DISPLAY THIS CARD ON PRINCIPAL FRONTAGE OF WORK

CITY OF PORTLAND

BUILDING PERMIT

This is to certify that CITY OF PORTLAND – SABRE INDUSTRIES

Located At 124 CONGRESS ST

CBL: 016- G-001-001

Job ID: 2012-06-4230-ALTCOMM

has permission to Erect a 70' steel monopole antenna on roof of the Fire Department quarters, connected w/BP#2012-05-3929 **provided that the person or persons, firm or corporation accepting this permit shall comply with all of the provisions of the Statues of Maine and of the Ordinances of the City of Portland regulating the construction, maintenance and use of the buildings and structures, and of the application on file in the department.**

Notification of inspection and written permission procured before this building or part thereof is lathed or otherwise closed-in. 48 HOUR NOTICE IS REQUIRED.	A final inspection must be completed by owner before this building or part thereof is occupied. If a certificate of occupancy is required, it must be

Fire Prevention Officer

7/3/12

Code Enforcement Officer / Plan Reviewer

THIS CARD MUST BE POSTED ON THE STREET SIDE OF THE PROPERTY
PENALTY FOR REMOVING THIS CARD

City of Portland, Maine - Building or Use Permit Application
389 Congress Street, 04101 Tel: (207) 874-8703, FAX: (207) 8716

Job No:	Date Applied:	CBL:	
2012-06-4230-ALTCOMM	**6/13/2012**	**016- G-001-001**	
Location of Construction: **124 CONGRESS ST** - Munjoy Hill Fire Station	Owner Name: **CITY OF PORTLAND**	Owner Address: **389 CONGRESS ST** **PORTLAND, ME 04101**	Phone:
Business Name:	Contractor Name: **Sabre Industries – Jason Black**	Contractor Address: **2101 Murray St., Sioux City, IA 51111**	Phone: **712-224-1428**
Lessee/Buyer's Name:	Phone:	Permit Type: **BLDG - Building**	Zone:
Past Use: Fire Station - connected to permit 2002-05-3939	Proposed Use: Same – Fire Station – replace monopole	Cost of Work: **84000.00**	CEO District:
		Fire Dept: ✓ Approved w/ conditions ___ Denied ___ N/A 6/24/12 Signature: BJ (58)	Inspection: Use Group: U Type: Telecom Tower Signature: JMB 7/3/12
Proposed Project Description: **replace monopole**		Pedestrian Activities District (P.A.D.)	
Permit Taken By: **Gayle**			

1. This permit application does not preclude the Applicant(s) from meeting applicable State and Federal Rules.
2. Building Permits do not include plumbing, septic or electrial work.
3. Building permits are void if work is not started within six (6) months of the date of issuance. False informatin may invalidate a building permit and stop all work.

Zoning Approval

Special Zone or Reviews	Zoning Appeal	Historic Preservation
___ Shoreland	___ Variance	✓ Not in Dist or Landmark
___ Wetlands	___ Miscellaneous	___ Does not Require Review
___ Flood Zone	___ Conditional Use	___ Requires Review
___ Subdivision	___ Interpretation	___ Approved
___ Site Plan	___ Approved	___ Approved w/Conditions
___ Maj ___ Min ___ MM	___ Denied	___ Denied
Date: 6/22/12 ABU	Date:	Date: ABU

CERTIFICATION

I hereby certify that I am the owner of record of the named property, or that the proposed work is authorized by the owner of record and that I have been authorized by the owner to make this application as his authorized agent and I agree to conform to all applicable laws of this jurisdiction. In addition, if a permit for work described in the appication is issued, I certify that the code official's authorized representative shall have the authority to enter all areas covered by such permit at any reasonable hour to enforce the provision of the code(s) applicable to such permit.

SIGNATURE OF APPLICANT ADDRESS DATE PHONE

RESPONSIBLE PERSON IN CHARGE OF WORK, TITLE DATE PHONE

BUILDING PERMIT INSPECTION PROCEDURES

Please call 874-8703 or 874-8693 (ONLY)

or email: buildinginspections@portlandmaine.gov

With the issuance of this permit, the owner, builder or their designee is required to provide adequate notice to the city of Portland Inspections Services for the following inspections. Appointments must be requested 48 to 72 hours in advance of the required inspection. The inspection date will need to be confirmed by this office.

- **Please read the conditions of approval that is attached to this permit!! Contact this office if you have any questions.**
- **Permits expire in 6 months. If the project is not started or ceases for 6 months.**
- **If the inspection requirements are not followed as stated below additional fees may be incurred due to the issuance of a "Stop Work Order" and subsequent release to continue.**

Final Inspection

The project cannot move to the next phase prior to the required inspection and approval to continue, REGARDLESS OF THE NOTICE OF CIRCUMSTANCES.

IF THE PERMIT REQUIRES A CERTIFICATE OF OCCUPANCY, IT MUST BE PAID FOR AND ISSUED TO THE OWNER OR DESIGNEE BEFORE THE SPACE MAY BE OCCUPIED.

Job ID: 2012-06-4230-ALTCOMM **Located At:** 124 CONGRESS ST **CBL:** 016- G-001-001

Conditions of Approval:

Fire

1. Installation shall comply with City Code Chapter 10.

Building

1. Application approval based upon information provided by the applicant or design professional. Any deviation from approved plans requires separate review and approval prior to work.
2. The installation shall comply with the wind load requirements of the IBC 2009 and ASCE 7-05Equipment shall be installed in compliance with the manufacturer's specifications and the UL listing.
3. Separate permits are required for any electrical, plumbing, sprinkler, fire alarm, HVAC systems, heating appliances, including pellet/wood stoves, commercial hood exhaust systems and fuel tanks. Separate plans may need to be submitted for approval as a part of this process.
4. Special inspections are required for the anchoring of the pole. A statement from the design professional indicating compliance is required to be submitted at the completion of this installation.

R1 2012 06 4230 66

General Building Permit Application

If you or the property owner owes real estate or personal property taxes or user charges on any property within the City, payment arrangements must be made before permits of any kind are accepted.

Location/Address of Construction: 124 Congress ST - Munjoy Hill Fire Station		
Total Square Footage of Proposed Structure/Area: N/A	Square Footage of Lot: N/A	
Tax Assessor's Chart, Block & Lot Chart# Block# Lot# 016-G-001-001	Applicant *must be owner, Lessee or Buyer* Name: Sabre Industries Address: 2101 Murray ST City, State & Zip: Sioux City, IA 51111	Telephone: 712-224-1428
Lessee/DBA (If Applicable) RECEIVED JUN 13 2012 Dept. of Building Inspections City of Portland Maine	Owner (if different from Applicant) Name: City of Portland Address: 389 Congress ST Portland, ME 04105 City, State & Zip	Cost Of Work: $ 83,836 C of O Fee: $ ~~75~~ Total Fee: $ 935

Current legal use (i.e. single family) Fire Station - Communications
If vacant, what was the previous use? N/A
Proposed Specific use: Same
Is property part of a subdivision? _____ If yes, please name _____
Project description:

Replacement Monopole for Munjoy Hill Fire Station - corrected/permit 2012-05-3429

Contractor's name: Same as applicant
Address: _____
City, State & Zip _____ Telephone: _____
Who should we contact when the permit is ready: Jason Black Telephone: 712-224-1428
Mailing address: 2101 Murray ST, Sioux City, IA 51111

Please submit all of the information outlined on the applicable Checklist. Failure to do so will result in the automatic denial of your permit.

In order to be sure the City fully understands the full scope of the project, the Planning and Development Department may request additional information prior to the issuance of a permit. For further information or to download copies of this form and other applications visit the Inspections Division on-line at www.portlandmaine.gov, or stop by the Inspections Division office, room 315 City Hall or call 874-8703.

I hereby certify that I am the Owner of record of the named property, or that the owner of record authorizes the proposed work and that I have been authorized by the owner to make this application as his/her authorized agent. I agree to conform to all applicable laws of this jurisdiction. In addition, if a permit for work described in this application is issued, I certify that the Code Official's authorized representative shall have the authority to enter all areas covered by this permit at any reasonable hour to enforce the provisions of the codes applicable to this permit.

Signature: Digitally signed by Jason Black DN: cn=Jason Black, o, ou, email=jblack@sabrecom.com, c=US Date: 2012.06.04 14:43:27 -05'00' Date: 6-4-12

This is not a permit; you may not commence ANY work until the permit is issue

Certificate of Design Application

From Designer: Sabre Industries

Date: 6-4-12

Job Name: City of Portland - Munjoy Hill, ME

Address of Construction: 124 Congress ST - Munjoy Hill Fire Station

2003 International Building Code

Construction project was designed to the building code criteria listed below:

Building Code & Year IBC - 2009 Use Group Classification (s) U

Type of Construction Monopole Replacement

Will the Structure have a Fire suppression system in Accordance with Section 903.3.1 of the 2003 IRC NO

Is the Structure mixed use? NO If yes, separated or non separated or non separated (section 302.3) _____

Supervisory alarm System? NO Geotechnical/Soils report required? (See Section 1802.2) _____

Structural Design Calculations

1609.1 Submitted for all structural members (106.1 – 106.11)

Design Loads on Construction Documents (1603)

Uniformly distributed floor live loads (7603.11, 1807)

Floor Area Use	Loads Shown
N/A	N/A

Wind loads (1603.1.4, 1609)

1609.1.1 Design option utilized (1609.1.1, 1609.6)

100 MPH Basic wind speed (1809.3)

3 , 1.15 Building category and wind importance Factor, I_w table 1604.5, 1609.5)

C Wind exposure category (1609.4)

N/A Internal pressure coefficient (ASCE 7)

N/A Component and cladding pressures (1609.1.1, 1609.6.2.2)

N/A Main force wind pressures (7603.1.1, 1609.6.2.1)

Earth design data (1603.1.5, 1614-1623)

N/A Design option utilized (1614.1)

N/A Seismic use group ("Category")

N/A Spectral response coefficients, S_{DS} & S_{D1} (1615.1)

N/A Site class (1615.1.5)

N/A Live load reduction

N/A Roof *live* loads (1603.1.2, 1607.11)

N/A Roof snow loads (1603.7.3, 1608)

N/A Ground snow load, P_g (1608.2)

N/A If P_g > 10 psf, flat-roof snow load P_f

N/A If P_g > 10 psf, snow exposure factor, C_e

N/A If P_g > 10 psf, snow load importance factor, I_s

N/A Roof thermal factor, C_t (1608.4)

N/A Sloped roof snowload, P_s (1608.4)

C Seismic design category (1616.3)

Steel Pole Basic seismic force resisting system (1617.6.2)

1.5 , 3 Response modification coefficient, R_I and deflection amplification factor C_d (1617.6.2)

TIA 222-G Analysis procedure (1616.6, 1617.5)

N/A Design base shear (1617.4, 16175.5.1)

Flood loads (1803.1.6, 1612)

N/A Flood Hazard area (1612.3)

N/A Elevation of structure

Other loads

N/A Concentrated loads (1607.4)

N/A Partition loads (1607.5)

N/A Misc. loads (Table 1607.8, 1607.6.1, 1607.7, 1607.12, 1607.13, 1610, 1611, 2404

Certificate of Design

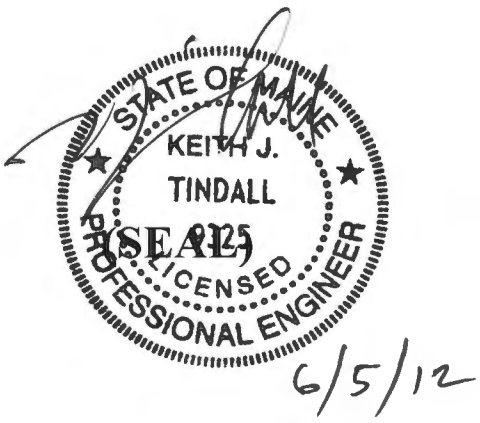
Date: 6-5-12

From: Sabre Industries

These plans and / or specifications covering construction work on:

124 Congress Street - Munjoy Hill Fire Station Replacement Monopole

Have been designed and drawn up by the undersigned, a Maine registered Architect / Engineer according to the ~~*2003*~~ ***International Building Code*** and local amendments.
2009



Signature:

Title: V.P. Of Engineering

Firm: Sabre Industries - Towers and Poles Division

Address: 2101 Murray ST
Sioux City, IA 51111

Phone: 712-224-1500

For more information or to download this form and other permit applications visit the Inspections Division on our website at www.portlandmaine.gov

PORTLAND MAINE

Strengthening a Remarkable City, Building a Community for Life • *www.portlandmaine.gov*

Receipts Details:

Tender Information: Check , BusinessName: Sabre Industries, Check Number: 246515
Tender Amount: 860.00

Receipt Header:

Cashier Id: gguertin
Receipt Date: 6/13/2012
Receipt Number: 44928

Receipt Details:

Referance ID:	6876	Fee Type:	BP-Constr
Receipt Number:	0	Payment Date:	
Transaction Amount:	860.00	Charge Amount:	860.00
Job ID: Job ID: 2012-06-4230-ALTCOMM -			
Additional Comments: Sabre Industries			

Thank You for your Payment!

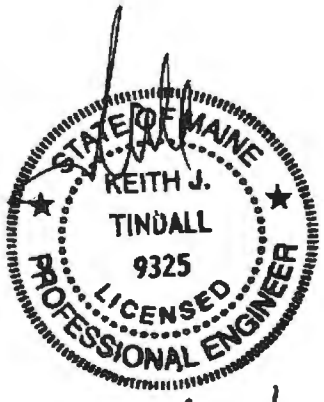
Sabre Industries™
Towers and Poles

Structural Design Report
70' (Roof-Mounted) Monopole
Site: Munjoy Hill, ME

prepared for: CITY OF PORTLAND, MAINE
by: Sabre Towers & Poles ™

Job Number: 57273

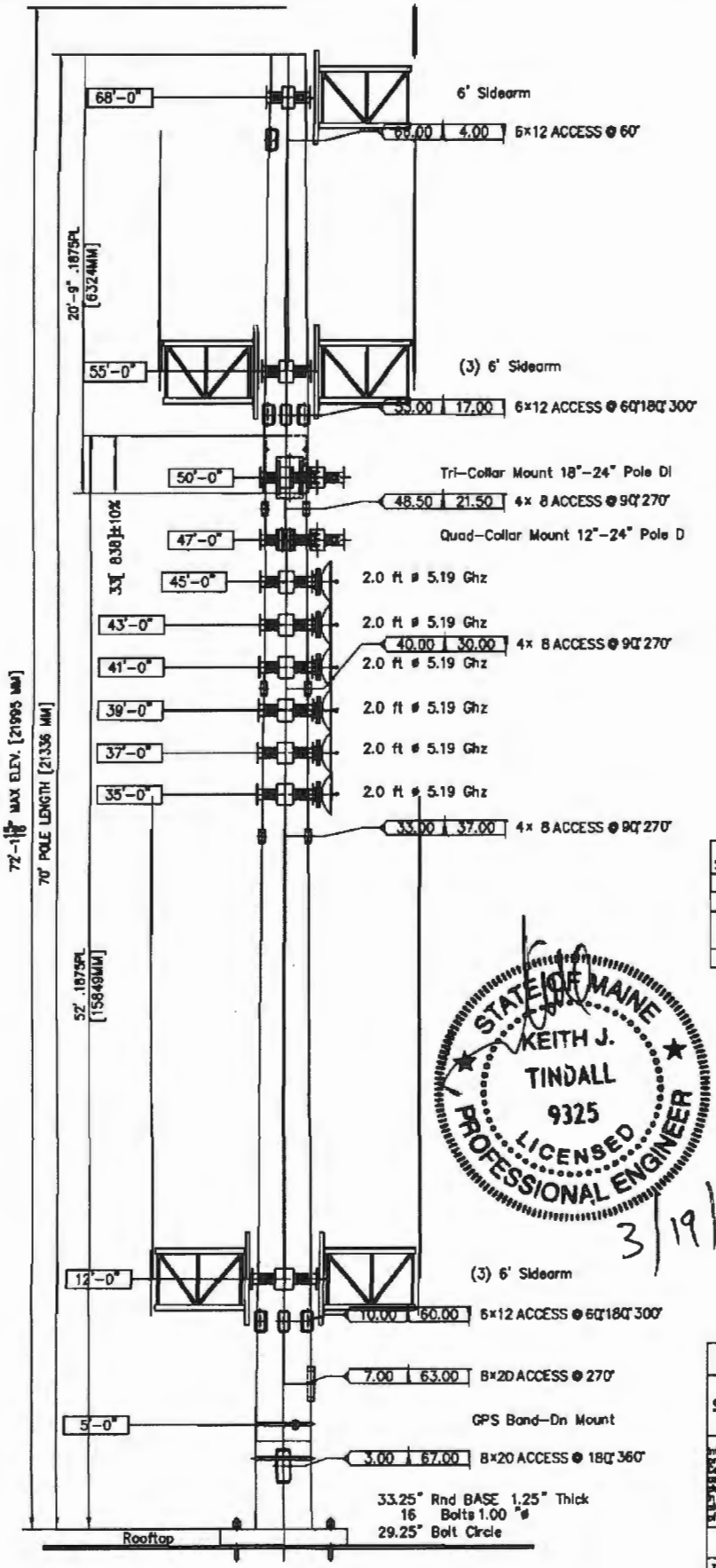
March 19, 2012



3/19/12

Prepared by RBD

Approved by KJT



POLE SPECIFICATIONS		
POLE HEIGHT	70.00	FEET
TAPER	.1500	IN/FT
POLE SHAPE	18	SIDED POLYGON
ORIENTATION	FLAT-FLAT	

Lev	Qty	Elev ft.	Future	DESCRIPTION APPURTENANCE / ANTENNA	
1	1	68.00	F	6' Sidearm	
	1	71.08	F	DB806	
2	3	55.00	F	6' Sidearm	
	1	60.29	F	DB222	
	2	56.09	F	DB806	
3	1	50.00	F	Tri-Collar Mount 18"-24" Pole Di	
	1	50.00	F	TTA (24IN X 30IN X 12IN)	
4	1	47.00	F	Quad-Collar Mount 12"-24" Pole D	
	2	47.00	F	CAMERA BOX	
5	1	45.00	F	Pipe Mount (up to 6' Dish)	
	1	45.00	F	2' SOLID DISH	5.20 Ghz
6	1	43.00	F	Pipe Mount (up to 6' Dish)	
	1	43.00	F	2' SOLID DISH	5.20 Ghz
7	1	41.00	F	Pipe Mount (up to 6' Dish)	
	1	41.00	F	2' SOLID DISH	5.20 Ghz
8	1	39.00	F	Pipe Mount (up to 6' Dish)	
	1	39.00	F	2' SOLID DISH	5.20 Ghz
9	1	37.00	F	Pipe Mount (up to 6' Dish)	
	1	37.00	F	2' SOLID DISH	5.20 Ghz
10	1	35.00	F	Pipe Mount (up to 6' Dish)	
	1	35.00	F	2' SOLID DISH	5.20 Ghz
11	3	12.00	F	6' Sidearm	
	3	22.65	F	PD620-1	
12	1	5.00	F	GPS Band-On Mount	
	1	5.00	F	GPS ANTENNA	

	Load Case DESCRIPTION	Wind (mph)	OLF Vert	Rad. Ice	Factors Gust	Cf	Wind (psf)
1)	3s Gusted Wind	100.0	1.20		1.10	.65	49.2
2)	3s Gusted Wind 0.9	100.0	.90		1.10	.65	49.2
3)	3s Gusted Wind&Ice	40.0	1.20	1.00	1.10	1.20	4.3
4)	Service Loads	60.0	1.00		1.10	.65	9.9

	Load Case DESCRIPTION	Res. Base Axial (kips)	React Shear (kips)	Mom (ft-k)	Disp @Top DEFL (ft)	SWAY (deg)
1)	3s Gusted Wind	8.0	11.8	465	3.1	3.70
2)	3s Gusted Wind 0.9	6.1	11.8	462	3.0	3.67
3)	3s Gusted Wind&Ice	17.2	1.8	69	.5	.54
4)	Service Loads	6.6	2.4	93	.6	.74

Sec	LENGTH (ft)	Flat-Flat TOP@	BOT@	THICK (in)	WEIGHT (lbs)	STEEL SPEC	FINISH
1	20.75	15.00	19.11	.1875	900	A572-65	Galv
2	52.00	18.33	26.13	.1875	3000	A572-65	Galv
				TOTAL	3900		
ABolt Cluster		Bolts@	Holes@				
		1.00	1.250			A325	Galv

1) FULL HEIGHT STEP BOLTS
2) ANTENNA FEED LINES RUN INSIDE POLE
3) THE MONOPOLE WAS DESIGNED IN ACCORDANCE WITH ANSI/TIA-222-G, STRUCTURE CLASS III, EXPOSURE CATEGORY C, TOPOGRAPHIC CATEGORY 1.
4) THIS STRUCTURE HAS BEEN DESIGNED TO BE PLACED ON TOP OF A 28.9' TALL BUILDING.
5) ATTACHMENT TO EXISTING STRUCTURE IS TO BE DESIGNED AND SUPPLIED BY OTHERS.
6) THE STRUCTURAL ADEQUACY OF THE BUILDING IS TO BE VERIFIED BY OTHERS.

STATE OF MAINE
KEITH J. TINDALL
9325
LICENSED PROFESSIONAL ENGINEER

3/19/12

City of Portland, ME
Munjoy Hill, ME
70.00 MONOPOLE

Sabre Industries
Towers and Poles

57273	SIZE A	DRAWING NO. 57273-PE		REV _
DATE 24Feb12				
DRAWN BY _	REFERENCE DRAWING	SCALE N.T.S.	PAGE 1	
CHECKED BY REB				

SABRE COMMUNICATIONS CORP	JOB: 00-57273	16-Mar-12 08:32
2101 Murray Street	**City of Portland, ME**	Ph 712.258.6690
Sioux City, IA 51101	**Munjoy Hill, ME**	Fx 712.258.8250

TOP	DIAMETER	16.00 in.	[16.25 in. Point-Point]
BOTTOM	DIAMETER	26.13 in.	[26.53 in. Point-Point]
POLE	HEIGHT	70.00 ft.	18 SIDED FLAT ORIENTATION
BASE	HEIGHT	28.90 ft.	ABOVE GROUND
E-MODULUS		29000 ksi	[12000 ksi SHEAR MODULUS]

APPURTENANCES

ATTACH POINTS: NO.	X,ft	Qty	Description	Status
1	68.00	1	6' Sidearm	Future Appurt
2	55.00	3	6' Sidearm	Future Appurt
3	50.00	1	Tri-Collar Mount 18"-24" Pole Di	Future Appurt
4	47.00	1	Quad-Collar Mount 12"-24" Pole D	Future Appurt
5	45.00	1	Pipe Mount (up to 6' Dish)	Future Appurt
6	43.00	1	Pipe Mount (up to 6' Dish)	Future Appurt
7	41.00	1	Pipe Mount (up to 6' Dish)	Future Appurt
8	39.00	1	Pipe Mount (up to 6' Dish)	Future Appurt
9	37.00	1	Pipe Mount (up to 6' Dish)	Future Appurt
10	35.00	1	Pipe Mount (up to 6' Dish)	Future Appurt
11	12.00	3	6' Sidearm	Future Appurt
12	5.00	1	GPS Band-On Mount	Future Appurt

Some wind forces may have been derived from full-scale wind tunnel tests.

Pole Section	Bottom X,ft.	Thick in.	Connect Type	LAP in.	Taper in/ft	Length ft.	Weight lbs	Steel Spec	Pole Finish
1	20.75	.18750	SLIP-JNT	33.	.1500	20.75	729	A572-65	GALVANIZE
2	70.00	.18750	C-WELD		.1500	52.00	2320	A572-65	GALVANIZE

SECTION PROPERTIES

X,ft	UP,ft	D,in	T,in	Area in^2	Iz in^4	IxIy in^4	SxSy in^3	w/t	d/t	F_y(ksi)	
70.00	.00	16.00	.1875	9.41	594	297	36.6	13.28	85.3	65.00	TOP
68.00	2.00	16.30	.1875	9.59	630	315	38.1	13.57	86.9	65.00	P01
63.00	7.00	17.05	.1875	10.03	722	361	41.7	14.27	90.9	65.00	
58.00	12.00	17.80	.1875	10.48	822	411	45.5	14.98	94.9	65.00	
55.00	15.00	18.25	.1875	10.75	886	443	47.8	15.40	97.3	65.00	P02
52.00	18.00	18.70	.1875	11.02	954	477	50.2	15.82	99.7	65.00	Slip-B01
50.00	20.00	18.63	.1875	10.97	942	471	49.8	15.75	99.3	65.00	P03
49.25	20.75	18.74	.1875	11.04	960	480	50.5	15.86	99.9	65.00	Slip-T02
47.00	23.00	19.07	.1875	11.24	1012	506	52.2	16.18	101.7	65.00	P04
45.00	25.00	19.37	.1875	11.42	1062	531	54.0	16.46	103.3	65.00	P05
43.00	27.00	19.67	.1875	11.60	1112	556	55.7	16.74	104.9	65.00	P06
41.00	29.00	19.97	.1875	11.78	1164	582	57.4	17.02	106.5	65.00	P07
39.00	31.00	20.27	.1875	11.95	1220	610	59.3	17.30	108.1	65.00	P08
37.00	33.00	20.57	.1875	12.13	1274	637	61.0	17.59	109.7	65.00	P09
35.00	35.00	20.87	.1875	12.31	1330	665	62.7	17.87	111.3	65.00	P10
30.00	40.00	21.62	.1875	12.76	1480	740	67.4	18.57	115.3	65.00	
25.00	45.00	22.37	.1875	13.20	1642	821	72.3	19.28	119.3	65.00	
20.00	50.00	23.12	.1875	13.65	1814	907	77.3	19.98	123.3	65.00	
15.00	55.00	23.87	.1875	14.10	1998	999	82.4	20.69	127.3	65.00	
12.00	58.00	24.32	.1875	14.36	2114	1057	85.6	21.11	129.7	65.00	P11
7.00	63.00	25.07	.1875	14.81	2318	1159	91.0	21.82	133.7	65.00	
5.00	65.00	25.37	.1875	14.99	2402	1201	93.2	22.10	135.3	65.00	P12
.00	70.00	26.12	.1875	15.44	2622	1311	98.8	22.80	139.3	65.00	BASE

SABRE COMMUNICATIONS CORP	JOB: 00-57273	16-Mar-12 08:32
2101 Murray Street	City of Portland, ME	Ph 712.258.6690
Sioux City, IA 51101	Munjoy Hill, ME	Fx 712.258.8250

CASE - 1: 3s Gusted Wind — **ANSI-TIA-222-G**

WIND OLF		1.60	GUSTED WIND (3sec)	100.0 mph	160.9 kph
VERTICAL OLF		1.20	EXP-CAT/STRUC CLASS	C-III	
DESIGN ICE		.00 in	EXP-POWER COEFF.	.2105	
GUST FACTOR	(Gh)	1.10	REFERENCE HEIGHT	900.0 ft	
FORCE COEFF	(Cf)	.65	PRESSURE @ 32.7 ft	49.2 psf	2355.4 Pa
IMPORTANCE FAC	(I)	1.15	BASE ABOVE Grd	28.9	
DIRECTION FAC	(Kd)	.95	CREST HEIGHT	.0 ft	
TOPOGRAPHIC CAT		1			

APPURTENANCES — **Sabre Areas**

#	Qty	Description	Center Line Elev-Ft	WEIGHT each Lbs	AREA each Ft^2	Tx-CABLE Type	Qty	#/Ft	WIND Psf	FORCES Tra-Y Kips	Ax-Z Kips	MOM. Lg-X Ft-K
_ 1	1	6' Sidearm	68.0	205	15.7				62.1	.98	-.2	-1.7
	1	DB806	71.1	21		7/8"	1	.54	62.3		-.1	
_ 2	3	6' Sidearm	55.0	205	31.2				60.3	1.88	-.7	-3.3
	1	DB222	60.3	16		7/8"	1	.54	60.8		-.1	
	2	DB806	56.1	21		7/8"	2	.54	60.2		-.1	
_ 3	1	Tri-Collar Mount 18"-24" Pole Di	50.0	196	7.0				59.3	.41	-.2	-.1
	1	TTA (24IN X 30IN X 12IN)	50.0	10		7/8"	1	.54	59.3		.0	
_ 4	1	Quad-Collar Mount 12"-24" Pole D	47.0	205	5.2				58.8	.30	-.2	-.1
	2	CAMERA BOX	47.0	30		1/2"	2	.40	58.8		-.1	
5	1	Pipe Mount (up to 6' Dish)	45.0	49	.1				58.5	.01	-.1	.0
	1	2' SOLID DISH	45.0	110	4.9	1/2"	1	.40	58.5	.28	-.2	
6	1	Pipe Mount (up to 6' Dish)	43.0	49	.1				58.1	.01	-.1	.0
	1	2' SOLID DISH	43.0	110	4.9	1/2"	1	.40	58.1	.28	-.2	
7	1	Pipe Mount (up to 6' Dish)	41.0	49	.1				57.8	.01	-.1	.0
	1	2' SOLID DISH	41.0	110	4.9	1/2"	1	.40	57.8	.28	-.2	
8	1	Pipe Mount (up to 6' Dish)	39.0	49	.1				57.4	.01	-.1	.0
	1	2' SOLID DISH	39.0	110	4.9	1/2"	1	.40	57.4	.28	-.2	
9	1	Pipe Mount (up to 6' Dish)	37.0	49	.1				57.1	.01	-.1	.0
	1	2' SOLID DISH	37.0	110	4.9	1/2"	1	.40	57.1	.28	-.1	
10	1	Pipe Mount (up to 6' Dish)	35.0	49	.1				56.7	.01	-.1	.0
	1	2' SOLID DISH	35.0	110	4.9	1/2"	1	.40	56.7	.28	-.1	
_11	3	6' Sidearm	12.0	205	36.3				52.1	1.89	-.7	-3.3
	3	PD620-1	22.6	53		7/8"	3	.54	54.2		-.2	
12	1	GPS Band-On Mount	5.0	70	2.0				49.7	.10	-.1	.0
	1	GPS ANTENNA	5.0	5	.2	7/16"	1	.27	49.6	.01	.0	

RESULTS

X, ft	Kzt	WIND psf	ICE in	FORCES,kips ShearX	ShearY	AxiaZ	MOMENTS,ft-kips BendX	BendY	TorqZ	F'y ksi	Inter 4.8.2
70.00	1.00	40.40	.00	.0	.00	.0	.0	.0	.0	82.55	.000
68.00	1.00	40.23	.00	.0	1.20	-.4	-1.8	.0	.0	82.55	.008
63.00	1.00	39.78	.00	.0	1.55	-.6	-8.1	.0	.0	82.55	.032
58.00	1.00	39.31	.00	.0	1.80	-.8	-15.9	.0	.0	82.55	.057
55.00	1.00	39.02	.00	.0	3.92	-1.8	-24.6	.0	.0	82.55	.085
52.00	1.00	38.73	.00	.0	4.08	-1.9	-36.3	.0	.0	82.55	.119
50.00	1.00	38.52	.00	.0	4.60	-2.3	-44.6	.0	.0	82.55	.148
49.25	1.00	38.45	.00	.0	4.69	-2.4	-48.1	.0	.0	82.55	.157
47.00	1.00	38.21	.00	.0	5.15	-2.9	-58.7	.0	.0	82.36	.186
45.00	1.00	38.00	.00	.0	5.58	-3.2	-69.0	.0	.0	82.03	.212
43.00	1.00	37.78	.00	.0	6.01	-3.5	-80.2	.0	.0	81.69	.239
41.00	1.00	37.55	.00	.0	6.43	-3.8	-92.3	.0	.0	81.36	.268
39.00	1.00	37.32	.00	.0	6.85	-4.1	-105.1	.0	.0	81.03	.297
37.00	1.00	37.09	.00	.0	7.27	-4.4	-118.8	.0	.0	80.70	.327
35.00	1.00	36.85	.00	.0	7.79	-4.8	-133.3	.0	.0	80.37	.358
30.00	1.00	36.22	.00	.0	8.10	-5.1	-172.3	.0	.0	79.54	.434
25.00	1.00	35.55	.00	.0	8.41	-5.4	-212.8	.0	.0	78.71	.505
20.00	1.00	34.83	.00	.0	8.72	-5.7	-254.8	.0	.0	77.87	.571
15.00	1.00	34.05	.00	.0	8.97	-6.0	-298.4	.0	.0	77.04	.633
12.00	1.00	33.55	.00	.0	11.12	-7.2	-328.7	.0	.0	76.55	.677
7.00	1.00	32.64	.00	.0	11.32	-7.5	-384.3	.0	.0	75.72	.751
5.00	1.00	32.25	.00	.0	11.63	-7.9	-406.9	.0	.0	75.38	.780
.00	1.00	31.18	.00	.0	11.80	-8.0	465.1	.0	.0	74.55	.850

DISPLACEMENTS

ELEV X, ft	DEFLECTION feet X	Y	Z	XY-Result	ROTATION, degrees X	Y	Z	XY-Result
70.00	.00	3.06	-.08	3.06< 4.37%>	-3.70	.00	.00	3.70

SABRE COMMUNICATIONS CORP	JOB: 00-57273	16-Mar-12 08:32
2101 Murray Street	**City of Portland, ME**	Ph 712.258.6690
Sioux City, IA 51101	**Munjoy Hill, ME**	Fx 712.258.8250

CASE - 2: 3s Gusted Wind 0.9 Dead — **ANSI-TIA-222-G**

WIND OLF	1.60	GUSTED WIND (3sec)	100.0 mph	160.9 kph	
VERTICAL OLF	.90	EXP-CAT/STRUC CLASS	C-III		
DESIGN ICE	.00 in	EXP-POWER COEFF.	.2105		
GUST FACTOR (Gh)	1.10	REFERENCE HEIGHT	900.0 ft		
FORCE COEFF (Cf)	.65	PRESSURE @ 32.7 ft	49.2 psf	2355.4 Pa	
IMPORTANCE FAC (I)	1.15	BASE ABOVE Grd	28.9		
DIRECTION FAC (Kd)	.95	CREST HEIGHT	.0 ft		
TOPOGRAPHIC CAT	1				

APPURTENANCES — **Sabre Areas**

#	Qty	Description	Center Line Elev-Ft	WEIGHT each Lbs	AREA each Ft^2	Tx-CABLE Type	Qty	#/Ft	WIND Psf	FORCES Tra-Y Kips	Ax-Z Kips	MOM. Lg-X Ft-K
_ 1	1	6' Sidearm	68.0	205	15.7				62.1	.98	-.2	-1.7
	1	DB806	71.1	21		7/8"	1	.54	62.3		-.1	
_ 2	3	6' Sidearm	55.0	205	31.2				60.3	1.88	-.6	-3.3
	1	DB222	60.3	16		7/8"	1	.54	60.8		.0	
	2	DB806	56.1	21		7/8"	2	.54	60.2		-.1	
_ 3	1	Tri-Collar Mount 18"-24" Pole Di	50.0	196	7.0				59.3	.41	-.2	-.1
	1	TTA (24IN X 30IN X 12IN)	50.0	10		7/8"	1	.54	59.3		.0	
_ 4	1	Quad-Collar Mount 12"-24" Pole D	47.0	205	5.2				58.8	.30	-.2	-.1
	2	CAMERA BOX	47.0	30		1/2"	2	.40	58.8		-.1	
5	1	Pipe Mount (up to 6' Dish)	45.0	49	.1				58.5	.01	.0	.0
	1	2' SOLID DISH	45.0	110	4.9	1/2"	1	.40	58.5	.28	-.1	
6	1	Pipe Mount (up to 6' Dish)	43.0	49	.1				58.1	.01	.0	.0
	1	2' SOLID DISH	43.0	110	4.9	1/2"	1	.40	58.1	.28	-.1	
7	1	Pipe Mount (up to 6' Dish)	41.0	49	.1				57.8	.01	.0	.0
	1	2' SOLID DISH	41.0	110	4.9	1/2"	1	.40	57.8	.28	-.1	
8	1	Pipe Mount (up to 6' Dish)	39.0	49	.1				57.4	.01	.0	.0
	1	2' SOLID DISH	39.0	110	4.9	1/2"	1	.40	57.4	.28	-.1	
9	1	Pipe Mount (up to 6' Dish)	37.0	49	.1				57.1	.01	.0	.0
	1	2' SOLID DISH	37.0	110	4.9	1/2"	1	.40	57.1	.28	-.1	
10	1	Pipe Mount (up to 6' Dish)	35.0	49	.1				56.7	.01	.0	.0
	1	2' SOLID DISH	35.0	110	4.9	1/2"	1	.40	56.7	.28	-.1	
_ 11	3	6' Sidearm	12.0	205	36.3				52.1	1.89	-.6	-3.3
	3	PD620-1	22.6	53		7/8"	3	.54	54.2		-.2	
12	1	GPS Band-On Mount	5.0	70	2.0				49.7	.10	-.1	.0
	1	GPS ANTENNA	5.0	5	.2	7/16"	1	.27	49.6	.01	.0	

RESULTS

X, ft	Kzt	WIND psf	ICE in	FORCES,kips ShearX	ShearY	AxiaZ	MOMENTS,ft-kips BendX	BendY	TorqZ	F'y ksi	Inter 4.8.2
70.00	1.00	40.40	.00	.0	.00	.0	.0	.0	.0	82.55	.000
68.00	1.00	40.23	.00	.0	1.19	-.3	-1.8	.0	.0	82.55	.008
63.00	1.00	39.78	.00	.0	1.54	-.5	-8.1	.0	.0	82.55	.032
58.00	1.00	39.31	.00	.0	1.79	-.6	-15.8	.0	.0	82.55	.057
55.00	1.00	39.02	.00	.0	3.89	-1.3	-24.4	.0	.0	82.55	.084
52.00	1.00	38.73	.00	.0	4.05	-1.4	-36.1	.0	.0	82.55	.118
50.00	1.00	38.52	.00	.0	4.56	-1.7	-44.3	.0	.0	82.55	.146
49.25	1.00	38.45	.00	.0	4.65	-1.7	-47.7	.0	.0	82.55	.155
47.00	1.00	38.21	.00	.0	5.11	-2.1	-58.3	.0	.0	82.36	.183
45.00	1.00	38.00	.00	.0	5.53	-2.3	-68.5	.0	.0	82.03	.209
43.00	1.00	37.78	.00	.0	5.96	-2.5	-79.6	.0	.0	81.69	.237
41.00	1.00	37.55	.00	.0	6.38	-2.8	-91.5	.0	.0	81.36	.265
39.00	1.00	37.32	.00	.0	6.80	-3.0	-104.3	.0	.0	81.03	.293
37.00	1.00	37.09	.00	.0	7.22	-3.2	-117.8	.0	.0	80.70	.323
35.00	1.00	36.85	.00	.0	7.73	-3.5	-132.3	.0	.0	80.37	.354
30.00	1.00	36.22	.00	.0	8.05	-3.8	-170.9	.0	.0	79.54	.430
25.00	1.00	35.55	.00	.0	8.36	-4.0	-211.2	.0	.0	78.71	.500
20.00	1.00	34.83	.00	.0	8.68	-4.3	-253.0	.0	.0	77.87	.566
15.00	1.00	34.05	.00	.0	8.94	-4.5	-296.3	.0	.0	77.04	.627
12.00	1.00	33.55	.00	.0	11.09	-5.4	-326.5	.0	.0	76.55	.670
7.00	1.00	32.64	.00	.0	11.30	-5.6	-381.9	.0	.0	75.72	.745
5.00	1.00	32.25	.00	.0	11.62	-5.9	-404.6	.0	.0	75.38	.774
.00	1.00	31.18	.00	.0	11.79	-6.1	462.7	.0	.0	74.55	.844

DISPLACEMENTS

ELEV	DEFLECTION feet				ROTATION, degrees			
X, ft	X	Y	Z	XY-Result	X	Y	Z	XY-Result
70.00	.00	3.04	-.08	3.04< 4.35%>	-3.67	.00	.00	3.67

SABRE COMMUNICATIONS CORP	JOB: 00-57273	16-Mar-12 08:32
2101 Murray Street	City of Portland, ME	Ph 712.258.6690
Sioux City, IA 51101	Munjoy Hill, ME	Fx 712.258.8250

CASE - 3: 3s Gusted Wind&Ice — **ANSI-TIA-222-G**

WIND OLF		1.00	GUSTED WIND (3sec)	40.0 mph	64.4 kph	
VERTICAL OLF		1.20	EXP-CAT/STRUC CLASS	C-III		
DESIGN ICE		1.00 in	EXP-POWER COEFF.	.2105		
GUST FACTOR	(Gh)	1.10	REFERENCE HEIGHT	900.0 ft		
FORCE COEFF	(Cf)	1.20	PRESSURE @ 32.7 ft	4.3 psf	204.8 Pa	
IMPORTANCE FAC	(I)	1.00	BASE ABOVE Grd	28.9		
DIRECTION FAC	(Kd)	.95	CREST HEIGHT	.0 ft		
TOPOGRAPHIC CAT		1				

APPURTENANCES — **Sabre Areas**

#	Qty	Description	Center Line Elev-Ft	WEIGHT each Lbs	AREA each Ft^2	Tx-CABLE Type	Qty	#/Ft	WIND Psf	FORCES Tra-Y Kips	Ax-Z Kips	MOM. Lg-X Ft-K
_ 1	1	6' Sidearm	68.0	225	18.5				5.4	.10	-1.5	-.2
	1	DB806	71.1	27		7/8"	1	.54	5.4		-.3	
_ 2	3	6' Sidearm	55.0	225	43.6				5.2	.23	-2.0	-.4
	1	DB222	60.3	35		7/8"	1	.54	5.3		-.6	
	2	DB806	56.1	27		7/8"	2	.54	5.2		-.5	
_ 3	1	Tri-Collar Mount 18"-24" Pole Di	50.0	215	10.0				5.2	.05	-.3	.0
	1	TTA (24IN X 30IN X 12IN)	50.0	56		7/8"	1	.54	5.2		-.5	
_ 4	1	Quad-Collar Mount 12"-24" Pole D	47.0	225	10.8				5.1	.06	-.3	.0
	2	CAMERA BOX	47.0	45		1/2"	2	.40	5.1		-.6	
5	1	Pipe Mount (up to 6' Dish)	45.0	53	.1				5.1	.00	-.1	.0
	1	2' SOLID DISH	45.0	168	5.3	1/2"	1	.40	5.1	.03	-.2	
6	1	Pipe Mount (up to 6' Dish)	43.0	53	.1				5.1	.00	-.1	.0
	1	2' SOLID DISH	43.0	168	5.3	1/2"	1	.40	5.1	.03	-.2	
7	1	Pipe Mount (up to 6' Dish)	41.0	53	.1				5.0	.00	-.1	.0
	1	2' SOLID DISH	41.0	168	5.3	1/2"	1	.40	5.0	.03	-.2	
8	1	Pipe Mount (up to 6' Dish)	39.0	53	.1				5.0	.00	-.1	.0
	1	2' SOLID DISH	39.0	168	5.3	1/2"	1	.40	5.0	.03	-.2	
9	1	Pipe Mount (up to 6' Dish)	37.0	53	.1				5.0	.00	-.1	.0
	1	2' SOLID DISH	37.0	168	5.3	1/2"	1	.40	5.0	.03	-.1	
10	1	Pipe Mount (up to 6' Dish)	35.0	53	.1				4.9	.00	-.1	.0
	1	2' SOLID DISH	35.0	168	5.3	1/2"	1	.40	4.9	.03	-.1	
_11	3	6' Sidearm	12.0	225	65.3				4.5	.30	-1.8	-.5
	3	PD620-1	22.6	97		7/8"	3	.54	4.7		-2.0	
12	1	GPS Band-On Mount	5.0	77	2.2				4.3	.01	-.1	.0
	1	GPS ANTENNA	5.0	8	.2	7/16"	1	.27	4.3	.00	.0	

RESULTS

X, ft	Kzt	WIND psf	ICE in	FORCES,kips ShearX	ShearY	AxiaZ	MOMENTS,ft-kips BendX	BendY	TorqZ	F'y ksi	Inter 4.8.2
70.00	1.00	6.49	2.79	.0	.00	-.1	.0	.0	.0	82.55	.000
68.00	1.00	6.46	2.78	.0	.15	-1.0	-.2	.0	.0	82.55	.002
63.00	1.00	6.39	2.77	.0	.23	-1.5	-1.0	.0	.0	82.55	.006
58.00	1.00	6.31	2.75	.0	.28	-2.0	-2.2	.0	.0	82.55	.010
55.00	1.00	6.26	2.74	.0	.57	-4.2	-3.4	.0	.0	82.55	.017
52.00	1.00	6.22	2.73	.0	.60	-4.6	-5.1	.0	.0	82.55	.022
50.00	1.00	6.18	2.73	.0	.68	-5.6	-6.3	.0	.0	82.55	.027
49.25	1.00	6.17	2.73	.0	.70	-5.8	-6.8	.0	.0	82.55	.029
47.00	1.00	6.13	2.72	.0	.79	-6.9	-8.4	.0	.0	82.36	.034
45.00	1.00	6.10	2.71	.0	.84	-7.4	-10.0	.0	.0	82.03	.039
43.00	1.00	6.06	2.70	.0	.90	-7.9	-11.7	.0	.0	81.69	.043
41.00	1.00	6.03	2.69	.0	.95	-8.3	-13.5	.0	.0	81.36	.048
39.00	1.00	5.99	2.69	.0	1.01	-8.8	-15.4	.0	.0	81.03	.053
37.00	1.00	5.95	2.68	.0	1.06	-9.3	-17.4	.0	.0	80.70	.058
35.00	1.00	5.92	2.67	.0	1.13	-9.9	-19.5	.0	.0	80.37	.063
30.00	1.00	5.82	2.65	.0	1.20	-10.6	-25.2	.0	.0	79.54	.074
25.00	1.00	5.71	2.63	.0	1.26	-11.2	-31.2	.0	.0	78.71	.085
20.00	1.00	5.59	2.60	.0	1.31	-11.9	-37.5	.0	.0	77.87	.096
15.00	1.00	5.47	2.57	.0	1.36	-12.5	-44.0	.0	.0	77.04	.105
12.00	1.00	5.39	2.55	.0	1.71	-15.9	-48.6	.0	.0	76.55	.115
7.00	1.00	5.24	2.52	.0	1.74	-16.4	-57.1	.0	.0	75.72	.127
5.00	1.00	5.18	2.51	.0	1.78	-17.0	-60.6	.0	.0	75.38	.132
.00	1.00	5.01	2.47	.0	1.81	-17.2	69.6	.0	.0	74.55	.142

DISPLACEMENTS

ELEV X, ft	DEFLECTION feet X	Y	Z	XY-Result	ROTATION, degrees X	Y	Z	XY-Result
70.00	.00	.45	.00	.45< .65%>	-.54	.00	.00	.54

SABRE COMMUNICATIONS CORP	JOB: 00-57273	16-Mar-12 08:32
2101 Murray Street	City of Portland, ME	Ph 712.258.6690
Sioux City, IA 51101	Munjoy Hill, ME	Fx 712.258.8250

CASE - 4: Service Loads — **ANSI-TIA-222-G**

WIND OLF	1.00	GUSTED WIND (3sec)	60.0 mph	96.6 kph	
VERTICAL OLF	1.00	EXP-CAT/STRUC CLASS	C-III		
DESIGN ICE	.00 in	EXP-POWER COEFF.	.2105		
GUST FACTOR (Gh)	1.10	REFERENCE HEIGHT	900.0 ft		
FORCE COEFF (Cf)	.65	PRESSURE @ 32.7 ft	9.9 psf	474.2 Pa	
IMPORTANCE FAC (I)	1.15	BASE ABOVE Grd	28.9		
DIRECTION FAC (Kd)	.85	CREST HEIGHT	.0 ft		
TOPOGRAPHIC CAT	1				

APPURTENANCES — **Sabre Areas**

#	Qty	Description	Center Line Elev-Ft	WEIGHT each Lbs	AREA each Ft^2	Tx-CABLE Type	Qty	#/Ft	WIND Psf	FORCES Tra-Y Kips	Ax-Z Kips	MOM. Lg-X Ft-K
_ 1	1	6' Sidearm	68.0	205	15.7				12.5	.20	-.2	-.3
	1	DB806	71.1	21		7/8"	1	.54	12.5		-.1	
_ 2	3	6' Sidearm	55.0	205	31.2				12.1	.38	-.6	-.7
	1	DB222	60.3	16		7/8"	1	.54	12.2		.0	
	2	DB806	56.1	21		7/8"	2	.54	12.1		-.1	
_ 3	1	Tri-Collar Mount 18"-24" Pole Di	50.0	196	7.0				11.9	.08	-.2	.0
	1	TTA (24IN X 30IN X 12IN)	50.0	10		7/8"	1	.54	11.9		.0	
_ 4	1	Quad-Collar Mount 12"-24" Pole D	47.0	205	5.2				11.8	.06	-.2	.0
	2	CAMERA BOX	47.0	30		1/2"	2	.40	11.8		-.1	
5	1	Pipe Mount (up to 6' Dish)	45.0	49	.1				11.8	.00	.0	.0
	1	2' SOLID DISH	45.0	110	4.9	1/2"	1	.40	11.8	.06	-.1	
6	1	Pipe Mount (up to 6' Dish)	43.0	49	.1				11.7	.00	.0	.0
	1	2' SOLID DISH	43.0	110	4.9	1/2"	1	.40	11.7	.06	-.1	
7	1	Pipe Mount (up to 6' Dish)	41.0	49	.1				11.6	.00	.0	.0
	1	2' SOLID DISH	41.0	110	4.9	1/2"	1	.40	11.6	.06	-.1	
8	1	Pipe Mount (up to 6' Dish)	39.0	49	.1				11.6	.00	.0	.0
	1	2' SOLID DISH	39.0	110	4.9	1/2"	1	.40	11.6	.06	-.1	
9	1	Pipe Mount (up to 6' Dish)	37.0	49	.1				11.5	.00	.0	.0
	1	2' SOLID DISH	37.0	110	4.9	1/2"	1	.40	11.5	.06	-.1	
10	1	Pipe Mount (up to 6' Dish)	35.0	49	.1				11.4	.00	.0	.0
	1	2' SOLID DISH	35.0	110	4.9	1/2"	1	.40	11.4	.06	-.1	
_11	3	6' Sidearm	12.0	205	36.3				10.5	.38	-.6	-.7
	3	PD620-1	22.6	53		7/8"	3	.54	10.9		-.2	
12	1	GPS Band-On Mount	5.0	70	2.0				10.0	.02	-.1	.0
	1	GPS ANTENNA	5.0	5	.2	7/16"	1	.27	10.0	.00	.0	

RESULTS

X, ft	Kzt	WIND psf	ICE in	FORCES,kips ShearX	ShearY	AxiaZ	MOMENTS,ft-kips BendX	BendY	TorqZ	F'y ksi	Inter 4.8.2
70.00	1.00	8.13	.00	.0	.00	.0	.0	.0	.0	82.55	.000
68.00	1.00	8.10	.00	.0	.24	-.4	-.4	.0	.0	82.55	.002
63.00	1.00	8.01	.00	.0	.31	-.6	-1.6	.0	.0	82.55	.007
58.00	1.00	7.91	.00	.0	.36	-.7	-3.2	.0	.0	82.55	.012
55.00	1.00	7.86	.00	.0	.78	-1.6	-4.9	.0	.0	82.55	.019
52.00	1.00	7.80	.00	.0	.82	-1.8	-7.3	.0	.0	82.55	.026
50.00	1.00	7.76	.00	.0	.92	-2.1	-8.9	.0	.0	82.55	.032
49.25	1.00	7.74	.00	.0	.94	-2.2	-9.6	.0	.0	82.55	.033
47.00	1.00	7.69	.00	.0	1.03	-2.6	-11.8	.0	.0	82.36	.039
45.00	1.00	7.65	.00	.0	1.12	-2.8	-13.8	.0	.0	82.03	.045
43.00	1.00	7.61	.00	.0	1.20	-3.1	-16.0	.0	.0	81.69	.051
41.00	1.00	7.56	.00	.0	1.29	-3.3	-18.4	.0	.0	81.36	.057
39.00	1.00	7.51	.00	.0	1.37	-3.6	-21.0	.0	.0	81.03	.062
37.00	1.00	7.47	.00	.0	1.46	-3.8	-23.8	.0	.0	80.70	.069
35.00	1.00	7.42	.00	.0	1.56	-4.2	-26.7	.0	.0	80.37	.075
30.00	1.00	7.29	.00	.0	1.62	-4.4	-34.5	.0	.0	79.54	.091
25.00	1.00	7.16	.00	.0	1.69	-4.6	-42.6	.0	.0	78.71	.105
20.00	1.00	7.01	.00	.0	1.75	-4.8	-51.0	.0	.0	77.87	.118
15.00	1.00	6.85	.00	.0	1.80	-5.0	-59.7	.0	.0	77.04	.131
12.00	1.00	6.75	.00	.0	2.23	-6.0	-65.8	.0	.0	76.55	.140
7.00	1.00	6.57	.00	.0	2.27	-6.2	-76.9	.0	.0	75.72	.155
5.00	1.00	6.49	.00	.0	2.34	-6.5	-81.5	.0	.0	75.38	.161
.00	1.00	6.28	.00	.0	2.37	-6.6	93.2	.0	.0	74.55	.175

DISPLACEMENTS

ELEV X, ft	DEFLECTION feet X	Y	Z	XY-Result	ROTATION, degrees X	Y	Z	XY-Result	MicroW Allow
70.00	.00	.61	.00	.61< .88%>	-.74	.00	.00	.74	

SABRE COMMUNICATIONS CORP	JOB: 00-57273	16-Mar-12 08:32
2101 Murray Street	City of Portland, ME	Ph 712.258.6690
Sioux City, IA 51101	Munjoy Hill, ME	Fx 712.258.8250

SHAPE: 18 SIDED POLYGON with FLAT-FLAT ORIENTATION
BOLTS: EVENLY SPACED BOLTS 5.71 in. ON CENTER
LOCATE:

POLE DATA

DIAMETER	= 26.13 in.	BASE	AXIAL FORCE=	-8.0 kips	Vert
PLATE	= .1875 in.	ACTIONS	SHEAR X =	11.8 kips	Long
TAPER	= .1500 in/ft		SHEAR Y =	.0 kips	Tran
POLE Fy	= 65.00 ksi		X-AXIS MOM =	328.8 ft-kips	Tran
			Y-Axis MOM =	328.8 ft-kips	Long
			Z-Axis MOM =	.0 ft-kips	Vert

DESIGN CASE = 1 3s Gusted Wind

Design: ANY Orientation Reactions at 45.00 deg to X-AXIS

BOLT LOADS

	AXIAL - COMPRESSION	= 48.20 kips		
	AXIAL - TENSION	= 47.20 kips		
	SHEAR	= .74 kips		
AXIAL	STRESS	= 79.54 ksi		
SHEAR	STRESS	= 1.31 ksi		
YIELD	STRENGTH Fy	= 92.00 ksi		
ULT.	STRENGTH Fu	= 120.00 ksi	Interaction	
ALLOW	STRESS Fa [.80 x 1.00]	= 96.00 ksi	.856	TIA-G
	SHEAR Fv [.80 x .40]	= 38.40 ksi		
	TENSION AREA REQUIRED	= .50 in^2		
	TENSION AREA FURNISHED	= .61 in^2		
	ROOT AREA FURNISHED	= .56 in^2		

A449 ::: ANCHOR BOLT DESIGN USED
16 Bolts on a 29.250 in. Bolt Circle
1.000 in. Diameter

BASE PLATE

[Bend Model: 1/4 Circ]
YIELD STRENGTH = 50.0 ksi
BEND LINE WIDTH = 20.7 in.
PLATE MOMENT = 264.9 in-k
THICKNESS REQD = 1.066 in.
BENDING STRESS = 32.7 ksi
ALLOWABLE STRESS = 45.0 ksi
[Fy x .90 x 1.00]

BASE PLATE USED

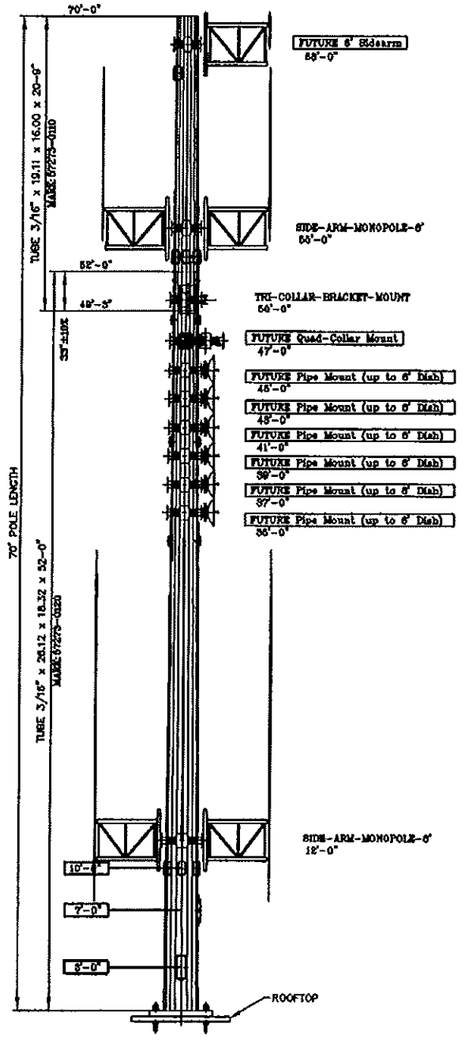
1.25	in.	THICK	SHIP
33.25	in.	ROUND	(lbs)
14.25	in.	CENTER HOLE	240

LOAD CASE SUMMARY

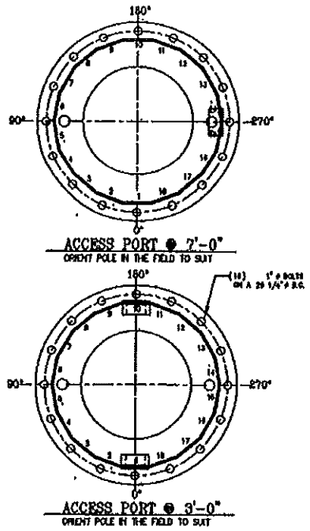
	FORCES-(kips)			MOMENTS-(ft-k)			ABolt-Str	Plate-Str		
							Allow	Actual	Allow	Design
LC	Axial	ShearX	ShearY	X-axis	Y-axis	TorQ	CSR	ksi	ksi	ksi	Code
1	8.0	11.8	.0	465	0	0	.856	90.00	32.72	45.00	TIA-G
2	6.1	11.8	.0	462	0	0	.849	90.00	32.46	45.00	TIA-G
3	17.2	1.8	.0	69	0	0	.145	90.00	5.65	45.00	TIA-G
4	6.6	2.4	.0	93	0	0	.177	90.00	6.79	45.00	TIA-G

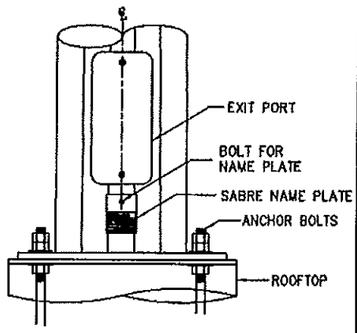
NOTICE: ALL PARTS ARE TO BE INVENTORIED AND ANY SHORTAGES REPORTED WITHIN 48 HOURS OF DELIVERY. SHORTAGES REPORTED AFTER THIS TIME PERIOD WILL BE CHARGED TO THE CONTRACTOR.
CALL 800/369-6690 ASK FOR THE CONTRACTS DEPARTMENT

DRAWING LIST



POLE ELEVATION





BASE INSTALLATION

BOLT INSTALLATION DETAILS

1. INSTALLATION OF BOLTS: BOLTS FOR TOWERS AND ANTENNAS SHALL BE INSTALLED WITH THE NUTS FACING TO THE OUTSIDE AND/OR TO THE TOP OF THE TOWER, UNLESS PROHIBITED BY LACK OF CLEARANCE.
2. TIGHTENING OF BOLTS: ALL HIGH STRENGTH BOLTS SHALL BE TIGHTENED TO A SNUG-TIGHT CONDITION, AS DEFINED BY AISC.
3. NUT LOCKING DEVICE: ALL NUTS SHALL BE EQUIPPED WITH SOME TYPE OF NUT LOCKING DEVICE. SEE THE INDIVIDUAL DRAWINGS FOR THE TYPE OF NUT LOCKING DEVICE TO BE USED FOR EACH INDIVIDUAL APPLICATION.

UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS INCLUDE FINISHES AND ARE IN INCHES
TOLERANCES: FRACTIONS ± 1/16" ANGLES ± 1/2 DEG. DECIMALS ± .010"
MATERIAL:
TOLERANCES DO NOT APPLY TO RAW MATERIAL

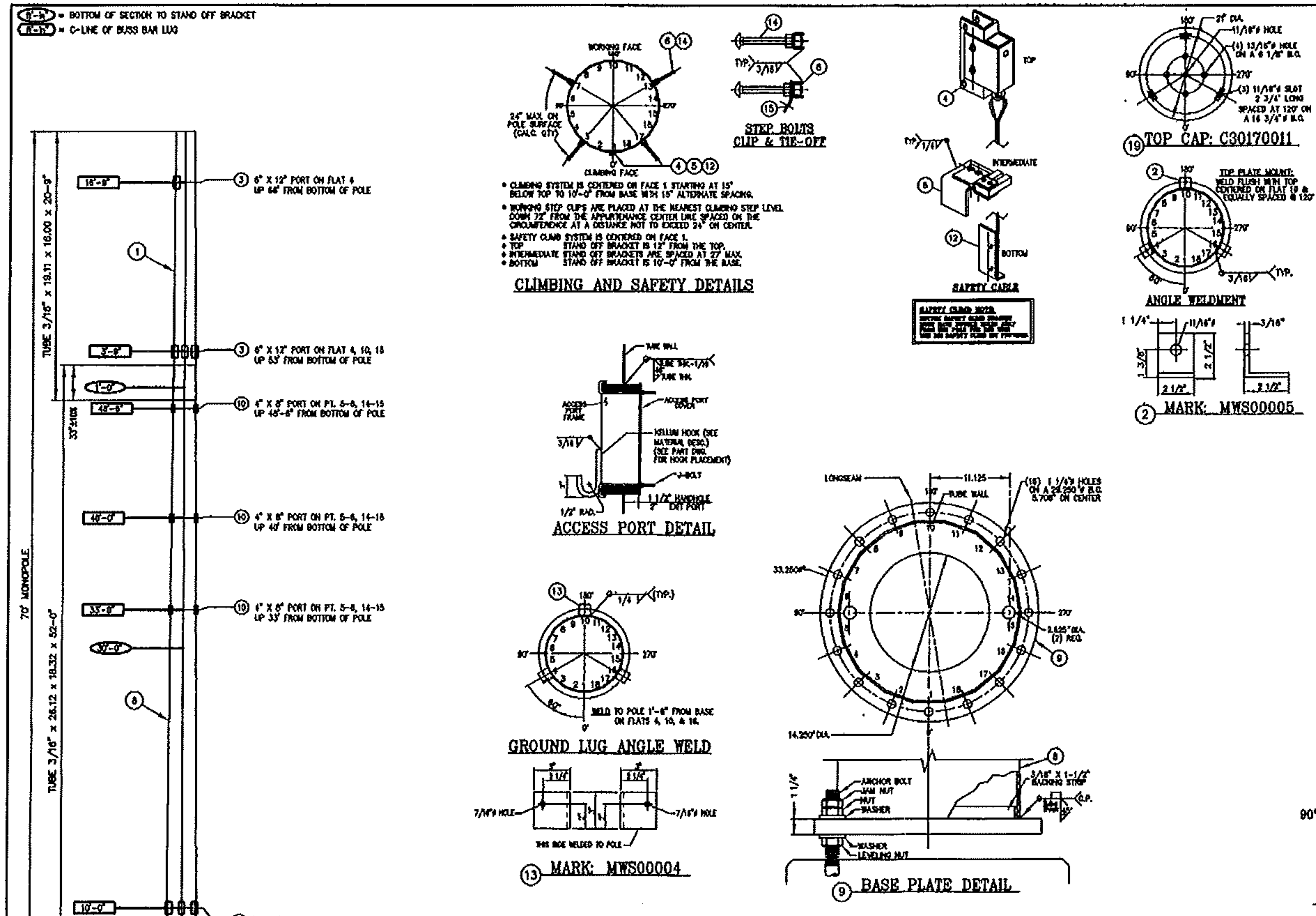
Rev	DATE	DRN	CHK	DESCRIPTION

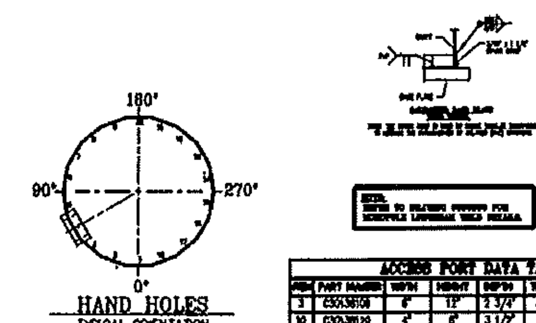
Sabre Industries™ Towers and Poles

City of Portland, ME
Munjoy Hill, ME

70.00 MONOPOLE

JOB	57273	SIZE	DRAWING NO.		REV
DATE	02Apr12	B	57273-MM		0
DRAWN BY	JKW				
CHECKED BY	WJ		SCALE N.T.S.	PAGE 1 of 1	





ITEM	QTY	MARK NO.	DESCRIPTION	MATERIAL	WEIGHT
1	1	57273-0110	TUBE 3/16" x 19.11 x 16.00 x 20-9"	A572-65	729
2	3	MWS00005	ANGLE 3/16" x 2 1/2" x 2 1/2" x 2 1/2" LONG	A-36	3
3	4	C30138108	Access Port (6" x 12" x 2-3/4" x 3/8")with 2 kellum hooks	A-500-C	41
4	1	MWS00001	TOP STAND OFF SAFETY BRACKET	A-36	1
5	1	MWS00002	MIDDLE STAND OFF SAFETY BRACKET	A-36	1
6	27	TWS00001	STEP BOLT CLIP 3/16" x 2" x 3 9/16"	A-36	5
7	4	C40990001	1"-8 HEAVY HEX JACKING NUT (BLACK)	A-563	1
				ASSEMBLY WEIGHT:	781
8	1	57273-0120	TUBE 3/16" x 26.12 x 18.32 x 52-0"	A572-65	2320
9	1	57273-5001	BASE PLATE 1 1/4" x 33.25" ROUND	A572-50	243
3	3	C30138109	Access Port (6" x 12" x 2-3/4" x 3/8")with 2 kellum hooks	A-500-C	31
10	6	C30138120	Access Port (4" x 8" x 3-1/2" x 1/2")with 2 kellum hooks	A-500-C	71
11	3	C30138028	Access Port (6" x 20" x 4" x 5/8")without kellum hooks	A-500-C	119
5	1	MWS00002	MIDDLE STAND OFF SAFETY BRACKET	A-36	1
12	1	MWS00003	BOTTOM STAND OFF SAFETY BRACKET	A-36	1
6	40	TWS00005	STEP BOLT CLIP 3/16" x 2" x 3 9/16"	A-36	10
7	4	C40990001	1"-8 HEAVY HEX JACKING NUT (BLACK)	A-563	1
13	3	MWS00004	GROUND LUG ANGLE	A-36	3
				ASSEMBLY WEIGHT:	2797
				STRUCTURE WEIGHT:	3578

Header above the table: HI-SIDED POLE — BILL OF MATERIAL — TAPER= .1500 IN/FT

SHIP LOOSE MISC.					
14	63	C40044002	5/8"-11 X 7" STEP BOLT (GALV)	A-307	65
15	12	C40041001	STEP BOLT ANCHOR BRACKET	A-36	2
16	7	C30138002	6.5" X 12.5" X 0.1875PL ACCESS COVER (GALV)	A-36	33
17	6	C30138015	4.5" X 8.5" X 0.1875PL ACCESS COVER (GALV)	A-36	16
18	3	C30138021	6.5" X 20.5" X 0.1875PL ACCESS COVER (GALV)	A-36	30
19	1	C30170011	TOP COVER KIT 12" TO 16"	A-36	39
20	1	C30186404	SAFETY-CLIMB-SYSTEM-SELECT-KIT 100'	--	47
21	1	C40084001	1302 CAN OF COLD GALV SPRAY	--	1
22	1	C300500	NAME PLATE	--	1
				SHIP LOOSE MISC.	235

ACCESS PORT DATA TABLE

ITEM	PART NUMBER	WIDTH	HEIGHT	DEPTH	THICK	MATERIAL SPEC
3	C30138108	6"	12"	2 3/4"	3/8"	A-500-C
10	C30138120	4"	8"	3 1/2"	1/2"	A-500-C
11	C30138028	6"	20"	4"	5/8"	A-500-C

WIND SPEED= MPH PER:			
QTY.	ELEV.	✓	APPURTENANCE LOADING

UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS INCLUDE FINISHES AND ARE IN INCHES

TOLERANCES: FRACTIONS ± 1/16"
ANGLES ± 1/2 DEG.
DECIMALS ± .010"

MATERIAL:

TOLERANCES DO NOT APPLY TO RAW MATERIAL

Rev	DATE	DRW	CHK	DESCRIPTION

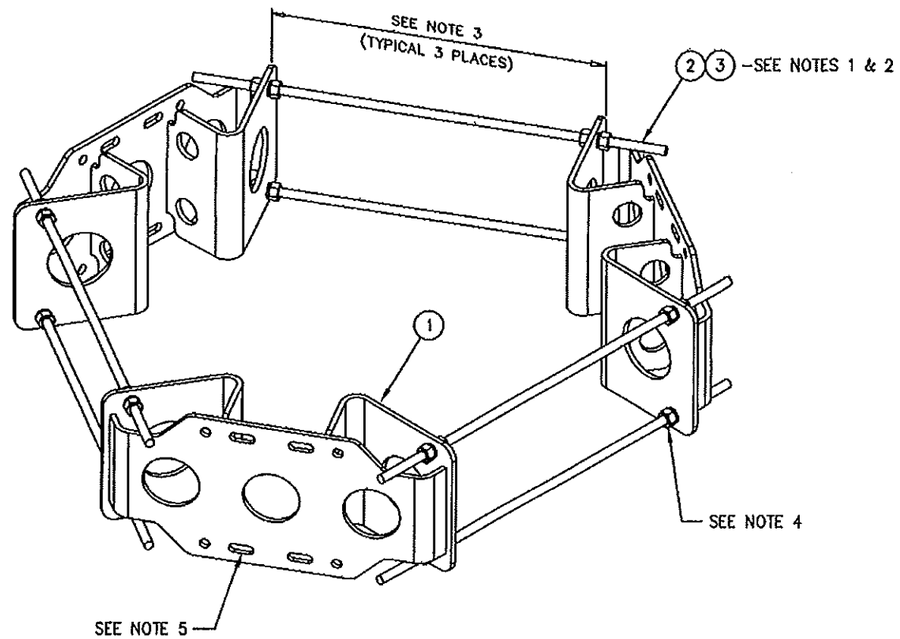
Sabre Industries
Towers and Poles

City of Portland, ME
Munjoy Hill, ME

70.00 MONOPOLE

JOB	57273	SIZE	DRAWING NO.	REV
DATE	02Apr12	B	57273-01	0
DRAWN BY	JKW		SCALE N.T.S.	PAGE 1 of 1
CHECKED BY	WJ			

C10112300 TRI-COLLAR ASSEMBLY (10"-40" MONOPOLE)				
ITEM	QTY.	PART. NO.	DESCRIPTION	WEIGHT
1.	3	CW00835	WELDMENT, TRI-COLLAR (10"-40" MONOPOLE)	151
2.	6	C40094012	THREADED ROD ASSEMBLY 5/8 X 2'-9"	25
3.	6	C40094002	THREADED ROD ASSEMBLY 5/8 X 1'-6"	17
			TOTAL WEIGHT	193



ISOMETRIC VIEW

NOTES:

1. THERE ARE (2) LENGTHS OF THREADED ROD SUPPLIED TO ACCOMMODATE DIAMETERS LISTED BELOW
   USE 5/8 X 1'-6" THREADED ROD ASSEMBLY FOR 10"-24" MONOPOLE DIAMETERS
   USE 5/8 X 2'-9" THREADED ROD ASSEMBLY FOR 24"-40" MONOPOLE DIAMETERS (SEE NOTE 2)
2. THREADED ROD MAY BE SHORTENED IF REQUIRED, FIELD CUT AND COLD GALV SPRAY TO SUIT.
3. THIS DISTANCE MUST BE EQUAL IN ALL (3) THREE LOCATIONS TO ENSURE THE STRUCTURAL INTEGRITY OF THE THREADED RODS AS WELL AS 120° SEPARATION.
4. FOR MONOPOLES 13" DIA. OR SMALLER, ONLY (1) ONE NUT AND (1) ONE LOCKWASHER ARE REQUIRED BETWEEN THE TRI-COLLAR BRACKETS.
   FOR MONOPOLES LARGER THAN 13" DIA., (2) TWO NUTS AND (2) TWO LOCKWASHERS ARE REQUIRED BETWEEN THE TRI-COLLAR BRACKETS.
5. THE MOUNTING SLOTS NOTED WILL ACCOMMODATE 2 3/8"-4 1/2" O.D. MOUNTING PIPES.

UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS INCLUDE FINISHES AND ARE IN INCHES
TOLERANCES: FRACTIONS ± 1/16" ANGLES ± 1/2 DEG. DECIMALS ± .010"
MATERIAL: TOLERANCES DO NOT APPLY TO RAW MATERIAL

REV	DATE	DRW	CHK	DESCRIPTION
2	8/11/10	DLW	DEL	ADDED 5/8 X 1'-6" THREADED ROD
1	1/8/10	MLC	MC	REDRAWN IN AUTOCAD

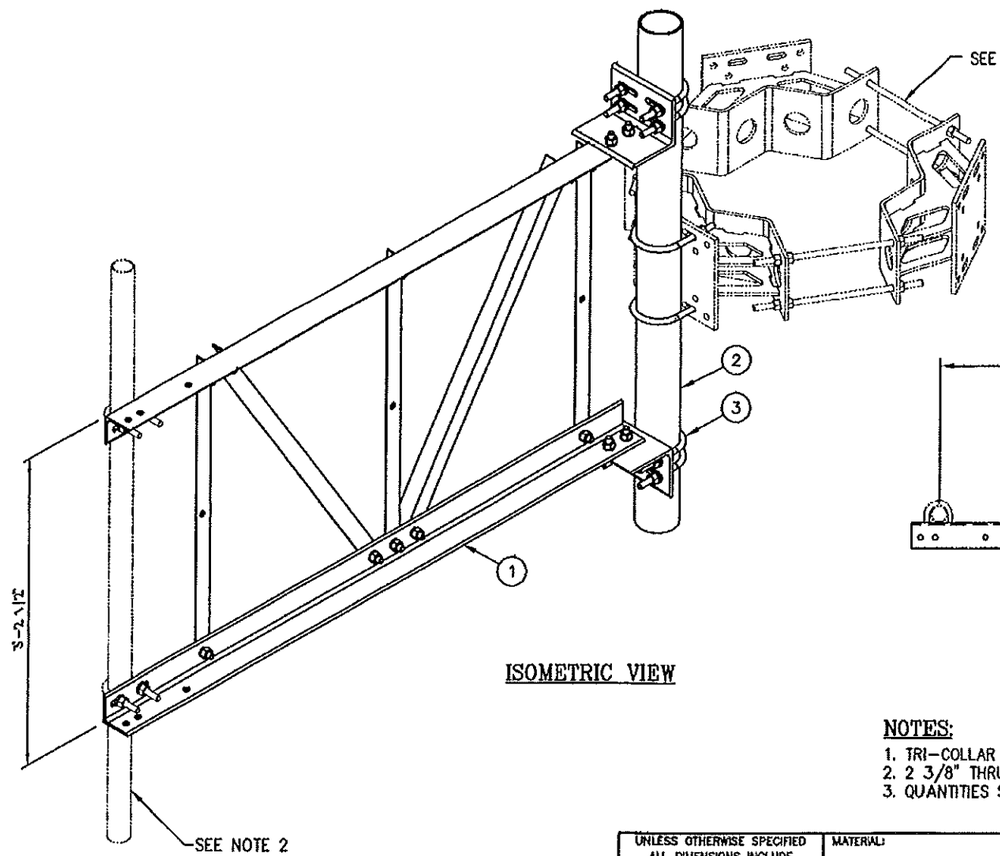
Sabre Industries
Towers and Poles

TRI-COLLAR BRACKET ASSEMBLY
FOR MONOPOLES (10"-40" DIA.)
(CIRCUMFERENCE 31.4" TO 125.7")

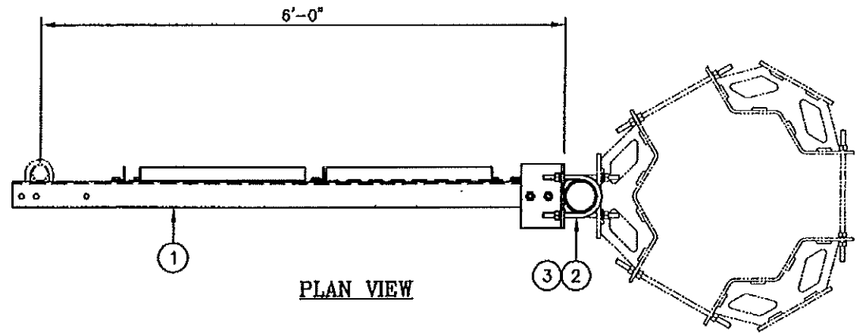
DATE	8/21/09
DRAWN BY	JV
CHECKED BY	MLC

SIZE	DRAWING NO.	REV
B	C10112300	2
	SCALE: None	PAGE: 1 OF 1

C10119106 6 FT. SIDEARM FOR MONOPOLE				
ITEM	QTY.	PART NO.	DESCRIPTION	WEIGHT
1.	1	C10151106	6 FT. SIDEARM KIT	144
2.	1	C10981405	PIPE, 4 1/2 ø X .180 X 5'-3	44
3.	6	C40034032	U-BOLT ASSEMBLY, 5/8 ø X 5 3/16 C-C	17
			TOTAL WEIGHT	205



ISOMETRIC VIEW



PLAN VIEW

NOTES:

1. TRI-COLLAR MOUNTS ARE SHOWN TYPICAL AND MUST BE PURCHASED SEPARATELY.
2. 2 3/8" THRU 4" O.D. MOUNTING PIPE & U-BOLTS MUST BE PURCHASED SEPERATELY.
3. QUANTITIES SHOWN ARE FOR ONE (1) SIDEARM ONLY.

UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS INCLUDE FINISHES AND ARE IN INCHES

TOLERANCES: FRACTIONS ± 1/16" ANGLES ± 1/2 DEG. DECIMALS ± .010"

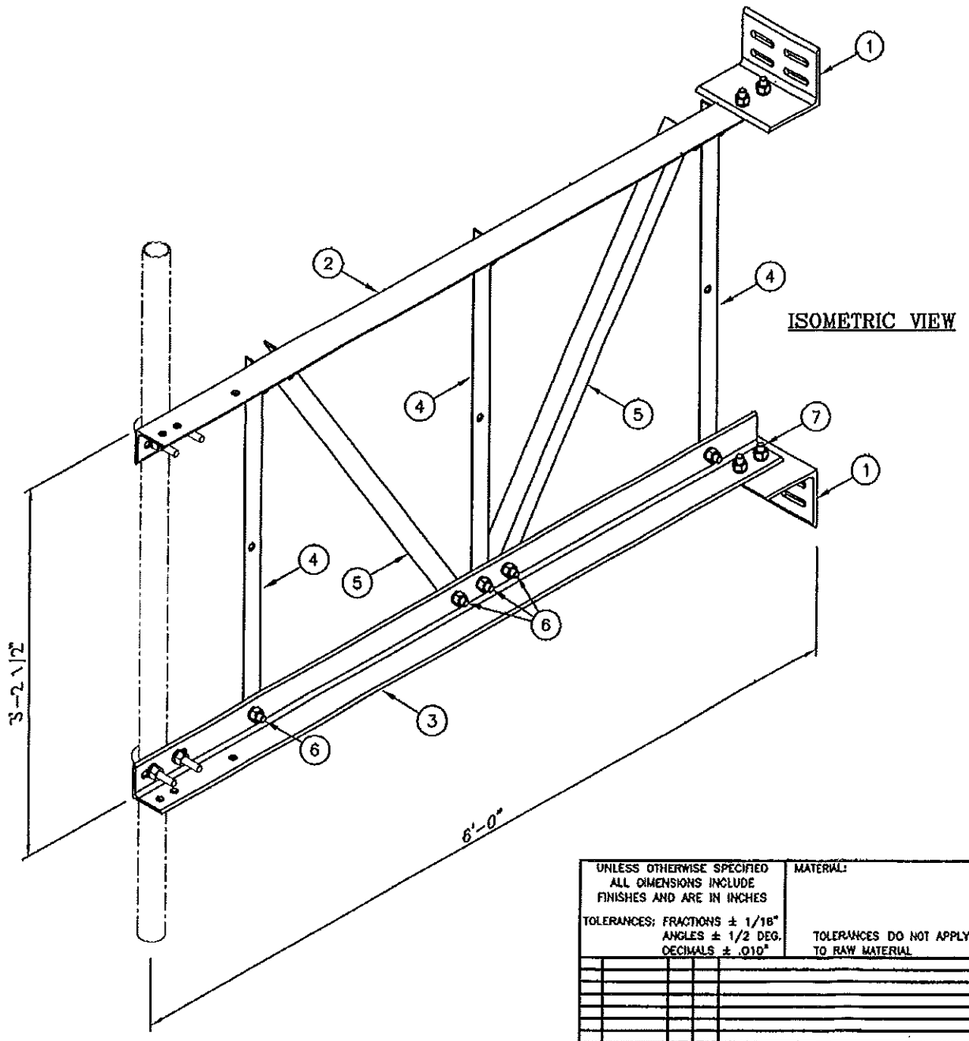
MATERIAL: TOLERANCES DO NOT APPLY TO RAW MATERIAL

REV	DATE	DRW	CHK	DESCRIPTION
3	7/14/09	MLC	MC	REVISED PIPE (ITEM 2)
2	01/10/08	GREWMN		ADDED ISOMETRIC VIEW
1	01/12/06	MLC	MC	UPDATED DRAWING

Sabre Industries
Towers and Poles

6 FT. SIDEARM FOR MONOPOLE (FOR MTG. PIPES 2 3/8" O.D. THRU 4" O.D.)

		SIZE	DRAWING NO.	REV
DATE	01/05/06	B	C10119106	3
DRAWN BY	JKW		SCALE	PAGE
CHECKED BY	WJ		None	1 OF 1



ISOMETRIC VIEW

C10151106 6 FT. SIDEARM ASSEMBLY

(1)	CK00061	SIDEARM ANGLE KIT	138
(1)	---	MISC HARDWARE (FRAMING)	6
		TOTAL WEIGHT	144

CK00061 KIT LIST OF MATERIAL

ITEM	QTY.	PART NO.	DESCRIPTION	WEIGHT
1.	2	CS00067	ANGLE, BOOM SUPPORT	23
2.	1	CS01225	ANGLE, TOP CHORD	37
3.	1	CS01226	ANGLE, BOTTOM CHORD	37
4.	3	CS00065	ANGLE, VERTICAL	23
5.	2	CS01228	ANGLE, DIAGONAL	18
			TOTAL WEIGHT	138

MISC HARDWARE (FRAMING)

ITEM	QTY.	PART NO.	DESCRIPTION	WEIGHT
6.	10	C40026022	BOLT ASSEMBLY, 5/8 ø X 1 3/4 A325	4
7.	4	C40026023	BOLT ASSEMBLY, 5/8 ø X 2 A325	2
			TOTAL WEIGHT	6

NOTES:

1. 2 3/8" O.D. THRU 4" O.D. MOUNTING PIPE & U-BOLTS MUST BE PURCHASED SEPARATELY.
2. QUANTITIES SHOWN ARE FOR ONE (1) SIDEARM ONLY.

UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS INCLUDE FINISHES AND ARE IN INCHES

TOLERANCES: FRACTIONS ± 1/16" ANGLES ± 1/2 DEG. DECIMALS ± .010"

MATERIAL: TOLERANCES DO NOT APPLY TO RAW MATERIAL

REV	DATE	DRW	CHK	DESCRIPTION
1	11/10/08	MRF	RWM	ADDED ISOMETRIC VIEW

Sabre Industries
Towers and Poles

6 FT. SIDEARM
(FOR MTG. PIPES 2 3/8" O.D. THRU 4" O.D.)

DATE	12/19/05
DRAWN BY	TLH/RWM
CHECKED BY	RWM

SIZE	DRAWING NO.	REV
B	C10151106	1

SCALE	PAGE
None	1 OF 1

Sabre™ Towers & Poles

CUSTOMER: City of Portland, ME
SITE: Munjoy Hill, ME
SITE NO:
DESC: 70.00 ft. WIRELESS MONOPOLE
P.O. NO:

1

PC=PIECE	OR=ORANGE
PLT=PALLET	WH=WHITE
BDL=BUNDLE	O/W=OR & WH
CRT=CRATE	B=BARE
D=DRUM	N/R=NOT REQ'D
BOX=B0X	SP=SPECIAL

Item	Qty	DRAWING NUMBER	DRAWING REV.	Part No.	Description	Total Weight	FINISH	PACKING Qty/ PKG'S	PACKING Qty of PKG'S	PACKING PKG. NO.
					POLE SECTIONS					
1	1			MR572730110	20'-9 Top Section	825	G			
2	1			MR572730120	52'-0 Bottom Section w\ Base	2952	G			
					TOTAL POLE SHAFT WEIGHT:	**3,777**	**lbs**			
					TEMPLATE					
3	1			57273-9001	ANCHOR BOLT TEMPLATE (w\ 29.25" Bolt Circle)	23	Black			
					MISCELLANEOUS ITEMS					
4	62			C40044002	5/8"-11 X 7" STEP BOLT (GALV)	68	A-307			
5	12			C40011001	STEP BOLT ANCHOR BRACKET	2	A-36			
6	7			C30136002	6.5" X 12.5" X 0.1875PL ACCESS COVER (GALV)	33	A-36			
7	6			C30136015	4.5" X 8.5" X 0.1875PL ACCESS COVER (GALV)	14	A-36			
8	3			C30136021	8.5" X 20.5" X 0.1875PL ACCESS COVER (GALV)	30	A-36			
9	1			C30170011	TOP COVER KIT 12" TO 16"	39	A-36			
10	1			C40068001	13OZ CAN OF COLD GALV SPRAY	1	--			
11	1			CS00500	NAME PLATE	1	--			

REV	DATE	DRF	CHK	DESCRIPTION

DATE: 2-Apr-12
JOB NO: 57273
DRAWN BY: JKW
DRAW NO: BOM-1
CHK'D BY: WJ

Sabre™ Towers & Poles

CUSTOMER: City of Portland, ME
SITE: Munjoy Hill, ME
SITE NO:
DESC: 70.00 ft. WIRELESS MONOPOLE
P.O. NO:

2

PC=PIECE	OR=ORANGE
PLT=PALLET	WH=WHITE
BDL=BUNDLE	O/W=OR & WH
CRT=CRATE	B=BARE
D=DRUM	N/R=NOT REQ'D
BOX=B0X	SP=SPECIAL

Item	Qty	DRAWING NUMBER	DRAWING REV.	Part No.	APPURTS; COLLARS; PIPES	Total Weight	FINISH	PACKING Qty/ PKG'S	PACKING Qty of PKG'S	PACKING PKG. NO.
1	3			C10119106	SIDE-ARM-MONOPOLE-6'	615				
2	3			C10900105	PIPE ANTENNA MOUNT KIT 2-3/8" X 5'-0"	66				
3	1			C10112300	TRI-COLLAR MOUNT	193				
4	1			C10112300	TRI-COLLAR MOUNT	193				
5	1			C10900105	PIPE ANTENNA MOUNT KIT 2-3/8" X 5'-0"	22				
6	3			C10119106	SIDE-ARM-MONOPOLE-6'	615				
7	3			C10900105	PIPE ANTENNA MOUNT KIT 2-3/8" X 5'-0"	66				
8	1			C10112300	TRI-COLLAR MOUNT	193				

Item	Qty	DRAWING NUMBER	DRAWING REV.	Part No.	PURCHASED OPTION	Total Weight	FINISH	Qty/ PKG'S	Qty of PKG'S	PKG. NO.
9	1			C30188404	SAFETY-CLIMB-SYSTEM-SELECT-KIT 100'	47				

REV	DATE	DRF	CHK	DESCRIPTION

DATE: 2-Apr-12
DRAWN BY: JKW
CHK'D BY: WJ

JOB NO: 57273
DRAW NO: BOM-1
PAGE: 2 of 2