



DEVELOPMENT SERVICES DEPARTMENT
ENVIRONMENTAL COORDINATOR
450 110th Avenue NE, P.O. BOX 90012
BELLEVUE, WA 98009-9012

DETERMINATION OF NON-SIGNIFICANCE

PROPONENT: ClearWire

LOCATION OF PROPOSAL: 150th Pl. SE, approximately 100 feet south of SE 46th Way

DESCRIPTION OF PROPOSAL: Replace a 39-foot PSE utility pole located in the right-of-way with a 54-foot wood-lam pole with microwave and flat panel antennae at the top, a remote radio unit near the base, an equipment cabinet at grade and landscaping at the base of the facility.

FILE NUMBER: 10-106576-LA

The Environmental Coordinator of the City of Bellevue has determined that this proposal does not have a probable significant adverse impact upon the environment. An Environmental Impact Statement (EIS) is not required under RCW 43.21C.030(2)(C). This decision was made after the Bellevue Environmental Coordinator reviewed the completed environmental checklist and information filed with the Land Use Division of the Department of Planning & Community Development. This information is available to the public on request.

- There is no comment period for this DNS. There is a 14-day appeal period. Only persons who submitted written comments before the DNS was issued may appeal the decision. A written appeal must be filed in the City Clerk's office by 5:00 p.m. on _____.
- This DNS is issued after using the optional DNS process in WAC 197-11-355. There is no further comment period on the DNS. There is a 14-day appeal period. Only persons who submitted written comments before the DNS was issued may appeal the decision. A written appeal must be filed in the City Clerk's Office by 5 p.m. on **November 18, 2010**.
- This DNS is issued under WAC 197-11-340(2) and is subject to a 14-day comment period from the date below. Comments must be submitted by 5 p.m. on _____. This DNS is also subject to appeal. A written appeal must be filed in the City Clerk's Office by 5 p.m. on _____.

This DNS may be withdrawn at any time if the proposal is modified so that it is likely to have significant adverse environmental impacts; if there is significant new information indicating, or on, a proposals probable significant adverse environmental impacts (unless a non-exempt license has been issued if the proposal is a private project); or if the DNS was procured by misrepresentation or lack of material disclosure.

Carol V. Holland
Environmental Coordinator

November 4, 2010
Date

OTHERS TO RECEIVE THIS DOCUMENT:

State Department of Fish and Wildlife
State Department of Ecology, Shoreline Planner N.W. Region
Army Corps of Engineers
Attorney General
Muckleshoot Indian Tribe



**City of Bellevue
Development Services Department
Land Use Division Staff Report**

Proposal Name: ClearWire, WA-SEA0356-C
Proposal Address: 150th Avenue SE ROW, south of SE 46th Way
Proposal Description: Replace a 39-foot PSE utility pole located in the right-of-way with a 54-foot wood-lam pole with microwave and flat panel antennae at the top, a remote radio unit near the base, an equipment cabinet at grade and landscaping at the base of the facility.
File Number: 10-106576-LA, Administrative Conditional Use
Planner: Ken Thiem, Senior Planner
Applicant: ClearWire, Ron Meckler
Decisions Included: Administrative Conditional Use Approval (Process II, Land Use Code 20.30E)
State Environmental Policy Act Threshold Determination: **Determination of Non-Significance (DNS)**

Carol V. Helland

Carol V. Helland, Environmental Coordinator
Development Services Department

Director's Decision : **Approval with Conditions**
Michael A. Brennan, Director
Development Services Department

By: *Carol V. Helland*

Carol V. Helland, Land Use Director

Notice of Application: May 20, 2010
14-day Comment Period: June 3, 2010
Public Meeting: May 27, 2010
Decision Publication Date: November 4, 2010
Appeal Deadline: November 18, 2010

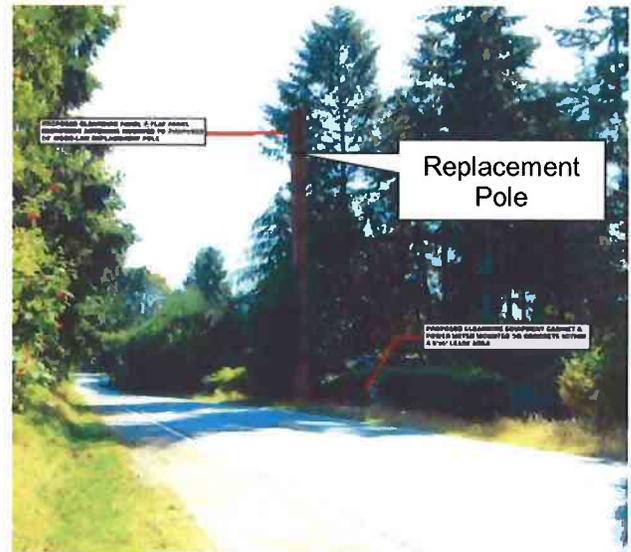
For information on how to appeal the project, visit the Permit Center at City Hall or call (425) 452-6864. Appeal of the decision must be received in the City Clerk's office by 5 p.m. on the date noted for the appeal deadline.

I. Request/Proposal Description



The proposal is to replace an existing 39-foot tall PSE utility pole/ street light with a 54-foot tall laminated wood pole. The site is within the 150th Avenue SE right-of-way, approximately 100 feet south of SE 46th Way. The replacement pole will incorporate all coax and power cables internally and a new street light at approximately the same height as the light on the existing pole. Three broad cast (panel) antennae

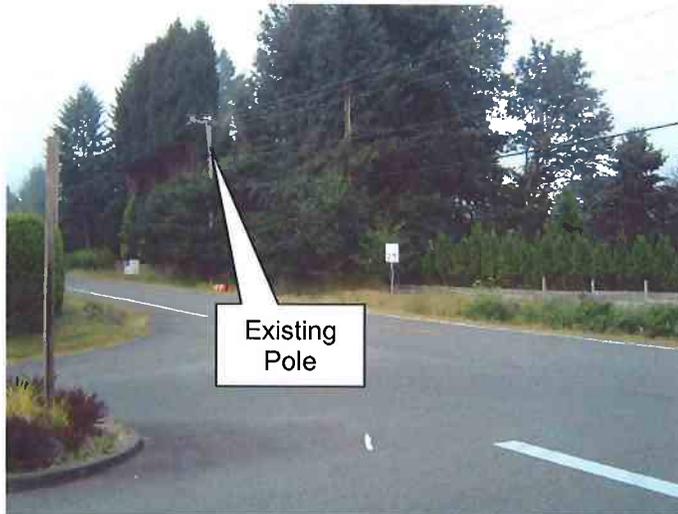
will be flush-mounted and painted brown to match the pole. Three flat microwave antennas will be placed above the panel antennae. The proposed WCF installation includes a 30-inch tall equipment cabinet located ten feet from the pole. The area around the pole and cabinet is to be screened with indigenous trees, shrubs and groundcover. The proposal would provide the Whispering Heights neighborhood with wireless broadband internet service from ClearWire. The existing coverage in this neighborhood is currently not available or limited to exteriors.



II. Site Description and Zoning



The proposal site is located within the City of Bellevue's R-5, single family land use district. The single family homes west of 150th Avenue SE are located in unincorporated King County and zoned R-6. The lower section of the replacement pole and equipment cabinet will be screened with landscaping. An Administrative Conditional Use Permit with SEPA review is required because the replacement pole is taller than the existing pole and site is located in a residential zone.



The view at left is of the existing power pole as seen from SE 46th Way and looking toward the southwest.

III. Environmental Impacts of the Proposal

The environmental review indicates no probability of significant adverse environmental impacts occurring as a result of the proposal. The Environmental Checklist adequately discloses expected environmental impacts associated with the project. The Checklist can be found in the project file in the Record's Office of Bellevue City Hall. The City codes and requirements, including the Clear and Grade Code, Utility Code, Land Use Code, Noise Ordinance, Building Code and other construction codes adequately mitigate expected environmental impacts. Therefore, issuance of a Determination of Non-Significance (DNS) is the appropriate threshold determination under the State Environmental Policy Act (SEPA) requirements.

IV. Public Comments

On May 5, 2010, notice of the application was mailed to the surrounding property owners, published in the *Weekly Permit Bulletin* and a public information sign was installed on the site. A public meeting on the proposal was held at Bellevue City Hall on May 27, 2010, conference room 1E-110 at 6:00 PM. No citizens attended the meeting. One citizen submitted comments on the application, summarized below.

Comment: As a resident of Horizon Crest neighborhood, I would like to see the application revised to soften the appearance of the proposed facility. It's unfair that neighborhood residents pay for underground electrical utilities while the area is peppered with unattractive cell towers and related "dog houses."

Response: The City does not have the authority to require undergrounding of wireless facilities. However, if the distribution lines are undergrounded in the future this facility would need to be abandoned at the provider's expense. See Section VII of this report for a related condition of approval. The City required the applicant to revise the proposal to include landscaping with native plant material around the base of the facility. The landscaping includes lower-growing material,

such as Vine Maple, which over time will visually soften this facility into the Douglas Fir to the south and west of the replacement pole.

V. Applicable Decision Criteria / Findings and Conclusions

Compliance with the decision criteria of Land Use Code Section 20.30E.140 (Administrative Conditional Use Permit) is discussed below.

A. The administrative conditional use is consistent with the Comprehensive Plan.

The proposed facility is consistent with the City of Bellevue's Comprehensive Plan policies for wireless communications facilities. The policies listed below are especially relevant to the City's decision on this application:

Policy UT-40: Require reasonable screening and/or architectural integration of all new above-ground facilities, and

Policy UT-41: Protect Bellevue's aesthetic quality and infrastructure investment from unnecessary degradation caused by the construction of telecommunication infrastructure.

Finding: The proposal includes landscaping at the base of the pole and around the equipment cabinet. The landscaping consists of indigenous trees, shrubs and groundcover. Upon installation the landscaping will visually soften the base of the pole and equipment cabinet. As it grows it will complement the existing back drop of evergreen trees to the south and west of the pole. See Criterion B, below for more discussion on this point.

Policy UT-43: Encourage consolidation on existing facilities where reasonably feasible and where such consolidation leads to fewer impacts than would construction of separate facilities.

Finding: The proposal includes replacement of an existing utility pole with a street light fixture. The electrical facilities and light fixture will be relocated on the new pole.

Policy UT-53: Requires all utility equipment support facilities to be aesthetically compatible with the area in which they are placed by using landscape screening and/or architecturally compatible details and integration.

The entire installation is to be screened with native trees, shrubs and ground-cover to minimize visual impacts to nearby properties. All of the proposed plant materials are drought tolerant once established, which generally occurs in the first year after planting and the applicant is required to maintain the landscape during this period. The landscaping will visually soften the impacts of the facility, and help it blend with the backdrop of significant evergreen trees immediately south of it.

Policy UT-60: Minimize visual impact of personal wireless communication facilities by encouraging deployment in land use districts in the following preferred and descending order when possible, considering the provider's coverage needs: 1) Non-residential land use districts, except Transition Areas; 2) Transition Areas; 3) Multifamily (R-20 and R-30) districts; and 4) and Park site and Residential districts.

Finding: The entire coverage area as shown in the submitted search ring for the proposed project consists of residential properties that are important to ClearWire's coverage objectives. Thus, the location needs to be within this single family zoning district and no alternative non-residential locations would have meet ClearWire's functional needs.

Policy UT-61: Minimize visual impact of personal wireless communication facilities by encouraging system designs in the following preferred and descending order: 1) attached to public facility structures, building mounted, or integrated with utility poles, light standards, and signal supports; 2) co-located on utility poles, light standards, signal supports; and 3) free standing towers.

This proposal is to co-locate multiple functions on a replacement PSE utility pole in order to deliver power transmission, street lighting and wireless communication from the same location.

B. The design is compatible with and responds to the existing or intended character, appearance, quality of development and physical characteristics of the subject property and immediate vicinity;

Finding: To ensure that the facility is compatible with property in the immediate vicinity, the proposal incorporates the following measures:

- 1) The proposed replacement pole is wood laminate designed to blend in against the background of tall fir trees and to harmonize with the existing wooden power poles along 150th Avenue NE.
- 2) The pole height will be increased from 39 feet to 54 feet and is the minimum necessary for the effective functioning of the system. The 15-foot height increase is allowed with an administrative conditional use permit.
- 3) The three panel antennas, three flat microwave antennas, and three RRU head units will be painted dark brown to match the replacement pole and will be mounted within 6 inches of the face of the pole. The proposed antennae designs, attachment methods and finish color will create a low-profile in appearance in this context.
- 4) The equipment cabinet, located approximately ten feet north of the replacement pole, will be painted dark green and screened with new landscaping that is native to the Pacific Northwest. The proposed cabinet and associated equipment will not exceed 30" in height.
- 5) Coaxial cables will be routed entirely within the pole.

- 6) Any areas disturbed and/or damaged during construction or future maintenance of either the WCF or its associated equipment will be fully restored and replanted with the specified plant material.
Refer to Conditions of Approval regarding site disturbance and restoration in Section VII of this report.

C. The administrative conditional use will be served by adequate public facilities including streets, fire protection, and utilities.

Finding: The replacement pole and equipment cabinet will be located within the right of way, in a location that is already served by adequate public facilities, including streets, fire protection, and utilities.

The Fire Department has reviewed this application and determined that there are no substantial concerns. Refer to the Conditions of Approval regarding existing City of Bellevue radio systems and interference in Section VII of this Staff Report.

D. The administrative conditional use will not be materially detrimental to uses or property in the immediate vicinity of the subject property; and

Finding: The wood-lam replacement pole, dark brown antenna and dish colors, flush-mounting and the placement of all coax and power cables within a shroud all work together to ensure that the replacement pole will not be materially detrimental to uses or property in the neighborhood. In addition, the equipment cabinet will be painted dark green to blend with the landscaping at the base of this facility. Finally, the facility is required to be removed when it ceases to be operational or falls into disrepair and is not maintained, or if the utility support structure is removed or placed underground. For more information, refer to the Conditions of Approval regarding the removal of abandoned sites and removal upon undergrounding.

E. The administrative conditional use complies with the applicable requirements for a wireless communication facility as provided by the Land Use Code 20.20.195, including location and design preferences.

Finding: As conditioned, the proposed wireless facility complies with the location and design preferences as detailed in LUC 20.20.195. Further, the proposal meets all specific Land Use Code requirements applicable to non-exempt wireless communications facilities per LUC 20.20.195.D, as summarized below.

1. **Height:** The pole height will be increased by a maximum of 15 feet, from the existing 39 feet to 54 feet. The proposed height is necessary for ClearWire to provide coverage to the surrounding community without interference from topography and trees. Although the proposed pole height exceeds the maximum height allowed for exempt WCF in a residential land use district, it is the minimum necessary for effective functioning of the provider's network, as certified by the provider's licensed radio frequency (RF) engineer. A copy of the letter is included in the project file, available from the City Records Office, 425-452-7914.

2. WCF Location and Design

a. Preferred Location (LUC 20.20.195D.2.a):

The proposal site is shown at right with the yellow push pin. The pink push pins represent alternative site locations that were considered by the applicant but rejected because these locations failed to meet the coverage objective. The search ring, represented by the faint red line, is the area in which the proposed facility must be located in order to meet the applicant's coverage objective. The proposal site, alternative sites and the entire search ring are all located in a single-family residential zone, the least preferred location per the siting criteria, LUC 20.20.195.D.2.a. However, the option of locating this facility in a commercial zone does not exist given the coverage objective for this facility.



b. Preferred Facility Design (LUC 20.20.195D.2.b):

The requirements for wireless communication facilities encourage co-locating facilities versus building new single-purpose monopoles. ClearWire's proposal is consistent with this direction, since they have opted to co-locate on a replacement PSE utility pole. The proposal represents the second most preferred system design alternative (co-located on utility poles, light standards, and signal supports) under LUC 20.20.195D.2.b.

In addition, the applicant's radio frequency engineer has certified that the mechanical equipment is the minimum necessary to support operation of the facility. A copy of the project Engineer's certification letter is included in the project file, available from the City Records Office, 425-452-7914.

c. Minimizing Adverse Impacts LUC 20.20.195D.2.c:

Application of the location and design hierarchies as described above, and as conditioned in Section VII of this report, result in a proposal that minimizes the adverse impacts of the WCF when

considering the search ring as a whole. In addition, the applicant has provided a letter from the RF engineer which states that the facility complies with RF Emission Guidelines set forth by the FCC. A copy of the certification letter is available from the City Records Office, 425-452-7914.

3. Dispersal Limits: The applicant has verified that there are no other WCF's within 520 feet of this proposal site in the public right of way. Refer to applicant's Criteria Compliance Narrative, received March 10, 2010, available from the City Record's Office, 425-452-7914.

4. Development Standards: The proposal includes the following development standards to ensure that the WCF minimizes the adverse impacts, especially visual and aesthetic impacts, on the property where the facility is located and in the vicinity of the facility.

a. Colors/Screening Techniques:

The equipment cabinet will be screened with new landscaping and painted dark green to help it blend into the landscape. The coaxial cables will be contained within a shroud attached to the pole, and the mechanical equipment will be connected to the pole via underground coaxial conduits. For related information, refer to the Conditions of Approval for antennae colors and maintenance of the project landscaping.

b. Design and configurations to minimize visual intrusion of the facility:

The panel and microwave antennae on the new wood laminate (wood-lam) replacement pole will have slender, flat profiles and be flush-mounted below the top of the pole. The antennae will be painted dark brown to match the new pole and reduce the overall visual impact. The equipment cabinet will be painted a dark green color to blend with the surrounding vegetation and harmonize with the residential character of the neighborhood. Refer to the conditions of approval for antennae flush mounting requirements.

c. Construction and site restoration techniques:

Minor clearing is necessary to install the underground coaxial conduits, connect to utilities and install the base of the equipment cabinet. All work related to this decision must comply with the city's requirements for construction noise, Bellevue City Code (BCC), Chapter 9.18. All disturbed areas must be restored. The applicant is required to provide a Landscape Maintenance Assurance device to ensure that the completed landscaping conforms to the approved plan. In addition, a Landscape Maintenance Device is required to ensure that the landscaping is properly maintained for at least one year to allow the plants to get established. The facility may not be activated until all work shown on the plans and specifications is completed.

The applicant is required to obtain a right of way permit prior to initiating any site work covered under this decision in order to minimize impacts to traffic and pedestrians during construction.

d. WCF Equipment:

WCF equipment in residential districts is required to be screened to minimize the visual impact of the equipment on adjacent land uses. The proposal includes a cabinet mounted at grade that will be painted dark green and screened with new landscaping. The height of the cabinet will not exceed 30-inches.

e. Co-location:

Given the terrain and tree cover in this neighborhood, and the 54-foot pole height, it is unlikely that other carriers could co-locate on the proposed pole. However, specific details or analysis with regards to a future co-location have not been included as part of this proposal.

5. Radio Frequency Emissions: The Engineering Certification Letter submitted by ClearWire's radio frequency engineer states that the facility will comply with the radio frequency emission standards adopted by the Federal Communications Commission (FCC). A copy of the letter is available from the City Records Office, 425-452-7914.

6. Setback Requirements for Freestanding Wireless Communication Facilities: Setbacks requirements do not apply because the proposed facility is a freestanding wireless communication facility due to its placement/co-location on a PSE utility pole.

7. Independent Technical Review: No such review was deemed necessary for this application.

8. Removal of Abandoned Antennas and Towers:
Refer to Condition of Approval regarding abandoned sites in Section VII of this report.

9. Removal Upon Under-grounding:
Refer to Condition of Approval regarding removal of the facility upon under-grounding in Section VII of this report.

VI. Decision

After conducting the various administrative reviews associated with this proposal, including applicable land use consistency, SEPA, and City Code and Standard compliance reviews, the Director of the Development Services Department does hereby **APPROVE** the proposal subject to the following **CONDITIONS**:

VII. CONDITIONS OF APPROVAL

The following conditions are imposed under the referenced authority: The applicant shall comply with all applicable Bellevue City Codes, Standards, and Ordinances including but not limited to:

Applicable Codes, Standards & Ordinances

Clearing & Grading Code – BCC 23.76
Construction Codes – BCC Title 23
Fire Code – BCC 23.11
Land Use Code – BCC Title 20
Noise Control – BCC 9.18
Sign Code – BCC Title 22
Right-of-Way Use Code 14.30
Utility Code – BCC Title 24

Contact Person

Janney Gwo, (425) 452-6190
Building Division, (425) 452-6864
Adrian Jones, (425) 452-6032
Ken Thiem, (425) 452-2728
Ken Thiem, (425) 452-2728
Ken Thiem, (425) 452-2728
Dottie Schmidt, (425) 452-2888
Mark Frazier, (425) 452-2022

1. Site Disturbance and Restoration

In addition to restoring the site area delineated on the Landscape Plan, the applicant shall fully restore with appropriate and approved groundcover, to the satisfaction of the City of Bellevue, any additional areas disturbed and or damaged during construction or future maintenance of either the WCF or its associated equipment.

Reviewer: Ken Thiem
Authority: LUC 20.20.195.D.4.c

2. Noise & Construction Hours

The proposal will be subject to normal construction hours of 7 a.m. to 6 p.m., Monday through Friday and 9:00 a.m. to 6:00 p.m. on Saturdays, except for Federal holidays and as further defined by the Bellevue City Code. Proximity to existing residential uses will be given special consideration. The best available noise abatement technology is required to be used during construction in order to mitigate construction noise impacts to the surrounding neighborhood.

Reviewer: Ken Thiem
Authority: BCC 9.18.020.C & 9.18.040

3. Completion of Work/Facility Activation

The facility shall not be activated until all work is complete, according to the project plans, specifications and this decision.

Reviewer: Ken Thiem
Authority: LUC 20.40.425

4. Removal of Abandoned Sites

The facility owner shall provide the Director with copies of any notice of intent to cease operations provided to the Federal Communications Commission (FCC). All WCFs and the associated equipment shall be removed by the facility owner within 90 days of the date it ceases to be operational, or if the facility falls into disrepair and is not maintained. Disrepair includes structural features, paint, or general lack of maintenance, which could result in safety or visual impacts.

Reviewer: Ken Thiem
Authority: LUC 20.20.195.D.8

5. Removal Upon Undergrounding

The facility shall be removed at no expense to the City if co-located on an electrical system facility or utility support structure that is subsequently undergrounded.

Reviewer: Ken Thiem
Authority: LUC 20.20.195.D.9

6. Existing Radio System & Interference

If this telecommunications system causes interference problems with any of the existing radio systems for the City of Bellevue, this system will be required to immediately shut down until the interference can be removed or corrected.

Reviewer: Adrian Jones, Fire Department
Authority: FCC 90.672

7. Antenna, RRU's and Mechanical Equipment Color

All antennas (panel and microwave) and RRU's shall be painted dark brown to match the support structure (pole). All mechanical equipment, including the cabinets and meters, shall be painted dark green.

Reviewer: Ken Thiem
Authority: LUC 20.20.195.D.4.a

8. Antennae Mounting

The antennae shall be attached to the replacement pole such that no portion of the antenna extends above the height of the new support structure (replacement pole) AND the inside face of the antennae shall be flush-mounted no greater than six inches from the face of the replacement pole.

Reviewer: Ken Thiem
Authority: LUC 20.20.195.B.1.a.v

9. Exterior Cabling from Pole to Antennae

In order to reduce negative visual impacts, all cables connecting to each antenna shall be pulled tightly so as to not be visible at street level.

Reviewer: Ken Thiem
Authority: LUC 20.20.195.B.1.a.iii

10. Landscape Design Standards

The landscape installation shall comply with the City of Bellevue Site Landscaping Design Standards. For new landscaped areas the soils shall be amended with three inches of top soil blended to a depth of 6 inches with the existing soil. Second, the landscaped area shall be covered with a least two (2) inches of organic mulch to minimize evaporation. Prior to the installation of any landscape materials, the applicant shall contact the City of Bellevue Land Use reviewer to set up an on-site meeting to inspect the amended soils and the proposed placement of the plant materials.

Reviewer: Ken Thiem
Authority: LUC 20.20.520.F.8 and K.1 & 2, and 20.40.490

11. Landscape Maintenance Assurance Device

To ensure that the project landscaping gets established, the applicant shall provide a Landscape Maintenance Assurance Device (bond or assignment of savings) for 20% of the cost of all labor and materials for the landscape install-

ation. After one year the device will be released to the applicant provided that all of the plants are deemed to be alive and well at the time of City inspection.

Reviewer: Ken Thiem

Authority: LUC 20.20.520.K.1 & 2, and 20.40.490

12. Right-of-Way Use Permit

The Right of Way Use Permit will be issued only after receipt and approval of all associated Right of Way use permits necessary for the construction and operation of the site. This includes all necessary permits for power, Telco, and other basic site service needs. All permits will be released simultaneously

Verison of Qwest Permit will be required for Telco connect at Point of Demarcation (if applicable). Clearwire will be responsible for joining "One Call" for locating this Telco line in the future.

Traffic control plans must be submitted with the Right of Way Use permit materials for work at this site. Plans must show pedestrian system impacts and mitigations.

The Site Right of Way Lease (beginning at \$600.00 per month) will start upon issuance of the Right of Way Use permit regardless of construction start time. The Lease terms are covered under an Addendum to the Right of Way Use Agreement to be executed prior to issuance of the Right of Way permits for this site.

Reviewer: Dottie Schmidt, Right-of-Way

Authority: BCC 14.30.070 and 14.30.080

Attachments

- A Photosimulations
- B Project Plans
- C SEPA Checklist

ATTACHMENT A
Project Photosimulations

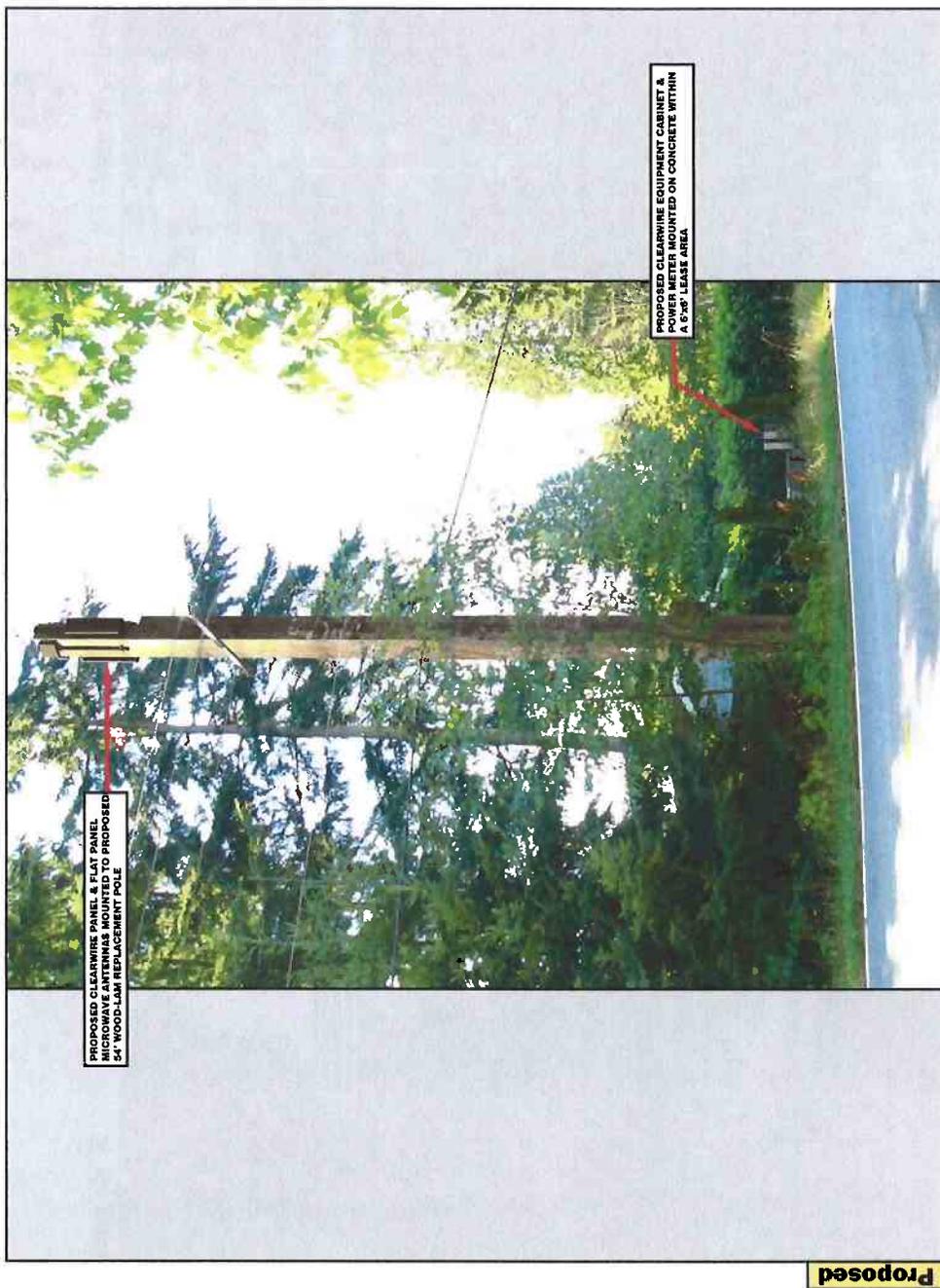
WA-SEA0356-B

EASTGATE
SE 150TH & SE 46TH WAY
BELLEVUE, WA 98006

clearwire®

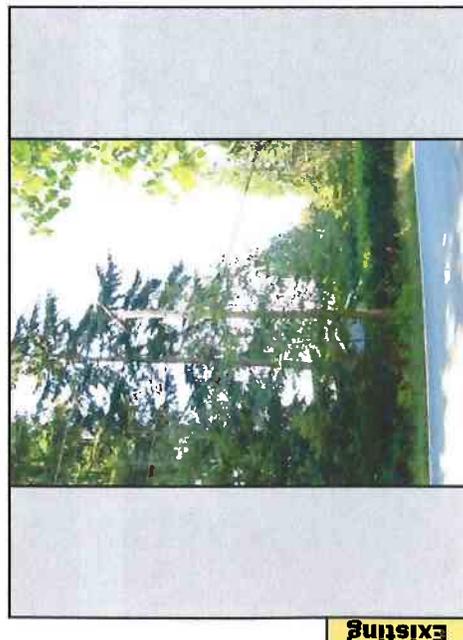
May 07, 2010

View #: 1



PROPOSED CLEARWIRE PANEL & FLAT PANEL MICROWAVE ANTENNAS MOUNTED TO PROPOSED 54" WOOD-LAM REPLACEMENT POLE

PROPOSED CLEARWIRE EQUIPMENT CABINET & ANTENNAS MOUNTED ON CONCRETE WITHIN A 6'x8' LEASE AREA



This illustration is a representation of the proposed project based on information provided by the client. Actual construction may vary dependent on approved construction plans and therefore PTS (Pacific Telecom Services) is not responsible for any post simulation production design changes.

Clearwire
4400 Carillon Point
Kirkland, WA 98033
Ron Meckler - Phone: (206) 384-2454

Received

AUG 18 2010

Permit Processing

PTS
Pacific Telecom Services, LLC
3189 C Airport Loop Drive, Costa Mesa, CA 92626-3414
Prepared by: SEP
Approved by: RLT

WA-SEA0356-B

EASTGATE
SE 150TH & SE 46TH WAY
BELLEVUE, WA 98006



Location

clearwire®

May 07, 2010

View #: 2



Proposed

PROPOSED CLEARWIRE PANEL & FLAT PANEL
MOUNTED ON 24' WOOD-LAM REPLACEMENT POLE

PROPOSED CLEARWIRE EQUIPMENT CABINET &
POWER METER MOUNTED ON CONCRETE WITHIN
A 6'x6' LEASE AREA



Existing

This illustration is a representation of the proposed project based on information provided by the client. Actual construction may vary dependent on approved construction plans and therefore PTS (Pacific Telecom Services) is not responsible for any post simulation production design changes.

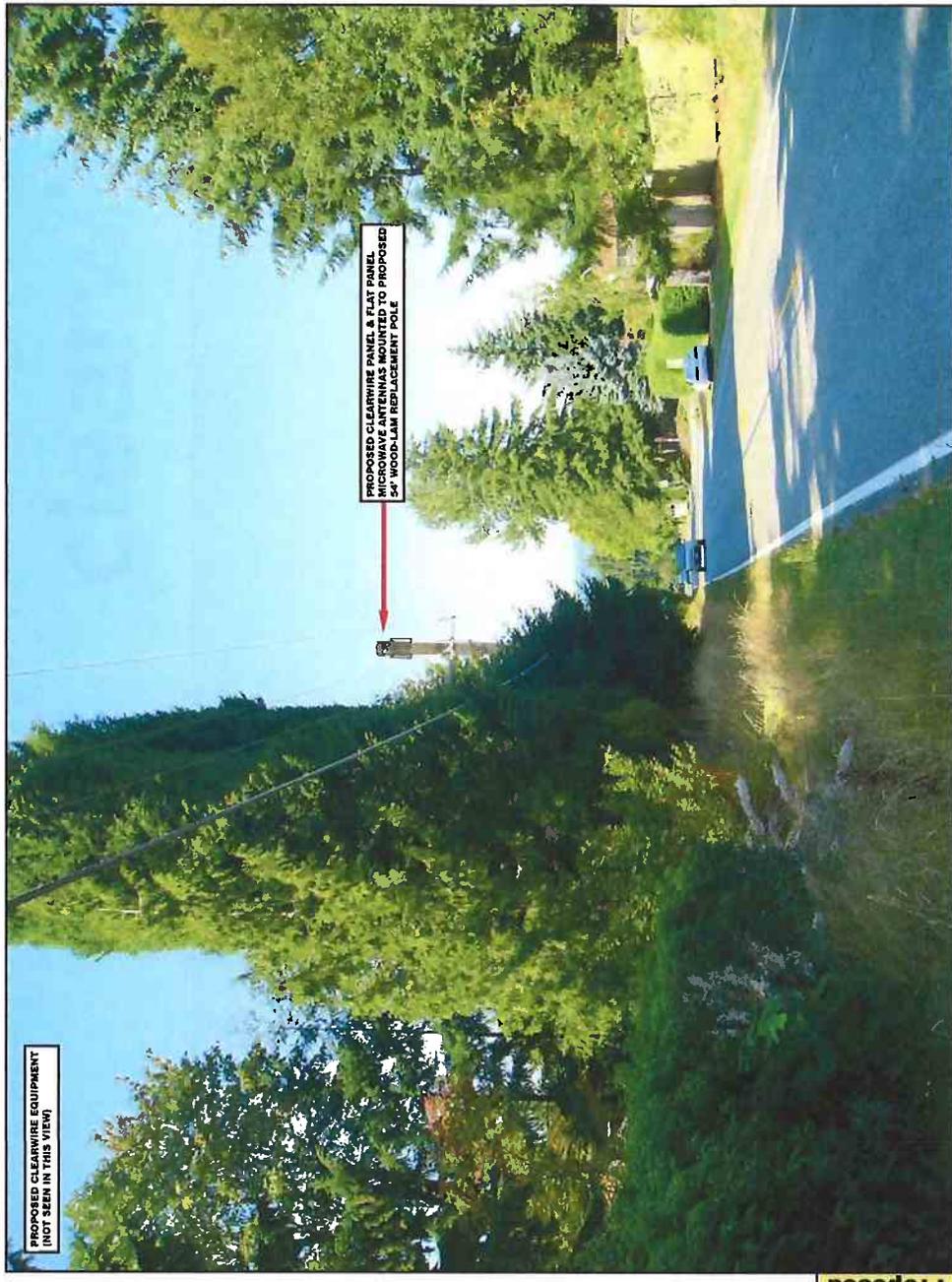
Clearwire
4400 Carillon Point
Kirkland, WA 98033
Ron Meckler - Phone: (206) 364-2454

Prepared by: SEP
Approved by: RLI

PTS
Pacific Telecom Services, LLC
3199 C Airport Loop Drive, Costa Mesa, CA 92626-3414

View #: 3

EASTGATE
SE 150TH & SE 46TH WAY
BELLEVUE, WA 98006



This illustration is a representation of the proposed project based on information provided by the client. Actual construction may vary dependent on approved construction plans and therefore PTS (Pacific Telecom Services) is not responsible for any post simulation production design changes.

Clearwire
4400 Carillon Point
Kirkland, WA 98033
Ron Meckler - Phone: (206) 384-2454

Prepared by: SEP
Approved by: RLT

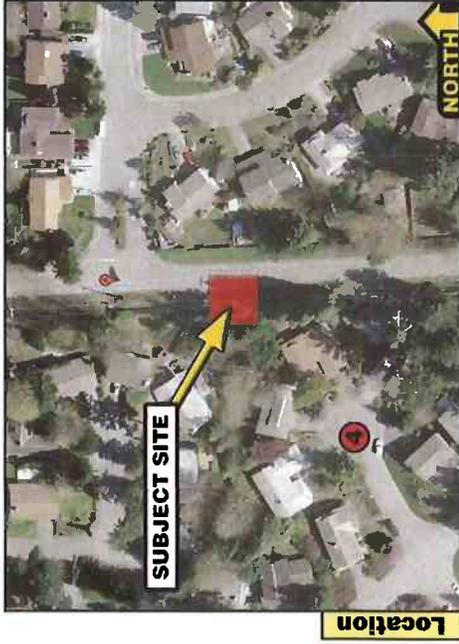


WA-SEA0356-B
 EASTGATE
 SE 150TH & SE 46TH WAY
 BELLEVUE, WA 98006

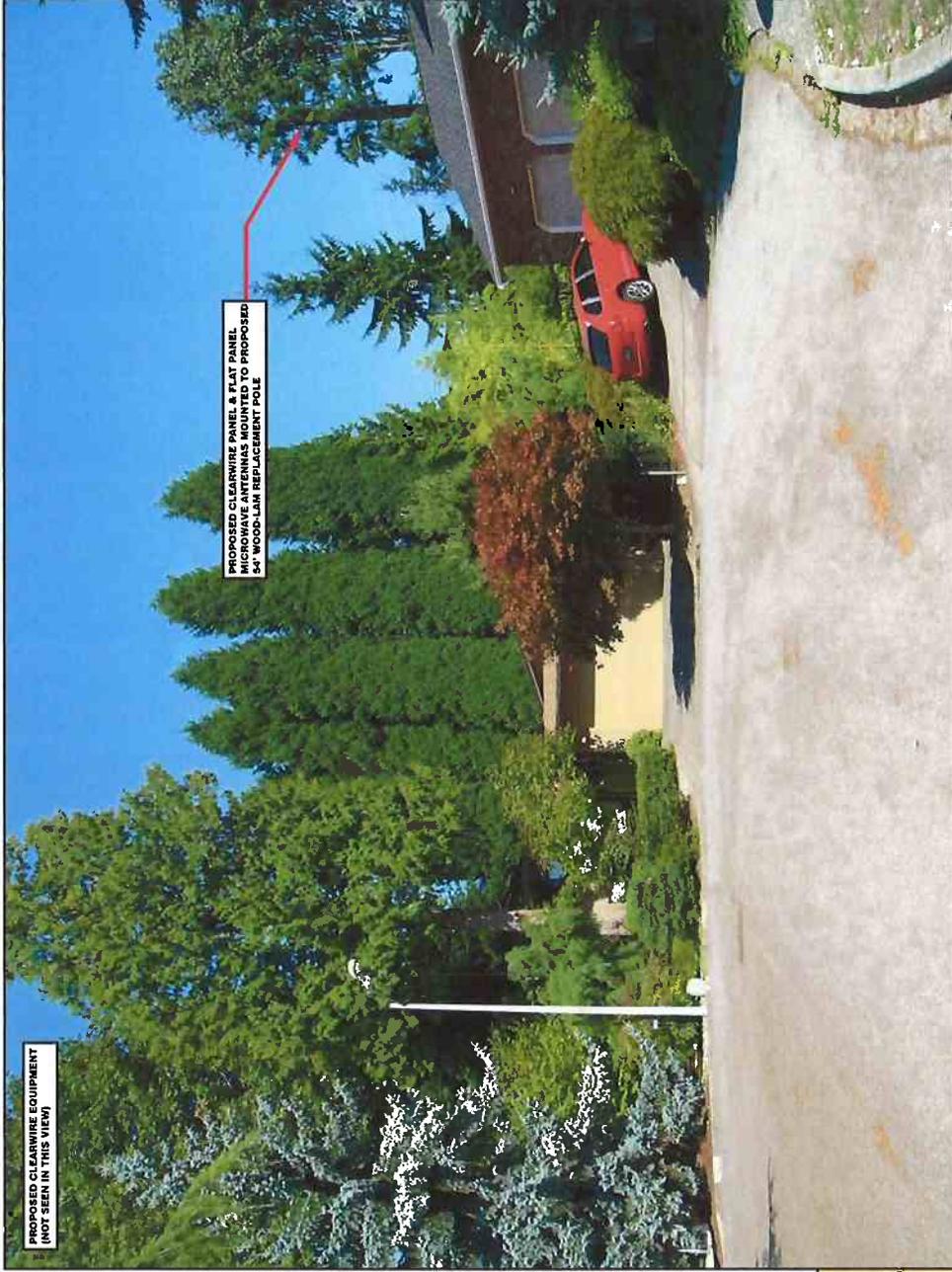
clearwire®

May 07, 2010

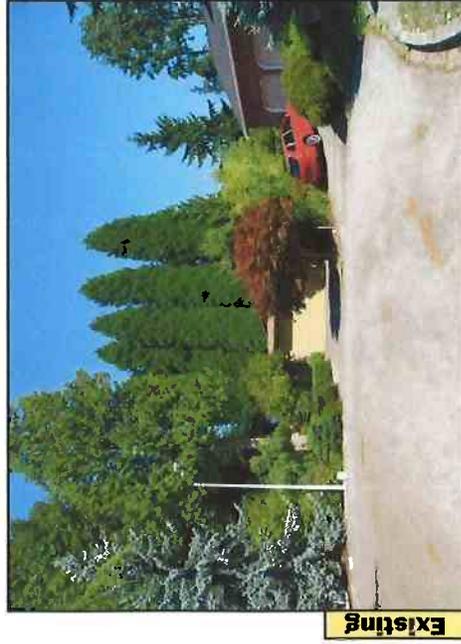
View #: 4



Location



Proposed



Existing

This illustration is a representation of the proposed project based on information provided by the client. Actual construction may vary dependent on approved construction plans and therefore PTS (Pacific Telecom Services) is not responsible for any post-simulation production design changes.

Clearwire
 4400 Carillon Point
 Kirkland, WA 98033
 Ron Meckler - Phone: (206) 384-2454

Prepared by: SEP
 Approved by: RLT

PTS
 Pacific Telecom Services, LLC
 3199 C Airport Loop Drive, Costa Mesa, CA 92626-3414

ATTACHMENT B

Project Plans

clear wire



EASTGATE WA-SEA0356-B

SOUTH OF 150TH AVE AND SE 46TH WAY
BELLEVUE, WA 98006
PSE POLE: #TBD

PROPRIETARY INFORMATION

THE INFORMATION CONTAINED IN THIS SET OF CONSTRUCTION DOCUMENTS IS PROPRIETARY BY NATURE. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO CARRIER SERVICES IS STRICTLY PROHIBITED.

clear wire®

4400 CARILLON POINT
KIRKLAND, WA 98033

PTS

PACIFIC TELECOM SERVICES,
LLC

588 First Avenue S., Suite 650
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Phone: (206) 342-9000 Fax: (206) 903-8513

PROJECT INFORMATION

PROJECT DESCRIPTION:

CLEARWIRE PROPOSES TO CONSTRUCT AN UNSTAFFED TELECOMMUNICATIONS FACILITY CONSISTING OF (3) PANEL ANTENNAS, (3) FLAT PANEL MICROWAVES, AND (3) RRU UNITS MOUNTED ON A PROPOSED 54'-0" AGL WOOD-LAM POLE ALONG WITH A CLEARWIRE SITE SUPPORT CABINET MOUNTED WITHIN A 6'-0" x 6'-0" LEASE AREA.

APPLICANT:

CLEARWIRE
4400 CARILLON POINT
KIRKLAND, WA 98033
CONTACT: EDWARD HILL
PH: (206) 216-7316

PROPERTY OWNER:

PUGET SOUND ENERGY
PO BOX 90868
BELLEVUE, WA 98009
CONTACT: TIM GASSER
PHONE: (425) 456-2776

CODE INFORMATION:

ZONING CLASSIFICATION: RESIDENTIAL
BUILDING CODE: 2009 IBC
CONSTRUCTION TYPE: IIB
OCCUPANCY: S-2
JURISDICTION: CITY OF BELLEVUE
CURRENT USE: UTILITY POLE
PROPOSED USE: TELECOMMUNICATIONS FACILITY

SITE ACQUISITION:

CONTACT: TODD FIEBIG
PH: (206) 354-9271

CONSTRUCTION:

CONTACT: LARRY BELL
PH: (360) 329-6879

PERMITTING:

CONTACT: RON MECKLER
PH: (206) 384-2454

RF ENGINEER:

CONTACT: CESAR TANSENGCO
PH: (214) 649-1734

TELCO COMPANY:

QWEST
PH: (800) 805-8000

POWER COMPANY:

PSE
PH: (888) 225-5773

BH ENGINEER:

CONTACT: CESAR TANSENGCO
PH: (318) 402-6549

SITE LOCATION: (BASED ON NAD 83):

LATITUDE: 47° 33' 45.90" N
LONGITUDE: 122° 08' 25.97" W
TOP OF STRUCTURE AGL: 54.0'
BASE OF STRUCTURE AMSL: 721.7'

PARCEL NUMBER(S):

R.O.W.

AREA OF PARCEL:

N/A

PROJECT AREA:

36 S.F.

GENERAL INFORMATION:

1. PARKING REQUIREMENTS ARE UNCHANGED.
2. TRAFFIC IS UNAFFECTED.
3. SIGNAGE IS PROPOSED.

PROJECT TEAM

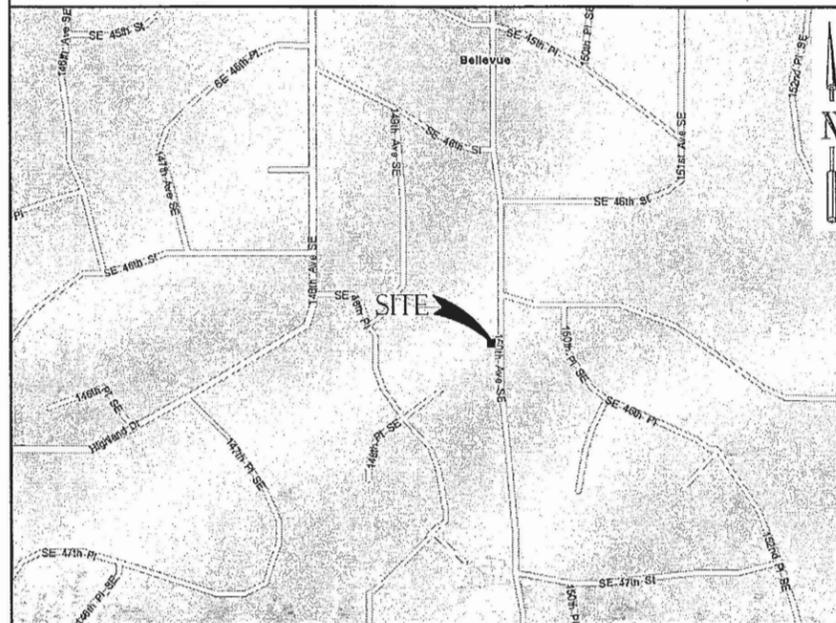
PROJECT ARCHITECT

RICHARD B. HALL, AIA
PACIFIC TELECOM SERVICES, LLC
568 FIRST AVENUE, S., SUITE 650
SEATTLE, WA 98104
CONTACT: PAUL DANNEBERG
PH: (206) 375-3798
EMAIL: PDANNEBERG@PTSWA.COM

PROJECT CONSULTANT

POWDER RIVER
17400 SW UPPER BOONES FERRY RD
SUITE 270
PORTLAND, OR 97224

VICINITY MAP



DRIVING DIRECTIONS

DEPART 4400 CARILLON PT, KIRKLAND, WA 98033 [4400 CARILLON PT, KIRKLAND, WA 98033] ON CARILLON PT (EAST. TURN RIGHT (SOUTH-EAST) ONTO SR-908 [LAKE WASHINGTON BLVD NE]. TURN LEFT (EAST) ONTO NORTHUP WAY/TURN RIGHT (SOUTH) ONTO 108TH AVE NE. BEAR RIGHT (SOUTH) ONTO RAMP WA-520 / REDMOND. MERGE ONTO SR-520 (SOUTH-EAST). TURN OFF ONTO RAMP I-405 / I-90 / EVERETT / RENTON. MERGE ONTO I-405 (SOUTH) AT I-405 EXIT 11. TURN OFF ONTO RAMP I-90 / SPOKANE / SEATTLE / MERCER ISLAND. MERGE ONTO I-90 (EAST). AT I-90 EXIT 11A. TURN OFF ONTO RAMP 150TH AVE. S.E. / 156TH AVE. S.E.. TURN RIGHT (SOUTH) ONTO 150TH AVE SE. CONTINUE (SOUTH) ON 148TH PL SE. TURN LEFT (EAST) ONTO SE 45TH PL. TURN RIGHT (SOUTH) ONTO 150TH AVE SE. ARRIVE AT SITE.

APPROVAL	DATE	SIGNATURE
CLEARWIRE:		
LANDLORD:		
CONST:		
S/A:		
R.F.:		
ZONING:		
A&E:		
B.H.:		

VIEWERS SHALL CLEARLY PLACE INITIALS ADJACENT TO EACH REDLINE NOTE AS DRAWINGS ARE BEING REVIEWED

DRAWING INDEX

SHEET	DESCRIPTION
T-1	TITLE SHEET
G-1	GENERAL NOTES
C-1	SITE SURVEY (BY OTHERS)
A-1	SITE PLAN
A-2	ENLARGED SITE PLAN & ELEVATION
A-3	EQUIPMENT DETAILS
A-4	COAX DETAILS
RF-1	RF INFORMATION AND DETAILS
RF-2	SWEEP TEST
RF-3	ANTENNA SPECIFICATIONS
E-1	GROUNDING PLAN
E-2	GROUNDING DETAILS
E-3	ELECTRICAL DETAILS
L-1	LANDSCAPING PLAN
L-2	LANDSCAPING DETAILS

LEGAL DESCRIPTION

R.O.W.

NOTES

1. (12) RUNS OF 7/8" COAX CABLE & (3) RUNS OF 1/2" COAX TO BE ATTACHED TO INTERIOR OF COAX SHROUD OF WOOD-LAM POLE
2. ALL ANTENNAS AND MOUNTING HARDWARE TO BE PAINTED A NON-REFLECTIVE COLOR TO MATCH PROPOSED WOOD-LAM POLE.
3. EXACT LOCATION OF NEW REPLACEMENT PSE POLE TO BE DETERMINED BY PSE.

ABBREVIATIONS

A/C	AIR CONDITIONING	HORZ	HORIZONTAL	PLYWD	PLYWOOD
AGL	ABOVE FINISH GRADE	HR	HOUR	PROJ	PROJECT
APPROX	APPROXIMATELY	HT	HEIGHT	PROP	PROPERTY
BLDG	BUILDING	HVAC	HEATING	PT	PRESSURE TREATED
BLK	BLOCKING		VENTILATION	REQ	REQUIRED
CLG	CEILING	ID	INSIDE DIAMETER	RM	ROOM
CLR	CLEAR	IN	INCH	RTO	ROUGH OPENING
CONC	CONCRETE	INFO	INFORMATION	SHT	SHEET
CONST	CONSTRUCTION	INSUL	INSULATION	SIM	SIMILAR
CONT	CONTINUOUS	INT	INTERIOR	SPEC	SPECIFICATION
		IBC	INTERNATIONAL BUILDING CODE	SF	SQUARE FOOT
DBL	DOUBLE			SS	STAINLESS STEEL
DIA	DIAMETER			STL	STEEL
DIAG	DIAGONAL	LBS	POUNDS	STRUCT	STRUCTURAL
DN	DOWN			STUD	STUD
DET	DETAIL	MAX	MAXIMUM	SUSP	SUSPENDED
DWG	DRAWING	MECH	MECHANICAL		
EA	EACH	MTL	METAL	THRU	THROUGH
ELEV	ELEVATION	MFR	MANUFACTURE	TNNG	TINNED
ELEC	ELECTRICAL	MGR	MANAGER	TYP	TYPICAL
EQ	EQUAL	MIN	MINIMUM		
EQUIP	EQUIPMENT	MISC	MISCELLANEOUS	UNO	UNLESS NOTED OTHERWISE
EXT	EXTERIOR	NA	NOT APPLICABLE	VERT	VERTICAL
FIN	FINISH	NIC	NOT IN CONTRACT	VIF	VERIFY IN FIELD
FLUOR	FLOUORESCENT	NTS	NOT TO SCALE		
FLR	FLOOR	OC	ON CENTER	W/	WITH
FT	FOOT	OD	OUTSIDE DIAMETER	W/O	WITHOUT
				WP	WATER PROOF
GA	GAUGE				
GALV	GALVANIZED				
GC	GENERAL CONTRACTOR				
GRND	GROUND				
GYP BD	GYP SUM WALL BOARD				

EASTGATE
WA-SEA0356-B
SOUTH OF 150TH AVE AND SE 46TH WAY
BELLEVUE, WA 98006

REVISIONS

NO.	DATE	DESCRIPTION	INITIAL
1	10-12-09	PRELIMINARY CONSTRUCTION DRAWINGS	CBK
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3	12-21-09	REV A FINAL CONSTRUCTION DRAWINGS	PHD
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6	06-06-10	CITY REVISIONS	PHD
7	06-10-10	LANDSCAPE REVISIONS	PHD

NOT FOR CONSTRUCTION UNLESS LABELED AS CONSTRUCTION SET

OCT 22 2009
Permit Processing
SHEET TITLE
TITLE SHEET
SHEET NUMBER
T-1

GENERAL NOTES:

1. ALL CONSTRUCTION AND MATERIALS SHALL COMPLY WITH THE "INTERNATIONAL BUILDING CODE 2009" AND CITY CODE. SHALL MEET OR EXCEED THE STRICTER OF APPLICABLE COUNTY CODES AND REGULATIONS, LATEST EDITIONS.
2. ANTENNAS, CABINETS AND COAXIAL CABLE SHALL BE PROVIDED BY CLIENT. CONTRACTOR SHALL COORDINATE SCHEDULE OF DELIVERY TO AVOID DELAYS.
3. DAMAGE TO ALL UTILITIES, LAND, DRIVEWAY AREAS, AND PROPERTY OF OTHERS, DISTURBED DURING CONSTRUCTION, SHALL BE RETURNED TO THE ORIGINAL CONDITION AT THE COMPLETION OF WORK.
4. CONTRACTOR SHALL COORDINATE WITH THE LOCAL POWER, TELEPHONE UTILITIES, AND THE CONSTRUCTION MANAGER TO CONFIRM THE SOURCE OF SERVICE PRIOR TO INSTALLATION OF CONDUITS.
5. FOR CLEARWIRE PROJECTS WHERE THE SITE SUPPORT CABINET IS ANCHORED TO A CONCRETE SLAB ON GRADE, EXISTING VEGETATION AND ORGANIC MATERIALS SHALL BE REMOVED FROM THE PROPOSED CONCRETE PAD AREA, FILL SITE TO DESIGN ELEVATION WITH CLEAN, 5/8" MINUS CRUSHED ROCK FILL, COMPACTED UNDER CONCRETE PAD TO OBTAIN NOT LESS THAN 95% OF THE MODIFIED PROCTOR MAXIMUM DRY DENSITY FOR SOIL IN ACCORDANCE WITH ASTM D557.
6. REGRADE AROUND PAD AS REQUIRED TO ALLOW MAXIMUM 3" OF PAD THICKNESS, EXTENDING ABOVE GRADE.
7. ALL WORK SHALL BE DONE SATISFACTORY IN A PROFESSIONAL WORKMANLIKE MANNER, SUBJECT TO INSPECTION DURING THE CONSTRUCTION AND FINAL APPROVAL BY THE CONSTRUCTION MANAGER.
8. ANY SUBSTITUTIONS OF MATERIALS, EQUIPMENT OR ALTERATIONS FROM THE PLANS AND/OR SPECIFICATIONS SHALL BE APPROVED BY THE CONSTRUCTION MANAGER.
9. COLOR SELECTION SHALL BE COORDINATED WITH CONSTRUCTION MANAGER.
10. CONTRACTOR SHALL VERIFY EXISTING CONDITIONS, DIMENSIONS, AND BRING DISCREPANCIES TO THE ATTENTION OF THE CONSTRUCTION MANAGER.
11. CONTRACTOR SHALL CONTACT SUBSURFACE UTILITY LOCATOR FOR EXACT LOCATION OF EXISTING UTILITIES, PRIOR TO COMMENCEMENT OF CONSTRUCTION ACTIVITIES. CONTRACTOR SHALL VERIFY EXISTING UTILITY LOCATIONS BY TEST PIT, AS NECESSARY. LOCATION OF UTILITIES SHOWN ON PLAN ARE APPROXIMATE AND FOR PLANNING PURPOSES ONLY.
12. CONTRACTOR SHALL SECURE THE NECESSARY PERMITS FOR THIS PROJECT FROM ALL APPLICABLE GOVERNMENT AGENCIES. CONTRACTOR SHALL BE RESPONSIBLE FOR ABIDING BY ALL THE CONDITIONS AND REQUIREMENTS OF THE PERMITS.
13. TOWER AND TOWER FOUNDATIONS ARE SHOWN FOR ILLUSTRATIVE PURPOSES ONLY.
14. CONTRACTOR SHALL VISIT THE PROJECT SITE TO VIEW ALL CONDITIONS PRIOR TO SUBMITTING BID. ANY CHANGES DURING CONSTRUCTION VISUALLY ASCERTAINABLE PRIOR TO SUBMITTING BID, CANNOT BE THE BASIS FOR A CHANGE ORDER.
15. COAT ALL SURFACES WITH NO-OX WHERE DISSIMILAR METALS CONTACT.
16. CONTRACTOR SHALL REMOVE ALL DEBRIS AND EMPTY COAX REELS FROM THE SITE UPON COMPLETION OF THE PROJECT.
17. NEW POLE WILL BE DESIGNED TO PSE STD. 6033.1022, WITH THE PRIMARY CONDUCTOR RAISED TO THE 37'-0" ELEVATION ABOVE GRADE.
18. EXISTING SWITCH SHALL BE RELOCATED TO NEXT POLE TO THE SOUTH AND BE BUILT TO CURRENT PSE STD. 6022.200.
19. ATTACHMENT OF CONDUIT MUST MEET MINIMUM CLEARANCE FROM ENERGIZED CONDUCTOR (5") WHEN PASSING THROUGH THE SUPPLY SPACE AND STILL MAINTAIN POLE CLIMBING CONDITIONS (I.E. 5" OFF FROM POLE).
20. INSTALLATION WILL INCLUDE A NEW PSE SERVICE RISE (2" CONDUIT) AND HAND HOLE.
21. CLEARWIRE SHALL PAY INTO A HOLDING ACCOUNT THE ADDED COST OF EXTENDING THE PLANNED FUTURE PRIMARY FEEDER TWO ADDITIONAL SPANS TO THE SOUTH. (NOTE 1)
22. POLE MOUNTED EQUIPMENT SHALL BE LIMITED TO ONE FACE OR QUADRANT OF THE POLE AND MUST BE INSTALLED SO THAT CLIMBING SPACE PAST THE EQUIPMENT IS MAINTAINED. (NOTE 2)
23. TREE TRIMMING WILL BE REQUIRED TO REPLACE THE POLE AND POSSIBLE TO RELOCATED THE SWITCH ONE SPAN TO THE SOUTH.

NOTE 1: NEW FEEDER IS PLANNED FOR 2014 R.U.I.D. PSF TO PROVIDE COST ESTIMATE.

NOTE 2: POLE MOUNTED EQUIPMENT MAY BE LIMITED TO ONE CABINET.

PROJECT NOTES:

REINFORCED CONCRETE:

- R-1. CONCRETE: ALL CONCRETE WITH SURFACES EXPOSED TO STANDING WATER SHALL BE AIR-ENTRAINED WITH AN AIR-ENTRAINING AGENT CONFORMING TO ASTM C260, C494, AND C818. TOTAL AIR CONTENT FOR FROST-RESISTANT CONCRETE SHALL BE IN ACCORDANCE WITH TABLE 1904.2.1 OF THE INTERNATIONAL BUILDING CODE. EXPOSED CONCRETE SHALL HAVE A COMPRESSIVE STRENGTH OF 3000 PSI AT THE END OF 28 DAYS. NO SPECIAL INSPECTION IS REQUIRED FOR 3000 PSI INSTALLED SOLELY TO SATISFY EXPOSED CONCRETE REQUIREMENTS.
- R-2. PREPARATION, TESTING, AND PLACING OF CONCRETE AND REINFORCEMENT SHALL BE PER ACI-318 BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE, LATEST EDITION.
- R-3. REINFORCING BARS SHALL HAVE A MINIMUM YIELD STRENGTH OF $F_y = 60,000$ PSI AND SHALL COMPLY WITH ASTM A615.
- R-4. PROVIDE MINIMUM CONCRETE COVERAGE FOR REINFORCING STEEL OF 3".

DESIGN:

- D-1. DESIGN IS IN ACCORDANCE WITH THE INTERNATIONAL BUILDING CODE 2009.
- D-2. EQUIPMENT CABINET LOADING PER CLEARWIRE STANDARD EQUIPMENT.
- D-3. DESIGN LOADS: WASHINGTON STATE
 - A. 100 MPH WIND SPEED
 - B. 3 SECOND GUST
 - C. CATEGORY 2 IMPORTANCE FACTOR 1.0
 - D. EXPOSURE CATEGORY C
 - E. ALL OTHER LOADS ARE PER ASCE 7-02

STRUCTURAL:

- S-1. DETAIL, FABRICATE, AND ERECT ALL STRUCTURAL STEEL IN ACCORDANCE WITH AISC, SPECIFICATION FOR DESIGN, FABRICATION AND ERECTION OF STRUCTURE STEEL FOR BUILDINGS.
- S-2. ALL STRUCTURAL STEEL WORK SHALL CONFORM TO THE AISC SPECIFICATION FOR STRUCTURAL STEEL FOR BUILDINGS - ALLOWABLE STRESS DESIGN AND PLASTIC DESIGN, 9th EDITION.
- S-3. STRUCTURAL PIPE COLUMNS SHALL COMPLY WITH ASTM A53, TYPE E OR S, GRADE B, $F_y = 36$ KSI. ALL WIDE FLANGE SHAPES SHALL BE ASTM A992, GRADE 50. ALL STRUCTURAL SHAPES AND PLATE SHALL COMPLY WITH ASTM A36.
- S-4. WELDING: ALL WELDING IS TO BE DONE BY PRE-QUALIFIED WELDERS HOLDING CURRENT CERTIFICATE FROM A RECOGNIZED TESTING LABORATORY. ALL WELDS SHALL BE 3/16" MINIMUM FILLET WELDS U.O.N. ELECTRODES SHALL BE E70XX.
- S-5. THERE SHALL BE NO FIELD WELDING.
- S-6. STRUCTURAL GROUT SHALL BE SHRINKAGE RESISTANCE NON-EXPANSIVE, NONMETALLIC GROUT WITH A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 5,000 PSI WHEN TESTED IN ACCORDANCE WITH ASTM CODE C109. FORMS SHALL BE PLACED AROUND BASE PLATE AND THE STRUCTURAL GROUT SHALL BE Poured. NO DRY-DAMP PACKING.
- S-7. ANCHOR BOLTS AND ALL-THREAD RODS SHALL COMPLY WITH ASTM A36, UNLESS OTHERWISE NOTED. ALL OTHER BOLTS AND NUTS SHALL COMPLY WITH ASTM A325. ALL BOLTS SHALL BE HOT-DIPPED GALVANIZED.
- S-8. ALL EXPOSED STEEL SHALL BE HOT-DIPPED GALVANIZED AFTER FABRICATION PER ASTM A153 OR A123.
- S-9. APPLY TWO COATS OF ZINC-RICH RUST-OLEUM #2185 PAINT TO ALL FIELD DRILLED HOLES AND CUTS. GRID-GUARD EPOXY #5465 COATING SHALL BE APPLIED TO ALL AREAS WHERE GALVANIZED SURFACES NEED TO BE RECONDITIONED, INCLUDING ALL WELD AREAS.

ELECTRICAL NOTES:

1. ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) AS WELL AS APPLICABLE STATE AND LOCAL CODES.
2. ALL ELECTRICAL ITEMS SHALL BE UL APPROVED OR LISTED AND PROCURED PER SPECIFICATION REQUIREMENTS.
3. THE ELECTRICAL WORK INCLUDES ALL LABOR AND MATERIAL DESCRIBED BY DRAWINGS AND SPECIFICATIONS, INCLUDING INCIDENTAL WORK TO PROVIDE COMPLETE, OPERATING AND APPROVED ELECTRICAL SYSTEM.
4. GENERAL CONTRACTOR SHALL PAY FEES FOR PERMITS, AND IS RESPONSIBLE FOR OBTAINING SAID PERMITS, AND COORDINATION OF INSPECTIONS.
5. ELECTRICAL AND TELCO WIRING BETWEEN CABINETS SHALL RUN IN EMT OR SCHEDULE 40 PVC (AS PERMITTED BY CODE).
6. ELECTRICAL AND TELCO WIRING OUTSIDE A BUILDING AND EXPOSED TO WEATHER SHALL BE IN WATER TIGHT GALVANIZED RIGID STEEL CONDUITS AND WHERE REQUIRED IN LIQUID TIGHT FLEXIBLE METAL OR PVC WHERE LOCAL CODES AND SITE CONDITIONS PERMIT.
7. ELECTRICAL WORK SHALL BE COPPER WITH TYPE XHHW, THWN, OR THIN INSULATION.
8. RUN ELECTRICAL CONDUIT BETWEEN ELECTRICAL UTILITY DEMARCATION POINT AND EXISTING METER SOCKET AS LOCATED ON THIS DRAWING IN PVC, PROVIDE FULL LENGTH PULL ROPE. COORDINATE INSTALLATION WITH UTILITY COMPANY.
9. RUN TELCO CONDUITS BETWEEN TELEPHONE UTILITY DEMARCATION POINT AND EXISTING TELCO CABINET AND CLEARWIRE CABINET AS INDICATED ON THIS DRAWING IN PVC. PROVIDE FULL LENGTH PULL ROPE IN TELCO CONDUIT.
10. ALL EQUIPMENT LOCATED OUTSIDE SHALL HAVE NEMA 3R ENCLOSURE.
11. IT IS THE GENERAL CONTRACTOR'S RESPONSIBILITY TO APPLY FOR COMMERCIAL POWER IMMEDIATELY UPON RECEIVING AWARD OF BID. THE GENERAL CONTRACTOR IS REQUIRED TO KEEP ALL RECEIPTS FROM THE POWER COMPANY ACKNOWLEDGING APPLICATION FOR POWER AND THOROUGH DOCUMENTATION OF ANY DISCUSSIONS WITH THE POWER COMPANY THEREAFTER. ALSO, THE GENERAL CONTRACTOR SHALL RECEIVE IN WRITING FROM THE POWER COMPANY AS TO WHEN THE ANTICIPATED POWER CONNECTION WILL BE COMPLETE. IF COMMERCIAL POWER IS NOT AVAILABLE BY THE "POWER COMPLETE" DATE AS CALLED OUT IN THE SPECIFICATIONS, A GENERATOR SHALL BE SUPPLIED AND MAINTAINED BY THE GENERAL CONTRACTOR UNTIL COMMERCIAL IS OBTAINED, ALL COSTS ASSOCIATED WITH THE GENERATOR WILL BE MUTUALLY AGREED UPON BETWEEN THE OWNER AND GENERAL CONTRACTOR, IN THE EVENT THAT THE GENERAL CONTRACTOR FAILS TO TAKE THE NECESSARY MEASURES AS DESCRIBED HEREIN TO SECURE POWER BY THE POWER COMPLETION DATE, THEN ALL COSTS ASSOCIATED WITH THE GENERATOR SHALL BE BORNE BY THE CONTRACTOR.

GROUNDING NOTES:

1. AN ANTIOXIDANT COMPOUND SHALL BE APPLIED TO ALL EXTERIOR, ABOVE GRADE, MECHANIC, GROUND CONNECTIONS.
2. CONTRACTOR SHALL SUPPLY ALL MATERIAL, LABOR, AND EQUIPMENT NECESSARY FOR A COMPLETE SYSTEM AS INTENDED HEREIN UNLESS OTHERWISE NOTED.
3. ALL EXTERNAL GROUND CONDUCTORS SHALL BE #2 AWG, BARE, SOLID, TINNED COPPER UNLESS OTHERWISE NOTED.
4. ALL GROUND CONNECTIONS SHALL BE MADE WITH EXOTHERMIC WELD PROCESS UNLESS OTHERWISE NOTED OR APPROVED. ALL CONNECTIONS SHALL BE MADE AT DESIGNATED LOCATIONS ON THE EQUIPMENT.
5. EXACT LOCATION OF GROUND RODS AND GROUND CONNECTION POINTS SHALL BE DETERMINED IN THE FIELD. ADJUST LOCATIONS AS REQUIRED TO KEEP GROUND CONNECTIONS AS SHORT AS POSSIBLE (9" MIN. BEND RADIUS AND 90 DEGREE MAX BEND ANGLE). ALL BELOW GRADE GROUNDING SHALL BE INSPECTED AND APPROVED BY CONSTRUCTION MANAGER PRIOR TO BACKFILLING.
6. ALL GROUND COMPONENTS SHALL BE INSTALLED WITHIN THE CONFINES OF THE FENCED AREA. ANY METALLIC ITEMS WITHIN 6' OF THE GROUND RING SHALL BE BONDED TO THE GROUND RING. GROUNDING REQUIREMENT NOT SHOWN ON PLANS ARE WAVEGUIDE HATCH COVER / PLATE, CABLE TRAYS, SUPPORTS, SERVICE PANELS, DISCONNECT SWITCHES, HVAC UNITS ETC. THESE ITEMS MUST BE GROUNDED.
7. ALL EXTERIOR EXPOSED GROUND CONDUCTORS LONGER THAN 18" SHALL BE PROTECTED AND SUPPORTED BY A 3/4" PVC SCHEDULE 80 CONDUIT SLEEVE MOUNTED WITH CLIC-STRAP SUPPORTS FROM 6" BELOW FINISHED GRADE TO 6" FROM FINAL CONNECTION.
8. ALL GROUND RODS SHALL BE DRIVEN STRAIGHT DOWN, PERPENDICULAR TO FINISHED GRADE, SUITABLE PROTECTION SHALL BE PROVIDED ON END OF RODS TO PREVENT MUSHROOMING WITH GROUND DURING INSTALLATION.
9. GROUND CONDUCTORS SHALL NOT COME IN CONTACT WITH THE SLAB OR TOWER EXCEPT AS DESIGNATED.
10. THE UTILITY NEUTRAL / GROUND BOND IS TO BE MADE IN THE METER OR MAIN DISCONNECT SWITCH, NOT IN ATS.
11. ALL EQUIPMENT SURFACES TO BE BONDED TO GROUNDING SYSTEM SHALL BE STRIPPED OF ALL PAINT AND DIRT, CONNECTIONS TO VARIOUS METALS SHALL BE A TYPE AS TO NOT CAUSE A GALVANIC OR CORROSIVE REACTION AREA SHALL BE REPAINTED FOLLOWING BONDING.

clear wire®

4400 CARILLON POINT
KIRKLAND, WA 98033



PACIFIC TELECOM SERVICES, LLC

568 First Avenue S., Suite 650
Seattle, WA, 98104
Phone: (206) 342-9000 Fax: (206) 903-8513

EASTGATE

WA-SEA0356-B

SOUTH OF 150TH AVE AND SE 46TH WAY
BELLEVUE, WA 98006

REVISIONS

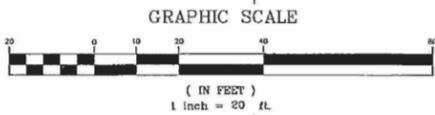
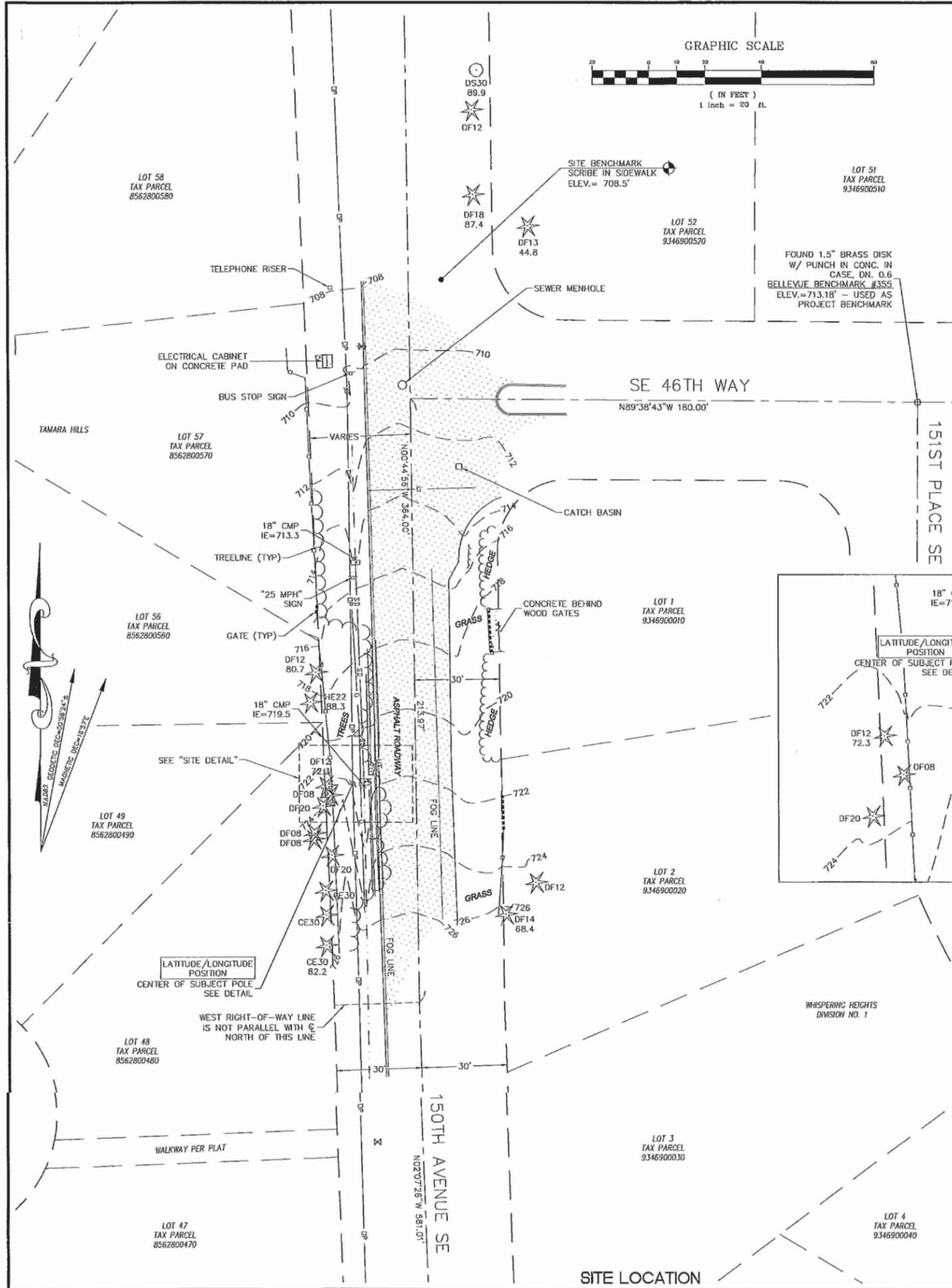
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NOT FOR CONSTRUCTION UNLESS LABELED AS CONSTRUCTION SET

SHEET TITLE
GENERAL NOTES

SHEET NUMBER

G-1



LEGAL DESCRIPTION

SUBJECT POLE LIES WITHIN THE PUBLIC RIGHT-OF-WAY OF 150TH AVENUE SE. NO TITLE NECESSARY.

EASEMENTS

△ CORRESPONDS WITH ITEM NUMBER IN "SCHEDULE B" OF TITLE REPORT.

THE FOLLOWING EASEMENTS FROM THE REFERENCED TITLE REPORT CONTAIN SUFFICIENT INFORMATION TO BE DEPICTED ON THE PLAN. OTHER EASEMENTS OR ENCUMBRANCES, IF ANY, MAY AFFECT THE PROPERTY, BUT LACK SUFFICIENT INFORMATION TO BE SHOWN.

SUBJECT POLE LIES WITHIN THE PUBLIC RIGHT-OF-WAY OF 150TH AVENUE SE. NO TITLE NECESSARY.

NOTES

- 1) SUBJECT POLE LIES WITHIN THE PUBLIC RIGHT-OF-WAY OF 150TH AVENUE SE. NO TITLE NECESSARY.
- 2) FIELD WORK CONDUCTED IN OCTOBER, 2009.
- 3) BASIS OF BEARING: WASHINGTON STATE PLANE COORDINATE SYSTEM, NORTH ZONE (NAD83).
- 4) UNDERGROUND UTILITIES SHOWN HEREON, IF ANY, WERE DELINEATED FROM SURFACE EVIDENCE AND/OR UTILITY COMPANY RECORDS. CRITICAL LOCATIONS SHOULD BE VERIFIED PRIOR TO DESIGN AND CONSTRUCTION.

LEGEND

- SUBJECT BOUNDARY LINE
- - - RIGHT-OF-WAY CENTERLINE
- - - RIGHT-OF-WAY LINE
- - - ADJACENT BOUNDARY LINE
- - - SECTIONAL BREAKDOWN LINE
- OP — OVERHEAD POWER LINE
- UP — BURIED POWER LINE
- G — BURIED GAS LINE
- OT — OVERHEAD TELEPHONE LINE
- UT — BURIED TELEPHONE LINE
- W — BURIED WATER LINE
- SS — BURIED SANITARY SEWER
- SD — BURIED STORM DRAIN
- - - DITCH LINE/FLOW LINE
- ROCK RETAINING WALL
- VEGETATION LINE
- CHAIN LINK FENCE
- WOOD FENCE
- BARBED WIRE/WIRE FENCE
- △ TRANSFORMER
- FIRE HYDRANT
- ⊗ LIGHT STANDARD
- ⊗ GATE VALVE
- ⊗ POWER VAULT
- ⊗ WATER METER
- ⊗ UTILITY BOX
- ⊗ FIRE STAND PIPE
- ⊗ UTILITY POLE
- ⊗ CATCH BASIN, TYPE I
- ⊗ POLE GUY WIRE
- ⊗ CATCH BASIN, TYPE II
- ⊗ GAS VALVE
- ⊗ SIGN
- ⊗ GAS METER
- ⊗ BOLLARD
- ⊗ TELEPHONE VAULT
- ⊗ MAIL BOX
- ⊗ TELEPHONE RISER
- ⊗ SPOT ELEVATION

NOTE:
1) ALL ELEVATIONS SHOWN ARE ABOVE MEAN SEA LEVEL (AMSL) AND ARE REFERENCED TO THE NAVD83 DATUM.
2) ALL TOWER, TREE AND APPURTENANCE HEIGHTS ARE ABOVE GROUND LEVEL (AGL) AND ARE ACCURATE TO ± 3 FEET OR ± 1% OF TOTAL HEIGHT, WHICHEVER IS GREATER.

TREE LEGEND

- DECIDUOUS TREE
- AL=ALDER
 - MP=MAPLE
 - DS=DECIDUOUS
 - MA=MADRONA
 - OK=OAK
 - CH=CHERRY
- EVERGREEN TREE
- CE=CEDAR
 - DF=DOUGLAS FIR
 - HE=HEMLOCK
 - PI=PINE
 - EVG=EVERGREEN
- NOTE: TREE DRIP LINES ARE NOT TO SCALE. TREE SYMBOLS REFERENCE TRUNK LOCATION ONLY. TRUNK DIAMETERS WERE APPROXIMATED AT 3.5' TO 4' ABOVE GROUND LEVEL. TREES SHOWN ARE FOR REFERENCE ONLY AND OTHER TREES AND VEGETATION MAY EXIST.

SITE INFORMATION

TAX LOT NUMBER: R/W 150TH AVENUE SE
 SITE ADDRESS: 150TH AVE. SE SO. OF SE 46TH WY. BELLEVUE, WA 98006
 SITE CONTACT: PHONE NUMBER: PUBLIC RIGHT-OF-WAY
 ZONING: N/A
 TOTAL LOT AREA: TO BE DETERMINED
 PROJECT AREA: TO BE DETERMINED

LATITUDE/LONGITUDE POSITION

COORDINATE DATA AT CENTER OF SUBJECT POLE:
 NAD 83 NAVD 88
 LAT - 47°33'45.90" N ELEV.= 721.7 FEET
 LONG - 122°08'25.97" W

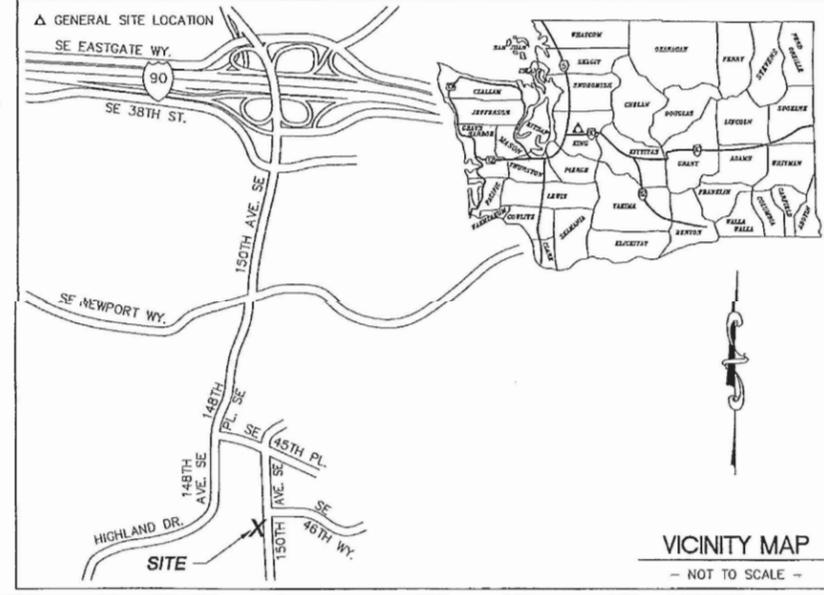
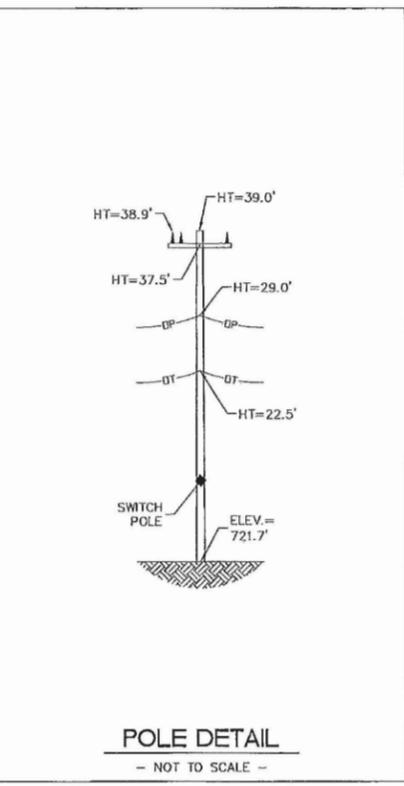
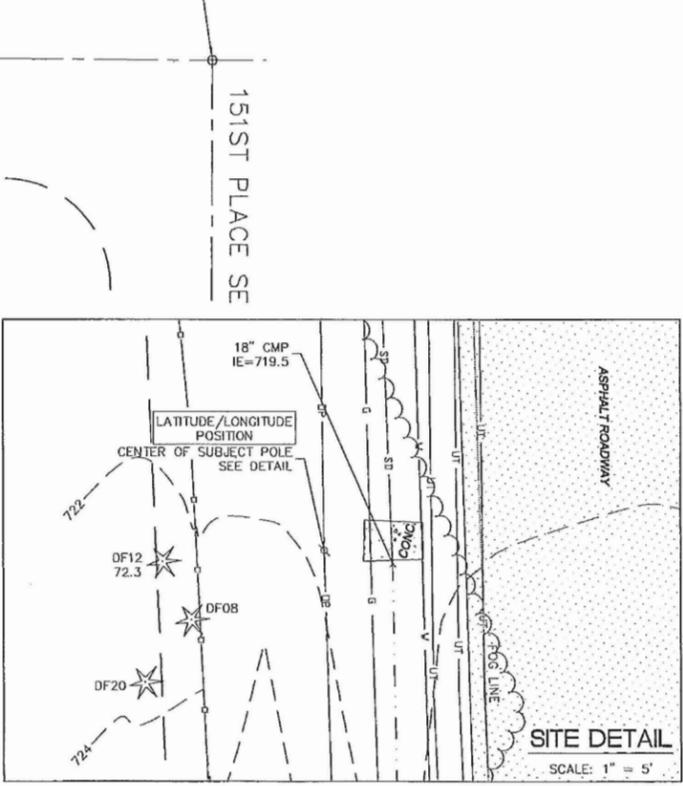
BENCHMARK IS: "355"
 CITY OF BELLEVUE BENCHMARK
 CASED MONUMENT AT INTX. SE
 46TH WY. W/ 150TH PL. SE
 ELEV.= 713.18'

ELEVATION DERIVED USING GPS. ACCURACY MEETS OR EXCEEDS 1A STANDARDS AS DEFINED ON THE FAA ASAC INFORMATION SHEET 91:003.

SURVEY REFERENCE
 1) TAMARA HILLS, VOL. 90 OF PLATS, PGS. 58-59, RECORDS OF KING COUNTY, WASHINGTON.
 2) WHISPERING HEIGHTS, DIV. 1, VOL. 93 OF PLATS, PGS. 93-94, RECORDS OF KING COUNTY, WASHINGTON.

BOUNDARY DISCLAIMER
 THIS PLAN DOES NOT REPRESENT A BOUNDARY SURVEY. SUBJECT AND ADJACENT PROPERTY LINES ARE DEPICTED USING FIELD-FOUND EVIDENCE AND RECORD INFORMATION.

CAUTION!
 UNDERGROUND UTILITIES EXIST IN THE AREA AND UTILITY INFORMATION SHOWN MAY BE INCOMPLETE. STATE LAW REQUIRES THAT CONTRACTOR CONTACT THE ONE-CALL UTILITY LOCATE SERVICE AT LEAST 48 HOURS BEFORE STARTING ANY CONSTRUCTION.
 1-800-424-5555



DUNCANSON
Company, Inc.
145 SW 15th Street, Suite 102
Seattle, Washington 98166
Phone 206.244.1141
Fax 206.244.4455

clearwire
wireless broadband

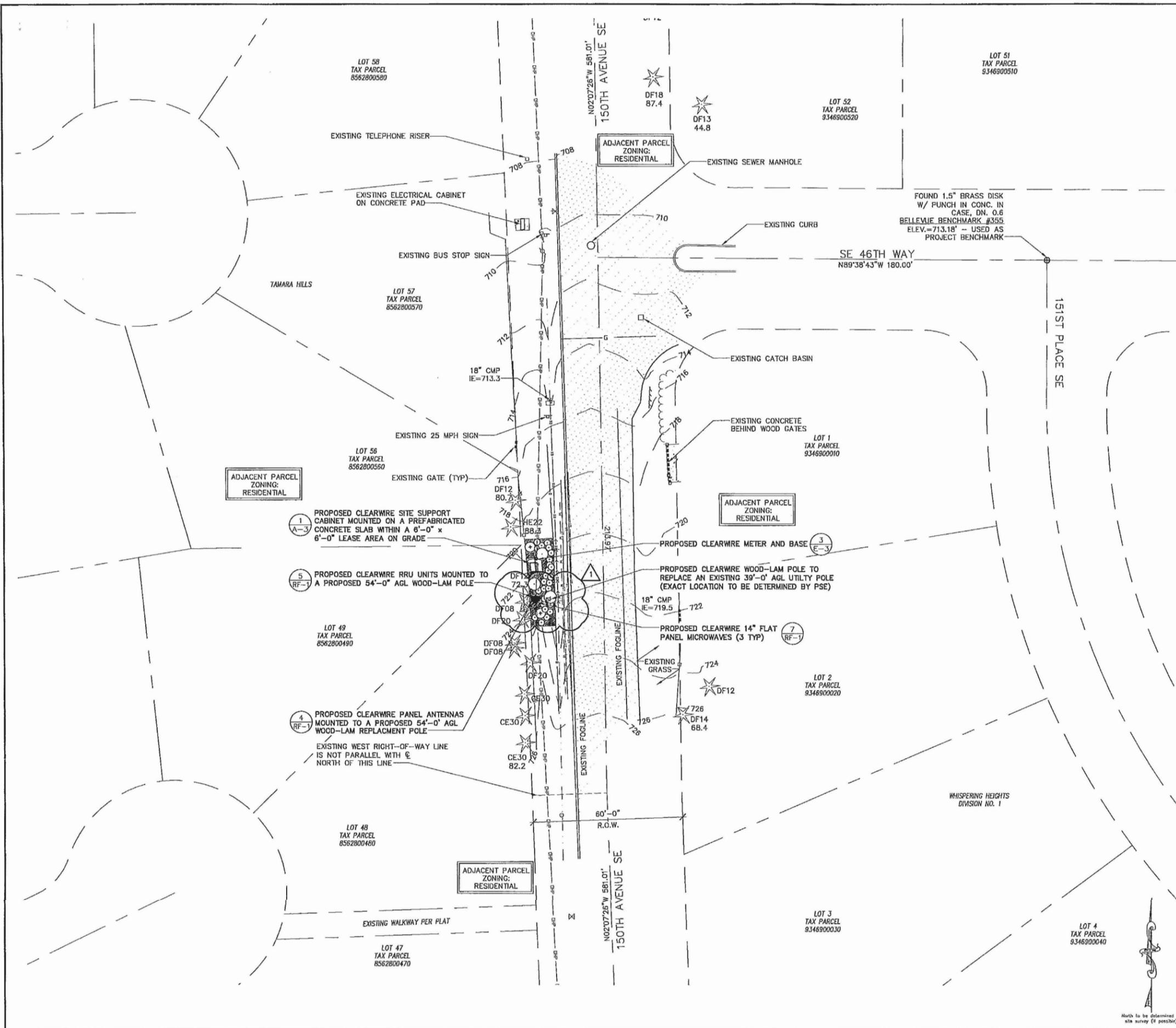
REVISIONS

NO.	DATE	DESCRIPTION	BY

EASTGATE
 WA-SEA0356B
 EXISTING SITE SURVEY
 SEC 14, TWP 24 N, R1G 5 E, WM

FLD. CREW: PN/KB
 FLD. BOOK: 225/13
 DRAWN BY: JMB
 JOB #: 05514.169
 DATE: 10/08/09

Received
 OCT 22 2010
 Permit Processing
 C-1
 1 OF 1



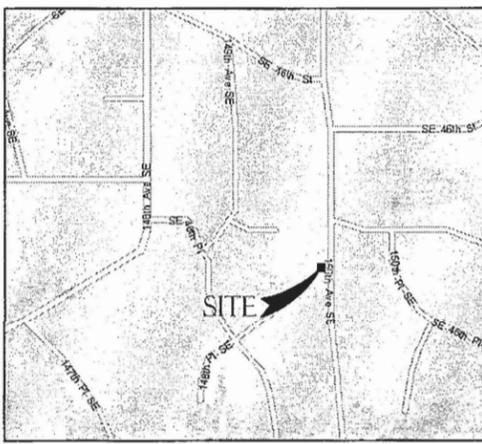
LEGEND

---	SUBJECT BOUNDARY LINE
- - -	RIGHT-OF-WAY CENTERLINE
- - -	RIGHT-OF-WAY LINE
---	ADJACENT BOUNDARY LINE
---	SECTIONAL BREAKDOWN LINE
—DHP—	OVERHEAD POWER LINE
—UGP—	BURIED POWER LINE
---	BURIED GAS LINE
—OHT—	OVERHEAD TELEPHONE LINE
—UGT—	BURIED TELEPHONE LINE
—V—	BURIED WATER LINE
—S—	BURIED SANITARY SEWER
—SD—	BURIED STORM DRAIN
---	DITCH LINE/FLOW LINE
---	ROCK RETAINING WALL
---	VEGETATION LINE
○	CHAIN LINK FENCE
□	WOOD FENCE
x-x-x-x-x	BARBED WIRE/WIRE FENCE
△	TRANSFORMER
⊗	LIGHT STANDARD
⊞	POWER VAULT
⊠	UTILITY BOX
⊙	UTILITY POLE
←	POLE GUY WIRE
⊞	GAS VALVE
⊞	GAS METER
⊞	TELEPHONE VAULT
⊞	TELEPHONE RISER
○	FIRE HYDRANT
⊞	GATE VALVE
⊞	WATER METER
⊞	FIRE STAND PIPE
⊞	CATCH BASIN, TYPE I
⊞	CATCH BASIN, TYPE II
⊞	SIGN
⊞	BOLLARD
⊞	MAIL BOX
234.21	SPOT ELEVATION

NOTE:
A WEED BARRIER IS TO BE INSTALLED BELOW GRAVEL OR ASPHALT WITHIN LEASE AREA BEFORE CONSTRUCTION

NOTES:
1. (12) RUNS OF 7/8" COAX CABLE & (3) RUNS OF 1/2" COAX TO BE ATTACHED TO INTERIOR OF COAX SHROUD OF WOOD-LAM POLE
2. ALL ANTENNAS AND MOUNTING HARDWARE TO BE PAINTED A NON-REFLECTIVE COLOR TO MATCH PROPOSED WOOD-LAM POLE.
3. EXACT LOCATION OF NEW REPLACEMENT PSE POLE TO BE DETERMINED BY PSE.

VICINITY MAP



clear wire®
4400 CARILLON POINT
KIRKLAND, WA 98033

PTS
PACIFIC TELECOM SERVICES, LLC
568 First Avenue S., Suite 650
Seattle, WA 98104
Phone: (206) 342-9000 Fax: (206) 903-8513

EASTGATE
WA-SEA0356-B
SOUTH OF 150TH AVE AND SE 46TH WAY
BELLEVUE, WA 98005

REVISIONS

NO.	DATE	DESCRIPTION	INITIAL
1	10-12-09	PRELIMINARY CONSTRUCTION DRAWINGS	CBK
2	10-14-09	FINAL CONSTRUCTION DRAWINGS	PHD
3	12-21-09	REV. FINAL CONSTRUCTION DRAWINGS	PHD
4	12-23-09	REV. FINAL CONSTRUCTION DRAWINGS	CBK
5	02-25-10	SUBMITTAL SET	PHD
6	05-05-10	CITY REVISIONS	PHD
7	08-10-10	LANDSCAPE REVISIONS	PHD

NOT FOR CONSTRUCTION UNLESS LABELED AS CONSTRUCTION SET

SHEET TITLE
SITE PLAN

SHEET NUMBER
A-1

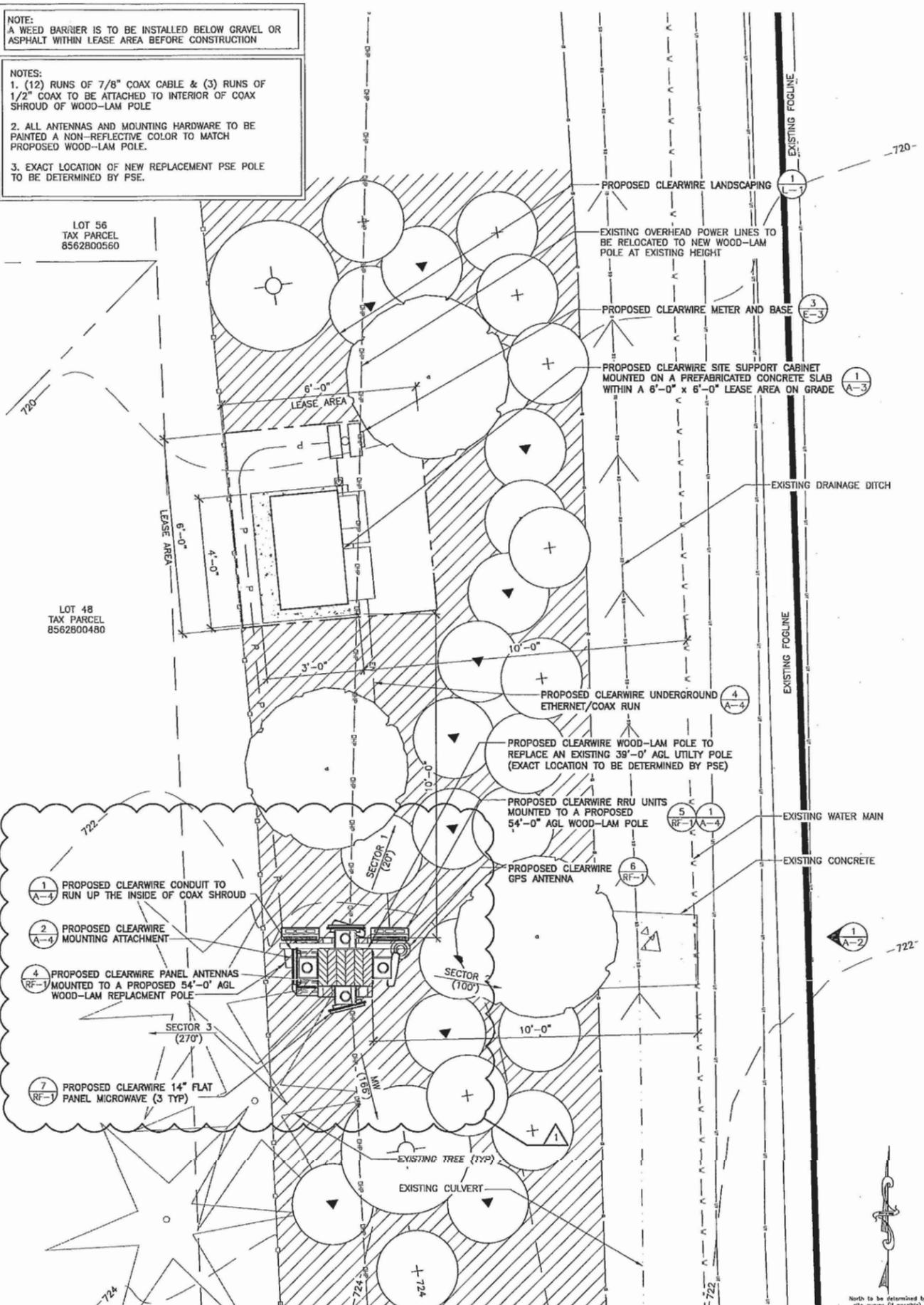
24"x36" SCALE: 1" = 20'-0"
11"x17" SCALE: 1" = 40'-0"
20' 15' 10' 5' 0' 20'

NOTE:
A WEED BARRIER IS TO BE INSTALLED BELOW GRAVEL OR ASPHALT WITHIN LEASE AREA BEFORE CONSTRUCTION

- NOTES:
- (12) RUNS OF 7/8" COAX CABLE & (3) RUNS OF 1/2" COAX TO BE ATTACHED TO INTERIOR OF COAX SHROUD OF WOOD-LAM POLE
 - ALL ANTENNAS AND MOUNTING HARDWARE TO BE PAINTED A NON-REFLECTIVE COLOR TO MATCH PROPOSED WOOD-LAM POLE.
 - EXACT LOCATION OF NEW REPLACEMENT PSE POLE TO BE DETERMINED BY PSE.

LOT 56
TAX PARCEL
8562800560

LOT 48
TAX PARCEL
8562800480



24"x36" SCALE: 1/2" = 1'-0"
11"x17" SCALE: 1/4" = 1'-0"

ENLARGED SITE PLAN 2

24"x36" SCALE: 1/2" = 1'-0"
11"x17" SCALE: 1/4" = 1'-0"

ENLARGED SITE PLAN 1

clear wire®

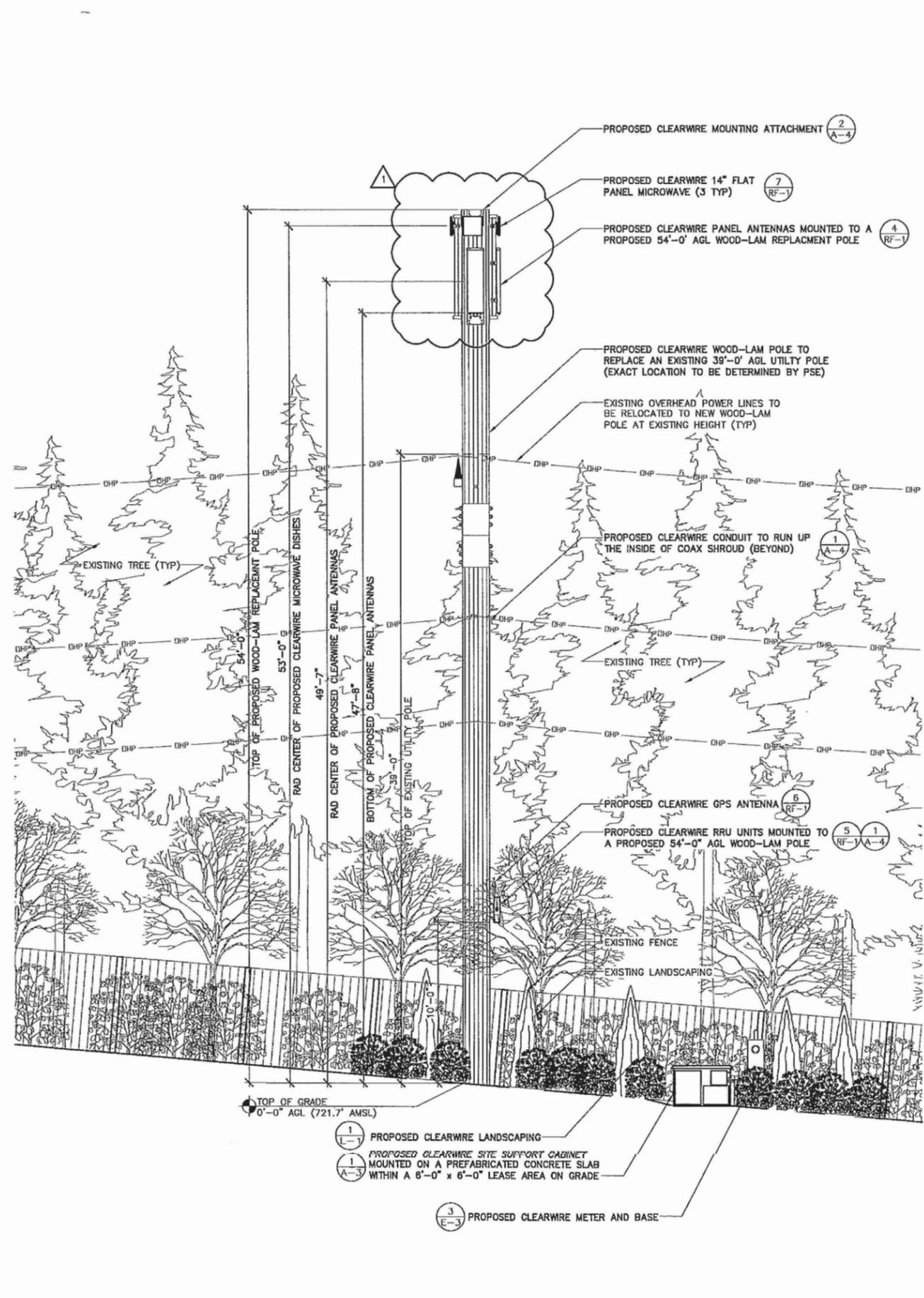
4400 CARILLON POINT
KIRKLAND, WA 98033

PTS

PACIFIC TELECOM SERVICES, LLC

568 First Avenue S., Suite 650
Seattle, WA 98104
Phone: (206) 342-9000 Fax: (206) 903-8513

EASTGATE
WA-SEA0356-B
SOUTH OF 150TH AVE AND SE 46TH WAY
BELLEVUE, WA 98006



24"x36" SCALE: 1/2" = 1'-0"
11"x17" SCALE: 1/4" = 1'-0"

ENLARGED SITE PLAN 1

REVISIONS			
NO.	DATE	DESCRIPTION	INITIAL
1	10-12-09	PRELIMINARY CONSTRUCTION DRAWINGS	CBK
2	10-14-09	FINAL CONSTRUCTION DRAWINGS	PHD
3	12-21-09	REV/FINAL CONSTRUCTION DRAWINGS	PHD
4	12-23-09	REV/FINAL CONSTRUCTION DRAWINGS	CBK
5	02-25-10	SUBMITTAL SET	PHD
6	05-06-10	CITY REVISIONS	PHD
7	08-10-10	LANDSCAPE REVISIONS	PHD

NOT FOR CONSTRUCTION UNLESS LABELED AS CONSTRUCTION SET

SHEET TITLE
ENLARGED SITE PLAN

SHEET NUMBER
A-2

THE INFORMATION CONTAINED IN THIS SET OF CONSTRUCTION DOCUMENTS IS PROPRIETARY BY NATURE. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO CARRIER SERVICES IS STRICTLY PROHIBITED.

EASTGATE
WA-SEA0356-B
SOUTH OF 150TH AVE AND SE 46TH WAY
BELLEVUE, WA 98006

REVISIONS

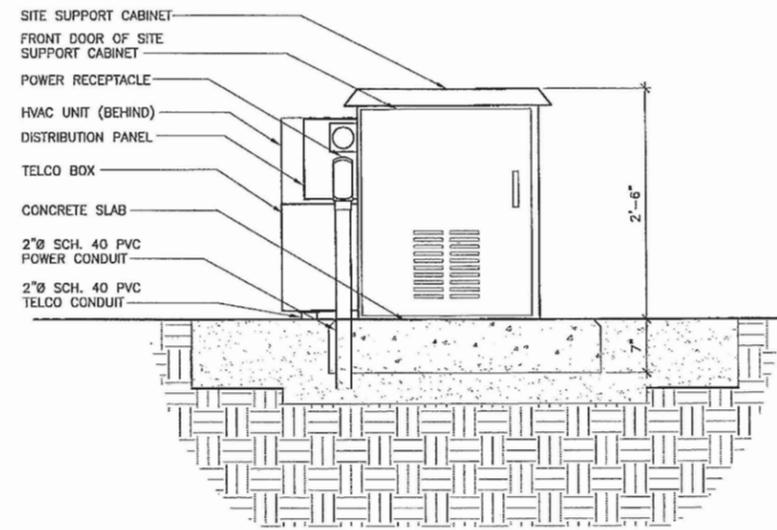
NO.	DATE	DESCRIPTION	INITIAL
1	10-12-09	PRELIMINARY CONSTRUCTION DRAWINGS	CBK
2	10-14-09	FINAL CONSTRUCTION DRAWINGS	PHD
3	12-21-09	REV/Δ FINAL CONSTRUCTION DRAWINGS	PHD
4	12-23-09	REV/Δ FINAL CONSTRUCTION DRAWINGS	CBK
5	02-25-10	SUBMITTAL SET	PHD
6	05-06-10	CITY REVISIONS	PHD
7	08-10-10	LANDSCAPE REVISIONS	PHD

NOT FOR CONSTRUCTION UNLESS
LABELED AS CONSTRUCTION SET

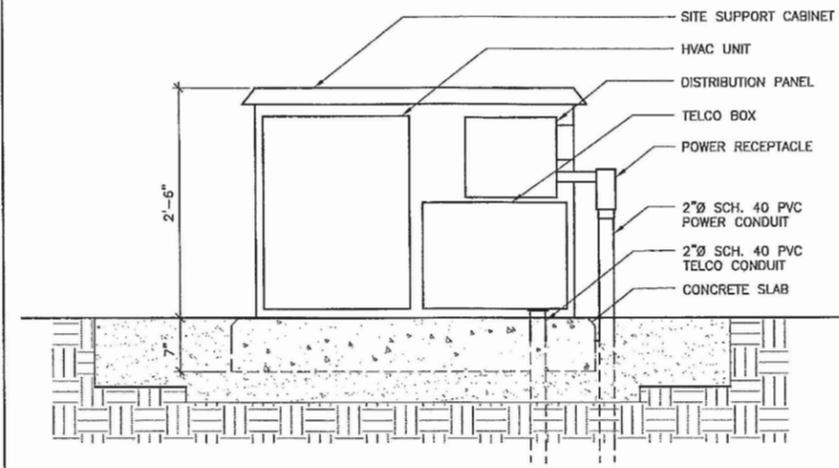
SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER

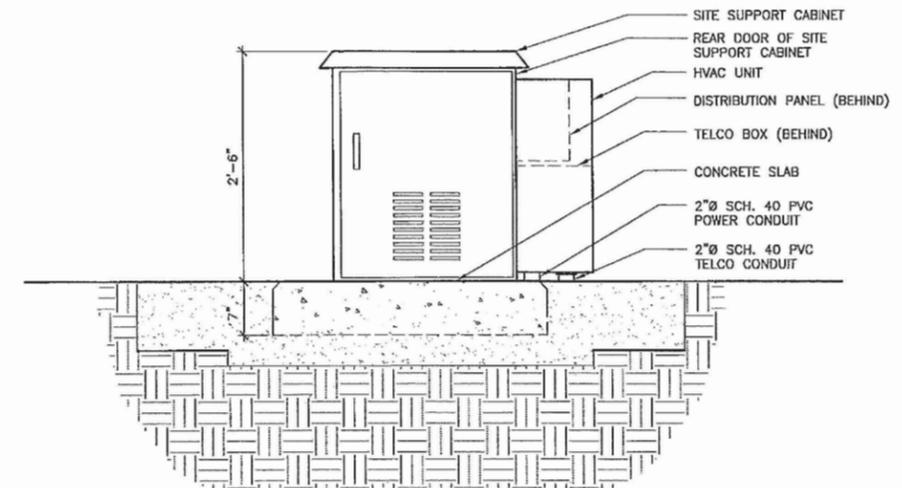
A-3



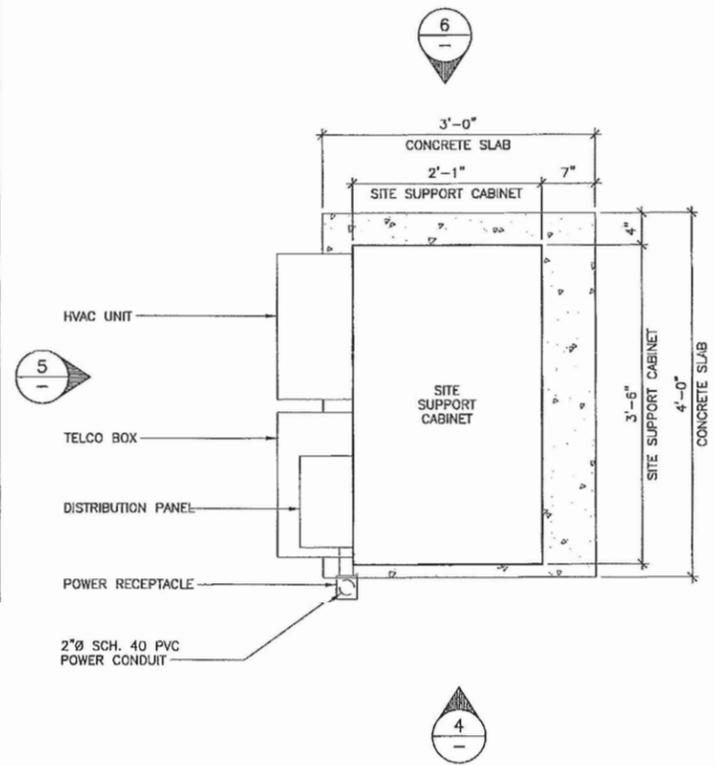
CABINET ELEVATION 4
24"x36" SCALE: 1" = 1'-0"
11"x17" SCALE: 1/2" = 1'-0"



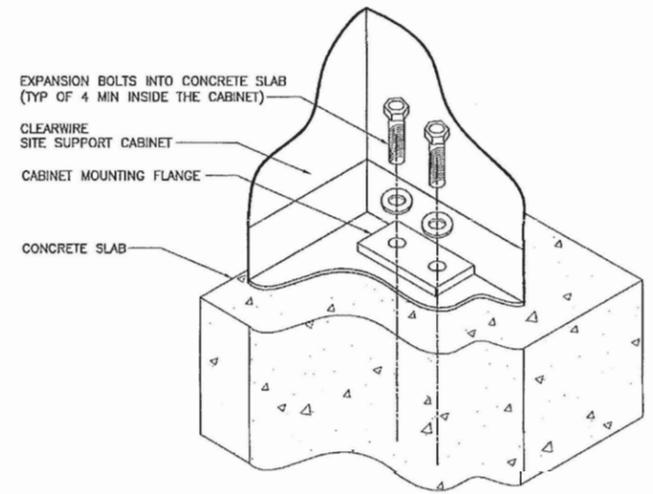
CABINET ELEVATION 5
24"x36" SCALE: 1" = 1'-0"
11"x17" SCALE: 1/2" = 1'-0"



CABINET ELEVATION 6
24"x36" SCALE: 1" = 1'-0"
11"x17" SCALE: 1/2" = 1'-0"



EQUIPMENT PLAN 1
24"x36" SCALE: 3/4" = 1'-0"
11"x17" SCALE: 3/8" = 1'-0"



MOUNTING DETAIL 2
24"x36" SCALE: 3" = 1'-0"
11"x17" SCALE: 1-1/2" = 1'-0"

RRU H-FRAME DETAIL 3
24"x36" SCALE: 3/4" = 1'-0"
11"x17" SCALE: 3/8" = 1'-0"

ANTENNA CABLING:

- 1) ACTUAL LENGTHS SHALL BE DETERMINED PER SITE CONDITION BY THE CONTRACTOR.
- 2) THE DESIGN IS BASED ON THE EMSS REPORT, SIGNED AND APPROVED BY ENGINEERING.
- 3) THE CONTRACTOR SHALL VERIFY THE ACTUAL LENGTHS OF CABLES BEFORE INSTALLATION.
- 4) ALL TIE WRAPS SHALL BE CUT FLUSH WITH THE APPROVED CUTTING TOOL FOR SAFETY AND PROTECTION.
- 5) THE ANTENNAS WILL BE FED BY RF CABLES WHICH MAY BE RUN OUTSIDE OR INSIDE THE TOWER DEPENDENT UPON SITE CONDITIONS AND ENGINEERING DRAWINGS.
- 6) ALL SITE CABLING SHALL MAINTAIN MAXIMUM CABLE SEPARATION REQUIREMENTS AS TO THE TYPE OF CABLE AND FUNCTION. THIS IS DONE TO PROTECT DAMAGE, AS WELL AS, TO PREVENT THE INDUCTION OF CURRENT INTO THE CONDUCTORS FROM MAGNETIC LINES OF FLUX CREATED FROM POWER AND CURRENTS THROUGH THE CABLES.
- 7) CABLES SHALL BE PROTECTED FROM DAMAGE AND SHALL HAVE THE MINIMUM BEND RADIUS FOR THE SIZE AND MANUFACTURER OF THAT CABLE. IN THIS CASE THE MINIMUM BEND RADIUS IS 100MM.
- 8) SLACK SHALL BE LEFT IN THE CABLES LEAVING THE EQUIPMENT TO THEIR TERMINATION POINTS. THIS IS DONE IN ORDER TO PROVIDE STRESS RELIEF ON THE CABLES AND CONNECTIONS IN THE EVENT OF SEISMIC ACTIVITY.
- 9) ALL CABLES SHALL BE ROUTED AND INSTALLED IN A MANNER AS TO PROTECT THE CABLES FROM DAMAGE OF SHARP EDGES OF HARDWARE AND WHERE CABLES ARE ROUTED DOWN THE TOWER.
- 10) CABLES SHALL BE SUPPORTED A MINIMUM OF EVERY THREE FEET EXCEPT FOR INSIDE MONOPOLES AND LATTICE TOWERS WHERE CABLE AND CONNECTOR MANUFACTURERS RECOMMENDED FIBER SUPPORT ACCESSORIES SHALL BE USED IF REQUIRED.
- 11) CABLE BRIDGE SYSTEM SHALL BE USED AS AN ICE SHIELD TO SUPPORT AND PROTECT ANTENNA AND MICROWAVE CABLES.
- 12) DRIP LOOPS SHALL BE REQUIRED ON ALL OUTSIDE CABLES. CABLES SHALL BE SLOPED AWAY FROM THE BUILDING OR OUTDOOR CABINETS TO PREVENT WATER FROM ENTERING THROUGH THE CABLE PORT.

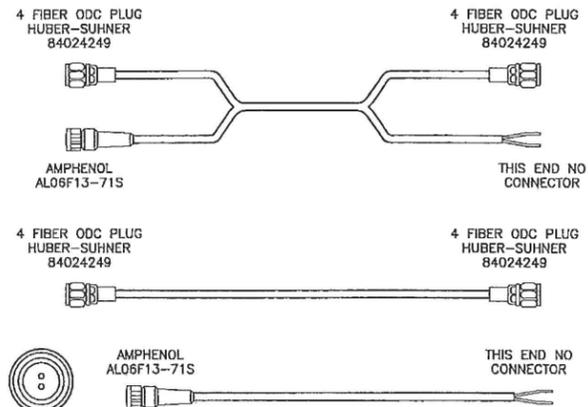
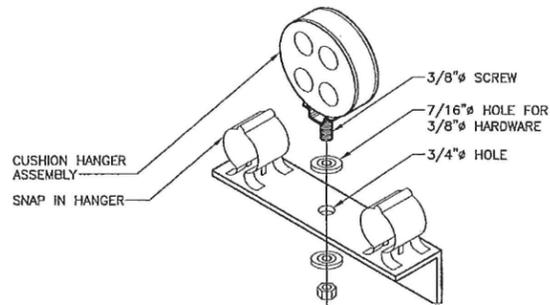
ANTENNA CABLING NOTES

24"x36" SCALE: NOT TO SCALE
11"x17" SCALE: NOT TO SCALE

6

NOTES:

- THE FIBER OPTIC CABLE COMES PRE-MANUFACTURED WITH HUBER-SUHNER CONNECTORS INSTALLED ON EACH END. THE AVAILABLE LENGTHS ARE 20M, 40M, 60M, 80M, 100M.
- THE POWER CABLE COMES PRE-MANUFACTURED WITH AN AMPHENOL CONNECTOR FOR USE AT THE DAP HEAD END ONLY. THE OTHER END OF THE CABLE IS BARE. THE AVAILABLE LENGTHS ARE 20M, 40M, 60M, 80M, 100M.
- A UNIQUE COMBINED POWER & FIBER OPTIC CABLE (INTEGRATED CABLE 071903-1) HAS BEEN DEVELOPED TO MAKE RUNNING CABLES EASIER AND MAY BE MADE AVAILABLE IN THE FUTURE. THE POWER CABLE IS LONGER THAN THE FIBER CABLE TO PREVENT THE FIBER CABLE FROM BEING DAMAGED.
- INSTALL THE POWER AND FIBER OPTIC CABLE FROM EACH DAP HEAD TO THE EQUIPMENT CABINET ATTACH THE CABLE END TO THE CONNECTORIZED POWER AND FIBER DAP HEAD CONNECTORS. EACH CABLE SHALL HAVE A SERVICE/DRIP LOOP AT EACH END OF AT LEAST ONE FULL LOOP NOT SMALLER THAN 6" IN DIAMETER. EXTRA CABLE SHALL BE LOOPED AT THE EQUIPMENT CABINET.
- CABLE SHALL BE ROUTED FROM EACH DAP HEAD UNIT, ALONG THE ANTENNA MOUNT IN ULTRA-TIGHT NON-METALLIC / LIQUID TIGHT / FLEXIBLE CONDUIT / SUB-DUCT STRUCTURE TO PROTECT THE CABLES FROM EACH INDIVIDUAL SECTOR.
- INSTALL TWO 2" FLEXIBLE CONDUITS. THE FIRST 2" CONDUIT IS USED TO RUN ALL FIBER AND POWER OPTIC CABLES. THE SECOND 2" CONDUIT IS INSTALLED DURING THE INITIAL INSTALLATION BUT IS RESERVED FOR FUTURE GROWTH / USE. THEN USE OF A KELLEM GRIP PROVIDES ACCEPTABLE CABLE SUPPORT
- THE RF CABLES SHALL BE RUN SEPARATELY OUTSIDE OF THE FLEXIBLE CONDUIT OTHER CABLE RUNNING OPTIONS MAY BE USED BASED ON SITE SPECIFIC REQUIREMENTS. THE INSTALLER SHOULD CONSULT WITH THE CLEARWIRE PROJECT MANAGER WHO WILL WORK WITH THE TOWER OWNER TO DEVELOP AN APPROPRIATE METHOD PER SITE. FOR CASES WHERE PROTECTIVE CONDUIT IS NOT INSTALLED, THE USE OF VALMONT MICROFLECT CUSHION HANGER OR APPROVED EQUAL IS RECOMMENDED AS A WAY TO PREVENT DAMAGE TO THE FIBER OPTIC CABLES.



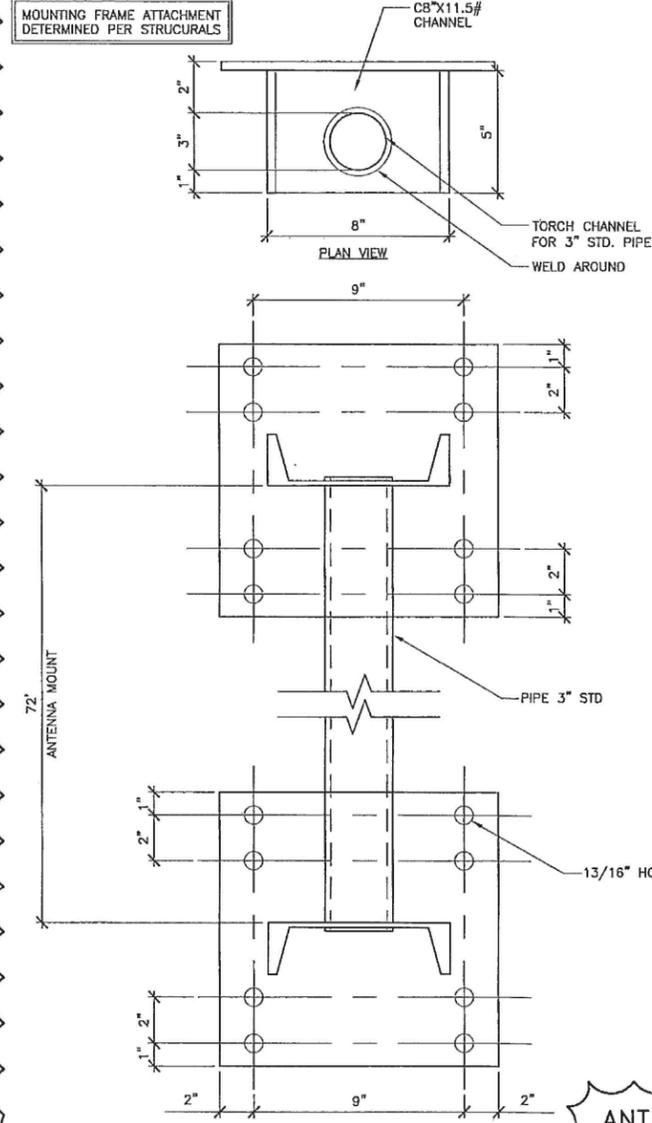
DAP UNIT COAX

24"x36" SCALE: NOT TO SCALE
11"x17" SCALE: NOT TO SCALE

3

NOTES:

- 1) ACTUAL LENGTHS SHALL BE DETERMINED PER SITE CONDITION BY THE CONTRACTOR.
- 2) THE DESIGN IS BASED ON THE EMSS REPORT, SIGNED AND APPROVED BY ENGINEERING.
- 3) THE CONTRACTOR SHALL VERIFY THE ACTUAL LENGTHS OF CABLES BEFORE INSTALLATION.
- 4) ALL TIE WRAPS SHALL BE CUT FLUSH WITH THE APPROVED CUTTING TOOL FOR SAFETY AND PROTECTION.
- 5) ALL SITE CABLING SHALL MAINTAIN MAXIMUM CABLE SEPARATION REQUIREMENTS AS TO THE TYPE OF CABLE AND FUNCTION. THIS IS DONE TO PROTECT DAMAGE, AS WELL AS, TO PREVENT THE INDUCTION OF CURRENT INTO THE CONDUCTORS FROM MAGNETIC LINES OF FLUX CREATED FROM POWER AND CURRENTS THROUGH THE CABLES.
- 6) ALL CABLES SHALL BE PROTECTED FROM DAMAGE AND SHALL HAVE THE MINIMUM BEND RADIUS FOR SIZE AND MANUFACTURER OF THAT CABLE.
- 7) SLACK SHALL BE LEFT IN THE CABLES LEAVING THE EQUIPMENT TO THEIR TERMINATION POINTS. THIS IS DONE IN ORDER TO PROVIDE STRESS RELIEF ON THE CABLES AND CONNECTIONS IN THE EVENT OF SEISMIC ACTIVITY.
- 8) ALL CABLES SHALL BE ROUTED AND INSTALLED IN A MANNER AS TO PROTECT THE CABLES FROM DAMAGE FROM SHARP EDGES ON HARDWARE AND WHERE CABLES ARE ROUTED DOWN THE TOWER.
- 9) ALL CABLES SHALL BE SUPPORTED A MINIMUM OF EVERY (3) FEET EXCEPT FOR INSIDE MONOPOLES AND LATTICE TOWERS WHERE CABLE AND CONNECTOR MANUFACTURERS SUPPORT RECOMMENDATIONS SHALL BE FOLLOWED. MANUFACTURERS RECOMMENDED CABLE SUPPORT ACCESSORIES SHALL BE USED.
- 10) A CABLE BRIDGE SYSTEM SHALL BE USED AS AN ICE SHIELD TO SUPPORT AND PROTECT ANTENNA AND MICROWAVE CABLES.
- 11) DRIP LOOPS ARE REQUIRED ON ALL OUTSIDE CABLES. CABLES SHALL BE SLOPED AWAY FROM THE BUILDING OR OUTDOOR CABINETS TO PREVENT WATER FROM ENTERING THROUGH THE CABLE PORT.



ANTENNA MOUNT

24"x36" SCALE: 3" = 1'-0"
11"x17" SCALE: 1-1/2" = 1'-0"

2

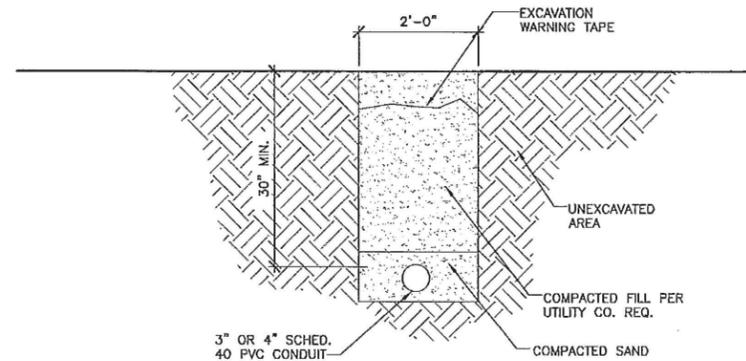
MANUFACTURER DATA				APPROVED COAX			MICROWAVE APPLICATIONS			
TYPE	MEG	PART #	DESCRIPTION	LOSS/100FT @2500 MHz	LOSS/100FT @700 MHz	LOSS/100FT @1900 MHz	WEIGHT (LB/FT)	MICROWAVE RADIO	DISTANCE (min) FEET	DISTANCE (MAX) FEET
CORRUGATED	EUPEN	EC4-50	1/2" FOAM DIELECTRIC	3.77	1.8	3.16	.16	DRAGONWAVE DUO	1	250
CORRUGATED	EUPEN	EC5-50-A	7/8" FOAM DIELECTRIC	1.98	.96	1.65	.33	DRAGONWAVE DUO	1	450
CORRUGATED	EUPEN	EC6-50-A	1-1/4" FOAM DIELECTRIC	1.463	.698	1.22	.58	DRAGONWAVE DUO	450	650
CORRUGATED	EUPEN	EC7-50A	1-5/8" FOAM DIELECTRIC	1.2	.57	.997	.76	DRAGONWAVE DUO	450	800
CORRUGATED	EUPEN	EC4-150-DMNM	1/2" FOAM DIELECTRIC JUMPER-5FT WITH N(m)/DIN(m)	3.77	N/A	N/A	.16	N/A	N/A	N/A
CORRUGATED	EUPEN	EC4-150-DMNM	1/2" FOAM DIELECTRIC JUMPER-5FT WITH DIN(m)/DIN(m)	3.77	N/A	N/A	.16	N/A	N/A	N/A
CORRUGATED	EUPEN	EC4-300-DMNM	1/2" FOAM DIELECTRIC JUMPER-10FT WITH N(m)/DIN(m)	3.77	N/A	N/A	.16	N/A	N/A	N/A
CORRUGATED	EUPEN	EC4-300-DMNM	1/2" FOAM DIELECTRIC JUMPER-10FT WITH DIN(m)/DIN(m)	3.77	N/A	N/A	.16	N/A	N/A	N/A

RAN APPLICATIONS			GPS APPLICATIONS			APPROVED CONNECTORS	
RAN SYSTEMS	DISTANCE (min) FEET	DISTANCE (MAX) FEET	RAN SYSTEM	DISTANCE (MAX) FEET	DISTANCE (MAX) FEET	MEG	PART #
DBS GROUND	1	20 70	DBS3900 WAP450 SPI2213	N/A	N/A	PPC	CC-DM-L4 CC-NM-L4
DBS GROUND	1	45 145	N/A	N/A	N/A	PPC	CC-DM-ECS CC-DF-ECS CC-NM-C5
GROUND	1	105****	N/A	N/A	N/A	PPC	CC-DF-EC6
GROUND	1	110****	N/A	N/A	N/A	PPC	CC-DF-EC7
RFH TO ANTENNA/FILTER	N/A	5	N/A	N/A	N/A	INCLUDED	INCLUDED
FILTER TO ANTENNA	N/A	5	N/A	N/A	N/A	INCLUDED	INCLUDED
RFH TO ANTENNA/FILTER	N/A	10	N/A	N/A	N/A	INCLUDED	INCLUDED
FILTER TO ANTENNA	N/A	10	N/A	N/A	N/A	INCLUDED	INCLUDED

MICROWAVE COAX

24"x36" SCALE: NOT TO SCALE
11"x17" SCALE: NOT TO SCALE

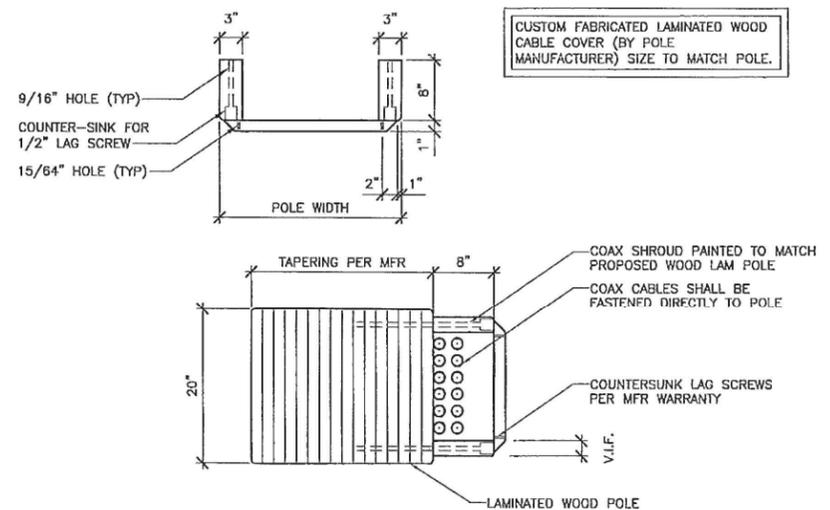
5



CONDUIT TRENCHING

24"x36" SCALE: 1/4" = 1'-0"
11"x17" SCALE: 1/8" = 1'-0"

4



COAX SHROUD DETAIL

24"x36" SCALE: 1" = 1'-0"
11"x17" SCALE: 1/2" = 1'-0"

1

clear wire

4400 CARILLON POINT
KIRKLAND, WA 98033

PTS

PACIFIC TELECOM SERVICES,
LLC

568 First Avenue S., Suite 650
Seattle, WA 98104
Phone: (206) 342-9000 Fax: (206) 903-8513

EASTGATE

WA-SEA0356-B

SOUTH OF 150TH AVE AND SE 46TH WAY
BELLEVUE, WA 98006

REVISIONS

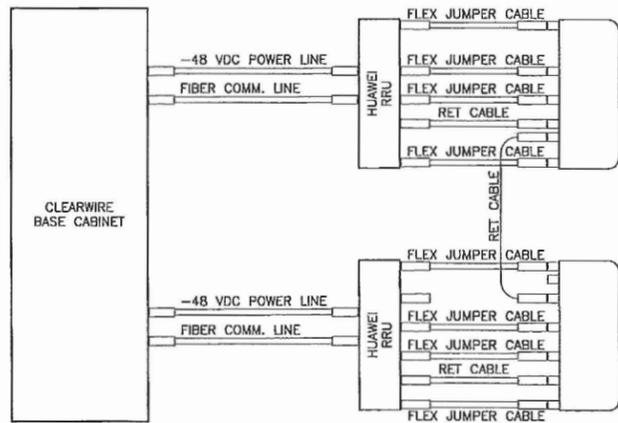
NO.	DATE	DESCRIPTION	INITIAL
1	10-12-09	PRELIMINARY CONSTRUCTION DRAWINGS	CBK
2	10-14-09	FINAL CONSTRUCTION DRAWINGS	PHD
3	12-21-09	REV A FINAL CONSTRUCTION DRAWINGS	PHD
4	12-23-09	REV A FINAL CONSTRUCTION DRAWINGS	CBK
5	02-25-10	SUBMITTAL SET	PHD
6	05-06-10	CITY REVISIONS	PHD
7	08-10-10	LANDSCAPE REVISIONS	PHD

NOT FOR CONSTRUCTION UNLESS
LABELED AS CONSTRUCTION SET

SHEET TITLE
COAX DETAILS

SHEET NUMBER

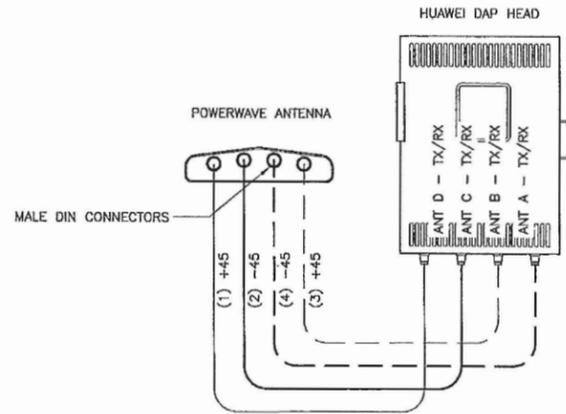
A-4



RET SCHEMATIC DETAIL

24"x36" SCALE: NOT TO SCALE
11"x17" SCALE: NOT TO SCALE

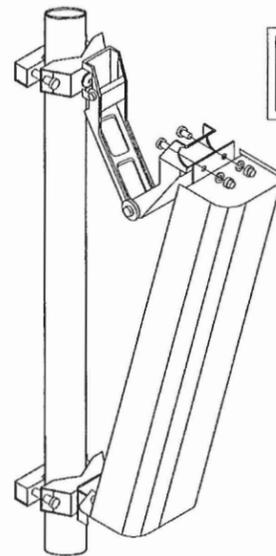
10



CABLE CONNECTION

24"x36" SCALE: 1-1/2" = 1'-0"
11"x17" SCALE: 3/4" = 1'-0"

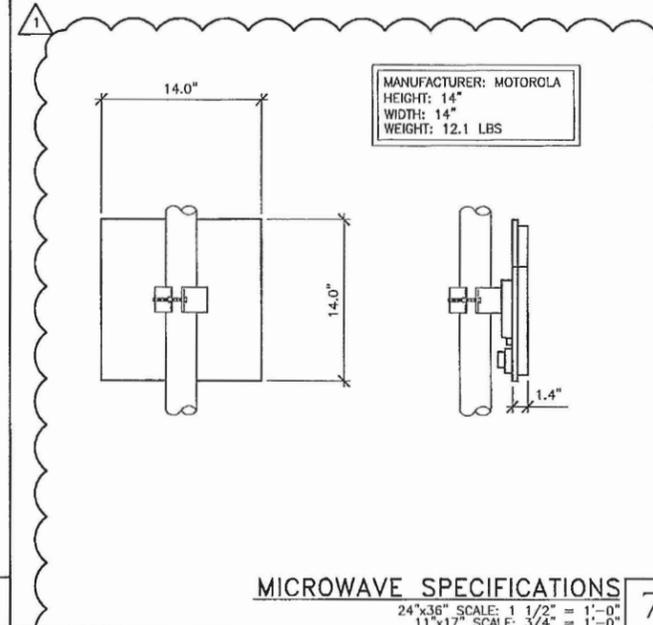
9



ANTENNA MOUNTING

24"x36" SCALE: NOT TO SCALE
11"x17" SCALE: NOT TO SCALE

8



MICROWAVE SPECIFICATIONS

24"x36" SCALE: 1 1/2" = 1'-0"
11"x17" SCALE: 3/4" = 1'-0"

7

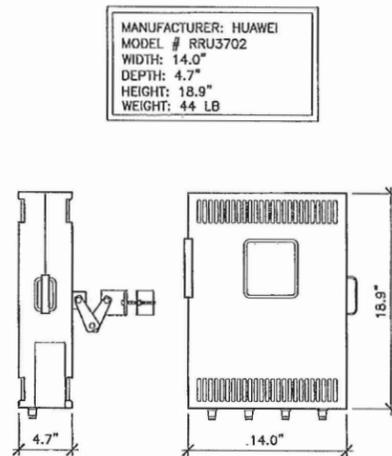


MANUFACTURER: MOTOROLA
PART #: MNT62312B1
(2) 12" LONG PIECES OF UNISTRUT
1" MOUNTING PIPE

GPS SPECIFICATION

24"x36" SCALE: 3" = 1'-0"
11"x17" SCALE: 1-1/2" = 1'-0"

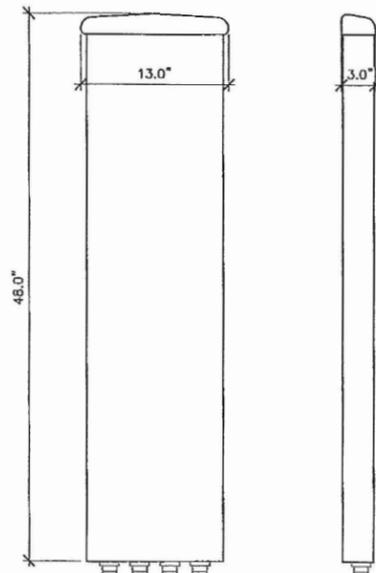
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RRU SPECIFICATION

24"x36" SCALE: 1-1/2" = 1'-0"
11"x17" SCALE: 3/4" = 1'-0"

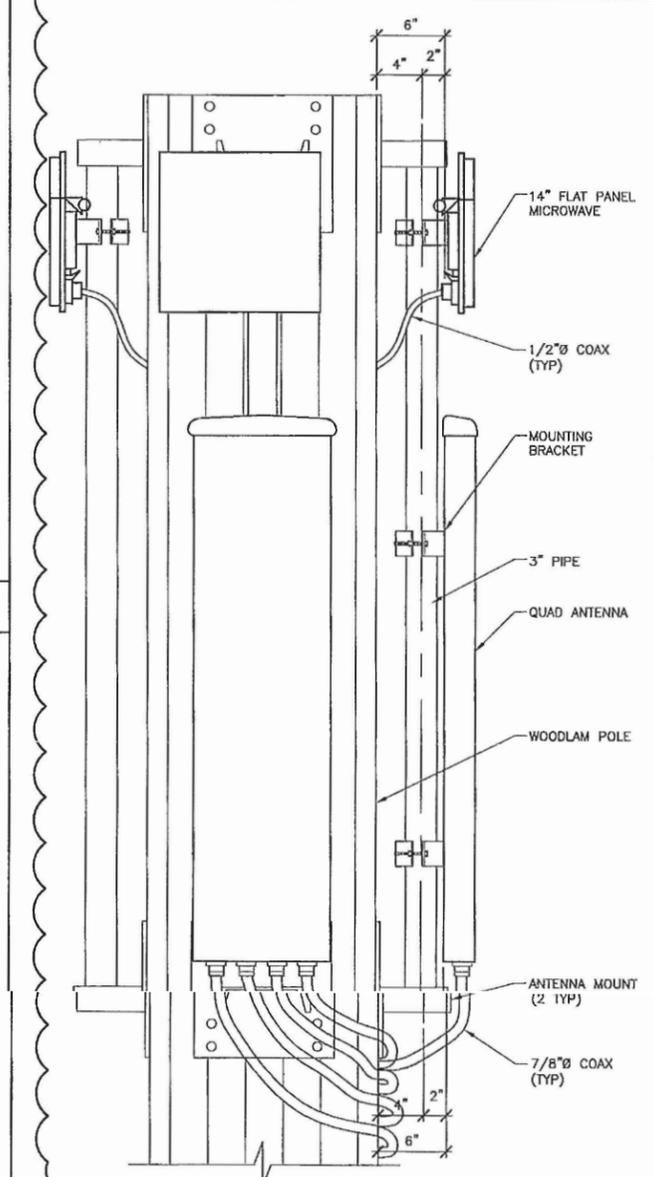
5



ANTENNA SPECIFICATION

24"x36" SCALE: 1-1/2" = 1'-0"
11"x17" SCALE: 3/4" = 1'-0"

4



ANTENNA ENLARGED ELEVATION

24"x36" SCALE: 1-1/2" = 1'-0"
11"x17" SCALE: 3/4" = 1'-0"

4

SIGNS AND PLACEMENT:
1. LOW LEVEL BLUE NOTICE SIGNS - PLACE AT SITE ENTRY / ACCESS POINTS ONLY.
- ROOFTOPS: PLACE SIGNS ON THE INSIDE OF ROOF HATCH; PLACE ON ACCESS DOOR UNLESS DOOR IS USED BY GENERAL PUBLIC OR BUILDING TENANTS ON A REGULAR BASIS FOR ACCESS - IN THESE CASES CONSULT CONSTRUCTION MANAGER.
- WATER TANKS: PLACE SIGNS ON COMPOUND GATE.
- NETWORK CARRIER OWNED SITES: PLACE ONE SIGN ON COMPOUND GATE; ALL SIGNS SHALL BE SECURED WITH EITHER STAINLESS STEEL ZIP TIES OR STAINLESS TECH SCREWS.

2. CONSTRUCTION COORDINATOR PARTICIPATION IN SIGN LOCATION: NETWORK CARRIER CONSTRUCTION MANAGER SHALL MEET WITH ALL CONSTRUCTION COORDINATOR'S TO OUTLINE CRITERIA FOR SIGN PLACEMENT. EMPHASIS SHALL BE PLACED ON "CHALLENGING" SITES, WHERE THE NETWORK CARRIER CONSTRUCTION MANAGERS SHALL GIVE CONSTRUCTION COORDINATOR'S AS MUCH GUIDANCE ON EACH SPECIFIC SITUATION AS POSSIBLE. HOWEVER, CONSTRUCTION COORDINATOR'S SHALL BE ENCOURAGED TO PARTNER WITH NETWORK CARRIER CONSTRUCTION MANAGER IN DECIDING PLACEMENT PERTAINING TO CHALLENGING SITES. A SITE VISIT MAY BE REQUIRED TO FULFILL REQUIREMENTS. CONSTRUCTION COORDINATOR SHALL IDENTIFY ALL SIGN LOCATIONS AT THE A&E WALK. PLEASE SEE SIGN DETAIL AND SIZE.

3. SIGN DISBURSEMENT FROM WAREHOUSE: SIGN INVENTORY SHALL BE ACCESSIBLE AT NETWORK CARRIER WAREHOUSE TO BE DISBURSED AS PART OF THE GENERAL CONTRACTOR BOM AS CALLED OUT IN A&E DRAWINGS FOR EACH SITE.



FCC NOTICE SIGNAGE

24"x36" SCALE: NOT TO SCALE
11"x17" SCALE: NOT TO SCALE

3

CLEARWIRE ANTENNA INFORMATION								
SECTOR	ANTENNA	BAND #	AZIMUTH	MODEL	QTY.	DOWNTILT	RAD CENTER FT. AGL	COAX LENGTH (±)
A	RED	1	20°	POWERWAVE	1	0	49'-7"	70'-0"
B	BLUE	2	100°	POWERWAVE	1	0	49'-7"	70'-0"
C	YELLOW	3	270°	POWERWAVE	1	0	49'-7"	70'-0"
	MW		166°	ANDREW	1	0	53'-0"	70'-0"
	MW		TBD	ANDREW	1	0	53'-0"	70'-0"
	MW		TBD	ANDREW	1	0	53'-0"	70'-0"

GPS ANTENNA LOCATION OPTIONS: (1) EQUIPMENT CABINET; (2) ANTENNA MAST; (3) H-FRAME; FIELD VERIFY

LABEL MARKING SHALL BE PLACED AT:
1. WITHIN 12" OF CABLE AT BOTH ENDS
2. AT/NEAR TOWER MGB
3. PRIOR TO ENTRY INTO THE CABINET FOR A CABLE SUPPORT BRIDGE
*COORDINATE BACKHAUL INSTALLATION WITH FINAL ENGS

ANTENNA SCHEDULE

24"x36" SCALE: NOT TO SCALE
11"x17" SCALE: NOT TO SCALE

2

clear wire®

4400 CARILLON POINT
KIRKLAND, WA 98033

PTS

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EASTGATE
WA-SEA0356-B

SOUTH OF 150TH AVE AND SE 46TH WAY
BELLEVUE, WA 98006

REVISIONS

NO.	DATE	DESCRIPTION	INITIAL
1	10-12-08	PRELIMINARY CONSTRUCTION DRAWINGS	CBK
2	10-14-08	FINAL CONSTRUCTION DRAWINGS	PHD
3	12-21-08	REV A / FINAL CONSTRUCTION DRAWINGS	PHD
4	12-23-08	REV B / FINAL CONSTRUCTION DRAWINGS	CBK
5	02-25-10	SUBMITTAL SET	PHD
6	05-06-10	CITY REVISIONS	PHD
7	08-10-10	LANDSCAPE REVISIONS	PHD

NOT FOR CONSTRUCTION UNLESS LABELED AS CONSTRUCTION SET

SHEET TITLE
RF INFORMATION AND DETAILS

SHEET NUMBER

RF-1

EQUIPMENT SPECIFICATIONS:

- 1) BINOCULARS OR SPOTTING SCOPE, COMPASS, TELESCOPIC ANTENNA POINTING DEVICE, SURVEYOR'S MAP, INCLINOMETER AND DECLINATION INFORMATION FROM MAGNETIC NORTH.
- 2) TRANSMISSION LINE TEST EQUIPMENT; MAY BE EITHER OF THE FOLLOWING TEST EQUIPMENT SUITES BUT MUST MATE WITH BOTH N-TYPE AND DIN-TYPE CONNECTORS
- 3) PRECISION N-TYPE TERMINATIONS FOR TEST EQUIPMENT CALIBRATION
 - A) MATCHED LOAD (50 OHM TERMINATION AT PCS/ESMR FREQUENCIES)
 - B) SHORT LOAD
 - C) OPEN LOAD
- 4) PLOTTER/PRINTER OR LAPTOP PC WITH CABLING
- 5) PRECISION DIN-TYPE TERMINATIONS FOR SWEEP TESTS
 - A) 7/16 DIN PRECISION SHORT TERMINATION
 - B) 7/16 DIN PRECISION OPEN TERMINATION
 - C) 7/16 DIN PRECISION MATCHED LOAD TERMINATION
- 6) N TYPE PRECISION SHORT TERMINATION (AT GPS FREQUENCIES)
- 7) TORQUE WRENCH WITH INCREMENTS DOWN TO 5 IN-LBS (NOTE: WHEN USING THE ANRITSU SITE MASTER YOU MUST BE AWARE OF WHAT YOU HAVE THE SITE MASTER MODE SET-UP TO MEASURE. IF THE SITE MASTER MODE IS SET-UP TO MEASURE RETURN LOSS YOU MUST DIVIDE THE PEAK AND VALLEY MEASUREMENTS BY (4) TO GET THE CORRECT INSERTION LOSS. IF THE SITE MASTER MODE IS SET-UP TO MEASURE CABLE LOSS YOU MUST DIVIDE THE PEAK AND VALLEY MEASUREMENTS BY (2) TO GET THE CORRECT INSERTION LOSS.

THE MATHEMATICAL MODEL FOR RL OF EACH CABLE ASSEMBLY (JUMPER, OR MAIN LINE) IS PROVIDED BELOW:

- 1) CONVERT ALL COMPONENTS VSWR'S TO REFLECTION COEFFICIENT:
 $REFL\ COEFF = (VSWR - 1) / (VSWR + 1)$
- 2) CALCULATE FEEDER ATTENUATION FACTOR:
 $ATT\ FACTOR = EXP(-(ATTENUATION\ (DB/100FT) * LENGTH\ (FT)) / 434.3)$
- 3) COLLECT CONTRIBUTING REFLECTIONS AT BOTTOM OF SYSTEM
- 4) MULTIPLY REFLECTION COEFFICIENTS OF TOP COMPONENTS BY ATTENUATION FACTOR FROM STEP 2
- 5) REFLECTION COEFFICIENTS OF BOTTOM COMPONENTS ARE UNCHANGED
- 6) DETERMINE RSS (ROOT SUM OF THE SQUARES) OF REFLECTIONS FROM STEP 3
 $RFF = (REF1^2 + REF2^2 + REF3^2 + \dots)^{.5}$
- 7) CALCULATE EXPECTED SYSTEM VSWR AND RETURN LOSS:
 $VSWR = (1 + RFF) / (1 - RFF)$ RET LOSS = $-20 * LOG\ 10(RSS)$

TEST EQUIPMENT SUITES	
OPTION A	OPTION B
WILTRON SITEMASTER S331 CABLE AND ANTENNA ANALYZER OR EQUIVALENT EQUIPMENT	SPECTRUM ANALYZER WITH PLOT STORAGE CAPABILITY (800MHz-2.1 GHz RANGE) OR APPROVED EQUAL
SPECTRUM ANALYZER (FOR PORT-TO-PORT TESTING)	SIGNAL GENERATOR (800MHz-2.1 GHz RANGE)
SIGNAL GENERATOR (FOR PORT-TO-PORT TESTING)	DIRECTIONAL COUPLER (40 dB DIRECTIVITY OR BETTER)
	EITHER FFT CAPABILITY FOR THE SPECTRUM ANALYZER OR TDR EQUIPMENT

SWEEP TEST PROCEDURE:

PRELIMINARY VISUAL INSPECTION
 PRIOR TO TRANSMISSION LINE TESTING, A VISUAL INSPECTION IS TO BE PERFORMED TO VERIFY THAT THE CELL SITE IS PROPERLY CONFIGURED AND READY FOR SWEEP TESTING. THIS INSPECTION VERIFIES THAT PROPER TRANSMISSION LINE CABLES ARE INSTALLED, THAT ALL JUMPERS HAVE BEEN CONNECTED, AND THAT THE CABLES HAVE NO NOTICEABLE STRUCTURAL PROBLEMS.

TEST PREPARATION
 VERIFY THAT ALL TEST PERSONNEL AND EQUIPMENT ARE PRESENT, INCLUDING TOWER CREW FOR ANTENNA MAST ACCESS.

- TESTING SEQUENCE**
- 1) VERIFY THAT THE CORRECT BOTTOM JUMPER IS PRESENT (IF APPLICABLE) AND OF THE PROPER LENGTH AND NOTE IN THE CHECK-OFF SHEET
 - 2) VERIFY THAT THE CORRECT TOP JUMPER IS PRESENT (IF APPLICABLE) AND OF THE PROPER LENGTH AND NOTE IN THE CHECK-OFF SHEET.
 - 3) VISUALLY CHECK FOR ANY EXCESSIVE JUMPER STRESS CAUSED BY THE BEND RADIUS AT EITHER TOP OR BOTTOM JUMPER, AND NOTE ANY PROBLEMS IN THE CHECK-OFF SHEET.
 - 4) VERIFY THAT THE CORRECT ANTENNA(S) ARE INSTALLED FOR EACH SECTOR.
 - 5) VISUALLY VERIFY THAT CONNECTIONS BETWEEN JUMPERS AND MAIN FEED LINE ARE MATED.
 - 6) VISUALLY CHECK FOR DENTS, KINKS, OR OTHER OBVIOUS STRUCTURAL PROBLEMS WITH THE FEED-LINE OR JUMPERS.

EXIT CRITERIA
 VERIFY THAT THE CABLE AND ANTENNA ARE PROPERLY INSTALLED AND FREE FROM ANY OBVIOUS DEFECTS.

FEED LINE INSERTION LOSS TEST:

TEST
 THE INSERTION LOSS VALUES ARE TO BE OBTAINED OVER THE ENTIRE BLOCK ASSIGNED FREQUENCY RANGE (TO AVOID RE-CALIBRATION FOR DISTANCE-TO-FAULT TEST).

- TEST PREPARATION**
- 1) INSTALL A 7/16 DIN SHORTED LOAD INTO THE CONNECTOR AT THE ANTENNA END OF THE TRANSMISSION FEED LINE TOP JUMPER.
 - 2) VERIFY THE TORQUE SETTING OF THE FEED LINE CONNECTOR WITH THE SHORTED LOAD MATCHES THE MANUFACTURER'S RECOMMENDATIONS.
 - 3) SET THE TEST EQUIPMENT TO SWEEP THE FREQUENCY RANGE IN USE IN YOUR MARKET.
 - 4) IF THE FIELD ENGINEER PREFERENCES, THE TOWER GROUNDING AND THE FEED-LINE GROUNDING CAN BE DONE AT THIS POINT, THIS STEP IS THE FIELD ENGINEER'S PREROGATIVE.
 - 5) SET TRANSMIT POWER TO TEST EQUIPMENT DEFAULT
 - 6) CALIBRATE THE TEST EQUIPMENT ACCORDING TO TEST EQUIPMENT MANUFACTURER'S EQUIPMENT.
 - 7) VERIFY THAT THE DISPLAY WILL SHOW INSERTION LOSS (CALLED CABLE LOSS ON THE SITE MASTER); OR MEASURE RETURN LOSS THEN DIVIDE BY 2.
 - 8) CONNECT THE TEST EQUIPMENT TO THE BOTTOM JUMPER'S CONNECTOR AND ADJUST TO THE PROPER TORQUE SETTING. (SEE MANUFACTURER'S RECOMMENDATION)
 - 9) PERFORM SETUP AND MEASUREMENTS FOR ALL REMAINING TRANSMISSION LINES.

EXIT CRITERIA
 ALL TRANSMISSION LINES IN ALL SECTORS HAVE INSERTION LOSS LESS THAN OR EQUAL TO THE MAXIMUM ALLOWABLE THRESHOLD.

CABLE ATTN. (dB/FT)	CABLE LENGTH (FT)	INSERTION LOSS (dB)
BOTTOM JUMPER: _____ X _____		= _____
MAIN FEEDLINE: _____ X _____		= _____
TOP JUMPER: _____ X _____		= _____
	# CONNECTOR PAIRS	ATTEN. PER PAIR (dB)
	_____ X 0.14	= _____
BOTTOM JUMPER LOSS (dB)	MAIN FEEDLINE LOSS (dB)	TOP JUMPER LOSS (dB)
CONNECTOR LOSS (dB)		MAX. INSERTION LOSS (dB)
_____ + _____ + _____ = _____		

IF TOP AND BOTTOM JUMPERS ARE NOT APPLICABLE TO YOUR CABLE CONFIGURATION, ENTER (0) LOSS FOR THESE

FEED LINE DISTANCE-TO-FAULT TEST:

ANY DISCONTINUITY (CONNECTOR CONTACT, KINKED CABLE, DAMAGED CABLE, OR OTHER ANOMALY) IN A TRANSMISSION CABLE RESULTS IN THE REFLECTION OF SOME OF THE TRANSMITTED POWER. THIS REFLECTION IS A LOSS OF THE INTENDED TRANSMIT POWER AND IS CALLED "THE RETURN LOSS" BY MEASURING THE TIME REQUIRED FOR THE SIGNAL TO TRAVEL TO THE POINT OF ANOMALY AND BACK, ONE CAN DETERMINE THE ANOMALY'S DISTANCE FROM THE POINT OF ORIGINATION OF THE SIGNAL.

THE RETURN LOSS VALUES OF THE FEED LINE COMPONENTS ARE TO BE OBTAINED OVER THE ENTIRE BLOCK ASSIGNED FREQUENCY BAND. THIS TEST USES DISTANCE TO FAULT MEASUREMENTS TO DETERMINE THE RETURN LOSS ASSOCIATED WITH EACH CONNECTOR PAIR AND CABLE COMPONENT OF THE TRANSMISSION FEED LINE. THESE VALUES SHOULD BE REFERENCED TO THE THRESHOLD VALUES LISTED BELOW. IF THE VALUE OF THE RETURN LOSS DOES NOT MEET THIS VALUE, THEN THE APPLICABLE ANTENNA TRANSMISSION LINE SYSTEM FAILS. BY USING THIS TEST THE SUSPECT COMPONENT CAN BE LOCATED AND CORRECTED. THE DTF MEASUREMENT CAN THEN BE REPEATED TO VERIFY ADHERENCE TO SPECIFICATIONS.

ENTRANCE CRITERIA
 - PASSED PRELIMINARY VISUAL INSPECTION
 - PASSED FEED LINE INSERTION LOSS TEST

- TEST PREPARATION**
- 1) INSTALL A 7/16 DIN 50_MATCHED LOAD INTO THE CONNECTOR AT THE ANTENNA END OF TRANSMISSION FEED LINE TOP JUMPER
 - 2) VERIFY THE TORQUE SETTING OF THE FEED LINE CONNECTOR WITH THE MATCHED LOAD MATCHES THE MANUFACTURER'S RECOMMENDATIONS
 - 3) SET THE TEST EQUIPMENT FREQUENCY SWEEP RANGE FOR THE ASSIGNED FREQUENCY BAND USED IN THE MARKET. ENSURE THAT THE TRANSMITTED SWEEP FALLS WITHIN THE AUTHORIZED BAND FOR THE MARKET. FREQUENCIES USED ARE _____ MHZ OTHER FUTURE FREQUENCIES THAT REQUIRE SWEEPING ARE _____ MHZ
 - 4) CALIBRATE THE TEST EQUIPMENT ACCORDING TO TEST EQUIPMENT MANUFACTURER'S EQUIPMENT
 - 5) VERIFY THAT THE TEST EQUIPMENT IS CONFIGURED TO MEASURE DISTANCE TO FAULT
 - 6) CONNECT THE TEST EQUIPMENT TO THE BOTTOM JUMPER'S CONNECTOR AND ADJUST TO THE PROPER TORQUE SETTING

TESTING SEQUENCE
 NOTE MEASUREMENTS OF THE RETURN LOSS AND THE DISTANCE CORRESPONDING TO EACH CONNECTOR PAIR. ALSO NOTE THE LOWEST RETURN LOSS VALUE AND CORRESPONDING DISTANCE FOR EACH CABLE (WHERE PRACTICAL; USUALLY CABLES >=6'-0" IN LENGTH). IF THE MEASURED RETURN LOSS FOR ANY COMPONENT IS LESS THAN THE APPROPRIATE VALUE FROM THE TABLE BELOW, THE TEST HAS FAILED. REPLACE ANY FAILED COMPONENTS AND RE-TEST THE TRANSMISSION LINE FROM THE BEGINNING OF THE ATP. PERFORM THE SETUP AND MEASUREMENTS FOR ALL REMAINING LINES

EXIT CRITERIA
 ALL TRANSMISSION LINE COMPONENTS IN ALL SECTORS HAVE RETURN LOSS GREATER THAN OR EQUAL TO THE MINIMUM ALLOWABLE THRESHOLD.

MINIMUM COMPONENT RETURN LOSS VALUES	
COMPONENT	RETURN LOSS (dB)
CONNECTORS	> 30
CABLE	> 45

ANTENNA SUBSYSTEM RETURN LOSS TEST:

THE RETURN LOSS VALUES OF THE ANTENNA SUBSYSTEM COMPONENT (NOT TO INCLUDE TRANSMISSION FEED LINE CONTRIBUTIONS) ARE TO BE OBTAINED FOR THE COMPANY'S ASSIGNED FREQUENCIES IN YOUR MARKET. THESE VALUES SHOULD BE REFERENCED TO THE THRESHOLD VALUES CALCULATED FOR YOUR SPECIFIC ANTENNA. IF THE VALUE OF THE RETURN LOSS IS LESS THAN THE THRESHOLD VALUE, THEN THE ANTENNA FAILS AND NEEDS TO BE ANALYZED AND CORRECTED BEFORE REPEATING THIS TEST. THIS TEST MUST BE REPEATED FOR EACH CARRIER FREQUENCY IN USE AT THE SITE.

ENTRANCE CRITERIA
 VERIFY THAT THE FREQUENCY CHANNELS ARE CLEAR BY REFERENCING THE ANTENNA SWEEP ANALYSIS FOR YOUR MARKET BY CONTACTING RF ENGINEERING.
 - PASSED PRELIMINARY VISUAL INSPECTION
 - PASSED FEED LINE INSERTION LOSS TEST
 - PASSED FEED LINE DISTANCE-TO-FAULT TEST

- TEST PREPARATION - BTS RECEIVE FREQUENCY TEST**
 CONNECT THE TEST EQUIPMENT TO THE BOTTOM JUMPER'S CONNECTOR AND ADJUST TO THE PROPER TORQUE SETTING. (SEE MANUFACTURER'S RECOMMENDATION)
 SET THE TEST EQUIPMENT FREQUENCY SWEEP RANGE TO THE BASE STATION RECEIVE FREQUENCIES USED IN YOUR MARKET.
- 1) CALIBRATE THE TEST EQUIPMENT WITH RESPECT TO THE END OF THE TOP JUMPER ACCORDING TO MANUFACTURER'S INSTRUCTION. (CALIBRATE WITH AN OPEN, SHORT AND 50 OHM LOAD)
 - 2) VERIFY THAT THE DISPLAY WILL SHOW RETURN LOSS VALUES.
 - 3) REMOVE THE CALIBRATION LOAD FROM THE TOP JUMPER CONNECTOR AND CONNECT THE ANTENNA TO THE FEED LINE TOP JUMPER.
 - 4) VERIFY THE TORQUE SETTING OF THE FEED LINE CONNECTOR WITH THE ANTENNA MATCHES THE MANUFACTURER'S RECOMMENDATIONS.

TEST EQUIPMENT CONNECTION
TESTING SEQUENCE - BTS RECEIVE FREQUENCY TESTS
 TAKE MEASUREMENT OF THE LOWEST RETURN LOSS VALUE OVER THE FREQUENCY BAND AND RECORD THE VALUE. IF THE MEASURED RETURN LOSS FOR THE ANTENNA IS LESS THAN THE THRESHOLD VALUE CALCULATED, THEN THE TEST HAS FAILED.

- TEST PREPARATION - BTS TRANSMIT FREQUENCY TESTS**
- 1) SET THE TEST EQUIPMENT FREQUENCY SWEEP RANGE TO THE BASE STATION TRANSMIT FREQUENCIES USED IN YOUR MARKET.
 - 2) SET TRANSMIT POWER TO TEST EQUIPMENT DEFAULT.
 - 3) CALIBRATE THE TEST EQUIPMENT WITH RESPECT TO THE END OF THE TOP JUMPER ACCORDING TO MANUFACTURER'S INSTRUCTIONS. (CALIBRATE WITH AN OPEN, SHORT, AND 50 OHM LOAD).
 - 4) VERIFY THAT THE DISPLAY WILL SHOW RETURN LOSS.

TESTING SEQUENCE - BTS TRANSMIT FREQUENCY TESTS
 TAKE MEASUREMENT OF THE LOWEST RETURN LOSS VALUE OVER THE FREQUENCY BAND AND RECORD THE VALUE IN THE PROVIDED WORKSHEET IF THE MEASURED RETURN LOSS FOR THE ANTENNA IS LESS THAN THE THRESHOLD VALUE CALCULATED, THEN THE TEST IS FAILED.

PERFORM THE ABOVE SETUP AND MEASUREMENTS FOR ALL REMAINING TRANSMISSION LINES.

EXIT CRITERIA
 ALL ANTENNAS IN ALL SECTORS HAVE RETURN LOSS GREATER THAN OR EQUAL TO THE MINIMUM ALLOWABLE THRESHOLD.

TRANSMISSION SYSTEM RETURN LOSS TEST:

THE RETURN LOSS VALUE FOR THE AGGREGATE TRANSMISSION LINE AND ANTENNA SYSTEM (INCLUDING WEATHER PROOFING) IS TO BE OBTAINED FOR BOTH THE BASE STATION TRANSMIT AND RECEIVE FREQUENCIES ASSIGNED AND CLEARED IN YOUR MARKET. THESE VALUES SHOULD BE REFERENCED TO THE THRESHOLD VALUE. IF THE VALUE OF THE RETURN LOSS IS LESS THAN THE DESIGNED VALUE, THEN THE SYSTEM FAILS AND NEEDS TO BE ANALYZED AND CORRECTED BEFORE REPEATING THE ATP.

ENTRANCE CRITERIA
 - VERIFY THAT THE FREQUENCY CHANNELS ARE CLEAR BY CONTACTING RF ENGINEERING
 - PASSED PRELIMINARY VISUAL INSPECTION
 - PASSED FEED LINE INSERTION LOSS TEST
 - PASSED FEED LINE DISTANCE-TO-FAULT TEST

- TEST PREPARATION - BTS RECEIVE FREQUENCY TESTS**
- 1) VERIFY THAT ANTENNAS ARE CONNECTED TO THE APPROPRIATE FEED LINE AS DESIGNATED IN THE COLOR CODING SCHEME (SEE CONSTRUCTION SPECIFICATIONS)
 - 2) DETERMINE THE RETURN LOSS VALUE OF THE ANTENNA
 - 3) VERIFY THE TORQUE/CRIMPER SETTING OF THE FEED LINE CONNECTOR, MATCHES THE MANUFACTURER'S RECOMMENDATIONS.
 - 4) APPLY WEATHER PROOFING TO EACH ANTENNA/CONNECTOR INTERFACE. AVOID BLOCKING ANY WEEP HOLES ON THE ANTENNA.
 - 5) CONNECT THE TEST EQUIPMENT TO THE BOTTOM JUMPER'S CONNECTOR AND ADJUST TO THE PROPER TORQUE SETTING. (SEE MANUFACTURER'S RECOMMENDATION).
 - 6) SET THE TEST EQUIPMENT FREQUENCY SWEEP RANGE TO THE BASE STATION RECEIVE RF FREQUENCIES USED IN YOUR MARKET.
 - 7) CALIBRATE THE TEST EQUIPMENT ACCORDING TO TEST EQUIPMENT MANUFACTURER'S EQUIPMENT.
 - 8) VERIFY THAT THE DISPLAY WILL SHOW RETURN LOSS.

THE SWEEP TESTS PROVIDE A MEANS OF DETERMINING THE CONDITION OF THE TRANSMISSION SYSTEM. IT IS IMPORTANT TO MAINTAIN A VALUE OF RETURN LOSS THAT IS AS LOW AS POSSIBLE TO MAINTAIN THE SYSTEM INTEGRITY. IT IS ALSO VITALLY IMPORTANT TO REALIZE THE PROPER TEST CONDITIONS WHEN ANALYZING THE SYSTEM. THE BEST RETURN LOSS FIGURES WILL ALWAYS OCCUR WHEN THERE IS A 50 OHM LOAD PRESENT AT THE END OF THE TRANSMISSION LINE RATHER THAN AN ANTENNA. IT IS ALSO IMPORTANT TO COMPARE SWEEP RESULTS USING THE SAME EXACT SETUP. THAT IS IF THE MEASUREMENT WAS MADE WITH AN ANTENNA THE COMPARED RESULTS MUST BE MADE WITH THE SAME ANTENNA OR ONE WITH VERY SIMILAR RETURN LOSS CHARACTERISTICS. IF THE RESULTS WERE OBTAINED WITH A 50 OHM LOAD THEY MUST BE COMPARED WITH A 50 OHM TERMINATION.

TESTING SEQUENCE - BTS RECEIVE FREQUENCY TESTS
 TAKE MEASUREMENT OF THE LOWEST RETURN LOSS VALUE OVER THE FREQUENCY BAND AND RECORD THE VALUE. IF THE MEASURED RETURN LOSS FOR THE TRANSMISSION SYSTEM IS LESS THAN THE THRESHOLD VALUE, THEN THE TEST HAS FAILED. IF A FAILURE OCCURS, PERFORM A DISTANCE TO FAULT MEASUREMENT AND REPLACE THE SUSPECT COMPONENT. (NOTE: AT THIS POINT, IF ALL OF THE PREVIOUS TESTS HAVE BEEN PERFORMED, THE ANTENNA CONNECTION IS MOST LIKELY FAULTY). IF REPAIRS INVOLVE COMPONENTS OTHER THAN THE ANTENNA/ANTENNA CONNECTION RE-TEST THE TRANSMISSION LINE FROM THE BEGINNING OF THE ATP.

TEST PREPARATION - BTS TRANSMIT FREQUENCY TESTS
 - SET THE TEST EQUIPMENT FREQUENCY SWEEP RANGE TO THE BASE STATION TRANSMIT RF FREQUENCIES USED IN YOUR MARKET.

- SET TRANSMIT POWER TO TEST EQUIPMENT DEFAULT
- CALIBRATE THE TEST EQUIPMENT ACCORDING TO TEST EQUIPMENT MANUFACTURER'S EQUIPMENT
- VERIFY THAT THE DISPLAY WILL SHOW RETURN LOSS
- VERIFY RETURN LOSS VALUES

TESTING SEQUENCE - BTS TRANSMIT FREQUENCY TESTS
 - TAKE MEASUREMENT OF THE LOWEST RETURN LOSS VALUE OVER THE FREQUENCY BAND AND RECORD THE VALUE. IF THE MEASURED RETURN LOSS FOR THE ANTENNA IS LESS THAN THE THRESHOLD VALUE, THEN THE TEST HAS FAILED. IF A FAILURE OCCURS, PERFORM A DISTANCE TO FAULT MEASUREMENT AND REPLACE THE SUSPECT COMPONENT. (NOTE: AT THIS POINT, IF ALL OF THE PREVIOUS TESTS HAVE BEEN PERFORMED, THE ANTENNA CONNECTION IS MOST LIKELY FAULTY). IF REPAIRS INVOLVE COMPONENTS OTHER THAN THE ANTENNA/ANTENNA CONNECTION, RE-TEST THE TRANSMISSION LINE FROM THE BEGINNING OF THE ATP
 - PERFORM THE ABOVE SETUP AND MEASUREMENTS FOR ALL REMAINING TRANSMISSION LINES

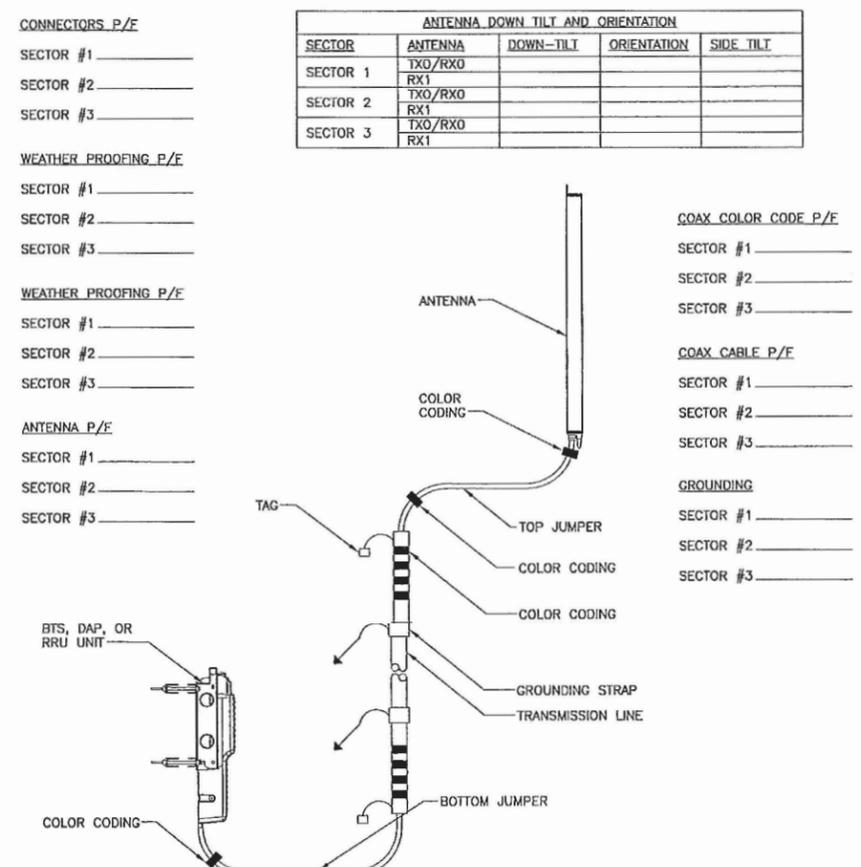
EXIT CRITERIA
 ALL ANTENNAS AND COMPONENTS IN ALL SECTORS HAVE RETURN LOSS GREATER THAN OR EQUAL TO THE MINIMUM ALLOWABLE THRESHOLD VALUE.
 - PASSED PRELIMINARY VISUAL INSPECTION
 - PASSED FEED LINE INSERTION LOSS TEST
 - PASSED FEED LINE DISTANCE-TO-FAULT TEST
 - PASSED ANTENNA SUBSYSTEM RETURN LOSS TEST

FINAL VISUAL INSPECTION:

ENTRANCE CRITERIA
 PASSED ALL ELECTRICAL TESTS.

- TESTING SEQUENCE**
- 1) VERIFY THAT THE RADOMES ON ALL ANTENNAS ARE SEALED AND DO NOT HAVE ANY CRACKS, INCLUDING GPS
 - 2) CHECK THE ANTENNA MOUNTING
 - 3) MEASURE ANTENNA ORIENTATION TO WITHIN 2 DEGREE RELATIVE TO MAGNETIC NORTH. MEASURE MECHANICAL DOWN-TILT TO WITHIN 0.25 DEGREE FROM HORIZONTAL FOR EACH ANTENNA IN EACH SECTOR. RECORD DOWN-TILT AND ORIENTATION ON THE VISUAL INSPECTION CHECK-OFF SHEET.
 - 4) VERIFY THAT ANTENNA IS VERTICAL IN THE NON-TILT PLANE, I.E., NO SIDE TILT, (AZIMUTH PLANE IS HORIZONTAL) TO WITHIN 0.25 DEGREES AND RECORD AS PASS OR FAIL ON THE VISUAL INSPECTION CHECK-OFF SHEET.
 - 5) VERIFY THE COAXIAL COLOR CODING MATCHES THE CORRECT ANTENNA AND SECTOR AND INDICATE AS PASS OR FAIL ON THE VISUAL INSPECTION CHECK-OFF SHEET. (SEE CONSTRUCTION SPECIFICATION FOR ANTENNA CABLE COLOR CODING SCHEME).
 - 6) VERIFY THAT APPROPRIATE TAGS ARE ATTACHED TO THE TOP AND BOTTOM OF THE FEED LINE SYSTEM AND INDICATE PASS OR FAIL ON THE VISUAL INSPECTION CHECK-OFF SHEET.
 - 7) VERIFY THAT CONNECTOR WEATHER PROOFING IS COMPLETE AND INDICATE ON THE VISUAL INSPECTION CHECK-OFF SHEET.
 - 8) CAREFULLY CHECK ALL ANTENNA FEED LINES FOR DENTS AND KINKS AND OTHER ANOMALIES AND INDICATE OBSERVATIONS ON THE VISUAL INSPECTION CHECK-OFF SHEET.
 - 9) RECORD ALL INFORMATION IN THE SITE LOG BOOK AND THE SITE SPREADSHEET

EXIT CRITERIA
 SUCCESSFUL COMPLETION OF THE ANTENNA SWEEPING ATP



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 4400 CARILLON POINT
 KIRKLAND, WA 98033

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 Seattle, WA, 98104
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EASTGATE
 WA-SEA0356-B

SOUTH OF 150TH AVE AND SE 46TH WAY
 BELLEVUE, WA 98006

REVISIONS			
NO.	DATE	DESCRIPTION	INITIAL
1	10-12-09	PRELIMINARY CONSTRUCTION DRAWINGS	CBK
2	10-14-09	FINAL CONSTRUCTION DRAWINGS	PHD
3	12-21-09	REV. FINAL CONSTRUCTION DRAWINGS	PHD
4	12-23-09	REV. FINAL CONSTRUCTION DRAWINGS	CBK
5	02-25-10	SUBMITTAL SET	PHD
6	05-05-10	CITY REVISIONS	PHD
7	08-10-10	LANDSCAPE REVISIONS	PHD

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SHEET TITLE
 SWEEP TEST

SHEET NUMBER
RF-2

P65-18-XXW2-R

Dual High Broadband Cross Polarized

POLARIZATION: XX-Pol
 FREQUENCY (MHz): 2496-2690
 HORIZONTAL BEAM WIDTH (°): 65
 GAIN (dBi/dBd): 18/15.9
 TILT: Integrated Electrical Tilt (IRET)
 LENGTH: 1.2M (48")

PRELIMINARY

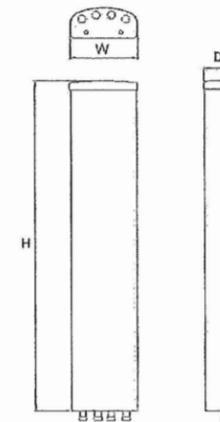
ELECTRICAL SPECIFICATIONS*

Frequency range (MHz)	2496-2690
Frequency band (MHz)	2496-2690
Gain (dBi/dBd)	18/15.9
Polarization	Dual Linear $\pm 45^\circ$
Nominal Impedance (Ω)	50
VSWR	<1.4:1
Horizontal beam width, -3 dB (°)	65
Vertical beam width, -3 dB (°)	5.5
Electrical down tilt (°)	0-10
Side lobe suppression, vertical 1st upper (dB)	<15, 18, 15 @ 0.5, 10°
Isolation between inputs (dB)	>30
Inter band Isolation (dB)	
Tracking, horizontal plane $\pm 60^\circ$ (dB)	<2.0
First null fill (dB)	>-24 Typical >-18
Vertical beam squint (°)	0.5
Front to back ratio (dB)	>27
Front to back ratio, total power (dB)	>25
Cross polar discrimination (XPD) 0° (dB)	>15
Cross polar discrimination (XPD) $\pm 60^\circ$ (dB)	>10
Far field coupling	
IM3, 2xTx@43dBm (dBc)	<-153
Power handling, average per input (W)	250
Power handling, average total (W)	1000

MECHANICAL SPECIFICATIONS*

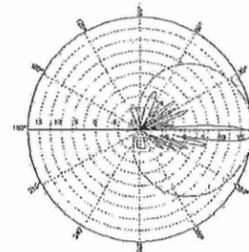
Connector	4x7/16 DIN Female
Connector position	Bottom
Dimensions, HxWxD, mm (ft)	1219x343x89.5 (4'x1'1"x3")
Mounting	Pre-mounted heavy duty brackets
Weight, with brackets, kg (lbs)	14.6 (32)
Weight, without brackets, kg (lbs)	9.1 (20)
Wind load, frontal/lateral/rear side 42 m/s Cd=1.6 (N)	1093
Maximum operational wind speed, m/s (mph)	42 (93)
Survival wind speed, m/s (mph)	55 (123)
Lightning protection	DC Grounded
Radome material	ASA
Radome colour	Light Grey
Package size, HxWxD, mm (ft)	1430x400x200 (4'8"x1'3"x8")
Shipping weight, kg (lbs)	18.6 (41)
Brackets	7256.00, 7454.00, 2210.10

*All specifications subject to change without notice. Please contact your Powerwave representative for complete performance data.



ANTENNA PATTERNS*

For detailed patterns visit <http://www.powerwave.com/rpa/>.



Typical Horizontal and Vertical Pattern for Above Antenna

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6	06-06-10	CITY REVISIONS	PHD
7	08-10-10	LANDSCAPE REVISIONS	PHD

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SHEET TITLE
 ANTENNA SPECIFICATIONS

SHEET NUMBER

RF-3

GROUNDING KEYED NOTES:

- 1 INTERNAL SITE SUPPORT CABINET GROUND BUSS BAR. SEE DETAIL 5/E-2 FOR GROUND BAR CONSTRUCTION AND 9/E-2 FOR GROUND WIRE CONNECTIONS
- 2 INTERNAL SITE SUPPORT TELCO BOX GROUND BUSS BAR. SEE DETAIL 5/E-2 FOR GROUND BAR CONSTRUCTION AND 9/E-2 FOR GROUND WIRE CONNECTIONS
- 3 MAIN GROUND BAR MOUNTED ON CONCRETE SLAB. SEE DETAIL 5/E-2 FOR GROUND BAR CONSTRUCTION AND 9/E-2 FOR GROUND WIRE CONNECTIONS
- 4 #2 EXTERNAL GROUND RING. SEE DETAIL 12/E-2.
- 5 #2 EXTERNAL TOWER GROUND RING. SEE DETAIL 12/E-2/
- 6 GROUND ROD SPACED 6'-0" APART. SEE DETAIL 10/E-2.
- 7 TEST WELL. SEE DETAIL 11/E-2.
- 8 CAD WELD. SEE DETAIL 3/E-2.
- 9 #2 AWG GROUND FROM TELCO BOX GROUND BUSS BAR TO SITE SUPPORT CABINET GROUND BUSS BAR SEE DETAIL 9/E-2
- 10 #6 AWG GROUND FROM BREAKER BOX TO THE TELCO BOX GROUND BUSS BAR SEE DETAIL 9/E-2
- 11 #6 AWG GROUND FROM BREAKER BOX TO THE TELCO BOX
- 12 #2 AWG GROUND FROM SITE SUPPORT CABINET GROUND BUSS BAR TO MAIN GROUND BAR (TYP OF (2) PLACES) SEE DETAIL 9/E-2
- 13 #2 AWG GROUND FROM MAIN GROUND BAR TO EXTERNAL GROUND RING (TYP OF (2) PLACES) SEE DETAIL 12/E-2
- 14 ANTENNA GROUND BUSS BAR AT ANTENNA LEVEL OF TOWER WITH COAX GROUND KIT. SEE DETAIL 5/E-2 FOR GROUND BAR CONSTRUCTION, 9/E-2 FOR GROUND WIRE CONNECTIONS, AND 2/E-2 FOR COAX GROUNDING.
- 15 TOWER GROUND BUSS BAR AT BOTTOM OF TOWER WITH COAX GROUND KIT. SEE DETAIL 5/E-2 FOR GROUND BAR CONSTRUCTION, 9/E-2 FOR GROUND WIRE CONNECTIONS, AND 2/E-2 FOR COAX GROUNDING.
- 16 #6 AWG ANTENNA MOUNT GROUND TO ANTENNA GROUND BUSS BAR (TYP). SEE DETAIL 4/E-2.
- 17 #2 AWG GROUND FROM ANTENNA GROUND BUSS BAR TO TOWER GROUND BUSS BAR (TYP OF (2) PLACES). SEE DETAIL 9/E-2.
- 18 #2 AWG GROUND FROM TOWER GROUND BUSS BAR TO TOWER GROUND RING (TYP OF (2) PLACES). SEE DETAIL 12/E-2
- 19 #6 AWG GROUND FROM GPS ANTENNA MOUNT TO TOWER GROUND BUSS BAR SEE DETAIL 12/E-2
- 20 #6 AWG GROUND FROM POWER METER TO ISOLATED GROUND ROD SEE DETAIL 10/E-2.
- 21 #6 AWG DAP TO TOWER GROUND BUSS BAR (TYP OF (3) PLACES). SEE DETAIL 4/E-2.
- 22 #2 AWG GROUND FROM EXTERNAL GROUND RING TO TOWER GROUND RING (TYP OF (2) PLACES). SEE DETAIL 12/E-2.

GROUNDING NOTES:

1. CONTRACTOR SHALL CAREFULLY REVIEW GROUNDING NOTES AND CONSULT WITH TOWER OWNER FOR SITE SPECIFIC CONDITIONS IF THERE SHOULD BE ANY FURTHER CLARIFICATIONS NEEDED
2. CLEARWIRE GROUNDING LEADS COMING FROM BOTH ANTENNAS AND COAX GROUND KITS SHALL BE DIRECTED TO A DEDICATED CLEARWIRE BUSS BARS AND SHALL BE LOCATED UP ON A GIVEN POLE OR TOWER NEAR THE BOTTOM OF ANTENNAS BEING DIRECTLY FASTENED TO THE STEEL STRUCTURE WITH STAINLESS STEEL HARDWARE AND / OR ANGLE ADAPTERS (E.G. PIROD / VALMONT GROUNDING BUSS BAR PART NUMBER B2981 [CLEARWIRE CONSTRUCTION MANAGER SHALL CONFIRM BUSS BAR PART PRIOR TO CONTRACTOR PURCHASE OF PART] BEING ANCHORED TO A MOUNTING BRACKET KIT FOR B2372 OR EQUIVALENT OR BEING MOUNTED WITH UNIVERSAL CLAMP NUMBER B1852 OR EQUIVALENT [W/O CHERRY INSULATORS]).
3. ANCHORING OF CLEARWIRE UPPER BUSS BAR SHALL NOT EMPLOY THE USE OF DRILLING, WELDING OR CUTTING INTO THE EXISTING POLE OR TOWER (ALL NEW ATTACHMENT BRACKETS SHALL BE CLAMPED OR MECHANICALLY FASTENED TO POLE OR TOWER).
4. CLEARWIRE ANTENNA AND COAX GROUND LEADS SHALL TERMINATE AT UPPER BUSS BAR W/O INSULATORS AT THE NEAR ANTENNA LOCATION WITH LEADS NOT CONTINUING DOWN THE POLE SHAFT OF TOWER LEG (TOWER STRUCTURE SHALL SERVE AS GROUNDING MEDIUM IN ORDER TO ENSURE THAT ALL EQUIPMENT ON THE TOWER IS ON THE SAME GROUND POTENTIAL MAINTAINING ONE COMMON GROUND PLANE).

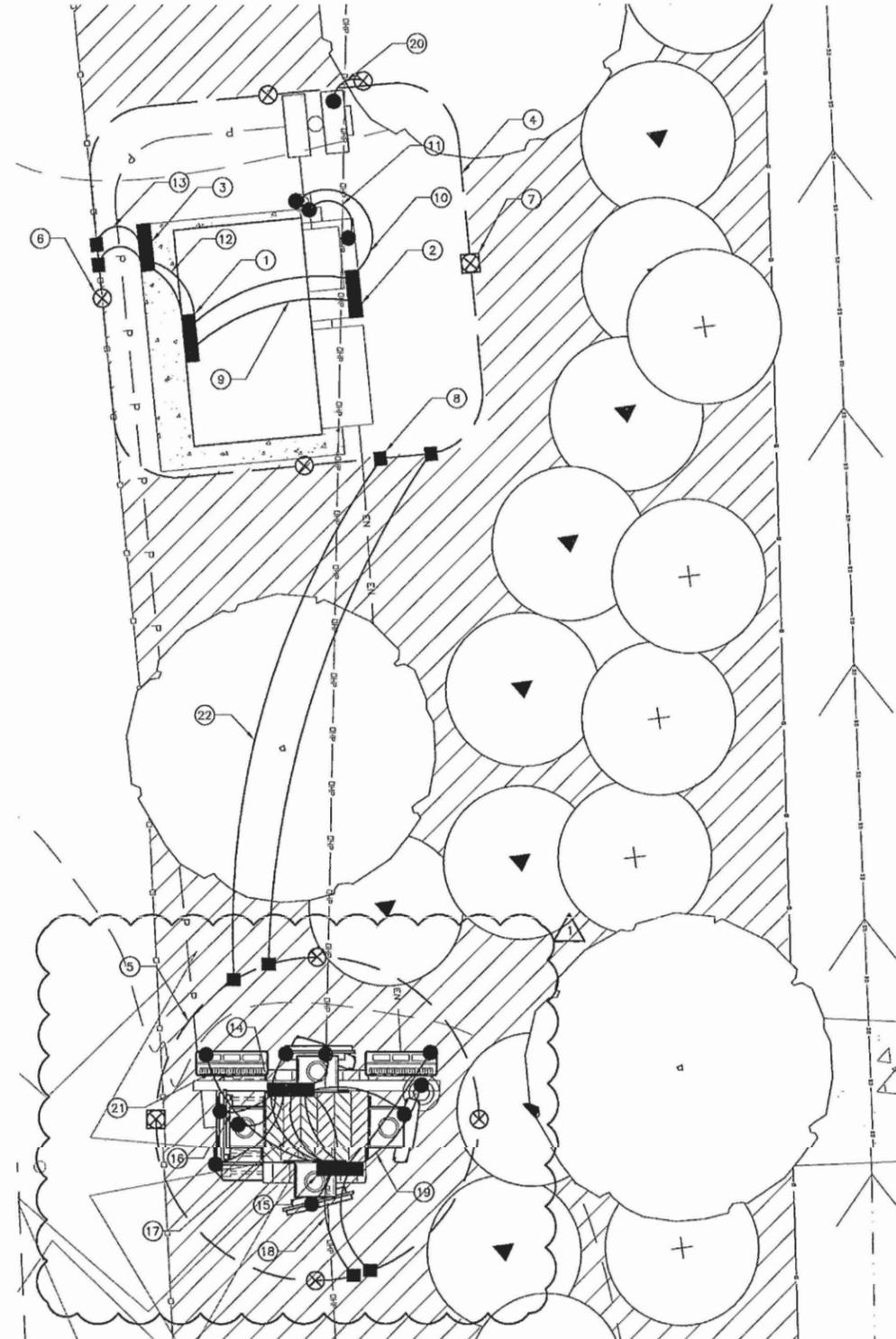
5. A SECOND CLEARWIRE BUSS BARS WITH STAND OFF INSULATORS (E.G. PIROD / VALMONT GROUNDING BUSS BAR PART NUMBER B2981 [CLEARWIRE CONSTRUCTION MANAGER SHALL CONFIRM BUSS BAR PART PRIOR TO CONTRACTOR PURCHASE OF PART] BEING ANCHORED TO A MOUNTING BRACKET KIT FOR B2372 OR EQUIVALENT OR BEING MOUNTED WITH UNIVERSAL CLAMP NUMBER B1852 OR EQUIVALENT [WITH STANDOFF CHERRY INSULATORS]) SHALL BE ADDED AT THE BASE OF THE TOWER TO CAPTURE ANY ADDITIONAL TOWER SURFACE LIGHTNING RESIDUAL SHEETING WITH A DEDICATED CLEARWIRE GROUND LEAD BEING DIRECTED TO GROUND AND ATTACHED TO THE EXISTING TOWER GROUND RING (FINAL LOCATION OF BOTTOM OF TOWER GROUND BUSS BAR SHALL BE APPROVED BY TOWER REPRESENTATIVE PRIOR TO INSTALLATION).
6. CLEARWIRE GROUND LEAD FROM LOWER CLEARWIRE BUSS BAR SHALL BE NO. 2 OR 2/0 AWG WIRE AND SHALL ATTACHED TO EXISTING POLE / TOWER GROUND RING WITH PARALLEL THRU WIRE MOLD (E.G. PIROD / VALMONT PART NUMBER 171791 OR EQUIVALENT).
7. CLEARWIRE GROUND LEADS MAY NOT BE ATTACHED TO EXISTING GROUND RINGS WITH ANY CONFIGURATION OTHER THAN THE "PARALLEL THRU WIRE MOLD" WITH THE LEAD SWEEPING INTO THE GROUND RING IN THE CONFIGURATION SHOWN ON THE GROUNDING PLAN.
8. CLEARWIRE GROUND LEADS FROM BOTH ANTENNAS AND COAX GROUND KITS WHERE THERE IS AN ESTABLISHED GROUND BUSS BAR POSITIONED AT THE TOP OF A NONCONDUCTIVE POLE OR STRUCTURE (E.G. WOOD UTILITY POLES, PRE-CAST CONCRETE POLES, BUILDINGS, FIBERGLASS STRUCTURES, ETC.) SHALL EMPLOY THE USE OF SEPARATE GROUND LEAD CONDUCTORS RUNNING DOWN THE POLE OR STRUCTURE TO A BUSS BAR AT THE BASE OF THE POLE OR STRUCTURE AND FURTHER RUNNING INTO AN EXISTING GROUND RING.

ABBREVIATIONS

- AWG AMERICAN WIRE GAUGE
- BCW BARE COPPER WIRE
- DWG DRAWING
- EMT ELECTRICAL METALLIC TUBING
- GEN GENERATOR
- IGR INTERIOR GROUND RING (HALO)
- IMC INTERMEDIATE METALLIC CONDUIT
- MGB MASTER GROUND BAR
- PCS PERSONAL COMMUNICATION SYSTEM
- PTS POWER TRANSFER SWITCH
- PVC RIGID (SCH. 40) POLYVINYL CHLORIDE CONDUIT
- RGS RIGID GALVANIZED STEEL
- RWY RACEWAY
- TYP TYPICAL

ELECTRICAL SYMBOLS

- GROUND BAR
- GROUND ROD WITH ACCESS
- CHEMICAL GROUND ROD
- GROUND ROD
- DISCONNECT SWITCH
- METER
- CIRCUIT BREAKER
- CADWELD TYPE CONNECTION
- COMPRESSION TYPE CONNECTION
- GROUNDING WIRE
- REPRESENTS DETAIL NUMBER
- REFERENCE SHEET NUMBER



24"x36" SCALE: 3/4" = 1'-0"
 11"x17" SCALE: 3/8" = 1'-0"

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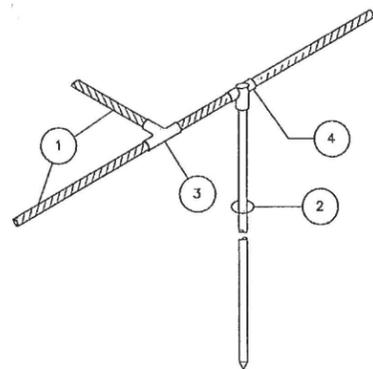
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RECEIVED
 SHEET TITLE
 GROUNDING PLAN

SHEET NUMBER
E-1

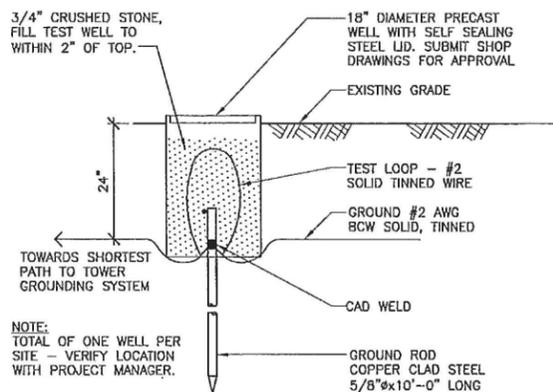


- ① MAIN CONDUCTOR, COPPER CABLE
- ② 5/8"x8" COPPER CLAD STEEL GROUND ROD
- ③ CADWELD TYPE "TA"
- ④ CADWELD TYPE "GT"

GROUND RING BONDING

24"x36" SCALE: NOT TO SCALE
11"x17" SCALE: NOT TO SCALE

12

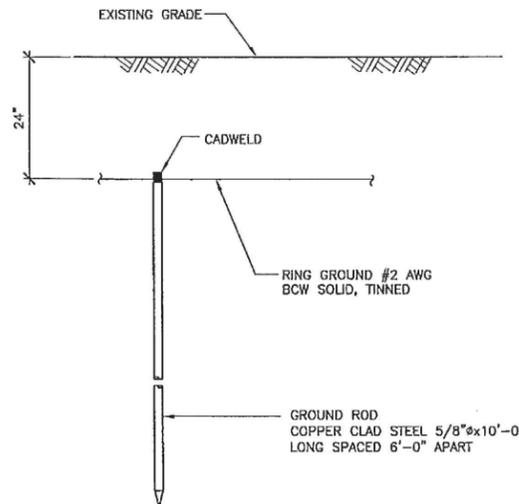


NOTE:
TOTAL OF ONE WELL PER SITE - VERIFY LOCATION WITH PROJECT MANAGER.

TEST WELL

24"x36" SCALE: NOT TO SCALE
11"x17" SCALE: NOT TO SCALE

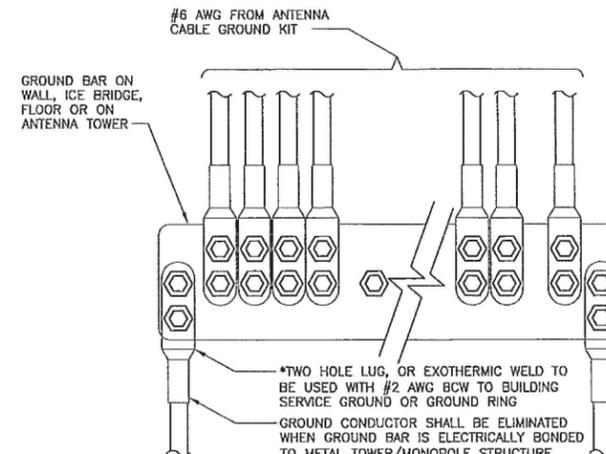
11



GROUND ROD

24"x36" SCALE: NOT TO SCALE
11"x17" SCALE: NOT TO SCALE

10

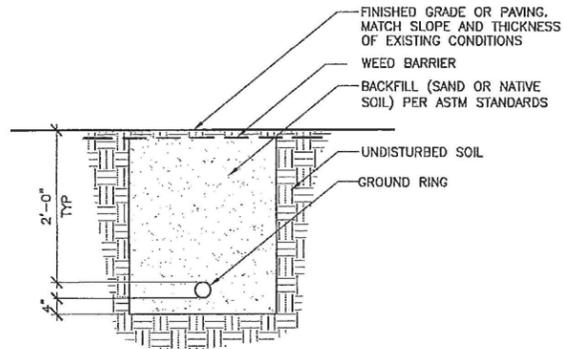


NOTE:
GROUND BARS AT BOTTOM OF TOWERS/MONOPOLES SHALL ONLY USE EXOTHERMIC WELDS.

GROUND WIRE INSTALLATION

24"x36" SCALE: NOT TO SCALE
11"x17" SCALE: NOT TO SCALE

9



GROUND RING TRENCH

24"x36" SCALE: NOT TO SCALE
11"x17" SCALE: NOT TO SCALE

8

NOT USED

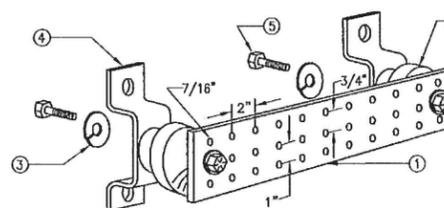
24"x36" SCALE: NOT TO SCALE
11"x17" SCALE: NOT TO SCALE

7

NOT USED

24"x36" SCALE: NOT TO SCALE
11"x17" SCALE: NOT TO SCALE

6

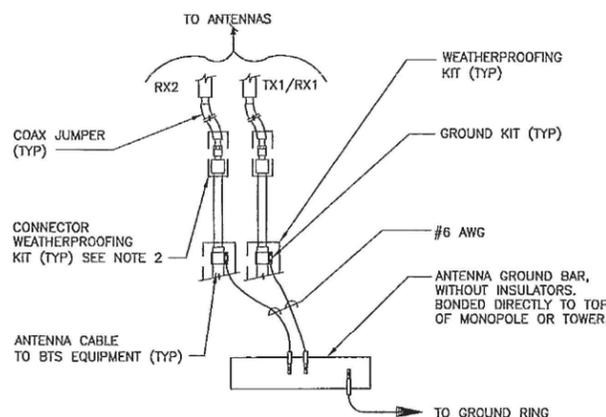


- NOTE:
- 1) COPPER GROUND BAR, 1/4"x 4"x 20", NEWTON INSTRUMENT CO. CAT. NO. B-6142 OR APPROVED EQUAL. HOLE CENTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION. (ACTUAL GROUND BAR SIZE WILL VARY BASED ON NUMBER OF GROUND CONNECTIONS)
 - 2) INSULATORS, NEWTON INSTRUMENT CAT. NO. 3061-4 OR APPROVED EQUAL
 - 3) 5/8" LOCK WASHERS, NEWTON INSTRUMENT CO. CAT. NO. 3015-8 OR APPROVED EQUAL
 - 4) WALL MOUNTING BRACKET, NEWTON INSTRUMENT CO. CAT. NO. A-6056 OR APPROVED EQUAL
 - 5) 5/8-11 X 1" HHCS BOLTS, NEWTON INSTRUMENT CO. CAT. NO. 3012-1 OR APPROVED EQUAL
 - 6) INSULATORS SHALL BE ELIMINATED WHEN BONDING DIRECTLY TO TOWER/MONOPOLE STRUCTURE. CONNECTION TO TOWER/MONOPOLE STRUCTURE SHALL BE PER MANUFACTURERS RECOMMENDATIONS.

TYPICAL GROUND BAR

24"x36" SCALE: NOT TO SCALE
11"x17" SCALE: NOT TO SCALE

5



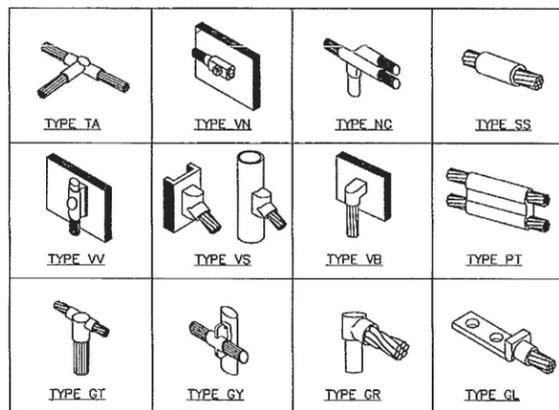
NOTES:
DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO ANTENNA GROUND BAR.

WEATHER PROOFING SHALL BE TWO-PART TAPE KIT. COLD SHRINK SHALL NOT BE USED.

GROUND CABLE CONNECTIONS

24"x36" SCALE: NOT TO SCALE
11"x17" SCALE: NOT TO SCALE

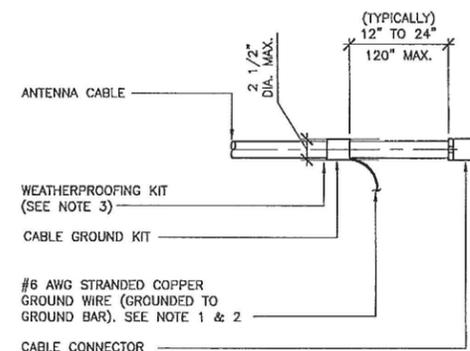
4



CADWELD GROUNDING CONNECTIONS

24"x36" SCALE: NOT TO SCALE
11"x17" SCALE: NOT TO SCALE

3



- NOTES:
1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
 2. GROUNDING KIT SHALL BE TYPE AND PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.
 3. WEATHER PROOFING SHALL BE TWO-PART TAPE KIT, COLD SHRINK SHALL NOT BE USED.

CABLE GROUND KIT CONNECTION

24"x36" SCALE: NOT TO SCALE
11"x17" SCALE: NOT TO SCALE

2

NOT USED

24"x36" SCALE: NOT TO SCALE
11"x17" SCALE: NOT TO SCALE

1

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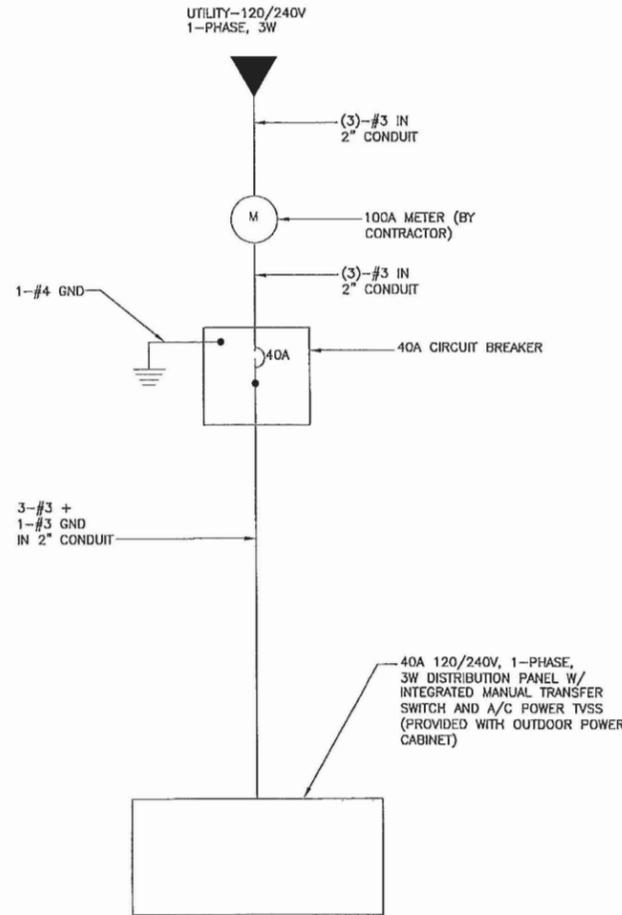
SHEET TITLE
GROUNDING DETAILS

SHEET NUMBER
E-2

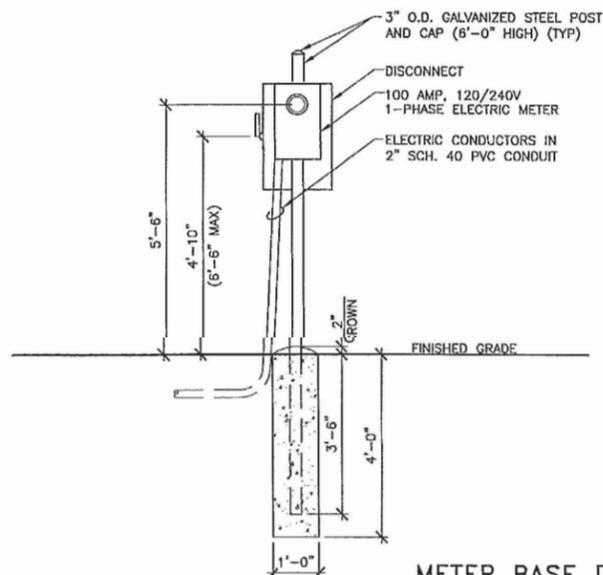
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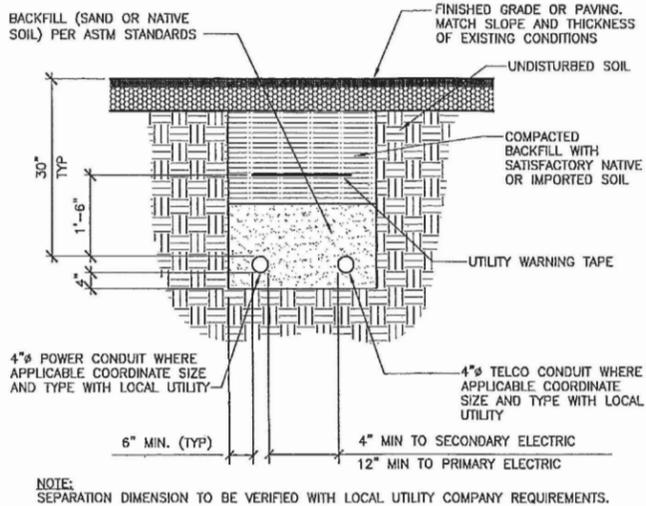
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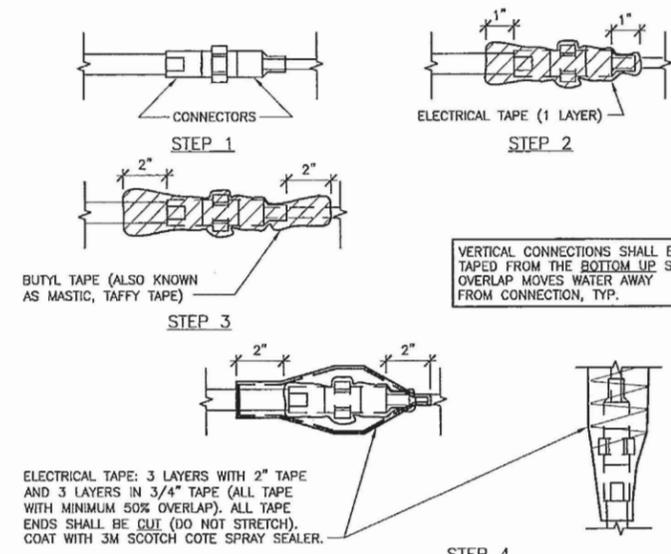
ONE LINE DIAGRAM 4
24"x36" SCALE: NOT TO SCALE
11"x17" SCALE: NOT TO SCALE



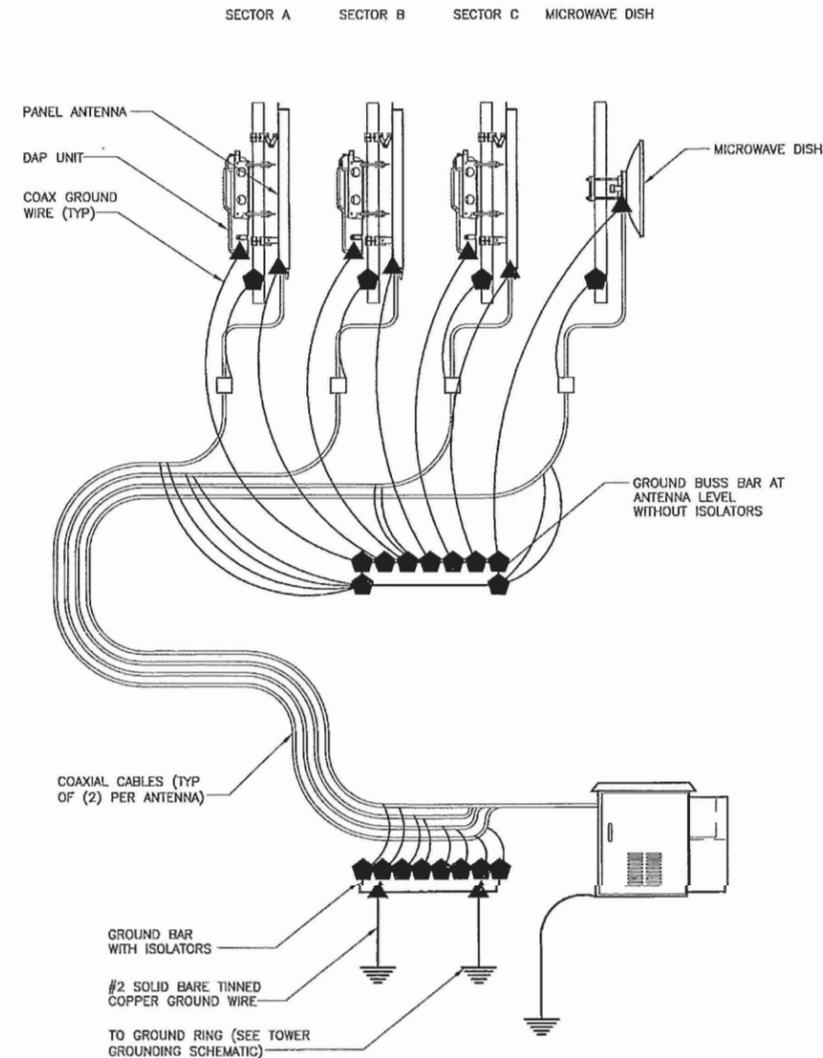
METER BASE DETAIL 3
24"x36" SCALE: 1/2" = 1'-0"
11"x17" SCALE: 1/4" = 1'-0"



POWER / TELCO TRENCH 6
24"x36" SCALE: NOT TO SCALE
11"x17" SCALE: NOT TO SCALE



WEATHERPROOFING DETAIL 5
24"x36" SCALE: NOT TO SCALE
11"x17" SCALE: NOT TO SCALE



ANTENNA GROUNDING DIAGRAM 1
24"x36" SCALE: 1/2" = 1'-0"
11"x17" SCALE: 1/4" = 1'-0"

NOT USED 2
24"x36" SCALE: NOT TO SCALE
11"x17" SCALE: NOT TO SCALE

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7	06-10-10	LANDSCAPE REVISIONS	PHD

NOT FOR CONSTRUCTION UNLESS
LABELED AS CONSTRUCTION SET

SHEET TITLE
ELECTRICAL DETAILS

SHEET NUMBER

E-3

LANDSCAPE SPECIFICATIONS

1.00 GENERAL
 1.01 LANDSCAPE PLAN IS BASED ON SITE PLAN PROVIDED BY PTS ARCHITECTURE. ALL SITE PLAN DIMENSIONS AND CONDITIONS, BUILDING DIMENSIONS, AND SITE DEVELOPMENT SHOULD BE VERIFIED PRIOR TO INSTALLATION.

1.02 SCOPE OF WORK
 A) FURNISH ALL MATERIALS, LABOR, EQUIPMENT AND RELATED ITEMS NECESSARY TO ACCOMPLISH SOIL PREPARATION, PLACEMENT AND GRADING OF TOPSOIL MATERIAL, PLACEMENT AND GRADING OF FILL MATERIAL (IF REQUIRED), PLACEMENT OF SPECIFIED PLANT MATERIAL, FERTILIZERS, STAKING AND MULCH, PROTECTION, MAINTENANCE, GUARANTEE, CLEANUP, DEBRIS REMOVAL, AND RELATED ITEMS NECESSARY OR INCIDENTAL TO COMPLETE THE WORK SHOWN AND SPECIFIED. OBTAIN NECESSARY PERMITS AND INSTALL PER LOCAL MUNICIPAL CODE AS WELL AS NEIGHBORHOOD CODES, COVENANTS AND RESTRICTIONS AND PER MANUFACTURER RECOMMENDATIONS WHERE APPLICABLE.

1.03 SITE PREPARATION
 A) PROTECT EXISTING TREES AND SHRUBS TO REMAIN ON SITE DURING CONSTRUCTION. HAND DIG CAREFULLY AROUND EXISTING TREES AND SHRUBS TO AVOID INJURY TO ROOTS, BARK AND SOIL COMPACTION. FOR DAMAGES FOR LOSS OR INJURY SEE (3.08, B). APPLY "PHC MYCOTREE VERTIMULCH" OR APPROVED EQUIVALENT WITHIN DRIP LINE AND 10' BEYOND, PER MANUFACTURER'S RECOMMENDATIONS FOR EXISTING TREES AND VEGETATION AREAS TO REMAIN WITHIN 10' OF CONSTRUCTION ACTIVITY.
 B) PRUNE DEAD WOOD OUT OF TREES AND SHRUBS AND REMOVE FROM SITE.
 C) THE SITE TO BE CLEARED AND GRUBBED OF ALL NOXIOUS WEEDS, PAVING, GRAVEL BASE AND OTHER DEBRIS NOT TO REMAIN. GRADES ARE TO BE SET PRIOR TO LANDSCAPE INSTALLATION.
 D) SUBGRADES TO BE PROVIDED WITHIN .10 FOOT MINUS DEPTH OF MULCH SPECIFIED.

1.04 RESPONSIBILITY
 A) THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ADJACENT PROPERTY, EXISTING PLANT MATERIAL DESIGNATED FOR PRESERVATION, AND THE SAFETY OF THE GENERAL PUBLIC.
 B) THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING HIS WORK WITH ALL OTHER TRADES AS NEEDED.
 C) UTILITIES: THE LANDSCAPE CONTRACTOR SHALL CALL THE UNDERGROUND UTILITIES LOCATOR SERVICE (1-800-424-5555) PRIOR TO COMMENCING WORK. HE SHALL BE HELD RESPONSIBLE FOR PROTECTION OF, AND ANY DAMAGE TO EXISTING UTILITIES AND STRUCTURES. HE SHALL VERIFY THE LOCATION OF UTILITIES WITH THE GENERAL CONTRACTOR.

1.05 VERIFICATION OF EXISTING CONDITIONS
 A) BEFORE PROCEEDING WITH ANY WORK, THE LANDSCAPE CONTRACTOR SHALL VERIFY ALL DIMENSIONS PERTAINING TO THE LOCATION OF WALKS, VAULTS, LIGHT STANDARDS, HYDRANTS, AND ANY OTHER EXISTING CONDITIONS, INCLUDING ADVERSE DRAINAGE. SHOULD ANY ERRORS OR CONFLICTS IN DRAWINGS OR SPECIFICATIONS OCCUR, THE LANDSCAPE CONTRACTOR SHALL NOTIFY THE ARCHITECT IMMEDIATELY.

2.00 MATERIALS
 2.01 PLANT MATERIAL SHALL CONFORM TO AMERICAN ASSOCIATION OF NURSERYMEN GRADES AND STANDARDS AS PUBLISHED IN THE "AMERICAN STANDARD FOR NURSERY STOCK" AND AS NOTED ON DRAWING AND AS FOLLOWS:
 A) TREES TO BE SELF-SUPPORTING, WITH FULL HEADS AND LEADERS IN TACT.
 B) ALL SHRUBS, TREES, AND GROUND COVER TO BE FULL AND BUSHY. ALL TREES SHALL HAVE STRAIGHT TRUNK WITH LEADER IN TACT, EXCEPT MULTI-TRUNK TREES, WHICH MAY HAVE IRREGULAR TRUNKS. ALL ROOT BALLS SHALL BE IN TACT AND HAVE NO MORE THAN 10% CLAY AND/OR SILT CONTENT AND BE FREE OF WEEDS.
 C) PLANT MATERIAL MAY BE REJECTED AT ANY TIME BY THE LANDSCAPE ARCHITECT AND/OR OWNER DUE TO CONDITIONS, FORM, OR DAMAGE, BEFORE OR AFTER PLANTING.

2.02 TOPSOIL
 A) CEDAR GROVE COMPOSTING, INC. (206-832-3068) "THREE-WAY TOPSOIL MIX" OR APPROVED EQUIVALENT.

2.03 FILL MATERIAL
 A) SANDY LOAM MATERIAL WITH LESS THAN 10% CLAY AND/OR SILT CONTENT AND FREE OF ROCK AND DEBRIS OVER 2" INCH DIAMETER.

2.04 SOIL DRAINAGE AMENDMENT
 A) SOIL DRAINAGE AMENDMENT SHALL BE "BUCKSHOT" 50/50 MIX OF WASHED SAND & 1/4 INCH MINUS PEA GRAVEL.

2.05 COMPOSTED MULCH TOP-DRESSING
 A) CEDAR GROVE COMPOSTING, INC. (206-832-3068) "FINE COMPOST" OR APPROVED EQUIVALENT.

2.06 FERTILIZERS & AMENDMENTS
 A) PLANT HEALTH CARE, INC. (AVAILABLE AT JOHN DEERE 425-485-6187) OR APPROVED EQUAL SOIL CONDITIONERS AND FERTILIZERS FOR ALL SHRUB, TREE AND GROUND COVER PLANTINGS: MYCOR TREE SAVER (ENDO/ECOTOMYCORRHIZAL FUNGAL INOCULANTS) AND HEALTHY START 12-8-8 MACRO TABLETS. APPLY PER MANUFACTURER WRITTEN RECOMMENDATIONS.
 B) PLANT HEALTH CARE, INC. (JOHN DEERE) "COMPETE PLUS" OR APPROVED EQUIVALENT FOR RHODODENDRONS AND MOUNTAIN LAURELS. APPLY PER MANUFACTURER'S RECOMMENDATIONS.
 C) PLANT HEALTH CARE, INC. (JOHN DEERE) "MYCOTREE VERTIMULCH" OR APPROVED EQUIVALENT. APPLY WITHIN DRIP LINE OF EXISTING TREES AND SHRUBS AND 10' BEYOND, IN AREAS DISTURBED BY CONSTRUCTION, PER MANUFACTURER'S RECOMMENDATIONS.
 D) 10 LBS. GYPSUM (CALCIUM SULFATE) PER 1000 SQUARE FEET.
 E) PLANT HEALTH CARE, INC. (JOHN DEERE) TERRA-SORB POTASSIUM HYDROGEL. APPLY PER MANUFACTURER'S RECOMMENDATIONS.

2.07 EROSION CONTROL NETTING
 A) LANDLOK 407GR/407GT DEGRADABLE EROSION CONTROL BLANKET (OR APPROVED EQUIVALENT) MADE OF POLYPROPYLENE MESH.

2.08 ROOT BARRIER
 A) "VESPRO ROOT SOLUTION" (MODEL RS024) OR APPROVED EQUIVALENT. FOR DISTRIBUTOR CALL 800-554-0914. INSTALL AS SHOWN ON PLANS AND PER MANUFACTURER WRITTEN RECOMMENDATIONS.

3.00 EXECUTION
 3.01 SOIL PREPARATION
 A) WHERE TOPSOIL HAS BEEN REMOVED OR DISTURBED, PREPARE PLANTER BEDS AS FOLLOWS. COARSE TILL TO A DEPTH OF 12 INCHES THEN APPLY A MINIMUM OF 3 INCHES (AFTER COMPACTION) OF SPECIFIED COMPOSTED MULCH ALONG WITH GYPSUM AND FINE TILL INTO THE TOP 6 INCHES OF THE SUBSOIL. THEN APPLY 6 INCHES OF SPECIFIED TOPSOIL, TO PROVIDE FOR EASE OF GRADING AND A HEALTHY TOPSOIL MEDIUM. IF HEAVY CLAY IS ENCOUNTERED, EITHER REMOVE CLAY OR TILL IN ALL OF THE FOLLOWING: 2 INCHES COMPOSTED MULCH, 2 INCHES SOIL DRAINAGE AMENDMENT AS SPECIFIED AND ABOVE SPECIFIED AMENDMENTS, INSTEAD OF THE 3 INCHES OF COMPOST, THEN APPLY TOPSOIL AS SPECIFIED ABOVE. REMOVE ALL DEBRIS AND ROCK OVER 2 INCHES.

3.02 ROUGH GRADING
 A) ALL AREAS SHALL BE ROUGH GRADED WITHIN .10 FOOT BEFORE PLANTING. ALL GRADES SHALL PRODUCE POSITIVE DRAINAGE AWAY FROM BUILDING AND THROUGH ALL PLANTER AREAS TO AVOID LOW SPOTS AND STANDING WATER. AREAS SHALL BE GRADED SUCH THAT NEW GRADES MEET AND BLEND NATURALLY WITH THE EXISTING GRADES. ON SLOPES GREATER THAN 2:1, INSTALL SPECIFIED EROSION CONTROL NETTING PER MANUFACTURER RECOMMENDATIONS.

3.03 FINISH GRADES
 A) FINISH GRADES ARE TO FOLLOW SITE GRADING PLAN AND EDGE DETAILS AS SPECIFIED AND MOUNDED A MINIMUM OF 6 INCHES IN THE CENTER OF THE BED FROM THE TOP OF CURB AND/OR PAVING AND/OR TOP OF LAWN.

3.04 PLANTING, GUYING AND STAKING (PER DETAILS AND AS FOLLOWS).
 A) PLANT ONLY DURING SEASONS OF LOCALLY ACCEPTED PRACTICE.
 B) CROWN OF PLANT SHALL BE SLIGHTLY HIGHER, AFTER SETTLING, THAN ADJACENT SOIL.
 C) LAYOUT ALL MASS PLANTINGS PER DETAIL AND MAINTAIN A 2' CLEARANCE FOR CAR OVERHANG AND FROM WALLS AND PROPERTY LINES.
 D) BARE ROOT TREES SHALL BE PLANTED ONLY BETWEEN NOVEMBER 15TH AND MARCH 15TH, AND PLANT PER STANDARD HORTICULTURAL PRACTICES.
 E) IF HEAVY CLAY IS ENCOUNTERED, AMEND PLANT HOLE BACKFILL WITH 50% NATIVE SOIL, AND 50% MIX OF COMPOSTED MULCH & SOIL DRAINAGE AMENDMENT. CREATE DRAINAGE AWAY FROM HOLE IF IT HOLDS WATER.
 F) FERTILIZE AND AMEND ALL PLANTINGS WITH SPECIFIED FERTILIZER AND POLYMER OR APPROVED EQUIVALENT AND APPLY PER MANUFACTURER'S WRITTEN RECOMMENDATIONS. FERTILIZE RHODODENDRONS AND MTN LAUREL WITH "PHC COMPETE PLUS" OR APPROVED EQUIVALENT AND APPLY PER MANUFACTURER'S WRITTEN RECOMMENDATIONS.
 G) THE LANDSCAPE ARCHITECT SHALL SUPERVISE PRUNING OF TREES AND SHRUBS. LIMIT PRUNING TO THE REMOVAL OF INJURED TWIGS AND BRANCHES, UNLESS OTHERWISE DIRECTED. ALL INJURED TREE ROOTS TO BE PRUNED VERTICALLY WITH A SHARP KNIFE BEFORE PLANTING.

3.05 TRANSPLANTING:
 A) WHEN POSSIBLE, TRANSPLANT IN THE FALL, WHILE THE ROOTS ARE STILL GROWING, THE TOP GROWTH HAS STOPPED, AND THE LEAVES HAVE FALLEN.
 B) DIG PLANT MATERIAL ALLOWING FOR A ROOT BALL THAT IS THE SAME DIAMETER AS THE PLANT'S DRIP LINE, OR A MINIMUM OF ONE FOOT OF DIAMETER PER CALIPER INCH OF THE TRUNK, TO A DEPTH OF 24 TO 30 INCHES.
 C) TIGHTLY WRAP ROOT BALL WITH BURLAP TO KEEP ROOT BALL INTACT. PROTECT THE ROOTS AT ALL TIMES FROM DRYING AIR, SUN, AND FREEZING TEMPERATURES. "HEEL IN" AND MAINTAIN IN ACCORDANCE WITH ACCEPTED HORTICULTURAL PRACTICES.
 D) TO REDUCE WATER LOSS BY TRANSPIRATION, APPLY A TRANSPIRATION-INHIBITING CHEMICAL, PER MANUFACTURER'S RECOMMENDATIONS, AT TIME OF DIGGING.
 E) REDUCE THE LEAF BEARING SURFACE (BY THINNING OUT) OF BARE ROOT TREES AND SHRUBS BY ABOUT 50%; BALLED & BURLAPPED TREES AND SHRUBS BY ABOUT 25%.
 F) ALL TRANSPLANTED MATERIALS SHALL REQUIRE THE SAME SOIL PREPARATION, PLANTING, AND STAKING AS NEW PLANT MATERIAL.

3.06 MULCHTOP-DRESSING
 A) PROVIDE 2" (AFTER COMPACTION) LAYER OF SPECIFIED COMPOSTED MULCH ON ALL PLANTER BEDS AS A TOP-DRESSING AND WITHIN THE DRIP LINE OF ANY NEW PLANTING WITHIN EXISTING VEGETATION AREA. MAXIMUM DEPTH OF MULCH AT CROWN OF PLANTS TO BE ONE-HALF INCH.

3.07 FINAL CLEAN-UP
 A) CLEAN ALL PLANTING AREAS AND FINISH RAKE. WASH CLEAN ALL BUILDING AND PAVING SURFACES THAT WERE AFFECTED BY LANDSCAPE INSTALLATION.

3.08 PLANT PROTECTION
 A) PROTECT ALL PLANT MATERIALS, DURING TRANSPORT AND ON SITE, AGAINST HARM FROM WIND, UNUSUAL WEATHER, AND THE PUBLIC IN ACCORDANCE WITH ACCEPTED HORTICULTURAL PRACTICE. SPECIAL PLANTING TECHNIQUES, DEFOLIATING, WILT PROOFING, OR SPRAY MISTING MAY BE REQUIRED FOR UNSEASONABLE PLANTING ETC.
 B) LANDSCAPE CONTRACTOR IS LIABLE FOR DAMAGES OF LOSS OR INJURY TO EXISTING TREES, SHRUBS, GROUND COVER AND LAWN RESULTING FROM THE CONTRACTOR'S FAILURE TO PROTECT THEM. THE JUST VALUE TO BE DETERMINED BY THE VALUATION OF LANDSCAPE TREES, SHRUBS AND OTHER PLANTS, CURRENT EDITION.
 4.00 MAINTENANCE

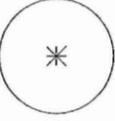
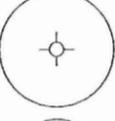
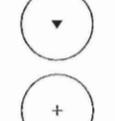
4.01 THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE DURING THE CONTRACT PERIOD FOR KEEPING ALL PLANTINGS AND WORK INCIDENTAL THEREOF IN GOOD CONDITION BY REPLANTING, PLANT REPLACEMENT, WATERING, WEEDING, CULTIVATING, PRUNING, SPRAYING, REGUYING AND OTHER NECESSARY OPERATIONS OF CARE FOR THE PROMOTION OF ROOT GROWTH AND PLANT LIFE. LANDSCAPE CONTRACTOR WILL PERFORM ABOVE MAINTENANCE DUTIES IN ALL LANDSCAPE AREAS UNTIL FINAL ACCEPTANCE BY THE LANDSCAPE ARCHITECT AND/OR OWNER.

4.02 PATHS, SIDEWALKS AND ALL OTHER PAVED SURFACES SHALL BE KEPT CLEAN WHEN PLANTING AND MAINTENANCE OPERATIONS ARE IN PROGRESS.

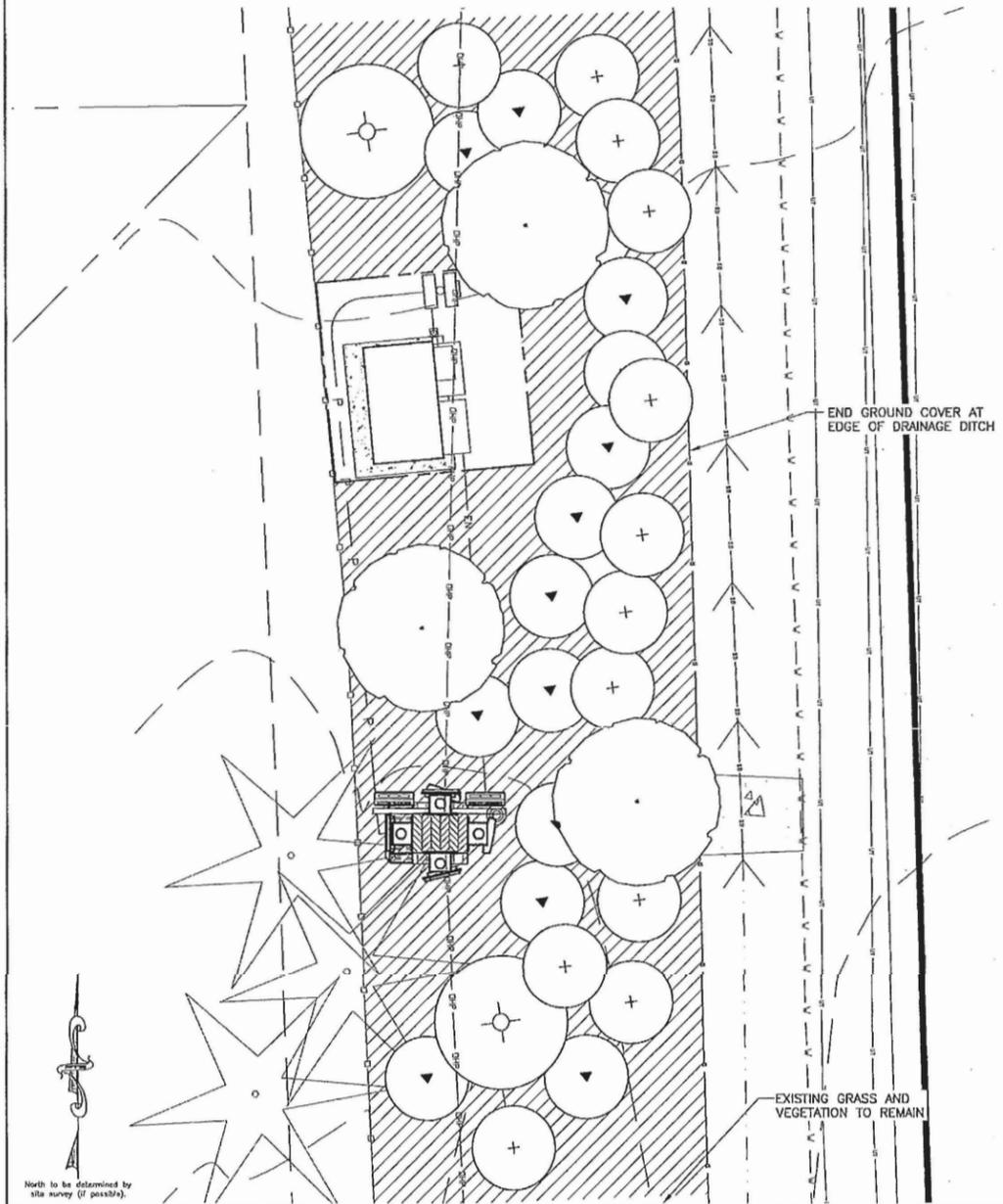
4.03 PROJECT SPECIFIES NATIVE ACCLIMATED AND/OR DROUGHT TOLERANT PLANT SPECIES. PLANTINGS ARE INSTALLED ONLY DURING SEASONS OF LOCALLY ACCEPTED PRACTICE. IN THE EVENT OF UNFORESEEN CLIMATOLOGICALLY EXTREMES, OWNER WILL PROVIDE MANUAL WATERING AS NEEDED. THROUGHOUT THE LIFE OF THE PROJECT, OWNER IS TO WATER AND CARE FOR PLANT MATERIAL, PER STANDARD HORTICULTURAL PRACTICES, TO INSURE PLANTS BECOME ESTABLISHED AND THRIVE VIGOROUSLY.

5.00 WARRANTY
 5.01 LANDSCAPE CONTRACTOR SHALL WARRANTY MATERIALS AND WORKMANSHIP FOR ONE YEAR FROM DATE OF FINAL ACCEPTANCE. LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR MISSING AND/OR VANDALIZED MATERIALS UNTIL THE PROJECT RECEIVES A FINAL ACCEPTANCE BY THE LANDSCAPE ARCHITECT AND/OR OWNER. AFTER END OF CONTRACTOR WARRANTY, OWNER WILL WARRANTY PLANT REPLACEMENT FOR THE LIFE OF THE PROJECT.

PLANTING SCHEDULE:

SYM	BOTANICAL/ COMMON NAME	QTY	SIZE	REMARKS
	ACER CIRCINATUM / VINE MAPLE	3	6'-7'	5-MULTI-TRUNK
	CORNUS STOLONIFERA / RED OSIER DOGWOOD	2	5 gal	24"-30"
	MAHONIA AQUIFOLIUM / OREGON GRAPE	14	5 gal	24"-30"
	VACCINIUM OVATUM / EVERGREEN HUCKLEBERRY	12	2 gal	15"-18"
	GAULTHERIA SHALLON / SALAL	1 gal	36" O.C.	

NOTES:
 1. SEE L-2 FOR LANDSCAPING DETAILS
 2. PLANTS QUANTITIES TO BE DETERMINED BY REQUIRED SPACING AS SHOWN ON THE PLAN
 3. ALL PLANTING BEDS ARE TO RECEIVE GROUND COVER THROUGHOUT, EXCEPT AS NOTED



clear wire®

4400 CARILLON POINT
 KIRKLAND, WA 98033

PTS

PACIFIC TELECOM SERVICES,
 LLC

568 First Avenue S., Suite 650
 Seattle, WA 98104
 Phone: (206) 342-9000 Fax: (206) 803-8513

EASTGATE

WA-SEA0356-B

SOUTH OF 150TH AVE AND SE 46TH WAY
 BELLEVUE, WA 98006

REVISIONS

NO.	DATE	DESCRIPTION	INITIAL
1	10-12-09	PRELIMINARY CONSTRUCTION DRAWINGS	CDK
2	10-14-09	FINAL CONSTRUCTION DRAWINGS	PHD
3	12-21-09	REV. FINAL CONSTRUCTION DRAWINGS	PHD
4	12-23-09	REV. FINAL CONSTRUCTION DRAWINGS	CDK
5	02-25-10	SUBMITTAL SET	PHD
6	05-06-10	CITY REVISIONS	PHD
7	08-10-10	LANDSCAPE REVISIONS	PHD

NOT FOR CONSTRUCTION UNLESS
 LABELED AS CONSTRUCTION SET

SHEET TITLE
 LANDSCAPING PLAN

SHEET NUMBER

L-1

LANDSCAPING PLAN | 1

EASTGATE
WA-SEA0356B

SOUTH OF 150TH AVE AND SE 46TH WAY
BELLEVUE, WA 98006

REVISIONS			
NO.	DATE	DESCRIPTION	INITIAL
1	10-12-09	PRELIMINARY CONSTRUCTION DRAWINGS	CBK
2	10-14-09	FINAL CONSTRUCTION DRAWINGS	PHD
3	12-21-09	REV. FINAL CONSTRUCTION DRAWINGS	PHD
4	12-23-09	REV. FINAL CONSTRUCTION DRAWINGS	CBK
5	02-25-10	SUBMITTAL SET	PHD
6	05-06-10	CITY REVISIONS	PHD
7	08-19-10	LANDSCAPE REVISIONS	PHD

NOT FOR CONSTRUCTION UNLESS
LABELED AS CONSTRUCTION SET

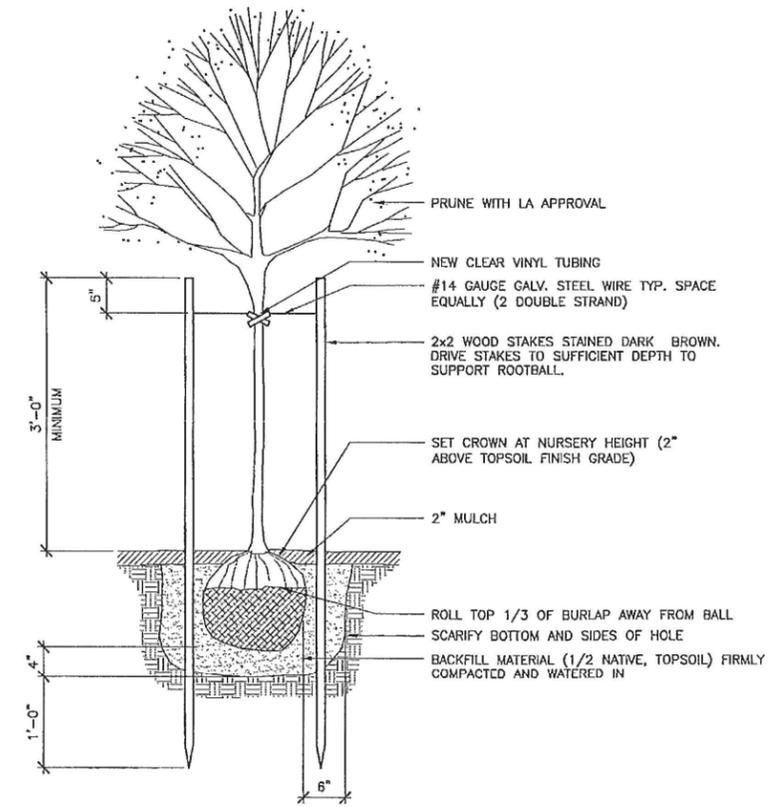
SHEET TITLE
LANDSCAPING DETAILS

SHEET NUMBER
L-2

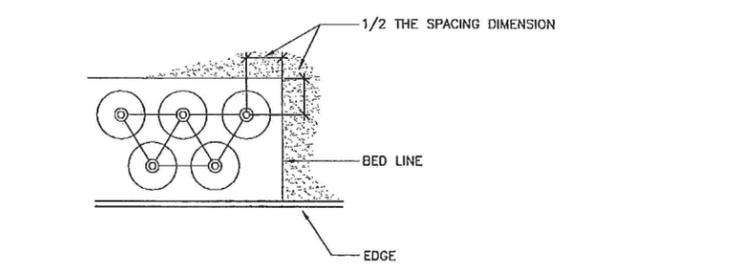
NOT USED 6
24"x36" SCALE: NOT TO SCALE
11"x17" SCALE: NOT TO SCALE

NOT USED 7
24"x36" SCALE: NOT TO SCALE
11"x17" SCALE: NOT TO SCALE

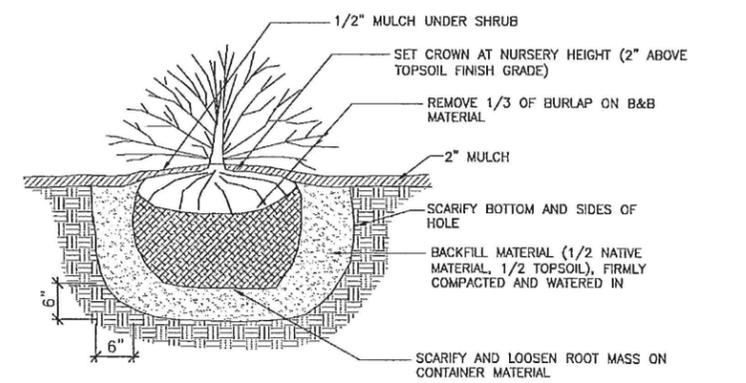
NOT USED 8
24"x36" SCALE: NOT TO SCALE
11"x17" SCALE: NOT TO SCALE



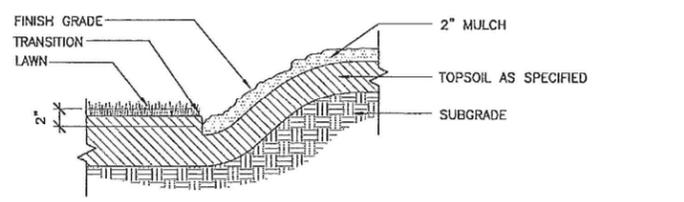
TREE DETAIL 1
24"x36" SCALE: 1" = 1'-0"
11"x17" SCALE: 1/2" = 1'-0"



SPACING DETAIL 3
24"x36" SCALE: NOT TO SCALE
11"x17" SCALE: NOT TO SCALE



SHRUB DETAIL 2
24"x36" SCALE: 1" = 1'-0"
11"x17" SCALE: 1/2" = 1'-0"



BED EDGE DETAIL 4
24"x36" SCALE: 1" = 1'-0"
11"x17" SCALE: 1/2" = 1'-0"

ATTACHMENT C

SEPA Checklist



DEVELOPMENT SERVICES DEPARTMENT
ENVIRONMENTAL COORDINATOR
450 110th Avenue NE, P.O. BOX 90012
BELLEVUE, WA 98009-9012

OPTIONAL DETERMINATION OF NON-SIGNIFICANCE (DNS) NOTICE MATERIALS

The attached materials are being sent to you pursuant to the requirements for the Optional DNS Process (WAC 197-11-355). A DNS on the attached proposal is likely. This may be the only opportunity to comment on environmental impacts of the proposal. Mitigation measures from standard codes will apply. Project review may require mitigation regardless of whether an EIS is prepared. A copy of the subsequent threshold determination for this proposal may be obtained upon request.

File No. 10-106576-LA
Project Name/Address: ClearWire
150th Ave. NE Right-of-Way, about 140-ft. south of SE 46th Way

Publish: May 20, 2010

Minimum Comment Period: June 3, 2010

Materials included in this Notice:

- Blue Bulletin
- Checklist
- Vicinity Map
- Plans
- Other:

ENVIRONMENTAL CHECKLIST

10/9/2009

Thank you in advance for your cooperation and adherence to these procedures. If you need assistance in completing the checklist or have any questions regarding the environmental review process, please visit or call Development Services (425-452-6800) between 8 a.m. and 4 p.m., Monday through Friday (Wednesday, 10 to 4). Assistance for the hearing impaired: Dial 711 (Telecommunications Relay Service). ..

INTRODUCTION**Purpose of the Checklist:**

The State Environmental Policy Act (SEPA), Chapter 43.21c RCW, requires all governmental agencies to consider the environmental impacts of a proposal before making decisions. An environmental impact statement (EIS) must be prepared for all proposals with probable significant adverse impacts on the quality of the environment. The purpose of this checklist is to provide information to help you and the City of Bellevue identify impacts from your proposal (and to reduce or avoid impacts from the proposal, if it can be done) and to help the City decide whether an EIS is required.

Instructions for Applicants:

This environmental checklist asks you to describe some basic information about your proposal. Answer the questions briefly, with the most precise information known, or give the best description you can. You must answer each question accurately and carefully, to the best of your knowledge. In most cases, you should be able to answer the questions from your own observations or project plans without the need to hire experts. If you really do not know the answer or if a question does not apply to your proposal, write "do not know" or "does not apply." Giving complete answers to the questions now may avoid unnecessary delays later.

Some questions ask about governmental regulations such as zoning, shoreline, and landmark designations. Answer these questions if you can. If you have problems, the Planner in the Permit Center can assist you.

The checklist questions apply to all parts of your proposal, even if you plan to do them over a period of time or on different parcels of land. Attach any additional information that will help describe your proposal or its environmental effects. Include reference to any reports on studies that you are aware of which are relevant to the answers you provide. The City may ask you to explain your answers or provide additional information reasonably related to determining if there may be significant adverse impacts.

Use of a Checklist for Nonproject Proposals: *A nonproject proposal includes plans, policies, and programs where actions are different or broader than a single site-specific proposal.*

For nonproject proposals, complete the Environmental Checklist even though you may answer "does not apply" to most questions. In addition, complete the Supplemental Sheet for Nonproject Actions available from Permit Processing.

For nonproject actions, the references in the checklist to the words *project*, *applicant*, and *property or site* should be read as *proposal*, *proposer*, and *affected geographic area*, respectively.

Attach an 8 ½" x 11 vicinity map which accurately locates the proposed site.

Received
MAR 10 2010
Permit Processing

BACKGROUND INFORMATION

Property Owner: **City of Bellevue/Puget Sound Energy**

Proponent: **Clearwire US, LLC**

Contact Person: **Ron Meckler**

(If different from the owner. All questions and correspondence will be directed to the individual listed.)

Address: **1701 121st St SE, H-201, Everett, WA 98208-5990**

Phone: **206-384-2454**

Proposal Title: **Clearwire WA-SEA0356 / EASTGATE**

Proposal Location: **ROW of 150TH Ave SE, south of SE 46TH Way, adjacent to 4639 150th Ave SE**
(Street address and nearest cross street or intersection) Provide a legal description if available.

Please attach an 8 ½" x 11" vicinity map that accurately locates the proposal site.

Give an accurate, brief description of the proposal's scope and nature:

1. General description: **Replace existing 39' utility pole with a 54' pole; install antennas and equipment.**
2. Acreage of site: **public right of way – 49 square foot equipment area.**
3. Number of dwelling units/buildings to be demolished: **none**
4. Number of dwelling units/buildings to be constructed: **none**
5. Square footage of buildings to be demolished: **0**
6. Square footage of buildings to be constructed: **0**
7. Quantity of earth movement (in cubic yards): **~3**
8. Proposed land use: **Wireless Communication Facility**
9. Design features, including building height, number of stories and proposed exterior materials:
Replacement pole will be a laminated wood pole, 54' in height. Antennas flush mounted to top of pole. One 30" high equipment cabinet on pre-cast concrete slab on grade in ROW.
10. Other

Estimated date of completion of the proposal or timing of phasing:

Construction should commence within 30 days of permitting and approvals, completion within 60 days.

Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.

No additions or expansions are currently anticipated. However, as service needs associated with this area increase, additional antennas may be required.

List any environmental information you know about that has been prepared, or ... be prepared, directly related to this proposal.

A Noise Analysis has been prepared, due to proximity to residential uses.

Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain. List dates applied for and file numbers, if known.

Application has been submitted for an Administrative CUP. A ROW permit will be submitted.

List any government approvals or permits that will be needed for your proposal, if known. If permits have been applied for, list application date and file numbers, if known.

City of Bellevue Administrative CUP and ROW permit. Approval by Puget Sound Energy.

Please provide one or more of the following exhibits, if applicable to your proposal. (Please check appropriate box(es) for exhibits submitted with your proposal):

- Land Use Reclassification (rezone) Map of existing and proposed zoning
- Preliminary Plat or Planned Unit Development
Preliminary plat map
- Clearing & Grading Permit
Plan of existing and proposed grading
Development plans
- Building Permit (or Design Review)
Site plan
Clearing & grading plan
- Shoreline Management Permit
Site plan

A. ENVIRONMENTAL ELEMENTS

1. Earth

a. General description of the site: Flat Rolling Hilly Steep slopes Mountains Other

b. What is the steepest slope on the site (approximate percent slope)? **8%**

c. What general types of soil are found on the site (for example, clay, sand, gravel, peat, and muck)? If you know the classification of agricultural soils, specify them and note any prime farmland.

Seattle silty loam

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe.

None

e. Describe the purpose, type, and approximate quantities of any filling or grading proposed. Indicate source

(2) Could waste materials enter ground or surface waters? If so, generally describe.

No waste materials created from this installation.

d. Proposed measures to reduce or control surface, ground, and runoff water impacts, if any:

What little runoff is created by this project will be absorbed by the grass and landscaped area surrounding it.

4. Plants

a. Check or circle types of vegetation found on the site:

- deciduous tree: alder, maple, aspen, other
- evergreen tree: fir, cedar, pine, other
- shrubs
- grass
- pasture
- crop or grain
- wet soil plants: cattail, buttercup, bulrush, skunk cabbage, other
- water plants: water lily, eelgrass, milfoil, other
- other types of vegetation

b. What kind and amount of vegetation will be removed or altered?

A small amount of weeds (49 square feet) will be removed to accommodate the equipment cabinet and work area surrounding it.

c. List threatened or endangered species known to be on or near the site.

None known.

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:

Weed barrier to be installed below gravel or asphalt before construction. Emerald green arborvitae (2) are proposed for the site.

5. ANIMALS

a. Check or circle any birds and animals which have been observed on or near the site or are known to be on or near the site:

- Birds: hawk, heron, eagle, songbirds, other:
- Mammals: deer, bear, elk, beaver, other: **squirrels, field mice**

of fill.

No fill involved. Existing pole will be replaced with new wood-lam pole, which will involve minimal excavation (~3 cu yd) for the pole footing minimal grading over a 7' x 7' surface area for the precast concrete equipment cabinet slab.

f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe.

Possible runoff from rain during construction.

g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)?

Site is a street ROW. Gravel base and precast concrete slab will require 49 SF of impervious surface.

h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any:

Best management practices will be employed. Hay bales and tarps will be deployed over bare ground or spoils piles during construction.

2. AIR

a. What types of emissions to the air would result from the proposal (i.e. dust, automobile odors, and industrial wood smoke) during construction and when the project is completed? If any, generally describe and give approximate quantities if known.

Construction vehicle emissions will occur during construction, but fairly minimal. After the facility is operating, no air emissions occur.

b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe.

None

c. Proposed measures to reduce or control emissions or other impacts to the air, if any:

None

3. WATER

a. Surface

(1) Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into.

No.

(2) Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If Yes, please describe and attach available plans.

No.

- (3) Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material.

None.

- (4) Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known.

None.

- (5) Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.

Not that applicant is aware of.

- (6) Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.

No.

b. Ground

- (1) Will ground water be withdrawn, or will water be discharged to ground water? Give general description.

No.

- (2) Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: Domestic sewage; industrial, containing the following chemicals...; agricultural; etc.) Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.

None.

c. Water Runoff (Including storm water)

- (1) Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe.

The only runoff will be storm water. What little runoff from the equipment area (49 square feet) will flow to the surrounding ground, which is covered by grass and landscaping.

The sound generated by the equipment will not exceed 45 dBA at the nearest residence. A noise analysis has been submitted along with the WCF application.

(3) Proposed measures to reduce or control noise impacts, if any:

None needed or proposed.

8. Land and Shoreline Use

a. What is the current use of the site and adjacent properties?

The site is the ROW of 150th Ave SE. There are single-family homes in all four directions

b. Has the site been used for agriculture? If so, describe.

No

c. Describe any structures on the site.

There is an existing 39' utility pole in the ROW of 150th Ave SE. There is fencing running north and south to the west of the site, dividing the residential lots from the ROW.

d. Will any structures be demolished? If so, what?

The existing 39' utility pole will be removed.

e. What is the current zoning classification of the site?

R-6

f. What is the current comprehensive plan designation of the site?

Single Family Residential

g. If applicable, what is the current shoreline master program designation of the site?

Not applicable

h. Has any part of the site been classified as an "environmentally sensitive" area? If so, specify.

Not that applicant is aware of.

i. Approximately how many people would reside or work in the completed project?

0

j. Approximately how many people would the completed project displace?

0

k. Proposed measures to avoid or reduce displacement impacts, if any:

None required.

i. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any: **Utilizing an existing power pole, and swapping out with a taller pole that meets separation requirements between the power lines and the antennas falls within the hierarchy of preferred sites under the City's wireless communications facility code section. The antennas will be painted brown to match the replacement pole. All power and RF cables will be contained within the wood-lam replacement pole.**

9. Housing

l Fish: bass, salt. , trout, herring, shellfish, other:

b. List any threatened or endangered species known to be on or near the site.

None

c. Is the site part of a migration route? If so, explain.

Not that applicant is aware of

d. Proposed measures to preserve or enhance wildlife, if any:

Wildlife protection guidelines with respect to wireless facilities favor monopole design, with flush mounting if feasible. The proposed design is substantially the preferred design.

6. Energy and Natural Resources

a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy need? Describe whether it will be used for heating, manufacturing, etc.

Electric power is required to operate the radio equipment.

b. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe.

No

c. What kinds of energy conservation features are included in the plans of the proposal? List other proposed measures to reduce or control energy impacts, if any:

None are proposed.

7. Environmental Health

a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste, that could occur as a result of this proposal? If so, describe.

No. The only potential hazard is non-ionizing electromagnetic radiation from the antennas. However the radio system will not exceed the FCC regulations for persons in uncontrolled areas. An emissions report will be included with the WCF application.

(1) Describe special emergency services that might be required.

None required.

(2) Proposed measures to reduce or control environmental health hazards, if any.

Compliance with FCC regulations regarding RF emissions.

b. Noise

(1) What types of noise exist in the area which may affect your project (for example, traffic, equipment, operation, other)?

Ambient traffic noise will not affect this project.

(2) What types and levels of noise would be created by or associated with the project on a short-term or long-term basis (for example, traffic, construction, operation, other)? Indicate what hours noise would come from the site.

- a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.

None.

- b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.

None.

- c. Proposed measures to reduce or control housing impacts, if any:

None are proposed.

10. Aesthetics

- a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed?

53'. The pole will be a laminated wood product (commonly called a wood-lam or glu-lam).

- b. What views in the immediate vicinity would be altered or obstructed?

No views will be obstructed by the addition of 15' to the existing utility pole.

- c. Proposed measures to reduce or control aesthetic impacts, if any:

Applicant is proposing to increase the height by only 15'. The antennas will be flush-mounted to the pole and painted brown to match. The equipment cabinet is a low profile 30" high design that will be landscaped with 6' arborvitae.

11. Light and Glare

- a. What type of light or glare will the proposal produce? What time of day would it mainly occur?

None

- b. Could light or glare from the finished project be a safety hazard or interfere with views?

No

c. What existing off-site sources of light or glare may affect your proposal:

None

d. Proposed measures to reduce or control light or glare impacts, if any:

None required or proposed.

12. Recreation

a. What designated and informal recreational opportunities are in the immediate vicinity?

None in the immediate vicinity

b. Would the proposed project displace any existing recreational uses? If so, describe.

No

c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any:

None are proposed.

13. Historic and Cultural Preservation

a. Are there any places or objects listed on, or proposed for, national, state, or local preservation registers known to be on or next to the site? If so, generally describe.

No

b. Generally describe any landmarks or evidence of historic, archeological, scientific, or cultural importance known to be on or next to the site.

None.

c. Proposed measures to reduce or control impacts, if any:

Locating the WCF on a replacement utility will have no impact.

14. Transportation

a. Identify public streets and highways serving the site, and describe proposed access to the existing street system. Show on site plans, if any.

The site will be located in the ROW of 150th Ave SE south of its intersection with SE 46th Way

b. Is site currently served by public transit? If not, what is the approximate distance to the nearest transit stop?

Yes – closest stop is on 150th Ave SE at SE 46th Way.

c. How many parking spaces would be completed project have? How many would the project eliminate?

None

d. Will the proposal require any new roads or streets, or improvements to existing roads or streets, not including driveways? If so, generally describe (indicate whether public or private).

No

e. Will the project use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.

No

- f. How many vehicular trips per day would be generated by the completed project? If known, indicate when peak volumes would occur. **After construction complete, site will be visited approximately four times per year for repairs and preventive maintenance. This equals 0.8 trips per month.**
- g. Proposed measures to reduce or control transportation impacts, if any:

None proposed.

15. Public Services

- a. Would the project result in an increased need for the public services (for example: fire protection, police protection, health care, schools, other)? If so, generally describe.

No

- b. Proposed measures to reduce or control direct impacts on public services, if any.

None

16. Utilities

- a. Circle utilities currently available at the site: electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, other.

All available – only electricity required for the facility.

- b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed.

PSE will provide electric power directly from the pole on which the equipment is located.

Signature

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

Signature..... *Ronald Meeker*

Date Submitted..... *3/10/2010*

WA-SEA0356 EASTGATE / PSE POLE

Vicinity Map

