFIED UTILITY EASEMENT AREA. 'PWR' AND 'FBR' PATH DEPICTED ON A-1 AND E-1 REPRESENT PLANNED ROUTING BASED ON BEST AVAILABLE INFORMATION INCLUDING BUT NOT LIMITED TO A SURVEY, EXHIBITS, METES AND BOUNDS OF THE UTILITY EASEMENT, FIELD VERIFICATION, PRIOR PROJECT DOCUMENTATION AND OTHER REAL PROPERTY RIGHTS DOCUMENTS. WHEN INSTALLING THE UTILITIES PLEASE LOCATE AND FOLLOW EXISTING PATH. IF EXISTING PATH IS MATERIALLY INCONSISTENT WITH THE 'PWR' AND 'FBR' PATH DEPICTED ON A-1 AND E-1 AND SAID VARIANCE IS NOT NOTED ON CDS, PLEASE NOTIFY CROWN CASTLE REAL ESTATE AS FURTHER COORDINATION MAY BE NEEDED.

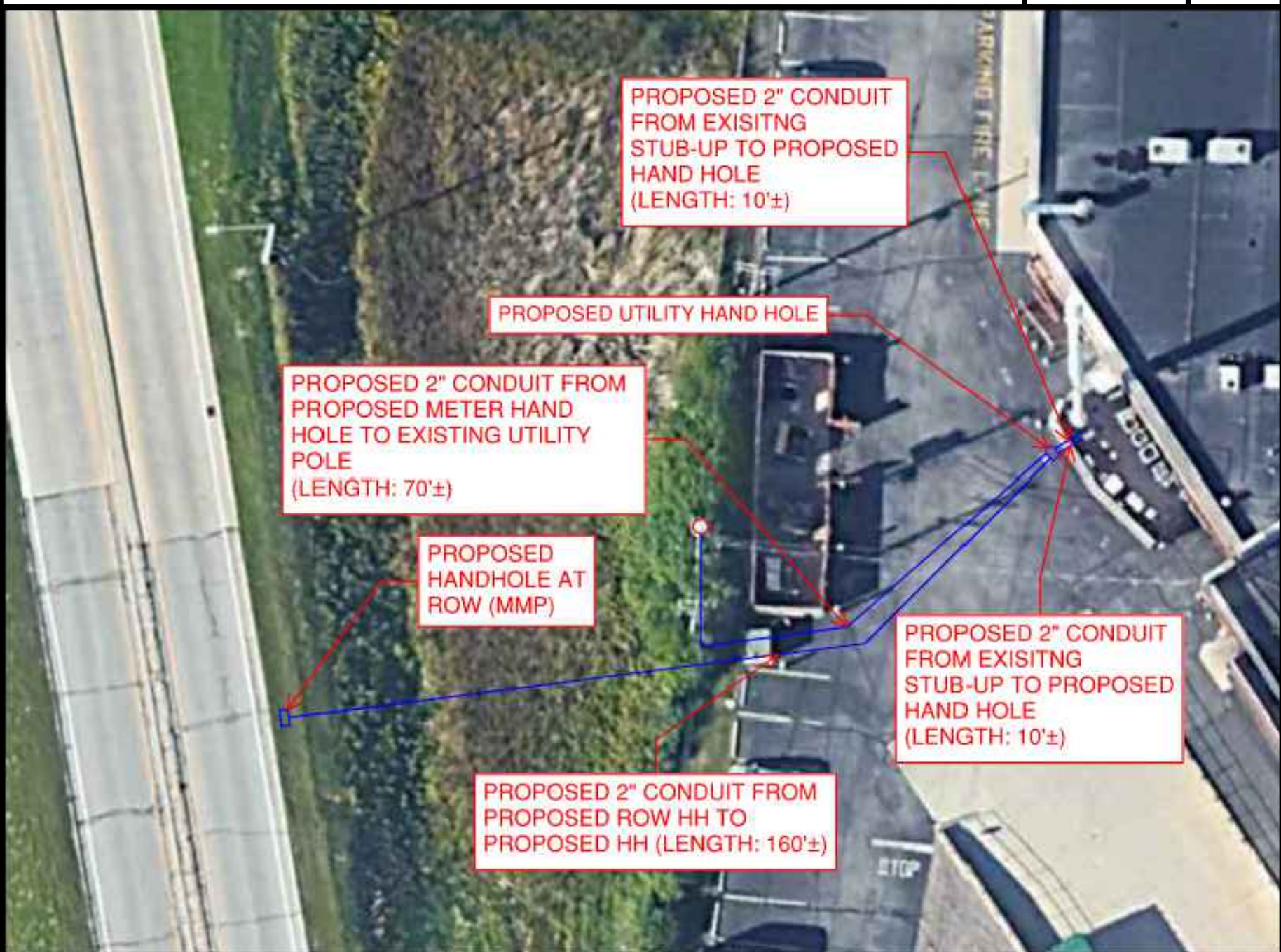
DC POWER WIRING SHALL BE COLOR CODED AT EACH END FOR IDENTIFYING +24V AND -48V CONDUCTORS. RED MARKINGS SHALL IDENTIFY +24V AND BLUE MARKINGS SHALL IDENTIFY -48V.

1. CONTRACTOR SHALL INSPECT THE EXISTING CONDITIONS PRIOR TO SUBMITTING A BID. ANY QUESTIONS ARISING DURING THE BID PERIOD IN REGARDS TO THE CONTRACTOR'S FUNCTIONS, THE SCOPE OF WORK, OR ANY OTHER ISSUE RELATED TO THIS PROJECT SHALL BE BROUGHT UP DURING THE BID PERIOD WITH THE PROJECT MANAGER FOR CLARIFICATION, NOT AFTER THE CONTRACT HAS BEEN AWARDED.
2. ALL ELECTRICAL WORK SHALL BE DONE IN ACCORDANCE WITH CURRENT NATIONAL ELECTRICAL CODES AND ALL STATE AND LOCAL CODES, LAWS, AND ORDINANCES. PROVIDE ALL COMPONENTS AND WIRING SIZES AS REQUIRED TO MEET NEC STANDARDS.
3. LOCATION OF EQUIPMENT, CONDUIT AND DEVICES SHOWN ON THE DRAWINGS ARE APPROXIMATE AND SHALL BE COORDINATED WITH FIELD CONDITIONS PRIOR TO CONSTRUCTION.
4. CONDUIT ROUGH-IN SHALL BE COORDINATED WITH THE MECHANICAL EQUIPMENT TO AVOID LOCATION CONFLICTS. VERIFY WITH THE MECHANICAL EQUIPMENT CONTRACTOR AND COMPLY AS REQUIRED.
5. CONTRACTOR SHALL PROVIDE ALL BREAKERS, CONDUITS AND CIRCUITS AS REQUIRED FOR A COMPLETE SYSTEM.
6. CONTRACTOR SHALL PROVIDE PULL BOXES AND JUNCTION BOXES AS REQUIRED BY THE NEC ARTICLE 314.
7. CONTRACTOR SHALL PROVIDE ALL STRAIN RELIEF AND CABLE SUPPORTS FOR ALL CABLE ASSEMBLIES. INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS.
8. ALL DISCONNECTS AND CONTROLLING DEVICES SHALL BE PROVIDED WITH ENGRAVED PHENOLIC NAMEPLATES INDICATING EQUIPMENT CONTROLLED, BRANCH CIRCUITS INSTALLED ON, AND PANEL FIELD LOCATIONS FED FROM.
9. INSTALL AN EQUIPMENT GROUNDING CONDUCTOR IN ALL CONDUITS PER THE SPECIFICATIONS AND NEC 250. THE EQUIPMENT GROUNDING CONDUCTORS SHALL BE BONDED AT ALL JUNCTION BOXES, PULL BOXES, AND ALL DISCONNECT SWITCHES, AND EQUIPMENT CABINETS.
10. ALL NEW MATERIAL SHALL HAVE A U.L. LABEL.
11. PANEL SCHEDULE LOADING AND CIRCUIT ARRANGEMENTS REFLECT POST-CONSTRUCTION EQUIPMENT.
12. CONTRACTOR SHALL BE RESPONSIBLE FOR AS-BUILT PANEL SCHEDULE AND SITE DRAWINGS.
13. ALL TRENCHES IN COMPOUND TO BE HAND DUG

ELECTRICAL NOTES

NO SCALE

2



ARIEL ROUTE

NO SCALE

3



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



520 South Main Street, Suite 2531
Akron, OH 44311
330.572.2100 Fax 330.572.2101

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

DRAWN BY: CHECKED BY: APPROVED BY:

ACM CJM MRL

RFDS REV #: ---

PRELIMINARY DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
A	08/08/2022	ISSUED FOR REVIEW

A&E PROJECT NUMBER
2021724.75.827008.02

DISH Wireless L.L.C.
PROJECT INFORMATION

MWMKE00252B
8615 N PORT WASHINGTON RD
FOX POINT, WI 53217

SHEET TITLE
ELECTRICAL/FIBER ROUTE
PLAN AND NOTES

SHEET NUMBER
E-1

CARLON EXPANSION FITTINGS

COUPLING END PART#	MALE TERMINAL ADAPTER END PART#	SIZE	STD CTN QTY.	TRAVEL LENGTH
E945D	E945DX	1/2"	20	4"
E945E	E945EX	3/4"	15	4"
E945F	E945FX	1"	10	4"
E945G	E945GX	1 1/4"	5	4"
E945H	E945HX	1 1/2"	5	4"
E945J	E945JX	2"	15	8"
E945K	E945KX	2 1/2"	10	8"
E945L	E945LX	3"	10	8"
E945M	E945MX	3 1/2"	5	8"
E945N	E945NX	4"	5	8"
E945P	E945PX	5"	1	8"
E945R	E945RX	6"	1	8"

VARIES PER PART NUMBER

2'-0"

SLIP JOINT (SEE CHART FOR PART NUMBER)

NOTE: CONTRACTOR TO INSTALL EXPANSION FITTING SLIP JOINT AT METER CENTER CONDUIT TERMINATION, AS PER LOCAL UTILITY POLICY, ORDINANCE AND/OR SPECIFIED REQUIREMENT.

TRENCHING NOTES

1. CONTRACTOR SHALL RESTORE THE TRENCH TO ITS ORIGINAL CONDITIONS BY EITHER SEEDING OR SODDING GRASS AREAS, OR REPLACING ASPHALT OR CONCRETE AREAS TO ITS ORIGINAL CROSS SECTION.

2. TRENCHING SAFETY; INCLUDING, BUT NOT LIMITED TO SOIL CLASSIFICATION, SLOPING, AND SHORING, SHALL BE GOVERNED BY THE CURRENT OSHA TRENCHING AND EXCAVATION SAFETY STANDARDS.

3. ALL CONDUITS SHALL BE INSTALLED IN COMPLIANCE WITH THE CURRENT NATIONAL ELECTRIC CODE (NEC) OR AS REQUIRED BY THE LOCAL JURISDICTION, WHICHEVER IS THE MOST STRINGENT.

SEE TRENCHING NOTE 1

BACKFILL PER SITE WORK SPECIFICATIONS (SEE GENERAL NOTES)

SLOPE TO SUIT SOIL CONDITION IN ACCORDANCE WITH LOCAL REGULATIONS SEE TRENCHING NOTE 2

U.L. SYSTEM NO. C-AJ-1150 BEARING WALLS SIMILAR TO U.L. DESIGN NO. F-RATING 3 HR T-RATING 0 HR

30" OR 6" BELOW FROST LINE, WHICHEVER IS GREATER

UTILITY WARNING TAPE

SAND BEDDING PER SITE WORK SPECIFICATIONS

VERTICAL DEPTH SEE TRENCHING NOTE 2

1'-0"

DISH Wireless L.L.C. PROVIDES 12AWG WIRE (6' TAIL)

PROPOSED DISH Wireless L.L.C. UNISTRUT

PROPOSED DISH Wireless L.L.C. 10 AMP DISTRIBUTION BREAKER

PROPOSED DISH Wireless L.L.C. 12 AWG WIRE

PROPOSED DISH Wireless L.L.C. 1-1/2" POWER FROM CABINET

DISH Wireless L.L.C. INSTALLS 1-1/2" CONDUITS FOR POWER AND FIBER TO CABINET

DISH Wireless L.L.C. FIBER DISTRIBUTION PANEL

PROPOSED DISH Wireless L.L.C. TELCO FIBER ENCLOSURE

DISH Wireless L.L.C. FIBER JUMPER TO CABINET WILL NEED TO BE TERMINATED BY FIBER PROVIDER ON OTHER SIDE OF BULKHEAD/LC TO LC CONNECTOR WHERE CIRCUIT IS TERMINATED.

PROPOSED FIBER PROVIDER FIBER LATERAL FROM RIGHT OF WAY TO STREET, TERMINATED TO FDP

PROPOSED DISH Wireless L.L.C. 1-1/2" FIBER TO CABINET

PROPOSED DISH Wireless L.L.C. 2" CONDUIT FROM COMMERCIAL FIBER VAULT

EXPANSION JOINT DETAIL

NO SCALE

1

PROPOSED DISH Wireless L.L.C. UNISTRUT

PROPOSED FIBER PROVIDER 1-1/4" FLEX CONDUITS

FIBER PROVIDER TO TERMINATE POWER TO FIBER PROVIDER NID

PROPOSED DISH Wireless L.L.C. 12 AWG WIRE (6' TAIL)

PROPOSED DISH Wireless L.L.C. 10 AMP DISTRIBUTION BREAKER

PROPOSED DISH Wireless L.L.C. 12 AWG WIRE

PROPOSED DISH Wireless L.L.C. 1-1/2" POWER FROM CABINET

NOTE: FIBER PROVIDER WILL NEED TO PROVIDE AN ADDITIONAL 5FT UNISTRUT, 2 U-BOLTS WITH 4 NUTS, IN THE EVENT THE BRACKET SPACING DOESN'T LINE UP WITH CURRENT SPACING BELOW

FIBER PROVIDER TO PUNCH TOP OF TELCO BOX OF NID ENCLOSURE AND INSTALL 1-1/4" LIQUID TIGHT CONNECTORS, UL LISTED, NYLON MATERIAL, WITH O-RING GASKET

FIBER PROVIDER TO INSTALL 1-1/4" FLEX CONDUITS BETWEEN FDP TELCO BOX & NID

PROPOSED DISH Wireless L.L.C. TELCO FIBER ENCLOSURE

PROPOSED DISH Wireless L.L.C. 1-1/2" FIBER TO CABINET

PROPOSED DISH Wireless L.L.C. 2" CONDUIT FROM COMMERCIAL FIBER VAULT

TYPICAL UNDERGROUND TRENCH DETAIL

NO SCALE

2

A. FLOOR OR WALL ASSEMBLY: MINIMUM 4-1/2" THICK REINFORCED LIGHTWEIGHT OR NORMAL WEIGHT (100-150 PCF) CONCRETE. WALL MAY ALSO BE CONSTRUCTED OF ANY UL CLASSIFIED CONCRETE BLOCKS*. MAX. DIAMETER OF OPENING IS 4". (SEE CONCRETE BLOCKS CATZ) CATEGORY IN THE FIRE RESISTANCE DIRECTORY FOR NAMES OF MANUFACTURERS.

B. THROUGH PENETRATIONS: ONE METALLIC PIPE OR CONDUIT TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR OR WALL ASSEMBLY. THE ANNULAR SPACE SHALL BE MINIMUM 0". (POINT CONTACT) TO MAXIMUM 1-3/8". THE FOLLOWING TYPES AND SIZES OF METALLIC PIPES OR CONDUITS MAY BE USED:
a. STEEL PIPE-NOMINAL 6" DIAMETER (OR SMALLER) SCHEDULE 40 (OR HEAVIER) STEEL PIPE
b. IRON PIPE-NOMINAL 6" DIAMETER (OR SMALLER) CAST OR DUCTILE IRON PIPE.
c. CONDUIT - NOMINAL 4" DIAMETER (OR SMALLER) STEEL ELECTRICAL METALLIC TUBING OR NOMINAL 3-1/2" DIAMETER (OR SMALLER) STEEL CONDUIT.

C. PACKING MATERIAL: MINIMUM 6" THICKNESS OF MIN 4.0 PCF MINERAL WOOL BATTING INSULATION FIRMLY PACKED INTO OPENING AS A PERMANENT FORM. PACKING MATERIAL TO BE RECESSED FROM TOP SURFACE OF FLOOR OR FROM BOTH SURFACES OF WALL AS REQUIRED TO ACCOMMODATE THE REQUIRED THICKNESS OF FILL MATERIAL.

D. FILL VOID, OR CAVITY MATERIAL*: SEALANT: MINIMUM 1/4" THICKNESS OF FILL MATERIAL APPLIED WITHIN THE ANNULUS, FLUSH WITH TOP SURFACE OF FLOOR AND WITH BOTH SURFACES OF WALL. AT THE POINT CONTACT LOCATION BETWEEN PIPE AND CONCRETE, A MINIMUM 1/2" DIAMETER BEAD OF FILL MATERIAL SHALL BE APPLIED AT THE CONCRETE/PIPE INTERFACE ON THE TOP SURFACE OF FLOOR AND ON BOTH SURFACES OF WALL. W-RATING APPLIES ONLY WHEN CP801S OR CP804 SEALANT IS USED.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC.: CP801S, CP804, CP806, OR PS-ONE SEALANT.

* BEARING THE UL CLASSIFICATION MARK

INSTALLER NOTES:

1. IF EXISTING CONSTRUCTION VARIES FROM THIS DETAIL, AN EQUAL 3-HR U.L. PENETRATION APPROPRIATE FOR THE EXISTING WALL TYPE SHALL BE CONSTRUCTED

2. GC SHALL USE NON-SHRINKING CAULK TO WEATHERSEAL ALL PENETRATIONS INTO OR THRU SHELTER WALL.

SECTION A-A

DARK TELCO BOX – INTERIOR WIRING LAYOUT

NO SCALE

3

LIT TELCO BOX – INTERIOR WIRING LAYOUT (OPTIONAL)

NO SCALE

4

WALL PENETRATION DETAIL

NO SCALE

5

NOT USED

NO SCALE

6

NOT USED

NO SCALE

7

NOT USED

NO SCALE

8

NOT USED

NO SCALE

9

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

GPD GROUP, INC.®

520 South Main Street, Suite 2531
Akron, OH 44311
330.572.2100 Fax 330.572.2101

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

DRAWN BY: CHECKED BY: APPROVED BY:

ACM CJM MRL

RFDS REV #: ---

PRELIMINARY DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	08/08/2022	ISSUED FOR REVIEW

A&E PROJECT NUMBER

2021724.75.827008.02

DISH Wireless L.L.C.
PROJECT INFORMATION

MWMKE00252B
8615 N PORT WASHINGTON RD
FOX POINT, WI 53217

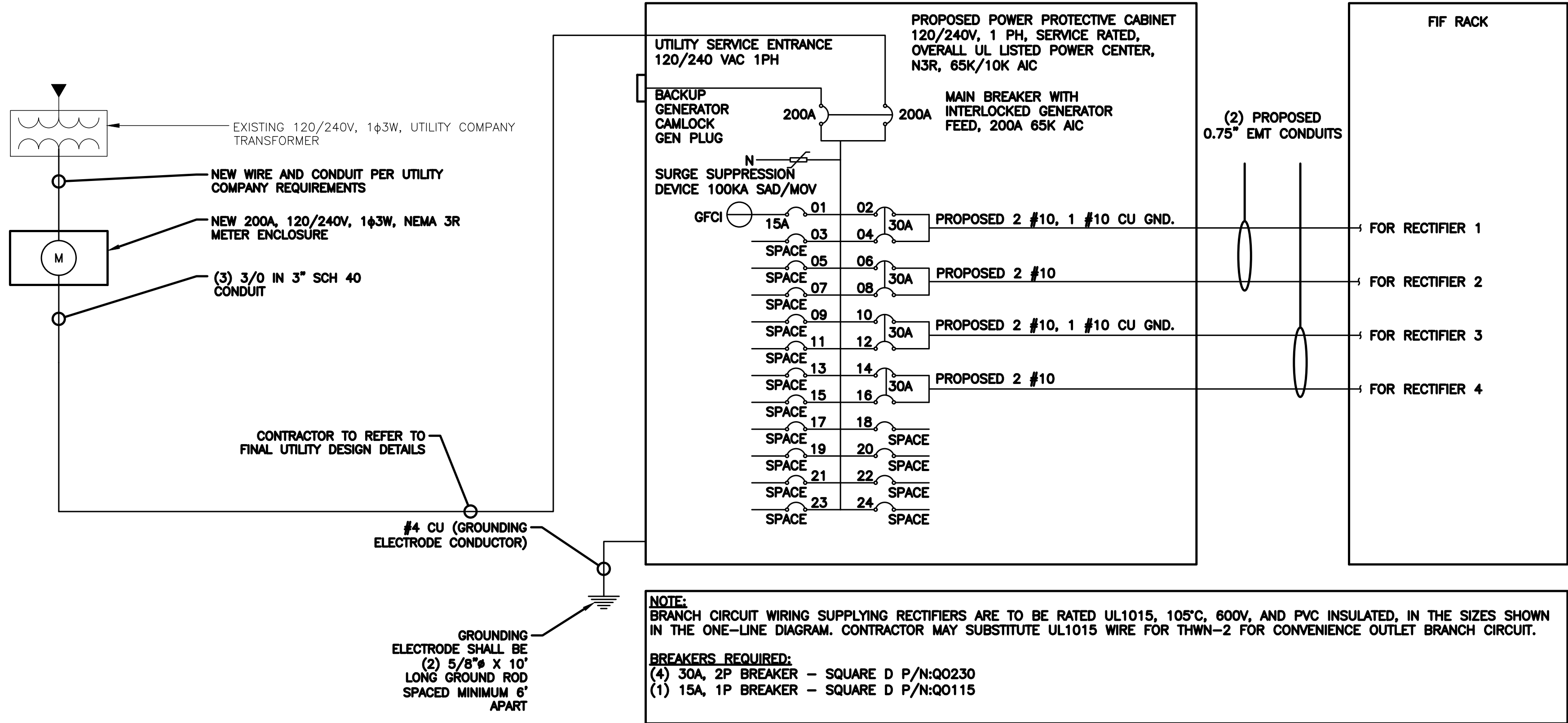
SHEET TITLE

ELECTRICAL DETAILS

SHEET NUMBER

E-2

DISH Wireless L.L.C. TEMPLATE VERSION 38 – 07/23/2021



NOTES

THE (2) CONDUITS WITH (4) CURRENT CARRYING CONDUCTORS EACH, SHALL APPLY THE ADJUSTMENT FACTOR OF 80% PER 2014/17 NEC TABLE 310.15(B)(3)(a) OR 2020 NEC TABLE 310.15(C)(1) FOR UL1015 WIRE.

#12 FOR 15A-20A/1P BREAKER: 0.8 x 30A = 24.0A
#10 FOR 25A-30A/2P BREAKER: 0.8 x 40A = 32.0A
#8 FOR 35A-40A/2P BREAKER: 0.8 x 55A = 44.0A
#6 FOR 45A-60A/2P BREAKER: 0.8 x 75A = 60.0A

CONDUIT SIZING: AT 40% FILL PER NEC CHAPTER 9, TABLE 4, ARTICLE 358.
0.5" CONDUIT - 0.122 SQ. IN AREA
0.75" CONDUIT - 0.213 SQ. IN AREA
2.0" CONDUIT - 1.316 SQ. IN AREA
3.0" CONDUIT - 2.907 SQ. IN AREA

RECTIFIER CONDUCTORS (2 CONDUITS): USING UL1015, CU.

#10 - 0.0266 SQ. IN X 4 = 0.1064 SQ. IN
#10 - 0.0082 SQ. IN X 1 = 0.0082 SQ. IN <BARE GROUND
TOTAL = 0.1146 SQ. IN

0.75" EMT CONDUIT IS ADEQUATE TO HANDLE THE TOTAL OF (5) WIRES, INCLUDING GROUND WIRE, AS INDICATED ABOVE.

PPC FEED CONDUCTORS (1 CONDUIT): USING THWN, CU.

3/0 - 0.2679 SQ. IN X 3 = 0.8037 SQ. IN
#6 - 0.0507 SQ. IN X 1 = 0.0507 SQ. IN <GROUND
TOTAL = 0.8544 SQ. IN

3.0" SCH 40 PVC CONDUIT IS ADEQUATE TO HANDLE THE TOTAL OF (4) WIRES, INCLUDING GROUND WIRE, AS INDICATED ABOVE.

PPC ONE-LINE DIAGRAM

NO SCALE

1

PROPOSED PANEL SCHEDULE												
LOAD SERVED	VOLT AMPS (WATTS)		TRIP	CKT #	PHASE	CKT #	TRIP	VOLT AMPS (WATTS)		LOAD SERVED		
	L1	L2						L1	L2			
PPC GFCI OUTLET	180		15A	1	A	2	30A	2880	2880	ABB/GE INFINITY RECTIFIER 1		
-SPACE-				3	B	4						
-SPACE-				5	A	6	30A	2880	2880	ABB/GE INFINITY RECTIFIER 2		
-SPACE-				7	B	8						
-SPACE-				9	A	10	30A	2880	2880	ABB/GE INFINITY RECTIFIER 3		
-SPACE-				11	B	12						
-SPACE-				13	A	14	30A	2880	2880	ABB/GE INFINITY RECTIFIER 4		
-SPACE-				15	B	16						
-SPACE-				17	A	18						
-SPACE-				19	B	20						
-SPACE-				21	A	22						
-SPACE-				23	B	24						
VOLTAGE AMPS 180 0 11520 11520												
200A MCB, 1ϕ, 24 SPACE, 120/240V												
MB RATING: 65,000 AIC												
				L1	L2	VOLTAGE AMPS						
				98	11700	AMPS						
				98	98	MAX AMPS						
				123	123	MAX 125%						

PANEL SCHEDULE

NO SCALE

2

NOT USED

NO SCALE

3

dish
wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

GPD GROUP, INC.®

520 South Main Street, Suite 2531
Akron, OH 44311
330.572.2100 Fax 330.572.2101

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

DRAWN BY: CHECKED BY: APPROVED BY:

ACM CJM MRL

RFDS REV #: ---

PRELIMINARY
DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
A	08/08/2022	ISSUED FOR REVIEW

A&E PROJECT NUMBER
2021724.75.827008.02

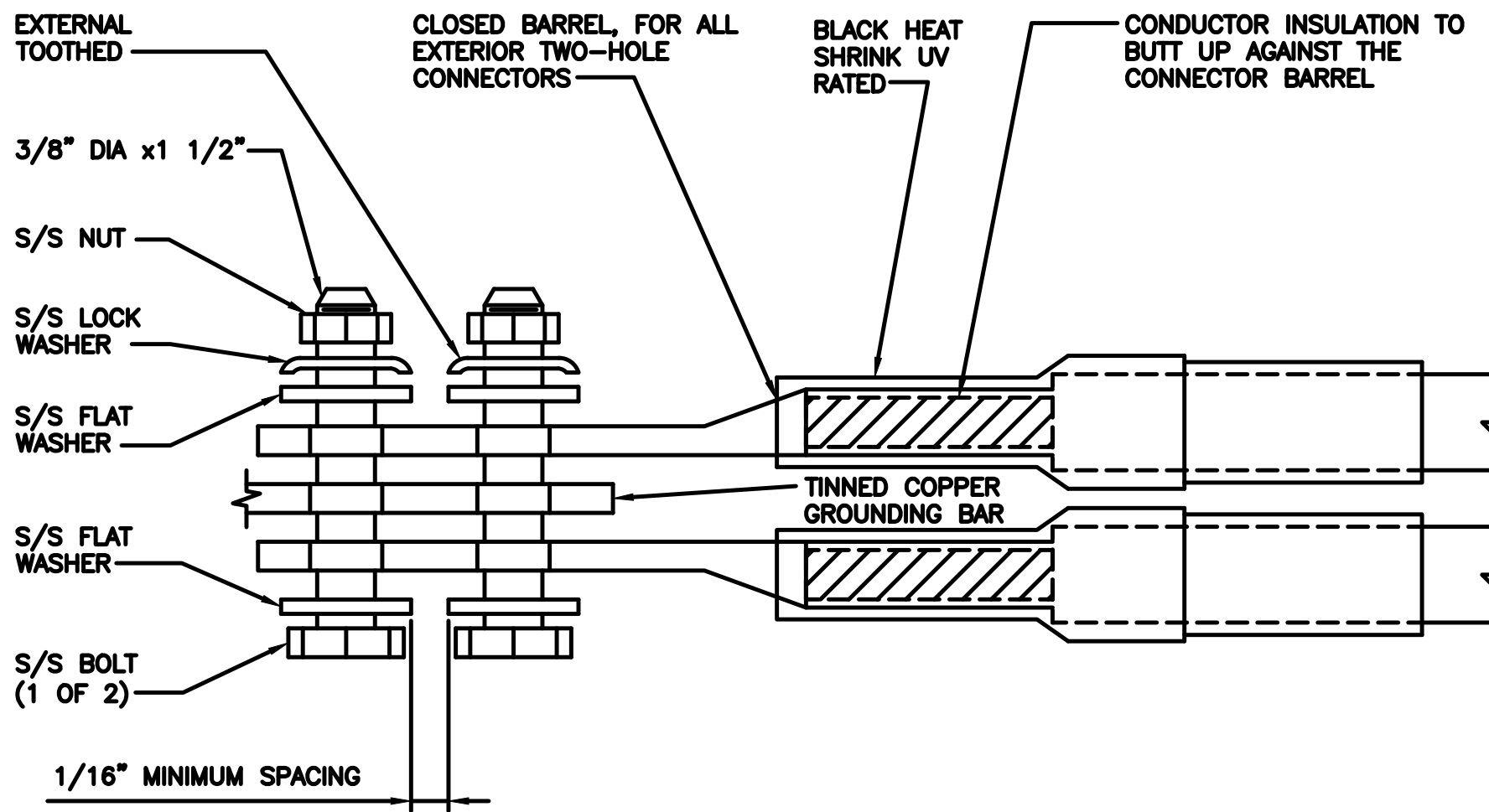
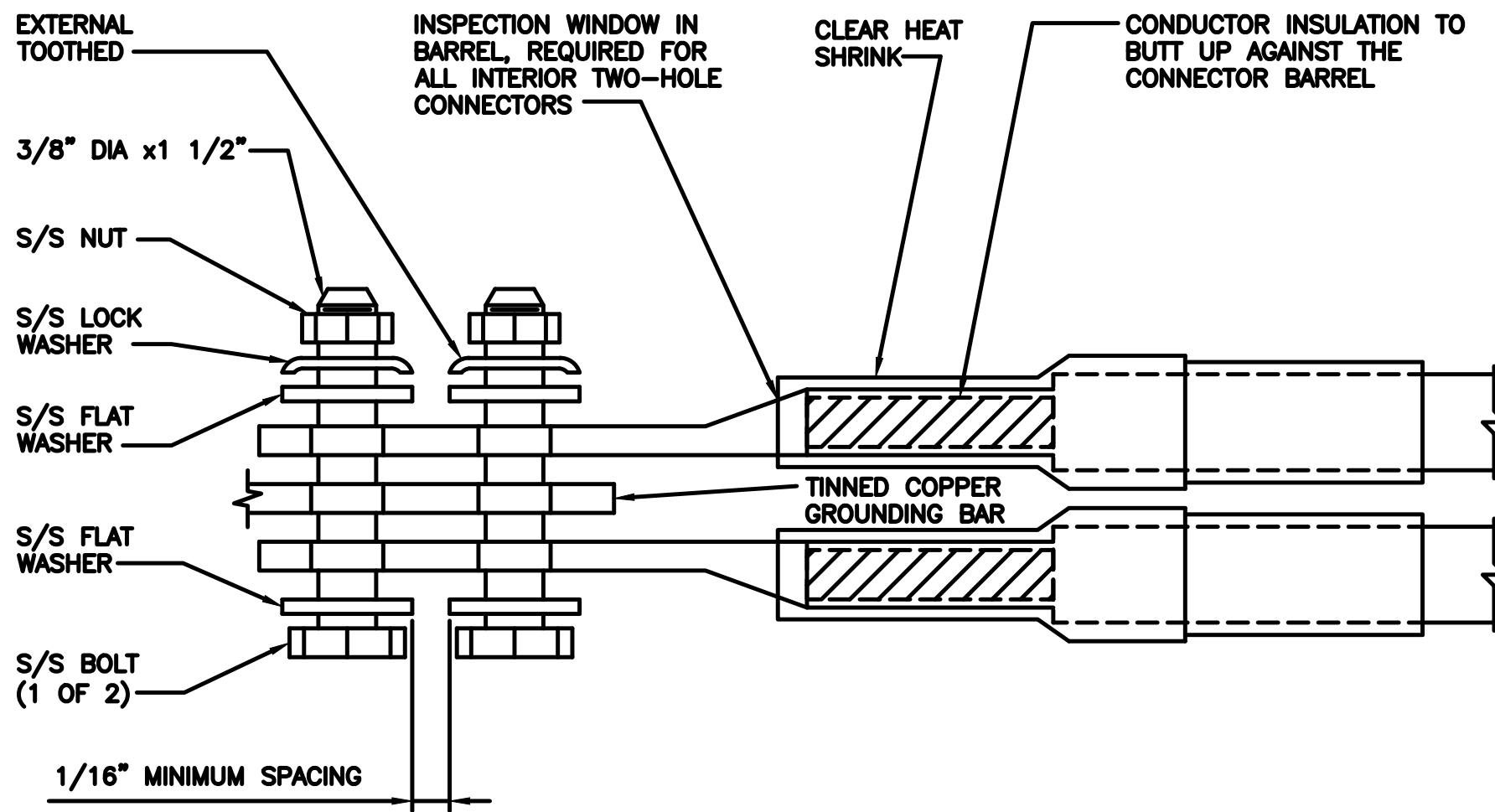
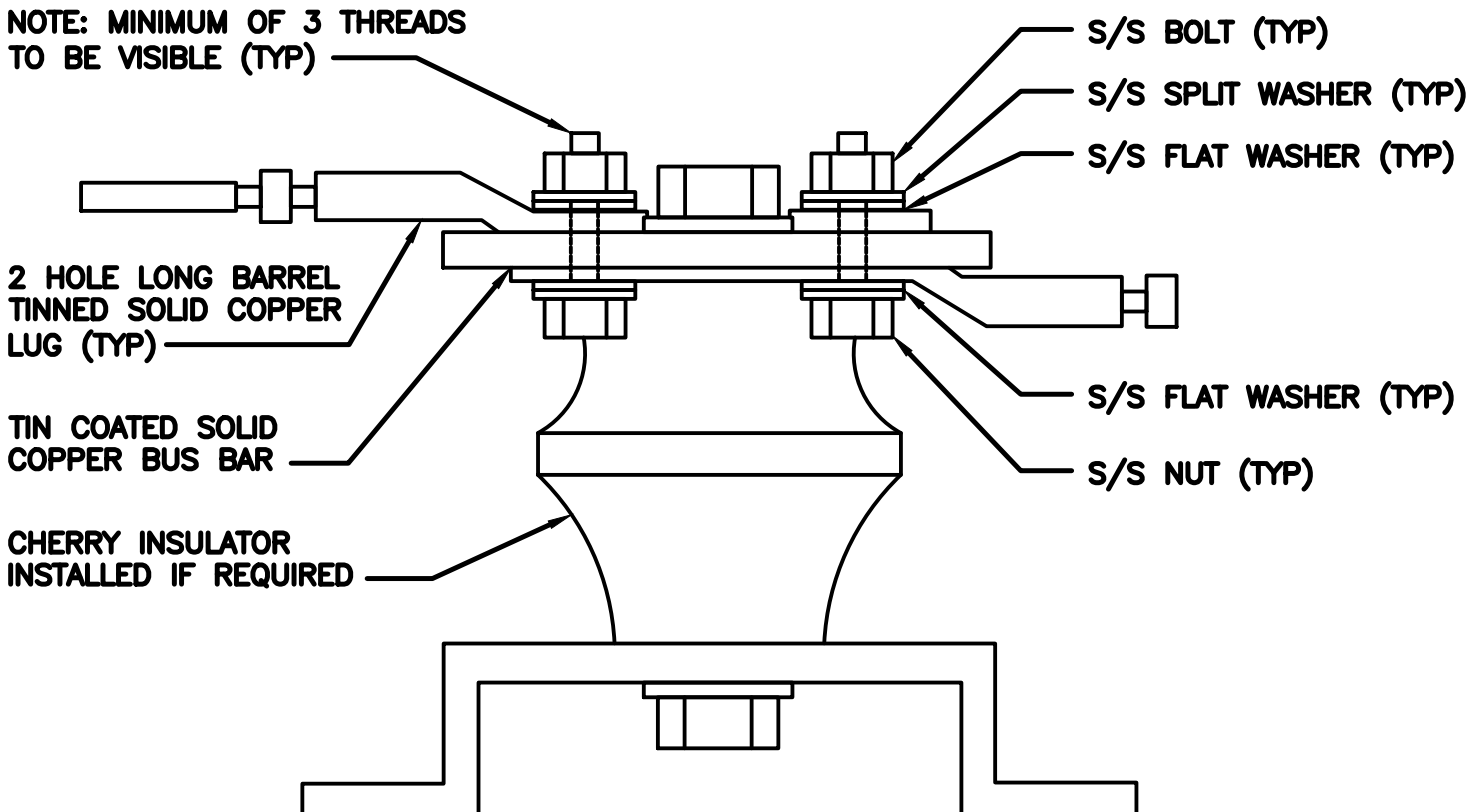
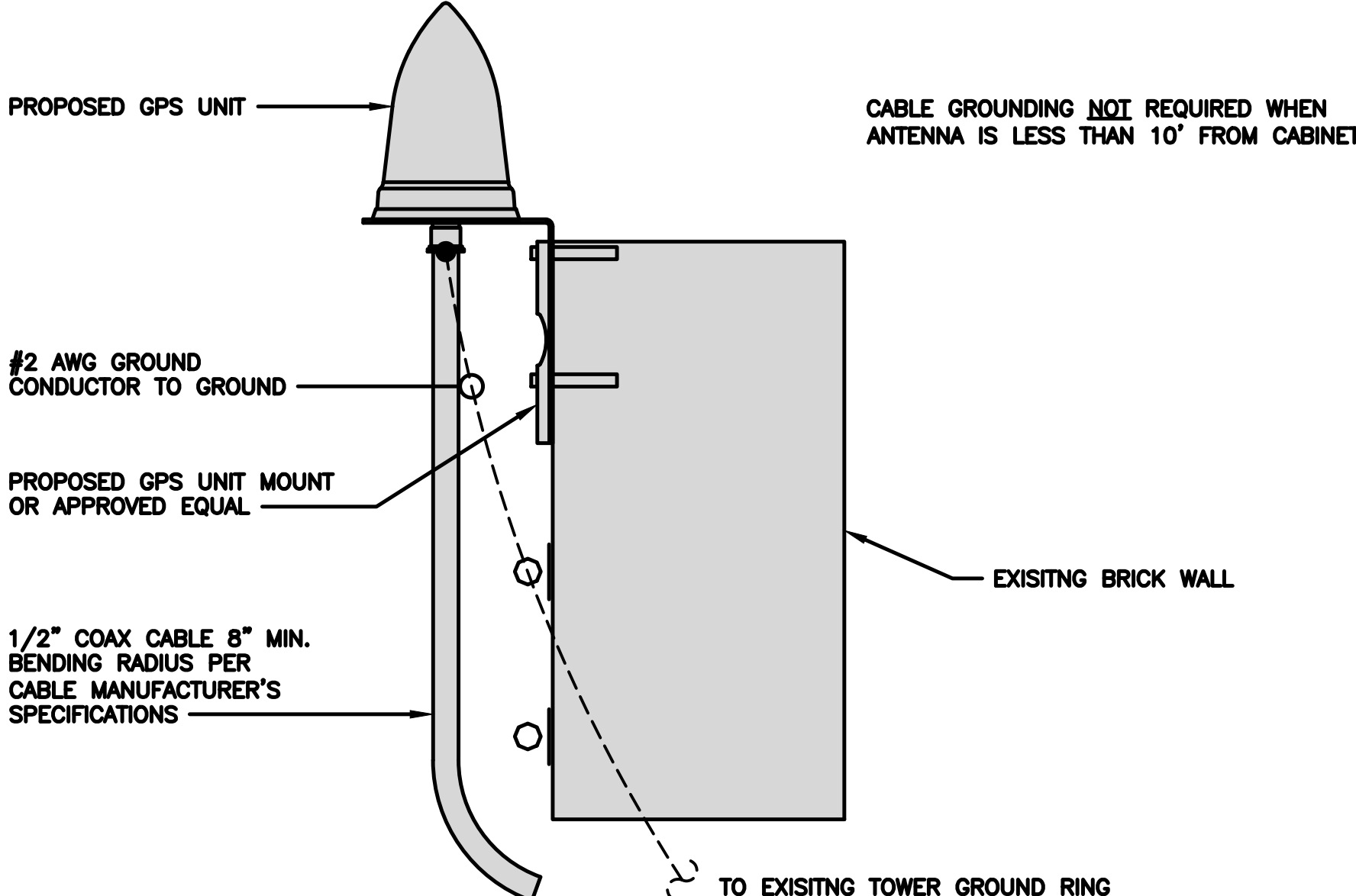
DISH Wireless L.L.C.
PROJECT INFORMATION

MWMKE00252B
8615 N PORT WASHINGTON RD
FOX POINT, WI 53217

SHEET TITLE
ELECTRICAL ONE-LINE, FAULT
CALCS & PANEL SCHEDULE

SHEET NUMBER

E-3

1. EXOTHERMIC WELD (2) TWO, #2 AWG BARE TINNED SOLID COPPER CONDUCTORS TO GROUND BAR. ROUTE CONDUCTORS TO BURIED GROUND RING AND PROVIDE PARALLEL EXOTHERMIC WELD. 2. ALL EXTERIOR GROUNDING HARDWARE SHALL BE STAINLESS STEEL 3/8" DIAMETER OR LARGER. ALL HARDWARE 18-8 STAINLESS STEEL INCLUDING LOCK WASHERS, COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING. 3. FOR GROUND BOND TO STEEL ONLY: COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING. 4. DO NOT INSTALL CABLE GROUNDING KIT AT A BEND AND ALWAYS DIRECT GROUND CONDUCTOR DOWN TO GROUNDING BUS. 5. NUT & WASHER SHALL BE PLACED ON THE FRONT SIDE OF THE GROUND BAR AND BOLTED ON THE BACK SIDE. 6. ALL GROUNDING PARTS AND EQUIPMENT TO BE SUPPLIED AND INSTALLED BY CONTRACTOR. 7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING ADDITIONAL GROUND BAR AS REQUIRED. 8. ENSURE THE WIRE INSULATION TERMINATION IS WITHIN 1/8" OF THE BARREL (NO SHINERS).														
TYPICAL GROUNDING NOTES			NO SCALE	1	TYPICAL EXTERIOR TWO HOLE LUG			NO SCALE	2	TYPICAL INTERIOR TWO HOLE LUG			NO SCALE	3
														
LUG DETAIL			NO SCALE	4	TYPICAL GPS UNIT GROUNDING			NO SCALE	5	NOT USED			NO SCALE	6
NOT USED			NO SCALE	7	NOT USED			NO SCALE	8	NOT USED			NO SCALE	9



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



520 South Main Street, Suite 2531
Akron, OH 44311
330.572.2100 Fax 330.572.2101

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

DRAWN BY: CHECKED BY: APPROVED BY:

ACM CJM MRL

RFDS REV #: ---

PRELIMINARY DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
A	08/08/2022	ISSUED FOR REVIEW

A&E PROJECT NUMBER
2021724.75.827008.02

DISH Wireless L.L.C.
PROJECT INFORMATION

MWMKE00252B
8615 N PORT WASHINGTON RD
FOX POINT, WI 53217

SHEET TITLE
GROUNDING DETAILS

SHEET NUMBER
G-2

SIGN TYPES		
TYPE	COLOR	COLOR CODE PURPOSE
INFORMATION	GREEN	"INFORMATIONAL SIGN" TO NOTIFY OTHERS OF SITE OWNERSHIP & CONTACT NUMBER AND POTENTIAL RF EXPOSURE.
NOTICE	BLUE	"NOTICE BEYOND THIS POINT" RF FIELDS BEYOND THIS POINT MAY EXCEED THE FCC GENERAL PUBLIC EXPOSURE LIMIT. OBEY ALL POSTED SIGNS AND SITE GUIDELINES FOR WORKING IN RF ENVIRONMENTS. IN ACCORDANCE WITH FEDERAL COMMUNICATIONS COMMISSION RULES ON RADIO FREQUENCY EMISSIONS 47 CFR-1.1307(b)
CAUTION	YELLOW	"CAUTION BEYOND THIS POINT" RF FIELDS BEYOND THIS POINT MAY EXCEED THE FCC GENERAL PUBLIC EXPOSURE LIMIT. OBEY ALL POSTED SIGNS AND SITE GUIDELINES FOR WORKING IN RF ENVIRONMENTS. IN ACCORDANCE WITH FEDERAL COMMUNICATIONS COMMISSION RULES ON RADIO FREQUENCY EMISSIONS 47 CFR-1.1307(b)
WARNING	ORANGE/RED	"WARNING BEYOND THIS POINT" RF FIELDS AT THIS SITE EXCEED FCC RULES FOR HUMAN EXPOSURE. FAILURE TO OBEY ALL POSTED SIGNS AND SITE GUIDELINES FOR WORKING IN RF ENVIRONMENTS COULD RESULT IN SERIOUS INJURY. IN ACCORDANCE WITH FEDERAL COMMUNICATIONS COMMISSION RULES ON RADIO FREQUENCY EMISSIONS 47 CFR-1.1307(b)

SIGN PLACEMENT:

- RF SIGNAGE PLACEMENT SHALL FOLLOW THE RECOMMENDATIONS OF AN EXISTING EME REPORT, CREATED BY A THIRD PARTY PREVIOUSLY AUTHORIZED BY DISH Wireless L.L.C.
- INFORMATION SIGN (GREEN) SHALL BE LOCATED ON EXISTING DISH Wireless L.L.C. EQUIPMENT.
 - A) IF THE INFORMATION SIGN IS A STICKER, IT SHALL BE PLACED ON EXISTING DISH Wireless L.L.C. EQUIPMENT CABINET.
 - B) IF THE INFORMATION SIGN IS A METAL SIGN IT SHALL BE PLACED ON EXISTING DISH Wireless L.L.C. H-FRAME WITH A SECURE ATTACH METHOD.
- IF EME REPORT IS NOT AVAILABLE AT THE TIME OF CREATION OF CONSTRUCTION DOCUMENTS; PLEASE CONTACT DISH Wireless L.L.C. CONSTRUCTION MANAGER FOR FURTHER INSTRUCTION ON HOW TO PROCEED.

NOTES:

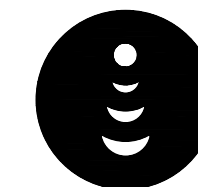
1. FOR DISH Wireless L.L.C. LOGO, SEE DISH Wireless L.L.C. DESIGN SPECIFICATIONS (PROVIDED BY DISH Wireless L.L.C.)
2. SITE ID SHALL BE APPLIED TO SIGNS USING "LASER ENGRAVING" OR ANY OTHER WEATHER RESISTANT METHOD (DISH Wireless L.L.C. APPROVAL REQUIRED)
3. TEXT FOR SIGNAGE SHALL INDICATE CORRECT SITE NAME AND NUMBER AS PER DISH Wireless L.L.C. CONSTRUCTION MANAGER RECOMMENDATIONS.
4. CABINET/SHELTER MOUNTING APPLICATION REQUIRES ANOTHER PLATE APPLIED TO THE FACE OF THE CABINET WITH WATER PROOF POLYURETHANE ADHESIVE
5. ALL SIGNS WILL BE SECURED WITH EITHER STAINLESS STEEL ZIP TIES OR STAINLESS STEEL TECH SCREWS
6. ALL SIGNS TO BE 8.5"x11" AND MADE WITH 0.04" OF ALUMINUM MATERIAL

INFORMATION

This is an access point to an area with transmitting antennas.

Obey all signs and barriers beyond this point.
Call the DISH Wireless L.L.C. NOC at 1-866-624-6874

Site ID: _____



THIS SIGN IS FOR REFERENCE PURPOSES ONLY

NOTICE



Transmitting Antenna(s)

Radio frequency fields beyond this point **MAY EXCEED** the FCC Occupational exposure limit.

Obey all posted signs and site guidelines for working in radio frequency environments.

Call the DISH Wireless L.L.C. NOC at 1-866-624-6874 prior to working beyond this point.

Site ID: _____

THIS SIGN IS FOR REFERENCE PURPOSES ONLY

CAUTION



Transmitting Antenna(s)

Radio frequency fields beyond this point **MAY EXCEED** the FCC Occupational exposure limit.

Obey all posted signs and site guidelines for working in radio frequency environments.

Call the DISH Wireless L.L.C. NOC at 1-866-624-6874 prior to working beyond this point.

Site ID: _____

THIS SIGN IS FOR REFERENCE PURPOSES ONLY

WARNING



Transmitting Antenna(s)

Radio frequency fields beyond this point **EXCEED** the FCC Occupational exposure limit.

Obey all posted signs and site guidelines for working in radio frequency environments.

Call the DISH Wireless L.L.C. NOC at 1-866-624-6874 prior to working beyond this point.

Site ID: _____

THIS SIGN IS FOR REFERENCE PURPOSES ONLY

dish
wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



520 South Main Street, Suite 2531
Akron, OH 44311
330.572.2100 Fax 330.572.2101

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

DRAWN BY: CHECKED BY: APPROVED BY:

ACM CJM MRL

RFDS REV #: ---

PRELIMINARY DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
A	08/08/2022	ISSUED FOR REVIEW

A&E PROJECT NUMBER
2021724.75.827008.02

DISH Wireless L.L.C.
PROJECT INFORMATION

MWMKE00252B
8615 N PORT WASHINGTON RD
FOX POINT, WI 53217

SHEET TITLE
RF SIGNAGE

SHEET NUMBER
GN-2

RF SIGNAGE

SITE ACTIVITY REQUIREMENTS:

1. NOTICE TO PROCEED – NO WORK SHALL COMMENCE PRIOR TO CONTRACTOR RECEIVING A WRITTEN NOTICE TO PROCEED (NTP) AND THE ISSUANCE OF A PURCHASE ORDER. PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE DISH Wireless L.L.C. AND TOWER OWNER NOC & THE DISH Wireless L.L.C. AND TOWER OWNER CONSTRUCTION MANAGER.
2. "LOOK UP" – DISH Wireless L.L.C. AND TOWER OWNER SAFETY CLIMB REQUIREMENT:

THE INTEGRITY OF THE SAFETY CLIMB AND ALL COMPONENTS OF THE CLIMBING FACILITY SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION, AND INSPECTION. TOWER MODIFICATION, MOUNT REINFORCEMENTS, AND/OR EQUIPMENT INSTALLATIONS SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF THE SAFETY CLIMB OR ANY COMPONENTS OF THE CLIMBING FACILITY ON THE STRUCTURE. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO: PINCHING OF THE WIRE ROPE, BENDING OF THE WIRE ROPE FROM ITS SUPPORTS, DIRECT CONTACT OR CLOSE PROXIMITY TO THE WIRE ROPE WHICH MAY CAUSE FRICTIONAL WEAR, IMPACT TO THE ANCHORAGE POINTS IN ANY WAY, OR TO IMPEDE/BLOCK ITS INTENDED USE. ANY COMPROMISED SAFETY CLIMB, INCLUDING EXISTING CONDITIONS MUST BE TAGGED OUT AND REPORTED TO YOUR DISH Wireless L.L.C. AND DISH Wireless L.L.C. AND TOWER OWNER POC OR CALL THE NOC TO GENERATE A SAFETY CLIMB MAINTENANCE AND CONTRACTOR NOTICE TICKET.
3. PRIOR TO THE START OF CONSTRUCTION, ALL REQUIRED JURISDICTIONAL PERMITS SHALL BE OBTAINED. THIS INCLUDES, BUT IS NOT LIMITED TO, BUILDING, ELECTRICAL, MECHANICAL, FIRE, FLOOD ZONE, ENVIRONMENTAL, AND ZONING. AFTER ONSITE ACTIVITIES AND CONSTRUCTION ARE COMPLETED, ALL REQUIRED PERMITS SHALL BE SATISFIED AND CLOSED OUT ACCORDING TO LOCAL JURISDICTIONAL REQUIREMENTS.
4. ALL CONSTRUCTION MEANS AND METHODS; INCLUDING BUT NOT LIMITED TO, ERECTION PLANS, RIGGING PLANS, CLIMBING PLANS, AND RESCUE PLANS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR RESPONSIBLE FOR THE EXECUTION OF THE WORK CONTAINED HEREIN, AND SHALL MEET ANSI/ASSE A10.48 (LATEST EDITION); FEDERAL, STATE, AND LOCAL REGULATIONS; AND ANY APPLICABLE INDUSTRY CONSENSUS STANDARDS RELATED TO THE CONSTRUCTION ACTIVITIES BEING PERFORMED. ALL RIGGING PLANS SHALL ADHERE TO ANSI/ASSE A10.48 (LATEST EDITION) AND DISH Wireless L.L.C. AND TOWER OWNER STANDARDS, INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION, TO CERTIFY THE SUPPORTING STRUCTURE(S) IN ACCORDANCE WITH ANSI/TIA–322 (LATEST EDITION).
5. ALL SITE WORK TO COMPLY WITH DISH Wireless L.L.C. AND TOWER OWNER INSTALLATION STANDARDS FOR CONSTRUCTION ACTIVITIES ON DISH Wireless L.L.C. AND TOWER OWNER TOWER SITE AND LATEST VERSION OF ANSI/TIA–1019–A–2012 "STANDARD FOR INSTALLATION, ALTERATION, AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS."
6. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY DISH Wireless L.L.C. AND TOWER OWNER PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
8. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER’S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
9. THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES INCLUDING PRIVATE LOCATES SERVICES PRIOR TO THE START OF CONSTRUCTION.
10. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY CONTRACTOR. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING AND EXCAVATION E) CONSTRUCTION SAFETY PROCEDURES.
11. ALL SITE WORK SHALL BE AS INDICATED ON THE STAMPED CONSTRUCTION DRAWINGS AND DISH PROJECT SPECIFICATIONS, LATEST APPROVED REVISION.
12. CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH AT THE COMPLETION OF THE WORK. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
13. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF DISH Wireless L.L.C. AND TOWER OWNER, AND/OR LOCAL UTILITIES.
14. THE CONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE REQUIRED BY LOCAL JURISDICTION AND SIGNAGE REQUIRED ON INDIVIDUAL PIECES OF EQUIPMENT, ROOMS, AND SHELTERS.
15. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE CARRIER’S EQUIPMENT AND TOWER AREAS.
16. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
17. THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION AS SPECIFIED ON THE CONSTRUCTION DRAWINGS AND/OR PROJECT SPECIFICATIONS.
18. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
19. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR’S EXPENSE TO THE SATISFACTION OF OWNER.
20. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS AND RADIOS REMOVED SHALL BE RETURNED TO THE OWNER’S DESIGNATED LOCATION.
21. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.
22. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.

GENERAL NOTES:

- 1.FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:

CONTRACTOR:GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION

CARRIER:DISH Wireless L.L.C.

TOWER OWNER:TOWER OWNER
2. THESE DRAWINGS HAVE BEEN PREPARED USING STANDARDS OF PROFESSIONAL CARE AND COMPLETENESS NORMALLY EXERCISED UNDER SIMILAR CIRCUMSTANCES BY REPUTABLE ENGINEERS IN THIS OR SIMILAR LOCALITIES. IT IS ASSUMED THAT THE WORK DEPICTED WILL BE PERFORMED BY AN EXPERIENCED CONTRACTOR AND/OR WORKPEOPLE WHO HAVE A WORKING KNOWLEDGE OF THE APPLICABLE CODE STANDARDS AND REQUIREMENTS AND OF INDUSTRY ACCEPTED STANDARD GOOD PRACTICE. AS NOT EVERY CONDITION OR ELEMENT IS (OR CAN BE) EXPLICITLY SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL USE INDUSTRY ACCEPTED STANDARD GOOD PRACTICE FOR MISCELLANEOUS WORK NOT EXPLICITLY SHOWN.
3. THESE DRAWINGS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE MEANS OR METHODS OF CONSTRUCTION. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY FOR PROTECTION OF LIFE AND PROPERTY DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, FORMWORK, SHORING, ETC. SITE VISITS BY THE ENGINEER OR HIS REPRESENTATIVE WILL NOT INCLUDE INSPECTION OF THESE ITEMS AND IS FOR STRUCTURAL OBSERVATION OF THE FINISHED STRUCTURE ONLY.
4. NOTES AND DETAILS IN THE CONSTRUCTION DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS. WHERE NO DETAILS ARE SHOWN, CONSTRUCTION SHALL CONFORM TO SIMILAR WORK ON THE PROJECT, AND/OR AS PROVIDED FOR IN THE CONTRACT DOCUMENTS. WHERE DISCREPANCIES OCCUR BETWEEN PLANS, DETAILS, GENERAL NOTES, AND SPECIFICATIONS, THE GREATER, MORE STRICT REQUIREMENTS, SHALL GOVERN. IF FURTHER CLARIFICATION IS REQUIRED CONTACT THE ENGINEER OF RECORD.
5. SUBSTANTIAL EFFORT HAS BEEN MADE TO PROVIDE ACCURATE DIMENSIONS AND MEASUREMENTS ON THE DRAWINGS TO ASSIST IN THE FABRICATION AND/OR PLACEMENT OF CONSTRUCTION ELEMENTS BUT IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY THE DIMENSIONS, MEASUREMENTS, AND/OR CLEARANCES SHOWN IN THE CONSTRUCTION DRAWINGS PRIOR TO FABRICATION OR CUTTING OF ANY NEW OR EXISTING CONSTRUCTION ELEMENTS. IF IT IS DETERMINED THAT THERE ARE DISCREPANCIES AND/OR CONFLICTS WITH THE CONSTRUCTION DRAWINGS THE ENGINEER OF RECORD IS TO BE NOTIFIED AS SOON AS POSSIBLE.
6. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING CONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CARRIER POC AND TOWER OWNER.
7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
8. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
9. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER’S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
10. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CARRIER AND TOWER OWNER PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
11. CONTRACTOR IS TO PERFORM A SITE INVESTIGATION, BEFORE SUBMITTING BIDS, TO DETERMINE THE BEST ROUTING OF ALL CONDUITS FOR POWER, AND TELCO AND FOR GROUNDING CABLES AS SHOWN IN THE POWER, TELCO, AND GROUNDING PLAN DRAWINGS.
12. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR’S EXPENSE TO THE SATISFACTION OF DISH Wireless L.L.C. AND TOWER OWNER
13. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER’S DESIGNATED LOCATION.
14. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



520 South Main Street, Suite 2531
Akron, OH 44311
330.572.2100 Fax 330.572.2101

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

DRAWN BY: CHECKED BY:APPROVED BY:

ACM CJM MRL

RFDS REV #: ---

PRELIMINARY DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
A	08/06/2022	ISSUED FOR REVIEW

A&E PROJECT NUMBER
2021724.75.827008.02

DISH Wireless L.L.C.
PROJECT INFORMATION

MWMKE00252B
8615 N PORT WASHINGTON RD
FOX POINT, WI 53217

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-3

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST-IN-PLACE CONCRETE.

2. UNLESS NOTED OTHERWISE, SOIL BEARING PRESSURE USED FOR DESIGN OF SLABS AND FOUNDATIONS IS ASSUMED TO BE 1000 psf.

3. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH (f'_c) OF 3000 psi AT 28 DAYS, UNLESS NOTED OTHERWISE. NO MORE THAN 90 MINUTES SHALL ELAPSE FROM BATCH TIME TO TIME OF PLACEMENT UNLESS APPROVED BY THE ENGINEER OF RECORD. TEMPERATURE OF CONCRETE SHALL NOT EXCEED 90°F AT TIME OF PLACEMENT.

4. CONCRETE EXPOSED TO FREEZE-THAW CYCLES SHALL CONTAIN AIR ENTRAINING ADMIXTURES. AMOUNT OF AIR ENTRAINMENT TO BE BASED ON SIZE OF AGGREGATE AND F3 CLASS EXPOSURE (VERY SEVERE). CEMENT USED TO BE TYPE II PORTLAND CEMENT WITH A MAXIMUM WATER-TO-CEMENT RATIO (W/C) OF 0.45.

5. ALL STEEL REINFORCING SHALL CONFORM TO ASTM A615. ALL WELDED WIRE FABRIC (WWF) SHALL CONFORM TO ASTM A185. ALL SPLICES SHALL BE CLASS "B" TENSION SPLICES, UNLESS NOTED OTHERWISE. ALL HOOKS SHALL BE STANDARD 90 DEGREE HOOKS, UNLESS NOTED OTHERWISE. YIELD STRENGTH (F_y) OF STANDARD DEFORMED BARS ARE AS FOLLOWS:

#4 BARS AND SMALLER 40 ksi

#5 BARS AND LARGER 60 ksi

6. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:

- CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH 3"
- CONCRETE EXPOSED TO EARTH OR WEATHER:
- #6 BARS AND LARGER 2"
- #5 BARS AND SMALLER 1-1/2"
- CONCRETE NOT EXPOSED TO EARTH OR WEATHER:
- SLAB AND WALLS 3/4"
- BEAMS AND COLUMNS 1-1/2"

7. A TOOLED EDGE OR A 3/4" CHAMFER SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNLESS NOTED OTHERWISE, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



520 South Main Street, Suite 2531
Akron, OH 44311
330.572.2100 Fax 330.572.2101

IT IS A VIOLATION OF LAW FOR ANY PERSON,
UNLESS THEY ARE ACTING UNDER THE DIRECTION
OF A LICENSED PROFESSIONAL ENGINEER,
TO ALTER THIS DOCUMENT.

DRAWN BY:	CHECKED BY:	APPROVED BY:
-----------	-------------	--------------

ACM	CJM	MRL
-----	-----	-----

RFDS REV #: ---

PRELIMINARY
DOCUMENTS

SUBMITTALS

[illegible]

A&E PROJECT NUMBER
2021724.75.827008.02

DISH Wireless L.L.C.
PROJECT INFORMATION

MWMKE00252B
8615 N PORT WASHINGTON RD
FOX POINT, WI 53217

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-4

GROUNDING NOTES:

1. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION AND AC POWER GES’S) SHALL BE BONDED TOGETHER AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
2. THE CONTRACTOR SHALL PERFORM IEEE FALL–OF–POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS, THE CONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
3. THE CONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT AND PROVIDE TESTING RESULTS.
4. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
5. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
6. EACH CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, #6 STRANDED COPPER OR LARGER FOR INDOOR BTS; #2 BARE SOLID TINNED COPPER FOR OUTDOOR BTS.
7. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED BACK TO BACK CONNECTIONS ON OPPOSITE SIDE OF THE GROUND BUS ARE PERMITTED.
8. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING SHALL BE #2 SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.
11. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
12. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR AND EXTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS.
13. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.
14. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.
15. APPROVED ANTIOXIDANT COATINGS (i.e. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
16. ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
17. MISCELLANEOUS ELECTRICAL AND NON–ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
18. BOND ALL METALLIC OBJECTS WITHIN 6 ft OF MAIN GROUND RING WITH (1) #2 BARE SOLID TINNED COPPER GROUND CONDUCTOR.
19. GROUND CONDUCTORS USED FOR THE FACILITY GROUNDING AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON–METALLIC MATERIAL SUCH AS PVC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (i.e., NONMETALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.
20. ALL GROUNDS THAT TRANSITION FROM BELOW GRADE TO ABOVE GRADE MUST BE #2 BARE SOLID TINNED COPPER IN 3/4” NON–METALLIC, FLEXIBLE CONDUIT FROM 24” BELOW GRADE TO WITHIN 3” TO 6” OF CAD–WELD TERMINATION POINT. THE EXPOSED END OF THE CONDUIT MUST BE SEALED WITH SILICONE CAULK. (ADD TRANSITIONING GROUND STANDARD DETAIL AS WELL).
21. BUILDINGS WHERE THE MAIN GROUNDING CONDUCTORS ARE REQUIRED TO BE ROUTED TO GRADE, THE CONTRACTOR SHALL ROUTE TWO GROUNDING CONDUCTORS FROM THE ROOFTOP, TOWERS, AND WATER TOWERS GROUNDING RING, TO THE EXISTING GROUNDING SYSTEM, THE GROUNDING CONDUCTORS SHALL NOT BE SMALLER THAN 2/0 COPPER. ROOFTOP GROUNDING RING SHALL BE BONDED TO THE EXISTING GROUNDING SYSTEM, THE BUILDING STEEL COLUMNS, LIGHTNING PROTECTION SYSTEM, AND BUILDING MAIN WATER LINE (FERROUS OR NONFERROUS METAL PIPING ONLY). DO NOT ATTACH GROUNDING TO FIRE SPRINKLER SYSTEM PIPES.

ELECTRICAL INSTALLATION NOTES:

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES/ORDINANCES.
2. CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED AND TRIP HAZARDS ARE ELIMINATED.
3. WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.
4. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.
- 4.1. ALL EQUIPMENT SHALL BEAR THE UNDERWRITERS LABORATORIES LABEL OF APPROVAL, AND SHALL CONFORM TO REQUIREMENT OF THE NATIONAL ELECTRICAL CODE.
- 4.2. ALL OVERCURRENT DEVICES SHALL HAVE AN INTERRUPTING CURRENT RATING THAT SHALL BE GREATER THAN THE SHORT CIRCUIT CURRENT TO WHICH THEY ARE SUBJECTED, 22,000 AIC MINIMUM. VERIFY AVAILABLE SHORT CIRCUIT CURRENT DOES NOT EXCEED THE RATING OF ELECTRICAL EQUIPMENT IN ACCORDANCE WITH ARTICLE 110.24 NEC OR THE MOST CURRENT ADOPTED CODE PRE THE GOVERNING JURISDICTION.
5. EACH END OF EVERY POWER PHASE CONDUCTOR, GROUNDING CONDUCTOR, AND TELCO CONDUCTOR OR CABLE SHALL BE LABELED WITH COLOR–CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2” PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA.
6. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH LAMICOID TAGS SHOWING THEIR RATED VOLTAGE, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING AND BRANCH CIRCUIT ID NUMBERS (i.e. PANEL BOARD AND CIRCUIT ID’S).

7. PANEL BOARDS (ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.
8. TIE WRAPS ARE NOT ALLOWED.
9. ALL POWER AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE COPPER CONDUCTOR (#14 OR LARGER) WITH TYPE THHW, THWN, THWN–2, XHHW, XHHW–2, THW, THW–2, RHW, OR RHW–2 INSULATION UNLESS OTHERWISE SPECIFIED.
10. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE COPPER CONDUCTOR (#6 OR LARGER) WITH TYPE THHW, THWN, THWN–2, XHHW, XHHW–2, THW, THW–2, RHW, OR RHW–2 INSULATION UNLESS OTHERWISE SPECIFIED.
11. POWER AND CONTROL WIRING IN FLEXIBLE CORD SHALL BE MULTI–CONDUCTOR, TYPE SOOW CORD (#14 OR LARGER) UNLESS OTHERWISE SPECIFIED.
12. POWER AND CONTROL WIRING FOR USE IN CABLE TRAY SHALL BE MULTI–CONDUCTOR, TYPE TC CABLE (#14 OR LARGER), WITH TYPE THHW, THWN, THWN–2, XHHW, XHHW–2, THW, THW–2, RHW, OR RHW–2 INSULATION UNLESS OTHERWISE SPECIFIED.
13. ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP–STYLE, COMPRESSION WIRE LUGS AND WIRE NUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRE NUTS SHALL BE RATED FOR OPERATION NOT LESS THAN 75° C (90° C IF AVAILABLE).
14. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.
15. ELECTRICAL METALLIC TUBING (EMT), INTERMEDIATE METAL CONDUIT (IMC), OR RIGID METAL CONDUIT (RMC) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.
16. ELECTRICAL METALLIC TUBING (EMT) OR METAL–CLAD CABLE (MC) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
17. SCHEDULE 40 PVC UNDERGROUND ON STRAIGHTS AND SCHEDULE 80 PVC FOR ALL ELBOWS/90s AND ALL APPROVED ABOVE GRADE PVC CONDUIT.
18. LIQUID–TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID–TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
19. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION–TYPE AND APPROVED FOR THE LOCATION USED. SET SCREW FITTINGS ARE NOT ACCEPTABLE.
20. CABINETS, BOXES AND WIRE WAYS SHALL BE LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND THE NEC.
21. WIREWAYS SHALL BE METAL WITH AN ENAMEL FINISH AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS (WIREMOLD SPECMATE WIREWAY).
22. SLOTTED WIRING DUCT SHALL BE PVC AND INCLUDE COVER (PANDUIT TYPE E OR EQUAL).
23. CONDUITS SHALL BE FASTENED SECURELY IN PLACE WITH APPROVED NON–PERFORATED STRAPS AND HANGERS. EXPLOSIVE DEVICES (i.e. POWDER–ACTUATED) FOR ATTACHING HANGERS TO STRUCTURE WILL NOT BE PERMITTED. CLOSELY FOLLOW THE LINES OF THE STRUCTURE, MAINTAIN CLOSE PROXIMITY TO THE STRUCTURE AND KEEP CONDUITS IN TIGHT ENVELOPES. CHANGES IN DIRECTION TO ROUTE AROUND OBSTACLES SHALL BE MADE WITH CONDUIT OUTLET BODIES. CONDUIT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER. PARALLEL AND PERPENDICULAR TO STRUCTURE WALL AND CEILING LINES. ALL CONDUIT SHALL BE FISHED TO CLEAR OBSTRUCTIONS. ENDS OF CONDUITS SHALL BE TEMPORARILY CAPPED FLUSH TO FINISH GRADE TO PREVENT CONCRETE, PLASTER OR DIRT FROM ENTERING. CONDUITS SHALL BE RIGIDLY CLAMPED TO BOXES BY GALVANIZED MALLEABLE IRON BUSHING ON INSIDE AND GALVANIZED MALLEABLE IRON LOCKNUT ON OUTSIDE AND INSIDE.
24. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES AND PULL BOXES SHALL BE GALVANIZED OR EPOXY–COATED SHEET STEEL. SHALL MEET OR EXCEED UL 50 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND NEMA 3 (OR BETTER) FOR EXTERIOR LOCATIONS.
25. METAL RECEPTACLE, SWITCH AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY–COATED OR NON–CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
26. NONMETALLIC RECEPTACLE, SWITCH AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2 (NEWEST REVISION) AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
27. THE CONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CARRIER AND/OR DISH Wireless L.L.C. AND TOWER OWNER BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
28. THE CONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD LIFE AND PROPERTY.
29. INSTALL LAMICOID LABEL ON THE METER CENTER TO SHOW "DISH Wireless L.L.C.”.
30. ALL EMPTY/SPARE CONDUITS THAT ARE INSTALLED ARE TO HAVE A METERED MULE TAPE PULL CORD INSTALLED.



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



520 South Main Street, Suite 2531
Akron, OH 44311
330.572.2100 Fax 330.572.2101

IT IS A VIOLATION OF LAW FOR ANY PERSON,
UNLESS THEY ARE ACTING UNDER THE DIRECTION
OF A LICENSED PROFESSIONAL ENGINEER,
TO ALTER THIS DOCUMENT.

DRAWN BY:	CHECKED BY:	APPROVED BY:
ACM	CJM	MRL

RFDS REV #: ---

PRELIMINARY
DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
A	08/08/2022	ISSUED FOR REVIEW

A&E PROJECT NUMBER 2021724.75.827008.02
DISH Wireless L.L.C. PROJECT INFORMATION MWMKE00252B 8615 N PORT WASHINGTON RD FOX POINT, WI 53217
SHEET TITLE GENERAL NOTES
SHEET NUMBER GN-5

Date: December 10, 2021



Crown Castle
2000 Corporate Drive
Canonsburg, PA
(724) 416-2000

Subject: Structural Analysis Report

Carrier Designation: DISH Network Co-locate
Site Number: MWMKE00252B

Crown Castle Designation:
BU Number: 827008
Site Name: River Point Shopping Cent
JDE Job Number: 678778
Work Order Number: 2052861
Order Number: 579464 Rev. 7

Engineering Firm Designation: Crown Castle Project Number: 2052861

Site Data: 8615 N Port Washington Rd, Fox Point, Milwaukee County, WI
Latitude 43° 10' 33.63", Longitude -87° 54' 54.28"
130 Foot - Monopole Tower

Crown Castle is pleased to submit this "Structural Analysis Report" to determine the structural integrity of the above-mentioned tower.

The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

LC4.7: Proposed Equipment Configuration with Proposed Modifications **Sufficient Capacity**

This analysis utilizes an ultimate 3-second gust wind speed of 115 mph as required by the 2015 International Building Code. Applicable Standard references and design criteria are listed in Section 2 - "Analysis Criteria".

Structural analysis prepared by: Nicholas A. Palladino

Respectfully submitted by:

Maribel Dentinger
Maribel Dentinger, P.E.
Senior Project Engineer

Maribel
Dentinger

Digitally signed by
Maribel Dentinger
Date: 2021.12.14 10:55:42
-05'00'



TABLE OF CONTENTS

1) INTRODUCTION

2) ANALYSIS CRITERIA

Table 1 - Proposed Equipment Configuration

Table 2 - Other Considered Equipment

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

3.1) Analysis Method

3.2) Assumptions

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Table 5 - Tower Component Stresses vs. Capacity - LC4.7

4.1) Recommendations

5) APPENDIX A

tnxTower Output

6) APPENDIX B

Base Level Drawing

7) APPENDIX C

Additional Calculations

1) INTRODUCTION

This tower is a 130 ft Monopole tower designed by PIROD MANUFACTURES INC. The 40-ft canister section is considered to be replaced by a proposed 40-ft tower extension in this analysis, maintaining the overall tower height of 130-ft.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	115 mph
Exposure Category:	C
Topographic Factor:	1
Ice Thickness:	1.5 in
Wind Speed with Ice:	40 mph
Service Wind Speed:	60 mph

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
115.0	115.0	3	fujitsu	TA08025-B604	1	1-1/2
		3	fujitsu	TA08025-B605		
		3	jma wireless	MX08FRO665-21 w/ Mount Pipe		
		1	raycap	RDIDC-9181-PF-48		
		1	tower mounts	Commscope MC-PK8-DSH		

Table 2 - Other Considered Equipment

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
125.0	125.0	3	andrew	HBXX-6516DS-A2M w/ Mount Pipe	6 1 2	7/8 3/8 1-1/2
		2	commscope	HCS 2.0 Part 1		
		3	nokia	AEHC w/ Mount Pipe		
		3	nokia	AHFIG_TMO		
		1	tower mounts	Sabre M.O.V.E Platform		
115.0	115.0	-	-	-	6	7/8

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
4-GEOTECHNICAL REPORTS	3499149	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	3903109	CCISITES
4-TOWER MANUFACTURER DRAWINGS	3499150	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	9823584	CCISITES

3.1) Analysis Method

tnxTower (version 8.1.1.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A. When applicable, Crown Castle has calculated and provided the effective area for panel antennas using approved methods following the intent of the TIA-222 standard.

3.2) Assumptions

- 1) Tower and structures were maintained in accordance with the TIA-222 Standard.
- 2) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.

This analysis may be affected if any assumptions are not valid or have been made in error. Crown Castle should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	130 - 90	Pole	P24x.375	1	-10.30	920.56	39.9	Pass
L2	90 - 60	Pole	P36x.375	2	-15.79	1564.60	35.1	Pass
L3	60 - 30	Pole	P36x.375	3	-21.39	1564.60	57.2	Pass
L4	30 - 0	Pole	P36x.375	4	-27.10	1564.60	81.4	Pass
							Summary	
						Pole (L4)	81.4	Pass
						Rating =	81.4	Pass

Table 5 - Tower Component Stresses vs. Capacity - LC4.7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	80.8	Pass
1	Base Plate	0	88.2	Pass
1	Base Foundation (Structure)	0	42.0	Pass
1	Base Foundation (Soil Interaction)	0	17.9	Pass
1	Flange Connection	90	32.8	Pass
1	Flange Connection	60	54.4	Pass
1	Flange Connection	30	88.8	Pass

Structure Rating (max from all components) =	88.8%
---	--------------

Notes:

- 1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.

4.1) Recommendations

The tower and its foundation have sufficient capacity to carry the proposed load configuration once the proposed modifications are installed.

APPENDIX A
TNXTOWER OUTPUT

Section	1	2	3	4	
Size	P24x375	P36x375	P36x375	P36x375	
Length (ft)	40.00	30.00	30.00	30.00	
Grade	A53-B-35	A53-B-42	A53-B-42	A53-B-42	
Weight (K)	3.8				16.6

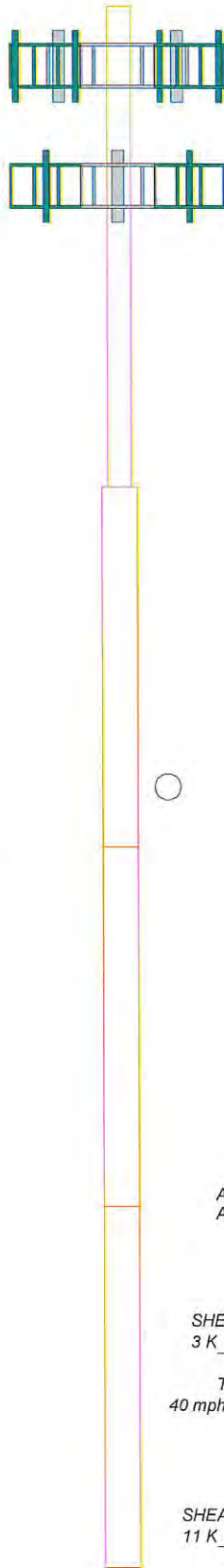
130.0 ft

90.0 ft

60.0 ft

30.0 ft

0.0 ft



MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A53-B-35	35 ksi	60 ksi	A53-B-42	42 ksi	63 ksi

TOWER DESIGN NOTES

1. Tower is located in Milwaukee County, Wisconsin.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 115 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 40 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: 81.4%

ALL REACTIONS
ARE FACTORED

AXIAL
40 K

SHEAR
3 K

MOMENT
323 kip-ft

TORQUE 0 kip-ft
40 mph WIND - 1.5000 in ICE

AXIAL
27 K

SHEAR
11 K

MOMENT
1119 kip-ft

TORQUE 0 kip-ft
REACTIONS - 115 mph WIND

Crown Castle 2000 Corporate Drive Canonsburg, PA The Pathway to Possible Phone: (724) 416-2000 FAX:		Job: 827008 Project: Client: Crown Castle Code: TIA-222-H Path:	Drawn by: NPalladino Date: 12/10/21 Scale: NTS Dwg No. E-1
--	--	--	---

C:\Users\NPalladino\Desktop\Local SA Production\827008\WO 2052861 - SA\Prod\827008 LC4.7.dwg

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 Milwaukee County, Wisconsin.
- Tower base elevation above sea level: 685.00 ft.
- Basic wind speed of 115 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 40 mph is used in combination with ice.
- Temperature drop of 50 °F.
- Deflections calculated using a wind speed of 60 mph.
- A non-linear (P-delta) analysis was used.
- Pressures are calculated at each section.
- Stress ratio used in pole design is 1.
- Tower analysis based on target reliabilities in accordance with Annex S.
- Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t) = 0.85$.
- Maximum demand-capacity ratio is: 1.05.
- 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	Retention 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	130.00-90.00	40.00	P24x.375	A53-B-35 (35 ksi)	
L2	90.00-60.00	30.00	P36x.375	A53-B-42 (42 ksi)	
L3	60.00-30.00	30.00	P36x.375	A53-B-42 (42 ksi)	
L4	30.00-0.00	30.00	P36x.375	A53-B-42 (42 ksi)	

Tower Elevation ft	Gusset Area (per face) ft ²	Gusset Thickness in	Gusset Grade	Adjust. Factor A _t	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 130.00-90.00				1	1	1			
L2 90.00-60.00				1	1	1			
L3 60.00-30.00				1	1	1			
L4 30.00-0.00				1	1	1			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Clear Spacing in	Width or Diameter r in	Perimeter r in	Weight klf

**											

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	C _A A _A ft ² /ft	Weight klf
LDF2-50(3/8)	C	No	No	Inside Pole	125.00 - 0.00	1	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00
LDF5-50A(7/8)	C	No	No	Inside Pole	125.00 - 0.00	6	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00
HCS 2.0 Part 3(1-1/2)	C	No	No	Inside Pole	125.00 - 0.00	2	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00

LDF5-50A(7/8)	C	No	No	Inside Pole	115.00 - 0.00	6	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00

**								
*								
CU12PSM9P6XXX (1-1/2)	C	No	No	Inside Pole	115.00 - 0.00	1	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	C _{AA} A ft ² /ft	Weight klf
2" Ice							0.00	0.00

Feed Line/Linear Appurtenances Section Areas

Tower Section n	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 K
L1	130.00-90.00	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	0.30
L2	90.00-60.00	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	0.29
L3	60.00-30.00	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	0.29
L4	30.00-0.00	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	0.29

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section n	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 K
L1	130.00-90.00	A	1.438	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	0.30
L2	90.00-60.00	A	1.384	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	0.29
L3	60.00-30.00	A	1.315	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	0.29
L4	30.00-0.00	A	1.178	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	0.29

Feed Line Center of Pressure

Section	Elevation ft	CP _x in	CP _z in	CP _x Ice in	CP _z Ice in
L1	130.00-90.00	0.0000	0.0000	0.0000	0.0000
L2	90.00-60.00	0.0000	0.0000	0.0000	0.0000
L3	60.00-30.00	0.0000	0.0000	0.0000	0.0000
L4	30.00-0.00	0.0000	0.0000	0.0000	0.0000

Note: For pole sections, center of pressure calculations do not consider feed line shielding.

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft

HBXX-6516DS-A2M w/ Mount Pipe	A	From Centroid-Leg	4.00 0.00 0.00	0.0000	125.00
HBXX-6516DS-A2M w/ Mount Pipe	B	From Centroid-Leg	4.00 0.00 0.00	0.0000	125.00
HBXX-6516DS-A2M w/ Mount Pipe	C	From Centroid-Leg	4.00 0.00 0.00	0.0000	125.00
AEHC w/ Mount Pipe	A	From Centroid-Leg	4.00 0.00 0.00	0.0000	125.00
AEHC w/ Mount Pipe	B	From Centroid-Leg	4.00 0.00 0.00	0.0000	125.00
AEHC w/ Mount Pipe	C	From Centroid-Leg	4.00 0.00 0.00	0.0000	125.00
HCS 2.0 Part 1	A	From Centroid-Leg	4.00 0.00 0.00	0.0000	125.00
HCS 2.0 Part 1	B	From Centroid-Leg	4.00 0.00 0.00	0.0000	125.00
AHFIG_TMO	A	From Centroid-Leg	4.00 0.00 0.00	0.0000	125.00
AHFIG_TMO	B	From Centroid-Leg	4.00 0.00 0.00	0.0000	125.00
AHFIG_TMO	C	From Centroid-Leg	4.00 0.00 0.00	0.0000	125.00
(2) 2.4" Dia. x 10-ft Mount Pipe	A	From Centroid-Leg	4.00 0.00 0.00	0.0000	125.00
(2) 2.4" Dia. x 10-ft Mount Pipe	B	From Centroid-Leg	4.00 0.00 0.00	0.0000	125.00
(2) 2.4" Dia. x 10-ft Mount Pipe	C	From Centroid-Leg	4.00 0.00 0.00	0.0000	125.00
Sabre M.O.V.E Platform	C	None	0.0000	0.0000	125.00

**					
*					
MX08FRO665-21 w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	115.00
MX08FRO665-21 w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	115.00
MX08FRO665-21 w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	115.00
TA08025-B604	A	From Leg	4.00 0.00 0.00	0.0000	115.00
TA08025-B604	B	From Leg	4.00 0.00 0.00	0.0000	115.00

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft
TA08025-B604	C	From Leg	4.00 0.00 0.00	0.0000	115.00
TA08025-B605	A	From Leg	4.00 0.00 0.00	0.0000	115.00
TA08025-B605	B	From Leg	4.00 0.00 0.00	0.0000	115.00
TA08025-B605	C	From Leg	4.00 0.00 0.00	0.0000	115.00
RDIDC-9181-PF-48	A	From Leg	4.00 0.00 0.00	0.0000	115.00
Commscope MC-PK8-DSH (2) 8' x 2" Mount Pipe	C A	None From Leg	4.00 0.00 0.00	0.0000 0.0000	115.00 115.00
(2) 8' x 2" Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	115.00
(2) 8' x 2" Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	115.00

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice
3	0.9 Dead+1.0 Wind 0 deg - No Ice
4	1.2 Dead+1.0 Wind 30 deg - No Ice
5	0.9 Dead+1.0 Wind 30 deg - No Ice
6	1.2 Dead+1.0 Wind 60 deg - No Ice
7	0.9 Dead+1.0 Wind 60 deg - No Ice
8	1.2 Dead+1.0 Wind 90 deg - No Ice
9	0.9 Dead+1.0 Wind 90 deg - No Ice
10	1.2 Dead+1.0 Wind 120 deg - No Ice
11	0.9 Dead+1.0 Wind 120 deg - No Ice
12	1.2 Dead+1.0 Wind 150 deg - No Ice
13	0.9 Dead+1.0 Wind 150 deg - No Ice
14	1.2 Dead+1.0 Wind 180 deg - No Ice
15	0.9 Dead+1.0 Wind 180 deg - No Ice
16	1.2 Dead+1.0 Wind 210 deg - No Ice
17	0.9 Dead+1.0 Wind 210 deg - No Ice
18	1.2 Dead+1.0 Wind 240 deg - No Ice
19	0.9 Dead+1.0 Wind 240 deg - No Ice
20	1.2 Dead+1.0 Wind 270 deg - No Ice
21	0.9 Dead+1.0 Wind 270 deg - No Ice
22	1.2 Dead+1.0 Wind 300 deg - No Ice
23	0.9 Dead+1.0 Wind 300 deg - No Ice
24	1.2 Dead+1.0 Wind 330 deg - No Ice
25	0.9 Dead+1.0 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp

Comb. No.	Description
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	130 - 90	Pole	Max Tension	2	0.00	0.00	-0.00
			Max. Compression	26	-17.95	-0.29	0.62
			Max. Mx	8	-10.30	-217.29	-0.35
			Max. My	2	-10.30	0.43	218.90
			Max. Vy	8	7.75	-217.29	-0.35
			Max. Vx	2	-7.80	0.43	218.90
			Max. Torque	23			-0.30
			Max Tension	1	0.00	0.00	0.00
L2	90 - 60	Pole	Max. Compression	26	-25.34	-0.29	0.62
			Max. Mx	8	-15.80	-475.39	-0.79
			Max. My	2	-15.79	0.88	478.62
			Max. Vy	8	9.44	-475.39	-0.79
			Max. Vx	2	-9.50	0.88	478.62
			Max. Torque	23			-0.30
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-32.64	-0.29	0.62
L3	60 - 30	Pole	Max. Mx	8	-21.39	-778.94	-1.24
			Max. My	2	-21.39	1.33	783.79
			Max. Vy	8	10.76	-778.94	-1.24
			Max. Vx	2	-10.82	1.33	783.79
			Max. Torque	23			-0.30
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-39.74	-0.29	0.62
			Max. Mx	8	-27.10	-1112.66	-1.67
L4	30 - 0	Pole	Max. My	2	-27.10	1.76	1119.10
			Max. Vy	8	11.44	-1112.66	-1.67
			Max. Vx	2	-11.49	1.76	1119.10
			Max. Torque	23			-0.30
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-39.74	-0.29	0.62
			Max. Mx	8	-27.10	-1112.66	-1.67
			Max. My	2	-27.10	1.76	1119.10

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	27	39.74	0.00	3.32
	Max. H _x	20	27.11	11.43	0.01

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
	Max. H _z	2	27.11	0.01	11.48
	Max. M _x	2	1119.10	0.01	11.48
	Max. M _z	8	1112.66	-11.43	-0.01
	Max. Torsion	11	0.30	-9.90	-5.75
	Min. Vert	19	20.33	9.89	-5.73
	Min. H _x	8	27.11	-11.43	-0.01
	Min. H _z	14	27.11	-0.01	-11.48
	Min. M _x	14	-1118.74	-0.01	-11.48
	Min. M _z	20	-1112.48	11.43	0.01
	Min. Torsion	23	-0.30	9.90	5.75

Tower Mast Reaction Summary

Load Combination	Vertical K	Shear _x K	Shear _z K	Overturing Moment, M _x kip-ft	Overturing Moment, M _z kip-ft	Torque kip-ft
Dead Only	22.59	0.00	0.00	-0.14	-0.07	0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	27.11	-0.01	-11.48	-1119.10	1.76	0.11
0.9 Dead+1.0 Wind 0 deg - No Ice	20.33	-0.01	-11.48	-1105.34	1.76	0.11
1.2 Dead+1.0 Wind 30 deg - No Ice	27.11	5.70	-9.93	-968.27	-554.77	-0.05
0.9 Dead+1.0 Wind 30 deg - No Ice	20.33	5.70	-9.93	-956.36	-547.96	-0.05
1.2 Dead+1.0 Wind 60 deg - No Ice	27.11	9.89	-5.73	-558.04	-962.69	-0.19
0.9 Dead+1.0 Wind 60 deg - No Ice	20.33	9.89	-5.73	-551.16	-950.87	-0.19
1.2 Dead+1.0 Wind 90 deg - No Ice	27.11	11.43	0.01	1.67	-1112.66	-0.28
0.9 Dead+1.0 Wind 90 deg - No Ice	20.33	11.43	0.01	1.70	-1099.01	-0.28
1.2 Dead+1.0 Wind 120 deg - No Ice	27.11	9.90	5.75	560.89	-964.54	-0.30
0.9 Dead+1.0 Wind 120 deg - No Ice	20.33	9.90	5.75	554.06	-952.69	-0.30
1.2 Dead+1.0 Wind 150 deg - No Ice	27.11	5.73	9.95	969.76	-557.98	-0.24
0.9 Dead+1.0 Wind 150 deg - No Ice	20.33	5.73	9.95	957.92	-551.12	-0.24
1.2 Dead+1.0 Wind 180 deg - No Ice	27.11	0.01	11.48	1118.74	-1.94	-0.11
0.9 Dead+1.0 Wind 180 deg - No Ice	20.33	0.01	11.48	1105.07	-1.89	-0.11
1.2 Dead+1.0 Wind 210 deg - No Ice	27.11	-5.70	9.93	967.91	554.60	0.05
0.9 Dead+1.0 Wind 210 deg - No Ice	20.33	-5.70	9.93	956.10	547.83	0.05
1.2 Dead+1.0 Wind 240 deg - No Ice	27.11	-9.89	5.73	557.68	962.51	0.19
0.9 Dead+1.0 Wind 240 deg - No Ice	20.33	-9.89	5.73	550.89	950.74	0.19
1.2 Dead+1.0 Wind 270 deg - No Ice	27.11	-11.43	-0.01	-2.03	1112.48	0.28
0.9 Dead+1.0 Wind 270 deg - No Ice	20.33	-11.43	-0.01	-1.96	1098.88	0.28
1.2 Dead+1.0 Wind 300 deg - No Ice	27.11	-9.90	-5.75	-561.25	964.36	0.30
0.9 Dead+1.0 Wind 300 deg - No Ice	20.33	-9.90	-5.75	-554.32	952.56	0.30
1.2 Dead+1.0 Wind 330 deg - No Ice	27.11	-5.73	-9.95	-970.12	557.80	0.24
0.9 Dead+1.0 Wind 330 deg - No Ice	20.33	-5.73	-9.95	-958.19	550.99	0.24

Load Combination	Vertical K	Shear _x K	Shear _z K	Overturing Moment, M _x kip-ft	Overturing Moment, M _z kip-ft	Torque kip-ft
1.2 Dead+1.0 Ice+1.0 Temp	39.74	0.00	0.00	-0.62	-0.29	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	39.74	-0.00	-3.32	-323.35	-0.07	0.02
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	39.74	1.65	-2.87	-279.99	-160.98	-0.01
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	39.74	2.87	-1.66	-161.80	-278.85	-0.03
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	39.74	3.31	0.00	-0.46	-322.09	-0.04
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	39.74	2.87	1.66	160.84	-279.11	-0.05
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	39.74	1.66	2.87	278.84	-161.44	-0.04
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	39.74	0.00	3.32	321.93	-0.60	-0.02
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	39.74	-1.65	2.87	278.57	160.32	0.01
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	39.74	-2.87	1.66	160.38	278.18	0.03
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	39.74	-3.31	-0.00	-0.97	321.42	0.04
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	39.74	-2.87	-1.66	-162.26	278.45	0.05
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	39.74	-1.66	-2.87	-280.26	160.77	0.04
Dead+Wind 0 deg - Service	22.59	-0.00	-2.94	-284.81	0.40	0.03
Dead+Wind 30 deg - Service	22.59	1.46	-2.55	-246.43	-141.19	-0.01
Dead+Wind 60 deg - Service	22.59	2.54	-1.47	-142.07	-244.96	-0.05
Dead+Wind 90 deg - Service	22.59	2.93	0.00	0.32	-283.12	-0.07
Dead+Wind 120 deg - Service	22.59	2.54	1.47	142.59	-245.43	-0.08
Dead+Wind 150 deg - Service	22.59	1.47	2.55	246.61	-142.00	-0.06
Dead+Wind 180 deg - Service	22.59	0.00	2.94	284.51	-0.54	-0.03
Dead+Wind 210 deg - Service	22.59	-1.46	2.55	246.13	141.04	0.01
Dead+Wind 240 deg - Service	22.59	-2.54	1.47	141.77	244.81	0.05
Dead+Wind 270 deg - Service	22.59	-2.93	-0.00	-0.62	282.97	0.07
Dead+Wind 300 deg - Service	22.59	-2.54	-1.47	-142.89	245.28	0.08
Dead+Wind 330 deg - Service	22.59	-1.47	-2.55	-246.90	141.85	0.06

Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
1	0.00	-22.59	0.00	0.00	22.59	0.00	0.000%
2	-0.01	-27.11	-11.48	0.01	27.11	11.48	0.000%
3	-0.01	-20.33	-11.48	0.01	20.33	11.48	0.000%
4	5.70	-27.11	-9.93	-5.70	27.11	9.93	0.000%
5	5.70	-20.33	-9.93	-5.70	20.33	9.93	0.000%
6	9.89	-27.11	-5.73	-9.89	27.11	5.73	0.000%
7	9.89	-20.33	-5.73	-9.89	20.33	5.73	0.000%
8	11.43	-27.11	0.01	-11.43	27.11	-0.01	0.000%
9	11.43	-20.33	0.01	-11.43	20.33	-0.01	0.000%
10	9.90	-27.11	5.75	-9.90	27.11	-5.75	0.000%
11	9.90	-20.33	5.75	-9.90	20.33	-5.75	0.000%
12	5.73	-27.11	9.95	-5.73	27.11	-9.95	0.000%
13	5.73	-20.33	9.95	-5.73	20.33	-9.95	0.000%
14	0.01	-27.11	11.48	-0.01	27.11	-11.48	0.000%
15	0.01	-20.33	11.48	-0.01	20.33	-11.48	0.000%

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
16	-5.70	-27.11	9.93	5.70	27.11	-9.93	0.000%
17	-5.70	-20.33	9.93	5.70	20.33	-9.93	0.000%
18	-9.89	-27.11	5.73	9.89	27.11	-5.73	0.000%
19	-9.89	-20.33	5.73	9.89	20.33	-5.73	0.000%
20	-11.43	-27.11	-0.01	11.43	27.11	0.01	0.000%
21	-11.43	-20.33	-0.01	11.43	20.33	0.01	0.000%
22	-9.90	-27.11	-5.75	9.90	27.11	5.75	0.000%
23	-9.90	-20.33	-5.75	9.90	20.33	5.75	0.000%
24	-5.73	-27.11	-9.95	5.73	27.11	9.95	0.000%
25	-5.73	-20.33	-9.95	5.73	20.33	9.95	0.000%
26	0.00	-39.74	0.00	0.00	39.74	0.00	0.000%
27	-0.00	-39.74	-3.32	0.00	39.74	3.32	0.000%
28	1.65	-39.74	-2.87	-1.65	39.74	2.87	0.000%
29	2.87	-39.74	-1.66	-2.87	39.74	1.66	0.000%
30	3.31	-39.74	0.00	-3.31	39.74	-0.00	0.000%
31	2.87	-39.74	1.66	-2.87	39.74	-1.66	0.000%
32	1.66	-39.74	2.87	-1.66	39.74	-2.87	0.000%
33	0.00	-39.74	3.32	-0.00	39.74	-3.32	0.000%
34	-1.65	-39.74	2.87	1.65	39.74	-2.87	0.000%
35	-2.87	-39.74	1.66	2.87	39.74	-1.66	0.000%
36	-3.31	-39.74	-0.00	3.31	39.74	0.00	0.000%
37	-2.87	-39.74	-1.66	2.87	39.74	1.66	0.000%
38	-1.66	-39.74	-2.87	1.66	39.74	2.87	0.000%
39	-0.00	-22.59	-2.94	0.00	22.59	2.94	0.000%
40	1.46	-22.59	-2.55	-1.46	22.59	2.55	0.000%
41	2.54	-22.59	-1.47	-2.54	22.59	1.47	0.000%
42	2.93	-22.59	0.00	-2.93	22.59	-0.00	0.000%
43	2.54	-22.59	1.47	-2.54	22.59	-1.47	0.000%
44	1.47	-22.59	2.55	-1.47	22.59	-2.55	0.000%
45	0.00	-22.59	2.94	-0.00	22.59	-2.94	0.000%
46	-1.46	-22.59	2.55	1.46	22.59	-2.55	0.000%
47	-2.54	-22.59	1.47	2.54	22.59	-1.47	0.000%
48	-2.93	-22.59	-0.00	2.93	22.59	0.00	0.000%
49	-2.54	-22.59	-1.47	2.54	22.59	1.47	0.000%
50	-1.47	-22.59	-2.55	1.47	22.59	2.55	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	4	0.00000001	0.00039255
3	Yes	4	0.00000001	0.00018732
4	Yes	5	0.00000001	0.00080049
5	Yes	5	0.00000001	0.00040022
6	Yes	5	0.00000001	0.00080930
7	Yes	5	0.00000001	0.00040507
8	Yes	4	0.00000001	0.00055831
9	Yes	4	0.00000001	0.00033685
10	Yes	5	0.00000001	0.00079500
11	Yes	5	0.00000001	0.00039724
12	Yes	5	0.00000001	0.00082111
13	Yes	5	0.00000001	0.00041083
14	Yes	4	0.00000001	0.00044816
15	Yes	4	0.00000001	0.00023955
16	Yes	5	0.00000001	0.00080334
17	Yes	5	0.00000001	0.00040194
18	Yes	5	0.00000001	0.00079101
19	Yes	5	0.00000001	0.00039562
20	Yes	4	0.00000001	0.00065463
21	Yes	4	0.00000001	0.00041125
22	Yes	5	0.00000001	0.00082235
23	Yes	5	0.00000001	0.00041161
24	Yes	5	0.00000001	0.00079979
25	Yes	5	0.00000001	0.00039950

26	Yes	4	0.00000001	0.00000001
27	Yes	5	0.00000001	0.00041046
28	Yes	5	0.00000001	0.00046048
29	Yes	5	0.00000001	0.00046000
30	Yes	5	0.00000001	0.00040844
31	Yes	5	0.00000001	0.00045781
32	Yes	5	0.00000001	0.00045844
33	Yes	5	0.00000001	0.00040732
34	Yes	5	0.00000001	0.00045597
35	Yes	5	0.00000001	0.00045537
36	Yes	5	0.00000001	0.00040697
37	Yes	5	0.00000001	0.00045955
38	Yes	5	0.00000001	0.00046001
39	Yes	4	0.00000001	0.00005588
40	Yes	4	0.00000001	0.00027845
41	Yes	4	0.00000001	0.00028887
42	Yes	4	0.00000001	0.00006183
43	Yes	4	0.00000001	0.00026983
44	Yes	4	0.00000001	0.00029423
45	Yes	4	0.00000001	0.00005620
46	Yes	4	0.00000001	0.00028114
47	Yes	4	0.00000001	0.00027049
48	Yes	4	0.00000001	0.00006272
49	Yes	4	0.00000001	0.00029712
50	Yes	4	0.00000001	0.00027297

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	130 - 90	13.309	39	0.7502	0.0008
L2	90 - 60	7.296	39	0.6264	0.0004
L3	60 - 30	3.670	39	0.5141	0.0003
L4	30 - 0	1.030	39	0.3096	0.0001

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
125.00	HBXX-6516DS-A2M w/ Mount Pipe	39	12.521	0.7348	0.0007	87270
115.00	MX08FRO665-21 w/ Mount Pipe	39	10.960	0.7040	0.0006	29090

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	130 - 90	52.327	2	2.9498	0.0031
L2	90 - 60	28.694	2	2.4638	0.0015
L3	60 - 30	14.430	2	2.0222	0.0010
L4	30 - 0	4.049	2	1.2174	0.0005

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
125.00	HBXX-6516DS-A2M w/ Mount Pipe	2	49.231	2.8894	0.0029	22335
115.00	MX08FRO665-21 w/ Mount Pipe	2	43.094	2.7686	0.0024	7444

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L1	130 - 90 (1)	P24x.375	40.00	0.00	0.0	27.832 5	-10.30	876.73	0.012
L2	90 - 60 (2)	P36x.375	30.00	0.00	0.0	41.969 7	-15.79	1490.10	0.011
L3	60 - 30 (3)	P36x.375	30.00	0.00	0.0	41.969 7	-21.39	1490.10	0.014
L4	30 - 0 (4)	P36x.375	30.00	0.00	0.0	41.969 7	-27.10	1490.10	0.018

Pole Bending Design Data

Section No.	Elevation ft	Size	M _{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M _{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	130 - 90 (1)	P24x.375	218.90	538.74	0.406	0.00	538.74	0.000
L2	90 - 60 (2)	P36x.375	478.62	1338.81	0.357	0.00	1338.81	0.000
L3	60 - 30 (3)	P36x.375	783.79	1338.81	0.585	0.00	1338.81	0.000
L4	30 - 0 (4)	P36x.375	1119.10	1338.81	0.836	0.00	1338.81	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V _u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T _u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	130 - 90 (1)	P24x.375	7.80	263.02	0.030	0.24	546.31	0.000
L2	90 - 60 (2)	P36x.375	9.50	454.19	0.021	0.11	1094.28	0.000
L3	60 - 30 (3)	P36x.375	10.82	454.19	0.024	0.11	1094.28	0.000
L4	30 - 0 (4)	P36x.375	11.49	454.19	0.025	0.11	1094.28	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	130 - 90 (1)	0.012	0.406	0.000	0.030	0.000	0.419	1.050	4.8.2
L2	90 - 60 (2)	0.011	0.357	0.000	0.021	0.000	0.369	1.050	4.8.2

Section No.	Elevation ft	Ratio P_u ϕP_n	Ratio M_{ux} ϕM_{nx}	Ratio M_{uy} ϕM_{ny}	Ratio V_u ϕV_n	Ratio T_u ϕT_n	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L3	60 - 30 (3)	0.014	0.585	0.000	0.024	0.000	0.600	1.050	4.8.2
L4	30 - 0 (4)	0.018	0.836	0.000	0.025	0.000	0.855	1.050	4.8.2

Section Capacity Table

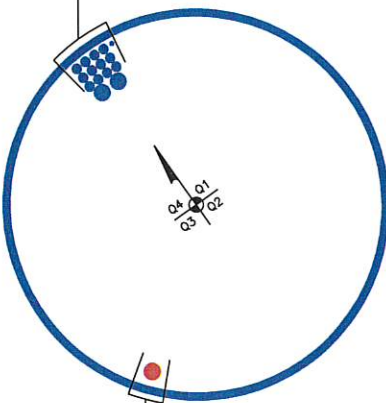
Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	130 - 90	Pole	P24x.375	1	-10.30	920.56	39.9	Pass
L2	90 - 60	Pole	P36x.375	2	-15.79	1564.60	35.1	Pass
L3	60 - 30	Pole	P36x.375	3	-21.39	1564.60	57.2	Pass
L4	30 - 0	Pole	P36x.375	4	-27.10	1564.60	81.4	Pass
Summary								
Pole (L4)							81.4	Pass
RATING =							81.4	Pass

***NOTE:** Above stress ratios for reinforced sections are approximate. More exact calculations are presented in Appendix C.

APPENDIX B
BASE LEVEL DRAWING



(OTHER CONSIDERED EQUIPMENT)
(6) 7/8" TO 115 FT LEVEL
(1) 3/8" TO 125 FT LEVEL
(6) 7/8" TO 125 FT LEVEL
(2) 1-1/2" TO 125 FT LEVEL



(PROPOSED EQUIPMENT CONFIGURATION)
(1) 1-1/2" TO 115 FT LEVEL

APPENDIX C

ADDITIONAL CALCULATIONS

Monopole Flange Plate Connection

Elevation = 90 ft.

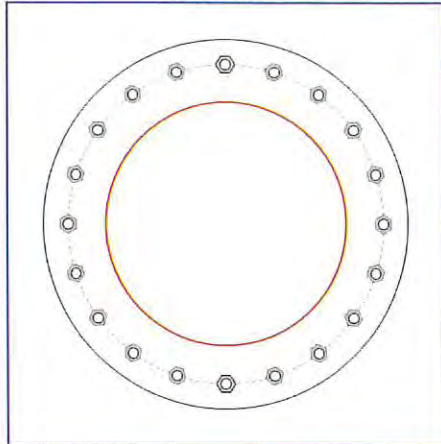


BU #	827008
Site Name	iver Point Shopping Ce
Order #	579464 Rev.7
TIA-222 Revision	H

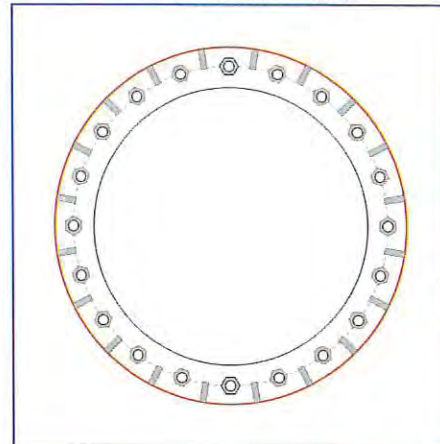
Applied Loads	
Moment (kip-ft)	218.90
Axial Force (kips)	10.30
Shear Force (kips)	7.80

*TIA-222-H Section 15.5 Applied

Top Plate - External



Bottom Plate - Internal



Connection Properties

Bolt Data

(20) 1" ϕ bolts (A325 N; Fy=92 ksi, Fu=120 ksi) on 31.5" BC

Top Plate Data

36.5" OD x 2" Plate (A572-50; Fy=50 ksi, Fu=65 ksi)

Top Stiffener Data

N/A

Top Pole Data

24" x 0.375" round pole (A53-B-35; Fy=35 ksi, Fu=60 ksi)

Bottom Plate Data

27.375" ID x 1.125" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Bottom Stiffener Data

(20) 3.5"H x 2"W x 0.625"T, Notch: 0.5"
plate: Fy= 36 ksi ; weld: Fy= 70 ksi
horiz. weld: 0.375" fillet
vert. weld: 0.375" fillet

Bottom Pole Data

36" x 0.375" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	16.16
Allowable (kips)	54.54
Stress Rating:	28.2% Pass

Top Plate Capacity

Max Stress (ksi):	8.98	(Flexural)
Allowable Stress (ksi):	45.00	
Stress Rating:	19.0%	Pass
Tension Side Stress Rating:	13.2%	Pass

Top Stiffener Capacity

Horizontal Weld:	N/A
Vertical Weld:	N/A
Plate Flexure+Shear:	N/A
Plate Tension+Shear:	N/A
Plate Compression:	N/A

Top Pole Capacity

Punching Shear:	N/A
-----------------	-----

Bottom Plate Capacity

Max Stress (ksi):	11.17	(Roark's Flexural)
Allowable Stress (ksi):	32.40	
Stress Rating:	32.8%	Pass
Tension Side Stress Rating:	N/A	

Bottom Stiffener Capacity

Horizontal Weld:	19.6%	Pass
Vertical Weld:	11.8%	Pass
Plate Flexure+Shear:	7.8%	Pass
Plate Tension+Shear:	15.6%	Pass
Plate Compression:	21.4%	Pass

Bottom Pole Capacity

Punching Shear:	7.0%	Pass
-----------------	------	---

Monopole Flange Plate Connection

Elevation = 60 ft.

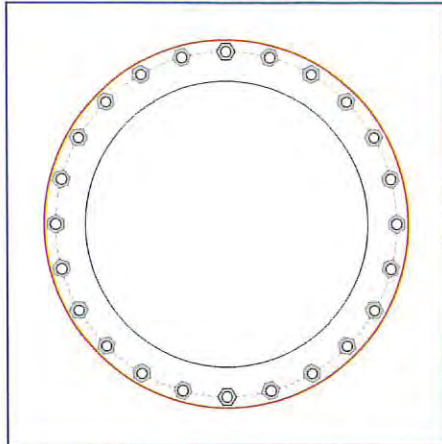


BU #	827008
Site Name	iver Point Shopping Ce
Order #	579464 Rev.7
TIA-222 Revision	H

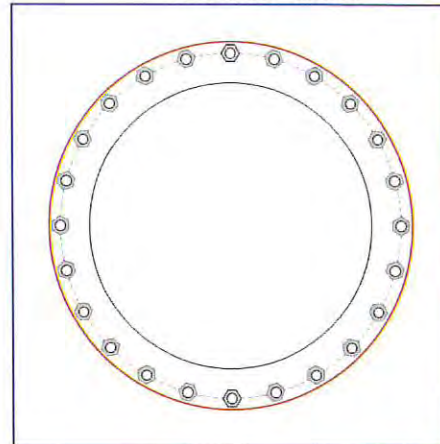
Applied Loads	
Moment (kip-ft)	478.62
Axial Force (kips)	15.79
Shear Force (kips)	9.50

*TIA-222-H Section 15.5 Applied

Top Plate - Internal



Bottom Plate - Internal



Connection Properties

Bolt Data

(24) 1" ϕ bolts (A325 N; Fy=92 ksi, Fu=120 ksi) on 33" BC

Top Plate Data

27.375" ID x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Top Stiffener Data

N/A

Top Pole Data

36" x 0.375" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Bottom Plate Data

27.375" ID x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Bottom Stiffener Data

N/A

Bottom Pole Data

36" x 0.375" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	28.34
Allowable (kips)	54.54
Stress Rating:	49.5% Pass

Top Plate Capacity

Max Stress (ksi):	18.51	(Flexural)
Allowable Stress (ksi):	32.40	
Stress Rating:	54.4%	Pass
Tension Side Stress Rating:	10.1%	Pass

Bottom Plate Capacity

Max Stress (ksi):	18.51	(Flexural)
Allowable Stress (ksi):	32.40	
Stress Rating:	54.4%	Pass
Tension Side Stress Rating:	10.1%	Pass

Monopole Flange Plate Connection

Elevation = 30 ft.

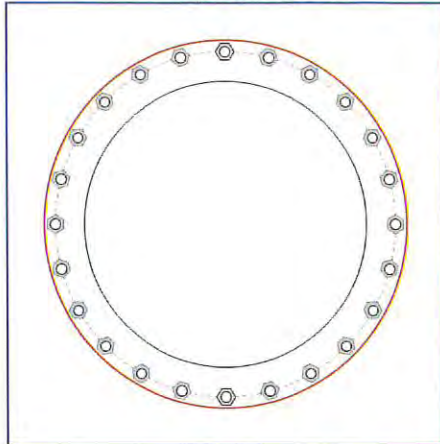


BU #	827008
Site Name	Iver Point Shopping Ce
Order #	579464 Rev.7
TIA-222 Revision	H

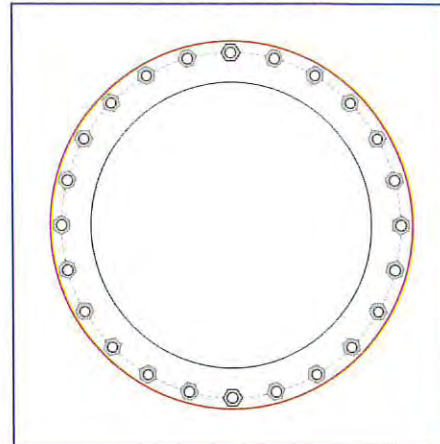
Applied Loads	
Moment (kip-ft)	783.79
Axial Force (kips)	21.39
Shear Force (kips)	10.82

*TIA-222-H Section 15.5 Applied

Top Plate - Internal



Bottom Plate - Internal



Connection Properties

Bolt Data

(24) 1" ϕ bolts (A325 N; Fy=92 ksi, Fu=120 ksi) on 33" BC

Top Plate Data

27.375" ID x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Top Stiffener Data

N/A

Top Pole Data

36" x 0.375" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Bottom Plate Data

27.375" ID x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Bottom Stiffener Data

N/A

Bottom Pole Data

36" x 0.375" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	46.59
Allowable (kips)	54.54
Stress Rating:	81.4% Pass

Top Plate Capacity

Max Stress (ksi):	30.19	(Flexural)
Allowable Stress (ksi):	32.40	
Stress Rating:	88.8%	Pass
Tension Side Stress Rating:	16.6%	Pass

Bottom Plate Capacity

Max Stress (ksi):	30.19	(Flexural)
Allowable Stress (ksi):	32.40	
Stress Rating:	88.8%	Pass
Tension Side Stress Rating:	16.6%	Pass

Monopole Base Plate Connection

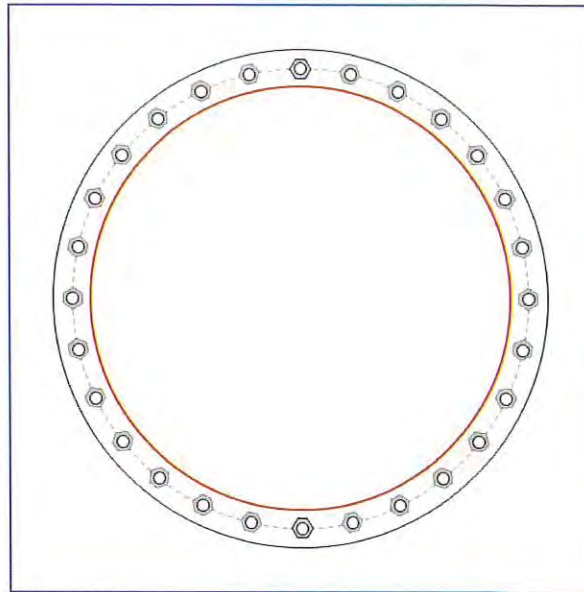


Site Info	
BU #	827008
Site Name	Liver Point Shopping Center
Order #	579464 Rev.7

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
l_{ar} (in)	1.625

Applied Loads	
Moment (kip-ft)	1119.10
Axial Force (kips)	27.10
Shear Force (kips)	11.49

*TIA-222-H Section 15.5 Applied



Connection Properties		Analysis Results	
Anchor Rod Data		Anchor Rod Summary (units of kips, kip-in)	
(28) 1" ϕ bolts (A687 N; $F_y=105$ ksi, $F_u=125$ ksi) on 39" BC		$Pu_t = 48.21$	$\phi Pn_t = 56.81$ Stress Rating
Base Plate Data		$Vu = 0.41$	$\phi Vn = 36.82$ 80.8%
42.375" OD x 1.25" Plate (A36; $F_y=36$ ksi, $F_u=58$ ksi)		$Mu = 0.43$	$\phi Mn = 15.75$ Pass
Stiffener Data		Base Plate Summary	
N/A		Max Stress (ksi):	29.99 (Flexural)
Pole Data		Allowable Stress (ksi):	32.4
36" x 0.375" round pole (A53-B-42; $F_y=42$ ksi, $F_u=63$ ksi)		Stress Rating:	88.2% Pass

Drilled Pier Foundation

BU # :	827008
Site Name:	River Point Shopping Cent
Order Number:	579464 Rev.7
TIA-222 Revision:	H
Tower Type:	Monopole



Check Limitation	
Apply TIA-222-H Section 15.5:	☒
	N/A
Additional Longitudinal Rebar	
Input Effective Depths (else Actual):	☐
Shear Design Options	
Check Shear along Depth of Pier:	☒
Utilize Shear-Friction Methodology:	☒
Override Critical Depth:	☐

[Go to Soil Calculations](#)

Analysis Results			
Soil Lateral Check		Compression	Uplift
D _{re} (ft from TOC)		8.06	-
Soil Safety Factor		7.07	-
Max Moment (kip-ft)		1213.02	-
Rating*		17.9%	-
Soil Vertical Check		Compression	Uplift
Skin Friction (kips)		346.97	-
End Bearing (kips)		319.20	-
Weight of Concrete (kips)		67.28	-
Total Capacity (kips)		666.17	-
Axial (kips)		94.39	-
Rating*		13.5%	-
Reinforced Concrete Flexure		Compression	Uplift
Critical Depth (ft from TOC)		8.08	-
Critical Moment (kip-ft)		1213.02	-
Critical Moment Capacity		2748.42	-
Rating*		42.0%	-
Reinforced Concrete Shear		Compression	Uplift
Critical Depth (ft from TOC)		19.54	-
Critical Shear (kip)		80.60	-
Critical Shear Capacity		330.97	-
Rating*		23.2%	-
Structural Foundation Rating*		42.0%	
Soil Interaction Rating*		17.9%	

*Rating per TIA-222-H Section 15.5

Shear-Friction Methodology is Applied

Rebar & Pier Options
Embedded Pole Inputs
Belled Pier Inputs

Pier Design Data	
Depth	23 ft
Ext. Above Grade	0.5 ft
Pier Section 1	
From 0.5' above grade to 23' below grade	
Pier Diameter	4.5 ft
Rebar Quantity	24
Rebar Size	10
Clear Cover to Ties	3 in
Tie Size	5
Tie Spacing	18 in

Applied Loads		
Comp.		Uplift
Moment (kip-ft)	1119.1	
Axial Force (kips)	27.11	
Shear Force (kips)	11.48	

Material Properties	
Concrete Strength, f _c :	3 ksi
Rebar Strength, F _y :	60 ksi
Tie Yield Strength, F _y :	40 ksi

Groundwater Depth		Soil Profile												
N/A		# of Layers			2									
Layer	Top (ft)	Bottom (ft)	Thickness (ft)	γ_{soil} (pcf)	$\gamma_{concrete}$ (pcf)	Cohesion (ksf)	Angle of Friction (degrees)	Calculated Ultimate Skin Friction Comp (ksf)	Calculated Ultimate Skin Friction Uplift (ksf)	Ultimate Skin Friction Override (ksf)	Ultimate Skin Friction Uplift Override (ksf)	Ult. Net Bearing Capacity (ksf)	SPT Blow Count	Soil Type
1	0	7	7	120	150	0	0	0.000	0.000	0.00	0.00			Cohesionless
2	7	23	16	120	150	4		2.045	2.045			24		Cohesive

ASCE 7 Hazards Report

Address:

No Address at This Location

Standard: ASCE/SEI 7-10

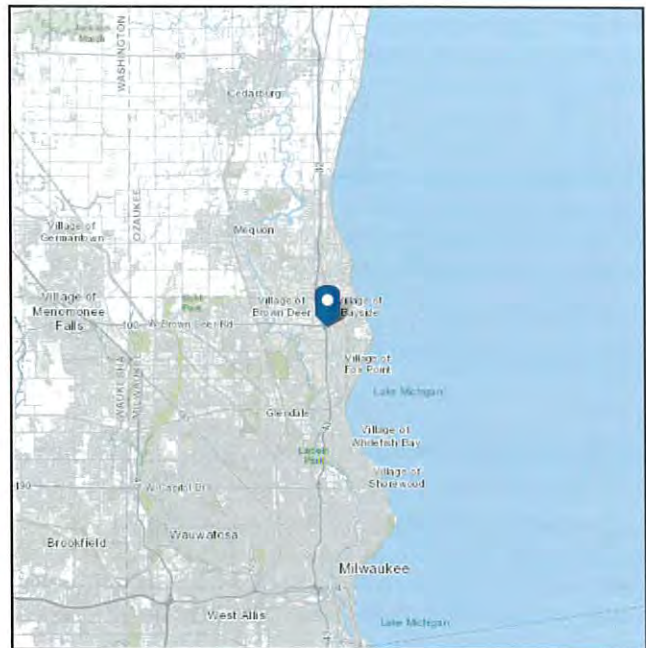
Risk Category: II

Soil Class: D - Stiff Soil

Elevation: 685.18 ft (NAVD 88)

Latitude: 43.176008

Longitude: -87.915078



Wind

Results:

Wind Speed:	115 Vmph
10-year MRI	76 Vmph
25-year MRI	84 Vmph
50-year MRI	90 Vmph
100-year MRI	96 Vmph

Data Accessed: ASCE/SEI 7-10, Fig. 26.5-1A and Figs. CC-1-CC-4, and Section 26.5.2, incorporating errata of March 12, 2014

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-10 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

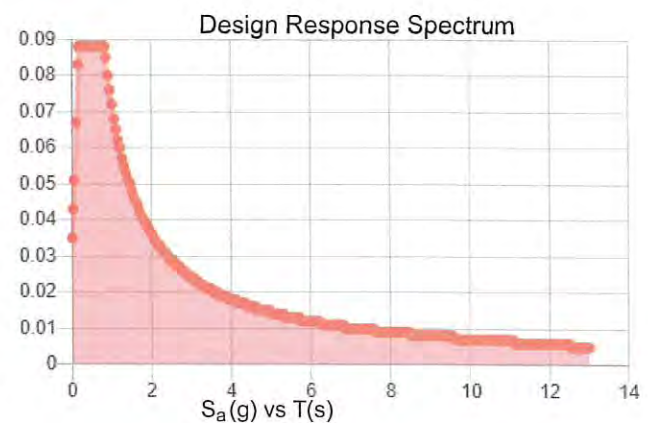
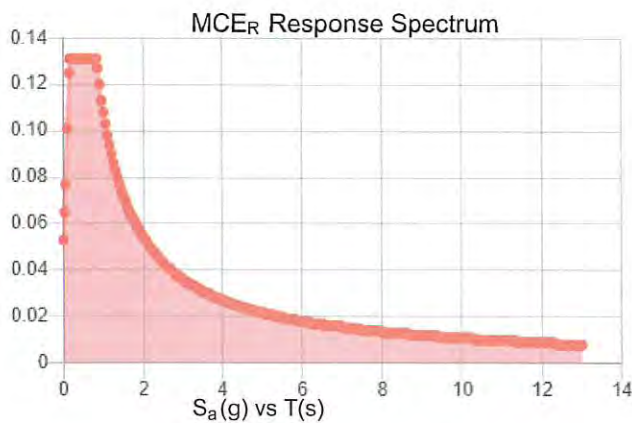
Site is not in a hurricane-prone region as defined in ASCE/SEI 7-10 Section 26.2.

Site Soil Class: D - Stiff Soil

Results:

S_s :	0.082	S_{DS} :	0.088
S_1 :	0.045	S_{D1} :	0.072
F_a :	1.6	T_L :	12
F_v :	2.4	PGA :	0.039
S_{MS} :	0.131	PGA_M :	0.062
S_{M1} :	0.108	F_{PGA} :	1.6
		I_e :	1

Seismic Design Category B



Data Accessed:

Fri Mar 26 2021

Date Source:

USGS Seismic Design Maps based on ASCE/SEI 7-10, incorporating Supplement 1 and errata of March 31, 2013, and ASCE/SEI 7-10 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-10 Ch. 21 are available from USGS.

Ice

Results:

Ice Thickness: 0.75 in.
Concurrent Temperature: -5 F
Gust Speed: 40 mph

Data Source: Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8

Date Accessed: Fri Mar 26 2021

Ice thicknesses on structures in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 50-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

The ASCE 7 Hazard Tool is provided for your convenience, for informational purposes only, and is provided "as is" and without warranties of any kind. The location data included herein has been obtained from information developed, produced, and maintained by third party providers; or has been extrapolated from maps incorporated in the ASCE 7 standard. While ASCE has made every effort to use data obtained from reliable sources or methodologies, ASCE does not make any representations or warranties as to the accuracy, completeness, reliability, currency, or quality of any data provided herein. Any third-party links provided by this Tool should not be construed as an endorsement, affiliation, relationship, or sponsorship of such third-party content by or from ASCE.

ASCE does not intend, nor should anyone interpret, the results provided by this Tool to replace the sound judgment of a competent professional, having knowledge and experience in the appropriate field(s) of practice, nor to substitute for the standard of care required of such professionals in interpreting and applying the contents of this Tool or the ASCE 7 standard.

In using this Tool, you expressly assume all risks associated with your use. Under no circumstances shall ASCE or its officers, directors, employees, members, affiliates, or agents be liable to you or any other person for any direct, indirect, special, incidental, or consequential damages arising from or related to your use of, or reliance on, the Tool or any information obtained therein. To the fullest extent permitted by law, you agree to release and hold harmless ASCE from any and all liability of any nature arising out of or resulting from any use of data provided by the ASCE 7 Hazard Tool.

**DISTRIBUTION EASEMENT
UNDERGROUND ELECTRIC AND
COMMUNICATIONS**

Document Number

WR NO. **4734184 and 4757996** IO NO. **76579 and
76580**

For good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, **Village of Whitefish Bay, Village of Fox Point and City of Glendale**, hereinafter referred to as "Grantor", owners of land, hereby grants and warrants to **WISCONSIN ELECTRIC POWER COMPANY, a Wisconsin corporation doing business as We Energies, SPECTRUM MID-AMERICA, LLC and WISCONSIN BELL, INC. doing business as AT&T Wisconsin, a Wisconsin corporation**, hereinafter referred to as "Grantee", a permanent easement upon, within, beneath, over and across a part of Grantor's land hereinafter referred to as "easement area".

The easement area is described as a strip of land twelve (12) feet in width being a part of Grantor's land in the **Northeast 1/4 of Section 29, Township 8 North, Range 22 East**, City of Glendale, Milwaukee County, Wisconsin.

The location of the easement area with respect to Grantor's land is as shown on the attached drawing, marked Exhibit "A", and made a part of this document.

RETURN TO:
We Energies
PROPERTY RIGHTS & INFORMATION GROUP
231 W. MICHIGAN STREET, ROOM P277
PO BOX 2046
MILWAUKEE, WI 53201-2046

163-8981-002
(Parcel Identification Number)

1. **Purpose:** The purpose of this easement is to construct, install, operate, maintain, repair, replace and extend underground utility facilities, conduit and cables, electric pad-mounted transformers, manhole, electric pad-mounted switch-fuse units, electric pad-mounted vacuum fault interrupter, concrete slabs, power pedestals, riser equipment, terminals and markers, together with all necessary and appurtenant equipment under and above ground as deemed necessary by Grantee, all to transmit electric energy, signals, television and telecommunication services, including the customary growth and replacement thereof. Trees, bushes, branches and roots may be trimmed or removed so as not to interfere with Grantee's use of the easement area.
2. **Access:** Grantee or its agents shall have the right to enter and use Grantor's land with full right of ingress and egress over and across the easement area and adjacent lands of Grantor for the purpose of exercising its rights in the easement area.
3. **Buildings or Other Structures:** Grantor agrees that no structures will be erected in the easement area or in such close proximity to Grantee's facilities as to create a violation of all applicable State of Wisconsin electric codes or any amendments thereto.
4. **Elevation:** Grantor agrees that the elevation of the ground surface existing as of the date of the initial installation of Grantee's facilities within the easement area will not be altered by more than 4 inches without the written consent of Grantee.
5. **Restoration:** Grantee agrees to restore or cause to have restored Grantor's land, as nearly as is reasonably possible, to the condition existing prior to such entry by Grantee or its agents. This restoration, however, does not apply to any trees, bushes, branches or roots which may interfere with Grantee's use of the easement area.
6. **Exercise of Rights:** It is agreed that the complete exercise of the rights herein conveyed may be gradual and not fully exercised until some time in the future, and that none of the rights herein granted shall be lost by non-use.
7. **Binding on Future Parties:** This grant of easement shall be binding upon and inure to the benefit of the heirs, successors and assigns of all parties hereto.
8. **Easement Review:** Grantor acknowledges receipt of materials which describe Grantor's rights and options in the easement negotiation process and furthermore acknowledges that Grantor has had at least 5 days to review this easement document or voluntarily waives the five day review period.

Grantor:

Village of Whitefish Bay, ~~Village of Fox Point and City of Glendale~~

By _____

(Print name and title): _____

By _____

(Print name and title): _____

By _____

(Print name and title): _____

Personally came before me in _____ County, Wisconsin on _____, _____,

the above named _____, the _____

and _____, the _____

and _____, the _____

of the Village of Whitefish Bay, Village of Fox Point and City of Glendale, for the municipal corporations.

Notary Public Signature, State of Wisconsin

Notary Public Name (Typed or Printed)

(NOTARY STAMP/SEAL)

My commission expires _____

Grantor:

~~Village of Whitefish Bay, Village of Fox Point and City of Glendale~~

By _____

(Print name and title): _____

By _____

(Print name and title): _____

By _____

(Print name and title): _____

Personally came before me in _____ County, Wisconsin on _____,

the above named _____, the _____

and _____, the _____

and _____, the _____

of the Village of Whitefish Bay, Village of Fox Point and City of Glendale, for the municipal corporations.

Notary Public Signature, State of Wisconsin

Notary Public Name (Typed or Printed)

(NOTARY STAMP/SEAL)

My commission expires _____

Grantor:

~~Village of Whitefish Bay, Village of Fox Point and City of Glendale~~

By _____

(Print name and title): _____

By _____

(Print name and title): _____

By _____

(Print name and title): _____

Personally came before me in _____ County, Wisconsin on _____,

the above named _____, the _____

and _____, the _____

and _____, the _____

of the Village of Whitefish Bay, Village of Fox Point and City of Glendale, for the municipal corporations.

Notary Public Signature, State of Wisconsin

Notary Public Name (Typed or Printed)

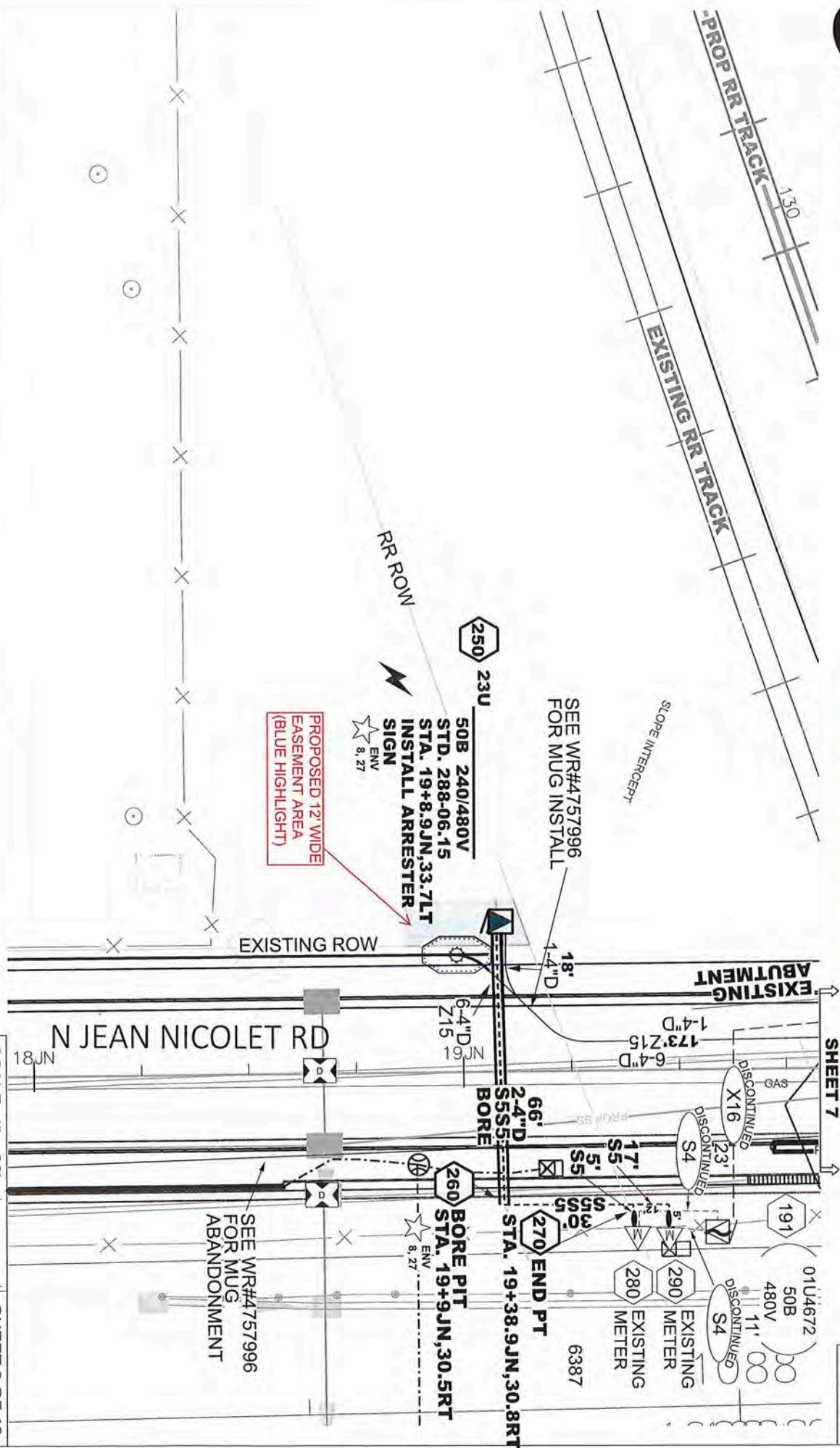
(NOTARY STAMP/SEAL)

My commission expires _____



ELECTRIC WORK REQUEST
4734184

TEMPORARY EXHIBIT "A"



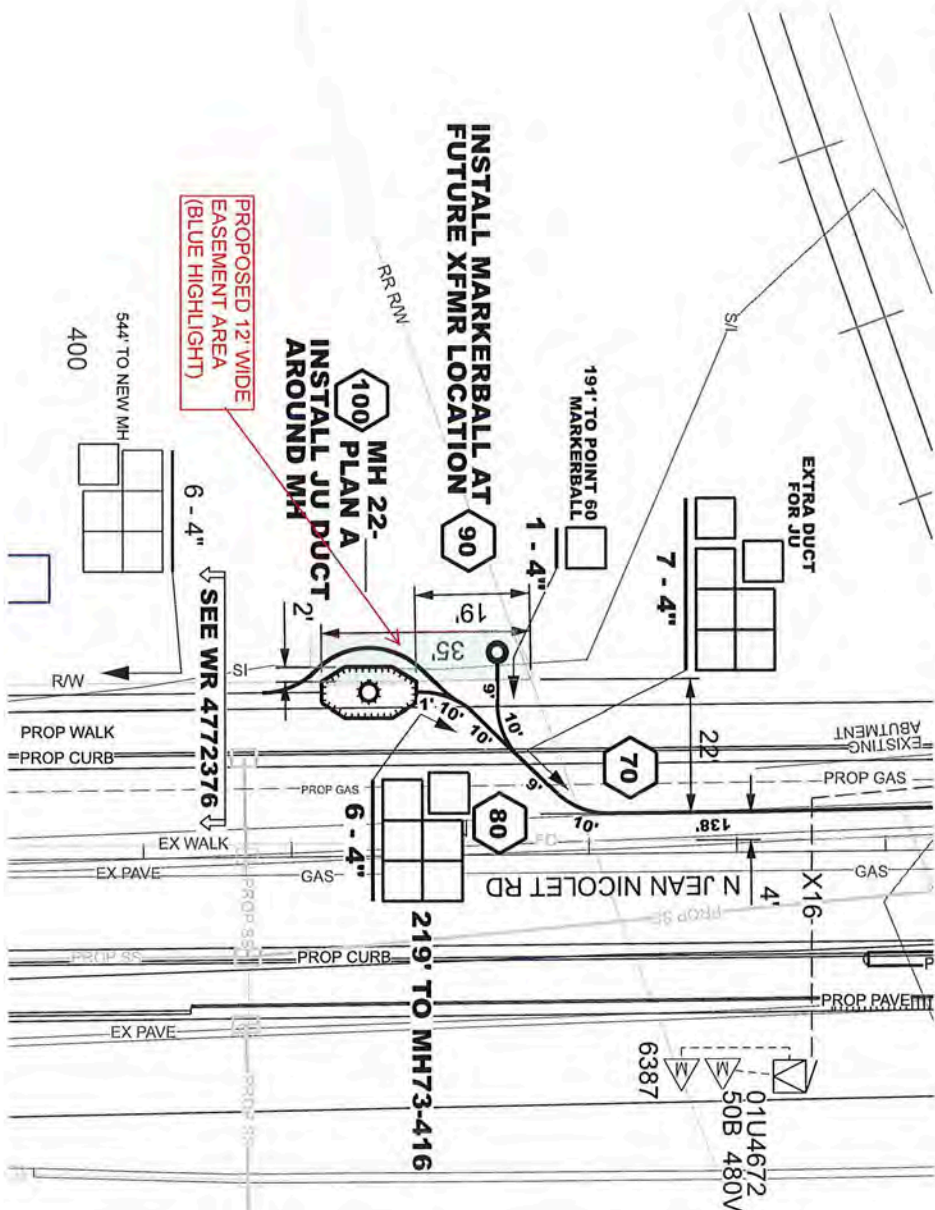


ELECTRIC WORK REQUEST

4757996

SPANS:
50 - 70 = 138' (ASPHALT WALK)
70 - 80 = 19' (GRASS)
80 - 90 = 34' (GRASS)
80 - 100 = 21' (GRASS)
12'-9" RADIUS BENDS:
STRAIGHT
1-45° TURN
1-45° TURN
1-45° TURN

TEMPORARY EXHIBIT "A"



January 10, 2023

**APPOINTMENTS TO BOARDS, COMMITTEES AND COMMISSIONS
VILLAGE OF FOX POINT, WISCONSIN¹**

Finance Committee (confirmation requested)
(1-year term)
Elizabeth Aelion

Audit Committee (confirmation requested)
(1-year term)
Elizabeth Aelion

Water/Sewer Utility Committee (confirmation requested)
(1-year term)
Elizabeth Aelion, Chair

Respectfully submitted,

Douglas H. Frazer
Village President

¹ (R) designates returning member.

RESOLUTION NO. 2023-____**RESOLUTION TO ADOPT WORLD MIGRATORY BIRD DAY**

Whereas, migratory birds are some of the most beautiful and easily observed wildlife that share our communities, *and*

Whereas, many citizens recognize and welcome migratory songbirds as symbolic harbingers of spring, *and*

Whereas, these migrant species also play an important economic role in our community, controlling insect pests and generating millions in recreational dollars statewide, *and*

Whereas, migratory birds and their habitats are declining throughout the Americas, facing a growing number of threats on their migration routes and in both their summer and winter homes, *and*

Whereas, public awareness and concern are crucial components of migratory bird conservation, *And*

Whereas, citizens enthusiastic about birds, informed about the threats they face, and empowered to help address those threats can directly contribute to maintaining healthy bird populations, *and*

Whereas, since 1993 World Migratory Bird Day (formerly International Migratory Bird Day) has become a primary vehicle for focusing public attention on the nearly 350 species that travel between nesting habitats in our communities and throughout North America and their wintering grounds in South and Central America, Mexico, the Caribbean, and the southern U.S., *and*

Whereas, hundreds of thousands of people will observe WMBD, gathering in town squares, community centers, schools, parks, nature centers, and wildlife refuges to learn about birds, take action to conserve them, and simply to have fun, *and*

Whereas, while WMBD officially is held each year on the second Saturday in May, its observance is not limited to a single day, and planners are encouraged to schedule activities on the dates best suited to the presence of both migrants and celebrants, *and*

Whereas, WMBD is not only a day to foster appreciation for wild birds and to celebrate and support migratory bird conservation, but also a call to action,

Now Therefore Be It Resolved, that the Fox Point Village President and Village Board hereby do hereby proclaim May 6, 2023 as World Migratory Bird Day in the Village of Fox Point and urge all citizens to celebrate this observance and to support efforts to protect and conserve migratory birds and their habitats in our community and the world at large.

Passed and Adopted by the Village Board, Village of Fox Point, this 10th of January, 2023.

Douglas H. Frazer
Village President

Kelly A. Meyer, CMC/WCMC
Village Clerk/Treasurer



VILLAGE OF FOX POINT

MILWAUKEE COUNTY
WISCONSIN

VILLAGE HALL
7200 N. SANTA MONICA BLVD.
FOX POINT 53217-3505
414-351-8800
FAX 414-351-8809

To: Village Board

From: Steve West 

Through: Scott Botcher, Village Manager
Scott Brandmeier, Director of Public Works 

Date: January 5, 2023

Re: Front End Wheel Loader W/ Light Duty Bucket

We received one (1) quote for the purchase of a new Front-End Wheel loader. **I recommend that the Village accept the quote from Brooks Tractor Inc. in the amount of \$178,995.00** for one (1) John Deere Wheel Loader Model # 524P Including the trade-in credit of \$52,000.00 for one (1) 2009 John Deere 444k Wheel Loader all as specified. This piece of equipment meets or exceeds all of our specifications.

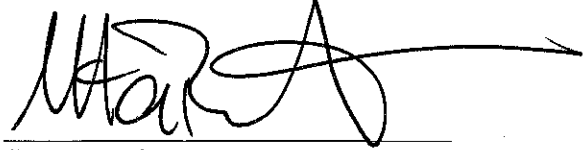
In talking with other vendors, they were unsure of a delivery date, if any manufacturers' overages would be applied and how much the overages may be if applied. Brooks Tractor Inc. pre-ordered two wheel loaders which will be delivered in February and are making one of them available to the Village for purchase.

I am recommending the quote from Brooks Tractor Inc. for the following reasons:

- 1) This Wheel Loader is the same brand of our current loader which makes for faster employee training and safer operation.
- 2) This machine is one model bigger than our current one. The increased size results in a taller dumping/lifting height making it safer and more efficient to load our trucks.
- 3) We are able to purchase a much better warranty of 84 month/4,000 hours (which is already included in the price of the loader).

I am also requesting an additional \$1,005.00 for graphics and miscellaneous equipment to complete this unit after we take delivery bringing the **total requested amount at this time to \$180,000.00. We budgeted \$180,000.00 for this purchase.**

This is to certify that the attached is true and correct list of bills due for a period from December 1-31, 2022, in the total amount of \$849,283.11. Each bill has been approved in writing by the official department head or employee authorized to incur the obligations and which bills have been audited by the undersigned pursuant to resolution of the Village Board.

A handwritten signature in black ink, appearing to read 'Scott Botcher', written over a horizontal line.

Scott Botcher
Village Manager
Village of Fox Point

This is to certify that the above listed accounts and demands have been presented and allowed and ordered paid by the Village Board at a meeting thereof held on January 10, 2023.

Douglas H. Frazer
Village President

Kelly A. Meyer
Village Clerk/Treasurer
Village of Fox Point

Vendor	Vendor Name	Invoice Number	Description	Invoice Date	Amount Paid	Date Paid
10-21520 GROUP LIFE						
18	SECURIAN FINANCIAL GROUP I	JANUARY 2023	LIFE INSURANCE	12/14/2022	900.08	12/16/2022
Total 10-21520 GROUP LIFE:					900.08	
10-21521 SUPPLEMENTAL PLANS						
1227	AFLAC	809396	NOVEMBER	11/30/2022	400.98	12/02/2022
Total 10-21521 SUPPLEMENTAL PLANS:					400.98	
10-21525 UNION DUES						
185	FOX POINT POLICE PROT. ASS	DECEMBER 2022	POLICE DUES	12/16/2022	495.00	12/22/2022
Total 10-21525 UNION DUES:					495.00	
10-21530 DEFERRED COMPENSATION						
375	NORTH SHORE BANK, FSB	PR1208222	Deferred Comp NORTH SHORE	12/07/2022	2,030.00	12/09/2022
375	NORTH SHORE BANK, FSB	PR1222222	Deferred Comp NORTH SHORE	12/21/2022	1,530.00	12/22/2022
814	GREAT-WEST TRUST COMPAN	PR1208221	Deferred Comp WI DEFER - PRE	12/07/2022	4,556.83	12/09/2022
814	GREAT-WEST TRUST COMPAN	PR1208221	Deferred Comp WI DEFER - RO	12/07/2022	836.92	12/09/2022
814	GREAT-WEST TRUST COMPAN	PR1222221	Deferred Comp WI DEFER - PRE	12/21/2022	4,556.83	12/22/2022
814	GREAT-WEST TRUST COMPAN	PR1222221	Deferred Comp WI DEFER - RO	12/21/2022	836.92	12/22/2022
101891	VANTAGEPOINT TRANSFER AG	PR1208221	Deferred Comp ICMA-PRETAX	12/07/2022	1,016.43	12/09/2022
101891	VANTAGEPOINT TRANSFER AG	PR1222221	Deferred Comp ICMA-PRETAX	12/21/2022	1,016.43	12/22/2022
Total 10-21530 DEFERRED COMPENSATION:					16,380.36	
10-21540 GARNISHMENT						
797	WI SCTF	12/09/2022	REMIT 217318 CASE PIN 217318	12/08/2022	149.60	12/09/2022
Total 10-21540 GARNISHMENT:					149.60	
10-44120 LIQUOR/TOBACCO LICENSES						
727	WI DEPT. OF JUSTICE	20221201LIQ	BARTENDER	12/07/2022	7.00	12/09/2022
Total 10-44120 LIQUOR/TOBACCO LICENSES:					7.00	
10-44500 ESTATE SALES PERMIT						
4536	LEGACIES, LTD.	12/15/2022	REFUND DEPOSIT	12/20/2022	500.00	12/22/2022
Total 10-44500 ESTATE SALES PERMIT:					500.00	
10-45100 FINES/FORFEITURES						
1335	STOLTZ, HEATHER	10/03/2022	PAYMENT NOT VILLAGES	12/08/2022	98.80	12/09/2022
101664	WISCONSIN DEPT. OF REVENUE	TASH/MICHELLE 1/	BG397755-1 TASH	12/08/2022	190.50	12/09/2022
Total 10-45100 FINES/FORFEITURES:					289.30	
10-46710 PAVILION RENTALS						
1279	BARTZ, AUBREY	1.057991	PAVILION DEPOSIT REFUND	11/28/2022	50.00	12/02/2022
Total 10-46710 PAVILION RENTALS:					50.00	
10-51200-395 COUNTY COURT FEES						
330	MILWAUKEE COUNTY TREASU	NOVEMBER 2022	DRIVER SUR/JAIL FEE	12/02/2022	240.00	12/09/2022
552	WISCONSIN, STATE OF - COUR	NOVEMBER 2022	NOVEMBER	12/02/2022	1,058.29	12/09/2022

Vendor	Vendor Name	Invoice Number	Description	Invoice Date	Amount Paid	Date Paid
Total 10-51200-395 COUNTY COURT FEES:					1,298.29	
10-51300-218 VILLAGE ATTORNEY						
535	MUNICIPAL LAW & LITIGATION	8763	VILLAGE ATTORNEY	12/19/2022	8,212.00	12/22/2022
535	MUNICIPAL LAW & LITIGATION	8917	VLG ATTORNEY	12/28/2022	9,569.00	12/29/2022
Total 10-51300-218 VILLAGE ATTORNEY:					17,781.00	
10-51300-219 VILLAGE PROSECUTOR						
965	PADWAY & PADWAY LTD	12/9/2022	PROSECUTOR	12/12/2022	1,547.50	12/16/2022
Total 10-51300-219 VILLAGE PROSECUTOR:					1,547.50	
10-51420-310 SUPPLIES/EXPENSES						
1766	CONFLUENCE GRAPHICS	77494	TAX BILLS	12/14/2022	1,845.42	12/16/2022
Total 10-51420-310 SUPPLIES/EXPENSES:					1,845.42	
10-51530-210 CONTRACT SERVICES						
2706	ASSOCIATED APPRAISAL CON	165578	PROFESSION SERV/ INTERNET	11/29/2022	2,789.96	12/02/2022
Total 10-51530-210 CONTRACT SERVICES:					2,789.96	
10-51600-210 CONTRACT SERVICES						
265	GREATAMERICAN FINANCIAL S	32646286	MONTHLY COPIER	12/12/2022	232.00	12/16/2022
265	GREATAMERICAN FINANCIAL S	33039119	MONTHLY COPIER	12/28/2022	258.00	12/29/2022
477	TAYLOR COMPUTER SERVICES	24116	MANAGED SERVICES	12/19/2022	543.10	12/22/2022
789	DO IT NOW CLEANING LLC	526	MONTHLY CLEANING	11/29/2022	1,583.37	12/02/2022
789	DO IT NOW CLEANING LLC	543	MONTHLY CLEANING	12/27/2022	1,583.37	12/29/2022
1353	FORWARD TS, LTD	AR185937	MONTHLY COPIES	12/14/2022	297.67	12/16/2022
Total 10-51600-210 CONTRACT SERVICES:					4,497.51	
10-51600-220 GAS-HEAT						
536	WE-ENERGIES	11/28/2022	0702787382-00002	12/06/2022	414.56	12/09/2022
Total 10-51600-220 GAS-HEAT:					414.56	
10-51600-221 ELECTRIC UTILITIES						
536	WE-ENERGIES	11/28/2022	0702787382-00002	12/06/2022	1,252.06	12/09/2022
536	WE-ENERGIES	12/6/22	0702787382-00009	12/12/2022	19.23	12/16/2022
Total 10-51600-221 ELECTRIC UTILITIES:					1,271.29	
10-51600-222 TELEPHONE UTILITIES						
2691	CENTURYLINK-BUSINESS SVC.	620472603	87619173	12/12/2022	.40	12/16/2022
5312	AT & T- VILLAGE	11/22/2022	414 351-8900 758 7	12/06/2022	63.50	12/09/2022
Total 10-51600-222 TELEPHONE UTILITIES:					63.90	
10-51600-223 WATER/SEWER UTILITIES						
186	FOX POINT, VILLAGE OF - W/U	8/1-11/1/2022	VH WATER AND SEWER	12/05/2022	800.68	12/09/2022
Total 10-51600-223 WATER/SEWER UTILITIES:					800.68	
10-51600-234 VILLAGE HALL MAINTENANCE						
502	VILLAGE HARDWARE - VH	224245/1	BULB	12/01/2022	17.00	12/02/2022

Vendor	Vendor Name	Invoice Number	Description	Invoice Date	Amount Paid	Date Paid
502	VILLAGE HARDWARE - VH	224345/1	BULB	11/29/2022	17.00	12/02/2022
892	SPECTRUM	12/07/2022	8348 10 012 0042231 VLG	12/16/2022	10.95	12/22/2022
1575	FILTRATION CONCEPTS	18882	UNIT VENT FILTERS	12/13/2022	96.14	12/16/2022
Total 10-51600-234 VILLAGE HALL MAINTENANCE:					141.09	
10-51600-310 SUPPLIES/MISC EXPENSES						
1230	ODP BUSINESS SOLUTIONS LL	276279491001	37360205-CREDIT	12/12/2022	.77-	12/16/2022
Total 10-51600-310 SUPPLIES/MISC EXPENSES:					.77-	
10-51600-311 POSTAGE						
415	POSTMASTER	2022 TAX BILLS	TAX BILL PERMIT 4153	12/08/2022	1,350.00	12/09/2022
Total 10-51600-311 POSTAGE:					1,350.00	
10-51700-511 GROUP HEALTH - RETIREES						
433	RESNICK, AMY	35	HEALTH INSURANCE REIMBUR	12/01/2022	761.45	12/09/2022
435	RIES, DANIEL	51	HEALTH	12/01/2022	866.09	12/09/2022
446	SCHELLING JUDITH	14	REIMBURSEMENT	12/01/2022	237.80	12/09/2022
638	KRIEFALL, DONALD A	79	HEALTH INSURANCE REIMBUR	12/01/2022	825.89	12/09/2022
Total 10-51700-511 GROUP HEALTH - RETIREES:					2,691.23	
10-52100-180 RECRUITMENT						
5747	PROFESSIONAL ID CARDS, INC	18400	ID CARD	12/15/2022	18.50	12/16/2022
Total 10-52100-180 RECRUITMENT:					18.50	
10-52100-210 POLICE MAINTENANCE CONTRACTS						
707	FIRST RESPONDERS PSYCHOL	1122FPPD	ANNUAL VISITS	12/14/2022	2,250.00	12/16/2022
5152	JAMES IMAGING SYSTEMS, IN	1263495	MONTHLY COPIES	12/15/2022	89.50	12/16/2022
Total 10-52100-210 POLICE MAINTENANCE CONTRACTS:					2,339.50	
10-52100-220 GAS UTILITIES						
536	WE-ENERGIES	11/23/2022	0702787382-00008	11/30/2022	738.68	12/02/2022
Total 10-52100-220 GAS UTILITIES:					738.68	
10-52100-221 ELECTRIC UTILITIES						
536	WE-ENERGIES	11/23/2022	0702787382-00015	11/30/2022	30.41	12/02/2022
536	WE-ENERGIES	11/28/22	0702787382-00008	12/02/2022	1,581.92	12/09/2022
Total 10-52100-221 ELECTRIC UTILITIES:					1,612.33	
10-52100-222 TELEPHONE UTILITIES						
892	SPECTRUM	12/3/2022	8348 10 012 0041845 POLICE	12/12/2022	21.89	12/16/2022
892	SPECTRUM	70433001120122	070433001	12/14/2022	913.35	12/16/2022
2136	VERIZON WIRELESS	9922171460	786223225-00001 POLICE	12/14/2022	287.02	12/16/2022
2691	CENTURYLINK-BUSINESS SVC.	620472603	87619173	12/12/2022	.39	12/16/2022
5312	AT & T- VILLAGE	11/22/2022	414 351-8900 758 7	12/06/2022	39.69	12/09/2022
Total 10-52100-222 TELEPHONE UTILITIES:					1,262.34	
10-52100-223 WATER/SEWER UTILITIES						
186	FOX POINT, VILLAGE OF - W/U	AUG/NOV 2022	POLICE WATER AND SEWER	12/02/2022	1,412.79	12/09/2022

Vendor	Vendor Name	Invoice Number	Description	Invoice Date	Amount Paid	Date Paid
Total 10-52100-223 WATER/SEWER UTILITIES:					1,412.79	
10-52100-232 VEHICLE MAINTENANCE						
4976	GENERAL COMMUNICATIONS	313282	EQUIPMENT	11/29/2022	109.00	12/02/2022
Total 10-52100-232 VEHICLE MAINTENANCE:					109.00	
10-52100-233 EQUIPMENT MAINTENANCE						
2913	EMERGENCY MEDICAL PRODU	2507424	MEDICAL SUPPLIES	12/14/2022	156.13	12/16/2022
4007	PETTY CASH-FOX POINT POLIC	20221218PC	PETTY CASH POLICE	12/14/2022	119.20	12/16/2022
5839	LEXISNEXIS	1246411-20221130	MONTHLY FEE	12/07/2022	30.00	12/09/2022
Total 10-52100-233 EQUIPMENT MAINTENANCE:					305.33	
10-52100-234 BUILDING MAINTENANCE						
591	CUMMINS INC.	F6-44439	FILTER	12/01/2022	54.57	12/02/2022
Total 10-52100-234 BUILDING MAINTENANCE:					54.57	
10-52100-310 SUPPLIES/EXPENSES						
2142	FBINAA	2023-48167	DUES	12/14/2022	115.00	12/16/2022
Total 10-52100-310 SUPPLIES/EXPENSES:					115.00	
10-52100-330 CLOTHING ALLOWANCE						
473	STREICHER'S	1603299	GABRIELSE	12/07/2022	33.47	12/09/2022
473	STREICHER'S	1605752	ARENDT	12/15/2022	375.95	12/16/2022
1294	Galls, LLC,-	22350769	GROSSMUELLER	12/14/2022	431.75	12/16/2022
Total 10-52100-330 CLOTHING ALLOWANCE:					841.17	
10-52100-334 JANITORIAL SUPPLIES						
393	PACKERLAND RENT-A-MAT INC.	2957490	10586-10586-POLICE DEPT	12/01/2022	197.81	12/02/2022
1585	QUILL CORPORATION	29016568	PAPER TOWELS	11/28/2022	102.57	12/02/2022
Total 10-52100-334 JANITORIAL SUPPLIES:					300.38	
10-52100-335 SCHOOL EXPENSES						
19	BEST WESTERN- WATERFRON	550018	LODGING	12/07/2022	180.00	12/09/2022
727	WI DEPT. OF JUSTICE	2023BB	CONFERENCE	12/14/2022	250.00	12/16/2022
727	WI DEPT. OF JUSTICE	ATIR 114	CONFERENCE	12/07/2022	125.00	12/09/2022
4398	WCPA	8414	FREEDY DUES	12/01/2022	150.00	12/02/2022
5626	KALAHARI RESORT & CONVEN	I2CVYBGG	LODGING BROUWER	12/14/2022	270.00	12/16/2022
Total 10-52100-335 SCHOOL EXPENSES:					975.00	
10-53100-310 SUPPLIES/EXPENSES						
1230	ODP BUSINESS SOLUTIONS LL	280389303001	37360205-ENGINEERING	12/12/2022	63.98	12/16/2022
Total 10-53100-310 SUPPLIES/EXPENSES:					63.98	
10-53300-221 STREET LIGHTS - ELECTRIC						
536	WE-ENERGIES	12/09/2022	0702787382-00013	12/14/2022	18.67	12/16/2022
536	WE-ENERGIES	12/6/22	0702787382-00001	12/12/2022	172.91	12/16/2022
Total 10-53300-221 STREET LIGHTS - ELECTRIC:					191.58	

Vendor	Vendor Name	Invoice Number	Description	Invoice Date	Amount Paid	Date Paid
10-53300-405 STREET MATERIALS						
1074	MATHESON TRI-GAS, INC	0026421504	PR100	11/28/2022	44.72	12/02/2022
Total 10-53300-405 STREET MATERIALS:					44.72	
10-53300-495 MISCELLANEOUS SUPPLIES & TOOLS						
4529	NEU'S BUILDING CENTER, INC.	4501455	SAW FUEL	12/06/2022	249.99	12/09/2022
Total 10-53300-495 MISCELLANEOUS SUPPLIES & TOOLS:					249.99	
10-53310-400 MATERIALS						
4888	CARLIN SALES	30313328-00	MARKING TAPE	12/06/2022	86.25	12/09/2022
4888	CARLIN SALES	3031735-00	CALCIUM CHLORIDE	12/22/2022	820.05	12/29/2022
Total 10-53310-400 MATERIALS:					906.30	
10-53400-221 BUS STOP-ELECTRIC						
536	WE-ENERGIES	12/09/2022	0702787382-00005	12/14/2022	16.80	12/16/2022
536	WE-ENERGIES	12/09/2022	0702787382-00016	12/14/2022	16.80	12/16/2022
536	WE-ENERGIES	12/12/2022	0702787382-00003	12/15/2022	18.98	12/16/2022
Total 10-53400-221 BUS STOP-ELECTRIC:					52.58	
10-53630-370 LANDFILL FEES						
1298	WASTE MANAGEMENT OF WI-M	0000751-1996-6	MSW	08/01/2022	9,126.05	12/16/2022
1298	WASTE MANAGEMENT OF WI-M	0000761-1996-5	MSW	09/01/2022	8,077.17	12/16/2022
1298	WASTE MANAGEMENT OF WI-M	0000774-1996-8	MSW	10/01/2022	7,887.47	12/16/2022
1298	WASTE MANAGEMENT OF WI-M	0000788-1996-8	MSW	11/01/2022	7,892.34	12/16/2022
Total 10-53630-370 LANDFILL FEES:					32,983.03	
10-53642-400 MATERIALS						
1298	WASTE MANAGEMENT OF WI-M	0065217-2286-5	YARDWASTE	08/15/2022	953.01	12/16/2022
1298	WASTE MANAGEMENT OF WI-M	0065343-2286-9	YARDWASTE	09/01/2022	699.34	12/16/2022
1298	WASTE MANAGEMENT OF WI-M	0065473-2286-4	YARDWASTE	09/15/2022	631.05	12/16/2022
1298	WASTE MANAGEMENT OF WI-M	0065640-2286-8	YARDWASTE	10/01/2022	679.34	12/16/2022
1298	WASTE MANAGEMENT OF WI-M	0065782-2286-8	YARDWASTE	10/15/2022	758.17	12/16/2022
1298	WASTE MANAGEMENT OF WI-M	0065942-2286-8	YARDWASTE	11/01/2022	885.09	12/16/2022
1298	WASTE MANAGEMENT OF WI-M	0066060-2286-8	YARDWASTE	11/16/2022	493.19	12/16/2022
1298	WASTE MANAGEMENT OF WI-M	0066215-2286-8	YARDWASTE	12/01/2022	307.79	12/22/2022
Total 10-53642-400 MATERIALS:					5,406.98	
10-53700-300 MISCELLANEOUS EXPENSE						
2241	ITU ABSORB TECH, INC	8026366	SHOP	11/28/2022	11.90	12/02/2022
2241	ITU ABSORB TECH, INC	8030607	SHOP	12/13/2022	11.90	12/16/2022
2241	ITU ABSORB TECH, INC	8034710	SHOP	12/13/2022	11.90	12/16/2022
2241	ITU ABSORB TECH, INC	8038780	SHOP	12/19/2022	11.90	12/22/2022
Total 10-53700-300 MISCELLANEOUS EXPENSE:					47.60	
10-53700-341 REPAIR PARTS						
368	MID-STATE EQUIPMENT	H01303	PUMP	11/28/2022	1,388.24	12/02/2022
436	RITTER TECHNOLOGY LLC	c02957-001	HOSE AND FITTING	12/13/2022	675.59	12/16/2022
502	VILLAGE HARDWARE - VH	11903/3	MISC	12/19/2022	93.56	12/22/2022
502	VILLAGE HARDWARE - VH	224759/1	TAPE	12/19/2022	64.53	12/22/2022
547	ROLAND MACHINERY	40114123	LUBE SPIN	12/13/2022	110.89	12/16/2022
631	FACTORY MOTOR PARTS	13-1674097	BATTERY LESS CORE	12/13/2022	253.64	12/16/2022

Vendor	Vendor Name	Invoice Number	Description	Invoice Date	Amount Paid	Date Paid
631	FACTORY MOTOR PARTS	13-1674807	BATTERY LESS CORE	12/13/2022	92.82	12/16/2022
631	FACTORY MOTOR PARTS	160-155812	MISC	12/13/2022	32.82	12/16/2022
631	FACTORY MOTOR PARTS	160-155850	MISC	12/13/2022	145.28	12/16/2022
631	FACTORY MOTOR PARTS	160-155887	MISC	12/13/2022	7.35	12/16/2022
631	FACTORY MOTOR PARTS	50-4230922	MISC	12/13/2022	118.77	12/16/2022
665	LAKESIDE INTERNATIONAL TR	1380309P	MISC	12/13/2022	275.84	12/16/2022
101685	FASTENAL COMPANY	WIGOV4740	PARTS	11/28/2022	64.85	12/02/2022
101685	FASTENAL COMPANY	WIGOV4753	MISC PARTS	12/13/2022	263.41	12/16/2022
101685	FASTENAL COMPANY	WIGOV4784	PARTS	12/18/2022	85.21	12/22/2022
Total 10-53700-341 REPAIR PARTS:					3,672.80	
10-53700-343 FUEL						
2179	EDWARD H. WOLF & SON'S INC	282348	FUEL	12/01/2022	1,728.74	12/02/2022
2179	EDWARD H. WOLF & SON'S INC	288488	FUEL	12/07/2022	1,560.42	12/09/2022
2179	EDWARD H. WOLF & SON'S INC	288536	FUEL	12/07/2022	967.26	12/09/2022
2179	EDWARD H. WOLF & SON'S INC	295735	FUEL	12/15/2022	1,258.00	12/19/2022
2179	EDWARD H. WOLF & SON'S INC	295744	FUEL	12/15/2022	998.38	12/19/2022
2179	EDWARD H. WOLF & SON'S INC	304575	FUEL	12/28/2022	523.21	12/29/2022
2179	EDWARD H. WOLF & SON'S INC	304580	FUEL	12/28/2022	1,193.30	12/29/2022
Total 10-53700-343 FUEL:					8,229.31	
10-53800-220 GAS UTILITIES						
536	WE-ENERGIES	11/28/2022	0702787382-00002	12/06/2022	414.55	12/09/2022
Total 10-53800-220 GAS UTILITIES:					414.55	
10-53800-221 ELECTRIC UTILITIES						
536	WE-ENERGIES	11/28/2022	0702787382-00002	12/06/2022	1,252.06	12/09/2022
Total 10-53800-221 ELECTRIC UTILITIES:					1,252.06	
10-53800-222 TELEPHONE UTILITIES						
5312	AT & T- VILLAGE	11/22/2022	414 351-8900 758 7	12/06/2022	55.57	12/09/2022
Total 10-53800-222 TELEPHONE UTILITIES:					55.57	
10-53800-223 WATER/SEWER UTILITIES						
186	FOX POINT, VILLAGE OF - W/U	8/1-11/1/2022	VH WATER AND SEWER	12/05/2022	800.68	12/09/2022
Total 10-53800-223 WATER/SEWER UTILITIES:					800.68	
10-53800-224 CELL PHONES						
2136	VERIZON WIRELESS	9921917094	787086169-00001	12/01/2022	236.52	12/16/2022
Total 10-53800-224 CELL PHONES:					236.52	
10-53800-300 MISCELLANEOUS EXPENSE						
1074	MATHESON TRI-GAS, INC	0026847110	CARBON DIOXIDE	12/13/2022	57.14	12/16/2022
1074	MATHESON TRI-GAS, INC	52102299	ACETYLENE	12/01/2022	33.00	12/02/2022
1766	CONFLUENCE GRAPHICS	77494	DPW INSERT	12/14/2022	1,161.53	12/16/2022
2241	ITU ABSORB TECH, INC	8026368	DPW	11/28/2022	27.73	12/02/2022
2241	ITU ABSORB TECH, INC	8030609	DPW	12/13/2022	27.73	12/16/2022
2241	ITU ABSORB TECH, INC	8034712	DPW	12/13/2022	27.73	12/16/2022
2241	ITU ABSORB TECH, INC	8038782	TOWELS/MATS	12/19/2022	217.52	12/22/2022

Vendor	Vendor Name	Invoice Number	Description	Invoice Date	Amount Paid	Date Paid
Total 10-53800-300 MISCELLANEOUS EXPENSE:					1,552.38	
10-55400-430 LX CLUB MATERIALS						
890	FOX POINT BAYSIDE LX CLUB	10.26.22	LX CLUB FEES	12/07/2022	200.00	12/09/2022
890	FOX POINT BAYSIDE LX CLUB	12.7.22	LX CLUB FEES	12/19/2022	200.00	12/22/2022
Total 10-55400-430 LX CLUB MATERIALS:					400.00	
10-55440-220 GAS UTILITIES						
536	WE-ENERGIES	12/09/2022	0702787382-00011	12/14/2022	555.72	12/16/2022
Total 10-55440-220 GAS UTILITIES:					555.72	
10-55440-221 ELECTRIC UTILITIES						
536	WE-ENERGIES	12/09/2022	0702787382-00010	12/14/2022	166.86	12/16/2022
Total 10-55440-221 ELECTRIC UTILITIES:					166.86	
10-55440-450 SKATE RINK MATERIALS						
186	FOX POINT, VILLAGE OF - W/U	8/1-11/1/2022	LONGACRE PAVILION	12/05/2022	996.69	12/09/2022
186	FOX POINT, VILLAGE OF - W/U	8/1-11/1/2022	L, ICE RINK	12/05/2022	117.93	12/09/2022
Total 10-55440-450 SKATE RINK MATERIALS:					1,114.62	
10-56100-125 FORESTRY CONSULTANT						
5933	WACHTEL TREE SCIENCE & SE	110622	FORESTRY REQUESTS	11/30/2022	3,047.50	12/02/2022
Total 10-56100-125 FORESTRY CONSULTANT:					3,047.50	
10-56100-465 TREE MAINTENANCE						
502	VILLAGE HARDWARE - VH	11902/3	PARTS	12/19/2022	408.58	12/22/2022
846	MIDWEST ARBORIST SUPPLIES	70856	MISC	12/12/2022	924.27	12/16/2022
846	MIDWEST ARBORIST SUPPLIES	70922	TAPE	12/21/2022	143.85	12/22/2022
Total 10-56100-465 TREE MAINTENANCE:					1,476.70	
21-72000-220 GAS UTILITIES						
536	WE-ENERGIES	12/09/2022	0702787382-00004	12/14/2022	11.33	12/16/2022
Total 21-72000-220 GAS UTILITIES:					11.33	
21-72000-221 ELECTRIC UTILITIES						
536	WE-ENERGIES	12/09/2022	0702787382-00007	12/14/2022	32.40	12/16/2022
536	WE-ENERGIES	12/09/2022	0702787382-00004	12/14/2022	165.98	12/16/2022
Total 21-72000-221 ELECTRIC UTILITIES:					198.38	
21-73000-310 SUPPLIES/EXPENSES						
1766	CONFLUENCE GRAPHICS	77467	WATERBILLS	12/07/2022	337.96	12/09/2022
Total 21-73000-310 SUPPLIES/EXPENSES:					337.96	
21-73000-400 MATERIALS						
50	BADGER METER, INC.	80114099	HOSTING SERV UNIT	11/30/2022	74.25	12/09/2022
2136	VERIZON WIRELESS	9921917094	787066169-00001	12/01/2022	37.50	12/16/2022

Vendor	Vendor Name	Invoice Number	Description	Invoice Date	Amount Paid	Date Paid
Total 21-73000-400 MATERIALS:					111.75	
21-75000-210 CONTRACT SERVICES						
535	MUNICIPAL LAW & LITIGATION	8763	VILLAGE ATTORNEY	12/19/2022	444.50	12/22/2022
Total 21-75000-210 CONTRACT SERVICES:					444.50	
21-91000-888 SEWER SYSTEM IMPROVEMENTS						
39	RUEKERT MIELKE, INC.	144298	GIS DATA MAINT	12/06/2022	1,043.00	12/16/2022
256	KAPUR & ASSOCIATES, INC.	116470	SANITARY STORM CIPP	12/06/2022	7,500.00	12/16/2022
1247	VISU-SEWER, INC.	11.30.2022	SANITARY SEWER	11/30/2022	5,159.48	12/02/2022
Total 21-91000-888 SEWER SYSTEM IMPROVEMENTS:					13,702.48	
22-53650-210 CONTRACT SERVICES						
1299	WASTE MANAGEMENT OF WI-M	6804948-2275-1	MONTHLY RECYCLING	08/01/2022	22,676.16	12/16/2022
1299	WASTE MANAGEMENT OF WI-M	6815124-2275-8	MONTHLY RECYCLING	09/01/2022	22,676.16	12/16/2022
1299	WASTE MANAGEMENT OF WI-M	6825438-2275-8	MONTHLY RECYCLING	10/01/2022	22,676.16	12/16/2022
1299	WASTE MANAGEMENT OF WI-M	6835012-2275-7	MONTHLY RECYCLING	11/01/2022	22,676.16	12/16/2022
Total 22-53650-210 CONTRACT SERVICES:					90,704.64	
23-55420-220 GAS UTILITIES						
536	WE-ENERGIES	12/13/2022	0702787382-00012	12/16/2022	10.23	12/22/2022
Total 23-55420-220 GAS UTILITIES:					10.23	
23-55420-221 ELECTRIC UTILITIES						
536	WE-ENERGIES	12/13/2022	0702787382-00012	12/16/2022	132.94	12/22/2022
Total 23-55420-221 ELECTRIC UTILITIES:					132.94	
23-55420-223 WATER/SEWER UTILITIES						
186	FOX POINT, VILLAGE OF - W/U	8/1-11/1/2022	POOL WATER AND SEWER	12/05/2022	2,132.26	12/09/2022
Total 23-55420-223 WATER/SEWER UTILITIES:					2,132.26	
24-44460 BUILDING PERMIT						
1371	SZEKLINSKI, DAVID	1.058310	PERMIT REFUND 6401 SANTA	11/15/2022	429.00	12/22/2022
Total 24-44460 BUILDING PERMIT:					429.00	
24-52400-210 CONTRACT SERVICES						
2256	SAFEBUILT	94191-IN	INSPECTIONS	12/15/2022	271.92	12/22/2022
Total 24-52400-210 CONTRACT SERVICES:					271.92	
24-52400-218 VILLAGE ATTORNEY						
535	MUNICIPAL LAW & LITIGATION	8763	VILLAGE ATTORNEY	12/19/2022	911.50	12/22/2022
535	MUNICIPAL LAW & LITIGATION	8917	VLG ATTORNEY	12/28/2022	108.00	12/29/2022
Total 24-52400-218 VILLAGE ATTORNEY:					1,019.50	
24-52400-224 CELL PHONES						
2136	VERIZON WIRELESS	9921917094	787066169-00001	12/01/2022	35.00	12/16/2022

Vendor	Vendor Name	Invoice Number	Description	Invoice Date	Amount Paid	Date Paid
Total 24-52400-224 CELL PHONES:					35.00	
25-53420-400 MATERIALS						
1000	GREAT LAKES POWER VAC, LL	10026	VACUUM CATCH BASINS	12/16/2022	3,165.00	12/22/2022
Total 25-53420-400 MATERIALS:					3,165.00	
25-53420-415 MAINTENANCE						
1000	GREAT LAKES POWER VAC, LL	10026	VACUUM CATCH BASINS	12/16/2022	469.00	12/22/2022
Total 25-53420-415 MAINTENANCE:					469.00	
25-53640-400 MATERIALS						
1000	GREAT LAKES POWER VAC, LL	10026	VACUUM CATCH BASINS	12/16/2022	19.84	12/22/2022
Total 25-53640-400 MATERIALS:					19.84	
25-53660-400 MATERIALS						
1000	GREAT LAKES POWER VAC, LL	10026	VACUUM CATCH BASINS	12/16/2022	400.00	12/22/2022
Total 25-53660-400 MATERIALS:					400.00	
25-53800-210 CONTRACT SERVICES						
1247	VISU-SEWER, INC.	34314-1	VAC TRUCK	12/12/2022	1,575.00	12/16/2022
2136	VERIZON WIRELESS	9921917094	787086169-00001	12/01/2022	30.00	12/16/2022
Total 25-53800-210 CONTRACT SERVICES:					1,605.00	
25-53800-234 INDIAN CREEK PARK MAINTENANCE						
2824	MAREK LANDSCAPING	5305	PURPLE LOOSTRIFE/REED	12/05/2022	4,607.19	12/16/2022
Total 25-53800-234 INDIAN CREEK PARK MAINTENANCE:					4,607.19	
25-55410-310 SUPPLIES/EXPENSES						
1766	CONFLUENCE GRAPHICS	77467	WATERBILLS	12/07/2022	337.96	12/09/2022
Total 25-55410-310 SUPPLIES/EXPENSES:					337.96	
25-91500-800 WPDES COMPLIANCE PROGRAM						
39	RUEKERT MIELKE, INC.	144298	GIS DATA MAINT	12/06/2022	33.00	12/16/2022
221	PROPET DISTRIBUTORS INC.	140756	DOG BAGS	11/28/2022	409.75	12/02/2022
1000	GREAT LAKES POWER VAC, LL	10026	VACUUM CATCH BASINS	12/16/2022	1,522.39	12/22/2022
Total 25-91500-800 WPDES COMPLIANCE PROGRAM:					1,965.14	
25-91500-803 STORM SEWER - LINING/FOX LANE						
256	KAPUR & ASSOCIATES, INC.	116473	STORMWATER IMPROV	12/06/2022	35,000.00	12/16/2022
Total 25-91500-803 STORM SEWER - LINING/FOX LANE:					35,000.00	
25-91500-833 STORM SEWER SYSTEM IMPROVE.						
39	RUEKERT MIELKE, INC.	144299	HYDRAULIC MODEL	12/06/2022	2,522.00	12/16/2022
256	KAPUR & ASSOCIATES, INC.	116470	SANITARY STORM CIPP	12/06/2022	1,176.00	12/16/2022
256	KAPUR & ASSOCIATES, INC.	116473	STORMWATER IMPROV	12/06/2022	5,791.51	12/16/2022
1033	ALL-WAYS CONTRACTORS INC.	Greenvale 3	GREENVALE STORM WATER	12/12/2022	2,285.25	12/16/2022
1247	VISU-SEWER, INC.	2-12.13.2022	SANITARY SEWER REHAB	12/21/2022	43,056.00	12/22/2022
102047	GLOBE CONTRACTORS, INC.	11.18.2022	STORM WATER IMPROV	12/06/2022	200,000.00	12/09/2022

Vendor	Vendor Name	Invoice Number	Description	Invoice Date	Amount Paid	Date Paid
Total 25-91500-833 STORM SEWER SYSTEM IMPROVE.:					254,830.76	
40-91100-816 SMALL EQUIPMENT PURCHASES						
979	PAXUSA LLC	SO-00877	BIKE BAGS	12/14/2022	483.58	12/16/2022
1354	FLOCK SAFETY	6072	FALCON	12/14/2022	25,700.00	12/16/2022
Total 40-91100-816 SMALL EQUIPMENT PURCHASES:					26,163.58	
40-91500-801 STREET RESURFACING						
256	KAPUR & ASSOCIATES, INC.	116471	DRAINAGE/ TRAFFIC	12/06/2022	1,337.50	12/16/2022
1073	WI DEPT. OF TRANSPORTATIO	395-0000286240	DESIGN	12/01/2022	416.86	12/16/2022
2016	BAXTER & WOODMAN INC.	0240881	ROAD AND UTILITY	11/21/2022	4,009.09	12/16/2022
Total 40-91500-801 STREET RESURFACING:					5,763.45	
40-91600-800 STORMWATER ROAD PROJECT						
102047	GLOBE CONTRACTORS, INC.	11.16.2022	STORM WATER IMPROV	12/06/2022	204,463.96	12/09/2022
Total 40-91600-800 STORMWATER ROAD PROJECT:					204,463.96	
40-91600-833 TREE REPLACEMENT						
2824	MAREK LANDSCAPING	5306	VEGETATION MAINTENANCE	12/05/2022	4,540.14	12/16/2022
Total 40-91600-833 TREE REPLACEMENT:					4,540.14	
40-91600-849 BEACH DRIVE-SHORELINE EROSION						
983	MSA PROFESSIONAL SVCS, IN	R17951003.0-16	SHORELINE REPAIRS	12/06/2022	192.50	12/16/2022
Total 40-91600-849 BEACH DRIVE-SHORELINE EROSION:					192.50	
50-81000-601 SOURCE OF WATER SUPPLY						
378	NORTH SHORE WATER COMMI	80	MONTHLY	12/01/2022	23,613.93	12/09/2022
Total 50-81000-601 SOURCE OF WATER SUPPLY:					23,613.93	
50-81000-640 OPERATIONS LABOR WATER MAINS						
474	CORE & MAIN LP	S059475	LID/EXT	12/08/2022	50.36	12/29/2022
2639	CITY WATER LLC	940	MONTHLY MANAGEMENT FEE	12/08/2022	6,200.00	12/09/2022
Total 50-81000-640 OPERATIONS LABOR WATER MAINS:					6,250.36	
50-81000-651 MAINTENANCE OF MAINS						
281	LINCOLN CONTRACTORS SUP	I24789	WATER DEPT	11/14/2022	145.96	12/02/2022
281	LINCOLN CONTRACTORS SUP	I24848	WATER DEPT	11/14/2022	50.99	12/02/2022
458	SHERWIN INDUSTRIES, INC.	SC049761	FIBER BULK	12/29/2022	1,517.12	12/29/2022
474	CORE & MAIN LP	S009970	HYMAX	11/30/2022	712.68	12/16/2022
502	VILLAGE HARDWARE - VH	224976/1	WATER DEPT	12/21/2022	46.74	12/29/2022
2241	ITU ABSORB TECH, INC	8026367	WATER DEPT	11/28/2022	8.60	12/02/2022
2241	ITU ABSORB TECH, INC	8030608	WATER DEPT	12/13/2022	8.60	12/16/2022
2241	ITU ABSORB TECH, INC	8034711	WATER DEPT	12/13/2022	8.60	12/16/2022
2241	ITU ABSORB TECH, INC	8038781	WATER	12/19/2022	46.53	12/22/2022
5506	HANKE TERMINALS	142429A	STONE/BACKFILL	12/01/2022	515.58	12/09/2022
101806	USA BLUEBOOK	199957	MARKER	12/08/2022	45.21	12/29/2022
Total 50-81000-651 MAINTENANCE OF MAINS:					3,106.61	

Vendor	Vendor Name	Invoice Number	Description	Invoice Date	Amount Paid	Date Paid
50-81000-800 CAPITAL OUTLAY						
39	RUEKERT MIELKE, INC.	144288	GIS DATA MAINT	12/06/2022	600.50	12/16/2022
39	RUEKERT MIELKE, INC.	144300	ROAD WATER MAIN RELAY	12/06/2022	2,400.00	12/16/2022
256	KAPUR & ASSOCIATES, INC.	116472	WATERMAIN	12/06/2022	1,802.61	12/16/2022
535	MUNICIPAL LAW & LITIGATION	8763	VILLAGE ATTORNEY	12/19/2022	30.00	12/22/2022
983	MSA PROFESSIONAL SVCS, IN	R17951007.0-2	BEACH DR WATERMAIN	12/21/2022	9,183.30	12/22/2022
1015	BRIDGETOWER OPCO, LLC	745601353	BIDS/CONSTRUCTION	11/28/2022	391.61	12/16/2022
Total 50-81000-800 CAPITAL OUTLAY:					14,408.02	
50-81000-903 SUPPLIES AND EXPENSE						
50	BADGER METER, INC.	80114099	HOSTING SERV UNIT	11/30/2022	74.25	12/09/2022
Total 50-81000-903 SUPPLIES AND EXPENSE:					74.25	
50-81000-921 OFFICE SUPPLIES AND EXPENSE						
1766	CONFLUENCE GRAPHICS	77467	WATERBILLS	12/07/2022	337.95	12/09/2022
2136	VERIZON WIRELESS	9921917094	787068169-00001	12/01/2022	37.50	12/16/2022
Total 50-81000-921 OFFICE SUPPLIES AND EXPENSE:					375.45	
70-12100 TAXES RECEIVABLES						
70	CARTER, ANN J	29275	OVERPAYMENT OF TAXES	12/21/2022	95.58	12/27/2022
108	ATTARI, REZIQ D OR	28967	OVERPAYMENT	12/19/2022	79.83	12/22/2022
156	CALLENDER, AARON & JANET	29303	OVERPAYMENT OF TAXES	12/22/2022	286.18	12/29/2022
203	HIRSCH, DAVID	28849	OVERPAYMENT OF TAXES	12/15/2022	84.31	12/22/2022
212	O'DONNELL, DEBORA A	29039	OVERPAYMENT	12/19/2022	459.16	12/22/2022
288	CRQUI, FREDERIC OR SHEILA	29135	OVERPAYMENT TAXES	12/20/2022	460.10	12/22/2022
397	VARGANOVA OR, TATYANA	28886	OVERPAYMENT TAXES	12/19/2022	390.05	12/22/2022
432	KACZKOWSKI, STEPHEN	29450	OVERPAYMENT TAXES	12/27/2022	38.19	12/29/2022
484	JUAREZ, REBECA OR BRETT	29284	OVERPAYMENT TAXES	12/22/2022	595.69	12/29/2022
554	COLLIS, JAMES OR LINNEA	28932	OVERPAYMENT OF TAXES	12/19/2022	312.00	12/22/2022
729	SAJDAK, DAVID	29330	OVERPAYMENT TAXES	12/22/2022	5.27	12/29/2022
749	HAMBROOK, GEORGE OR ANN	29389	OVER PAYMENT OF TAXES	12/27/2022	436.03	12/29/2022
1050	GRASSL, DAVID OR REBECCA	29114	OVERPAYMENT TAXES	12/20/2022	105.73	12/22/2022
1113	MURPHY, MICHAEL OR SUE	29072	OVERPAYMENT TAXES	12/19/2022	14.61	12/22/2022
1116	HANUS, KEVIN OR MARIAN	29327	OVERPAYMENT TAXES	12/22/2022	31.28	12/29/2022
1124	CISEWSKI, WAYNE M	28841	OVERPAYMENT TAXES	12/14/2022	121.98	12/22/2022
1136	WALTHERS VON ALTEN, GREG	29016	OVERPAYMENT TAXES	12/19/2022	10.13	12/22/2022
1153	TYLICKI, ALLISON	29210	OVERPAYMENT OF TAXE	12/21/2022	1,121.09	12/27/2022
1166	MAGESTRO, JENNIFER L	28870	OVERPAYMENT OF TAXE	12/17/2022	61.25	12/22/2022
1359	JOSIFOVSKI, DUSKO	1737/28834	OVERPAY PERS PROPERTY	12/13/2022	1.11	12/16/2022
1369	MORENCY, CARL A	28845	OVERPAYMENT TAXES	12/15/2022	27.77	12/22/2022
1370	DEHBOD, TONY	28844	OVERPAYMENT TAXES	12/15/2022	30.46	12/22/2022
1375	GRIFFIN, SHERRIE	28875	OVERPAYMENT TAXES	12/17/2022	345.72	12/27/2022
1376	BARYCHNIKOV, SERGUEI	29066	OVERPAYMENT TAXES	12/19/2022	307.64	12/27/2022
1377	HEMANN, BRIAN	29120	OVERPAYMENT TAXES	12/20/2022	301.87	12/27/2022
1379	PACCAGNELLA, JACOB	28945	OVERPAYMENT TAXES	12/19/2022	101.47	12/27/2022
1380	KROLL, ERIC M	29262	OVERPAYMENT TAXES	12/21/2022	511.90	12/27/2022
1381	FADAIFAR, HESAM	29269	OVERPAYMENT TAXES	12/22/2022	327.91	12/29/2022
1382	MAISTELMAN, MICHAEL	29420	OVERPAYMENT TAXES	12/27/2022	45.75	12/29/2022
1383	O'BRIEN, CHARLES PATRICK	29515	OVERPAYMENT TAXES	12/27/2022	570.74	12/29/2022
1435	SHAINOCK, LARRY OR SARIE	28823	OVERPAYMENT TAXES	12/12/2022	103.95	12/16/2022
1719	KNAPP, JEROME	29098	OVERPAYMENT TAXES	12/19/2022	406.07	12/22/2022
1817	BELIAVSKY, YURI OR ELEONAR	28822	OVERPAYMENT TAXES	12/12/2022	284.90	12/16/2022
1819	HILYARD, JOSEPH OR LORNA	28957	OVERPAYMENT	12/19/2022	522.00	12/22/2022
1820	SULLIVAN, JOSEPH OR ELIZAB	29364	OVERPAYMENT	12/27/2022	40.11	12/29/2022
1825	LUKESH, A JOYCE	29086	OVERPAYMENT TAXES	12/19/2022	111.13	12/22/2022

Vendor	Vendor Name	Invoice Number	Description	Invoice Date	Amount Paid	Date Paid
1826	ELLWEIN, JAMES D	29531	OVERPAYMENT TAXES	12/27/2022	951.51	12/29/2022
1913	KENNEDY, GEOFFREY OR EVA	28824	OVERPAYMENT TAXES	12/12/2022	70.18	12/16/2022
1984	SCHEIBLER, EDETRAUD OR ED	29042	OVERPAYMENT TAXES	12/19/2022	149.89	12/22/2022
1986	BRICKNER, MICHAEL OR REBE	29124	OVERPAYMENT TAXES	12/20/2022	45.10	12/22/2022
1988	SHOCK, BENJAMIN T	29355	OVERPAYMENT TAXES	12/23/2022	686.27	12/29/2022
2203	SARTLER, JUSTIN	29377	OVERPAYMENT OF TAXES	12/27/2022	336.31	12/29/2022
2208	RECH, ROSEANNE	29369	OVERPAYMENT TAXES	12/27/2022	167.54	12/29/2022
2270	CLASON, STEVEN AND ANNET	29264	OVERPAYMENT OF TAXES	12/21/2022	78.46	12/27/2022
2278	ARTLIP, KEVIN THOMAS AND	28892	OVERPAYMENT OF TAXES	12/19/2022	85.94	12/22/2022
2279	LEVINA, IRINA	29441	OVERPAYMENT OF TAXES	12/27/2022	76.11	12/29/2022
2425	GENTHE, SHEILA A	28864	OVERPAYMENT TAXES	12/16/2022	322.51	12/22/2022
2428	SCHENCK, JESSE OR KATHARI	28906	OVERPAYMENT TAXES	12/19/2022	510.21	12/22/2022
2623	KALMENSON, OLYA	29015	OVERPAYMENT TAXES	12/19/2022	344.86	12/22/2022
2625	MAJDALANI, JOHN P	29357	OVERPAYMENT TAXES	12/27/2022	400.08	12/29/2022
2639	DAMROW, JESSE J	29213	OVERPAYMENT TAXES	12/21/2022	243.17	12/27/2022
2655	DUGAN, JOHN G	28991	OVERPAYMENT TAXES	12/19/2022	236.71	12/22/2022
2658	BEITZEL, LEE R	29434	OVERPAYMENT TAXES	12/27/2022	45.94	12/29/2022
2682	HOLTZ, MATTHEW A	29306	OVERPAYMENT TAXES	12/23/2022	477.63	12/29/2022
3205	EASTERDAY, MARK OR TRACE	28894	OVERPAYMENT OF TAXES	12/19/2022	1.11	12/22/2022
5167	FONS, JOHN J	29105	OVERPAYMENT OF TAXES	12/19/2022	51.23	12/22/2022
5558	SABITOV, RUSTEM	29961	OVERPAYMENT OF TAXES	12/19/2022	298.18	12/22/2022
5567	SWARTZELL, VICKIA	29033	OVERPAYMENT	12/19/2022	438.63	12/27/2022
102277	MOUSSEAU, PATRICIA RAINES	29043	OVERPAYMENT	12/19/2022	317.88	12/22/2022
102278	KERLIN, ANDREW OR GEETHA	29202	OVERPAYMENT TAXES	12/20/2022	37.73	12/22/2022
102280	GOTTSACKER, JESSE	28855	OVERPAYMENT TAXES	12/18/2022	101.59	12/22/2022
102282	MACHI, CATHERINE A	29208	OVERPAYMENT TAXES	12/21/2022	43.53	12/27/2022
102283	ARANDA, JEFFREY A ORDIANE	29115	OVERPAYMENT TAXES	12/20/2022	23.58	12/22/2022
102284	FILSINGER, NANCY	29095	OVERPAYMENT TAXES	12/19/2022	510.51	12/22/2022
102287	HUNT, MARK W	29125	OVERPAYMENT TAXES	12/20/2022	423.19	12/22/2022
102288	MEIKSINS, ROBERT A OR	29128	OVERPAYMENT TAXES	12/20/2022	13.95	12/22/2022
102290	LYNCH, ANNIE B OR	28862	OVERPAYMENT TAXES	12/16/2022	32.60	12/22/2022
102296	WILDNER, MICHAEL A	29254	OVERPAYMENT TAXES	12/21/2022	357.99	12/27/2022
102301	HORKY, JOHN A OR MEGAN B	29138	OVERPAYMENT TAXES	12/20/2022	1,532.94	12/22/2022
102302	SCHLEY, JACK	29178	OVERPAYMENT TAXES	12/19/2022	78.53	12/22/2022
Total 70-12100 TAXES RECEIVABLES:					18,240.55	
70-24100 DUE TO MIL COUNTY TREASURER						
330	MILWAUKEE COUNTY TREASU	2022	UNCLAIMED MONEY	12/29/2022	1,477.93	12/29/2022
Total 70-24100 DUE TO MIL COUNTY TREASURER:					1,477.93	
Grand Totals:					849,283.11	

Vendor	Vendor Name	Invoice Number	Description	Invoice Date	Amount Paid	Date Paid
--------	-------------	----------------	-------------	--------------	-------------	-----------

Date Approved: _____

Village Manager: _____

Village Board: _____

VILLAGE OF FOX POINT

7200 N. Santa Monica Boulevard

Fox Point, WI 53217,

Plaintiff,

v.

Case No. _____

Case Code: 30703

Robert Wagner and Melinda B. Wagner, husband and wife

7515 N. Boyd Way

Fox Point, WI 53217,

Defendant.

STIPULATION OF THE PARTIES AND PROPOSED COURT ORDER

WHEREAS, the Village of Fox Point is the Plaintiff in this matter, seeking a raze order to raze and remove the dilapidated garage structure (the "Garage") located on the real property located at 7515 N. Boyd Way, Fox Point, WI 53217 (the "Property"), owned by Robert Wagner and Melinda B. Wagner, husband and wife, the Defendant; and

WHEREAS, the Plaintiff has repeatedly corresponded and conversed with the Defendant in an attempt to have the dilapidated Garage razed and removed as it is was determine by the Village of Fox Point Building Inspector to be a safety hazard unfit for use and occupancy in violation of applicable laws, but the Garage still remains on the property despite Defendant's repeated statements they would have a private contractor remove the structure; and

WHEREAS, the Defendant is in violation of the Village of Fox Point Village Code Section 681-9 and subject to penalties for continued violations of the Village Code with each violation on each day constituting a separate offense under Village Code Section 1-4(b); and

WHEREAS, the Defendant has concerns of the potential damage to certain personal property in the Garage, including certain vehicles located therein, during the razing process, such

that the Defendant has not succeeded in razing the structure as the garage has collapsed onto the vehicles; and

WHEREAS, the Defendant has requested the Plaintiff to raze the Garage on its behalf; and

WHEREAS, the Plaintiff agreed to raze the Garage located on the Property owned by Defendant subject to being fully indemnified by the Defendant, held harmless by the Defendant, subject to the waiver of any future legal actions by the Defendant related to any and all damage to Defendant's personal property or real property as a result of the razing, and subject to the Defendant paying Plaintiff all costs associated with the razing of the Garage, including, but not limited to, legal costs, administrative costs, equipment costs and labor costs, provided the work is done pursuant to a court order issued under Section 66.0413, Wisconsin Statutes; and

WHEREAS, Plaintiff and Defendant (the "Parties") agree that Plaintiff has afforded Defendant all statutory and procedural notice requirements under the Village of Fox Point Village Code and Wisconsin Statutes Section 66.0413.

NOW THEREFORE, IT IS HEREBY STIPULATED AND AGREED, by and between the Parties as follows:

1. The Garage is unfit for occupancy or use and is structurally unsound in violation of Section 618-2 of the Village of Fox Point Village Code.
2. All due notice has been provided per §66.0413 Wisconsin Statutes, including §66.0413(1)(b) and (d), and any claims to the contrary are hereby forever waived.
3. Rather than raze or repair the Garage, Defendant requested and authorized the Plaintiff to enter upon its Property and raze and remove the Garage located thereon.

4. Defendant waives any right under Wisconsin Statutes §66.0413(1)(h) to pursue a restraining order to prevent the razing and removal of the Garage and the Defendant waives any right to contest or object to the razing of the Garage.
5. The Plaintiff has afforded the Defendant reasonable time to remove any personal property from the Garage in accordance with Wisconsin Statutes §66.0413(1)(i). Defendant acknowledges they have been provided a sufficient and reasonable time to accomplish the same, such that any property remaining in the Garage at the time of the razing was left there at the sound discretion of the Defendant, understanding and assuming all risks and damages associated with the same, such that Plaintiff shall not be responsible or liable for any damages to the Defendant's personal property located on the Property or for any damage to the Property itself.
6. Any of Defendant's personal property that remains in the Garage at the time of the razing may be moved as necessary on the Defendant's property to effectuate the raze and removal of the Garage. No assurances is provided that such personal property can or will be removed or will be protected against property damage. Defendant assumes all risk, including the risk that Plaintiff or Plaintiff's contractor may not use the best methods to prevent property damage, or may negligently perform the work resulting in damage or destruction of any personal property remaining in the structure.
7. The Plaintiff is authorized to enter upon the Defendant's Property in order to raze and remove the dilapidated Garage located on the Property.
8. After the garage structure on the Property is razed, Plaintiff shall sell the salvaged materials from the raze of the structure itself, but not including the vehicles of the Defendant

contained in the Garage, and shall remit to the Court the report of sale or transaction in accordance with Wisconsin Statutes §66.0413(1)(j).

9. Upon completion of the razing of the garage structure and remittance of the report of sale or transaction in accordance with Wisconsin Statutes §66.0413(1)(j) by the Plaintiff, Defendant shall reimburse Plaintiff for any applicable costs associated with the razing of the Garage, including, but not limited to, legal costs, administrative costs, equipment costs and labor costs. Defendant agrees that any delinquent charges shall be imposed against the subject property as a special charge pursuant to Wisconsin Statutes §66.0627.
10. The Defendant agrees to fully indemnify the Plaintiff and hold Plaintiff its employees, officers, contractors and agents harmless from any and all damages, including complete loss of personal property, caused by the raze and removal of the Garage located on the Property. The Defendant affirmatively waives any liability of the Plaintiff, its employees, officers, contractors and agents for any such damages, and the Defendant further waives any rights to pursue or initiate legal action against the Plaintiff for any such damages or procedure that occurs during the raze and removal process.
11. After the Garage is razed, remittance of the report of sale or transaction in accordance with Wisconsin Statutes §66.0413(1)(j) by the Plaintiff, and cost recovery as appropriate and allowed at the discretion of the Court, the Court may enter an Order dismissing this action without prejudice and without further notice or hearing.
12. This Stipulation is intended to induce the Milwaukee County Circuit Court to enter an order to effectuate the intent of the parties as described in the attached proposed order attached hereto and incorporated herein as Exhibit C. The parties hereby stipulate to all relevant facts for the court to issue the order shown in attached Exhibit C.

Dated _____

By: _____
Melinda B. Wagner
7515 N. Boyd Way
Fox Point, WI 53217

Dated _____

By: _____
Robert Wagner
7515 N. Boyd Way
Fox Point, WI 53217

**MUNICIPAL LAW & LITIGATION
GROUP, S.C.**
Attorneys for the Village of Fox Point

Dated: _____

By: Electronically signed by Eric J. Larson
ERIC J. LARSON
State Bar No: 1038340
730 N. Grand Avenue
Waukesha, WI 53186
O: (262) 548-1340
F: (262) 548-9211
E: elarson@ammr.net

STATE OF WISCONSIN

CIRCUIT COURT

MILWAUKEE COUNTY

VILLAGE OF FOX POINT
7200 N. Santa Monica Boulevard
Fox Point, WI 53217,

Plaintiff,

v.

Case No. _____
Case Code: 30703

Robert Wagner and Melinda B. Wagner, husband and wife
7515 N. Boyd Way
Fox Point, WI 53217,

Defendant.

ORDER

WHEREAS, in accordance with the Stipulation of the Plaintiff, Village of Fox Point and the Defendant, Robert Wagner and Melinda B. Wagner, husband and wife, concerning the garage structure (the "Garage") located at the Defendant's property at 7515 N. Boyd Way, Fox Point, Wisconsin 53217 (the "Property") and the amicable and satisfactory resolution regarding the Garage, the Court may enter an order in accordance with the terms of the foregoing Stipulation.

NOW, THEREFORE, after having considered all pleadings and papers on file herein and for the reasons as described.

IT IS HEREBY ORDERED:

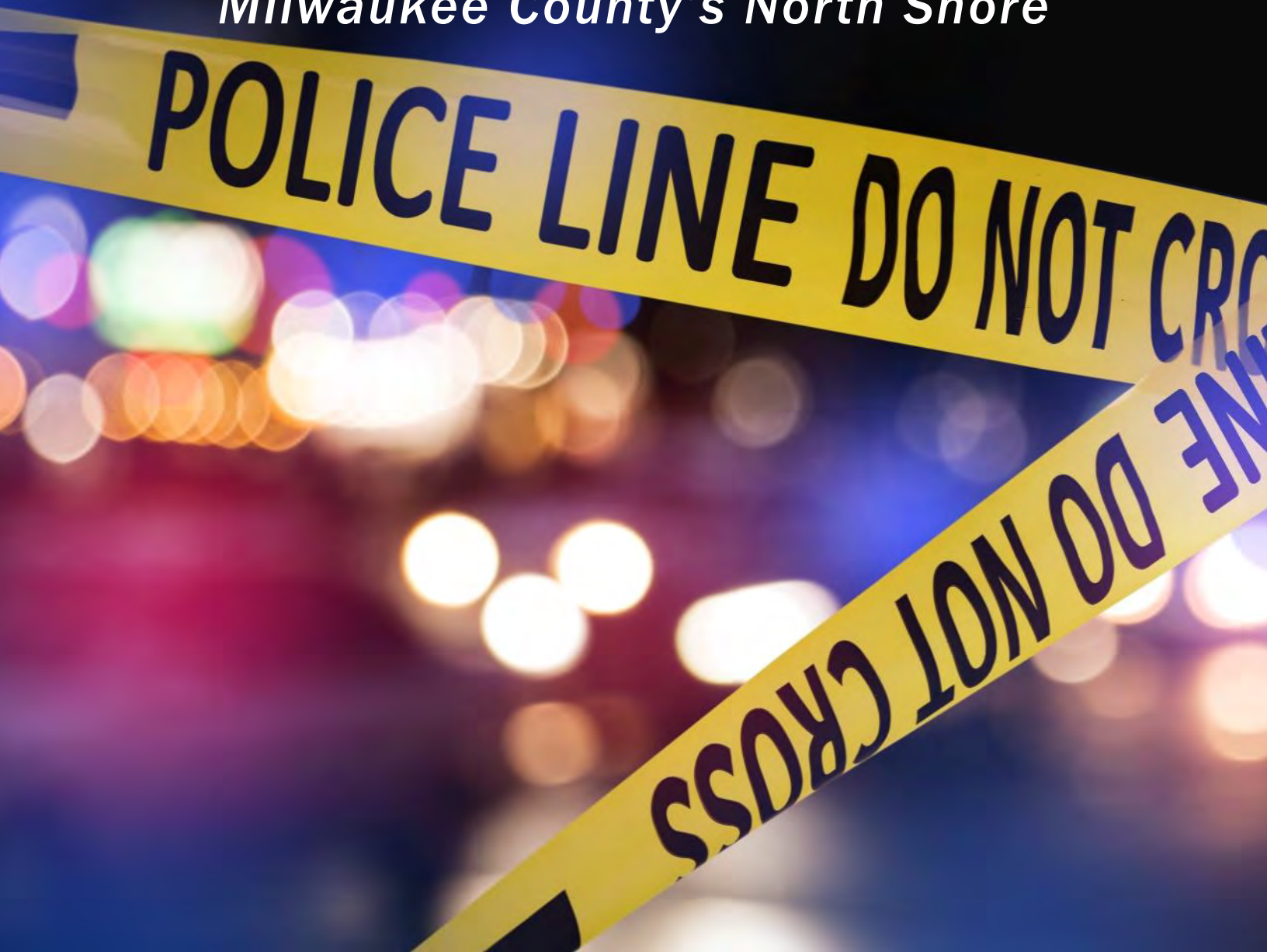
1. The Court finds:

- a. That the Garage is not structurally sound, and unfit for occupancy or use in violation of Section 681-2 of the Village Code.
- b. All due notice has been provided per Wisconsin Statutes §66.0413, including Wisconsin Statutes §66.0413(1)(b) and (d).
- c. The Plaintiff is authorized to enter upon the Defendant's Property in order to raze and remove the dilapidated Garage located on the Property.
- d. After the Garage on the Property is razed, Plaintiff is authorized to sell the salvaged materials from the raze of the structure itself, but not including the personal property of the Defendant contained in the Garage, and shall remit to the Court the report of sale or transaction in accordance with Wisconsin Statutes §66.0413(1)(j).
- e. Upon completion of the razing of the Garage and remittance of the report of sale or transaction in accordance with Wisconsin Statutes §66.0413(1)(j) by the Plaintiff, Plaintiff is authorized and allowed to recover from the Defendant any applicable costs associated with the razing of the Garage, including, but not limited to, legal costs, administrative costs, equipment costs and labor costs.
- f. After the Garage is razed, remittance of the report of sale or transaction in accordance with Wisconsin Statutes §66.0413(1)(j) by the Plaintiff, and cost recovery as appropriate and allowed at the discretion of the Court, the Court may enter an Order dismissing this action without prejudice and without further notice or hearing.

IT IS SO ORDERED BY THE COURT

AN OPEN INVESTIGATION

*Exploring Police Consolidation in
Milwaukee County's North Shore*



WISCONSIN

POLICY FORUM

ABOUT THE WISCONSIN POLICY FORUM

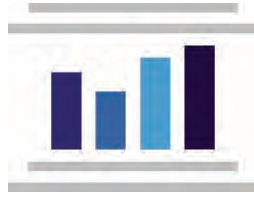
The Wisconsin Policy Forum was created on January 1, 2018, by the merger of the Milwaukee-based Public Policy Forum and the Madison-based Wisconsin Taxpayers Alliance. Throughout their lengthy histories, both organizations engaged in nonpartisan, independent research and civic education on fiscal and policy issues affecting state and local governments and school districts in Wisconsin. WPF is committed to those same activities and that spirit of nonpartisanship.

PREFACE AND ACKNOWLEDGMENTS

This report was undertaken to provide citizens and policymakers in Milwaukee County's North Shore with information and analysis that would help enlighten them on the possibility of merging their seven police departments into a single consolidated department. The intent was to lay out fiscal and programmatic data and model options for a consolidated police department, but not to make recommendations on the future of police services for individual communities or the North Shore as a whole.

Report authors would like to thank the police chiefs and managers in the seven North Shore municipalities, as well as officials at the Bayside Communications Center, for their assistance in providing data and information and for patiently answering our questions.

In addition, we wish to thank the City of Glendale for commissioning and underwriting much of the cost of this research.



AN OPEN INVESTIGATION

*Exploring Police Consolidation in
Milwaukee County's North Shore*

September 2022

Report Authors:
Davida Amenta, Researcher
Ari Brown, Senior Research Associate
Rob Henken, President

TABLE OF CONTENTS

Introduction	3
Characteristics of Participating Municipalities.....	4
General Demographic Characteristics.....	4
Housing Characteristics.....	6
Summary	7
Overview of Participating Agencies.....	9
Staffing	10
Facilities.....	12
Vehicles	12
Budgets.....	13
Service Characteristics	14
Modeling a North Shore Police Department	19
Comparable Cities.....	20
Modeling Considerations.....	22
Model 1: Retain Current Patrol Capacity.....	23
Model 2: Redesigned Police Staffing Framework.....	27
Summary and Observations	29
Conclusion.....	32
Appendix A: Snapshots of North Shore Police Departments.....	36
Village of Bayside Police Department.....	36
Village of Brown Deer Police Department	36
Village of Fox Point Police Department.....	37
City of Glendale Police Department.....	37
Village of River Hills Police Department	38
Village of Shorewood Police Department	38
Village of Whitefish Bay Police Department.....	39
Appendix B: Required FTEs to Staff Patrol Shifts.....	40
Appendix C: Calculation of Needed Patrol FTEs in Model 2.....	41
Appendix D: How We Categorized Community-Generated Calls	43



INTRODUCTION

Over the past decade, the Wisconsin Policy Forum (WPF) has conducted more than a dozen service sharing and consolidation studies for local governments seeking to explore the benefits of collaboration with neighbors in key functional areas. These governments approached us for a variety of reasons, including the hope of creating new efficiencies that might reduce the cost of existing services or service upgrades and the potential to more effectively serve residents by creating larger departments with greater staff capacity and equipment.

Most of WPF's studies have focused on metro Milwaukee, but they have [also](#) stretched as far south as Kenosha and Rock counties, as far north as the Fox Valley, and as far west as La Crosse County. Perhaps no area in the state, however, has been more successful in recognizing the benefits of service sharing and consolidation than Milwaukee County's North Shore (consisting of the villages of Bayside, Brown Deer, Fox Point, River Hills, Shorewood, and Whitefish Bay and the City of Glendale).

In 2015, upon the 20th anniversary of the creation of the North Shore Fire Department, WPF performed an [analysis](#) that quantified the considerable financial and service-level benefits that had been generated by consolidation. The seven North Shore municipalities also have consolidated their health departments and dispatch centers and there has been partial consolidation with regard to libraries, courts, and information technology services.

One of the few large functional areas that has not been subject to consolidation in the North Shore is police services, despite numerous studies conducted for one or more communities. In late 2021, facing the need for expensive upgrades to the city's police headquarters, Glendale's mayor approached WPF to re-examine this issue. After consulting with top elected officials and managers at the six other North Shore municipalities and confirming their openness to a study, WPF and the City of Glendale reached agreement on a research plan to model options for a consolidated North Shore Police Department and broadly assess its financial and service-level impacts.

This study is a high-level analysis that seeks to assist policymakers and citizens in better understanding police services in their communities. Analysis and reflection of the comprehensive data sets we collected also yield several insights that speak to the efficacy of consolidation.

We use those data sets to inform the development of two staffing models for a consolidated department. The two models can be used to assess potential fiscal and service-level impacts and key decisions when it comes to consolidation, but considerable further analysis and negotiation would be required to actually implement a consolidated department. In addition, our charge was only to consider a single consolidated department; the communities may wish to "start small" with some less comprehensive consolidation alternatives, but we do not provide analysis of such options.

This study was undertaken with the cooperation and consultation of the police chiefs and city/village managers from each of the seven North Shore communities. We also relied heavily on data supplied by the consolidated dispatch center in Bayside. While none of the officials we interviewed individually or in groups were asked to support or reject the notion of consolidation, all were willing to spend time with us to ensure the accuracy of our data analysis and modeling.

In the pages that follow, we lay out the factors that should be considered when it comes to police consolidation in Milwaukee's North Shore. We do not endorse any one plan or model discussed in this report; rather, we encourage leaders across the seven communities to consider our research as they seek to provide high-quality law enforcement services at a reasonable price for their citizens.



CHARACTERISTICS OF PARTICIPATING MUNICIPALITIES

This section provides an overview of key demographic data for the six villages (Bayside, Brown Deer, Fox Point, River Hills, Shorewood, and Whitefish Bay) and the city of Glendale. We focus primarily on demographic metrics that have some bearing on police department capacity and the community's overall approach to policing. Milwaukee County's "North Shore" covers all of the land bounded by the border of Ozaukee County to the north, the City of Milwaukee to the west and south, and Lake Michigan to the East.

General Demographic Characteristics

Both geographic size and density have an impact on police department staffing and patrol strategies, as they can impact both call volumes and the approach needed to achieve acceptable response times.

Table 1 shows how the population of each municipality has changed from 2010 to 2020. Shorewood, Glendale, Whitefish Bay, and Brown Deer all have similar populations between 12,500 and 15,000, and combined comprise more than 80% of the North Shore's population. Growth in all four of these jurisdictions outpaced the statewide rate of 3.6% since 2010.

The seven communities range in geographic size from about 1.5 square miles (Shorewood) to nearly 6.0 square miles (Glendale). River Hills has the lowest population density in the North Shore by a wide margin, while Whitefish Bay and Shorewood – the two municipalities closest to Milwaukee's city center – are by far the densest. In fact, Shorewood has nearly 29 times more people per square mile than River Hills.

Table 1: Population, population change, and population density

Municipality	2020 Population	Change Since 2010	% Change Since 2010	Square Miles	Population Density (Per Sq. Mi.)
Bayside	4,482	+93	+2.1%	2.386	1,878
Brown Deer	12,507	+508	+4.2%	4.395	2,846
Fox Point	6,934	+233	+3.5%	2.862	2,423
River Hills	1,602	+5	+0.3%	5.331	301
Shorewood	13,859	+697	+5.3%	1.590	8,716
Whitefish Bay	14,954	+844	+6.0%	2.116	7,067
Glendale	13,357	+485	+3.8%	5.965	2,239

Source: Decennial Census, 2010 and 2020, Tables P1 and P2; Census Bureau 2019 Gazetteer Data

Table 2 shows the racial and ethnic makeup of Milwaukee's North Shore communities. All seven are majority white, and all but Glendale and Brown Deer have concentrations of white residents above the statewide rate of 80.4%. Both Glendale and Brown Deer have concentrations of Black or African American residents that are more than double the statewide rate of 6.4%. All seven communities have a lower concentration of Hispanic/Latino residents than the state of Wisconsin as a whole (7.6%).



Table 2: Population racial/ethnic makeup

Municipality	2020 % White alone	2020 % Black or African American alone	2020 % any other race alone or multiracial	2020 % Hispanic/Latino of any race
Bayside	90.7%	3.3%	6.0%	2.8%
Brown Deer	61.9%	28.6%	9.5%	3.9%
Fox Point	91.5%	2.8%	5.7%	2.4%
River Hills	82.3%	6.3%	11.4%	4.1%
Shorewood	88.1%	2.9%	9.0%	3.4%
Whitefish Bay	91.9%	1.9%	6.2%	2.8%
Glendale	79.4%	14.1%	6.5%	3.6%

Source: Decennial Census, 2010 and 2020, Tables P1 and P2

Age makeups of the seven North Shore communities vary, as shown in **Table 3**. Shorewood and Whitefish Bay are the youngest communities with median ages below 40 as well as the smallest concentrations of residents above the age of 65. River Hills and Bayside, on the far north end of Milwaukee County, both have populations with a median age at least 10 years higher.

Table 3: Population age breakdown

Municipality	Median Age	% Under 18	% 65+
Bayside	49.4	22.2%	24.9%
Brown Deer	41.9	22.5%	18.2%
Fox Point	45.6	21.2%	20.9%
River Hills	50.9	23.8%	25.0%
Shorewood	36.8	22.5%	15.8%
Whitefish Bay	39.1	30.9%	13.9%
Glendale	44.9	18.2%	23.2%

Table 1 source: American Community Survey, 2019 5-Year Averages, Table S0101

Table 4 shows the breakdown of household income across Milwaukee County's North Shore. The community's smallest municipality, River Hills, is home to many wealthier families and individuals. Three municipalities (Brown Deer, Shorewood, and Glendale) have median household incomes that are less than half of those in River Hills.



Table 4: Household income

Municipality	Median Household Income	% HHI below \$35,000	% HHI above \$200,000
Bayside	\$101,231	15.3%	19.0%
Brown Deer	\$63,884	23.2%	1.6%
Fox Point	\$117,903	10.6%	22.4%
River Hills	\$161,719	5.5%	42.6%
Shorewood	\$74,745	20.0%	13.5%
Whitefish Bay	\$124,397	11.4%	25.4%
Glendale	\$77,584	18.6%	7.5%

Table 2 source: American Community Survey, 2019 5-year Averages, Table S1901

Housing Characteristics

The North Shore features a diverse array of residential and commercial areas, which is important to consider when it comes to a potential police department consolidation.

Table 5 shows key features of the housing stock in each of the seven municipalities. While all communities besides River Hills have at least some concentration of multi-family housing, rates are highest in Brown Deer, Shorewood, and Glendale. Total housing units in each community tends to track closely to overall population.

Table 5: Housing types in North Shore communities

Municipality	Estimated Total Units	3-19 Units	20+ Units	% 3+ Units
Bayside	1,959	53	296	17.8%
Brown Deer	5,526	585	1,314	34.4%
Fox Point	2,849	37	447	17.0%
River Hills	624	0	0	0.0%
Shorewood	6,305	1,191	1,331	40.0%
Whitefish Bay	5,409	482	167	12.0%
Glendale	6,054	687	1,492	36.0%

Table 3 source: American Community Survey, 2019 5-Year Averages, Table DP04

The North Shore communities show even greater differences when it comes to commercial property, as shown in **Table 6**. For example, Glendale is home to the Bayshore shopping mall, a commercial center for the region. The concentration of commercial property plays a key role in the distribution of police services, as areas with high amounts of commercial property tend to foster higher numbers of police calls and the need for a greater police presence in general. Also, the “property wealth” of each of the seven communities – as depicted in the table by per capita assessed value – is related to each community’s ability to pay for public services in general. Per capita assessed value reflects both the relative amounts of commercial property in each jurisdiction as well as the proportion of multi-family housing, which generally has lower per-unit value than single family housing.



Table 6: Assessed property values

Municipality	Residential % of Total Assessed Value	Commercial % of Total Assessed Value	Total Assessed Value	Per Capita Assessed Value
Bayside	89.0%	10.7%	\$637,842,200	\$142,312
Brown Deer	64.7%	31.2%	\$1,044,623,500	\$83,523
Fox Point	90.4%	9.1%	\$1,253,755,800	\$180,813
River Hills	98.7%	1.1%	\$487,792,400	\$304,490
Shorewood	79.2%	20.2%	\$1,789,249,400	\$129,104
Whitefish Bay	94.5%	5.4%	\$2,473,091,400	\$165,380
Glendale	51.3%	43.5%	\$2,075,388,000	\$155,378

Table 4 source: Wisconsin Department of Revenue, 2020 data

Crime Rates

Crime rates also play an important role in police response. Wisconsin police departments report crime voluntarily via the Wisconsin Incident-Based Reporting System (WIBRS), the Wisconsin-specific version of the FBI's National Incident-Based Report System (NIBRS). Within WIBRS, crimes are categorized in three ways: person crimes (e.g. rape, assault, intimidation); property crimes (e.g. theft, robbery, fraud); and society crimes (e.g. weapons law violations, prostitution, drug violations).

Table 7 shows crime rates for each municipality in 2021 using 2020 population numbers (the most recent available). Five of the seven North Shore municipalities had a crime rate of less than 40 per 1,000 people in 2021, while the other two – Glendale and Brown Deer – had a crime rate of more than 100. The vast majority of all crimes committed in the seven North Shore municipalities are not of a violent nature: there were only three instances of “murder and non-negligible manslaughter” across the communities in 2021, and in six of the seven municipalities property crimes account for a majority of all crimes.

Table 7: Crime rates per 1,000 population, 2021

Municipality	Total Crime Rate	Person Crime Rate	Property Crime Rate	Society Crime Rate
Bayside	23.9	2.0	13.8	8.0
Brown Deer	112.7	10.2	76.2	26.2
Fox Point	17.9	2.0	13.3	2.6
River Hills	20.6	1.9	9.4	9.4
Shorewood	37.4	2.0	31.7	3.8
Whitefish Bay	18.4	0.8	12.8	4.7
Glendale	105.6	7.3	67.3	31.1
TOTAL	57.3	4.3	39.2	13.8

Source: WI Incident Based Reporting System, 2021

Summary

Our review of key demographic, housing, crime and spending characteristics across Milwaukee County's North Shore shows that important distinctions exist between each of the seven municipalities, despite their geographic proximity. Glendale, Shorewood, and Brown Deer have the highest rates of violent and property crime, the most commercial real estate, and more multi-unit



housing. Their populations have grown recently at faster rates than the rest of the North Shore, and they house populations with a younger median age. They also have the lowest median household incomes ranging from \$60,000 to \$80,000.

On the other hand, Whitefish Bay, Bayside, Fox Point, and River Hills have less violent and property crime and have more single family housing and less commercial real estate. They also tend to be home to individuals with higher median household incomes, and except for Whitefish Bay are home to older populations than other North Shore communities.

Combined, these seven communities have a 2020 population of 67,695, or a little over 10% of the total population of the city of Milwaukee. Another item that stands out is the relative population density of each community – Shorewood and Whitefish Bay are denser than even Milwaukee at over 7,000 people per square mile, while no other North Shore community is even half as dense. When it comes to the provision of police resources and how to distribute both staff and costs, all of these factors will need to be considered.

OVERVIEW OF PARTICIPATING AGENCIES

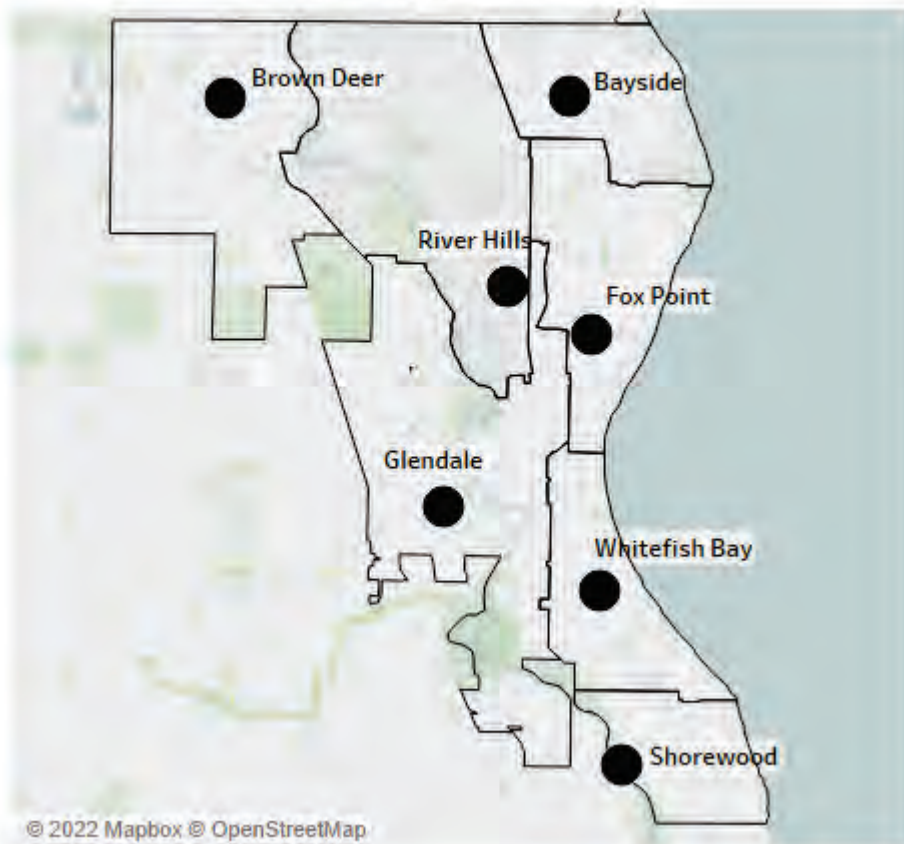
Each North Shore municipality operates a police department that is headquartered within its own boundaries. Snapshot descriptions of each agency can be found in **Appendix A**. In this section, we provide a broad overview.

The seven departments range in staff size and budgets, but they share many common characteristics. All seven are led by a chief of police and each is ultimately governed by – and receives much of its revenue from – the city or village in which it is located. Each has a civilian police commission, which handles personnel issues. Rank and file officers in each community are represented by distinct collective bargaining units.

The location of each department’s headquarters can be seen on **Map 1**. Each department has one station, located generally in or near the population center of its governing municipality and adjacent to its city or village hall. These seven buildings oversee a coverage area of about 24.6 square miles, roughly one-quarter the size of the city of Milwaukee.

Map 1: Location of North Shore Police Departments

Boundaries represent municipalities



Staffing

The combined sworn strength of the seven departments is 162 full-time-equivalent employees (FTEs), ranging from 11 in River Hills to 41 in Glendale (see **Table 8** for more detail). The majority of those FTEs – 95 in total – are general patrol officers. In the North Shore, patrol officers account for most of the time spent “on the streets” in and around communities.

Table 8: Sworn strength staffing overview

Department	Total FTEs	Patrol FTEs	Sergeant FTEs	Command FTEs*	Other FTEs**
Bayside	13	9	0	1	3
Brown Deer	31	17	6	3	5
Fox Point	17	10	4	2	1
Glendale	41	23	6	3	9
River Hills	11	7	2	2	0
Shorewood	25	14	6	3	2
Whitefish Bay	24	15	4	3	2
TOTAL	162	95	28	17	22

* Command staff includes chiefs, captains, and lieutenants that have command or administrative assignments.

** Other includes detectives, community liaison and school resource officers, and some lieutenant positions that are not “command” in nature but instead are part of a patrol bureau.

Across all departments, the North Shore averages 2.39 sworn staff per 1,000 residents. Only Shorewood (1.80) and Whitefish Bay (1.60) fall below that number; River Hills, with 11 sworn staff and a population of just 1,602, has 6.87 sworn officers per 1,000 residents, more than double the next highest department (Glendale, 3.07).

Included in the sworn staff totals are 10 full-time detectives or investigators: four in Glendale, two in Brown Deer, two in Shorewood, and one each in Whitefish Bay and Fox Point. In all cases, detectives report to a captain or other member of the command staff. The two remaining departments – Bayside and River Hills – can request detective services from other departments; the Bayside chief specifically noted that the department typically requests support from Fox Point when in need of a detective.

One major difference between departments is the structure of command staff. The smallest departments, like River Hills and Bayside, operate with only a small handful of command staff, and those staff members frequently spend time patrolling rather than at department headquarters. Others, like Glendale – with two captains, three lieutenants, and six sergeants – run their department in a more hierarchical manner, with each distinct staffing level typically filling a unique role.

Table 9 shows that an additional 18.3 *non-sworn* FTEs serve the seven North Shore departments. Six departments utilize an administrative employee to support the chief, for a total of 5.0 FTEs. Glendale has an additional seven individuals (5.3 FTEs) who serve as non-sworn “desk officers” and complete paperwork and behind-the-scenes tasks, while Brown Deer, Shorewood, and Whitefish Bay also employ public safety clerks to handle records and evidence management (in smaller departments that lack the capacity for such staff positions, sworn officers fulfill many of the same roles). Finally, Shorewood and Whitefish Bay employ community service officers who primarily enforce parking ordinances and also support sworn officers as necessary.



Table 9: Non-sworn staff

	Clerks	Community Service Officers	Admin	Total
River Hills	-	-	0.3	0.3
Bayside	-	-	0.7	0.7
Fox Point	-	-	1.0	1.0
Shorewood	1.0	2.0	1.0	4.0
Whitefish Bay	1.0	2.0	-	3.0
Brown Deer	2.0	-	1.0	3.0
Glendale	5.3	-	1.0	6.3
Total	9.3	4.0	5.0	18.3

Patrol Shifts and Staffing

The 95 patrol officers in the North Shore are organized by three shifts, which all seven departments define loosely the same way – day shift (around 7am to 3pm), early shift (around 3pm to 11pm), and night/late shift (around 11pm to 7am). Each department assigns its officers to these shifts as detailed in **Table 10**. While these figures represent the number of patrol officers assigned to each shift, the actual number of officers on patrol at a given time will be lower because of vacation, sick time, family leave, and related circumstances. Also, command staff often are called upon to fill in and conduct patrol duties.

Table 10: Assigned shift staffing for patrol officers

Department	Total Patrol	Day Shift	Early Shift	Night Shift	Other
Bayside	9	3	3	3	0
Brown Deer	17	6	6	5	0
Fox Point	10	3	4	3	0
Glendale	23	8	8	6	1
River Hills	7	2	3	2	0
Shorewood	14	4	6	4	0
Whitefish Bay	15	5	6	4	0
TOTAL	95	31	36	27	1

Because officers assigned to shifts do not work every day, the actual staffing level during each shift for each department is lower than that shown above. We asked the chiefs to provide their best guess with regard to average staffing on each shift, and the ranges they provided are summarized below. It is important to note that these are estimates and not based on a formal workload analysis.

- Day shift: 2 in Fox Point, River Hills, and Shorewood to 5 in Glendale;
- Early shift: 2 in Fox Point and River Hills to 5 in Glendale;
- Late shift: 2 in Fox Point, River Hills, and Shorewood to 3.5 in Glendale.



In total, based on estimates provided by the chiefs, on an average day in the North Shore there are 20.5 patrol officers on the day shift, 22.5 patrol officers on the early shift, and 17.0 patrol officers on the late shift.

Facilities

In response to a survey we sent to each of the North Shore departments, nearly every one described its police headquarters as, at the very least, adequate. A number of departments have either new facilities or had a renovation completed recently, including Whitefish Bay (complete renovation in 2017/2018), Shorewood (2017 retrofitting), and Fox Point (new building in 2008). Bayside described its facilities as “adequate,” while River Hills – whose last remodel took place in 1998 – described its facilities’ condition as “OK”.

One department, however, noted significant needs. Glendale’s primary building was initially constructed in the 1960s, and additional parts were added in 1994. In 2018, the department made updates to its garage, sally port, property room, and evidence processing room. However, the chief describes their facilities as being in “poor condition,” and city officials have expressed concern about the state of the building as it currently stands.

Vehicles

Table 11 provides details on the number of vehicles owned and operated by each department. In total, North Shore police departments have 69 vehicles, of which 44 (63.8%) are marked patrol vehicles. Another 11 (15.9%) are unmarked, while the remaining 14 (20.3%) are in use by sworn and non-sworn staff, but are not designated for typical patrol purposes.

In general, most vehicles across all departments are new as of the last few years, and tend to be replaced frequently. However, multiple departments mentioned having issues when it came to procuring new vehicles as of the beginning of 2022, primarily due to supply chain issues. Most North Shore departments do not have reserve vehicles, and use their entire stock on a day-to-day basis. That means when cars go out of service, each department has to get by with its remaining vehicles.

Table 11: Vehicles owned by North Shore Police departments

Department	Total Vehicles	Patrol	Unmarked	Other
Bayside	5	4	1	0
Brown Deer	15	9	4	2 (command post vehicle, motorcycle)
Fox Point	7	7	0	0
Glendale	18	9	2	7 (2 bureau, 1 K9, 1 court/community outreach, 1 chief, 1 SRO, 1 traffic)
River Hills	5	4	0	1 (chief)
Shorewood	10	6	3	1 (parking checker)
Whitefish Bay	9	5	1	3 (chief, detective, community service officer)



Budgets

Given that personnel expenses comprise the vast majority of police department expenditures, it is not surprising that 2022 budgeted expenditures largely mirror staffing levels, as shown in **Table 12**.¹ Glendale's police budget is by far the largest of the seven communities at \$6.4 million, while River Hills and Bayside are budgeted to spend less than a third of Glendale's budgeted amount.

Table 12: 2022 budgeted expenditures for police services

	Personnel Expenditures	Non-Personnel Expenditures	Total Police Department Expenditures	Police as % of total General Fund	Per Capita Expenditures*
Bayside	\$1,659,127	\$150,705	\$1,809,202	39.3%	\$404
Brown Deer	\$3,736,194	\$266,500	\$4,002,694	38.1%	\$320
Fox Point	\$2,256,080	\$483,483	\$2,739,563	39.3%	\$395
River Hills	\$1,406,415	\$253,746	\$1,660,161	39.8%	\$1,036
Shorewood	\$3,607,375	\$383,345	\$3,990,720	31.8%	\$288
Whitefish Bay	\$3,673,425	\$264,141	\$3,937,566	34.1%	\$263
Glendale	\$6,020,589	\$353,932	\$6,374,521	38.7%	\$477
Total	\$22,389,869	\$2,124,558	\$24,514,427	36.8%	\$362

* Based on 2020 population totals

The table also shows that despite the differences in the size of police budgets, there is similarity among the seven communities with regard to police spending as a share of total budgeted General Fund expenditures, with each municipality budgeted to spend roughly between 30% and 40% of their total budgets on police. In this case, Shorewood and Whitefish Bay are the lowest comparative spenders at 31.8% and 34.1% respectively.

Finally, per capita expenditures for police services generally reflect overall population size. In the smaller communities, per capita costs tend to be higher, with River Hills' per capita expenditures more than twice those of the next highest municipality (Glendale). Shorewood and Whitefish Bay spend the least amount on a per capita basis for police services.

¹ This table was compiled by examining expenditure budgets for each of the seven departments. We did not do an exhaustive look at any grant-funded or other special activities that were not included in core budgets. Also, there may be differences among the municipalities in how certain centralized costs are categorized and whether they are allocated to departmental budgets. Consequently, readers should only view this table as a high-level comparison of departmental expenditures.



Service Characteristics

Though the seven North Shore departments are in close geographic proximity, operations differ significantly from one municipality to the next. In particular, larger departments that deal with higher levels of crime, such as Brown Deer and Glendale, operate differently from smaller departments with relatively low levels, such as Fox Point, Bayside, and River Hills. That said, each chief asserted that the concerns and desires of community residents remain the most important criteria when it comes to how police resources are deployed.

Below we provide an overview of what police activity looks like in the North Shore on a day-to-day basis by looking more closely at response data, calls for service, types of arrests and citations, and dispatch data provided by the Bayside Communications Center, which serves all seven communities. We also explore the range of additional services provided by each department as well as how they currently support each other via mutual aid. This overview provides further insight into potential barriers and opportunities when it comes to potential future collaboration or consolidation.

Service Demand

The Bayside Communications Center (hereafter referred to as “dispatch”) handles calls for all seven North Shore police departments, as well as the consolidated North Shore Fire Department. While we requested and received data for the last three full years (2019-2021) to identify trends, we decided to focus almost exclusively on the 2021 data sets given the disruption caused by the COVID-19 pandemic during 2020. We also exclude 911 hang-ups and errors from this analysis.

It is important for readers to recognize that our analysis of dispatch data – while insightful – is somewhat challenged by the fact that the departments may not be fully consistent in how they code events. Also, in our modeling section, we emphasize the distinction between community-generated calls for service and officer-initiated activities (like traffic stops or community engagement). Because the seven departments do not log officer-initiated calls in the same way, this analysis also should be viewed as insightful but not necessarily definitive.²

In total, the dispatch center logged 66,563 individual events for North Shore police departments in 2021 (this total does not include 911 calls in which a hang-up occurred prior to any dispatch). By far, two departments logged more of those events than the other five: Glendale (16,802) and Brown Deer (15,491). Fox Point (5,900) and River Hills (5,872) had the fewest events; the other three departments all fell between 6,000 and 9,000.

Two specific call types stand out across all seven departments. Together, traffic stops (18,615) and vacation/business checks (10,373) accounted for 43.5% of all events logged in 2021. Traffic stops in particular were the most or second-most frequently-logged event in every department, while vacation/business checks were in the top three call types for six of the seven. **Table 13** shows more detail on total dispatched-logged events and these two call types for each of the seven departments.

² We would recommend that regardless of whether future discussion occurs regarding consolidation, the North Shore departments and their policymakers consider establishing a consistent methodology for coding calls for service as a means of enhancing their ability to strategically analyze police response and crime data across the entire North Shore.



Table 13: Logged dispatch events in 2021

Department	2021 Total Events	Traffic Stops and Vacation/Business Checks (% of all events)	All Other Events Logged
Bayside	6,594	3,535 (53.6%)	3,059
Brown Deer	15,491	7,252 (46.8%)	8,239
Fox Point	5,900	2,483 (42.1%)	3,417
Glendale	16,802	6,993 (41.6%)	9,809
River Hills	5,872	3,930 (66.9%)	1,942
Shorewood	8,353	1,346 (16.1%)	7,007
Whitefish Bay	7,551	3,449 (45.7%)	4,102
TOTAL	66,563	28,988 (43.5%)	37,575

The high incidence of traffic stops and vacation/business checks shows that a substantial portion of patrol work in the North Shore involves “officer-initiated” activities or other activities that do not involve calls from citizens that may necessitate an immediate response.³ Instead, these are activities pursued by officers to promote public safety and community engagement. In the next section of the report, in which we model scenarios for a consolidated department, we emphasize this distinction between “community-generated” calls for service in which an individual requests the police and one or more officers are dispatched, versus officer-initiated or other activities that are not related to an emergency 911 call.

The significant number of officer-initiated and non-emergency activities reflects a sentiment voiced by chiefs that responding to various resident needs outside of immediate and direct response to crime-related incidents – as well as simply maintaining a visible presence – are top priorities of police in the North Shore. Additional items logged in dispatch that illustrate this point include items such as complaints related to parking, driving, noise, or animals (4,240 total actions) and residents noticing an open door (1,122).

That said, North Shore sworn staff still do frequently respond to community-generated calls relating to crime. Disorderly conduct (1,392 instances), burglar alarms being set off (1,262), and retail theft (883) all rank highly in this category. Crimes that would require a more intensive use of resources, such as homicides (one instance in 2021), cases involving an individual armed with a gun or other weapon (9), robberies (25), and burglaries (72) happen less frequently; however, department leaders noted that especially in the case of smaller departments, these types of events can require resources that exceed their typical capacity and frequently demand assistance from neighboring departments.

Arrests and Citations

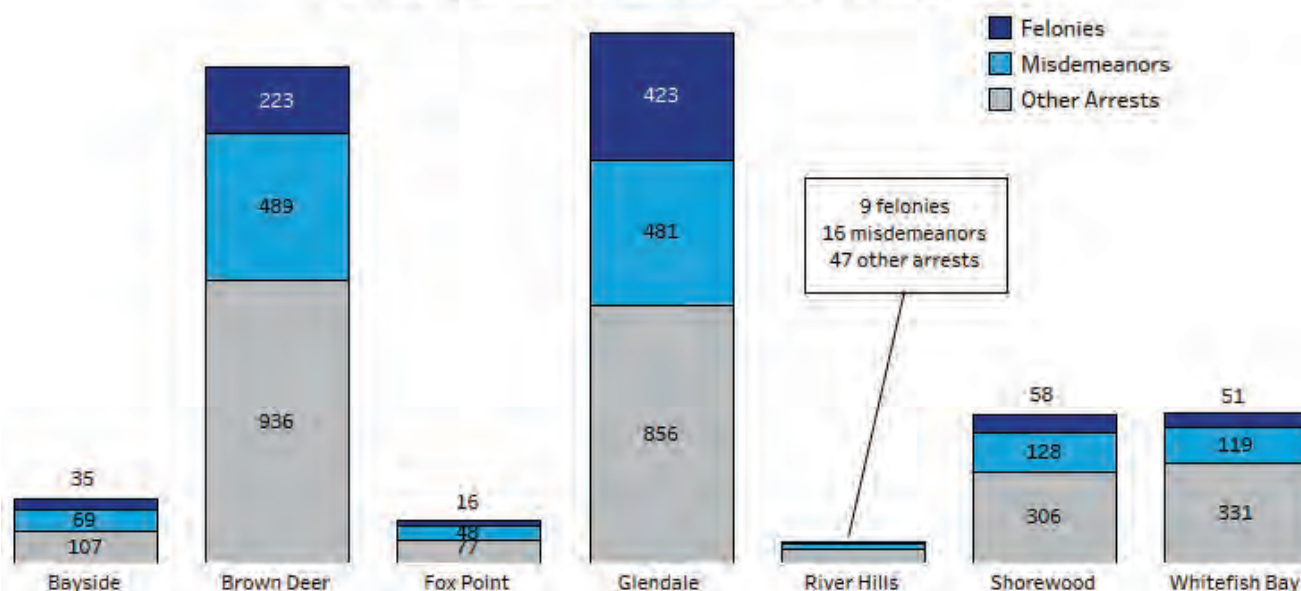
In 2021, the seven North Shore police departments made 4,825 arrests. Not surprisingly, the vast majority – 3,408, or 70.6% - occurred either in Glendale (1,760) or Brown Deer (1,648). Only two other departments – Whitefish Bay (501) and Shorewood (492) – averaged even one arrest per day (see **Figure 1**). It should be noted that arrests entail taking individuals into custody and transporting them, which requires officers to temporarily leave their patrol duties and may require them to

³ While all seven departments report conducting vacation and business checks, the nature of those checks and the availability of officers to respond to citizen requests to conduct them varies by department.



supervise individuals while they are being held at the station. Only Glendale among the seven North Shore departments has a holding area staffed by other personnel.

Figure 1: Arrests in the North Shore, 2021 Data



Only a very small proportion of arrests made in 2021 involved felonies (815, or fewer than one out of every five). Of those, 646 (79.3%) occurred either in Glendale or Brown Deer. Four felony-type arrests occurred more than 50 times in the North Shore in 2021: fleeing or eluding a traffic officer while operating a vehicle, driving or operating a vehicle without the owner’s consent, bail jumping, and retail theft of an amount between \$500 and \$5,000.

Just over a quarter of all arrests were for misdemeanors (1,350, or 28.0%). These arrests included those for three crimes that happened at least 100 times in 2021: disorderly conduct (135), carrying a concealed weapon (127), and resisting or obstructing an officer (122).

The remaining 2,660 (55.1%) arrests in the North Shore were classified as either ordinance violations, non-criminal arrests, or “unclassified.” The most frequent of this type involved individuals who had a warrant out for their arrest in another jurisdiction (233). In many cases, individuals were arrested for violations of an ordinance specific to the municipality in which they were located. Two of the most frequent ordinance-related arrests were for possession of marijuana (199) and the first instance of Operating While Intoxicated (146).

Far more frequently than they arrested people, the North Shore departments issued citations.⁴ The seven departments combined in 2021 to issue 23,241 citations, or nearly five times the number of arrests. Just over half of this combined amount involved traffic-related citations: 11,721, or 50.4%.

The overwhelming majority of citations were for 12 specific ordinance codes, all of them related to driving (see **Table 14** for more detail). In total, 9,177 traffic citations (78.3%) and 6,644 warnings

⁴ Per departmental reporting to the Bayside Communications Center, “warnings” are considered to be specific types of citations.



(68.2%) were for one of these 12 offenses, which include speeding, running a red light, and operating a vehicle without a license or insurance.

Glendale (7,620) and Brown Deer (6,655) had by far the highest volume of citations last year, which would have been expected given their populations and commercialization. However, citation totals do not always correspond with population or crime rates. For example, River Hills, by far the smallest community in the North Shore in terms of population, issued more than 3,000 citations and warnings. Conversely, Shorewood, with a much larger population and two state highways within its boundaries, issued about 500. This comparison shows that departments can have different priorities that may affect how patrol resources are deployed.

Table 14: Most common traffic-related citations, 2021 (warnings in parentheses)

Violation	Bayside	Brown Deer	Fox Point	Glendale	River Hills	Shorewood	Whitefish Bay
Non-Registration of Vehicle	85 (68)	80 (518)	82 (42)	63 (772)	78 (176)	53 (20)	278
Operating without Valid License (1 st offense)	54 (9)	321 (22)	25 (1)	490 (46)	87 (5)	30 (5)	77
Operating with Suspended License	103 (9)	601 (18)	49	868 (49)	142 (3)	58 (2)	133
Operating without Insurance	24 (2)	294 (175)	9 (15)	137 (99)	63 (30)	33 (5)	50
Operating without Proof of Insurance	63	34 (64)	13 (44)	22 (101)	204 (543)	18 (43)	48
Running a Red Light	86	110 (79)	3 (21)	64 (72)	7 (4)	21 (30)	68
Exceeding Posted Speed Limits	58	628 (626)	82 (288)	671 (303)	804 (446)	30 (31)	416
Operating while Intoxicated	22	43	5	67	6	22	57
Failure to Wear a Seatbelt	26	160 (50)	38 (5)	140 (85)	31 (16)	61 (1)	107
Failure to Stop at Stop Sign	5	68 (200)	14 (27)	46 (226)	64 (32)	4 (4)	36
Unreasonable & Imprudent Speed	18	75 (98)	4	151 (354)	9 (130)	14 (1)	43
Operating without Required Lamps	1 (1)	4 (258)	2 (14)	2 (124)	(230)	2 (2)	13
Total, Above Traffic Citations & Warnings	545 (89)	2,418 (2,108)	326 (457)	2,721 (2,231)	1,495 (1,615)	346 (144)	1,326
Total, All Traffic Citations & Warnings	764 (108)	3,025 (2,978)	492 (663)	3,553 (3,569)	1,619 (2,185)	532 (244)	1,736

Mutual Aid

Frequently, North Shore departments collaborate when it comes to responding to calls for service, especially in cases that require more capacity than a single department can handle. Dispatch logs these calls either as “Assist Other Agency”⁵ or “Police Mutual Aid.” Though Glendale logged the most “Assist Other Agency” calls in 2021 (309), five of the remaining six departments logged at least 180 calls under that designation, indicating that mutual aid is given or received by most departments on a majority of days each year. Only Shorewood (90) had a comparatively low number of “Assist Other

⁵ Assist Other Agency calls are not limited to other agencies in the North Shore; North Shore departments also are commonly called upon to assist the Milwaukee and Mequon police departments as well as other nearby departments beyond the North Shore.



Agency” calls. There were 104 total calls under “Police Mutual Aid,” nearly half of which (46) came from River Hills.

Conversations with department leaders revealed insights about the nature of mutual aid in the North Shore:

- River Hills leaders noted that sometimes shifts are staffed by only one officer, in which case they notify Fox Point and Bayside in case they need backup. In the case of a major incident, River Hills sworn staff will almost always reach out to other departments. They also mentioned requesting 20-30 mutual aid calls a month on average, “which is an increase.” Most frequently, River Hills assisted Brown Deer (“a majority of calls”), as well as Bayside and Fox Point to a lesser extent.
- The Bayside chief mentioned relatively frequent mutual aid interaction with Fox Point and River Hills as well, including – like River Hills – whenever a major incident occurs within the village. The chief also noted that because they do not have a detective, they may request services from Fox Point’s detective. However, the department has also dealt with the realities of a small staff by training its sworn staff in additional duties and paying them overtime when necessary.
- The Fox Point chief noted assisting Bayside with some frequency, and also that they receive about as much mutual aid as they give out.
- Whitefish Bay’s chief mentioned mainly requesting/giving mutual aid when it came to large incidents like a vehicle fleeing or a robbery. In light of the close proximity of Bayshore, such requests often are tied to that location. The Brown Deer chief also noted that this was the case for his department.
- Despite having some of the highest levels of crime and activity, and noting that officers are “losing the ability to just drive around and see things out,” the Glendale chief mentioned giving mutual aid much more than the department requests it. For example, one type of call that happens with some frequency is one in which a car or other property was stolen in a surrounding community and then travelled through Glendale while trying to get away.

In short, North Shore police departments already frequently collaborate, and each of the seven department leaders cited mutual aid cooperation as strong and as “second nature” for them and their neighboring chiefs. There are some distinctions among departments in their use of mutual aid, however, in that while each of them relies on neighboring departments for assistance during major incidents, smaller departments use it more frequently to fill holes when short-staffed or because they lack specialized positions (e.g. detectives).



MODELING A NORTH SHORE POLICE DEPARTMENT

Our analysis of North Shore demographics and crime rates as well as police department budgets, staffing, operational frameworks, and activities informs our consideration of what a single consolidated North Shore Police Department (NSPD) might look like. The key questions, of course, are how the department would be staffed and how staff would be deployed across the North Shore. The answer to those questions are not driven solely by demographics or crime rates, but also by several less quantifiable factors such as:

- *perceptions* of crime in the community
- *perceptions* regarding the benefit of police patrols as a method of deterring crime
- the prioritization of public safety relative to other needs, such as public works, public health, etc.
- the willingness and capacity of North Shore municipalities and their citizens to spend on public safety services

As we set out to model the hypothetical NSPD, we not only considered these factors and the wealth of data we collected, but also some of the potential advantages we have observed in the several previous studies we have conducted on fire department consolidation. Those include:

- The opportunity to strategically deploy a larger set of resources based on actual demand or other priorities as opposed to municipal boundaries.
- The ability to achieve greater cost efficiency by consolidating non-response tasks such as planning, administration, training, and special operations.
- The opportunity to reduce leadership positions while enhancing the effectiveness of command by allowing leaders to strategically manage and deploy command staff and vehicles on a regional level, and to employ specialized positions for specialized tasks.

We also reviewed four studies of police staffing and organization, including one for Glendale and one for Shorewood that were both completed within the last two years.⁶ We used these analyses to address technical questions such as how to appropriately estimate the number of minutes spent per call and the number of officers needed to cover time off for a single shift. Yet, we also found that while there are many methodologies to use in considering police staffing levels, there is *no commonly accepted* method for determining what is appropriate for each community.

⁶ The four are a [white paper](#) prepared for the International City-County Managers Association (ICMA); a 2020 patrol staffing report conducted by the Madison (WI) Police Department; and two recent studies conducted for North Shore departments – one by Matrix Consulting Group for the City of Glendale that was completed in August 2021; and one by Alexander Weiss Consulting for the Village of Shorewood that was completed in December 2020.



Comparable Cities

Additional helpful context for our modeling was derived from our review of six police departments in Wisconsin that serve communities with populations that are similar in size to the North Shore.⁷ **Table 15** shows those communities and how they compare to the North Shore communities as a collective region in terms of geography, population, crime rates, and sworn officers.

Table 15: Characteristics of comparable cities and police departments

	Population	Crime Rate (per 1,000 population)*	Area (square miles)	Sworn Officers
North Shore	67,695	57.3	24.6	162.0
Appleton	74,255	61.4	25.3	113.0
Eau Claire	69,086	68.7	34.1	99.0
Janesville	64,682	61.4	34.8	105.0
Oshkosh	66,753	52.3	28.0	105.0
Waukesha	72,419	25.9	25.8	124.0
West Allis	59,778	85.6	25.3	126.6

* Includes crimes against persons, property, and society

Source: WI Incident Based Reporting System, 2021

On average, the comparison departments have 112 sworn officers – 50 fewer than the collective number maintained in the North Shore. That is explained partly by the fact that the seven individual departments in the North Shore are unable to achieve economies of scale realized by larger departments. We also see that most of the comparison cities have crime rates that are close to or higher than those in the North Shore.

Tables 16 and **17** provide additional details on sworn staffing at the six comparison departments, including the number of command staff and details on each department's patrol division. It should be noted that rank does not necessarily correlate to duties across all departments. For example, in River Hills and Whitefish Bay, lieutenants act as second-in-command to the chief and take on other department-wide duties. In larger departments, those administrative functions typically are assigned to captains or assistant/deputy chiefs, while lieutenants typically are tasked with oversight of patrol shifts or investigations. To adjust for these differences, **Table 16** includes higher-ranked officers and only those lieutenants who are assigned to administrative or command functions.

⁷ The six police departments are the only departments in Wisconsin that serve populations of between 57,000 and 77,000 people with the exception of the Racine Police Department. We excluded Racine from our analysis because that city's socioeconomics and density are markedly different from those of the North Shore.



Table 16: Command staff, North Shore and six comparable Wisconsin cities

	Chief	Asst Chief	Deputy Chief	Captain	Lieutenant	Total Command Staff
North Shore	7	0	0	6	4	17
Appleton	1	1	0	3	1	6
Eau Claire	1	0	2	0	1	4
Janesville	1	0	2	0	1	4
Oshkosh	1	1	2	0	1	5
Waukesha	1	2	0	3	1	7
West Allis	1	0	2	4	1	8

Table 17 focuses on patrol divisions within each of the comparison departments. Command staff for patrol are indicated in the first column, but the positions listed are counted in Table 17 above. The lieutenants listed in Table 18 are assigned to a patrol or investigation division. In the North Shore, Bayside and Glendale both have three lieutenants assigned to patrol shifts, while Brown Deer has two lieutenant positions that oversee patrol and investigation bureaus.

Table 17: Patrol staffing, North Shore and six comparable cities

	Command Staff	Lieutenant	Sergeant	Officer	Officer/Sgt Ratio
North Shore	0	8*	28	95	3.4
Appleton	Captains (2)**	12	0	60	5.0
Eau Claire	Deputy Chief	3	9	60	6.7
Janesville	Deputy Chief	3	9	65	7.2
Oshkosh	Captain ***	3	9	65	7.2
Waukesha	Captain	5	8	64	8.0
West Allis	Captain	3	9	68	7.6

*There are 12 lieutenants in the North Shore. Four are counted as command staff and eight are counted in patrol divisions.

**Each captain in Appleton oversees one geographic district. Also, 12 lieutenants in Appleton function as shift supervisors similar to sergeants in other departments and 24 officers hold the rank of sergeant but essentially act as patrol officers.

***Oversees patrol and investigations.

Finally, in reviewing organizational charts for the comparison departments, we did take note of non-sworn staffing levels, which ranged from 15 full-time positions in Eau Claire to 27 in Appleton.⁸ Oshkosh cites 17 full-time non-sworn positions plus 17 part-time crossing guards and 10 part-time community service officers, while Appleton also cites 14 part-time civilian positions. Janesville cites 17 non-sworn FTEs while West Allis cites 18.5. By comparison, the seven North Shore departments currently employ 18.3 non-sworn FTEs collectively.

Overall, the review of the comparison departments highlights that smaller police departments may by their very nature produce certain inefficiencies. For example:

- The number of patrol officers in the North Shore is significantly higher than in the comparable cities. One reason is that the geographical territory covered by each patrol officer

⁸ We exclude dispatch positions that are housed in some comparison departments from our totals, as dispatch is an independent function in the North Shore. Also, some departments cite court clerks in their org charts (which are included in our totals) while others do not. Finally, we were not able to determine the number of non-sworn positions in Waukesha.



is guided by municipal boundaries and is likely much smaller than it otherwise would be if not for such boundaries.

- In the comparable departments, a typical sergeant supervises between 5.0 and 8.9 patrol officers per shift, while we have been informed that police industry standards generally cite an ideal level of 5.0 officers per sergeant.⁹ In the North Shore, because patrol shifts are much smaller but a sergeant still is needed to supervise each shift, the collective ratio of sergeants to patrol officers is only 3.4.
- The number of command staff in the comparable departments ranges from 4 to 8. In the North Shore, because there are seven individual departments, there are 17 command staff. In smaller departments, command staff often have varied responsibilities beyond desk duties. They may substitute for a sergeant who is off or even staff a patrol shift.

It is important to remember that a modeling exercise, by necessity, simplifies the staffing structure for each department for purposes of comparison. Also, each police department has its own unique organizational model and culture that is not necessarily reflected in numbers or tables.

Modeling Considerations

Police consolidation studies often use a “workload staffing model” that considers how much time officers ideally should be spending on community-generated calls that require an immediate response versus conducting officer-initiated activities, responding to non-emergency citizen requests, or simply patrolling the streets. Many of these studies cite a “rule of 60” which suggests that no more than 60% of an officer’s time should be spent responding to community-generated calls, leaving 40% for officer-initiated policing and other activities that do not require an immediate response, like vacation and business checks or community engagement.

For smaller departments, however, which have lower call volumes and perhaps higher expectations with regard to police visibility and community engagement, a model based on minimum staffing may be more appropriate. To provide backup, small departments typically field a minimum of two patrol cars per shift, which equates to six officers to cover three 8-hour shifts over a 24-hour period. In light of vacation and other time off, those departments will need between 9 and 12 officers to guarantee such coverage. In most smaller communities, especially ones where the crime rate is relatively low, a methodology that examines call volumes and uses a “rule of 60” approach would produce a minimum staffing level that would provide fewer than two patrol cars per shift.

In light of this divergence, we decided to create two hypothetical models for a consolidated North Shore Police Department:

- **Model 1** represents a “status quo” scenario with regard to patrols. It maintains the identical patrol capacity in each of the seven communities that exists today. This model reflects the input we received from chiefs and village/city managers and administrators regarding minimum staffing and their perceptions of citizen expectations. Consolidation still presents some efficiencies since a larger department would be able to reduce the number of command staff, patrol supervisors, and non-sworn staff.

⁹ This standard was cited by one of the North Shore chiefs who instructs at Northwestern University’s Center for Public Safety and attributed the standard to that entity.



- **Model 2** presents a reimagined staffing plan that reduces patrol capacity but adds other capabilities that may improve police response in the North Shore. Patrol staffing levels are based on a workload staffing model that reflects what we would deem to be an appropriate ratio of community-generated versus officer-initiated and non-emergency police activities in the North Shore. Under this model, the average number of patrol officers in the North Shore on any given shift declines from just under 20 today to about 16. Again, under this model, additional efficiencies are achieved through reductions in command staff, shift supervisors, and non-sworn staff, but we also reallocate a portion of the financial savings from the reduced patrol officers to add several positions that have the potential to enhance police services in ways that may not be affordable otherwise.

Below we provide additional details on the two models and their fiscal impacts when it comes to personnel expenses. **We do not provide cost estimates and comparisons for other elements of the hypothetical consolidated department – such as those associated with vehicles, facilities, supplies, and commodities – because of the highly speculative nature of such estimates.** However, we do discuss those elements at the end of the section, as well as other considerations.

Also, police department revenues are difficult to compare across jurisdictions because of different budgeting practices. Given that revenues offset a small percentage of police expenditures (ranging from 2.5% in Bayside to 13.7% in Shorewood), we do not address revenues in this analysis.

Those who would like to see even greater detail on the assumptions and calculations behind each model should refer to **Appendices B and C**.

Model 1: Retain Current Patrol Capacity

As noted above, Model 1 assumes the status quo in terms of patrol staffing, but adjusts command staff, sergeants, and non-sworn staff to reflect economies of scale from consolidation. **Table 18** summarizes the sworn staffing levels in Model 1 and how they compare to current collective staffing. Total sworn officer FTEs are reduced by 16, from 162 to 146.

Table 18: Model 1, sworn staff

<i>Command</i>	Current	Model 1
Chief	7	1
Assistant Chief	0	1
Captain	6	3
Lieutenant	4	3
<i>Patrol</i>		
Lieutenant	8	3
Sergeant	28	20
Officer	95	101
<i>Other Sworn</i>		
Detective	9	9
Community Liaison/School Resource Officer	5	5
Total Sworn	162	146



Some important notes associated with this model include the following:

- To maintain existing patrol capacity, we actually increase the current number of patrol officers in the North Shore by six FTEs to 101. This adjustment is based on our interviews with chiefs, which indicate that some departments currently use sergeants and lieutenants (and even more senior command staff) to patrol occasionally. We do not anticipate such usage in the larger consolidated department so we added six patrol officers to account for the elimination of time spent by supervisory and command staff on patrol duties.
- The number of sergeants in our model is reduced from the current 28 to 20. This reflects the previously mentioned ideal standard of one sergeant supervising every five officers on patrol. Maintaining a 5:1 ratio is not possible in smaller departments given that they do not have five officers patrolling at any given time but those officers still require supervision.
- Command staff is reduced from 17 to 8. Our model includes one assistant chief, three captains, and three lieutenants who would have general administrative or department-wide responsibilities but generally no supervisory responsibility over patrol shifts. This number of command staff is consistent with the West Allis (8) and Waukesha (7) departments.

From an operational perspective, we would envision that the department would be divided into two patrol bureaus – one encompassing Bayside, Fox Point, and River Hills, and the other serving the four remaining communities. One captain could be assigned to each patrol bureau, while the third could focus on support services, community engagement, training, and other department priorities. Operating procedures could be established to dictate that officers on patrol in one bureau would not respond to calls in the other bureau unless a major incident dictated such a move. That is not too different from current operations given that officers from the three small communities often provide back-up in one of the larger neighboring jurisdictions when a significant incident occurs, and this approach could reassure those communities that patrol resources within their jurisdictions would not frequently be diverted to other parts of the North Shore.

With regard to non-sworn staff, we examined administrative staffing for the North Shore Fire Department (NSFD) as well as the comparison police departments to model the support staff that would be required for our hypothetical NSPD. A consolidated department offers an opportunity to reduce certain support staff positions, as shown in **Table 19**. We assume that only two administrative assistants would be needed for a single department and that the number of records/property clerks could be reduced to six (plus one supervisor).

Table 19: Model 1, non-sworn staff

	Current	Model 1
Admin Assistant	5.0	2.0
Records/Property Clerk	9.3	6.0
Community Service Officer	4.0	3.0
Records Supervisor	0	1.0
Finance/HR Dir	0	1.0
HR Specialist	0	1.0
Fleet Manager	0	1.0
Mechanic	0	1.0
IT Specialist	0	1.0
Total	18.3	17.0



It was also necessary, however, to add several administrative and support positions to reflect our assumption that the NSPD – like the NSFD – would be an independent, freestanding department. Consequently, unlike the seven existing departments, it would no longer receive administrative and certain other support services from a larger municipal government. This required us to add a finance/human resources director and HR specialist, an information technology specialist, and a fleet manager and mechanic to service the department’s vehicles.

It is possible that a consolidated department would opt instead to contract for one or more of these functions, either with one of the participating municipalities or a private entity. Also, given that the NSFD already has an administrative infrastructure, it is conceivable that the two departments could share that infrastructure (though it likely would need to be expanded somewhat to accommodate both departments). On the other hand, it is possible that additional positions would be required for areas like fleet and information technology if those functions are not outsourced. We acknowledge that our framework likely would need to be altered if a consolidation initiative moves forward, but we also believe it represents a reasonable set of assumptions for modeling purposes.

It is important to note that the creation of HR, finance, and IT positions to support an NSPD would reduce workload in each of the seven municipal governments. Because police departments represent approximately 40% of municipal budgets and a similar percentage of total staffing in each jurisdiction, it is likely that such a move would create possibilities for eliminating certain municipal staff positions. However, because we cannot reliably determine precisely how that would play out and what the estimated cost savings would be, our model does not include any such savings.

The salary schedule used to project salary expenditures for a consolidated department is shown in **Table 20**. Our estimated average salary amounts¹⁰ are based primarily on analysis of existing salary levels at the North Shore police departments and comparison departments, though we also consulted the NSFD salary schedule for certain administrative and support positions. For patrol officers, we used an estimate of \$90,000, which reflects the highest average officer salary observed among the seven departments (Shorewood’s at \$89,732).

¹⁰ We use average salaries to calculate the personnel cost for our model NSPD; in reality, positions have salary scales.



Table 20: Salary schedule for consolidated North Shore PD

Position	Salary
Chief	\$150,000
Assistant Chief	\$130,000
Captain	\$120,000
Lieutenant	\$102,000
Sergeant	\$97,000
Officer	\$90,000
Detective	\$92,000
Community Liaison Officer	\$90,000
Admin Assistant	\$63,000
Records/Property Clerk	\$46,000
Community Service Officer	\$40,000
Records Supervisor	\$60,000
Finance/HR Dir	\$110,000
HR Specialist	\$75,000
IT Specialist	\$85,000
Fleet Manager	\$85,000
Mechanic	\$80,000

By applying the average salary schedule to the number of FTEs for each position category, we are able to calculate an estimated salary cost for our model NSPD. We also added an estimated overtime cost, which reflects a 15% reduction in current collective budgeted overtime costs for the seven departments in light of a larger department's increased ability to redeploy staff to cover for unanticipated time off and other circumstances; and a fringe benefit cost, which we estimate at 43.4% of salary costs based on the current average among the seven departments. This yields a total estimated annual personnel cost of just under \$22 million, which represents an estimated annual savings of \$677,000 from current collective personnel expenditures, as shown in **Table 21**.

Table 21: Model 1, estimated annual personnel cost

	Current	Model 1
Sworn Salaries	\$14,006,559	\$13,560,000
Non-Sworn Salaries	\$894,751	\$1,017,000
Overtime	\$714,000	\$606,900
Total Salaries and OT	\$15,615,310	\$15,183,900
Total Benefits	\$6,774,559	\$6,529,077
Total Personnel Expense	\$22,389,869	\$21,712,977
FTEs	162	146
Difference		(\$676,892)



It may seem counter-intuitive to see such a relatively small personnel savings given the total reduction of 16 FTEs in our model. However, **the reduced savings can be explained, in part, by our use of higher average salaries for most positions than the existing departments are currently paying.** For example, the total expense for non-sworn personnel increases even though there is a reduction of 1.3 FTEs because the three additional administrative positions are more highly paid than current non-sworn positions. With regard to sworn staff, the salary scale in Model 1 reflects the highest patrol officer salary among the seven departments, and higher-level sworn positions are then pegged to that salary level. Overall, the average salary/benefit cost for all positions reflected in Model 1 is \$10,000 higher than the current average cost of \$138,000.

Model 2: Redesigned Police Staffing Framework

Model 2 imagines what a consolidated NSPD might look like if local officials wish to take advantage of the elimination of municipal boundaries to reallocate patrol capacity while also fortifying specialized areas of police operations. Our approach could have entailed mapping out enlarged patrol boundaries that cross municipal lines and using those boundaries to determine an ideal number of average patrol officers for each shift. However, given the strong emphasis placed by chiefs on police visibility, we also wanted to take into account both nationally established standards and current North Shore averages regarding how much time officers should be spending on responses to community-generated calls versus officer-initiated activity, response to non-emergency requests, and general patrolling.

Consequently, we started with a workload analysis that we developed from our review of the four police staffing studies noted above. That analysis centered around the following data points:

- Identifying community-generated calls from dispatch data. In doing so, we generally used a definition from the Weiss study for the village of Shorewood, which defines a community-generated call for services as “one in which someone requests the police (typically by phone) and one or more officers are dispatched.”
- Estimating the time per call for a community-generated call, including time spent by backup units and time to write reports
- Calculating an FTE multiplier that considers the number of officers needed to provide coverage for each officer when considering vacation time, sick leave, etc.

Appendices B, C, and D provide a more detailed description of the various elements of our methodology. However, its key components are that 27,335 calls logged by the Bayside Communications Center in 2021 were community-generated; that officers in the North Shore spend an average of 59 minutes on each community-generated call; and that 1.91 officers are required to provide coverage for each desired patrol officer position.

When we plugged those assumptions into our model, we determined that *to respond solely to the current volume of community-generated calls* in the North Shore, the collective region would require a staffing level of 25 patrol officers. Given the current patrol staffing of 101 (including the six added for time spent by command staff on patrol), we estimate that community-generated calls currently account for about 24% of the collective time spent by patrol officers in the North Shore, leaving 76% for officer-initiated and other activities. (This is an average and the percentage varies between municipalities.)



Our original inclination was to apply the “rule of 60” to our calculation of how many patrol officers should be included in Model 2 (i.e. 60% of officer time should be spent on community-generated calls and 40% on officer-initiated and other non-emergency activities). But in light of the much smaller current ratio and the clear sentiment we heard from the chiefs that ensuring sufficient general patrol time is a high priority of elected officials and citizens, we instead opted for a model that aims to ensure that 33% of patrol officer time is spent on community-generated calls and 67% on officer-initiated and other activities.¹¹ Based on that assumption, our model indicates that total patrol staffing should be 75 FTEs, or a reduction of 20 from current levels.

As shown in **Table 22**, Model 2 maintains an identical command staff as that hypothesized for Model 1 but contains two other sworn staffing changes. Because of the reduction in patrol officers, our use of a 5:1 ratio for sergeants to patrol officers results in a further reduction of five sergeants (to 15) when compared to Model 1. We also add three community liaison officers to provide additional capacity for community engagement in light of the reduced patrol capacity.

Table 22: Model 2, sworn staff

Command	Current	Model 1	Model 2
Chief	7	1	1
Assistant Chief	0	1	1
Captain	6	3	3
Lieutenant	4	3	3
<i>Patrol</i>			
Lieutenant	8	3	3
Sergeant	28	20	15
Officer	95	101	75
<i>Other Sworn</i>			
Detective	9	9	9
Community Liaison/School Resource Officer	5	5	8
Total Sworn	162	146	118

With regard to non-sworn staff, our roster grows by seven FTEs (to 24) from the 17 contained in Model 1 (see **Table 23**). We added three community service officers to help offset the reduction in patrol officers and to bulk up functions like parking enforcement and response to certain low-urgency calls that do not require sworn staff. In addition, we added four non-sworn “specialized” positions that would be determined by department leadership but that could include positions like public information officer, crime analyst, or behavioral health specialist/social worker. We estimate an average salary of \$70,000 for those positions.

¹¹ Recent consultant studies for Shorewood and Glendale conducted similar analyses and estimated that 36% and 29% of officers’ time in those communities respectively is spent on community-generated calls.



Table 23: Model 2, non-sworn staff

	Current	Model 1	Model 2
Admin Assistant	5.0	2.0	2.0
Records/Property Clerk	9.3	6.0	6.0
Community Service Officer	4.0	3.0	6.0
Records Supervisor	0	1.0	1.0
Finance/HR Dir	0	1.0	1.0
HR Specialist	0	1.0	1.0
Fleet Manager	0	1.0	1.0
Mechanic	0	1.0	1.0
IT Specialist	0	1.0	1.0
Specialized Positions	0	0	4.0
Total	18.3	17.0	24.0

Table 24 shows our estimated personnel cost for Model 2 and compares the total to current personnel expenditures and those shown earlier for Model 1. The substantial estimated annual savings of \$3.75 million reflects the sizable reduction in patrol officer costs, which are only partially offset by the added non-sworn staff.

Table 24: Model 2, estimated personnel cost

	Current	Model 1	Model 2
Sworn Salaries	\$14,006,559	\$13,560,000	\$11,011,757
Non-Sworn Salaries	\$894,751	\$1,017,000	\$1,417,000
Overtime	\$714,000	\$606,900	\$606,900
Total Salaries	\$15,615,310	\$15,183,900	\$13,086,505
Total Benefits	\$6,774,559	\$6,529,077	\$5,605,332
Total Personnel Expense	\$22,389,869	\$21,712,977	\$18,640,989
FTEs	162	146	118
Difference		(\$676,892)	(\$3,748,880)

Summary and Observations

By presenting two models, we aim to provide North Shore leaders with distinct approaches that hopefully will assist them in framing a decision on whether to pursue a consolidated department:

- Model 1** shows that staffing efficiencies and personnel-related cost savings could be produced by consolidation even if patrol capacity is kept the same for each community. These savings would be somewhat modest, however, when distributed among seven municipalities, and it is questionable whether they would overcome the perceived negative elements for each community associated with loss of local control over police services. (As noted earlier and discussed further below, additional savings related to vehicles, facilities, and other areas likely would be generated and are not considered here.)



- **Model 2** shows that substantial additional savings might be reasonably achieved under a patrol and staffing framework that erases municipal boundaries and reflects a reduction in patrol officer-initiated activity from 76% to 66% of total hours. Obviously, this model would reduce the number of patrol officers on the street at any one time in the North Shore. Also, those patrol officers may spend more time in Glendale, Brown Deer, and to some extent Shorewood because of the greater call volumes in those communities, which could further reduce officer visibility in other parts of the North Shore.

For comparative purposes, **Table 25** shows that patrol staffing in both models still would exceed such staffing in the six comparison departments. However, consideration of these numbers also should take into account the expectations of North Shore citizens and their willingness to pay for law enforcement services, which may distinguish the North Shore from the six comparison communities.

Table 25: Patrol staffing, Models 1 and 2 vs. six comparison departments

Patrol Staff	Lt	Sgt	Officer	Total Patrol
NS Model 1	3	20	101	124
NS Model 2	3	15	75	93
Appleton	12	0	60	72
Eau Claire	3	9	60	72
Janesville	3	9	65	77
Oshkosh	3	9	65	77
Waukesha	3	8	71	82
West Allis	3	9	68	80

There are several additional factors that should be kept in mind when considering the two models and whether either – or perhaps a third model with patrol capacity that falls in between the two – might be appropriate for the North Shore. These include:

- **The cost savings for both models almost certainly are understated.** For purposes of this high-level analysis, we only considered personnel costs and savings. It is highly likely that additional substantial savings would be recognized by reducing the fleet of collective police department vehicles and the number of police stations in the North Shore. Over the long term, station savings could be particularly significant given the costs of major repairs or renovations that likely could be avoided at most existing stations and by virtue of sharing whatever station costs would be incurred among the seven communities. We would envision one main station for the NSPD (which likely would entail significant renovation or expansion costs at one existing station) and perhaps one smaller substation. Additional but smaller savings also likely would materialize from reduced costs associated with uniforms, supplies, etc., and it is again worth noting that our salary estimates for sworn positions were conservative given our use of the highest patrol officer average salary among the seven departments as our starting point. Conversely, there would be start-up costs that cannot be determined at this time, including costs associated with standardizing communications and information technology systems and equipment. Such costs could offset some potential savings in the immediate years following consolidation.



- **Law enforcement has unique elements that may be challenging to resolve under a consolidated framework.** While the differences may not be stark, each of the seven communities has its own code of ordinances that ideally would be unified if the police departments consolidate. Similarly, each functions with its own municipal court and legal counsel which ostensibly could and should be merged, bringing both possible efficiencies and financial benefits but also an additional set of details that would have to be worked out; and municipalities have different parking regulations and as a consequence, some do relatively little parking enforcement while others do a lot. Finally, different attitudes and opinions on policing – ranging from prioritization of traffic stops to enforcement of low-level marijuana transgressions to the presence of police officers at schools – may exist within the seven communities and would need to be reconciled, as well as any different features among the seven distinct contracts with collective bargaining units.

In the next section, we reflect on these points and the characteristics of the two models and offer some final insights and conclusions.



CONCLUSION

One of the foremost concerns we heard from the North Shore chiefs was that efforts to take advantage of economies of scale under a single consolidated department would conflict with the expectations of North Shore elected officials and citizens with regard to police presence in their communities.

Many of the chiefs acknowledged that a consolidated department could reasonably allow for a reduced number of patrol shifts by assigning larger geographic patrol areas to officers and taking advantage of the greater opportunities for back-up and other synergies that would exist in a single department. Yet, several (particularly from the smaller communities) also argued that while fewer patrols might be justified on paper, their communities found substantial value in having several officers patrolling their municipal boundaries at all times as a deterrent to crime. Furthermore, they pointed to a desire by citizens to have sufficient police capacity to serve them in ways that larger departments often do not, such as by providing vacation checks and engaging in various forms of community engagement activities.

Several chiefs also expressed concern that in light of the much heavier call volumes in Glendale and Brown Deer, even those officers specifically assigned to patrol the smaller communities in a consolidated department would spend much of their shifts being pulled into responses in the larger municipalities.

Chiefs from the larger communities also pointed to the benefits of having ample patrol capacity within their jurisdictions to focus on proactive policing and community-wide priorities as opposed to responding mainly to calls for service. And, they noted the much heavier volumes of commercial activity and hotels/motels in Glendale and Brown Deer, which demand specific types of policing activities that they fear could be lost in a consolidated department.

We appreciate and have reflected considerably on those concerns, which prompted us to develop our two distinct models. But ultimately, the key question for policymakers may not come down to numbers, but instead will focus on **how would police services change under a consolidated department with reduced street patrols similar to those presented in Model 2?**

One way to assess this question is to consider how individual police functions might be impacted. While we are not experts in policing, we offer the following thoughts on a few important functions:

- **Patrol.** As noted in earlier sections, estimates by the chiefs indicate that currently, the average number of officers on patrol at any given time in the North Shore is just under 20. We estimate that the reduction of 20 patrol officers from the current level in Model 2 would reduce the average number of patrols by between 4.0 and 4.4 on average. In terms of the impact that may have, the chiefs emphasized that patrols are important in their communities because they provide residents with a *perception* of safety, in addition to acting as deterrents to crime. While there is value associated with both of those elements, if elected leaders wish to consider Model 2 or another model calling for reduced patrols, then they should conduct further analysis and consultation with law enforcement experts to assess whether and to what extent a reduced patrol presence might actually impact the *incidence of crime* and the safety of citizens.



- **Response to emergency calls.** Depending on how patrol areas under a consolidated department are drawn, response times for 911 emergency-related calls may lengthen with fewer patrol units available at any time. Whether the difference would be noticeable to residents and impact their safety is a question that could and should be analyzed further using geographic data from the dispatch center if a model with reduced officer capacity is pursued. With regard to lower-priority calls involving thefts, neighbor disturbances, etc., there also could be somewhat lengthier response times with a reduction in officer capacity, though whether that reduction would be noticeable is more questionable and is a matter that would similarly benefit from further analysis.
- **Community engagement.** Community-oriented policing is a goal of every department in the North Shore. The shape of such policing strategies varies by municipality, but all departments indicated that they regularly provide vacation checks, business checks, and other responses (e.g. bats in the attic, etc.) that build trust in their communities and provide a level of service that citizens appreciate and appear eager to support. Under Model 2, we estimate that each officer would be able to devote two thirds of his or her time to officer-initiated activities, which would appear to still allow sufficient time for various community-oriented, officer-initiated police activities. An additional three community liaison officers also would contribute toward that goal.
- **Traffic enforcement.** Enforcement of traffic laws is an important safety issue in several of the North Shore communities. While the amount of time spent on traffic enforcement varies quite a bit between the departments, in some jurisdictions it is a large part of the job for patrol officers. It is certainly possible that time spent on traffic enforcement may be reduced with a reduction in patrol staffing. At the same time, at least one North Shore community (Shorewood) has dramatically reduced its focus on traffic enforcement in the past two years, and others may find such a trade-off acceptable.
- **Prisoner transport/detention.** The processing of arrests is time consuming for officers, both in terms of fingerprinting and other administrative tasks and in terms of guarding prisoners while they are at the station and transporting them to the County Jail. Glendale is the only North Shore department with desk officers who monitor prisoners, but a consolidated department would certainly have such capacity and therefore most likely make prisoner detention and transport more efficient overall.
- **Investigations.** State data suggest that North Shore police departments clear a high percentage of crimes against persons, but crimes against property and society crimes have lower rates of resolution. The consolidated investigation resources in an NSPD could allow for a higher level of service in the smaller communities and might also be used in more proactive ways, as opposed to solely reacting to reported crimes.

While clearly of far lesser significance, it is also important to note the potential administrative benefits that are typically associated with consolidation and that may materialize under a consolidated NSPD. Those may include the following:

- With a larger support staff, some **time spent on records management, evidence management, etc. may be shifted away from patrol officers**, giving officers more time to devote to patrols and other police activity.



- It is possible that a larger organization, by offering a wider variety of types of policing and more opportunities for advancement than currently exist in some of the smaller departments, would **appeal to more police recruits and may aid in future recruitment and retention efforts** (though it also should be acknowledged that smaller and less active departments offer attributes that may be more attractive to some prospective employees).
- Dedicated human resources, finance, and IT positions could **add to the administrative expertise and capacity that is needed to support police functions**. Currently, the police department often is just one city or village department under the purview of municipal staff who handle those functions.
- A data collection and analysis function that extends across the entire North Shore may offer **enhanced opportunity to analyze and respond to crime trends and target resources more effectively**.

In addition, consolidation may pose an opportunity to cost-effectively expand certain police services. For example, several of the comparison departments we studied are able to field investigative teams to address issues like street crimes (Janesville), special investigations (Appleton), computer forensics (Waukesha), and sensitive crimes (West Allis). Also, as noted in our discussion in the previous section, a consolidated structure may offer an opportunity to add specialized positions such as crime analysts, trained clinicians to address behavioral health-related incidents, or a public information officer. Which positions would be best suited for an NSPD would be up for debate, but any of these could improve police services.

Finally, at the beginning of this study, one official brought up police department culture and asked what effect consolidation might have on social and racial aspects of policing. In today's environment of heightened expectations around diversity, equity, and inclusion, we agree that this issue demands further consideration. North Shore police departments must both protect and serve while also respecting people of different cultures and backgrounds and taking great care to avoid the types of racial profiling and similar tactics that have engendered protests across the country. It is possible that efforts to reconcile this delicate balance may be better and more easily accomplished in a larger department that serves a diverse set of neighborhoods and socioeconomic and racial groups.

We have attempted to present the pros and cons associated with a consolidated North Shore Police Department as objectively as possible, and in so doing it has become evident to us that there is no clear-cut answer as to whether consolidation should occur. We also recognize that the prospects for creating a single North Shore Police Department may come down to the following two questions that cannot be settled solely by number crunching and modeling nor by the preliminary analysis we have conducted:

- **How will my own community be impacted?** As we have discussed, from a service-level perspective, a real concern for the smaller communities with regard to either model (but particularly Model 2) is that the much higher volume of calls in the larger communities would leave them with a vastly reduced patrol presence. Even Whitefish Bay and Shorewood – despite having populations that are similar to those of Brown Deer and Glendale – may share that concern given their lower call volumes and comparative lack of commercial and hotel/motel activity. The question is whether those concerns could be sufficiently alleviated via the patrol framework established by the consolidated department; whether some of the service-level



benefits associated with consolidation would offset those concerns; and whether the potential financial savings would make it worthwhile for the smaller and less commercialized communities to consolidate, particularly given their low crime rates and relatively high per capita police costs. The answer to the latter question would be determined, in part, by whatever allocation formula is used to share the cost of the consolidated department among the seven municipalities and also may be impacted by considerations regarding state-imposed property tax levy and expenditure restraint limits.

- **How important is local control?** Each of the North Shore municipalities is accustomed to deciding for itself the level of policing that its citizens desire and wish to pay for, and that element of self-determination would be diminished for each under a consolidated department. Given previous experience with consolidated fire, dispatch, and public health services, it would be logical to assume that a freestanding Board of Directors with equal representation from each municipality would be created to govern the NSPD and establish its annual budget. On the one hand, North Shore elected officials and residents have already experienced that paradigm and appear to be largely satisfied with it despite the tradeoff of losing full control. On the other, the differences in police service and activity levels among the seven communities – as well as distinctions regarding citizen needs and expectations – are more pronounced than for other services that have been successfully consolidated and may not be as easily accommodated under a joint governance structure.

If, after considering the contents of this report and these questions, North Shore leaders conclude that the time is not yet ripe for a single North Shore Police Department, then they may wish to consider further analysis of less comprehensive consolidation options involving communities with the most similar characteristics and challenges (e.g. a consolidated Bayside-Fox Point-River Hills department). They might also contemplate “starting small” by consolidating support or special functions (e.g. a consolidated detective bureau to serve the entire North Shore or a small team of jointly funded crime analysts) or by initiating new efforts to share information technology platforms or other types of policing tools and equipment.

Overall, we hope our analysis has provided North Shore leaders with useful and balanced information that will prompt further thought and discussion. We would be happy to assist with any further analysis or facilitation that may be helpful.



APPENDIX A: SNAPSHOTS OF NORTH SHORE POLICE DEPARTMENTS

Village of Bayside Police Department

The Village of Bayside, the northeastern-most community on Milwaukee's North Shore, is also home to the dispatch services for all seven North Shore communities. It is one of the smallest of the seven communities with a population of just 4,482 and an area of 2.4 square miles.

Bayside PD's scope of services is the smallest of the seven departments within this study. They do not have a municipal court bailiff, a clerk of courts, or jail staffing, and their detention facilities include only two holding cells rather than a certified municipal lockup. Bayside does not have any special units, nor do they perform parking enforcement. That said, like all other departments in this study, they perform vacation house checks, medicine collection, and help with car lockouts.

In 2021, the Bayside PD issued 954 citations and made 211 arrests. Of the 954 citations, 764 (80.1%) were traffic-related, while another 108 (11.3%) were warnings. Slightly less than half of all arrests (49.3%) were for felonies or misdemeanors, with no single crime accounting for more than 8 felony or misdemeanor arrests.

Item	Amount
Population served	4,482
Total FTEs (Sworn FTEs)	13.7 (13.0)
Per Capita 2021 Crime	23.9 instances per 1,000 people
Per Capita 2021 Arrests	47.1 per 1,000 people
Per Capita 2021 Citations	212.9 per 1,000 people
Departmental Vehicles	5 total vehicles
2021 Personnel Spending	\$1,659,127
2021 Total Spending (% of general fund)	\$1,809,202 (39.3%)

Village of Brown Deer Police Department

With a 2020 population of 12,507, the Village of Brown Deer – the westernmost community in the North Shore – is slightly smaller than the three municipalities to its south. It is significantly less population-dense than Shorewood and Whitefish Bay but more population dense than all other North Shore communities.

Brown Deer PD's offers many services compared to other North Shore departments. Their special units include a K9 unit, a motorcycle unit, and a bicycle unit. They enforce parking rules, help with car lockouts, as well as perform medicine collection and vacation house checks. Along with their municipal lockup facilities, they have a municipal court bailiff. Brown Deer PD also has a School Resource Officer.

The Brown Deer PD issued 6,655 citations and made 1,648 arrests in 2021. Nearly all citations were either traffic-related (45.5%) or warnings (44.7%). Just 712 arrests (43.2%) resulted in felony or



misdemeanor charges. The most-issued felony or misdemeanor arrests were for disorderly conduct (76), carrying a concealed weapon (51), or intentional retail theft of \$500 or less (36).

Item	Amount
Population served	12,507
Total FTEs (Sworn FTEs)	34.0 (31.0)
Per Capita 2021 Crime	112.7 instances per 1,000 people
Per Capita 2021 Arrests	131.8 per 1,000 people
Per Capita 2021 Citations	532.1 per 1,000 people
2021 Personnel Spending	\$3,736,194
2021 Total Spending (% of general fund)	\$4,002,694 (38.1%)

Village of Fox Point Police Department

The Village of Fox Point is the most centrally-located of the seven North Shore communities, sharing borders with River Hills, Bayside, Glendale and Whitefish Bay. Its population (6,934) and size (2.9 square miles) are also near the middle of the seven municipalities.

Fox Point PD offers services roughly in line with other departments. They have a clerk of courts as well as a municipal court bailiff. They offer school safety services but do not have a school resource officer on staff. As is common in North Shore departments, they offer vacation house checks, medicine collection, and help with car lockouts. They also offer school safety and crime/violence prevention services through presentations, site surveys, and special events.

The Fox Point PD issued 1,223 citations and made 141 arrests in 2021. More than half of all citations – 663 (54.2%) – were warnings, and most of the rest – 492 (40.2%) – were traffic-related. Only 64 total arrests (45.4%) resulted in misdemeanors or felonies, with no individual crime accounting for more than 8 total arrests.

Item	Amount
Population served	6,934
Total FTEs (Sworn FTEs)	18.0 (17.0)
Per Capita 2021 Crime	17.9 instances per 1,000 people
Per Capita 2021 Arrests	20.3 per 1,000 people
Per Capita 2021 Citations	176.4 per 1,000 people
2021 Personnel Spending	\$2,256,080
2021 Total Spending (% of general fund)	\$2,739,563 (39.3%)

City of Glendale Police Department

Glendale, the only city in the North Shore, is the third biggest by population at 13,357 but the largest by size at just under 6 square miles. Like Fox Point, it is centrally located, sharing borders with Brown Deer, River Hills, Whitefish Bay, and Fox Point itself.

Glendale PD offers a wide array of services. To go along with their lockup, they have jail staffing, as well as a municipal court bailiff and a clerk of courts. Their special units include a K9 and bicycle unit, and like other North Shore departments they perform vacation house checks, medicine collection, parking enforcement, and help with car lockouts. The department also has a school resource officer.



In 2021, Glendale PD issued 7,620 citations and made 1,760 arrests. Of the 7,620 citations, 3,553 (46.6%) were for traffic violations and 3,569 (46.8%) were warnings. More than half of all arrests – 904 (51.4%) – resulted in felonies or misdemeanors. Among the crimes that warranted most misdemeanor or felony charges were carrying a concealed weapon (56), resisting or obstructing an officer (49), and fleeing or eluding a traffic officer (44).

Item	Amount
Population served	13,357
Total FTEs (Sworn FTEs)	47.3 (41.0) (full strength)
Per Capita 2021 Crime	105.6 instances per 1,000 people
Per Capita 2021 Arrests	131.8 per 1,000 people
Per Capita 2021 Citations	570.5 per 1,000 people
2021 Personnel Spending	\$6,020,589
2021 Total Spending (% of general fund)	\$6,374,521 (38.7%)

Village of River Hills Police Department

The Village of River Hills, with a population of just 1,602, is the smallest of the seven North Shore communities, and because of its relatively large size (5.3 square miles) is also by far the least dense.

Despite its small size, the River Hills PD still offers an array of services that include vacation house checks, medicine collection, help with car lockouts, parking enforcement, and crime/violence prevention. They also have a municipal court bailiff.

River Hills PD issued 3,842 citations but made just 72 arrests in 2021. The majority of citations – 2,185 (56.9%) – were warnings, with traffic citations – 1,619 (42.1%) in total – accounting for nearly all of the rest. There were only 25 (34.7%) arrests that resulted in misdemeanor or felony charges in River Hills.

Item	Amount
Population served	1,602
Total FTEs (Sworn FTEs)	11.3 (11.0)
Per Capita 2021 Crime	20.6 instances per 1,000 people
Per Capita 2021 Arrests	44.9 per 1,000 people
Per Capita 2021 Citations	2,398.3 per 1,000 people
2021 Personnel Spending	\$1,406,415
2021 Total Spending (% of general fund)	\$1,660,161 (39.8%)

Village of Shorewood Police Department

The Village of Shorewood is the southernmost of the seven North Shore communities, and is located the closest to Milwaukee's city center. It is the second-most populous North Shore community with a population of 13,859, but with a total size of just 1.590 square miles it is the most population-dense.

Like other departments on the North Shore, Shorewood conducts vacation house checks, medicine collection, and helps with car lockouts. They also enforce parking rules, and have a bicycle unit. Despite not having a clerk of courts, they do have a municipal court bailiff.



Shorewood issued 982 citations and 492 arrests in 2021. Most citations were either traffic-based (532, 54.2%) or warnings (244, 24.8%). Only 186 (37.8%) of all arrests in Shorewood resulted in felony or misdemeanor charges, including 25 instances of disorderly conduct and 21 instances of resisting or obstructing an officer.

Item	Amount
Population served	13,859
Total FTE (Sworn FTE)	29.0 (25.0)
Per Capita 2021 Crime	37.4 instances per 1,000 people
Per Capita 2021 Arrests	35.5 per 1,000 people
Per Capita 2021 Citations	70.9 per 1,000 people
2021 Personnel Spending	\$3,607,375
2021 Total Spending (% of general fund)	\$3,990,720 (31.8%)

Village of Whitefish Bay Police Department

At 14,954 residents, Whitefish Bay is the most populous of the seven North Shore communities, and is second in population density behind Shorewood. It is surrounded by Shorewood to its south, Glendale to its west, and Fox Point to its north.

The Whitefish Bay PD offers a wide array of services, including vacation house checks, medicine collection, help with car lockouts, and crime/violence prevention in the form of a neighborhood watch. The department has a bicycle unit and helps with school safety.

There were 1,965 citations and 501 arrests issued by the Whitefish Bay PD in 2021. The vast majority of citations – 1,736 (88.3%) were for traffic violations. Of the 501 arrests, 170 (33.9%) resulted in felonies or misdemeanors, including 20 for disorderly conduct and 13 each for resisting/obstructing an officer and fleeing/eluding a traffic officer.

Item	Amount
Population served	14,954
Total FTE (Sworn FTE)	27.0 (24.0)
Per Capita 2021 Crime	18.4 instances per 1,000 people
Per Capita 2021 Arrests	33.5 per 1,000 people
Per Capita 2021 Citations	131.4 per 1,000 people
2021 Personnel Spending	\$3,673,425
2021 Total Spending (% of general fund)	\$3,937,566 (34.1%)



APPENDIX B: REQUIRED FTES TO STAFF PATROL SHIFTS

Total police FTEs and sworn officers are two ways of measuring the level of police services in a community. However, the public and policymakers are also interested in how those totals translate into actual patrols on their streets.

North Shore chiefs reported that at a minimum there are typically 15.7 patrol cars available in the North Shore as a whole and that the average number across all shifts is 20 patrol cars. However, these reports are best estimates and are not based on actual counts. Shorewood and Whitefish Bay, for example, have almost identical numbers of patrol officers, and yet Shorewood reported an average of 2.3 patrol cars and Whitefish Bay reported an average of 3.7 patrol cars. Similarly, River Hills reported two cars on patrol at all times, but with only seven officers this means that only one officer is available to cover time off for six others.

Several of the smaller departments reported that sergeants, lieutenants, and command staff may also staff patrol shifts on occasion. We estimated that the time spent by those personnel equate to 6.0 FTEs on patrol. This adjustment increases the total collective FTEs estimated to maintain current patrol capacity in the North Shore from 95 to 101.

Departments also use overtime to staff patrol shifts when necessary. Instead of counting overtime as part of patrol capacity, we assume that at projected staffing levels under either model, the consolidated department only would need minimal amounts of OT to staff patrols, and this is one piece of the reduction in the 15% reduction in overtime we cite in our modeling.

A total FTE count of 101 officers who currently patrol the North Shore and an average of 20 patrols in the North Shore at any given time suggests an FTE multiplier of 1.71, which means that for every officer, the department needs an additional 0.71 officer FTE to cover vacation and other time off. The table below converts the FTE multiplier into available hours per year and compares this ratio to those used in the four other studies we reviewed.

Hours worked and FTE Multipliers, various studies

	ICMA	Glendale (Matrix)	North Shore (Observed)	Madison	Shorewood (Weiss)
Hours worked/patrol officer	1,664	1,367	1,209	1,101	1,087
% time off	20.0%	34.3%	41.9%	47.1%	47.7%
FTE multiplier	1.25	1.52	1.71	1.89	1.91

Note: Some studies used 3011 hours per year and others used 2080 hours per year. We converted all to 2080 hours per year. Also, studies differ in how variables are defined. In the Matrix study, time off includes court time (20 hours) and administrative workload (317 hours). The Madison PD analysis also incorporates compensatory time offset with overtime worked.

Given the range of FTE multipliers shown in the table, it is difficult to ascertain the exact number of patrol cars on average in the North Shore. However, we feel confident saying that the actual number of patrols on average ranges from 17.9 (using an FTE multiplier of 1.91) to 20 (using an FTE multiplier of 1.71). In our modeling, we conservatively use 1.91 – the highest of the FTE multipliers cited in the four studies – to calculate our staffing estimates.



APPENDIX C: CALCULATION OF NEEDED PATROL FTES IN MODEL 2

Model 2 has 75 patrol officer FTEs, a reduction of 20 from the current total of 95. Our estimate was calculated based on a “*workload staffing model*,” which is one of several ways to model police staffing. This type of analysis compares demand for service – measured by the time spent responding to community-generated calls – to the number of available patrol hours. Most of these studies cite the “rule of 60,” which suggests that no more than 60% of an officer’s time should be spent responding to community-generated calls for service, leaving 40% for proactive policing.

Calculating required patrol staffing based on a workload methodology requires analysis of the following factors:

- The number of community-generated calls, which we estimated by examining dispatch data (see **Appendix D**).
- Estimating the time per call for a community-generated call, including backup units and time to write reports (we used the highest number in the studies we reviewed, which was 59 minutes in the Matrix study).
- Applying an FTE multiplier (we use 1.91, which is the highest multiplier used in the four studies we reviewed and is therefore a conservative estimate)

The table below shows the total calls recorded in the dispatch system for 2021 by municipality. **Appendix D** details how we defined community-generated versus officer-initiated calls. It is important to note that each department uses dispatch classifications a little differently, so there may be value in further review of this breakdown. This analysis is only a first pass that gives a broad idea of staffing levels relative to demand for service.

Community-generated and total calls for service in the North Shore, 2021*

	Community-Generated Calls	Total Calls
Bayside	1,784	18,920
Brown Deer	6,563	16,314
Fox Point	2,698	6,232
Glendale	7,701	17,897
River Hills	1,397	5,963
Shorewood	4,033	8,804
Whitefish Bay	3,159	8,047
Grand Total	27,335	82,177

* Includes 911 hang-ups

Using the community-generated call total of 27,335 and the assumptions on minutes per call and FTE multiplier noted above, we estimate that approximately 25 officers are required to respond solely to the volume of community-generated calls across the North Shore. This calculation is shown below.



Calculation of officers needed to respond to community-generated calls only

Community-generated calls (2021)	27,335
59 minutes/call	0.98
Total hours needed	26,879
Officers needed (@ 2070 hours/officer)	12.99
Officers needed w/FTE multiplier of 1.91	24.80

For Model 2, we used 33% as our standard for how much time patrol officers should be devoting to community-generated calls on average, leaving 67% for officer-initiated or other non-emergency response activities. This is an increase from our estimate of the current North Shore average of 24%, but still well below the ICMA “rule of 60” that would indicate 60% of an officer’s time should be spent on response to community-generated calls, leaving only 40% for officer-initiated and other activities.



APPENDIX D: HOW WE CATEGORIZED COMMUNITY- GENERATED CALLS

The two tables below show our designations of community-generated versus officer-initiated police calls and activities based on the categories used by the Bayside Communications Center in 2021.

Dispatch call categories designated as community-generated

Abandoned Vehicle
Accident – PDO
Accident/PI
ALS - Assault with a Weapon
Animal Complaints
Armed/Shooter/Weapon
Assault/Battery
Assist Other Agency
Bomb Threat
Burglar Alarm
Burglary
Chapter 51 Commitment
Controlled Substance
Death Investigation
Disabled Vehicle
Disorderly Conduct
Disturbance
Domestic Violence
Driving Complaint
Entry in Progress
Entry to Vehicle
Family Trouble
Fight
Fire Call – PD
Forced Entry
Fraud
Gambling
Hit and Run
Hold Up Alarm
Homicide
Indecent Exposure
Juvenile Complaint
Milwaukee Area Investigative Team
Missing Person



Motor Vehicle Theft
Neighbor Trouble
Noise Complaint
Open Door
Operating While Intoxicated
Police Mutual Aid
Probation and Parole Req
Property Damage
Property-Damage Unintentional
Prostitution
Public Asst./Investigate
Recovered Stolen Veh
Request for Police
Restraining Order
Retail Theft
Road Hazard - PD
Robbery
Sex Offense / Assault
Shots Fired
Smart Call Up
Suicide
Suspicious Activity
Telephone Complaint
Theft Complaint
Trespassing
Truancy
Vehicle Crash - I-43
Vehicle Crash w/Injuries
Weapons Complaint
Welfare Check

Dispatch call categories designated as officer-initiated or other

Ride Schedule-GLPD ONLY

911 Hang up/error
Auto Lockout
Bank Deposit
Code Violations
Community Engagement
Consensual Encounters
Conveyance
Crime Prevention
Curfew/Loitering



Escort
Fingerprinting
Found Property
Investigative Response
Liquor Law Compliance/Vio
Lock Out
Lost Property
Medication Collection
Mental Health
MyBlue Sector Officer Program
Parking Complaint
Prisoner Transport
Repossess A Vehicle
Solicitor Complaint
Special Assignment
STAT Alert
Stolen Property-Recovered
SUAS Utilization - GLPD only
Subject Stop for FI
Traffic Control
Traffic Stop
Vacation/Business Checks
Warrant Pick UP



Dennis J. Ellmaurer
7839 North Links Circle
Fox Point, WI 53217
414-801-5780

December 8, 2022

Mr. Scott Botcher
Village Manager
Village of Fox Point
7200 N. Santa Monica Blvd.
Fox Point, WI 53217

Dear Mr. Botcher:

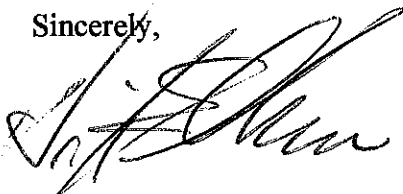
Enclosed is a copy of a letter I sent to each member of the Fox Point Village Board. As you can see, the letter expresses my strong opposition to the continuation of the consideration of the elimination of the Fox Point Police Department as a sovereign entity. You may recall, I wrote to the board in February of 2022 when the board was considering participating in the Glendale sponsored consolidation study.

As a long-time resident, I have seen the police department consolidation idea considered on several occasions. Without going into the specifics of the WPF study, it is clear the residents of Fox Point are quite happy with the services provided by the Fox Point Police Department. It is my understanding that the Department already works with multiple north shore agencies on an informal, cooperative basis. Police consolidation proposals have always been rejected in the past. Residents understand, intuitively, that consolidation of police services would lead to a decline in safety and security in Fox Point.

It is my position that there is no higher priority for the village than insuring the highest level of public safety for our residents.

I intend to participate in the Village Board meeting on January 10th. I am sure WPF would very much like to continue to feed at the public trough with another, bigger -- more in-depth -- study of consolidation. The consideration of consolidation is a distraction that must be stopped now. The Fox Point Police Department needs to remain independent to continue to protect the safety and welfare of the residents and visitors to Fox Point.

Sincerely,

A handwritten signature in black ink, appearing to read 'Dennis J. Ellmaurer', written in a cursive style.

Dennis J. Ellmaurer

Dennis J. Ellmaurer
7839 North Links Circle
Fox Point, WI 53217
414-801-5780

December 8, 2022

Mr. Douglas H. Frazer:
Village of Fox Point - President
6405 N Berkley Blvd
Fox Point, WI 53217

Dear Mr. Frazer:

I wrote to the board on February 2, 2022, to express my opposition to the potential consolidation of the police departments of several North Shore police departments. A copy of my letter is enclosed.

As you know, Glendale proposed and paid for a study conducted by the Wisconsin Policy Forum. After reviewing the Executive Summary of the consolidation study, I am writing once again to register my strong opposition to further consideration of this alarming consolidation proposition.

The WPF study and Glendale's response indicate consolidation is not in the best interests of the residents of Fox Point. Please consider the following.

- The study does not relate crime statistics to municipality or policing. Readily available data, for example, suggest a significant disparity in rates of crime among North Shore communities.

	Chances of Becoming a Victim <u>Of a Violent Crime</u>	Chances of Becoming a Victim <u>Of a Property Crime</u>
Glendale	1 in 388	1 in 19
Brown Deer	1 in 308	1 in 27
Shorewood	1 in 661	1 in 63
Whitefish Bay	1 in 4605	1 in 95
Fox Point	1 in 2197	1 in 108
River Hills	1 in 1597	1 in 197
Bayside	1 in 1447	1 in 255

Source: FBI 2019 Crime in the United States

- Model 1, the status quo scenario, generates a “relatively small savings” of \$677,000. WPF concluded a consolidation that retained existing patrol staffing levels was not worth the effort.
- To make a more compelling case for consolidation, it appears WPF invented a new model which **reduces patrol staff by 29%**. Model 2 projects \$3.75 million in savings.
 - Decrease to 93 sworn patrol officers from 131.
- Neither model considers costs estimates associated with facilities and vehicles because it was too difficult for WPF to include such estimates. This is a significant omission.
- Comparing Model 2 patrol staffing levels with cities like Appleton, Eau Claire and Oshkosh does not consider rates of crime statistics. For example, with the exception of Glendale and Brown Deer, the WPF sample cities are not comparable to the North Shore municipalities in terms of crime. To include West Allis in the model for recommended patrol staffing is absurd.

	Chances of Becoming a Victim <u>Violent Crime</u>	Chances of Becoming a Victim <u>Property Crime</u>
Appleton	1 in 363	1 in 70
Eau Claire	1 in 362	1 in 42
Oshkosh	1 in 352	1 in 62
Janesville	1 in 437	1 in 41
Waukesha	1 in 1085	1 in 105
West Allis	1 in 281	1 in 35

Source: FBI 2019 Crime in the United States

- Another egregious error is the suggestion that this study is modeled after the consolidation of the North Shore fire departments that occurred in the early 90's. One or two of the municipalities did not have an out-of-control fire problem at the time. Fox Point would not have participated in the North Shore Fire/Rescue consolidation if one of the other communities had been experiencing weekly five alarm fires.

Members of the Village Board

December 5, 2022

Page 3.

- The referendum question suggested by Glendale is a gross misrepresentation. WPF's Model 2 suggests a 29% decrease in patrol staff across seven communities. Obviously, patrol staff will be drawn to higher crime areas, regardless of the no boundaries argument. Due to the relatively low number of crimes, Fox Point will experience a reduction of patrol staff that is greater than 29%. The WPF study calls this a "vastly reduced patrol presence."

The choice before the Village board is a vote to decrease crime in Glendale and increase crime in Fox Point. This is a public safety issue...not a budget problem. Please stop the consolidation consideration now.

Sincerely,

Dennis J. Ellmaurer

December 11, 2023

Dear Scott Botcher and Members of the Village Board,

Scott, if you would, please distribute this letter to all members of the Village Board.

I'm writing as a Village Resident to express my concern over the potential Police Department Consolidation.

I've been given access to crime rates and data I'm sure you have seen. I refer to the Glendale requested study conducted by the Wisconsin Public Forum. Consolidation, out of necessity, will lead to more resources and focus on higher crime North Shore Municipalities, resulting in less focus on Fox Point.

In today's environment, where Nationally every "Defund the Police" decision has led to disturbing results, it's difficult for me to think you would even consider such a Consolidation.

Safety and Peace of Mind are two of Fox Point's Core Competencies. I truly hope you as Village Manager and Village Trustees realize how unwise, foolish and longer term expensive this alleged "cost savings" would prove to be.

Please stop the Consolidation consideration now.

Sincerely,

A handwritten signature in black ink, appearing to read "Richard McMicken", with a long horizontal flourish extending to the right.

Richard McMicken
7210 N. Barnett Lane
Fox Point, WI 53217

RESOLUTION NO. 2023-____

**INITIAL RESOLUTION AUTHORIZING THE
BORROWING OF NOT TO EXCEED \$4,350,000
AND PROVIDING FOR THE ISSUANCE
AND SALE OF GENERAL OBLIGATION
PROMISSORY NOTES, SERIES 2023A**

WHEREAS, the Village Board of the Village of Fox Point, Milwaukee County, Wisconsin (the “Village”) has determined that it is necessary to raise funds for the public purpose of:

- (a) Capital projects including but not limited to lakeshore erosion and flooding control projects; and
- (b) Professional and financing fees;

(a and b above collectively referred to as the “Public Purpose”), and there are insufficient funds on hand to pay said costs;

WHEREAS, the Village Board of the Village hereby finds and determines that the Village has sufficient power and authority to authorize such Public Purpose as that term is defined in Section 67.04(1)(b) of the Wisconsin Statutes; and

WHEREAS, the issuance of general obligation promissory notes will not cause the Village to exceed any general or special limit on indebtedness.

NOW, THEREFORE, BE IT RESOLVED by the Village Board of the Village that:

1. Authorization of the Notes. Under and by virtue of the provisions of Section 67.12(12) of the Wisconsin Statutes, the Village shall issue its general obligation promissory notes, in an aggregate sum not to exceed \$4,350,000 (the “Notes”) for the purpose of paying the costs of the Public Purpose, including, but not limited to, the following:

- (a) Capital projects including but not limited to lakeshore erosion and flooding control projects; and
- (b) Professional and financing fees.

2. Sale of the Notes. To evidence such indebtedness of the Village, the Village President and the Village Clerk are hereby authorized, empowered and directed to make, execute, issue and sell the Notes to Robert W. Baird & Co. Incorporated pursuant to a negotiated sale, which sale shall be approved by a subsequent resolution of the Village Board.

3. Sale Date. The Village shall offer the Notes for sale on or about March 14, 2023.

4. The Notes; Levy. The Village Board shall consider taking further action to provide additional details of the Notes and shall levy a direct annual tax sufficient in amount to pay and for the express purpose of paying and discharging the principal and interest on said Notes as the same become due as required by law.

5. Official Statement. The Village President and the Village Clerk are hereby authorized and directed to prepare financing as described herein for consideration by the Village at a subsequent meeting. The Village President and the Village Clerk are hereby authorized and directed to prepare a preliminary official statement. The preliminary official statement shall provide on the face thereof that the terms of any financing described therein are subject to approval at a subsequent meeting of the Village Board and that such financing is subject to revision or withdrawal.

6. Reimbursement Resolution. The Village shall make expenditures as needed from its funds on hand to pay the costs of the Public Purpose projects until proceeds of the Notes which may be issued become available. The Village hereby officially declares its intent under Treasury Regulation Section 1.150-2 to reimburse said expenditures with proceeds of the Notes.

7. Prior Resolution; Severability; Effective Date. All prior resolutions, roles or other actions of the Village or any parts thereof in conflict with the provisions hereof shall be, and the same are, hereby rescinded insofar as the same may so conflict. In the event that any one or more provisions hereof shall for any reason be held to be illegal or invalid, such illegality or invalidity shall not affect any other provisions hereof. The foregoing shall take effect immediately upon adoption and approval in the manner provided by law.

Adopted and recorded this 10th day of January, 2023.

**VILLAGE OF FOX POINT,
MILWAUKEE COUNTY, WISCONSIN**

By: _____
Douglas H. Frazer, Village President

Attest: _____
Kelly A. Meyer, Village Clerk

CERTIFICATION BY VILLAGE CLERK

I, Kelly A. Meyer, being first duly sworn, hereby certify that I am the duly qualified and acting Village Clerk of the Village of Fox Point, Milwaukee County, Wisconsin (the "Village"), and as such I have in my possession, or have access to, the complete corporate records of the Village and of its Village Board; that I have carefully compared the transcript attached hereto with the aforesaid records; and that said transcript attached hereto is a true, correct and complete copy of all of the records in relation to the adoption of Resolution No. _____ (the "Resolution") entitled:

INITIAL RESOLUTION AUTHORIZING
THE BORROWING OF NOT TO EXCEED \$4,350,000
AND PROVIDING FOR THE ISSUANCE AND SALE OF
GENERAL OBLIGATION PROMISSORY NOTES, SERIES 2023A

I hereby further certify as follows:

1. Said Resolution was considered for adoption by the Village Board at a meeting held at Village Hall, 7200 North Santa Monica Boulevard, Fox Point, Wisconsin 53217, at ____ p.m. on January 10, 2023. Said meeting was a regular meeting of the Village Board and was held in person at Village Hall, with a remote attendance option in accordance with the hybrid meeting procedures adopted by the Village, with public access.

2. Said resolution was on the agenda for said meeting and public notice thereof was given not less than 24 hours prior to the commencement of said meeting in compliance with Section 19.84 of the Wisconsin Statutes, including, without limitation, by posting at Village Hall and the Village's website.

3. Said meeting was called to order by the Village President who chaired the meeting. Upon roll, I noted and recorded that the following trustees were present:

_____	_____
_____	_____
_____	_____
_____	_____

and that the following trustees were absent:

_____	_____
-------	-------

I noted and recorded that a quorum was present.

Various matters and business were taken up during the course of the meeting without intervention of any closed session. One of the matters taken up was said Resolution, which was introduced, and its adoption was moved by _____ and seconded by _____.

Following discussion and after all members of the Village Board who desired to do so had expressed their views for or against said Resolution, the question was called, and upon roll being called and the continued presence of a quorum being noted, the recorded vote was as follows:

AYE:

NAY:

ABSTAINED:

Whereupon the meeting chair declared said Resolution adopted, and I so recorded it.

IN WITNESS WHEREOF, I have signed my name and affixed the seal of the Village hereto as of the 10th day of January, 2023.

[SEAL]

Kelly A. Meyer, Village Clerk



Village of Fox Point

2023 Financing Plan

January 10, 2023

Justin Fischer, Director

jfischer@rwbaird.com
777 East Wisconsin Avenue
Milwaukee, WI 53202
Phone 414.765.3635

Village of Fox Point

2023 Financing Plan

January 10, 2023



Borrowing Amount / Structure / Purpose

Estimated Amount:	\$4,350,000
Issue:	General Obligation Promissory Notes
Maturity:	April 1, 2026
First Interest:	April 1, 2024
Callable:	April 1, 2024 or any date thereafter
Purpose:	Lakeshore Project
Estimated Interest Rate:	4.25%

Timeline

- Village Board reviews plan of finance and considers Initial resolution..... January 10, 2023
 - Preparations are made for Issuance
 - ✓ Official Statement
 - ✓ Marketing
- Village Board considers award resolution for Notes (finalizes terms and interest rates) March 14, 2023
- Closing (funds available)..... April 4, 2023

Village of Fox Point

2023 Financing Plan

January 10, 2023

Hypothetical Financing Plan



		Lakeshore Project		Lakeshore Project							
		\$4,350,000		\$2,750,000							
		G.O. NOTE		G.O. PROMISSORY NOTES ^(A)							
		Dated April 4, 2023		Dated April 1, 2024							
		(Due 4/1/2026)		(First interest 4/1/2025)							
LEVY YEAR	YEAR DUE	EXISTING DEBT SERVICE (Levy Supported)	NET INTEREST** (4/1 & 10/1) TIC= 4.25%	PRINCIPAL (4/1)	INTEREST (4/1 & 10/1) AVG= 4.25%	TOTAL	FUTURE ISSUES (B)	COMBINED DEBT SERVICE (Levy Supported)	COMBINED YEAR MILL RATE DUE (C)		
2022	2023	\$1,763,512	Assumes interest from Note is paid by fund balance. Assumes principal is refinanced with Notes on 4/1/2024.				\$0	\$1,763,512	\$1.42	2023	
2023	2024	\$1,799,918		\$269,323				\$74,375	\$1,874,293	\$1.48	2024
2024	2025	\$1,805,486				\$175,313	\$175,313	\$162,594	\$2,143,392	\$1.66	2025
2025	2026	\$1,787,417		\$260,000	\$111,350	\$371,350	\$225,281	\$2,384,049	\$1.81	2026	
2026	2027	\$1,615,496		\$265,000	\$100,194	\$365,194	\$439,675	\$2,420,365	\$1.80	2027	
2027	2028	\$1,310,355		\$280,000	\$88,613	\$368,613	\$784,506	\$2,463,474	\$1.80	2028	
2028	2029	\$1,181,195		\$290,000	\$76,500	\$366,500	\$921,050	\$2,468,745	\$1.77	2029	
2029	2030	\$968,187		\$305,000	\$63,856	\$368,856	\$1,171,006	\$2,508,050	\$1.76	2030	
2030	2031	\$680,942		\$315,000	\$50,681	\$365,681	\$1,416,719	\$2,463,342	\$1.69	2031	
2031	2032	\$357,077		\$330,000	\$36,975	\$366,975	\$1,667,763	\$2,391,815	\$1.61	2032	
2032	2033			\$345,000	\$22,631	\$367,631	\$1,913,713	\$2,281,344	\$1.51	2033	
2033	2034			\$360,000	\$7,650	\$367,650	\$1,849,975	\$2,217,625	\$1.44	2034	
		\$13,269,584		\$2,750,000	\$733,763	\$3,483,763	\$10,626,656	\$27,380,003			

**Assumes hypothetical bid premium on estimated debt service due in 2024 in the amount of \$16,182.

(A) Assumes \$1,600,000 of grants / funds on hand applied toward the hypothetical borrowing.

(B) Assumes \$1,500,000 future borrowings every year beginning in 2023. Future borrowings amortized over 10 years at an average interest rate of 4.25%.

(C) Mill rate based on 2022 Assessed Valuation of \$1,241,930,700 with annual growth of 2.00%.



Village of Fox Point

Tentative Financing Timetable for G.O. Notes
As of January 4, 2023

January 2023							February 2023							March 2023							April 2023						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
1	2	3	4	5	6	7				1	2	3	4				1	2	3	4							1
8	9	10	11	12	13	14	5	6	7	8	9	10	11	5	6	7	8	9	10	11	2	3	4	5	6	7	8
15	16	17	18	19	20	21	12	13	14	15	16	17	18	12	13	14	15	16	17	18	9	10	11	12	13	14	15
22	23	24	25	26	27	28	19	20	21	22	23	24	25	19	20	21	22	23	24	25	16	17	18	19	20	21	22
29	30	31					26	27	28					26	27	28	29	30	31		23	24	25	26	27	28	29
																											30

Tuesday, January 10, 2023.....	Village Board considers plan of finance and adopts Initial Resolution(s).
Friday, January 20, 2023.....	Official Statement Disclosure Questionnaire forwarded to Village.
Wednesday, February 1, 2023	Requested information due from Village.
Friday, February 10, 2023	Draft POS to Support Banker/Banker for review.
Friday, February 17, 2023	Comments received from Support Banker/Banker.
Tuesday, February 21, 2023	Draft POS e-mailed to the Village and Bond Counsel for review.
Monday, February 27, 2023	Comments received from the Village and Bond Counsel.
Thursday, March 2, 2023.....	Baird due diligence call.
Tuesday, March 7, 2023.....	POS printed and distributed.
Tuesday, March 14, 2023	Village Board considers award resolution for the Notes.
Tuesday, April 4, 2023.....	Settlement Date.