

SITE LEASE AGREEMENT

Between Board of Water Commissioners of the City of Saint Paul and Sprint Spectrum L.P.

This Lease Agreement ("Lease") is entered into this ____ day of _____, 2017, between the **BOARD OF WATER COMMISSIONERS OF THE CITY OF SAINT PAUL**, a Minnesota municipal corporation ("Lessor"), and **SPRINT SPECTRUM L.P.**, a limited partnership organized and existing under the laws of Delaware, ("Lessee").

In consideration of the terms and conditions of this Lease, the parties agree as follows:

1. Leased Premises.

- (a) Lessor hereby leases to Lessee certain space located at and on Lessor's Cottage Avenue Standpipe, located at 2095 Clear Ave E, Saint Paul, MN, and legally described in Exhibit "A" *Legal Description*. The water storage facility and its appurtenances ("Structure"), and the Lessor's land upon which the Structure is situated are collectively called ("the Property"). The property interest leased and granted by the Lessor to Lessee (collectively, the "Leased Premises") consists of the following:
- (1) ground space comprised of approximately _____ square feet, subject to any and all existing easements;
 - (2) structure exterior space for attachment of antennas at alpha, beta & gamma sectors at _____ FAGL;
 - (3) space required for cable runs to connect equipment and antennas;
 - (4) non-exclusive easements required to run utility lines and cables;
 - (5) non-exclusive easement across the Property for access.
- (b) No other space or property interests are being leased to Lessee except as described above and as described on Exhibit "A" *Legal Description*.

2. Terms/Renewals.

- (a) The initial term of this Lease shall commence on April 01, 2017 (the "Commencement Date"), and shall expire on December 31, 2022. Lessee and Lessor agree to enter into a

memorandum confirming the Commencement Date, as contained in Exhibit "F"
Memorandum of Lease Recording.

- (b) Lessee shall have the right to extend this Lease for three (3) additional five (5) year terms (each a "Renewal Term") subject to (c) below.
- (c) This Lease shall automatically be renewed for each successive Renewal Term unless Lessee is in default beyond applicable notice and cure periods of any of the terms or conditions of this Lease, or unless Lessee provides Lessor with written notice of its intention not to renew not less than thirty (30) days prior to commencement of the succeeding Renewal Term.

3. Rent.

- (a) Lessee shall make all payments of rent to Lessor at the following address or until otherwise notified of a change in address:

Board of Water Commissioners
Attn: SPRWS Accounting
1900 Rice Street, Office Building
Saint Paul, Minnesota 55113

- (b) Lessor's FIN number is # 41-6005521.
- (c) Lessee shall pay rent annually in advance, as indicated in the payment schedule below:
 - (1) Lessee shall pay Lessor, as rent, the sum of \$46,650.00 per year plus annual escalator described in Section 3(c)(4) based upon Lessee's installation and operation of the antenna facilities and frequencies identified in Exhibit "D" *Antenna Facilities and Frequencies*, ("Antenna Facilities").
 - (2) The first year's rent shall be pro-rated to the end of 2017 based on the Commencement Date for year 2017, and shall include a one-time administrative fee of Two Thousand Five Hundred Dollars (\$2,500.00), and shall be paid within sixty (60) days after the Commencement Date. Thereafter, the rent due hereunder shall be paid on or before the fifth (5th) day of each January of each succeeding year.
 - (3) Lessee shall not install and/or operate any additional antennas or related equipment beyond those Antenna Facilities and frequencies identified in Exhibit "D" *Antenna Facilities and Frequencies* without the prior written consent of Lessor, such consent not to be withheld, conditioned or delayed without cause. Such additional equipment may require an amendment to the Lease and increase in rent, as may be determined by Lessor. However, changes made exclusively to frequencies shall not require an amendment and shall not constitute grounds for revision of rent. Notwithstanding, Lessee has the right to perform routine maintenance and repairs without Lessor's approval.

- (4) Commencing January 1, 2018, and on January 1st of each subsequent year, the rent shall be increased annually by five percent (5%).

4. Engineering Studies

(a) Structural Study

Prior to modifying the existing Antenna Facilities to increase the weight load on the Structure, Lessee must obtain an engineering study carried out by a qualified engineer, showing that the Structure is able to support the additional Antenna Facilities. If the study finds that the Structure is inadequate to support the proposed antenna loads, Lessee may not perform such modifications unless Lessee agrees to make structural modifications to the Structure in order to support the additional load.

(b) Interference Study

Prior to modifying the existing antennas or frequencies at the Leased Premises, Lessee must obtain a radio frequency interference study carried out by an independent professional radio frequency engineer ("RF Engineer") showing that Lessee's intended use will not interfere with any existing communications facilities located on the structure. RF Engineer shall provide said evaluation no later than thirty (30) days after frequencies are provided by Lessee. Lessee shall provide Lessor with a copy of a satisfactorily completed RF evaluation prior to transmitting or receiving radio waves at the Property.

5. Use of Leased Premises.

(a) Primary Use of Property

The primary use and purpose of the Property, including the Leased Premises, is for a water storage structure and appurtenances to provide water service to customers of the Lessor ("Primary Use"). Lessor's operations in connection with pursuit of the Primary Use ("Lessor's Operations") take priority over Lessee's operations.

(b) User priority

Lessee agrees that the following priorities of use, in descending order, shall apply in the event of communication interference, emergency public safety needs, or other conflict while this Lease is in effect, and Lessee's use shall be subordinate accordingly:

- (1) Lessor;
- (2) Public safety agencies, including law enforcement, fire, and ambulance services, that are not related to Lessor;
- (3) Other governmental agencies where use is not related to public safety;
- (4) Pre-existing lessees (defined as lessees that installed equipment prior to Lessee's original installation of equipment on September 19, 1996);
- (5) Lessee.

(c) Jeopardy of Primary Use

- (1) In the event that the Lessor's Primary Use of the Structure is put at risk because of Lessee's operations ("Jeopardy"), Lessor shall provide written notice of such event to Lessee. Lessor and Lessee agree to work together to cure the occurrence that causes the Jeopardy. Lessee shall make all good efforts to cure the Jeopardy within thirty (30) days of receipt of written notice of event. If Lessee does not cure the Jeopardy within thirty (30) days of receipt of written notice of event, said occurrence of Jeopardy shall constitute an event of default by Lessee, as otherwise defined in *Section 14. Termination*. If circumstances beyond the control of Lessee prohibit the Jeopardy from reasonably being cured within thirty (30) days, Lessee shall notify Lessor of such circumstances and commence actions required to cure the Jeopardy (e.g. assessing the problem, ordering necessary equipment) within seven (7) days of Lessor's written notice of Jeopardy and shall diligently pursue the cure to completion within a reasonable time thereafter.
- (2) In the event of Jeopardy that poses an immediate threat of substantial harm or damage to the water supply, to persons, and/or property on the Leased Premises, as solely determined by Lessor ("Severe Jeopardy"), Lessor may enter the Leased Premises and take actions it determines are required to protect the water, individuals or personal property from such Severe Jeopardy; provided that promptly after such emergency entry onto the Leased Premises, and in no event later than twenty-four (24) hours after such entry, Lessor gives written notice to Lessee of Lessor's emergency entrance.
- (3) If Lessor determines that the conditions of a Severe Jeopardy would be benefited by cessation of Lessee's operations, Lessee shall immediately cease its operations on the Premises upon notice from Lessor to do so and Lessee shall be permitted to terminate this Lease upon written notice to Lessor.

(d) Lessee's Use of Leased Premises

- (1) Lessee shall have the non-exclusive right, at its sole cost and expense, to use the Leased Premises for the transmission and reception of communications signals ("Approved Use").
- (2) In accordance with this Approved Use, the Lessee has the right to install, operate, maintain, repair, replace, store or remove its antennas, utility building, equipment, personal property, leasehold improvements, and appurtenances as shown in Exhibit "D" *Antenna Facilities and Frequencies* and Exhibit "C" *Construction Plans*.
- (3) Lessee shall be responsible for all expenses incurred by the Lessor resulting directly from the use and/or occupancy of the Leased Premises by Lessee. Lessor shall submit an itemized invoice of such expenses to Lessee together with reasonable supporting documentation evidencing such expenses at the notice address set forth in Section 17 below and Lessee shall make payment to Lessor within sixty (60) days of receipt.

(e) Laws Governing Use

Lessee's Antenna Facilities and any other facilities shall be installed, maintained, and operated in accordance with all state or federal or local or municipal statutes, ordinances, rules, or regulations now in effect, or that hereafter may be issued by the Federal Communications Commission ("FCC") or any other governing bodies which apply to Lessee's Approved Use of the Leased Premises.

6. Installation of Equipment and Leasehold Improvements.

(a) Construction Plans

For the initial installation of all Antenna Facilities and for any and all subsequent revisions and/or modifications thereof, or additions thereto, Lessee shall provide Lessor and Lessor's Water Tower Construction Engineer ("Construction Engineer") each with comprehensive construction plans ("Construction Plans") consisting of the following:

- (1) line or CAD drawings showing location of all planned installations plus materials and construction methods;
- (2) specifications for all planned installations;
- (3) diagrams of Antenna Facilities for initial installation, and subsequently, diagrams of proposed antenna facilities for any and all revisions, modifications, or approved additions;
- (4) a complete and detailed inventory of all proposed equipment and personal property of Lessee to be placed on the Leased Premises. Lessor retains the right, at its sole cost and expense, to survey such equipment and personal property.

(b) Construction Plans shall be easily readable and subject to prior written approval by the Construction Engineer, which shall not be withheld, conditioned or delayed without cause. Lessor shall have thirty (30) business days to review and comment on the Construction Plans. Lessor, on behalf of itself and the Construction Engineer, hereby approves of the Construction Plans for the existing Antenna Facilities.

(c) Lessee shall be solely responsible for all costs associated with said review and approval of Construction Plans by Construction Engineer ("Review Fee") for the review of the Construction Plans for each subsequent revision, modification, or approved addition to the Antenna Facilities.

(d) Construction Scheduling

At least five (5) days prior to Lessee's construction mobilization, Lessee shall conduct a pre-construction meeting on the Property or other location as determined by Lessor. Said meeting shall be attended by the Construction Engineer, Lessee's representative and all contractors involved in the installation.

(e) Construction Inspection.

All construction activity for any and all subsequent revisions and/or modifications to the Antenna Facilities, or additions thereto shall be subject to inspection and approval by the

Construction Engineer to ensure compliance with the approved Construction Plans and the terms of this Lease. Inspection will be performed beginning with the pre-construction meeting and continuing through installation/construction/punch-list and verification of as-built drawings at project completion as determined by Lessor. Lessee agrees to pay for the cost of said inspections and project documentation ("Inspection Fees"). Lessor shall submit an itemized invoice of such Inspection Fees to Lessee at the notice address set forth in Section 17 below together with reasonable supporting documentation evidencing such fees and Lessee shall make payment to Lessor within sixty (60) days of receipt. If deemed necessary by the Construction Engineer, construction work performed without approval of the Construction Engineer will not be accepted and shall be removed or uninstalled at Lessee's sole expense, provided Lessor or the Construction Engineer notifies Lessee of such non-compliance within thirty (30) days of submission of as-built drawings to Lessor.

(f) Escrow

Prior to performing subsequent revisions and/or modifications to the existing Antenna Facilities or additions thereto, Lessee agrees to pay an escrow amount equal to the estimated costs of Review Fees and Inspection Fees as determined by Lessor for any and all such subsequent revisions and/or modifications thereof, or additions thereto, prior to commencement of such activities. If the escrow amount is insufficient for these expenses, Lessee agrees to pay the additional costs within forty-five (45) days of receipt of a detailed invoice from Lessor at the notice address set forth in Section 17 below together with reasonable supporting documentation evidencing such costs.

(g) Exposed Antenna Facilities

All Antenna Facilities and coaxial cables affixed to the Structure which have exterior exposure shall be as close to the color of the Structure as is commercially available to the Lessee. For exposed coaxial cables that Lessee desires to install after the Commencement Date of this Agreement, Lessor reserves the right to require Lessee to provide cables in manufactured colors in lieu of painting.

(h) Damage by Lessee

Any damage to the Property, Leased Premises, or Lessor's equipment thereon caused by Lessee's installation or operations shall be repaired or replaced at Lessee's expense and to Lessor's reasonable satisfaction.

(i) As-built drawings

Within thirty (30) days after Lessee activates the Antenna Facilities, Lessee shall provide Lessor with a Site Plan in electronic file format compatible with Lessor's record file system consisting of as-built drawings of the Antenna Facilities and the improvements installed on the Property, which shall show the actual location of all equipment and improvements. Said drawings shall be accompanied by a complete and detailed site survey of the property, inventory of all equipment, personal property, and Antenna Facilities.

7. **Modifications.**

- (a) Before the Lessee may update or replace the Antenna Facilities, Lessee must provide a detailed proposal to Lessor. The proposal shall include any information reasonably requested by Lessor of such requested update or replacement, including but not limited to revised lease exhibits as may be necessary, construction drawings and specifications as may be required under *Section 6. Installation of Equipment and Leasehold Improvements*, and engineering studies as may be required under *Section 4. Engineering Studies* of this Lease, carried out at Lessee's expense. The proposal must be approved by Lessor, which will not unreasonably withhold approval.
- (b) Lessee shall provide at least thirty (30) days written notice to Lessor before modifying frequencies on the Leased Premises. Said notice shall describe all equipment and frequencies proposed to be added or modified and shall be subject to evaluation by a RF Engineer approved by Lessor, which shall not be withheld, conditioned or delayed without cause. Said review shall consist of necessary interference studies to ensure that the modified or additional frequencies will not cause harmful radio interference to Lessor's Operations or the operations of Lessor's existing tenants. Lessee shall pay all costs for any such interference studies. In the alternative, Lessee may perform the interference studies and submit the results to the Lessor for review and approval.
- (c) If Lessee seeks to increase the number of antennas and/or associated transmitting accessories, and such installation shall exceed the requirements or standard discussed in the engineering report as required by *Section 4.(a)*, then Lessee must obtain an engineering study carried out by a qualified professional demonstrating that the Structure can structurally support the additional accessories.
- (d) **As-built drawings**
Within thirty (30) days after Lessee activates the Antenna Facilities, Lessee shall provide Lessor with a Site Plan in electronic file format compatible with Lessor's record file system consisting of as-built drawings of the Antenna Facilities and the improvements installed on the Property, which shall show the actual location of all equipment and improvements. Said drawings shall be accompanied by a complete and detailed site survey of the property, inventory of all equipment, personal property, and Antenna Facilities. By its signature below, Lessor acknowledges receipt of the foregoing Site Plan, site survey and inventory in the form required by this Section.

8. **Maintenance and Repairs.**

- (a) **Property**
 - (1) Lessor reserves the right to take any action it deems necessary, in its sole and reasonable discretion, to repair, maintain, alter, or improve the Property in connection with Lessor's Operations.
 - (2) Lessor agrees to provide Lessee with thirty (30) days advance notice of such actions that may directly affect Lessee's operations, and to reasonably cooperate with

Lessee to carry out such activities in a manner that minimizes interference with Lessee's Approved Use.

(b) Structure Reconditioning and Repairs

- (1) From time to time, Lessor paints, reconditions, or otherwise improves or repairs the Structure in a substantial way ("Reconditioning Work"). Lessor shall reasonably cooperate with Lessee to carry out Reconditioning Work activities in a timely manner and in a manner that minimizes interference with Lessee's Approved Use.
- (2) Prior to commencing Reconditioning Work, Lessor shall provide Lessee with not less than ninety (90) days prior written notice thereof. Upon receiving such notice, it shall be the sole responsibility of Lessee to provide adequate measures to cover or otherwise protect Lessee's Antenna Facilities from the consequences of such activities, including but not limited to paint and debris fallout. Lessor reserves the right to require Lessee to temporarily remove all Antenna Facilities from the Structure and Leased Premises during Reconditioning Work.
- (3) During Lessor's Reconditioning Work, Lessee may maintain a mobile site on the Property or, after approval by Lessor, on any land owned or controlled by Lessor in the immediate area of the Property. If Property will not accommodate mobile equipment, it shall be Lessee's responsibility to locate auxiliary sites.
- (4) Lessee may request a modification of Lessor's procedures for carrying out Reconditioning Work in order to reduce the interference with Lessee's Approved Use. If Lessor agrees to the modification, Lessee shall be responsible for all incremental cost related to the modification.

(c) Leased Premises

Lessee shall, at its own cost and expense, maintain the Antenna Facilities in good and safe condition, and in compliance with applicable fire, health, building, and other life safety codes applicable to Lessee's Approved Use of the Leased Premises.

9. Property Access.

Access to the Property, including the Leased Premises, by outside persons, including Lessee's employees, agents and assigns, shall at all times be governed by Lessor's Security Plan, as may be revised from time to time and provided to Lessee in writing, in advance, with the most recent Plan being attached hereto and incorporated herein as Exhibit "E" *Security Plan*. Lessee agrees it shall conduct its operations on the Property and the Leased Premises in accordance with all requirements and conditions of said Security Plan. Subject to said requirements and conditions of said Security Plan, Lessee and Lessor agree to the following:

- (a) At no additional charge to Lessee, Lessee shall have access to the Leased Premises and Property, for any purpose relating to this Lease, twenty-four (24) hours a day, seven (7) days a week by means of existing access, as shown on Exhibit "B" *Site Survey*.

- (b) Lessee may, at its own cost and expense, enter upon the Property to study and determine the Property's suitability for any other use of Lessee, which studies may include surveys, radio wave propagation measurements, or field strength tests.
- (c) Lessor retains the right to examine and inspect the Leased Premises for safety reasons and to ensure Lessee's compliance with the terms of this Lease. Lessor shall be liable for, and hold harmless Lessee from, any damage to the Leased Premises or to Lessee's equipment and Antenna Facilities caused by Lessor in exercising its right to examine and inspect the Leased Premises.
- (d) At Lessee's sole cost and expense, Lessee has the right to obtain a title report or commitment for a leasehold time policy from a title company of its choice and to have the Property surveyed by a surveyor of its choice.

10. Utilities.

Lessor makes no representations that utilities adequate for Lessee's use of the Leased Premises are available. Lessee shall be responsible for the cost of all utilities installed and used by it at the Leased Premises. Lessor will cooperate with Lessee in Lessee's efforts to obtain utilities from any location provided by the servicing utility.

11. Personal Property and Real Estate Taxes.

If any of Lessee's improvements constructed on the Leased Premises should cause the Property, or any portion of it, to be taxed for real estate purposes, it shall be the liability of Lessee to pay that portion of such property taxes directly attributable to Lessee's equipment, provided Lessor shall give Lessee prior written notification of such taxes so that Lessee will have the opportunity to appear before the taxing authority to contest such taxes. Notwithstanding Lessee's right to contest such taxes, Lessee shall pay its share of such taxes within ninety (90) days of receiving notice of the same.

12. Certificates, Permits, Zoning, and other Approvals.

Lessee's use of the Leased Premises herein is contingent upon its obtaining all certificates, permits, zoning, and other approvals that may be required by any federal, state or local authority, including but not limited to an engineering study and a radio frequency interference study. Lessee shall, at its sole cost and expense, obtain all such necessary permits, licenses and other approvals and Lessor agrees to cooperate with Lessee in Lessee's pursuit of all such necessary permits, licenses or approvals, and Lessee shall reimburse Lessor its reasonable costs to provide such cooperation.

13. Interference.

- (a) In the performance of its Approved Use, Lessee shall not damage or interfere with Lessor's Operations, including its radio frequency transmissions, or approved operations of other parties that were in place on the Property prior to the Commencement Date of this Lease, provided that the equipment used by Lessor or other lessees is operating

within the technical parameters specified by its manufacturer and/or as defined by the FCC. In the event of any such interference, Lessee shall immediately cease such interference, except for brief tests necessary for the elimination of the interference and until Lessee is able to resolve the problem. In the event Lessee cannot correct the interference, Lessee shall have the option to terminate this Lease, pursuant to *Section 14. Termination*. Lessee shall not be responsible for interference that results from a change in the operations of other tenants after the Commencement Date of this Lease.

- (b) Lessee acknowledges that Lessor may lease the Property, or any part of it, to other parties in close proximity to the Leased Premises, and Lessee agrees to work cooperatively with any such other parties, using accepted technical standards in accordance with FCC standards, to ensure that such other parties' use and Lessee's use will be compatible and will not cause interference with each other.
- (c) Lessor in no way guarantees to Lessee noninterference with Lessee's transmission operations provided, however, that in the event that any other party requests permission to place any type of additional antenna or transmission facility on the Property, the procedures of this Section shall govern to determine whether such antenna or transmission facility will interfere with Lessee's transmission operations.
- (d) In the event that Lessee or other tenants on the Property experience interference of their FCC-approved frequencies and they cannot reach agreement as to the cause and remedy of such interference, an RF Engineer approved by the Lessor shall determine such cause and remedy and Lessee shall abide by the RF Engineer's determination, subject to Lessee's right to terminate this Lease.

14. Termination.

- (a) Except as provided for in Section 14.(a)(3)b. below, or as otherwise provided herein, this Lease may be terminated by either party upon sixty (60) days written notice to the other party for the following reasons:
 - (1) By either party, upon a material default of any other covenant or term hereof by the other party; which default is not cured within sixty (60) days of receipt of written notice of default to the other party (without, however, limiting any other rights of the parties at law, in equity, or pursuant to any other provisions hereof), or if such cure cannot be completed within sixty (60) days, within such reasonable time as may be required, provided the defaulting party commences the cure within ten (10) days of receipt of written notice of default and diligently pursues such cure to completion;
 - (2) By Lessee, in the event that:
 - a. Lessee is unable to obtain or maintain any license, permit, or other governmental approval necessary for the construction and/or operation of the Antenna Facilities;
 - b. the Leased Premises are or become unusable under Lessee's design or engineering specifications for its Antenna Facilities, or the communications system to which the Antenna Facilities belong; or

- c. Lessee's transmission is interfered with by Lessor or its other tenants' equipment. Such right to terminate shall become void if Lessor cures such interference within thirty (30) days of receipt of written notice.
 - d. If the Property or any portion thereof is destroyed or damaged so as to hinder its effective use, Lessee may elect to terminate this Lease upon thirty (30) days written notice to Lessor. In such event, all rights and obligations of the parties shall cease as of the date of the damage or destruction and Lessee shall be entitled to the reimbursement of any rent prepaid by Lessee, prorated to the date of the event.
- (3) By Lessor, in the event that:
- a. Lessor determines, after review by an independent structural engineer, that the Property is structurally unsound, including but not limited to consideration of age of the Structure, damage or destruction of all or part of the Property from any source, or factors relating to condition of the Property;
 - b. Lessee fails to pay rent provided for in *Section 3. Rent* within thirty (30) days of receipt of written notice from Lessor of a rent payment being overdue; or
 - c. Lessee does not complete installation of its Antenna Facilities as shown on Exhibit "D" *Antenna Facilities and Frequencies* within one (1) year of the Commencement Date of this Lease.
 - d. Upon 120 days prior written notice by the Lessor to Lessee if Lessor decides, for any reason, to redevelop and/or discontinue use of the Leased Premises in a manner inconsistent with continued use of the Leased Premises by Lessee.
- (b) If this Lease is terminated, pursuant to the terms and conditions of Section 14.(a), rent shall be pro-rated to the expiration date or the date on which all of Lessee's equipment is removed from the Leased Premises and the Property is restored pursuant to *Section 23. Surrender of Leased Premises*, whichever is later.
- (c) If Lessee terminates this Lease other than provided for in Section 14.(a), Lessee shall pay to Lessor a termination fee in the amount of twenty-five percent (25%) of the rent for the year in which Lessee terminates, unless Lessee terminates during the last year of any Term under *Section 2. Terms/Renewal* and Lessee has paid the rent for that year.
- (d) In the event Lessee becomes aware of any hazardous materials on the Property, or any environmental, health or safety conditions or matter relating to the Property, that, in Lessee's sole determination, renders the condition of the Leased Premises or Property unsuitable for Lessee's use, or if Lessee believes that the leasing or continued leasing of the Leased Premises would expose Lessee to undue risks of liability to a government agency or third party, Lessee will have the right, in addition to any other rights it may have at law or in equity, to terminate this Lease upon written notice to Lessor specifically identifying all such materials, conditions or matters relating to the Property.

15. Insurance.

- (a) Lessee shall obtain and maintain the following insurance to protect the parties against insurable claims, demands, actions, judgments, expenses, and liabilities that may arise out of or result from Lessee's use of the Leased Premises:

(1) General Liability Insurance

- a. Bodily Injury \$1,500,000 each occurrence
 \$3,000,000 aggregate
- b. Property Insurance \$1,500,000 each accident
 \$3,000,000 aggregate
- c. These limits may be satisfied by the commercial general liability coverage or in combinations with an umbrella or excess liability policy, provided coverage afforded by the umbrella or excess policy are no less than the underlying commercial general liability coverages.
- d. Policy must include an "all services, products, or completed operations" endorsement. Lessee shall maintain Completed Operations coverage for a minimum of two years after the construction is completed.

(2) Automobile Insurance

- a. Bodily Injury \$1,000,000 per person
 \$1,500,000 per accident
- b. Property damage not less than \$1,500,000 per accident
- c. The liability limits may be afforded under the Commercial Policy, or in combination with an umbrella or excess liability policy provided coverages of rides afforded by the umbrella or excess policy are not less than the underlying Commercial Auto Liability coverage.
- d. The Commercial Automobile Policy shall include at least statutory personal injury protection, uninsured motorists and under insured coverages.
- e. Coverage shall be provided by Bodily Injury and Property Damage for the ownership, use, maintenance or operation of all owned, non-owned and hired automobiles.

(3) Workers' Compensation and Employer's Liability

- a. Workers' Compensation per Minnesota Statute
- b. Employer's Liability shall have minimum limits of:
 - 1. \$500,000 per accident;
 - 2. \$500,000 per employee
 - 3. \$500,000 per disease policy limit
- c. Lessees with 10 or fewer employees who do not have Workers' Compensation coverage are required to provide a completed "Certificate of Compliance" (State

of Minnesota form MN LIC 04) verifying the number of employees and the reason for their exemption.

- (b) Lessee shall provide Lessor, prior to the Commencement Date and, and annually thereafter prior to expiration date of the same, evidence of the required insurance in the form of a certificate of insurance issued by an insurance company licensed to do business in the State of Minnesota, which includes all coverage required in Section 15.(a) above.
- (c) Policies are to be written on an occurrence basis or as acceptable to the Lessor. Certificate of Insurance must indicate if the policy is issued on a claims-made (if expressly approved by Lessor) or occurrence basis. All certificates of insurance shall provide that Lessor shall be given notice of cancellation in accordance with the policy's terms and conditions.
- (d) Additional Insured – Certificate of Insurance.
The Lessee shall provide, prior to tenancy, evidence of the required insurance in the form of a Certificate of Insurance issued by a company (rated A- or better by Best Insurance Guide) licensed to do business in the state of Minnesota, which includes all coverage required in this *Section 15. Insurance*. General Liability and Automobile policies shall include the Lessor and the City of Saint Paul as additional insured, and shall provide that it will be the primary coverage.

16. Indemnity.

Lessee agrees to indemnify, defend, save, and hold harmless Lessor and the City of Saint Paul, and/or any agents, officers or employees thereof from all claims, demands, actions, or causes of action of whatsoever nature or character, arising out of, or by reason of, the leasing of the Leased Premises by the Lessor to Lessee, or arising out of, or by reason of, the use or condition of the Leased Premises, or as a result of Lessee's operations or business activities taking place on the Leased Premises or Lessee's breach of any provision of this Lease, provided the same is not due to the contributory negligence or willful misconduct of the Lessor, the City of Saint Paul and/or any agents, contractors, officers, or employees thereof. It is fully understood and agreed that Lessee is aware of the conditions of the Leased Premises and leases the same "as is".

17. Notices.

All notices, requests, demands, and other communications hereunder shall be in writing and shall be deemed to have been duly given (a) when delivered in person, (b) upon receipt after dispatch by registered or certified mail or (c) on the next Business Day if transmitted by national overnight courier (with confirmation of delivery) to the following addresses:

If to Lessor: Board of Water Commissioners
 Attn: General Manager
 1900 Rice Street, Office Building
 Saint Paul, Minnesota 55113

If to Lessee, to: Sprint Property Services
 Sprint Side ID: MS03XC472

Mailstop KSOPHT0101-Z2650
6391 Sprint Parkway
Overland Park, Kansas 66251-2650

With copy to: Sprint Law Department
Sprint Site ID: MS03XC472
Mailstop KSOPHT0101-Z2020
6391 Sprint Parkway
Overland Park, Kansas 66251-2020
Attn.: Real Estate Attorney

18. Representations and Warranties.

- (a) Lessor represents that (i) it has full right, power, and authority to execute this Lease; (ii) it has good and unencumbered title to the Property free and clear of any liens or mortgages, subject to such liens of record; (iii) Lessee shall have quiet enjoyment of the Leased Premises during the term of this Lease in accordance with its terms.
- (b) Lessee warrants that the individuals signing and executing this Lease on behalf of Lessee have the requisite corporate power and authority to enter into and perform this Lease on behalf of Lessee. Lessor warrants that the individuals signing and executing this Lease on behalf of Lessor have the requisite corporate power and authority to enter into and perform this Lease on behalf of Lessor.
- (c) Lessor represents that it has no knowledge of any substance, chemical or waste on the Property that is identified as hazardous, toxic or dangerous in any applicable federal, state or local law or regulation, as defined in Section 18.(d) of this Lease. Lessor will be solely liable for and will defend, indemnify and hold Lessee, its agents and employees harmless from and against any and all direct claims, costs and liabilities, including reasonable attorneys' fees and costs, arising out of or in connection with the removal, cleanup or restoration of the Property with respect to hazardous, toxic or dangerous materials from any and all sources other than those hazardous, toxic or dangerous materials introduced to the Property by Lessee. Lessee represents and warrants that its use of the Leased Premises herein will not generate and it will not store or dispose on the Property nor transport to or over the Property any hazardous substance, chemical or waste contrary to any applicable law or regulation. Lessee further agrees to hold Lessor harmless from and indemnify Lessor against any release of any such hazardous substance, and any damage, loss, expense, or liability resulting from the breach of this representation or from the violation of any applicable state or federal law by such release associated with Lessee's use of hazardous substances, including payment of all reasonable attorneys' fees, costs, and penalties incurred as a result thereof, except for any release caused by the negligence or willful misconduct of Lessor, its employees, or agents.
- (d) "Hazardous substance" shall be interpreted broadly to mean any substance or material defined or designated as hazardous or toxic waste, hazardous or toxic material, hazardous

or toxic or radioactive substance, or other similar term by any federal, state, or local environmental law, regulation or rule presently in effect or promulgated in the future, as such laws, regulations, or rules may be amended from time to time. Lessor acknowledges Lessee's use of batteries as back-up power and deems them acceptable as long as such batteries are used and disposed of in accordance with all applicable laws.

19. No Liability on Lessor.

Except due to Lessor's willful misconduct or negligence, Lessor shall not be liable for any damage to Lessee's equipment or Antenna Facilities, and Lessor shall not be liable for vandalism or malicious mischief caused by third parties, known or unknown, to Lessee's equipment or facilities, nor shall Lessor be liable for any lost revenue, business or profits of Lessee.

20. Assignment.

- (a) This Lease may be sold, assigned or transferred by Lessee without approval or consent of Lessor to Lessee's principal, affiliates, subsidiaries of its principal or to any entity which acquires all, or substantially all, of Lessee's assets in the market defined by the FCC in which the Property is located by reason of a merger, acquisition or other business reorganization. Lessee shall provide Lessor written notice of any such sale, assignment or transfer within sixty (60) days after the effective date thereof. As to other parties, this Lease may not be sold, assigned or transferred without the written consent of Lessor, which such consent shall not be unreasonably withheld, delayed or conditioned. No change of stock ownership, partnership interest or control of Lessee or transfer upon partnership or corporate dissolution of Lessee shall constitute an assignment hereunder.
- (b) The parties acknowledge that this is a nonexclusive lease. Nothing in this Lease shall preclude Lessor from leasing other space on the Property to any other person or entity which may be in competition with Lessee, or any other party, subject to the conditions set forth in *Section 13. Interference*.

21. Condemnation.

Lessor shall provide to Lessee notice of any condemnation proceedings within thirty (30) business days of receipt. In the event the whole of the Leased Premises is taken by eminent domain, this Lease shall terminate as of the date title to the Leased Premises vests in the condemning authority. In the event a portion of the Leased Premises is taken by eminent domain, either party shall have the right to terminate this Lease as of said date of title transfer, by giving thirty (30) days written notice to the other party. In the event of any taking under the power of eminent domain, Lessee shall not be entitled to any portion of the reward paid for the taking and the Lessor shall receive full amount of such award. Lessee hereby expressly waives any right or claim to any portion thereof. Although all damages, whether awarded as compensation for a decrease in value of the leasehold or to the fee of the Leased Premises, shall belong to Lessor, Lessee shall have the right to claim and recover from the condemning authority, but not from Lessor, such compensation as may be separately awarded or recoverable by Lessee on account of any and all damage to Lessee's business and

any costs or expenses incurred by Lessee in moving/removing its equipment, personal property, Antenna Facilities, and leasehold improvements.

22. Successors and Assigns.

This Lease shall run with the Property. This Lease shall be binding upon and inure to the benefit of the parties, their respective successors and assigns.

23. Surrender of Leased Premises.

- (a) All portions of the Antenna Facilities brought onto the Property by Lessee will be and remains Lessee's personal property and, at Lessee's option, may be removed by Lessee at any time during or after the term or extension thereof. In the event that this Lease is terminated or not renewed, Lessee shall have sixty (60) days from the termination or expiration date to quit peacefully and surrender possession of the Leased Premises in as good condition as when it was delivered to Lessee, reasonable wear and tear and casualty loss excepted. Lessee shall remove its equipment, personal property, Antenna Facilities, and leasehold improvements from the Property, and shall repair any damage to the Property caused by such equipment, all at Lessee's own cost and expense.
- (b) In the event that Lessee's Antenna Facilities and related equipment are not removed and the Property is not restored to the reasonable satisfaction of the Lessor within sixty (60) days from the termination or expiration date, the Lessor shall have the option to fully decommission the Antenna Facilities, have the Antenna Facilities removed, and repair the site and restore the property, and Lessee shall be responsible for the cost of such actions.

24. Marking and Lighting Requirements.

- (a) Lessor acknowledges that it shall be responsible, at its sole cost and expense, for compliance with all building marking and lighting requirements that the Federal Aviation Administration ("FAA") may require with respect solely to the height of the Structure. The responsibility, however, is expressly limited to the requirements that would be required of an elevated water storage facility having no communications equipment installed on it, irrespective of Lessee's Antenna Facilities. Lessor shall indemnify and hold harmless Lessee from any fines or other liabilities caused by Lessor's failure to comply with such requirements for an elevated water storage facility Structure. Further, should the FAA cite Lessor, or in the event any claims are brought against Lessor because the Structure alone is not in compliance, as opposed to the Structure with Antenna Facilities, then Lessor shall indemnify Lessee for full costs, liabilities, damages and expenses, including reasonable attorney's fees. Further, if Lessor does not cure the conditions of noncompliance on the Structure within the time frame allowed by the citing agency, Lessee may terminate this Lease immediately without any further liability hereunder upon written notice to Lessor.
- (b) Lessee acknowledges that it shall be responsible at its sole cost and expense, for compliance with all building marking and lighting requirements that the FAA may require with respect to Lessee's Antenna Facilities. In the event the FAA determines that

the Structure must be additionally marked, lighted, or in any way modified, due to the existence of Lessee's Antenna Facilities, Lessee shall have the option to mark, light or modify the Structure at its sole expense, or to terminate this Lease, pursuant to *Section 14. Termination*. Said marking, lighting and modifying shall be subject to prior written approval by Lessor, such approval not to be withheld without cause. Lessor shall approve or object to such plans within a reasonable period of time to allow timely compliance with FAA regulations.

25. RF Radiation Compliance.

- (a) An RF Engineer approved by the Lessor shall perform a radiation survey of the Property following Lessee's initial RF transmissions on the Leased Premises. Lessee shall be responsible for all costs of such survey.
- (b) Lessee shall implement all measures at the transmission site required by FCC regulations, including but not limited to posting signs and markings. Lessor shall cooperate with and permit Lessee to implement all reasonable measures in order for Lessee to fulfill its Radio Frequency exposure obligations. Lessor agrees that in the event any future party causes the entire site to exceed FCC Radio Frequency radiation limits, as measured on the Premises, Lessor shall hold such future party liable for all such later-arising non-compliance.

26. Third Party Approvals, Inspections and Evaluations.

The Lessee shall be responsible for all reasonable costs, as determined by Lessor, associated with obtaining required reviews, approvals, inspections, studies, surveys or evaluations, whether required by this Lease or by other governing authorities.

27. Noise Restrictions.

- (a) All wireless service facilities shall be constructed and operated in such a manner as to minimize the amount of noise impacts to residents of nearby homes and the users of recreational areas, such as public parks and trails. Proposed anticipated noise levels must be approved by Lessor. Plan review may require noise reduction measures.
- (b) Noise from Lessee's equipment shall not exceed the level allowed by the local jurisdiction ("Allowable Noise Level"), as measured at any location on neighboring property. Lessor will take noise level measurements from time to time to verify compliance. In the event it is found that Lessee's equipment exceeds the Allowable Noise Level, Lessor shall provide Lessee with written notice and Lessee shall take immediate steps to provide permanent reduction in the noise of its equipment to the Allowable Noise Level. If Lessee does not so reduce its Measured Sound Level within sixty (60) days of receipt of written notice of event, said occurrence shall constitute an event of default as otherwise defined in *Section 14. Termination*.
- (c) Board reserves the right to require noise reduction measures necessary to reduce noise to a level determined solely by the Board.

28. Miscellaneous.

- (a) Each party agrees to furnish to the other, within thirty (30) days after notice of receipt of the request, such truthful estoppel information as the other party may reasonably request.
- (b) This Lease constitutes the entire agreement and understanding of the parties and supersedes any and all offers, negotiations, or other agreements of any kind with respect to its subject matter. There are no representations or understandings of any kind not set forth herein. Any modification of or amendment to this Lease must be in writing and executed by both parties. No provision of this Lease will be deemed waived by either party unless expressly waived in writing by the waiving party. No waiver shall be implied by delay or any other act or omission of either party. No waiver by either party of any provisions of this Lease shall be deemed a waiver of such provision with respect to any subsequent matter relating to such provision.
- (c) This Lease shall be construed in accordance with the laws of the State of Minnesota. Any legal action may only be commenced and proceed in the relevant district court in Ramsey County, Saint Paul, Minnesota.
- (d) If any term of this Lease is found to be void or invalid, such invalidity shall not affect the remaining terms of this Lease, which shall continue in full force and effect.
- (e) Upon request by Lessee, Lessor agrees to execute a recordable Memorandum of this Lease.
- (f) Any terms and conditions contained in this Lease that by their sense and context are intended to survive the termination or expiration of this Lease shall so survive.
- (g) The submission of this Lease to any party for examination or consideration does not constitute an offer, reservation of or option for the Leased Premises based on the terms set forth herein. This Lease will become effective as a binding Lease only upon the handwritten legal execution and delivery hereof by Lessor and Lessee.
- (h) The parties acknowledge that space at the Leased Premises was previously leased between Lessor and Lessee under the terms and conditions of that certain Water Tower Site Lease Agreement dated September 19, 1996, as supplemented to by that certain Lease Supplement dated September 25, 1996, as modified by that certain Consent Letter dated June 21, 2013, as modified by that certain Consent Letter dated November 1, 2013, and as amended by Amendment No. 1 to Site Lease Agreement dated January 26, 2017 (collectively, the "Prior Lease"). Lessor and Lessee acknowledge and agree that the Prior Lease expires effective as of 11:59 p.m. on March 31, 2017, and that thereafter, the terms and conditions of this Lease shall be the sole instrument governing the leasing of space by Lessee at the Property.

- (i) Exhibits “A” through “F” listed below and attached hereto are hereby incorporated into this Lease by reference.

Exhibit “A” *Legal Description*

Exhibit “B” *Site Survey*

Exhibit “C” *Construction Plans*

Exhibit “D” *Antenna Facilities and Frequencies*

Exhibit “E” *Security Plan*

Exhibit “F” *Memorandum of Lease Recording*

[Remainder of this page is left intentionally blank]

IN WITNESS WHEREOF, the parties hereto have executed this Lease, the day and year first written below.

For Lessor:

**BOARD OF WATER COMMISSIONERS
OF THE CITY OF SAINT PAUL**
FIN # 41-6005521

Approved:

By _____
Stephen P. Schneider, General Manager
Saint Paul Regional Water Services

By _____
Matt Anfang, President

Approved as to form:

By _____
Assistant City Attorney

By _____
Mollie Gagnelius, Secretary

CITY OF SAINT PAUL

By _____
Kristin Beckmann, Deputy Mayor

By _____
Shari Moore, City Clerk

By _____
Todd Hurley, Director
Office of Financial Service

For Lessee:

SPRINT SPECTRUM L.P.

By: _____

Print name: _____

Title: _____

Date: _____

EXHIBIT "A"

Legal Description

That part of the Southeast Quarter (SE $\frac{1}{4}$), Section twenty-three (23), Township twenty-nine (29), Range twenty-two (22), commencing at a point 678.71 feet East of the Northwest corner of Lot 12, Katherine's Addition, according to the recorded plats thereof on file and of record in the Office of the Registrar of Titles, in and for Ramsey County, Minnesota; thence South 268.97 feet to a point 711.69 feet Easterly from the West line of the Northwest Quarter (NW $\frac{1}{4}$) of the Southeast Quarter (SE $\frac{1}{4}$) of Section twenty-three (23), Township twenty-nine (29), Range twenty-two (22) Ramsey County, Minnesota; thence Easterly 162 feet; thence Northerly to the South line of Cottage Avenue. All in Ramsey County, Minnesota

EXHIBIT "B"

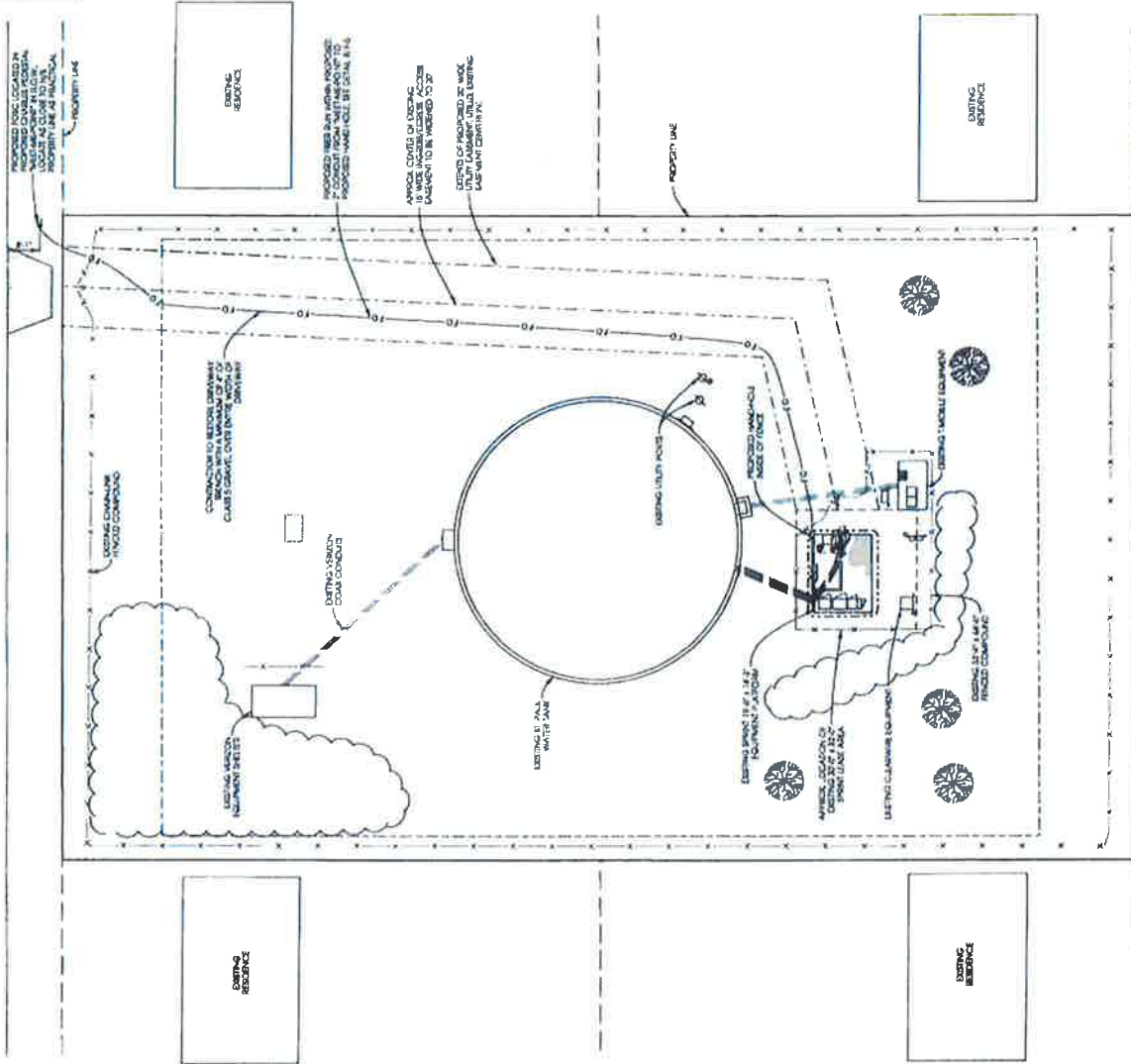
**Initial Site Survey
Dated 07/30/1996**

**Fiber Survey
Dated 06/17/2013**



NOTE:

1. PROPERTY LINES SHOWN ARE APPROXIMATE AND DONE WITHOUT THE BENEFIT OF A SITE SURVEY.
2. CONDUIT ROUTING IS DIAGRAMMATICALLY SHOWN ON PLANS AND ARE ONLY APPROXIMATIONS. THE EXACT LOCATION AND BOWING SHALL BE FIELD VERIFIED.
3. UTILITY AND ACCESS EASEMENTS SHOWN ARE APPROXIMATE LOCATION. CONTRACTOR TO VERIFY EXACT LOCATION.
4. FOR TYPICAL BRANCH DETAIL, SEE SHEET 4-10 FOR DETAILS.



PROJECT NO;	MS030C472
EDGE PROJECT NO;	6773
DRAWN BY;	YCD, GCD
CHECKED BY;	OGD

A/R	DATE	DESCRIPTION
✓	10/26/2013	PAID FOR BOND
✓	02/14/2013	PAID FOR BOND
✓	02/13/2013	PAID FOR BOND
✓	04/04/2013	PAID FOR BOND
✓	03/07/11/06	PAID FOR BOND

Order 1111

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

MS03XC472
ST. PAUL WATER TOWER
2100 E COTTAGE AVE
ST. PAUL, MN 55119

SHEET TITLE
OVERALL FIBER
PLAN

SHEET NUMBER
E-1



EXHIBIT "C"

**Fiber Construction Plans
Dated 06/17/2013 Rev E**

**Construction Plans
Dated 10/24/2013 Rev 3**



EXISTING 70' WATER TOWER



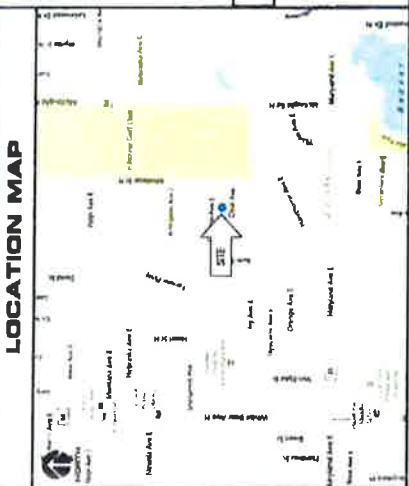
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2	06/04/2013	RECEIVED FROM PAPER 140
3	02/10/2013	RECEIVED FROM PAPER 140
4	02/11/2013	RECEIVED FROM PAPER 140
5	04/08/2012	RECEIVED FROM PAPER 140

[illegible]**ET-1**
 PERSON 1785

AREA MAP

EQUIPMENT SUPPLIER:
SATELLITE TELECOMMUNICATIONS AMERICA (STA)
1301 EAST LOCKHART DRIVE
RICHMOND, VA 75384-1724

EDGE CONSULTING ENGINEERS, INC.
6511 WALKER STREET
PRINCETON, NJ 08540
CONTACT: OTTO DEWILDER
PHONE: 609/961-1489



ENGINEER OF RECORD

EDGE CONSULTING ENGINEERS, INC.
CONTACT: OTTO DINGFELDER III (PE # 69720 (MN))
PHONE: 608.444.1499
*STRUCTURAL ANALYSIS COMPLETED BY OTHERS

DRIVING DIRECTIONS FROM NEAREST MAJOR AIRPORT

FROM MINNEAPOLIS-SANT PAUL INTERNATIONAL AIRPORT (MSP)

- Head SOUTHWEST on Gurnack Drive (go 0.0 mi).
- Keep LEFT at the fork and merge onto W-6 E. (go 3.9 mi).
- Take exit onto I-25 N. (go 4.0 mi).
- Take exit 106 for Pennsylvania Ave. Turn RIGHT on Packer Rd (go 3.0 mi).
- Turn RIGHT on Maryland Ave E (go 0.7 mi).
- Turn LEFT on Wind Bear Ave N (go 0.4 mi).
- Turn RIGHT on Cottage St. (go 0.8 mi).

Arrive at address on Right.

[illegible][illegible][illegible]

4000 SPRINGMOUNT PARKWAY
OVERLAND PARK, KANSAS 66211



BLACK & VEATCH



Consulting Engineers, Inc.
624 Wilbur Street
Franklin, NJ 08824
609-666-1349
609-666-1348 Fax
www.cseinc.com

PROJECT NO:	M503XC472
EDGE PROJECT NO:	6773
DRAWN BY:	TOD. GCD
CHECKED BY:	OCG

MS03XC472
ST. PAUL WATER TON
2100 E COTTAGE A
ST. PAUL, MN 55111

SHEET TITLE

GENERAL NOTES 1

SHEET NUMBER
FN-1

[illegible]

1. ALL WORK PERFORMED SHALL BE DONE IN ACCORDANCE WITH THESE PROVISIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE AFFECTED AGENCIES.
2. CONTRACTOR AND/OR DEVELOPERS SHALL BE RESPONSIBLE FOR THE CONSTRUCTION AND MAINTENANCE OF ALL NECESSARY ACCESS, EROSION CONTROL, SEDIMENTATION, AND EROSION CONTROL MEASURES TO PREVENT EROSION, SEDIMENTATION, AND POLLUTION OF THE RECEIVING WATER BODY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONSTRUCTION AND MAINTENANCE OF ALL NECESSARY ACCESS, EROSION CONTROL, SEDIMENTATION, AND EROSION CONTROL MEASURES TO PREVENT EROSION, SEDIMENTATION, AND POLLUTION OF THE RECEIVING WATER BODY.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONSTRUCTION AND MAINTENANCE OF ALL NECESSARY ACCESS, EROSION CONTROL, SEDIMENTATION, AND EROSION CONTROL MEASURES TO PREVENT EROSION, SEDIMENTATION, AND POLLUTION OF THE RECEIVING WATER BODY.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONSTRUCTION AND MAINTENANCE OF ALL NECESSARY ACCESS, EROSION CONTROL, SEDIMENTATION, AND EROSION CONTROL MEASURES TO PREVENT EROSION, SEDIMENTATION, AND POLLUTION OF THE RECEIVING WATER BODY.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONSTRUCTION AND MAINTENANCE OF ALL NECESSARY ACCESS, EROSION CONTROL, SEDIMENTATION, AND EROSION CONTROL MEASURES TO PREVENT EROSION, SEDIMENTATION, AND POLLUTION OF THE RECEIVING WATER BODY.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONSTRUCTION AND MAINTENANCE OF ALL NECESSARY ACCESS, EROSION CONTROL, SEDIMENTATION, AND EROSION CONTROL MEASURES TO PREVENT EROSION, SEDIMENTATION, AND POLLUTION OF THE RECEIVING WATER BODY.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONSTRUCTION AND MAINTENANCE OF ALL NECESSARY ACCESS, EROSION CONTROL, SEDIMENTATION, AND EROSION CONTROL MEASURES TO PREVENT EROSION, SEDIMENTATION, AND POLLUTION OF THE RECEIVING WATER BODY.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONSTRUCTION AND MAINTENANCE OF ALL NECESSARY ACCESS, EROSION CONTROL, SEDIMENTATION, AND EROSION CONTROL MEASURES TO PREVENT EROSION, SEDIMENTATION, AND POLLUTION OF THE RECEIVING WATER BODY.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONSTRUCTION AND MAINTENANCE OF ALL NECESSARY ACCESS, EROSION CONTROL, SEDIMENTATION, AND EROSION CONTROL MEASURES TO PREVENT EROSION, SEDIMENTATION, AND POLLUTION OF THE RECEIVING WATER BODY.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONSTRUCTION AND MAINTENANCE OF ALL NECESSARY ACCESS, EROSION CONTROL, SEDIMENTATION, AND EROSION CONTROL MEASURES TO PREVENT EROSION, SEDIMENTATION, AND POLLUTION OF THE RECEIVING WATER BODY.

[illegible][illegible][illegible][illegible]

© 2004 CONSUMERS INTEREST, INC.



1. PROPERTY LINES SHOWN ARE APPROXIMATE AND DONE WITHOUT THE BENEFIT OF A SITE SURVEY.
2. CONDUIT ROUTING IS GRAPHICALLY SHOWN ON PLANS AND ARE ONLY APPROXIMATIONS. THE EXACT LOCATION AND ROUTING SHALL BE FIELD VERIFIED.
3. UTILITY AND ACCESS EASEMENTS SHOWN ARE APPROXIMATE. LOCATIONS, COORDINATES TO VERIFY EXACT LOCATION.
4. FOR TYPICAL TRENCH DETAIL SEE SHEET F.A.18.E.



BLACK & VEATCH



PROJECT NO:	MS03XC472
EDGE PROJECT NO:	6773
DRAWN BY:	TCD. GCD
CHECKED BY:	DGD

REF	DATE	DESCRIPTION
A	12/06/2012	REMOVED FROM FINDER 1076
B	02/14/2013	REMOVED FROM FINDER 1076
C	02/15/2013	REMOVED FROM FINDER 1076
D	06/04/2013	REMOVED FROM FINDER 1076
E	06/15/2013	REMOVED FROM FINDER 1076

6/14/2013

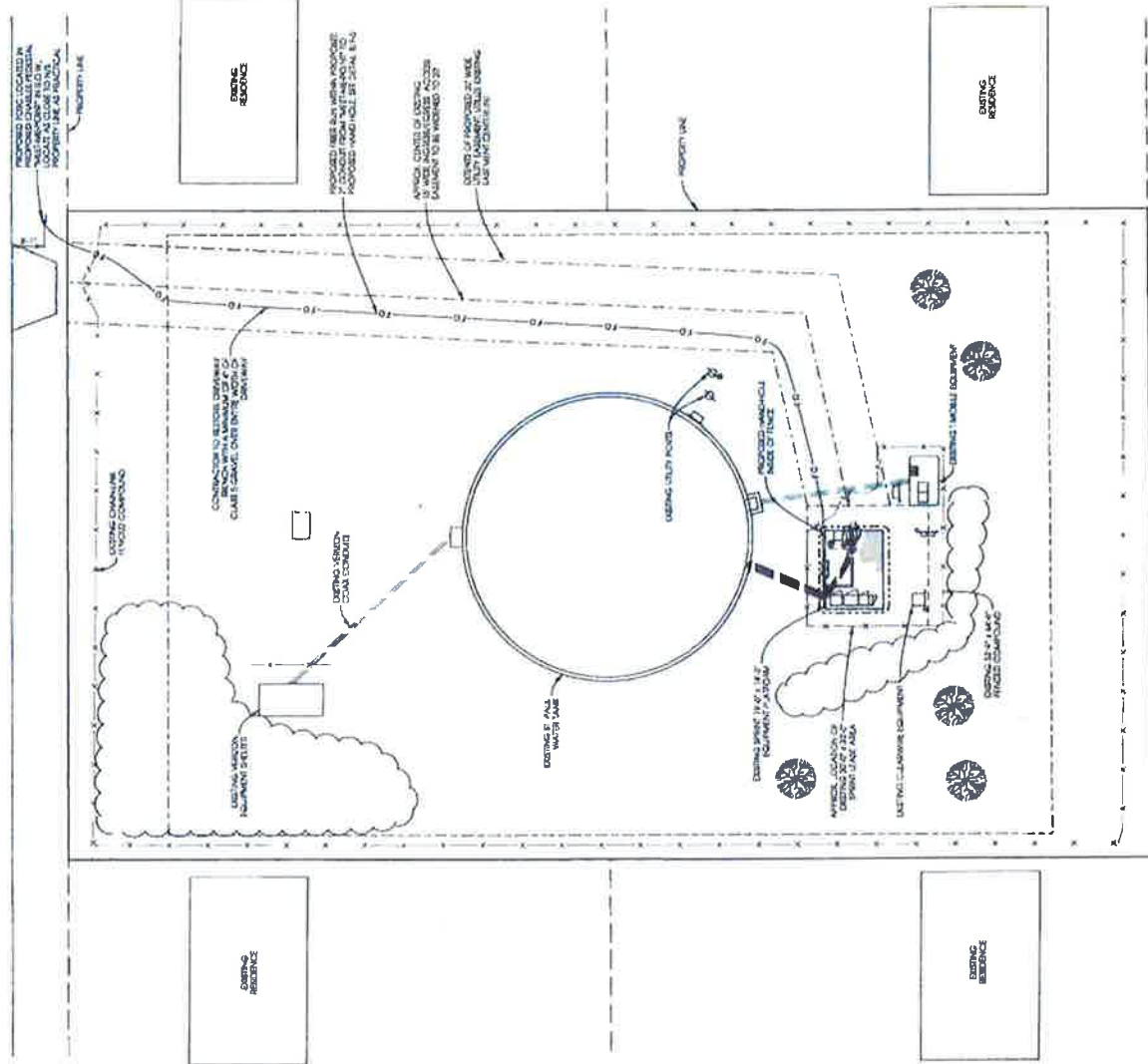
STATE OF NEW YORK
OFFICE OF THE ATTORNEY GENERAL
DIVISION OF PROFESSIONAL ENGINEERING
TO ALTER THE DOCUMENT

[Signature]

MS03XC472
ST. PAUL WATER TOWER
2100 E. COTTAGE AVE.
ST. PAUL, MN 55119

SHEET TITLE
OVERALL FIBER
PLAN

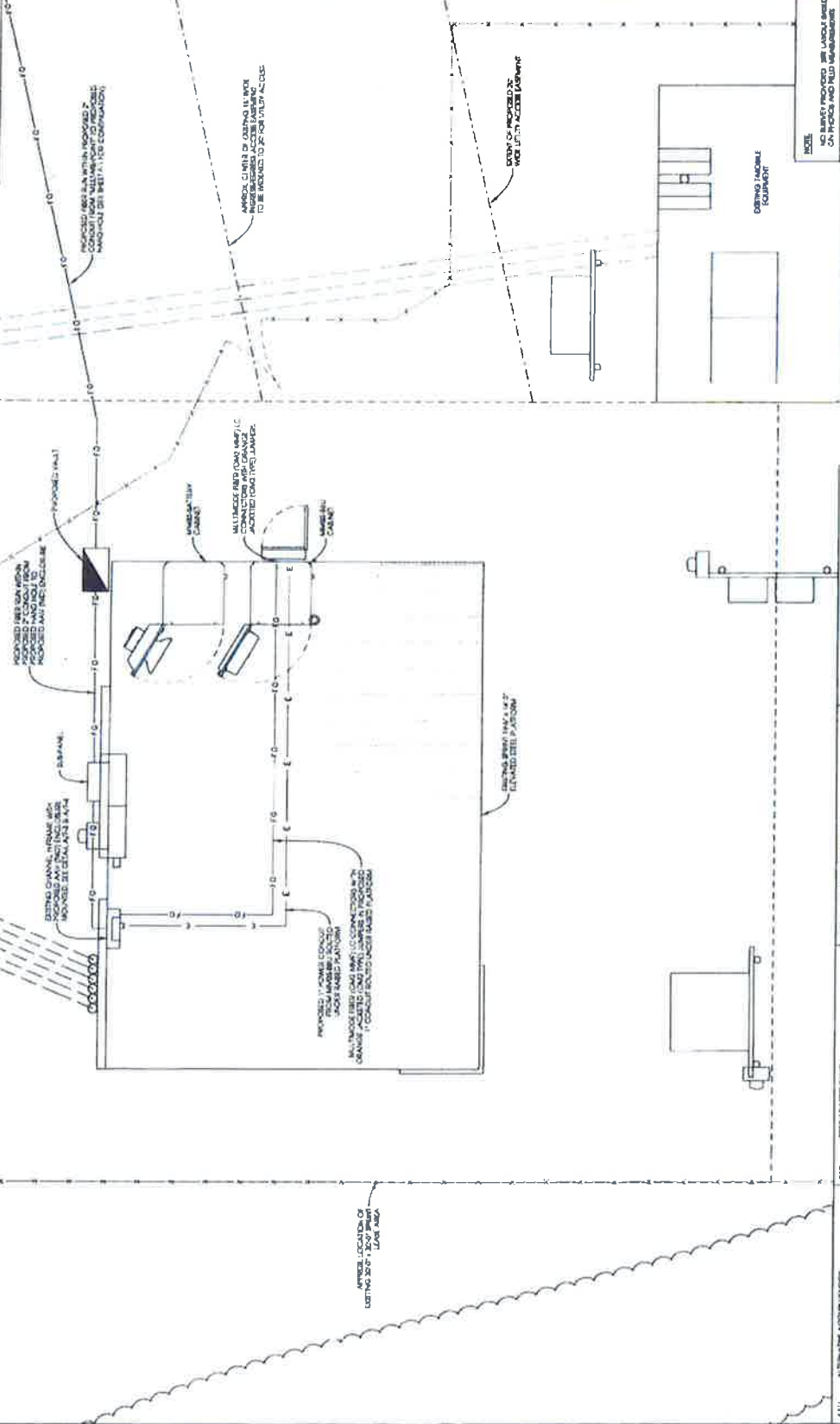
SHEET NUMBER
E-1





- NOTES**
1. ALL ELECTRICAL MATERIALS AND CONDUIT INCLUDING SERVICE SHALL BE PROVIDED WITH APPROVED MANUFACTURER'S LOGS AND ALL CONDUIT TERMINATION AND ALL EQUIPMENT TERMINATIONS.
 2. CONTRACTOR SHALL VERIFY BEARING, CONDUIT AND CIRCULAR CONDUITS, AS MANUFACTURED, SHALL BE IN COMPLIANCE WITH THE MANUFACTURER'S SPECIFICATIONS.
 3. FOR TYPICAL MINOR, DETAIL SEE SHEET F-2.
 4. UPRISING FROM: LANE AREA WORKMAN IS APPROXIMATE. CONTRACTOR TO VERIFY.
 5. LANE AREA WITH JACO SURVEY.

LENGTH OF FIBER RUN NAME TO NO.	22' 4"
DEFINITION	



SCALE	1\"/>
SCALE	1\"/>

SCALE	1\"/>
SCALE	1\"/>



PROJECT NO:	MS030472	
EDGE PROJECT NO:	6793	
DRAWN BY:	TCO, GCO	
CHECKED BY:	OGG	
REV.	DATE	DESCRIPTION
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79	22/11/2013	REVISION FOR 100% PLAN
80	22/11/2013	REVISION FOR 100% PLAN
81	22/11/2013	REVISION FOR 100% PLAN
82	22/11/2013	REVISION FOR 100% PLAN
83	22/11/2013	REVISION FOR 100% PLAN
84	22/11/2013	REVISION FOR 100% PLAN
85	22/11/2013	REVISION FOR 100% PLAN
86	22/11/2013	REVISION FOR 100% PLAN
87	22/11/2013	REVISION FOR 100% PLAN
88	22/11/2013	REVISION FOR 100% PLAN
89	22/11/2013	REVISION FOR 100% PLAN
90	22/11/2013	REVISION FOR 100% PLAN
91	22/11/2013	REVISION FOR 100% PLAN
92	22/11/2013	REVISION FOR 100% PLAN
93	22/11/2013	REVISION FOR 100% PLAN
94	22/11/2013	REVISION FOR 100% PLAN
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99	22/11/2013	REVISION FOR 100% PLAN
100	22/11/2013	REVISION FOR 100% PLAN

ST. PAUL WATER TOWER
2100 E. COTTAGE AVE.
ST. PAUL, MN 55119

MS030472
ST. PAUL WATER TOWER
2100 E. COTTAGE AVE.
ST. PAUL, MN 55119

SHEET TITLE
ENLARGED FIBER PLAN

SHEET NUMBER
F-2



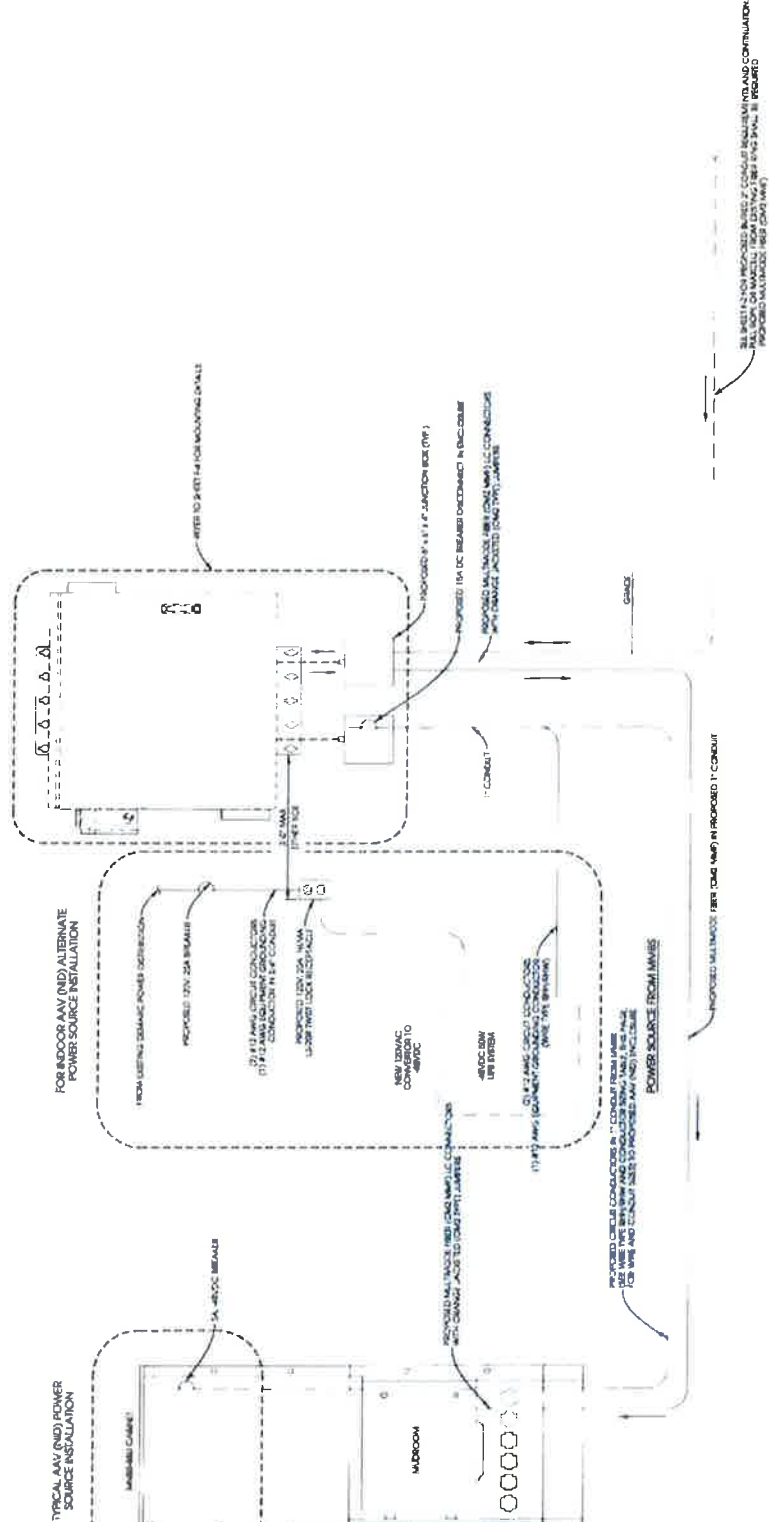
PROJECT NO: M830K072
EDGE PROJECT NO: 0778
DRAWN BY: TCD, GCD
CHECKED BY: GCD

REV	DATE	DESCRIPTION
1	04/17/2013	REVISED FOR PERMITS
2	04/24/2013	REVISED FOR PERMITS
3	05/15/2013	REVISED FOR PERMITS
4	05/28/2013	REVISED FOR PERMITS
5	06/03/2013	REVISED FOR PERMITS

ST. PAUL WATER TOWER
2100 E. COTTAGE AVE
ST. PAUL, MN 55119

PROJECT TITLE
AAV (NID) ENCLOSURE ONE-LINE DIAGRAM

SHEET NUMBER
F-3



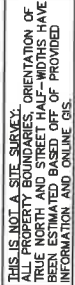
WIRE TYPE BR/WH/RY AND CONDUCTOR SIZES TABLE (MPOC @ 90M/2.0 AMP)				
DEFINITION (1)	18-30	18-30	20-40	40-50
DEFINITION (2)	18-30	20-40	40-50	50-60
DEFINITION (3)	18-30	20-40	40-50	50-60
DEFINITION (4)	18-30	20-40	40-50	50-60
DEFINITION (5)	18-30	20-40	40-50	50-60

AAV (NID) ENCLOSURE ONE-LINE DIAGRAM
SCALE: 1/8" = 1'-0"

- NOTES
1. CONTRACTOR SHALL FOLLOW ALL LOCAL MUNICIPAL CODES FOR CONDUIT INSTALLATION AND INSULATION.
 2. ALL INTERIOR DUCT SHALL BE GROUNDING AND GROUNDING.
 3. ALL INTERIOR CONDUIT SHALL BE EMT.
 4. ALL ABOVE GROUND CONDUIT SHALL BE RIGID.



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WILLIAM

REV	DATE	REVISION DESCRIPTION	CHANGED BY	CHKD BY
1	10-24-13	ISSUED FOR CONSTRUCTION	JAE	SSH
2	10-14-13	ISSUED FOR CONSTRUCTION	JAE	SSH
3	10-24-13	ISSUED FOR CONSTRUCTION	JAE	SSH
4	09-22-13	ISSUED FOR CONSTRUCTION	TDO	SSH



1961 NORTHPOINT BLVD., SUITE 130
HIXSON, TN 37343
PH: 423-843-9500 FAX: 423-843-9509

HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF MINNESOTA

SIGNATURE Lee. Ut

PRINT NAME: STEPHENE HUNT

DATE 07/29/15 LICENSE # 47489

PROJECT INFORMATION
NETWORK VISION MMBs LAUNCH

ST. PAUL WATER TOWER

MS03XC472

2100 E. COTTAGE AVE.
ST. PAUL, MN 55119
RAMSEY COUNTY

DATE	08-19-13
DRAWN BY	SEH
	TDD

JUL 1996

COMPOUND

COMPOUND

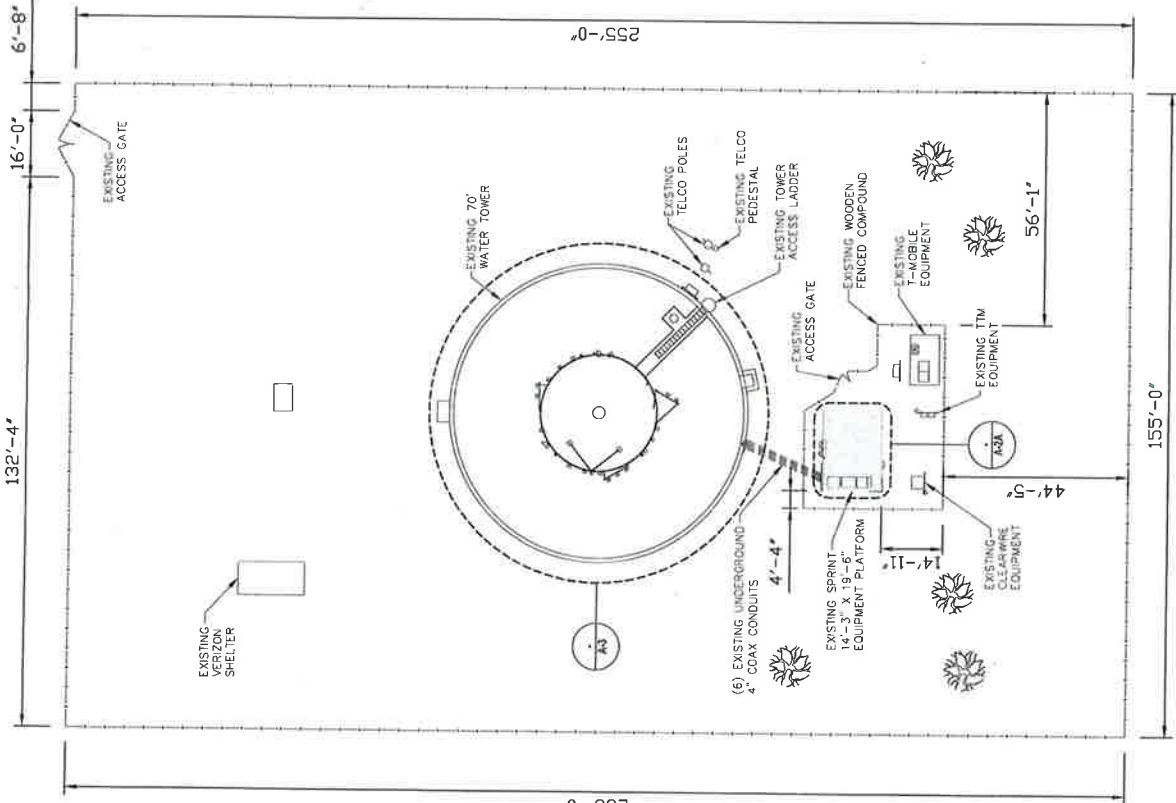
COMPTON

1. The first step is to identify the problem or question that needs to be answered. This involves understanding the context and the specific requirements of the task.

A-2	3
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NOTE:
1. ABANDONED PVC TO BE CAPPED BELOW GRADE AND COVERED WITH SAND. IF IN CONCRETE PVC SHALL BE CAPPED FLUSH WITH GRADE AND CAPPED
2. NOISY EQUIPMENT TO BE REMOVED UPON FINAL MIGRATION

NOTE:
CONTRACTOR TO OBTAIN A STRUCTURAL ANALYSIS AND SIGNED AND SEALED CONSTRUCTION DRAWINGS PRIOR TO CONSTRUCTION.



1	COMPOUND PLAN - EXISTING
---	--------------------------

1	EXISTING EQUIPMENT PL	24x36 SCALE: 1"=4'
1x17 SCALE: 1"=8'		

A-2A 3



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NIXSON, TN 37343
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SIGNATURE: Y. T. C. . U. T.

PRINT NAME: STEPHEN CHAMBIT

DATE 01-24-13 LICENSE # 47489

PROJECT INFORMATION

ST. PAUL WATER TOWER

MS03XC472

2100 E. COTTAGE AVE.
ST. PAUL, MN 55119
RAMSEY COUNTY

DRAWN BY TDD	CHECKED BY SEH	DATE 08-19-13
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	SOCIETY TITLE
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ELEVATION

ORDER NUMBER

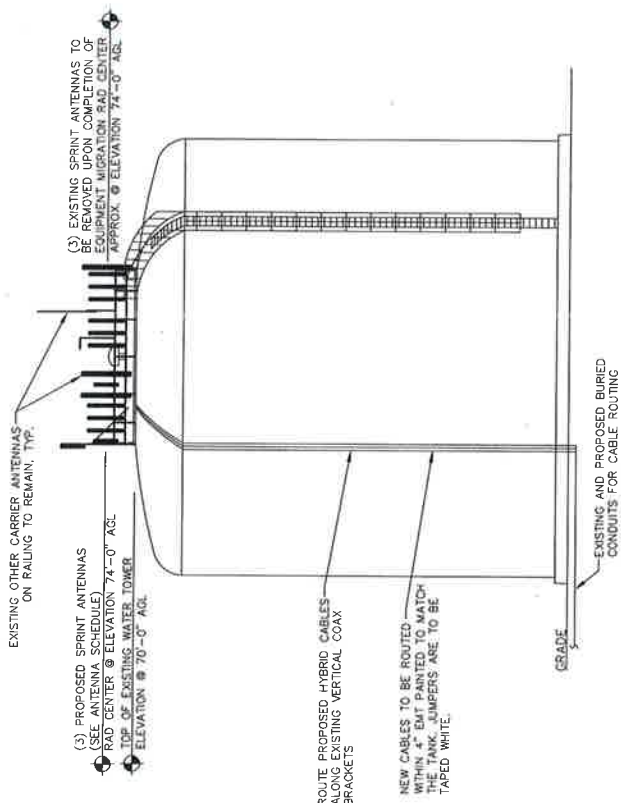
A-3
3

3

800/1900 EQUIPMENT

RRU / HYBRID CABLE SCHEDULE									
SECTOR	RRU MODEL	RRU FREQUENCY	HYBRID CABLE LENGTH	HYBRID CABLE DIAMETER	AMPLIFIER SIZE	AMPLIFIER LENGTH	RET. LENGTH	RET. MANUFACTURER	RET. CABLE NUMBER
ALPHA	RRH-C2A & RRH-P4(1)800MHz & (1)900MHz	(1)800MHz & (1)900MHz	195'	0.98"	1/2"	6'	9.6'	COMSCOPCO	ATCR-B91-003
BETA	RRH-C2A & RRH-P4(1)800MHz & (1)900MHz	(1)800MHz & (1)900MHz	228'	0.98"	1/2"	6'	9.6'	COMSCOPCO	ATCR-B91-003
GAMMA	RRH-C2A & RRH-P4(1)800MHz & (1)900MHz	(1)800MHz & (1)900MHz	165'	0.98"	1/2"	6'	9.6'	COMSCOPCO	ATCR-B91-003

ANTENNA SCHEDULE							
SECTOR	ANTENNA FREQUENCY	ANTENNA MFR.	ANTENNA MODEL	ANTENNA QUANTITY	RAO CENTER	ANT. SIZE	ELECT TILT MECH TLT
ALPHA	800/1700 MHZ	POWERWAVE	P50-15-AUFR-RR	1 (PER SECT/100)	74°-0"	54"	2/3° 0/0°
BETA	800/1700 MHZ	POWERWAVE	P50-15-AUFR-RR	1 (PER SECT/100)	120° 74°-0"	54"	2/6° 0/0°
GAMMA	800/1700 MHZ	POWERWAVE	P50-15-AUFR-RR	1 (PER SECT/100)	240° 74°-0"	54"	5/6° 0/0°



NOTE:
EXISTING ANTENNAS ARE CDMA UNLESS NOTED OTHERWISE

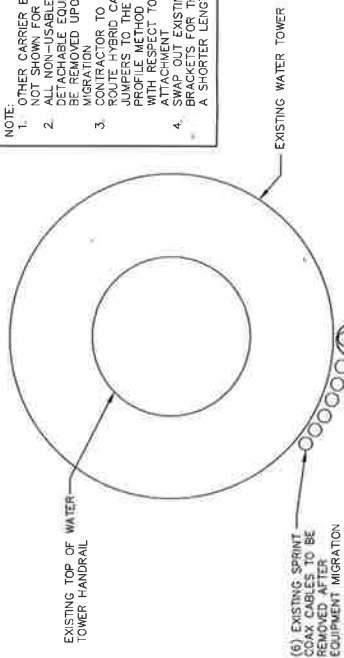
NEW SPRINT ANTENNAS INCLUDE RESPECTIVE RRHs WHICH SHALL BE MOUNTED ON THE PIPE BEHIND THE ANTENNA SIMILAR TO THAT SHOWN ON DETAIL 1, SHEET A-6.

FIELD VERIFY EXISTING AZIMUTH BEFORE RELOCATING THE ANTENNA,
IF REQUIRED. PRIOR APPROVAL FROM SPRINT TO BE GRANTED
BEFORE RELOCATION OF ANTENNAS.

ANY ABANDONED CONDUIT TO BE CAPPED ABOVE GRADE

NOTES: ALL DIMENSIONS ARE TO BE ESTABLISHED CLOCKWISE FROM THE NORTH END HEADING. CONTRACTOR SHALL VERIFY NEW ANTENNA RADIAL LENGTH AND ORIENTATIONS WITH SPRINT PCS PRIOR TO INSTALLATION OF ANTENNAS. PRIOR TO ATTACHING ANTENNAS AND MOUNTING BRACKETS, CONTRACTOR SHALL VERIFY THAT THE TOWER MUST BE ANALYZED BY A LICENSED STRUCTURAL ENGINEER TO BE SURE IT IS CAPABLE OF SUPPORTING THE NEW LOADS. REFER TO STRUCTURAL ANALYSIS BY TWO. CONTRACTOR SHALL REFER TO TOWER STRUCTURAL CALCULATIONS FOR ADDITIONAL LOADS. NO ERECTION OF ANTENNAS OR TOWER SHALL BE MADE WITHOUT APPROVAL OF LICENSED STRUCTURAL ENGINEER.

NOTE: BASE STATION EQUIPMENT NOT SHOWN FOR CLARITY. FINAL ANTENNA CONFIGURATION SHOWN ON THIS PLAN. SEE ANTENNA PLAN SHEETS FOR EXISTING AND TEMPORARY INTERIM CONFIGURATION. EXISTING TOWER INVENTORY PROVIDED BY OTHERS. SHALL NOT INCLUDE CABLE, RRU, AND CABLEING WORK. STRUCTURAL TOWER/POLE, SPURRING PLATFORM AND FOUNDATION REQUIRED IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL CODES. MATCHING THE DESIGN DEPICTED ON THESE DRAWINGS HAS BEEN PROVIDED.



(3) PROPOSED HYBRID CABLES TO BE ROUTED IN (1) 4" EMT PAINTED TO MATCH TANK. CONTRACTOR TO MATCH MOUNTING METHOD OF T-MOBILE & CLEARWIRE.

LEGEND:
☐ EXISTING SPRINT 1 5/8" COAX
☐ PROPOSED HYBRID CABLE

NOTE:

1. OTHER CARRIER EQUIPMENT NOT SHOWN FOR CLARITY
2. ALL NON-USABLE DETACHABLE EQUIPMENT TO BE REMOVED UPON FINAL MIGRATION
3. CONTRACTORS TO FIELD CONDUITS, FIBER CABLE & JUMPER FIBER CABLE WITH THE LOWEST PROFILE METHOD AVAILABLE WITH RESPECT TO ATTACHMENT
4. SWAP OUT EXISTING Z BRACKETS FOR THOSE OF A SHORTER LENGTH

TOWER ELEVATION

1x17 SCALE: NOT TO SCALE

2	COAX ROUTING
---	--------------

44-42 SCALE: NOT TO SCALE	44-46 SCALE: NOT TO SCALE
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1961 NORTHPOINT BLVD., SUITE 130
HIXSON, TN 37343
PH: 423-843-9500 FAX: 423-843-9509

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SIGNATURE: *Stephen E. Hint*
PRINT NAME: STEPHEN E. HINT
DATE: 10/24/13 LICENSE #17588

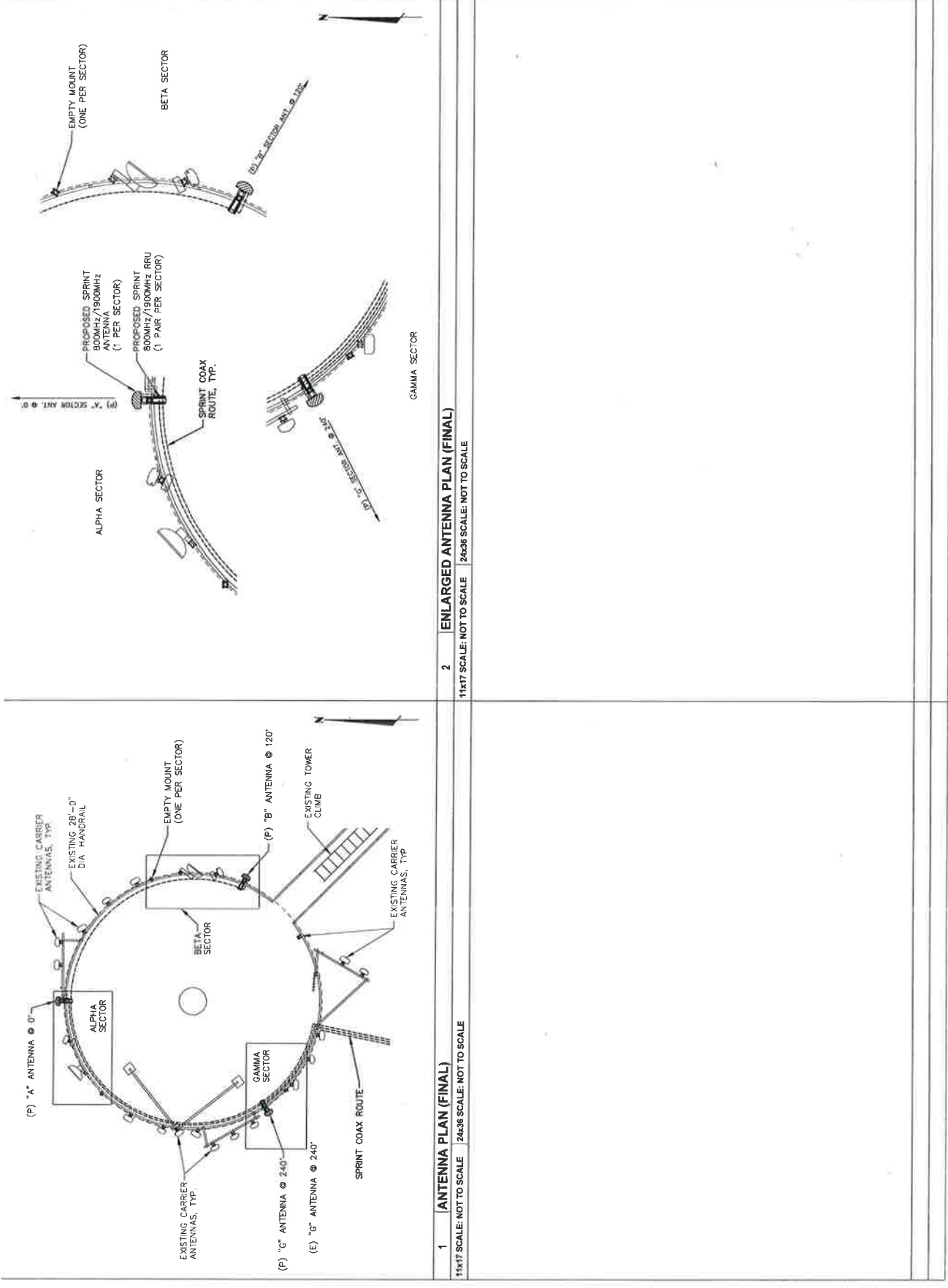
PROJECT INFORMATION
NETWORK: VISION MBS LAUNCH
ST. PAUL WATER TOWER
MS03XC472
2100 E. COTTAGE AVE.
ST. PAUL, MN 55119
RAMSEY COUNTY

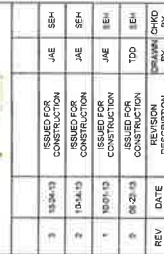
REV.	DATE	DESCRIPTION	BY
3	10-24-13	ISSUED FOR CONSTRUCTION	JAE
2	10-14-13	ISSUED FOR CONSTRUCTION	JAE
1	10-01-13	ISSUED FOR CONSTRUCTION	JAE
0	06-22-13	ISSUED FOR CONSTRUCTION	TOD
		PREPARED BY	CHAMM CHMO

DRAWN BY	CHECKED BY	DATE
TDD	SEH	06-19-13

SHEET TITLE: ANTENNA PLAN (ALL SECTORS)

SHEET NUMBER: A-3B 3



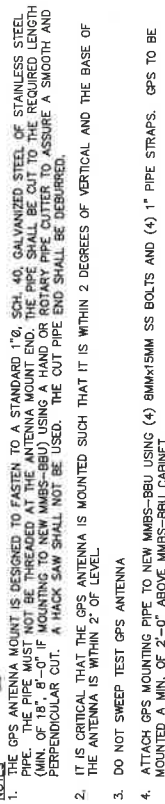


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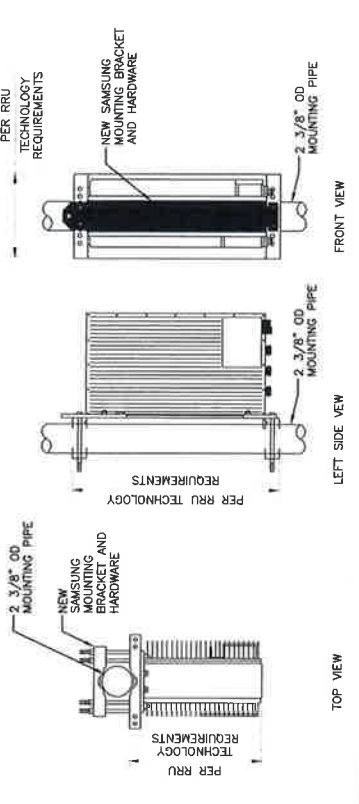
PRINT NAME: STEPHEN E HUNT
DATE 02-24-13 LICENSE #47489

DRAWN BY TDD	CHECKED BY SEH	DATE 08-19-13
-----------------	-------------------	------------------

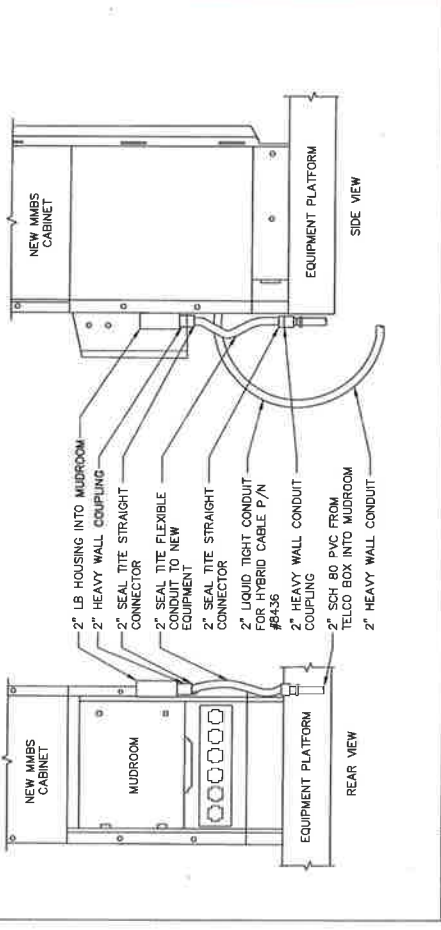
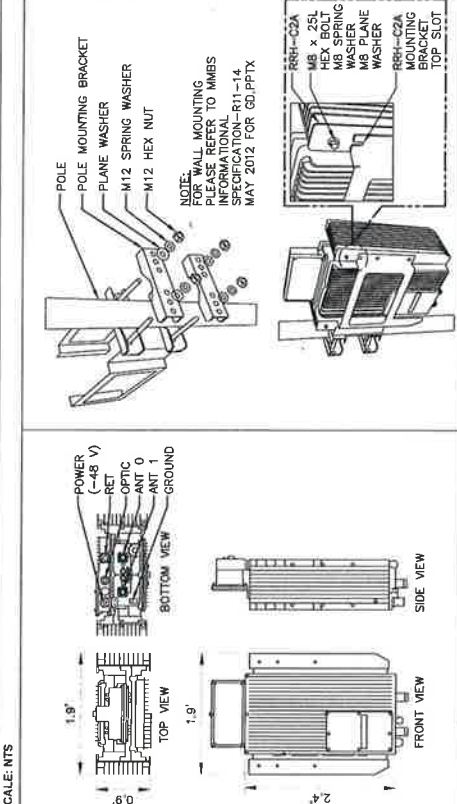
SECTION	A-4	3
DATE		



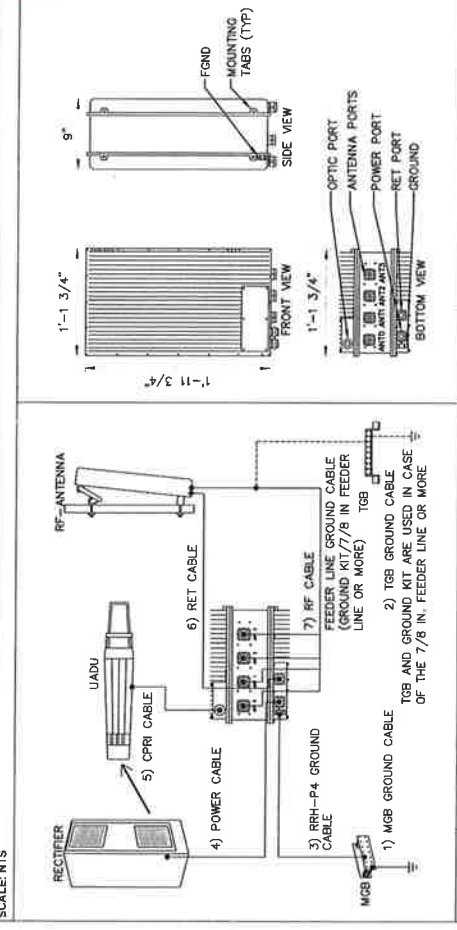
- | | |
|---|------------------------------------|
| 2 | GPS UNIT PIPE MOUNT & REQUIREMENTS |
|---|------------------------------------|



3	RRU POLE INSTALLATION DETAIL
---	------------------------------

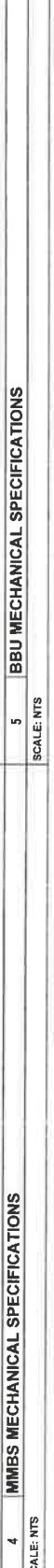


1	HYBRID AND TELCO LINE SUPPORT DETAILS
---	---------------------------------------



4	SAMSUNG MMBS WIRING DIAGRAM	5	1900 MHz RRR-P4 MECHANICAL SPECIFICATIONS
---	-----------------------------	---	---







EXISTING MAST PIPE MOUNTING BRACKETS

HYBRID CABLE & JUMPERS TO THE LOWEST PROFILE METHOD AVAILABLE WITH RESPECT TO ATTACHMENT

5	ICE BRIDGE DETAIL
---	-------------------

100

[illegible]



3	10/24/13	ISSUED FOR CONSTRUCTION	JAE	SSH
2	10/24/13	ISSUED FOR CONSTRUCTION	JAE	SSH
1	10/24/13	ISSUED FOR CONSTRUCTION	JAE	SSH
0	08/22/13	ISSUED FOR CONSTRUCTION	JAE	SSH
REV.	DATE	DESCRIPTION	BY	BY



1961 NORTHPOINT BLVD., SUITE 130
MINNETONKA, MN 55345
PH: 433-843-9500 FAX: 433-843-9509

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SIGNATURE: 

PRINT NAME: STEPHEN HUNT

DATE: 10/24/13 LICENSE #13489

PROJECT INFORMATION

NETWORK: VISION MABLE LAUNCH

ST. PAUL WATER TOWER

MS03XC472

2100 E. COTTAGE AVE.
ST. PAUL, MN 55119
RAMSEY COUNTY

DRAWN BY: TDD
CHECKED BY: SEH
DATE: 08-19-13

SHEET TITLE: COAX COLOR CODING

SHEET NUMBER: A-7

REV: 3

ALL COAXIAL CABLE IN RADIO ACCESS NETWORK SHALL BE MARKED AT THE TOP & BOTTOM WITH 2" COLORED TAPE, STENCIL TAG COLORED TAPE, OR COLORED HEAT SHRINK TUBING (UV STABILIZED TAPE OR HEAT SHRINK ARE PREFERRED). WRAP 2" COLORED TAPE A MINIMUM OF 3 TIMES AROUND THE COAX, AND KEEP THE TAPE IN THE SAME AREA AS MUCH AS POSSIBLE. THIS WILL ALLOW REMOVAL OF TAPE THAT FADES OR DISCOLORS DUE TO WEATHER.

FIRST SET (CABLE COLOR):
THE FIRST RING SHALL BE CLOSEST TO THE END OF THE CABLE, AND THERE SHALL BE A 1" SPACE BETWEEN EACH RING. THE CABLE COLOR CODE SHALL BE APPLIED IN ACCORDANCE TO TABLE, WHICH ONLY SHOWS 3 SECTORS, BUT ADDITIONAL SECTORS ARE EASILY SUPPORTED BY ADDING THE APPROPRIATE NUMBER OF COLORED RINGS TO THE CABLE COLOR CODE.

SECOND SET (FREQUENCY COLOR):
AFTER THE CABLE COLOR CODE IS APPLIED, THE FREQUENCY COLOR CODE MUST BE APPLIED FOR THE SPECIFIC FREQUENCY BAND IN USE ON A GIVEN LINE. A 2" GAP SHALL SEPARATE THE CABLE COLOR CODE FROM THE FREQUENCY COLOR CODE. THE 2" COLOR RINGS FOR THE FREQUENCY CODE SHALL BE PLACED NEXT TO EACH OTHER WITH NO SPACES.

RET CABLES DO NOT REQUIRE COLOR CODING

3 COLOR CODING NOTES

SCALE: NTS

FREQUENCY	INDICATOR	ID
800 #1	YELLOW	GREEN
1900 #1	YELLOW	RED
1900 #2	YELLOW	BROWN
1900 #3	YELLOW	BLUE
1900 #4	YELLOW	SLATE
800 #2	YELLOW	ORANGE
RESERVED #	YELLOW	WHITE
RESERVED	YELLOW	PURPLE

TYPICAL COAX CABLE COLOR CODING SCHEME

SECTOR	CABLE	FIRST RING	SECOND RING	THIRD RING
1 ALPHA	1	GREEN	NO TAPE	NO TAPE
	2	BLUE	NO TAPE	NO TAPE
	3	BROWN	NO TAPE	NO TAPE
	4	WHITE	NO TAPE	NO TAPE
	5	RED	NO TAPE	NO TAPE
	6	GREY	NO TAPE	NO TAPE
	7	PURPLE	NO TAPE	NO TAPE
	8	ORANGE	NO TAPE	NO TAPE
2 BETA	1	GREEN	GREEN	NO TAPE
	2	BLUE	BLUE	NO TAPE
	3	BROWN	BROWN	NO TAPE
	4	WHITE	WHITE	NO TAPE
	5	RED	RED	NO TAPE
	6	GREY	GREY	NO TAPE
	7	PURPLE	PURPLE	NO TAPE
	8	ORANGE	ORANGE	NO TAPE
3 GAMMA	1	GREEN	GREEN	GREEN
	2	BLUE	BLUE	BLUE
	3	BROWN	BROWN	BROWN
	4	WHITE	WHITE	WHITE
	5	RED	RED	RED
	6	GREY	GREY	GREY
	7	PURPLE	PURPLE	PURPLE
	8	ORANGE	ORANGE	ORANGE

1 COAX COLOR CODING

SCALE: NTS

2 FREQUENCY COLOR CODING

SCALE: NTS

TYPICAL HYBRID CABLE COLOR CODE			
SECTOR	FIRST RING	SECOND RING	THIRD RING
A	GREEN	NO TAPE	NO TAPE
B	GREEN	GREEN	NO TAPE
G	GREEN	GREEN	GREEN

FREQUENCY COLOR CODE FOR PAIRS AND FIBER CABLES OF HYBRID CABLE			
FREQUENCY	CABLE CODE	FIRST RING	SECOND RING
800 MHz	RET	YELLOW	GREEN
1900 MHz	RET	YELLOW	RED

TYPICAL JUMPER CABLE COLOR CODE			
FREQUENCY	ANTENNA PORT	RRU PORT	CABLE COLOR
800 MHz	RET	RET	N/A
800 MHz +45°	ANT 1	ANT 1	WHITE
800 MHz -45°	ANT 0	ANT 0	BLUE
PCSI +45°	ANT 0	ANT 0	BLUE
PCSI -45°	ANT 2	ANT 2	WHITE
1900 MHz	PC52 +45°	ANT 3	BROWN
	PC52 -45°	RET	BROWN

SUPPLIER				ASIA TAI			
TYPE	LENGTH (FT)	TOTAL WEIGHT (LBS)	WEIGHT/F (LBS)	TOTAL WEIGHT (KG)	WEIGHT/F (LBS)	WEIGHT/F (LBS)	WEIGHT/F (LBS)
TYPE 1	60	13	28	0.2	0.5	19	41
	75	16	35	0.2	0.5	22	48
	90	19	42	0.2	0.5	26	57
	105	20	46	0.3	0.6	29	65
TYPE 2	120	34	75	0.3	0.6	33	73
	135	38	85	0.3	0.6	46	101
	150	43	94	0.3	0.6	51	112
	165	47	104	0.3	0.6	55	122
TYPE 3	180	69	151	0.4	0.8	72	160
	210	80	177	0.4	0.8	85	187
	225	89	196	0.4	0.8	102	224
	240	95	209	0.4	0.9	109	239
TYPE 4	255	101	222	0.4	0.9	115	254
	270	133	293	0.5	1.1	122	270
	285	141	310	0.5	1.1	152	335
	300	148	326	0.5	1.1	160	353
TYPE 5	315	155	342	0.5	1.1	168	371
	330	163	359	0.5	1.1	176	388

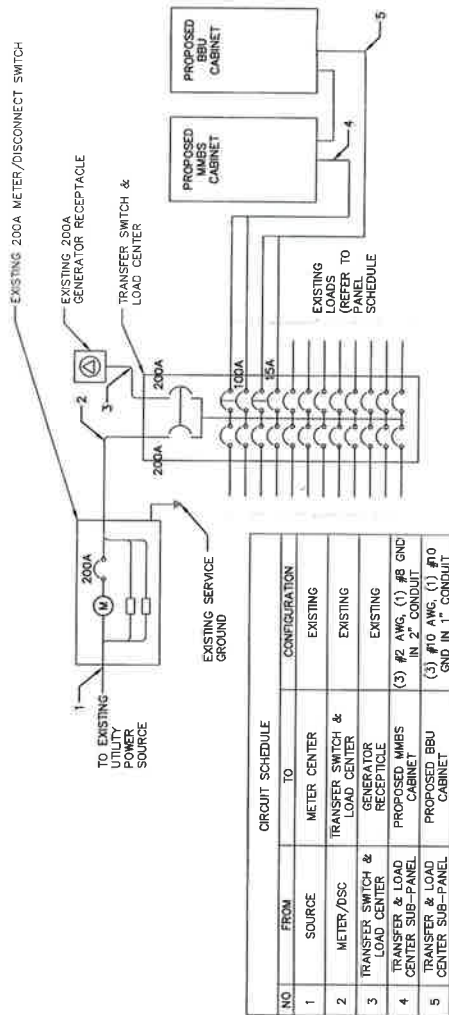
TYPE 1		TYPE 2		TYPE 3		TYPE 4		TYPE 5		TYPE 6		TYPE 7			
TOTAL LENGTH		~114"-9.95"		~180"-5.35"		~213"-3.05"		~282"-5.60"		~328"-1"		~490"-0"		~550"-0"	
HYBRID POWER CABLE CONFIGURATION		AWG 10 1 PAIR AWG 12 3 PAIR AWG 10 3 PAIR		AWG 10 1 PAIR AWG 12 3 PAIR AWG 10 3 PAIR		AWG 10 1 PAIR AWG 12 3 PAIR AWG 10 3 PAIR		AWG 10 1 PAIR AWG 12 3 PAIR AWG 10 3 PAIR		AWG 10 1 PAIR AWG 12 3 PAIR AWG 10 3 PAIR		AWG 10 1 PAIR AWG 12 3 PAIR AWG 10 3 PAIR		AWG 10 1 PAIR AWG 12 3 PAIR AWG 10 3 PAIR	
CABLE DIAMETER		0.98" (25mm)		1.06" (27mm)		1.18" (30mm)		1.18" (30mm) 1.25" (32mm)		1.25" (32mm)		1.54" (39.2mm)		1.71" (43.5)	
BENDING RADIUS		11.81"		12.98"		15.35"		17.71"		17.71"		18.00"/20.00"		21.00"/25.00"	
OPTIC CABLE														21.00"/25.00"	
DU CABINET (POWER CABLE TERMINAL MAX SIZE AWG 4)														21.00"/25.00"	
RDU POWER CABLE SPEC														21.00"/25.00"	
N/A														21.00"/25.00"	
PROTECTION														21.00"/25.00"	
5 PAIR POWER AND OPTIC CABLE WITH PE PIPE														21.00"/25.00"	
2 PAIR POWER AND OPTIC CABLE WITH PE PIPE														21.00"/25.00"	
2 PAIR POWER AND OPTIC CABLE WITH PE PIPE														21.00"/25.00"	
2 PAIR POWER AND OPTIC CABLE WITH PE PIPE														21.00"/25.00"	
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1. ALL ELECTRICAL WORK SHALL BE DONE IN ACCORDANCE WITH CURRENT NATIONAL ELECTRICAL CODES AND ALL LOCAL AND STATE CODE, LAWS, AND ORDINANCES.

1. ALL ELECTRICAL WORK SHALL BE DONE IN ACCORDANCE WITH CURRENT NATIONAL ELECTRICAL CODES AND ALL LOCAL AND STATE CODE, LAWS, AND ORDINANCES.

2. CONTRACTOR SHALL COORDINATE WITH LOCAL POWER COMPANY FOR REQUIREMENTS OF POWER SERVICE LINE TO THE METER BASE. WHEN REQUIRED FOR 120/240 VOLT SINGLE PHASE SERVICE WITH 200 AMP RATING.
3. CONTRACTOR SHALL PROVIDE 200 AMP ELECTRIC METER COMPANY FOR SERVICE LINE REQUIREMENTS TO TERMINATE AT THE ELECTRIC METER COMPANY.
4. CONTRACTOR SHALL FURNISH AND INSTALL ELECTRICAL PANEL (MAY BE DISCONNECT SWITCH FOR THE PLAN DETAIL DRAWINGS AND PER LOCAL UTILITY COMPANIES SPECIFICATION WHEN REQUIRED) THE METER BASE SHALL BE PROVIDED BY THE METER COMPANY. THE METER SHALL BE INSTALLED IN THE ELECTRICAL PANEL.
5. LOCAL POWER COMPANY SHALL PROVIDE 200 AMP ELECTRIC METER. CONTRACTOR SHALL COORDINATE INSTALLATION WITH LOCAL POWER COMPANY.
6. UNDERGROUND POWER AND TELECOMMUNICATIONS SHALL BE LOCATED 40 AND 60 INCHES MINIMUM ABOVE GROUND SHALL BE GALVANIZED RIGID STEEL TUBING UNLESS OTHERWISE INDICATED.
7. ALL TELECOM UNITS SHALL BE 4" SCH. 40 PVC CONDUIT UNLESS OTHERWISE INDICATED. ALL TELECOM UNITS SHALL BE LOCATED 40 INCHES MINIMUM ABOVE GROUND. ALL TELECOM UNITS SHALL BE SECURED 40 AND TERMINATED AT DESIGNATED TELCO DEMARCATION OR 2-FEET OUTSIDE PERCHED AREA, NEAR UTILITY PANEL (IN PERCHED AREA) OR END CAP OFF AND TERMINATED AT WAREHOUSE STAIN FANDED BUNDLE WITH DESIGNATION FOR TELCO SERVICE.
8. CONDUITS INSTALLED AT TELCO EQUIPMENT ENDS PROVE TO THE EQUIPMENT INSTALLATION SHALL BE STUBBED AND CAPPED AT 6" ABOVE GRADE. NYLON PULL RODS IN CONCRETS.
9. THE SPENT GABINET INCLUDING PANE LOAD PANELS AND TELECOM PANEL SHALL BE PROVIDED BY OWNER AND INSTALLED BY THE CONTRACTOR. CONTRACTOR IS TO INSTALL BREAKERS(S) NOT PROVIDED BY MANUFACTURER. SEE PANEL SCHEDULE ON THIS SHEET FOR BREAKER REQUIREMENTS.
10. LOCATION OF ELECTRIC METER AND DISCONNECT SWITCH TO BE PROVIDED BY

1. #1, #2 WIRE TO BE UTILIZED IN ELECTRIC SYSTEM RUNS EXCEEDING 100'.
2. CONTRACTOR SHALL ASSESS THE EXISTING PLANS TO DETERMINE IF ANY QUESTIONS ARISING DURING THE BID PROCESS IN REGARD TO THE EXISTING CONDITIONS, THE SCOPE OF WORK, OR ANY OTHER ISSUE RELATED TO THE PROJECT. ANY QUESTIONS MUST BE SUBMITTED TO THE PROJECT MANAGER FOR CLARIFICATION, NOT AFTER THE CONTRACT HAS BEEN AWARDED.
3. LOCATION OF EQUIPMENT, CONDUIT AND DEVICES SHOWN ON THE DRAWINGS ARE APPROXIMATE AND SHALL BE COORDINATED WITH FIELD CONDITIONS PRIOR TO BEGINNING OF WORK.
4. THE CONDUIT RUNS AS SHOWN ON THE PLANS ARE APPROXIMATE. EXACT LOCATION AND RUNNING SHALL BE PER EXISTING FIELD CONDITIONS.

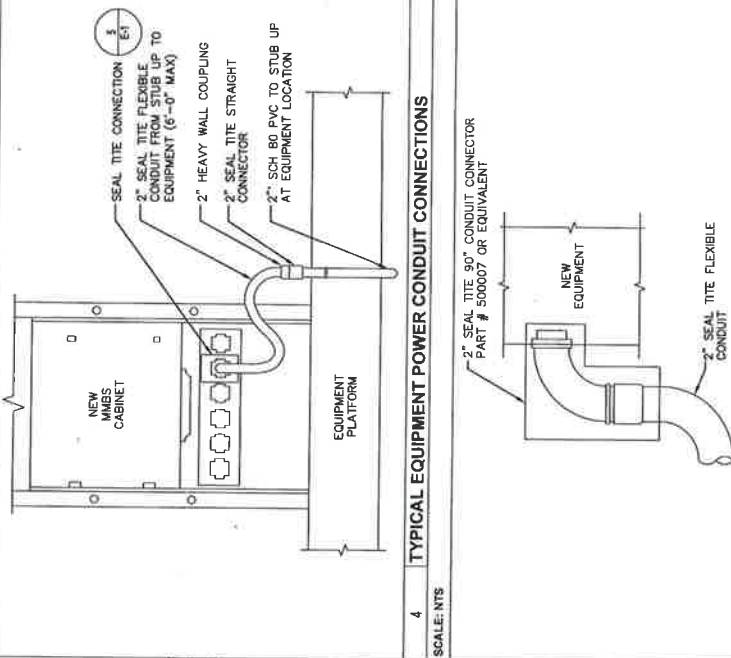
[illegible]

16. ALL CONDUITS SHALL BE MET WITH BENDS MADE TO THE TOLERANCES SHOWN IN THE SCHEDULED TABLE F 346-10. NO RIGHT ANGLE BENDS SHALL BE USED.

17. ALL CONDUIT TERMINATIONS SHALL BE PROVIDED WITH PLASTIC THROAT
AND INSULATED GROUNDING BUSINGS.
18. ALL WIRE SHALL BE "TYPE THIN SOLID ANNEALED COILED UP TO SIZE 1/0
AWG. ALL WIRE SHALL BE STRANDED STRANDED 75 DEGREE C, (167
DEGREES F), 18" LONG. CONDUCTIVITY, MINIMUM #2.
19. ALL WIRES SHALL BE TAPPED AT ALL PULL BOXES - J-BOXES, EQUIPMENT BOXES
AND CABINETS WITH APPROVED PLASTIC TAPE, CRIMP GRAY, BRADY OR APPROVED
EQUIVALENT.
20. NEW MATERIAL SHALL HAVE A U.L. LABEL
21. CONDUIT BROUGH-IN SHALL BE VERIFIED WITH THE MECHANICAL EQUIPMENT
TO AVOID COLLISIONS TO CONFLICTS, COMPLY WITH MECHANICAL CONTRACTOR AND
ELECTRICAL CONTRACTOR REQUIREMENTS.
22. ALL PANEL DIRECTORIES SHALL BE TYPEWRITTEN NOT HAND WRITTEN
23. INSTALL AN EQUIPMENT GROUNDING CONDUCTOR IN ALL CONDUITS FOR THE
ENTIRE LENGTH OF THE CONDUIT. THE CONDUCTOR SHALL BE IDENTIFIED BY RED
INSULATION AT ALL JUNCTION BOXES, PULLBOXES, AND DISCONNECT SWITCHES.
24. THE CONTRACTOR SHALL PREPARE AS-BUILT DRAWINGS, DOCUMENT ANY AND
ALL CHANGES MADE DURING THE PROJECT, SUBMIT AT SUBSTANTIAL COMPLETION.

32. ALL DISCONNECT SWITCHES AND OTHER CONTROLLING DEVICES SHALL BE IDENTIFIED BY THE MANUFACTURER'S NAME, MODEL NUMBER, AND THE FED-ERATION OF ELECTRICAL INDUSTRIES (FED-ERATION) APPROVED LABELING SYSTEM (NEMA ICS) OR THE NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA) APPROVED LABELING SYSTEM (NEMA ICS).
33. ALL ELECTRICAL DEVICES AND INSTALLATIONS OF THE DEVICES SHALL COMPLY WITH THE FOLLOWING:
34. ALL ELECTRICAL DEVICES WITH DISABILITIES ACT AS ADOPTED BY THE APPLICABLE STATE.
35. PROVIDING CORD DRILLING AS NECESSARY FOR PENETRATIONS OR RISERS THROUGH EXISTING WALLS AND CEILING.
36. PROVIDING APPROVAL SLICES AND OTHER PENETRATIONS IN THE EXISTING CONSTRUCTION SHALL BE MADE WITH THE RATED MATERIAL WHICH SHALL MAINTAIN THE SAME STRENGTH AS THE ORIGINAL MATERIAL. ALL PENETRATIONS SHALL BE PROTECTED TO PREVENT PASSAGE OF WATER, SHADE FIRE AND SMOKES. ALL MATERIAL SHALL BE US APPROVED FOR THIS PURPOSE.
37. ALL ELECTRICAL CHARACTERISTICS OF ALL EQUIPMENT (NEW AND EXISTING) SHALL BE IDENTIFIED WITH THE OWNER'S REPRESENTATIVE AND EQUIPMENT SUPPLIER PRIOR TO THE INSTALLATION OF THE EQUIPMENT.
38. ALL ELECTRICAL DEVICES SHALL BE IDENTIFIED AND THE EQUIPMENT SHALL BE IDENTIFIED ACCORDING TO THE NAMEPLATE DATA FURNISHED BY THE EQUIPMENT MANUFACTURER. THE IDENTIFICATION SHALL BE MADE BY THE OWNER'S REPRESENTATIVE AND THE EQUIPMENT SUPPLIER PRIOR TO THE INSTALLATION OF THE EQUIPMENT. THE IDENTIFICATION SHALL BE MADE BY THE OWNER'S REPRESENTATIVE AND THE EQUIPMENT SUPPLIER PRIOR TO THE INSTALLATION OF THE EQUIPMENT. THE IDENTIFICATION SHALL BE MADE BY THE OWNER'S REPRESENTATIVE AND THE EQUIPMENT SUPPLIER PRIOR TO THE INSTALLATION OF THE EQUIPMENT.

19. LOCATION OF ALL OUTLET, BOXES, ETC., AND THE TYPE OF CONNECTION (PLUG OR DIRECT) SHALL BE CONFIRMED WITH THE OWNER'S REPRESENTATIVE PRIOR TO



SCALE: NTS

SITE NUMBER:		TBD	MODEL NUMBER:		TBD	WIRE:		TBD		
VOLTAGE:		240V/120	BUS RATING:		200	A/C:		TBD		
MAIN BREAKER:		200 AMP	NEUTRAL BAR:		YES	GROUND BAR:		TBD		
MOUNT:		SURFACE	N TO GROUND BOND:		TBD					
ENCLOSURE TYPE:		NEMA 3R	INTERNAL TVSS:		TBD					
PACKAGE STATUS:		EXISTING								
CKT	LOAD DESCRIPTION	BREAKER	BREAKER	BREAKER	BREAKER	LOAD DESCRIPTION	CKT			
1	3	BTS	100	2	OFF	ON	2	80	NOT LABELED	2
5	7	NOT LABELED	100	2	ON	OFF	2	30	NOT LABELED	6
9	9	NOT LABELED	20	1	OFF	ON	1	20	NOT LABELED	10
11	11	FAN	10	1	ON	ON	1	20	NOT LABELED	12

NOTES
GENERAL CONTRACTOR TO CHECK REQUIREMENTS WITH LOCAL POWER COMPANY AND JURISDICTION. ADDITIONAL SUB PANEL OFF THE PPC CABINET MIGHT BE REQUIRED TO FEED NEW NETWORK VISION EQUIPMENT.

100

TeleCAD Wireless
1961 NORTHPOINT BLVD., SUITE 130
HIXSON, TN 37343
PH: 423-843-9500 FAX: 423-843-9509

HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF MINNESOTA.

SIGNATURE STEVEN E. HUNT
PRINT NAME: STEPHEN E. HUNT
DATE 10/24/13 LICENSE # 47489

PROJECT INFORMATION

ST. PAUL WATER TOWER

MS03XC472

2100 E. COTTAGE AVE.
ST. PAUL, MN 55119
RAMSEY COUNTY

NAME BY	CHECKED BY	DATE
TDD	SFH	08-19-13

ONE-LINE DIAGRAM & POWER PANEL SCHEDULE

1007

31



WILLIN

REV	DATE	DESCRIPTION	BY
1	10-24-10	ISSUED FOR CONSTRUCTION	JAE
2	10-14-10	ISSUED FOR CONSTRUCTION	JAE
3	10-27-10	ISSUED FOR CONSTRUCTION	JAE
4	06-22-10	ISSUED FOR CONSTRUCTION	TOD

TeleCAD Wireless
1961 NORTHPOINT BLVD., SUITE 130
HIXSON, TN 37343
PH: 423-843-9500 FAX: 423-843-9509

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR CONTRACT DOCUMENT WAS PREPARED BY ME OR UNDER MY SUPERVISION AND THAT I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF MINNESOTA.

SIGNATURE: JAE
PRINT NAME: STEPHEN J. AUNT
DATE: 01-24-13
LICENSE #2386

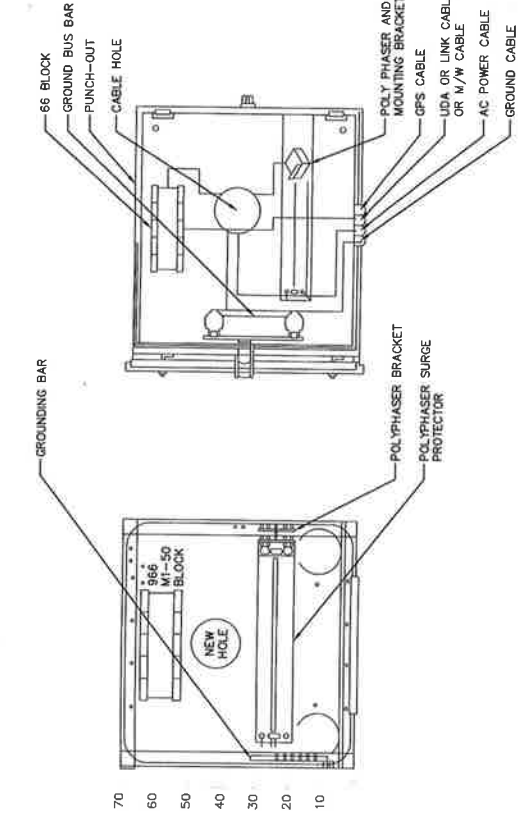
PROJECT INFORMATION
NETWORK VISION MMBB LAUNCH
ST. PAUL WATER TOWER
MS03XC472

2100 E. COTTAGE AVE.
ST. PAUL, MN 55119
RAMSEY COUNTY

DRAWN BY: TOD
CHECKED BY: SEH
DATE: 08-19-13

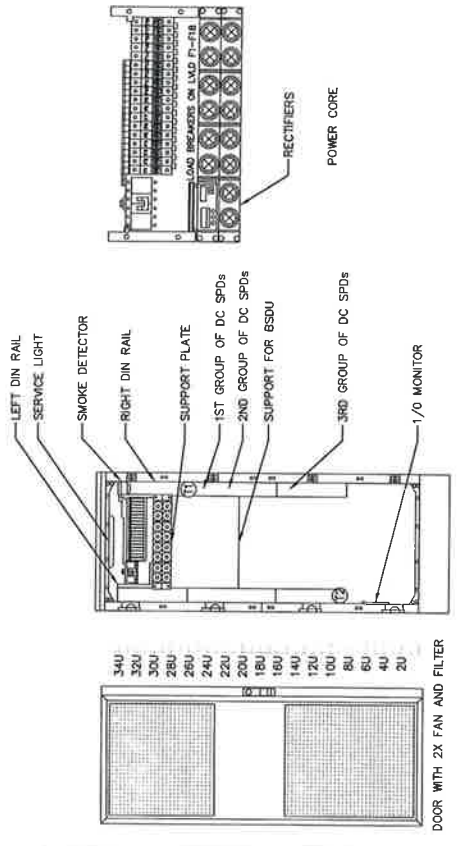
SHEET TITLE: ELECTRICAL DETAILS

SHEET NUMBER: E-2
REV: 3



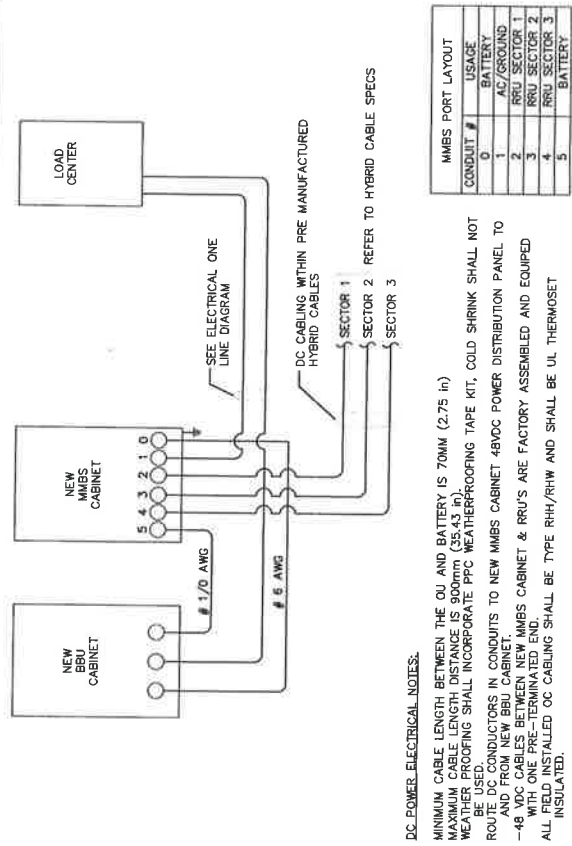
2 MUDROOM ELECTRICAL DETAIL

SCALE: NTS



1 MMBB-BBU ELECTRICAL DETAILS

SCALE: NTS

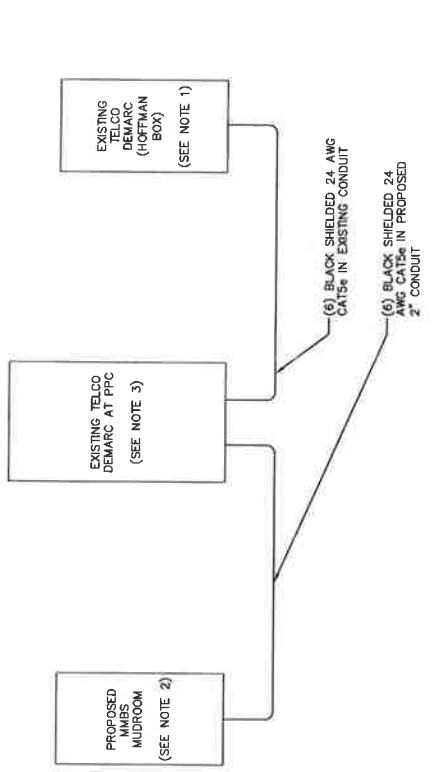


CONDUIT #	USAGE
0	BATTERY
1	AC/GROUND
2	RRU SECTOR 1
3	RRU SECTOR 2
4	RRU SECTOR 3
5	BATTERY

DC POWER ELECTRICAL NOTES:
MINIMUM CABLE LENGTH BETWEEN THE OIL AND BATTERY IS 70MM (2.75 in).
MAXIMUM CABLE LENGTH DISTANCE IS 900mm (35.43 in).
WEATHER PROOFING SHALL INCORPORATE PPC WEATHERPROOFING TAPE KIT. COLD SHRINK SHALL NOT BE USED.
ROUND CONDUITORS IN CONDUITS TO NEW MMBB CABINET 48VDC POWER DISTRIBUTION PANEL TO RRU AND FROM NEW BBU CABINET.
-48 VDC CABLES BETWEEN NEW MMBB CABINET & RRU'S ARE FACTORY ASSEMBLED AND EQUIPPED WITH ONE PRE-TERMINATED END.
ALL FIELD INSTALLED DC CABLES SHALL BE TYPE RHH/RHW AND SHALL BE UL THERMOSET INSULATED.

4 DC POWER DIAGRAM

SCALE: NTS

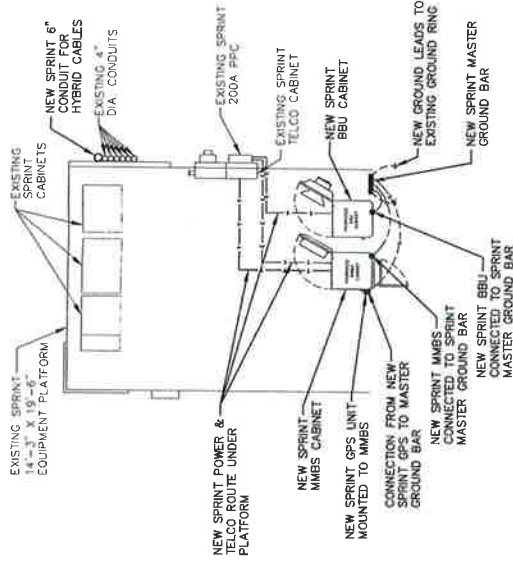


3 TELCO RISER DETAIL

NOTES:
1. CONTRACTOR TO INSTALL NEW 66 BLOCK IN EXISTING HOFFMAN BOX AT SITES MAIN TELCO DEMARC.
2. CONTRACTOR SHALL INSTALL NEW 66 BLOCK IN EXISTING TELCO BOX NEXT TO EXISTING PPC CABINET.
3. CONTRACTOR TO INSTALL NEW 66 BLOCK IN EXISTING TELCO BOX NEXT TO EXISTING PPC CABINET.

GENERAL GROUNDING NOTES:

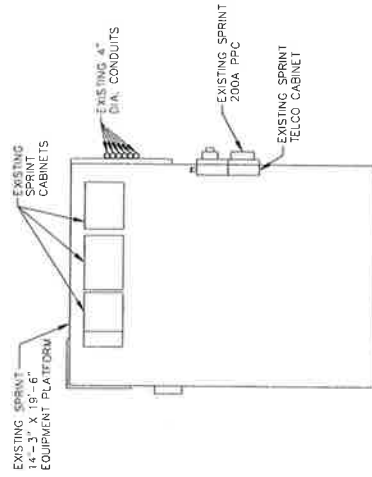
1. ALL DETAILS ARE SHOWN IN GENERAL TERMS. ACTUAL INSTALLATION AND CONSTRUCTION MAY VARY DUE TO SITE SPECIFIC CONDITIONS.
 2. GROUND ALL ANTENNA BASES, FRAMES, CABLE RUNS, AND OTHER METALLIC STRUCTURES TO THE GROUND. ANTENNA CONNECT TO SURFACE MOUNTED BUS BARS FOLLOWING ANTENNA MANUFACTURER'S PRACTICES FOR GROUNDING REQUIREMENTS. GROUND COAX SHIELD AT BOTH ENDS AND EXIT FROM TOWER OR POLE USING MFR'S PRACTICES.
 3. ALL GROUND CONNECTIONS SHALL BE EXOTHERMIC. ALL WIRES SHALL BE COPPER THIN/TWIN. ALL GROUND WIRE SHALL BE GREEN INSULATED WIRE ABOVE GROUND.
 4. CONTRACTOR TO VERIFY AND TEST GROUND TO SOURCE. GROUNDING AND RESISTANCE TESTING WILL BE WITNESSED BY SPRINT WIRELESS, LLC REPRESENTATIVE.
 5. REFER TO DIVISION 16 GENERAL ELECTRIC; GENERAL ELECTRICAL STANDARDS AND COMPLY WITH ALL REQUIREMENTS OF GROUNDING STANDARDS.
 6. ELECTRICAL CONTRACTOR TO PROVIDE DETAILED DESIGN OF GROUNDING SYSTEM PER SPRINT STANDARD GROUNDING METHOD, AND RECEIVE APPROVAL OF DESIGN BY AUTHORIZED SPRINT REPRESENTATIVE. PRIOR TO INSTALLATION OF SPRINT GROUNDING SYSTEM. PHOTO DOCUMENT ALL EXOTHERMIC AND GROUND RING.
 7. NOTIFY CONSTRUCTION MANAGER IF THERE ARE ANY DIFFICULTIES INSTALLING GROUNDING SYSTEM DUE TO SITE SOIL CONDITIONS.
 8. ALL EXISTING GROUND BARS, WIRES & CONNECTIONS SHALL BE FIELD VERIFIED. ANY DEFICIENT ITEMS SHALL BE REPLACED AS REQUIRED TO ACHIEVE ADEQUATE GROUNDING REQUIRED BY SPRINT.
- ## GROUNDING NOTES:
1. EXOTHERMIC WELDS (2) 2 AWG BARE TINNED SOLID COPPER CONDUCTORS TO GROUNDING BAR. ROUTE CONDUCTORS TO BURIED GROUNDING RING AND PROVIDE PARALLEL EXOTHERMIC WELDS.
 2. EC SHALL USE PERMANENT MARKER TO DRAW THE LINES BETWEEN EACH SECTION AND LABEL EACH SECTION ("P", "A", "N", "T") WITH 1" HIGH LETTERS.
 3. ALL HARDWARE 18-8 STAINLESS STEEL, INCLUDING LOCK WASHERS, COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING. ALL HARDWARE SHALL BE STAINLESS STEEL 3/8 INCH DIAMETER OR LARGER.
 4. FOR GROUND BOND TO STEEL ONLY: INSERT A CADMIUM FLAT WASHER BETWEEN LUG AND STEEL. COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING.
 5. NUT & WASHER SHALL BE PLACED ON THE FRONT SIDE OF THE GROUNDING BAR AND BATTERY PACK MUST BE INSTALLED WITH BLACK HEAT-SHRINKING TUBE, 600 VOLT INSULATION ON ALL GROUNDING TERMINATIONS. THE INTENT IS TO WEATHERPROOF THE COMPRESSION CONNECTION.
 6. NUMBER OF GROUNDING BARS MAY VARY DEPENDING ON THE TYPE OF TOWER, ANTENNA LOCATION, AND CONNECTION ORIENTATION. PROVIDE AS REQUIRED.
 7. GROUNDING KIT SHALL BE TYPE AND PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.
 8. WEATHERPROOFING SHALL BE TYPE AND PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.
 9. SUPPLIED AND INSTALLED BY CONTRACTOR.
 10. WHEN THE SCOPE OF WORK REQUIRES THE ADDITION OF A GROUNDING BAR TO AN EXISTING TOWER, THE SUBCONTRACTOR SHALL OBTAIN APPROVAL FROM THE TOWER OWNER PRIOR TO MOUNTING THE GROUNDING BAR TO THE TOWER.
 11. EXTEND TWO (2) 2 AWG TINNED CU CONDUCTOR FROM BURIED GROUNDING RING AND CONNECT TO THE PROPOSED TOWER. FOLLOW MANUFACTURER'S RECOMMENDATIONS FOR GROUNDING CONNECTIONS TO THE TOWER (APPLICABLE TO NEW TOWERS ONLY.)
 12. NUMBER OF GROUNDING BARS MAY VARY DEPENDING ON THE TYPE OF TOWER, ANTENNA LOCATION, AND CONNECTION ORIENTATION. THE SUBCONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING SUFFICIENT GROUNDING BARS AS REQUIRED, PROVIDING 50% SPARE CONNECTION POINTS.
 13. EXPOSED GROUND WIRES TO BE NON METALLIC LIQUID TIGHT.



2 EQUIPMENT GROUND & ROUTING PLAN (INTERIM) IF REQUIRED

11x17 SCALE: 1"=8'

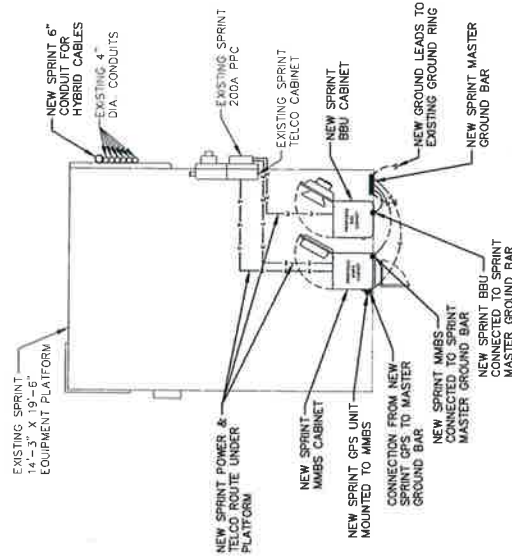
24x36 SCALE: 1"=4'



1 EQUIPMENT GROUND & ROUTING PLAN (EXISTING)

11x17 SCALE: 1"=8'

24x36 SCALE: 1"=4'



3 EQUIPMENT GROUND & ROUTING PLAN (FINAL)

11x17 SCALE: 1"=8'

24x36 SCALE: 1"=4'



1961 NORTHPOINT BLVD., SUITE 130
HIXSON, TN 37343
PH: 423-843-9500 FAX: 423-843-9509

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF MINNESOTA

SIGNATURE: *[Signature]*
PRINT NAME: STEPHEN L. HUNT

DATE: 07-24-13
PROJECT INFORMATION: NETWORK VISION WIRELESS LAUNCH

ST. PAUL WATER TOWER
MS03XC472

2100 E. COTTAGE AVE
ST. PAUL, MN 55119
RAMSEY COUNTY

DRAWN BY: TDD
CHECKED BY: SEH
DATE: 08-19-13

SHEET TITLE: GROUNDING & ROUTING PLANS

SHEET NUMBER: E-3

3



WILLIN

REV	DATE	DESCRIPTION	BY
1	10-24-13	ISSUED FOR CONSTRUCTION	JAE
2	10-24-13	REVISED FOR CONSTRUCTION	JAE
3	10-24-13	REVISED FOR CONSTRUCTION	JAE
4	10-24-13	REVISED FOR CONSTRUCTION	JAE
5	10-24-13	REVISED FOR CONSTRUCTION	JAE
6	10-24-13	REVISED FOR CONSTRUCTION	JAE
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11	10-24-13	REVISED FOR CONSTRUCTION	JAE
12	10-24-13	REVISED FOR CONSTRUCTION	JAE
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100	10-24-13	REVISED FOR CONSTRUCTION	JAE



1961 NORTHPOINT BLVD, SUITE 130
HIXSON, TN 37343
PH: 423-843-9500 FAX: 423-843-9509

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF MINNESOTA

SIGNATURE: *[Signature]*
PRINT NAME: STEPHEN HART
DATE: 10/24/13
LICENSE: 42389

PROJECT INFORMATION
NETWORK VISION MMS LAUNCH

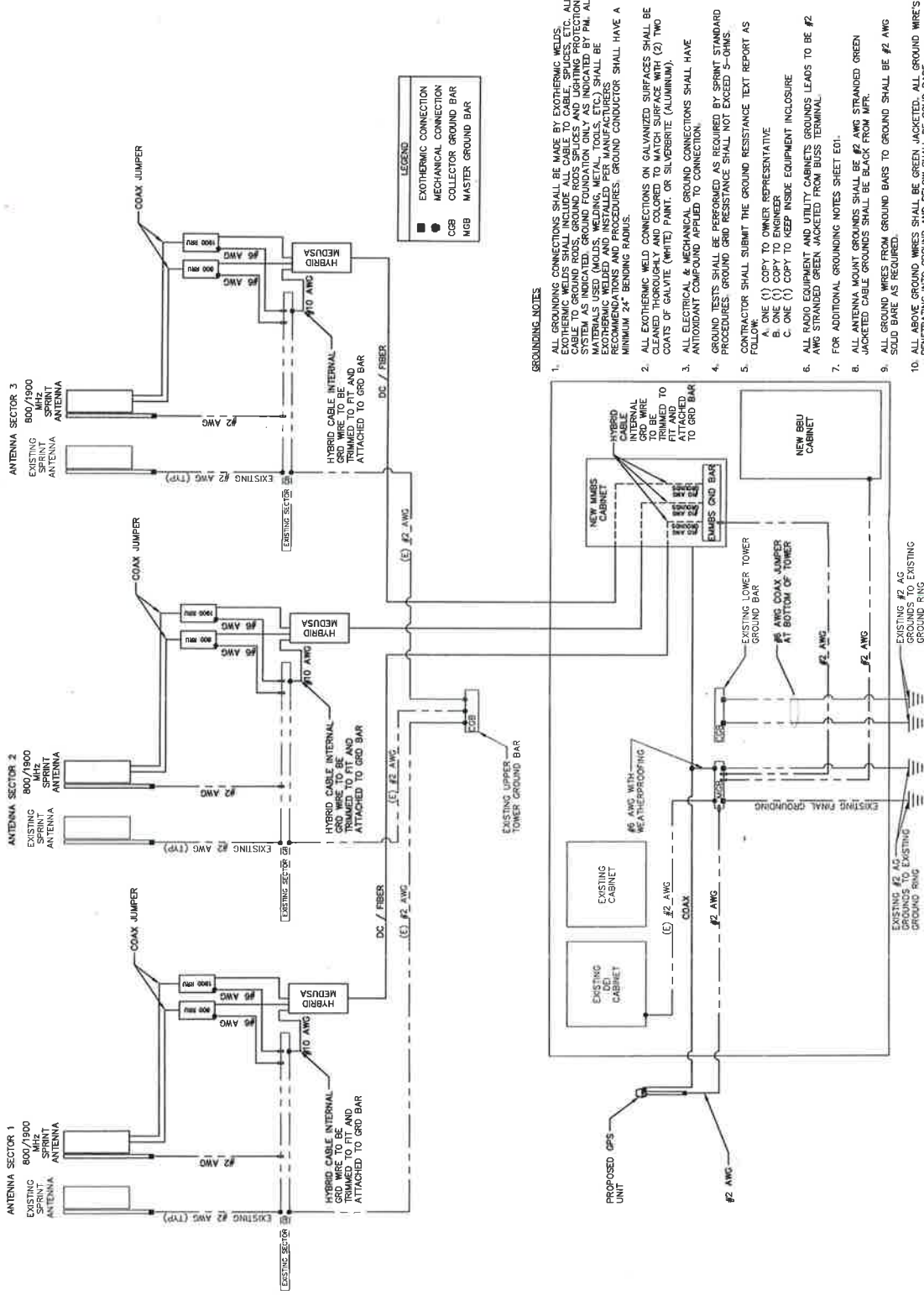
ST. PAUL WATER TOWER

MS03XC472

2100 E. COTTAGE AVE
ST. PAUL, MN 55119
RAMSEY COUNTY

DRAWN BY: TDD
CHECKED BY: SEH
DATE: 08-19-13
SHEET TITLE: GROUNDING DETAILS

SHEET NUMBER: 3



GROUNDING NOTES

1. ALL GROUNDING CONNECTIONS SHALL BE MADE BY EXOTHERMIC WELDS. ALL EXOTHERMIC WELDS SHALL BE MADE BY A QUALIFIED WELDER. ALL CABLE TO GROUND ROOF, GROUND ROOF SPLICES AND LIGHTING PROTECTIONS SYSTEMS AS INDICATED. GROUND FOUNDATION ONLY AS INDICATED BY P.M. ALL MATERIALS USED (MOLDS, WELDING, METAL, TOOLS, ETC.) SHALL BE RECOMMENDED BY THE MANUFACTURER. RECOMMENDATIONS AND PROCEDURES. GROUND CONDUCTOR SHALL HAVE A MINIMUM 24" BENDING RADIUS.
2. ALL EXOTHERMIC WELD CONNECTIONS ON GALVANIZED SURFACES SHALL BE CLEANED THOROUGHLY AND COLORED TO MATCH SURFACE WITH (2) TWO COATS OF GALVITE (WHITE) PAINT, OR SILVERBRITE (ALUMINUM). ANTIOXIDANT COMPOUND APPLIED TO CONNECTION.
3. ALL ELECTRICAL & MECHANICAL GROUND CONNECTIONS SHALL HAVE GROUND TESTS SHALL BE PERFORMED AS REQUIRED BY SPRINT STANDARD PROCEDURES. GROUND RESISTANCE SHALL NOT EXCEED 5-OHMS.
4. CONTRACTOR SHALL SUBMIT THE GROUND RESISTANCE TEST REPORT AS FOLLOWS:
 - A. ONE (1) COPY TO OWNER REPRESENTATIVE
 - B. ONE (1) COPY TO ENGINEER
 - C. ONE (1) COPY TO KEEP INSIDE EQUIPMENT ENCLOSURE
5. ALL RADIO EQUIPMENT AND UTILITY CABINETS, GROUNDS LEADS TO BE #2 AWG STRANDED GREEN JACKETED FROM BUSS TERMINAL.
6. FOR ADDITIONAL GROUNDING NOTES SHEET 001.
7. ALL ANTENNA MOUNT GROUNDS SHALL BE #2 AWG STRANDED GREEN JACKETED CABLE GROUNDS SHALL BE BLACK FROM MFR.
8. ALL GROUND WIRES FROM GROUND BARS TO GROUND SHALL BE #2 AWG SOLID BARE AS REQUIRED.
9. ALL ABOVE GROUND WIRES SHALL BE GREEN JACKETED. ALL GROUND WIRES PENETRATING INTO GROUND AND BELOW SHALL BE SOLID BARE.

1 GROUNDING RISER DIAGRAM

SCALE: NTS



REV	DATE	REVISION DESCRIPTION	DRAWN BY	CHECKED BY
3	10-24-13	ISSUED FOR CONSTRUCTION	JAE	JEH
2	10-04-13	ISSUED FOR CONSTRUCTION	JAE	SEH
1	10-01-13	ISSUED FOR CONSTRUCTION	JAE	JEH
0	06-22-13	ISSUED FOR CONSTRUCTION	TDO	SEH



1961 NORTHPOINT BLVD., SUITE 130
HIXSON, TN 37343
PH: 423-843-9500 FAX: 423-843-9509

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF MINNESOTA.

SIGNATURE Stacy D. H.
PRINT NAME STEPHEN E HART

DATE 10/24/13 LICENSE # 47489

PROJECT INFORMATION

ST. PAUL WATER TOWER
MS03XC472

2100 E. COTTAGE AVE.
ST. PAUL, MN 55119
RAMSEY COUNTY

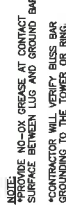
CHECKED BY:	DATE:
SEH	08-19-13

GROUNDING DETAILS

SHEET NUMBER	REV
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GR-2
3

SCALE: NTS



6	SECTOR GROUND BAR CONNECTIONS
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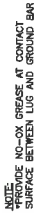
SCALE: NTS



SCALE: NTS

5	TYPICAL EXOTHERMIC WELD CONNECTIONS
---	-------------------------------------

SCALE: NTS



7	TOWER MASTER GROUND BAR CONNECTIONS
---	-------------------------------------

LOCAL E: NTS

EXHIBIT "D"

SPRINT SPECTRUM L.P.

MS03XC472

2095 Clear Ave E, Saint Paul, MN

Antenna Facilities and Frequencies

1. Shelter and Shelter Components

Sprint has 1 equipment platform 19'6" x 14'3" and lease space of approximately 750 square feet.

Power plant (DC current): Rectifiers installed inside MMBS BBV Cabinet

Battery supply back up: Installed inside MMBS BBV Cabinet

T-1 switch equipment: In existing utility h-frame

Commercial switch gear equipment: In existing utility h-frame

Radio transmitters: Installed inside MMBU Cabinet and behind the antennas in the form of RRU's.

Air conditioner: N/A

2. Generators: N/A

3. Antennas

Quantity: (3) Total; (1) per Sector

Type: Manufacturer: (3) Powerwave

Azimuths: 0; 120; 240

Model: (3) P90-15-XLPP-RR

Dimensions: (3) 72" x 12" x 7.3"

Weight: 64 lbs ea.

Type: Panel

Centerline of the antenna: 74' AGL

4. Coax Cable

Number of lines: N/A

Type:

Size:

5. Tower Mounted Amplifiers (TMAs) N/A

Quantity:

Manufacturer:

Model:

Dimensions:

Weight:

Mounting:

6. Diplexers N/A

Quantity:

Manufacturer:

Model:

Dimensions:

Weight:

7. Remote Radio Heads (RRHs)

Quantity: (6) Total; (2) per Sector

Manufacturer: Samsung

Model: (3) RRH-P4, (3) RRH-C2A

Dimensions: (3) 19.3''x15.7''x6.7'', (3) 13.8''x23.8''x9''

Weight: (3) 52lbs, (3) 60lbs

Mounting: Pipe

Hybrid Jumper: (3) 1/2'' 6'

8. Distribution Box (COVP) N/A

Quantity:

Manufacturer:

Model:

Dimensions:

Weight:

9. Sector Box N/A

Quantity:

Manufacturer:

Model:

Dimensions:

Weight:

10. Hybrid Cable

Type: Samsung HFC

Number of Lines: (3) Total

Junction Cylinders: (3) Power & (3) Fiber

11. Frequencies

Svc	Technology	EIRP (WATTS)	Frequencies				
			Std Frequency	Transmit		Receive	
				Start	Stop	Start	Stop
1	1900 CDMA/EVDO	748.17		1930.625	1939.375	1850.625	1859.375
2	1900 LTE FDD	794.32		1990.625	1994.375	1910.625	1914.375
3	800 CDMA	433.51		862.275	863.525	817.275	818.275
4	800 LTE FDD	461.32		863.8	868.8	818.8	823.8

EXHIBIT "E"

SECURITY PLAN

Remote Facilities Access
Saint Paul Regional Water Services (SPRWS)
Standard Operating Procedure (SOP)
Effective Date: November 15, 2010

INTENT:

SPRWS is dedicated to providing its employees with the safest work environment possible and to taking every reasonable precaution to ensure the safety of potable water delivered to our communities. This SOP provides conditions for persons with need to access SPRWS facilities outside the McCarrons Center facilities (Remote Facilities). It establishes procedures for access and responsibilities for both those wishing to enter remote facilities and those allowing such access.

SECURITY OF FACILITIES:

Persons with routine access to remote facilities include SPRWS staff, agents of entities leasing space, agents of various cities, and various law enforcement personnel. Other entities also have occasional access needs under the supervision of SPRWS staff. With so many persons having legitimate access needs, it is imperative that specific procedures be established to ensure that the highest level of security possible. As a result, the following procedures are established:

1.0 SITE ACCESS REQUIREMENTS

- 1.01 Request to access site required prior to entry. Important: note that the police will be called to the site if a call is not made to SPRWS prior to entry.

Note: all requests for entry to remote sites must be made through the Engine Room!
Any other employee asked to allow entry to a remote site must inform the requester to call the Engine Room so that they can be cleared for entry.

- a) Routine and regularly scheduled

Whenever possible, authorized agencies that require repeated, routine access should schedule such access during normal business hours at least one day in advance by calling SPRWS Engine Room at 651-266-1660. The Engine Room Pumping Engineer will record the name of the agent and arrange for crew to meet agent on site and allow for access after checking for proper ID. Pumping Engineer will verify that agents requesting access are those that arranged for the access previously, and pass the authorized agents names to the field crew for verification in the field. If access is allowed, field crew will notify Engine Room that an entry to a site will occur.

- b) Emergencies

1. Contact Engine Room 651-266-1660.

2. Engine Room Pumping Engineer (PE II) will check against a list of authorized companies for each site to ensure that a particular company has reason to be on site.
3. If company is authorized, PE II will make arrangements with the Distribution after-hours Turn-On truck to allow for access at the site.
4. Distribution personnel will be responsible to verify the identity of the agent(s) and to monitor agent(s') activity at the site.
5. Under certain conditions, Distribution personnel may not be available, in which case PE IIs will use their best judgment to determine if there is another way to grant access to the agent, or to deny or delay access.

1.02 While at site:

- a) Authorized agents are required to perform their necessary work on the site in a manner that does not compromise site security. This includes, but is not limited to, securing all doors and gates before leaving the site.
- b) SPRWS employees will determine whether or not they will need to monitor the activity at the site. If SPRWS employee believes that the agent is not there for a legitimate business reason, the employee should get to a safe area and call 911 to have police confront the agent and remove them if necessary. In this event, SPRWS employee should also call the Engine Room to inform them of the proceedings.

1.03 Leaving site:

- a) Authorized agents must notify Engine Room 651-266-1660 when leaving the site.

2.0 IDENTIFICATION PROCEDURES

- 2.01 All SPRWS staff and personnel are issued a SPRWS photo identification card (ID card) at the McCarrons facility. This ID is to be displayed above the waist. Anyone purporting to be a SPRWS employee should be asked to display this ID card if it is not visible.

Contractors or agents seeking entrance to a remote facility are required to show a valid driver's license. SPRWS employee allowing them access will forward the name and phone number of the entrant to the Engine Room to confirm that access should be granted.

3.0 FACILITY LOCKS

- 3.01 All Remote Facilities will be secured with high-security locks utilizing high-security keys.

- a) Locks will be furnished and installed by SPRWS.
- b) No other locks are permitted, and all such other locks will be removed and disposed of.
- c) SPRWS may make some exceptions in cases where, for the convenience of SPRWS staff, contractor locks will be allowed to be "daisy-chained" onto a SPRWS facility. These exceptions will be on a case by case basis, and the decision to allow this will be made by SPRWS security officer.
- d) For sites that are undergoing construction, SPRWS will install construction locks and give contractors construction keys.

3.02 Issuance of Keys

- a) SPRWS staff that require access, as determined by the appropriate SPRWS division manager, will be issued keys. Such keys will be reduced to the lowest possible number.
 - 1. SPRWS staff are responsible for the safe keeping of keys issued to them.
 - 2. Repeated lost keys will be considered negligence and may result in corrective action and/or discipline by SPRWS management.
- b) Key audits will be conducted at least once each calendar year.
 - 1. Each SPRWS staff member, and each Authorized Agent, to whom SPRWS keys were issued will be required to sign a key Audit Statement acknowledging their continued possession of the key.
 - 2. Both Public and Private Agencies are responsible for the return of all keys and/or contractor keys issued to their agents who leave their employ or are no longer required by the Authorized Agency to access SPRWS facilities. Lost keys must be reported immediately to SPRWS by contacting the Engine Room at 651-266-1660.
 - 3. Repeated losses may result in deposit requirements, as may be determined necessary by SPRWS staff.

4.0 SPRWS CONTACTS

Normal and emergency access after normal business hours:
PE II 651-266-1660.

CONTRACTOR PROCEDURES FOR ENTERING SPRWS WATER TOWER FACILITIES

Routine Accesses:

- 1) Notify SPRWS Pumping Engineer at 651-266-1660 of desired access at least 24 hours prior to accessing site. Pumping Engineer will verify that company has agreement to be on site, and if so will arrange for crew to meet contractor at designated time and place. Contractor must provide names of all employees that will access the site.
- 2) At time of arranged access, provide IDs (in the form of valid driver's licenses) for SPRWS field crew. If IDs match the names given to the Pumping Engineer, crew will provide access. If not, no access will be provided.
- 3) SPRWS field crew may accompany contractor while they are on site. If the crew does not accompany contractor, contractor must call the Pumping Engineer when they leave the site.

Emergency Accesses:

- 1) Notify SPRWS Engine Room at 651-266-1660 of need to access site.
- 2) Engine Room Pumping Engineer will verify that contractor has an agreement to be on a particular site.
- 3) If contractor has agreement to be on site, and a reasonable explanation of the emergency is given, Pumping Engineer will arrange for a crew to meet contractor at the site.
- 4) Contractor will need to produce IDs and work orders.
- 5) If OK, crew will allow for access.
- 6) Repeated emergencies will be cause for SPRWS to bill the contractor or deny access.
- 7) Contractor will call Engine Room when leaving site.

- End -

Exhibit "F"
Memorandum of Lease Recording

DRAFTED BY
AND RETURN TO:

(space above this line for Recorder's use only)

MEMORANDUM OF LEASE

THIS MEMORANDUM OF LEASE is entered into as of this _____ day of _____, 2017, by and between **BOARD OF WATER COMMISSIONERS OF THE CITY OF SAINT PAUL**, a municipal corporation under the laws of the State of Minnesota ("Lessor"), and **SPRINT SPECTRUM L.P.**, a limited partnership organized and existing under the laws of Delaware, ("Lessee").

1. LEASE OF PREMISES. For the purpose of installing, operating, and maintaining a communication facility and other improvements, Lessor hereby leases to Lessee, and Lessee hereby leases from Lessor, certain premises located at 2095 Clear Ave E, City of Saint Paul, County of Ramsey, State of Minnesota, and more particularly described in Section 4 of this Memorandum, and on the terms and conditions more particularly set forth in, that certain Site Lease Agreement dated April 01, 2017 (the "Lease") by and between Lessor and Lessee, which terms and conditions are hereby incorporated by reference.
2. The initial term of the Lease shall commence on April 01, 2017, and terminate on March 31, 2022. Lessee shall have the right to extend the Lease for three (3) additional five (5) year terms.
3. The Lease provides in part the grant of a non-exclusive easement for unrestricted rights of access and to electric and telephone facilities.

EXHIBIT "F"

4. The subject property affected by the filing and recording of this Memorandum of Lease is described below:

That part of the Southeast Quarter (SE ¼), Section twenty-three (23), Township twenty-nine (29), Range twenty-two (22), commencing at a point 678.71 feet East of the Northwest corner of Lot 12, Katherine's Addition, according to the recorded plats thereof on file and of record in the Office of the Registrar of Titles, in and for Ramsey County, Minnesota; thence South 268.97 feet to a point 711.69 feet Easterly from the West line of the Northwest Quarter (NW ¼) of the Southeast Quarter (SE ¼) of Section twenty-three (23), Township twenty-nine (29), Range twenty-two (22) Ramsey County, Minnesota; thence Easterly 162 feet; thence Northerly to the South line of Cottage Avenue. All in Ramsey County, Minnesota

(Signature and Acknowledgement Pages Follow)

Lessor:

Approved:

By _____
Stephen P. Schneider, General Manager
Saint Paul Regional Water Services

Approved as to form:

By _____
Assistant City Attorney

**BOARD OF WATER COMMISSIONERS
OF THE CITY OF SAINT PAUL**
EIN 41-6005521

By _____
Matt Anfang, President

By _____
Mollie Gagnelius, Secretary

Date _____

CITY OF SAINT PAUL

By _____
Kristin Beckmann, Deputy Mayor

By _____
Shari Moore, City Clerk

By _____
Todd Hurley, Director
Office of Financial Services

Date _____

For Lessee:

SPRINT SPECTRUM L.P.

By: _____

Print name: _____

Title: _____

Date: _____

BOARD OF WATER COMMISSIONERS OF THE CITY OF SAINT PAUL

EXHIBIT "F"

CITY OF SAINT PAUL

STATE OF MINNESOTA)
) ss.
COUNTY OF RAMSEY)

The foregoing instrument was acknowledged before me this ____ day of _____, 2017,
by Kristin Beckmann, Deputy Mayor of the City of Saint Paul, a Minnesota municipal corporation, on
behalf of said corporation.

Witness my hand and official seal.

Notary Public

STATE OF MINNESOTA)
) ss.
COUNTY OF RAMSEY)

The foregoing instrument was acknowledged before me this ____ day of _____, 2017,
by Shari Moore, City Clerk of the City of Saint Paul, a Minnesota municipal corporation, on behalf of
said corporation.

Witness my hand and official seal.

Notary Public

STATE OF MINNESOTA)
) ss.
COUNTY OF RAMSEY)

The foregoing instrument was acknowledged before me this ____ day of _____, 2017,
by Todd Hurley, Finance Director of the City of Saint Paul, a Minnesota municipal corporation, on behalf
of said corporation.

Witness my hand and official seal.

Notary Public

EXHIBIT "F"

LESSEE

STATE OF _____)
) ss.
COUNTY OF _____)

The foregoing instrument was acknowledged before me this ____ day of _____, 2017,
by Dan Davis, Area Site Development Manager, Sprint Spectrum Realty Company, LLC organized and
existing under the laws of Delaware, on behalf of said corporation.

Witness my hand and official seal.

Notary Public