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WRITER'S DIRECT DIAL:
860-293-3744
E-MAIL ADDRESS: SHUMES@LLGM.COM

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July 31, 2001

Joel M. Rinebold
Executive Director
Connecticut Siting Council
10 Franklin Street
New Britain, CT 06051

Re: Minor Modifications to VoiceStream Wireless Tower Facility at 467 South Quaker Lane, West Hartford

Dear Mr. Rinebold:

This letter is to inform you and the Connecticut Siting Council of a proposed addition of equipment on a VoiceStream Wireless telecommunications tower at the above-referenced site.

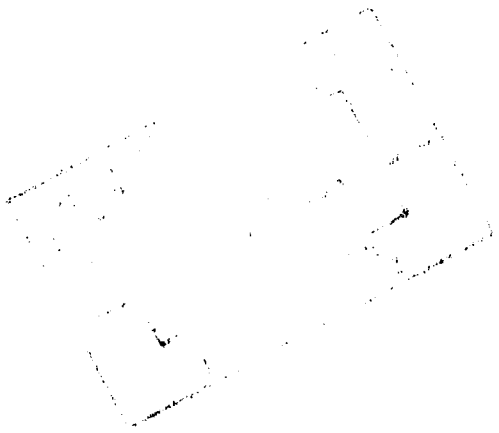
VoiceStream originally received approval for this tower from the West Hartford Planning and Zoning Commission in March, 2000. As part of its approval, VoiceStream indicated that it would initially install three antennas and one equipment cabinet and that it expected to expand its equipment needs in the future. With this local approval already in hand, VoiceStream is now planning to complete that expansion by filing for a new building permit with the town. However, in the interim, Verizon Wireless has received approval from the Siting Council for the co-location of its antennas, and VoiceStream wishes to update the Siting Council's records to reflect its most recent changes.

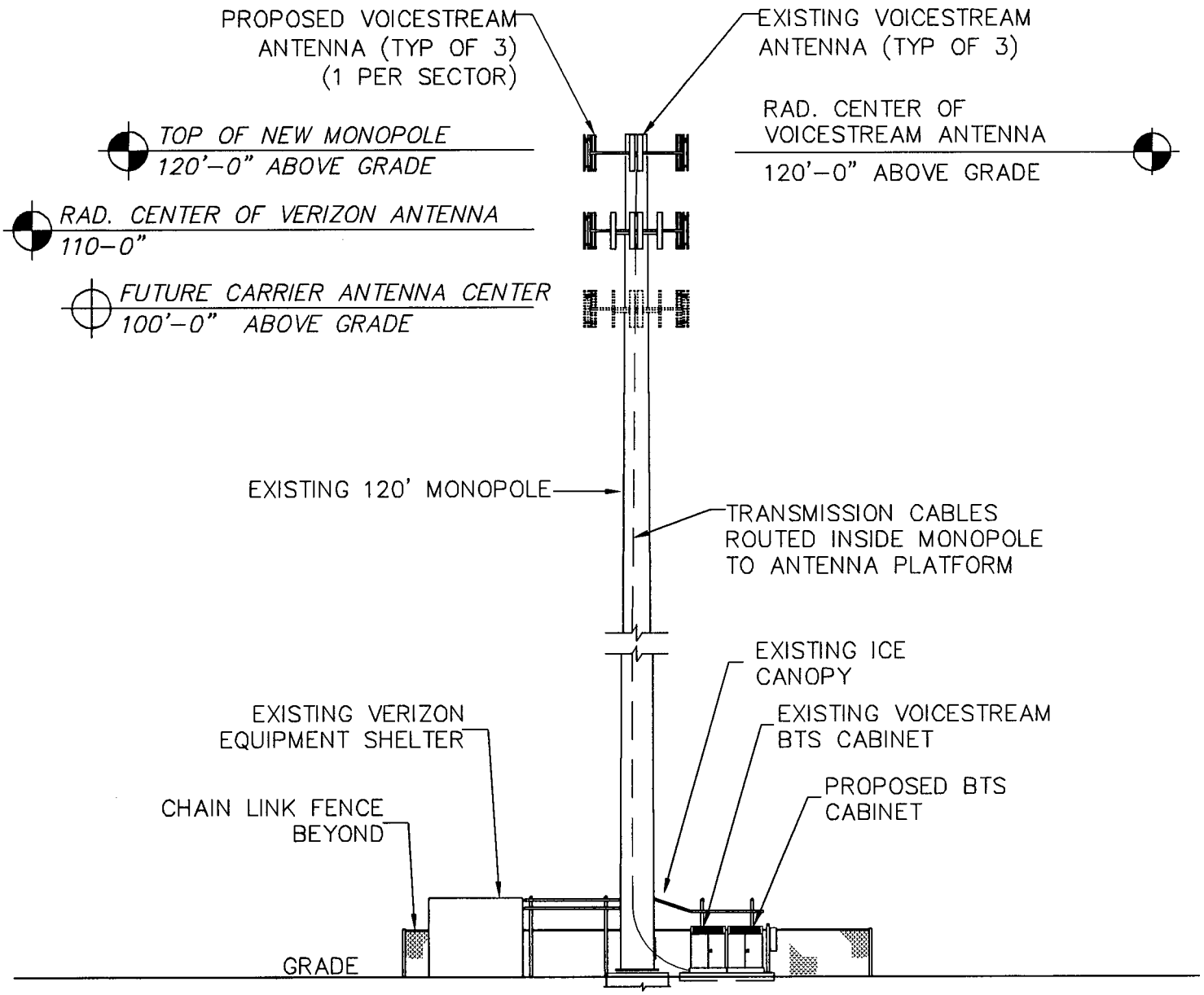
To that end, attached please find updated site plan and elevation drawings, a revised structural analysis and a new power density analysis all reflecting VoiceStream's most recent changes. If you have any questions, please don't hesitate to contact me at 860-293-3744

Sincerely,

Stephen J. Humes

cc: Robert R. Bouvier, Mayor, Town of West Hartford





3 ELEVATION

SCALE: 1"=20'

OMNIPOINT COMMUNICATIONS, INC.

a subsidiary of

VoiceStream WIRELESS

CB JOB NUMBER: 325007.139

DATE ISSUED: 7/23/01

ISSUES/REVISIONS:

ISSUE FOR REVIEW	7/2/01
REVISION	7/23/01

SITE ID: CT-11-178D

457 SOUTH QUAKER

WEST HARTFORD, CT

Carter :: Burgess

CARTER & BURGESS CONSULTANTS, INC.

310 ORANGE STREET, 6TH FLOOR

NEW HAVEN, CT 06510

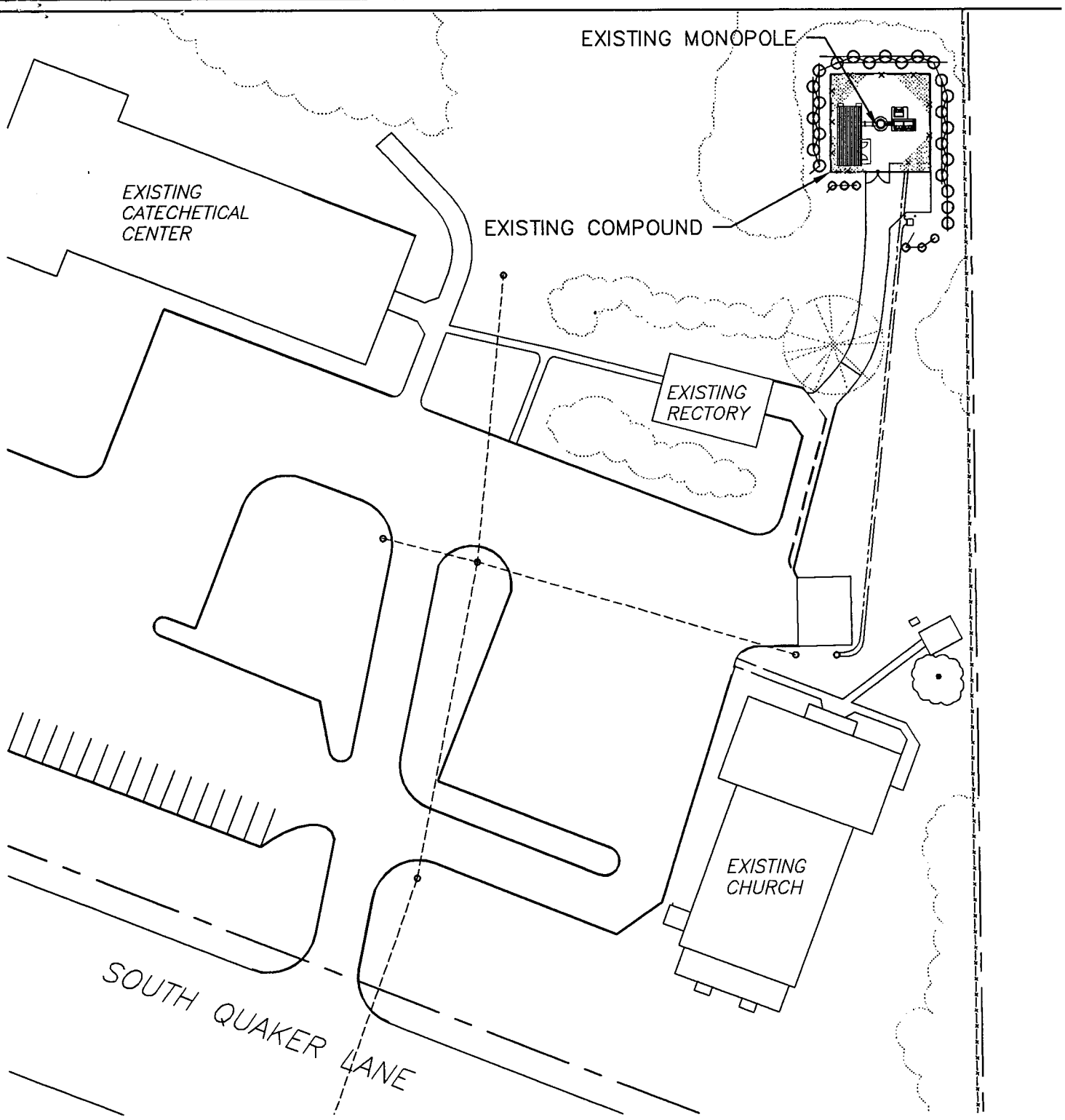
T. (203) 771-6883 F. (203) 785-8521

LEASE EXHIBITS ARE A CONCEPTUAL REPRESENTATION OF THE LEASE AGREEMENT ONLY-CONSTRUCTION DOCUMENTS MAY VARY FROM THESE EXHIBITS IN ORDER TO COMPLY WITH ALL APPLICABLE CODES

THIS PLAN WAS PREPARED USING AVAILABLE SITE INFORMATION FROM SEVERAL SOURCES, SOME OF WHICH MAY BE UNCONFIRMED, AND REPRESENTS A CONCEPTUAL SITE DEVELOPMENT PLAN BASED ON DEVELOPMENT REQUIREMENTS PROVIDED BY VOICSTREAM WIRELESS

SHEET CONTENTS: ELEVATION

SHEET NUMBER: LE-3



1 SCHEMATIC SITE LAYOUT

SCALE: NOT TO SCALE

OMNIPOINT COMMUNICATIONS, INC.

a subsidiary of

VoiceStream WIRELESS

CB JOB NUMBER: 325007.139

DATE ISSUED: 7/23/01

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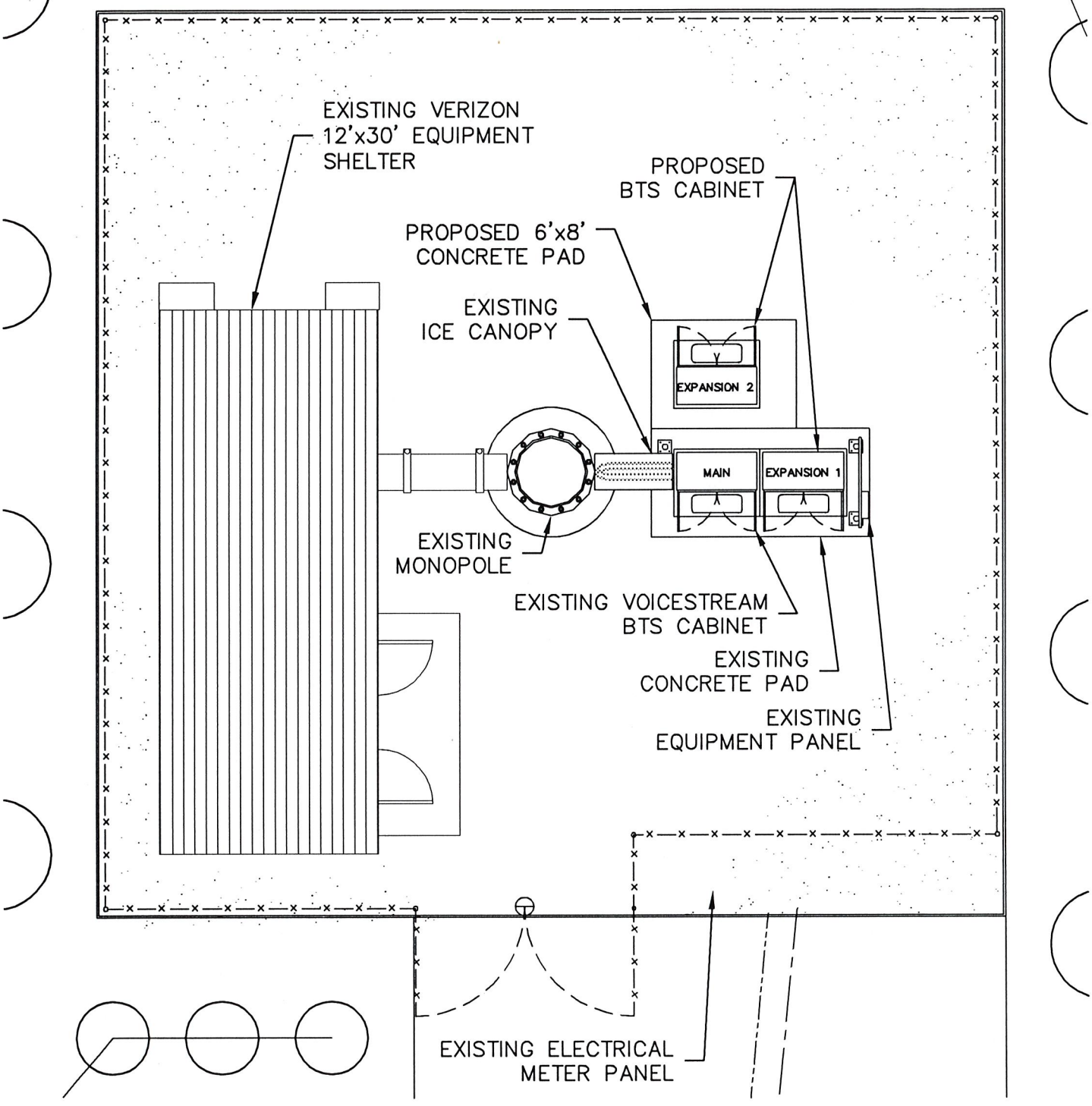
SHEET CONTENTS: SCHEMATIC SITE LAYOUT

SHEET NUMBER: LE-1



2 COMPOUND PLAN

SCALE: NOT TO SCALE

OMNIPOINT COMMUNICATIONS, INC.

a subsidiary of

VoiceStream WIRELESS

CB JOB NUMBER: 325007.139

DATE ISSUED: 7/23/01

ISSUES/REVISIONS:

ISSUE FOR REVIEW 7/2/01

REVISION 7/23/01

SITE ID: CT-11-178D

457 SOUTH QUAKER

WEST HARTFORD, CT

Carter :: Burgess

CARTER & BURGESS CONSULTANTS, INC.

310 ORANGE STREET, 6TH FLOOR

NEW HAVEN, CT 06510

T. (203) 771-6883 F. (203) 785-8521

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SHEET CONTENTS: COMPOUND PLAN

SHEET NUMBER: LE-2

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@po.state.ct.us
Web Site: www.state.ct.us/csc/index.htm

April 27, 2001

Christopher B. Fisher, Esq.
Cuddy & Feder & Worby LLP
90 Maple Avenue
White Plains, NY 10601-5196

RE: **TS-VER-155-010417** - Cellco Partnership d/b/a Verizon Wireless and AT&T Wireless PCS, LLC, d/b/a AT&T Wireless request for an order to approve tower sharing at an existing telecommunications facility located at 457-471 South Quaker Lane, West Hartford, Connecticut.

Dear Attorney Fisher:

At a public meeting held April 26, 2001, the Connecticut Siting Council (Council) ruled that the shared use of this existing tower site is technically, legally, environmentally, and economically feasible and meets public safety concerns, and therefore, in compliance with General Statutes § 16-50aa, the Council has ordered the shared use of this facility to avoid the unnecessary proliferation of tower structures. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

This decision is under the exclusive jurisdiction of the Council. Any additional change to this facility may require an explicit request to this agency pursuant to General Statutes § 16-50aa or notice pursuant to Regulations of Connecticut State Agencies Section 16-50j-73, as applicable. Such request or notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Any deviation from this format may result in the Council implementing enforcement proceedings pursuant to General Statutes § 16-50u including, without limitation, imposition of expenses resulting from such failure and of civil penalties in an amount not less than one thousand dollars per day for each day of construction or operation in material violation.

This decision applies only to this request for tower sharing and is not applicable to any other request or construction.

The proposed shared use is to be implemented as specified in your letter dated April 18, 2001.

Thank you for your attention and cooperation.

Very truly yours,

Mortimer A. Gelston
Chairman

MAG/RKE/laf

c: Honorable Robert R. Bouvier, Mayor, Town of West Hartford
Barry M. Feldman, Town Manager, Town of West Hartford
Donald Foster, Town Planner, Town of West Hartford
Sandy Carter, Verizon Wireless
Jennifer Gaudet, Pinnacle Site Development
Stephen J. Humes, Esq., LeBoeuf, Lamb, Greene & MacRae

A PROJECT FOR:

OMNIPOINT
COMMUNICATIONS, INC.
a subsidiary of

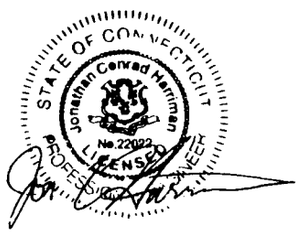
VoiceStream WIRELESS

SITE ID: CT-11-178D

467 SOUTH QUAKER LANE
WEST HARTFORD, CT

C&B JOB NUMBER:
325007.139

DATE ISSUED:
7/23/01



PROJECT DESCRIPTION :

VOICESTREAM WIRELESS PROPOSES TO UPGRADE AN EXISTING TELECOMMUNICATIONS FACILITY FOR THE OPERATION AND MAINTENANCE OF TELECOMMUNICATIONS EQUIPMENT. THE SCOPE OF WORK WILL INCLUDE PREPARATION FOR THE ALTERATION OF THE DESIGNATED AREAS AS OUTLINED IN THESE CONSTRUCTION DOCUMENTS. THE SCOPE OF WORK WILL ALSO INCLUDE THE INSTALLATION OF ALL ASSOCIATED ELECTRICAL AND TELECOMMUNICATIONS EQUIPMENT.

DIRECTIONS TO SITE:

I-84 WEST TO EXIT 43. RIGHT OFF EXIT ONTO PARK ROAD. FOLLOW PARK ROAD TO SOUTH QUAKER (RIGHT). TAKE RIGHT ONTO SOUTH QUAKER, ST. MARKS CHURCH IS 467 S. QUAKER.

PREPARED BY:

Carter :: Burgess
CARTER & BURGESS CONSULTANTS, INC.
310 ORANGE STREET, 6TH FLOOR
NEW HAVEN, CT 06510
T. 203.771.6883 F. 203.785.8521

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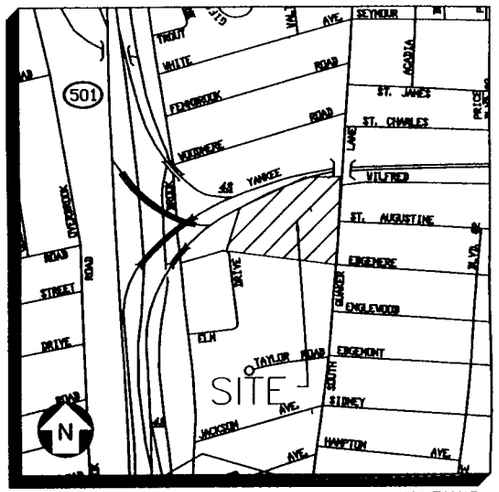

VICINITY MAP
SCALE: 1"=1000'

DRAWING INDEX

GENERAL

CIVIL

ELECTRICAL

OMNIPOINT MONOPOLE SEARCH AREA: WEST HARTFORD, CT

A

A	ACRE
A/C	AIR CONDITIONING
AB	ANCHOR BOLT
ABV	ABOVE
AC	ALTERNATING CURRENT
ACC	ACCESSIBLE, AIR COOLED CHILLER
ACCU	AIR COOLED CONDENSING UNIT
ACI	AMERICAN CONCRETE INSTITUTE
ACM	ANALOG CONTROL MODULE
ACS DR	ACCESS DOOR
ACS PNL	ACCESS PANEL
ACST	ACOUSTIC
ADA	AMERICANS WITH DISABILITIES ACT
ADAAG	AMERICAN DISABILITIES ACT ACCESSIBILITIES GUIDE LINES
ADDL	ADDITIONAL
ADJ	ADJACENT, ADJUSTABLE
AF	AMPERE FRAME
AFC	ABOVE FINISHED CEILING
AFF	ABOVE FINISHED FLOOR
AFFF	AQUEOUS FILM FORMING FOAM
AFG	ABOVE FINISHED GRADE
AFR	ABOVE FINISHED ROOF
AGA	AMERICAN GAS ASSOCIATION
AGL	ABOVE GRADE LEVEL
AHJ	AUTHORITY HAVING JURISDICTION
AHU	AIR HANDLING UNIT
AIC	AMPERE INTERRUPTING CURRENT
AIM	ADDRESSABLE INPUT MODULE
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
ALUM	ALUMINUM
AMB	AMBIENT
AMP	AMPERE
API	AMERICAN PETROLEUM INSTATE
APPROX	APPROXIMATE
ARCH	ARCHITECT
ARI	AIR CONDITIONING AND REFRIGERATION INSTITUTE
ARM	AGENT RELEASE MODULE
ASHRAE	AMERICAN SOCIETY OF HEATING, REFRIGERATION, AND AIR CONDITIONING ENGINEERS
ASME	AMERICAN SOCIETY OF MECHANICAL ENGINEERS
ASPH	ASPHALT
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
AT	AMPERE TRIP
ATC	ACOUSTICAL TILE CEILING, AUTOMATIC TEMPERATURE CONTROL
ATO	AUTOMATIC THROWOVER
ATS	AUTOMATIC TRANSFER SWITCH
AUX	AUXILIARY
AV	AIR VENT
AVG	AVERAGE
AWG	AMERICAN WIRE GAUGE
AWS	AMERICAN WELDING SOCIETY
AWWA	AMERICAN WATER WORKS ASSOCIATION

B

B PL	BASE PLATE
B/B, B-B	BACK TO BACK
BAT	BATTERY
BC	BACK OF CURB, BOTTOM CHORD, BUILDING CONTRACTOR
BDD	BACKDRAFT DAMPER
BEG	BEGIN
BEV	BEVEL
BFF	BELOW FINISH FLOOR
BFV	BUTTERFLY VALVE
BFW	BOILER FEED WATER
BG	BELOW GRADE
BLDG	BUILDING
BL	BASE LINE
BLWDN	BLOWDOWN
BM	BENCH MARK
BMS	BUILDING MANAGEMENT SYSTEM
BOD	BOTTOM OF DUCT
BOF	BOTTOM OF FOOTING
BOP	BOTTOM OF PIPE
BOS	BOTTOM OF STRUCTURE
BRG	BEARING
BRG PL	BEARING PLATE
BRKR	BREAKER
BRKT	BRACKET
BS	BOTH SIDES
BSMT	BASEMENT
BTU	BRITISH THERMAL UNIT
BV	BALL VALVE
BW	BOTH WAYS

C

C	CELSIUS, CONDUIT, CABLE
C/S	CONCRETE SLAB
CAB	CABINET, CABLE
CB	CURB
CC	CENTER TO CENTER
CCI	CHLORINE CONTACT TANK, CIRCUIT
CCTV	CLOSED CIRCUIT TELEVISION
CCU FT	CUBIC FEET
CD	CONDENSATE DRAIN (COLD)
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
CFS	CUBIC FEET PER SECOND
CHKV	CHECK VALVE
CHLNK	CHAIN LINK
CHWR	CHILLED WATER RETURN
CHWS	CHILLED WATER SUPPLY
CI	CAST IRON, CURB INLET
CIP	CAST IN PLACE
CIRC	CIRCULATING
CJ	CONTROL JOINT
CL	CENTER LINE, CLASS
CLG	CEILING
CLR	CLEAR
CM	CENTIMETER
CMP	CORRUGATED METAL PIPE
CMU	CONCRETE MASONRY UNIT
CND	CONDUIT
CNG	COMPRESSED NATURAL GAS
CO	CLEAN OUT
COL	COLUMN
CONC	CONCRETE, CONCENTRIC
CONN	CONNECT
CPT	CARPET

C (CONTINUED)

CONNX	CONNECTION
CONST	CONSTRUCTION
CONT	CONTINUOUS, CONTINUATION, CONTROLLER
CONTR	CONTRACTOR
CORR	CORRIDOR
CPH	CONTROL POINT HORIZONTAL
CPP	CORRUGATED POLYETHYLENE PIPE
CPV	CONTROL POINT VERTICAL
CPVC	CHLORINATED POLYVINYL CHLORIDE
CRAC	COMPUTER ROOM AIR CONDITIONING UNIT
CRR	CONDENSATE RETURN
CRS	COLD ROLLED STEEL
CRT	CATHODE RAY TUBE
CSK	COUNTER SUNK
CT	CERAMIC TILE, CURRENT TRANSFORMER
CTB	CEMENT TREATED BASE
CTR	CENTER
CTV	CABLE TELEVISION
CU	CONDENSER UNIT
Cu	COPPER
CW	COLD WATER
CWR	CONDENSER WATER RETURN
CWS	CONDENSER WATER SUPPLY

D

D	DEPTH
DA	DRAINAGE AREA
dB	DECIBEL
DB	DRY BULB
DC	DIRECT CIRCUIT
DDC	DIRECT DIGITAL CONTROL
DEF	DEFLECTION, DEFORM, DEFORMED
DEG	DEGREE
DES	DESIGNATION
DET	DETAIL
DI	DUCTILE IRON
DIA	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DIP	DUCTILE IRON PIPE
DISC	DISCONNECT
DISTR PNL	DISTRIBUTION PANEL
DL	DEAD LOAD
DMPF	DAMPPROOFING
DN	DOWN
DOT	DEPARTMENT OF TRANSPORTATION
DPDT	DOUBLE POLE, DOUBLE THROW
DPST	DOUBLE POLE, SINGLE THROW
DR	DRIVE
DR OPNG	DOOR OPENING
DS	DOWNSPOUT
DW	DOMESTIC WATER
DWG	DRAWING
DWL	DOWEL
DX	DIRECT EXPANSION

E

E	EAST (FOR COORDINATES), ELECTRIC
EA	EACH
EAT	ENTERING AIR TEMPERATURE
EC	ELECTRICAL CONTRACTOR
ECC	ECCENTRIC
ECU	ENHANCED CONTROL UNIT
EDBT	ENTERING DRY BULB TEMPERATURE
EF	EACH FACE
EG	EDGE OF GRAVEL
EJ	EXPANSION JOINT
EL	ELEVATION, ELECTRIC
ELB	ELBOW
ELEC	ELECTRIC
EMER	EMERGENCY
EMT	ELECTRICAL METALLIC TUBING
ENCL	ENCLOSURE
ENTR	ENTRANCE
EOL	END OF LINE RESISTOR
EP	EDGE OF PAVEMENT
EPA	ENVIRONMENTAL PROTECTION AGENCY
EPDM	ETHYLENE PROPYLENE DIENE MONOMER
EPO	EMERGENCY POWER OFF
EQ	EQUAL
EQL SP	EQUALLY SPACED
EQUIP	EQUIPMENT
ESH/E	EMERGENCY SHOWER AND EYEWASH
ESP	EXTERNAL STATIC PRESSURE
ETR	EXISTING TO REMAIN
EW	EACH WAY
EWBT	ENTERING WET BULB TEMPERATURE
EWC	ELECTRICAL WATER COOLER
EWEF	EACH WAY EACH FACE
EWT	ENTERING WATER TEMPERATURE
EXH	EXHAUST
EXH FN	EXHAUST FAN
EXIST	EXISTING
EXP	EXPANSION
EXP BT	EXPANSION BOLT
EXT	EXTERNAL

F

F	FAHRENHEIT, FORCE MAIN
F/F	FACE TO FACE
FA	FIRE ALARM
FAB	FABRICATION
FACP	FIRE ALARM CONTROL PANEL
FAV	FIRE ALARM VALVE
FB	FACE OF BUILDING
FBO	FURNISHED BY OWNER
FCO	FLOOR CLEAN OUT
FCU	FAN COIL UNIT
FD	FLAME DETECTOR, FLOOR DRAIN
FDMPR	FIRE DAMPER
FDV	FIRE DEPARTMENT VALVE
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER CABINET
FF	FINISHED FLOOR
FG	FINISHED GRADE
FH	FIRE HYDRANT
FHR	FIRE HOSE RACK
FHSMS	FLAT HEAD SHEET METAL SCREW
FHV	FIRE HOSE VALVE
FI	FUEL ISLAND
FIN	FINISH
FIN FLR	FINISH FLOOR

F (CONTINUED)

FIN GR	FINISH GRADE
FL	FLOW LINE
FLG	FLANGE
FL SW	FLOW SWITCH
FLA	FULL LOAD AMPS
FLEX	FLEXIBLE
FLG	FLANGE
FLL	FLOW LINE
FLR	FLOOR
FLUOR	FLUORESCENT
FM	FORCE MAIN, FACTORY MUTUAL
FMA	FACILITY MANAGEMENT AND ALARM SYSTEM
FMC	FLEXIBLE METALLIC CONDUIT
FND	FOUNDATION
FNMC	FLEXIBLE NON-METALLIC CONDUIT
FO	FRAME OPENING
FOC	FACE OF CURB
FOR	FUEL OIL RETURN
FOS	FUEL OIL SUPPLY
FOV	FUEL OIL VENT
FP	FIRE PROTECTION
FPC	FIRE PROTECTION CONTRACTOR
FPLP	FIRE POWER LIMITED PLENUM
FPM	FEET PER MINUTE
FPR	FIRE PROTECTION RISER
FR	FUEL RETURN, FIRE RATING
FRP	FIBERGLASS REINFORCED PIPE
FS	FINISHED SURFACE, FRONT SIDE, FUEL SUPPLY, FAR SIDE, FLOW SWITCH
FT	FOOT FLOW TRANSMITTER
FTG	FOOTING
FTL	FEED-THROUGH LUGS
FVR	FULL VOLTAGE REVERSING
FVNR	FULL VOLTAGE NON-REVERSING
FW	FIRE WATER

G

G	GAS (NATURAL), GALVANIZED IRON, GREASE
GA	GAUGE
GAL	GALLON, GALVANIZED
GALV	GALVANIZED
GC	GENERAL CONTRACTOR
GCO	GRADE CLEANOUT
GCU	GLAZED CLAY UNITS
GFI	GROUND FAULT
GFR	GROUND FAULT RELAY
GND	GROUND
GPD	GALLONS PER DAY
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GR	GRADE
GR BM	GRADE BEAM
GRS	GALVANIZED RIGID STEEL
GUT	GUTTER
GYP	GYPSUM
GYP BD	GYPSUM BOARD
GV	GATE VALVE
GW	GREASE WASTE
GWB	GYPSUM WALL BOARD

H

HA	HEIGHT
HB	HOSE BIB
HC	HANDICAP, HANDICAPPED
HD	HUB DRAIN
HDW	HARDWARE
HDWL	HEADWALL
HEX	HEXAGONAL
HGL	HYDRAULIC GRADE LINE
HID	HIGH INTENSITY DISCHARGE
HM	HOLLOW METAL
HMAC	HOT MIX ASPHALTIC CONCRETE
HOA	HAND-OFF-AUTO
HORIZ	HORIZONTAL
HPS	HIGH PRESSURE SODIUM
HPST	HIGH PRESSURE STEAM
HP	HORSEPOWER
HPT	HIGH POINT
HR	HOUR, HANDICAPPED RAMP
HSTAT	HUMIDISTAT
HSZBT	HORIZONTAL SINGLE-ZONE BLOW-THROUGH
HSZDT	HORIZONTAL SINGLE-ZONE DRAW-THROUGH
HT	HEIGHT
HTG	HEATING
HTR	HEATER
HTWR	HEATING WATER RETURN
HTWS	HEATING WATER SUPPLY
HVAC	HEATING, VENTILATING AND AIR CONDITIONING
HVU	HEATING AND VENTILATING UNIT
HW	DOMESTIC HOT WATER
HYD	HYDRANT
HZ	HERTZ

I

ID	INSIDE DIAMETER, INTERNAL DIAMETER
IEEE	INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS
IES	ILLUMINATING ENGINEERING SOCIETY
IF	INSIDE FACE
IG	ISOLATED GROUND
IMC	INTERMEDIATE METALLIC CONDUIT
IN	INCH
IN WG	INCHES WATER GAUGE
INCAND	INCANDESCENT
INSUL	INSULATION
INT	INTERIOR
INV	INVERT OF FLOW LINE
INV EL	INVERT ELEVATION
IW	INDUSTRIAL WASTE LINE

J

JAN	JANITOR
JB	JUNCTION BOX
JST	JOIST
JT	JOINT
JRCP	JOINTED REINFORCED CONCRETE

K

K	KIPS (1000 LBS)
KCMIL	1000 CIRCULAR MILS
Kg	KILOGRAM
KO	KNOCKOUT
KSI	KIPS PER SQUARE INCH
KV	KILOVOLT
KVA	KILOVOLT-AMPS
KVAR	KILOVOLT-AMPS REACTIVE
kW	KILOWATT
kWH	KILOWATT HOUR

L

L	LENGTH, LITER
LAT	LEAVING AIR TEMPERATURE
LAV	LAVATORY
LB,#	POUNDS
LD	DEVELOPMENT LENGTH
LDBT	LEAVING DRY BULB TEMPERATURE
LDG	LANDING
LF	LINEAR FEET (FOOT)
LFMC	LIQUID TIGHT FLEXIBLE METALLIC CONDUIT
LFNMC	LIQUID TIGHT FLEXIBLE NON METALLIC CONDUIT
LG	LONG
LF	LEFT
LH	LEFT HAND
LL	LIVE LOAD
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LM	LINEAR METER
LONG	LONGITUDINAL
LP	LOW PRESSURE (MECHANICAL), LOW POINT
LPD	LOW POINT DRAIN
LPG	LIQUID PETROLEUM GAS
LPM	LITERS PER MINUTE
LPS	LOW PRESSURE STEAM
LT	LOW POINT
LRA	LOCKED ROTOR AMPS
LS	LIME STABILIZED
LT	LIGHT, LEFT
LTG	LIGHTING
LW	LONG WAY
LWBT	LEAVING WET BULB TEMPERATURE
LWC	LIGHTWEIGHT CONCRETE

M

M	METER
MAS	MASONRY
MATL	MATERIAL
MATV	MASTER ANTENNA TELEVISION SYSTEM
MAX	MAXIMUM
MB	MACHINE BOLT, METAL BUILDING
MBC	METAL BUILDING CONTRACTOR, MULTIPLE BARREL CULVERT, MULTIPLE BOX CULVERT
MBH	1000 BTU PER HOUR
MC	MECHANICAL CONTRACTOR
MCA	MINIMUM CIRCUIT AMPS
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MD	MOTORIZED DAMPER
MDP	MAIN DISTRIBUTION PANEL
MECH	MECHANICAL
MEP	MECHANICAL, ELECTRICAL, PLUMBING
MET	METAL
MEZZ	MEZZANINE
MFG	MANUFACTURE
MFR	MANUFACTURER
MG	MOTOR GENERATOR
MGR	MANAGER
MH	MANHOLE
MI	MALLEABLE IRON
MIC	MICROPHONE
MID	MIDDLE
MIN	MINIMUM
MISC	MISCELLANEOUS
MJ	MECHANICAL JOINT
MK	MARK
MLO	MAIN LUGS ONLY
MO	MASONRY OPENING
MPA	MEGAPASCAL
MRV	MANUAL RELIEF VALVE
MS	MIDDLE STRIP
MSB	MAIN SWITCHBOARD
MT	STRUCTURAL TEE CUT FROM
MISC STL	MISCELLANEOUS STEEL
MTD	MOUNTED
MTL	METAL
MU	MAKE-UP
MV	MERCURY VAPOR
MW	MONITOR WELL
MZU	MULTI-ZONE UNIT

N

N	NORTH (FOR COORDINATES)
NA	NOT APPLICABLE
NC	NOISE CRITERIA, NORMALLY CLOSED
NEC	NATIONAL ELECTRIC CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION
NF	NEAR FACE
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NMC	NON METALIC CONDUIT
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN, NUMBER
NOM	NOMINAL
NS	NEAR SIDE
NTS	NOT TO SCALE

O

OA	OUTSIDE AIR OR OVERALL
OBD	OPPOSED BLADE DAMPER
OC	ON CENTER
OCEW	ON CENTER EACH WAY
OCV	ON CENTER VERTICALLY
OD	OUTSIDE DIAMETER
OF	OUTSIDE FACE
OHCD	OVERHEAD COIL DOOR
OHD	OVERHEAD DOOR
OHE	OVERHEAD ELECTRIC
OHT	OVERHEAD TELEPHONE
OPH	OPPOSITE HAND
OHSD	OVERHEAD SECTIONAL DOOR
OPNG	OPENING
OPP	OPPOSITE
OPT	OPTIONAL
ORBK	OFFICIAL RECORD BOOK
OS&Y	OUTSIDE STEM AND YOKE
OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION

P

P	PAGE
PAVT	PAVEMENT
PB	POND BOTTOM
PC	POINT OF CURVATURE
PCC	PRECAST CONCRETE
PCF	POUNDS PER CUBIC FOOT
PCHR	PRIMARY CHILLED WATER RETURN
PCHS	PRIMARY CHILLED WATER SUPPLY
PCR	PUMPED CONDENSATE RETURN
PD	PRESSURE DROP, PRESSURE DIFFERENCE
PDF	POWER DISTRIBUTION FEED
PDI	PLUMBING AND DRAINAGE INSTITUTE
PDU	POWER DISTRIBUTION UNIT
PERIM	PERIMETER
PERP	PERPENDICULAR
PF	POWER FACTOR
PG	PRESSURE GAUGE, PRESTRESSED GRINDER
PH	PHASE
PHWR	PRIMARY HEATING WATER RETURN
PHWS	PRIMARY HEATING WATER SUPPLY
PI	POINT OF INTERSECTION
PIS	PRESSURE INDICATOR SWITCH
PIV	POST INDICATOR VALVE
PL	PLATE, PROPERTY LINE
PLAM	PLASTIC LAMINATE
PLBG	PLUMBING
PLYWD	PLYWOOD
PM	PRESSED METAL
PNEU	PNEUMATIC
PNL	PANEL
POL	POLISHED
POV	PRIVATELY OWNED VEHICLE
PP	POWER POLE
PR	PAIR
PRCST	PRECAST
PREFAB	PREFABRICATED
PRELIM	PRELIMINARY
PRMLD	PREMOLDED
PROJ	PROJECTION
PRV	PRESSURE REDUCING VALVE
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PSIA	POUNDS PER SQUARE INCH ABSOLUTE
PSIG	POUNDS PER SQUARE INCH GAUGE
PSV	PRESSURE SAFETY VALVE, RELIEF
PT	PRESSURE TRANSMITTER, POINT, POINT OF TANGENCY, PRESSURE TREATED, PAINT
PTD	PAINTED
PV	PLUG VALVE
PVC	POLYVINYL CHLORIDE, POINT OF VERTICAL CURVE
PVI	POINT OF VERTICAL INTERSECTION
PVT	POINT OF VERTICAL TANGENCY
PVMT	PAVEMENT

Q

QT	QUARRY TILE
QTY	QUANTITY

R

R	RELIEF, RIGHT, RADIUS, RISER
Ra	RADIUM
RA	RETURN AIR
RAD	RADIUS
RCP	REFLECTED CEILING PLAN, REINFORCED CONCRETE PIPE
RD	ROOF DRAIN, ROAD
RE	REFER TO, REFERENCE
RECIRC	RECIRCULATE
RECPT	RECEPTACLE
RECT	RECTIFIER
RED	REDUCER
REF	REFERENCE
REINF	REINFORCING, REINFORCEMENT
REM	REMAINDER, REMOVE
REQ	REQUIRE
REQD	REQUIRED
RET	RETAINING
REV	REVISION, REVISE
RF	RADIO FREQUENCY
RFAT	RADIO FIRE ALARM TRANSMITTER
RGS	RIGID GALVANIZED STEEL
RH	RELATIVE HUMIDITY, RIGHT HAND
RHG	REFRIGERANT HOT GAS
RJ	RUSTICATION JOINT
RL	REFRIGERANT LIQUID, ROOF LEADER
RLA	RUNNING LOAD AMPS
RM	ROOM
RMC	RIGID METALLIC CONDUIT
RN	RISER NIPPLE
RND	ROUND
RO	ROUGH OPENING
ROW	RIGHT OF WAY
RP	RADIUS POINT
RPM	REVOLUTIONS PER MINUTE
RS	REFRIGERANT SUCTION
RT	RIGHT
RTU	ROOF TOP UNIT
RV	RELIEF VALVE
RVS	REVERSE
RW	RETAINING WALL, RAW WATER

S

S	SOUTH
SA	SUPPLY AIR
SAN	SANITARY, SANITARY SEWER
SAN SW	SANITARY, SANITARY SEWER
SB	SECURITY BARS
SC	SHEAR CONNECTORS OR SITE CONTRACTOR
SCH	SCHEDULE
SCHED	SCHEDULED
SCHR	SECONDARY CHILLED WATER RETURN
SCHS	SECONDARY CHILLED WATER SUPPLY
SD	SMOKE DAMPER, STORM DRAIN
SEC	SECURITY
SECT	SECTION
SF	SQUARE FEET
SFI	SHORT FLOW INDICATOR
SG	STATIC GROUND
SHT	SHEET, SLOW HOLDING TANK
SHWR	SECONDARY HEATING WATER RETURN
SHWS	SECONDARY HEATING WATER SUPPLY
SI	SURFACE INLET
SIM	SIMILAR
SJ	SAW JOINT
SL	SEA LEVEL
SLP	SLOPE
SM	SHEET METAL
SMACNA	SHEET METAL AND AIR CONDITIONING CONTRACTOR'S NATIONAL ASSOCIATION
SP	SPACE, SAMPLE POINT OR SPARE
SPCL	SPECIAL

S (CONTINUED)

SPEC	SPECIFICATION
SQ	SQUARE
SS	SANITARY SEWER
SST	STAINLESS STEEL
ST	SOUND TRAP, STEAM TRAP, STREET, STORM
STA	STATION, STATIONING
STC	SOUND TRANSMISSION CLASS
STD	STANDARD
STF	STIFFNER
STR	STRERUP
STL	STEEL
STM	STEAM
STN	STRAINER
STORM	STORM LINE
STRUCT	STRUCTURAL
SURF	SURFACE
SUSP	SUSPEND
SVC	SERVICE
SW	SHEAR WALL OR SIDE WALK
SYMM	SYMMETRICAL

T

T	TREAD, TOP, THERMOSTAT, TELEPHONE, TANGENT
T/PIPE	TOP OF PIPE
T&B	TOP AND BOTTOM
TBM	TEMPORARY BENCH MARK
TC	TOP OF CURB
TDH	TOTAL DYNAMIC HEAD
TE	TOP ELEVATION
TEL	TELEPHONE
TEMP	TEMPERATURE, TEMPORARY
TFD	TOP OF FLOOR DRAIN
TFF	TOP OF FINISHED FLOOR
TFMR	TRANSFORMER
THK	THICKNESS
THRD	THREADED
THRU	THROUGH
THPD	TEMPERED
TOB	TOP OF BEAM
TOC	TOP OF CURB
TOC	TOP OF CONCRETE
TOCB	TOP OF CABLE BRIDGE, CATCH BASIN
TOF	TOP OF FOOTING
TOJ	TOP OF JOIST
TOP	TOP OF PAVEMENT
TOS	TOP OF STEEL, TOP OF SLAB
TOW	TOP OF WALL
TRNV	TRANSVERSAL
TS	TUBULAR STEEL
TSS	TUBULAR STEEL SYSTEM
TSP	TOTAL STATIC PRESSURE
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
TW	TOP OF WALL
TWU	THROUGH WALL AIR CONDITIONING UNIT
TYP	TYPICAL

U

U/F	UNDERFLOOR
U/S	UNDERSLAB
UG	UNDERGROUND
UGE	UNDERGROUND ELECTRIC
UGND	UNDERGROUND
UGT	UNDERGROUND TELEPHONE
UL	UNDERWRITERS LABORATORIES, INC.
UNO	UNLESS NOTED OTHERWISE
UON	UNLESS OTHERWISE NOTED
UPS	UNINTERRUPTIBLE POWER SUPPLY
UST	UNDERGROUND STORAGE TANK
UR	URINAL

V

V	VOLT
VA	VOLT-AMPERE
VAC	VOLTS ALTERNATING CURRENT
	VACUUM
VAR	VARIES
VAV	VARIABLE AIR VOLUME
VB	VAPOR BARRIER
VC	VERTICAL CURVE
VCP	VITRIFIED CLAY PIPE
VCT	VINYL COMPOSITION TILE
VD	VOLUME DAMPER
VEL	VELOCITY
VERT	VERTICAL
VEST	VESTIBULE
VIF	VERIFY IN FIELD
VLD	VAPOR LEAK DETECTOR
VOL	VOLUME
VP	VENEER PANELING
VR	VAPOR RETARDER
VSZBT	VERTICAL SINGLE-ZONE BLOW-THROUGH
VSZDT	VERTICAL SINGLE-ZONE DRAW-THROUGH
VT	VINYL TILE
VTR	VENT THROUGH ROOF

W

W	WATT, WIDTH, WEST, WIDE FLANGE, WATER
W/	WITH
W/O	WITHOUT
WB	WET BULB
WC	WATER CLOSET
WCO	WALL CLEANOUT
WF	WIDE FLANGE
WG	WATER GOING
WH	WATER HEATER
WP	WORKING POINT (WORK POINT)
WPD	WATER PRESSURE DROP
WPJ	WEAKENED PLANE JOINT
WR	WATER RESISTANT
WS	WATER SURFACE
WT	WATERTIGHT, WEIGHT
	STRUCTURAL TEE CUT FROM WIDE FLANGE BEAM
WV	WATER VALVE
WWF	WELDED WIRE FABRIC
WWTP	WASTE WATER TREATMENT PLANT

X

XFMR	TRANSFORMER

Y

YR	YEAR

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STATE OF CONNECTICUT
Jonathan Conrad Harriman
No. 22022
REGISTERED PROFESSIONAL ENGINEER

CT22022	Jonathan C. Harriman	7/23/01
REGISTRATION #		DATE

OMNIPOINT COMMUNICATIONS, INC.
a subsidiary of
VoiceStream WIRELESS

SITE ID: CT-11-178D
467 SOUTH QUAKER LANE
WEST HARTFORD, CT

C&B JOB NUMBER:
325007.139

DATE ISSUED:
7/23/01

ISSUES/REVISIONS:

ISSUE FOR REVIEW	7/3/01
ISSUE FOR PERMIT	7/23/01

SHEET CONTENTS:

GENERAL ABBREVIATIONS

SHEET NUMBER:

G-1

BILL OF MATERIALS

1. ITEMS LISTED ARE TO BE SUPPLIED BY VOICESTREAM AND INSTALLED BY CONTRACTOR.
2. CONTRACTOR TO VERIFY ALL LENGTHS IN FIELD.

ITEM	QTY.	MANUFACTURER	PART NUMBER	DESCRIPTION	COMMENTS
1	1	NORTEL	S8000	BTS	
2	1	NORTEL	10" HIGH	SUB-BASE FOR S8000	
3	3	EMS	RR90-17-02DP	PANEL ANTENNAS	
4	3	EMS	MTG-S02-10	SWIVEL BRACKET	
5	3	EMS	MTG-D10-20	DOWN-TILT BRACKET	
6	6	RFS CABLEWAVE	FLC158-50J	1-5/8" COAXIAL TRANSMISSION CABLES	SEE G-3 FOR DIAGRAM AND LENGTHS
7	6	RFS CABLEWAVE	S-FLC12	6'-0" SUPERFLEX JUMPERS DIN (M), DIN (M)	
8	6	RFS CABLEWAVE	FLC12	6'-0" PREMIUM JUMPERS DIN (M), DIN (M)	
9	12	RFS CABLEWAVE	734756	1-5/8" CONNECTORS; DIN (F), DIN (F)	
10	18	RFS CABLEWAVE	916132	WEATHERPROOFING KITS	
11	18	RFS CABLEWAVE	916207	GROUNDING KITS	
12					
13					

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STATE OF CONNECTICUT
Jonathan Conrad Harriman
No. 22022
LICENSED
PROFESSIONAL ENGINEER

CT22022 — Jonathan C. Harriman — 7/23/01
REGISTRATION # — DATE

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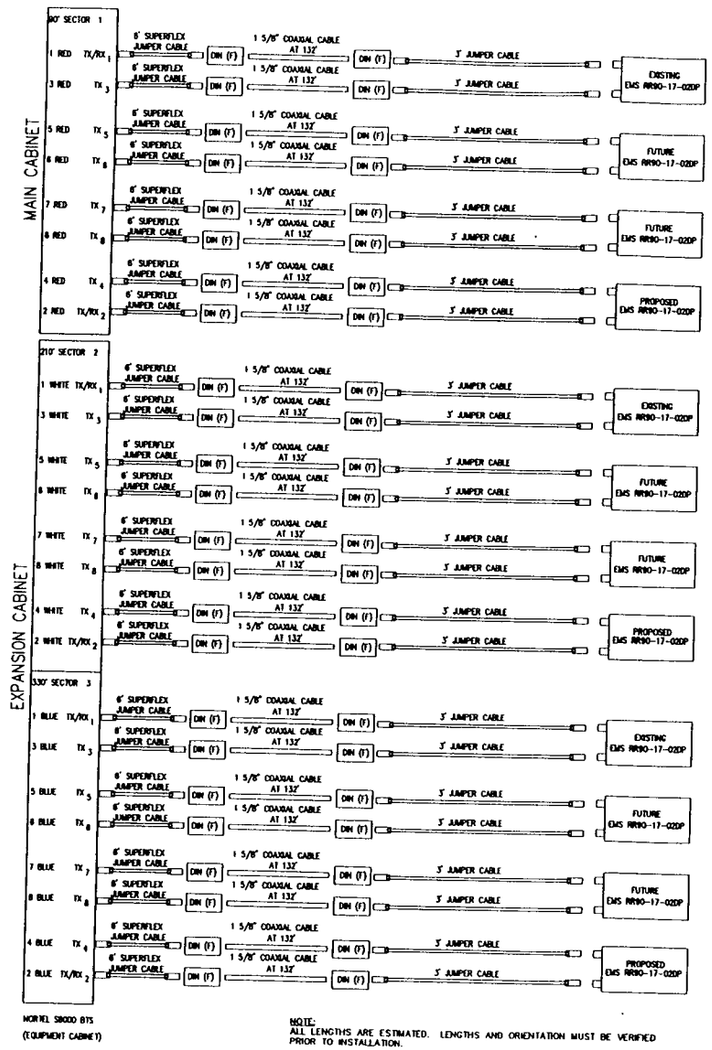
SHEET CONTENTS:
BILL OF MATERIALS

SHEET NUMBER:
G-2



NOTE:
ALL LENGTHS ARE ESTIMATED. LENGTHS AND ORIENTATION MUST BE VERIFIED PRIOR TO INSTALLATION.

1 COAXIAL CABLE DIAGRAM
SCALE: NTS

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C122022 Jonathan C Harriman 7/23/01
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SHEET CONTENTS:

RF RISER DIAGRAM

SHEET NUMBER:

G-3

GENERAL NOTES

1. ALL WORK TO BE DONE IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL CODES AND ORDINANCES.

2. THE CONTRACTOR IS TO INSTALL ALL EQUIPMENT SUPPLIED BY VOICESTREAM AS NOTED ON THE MATERIAL LIST. ALL ITEMS NOT SPECIFIED IN THE MATERIAL LIST TO BE SUPPLIED & INSTALLED BY THE CONTRACTOR.

3. ALL EQUIPMENT TO BE INSTALLED PLUMB AND LEVEL.

4. ALL STRUCTURAL STEEL FABRICATED AND ERECTED IN ACCORDANCE WITH THE LATEST AISC CODE AND ASTM SPECIFICATION, AND CONFORM TO ASTM-A-36. PIPE CONFORMS TO ASTM A-501 OR ASTM A-53 (GRADE-B)

5. ALL CONNECTIONS OF STRUCTURAL STEEL MEMBERS TO BE MADE USING SPECIFIED WELDS WITH WELDING ELECTRODES E-70XX OR SPECIFIED HIGH STRENGTH BOLTS TO BE ASTM A325, THREAD EXCLUDED FROM SHEAR PLANE.

6. ALL STEEL, AFTER FABRICATION, TO BE HOT DIPPED GALVANIZED PER ASTM A-123. ALL DAMAGED SURFACES, WELDED AREAS AND AUTHORIZED NON-GALVANIZED MEMBERS OR PARTS (EXISTING OR NEW) TO BE PAINTED WITH (2) COATS OF ZRC COLD GALVANIZING COMPOUND MANUFACTURED BY ZRC CHEMICAL PRODUCTS Co. QUINCE, MASS. OR USE THERMAL SPRAYING WITH PLATTZINC 85/15 AS MANUFACTURED BY PLATT BROTHERS & COMPANY, WATERBURY, CT 1-800-752-8276. SEE MANUF. INSTRUCTIONS FOR APPLICATION.

7. ALL SHOP AND FIELD WELDING TO BE PERFORMED BY QUALIFIED WELDERS AS DESCRIBED IN THE "AMERICAN WELDING SOCIETY'S STANDARD QUALIFICATION PROCEDURE" TO PERFORM THE TYPE OF WORK REQUIRED.

8. ALL GALVANIZED PIPE SIZES ARE NOMINAL DIAMETER. (INSIDE DIAMETER)

9. CONTRACTOR TO MEASURE AND VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS IN FIELD. ANY UNUSUAL CONDITIONS ARE BROUGHT TO THE ATTENTION OF THE ARCHITECT AND ENGINEER PRIOR TO THE PURCHASE, FABRICATION AND ERECTION OF ANY MATERIAL.

10. INCORRECTLY FABRICATED, DAMAGED, OTHERWISE MISFITTING, OR NON-CONFORMING MATERIALS AND CONDITIONS ARE REPORTED TO THE OWNER, ARCHITECT AND CONSTRUCTION MANAGER PRIOR TO ANY REMEDIAL OR CORRECTIVE ACTION. ALL ACTIONS REQUIRE APPROVAL FROM THE OWNER.

11. EXECUTE ALL WORK WHILE PREVENTING ANY DAMAGE TO EXISTING STRUCTURES, ESPECIALLY TO ROOF, ANY ROOF WORK INVOLVING ATTACHMENT, REMOVAL OF FINISH SURFACE OR PENETRATION IS PERFORMED TO PRESERVE EXISTING, ROOFING GUARANTEES, AND WARRANTIES. RESTORE ROOF TO COMPLETE WATER TIGHTNESS WITH THE APPROVED MATERIAL AND BY A SUB-CONTRACTOR PRE-APPROVED BY THE OWNER IN WRITING.

12. MASONRY PENETRATIONS SHOULD USE ROTARY ACTION ONLY. (NO HAMMERING ACTION)

13. ALL PENETRATIONS ARE PROPERLY FIRE-STOPPED WITH 3M F.S. 195 WRAP STRIP FIRE-STOP AND CP25 NON-SHRINKING PUTTY FIRE BARRIER SEALANT. MAINTAIN FIRE RATING OF ALL PENETRATED SURFACES.

14. ALL MOUNTS TO WALL, SEALED AT TOP AND SIDES WITH DOW CORNING CLEAR SILICONE SEALANT OR APPROVED EQUAL. SILICONE APPLICATIONS IS TOOLED TO PROVIDE A FINISHED APPEARANCE. EXTRANEOUS APPLICATION OF SILICONE WIPED CLEAN.

15. PROMPTLY REMOVE ANY AND ALL DEBRIS FROM SITE.

16. PROVIDE A 3/4" CHAMFER ON ALL EDGES OF CONCRETE SLABS.

17. THE GENERAL CONTRACTOR IS TO PAINT ALL NEW ANTENNAS, SHROUD ANY RELATED HARDWARE TO MATCH EXISTING CONDITIONS BELOW.

18. ALL PRODUCTS TO HAVE MANUFACTURER APPLIED FINISHES, TOUCH-UP BY GENERAL CONTRACTOR WITH MANUFACTURERS SUPPLIED MATERIALS.

NOTE. ALL PAINT IS SHERWIN WILLIAMS OR APPROVED EQUAL, UNLESS OTHERWISE SPECIFIED.

A. ANTENNA PAINT SPECIFICATIONS:

SURFACE PREPARATION:
REMOVE SURFACE CONTAMINATION USING ALCOHOL SOLVENT.

APPLICATION PROCEDURES:
PAINTING SHALL BE DONE INDOORS
1. APPLY ONE PRIMER COAT OF POLANE 2 B PLUS FIL D61H75 PRIMER IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

2. APPLY ONE TOP COAT IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
   a. FOR CELWAVE USE POLANE "HS 2 B PLUS POLYURETHANE".
   b. FOR EMS USE POLANE B OR POLANE T POLYURETHANE ENAMEL.

DO NOT USE THESE METAL BASED COLORS ON ANTENNA:
TURBINE ORANGE..., DECIBEL ORANGE..., BETA YELLOW..., ULTRASONIC CHROME.

B. MOUNTING HARDWARE / CONDUIT PAINT SPECIFICATION:

SURFACE PREPARATION:
REMOVE SURFACE CONTAMINATION USING ALCOHOL SOLVENT, ETHANOL, PROPANOL, ISOPROPANOL, OR BUTANOL. A TEN PERCENT SOLUTION OF METHYL ETHYL KETONE IN WATER CAN ALSO BE USED WHENEVER STUBBORN OIL OR GREASE IS ENCOUNTERED.

GALVANIZED SURFACES:
ONE COAT OF PERMABOND - BONDING AGENT BY CORONADO PAINT COMPANY #100-10. DO NOT LET DRY. IMMEDIATELY APPLY
ONE COAT OF SHERWIN WILLIAMS S-W A100 FLAT LATEX HOUSE & TRIM, A6 SERIES. LET DRY AND APPLY SECOND COAT OF
SHERWIN WILLIAMS S-W A100 FLAT LATEX HOUSE & TRIM, A6 SERIES (4 MILS WET, 1.3 MILS DRY PER COAT)

C. BTS CLEARANCE LIMIT LINE DEMARCATION:
WHEN SPECIFIED ON CONSTRUCTION DOCUMENTS, THE CONTRACTOR SHALL PAINT A CONTINUOUS 4" WIDE SAFETY LINE WITH
CON-LUX ROAD PLEX #17 TRAFFIC YELLOW OR APPROVED EQUAL ON THE WALKING SURFACE ADJACENT TO CABINET TO DENOTE
REQUIRED CLEARANCE LIMITS TO CABINET.

CONCRETE NOTES

1. ALL FOOTING TO BEAR ON SOIL HAVING A MINIMUM SAFE BEARING CAPACITY OF 3,000psf. WITH SUBGRADE FREE FROM ALL LOOSE SOIL AND DEBRIS. CONFIRM IN FIELD PRIOR TO PLACING FOOTINGS.

2. ELEVATIONS GIVEN CORRESPOND TO THE COMPUTED BOTTOM OF FOOTINGS AND ARE MINIMUM DEPTHS. ADDITIONAL DEPTH MAY BE REQUIRED TO REACH GOOD COMPACTED FILL, 3/4" CLEAN STONE, OR CONCRETE.

3. NO FOOTINGS PLACED IN WATER OR ON FROZEN GROUND. AFTER FOOTINGS ARE PLACED THEY SHALL BE PROTECTED AGAINST FROST.

4. FILL AND BACK FILL MATERIAL IS FREE OF DELETERIOUS ORGANIC MATTER.

CAST-IN-PLACE CONCRETE

1. ALL CONCRETE WORK CONFORMS TO THE LATEST EDITION OF ACI BUILDING CODE.

2. ALL CONCRETE MUST ATTAIN 4000 PSI COMPRESSIVE STRENGTH AT 28 DAYS.

3. READY MIX: COMPLY WITH ACI-301 AND ASTM C-94. ALL CONCRETE EXPOSED TO THE GROUND OR WEATHER TO BE AIR ENTRAINED.

4. COLD WEATHER CONCRETE POURING ACCORDING TO ACI-306.

5. THROUGHOUT CONSTRUCTION THE CONCRETE WORK IS ADEQUATELY PROTECTED AGAINST DAMAGE DUE TO EXCESSIVE LOADING, CONSTRUCTION EQUIPMENT, MATERIALS OR METHODS, ICE, RAIN, SNOW, EXCESSIVE HEAT AND FREEZING TEMPERATURES.

6. GUARD CONCRETE AGAINST EARLY DRYING, ESPECIALLY DURING THE FIRST 24 HOURS. ALL SURFACES TO BE PROTECTED USING MOIST CURING AGENT OR A MEMBRANE CURING AGENT APPLIED AS SOON AS FORMS ARE REMOVED OR FINISHING OPERATIONS ARE COMPLETE. CARE SHALL BE EXERCISED SO AS NOT TO DAMAGE COATING.

7. APPLY NON-SLIP BROOM FINISH IMMEDIATELY AFTER TROWEL FINISHING.

8. CONTRACTOR TO COORDINATE REQUIREMENTS FOR STRUCTURAL ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS, INCLUDING ANY AND ALL PENETRATIONS SPECIFIED, PRIOR TO POURING CONCRETE.

REINFORCING

1. REINFORCING IS TO CONFORM TO THE LATEST ACI CODE AND DETAILING MANUAL.

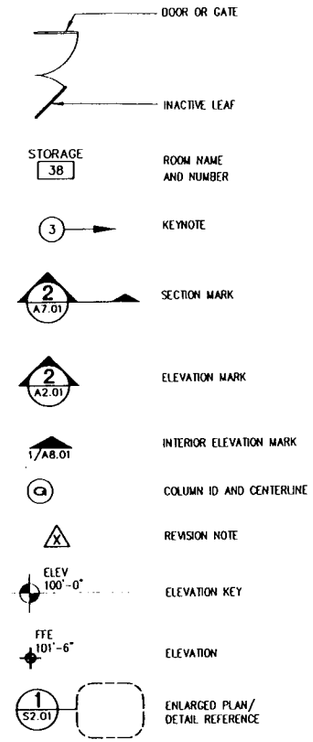
2. WHERE REINFORCING IS CALLED OUT IN THE CONSTRUCTION DOCUMENTS IT WILL HAVE 3" CLEAR COVER (MINIMUM UNLESS OTHERWISE NOTED)

3. ALL BARS ASTM A-615, GRADE 60

4. WELDED WIRE FABRIC ASTM A-185

5. CONTINUOUS BARS ARE TO RUN CONTINUOUSLY AROUND CORNERS AND LAPPED AT REQUIRED SPLICES AT DISCONTINUOUS ENDS. LAP SHALL BE A MINIMUM OF 40 BAR DIAMETERS

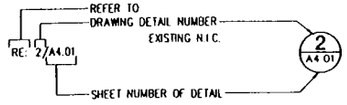
SYMBOLS



LINETYPE LEGEND

NEW CONSTRUCTION	PROPERTY LINE
EXISTING CONSTRUCTION	SET-BACK LINE
EXISTING CONSTRUCTION TO BE REMOVED	T — UG TELCO LINE
1 HOUR RATED WALL	E — UG ELEC LINE
2 HOUR RATED WALL	E&T — UG TELCO & ELEC
CATV — UG CABLE TV	CHAIN LINK FENCE
W — WATER MAIN	EASEMENT LINE
G — GAS MAIN	
SAN — GRAVITY SANITARY SEWER	
FM — FORCEMAIN SANITARY SEWER	

DETAIL REFERENCE KEY



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SHEET CONTENTS:
SPECIFICATIONS
SYMBOLS AND
GENERAL NOTES

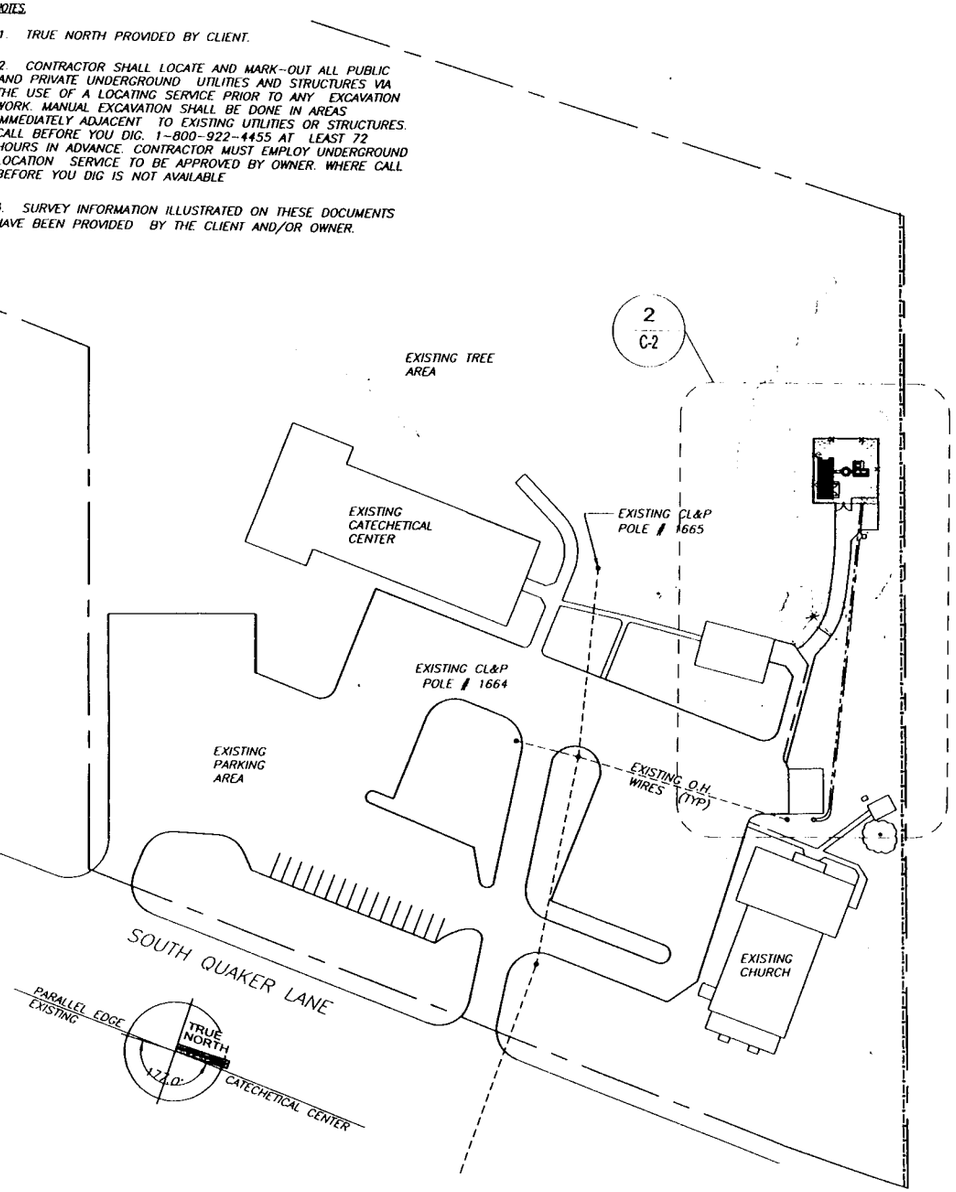
SHEET NUMBER:
C-1

NOTES:

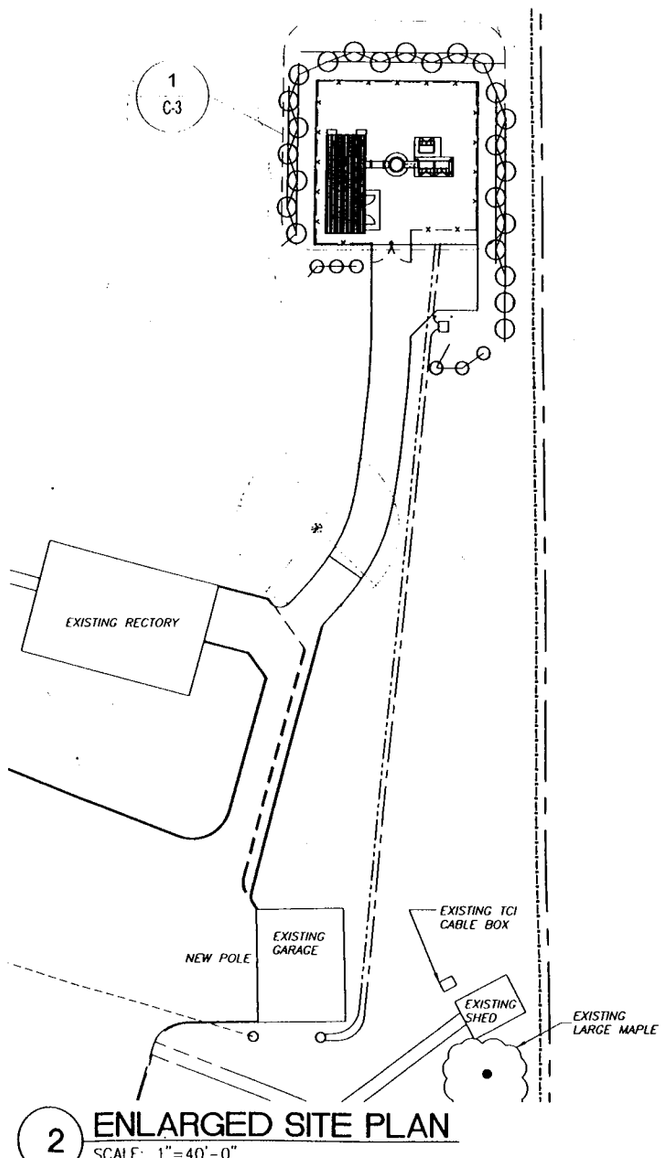
1. TRUE NORTH PROVIDED BY CLIENT.

2. CONTRACTOR SHALL LOCATE AND MARK-OUT ALL PUBLIC AND PRIVATE UNDERGROUND UTILITIES AND STRUCTURES VIA THE USE OF A LOCATING SERVICE PRIOR TO ANY EXCAVATION WORK. MANUAL EXCAVATION SHALL BE DONE IN AREAS IMMEDIATELY ADJACENT TO EXISTING UTILITIES OR STRUCTURES. CALL BEFORE YOU DIG. 1-800-922-4455 AT LEAST 72 HOURS IN ADVANCE. CONTRACTOR MUST EMPLOY UNDERGROUND LOCATION SERVICE TO BE APPROVED BY OWNER. WHERE CALL BEFORE YOU DIG IS NOT AVAILABLE

3. SURVEY INFORMATION ILLUSTRATED ON THESE DOCUMENTS HAVE BEEN PROVIDED BY THE CLIENT AND/OR OWNER.



1 SITE PLAN
SCALE: 1"=100'-0"



2 ENLARGED SITE PLAN
SCALE: 1"=40'-0"

LEGEND

- APPROX. PROPERTY LINE
- UNDERGROUND TELCO LINES
- UNDERGROUND POWER LINES
- OVERHEAD WIRES

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STATE OF CONNECTICUT
Jonathan Conrad Hartman
No. 21...
LICENSED PROFESSIONAL ENGINEER

CT22022 — Jonathan C. Hartman — 7/23/01
REGISTRATION # — DATE

OMNIPOINT COMMUNICATIONS, INC.
a subsidiary of
VoiceStream WIRELESS

SITE ID: CT-11-178D
467 SOUTH QUAKER LANE
WEST HARTFORD, CT

C&B JOB NUMBER:
325007.139

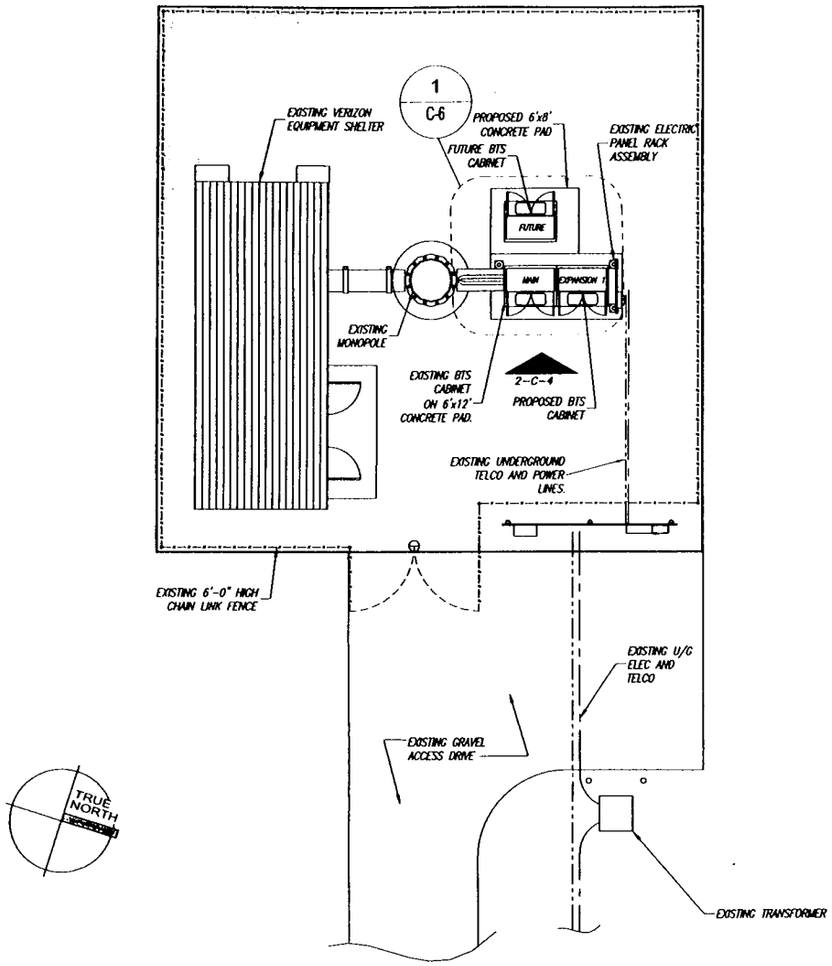
DATE ISSUED:
7/23/01

ISSUES/REVISIONS:

ISSUE FOR REVIEW	7/3/01
ISSUE FOR PERMIT	7/23/01

SHEET CONTENTS:
SITE PLAN

SHEET NUMBER:
C-2



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

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STATE OF CONNECTICUT
Jonathan Conrad Hariman
No. 22402
LICENSED
PROFESSIONAL ENGINEER

C122022 Jonathan C. Hariman 7/23/01
REGISTRATION # DATE

OMNIPOINT COMMUNICATIONS, INC.
a subsidiary of VoiceStream WIRELESS

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467 SOUTH QUAKER LANE
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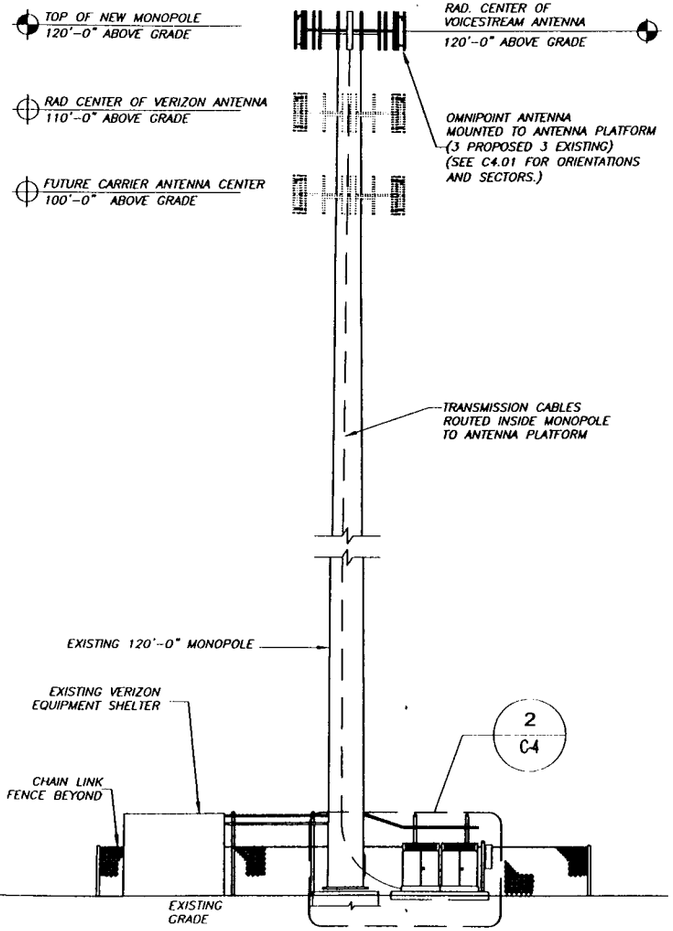
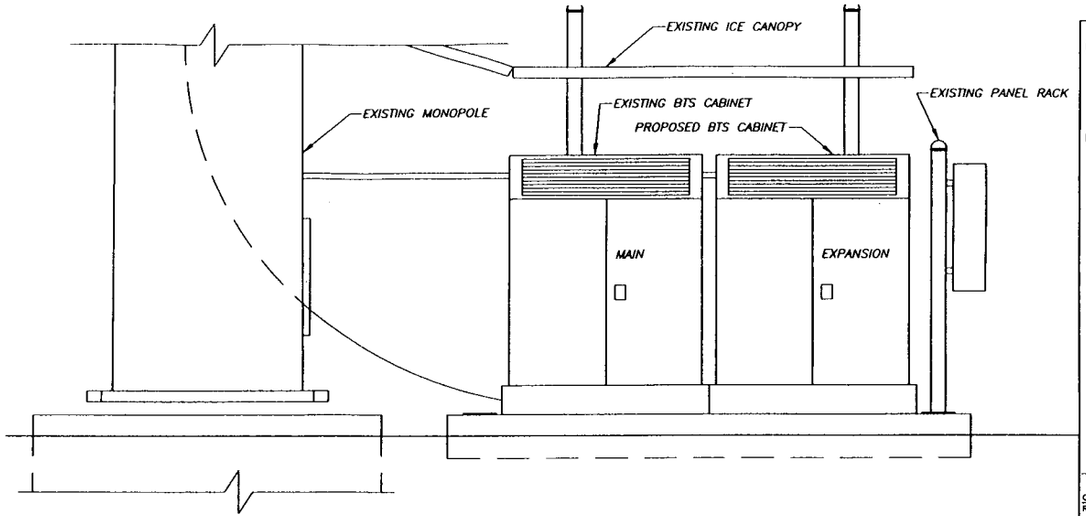
SHEET CONTENTS:
COMPOUND PLAN

SHEET NUMBER:
C-3



1 MONOPOLE ELEVATION
SCALE: 1/16"=1'-0"



2 EQUIPMENT ELEVATION
SCALE: 3/8"=1'-0"

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STATE OF CONNECTICUT
Jonathan Conrad Harriman
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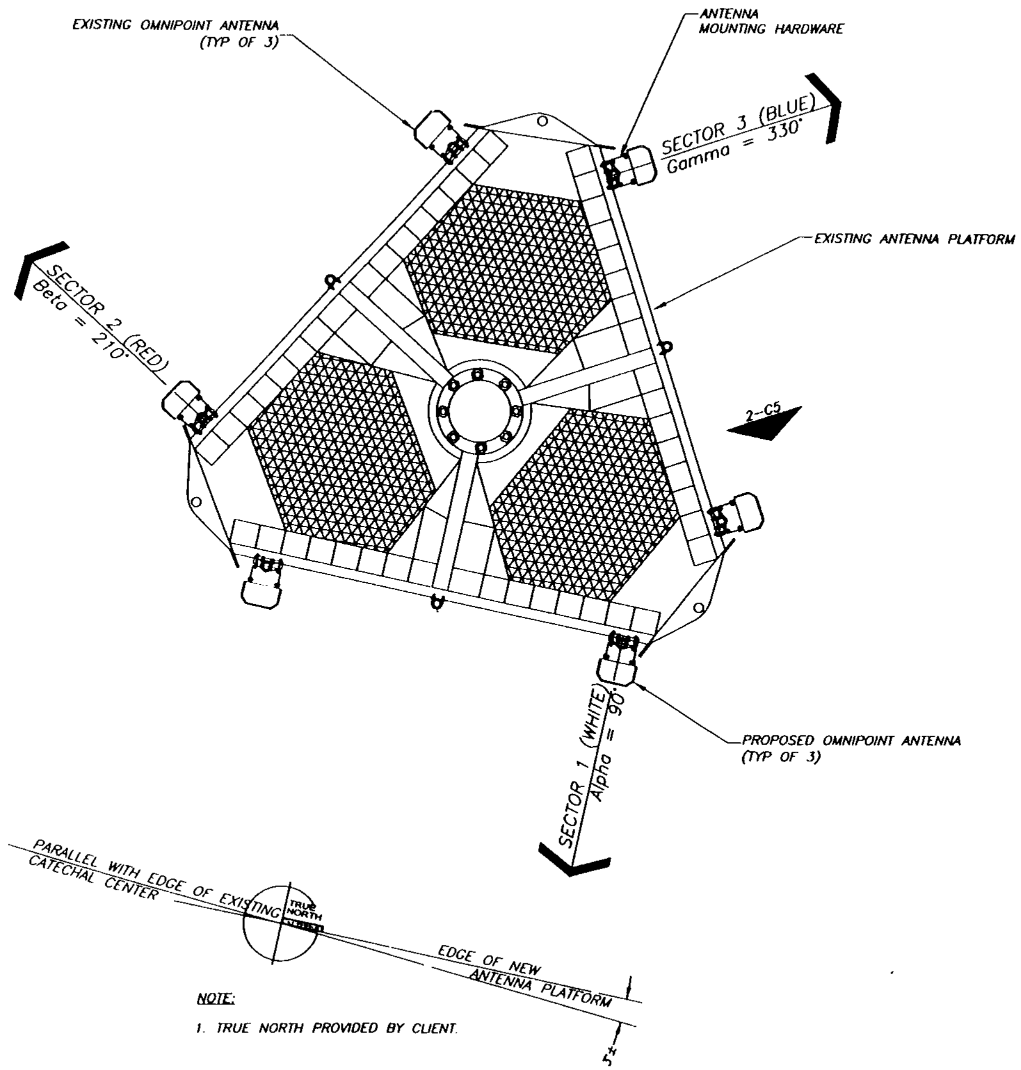
SHEET CONTENTS:
ELEVATIONS

SHEET NUMBER:
C-4

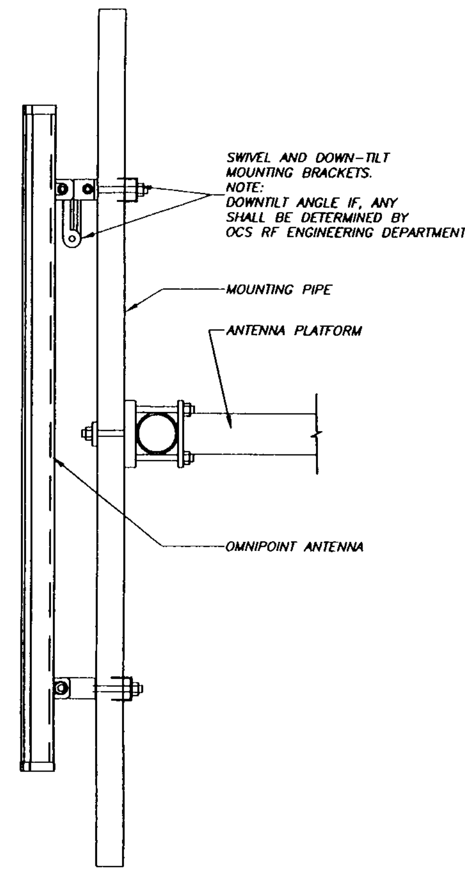


NOTE:

1. TRUE NORTH PROVIDED BY CLIENT.

1 ANTENNA PLATFORM DETAIL

SCALE: 3/16"=1'-0"



2 ANTENNA DETAIL

SCALE: 1"=1'-0"

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STATE OF CONNECTICUT · Jonathan Conrad Harriman · No. 22022 · LICENSED PROFESSIONAL ENGINEER

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SHEET CONTENTS: ANTENNA DETAILS

SHEET NUMBER: C-5

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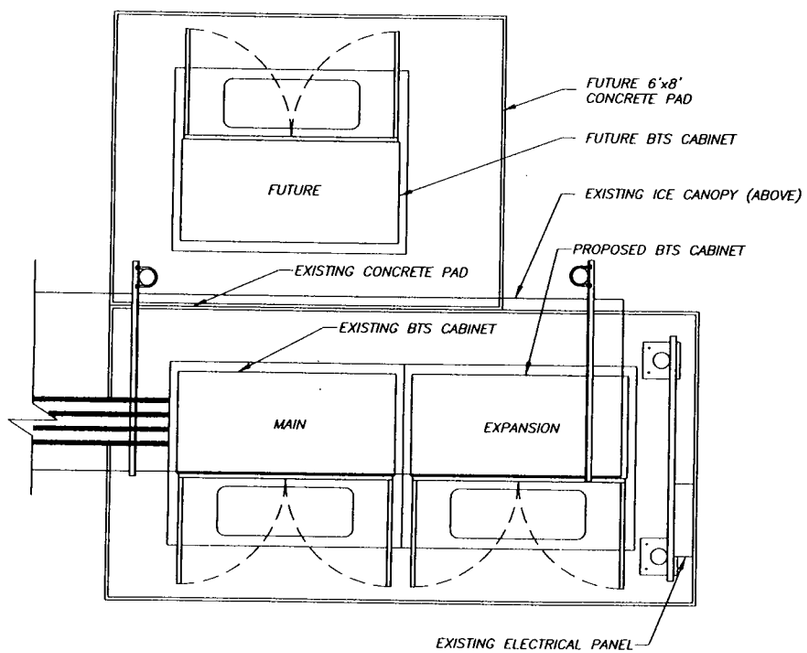
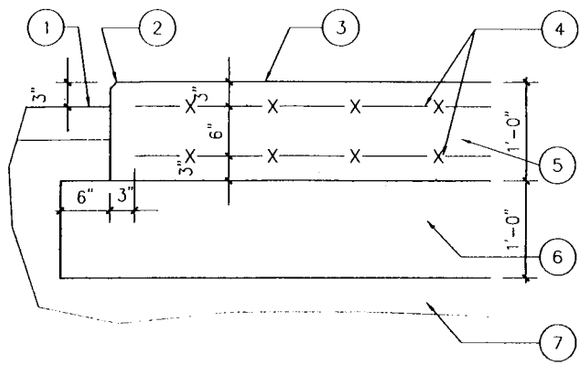
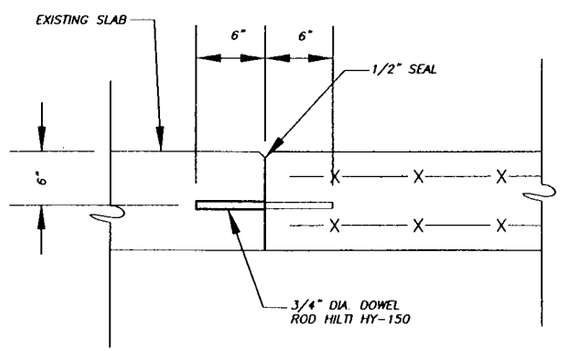


1 ENLARGED EQUIPMENT PLAN
SCALE: 3/8"=1'-0"



2 SLAB DETAIL
SCALE: 1/2" = 1'-0"

1. GRAVEL
2. 3/4" CHAMFER ON ALL EDGES (TYP)
3. BROOM FINISH (TYP)
4. 6X6 W2.9xW2.9 WOVEN WIRE MESH ON TOP AND BOTTOM (SEE REINFORCING SPECS)
5. 12" CONCRETE SLAB (SEE CONCRETE SPECS)
6. COMPACTED AGGREGATE SUB-BASE (TYP)
7. COMPACTED SUB-GRADE (TYP)



NOTE:
SPACE DOWELS 1'-0" O.C.

3 DOWEL CONNECTION
SCALE: NOT TO SCALE

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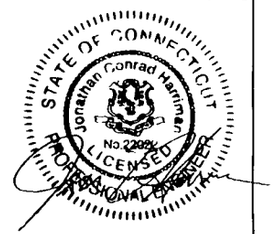

CT22022 Jonathan C. Harriman 7/23/01
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SHEET CONTENTS:
CONCRETE DETAILS

SHEET NUMBER:
C-6

GENERAL NOTES

SPECIFICATIONS

1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL CODES AND ORDINANCES, THE CONNECTICUT STATE BUILDING CODE, AND, IN PARTICULAR, NFPA 70 AND 780.
2. ALL WORK ON THESE DOCUMENTS SHALL BE PERFORMED IN COORDINATION WITH THE RELATED ARCHITECTURAL DOCUMENTS. CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF ALL CONNECTIONS WITH THE LOCAL UTILITIES. CONTRACTOR IS RESPONSIBLE FOR FILING THE REQUEST FOR SERVICE AND SHALL INCLUDE ALL UTILITY FEES AND COSTS AS PART OF HIS WORK.
3. AS USED ON THE CONTRACT DOCUMENTS, THE TERM "TO PROVIDE" SHALL MEAN "TO FURNISH, INSTALL AND CONNECT COMPLETELY IN THE SPECIFIED OR APPROVED MANNER THE ITEM OR MATERIALS DESCRIBED."
4. CONTRACTOR SHALL INSTALL ALL EQUIPMENT SUPPLIED BY VOICESTREAM AS NOTED ON THE MATERIAL LIST. ALL ITEMS NOT SPECIFIED IN THE MATERIAL LIST SHALL BE PROVIDED BY THE CONTRACTOR.
5. PROVIDE COMPLETE SYSTEMS AS SHOWN ON THE DOCUMENTS. ALL WORK SHALL BE COORDINATED BETWEEN TRADES AND SHALL PRESENT A NEAT COORDINATED APPEARANCE. ALL EQUIPMENT SHALL BE NEW AND SELECTED AND ARRANGED TO PROPERLY FIT IN AREAS INDICATED. INSTALL ALL EQUIPMENT IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS. ALL EQUIPMENT SHALL BE INSTALLED PLUMB AND LEVEL. SYSTEMS SHALL BE COMPLETE IN ALL RESPECTS, TESTED, APPROVED AND READY FOR USE.
6. CONTRACTOR SHALL MEASURE AND VERIFY ALL NEW AND EXISTING CONDITIONS AND DIMENSIONS IN THE FIELD. ANY UNUSUAL CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT AND THE ENGINEER PRIOR TO THE PURCHASE, FABRICATION AND ERECTION OF ANY MATERIAL.
7. INCORRECTLY FABRICATED, DAMAGED, OTHERWISE MISFITTING, OR NON-CONFORMING MATERIALS AND CONDITIONS SHALL BE REPORTED TO THE OWNER, ARCHITECT, ENGINEER AND CONSTRUCTION MANAGER PRIOR TO ANY REMEDIAL OR CORRECTIVE ACTION. ALL ACTIONS SHALL REQUIRE APPROVAL OF THE OWNER.
8. CONTRACTOR SHALL EXECUTE ALL WORK PREVENTING ANY DAMAGE TO EXISTING STRUCTURES, ESPECIALLY TO ROOF, ANY ROOF WORK INVOLVING ATTACHMENT, REMOVAL OF FINISH SURFACE OR PENETRATION SHALL BE PERFORMED TO PRESERVE EXISTING, ROOFING GUARANTEES, AND WARRANTIES. ROOF SHALL BE RESTORED TO COMPLETE WATER TIGHTNESS WITH THE APPROVED MATERIAL AND BY A SUBCONTRACTOR PRE-APPROVED BY THE OWNER IN WRITING.
9. WHERE PERFORMING NEW CONSTRUCTION IN EXISTING FACILITY, ENSURE THAT THE FACILITY STAYS OPERATIONAL DURING THE INSTALLATION OF NEW EQUIPMENT. COORDINATE ALL WORK WITH THE OWNER.
10. OBTAIN BUILDING OWNER'S APPROVAL PRIOR TO ANY REQUIRED CORE-DRILLING.
11. WORK SITE SHALL BE KEPT CLEAN. REMOVE DEBRIS AND EXTRA MATERIAL DAILY. PROVIDE COVERS AND PROTECTION OF WORK DURING CONSTRUCTION TO PREVENT ENTRY OF FOREIGN MATERIAL OR INJURY DURING THE CONSTRUCTION PERIOD.
12. USING PLASTIC LAMINATED WEATHERPROOF LABELS, PERMANENTLY LABEL ALL DEVICES, POWER DISCONNECTS, AND REMOTE LOADS WITH THE PANEL AND CIRCUIT NUMBER SERVING THE DEVICE. PROVIDE "VSW" LABEL ON ELECTRICAL PANELS AND SPECIAL PURPOSE CABINETS.
13. PRIOR TO FINAL INSPECTION AND TEST, THE CONTRACTOR SHALL HAVE COMPLETED ALL EQUIPMENT INSTALLATION AND STARTUP, ALL WIRING AND CONNECTIONS AND ALL IDENTIFICATION. ALL SYSTEMS SHALL TEST FREE OF SHORTS AND GROUNDS. AN INSULATION RESISTANCE TEST SHALL BE DONE ON ALL WIRING AND CABLES USING 1000VDC FOR A MINIMUM OF 30 SECONDS. THE MINIMUM ACCEPTABLE RESISTANCE SHALL BE 250,000 OHMS. FINAL ACCEPTANCE SHALL BE A DEMONSTRATION TO THE OWNER OF THE PROPER OPERATION OF ALL EQUIPMENT INCLUDING CYCLING OF ALL DEVICES (5 TIMES MINIMUM) AND DISPLAY OF CORRECT VOLTAGES.
14. FINAL TEST AND ACCEPTANCE OF THE GROUNDING SYSTEM SHALL COMPLY WITH THE REQUIREMENTS OF VOICESTREAM. THE CONTRACTOR SHALL TEST THE GROUNDING SYSTEM USING THE FALL OF POTENTIAL METHOD. MAXIMUM ACCEPTABLE GROUND RESISTANCE IS 5 OHMS. CONTRACTOR SHALL PROVIDE SUPPLEMENTAL GROUND ELECTRODES AND CONDUCTORS AS REQUIRED TO ACHIEVE THIS VALUE.

EQUIPMENT

1. METERING: PROVIDE SELF CONTAINED OWNERS METERING IN COMPLIANCE WITH THE LOCAL ELECTRICAL UTILITY REQUIREMENTS. METERING SHALL CONSIST OF A SELF CONTAINED METER SOCKET IN A SINGLE OR GANG CONFIGURATION AS SHOWN IN THE DOCUMENTS, A UTILITY METER AND A MAIN SERVICE DISCONNECT. IN CERTAIN CONDITIONS, NON UTILITY METERING SHALL BE PROVIDED. REFER TO THE DOCUMENTS FOR ADDITIONAL INFORMATION.
2. PANELBOARDS: PANELBOARDS SHALL BE FULL RATED, 20" MINIMUM WIDTH AND SHALL HAVE MAINS, BRANCHES, RATINGS AND AUXILARY DEVICES AS SCHEDULED. PANELBOARDS SHALL BE PROVIDED COMPLETE WITH SEPARATE GROUND AND NEUTRAL BARS, COVER TRIM AS SCHEDULED AND HINGED LOCKING METAL DOOR AND DIRECTORY. PROVIDE AN APPROPRIATE ENCLOSURES (NEMA 1-INDOOR AND NEMA 3R-OUTDOOR) AS SHOWN IN THE DOCUMENTS. SQUARE D TYPE "NQOD" OR APPROVED EQUAL BY CUTLER HAMMER, GENERAL ELECTRIC OR SEIMENS.
3. SAFETY SWITCHES AND FUSES: PROVIDE UL LISTED HEAVY DUTY 240VAC RATED MULTI-POLE SAFETY SWITCHES IN APPROPRIATE ENCLOSURES (NEMA 1-INDOOR AND NEMA 3R-OUTDOOR) AS SHOWN IN THE DOCUMENTS. SQUARE D TYPE "H" OR SIMILAR BY CUTLER HAMMER, GENERAL ELECTRIC OR SEIMENS. PROVIDE UL LISTED NONRENEWABLE DUAL ELEMENT FUSES FOR ALL FUSIBLE SAFETY SWITCHES: SIZE AS SHOWN IN THE DOCUMENTS. PROVIDE ONE SPARE SET OF FUSES OF EACH SIZE. BUSSMAN TYPE "FRN" OR SIMILAR BY GOULD OR LITTELFUSE.
4. WIRE: WIRE SHALL BE STRANDED COPPER WITH THWN INSULATION AND A MINIMUM SIZE OF #12 AWG. COMMON NEUTRALS ARE NOT PERMITTED EXCEPT AS SHOWN. AN INDIVIDUAL INSULATED GROUND CONDUCTOR SHALL BE PROVIDED FOR EACH AND EVERY ELECTRICAL CIRCUIT AND SERVICE. ALL SPLICES #8 AWG AND LARGER SHALL BE MADE WITH UL APPROVED COMPRESSION CONNECTORS.
5. CONDUIT: CONDUIT SHALL BE STEEL RIGID METALLIC CONDUIT (RMC OR RGS) WITH STEEL THREADED FITTINGS AND COUPLINGS. CONDUIT, FITTINGS AND COUPLINGS SHALL BE HOT DIP GALVANIZED ON THE INTERIOR AND EXTERIOR. THE INTERIOR SURFACES SHALL HAVE A LOW FRICTION FINISH. WHERE SHOWN IN THE DOCUMENTS, RIGID NONMETALLIC CONDUIT (RNMC) SHALL BE USED. TYPE RNMC SHALL BE SCHEDULE 40, RATED FOR DIRECT BURIAL OR CONCRETE ENCASEMENT AND SUNLIGHT (UV) RESISTANT. WHERE SHOWN IN THE DOCUMENTS, LIQUID TIGHT FLEXIBLE METALLIC CONDUIT OR LIQUID TIGHT FLEXIBLE NONMETALLIC CONDUIT (MAXIMUM LENGTH 6') SHALL BE USED FOR CONNECTIONS TO EQUIPMENT AND CABINETS. TYPE LFMC/LFNMC SHALL BE OIL AND SUNLIGHT (UV) RESISTANT AND LISTED FOR OUTSIDE USE. MINIMUM CONDUIT SIZE SHALL BE 1". PROVIDE NYLON PULL LINES IN ALL CONDUITS.
5. PULL AND JUNCTION BOXES: METAL BOXES SHALL BE FABRICATED FROM GALVANIZED STEEL WITH A DURABLE MOISTURE RESISTANT FINISH. METAL BOXES SHALL BE USED WITH METAL CONDUIT AND NONMETALLIC BOXES SHALL BE USED WITH NONMETALLIC CONDUIT. BOXES EXPOSED TO WEATHER AND/OR USED IN DAMP/WET LOCATIONS SHALL BE A WATERTIGHT THREADED HUB TYPE WITH WATERTIGHT SCREW-ON GASKETED COVER PLATE. BOXES USED IN CONTACT WITH THE GROUND OR CONCRETE OR BURIED OR CONCRETE ENCASED SHALL BE RATED FOR SUCH USE. BOXES SHALL BE SIZED IN ACCORDANCE WITH THE NEC (NFPA) 70. BOXES SHALL BE SECURELY FASTENED TO STRUCTURE.
6. LIGHTING FIXTURES: PROVIDE FIXTURES, COMPLETE WITH LAMPS, AS SHOWN IN THE DOCUMENTS. FLOURESCENT/HID BALLAST'S SHALL BE CBM/ETL CERTIFIED, SHALL PRODUCE NORMAL RATED LAMP LIFE WITH THE APPROPRIATE LAMP AND SHALL BE HIGH POWER FACTOR. FLUORESCENT BALLAST'S SHALL BE CLASS A SOUND RATED ELECTRONIC TYPE. HID BALLAST SHALL BE CLASS B SOUND RATED CONSTANT WATTAGE TYPE. BALLAST'S USED IN NON CONDITIONED OR EXTERIOR APPLICATIONS SHALL HAVE A MINIMUM -20 DEGREE F START TEMPERATURE. BALLAST'S SHALL COMPLY WITH APPLICABLE UTILITY REBATE PROGRAMS AND RELATED ELIGIBILITY LISTS.
7. COMMUNICATION RACEWAY SYSTEMS: THESE INCLUDE CABLE BRIDGES, CABLE LADDER AND TRAY, SLEEPERS, BRACKETS, SUPPORTS, HANGERS, COVERS, CHANNEL STRUT, TRAPEZE KITS, BUSS BAR KITS, GROUNDING KITS, CABLE HANGERS AND SUPPORTS, MASTICS, TAPES AND WATERPROOFING KITS. A COMPLETE SYSTEM COMPRISED OF THESE COMPONENTS SHALL BE INSTALLED AS SHOWN IN THE DOCUMENTS. PROVIDE ADDITIONAL HARDWARE AS REQUIRED FOR A COMPLETE INSTALLATION AND AS REQUIRED BY VOICESTREAM. ALL EQUIPMENT SHALL BE OBTAINED FROM AND COORDINATED WITH MICROWAVE TOWER SYSTEMS (MTS).

ELECTRICAL SYMBOLS

(ALL SYMBOLS SHOWN ARE NOT NECESSARILY USED ON DRAWINGS)

LIGHTING AND SWITCHES

- O^A — CEILING MOUNTED LIGHTING FIXTURE, LETTER DENOTES TYPE
- $\bigcirc^A$ — WALL MOUNTED LIGHTING FIXTURE, LETTER DENOTES TYPE
- EMERGENCY LIGHTING FIXTURE WITH BATTERY PACK
- S — SWITCH, SPST, 20A, 120/277V
- S_3^{XX} — SWITCH, 20A, 120/277V, "2" DENOTES DPST, "3" DENOTES THREE-WAY, "4" DENOTES FOUR-WAY "XX" DENOTES CIRCUIT CONTROLLED
- S_K — SWITCH, SPST, 20A, 120/277V, "K" DENOTES KEY OPERATED
- S_P — SWITCH SPST, 20A, 120/277V,"P" DENOTES PILOT LIGHT

RECEPTACLES AND OUTLETS

- GFI / WP — DUPLEX WALL RECEPTACLE. "WP" DENOTES WEATHERPROOF, "GFI" DENOTES GROUND FAULT INTERRUPTING. NEMA 5-20R,20A,125V.
- (J) — JUNCTION BOX
- e^E — EXISTING RECEPTACLE TO REMAIN.
- e^R — EXISTING RECEPTACLE TO BE REMOVED.
- TELEPHONE OUTLET "P" DENOTES PAY/PUBLIC TELEPHONE "H" INDICATES HANDICAP.
- DATA OUTLET

CIRCUITING AND WIRING

- CIRCUIT BELOW SLAB OR GRADE OR CAST IN SLAB ABOVE GRADE UNLESS OTHERWISE NOTED.
- LA-2,4,6 — HOMERUN TO PANEL WITH CIRCUIT NUMBER(S) AS INDICATED.
- CONDUIT TURN UP
- CONDUIT TURN DOWN
- TYPE "LB" CONDUIT FITTING
- SCREW COVER JUNCTION BOX SIZED AS SHOWN (12"x12"x4" MIN) INTERIOR - NEMA 1, EXTERIOR NEMA 4X

8. SITE GROUNDING SYSTEM: ALL GROUNDING SHALL COMPLY WITH NFPA 70 AND 780. ALL METAL STRUCTURES WITH IN THE COMPOUND FENCE(INCLUDING METAL FENCING) SHALL BE GROUNDED. ALL METALLIC RACEWAYS, BOXES AND CABINETS SHALL BY BONDED AT EACH CONNECTION AND EACH END WITH LISTED DEVICES AND CONNECTORS. ALL CONNECTIONS SHALL BE MADE TO CLEAN PREPARED BARE METAL. AFTER CONNECTION HAS BEEN MADE, REPAINT, REGALVANIZE OR PROTECT EXPOSED SURFACE WITH NON OXIDIZING AGENT AS REQUIRED BY THE METAL AND THE TERMINATION. ALL MECHANICAL CONNECTIONS SHALL USE LOCK WASHERS AND STAINLESS STEEL HARDWARE. ALL BELOW GRADE AND STRUCTURE CONNECTIONS SHALL BE EXOTHERMIC TYPE AND ALL GROUND BAR CONNECTIONS SHALL BE INDIVIDUAL, NON-STACKED, 2-HOLE, BRONZE COMPRESSION TYPE. THE CONNECTIONS TO THE MASTER GROUND BAR MUST FOLLOW THE PANI METHOD. PRODUCERS (SUCH AS COAXIAL CABLE, TELCO CABINET, ELECTRICAL PANEL), ABSORBERS (SUCH AS GROUND RING, BUILDING STEEL),NON-ISOLATED (SUCH AS SUPPORT STRUCTURES), ISOLATED (SUCH AS ECB GROUND IN THE BTS CABINET). UNLESS OTHERWISE SHOWN, GROUND WIRE FOR GROUND RINGS AND GROUNDING CONDUCTORS SHALL BE #2 AWG SOLID TINNED BARE COPPER WITHOUT SPLICES. UNLESS OTHERWISE SHOWN, ALL GROUND RODS SHALL BE 5/8" X 10' COPPER CLAD STEEL WITH EXOTHERMIC CONNECTIONS. REFER TO DOCUMENTS FOR ADDITIONAL INFORMATION, EQUIPMENT AND REQUIREMENTS.

ELECTRICAL EQUIPMENT

- SWITCHBOARD, DISTRIBUTION PANEL OR PANELBOARD. CHARACTERISTICS AS INDICATED ON PANEL SCHEDULE.
- T — TRANSFORMER. CHARACTERISTICS ARE SHOWN ON ONE LINE DIAGRAM OR TRANSFORMER SCHEDULE.
- PLYWOOD TERMINAL BOARD.
- XXX — SPECIAL PURPOSE CABINET, TYPE AS NOTED.
- GROUND BAR
- ELECTRICAL UTILITY METER IN PLAN VIEW
- (T) — THERMOSTAT
- DISCONNECT (SAFETY) SWITCH "200/3/150" DENOTES AMPERES/POLE/FUSE, "NF" DENOTES NON-FUSED
- GROUND ROD IN PLAN VIEW

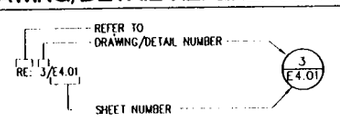
ONE LINE AND RISER DIAGRAMS

- T1 / XXX KVA — TRANSFORMER, DESIGNATION AND RATINGS AS NOTED (DELTA CONNECTED PRIMARY AND WYE - CONNECTED SECONDARY) UNLESS OTHERWISE NOTED.
- XXXA — SWITCH, RATINGS AS SHOWN, 3 POLE UNLESS OTHERWISE NOTED
- XXXA — FUSE, RATING AS SHOWN
- XXXA — CIRCUIT BREAKER, TRIP RATING AS SHOWN, 3 POLE UNLESS OTHERWISE NOTED
- (M) — ELECTRICAL UTILITY METER
- ELECTRICAL CONNECTION
- XXXX:5 — CURRENT TRANSFORMER (CT)
- 120V / XX.XXKV — POTENTIAL TRANSFORMER (PT)
- GROUND CONNECTION

LEGEND

- (1) — DRAWING NOTE REFERENCE (NOTES BY SYMBOL)
- —E— BELOW GRADE ELECTRICAL POWER.
- —T— BELOW GRADE TELCO CONDUIT.
- —EU— ELECTRICAL UTILITY.
- —TU— TELCO UTILITY.
- —x— CHAIN LINK FENCE.

DRAWING/DETAIL REFERENCE KEY



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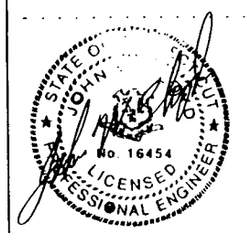

CT16454 — REGISTRATION # — John W. Lloyd, ENGINEER — 7/23/01, DATE

OMNIPOINT COMMUNICATIONS, INC. a subsidiary of VoiceStream WIRELESS

SITE ID: CT-11-178D
467 SOUTH QUAKER LANE
WEST HARTFORD, CT

C&B JOB NUMBER:
325007.139

DATE ISSUED:
7/23/01

ISSUES/REVISIONS:

ISSUE FOR REVIEW	7/3/01
ISSUE FOR PERMIT	7/23/01

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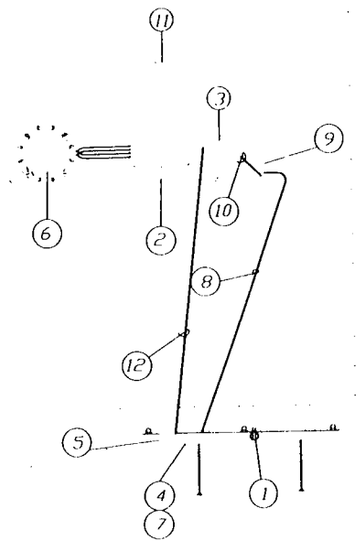
GENERAL NOTES AND SYMBOLS

SHEET NUMBER:

E-1



1 ENLARGED ELECTRICAL COMPOUND PLAN

SCALE: N.T.S.

NOTES

1. THE CONTRACTOR MUST VERIFY DEMARK, TAP METER LOCATIONS, ETC. WITH THE UTILITY COMPANIES.
2. THE CONTRACTOR SHALL CALL BEFORE YOU DIG PRIOR TO EXCAVATION.

NOTES BY SYMBOL

(1) WEATHERPROOF 120V GFI RECEPT WIRED TO VOICESTREAM POWER PANEL.

(2) B.T.S. MAIN CABINET

(3) NEW B.T.S EXPANSION CABINET

(4) 600A 4 GANG MODULAR METER BANK

(5) TELCO DEMARCATION BOX

(6) MONOPOLE

(7) 200A, 2 POLE CIRCUIT BREAKER, 240V IN MODULAR METER BANK TO SERVE VOICESTREAM PANEL.

(8) VOICESTREAM ELECTRIC FEEDER ROUTED UNDERGROUND.

(9) VOICESTREAM ELECTRICAL PANEL

(10) NEW 2#8,1#8N &1#10G IN 1" SEAL TIGHT CONDUIT FROM NEW 50A-2P C/B IN VOICESTREAM ELECTRICAL PANEL TO B.T.S

(11) FUTURE BTS EXPANSION CABINET

(12) TELCO WIRING TO MAIN BTS CABINET ROUTED UNDERGROUND

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STATE OF CONNECTICUT
JOHN W. LLOYD
No. 16454
LICENSED PROFESSIONAL ENGINEER

CT16454	John W. Lloyd	7/23/01
REGISTRATION #	ENGINEER	DATE

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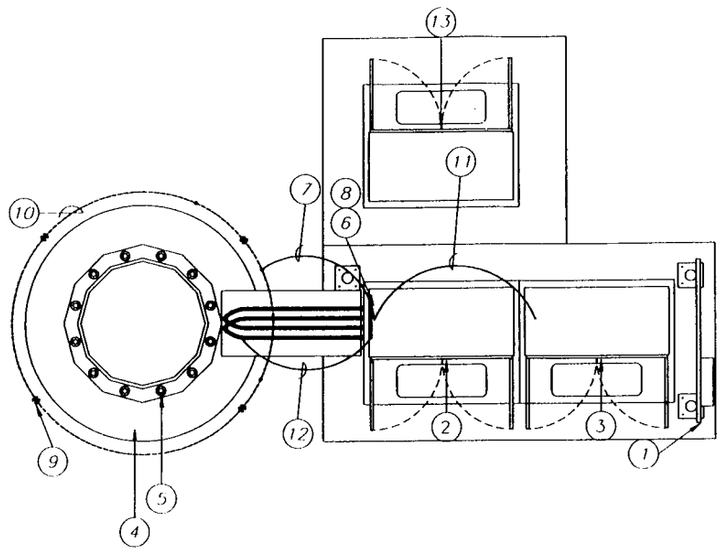
COMPOUND PLAN

SHEET NUMBER:
E-2



1 GROUNDING PLAN
SCALE: N.T.S.

NOTES

1 NEW GROUND CONDUCTORS TO BE TESTED PER DIRECTION OF VSW. GROUNDING IS TO BE COMPLETED PER VSW GROUNDING SPEC. FOR COLOCATES.

NOTES BY SYMBOLS

(1) UNISTRUT MOUNTED ELECTRICAL EQUIPMENT (SEE ARCHITECTURAL)

(2) B.T.S. MAIN CABINET

(3) NEW BTS EXPANSION CABINET

(4) MONOPOLE FOUNDATION

(5) MONOPOLE

(6) MASTER GROUND BAR

(7) 2#2 SOLID TINNED COPPER CONDUCTOR FROM GROUNDING BAR AT B.T.S. CABINET TO THE EXTERIOR GROUND RING.

(8) B.T.S. GROUND

(9) 3/4"X10' GROUND ROD CADWELDED TO #2 SOLID TINNED COPPER INSTALLED IN 8" PVC TEST WELLS

(10) #2 AWG SOLID CONTINUOUS TINNED COPPER WIRE EXTERIOR GROUND RING.

(11) NEW 2#2 SOLID TINNED COPPER CONDUCTOR FROM NEW BTS TO MGB.

(12) NEW COAX CABLES FOR NEW ANTENNAS ON EXISITING ARRAY. PROVIDE GROUND LEAD TO MGB.

(13) FUTURE BTS EXPANSION CABINET

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GROUNDING PLAN

SHEET NUMBER
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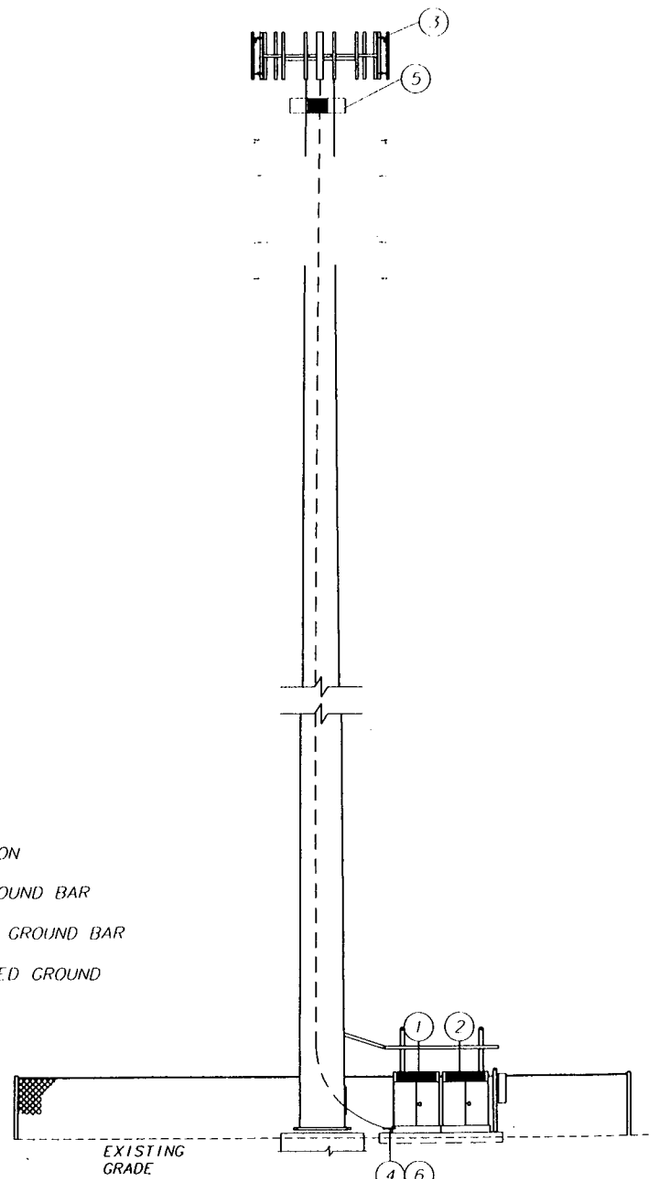

1 MONOPOLE GROUNDING
SCALE: N.T.S.

LEGEND

SYMBOL	DESCRIPTION
▬	MASTER GROUND BAR
▬ ▪ ▬	INSULATED GROUND BAR
▭ ▬	UNINSULATED GROUND BAR

NOTES BY SYMBOL

(1) EXISTING B.T.S. MAIN CABINET

(2) NEW B.T.S. EXPANSION CABINET

(3) ANTENNA PLATFORM

(4) MASTER GROUND BAR

(5) ALL NEW COAXIAL CABLES SHALL BE GROUNDED TO ANTENNA GROUND BAR AT THIS POINT VIA CABLE GROUND KITS. NEWTON INSTRUMENT COMPANY OR EQUAL. THIS GROUND BAR SHALL BE LOCATED JUST BELOW THE POINT WHERE ALL CABLES COME TOGETHER AND DESCEND DOWN THE TOWER. THIS GROUND BAR SHALL BE ATTACHED DIRECTLY TO THE MONOPOLE VIA BEAM CLAMP.

(6) ALL NEW COAXIAL CABLES LEAVING THE COMMUNICATION CABINET SHALL BE GROUNDED AT THIS POINT VIA CABLE GROUND KITS. NEWTON INSTRUMENT COMPANY OR EQUAL. THIS GROUND BAR SHALL BE LOCATED AT THE POINT WHERE CABLES MAKE A NINETY DEGREE BEND OFF THE EXISTING TOWER. TIE TO MGB

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CT16454 | John W. Lloyd | 7/23/01
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GROUNDING DETAILS

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	SOLID #2 TINNED COPPER	#6 GROUND LEAD	#2/0 STRANDED (MAIN DOWN CONDUCTOR)	MASTER GROUND BAR	STRUCTURAL OR TOWER STEEL	BLDG SERVICE ENTR OR GRND RING	GROUND ROD
SOLID #2 TINNED COPPER	B OR C	B OR C		A OR C	A,C OR D		C
#6 GROUND LEAD	B OR C			A	A,C OR D		
#2/0 STRANDED GRNDG ELECTRODE CONDUCTOR				A OR C	A,C OR D	A,C	
MASTER GROUND BAR	A OR C	A	A OR C				
STRUCTURAL OR TOWER STEEL	A,C OR D	A,C OR D	A,C OR D				
GROUND RING	C		C				C

TERMINATION TYPES

A. MECHANICAL COMPRESSION LUG
B. DOUBLE BARREL COMPRESSION CONNECTOR
C. EXOTHERMIC TERMINATION
D. BEAM CLAMP

1 GROUNDING TERMINATION MATRIX
SCALE: NTS

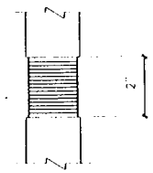


FIGURE 1

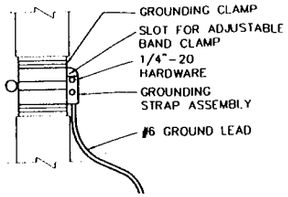


FIGURE 2

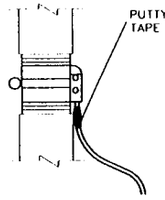


FIGURE 3

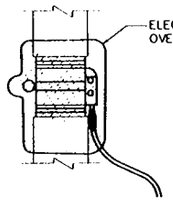


FIGURE 4

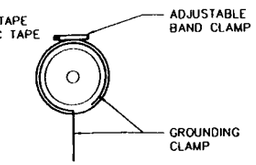


FIGURE 5

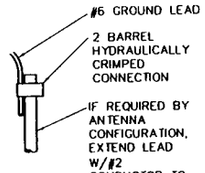
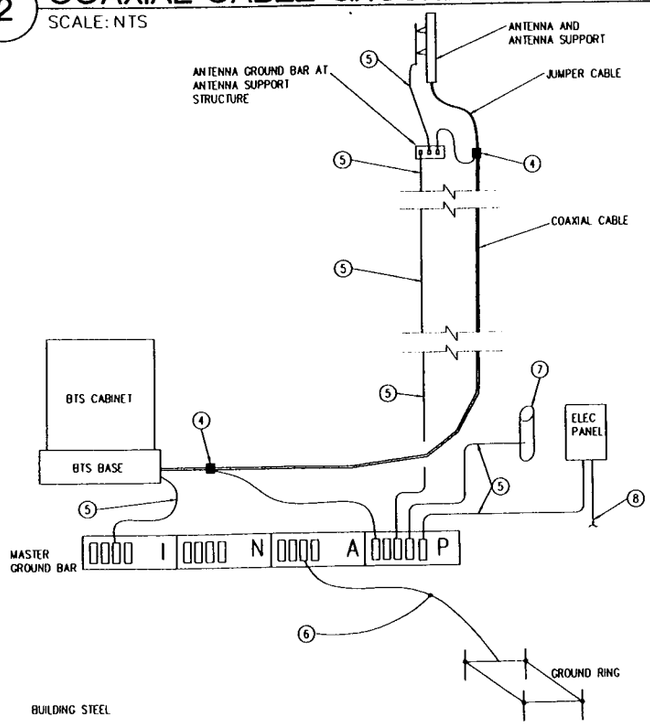
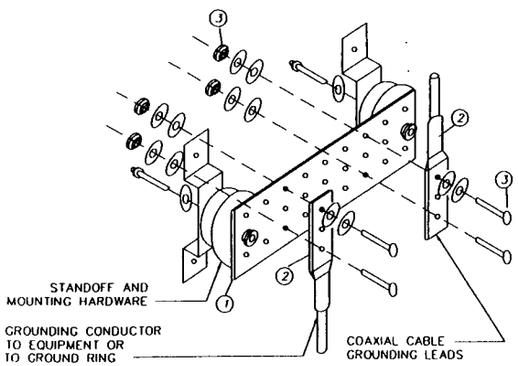


FIGURE 6

2 COAXIAL CABLE GROUNDING
SCALE: NTS





NOTE: ALL CONNECTIONS AND LUG ORIENTATIONS TO THE GROUND BAR ARE NOT SHOWN IN THIS DETAIL. ACTUAL STANDOFF MOUNTING AND TYPE SHALL BE COORDINATED WITH STRUCTURE.

3 TYPICAL GROUND BAR DETAIL
SCALE: NTS

4 SCHEMATIC GROUNDING RISER
SCALE: NTS

GENERAL NOTES

1. NON-OXIDIZING COMPOUND SHALL BE APPLIED TO ALL GROUNDING CONNECTIONS (LUGS, MAIN AND ANTENNA GROUND BAR, ETC.)
2. THE CONNECTIONS TO THE MASTER GROUND BAR MUST FOLLOW THE PANI METHOD.
3. THE GROUND PATH SHALL FOLLOW A DIRECT DOWNWARD ROUTE FROM THE ANTENNAS TO THE ANTENNA GROUND BARS TO THE MASTER GROUND BAR TO THE GROUND RING/BUILDING STEEL.
4. GROUND CONDUCTOR ROUTING WILL BE AS DIRECT AS POSSIBLE WITH THE MINIMUM NECESSARY LENGTH AND WITHOUT SPLICES. BEND RADIUS SHALL BE 6" MINIMUM FOR #6 AWG AND SMALLER AND 12" MINIMUM FOR #4 AWG THROUGH #4/0 AWG.
5. ALL METAL CONDUIT/RACEWAY, METALLIC SLEEVE, OR CABLE TRAY/LADDER, SHALL BE BONDED AT BOTH ENDS WITH #2 GROUNDING CONDUCTOR USING EXOTHERMIC CONNECTIONS. BOND STEEL CABLE TRAY/LADDER SECTIONS WITH A #6 STRANDED JUMPER AND LUGS.
6. ALL COAXIAL CABLES AND ANTENNA SHALL BE GROUNDED TO THE ANTENNA GROUND BARS AND THE MASTER GROUND BARS USING CABLE GROUND KITS.
7. GROUNDING CONDUCTORS SHALL USE NONFERROUS CLAMPS AND DEVICES FOR ATTACHING TO STRUCTURE. NONMETALLIC CONDUIT MAY BE USED FOR SUPPORT OR PROTECTION. DO NOT SUPPORT GROUNDING CONDUCTORS PARALLEL AND IN CLOSE PROXIMITY TO FERROUS STRUCTURES. MAINTAIN MINIMUM TWO INCH SEPARATION FROM ALL OTHER ELECTRICAL CONDUCTORS.
8. COORDINATE WITH DOCUMENTS FOR LOCATIONS AND QUANTITIES OF ALL EQUIPMENT, DEVICES AND RELATED MATERIAL.

NOTES BY SYMBOL

(1) GROUND BAR: MASTER OR ANTENNA GROUND BARS SHALL BE A 20"X4"X1/4" SOLID COPPER BUSS BAR WITH 46 PAIRS OF UNIVERSAL 7/16" HOLES. THE MASTER GROUND BAR SHALL HAVE INSULATED STANDOFFS. NEWTON INSTRUMENT COMPANY #B-6142 COMPLETE WITH SHELTER OR TOWER AND INSULATED OR UNINSULATED MOUNTING HARDWARE OR SIMILAR BY MTS.

(2) TYPICAL HYDRAULICALLY COMPRESSED LONG BARREL COPPER 3/8" 2-HOLE GROUNDING LUG FOR GROUNDING CONDUCTORS BETWEEN ANTENNA GROUND BARS OR MASTER GROUND BAR AND CABLE, EQUIPMENT OR GROUND RING. THOMAS & BETTS OR SIMILAR BY BURNDY OR ILSCO.

(3) TYPICAL 3/8" STAINLESS STEEL HARDWARE (CONSISTING OF HEX HEAD BOLTS AND NUTS, FLAT WASHERS AND LOCK WASHERS) FOR CONNECTING GROUND LUGS TO GROUND BARS.

(4) CABLE GROUND KIT WITH #6 GROUND LEAD.

(5) #2 GROUND CONDUCTOR

(6) 2/0 STRANDED MAIN DOWN CONDUCTOR

(7) TYPICAL COMPOUND STRUCTURES. (SUPPORT FRAMES, CABLE TRAY, BRIDGE etc.)

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JOHN W. LLOYD
No. 16454
LICENSED PROFESSIONAL ENGINEER

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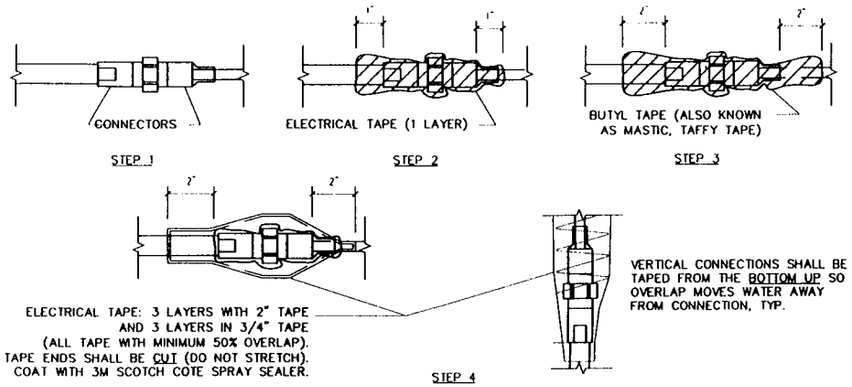

1 COAXIAL CABLE WEATHERPROOFING DETAIL

SCALE: NTS

COAXIAL CABLE SPECIFICATIONS:

LENGTH OF CABLE RUN	DIA. OF CABLES	MIN. BENDING RDIUS
3'-0", 6'-0", 8'-0", AND 10'-0" FLEX JUMPER RUNS	1/2" ø	1-1/4"
3'-0", 6'-0", 8'-0", AND 10'-0" JUMPER RUNS	1/2" ø	5"
0' THRU 100'-0"	7/8" ø	10"
101'-0" AND GREATER	1-5/8" ø	20"

COAXIAL CABLE NOTES:

1. ALL COAXIAL CABLE CONNECTIONS TO BE WEATHERPROOFED.
2. CONTRACTOR TO PROVIDE DRIP LOOPS IN CABLES AND JUMPERS WHERE NECESSARY.
3. TAGGING:
   - 3.1 ALL COAXIAL CABLES TO BE MARKED WITH COLOR CODED TAPE TO INDICATE THE ANTENNA SECTOR.
   - 3.2 COLORED ELECTRICAL TAPE SHALL MARK EACH END OF CABLE AND EACH END OF JUMPERS AS CLOSE TO EACH END AS POSSIBLE. (NOT TO INTERFERE WITH WEATHERERPROOFING)
   - 3.3 IN ADDITION TO TAPE MARKINGS, EACH END OF EVERY CABLE SHALL ALSO BE FITTED WITH BRASS LABEL TAGS (SUPPLIED BY VOICESTREAM) INSCRIBED WITH NUMBER AND COLOR OF TAPE.
4. COAXIAL CABLE SPECIFICATIONS REQUIRE CABLE SUPPORT EVERY 3'-0" ON CENTER. CONTRACTOR SHALL SUPPLY AND INSTALL SUPPORTS AS REQUIRED TO MEET THIS REQUIREMENT.

2 COAXIAL CABLE NOTES

SCALE: NTS

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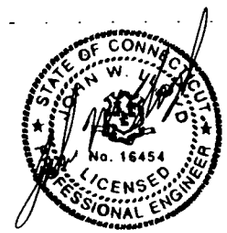

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AND DETAILS

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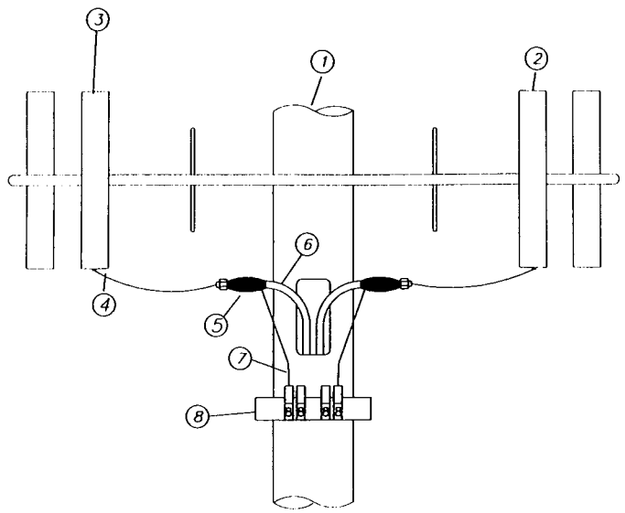

1 ANTENNA GROUNDING DETAIL

SCALE: NTS

NOTE:
ANTENNA LOCATIONS AND SUPPORT AND AGB LOCATIONS VARY. REFER TO CONTRACT DRAWINGS FOR LOCATIONS AND CONFIGURATION.

GENERAL NOTES

1. THE GROUND PATH SHALL FOLLOW A DIRECT DOWNWARD ROUTE FROM THE ANTENNAS TO THE ANTENNA GROUND BARS TO THE MASTER GROUND BAR TO THE GROUND RING.
2. GROUND CONDUCTOR ROUTING WILL BE AS DIRECT AS POSSIBLE WITH THE MINIMUM NECESSARY LENGTH AND WITHOUT SPLICES. BEND RADIUS SHALL BE 8" MINIMUM FOR #6 AWG AND SMALLER AND 12" MINIMUM FOR #4 AWG THROUGH #4/0 AWG.
3. ALL METAL CONDUIT/RACEWAY, METALLIC SLEEVE, OR CABLE TRAY/LADDER, SHALL BE BONDED AT BOTH ENDS WITH #2 GROUNDING CONDUCTOR USING EXOTHERMIC CONNECTIONS. BOND STEEL CABLE TRAY/LADDER SECTIONS WITH A #6 STRANDED JUMPER AND LUGS.
4. ALL COAXIAL CABLES AND ANTENNA SHALL BE GROUNDED TO THE ANTENNA GROUND BARS AND THE MASTER GROUND BARS USING CABLE GROUND KITS.
5. GROUNDING CONDUCTORS SHALL USE NONFERROUS CLAMPS AND DEVICES FOR ATTACHING TO STRUCTURE. NONMETALLIC CONDUIT MAY BE USED FOR SUPPORT OR PROTECTION. DO NOT SUPPORT GROUNDING CONDUCTORS PARALLEL AND IN CLOSE PROXIMITY TO FERROUS STRUCTURES. MAINTAIN MINIMUM TWO INCH SEPARATION FROM ALL OTHER ELECTRICAL CONDUCTORS.

NOTES BY SYMBOL

1. MONOPOLE
2. EXISTING ANTENNA (TYP OF 3)
3. NEW ANTENNA (TYP OF 3)
4. NEW JUMPER CABLE WITH WEATHERPROOFING KIT AT EACH TERMINATION - TYPICAL FOR EACH ANTENNA
5. NEW GROUNDING KIT - TYPICAL FOR EACH CABLE - AVOID INSTALLING GROUNDS ON BENDS IN CABLE
6. NEW TYPICAL COAXIAL CABLE FROM ANTENNA TO BTS.
7. NEW TYPICAL #6 AWG INTEGRAL GROUND LEAD FROM GROUNDING KIT TO GROUND BAR.
8. UPPER INSULATED GROUND BAR ON MONOPOLE STRUCTURE.

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ANTENNA DETAILS

SHEET NUMBER:
E-7

PANEL VSW

VOLTAGE: 240/120V | 1ø | 3W | AIC: 10,000 AIC

MAINS: 200A w/200A ☐ MLO ■ MCB | ■ SURFACE ☐ FLUSH

LUGS: ☐ SUB-FEED ☐ FEED-THRU | ☐ NEMA 1 ■ NEMA 3R

REMARKS:
PANELS TO BE SE RATED
ALL C/Bs TO BE SWITCH RATED

C*	WIRE	LOAD DESCRIPTION	KVA	BKR.	CKT	L1 L2	CKT	BKR.	KVA	LOAD DESCRIPTION	WIRE*	C*
1"	2#8, 1#8N&1#10G	VoiceStream Wireless BTS#1	9.0	50/2	1		2	50/2	9.0	VoiceStream Wireless BTS #2	2#8, 1#8N&1#10G	1"
					3		4					
					5		6					
					7		8					
					9		10					
					11		12					
					13		14					
					15		16					
					17		18					
					19		20					
					21		22					
					23		24					
					25		26					
					27		28					
					29		30					

CONN KVA: 18.0 | DEMAND kVA: 18.0 | AMPS: 75.0

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STATE OF CONNECTICUT
JOHN W. LLOYD
No. 16454
LICENSED PROFESSIONAL ENGINEER

CT16454 | John W. Lloyd | 7/23/01
REGISTRATION # | ENGINEER | DATE

OMNIPOINT COMMUNICATIONS, INC.
a subsidiary of
VoiceStream WIRELESS

SITE ID: CT-11-178D
467 SOUTH QUAKER LANE
WEST HARTFORD, CT

C&B JOB NUMBER:
325007.139

DATE ISSUED:
7/23/01

ISSUES/REVISIONS:

ISSUE FOR REVIEW	7/3/01
ISSUE FOR PERMIT	7/23/01

SHEET CONTENTS:
PANEL SCHEDULE

SHEET NUMBER:
E-8

AT&T WIRELESS
12 Omega Drive
Stamford, CT. 06907

VERIZON WIRELESS
20 Alexander Drive
Wallingford, CT. 06492
203/294-8519

April 18, 2001

HAND DELIVERED

Mr. Mortimer A. Gelston, Chairman
Connecticut Siting Council
10 Franklin Square
New Britain, Connecticut 06051

TS-VER-155-010417

Re: **Request by Cellco Partnership d/b/a Verizon Wireless and AT&T Wireless PCS, LLC, d/b/a AT&T Wireless for an Order to Approve the Shared Use of a Tower Facility located at 457-471 South Quaker Lane, West Hartford, Connecticut.**

Dear Chairman Gelston:

Pursuant to Connecticut General Statutes (C.G.S.) Sec. 16-50aa, Cellco Partnership d/b/a Verizon Wireless and AT&T Wireless PCS, LLC, d/b/a AT&T Wireless (the "Applicants") hereby request an order from the Connecticut Siting Council ("Council") to approve the proposed shared use by Verizon Wireless and AT&T Wireless of an existing tower located at 457-471 South Quaker Lane, West Hartford, Connecticut. The property is owned by the Church of Saint Mark the Evangelist, Corp. As shown on the attached drawings and as further described below, Verizon Wireless and AT&T Wireless propose to install antennas on the existing tower and to locate equipment shelters at the base of the tower. The Applicants request that the Council find that the proposed shared use of the tower facility satisfies the criteria stated in C.G.S. Sec. 16-50aa and issue an order approving the proposed shared use.

Background

Verizon Wireless is licensed by the Federal Communications Commission to provide cellular telephone service in the Hartford County New England County Metropolitan Area (NECMA), which includes the area to be served by the proposed West Hartford installation. AT&T Wireless is licensed by the Federal Communications Commission to provide PCS service throughout Connecticut, including the greater Hartford area, which includes the area to be served by the proposed West Hartford installation.

The South Quaker Lane facility consists of a an approximately 120 foot AGL monopole tower built by VoiceStream Wireless and located within a leased parcel. VoiceStream Wireless provides mobile communications service to the public pursuant to its FCC license. Verizon

Wireless and AT&T Wireless each have agreed with VoiceStream Wireless to the proposed shared use of this monopole pursuant to mutually acceptable terms and conditions. VoiceStream has authorized Verizon Wireless and AT&T Wireless to apply for all necessary permits, approvals and authorizations which may be required for the proposed shared use of this facility.

Verizon Wireless proposes to install twelve (12) panel antennas, approximately 48 inches in height, on the tower. They will be mounted on a platform with their center of radiation at approximately 96 feet above ground level ("AGL"). Equipment associated with these antennas, as well as a 40 KW diesel-fueled emergency stand-by generator, would be located in a new approximately 12-foot x 30-foot equipment shelter located at the base of the tower.

AT&T Wireless proposes to install up to twelve (12) panel antennas, approximately 52 inches in height, on the tower. They will be mounted on a platform with their center of radiation at approximately 107 feet AGL. Equipment associated with these antennas would be located in a new approximately 12-foot x 20-foot equipment shelter located at the base of the tower.

Discussion

C.G.S. Sec. 16-50aa provides that, upon written request for approval of a proposed shared use, "if the Council finds that the proposed shared use of the facility is technically, legally, environmentally and economically feasible and meets public safety concerns, the Council shall issue an order approving such shared use" (C.G.S. Sec. 16-50aa(c)(1).)

A. Technical Feasibility. The existing tower is structurally sound and capable of supporting the proposed Verizon Wireless and AT&T Wireless antennas. The tower will not require any structural modification to support the proposed attachments. A report certifying the structural design is submitted herewith. The proposed antenna installations present minimal potential for interference to or from existing radio transmissions from this location. In addition, the applicants are unaware of any occasion where their operations have caused interference with AM, FM or television reception. The proposed shared use of this tower therefore is technically feasible.

B. Legal Feasibility. Under C.G.S. Sec. 16-50aa, the Council has been authorized to issue an order approving the proposed shared use of an existing communications tower facility such as the facility at 457-471 South Quaker Lane (C.G.S. Sec. 16-50aa(c)(1).) This authority complements the Council's prior existing authority under C.G.S. Sec. 16-50p to issue orders approving the construction of new towers that are subject to the Council's jurisdiction. C.G.S. Sec. 16-50x(a) directs the Council to "give consideration to other state laws and municipal regulations as it shall deem appropriate" in ruling on requests for the shared use of existing tower facilities. Under the authority vested in the Council by C.G.S. Sec. 16-50aa, an order by the Council approving the shared use would permit the applicant to obtain a building permit for the proposed installations.

C. Environmental Feasibility. The proposed shared use would have a minimal environmental effect, for the following reasons:

1. The proposed installations would have an insignificant incremental

visual impact, and would not cause any significant change or alteration in the physical or environmental characteristics of the existing site. The addition of the proposed antennas would not increase the height of the tower, and would not extend the boundaries of the tower site, including the placement of the equipment building near the base of the existing tower.

2. The proposed installation would not increase the noise levels at the existing facility by six decibels or more. The only additional noise will occur during emergency use or periodic exercising of the generator.

3. Operation of the additional antennas will not increase the total radio frequency electromagnetic radiation power density, measured at the tower base to a level at or above the applicable standard. "Worst-case" exposure calculations for a point at the base of the tower in relation to operation of Verizon Wireless' and AT&T Wireless' antenna arrays are as follows:

	Applicable ANSI Standard	Calculated "Worst-Case"	Percentage of Standard
VoiceStream	1.000 mW/cm^2	0.0244 mW/cm^2	2.44%
AT&T Wireless	1.000 mW/cm^2	0.0251 mW/cm^2	2.51%
Verizon Wireless	0.583 mW/cm^2	0.0741 mW/cm^2	12.71%
		Total	17.66%

The collective "worst-case" exposure would be only 17.66% of the FCC/ANSI standard, as calculated for mixed frequency sites. Power density levels from shared use of the tower facility would thus be well below applicable FCC/ANSI standards.

4. The proposed installations would not require any water or sanitary facilities or generate discharges to water bodies. Operation of the emergency back-up generator will result in limited air emissions; pursuant to R.C.S.A. Section 22a-174-3, the generator will require the issuance of a permit from the Department of Environmental Protection Bureau of Air Management. After construction is complete, the proposed installation would not generate any traffic other than for periodic maintenance visits.

The proposed use of this facility would therefore have a minimal environmental effect, and is environmentally feasible.

D. Economic Feasibility. As previously mentioned, the tower owner and the Applicants have entered into a mutual agreement to share use of the existing tower on terms agreeable to the parties, and the proposed tower sharing is thus economically feasible.

E. Public Safety Concerns. As stated above, the existing tower is structurally capable of supporting the proposed antennas. The Applicants are not aware of any other public safety concerns relative to the proposed tower sharing of the existing tower. In fact, the provision of new or improved wireless communications service in the West Hartford area through shared use of the tower is expected to enhance the safety and welfare of area residents and travelers. The public safety benefits of wireless service are further illustrated by the decision of local authorities elsewhere in Connecticut to provide wireless phones to residents to improve local public safety and emergency communications. The proposed shared use of this facility would likewise improve public safety in the West Hartford area.

Conclusion

For the reasons discussed above, the proposed shared use of the existing telecommunications tower facility at 457-471 South Quaker Lane in West Hartford satisfies the criteria stated in C.G.S. Sec. 16-50aa, and advances the General Assembly's and the Council's goal of preventing the proliferation of towers in Connecticut. The Applicants therefore request that the Council issue an order approving the proposed shared use.

Pursuant to Connecticut General Statutes Sec, 16-50v and Section 16-50v-1(a) of the Regulations of Connecticut State Agencies, a check in the amount of $500.00 for the required filing fee is enclosed.

Thank you for your consideration of this matter.

Respectfully yours,

Sandy M. Carter
Manager – Regulatory
Verizon Wireless

Christoper B. Fisher, Esq.
on behalf of AT&T Wireless

Attachments

cc: Mayor and Council President, Town of West Hartford

VOICESTREAM WIRELESS CORPORATION
100 Filley St, Bloomfield, CT 06002-1853
Phone: (860) 692-7100
Fax: (860) 692-7159

Technical Memo

To: Karina Hansen
From: Giri Lakshmanan Radio Engineering Consultant
cc: Mike Fulton
Subject: Power Density Report for CT-11-178D
Date: 2-Aug-01

1. Introduction:

This report is the result of an Electromagnetic Field Intensities (EMF - Power Densities) study for the Voicestream Wireless Corporation PCS antenna installation on a Monopole at 467 South Quaker Lane, West Hartford, CT. This study incorporates the most conservative consideration for determining the practical combined worst case power density levels that would be theoretically encountered from several locations surrounding the transmitting location.

2. Discussion:

The following assumptions were used in the calculations:

1) The emissions from Voicestream Wireless transmitters are in the 1930-1950 MHz frequency band.
2) The antenna cluster consists of three sectors, with 6 antennas per sector. The model number for each antenna is EMS EMS-RR90-17-02DP.
3) The antenna height is 120 ft.
4) The maximum transmit power from each sector is 2689.8 Watts Effective Radiated Power (EiRP). assuming 8 channels per sector.
5) All the antennas are simultaneously transmitting and receiving, 24 hours a day.
6) Power levels emitting from the antennas are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
7) The average ground level of the studied area does not significantly change with respect to the transmitting location.

Equations given in "FCC OET Bulletin 65, Edition 97-01" were then used with the above information to perform the calculations.

3. Conclusion:

Based on the above worse case assumptions, the power density calculations from the VoiceStream Wireless Corporation PCS antenna installation on an a Monopole at 467 South Quaker Lane, West Hartford, CT, is 0.040981 mw/cm^2. This value represents only 4.0981 % of the maximum Permissible Emission (MPE) standard of 1000 microwatts per square centimeter (uw/c^2) set forth in the FCC/ANSI/IEEE C95.1-1991. The combined Power Density with other carriers will be 19.32% of the standard. Details are shown in the attachement.
Furthermore, the proposed antenna location for VoiceStream Wireless will not interfere with existing public safety telecommunications, AM band and FM band radio broadcast, TV, Police Communication, HAM Radio communications and other signals in the area.

Worst Case Power Density

Region 11 - Connecticut
Power Density Calculation

Site: CT-11-178D
Site Address: 467 South Quaker Lane
Town: West Hartford
Pole Height: 120FT
Tower Style: a Monopole

Base Station TX output	20	W
Number of channels	8	
Antenna Model	EMS-RR90-17-02DP	
Cable Size	1 5/8	"
Cable Length	140.00	ft
Antenna Height	120.00	ft
Ground Reflection	1	
Frequency	1930.00	MHz
Jumper & Connector loss	2.62	dB
Antenna Gain	16.5	dBi
Cable Loss per foot	0.0116	Loss per/ft
Total Cable Loss	1.624	dB
Total Attenuation	4.244	dB
Total EIRP per channel	55.27	dB
(In Watts)	336.22	W
Total EIRP per sector	64.30	dB
(In Watts)	2689.80	W
nsg	12.256	

Power Density (S) = **0.040981 mW / cm^2**

% MPE = **4.0981%**

Equation Used :

$$S = \frac{(1000)(grf)^2(Power)*10^{(nsg/10)}}{4\pi(R)^2}$$

Office of Engineering and Technology (OET) Bulletin 65, Edition 97-01, August 1997

For Co-location Only

Other Carriers	% of Standard
1. AT&T Wirelss	2.51
2. Verizon Wireless	12.71
Total	**15.22**

Cellco Partnership

d.b.a. verizon wireless

WIRELESS COMMUNICATIONS FACILITY

WEST HARTFORD 2
457 SOUTH QUAKER LANE
WEST HARTFORD, CONNECTICUT

PROJECT SUMMARY

SITE NAME:	WEST HARTFORD 2
SITE ADDRESS:	457 SOUTH QUAKER LANE WEST HARTFORD, CONNECTICUT
PROPERTY OWNER:	VOICESTREAM WIRELESS 100 FILLEY ST. BLOOMFIELD, CT. 06002
APPLICANT:	CELLCO PARTNERSHIP 20 ALEXANDER DR. WALLINGFORD, CT 06492 (203) 294-7440
CENTER OF TOWER:	LATITUDE: 41-44-55.50 N LONGITUDE: 73-43-52.79 W BASE ELEV: 119.4' AMSL

GENERAL NOTES

1. PROPOSED AND EXISTING ANTENNA LOCATIONS AND HEIGHTS PROVIDED BY CELLCO PARTNERSHIP.

SITE DIRECTIONS

FROM : I-84 WEST

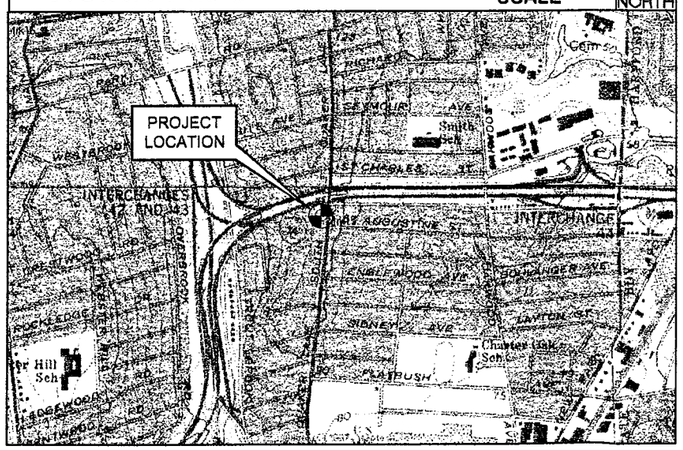
TO : 457 SOUTH QUAKER LANE WEST HARTFORD, CT.

I-84 WEST TO EXIT 43. RIGHT OFF OF EXIT ON TO PARK RD. FOLLOW PARK RD. TO SOUTH QUAKER (RIGHT) TAKE RIGHT ON SOUTH QUAKER LANE.

VICINITY MAP

NOT TO SCALE

NORTH



SHEET INDEX

SHT. NO.	DESCRIPTION	REV. NO.
T-1	TITLE SHEET	01
C-1	COMPOUND PLAN & TOWER ELEVATION	01

REVISIONS		
00	04/05/01	SITING COUNCIL
01	04/12/01	SITING COUNCIL
		FINAL

Cellco Partnership
d.b.a. verizon wireless

Natcomm, LLC
53-2 North Branford Road
Branford, Connecticut 06405
Tel (203) 488-0580
Fax (203) 488-8587

WEST HARTFORD 2

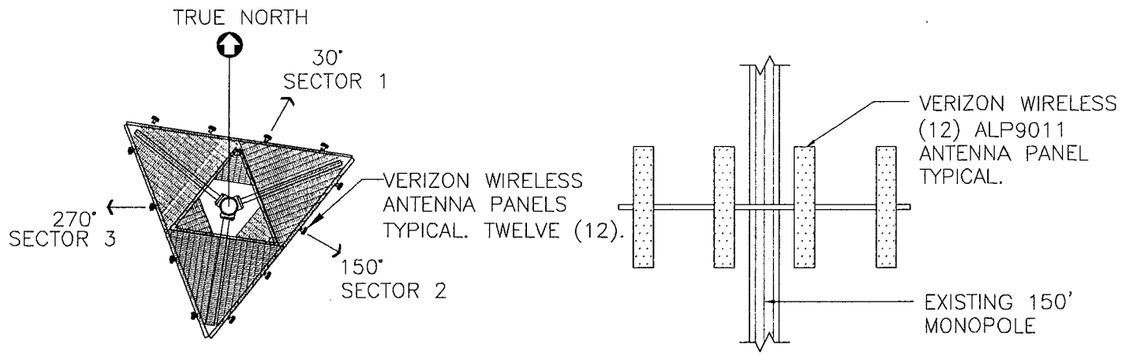
457 SOUTH QUAKER LANE
WEST HARTFORD, CT.

PROJECT NO:	313A
DRAWN BY:	DFS
CHECKED BY:	FJ
SCALE:	NONE
DATE:	02/12/01

TITLE SHEET

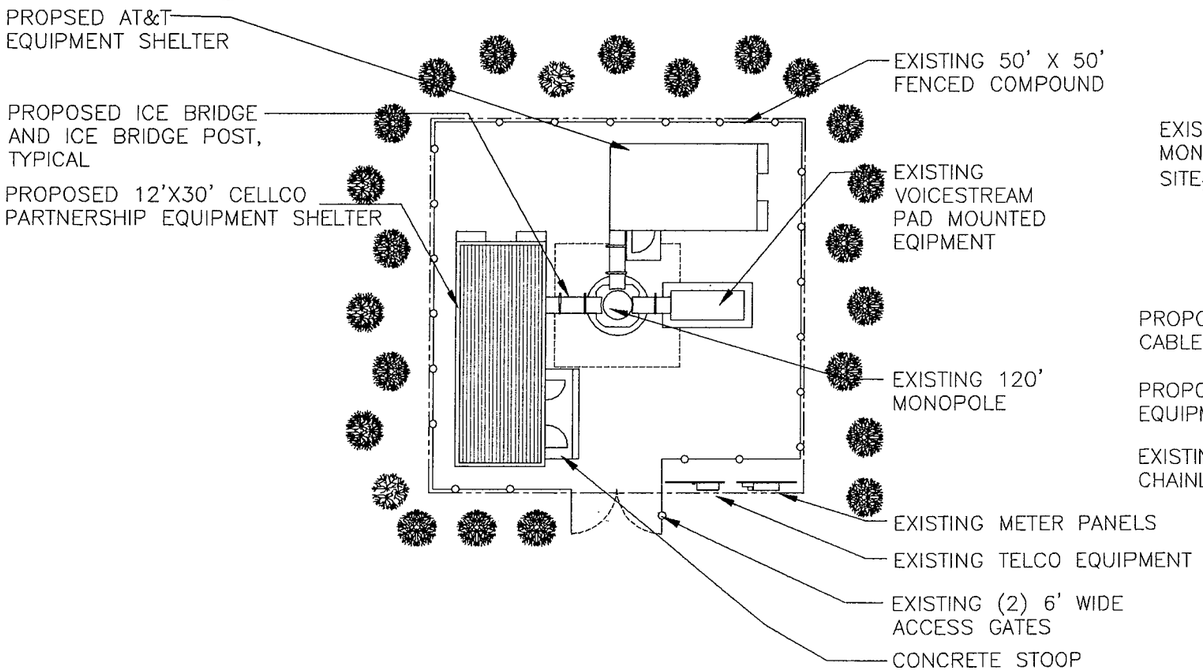
T-1

DWG. 1 OF 2



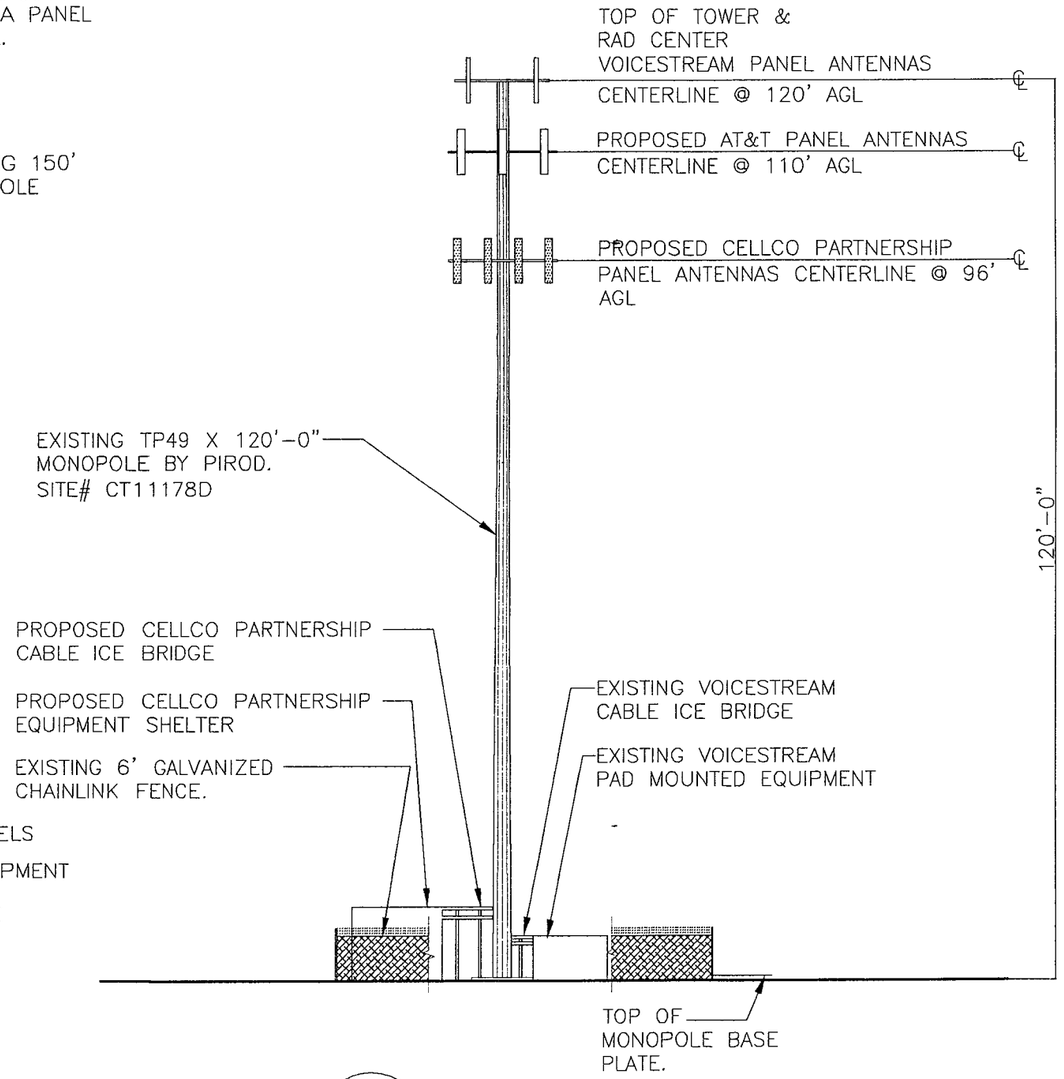
3 / C-1 **MONOPOLE ANTENNA MOUNTING CONFIGURATION**

NOT TO SCALE



1 / C-1 **COMPOUND PLAN**

NOT TO SCALE



2 / C-1 **ELEVATION**

NOT TO SCALE

REVISIONS		
00	02/12/01	SITING COUNCIL
01	04/10/01	FINAL SITING
		COUNCIL

Cellco Partnership
d.b.a. verizonwireless

Natcomm, LLC • Engineering Consultants
NATCOMM
Natcomm, LLC.
63-2 North Branford Road
Branford, Connecticut 06405
Tel: (203) 488-0580
Fax: (203) 488-8587
Consulting Engineers • Project Management
Civil, Structural • Mechanical • Telecom

No. 16694 LICENSED PROFESSIONAL ENGINEER

WEST HARTFORD 2

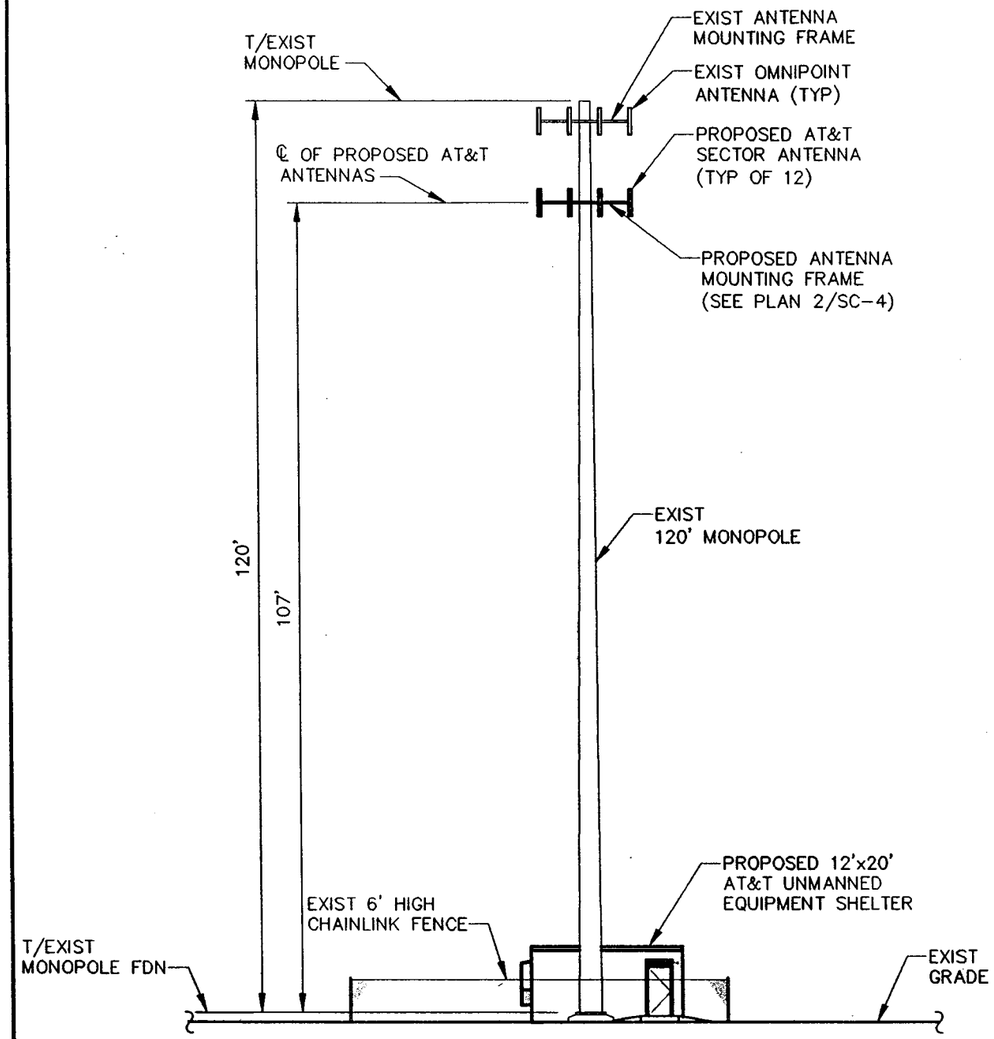
457 SOUTH QUAKER LANE
WEST HARTFORD, CT.

PROJECT NO:	313A
DRAWN BY:	DFE
CHECKED BY:	FJT
SCALE:	AS NOTED
DATE:	02/12/01

COMPOUND PLAN & ELEVATION

C-1

DWG. 2 OF 2



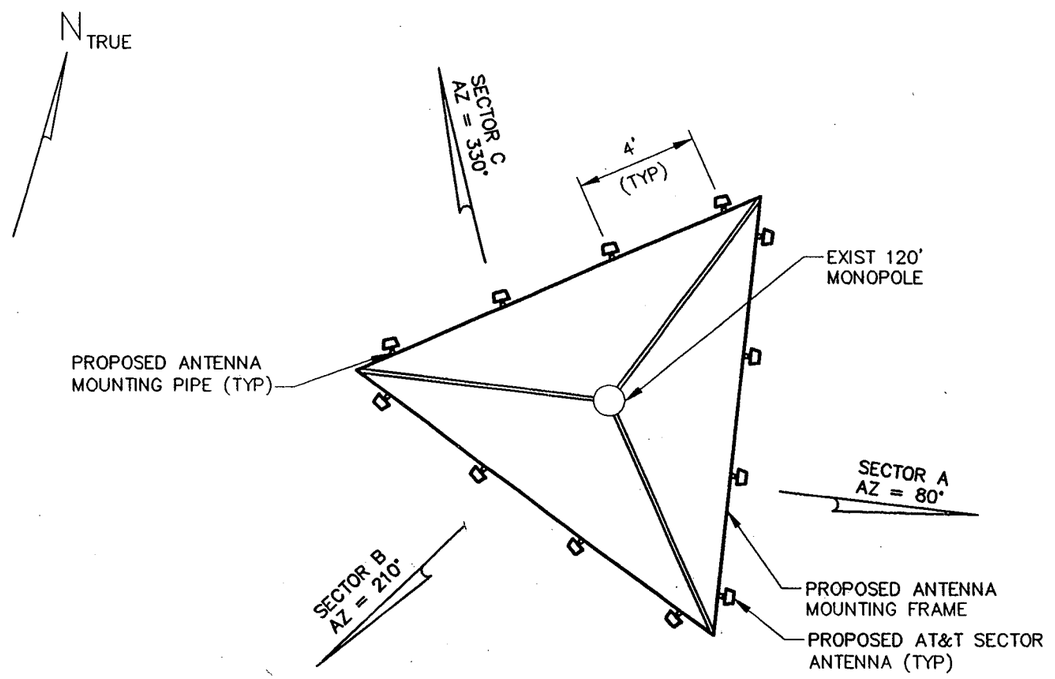
NOTE: EXISTING EQUIPMENT, GATE, & TREES ARE NOT SHOWN FOR CLARITY.

1/SC-4 ELEVATION

SCALE: 1" = 20'

GENERAL NOTES:

1. EXISTING MONOPOLE IS 120' HIGH.
2. EXISTING ANTENNAS BY OMNIPOINT ARE MOUNTED AT 117'-8" ABOVE TOP OF EXIST MONOPOLE FOUNDATION.
3. PROPOSED ANTENNAS BY AT&T WILL BE AT 107' ABOVE TOP OF EXIST MONOPOLE FOUNDATION.



2/SC-4 ANTENNA MOUNTING PLAN

SCALE: NONE

0 1 2 3 4

ORIGINAL SIZE IN INCHES

ST. MARK'S CHURCH
SITE NO. CT-258
471 SOUTH QUAKER LANE
WEST HARTFORD, CT 06110

NO.	DATE	REVISIONS	BY	CHK	APP'D
0	4/5/01	ISSUED FOR APPROVAL	CA	KZ	
A	2/15/01	ISSUED FOR COMMENT	CA		

SCALE: AS NOTED | DESIGNED BY: KZ | DRAWN BY: CA

AT&T

AT&T WIRELESS PCS, LLC.
12 Omega Drive, Second Floor
Stamford, CT 06902

W.O. #: 2650.CT258 DATE: 2/15/01

TECTONIC ENGINEERING CONSULTANTS P.C.

ELEVATION & ANTENNA MTG PLAN

JOB NO.	SITE NO.	DRAWING NUMBER	REV
24445	3CO-CT258	SC-4	0

PiROD INC.

Tower Reanalysis Report

Proposal PR-2001-02-016
February 23, 2001

TP49 x 120' Tower
Hartford 2/St.Mark's Church, CT
PiRod Engineering File A-116876
CT-11-178

Prepared for
Verizon and AT&T
Attn: Mark Gauger
20 Alexander Drive
Wallingford, CT 04792

Authorization Provided by
Voicestream Wireless
Attn: Sherry Sukow
100 Filley Street
Bloomfield, CT 06002

J:\reanalys\116\116876.doc

1545 Pidco Drive, Plymouth, Indiana 46563
Phone: 219-936-4221 *www.pirod.com* *Fax: 219-936-6458*

February 23, 2001

Tower Reanalysis Report
Proposal PR-2001-02-016

TP49 x 120' Tower
Hartford 2/St.Mark's Church, CT
PiRod Engineering File A-116876

Contact Person:

Dennis D. Abel, P.E.
Manager of Reanalysis Services
e-mail: dabel@pirod.com
telephone extension: 5257

Completed under the Supervision and Approval by

John R. Erichsen, P.E.
Vice President of Operations
e-mail: jerichsen@pirod.com
telephone extension: 5221

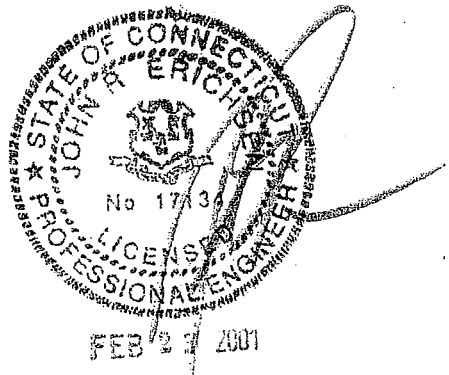


TABLE OF CONTENTS

Description **Page No.**

1.0 EXECUTIVE SUMMARY

This reanalysis was performed by PiRod to determine if the structure is capable of accommodating loading that is different than previous design specifications. This engineering report gives the tower history, details how the loading changes affect the tower, specifies feasible modifications, and proposes modification materials. PiRod's engineering study concludes that complies without modifications. See section 6.0 for details.

2.0 ASSUMPTIONS

This engineering study is based on the theoretical capacity of the structure. It is not a condition assessment of the tower. This report is being provided by PiRod without the benefit of an inspection by PiRod personnel and is based on information supplied by the customer to PiRod. PiRod has made no independent determination, nor is required to, of the accuracy of the information provided. Therefore, unless specifically informed to the contrary by the customer in writing, PiRod assumes the following:

1. The subsoil characteristics exist as stated on the tower drawing or stated elsewhere in this report;
2. The tower is erected and maintained in accordance with the manufacturer's plans and specifications and is plumb;
3. There is no damage, natural or manmade, to the structure, either gradual or sudden;
4. All connections and guy cables are properly installed;
5. The information concerning the components, existing and proposed, is accurate; and
6. There are no modifications to the tower itself, except as may be disclosed elsewhere in this report.

PiRod recommends that a condition assessment be performed by qualified personnel, preferably a structural engineer. Following is a list of the general areas that PiRod recommends to be inspected. Contact PiRod for a complete checklist.

Tower Structure	Guyed Towers	Foundations	Appurtenances
Tower Sections	Guy Cables	Cracking	Antennas
Bolted Connections	Turnbuckles	Drainage	Mounts
Welded Connections	Preforms	Spalling	Transmission Lines
Plumbness	Guy Lugs	Anchor Bolts	Line Brackets
Corrosion	Thimbles	Settling	Cable Hangers
Linearity	Torque Arms	Grounding	Lighting
Galvanization	Ice Clips	Grout	
Paint	Guy Tensions	Subsoil	
	Anchor Rods	Characteristics	
	Shackles	Erosion	
	Insulators		

3.0 TOWER HISTORY

Date of Origination: March of 2000
PiRod Model: TP49 x 120' Tower
Sold to: VoiceStream Wireless
Original Wind Load Requirement: 80 mph per EIA/TIA-222-F
Original Ice Load Design: No ice and ½" ice with 25% load reduction

The original design is based on the following antenna loading. This may not truly represent the antennas that have actually been placed on the tower.

Height (ft)	Antennas		Assumed CAAC (sq.ft.)	Mounts		Lines	
	Qty.	Model		Qty	Model	Qty.	Size
120'	12	1' x 4' Panels	5.60 ea.	1	Low Profile Platform	12	1-5/8"
110'	12	1' x 4' Panels	5.60 ea.	1	Low Profile Platform	12	1-5/8"
100'	12	1' x 4' Panels	5.60 ea.	1	Low Profile Platform	12	1-5/8"

For the structural analysis, the tower and foundation are assumed to exist as shown on the enclosed tower drawing, which is PiRod's latest revision.

4.0 CURRENT WIND LOAD REQUIREMENT

The TIA/EIA Standard is currently at version "F". Hartford County is designated as an 80 mph basic wind speed zone by the current TIA/EIA Standard. We have taken the opportunity to reanalyze this structure using the following wind speed and ice load condition.

Wind Speed	Ice Load	EIA Standard
80 mph	no ice	TIA/EIA-222-F
80 mph	½" ice with 25% wind load reduction	TIA/EIA-222-F

5.0 ANTENNA LOADING

The tower analysis uses the following antenna loading, which was supplied on February 21, 2001 by Marc Gottesdiener.

HEIGHT (FT)	ANTENNAS		ASSUMED CAAC (SQ.FT.)	MOUNTS		LINES	
	QTY.	MODEL		QTY.	MODEL	QTY.	SIZE
120'	12	EMS RR901702DP		1 12	13' Low Profile Platform 2" x 50" Antenna Pipe	24	1-5/8"
110'	12	Algon 7184.14		1 12	13' Low Profile Platform 2" x 72" Antenna Pipe	12	1-5/8"
100'	12 1	ALP9011 GPS *	2.0	1 12	13' Low Profile Platform 2" x 50" Antenna Pipe	12 1	1-1/4" 7/8"

These antennas, mounts, and lines represent PiRod's understanding of the antenna loading required. Please contact PiRod if any discrepancies are evident. If different antennas, mounts, or lines are installed on this structure, this analysis is invalid. In the event it becomes necessary for the customer to supplement the information previously provided to PiRod for this analysis, the information must be supplied in writing.

* Items marked with an asterisk were not supplied to PiRod with specific projected areas (C_AA_C). Based on the information provided, the listed projected areas were assumed and used for the analysis. The actual projected area for each antenna must be confirmed to be equal to the assumed area listed above. If it is determined that the area is different than that stated for any of the above items, this analysis is invalid. Additional engineering fees may be incurred if the tower needs to be analyzed again.

6.0 RESULTS

With the antennas listed in section 5.0, the following modifications are required for the tower to comply with the indicated code and TIA/EIA Standard listed in section 4.0.

6.1 Tower Modifications

The tower complies without modifications. All lines are assumed to be run through the pole and exit the existing portholes with the exception that some of the lines to the 150' level will have to run through the top of the pole. Please note that there may be some difficulty in running the lines through the pole because of the pole size.

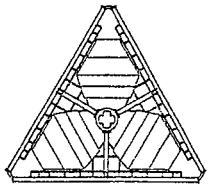
6.2 Foundation Modifications

The foundation complies without modifications.

7.0 LIST OF APPENDICES

Main Tower Drawing, latest revision 206198-B

Note: The tower drawing included with this report is PiRod's latest revision and depicts the tower as we understand it to currently exist. It has not been updated to show the existing or proposed antenna loading or any modifications required as a result of this analysis.



ROTATABLE TOP - TOP VIEW

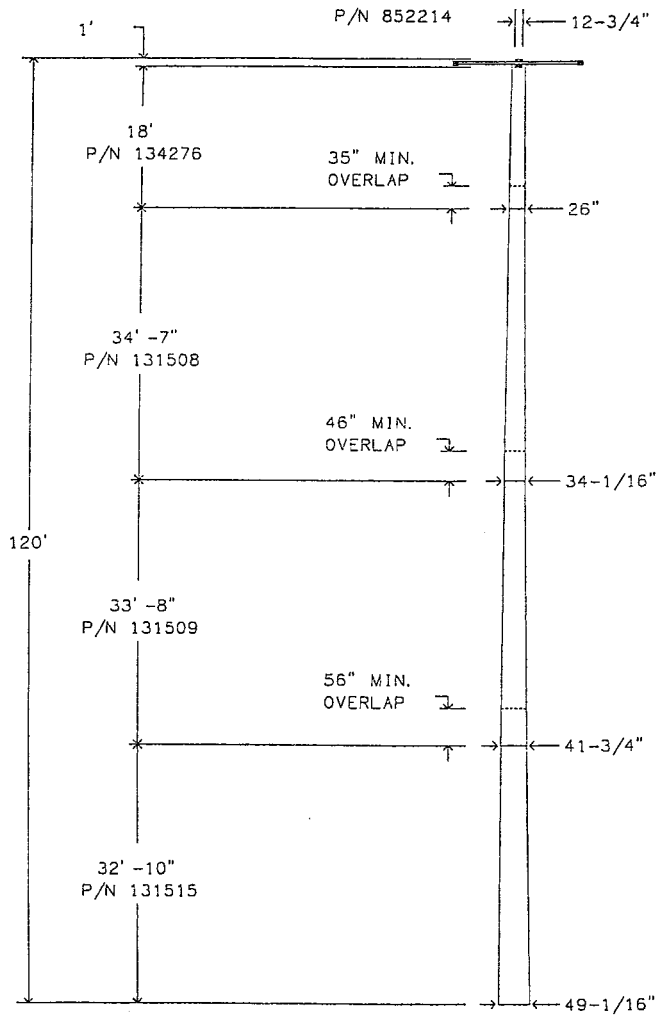
TAPERED POLE SECTION DATA

SECTION					BOLT @ BOT **		
LENGTH	PART#	SIZE	WALL	WT. *	DIAM	LENGTH	#
1'	852214	12"	N/A		1"	4-1/2"	5
18'	134276	26"	.2500"	1221#			
37'-6"	131508	34"	.3125"	3900#			
37'-6"	131509	42"	.3750"	5875#			
37'-6"	131515	49"	.3750"	7040#			

*THE WEIGHTS LISTED ARE THEORETICAL. THE ACTUAL WEIGHTS WILL VARY. ALL WEIGHTS SHOULD BE CONFIRMED IN THE FIELD PRIOR TO ERECTION.

**ALL CONNECTION BOLTS ARE A-325.

TOP 1' CONSISTS OF ROTATABLE TOP ASSEMBLY. SEE DWG # 140660-B FOR INSTALLATION DETAILS. JAM NUTS NOT REQUIRED.



SEE PAGE 2 OF THIS DRAWING FOR OPENING INFORMATION.

SEE PAGE 4 OF THIS DRAWING FOR CONNECTION BOLT TIGHTENING SPECIFICATIONS.

SEE PAGE 7 OF THIS DRAWING FOR BASE SECTION INSTALL.

REMOVABLE CLIMBING RUNGS

REV	DESCRIPTION OF REVISIONS	INI	DATE
B	ADDED FOUNDATINOS	WBR	05/01/2000
A	CHANGED PLATFORM PART NUMBER - PG 1	KWD	03/24/2000

From: 92535.DFT - 03/24/2000 09:42

Plotted from: 20619818.DWG # 05/01/2000 11:00 @ 03/23/2004 15:46

VOICE STREAM WIRELESS
ST. MARK'S CHURCH CT11178D, CONNECTICUT
TP49 X 120' ASSEMBLY DRAWING

APPROVED/ENG.	WBR	05/01/2000
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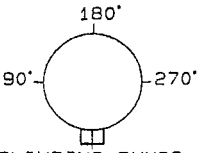
DRAWING NO. 206198-B

PAGE 1 OF 9

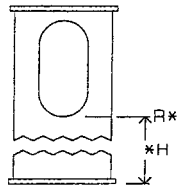
OPENINGS & BRACKETS WELDED TO POLE

NOMINAL HT AGL	HEIGHT *H	TYP	DESCRIPTION	ANGL	ASSEMBLY DRAWING#
119'-1"	18'	20	FLANGE PART NUMBER 133315		
118'	16'-11"	13	SAFETY CLIMB BRACKET	0°	
116'-9"	15'-8"	9	4" X 6" PORTHOLE EXITING UP	60°	
116'-9"	15'-8"	9	4" X 6" PORTHOLE EXITING UP	180°	
116'-9"	15'-8"	9	4" X 6" PORTHOLE EXITING UP	300°	
115'-9"	14'-8"	9	4" X 6" PORTHOLE EXITING UP	60°	
115'-9"	14'-8"	9	4" X 6" PORTHOLE EXITING UP	180°	
115'-9"	14'-8"	9	4" X 6" PORTHOLE EXITING UP	300°	
107'-9"	6'-8"	9	4" X 6" PORTHOLE EXITING UP	60°	
107'-9"	6'-8"	9	4" X 6" PORTHOLE EXITING UP	180°	
107'-9"	6'-8"	9	4" X 6" PORTHOLE EXITING UP	300°	
106'-9"	5'-8"	9	4" X 6" PORTHOLE EXITING UP	60°	
106'-9"	5'-8"	9	4" X 6" PORTHOLE EXITING UP	180°	
106'-9"	5'-8"	9	4" X 6" PORTHOLE EXITING UP	300°	
105'-9"	4'-8"	19	PAD EYES FOR FUTURE PLATFORM	SEE>	121975-B
95'-6"	29'	9	4" X 6" PORTHOLE EXITING UP	60°	
95'-6"	29'	9	4" X 6" PORTHOLE EXITING UP	180°	
95'-6"	29'	9	4" X 6" PORTHOLE EXITING UP	300°	
94'-6"	28'	9	4" X 6" PORTHOLE EXITING UP	60°	
94'-6"	28'	9	4" X 6" PORTHOLE EXITING UP	180°	
94'-6"	28'	9	4" X 6" PORTHOLE EXITING UP	300°	
93'-6"	27'	19	PAD EYES FOR FUTURE PLATFORM	SEE>	121975-B
9'-10"	9'-10"	8	TRANS. LINE BRIDGE ATTACH BRACKET	90°	
9'-10"	9'-10"	8	TRANS. LINE BRIDGE ATTACH BRACKET	180°	
9'-10"	9'-10"	8	TRANS. LINE BRIDGE ATTACH BRACKET	270°	
9'-6"	9'-6"	13	SAFETY CLIMB BRACKET	0°	
7'-4"	7'-4"	2	10" X 25" OVAL PORTHOLE	90°	132512-B
7'-4"	7'-4"	2	10" X 25" OVAL PORTHOLE	180°	132512-B
7'-4"	7'-4"	2	10" X 25" OVAL PORTHOLE	270°	
6'-9"	6'-9"	7	GROUNDING PLATE	90°	
6'-9"	6'-9"	7	GROUNDING PLATE	180°	
6'-9"	6'-9"	7	GROUNDING PLATE	270°	
1'-6"	1'-6"	2	10" X 25" OVAL PORTHOLE	180°	
1'-3"	1'-3"	18	GROUNDING ANGLES (3)	SEE>	131093-B

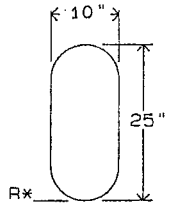


CLIMBING RUNGS

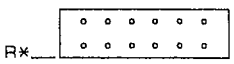
THE ANGLE TO THE OPENING IS MEASURED CLOCKWISE FROM THE CENTER-LINE OF THE CLIMBING RUNGS WHEN LOOKING DOWN.



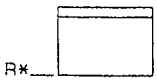
* THE HEIGHT IN THE TABLE IS THE DISTANCE FROM THE BASE OF THE CURRENT POLE SECTION TO THE OPENING REFERENCE (R*) AS SHOWN ON PAGES 2 - 3 OF THIS DRAWING.



TYPE 2 OPENING



GROUNDING PLATE



LINE BRIDGE BRACKET

VOICE STREAM WIRELESS
ST. MARK'S CHURCH CT11178D, CONNECTICUT
TP49 X 120' OPENINGS

APPROVED/ENG.	WBR	05/01/2000
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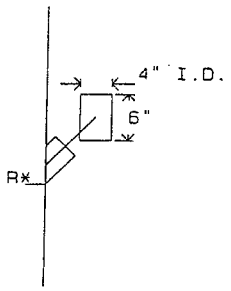
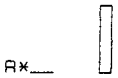
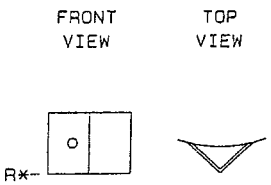
PAGE 2 OF 9



TYPE 9
OPENING



SAFETY CLIMB
BRACKET



GROUNDING ANGLE

VOICE STREAM WIRELESS
ST. MARK'S CHURCH CT11178D, CONNECTICUT
TP49 X 120' OPENINGS

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PAGE 3 OF 9

GENERAL NOTES

1. TOWER DESIGN CONFORMS TO STANDARD EIA/TIA-222-F FOR 80 MPH BASIC WIND SPEED WITH NO ICE.
   TOWER DESIGN CONFORMS TO STANDARD EIA/TIA-222-F FOR 80 MPH BASIC WIND SPEED WITH 0.50" RADIAL ICE WITH LOAD DUE TO WIND REDUCED BY 25% WHEN CONSIDERED SIMULTANEOUSLY WITH ICE.
2. MATERIAL: (A) SOLID RODS CONFORM TO ASTM A-572 GRADE 50 REQUIREMENTS.
   (B) ANGLES CONFORM TO ASTM A-36 REQUIREMENTS.
   (C) PIPE CONFORMS TO ASTM A-53 TYPE E, GRADE B REQUIREMENTS. (MIN YIELD STRENGTH=42 KSI)
   (D) BASE FLANGE AND GUSSETS CONFORM TO ASTM A-572 GRADE 50 REQUIREMENTS. ALL OTHER PLATE CONFORMS TO ASTM A-36 REQUIREMENTS.
   (E) TAPERED POLES CONFORM TO ASTM A-572 GRADE 65 REQUIREMENTS.
   (F) ANCHOR BOLTS CONFORM TO ASTM A-687 REQUIREMENTS.
3. BASE REACTIONS PER EIA/TIA-222-F FOR 80 MPH BASIC WIND SPEED WITH NO ICE.
   TOTAL WEIGHT= 22.8 KIPS.
   MOMENT= 1441.2 KIP-FT.
   MAXIMUM SHEAR= 16.3 KIPS TOTAL.
4. BASE REACTIONS PER EIA/TIA-222-F FOR 80 MPH BASIC WIND SPEED WITH 0.50" RADIAL ICE:
   TOTAL WEIGHT= 26.9 KIPS.
   MOMENT= 1130.9 KIP-FT.
   MAXIMUM SHEAR= 12.7 KIPS TOTAL.
5. FINISH: HOT DIPPED GALVANIZED AFTER FABRICATION.
6. ANTENNAS: 120' (12) 1'X 4' PANELS (CAAA=5.60 SQ.FT.EACH) USING 1-5/8" LINES MOUNTED ON A LOW PROFILE PLATFORM.
   110' (12) 1'X 4' PANELS (CAAA=5.60 SQ.FT.EACH) USING 1-5/8" LINES MOUNTED ON A LOW PROFILE PLATFORM.
   100' (12) 1'X 4' PANELS (CAAA=5.60 SQ.FT.EACH) USING 1-5/8" LINES MOUNTED ON A LOW PROFILE PLATFORM.
7. INSTALL BASE SECTION WITH MINIMUM OF 2" CLEARANCE ABOVE CONCRETE. SEE BASE SECTION PLACEMENT PAGE OF THIS DRAWING FOR MORE INFORMATION.
8. MIN. WELDS 5/16" UNLESS OTHERWISE SPECIFIED. ALL WELDING TO CONFORM TO AWS SPECIFICATIONS.
9. ALL BOLTS MUST BE IN PLACE WITH JAM NUTS PRIOR TO ERECTION OF THE STRUCTURE. ALL BOLTS AND NUTS MUST BE IN PLACE AND TIGHTENED BEFORE THE ADJOINING SECTION(S) ARE PLACED.
10. ALL A-325 BOLTS ARE TO BE TIGHTENED TO A SNUG TIGHT CONDITION AS DEFINED BY AISC SPECIFICATION UNLESS OTHERWISE NOTED. A MORE QUANTITATIVE ALTERNATIVE APPROACH TO ACHIEVING A SNUG TIGHT CONDITION IS TO TIGHTEN USING THE TORQUE VALUES FROM DRAWING 123107-A.
11. EIA GROUNDING FOR TOWER.
12. OUTSIDE CLIMB RUNGS WITH SAFETY CLIMB.
13. MONOPOLE TO BE PAINTED SLATE GRAY.

VOICE STREAM WIRELESS
ST. MARK'S CHURCH CT11178D, CONNECTICUT
TP49 X 120' NOTES

APPROVED/ENG.	WBR	05/01/2000
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FOUNDATION NOTES

1. SOIL AS PER REPORT BY DR. CLARENCE WELTI, PE, PC, DATED 4/4/00.
2. CONCRETE TO BE 3000 PSI @ 28 DAYS. REINFORCING BAR TO CONFORM TO ASTM A615 GRADE 60 SPECIFICATIONS. CONCRETE INSTALLATION TO CONFORM TO ACI-318 BUILDING REQUIREMENTS FOR REINFORCED CONCRETE. ALL CONCRETE TO BE PLACED AGAINST UNDISTURBED EARTH FREE OF WATER AND ALL FOREIGN OBJECTS AND MATERIALS. A MINIMUM OF THREE INCHES OF CONCRETE SHALL COVER ALL REINFORCEMENT. WELDING OF REBAR NOT PERMITTED.
3. A COLD JOINT IS PERMISSIBLE UPON CONSULTATION WITH PIROD. ALL COLD JOINTS SHALL BE COATED WITH BONDING AGENTS PRIOR TO SECOND POUR.
4. ALL FILL SHOULD BE PLACED IN LOOSE LEVEL LIFTS OF NO MORE THAN 95" THICK. FILL MATERIALS SHOULD BE CLEAN AND FREE OF ORGANIC AND FROZEN MATERIALS OR ANY OTHER DELETERIOUS METERIALS. COMPACT FILL TO 97% OF MODIFIED PROCTOR MAXIMUM DRY DENSITY IN ACCORDANCE WITH ASTM D1557.
5. GROUTING OF POLE BASE IS OPTIONAL. IF GROUT IS USED, DRAINAGE MUST BE PROVIDED FROM THE INTERIOR OF THE POLE. REFER TO DRAWING # 118492-B FOR BASE SECTION INSTALLATION.
6. BENDING, STRAIGHTENING OR REALIGNING (HOT OR COLD) OF THE ANCHOR BOLTS BY ANY METHOD IS PROHIBITED.
7. CROWN TOP OF FOUNDATION FOR PROPER DRAINAGE.
8. INSTALL BASE SECTION WITH MINIMUM OF 2" CLEARANCE ABOVE CONCRETE. SEE PAGE 9 OF THIS DRAWING FOR MORE INFORMATION.
9. THE FOUNDATION MUST BEAR ENTIRELY ON COMPETENT SOIL. THE FOUNDATION IS NOT TO BEAR ON ANY COMBINATION OF SOIL AND BEDROCK AS THIS MAY CAUSE EXCESSIVE DIFFERENTIAL SETTLEMENT.
10. REFERENCE PARAGRAPH 7.1 OF THE SOIL REPORT FOR BACKFILL REQUIREMENTS.

REV	DESCRIPTION OF REVISIONS	INI	DATE
B	ADDED FOUNDATINOS	WBR	05/01/2000

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VOICE STREAM WIRELESS
ST. MARK'S CHURCH CT1117BD, CONNECTICUT
TP49 X 120' NOTES

APPROVED/ENG.	WBR	05/01/2000
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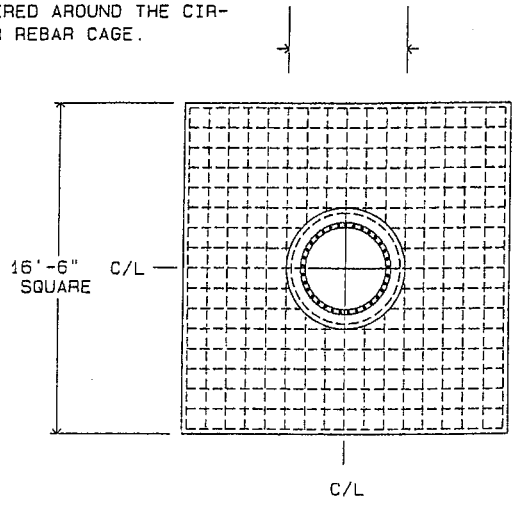
PAGE 5 OF 9

6' ROUND PIER,
CENTERED AROUND THE CIR-
CULAR REBAR CAGE.



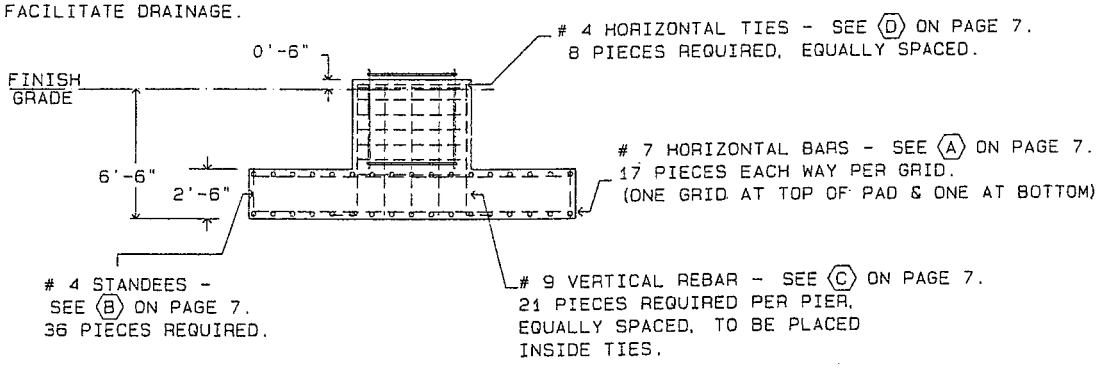
BASE FLANGE MUST BE CENTERED IN PIER WITHIN +/- 10% OF PIER DIAMETER.

ALL REBAR REQUIRES MINIMUM OF 3" CONCRETE COVERAGE.

FOR ANCHOR STEEL IDENTIFICATION AND PLACEMENT INFORMATION, SEE PAGE 8.

FOR BASE SECTION INSTALLATION, SEE PAGE 9 OF THIS DRAWING

GROUTING OF POLE BASE IS OPTIONAL. IF GROUT IS USED, DRAINAGE MUST BE PROVIDED FROM THE INTERIOR OF POLE.
CROWN TOP OF FOUNDATION TO FACILITATE DRAINAGE.



TOWER FOUNDATION

29.9 CUBIC YARDS CONCRETE REQUIRED
FOR INSTALLATION SPECIFICATIONS AND ADDITIONAL INFORMATION, SEE PAGE 5 OF THIS DRAWING.

VOICE STREAM WIRELESS
ST. MARK'S CHURCH CT11178D, CONNECTICUT
TP49 X 120' BASE FOUNDATION

REV	DESCRIPTION OF REVISIONS	INI	DATE
B	ADDED FOUNDATINOS	WBR	05/01/2000

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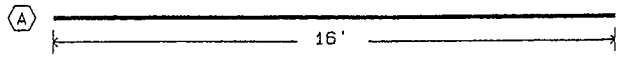
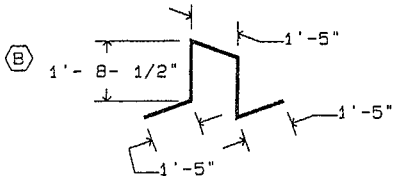
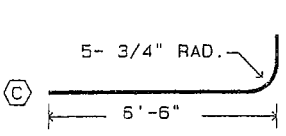


7 REBAR - 68 PIECES REQ. TOTAL
APPROX WT = 32.7# EACH, 2224# TOTAL

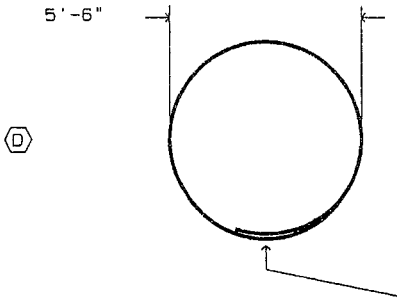
REBAR SUPPORTS MAY CONSIST OF ANY ACCEPTABLE MEANS OF SECURELY SUPPORTING THE TOP REINFORCEMENT GRID ABOVE THE BOTTOM REINFORCEMENT GRID WHILE MAINTAINING A SEPARATION OF 2' (OUTSIDE REBAR TO OUTSIDE REBAR).



4 REBAR - 36 PIECES REQUIRED TOTAL
TYPE 26 STANDEE PLACED BETWEEN REBAR GRIDS ON NOMINAL 4' SPACING THROUGHOUT
APPROX UNBENT LENGTH = 7'- 8"
APPROX WT = 5.1# EACH, 184# TOTAL



9 REBAR - 21 PIECES REQUIRED TOTAL
APPROX UNBENT LENGTH = 7'-10- 7/8"
APPROX WT = 26.9# EACH, 565# TOTAL



4 REBAR - 8 PIECES REQUIRED TOTAL
APPROX UNBENT LENGTH = 19'- 0- 3/4"
APPROX WT = 12.7# EACH, 102# TOTAL

LAP DIMENSION: 1'- 9- 3/8"
PLACE REBAR RINGS SO THAT LAPS ON ADJACENT RINGS ARE 180 DEGREES APART. PLACE ONE RING AT TOP OF PAD AND TWO RINGS AT TOP OF PIER REBAR. EQUALLY SPACE REMAINING RINGS ALONG PIER.

REBAR DETAIL

TOTAL APPROX REBAR WEIGHT = 3075#
REINFORCING BAR TO CONFORM TO ASTM A615 GRADE 60 SPECIFICATIONS.

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VOICE STREAM WIRELESS
ST. MARK'S CHURCH CT11178D, CONNECTICUT
TP49 X 120' REBAR DETAIL

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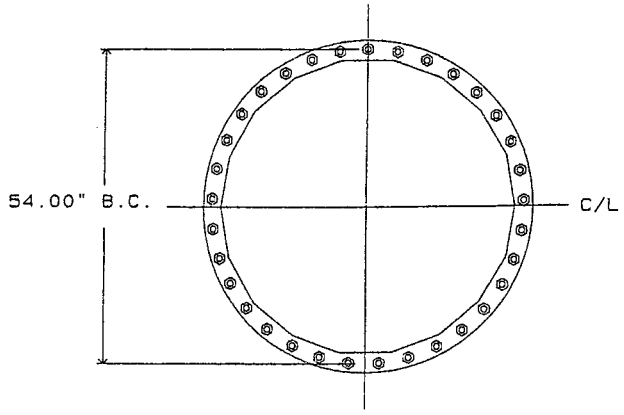
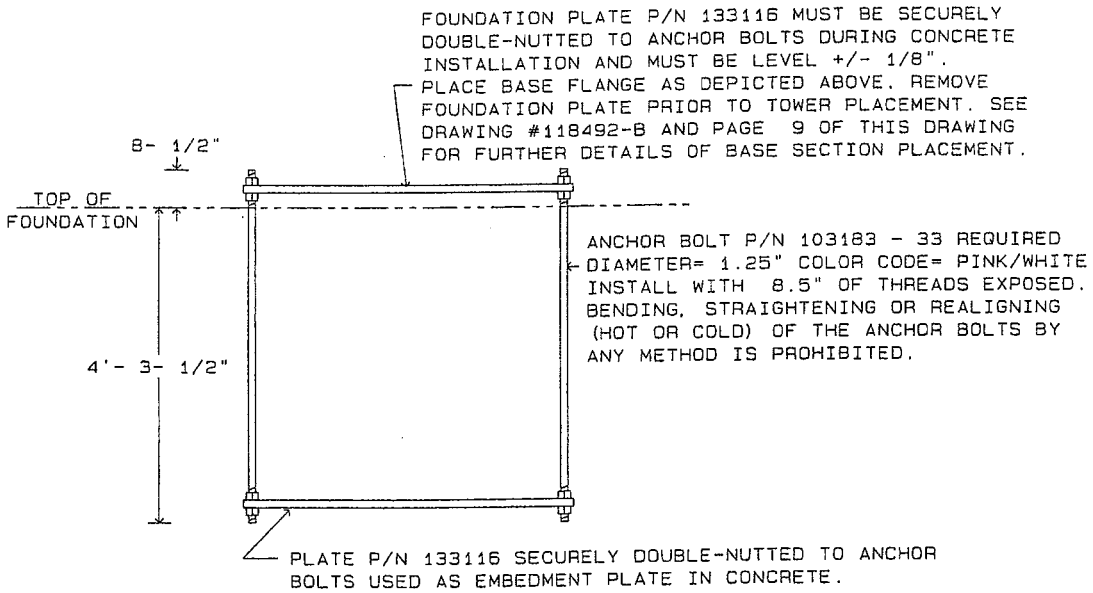
BASE FLANGE MUST BE CENTERED IN PIER
WITHIN +/- 10% OF PIER DIAMETER.



GROUTING OF POLE BASE IS OPTIONAL.
IF GROUT IS USED, DRAINAGE MUST BE
PROVIDED FROM THE INTERIOR OF POLE.



TOWER ANCHOR STEEL PLACEMENT

REV	DESCRIPTION OF REVISIONS	INI	DATE
B	ADDED FOUNDATINOS	WBR	05/01/2000

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VOICE STREAM WIRELESS
ST. MARK'S CHURCH CT11178D, CONNECTICUT
TP49 X 120' ANCHOR STEEL

APPROVED/ENG.	WBR	05/01/2000
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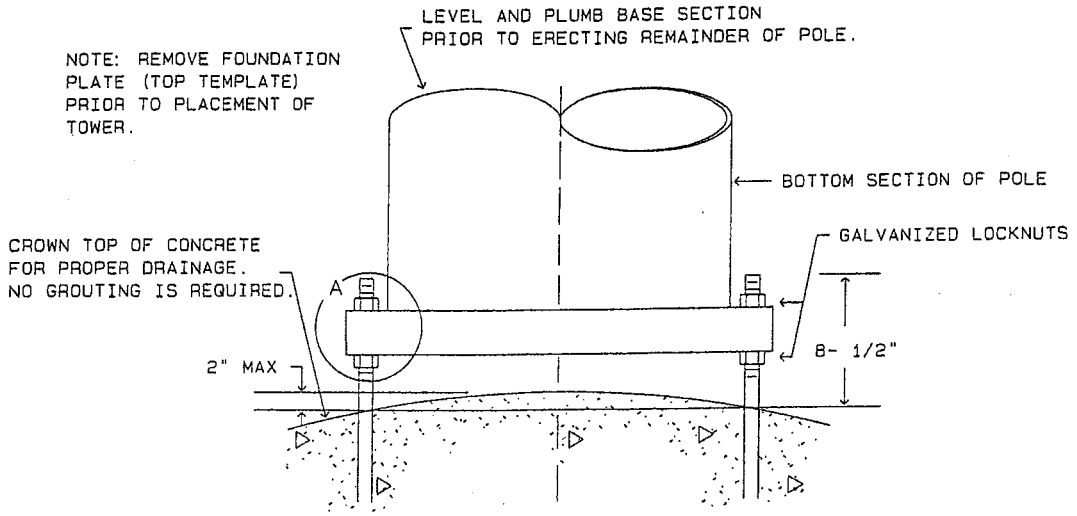

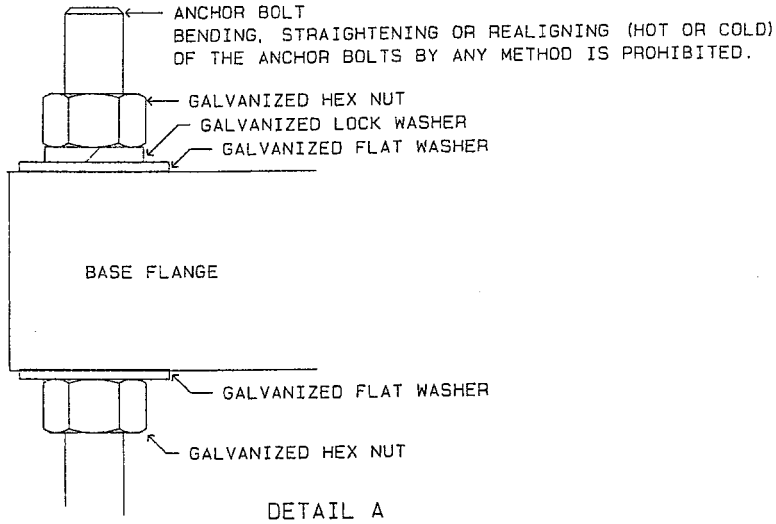

DETAIL A

TOWER BASE SECTION PLACEMENT

REV	DESCRIPTION OF REVISIONS	INI	DATE
B	ADDED FOUNDATINOS	WBR	05/01/2000

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VOICE STREAM WIRELESS
ST. MARK'S CHURCH CT1117BD, CONNECTICUT
TP49 X 120' BASE SECTION PLACEMENT

APPROVED/ENG.	WBR	05/01/2000
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