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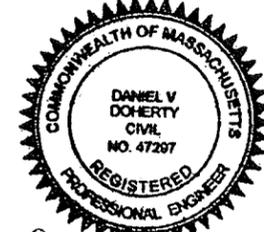


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2012 JUN 27 AM 9:00

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CONSULTING

21 B Street
Burlington, MA 01803
Tel: 781.273.2500
Fax: 781.273.3311
www.ebiconsulting.com



Daniel V. Doherty

ENGINEER STAMP/SIGNATURE

SOMERVILLE THEATRE

BS58XC001

49 DAVIS SQUARE
SOMERVILLE, MA 02144
MIDDLESEX COUNTY

PREPARED FOR:



1 INTERNATIONAL BLVD. SUITE 800
MAHAH, NJ 07495
PHONE: (800) 357-7641

PROJECT COORDINATION & MANAGEMENT:



1 ROBBINS ROAD
WESTFORD, MA 01886
(978) 952-1600

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SUBMITTALS

NO.	DATE	DESCRIPTION	BY
0	09/27/11	FOR REVIEW	JM
1	10/18/11	REVISED PER COMMENTS	KW
2	11/04/11	PRELIMINARY FINAL CD	KW
3	02/03/12	PRELIMINARY FINAL CD	KS
4	05/01/12	FINAL CD	JM

VICINITY MAP (NOT TO SCALE)



CODE COMPLIANCE

ALL WORK AND MATERIALS SHALL BE PERFORMED AND INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES.

1. MASSACHUSETTS STATE BUILDING CODE 780 CMR -- 8TH EDITION

SCOPE OF WORK

1. INSTALL (3) 1900/800 MHZ PANEL ANTENNAS & (6) REMOTE RADIO HEADS (RRH), ON EXISTING ROOFTOP.
2. REMOVE (1) EXISTING MODCELL CABINET & (1) EXISTING POWER CABINET FROM EXISTING EQUIPMENT ROOM.
3. INSTALL (2) EQUIPMENT CABINETS WITHIN EXISTING EQUIPMENT ROOM.
4. ROUTE (3) HYBRID CABLES FROM PROPOSED EQUIPMENT TO PROPOSED REMOTE RADIO HEADS.
5. REMOVE (3) EXISTING CDMA ANTENNAS & COAX.
6. REPLACE EXISTING SPRINT GPS ANTENNA WITH NEW SIMILAR GPS ANTENNA.

SHEET INDEX

SHEET	DESCRIPTION
T-1	TITLE SHEET
GN-1	GENERAL NOTES
GN-2	GENERAL NOTES & STRUCTURAL DESIGN PARAMETERS
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A-1	ROOFTOP PLAN & ELEVATION
A-2	ELEVATIONS
A-3	EQUIPMENT DETAILS
A-4	CONSTRUCTION DETAILS
A-5	CONSTRUCTION DETAILS
S-1	STRUCTURAL DETAILS
E-1	ELECTRICAL NOTES & RISER DIAGRAM
E-2	GROUNDING DETAILS & NOTES
E-3	ANTENNA WIRING DIAGRAM

PROJECT INFORMATION

SITE NAME: SOMERVILLE THEATRE
 SITE NUMBER: BS58XC001
 SITE ADDRESS: 49 DAVIS SQUARE, SOMERVILLE, MA 02144
 COUNTY: MIDDLESEX COUNTY
 ZONING DISTRICT: CENTRAL BUSINESS DISTRICT
 TAX ID: MAP: 22 BLOCK: A LOT: 2
 PROPERTY OWNER: BF PROPERTIES, FRAMAN BEATRICE, PO BOX 380286, CAMBRIDGE, MA 02238
 STRUCTURE TYPE: ROOFTOP
 STRUCTURE HEIGHT: 66'-0"± AGL
 PANEL ANTENNA RAD CENTER: 51'-1"± AGL
 COORDINATES: LATITUDE: 42°23'48.0"N, LONGITUDE: 71°07'23.0"W
 GROUND ELEVATION: 30'± A.M.S.L.

PROJECT TEAM

APPLICANT:
 SPRINT
 1 INTERNATIONAL BLVD. SUITE 800, MAHAH, NJ 07495, PHONE: (800) 357-7641
 LEASING/SITE ACQUISITION:
 TOWER RESOURCE MANAGEMENT
 16 CHESTNUT STREET, SUITE 220, FOXBOROUGH, MA 02035, PHONE: 617-549-2800, FAX: 774-215-5423
 CONSULTANTS:
 EBI CONSULTING
 21 B STREET, BURLINGTON, MA 01803, PHONE: 781-273-2500, FAX: 781-273-3311

DIG SAFE SYSTEMS, INC.
 1-888-DIG-SAFE (344-7233)



APPROVALS

NAME	SIGNATURE	DATE
LEASING/SITE ACQUISITION		
RF ENGINEER		
SITE OWNER/LANDLORD		
CONSTRUCTION		

DO NOT SCALE DRAWINGS

CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ARCHITECT IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK.

GENERAL NOTES

1. THIS IS AN UNMANNED TELECOMMUNICATION FACILITY CONSISTING OF BTS EQUIPMENT AND ANTENNAS.
2. SIGNALS FROM THE ANTENNA SHALL NOT INTERFERE WITH ANY EXISTING COMMUNICATION SITES. ALL ITEMS SHOWN HEREON ARE EXISTING UNLESS OTHERWISE NOTED.
3. THIS IS AN UNMANNED FACILITY - NO SOLID WASTE. THE SITE WILL CREATE NO TRASH, THUS REQUIRES NO DUMPSTER.
4. DEVELOPMENT AND USE OF THE SITE WILL CONFORM TO ALL APPLICABLE CODES AND ORDINANCES.
5. FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. HANDICAPPED ACCESS NOT REQ'D.
6. OWNER AND TENANT MAY, FROM TIME TO TIME AT TENANT'S OPTION, REPLACE THIS EXHIBIT WITH AN EXHIBIT SETTING FORTH THE LEGAL DESCRIPTION OF THE SITE, OR WITH ENGINEERED OR AS-BUILT DRAWING DEPICTING THE SITE OR ILLUSTRATING STRUCTURAL MODIFICATIONS OR CONSTRUCTION PLANS OF THE SITE. ANY VISUAL OR TEXTUAL REPRESENTATION OF THE EQUIPMENT LOCATED WITHIN THE SITE CONTAINED IN THESE OTHER DOCUMENTS IS ILLUSTRATIVE ONLY, AND DOES NOT LIMIT THE RIGHTS OF SPRINT AS PROVIDED FOR IN THE AGREEMENT. THE LOCATIONS OF ANY ACCESS AND UTILITY EASEMENTS ARE ILLUSTRATIVE ONLY. ACTUAL LOCATIONS MAY BE DETERMINED BY TENANT AND/OR THE SERVICING UTILITY COMPANY IN COMPLIANCE WITH LOCAL LAWS AND REGULATIONS.

EBI JOB NO: 81110231

SITE INFO:
 SOMERVILLE THEATRE
 BS58XC001
 49 DAVIS SQUARE
 SOMERVILLE, MA 02144
 MIDDLESEX COUNTY

SHEET TITLE:
 TITLE SHEET

DRAWN BY: JM
 CHECKED BY: DD
 DATE: 01/10/12

SHEET NO:
 T-1

DIVISION 01 00 00 - GENERAL REQUIREMENTS

- THE CONTRACTOR SHALL GIVE ALL NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY, MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS, AND LOCAL AND STATE JURISDICTIONAL CODES BEARING ON THE PERFORMANCE OF THE WORK. THE WORK PERFORMED ON THE PROJECT AND THE MATERIALS INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES.
- THE ARCHITECT/ENGINEER HAVE MADE EVERY EFFORT TO SET FORTH IN THE CONSTRUCTION CONTRACT DOCUMENTS THE COMPLETE SCOPE OF WORK. THE CONTRACTOR BIDDING THE JOB IS NEVERTHELESS CAUTIONED THAT MINOR OMISSIONS OR ERRORS IN THE DRAWINGS AND OR SPECIFICATIONS SHALL NOT EXCUSE THE SAID CONTRACTOR FROM COMPLETING THE PROJECT AND IMPROVEMENTS IN ACCORDANCE WITH THE INTENT OF THESE DOCUMENTS.
- THE CONTRACTOR OR BIDDER SHALL BEAR THE RESPONSIBILITY OF NOTIFYING (IN WRITING) THE WIRELESS CARRIER'S REPRESENTATIVE OF ANY CONFLICTS, ERRORS, OR OMISSIONS PRIOR TO THE SUBMISSION OF CONTRACTOR'S PROPOSAL OR PERFORMANCE OF WORK.
- THE SCOPE OF WORK SHALL INCLUDE FURNISHING ALL MATERIALS, EQUIPMENT, LABOR AND ALL OTHER MATERIALS AND LABOR DEEMED NECESSARY TO COMPLETE THE WORK/PROJECT AS DESCRIBED HEREIN.
- THE CONTRACTOR SHALL VISIT THE JOB SITE PRIOR TO THE SUBMISSION OF BIDS OR PERFORMING WORK TO FAMILIARIZE HIMSELF WITH THE FIELD CONDITIONS AND TO VERIFY THAT THE PROJECT CAN BE CONSTRUCTED IN ACCORDANCE WITH THE CONSTRUCTION DRAWINGS.
- THE CONTRACTOR SHALL OBTAIN AUTHORIZATION TO PROCEED WITH CONSTRUCTION PRIOR TO STARTING WORK ON ANY ITEM NOT CLEARLY DEFINED BY THE CONSTRUCTION DRAWINGS/CONTRACT DOCUMENTS.
- THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS ACCORDING TO THE MANUFACTURER'S / VENDORS SPECIFICATIONS UNLESS NOTED OTHERWISE OR WHERE LOCAL CODES OR ORDINANCES TAKE PRECEDENCE.
- THE CONTRACTOR SHALL MAINTAIN A FULL SET OF CONSTRUCTION DOCUMENTS AT THE SITE UPDATED WITH THE LATEST REVISIONS AND ADDENDUMS OR CLARIFICATIONS AVAILABLE FOR USE OF ALL PERSONNEL INVOLVED WITH THE PROJECT.
- THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS WHICH MAY BE REQUIRED FOR THE WORK BY THE ARCHITECT/ENGINEER, THE STATE, COUNTY OR LOCAL GOVERNMENT AUTHORITY.
- THE CONTRACTOR SHALL MAKE NECESSARY PROVISIONS TO PROTECT EXISTING IMPROVEMENTS, EASEMENTS, PAVING, CURBING, ETC. DURING CONSTRUCTION. UPON COMPLETION OF WORK, THE CONTRACTOR SHALL REPAIR ANY DAMAGE THAT MAY HAVE OCCURRED DUE TO CONSTRUCTION ON OR ABOUT THE PROPERTY.
- THE CONTRACTOR SHALL KEEP THE GENERAL WORK AREA CLEAN AND HAZARD FREE DURING CONSTRUCTION AND DISPOSE ALL DIRT, DERBIES, RUBBISH AND REMOVE ALL UNNECESSARY MATERIAL.
- THE CONTRACTOR SHALL COMPLY WITH ALL PERTINENT SECTIONS OF THE STATE BUILDING CODE, LATEST EDITION, AND ALL OSHA REQUIREMENTS AS THEY APPLY TO THIS PROJECT. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY THE ARCHITECT/ENGINEER. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR PIER DRILLING AROUND OR NEAR UTILITIES. THE CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT IS NOT LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING & EXCAVATION. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED OR CAPPED, OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK. SUBJECT TO THE APPROVAL OF THE ARCHITECT/ENGINEER.
- THE CONTRACTOR SHALL NOTIFY THE WIRELESS CARRIER'S REPRESENTATIVE IN WRITING, WHERE A CONFLICT OCCURS ON ANY OF THE CONTRACT DOCUMENTS. THE CONTRACTOR IS NOT TO ORDER MATERIAL OR CONSTRUCT ANY PORTION OF THE WORK THAT IS IN CONFLICT UNTIL THE CONFLICT IS RESOLVED BY THE WIRELESS CARRIER'S REPRESENTATIVE.
- THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, PROPERTY LINES, ETC. ON THE JOB
- THE CONTRACTOR SHALL NOTIFY THE RF ENGINEER FOR ANTENNA AZIMUTH VERIFICATION (DURING ANTENNA INSTALLATION) PRIOR TO CONDUCTING SITE SWEEPING.

DIVISION 03 00 00 - CONCRETE

03 30 00 CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.01 DESCRIPTION

WORK INCLUDES CONSTRUCTION OF CAST-IN-PLACE CONCRETE FOUNDATIONS, INCLUDING FURNISHING AND INSTALLING READY-TO-MIX CONCRETE, REINFORCING, FORMWORK, AND ACCESSORY MATERIALS AS SHOWN ON THE DRAWINGS. CAST-IN-PLACE CONCRETE INCLUDES ALL SITE CONCRETE, INCLUDING FOUNDATIONS, SLABS ON GRADE, EQUIPMENT PADS, AND GUARD POST FOUNDATIONS.

1.02 RELATED WORK

COORDINATE UNDER SLAB CONDUITS

COORDINATE WITH GROUNDING

1.03 APPLICABLE STANDINGS

ACI-301 - SPECIFICATIONS FOR STRUCTURAL CONCRETE BUILDING.

ACI-347 - GUIDE TO FORMWORK FOR CONCRETE.

ASTM C33 - CONCRETE AGGREGATES.

ASTM C94 - READY-MIXED CONCRETE.

ASTM C150 - PORTLAND CEMENT.

ASTM C260 - AIR-ENTRAINING ADMIXTURES FOR CONCRETE.

ASTM A309 - LIQUID MEMBRANE FORMING COMPOUNDS FOR CURING CONCRETE.

ASTM 494 - CHEMICAL ADMIXTURES FOR CONCRETE.

ASTM A615 - DEFORMED STEEL BARS FOR CONCRETE REINFORCEMENT.

ASTM A185 - STEEL WELDED WIRE FABRIC FOR CONCRETE REINFORCEMENT.

1.04 QUALITY ASSURANCE

CONCRETE MATERIALS AND OPERATIONS SHALL BE TESTED AND INSPECTED BY THE ENGINEER AS DIRECTED BY THE WIRELESS CARRIER'S REPRESENTATIVE.

1.05 TESTS

CONCRETE TESTS SHALL BE AS DETAILED BELOW. CONCRETE MATERIALS AND OPERATIONS SHALL BE TESTED AND INSPECTED BY THE ENGINEER AS THE WORK PROGRESSES. FAILURE TO DETECT ANY DEFECTIVE WORK OR MATERIAL SHALL NOT IN ANY WAY PREVENT LATER REJECTION WHEN SUCH DEFECT IS DISCOVERED NOR SHALL IT OBLIGATE THE ENGINEER FOR FINAL ACCEPTANCE.

A. THREE CONCRETE TEST CYLINDERS SHALL BE TAKEN OF THE TOWER PIER FOUNDATION. ONE SHALL BE TESTED @ THREE

DAYS, ONE @ 28 DAYS. THE THIRD CYLINDER SHALL BE KEPT SEPARATELY, IF REQUIRED TO BE USED IN THE FUTURE.

B. ONE SLUMP TEST SHALL BE TAKEN FOR EACH SET OF TEST CYLINDERS TAKEN. SLUMP SHALL NOT EXCEED 4" UNLESS OTHERWISE NOTED.

PART 2 - PRODUCT

2.01 CONCRETE MATERIALS

CONCRETE SHALL BE COMPOSED OF PORTLAND CEMENT, WATER, FINE AND COARSE AGGREGATES, AND ADMIXTURES AS SPECIFIED BELOW, ALL WELL MIXED AND BROUGHT TO PROPER CONSISTENCY, CLASS I, II, III, OR V.

A. CEMENT: CEMENT SHALL BE TYPE II, GRAY COLOR, LOW-ALKALI PORTLAND CEMENT CONFORMING TO ASTM-C150.

B. FINE AND COARSE AGGREGATES: AGGREGATES FOR USE IN CONCRETE SHALL COMPLY WITH ASTM C33.

C. WATER: WATER FOR MIXING AND CURING CONCRETE SHALL BE FREE FROM SEWAGE, OIL, ACID, ALKALI, AND SALTS AND SHALL BE FREE FROM OBJECTIONABLE QUANTITIES OF SILT, ORGANIC MATTER, AND OTHER DELETERIOUS SUBSTANCES.

2.02 ADMIXTURES

A. CHEMICAL ADMIXTURE: ASTM C494, TYPE A-WATER REDUCING OR TYPE D - WATER REDUCING AND RETARDING.

2.03 CURING COMPOUND: ASTM C309, TYPE 1, CLASS B: TRANSLUCENT.

2.04 ACCESSORIES

A. NON-SHRINK GROUT: PREMIXED COMPOUND CONSISTING OF NONMETALLIC AGGREGATE, CEMENT, WATER REDUCING AND PLASTICIZING AGENTS; CAPABLE OF DEVELOPING MINIMUM COMPRESSIVE STRENGTH OF 8,000 PSI IN 28 DAYS.

B. JOINT FILLER: BITUMINOUS TYPE ASTM D1751 OR NON-BITUMINOUS TYPE D1752.

C. ANCHOR BOLTS: ASTM A615 GR.75 UNPRIMED.

2.05 CONCRETE MIX

A. CONCRETE SHALL BE PROPORTIONED PER REQUIREMENTS OF ACI 301 & THE WIRELESS CARRIER'S CONSTRUCTION SPECIFICATIONS FOR DESIGN, STRENGTH & WORKABILITY. CONCRETE SHALL BE DELIVERED WITHIN 45 MINUTES OF ADDITION OF WATER TO MIX.

B. THE FOLLOWING STRENGTHS SHALL BE USED:

1. FENCE POST FOUNDATIONS - DESIGN COMPRESSIVE STRENGTH AT 28 DAYS OF 3,000 PSI.

2. EQUIPMENT FOUNDATION - DESIGN COMPRESSIVE STRENGTH OF 3,000 PSI AT 28 DAYS UNLESS OTHERWISE

NOTED.

(CONTRACTOR FURNISH 4,000 PSI CONCRETE)

3. CONCRETE STRENGTH FOR MONOPOLE OR TOWER FOUNDATION SHALL BE 1,000 PSI MORE THAN THE MANUFACTURER'S RECOMMENDATIONS, 4,000 PSI MINIMUM.

C. USE ACCELERATING ADMIXTURES IN COLD WEATHER AND SET RETARDING ADMIXTURES IN HOT WEATHER ONLY WHEN APPROVED BY THE ENGINEER.

D. TOTAL AIR CONTENT SHALL BE 5 PERCENT PLUS OR MINUS 1 PERCENT.

PART 3 - EXECUTION

3.01 INSPECTION

A. THE CONTRACTOR SHALL VERIFY ANCHORS, SEATS, PENETRATIONS, PLATES, REINFORCEMENT, AND OTHER ITEMS TO BE CAST INTO CONCRETE ARE ACCURATELY PLACED. HELD SECURELY, AND SHALL NOT CAUSE HARDSHIP IN PLACING CONCRETE.

3.02 PREPARATION

THE CONTRACTOR SHALL PREPARE PREVIOUSLY PLACED CONCRETE BY CLEANING WITH A STEEL BRUSH AND APPLYING A BONDING AGENT. APPLY THE BONDING AGENT IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

3.03 PLACING CONCRETE

A. THE ENGINEER SHALL BE NOTIFIED NOT LESS THAN 24 HOURS IN ADVANCE OF CONCRETE EMPLACEMENT. UNLESS INSPECTION IS WAIVED IN EACH CASE. PLACING OF CONCRETE SHALL BE PERFORMED ONLY IN THE PRESENCE OF THE ENGINEER.

CONCRETE SHALL NOT BE PLACED UNTIL ALL FORM WORK, EMBEDDED PARTS, STEEL REINFORCEMENT, FOUNDATION SURFACES, AND JOINTS INVOLVED IN THE PLACING HAVE BEEN APPROVED, AND UNTIL FACILITIES ACCEPTABLE TO THE WIRELESS CARRIER'S REPRESENTATIVE HAVE BEEN PROVIDED AND MADE READY FOR ACCOMPLISHMENT OF THE WORK AS SPECIFIED. CONCRETE MAY NOT BE ORDERED FOR PLACEMENT UNTIL ALL ITEMS HAVE BEEN APPROVED AND THE OWNER HAS PERFORMED A FINAL INSPECTION AND GIVEN APPROVAL TO START PLACEMENT IN WRITING.

B. UNLESS SPECIFIED TO BE BEVELED, EXPOSED EDGES OF FLOATED OR TROWELED SURFACES SHALL BE EDGED WITH A TOOL HAVING A 1/4 INCH CORNER RADIUS.

C. PLACEMENT OF CONCRETE SHALL BE IN ACCORDANCE WITH ACI 301.

D. THE CONTRACTOR SHALL ENSURE THAT REINFORCEMENT INSERTS, EMBEDDED PARTS, FORMED JOINTS AND VAPOR BARRIERS ARE NOT DISTURBED DURING CONCRETE PLACEMENT.

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

CONCRETE CAST AGAINST EARTH - 3 IN.
CONCRETE EXPOSED TO EARTH OR WEATHER:
#5 AND LARGER - 2 IN.
#5 AND SMALLER & WWF - 1 1/2 IN.
CONCRETE NOT EXPOSED TO EARTH OR WEATHER OR NOT CAST AGAINST GROUND:
SLAB ON WALL - 3/4 IN.
BEAMS AND COLUMNS - 1 1/2 IN.

3.04 SURFACE FINISHES

A. SURFACES AGAINST WHICH BACK FILL OR CONCRETE SHALL BE PLACED REQUIRE NO TREATMENT EXCEPT REPAIR OF DEFECTIVE AREAS.

B. SURFACES THAT WILL BE PERMANENTLY EXPOSED SHALL PRESENT A UNIFORM FINISH PROVIDED BY THE REMOVAL OF FINIS AND THE FILLING OF HOLES AND OTHER IRREGULARITIES WITH DRY PACK GROUT, OR BY SACKING WITH UTILITY OR ORDINARY GROUT.

C. SURFACES THAT WOULD NORMALLY BE LEVEL AND WHICH WILL BE PERMANENTLY EXPOSED TO THE WEATHER SHALL BE SLOPED FOR DRAINAGE. UNLESS ENGINEER'S DESIGN SPECIFIES A HORIZONTAL SURFACE OR SHOWS THE SLOP REQUIRED. THE TOPS OF NARROW SURFACES, SUCH AS STAIR TREADS, WALLS, CURBS AND PARAPETS SHALL BE SLOPED APPROXIMATELY 3/8" PER FT OF WIDTH. BROADER SURFACES SUCH AS WALKS, ROADS, PARKING AREAS AND PLATFORMS SHALL BE SLOPED APPROXIMATELY 1/4" /FT.

D. SURFACES THAT WILL BE COVERED BY BACKFILL OR CONCRETE SHALL BE SMOOTH SCREEDED.

E. EXPOSED SLAB SURFACES SHALL BE CONSOLIDATED, SCREEDED, FLOATED, AND "STEEL TROWELED." HAND OR POWER-DRIVEN EQUIPMENT MAY BE USED FOR FLOATINGS WHICH SHALL BE STARTED AS SOON AS THE SCREEDED SURFACE HAS ATTAINED A STIFFNESS TO PERMIT FINISHING OPERATIONS. ALL EDGES MUST HAVE A 3/4" CHAMFER. CONCRETE EXPANSION ANCHORS AND EPOXY ANCHORS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS. SPECIAL INSPECTIONS, REQUIRED BY GOVERNING CODES, SHALL BE PERFORMED IN ORDER TO MAINTAIN MANUFACTURER'S MAXIMUM ALLOWABLE LOADS. MANUFACTURER'S MINIMUM CONCRETE EDGE DISTANCE SHALL BE MAINTAINED DURING INSTALLATION.

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3.05 PATCHING

A. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY UPON REMOVAL OF THE FORMS TO OBSERVE CONCRETE SURFACE CONDITIONS. IMPERFECTIONS SHALL BE PATCHED ACCORDING TO THE ENGINEER'S DIRECTION.

3.06 DEFECTIVE CONCRETE

THE CONTRACTOR SHALL MODIFY OR REPLACE CONCRETE NOT CONFORMING TO REQUIRED LEVELS AND LINES, DETAILS, AND ELEVATIONS AS SPECIFIED IN ACI 301.

3.07 PROTECTION

A. IMMEDIATELY AFTER PLACEMENT, THE CONTRACTOR SHALL PROTECT THE CONCRETE FROM PREMATURE DRYING, EXCESSIVELY HOT OR COLD TEMPERATURES, AND MECHANICAL INJURY. FINISHED WORK SHALL BE PROTECTED.

B. CONCRETE SHALL BE MAINTAINED WITH MINIMAL MOISTURE LOSS AT RELATIVELY CONSTANT TEMPERATURE FOR PERIODS NECESSARY FOR HYDRATION OF CEMENT AND HARDENING OF CONCRETE.

17. ALL CONCRETE SHALL BE WATER CURED PER ACCEPTABLE PRA

DIVISION 05 00 00 - METALS

05 10 00 STRUCTURAL METAL FORMING

PART 1 - GENERAL

1.01 WORK INCLUDED

A. THE WORK CONSISTS OF THE FABRICATION AND INSTALLATION OF ALL MATERIALS TO BE FURNISHED, AND WITHOUT LIMITING THE GENERALITY THEREOF, INCLUDES ALL EQUIPMENT, LABOR AND SERVICES REQUIRED FOR ALL STRUCTURAL STEEL WORK, INCLUDING ALL ITEMS INCIDENTAL THERETO AS SPECIFIED HEREIN AND AS SHOWN ON THE DRAWINGS, INCLUDING:

1. STEEL FRAMING INCLUDING BEAMS, ANGLES, CHANNELS AND PLATES.

2. WELDING AND BOLTING OF ATTACHMENTS.

1.02 REFERENCE STANDARDS

A. THE WORK SHALL CONFORM TO THE CODES AND STANDARDS OF THE FOLLOWING AGENCIES AS FURTHER CITED HEREIN:

1. ASTM: AMERICAN SOCIETY FOR TESTING AND MATERIALS, AS PUBLISHED IN "COMPILATION OF ASTM STANDARDS IN BUILDING CODES"

2. AWS: AMERICAN WELDING SOCIETY INC., 550 NW LEJUNE RD, MIAMI FL 33126 USA AS PUBLISHED IN "STANDARD D1.1-05, STRUCTURAL WELDING CODE."

3. AISC: AMERICAN INSTITUTE FOR STEEL CONSTRUCTION, AS PUBLISHED IN "CODE FOR STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES"; "SPECIFICATIONS FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS"

1.03 STRUCTURAL FABRICATION NOTES

1. ALL STRUCTURAL STEEL DETAILS SHALL BE DESIGNED IN ACCORDANCE WITH THE LATEST EDITION OF THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS" AND "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES."

STRUCTURAL STEEL SHALL BE NEW STEEL CONFORMING TO THE FOLLOWING:

A.	W-SHAPE	ASTM A572, GRADE 50
B.	OTHER STEEL	ASTM A36
C.	STRUCTURAL TUBE	ASTM A500, GRADE B
D.	STRUCTURAL PIPE	ASTM A53, GRADE B
E.	HIGH STRENGTH BOLTS	ASTM A325
F.	WELDING	E70XX ELECTRODES

2. STRUCTURAL STEEL FRAMING SHALL BE TRUE AND PLUMB BEFORE CONNECTIONS ARE FINAL FOR BOLTING OR WELDING.

3. FIELD CUTTING OR ANY MODIFICATIONS OF STRUCTURAL STEEL SHALL NOT BE MADE WITHOUT PRIOR WRITTEN APPROVAL BY THE ENGINEER FOR EACH SPECIFIC CASE.

4. WELDING SHALL CONFORM TO AMERICAN WELDING SOCIETY (AWS) 01.1 "STRUCTURAL WELDING CODE" USING E70XX ELECTRODES.

5. MINIMUM THICKNESS FOR CONNECTION ANGLE AND GUSSET PLATE SHALL BE 3/4" U.O.N.

6. WELD SHALL DEVELOP THE FULL STRENGTH OF THE MATERIAL BEING WELDED, UNLESS NOTED OTHERWISE, EXCEPT THAT FILLET WELD SHALL BE A MINIMUM OF 3/16".

7. PROVIDE TEMPORARY ERECTION BRACING AND SUPPORTS TO HOLD STRUCTURAL STEEL FRAMING SECURELY IN POSITION. SUCH TEMPORARY BRACING AND SUPPORTS SHALL NOT BE REMOVED UNTIL PERMANENT BRACING OR STABILIZING ELEMENTS HAVE BEEN INSTALLED.

8. ALL STRUCTURAL STEEL INCLUDING PLATES, ANGLES AND CONNECTION MATERIAL SHALL BE GALVANIZED IN ACCORDANCE WITH THE ASTM A123 AND A153.

9. ALL A325 BOLTS, NUTS, AND WASHERS TO BE GALVANIZED IN ACCORDANCE WITH ASTM A153, A384, AND A563.

10. CONNECTIONS SHOWN ON THESE DRAWINGS ARE GENERALLY SCHEMATIC. THEY ARE INTENDED TO DEFINE THE SPACIAL RELATIONSHIP OF THE FRAMED MEMBERS AND SHOW A FEASIBLE METHOD OF MAKING THE CONNECTION. ANY CONNECTION THAT IS NOT SHOWN OR IS NOT COMPLETELY DETAILED ON THE STRUCTURAL DRAWINGS SHALL BE DESIGNED BY AN ENGINEER, REGISTERED IN THE STATE WHERE CONSTRUCTION OCCURS, AND RETAINED BY THE FABRICATOR. COMPLETELY DETAILED MEANS THE FOLLOWING

INFORMATION TO BE SHOWN ON THE SHOP DETAIL DRAWINGS:

A. ALL PLATE DIMENSIONS AND GRADE

B. ALL WELD SIZES, LENGTHS, PITCHES, AND RETURNS.

C. ALL HOLE SIZES AND SPACINGS.

D. NUMBER AND TYPE OF BOLTS: WHERE BOLTS ARE SHOWN BUT NO NUMBER IS GIVEN, THE CONNECTION HAS NOT BEEN COMPLETELY DETAILED.

E. WHERE PARTIAL INFORMATION IS GIVEN, IT SHALL BE THE MINIMUM REQUIREMENT FOR THE CONNECTION.

11. BOLTED CONNECTIONS SHALL BE AS FOLLOWS:

A. MINIMUM BOLT DIAMETER = 3/4"

B. MINIMUM NUMBER OF BOLTS = 2

C. EXCEPT WHERE SHOWN, ALL BEAM TO BEAM AND BEAM TO COLUMN CONNECTIONS TO BE DOUBLE ANGLE BEARING TYPE CONNECTIONS WITH THE HIGH STRENGTH BOLTS (THREADS EXCLUDED FROM THE SHEAR PLANE) AND HARDENED WASHERS.



21 B Street
Burlington, MA 01803
Tel: 781.273.2500
Fax: 781.273.3311
www.ebiconsulting.com



Daniel V. Doherty
ENGINEER STAMP/SIGNATURE

PREPARED FOR:
Sprint
1 INTERNATIONAL BLVD, SUITE 800
MAHWAH, NJ 07495
PHONE: (800) 357-7641

PROJECT COORDINATION & MANAGEMENT:
Alcatel-Lucent
1 ROBBINS ROAD
WESTFORD, MA 01886
(978) 952-1600

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SUBMITTALS

NO.	DATE	DESCRIPTION	BY
0	09/27/11	FOR REVIEW	JM
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2	11/04/11	PRELIMINARY FINAL CD	KW
3	02/03/12	PRELIMINARY FINAL CD	KS
4	05/01/12	FINAL CD	JM

EBI JOB NO: 81110231

SITE INFO:
SOMERVILLE THEATRE
BS58XC001
49 DAVIS SQUARE
SOMERVILLE, MA 02144
MIDDLESEX COUNTY

SHEET TITLE:

GENERAL NOTES

DRAWN BY: JM	SHEET NO:
CHECKED BY: DD	GN-1
DATE: 01/10/12	

PART 2 - PRODUCTS

2.01 WELDING

- A. ALL WELDING SHALL BE DONE BY CERTIFIED WELDERS. CERTIFICATION DOCUMENTS SHOULD BE MADE AVAILABLE FOR ENGINEER'S AND/OR WIRELESS CARRIER'S REVIEW IF REQUESTED.
- B. WELDING ELECTRODES FOR MANUAL SHIELDED METAL ARC PROCESS SHALL CONFORM TO ASTM A-233. E70 SERIES BARE ELECTRODES AND GRANULAR FLUX USED IN THE SUBMERGED ARC PROCESS SHALL CONFORM TO AISC SPECIFICATIONS.
- C. INSPECTION AND TESTING OF WELDING: FIELD WELDING SHALL BE DONE UNDER INSPECTION IN ACCORDANCE WITH THE AWS D1.1. REQUIREMENTS VISUAL INSPECTION IS ACCEPTABLE WHEN FILLET SIZES ARE NOT SHOWN.

2.02 BOLTING

- A. BOLTS SHALL BE 3/4" (MINIMUM) CONFORMING TO ASTM A325. HOT DIP GALVANIZED PER ASTM A153 NUTS SHALL BE HEAVY HEX TYPE.
- B. ALL BOLTS SHALL BE INSTALLED IN SLIP CRITICAL CONNECTIONS CONFORMING TO AISC, USING THE 1/4" TURN METHOD.

2.03 FABRICATION

- A. FABRICATION OF STEEL SHALL CONFORM TO THE AISC AND AWS STANDARDS AND CODES.

2.04 FINISH

- A. ALL STRUCTURAL STEEL SHALL, BEFORE LEAVING THE SHOP OR FABRICATING PLANT, BE CLEANED OF ALL SCALE, RUST, GREASE AND OTHER FOREIGN MATTER, AND SHALL BE GIVEN ONE (1) THOROUGH SHOP COAT, ON ALL SURFACES, OF AN APPROVED PRIMER.

THE MINIMUM DRY FILM THICKNESS OF PRIME COATS SHALL BE NOT LESS THAN TWO (2) MILS PER COAT.

2.06 PROTECTION

- A. UPON COMPLETION OF ERECTION INSPECT ALL GALVANIZED STEEL AND PAINT ANY FIELD CUTS, WELDS OR GALVANIZATION BREAKS WITH ZINC BASED PAINT. COLOR TO MATCH THE GALVANIZED PROCESS.

PART 3 - EXECUTION

3.01 ERECTION OF STEEL

- A. PROVIDE ALL ERECTION EQUIPMENT, BRACING, PLANKING, FIELD BOLTS, NUTS, WASHERS, DRIFT PINS, AND SIMILAR MATERIALS WHICH DO NOT FORM A PART OF COMPLETED CONSTRUCTION BUT ARE NECESSARY FOR ITS PROPER ERECTION.
- B. ERECT AND ANCHOR ALL STRUCTURAL STEEL IN ACCORDANCE WITH AISC REFERENCE STANDARDS. ALL WORK SHALL BE ACCURATELY SET TO ESTABLISH LINES AND ELEVATIONS AND RIGIDLY FASTENED IN PLACE WITH SUITABLE ATTACHMENTS TO THE CONSTRUCTION OF THE BUILDING.
- C. TEMPORARY BRACING, GUYING AND SUPPORT SHALL BE PROVIDED TO KEEP THE STRUCTURE SAFE AND ALIGNED AT ALL TIMES DURING CONSTRUCTION, AND TO PREVENT DANGER TO PERSONS AND PROPERTY. CHECK ALL TEMPORARY LOADS AND STAY WITHIN SAFE CAPACITY OF ALL BUILDING COMPONENTS.

SECTION 13 00 00 - SPECIAL CONSTRUCTION ANTENNA INSTALLATION

PART 1 GENERAL

1.01 WORK INCLUDED

- A. ANTENNAS AND COAXIAL CABLES ARE FURNISHED BY THE WIRELESS CARRIER'S UNDER A SEPARATE CONTRACT. THE CONTRACTOR SHALL ASSIST THE ANTENNA INSTALLATION CONTRACTOR IN TERMS OF COORDINATION AND SITE ACCESS. ERECTION SUB-CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF PERSONNEL PROPERTY.
- B. INSTALL ANTENNAS AS INDICATED ON DRAWINGS AND THE WIRELESS CARRIER'S SPECIFICATIONS.
- C. INSTALL GALVANIZED STEEL ANTENNA MOUNTS AS INDICATED ON DRAWINGS.
- D. INSTALL FURNISHED GALVANIZED STEEL OR ALUMINUM WAVEGUIDE AND PROVIDE PRINTOUT OF THAT TEST.
- E. INSTALL COAXIAL CABLES AND TERMINATIONS BETWEEN ANTENNAS AND EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS. WEATHERPROOF ALL CONNECTORS BETWEEN THE ANTENNA AND THE EQUIPMENT PER MANUFACTURER'S REQUIREMENTS. TERMINATE ALL COAXIAL CABLE THREE (3) FEET IN EXCESS OF ENTRY PORT LOCATION UNLESS OTHERWISE STATED.
- F. ANTENNA AND COAXIAL CABLE GROUNDING:
 - 1. ALL EXTERIOR #6 GREEN GROUND WIRE "DAISY CHAIN" CONNECTIONS ARE TO BE WEATHER SEALED WITH ANDREWS CONNECTOR/SPLICE WEATHERPROOFING KIT TYPE #221213 OR EQUAL.
 - 2. ALL COAXIAL CABLE GROUNDING KITS ARE TO BE INSTALLED ON STRAIGHT RUNS OF COAXIAL CABLE (NOT WITHIN BENDS).

1.02 RELATED WORK (ROOF TOP SITES)

FURNISH THE FOLLOWING WORK AS SPECIFIED UNDER CONSTRUCTION DOCUMENTS, BUT COORDINATE WITH THE OTHER TRADES PRIOR TO BID:

- 1. FLASHING OF OPENING INTO OUTSIDE WALLS
- 2. SEALED AND CAULKING ALL OPENINGS
- 3. PAINTING
- 4. CUTTING AND PATCHING

1.03 REQUIREMENTS OF REGULATOR AGENCIES

FURNISH U.L. LISTED EQUIPMENT WHERE SUCH LABEL IS AVAILABLE. INSTALL IN CONFORMANCE WITH U.L. STANDARDS WHERE APPLICABLE.

INSTALL ANTENNA, ANTENNA CABLES, GROUNDING SYSTEM IN ACCORDANCE WITH DRAWINGS AND SPECIFICATION IN EFFECT AT PROJECT LOCATION AND RECOMMENDATIONS OF THE STATE AND LOCAL BUILDING CODES, AND SPECIAL CODES HAVING JURISDICTION OVER SPECIFIC PORTIONS OF WORK. THIS WORK INCLUDES BUT IS NOT LIMITED TO THE FOLLOWING:

EIA - ELECTRONIC INDUSTRIES ASSOCIATION RS - 22. STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND ANTENNA SUPPORTING STRUCTURES.

FAA - FEDERAL AVIATION ADMINISTRATION ADVISORY CIRCULAR AC 70/7460-1H, OBSTRUCTION MARKING AND LIGHTING.

FCC - FEDERAL COMMUNICATIONS COMMISSION RULES AND REGULATIONS FORM 715, OBSTRUCTION MARKING AND LIGHTING SPECIFICATION FOR ANTENNA OBSTRUCTION LIGHTING SPECIFICATIONS FOR ANTENNA STRUCTURES.

NEC - NATIONAL ELECTRIC CODE - ON TOWER LIGHTING KITS.

UL - UNDERWRITER'S LABORATORIES APPROVED ELECTRICAL PRODUCTS.

IN ALL CASES, PART 77 OF THE FAA RULES AND PARTS 17 AND 22 OF THE FCC RULES ARE APPLICABLE AND IN THE EVENT OF CONFLICT, SUPERSEDES ANY OTHER STANDARDS OR SPECIFICATIONS.

2006 LIFE SAFETY CODE NFPA - 101.

STRUCTURAL DESIGN PARAMETERS	
BUILDING CODE AND SPECIFICATIONS:	MASSACHUSETTS BUILDING CODE 8TH EDITION ASCE7-05 MINIMUM DESIGN LOADS FOR BUILDING AND OTHER STRUCTURES TIA/EIA 222G STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWER AND ANTENNA SUPPORTING STRUCTURES
OCCUPANCY CATEGORY:	II (EXISTING BUILDING) III (TELECOMMUNICATION EQUIPMENT)
LIVE LOADS:	
FLOORS:	
ROOFS:	20 PSF
SNOW LOADS:	
GROUND SNOW LOAD, Pg:	45 PSF
FLAT ROOF SNOW LOAD, Pf:	0.7
SNOW EXPOSURE FACTOR, Ce:	1.0
THERMAL FACTOR, Ct:	1.1
WIND LOADS:	
BASIC WIND SPEED, V:	
(3-SECOND GUST):	105 MPH
IMPORTANCE FACTOR, Iw:	1.0 (EXISTING BUILDING) 1.1 (TELECOMMUNICATION EQUIPMENT)
EXPOSURE CATEGORY:	C
INTERNAL PRESSURE COEFFICIENT:	±0.18
SEISMIC LOADS:	
COMPONENT IMPORTANCE FACTOR, Ie :	1.25
SPECTRAL ACCELERATION SHORT PERIOD, SS <	0.28
SPECTRAL ACCELERATION 1-SECOND PERIOD, S1 <	0.069
SITE CLASS:	D
SPECTRAL RESPONSE COEFFICIENT, SDS :	0.31
SPECTRAL RESPONSE COEFFICIENT, SD1 :	0.109
SEISMIC DESIGN CATEGORY, SDC :	B
BASE SHEAR, V:	
SEISMIC RESPONSE COEFFICIENTS, CS:	
RESPONSE MODIFICATION FACTORS, R:	
ANALYSIS PROCEDURE USED:	EQUIVALENT LATERAL FORCE PROCEDURE

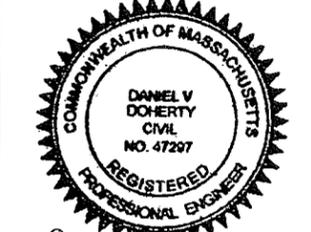
SYMBOLS & ABBREVIATIONS	
— G —	GROUND WIRE
— E —	ELECTRIC
— F —	FIBER
— T —	TELEPHONE
— OH —	OVER HEAD UTILITY
— P —	POWER SUPPLY
— --- —	COAX CABLE
— - - - -	PROPERTY LINE
— X —	CHAIN LINK FENCE
(E)	EXISTING
(P)	PROPOSED
RRU	REMOTE RADIO UNIT
	DETAIL REFERENCE
	DETAIL SECTION REFERENCE
	SURFACE ELEVATION
	SECTION REFERENCE
	ELEVATION REFERENCE

ANY DISCREPANCIES BETWEEN THIS DRAWING PACKAGE AND EXISTING FIELD CONDITIONS MUST BE REPORTED TO THE ENGINEER OF RECORD PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.

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2012 JUN 27 AM 9:00



21 B Street
Burlington, MA 01803
Tel: 781.273.2500
Fax: 781.273.3311
www.ebiconsulting.com



Daniel V. Doherty
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1 INTERNATIONAL BLVD. SUITE 800
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BS58XC001
49 DAVIS SQUARE
SOMERVILLE, MA 02144
MIDDLESEX COUNTY

SHEET TITLE:
GENERAL NOTES & STRUCTURAL DESIGN PARAMETERS

DRAWN BY: JM	SHEET NO:
CHECKED BY: DD	GN-2
DATE: 01/10/12	

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MIDDLESEX COUNTY

SHEET TITLE:
PLOT PLAN

DRAWN BY: JM
CHECKED BY: DD
DATE: 01/10/12

SHEET NO:
C-1

NOTES:
1. PLOT PLAN IS NOT THE RESULT OF A SURVEY. IT IS BASED ON EXISTING PARCEL MAPS AVAILABLE FROM THE TOWN GIS DATABASE. ALL INFORMATION SHOWN IS APPROXIMATE ONLY AND SUBJECT TO ANY CONDITION THAT A SURVEY MAY REVEAL.
2. ALL SETBACKS SHOWN ARE FROM PROPOSED ANTENNAS & EQUIPMENT TO EXISTING PROPERTY LINES.
3. ALL PROPERTIES SHOWN ARE WITHIN THE CENTRAL BUSINESS ZONING DISTRICT.

ZONING INFORMATION

ZONING DISTRICT: CENTRAL BUSINESS DISTRICT
TAX ID: MAP: 22 BLOCK: A LOT: 2

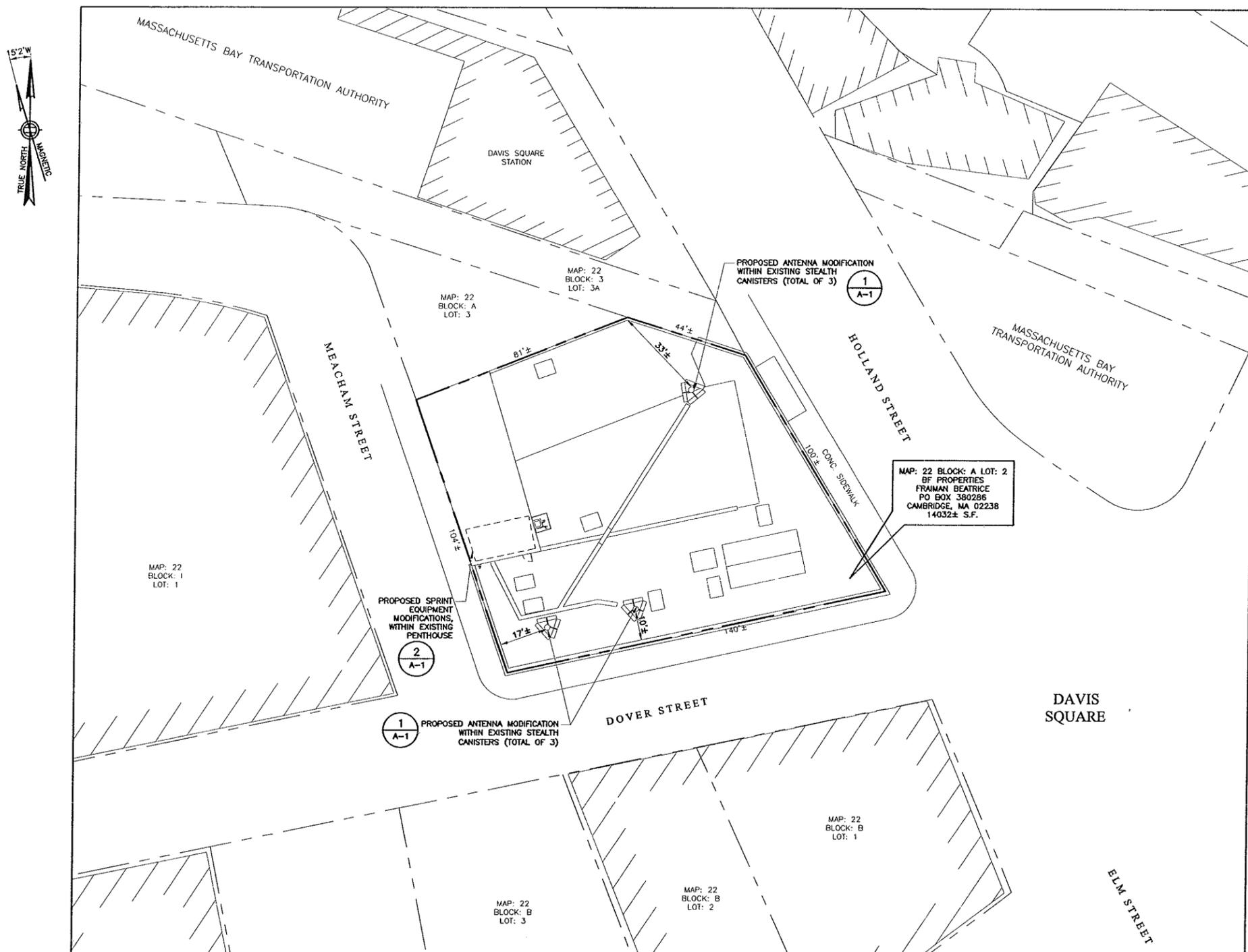
ANTENNAS:

DIMENSION REQUIREMENTS:	REQUIRED	PROPOSED±
FRONT YARD SETBACK:	N/A	10'±
REAR YARD SETBACK:	14'	33'±
SIDE YARD SETBACK:	N/A	17'±
MAXIMUM ZONING HEIGHT:	50'	ANTENNA TIP: 59'±

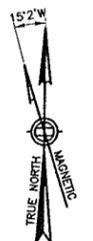
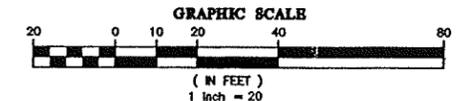
APPLICANT: SPRINT
1 INTERNATIONAL BLVD. SUITE 800
MAHWAH, NJ 07495
PROPERTY OWNER: BF PROPERTIES
FRAMAN BEATRICE
PO BOX 380286
CAMBRIDGE, MA 02238

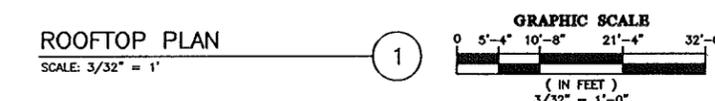
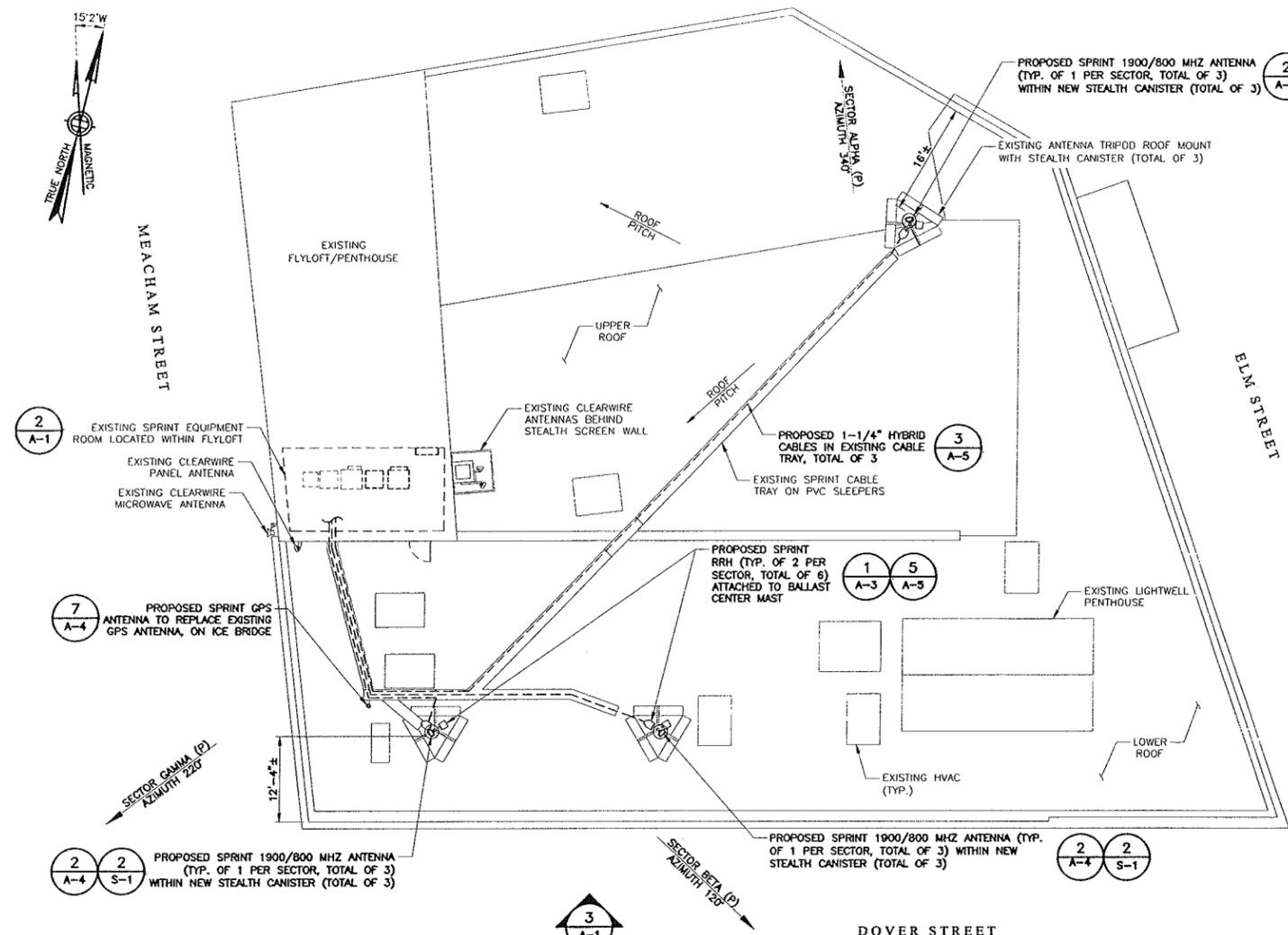
LEGEND

	PROPERTY LINE - SUBJECT PARCEL
	PROPERTY LINE - ABUTTERS
	ZONING DISTRICT BOUNDARY LINE
	EXISTING BUILDINGS



PLOT PLAN
SCALE: 1" = 20'

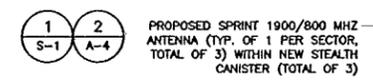




ROOFTOP PLAN
SCALE: 3/32" = 1'

STRUCTURAL ANALYSIS PREPARED BY EBI CONSULTING, ENTITLED ALCATEL-LUCENT NETWORK VISION DATED FEBRUARY 15, 2012.

HYBRID CABLE NOTE:
NEW HYBRID CABLES TO BE SECURED TEMPORARILY, THEN PERMANENTLY ATTACHED UPON REMOVAL OF EXISTING COAX CABLES.

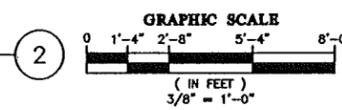
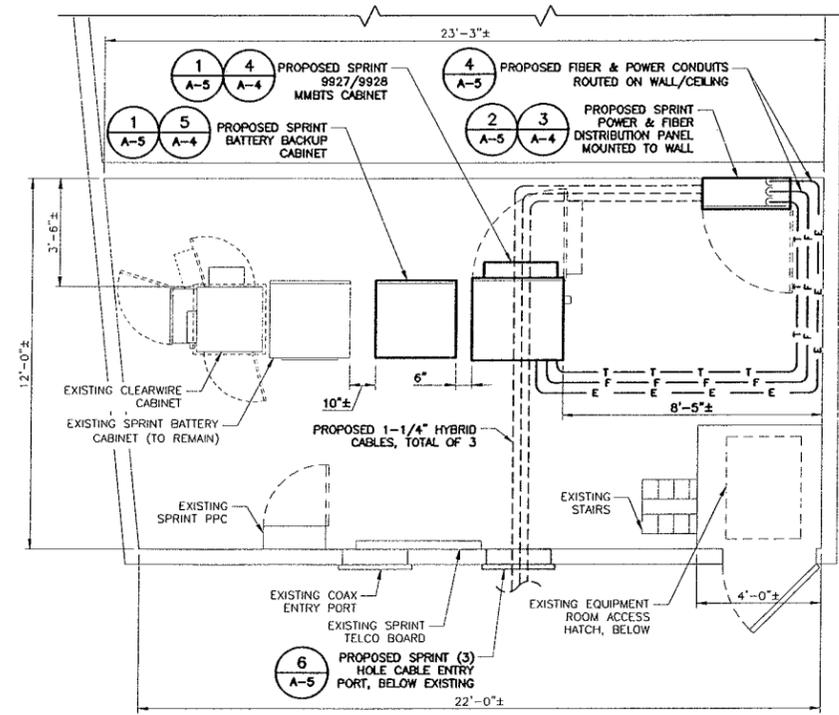


GRAPHIC SCALE
(IN FEET)
3/32" = 1'-0"



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

EQUIPMENT PLATFORM LAYOUT
SCALE: 3/8" = 1'-0"



GRAPHIC SCALE
(IN FEET)
3/8" = 1'-0"

EQUIPMENT CABINET LAYOUT
EXISTING SPRINT CABINET COUNT: 2
PROPOSED SPRINT CABINET COUNT: 4

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NAME	SIGNATURE	DATE
SITE OWNER / LANDLORD		

EBI CONSULTING
21 B Street
Burlington, MA 01803
Tel: 781.273.2500
Fax: 781.273.3311
www.ebiconsulting.com



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ENGINEER STAMP/SIGNATURE

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1 INTERNATIONAL BLVD. SUITE 800
MAHAH, NJ 07495
PHONE: (800) 357-7641

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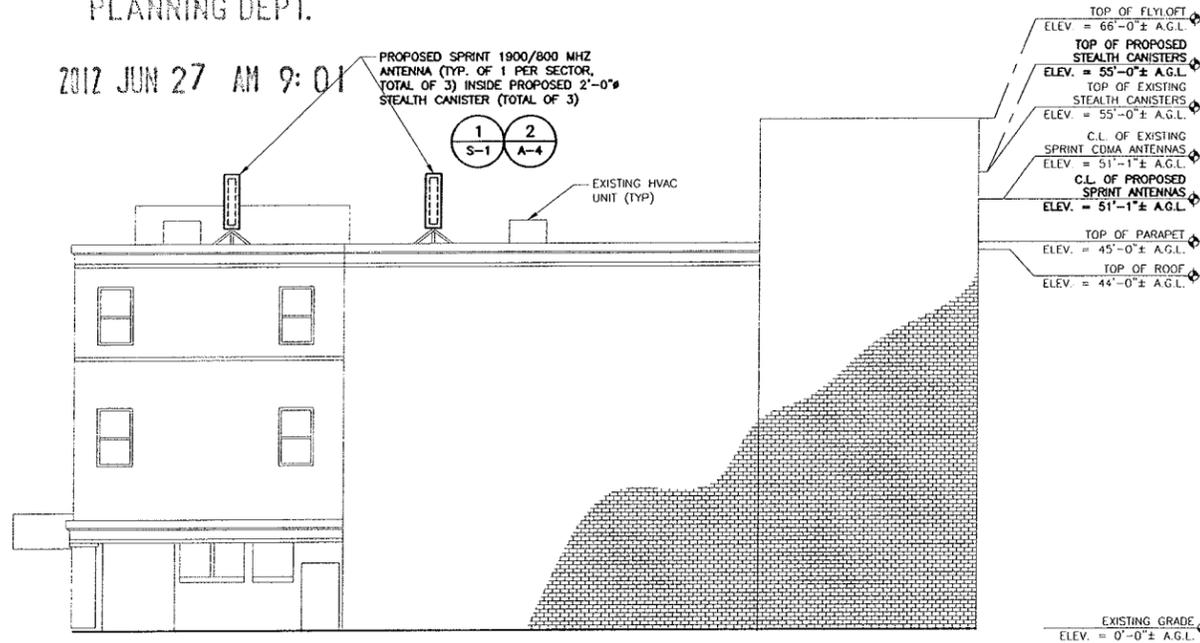
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BS58XC001
49 DAVIS SQUARE
SOMERVILLE, MA 02144
MIDDLESEX COUNTY

SHEET TITLE:
ROOFTOP PLAN & ELEVATION

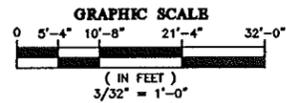
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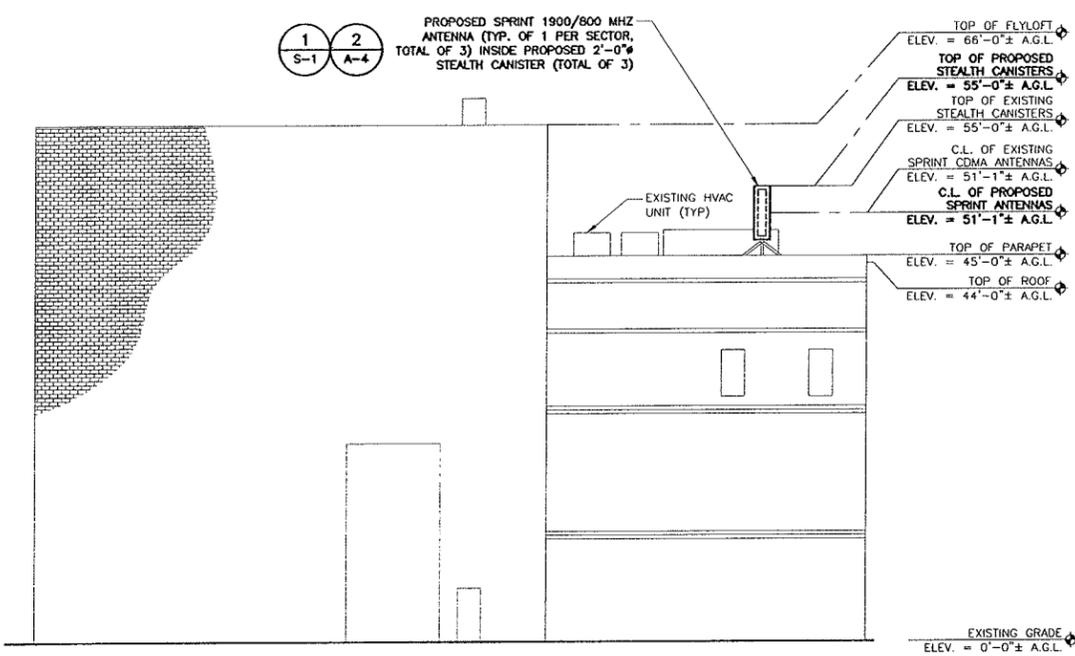
NORTH ELEVATION
SCALE: 3/32" = 1'-0"



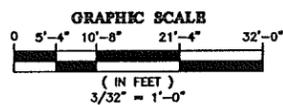
NAME	SIGNATURE	DATE
SITE OWNER/LANDLORD		

STRUCTURAL ANALYSIS PREPARED BY EBI CONSULTING, ENTITLED ALCATEL-LUCENT NETWORK VISION DATED FEBRUARY 15, 2012.

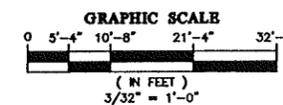
HYBRID CABLE NOTE:
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WEST ELEVATION
SCALE: 3/32" = 1'-0"

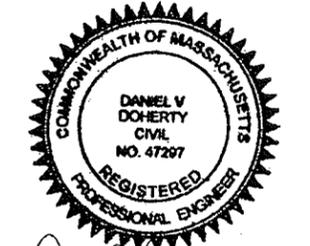


EAST ELEVATION
SCALE: 3/32" = 1'-0"



EBI
CONSULTING

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Burlington, MA 01803
Tel: 781.273.2500
Fax: 781.273.3311
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ENGINEER STAMP/SIGNATURE

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SHEET TITLE:
ELEVATIONS

DRAWN BY: JM
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SHEET NO: **A-2**

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CONSULTING

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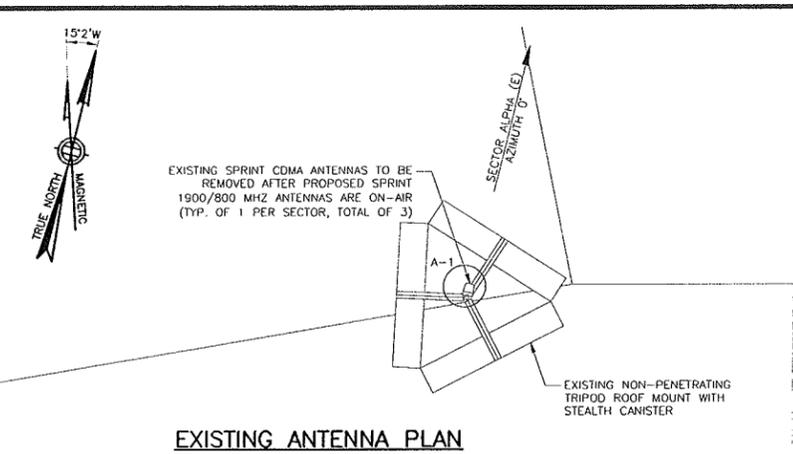
SHEET TITLE:
ROOFTOP PLAN & ELEVATION

DRAWN BY: JM

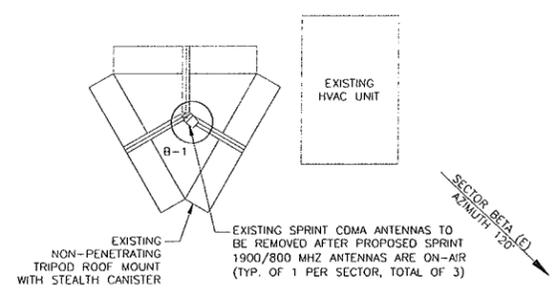
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DATE: 01/10/12

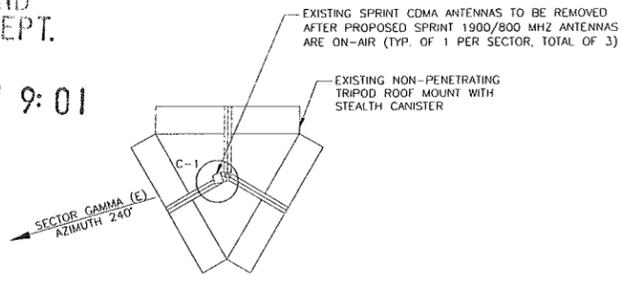
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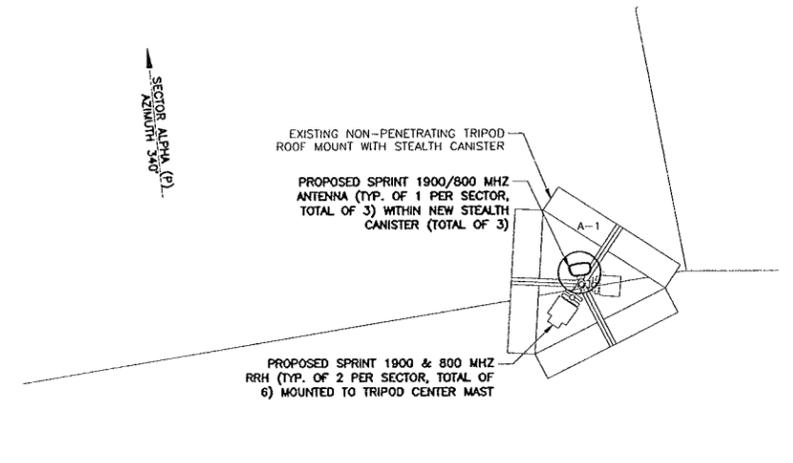
EXISTING ANTENNA PLAN



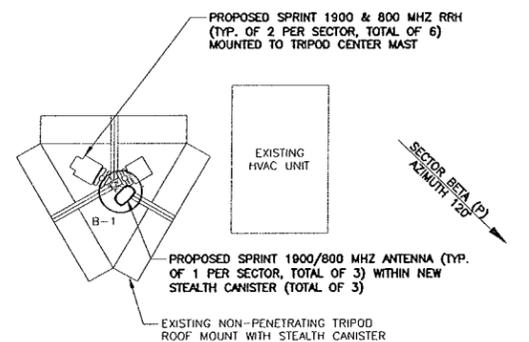
EXISTING ANTENNA PLAN



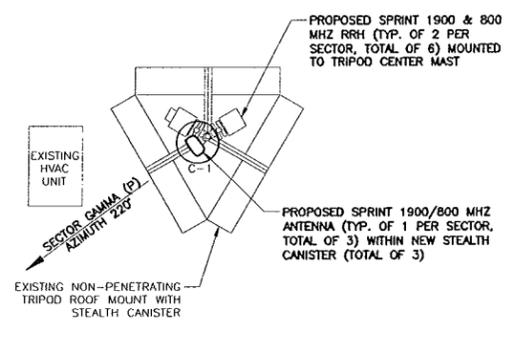
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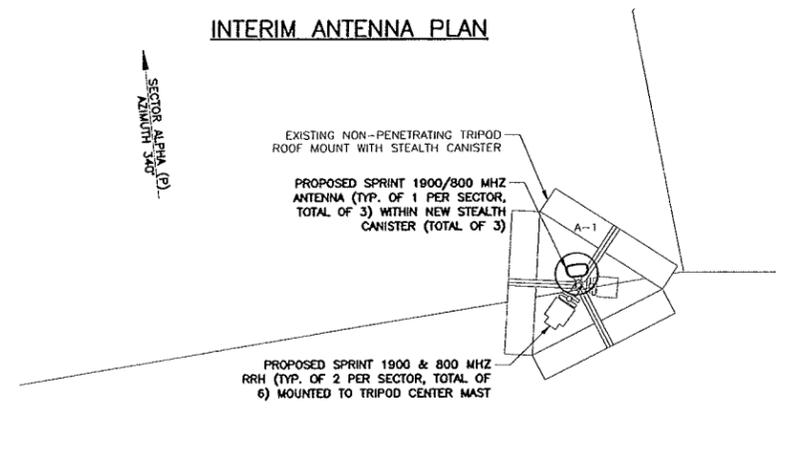
INTERIM ANTENNA PLAN



INTERIM ANTENNA PLAN



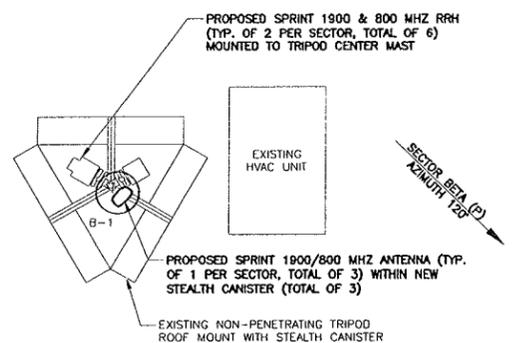
INTERIM ANTENNA PLAN



FINAL ANTENNA PLAN

ALPHA SECTOR ANTENNA SCENARIO
SCALE: N.T.S.

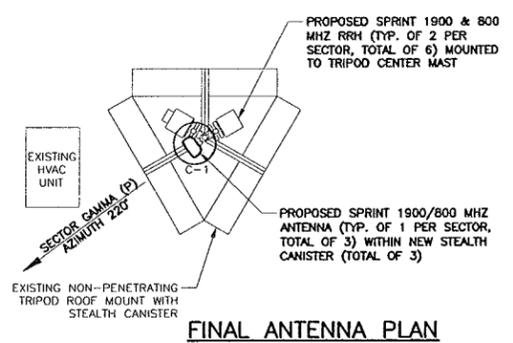
1



FINAL ANTENNA PLAN

BETA SECTOR ANTENNA SCENARIO
SCALE: N.T.S.

2



FINAL ANTENNA PLAN

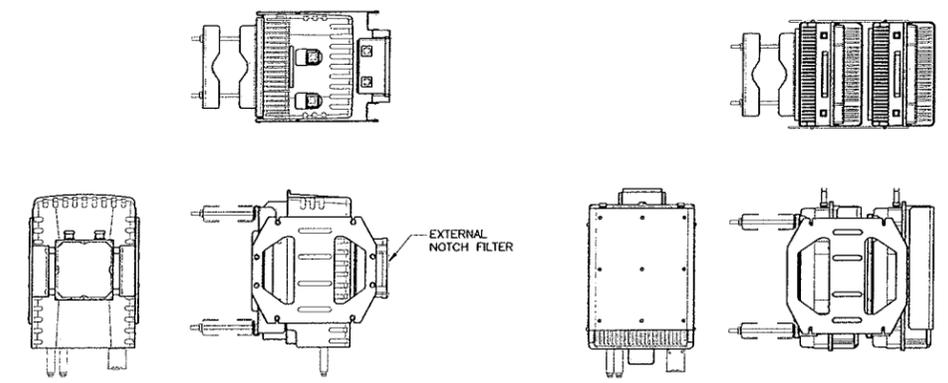
GAMMA SECTOR ANTENNA SCENARIO
SCALE: N.T.S.

3

RF SYSTEM SCHEDULE - PANEL ANTENNAS																		
ALPHA	POSITION	ANTENNA STATUS	FREQUENCY (MHz)	ANTENNA MAKE	ANTENNA MODEL	AZIMUTH		DOWN TILT M	DOWN TILT E	RAD CENTER (A.G.L.)	HYBRID CABLE LENGTH	REMOTE RADIO HEAD	JUMPER SIZE (IN.)	JUMPER LENGTH (FT.)	JUMPER QUANTITY	JUMPER MAKE	ANTENNA COLOR CODING	
						EXISTING (per scenario)	PROPOSED											
A	A-1	PROPOSED	1900	RFS	APXV9ERR18-C-A20	0°	340°	0°	-6°	51'-1"±	150'±	1900 MHz	1/2	8	4	RFS	LCF12-50J	TBD
			800															
B	B-1	PROPOSED	1900	RFS	APXV9SP18-C-A20	120°	120°	0°	0°	51'-1"±	100'±	1900 MHz	1/2	8	4	RFS	LCF12-50J	TBD
			800															
GAMMA	C-1	PROPOSED	1900	RFS	APXV9SP18-C-A20	240°	220°	0°	-1°	51'-1"±	70'±	1900 MHz	1/2	8	4	RFS	LCF12-50J	TBD
			800															

* CONTRACTOR TO FIELD VERIFY ALL CABLE/JUMPER LENGTHS AGAINST ALL CURRENT B.O.M.

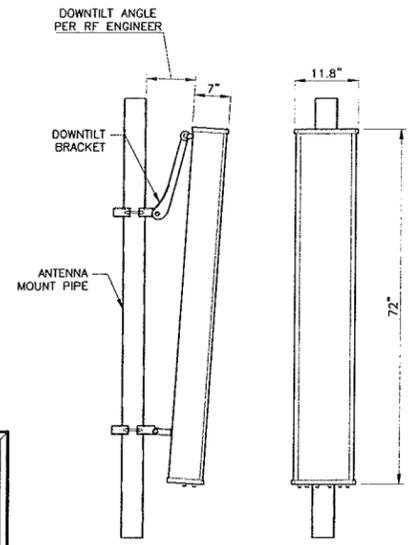
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800 MHz RRH
19.4"Hx13"Wx10.7"D
WEIGHT (WITHOUT HARDWARE): 53 LBS.

1900 MHz RRH
17.7"Hx13"Wx7.4"D
(TYPICAL OF 2)
WEIGHT (WITHOUT HARDWARE): 88 LBS.

REMOTE RADIO HEAD SPEC. 1
SCALE: N.T.S.

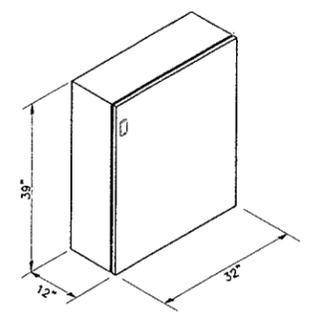


1900/800 MHz ANTENNA
RFS - APXVSP18-C-A20

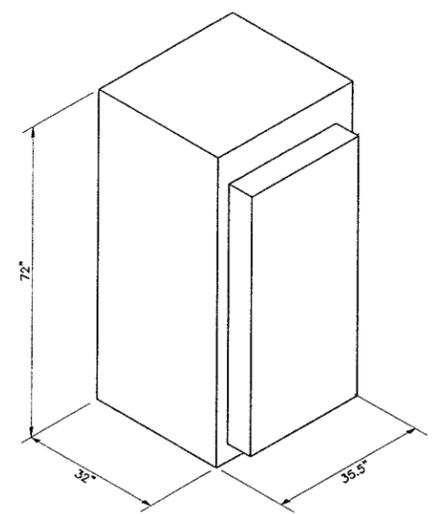
ANTENNA INSTALLATION NOTE:

- UTILIZE EXISTING ANTENNA SUPPORT BRACKETS & PIPE MOUNTS WHERE APPLICABLE.
- PROPOSED ANTENNA MOUNTING SYSTEM TO MATCH COMPONENTS, DIMENSIONS & INSTALLATION DETAILS OF EXISTING SPRINT ANTENNA MOUNTS.

PANEL ANTENNA SPEC. 2
SCALE: N.T.S.

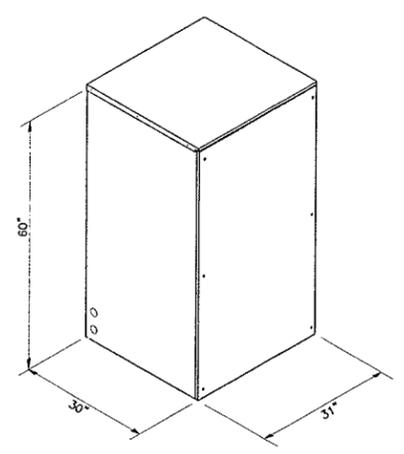


FIBER & POWER DISTRIBUTION BOX SPEC 3
SCALE: N.T.S.



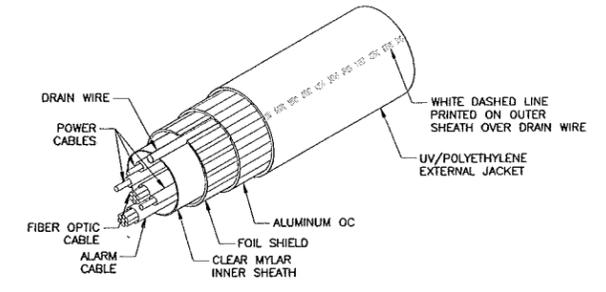
9927/9928 MMBTS CABINET
1020 LBS.

9927/9928 MMBTS CABINET SPEC. 4
SCALE: N.T.S.

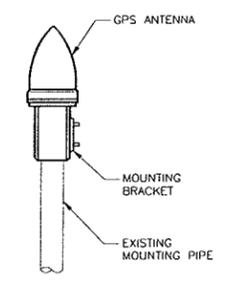


BATTERY BACKUP CABINET
3000 LBS.

BATTERY BACKUP CABINET SPEC. 5
SCALE: N.T.S.



HYBRIFLEX CABLE SPEC. 6
SCALE: N.T.S.



PC TEL GPS-TMG-26NCM GPS ANTENNA	
ANTENNA DIMENSIONS	5.0" H x 3.2" D
WEIGHT	0.6 LBS.
RADOME COLOR	WHITE

GPS ANTENNA SPEC. 7
SCALE: N.T.S.

EBI CONSULTING

21 B Street
Burlington, MA 01803
Tel: 781.273.2500
Fax: 781.273.3311
www.ebiconsulting.com



Daniel Doherty
ENGINEER STAMP/SIGNATURE

PREPARED FOR:
Sprint
1 INTERNATIONAL BLVD, SUITE 800
MAHWAH, NJ 07495
PHONE: (800) 357-7641

PROJECT COORDINATION & MANAGEMENT:
Alcatel-Lucent
1 ROBBINS ROAD
WESTFORD, MA 01886
(978) 952-1800

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SUBMITTALS

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0	09/27/11	FOR REVIEW	JM
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2	11/04/11	PRELIMINARY FINAL CD	KW
3	02/03/12	PRELIMINARY FINAL CD	KS
4	05/01/12	FINAL CD	JM

EBI JOB NO: **81110231**

SITE INFO:
SOMERVILLE THEATRE
BS58XC001
49 DAVIS SQUARE
SOMERVILLE, MA 02144
MIDDLESEX COUNTY

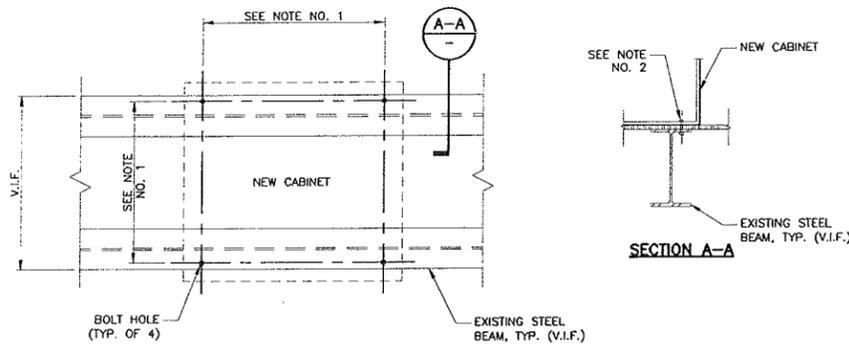
SHEET TITLE:
EQUIPMENT DETAILS

DRAWN BY: JM
CHECKED BY: DD
DATE: 01/10/12
SHEET NO: **A-4**

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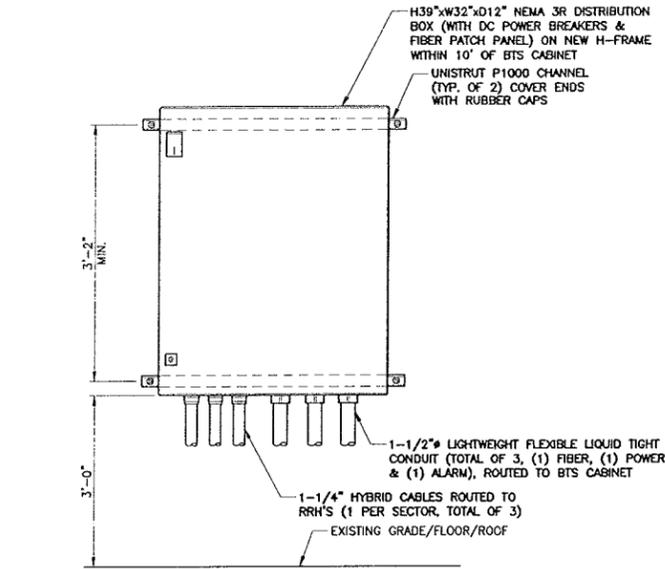
2012 JUN 27 AM 9:01

NOTE:
-ALL STRUCTURAL STEEL IS TO BE GALVANIZED.
-ALL BOLTS TO BE FURNISHED W/ WASHERS AND NUTS.



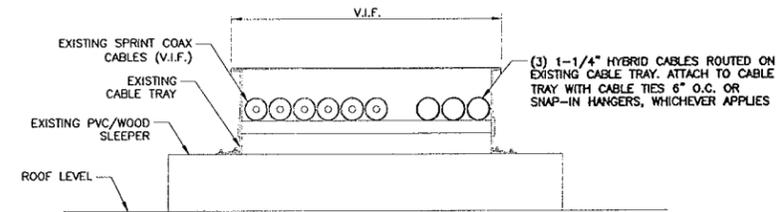
NOTE:
1. SEE EQUIPMENT CUT SHEETS FOR BOLT HOLE SPACING.
2. NEW EQUIPMENT CABINET TO BE MOUNTED TO EXISTING SUPPORT SURFACE WITH BOLT-DOWN SYSTEM PER MANUFACTURER'S SPECIFICATION AND FIELD DRILL HOLES THROUGH EXISTING STEEL BEAMS AS REQUIRED.
3. MAINTAIN A MINIMUM OF 1" DISTANCE FROM CENTER OF BOLT HOLE TO EDGE OF FLANGE.

BOLT HOLE PATTERN 1
SCALE: N.T.S.

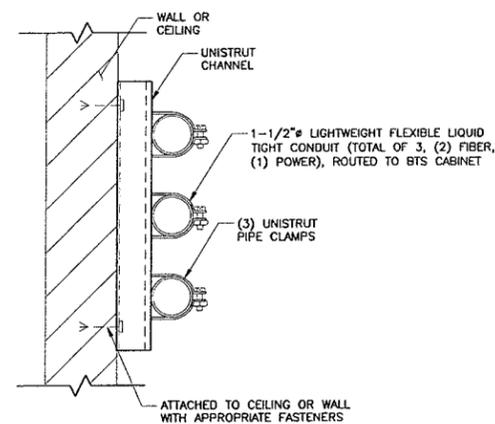


NOTES:
1. INSTALL ANCHORS/FASTENERS A MAXIMUM OF 1'-0" O.C.
- WOOD STUDS - 3/8" LAG BOLT WITH 1" EMBEDMENT IN WOOD
- CONCRETE - 3/8" HILTI KWIK BOLT III WITH 1-1/2" EMBEDMENT
- THROUGH BOLT - 3/8" A36 THREADED ROD WITH NUTS & WASHERS
ANCHORS & UNISTRUT CHANNEL SHALL BE HOT-DIPPED GALV.
2. MOUNT DISTRIBUTION BOX TO UNISTRUT WITH 3/8" UNISTRUT BOLTING HARDWARE & SPRING NUTS, TYPICAL OF (4).

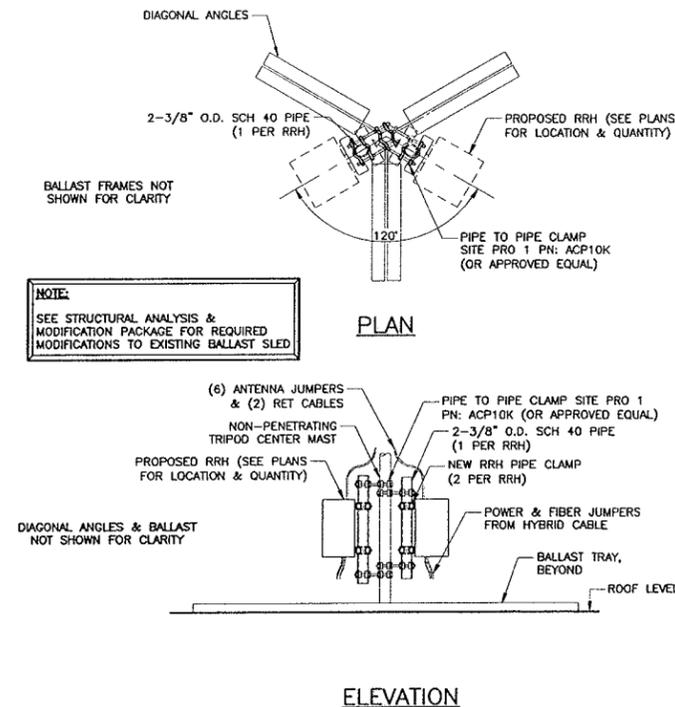
FIBER & POWER DISTRIBUTION BOX DETAIL 2
SCALE: N.T.S.



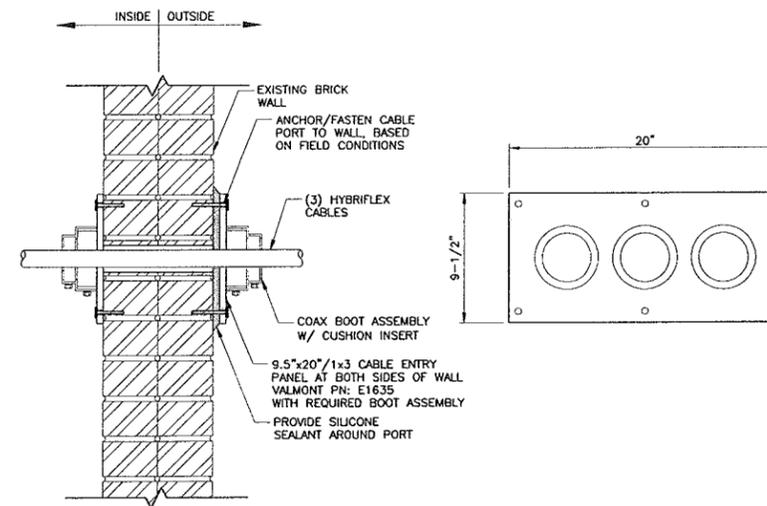
CABLE SUPPORT DETAIL CABLE TRAY 3
SCALE: N.T.S.



CONDUIT SUPPORT DETAIL 4
SCALE: N.T.S.



RRH MOUNTING DETAIL 5
SCALE: N.T.S.



CABLE ENTRY PORT DETAIL 6
SCALE: N.T.S.

EBI
CONSULTING

21 B Street
Burlington, MA 01803
Tel: 781.273.2500
Fax: 781.273.3311
www.ebiconsulting.com



Daniel Doherty
ENGINEER STAMP/SIGNATURE

PREPARED FOR:
Sprint
1 INTERNATIONAL BLVD, SUITE 800
MAHWAH, NJ 07495
PHONE: (800) 357-7641

PROJECT COORDINATION & MANAGEMENT:
Alcatel-Lucent
1 ROBBINS ROAD
WESTFORD, MA 01886
(978) 952-1600

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SITE INFO:
SOMERVILLE THEATRE
BS58XC001
49 DAVIS SQUARE
SOMERVILLE, MA 02144
MIDDLESEX COUNTY

SHEET TITLE:
CONSTRUCTION DETAILS

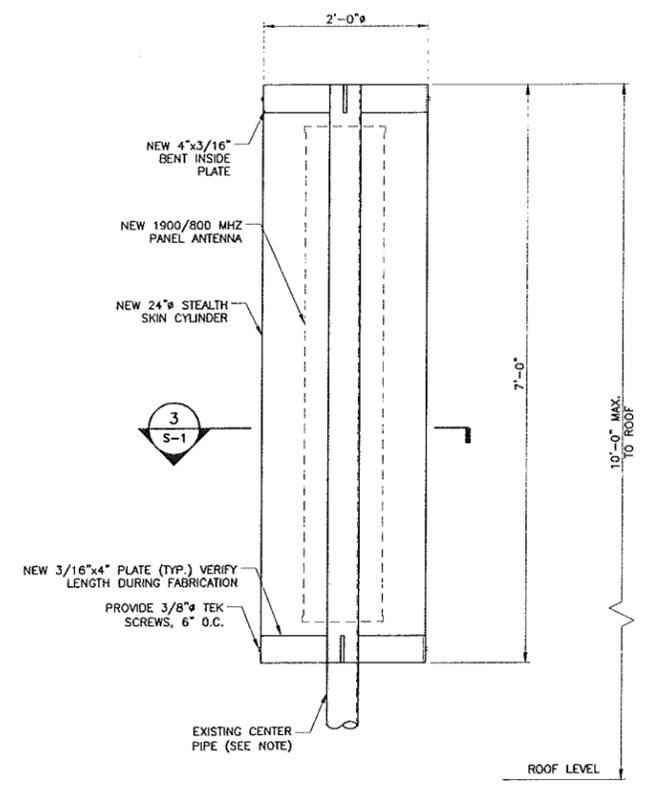
DRAWN BY: JM
CHECKED BY: DD
DATE: 01/10/12
SHEET NO: **A-5**

NOTE:
 -ALL STRUCTURAL STEEL IS TO BE GALVANIZED.
 -ALL BOLTS TO BE FURNISHED W/ WASHERS & NUTS.
 -ANY DISCREPANCIES BETWEEN THIS DRAWING PACKAGE AND EXISTING FIELD CONDITIONS MUST BE REPORTED TO THE ENGINEER OF RECORD PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.

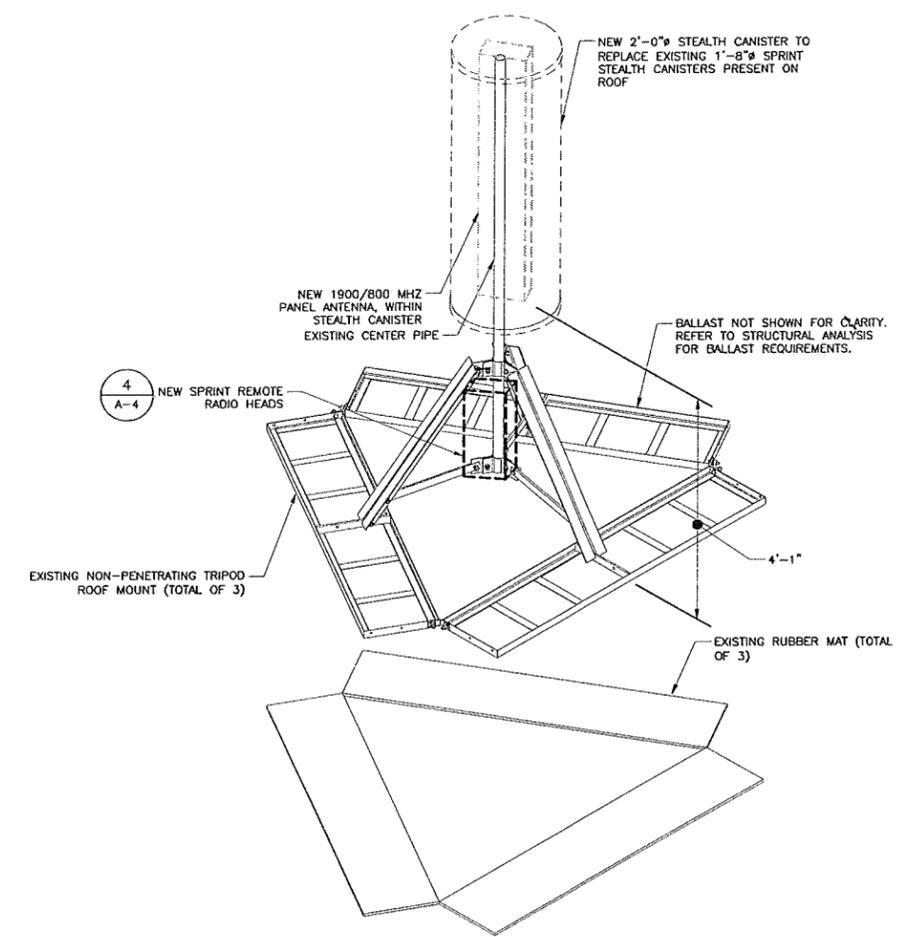
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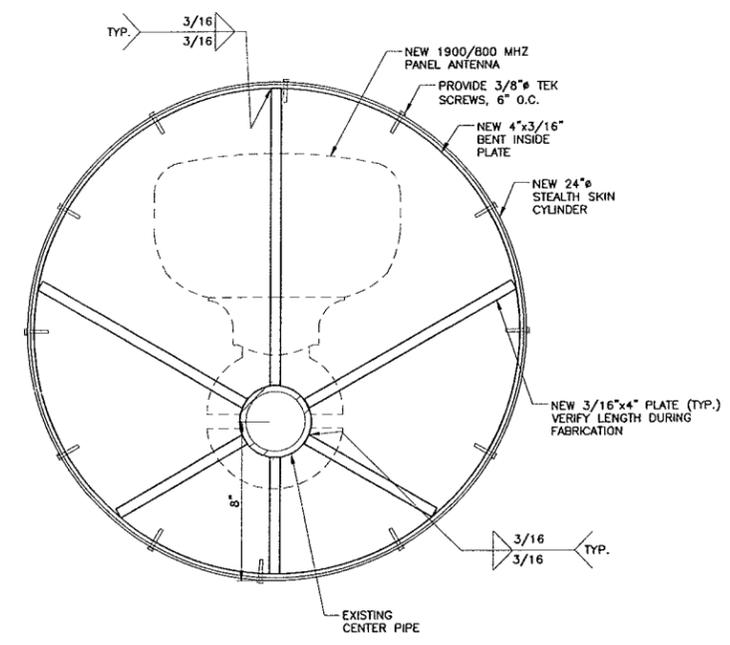
STRUCTURAL ANALYSIS PREPARED BY EBI CONSULTING, ENTITLED ALCATEL-LUCENT NETWORK VISION DATED FEBRUARY 15, 2012.



STEALTH CANISTER DETAIL 2
 SCALE: 1" = 1'-0"



NON-PENETRATING TRIPOD ROOF MOUNT 1
 SCALE: N.T.S.



STEALTH CANISTER DETAIL 3
 SCALE: 3" = 1'-0"

EBI CONSULTING

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 BS58XC001
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 MIDDLESEX COUNTY

SHEET TITLE:
STRUCTURAL DETAILS

DRAWN BY: JM	SHEET NO: S-1
CHECKED BY: DD	
DATE: 01/10/12	

NOTES TO CONTRACTOR

- ALL DRAWINGS SHALL BE READ IN CONJUNCTION WITH ARCHITECTURAL AND ENGINEERING DRAWINGS AND SPECIFICATIONS.
- ALL ELECTRICAL WORK SHALL COMPLY WITH THE WIRELESS CARRIERS INSTALLATION GUIDE.
- THE ELECTRICAL CONTRACTOR SHALL INITIATE AND COORDINATE EXACT UTILITY SERVICES WITH LOCAL UTILITY COMPANIES IN ADVANCE OF CONSTRUCTION TO CONFIRM CAPACITIES, CONNECTION POINT, ROUTING AND ASSOCIATED WORK REQUIREMENTS TO COMPLETE THE INSTALLATION AND MEET CONSTRUCTION SCHEDULE. IF SITE CONDITIONS REQUIRE, THE CONTRACTOR IS TO PROVIDE AND INSTALL ALL UNDERGROUND CABLES AND DUCT BANKS AS REQUIRED BY THE UTILITY COMPANY. COORDINATE CONDUIT ROUTE OF UNDERGROUND SERVICE IN THE FIELD WITH THE WIRELESS CARRIERS CONSTRUCTION MANAGER AND RESPECTIVE UTILITY COMPANIES.
- THE CONTRACTOR SHALL PROVIDE TEMPORARY LIGHTING AND POWER AS REQUIRED IN STRICT ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRIC CODE AND OSHA REQUIREMENTS AND TO COMPLETE WORK WITHOUT INTERRUPTION OF EXISTING SERVICE TO BUILDING AND/OR EQUIPMENT UNLESS OTHERWISE AGREED TO 48-HOURS IN ADVANCE WITH THE WIRELESS CARRIERS CONSTRUCTION MANAGER.
- THE LOCATION OF EQUIPMENT, CONDUIT AND DEVICES SHOWN ON THE PLANS ARE DIAGRAMMATIC. EXACT LOCATION AND ROUTING SHALL BE DETERMINED BY THE CONTRACTOR IN THE FIELD PRIOR TO INSTALLATION WITH THE APPROVAL OF THE WIRELESS CARRIERS CONSTRUCTION MANAGER OR OTHERWISE BE REROUTED AT THE EXPENSES OF THE CONTRACTOR.
- ELECTRICAL CHARACTERISTICS OF ALL EQUIPMENT (NEW AND EXISTING) SHALL BE FIELD VERIFIED WITH THE OWNER'S REPRESENTATIVE AND EQUIPMENT SUPPLIER PRIOR TO ROUGH-IN OF CONDUITS. ALL EQUIPMENT SHALL BE PROPERLY CONNECTED ACCORDING TO THE NAMEPLATE DATA FURNISHED ON THE EQUIPMENT (THE DESIGN OF THESE PLANS ARE BASED UPON BEST AVAILABLE INFORMATION AT THE TIME OF DESIGN DRAWINGS). LOCATION OF OUTLETS, BOXES, ETC. AND THE TYPE OF CONNECTION (PLUG OR DIRECT), SHALL BE CONFIRMED WITH THE OWNER'S REPRESENTATIVE PRIOR TO ROUGH-IN.
- THE CONTRACTOR SHALL PERFORM IEEE "THREE POINT FALL OF POTENTIAL" RESISTANCE TO EARTH TEST FOR GROUND ELECTRODE SYSTEM AT EXTERIOR LOCATED SITES. THE CONTRACTOR SHALL INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS. REFER TO THE WIRELESS CARRIERS INSTALLATION GUIDE FOR COMPLETE TESTING AND RECORDING REQUIREMENTS.
- PROVIDE CORE DRILLING AS NECESSARY FOR PENETRATIONS OR RISERS THROUGH BUILDINGS. DO NOT PENETRATE STRUCTURAL MEMBERS WITHOUT CONSTRUCTION MANAGERS APPROVAL. SLEEVES AND/OR PENETRATIONS IN FIRE RATED CONSTRUCTION SHALL BE PACKED WITH FIRE RATED MATERIAL WHICH SHALL MAINTAIN THE FIRE RATING OF THE WALL OR STRUCTURE. FILL FOR FLOOR PENETRATIONS SHALL PREVENT PASSAGE OF WATER, SMOKE, FIRE AND FUMES. ALL MATERIAL SHALL BE UL APPROVED FOR THIS PURPOSE.
- PENETRATION OF THE ROOF MEMBRANE IS PROHIBITED EXCEPT WITH THE APPROVAL OF BUILDING OWNER/MANAGEMENT AND HIS ROOFING CONTRACTOR. CONTRACTOR TO COORDINATE WITH THE BUILDING ROOFING CONTRACTOR AND FLASH ALL PENETRATIONS TO THE SATISFACTION OF THE BUILDING OWNER/MANAGEMENT TO MAINTAIN THE ROOFING WARRANTY, IF ANY.
- ELECTRICAL EQUIPMENT SHALL BE FIRMLY SECURED TO THE SURFACE ON WHICH IT IS MOUNTED.
- COMMUNICATION EQUIPMENT AND RACEWAYS SHALL COMPLY WITH REQUIREMENTS OF NEC CHAPTER 8 AND ARTICLE 480 WHERE APPLICABLE.

ELECTRICAL SPECIFICATIONS

SECTION 16010 - GENERAL PROVISIONS

- ALL APPLICABLE PROVISIONS OF DIVISION 01 GOVERN WORK UNDER THIS DIVISION. REFER TO THIS ARTICLE ON THE DRAWINGS FOR ADDITIONAL INFORMATION.
- THIS CONTRACTOR SHALL GUARANTY FULLY ALL WORKMANSHIP, MATERIAL, EQUIPMENT, SYSTEMS, ETC., PROVIDED BY HIM FOR A PERIOD OF ONE YEAR AFTER SUBSTANTIAL COMPLETION OF THE PROJECT.
- ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST EDITIONS OF THE APPLICABLE STATE, NATIONAL AND LOCAL ORDINANCES, BUILDING CODES AND THE NATIONAL ELECTRIC CODE, AND THE TERMS AND CONDITIONS OF THE AUTHORITIES HAVING LAWFUL JURISDICTION PERTAINING TO THE WORK REQUIRED. ALL MODIFICATIONS REQUIRED BY THESE CODES, RULES, REGULATIONS, AND AUTHORITIES SHALL BE MADE BY THE CONTRACTOR WITHOUT ADDITIONAL CHARGE TO THE OWNER.
- ALL MATERIALS, APPLIANCES, EQUIPMENT, OR DEVICES SHALL BE NEW AND SHALL BE SPECIFICATION GRADE AND LISTED, LABELED AND CERTIFIED BY UNDERWRITER'S LABORATORIES INC. FOR THE USE. ALL OUTDOOR ELECTRICAL ENCLOSURES SHALL BE WEATHERPROOF AND BE NEMA 250, TYPE 3R RATED, OR BETTER.

SECTION 16075 - ELECTRICAL IDENTIFICATION

- PROVIDE AND INSTALL WARNING, CAUTION AND INSTRUCTION SIGNS WHERE REQUIRED TO COMPLY WITH N.E.C. AND OSHA REGULATIONS AND WHERE NEEDED TO ENSURE SAFE OPERATION AND MAINTENANCE OF ELECTRICAL SYSTEMS AND OF ITEMS TO WHICH THEY CONNECT. ALL LABELS SHALL BE SUITABLE FOR EXTERIOR USE WHEN INSTALLED OUTDOORS.
- ALL ELECTRICAL EQUIPMENT SHALL BE MARKED AND LABELED FOR IDENTIFICATION PURPOSES WITH PHENOLIC NAMEPLATES SIZED IN RELATION TO THE APPARATUS AND ATTACHED ON THE EXTERIOR SURFACES INDICATING THE EQUIPMENT DESIGNATION, OPERATING VOLTAGE AND THE SOURCE SUPPLYING THE EQUIPMENT. ENGRAVED LABEL SHALL BE PROVIDED ON THE WIRELESS CARRIERS METER SOCKET ENCLOSURE.
- ALL CABLES OR CONDUCTORS SHALL BE IDENTIFIED WITH CIRCUIT IDENTIFICATION MARKERS IN EACH PULL BOX, J-BOXES, EQUIPMENT BOXES AND CABINETS WITH APPROVED PLASTIC TAGS OR APPROVED EQUAL.
- ALL DIRECT BURIED CONDUITS SHALL BE PROVIDED WITH 6" WIDE 5 MIL THICK ALUMINIZED PLASTIC WARNING TAPE IDENTIFYING CONTENTS. TAPE COLORS SHALL BE ORANGE FOR TELEPHONE AND RED FOR ELECTRIC.
- ALL LABELS AND PANEL DIRECTORIES SHALL BE TYPEWRITTEN, NOT HAND WRITTEN.
- INSTALL LABEL ON EACH ACCESSIBLE SIDE OF ENERGIZED EQUIPMENT TO READ: MAINTAIN 30"(MIN)W X 36"D X 78"H CLEAR WORKING SPACE.

SECTION 16110 - RACEWAYS, BOXES AND FITTINGS

- INSTALL ALL CONDUIT AS REQUIRED FOR THIS CONTRACT PER NEC BY TYPE AND USE, UNLESS NOTED OTHERWISE WITHIN THIS SPECIFICATION.
- EXERCISE PARTICULAR CARE IN ROUTING AND GROUPING EXPOSED CONDUIT TO PRESENT NEAT AND WORKMANLIKE APPEARANCE WITH ALL LINES RUNNING PARALLEL WITH OR PERPENDICULAR TO SITE LINES AND EQUIPMENT.
- CUT ALL CONDUITS WITH AN APPROVED CUTTING MACHINE AND REAM AFTER THREADING TO REMOVE ALL BURRS.
- WHERE SIZE IS NOT SPECIFIED ON DRAWINGS, THE CONTRACTOR SHALL SIZE CONDUIT, JUNCTION BOX AND/OR PULL BOXES PER N.E.C BASED ON WIRING REQUIREMENT. THE CONTRACTOR SHALL PROVIDE PULL BOXES AND JUNCTION BOXES WHERE SHOWN ON THE DRAWINGS OR NOT SHOWN, AND AS REQUIRED BY N.E.C TO LIMITED BENDS IN CONDUITS TO AN EQUIVALENT OF (4) 90-DEGREE BENDS.

E. INSTALL FACTORY ELBOWS ON 2" AND ABOVE CONDUIT. FIELD BENDS AND OFFSETS SHALL BE MADE WITH AN APPROVED BENDING MACHINE. USE CONDUIT BODIES ASSEMBLY TO FACILITATE PULLING OF CONDUCTORS OR TO MAKE CHANGES IN CONDUIT DIRECTION TO AVOID CONFLICT IN CONFINED SPACE.

F. BURIED ELECTRICAL DUCTS SHALL USE SCHEDULE 80 RIGID PVC PLASTIC CONDUIT WITH WATERTIGHT JOINTS. ALL UNDERGROUND/BURIED 90° ELLS SHALL BE RIGID TYPE FITTINGS. USE RIGID GALVANIZED CONDUIT ELBOWS TO TRANSITION FROM PVC TO RIGID GALVANIZED STEEL CONDUIT INSTALLED FROM 18" BELOW GRADE AND ABOVE GRADE. ALL PVC CONDUITS BURIED LESS THAN 18" BELOW GRADE SHALL BE SCHEDULE 80.

G. EXPOSED OUTDOOR LOCATIONS SHALL USE RIGID GALVANIZED STEEL (RGS) CONDUIT, U.O.N. WITH THREADED OR PAIR TIGHT FITTINGS. EXPOSED THREADS SHALL BE PROTECTED WITH ZINC-RICH PAINT. USE SUN RESISTANT LIQUID TIGHT FLEXIBLE METALLIC CONDUIT AND WATERTIGHT CONNECTIONS WHERE REQUIRED TO MAKE FINAL CONNECTIONS TO EQUIPMENT IF IT IS NOT EXPOSED TO PHYSICAL DAMAGE, EXTREME HEAT OR COLD. ENSURE CONTINUITY OF THE BONDING AND GROUNDING SYSTEM WHEN CONDUITS TRANSITION TO NON METALLIC CONDUITS OR WHEN EXPANSION TYPE FITTINGS ARE USED.

H. DRY INTERIOR LOCATIONS SHALL BE ELECTRICAL METALLIC TUBING (EMT) WITH STEEL COMPRESSION TYPE FITTINGS. THE USE OF SET SCREW FITTING IS NOT PERMITTED - NO EXCEPTION.

I. PROVIDE INSULATED BUSHINGS TO PREVENT ABRASION OF WIRES AND DOUBLE LOCKWITS ON CONDUITS ENTERING OR LEAVING JUNCTION BOXES, PULL BOXES, ELECTRICAL DEVICES AND EQUIPMENT CABINETS. EQUIP ALL RGS CONDUIT WITH GROUND BUSHINGS AND GROUND IT TO THE COMMON GROUNDING ELECTRODE SYSTEM.

J. AVOID CONDENSATION POCKETS IN INSTALLATIONS. KEEP CONDUIT, FITTINGS AND BOXES FREE FROM FOREIGN MATTER BEFORE, DURING AND AFTER INSTALLATION.

K. ALL CONDUITS, INCLUDING THOSE WITH NEW CABLES INSTALLED, SHALL HAVE A NYLON PULL ROPE INSTALLED TO FACILITATE FUTURE PULL.

L. THE MINIMUM SIZE OF CONDUIT SHALL BE 3/4".

SECTION 16120 - CONDUCTORS

A. ALL POWER WIRE SHALL BE TYPE THHN/THWN INSULATED SINGLE COPPER CONDUCTOR, RATED AT 600 VOLTS 90°C TO COMPLY WITH UL & NEMA WC 70. MINIMUM WIRE SIZE FOR CURRENTS UP TO 20 AMPERE SHALL BE #12 AWG. USE SOLID COPPER UP TO SIZE #10 AWG AND SMALLER; STRANDED COPPER FOR #8 AWG AND LARGER. USE OF ALUMINUM CONDUCTORS WILL NOT BE PERMITTED.

B. USE MANUFACTURER-APPROVED PULLING COMPOUND OR LUBRICANT WHERE NECESSARY; COMPOUND USED MUST NOT DEGRADATE CONDUCTOR OR INSULATION. DO NOT EXCEED MANUFACTURER'S RECOMMENDED MAXIMUM PULLING TENSIONS AND SIDEWALL PRESSURE VALUES.

C. USE PULLING MEANS; INCLUDING FISH TAPE, CABLE, ROPE, AND BASKET-WEAVE WIRE/CABLE GRIPS THAT WILL NOT DAMAGE CABLES OR RACEWAY.

D. CONDUCTOR LENGTHS SHALL BE CONTINUOUS FROM TERMINATION TO TERMINATION WITHOUT SPLICES AS MUCH AS POSSIBLE. SPLICES, JOINTS AND CONNECTIONS IN CABLE SHALL BE MADE ONLY IN PULL BOXES, JUNCTION BOXES OR MANHOLES. CABLE SHALL BE LOOPED IN ALL JUNCTION BOXES AND PULL BOXES, AND RACKED IN MANHOLES.

E. TIGHTEN ELECTRICAL CONNECTORS AND TERMINALS ACCORDING TO MANUFACTURER'S PUBLISHED TORQUE-TIGHTENING VALUES. IF MANUFACTURER'S TORQUE VALUES ARE NOT INDICATED, USE THOSE SPECIFIED IN UL 486A AND UL 486B.

F. CONNECTORS AND LUGS FOR COPPER CONDUCTORS #8 AND SMALLER: 3M SCOTCHLOK SERIES 61 SNAP SPADE, OR ACCEPTABLE EQUAL OR T & B STA-KON COMPRESSION OR INDEXTYPE CONNECTORS WITH INTEGRAL OR SEPARATE INSULATING CAPS. FOR COPPER CONDUCTORS LARGER THAN #8: SOLDERLESS, INDENT, HEX SCREW OR BOLT TYPE PRESSURE CONNECTORS, PROPERLY TAPED OR INSULATED.

G. PROVIDE ADEQUATE LENGTH OF CONDUCTORS WITHIN ELECTRICAL ENCLOSURES AND TRAIL THE CONDUCTORS TO TERMINATION POINTS WITH NO EXCESS. MAKE TERMINATIONS SO THERE IS NO BARE CONDUCTOR AT THE TERMINAL.

H. COLOR CODE, PHASE, NEUTRAL, AND GROUND CONDUCTORS COLOR-CODED IN ACCORDANCE WITH NEC. IDENTIFY ALL CONDUCTORS OF THE SAME PHASE CONDUCTOR TO THE SAME COLOR CODE. SUGGESTED COLOR CODING FOR 120/208V, SHOULD BE BLACK, RED, BLUE, WHITE, AND 277/480V, SHOULD BE BROWN, ORANGE, YELLOW, GRAY WITH GREEN FOR ALL EQUIPMENT GROUND CONDUCTORS.

I. EACH CONDUIT OR RACEWAY THAT HAS A PHASE CONDUCTOR SHALL ALSO CONTAIN A GREEN INSULATED GROUNDING CONDUCTOR SIZED PER N.E.C, UNLESS OTHERWISE INDICATED.

J. AFTER THE ELECTRICAL EQUIPMENT AND THE WIRING IS INSTALLED, BUT BEFORE ELECTRICAL CONNECTIONS TO EQUIPMENT, TEST PHASE-TO-PHASE AND PHASE-TO-GROUND INSULATION ON SERVICE ENTRANCE AND FEEDERS TO ENSURE THAT THEY HAVE THE PROPER INSULATION AND ARE FREE OF GROUND FAULT. SYSTEMS RATED ABOVE 250 VOLTS SHALL BE TESTED WITH A 1000 VOLT MEGGER. CIRCUITS RATED AT OR BELOW 250 VOLTS SHALL BE TESTED WITH A 500 VOLT MEGGER.

K. CORRECT MALFUNCTIONING CONDUCTORS AND CABLES, WHERE POSSIBLE, AND RETEST TO DEMONSTRATE COMPLIANCE; OTHERWISE, REMOVE AND REPLACE WITH NEW UNITS AND RETEST AS SPECIFIED. PER NEC70.3(A), THE REQUIREMENTS OF 300.21 FOR ELECTRICAL INSTALLATIONS SHALL ALSO APPLY TO INSTALLATIONS OF OPTICAL FIBER CABLES AND RACEWAYS. THE ACCESSIBLE PORTION OF ABANDONED OPTICAL FIBER CABLES SHALL BE REMOVED.

SECTION 16410 - ENCLOSED SWITCHES AND CIRCUIT BREAKERS

A. MOLDED-CASE CIRCUIT BREAKER TO COMPLY WITH NEMA AB 1, WITH INTERRUPTING CAPACITY TO MEET RATING TO MATCH EXISTING OR AS REQUIRED FOR AVAILABLE FAULT CURRENTS. DO NOT USE SERIES RATING FOR NEW EQUIPMENT. IF EXISTING SERIES RATED EQUIPMENT IS SPECIFIED FOR USE IN THIS PROJECT, THEN PROVIDE "CAUTION" MARKING ON THE EXISTING EQUIPMENT ENCLOSURE THAT ARE SERIES RATED AS DESCRIBED IN NEC 110-22.

B. PROVIDE MOLDED CASE, BOLT-ON, THERMAL MAGNETIC TRIP, SINGLE, TWO OR THREE POLE BRANCH CIRCUIT BREAKERS AS SHOWN ON DRAWINGS. MULTIPLE POLE BREAKERS SHALL BE SINGLE HANDLE, COMMON TRIP AND MADE BY EQUIPMENT MANUFACTURER.

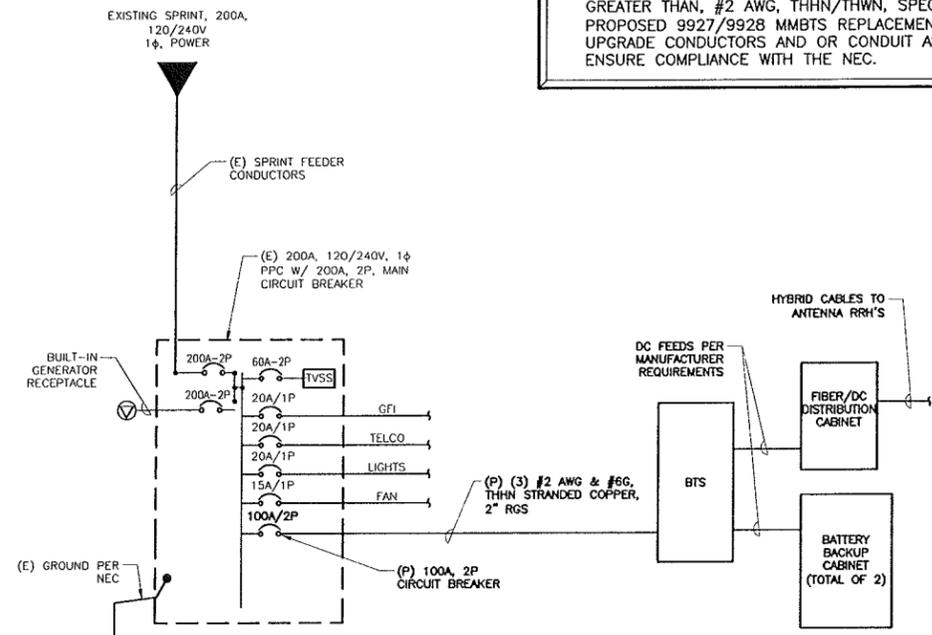
C. PROVIDE ENCLOSURE TO COMPLY WITH NEMA AB 1 AND NEMA KS 1 TO MEET ENVIRONMENTAL CONDITIONS OF INSTALLED LOCATION. OUTDOOR LOCATIONS SHALL BE NEMA 250, TYPE 3R.

D. VERIFY EXISTENCE OF NEC 110.26 REQUIRED CLEAR WORKING SPACE AT THE FRONT OF ELECTRICAL EQUIPMENT PRIOR TO INSTALLATION.

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NOTE: (APPLY TO SINGLE LINE DIAGRAM)

- CONTRACTOR SHALL PROVIDE 100A, 240V, 2P CIRCUIT BREAKER AS NECESSARY IN THE EXISTING SPRINT PPC (MATCH EXISTING CIRCUIT BREAKERS) FOR THE (P) MULTIMODAL BTS.
- ELECTRICAL CONTRACTOR TO VERIFY IN THE FIELD THAT THE EXISTING CONDUCTORS SERVICING THE EXISTING BTS CABINET FROM THE EXISTING POWER PANEL IS RATED, EQUAL TO OR GREATER THAN, #2 AWG, THHN/THWN, SPECIFIED FOR THE PROPOSED 9927/9928 MMBTS REPLACEMENT CABINET. UPGRADE CONDUCTORS AND OR CONDUIT AS NEEDED TO ENSURE COMPLIANCE WITH THE NEC.



SINGLE LINE DIAGRAM
SCALE: N.T.S.

ELECTRICAL LEGEND	
SYMBOLS	ABBREVIATIONS
	CONDUIT TURNING UP
	CONDUIT TURNING DOWN
	CONDUIT RUN UNDERGROUND
	CONDUIT RUN ABOVE GROUND
	METER ON METER/BREAKER UNIT
	5/8" x 10"-0" COPPER CLAD GROUND ROD
	5/8" x 10"-0" COPPER CLAD GROUND ROD WITH TEST WELL
	EXOTHERMIC TYPE CONNECTION
	COMPRESSION TYPE CONNECTION
	GROUND RING, #2 AWG SOLID TINNED BARE COPPER GROUND CONDUCTOR 6" BELOW FROST LINE AND 24" OFF CONCRETE PLATFORM
	REPRESENTS DETAIL NUMBER
	REF. DRAWINGS NUMBER
	DETAIL NUMBER
	NON-FUSED DISCONNECT SWITCH
	FUSED DISCONNECT SWITCH
	CIRCUIT BREAKER
	GROUNDING ELECTRODE
	AWG AMERICAN WIRE GAUGE
	BTCW BARE TINNED COPPER WIRE
	BTS BASE TRANSMISSION
	CIGBE COPPER ISOLATED GROUND BAR EXTERNAL UNIT
	DWG DRAWINGS
	EIGB EQUIPMENT ISOLATED GROUND BAR
	EMT ELECTRICAL METALLIC TUBING
	GEN GENERATOR
	GPS GLOBAL POSITIONING SYSTEM
	IGR INTERIOR GROUND RING (HALO)
	LAGB LOWER ANTENNA COPPER GROUND BAR
	MGB MASTER ISOLATED GROUND BAR
	PPC POWER PROTECTION CABINET
	RGS RIGID GALVANIZED STEEL
	RWY RACEWAY
	TYP TYPICAL
	(E) EXISTING
	(P) PROPOSED

DISCLAIMER NOTE:
1. PROVIDING RADIOFREQUENCY HAZARD WARNING SIGNS, AWARENESS OF THE POTENTIAL FOR RF EXPOSURE IN A WORKPLACE OR SIMILAR ENVIRONMENT, SPECIFIC TRAINING AS PART OF AN RF SAFETY PROGRAM, OTHER FCC REQUIRED MEASURES REGARDING THE EFFECT OF RADIO FREQUENCY ON THE HUMAN ENVIRONMENT WITH REGARD TO EXPOSURE OF THE GENERAL PUBLIC, REPORTING STORAGE BATTERIES, AND DESIGN OF FAA REQUIRED OBSTRUCTION LIGHTING ARE NOT PART OF THE EBI CONSULTING A&E DEPARTMENT'S SCOPE OF WORK.

EBI CONSULTING
21 B Street
Burlington, MA 01803
Tel: 781.273.2500
Fax: 781.273.3311
www.ebiconsulting.com

COMMONWEALTH OF MASSACHUSETTS
DANIEL V. DOHERTY
CIVIL
NO. 47297
REGISTERED PROFESSIONAL ENGINEER

Daniel Doherty
ENGINEER STAMP/SIGNATURE

PREPARED FOR:
Sprint
1 INTERNATIONAL BLVD, SUITE 800
MAHAH, NJ 07495
PHONE: (800) 357-7641

PROJECT COORDINATION & MANAGEMENT:
Alcatel-Lucent
1 ROBBINS ROAD
WESTFORD, MA 01886
(978) 952-1600

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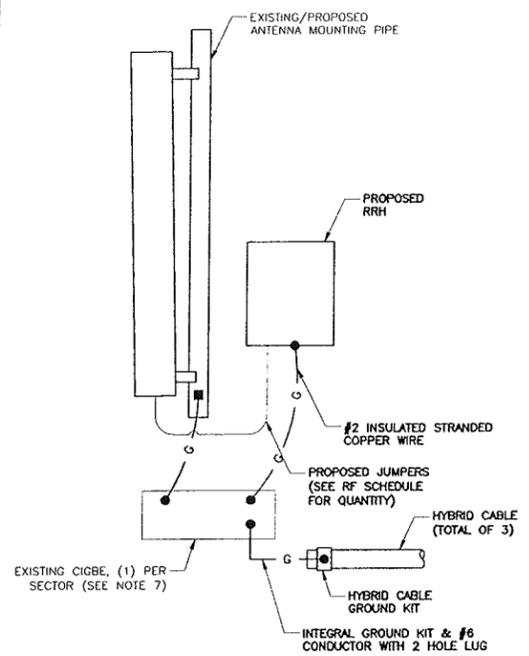
ELECTRICAL NOTES & RISER DIAGRAM

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DATE: 01/10/12

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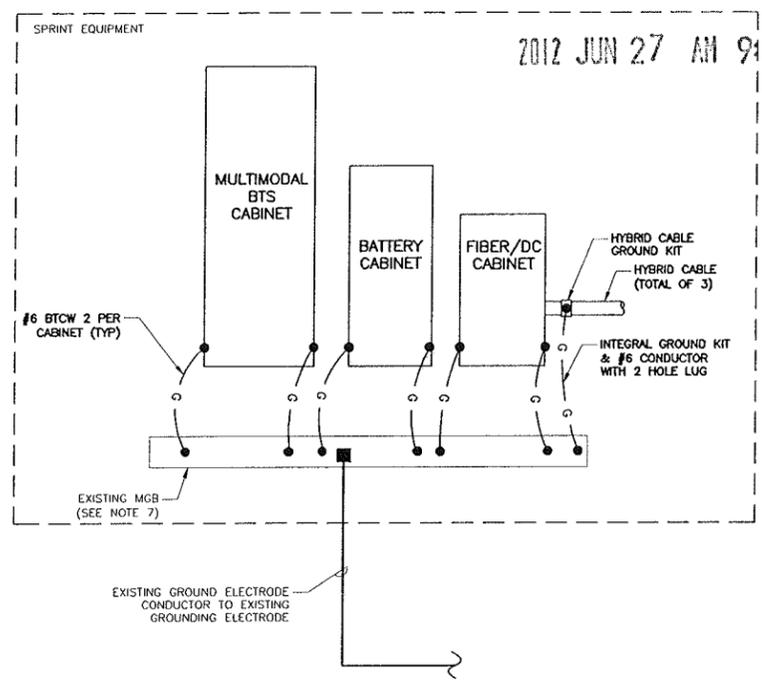
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1. TYPICAL FOR ALL SECTORS.
2. REFER TO PLANS FOR QUANTITY & LOCATION OF NEW ANTENNAS, EQUIPMENT & ANTENNA MOUNTING PIPES.

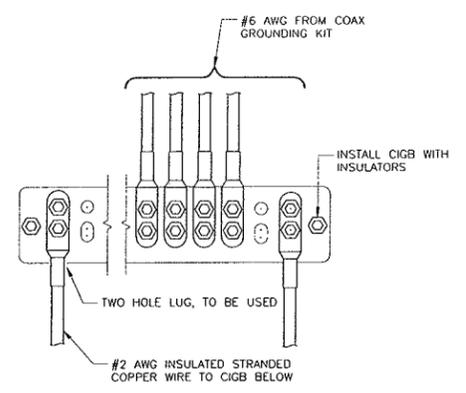
ANTENNA GROUNDING DIAGRAM
SCALE: N.T.S.

1



NEW EQUIPMENT GROUNDING PLAN
SCALE: N.T.S.

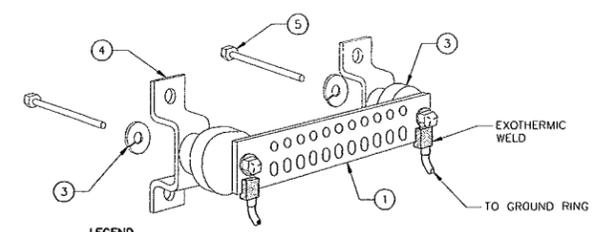
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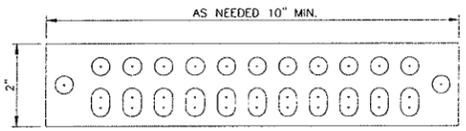
- NOTE:
1. CONTRACTOR TO UTILIZE KOPR-SHIELD (THOMAS & BETTS) ON ALL LUG CONNECTIONS.

ANTENNA GROUND BAR DETAIL
SCALE: N.T.S.

3

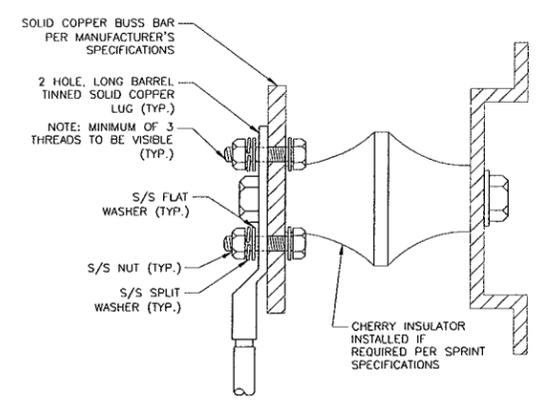


- LEGEND
1. ZINC COATED TINNED COPPER HARGER GROUND BAR, 1/4" X 2" X 10", HOLE CENTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION
 2. STANDOFF INSULATORS, HARGER LIGHTNING PROTECTION, INC. CAT. NO. 5263-A8
 3. 1/2" LOCKWASHERS, HARGER CO. CAT. NO. LWBS
 4. WALL MOUNTING STAINLESS STEEL MOUNTING BRACKET, HARGER CAT. NO. WBKT-1
 5. 1/2-13 X 1" HEX HEAD CAP SCREW, HARGER. CAT. NO. CS88S
- NOTES:
ALL HOLES ARE 7/16" UNLESS SPECIFIED DIFFERENTLY.



GROUND BAR DETAIL
SCALE: N.T.S.

4



- NOTES:
1. ALL HARDWARE 18-8 STAINLESS STEEL INCLUDING SPLIT WASHERS.
 2. COAT WIRE END WITH ANTI-OXIDATION COMPOUND PRIOR TO INSERTION LUG BARREL AND CRIMPING.
 3. APPLY ANTI-OXIDATION COMPOUND BETWEEN ALL LUGS AND BUSS BARS PRIOR TO MATING AND BOLTING.

GROUND LUG DETAIL
SCALE: N.T.S.

5

GROUNDING NOTES

1. SEE DRAWING E-1 FOR LEGEND AND ABBREVIATIONS
2. ALL GROUND WIRES SHALL BE BARE #2 AWG BCW UNLESS NOTED OTHERWISE
3. ALL GROUND WIRES SHALL PROVIDE A STRAIGHT, DOWNWARD PATH TO GROUND WITH GRADUAL BENDS AS REQUIRED. GROUND WIRES SHALL NOT BE LOOPED OR SHARPLY BENT.
4. ELECTRICAL CONTRACTOR SHALL COORDINATE INSTALLATION OF GROUND RODS AND GROUND RING WITH FOUNDATION AND UNDERGROUND CONDUIT.
5. EACH EQUIPMENT CABINET SHALL BE CONNECTED TO THE MASTER ISOLATION GROUND BAR (MGB) WITH #2 AWG INSULATED STRANDED COPPER WIRE. EQUIPMENT CABINETS SHALL HAVE (2) CONNECTIONS.
6. PROVIDE DEDICATED #2 AWG COPPER GROUND WIRE FROM EACH ANTENNA MOUNTING PIPE TO ASSOCIATED CIGBE.
7. THE CONTRACTOR SHALL VERIFY THAT THE EXISTING GROUND BARS HAVE ENOUGH SPACE/HOLES FOR ADDITIONAL TWO HOLE LUGS.
8. ALL CONDUITS SHALL BE RIGID GALVANIZED STEEL AND SHALL BE PROVIDED WITH GROUNDING BUSHINGS.
9. PROVIDE GROUND CONNECTIONS FOR ALL METALLIC STRUCTURES, ENCLOSURES, RACEWAYS AND OTHER CONDUCTIVE ITEMS ASSOCIATED WITH THE INSTALLATION OF CARRIER'S EQUIPMENT.
10. WHEN CABLE LENGTH IS OVER 20', THE MANUFACTURER'S GROUND KIT MUST BE INSTALLED PER THE MANUFACTURER'S SPECIFICATIONS
11. GROUND SYSTEM SHALL BE TESTED AND SHALL HAVE A RESISTANCE OF 5 OHMS OR LESS.

ELECTRICAL SPECIFICATIONS

SECTION 16450 - GROUNDING

1. ALL ELECTRICAL AND GROUNDING AT THE CELL SITE SHALL COMPLY WITH THE NATIONAL ELECTRIC CODE (NEC), NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) 780 (LATEST EDITION), AND MANUFACTURER'S REQUIREMENTS.
 2. THE AC PANEL IN THE POWER CABINET IS WIRED AS A SERVICE ENTRANCE. IF IT IS USED AS SERVICE ENTRANCE THE NEC-250.66 REQUIRED GROUNDING ELECTRODE CONDUCTOR SHALL BE INSTALLED IN THE AC POWER CONDUIT. THE INSTALLATION SHALL BE PER LOCAL AND NATIONAL ELECTRIC CODE (NFPA-70). IN THE CASE THAT MAIN SERVICE DISCONNECT IS SUPPLIED AT THE MAIN METER LOCATION, THE BOND BETWEEN NEUTRAL AND EQUIPMENT GROUNDING CONDUCTOR IN THE AC PANEL SHALL BE REMOVED BY CONTRACTOR.
 3. EXOTHERMIC WELDING IS RECOMMENDED FOR GROUNDING CONNECTION WHERE PRACTICAL OTHERWISE. THE CONNECTION SHALL BE MADE USING COMPRESSION TYPE-2 HOLES, LONG BARREL LUGS OR DOUBLE CRIMP "C" CLAMP. THE COPPER CABLES SHALL BE COATED WITH AN ANTI-OXIDANT (THOMAS BETTS KOPR-SHIELD) BEFORE MAKING THE CRIMP CONNECTIONS. THE CONTRACTOR SHALL FOLLOW MANUFACTURER'S RECOMMENDED TORQUES ON THE BOLT ASSEMBLY TO SECURE CONNECTIONS.
 4. THE ANTENNA CABLES SHALL BE GROUND AT THE TOP AND BOTTOM OF THE VERTICAL RUN FOR LIGHTNING PROTECTION. THE ANTENNA CABLE SHIELD SHALL BE BONDED TO A COPPER GROUND BUS AT THE LOWERMOST POINT OF A VERTICAL RUN JUST BEFORE IT BEGINS TO BEND TOWARD THE HORIZONTAL PLANE. WIRE RUNS TO GROUND SHALL BE KEPT AS STRAIGHT AND SHORT AS POSSIBLE. ANY ANTENNA CABLES OVER 200 FEET IN LENGTH SHALL ALSO BE EQUIPPED WITH ADDITIONAL GROUNDING AT MID-POINT.
 5. THE MASTER GROUND BAR (MGB) SHALL BE MADE OF BARE 1/4"x2" COPPER (FOR OUTDOOR APPLICATIONS IT SHALL BE TINNED COPPER) AND LARGE ENOUGH TO ACCOMMODATE THE REQUIRED NUMBER OF GROUND CONNECTIONS. THE HARDWARE SECURING THE MGB SHALL ELECTRICALLY INSULATE THE MGB FROM ANY STRUCTURE TO WHICH IT IS FASTENED.
 6. GROUND CONNECTIONS: CLEAN SURFACES THOROUGHLY BEFORE APPLYING GROUND LUGS OR CLAMPS. IF SURFACE IS COATED, REMOVE THE COATING, APPLY A NON-CORROSIVE APPROVED COMPOUND TO CLEAN SURFACE AND INSTALL LUGS OR CLAMPS. WHERE GALVANIZING IS REMOVED FROM METAL, IT SHALL BE PAINTED OR TOUCHED UP WITH "GALVAMOX", OR EQUAL.
- PROTECTIVE GROUNDING SYSTEM GENERAL NOTES
- A. AT ALL TERMINATIONS AT EQUIPMENT ENCLOSURES, PANELS, AND FRAMES OF EQUIPMENT AND WHERE EXPOSED FOR GROUNDING, CONDUCTOR TERMINATION SHALL BE PERFORMED UTILIZING TWO HOLE BOLTED TONGUE COMPRESSION TYPE LUGS WITH STAINLESS STEEL SELF-TAPPING SCREWS.
 - B. ALL CLAMPS AND SUPPORTS USED TO SUPPORT THE GROUNDING SYSTEM CONDUCTORS AND PVC CONDUITS SHALL BE PVC TYPE (NON CONDUCTIVE). DO NOT USE METAL BRACKETS OR SUPPORTS WHICH WOULD FORM A COMPLETE RING AROUND ANY GROUNDING CONDUCTOR.
 - C. ALL GROUNDING CONNECTIONS SHALL BE COATED WITH A COPPER SHIELD ANTI-CORROSIVE AGENT SUCH AS T&B KOPR SHIELD. VERIFY PRODUCT WITH LIGHTSQUARED PROJECT MANAGER.
 - D. ALL BOLTS, WASHERS, AND NUTS USED ON GROUNDING CONNECTIONS SHALL BE STAINLESS STEEL.
 - E. INSTALL GROUND BUSHINGS ON ALL METALLIC CONDUITS AND BOND TO THE EQUIPMENT GROUND BUS IN THE PANEL BOARD.
 - F. GROUND ANTENNA BASES, FRAMES, CABLE RACKS, AND OTHER METALLIC COMPONENTS WITH #2 INSULATED TINNED STRANDED COPPER GROUNDING CONDUCTORS AND CONNECT TO INSULATED SURFACE MOUNTED GROUND BARS. CONNECTION DETAILS SHALL FOLLOW MANUFACTURER'S SPECIFICATIONS FOR GROUNDING.
 - G. GROUND COAXIAL SHIELD AT BOTH ENDS USING MANUFACTURER'S GUIDELINES.

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CONSULTING

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Tel: 781.273.2500
Fax: 781.273.3311
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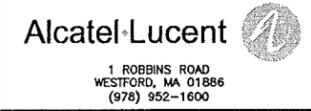


Daniel V. Doherty
ENGINEER STAMP/SIGNATURE

PREPARED FOR:



PROJECT COORDINATION & MANAGEMENT:



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SHEET TITLE:
GROUNDING DETAILS & NOTES

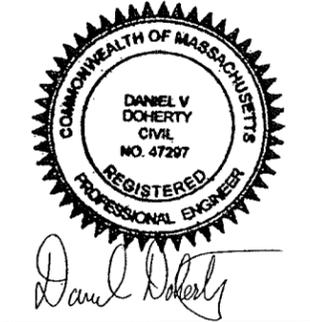
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TOWER TOP SCENARIO 2

800 AND SINGLE 1900 RRH PAIR WITH SINGLE 800/1900 RADOME ANTENNA
(800 HOSTING 1900 RET)

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CONSULTING
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Tel: 781.273.2500
Fax: 781.273.3311
www.ebiconsulting.com



ENGINEER STAMP/SIGNATURE

PREPARED FOR:
Sprint
1 INTERNATIONAL BLVD., SUITE 800
MAHWAH, NJ 07495
PHONE: (800) 357-7641

PROJECT COORDINATION & MANAGEMENT:
Alcatel-Lucent
1 ROBBINS ROAD
WESTFORD, MA 01886
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ANTENNA WIRING DIAGRAM

DRAWN BY: JM
CHECKED BY: MS
DATE: 01/10/12
SHEET NO: **E-3**

OEM COLOR CODE
HYBRIFLEX

Power Feed Polarity Definition:
 ■ Black= -48VDC Feed (Battery)
 ▤ Black/White Stripe=Return

Note: For power feed use the same Hybriflex OEM color designator as the fiber.

■ MM Pair 1=F1=Green=P1 (Green)
 ■ MM Pair 2=F2=Green=P2 (Blue)
 ■ MM Pair 3=F3=Green=P3 (Red)
 ■ MM Pair 4=F4=Yellow=P4 (Yellow)
 ■ MM Pair 5=F5=Orange=(No P5 power feed)

