Radio Station NEW
OCEAN CITY MD.

Engineering Data

In Support of Application for Construction Permit

Proposed Operation
Channel - 202B (88.3 mhz.)
Power - 50 Kw. EHAAT 150.0m.

Prepared by

CAN-AM CONSULTANTS LTD.
Engineering Services From Florida to the Arctic Circle
P.O. Box 246 Queenstown MD USA 21658-8246

INDEX.

(1) Introduction.

The following Engineering Data has been prepared in support of an application by The American University for authority to establish anew FM Broadcasting stsation at OCEAN CITY MD. This submission also complies with the requirements of FCC Rules 73.207, 73.509, & 73.525c. In order to accomplish this end, the transmitter site, transmitter, antenna, and transmission line must be established and installed as described in this report. A complete study, coverage maps, and pertinent information as required under the rules is included. It is shown that the proposal meets all requirements of current/former FCC Rules. The study also illustrates that no other station on the same channel or stations on adjacent channels will be precluded from upgrading facilities should this proposal be approved. The study shows, also, that existing stations, assignments, or allocations are presently limited to present operating parameters by existing conditions.

The transmitter site proposed in this application is the existing site of radio station WQHQ at Whaleysville MD. It is proposed to side mount a new 4 bay antenna on the tower below the WQHQ radiator.

The proposed site was cleared for 207.3m AMSL under FAA Rules. No height changes are proposed so further FAA clearance is not required.

The area in this district of Maryland is environmentally sensitive. The proposed site has been chosen to provide proper protected spacings, FAA clearance due to Ocean City Airport, local zoning restrictions, and Part 73 requirements. Due to the critical spacings to co-channel & adjacent channel stations, a detailed analysis is provided as part of this report. The spacing study, updated to conform with recent database changes, shows some close spaced allocations under present rules. In particular spacings to channel 201B1 Hampton VA (WHOV) and channel 203BA Washington DC (WAMU). The spacings to both these stations meet all requirements of the NCE Rules.

Of particular significance are spaings to TV channel 6 allocations to WPVI Philadelphia and WTVR Richmond VA. Analysis for both these stations using 73.525c is included for reference.

Spacing Studies included in this report were obtained from commercial database services. Can-Am Consultants Ltd. believes this information to be correct and accurate. However, the Company accepts no responsibility for incorrect or incomplete information from these sources.

Project : **NEW OCEAN CITY MD CLASS B CHANNEL STUDY**
Channel : 202B 38-23-15 N 75-17-30 W Incl. Translators.
Scan : 400 km.
Source : FCC. Spec : 73.207, 73.509, 73.525c

Call Stat.	City FCC Ref. State/Prov	Channel Class	ERP kw EHAAT	Latitude Longitude	Bearing True	Dist (km)	Req'd km.
WJHU	Baltimore	201	10.0DA	39-19-53	312.01	158.13	145
Lic	MD	B1	129.5m	76-39-28	132.01	+13.13	OK
WMUC	College Pk.	201	0.01Ci	38-58-59	295.3	157.94	**
Lic	MD	D	30.m	76-56-37	115.3	**	OK
WJTM	Frederick	201	4.0Ci	39-25-05	301.63	222.87	145.
Lic	MD	B1	169.2m	77-30-03	121,63	+77.87	OK
W201AJ	Big Stone	201	0.01DA	36-50-26	257.6	677.78	**
Lic	VA	D	30.0m	82-44-14	077.6	**	**
W201AG	Charlotsville	201	0.06DA	37-58-57	261.82	282.55	**
Lic	VA	D	30.0m	78-29-00	081.82	**	**
W201AI	Coeburn	201	8.82DA	36-56-55	255.07	654.13	**
Lic	VA	D	30.0m	82-30-00	077.07	**	**
W201AF	Fredericksbg	201	0.02DA	38-20-12	268.98	191.05	**
Lic	VA	D	30.0m	77-28-55	088.98	**	**
WDCJ	Lorton	201	0.03H	38-41-13	281.71	172.86	**
Lic	VA	D	44.19m	77-14-31	101.71	**	**
W201AX	Waynesboro	201	0.02DA	38-01-44	263.82	314.2	**
Lic	VA	D	30.0m	78-51-32	083.82	**	**
NEW	Edinburg	202	1.0Ci	38-48-12	279.96	298.89	178
CP	VA	A	129.8m	78-41-23	099.96	+120.89	OK
W206AD	Fr. Royal	202	0.01DA	38-58-29	285.4	260.96	**
Lic	VA	D	30.0m	78-12-09	105.4	**	**

Project : NEW Ocean City MD Class B Channel Study
Channel : 202B 38-23-15 N 75-17-30 W Incl. Translators.
Scan : 400 km.
Source : FCC. Spec : 73.207, 73.509, 73.525c

Call Stat.	City FCC Ref. State/Prov	Channel Class	ERP kw EHAAT	Latitude Longitude	Bearing True	Dist (km)	Req'd km.
WHOV	Hampton	201	8.0E11	37-01-03	211.44	177.94	145
Lic	VA	B1	59.43m	76-20-13	031.44	+32.94	OK
WRVL	Lynchburg	202	50.0Ci	37-11-50	250.9	380.49	270
Lic	VA	C1	329.8m	79-21-07	070.9	+110.49	OK
W202AL	Norton	202	0.01DA	36-56-30	258.29	665.51	**
Lic	VA	D	30.0m	82-37-51	078.29	**	**
NEW	Winchester	202	0.009DA	39-10-38	289.74	272.24	**
CP	VA	D	30.9m	78-15-53	109.74	**	**
WAMU	Washington	203	50.0Ci	38-56-09	291.86	167.82	169
Lic	DC	B	150.0m	77-05-33	111.86	-1.18	73.509
W203AC	Paramount	203	0.16DA	39-38-45	304.43	252.38	**
Lic	MD	D	30.0m	77-43-23	124.43	**	**
WODC	Virg. Bch	203	0.30Cl	36-50-27	202.27	185.52	113
Lic	VA	A	29.6m	76-04-54	022.27	+72.52	OK
WFOS	Chesapeake	204	15.5CDA	36-43-18	205.96	205.48	71
Lic	VA	B1	47.9m	76-18-03	025.96	+134.48	OK
WMRA	Harrisonburg	204	7.50Ci	38-26-22	272.17	314.92	69
Del	VA	A	18.9m	78-54-21	092.17	+245.92	OK
	(Del - See channel 214B - WMRA Harrisonburg VA)						
WEAA	Baltimore	205	12.5Ci	39-20-31	313.83	154.4	71
Lic	MD	B1	353.8m	76-35-13	133.83	+83.4	OK
WCVE	Richmond	205	8.30H	37-34-00	245.19	212.15	74
Lic	VA	B	256.0m	77-28-36	065.19	+138.15	OK

Project : **NEW OCEAN CITY MD CLASS B CHANNEL STUDY**
Channel : 202B 38-23-15 N 75-17-30 W Incl. Translators.
Scan : 400 km.
Source : FCC. Spec : 73.207, 73.509, 73.525c

Call Stat.	City FCC Ref. State/Prov	Channel Class	ERP kw EHAAT	Latitude Longitude	Bearing True	Dist (km)	Req'd km.
WTVR	Richmond	TV6	100.0H	37-34-00	245.19	212.15	257
Lic	VA		256.0m	77-28-36	065.19	-44.85	73.525c
WPVI	Philadelphia	TV6	74.1H	40-02-38	001.35	184.23	257
Lic	PA		332.2	75-14-26	181.35	-72.77	73.525c
WSBY	Salisbury	255	6.0Ci	38-18-00	251.76	30.91	15
Lic	MD	A	100.0Ci	75-37-41	071.76	+15.91	OK
NEW	**OCEAN CITY**	202	50.0Ci	38-23-15	0.0	0.0	***
Appl.	MD	B	150.0m	75-17-30	0.0	***	***

*** Denotes home station
** Denotes unprotected translator

<<<<<<<<<End of copy. CanAm Acct 8095 $35.44 0327hrs 050296>>>>>>>>>

(3) Interference Study. (Exhibit C)

A complete study was made using the proposed WQHQ site and the required spacings to co-channel, adjacent channel assignments, allocations and operating stations. The granting of 50 kw Class B status to Channel 202B at OCEAN CITY MD. would not preclude the upgrading of any other licensed facility, proposed facility or allocation, which is not already precluded, to next higher class.

(3) (a) Special Considerations to WAMU Washington DC

Station : WAMU Washington DC
Channel : 203B (88.5 mhz.) Power : 50.00 kw EHAAT : 152.0m. AMSL 223.m
Station Location : 38-56-09N 77-05-33W.
Station to station spacing : 167.8 km
Allowable spacing 73.207 : 169 km.
Computed clearance : -1.2 km
Shortage : -1.2 km.

WAMU Distance to Contours.

Brg. (deg)	ERP (kw)	DBK	EHAAT (m)	60dbu 50/50	54 dbu 50/10
000	50.	16.99	133.9	50.0	75.6
045	50.	16.99	143.7	51.4	77.2
090	50.	16.99	182.9	55.9	82.7
135	50.	16.99	198.6	57.2	84.6
180	50.	16.99	172.1	54.9	81.3
225	50.	16.99	130.6	49.4	75.0
270	50.	16.99	133.2	49.9	75.5
315	50.	16.99	144.0	51.3	77.1
73.509 Analysis - WAMU.					
112	50.	16.99	168.7	56.5	83.3

73.509 Analysis - NEW.

292	50.	16.99	145.4	51.4	77.3

Distance between Interference Contours.

NEW to WAMU - 167.8 - 77.3 -56.5 = 34 km.
WAMU to NEW - 167.8 - 83.3 - 51.4 = 33.1 km.

The complete plot of these contours is shown in Map #103.

(3)(b) Special Considerations to WHOV Hampton VA

Station : WHOV Hampton VA.
Channel : 201B1 (88.2mhz) Power : 8.00kw EHAAT : 61.0m.

Station to station spacing : 177.9 km
Allowable spacing 73.207 : 145 km
Computed clearance : +32.9 km
Shortage : 0

WHOV Distance to Contours.

Brg. (deg)	ERP (kw)	DBK	EHAAT (m)	60dbu 50/50	54 dbu 50/10
000	8.0	9.03	61.0	24.2	38.5
045	8.0	9.03	61.0	24.2	38.5
090	8.0	9.03	61.0	24.2	38.5
135	8.0	9.03	61.0	24.2	38.5
225	8.0	9.03	61.0	24.2	38.5
270	8.0	9.03	61.0	24.2	38.5
315	8.0	9.03	61.0	24.2	38.5
73.509 Analysis - WHOV					
031	8.0	9.03	61.0	24.2	38.5
73.509 Analysis - NEW.					
211	50.	16.99	150.0	51.1	79.1

Distance between Interference Contours.

NEW to WHOV - 177.9 - 79.1 - 24.2 = 74.6 km.
WHOV to NEW - 177.9 - 38.5 - 51.1 = 88.3 km.

The complete plot of these contours is shown in Map #103.

3(c) Special Considerations to Channel 6 - WTVR, WPVI

Station : WTVR Richmond VA.
Channel : TV Ch annel 6. Power : 100.0Hkw EHAAT : 256.0m.
Station to station spacing : 212.15 km
Allowable spacing 73.207 : 257. km
Computed clearance : -44.85km.
Shortage : -44.85 km
Protected Contour - 47 dbu 50/50 located at 102.9 km.

73.525 Protection limit.

47 dbu (WTVR) + 4db (73.599-1) + 6 db (73.525(e)(1)(iii) = 57 dbu. (50/10)
NEW 57 dbu (50/10) @ 245 deg = 69.5 km
Clearance between contours - 212.15 - 102.9 - 69.5 = 39.75 km.

The complete plot of these contours is shown in Map #103.

Station : WPVI Philadelphia PA
Channel : TV Ch annel 6. Power : 74.1Hkw EHAAT : 332.3m.
Station to station spacing : 184.23 km
Allowable spacing 73.207 : 257. km
Computed clearance : -72.77km.
Shortage : -72.77 km
Protected Contour - 47 dbu 50/50 located at 106.4 km. (worst case).

73.525 Protection limit.

47 dbu (WPVI) + 4db (73.599-1) + 6 db (73.525(e)(1)(iii) = 57 dbu. (50/10)
NEW 57 dbu (50/10) @ 001.35 deg = 69.3 km
Clearance between contours - 184.23 - 106.4 - 69.3 = 8.53 km.

The complete plot of these contours is shown in Map #103

3(d). NEW Distance to Contours.

Station : **NEW OCEAN CITY MD**
Channel : 203B (88.3mhz.) Power : 50.0 kw (max) EHAAT : 150. m.

Table (1). NEW Contour Locations.

Brg (deg)	ERP (kw)	DBK	EHAAT (m)	Distance to Contours (km) 60 dbu (50/50)	54 dbu (50/10)
000	50.00	16.99	147.3	50.8	78.2
045	50.00	16.99	150.1	51.1	78.8
090	50.00	16.99	155.5	51.8	79.5
135	50.00	16.99	152.5	51.4	79.3
180	50.00	16.99	153.1	51.5	79.4
225	50.00	16.99	150.1	51.1	78.8
270	50.00	16.99	144.9	50.4	77.5
315	50.00	16.99	146.4	50.6	77.9

Exhibit D.

(4) Interference To Other Services.

Within the principle city contour of the proposed station there are located a number of Public Service stations operated by the County Emergency Management group, the Maryland Natural Resources Patrol, the Maryland State Police, WQHQ, WOCQ, and Motorola Paging Services. The various operating frequencies have already been programmed into a computerized intermodulation study for WQHQ/NEW. NEW should not generate interference with existing services.

The applicant is aware of the requirements imposed under Sections 73.315, 73.316, and 73.318 of the Rules, and if this application is granted, the applicant will accept responsibility, in accordance with the Rules, for the servicing of complaints of interference caused by the incoming service.

Exhibit E.

(5) Radio Frequency Environmental Assessment.

American University proposes to construct a new FM facility near the Town of Whaleysville MD. The project is subject to the rules of the Federal Communications Commission and the Federal Aviation Administration. The site is located within the County of Worcester MD corporate limits and is adjacent to a private access road which borders the site. No additional access roads are therefore required.

The proposed construction of transmission facilities will in no way impact the present community services. The proposal meets safety requirements of OSHA in that the power density proposed is well below the maximum permissible OSHA level of 10 mw/cm^2. In addition the lower bay of the new antenna will be 145+m above ground level or at least 65.m above the worst case ANSI minimums as specified in the bulletins using all combined power outputs for WQHQ and NEW. The base of the antenna is fenced at 20m from the base, well beyond that which considered necessary by the regulation. In addition, the property is not used by the public and the nature of the land and prominent warning signs make trespassing unlikely beyond the limits of protective fencing.

To protect authorized personnel from exposure to unwanted radiation, it will be the policy of the operators to reduce the transmitter to low power when personnel are on the tower and to shut down completely if any work is required within 20 meters of the antenna aperture.

The presence of the tower is not be the subject of controversy in the community. The antenna location is not located near any property listed in the National Register of Historic Places or in a local or state version therof; in the National Register of National Landmarks; or in an area of study in the National Wilderness Preservation Act or in the Wild and Scenic Rivers Act. The construction and operation of the proposed facility have had no effect on any species identified on the Endangered Species List. The project will not create or precipitate any identifiable long term changes in the diversity of animal species, the population density of any animal species, or change the behavior patterns of any animal population.

Exhibit 6. Environmental (Continued).

The proposal will not utilize any unusally fragile environmental area. The tower did not require any changes to the contour of the surface land nor cause any change occur to surface water turbidity. The project will not cause or precipitate any identifiable long term changes in the diversity of plant species, or in the population density of an individual native spcies of plants.

In summary, the proposal will have no special environmental significance. There should be no further effect on scenic, cultural, historic, architectural, archeological, or recreational uses of surrounding lands, beyond that now being experienced. There will be no deforestation, water diversion, wetland fill, or other extensive change of surface features. The proposal will not create, directly or indirectly, a permanent environmental change to animals, plants, land, or humans.

References.

Federal Communications Commission
1919 M Street NW
Washington DC 20554
Chief Mass Media Bureau.

Federal Aviation Administration
Eastern Region
JFK International A/P
Fitzgerald Federal Bldg.,
Jamaica NY 11430

May 2/96

D.B. Williamson P.E.
Consulting Engineer for
American University

(6) System Description.

(a) Antenna. The antenna system proposed will be manufactured by Electronics Research Industries and will bear ERI designation G5CPS-4AE The antenna will consist of four full wave spaced bays, circularly polarized, fed at the end with 3" Heliax type air filled transmission line. The antenna is known in the trade as the "Rototiller". The antenna will be non-directional. The antenna power gain is to be 2.1332 (+3.2903 db.) in vertical & horizontal planes. The antenna will be side mounted on the tower with the electrical centre 150.1m AGL, 159.2m AMSL. The electrical centre will be 150.0m AAT.

(7) Summary.

Channel - **202B** Frequency - 88.3 mhz.

Co-ordinates - 38-23-15 N 75-17-30 W

Transmitter - Type accepted.

Transmission Line - 165m Cablewaves HCC 300-50J Coaxial cable or equivalent. (Attenuation - 0.390 db/100m)

Antenna - ERI G5CPS-4AE

Tower - 198.1m AGL 207.3m AMSL overall height.

Radiating Centre - 150.1m AGL 150.0m AAT
159.2m AMSL

7 (b) ERP

Tx pwr out	27.1782 kw.	+14.3422 dbk.
Line loss	-3.7392 kw.	-0.6435 db.
Antenna Pwr in	23.4390 kw.	+13.6987 dbk.
Antenna Gain	x 2.1332	+3.2903 db
ERP	50.0000 kw.	+16.9890 dbk.

(8) Tabulation of Proposed Service Contours.

(a) Proposed Operation.

Azimuth (deg)	HAAT (m)	ERP (kw)	Dist. to 70 dbu. (km)	Dist. to 60 dbu. (km)
000	147.3	50.0	32.3	50.8
045	150.1	50.0	32.6	51.1
090	155.5	50.0	33.1	51.8
135	152.5	50.0	32.8	51.4
180	153.1	50.0	32.9	51.5
225	150.1	50.0	32.6	51.1
270	144.9	50.0	32.1	50.4
315	146.4	50.0	32.2	50.6

Average 150.

Average Terrain Elevation	9.2m
Radiating Centre AAT	150.0m
Radiating Centre AMSL	159.2m
Radiating Centre AGL	150.1m
Ground Elevation	9.1m.

(9) Saturation Effects. (Exhibit F).

The location of the transmitter places a high radio field over considerable territory. The applicant is a responsible broadcaster, well acquainted with the needs of the community. Should listener problems, or other problems with existing communications services occur; due to cross modulation or receiver overloading attributed to the incomming service; these will be serviced by the station in accordance with the requirements of Section 73.318 of the Rules.

(10) Population Density Figures.

	70dbu	60 dbu.
Proposed Operation	3333. km^2 31,554. Persons	8199. km^2 188,504. Persons.

Note (1): Due to expanse of territory under water, the usable coverage area should be reduced as follows :

	2967. km^2	6231. km^2

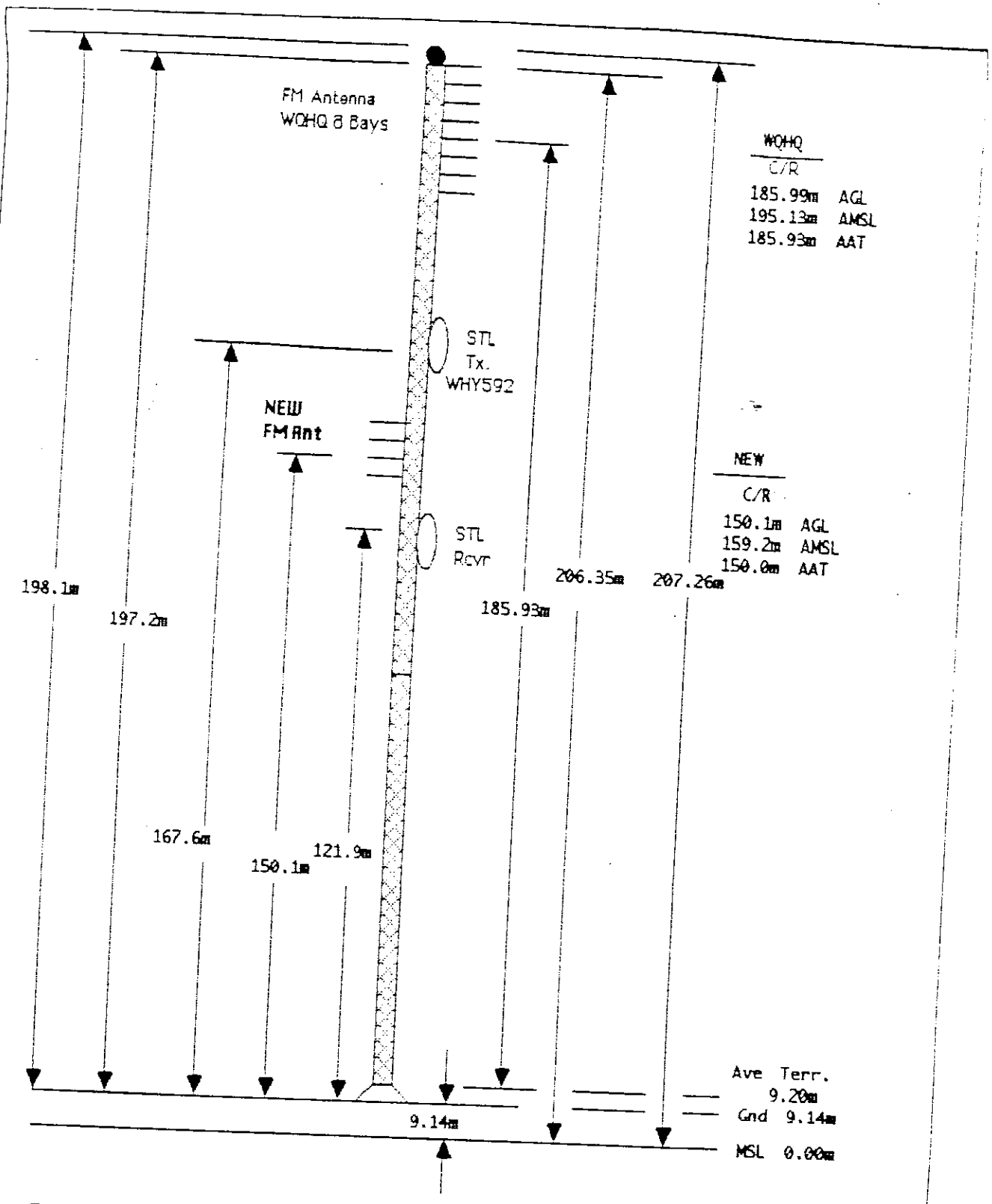
Note (2) : Population information for full year residence - Source C. of C., US Census. Increase in population during Summer months approximately 10 times.

(11) Soecial Considerations - Antenna Tower.

It is proposed to side-mount the proposed FM antenna on a tower presently in use by WQHQ Salisbury-Ocean City MD. The site will be shared with other services operating on an assortment of VHF and UHF frequencies and microwave services. Intermodulation studies have been performed on the known combinations with no obvious problems evident. It is proposed to isolate the two transmitters with standard ERI filters as shown in the sketch should field tests show them to be required. The applicant agrees to co-operate with other users to allow the site to be used by all licensed operators without co-interference.

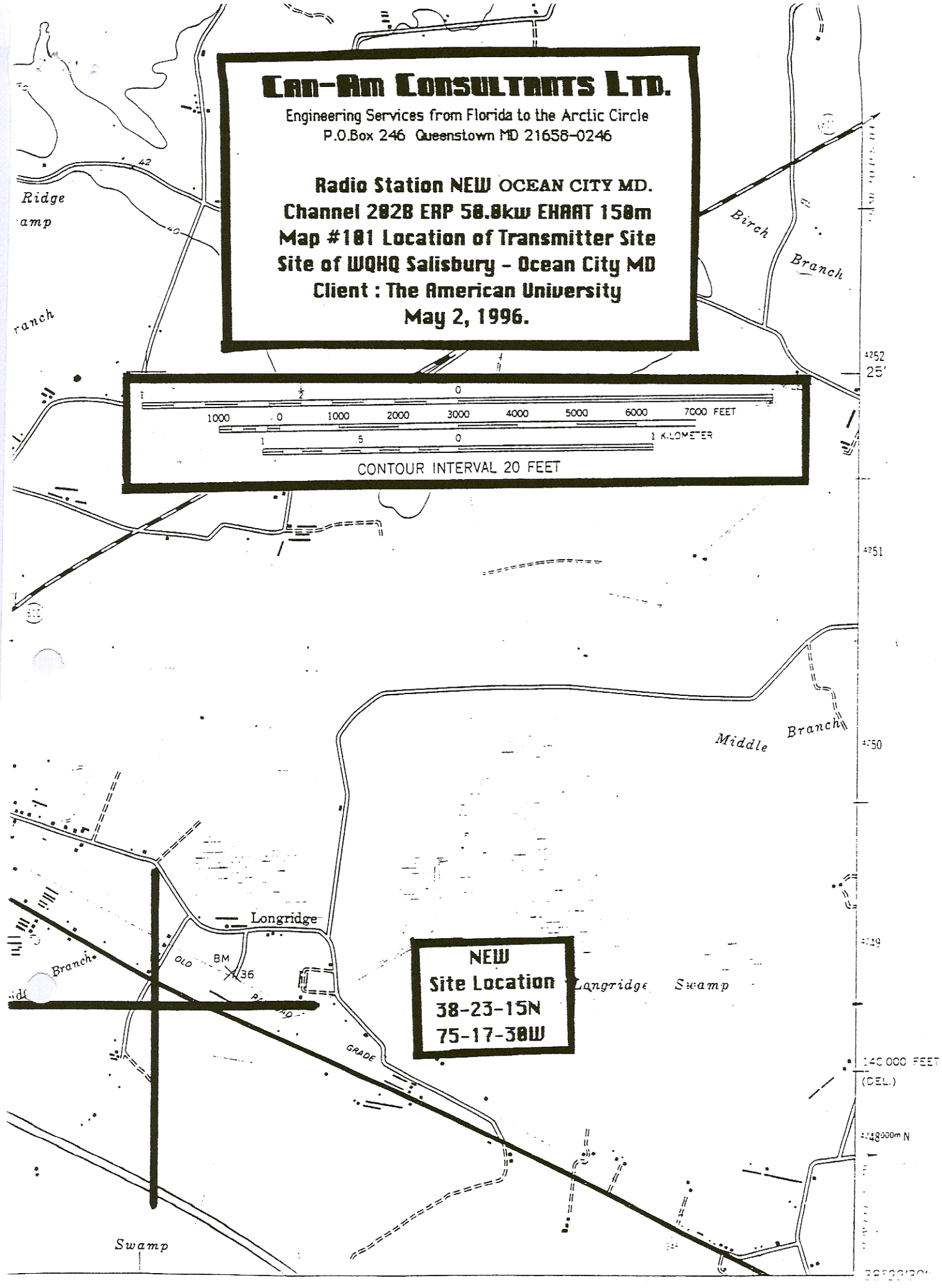
Repectfully submitted,

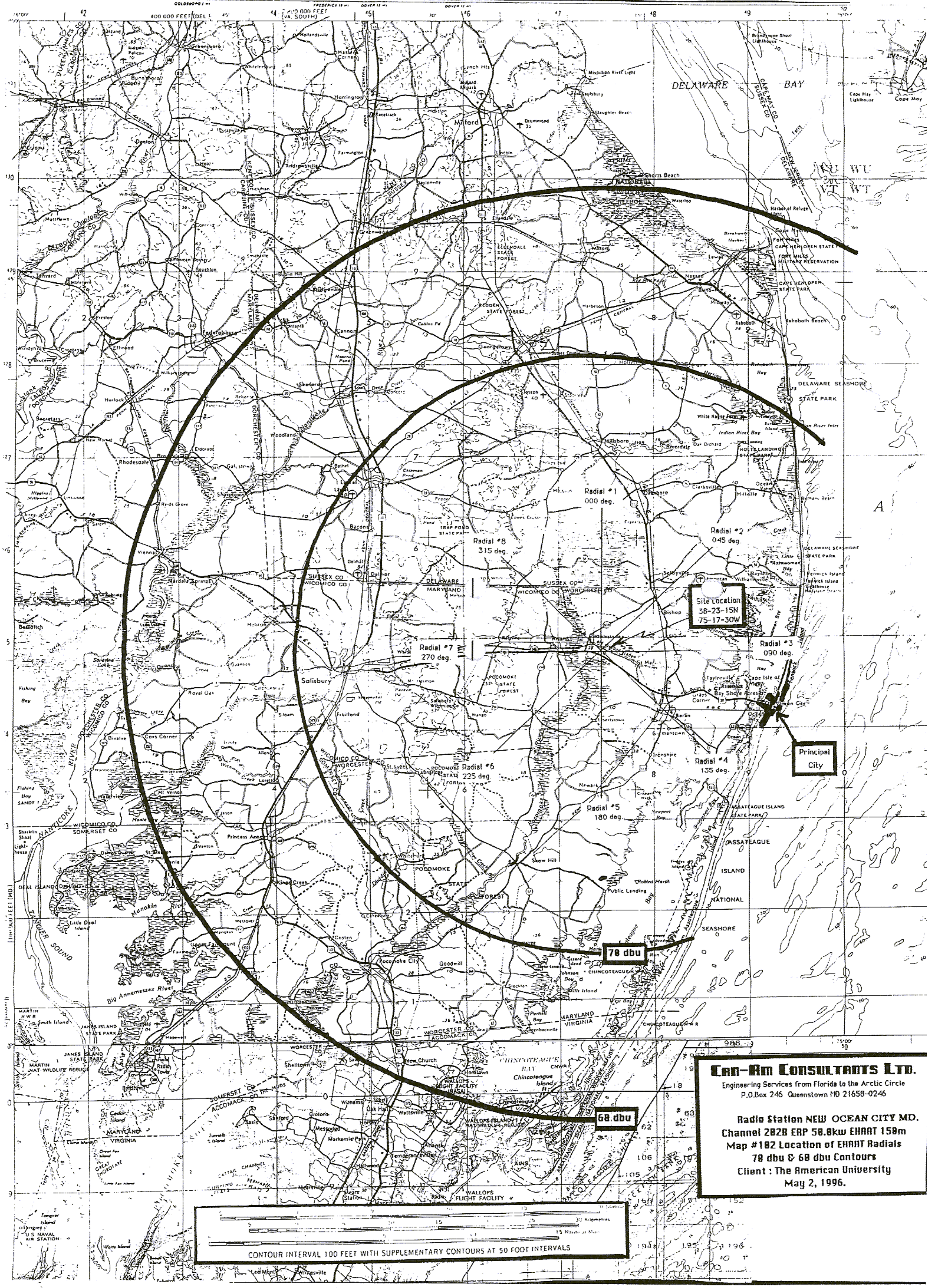
D.B. Williamson P.E.
Consulting Engineer.
May 2, 1996.



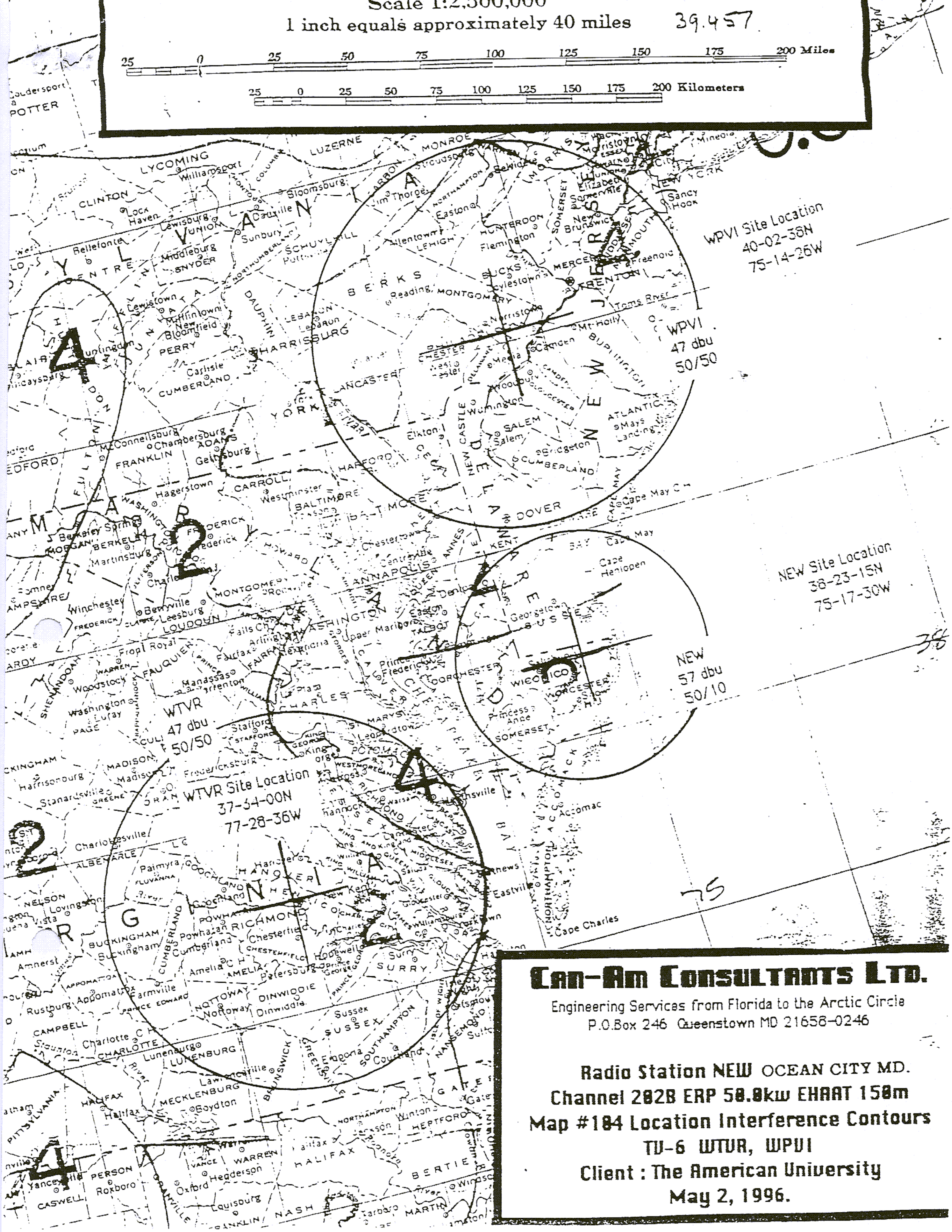
Antenna Elevation Sketch - WQHQ Tower.
Modified for NEW Channel 282 Antenna
May 2/96.

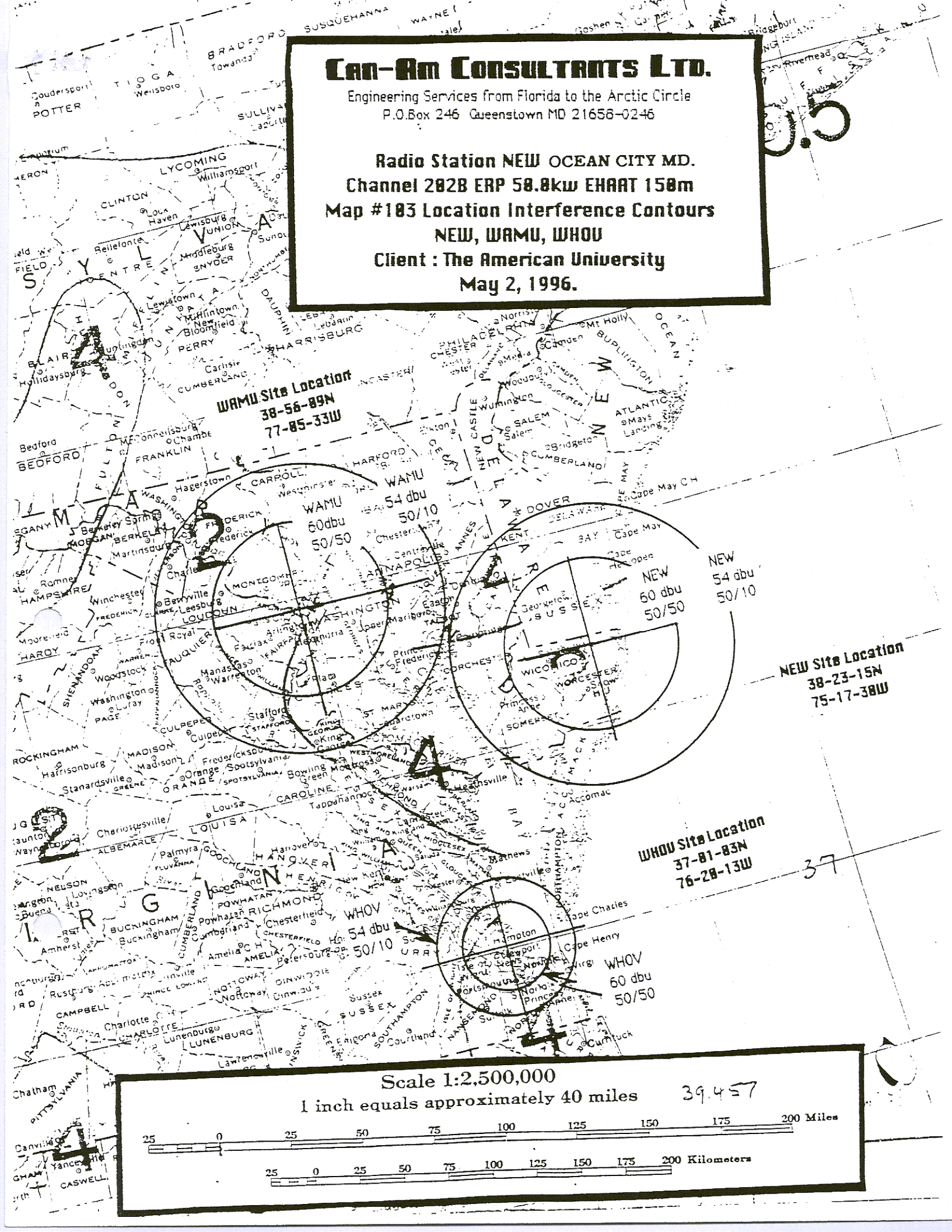
CAN-AM CONSULTANTS LTD.
Engineering Services From Florida to the Arctic Circle


CAN-AM CONSULTANTS LTD.
Engineering Services from Florida to the Arctic Circle
P.O.Box 246 Queenstown MD 21658-0246
Radio Station NEW OCEAN CITY MD.
Channel 282B ERP 50.0kw EHAAT 150m
Map #181 Location of Transmitter Site
Site of WQHQ Salisbury - Ocean City MD
Client : The American University
May 2, 1996.
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 KILOMETER
CONTOUR INTERVAL 20 FEET
Ridge
amp
ranch
Birch
Branch
Middle
Branch
Longridge
Branch
OLD
BM
136
GRADE
Swamp
Longridge Swamp
NEW
Site Location
38-23-15N
75-17-30W
4252
25'
4251
4250
4249
140 000 FEET
(DEL.)
4248 900m N



DELAWARE BAY
Site Location
38-23-15N
75-17-30W
Principal City
Radial #1
000 deg.
Radial #2
045 deg.
Radial #3
090 deg.
Radial #4
135 deg.
Radial #5
180 deg.
Radial #6
225 deg.
Radial #7
270 deg.
Radial #8
315 deg.
70 dbu
60 dbu
Salisbury
Georgetown
Milford
Seaford
Pocomoke City
Ocean City
Berlin
Snow Hill
Princess Anne
Chincoteague Bay
DELAWARE SEASHORE STATE PARK
ASSATEAGUE ISLAND NATIONAL SEASHORE
SUSSEX CO
WICOMICO CO
WORCESTER CO
SOMERSET CO
ACCOMACK CO
MARYLAND
VIRGINIA
CONTOUR INTERVAL 100 FEET WITH SUPPLEMENTARY CONTOURS AT 50 FOOT INTERVALS
CAN-AM CONSULTANTS LTD.
Engineering Services from Florida to the Arctic Circle
P.O.Box 246 Queenstown MD 21658-0246
Radio Station NEW OCEAN CITY MD.
Channel 282B ERP 50.0kw EHAAT 150m
Map #102 Location of EHAAT Radials
70 dbu & 60 dbu Contours
Client : The American University
May 2, 1996.


Scale 1:2,500,000
1 inch equals approximately 40 miles
39.457
25 0 25 50 75 100 125 150 175 200 Miles
25 0 25 50 75 100 125 150 175 200 Kilometers
WPVI Site Location
40-02-38N
75-14-26W
WPVI
47 dbu
50/50
NEW Site Location
38-23-15N
75-17-30W
NEW
57 dbu
50/10
WTVR
47 dbu
50/50
WTVR Site Location
37-34-00N
77-28-36W
38
75
Can-Am Consultants Ltd.
Engineering Services from Florida to the Arctic Circle
P.O.Box 246 Queenstown MD 21658-0246
Radio Station NEW OCEAN CITY MD.
Channel 282B ERP 50.0kw EHAAT 150m
Map #104 Location Interference Contours
TV-6 WTVR, WPVI
Client : The American University
May 2, 1996.


CAN-AM CONSULTANTS LTD.
Engineering Services from Florida to the Arctic Circle
P.O.Box 246 Queenstown MD 21658-0246
Radio Station NEW OCEAN CITY MD.
Channel 282B ERP 58.8kw EHAAT 158m
Map #183 Location Interference Contours
NEW, WAMU, WHOV
Client : The American University
May 2, 1996.
WAMU Site Location
38-56-89N
77-85-33W
WAMU
60dbu
50/50
WAMU
54 dbu
50/10
NEW
60 dbu
50/50
NEW
54 dbu
50/10
NEW Site Location
38-23-15N
75-17-38W
WHOV Site Location
37-81-83N
76-28-13W
WHOV
54 dbu
50/10
WHOV
60 dbu
50/50
Scale 1:2,500,000
1 inch equals approximately 40 miles
25 0 25 50 75 100 125 150 175 200 Miles
25 0 25 50 75 100 125 150 175 200 Kilometers

Engineering Certification

Donald B. Williamson certifies that he is the President of Can-Am Consultants Ltd., an Engineering Consulting Firm incorporated under the laws of the American State of Maryland, the Canadian Provinces of Quebec, Ontario and Alberta ; that he is a graduate Electrical Engineer holding a degree in Electrical Engineering from McGill University, Montreal Canada, licensed to practice engineering as a Designated Consulting Engineer and that his qualifications are well known to the Federal Communications Commission, Washington D.C. and to to Communications Canada, Ottawa Canada. This Engineering Report and accompanying exhibits were prepared by him or under his direction on behalf of The American University and the technical information provided is true and correct to the best of his knowledge and belief. File information used in this submission has been obtained from commercial data bas sources and is also believed to be correct.

D.B. Williamson P.E.
Consulting Engineer
May 02/96.