TRM
Convergent Network Solutions

CRAIG CODY

16 Chestnut Street, Suite 420
Foxboro, MA 02035
Tel (781) 831-1281
ccody@trmcom.com

11/30/2015

Melanie Bachman
Acting Executive Director
Connecticut Siting Counsel
10 Franklin Square
New Britain, CT 06051

Re: **Notice of Exempt Modification**
90 N. Plains Industrial Road, Wallingford
41.4807333 / -72.81779277

Dear Ms. Bachman:

T-Mobile Northeast, LLC (T-Mobile) currently maintains six (6) antennas at the One-Hundred and Forty Eight foot (148') level of the existing One-Hundred Eighty Seven foot tower at 90 N. Plains Ave, Wallingford, CT. The tower is owned by American Tower Corporation. The property is owned by American Tower Corporation as well. T-Mobile now intends to add Three (3) 700 MHz antennas. These antennas would be installed at the One-Hundred Forty Eight foot (148') level of the tower. T-Mobile does not intend to remove any other equipment on the tower at this time.

This facility was not originally approved by the Connecticut Siting Council and the Town of Wallingford indicated approval was on February 8th, 1999. The approval did not include conditions.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73 a copy of this letter to the Chief Elected Official, Mayor William Dickinson for the Town of Wallingford, as well as the property owner and the tower owner.

The planned modifications to the facility fall squarely within those activities provided for in R.C.S.A. § 50j-72(b)(2).

1) The proposed modification will not result in an increase in the height of the existing structure.

2) The modifications will not require an extension of the site boundary.

3) The proposed modification will not increase the noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.

4) The operation and replacement of antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard.

5) The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.

6) The existing structure and its foundation can support the proposed loading.

For the foregoing reasons, T-Mobile Northeast LLC respectfully submits that the proposed modifications to the above-referenced telecommunications facility constitute an exempt modification under R.C.S.A § 16-50j-72(b)(2)

Sincerely,

Craig Cody
On behalf of American Tower Corporation
c/o Tower Resource Management, Inc.
16 Chestnut Street, Suite 420
Foxboro, MA 02035
781-831-1281
ccody@trmcom.com

cc: **Town of Wallingford**
American Tower Corporation
American Tower Corporation

Exhibit 1

Site Plan

Exhibit 2

Power Density Report

Exhibit 3

Structural Analysis

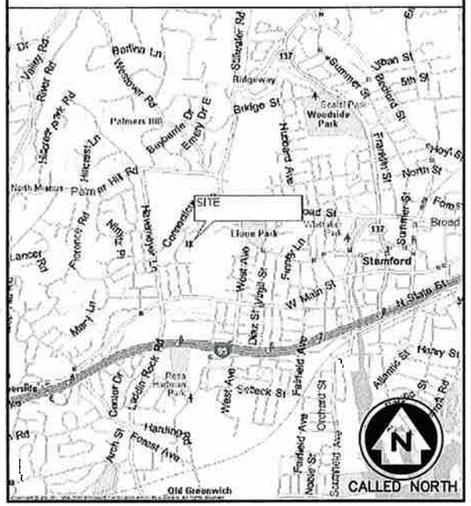
T-MOBILE NORTHEAST LLC

CT11654A
CT11654A_WALLINGFORD_RT15

90 N. PLAINS INDUSTRIAL ROAD
WALLINGFORD, CT 06492

(702Cu CONFIGURATION)

VICINITY MAP



DO NOT SCALE DRAWINGS

CONTRACTOR SHALL VERIFY 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 OR BE RESPONSIBLE FOR SAME.

CALL:
"CALL BEFORE YOU DIG"
WWW.CBYD.COM
CALL 811, OR 1-800-922-4455
CALL THREE WORKING DAYS PRIOR TO DIGGING
SAFETY PRECAUTIONS SHALL BE IMPLEMENTED BY CONTRACTOR(S) AT ALL TRENCHING IN ACCORDANCE WITH CURRENT OSHA STANDARDS.

COLOR CODE FOR UTILITY LOCATIONS

ELECTRIC	– RED	SEWER	– GREEN
GAS/OIL	– YELLOW	SURVEY	– PINK
TEL/CATV	– ORANGE	PROPOSED EXCAVATION	– WHITE
WATER	– BLUE	RECLAIMED WATER	– PURPLE

GENERAL NOTES

1. 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.
2. THE ARCHITECT/ENGINEER HAVE MADE EVERY EFFORT TO SET FORTH IN THE CONSTRUCTION AND CONSTRUCT 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 SAID CONTRACTOR FROM COMPLETING THE PROJECT AND IMPROVEMENTS IN ACCORDANCE WITH THE INTENT OF THESE DOCUMENTS.
3. THE CONTRACTOR OR BIDDER SHALL BEAR THE RESPONSIBILITY OF NOTIFYING (IN WRITING) THE T–MOBILE REPRESENTATIVE OF ANY CONFLICTS, ERRORS, OR OMISSIONS PRIOR TO THE SUBMISSION OF THE CONTRACTOR'S PROPOSAL OR PERFORMANCE OF WORK. IN THE EVENT OF DISCREPANCIES, THE CONTRACTOR SHALL PRICE THE MORE COSTLY OR EXPENSIVE WORK, UNLESS DIRECTED IN WRITING OTHERWISE.
4. THE SCOPE OF WORK SHALL INCLUDE FURNISHING OF ALL MATERIALS, EQUIPMENT, LABOR AND ALL OTHER MATERIALS AND LABOR DEEMED NECESSARY TO COMPLETE THE WORK/PROJECT AS DESCRIBED HEREIN.
5. 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 CONTRACT DOCUMENTS.
6. 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.
7. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS ACCORDING TO THE MANUFACTURER'S/VENDOR'S SPECIFICATIONS UNLESS NOTED OTHERWISE OR WHERE LOCAL CODES OR ORDINANCES TAKE PRECEDENCE.
8. THE CONTRACTOR SHALL PROVIDE A FULL SET OF CONSTRUCTION DOCUMENTS AT THE SITE UPDATED WITH THE LATEST REVISIONS AND ADDENDUM OR CLARIFICATIONS AVAILABLE FOR THE USE BY ALL PERSONNEL INVOLVED WITH THE PROJECT.
9. 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 CONTRACT.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ANY PERMITS AND INSPECTIONS WHICH ARE REQUIRED FOR THE WORK BY THE ARCHITECT/ENGINEER, THE STATE, COUNTY, OR LOCAL GOVERNMENT AUTHORITY.
11. 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.
12. THE CONTRACTOR SHALL KEEP THE GENERAL WORK AREA CLEAN AND HAZARD FREE DURING CONSTRUCTION AND DISPOSE OF ALL DIRT, DEBRIS, RUBBISH AND REMOVE EQUIPMENT NOT SPECIFIED AS REMAINING ON PROPERTY. PREMISES SHALL BE LEFT IN CLEAN CONDITION AND FREE FROM PAINT SPOTS, DUST, OR SMUDGES OF ANY NATURE.
13. THE CONTRACTOR SHALL COMPLY WITH ALL OSHA REQUIREMENTS, AS WELL AS THE LATEST EDITIONS OF ANY PERTINENT STATE SAFETY REGULATIONS.
14. THE CONTRACTOR SHALL NOTIFY THE T–MOBILE REPRESENTATIVE 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 CONFLICT IS RESOLVED BY THE T–MOBILE REPRESENTATIVE.
15. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, PROPERTY LINES, ETC., ON THE JOB.
16. THE CONTRACTOR SHALL RETURN ALL DISTURBED AREAS TO THEIR ORIGINAL CONDITION AT THE COMPLETION OF WORK.

PROJECT SUMMARY

SITE NUMBER:	CT11654A	APPLICANT:	T–MOBILE NORTHEAST LLC 4 SYLVAN WAY PARSIPPANY, NJ 07054
SITE NAME:	CT11654A_WALLINGFORD_RT15		
SITE ADDRESS:	90 N. PLAINS INDUSTRIAL ROAD WALLINGFORD, CT 06462	PROJECT MANAGER:	AMERICAN TOWER CORPORATION 319 QUARRY ROAD SPRING CITY, PA 19475
PROPERTY OWNER:	AMERICAN TOWER CORPORATION		
PARCEL:	MAP 63 LOT 15–2	CONTACT:	BRUCE HOFFMASTER 484–942–6339
CURRENT ZONING:	INDUSTRIAL/COMMERCIAL		
JURISDICTION:	TOWN OF WALLINGFORD	ARCHITECT/ENGINEER:	INFINIGY ENGINEERING 1033 WATERVLIET SHAKER ROAD ALBANY, NY 12205
ATC SITE NUMBER:	302467		
LAT./LONG.:	N 41.48073333° / W –72.81779277°		
CONSTRUCTION TYPE: USE GROUP:	2B –	CONTACT:	ALEX WELLER 518–690–0790

PROJECT DESCRIPTION

☒ EXISTING MONOPOLE	☒ EXISTING CABINET(S)	☒ OUTDOOR
☐ EXISTING LATTICE TOWER	☐ EXISTING RBS 2106	☐ INDOOR
☐ EXISTING TRANSMISSION TOWER	☒ EXISTING RBS 3106	☒ EXISTING CONCRETE PAD
☐ EXISTING WATER TANK	☒ EXISTING S8000	☐ EXISTING STEEL PLATFORM
☐ EXISTING BUILDING	☐ SITE SUPPORT KIT	☒ EXISTING PPC
☐ EXISTING FLAGPOLE	☐ SITE SUPPORT CABINET	☐ PANELBOARD
☐ EXISTING FORT WORTH	☒ GPS	

T–MOBILE NORTHEAST LLC PROPOSES THE MODIFICATION OF AN UNMANNED WIRELESS BROADBAND FACILITY. ADDITION OF PROPOSED LTE 700 PANEL ANTENNAS & RRUS. REUSE EXISTING HYBRID CABLE, GPS ANTENNA AND EXISTING EQUIPMENT CABINETS.

SHEET INDEX

SHEET	DESCRIPTION	REVISION
T–1	TITLE SHEET	0
C–1	SITE PLAN	0
C–2	COMPOUND PLAN & ELEVATION	0
C–3	ANTENNA DETAIL & RF SCHEDULE	0
C–4	EQUIPMENT SPECIFICATIONS	0
E–1	GROUNDING AND POWER DIAGRAMS	0
E–2	COAX/FIBER PLUMBING DIAGRAM	0
N–1	GENERAL AND ELECTRICAL NOTES	0

T-Mobile
T-MOBILE NORTHEAST LLC
4 SYLVAN WAY
PARSIPPANY, NJ 07054

INFINIGY
1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0793

SUBMITTALS

DATE	DESCRIPTION	REVISION
9/29/15	FOR PERMIT	0

DEPT.	DATE	APP'D	REVISIONS
RFE			
RF MAN.			
ZONING			
OPS			
CONSTR.			
SITE AC.			

PROJECT NO:	317-000
DRAWN BY:	JLM
CHECKED BY:	ASW

STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24705
LICENSED
PROFESSIONAL ENGINEER
PROFESSIONAL SEAL

NOTE: IF DRAWINGS ARE 22"x34", USE GRAPHICAL SCALE AND/OR 1/2 TIMES OF THE NOTED SCALE.

SITE NUMBER:
CT11654A

SITE NAME:
CT11654A_WALLINGFORD_RT15

90 N. PLAINS INDUSTRIAL ROAD
WALLINGFORD, CT 06462

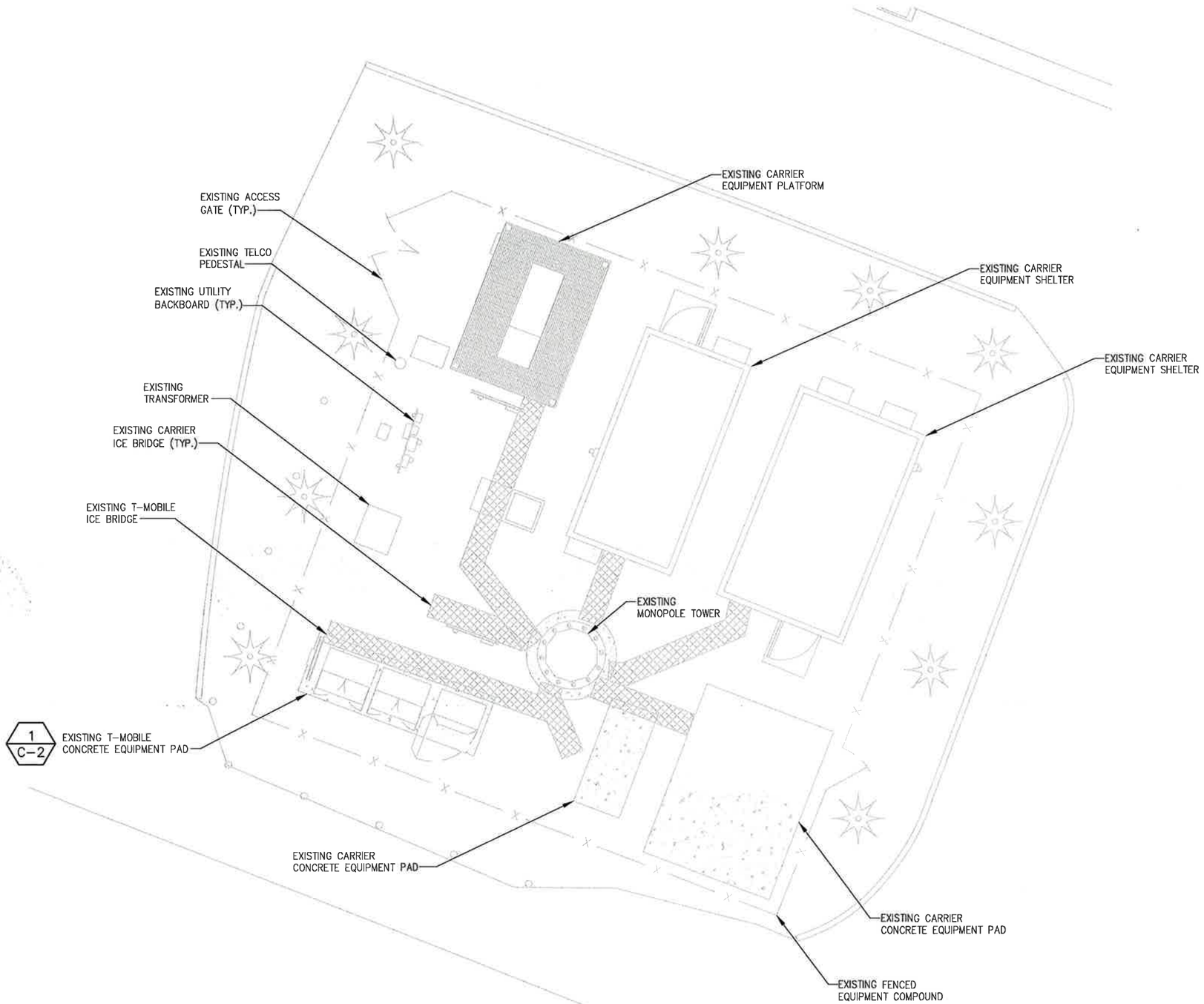
SHEET TITLE

TITLE SHEET

SHEET NUMBER

T-1

SHEET 1 OF 8 SHEETS



N
CALLED NORTH

1 / -- COMPOUND PLAN
SCALE: AS NOTED

GENERAL SITE NOTES:

1. A COMPLETE BOUNDARY SURVEY OF THE HOST PARCEL HAS NOT BEEN PERFORMED BY INFINIGY. BOUNDARY INFORMATION IF SHOWN WAS OBTAINED FROM INFORMATION PROVIDED BY OTHERS. PROPERTY IS SUBJECT TO ALL EASEMENTS AND RESTRICTIONS OF RECORD.
2. BASEMAPPING INFORMATION BASED ON PROVIDED INFORMATION.
3. CONTRACTOR TO FIELD VERIFY DIMENSIONS AS NECESSARY BEFORE CONSTRUCTION.
4. THE PROPOSED DEVELOPMENT DOES NOT INCLUDE SIGNS OF ADVERTISING.
5. THE PROPOSED DEVELOPMENT IS UNMANNED AND THEREFORE DOES NOT REQUIRE A MEANS OF WATER SUPPLY OR SEWAGE DISPOSAL.
6. NO LANDSCAPING WORK IS PROPOSED IN CONJUNCTION WITH THIS DEVELOPMENT OTHER THAN THAT WHICH IS SHOWN.
7. THE PROPOSED DEVELOPMENT DOES NOT INCLUDE OUTDOOR STORAGE OR ANY SOLID WASTE RECEPTACLES.
8. UTILITIES SHOWN ON PLAN ARE TAKEN FROM OWNERS RECORDS AND FIELD LOCATION OF VISIBLE SURFACE FEATURES. THE EXISTENCE, EXTENT AND EXACT HORIZONTAL AND VERTICAL LOCATIONS OF UTILITIES HAS NOT BEEN VERIFIED. ANY CONTRACTOR PERFORMING WORK ON THIS SITE MUST CONTACT MISS UTILITY AT LEAST 48 HOURS PRIOR TO COMMENCING WORK.
9. ALL OBSOLETE OR UNUSED FACILITIES SHALL BE REMOVED WITHIN 12 MONTHS OF CESSATION OF OPERATIONS.

SITE LEGEND

————	SITE PROPERTY LINE
————	STREET OR ROAD
— x — x —	CHAIN LINK FENCE
—▫—▫—	OPAQUE WOODEN FENCE
	TREES/SHRUBS
	TREE LINE
⊠	UTILITY POLE
(E)	EXISTING
(N)	NEW
(P)	PROPOSED
(F)	FUTURE

GRAPHIC SCALE

10' 5' 0 5' 10'

SCALE (11x17): 1" = 10'-0"
SCALE (22x34): 1" = 5'-0"

T-Mobile
T-MOBILE NORTHEAST LLC
4 SYLVAN WAY
PARSIPPANY, NJ 07054

INFINIGY
1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0793

SUBMITTALS

DATE	DESCRIPTION	REVISION
9/29/15	FOR PERMIT	0

DEPT.	DATE	APP'D	REVISIONS
RFE			
RF MAN.			
ZONING			
OPS			
CONSTR.			
SITE AC.			

PROJECT NO: 317-000
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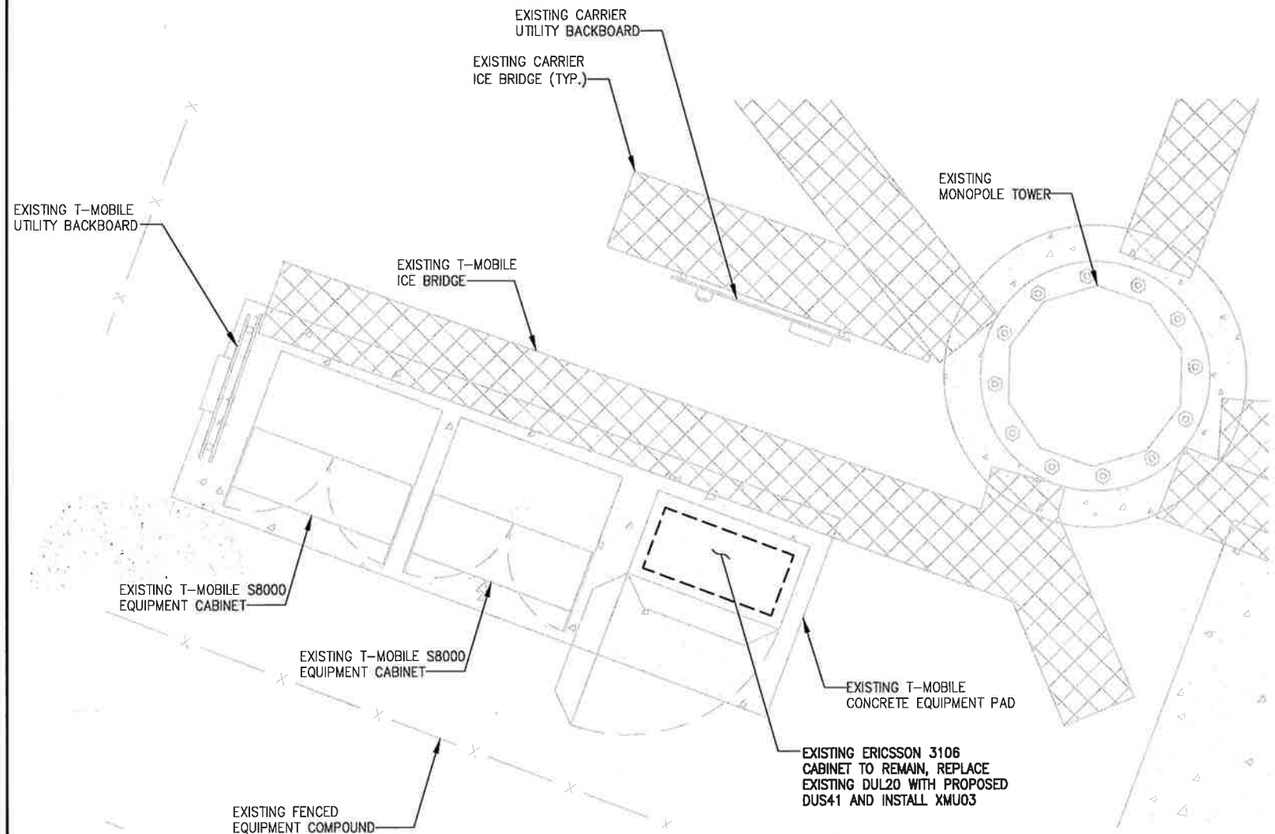
90 N. PLAINS INDUSTRIAL ROAD
WALLINGFORD, CT 06462

SHEET TITLE
SITE PLAN

SHEET NUMBER
C-1

SHEET 2 OF **8** SHEETS



CALLED NORTH

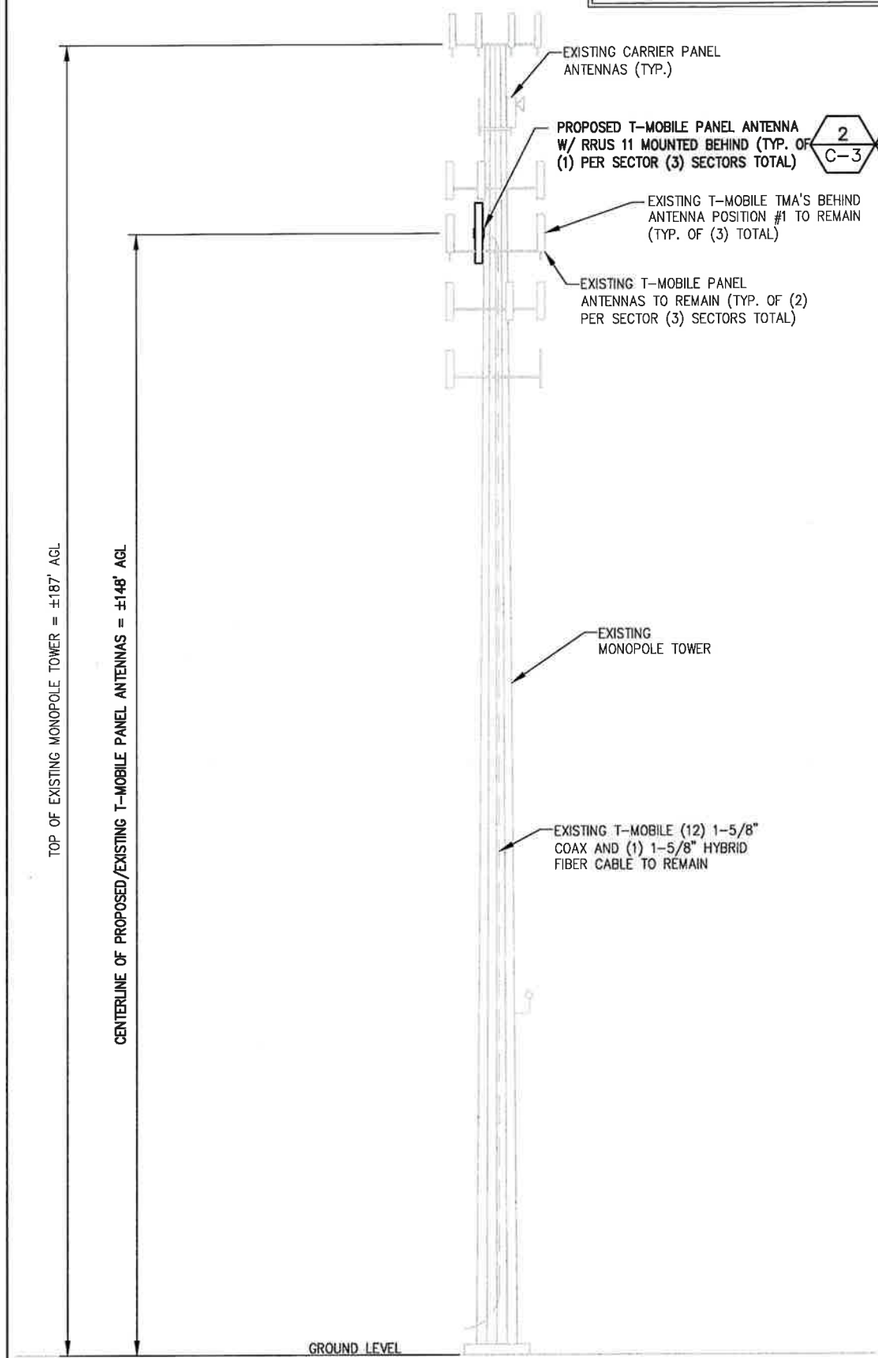
1 — COMPOUND PLAN
SCALE: AS NOTED

GRAPHIC SCALE

4' 2' 0 2' 4'

SCALE (11x17): 1" = 4'-0"
SCALE (22x34): 1" = 2'-0"

NOTE:
INFINIGY ENGINEERING HAS NOT EVALUATED THE TOWER OR LOADING FOR THIS SITE, AND ASSUMES NO RESPONSIBILITY FOR ITS STRUCTURAL INTEGRITY REGARDING ITS EXISTING OR PROPOSED LOADING. FINAL INSTALLATION TO COMPLY WITH RESULTS OF PASSING STRUCTURAL ANALYSIS.



2 — TOWER ELEVATION
NOT TO SCALE

T-Mobile
T-MOBILE NORTHEAST LLC
4 SYLVAN WAY
PARSIPPANY, NJ 07054

INFINIGY
1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0793

SUBMITTALS

DATE	DESCRIPTION	REVISION
9/29/15	FOR PERMIT	0

DEPT.	DATE	APP'D	REVISIONS
RFE			
RF MAN.			
ZONING			
OPS			
CONSTR.			
SITE AC.			

PROJECT NO:	317-000
DRAWN BY:	JLM
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JOHN S. STEVENS
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CT11654A_WALLINGFORD_RT15

90 N. PLAINS INDUSTRIAL ROAD
WALLINGFORD, CT 06462

SHEET TITLE

COMPOUND PLAN & ELEVATION

SHEET NUMBER

C-2

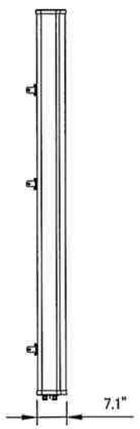
SHEET 3 OF **8** SHEETS

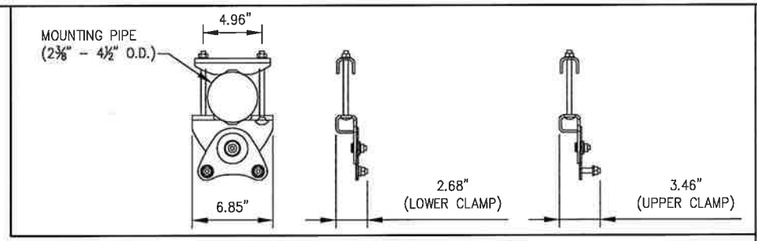
RF SYSTEM SCHEDULE (702Cu CONFIGURATION)

SECTOR	TECHNOLOGY	ANTENNA PORT	BAND	ANTENNA MODEL #	VENDOR	QTY (REMOVED)	QTY (NEW)	AZIMUTH	M-TILT	E-TILT	ANTENNA CENTERLINE	TMA MODEL #	VENDOR	RRU MODEL #	VENDOR	CABLE LENGTH	CABLE DIAMETER	CABLE TYPE	CABLE MODEL #	VENDOR	CABLE TAGGING	COLOR CODING	JUMPER TYPE	JUMPER TAGGING	COLOR CODING
A	UMTS AWS	RF #1	B4P	AIR21 B2A/B4P	ERICSSON	0	0	60°	0°	2°	148'-0"	-	-	-	-	EXISTING	1⅝"	COAX	EXISTING	N/A	UMTS AWS A1	-	COAX	-	-
		RF #2																						-	-
	GSM	OPTICAL #1	B2A						0°	4°		(EXISTING) KRY 112 144/1	ERICSSON	-	-	EXISTING	1⅝"	COAX	EXISTING	N/A	UMTS AWS A2	-	COAX	-	-
	UMTS	OPTICAL #2																						-	-
	LTE 700	**TBD**	**B12P**	**LNX-6515DS-VTM**	**COMMSCOPE**	**0**	**1**	**60°**	**0°**	**2°**	**148'-0"**	-	-	**(PROPOSED) RRUS 11**	**ERICSSON**	(ANTENNA CONNECTED VIA EXISTING HYBRID CABLE.)							**FIBER**	**LTE 700 FIBER**	-
	LTE AWS	OPTICAL #1	B4A	AIR21 B4A/B2P	ERICSSON	0	0	60°	0°	4°	148'-0"	-	-	-	-	(ANTENNA CONNECTED VIA EXISTING HYBRID CABLE.)							FIBER	-	-
B	UMTS AWS	RF #1	B4P	AIR21 B2A/B4P	ERICSSON	0	0	160°	0°	2°	148'-0"	-	-	-	-	EXISTING	1⅝"	COAX	EXISTING	N/A	UMTS AWS A1	-	COAX	-	-
		RF #2																						-	-
	GSM	OPTICAL #1	B2A						0°	4°		(EXISTING) KRY 112 144/1	ERICSSON	-	-	EXISTING	1⅝"	COAX	EXISTING	N/A	UMTS AWS A2	-	COAX	-	-
	UMTS	OPTICAL #2																						-	-
	LTE 700	**TBD**	**B12P**	**LNX-6515DS-VTM**	**COMMSCOPE**	**0**	**1**	**160°**	**0°**	**2°**	**148'-0"**	-	-	**(PROPOSED) RRUS 11**	**ERICSSON**	(ANTENNA CONNECTED VIA EXISTING HYBRID CABLE.)							**FIBER**	**LTE 700 FIBER**	-
	LTE AWS	OPTICAL #1	B4A	AIR21 B4A/B2P	ERICSSON	0	0	160°	0°	4°	148'-0"	-	-	-	-	(ANTENNA CONNECTED VIA EXISTING HYBRID CABLE.)							FIBER	-	-
C	UMTS AWS	RF #1	B4P	AIR21 B2A/B4P	ERICSSON	0	0	280°	0°	2°	148'-0"	-	-	-	-	EXISTING	1⅝"	COAX	EXISTING	N/A	UMTS AWS A1	-	COAX	-	-
		RF #2																						-	-
	GSM	OPTICAL #1	B2A						0°	2°		(EXISTING) KRY 112 144/1	ERICSSON	-	-	EXISTING	1⅝"	COAX	EXISTING	N/A	UMTS AWS A2	-	COAX	-	-
	UMTS	OPTICAL #2																						-	-
	LTE 700	**TBD**	**B12P**	**LNX-6515DS-VTM**	**COMMSCOPE**	**0**	**1**	**280°**	**0°**	**2°**	**148'-0"**	-	-	**(PROPOSED) RRUS 11**	**ERICSSON**	(ANTENNA CONNECTED VIA EXISTING HYBRID CABLE.)							**FIBER**	**LTE 700 FIBER**	-
	LTE AWS	OPTICAL #1	B4A	AIR21 B4A/B2P	ERICSSON	0	0	280°	0°	2°	148'-0"	-	-	-	-	(ANTENNA CONNECTED VIA EXISTING HYBRID CABLE.)							FIBER	-	-

KEY	
EXISTING	R - RED - GSM
PROPOSED	G - GREEN - UMTS 1900
FIBER CONNECTION	B - BLUE - UMTS AWS
	Y - YELLOW - LTE
	O - ORANGE - FIBER CABLE

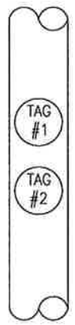
1 RF SCHEDULE
NOT TO SCALE

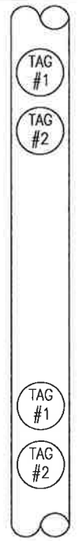




COMMSCOPE MODEL NO.:	LNX-6515DS-VTM
RADOME MATERIAL:	FIBERGLASS, UV RESISTANT
RADOME COLOR:	LIGHT GRAY
DIMENSIONS, HxWxD:	96"x11.9"x7.1" (2438 x 301 x 181 mm)
WEIGHT, W/ PRE-MOUNTED BRACKETS:	43.7 LBS (19.8 kg)
CONNECTOR:	7-16 DIN FEMALE

2 ANTENNA DETAIL
NOT TO SCALE





METALLIC TAG NOTES:

1. TWO METALLIC TAGS SHALL BE ATTACHED AT EACH END OF EVERY CABLE LONGER THAN (3) THREE FEET.
2. CABLES LESS THAN (3) THREE FEET WILL HAVE TWO METALLIC TAGS ATTACHED AT THE CENTER OF THE CABLE.
3. TAGS WILL BE FASTENED WITH STAINLESS STEEL ZIP TIES APPROPRIATE FOR CABLE DIAMETER.
4. STANDARDIZED METALLIC TAG KITS WILL BE ASSEMBLED WITH TAGS ALREADY ENGRAVED TO ACCOMODATE ALL CONFIGURATIONS.

3 METALLIC TAG DETAIL
NOT TO SCALE

T-Mobile
T-MOBILE NORTHEAST LLC
4 SYLVAN WAY
PARSIPPANY, NJ 07054

INFINIGY
1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0793

SUBMITTALS

DATE	DESCRIPTION	REVISION
9/29/15	FOR PERMIT	0

DEPT.	DATE	APP'D	REVISIONS
RFE.			
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STATE OF CONNECTICUT
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PROFESSIONAL ENGINEER

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SITE NAME:
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90 N. PLAINS INDUSTRIAL ROAD
WALLINGFORD, CT 06462

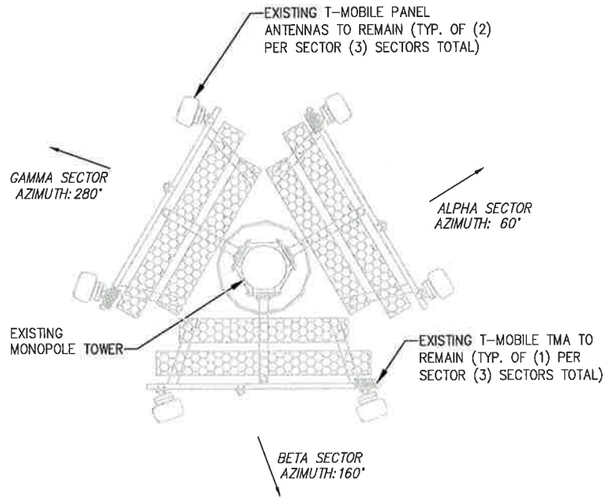
SHEET TITLE

ANTENNA DETAIL & RF SCHEDULE

SHEET NUMBER

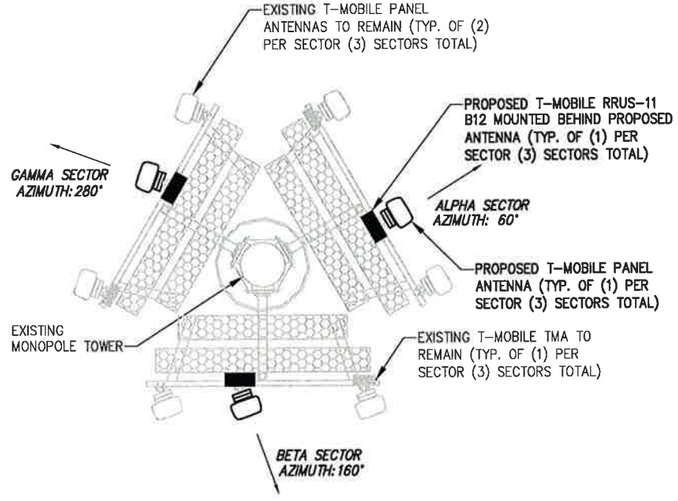
C-3

SHEET 4 OF **8** SHEETS



CALLED NORTH

1 EXISTING ANTENNA ORIENTATION PLAN
NOT TO SCALE

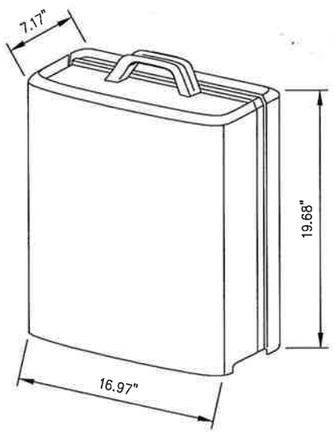


CALLED NORTH

2 PROPOSED ANTENNA ORIENTATION PLAN
NOT TO SCALE

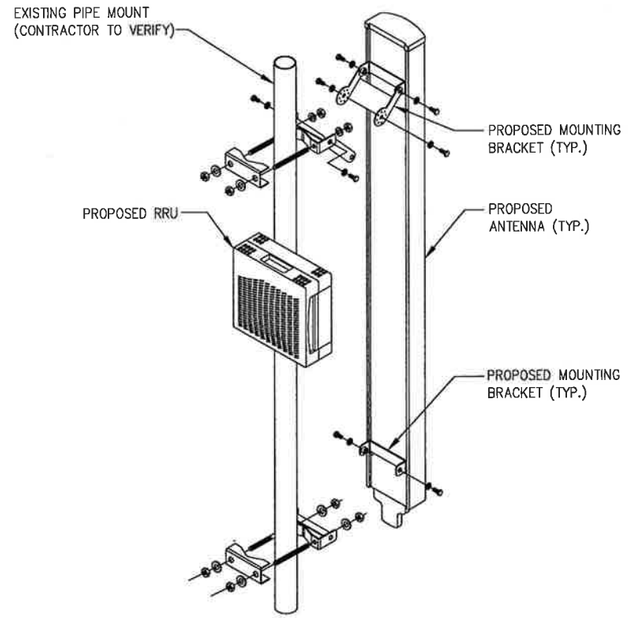
STRUCTURAL NOTES:

1. SPECIFICATIONS / CODES:
   - CONCRETE WORK SHALL BE PERFORMED IN ACCORDANCE WITH LATEST EDITION OF THE ACI CODE.
   - STEEL WORK SHALL BE PERFORMED IN ACCORDANCE WITH AISC STEEL CONSTRUCTION MANUAL, 9tH EDITION.
   - WELDING SHALL BE PERFORMED IN ACCORDANCE WITH AMERICAN WELDING SOCIETY (AWS) D1.1-92 "STRUCTURAL WELDING" CODE-STEEL.
   - REINFORCING STEEL SHALL BE PLACED IN ACCORDANCE WITH THE CONCRETE REINFORCING STEEL INSTITUTE (CRSI), "MANUAL OF STANDARD PRACTICE."
2. MATERIALS:
   - CONCRETE: fc' - 3000psi. (MIN. U.N.O.)
   - REINFORCING STEEL: ASTM A615, GRADE 60.
   - WIRE MESH: ASTM A185.
   - STRUCTURAL STEEL: ASTM A36.
   - ELECTRODES FOR WELDING: E 70xx.
   - GALVANIZING: ASTM A153 (BOLTS) OR ASTM A123 (SHAPES, PLATES).
   - EXPANSION BOLTS: HILTI KWIK BOLT II, STAINLESS STEEL, 3/4"ø x 43/4" EMBEDMENT OR AN APPROVED EQUAL.



ERICSSON MODEL NO.:	RRUS11 B12
COLOR:	GRAY
DIMENSIONS, HxWxD:	19.68"x16.97"x7.17" (500 x 431 x 182 mm)
WEIGHT:	50.71 LBS (23 kg)

3 RRUS11 B12 DETAIL
NOT TO SCALE



4 MOUNTING DETAIL
NOT TO SCALE

T-Mobile
T-MOBILE NORTHEAST LLC
4 SYLVAN WAY
PARSIPPANY, NJ 07054

INFINIGY
1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0793

SUBMITTALS

DATE	DESCRIPTION	REVISION
9/29/15	FOR PERMIT	0

DEPT.	DATE	APP'D	REVISIONS
RFE			
RF MAN.			
ZONING			
OPS			
CONSTR.			
SITE AC.			

PROJECT NO:	317-000
DRAWN BY:	JLM
CHECKED BY:	ASW

STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24705
LICENSED PROFESSIONAL ENGINEER
PROFESSIONAL SEAL

NOTE: IF DRAWINGS ARE 22"x34", USE GRAPHICAL SCALE AND/OR 1/2 TIMES OF THE NOTED SCALE.

SITE NUMBER:
CT11654A

SITE NAME:
CT11654A_WALLINGFORD_RT15

90 N. PLAINS INDUSTRIAL ROAD
WALLINGFORD, CT 06462

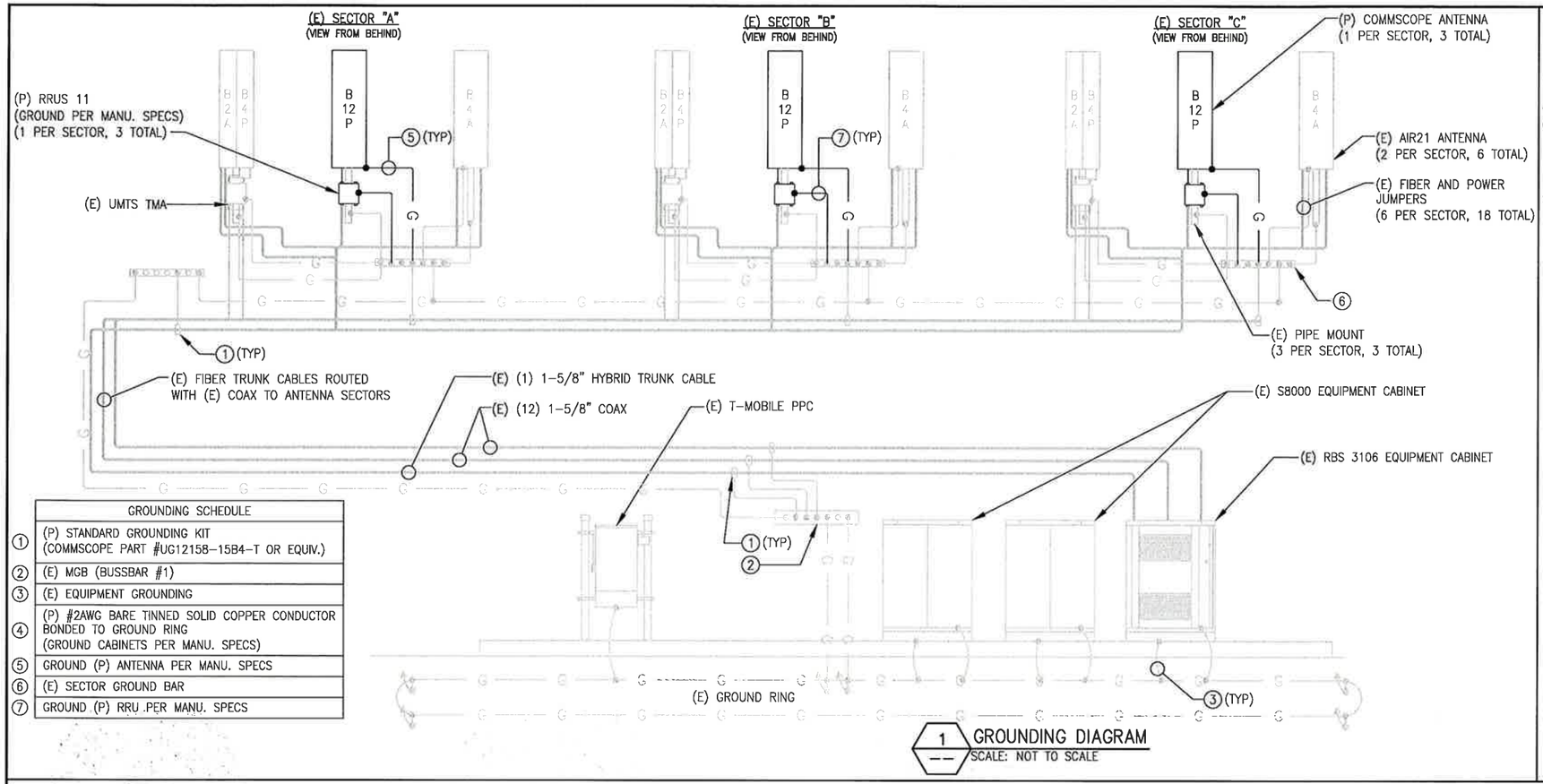
SHEET TITLE

EQUIPMENT SPECIFICATIONS

SHEET NUMBER

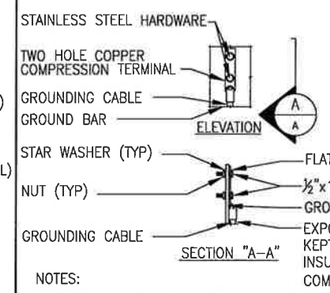
C-4

SHEET 5 OF **8** SHEETS

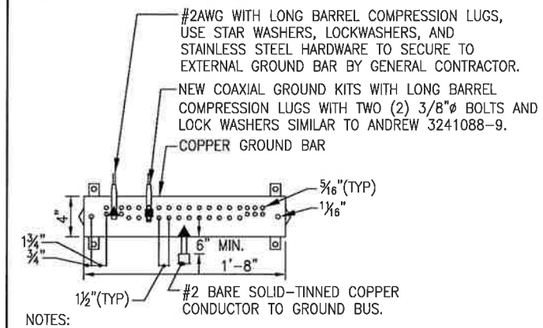


GROUNDING SCHEDULE	
①	(P) STANDARD GROUNDING KIT (COMMSCOPE PART #UG12158-15B4-T OR EQUIV.)
②	(E) MGB (BUSSBAR #1)
③	(E) EQUIPMENT GROUNDING
④	(P) #2AWG BARE TINNED SOLID COPPER CONDUCTOR BONDED TO GROUND RING (GROUND CABINETS PER MANU. SPECS)
⑤	GROUND (P) ANTENNA PER MANU. SPECS
⑥	(E) SECTOR GROUND BAR
⑦	GROUND (P) RRU PER MANU. SPECS

1 GROUNDING DIAGRAM
SCALE: NOT TO SCALE



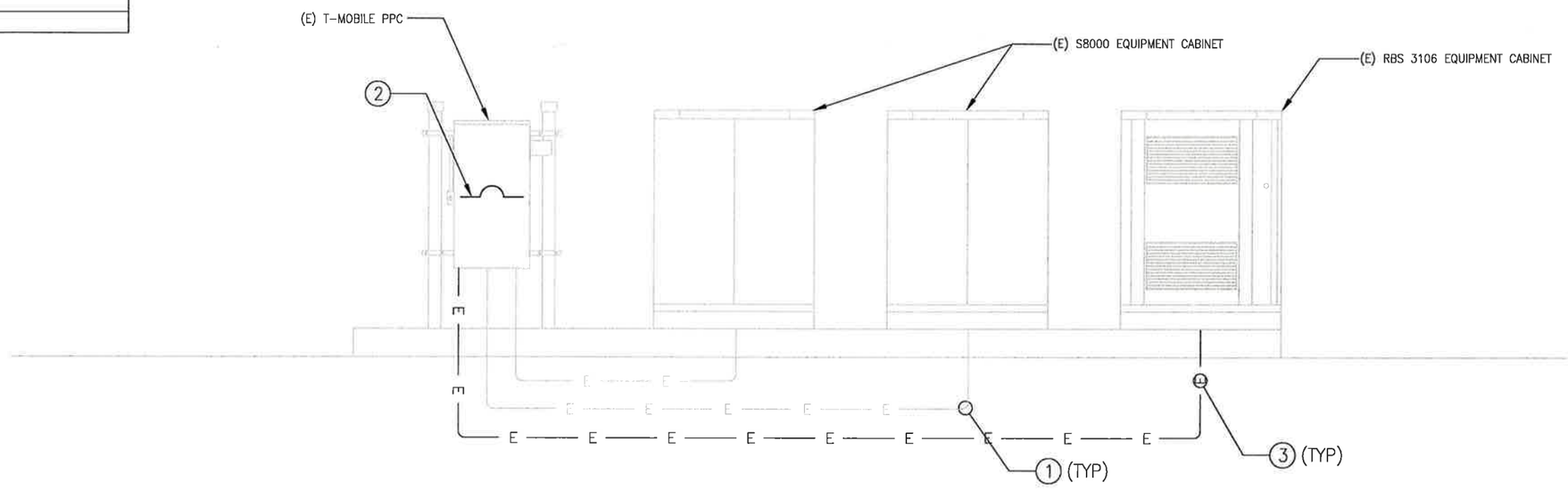
NOTES:
1. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.



NOTES:
1. ALL HARDWARE STAINLESS STEEL COAT ALL SURFACES WITH KOPR-SHIELD BEFORE MATING.
2. FOR GROUND BOND TO STEEL ONLY: INSERT A TOOTH WASHER BETWEEN LUG AND STEEL, COAT ALL SURFACES WITH KOPR-SHIELD.
3. ALL HOLES ARE COUNTERSUNK 1/16".

2 GROUND BAR CONNECTION DETAILS
SCALE: NOT TO SCALE

CONDUIT SCHEDULE	
①	(P) WIRE AND CONDUIT UPGRADE FOR POWER
②	(P) 100A BREAKER UPGRADE
③	(P) POWER CONDUIT UPGRADE



3 POWER DIAGRAM
SCALE: NOT TO SCALE

T-MOBILE NORTHEAST LLC
4 SYLVAN WAY
PARSIPPANY, NJ 07054

INFINIGY
1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0793

SUBMITTALS		
DATE	DESCRIPTION	REVISION
6/29/15	FOR PERMIT	0

DEPT.	DATE	APP'D	REVISIONS
RFE			
RF MAN.			
ZONING			
OPS			
CONSTR.			
SITE AC.			

PROJECT NO:	317-000
DRAWN BY:	JLM
CHECKED BY:	ASW

STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24705
LICENSED
PROFESSIONAL ENGINEER
PROFESSIONAL SEAL

NOTE: IF DRAWINGS ARE 22"x34", USE GRAPHICAL SCALE AND/OR 1/2 TIMES OF THE NOTED SCALE.

SITE NUMBER:
CT11654A

SITE NAME:
CT11654A_WALLINGFORD_RT15

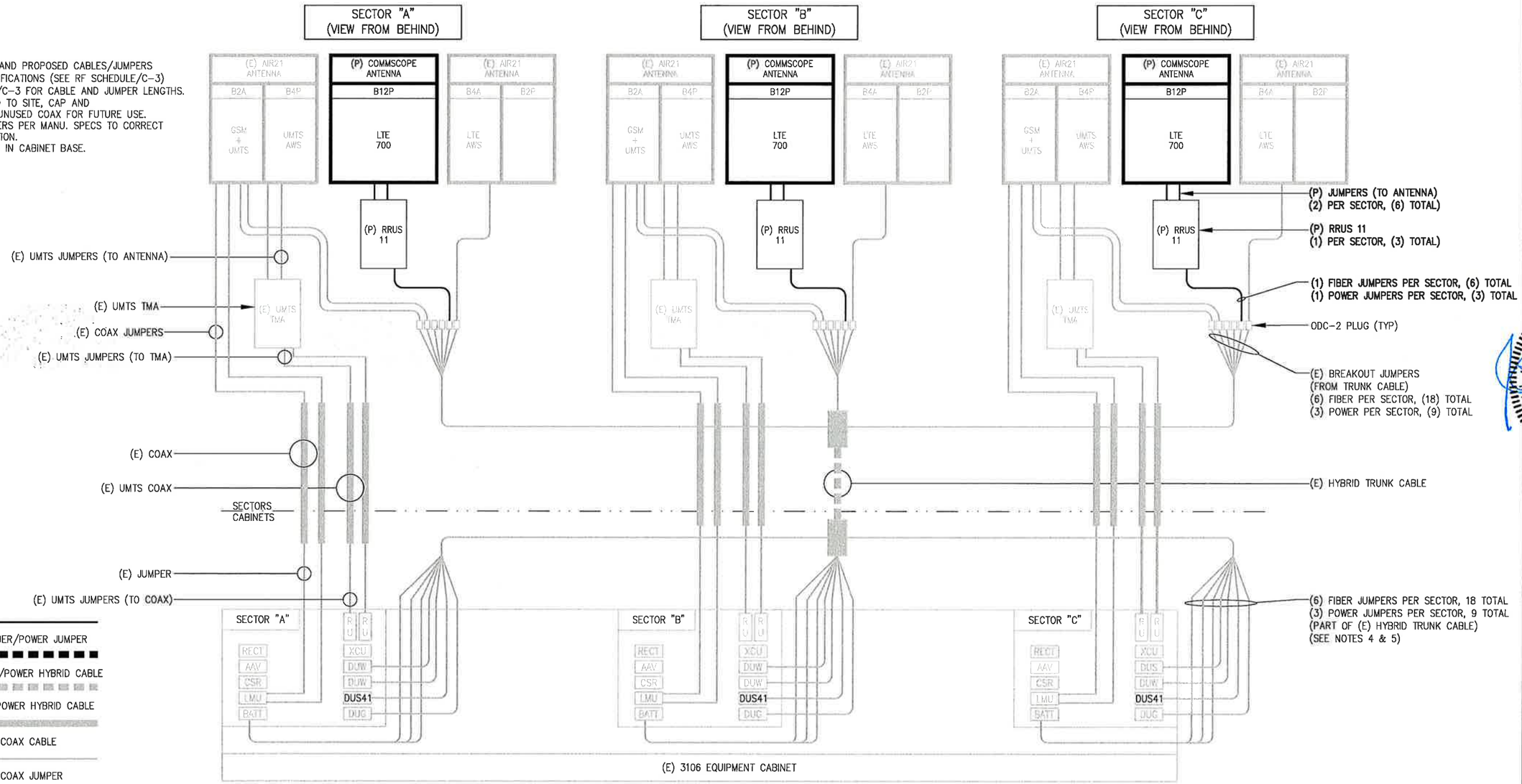
90 N. PLAINS INDUSTRIAL ROAD
WALLINGFORD, CT 06462

SHEET TITLE
GROUNDING & POWER DIAGRAMS

SHEET NUMBER
E-1

SHEET 6 OF 8 SHEETS

NOTES:
1. TAG ALL EXISTING AND PROPOSED CABLES/JUMPERS PER T-MOBILE SPECIFICATIONS (SEE RF SCHEDULE/C-3)
2. SEE RF SCHEDULE/C-3 FOR CABLE AND JUMPER LENGTHS.
3. IF NEW GPS ADDED TO SITE, CAP AND WEATHERPROOF ANY UNUSED COAX FOR FUTURE USE.
4. TRIM POWER JUMPERS PER MANU. SPECS TO CORRECT LENGTH FOR CONNECTION.
5. COIL EXCESS FIBER IN CABINET BASE.



1 — 702Cu CONFIGURATION COAX/FIBER PLUMBING DIAGRAM
NOT TO SCALE

T-MOBILE NORTHEAST LLC
4 SYLVAN WAY
PARSIPPANY, NJ 07054

INFINIGY
1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0793

SUBMITTALS

DATE	DESCRIPTION	REVISION
9/29/15	FOR PERMIT	0

DEPT.	DATE	APP'D	REVISIONS
RFE			
RF MAN.			
ZONING			
OPS			
CONSTR.			
SITE AC.			

PROJECT NO:	317-000
DRAWN BY:	JLM
CHECKED BY:	ASW

STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24705
LICENSED PROFESSIONAL ENGINEER
PROFESSIONAL SEAL

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SITE NUMBER:
CT11654A
SITE NAME:
CT11654A_WALLINGFORD_RT15
90 N. PLAINS INDUSTRIAL ROAD
WALLINGFORD, CT 06462

SHEET TITLE
COAX/FIBER PLUMBING DIAGRAM

SHEET NUMBER
E-2
SHEET 7 OF 8 SHEETS

ELECTRICAL NOTES:

WORK INCLUDED

1. INCLUDE ALL LABOR, MATERIALS, EQUIPMENT, PLANT SERVICES AND ADMINISTRATIVE TASKS REQUIRED TO COMPLETE AND MAKE OPERABLE THE ELECTRICAL WORK SHOWN ON THE DRAWINGS AND SPECIFIED HEREIN, INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
   A. PREPARE AND SUBMIT SHOP DRAWINGS, DIAGRAMS AND ILLUSTRATIONS.
   B. PROCURE ALL NECESSARY PERMITS AND APPROVALS AND PAY ALL REQUIRED FEES AND CHARGES IN CONNECTION WITH THE WORK OF THIS CONTRACT.
   C. SUBMIT AS-BUILT DRAWINGS, OPERATING AND MAINTENANCE INSTRUCTIONS AND MANUALS.
   D. EXECUTE ALL CUTTING, DRILLING, ROUGH AND FINISH PATCHING OF EXISTING OR NEWLY INSTALLED CONSTRUCTION REQUIRED FOR THE WORK OF THIS CONTRACT. FOR SLAB PENETRATIONS THROUGH POST TENSION SLABS, X-RAY EXACT AREA OF PENETRATION PRIOR TO PERFORMING WORK. COORDINATE ALL X-RAY WORK WITH BUILDING ENGINEER.
   E. PROVIDE HANGERS, SUPPORTS, FOUNDATIONS, STRUCTURAL FRAMING SUPPORTS, AND BASES FOR CONDUIT AND EQUIPMENT PROVIDED OR INSTALLED UNDER THE WORK OF HIS CONTRACT. PROVIDE COUNTER FLASHING, SLEEVES AND SEALS FOR FLOOR AND WALL PENETRATIONS.
   F. MAINTAIN ALL EXISTING ELECTRICAL SERVICES IN THE BUILDING AREAS NOT AFFECTED BY THE ALTERATION DURING THE PROGRESS OF THE WORK INCLUDING PROVIDING ALL TEMPORARY JUMPERS, CONDUITS, CAPS, PROTECTIVE DEVICES, CONNECTIONS AND EQUIPMENT REQUIRED. PROVIDE TEMPORARY LIGHT AND POWER FOR CONSTRUCTION PURPOSES.
2. IT IS THE INTENT OF THESE DRAWINGS AND SPECIFICATIONS TO CALL FOR AN INSTALLATION THAT IS COMPLETE IN EVERY RESPECT. IT IS NOT THE INTENT TO GIVE EVERY DETAIL ON THE DRAWINGS AND IN THE SPECIFICATIONS. IF AN ITEM OF WORK IS INDICATED IN THE DRAWINGS, IT IS CONSIDERED SUFFICIENT FOR INCLUSION IN THE CONTRACT. FURNISH AND INSTALL ALL MATERIAL AND EQUIPMENT USUALLY FURNISHED OR NEEDED TO MAKE A COMPLETE INSTALLATION WHETHER OR NOT SPECIFICALLY MENTIONED IN THE CONTRACT DOCUMENTS.

GENERAL REQUIREMENTS

1. PROVIDE ALL WORK IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC) AND LOCAL AND STATE ELECTRICAL CODES.
2. THE ELECTRICAL PLANS ARE DIAGRAMMATIC ONLY. REFER TO THE ARCHITECTURAL PLANS FOR THE EXACT DIMENSIONS OF THE BUILDING.
3. LOAD CALCULATIONS ARE BASED ON EXISTING BUILDING INFORMATION/DRAWINGS PROVIDED TO ENGINEERING. CONTRACTOR IS TO VERIFY ALL EXISTING RATINGS AND LOADS PRIOR TO PURCHASING OF SPECIFIED EQUIPMENT FOR COMPLIANCE TO NEC. CONTRACTOR TO NOTIFY ENGINEER OF ANY DISCREPANCIES AND REQUEST FURTHER DIRECTION BY ENGINEER.
4. EXISTING BUILDING EQUIPMENT IS NOTED ON THE DRAWINGS. NEW OR RELOCATED EQUIPMENT IS SHOWN WITH SOLID LINES. FUTURE EQUIPMENT (NOT IN THIS CONTRACT) IS DEPICTED WITH SHADED LINES. REQUEST CLARIFICATION OF DRAWINGS OR OF SPECIFICATIONS PRIOR TO PRICING OR INSTALLATION.
5. GENERAL
   A. AFTER CAREFULLY STUDYING THE DRAWINGS AND SPECIFICATIONS, AND BEFORE SUBMITTING THE PROPOSAL, MAKE A MANDATORY SITE VISIT TO ASCERTAIN CONDITIONS OF THE SITE, AND THE NATURE AND EXACT QUANTITY OF WORK TO BE PERFORMED. NO EXTRA COMPENSATION WILL BE ALLOWED FOR FAILURE TO NOTIFY THE OWNER, IN WRITING, OF ANY DISCREPANCIES THAT MAY HAVE BEEN NOTED BETWEEN THE EXISTING CONDITIONS AND THE DRAWINGS AND SPECIFICATIONS.
   B. VERIFY ALL MEASUREMENTS AT THE SITE AND BE RESPONSIBLE FOR CORRECTNESS OF SAME.
6. QUALITY, WORKMANSHIP, MATERIALS AND SAFETY
   A. PROVIDE NEW MATERIALS AND EQUIPMENT OF A DOMESTIC MANUFACTURER BY THOSE REGULARLY ENGAGED IN THE PRODUCTION AND MANUFACTURE OF SPECIFIED MATERIALS AND EQUIPMENT. WHERE UL, OR OTHER AGENCY, HAS ESTABLISHED STANDARDS FOR MATERIALS, PROVIDE MATERIALS WHICH ARE LISTED AND LABELED ACCORDINGLY. THE COMMERCIALLY STANDARD ITEMS OF EQUIPMENT AND THE SPECIFIC NAMES MENTIONED HEREIN ARE INTENDED FOR THE PROPER FUNCTIONING OF THE WORK.
   B. WORK SHALL BE PERFORMED BY WORKMEN SKILLED IN THE TRADE REQUIRED FOR THE WORK. INSTALL MATERIALS AND EQUIPMENT TO PRESENT A NEAT APPEARANCE WHEN COMPLETED AND IN ACCORDANCE WITH THE APPROVED RECOMMENDATIONS OF THE MANUFACTURER AND IN ACCORDANCE WITH CONTRACT DOCUMENTS.
   C. PROVIDE LABOR, MATERIALS, APPARATUS AND APPLIANCES ESSENTIAL TO THE FUNCTIONING OF THE SYSTEMS DESCRIBED OR INDICATED HEREIN, OR WHICH MAY BE REASONABLY IMPLIED AS ESSENTIAL WHENEVER MENTIONED IN THE CONTRACT DOCUMENT OR NOT.
   D. MAKE WRITTEN REQUESTS FOR SUPPLEMENTARY INSTRUCTIONS TO ARCHITECT/ENGINEER IN CASE OF DOUBT AS TO WORK INTENDED OR IN EVENT OF NEED FOR EXPLANATION THEREOF.
   E. PERFORMANCE AND MATERIAL REQUIREMENTS SCHEDULED OR SPECIFIED ARE MINIMUM STANDARD ACCEPTABLE. THE RIGHT TO JUDGE THE QUALITY OF EQUIPMENT THAT DEVIATES FROM THE CONTRACT DOCUMENT REMAINS SOLELY WITH ARCHITECT/ENGINEER. CONTRACT DOCUMENT OR NOT.

GUARANTEE

1. GUARANTEE MATERIALS, PARTS AND LABOR FOR WORK FOR ONE YEAR FROM THE DATE OF ISSUANCE OF OCCUPANCY PERMIT. DURING THAT PERIOD, MAKE GOOD FAULTS OR IMPERFECTIONS THAT MAY ARISE DUE TO DEFECTS OR OMISSIONS IN MATERIALS OR WORKMANSHIP WITH NO ADDITIONAL COMPENSATION AND AS DIRECTED BY ARCHITECT.

CLEANING

1. REMOVE ALL CONSTRUCTION DEBRIS RESULTING FROM THE WORK.
2. CLEAN EQUIPMENT AND SYSTEMS FOLLOWING THE COMPLETION OF THE PROJECT TO THE SATISFACTION OF THE ENGINEER.

COORDINATION AND SUPERVISION

1. CAREFULLY LAY OUT ALL WORK IN ADVANCE TO AVOID UNNECESSARY CUTTING, CHANNELING, CHASING OR DRILLING OF FLOORS, WALLS, PARTITIONS, CEILINGS OR OTHER SURFACES. WHERE SUCH WORK IS NECESSARY, HOWEVER, PATCH AND REPAIR THE WORK IN AN APPROVED MANNER BY SKILLED MECHANICS AT NO ADDITIONAL COST TO THE OWNER. RENDER FULL COOPERATION TO OTHER TRADES WHERE WORK WILL BE INSTALLED IN CLOSE PROXIMITY TO WORK OF OTHER TRADES. ASSIST IN WORKING OUT SPACE CONDITIONS. IF WORK IS INSTALLED BEFORE COORDINATION WITH OTHER TRADES, OR CAUSES INTERFERENCE, MAKE CHANGES NECESSARY TO CORRECT CONDITIONS WITHOUT EXTRA CHARGE.

SUBMITTALS

1. AS-BUILT DRAWINGS:
   A. UPON COMPLETION OF THE WORK, FURNISH TO THE OWNER "AS-BUILT" DRAWINGS.
2. SERVICE MANUALS:
   A. UPON COMPLETION OF THE WORK, FULLY INSTRUCT T-MOBILE AS TO THE OPERATION AND MAINTENANCE OF ALL MATERIAL, EQUIPMENT AND SYSTEMS.
   B. PROVIDE 3 COMPLETE BOUND SETS OF INSTRUCTIONS FOR OPERATING AND MAINTAINING ALL SYSTEMS AND EQUIPMENT.

CUTTING AND PATCHING

1. PROVIDE ALL CUTTING, DRILLING, ROUGH AND FINISH PATCHING REQUIRED TO COMPLETE THE WORK.
2. OBTAIN OWNER APPROVAL PRIOR TO CUTTING THROUGH FLOORS OR WALLS FOR PIPING OR CONDUIT.

TESTS, INSPECTION AND APPROVAL

1. BEFORE ENERGIZING ANY ELECTRICAL INSTALLATION, INSPECT EACH UNIT IN DETAIL. TIGHTEN ALL BOLTS AND CONNECTIONS (TORQUE-TIGHTEN WHERE REQUIRED) AND DETERMINE THAT ALL COMPONENTS ARE ALIGNED, AND THE EQUIPMENT IS IN SAFE, OPERATIONAL CONDITION.
2. PROVIDE THE COMPLETE ELECTRICAL SYSTEM FREE OF GROUND FAULTS AND SHORT CIRCUITS SUCH THAT THE SYSTEM WILL OPERATE SATISFACTORILY UNDER FULL LOAD CONDITIONS, WITHOUT EXCESSIVE HEATING AT ANY POINT IN THE SYSTEM.

SPECIAL REQUIREMENTS

1. DO NOT LEAVE ANY WORK INCOMPLETE NOR ANY HAZARDOUS SITUATIONS CREATED WHICH WILL AFFECT THE LIFE OR SAFETY OF THE PUBLIC AND/OR BUILDING OCCUPANTS. DO NOT INTERFERE WITH OR CUTOFF ANY OF THE EXISTING SERVICES WITHOUT THE OWNER'S WRITTEN PERMISSION.
2. WHEN NECESSARY TO TEMPORARILY DISCONNECT ANY EXISTING BUILDING UTILITIES AND SERVICE SYSTEMS, INCLUDING FEEDER OR BRANCH CIRCUITING SUPPLYING EXISTING FACILITIES, CONFER WITH THE OWNER AND ARRANGE THE PERIOD OF INTERRUPTION FOR A TIME MUTUALLY AGREED UPON. SHUTDOWN NOTE: SCHEDULE AND NOTIFY OWNER 48 HOURS PRIOR TO SHUTDOWN. ALL SHUTDOWN WORK TO BE SCHEDULED AT A TIME CONVENIENT TO OWNER.

GROUNDING

1. ROUTE ALL GROUNDING CONDUCTORS AS SHOWN ON CONDUIT/GROUNDING RISER.
2. ROUTE 500 KCMIL CU. THHN CONDUCTOR FROM THE MGB LOCATION TO BUILDING STEEL. VERIFY BUILDING STEEL IS EFFECTIVELY GROUNDED PER NEC TO THE MAIN SERVICE GROUNDING ELECTRODE CONDUCTOR (GEC).
3. MAKE ALL GROUND CONNECTIONS FROM MGB TO ELECTRICAL EQUIPMENT WITH 2 HOLE, CRIMP TYPE, BURNDY COMPRESSION TERMINATIONS, SIZED AS REQUIRED.
4. USE 1 HOLE, CRIMP TYPE, BURNDY COMPRESSIONS TERMINATIONS, SIZED AS REQUIRED, AT EQUIPMENT GROUND CONNECTIONS.
5. HIRE AN INDEPENDENT LAB TO PERFORM THE SPECIFIED OHMS TESTING. PROVIDE 4 SETS OF THE CERTIFIED DOCUMENTS TO THE OWNER FOR VERIFICATION PRIOR TO THE PROJECT COMPLETION.

RACEWAYS

1. ALL WIRING TO BE INSTALLED IN CONDUIT SYSTEMS IN ACCORDANCE WITH THE FOLLOWING:
   A. EXTERIOR FEEDERS AND CONTROL, WHERE UNDERGROUND, TO BE IN SCH 40 PVC.
   B. EXTERIOR, ABOVE GROUND POWER CONDUITS TO BE GALVANIZED RIGID STEEL (RGS).
   C. ALL TELECOMMUNICATION CONDUITS, INTERIOR/EXTERIOR, TO BE EMT.
   D. INSTALL PULL ROPES IN ALL NEW EMPTY CONDUITS INSTALLED ON THIS PROJECT.
   E. ALL TELECOM CONDUITS AND PULL BOXES INSTALLED ON THIS PROJECT TO BE LABELED "T-MOBILE". OWNER WILL PROVIDE LABELS FOR CONTRACTOR TO INSTALL.
   F. INTERIOR FEEDERS TO BE INSTALLED IN E.M.T. WITH STEEL COMPRESSION FITTINGS.
   G. MINIMUM SIZE CONDUIT TO BE ¾" TRADE SIZE UNLESS OTHERWISE INDICATED ON THE DRAWINGS.
   H. FINAL CONNECTIONS TO MOTORS AND VIBRATING EQUIPMENT TO BE INSTALLED IN LIQUID-TIGHT FLEXIBLE METAL CONDUIT.
   I. CONDUIT TO BE RUN CONCEALED IN CEILINGS, FINISHED AREAS OR DRYWALL PARTITIONS, UNLESS OTHERWISE NOTED.
   J. THE ROUTING OF CONDUITS INDICATED ON THE DRAWINGS IS DIAGRAMMATIC. BEFORE INSTALLING ANY WORK, EXAMINE THE WORKING LAYOUTS AND SHOP DRAWINGS OF THE OTHER TRADES TO DETERMINE THE EXACT LOCATIONS AND CLEARANCES.
   K. ALL EXTERIOR MOUNTING HARDWARE TO BE GALVANIZED STEEL. COORDINATE WITH BUILDING ENGINEER PRIOR TO ATTACHING TO BUILDING STRUCTURE.

RACEWAYS CONT'D

   L. PENETRATIONS OF WALLS, FLOORS AND ROOFS, FOR THE PASSAGE OF ELECTRICAL RACEWAYS, TO BE PROPERLY SEALED AFTER INSTALLATION OF RACEWAYS SO AS TO MAINTAIN THE STRUCTURAL OR WATERPROOF INTEGRITY OF THE WALL, FLOOR OR ROOF SYSTEM TO BE PENETRATED. SEAL ALL CONDUIT PENETRATIONS THROUGH FIRE OR SMOKE RATED WALLS, CEILINGS OR SMOKE TIGHT CORRIDOR PARTITIONS TO MAINTAIN PROPER RATING OF WALL OR CEILING.
   M. PROVIDE ALL CONDUIT ENDS WITH INSULATED METALLIC GROUNDING BUSHINGS.
   N. CONDUIT TO BE SUPPORTED AT MAXIMUM DISTANCE OF 8'-0", OR AS REQUIRED BY NEC, IN HORIZONTAL AND VERTICAL DIRECTIONS.
   O. PROVIDE STAINLESS STEEL BLANK COVER PLATES FOR ALL JUNCTION BOXES AND/OR OUTLET BOXES NOT USED IN EXPOSED AREAS. PROVIDE ALL OTHER UNUSED BOXES WITH STANDARD STEEL COVER PLATES.
   P. WHERE APPLICABLE, PROVIDE ROOFTOP CONDUIT SUPPORT SYSTEM, CONFORMING TO ROOFTOP WARRANTY REQUIREMENTS, PER BUILDING.

WIRES AND CABLES

1. CONTRACTOR TO COORDINATE WITH EQUIPMENT SUPPLIER AND VENDOR FOR EXACT EQUIPMENT OVER-CURRENT PROTECTION VOLTAGE, WIRE SIZE AND PLUG CONFIGURATION, IF APPLICABLE, PRIOR TO BID.
2. ALL EQUIPMENT/DEVICES TO BE PROVIDED WITH INSULATED GROUND CONDUCTOR.
3. ALL WIRE AND CABLE TO BE 600VOLT, COPPER, WITH THWN/THHN INSULATION, EXCEPT AS NOTED.
4. WIRE FOR POWER AND LIGHTING WILL NOT BE LESS THAN NO. 12AWG. ALL WIRE NO. 8 AND LARGER TO BE STRANDED.
5. CONTROL WIRING IS NOT TO BE LESS THAN NO. 14AWG, FLEXIBLE IN SINGLE CONDUCTORS OR MULTI-CONDUCTOR CABLES. CONTROL WIRING WILL CONSIST OF MULTI-CONDUCTOR CABLES WHEREVER POSSIBLE. CABLES TO BE PROVIDED WITH AN OVERALL FLAME-RETARDANT, EXTRUDED JACKET AND RATED FOR PLENUM USE. ALL CONTROL WIRE TO BE 600VOLT RATED.
6. WIRE PREVIOUSLY PULLED INTO CONDUIT IS CONSIDERED USED AND IS NOT TO BE RE-PULLED.
7. HOME RUNS AND BRANCH CIRCUIT WIRING FOR 20A, 120V CIRCUITS:

LENGTH (FT.)	HOME RUN WIRE SIZE
0 TO 50	NO. 12
51 TO 100	NO. 10
101 TO 150	NO. 8

8. VOLTAGE DROP IS NOT TO EXCEED 3%.
9. MAKE ALL CONNECTIONS WITH UL APPROVED, SOLDERLESS, PRESSURE TYPE INSULATED CONNECTORS: SCOTCHLOK OR AND APPROVED EQUAL.

WIRING DEVICES

1. ALL RECEPTACLES INSTALLED IN THIS PROJECT TO BE GROUNDING TYPE, WITH GROUNDING PIN SLOT CONNECTED TO DEVICE GROUND SCREW FOR GROUND WIRE CONNECTION.

DISCONNECT SWITCHES AND FUSES

1. DISCONNECT SWITCHES TO BE VOLTAGE-RATED TO SUIT THE CHARACTERISTICS OF THE SYSTEM FROM WHICH THEY ARE SUPPLIED.
2. PROVIDE HEAVY-DUTY, METAL-ENCLOSED, EXTERNALLY-OPERATED DISCONNECT SWITCHES, FUSED OR UNFUSED, OF SUCH TYPE AND SIZE AS REQUIRED TO PROPERLY PROTECT OR DISCONNECT THE LOAD FOR WHICH THEY ARE INTENDED.
3. PROVIDE NEMA 1 DISCONNECT SWITCHES FOR INTERIOR INSTALLATION, NEMA 3R FOR EXTERIOR INSTALLATION.
4. DISCONNECT SWITCHES TO BE MANUFACTURED BY:
   A. GENERAL ELECTRIC COMPANY
   B. SQUARE-D
5. PROVIDE RK-1 TYPE FUSES, UNLESS NOTED OTHERWISE.

INSTALLATION

1. INSTALL DISCONNECT SWITCHES WHERE INDICATED ON DRAWINGS.
2. INSTALL FUSES IN FUSIBLE DISCONNECT SWITCHES. FUSES MUST MATCH IN TYPE AND RATING.
3. FUSES TO BE MOUNTED SO THAT THE LABELS SHOWING THEIR RATINGS CAN BE READ WITHOUT REQUIRING FUSE REMOVAL.
4. FURNISH AND DEPOSIT SPARE FUSES AT THE JOB SITE AS FOLLOWS:
   A. THREE SPARES FOR EACH TYPE AND SIZE, IN EXCESS OF 60A, USED FOR INITIAL FUSING.
   B. TEN PERCENT SPARES FOR EACH TYPE AND SIZE, UP TO AND INCLUDING 60A, USED FOR INITIAL FUSING. IN NO CASE WILL LESS THAN THREE FUSES OF ONE PARTICULAR TYPE AND SIZE BE FURNISHED.

GENERAL NOTES:

INTENT

1. THESE SPECIFICATIONS AND CONSTRUCTION DRAWINGS ACCOMPANYING THEM DESCRIBE THE WORK TO BE DONE AND THE MATERIALS TO BE FURNISHED FOR CONSTRUCTION.
2. THE DRAWINGS AND SPECIFICATIONS ARE INTENDED TO BE FULLY EXPLANATORY AND SUPPLEMENTARY. HOWEVER, SHOULD ANYTHING BE SHOWN, INDICATED, OR SPECIFIED ON ONE AND NOT THE OTHER, IT SHALL BE DONE THE SAME AS IF SHOWN, INDICATED OR SPECIFIED IN BOTH
3. THE INTENTION OF THE DOCUMENTS IS TO INCLUDE ALL LABOR AND MATERIALS REASONABLY NECESSARY FOR THE PROPER EXECUTION AND COMPLETION OF THE WORK AS STIPULATED IN THE CONTRACT.
4. THE PURPOSE OF THE SPECIFICATIONS IS TO INTERPRET THE INTENT OF THE DRAWINGS AND TO DESIGNATE THE METHOD OF THE PROCEDURE, TYPE AND QUALITY OF MATERIALS REQUIRED TO COMPLETE THE WORK.
5. MINOR DEVIATIONS FROM THE DESIGN LAYOUT ARE ANTICIPATED AND SHALL BE CONSIDERED AS PART OF THE WORK. NO CHANGES THAT ALTER THE CHARACTER OF THE WORK WILL BE MADE OR PERMITTED BY THE OWNER WITHOUT ISSUING A CHANGE ORDER.

CONFLICTS

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATIONS OF ALL MEASUREMENTS AT THE SITE BEFORE ORDERING ANY MATERIALS OR DOING ANY WORK. NO EXTRA CHARGE OR COMPENSATION SHALL BE ALLOWED DUE TO DIFFERENCE BETWEEN ACTUAL DIMENSIONS AND DIMENSIONS INDICATED ON THE CONSTRUCTION DRAWINGS. ANY SUCH DISCREPANCY IN DIMENSION WHICH MAY BE FOUND SHALL BE SUBMITTED TO THE OWNER FOR CONSIDERATION BEFORE THE CONTRACTOR PROCEEDS WITH THE WORK IN THE AFFECTED AREAS.
2. THE BIDDER, IF AWARDED THE CONTRACT, WILL NOT BE ALLOWED ANY EXTRA COMPENSATION BY REASON OF ANY MATTER OR THING CONCERNING SUCH BIDDER MIGHT HAVE FULLY INFORMED THEMSELVES PRIOR TO THE BIDDING.
3. NO PLEA OF IGNORANCE OF CONDITIONS THAT EXIST, OR OF DIFFICULTIES OR CONDITIONS THAT MAY BE ENCOUNTERED, OR OF ANY OTHER RELEVANT MATTER CONCERNING THE WORK TO BE PERFORMED IN THE EXECUTION OF THE WORK WILL BE ACCEPTED AS AN EXCUSE FOR ANY FAILURE OR OMISSION ON THE PART OF THE CONTRACTOR TO FULFILL EVERY DETAIL OF ALL THE REQUIREMENTS OF THE CONTRACT DOCUMENTS GOVERNING THE WORK.

CONTRACTS AND WARRANTIES

1. CONTRACTOR IS RESPONSIBLE FOR APPLICATION AND PAYMENT OF CONTRACTOR LICENSES AND BONDS.
2. SEE MASTER CONTRACTION SERVICES AGREEMENT FOR ADDITIONAL DETAILS.

STORAGE

1. ALL MATERIALS MUST BE STORED IN A LEVEL AND DRY FASHION AND IN A MANNER THAT DOES NOT NECESSARILY OBSTRUCT THE FLOW OF OTHER WORK. ANY STORAGE METHOD MUST MEET ALL RECOMMENDATIONS OF THE ASSOCIATED MANUFACTURER.

CLEANUP

1. THE CONTRACTORS SHALL, AT ALL TIMES, KEEP THE SITE FREE FROM ACCUMULATION OF WASTE MATERIALS OR RUBBISH CAUSED BY THEIR EMPLOYEES AT WORK AND AT THE COMPLETION OF THE WORK. THEY SHALL REMOVE ALL RUBBISH FROM AND ABOUT THE BUILDING AREA, INCLUDING ALL THEIR TOOLS, SCAFFOLDING AND SURPLUS MATERIALS AND SHALL LEAVE THEIR WORK CLEAN AND READY TO USE.
2. EXTERIOR
   A. VISUALLY INSPECT EXTERIOR SURFACES AND REMOVE ALL TRACES OF SOIL, WASTE MATERIALS, SMUDGES AND OTHER FOREIGN MATTER.
   B. REMOVE ALL TRACES OF SPLASHED MATERIALS FROM ADJACENT SURFACES.
   C. IF NECESSARY, TO ACHIEVE A UNIFORM DEGREE OF CLEANLINESS, HOSE DOWN THE EXTERIOR OF THE STRUCTURE.
3. INTERIOR
   A. VISUALLY INSPECT INTERIOR SURFACE AND REMOVE ALL TRACES OF SOIL, WASTE MATERIALS, SMUDGES AND OTHER FOREIGN MATTER FROM WALLS, FLOOR, AND CEILING.
   B. REMOVE ALL TRACES OF SPLASHED MATERIALS FROM ADJACENT SURFACES.
   C. REMOVE PAINT DROPPINGS, SPOTS, STAINS, AND DIRT FROM FINISHED SURFACES.

CHANGE ORDER PROCEDURE:

1. REFER TO SECTION 17 OF SIGNED MCSA: SEE PROFESSIONAL SERVICE AGREEMENT FOR MCSA.

RELATED DOCUMENTS AND COORDINATION

1. GENERAL CARPENTRY, ELECTRICAL AND ANTENNA DRAWINGS ARE INTERRELATED. IN PERFORMANCE OF THE WORK, THE CONTRACTOR MUST REFER TO ALL DRAWINGS. ALL COORDINATION TO BE THE RESPONSIBILITY OF THE CONTRACTOR.

SHOP DRAWINGS

1. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS AS REQUIRED AND LISTED IN THESE SPECIFICATIONS TO THE OWNER FOR APPROVAL.
2. ALL SHOP DRAWINGS SHALL BE REVIEWED, CHECKED AND CORRECTED BY CONTRACTOR PRIOR TO SUBMITTAL TO THE OWNER.

PRODUCTS AND SUBSTITUTIONS

1. SUBMIT 3 COPIES OF EACH REQUEST FOR SUBSTITUTION. IN EACH REQUEST, IDENTIFY THE PRODUCT OR FABRICATION OR INSTALLATION METHOD TO BE REPLACED BY THE SUBSTITUTION. INCLUDE RELATED SPECIFICATION SECTION AND DRAWING NUMBERS AND COMPLETE DOCUMENTATION SHOWING COMPLIANCE WITH THE REQUIREMENTS FOR SUBSTITUTIONS.
2. SUBMIT ALL NECESSARY PRODUCT DATA AND CUT SHEETS WHICH PROPERLY INDICATE AND DESCRIBE THE ITEMS, PRODUCTS AND MATERIALS BEING INSTALLED. THE CONTRACTOR SHALL, IF DEEMED NECESSARY BY THE OWNER, SUBMIT ACTUAL SAMPLES TO THE OWNER FOR APPROVAL IN LIEU OF CUT SHEETS.

QUALITY ASSURANCE

1. ALL WORK SHALL BE IN ACCORDANCE WITH APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS. THESE SHALL INCLUDE, BUT NOT BE LIMITED TO THE APPLICABLE CODES SET FORTH BY THE LOCAL GOVERNING BODY. SEE "CODE COMPLIANCE" T-1.

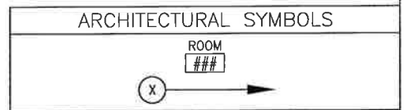
ADMINISTRATION

1. BEFORE THE COMMENCEMENT OF ANY WORK, THE CONTRACTOR WILL ASSIGN A PROJECT MANAGER WHO WILL ACT AS A SINGLE POINT OF CONTACT FOR ALL PERSONNEL INVOLVED IN THIS PROJECT. THIS PROJECT MANAGER WILL DEVELOP A MASTER SCHEDULE FOR THE PROJECT WHICH WILL BE SUBMITTED TO THE OWNER PRIOR TO THE COMMENCEMENT OF ANY WORK.
2. SUBMIT A BAR TYPE PROGRESS CHART, NOT MORE THAN 3 DAYS AFTER THE DATE ESTABLISHED FOR COMMENCEMENT OF THE WORK ON THE SCHEDULE, INDICATING A TIME BAR FOR EACH MAJOR CATEGORY OR UNIT OF WORK TO BE PERFORMED AT THE SITE, PROPERLY SEQUENCED AND COORDINATED WITH OTHER ELEMENTS OF WORK AND SHOWING COMPLETION OF THE WORK SUFFICIENTLY IN ADVANCE OF THE DATE ESTABLISHED FOR SUBSTANTIAL COMPLETION OF THE WORK.
3. PRIOR TO COMMENCING CONSTRUCTION, THE OWNER SHALL SCHEDULE AN ON-SITE MEETING WITH ALL MAJOR PARTIES. THIS WOULD INCLUDE, BUT NOT LIMITED TO, THE OWNER, PROJECT MANAGER, CONTRACTOR, LAND OWNER REPRESENTATIVE, LOCAL TELEPHONE COMPANY, TOWER ERECTION FOREMAN (IF SUBCONTRACTED).
4. CONTRACTOR SHALL BE EQUIPPED WITH SOME MEANS OF CONSTANT COMMUNICATIONS, SUCH AS A MOBILE PHONE OR A BEEPER. THIS EQUIPMENT WILL NOT BE SUPPLIED BY THE OWNER, NOR WILL WIRELESS SERVICE BE ARRANGED.
5. DURING CONSTRUCTION, CONTRACTOR MUST ENSURE THAT EMPLOYEES AND SUBCONTRACTORS WEAR HARD HATS AT ALL TIMES. CONTRACTOR WILL COMPLY WITH ALL WPCS SAFETY REQUIREMENTS IN THEIR AGREEMENT.
6. PROVIDE WRITTEN DAILY UPDATES ON SITE PROGRESS TO THE OWNER.
7. COMPLETE INVENTORY OF CONSTRUCTION MATERIALS AND EQUIPMENT IS REQUIRED PRIOR TO START OF CONSTRUCTION.
8. NOTIFY THE OWNER/PROJECT MANAGER IN WRITING NO LESS THAN 48 HOURS IN ADVANCE OF CONCRETE POURS, TOWER ERECTIONS, AND EQUIPMENT CABINET PLACEMENTS.

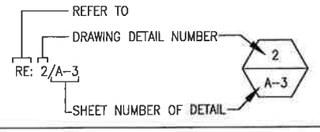
INSURANCE AND BONDS

1. CONTRACTOR, AT THEIR OWN EXPENSE, SHALL CARRY AND MAINTAIN, FOR THE DURATION OF THE PROJECT, ALL INSURANCE, AS REQUIRED AND LISTED, AND SHALL NOT COMMENCE WITH THEIR WORK UNTIL THEY HAVE PRESENTED AN ORIGINAL CERTIFICATE OF INSURANCE STATING ALL COVERAGES TO THE OWNER. REFER TO THE MASTER AGREEMENT FOR REQUIRED INSURANCE LIMITS.
2. THE OWNER SHALL BE NAMED AS AN ADDITIONAL INSURED ON ALL POLICIES.
3. CONTRACTOR MUST PROVIDE PROOF OF INSURANCE.

ARCHITECTURAL SYMBOLS



DETAIL REFERENCE KEY



ABBREVIATIONS

ADJ	ADJUSTABLE
AGL	ABOVE GROUND LINE
&	AND
APPROX	APPROXIMATE
@	AT
BTS	BASE TRANSMISSION STATION
CAB	CABINET
CLG	CEILING
CONC	CONCRETE
CONT	CONTINUOUS
DIA OR ø	DIAMETER
DWG	DRAWING
EA	EACH
ELEC	ELECTRICAL
ELEV	ELEVATION
EQ	EQUAL
EQUIP	EQUIPMENT
EGB	EQUIPMENT GROUND BAR
(E)	EXISTING
EXT	EXTERIOR
FF	FINISHED FLOOR
GA	GAUGE
GALV	GALVANIZED
GC	GENERAL CONTRACTOR
GRND	GROUND
LG	LONG
MAX	MAXIMUM
MECH	MECHANICAL
MW	MICROWAVE DISH
MFR	MANUFACTURER
MGB	MASTER GROUND BAR
MIN	MINIMUM
MTL	METAL
(N)	NEW
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
OC	ON CENTER
OPP	OPPOSITE
(P)	PROPOSED
PCS	PERSONAL COMMUNICATION SYSTEM
PPC	POWER PROTECTION CABINET
SF	SQUARE FOOT
SHT	SHEET
SIM	SIMILAR
SS	STAINLESS STEEL
STL	STEEL
TOC	TOP OF CONCRETE
TOM	TOP OF MASONRY
TYP	TYPICAL
VIF	VERIFY IN FIELD
UON	UNLESS OTHERWISE NOTED
WWF	WELDED WIRE FABRIC
W/	WITH

T-Mobile

T-MOBILE NORTHEAST LLC
4 SYLVAN WAY
PARSIPPANY, NJ 07054

INFINIGY
1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0793

SUBMITTALS

DATE	DESCRIPTION	REVISION
9/29/15	FOR PERMIT	0

DEPT.	DATE	APP'D	REVISIONS
RFE			
RF MAN.			
ZONING			
OPS			
CONSTR.			
SITE AC.			

PROJECT NO:	317-000
DRAWN BY:	JLM
CHECKED BY:	ASW

STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24705
LICENSED
PROFESSIONAL ENGINEER
CONNECTICUT SEAL

NOTE: IF DRAWINGS ARE 22"x34", USE GRAPHICAL SCALE AND/OR 1/2 TIMES OF THE NOTED SCALE.

SITE NUMBER:
CT11654A

SITE NAME:
CT11654A_WALLINGFORD_RT15

90 N. PLAINS INDUSTRIAL ROAD
WALLINGFORD, CT 06462

SHEET TITLE

GENERAL AND ELECTRICAL NOTES

SHEET NUMBER

N-1

SHEET 8 OF 8 SHEETS

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RADIO FREQUENCY EMISSIONS ANALYSIS REPORT
EVALUATION OF HUMAN EXPOSURE POTENTIAL TO NON-IONIZING EMISSIONS

T-Mobile Existing Facility

Site ID: CT11654A

CT11645A_Wallingford_RT15
90 N. Plains Industrial Road
Wallingford, CT 06492

November 17, 2015

EBI Project Number: 6215005772

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general public allowable limit:	8.34 %

21 B Street · Burlington, MA 01803 · Tel: (781) 273.2500 · Fax: (781) 273.3311

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November 17, 2015

T-Mobile USA
Attn: Jason Overbey, RF Manager
35 Griffin Road South
Bloomfield, CT 06002

Emissions Analysis for Site: **CT11654A – CT11645A_Wallingford_RT15**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **90 N. Plains Industrial Road, Wallingford, CT**, for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (μW/cm2). The number of $\mu W/cm^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

All results were compared to the FCC (Federal Communications Commission) radio frequency exposure rules, 47 CFR 1.1307(b)(1) – (b)(3), to determine compliance with the Maximum Permissible Exposure (MPE) limits for General Population/Uncontrolled environments as defined below.

General population/uncontrolled exposure limits apply to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general public would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limit for the 700 MHz Band is approximately 467 $\mu W/cm^2$, and the general population exposure limit for the PCS and AWS bands is 1000 $\mu W/cm^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits (see below), as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at **90 N. Plains Industrial Road, Wallingford, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of a 6 foot person standing at the base of the tower.

For all calculations, all equipment was calculated using the following assumptions:

1) 2 GSM / UMTS channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel

2) 2 UMTS channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

3) 2 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

4) 1 LTE channel (700 MHz Band) was considered for each sector of the proposed installation. This channel has a transmit power of 30 Watts.

5) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation 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.

6) For the following calculations the sample point was the top of a six foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications minus 10 dB was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

7) The antennas used in this modeling are the **Ericsson AIR21(B4A/B2P** & **B2A/B4P)** for 1900 MHz (PCS) and 2100 MHz (AWS) channels and the **Commscope LNX-6515DS-VTM** for 700 MHz channels. This is based on feedback from the carrier with regards to anticipated antenna selection. The **Ericsson AIR21 (B4A/B2P** & **B2A/B4P)** have a maximum gain of **15.9 dBd** at their main lobe. The **Commscope LNX-6515DS-VTM** has a maximum gain of **14.6 dBd** at its main lobe. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

8) The antenna mounting height centerline of the proposed antennas is **150 feet** above ground level (AGL).

9) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

All calculations were done with respect to uncontrolled / general public threshold limits.

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T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	**1**	Antenna #:	**1**	Antenna #:	**1**
Make / Model:	Ericsson AIR21 B4A/B2P	Make / Model:	Ericsson AIR21 B4A/B2P	Make / Model:	Ericsson AIR21 B4A/B2P
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	150	Height (AGL):	150	Height (AGL):	150
Frequency Bands	2100 MHz (AWS)	Frequency Bands	2100 MHz (AWS)	Frequency Bands	2100 MHz (AWS)
Channel Count	2	Channel Count	2	# PCS Channels:	2
Total TX Power:	120	Total TX Power:	120	# AWS Channels:	120
ERP (W):	4,668.54	ERP (W):	4,668.54	ERP (W):	4,668.54
Antenna A1 MPE%	0.81	Antenna B1 MPE%	0.81	Antenna C1 MPE%	0.81
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	Ericsson AIR21 B2A/B4P	Make / Model:	Ericsson AIR21 B2A/B4P	Make / Model:	Ericsson AIR21 B2A/B4P
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	150	Height (AGL):	150	Height (AGL):	150
Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power:	120	Total TX Power:	120	Total TX Power:	120
ERP (W):	4,668.54	ERP (W):	4,668.54	ERP (W):	4,668.54
Antenna A2 MPE%	0.81	Antenna B2 MPE%	0.81	Antenna C2 MPE%	0.81
Antenna #:	**3**	Antenna #:	**3**	Antenna #:	**3**
Make / Model:	Commscope LNX-6515DS-VTM	Make / Model:	Commscope LNX-6515DS-VTM	Make / Model:	Commscope LNX-6515DS-VTM
Gain:	14.6 dBd	Gain:	14.6 dBd	Gain:	14.6 dBd
Height (AGL):	150	Height (AGL):	150	Height (AGL):	150
Frequency Bands	700 MHz	Frequency Bands	700 MHz	Frequency Bands	700 MHz
Channel Count	1	Channel Count	1	Channel Count	1
Total TX Power:	30	Total TX Power:	30	Total TX Power:	30
ERP (W):	865.21	ERP (W):	865.21	ERP (W):	865.21
Antenna A3 MPE%	0.32	Antenna B3 MPE%	0.32	Antenna C3 MPE%	0.32

Site Composite MPE%	
Carrier	**MPE%**
T-Mobile (Per Sector Max)	**1.94 %**
Sprint	1.07 %
Clearwire	0.07 %
MetroPCS	0.74 %
XM Satellite Radio	0.11 %
AT&T	0.60 %
Nextel	0.42 %
Verizon Wireless	3.39 %
Site Total MPE %:	**8.34 %**

T-Mobile Sector 1 Total:	1.94 %
T-Mobile Sector 2 Total:	1.94 %
T-Mobile Sector 3 Total:	1.94 %
Site Total:	8.34 %

T-Mobile _per sector	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
T-Mobile 2100 MHz (AWS) LTE	**2**	**2334.27**	**150**	**8.09**	**2100**	**1000**	**0.87 %**
T-Mobile 1900 MHz (PCS) GSM/UMTS	**2**	**1167.14**	**150**	**4.05**	**1900**	**1000**	**0.40 %**
T-Mobile 2100 MHz (AWS) UMTS	**2**	**1167.14**	**150**	**4.05**	**2100**	**1000**	**0.40 %**
T-Mobile 700 MHz LTE	**1**	**865.21**	**150**	**1.50**	**700**	**467**	**0.32 %**
						Total:	**1.94%**

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Summary

All calculations performed for this analysis yielded results that were **within** the allowable limits for general public exposure to RF Emissions.

The anticipated maximum composite contributions from the T-Mobile facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general public exposure to RF Emissions are shown here:

T-Mobile Sector	Power Density Value (%)
Sector 1:	1.94 %
Sector 2:	1.94 %
Sector 3 :	1.94 %
T-Mobile Per Sector Maximum:	1.94 %
Site Total:	8.34 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **8.34%** of the allowable FCC established general public limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite values calculated were well within the allowable 100% threshold standard per the federal government.

Scott Heffernan
RF Engineering Director

EBI Consulting
21 B Street
Burlington, MA 01803

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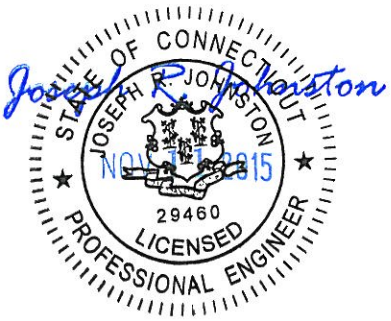
the solutions are endless

Structural Analysis Report

Structure	:	**178.5 ft Monopole**
ATC Site Name	:	**Bilkays Express, CT**
ATC Site Number	:	**302467**
Engineering Number	:	**63916421**
Proposed Carrier	:	**T-Mobile**
Carrier Site Name	:	**N/A**
Carrier Site Number	:	**CT11654A**
Site Location	:	**90 North Plains Industrial Rd.** **Wallingford, CT 06492-2334** **41.480761,-72.817700**
County	:	**New Haven**
Date	:	**November 11, 2015**
Max Usage	:	**63%**
Result	:	**Pass**



Prepared By:
Nathaniel Ober
Infinigy

AMERICAN TOWER®
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Table of Contents

Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 178.5 ft monopole to reflect the change in loading by T-Mobile.

Supporting Documents

Tower Drawings	FWT Job #18357, dated March 19, 1999
Foundation Drawing	FWT Job #18357, dated March 19, 1999
Geotechnical Report	Tectonic Work Order #1170.C947C, dated March 11, 1999

Analysis

The tower was analyzed using American Tower Corporation's tower analysis software. This program considers an elastic three-dimensional model and second-order effects per ANSI/TIA-222.

Basic Wind Speed:	105 mph (3-Second Gust)
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 3/4" radial ice concurrent
Code:	ANSI/TIA-222-G / 2003 IBC w/ 2005 CT Supplement & 2009 CT Amendment
Structure Class:	II
Exposure Category:	B
Topographic Category:	1
Crest Height:	0 ft
Spectral Response:	Ss = 0.18, S_1 = 0.06
Site Class:	D - Stiff Soil

Conclusion

Based on the analysis results, the structure meets the requirements per the applicable codes listed above. The tower and foundation can support the equipment as described in this report.

If you have any questions or require additional information, please contact American Tower via email at Engineering@americantower.com. Please include the American Tower site name, site number, and engineering number in the subject line for any questions.

Existing and Reserved Equipment

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
181.0	181.0	12	Decibel DB844H90E-XY	Low Profile Platform	-	Sprint Nextel
178.5	178.5	-	-	-	(12) 1 5/8" Coax	
171.0	165.0	3	NextNet BTS-2500	Side Arms	(6) 5/16" Coax (2) 1/2" Coax	Clearwire
		3	Argus LLPX310R			
		1	DragonWave A-ANT-11G-2-C			
		1	DragonWave A-ANT-18G-2-C			
163.0		2	Generic TTA	Flush	(2) 2" Conduit	
160.0	160.0	6	Powerwave 7020	Low Profile Platform	(12) 1 5/8" Coax (2) 0.78" 8 AWG 6 (1) 0.39" Fiber Trunk (3) 3" Conduit	AT&T Mobility
		6	Powerwave LGP21401			
		1	Raycap DC6-48-60-18-8F (23.5" Height)			
		3	Ericsson RRUS 11 (Band 7)			
		3	Ericsson RRUS-12 B2			
		6	Powerwave 7770.00			
		3	KMW AM-X-CD-16-65-00T-RET			
148.0	150.0	3	Ericsson KRY 112 144/1	Low Profile Platform	(12) 1 5/8" Coax (1) 1 1/4" Hybriflex Cab	T-Mobile
		3	Ericsson AIR 21, 1.3 M, B2A B4P			
		3	Ericsson AIR 21, 1.3M, B4A B2P			
135.0	138.0	3	Alcatel-Lucent RRH 2X60-1900	Low Profile Platform	(18) 1 5/8" Coax (2) 1 5/8" Hybriflex	Verizon
		3	Alcatel-Lucent RRH2X60-AWS			
		3	Alcatel-Lucent RRH2x60 700			
		2	RFS DB-T1-6Z-8AB-0Z			
		3	Antel BXA-80063-6BF-EDIN-X			
		6	Commscope SBNHH-1D65B			
		3	Commscope HBXX-6517DS-A2M			
128.0	130.0	3	RFS APXV18-206517S-C	Flush	(6) 1 5/8" Coax (1) 7/8" Coax	Metro PCS
	128.0	1	Nortel NTGB01MA			
116.0	122.0	3	RFS RFS APXV9TM14-ALU-I20	Low Profile Platform	(4) 1 1/4" Hybriflex	Sprint Nextel
		3	RFS APXVSPP18-C-A20			
	120.0	3	Alcatel-Lucent 800MHz RRH			
		3	Alcatel-Lucent 1900MHz 4X45 RRH			
		3	Alcatel-Lucent TD-RRH8x20-25 w/ Solar Shield			
20.0	20.0	1	PCTEL GPS-TMG-HR-26N	Standoff	(1) 1/2" Coax	

Equipment to be Removed

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
No loading considered as to be removed						

Proposed Equipment

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
148.0	150.0	3	Andrew LNX-6515DS-VTM	Low Profile Platform	-	T-Mobile
	148.0	3	Ericsson RRUS 11 B12			

[1]Mount elevation is defined as height above bottom of steel structure to the bottom of mount, RAD elevation is defined as center of antenna above ground level (AGL).

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	62%	Pass
Shaft	57%	Pass
Base Plate	27%	Pass

Foundations

Reaction Component	Analysis Reactions
Moment (Kips-Ft)	5,097.4
Axial (Kips)	117.7
Shear (Kips)	41.9

The structure base reactions resulting from this analysis were found to be acceptable through analysis based on geotechnical and foundation information, therefore no modification or reinforcement of the foundation will be required.

Deflection and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
171.0	DragonWave A-ANT-11G-2-C	Clearwire	1.227	0.740
	DragonWave A-ANT-18G-2-C			
148.0	Ericsson RRUS 11 B12	T-Mobile	0.936	0.704
	Andrew LNX-6515DS-VTM			

***Deflection and Sway was evaluated considering a design wind speed of 60 mph (3-Second Gust) per ANSI/TIA-222-G**

AMERICAN TOWER®
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Standard Conditions

All engineering services are performed on the basis that the information used is current and correct. This information may consist of, but is not necessary limited, to:

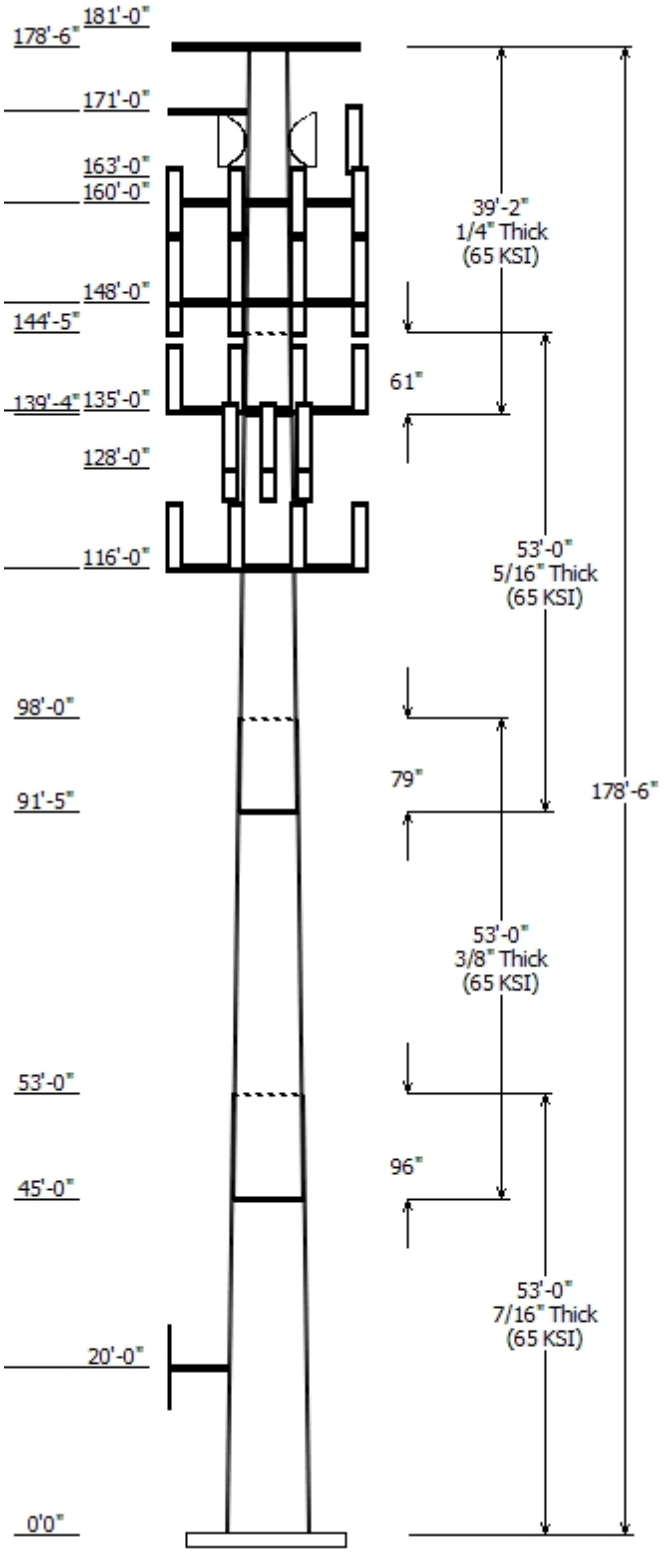
-- Information supplied by the client regarding the structure itself, antenna, mounts and feed line loading on the structure and its components, or other relevant information.

-- Information from drawings in the possession of American Tower Corporation, or generated by field inspections or measurements of the structure.

It is the responsibility of the client to ensure that the information provided to A.T. Engineering Service, PLLC and used in the performance of our engineering services is correct and complete. In the absence of information to the contrary, we assume that all structures were constructed in accordance with the drawings and specifications and that their capacity has not significantly changed from the "as new" condition.

Unless explicitly agreed by both the client and American Tower Corporation, all services will be performed in accordance with the current revision of ANSI/TIA -222. The design basic wind speed will be determined based on the minimum basic wind speed as prescribed in ANSI/TIA-222. Although every effort is taken to ensure that the loading considered is adequate to meet the requirements of all applicable regulatory entities, we can provide no assurance to meet any other local and state codes or requirements. If wind and ice loads or other relevant parameters are to be different from the minimum values recommended by the codes, the client shall specify the exact requirement.

All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. A.T. Engineering Service, PLLC is not responsible for the conclusions, opinions and recommendations made by others based on the information we supply.



Job Information

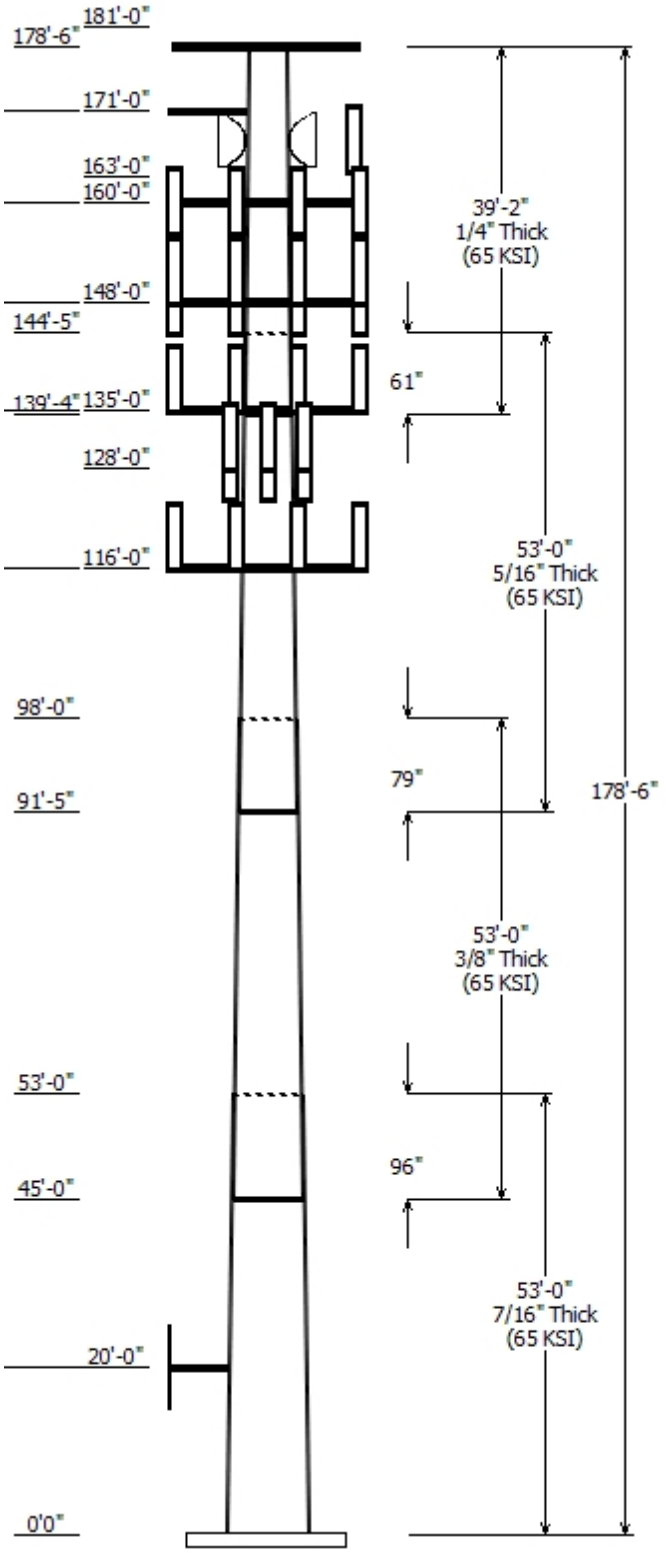
Pole :	302467	Code:	ANSI/TIA-222-G
Description :	178.5' FWT Monopole		
Client :	T-MOBILE	Struct Class :	II
Location :	Bilkays Express, CT		
Shape :	18 Sides	Exposure :	B
Height :	178.50 (ft)	Topo :	1
Base Elev (ft):	0.00		
Taper:	0.251400 (in/ft)		

Sections Properties

Shaft Section	Length (ft)	Diameter (in) Accross Flats Top	Bottom	Thick (in)	Joint Type	Overlap Length (in)	Taper (in/ft)	Steel Grade (ksi)
1	53.000	58.67	72.00	0.438		0.000	0.251400	65
2	53.000	48.11	61.43	0.375	Slip Joint	96.000	0.251400	65
3	53.000	37.06	50.39	0.313	Slip Joint	79.000	0.251400	65
4	39.167	29.00	38.84	0.250	Slip Joint	61.000	0.251400	65

Discrete Appurtenance

Attach Elev (ft)	Force Elev (ft)	Qty	Description
181.000	181.000	12	Decibel DB844H90E-XY
178.500	178.500	1	Flat Low Profile Platform
171.000	165.000	1	DragonWave A-ANT-11G-2-C
171.000	165.000	3	Argus LLPX310R
171.000	165.000	3	NextNet BTS-2500
171.000	165.000	1	DragonWave A-ANT-18G-2-C
171.000	171.000	1	Side Arms
163.000	165.000	2	Generic TTA
160.000	160.000	3	KMW AM-X-CD-16-65-00T-RET
160.000	160.000	6	Powerwave Allgon LGP21401
160.000	160.000	1	Flat Low Profile Platform
160.000	160.000	6	Powerwave Allgon 7770.00
160.000	160.000	3	Ericsson RRUS-12 B2
160.000	160.000	3	Ericsson RRUS 11 (Band 7)
160.000	160.000	1	Raycap DC6-48-60-18-8F (23.5"
160.000	160.000	6	Powerwave Allgon 7020
148.000	150.000	3	Andrew LNX-6515DS-VTM
148.000	148.000	3	Ericsson RRUS 11 B12
148.000	150.000	3	Ericsson AIR 21, 1.3M, B4A B2P
148.000	150.000	3	Ericsson AIR 21, 1.3 M, B2A B4
148.000	150.000	3	Ericsson KRY 112 144/1
148.000	148.000	1	Round Low Profile Platform
135.000	138.000	3	Commscope HBXX-6517DS-
135.000	138.000	6	Commscope SBNHH-1D65B
135.000	138.000	3	Alcatel-Lucent RRH2x60 700
135.000	138.000	3	Alcatel-Lucent RRH2X60-AWS
135.000	138.000	3	Alcatel-Lucent RRH 2X60-1900
135.000	138.000	2	RFS DB-T1-6Z-8AB-0Z
135.000	138.000	3	Antel BXA-80063-6BF-EDIN-X
135.000	135.000	1	Round Low Profile Platform
128.000	128.000	1	Nortel NTGB01MA
128.000	130.000	3	RFS APXV18-206517S-C
116.000	122.000	3	RFS RFS APXV9TM14-ALU-I20
116.000	120.000	3	Alcatel-Lucent TD-RRH8x20-25
116.000	122.000	3	RFS APXVSPP18-C-A20
116.000	116.000	1	Round Low Profile Platform
116.000	120.000	3	Alcatel-Lucent 1900 MHz 4X45
116.000	120.000	3	Alcatel-Lucent 800 MHz RRH
20.000	20.000	1	Standoff
20.000	20.000	1	PCTEL GPS-TMG-HR-26N



Linear Appurtenance

Elev (ft) From	To	Description	Exposed To Wind
0.000	20.000	1/2" Coax	Yes
0.000	116.0	1 1/4" Hybriflex	Yes
0.000	116.0	1 1/4" Hybriflex	Yes
0.000	128.0	1 5/8" Coax	Yes
0.000	128.0	7/8" Coax	No
0.000	135.0	1 5/8" Coax	No
0.000	135.0	1 5/8" Hybriflex	No
0.000	148.0	1 1/4" Hybriflex	Yes
0.000	148.0	1 5/8" Coax	No
0.000	157.0	3" Conduit	No
0.000	160.0	0.39" Fiber Trunk	No
0.000	160.0	0.78" 8 AWG 6	No
0.000	160.0	1 5/8" Coax	No
0.000	160.0	3" Conduit	No
0.000	163.0	2" Conduit	Yes
0.000	171.0	1/2" Coax	Yes
0.000	171.0	5/16" Coax	No
0.000	178.5	1 5/8" Coax	No

Load Cases

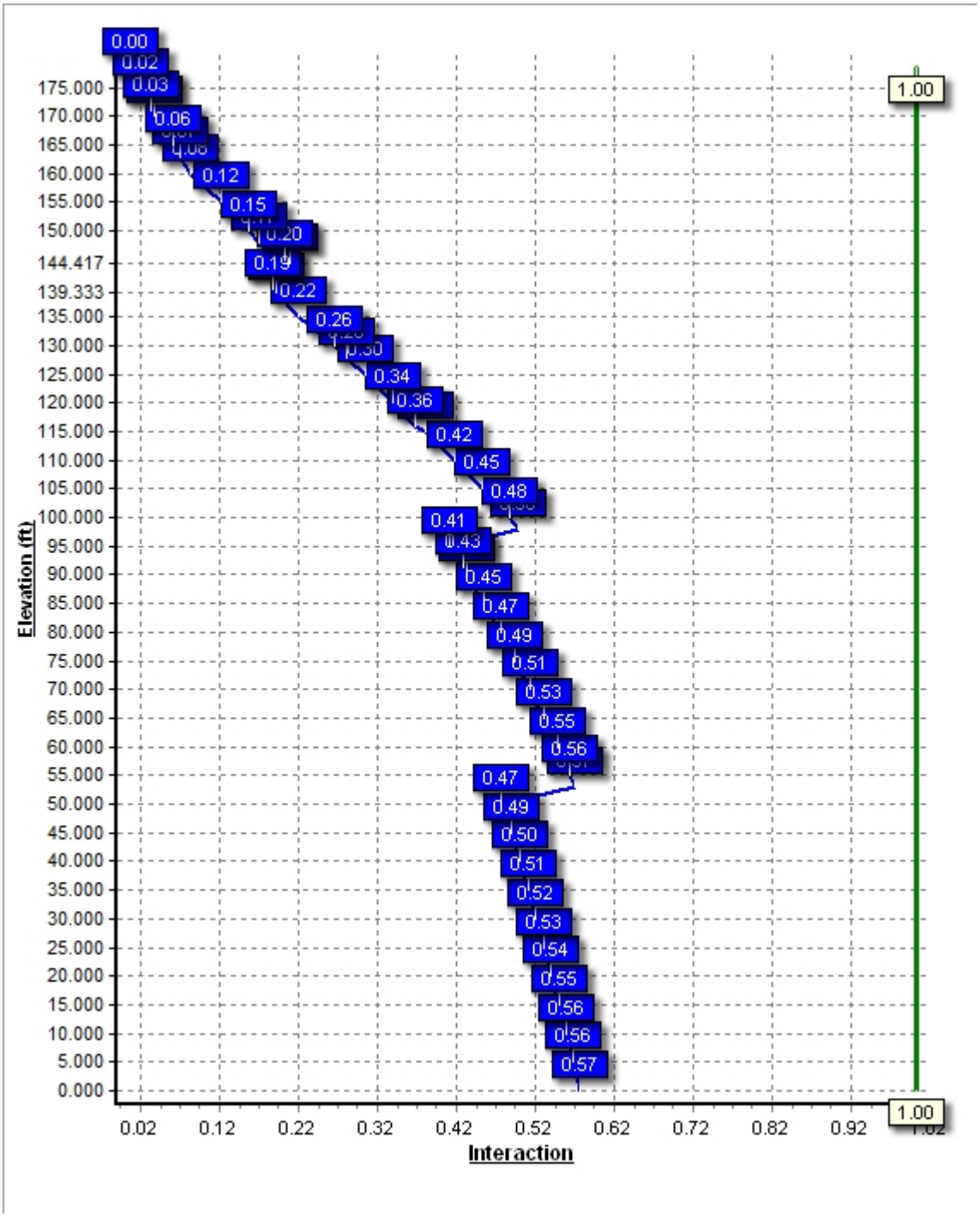
1.2D + 1.6W	105 mph with No Ice
0.9D + 1.6W	105 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 0.75 in Radial Ice
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Lateral
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Modal
1.0D + 1.0W	Serviceability 60 mph

Reactions

Load Case	Moment (kip-ft)	Shear (kip)	Axial (kip)
1.2D + 1.6W	5097.42	41.86	77.86
0.9D + 1.6W	5053.69	41.83	58.38
1.2D + 1.0Di + 1.0Wi	1196.51	10.01	117.74
(1.2 + 0.2Sds) * DL + E ELFM	355.41	2.68	77.59
(1.2 + 0.2Sds) * DL + E EMAM	315.69	2.65	77.59
(0.9 - 0.2Sds) * DL + E ELFM	351.87	2.68	53.92
(0.9 - 0.2Sds) * DL + E EMAM	312.34	2.65	53.92
1.0D + 1.0W	1034.76	8.54	64.91

Dish Deflections

Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
1.0D + 1.0W	171.00	14.730	0.740
1.0D + 1.0W	171.00	14.730	0.740


Elevation (ft)
175.000
170.000
165.000
160.000
155.000
150.000
144.417
139.333
135.000
130.000
125.000
120.000
115.000
110.000
105.000
100.000
95.000
90.000
85.000
80.000
75.000
70.000
65.000
60.000
55.000
50.000
45.000
40.000
35.000
30.000
25.000
20.000
15.000
10.000
5.000
0.000
0.02
0.12
0.22
0.32
0.42
0.52
0.62
0.72
0.82
0.92
Interaction
1.00
1.00

Site Number:	**302467**	**Code: ANSI/TIA-222-G**	
Site Name:	**Bilkays Express, CT**	**Engineering Number: 63916421**	**11/11/2015 2:46:34 PM**
Customer:	**T-MOBILE**		

Analysis Parameters

Location:	**New Haven County, CT**		
Code:	**ANSI/TIA-222-G**	**Height (ft):**	**178.**
Shape:	**18 Sides**	**Base Diameter (in):**	**72.00**
Pole Type:	**Taper**	**Top Diameter (in):**	**29.00**
Pole Manfacturer:	**FWT**	**Taper (in/ft) :**	**0.251**

Ice & Wind Parameters

Structure Class:	**II**	**Design Wind Speed Without Ice:**	**105 mph**
Exposure Category:	**B**	**Design Wind Speed With Ice:**	**50 mph**
Topographic Category:	**1**	**Operational Wind Speed:**	**60 mph**
Crest Height:	**0.0 ft**	**Design Ice Thickness:**	**0.75 in**

Seismic Parameters

Analysis Method:	**Equivalent Modal Analysis & Equivalent Lateral Force Methods**				
Site Class:	**D - Stiff Soil**				
Period Based on Rayleigh Method (sec):	**2.10**				
T_L (sec):	**6**	**p:**	**1.3**	**C_s:**	**0.032**
S_s:	**0.183**	**S_1:**	**0.063**	**C_s Max:**	**0.032**
F_a:	**1.600**	**F_v:**	**2.400**	**C_s Min:**	**0.030**
S_{ds}:	**0.195**	**S_{d1}:**	**0.101**		

Load Cases

1.2D + 1.6W	**105 mph with No Ice**
0.9D + 1.6W	**105 mph with No Ice (Reduced DL)**
1.2D + 1.0Di + 1.0Wi	**50 mph with 0.75 in Radial Ice**
(1.2 + 0.2Sds) * DL + E ELFM	**Seismic Equivalent Lateral Forces Method**
(1.2 + 0.2Sds) * DL + E EMAM	**Seismic Equivalent Modal Analysis Method**
(0.9 - 0.2Sds) * DL + E ELFM	**Seismic (Reduced DL) Equivalent Lateral Forces Method**
(0.9 - 0.2Sds) * DL + E EMAM	**Seismic (Reduced DL) Equivalent Modal Analysis Method**
1.0D + 1.0W	**Serviceability 60 mph**

Site Number:	**302467**	**Code:**	**ANSI/TIA-222-G**
Site Name:	**Bilkays Express, CT**	**Engineering Number:**	**63916421**
Customer:	**T-MOBILE**		

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Shaft Section Properties

							Bottom						Top						
Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Slip Joint Type	Slip Joint Len (in)	Weight (lb)	Dia (in)	Elev (ft)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Dia (in)	Elev (ft)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Taper (in/ft)
1-18	53.000	0.4375	65		0.00	16,253	72.00	0.00	99.37	64295.3	27.61	164.57	58.67	53.00	80.87	34653.6	22.24	134.12	0.251401
2-18	53.000	0.3750	65	Slip	96.00	11,677	61.43	45.00	72.68	34236.4	27.48	163.83	48.11	98.00	56.82	16359.2	21.21	128.30	0.251401
3-18	53.000	0.3125	65	Slip	79.00	7,766	50.39	91.42	49.67	15739.6	27.02	161.26	37.06	144.42	36.46	6222.7	19.51	118.62	0.251401
4-18	39.167	0.2500	65	Slip	61.00	3,561	38.84	139.33	30.63	5764.1	25.99	155.39	29.00	178.50	22.81	2382.3	19.04	116.00	0.251401
				Shaft Weight		39,257													

Discrete Appurtenance Properties

Attach Elev (ft)	Description	Qty	No Ice Weight (lb)	No Ice EPAa (sf)	No Ice Orientation Factor	Ice Weight (lb)	Ice EPAa (sf)	Ice Orientation Factor	Distance From Face (ft)	Vert Ecc (ft)
181.00	Decibel DB844H90E-XY	12	14.00	3.610	0.92	126.96	3.938	0.92	0.000	0.000
178.50	Flat Low Profile Platform	1	1500.00	26.100	1.00	2,159.96	45.548	1.00	0.000	0.000
171.00	Argus LLPX310R	3	28.60	4.290	0.73	138.17	5.202	0.73	0.000	-6.000
171.00	DragonWave A-ANT-11G-2-C	1	27.00	4.690	0.67	125.91	5.983	0.67	0.000	-6.000
171.00	DragonWave A-ANT-18G-2-C	1	27.10	4.690	0.67	126.15	5.983	0.67	0.000	-6.000
171.00	NextNet BTS-2500	3	35.00	1.820	0.50	93.07	2.371	0.50	0.000	-6.000
171.00	Side Arms	1	560.00	8.500	1.00	1,035.16	15.712	1.00	0.000	0.000
163.00	Generic TTA	2	10.00	1.200	1.00	56.25	1.670	1.00	0.000	2.000
160.00	Ericsson RRUS 11 (Band 7)	3	50.70	2.790	0.67	137.64	3.473	0.67	0.000	0.000
160.00	Ericsson RRUS-12 B2	3	58.00	3.150	0.67	153.96	3.868	0.67	0.000	0.000
160.00	Flat Low Profile Platform	1	1500.00	26.100	1.00	2,152.40	45.325	1.00	0.000	0.000
160.00	KMW AM-X-CD-16-65-00T-	3	48.50	8.020	0.79	238.43	9.321	0.79	0.000	0.000
160.00	Powerwave Allgon 7020	6	2.20	0.400	0.50	18.04	0.623	0.50	0.000	0.000
160.00	Powerwave Allgon 7770.00	6	35.00	5.510	0.77	170.90	6.565	0.77	0.000	0.000
160.00	Powerwave Allgon LGP21401	6	14.10	1.100	0.50	68.23	2.657	0.50	0.000	0.000
160.00	Raycap DC6-48-60-18-8F	1	20.00	1.260	1.00	101.01	2.525	1.00	0.000	0.000
148.00	Andrew LNX-6515DS-VTM	3	51.30	11.430	0.84	313.99	13.090	0.84	0.000	2.000
148.00	Ericsson AIR 21, 1.3 M, B2A	3	83.00	6.050	0.86	251.56	7.145	0.86	0.000	2.000
148.00	Ericsson AIR 21, 1.3M, B4A	3	81.50	6.090	0.85	250.02	7.190	0.85	0.000	2.000
148.00	Ericsson KRY 112 144/1	3	11.00	0.410	0.50	27.33	0.634	0.50	0.000	2.000
148.00	Ericsson RRUS 11 B12	3	50.70	2.790	1.00	136.87	3.468	1.00	0.000	0.000
148.00	Round Low Profile Platform	1	1500.00	21.700	1.00	2,147.69	40.893	1.00	0.000	0.000
135.00	Alcatel-Lucent RRH 2X60-	3	39.60	1.880	0.67	105.55	2.452	0.67	0.000	3.000
135.00	Alcatel-Lucent RRH2x60 700	3	56.70	2.150	0.67	139.39	2.795	0.67	0.000	3.000
135.00	Alcatel-Lucent RRH2X60-	3	44.00	1.880	0.67	109.95	2.452	0.67	0.000	3.000
135.00	Antel BXA-80063-6BF-EDIN-X	3	19.20	7.260	0.78	161.91	9.893	0.78	0.000	3.000
135.00	Commscope HBXX-6517DS-	3	40.80	8.530	0.81	214.90	10.900	0.81	0.000	3.000
135.00	Commscope SBNHH-1D65B	6	50.70	8.170	0.83	251.16	9.460	0.83	0.000	3.000
135.00	RFS DB-T1-6Z-8AB-0Z	2	44.00	4.800	0.67	185.64	5.662	0.67	0.000	3.000
135.00	Round Low Profile Platform	1	1500.00	21.700	1.00	2,141.22	40.701	1.00	0.000	0.000
128.00	Nortel NTGB01MA	1	1.00	0.090	1.00	12.18	0.322	1.00	0.000	0.000
128.00	RFS APXV18-206517S-C	3	26.40	5.170	0.80	141.49	6.386	0.80	0.000	2.000
116.00	Alcatel-Lucent 1900 MHz	3	60.00	2.320	0.67	152.18	2.974	0.67	0.000	4.000
116.00	Alcatel-Lucent 800 MHz RRH	3	53.00	2.130	0.67	137.65	2.728	0.67	0.000	4.000
116.00	Alcatel-Lucent TD-RRH8x20-	3	70.00	4.050	0.67	160.12	5.708	0.67	0.000	4.000
116.00	RFS APXVSPP18-C-A20	3	57.00	8.020	0.83	250.56	9.279	0.83	0.000	6.000
116.00	RFS RFS APXV9TM14-ALU-I20	3	55.10	6.340	0.78	195.10	8.466	0.78	0.000	6.000
116.00	Round Low Profile Platform	1	1500.00	21.700	1.00	2,132.47	40.442	1.00	0.000	0.000
20.00	PCTEL GPS-TMG-HR-26N	1	0.60	0.090	1.00	8.11	0.228	1.00	0.000	0.000
20.00	Standoff	1	75.00	2.500	1.00	146.50	3.906	1.00	0.000	0.000
	Totals	115	12159.00			27,875.49			Number of Loadings :	40

Linear Appurtenance Properties

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Diameter (in)	Coax Weight (lb/ft)	Flat	Projected Width (in)	Exposed To Wind	Carrier
0.00	178.50	12	1 5/8" Coax	1.98	0.82	N	0.00	N	Sprint Nextel
0.00	171.00	2	1/2" Coax	0.63	0.15	N	0.00	Y	Clearwire
0.00	171.00	6	5/16" Coax	0.31	0.05	N	0.00	N	Clearwire
0.00	163.00	2	2" Conduit	2.38	3.65	N	2.38	Y	Clearwire
0.00	160.00	1	0.39" Fiber Trunk	0.39	0.07	N	0.00	N	AT&T Mobility
0.00	160.00	2	0.78" 8 AWG 6	0.78	0.59	N	0.00	N	AT&T Mobility
0.00	160.00	12	1 5/8" Coax	1.98	0.82	N	0.00	N	AT&T Mobility
0.00	160.00	1	3" Conduit	3.50	7.58	N	0.00	N	AT&T Mobility
0.00	157.00	2	3" Conduit	3.50	7.58	N	0.00	N	AT&T Mobility
0.00	148.00	1	1 1/4" Hybriflex Cab	1.54	1.00	N	1.54	Y	T-Mobile
0.00	148.00	12	1 5/8" Coax	1.98	0.82	N	0.00	N	T-Mobile
0.00	135.00	18	1 5/8" Coax	1.98	0.82	N	0.00	N	Verizon Wireless
0.00	135.00	2	1 5/8" Hybriflex	1.98	1.30	N	0.00	N	Verizon Wireless
0.00	128.00	6	1 5/8" Coax	1.98	0.82	N	0.00	Y	Metro PCS
0.00	128.00	1	7/8" Coax	1.09	0.33	N	0.00	N	
0.00	116.00	1	1 1/4" Hybriflex	1.54	1.00	N	0.00	Y	Sprint Nextel
0.00	116.00	3	1 1/4" Hybriflex	1.54	1.00	N	0.00	Y	Sprint Nextel
0.00	20.00	1	1/2" Coax	0.63	0.15	N	0.00	Y	Sprint Nextel

Segment Properties (Max Len : 5. ft)

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Fy (ksi)	S (in^3)	Z (in^3)	Weight (lb)
0.00		0.4375	72.000	99.370	64,295.3	27.61	164.57	68.9	1758.	0.0	0.0
5.00		0.4375	70.743	97.624	60,966.4	27.10	161.70	69.5	1697.	0.0	1,675.8
10.00		0.4375	69.486	95.879	57,754.4	26.59	158.83	70.1	1637.	0.0	1,646.1
15.00		0.4375	68.229	94.134	54,657.3	26.09	155.95	70.7	1577.	0.0	1,616.4
20.00		0.4375	66.972	92.388	51,672.9	25.58	153.08	71.3	1519.	0.0	1,586.7
25.00		0.4375	65.715	90.643	48,799.2	25.07	150.21	71.9	1462.	0.0	1,557.0
30.00		0.4375	64.458	88.897	46,034.1	24.57	147.33	72.5	1406.	0.0	1,527.3
35.00		0.4375	63.201	87.152	43,375.4	24.06	144.46	73.1	1351.	0.0	1,497.6
40.00		0.4375	61.944	85.406	40,821.1	23.55	141.59	73.7	1298.	0.0	1,467.9
45.00	Bot - Section 2	0.4375	60.687	83.661	38,369.2	23.05	138.71	74.3	1245.	0.0	1,438.2
50.00		0.4375	59.430	81.915	36,017.4	22.54	135.84	74.9	1193.	0.0	2,632.3
53.00	Top - Section 1	0.3750	59.426	70.283	30,963.7	26.53	158.47	70.2	1026.	0.0	1,552.9
55.00		0.3750	58.923	69.684	30,179.4	26.30	157.13	70.5	1008.	0.0	476.3
60.00		0.3750	57.666	68.188	28,277.0	25.70	153.78	71.2	965.8	0.0	1,172.9
65.00		0.3750	56.409	66.692	26,456.3	25.11	150.42	71.9	923.8	0.0	1,147.4
70.00		0.3750	55.152	65.196	24,715.5	24.52	147.07	72.6	882.7	0.0	1,122.0
75.00		0.3750	53.895	63.700	23,052.8	23.93	143.72	73.3	842.5	0.0	1,096.5
80.00		0.3750	52.638	62.204	21,466.3	23.34	140.37	73.9	803.2	0.0	1,071.1
85.00		0.3750	51.381	60.708	19,954.4	22.75	137.02	74.6	764.9	0.0	1,045.6
90.00		0.3750	50.124	59.212	18,515.2	22.16	133.66	75.3	727.6	0.0	1,020.1
91.42	Bot - Section 3	0.3750	49.768	58.788	18,120.3	21.99	132.71	75.5	717.1	0.0	284.4
95.00		0.3750	48.867	57.715	17,146.9	21.57	130.31	76.0	691.1	0.0	1,310.5
98.00	Top - Section 2	0.3125	48.738	48.030	14,230.2	26.09	155.96	70.7	575.1	0.0	1,078.7
100.0		0.3125	48.235	47.531	13,791.5	25.81	154.35	71.0	563.2	0.0	325.2
105.0		0.3125	46.978	46.285	12,734.5	25.10	150.33	71.9	533.9	0.0	798.1
110.0		0.3125	45.721	45.038	11,732.9	24.39	146.31	72.7	505.4	0.0	776.9
115.0		0.3125	44.464	43.791	10,785.2	23.68	142.28	73.6	477.8	0.0	755.7
116.0		0.3125	44.213	43.542	10,602.0	23.54	141.48	73.7	472.3	0.0	148.6
120.0		0.3125	43.207	42.544	9,890.0	22.97	138.26	74.4	450.8	0.0	585.9
125.0		0.3125	41.950	41.298	9,045.8	22.26	134.24	75.2	424.7	0.0	713.2
128.0		0.3125	41.196	40.550	8,563.1	21.83	131.83	75.7	409.4	0.0	417.8
130.0		0.3125	40.693	40.051	8,251.0	21.55	130.22	76.1	399.4	0.0	274.3
135.0		0.3125	39.436	38.804	7,504.2	20.84	126.19	76.9	374.8	0.0	670.8
139.3	Bot - Section 4	0.3125	38.347	37.724	6,894.6	20.23	122.71	77.6	354.1	0.0	564.2
140.0		0.3125	38.179	37.557	6,803.9	20.13	122.17	77.7	351.0	0.0	154.7
144.4	Top - Section 3	0.2500	37.569	29.611	5,210.3	25.09	150.27	71.9	273.2	0.0	1,007.8
145.0		0.2500	37.422	29.495	5,149.1	24.98	149.69	72.0	271.0	0.0	58.7
148.0		0.2500	36.668	28.896	4,842.0	24.45	146.67	72.6	260.1	0.0	298.0
150.0		0.2500	36.165	28.497	4,644.2	24.10	144.66	73.1	252.9	0.0	195.3
155.0		0.2500	34.908	27.500	4,173.4	23.21	139.63	74.1	235.5	0.0	476.4
160.0		0.2500	33.651	26.503	3,735.6	22.32	134.60	75.1	218.6	0.0	459.4
163.0		0.2500	32.897	25.904	3,488.2	21.79	131.59	75.8	208.8	0.0	267.5
165.0		0.2500	32.394	25.505	3,329.5	21.44	129.58	76.2	202.4	0.0	174.9
170.0		0.2500	31.137	24.508	2,954.0	20.55	124.55	77.2	186.9	0.0	425.5
171.0		0.2500	30.886	24.308	2,882.4	20.37	123.54	77.4	183.8	0.0	83.1
175.0		0.2500	29.880	23.510	2,607.8	19.66	119.52	78.3	171.9	0.0	325.4
178.5		0.2500	29.000	22.812	2,382.3	19.04	116.00	79.0	161.8	0.0	275.8
											39,257.1

Site Number: 302467 Code: ANSI/TIA-222-G

Site Name: Bilkays Express, CT Engineering Number: 63916421 11/11/2015 2:46:34 PM

Customer: T-MOBILE

Load Case: 1.2D + 1.6W 105 mph with No Ice 23 Iterations

Gust Response Factor : 1.10 Wind Importance Factor : 1.00

Dead Load Factor : 1.20

Wind Load Factor : 1.60

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		324.2	0.0					0.0	0.0	324.2	0.0	0.0	0.0
5.00		642.7	2,011.0					0.0	534.8	642.7	2,545.8	0.0	0.0
10.00		631.2	1,975.3					0.0	534.8	631.2	2,510.2	0.0	0.0
15.00		619.8	1,939.7					0.0	534.8	619.8	2,474.6	0.0	0.0
20.00	Appertunance(s)	608.4	1,904.1	85.6	0.0	0.0	90.7	0.0	534.8	694.0	2,529.6	0.0	0.0
25.00		597.0	1,868.4					0.0	533.9	597.0	2,402.4	0.0	0.0
30.00		592.5	1,832.8					0.0	533.9	592.5	2,366.7	0.0	0.0
35.00		600.1	1,797.2					0.0	533.9	600.1	2,331.1	0.0	0.0
40.00		611.1	1,761.5					0.0	533.9	611.1	2,295.5	0.0	0.0
45.00	Bot - Section 2	623.1	1,725.9					0.0	533.9	623.1	2,259.8	0.0	0.0
50.00		505.6	3,158.8					0.0	533.9	505.6	3,692.7	0.0	0.0
53.00	Top - Section 1	317.6	1,863.5					0.0	320.4	317.6	2,183.9	0.0	0.0
55.00		446.4	571.5					0.0	213.6	446.4	785.1	0.0	0.0
60.00		638.9	1,407.4					0.0	533.9	638.9	1,941.4	0.0	0.0
65.00		639.5	1,376.9					0.0	533.9	639.5	1,910.8	0.0	0.0
70.00		638.6	1,346.4					0.0	533.9	638.6	1,880.3	0.0	0.0
75.00		636.5	1,315.8					0.0	533.9	636.5	1,849.8	0.0	0.0
80.00		633.3	1,285.3					0.0	533.9	633.3	1,819.2	0.0	0.0
85.00		629.0	1,254.7					0.0	533.9	629.0	1,788.7	0.0	0.0
90.00		401.5	1,224.2					0.0	533.9	401.5	1,758.1	0.0	0.0
91.42	Bot - Section 3	313.2	341.3					0.0	151.3	313.2	492.6	0.0	0.0
95.00		412.0	1,572.6					0.0	382.7	412.0	1,955.2	0.0	0.0
98.00	Top - Section 2	311.1	1,294.5					0.0	320.4	311.1	1,614.8	0.0	0.0
100.00		431.5	390.2					0.0	213.6	431.5	603.8	0.0	0.0
105.00		610.9	957.7					0.0	533.9	610.9	1,491.6	0.0	0.0
110.00		602.5	932.3					0.0	533.9	602.5	1,466.2	0.0	0.0
115.00		358.3	906.8					0.0	533.9	358.3	1,440.7	0.0	0.0
116.00	Appertunance(s)	294.3	178.3	3,101.7	0.0	10,932.6	2,862.4	0.0	106.8	3,396.1	3,147.5	0.0	0.0
120.00		524.4	703.0					0.0	408.0	524.4	1,111.0	0.0	0.0
125.00		460.4	855.9					0.0	509.9	460.4	1,365.8	0.0	0.0
128.00	Appertunance(s)	284.0	501.3	502.6	0.0	997.9	96.2	0.0	306.0	786.6	903.5	0.0	0.0
130.00		391.4	329.1					0.0	191.4	391.4	520.5	0.0	0.0
135.00	Appertunance(s)	515.0	805.0	5,058.6	0.0	11,868.1	2,991.7	0.0	478.4	5,573.6	4,275.1	0.0	0.0
139.33	Bot - Section 4	273.1	677.1					0.0	324.4	273.1	1,001.4	0.0	0.0
140.00		277.2	185.7					0.0	49.9	277.2	235.6	0.0	0.0
144.42	Top - Section 3	272.1	1,209.4					0.0	330.6	272.1	1,540.0	0.0	0.0
145.00		192.4	70.4					0.0	43.7	192.4	114.1	0.0	0.0
148.00	Appertunance(s)	265.7	357.6	4,018.0	0.0	5,073.5	2,799.0	0.0	224.6	4,283.6	3,381.2	0.0	0.0
150.00		361.8	234.4					0.0	123.7	361.8	358.1	0.0	0.0
155.00		507.4	571.6					0.0	309.2	507.4	880.9	0.0	0.0
160.00	Appertunance(s)	397.1	551.3	3,926.0	0.0	0.0	2,759.3	0.0	254.7	4,323.1	3,565.2	0.0	0.0
163.00	Appertunance(s)	243.3	321.0	96.9	0.0	193.7	24.0	0.0	63.8	340.1	408.7	0.0	0.0
165.00		332.5	209.9					0.0	25.0	332.5	234.9	0.0	0.0
170.00		282.4	510.6					0.0	62.5	282.4	573.0	0.0	0.0
171.00	Appertunance(s)	228.6	99.7	1,254.5	0.0	-4,754.9	965.9	0.0	12.5	1,483.2	1,078.0	0.0	0.0
175.00		337.8	390.5					0.0	47.2	337.8	437.8	0.0	0.0
178.50	Appertunance(s)	155.5	331.0	1,436.3	0.0	0.0	1,800.0	0.0	41.3	1,591.8	2,172.3	0.0	0.0

Site Number:	**302467**	**Code: ANSI/TIA-222-G**	
Site Name:	**Bilkays Express, CT**	**Engineering Number: 63916421**	**11/11/2015 2:46:37 PM**
Customer:	**T-MOBILE**		

Load Case: **1.2D + 1.6W** **105 mph with No Ice** **23 Iterations**

Gust Response Factor : 1.10
Dead Load Factor : 1.20
Wind Load Factor : 1.60

Wind Importance Factor : 1.00

Totals:	**40,453.1**	**77,695.3**	**0.00**	**0.00**

Site Number: 302467 Code: ANSI/TIA-222-G

Site Name: Bilkays Express, CT Engineering Number: 63916421 11/11/2015 2:46:37 PM

Customer: T-MOBILE

Load Case: 1.2D + 1.6W 105 mph with No Ice 23 Iterations

Gust Response Factor : 1.10 Wind Importance Factor : 1.00

Dead Load Factor : 1.20

Wind Load Factor : 1.60

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-77.86	-41.86	0.00	-5,097.42	0.00	5,097.42	6,164.54	3,082.27	18,158.3	9,092.69	0.00	0.00	0.573
5.00	-75.23	-41.36	0.00	-4,888.14	0.00	4,888.14	6,108.61	3,054.31	17,675.6	8,850.97	0.06	-0.11	0.565
10.00	-72.64	-40.86	0.00	-4,681.35	0.00	4,681.35	6,050.81	3,025.41	17,193.4	8,609.50	0.24	-0.22	0.556
15.00	-70.09	-40.37	0.00	-4,477.05	0.00	4,477.05	5,991.14	2,995.57	16,712.0	8,368.43	0.53	-0.33	0.547
20.00	-67.49	-39.79	0.00	-4,275.21	0.00	4,275.21	5,929.59	2,964.80	16,231.6	8,127.91	0.94	-0.45	0.538
25.00	-65.01	-39.31	0.00	-4,076.25	0.00	4,076.25	5,866.18	2,933.09	15,752.7	7,888.07	1.48	-0.56	0.528
30.00	-62.57	-38.81	0.00	-3,879.73	0.00	3,879.73	5,800.89	2,900.44	15,275.4	7,649.08	2.13	-0.68	0.518
35.00	-60.17	-38.31	0.00	-3,685.66	0.00	3,685.66	5,733.73	2,866.86	14,800.1	7,411.07	2.90	-0.80	0.508
40.00	-57.81	-37.78	0.00	-3,494.13	0.00	3,494.13	5,664.70	2,832.35	14,327.0	7,174.19	3.80	-0.91	0.497
45.00	-55.48	-37.23	0.00	-3,305.23	0.00	3,305.23	5,593.79	2,796.90	13,856.5	6,938.58	4.82	-1.03	0.486
50.00	-51.74	-36.75	0.00	-3,119.06	0.00	3,119.06	5,521.02	2,760.51	13,388.9	6,704.40	5.97	-1.15	0.475
53.00	-49.52	-36.43	0.00	-3,008.83	0.00	3,008.83	4,440.13	2,220.06	10,789.7	5,402.88	6.72	-1.22	0.568
55.00	-48.69	-36.05	0.00	-2,935.96	0.00	2,935.96	4,419.76	2,209.88	10,648.2	5,332.01	7.24	-1.27	0.562
60.00	-46.68	-35.47	0.00	-2,755.71	0.00	2,755.71	4,367.53	2,183.77	10,295.0	5,155.16	8.65	-1.41	0.546
65.00	-44.70	-34.89	0.00	-2,578.34	0.00	2,578.34	4,313.43	2,156.72	9,942.96	4,978.87	10.19	-1.54	0.528
70.00	-42.76	-34.30	0.00	-2,403.89	0.00	2,403.89	4,257.46	2,128.73	9,592.32	4,803.29	11.88	-1.68	0.511
75.00	-40.85	-33.70	0.00	-2,232.40	0.00	2,232.40	4,199.61	2,099.81	9,243.38	4,628.56	13.71	-1.81	0.492
80.00	-38.98	-33.10	0.00	-2,063.89	0.00	2,063.89	4,139.90	2,069.95	8,896.45	4,454.84	15.68	-1.94	0.473
85.00	-37.14	-32.49	0.00	-1,898.40	0.00	1,898.40	4,078.31	2,039.15	8,551.80	4,282.26	17.78	-2.07	0.453
90.00	-35.35	-32.08	0.00	-1,735.94	0.00	1,735.94	4,014.85	2,007.42	8,209.74	4,110.97	20.02	-2.20	0.431
91.42	-34.84	-31.78	0.00	-1,690.50	0.00	1,690.50	3,996.52	1,998.26	8,113.34	4,062.70	20.68	-2.24	0.425
95.00	-32.85	-31.34	0.00	-1,576.61	0.00	1,576.61	3,949.51	1,974.76	7,870.56	3,941.13	22.40	-2.33	0.409
98.00	-31.22	-31.00	0.00	-1,482.58	0.00	1,482.58	3,056.80	1,528.40	6,090.92	3,049.99	23.89	-2.41	0.497
100.00	-30.58	-30.59	0.00	-1,420.58	0.00	1,420.58	3,039.33	1,519.67	5,992.84	3,000.87	24.91	-2.46	0.484
105.00	-29.05	-29.99	0.00	-1,267.62	0.00	1,267.62	2,994.36	1,497.18	5,748.30	2,878.42	27.56	-2.60	0.450
110.00	-27.55	-29.38	0.00	-1,117.68	0.00	1,117.68	2,947.52	1,473.76	5,504.94	2,756.56	30.35	-2.73	0.415
115.00	-26.09	-28.99	0.00	-970.79	0.00	970.79	2,898.80	1,449.40	5,263.06	2,635.44	33.28	-2.86	0.378
116.00	-23.09	-25.46	0.00	-930.87	0.00	930.87	2,888.83	1,444.42	5,214.89	2,611.32	33.88	-2.88	0.365
120.00	-21.96	-24.92	0.00	-829.03	0.00	829.03	2,848.21	1,424.11	5,022.95	2,515.21	36.33	-2.98	0.338
125.00	-20.58	-24.42	0.00	-704.44	0.00	704.44	2,795.75	1,397.88	4,784.91	2,396.01	39.51	-3.09	0.302
128.00	-19.70	-23.60	0.00	-630.19	0.00	630.19	2,763.38	1,381.69	4,643.19	2,325.05	41.47	-3.15	0.278
130.00	-19.18	-23.20	0.00	-582.99	0.00	582.99	2,741.42	1,370.71	4,549.22	2,277.99	42.80	-3.19	0.263
135.00	-15.20	-17.42	0.00	-455.10	0.00	455.10	2,685.21	1,342.61	4,316.17	2,161.29	46.19	-3.28	0.216
139.33	-14.20	-17.10	0.00	-379.62	0.00	379.62	2,634.99	1,317.49	4,116.57	2,061.34	49.20	-3.35	0.190
140.00	-13.98	-16.82	0.00	-368.23	0.00	368.23	2,627.14	1,313.57	4,086.07	2,046.07	49.67	-3.36	0.185
144.42	-12.44	-16.46	0.00	-293.96	0.00	293.96	1,915.99	957.99	2,941.42	1,472.89	52.80	-3.42	0.206
145.00	-12.33	-16.27	0.00	-284.36	0.00	284.36	1,911.69	955.84	2,923.20	1,463.77	53.22	-3.43	0.201
148.00	-9.21	-11.79	0.00	-230.48	0.00	230.48	1,889.17	944.59	2,829.77	1,416.99	55.39	-3.47	0.168
150.00	-8.87	-11.42	0.00	-206.90	0.00	206.90	1,873.79	936.89	2,767.71	1,385.91	56.85	-3.50	0.154
155.00	-8.01	-10.86	0.00	-149.81	0.00	149.81	1,834.01	917.01	2,613.49	1,308.69	60.54	-3.55	0.119
160.00	-4.72	-6.33	0.00	-95.50	0.00	95.50	1,792.37	896.18	2,460.85	1,232.25	64.28	-3.59	0.080
163.00	-4.33	-5.96	0.00	-76.32	0.00	76.32	1,766.48	883.24	2,370.14	1,186.83	66.55	-3.61	0.067
165.00	-4.11	-5.62	0.00	-64.39	0.00	64.39	1,748.85	874.42	2,310.07	1,156.75	68.06	-3.62	0.058
170.00	-3.56	-5.30	0.00	-36.30	0.00	36.30	1,703.46	851.73	2,161.44	1,082.33	71.87	-3.65	0.036
171.00	-2.58	-3.75	0.00	-31.00	0.00	31.00	1,694.16	847.08	2,132.00	1,067.58	72.63	-3.65	0.031
175.00	-2.16	-3.39	0.00	-15.99	0.00	15.99	1,656.20	828.10	2,015.26	1,009.13	75.69	-3.66	0.017
178.50	0.00	-3.24	0.00	-4.13	0.00	4.13	1,622.00	811.00	1,914.55	958.70	78.37	-3.66	0.004

Load Case: 0.9D + 1.6W — 105 mph with No Ice (Reduced DL) — 23 Iterations

Gust Response Factor : 1.10
Dead Load Factor : 0.90
Wind Load Factor : 1.60
Wind Importance Factor : 1.00

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		324.2	0.0					0.0	0.0	324.2	0.0	0.0	0.0
5.00		642.7	1,508.2					0.0	401.1	642.7	1,909.4	0.0	0.0
10.00		631.2	1,481.5					0.0	401.1	631.2	1,882.6	0.0	0.0
15.00		619.8	1,454.8					0.0	401.1	619.8	1,855.9	0.0	0.0
20.00	Appertunance(s)	608.4	1,428.1	85.6	0.0	0.0	68.0	0.0	401.1	694.0	1,897.2	0.0	0.0
25.00		597.0	1,401.3					0.0	400.5	597.0	1,801.8	0.0	0.0
30.00		592.5	1,374.6					0.0	400.5	592.5	1,775.1	0.0	0.0
35.00		600.1	1,347.9					0.0	400.5	600.1	1,748.3	0.0	0.0
40.00		611.1	1,321.1					0.0	400.5	611.1	1,721.6	0.0	0.0
45.00	Bot - Section 2	623.1	1,294.4					0.0	400.5	623.1	1,694.9	0.0	0.0
50.00		505.6	2,369.1					0.0	400.5	505.6	2,769.6	0.0	0.0
53.00	Top - Section 1	317.6	1,397.6					0.0	240.3	317.6	1,637.9	0.0	0.0
55.00		446.4	428.6					0.0	160.2	446.4	588.8	0.0	0.0
60.00		638.9	1,055.6					0.0	400.5	638.9	1,456.0	0.0	0.0
65.00		639.5	1,032.7					0.0	400.5	639.5	1,433.1	0.0	0.0
70.00		638.6	1,009.8					0.0	400.5	638.6	1,410.2	0.0	0.0
75.00		636.5	986.9					0.0	400.5	636.5	1,387.3	0.0	0.0
80.00		633.3	963.9					0.0	400.5	633.3	1,364.4	0.0	0.0
85.00		629.0	941.0					0.0	400.5	629.0	1,341.5	0.0	0.0
90.00		401.5	918.1					0.0	400.5	401.5	1,318.6	0.0	0.0
91.42	Bot - Section 3	313.2	256.0					0.0	113.5	313.2	369.4	0.0	0.0
95.00		412.0	1,179.4					0.0	287.0	412.0	1,466.4	0.0	0.0
98.00	Top - Section 2	311.1	970.8					0.0	240.3	311.1	1,211.1	0.0	0.0
100.00		431.5	292.7					0.0	160.2	431.5	452.8	0.0	0.0
105.00		610.9	718.3					0.0	400.5	610.9	1,118.7	0.0	0.0
110.00		602.5	699.2					0.0	400.5	602.5	1,099.6	0.0	0.0
115.00		358.3	680.1					0.0	400.5	358.3	1,080.6	0.0	0.0
116.00	Appertunance(s)	294.3	133.7	3,101.7	0.0	10,932.6	2,146.8	0.0	80.1	3,396.1	2,360.6	0.0	0.0
120.00		524.4	527.3					0.0	306.0	524.4	833.2	0.0	0.0
125.00		460.4	641.9					0.0	382.5	460.4	1,024.4	0.0	0.0
128.00	Appertunance(s)	284.0	376.0	502.6	0.0	997.9	72.2	0.0	229.5	786.6	677.6	0.0	0.0
130.00		391.4	246.8					0.0	143.5	391.4	390.4	0.0	0.0
135.00	Appertunance(s)	515.0	603.7	5,058.6	0.0	11,868.1	2,243.8	0.0	358.8	5,573.6	3,206.4	0.0	0.0
139.33	Bot - Section 4	273.0	507.8					0.0	243.3	273.0	751.1	0.0	0.0
140.00		275.3	139.2					0.0	37.4	275.3	176.7	0.0	0.0
144.42	Top - Section 3	270.0	907.0					0.0	248.0	270.0	1,155.0	0.0	0.0
145.00		190.1	52.8					0.0	32.7	190.1	85.5	0.0	0.0
148.00	Appertunance(s)	263.6	268.2	4,018.0	0.0	5,073.5	2,099.2	0.0	168.4	4,281.6	2,535.9	0.0	0.0
150.00		361.8	175.8					0.0	92.8	361.8	268.5	0.0	0.0
155.00		507.4	428.7					0.0	231.9	507.4	660.7	0.0	0.0
160.00	Appertunance(s)	397.1	413.5	3,926.0	0.0	0.0	2,069.5	0.0	191.0	4,323.1	2,673.9	0.0	0.0
163.00	Appertunance(s)	243.3	240.7	96.9	0.0	193.7	18.0	0.0	47.8	340.1	306.6	0.0	0.0
165.00		332.5	157.4					0.0	18.7	332.5	176.2	0.0	0.0
170.00		282.4	382.9					0.0	46.8	282.4	429.8	0.0	0.0
171.00	Appertunance(s)	228.6	74.7	1,254.5	0.0	-4,754.9	724.4	0.0	9.4	1,483.2	808.5	0.0	0.0
175.00		337.8	292.9					0.0	35.4	337.8	328.3	0.0	0.0
178.50	Appertunance(s)	155.5	248.3	1,436.3	0.0	0.0	1,350.0	0.0	31.0	1,591.8	1,629.3	0.0	0.0

Site Number:	**302467**	**Code: ANSI/TIA-222-G**	
Site Name:	**Bilkays Express, CT**	**Engineering Number: 63916421**	**11/11/2015 2:46:40 PM**
Customer:	**T-MOBILE**		

Load Case: **0.9D + 1.6W** **105 mph with No Ice (Reduced DL)** **23 Iterations**

Gust Response Factor : 1.10
Dead Load Factor : 0.90
Wind Load Factor : 1.60

Wind Importance Factor : 1.00

Totals:	**40,444.6**	**58,271.5**	**0.00**	**0.00**

Site Number: 302467 Code: ANSI/TIA-222-G

Site Name: Bilkays Express, CT Engineering Number: 63916421 11/11/2015 2:46:40 PM

Customer: T-MOBILE

Load Case: 0.9D + 1.6W 105 mph with No Ice (Reduced DL) 23 Iterations

Gust Response Factor : 1.10 Wind Importance Factor : 1.00

Dead Load Factor : 0.90

Wind Load Factor : 1.60

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-58.38	-41.83	0.00	-5,053.69	0.00	5,053.69	6,164.54	3,082.27	18,158.3	9,092.69	0.00	0.00	0.565
5.00	-56.39	-41.29	0.00	-4,844.54	0.00	4,844.54	6,108.61	3,054.31	17,675.6	8,850.97	0.06	-0.11	0.557
10.00	-54.43	-40.76	0.00	-4,638.08	0.00	4,638.08	6,050.81	3,025.41	17,193.4	8,609.50	0.23	-0.22	0.548
15.00	-52.50	-40.24	0.00	-4,434.28	0.00	4,434.28	5,991.14	2,995.57	16,712.0	8,368.43	0.53	-0.33	0.539
20.00	-50.53	-39.63	0.00	-4,233.10	0.00	4,233.10	5,929.59	2,964.80	16,231.6	8,127.91	0.93	-0.44	0.530
25.00	-48.66	-39.11	0.00	-4,034.96	0.00	4,034.96	5,866.18	2,933.09	15,752.7	7,888.07	1.46	-0.56	0.520
30.00	-46.81	-38.60	0.00	-3,839.39	0.00	3,839.39	5,800.89	2,900.44	15,275.4	7,649.08	2.11	-0.67	0.510
35.00	-44.99	-38.07	0.00	-3,646.42	0.00	3,646.42	5,733.73	2,866.86	14,800.1	7,411.07	2.88	-0.79	0.500
40.00	-43.20	-37.52	0.00	-3,456.09	0.00	3,456.09	5,664.70	2,832.35	14,327.0	7,174.19	3.77	-0.91	0.490
45.00	-41.44	-36.95	0.00	-3,268.51	0.00	3,268.51	5,593.79	2,796.90	13,856.5	6,938.58	4.78	-1.02	0.479
50.00	-38.62	-36.46	0.00	-3,083.77	0.00	3,083.77	5,521.02	2,760.51	13,388.9	6,704.40	5.91	-1.14	0.467
53.00	-36.96	-36.14	0.00	-2,974.40	0.00	2,974.40	4,440.13	2,220.06	10,789.7	5,402.88	6.65	-1.21	0.559
55.00	-36.32	-35.74	0.00	-2,902.11	0.00	2,902.11	4,419.76	2,209.88	10,648.2	5,332.01	7.17	-1.26	0.553
60.00	-34.80	-35.15	0.00	-2,723.41	0.00	2,723.41	4,367.53	2,183.77	10,295.0	5,155.16	8.56	-1.39	0.537
65.00	-33.30	-34.55	0.00	-2,547.66	0.00	2,547.66	4,313.43	2,156.72	9,942.96	4,978.87	10.09	-1.53	0.520
70.00	-31.83	-33.95	0.00	-2,374.90	0.00	2,374.90	4,257.46	2,128.73	9,592.32	4,803.29	11.76	-1.66	0.502
75.00	-30.39	-33.34	0.00	-2,205.17	0.00	2,205.17	4,199.61	2,099.81	9,243.38	4,628.56	13.57	-1.79	0.484
80.00	-28.97	-32.73	0.00	-2,038.47	0.00	2,038.47	4,139.90	2,069.95	8,896.45	4,454.84	15.52	-1.92	0.465
85.00	-27.58	-32.12	0.00	-1,874.84	0.00	1,874.84	4,078.31	2,039.15	8,551.80	4,282.26	17.60	-2.05	0.445
90.00	-26.23	-31.70	0.00	-1,714.26	0.00	1,714.26	4,014.85	2,007.42	8,209.74	4,110.97	19.81	-2.18	0.424
91.42	-25.84	-31.40	0.00	-1,669.35	0.00	1,669.35	3,996.52	1,998.26	8,113.34	4,062.70	20.47	-2.21	0.418
95.00	-24.35	-30.97	0.00	-1,556.82	0.00	1,556.82	3,949.51	1,974.76	7,870.56	3,941.13	22.16	-2.31	0.401
98.00	-23.11	-30.63	0.00	-1,463.91	0.00	1,463.91	3,056.80	1,528.40	6,090.92	3,049.99	23.64	-2.38	0.488
100.00	-22.63	-30.22	0.00	-1,402.64	0.00	1,402.64	3,039.33	1,519.67	5,992.84	3,000.87	24.65	-2.43	0.475
105.00	-21.47	-29.61	0.00	-1,251.54	0.00	1,251.54	2,994.36	1,497.18	5,748.30	2,878.42	27.27	-2.57	0.442
110.00	-20.33	-29.01	0.00	-1,103.47	0.00	1,103.47	2,947.52	1,473.76	5,504.94	2,756.56	30.03	-2.70	0.408
115.00	-19.24	-28.62	0.00	-958.44	0.00	958.44	2,898.80	1,449.40	5,263.06	2,635.44	32.92	-2.82	0.371
116.00	-17.02	-25.13	0.00	-918.89	0.00	918.89	2,888.83	1,444.42	5,214.89	2,611.32	33.52	-2.85	0.358
120.00	-16.17	-24.59	0.00	-818.37	0.00	818.37	2,848.21	1,424.11	5,022.95	2,515.21	35.94	-2.94	0.331
125.00	-15.14	-24.10	0.00	-695.40	0.00	695.40	2,795.75	1,397.88	4,784.91	2,396.01	39.09	-3.05	0.296
128.00	-14.48	-23.29	0.00	-622.10	0.00	622.10	2,763.38	1,381.69	4,643.19	2,325.05	41.02	-3.11	0.273
130.00	-14.09	-22.90	0.00	-575.51	0.00	575.51	2,741.42	1,370.71	4,549.22	2,277.99	42.34	-3.15	0.258
135.00	-11.17	-17.17	0.00	-449.16	0.00	449.16	2,685.21	1,342.61	4,316.17	2,161.29	45.69	-3.24	0.212
139.33	-10.43	-16.86	0.00	-374.77	0.00	374.77	2,634.99	1,317.49	4,116.57	2,061.34	48.66	-3.31	0.186
140.00	-10.26	-16.58	0.00	-363.53	0.00	363.53	2,627.14	1,313.57	4,086.07	2,046.07	49.12	-3.32	0.182
144.42	-9.11	-16.25	0.00	-290.29	0.00	290.29	1,915.99	957.99	2,941.42	1,472.89	52.22	-3.38	0.202
145.00	-9.03	-16.06	0.00	-280.81	0.00	280.81	1,911.69	955.84	2,923.20	1,463.77	52.64	-3.39	0.197
148.00	-6.75	-11.64	0.00	-227.57	0.00	227.57	1,889.17	944.59	2,829.77	1,416.99	54.78	-3.43	0.164
150.00	-6.49	-11.27	0.00	-204.29	0.00	204.29	1,873.79	936.89	2,767.71	1,385.91	56.22	-3.46	0.151
155.00	-5.85	-10.72	0.00	-147.97	0.00	147.97	1,834.01	917.01	2,613.49	1,308.69	59.87	-3.51	0.116
160.00	-3.45	-6.25	0.00	-94.35	0.00	94.35	1,792.37	896.18	2,460.85	1,232.25	63.57	-3.55	0.079
163.00	-3.16	-5.89	0.00	-75.42	0.00	75.42	1,766.48	883.24	2,370.14	1,186.83	65.81	-3.57	0.065
165.00	-3.01	-5.55	0.00	-63.64	0.00	63.64	1,748.85	874.42	2,310.07	1,156.75	67.30	-3.58	0.057
170.00	-2.59	-5.24	0.00	-35.92	0.00	35.92	1,703.46	851.73	2,161.44	1,082.33	71.07	-3.60	0.035
171.00	-1.88	-3.71	0.00	-30.68	0.00	30.68	1,694.16	847.08	2,132.00	1,067.58	71.82	-3.61	0.030
175.00	-1.57	-3.35	0.00	-15.85	0.00	15.85	1,656.20	828.10	2,015.26	1,009.13	74.85	-3.62	0.017
178.50	0.00	-3.24	0.00	-4.13	0.00	4.13	1,622.00	811.00	1,914.55	958.70	77.50	-3.62	0.004

Load Case: 1.2D + 1.0Di + 1.0Wi — 50 mph with 0.75 in Radial Ice — 22 Iterations

Gust Response Factor : 1.10 | Ice Dead Load Factor : 1.00 | Wind Importance Factor : 1.00
Dead Load Factor : 1.20 | Ice Importance Factor : 1.00
Wind Load Factor : 1.00

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		87.5	0.0					0.0	0.0	87.5	0.0	0.0	0.0
5.00		173.9	2,533.0					0.0	730.5	173.9	3,263.5	0.0	0.0
10.00		171.4	2,548.9					0.0	758.3	171.4	3,307.2	0.0	0.0
15.00		168.7	2,533.2					0.0	772.9	168.7	3,306.1	0.0	0.0
20.00	Appertunance(s)	165.9	2,507.2	19.4	0.0	0.0	191.2	0.0	783.2	185.2	3,481.5	0.0	0.0
25.00		163.0	2,475.8					0.0	773.9	163.0	3,249.7	0.0	0.0
30.00		162.1	2,441.1					0.0	779.9	162.1	3,221.1	0.0	0.0
35.00		164.4	2,404.2					0.0	785.1	164.4	3,189.3	0.0	0.0
40.00		167.7	2,365.5					0.0	789.6	167.7	3,155.2	0.0	0.0
45.00	Bot - Section 2	171.2	2,325.6					0.0	793.7	171.2	3,119.2	0.0	0.0
50.00		139.0	3,760.4					0.0	797.3	139.0	4,557.7	0.0	0.0
53.00	Top - Section 1	87.4	2,223.0					0.0	480.0	87.4	2,703.1	0.0	0.0
55.00		123.0	810.4					0.0	320.7	123.0	1,131.0	0.0	0.0
60.00		176.3	1,996.0					0.0	803.8	176.3	2,799.7	0.0	0.0
65.00		176.7	1,957.9					0.0	806.6	176.7	2,764.5	0.0	0.0
70.00		176.7	1,919.3					0.0	809.3	176.7	2,728.6	0.0	0.0
75.00		176.5	1,880.2					0.0	811.8	176.5	2,692.0	0.0	0.0
80.00		175.9	1,840.6					0.0	814.2	175.9	2,654.9	0.0	0.0
85.00		175.0	1,800.7					0.0	816.5	175.0	2,617.2	0.0	0.0
90.00		111.8	1,760.5					0.0	818.6	111.8	2,579.1	0.0	0.0
91.42	Bot - Section 3	87.3	492.8					0.0	232.3	87.3	725.1	0.0	0.0
95.00		114.9	1,954.7					0.0	588.3	114.9	2,543.1	0.0	0.0
98.00	Top - Section 2	86.9	1,610.8					0.0	493.3	86.9	2,104.1	0.0	0.0
100.00		120.7	599.6					0.0	329.3	120.7	928.8	0.0	0.0
105.00		171.1	1,469.7					0.0	824.5	171.1	2,294.2	0.0	0.0
110.00		169.1	1,433.5					0.0	826.3	169.1	2,259.7	0.0	0.0
115.00		100.7	1,397.0					0.0	828.0	100.7	2,225.0	0.0	0.0
116.00	Appertunance(s)	82.9	276.1	646.8	0.0	1,952.1	4,946.4	0.0	165.8	729.7	5,388.2	0.0	0.0
120.00		147.9	1,086.4					0.0	580.4	147.9	1,666.9	0.0	0.0
125.00		130.1	1,323.5					0.0	726.6	130.1	2,050.1	0.0	0.0
128.00	Appertunance(s)	80.4	778.0	89.2	0.0	174.7	452.7	0.0	436.5	169.6	1,667.1	0.0	0.0
130.00		111.0	511.8					0.0	235.7	111.0	747.4	0.0	0.0
135.00	Appertunance(s)	146.3	1,249.3	987.6	0.0	2,083.7	6,260.4	0.0	589.6	1,134.0	8,099.3	0.0	0.0
139.33	Bot - Section 4	77.7	1,053.3					0.0	421.2	77.7	1,474.5	0.0	0.0
140.00		78.5	244.1					0.0	64.8	78.5	309.0	0.0	0.0
144.42	Top - Section 3	77.0	1,586.8					0.0	429.8	77.0	2,016.6	0.0	0.0
145.00		54.3	120.1					0.0	56.8	54.3	176.9	0.0	0.0
148.00	Appertunance(s)	75.4	608.9	783.6	0.0	839.5	5,353.5	0.0	292.2	859.0	6,254.7	0.0	0.0
150.00		103.8	400.0					0.0	156.9	103.8	556.9	0.0	0.0
155.00		145.9	972.9					0.0	392.6	145.9	1,365.5	0.0	0.0
160.00	Appertunance(s)	114.5	940.1	803.9	0.0	0.0	5,646.4	0.0	338.4	918.3	6,924.8	0.0	0.0
163.00	Appertunance(s)	70.3	549.9	19.1	0.0	38.2	116.5	0.0	114.1	89.4	780.5	0.0	0.0
165.00		96.4	360.6					0.0	36.1	96.4	396.7	0.0	0.0
170.00		82.0	874.1					0.0	90.5	82.0	964.5	0.0	0.0
171.00	Appertunance(s)	66.6	172.0	261.2	0.0	-840.6	1,965.8	0.0	18.1	327.8	2,155.9	0.0	0.0
175.00		98.7	671.2					0.0	47.2	98.7	718.4	0.0	0.0
178.50	Appertunance(s)	45.5	570.3	355.2	0.0	0.0	2,260.0	0.0	41.3	400.8	2,871.6	0.0	0.0

Load Case: 1.2D + 1.0Di + 1.0Wi — 50 mph with 0.75 in Radial Ice — 22 Iterations

Gust Response Factor : 1.10
Dead Load Factor : 1.20
Wind Load Factor : 1.00

Ice Dead Load Factor : 1.00

Wind Importance Factor : 1.00
Ice Importance Factor : 1.00

Totals:	9,815.94	116,186.	0.00	0.00

Load Case: 1.2D + 1.0Di + 1.0Wi — 50 mph with 0.75 in Radial Ice — 22 Iterations

Gust Response Factor : 1.10 | Ice Dead Load Factor : 1.00 | Wind Importance Factor : 1.00
Dead Load Factor : 1.20 | Ice Importance Factor : 1.00
Wind Load Factor : 1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-117.74	-10.01	0.00	-1,196.51	0.00	1,196.51	6,164.54	3,082.27	18,158.3	9,092.69	0.00	0.00	0.151
5.00	-114.47	-9.89	0.00	-1,146.46	0.00	1,146.46	6,108.61	3,054.31	17,675.6	8,850.97	0.01	-0.03	0.148
10.00	-111.16	-9.77	0.00	-1,097.02	0.00	1,097.02	6,050.81	3,025.41	17,193.4	8,609.50	0.06	-0.05	0.146
15.00	-107.85	-9.64	0.00	-1,048.20	0.00	1,048.20	5,991.14	2,995.57	16,712.0	8,368.43	0.12	-0.08	0.143
20.00	-104.37	-9.50	0.00	-999.98	0.00	999.98	5,929.59	2,964.80	16,231.6	8,127.91	0.22	-0.11	0.141
25.00	-101.11	-9.38	0.00	-952.48	0.00	952.48	5,866.18	2,933.09	15,752.7	7,888.07	0.35	-0.13	0.138
30.00	-97.89	-9.25	0.00	-905.59	0.00	905.59	5,800.89	2,900.44	15,275.4	7,649.08	0.50	-0.16	0.135
35.00	-94.69	-9.13	0.00	-859.32	0.00	859.32	5,733.73	2,866.86	14,800.1	7,411.07	0.68	-0.19	0.132
40.00	-91.53	-8.99	0.00	-813.69	0.00	813.69	5,664.70	2,832.35	14,327.0	7,174.19	0.89	-0.21	0.130
45.00	-88.41	-8.85	0.00	-768.73	0.00	768.73	5,593.79	2,796.90	13,856.5	6,938.58	1.13	-0.24	0.127
50.00	-83.85	-8.72	0.00	-724.48	0.00	724.48	5,521.02	2,760.51	13,388.9	6,704.40	1.40	-0.27	0.123
53.00	-81.15	-8.64	0.00	-698.31	0.00	698.31	4,440.13	2,220.06	10,789.7	5,402.88	1.57	-0.29	0.148
55.00	-80.01	-8.54	0.00	-681.03	0.00	681.03	4,419.76	2,209.88	10,648.2	5,332.01	1.69	-0.30	0.146
60.00	-77.21	-8.39	0.00	-638.31	0.00	638.31	4,367.53	2,183.77	10,295.0	5,155.16	2.02	-0.33	0.142
65.00	-74.44	-8.24	0.00	-596.34	0.00	596.34	4,313.43	2,156.72	9,942.96	4,978.87	2.38	-0.36	0.137
70.00	-71.71	-8.09	0.00	-555.14	0.00	555.14	4,257.46	2,128.73	9,592.32	4,803.29	2.78	-0.39	0.132
75.00	-69.02	-7.93	0.00	-514.71	0.00	514.71	4,199.61	2,099.81	9,243.38	4,628.56	3.20	-0.42	0.128
80.00	-66.36	-7.77	0.00	-475.08	0.00	475.08	4,139.90	2,069.95	8,896.45	4,454.84	3.66	-0.45	0.123
85.00	-63.74	-7.60	0.00	-436.25	0.00	436.25	4,078.31	2,039.15	8,551.80	4,282.26	4.15	-0.48	0.118
90.00	-61.16	-7.49	0.00	-398.24	0.00	398.24	4,014.85	2,007.42	8,209.74	4,110.97	4.67	-0.51	0.112
91.42	-60.43	-7.41	0.00	-387.63	0.00	387.63	3,996.52	1,998.26	8,113.34	4,062.70	4.82	-0.52	0.111
95.00	-57.89	-7.29	0.00	-361.08	0.00	361.08	3,949.51	1,974.76	7,870.56	3,941.13	5.22	-0.54	0.106
98.00	-55.78	-7.20	0.00	-339.21	0.00	339.21	3,056.80	1,528.40	6,090.92	3,049.99	5.57	-0.56	0.129
100.00	-54.85	-7.09	0.00	-324.81	0.00	324.81	3,039.33	1,519.67	5,992.84	3,000.87	5.80	-0.57	0.126
105.00	-52.56	-6.92	0.00	-289.36	0.00	289.36	2,994.36	1,497.18	5,748.30	2,878.42	6.42	-0.60	0.118
110.00	-50.29	-6.76	0.00	-254.74	0.00	254.74	2,947.52	1,473.76	5,504.94	2,756.56	7.07	-0.63	0.109
115.00	-48.07	-6.64	0.00	-220.96	0.00	220.96	2,898.80	1,449.40	5,263.06	2,635.44	7.74	-0.66	0.100
116.00	-42.69	-5.86	0.00	-212.37	0.00	212.37	2,888.83	1,444.42	5,214.89	2,611.32	7.88	-0.67	0.096
120.00	-41.02	-5.71	0.00	-188.92	0.00	188.92	2,848.21	1,424.11	5,022.95	2,515.21	8.45	-0.69	0.090
125.00	-38.97	-5.57	0.00	-160.36	0.00	160.36	2,795.75	1,397.88	4,784.91	2,396.01	9.19	-0.71	0.081
128.00	-37.30	-5.39	0.00	-143.48	0.00	143.48	2,763.38	1,381.69	4,643.19	2,325.05	9.64	-0.73	0.075
130.00	-36.56	-5.28	0.00	-132.70	0.00	132.70	2,741.42	1,370.71	4,549.22	2,277.99	9.95	-0.74	0.072
135.00	-28.47	-4.05	0.00	-104.24	0.00	104.24	2,685.21	1,342.61	4,316.17	2,161.29	10.73	-0.76	0.059
139.33	-27.00	-3.95	0.00	-86.71	0.00	86.71	2,634.99	1,317.49	4,116.57	2,061.34	11.43	-0.77	0.052
140.00	-26.69	-3.87	0.00	-84.07	0.00	84.07	2,627.14	1,313.57	4,086.07	2,046.07	11.53	-0.78	0.051
144.42	-24.67	-3.77	0.00	-66.96	0.00	66.96	1,915.99	957.99	2,941.42	1,472.89	12.26	-0.79	0.058
145.00	-24.50	-3.72	0.00	-64.76	0.00	64.76	1,911.69	955.84	2,923.20	1,463.77	12.36	-0.79	0.057
148.00	-18.25	-2.77	0.00	-52.77	0.00	52.77	1,889.17	944.59	2,829.77	1,416.99	12.86	-0.80	0.047
150.00	-17.70	-2.67	0.00	-47.22	0.00	47.22	1,873.79	936.89	2,767.71	1,385.91	13.19	-0.81	0.044
155.00	-16.34	-2.50	0.00	-33.89	0.00	33.89	1,834.01	917.01	2,613.49	1,308.69	14.05	-0.82	0.035
160.00	-9.42	-1.49	0.00	-21.37	0.00	21.37	1,792.37	896.18	2,460.85	1,232.25	14.91	-0.83	0.023
163.00	-8.64	-1.39	0.00	-16.87	0.00	16.87	1,766.48	883.24	2,370.14	1,186.83	15.43	-0.83	0.019
165.00	-8.25	-1.29	0.00	-14.10	0.00	14.10	1,748.85	874.42	2,310.07	1,156.75	15.78	-0.84	0.017
170.00	-7.29	-1.19	0.00	-7.67	0.00	7.67	1,703.46	851.73	2,161.44	1,082.33	16.66	-0.84	0.011
171.00	-5.14	-0.83	0.00	-6.48	0.00	6.48	1,694.16	847.08	2,132.00	1,067.58	16.84	-0.84	0.009
175.00	-4.42	-0.72	0.00	-3.16	0.00	3.16	1,656.20	828.10	2,015.26	1,009.13	17.54	-0.84	0.006
178.50	0.00	-0.66	0.00	-0.64	0.00	0.64	1,622.00	811.00	1,914.55	958.70	18.16	-0.84	0.001

Load Case: 1.0D + 1.0W Serviceability 60 mph 22 Iterations

Gust Response Factor : 1.10 Wind Importance Factor : 1.00
Dead Load Factor : 1.00
Wind Load Factor : 1.00

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		66.2	0.0					0.0	0.0	66.2	0.0	0.0	0.0
5.00		131.2	1,675.8					0.0	445.7	131.2	2,121.5	0.0	0.0
10.00		128.8	1,646.1					0.0	445.7	128.8	2,091.8	0.0	0.0
15.00		126.5	1,616.4					0.0	445.7	126.5	2,062.1	0.0	0.0
20.00	Appertunance(s)	124.2	1,586.7	17.5	0.0	0.0	75.6	0.0	445.7	141.6	2,108.0	0.0	0.0
25.00		121.8	1,557.0					0.0	445.0	121.8	2,002.0	0.0	0.0
30.00		120.9	1,527.3					0.0	445.0	120.9	1,972.3	0.0	0.0
35.00		122.5	1,497.6					0.0	445.0	122.5	1,942.6	0.0	0.0
40.00		124.7	1,467.9					0.0	445.0	124.7	1,912.9	0.0	0.0
45.00	Bot - Section 2	127.2	1,438.2					0.0	445.0	127.2	1,883.2	0.0	0.0
50.00		103.2	2,632.3					0.0	445.0	103.2	3,077.3	0.0	0.0
53.00	Top - Section 1	64.8	1,552.9					0.0	267.0	64.8	1,819.9	0.0	0.0
55.00		91.1	476.3					0.0	178.0	91.1	654.3	0.0	0.0
60.00		130.4	1,172.9					0.0	445.0	130.4	1,617.8	0.0	0.0
65.00		130.5	1,147.4					0.0	445.0	130.5	1,592.4	0.0	0.0
70.00		130.3	1,122.0					0.0	445.0	130.3	1,566.9	0.0	0.0
75.00		129.9	1,096.5					0.0	445.0	129.9	1,541.5	0.0	0.0
80.00		129.2	1,071.1					0.0	445.0	129.2	1,516.0	0.0	0.0
85.00		128.4	1,045.6					0.0	445.0	128.4	1,490.6	0.0	0.0
90.00		81.9	1,020.1					0.0	445.0	81.9	1,465.1	0.0	0.0
91.42	Bot - Section 3	63.9	284.4					0.0	126.1	63.9	410.5	0.0	0.0
95.00		84.1	1,310.5					0.0	318.9	84.1	1,629.4	0.0	0.0
98.00	Top - Section 2	63.5	1,078.7					0.0	267.0	63.5	1,345.7	0.0	0.0
100.00		88.1	325.2					0.0	178.0	88.1	503.2	0.0	0.0
105.00		124.7	798.1					0.0	445.0	124.7	1,243.0	0.0	0.0
110.00		123.0	776.9					0.0	445.0	123.0	1,221.8	0.0	0.0
115.00		73.1	755.7					0.0	445.0	73.1	1,200.6	0.0	0.0
116.00	Appertunance(s)	60.1	148.6	633.0	0.0	2,231.1	2,385.3	0.0	89.0	693.1	2,622.9	0.0	0.0
120.00		107.0	585.9					0.0	340.0	107.0	925.8	0.0	0.0
125.00		94.0	713.2					0.0	425.0	94.0	1,138.2	0.0	0.0
128.00	Appertunance(s)	58.0	417.8	102.6	0.0	203.7	80.2	0.0	255.0	160.5	752.9	0.0	0.0
130.00		79.9	274.3					0.0	159.5	79.9	433.7	0.0	0.0
135.00	Appertunance(s)	105.1	670.8	1,032.4	0.0	2,422.1	2,493.1	0.0	398.7	1,137.5	3,562.6	0.0	0.0
139.33	Bot - Section 4	55.7	564.2					0.0	270.3	55.7	834.5	0.0	0.0
140.00		56.2	154.7					0.0	41.6	56.2	196.3	0.0	0.0
144.42	Top - Section 3	55.1	1,007.8					0.0	275.5	55.1	1,283.3	0.0	0.0
145.00		38.8	58.7					0.0	36.4	38.8	95.0	0.0	0.0
148.00	Appertunance(s)	53.8	298.0	820.0	0.0	1,035.4	2,332.5	0.0	187.1	873.8	2,817.7	0.0	0.0
150.00		73.8	195.3					0.0	103.1	73.8	298.4	0.0	0.0
155.00		103.5	476.4					0.0	257.7	103.5	734.1	0.0	0.0
160.00	Appertunance(s)	81.0	459.4	801.2	0.0	0.0	2,299.4	0.0	212.2	882.3	2,971.0	0.0	0.0
163.00	Appertunance(s)	49.6	267.5	19.8	0.0	39.5	20.0	0.0	53.1	69.4	340.6	0.0	0.0
165.00		67.9	174.9					0.0	20.8	67.9	195.8	0.0	0.0
170.00		57.6	425.5					0.0	52.1	57.6	477.5	0.0	0.0
171.00	Appertunance(s)	46.7	83.1	256.0	0.0	-970.4	804.9	0.0	10.4	302.7	898.4	0.0	0.0
175.00		68.9	325.4					0.0	39.4	68.9	364.8	0.0	0.0
178.50	Appertunance(s)	31.7	275.8	293.1	0.0	0.0	1,500.0	0.0	34.4	324.9	1,810.3	0.0	0.0

Site Number:	**302467**	**Code: ANSI/TIA-222-G**	
Site Name:	**Bilkays Express, CT**	**Engineering Number: 63916421**	**11/11/2015 2:46:46 PM**
Customer:	**T-MOBILE**		

Load Case: **1.0D + 1.0W** **Serviceability 60 mph** **22 Iterations**

Gust Response Factor : 1.10
Dead Load Factor : 1.00
Wind Load Factor : 1.00

Wind Importance Factor : 1.00

Totals:	**8,254.02**	**64,746.1**	**0.00**	**0.00**

Site Number: 302467 Code: ANSI/TIA-222-G

Site Name: Bilkays Express, CT Engineering Number: 63916421 11/11/2015 2:46:46 PM

Customer: T-MOBILE

Load Case: 1.0D + 1.0W Serviceability 60 mph 22 Iterations

Gust Response Factor : 1.10 Wind Importance Factor : 1.00

Dead Load Factor : 1.00

Wind Load Factor : 1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-64.91	-8.54	0.00	-1,034.76	0.00	1,034.76	6,164.54	3,082.27	18,158.3	9,092.69	0.00	0.00	0.124
5.00	-62.79	-8.43	0.00	-992.07	0.00	992.07	6,108.61	3,054.31	17,675.6	8,850.97	0.01	-0.02	0.122
10.00	-60.69	-8.32	0.00	-949.92	0.00	949.92	6,050.81	3,025.41	17,193.4	8,609.50	0.05	-0.05	0.120
15.00	-58.63	-8.22	0.00	-908.30	0.00	908.30	5,991.14	2,995.57	16,712.0	8,368.43	0.11	-0.07	0.118
20.00	-56.52	-8.10	0.00	-867.20	0.00	867.20	5,929.59	2,964.80	16,231.6	8,127.91	0.19	-0.09	0.116
25.00	-54.51	-7.99	0.00	-826.71	0.00	826.71	5,866.18	2,933.09	15,752.7	7,888.07	0.30	-0.11	0.114
30.00	-52.54	-7.89	0.00	-786.74	0.00	786.74	5,800.89	2,900.44	15,275.4	7,649.08	0.43	-0.14	0.112
35.00	-50.59	-7.78	0.00	-747.28	0.00	747.28	5,733.73	2,866.86	14,800.1	7,411.07	0.59	-0.16	0.110
40.00	-48.67	-7.67	0.00	-708.36	0.00	708.36	5,664.70	2,832.35	14,327.0	7,174.19	0.77	-0.19	0.107
45.00	-46.79	-7.56	0.00	-669.99	0.00	669.99	5,593.79	2,796.90	13,856.5	6,938.58	0.98	-0.21	0.105
50.00	-43.71	-7.46	0.00	-632.19	0.00	632.19	5,521.02	2,760.51	13,388.9	6,704.40	1.21	-0.23	0.102
53.00	-41.89	-7.40	0.00	-609.81	0.00	609.81	4,440.13	2,220.06	10,789.7	5,402.88	1.36	-0.25	0.122
55.00	-41.23	-7.32	0.00	-595.02	0.00	595.02	4,419.76	2,209.88	10,648.2	5,332.01	1.47	-0.26	0.121
60.00	-39.61	-7.20	0.00	-558.44	0.00	558.44	4,367.53	2,183.77	10,295.0	5,155.16	1.75	-0.29	0.117
65.00	-38.02	-7.08	0.00	-522.45	0.00	522.45	4,313.43	2,156.72	9,942.96	4,978.87	2.07	-0.31	0.114
70.00	-36.45	-6.95	0.00	-487.07	0.00	487.07	4,257.46	2,128.73	9,592.32	4,803.29	2.41	-0.34	0.110
75.00	-34.90	-6.83	0.00	-452.30	0.00	452.30	4,199.61	2,099.81	9,243.38	4,628.56	2.78	-0.37	0.106
80.00	-33.38	-6.71	0.00	-418.15	0.00	418.15	4,139.90	2,069.95	8,896.45	4,454.84	3.18	-0.39	0.102
85.00	-31.89	-6.58	0.00	-384.61	0.00	384.61	4,078.31	2,039.15	8,551.80	4,282.26	3.61	-0.42	0.098
90.00	-30.43	-6.50	0.00	-351.70	0.00	351.70	4,014.85	2,007.42	8,209.74	4,110.97	4.06	-0.45	0.093
91.42	-30.01	-6.44	0.00	-342.49	0.00	342.49	3,996.52	1,998.26	8,113.34	4,062.70	4.19	-0.45	0.092
95.00	-28.38	-6.35	0.00	-319.42	0.00	319.42	3,949.51	1,974.76	7,870.56	3,941.13	4.54	-0.47	0.088
98.00	-27.04	-6.28	0.00	-300.37	0.00	300.37	3,056.80	1,528.40	6,090.92	3,049.99	4.84	-0.49	0.107
100.00	-26.53	-6.20	0.00	-287.81	0.00	287.81	3,039.33	1,519.67	5,992.84	3,000.87	5.05	-0.50	0.105
105.00	-25.29	-6.07	0.00	-256.82	0.00	256.82	2,994.36	1,497.18	5,748.30	2,878.42	5.59	-0.53	0.098
110.00	-24.06	-5.95	0.00	-226.45	0.00	226.45	2,947.52	1,473.76	5,504.94	2,756.56	6.16	-0.55	0.090
115.00	-22.86	-5.87	0.00	-196.70	0.00	196.70	2,898.80	1,449.40	5,263.06	2,635.44	6.75	-0.58	0.083
116.00	-20.25	-5.16	0.00	-188.59	0.00	188.59	2,888.83	1,444.42	5,214.89	2,611.32	6.87	-0.58	0.079
120.00	-19.32	-5.05	0.00	-167.97	0.00	167.97	2,848.21	1,424.11	5,022.95	2,515.21	7.37	-0.60	0.074
125.00	-18.18	-4.95	0.00	-142.74	0.00	142.74	2,795.75	1,397.88	4,784.91	2,396.01	8.01	-0.63	0.066
128.00	-17.43	-4.78	0.00	-127.69	0.00	127.69	2,763.38	1,381.69	4,643.19	2,325.05	8.41	-0.64	0.061
130.00	-17.00	-4.70	0.00	-118.13	0.00	118.13	2,741.42	1,370.71	4,549.22	2,277.99	8.68	-0.65	0.058
135.00	-13.45	-3.53	0.00	-92.21	0.00	92.21	2,685.21	1,342.61	4,316.17	2,161.29	9.37	-0.66	0.048
139.33	-12.61	-3.46	0.00	-76.94	0.00	76.94	2,634.99	1,317.49	4,116.57	2,061.34	9.98	-0.68	0.042
140.00	-12.41	-3.40	0.00	-74.63	0.00	74.63	2,627.14	1,313.57	4,086.07	2,046.07	10.07	-0.68	0.041
144.42	-11.13	-3.34	0.00	-59.59	0.00	59.59	1,915.99	957.99	2,941.42	1,472.89	10.71	-0.69	0.046
145.00	-11.04	-3.30	0.00	-57.64	0.00	57.64	1,911.69	955.84	2,923.20	1,463.77	10.79	-0.69	0.045
148.00	-8.23	-2.39	0.00	-46.72	0.00	46.72	1,889.17	944.59	2,829.77	1,416.99	11.23	-0.70	0.037
150.00	-7.93	-2.31	0.00	-41.94	0.00	41.94	1,873.79	936.89	2,767.71	1,385.91	11.53	-0.71	0.035
155.00	-7.20	-2.20	0.00	-30.37	0.00	30.37	1,834.01	917.01	2,613.49	1,308.69	12.28	-0.72	0.027
160.00	-4.24	-1.28	0.00	-19.37	0.00	19.37	1,792.37	896.18	2,460.85	1,232.25	13.04	-0.73	0.018
163.00	-3.90	-1.21	0.00	-15.48	0.00	15.48	1,766.48	883.24	2,370.14	1,186.83	13.50	-0.73	0.015
165.00	-3.70	-1.14	0.00	-13.06	0.00	13.06	1,748.85	874.42	2,310.07	1,156.75	13.80	-0.73	0.013
170.00	-3.23	-1.08	0.00	-7.37	0.00	7.37	1,703.46	851.73	2,161.44	1,082.33	14.57	-0.74	0.009
171.00	-2.33	-0.76	0.00	-6.29	0.00	6.29	1,694.16	847.08	2,132.00	1,067.58	14.73	-0.74	0.007
175.00	-1.97	-0.69	0.00	-3.25	0.00	3.25	1,656.20	828.10	2,015.26	1,009.13	15.35	-0.74	0.004
178.50	0.00	-0.66	0.00	-0.84	0.00	0.84	1,622.00	811.00	1,914.55	958.70	15.89	-0.74	0.001

Equivalent Lateral Forces Method Analysis

(Based on ASCE7-10 Chapters 11, 12, 15)

Spectral Response Acceleration for Short Period (S_s):	0.18
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.06
Long-Period Transition Period (T_L):	6
Importance Factor (I_E):	1.00
Site Coefficient F_a:	1.60
Site Coeffiecient F_v:	2.40
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.20
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10
Seismic Response Coefficient (C_s):	0.03
Upper Limit C_s	0.03
Lower Limit C_s	0.03
Period based on Rayleigh Method (sec):	2.10
Redundancy Factor (p):	1.30
Seismic Force Distribution Exponent (k):	1.80
Total Unfactored Dead Load:	64.91 k
Seismic Base Shear (E):	2.70 k

Equivalent Modal Forces Analysis

(Based on ASCE7-10 Chapters 11, 12 & 15 and ANSI/TIA-G, section 2.7)

Spectral Response Acceleration for Short Period (S_s):	0.18
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.06
Importance Factor (I_E):	1.00
Site Coefficient F_a:	1.60
Site Coefficient F_v	2.40
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.20
Desing Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10
Period Based on Rayleigh Method (sec):	2.10
Redundancy Factor (p):	1.30

Load Case (1.2 + 0.2Sds) * DL + E ELFM **Seismic Equivalent Lateral Forces Method**

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
46	176.75	310	1.853	1.791	1.071	0.349	94	267
45	173.00	365	1.775	1.429	0.935	0.300	95	314
44	170.50	93	1.724	1.217	0.853	0.270	22	80
43	167.50	478	1.664	0.991	0.761	0.235	97	411
42	164.00	196	1.595	0.764	0.664	0.197	33	169
41	161.50	321	1.547	0.624	0.601	0.172	48	276
40	157.50	672	1.471	0.433	0.509	0.135	79	578
39	152.50	734	1.380	0.246	0.411	0.094	60	632
38	149.00	298	1.317	0.145	0.351	0.068	18	257
37	146.50	485	1.273	0.085	0.313	0.052	22	418
36	144.71	95	1.242	0.048	0.287	0.041	3	82
35	142.21	1,283	1.200	0.004	0.254	0.027	30	1,105
34	139.67	196	1.157	-0.032	0.224	0.014	2	169
33	137.17	835	1.116	-0.060	0.197	0.003	2	718
32	132.50	1,070	1.041	-0.097	0.153	-0.014	-13	921
31	129.00	434	0.987	-0.113	0.125	-0.024	-9	373
30	126.50	673	0.949	-0.119	0.108	-0.029	-17	579
29	122.50	1,138	0.890	-0.122	0.084	-0.035	-34	980
28	118.00	926	0.826	-0.116	0.062	-0.037	-30	797
27	115.50	238	0.791	-0.110	0.051	-0.036	-8	205
26	112.50	1,201	0.751	-0.101	0.041	-0.034	-36	1,034
25	107.50	1,222	0.685	-0.082	0.027	-0.027	-29	1,052
24	102.50	1,243	0.623	-0.061	0.017	-0.017	-18	1,070
23	99.00	503	0.581	-0.046	0.013	-0.008	-3	433
22	96.50	1,346	0.552	-0.035	0.010	-0.002	-2	1,159
21	93.21	1,629	0.515	-0.022	0.008	0.007	10	1,403
20	90.71	410	0.488	-0.012	0.007	0.013	5	353
19	87.50	1,465	0.454	0.000	0.006	0.021	27	1,261
18	82.50	1,491	0.404	0.017	0.006	0.031	40	1,283
17	77.50	1,516	0.356	0.031	0.008	0.039	51	1,305
16	72.50	1,541	0.312	0.043	0.011	0.045	60	1,327
15	67.50	1,567	0.270	0.052	0.015	0.048	66	1,349
14	62.50	1,592	0.232	0.058	0.019	0.050	69	1,371
13	57.50	1,618	0.196	0.063	0.024	0.051	71	1,393

12	54.00	654	0.173	0.066	0.027	0.050	29	563
11	51.50	1,820	0.157	0.067	0.029	0.050	79	1,567
10	47.50	3,077	0.134	0.069	0.032	0.049	132	2,649
9	42.50	1,883	0.107	0.071	0.036	0.048	79	1,621
8	37.50	1,913	0.083	0.072	0.039	0.047	78	1,647
7	32.50	1,943	0.063	0.072	0.041	0.046	78	1,672
6	27.50	1,972	0.045	0.071	0.042	0.045	77	1,698
5	22.50	2,002	0.030	0.068	0.041	0.043	75	1,724
4	17.50	2,032	0.018	0.063	0.037	0.040	71	1,750
3	12.50	2,062	0.009	0.054	0.031	0.035	63	1,775
2	7.50	2,092	0.003	0.039	0.022	0.027	48	1,801
1	2.50	2,122	0.000	0.016	0.008	0.012	21	1,827
Decibel DB844H90E-XY	181.00	168	1.943	2.273	1.244	0.409	59	145
Flat Low Profile Pla	178.50	1,500	1.890	1.980	1.140	0.373	485	1,291
NextNet BTS-2500	171.00	105	1.735	1.257	0.869	0.276	25	90
Argus LLPX310R	171.00	86	1.735	1.257	0.869	0.276	21	74
DragonWave A-ANT-11G	171.00	27	1.735	1.257	0.869	0.276	6	23
DragonWave A-ANT-18G	171.00	27	1.735	1.257	0.869	0.276	6	23
Side Arms	171.00	560	1.735	1.257	0.869	0.276	134	482
Generic TTA	163.00	20	1.576	0.706	0.638	0.187	3	17
Powerwave Allgon 702	160.00	13	1.519	0.548	0.565	0.158	2	11
Powerwave Allgon LGP	160.00	85	1.519	0.548	0.565	0.158	12	73
Raycap DC6-48-60-18-	160.00	20	1.519	0.548	0.565	0.158	3	17
Ericsson RRUS 11 (Ba	160.00	152	1.519	0.548	0.565	0.158	21	131
Ericsson RRUS-12 B2	160.00	174	1.519	0.548	0.565	0.158	24	150
Powerwave Allgon 777	160.00	210	1.519	0.548	0.565	0.158	29	181
KMW AM-X-CD-16-65-00	160.00	146	1.519	0.548	0.565	0.158	20	125
Flat Low Profile Pla	160.00	1,500	1.519	0.548	0.565	0.158	205	1,291
Ericsson KRY 112 144	148.00	33	1.299	0.120	0.335	0.061	2	28
Ericsson RRUS 11 B12	148.00	152	1.299	0.120	0.335	0.061	8	131
Ericsson AIR 21, 1.3	148.00	249	1.299	0.120	0.335	0.061	13	214
Ericsson AIR 21, 1.3	148.00	244	1.299	0.120	0.335	0.061	13	211
Andrew LNX-6515DS-VT	148.00	154	1.299	0.120	0.335	0.061	8	133
Round Low Profile Pl	148.00	1,500	1.299	0.120	0.335	0.061	80	1,291
Alcatel-Lucent RRH 2	135.00	119	1.081	-0.080	0.175	-0.006	-1	102
Alcatel-Lucent RRH2X	135.00	132	1.081	-0.080	0.175	-0.006	-1	114
Alcatel-Lucent RRH2x	135.00	170	1.081	-0.080	0.175	-0.006	-1	146
RFS DB-T1-6Z-8AB-0Z	135.00	88	1.081	-0.080	0.175	-0.006	0	76
Antel BXA-80063-6BF-	135.00	58	1.081	-0.080	0.175	-0.006	0	50
Commscope SBNHH-	135.00	304	1.081	-0.080	0.175	-0.006	-2	262
Commscope HBXX-	135.00	122	1.081	-0.080	0.175	-0.006	-1	105
Round Low Profile Pl	135.00	1,500	1.081	-0.080	0.175	-0.006	-8	1,291
Nortel NTGB01MA	128.00	1	0.972	-0.116	0.118	-0.026	0	1
RFS APXV18-206517S-C	128.00	79	0.972	-0.116	0.118	-0.026	-2	68
Alcatel-Lucent 800 M	116.00	159	0.798	-0.112	0.053	-0.037	-5	137
Alcatel-Lucent 1900	116.00	180	0.798	-0.112	0.053	-0.037	-6	155
Alcatel-Lucent TD-RR	116.00	210	0.798	-0.112	0.053	-0.037	-7	181
RFS RFS APXV9TM14-	116.00	165	0.798	-0.112	0.053	-0.037	-5	142
RFS APXVSPP18-C-A20	116.00	171	0.798	-0.112	0.053	-0.037	-5	147
Round Low Profile Pl	116.00	1,500	0.798	-0.112	0.053	-0.037	-48	1,291
PCTEL GPS-TMG-HR-	20.00	1	0.024	0.066	0.039	0.042	0	1
Standoff	20.00	75	0.024	0.066	0.039	0.042	3	65
		64,914	82.499	22.575	24.547	6.233	2,724	55,888

Load Case (1.2 + 0.2Sds) * DL + E EMAM **Seismic Equivalent Modal Analysis Method**

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
46	176.75	310	1.853	1.791	1.071	0.349	94	267
45	173.00	365	1.775	1.429	0.935	0.300	95	314

44	170.50	93	1.724	1.217	0.853	0.270	22	80
43	167.50	478	1.664	0.991	0.761	0.235	97	411
42	164.00	196	1.595	0.764	0.664	0.197	33	169
41	161.50	321	1.547	0.624	0.601	0.172	48	276
40	157.50	672	1.471	0.433	0.509	0.135	79	578
39	152.50	734	1.380	0.246	0.411	0.094	60	632
38	149.00	298	1.317	0.145	0.351	0.068	18	257
37	146.50	485	1.273	0.085	0.313	0.052	22	418
36	144.71	95	1.242	0.048	0.287	0.041	3	82
35	142.21	1,283	1.200	0.004	0.254	0.027	30	1,105
34	139.67	196	1.157	-0.032	0.224	0.014	2	169
33	137.17	835	1.116	-0.060	0.197	0.003	2	718
32	132.50	1,070	1.041	-0.097	0.153	-0.014	-13	921
31	129.00	434	0.987	-0.113	0.125	-0.024	-9	373
30	126.50	673	0.949	-0.119	0.108	-0.029	-17	579
29	122.50	1,138	0.890	-0.122	0.084	-0.035	-34	980
28	118.00	926	0.826	-0.116	0.062	-0.037	-30	797
27	115.50	238	0.791	-0.110	0.051	-0.036	-8	205
26	112.50	1,201	0.751	-0.101	0.041	-0.034	-36	1,034
25	107.50	1,222	0.685	-0.082	0.027	-0.027	-29	1,052
24	102.50	1,243	0.623	-0.061	0.017	-0.017	-18	1,070
23	99.00	503	0.581	-0.046	0.013	-0.008	-3	433
22	96.50	1,346	0.552	-0.035	0.010	-0.002	-2	1,159
21	93.21	1,629	0.515	-0.022	0.008	0.007	10	1,403
20	90.71	410	0.488	-0.012	0.007	0.013	5	353
19	87.50	1,465	0.454	0.000	0.006	0.021	27	1,261
18	82.50	1,491	0.404	0.017	0.006	0.031	40	1,283
17	77.50	1,516	0.356	0.031	0.008	0.039	51	1,305
16	72.50	1,541	0.312	0.043	0.011	0.045	60	1,327
15	67.50	1,567	0.270	0.052	0.015	0.048	66	1,349
14	62.50	1,592	0.232	0.058	0.019	0.050	69	1,371
13	57.50	1,618	0.196	0.063	0.024	0.051	71	1,393
12	54.00	654	0.173	0.066	0.027	0.050	29	563
11	51.50	1,820	0.157	0.067	0.029	0.050	79	1,567
10	47.50	3,077	0.134	0.069	0.032	0.049	132	2,649
9	42.50	1,883	0.107	0.071	0.036	0.048	79	1,621
8	37.50	1,913	0.083	0.072	0.039	0.047	78	1,647
7	32.50	1,943	0.063	0.072	0.041	0.046	78	1,672
6	27.50	1,972	0.045	0.071	0.042	0.045	77	1,698
5	22.50	2,002	0.030	0.068	0.041	0.043	75	1,724
4	17.50	2,032	0.018	0.063	0.037	0.040	71	1,750
3	12.50	2,062	0.009	0.054	0.031	0.035	63	1,775
2	7.50	2,092	0.003	0.039	0.022	0.027	48	1,801
1	2.50	2,122	0.000	0.016	0.008	0.012	21	1,827
Decibel DB844H90E-XY	181.00	168	1.943	2.273	1.244	0.409	59	145
Flat Low Profile Pla	178.50	1,500	1.890	1.980	1.140	0.373	485	1,291
NextNet BTS-2500	171.00	105	1.735	1.257	0.869	0.276	25	90
Argus LLPX310R	171.00	86	1.735	1.257	0.869	0.276	21	74
DragonWave A-ANT-11G	171.00	27	1.735	1.257	0.869	0.276	6	23
DragonWave A-ANT-18G	171.00	27	1.735	1.257	0.869	0.276	6	23
Side Arms	171.00	560	1.735	1.257	0.869	0.276	134	482
Generic TTA	163.00	20	1.576	0.706	0.638	0.187	3	17
Powerwave Allgon 702	160.00	13	1.519	0.548	0.565	0.158	2	11
Powerwave Allgon LGP	160.00	85	1.519	0.548	0.565	0.158	12	73
Raycap DC6-48-60-18-	160.00	20	1.519	0.548	0.565	0.158	3	17
Ericsson RRUS 11 (Ba	160.00	152	1.519	0.548	0.565	0.158	21	131
Ericsson RRUS-12 B2	160.00	174	1.519	0.548	0.565	0.158	24	150
Powerwave Allgon 777	160.00	210	1.519	0.548	0.565	0.158	29	181
KMW AM-X-CD-16-65-00	160.00	146	1.519	0.548	0.565	0.158	20	125
Flat Low Profile Pla	160.00	1,500	1.519	0.548	0.565	0.158	205	1,291
Ericsson KRY 112 144	148.00	33	1.299	0.120	0.335	0.061	2	28
Ericsson RRUS 11 B12	148.00	152	1.299	0.120	0.335	0.061	8	131
Ericsson AIR 21, 1.3	148.00	249	1.299	0.120	0.335	0.061	13	214
Ericsson AIR 21, 1.3	148.00	244	1.299	0.120	0.335	0.061	13	211

Andrew LNX-6515DS-VT	148.00	154	1.299	0.120	0.335	0.061	8	133
Round Low Profile Pl	148.00	1,500	1.299	0.120	0.335	0.061	80	1,291
Alcatel-Lucent RRH 2	135.00	119	1.081	-0.080	0.175	-0.006	-1	102
Alcatel-Lucent RRH2X	135.00	132	1.081	-0.080	0.175	-0.006	-1	114
Alcatel-Lucent RRH2x	135.00	170	1.081	-0.080	0.175	-0.006	-1	146
RFS DB-T1-6Z-8AB-0Z	135.00	88	1.081	-0.080	0.175	-0.006	0	76
Antel BXA-80063-6BF-	135.00	58	1.081	-0.080	0.175	-0.006	0	50
Commscope SBNHH-	135.00	304	1.081	-0.080	0.175	-0.006	-2	262
Commscope HBXX-	135.00	122	1.081	-0.080	0.175	-0.006	-1	105
Round Low Profile Pl	135.00	1,500	1.081	-0.080	0.175	-0.006	-8	1,291
Nortel NTGB01MA	128.00	1	0.972	-0.116	0.118	-0.026	0	1
RFS APXV18-206517S-C	128.00	79	0.972	-0.116	0.118	-0.026	-2	68
Alcatel-Lucent 800 M	116.00	159	0.798	-0.112	0.053	-0.037	-5	137
Alcatel-Lucent 1900	116.00	180	0.798	-0.112	0.053	-0.037	-6	155
Alcatel-Lucent TD-RR	116.00	210	0.798	-0.112	0.053	-0.037	-7	181
RFS RFS APXV9TM14-	116.00	165	0.798	-0.112	0.053	-0.037	-5	142
RFS APXVSPP18-C-A20	116.00	171	0.798	-0.112	0.053	-0.037	-5	147
Round Low Profile Pl	116.00	1,500	0.798	-0.112	0.053	-0.037	-48	1,291
PCTEL GPS-TMG-HR-	20.00	1	0.024	0.066	0.039	0.042	0	1
Standoff	20.00	75	0.024	0.066	0.039	0.042	3	65
		64,914	82.499	22.575	24.547	6.233	2,724	55,888

Load Case (0.9 - 0.2Sds) * DL + E ELFM **Seismic (Reduced DL) Equivalent Lateral Forces Method**

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
46	176.75	310	1.853	1.791	1.071	0.349	94	267
45	173.00	365	1.775	1.429	0.935	0.300	95	314
44	170.50	93	1.724	1.217	0.853	0.270	22	80
43	167.50	478	1.664	0.991	0.761	0.235	97	411
42	164.00	196	1.595	0.764	0.664	0.197	33	169
41	161.50	321	1.547	0.624	0.601	0.172	48	276
40	157.50	672	1.471	0.433	0.509	0.135	79	578
39	152.50	734	1.380	0.246	0.411	0.094	60	632
38	149.00	298	1.317	0.145	0.351	0.068	18	257
37	146.50	485	1.273	0.085	0.313	0.052	22	418
36	144.71	95	1.242	0.048	0.287	0.041	3	82
35	142.21	1,283	1.200	0.004	0.254	0.027	30	1,105
34	139.67	196	1.157	-0.032	0.224	0.014	2	169
33	137.17	835	1.116	-0.060	0.197	0.003	2	718
32	132.50	1,070	1.041	-0.097	0.153	-0.014	-13	921
31	129.00	434	0.987	-0.113	0.125	-0.024	-9	373
30	126.50	673	0.949	-0.119	0.108	-0.029	-17	579
29	122.50	1,138	0.890	-0.122	0.084	-0.035	-34	980
28	118.00	926	0.826	-0.116	0.062	-0.037	-30	797
27	115.50	238	0.791	-0.110	0.051	-0.036	-8	205
26	112.50	1,201	0.751	-0.101	0.041	-0.034	-36	1,034
25	107.50	1,222	0.685	-0.082	0.027	-0.027	-29	1,052
24	102.50	1,243	0.623	-0.061	0.017	-0.017	-18	1,070
23	99.00	503	0.581	-0.046	0.013	-0.008	-3	433
22	96.50	1,346	0.552	-0.035	0.010	-0.002	-2	1,159
21	93.21	1,629	0.515	-0.022	0.008	0.007	10	1,403
20	90.71	410	0.488	-0.012	0.007	0.013	5	353
19	87.50	1,465	0.454	0.000	0.006	0.021	27	1,261
18	82.50	1,491	0.404	0.017	0.006	0.031	40	1,283
17	77.50	1,516	0.356	0.031	0.008	0.039	51	1,305
16	72.50	1,541	0.312	0.043	0.011	0.045	60	1,327
15	67.50	1,567	0.270	0.052	0.015	0.048	66	1,349
14	62.50	1,592	0.232	0.058	0.019	0.050	69	1,371
13	57.50	1,618	0.196	0.063	0.024	0.051	71	1,393

12	54.00	654	0.173	0.066	0.027	0.050	29	563
11	51.50	1,820	0.157	0.067	0.029	0.050	79	1,567
10	47.50	3,077	0.134	0.069	0.032	0.049	132	2,649
9	42.50	1,883	0.107	0.071	0.036	0.048	79	1,621
8	37.50	1,913	0.083	0.072	0.039	0.047	78	1,647
7	32.50	1,943	0.063	0.072	0.041	0.046	78	1,672
6	27.50	1,972	0.045	0.071	0.042	0.045	77	1,698
5	22.50	2,002	0.030	0.068	0.041	0.043	75	1,724
4	17.50	2,032	0.018	0.063	0.037	0.040	71	1,750
3	12.50	2,062	0.009	0.054	0.031	0.035	63	1,775
2	7.50	2,092	0.003	0.039	0.022	0.027	48	1,801
1	2.50	2,122	0.000	0.016	0.008	0.012	21	1,827
Decibel DB844H90E-XY	181.00	168	1.943	2.273	1.244	0.409	59	145
Flat Low Profile Pla	178.50	1,500	1.890	1.980	1.140	0.373	485	1,291
NextNet BTS-2500	171.00	105	1.735	1.257	0.869	0.276	25	90
Argus LLPX310R	171.00	86	1.735	1.257	0.869	0.276	21	74
DragonWave A-ANT-11G	171.00	27	1.735	1.257	0.869	0.276	6	23
DragonWave A-ANT-18G	171.00	27	1.735	1.257	0.869	0.276	6	23
Side Arms	171.00	560	1.735	1.257	0.869	0.276	134	482
Generic TTA	163.00	20	1.576	0.706	0.638	0.187	3	17
Powerwave Allgon 702	160.00	13	1.519	0.548	0.565	0.158	2	11
Powerwave Allgon LGP	160.00	85	1.519	0.548	0.565	0.158	12	73
Raycap DC6-48-60-18-	160.00	20	1.519	0.548	0.565	0.158	3	17
Ericsson RRUS 11 (Ba	160.00	152	1.519	0.548	0.565	0.158	21	131
Ericsson RRUS-12 B2	160.00	174	1.519	0.548	0.565	0.158	24	150
Powerwave Allgon 777	160.00	210	1.519	0.548	0.565	0.158	29	181
KMW AM-X-CD-16-65-00	160.00	146	1.519	0.548	0.565	0.158	20	125
Flat Low Profile Pla	160.00	1,500	1.519	0.548	0.565	0.158	205	1,291
Ericsson KRY 112 144	148.00	33	1.299	0.120	0.335	0.061	2	28
Ericsson RRUS 11 B12	148.00	152	1.299	0.120	0.335	0.061	8	131
Ericsson AIR 21, 1.3	148.00	249	1.299	0.120	0.335	0.061	13	214
Ericsson AIR 21, 1.3	148.00	244	1.299	0.120	0.335	0.061	13	211
Andrew LNX-6515DS-VT	148.00	154	1.299	0.120	0.335	0.061	8	133
Round Low Profile Pl	148.00	1,500	1.299	0.120	0.335	0.061	80	1,291
Alcatel-Lucent RRH 2	135.00	119	1.081	-0.080	0.175	-0.006	-1	102
Alcatel-Lucent RRH2X	135.00	132	1.081	-0.080	0.175	-0.006	-1	114
Alcatel-Lucent RRH2x	135.00	170	1.081	-0.080	0.175	-0.006	-1	146
RFS DB-T1-6Z-8AB-0Z	135.00	88	1.081	-0.080	0.175	-0.006	0	76
Antel BXA-80063-6BF-	135.00	58	1.081	-0.080	0.175	-0.006	0	50
Commscope SBNHH-	135.00	304	1.081	-0.080	0.175	-0.006	-2	262
Commscope HBXX-	135.00	122	1.081	-0.080	0.175	-0.006	-1	105
Round Low Profile Pl	135.00	1,500	1.081	-0.080	0.175	-0.006	-8	1,291
Nortel NTGB01MA	128.00	1	0.972	-0.116	0.118	-0.026	0	1
RFS APXV18-206517S-C	128.00	79	0.972	-0.116	0.118	-0.026	-2	68
Alcatel-Lucent 800 M	116.00	159	0.798	-0.112	0.053	-0.037	-5	137
Alcatel-Lucent 1900	116.00	180	0.798	-0.112	0.053	-0.037	-6	155
Alcatel-Lucent TD-RR	116.00	210	0.798	-0.112	0.053	-0.037	-7	181
RFS RFS APXV9TM14-	116.00	165	0.798	-0.112	0.053	-0.037	-5	142
RFS APXVSPP18-C-A20	116.00	171	0.798	-0.112	0.053	-0.037	-5	147
Round Low Profile Pl	116.00	1,500	0.798	-0.112	0.053	-0.037	-48	1,291
PCTEL GPS-TMG-HR-	20.00	1	0.024	0.066	0.039	0.042	0	1
Standoff	20.00	75	0.024	0.066	0.039	0.042	3	65
		64,914	82.499	22.575	24.547	6.233	2,724	55,888

Load Case (0.9 - 0.2Sds) * DL + E EMAM **Seismic (Reduced DL) Equivalent Modal Analysis Method**

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
46	176.75	310	1.853	1.791	1.071	0.349	94	267
45	173.00	365	1.775	1.429	0.935	0.300	95	314

44	170.50	93	1.724	1.217	0.853	0.270	22	80
43	167.50	478	1.664	0.991	0.761	0.235	97	411
42	164.00	196	1.595	0.764	0.664	0.197	33	169
41	161.50	321	1.547	0.624	0.601	0.172	48	276
40	157.50	672	1.471	0.433	0.509	0.135	79	578
39	152.50	734	1.380	0.246	0.411	0.094	60	632
38	149.00	298	1.317	0.145	0.351	0.068	18	257
37	146.50	485	1.273	0.085	0.313	0.052	22	418
36	144.71	95	1.242	0.048	0.287	0.041	3	82
35	142.21	1,283	1.200	0.004	0.254	0.027	30	1,105
34	139.67	196	1.157	-0.032	0.224	0.014	2	169
33	137.17	835	1.116	-0.060	0.197	0.003	2	718
32	132.50	1,070	1.041	-0.097	0.153	-0.014	-13	921
31	129.00	434	0.987	-0.113	0.125	-0.024	-9	373
30	126.50	673	0.949	-0.119	0.108	-0.029	-17	579
29	122.50	1,138	0.890	-0.122	0.084	-0.035	-34	980
28	118.00	926	0.826	-0.116	0.062	-0.037	-30	797
27	115.50	238	0.791	-0.110	0.051	-0.036	-8	205
26	112.50	1,201	0.751	-0.101	0.041	-0.034	-36	1,034
25	107.50	1,222	0.685	-0.082	0.027	-0.027	-29	1,052
24	102.50	1,243	0.623	-0.061	0.017	-0.017	-18	1,070
23	99.00	503	0.581	-0.046	0.013	-0.008	-3	433
22	96.50	1,346	0.552	-0.035	0.010	-0.002	-2	1,159
21	93.21	1,629	0.515	-0.022	0.008	0.007	10	1,403
20	90.71	410	0.488	-0.012	0.007	0.013	5	353
19	87.50	1,465	0.454	0.000	0.006	0.021	27	1,261
18	82.50	1,491	0.404	0.017	0.006	0.031	40	1,283
17	77.50	1,516	0.356	0.031	0.008	0.039	51	1,305
16	72.50	1,541	0.312	0.043	0.011	0.045	60	1,327
15	67.50	1,567	0.270	0.052	0.015	0.048	66	1,349
14	62.50	1,592	0.232	0.058	0.019	0.050	69	1,371
13	57.50	1,618	0.196	0.063	0.024	0.051	71	1,393
12	54.00	654	0.173	0.066	0.027	0.050	29	563
11	51.50	1,820	0.157	0.067	0.029	0.050	79	1,567
10	47.50	3,077	0.134	0.069	0.032	0.049	132	2,649
9	42.50	1,883	0.107	0.071	0.036	0.048	79	1,621
8	37.50	1,913	0.083	0.072	0.039	0.047	78	1,647
7	32.50	1,943	0.063	0.072	0.041	0.046	78	1,672
6	27.50	1,972	0.045	0.071	0.042	0.045	77	1,698
5	22.50	2,002	0.030	0.068	0.041	0.043	75	1,724
4	17.50	2,032	0.018	0.063	0.037	0.040	71	1,750
3	12.50	2,062	0.009	0.054	0.031	0.035	63	1,775
2	7.50	2,092	0.003	0.039	0.022	0.027	48	1,801
1	2.50	2,122	0.000	0.016	0.008	0.012	21	1,827
Decibel DB844H90E-XY	181.00	168	1.943	2.273	1.244	0.409	59	145
Flat Low Profile Pla	178.50	1,500	1.890	1.980	1.140	0.373	485	1,291
NextNet BTS-2500	171.00	105	1.735	1.257	0.869	0.276	25	90
Argus LLPX310R	171.00	86	1.735	1.257	0.869	0.276	21	74
DragonWave A-ANT-11G	171.00	27	1.735	1.257	0.869	0.276	6	23
DragonWave A-ANT-18G	171.00	27	1.735	1.257	0.869	0.276	6	23
Side Arms	171.00	560	1.735	1.257	0.869	0.276	134	482
Generic TTA	163.00	20	1.576	0.706	0.638	0.187	3	17
Powerwave Allgon 702	160.00	13	1.519	0.548	0.565	0.158	2	11
Powerwave Allgon LGP	160.00	85	1.519	0.548	0.565	0.158	12	73
Raycap DC6-48-60-18-	160.00	20	1.519	0.548	0.565	0.158	3	17
Ericsson RRUS 11 (Ba	160.00	152	1.519	0.548	0.565	0.158	21	131
Ericsson RRUS-12 B2	160.00	174	1.519	0.548	0.565	0.158	24	150
Powerwave Allgon 777	160.00	210	1.519	0.548	0.565	0.158	29	181
KMW AM-X-CD-16-65-00	160.00	146	1.519	0.548	0.565	0.158	20	125
Flat Low Profile Pla	160.00	1,500	1.519	0.548	0.565	0.158	205	1,291
Ericsson KRY 112 144	148.00	33	1.299	0.120	0.335	0.061	2	28
Ericsson RRUS 11 B12	148.00	152	1.299	0.120	0.335	0.061	8	131
Ericsson AIR 21, 1.3	148.00	249	1.299	0.120	0.335	0.061	13	214
Ericsson AIR 21, 1.3	148.00	244	1.299	0.120	0.335	0.061	13	211

Andrew LNX-6515DS-VT	148.00	154	1.299	0.120	0.335	0.061	8	133
Round Low Profile Pl	148.00	1,500	1.299	0.120	0.335	0.061	80	1,291
Alcatel-Lucent RRH 2	135.00	119	1.081	-0.080	0.175	-0.006	-1	102
Alcatel-Lucent RRH2X	135.00	132	1.081	-0.080	0.175	-0.006	-1	114
Alcatel-Lucent RRH2x	135.00	170	1.081	-0.080	0.175	-0.006	-1	146
RFS DB-T1-6Z-8AB-0Z	135.00	88	1.081	-0.080	0.175	-0.006	0	76
Antel BXA-80063-6BF-	135.00	58	1.081	-0.080	0.175	-0.006	0	50
Commscope SBNHH-	135.00	304	1.081	-0.080	0.175	-0.006	-2	262
Commscope HBXX-	135.00	122	1.081	-0.080	0.175	-0.006	-1	105
Round Low Profile Pl	135.00	1,500	1.081	-0.080	0.175	-0.006	-8	1,291
Nortel NTGB01MA	128.00	1	0.972	-0.116	0.118	-0.026	0	1
RFS APXV18-206517S-C	128.00	79	0.972	-0.116	0.118	-0.026	-2	68
Alcatel-Lucent 800 M	116.00	159	0.798	-0.112	0.053	-0.037	-5	137
Alcatel-Lucent 1900	116.00	180	0.798	-0.112	0.053	-0.037	-6	155
Alcatel-Lucent TD-RR	116.00	210	0.798	-0.112	0.053	-0.037	-7	181
RFS RFS APXV9TM14-	116.00	165	0.798	-0.112	0.053	-0.037	-5	142
RFS APXVSPP18-C-A20	116.00	171	0.798	-0.112	0.053	-0.037	-5	147
Round Low Profile Pl	116.00	1,500	0.798	-0.112	0.053	-0.037	-48	1,291
PCTEL GPS-TMG-HR-	20.00	1	0.024	0.066	0.039	0.042	0	1
Standoff	20.00	75	0.024	0.066	0.039	0.042	3	65
		64,914	82.499	22.575	24.547	6.233	2,724	55,888

Analysis Summary

	Reactions						Max Usage	
Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Elev (ft)	Interaction Ratio
1.2D + 1.6W	41.86	0.00	77.86	0.00	0.00	5097.42	0.00	0.57
0.9D + 1.6W	41.83	0.00	58.38	0.00	0.00	5053.69	0.00	0.57
1.2D + 1.0Di + 1.0Wi	10.01	0.00	117.74	0.00	0.00	1196.51	0.00	0.15
(1.2 + 0.2Sds) * DL + E ELFM	2.68	0.00	77.59	0.00	0.00	355.41	0.00	0.05
(1.2 + 0.2Sds) * DL + E EMAM	2.65	0.00	77.59	0.00	0.00	315.69	98.00	0.05
(0.9 - 0.2Sds) * DL + E ELFM	2.68	0.00	53.92	0.00	0.00	351.87	0.00	0.05
(0.9 - 0.2Sds) * DL + E EMAM	2.65	0.00	53.92	0.00	0.00	312.34	98.00	0.05
1.0D + 1.0W	8.54	0.00	64.91	0.00	0.00	1034.76	0.00	0.12

Base Summary

Reactions

Original Design			Analysis			
Moment (kip-ft)	Axial (kip)	Shear (kip)	Moment (kip-ft)	Axial (kip)	Shear (kip)	Moment Design %
5,025.00	56.80	39.90	5,097.42	117.74	41.86	75.14

Base Plate

Yield (ksi)	Thick (in)	Width (in)	Style	Poly Sides	Clip Len (in)	Effective Len (in)	Mu (kip-in)	Phi Mn (kip-in)	Ratio
60.0	2.750	85.000	Round	0	0.00	11.426	562.61	1166.52	0.48

Anchor Bolts

								Start	Compression			Tension		
Bolt Circle	Num Bolts	Bolt Type	Bolt Dia (in)	Yield (ksi)	Ultimate (ksi)	Arrange	Cluster Dist (in)	Angle (deg)	Force (kip)	Allow (kip)	Ratio	Force (kip)	Allow (kip)	Ratio
79.00	20	2.25" 18J	2.25	75.00	100.00	Radial	0.00	0.0	160.75	260.00	0.63	148.97	260.00	0.59

Base/Flange Plate	Plate Type	***Baseplate***	
	Pole Diameter	72	in
	Pole Thickness	0.4375	in
	Plate Diameter	85	in
	Plate Thickness	2.75	in
	Plate Fy	60	ksi
	Weld Length	0.25	in
	ϕ_s Resistance	1149.41	k-in
	Applied	311.34	k-in
Stiffeners	#	***0***	

Bolts	#	***20***	
	Bolt Circle	79	in
	(R)adial / (S)quare	R	
●	Diameter	2.25	in
	Hole Diameter	2.625	in
	Type	18J	
	Fy	75	ksi
	Fu	100	ksi
	ϕ_s Resistance	259.82	k
	Applied	160.69	k
Reinforcement ●	#	***0***	
Extra Bolts O	#	***0***	

Code Rev.	***G***	**Date**	11/4/2015
		Engineer	Nathaniel Ober
		Site #	302467
Moment	5097.4 k-ft	**Carrier**	T-Mobile
Axial	117.7 k		

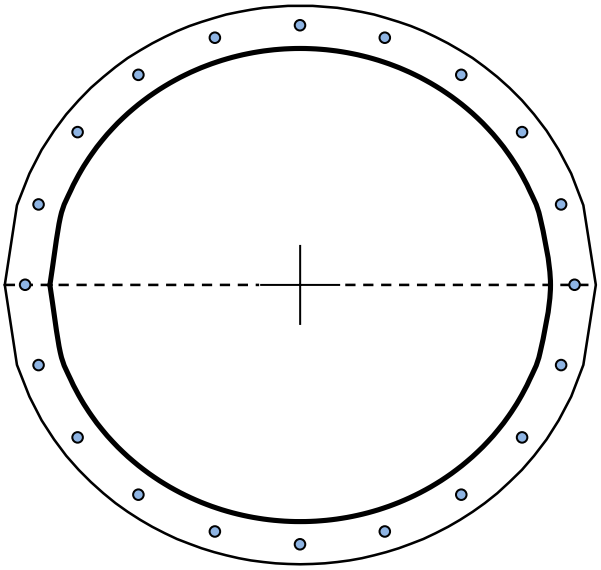
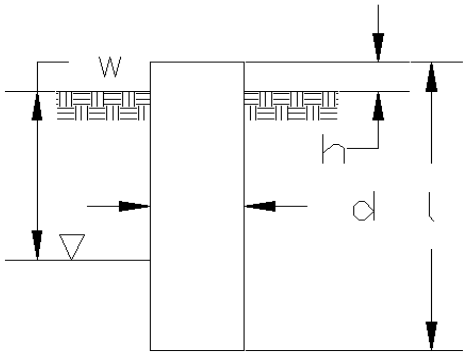


Plate Stress Ratio:
0.27 (Pass)

Bolt Stress Ratio:
0.62 (Pass)

Site Name:	Bilkay Express, CT, CT	*Program Last Updated:*	*5/13/2014*
Site Number:	302467	*American Tower Corporation*	
Engineer:	Nathaniel Ober		
Engineering Number:	63916421		
Date:	11/04/15		



Design Base Loads (Factored) - Analysis per TIA-222-G Standards

Analyze or Design a Foundation?	Analyze	
Foundation Mapped:	N	
Moment (M):	5097.4	k-ft
Shear/Leg (V):	41.9	k
Axial Load (P):	117.7	k
Uplift/Leg (U):	0.0	k
Tower Type (GT / SST / MP):	MP	
Diameter of Caisson (d):	8.5	ft
Caisson Embedment (L-h):	29.5	ft
Caisson Height Above Ground (h):	0.5	ft
Depth Below Ground Surface to Water Table (w):	6.0	ft
Unit Weight of Concrete:	150.0	pcf
Unit Weight of Water:	62.4	pcf
Tension Skin Friction/Compression Skin Friction:	1.00	
Pullout Angle:	30.0	degrees

Engineer Notes

Soil Mechanical Properties

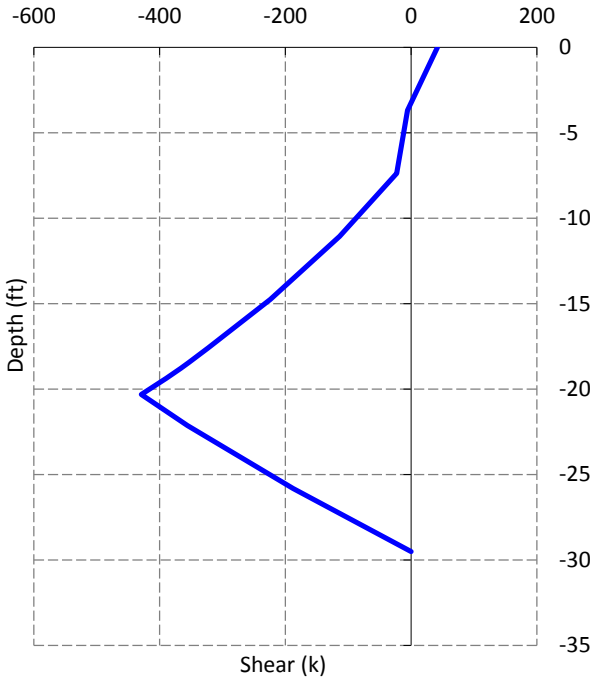
Depth (ft) Top	Depth (ft) Bottom	γ_{Soil} (pcf)	Cohesion (psf)	ϕ (degree)	Ultimate Skin Friction (psf)	Ultimate Bearing Pressure (psf)
0.0	5.0	125	0	0	0	0
5.0	15.0	122	0	34	480	0
15.0	20.0	122	0	34	690	0
20.0	29.5	122	0	34	820	0
29.5	34.5	122	0	34	1020	5000

Required Embedment:	22.8	ft - OK, Caisson Embedment Satisfactory
Volume of Concrete:	1702.4	ft^3 = 63.1 yd^3
Weight of Concrete (Buoyancy Effect Considered):	172.1	k
Average Soil Unit Weight:	72.8	pcf
Skin Friction Resistance:	428.3	k
Compressive Bearing Resistance:	0.0	k
Pullout Weight (Minus Concrete Weight):	1140.8	k
Nominal Uplift Capacity per Leg ($\phi_s T_n$):	450.3	k
Nominal Compressive Capacity per Leg ($\phi_s P_n$):	321.2	k
P_u:	172.9	k
$T_u/\phi_s T_n$:	0.00	Result: OK
$P_u/\phi_s P_n$:	0.54	Result: OK
Total Lateral Resistance:	2766.5	k
Inflection Point (Below Ground Surface):	20.3	ft
Design Overturning Moment At Inflection Point (M_D):	5969.3	k-ft
Nominal Moment Capacity ($\phi_s M_n$):	11595.2	k-ft
$M_D/\phi_s M_n$:	0.51	Result: OK
ϕ_s:	0.75	

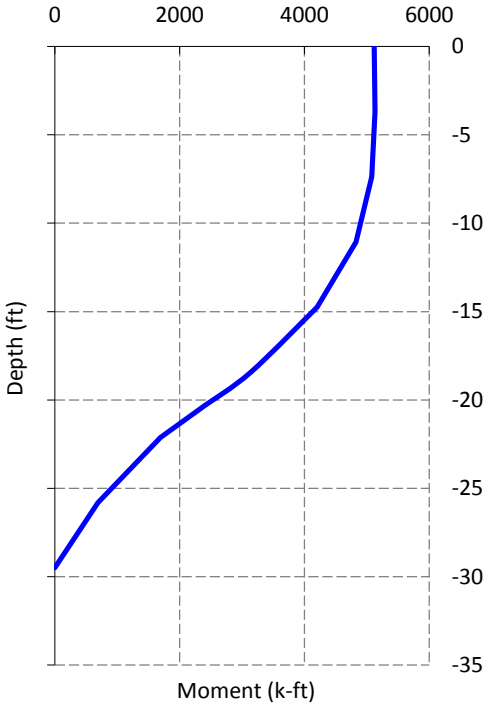
Caisson Strength Capacity

Concrete Compressive Strength (f'_c):	3000	psi
Vertical Steel Rebar Size #:	11	
Vertical Steel Rebar Area:	1.56	in^2
# of Vertical Steel Rebars:	27	
Vertical Steel Rebar Yield Strength (F_y):	60	ksi
Horizontal Tie / Stirrup Size #:	5	
Horizontal Tie / Stirrup Area:	0.31	in^2
Design Horizontal Tie / Stirrup Spacing:	18.0	in
Horizontal Tie / Stirrup Steel Yield Strength (F_y):	60	ksi
Rebar Cage Diameter:	94.0	in
Strength Bending/Tension Reduction Factor (ϕ_B):	0.90	ACI318-05 - 9.3.2.1
Strength Shear Reduction Factor (ϕ_V):	0.75	ACI318-05 - 9.3.2.3
Strength Compression Reduction Factor (ϕ_V):	0.65	ACI318-05 - 9.3.2.2
Steel Elastic Modulus:	29000	ksi
Design Moment (M_u):	5131.7	k-ft
Nominal Moment Capacity ($\phi_B M_n$):	8066.2	k-ft - ACI318-005 - 10.2
$M_u/\phi_B M_n$:	0.64	Result: OK
Design Shear (V_u):	429.2	k
Nominal Shear Capacity ($\phi_V V_n$):	676.2	k - ACI318-05 - 11.3.1.1 or 11.5.7.2
$V_u/\phi_V V_n$:	0.63	Result: OK
Design Tension (T_u):	0.0	k
Nominal Tension Capacity ($\phi_T T_n$):	2274.5	k - ACI318-05 - 10.2
$T_u/\phi_T T_n$:	0.00	Result: OK
Design Compression (P_u):	172.9	k
Nominal Compression Capacity ($\phi_P P_n$):	10779.3	k - ACI318-05 - 10.3.6.2
$P_u/\phi_P P_n$:	0.02	Result: OK
Bending Reinforcement Ratio:	0.005	ACI318-05 - 10.8.4 & 10.9.1
$M_u/\phi_B M_n + T_u/\phi_T T_n$:	0.64	Result: OK

Design Factored Shear / Depth



Design Factored Moment / Depth



Nominal and Factored Moment Capacity and Factored Design Loads