CASE NUMBER:

99-072

INDEX FOR CASE: 99-072 AS OF : 07/28/99
TELESPECTRUM, INC. DBA 360 DEGREES COMMUNICATIONS CO.
Construct
CELL SITE - 405 COLLEGE HILL ROAD - GRAYSON

IN THE MATTER OF THE APPLICATION OF TELESPECTRUM, INC. FOR A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY TO CONSTRUCT A CELL SITE AT 405 COLLEGE HILL ROAD, IN GRAYSON, CARTER COUNTY, KENTUCKY (GRAYSON SITE)

SEQ NBR	ENTRY DATE	REMARKS
0001	03/22/99	Application.
0002	03/23/99	Acknowledgement letter.
M0001	03/24/99	CAROL PARKER CITIZEN-REQUEST FOR INTERVENTION
M0002	03/29/99	ROBERT KAY CITIZEN-REQUEST FOR INTERVENTION
0003	04/08/99	Order granting Carol Malone Parker intervention
0004	04/12/99	No def. letter
M0003	04/12/99	ROBERT KAY ATTORNEY-REQUEST FOR CERTAIN DATE & TIME
0005	04/23/99	Order sched. hearing for 5/26; prefiled testimony, if any, due 5/19.
M0004	05/19/99	MARK OVERSTREET TELESPECTRUM-MOTION OF TELESPECTRUM TO SUBMIT CASE ON THE EXISTING RECORD
M0005	05/20/99	ROBERT KAY-REQUEST FOR HEARING TO BE SCHEDULED
0006	05/27/99	Order rescheduling 5/26 hearing to 7/2/99
M0006	06/01/99	ROBERT KAY-NOTICE THAT MS PARKER WILL BE RETAINING AN ATTORNEY IN KY TO JOIN
M0007	06/04/99	TELESPECTRUM MARK OVERSTREET-SUPPLEMENT TO APPLICATION
M0008	06/10/99	CAROL PARKER CITIZEN-STATEMENT OF INTENT TO APPEAR JULY 2,99 AT HEARING
M0009	06/29/99	ROBERT KAY ATTORNEY-REQUEST TO WITHDRAW MOTION FOR INTERVENTION
0007	06/30/99	Order cancelling 7/2 hearing; grants intervenor's motion to withdraw from case
M0010	07/01/99	MARK OVERSTREET TELESPECTRUM INC-SUPPLEMENT TO APPLICATION
0008	07/28/99	FINAL ORDER GRANTING CONSTRUCTION

COMMONWEALTH OF KENTUCKY
PUBLIC SERVICE COMMISSION
730 SCHENKEL LANE
POST OFFICE BOX 615
FRANKFORT, KY. 40602
(502) 564-3940

CERTIFICATE OF SERVICE

RE: Case No. 99-072
TELESPECTRUM, INC. DBA 360 DEGREES COMMUNICATIONS CO.

I, Stephanie Bell, Secretary of the Public Service Commission, hereby certify that the enclosed attested copy of the Commission's Order in the above case was served upon the following by U.S. Mail on July 28, 1999.

Parties of Record:

Honorable Mark R. Overstreet
Attorney at Law
Stites & Harbison
421 West Main Street
P. O. Box 634
Frankfort, KY. 40602 0634

Stephanie D. Bell

Secretary of the Commission

SB/sa
Enclosure

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

APPLICATION OF TELESPECTRUM INC. FOR A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY TO CONSTRUCT A CELL SITE AT 405 COLLEGE HILL ROAD, IN GRAYSON, CARTER COUNTY, KENTUCKY (GRAYSON SITE)	)	CASE NO. 99-072

O R D E R

On March 22, 1999, TeleSpectrum, Inc. ("TeleSpectrum") filed an application seeking a Certificate of Public Convenience and Necessity to build and operate a cellular radio telecommunications system for the Huntington-Ashland West Virginia/Kentucky/Ohio MSA ("the Huntington MSA"). The Huntington MSA includes Boyd, Carter, and Greenup counties in Kentucky. TeleSpectrum has requested authorization to construct a cell site in Carter County. TeleSpectrum was previously granted authority to operate a cellular radio telecommunications system in the Huntington MSA in Case No. 96-371.[1]

The proposed cell site consists of a 251-foot or less self-supporting antenna tower to be located at 405 College Hill Road in Grayson, Carter County, Kentucky ("the Grayson

[1] The Joint Application of Telespectrum, Inc., a Kansas Corporation, CC Industries, Inc., a Delaware Corporation, James A. Dwyer, Jr., David Winstel, Independent Cellular Network Partners, an Illinois Partnership and Independent Cellular Network, Inc. for Approval of (1) the Transfer of all Outstanding and Issued Common and Preferred Shares of Independent Cellular Network, Inc. and the Merger of Independent Cellular Network, Inc. into Telespectrum, Inc. with Telespectrum, Inc. Being the Surviving Entity; and (2) the Approval of the Adoption by Telespectrum, Inc. of the Tariff of Independent Cellular Network, Inc. Simultaneously with the Consummation of the Merger.

cell site"). The coordinates for the Grayson cell site are North Latitude 38° 20' 11.5" by West Longitude 82° 57' 24.7".

TeleSpectrum has provided information regarding the structure of the tower, safety measures, and antenna design criteria for the Grayson cell site. Based upon the application, the design of the tower and foundation conforms to applicable nationally recognized building standards, and a Registered Professional Engineer has certified the plans.

Pursuant to 807 KAR 5:063, Section 1, TeleSpectrum notified the Carter County Judge/Executive of the pending construction. TeleSpectrum has filed applications with and received approvals from the Federal Aviation Administration and the Kentucky Airport Zoning Commission for the construction and operation of the Grayson cell site.

TeleSpectrum has filed notices verifying that each person who owns property within 500 feet of the Grayson cell site has been notified of the pending construction. The notice solicited any comments and informed the property owners of their right to intervene. In addition, notices were published in a newspaper of general circulation in Grayson County and were posted in a visible location on the proposed site and on the nearest public road. The posted notices remained posted for at least two weeks after TeleSpectrum's application was filed.

On March 29, 1999, the Commission received correspondence from Robert Kay, counsel for Carol Malone Parker, requesting intervention for his client. Consequently, his client requested a hearing, which was initially scheduled for May 26, 1999 and then rescheduled for July 2, 1999. On May 29,1999, the Commission was notified by Mr. Kay

that his client wished to withdraw her request for intervention and a hearing. The July 2, 1999 hearing was subsequently canceled.

Pursuant to KRS 278.280, the Commission is required to determine proper practices to be observed when it finds, upon complaint or on its own motion, that the facilities of any utility subject to its jurisdiction are unreasonable, unsafe, improper, or insufficient. To assist the Commission in its efforts to comply with this mandate, TeleSpectrum should notify the Commission if it does not use this antenna tower to provide cellular radio telecommunications services in the manner set out in its application and this Order. Upon receipt of such notice, the Commission may, on its own motion, institute proceedings to consider the proper practices, including removal of the unused antenna tower, which should be observed by TeleSpectrum.

The Commission, having considered the evidence of record and being otherwise sufficiently advised, finds that TeleSpectrum should be granted a Certificate of Public Convenience and Necessity to construct and operate the Grayson cell site in the Huntington MSA under its previously approved tariff.

IT IS THEREFORE ORDERED that:

1. TeleSpectrum is granted a Certificate of Public Convenience and Necessity to construct and operate the Grayson cell site.

2. TeleSpectrum shall immediately notify the Commission in writing, if, after the antenna tower is built and utility service is commenced, the tower is not used for a period of 3 months in the manner authorized by this Order.

Done at Frankfort, Kentucky, this 28th day of July, 1999.

By the Commission

ATTEST:

Executive Director

Robert B. Kay
Attorney at Law
Board Certified Mediator
10 Plantation Park Drive
Bluffton, SC 29910
Phone 843-757-9701
FAX 843-757-9704

June 29, 1999

Ms. Debbie Eversole
Public Service Commission of Kentucky
730 Schenkel Lane
P.O. Box 615
Frankfort, Kentucky

RE: Case No. 99072

Dear Debbie:

In connection with the above case Mrs. Carol M. Parker has authorized me to advise your office that she wishes to withdraw her motion for intervention. She does not plan to attend the July 2, 1999 hearing and moves that the hearing be canceled concerning her case.

With warm regards, I remain

Sincerely,

Robert B. Kay

RBK/ah
cc: Mrs. Carol M. Parker
412 Oak Brook Drive
Columbia, SC 29223

Mark R. Overstreet
421 West Main Street
Frankfort, Kentucky 40602 0634

COMMONWEALTH OF KENTUCKY
PUBLIC SERVICE COMMISSION
730 SCHENKEL LANE
POST OFFICE BOX 615
FRANKFORT, KY. 40602
(502) 564-3940

June 30, 1999

Honorable Mark R. Overstreet
Attorney at Law
Stites & Harbison
421 West Main Street
P. O. Box 634
Frankfort, KY. 40602 0634

Ms. Carol Malone Parker
412 Oak Brook Drive
Columbia, SC. 29223

RE: Case No. 99-072

We enclose one attested copy of the Commission's Order in the above case.

Sincerely,

Stephanie Bell
Secretary of the Commission

SB/sa
Enclosure

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

THE APPLICATION OF TELESPECTRUM, INC. FOR A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY TO CONSTRUCT A CELL SITE AT 405 COLLEGE HILL ROAD, IN GRAYSON, CARTER COUNTY, KENTUCKY (GRAYSON SITE)	) CASE NO. 99-072

O R D E R

On June 29, 1999, the intervenor in this case filed a letter, which the Commission will treat as a motion, requesting that she be permitted to withdraw as a party to this case. The intervenor also states that she does not plan to appear at the hearing scheduled for July 2, 1999, and moves that the hearing be cancelled.

The Commission being sufficiently advised, IT IS HEREBY ORDERED that:

1. The intervenor's motion to withdraw from this case is granted.

2. The hearing scheduled for July 2, 1999 is cancelled.

3. This matter is hereby submitted for a decision on the existing record.

Done at Frankfort, Kentucky, this 30th day of June, 1999.

By the Commission

ATTEST:

Helen C. Helton

Executive Director

Robert B. Kay
Attorney at Law
Board Certified Mediator
10 Plantation Park Drive
Bluffton, SC 29910
Phone 843-757-9701
FAX 843-757-9704

June 29, 1999

Ms. Debbie Eversole
Public Service Commission of Kentucky
730 Schenkel Lane
P.O. Box 615
Frankfort, Kentucky

RE: Case No. 99072

Dear Debbie:

In connection with the above case Mrs. Carol M. Parker has authorized me to advise your office that she wishes to withdraw her motion for intervention. She does not plan to attend the July 2, 1999 hearing and moves that the hearing be canceled concerning her case.

With warm regards, I remain

Sincerely,

Robert B. Kay

RBK/ah
cc: Mrs. Carol M. Parker
412 Oak Brook Drive
Columbia, SC 29223

Mark R. Overstreet
421 West Main Street
Frankfort, Kentucky 40602 0634

Carol Malone Parker
412 Oak Brook Drive
Columbia,
South Carolina 29223

June 7, 1999

Office of the Executive Director
Public Service District of Kentucky
730 Schenkel Lane
Post Office Box 615
Frankfort, Kentucky 40602

Re: Statement of Intent to appear July 2, 1999 at 9:00 AM. in Hearing Room 1 of the Commission's offices at 730 Schenkel Lane, Frankfort, Kentucky concerning Case No. 99-072

Very truly yours,
Carol Malone Parker

Copy to: Honorable Mark R. Overstreet
Attorney at Law, Stites & Harbison
421 W. Main Street
P.O. Box 634
Frankfort, Ky. 40602 0634

Robert B. Kay
Attorney at Law
Board Certified Mediator
P.O. Box 23433
Hilton Head Island, SC 29925

Phone 843-681-4916

FAX 843-757-9704

May 21, 1999

Ms. Deborah T. Eversole
Public Service Commission of Kentucky
730 Schenkel Lane
P. O. Box 615
Frankfort, Kentucky 40602-0615

RE: Application of Telespectrum, Inc.
405 College Hill Road
Grayson, Carter County, Kentucky
Case No. 99-072

Dear Debbie:

In connection the **Motion of Telespectrum to Submit Case on the Existing Record** Ms. Parker will be retaining an attorney in Kentucky to join with Mr. Overstreet's motion requesting that this matter be continued to a date when Telespectrum's counsel and his witnesses would be available for a hearing.

With warm regards, I remain

Sincerely,

Robert B. Kay

RBK/ah
cc: Mark R. Overstreet, Esquire
Stites & Harbison
P.O. Box 634
Frankfort, Kentucky 40602

Ms. Carol M. Parker
412 Oak Brook Circle
Columbia, SC 29223

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

APPLICATION OF TELESPECTRUM INC. FOR A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY TO CONSTRUCT A CELL SITE AT 405 COLLEGE HILL ROAD, In GRAYON, CARTER COUNTY, KENTUCKY (GRAYSON SITE)	)	CASE NO. 99-072

SUPPLEMENT TO APPLICATION FOR CERTIFICATE OF CONVENIENCE AND NECESSITY

TeleSpectrum, Inc. ("TeleSpectrum") supplement its Application for a Certificate of Public Convenience and Necessity filed with the Kentucky Public Service Commission on March 22, 1999 as follows:

1. Paragraph 7 of the application is supplemented with the return receipt evidencing the March 24, 1999 delivery of the Notice of the Application to George Waggner, III, Mayor City of Grayson, 302 East Main Street, Grayson, Kentucky 41143-1341. (**Exhibit 1**).

2. Paragraph 8 of the application is supplemented with the return receipt evidencing the March 29, 1999 delivery of the Notice of the Application to Kenneth and Mary Fleming, 367 Paradise Hill Drive, Grayson, Kentucky 41143 and the March 22, 1999 delivery of the Notice to M&E Apartments, P.O. Box 327, Grayson, Kentucky 41143. (**Exhibit 2**).

3. Paragraph No. 13 of the application is supplemented with the Affidavit of Publication evidencing publication of required notice in the *Grayson Journal—Times*, a

paper of legal record and general circulation for Grayson County, on March 10, 1999. (**Exhibit 9**).

Wherefore, TeleSpectrum respectfully requests:

1. That its Application for Certificate of Public Convenience and Necessity be supplemented as described above;

2. That the Kentucky Public Service Commission issue an order granting TeleSpectrum, Inc. a Certificate of Convenience and Necessity to construct a cell site to be located at N 38°20'11.50" Latitude and W 82°57'24.67" Longitude; and

3. That the Kentucky Public Service Commission grant all other appropriate relief.

Dated this the 4th day of June, 1999.

Respectfully submitted,

Mark R. Overstreet
STITES & HARBISON
421 West Main Street
P.O. Box 634
Frankfort, Kentucky 40602-0634
Telephone: (502) 223-3477
COUNSEL FOR TELESPECTRUM, INC.

CERTIFICATE OF SERVICE

I hereby certify that a copy of the foregoing was served by first class mail, postage prepaid, upon:

Robert B. Kay
P.O. Box 23433
Hilton Head Island, South Carolina 29925

this the 4th day of June, 1999.

Mark R. Overstreet

Is your RETURN ADDRESS completed on the reverse side?

SENDER:
- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write *"Return Receipt Requested"* on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):
1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
HONORABLE GEORGE WAGGENER III
MAYOR CITY OF GRAYSON
302 EAST MAIN STREET
GRAYSON KY 41143-1341

4a. Article Number
Z 086 003 057

4b. Service Type
☐ Registered ☒ Certified
☐ Express Mail ☐ Insured
☐ Return Receipt for Merchandise ☐ COD

7. Date of Delivery
MAR 24 1999

5. Received By: *(Print Name)*
Mary Hall

6. Signature: *(Addressee or Agent)*
X Mary Hall

8. Addressee's Address *(Only if requested and fee is paid)*

PS Form **3811**, December 1994 102595-97-B-0179 Domestic Return Receipt

Thank you for using Return Receipt Service.

SENDER:
- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "*Return Receipt Requested*" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:

KENNETH & MARY FLEMING
367 PARADISE HILL DRIVE
GRAYSON KY 41143

TELESPECTRUM/GRAYSON

4a. Article Number

Z 086 003 017

4b. Service Type

- ☐ Registered
- ☒ Certified
- ☐ Express Mail
- ☐ Insured
- ☒ Return Receipt for Merchandise
- ☐ COD

7. Date of Delivery 3-29

5. Received By: *(Print Name)*

8. Addressee's Address *(Only if requested and fee is paid)*

6. Signature: *(Addressee or Agent)*

X Mary Fleming

Is your RETURN ADDRESS completed on the reverse side?

Thank you for using Return Receipt Service.

PS Form **3811**, December 1994 102595-97-B-0179 Domestic Return Receipt

Is your **RETURN ADDRESS** completed on the reverse side?

SENDER:

- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write *"Return Receipt Requested"* on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:

M&E APARTMENTS
PO BOX 327
GRAYSON KY 41143

TELESPECTRUM/GRAYSON

4a. Article Number

Z 086 003 019

4b. Service Type

☐ Registered ☒ Certified
☐ Express Mail ☐ Insured
☒ Return Receipt for Merchandise ☐ COD

7. Date of Delivery

GRAYSON KY MAR 22 - 01 USPS 41143

5. Received By: *(Print Name)*

6. Signature: *(Addressee or Agent)*

X Lisa Hutchinson

8. Addressee's Address *(Only if requested and fee is paid)*

Thank you for using Return Receipt Service.

PS Form **3811**, December 1994 102595-97-B-0179 Domestic Return Receipt

AFFIDAVIT OF PUBLICATION

STATE OF KENTUCKY

COUNTY OF Carter

I, Jeanie Johnson, Bookkeeper, of Grayson Journal Times newspaper, in the aforesaid State and County, hereby certify that the attached advertisement appeared on March 10, 1999.

Jeanie Johnson
JEANIE JOHNSON, BOOKKEEPER

5-19-99
DATE

Subscribed and sworn to before me, a Notary Public, within and for the State and County aforesaid, by

Pamela A. Fraley
NOTARY PUBLIC, STATE AT LARGE, KY

My Commission Expires: 2/3/2002

140 LEGAL NOTICE

COMMONWEALTH OF KENTUCKY
CARTER CIRCUIT COURT
CIVIL ACTION NO. 98-CI-00378

FIRST NATIONAL BANK OF GRAYSON PLAINTIFF
VS.
JAMES L. CINALLI and CHERY M. CINALLI, his wife, d.b.a. C&I CONSTRUCTION, et al DEFENDANTS
SECOND AMENDED NOTICE OF SALE

Pursuant to the Judgment and Order of Sale in the Carter Circuit Court, entered on the 22nd day, of February, 1999, in the above styled action, Hon. Gary E. Conn, Master Commissioner of the Carter Circuit Court, shall proceed to offer for sale, under the following terms and conditions, at the front door fo the Courthouse, Grayson, Carter County, Kentucky 41143, to the highest and best bidder, at public auction, on the 26th day of MARCH, 1999, at the hour of 1:00 P.M., the following described property, lying and being in the State of Kentucky, County of Carter and more particularly described as follows, to-wit:

CARTER COUNTY PROPERTY

Beginning at a 5/8 inch cedar with cap (set) on the easterly right-ow-way of Kentucky State Route 7 and southern right-of-way of Little Sandy Lane a corner to John G. Womack, deed book 100 at page 139, from which an iron and white cap bears N. 15 degrees 34' 13" E. 175.82 feet; thence running with said lane for four (4) lines, S. 77 degrees 18' 05" E. 111.65 feet to a point; thence with a curve to the left with a radius of 198.24 feet and a central angle of 20 degrees 01' 26" and a chord bearing of N. 87 degrees 18' 49" E. 68.93 feet to a point; thence N. 82 degrees 40' 24" E. 56.93 feet to a point; thence with a curve to the right having a radius of 240.40 feet and a central angle of 16 degrees 47' 14" and a chord bearing of S. 82 degrees 06' 51" E. 70.18 feet to an iron rod with cap (found), a corner to River Run Apartments, Inc. deed book 194 at page 772; thence leaving said Little Sandy Lane and with said apartments and with a new partition line through said John G. Womack, N. 85 degrees 32' 31" W. 304.68 feet to a 5/8 inch radar with cap (set) on the eastern right-of-way of Kentucky State Route 7 and being on the property line of said Womack; thence with said right-of-way, N. 15 degrees 34' 13" E. 233.99 feet to the place of beginning, containing 68,300.699 square feet or 1.568 acres, more or less; as determined by Marshel D. Ward, R.L.S. 3199, Mane Consultants, Inc. in 1997.

Being the same property convyed to James L. Cinalli D.B.A. C&I Construction, from John G. Womack and Margaret S. Womack, his wife, by deed dated January 26, 1998, recorded in official records book 1, page 792, Carter County Records.

A lease hold from the United States Postal Service datec November 14, 1997 accompanies the above property and shall be sold with the real estate.

MENIFEE COUNTY PROPERTY

A description of lots or parcels of land lying and being located approximately one mile from the town of Frenchburg, Menifee County, State of Kentucky and being part of Parcels 16B, 16C and 16D on Tax Map 33, on the waters of Beaver Creek, more particularly described as follows:

Beginning at a 5/8 inch rebar with cap (set) on the southerly right-of-way of U.S. Route 460 and a corner to Paul B. Kash, Jr. deed book 77 at page 575, thence running with said Kash Jr., S. 27 degrees 36' 41" W. 235.00 feet to a 5/8 inch rebar with cap, on the line of said Kash Jr., thence leaving said Kase, Jr. and running with said Paul Kash for two lines, N. 60 degrees 44' 18" W. 200.00 feet to a 5/8 inch rebar with cap, set, thence, N. 27 degrees 36' 41" E. 235.00 feet to a 5/8 inch rebar with cap, set, on the southerly right-of-way of U.S. Route 460, thence with a curve to the left having a radius of 1298.99 feet and central angle of 08 degrees 49' 49" and a chord bearing a distance of S. 60 degrees 44' 18" E. 200.00 feet to the place of beginning, containing 46,467.288 square feet of 1.067 acres more or less, as determined by a survey conducted June 1997.

Being a part of the same proerty conveyed to James L. Cinalli D.B.A. C&I Construction, from Paul B. Kash and Dorothy Kash, his wife, by deed dated January 30, 1998, recorded in deed book 79, page 251, Menifee County, Kentucky, Deed Records.

A lease hold from the United States Postal Service dated November 14, 1997 accompanies the above property and shall be sold with the real estate.

The aforementioned parcels of real estate and accompanying leases shall be sold separately and then combined as a whole by the Commissioner. The real estate and accompanying leases shall be sold on a credit of thirty (30) days, with the privilege of the purchaser to pay for bid in cash, certified or cashier's check, at the time of the sale, but if not so paid in cash, then the purchaser shall make a cash down payment in the amount of twenty (20%) percent of the purchase price to cover the cost of the judicial sale; and the purchaser shall execute a bond for the remainder of the purchase price, with good surety thereon, to be approved by the Master Commissioner of this Court, and bearing interest at the rate of twelve (12%) percent per annum from the date of sale, until paid; additionally, a lien shall be retained upon the real estate to be sold herein, to secure the payment of the balance of the purchase price within thirty (30) days of the date of sale upon which execution may be levied by the Master Commissioner of this Court.

In the event that First National Bank of Grayson, becomes the purchaser, a cash down payment shall not be required.

Upon default of said deposit or posting a bond, by the purchaser or purchasers, the Master Commissioner shall immediately resell the property upon the same terms and conditions as set out herein.

The hereinabove described real property shall be sold free and clear of the claims, interests liens and encumbances of all parties herein, except restrictions and easements appearing of record in the Carter County Court Clerk's Office and the Menifee County Court Clerk's Office.

The purchaser shall be required to assume and pay all taxes assessed against such property for the year 1999 and all subsequent years. This property shall be sold subject to any ad valorem and real property taxes not delinquent as of the date of sale.

HON. GARY E. CONN
MASTER COMMISSIONER
CARTER, ELLIOTT & MORGAN COUNTIES
P.O. BOX 497
SANDY HOOK, KENTUCKY 41171
c-10-12

140 LEGAL NOTICE

NOTICE OF PUBLIC SALE

First National Bank of Grayson will offer for public sale to the highest and best bidder the following vehicles, as

1990 Mercury Sable, SR#MECM5049LG607934.
1997 Mercury Tracer, SR#3MELM15P8VR602499.
1989 Chevrolet Beretta, SR#1G1LW14W9KY294365.
1989 Ford Probe, SR#1ZVBT21C5K5194631.
1987 Oldsmobile Calais, SR#1G3NF11U1HM207111.
1994 Pontiac Grand Prix, SR#1G2WJ52M4RF298622.
1982 Chevrolet Silverado 4x4 Pickup, SR#1GCEK14111CF34.
1988 Chevrolet Pickup, SR#ZGCDC14H7J1126019.

The sale will be held on Friday, March 19th, 1999 at 3:30 P.M. at the First National Bank of Grayson, Depot Office, located on Railroad Street, Olive Hill, KY. Terms of the sale are cash and the bank reserves the right to bid and the right to accept or reject any and all bids. Announcements the day of the sale take precedence over printed material.

First National Bank, Grayson, KY ,606-474-2000.

c-10

140 LEGAL NOTICE

REPOSSESSION SALE

The Commercial Bank of Grayson is now accepting bids on the following vehicles to satisfy the indebtness due under the terms of a security agreement:

1997 Dodge Neon, 2 dr, red, 4 cyl. Ser. #1B3ES42C6VD261312.
1994 Chevy Cavalier, 4 dr, White. Serial #1G1JC5442R7249886.
1993 Ford F150 Pickup, Green, 6 cyl. Serial #1FTDF15Y6PNA95987.
1989 Chevy Blazer, 2 dr. Brown. Serial #1GNCT18Z1K0193797.
1988, 14' Bassmaster Fiberglass Boat. Serial #KY-4227-SS.
1988, 15' Hustler Trailer. Serial #10ELAS556PMR88H25.
1988, 28HP Johnson Motor. Serial #6307466.
1986 Mazda RX7, 2 dr. Blue. Serial #JM1FC3314G0123561.

Sealed bids will be opened at 12:00 P.M. (Noon), on Friday, March 26, 1999 at the Interchange Branch of the Commercial Bank of Grayson, Carol Malone Blvd., Grayson, Kentucky.

All vehicles except the 1997 Dodge Neon may be seen at the home of Mervil "Todd" Hardy, located approximately 4 1/2 miles east of Grayson, Kentucky on US 60. The Dodge Neon may be seen at Adkins Slone Automotive, I-64 Interchange, Grayson, Kentucky.

Seller reserves the right to reject any or all bids. c-10-12

Classifieds Sell

1994 KENTUCKY BUILDING CODE

Be it ordained by the City of Olive Hill, Kentucky, that Section 2. Designated Enforcement Officer, Section 4. Permits and Fees, and Section 5. Inconsistent Ordinances Repealed, is amended to read as follows:

SECTION 2, DESIGNATED ENFORCEMENT OFFICER.

That, the City Planning Commission shall recommend and the Mayor of the City of Olive Hill shall appoint the Zoning Ordinance Enforcement Officer/Building Inspector for said Kentucky Building Code subject to approval of the Olive Hill City Council. All inspections ahll be performed by persons certified by the Kentucky Department of Housing, Building and Construction.

SECTION 4, PERMITS AND FEES.

That, the fees for permits and inspections shall be as provided for in the City of Olive Hill Zoning Ordinance.

SECTION 5, INCONSISTENT ORDINANCES.

That, the City of Olive Hill Zoning Ordinance shall take precedence in case of inconsistencies.

This Ordinance Amendment shall take effect after its passage and upon publication.

Enacted this 4th day of March, 1999.

BY: Carmel W. Stevens, Mayor

ATTEST:
Don Everman, City Clerk
First Reading, March 2, 1999.
Second Reading, March 4, 1999
Published, March 10, 1999 c-10

140 LEGAL NOTICE

ORDINANCE 99-4

AN ORDINANCE REPEALING ORDINANCE 95-6, THE OFFICE OF CITY BUILDING INSPECTOR FOR THE CITY OF OLIVE HILL

Be it ordained by the City of Olive Hill, Kentucky, that Ordinance 95-6, enacted on 04/20/95, and relating to The Office of City building Inspector for the City of Olive Hill, is hereby repealed in its entirety.

Enacted this 4th day of March, 1999.

BY: Carmel W. Stevens, Mayor

ATTEST:
Don Everman, City Clerk
First Reading, March 2, 1999.
Second Reading, March 4, 1999.
Published, March 10, 1999. c-10

Certificate of Public Convenience and Necessity from the Public Service Commission of Kentucky to construct a 251 foot cellular communications tower (269 feet with antennae and appurtenances) on property located at 405 College Hill Road, Grayson, Kentucky.

The proceeding before the Public Service Commission bears Case No. 99-072.

140 Legal Notice

KRS: 424.120 and KRS: 424.340

Administration has been granted by the District Court of Carter County upon the following fiduciary appointments.

Ida Mae Rodgers, deceased, fiduciary. Co-Executors, Gareth M. Rodgers, 29 Shoreland Drive, Key Fargo, FL 33037 and Susie H. Cooper, 1265 Cooper Ridge, Vanceburg, KY 41179. Date of appointment, February 8, 1999.

Vada A. Burton, deceased, fiduciary. Administrator, Manlus Burton, 2061 Fallon Road, Lexington, KY 40504. Date of appointment, February 11, 1999.

Eddie Delbert Fannin, deceased, fiduciary. Executor, Eugene Fannin, 417 Southwest 17th Street, Richmond, IN 47374. Date of appointment, February 11, 1999. Attorney and Process Agent, Hon. Maxwell L. Hammond II, 200 West Main Street, Grayson, KY 41143.

Ernest J. Chaffin, deceased, fiduciary. Executor, David B. Chaffin, 102 West 3rd Street, Grayson, KY 41143. Date of appointment, February 26, 1999.

George W. Boggs, deceased, fiduciary. Executor, Rexford Theodore Estes, P.O. Box 541, Olive Hill, KY 41164. Date of appointment, February 25, 1999. Attorney Hon. Rebecca K. Phillips, P.O. Box 357, Grayson, KY 41143.

Myra Sue Henderson, deceased, fiduciary. Executor, Ollie D. Barker, 113 Circle Drive, Morehead, KY 40351. Date of appointment, March 1, 1999.

Myrtle Haney, deceased, fiduciary. Executrix, Mary Faye Sweeney, 5824 West Hsy. US 60, Olive Hill, KY 41164. Date of appointment March 1, 1999.

All persons having claims against the above Estates are notified to present same to the fiduciary, verified according to law not later than twelve (12) months from date of this publication. c-10

140 Legal Notice

CLERK'S NOTICE OF FIDUCIARIES ACCOUNTING

Upon requirements of Section 424.130 Kentucky Revised Statutes, the following fiduciaries have been filed with the Carter County District Court Clerk.

First and Final Settlement, Sally I. Kidd, Executrix of the Estate of Elizabeth Ison.

First and Final Settlement, Billy Randall Scaggs, Executor of the Estate of Charlie Scaggs.

First and Final Settlement, Timothy A. Gallion, Administrator of the Estate of Charles Gallion.

Third Partial Settlement, National City Bank of Kentucky, Trustee for Mildred Bowling Trust under Will.

First and Final Settlement, Oscar Greenhill, Executor of the Estate of Nancy Ann Greenhill.

First and Final Settlement, Rufus Haney and Theron Haney, Co-Executors of the Estate of Ralph Haney.

First and Final Settlement, Mary Laura Sehpherd, Executrix of the Estate of Charles R. Hatchett.

9:30 a.m. April 8, 1999, having been set as date of hearing, no cause for exceptions having been shown, the settlement will be confirmed at date of hearing. c-10

140 Legal Notice

ORDINANCE 99-3

AN ORDINANCE RELATING TO THE AMENDMENT OF ORDINANCE 94-20, ADOPTION OF THE 1994 KENTUCKY BUILDING CODE

Be it ordained by the City of Olive Hill, Kentucky, that Section 2. Designated Enforcement Officer, Section 4. Permits and Fees, and Section 5. Inconsistent Ordinances Repealed, is amended to read

140 Legal Notice

ORDINANCE 99-5

AN ORDINANCE REPEALING ORDINANCE 94-22, THE PROCUREMENT OF BUILDING AND USE PERMITS.

Be it ordained by the City of Olive Hill, Kentucky, that Ordinance 94-22, enacted on 12/03/94, and published on 01/18/95, and relating to The Procurement of Building and Use Permits, is hereby repealed in its entirety.

Enacted this 4th day of March, 1999.

BY: Carmel W. Stevens, Mayor

ATTEST:
Don Everman, City Clerk
First Reading, March 2, 1999.
Second Reading, March 4, 1999.
Published, March 10, 1999. c-10

140 Legal Notice

ORDINANCE 99-6

AN ORDINANCE RELATING TO THE AMENDMENT OF ORDINANCE 94-24 CITY OF OLIVE HILL, CODE OF ETHICS

Be it ordained by the City of Olive Hill, Kentucky, that ENFORCEMENT, BOARD OF ETHICS, Section 19(B), (D), and (H) of ordinance 94-24 and ENFORCEMENT, BOARD OF ETHICS, Section 19 of the Summary Version of Ordinance 94-24 is amended to read as follows:

ENFORCEMENT

SECTION 19. BOARD OF ETHICS:

(B) The Board of Ethics shall consist of seven (7) members who shall be appointed by the executive authority of the city, subject to the approval of the legislative body. The initial members of the Board of Ethics shall be appointed within sixty (60) days of the effective date of this ordinance. No member of the Board of Ethics shall hold any elected or appointed office, whether paid or unpaid, or any position of employment with the city or any city agency. The members shall serve a term of three (3) years; except that with respect to the members initially appointed, one (1) member shall be appointed for a term of one (1) year, one (1) member shall be appointed for a term of two (2) years, and one (1) member shall be appointed for a term of three (3) years. The additional members of the Board of Ethics authorized by this amendment shall be appointed within sixty (60) days of the effective date of this amendment. The additional members authorized by this amendment shall serve a term of three (3) years; except that the initial appointment of the additional members will be as follows: one (1) additional member shall be appointed for a term of one (1) year, one (1) additional member shall be appointed for a term of two (2) years and two additional members shall be appointed for terms of three (3) years. The appointing authority shall attempt to appoint members representing political parties equally. Eash member of the Board of Ethics shall have been a resident of the city for at least one (1) year prior to the date of appointment and shall reside in the city throughout the term in office. The members of the Board of Ethics shall be chosen by virtue of their known and consistent reputation for integrity and for their knowledge of local government affairs. The members may be reappointed for any number of consecutive terms.

(D) Vacancies on the Board of Ethics shall be filled within sixty (60) days by the executive authority, subject to the approval of the legislative body. If a vacancy is not filled by the executive authority within sixty (60) days, the Olive Hill City COuncil shall fill the vacancy. All vacancies shall be filled for the remainder of the unexpired term.

(H) The presence of four (4) or more members shall constitute a quorum and the affirmative vote of four (4) or more members shall be necessary for any official action to be taken. Any member of the Board of Ethics who has a conflict of interest with respect to any matter to be considered by the Board shall disclose the nature of the conflict, shall disqualify himself or herself from voting on the matter, and shall not be counted for purposes of establishing a quorum.

Summary Version Ordinance 94-24

ENFORCEMENT

Section 19. Board of Ethics. This section creates and sets forth the authority of the Board of Ethics to enforce this ordinance that shall consist of seven (7) citizen members. The full text may be viewed at City Hall.

This Ordinance Amendment shall take effect after its passage and upon publication.

Enacted this 4th day of March, 1999.

BY: Carmel Stevens, Mayor

ATTEST:
Don Everman, City Clerk
First Reading, March 2, 1999.
Second Reading, March 4, 1999.
Published, March 10, 1999. c-10

Notice of Application for Certificate Of Public Convenience and Necessity To Construct Cellular Communications Tower

Pursuant to 807 KAR 5:063(1)(q) notice is given that TeleSpectrum, Inc. is seeking a Certificate of Public Convenience and Necessity from the Public Service Commission of Kentucky to construct a 251

COMMONWEALTH OF KENTUCKY
PUBLIC SERVICE COMMISSION
730 SCHENKEL LANE
POST OFFICE BOX 615
FRANKFORT, KY. 40602
(502) 564-3940

May 27, 1999

Honorable Mark R. Overstreet
Attorney at Law
Stites & Harbison
421 West Main Street
P. O. Box 634
Frankfort, KY. 40602 0634

Ms. Carol Malone Parker
412 Oak Brook Drive
Columbia, SC. 29223

RE: Case No. 99-072

We enclose one attested copy of the Commission's Order in the above case.

Sincerely,

Stephanie Bell
Secretary of the Commission

SB/sa
Enclosure

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

THE APPLICATION OF TELESPECTRUM, INC. FOR A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY TO CONSTRUCT A CELL SITE AT 405 COLLEGE HILL ROAD, IN GRAYSON, CARTER COUNTY, KENTUCKY (GRAYSON SITE)	)))))	CASE NO. 99-072

ORDER

On April 23, 1999, the Commission entered an Order setting a hearing date on the request of Ms. Carol Malone Parker, an intervenor in this action who objects to the proposed site for the construction at issue. The hearing was set for May 26, 1999, and stated that, if no one filed a statement of intent to appear at the hearing to present evidence in opposition to the proposed construction within 10 days of the date of the Order, "the hearing will be cancelled and this matter submitted to the Commission for a decision based on the record." On May 18, 1999, fifteen days after the deadline for filing a notice of intent to appear at the hearing, counsel for Ms. Parker sent to the Commission, by facsimile, a request that the hearing be held as originally scheduled. On May 19, 1999, Telespectrum, Inc. ("Telespectrum"), the applicant in this case, sent by facsimile a Motion to Submit Case on the Existing Record, stating, among other things, that it had believed the hearing had been cancelled pursuant to the Order. In the alternative, Telespectrum requests that the hearing be rescheduled, as neither Telespectrum's attorney nor its expert witness is now available on May 26.

Ms. Parker's statement was submitted too late to preserve the initial hearing date. However, the statement demonstrates her intention to provide the Commission

with additional information regarding the tower site proposed. It further appears that no party will be prejudiced by rescheduling the hearing in accordance with Telespectrum's alternative request.

The Commission being sufficiently advised,

IT IS HEREBY ORDERED that:

1. The hearing scheduled for May 26, 1999, is rescheduled for July 2, 1999, at 9:00 a.m., Eastern Daylight Time, in Hearing Room 1 of the Commission's offices at 730 Schenkel Lane, Frankfort, Kentucky.

2. Prefiled testimony, if any, shall be filed by June 21, 1999.

3. The prescriptions in ordering paragraphs 2, 3, and 4 of the Order dated April 23, 1999, regarding the scope and procedure of the hearing, remain in full force and effect.

Done at Frankfort, Kentucky, this 27th day of May, 1999.

By the Commission

ATTEST:

Executive Director

ROBERT B. KAY
Attorney at Law
Board Certified Mediator
P. O. Box 23433
Hilton Head Island, SC 29925
Phone (843)681-4916 Fax (843) 689-9521

Office of the Executive Director
Public Service District of Kentucky
730 Schenkel Lane
Frankfort, Kentucky 40602

FAXED

Attn: Debra Eversole

RE: Carol Malone Parker
Case No. 99-072

Dear Ms. Eversole:

In connection with the above case I am submitting the following information for the purpose of preserving the hearing date.

I requested the date for Mrs. Parker prior to the Order being issued. After the Order was issued I recommended to Mrs. Parker that she retain an attorney in Kentucky who was familiar with proceedings before your commission. Your office was good enough to furnish me with three names which I gave to Mrs. Parker. She talked with Mr. Brent Rice, however, I do not know whether or not she actually retained him.

Obviously there was a break down in communications. This is to request that the hearing be held as scheduled.

With warm regards, I remain

Sincerely,

Robert B. Kay

RBK/ah
cc: Brent Rice, Esquire
Mark R. Overstreet, Esquire
Mrs. Carol M. Parker

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

APPLICATION OF TELESPECTRUM, INC. FOR A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY TO CONSTRUCT A CELL SITE AT 405 COLLEGE HILL ROAD, In GRAYSON, CARTER COUNTY, KENTUCKY (GRAYSON SITE)	)	Case No. 99-072

Motion of Telespectrum to Submit Case On the Existing Record

Telespectrum, Inc. moves the Court to submit this matter on the record and in support thereof states:

1. On March 22, 1999 Telespectrum filed its application with the Commission seeking a certificate of public convenience and necessity to construct a cell site at 405 College Hill Road, Grayson, Carter County, Kentucky.

2. On April 8, 1999 the Commission granted the motion of Carol Malone Parker to intervene in this proceeding. In its Order, and in accordance with due process, the Commission directed Ms. Parker and her counsel to serve on all other parties of record a copy of any documents filed with the Commission. Commission Order at ¶ 3.

3. On April 23, 1999 the Commission entered an Order setting this matter for hearing on May 26, 1999, but expressly making the hearing contingent upon Ms. Parker filing a

"statement of intent to appear at the hearing and to present evidence in opposition to the proposed facility" ("Statement of Intent") within ten days of the Commission's Order:

> If no statement to appear at the hearing and to present evidence against the proposed facililty is received by the Commission ***the hearing will be cancelled and this matter submitted to the Commission for a decision based on the record.***
>
> ...
>
> If the Commission does not receive, within ten days of the date of this Order, a statement expressing a party's intent to appear in opposition to the proposed cell site, the hearing shall be cancelled and the matter submitted to the Commission for a decision on the record.

Commission Order at 1-2 (emphasis supplied).

4. Ms. Parker failed to file the required Statement of Intent within ten days of the Commission's Order.

5. On May 18, 1999, twenty five days after the Commission Order, and 15 days after the expiration of the period for filing the Statement Of Intent, counsel for Ms. Parker requested that the hearing be held as originally scheduled. In support of his request, Ms. Parker's counsel asked the Commission to treat his request that the matter be scheduled for a hearing as a Statement Of Intent.

6. A request for a hearing is not a Statement Of Intent. Moreover, the request that the matter be scheduled for a hearing apparently was filed with the Commission on April 12, 1999[1], 11 days prior to the date of the Commission's April 23, 1999 Order. Certainly, the

[1] The request was not served on counsel for Telesprectrum. The Commission's docket indicates the request was filed on April 12, 1999.

Commission did not believe that the request was a Statement Of Intent since it directed Ms. Parker to file the Statement of Intent after having received the request for a hearing.

7. In any event, the request for a hearing never was served on counsel for Telespectrum. Such an *ex parte* communication cannot serve as a basis for Commission action. See, Louisville Gas & Electric Co. v. Commonwealth ex rel Cowan, Ky. App., 862 S.W.2d 897, 901 (1993).

8. After the expiration of the ten day period for filing the Statement of Intent, counsel assumed that the hearing would be cancelled in accordance with the Commission's Order. Counsel for Telespectrum now has a conflict with the May 26, 1999 hearing date. In addition, it now appears one or more witnesses may be unavailable. Under these circumstances it would be prejudicial and fundamentally unfair to conduct the hearing on May 26, 1999.

Wherefore, Telespectrum, Inc. respectfully requests that this matter stand submitted on the record. Alternatively, Telespectrum, Inc. respectfully requests that this matter be continued to a date when its counsel and witnesses[2] may be present.

Mark R. Overstreet
STITES & HARBISON
421 West Main Street
P.O. Box 634
Frankfort, Kentucky 40602
Telephone: (502) 223-3477
COUNSEL FOR TELESPECTRUM, INC.

[2] Telespectrum's expert witness will be on his honeymoon and will be unable to appear until sometime after June 15, 1999, subject to other already existing commitments.

CERTIFICATE OF SERVICE

I hereby certify that a copy of the foregoing Motion to Submit on the Record was served by first class mail, postage prepaid and facsimile transmission, on this 19th day of May, 1999 upon:

Robert B. Kay
P.O. Box 23433
Hilton Head Island, South Carolina
29925

Deborah T. Eversole
Public Service Commission of Kentucky
730 Schenkel Lane
P.O. Box 615
Frankfort, Kentucky 40602-0615

Mark R. Overstreet

TH018:00TH7:2171:FRANKFORT

COMMONWEALTH OF KENTUCKY
PUBLIC SERVICE COMMISSION
730 SCHENKEL LANE
POST OFFICE BOX 615
FRANKFORT, KY. 40602
(502) 564-3940

April 23, 1999

Honorable Mark R. Overstreet
Attorney at Law
Stites & Harbison
421 West Main Street
P. O. Box 634
Frankfort, KY. 40602 0634

Ms. Carol Malone Parker
412 Oak Brook Drive
Columbia, SC. 29223

RE: Case No. 99-072

We enclose one attested copy of the Commission's Order in the above case.

Sincerely,

Stephanie Bell
Secretary of the Commission

SB/hv
Enclosure
cc: Robert B. Kay

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

APPLICATION OF TELESPECTRUM, INC. FOR A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY TO CONSTRUCT A CELL SITE AT 405 COLLEGE HILL ROAD, IN GRAYSON, CARTER COUNTY, KENTUCKY (GRAYSON SITE)	))))))	CASE NO. 99-072

O R D E R

On March 22, 1999, TeleSpectrum, Inc. ("TeleSpectrum") filed an application with the Commission requesting a Certificate of Public Convenience and Necessity to construct and operate a cellular facility at 405 College Hill Road, Grayson, Carter County, Kentucky. Intervenor Carol Malone Parker has requested that the Commission schedule a hearing in this matter.[1]

The Commission has scheduled a hearing on the proposed cellular facility for May 25, 1999, at 9:00 a.m., Eastern Daylight Time, in Hearing Room 1 of the Commission's offices at 730 Schenkel Lane, Frankfort, Kentucky. If a party wishes to appear at the hearing in opposition to the proposed facility he should, within 10 days of the date of this Order, so notify the Commission. If no statement of intent to appear at the hearing and to present evidence against the proposed facility is received by the

[1] Ms. Parker was granted intervention by Commission Order dated April 8, 1999. If Ms. Parker wishes to be represented by a licensed attorney, local counsel must represent her. Representation of the rights of others before an administrative agency is considered the practice of law and must be performed by a licensed attorney. Kentucky Bar Association v. Henry Vogt Machine Co., 416 S.W.2d 727 (Ky. 1967). Ms. Parker may also choose to represent herself.

Commission, the hearing will be cancelled and this matter submitted to the Commission for a decision based on the record.

IT IS THEREFORE ORDERED that:

1. A hearing on the proposed cell site is scheduled for May 26, 1999, at 9:00 a.m., Eastern Daylight Time, in Hearing Room 1 of the Commission's offices at 730 Schenkel Lane, Frankfort, Kentucky.

2. TeleSpectrum shall appear at the hearing and be prepared to present testimony on the engineering design, location, and construction of the proposed cell site, as well as the jurisdictional safety issues relating to the cell site.

3. Neither opening statements nor witnesses' summaries of prefiled testimony shall be permitted.

4. Any interested person shall have the opportunity to present testimony or comment on any aspect of the proposed cell site.

5. Prefiled testimony, if any, shall be filed by May 19, 1999.

6. Any party who wishes to appear at the hearing in opposition to the proposed cell site shall file a statement to that effect within 10 days of the date of this Order.

7. If the Commission does not receive, within 10 days of the date of this Order, a statement expressing a party's intent to appear in opposition to the proposed cell site, the hearing shall be cancelled and the matter shall be submitted to the Commission for a decision on the record.

Done at Frankfort, Kentucky, this 23rd day of April, 1999.

By the Commission

ATTEST:

Executive Director

ROBERT B. KAY
Attorney at Law
Board Certified Mediator
P. O. Box 23433
Phone (843)681-4916 Fax (843) 689-9521
HILTON HEAD ISLAND, SC 29925

April 7, 1999

Office of the Executive Dirctor
Public Service District of Kentucky
730 Schenkel Lane
Frantfort, Kentucky 40602

ATTN: Debra Eversole

RE: Carol Malone Parker
Case No. 99-072

Dear Ms. Eversole:

In connection with the above party and after her telephone conversation with your offices she would like to have the Service District set a date and time in which she could attend the hearing.

The purpose of this letter is to request a specific date and time from the Puclic Service District .

With warm regards, I remain

Sincerely,

Robert B. Kay

RBK/ah
cc: Mrs. Carol M . Parker
412 Oak Bluff Drive
Columbia, SC 29223

COMMONWEALTH OF KENTUCKY
PUBLIC SERVICE COMMISSION
730 SCHENKEL LANE
POST OFFICE BOX 615
FRANKFORT, KY. 40602
(502) 564-3940

April 12, 1999

Honorable Mark R. Overstreet
Attorney at Law
Stites & Harbison
421 West Main Street
P. O. Box 634
Frankfort, KY. 40602 0634

Ms. Carol Malone Parker
412 Oak Brook Drive
Columbia, SC. 29223

RE: Case No. 99-072
TELESPECTRUM, INC. DBA 360 DEGREES COMMUNICATIONS CO.

The Commission staff has reviewed your application in the above case and finds that it meets the minimum filing requirements. Enclosed please find a stamped filed copy of the first page of your filing. This case has been docketed and will be processed as expeditiously as possible.

If you need further assistance, please contact my staff at 502/564-3940.

Sincerely,

Stephanie Bell
Secretary of the Commission

SB/sa
Enclosure

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

APPLICATION OF TELESPECTRUM, INC. FOR A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY TO CONSTRUCT A CELL SITE AT 405 COLLEGE HILL ROAD, In GRAYSON, CARTER COUNTY, KENTUCKY (GRAYSON SITE)	)	Case No. 99-072

APPLICATION FOR CERTIFICATE OF CONVENIENCE AND NECESSITY

TeleSpectrum, Inc. ("TeleSpectrum") applies to the Public Service Commission of Kentucky (the "Commission") pursuant to KRS 278.020(1), 807 KAR 5:001, Section 9, 807 KAR 5:063 and all relevant statutes and regulations, for all necessary approvals to permit it to construct a cell site to provide service in the Kentucky portion of the Huntington-Ashland West Virginia/Kentucky/Ohio MSA ("Huntington MSA").

TH018:00TH3:1784:FRANKFORT
030299

COMMONWEALTH OF KENTUCKY
PUBLIC SERVICE COMMISSION
730 SCHENKEL LANE
POST OFFICE BOX 615
FRANKFORT, KY. 40602
(502) 564-3940

April 8, 1999

Honorable Mark R. Overstreet
Attorney at Law
Stites & Harbison
421 West Main Street
P. O. Box 634
Frankfort, KY. 40602 0634

Ms. Carol Malone Parker
412 Oak Brook Drive
Columbia, SC. 29223

RE: Case No. 99-072

We enclose one attested copy of the Commission's Order in the above case.

Sincerely,

Stephanie Bell
Secretary of the Commission

SB/sa
Enclosure

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

APPLICATION OF TELESPECTRUM, INC. FOR A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY TO CONSTRUCT A CELL SITE AT 405 COLLEGE HILL ROAD, IN GRAYSON, CARTER COUNTY, KENTUCKY (GRAYSON SITE)	)))))))	CASE NO. 99-072

O R D E R

This matter arising upon the motion of Carol Malone Parker, filed March 24, 1999, for full intervention, and it appearing to the Commission that Ms. Malone has a special interest which is not otherwise adequately represented, and that such intervention is likely to present issues and develop facts that will assist the Commission in fully considering the matter without unduly complicating or disrupting the proceedings, and this Commission being otherwise sufficiently advised,

IT IS HEREBY ORDERED that:

1. The motion of Carol Malone Parker to intervene is granted.

2. Ms. Parker shall be entitled to the full rights of a party and shall be served with the Commission's Orders and with filed testimony, exhibits, pleadings, correspondence, and all other documents submitted by parties after the date of this Order.

3. Should Ms. Parker file documents of any kind with the Commission in the course of these proceedings, she shall also serve a copy of said documents on all other parties of record.

Done at Frankfort, Kentucky, this 8th day of April, 1999.

By the Commission

ATTEST:

Executive Director

ROBERT B. KAY
Attorney at Law
Board Certified Mediator
P. O. Box 23433
Phone (843)681-4916 Fax (843) 689-9521

March 26, 1999

Office of the Executive Dirctor
Public Service District of Kentucky
730 Schenkel Lane
Post Office Box 615
Frankfort, Kentucky 40602

RE: Notice Pursuant to 807 KAR 5:063 Section (1)(1)
of Proposed Cellular Communications Tower
Case No. 99-072
Carol Malone Parker

In connection with the above case and party this is to request an intervention. I will appreciate your office notifying me of an appropriate time for appearance.

It is the contention of Mrs. Parker that the construction of the proposed tower within five hundred (500) feet of her property will have the resulting impact of decreasing the value of her property which is adjacent to the proposed site for the tower.

With warm regards, I remain

Sincerely,

Robert B. Kay

RBK/ah
cc: Carol Malone Parker
421 Oak Bluff Drive
Columbia, SC 29223

412 Oak Brook Drive
Columbia, South Carolina
March 22, 1999

Executive Director
Public Service Commission of Kentucky
730 Schenkel Lane, P.O. Box 615
Frankfort, Kentucky 40602

RE: Notice Pursuant to 807 KAR 5:063 Section (1)(1) of Proposed Cellular Communications Tower, Case NO. 99-072

Dear Sirs:/Madam:

According to Mr. Mark R. Overstreet of Stites & Harbison attorneys in a certified letter to me, Tele Spectrum Inc. is in the process of applying to the Public Service Commission of Kentucky for a Certificate of Public Convenience & Necessity to construct a 250 foot - three sided metal tower and shelter, 265 feet high at the rear of property located at 405 College Hill Road, Grayson, Kentucky. (owner Wilburn)

As my property is in close proximity, I am strongly opposed and wish to intervene. This area of the City of Grayson has historical value and is within city limits. There are single family residences of value in the vicinity as well as the noted Kentucky Christian College. A structure of this type would certainly de-value my interests concerning future one-family home development.

Please inform me further concerning my right to seek intervention in this proceeding.

Thank you very much.

Very truly Yours,

Carol Malone Parker
Tel. 803 (7365065

COMMONWEALTH OF KENTUCKY
PUBLIC SERVICE COMMISSION
730 SCHENKEL LANE
POST OFFICE BOX 615
FRANKFORT, KY. 40602
(502) 564-3940

March 23, 1999

Honorable Mark R. Overstreet
Attorney at Law
Stites & Harbison
421 West Main Street
P. O. Box 634
Frankfort, KY. 40602 0634

RE: Case No. 99-072
TELESPECTRUM, INC. DBA 360 DEGREES COMMUNICATIONS CO.
(Construct) CELL SITE - 405 COLLEGE HILL ROAD - GRAYSON

This letter is to acknowledge receipt of initial application in the above case. The application was date-stamped received March 22, 1999 and has been assigned Case No. 99-072. In all future correspondence or filings in connection with this case, please reference the above case number.

If you need further assistance, please contact my staff at 502/564-3940.

Sincerely,

Stephanie Bell

Stephanie Bell
Secretary of the Commission

SB/jc

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

APPLICATION OF TELESPECTRUM, INC. FOR A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY TO CONSTRUCT A CELL SITE AT 405 COLLEGE HILL ROAD, In GRAYSON, CARTER COUNTY, KENTUCKY (GRAYSON SITE)	)	Case No. 99-072

APPLICATION FOR CERTIFICATE OF CONVENIENCE AND NECESSITY

TeleSpectrum, Inc. ("TeleSpectrum") applies to the Public Service Commission of Kentucky (the "Commission") pursuant to KRS 278.020(1), 807 KAR 5:001, Section 9, 807 KAR 5:063 and all relevant statutes and regulations, for all necessary approvals to permit it to construct a cell site to provide service in the Kentucky portion of the Huntington-Ashland West Virginia/Kentucky/Ohio MSA ("Huntington MSA").

TH018:00TH3:1784:FRANKFORT
030299

In support of its Application TeleSpectrum states:

INTRODUCTION

1. TeleSpectrum holds the Federal Communications Commission (the "FCC") license and assets comprising the nonwireline cellular system for the Huntington MSA. By this application TeleSpectrum seeks the necessary approvals to construct a cell site to be located at 405 College Hill Road, Grayson, Carter County, Kentucky.

APPLICANT

2. TeleSpectrum is a Kansas corporation; its principal executive offices are located at 8725 West Higgins Road, Chicago, Illinois 60631. A certified copy of TeleSpectrum's Articles of Incorporation and all amendments thereto was filed as Exhibit 1 to its application in Case No. 96-371[1].

[1]In the Matter of: The Joint Application of TeleSpectrum, Inc., a Kansas Corporation, CC Industries, Inc., a Delaware Corporation, James A. Dwyer, Jr., David Winstel, Independent Cellular Network Partners, an Illinois Partnership and Independent Cellular Network, Inc. for Approval of (1) The Transfer of All Outstanding and Issued Common and Preferred Shares of Independent Cellular Network, Inc. and the Merger of Independent Cellular Network, Inc. into TeleSpectrum, Inc. with TeleSpectrum, Inc. being the Surviving Entity; and (2) the Approval of the Adoption by TeleSpectrum, Inc. of the Tariff of Independent Cellular Network, Inc. Simultaneously with the Consummation of the Merger.

3. TeleSpectrum is a wholly-owned direct subsidiary of ALLTEL Corporation. Pursuant to the Commission's Order dated January 8, 1998 in Administrative Case No. 370, 360° Communications Company (Telespectrum's former parent) notified the Commission on May 1, 1998 of its intent to merge into ALLTEL Corporation. On July 6, 1998, TeleSpectrum notified the Commission that the merger had closed.

THE CELL SITE

4. The cell site will consist of a 251 foot, three-sided, self-supporting metal lattice tower and adjacent Equipment Shelter. With attached appurtenances and antennae, the total tower height will be 269 feet above ground level. It is designed to meet the EIA/TIA-222-F standard for 70 m.p.h. basic wind speed. An Equipment Shelter will be constructed adjacent to the tower at the cell site. The tower and Equipment Shelter will be constructed in conformity with, or will exceed, all applicable local and state building codes.

5. The cell site will be located at 405 College Hill Road, Grayson, Carter County, Kentucky at N 38°20'11.50" Latitude and W 82°57'24.67" Longitude. It will be constructed on a .0938 acre tract to be leased from Terry E. and Willetta G. Wilburn. A copy of the Lease, with certain confidential business terms redacted, is filed herewith as **EXHIBIT 11**. **[807 KAR 5:063 Section 1(1)(f)].**

6. Driving directions to site are: Proceed north on KY. Route 1 from Grayson. Turn left at intersection of East College Road and proceed west on East

College Road. At the intersection with Lansdowne Street turn left (south) onto Lansdowne and proceed one block to College Hill Road. Turn right onto College Hill Road and proceed to the top of the hill (the asphalt turns to a slag surface) where a water tank will be visible on the left. Proceed past the water tank for approximately 150 yards to a drive. Turn left at the drive and proceed to the fork in the road. Take the middle fork up the hill. The site is located on the left, past the horse barn and at the end of the clearing. Kim Marshall prepared the driving directions and his phone number is (304) 481-8004. **[807 KAR 5:063 Section 1(1)(e)]**.

NOTICES AND APPROVALS

7. The cell site is located within the limits of the city of Grayson but is not within the jurisdiction of any local planning and zoning authority. TeleSpectrum notified the County Judge-Executive of Carter County and the Mayor of Grayson, Kentucky by letters dated and mailed March 4, 1999 of its plans to file this Application, to construct the tower and of his right to intervene. Copies of the letters, mailed certified mail, return receipt requested, and the return receipt evidencing delivery of the letter to the County Judge Executive, are attached as EXHIBIT 1. This application will be supplemented with the return receipt evidencing delivery of the notice to the Mayor when received. **[807 KAR 5:063 Section 1(1)(n), (o)]**.

8. By letters dated and mailed certified mail, return receipt requested, on

March 9, 1999, TeleSpectrum notified all property owners within 500 feet of the proposed tower (as indicated by the records of the Grayson County Property Valuation Administrator) of its intent to seek a Certificate of Public Convenience and Necessity from the Commission to permit construction of the proposed cell site, of the docket number of this proceeding and of their right to seek intervention. Copies of the letters and the list of the persons to whom they were mailed, and the return receipts received as of the date of filing, are attached as **EXHIBIT 2**. This application will be supplemented with the remaining return receipts evidencing delivery when received. **[807 KAR 5:063 Section 1(1)(l), (m)]**.

9. On or about October 30, 1998, TeleSpectrum filed a "Notice of Proposed Construction or Alteration" with the Federal Aviation Administration in connection with the construction of the proposed tower. By "Acknowledgement of Proposed Construction or Alteration" the Federal Aviation Administration notified TeleSpectrum that the proposed structure does not exceed FAA obstruction standards and would not be a hazard to air navigation. A copy of the "Acknowledgement of Proposed Construction or Alteration" is attached as **EXHIBIT 3**. The tower will be marked and lighted as required by the Federal Aviation Administration. **[807 KAR 5:063 Section 1(1)(b)]**.

10. TeleSpectrum filed an "Application for Permit to Construct or Alter a Structure" with the Kentucky Airport Zoning Commission. The Kentucky Airport Zoning Commission approved TeleSpectrum's application on March 8, 1999. A

copy of the March 8, 1999 notice of Approval of Application from the Kentucky Airport Zoning Commission is attached as **EXHIBIT 4**. **[807 KAR 5:063 Section 1(1)(b)]**.

11. On or before March 11, 1999 TeleSpectrum posted signs at a visible location on the site, and on College Hill Road (the nearest public road) notifying the public of its intent to construct a cellular communications tower at the site. The signs, which measure at least 2 feet by 4 feet will remain posted for at least two weeks following the filing of this application. Copies of photographs of the signs as posted are attached to this application as **EXHIBIT 10**. **[807 KAR 5:063 Section 1(1)(p); 807 KAR 5:063 Section 1(1)(2)]**.

12. The Globe cell site can be placed in operation under federal law by filing a notice with the Federal Communications Commission following construction. **[807 KAR 5:063 Section 1(1)(c)]**.

13. A notice of the location of the proposed construction was published in the *Grayson Journal Enquirer,* a paper of legal record and general circulation for Carter County, on March 10, 1997. **[807 KAR 5:063 Section 1(1)(q)]**. A copy of the text of the notice is filed herewith as **EXHIBIT 9**. This Application will supplemented with the affidavit of publication when received.

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030299

PUBLIC CONVENIENCE AND NECESSITY

14. TeleSpectrum plans to construct the cell site to provide mobile cellular coverage along I-64 in Carter County and in the city of Grayson. Construction of this cell site also will ensure TeleSpectrum's ability to satisfy future demand for cellular services in this portion of the MSA. **[807 KAR 5:063 Section 1(1)(a)].**

LAND USE AND OTHER CONSIDERATIONS

15. The site is located in eastern Carter County, Kentucky on the west side of Grayson, Kentucky. The site is located atop a hill, south of I-64 at an elevation of approximately 808 feet AMSL. The site comprises the southwestern corner of a 3.79 acre tract of land located at 405 College Hill Road. Large, mature trees bound the northwestern, southern and western perimeters of the site. The area to the south of the larger tract is undeveloped and is covered with thick, mature tree growth. The area to the west of the 3.79 acre tract also is covered with thick mature tree growth and forms a ravine College Hill Road bounds the larger tract to the north. North of College Hill Road is a heavily wooded undeveloped area that is used by local children as a motorcycle track. **[807 KAR 5:063 Section 1(1)(r).**

16. The larger 3.79 acre tract on which the site will be located is developed as a residential property that consists of a house trailer, a shed and a pole barn that currently is utilized as a horse barn and apartment. The site itself previously was bulldozed. Located on the larger tract to the east and west of the

site are deposits of discarded tires, wood planks, municipal waste, a discarded helium or propane tank and a trash burning area. **[807 KAR 5:063 Section 1(1)(r).**

17. An investigation of the site was conducted in conformity with 47 CFR §§ 1.1301-1.1319 by CTL Engineering, Inc. The investigation revealed that the site is not in an officially designated wildlife preserve or wilderness area, that the site will not affect any threatened or endangered species or critical habitats, Indian religious sites, or properties listed on or eligible for listing on the National Register of Historic Places, that the site is not in a flood plain, and that the construction of the site will not result in any significant changes in surface features. A copy of the FCC/NEPA Environmental Compliance Checklist as prepared by CTL Engineering, Inc is attached as **EXHIBIT 12**. The property has not been classified for zoning purposes as there is no local planning and zoning authority with jurisdiction of the site. **[807 KAR 5:063 Section 1(1)(r)].**

18. TeleSpectrum has considered the likely effect of the installation on nearby land values and believes there is no more suitable location reasonably available from which adequate service to the area may be provided. Prior to identifying the site, numerous hilltop sites in the area were considered and rejected because of the presence of cemeteries on the site or because access could not be obtained. TeleSpectrum thereafter identified four other sites in and around the search areas. Two of these sites subsequently were rejected because of access problems or because the sites would not permit TeleSpectrum to provide the

required coverage, or because of a combination of these factors. In addition, the third site subsequently was withdrawn from consideration by the landowner. The fourth site was rejected following an FCC/NEPA Environmental Compliance investigation when it was discovered that the site might contain an Indian religious site and structures or other significant artifacts in American history. **[807 KAR 5:063 Section 1(1)(s].**

19. There is no reasonable opportunity to co-locate the antennae on an existing structure or tower. TeleSpectrum sought to co-locate on a tower owned by Vanguard Cellular (West Virginia Cellular Telephone Corp d/b/a Cellular One of Huntington) located 6/10 of a mile west-northwest of the intersection of I-64 and Highway 7. TeleSpectrum and Vanguard were unable to reach agreement on the economic terms of the co-location agreement. A 125 foot structure located at coordinates 38°18'51"N Latitude and 82°55'41" also was considered but was of insufficient height to provide the coverage required of the cell site. No other tower or other structure suitable for placing the antennae exists in the search area. **[807 KAR 5:063 Section 1(1)(s].**

EXHIBITS

20. Incorporated in this Application as Exhibits are the following additional documents:

a. Qualifications of David Pruett, the individual directly responsible for the construction of the proposed tower. (EXHIBIT 5). The tower was designed by J.R.

Erichsen, who is a licensed Kentucky Professional Engineer and an employee of PiRod, Inc., the tower manufacturer. **[807 KAR 5:063 Section 1(1)(g)]**.

b. A site development plan illustrating the proposed location of the tower and all easements and existing structures within 500 feet of the tower on the property, and all easements and existing structures on the property within 200 feet of the access road. Also illustrated are a "Vicinity Map" and a Topographic Survey of the relevant portion of the site. The Site Development Plan also contains a flood certification and bears the seal and signature of I.A.N. Garcelon , a Registered Kentucky Land Surveyor. (**EXHIBIT 6**). **[807 KAR 5:063 Section 1(1)(h)]**.

c. Tower and Foundation Design Plans and description of the standards to which they were designed. All designs bear the seal and signature of J.R. Erichsen, a Registered Kentucky Professional Engineer. (**EXHIBIT 7**). A vertical profile sketch indicating the positioning of the antennae also is part of the Application. **[807 KAR 5:063 Section 1(1)(i), (j)]**.

d. The "Subsurface Investigation Report" prepared by CTL Engineering, Inc., 2860 Fisher Road, Columbus, Ohio 43204. (**EXHIBIT 8**). The recommendations contained in the Geotechnical Investigation Report have been followed by TeleSpectrum in connection with the design of the foundation. **[807 KAR 5:063 Section 1(1)(c)]**.

e. Design drawings, specifications and calculations for the Equipment Shelter, bearing the seal of Chander P. Nangia, a Kentucky Registered

Professional Engineer. (EXHIBIT 13).

f. A map that identifies every structure and every owner of real property within 500 feet of the proposed tower. (EXHIBIT 14). **[807 KAR 5:063 Section 1(k)]**.

g. A map displaying the search area for the cell site as determined by RF analysis. (EXHIBIT 15). **[807 KAR 5:063 Section 1(t)]**. The area designated as Search Area 3 subsequently was rejected upon further analysis when it was learned it would not permit TeleSpectrum to provide coverage to the designated area.

COMPLIANCE WITH 807 KAR 5:063]

21. An index correlating the provisions of 807 KAR 5:063 with the corresponding portions of the Application and exhibits is filed herewith as EXHIBIT 16.

COMMUNICATIONS

22. TeleSpectrum respectfully requests that all communications and correspondence with respect to the instant Application be sent to:

Mark R. Overstreet
STITES & HARBISON
421 West Main Street
P.O. Box 634
Frankfort, Kentucky 40602-0634
Telephone: 502-223-3477

Counsel for TeleSpectrum

TH018:00TH3:1784:FRANKFORT
030299

CONCLUSION

23. For the reasons stated above, the public convenience and necessity require the construction of the proposed cell site.

WHEREFORE, TeleSpectrum respectfully requests, pursuant to KRS 278.020(1), 807 KAR 5:001, Section 9, 807 KAR 5:063 and all other relevant statutes and regulations, that the Public Service Commission of Kentucky:

a. issue an order granting TeleSpectrum a Certificate of Convenience and Necessity to construct a cell site to be located to be located at 405 College Hill Road, Grayson, Carter County, Kentucky at N 38°20'11.50" Latitude and W 82°57'24.67" Longitude; and

b. grant all other appropriate relief.

Dated this the 22nd day of March, 1999.

Respectfully submitted,

Mark R. Overstreet
STITES & HARBISON
421 West Main Street
P.O. Box 634
Frankfort, Kentucky 40602-0634
Telephone: 502-223-3477

COUNSEL FOR: TELESPECTRUM, INC.

TH018:00TH3:1784:FRANKFORT
030299

STITES & HARBISON
ATTORNEYS

421 West Main Street
Post Office Box 634
Frankfort, KY 40602-0634
[502] 223-3477
[502] 223-4124 Fax
www.stites.com

March 4, 1999

Honorable George Waggener, III
Mayor, City of Grayson
302 East Main Street
Grayson, KY 41143-1341

RE: ***Application of TeleSpectrum, Inc. for a Certificate of Public Convenience and* Necessity *to Construct a Cell Site In Carter County, Kentucky* (Case No. 99-072)**

Certified Mail
Return Receipt Requested

Dear Mayor Waggener:

Please accept this as a Notice of Intent to Construct a Public Improvement by TeleSpectrum, Inc. ("TeleSpectrum"). This notice is being furnished pursuant to KRS 100.324 and 807 KAR 5:063 Section 1(n).

TeleSpectrum plans to construct a cell site in Carter County on property to be leased from Terry E. and Willetta G. Wilburn. The cell site will be located 405 College Hill Road, Grayson, Carter County, Kentucky at N 38°20'11.50" Latitude and W 82°57'24.67" Longitude. The cell site will consist of a 251 foot, three-sided, self-supporting metal lattice tower and adjacent Equipment Shelter. With attached appurtenances and antennae, the total tower height will be 269 feet above the ground. It is designed to meet the EIA/TIA-222-F standard for a basic wind speed of 70 m.p.h. As such, it will meet or exceed all Carter County building codes. An Equipment Shelter will be constructed adjacent to the tower at the cell site.

The purpose of the cell site is to provide improved coverage in eastern Carter County, particularly along I-64, and in Grayson.

I have enclosed the following additional information concerning the cell site:

1. Map to suitable scale showing the location of the proposed new construction.

2. Diagram of Tower.

Within the next few days, TeleSpectrum plans to file an application with the Public Service Commission of Kentucky for a Certificate of Public Convenience and Necessity to construct the tower and related facilities. The application is styled:

> IN THE MATTER OF: APPLICATION OF TELESPECTRUM, INC. FOR A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY TO CONSTRUCT A CELL SITE AT 405 COLLEGE HILL ROAD, GRAYSON, CARTER COUNTY, KENTUCKY (GRAYSON SITE).

The application has been assigned P.S.C. Case No. 99-072

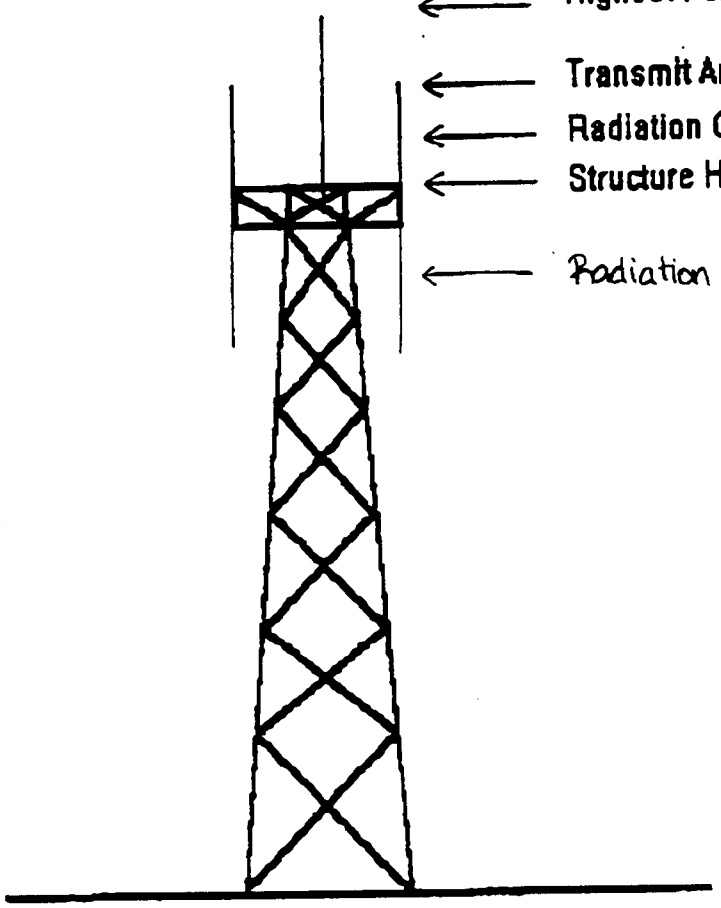
You have a right to offer your comments to the Commission and to seek intervention in this proceeding. Your initial communication to the Commission should be received by the Commission within 20 days of the date of this letter.

Very truly yours,

Mark R. Overstreet

Enclosures

TH018:00TH3:1796:FRANKFORT


Highest Point (Lightning Rod) 269'
Transmit Antenna Tip 268'
Radiation Centerline (TX) 261'
Structure Height 250'
Radiation Centerline (RX) 243'
Ground Level 807.95'

STITES & HARBISON
ATTORNEYS

421 West Main Street
Post Office Box 634
Frankfort, KY 40602-0634
[502] 223-3477
[502] 223-4124 Fax
www.stites.com
Mark R. Overstreet
(502) 209-1219
moverstreet@stites.com

March 4, 1999

Honorable Joe D. Kitchen
Carter County Judge-Executive
Courthouse
Grayson, Kentucky 41143

RE: ***Application of TeleSpectrum, Inc. for a Certificate of Public Convenience and* Necessity *to Construct a Cell Site In Carter County, Kentucky* (Case No. 99-072)**

Certified Mail
Return Receipt Requested

Dear Judge Kitchen:

Please accept this as a Notice of Intent to Construct a Public Improvement by TeleSpectrum, Inc. ("TeleSpectrum"). This notice is being furnished pursuant to KRS 100.324 and 807 KAR 5:063 Section 1(n).

TeleSpectrum plans to construct a cell site in Carter County on property to be leased from Terry E. and Willetta G. Wilburn. The cell site will be located 405 College Hill Road, Grayson, Carter County, Kentucky at N 38°20'11.50" Latitude and W 82°57'24.67" Longitude. The cell site will consist of a 251 foot, three-sided, self-supporting metal lattice tower and adjacent Equipment Shelter. With attached appurtenances and antennae, the total tower height will be 269 feet above the ground. It is designed to meet the EIA/TIA-222-F standard for a basic wind speed of 70 m.p.h. As such, it will meet or exceed all Carter County building codes. An Equipment Shelter will be constructed adjacent to the tower at the cell site.

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2. Diagram of Tower.

STITES & HARBISON
ATTORNEYS

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> IN THE MATTER OF: APPLICATION OF TELESPECTRUM, INC. FOR A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY TO CONSTRUCT A CELL SITE AT 405 COLLEGE HILL ROAD, GRAYSON, CARTER COUNTY, KENTUCKY (GRAYSON SITE).

The application has been assigned P.S.C. Case No. 99-072

You have a right to offer your comments to the Commission and to seek intervention in this proceeding. Your initial communication to the Commission should be received by the Commission within 20 days of the date of this letter.

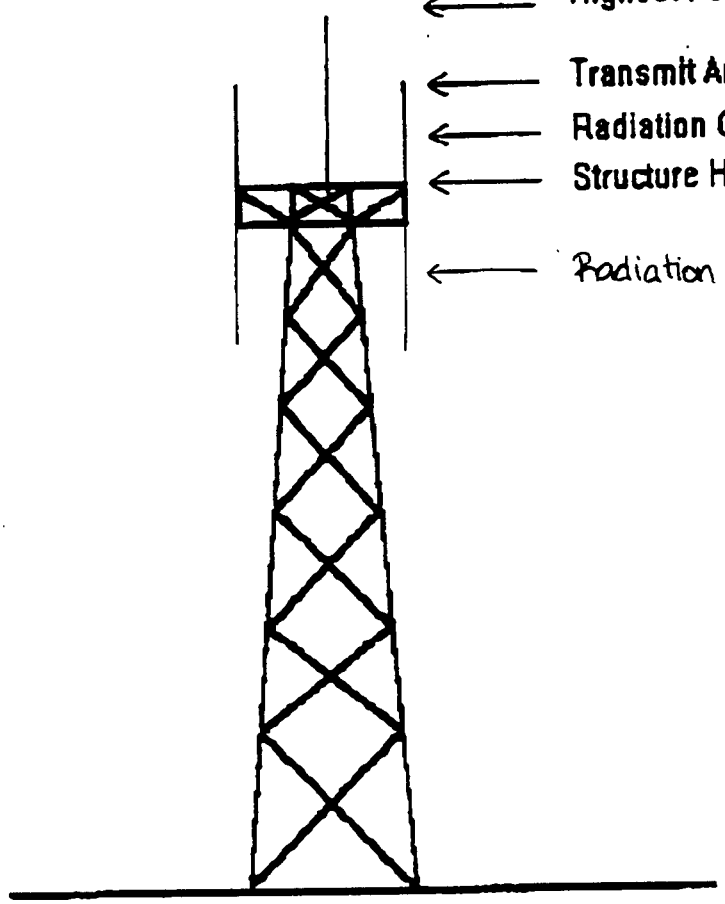
Very truly yours,

Mark R. Overstreet

Enclosures

TH018:00TH3:1796:FRANKFORT

RIVERVIEW ESTATES RD
Barrett Creek
WINDY CIRCLE RD
SSR 1959
INDIAN HILLS RD
Barrett Creek
SSR 1947
172
64
60
1
9
7
Barrett Creek
LANDSDOWNE
CEMETERY RD
Water Tank
ACADEMIC PKWY
LANDSDOWNE EST
W COLLEGE
NEAL
COLLEGE HILL
E COLLEGE
Grayson
SHADY LN
SNODGRASS LN
JOHNS RUN RD
PARADISE HILL RD
BOWEN
WILLIS
DIXIE
CHURCH
SSR 3297
WEBSTER
KIBBEY
MARIE
RUPERT LN
SHORT
N HORD
E 5TH
E 4TH
E 3RD
W 2ND
E 2ND
CARDINAL
POMEROY
PARK
ARMSTRONG
MALONE LN
BARK
BURTON
CARDINAL
SYCAMORE
SUNSET HILL RD
OLD TOWN BRANCH RD
HOLCOMB
POWERS
MAPLE
LANWOOD
WILLOW LN
HARRIS
S HORD
SOUTHVIEW
Town Branch
WOMACK RD
S COURT
PORTERS HOLLOW RD
Grayson
MEADOWVIEW
Little Sandy River
RIVER RD
E RIVER RD
HORTON
RUTH
HUFF
JOHNSON
BRENDA
KRESTVIEW
HILLVIEW RD
LAURA
ROBBINS RD
Dark Hollow
LAKEVIEW
JANE LN
PINEVIEW
CRESTVIEW
HUNTERS RUN
LITTLE SANDY LN
CIRCLE
KELLY
STOVALL
S STOVALL
S HORD
Schoolhouse Hollow
© 1997 DeLorme. Street Atlas USA


Highest Point (Lightning Rod) 269'
Transmit Antenna Tip 268'
Radiation Centerline (TX) 261'
Structure Height 250'
Radiation Centerline (RX) 243'
Ground Level 807.95'

Is your RETURN ADDRESS completed on the reverse side?

SENDER:
- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "*Return Receipt Requested*" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):
1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
HONORABLE JOE D KITCHEN
CARTER COUNTY JUDGE EXECUTIVE
CARTER COUNTY COURTHOUSE
GRAYSON KY 41143

4a. Article Number
Z 086 003 059

4b. Service Type
☐ Registered ☒ Certified
☐ Express Mail ☐ Insured
☒ Return Receipt for Merchandise ☐ COD

7. Date of Delivery
3 5 98

5. Received By: *(Print Name)*
GLENNA WALLACE

8. Addressee's Address *(Only if requested and fee is paid)*

6. Signature: *(Addressee or Agent)*
X Glenna Wallace

PS Form **3811**, December 1994 102595-97-B-0179 Domestic Return Receipt

Thank you for using Return Receipt Service.

EXHIBIT 2

STITES & HARBISON

ATTORNEYS

421 West Main Street
Post Office Box 634
Frankfort, KY 40602-0634
[502] 223-3477
[502] 223-4124 Fax
www.stites.com
Mark R. Overstreet
[502] 209-1219
moverstreet@stites.com

March 9, 1999

BY CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Kenneth and Mary Fleming
367 Paradise Hill Drive
Grayson, Kentucky 41143

RE: Notice Pursuant to 807 KAR 5:063 Section(1)(l) of Proposed Cellular Communications Tower

Dear Mr. and Mrs. Fleming:

TeleSpectrum, Inc. is in the process of applying to the Public Service Commission of Kentucky for a Certificate of Public Convenience and Necessity to construct a new facility to provide cellular telecommunications service in Grayson and eastern Carter County. The facility will consist of a self-supporting 251 foot three-sided metal tower and adjacent equipment shelter. With the antennae and appurtenances, the tower will be 269 feet in height. The tower will be located in the rear of the property located at 405 College Hill Road, Grayson, Kentucky.

This notice is being sent to you because you own property within 500 feet of the proposed site of the tower. The Commission invites your comments concerning the proposed construction. You also have the right to seek intervention in the proceeding. Your comments and request for intervention should be addressed to: Office of the Executive Director, Public Service Commission of Kentucky, 730 Schenkel Lane, P.O. Box 615, Frankfort, Kentucky 40602.

Please refer to Case No. 99-072. Your initial correspondence should be received within 20 days of the date of this letter.

Very truly yours,

Mark R. Overstreet

TH018:00TH7:1808:FRANKFORT

STITES & HARBISON
ATTORNEYS

421 West Main Street
Post Office Box 634
Frankfort, KY 40602-0634
[502] 223-3477
[502] 223-4124 Fax
www.stites.com
Mark R. Overstreet
[502] 209-1219
moverstreet@stites.com

March 9, 1999

BY CERTIFIED MAIL
RETURN RECEIPT REQUESTED

M&E Apartments
P.O. Box 327
Grayson, Kentucky 41143

RE: Notice Pursuant to 807 KAR 5:063 Section(1)(l) of Proposed Cellular Communications Tower

Dear Gentlemen:

TeleSpectrum, Inc. is in the process of applying to the Public Service Commission of Kentucky for a Certificate of Public Convenience and Necessity to construct a new facility to provide cellular telecommunications service in Grayson and eastern Carter County. The facility will consist of a self-supporting 251 foot three-sided metal tower and adjacent equipment shelter. With the antennae and appurtenances, the tower will be 269 feet in height. The tower will be located in the rear of the property located at 405 College Hill Road, Grayson, Kentucky.

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Please refer to Case No. 99-072. Your initial correspondence should be received within 20 days of the date of this letter.

Very truly yours,

Mark R. Overstreet

TH018:00TH7:1808:FRANKFORT

STITES & HARBISON

ATTORNEYS

421 West Main Street
Post Office Box 634
Frankfort, KY 40602-0634
(502) 223-3477
(502) 223-4124 Fax
www.stites.com
Mark R. Overstreet
(502) 209-1219
moverstreet@stites.com

March 9, 1999

BY CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Essa K. Barker
Route #4, Box 653-A
Grayson, Kentucky 41143

RE: Notice Pursuant to 807 KAR 5:063 Section(1)(l) of Proposed Cellular Communications Tower

Dear Essa K. Barker:

TeleSpectrum, Inc. is in the process of applying to the Public Service Commission of Kentucky for a Certificate of Public Convenience and Necessity to construct a new facility to provide cellular telecommunications service in Grayson and eastern Carter County. The facility will consist of a self-supporting 251 foot three-sided metal tower and adjacent equipment shelter. With the antennae and appurtenances, the tower will be 269 feet in height. The tower will be located in the rear of the property located at 405 College Hill Road, Grayson, Kentucky.

This notice is being sent to you because you own property within 500 feet of the proposed site of the tower. The Commission invites your comments concerning the proposed construction. You also have the right to seek intervention in the proceeding. Your comments and request for intervention should be addressed to: Office of the Executive Director, Public Service Commission of Kentucky, 730 Schenkel Lane, P.O. Box 615, Frankfort, Kentucky 40602.

Please refer to Case No. 99-072. Your initial correspondence should be received within 20 days of the date of this letter.

Very truly yours,

Mark R. Overstreet

TH018:00TH7:1808:FRANKFORT

Is your RETURN ADDRESS completed on the reverse side?

SENDER:

- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write *"Return Receipt Requested"* on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:

ESSA K BARKER
ROUTE #4 BOX 653-A
GRAYSON KY 41143

TELESPECTRUM/GRAYSON

4a. Article Number

Z 086 003 015

4b. Service Type

☐ Registered ☒ Certified
☐ Express Mail ☐ Insured
☒ Return Receipt for Merchandise ☐ COD

7. Date of Delivery

4-3-10-99

5. Received By: *(Print Name)*

8. Addressee's Address *(Only if requested and fee is paid)*

6. Signature: *(Addressee or Agent)*

X Kay Barker

PS Form **3811**, December 1994 102595-97-B-0179 Domestic Return Receipt

Thank you for using Return Receipt Service.

STITES & HARBISON

ATTORNEYS

421 West Main Street
Post Office Box 634
Frankfort, KY 40602-0634
[502] 223-3477
[502] 223-4124 Fax
www.stites.com
Mark R. Overstreet
[502] 209-1219
moverstreet@stites.com

March 9, 1999

BY CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Beulah Childers
483 Paradise Hill Drive
Grayson, Kentucky 41143

RE: Notice Pursuant to 807 KAR 5:063 Section(1)(l) of Proposed Cellular Communications Tower

Dear Ms. Childers:

TeleSpectrum, Inc. is in the process of applying to the Public Service Commission of Kentucky for a Certificate of Public Convenience and Necessity to construct a new facility to provide cellular telecommunications service in Grayson and eastern Carter County. The facility will consist of a self-supporting 251 foot three-sided metal tower and adjacent equipment shelter. With the antennae and appurtenances, the tower will be 269 feet in height. The tower will be located in the rear of the property located at 405 College Hill Road, Grayson, Kentucky.

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Please refer to Case No. 99-072. Your initial correspondence should be received within 20 days of the date of this letter.

Very truly yours,

Mark R. Overstreet

TH018:00TH7:1808:FRANKFORT

SENDER:

- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write *"Return Receipt Requested"* on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:

BEULAH CHILDERS
483 PARADISE HILL DRIVE
GRAYSON KY 41143

TELESPECTRUM/GRAYSON

4a. Article Number

Z 086 003 012

4b. Service Type

☐ Registered ☒ Certified
☐ Express Mail ☐ Insured
☒ Return Receipt for Merchandise ☐ COD

7. Date of Delivery

GRAYSON KY MAR 10 2000

5. Received By: *(Print Name)*

Gladys Burton

6. Signature: *(Addressee or Agent)*

X

8. Addressee's Address *(Only if requested and fee is paid)*

USPS 41143

Is your RETURN ADDRESS completed on the reverse side?

Thank you for using Return Receipt Service.

PS Form **3811**, December 1994 102595-97-B-0179 Domestic Return Receipt

STITES & HARBISON
ATTORNEYS

421 West Main Street
Post Office Box 634
Frankfort, KY 40602-0634
[502] 223-3477
[502] 223-4124 Fax
www.stites.com
Mark R. Overstreet
[502] 209-1219
moverstreet@stites.com

March 9, 1999

BY CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Harlan Dickerson
475 Paradise Hill Drive
Grayson, Kentucky 41143

RE: Notice Pursuant to 807 KAR 5:063 Section(1)(l) of Proposed Cellular Communications Tower

Dear Mr. Dickerson:

TeleSpectrum, Inc. is in the process of applying to the Public Service Commission of Kentucky for a Certificate of Public Convenience and Necessity to construct a new facility to provide cellular telecommunications service in Grayson and eastern Carter County. The facility will consist of a self-supporting 251 foot three-sided metal tower and adjacent equipment shelter. With the antennae and appurtenances, the tower will be 269 feet in height. The tower will be located in the rear of the property located at 405 College Hill Road, Grayson, Kentucky.

This notice is being sent to you because you own property within 500 feet of the proposed site of the tower. The Commission invites your comments concerning the proposed construction. You also have the right to seek intervention in the proceeding. Your comments and request for intervention should be addressed to: Office of the Executive Director, Public Service Commission of Kentucky, 730 Schenkel Lane, P.O. Box 615, Frankfort, Kentucky 40602.

Please refer to Case No. 99-072. Your initial correspondence should be received within 20 days of the date of this letter.

Very truly yours,

Mark R. Overstreet

TH018:00TH7:1808:FRANKFORT

Is your RETURN ADDRESS completed on the reverse side?

SENDER:

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I also wish to receive the following services (for an extra fee):

1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:

HARLAN DICKERSON
475 PARADISE HILL DRIVE
GRAYSON KY 41143

TELESPECTRUM/GRAYSON

4a. Article Number

Z 086 003 016

4b. Service Type

☐ Registered ☒ Certified
☐ Express Mail ☐ Insured
☒ Return Receipt for Merchandise ☐ COD

7. Date of Delivery

3-10-99

5. Received By: *(Print Name)*

8. Addressee's Address *(Only if requested and fee is paid)*

6. Signature: *(Addressee or Agent)*

X Jackie Dickerson

PS Form **3811,** December 1994 102595-97-B-0179 Domestic Return Receipt

Thank you for using Return Receipt Service.

STITES & HARBISON

ATTORNEYS

421 West Main Street
Post Office Box 634
Frankfort, KY 40602-0634
(502) 223-3477
(502) 223-4124 Fax
www.stites.com
Mark R. Overstreet
(502) 209-1219
moverstreet@stites.com

March 9, 1999

BY CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Edgar and Dixie Everman
P.O. Box 335
Grayson, Kentucky 41143

RE: Notice Pursuant to 807 KAR 5:063 Section(1)(l) of Proposed Cellular Communications Tower

Dear Mr. and Mrs. Everman:

TeleSpectrum, Inc. is in the process of applying to the Public Service Commission of Kentucky for a Certificate of Public Convenience and Necessity to construct a new facility to provide cellular telecommunications service in Grayson and eastern Carter County. The facility will consist of a self-supporting 251 foot three-sided metal tower and adjacent equipment shelter. With the antennae and appurtenances, the tower will be 269 feet in height. The tower will be located in the rear of the property located at 405 College Hill Road, Grayson, Kentucky.

This notice is being sent to you because you own property within 500 feet of the proposed site of the tower. The Commission invites your comments concerning the proposed construction. You also have the right to seek intervention in the proceeding. Your comments and request for intervention should be addressed to: Office of the Executive Director, Public Service Commission of Kentucky, 730 Schenkel Lane, P.O. Box 615, Frankfort, Kentucky 40602.

Please refer to Case No. 99-072. Your initial correspondence should be received within 20 days of the date of this letter.

Very truly yours,

Mark R. Overstreet

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I also wish to receive the following services (for an extra fee):

1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:

EDGAR & DIXIE EVERMAN
PO BOX 335
GRAYSON KY 41143

TELESPECTRUM/GRAYSON

4a. Article Number

Z 086 003 014

4b. Service Type

☑ Registered ☑ Certified
☐ Express Mail ☐ Insured
☑ Return Receipt for Merchandise ☐ COD

7. Date of Delivery

5. Received By: *(Print Name)*

8. Addressee's Address *(Only if requested and fee is paid)*

6. Signature: *(Addressee or Agent)*

X Dixie Everman

PS Form **3811**, December 1994 102595-97-B-0179 Domestic Return Receipt

Thank you for using Return Receipt Service.

STITES & HARBISON

ATTORNEYS

421 West Main Street
Post Office Box 634
Frankfort, KY 40602-0634
[502] 223-3477
[502] 223-4124 Fax
www.stites.com
Mark R. Overstreet
[502] 209-1219
moverstreet@stites.com

March 9, 1999

BY CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mark and Lisa Gillum
403 College Drive
Grayson, Kentucky 41143

RE: Notice Pursuant to 807 KAR 5:063 Section(1)(l) of Proposed Cellular Communications Tower

Dear Mr. and Mrs. Gillum:

TeleSpectrum, Inc. is in the process of applying to the Public Service Commission of Kentucky for a Certificate of Public Convenience and Necessity to construct a new facility to provide cellular telecommunications service in Grayson and eastern Carter County. The facility will consist of a self-supporting 251 foot three-sided metal tower and adjacent equipment shelter. With the antennae and appurtenances, the tower will be 269 feet in height. The tower will be located in the rear of the property located at 405 College Hill Road, Grayson, Kentucky.

This notice is being sent to you because you own property within 500 feet of the proposed site of the tower. The Commission invites your comments concerning the proposed construction. You also have the right to seek intervention in the proceeding. Your comments and request for intervention should be addressed to: Office of the Executive Director, Public Service Commission of Kentucky, 730 Schenkel Lane, P.O. Box 615, Frankfort, Kentucky 40602.

Please refer to Case No. 99-072. Your initial correspondence should be received within 20 days of the date of this letter.

Very truly yours,

Mark R. Overstreet

TH018:00TH7:1808:FRANKFORT

SENDER:
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I also wish to receive the following services (for an extra fee):

1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:

MARK & LISA GILLUM
403 COLLEGE DRIVE
GRAYSON KY 41143

TELESPECTRUM/GRAYSON

4a. Article Number

Z 086 003 011

4b. Service Type

☐ Registered ☒ Certified
☐ Express Mail ☐ Insured
☒ Return Receipt for Merchandise ☐ COD

7. Date of Delivery

3-13-95

5. Received By: *(Print Name)*

8. Addressee's Address *(Only if requested and fee is paid)*

6. Signature: *(Addressee or Agent)*

X Mark & Gillum

Is your RETURN ADDRESS completed on the reverse side?

Thank you for using Return Receipt Service.

PS Form **3811**, December 1994 102595-97-B-0179 Domestic Return Receipt

STITES & HARBISON
ATTORNEYS

421 West Main Street
Post Office Box 634
Frankfort, KY 40602-0634
[502] 223-3477
[502] 223-4124 Fax
www.stites.com
Mark R. Overstreet
[502] 209-1219
moverstreet@stites.com

March 9, 1999

BY CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Miller & Everman
#1 Fraley-Miller Plaza
Grayson, Kentucky 41143

RE: Notice Pursuant to 807 KAR 5:063 Section(1)(l) of Proposed Cellular Communications Tower

Dear Gentlemen:

TeleSpectrum, Inc. is in the process of applying to the Public Service Commission of Kentucky for a Certificate of Public Convenience and Necessity to construct a new facility to provide cellular telecommunications service in Grayson and eastern Carter County. The facility will consist of a self-supporting 251 foot three-sided metal tower and adjacent equipment shelter. With the antennae and appurtenances, the tower will be 269 feet in height. The tower will be located in the rear of the property located at 405 College Hill Road, Grayson, Kentucky.

This notice is being sent to you because you own property within 500 feet of the proposed site of the tower. The Commission invites your comments concerning the proposed construction. You also have the right to seek intervention in the proceeding. Your comments and request for intervention should be addressed to: Office of the Executive Director, Public Service Commission of Kentucky, 730 Schenkel Lane, P.O. Box 615, Frankfort, Kentucky 40602.

Please refer to Case No. 99-072. Your initial correspondence should be received within 20 days of the date of this letter.

Very truly yours,

Mark R. Overstreet

TH018:00TH7:1808:FRANKFORT

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I also wish to receive the following services (for an extra fee):
1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
MILLER & EVERMAN
#1 FRALEY-MILLER PLAZA
GRAYSON KY 41143

TELESPECTRUM/GRAYSON

4a. Article Number
Z 086 003 018

4b. Service Type
☐ Registered ☒ Certified
☐ Express Mail ☐ Insured
☒ Return Receipt for Merchandise ☐ COD

7. Date of Delivery
3-10-94

5. Received By: *(Print Name)*
Heather Castle

6. Signature: *(Addressee or Agent)*
X Heather Castle

8. Addressee's Address *(Only if requested and fee is paid)*

Thank you for using Return Receipt Service.

PS Form **3811**, December 1994 102595-97-B-0179 **Domestic Return Receipt**

STITES & HARBISON

ATTORNEYS

421 West Main Street
Post Office Box 634
Frankfort, KY 40602-0634
[502] 223-3477
[502] 223-4124 Fax
www.stites.com
Mark R. Overstreet
[502] 209-1219
moverstreet@stites.com

March 9, 1999

BY CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Carole Malone Parker
412 Oakbrook Drive
Columbia, South Carolina 29223

RE: Notice Pursuant to 807 KAR 5:063 Section(1)(l) of Proposed Cellular Communications Tower

Dear Ms. Parker:

TeleSpectrum, Inc. is in the process of applying to the Public Service Commission of Kentucky for a Certificate of Public Convenience and Necessity to construct a new facility to provide cellular telecommunications service in Grayson and eastern Carter County. The facility will consist of a self-supporting 251 foot three-sided metal tower and adjacent equipment shelter. With the antennae and appurtenances, the tower will be 269 feet in height. The tower will be located in the rear of the property located at 405 College Hill Road, Grayson, Kentucky.

This notice is being sent to you because you own property within 500 feet of the proposed site of the tower. The Commission invites your comments concerning the proposed construction. You also have the right to seek intervention in the proceeding. Your comments and request for intervention should be addressed to: Office of the Executive Director, Public Service Commission of Kentucky, 730 Schenkel Lane, P.O. Box 615, Frankfort, Kentucky 40602.

Please refer to Case No. 99-072. Your initial correspondence should be received within 20 days of the date of this letter.

Very truly yours,

Mark R. Overstreet

TH018:00TH7:1808:FRANKFORT

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I also wish to receive the following services (for an extra fee):

1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:

CAROLE MALONE PARKER
412 OAKBROOK DRIVE
COLUMBIA SC 29223

TELESPECTRUM/GRAYSON

4a. Article Number

Z 086 003 013

4b. Service Type

☐ Registered ☒ Certified
☐ Express Mail ☐ Insured
☒ Return Receipt for Merchandise ☐ COD

7. Date of Delivery

3-12-99

5. Received By: *(Print Name)*

8. Addressee's Address *(Only if requested and fee is paid)*

6. Signature: *(Addressee or Agent)*

X

USPS COLUMBIA SC NORTHEAST BRANCH MAR 12 1999

PS Form **3811,** December 1994 102595-97-B-0179 Domestic Return Receipt

Thank you for using Return Receipt Service.

STITES & HARBISON

ATTORNEYS

421 West Main Street
Post Office Box 634
Frankfort, KY 40602-0634
[502] 223-3477
[502] 223-4124 Fax
www.stites.com
Mark R. Overstreet
[502] 209-1219
moverstreet@stites.com

March 9, 1999

BY CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Robert G. Webb
45 Webb Circle
Grayson, Kentucky 41143

RE: Notice Pursuant to 807 KAR 5:063 Section(1)(l) of Proposed Cellular Communications Tower

Dear Mr. Webb:

TeleSpectrum, Inc. is in the process of applying to the Public Service Commission of Kentucky for a Certificate of Public Convenience and Necessity to construct a new facility to provide cellular telecommunications service in Grayson and eastern Carter County. The facility will consist of a self-supporting 251 foot three-sided metal tower and adjacent equipment shelter. With the antennae and appurtenances, the tower will be 269 feet in height. The tower will be located in the rear of the property located at 405 College Hill Road, Grayson, Kentucky.

This notice is being sent to you because you own property within 500 feet of the proposed site of the tower. The Commission invites your comments concerning the proposed construction. You also have the right to seek intervention in the proceeding. Your comments and request for intervention should be addressed to: Office of the Executive Director, Public Service Commission of Kentucky, 730 Schenkel Lane, P.O. Box 615, Frankfort, Kentucky 40602.

Please refer to Case No. 99-072. Your initial correspondence should be received within 20 days of the date of this letter.

Very truly yours,

Mark R. Overstreet

TH018:00TH7:1808:FRANKFORT

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I also wish to receive the following services (for an extra fee):

1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:

ROBERT G WEBB
45 WEBB CIRCLE
GRAYSON KY 41143

TELESPECTRUM/GRAYSON

4a. Article Number

Z 086 003 020

4b. Service Type

☐ Registered ☒ Certified
☐ Express Mail ☐ Insured
☒ Return Receipt for Merchandise ☐ COD

7. Date of Delivery

GRAYSON KY MAR 10 1995

5. Received By: *(Print Name)*

8. Addressee's Address *(Only if requested and fee is paid)*

USPS 41143

6. Signature: *(Addressee or Agent)*

X Linda M Webb

PS Form **3811**, December 1994 102595-97-B-0179 Domestic Return Receipt

Thank you for using Return Receipt Service.

STITES & HARBISON

ATTORNEYS

421 West Main Street
Post Office Box 634
Frankfort, KY 40602-0634
[502] 223-3477
[502] 223-4124 Fax
www.stites.com
Mark R. Overstreet
[502] 209-1219
moverstreet@stites.com

March 9, 1999

BY CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Terry E. and Willetta G. Wilburn
405 College Hill Road
Grayson, Kentucky 41143

RE: Notice Pursuant to 807 KAR 5:063 Section(1)(l) of Proposed Cellular Communications Tower

Dear Mr. and Mrs. Wilburn:

TeleSpectrum, Inc. is in the process of applying to the Public Service Commission of Kentucky for a Certificate of Public Convenience and Necessity to construct a new facility to provide cellular telecommunications service in Grayson and eastern Carter County. The facility will consist of a self-supporting 251 foot three-sided metal tower and adjacent equipment shelter. With the antennae and appurtenances, the tower will be 269 feet in height. The tower will be located in the rear of the property located at 405 College Hill Road, Grayson, Kentucky.

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Please refer to Case No. 99-072. Your initial correspondence should be received within 20 days of the date of this letter.

Very truly yours,

Mark R. Overstreet

TH018:00TH7:1808:FRANKFORT

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2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:

TERRY E. & WILLETTA G. WILBURN
405 COLLEGE HILL ROAD
GRAYSON KY 41143

TELESPECTRUM/GRAYSON

4a. Article Number

Z 086 003 021

4b. Service Type

☐ Registered ☒ Certified
☐ Express Mail ☐ Insured
☒ Return Receipt for Merchandise ☐ COD

7. Date of Delivery

GRAYSON KY
JAN 21 1997

5. Received By: *(Print Name)*

8. Addressee's Address *(Only if requested and fee is paid)*

USPS 41143

6. Signature: *(Addressee or Agent)*

X Willetta G. Wilburn

PS Form **3811,** December 1994 102595-97-B-0179 Domestic Return Receipt

Thank you for using Return Receipt Service.

ALLTEL COMMUNICATIONS
GRAYSON, KENTUCKY
CELLULAR TOWER SITE

Properties within a 500' radius of proposed tower site.

1. Mark & Lisa Gillum
D.B. 242 – Pg. 28
Tax Parcel I.D.# 104-50-14-003.00
403 College Drive
Grayson, KY 41143

2. Beulah Childers
D.B. 171 – Pg. 593
Tax Parcel I.D.# 104-50-12-007.00
483 Paradise Hill Dr.
Grayson, KY 41143

3. Carole Malone Parker
D.B. 200 – Pg. 633
Tax Parcel I.D.# 104-10-27-18.01
412 Oakbrook Dr.
Columbia, SC 29223

4. Edgar & Dixie Everman
D.B. 150 – Pg. 278
Tax Parcel I.D.# 104-50-12-001.00
P.O. Box 335
Grayson, KY 41143

5. Essa K. Barker
D.B. 236 – Pg. 149
Tax Parcel I.D.# 104-50-12-005.00
Route 4, Box 653-A
Grayson, KY 41143

6. Harlan Dickerson
D.B. 180 – Pg. 883
Tax Parcel I.D.# 104-50-12-006.00
475 Paradise Hill Dr.
Grayson, KY 41143

7. Kenneth & Mary Fleming
D.B. 199 – Pg. 79
Tax Parcel I.D.# 104-50-11-007.00
367 Paradise Hill Dr.
Grayson, KY 41143

8. Miller & Everman
No D.B./Pg. No. Found
Tax Parcel I.D.# 104-50-12-004.00
#1 Fraley-Miller Plaza
Grayson, KY 41143

9. M & E Apartments
No D.B./Pg. No. Found
Tax Parcel I.D.# 104-50-12-003.00
P.O. Box 327
Grayson, KY 41143

10. Robert G. Webb
No D.B./Pg. No. Found
Tax Parcel I.D.# 104-50-13-001.00
45 Webb Circle
Grayson, KY 41143

EXHIBIT 3

Federal Aviation Administration
Southern Region
Air Traffic Division, ASO-520
P. O. Box 20636
Atlanta, GA 30320

ACKNOWLEDGEMENT OF NOTICE OF PROPOSED CONSTRUCTION OR ALTERATION

CITY	STATE	LATITUDE/LONGITUDE	MSL	AGL	AMSL
GRAYSON	KY	38-20-11.50 082-57-24.67	808	269	1077

ALLTEL COMMUNICATIONS, INC.
BINDOO K. RIZZO O'HARE PLAZA
8725 HIGGINS RD., SUITE 900
CHICAGO, IL 60631

AERONAUTICAL STUDY
No: 98-ASO-7070-OE

Type Structure: ANTENNA TOWER 800-900 MHZ/ 100 WATTS

The Federal Aviation Administration hereby acknowledges receipt of notice dated 10/30/98 concerning the proposed construction or alteration contained herein.

A study has been conducted under the provisions of Part 77 of the Federal Aviation Regulations to determine whether the proposed construction would be an obstruction to air navigation, whether it should be marked and lighted to enhance safety in air navigation, and whether supplemental notice of start and completion of construction is required to permit timely charting and notification to airmen. The findings of that study are as follows:

The proposed construction would not exceed FAA obstruction standards and would not be a hazard to air navigation. However, the following applies to the construction proposed:

The structure should be obstruction marked and lighted per FAA Advisory Circular AC 70/7460-1J, 'Obstruction Marking and Lighting. CHAPTERS: [ ]-3 [X]-4 [X]-5 [X]-6 [ ]-7 [X]-8 [ ]-9 [ ]-10 [ ]-11 [ ]-12 [X]-13. Dual red with medium intensity white lights.

Supplemental notice is required at least 10 days before the ~~start of construction and~~ within five days after construction reaches its greatest height (use the enclosed FAA form).

This determination expires on 05/14/99 unless application is made, (if subject to the licensing authority of the Federal Communications Commission), to the FCC before that date, or it is otherwise extended, revised or terminated.

If the structure is subject to the licensing authority of the FCC, a copy of this acknowledgement will be sent to that agency.

NOTICE IS REQUIRED ANYTIME THE PROJECT IS ABANDONED OR THE PROPOSAL IS MODIFIED

SIGNED Mary Z. Mc Burney Specialist, Airspace Branch.
Mary Z. Mc Burney (404) 305-5585. 5583
ISSUED IN: College Park, Georgia ON 11/12/98

enclosure

EXHIBIT 4

Kentucky Airport Zoning Commission
125 Holmes Street
Frankfort, KY 40622
(502) 564-4480
fax: (502) 564-7953

No.: AS-022-2I2-98-261

March 8, 1999

APPROVAL OF APPLICATION

APPLICANT:
ALLTEL COMMUNICATIONS, INC.
8725 HIGGINS ROAD, SUITE 900
Chicago, IL 60631

SUBJECT: AS-022-2I2-98-261

STRUCTURE:	Antenna Tower
LOCATION:	Grayson, KY
COORDINATES:	38°20'11.5"N / 82°57'24.67"W
HEIGHT:	269'AGL/1,077'AMSL

The Kentucky Airport Zoning Commission has approved your application for a permit to construct (269'AGL/1,077'AMSL) Antenna Tower near Grayson, KY 38°20'12"N, 82°57'25"W.

This permit is valid for a period of 18 Month(s) from its date of issuance. If construction is not completed within said 18-Month period, this permit shall lapse and be void, and no work shall be performed without the issuance of a new permit.

A copy of the approved application is enclosed for your files.

Dual obstruction lighting is required in accordance with 602 KAR 50:100..

Ronald Bland, Administrator

KAZC FORM TC 56-5(01/96)

KENTUCKY TRANSPORTATION CABINET, DIVISION OF AERONAUTICS, 125 HOLMES STREET, FRANKFORT KY 40622

APPLICATION FOR PERMIT TO CONSTRUCT OR ALTER A STRUCTURE

– INSTRUCTIONS ON REVERSE SIDE OF FORM –

AERONAUTICAL STUDY NUMBER: AS-022-212-98-261

1. NATURE OF PROPOSAL

A. TYPE	B. CLASS	C. WORK SCHEDULE
X NEW CONSTRUCTION	X PERMANENT	BEGIN After FAA Approval
___ ALTERATION	___ TEMPORARY	END Within 6 Months

2. DESCRIPTION OF STRUCTURE

This proposed cellular communications installation will operate in the 800 - 900 MHz band with 100 Watts ERP.

The proposed site is located 3,600' West Northwest from the intersection of U.S. Highway 60 and State Route 1/7 (chart and survey data attached). The ARP of Olive Hill-Sellers' Field is located 10.10 NM on a True Bearing of 240.60° from the site.

RECEIVED
AERONAUTICS
OCT 13 1998

3A. APPLICANT - NAME, ADDRESS & TELEPHONE

Bindoo K. Rizzo
ALLTEL Communications, Inc.
8725 Higgins Road, Suite 900
Chicago, Illinois 60631
(773) 399-2209

B. REPRESENTATIVE OF APPLICANT - NAME, ADDRESS & TELEPHONE

Ronald T. Niklasson
Airspace Safety Analysis Corporation
1745 Phoenix Boulevard, Suite 120
Atlanta, Georgia 30349 (770) 994-1557

4. LOCATION OF STRUCTURE

County: Carter

A. GEOGRAPHIC COORDINATES (NEAREST SECOND)	B. NEAREST KY CITY	C. NEAREST KY AIRPORT
LATITUDE 38° 20' 11.50"	(1) DISTANCE TO 4B: In Town	(1) DISTANCE TO RUNWAY
LONGITUDE 82° 57' 24.67"	(2) DIRECTION TO 4B: In Town	(2) DIRECTION TO AIRPORT: 240.87° True Bearing

5. HEIGHT & ELEVATION

A. SITE ELEVATION (ABOVE MEAN SEA LEVEL)	808'
B. HEIGHT OF STRUCTURE, INCLUDING APPURTENANCES AND LIGHTS (ABOVE GROUND LEVEL)	269'
C. OVERALL HEIGHT (AMSL) (A+B)	1,077'

6. OBSTRUCTION MARKING & LIGHTING

	YES	NO
A. MARKED FOR THE PROTECTION OF AIR NAVIGATION (FLAGS, SPHERES, ETC.)		X
B. OBSTRUCTION MARKED IN ACCORDANCE WITH 602KAR50:100 (FAA AC 70/7460-1H)		X
C. OBSTRUCTION LIGHTED IN ACCORDANCE WITH 602KAR50:100 (FAA AC 70/7460-1H)	X	

7. HAS "NOTICE OF CONSTRUCTION OR ALTERATION" (FORM 7460-1) BEEN FILED WITH THE FEDERAL AVIATION ADMINISTRATION? IF SO, WHEN?

8. CERTIFICATION

I HEREBY CERTIFY THAT ALL THE ABOVE STATEMENTS MADE BY ME ARE TRUE, COMPLETE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

BY Bindoo K. Rizzo, Engineer B. Rizzo DATE 10/12/98
NAME (PRINTED), SIGNATURE & TITLE

PENALTIES - PERSONS FAILING TO COMPLY WITH KENTUCKY REVISED STATUTES AND KENTUCKY AIRPORT ZONING COMMISSION ADMINISTRATIVE REGULATIONS ARE LIABLE FOR FINES OR IMPRISONMENT AS SET FORTH IN KRS 183.990(3). NON-COMPLIANCE WITH FEDERAL AVIATION ADMINISTRATION REGULATIONS MAY RESULT IN FURTHER PENALTIES.

COMMISSION ACTION

APPROVED ✓
DISAPPROVED ___

___ CHAIRMAN, KAZC (OR) ___ ADMINISTRATOR, KAZC

R J Bland DATE 3/9/99

EXHIBIT 5

David Pruett

50 Augusta Court
Glendale Heights, IL 60139
(773) 399-3820 (W) (630) 295-8669 (H)

Work experience

ALLTEL/360 Communications *Dec. 1996 - Present*
Chicago, IL

Project Engineer: Duties include helping to build a capital spending budget, manage the budget to achieve the aims of the market, insure sites meet all FAA and FCC requirements and filings, build cell sites to achieve its objective (by interacting with vendors, contractors and various departments within the company), upgrade the switch and existing cell sites to enhance the service of the market and region. Projects accomplished recently include sectorization of cell sites, implementing CDMA technology, antenna changes and cell site upgrades, implementing engineering database to consolidate information on new projects as well as existing sites to facilitate access and evaluation, train new Associate Project Engineers to achieve promotion to Project Engineer.

BellSouth Mobility/ALLTEL Mobile *Dec. 1989 - Dec. 1996*
Columbia, SC

Positions held with company: Installer, Head Technician, Customer Agent Support, Technical Support, Manager of Customer Service and Technical Support, Project Engineer. Duties included: installing, repairing, and programming of cellular phones, activated customers service that was sold at retail locations, interfaced between customer problems and the switch, handled all roamer problems for the market, handled all fraud manager issues. Managed thirteen customer service representatives and four technical support personal. Evaluated and installed a new phone system for the call center to include upgrading all phone lines and new phones with no loss of service. Helped to change Sobis billing system to ALLTEL's Virtuoso billing system in call center, sales offices and retail locations. Built cell sites and managed all aspects of construction for 2 MSA's in Columbia and Florence. Managed warehouse for switch. Switched out Centigram voice mail system with Glenayre voice mail system in switch with minimal impact of service to customers. Trained new employees in cellular fundamentals, new applications and Virtuoso billing system.

Southern Communications *Sept. 1985 - Sept. 1989*
Gainesville, FL

Head Installer Duties included: Managed two installers whose duties include the installation of two-way communication gear in a variety of vehicles to include police cars, fire trucks, city vehicles, busses, tractor trailer trucks, etc. Responsible for ordering of supplies and inventory for install shop, quality control of all installations, remote installation and fixing of pagers.

References available upon request

EXHIBIT 6

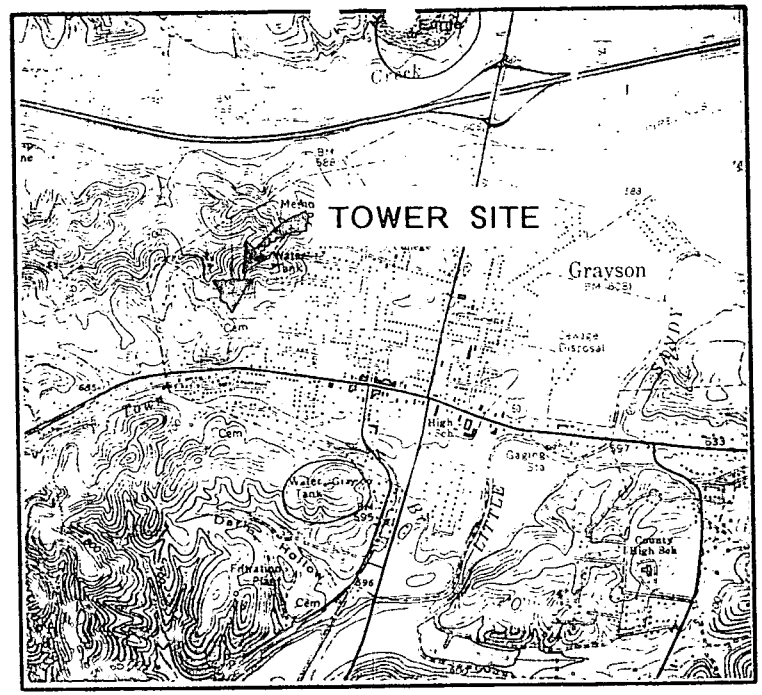
POWER POLE ±55'

ER LINES

18"Ø LEANING WHITE OAK (DEED)

14"Ø WHITE OAK W/3 HACKS BOTH SIDES

HITE OAK W/3 HACKS ON EACH SIDE



VICINITY MAP

MAP LEGEND

●	5/8" REBAR (SET)
◉	MONUMENT FOUND (AS NOTED)
▣	COMPUTED CORNER (NOT SET)
	TREE AS NOTED
—P—	POWER LINE
—T—	TELEPHONE LINE
—PLT—	POWER & TELEPHONE
—CTV—	CABLE TV
—G—	GAS LINE
—W—	WATER LINE
—X—	FENCE LINE
—ST—	STORM SEWER
—S—	SANITARY SEWER
P.P.-O	POWER OR UTILITY POLE
W.M.O	WATER METER
W.V.O	WATER VALVE
G.M.O	GAS METER
G.V.O	GAS VALVE
F.P. O	FENCE POST
G.P. O	GATE POST
F.H.	FIRE HYDRANT
M.H.	MAN HOLE
L.P.	LIGHT POLE
D.I.	DROP INLET
⟵	LAND HOOK
100.00 +	SPOT ELEVATION
100	CONTOUR LINE

LEASE DESCRIPTION

0.0938 ACRES

COLLEGE HILL CELLULAR TOWER SITE
413 COLLEGE HILL DRIVE
GRAYSON, KENTUCKY 41143

Situate on a 3.79 acre tract located on College Hill adjacent to the corporate limits of Grayson and Carter County (Tax Parcel I.D. #104-50-14-002.00), Kentucky, more particularly described as follows:

BEGINNING at a 10" Hickory being a common corner to Beulah R. Childers (D.B. 171 - Pg. 593);

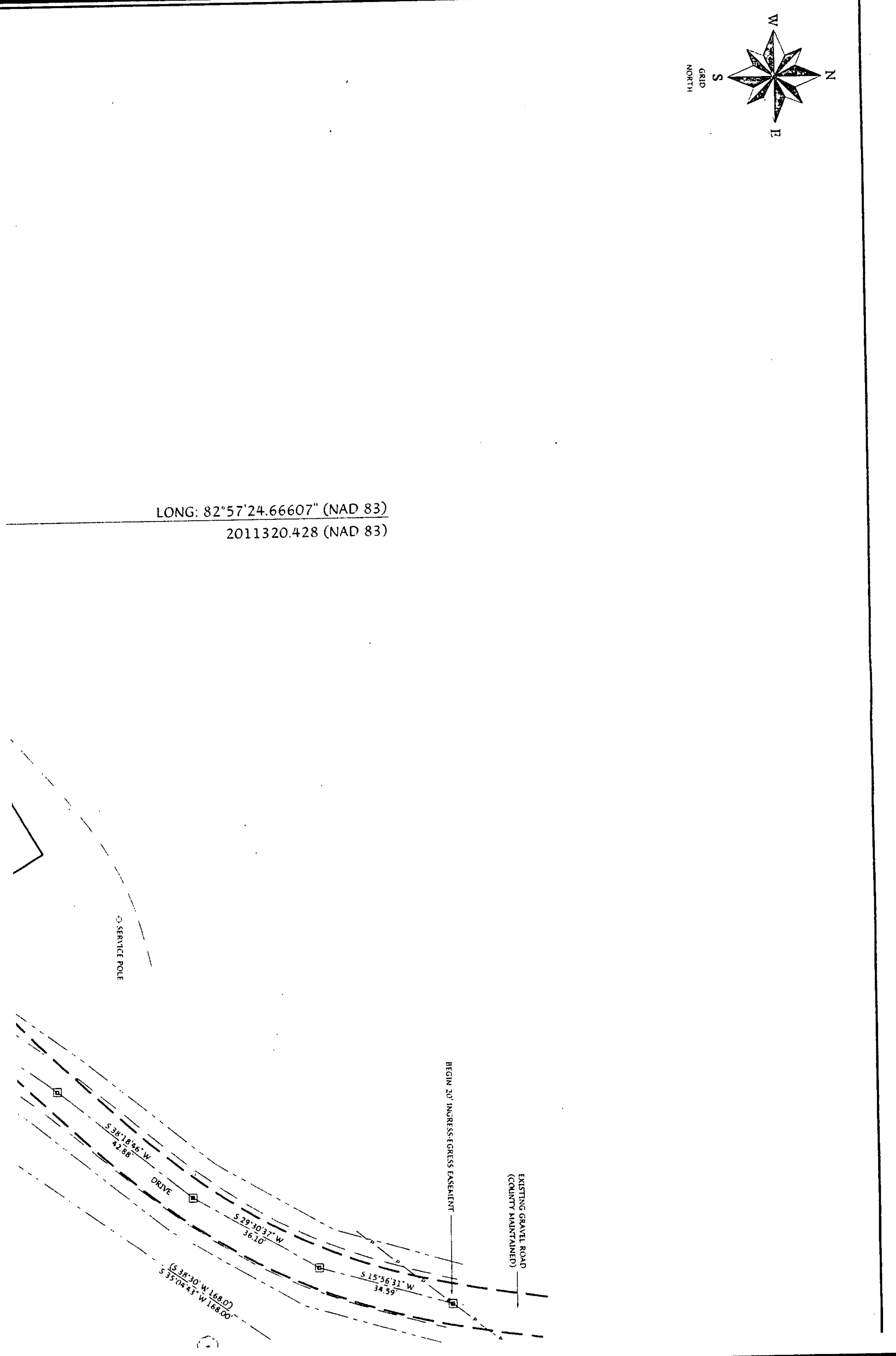
THENCE with Childers along a chain link fence N.57°11'30"W. 55.61 feet to a #5 rebar set;

THENCE leaving Childers N.41 03'23"E. 78.28 feet to a #5 rebar set, S.48°56'37"E. 55.01 feet to a #5 rebar set in the westerly line of Carol Malone Parker (D.B. 200 - Pg. 633);

THENCE with Parker S.41°04'43"W. 66.83 feet to the point of beginning, containing 0.0938 acre more or less.

BEING part of the conveyance by Phillip Berry to Terry E. Wilburn and Willetta G. Wilburn by deed dated the 8th day of August, 1997, and

MAP REVISIONS	
DATE	REVISION


W
N
S
E
GRID NORTH
LONG: 82°57'24.66607" (NAD 83)
2011320.428 (NAD 83)
SERVICE POLE
BEGIN 20' INGRESS-EGRESS EASEMENT
EXISTING GRAVEL ROAD (COUNTY MAINTAINED)
S 38°18'46" W 42.88'
DRIVE
S 29°30'37" W 36.10'
S 15°56'31" W 34.59'
(S 38°30' W 168.0')
S 35°04'43" W 168.00'

Garcelon, Kentucky Registered Land Surveyor No. 2871 using the Random Traverse Method.

All bearings are based on Grid North and conform to the Kentucky State Plane Coordinate System, NAD 1983, North Zone.

INGRESS - EGRESS AND UTILITY EASEMENT DESCRIPTION

0.1266 ACRES

BEING a 20.00 foot wide ingress - egress easement from the end of the Carter County Maintenance of College Hill Drive in Grayson, Carter County, Kentucky, more particularly described as follows:

BEGINNING at a point in the centerline of College Hill Drive at the end of Carter County Maintenance;

THENCE with the centerline of the above-mentioned easement the following courses and distances:

S.15°56'31"W. 34.59 feet to a point,
S.29°30'37"W. 36.10 feet to a point,
S.38°18'46"W. 42.88 feet to a point,
S.35°12'08"W. 54.79 feet to a point,
S.59°08'44"W. 55.87 feet to a point,
S.68°13'37"W. 40.86 feet to a point,
S.41°03'23"W. 10.62 feet to a point in the line of the proposed tower lot, said point located S.48° 56'37"E. 15.00 feet from the northwest corner of said lot.

The above described easement is based upon a current survey by I.A.N. Garcelon, R.L.S. #2871 using the Random Traverse Method.

All bearings are based on Grid North and conform to the Kentucky State Plane Coordinate System, NAD 1983, North Zone.

CERTIFICATION

The undersigned hereby certifies to lawyers Title Insurance Corporation and to ALLTEL Communications that the survey drawing dated September 18, 1998, to which this certificate is attached is a true and accurate survey of the real estate described thereon and was prepared by the undersigned from an actual survey of the above described tract of land completed in August, 1998.

FLOOD CERTIFICATION

The subject property is not located in a 100 year flood plain or in an identified "Flood Prone Area" as defined by the U.S. Department of Housing and Urban Development pursuant to the Flood Disaster Protection Act of 1973, as amended, and as reflected by Flood Insurance Rate Map Community Panel #210050 0180B, property is situated and is classified as zone "C", (No Flood Hazard).

NOTE

This survey does not constitute a title search by the surveyor, No abstract or title was furnished to the surveyor. This surveyor has made no investigation nor independent search for easements of record, encumbrances, restrictive covenants, nor any other facts that an accurate and current title search might disclose.

ZONING - NONE

The property is subject to no local zoning regulations.

531" (NAD 83)
.915 (NAD 83)

SURVEYED BY:

GARCELON SURVEYING
3975-B INDIAN CREEK ROAD
ELKVIEW, WEST VIRGINIA 25071

PHONE (304) 965-1331 FAX (304) 965-

PLAT OF SURVEY

SHOWING THE

GRAYSON, KENTUCKY
CELLULAR TOWER SITE

SITUATED AT
413 COLLEGE HILL DRIVE ON A 3.79 AC
TRACT LOCATED ADJACENT TO THE
CORPORATE LIMITS OF GRAYSON AND
CARTER COUNTY, KENTUCKY

MADE FOR

ALLTEL COMMUNICATIONS

I.A.N. GARCELON, R.L.S. #2871

SCALE: 1" = 20' DATE: SEPTEMBER 18, 19

DRAFTED BY: DAN SKIDMORE DFN: 98

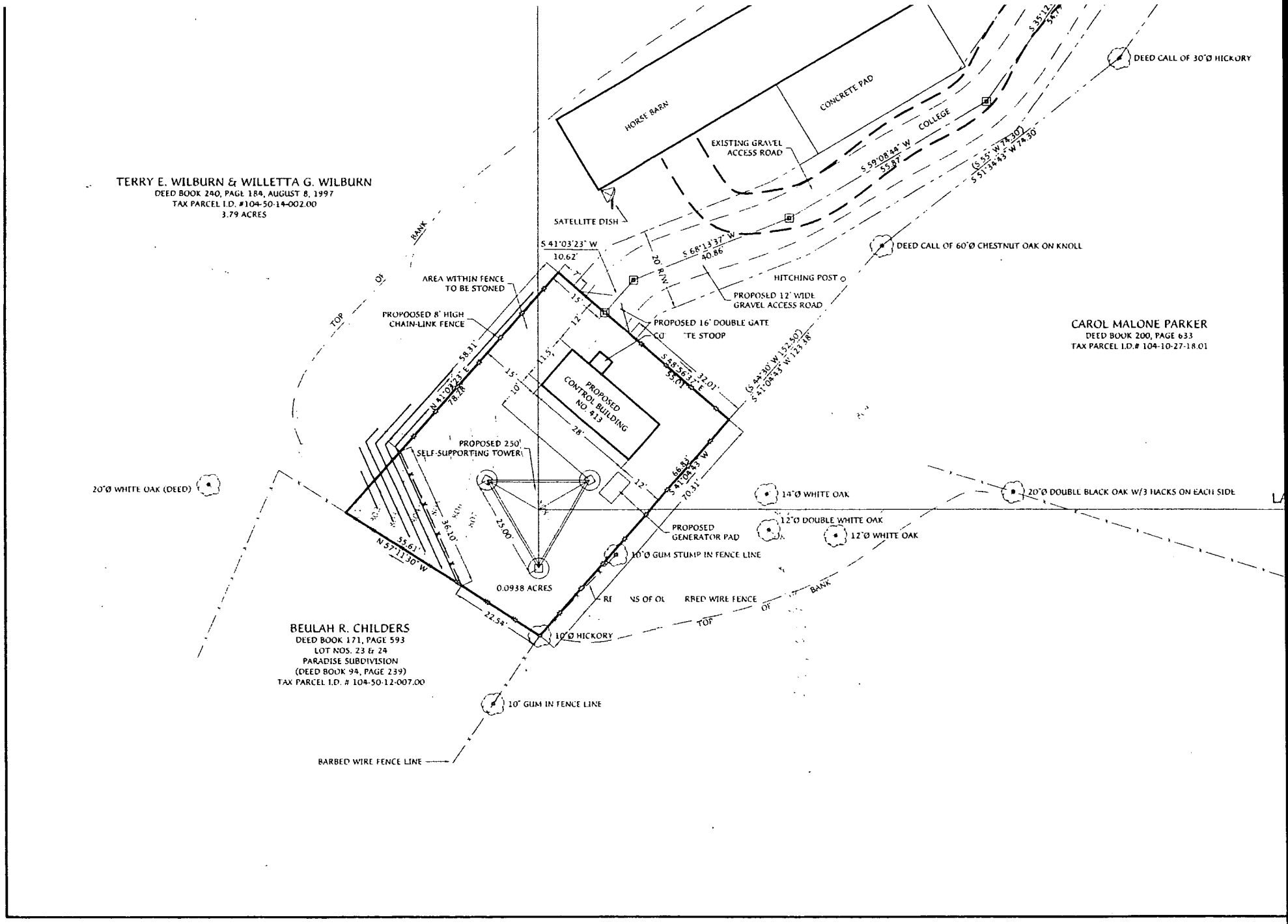
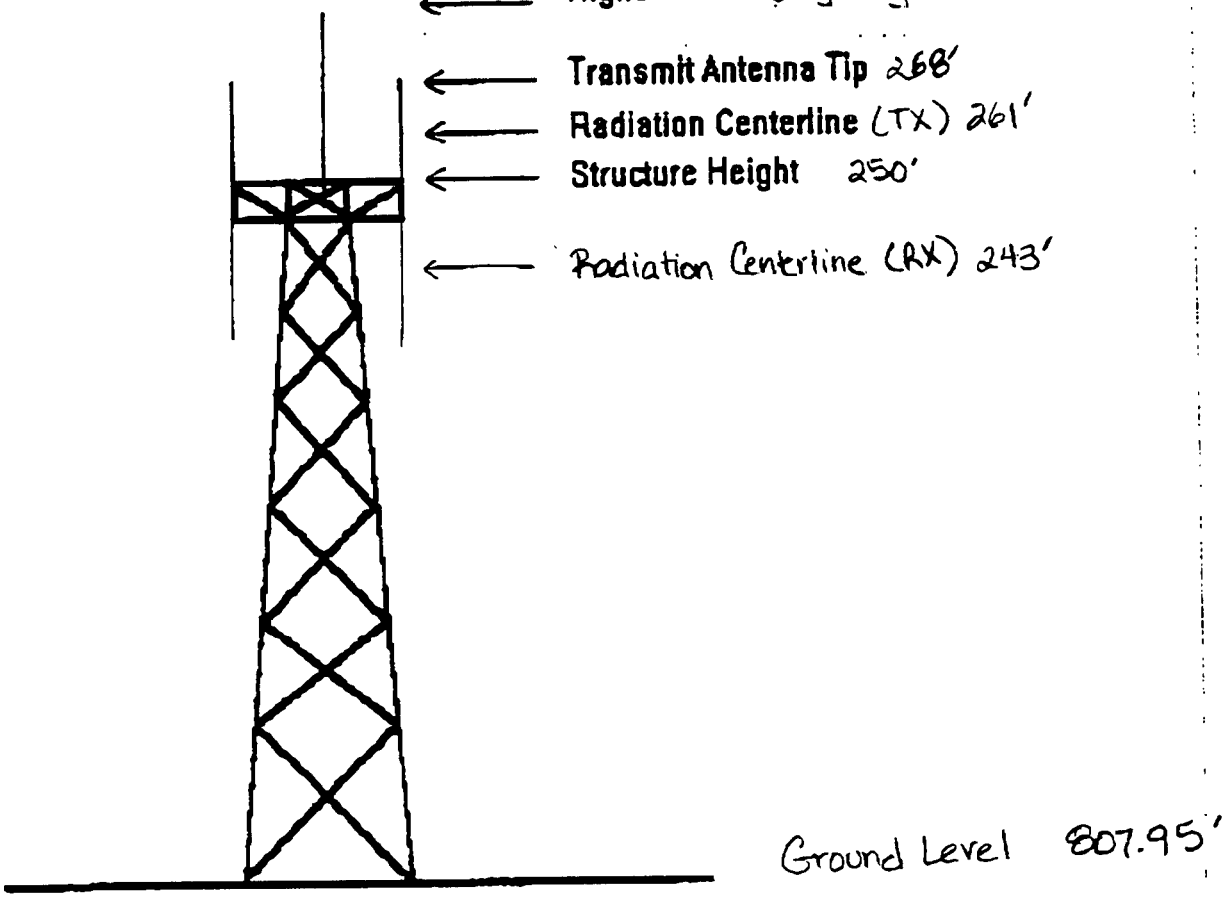

TERRY E. WILBURN & WILLETTA G. WILBURN
DEED BOOK 240, PAGE 184, AUGUST 8, 1997
TAX PARCEL I.D. #104-50-14-002.00
3.79 ACRES
HORSE BARN
CONCRETE PAD
EXISTING GRAVEL ACCESS ROAD
COLLEGE
DEED CALL OF 30"Ø HICKORY
SATELLITE DISH
TOP OF BANK
S 41°03'23" W
10.62'
20' R/W
S 68°13'37" W
40.86'
PROPOSED 12' WIDE GRAVEL ACCESS ROAD
HITCHING POST
DEED CALL OF 60"Ø CHESTNUT OAK ON KNOLL
AREA WITHIN FENCE TO BE STONED
PROPOSED 8' HIGH CHAIN-LINK FENCE
PROPOSED 16' DOUBLE GATE
CONCRETE STOOP
CAROL MALONE PARKER
DEED BOOK 200, PAGE 633
TAX PARCEL I.D.# 104-10-27-18.01
PROPOSED CONTROL BUILDING NO. 413
PROPOSED 250' SELF-SUPPORTING TOWER
20"Ø WHITE OAK (DEED)
14"Ø WHITE OAK
20"Ø DOUBLE BLACK OAK W/3 HACKS ON EACH SIDE
12"Ø DOUBLE WHITE OAK
12"Ø WHITE OAK
PROPOSED GENERATOR PAD
10"Ø GUM STUMP IN FENCE LINE
0.0938 ACRES
BARBED WIRE FENCE
TOP OF BANK
10"Ø HICKORY
BEULAH R. CHILDERS
DEED BOOK 171, PAGE 593
LOT NOS. 23 & 24
PARADISE SUBDIVISION
(DEED BOOK 94, PAGE 239)
TAX PARCEL I.D. # 104-50-12-007.00
10" GUM IN FENCE LINE
BARBED WIRE FENCE LINE

EXHIBIT 7


Highest Point (Lightning Rod) 269'
Transmit Antenna Tip 268'
Radiation Centerline (TX) 261'
Structure Height 250'
Radiation Centerline (RX) 243'
Ground Level 807.95'

FOUNDATION NOTES

1. SOIL AS PER REPORT BY CTL ENGINEERING, INC., DATED 12/08/98, CTL FILE NO. 98050250.
2. CONCRETE TO BE 3000 PSI @28 DAYS. REINFORCING BAR TO CONFORM TO ASTM A615 GRADE 60 SPECIFICATIONS. CONCRETE INSTALLATION TO CONFORM TO ACI-318 BUILDING REQUIREMENTS FOR REINFORCED CONCRETE. ALL CONCRETE TO BE PLACED AGAINST UNDISTURBED EARTH FREE OF WATER AND ALL FOREIGN OBJECTS AND MATERIALS. A MINIMUM OF THREE INCHES OF CONCRETE SHALL COVER ALL REINFORCEMENT. WELDING OF REBAR NOT PERMITTED.
3. A COLD JOINT IS PERMISSIBLE UPON CONSULTATION WITH PIROD. ALL COLD JOINTS SHALL BE COATED WITH BONDING AGENTS PRIOR TO SECOND POUR.
4. ALL REINFORCING STEEL TO BE FORMED INTO A CAGE PRIOR TO SETTING INTO POSITION IN THE EXCAVATED PIER.
5. PERMANENT STEEL CASING SHALL NOT BE USED WITHOUT CONSENT FROM FOUNDATION DESIGNERS.
6. CROWN TOP OF FOUNDATION FOR PROPER DRAINAGE.
7. THE CAISSONS MUST PENETRATE A MINIMUM OF 11.0' INTO THE BROWN AND GRAY WEATHERED SHALE.
8. DIFFICULT DRILLING AND/OR ROCK CORING IS TO BE EXPECTED THROUGH THE BROWN AND GRAY WEATHERED SHALE.
9. A TEMPORARY STEEL CASING WILL BE REQUIRED TO PREVENT CAVING OF THE SURFACE SOILS AND PROTECT FROM ANY SEEPAGE WATER.
10. ANY WATER THAT MAY ACCUMULATE IN SHAFT IS TO BE REMOVED PRIOR TO POURING CONCRETE.
11. GROUNDWATER IS NOT EXPECTED TO CAUSE CONSTRUCTION DIFFICULTY AT THIS SITE.
12. DO NOT ALLOW WATER TO STAND IN THE HOLE FOR EXTENDED PERIODS OF TIME, IE. OVERNIGHT.

STATE OF KENTUCKY
J.R. ERICHSEN
16846
REGISTERED
PROFESSIONAL ENGINEER

JAN 0 6 1999

ALLTEL COMMUNICATIONS
GRAYSON, KENTUCKY
U - 24.0 X 250' SELF-SUPPORTING TOWER

REV	DESCRIPTION OF REVISIONS	INI	DATE
A	ADDED FOUNDATIONS	DAC	01/06/1999

APPROVED/ENG.	JRE	01/06/1999
APPROVED/FOUND.	JRE	01/06/1999
DRAWN BY	MDB	

PIROD INC.
1545 Pidco Dr.
Plymouth, IN 46563-0128
219-936-4221

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Printed: 01/06/99 13:33

ENG. FILE NO. A-115334-
ARCHIVE Q-80852

DRAWING NO. 204524-B
PAGE 5 OF 8

GENERAL NOTES

1. TOWER DESIGN CONFORMS TO STANDARD EIA/TIA-222-F FOR 70 MPH BASIC WIND SPEED WITH 0.50" RADIAL ICE WITH LOAD DUE TO WIND REDUCED BY 25% WHEN CONSIDERED SIMULTANEOUSLY WITH ICE. TOWER DESIGN CONFORMS TO STANDARD EIA/TIA-222-F FOR 70 MPH BASIC WIND SPEED WITH NO ICE.

2. MATERIAL: (A) SOLID RODS CONFORM TO ASTM A-572 GRADE 50 REQUIREMENTS.
   (B) ANGLES CONFORM TO ASTM A-36 REQUIREMENTS.
   (C) PIPE CONFORMS TO ASTM A-53 TYPE E, GRADE B REQUIREMENTS. (MIN YIELD STRENGTH=42 KSI)
   (D) ALL STEEL PLATES CONFORM TO ASTM A-36 REQUIREMENTS.

3. BASE REACTIONS PER EIA/TIA-222-F FOR 70 MPH BASIC WIND SPEED WITH 0.50" RADIAL ICE:
   TOTAL WEIGHT = 64.1 KIPS. MAXIMUM COMPRESSION = 315.8 KIPS PER LEG.
   MOMENT = 6120.3 KIP-FT. MAXIMUM UPLIFT = 273.1 KIPS PER LEG.
   MAXIMUM SHEAR = 45.7 KIPS TOTAL.

4. BASE REACTIONS PER EIA/TIA-222-F FOR 70 MPH BASIC WIND SPEED WITH NO ICE.
   TOTAL WEIGHT = 42.6 KIPS. MAXIMUM COMPRESSION = 303.0 KIPS PER LEG.
   MOMENT = 6002.6 KIP-FT. MAXIMUM UPLIFT = 274.6 KIPS PER LEG.
   MAXIMUM SHEAR = 43.8 KIPS TOTAL.

5. FINISH: HOT DIPPED GALVANIZED AFTER FABRICATION.

6. ANTENNAS: 250' - TWELVE DB874 ANTENNAS ON A LOW PROFILE PLATFORM WITH 1-5/8" LINES.
   230' - TWELVE DB874 ANTENNAS ON THREE T-FRAMES WITH 1-5/8" LINES.
   165' - ONE 8' SOLID DISH WITH 1-1/4" LINE.
   125' - ONE 8' SOLID DISH WITH 1-1/4" LINE.

7. ALL TRANSMISSION LINES MUST BE PLACED ON PIROD SUPPLIED LINE BRACKETS PART # 125495.

8. REMOVE FOUNDATION TEMPLATE PRIOR TO ERECTING TOWER. INSTALL BASE SECTION WITH MINIMUM OF 2" CLEARANCE ABOVE CONCRETE. GROUT NUTS BELOW BASE SECTION WITH NON-SHRINK GROUT AFTER LEVELING TOWER.

9. MIN. WELDS 5/16" UNLESS OTHERWISE SPECIFIED. ALL WELDING TO CONFORM TO AWS SPECIFICATIONS.

10. ALL BOLTS AND NUTS MUST BE IN PLACE BEFORE THE ADJOINING SECTION(S) ARE INSTALLED.

11. ALL A-325 BOLTS SHALL BE PRE-TENSIONED PER AISC SPECIFICATIONS. REFER TO DRAWING # 123107-A ("BOLT PRE-TENSIONING REQUIREMENTS".)

12. EIA GROUNDING FOR TOWER.

13. DUAL LIGHT KIT (151' - 350')

JAN 06 1999

ALLTEL COMMUNICATIONS
GRAYSON, KENTUCKY
U - 24.0 X 250' SELF-SUPPORTING TOWER

APPROVED/ENG.	JRE	01/06/1999
APPROVED/FOUND.	N/A	
DRAWN BY	MDB	

PIROD INC.
1545 Pidco Dr.
Plymouth, IN 46563-0128
219-936-4221

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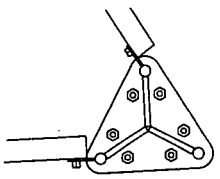
DRAWING NO. 204524-B
PAGE 4 OF 8

BREAKDOWN SECTION DATA (12" LEG) 0' - 190' ELEVATION														
SEC #	SECTION LENGTH	LEG SIZE	LEG PART#	TOP DIAG PART#	BOT DIAG PART#	DIAGONAL ANGLE FACE	DIAGONAL ANGLE THICK	QTY HOR	SECTION WEIGHT	LEG CONNECT+ DIAM	LEG CONNECT+ LENGTH	DIAG CONNECT DIAM	DIAG CONNECT LENGTH
U- 6.0	10'	1- 1/4"	105244		105556	2-1/2"	3/16"		870#	1 "	3-1/2"	1 "	2-1/4"
U- 8.0	20'	1- 1/2"	105217	105558	105561	2-1/2"	3/16"	1	2190#	1 "	3-1/2"	1 "	2-1/4"
U-10.0	20'	1- 1/2"	105217	105564	105567	2-1/2"	3/16"		2161#	1 "	3-1/2"	1 "	2-1/4"
U-12.0	20'	1- 1/2"	105217	105570	105573	2-1/2"	3/16"	1	2325#	1 "	3-1/2"	1 "	2-1/4"
U-14.0	20'	1- 3/4"	105218	105576	105579	3"	3/16"		2763#	1 "	3-1/2"	1 "	2-1/4"
U-16.0	20'	1- 3/4"	105218	105582	105587	3"	3/16"		2834#	1 "	3-1/2"	1 "	2-1/4"
U-18.0	20'	1- 3/4"	105218	127611	127612	3"	5/16"		3417#	1 "	4-1/2"	1 "	2-1/4"
U-20.0	20'	2 "	105219	105598	105601	3-1/2"	5/16"		4415#	1-1/4"	4-1/2"	1-1/4"	2-3/4"
U-22.0	20'	2 "	105219	127761	127762	3-1/2"	5/16"		4570#	1-1/4"	4-1/2"	1-1/4"	2-3/4"
U-24.0	20'	2 "	105219	113422	113423	4"	1/4"		4563#			1-1/4"	2-3/4"

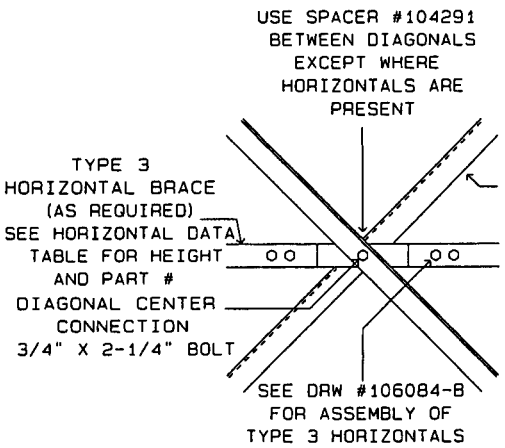
* THE WEIGHTS LISTED ARE THEORETICAL. THE ACTUAL WEIGHTS WILL VARY. ALL WEIGHTS SHOULD BE CONFIRMED IN THE FIELD PRIOR TO ERECTION.

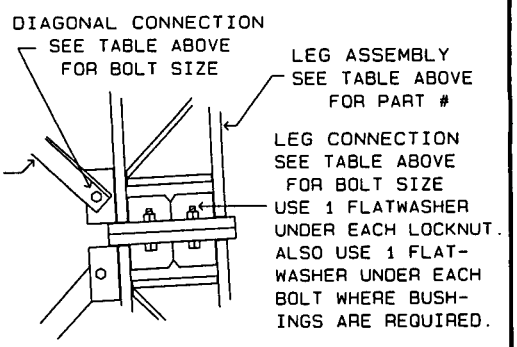
+ USE 1 FLATWASHER UNDER EACH LOCKNUT, FOR LEG CONNECTION ONLY. ALSO USE 1 FLATWASHER UNDER EACH BOLT HEAD WHERE BUSHINGS ARE REQUIRED.

ANGLE HORIZONTAL DATA (12" LEG)					
HORIZ HT	IN SEC#	HORIZ PART#	HORIZ TYPE	BOLTS DIAM	BOLTS LENGTH
165	U- 8.0	106204	3	SEE # 106084-B	
125	U-12.0	106206	3	SEE # 106084-B	



TOP VIEW @ C





VIEW D (SEE PAGE 1 FOR VIEW DEFINITION)
TYPICAL BRACE CONNECTION
#12 SECTIONS

VIEW C
TYPICAL LEG CONNECTION
#12 SECTIONS

JAN 06 1999

ALLTEL COMMUNICATIONS
GRAYSON, KENTUCKY
U - 24.0 X 250' SELF-SUPPORTING TOWER

APPROVED/ENG.	JRE	01/06/1999
APPROVED/FOUND	N/A	
DRAWN BY	MDB	

PIROD INC.
1545 Pidco Dr.
Plymouth, IN 46563-0128
219-936-4221

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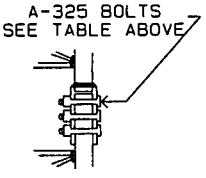
ENG. FILE NO. A-115334-Q-80852
ARCHIVE

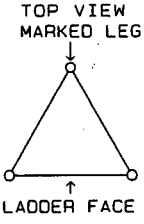
DRAWING NO. 204524-B
PAGE 3 OF 8

FABRICATED SECTION DATA 190' - 250' ELEVATION								
SECT LEN	SEC #	SECTION PART#	LEG SIZE	BRACE SIZE	SECT WT.*	BOLTS AT BOTTOM DIAM	LENGTH	#
20'	S- 4.0	100315+	1- 1/2 "	5/8 "	677#	5/8"	4-1/2"	15
20'	H- 4.5	100246	2 "	7/8 "	1190#	3/4"	5"	15
20'	H- 5.0	105928	2- 1/4 "	7/8 "	1440#	1 "	3-1/2"	18

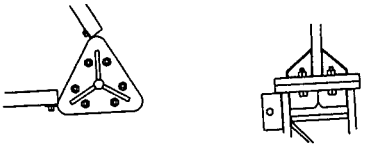
*THE WEIGHTS LISTED ARE THEORETICAL. THE ACTUAL WEIGHTS WILL VARY. ALL WEIGHTS SHOULD BE CONFIRMED IN THE FIELD PRIOR TO ERECTION.
+WELD TOP PLATE P/N 120609 AT TOP OF TOP SECTION.



VIEW A
TYPICAL LEG CONNECTION
FOR FABRICATED SECTIONS



THE MARKED LEG OF EACH SECTION IS STAMPED WITH THE 6 DIGITS OF THE TOWER SERIAL #. ASSEMBLE THE TOWER WITH MARKED LEGS TOGETHER. THE MARKED LEG MAY ALSO CONTAIN JOINT NUMBERS STARTING WITH 1 AT THE TOP OF THE BASE SECTION. IF SO, ASSEMBLE WITH JOINTS IN THE PROPER SEQUENCE.



TOP VIEW @ B VIEW B
LEG CONNECTION AT 190 FT.
USE 1 FLATWASHER UNDER EACH LOCKNUT, FOR LEG CONNECTION ONLY.

ALLTEL COMMUNICATIONS
GRAYSON, KENTUCKY
U - 24.0 X 250' SELF-SUPPORTING TOWER

APPROVED/ENG.	JRE	01/06/1999
APPROVED/FOUND	N/A	
DRAWN BY	MDB	

PiROD INC.
1545 Pidco Dr.
Plymouth, IN 46563-0128
219-936-4221

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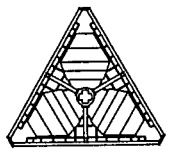
ENG. FILE NO. A-115334-
ARCHIVE G-80852

DRAWING NO. 204524-B
PAGE 2 OF 8

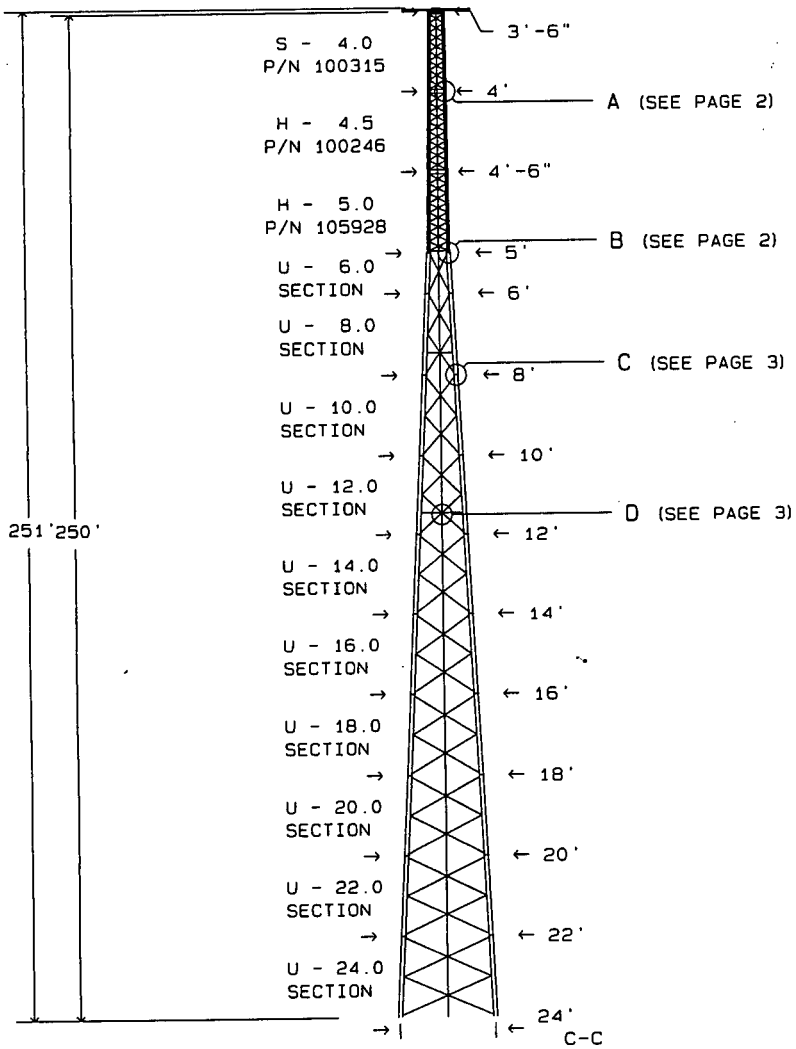
TOP VIEW
(ENLARGED)

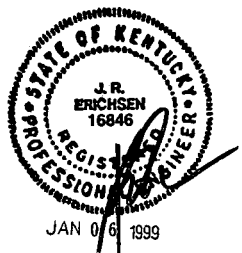
ROTATABLE TOP
(REF ASSEMBLY
DWG # 130555)

SIDE VIEW
(ENLARGED)



SHOP WELD TOP PLATE P/N
120609 AT TOP OF TOP SECTION.





JAN 06 1999

REV	DESCRIPTION OF REVISIONS	INI	DATE
A	ADDED FOUNDATIONS	DAC	01/06/1999

From: 80852.OFT - 12/30/98 14:06 > 2045241A.DWG - 01/06/99 10:57
Printed: 01/06/99 13:33

ALLTEL COMMUNICATIONS
GRAYSON, KENTUCKY
U - 24.0 X 250' SELF-SUPPORTING TOWER

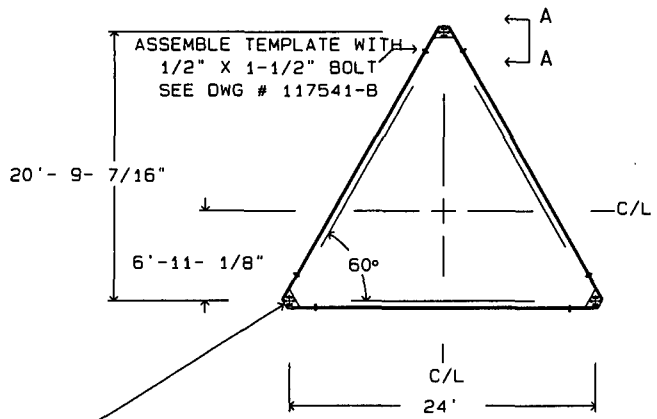
APPROVED/ENG.	JRE	01/06/1999
APPROVED/FOUND.	N/A	
DRAWN BY	MDB	

PIROD INC.
1545 Pidco Dr.
Plymouth, IN 46563-0128
219-936-4221

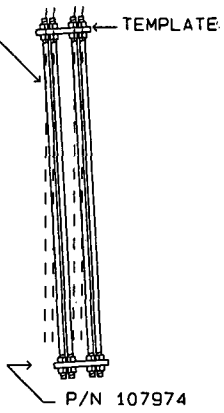
ENG. FILE NO. A-115334-
ARCHIVE Q-80852

DRAWING NO. 204524-B
PAGE 1 OF 8

EACH LEG MUST BE CENTERED IN PIER
WITHIN +/- 10% OF PIER DIAMETER

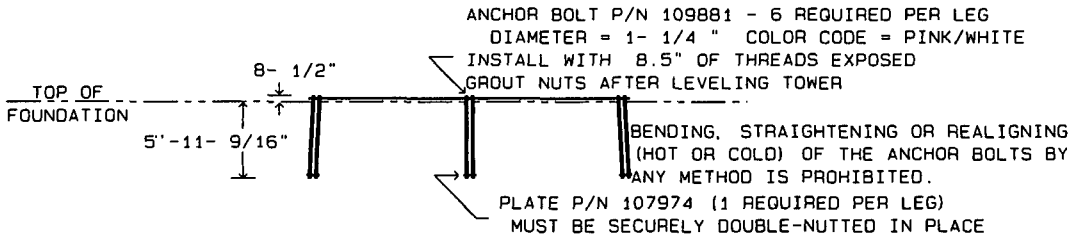


REFERENCE ANGLE = 3.30 DEGREES
TEMPLATE MUST BE UTILIZED TO
INSURE CORRECT PLACEMENT



VIEW A - A

TEMPLATE P/N 117520 IS REQUIRED FOR INSTALLATION. COLOR CODE OF TEMPLATE MUST MATCH COLOR CODE OF ANCHOR BOLTS. TEMPLATE MUST BE SECURELY DOUBLE-NUTTED TO ANCHOR BOLTS DURING CONCRETE INSTALLATION AND MUST BE LEVEL +/- 1/2".
INSTALL TEMPLATE WITH LABEL "UP" FACING UPWARD.
INSTALL TEMPLATE WITH SUFFICIENT SPACE BENEATH TO PERMIT FINISHING OF CONCRETE. AND TO FACILITATE TEMPLATE REMOVAL PRIOR TO TOWER ERECTION.



ATTENTION INSTALLER

1-1/4" DIAMETER ANCHOR STEEL

THE ANCHOR BOLTS PROVIDED FOR THIS PROJECT ARE 1-1/4" DIA. AND COLOR CODED PINK & WHITE. THE CORNER TEMPLATE IS PART NUMBER 117520 FOR A TAPERED TOWER AND SHOULD HAVE SIX 1-9/32" DIA. HOLES ON AN 8" DIA. BOLT CIRCLE. EMBEDMENT PLATES ARE PART NUMBER 107974 WHICH ARE TRIANGULAR AND HAVE SIX 1-5/16" DIA. HOLES ON AN 8" DIA. BOLT CIRCLE.

IF THERE ARE ANY DISCREPANCIES, PLEASE NOTIFY PIROD, INC., PRIOR TO INSTALLATION.

TOWER ANCHOR STEEL PLACEMENT

JAN 0 6 1999

ALLTEL COMMUNICATIONS
GRAYSON, KENTUCKY
U - 24.0 X 250' ANCHOR INSTALLATION

REV	DESCRIPTION OF REVISIONS	INI	DATE
A	ADDED FOUNDATIONS	DAC	01/06/1999

APPROVED/ENG.	JRE	01/06/1999	
APPROVED/FOUND.	JRE	01/06/1999	
DRAWN BY	MDB		
ENG. FILE NO.	A-115334-		
ARCHIVE	0-80852		
DRAWING NO.	204524-B		
PAGE	8 OF 8		

PIROD INC.
1545 Pidco Dr.
Plymouth, IN 46563-0128
219-936-4221

From: 80852.DFT - 01/06/99 13:13 > 204524BA.DWG - 01/06/99 13:06
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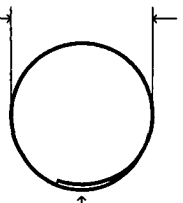
Ⓐ

16'

8 REBAR - 48 PIECES REQ. TOTAL
APPROX WT = 42.7# EACH, 2050# TOTAL

4'

Ⓑ

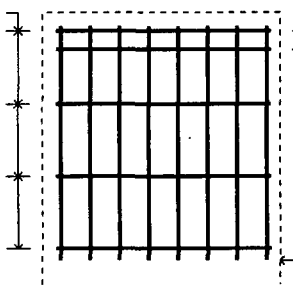


5 REBAR - 45 PIECES REQUIRED TOTAL
APPROX UNBENT LENGTH = 14'- 9- 5/8"
APPROX WT = 15.4# EACH, 693# TOTAL

LAP DIMENSION: 2'- 2- 3/4"
PLACE CIRCULAR TIES SO THAT LAPS ON ADJACENT TIES ARE 180 DEGREES APART.

1'-4"

PLACE FIRST TIE AT END OF VERTICAL BARS (TOP AND BOTTOM) AND CONTINUE SPACING AS SHOWN THROUGHOUT PIER.



PLACE AN ADDITIONAL CIRCULAR TIE 4" FROM THE END TIE (TOP AND BOTTOM) AS SHOWN.

DETAIL OF REBAR CAGE END
Ⓔ

REBAR DETAIL

TOTAL APPROX REBAR WEIGHT = 2743#
REINFORCING BAR TO CONFORM TO ASTM A615 GRADE 60 SPECIFICATIONS.

JAN 0 6 1999

ALLTEL COMMUNICATIONS
GRAYSON, KENTUCKY
U - 24.0 X 250' REBAR DETAIL

APPROVED/ENG.	JRE	01/06/1999	
APPROVED/FOUND	JRE	01/06/1999	
DRAWN BY	MDB		

PiROD INC.
1545 Pidco Dr.
Plymouth, IN 46563-0128
219-936-4221

REV	DESCRIPTION OF REVISIONS	INI	DATE
A	ADDED FOUNDATIONS	DAC	01/06/1999

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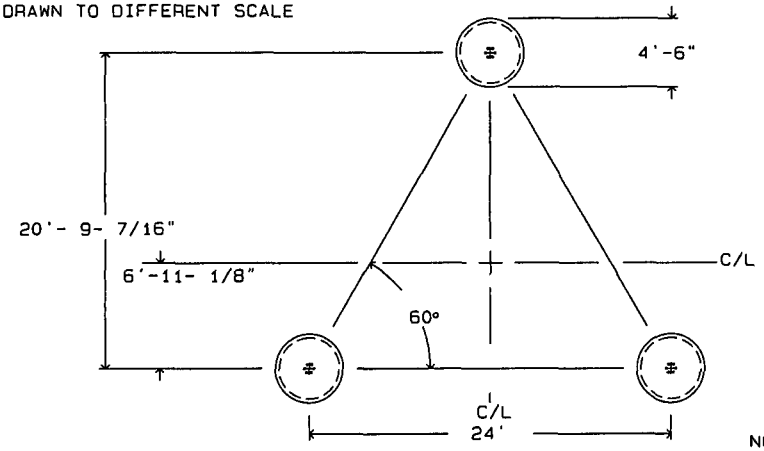
ENG. FILE NO. A-115334-
ARCHIVE Q-80852

DRAWING NO. 204524-B
PAGE 7 OF 8

TOP VIEW

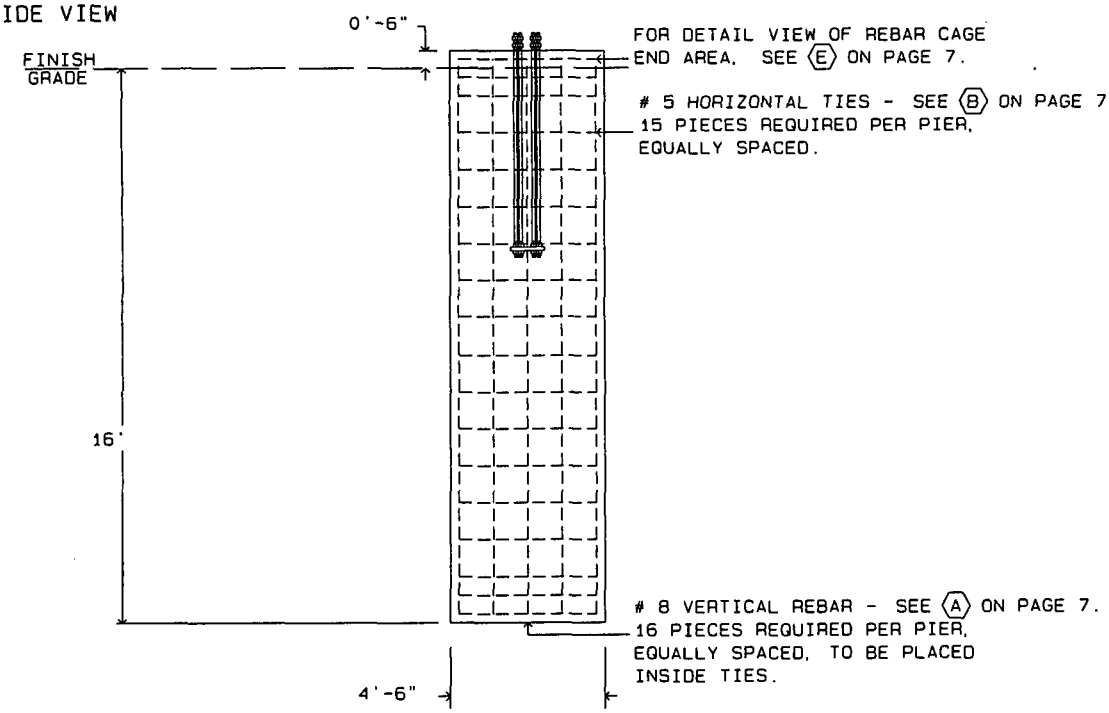
TOP AND SIDE VIEWS ARE DRAWN TO DIFFERENT SCALE



NOTE: ALL REBAR REQUIRES MINIMUM 3" CONCRETE COVERAGE

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

SIDE VIEW



TOWER FOUNDATION

THREE PIERS REQUIRED
9.7 CUBIC YARDS CONCRETE REQUIRED EACH PIER

FOR INSTALLATION SPECIFICATIONS AND ADDITIONAL INFORMATION, SEE PAGE 5 OF THIS DRAWING.

STATE OF KENTUCKY
J.R. ERICHSEN 16846
REGISTERED PROFESSIONAL ENGINEER

JAN 0 6 1999

REV	DESCRIPTION OF REVISIONS	INI	DATE
A	ADDED FOUNDATIONS	DAC	01/06/1999

From: 80852.DFT - 01/06/99 13:13 > 2045246A.DWG - 01/06/99 13:06
Printed: 01/06/99 13:33

ALLTEL COMMUNICATIONS
GRAYSON, KENTUCKY
U - 24.0 X 250' BASE FOUNDATION

APPROVED/ENG.	JRE	01/06/1999
APPROVED/FOUND	JRE	01/06/1999
DRAWN BY	MDB	
ENG. FILE NO.	A-115334-	
ARCHIVE	Q-80852	

PIROD INC.
1545 Pidco Dr.
Plymouth, IN 46563-0128
219-936-4221

DRAWING NO. 204524-B
PAGE 6 OF 8

SUBSURFACE INVESTIGATION

ALLTEL
SUBSURFACE INVESTIGATION
GRAYSON CELL SITE
GRAYSON, KENTUCKY
CTL PROJECT NO. 98050250

PREPARED FOR:

ALLTEL
107 PIKE STREET
MARIETTA, OHIO 45750

PREPARED BY:

CTL ENGINEERING, INC.
2860 FISHER ROAD
COLUMBUS, OHIO 43228

DECEMBER 8, 1998

CTL ENGINEERING

EXECUTIVE SUMMARY

The site is considered suitable for the construction of the proposed tower and the equipment building. The equipment building may be supported onto conventional wall footings. The tower may be supported onto a mat foundation or onto a drilled pier foundation system. No groundwater is expected during excavation and construction of shallow or deep foundation units.

TABLE OF CONTENTS

I. LOCATION AND STRUCTURE DATA

The project site is located south of College Hill Road and west of Landsdowne Street in Grayson, Kentucky. The site is intended for the design and construction of a new Alltel tower and equipment building.

II. SUBSURFACE INVESTIGATION

One (1) soil test boring, designated as B-1, was drilled at the approximate location shown on the enclosed site plan. The boring was extended to an auger refusal depth of 32.5 feet below existing grade.

Drilling, sampling, field and laboratory testing have been performed in accordance with standard geotechnical engineering practices and current ASTM D-1452 and D-1586 procedures. Results from all field and laboratory tests are shown on the enclosed boring log.

The ground surface elevation at the boring location is assumed to equal 100.0 feet.

III. FINDINGS

All surface vegetation and topsoil in the vicinity of the test boring were cleared by others prior to the field testing.

The test boring exhibited brown and gray clayey silt soils to a depth of 5.0 feet below grade. These soils exhibited standard penetration values ranging from 8 to 15 blows per foot (bpf), with natural moisture content values ranging from 11 to 12 percent.

Brown and gray changing to gray weathered shale was encountered below a depth of 5.0 feet, extending downwards to the drilled depth. A thin coal seam was encountered in the boring between depths of 18.5 and 19.0 feet. The weathered shale exhibited penetration values ranging from 50 bpf to 50 blows for 2 inches of penetration.

The soils from boring B-1 between depths of 3.0 and 4.5 feet exhibited a soil resistivity value of 16,000 ohm-cm in the as received condition (at a moisture content value of 12.8 percent).

No groundwater was encountered in the test boring at any time during the field investigation. The boring exhibited cave-in at a depth of 22.0 feet.

IV. ANALYSIS AND RECOMMENDATIONS

The recommendations provided in the following paragraphs are based upon the assumption that the subsurface conditions in the area of the tower and support building are similar to those in the drilled boring. Therefore, the subsurface conditions at the monopole and building locations should be inspected and approved during construction by the Soils Engineer. In the event, that the subsurface conditions at the monopole and building location are different from those in the drilled boring, modifications should be made to the recommendations provided in this report.

Based upon the soil and rock data obtained from the field testing, the following analysis and recommendations are provided.

A. Equipment Building

1. Site Preparation

a. The exposed surface should be compacted until a relatively unyielding surface is achieved. Soft and/or loose soils, if encountered, should be disked, dried and recompacted, or otherwise as directed by the Soils Engineer.

b. Engineered fill, if required to raise the grade, may consist of silty-clayey soils, crushed limestone or bankrun sand and gravel. Topsoil and organically contaminated materials are not suitable for use as engineered fill. All fill material should be inspected and approved by the Soils Engineer.

c. The engineered fill should be placed in layers not to exceed 8 inches in loose thickness, with each layer compacted to 100 percent of the maximum dry density as determined by AASHTO T-99 (ASTM D-698 standard method), or as otherwise specified by the Soils Engineer.

d. Excavation side slopes in excess of 4.0 feet in depth, if required, should be sloped in accordance with OSHA regulations.

2. **Foundation Support**

a. The proposed equipment building may be supported onto continuous wall foundation units constructed into the native soils. All footing bearing surfaces should be inspected and approved by the Soils Engineer.

b. Shallow foundation units may be proportioned using an allowable bearing capacity not exceeding 3.0 Kips per square foot (Ksf). This value applies to the total of all design loads and was computed using a factor of safety of 3.0.

c. The bottom of wall footings should be constructed at a minimum depth of 3.0 feet below the lowest adjacent exterior grade to offset the effects of frost penetration.

d. No groundwater is anticipated during excavation and construction of shallow foundation units.

B. Tower

The proposed tower may be supported onto either a mat foundation system or a drilled pier foundation system. Foundation support recommendations relative to both types of foundation systems are provided in the following paragraphs.

Mat Foundation

1. A mat foundation system constructed into the underlying weathered shale may be proportioned using an allowable bearing capacity value not exceeding 15.0 Kips per square foot (Ksf). This value applies to the total of all design loads and was computed using a factor of safety of 3.0.

2. Excavations within the soil overburden may be accomplished using standard excavation equipment. Excavations into the weathered shale may be accomplished using high-powered excavation equipment.

3. The bottom of the mat foundation unit should be constructed at a minimum depth of 3.0 feet below the lowest adjacent exterior grade to offset the effects of frost penetration.

4. Total settlement of a mat foundation constructed as recommended is estimated to be within tolerable limits.

5. No groundwater is expected during excavation and construction of a mat foundation unit.

Drilled Piers (Caissons)

1. Pier base may be proportioned using an allowable end bearing capacity not exceeding those tabulated below. The recommended allowable end bearing capacities were computed based on a factor of safety of 3.0.

Depth (feet)	Allowable End Bearing Capacity (Ksf)
At or below 5.0	15.0
At or below 9.0	20.0

2. No groundwater is anticipated during excavation and construction of drilled pier foundation units.

3. The piers should be cased to prevent soil cave-in, to minimize water seepage into the hole and to protect the Soils Engineer/Inspector during cleaning and inspection. OSHA and ADSC safety requirements should be followed during cleaning and inspection.

4. Depending upon the equipment used, rock coring may be required within the underlying weathered shale.

5. The drilled piers may be designed using the soil and rock parameters tabulated below. The downward and uplift friction values were computed using a factor of safety of 4.0 in weathered shale.

Parameters	Depth (feet)		
	0-5	5-9	9-32
Downward Friction, psf	0	2450	2800
Uplift Friction, psf	0	1600	1850
Cohesion, psf	0	---	---
Total Unit Weight, pcf	115	140	140
Angle of Internal Friction, Degrees	15	---	---
At Rest Pressure, Ko	0.74	---	---
Active Pressure, Ka	0.59	---	---
Passive Pressure, Kp	0.00	---	---
Undrained Shear Strength, psf	0	---	---
Compressive Strength of Rock, psi	---	750	1000
E_{50}	Excessive	---	---

V. CHANGED CONDITIONS

Should layout for the proposed structures be changed from those used in preparing this report, the Soils Engineer should be notified in order to make the necessary modifications in our recommendations to account for the changed conditions.

VI. TESTING AND INSPECTION

Experience shows that the subsurface conditions in an area sometimes vary from the ones indicated by the test boring at its specific location. It is therefore recommended that a Soils Inspector, under the supervision of a qualified Soils Engineer, be retained on the site to supervise all earthwork including the verification of the bearing values given in this report.

VII. DISCLAIMER

CTL Engineering, Inc. has prepared this report for your use in accordance with generally accepted soil and foundation engineering practices. Analysis, conclusions and other work product of CTL Engineering, Inc. are instruments of service for this project only.

Soil samples will be retained in our laboratory for a period of 60 days, after which they will be discarded unless instructions are received from you as to their disposal.

This geotechnical report does not address the environmental aspects of this particular site.

Respectfully Submitted,

CTL ENGINEERING, INC.

Joe Grani, P.E.
Project Engineer

Bjorn Kvammen Jr./JD
Bjorn Kvammen, Jr., Ph.D., P.E.
Project Engineer

APPENDIX A

TEST BORING RECORDS

CTL ENGINEERING

SOIL DESCRIPTION

NON-COHESIVE SOIL DESCRIPTION	STANDARD PENETRATION BLOWCOUNTS PER FOOT (BPF)
Very Loose	0 - 4
Loose	5 - 10
Medium Dense	11 - 30
Dense	31 - 50
Very Dense	Over 50

COHESIVE SOIL DESCRIPTION	STANDARD PENETRATION BLOWCOUNTS PER FOOT (BPF)
Very Soft	0 - 1
Soft	2 - 4
Medium Stiff	5 - 8
Stiff	9 - 15
Very Stiff	16 - 30
Hard	Over 30

GRADATION COMPONENT	SIZE
Boulders	Larger Than 8"
Cobbles	8" - 3"
Coarse Gravel	Passing 3" Retained on ¾"
Fine Gravel	Passing ¾" Retained on #10
Coarse Sand	Passing #10 Retained on #40
Fine Sand	Passing #40 Retained on #200
Silt	0.074 mm to 0.005 mm
Clay	Smaller Than 0.005 mm

COMPONENT MODIFIERS	SIZE
Trace	0 - 10%
Little	11 - 20%
Some	21 - 35%
And	36 - 50%

MOISTURE TERMS	DESCRIPTION
Dry	Powdery
Damp	Below Plastic
Moist	Above Plastic, Below Liquid
Wet	Above Liquid

CTL ENGINEERING

TEST BORING RECORD

CLIENT : Alltel
PROJECT : Grayson Cell Site
LOCATION : Grayson, Kentucky
PROJECT NO. : 98050250

BORING NO.: B-1
SHEET 1 OF 2
DATE STARTED : 12-01-98
DATE COMPLETED : 12-02-98

BORING	ELEVATION : 100.0 Feet	BORING METHOD	: HSA	HAMMER	: Automatic
	STATION :	RIG TYPE	: CME 45 c	DRILLER	: JD
	OFFSET :	CASING DIA.	: 3.25"	TEMPERATURE	:
	DEPTH : 32.5 Feet	CORE SIZE	:	WEATHER	: Sunny

GROUNDWATER: ▼ Encountered at Dry ▽ At completion Dry Caved in at 22.0'

STRATUM ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	STRATUM DEPTH	SAMPLE NUMBER	SPT per 6"	BLOWS per 12" (N)	% RECOVERY	MOISTURE CONTENT	TOTAL UNIT WEIGHT, pcf	UNCONF. COMP., ksf	ATTERBERG LIMITS LL	PL	PI
		Medium Stiff to Stiff, Damp, Brown and Gray CLAYEY SILT		SS-1	4 4 4	8	56	12					
				SS-2	4 5 10	15	67	11					
95.0	5		5.0										
		Brown and Gray WEATHERED SHALE		SS-3	24 22 28	50	67	8					
				SS-4	20 50/5		90	7					
	10												
				SS-5	48 50/2		63	6					
	15												
81.5			18.5										
81.0		COAL SEAM	19.0	SS-6A	20 42		80	6					
	20	Gray WEATHERED SHALE		SS-6B	50/3			7					

Continued on next page

GTL ENGINEERING
2860 Fisher Road
Columbus, Ohio 43204
Telephone: 614-276-8123
Fax: 614-276-6377

BORING METHOD		SAMPLING METHOD		ABBREVIATIONS	
HSA	- Hollow Stem Auger	SS	- Split Spoon Sample	•	- Hand Penetrometer
SFA	- Solid Flight Auger	ST	- Shelby Tube Sample	LL	- Liquid Limit
RC	- Rock Coring	CR	- Rock Core Sample	PL	- Plastic Limit
MD	- Mud Drilling	BS	- Bag Sample	PI	- Plasticity Index
WD	- Wash Drilling			SPT	- Standard Penetration Test
HA	- Hand Auger				

TEST BORING RECORD

CLIENT : Alltel

PROJECT : Grayson Cell Site

BORING NO.: B-1

SHEET 2 OF 2

STRATUM ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	STRATUM DEPTH	SAMPLE NUMBER	SPT per 6"	BLOWS per 12" (N)	% RECOVERY	MOISTURE CONTENT	TOTAL UNIT WEIGHT, pcf	UNCONF. COMP., ksf	ATTERBERG LIMITS LL	PL	PI
				SS-7	50/4		100	9					
	25	Gray WEATHERED SHALE											
				SS-8	50/3		67	3					
	30		32.5										
67.5		BOTTOM OF BORING AUGER REFUSAL											
	35												
	40												
	45												

GTL ENGINEERING

2860 Fisher Road
Columbus, Ohio 43204
Telephone: 614-276-8123
Fax: 614-276-6377

BORING METHOD		SAMPLING METHOD		ABBREVIATIONS	
HSA	- Hollow Stem Auger	SS	- Split Spoon Sample	*	- Hand Penetrometer
SFA	- Solid Flight Auger	ST	- Shelby Tube Sample	LL	- Liquid Limit
RC	- Rock Coring	CR	- Rock Core Sample	PL	- Plastic Limit
MD	- Mud Drilling	BS	- Bag Sample	PI	- Plasticity Index
WD	- Wash Drilling			SPT	- Standard Penetration Test
HA	- Hand Auger				

APPENDIX B

TEST RESULTS

SOIL RESISTIVITY
DATA SHEET

Client:	Alltel	Boring#:	B-1	Date:	12/04/98
Project:	Grayson Cell Site	Sample#:	SS-2	Tech:	M.E.
	Grayson, Carter Co., Kentucky				
Project #:	98050250				

Soil Resistivity Determination

	Time (minutes)	Measured Resistance (ohm)	Soil Resistivity (ohm-cm)
As Received	0	16,000	16,000
Moisture Added	5	3,900	3,900
	15	3,200	3,200
	30	3,100	3,100
	60	3,100	3,100

Moisture Content and Density Determination

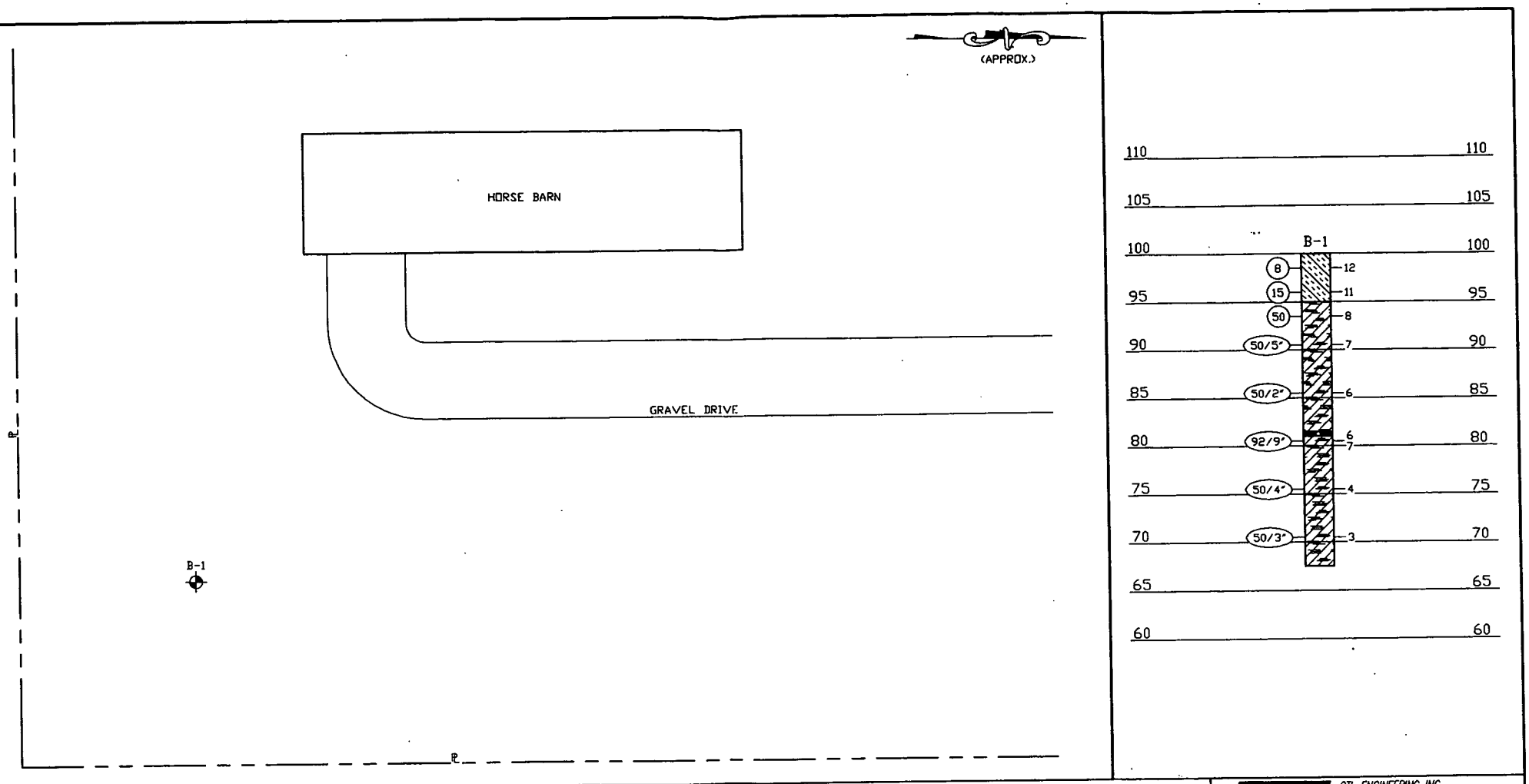
	As Received	Moisture Added
Weight of Box, g	248.62	248.62
Weight of Soil & Box, g	699.20	754.90
Weight of Wet Soil, g	40.91	62.32
Weight of Dry Soil, g	36.28	47.07
Moisture Content, %	12.8	32.4
Total Unit Weight, pcf	102.5	115.1
Dry Unit Weight, pcf	90.9	87.0

Reviewed by:	J.G.

CTL ENGINEERING

APPENDIX C

SITE PLAN/PROFILE SHEET



0 20 40 50 60

BORING ELEVATION ASSUMED TO EQUAL 100.0

LEGEND

- TOPSOIL
- BITUMINOUS CONCRETE
- PORTLAND CEMENT CONCRETE
- CRUSHED AGGREGATE GRAVEL/COBBLES
- FILL
- PEAT
- CLAY
- SILT
- SAND
- BOULDERS
- SAND \ GRAVEL
- WEATHERED SHALE
- SILTSTONE
- SANDSTONE
- LIMESTONE
- COAL
- SHALE
- CLAYSHALE
- GROUND WATER DURING DRILLING
- GROUND WATER AT COMPLETION OF DRILLING
- GROUND WATER AT "N" HOURS AFTER COMPLETION
- —W MOISTURE CONTENT IN PERCENT (w)
- (N)— STANDARD PENETRATION IN BLOWS PER FOOT (N)

CTL ENGINEERING INC.
CONSULTING ENGINEERS
TESTING * INSPECTION
LABORATORY SERVICES

CTL ENGINEERING

SOIL PLAN / PROFILE

DATE	ALLTEL
12-7-98	GRAYSON CELL SITE
SCALE	GRAYSON, KENTUCKY
AS SHOWN	

DRAWN BY	REVIEWED BY	PAGE	PROJECT NO.
M. TABB	JRG	1 OF 1	98050250

EXHIBIT 9

Notice of Application for Certificate Of Public Convenience and Necessity To Construct Cellular Communications Tower

Pursuant to 807 KAR 5:063(1)(q) notice is given that TeleSpectrum, Inc. is seeking a Certificate of Public Convenience and Necessity from the Public Service Commission of Kentucky to construct a 251foot cellular communications tower (269 feet with antennae and appurtenances) on property located at 405 College Hill Road, Grayson , Kentucky.

The proceeding before the Public Service Commission bears Case No. 99-072

EXHIBIT 10

SIGN AT CLOSEST PUBLIC ROAD

SIGN AT SITE

OPTION AND LAND LEASE AGREEMENT

This Option and Land Lease Agreement (the Agreement) is made this 1st day of November, 1998, by and between Terry E. & Willetta G. Wilburn having an address of P.O. Box 686, Grayson, Ky. 41143 (Lessor), and TeleSpectrum, Inc., dba ALLTEL having an office at c/o 360° Communications Company, 8725 Higgins Road, Chicago, Illinois, 60631-2702 (Lessee).

1. **The Option.** **(a)** For the sum of (the Option Fee), to be paid to Lessor by Lessee upon execution of this Agreement and other good and valuable consideration, Lessor hereby grants to Lessee the exclusive and irrevocable option for 180 days from the date hereof through and including April 29, 1999 (the Initial Option Period), to lease the Premises (as defined below) on the terms and conditions set forth below (the Option). The time during which the Option may be exercised may be extended for an additional180 days upon written notification to Lessor by Lessee accompanied by the payment of an additional (the Additional Option Fee), delivered to Lessor prior to the end of the Initial Option Period.

(b) In the event the Additional Option Fee is not paid and/or written notice not delivered by the due date for the same, then the Option shall terminate and this Agreement shall terminate and Lessor shall be entitled to retain all previously paid sums as full payment for the Option granted hereunder. However, if Lessor accepts any Additional Option Fee, Rent and/or written notice after the due date for the same, then Lessee's default will be deemed waived and this Agreement shall be reinstated. Upon Lessee's exercise of the Option, the lease agreement (the Lease) which follows shall take effect.

(c) In the event Lessor fails to perform its obligations under this Agreement for any reason other than Lessee's breach, Lessee may pursue all remedies available at law and in equity. Lessor hereby acknowledges that Lessee will incur significant expenses in reliance on this Agreement and therefore agrees to pay Lessee for all consequential damages which Lessee will suffer as a result of Lessor's breach.

2. **Premises.** Upon Lessee's exercise of the Option, Lessor hereby leases to Lessee and Lessee hereby leases from Lessor, by this Agreement, a 55' x 75'foot (approximately 0.09 acres) parcel of property commonly known as 405 College Hill Road, Grayson, Ky. 41143 (the Premises). A legal description of the Premises is attached hereto and incorporated herein as Exhibit A. Lessor

grants to Lessee the right to survey the Premises at Lessee's cost, and the survey shall then become Exhibit B which shall be attached hereto and made a part hereof. In the event of any discrepancy between the description of the property contained herein and the survey, the survey shall control. The Premises are leased for the express purpose of constructing and operating a telecommunications facility, including, but not limited to, up to a 250' foot self-supporting tower (the Tower), a 12' x 28' equipment shelter, and an 8' chain link fence with barbed wire on top around the Tower base and such other structures as Lessee determines are necessary (collectively the Structures).

3. **Term.** The term of this Lease shall be for a period of five(5) years, commencing on the date set forth in written notice from Lessee to Lessor (the Commencement Date). Lessor grants to Lessee the right to renew this Lease for five(5)additional terms of five(5) years each. In order to exercise this renewal option, Lessee shall deliver to Lessor written notice of Lessee's intent to renew this Lease not less than ninety (90) days prior to the expiration of the then-current lease term. The initial term and all renewal terms are referred to herein as the Term.

4. **Rent.** The rent for the first five(5) years of the Term shall be per month, paid monthly in advance, which Lessee shall pay to Lessor at such place as Lessor shall designate to Lessee in writing. If the Term does not begin on the first day or end on the last day of a month, the rent for that partial month shall be prorated by multiplying the monthly rent by a fraction, the numerator of which is the number of days of the partial month included in the Term and the denominator of which is the total number of days in the full calendar month.

Beginning with the 6th year of the Term and every 5th year thereafter, the then current monthly rental fee shall be adjusted by multiplying it by the change in the Consumer Price Index (CPI) for the immediately preceding Term for which the rent has remained constant (Previous Rent Term). Notwithstanding the foregoing, in no event shall the increase in monthly rent for any adjustment period exceed 15% of the monthly rent established for the Previous Rent Term. For purposes of calculation, the CPI used shall be the Consumer Price Index-U.S. City Averages for Urban Wage Earners and Clerical Workers, All Items (1982-84=100) published by the United States Department of Labor, Bureau of Labor Statistics.

5. **Ingress, Egress and Utility Easement.** Lessor hereby grants to Lessee an easement for ingress, egress, regress and utilities over property of Lessor adjacent to the Premises for

construction and maintenance of the Structures on the Premises, for the installation, construction and maintenance of underground and above ground telephone, telegraph, and power lines in connection with its use of the Premises, and for access to the Premises from a public road (the Easement). The term of this Easement shall commence upon the Commencement Date of this Lease and shall continue until the last to occur of (i) expiration of the Lease Term, or (ii) removal by Lessee of all of its property from the Premises after expiration of the Lease Term. "Lessee further agrees that it shall be responsible for reparation of any damage it may cause to the Easement, to restore the Easement to its original condition at the commencement of this Lease, normal wear and tear excepted." The location and configuration of the Easement shall be agreed upon by the parties not later than ten (10) business days after Lessee's exercise of the Option, and shall be included in any recorded Memorandum of this Lease. In addition, at Lessee's request and expense, this Easement shall be set forth in a separate Easement Agreement which Lessor and Lessee agree to execute and which Lessee shall have recorded as an encumbrance on the property of Lessor and binding upon all subsequent owners, successors and assigns.

6. **Title and Quiet Possession.** Lessor represents and covenants that Lessor owns the Premises and property subject to the Easement in fee simple, free and clear of all liens, encumbrances and restrictions of every kind and nature, except for those which currently appear in the chain of title and are reported as exceptions on the commitment for title insurance which Lessee may obtain. As a condition to Lessee's obligations hereunder Lessor will, within ten (10) business days of Lessee's notice of its intent to exercise the Option, execute and obtain from the holder of any lien an Attornment and Nondisturbance Agreement or a Subordination Agreement in form acceptable to Lessee.

Lessor represents and warrants to Lessee that Lessor has the full right to make this Agreement and that Lessee shall have quiet and peaceful possession of the Premises and Easement throughout the Lease Term.

7. **Subordination, Attornment, and Nondisturbance.** Lessee agrees that, if requested by Lessor, this Lease shall be subject and subordinate to any mortgages or deeds of trust now or hereafter placed upon the Premises and to all modifications thereto, and to all present and future advances made with respect to any such mortgage or deed of trust; provided that, Lessee's possession of the Premises shall not be disturbed so long as Lessee shall continue to perform its duties and obligations under this Lease and Lessee's obligation to perform such duties and

obligations shall not be in any way increased or its rights diminished by the provisions of this paragraph. Lessee agrees to attorn to the mortgagee, trustee, or beneficiary under any such mortgage or deed of trust, and to the purchaser in a sale pursuant to the foreclosure thereof; provided that, Lessee's possession of the Premises shall not be disturbed so long as Lessee shall continue to perform its duties and obligations under this Lease. Lessee's obligations hereunder are conditioned upon receipt by Lessee, within ten (10) business days of Lessee's notice of its intent to exercise the Option, or within ten (10) business days of the date of creation of any future mortgages or deeds of trust, of an Attornment and Nondisturbance Agreement in form reasonably acceptable to Lessee, executed and acknowledged by Lessor and the holder of any mortgage or deed of trust to which this Lease is, or shall become, subordinate.

8. **Governmental Approvals and Compliance.** During the Term of this Lease, Lessee shall comply with all applicable laws affecting the Premises, the breach of which might result in any penalty to Lessor or forfeiture of Lessor's title to the Premises. Lessee shall obtain any necessary governmental licenses or authorizations required for the construction and use of the Structures on the Premises and shall comply with government regulations applicable to its operations, including those of the FAA and FCC.

9. **Assignment and Subleasing.** Lessee may sublet the Premises in whole or in part without Lessor's consent, but the making of any such sublease shall not release Lessee from any of Lessee's obligations hereunder. Lessee shall not assign or transfer this Agreement, or any interest herein, without the prior written consent of Lessor which shall not be unreasonably withheld, delayed or conditioned, and a consent to an assignment shall not be deemed to be a consent to any subsequent assignment. Lessee is expressly permitted to assign its rights and responsibilities under this Agreement, without obtaining Lessor's consent, to 360° Communications Company, its successors in interest, assigns or any affiliate thereof.

10. **Notices.** All notices, demands, requests, consents, approvals and other instruments required or permitted to be given pursuant to this Agreement shall be in writing, signed by the notifying party, or officer, agent or attorney of the notifying party, and shall be deemed to have been effective upon delivery if served personally, including but not limited to delivery by messenger, overnight courier service or by overnight express mail, or upon posting if sent by registered or certified mail, postage prepaid, return receipt requested, and addressed as follows:

To Lessor: Terry E. & Willetta G. Wilburn
PO Box 686
Grayson, Ky. 41143

To Lessee: TeleSpectrum, Inc. dba ALLTEL JRC
~~c/o 360° Communications Company~~
~~8725 Higgins Road~~ One Allied Drive
~~Chicago, Illinois 60631-2702~~ Little Rock AR 72202
Attn: ~~Senior Vice President-Engineering and Network Operations~~ Property Management

The address to which any notice, demand, or other writing may be delivered to any party as above provided may be changed by written notice given by such party as above provided.

11. Lessee Improvements. Lessee shall have the right, at its sole expense, to make such improvements to the Premises as it may deem necessary, including site improvements and constructing Structures for the creation and operation of a telecommunications transmitter facility. All Lessee's improvements, including, but not limited to, all Structures, shall remain the property of Lessee. Upon termination of this Lease, Lessee shall, to the extent reasonable, restore the Premises to its condition at the commencement of this Lease, except for ordinary wear and tear and damages by the elements or damages over which Lessee had no control. Lessee and Lessor agree that Lessee shall not be required to remove any improvements which are permanent in nature, including but not limited to, foundations, footings, concrete, paving, gravel, vegetation and utilities.

12. Insurance. At all times during the Term of this Lease, Lessee shall maintain in full force a comprehensive public liability insurance policy covering Lessee's operations, activities and liabilities on the Premises, having singly or in combination, limits not less than . Such policy shall name Lessor as an additional insured party. Upon Lessor's request, Lessee shall give Lessor a certificate of insurance evidencing that the insurance required under the Agreement is in force.

13. Operating Expense. Lessee shall fully and promptly pay for all water, gas, heat, light, power, telephone service, and other public utilities furnished to the Premises and used by Lessee throughout the Term hereof, and for all other costs and expenses of every kind whatsoever in connection with the use,

operation, and maintenance of the Premises and all activities conducted thereon.

14. Taxes. Lessee shall pay any personal property taxes assessed on, or any portion of such taxes attributable to, the Tower and Lessee's related facilities. Lessor shall pay when due all real property taxes and all other fees and assessments attributable to the Premises. However, Lessee shall pay, as additional Rent, any increase in real property taxes levied against the Premises which is directly attributable to Lessee's improvements to the Premises. Lessor agrees to furnish proof of such increase to Lessee.

15. Maintenance. Lessee shall maintain the Premises in good condition and state of repair. Lessor shall maintain its property adjacent to the Premises in good condition and state of repair to avoid interference with Lessee's use of the Premises and Easement.

16. Hold Harmless. Lessee shall hold Lessor harmless from any liability (including reimbursement of reasonable legal fees and all costs) for damages to any person or any property in or upon the Premises at Lessee's invitation, or for damages to any person or property resulting from the physical structure or actions of Lessee (including damages caused by or resulting from the existence of the Structures on the Premises), unless such damages are caused by, or are the result of, the misconduct or negligence of Lessor or any of Lessor's agents, servants, employees or licensees. Notwithstanding any provisions herein to the contrary, it is understood and agreed that all property kept, installed, stored or maintained in or upon the Premises by Lessee shall be so installed, kept, stored or maintained at the risk of Lessee. Lessor shall not be responsible for any loss or damage to equipment owned by Lessee which might result from tornadoes, lightning, wind storms, or other Acts of God; provided, however, Lessor shall be responsible for, and agrees to hold Lessee harmless from any liability (including reimbursement of reasonable legal fees and all costs), for damages to any person or any property in or upon the Premises arising out of the misconduct or negligence of Lessor or any of Lessor's agents, servants, employees or licensees. Neither Lessor nor Lessee shall in any event be liable in damages for each other's business loss, business interruption or other consequential damages of whatever kind or nature, regardless of the cause of such damages, and each party, and anyone claiming by or through them, expressly waives all claims for such damages.

17. Lessee's Performance and Surrender. Lessee shall pay the rent and all other sums required to be paid by Lessee

hereunder in the amounts, at the times, and in the manner herein provided, and shall keep and perform all terms and conditions hereof on its part to be kept and performed, and at the expiration or sooner termination of this Lease, surrender to Lessor the Premises subject to the other provisions of this Lease.

18. **Right to Terminate.** Lessee may terminate this Agreement, at its option, after giving not less than thirty (30) days notice to Lessor, if:

(a) any governmental agency denies a request by Lessee for or revokes a permit, license or approval which is required for Lessee to construct or operate any telecommunications facility on the Premises;

(b) Lessee determines that technical problems or radio interference problems from other antennas or from nearby radio transmitting facilities, which problems cannot reasonably be corrected, preclude Lessee from using the Premises for its intended purpose;

(c) Lessee determines that Lessee does not have acceptable and legally enforceable means of ingress and egress to and from the Premises;

(d) Utilities necessary for Lessee's use of the Premises are not available to the Premises; or

(e) The Premises are damaged or destroyed to an extent which prohibits or materially interferes with Lessee's use of the Premises.

In the event of termination by Lessee pursuant to this provision, Lessee shall be relieved of all further liability hereunder except its obligation to remove its improvements as provided herein. Any rental fees paid prior to said termination date shall be retained by Lessor.

19. **Binding on Successors.** The covenants and conditions contained herein shall apply to and bind the heirs, successors, executors, administrators and assigns of the parties hereto.

20. **Access to Premises.** In addition to the Easement granted in Section 5, Lessee and its engineers, officers, employees, agents and contractors shall have full access to the Premises during the Lease Term, consistent with Lessor's standard

property security policy.

21. Governing Law. The parties intend that this Agreement and the relationship of the parties shall be governed by the laws of the State of Kentucky.

22. Entire Agreement. All of the representations and obligations of the parties are contained herein, and no modification, waiver or amendment of this Agreement or of any of its conditions or provisions shall be binding upon a party unless in writing signed by that party or a duly authorized agent of that party empowered by a written authority signed by that party. The waiver by any party of a breach of any provision of this Agreement shall not operate or be construed as a waiver of any subsequent breach of that provision by the same party, or of any other provision or condition of the Agreement.

23. Survey and Testing. Lessee shall have the right during the Initial Option Period and any extension to survey, soil test, and make any other investigations necessary to determine if the surface of the Premises is suitable for construction of a telecommunications facility. If Lessee, within the above-stated time, determines that for any reason the Premises is not suitable, this Agreement, upon written notice given to Lessor, shall become null and void; provided that at Lessee's sole expense the Premises shall be promptly restored to its condition prior to such testing and investigations.

24. Oil, Gas and Mineral Rights. Lessor does not grant, lease, let or demise hereby, but expressly excepts and reserves herefrom all rights to oil, gas and other minerals in, on or under and that might be produced or mined from the Premises; provided, however, that no drilling or other activity will be undertaken on the surface of the Premises to recover any oil, gas or minerals during the Term hereof. This Lease is given and accepted subject to the terms and provisions of any valid oil, gas and mineral lease covering the Premises or any part thereof, now of record in the office of the County Clerk, provided, however, that any future oil, gas or mineral lease covering the above-described lands or any part thereof shall be in all respects subordinate and inferior to the rights, privileges, powers, options, immunities, and interests granted to Lessee under the terms of this Lease.

25. Hazardous Waste.

(a) The term Hazardous Materials shall mean any substance, material, waste, gas or particulate matter which is regulated by any local governmental authority, the State

of Kentucky, or the United States Government, including, but not limited to, any material or substance which is (i) defined as a "hazardous waste," "hazardous material," "hazardous substance," "extremely hazardous waste," or "restricted hazardous waste" under any provision of state or local law, (ii) petroleum, (iii) asbestos, (iv) polychlorinated biphenyl, (v) radioactive material, (vi) designated as a "hazardous substance" pursuant to Section 311 of the Clean Water Act, 33 U.S.C. §1251 et seq. (33 U.S.C. §1317), (vii) defined as a "hazardous waste" pursuant to Section 1004 of the Resource Conservation and Recovery Act, 42 U.S.C. §6901 et seq. (42 U.S.C. §6903), or (viii) defined as a "hazardous substance" pursuant to Section 101 of the Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. §9601 et seq. (42 U.S.C. §9601). The term Environmental Laws shall mean all statutes specifically described in the foregoing sentence and all applicable federal, state and local environmental health and safety statutes, ordinances, codes, rules, regulations, orders and decrees regulating, relating to or imposing liability or standards concerning or in connection with Hazardous Materials.

(b) Lessor represents and warrants that, to the best of Lessor's knowledge, (i) the Premises have not been used for the use, manufacturing, storage, discharge, release or disposal of hazardous waste, (ii) neither the Premises nor any part thereof is in breach of any Environmental Laws, (iii) there are no underground storage tanks located on or under the Premises, and (iv) the Premises are free of any Hazardous Materials that would trigger response or remedial action under any Environmental Laws or any existing common law theory based on nuisance or strict liability. If any such representation is in any manner inaccurate or any such warranty is in any manner breached during the Term of this Agreement (collectively, a "Breach"), and if such Breach gives rise to or results in liability (including, but not limited to, a response action, remedial action or removal action) under any Environmental Laws or any existing common law theory based on nuisance or strict liability, or causes a significant effect on public health, Lessor shall promptly take any and all remedial and removal action as required by law to clean up the Premises, mitigate exposure to liability arising from, and keep the Premises free of any lien imposed pursuant to, any Environmental Laws as a result of such Breach.

(c) In addition, Lessor agrees to indemnify, defend and hold harmless Lessee, its officers, partners, successors

and assigns from and against any and all debts, liens, claims, causes of action, administrative orders and notices, costs (including, without limitation, response and/or remedial costs), personal injuries, losses, damages, liabilities, demands, interest, fines, penalties and expenses, including reasonable attorneys' fees and expenses, consultants' fees and expenses, court costs and all other out-of-pocket expenses, suffered or incurred by Lessee and its grantees as a result of (a) any Breach, or (b) any matter, condition or state of fact involving Environmental Laws or Hazardous Materials which existed on or arose during the Term of this Lease and which failed to comply with (i) the Environmental Laws then in effect or (ii) any existing common law theory based on nuisance or strict liability.

(d) Lessor represents and warrants to Lessee that Lessor has received no notice that the Property or any part thereof is, and, to the best of its knowledge and belief, no part of the Property is located within an area that has been designated by the Federal Emergency Management Agency, the Army Corps of Engineers or any other governmental body as being subject to special hazards.

(e) The covenants of this paragraph shall survive and be enforceable and shall continue in full force and effect for the benefit of Lessee and its subsequent transferees, successors and assigns and shall survive the Term of this Lease and any renewal periods thereof.

26. Mechanic's Liens. Lessee will not cause any mechanic's or materialman's lien to be placed on the Premises, and Lessee agrees to indemnify, defend and hold harmless Lessor from any such lien from a party claiming by, through or under Lessee.

27. Headings. The headings of sections and subsections are for convenient reference only and shall not be deemed to limit, construe, affect, modify or alter the meaning of such sections or subsections.

28. Time of Essence. Time is of the essence for Lessor's and Lessee's obligations under this Agreement.

29. Severability. If any section, subsection, term or provision of this Agreement or the application thereof to any party or circumstance shall, to any extent, be invalid or unenforceable, the remainder of said section, subsection, term or provision of the Agreement or the application of same to parties

or circumstances other than those to which it was held invalid or unenforceable, shall not be affected thereby and each remaining section, subsection, term or provision of this Agreement shall be valid or enforceable to the fullest extent permitted by law.

30. Real Estate Broker. Lessor represents and warrants that Lessor has not signed a listing agreement, dealt with or otherwise agreed to pay a broker's commission, finder's fee or other like compensation to anyone in connection with the lease of the Premises or the transaction contemplated by this Agreement and Lessor agrees to indemnify and hold Lessee harmless from and against any such claims or costs, including attorneys' fees, incurred as a result of the transaction contemplated by this Agreement.

31. Further Assurances. Each of the parties agree to do such further acts and things and to execute and deliver such additional agreements and instruments as the other may reasonably require to consummate, evidence or confirm this Agreement or any other agreement contained herein in the manner contemplated hereby.

32. Right to Register or Record. Upon the request of Lessee, Lessor agrees to promptly execute and deliver to Lessee a Memorandum of Lease in recordable or registerable form setting forth the general terms of the Lease, and such other information as Lessee shall request.

33. Interpretation. Each party to this Agreement and its counsel have reviewed and revised this Agreement. The normal rule of construction to the effect that any ambiguities are to be resolved against the drafting party shall not be employed in the interpretation of this Agreement or of any amendments or exhibits to this Agreement.

34. Date of Agreement. The parties acknowledge that certain obligations of Lessor and Lessee are to be performed within certain specified periods of time which are determined by reference to the date of execution of this Agreement. The parties therefore agree that wherever the term "date of execution of this Agreement," or words of similar import are used herein, they shall mean the date upon which this Agreement has been duly executed by Lessor or Lessee whichever is the later to so execute this Agreement. The parties further agree to specify the date on which they execute this Agreement beneath their respective signatures in the space provided and warrant and represent to the other that such a date is in fact the date on which each duly

executed this Agreement.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement on the day and year first above written.

LESSOR:

x Terry Wilburn

x Willetta A. Wilburn

By: _____

Title: _____

Date: _____

I, Sandra K. Henry, do hereby certify that Terry & Willetta Wilburn personally appeared before me this day and acknowledged the due execution of the foregoing instrument.

Witness my hand and seal this 21 day of Oct, 1998.

Commission Expires 1-6-2002

LESSEE:

Telespectrum, Inc., dba ALLTEL

By: Jeffry R. Gardner

Title: SVP Finance

Date: Dec 23, 1998

I, LaTauyna Perkins, do hereby certify that Jeffery R. Gardner personally appeared before me this day and acknowledged the due execution of the foregoing instrument.

Witness my hand and seal this 23 day of December, 1998.

Commission Expires 11-02-2008

LATAUYNA PERKINS Com. Exp. NOTARY PUBLIC 11-02-2008 PULASKI COUNTY, ARKANSAS

I, _____, do
hereby certify that

_____
personally appeared before
me this day and acknowledged
the due execution of the
foregoing instrument.

Witness my hand and seal this
____ day of _____, 19___.

GARCELON SURVEYING, INC.
3975-B Indian Creek Road
Elkview, WV 25071
(304) 965-1331
(304) 965-1332 Fax

September 18, 1998

LEASE DESCRIPTION

COLLEGE HILL CELLULAR TOWER SITE
413 COLLEGE HILL DRIVE
GRAYSON, KENTUCKY 41143

Situate on a 3.79 acre tract located on College Hill adjacent to the corporate limits of Grayson and Carter County (Tax Parcel I.D. #104-50-14-002.00), Kentucky, more particularly described as follows:

BEGINNING at a 10" Hickory being a common corner to Beulah R. Childers (D.B. 171 - Pg. 593);

THENCE with Childers along a chain link fence N.57°11'30"W. 55.61 feet to a #5 rebar set;

THENCE leaving Childers N.41°03'23"E. 78.28 feet to a #5 rebar set, S.48°56'37"E. 55.01 feet to a #5 rebar set in the westerly line of Carol Malone Parker (D.B. 200 - Pg. 633);

THENCE with Parker S.41°04'43"W. 66.83 feet to the point of beginning, containing 0.0938 acre more or less.

BEING part of the conveyance by Phillip Berry to Terry E. Wilburn and Willetta G. Wilburn by deed dated the 8th day of August, 1997, and recorded in the Office of the Clerk of Carter County, Kentucky, in Deed Book 240 at Page 184.

The above described parcel is based upon a current survey by I.A.N. Garcelon, Kentucky Registered Land Surveyor No. 2871 using the Random Traverse Method.

All bearings are based on Grid North and conform to the Kentucky State Plane Coordinate System, NAD 1983, North Zone.

I.A.N. Garcelon
Kentucky Registered Land Surveyor No. 2871

GARCELON SURVEYING, INC.
3975-B Indian Creek Road
Elkview, WV 25071
(304) 965-1331
(304) 965-1332 Fax

September 18, 1998

INGRESS-EGRESS EASEMENT DESCRIPTION

BEING a 20.00 foot wide ingress-egress easement from the end of the Carter County Maintenance of College Hill Drive in Grayson, Carter County, Kentucky, more particularly described as follows:

BEGINNING at a point in the centerline of College Hill Drive at the end of Carter County Maintenance;

THENCE with the centerline of the above-mentioned easement the following courses and distances:

S.15°56'31"W. 34.59 feet to a point,
S.29°30'37"W. 36.10 feet to a point,
S.38°18'46"W. 42.88 feet to a point,
S.35°12'08"W. 54.79 feet to a point,
S.59°08'44"W. 55.87 feet to a point,
S.68°13'37"W. 40.86 feet to a point,
S.41°03'23"W. 10.62 feet to a point in the line of the proposed tower lot, said point located S.48°56'37"E. 15.00 feet from the northwest corner of said lot.

The above described easement is based upon a current survey by I.A.N. Garcelon, R.L.S. #2871 using the Random Traverse Method.

All bearings are based on Grid North and conform to the Kentucky State Plane Coordinate System, NAD 1983, North Zone.

I.A.N. Garcelon
Kentucky Registered Land Surveyor No. 2871

EXHIBIT 12

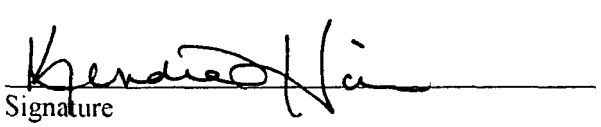
FCC/NEPA ENVIRONMENTAL COMPLIANCE CHECKLIST

Site Name: Grayson, Kentucky
Location: Grayson, Kentucky

		YES	NO
1.	Is the proposed facility located in an officially designated WILDERNESS AREA?	___	X
2.	Is the proposed facility located in an officially designated WILDLIFE PRESERVE?	___	X
3.	Will/may the proposed facility (i) affect listed THREATENED or ENDANGERED SPECIES or DESIGNATED CRITICAL HABITATS? or (ii) jeopardize the continued existence of any proposed ENDANGERED or THREATENED SPECIES or likely to result in the destruction or adverse modification of proposed CRITICAL HABITATS?	___	X
4.	Will/may the proposed facility affect districts, sites, buildings, structures or objects, significant in AMERICAN HISTORY, architecture, archeology, engineering or culture, that are listed, or are eligible for listing, in the National Register of Historic Places?	___	X
5.	Will/may the proposed facility affect INDIAN RELIGIOUS SITES?	___	X
6.	Is the proposed facility located in a FLOOD PLAIN?	___	X
7.	Will/may the construction of the proposed facility involve SIGNIFICANT CHANGE IN SURFACE FEATURES (i.e., wetland fill, deforestation or water diversion)?	___	X
8.	Is the facility an antenna tower and/or supporting structure that is equipped with HIGH INTENSITY WHITE LIGHTS which are to be located in RESIDNETIAL NEIGHBORNHOODS, as defined by the applicable zoning law?	___	X

I hereby certify that the information on the above checklist was obtained via an investigation that complies with the requirements of 47 CFR Sections 1.1301-1.1319 of the Federal Communication Commission's rules.

CTL Engineering, Inc.
Name of Company


Signature

Kendra M. Hill, Environmental Scientist
Please print Name and Title

October 22, 1998
Date

rev.6/97

CTL ENGINEERING

EXHIBIT 13

EXHIBIT 16

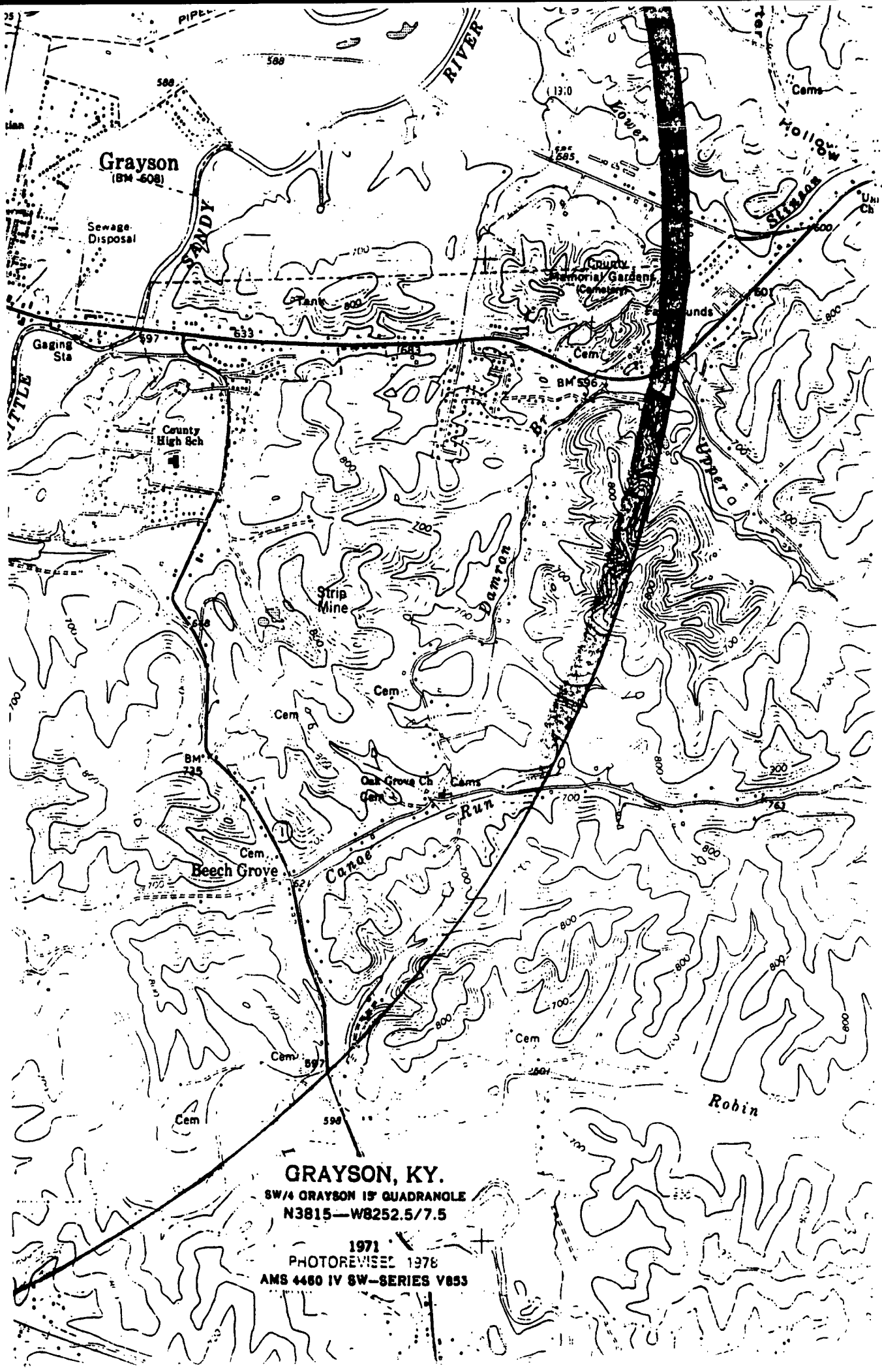
Index of Compliance with Provisions of 807 KAR 5:063

Regulation Provision	Application Paragraph	Exhibit No.
807 KAR 5:063 Section 1(1)(a)	2, 14	
807 KAR 5:063 Section 1(1)(b)	9, 10	3, 4
807 KAR 5:063 Section 1(1)(c)	12	
807 KAR 5:063 Section 1(1)(d)	20(d)	8
807 KAR 5:063 Section 1(1)(e)	6	
807 KAR 5:063 Section 1(1)(f)	5	11
807 KAR 5:063 Section 1(1)(g)	20(a)	5
807 KAR 5:063 Section 1(1)(h)	20(b)	6
807 KAR 5:063 Section 1(1)(i)	20(c)	7
807 KAR 5:063 Section 1(1)(j)	20(c)	7
807 KAR 5:063 Section 1(1)(k)	20(f)	14
807 KAR 5:063 Section 1(1)(l)	8	2
807 KAR 5:063 Section 1(1)(m)	8	2
807 KAR 5:063 Section 1(1)(n)	7	1

Regulation Provision	Application Paragraph	Exhibit No.
807 KAR 5:063 Section 1(1)(o)	7	1
807 KAR 5:063 Section 1(1)(p)	11	10
807 KAR 5:063 Section 1(1)(q)	13	9
807 KAR 5:063 Section 1(1)(r)	15, 16, 17	12
807 KAR 5:063 Section 1(1)(s)	18, 19, 20(g)	15
807 KAR 5:063 Section 1(2)	11	10
807 KAR 5:063 Section 2	Not Applicable	
807 KAR 5:063 Section 3	Not Applicable	

TH018:00TH3:1784:FRANKFORT
030299

EXHIBIT 15



GRAYSON, KY.

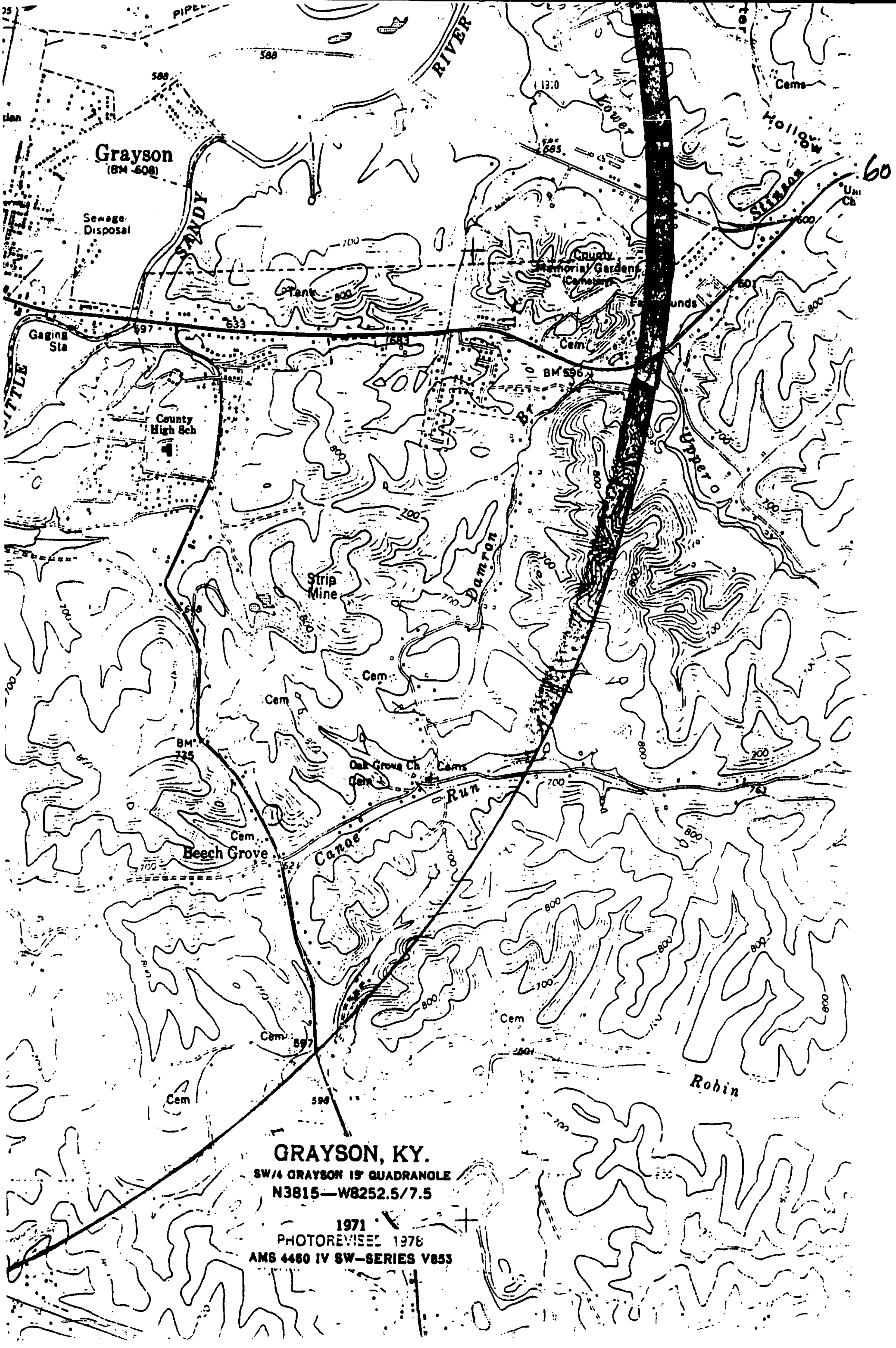
SW/4 GRAYSON 15' QUADRANGLE

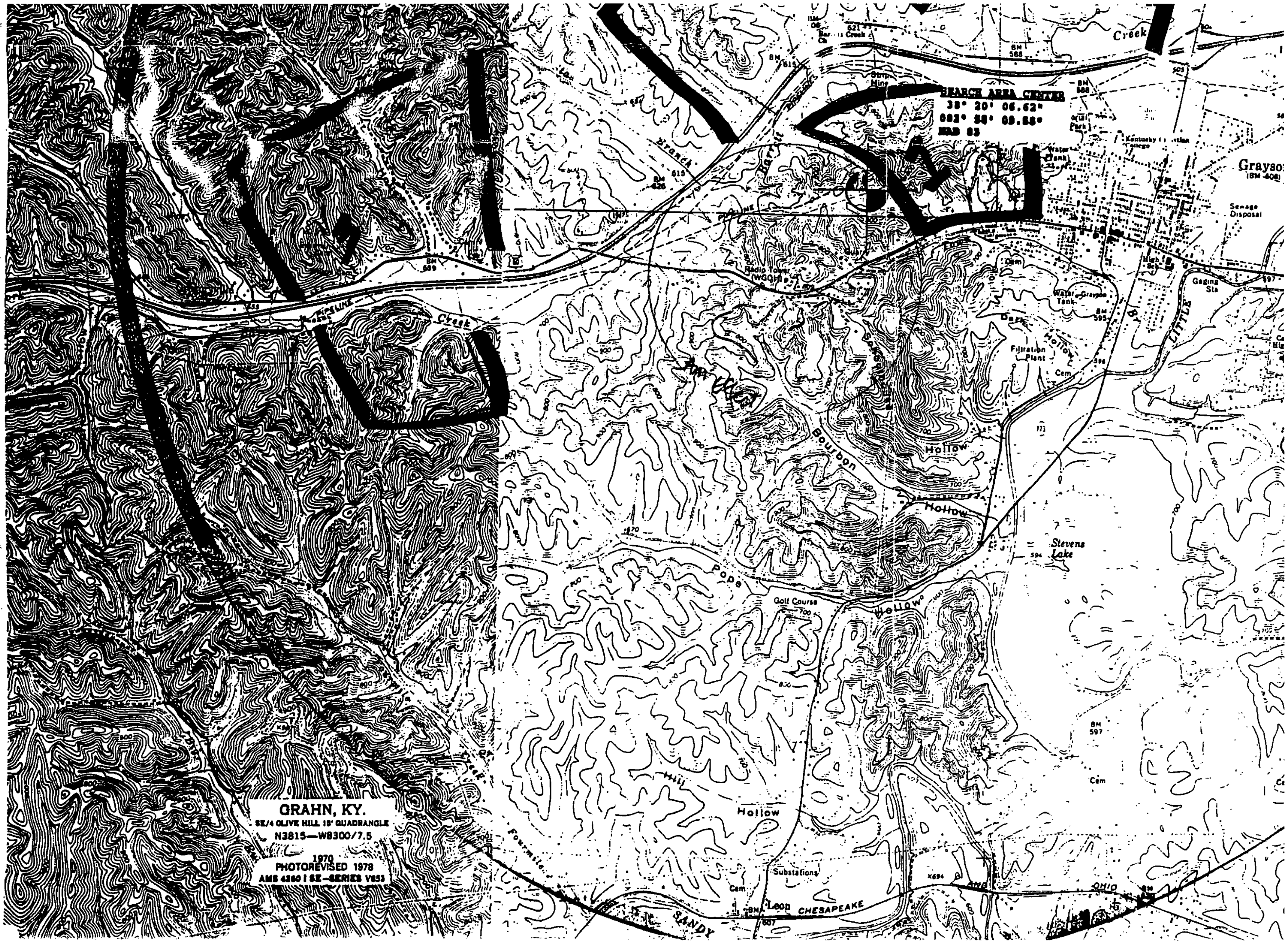
N3815—W8252.5/7.5

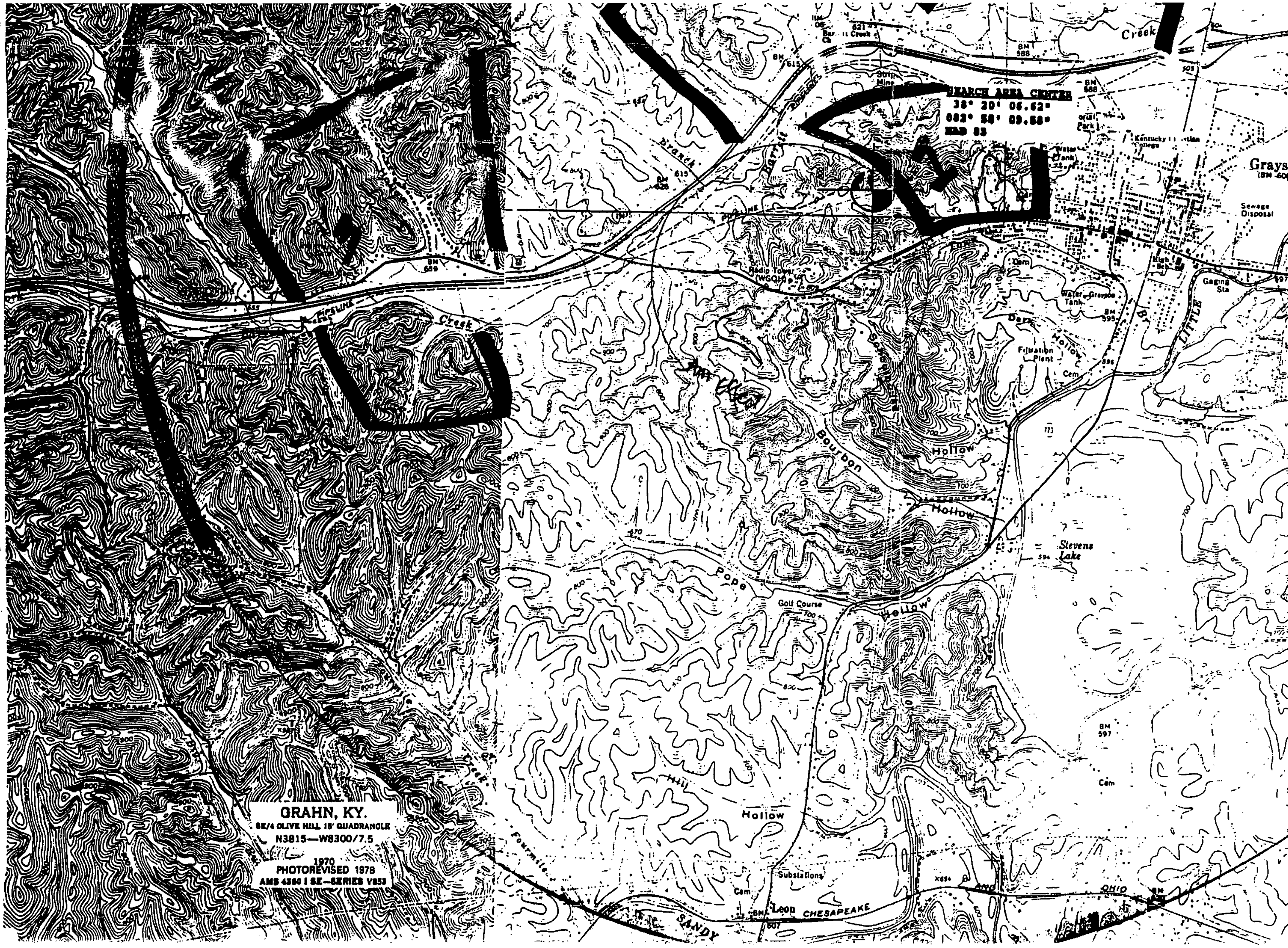
1971

PHOTOREVISED 1978

AMS 4460 IV SW—SERIES V853

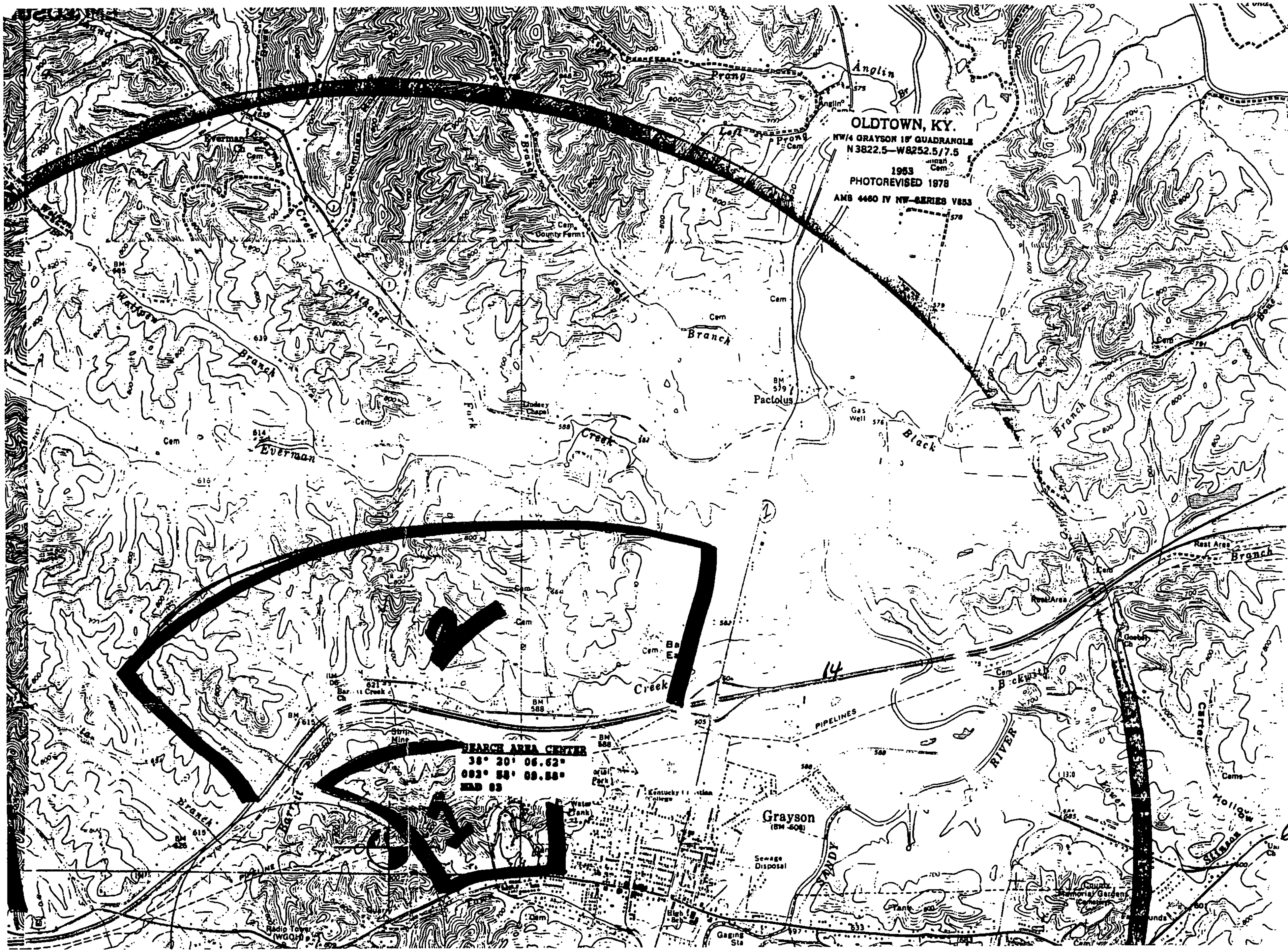

Grayson
(BM 608)
Sewage Disposal
SANDY
RIVER
Lower
Hollow
60
County Memorial Gardens (Cemetery)
Tank
Gaging Sta
County High Sch
Strip Mine
Damron
Upper
Cem
Oak Grove Ch
Cems
Canoe
Run
Beech Grove
Robin
BM 596
BM 735
GRAYSON, KY.
SW/4 GRAYSON 15' QUADRANGLE
N3815—W8252.5/7.5
1971
PHOTOREVISED 1978
AMS 4460 IV SW—SERIES V853


SEARCH AREA CENTER
38° 20' 06.62"
083° 58' 09.86"
NAD 83
GRAHN, KY.
SE/4 OLIVE HILL 15' QUADRANGLE
N3815—W8300/7.5
1970
PHOTOREVISED 1978
AMS 4360 I SE—SERIES V853
Grayson
Sewage Disposal
Kentucky Christian College
Water Tank
Radio Tower (WGOH)
Filtration Plant
Stevens Lake
Golf Course
Bourbon
Hollow
Pope
Substations
CHESAPEAKE
OHIO
SANDY
LITTLE
Creek
Branch
Gaging Sta
Cem

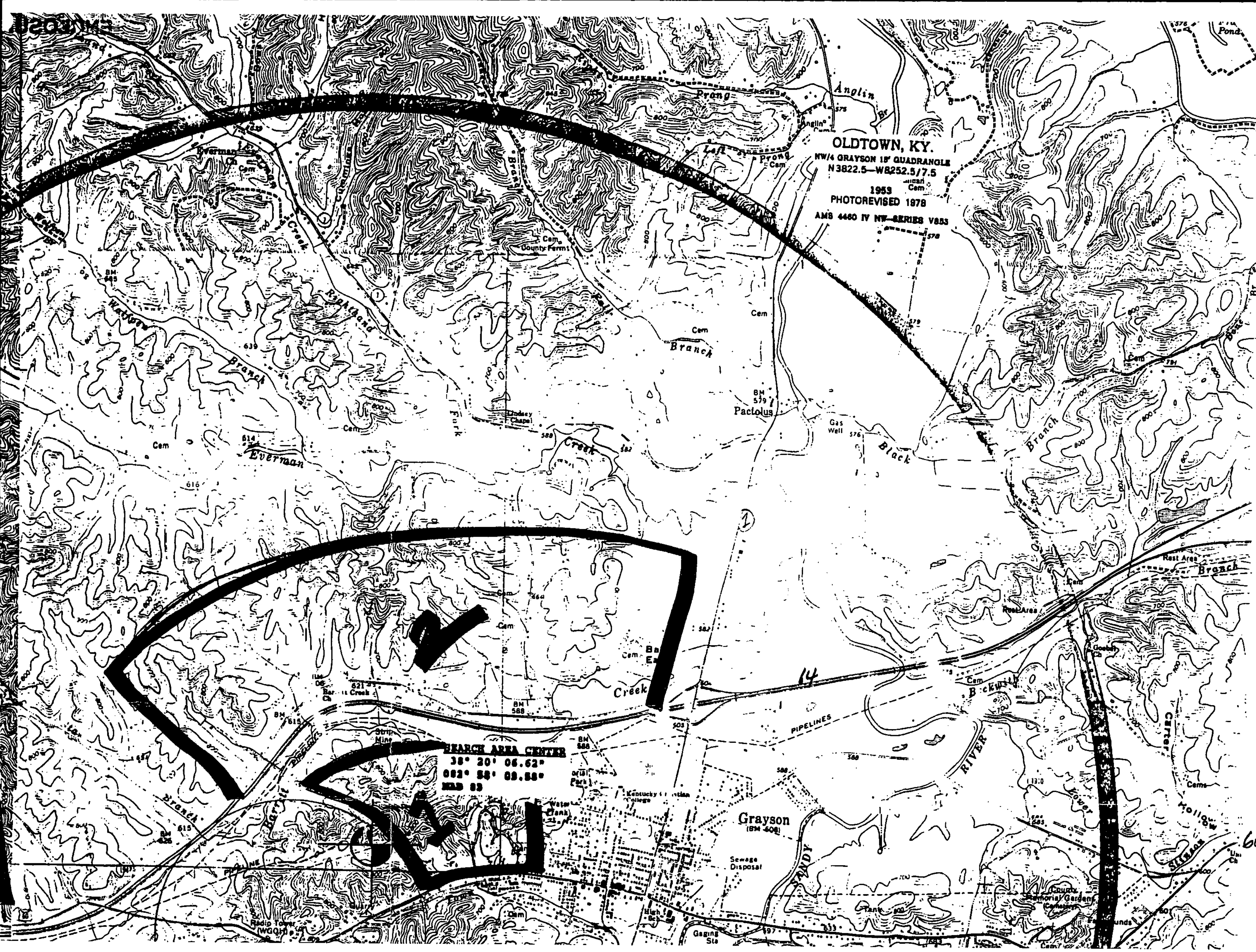

SEARCH AREA CENTER
38° 20' 06.62"
082° 58' 09.88"
NAD 83
Grayson
Kentucky Christian College
Sewage Disposal
Gaging Sta
Water Tank
Filtration Plant
Stevens Lake
Golf Course
Bourbon
Hollow
Pope
Creek
Branch
Substations
Cem
Leon
CHESAPEAKE
OHIO
SANDY
Fourmile
LITTLE
GRAHN, KY.
SE/4 OLIVE HILL 15' QUADRANGLE
N3815—W8300/7.5
1970
PHOTOREVISED 1978
AMS 4360 I SE—SERIES V853


TYGARTS
NE/4 OLIVE H
N3822.5
PHOTO
AMS 4340 I

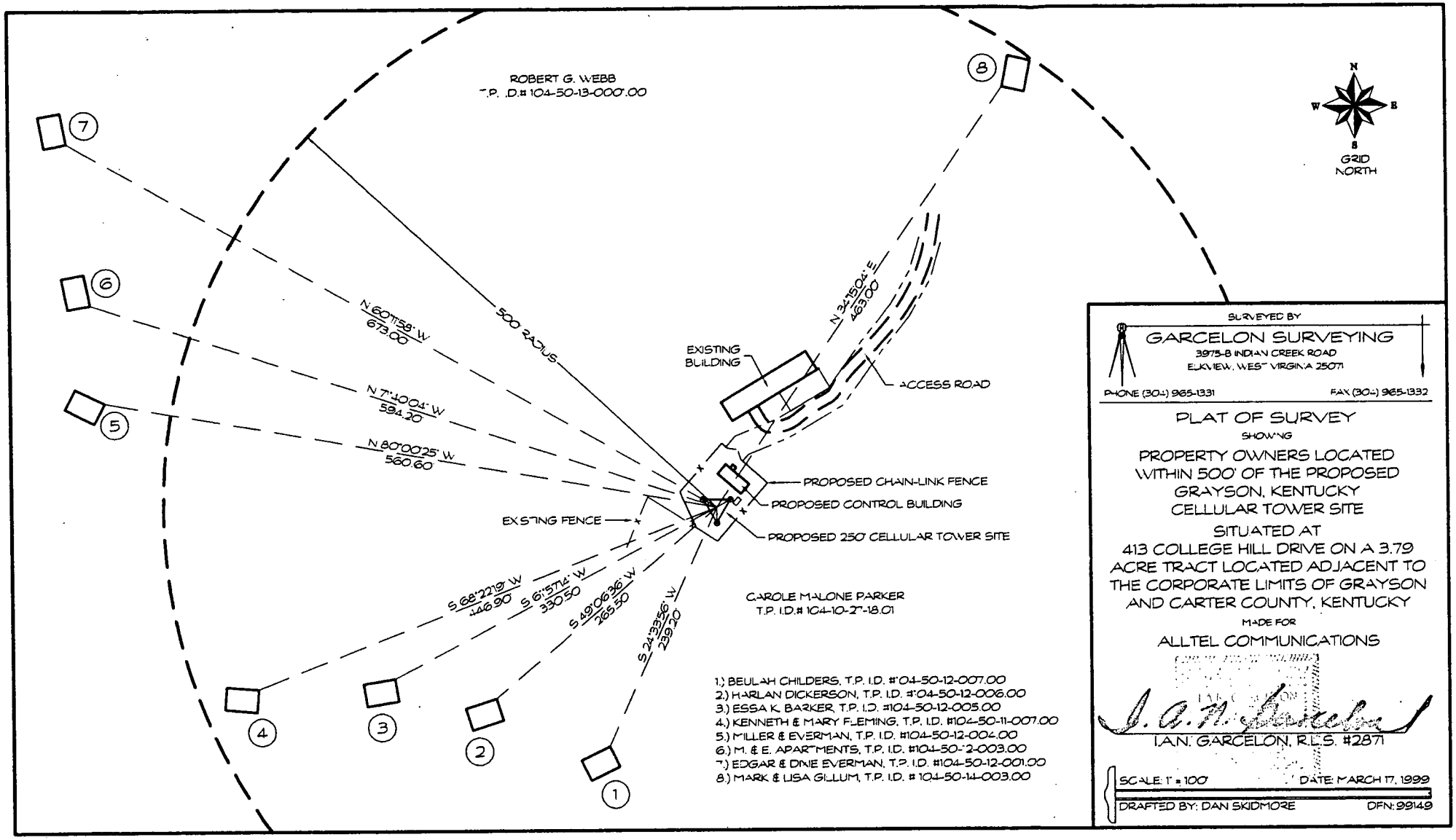
TYGARTS
NE/4 OLIVE HI
N3822.5
PHOTOM
AMS 4260 I



OLDTOWN, KY.
NW/4 GRAYSON 15' QUADRANGLE
N3822.5—W8252.5/7.5
1953
PHOTOREVISED 1978
AMS 4460 IV NW—SERIES V853
SEARCH AREA CENTER
38° 20' 06.62"
082° 58' 08.58"
NAD 83
Grayson
Pactolus
Sewage Disposal
Kentucky Christian College
RIVER
PIPELINES
Evermann
Black
14
60



OLDTOWN, KY.
NW/4 GRAYSON 15' QUADRANGLE
N3822.5—W8252.5/7.5
1953
PHOTOREVISED 1978
AMS 4460 IV NW—SERIES V853
SEARCH AREA CENTER
38° 20' 06.62"
082° 58' 03.56"
NAD 83
Grayson
(BM 606)
Pactolus
Sewage
Disposal
Kentucky Christian
College
Water
Tank
Park
PIPELINES
SANDY
RIVER
Everman
Creek
Righthand
Black
Branch
Carter
Prong
Left
Anglin
Rest Area
County Farm
Lindsey
Chapel
Gas
Well
Strip
Mine
Radio Tower
(WGOH)
Cem
BM
579
588
14
60



SURVEYED BY
GARCELON SURVEYING
3975-B INDIAN CREEK ROAD
ELKVIEW, WEST VIRGINIA 25071
PHONE (304) 965-1331 FAX (304) 965-1332

PLAT OF SURVEY

SHOWING

PROPERTY OWNERS LOCATED WITHIN 500' OF THE PROPOSED GRAYSON, KENTUCKY CELLULAR TOWER SITE

SITUATED AT

413 COLLEGE HILL DRIVE ON A 3.79 ACRE TRACT LOCATED ADJACENT TO THE CORPORATE LIMITS OF GRAYSON AND CARTER COUNTY, KENTUCKY

MADE FOR

ALLTEL COMMUNICATIONS

I.A.N. GARCELON, R.L.S. #2871

SCALE: 1" = 100' DATE: MARCH 17, 1999

DRAFTED BY: DAN SKIDMORE DFN: 99149

DEFLECTION CORRESPONDING TO MAX ELASTIC BENDING:

$$\Delta_{CR} = \frac{5(M_{CR})(\ell)^2}{48(E_c)(I_G)} = \frac{5(6.40)(9.83)^2}{48(1933)(27.0)} \times 12^2 = 0.178^{IN}$$

$\Delta_{CR} = 0.178^{IN}$

DEFLECTION CORRESPONDING TO LOAD @ FLEXURAL FAILURE:

$$\Delta_n = \frac{5(M_n)(\ell)^2}{48(E_c)(I_{CR})} = \frac{5(19.59)(9.83)^2}{48(1933)(5.58)} \times 12^2 = 2.633^{IN}$$

$\Delta_n = 2.633^{IN}$

FOR $M_s > M_{CR}$ USE UBC EQ. 14-4:

$$\Delta_{S(ACT)} = \Delta_{CR} + \left(\frac{M_s - M_{CR}}{M_n - M_{CR}}\right)(\Delta_n - \Delta_{CR})$$

$$= 0.178^{IN} + \left(\frac{8.73 - 6.40}{19.59 - 6.40}\right)(2.633 - 0.178) = 0.61^{IN}$$

$\Delta_{S(ACT)} = 0.61^{IN}$

$\Delta_{S(ACT)} < \Delta_{S(ALL)}$

DEFLECTION IS OK

BY OBSERVATION LEEWARD DIRECTION DEFLECTION IS OK.

DEAD LOADS

ROOF: W_{DR} = 35.6 PSF (FROM ROOF SLAB DESIGN)

WALLS: 3" THICK = $W_{DW3} = \frac{3^{IN}}{12}(95\,PCF) = 23.8$ PSF

4" THICK = $W_{DW4} = \frac{4^{IN}}{12}(95\,PCF) = 31.7$ PSF

FLOOR: W_{DF2} = 22.2 PSF (FROM 2" FLOOR SLAB DESIGN)

W_{DF3} = 31.3 PSF (FROM 3" FLOOR SLAB DESIGN)

MAXIMUM FORCE TO SHEARWALL (SEISMIC)

FOR SEISMIC LOAD, CRITICAL CASE IS 12 W x 32 L x 9.5 H SHELTER WITH 100 PSF SNOW LOAD, ROOF OVERHANG, & 4" THICK WALLS:

$R_{DL} = (12.5^{Ft})(32.5^{Ft})(35.6\,PSF) =$ 14.46 K

$R_{LL} = (12.5^{Ft})(32.5^{Ft})(100\,PSF \times 0.25) =$ 10.16 K

$W_{DL} = (9.83^{Ft})(32^{Ft} + 12^{Ft})(2)(31.7\,PSF) =$ 27.42 K

SEISMIC FORCE @ ROOF DIAPHRAGM IS:

$$V_R = 0.37(W) = 0.37\left[R_{DL} + R_{LL} + \frac{W_{DL}}{2}\right]$$

$$= (0.\ )\left[14.46 + 10.16 + \frac{27.42}{2}\right] = 14.18^{K}$$

THE DIAPHRAGM FORCE IS DISTRIBUTED TO 2 SIDE WALLS OR 2 ENDWALLS.

FORCE TO EACH SHEARWALL DUE TO SEISMIC IS:

$F_{SW(EQ)} = 14.18^{K}/2 = 7.09^{K}$

---DEAD LOADS---

W_{DR} = 35.6 PSF

W_{DW3} = 23.8 PSF

W_{DW4} = 31.7 PSF

W_{DF2} = 22.2 PSF

W_{DF3} = 31.3 PSF

---SHEARWALL FORCE (SEISMIC)---

$F_{SW(EQ)} = 7.09^{K}$

MAXIMUM FORCE TO SHEARWALL (WIND)

(WIND)

FOR WIND LOAD, CRITICAL CASE IS 32 L × 9.5 H SHELTER.

WIND LOAD TO ROOF DIAPHRAGM IS:

$$W_R = (60.2 + 42.0)\,PSF \times (32\,Ft)\left(\frac{10.5}{2}\,Ft\right) = 17.17^{K}$$

SHELTER ACTUAL HT. IS 8" GREATER THAN NOMINAL WALL PANEL HT.

FORCE TO EACH SHEARWALL DUE TO WIND IS:

$$F_{SW(W)} = 17.17^{K}/2 = 8.58^{K}$$

$F_{SW(W)} = 8.58^{K}$

WIND CONTROLS SHEARWALL DESIGN

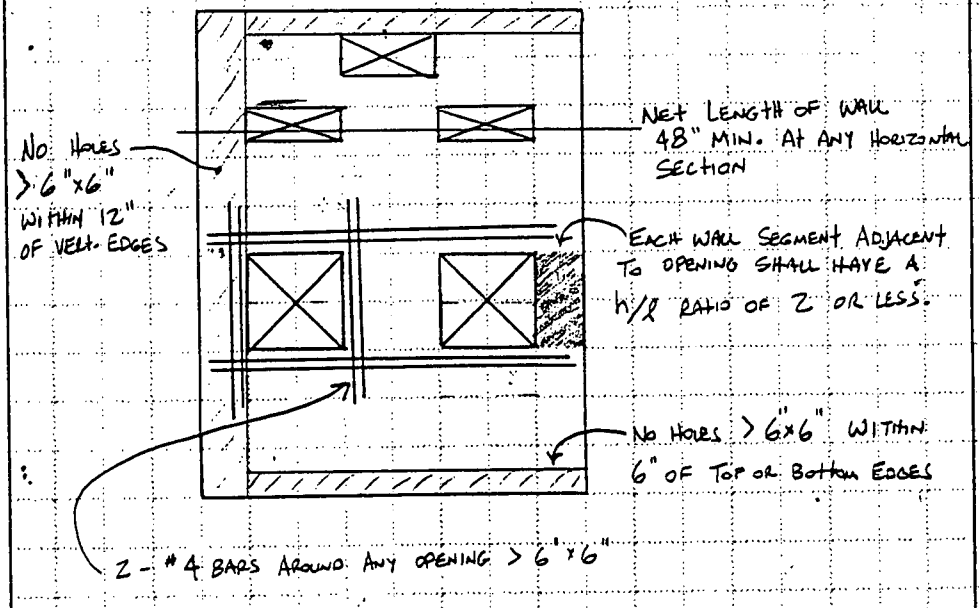
$F_{SW} = 8.58^{K}$

MAXIMUM LOAD TO EACH SHEARWALL (FROM "LATERAL FORCES"):

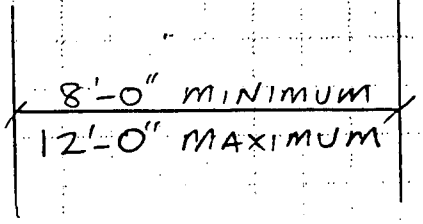
$$F_{SW} = 8.58^{K/LF}(1.3) = 11.15^{K}$$

$F_{SW} = 11.15^{K}$

SHEAR WALL DESIGN IS BASED ON A MINIMUM OF 48" TOTAL LENGTH OF WALL AT ANY HORIZONTAL SECTION THRU WALL. ANY WALL SEGMENT CREATED BY PENNETRATIONS IN THE WALL SHALL HAVE A h/ℓ RATIO OF 2 OR LESS TO INSURE ADEQUATE STIFFNESS TO TRANSFER SHEAR. EACH OPENING LARGER THAN 6"x6" SHALL HAVE 2-#4 BARS (MIN) AROUND THE OPENING. THE 2-#4 BARS SHALL EXTEND 24" (MIN) BEYOND THE CORNER OF THE OPENING. OPENINGS GREATER THAN 6"x6" SHALL NOT BE LOCATED WITHIN 12" OF VERTICAL EDGES OR 6" OF TOP AND BOTTOM EDGES OF PANELS.



NOTE: SEE PG. 37 FOR REINFORCEMENT AND WALL SEGMENT PROPORTIONS AROUND DOOR OPENINGS.



SHEAR FORCE RESISTED BY CONCRETE (ACI 11.10.5):

$\phi V_c = (0.75)(0.85)\, 2\sqrt{4000}\,(3")(0.8 \times 48") = 9290\#$ — $\phi V_c = 9.29^K$

$\phi V_c / F_{sw} = 11.15$

SHEAR IS OK

$\phi V_c/2 < F_{sw}$ (REQUIREMENTS OF 11.10.9 ARE APPLICABLE) — ACI 11.10.9

ACI 11.10.9.1: $V_u < \phi V_c$; V_s IS REQUIRED — SEE BELOW ACI 11.10.9.1 — 11.10.9.1 OK

ACI 11.10.9.2: $\ell_h = 0.0025$ MIN — 11.10.9.2 OK

FOR WWF, $\ell_h = \frac{0.120\ in^2/Ft}{(3")(12")} = 0.0033$

ACI 11.10.9.3: HORIZONTAL SPACING OF SHEAR REINF. = 4" ACTUAL — 11.10.9.3 OK

MAX SPACING IS $\ell_w/5 = 48"/5 = 9.6"$ OR

$3h = 3(3") = 9"$ OR

18" MAX

ACI 11.10.9.4: ℓ_n NEED NOT BE GREATER THAN ℓ_h — 11.10.9.4 OK

ℓ_n (MAX) = 0.0025

CONSIDERING ONLY WWF,

$\ell_n = \frac{0.120\ in^2/Ft}{(3")(12")} = 0.0033$

ACI 11.10.9.5: VERTICAL SPACING OF SHEAR REINF. = 4" ACTUAL — 11.10.9.5 OK

MAX SPACING IS $\ell_w/3 = 48"/3 = 16"$ OR

$3h = 3(3") = 9"$ OR

18" MAX

REQUIREMENTS OF ACI 11.10.9 ARE ACCEPTABLE

ACI 11.10.9.1

$V_s = \frac{A_v f_y d}{s_2} = \frac{4(0.12)(60)(0.8)(48)}{48}$

$V_s = 23^K$

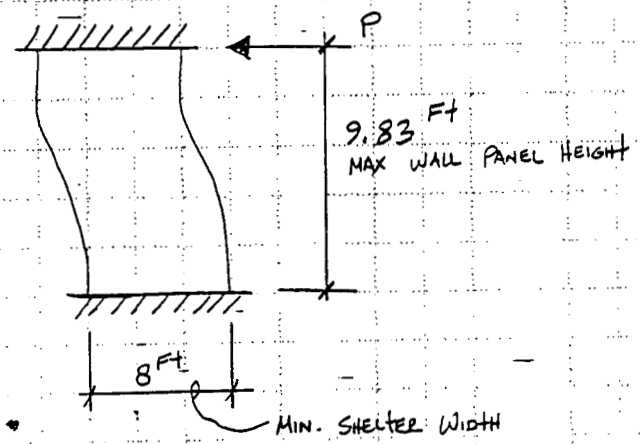
$\phi V_N = 0.75(0.85)[14.57^K + 23.04^K] = 23.98^K$

$\phi V_N \geq V_u = 11.15^K$ OK

BENDING OF SHEARWALL (IN-PLANE OF WALL):

— SHEARWALL BENDING —

CONSIDER SHEARWALL FIXED @ BASE, AND AT TOP RESTRAINED AGAINST ROTATION, BUT FREE TO TRANSLATION. PERIMETER REINFORCEMENT, NON-PENETRATED PANEL EDGES, AND POSITIVE CONNECTION TO FLOOR & ROOF SLABS PROVIDE THIS MODEL.



$M_u = Pl/2$ FROM AISC 9TH ED., PG 2-303, DIAGRAM #23

$M_u = (11.15^K)(9.83' \times 12)/2 = 658^{K\cdot IN}$ — $M_u = 506^{K\cdot IN}$

CONSIDER ONLY 1- #4 PERIMETER BAR AS TENSION REINF., AND VERIFY RECTANGULAR COMPRESSION BLOCK FALLS WITHIN 12" NON-PENETRATION PANEL EDGE. USE $d = 0.8\,l_w = (0.8)(96") = 76.8"$ — $d = 76.8^{IN}$

$$a = \frac{A_s f_y}{(0.85)(f'_c)(b)} = \frac{(0.2)(60)}{(0.85)(4)(3")} = 1.18^{IN} < 12^{IN}\ OK$$ — a IS OK

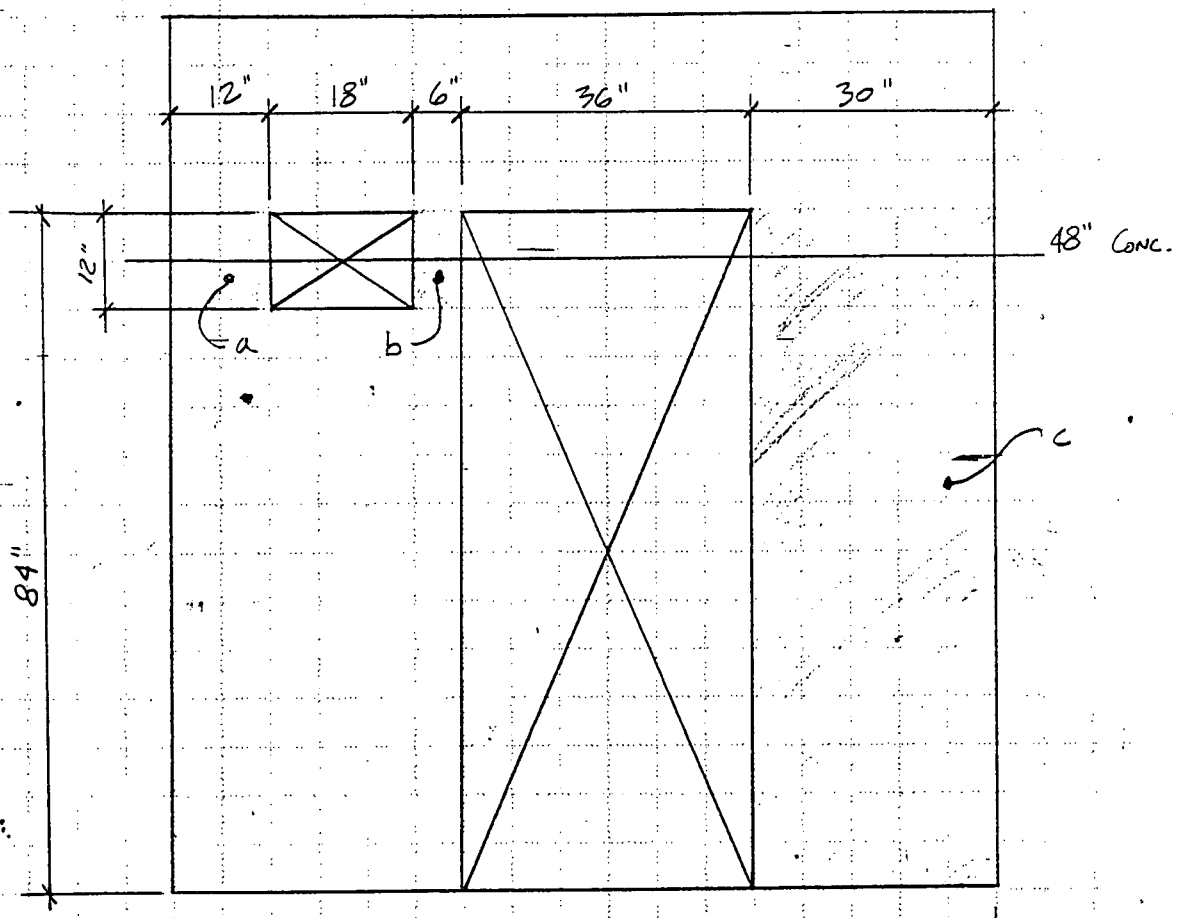
$$\phi M_n = (0.9)(0.20)(60)(76.8)\left[1 - 0.59\frac{(0.20)(60)}{(4)(3)(76.8)}\right] = 823^{K\cdot IN}$$ — $\phi M_n = 823^{K\cdot IN}$

$\phi M_n > M_u$ //

BENDING IS OK

CHECK SHEAR TRANSFER @ DOOR FRAME

WORST CASE IS 8'-6" ENDWALL WITH DOOR & MINIMUM CONCRETE RESISTING HORIZONTAL SHEAR



MAXIMUM SHEARWALL FORCE TO WALL = 11.15 K

8'-0" WALL MINIMUM
12'-0" WALL MAXIMUM

DETERMINE FORCE DISTRIBUTED TO WALL "C" BY CONSIDERING THE RELATIVE RIGIDITY OF EACH SEGMENT a, b, & C :

USE STIFFNESS $K = 4EI/L$ WHERE E IS CONSTANT, L IS SEGMENT HEIGHT

SEGMENT a :

$I_a = 3"(12)^3/12 = 432\ IN^4$

$K_a = 4(432)E/12" = 144E$

SEGMENT b :

$I_b = 3"(6)^3/12 = 54\ IN^4$

$K_b = 4(54)E/12 = 18E$

SEGMENT c :

$I_c = 3(30)^3/12 = 6750\ IN^4$

$K_c = 4(6750)E/84 = 321E$

FORCE DISTRIBUTED TO SEGMENT c :

$$F_c = 11.15^K \left(\frac{321E}{144E + 18E + 321E}\right) = 7.41^K$$

$\phi V_c = (0.75)(0.85)2\sqrt{4000}(3")(0.8 \times 30") = 5.81^K$

CHECK BENDING OF SEGMENT c :

$M_u = Pl/2 = (7.41)(84)/2 = 311.2\ K\text{-IN}$

WITH 1-#4 BAR + 2 WWF W4 WIRES

$$\phi M_n = (0.9)(0.28)(60)(0.80 \times 30)\left[1 - 0.59\frac{(0.28)(60)}{(4)(3)(0.8 \times 30)}\right]$$

$\phi M_n = 350\ K\text{-IN}$

SHEARWALL SEGMENT @ DOOR OPENNING

$K_c = 321E$

$F_c = 7.41^K$

$\phi V_c = 5.81^K$

SHEAR IS OK

$M_u = 311.2^{K\text{-IN}}$

$\phi M_n = 350^{K\text{-IN}}$

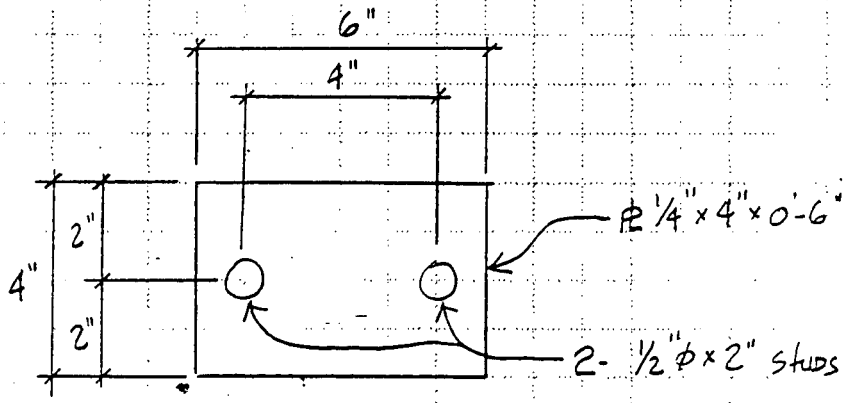
BENDING IS OK

By observation, LP & FP Plates are superior to PX plates. Design all connections for weakest plate: PX plate.

Method of Analysis:

1994 UBC section 1925

1996 BOCA Section 1913



PX PLATE

f'_c = 4,000 PSI

f'_s = 50,000 PSI

A_b = 0.20 IN^2

λ = 0.75 (All Lwt. Conc)

ϕ = 0.65

d_e = 2" l_e = 1.69" d_H = 1.00"

Tension Forces

Tension Forces are due to leeward wind pressure on walls or upward wind pressure on roof. For roof, net tension = upward wind − downward dead load.

Walls: $P_u = \left(\frac{9.83'}{2}\right)(2.5')(42.0\ PSF) \times 1.3 \times 2.0 = 1{,}342\#/PX$

½ Height

PX C. to C. Spacing

Max Leeward Wind

Load Factor for Wind

Additional Load Factor (No special inspection)

Tension Forces

Walls: $P_u = 1.34\ K/PX$

TENSION FORCES (CONT').

ROOF (WIND UPLIFT - SERVICE DL)

$$P_u = \left(\frac{12.33'}{2}\right)(2.5')\left[(63.6\ PSF)(1.3) - (35.6\ PSF)\right](2.0)$$

$P_u = 1451\ \#/PX$ ← ROOF TENSION IS CRITICAL

ROOF = $P_u = 1.45^K/PX$

ALLOWABLE TENSION:

$$\phi P_c = \phi \lambda (2.8 A_s + 4 A_T)\sqrt{f'_c}$$

CONSERVATIVELY IGNORE A_T; FOR STUD SPACING $\geq 2d_e$,

$$A_s = \sqrt{2}\, l_e\, \pi (l_e + d_H)$$

[PCI DESIGN HANDBOOK 3RD ED., PG 6-6 FIGURE 6.5.2]

$A_s = \sqrt{2}(1.69)\pi(1.69+1.0) = 20.2\ IN^2$

$\phi P_c = (0.65)(0.75)(2.8)(20.2\ IN^2)\sqrt{4000} = 1744\ \#/STUD$

$\phi P_c = 1.74^K/STUD \times 2\ STUDS = 3.48^K/PX$

$\phi P_c = 3.48^K/PX$

$\phi P_c > P_{u\ MAX}$

TENSION IS O.K.

CHECK CAPACITY OF STEEL:

$P_{ss} = 0.9 A_b f_y = 0.9(0.20)(50^{KSI}) = 9.0^K/STUD$

$P_{ss} = 9.0^K/STUD \times 2\ STUDS = 18.0^K/PX$ OK

SHEAR FORCES

SHEAR FORCES ARE DUE TO TRANSFER OF LATERAL FORCES TO THE FLOOR SLAB.

MAX SHEAR FORCE IS SHEARWALL FORCE = 8.58 K (SERVICE LOAD)

$V_u = 8.58^K \times 1.3 \times 2.0 = 22.3\ ^K/\text{WALL}$

SHEAR IS RESISTED BY 3 PLATES MIN. PER ENDWALL

$V_u = 22.3^K/3 \text{ PLATES} = 7.44\ ^K/\text{PX}$

ALLOWABLE SHEAR:

$\phi V_c = \phi\, 800\, A_b\, \lambda \sqrt{f'_c}$

$= (0.65)(800)(0.20)(0.75)\sqrt{4000} = 4933\ \#/\text{stud}$

$\phi V_c = 4.93^K/\text{stud} \times 2 \text{ studs} = 9.86\ ^K/\text{PX}$

$V_{ss} = 0.75\, A_b\, f_s = (0.75)(0.20)(50) = 7.5\ ^K/\text{stud}$

$V_{ss} = 7.5^K/\text{stud} \times 2 \text{ studs} = 15.0\ ^K/\text{PX}$

$\phi V_c > V_u$

SHEAR IS OK

SHEAR FORCES

$V_u = 7.44\ ^K/\text{PX}$

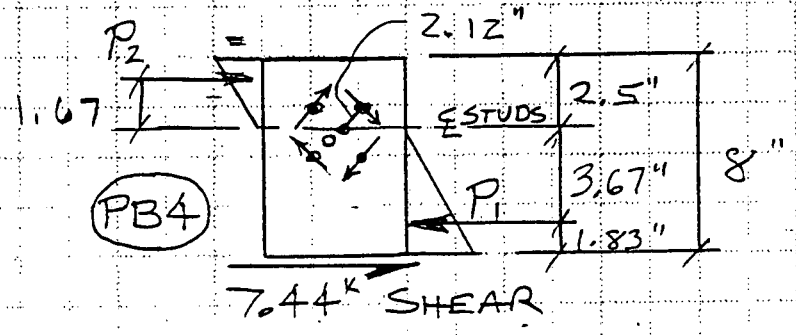
$\phi V_c = 9.86\ ^K/\text{PX}$

COMBINED SHEAR & BEARING

℄ PB 4

$F_F = 0.3\left(\frac{3}{12}\right)(9.33)(8)(0.095^{K}/_{FT^3})$

$F_F = 0.53^{K}$



$F_F = 0.53^{K}$
FRICTION

ALLOWABLE BEARING

ACI 10.17.1

$P_{ALL} = 0.7(0.85)4(1")(0.25) = 0.595\ ^{K}/_{IN}$

MOMENT CAPACITY OF PB4 ℄

$P_1 = 5.5"(0.595^{K}/_{IN})/2 = 1.636^{K}$

$P_2 = (2.5)(0.595)/2 = 0.74^{K}$

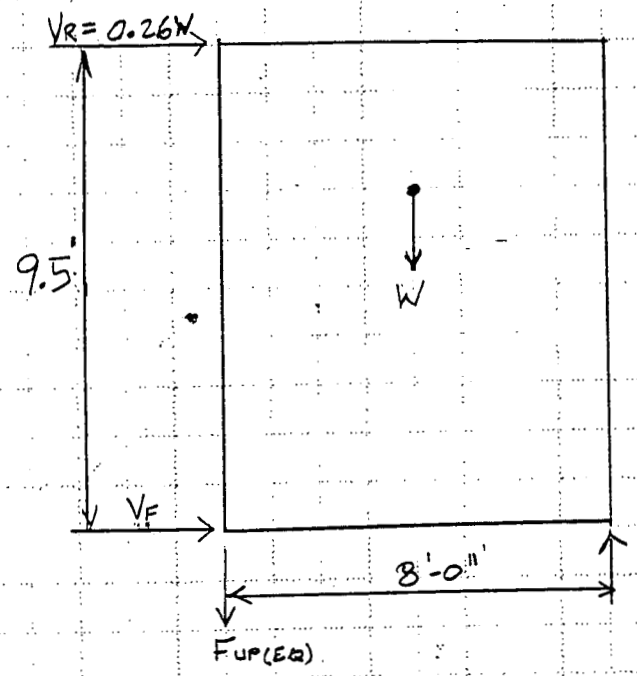
$\Sigma M_{R_O} = 0.74^{K}(1.67") + 1.636^{K}(3.67") + 4(7.5^{K})(2.12") + 5.5"(0.53^{K}) = 73.8^{"K}$

$\Sigma M_{ACT_O} = 7.44^{K}(5.5") = 40.92^{"K}$

FS = 1.8 OK

CONSIDER 8' x 32' x 9.5' HIGH SHELTER FOR CRITICAL OVERTURNING. FOR WIND, CRITICAL CASE IS LIGHTEST DESIGN OPTIONS (3" WALL, 2" FLOOR SLAB). FOR SEISMIC CRITICAL CASE IS HEAVIEST DESIGN OPTIONS (4" WALL, 3" FLOOR SLAB). 25% OF FLOOR LIVE LOAD AND SNOW LOAD SHALL BE INCLUDED FOR SEISMIC ANALYSIS.

SEISMIC OVERTURNING



$M_{OT} = (0.26\,W) \times 9.5^{Ft} = 2.47\,W^{K\cdot Ft} \times 1.5 = 3.7\,W^{K\cdot Ft}$

SAFETY FACTOR

$M_R = \left(\frac{8^{Ft}}{2}\right) \times W = 4\,W^{K\cdot Ft} > M_{OT}$

∴ NO NET UPLIFT

NOTE: FULL SEISMIC BASE SHEAR IS TAKEN AT LEVEL OF ROOF DIAPHRAGM. ACTUAL RESULTANT WOULD BE DIVIDED BETWEEN ROOF & FLOOR DIAPHRAGMS, RESULTING IN LOWER M_{OT}.

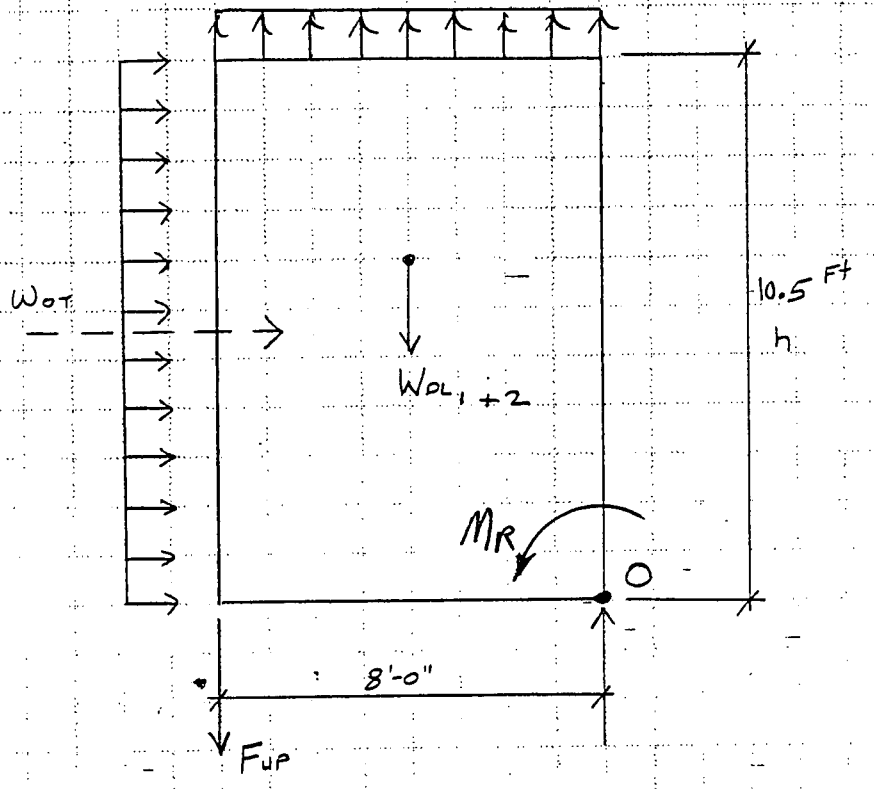
SEISMIC OVERTURNING

NO UPLIFT DUE TO SEISMIC

WIND OVERTURNING

$W_{UP} = (-54.1)(32)(8) = 13.85^{K}$

WIND UPLIFT $= -54.1$ PSF



$W_{OT} = (60.2 + 42.0)\,PSF \times (32\,Ft) = 3.27\,K/Ft$

$$M_{OT} = \left(3.27^{K}/_{Ft}\right)\left(10.5'\right)^2/2 + \left(\frac{54.1}{1000}\right)(32)(8')^2/2$$

$M_{OT} = 235.7'^{K}$

CONC. DL $= (35.6)(32)(8) + (25)(32)(8) + (23.8)(9.83)(80)$
(ROOF + FLOOR + 3" WALLS)

CONC. DL $= 34.2^{K} = W_{DL_1}$

FRP + AC + ADD. EQUIP $= 10^{K} = W_{DL_2}$

$M_{R_O} = [34.2^{K} + 10^{K}](8'/2) = 176.8'^{K}$

$F_{UP} = \dfrac{235.7'^{K} - 176.8'^{K}}{8'} = 7.36^{K}$

$F_{UP} = 7.36^{K}(1.5\ F.S.) = 11.04^{K}$

$W_{UP} = 13.85^{K}$

$M_{OT} = 235.7'^{K}$

$M_R = 176.8'^{K}$

$F_{UP} = 11.04^{K}$

SEISMIC SLIDING

SEISMIC BASE SHEAR IS $0.37\ W$

THE COEFICIENT OF FRICTION BETWEEN CONCRETE SHELTER FLOOR AND CONCRETE FOUNDATION MAY CONSERVATIVELY BE TAKEN AS 0.45 MIN.

∴ ALL SLIDING FORCES DUE TO SEISMIC ARE RESISTED BY FRICTION

SEISMIC SLIDING

SEISMIC SLIDING OK

WIND SLIDING

WIND SLIDING:

$S_W = (60.2 + 42.0)\,PSF \times 32\,Ft \times 10.5\,Ft = 34.34^K$

RESISTING FORCE DUE TO FRICTION:

$F_f = W_{DL} \times 0.45 = (44.2^K - 13.85^K)\,0.45$ (WT − UPLIFT)

$F_f = 13.66^K$

NET SLIDING FORCE:

$F_S = S_W - F_f = 34.34^K - 13.66^K = 20.68^K$

WIND SLIDING

$F_f = 13.66^K$

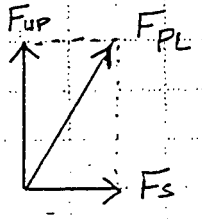
$F_S = 20.68^K$

REFERENCE SHEET 13 OF 15, RCS SHELTER SYSTEM DRAWINGS.
TWO TIE DOWN PLATES SHALL BE INSTALLED ON EACH LONG WALL OF THE SHELTER.

TWO PLATES RESIST UPLIFT FORCES.
ALL FOUR PLATES RESIST SLIDING FORCES

$F_{UP} = 11.04^K \div 2 \text{ PLATES} = 5.52^K/\text{PLATE}$
$F_S = 20.68^K \div 4 \text{ PLATES} = 5.17^K/\text{PLATE}$

RESULTANT FORCE:



$F_{PL} = \sqrt{(5.52^K)^2 + (5.17^K)^2} = 7.56^K/\text{PLATE}$

SHEAR CAPACITY OF 1/4" x 12" PLATE:

$F_V = (0.4)(36^{KSI})(.25^{IN})(12^{IN} - 2(3/4^{IN})) = 37.8^K$

SHEAR CAPACITY OF CON BOLT:
(1) - 1"Φ x 6" ASTM A325 MIN. (OR A490) BOLT

$F_V = 13.4^K$ AISC, 9TH ED, PG 4-5

SHEAR CAPACITY OF EXPANSION ANCHORS:
(2) - 3/4" x 4 1/4" RAWL-BOLTS OR EQUAL,
4" MIN EMBEDMENT INTO 2000 PSI MIN. CONCRETE,
8" O.C MIN SPACING, 4.5" MIN EDGE DISTANCE.

$F_V = 5.735^K/\text{BOLT} \times 2 \text{ BOLTS} = 11.47^K \geq F_{UP}$ OK
FROM ICBO REPORT # 4514, PG 3, TABLE NO-1.

SLAB FOUNDATION RECOMMENDATION

SLAB: USE 6" SLAB WITH 6×6-10×10 WWF OVER 6" COMPACTED CRUSHED AGGREGATE FILL.

FLOOR LOAD IS DISTRIBUTED DIRECTLY TO SOIL. PERIMETER FOOTING SUPPORT WALL & ROOF LOADS.

ROOF = (35.6 + 100) PSF × 12.5' × 32.5' = 54.2 K

WALLS = 31.7 PSF × 9.83' × 88' = 27.4 K

81.6 K

ASSUME FULL LOAD IS TRANSFERED THROUGH LONG WALLS.

$P = \frac{81.6^{K}}{2} \div 32^{Ft} = 1.28\ ^{K}/_{Ft}$

FOR 18" WIDE × 24" DEEP PERIMETER FOOTING

$\sigma_{BR} = 1.28\ ^{K}/_{Ft} \div 1.5 = 0.85\ KSF$

USE SOILS WITH 1500 PSF MIN. BEARING (ROCK, GW, GP, SW, SP, SM, SC, GM, GC)

NOTE: FOR CONDITIONS WHICH DO NOT MEET REQUIREMENTS OF THIS RECOMMENDATION (INCLUDING CLAY, SILT, OR PEAT; OR OTHER SOILS WITH AN EXPANSION INDEX > 20; OR BEARING CAPACITY < 1500 PSF; OR HIGH WATER TABLE; ETC.) THE FOUNDATION RECOMMENDATION SHALL BE BY OTHERS ACCORDING TO SPECIFIC SITE CONDITIONS.

SLAB FOUNDATION

SLAB
- 6" SLAB
- 6×6-10×10 WWF
- 6" CRUSHED AGG.

PERIMETER FOOTING
- 18" × 12" DEEP BUT NOT LESS THAN REQUIRED FOR FROST
- 2-#4 BARS T&B AND AT 6" O.C. VERTICALLY

SOIL
- 1500 PSF BRG.
- ROCK, GRAVEL, OR SAND SOILS

CONCRETE
- 2000 PSI (MIN.)

GRADE BEAM FOUNDATION RECOMMENDATION

SHELTER LOAD:

		125 F	200 F
	ROOF = (35.6 + 100) PSF × 12.5' × 32' =	54.2	54.2
	WALLS = 31.7 PSF × 83' =	27.4	27.4
125	FLOOR = (31.3 + 125) PSF × 12' × 32' =	60.0	
200	FLOOR = (31.3 + 200) PSF × 12' × 32' =		88.8
		141.6 K	170.4 K

ALLOWABLE BEARING PRESSURE FOR 1500 PSF SOIL, 2 FT MIN DEPTH:

1500 PSF × 1.2 = 1800 PSF

ASSUME FULL LOAD IS TRANSFERED THROUGH LONG WALLS.

125 F = $\frac{141.6^{K}}{2} \div 32' = 2.22\ ^{K}/Ft$

200 F = $\frac{170.4^{K}}{2} \div 32' = 2.67\ ^{K}/Ft$

Note: USE SAME RECOMMENDATION FOR BOTH FLOOR LOADS.

REQUIRED FOOTING WIDTH:

$$b = \frac{2.67\ ^{K}/Ft}{1.80\ ^{K}/SF} = 1.48\ Ft$$

USE 18" WIDE × 24" (MIN) DEEP GRADE BEAM

Note: FOR CONDITIONS WHICH DO NOT MEET REQUIREMENTS OF THIS RECOMMENDATION (INCLUDING CLAY, SILT, OR PEAT SOILS; OTHER SOILS WITH AN EXPANSION INDEX > 20; BEARING CAPACITY < 1500 PSF; HIGH WATER TABLE; ETC) THE FOUNDATION RECOMMENDATION SHALL BE BY OTHERS ACCORDING TO SPECIFIC SITE CONDITIONS.

— GRADE BEAM —

GRADE BEAM

- 18" WIDE × 24" DEEP BUT NOT LESS THAN REQUIRED FOR FROST
- 2 - #4 BARS T & B AND AT 6" O.C. VERT

CONCRETE

2000 PSI (MIN.)

SOIL

- 1500 PSF BRG.
- ROCK, GRAVEL, OR SAND

$f'_c = 4000$ psi $f'_s = 50000$ psi $\lambda = 0.75$ (all lightweight conc.)

$\phi = 0.65$ $A_b = 0.20 in^2$ $l_e = 1.69"$ $d_H = 1.0"$.

Allowable Tension:

Concrete

$\phi P_c = \phi\lambda(2.8A_s + 4A_T)\sqrt{f'_c}$

Conservatively ignore A_T

FOR STUD SPACING $\geq 2l_e$:

$A_s = \sqrt{2}\, l_e\, \pi(l_e + d_H)$ Pc = design handbook 3rd Ed, pg 6-6 fig 6.5.2

$A_s = \sqrt{2}(1.69)\pi(1.69 + 1.0) = 20.2 in^2$

$\phi P_c = (0.65)(0.75)(2.8(20.2))\sqrt{4000} = 1744$ lb/stud

P_X Plate STUD SPACING = $4 \geq 3.38"$

$\phi P_c = 1.74$ K/STUD $\left(\frac{2 \text{ STUD}}{\text{PLATE}}\right) =$ **3.48 K/P_X Plate**

PB Plate STUD SPACING = $3" \not\geq 3.38"$

PB4 Plate STUD SPACING = $3' \geq 3.38"$

Allowable Shear $\phi = 0.65$ $\lambda = 0.75$ (A.L.W.) $A_b = 0.20\ in^2$

Concrete $f'_c = 4000$ $F_s = 50000$

$$\phi V_{c_1} = \phi 800 A_b \lambda \sqrt{f'_c} \quad \text{OR} \quad \phi V_{c_2} = \phi 2\pi d_e^2 \lambda \sqrt{f'_c}$$

$$\phi V_{c_1} = 0.65(800)(0.2)(0.75)(\sqrt{4000}) = 4933\ lb/stud$$

PX Plate $\phi V_{c_1} = 4.93\ k/stud\ (2\ stud) = \boxed{9.86\ k/PX\ plate}$

$d_e = 2"$ $\phi V_{c_2} = 0.65)2\pi(2)^2(0.75)\sqrt{4000} = 775\ lb/stud\ (2\ \frac{stud}{PX})$

$= \boxed{1.55\ k/PX\ plate}$

PB Plate $\phi V_{c_1} = 4.93\ k/stud\ (3\ stud) = \boxed{14.79\ k/PB\ plate}$

$d_e = 2"$ $\phi V_{c_2} = (0.65)2\pi(2)^2(.75)\sqrt{4000} = 775\ lb/stud$

case 1 $= 775\ lb/stud\ (3\ stud) = \boxed{2.32\ k/PB\ plate}$

case 2 $= 775\ lb/row\ (2\ row) = \boxed{1.55\ k/PB\ plate}$

$d_e = 5"$ case 3 $\phi V_{c_2} = (.65)2\pi(5)^2(.75)\sqrt{4000} = 4840\ lb/stud\ (2\ stud)$

$= \boxed{9.68\ k/PB\ plate}$

PB4 Plate $\phi V_{c_1} = 4.93\ k/stud\ (4\ stud) = \boxed{19.72\ k/PB4\ plate}$

$d_e = 4"$ $\phi V_{c_2} = (0.65)(2\pi)(4)^2(.75)\sqrt{4000} = 3098\ lb/stud$

case 1 $= 3.1\ k/stud\ (4\ stud) = \boxed{12.4\ k/PB4\ plate}$

case 2 $= 3.1\ k/stud\ (\frac{2\ stud}{row})(2\ row) = \boxed{12.4\ k/PB4\ plate}$

$d_e = 7$ case 3 $\phi V_{c_2} = (.65)(2\pi)(7)^2(.75)\sqrt{4000} = 9488\ \frac{lb}{stud}\ (\frac{2\ stud}{row})$

$= \boxed{19.0\ k/PB4\ plate}$

FOR PB & PB4 Plates Near a Free edge on one side for Stud GROUPS:

$$\phi P_{c_1} = \phi 4 \lambda \sqrt{f'_c} [xy + 1.69(2x+y) + 2(1.69)^2]$$

(Pc1 Handbook 3rd Ed Fig 6.5.3 Case 2)

OR FOR Thin MEMBERS:

$$\phi P_{c_2} = \phi 4 \lambda \sqrt{f'_c} [h(2x+y+6(1.69)-6h) + 2h^2]$$

where x = dist. from free edge to stud shank edge ↑x
y = dist. between stud shanks →y
h = panel thickness

PB Plate $x = 5.25"$ $y = 3.5"$

$$\phi P_{c_1} = (0.65)(4)(0.75)\sqrt{4000}[5.25(3.5) + 1.69(2(5.25)+3.5) + 2(1.69)^2]$$

$$= \boxed{5.89 \text{ K/PB plate}}$$

for 4" walls:

$$\phi P_{c_2} = (0.65)(4)(0.75)\sqrt{4000}[4(2(5.25)+3.5+6(1.69)-6(4)) + 2(4)^2]$$

$$= \boxed{4.02 \text{ K/PB plate} \quad 4" \text{ wall}}$$

FOR 3" WALLS:

$$\phi P_{c_2} = (0.65)(4)(0.75)\sqrt{4000}[(3)(2(5.25)+3.5+6(1.69)-6(3)) + 2(3)^2]$$

$$= \boxed{4.49 \text{ K/PB plate} \quad 3" \text{ wall}}$$

PB4 Plate $x = 7.25"$ $y = 3.5"$

$$\phi P_{c_1} = (0.65)(4)(0.75)\sqrt{4000}\,[5.25(3.5) + 1.69(2(7.25) + 3.5) + 2(1.69)^2]$$

$$= \boxed{7.58\ k/PB4\ plate}$$

for 4" WALLS

$$\phi P_{c_2} = (0.65)(4)(0.75)\sqrt{4000}\,[4[2(7.25) + 3.5 + 6(1.69) - 6(4)] + 2(4)^2]$$

$$= \boxed{5.99\ k/PB4\ plate\quad 4"\ WALL}$$

for 3" WALLS

$$\phi P_{c_2} = (0.65)(4)(0.75)\sqrt{4000}\,[3[2(7.25) + 3.5 + 6(1.69) - 6(3)] + 2(3)^2]$$

$$= \boxed{5.97\ k/PB4\quad 3"\ wall}$$

Steel $P_{ss} = 0.9 A_b f_y$

$= 0.9(0.20 \text{ in}^2)(50 \text{ ksi}) = 9.0 \text{ k/stud}$

P_X Plate $P_{ss} = 9 \text{ k/stud}(2 \text{ stud}) =$ **18.0 k/P_X plate**

PB Plate $P_{ss} = 9 \text{ k/stud}(3 \text{ stud}) =$ **27.0 k/PB plate**

PB4 Plate $P_{ss} = 9 \text{ k/stud}(4 \text{ stud}) =$ **36.0 k/PB4 plate**

EXHIBIT 14

DESIGN LIVE LOAD (SNOW) = 60 PSF

DESIGN DEAD LOAD = $\left(\frac{4.5^{IN}}{12}\right) \times 95\ PCF = 35.6\ PSF$

TOTAL SERVICE LOAD = 60 + 35.6 = 95.6 PSF

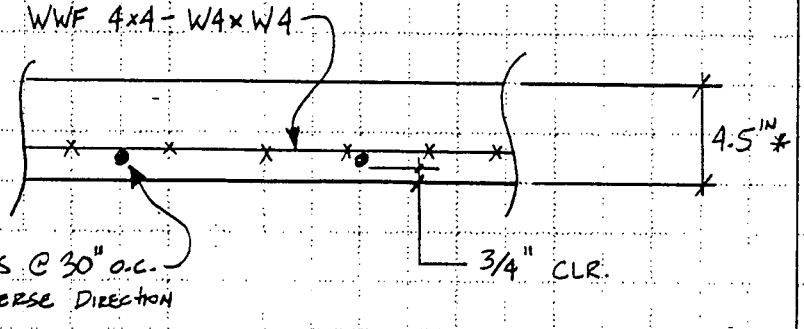
TOTAL FACTORED LOAD = (60 x 1.7) + (35.6 x 1.4) = 151.8 PSF

LL = 60 PSF

DL = 35.6 PSF

W_S = 95.6 PSF

W_u = 152 PSF



f'c = 4000 PSI

fy = 60,000 PSI

Wc = 95 PCF

* ROOF TAPERS FROM 4" @ EAVE TO 5" @ RIDGE. DEPTH OF SECTION IS GREATEST @ MID-SPAN MAXIMUM BENDING MOMENT.

BENDING

FOR 12 FT WIDE SHELTER, MAX SPAN = $12^{FT} - 2\left(\frac{3^{IN}}{12}\right) = 11.5\ FT$

SPAN = 11.5 FT

$M_u = wl^2/8 = (0.152^{K}/_{FT})(11.5^{FT})^2/8 = 2.51^{K\cdot FT} = 30.15^{K\cdot IN}$

$M_u = 30.15^{K\cdot IN}$

$A_s = \frac{0.20\ IN^2}{2.5\ O.C.} + 0.12\ IN^2/FT = 0.20\ IN^2/FT$

(#4's + WWF)

$A_s = 0.20\ IN^2/FT$

$d = 4.5^{IN} - \frac{(0.08)(1") + (0.12)(1.375")}{0.20\ IN^2} = 3.28\ IN$

$d = 3.28^{IN}$

$\phi M_n = (0.9)(0.20)(60)(3.28)\left[1 - 0.59\frac{(0.20)(60)}{(4)(12)(3.28)}\right] = 33.83^{K\cdot IN}$

$\phi M_n = 33.83^{K\cdot IN}$

$\phi M_n > M_u$

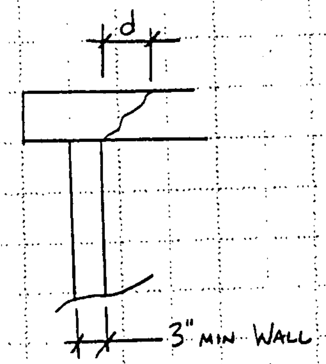
BENDING IS O.K.

* ALTERNATELY, USE WWF 4x6 - W4 x D11.

D11.0 @ 6" O.C. = $0.10\ IN^2 \times \frac{12"}{6"} = 0.20\ IN^2/FT$

SHEAR:

Critical Shear Force Is Located At Distance "d" From Face of Support



$$SPAN_y = 12^{Ft} - \left(\frac{3''}{12}\right)(2) - \left(\frac{3.28''}{12}\right)(2) = 10.95^{Ft}$$

$$V_u = (.152\ KLF)(10.95^{Ft})/2 = 832\ \#/Ft$$

$$\phi V_c = (0.75)(0.85)\,2\sqrt{4000}\,(12)(3.28) = 3174^{\#}$$

Ltwt Conc ↑ (0.75) ↑ φ (0.85)

$$\phi V_c > V_u$$

SHEAR

$V_u = 832\ \#/Ft$

$\phi V_c = 3174\ \#/Ft$

(ACI Eq. 11-3)

SHEAR IS O.K.

ANDREW

Section ROOF SLAB- 60 PSF Project RES SYSTEM Date 08-05-96 Page 7 of 48

DEFLECTION ACI 318 9.5.2.6

ALLOWABLE DEFLECTION LIMITS:

$\Delta_{LL(ALL)} = \ell/180 = (11.5\,Ft)(12)/180 = 0.767\,IN$

$\Delta_{TL(ALL)} = \ell/240 = (11.5\,Ft)(12)/240 = 0.575\,IN$

$E_c = (W_c)^{3/2} \times 33\sqrt{f'c} = (95)^{3/2}(33)\sqrt{4000} = 1{,}932{,}543\,PSI$

$E_s = 29000\,KSI \qquad n = E_s/E_c = 15.01$

$F_r = 0.75\,(7.5)\sqrt{f'c} = (0.75)(7.5)\sqrt{4000} = 355.76\,PSI$

$y_t = h/2 = 4.5"/2 = 2.25\,IN$

$I_G = bh^3/12 = (12")(4.5")^3/12 = 91.125\,IN^4$

$M_{CR} = (F_r)(I_g)/y_t = 14{,}408\,IN\text{-}\#$

M_a = MAXIMUM MID SPAN MOMENT @ SERVICE LOAD

$M_a = (W_s)\,\ell^2/8 = (95.6)(11.5)^2/8 = 1580\,Ft\text{-}\# = 18965\,IN\text{-}\#$

$\rho = A_s/bd = 0.20\,IN^2/(12")(3.28") = 0.0051$

$k = \sqrt{2\rho n + (\rho n)^2} - \rho n = 0.3221$

$I_{CR} = d^3\left[4k^3 + 12\,\rho n\,(1 - 2k + k^2)\right] = 19.61\,IN^4$

$I_e = \left(\frac{M_{CR}}{M_a}\right)^3 I_G + \left[1 - \left(\frac{M_{CR}}{M_a}\right)^3\right] I_{CR} = 50.97\,IN^4$

ACTUAL CALCULATED DEFLECTIONS:

$\Delta_{TL(ACT)} = \frac{5(W_s)(\ell)^4}{384\,(E_c)(I_e)} \times (12\,\frac{IN}{Ft})^3 = 0.382\,IN \leq 0.575$

$\Delta_{LL(ACT)} = 0.382\,IN\left(\frac{60\,PSF}{95.6\,PSF}\right) = 0.240\,IN \leq 0.767$

$\Delta_{TL(ACT)} < \Delta_{TL(ALL)}$

$\Delta_{LL(ACT)} < \Delta_{TL(ALL)}$

WWF + USE = 4' @ 30"

DEFLECTION

$\Delta_{TL(ALL)} = 0.767\,IN$

$\Delta_{LL(ALL)} = 0.575\,IN$

$E_c = 1933\,KSI$

$E_s = 29000\,KSI$

$n = 15.01$

$F_r = 355.76\,PSI$

$y_t = 2.25\,IN$

$I_G = 91.125\,IN^4$

$M_{CR} = 14{,}408\,IN\text{-}\#$

$M_a = 18{,}965\,IN\text{-}\#$

$\rho = 0.0051$

$k = 0.3221$

$I_{CR} = 19.61\,IN^4$

$I_e = 50.97\,IN^4$

$\Delta_{TL(ACT)} = 0.382"$

$\Delta_{LL(ACT)} = 0.240"$

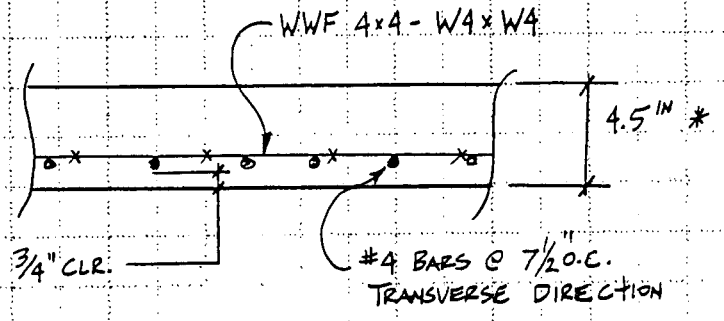
DEFLECTION IS O.K.

DESIGN LL (SNOW) = 100 PSF

DESIGN DL = $(4.5^{IN}/12) \times 95$ PCF = 35.6 PSF

TOTAL SERVICE LOAD = 100 + 35.6 = 135.6 PSF

TOTAL FACTORED LOAD = $(100 \times 1.7) + (35.6 \times 1.4)$ = 219.8 PSF



* ROOF TAPERS FROM 4" @ EAVE TO 5" @ RIDGE. DEPTH OF SECTION IS GREATEST @ MID SPAN MAXIMUM BENDING MOMENT.

LL = 100 PSF

DL = 35.6 PSF

W_s = 135.6 PSF

W_u = 220 PSF

f'_c = 4000 PSI

f_y = 60000 PSI

W_c = 95 PCF

• BENDING

FOR 12 FT WIDE SHELTER, MAX SPAN = $12^{FT} - 2\left(\frac{3"}{12}\right) = 11.5^{FT}$

$M_u = (W_u)(\ell)^2/8 = (.220^{K/FT})(11.5^{FT})^2/8 = 3.64^{K\cdot FT} = 43.64^{K\cdot IN}$

$A_s = 0.32^{IN^2/FT} + 0.120^{IN^2/FT} = 0.44^{IN^2/FT}$

(↑ #4 @ 7 1/2" O.C. ↑ WWF)

$d = 4.5" - \dfrac{(0.32)(1") + (0.12)(1.375)}{0.44} = 3.40^{IN}$

$\phi M_n = (0.9)(0.44)(60)(3.40)\left[1 - 0.59\dfrac{(0.44)(60)}{(4)(12)(3.40)}\right] = 73.02^{K\cdot IN}$

$\therefore \phi M_n > M_u$

BENDING

SPAN = 11.5 FT

M_u = 43.64 K·IN

A_s = 0.44 IN^2/FT

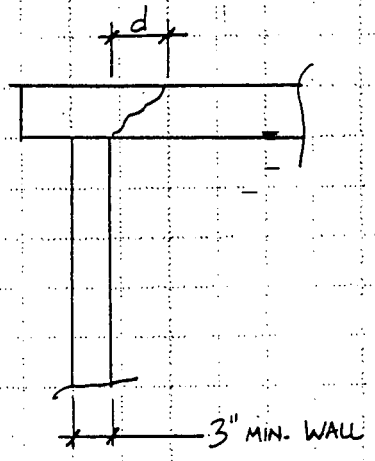
d = 3.40 IN

ϕM_n = 73.02 K·IN

BENDING IS OK

SHEAR

∴ Critical Shear Force is located @ Distance "d" From Face of Support.



$$\text{SPAN}_{(V)} = 12^{Ft} - 2\left(\frac{3"}{12}\right) - 2\left(\frac{3.4}{12}\right) = 10.9^{Ft}$$

$$V_u = (220\ PLF)(10.93^{Ft})/2 = 1202^{\#}$$

From ACI Eq. 11-3:

$$\phi V_c = (0.75)(0.85)2\sqrt{4000}\,(12")(3.4) = 3291^{\#}$$

(ϕ = 0.75; Lt wt. Conc. = 0.85)

$\phi V_c > V_u$

SHEAR

$\text{SPAN}_{(V)} = 10.93^{Ft}$

$V_u = 1202^{\#}$

$\phi V_c = 3291^{\#}$

SHEAR IS OK

DEFLECTION ACI 318 9.5.2.3

ALLOWABLE DEFLECTION LIMITS:

$\Delta_{LL(ALL)} = l/180 = (11.5^{FT})(12)/180 = 0.767^{IN}$

$\Delta_{TL(ALL)} = l/240 = (11.5^{FT})(12)/240 = 0.575^{IN}$

$E_c = (W_c)^{3/2} \times 33\sqrt{f'c} = (95)^{3/2}(33)\sqrt{4000} = 1{,}932{,}543$ PSI

$E_s = 29{,}000$ KSI $\quad n = E_s/E_c = 15.01$

$F_r = 0.75(7.5)\sqrt{f'c} = (0.75)(7.5)\sqrt{4000} = 355.76$ PSI

$y_t = h/2 = 4.5/2 = 2.25^{IN}$

$I_G = bh^3/12 = (12)(4.5)^3/12 = 91.125^{IN^4}$

$M_{CR} = (F_r)(I_G)/y_t = 14{,}408^{IN\cdot\#}$

M_a = MAXIMUM MIDSPAN MOMENT @ SERVICE LOAD

$M_a = (w_s)l^2/8 = (135.6)(11.5)^2/8 = 2242^{FT\cdot\#} = 26{,}900^{IN\cdot\#}$

$\rho = A_s/bd = 0.44^{IN^2}/(12)(3.40) = 0.0108$

$k = \sqrt{2\rho n + (\rho n)^2} - \rho n = 0.4298$

$I_{CR} = d^3\left[4k^3 + 12\rho n(1 - 2k + k^2)\right] = 37.24^{IN^4}$

$I_e = \left(\frac{M_{CR}}{M_a}\right)^3 I_G + \left[1 - \left(\frac{M_{CR}}{M_a}\right)^3\right] I_{CR} = 45.52^{IN^4}$

ACTUAL CALCULATED DEFLECTIONS:

$\Delta_{TL(ACT)} = \frac{5(W_s)(l)^4}{384(E_c)(I_e)} \times \left(12^{\frac{IN}{FT}}\right)^3 = 0.61^{IN} \leq 0.575$ SAY OK

$\Delta_{LL(ACT)} = 0.61^{IN}\left(\frac{100\ PSF}{135.6\ PSF}\right) = 0.41^{IN} \leq 0.767$

$\Delta_{TL(ACT)} < \Delta_{TL(ALL)}$

$\Delta_{LL(ACT)} < \Delta_{LL(ALL)}$

WWF + USE #4 @ 7 1/2"

DEFLECTION

$\Delta_{LL(ALL)} = 0.767"$

$\Delta_{TL(ALL)} = 0.575"$

$E_c = 1{,}932$ KSI

$E_s = 29{,}000$ KSI

$n = 15.01$

$F_r = 355.76$ PSI

$y_t = 2.25^{IN}$

$I_G = 91.125^{IN^4}$

$M_{CR} = 14{,}408^{IN\cdot\#}$

$M_a = 26{,}900^{IN\cdot\#}$

$\rho = 0.0108$

$k = 0.4298$

$I_{CR} = 37.24^{IN^4}$

$I_e = 45.52^{IN^4}$

$\Delta_{TL(ACT)} = 0.61"$

$\Delta_{LL(ACT)} = 0.563^{IN}$

DEFLECTION IS OK

For Andrew Shelter Corporation
At Newnan, Georgia
Descript. Shelter Wind Loads - 11.5 X 12' Shelter
Contract
Date 6/22/98
By S. Granata

NORTH-SOUTH DIRECTION

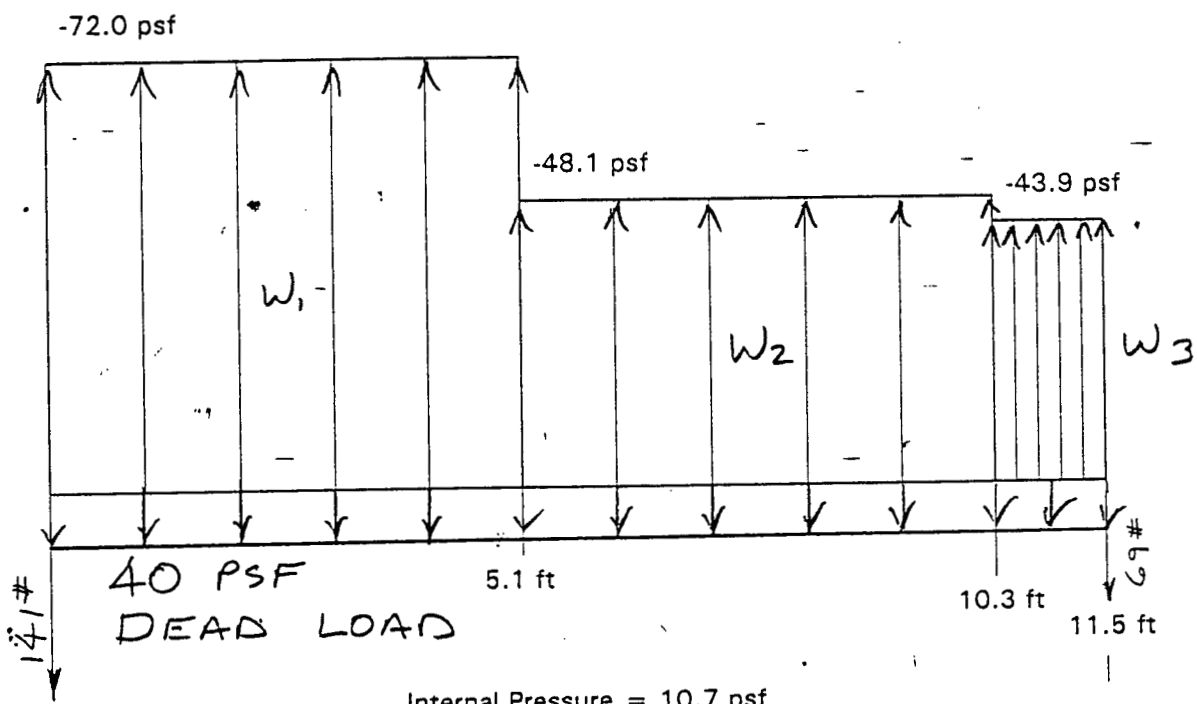
Positive Internal Pressure Results

Plus and Minus Signs indicate pressures acting toward and away from surfaces, respectively.

CHECK ROOF BENDING

$W_1 = 72_{WL} - 40_{DL} = 32\ \#/FT$
$W_2 = 48.1 - 40 = 8\ \#/FT$
$W_3 = 43.9 - 40 = 4\ \#/FT$
} ASCE 7-95

$W = 54.1_{WL} - 40_{DL} = 14.1\ \#/FT$ } BOCA



Internal Pressure = 10.7 psf

@ $x = 4.41$, $M = 311^{\#}$ (ASCE 7-95)

@ $x = 5.75$, $M = 233^{\#}$ (BOCA).

(Pg 8)

$d = 4.5" - 3.4" = 1.1"$, $b = 12"$

A_S REQ'D $= 0.07\ IN^2/FT$

A_S PROVIDED $= 0.44\ IN^2/FT$

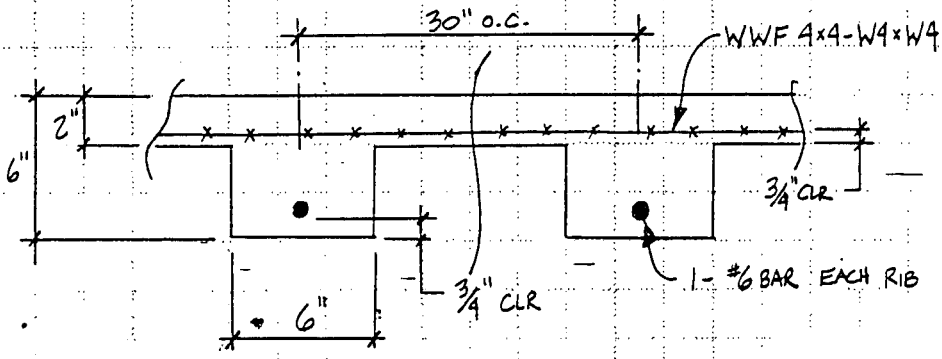
DESIGN LIVE LOAD = 125 PSF

$$\text{Wt. OF SLAB} = \left[\frac{\left(\frac{4"}{12}\right)\left(\frac{6"}{12}\right)}{2.5\,Ft_{o.c.}} + \left(\frac{2"}{12"}\right)\right] \times 95\ PCF = 22.2\ PSF$$

DESIGN DEAD LOAD = 22.2 PSF (SLAB) + 2.8 PSF (SUBFLOOR & FINISH) = 25.0 PSF

TOTAL SERVICE LOAD = 125 + 25 = 150 PSF

TOTAL FACTORED LOAD = (125 × 1.7) + (25 × 1.4) = 246 PSF



FOR 12 Ft WIDE SHELTER (ASSUMING 12" WIDE MIN. PERIMETER FOUNDATION):

SPAN = $12\,Ft - \left(\frac{12"}{12}\right) \times 2 = 10\,Ft$

EFFECTIVE FLANGE WIDTH = LESSER OF:

$l/4 = (10\,Ft) \times 12/4 = 30\,IN$

$16t + b_w = (16 \times 2\,IN) + 6" = 38\,IN$

C.C. SPACING OF RIBS = 30 IN

UNIFORM LOAD PER T-BEAM:

W_{ST} = 150 PSF × 2.5 Ft = 375 PLF

W_{SL} = 125 PSF × 2.5 Ft = 313 PLF

W_{UT} = 246 PSF × 2.5 Ft = 615 PLF

$d_w = 6" - 0.75" - \frac{0.75"}{2} = 4.875\,IN$

$d_f = 2" - 0.75" - \frac{0.225"}{2} = 1.138\,IN$

LL = 125 PSF

DL = 25 PSF

W_s = 150 PSF

W_u = 246 PSF

f'_c = 4000 PSI

f_y = 60,000 PSI

W_c = 95 PCF

h_w = 6"

h_f = 2"

b_w = 6"

A_{sw} = 0.44 IN^2/RIB

A_{sf} = 0.12 IN^2/Ft

SPAN = 10 Ft.

b_f = 30 IN

W_{ST} = 375 PLF

W_{SL} = 313 PLF

W_{UT} = 615 PLF

d_w = 4.875 IN

d_f = 1.138 IN

BENDING - T. BEAM

$M_u = wl^2/8 = (.615\ ^{K}/_{FT})(10^{FT})^2/8 = 7.69^{K\cdot FT} = 92.25^{K\cdot IN}$

$\phi M_n = (0.9)(0.44)(60)(4.875)\left[1 - 0.59\frac{(0.44)(60)}{(4)(30)(4.875)}\right] = 112.75^{K\cdot IN}$

BENDING

$M_u = 92.25^{K\cdot IN}$

$\phi M_n = 112.75^{K\cdot IN}$

BENDING - FLANGE SPANNING BETWEEN RIBS

$M_u = wl^2/10 = (0.246\ ^{K}/_{SF})\left(\frac{24"}{12}\right)^2/10 = 0.098^{K\cdot FT} = 1.18^{K\cdot IN}$

$\phi M_n = (0.9)(0.12)(60)(1.138)\left[1 - 0.59\frac{(0.12)(60)}{(4)(12)(1.138)}\right] = 6.80^{K\cdot IN}$

$M_u = 1.18^{K\cdot IN}$

$\phi M_N = 6.80^{K\cdot IN}$

$\phi M_n > M_u$

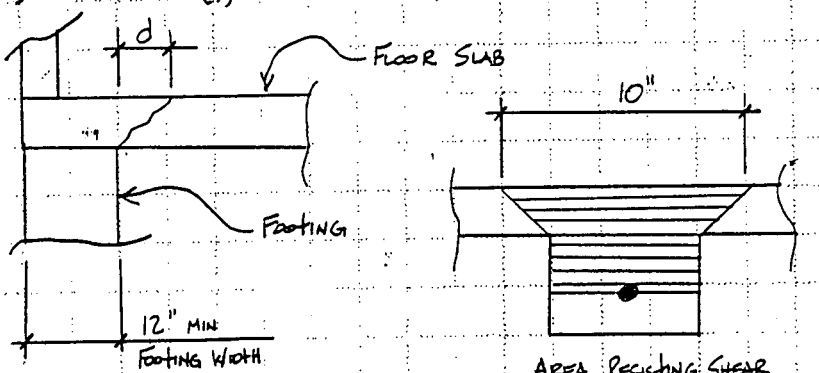
BENDING IS OK

SHEAR - T-BEAM

CRITICAL SHEAR FORCE IS LOCATED AT DISTANCE "d" FROM FACE OF SUPPORT. $SPAN_{(V)} = 12^{FT} - 2\left(\frac{12"}{12}\right) - 2\left(\frac{4.875}{12}\right) = 9.19^{FT}$

SHEAR - T BEAM

$SPAN_{(V)} = 9.19^{FT}$



$V_u = (615\ PLF)(9.19^{FT})/2 = 2826^{\#}$

$V_u = 2826^{\#}$

$A_V = (6")(4.875") + (2")(2") = 33.25\ IN^2$

$A_V = 33.25\ IN^2$

FROM ACI EQ. 11-6, ϕV_n IS THE LESSER OF: (= 1.0 FOR SIMPLY SUPPORTED BEAM)

$\phi V_n = (0.75)(0.85)\left[1.9\sqrt{4000} + 2500\left(\frac{0.44}{33.25}\right)\left(\frac{V_u d}{M_u}\right)\right](33.25) = 3248^{\#}$

OR $(0.75)(0.85)\,3.5\sqrt{4000}\,(33.25) = 4692^{\#}$

Ltwt. Conc. ↑ ↑ ϕ

$\phi V_n = 3248^{\#}$

$\phi V_n > V_u$

T-BEAM SHEAR IS OK

FLANGE SHEAR

2" THICK FLANGE SPANS BETWEEN T-BEAM RIBS

$SPAN_{(V)} = 24" - 2(d) = 2^{Ft} - 2\left(\frac{1.138}{12}\right) = 1.81^{Ft}$

$V_u = (246\ PSF)(1.81^{Ft})/2 = 223^{\#}/Ft\ OF\ SLAB$

FROM ACI EQ. 11-3:

$\phi V_n = (0.75)(.85)2\sqrt{4000}\ (12")(1.138") = 1101\ ^{\#}/Ft\ OF\ SLAB$

$\phi V_n > V_u$

T-BEAM DEFLECTION

ALLOWABLE DEFLECTION LIMITS:

$\Delta_{TL\ (ALL)} = l/240 = (10^{Ft})(12)/240 = 0.50\ IN$

$\Delta_{LL\ (ALL)} = l/360 = (10^{Ft})(12)/360 = 0.33\ IN$

$E_c = (wc)^{3/2} \times 33\sqrt{f'c} = (95)^{3/2}(33)\sqrt{4000} = 1,932,543\ PSI$

$E_s = 29,000\ KSI \qquad n = E_s/E_c = 15.01$

$F_r = 0.75\,(7.5)\sqrt{f'c} = 355.76\ PSI$

$$y_t = \frac{(2")(30"-6")\left(\frac{2}{2}\right) + (6")(6")\left(\frac{6}{2}\right)}{(2")(30"-6") + (6")(6")} = 1.86\ IN$$

$$I_G = \frac{bh^3}{12} + Ad^2 = \frac{(30-6)(2)^3}{12} + (30-6)(2)\left(1.86 - \frac{2}{2}\right)^2 + \frac{(6)(6)^3}{12} + (6)(6)\left(\frac{6}{2} - 1.86\right)^2 = 206.29\ IN^4$$

$M_{CR} = (F_r)(I_G)/y_t = 39,516\ ^{IN-\#}$

M_a = MAXIMUM MIDSPAN MOMENT @ SERVICE LOAD:

$M_a = (W_{ST})(l)^2/8 = (375\ PLF)(10^{Ft})^2/8 = 4687.5\ ^{Ft.\#}$

$4687.5^{Ft\#} \times 12 = 56,250\ ^{IN.\#}$

FLANGE SHEAR

$SPAN_{(V)} = 1.81\ Ft$

$V_u = 223^{\#}$

$\phi V_n = 1101^{\#}$

FLANGE SHEAR IS OK

DEFLECTION

$\Delta TL_{(ALL)} = 0.50\ IN$

$\Delta LL_{(ALL)} = 0.33\ IN$

$E_c = 1,933\ KSI$

$E_s = 29,000\ KSI$

$n = 15.01$

$F_r = 355.76\ PSI$

$y_t = 1.86\ IN$

$I_G = 206.29\ IN^4$

$M_{cr} = 39,516^{IN-\#}$

$M_a = 56,250^{IN.\#}$

Deflection (con't)

$\rho = A_s / b_w \cdot d_w = (0.44)/(6)(4.875) = 0.0150$

$k = \sqrt{2\rho n + (\rho n)^2} - \rho n = 0.4831$

$I_{CR} = d^3\left[4k^3 + 12\rho n(1 - 2k + k^2)\right] = 136.10 \text{ IN}^4$

$I_e = \left(\frac{M_{CR}}{M_a}\right)^3 I_G + \left[1 - \left(\frac{M_{CR}}{M_a}\right)^3\right] I_{CR} = 160.45 \text{ IN}^4$

Actual Calculated Deflections:

$\Delta_{TL\,(ACT)} = \frac{5(W_{DT})(\ell)^4}{384(E_c)(I_e)} \times \left(12 \frac{\text{IN}}{\text{FT}}\right)^3 = 0.27 \text{ IN}$

$\Delta_{LL\,(ACT)} = 0.27 \text{ IN} \left(\frac{313 \text{ PLF}}{375 \text{ PLF}}\right) = 0.23 \text{ IN}$

$\Delta TL_{(ACT)} < \Delta TL_{(ALL)}$

$\Delta LL_{(ACT)} < \Delta LL_{(ALL)}$

Deflection (cont.)

$\rho = 0.0150$

$k = 0.4831$

$I_{CR} = 136.10 \text{ IN}^4$

$I_e = 160.45 \text{ IN}^4$

$\Delta_{TL\,(ACT)} = 0.27"$

$\Delta_{LL\,(ACT)} = 0.23"$

Deflection is OK

ANDREW

Section FLOOR SLAB - 200 PSF Project RES SYSTEM Date 08.09.96 Page 15 of 48

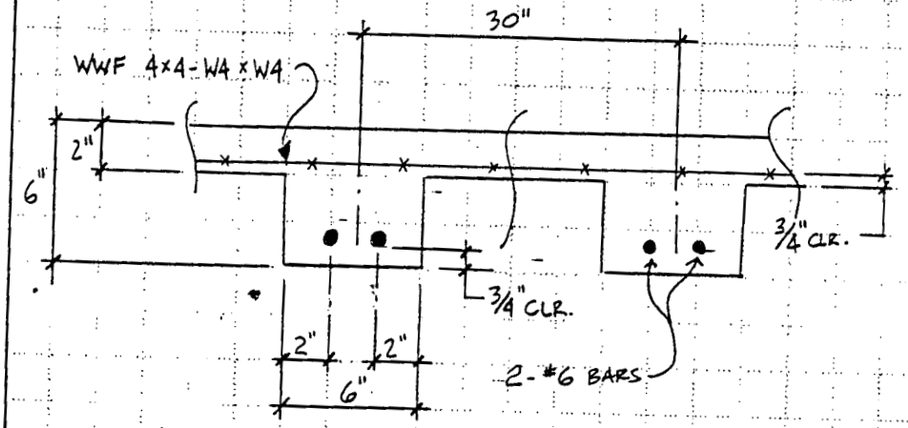
DESIGN LIVE LOAD = 200 PSF

$$\text{Wt of SLAB} = \left[\frac{\left(\frac{4"}{12}\right)\left(\frac{6"}{12}\right)}{2.5\ \text{Ft o.c.}} + \left(\frac{2"}{12}\right)\right] \times 95\ \text{PCF} = 22.2\ \text{PSF}$$

DESIGN DEAD LOAD = 22.2 PSF (SLAB) + 2.8 PSF (SUBFLOOR & FINISH) = 25.0 PSF

TOTAL SERVICE LOAD = 200 + 25 = 225 PSF

TOTAL FACTORED LOAD = (200 × 1.7) + (25 × 1.4) = 375 PSF



FOR 12 Ft WIDE SHELTER (ASSUMING 18" WIDE MIN. PERIMETER FOUNDATION):

SPAN = $12\ \text{Ft} - 2\left(\frac{18"}{2}\right) = 9\ \text{Ft}$

EFFECTIVE FLANGE WIDTH = LESSER OF:

$l/4 = (9)(12)/4 = 27\ \text{IN}$

$16t + b_w = 16(2) + 6 = 38\ \text{IN}$

C.C. SPACING OF RIBS = 30 IN

UNIFORM LOAD PER T-BEAM:

$w_{ST} = 225\ \text{PSF} \times 2.5\ \text{Ft} = 562.5\ \text{PSF}$

$w_{SL} = 200\ \text{PSF} \times 2.5\ \text{Ft} = 500\ \text{PSF}$

$w_{UT} = 375\ \text{PSF} \times 2.5\ \text{Ft} = 937.5\ \text{PSF}$

$d_w = 6" - 0.75" - \frac{0.75"}{2} = 4.875\ \text{IN}$

$d_f = 2" - 0.75" - \frac{0.225"}{2} = 1.138\ \text{IN}$

LL = 200 PSF

DL = 25 PSF

w_S = 225 PSF

w_U = 375 PSF

f'_c = 4000 PSI

f_y = 60,000 PSI

W_c = 95 PSF

h_w = 6"

h_f = 2"

b_w = 6"

A_{sw} = 0.88 IN^2

A_{sf} = 0.12 IN^2/Ft

SPAN = 9 Ft

b_f = 27 IN

w_{ST} = 562.5 PSF

w_{SL} = 500 PSF

w_{UT} = 937.5 PSF

d_w = 4.875 IN

d_f = 1.138 IN

BENDING: T. BEAM

$M_u = wl^2/8 = (.9375\ ^K/_{FT})(9^{FT})^2/8 = 9.49^{K\text{-}FT} = 113.91^{K\text{-}IN}$

$\phi M_n = (0.9)(0.88)(60)(4.875)\left[1 - 0.59\dfrac{(0.88)(60)}{(4)(27)(4.875)}\right] = 217.95^{K\text{-}IN}$

$\phi M_n > M_u$

BENDING: T-BEAM

$M_u = 113.91^{K\text{-}IN}$

$\phi M_n = 217.95^{K\text{-}IN}$

T-BEAM BENDING OK

BENDING: FLANGE SPANNING BETWEEN RIBS

$M_u = wl^2/10 = (0.375\ ^K/_{SF})(2^{FT})^2/10 = 0.150^{K\text{-}FT} = 1.80^{K\text{-}IN}$

$\phi M_n = (0.9)(0.12)(60)(1.138)\left[1 - 0.59\dfrac{(.12)(60)}{(4)(12)(1.138)}\right] = 6.80^{K\text{-}IN}$

$\phi M_n > M_u$

BENDING: FLANGE

$M_u = 1.80^{K\text{-}IN}$

$\phi M_n = 6.80^{K\text{-}IN}$

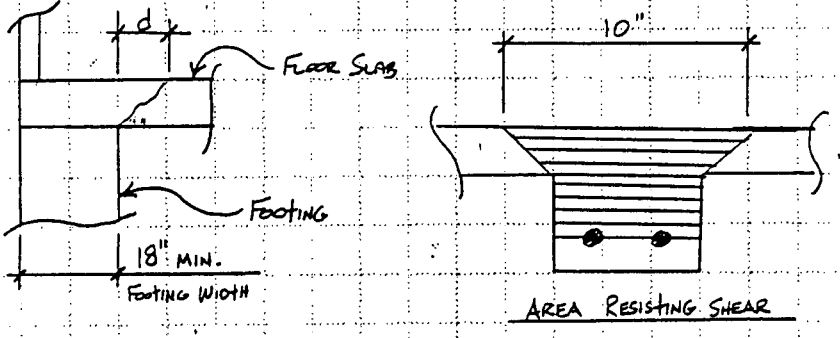
FLANGE BENDING IS OK

SHEAR: T-BEAM

- CRITICAL SHEAR FORCE IS LOCATED AT DISTANCE "d" FROM FACE OF SUPPORT. $SPAN_{(V)} = 12^{FT} - 2\left(\frac{18}{12}\right) - 2\left(\frac{4.875}{12}\right) = 8.19^{FT}$

SHEAR: T-BEAM

$SPAN_{(V)} = 8.19^{FT}$



$V_u = (937.5\ PLF)(8.19^{FT})/2 = 3839^{\#}$

$A_v = (6")(4.875") + (2")(2") = 33.25^{IN}$

FROM ACI EQ 11-6, ϕV_n IS THE LESSER OF:

$\phi V_n = (0.75)(0.85)\left[1.9\sqrt{4000} + 2500\left(\dfrac{0.88}{33.25}\right)\left(\dfrac{V_u d}{M_u}\right)\right](33.25) = 3950^{\#}$

Lwt. Conc. — ϕ — $V_u d/M_u = 1.0$ FOR SIMPLY SUPPORTED BEAMS

OR $(0.75)(0.85)\ 3.5\sqrt{4000}\ (33.25) = 4692^{\#}$

$\phi V_n > V_u$

$V_u = 3839^{\#}$

$A_v = 33.25^{IN}$

$\phi V_n = 3950^{\#}$

T-BEAM SHEAR IS OK

SHEAR: FLANGE SPANNING BETWEEN RIBS

SPAN (v) = $24" - 2(d) = 2^{Ft} - 2\left(\frac{1.138}{12}\right) = 1.81^{Ft}$

V_u = (375 PSF)(1.81 Ft)/2 = 340 #/Ft of SLAB

- FROM ACI EQ. 11-3:

$\phi V_n = (0.75)(0.85)\,2\sqrt{4000}\,(12")(1.138") = 1101$ #/Ft of SLAB

$\phi V_n > V_u$

FLANGE SHEAR

SPAN (v) = 1.81 Ft

V_u = 340 #

ϕV_n = 1101 #

FLANGE SHEAR IS OK

T-BEAM DEFLECTION

ALLOWABLE DEFLECTION LIMITS:

$\Delta TL_{(ALL)} = \ell/240 = (9Ft)(12)/240 = 0.45^{IN}$

$\Delta LL_{(ALL)} = \ell/360 = (9Ft)(12)/360 = 0.30^{IN}$

$E_c = (W_c)^{3/2} \times 33\sqrt{f'c} = (95)^{3/2}(33)\sqrt{4000} = 1,932,543$ PSI

E_s = 29,000 KSI $n = E_s/E_c = 15.01$

$F_r = 0.75\,(7.5)\sqrt{f'c} = 355.76$ PSI

$y_t = \dfrac{(2")(30"-6")\left(\frac{2"}{2}\right) + (6")(6")\left(\frac{6"}{2}\right)}{(2")(30"-6") + (6")(6")} = 1.86^{IN}$

$I_G = \dfrac{bh^3}{12} + Ad^2 = \dfrac{(30-6)(2)^3}{12} + (30-6)(2)\left(1.86 - \frac{2}{2}\right)^2$

$+ \dfrac{(6)(6)^3}{12} + (6)(6)\left(\frac{6}{2} - 1.86\right)^2 = 206.29^{IN^4}$

$M_{CR} = (F_r)(I_G)/y_t = 39,516^{IN\cdot\#}$

M_a = MAXIMUM MIDSPAN MOMENT @ SERVICE LOAD:

$M_a = (W_{ST})(\ell)^2/8 = (562.5\ PLF)(9^{Ft})^2/8 = 5,695.3^{Ft\cdot\#}$

$5,695.3^{Ft\cdot\#} \times 12 = 68,344^{IN\cdot\#}$

DEFLECTION

$\Delta TL_{(ALL)}$ = 0.45 IN

$\Delta LL_{(ALL)}$ = 0.30 IN

E_c = 1,933 KSI

E_s = 29,000 KSI

n = 15.01

F_r = 355.76 PSI

y_t = 1.86 IN

I_G = 206.3 IN^4

M_{CR} = 39,516 IN-#

M_a = 68,344 IN-#

DEFLECTION (CON'T)

$\rho = A_s / b_w d_w = (0.88)/(6)(4.875) = 0.0301$

$k = \sqrt{2\rho n + \rho n^2} - \rho n = 0.6006$

$I_{CR} = d^3 \left[4k^3 + 12\rho n (1 - 2k + k^2)\right] = 200.53 \text{ IN}^4$

$I_e = \left(\frac{M_{CR}}{M_a}\right)^3 I_G + \left[1 - \left(\frac{M_{CR}}{M_a}\right)^3\right] I_{CR} = 201.64 \text{ IN}^4$

ACTUAL CALCULATED DEFLECTIONS:

$\Delta TL_{(ACT)} = \frac{5(w_{st})(\ell)^4}{384(E_c)(I_e)} \times \left(12 \frac{\text{IN}}{\text{FT}}\right)^3 = 0.21 \text{ IN}$

$\Delta LL_{(ACT)} = \left(\frac{500 \text{ PLF}}{562.5 \text{ PLF}}\right) 0.21 \text{ IN} = 0.19 \text{ IN}$

$\Delta TL_{(ACT)} < \Delta TL_{(ALL)}$

$\Delta LL_{(ACT)} < \Delta LL_{(ALL)}$

DEFLECTION IS OK

DEFLECTION (CON'T)

$\rho = 0.0301$

$k = 0.6006$

$I_{CR} = 200.5 \text{ IN}^4$

$I_e = 201.64 \text{ IN}^4$

$\Delta TL_{(ACT)} = 0.21 \text{ IN}$

$\Delta LL_{(ACT)} = 0.19 \text{ IN}$

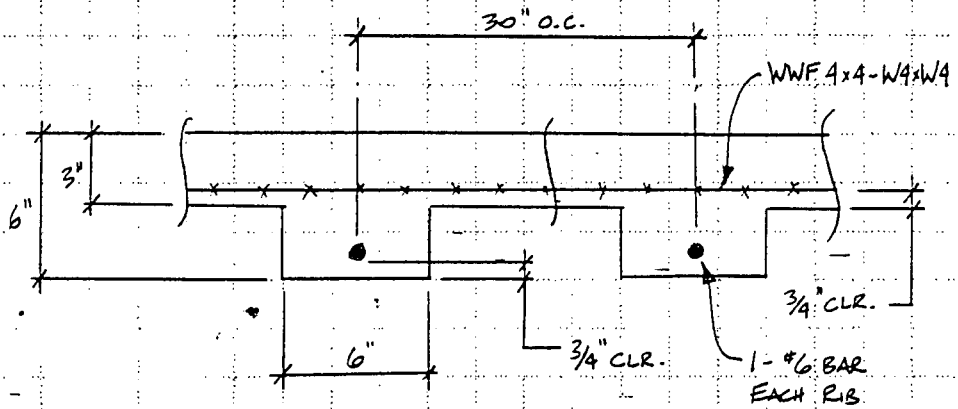
DESIGN LIVE LOAD = 125 PSF

$$\text{Wt of SLAB} = \left[\frac{\left(\frac{3"}{12}\right)\left(\frac{6"}{12}\right)}{2.5^{Ft}\ o.c.} + \left(\frac{3"}{12}\right)\right] \times 95\ PCF = 28.5\ PSF$$

DESIGN DEAD LOAD = 28.5 PSF + 2.8 PSF = 31.3 PSF
(28.5 PSF: SLAB; 2.8 PSF: SUBFLOOR & FINISH)

TOTAL SERVICE LOAD = 125 + 31.3 = 156 PSF

TOTAL FACTORED LOAD = (125 x 1.7) + (31.3 x 1.4) = 256 PSF



FOR 12 Ft WIDE SHELTER (ASSUMING 18" WIDE MIN. PERIMETER FOUNDATION):

$$\text{SPAN}_1 = 12^{Ft} - \left(\frac{18"}{12}\right) \times 2 = 9\ Ft$$

EFFECTIVE FLANGE WIDTH = LESSER OF:

$$l/4 = (9^{Ft}) \times 12/4 = 27.0^{IN}$$

$$16t + b_w = (16 \times 3^{IN}) + 6^{IN} = 54^{IN}$$

C.C. SPACING OF RIBS = 30^{IN}.

UNIFORM LOAD PER T-BEAM:

$$W_{ST} = 156\ PSF \times 2.5^{Ft} = 390\ PLF$$

$$W_{SL} = 125\ PSF \times 2.5^{Ft} = 313\ PLF$$

$$W_{UT} = 256\ PSF \times 2.5^{Ft} = 690\ PLF$$

$$d_w = 6" - 0.75" - \frac{0.75"}{2} = 4.875^{IN}$$

$$d_f = 3" - 0.75" - \frac{0.225"}{2} = 2.138^{IN}$$

LL = 125 PSF

DL = 31.3 PSF

W_S = 156 PSF

W_U = 256 PSF

f'_c = 4,000 PSI

f_y = 60,000 PSI

W_c = 95 PCF

h_w = 6"

h_f = 3"

b_w = 6"

A_{SW} = 0.44 IN^2/RIB

A_{Sf} = 0.12 IN^2/Ft

SPAN = 9 Ft

b_f = 27.0 IN

W_{ST} = 390 PLF

W_{SL} = 313 PLF

W_{UT} = 690 PLF

d_w = 4.875 IN

d_f = 2.138 IN

Bending - T. Beam

$M_u = wl^2/8 = (.690\ ^{K}/_{Ft})(9^{Ft})^2/8 = 6.48^{K\cdot Ft} = 77.76^{K\cdot IN}$

$\phi M_n = (0.9)(0.44)(60)(4.875)\left[1 - 0.59\dfrac{(0.44)(60)}{(4)(30)(4.875)}\right] = 112.75^{K\cdot IN}$

Bending - Flange Spaning Between Ribs

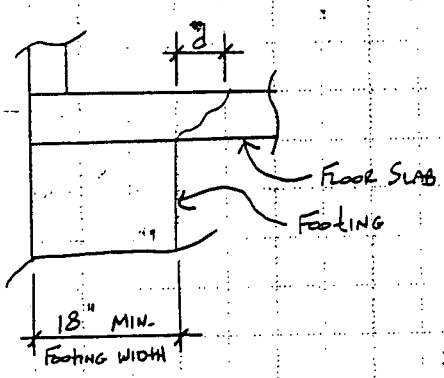
$M_u = wl^2/10 = (0.256\ ^{K}/_{SF})\left(\dfrac{24''}{12}\right)^2/10 = 0.102^{K\cdot Ft} = 1.23^{K\cdot IN}$

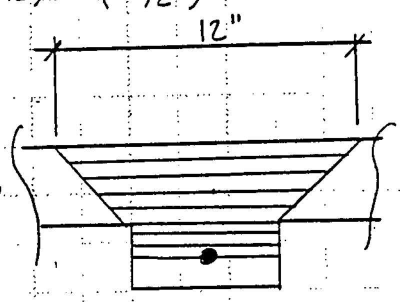
$\phi M_n = (0.9)(0.12)(60)(2.138)\left[1 - 0.59\dfrac{(0.12)(60)}{(4)(12)(2.138)}\right] = 13.28^{K\cdot IN}$

$\phi M_n > M_u$

Shear - T. Beam

Critical Shear Force is Located At Distance "d" From Face of Support. $\text{Span}(V) = 12^{Ft} - 2\left(\dfrac{18''}{12}\right) - 2\left(\dfrac{4.875}{12}\right) = 8.19^{Ft}$





Area Resisting Shear

$V_u = (640\ PLF)(8.19^{Ft})/2 = 2621^{\#}$

$A_v = (6'')(4.875'') + (3'')(3'') = 38.25^{IN^2}$

From ACI Eq 11-6, ϕV_n is the lesser of:

$\phi V_n = (0.75)(0.85)\left[1.9\sqrt{4000} + 2500\left(\dfrac{0.44}{38.25}\right)\left(\dfrac{V_u d}{M_u}\right)\right](38.25) = 3631^{\#}$

Ltwt (0.75) ; ϕ (0.85) ; 1.0 for Simple Support ($V_u d/M_u$ → 1.0)

OR

$\phi V_n = (0.75)(0.85)\,3.5\sqrt{4000}\,(38.25) = 5398^{\#}$

$\phi V_n > V_u$

— Bending —

$M_u = 77.76^{K\cdot IN}$

$\phi M_n = 112.75^{K\cdot IN}$

$M_u = 1.23^{K\cdot IN}$

$\phi M_n = 13.28^{K\cdot IN}$

Bending is OK

— Shear - T. Beam —

$\text{Span}(V) = 8.19^{Ft}$

$V_u = 2621^{\#}$

$A_v = 38.25^{IN^2}$

$\phi V_n = 3631^{\#}$

T. Beam Shear is OK

FLANGE SHEAR

3" THICK FLANGE SPANS BETWEEN T-BEAM RIBS

SPAN (v) = 24" - 2 (d) = $2^{Ft} - 2\left(\frac{2.138}{12}\right) = 1.64^{Ft}$

$V_u = (256\ PSF)(1.64^{Ft})/2 = 210\ ^{\#}/Ft$ OF SLAB

FROM ACI EQ 11-3:

$\phi V_n = (0.75)(0.85)2\sqrt{4000}\,(12")(2.138") = 2069\ ^{\#}/Ft$ OF SLAB

$\phi V_n > V_u$

FLANGE SHEAR

SPAN (v) = 1.64 Ft

$V_u = 210\ ^{\#}$

$\phi V_n = 2069\ ^{\#}$

FLANGE SHEAR IS OK

T-BEAM DEFLECTION

ALLOWABLE DEFLECTION LIMITS:

$\Delta TL\,(ALL) = l/240 = (9^{Ft})(12)/240 = 0.45\ IN$

$\Delta LL\,(ALL) = l/360 = (9\ Ft)(12)/360 = 0.30\ IN$

$E_c = (W_c)^{3/2} * 33\sqrt{f'c} = (95)^{3/2}(33)\sqrt{4000} = 1{,}932{,}543\ PSI$

$E_s = 29{,}000\ KSI$ $\quad n = E_s/E_c = 15.01$

$F_r = 0.75(7.5)\sqrt{f'c} = 355.76\ PSI$

$$y_t = \frac{(3")(30"-6")\left(\frac{3}{2}\right) + (6)(6)\left(\frac{6}{2}\right)}{(3)(30-6) + (6)(6)} = 2.0\ IN$$

$$I_G = \frac{bh^3}{12} + Ad^2 = \frac{(30-6)(3)^3}{12} + (30-6)(3)\left(2.0 - \frac{3}{2}\right)^2$$

$$+ \frac{(6)(6)^3}{12} + (6)(6)\left(\frac{6}{2} - 2.0\right)^2 = 216.0\ IN^4$$

$M_{cr} = (F_r)(I_G)/y_t = 38{,}422\ IN\text{-}\#$

M_a = MAXIMUM MID SPAN MOMENT @ SERVICE LOAD:

$M_a = (W_{st})(l^2)/8 = (390\ PLF)(9\ Ft)^2/8 = 3948.8\ Ft\cdot\#$

$3948.8^{Ft\cdot\#} \times 12 = 47{,}385\ IN\text{-}\#$

DEFLECTION

$\Delta TL\,(ALL) = 0.45\ IN$

$\Delta LL\,(ALL) = 0.30\ IN$

$E_c = 1{,}933\ KSI$

$E_s = 29{,}000\ KSI$

$n = 15.01$

$F_r = 355.76\ PSI$

$y_t = 2.0\ IN$

$I_G = 216.0\ IN^4$

$M_{cr} = 38{,}422\ IN\text{-}\#$

$M_a = 47{,}385\ IN\cdot\#$

Deflection (con't)

$\rho = A_s / b_w d_w = (0.44)/(6)(4.875) = 0.0150$

$k = \sqrt{2\rho n + (\rho n)^2} - \rho n = 0.4831$

$I_{CR} = d^3\left[4k^3 + 12\rho n (1 - 2k + k^2)\right] = 136.10 \text{ IN}^4$

$I_e = \left(\frac{M_{CR}}{M_a}\right)^3 I_G + \left[1 - \left(\frac{M_{CR}}{M_a}\right)^3\right] I_{CR} = 176.70 \text{ IN}^4$

Actual Calculated Deflections:

$\Delta TL\,(ACT) = \frac{5(W_{ST})(\ell)^4}{384\,E_c\,I_e} \times \left(12 \frac{IN}{Ft}\right)^3 = 0.17 \text{ IN}$

$\Delta LL\,(ACT) = \frac{5(W_{SL})(\ell)^4}{384\,E_c\,I_e} \times \left(12 \frac{IN}{Ft}\right)^3 = 0.14 \text{ IN}$

$\Delta TL\,(ACT) < \Delta TL\,(ALL)$

$\Delta LL\,(ACT) < \Delta LL\,(ALL)$

Deflection (con't)

$\rho = 0.0150$

$k = 0.4831$

$I_{CR} = 136.1 \text{ IN}^4$

$I_e = 176.7 \text{ IN}^4$

$\Delta TL\,(ACT) = 0.17 \text{ IN}$

$\Delta LL\,(ACT) = 0.14 \text{ IN}$

Deflection is OK

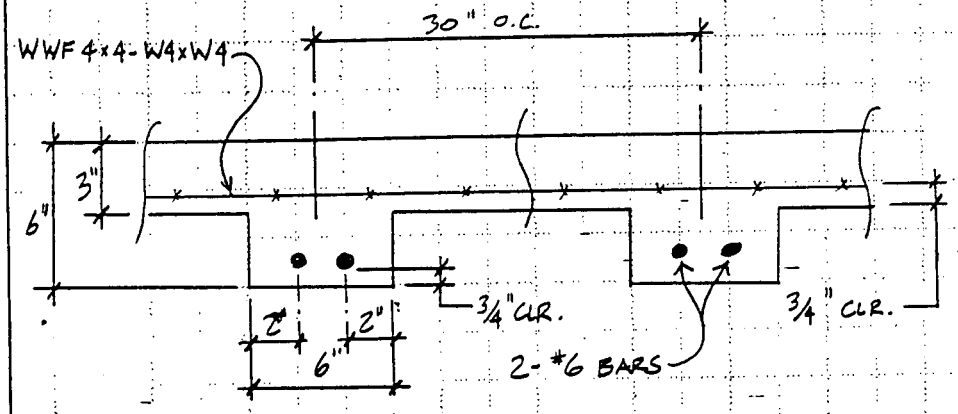
DESIGN LIVE LOAD = 200 PSF

$$\text{Wt of SLAB} = \left[\frac{\left(\frac{3"}{12}\right)\left(\frac{6"}{12}\right)}{2.5\,Ft\ o.c.} + \left(\frac{3"}{12}\right)\right] \times 95\ PCF = 28.5\ PSF$$

DESIGN DEAD LOAD = 28.5 PSF + 2.8 PSF = 31.3 PSF
(28.5 PSF: SLAB; 2.8 PSF: SUBFLOOR & FINISH)

TOTAL SERVICE LOAD = 200 + 31.3 = 231 PSF

TOTAL FACTORED LOAD = (200 x 1.7) + (31.3 x 1.4) = 384 PSF



FOR 12 Ft WIDE SHELTER (ASSUMING 18" WIDE MIN. PERIMETER FOUNDATION):

SPAN = $12\,Ft - 2\left(\frac{18"}{12}\right)$ = 9 Ft

EFFECTIVE FLANGE WIDTH = LESSER OF:

$\ell/4 = (9)(12)/4 = 27.0$ IN

$16t + b_w = (16)(3") + 6" = 54$ IN

C.C. SPACING OF RIBS = 30 IN

UNIFORM LOAD PER T-BEAM:

W_{ST} = 231 PSF x 2.5 Ft = 578 PSF

W_{SL} = 200 PSF x 2.5 Ft = 500 PSF

W_{UT} = 384 PSF x 2.5 Ft = 960 PSF //

$$d_w = 6" - 0.75" - \frac{"0.75"}{2} = 4.875\ IN$$

$$d_f = 3" - 0.75" - \frac{0.225"}{2} = 2.138\ IN$$

LL = 200 PSF

DL = 31.3 PSF

W_s = 231 PSF

W_u = 384 PSF

f'_c = 4,000 PSI

f_y = 60,000 PSI

W_c = 95 PCF

h_w = 6"

h_f = 3"

b_w = 6"

A_{SW} = 0.88 IN^2/RIB

A_{Sf} = 0.12 IN^2/Ft

SPAN = 9 Ft

b_f = 27 IN

W_{ST} = 578 PSF

W_{SL} = 500 PSF

W_{UT} = 960 PSF

d_w = 4.875 IN

d_f = 2.138 IN

BENDING : T. BEAM

$M_u = wl^2/8 = (0.960\ ^K/_{FT})(9\ FT)^2/8 = 9.72\ ^K/_{FT} = 116.64\ K\text{-}IN$

$\phi M_n = (0.9)(0.88)(60)(4.875)\left[1 - 0.59\dfrac{(0.88)(60)}{(4)(27)(4.875)}\right] = 217.95\ K\text{-}IN$ (18.16 K)

$\phi M_n > M_u$

BENDING : FLANGE SPANNING BETWEEN RIBS

$M_u = wl^2/10 = (0.384\ ^K/_{FT})(2\ FT)^2/10 = 0.154\ K\text{-}FT = 1.84\ K\text{-}IN$

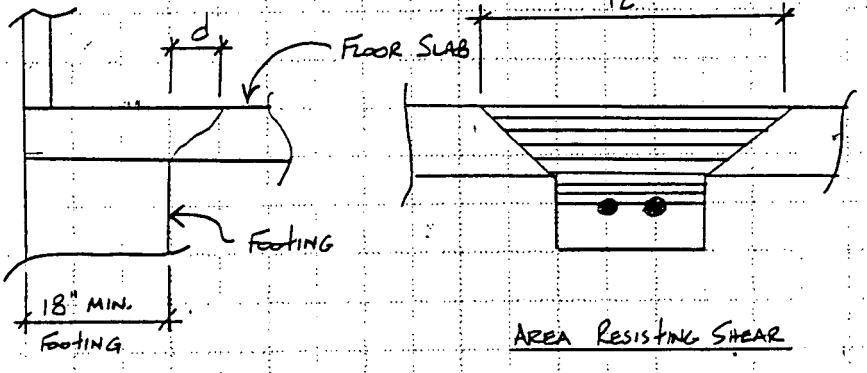
$\phi M_n = (0.9)(0.12)(60)(2.138)\left[1 - 0.59\dfrac{(0.12)(60)}{(4)(12)(2.138)}\right] = 13.28\ K\text{-}IN$

$\phi M_n > M_u$

SHEAR : T. BEAM

- CRITICAL SHEAR FORCE IS LOCATED AT DISTANCE "d" FROM FACE OF SUPPORT.

SPAN (V) = $12\ FT - 2\left(\dfrac{18"}{12}\right) - 2\left(\dfrac{4.875}{2}\right) = 8.19\ FT$



AREA RESISTING SHEAR

$V_u = (960\ PLF)(8.19\ FT)/2 = 3931\ \#$

$A_V = (6")(4.875") + (3")(3") = 38.25\ IN^2$

FROM ACI EQ 11-6, ϕV_n IS THE LESSER OF :

$\phi V_n = (0.75)(0.85)\left[1.9\sqrt{4000} + 2500\left(\dfrac{0.88}{38.25}\right)\left(\dfrac{V_u d}{M_u}\right)\right](38.25) = 4333\ \#$

(Ltwt: 0.75; ϕ: 0.85; 1.0 FOR SIMPLY SUPPORTED)

$\phi V_n = (0.75)(0.85)3.5\sqrt{4000}\,(38.25) = 5398\ \#$

$\phi V_n > V_u$

BENDING : T. BEAM

$M_u = 116.64\ K\text{-}IN$

$\phi M_n = 217.95\ K\text{-}IN$

T. BEAM BENDING OK

BENDING : FLANGE

$M_u = 1.84\ K\text{-}IN$

$\phi M_n = 13.28\ K\text{-}IN$

FLANGE BENDING IS OK

SHEAR : T. BEAM

SPAN (V) = 8.19 FT

$V_u = 3931\ \#$

$A_V = 38.25\ IN^2$

$\phi V_n = 4333\ \#$

T. BEAM SHEAR IS OK

SHEAR : FLANGE SPANNING BETWEEN RIBS

$$\text{SPAN}(v) = 24" - 2(d) = 2^{Ft} - 2\left(\frac{2.138}{12}\right) = 1.64^{Ft}$$

$$V_u = (384\ PLF)(1.64^{Ft})/2 = 315^{\#}/Ft \text{ OF SLAB}$$

FROM ACI EQ 11.3 :

$$\phi V_n = (0.75)(0.85)\,2\sqrt{4000}\,(12")(2.138") = 2069\ ^{\#}/Ft \text{ OF SLAB}$$

$$\phi V_n > V_u$$

T-BEAM DEFLECTION

ALLOWABLE DEFLECTION LIMITS :

$$\Delta TL\ (ALL) = l/240 = (9^{Ft})(12)/240 = 0.45^{IN}$$

$$\Delta LL\ (ALL) = l/360 = (9^{Ft})(12)/360 = 0.30^{IN}$$

$$E_c = (W_c)^{3/2} \times 33\sqrt{f'c} = (95)^{3/2}(33)\sqrt{4000} = 1{,}932{,}543\ PSI$$

$$E_s = 29{,}000\ KSI \qquad n = E_s/E_c = 15.01$$

$$F_r = 0.75(7.5)\sqrt{f'c} = 355.76\ PSI$$

$$y_t = \frac{(3")(30-6)\left(\frac{3}{2}\right) + (6)(6)\left(\frac{6}{2}\right)}{(3)(30-6) + (6)(6)} = 2.00^{IN}$$

$$I_G = \frac{bh^3}{12} + Ad^2 = \frac{(30-6)(3)^3}{12} + (30-6)(3)\left(2.0 - \frac{3}{2}\right)^2$$

$$+ \frac{(6)(6)^3}{12} + (6)(6)\left(\frac{6}{2} - 2.0\right)^2 = 216.0^{IN^4}$$

$$M_{CR} = (F_r)(I_G)/y_t = 38{,}422^{IN\cdot\#}$$

M_a = MAXIMUM MID SPAN MOMENT @ SERVICE LOAD :

$$M_a = (W_{ST})(l)^2/8 = (578\ PLF)(9^{Ft})^2/8 = 5855.3^{Ft\cdot\#}$$

$$5855.3^{Ft\cdot\#} \times 12 = 70{,}264^{IN\cdot\#}$$

SHEAR : FLANGE

$\text{SPAN}(v) = 1.64^{Ft}$

$V_u = 315^{\#}$

$\phi V_n = 2069$

FLANGE SHEAR IS OK

DEFLECTION

$\Delta TL(ALL) = 0.45^{IN}$

$\Delta LL(ALL) = 0.30^{IN}$

$E_c = 1{,}933\ KSI$

$E_s = 29{,}000\ KSI$

$n = 15.01$

$F_r = 355.76\ PSI$

$y_t = 2.00^{IN}$

$I_G = 216.0^{IN^4}$

$M_{CR} = 38{,}422^{IN\cdot\#}$

$M_a = 70{,}264^{IN\cdot\#}$

DEFLECTION (CON'T)

$$\rho = \frac{A_s}{b_w d_w} = (0.88)/(6)(4.875) = 0.0301$$

$$k = \sqrt{2\rho n + (\rho n)^2} - \rho n = 0.6006$$

$$I_{CR} = d^3\left[4k^3 + 12\rho n\,(1 - 2k + k^2)\right] = 200.53\ IN^4$$

$$I_e = \left(\frac{M_{CR}}{M_a}\right)^3 I_G + \left[1 - \left(\frac{M_{CR}}{M_a}\right)^3\right] I_{CR} = 203.06\ IN^4$$

ACTUAL CALCULATED DEFLECTIONS:

$$\Delta TL\ (ACT) = \frac{5\,(W_{ST})(\ell)^4}{384\,E_c\,I_e} \times \left(12\,\frac{IN}{Ft}\right)^3 = 0.22\ IN$$

$$\Delta LL\ (ACT) = \left(\frac{500\ PLF}{578\ PLF}\right) 0.22^{IN} = 0.19^{IN}$$

$\Delta TL\ (ACT) < \Delta TL\ (ALL)$

$\Delta LL\ (ACT) < \Delta LL\ (ALL)$

DEFLECTION IS OK

DEFLECTION (CON'T)

$\rho = 0.0301$

$k = 0.6006$

$I_{CR} = 200.53\ IN^4$

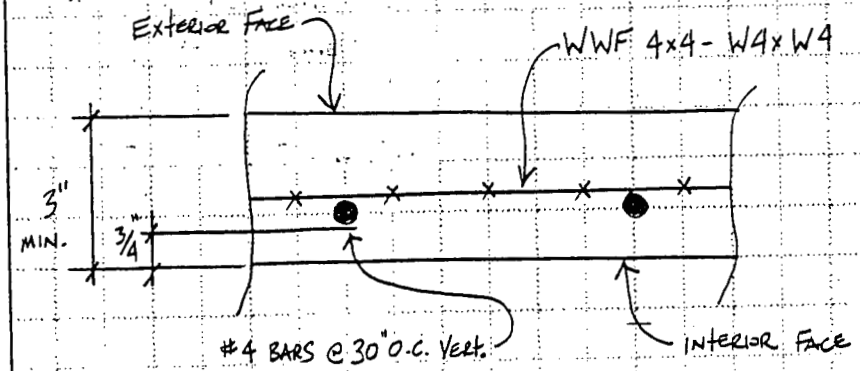
$I_e = 203.06\ IN^4$

$\Delta TL\ (ACT) = 0.22\ IN$

$\Delta LL\ (ACT) = 0.19\ IN$

BY OBSERVATION, 3" WALL DESIGN IS CRITICAL; 4" WALL IS CONSERVATIVE.

f'_c = 4,000 PSI
f_y = 60,000 PSI
W_c = 95 PCF



* $A_s = \frac{0.20\ IN^2}{2.5\ FT\ O.C.} + 0.12\ IN^2/FT = 0.20\ IN^2/FT$

(#4 BARS; WWF)

A_s = 0.20 IN²/FT

* ALTERNATELY USE WWF 4x6 - W4xD11.0. D11 @ 6" O.C. = 0.20 IN²

BENDING IN WINDWARD WIND DIRECTION (EXTERIOR FACE IN COMPRESSION)

BENDING - WINDWARD

- P_w = 60.2 PSF
  SPAN = 9'-10" (MAX)
  $w_u = (60.2\ PSF) \times 1.3 = 78.3$ PLF

P_w = 60.2 PSF
SPAN = 9'-10" FT
w_u = 78.3 PLF

$M_u = wl^2/8 = (0.0783\ K/FT)(9.83')^2/8 = 0.946\ K\cdot FT = 11.36\ K\cdot IN$

M_u = 11.36 K·IN

$d_w = 3.0" - \frac{(0.08)(1") + (0.12)(1.375")}{0.20\ IN^2} = 1.78\ IN$

d_w = 1.78 IN

$\phi M_n = (0.9)(0.20)(60)(1.78)\left[1 - 0.59\frac{(0.20)(60)}{(4)(12)(1.78)}\right] = 17.63\ K\cdot IN$

ϕM_n = 17.63 K·IN

$\phi M_n > M_u$

WINDWARD BENDING IS OK

BENDING IN LEEWARD WIND DIRECTION (EXTERIOR FACE IN TENSION)

P_L = 42.0 PSF

SPAN = 9'-10" (MAX)

w_u = 42.0 × 1.3 = 54.6 PLF

$M_u = wl^2/8 = (0.0546\ ^K/_{FT})(9.83')^2/8 = 0.660\ ^{K\text{-}FT} = 7.91\ ^{K\text{-}IN}$

$d_L = 3.0" - \dfrac{(0.08)(2") + (0.12)(1.625")}{0.20\ IN^2} = 1.22\ IN$

$\phi M_n = (0.9)(0.20)(60)(1.22)\left[1 - 0.59\dfrac{(0.20)(60)}{(4)(12)(1.22)}\right] = 11.58\ ^{K\text{-}IN}$

$\phi M_n > M_u$

LEEWARD BENDING

P_L = 42.0 PSF

SPAN = 9.83 FT

w_u = 54.6 PSF

M_u = 7.91 K-IN

d_L = 1.22 IN

ϕM_n = 11.58 K-IN

LEEWARD BENDING IS OK

SHEAR DESIGN

BY OBSERVATION, WINDWARD DIRECTION WILL CAUSE CRITICAL SHEAR.

$V_u = (78.3\ ^\#/_{FT})(9.83')/2 = 385\ ^\#/_{FT}$

FROM ACI EQ 11-3:

$\phi V_c = (0.75)(0.85)2\sqrt{4000}\,(12)(1.78) = 1722\ ^\#/_{FT}$

$\phi V_c > V_u$

SHEAR

V_u = 385 #

ϕV_c = 1722 #

SHEAR IS OK

AXIAL LOAD (FROM ROOF)

$P_{u\,(MAX)} = (220\ PSF)(12.5\ FT)/2 = 1375\ ^\#/_{FT}$ OF WALL $= 1.38\ ^K/_{FT}$

↑ w_u FROM 100 PSF ROOF DESIGN

FROM ACI EQ 10-2:

$\phi P_n = (0.8)(0.7)[(0.85)(4\ KSI)(12" \times 3")] = 68.54\ ^K/_{FT}$

↑ ϕ ↑ IGNORE A_S (CONSERVATIVE)

$\phi P_n > P_u$

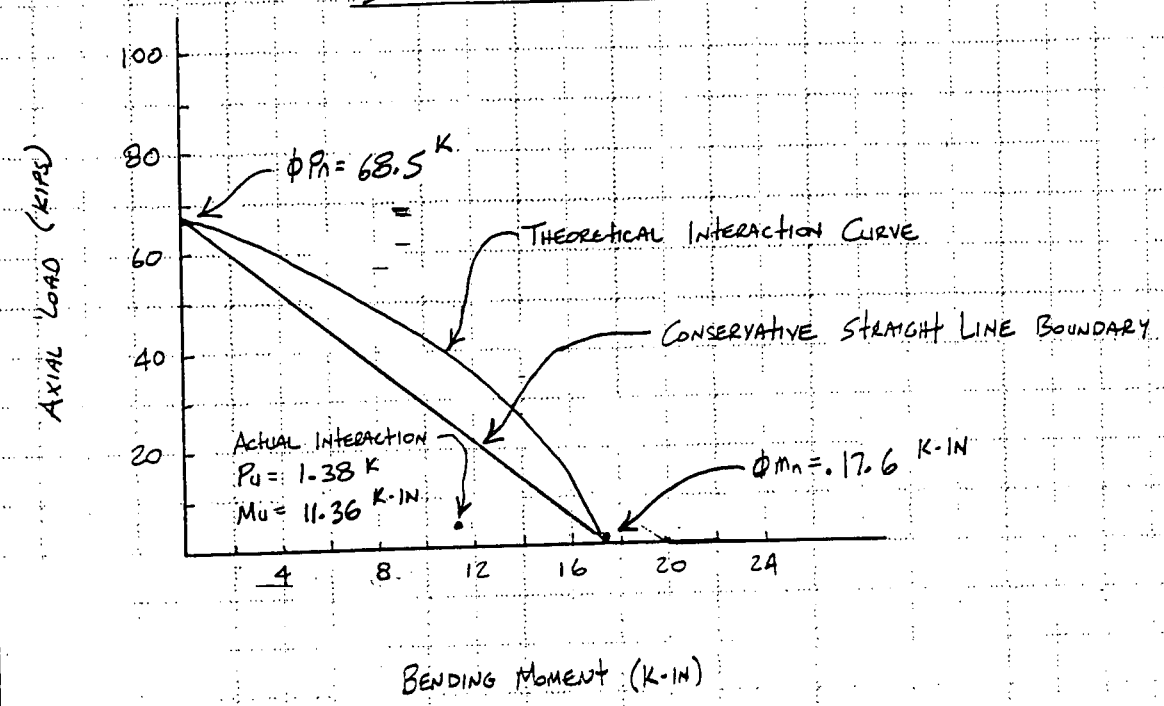
AXIAL

P_u = 1.38 K/FT

ϕP_n = 68.54 K/FT

AXIAL LOAD IS OK

BEAM-COLUMN INTERACTION DIAGRAM



DEFLECTION IN WINDWARD WIND DIRECTION (EXTERIOR FACE IN COMPRESSION)

ANALYSIS BASED ON 1994 UBC SECTION 1914.8 FOR ANALYSIS OF SLENDER WALL SECTIONS.

ALLOWABLE SERVICE LOAD DEFLECTION:

$\Delta s\ (ALL) = \ell/150 = (983')(12)/150 = 0.79^{IN}$

$M_S = (60.2\ PSF)(9.83)^2/8 = 727.1\ ^{\#\cdot FT} = 8.73\ ^{K\cdot IN}$

$M_n = 17.63\ ^{K\cdot IN} \div (0.9) = 19.59\ ^{K\cdot IN}$

ϕ

ϕM_n FROM BENDING CALCULATION

$F_r = 0.75(7.5)\sqrt{4000} = 355.76\ PSI$

$y_t = h/2 = 1.50^{IN}$

$I_G = bh^3/12 = (12)(3)^3/12 = 27.0^{IN^4}$

$M_{CR} = (F_r)(I_G)/y_t = 6404^{IN-\#} = 6.40^{K\cdot IN}$

$E_c = (W_c)^{3/2} \times 33\sqrt{f'_c} = (95)^{3/2} \times 33\sqrt{4000} = 1933^{KSI}$

$E_s = 29{,}000\ KSI \qquad n = E_s/E_c = 15.01$

$A_{se} = A_s = 0.20^{IN^2/FT}$

CONSERVATIVELY IGNORE P_u EFFECT TO REDUCE TENSION

DEPTH OF COMPRESSION BLOCK:

$$a = \frac{A_s f_y}{(0.85)(f'_c)(b)} = \frac{(0.20)(60)}{(0.85)(4)(12)} = 0.294^{IN}$$

NUETRAL AXIS: $c = \frac{1}{2}\left(d - \frac{a}{2}\right) + \frac{a}{2} = 0.963^{IN}$

$$I_{CR} = n\,A_{se}(d-c)^2 + \frac{bc^3}{3} = (15.01)(0.20)(1.78-.963)^2 + \frac{(12)(0.963)^3}{3}$$

$I_{CR} = 5.58^{IN^4}$

DEFLECTION WINDWARD

$\Delta s\ (ALL) = 0.79^{IN}$

$M_S = 8.73^{K\cdot IN}$

$M_n = 19.59^{K\cdot IN}$

$F_r = 355.76\ PSI$

$y_t = 1.50^{IN}$

$I_G = 27.0^{IN^4}$

$M_{CR} = 6.40^{K\cdot IN}$

$E_c = 1{,}933^{KSI}$

$E_s = 29{,}000\ KSI$

$n = 15.01$

$A_{se} = 0.20^{IN^2/FT}$

$a = 0.294^{IN}$

$c = 0.963$

$I_{CR} = 5.58^{IN^4}$

ENERGY EFFICIENCY CALCULATIONS SPREADSHEET REVISION "A" 02/17/97

KENTUCKY

CALCULATIONS BY: ANDREW CORP. SHELTER ENGINEERING

SHELTER MODEL NO.: RCS11516-1-95

CUSTOMER NAME: MOTOROLA/360 COMMUNICATIONS

MODEL: RCS ("W") ("L") - (DETAIL NO.) - ("H")

11.5 ' = WIDTH ("W")

16 ' = LENGTH ("L")

9.5 ' = HEIGHT ("H") OF WALL

3 '=TOTAL WIDTH OF DOORS IN WALLS

"R" VALUES

	WEIGHTED R-VALUE	REF. PAGE
WALL:	9.26	7
ROOF:	9.17	14
FLOOR:	6.80	24

DOOR AREA	WALL AREA	ROOF AREA	FLOOR AREA	WALL/DOOR Uw	ACTUAL VALUES WALL/DOOR UwAw	ROOF UrAr	FLOOR UfAf	TOTAL UoAo	MAX. ALLOW. CODE UoAo	
21	519.5	184	184	0.1068	57.7	20.06	27.0	104.8	179.2	OK

ZONE RESTRICTION

NONE

		ACTUAL U-VALUE	CODE U-VALUE
WALL	Uw=	0.108	0.287
ROOF	Ur=	0.109	0.081
FLOOR	Uf=	0.147	0.050
DOOR	Ud=	0.078	0.287

T. R. ARNOLD & ASSOCIATES, INC.
P. O. BOX 1081
ELKHART, IN 46515
State (s) KY IBC
Accredited Evaluation and
This document is certified as being in conformance with State Building Codes
Date 9/1/98
Approval of this document does not authorize or approve any omission or deviation from the requirements of applicable State Laws.

SINGLE PHASE PANELBOARD SCHEDULE

ENGINEER: M. KENNEDY
PROJECT: RCS 11516-1-95
CUSTOMER: 360 COMMUNICATION

PANEL SIZE: 225A
POLES: 2
VOLTAGE: 120/240V

DATE 03/16/98

WIRE SIZE & COLOR	BREAKER POLES & AMPS	LOAD SERVED VOLT-AMPS A CONT	A NONC	B CONT	B NONC	MAIN BREAKER SIZE 225A			LOAD SERVED VOLT-AMPS A CONT	A NONC	B CONT	B NONC	BREAKER POLES & AMPS	REMARKS
SURGE ARRESTOR	2 PL 60A	240	0	240	0	1 A	2		4080	0			2 PL 45A	HVAC #1
INTERIOR & EMERGENCY LIGHTS	1 PL - 20A	780	0			3 B	4				4080	0	2 PL 45A	HVAC #2
EXTERIOR LIGHTS	1 PL - 20A			100	0	5 A	6		0	4080			1PL - 20A	RECEPTACLES
POWER FAIL	2PL 15A	120	0	120	0	7 B	8				0	4080	1PL - 20A	RECEPTACLES
RECTIFIER	2 PL 30A	0	1440	0	1440	9 A	10		540	0			2 PL 30A	RECTIFIER
RECTIFIER	2 PL 30A	0	1440	0	1440	11 B	12				900	0	2 PL 30A	RECTIFIER
RECTIFIER	2 PL 30A	0	1440	0	1440	13 A	14		0	1440			2 PL 30A	RECTIFIER
RECTIFIER	2 PL 30A	0	1440	0	1440	15 B	16				0	1440	2 PL 30A	RECTIFIER
GFI RECEPTACLES	1 PL- 20A	360	0	0	0	17 A	18		0	1440			2 PL 30A	TOWER LIGHT CONTROLLER
		0	0	0	0	19 B	20				0	1440	2 PL 30A	"
		0	0			21 A	22		0	1440			1 PL - 20A	RECEPTACLE
					0	23 B	24				0	1440		
						25 A	26		0	1440				
						27 B	28				0	1440		
						29 A	30		2160	0				
						31 B	32				2160	0		
						33 A	34		180	0				
						35 B	36				0	0		
						37 A	38		0					
						39 B	40				0			
						41 A	42							
		1500	5760	460	5760				6960	9840	7140	9840		

TOTAL W = (125%) CONT + NON-CONT
TOTAL W = 51275 W
TOTAL A = TOTAL W/240
TOTAL A = 213.65 A
MAIN FEEDER WIRE SIZE: 4/0
MAIN BREAKER SIZE: 225 A

WATTS AVAILABLE: 2725 W
AMPS AVAILABLE: 11.4 A

T. R. ARNOLD & ASSOCIATES, INC.
P. O. BOX 1081
ELKHART, IN 46515
State (s) KY IBC
Accredited Evaluation and Inspection Agency
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Date 4/1/98
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ANDREW

RCS SHELTER SYSTEM

by

ANDREW CORPORATION

Structural Calculations

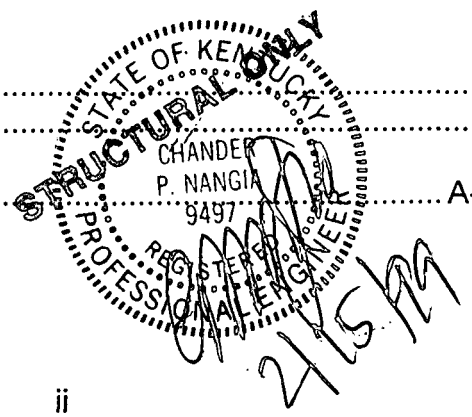
Revision: 4
Date: 11/23/98

Andrew - ANG
27 Amlajack Blvd.
Newnan, GA 30265
Phone: 770-251-8777
Fax: 770-304-4640

Andrew - ASC
8430 Rovana Circle
Sacramento, CA 95828
Phone: 916-381-9378
Fax: 916-381-9380

Andrew Corporation
27 Amlajack Boulevard
Newnan, Georgia U.S.A. 30265
TEL: (770) 251-8777
FAX: (770) 304-4640

Table of Contents



ANDREW

Scope of Design

This shelter system package is intended to serve as a "Master Plan" to define acceptable structural and architectural construction of the Andrew Corporation's "RCS" type equipment shelters. This calculation package incorporates all design options, which may be a part of the RCS shelter. The design is based on the "worst case" loading, and most restrictive requirements.

The floor and roof designs are based on a 12'-0" wide shelter so that any width less than this will result in a more conservative design.

The wall compression design is based on a 3" thick wall and will be more conservative for the 4" thick wall option.

- The shear wall design is based on the 3" thick wall of an 8'-0" wide shelter with a minimum horizontal concrete cross-section of 48" at any elevation. Shelters larger than 8'-0" wide or with a horizontal concrete cross-section greater than 48" at any elevation or with a 4" thick wall will be more conservative.

Overturning is based on the weight of an 8'-0" wide shelter with 3" walls for resistance. The 4" thick wall shelter and the larger widths will be more conservative.

ANDREW

Summary of Design Loads

Floor Live Load ..... 125 PSF or 200 PSF

Roof Live Load ..... 60 PSF or 100 PSF

Basic Wind Speed ..... 150 MPH (3-second gust)

Seismic Zone IV

Building Code Compliance

- 1991 UBC
- 1994 UBC
- 1997 UBC

- 1990 BOCA
- 1993 BOCA
- 1996 BOCA

- 1991 SBCCI
- 1994 SBCCI
- 1997 SBCCI

- 1995 Ohio Basic Building Code
- 1997 Ohio Basic Building Code
- 1998 Ohio Basic Building Code

- 1996 NEC (NFPA 70)

- 1998 North Carolina State Building Code

- 1995 ASCE 7

DETERMINE CRITICAL WIND LOADING BASED ON EACH MODEL CODE:

1991, 94 & 97 UBC

$P = C_e C_q q_s I$

$P_W = (1.06)(0.8)(57.6)(1.0) = 48.8$ PSF

$P_L = (1.06)(0.5)(57.6)(1.0) = 30.5$ PSF

$P_V = (1.06)(0.7)(57.6)(1.0) = 42.7$ PSF

$C_e = 1.06$ (EXP C)

$C_q = 0.80$ WINDWARD

$C_q = 0.50$ LEWARD

$C_q = 0.70$ VERTICAL

$q_s = 57.6$ PSF (150 MPH)

$I = 1.0$ (CATEGORY 3)

— UBC —

$P_W = 48.8$ PSF

$P_L = 30.5$ PSF

$P_V = 42.7$ PSF

1991, 94 & 97 SBC

$P = q G C_p I$

$P_W = (45.4)(1.20)(1.0) = 54.5$ PSF

$P_V = (45.4)(1.40)(1.0) = 63.6$ PSF

97 SBC ⇒ ASCE 7

$q = 45.4$ PSF (150 MPH)

$GC_p = 1.20$ WINDWARD

$GC_p = 1.40$ VERTICAL

$I = 1.0$

— SBC —

$P_W = 54.5$ PSF

$P_V = 63.6$ PSF

1990, 93, & 96

$P = P_V I [K_z G_h C_p - K_h (GC_{pi})]$

$P_W = (57.6)(1.0)[(0.80)(1.32)(0.8) - (0.8)(-0.25)]$

$P_W = 60.2$ PSF

$P_L = (57.6)(1.0)[(0.8)(1.32)(0.5) - (0.8)(-0.25)]$

$P_L = 42.0$ PSF

$P_V = (57.6)(1.0)[(0.8)(1.32)(0.7) - (0.8)(-0.25)]$

$P_V = 54.1$ PSF

$P_V = 57.6$ PSF (150 MPH)

$I = 1.0$

$K_z = K_h = 0.80$ (EXP C)

$G_h = 1.32$ (EXP C)

$GC_{pi} = \pm 0.25$ (ENCL. I)

$C_p = 0.8$ WINDWARD

$C_p = 0.5$ LEEWARD

$C_p = 0.7$ VERTICAL

— BOCA —

$P_W = 60.2$ PSF

$P_L = 42.0$ PSF

$P_V = 54.1$ PSF

CRITICAL CASES

$P_W = 60.2$ PSF (BOCA)

$P_L = 42.0$ PSF

$P_V = 54.1$ PSP

CRITICAL CASES

$P_W = 60.2$ PSF

$P_L = 42.0$ PSF

$P_V = 54.1$ PSF

DETERMINE CRITICAL SEISMIC FORCE COEFFICIENT BASED ON EACH MODEL BUILDING CODE:

1991, 94 & 97 UBC

$V = \frac{ZIC}{R_W} W = \frac{(0.4)(1.0)(2.75)}{6} W$

$Z = 0.4$ (ZONE 4)
$I = 1.0$
$C = 2.75$ (MAX)
$R_W = 6$ (CONC. SHEARWALL)

$V = 0.183\,W$

UBC

$V = 0.183\,W$

1990, 93 & 96 BOCA
1991, 94 & 97 SBC

SBC/BOCA

$V = C_s W$

$A_a = 0.4$ (MAX)

$C_s = \frac{2.5 A_a}{R_w} = \frac{2.5(0.4)}{4.5} = 0.222$ $R = 4.5$ (CONC. SHEARWALL)

$V = 0.222\,W$

1997 UBC

$V = \frac{2.5\,C_a\,I}{R} W = \frac{2.5(0.44)(1.5)(1)}{R} W$

$V = 0.37\,W$

1997 UBC

$V = 0.37\,W$

ASCE 7-95
WIND LOADS

$P = q_z G C_p - q_h (GC_{pi})$

$q_z = 0.00256\,K_z K_{zt} (V)^2 I$

$K_z = 1.03$, $K_{zt} = 1$ $q_h = 59.3$
$G = 0.85$

WINDWARD $P = 40.4$ PSF
LEEWARD $P = -25.2$ PSF
ROOF $P_{0 \text{ to } 5.1} = -65.6$ PSF $P_{5.1+} = -35.3$

BOCA CONTROLS FOR WIND

PACK-UP MATERIALS NEEDED FOR RADIO INTEGRATION

ITEM	QTY.	U/M	PART NO.	DESCRIPTION
1				
2	9	EA	367964-95	POLYPHASER COAXIAL ARRESTOR #IS-CF50HN-MA
3	1	EA	379902-125-2	FOLD DOWN DESK
4	1	EA	379902-108	LITERATURE HOLDER
5				
6	1	EA	244328	CABLE KIT LITE
7	1	EA	379902-337	HARDWARE KIT
8	1	EA	387959-71	BRIDGING CLIP, SEMON #SA1-50 (TAPE TO TOP OF 66 BLOCK)
9	1	EA	379902-303	EQUIPMENT RACK, NEWTON #4010-1
10	1	EA	379902-337-1	WIRE KIT FOR MOTOROLA/360
11				

PACK-UP THE BELOW ITEMS IN A BOX ALONG WITH ALL ITEMS THAT ARE REQUIRED TO BE REMOVED FOR SHIPMENT. TAPE BOX CLOSED AND MARK BOX "FIELD INSTALLED ITEMS".

ITEM	QTY.	U/M	PART NO.	DESCRIPTION
12	1	EA	368024-11	CONCRETE TIE DOWN KIT (4 PLATES) W/HARDWARE
13	1	EA	367976-80	WHITE CAULK
14	1	EA	-	GRAY CAULK (MR01526)
15	2	EA	367976-76-1	TAN VULKEM
16	1	EA	368051-2	PACK-UP BOX
17	1	EA	379902-202	2" PAINT BRUSH
18	1	QT	368950-100-40	COCOA ROOF/FLOOR PAINT

FIELD SET-UP INSTRUCTIONS

RESPONSIBLE PARTY: ANDREW FIELD CREW	ANDREW DRVR.	CUSTOMER	ITEMS CHECKED MUST BE INSTALLED AFTER DELIVERY OF SHELTER. REFER TO OWNER'S MANUALS AND/OR DRAWINGS INDICATED.	REFERENCE ITEM OR DWG#
		X	TIE-DOWN SHELTER TO FOUNDATION	368024-*
	X		TRANSPORT SHELTER	T-001-2
		X	OFFLOAD SHELTER	L-001-2
		X	INSTALL EXTERIOR LIGHT LENS AND BULB	

PACK-UP INSTRUCTIONS FOR PRE-INSTALLED ITEMS

1) ITEMS BELOW APPLY TO THIS SHIPMENT.
   - A) REMOVE AND PACK THE FOLLOWING:
     - EXTERIOR LIGHT BULB, LENS AND COVER. (IDENTIFY WIRES FOR FIELD SET-UP)
     - 4" TELCO PVC & PVC LB.
     - 8X8 WEATHERPROOF BOX NEAR WAVEGUIDE
     - 6X6 WEATHERPROOF BOX NEAR WAVEGUIDE
     - DOOR CANOPY
     - ALL GROUNDING ITEMS & HARDWARE FOR POLYPHASER PEEP PLATE.
   - B) SECURE __6__ (QTY.) FLUORESCENT LIGHT LENS IN PLACE.
   - C) SECURE __1__ (QTY.) STEEL DOOR WITH DEADBOLT.
   - D) PLACE ALL EQUIPMENT WARRANTIES AND OTHER PERTINENT INFORMATION IN LITERATURE HOLDER.
   - E) INSTALL TRANSPORTATION CAUTION TAG PER INSTALLATION DRAWING #N-009-1.
   - F) THIRD PARTY INSPECTION INSIGNIA TO BE INSTALLED ON OUTSIDE OF DISTRIBUTION PANEL (IF REQUIRED).
2) DRAWINGS IN DRAWING LIST MARKED WITH AN ASTERISK (*) ARE TO BE INCLUDED IN THE SHELTER PACK-UP MATERIALS.
3) SEAL ALL OPENINGS PRIOR TO SHIPMENT.
4) PLACE ALL PACK-UP MATERIALS AS CLOSE TO DOOR AS POSSIBLE. ALL PACK-UP MATERIAL IS TO BE PLACED IN ONE LARGE CARTON AND SEALED.
5) CLEAN, WAX AND SEAL FLOOR, THEN COVER WITH A SUITABLE FLOOR PROTECTIVE MATERIAL.
6) INSTALL CARDBOARD BETWEEN GRILLS ON HVAC UNITS, TO PROTECT COILS FOR SHIPPING.
7) TAPE EYEWASH BOTTLE IN PLACE FOR SHIPPING.

INT.	REV	DESCRIPTION	DATE	APPROVED
MK	-	INITIAL ISSUE	02/26/98	
MK	B	REVISED PER AS BUILT	03/17/98	

DRAWING LIST

SEE NOTE 2	DRAWING NO.	SHEET	SIZE	TITLE OF DRAWING
*	RCS11516-1-95	1 OF 7	D	SHELTER DESIGN DATA
*	RCS11516-1-95	2 OF 7	D	BILL OF MATERIAL
*	RCS11516-1-95	3 OF 7	D	EQUIPMENT LAYOUT
*	RCS11516-1-95	4 OF 7	D	ELECTRICAL SCHEMATIC
*	RCS11516-1-95	5 OF 7	D	CABLE LADDER & HALO GROUNDING
*	RCS11516-1-95	6 OF 7	D	GROUNDING DETAILS
*	RCS11516-1-95	7 OF 7	D	SHIPPING/SETUP INSTRUCTIONS
	RCS11516-1-295	1 THRU 7	C	CASTINGS SHOP DRAWINGS
*	L-001-2	1 OF 1	B	LIFTING DETAILS
*	I-001-1	1 OF 1	B	INSTALLATION DETAILS
*	T-001-2	1 OF 1	B	TRANSPORTATION DETAILS
*	I-RCS-P	1 OF 1	B	FLAT PLATE TIE DOWN KIT DRAWING
*	-	1 OF 1	B	PREVENTIVE MAINTENANCE MANUAL

SHIPPING SPECIFICATIONS

BLDG. LENGTH: 18'-0" W/OVERHANGS
BLDG. WIDTH: 11'-11" W/OVERHANGS
OVERALL BLDG. HEIGHT: 10'-5"
APPROX. BLDG. WEIGHT: 35,500 LBS.

OFFLOADING REQUIREMENTS

☐ STRAP OFFLOAD: REF. DWG.# L-001-1
■ CABLE OFFLOAD: REF. DWG.# L-001-2 FOR CRANE SUPPLIED CABLES, SHACKLES & SPREADER BAR.

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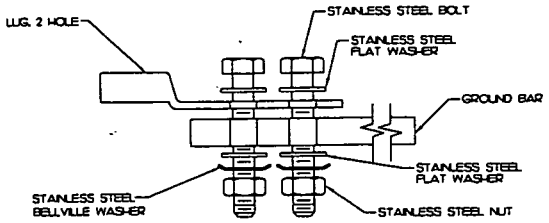
STATE OF KENTUCKY — CHANDER P. NANGIA 9497 — REGISTERED PROFESSIONAL ENGINEER — STRUCTURAL ONLY

ANDREW

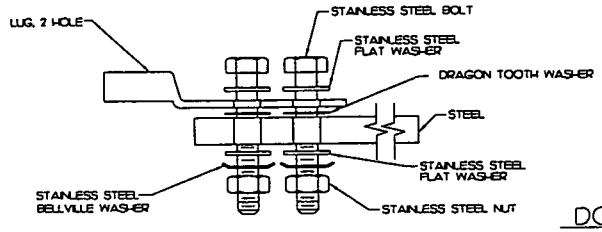
DRAWN BY	M. KENNEDY	DATE 02/24/98	TITLE: SHIPPING/SETUP INSTRUCTIONS
PROJECT ENGR	J. WARD	02/24/98	MOTOROLA/360°
SIZE D	DRAWING NUMBER RCS11516-1-95	SCALE N.T.S.	.5=12 SHEET 7 OF 7

ER010978

INIT.	REV	DESCRIPTION	DATE	APPROVED
MK	--	INITIAL ISSUE	02/26/98	
MK	A	RELEASE TO PRODUCTION	02/26/98	
MK	B	REVISED PER AS BUILT	03/17/98	



LUG CONNECTION AT GROUND BARS

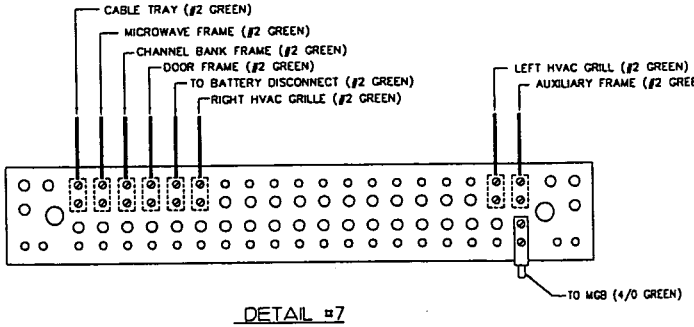


LUG CONNECTION AT STEEL OBJECTS

NOTES:

1. CHOOSE BOLT LENGTH TO ALLOW A MIN. OF TWO THREADS EXPOSED.
2. BURNISH MOUNTING SURFACE TO REMOVE PAINT IN THE AREA OF THE LUG.
3. APPLY ANTI-OXIDANT COMPOUND TO MATING SURFACE OF LUG AND WIPE OFF EXCESS COMPOUND

DETAIL #8

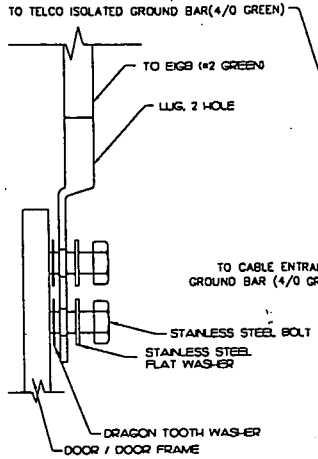


DETAIL #7

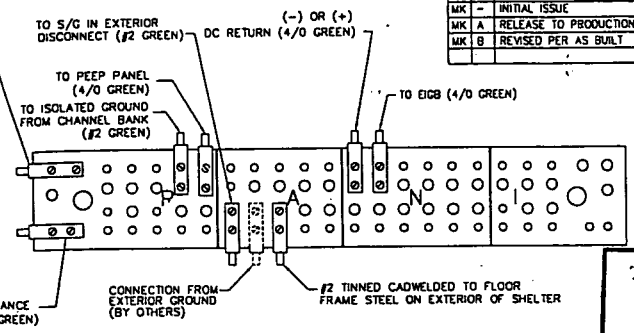
EIGB - EQUIPMENT ISOLATED GROUD BAR

(LOCATED ABOVE DISTRIBUTION PANEL)
(GROUND BAR TO BE TINNED)

LABEL ALL GROUND WIRE NEAR LUG WITH THE LOCATION THE GROUND WIRE IS RUNNING.



DOOR & DOOR FRAME



P= POS 1-5
A= POS 6-10
N= POS 11-16
I= POS 17-19

* INSTALL P.A.N.I AND DIVIDE STRIPES LABEL IN EXACT LOCATIONS SHOWN ON MGB.

LABEL ALL GROUND WIRE NEAR LUG WITH THE LOCATION THE GROUND WIRE IS RUNNING.

DETAIL #5

MGB - MASTER GROUND BAR

(LOCATED UNDER DISTRIBUTION PANEL)

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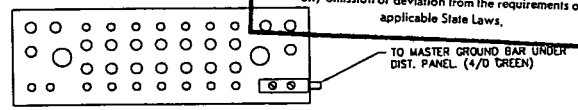
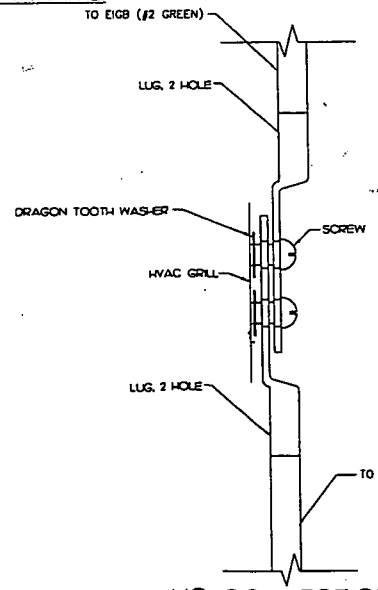


DETAIL #6

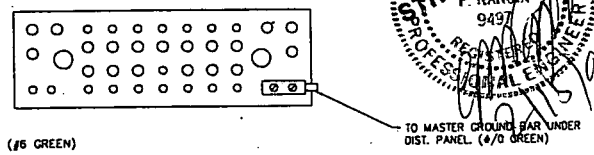
TIGB - TELCO ISOLATED GROUND BAR

(LOCATED LOWER RIGHT CORNER OF TELCO BOARD)

LABEL ALL GROUND WIRE NEAR LUG WITH THE LOCATION THE GROUND WIRE IS RUNNING.



LUG CONNECTIONS AT HVAC GRILLES



DETAIL #9

CEGB - CABLE ENTRANCE GROUND BAR

(LOCATED TO THE LEFT OF TIGB)

LABEL ALL GROUND WIRE NEAR LUG WITH THE LOCATION THE GROUND WIRE IS RUNNING.

STATE OF KENTUCKY
STRUCTURAL ONLY
CHANDER P. NANGIA
9497
REGISTERED PROFESSIONAL ENGINEER

ANDREW CORPORATION
ANDREW

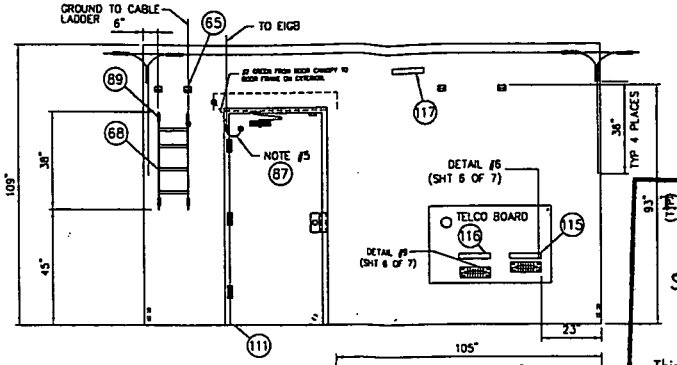
DRAWN BY: M. KENNEDY	DATE: 02/24/98	GROUNDING DETAIL
CHECKED BY:	DATE:	MOTOROLA/360°
PROJECT ENGR: J. WARD	DATE: 02/24/98	SIZE: B; DRAWING NUMBER: RCS11516-1-95
		SCALE: N.T.S.; PLOT SCALE: .25=12; SHEET: 6 OF 7

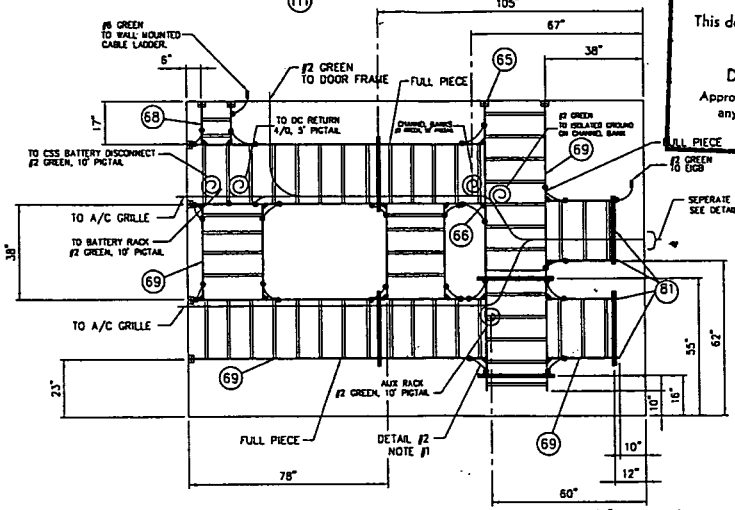
ER010968

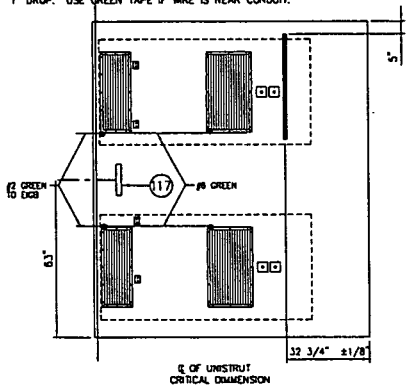
NOTES:

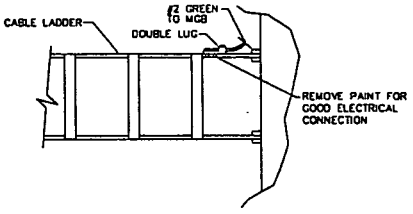
1. GROUND JUMPERS ON THE CABLE RACK SHALL BE STRAIGHT. ALL SPLICE CONNECTIONS WILL HAVE A JUMPER ON BOTH SIDES. USE TWO HOLE CRIMP LUGS. T-CONNECTIONS TO USE A MIN. 8" BEND RADIUS.
2. GROUND JUMPER FROM CABLE RACK TO EIGB W/ #2 GREEN AND WILL HAVE A MIN. 8" RADIUS BEND.
3. USE 16" RADIUS ON ALL 4/0 GROUND BENDS. TYRAPS ON EVERY OTHER RUNG RUNNING PARALLEL WITH SIDE BAR STARTING 1" FROM SIDE BAR. RUNS & BENDS SHOULD STAY ADJACENT TO EACH OTHER & REMAIN INSIDE CABLE LADDER.
4. USE 16" RADIUS ON ALL 4/0 GROUND BENDS.
5. USE DOOR STRAP AND MOUNT AT AN ANGLE SO IT WILL NOT INTERFERE WITH DOOR OPERATIONS, "U" SHAPE.
6. ALL WIRE IS RATED AT 75°
7. UTILIZE NO-OX AT ALL GROUND CONNECTIONS.
8. INSTALL THE "Y" DROP SO THAT THE LUGS ARE NOT NEAR OR DO NOT TOUCH ANY CONDUIT. (TAPE IF NECESSARY)
9. USE 3/4" PVC CONDUIT OVER THE THREADED ROD SUPPORTS FOR THE CABLE RACK.
10. LABEL ALL ATTACHED GROUND CONNECTIONS WITH TO/FROM INDICATOR.
11. MOUNT CABLE LADDER 93" A.F.F. TO BOTTOM OF CABLE LADDER.
12. PAINTED SURFACE TO BE REMOVED PRIOR TO GROUND CONNECTION.
13. SWEEP ALL GROUNDS TOWARD MASTER GROUND BAR LOATION UNDER DISTRIBUTION PANEL.
14. #2 GREEN MUST HAVE 12" MIN. BEND RADIUS & #6 GREEN WIRE TO HAVE 8" MIN. BEND RADIUS.
15. ALL GROUNDS TO BE RUN STRAIGHT & PARALLEL.
16. HALO GROUND TO BE CONTINUOUS WITH ONLY ONE MAIN SPLICE. LOCATED AT THE "Y" DROP. USE GREEN TAPE IF WIRE IS NEAR CONDUIT.

REVISIONS				
INT.	REV	DESCRIPTION	DATE	APPROVED
MK	-	INITIAL ISSUE	02/26/98	
MK	A	RELEASE TO PRODUCTION	02/26/98	
MK	B	REVISED PER AS BUILT	03/17/98	

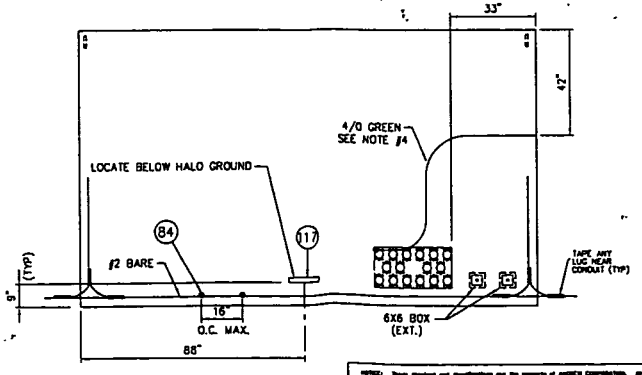


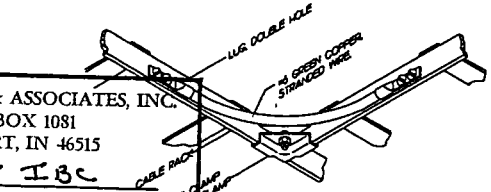




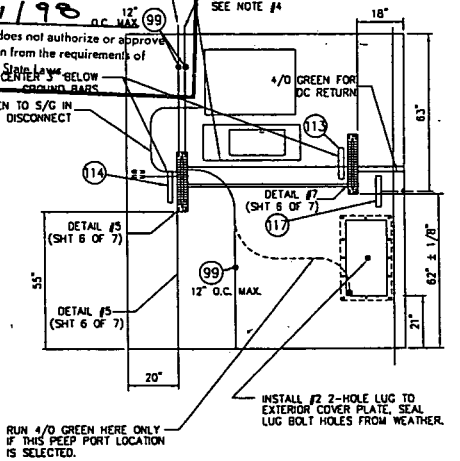


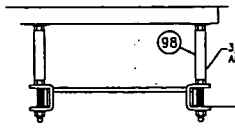
DETAIL #7
#1 GREEN GROUNDING CABLE LADDER TO MASTER GROUND BAR





DETAIL #2
#6 GREEN STRANDED TO CABLE RACK





CEILING SUPPORT

E. R. ARNOLD & ASSOCIATES, INC.
P. O. BOX 1081
ELKHART, IN 46515
State(s) KY IBC
Accredited Evaluation and Inspection Agency
This document is certified as being in conformance with State Building Codes
Date 4/1/98
Approval of this document does not authorize or approve any omission or deviation from the requirements of applicable State Laws

STATE OF KENTUCKY
CHRISTOPHER D. MANGIA
9497
LICENSED PROFESSIONAL ENGINEER
STRUCTURALLY

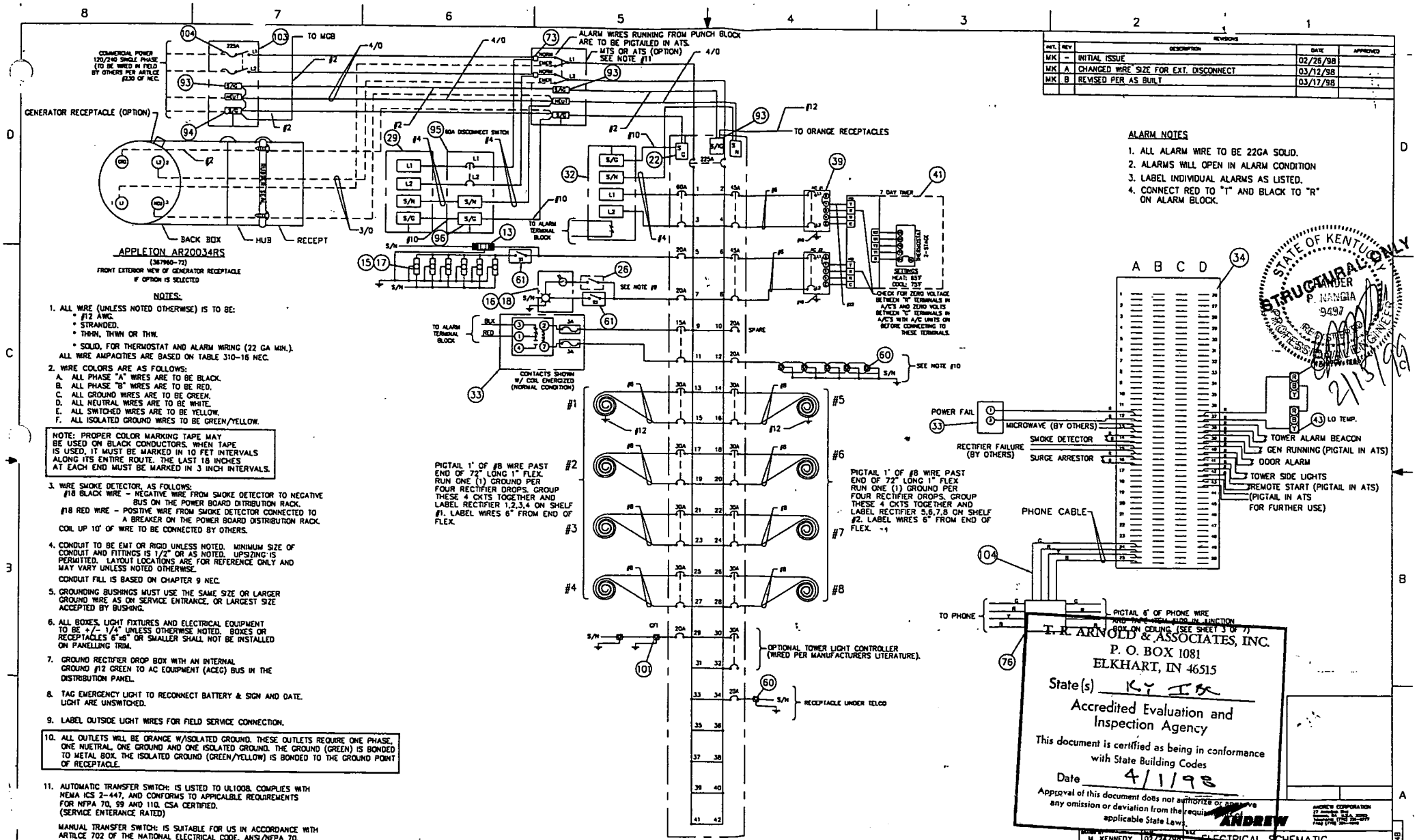
DRAWN BY	M. KENNEDY	DATE	02/04/98
CHECKED BY		DATE	
PROJECT ENGR		DATE	
PROJECT MGR	J. WARD	DATE	02/04/98

ANDREW

CABLE LADDER & HALO GROUNDING
MOTOROLA/360° COMMUNICATIONS

SIZE	DRAWING NUMBER	REV
B	RCS11516-1-95	B
SCALE	N.T.S.	SHEET 5 OF 7
PLOT SCALE	.25=12	

ERO1018



NOTES:

1. ALL WIRE (UNLESS NOTED OTHERWISE) IS TO BE:
   - #12 AWG.
   - STRANDED.
   - THHN, THWN OR THW.
   - SOLID, FOR THERMOSTAT AND ALARM WIRING (22 GA MIN.).

   ALL WIRE AMPACITIES ARE BASED ON TABLE 310-16 NEC.
2. WIRE COLORS ARE AS FOLLOWS:
   A. ALL PHASE "A" WIRES ARE TO BE BLACK.
   B. ALL PHASE "B" WIRES ARE TO BE RED.
   C. ALL GROUND WIRES ARE TO BE GREEN.
   D. ALL NEUTRAL WIRES ARE TO BE WHITE.
   E. ALL SWITCHED WIRES ARE TO BE YELLOW.
   F. ALL ISOLATED GROUND WIRES TO BE GREEN/YELLOW.

   NOTE: PROPER COLOR MARKING TAPE MAY BE USED ON BLACK CONDUCTORS. WHEN TAPE IS USED, IT MUST BE MARKED IN 10 FET INTERVALS ALONG ITS ENTIRE ROUTE. THE LAST 18 INCHES AT EACH END MUST BE MARKED IN 3 INCH INTERVALS.
3. WIRE SMOKE DETECTOR, AS FOLLOWS:
   #18 BLACK WIRE - NEGATIVE WIRE FROM SMOKE DETECTOR TO NEGATIVE BUS ON THE POWER BOARD DITRIBUTION RACK.
   #18 RED WIRE - POSITIVE WIRE FROM SMOKE DETECTOR CONNECTED TO A BREAKER ON THE POWER BOARD DISTRIBUTION RACK.
   COIL UP 10' OF WIRE TO BE CONNECTED BY OTHERS.
4. CONDUIT TO BE EMT OR RIGID UNLESS NOTED. MINIMUM SIZE OF CONDUIT AND FITTINGS IS 1/2" OR AS NOTED. UPSIZING IS PERMITTED. LAYOUT LOCATIONS ARE FOR REFERENCE ONLY AND MAY VARY UNLESS NOTED OTHERWISE.
   CONDUIT FILL IS BASED ON CHAPTER 9 NEC.
5. GROUNDING BUSHINGS MUST USE THE SAME SIZE OR LARGER GROUND WIRE AS ON SERVICE ENTRANCE, OR LARGEST SIZE ACCEPTED BY BUSHING.
6. ALL BOXES, LIGHT FIXTURES AND ELECTRICAL EQUIPMENT TO BE +/- 1/4" UNLESS OTHERWISE NOTED. BOXES OR RECEPTACLES 6"x6" OR SMALLER SHALL NOT BE INSTALLED ON PANELLING TRIM.
7. GROUND RECTIFIER DROP BOX WITH AN INTERNAL GROUND #12 GREEN TO AC EQUIPMENT (ACEG) BUS IN THE DISTRIBUTION PANEL.
8. TAG EMERGENCY LIGHT TO RECONNECT BATTERY & SIGN AND DATE. LIGHT ARE UNSWITCHED.
9. LABEL OUTSIDE LIGHT WIRES FOR FIELD SERVICE CONNECTION.
10. ALL OUTLETS WILL BE ORANGE W/ISOLATED GROUND. THESE OUTLETS REQUIRE ONE PHASE, ONE NUETRAL, ONE GROUND AND ONE ISOLATED GROUND. THE GROUND (GREEN) IS BONDED TO METAL BOX. THE ISOLATED GROUND (GREEN/YELLOW) IS BONDED TO THE GROUND POINT OF RECEPTACLE.
11. AUTOMATIC TRANSFER SWITCH: IS LISTED TO UL1008. COMPLIES WITH NEMA ICS 2-447, AND CONFORMS TO APPICALBLE REQUIREMENTS FOR NFPA 70, 99 AND 110. CSA CERTIFIED. (SERVICE ENTERANCE RATED)

    MANUAL TRANSFER SWITCH: IS SUITABLE FOR US IN ACCORDANCE WITH ARTILCE 702 OF THE NATIONAL ELECTRICAL CODE, ANSI/NFPA 70. (SERVICE ENTERANCE RATED)
12. ALL S/G ARE TO BE CASE GROUND NOT ISOLATED.

ALARM NOTES

1. ALL ALARM WIRE TO BE 22GA SOLID.
2. ALARMS WILL OPEN IN ALARM CONDITION
3. LABEL INDIVIDUAL ALARMS AS LISTED.
4. CONNECT RED TO "I" AND BLACK TO "R" ON ALARM BLOCK.

REVISIONS				
INIT.	REV	DESCRIPTION	DATE	APPROVED
MK	-	INITIAL ISSUE	02/26/98	
MK	A	CHANGED WIRE SIZE FOR EXT. DISCONNECT	03/12/98	
MK	B	REVISED PER AS BUILT	03/17/98	

STATE OF KENTUCKY
STRUCTURAL ONLY
PROFESSIONAL ENGINEER
REGISTERED
P. NANGIA
9497
2/13/98

T. R. ARNOLD & ASSOCIATES, INC.
P. O. BOX 1081
ELKHART, IN 46515
State(s) KY IL
Accredited Evaluation and Inspection Agency
This document is certified as being in conformance with State Building Codes
Date 4/1/98
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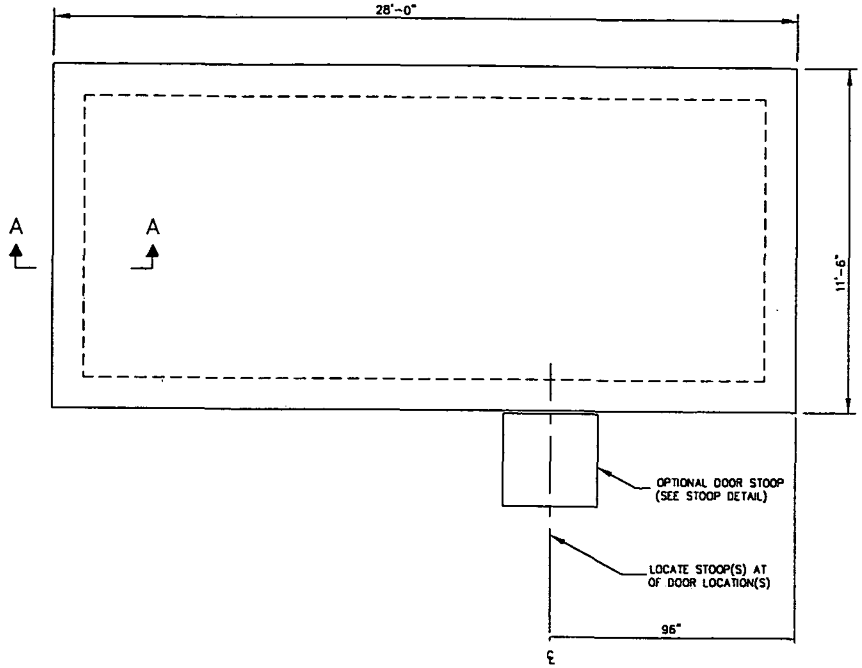
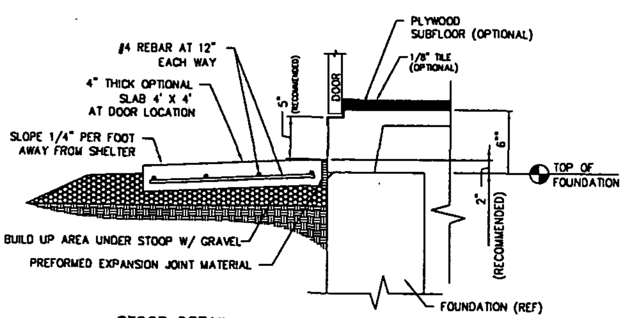
DESIGNED BY	M. KENNEDY	02/24/98	
DRAWN BY			
PROJECT MGR			
PROJECT MGR	J. WARD	02/24/98	

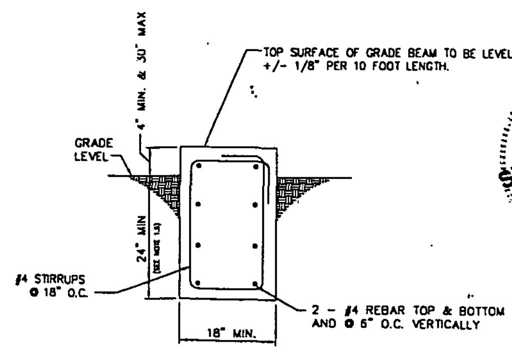
ELECTRICAL SCHEMATIC
MOTOROLA/360°
SIZE B | RCS11516-1-95
SCALE N.T.S. | PLOT SCALE .375=12 | SHEET 4 OF 7
CR0010948

INIT.	REV	DESCRIPTION	DATE	APPROVED
FR	–	APPROVAL ISSUE	02/18/97	
CC	A	REVISED REBAR PLACEMENT IN SECTION A–A	10/30/97	
MK	B	REVISED DOOR LOCATION	03/06/98	





STOOP DETAIL
NTS



SECTION "A-A"
NTS

GENERAL NOTES:

1. GENERAL
   - 1.1 Design and installation of foundation to be designed by local engineer or architect based on specific site, soil, and installation information. This is only a recommended design.
   - 1.2 Foundation is designed for 1500 psf bearing (soil types GW, GP, SW, SP, SM, SC, GM, GC, AND ROCK). However, it is the customer's responsibility to verify the adequacy of the foundation from soil boring data.
   - 1.3 Slab type foundation is not recommended for areas with extreme frost conditions or where high water tables are present. These conditions could cause differential settlements in the soil beneath the foundation resulting in structural cracks.
   - 1.4 Recommendation shall be for others for foundations on clay, silt, or peat, or soils with an expansion index exceeding 20, or bearing capacity less than 1500 psf, or high water table, or any other non-typical soil condition.
   - 1.5 Perimeter footing must be a minimum foundation depth of 12" but not less than required for local frost line conditions.
   - 1.6 A 6 mil polyethylene vapor barrier shall be installed between foundation/shelter bottom and grade.
2. MATERIALS
   - 2.1 Concrete shall have a minimum compressive strength of 2000 psi @ 28 days and shall be installed in accordance with the ACI–318–83 Building Code *Requirements for Reinforced Concrete.*
   - 2.2 Reinforcing bars shall conform to ASTM–A615–82 grade 60 specifications and be detailed in accordance with ACI–318–83.
   - 2.3 Test cylinders shall be molded and laboratory cured in accordance with ASTM C31. Three cylinders shall be taken for each day's concrete placement. Cylinders shall be tested in accordance with ASTM C39.
3. TOLERANCES
   - 3.1 Tops of concrete foundation must be within 0.02' [6.09] of elevation specified by the customer.
4. REFERENCE DWGS:
   - 4.1 Shelter Lifting – Dwg. No. L–001–2
   - 4.2 Shelter Transport – Dwg. No. T–001–2
5. SHELTER WARRANTY
   - 5.1 Andrew's precast concrete shelters are provided with a ten year limited structural warranty (see Andrew Bulletin #1545) when the following minimum conditions are met:
     - a) Foundation design meets or exceeds requirements of this drawing;
     - b) The foundation must provide continuous support in-plane for the bottom of the shelter, such that the shelter is not subject to stresses associated with differential settlement;
     - c) Site soil analysis and final foundation design must be provided by a local registered professional engineer, in accordance with specific site conditions and all local requirements;
     - d) *Andrew Corporation Shelter Engineering must approve any final foundation design which is in conflict with the requirements of this drawing.*

STATE OF KENTUCKY — STRUCTURAL ONLY — P. NANDA — 9497 — REGISTERED PROFESSIONAL ENGINEER

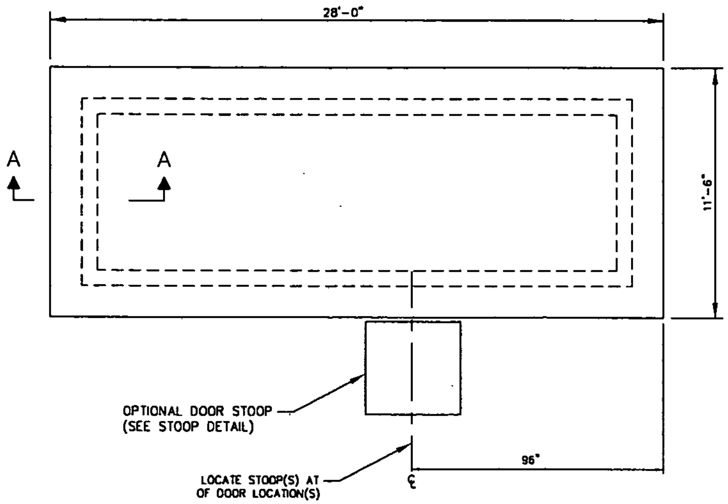
98

ANDREW CORPORATION — ANDREW

DRAWN BY: FR	DATE: 09/12/96	TITLE: GRADE BEAM FOUNDATION RECOMMENDATION MOTOROLA/360° 28' LONG	
SIZE: B		DRAWING NUMBER: F-001-1 (360)	REV: B
SCALE: N.T.S.	PLOT SCALE: .25=12	SHEET 1 OF 1	

360GRADE-9B

INT.	REV	DESCRIP.	DATE	APPROVED
FR	–	APPROVAL ISSUE	10/15/96	
FR	A	ADDED DESIGN LOAD INFORMATION	04/14/97	



DESIGN LOADS

THE DESIGN FOUNDATION LOADS GIVEN BELOW ARE BASED ON FULL SERVICE (UNFACTORED) DEAD LOAD PLUS FLOOR LIVE LOAD PLUS ROOF LIVE (SNOW) LOAD. THE LOADS GIVEN BELOW ARE GRAVITY LOADS ONLY. THE MAXIMUM DESIGN HORIZONTAL WIND LOAD IS 102.2 PSF. THE MAXIMUM DESIGN SEISMIC FORCE IS 0.22 W.

LOAD TO CONCRETE SLAB: 250 PSF (MAX).

LOAD TO PERIMETER FOOTING = 1,300 PLF (MAX).

NOTE: THE FOOTING AND SLAB DIMENSIONS SHOWN MAY NOT BE REDUCED WITHOUT WRITTEN AUTHORIZATION FROM ANDREW CORPORATION SHELTER ENGINEERING DEPARTMENT..

GENERAL NOTES:

1. GENERAL
   - 1.1 Design and installation of foundation to be designed by local engineer or architect based on specific site, soil, and installation information. This is only a recommended design.
   - 1.2 Foundation is designed for 1500 psf bearing (soil types GW, GP, SW, SP, SM, SC, GM, GC, AND ROCK). However, it is the customer's responsibility to verify the adequacy of the foundation from soil boring data.
   - 1.3 Slab type foundation is not recommended for areas with extreme frost conditions or where high water tables are present. These conditions could cause differential settlements in the soil beneath the foundation resulting in structural cracks.
   - 1.4 Recommendation shall be by others for foundations on clay, silt, or peat, or soils with a plasticity index exceeding 12, or bearing capacity less than 1500 psf, or high water table, or any other non-typical soil condition.
   - 1.5 Perimeter footing must be a minimum foundation depth of 12" but not less than required for local frost line conditions.
   - 1.6 A 6 mil polyethylene vapor barrier shall be installed between grade and foundation.
2. MATERIALS
   - 2.1 Concrete shall have a minimum compressive strength of 2000 psi @ 28 days and shall be installed in accordance with the ACI-318 Building Code Requirements for Structural Concrete.
   - 2.2 Reinforcing bars shall conform to ASTM-A615 grade 60 specifications and be detailed in accordance with ACI-318.
   - 2.3 Test cylinders shall be molded and laboratory cured in accordance with ASTM C31. Three cylinders shall be taken for each day's concrete placement. Cylinders shall be tested in accordance with ASTM C39.
3. TOLERANCES
   - 3.1 Tops of concrete foundation must be within 0.02' [6.09] of elevation specified by the customer.
4. REFERENCE DWGS:
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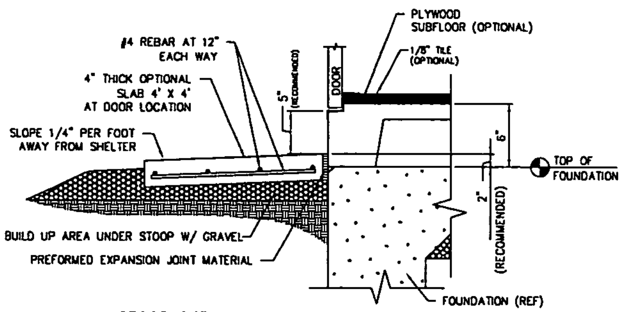
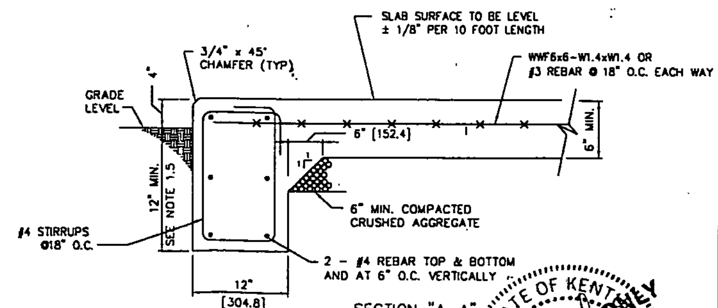
     - c) Site soil analysis and final foundation design must be provided by a local registered professional engineer, in accordance with specific site conditions and all local requirements;
     - d) Andrew Corporation Shelter Engineering must approve any final foundation design which is in conflict with the requirements of this drawing.



STOOP DETAIL
NTS



SECTION "A-A"
NTS

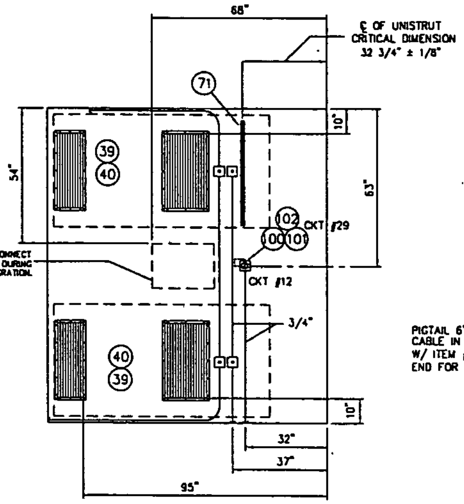
98

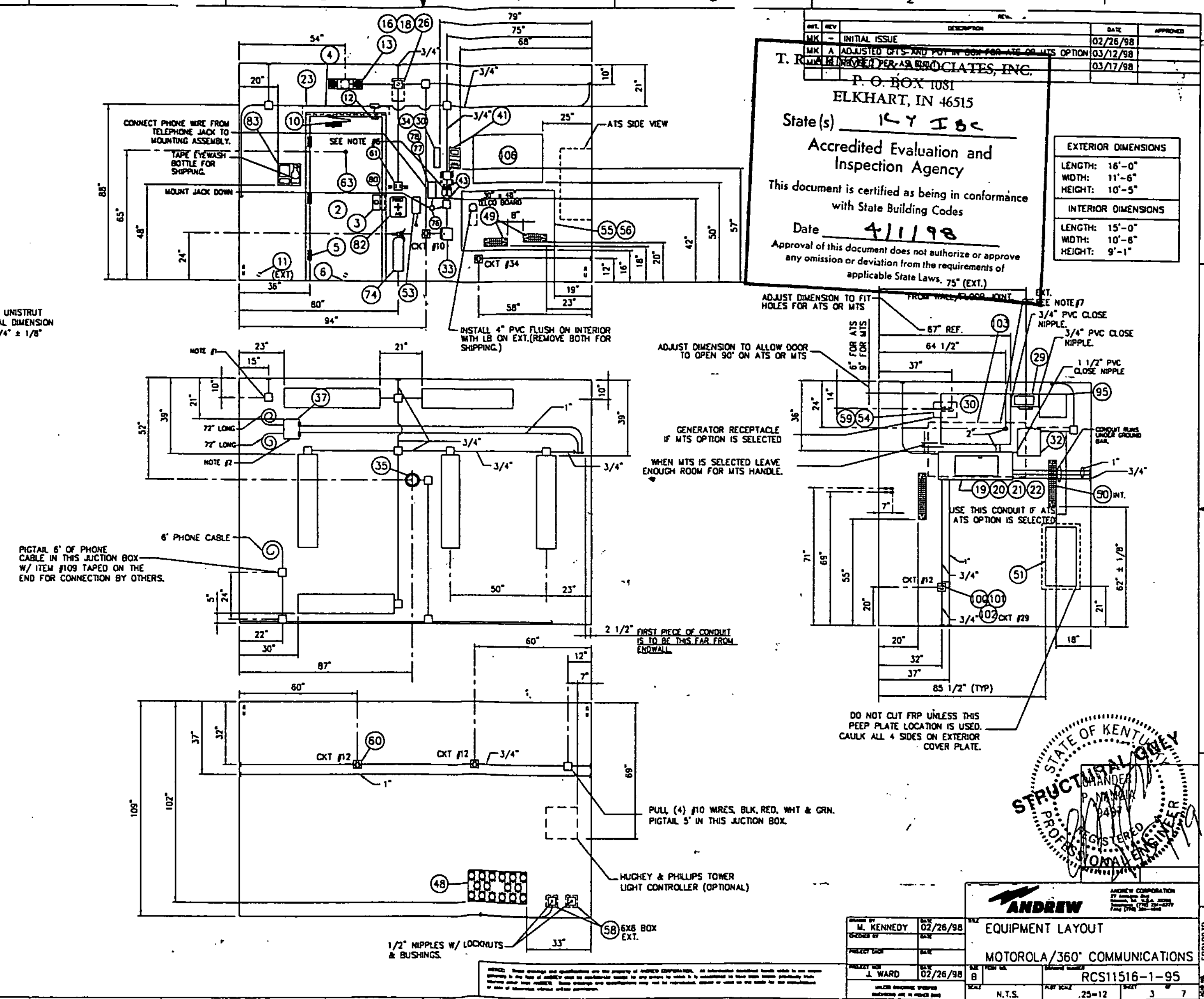
ANDREW CORPORATION
ANDREW

DRAWN BY: FR	DATE: 09/12/96	TITLE: SLAB FOUNDATION RECOMMENDATION MOTOROLA/360' 28' LONG	
SIZE: B		DRAWING NUMBER: RSC-FND-001	
SCALE: N.T.S.	PLOT SCALE: .25=12	SHEET 1 OF 1	RD00013A

NOTES:

1. WIRE SMOKE DETECTOR AS FOLLOWS:
   #18 BLACK WIRE – NEGATIVE WIRE FROM SMOKE DETECTOR TO NEGATIVE BUS ON THE POWER BOARD DITRIBUTION RACK.
   #18 RED WIRE – POSITIVE WIRE FROM SMOKE DETECTOR CONNECTED TO A BREAKER ON THE POWER BOARD DISTRIBUTION RACK.
   PIGTAIL 10' OF WIRE OUT OF ROMEX CONNECTOR. USE THE CENTER HOLE FACING THE SIDEWALL OPPOSITE THE DOOR.
2. GROUND RECTIFIER DROP BOX WITH AN INTERNAL GROUND #12 GREEN TO LOAD CENTER GROUND BAR.
3. TAG EMERGENCY LIGHT TO RECONNECT BATTERY & SIGN AND DATE. LIGHT ARE UNSWITCHED.
4. ALL UNISTRUT HEIGHT DIM. ARE DIM. TO BOTTOM OF UNISTRUT.
5. RUN RECTIFIERS 1–4 IN ONE 72" LONG 1" FLEX WITH A 1" 90° CONNECTOR ON BOTH ENDS. RUN RECTIFIERS 5–8 IN ONE 72" LONG 1" FLEX WITH 90° CONNECTOR ON BOTH ENDS. PIGTAIL WIRES 1' PAST END OF FLEX. NEATLY SECURE FLEX & WIRE TO CABLE LADDER. USE THE FIRST TWO KNOCKOUTS. LEAVE THE END KNOCKOUT ACROSS FROM EMPTY CONDUIT BLANK.
6. LABEL HI & LOW TEMP ALARM THERMOSTATS. HI TO BE ON THE LEFT AND LOW TO BE ON THE RIGHT.
7. POSITION EXTERIOR DISCONNECT TO CLEAR GENERATOR RECEPTACLE.





MK	REV	DESCRIPTION	DATE	APPROVED
MK	-	INITIAL ISSUE	02/26/98	
MK	A	REVISED SHEET 3 & 4	03/12/98	
MK	B	REVISED PER AS BUILT	03/17/98	

ITEM	QTY	U/M	PART NO.	DESCRIPTION
1	1	EA	RCS11516-1-295	CONCRETE SHELTER CASTING
2	1	EA	367981-121CE-1	DOOR, 3'x7' NH 18GA MORTISE PREP
3	1	EA	379890-7-5	LOCKSET, BEST RHRB W/ A1 CORE & 2 KEYS
4	1	EA	367966-52	DOOR CANOPY, 30" X 48"
5	1	BX	379890-10-1	HINGES, SS 4 1/2" CHROME/BRASS
6	1	EA	367981-164-309	THRESHOLD, 3'-0" W/ 1 1/8" SUBFLOOR
7	2	EA	367976-45-7	WEATHERSTRIP, 7'-0" LONG
8	1	EA	367976-45-3	WEATHERSTRIP, 3'-0" LONG
9	1	EA	367976-20-4	WEATHERSTRIP, 3'-0" LONG, THRESHOLD
10	1	EA	367991-3	DOOR CLOSER, HYDRAULIC - NORTON #1604
11	1	EA	367991-13	DOOR HOLDER CHROME - 3 1/2" (PLUNGER TYPE)
12	1	EA	367959-15	MAGNETIC OPEN DOOR ALARM
13	1	EA	366176-52	EMERGENCY LIGHT
14				
15	6	EA	366175-17-1	LIGHT, INTERIOR FLUOR. W/LENS & COVER
16	1	EA	D21930-1	EXTERIOR LIGHT W/ PHOTOCELL
17	12	EA	-	BULB, FLUORESCENT COOL WHITE (D21550)
18	1	EA	-	BULB,100W INCAD.(D21570)
19	1	EA	367986-361	225A MAIN BREAKER, SQ'D # QOM2225VH
20	1	EA	367988-154	DISTRIBUTION PANEL 225A, 42 SPACE, 1 PH., SQ'D #QO42L225
21	1	EA	367986-155	DISTRIBUTION PANEL COVER, SQ'D #QOC42US
22	1	EA	367964-9	GROUND BAR KIT, SQ'D #PK23GTA-6 (DIST. PANEL)
23	1	EA	367966-30	DRIP CAP, 2 1/2" UP x 40" LONG - ALUMINUM
24	6	EA	-	BREAKER, 20A/120V (D21430)
25	1	EA	367986-20	BREAKER, 60A/240V
26	1	EA	366176-94	MOTION DETECTOR, HUBBEL #OS120
27	9	EA	367986-3	BREAKER, 30A/240V
28	1	EA	D21470	BREAKER, 15A/240V
29	1	EA	367989-94	SURGE ARRESTOR, NORTHERN TECHNOLOGY, MMX-BI-SS6360
30	1	EA	367959-25-1	ALARM PUNCH BLOCK COVER (CLEAR)
31	10	EA	367954-48-1	INSULATOR STANDOFF W/ 3/8" THREADS (FOR GROUND BAR)
32	1	EA	367989-80	SURGE ARRESTOR, NORTHERN TECHNOLOGY, #DMK-B146360
33	1	EA	368016-4-2	POWER FAILURE ALARM
34	1	EA	367959-70	TERMINAL BLOCK (S66M4-2W-M)
35	1	EA	367959-64	SMOKE DETECTOR, 24VDC - ESL #449CSRH
36	1	EA	367996-127	4" PVC ENTRY LB W/ GASKET & COVER
37	1	EA	367973-63	8" X 10" BOX
38	1	EA	368RR13-11516	CEILING INSULATION AND FRAMING KIT R13
39	2	EA	367328-31-9	A/C, MARVAIR AVP60ACA05N, 60,000 BTUH,
40	2	EA	367316-1-6A	A/C INSTALLATION KIT
41	1	EA	367961-30	7-DAY TIMER
42	1	EA	368WR13-11516-95	WALL INSULATION AND FRAMING KIT R13
43	2	EA	E21590	THERMOSTAT - DAYTON #2E206
44	1	EA	368P4-11516-95	4/8" FRP KIT
45				
46	100	FT	367956-11	WIRE, #2 BARE STRANDED
47	190	FT	-	WIRE, #2 STRANDED COPPER GREEN THHN (367956-8)
48	1	EA	368007-44-5	POLYPHASER 16 PORT PEEP
49	2	EA	367964-81	GROUND BAR, 1/4" X 4" X 12" (TINNED)
50	2	EA	367964-80	GROUND BAR, 1/4" X 4" X 24" (TINNED)
51	1	EA	368007-60	BULKHEAD PLATE
52	1	EA	368FT-11516	FLOOR TILE KIT
53	1	EA	379902-201	SPOTLIGHTER, RECHARGEABLE FLASHLIGHT
54	1	EA	367996-126	2" PVC ENTRY LB W/ GASKET & COVER
55	1	EA	368013-4-103.5	PANELING, FRP 1/2" x 48" x 103.5" (TELCO BOARD)
56	28	FT	367982-10	TRIM, 1/2" EDGE FOR TELCO BOARD
57				
58	2	EA	367973-36	BOX, 6X6 WEATHERPROOF, SCREW COVER (EXTERIOR)
59	1	EA	367996-122-209	2" PVC 10" LONG, WITH ONE END THREADED
60	6	EA	366200-80	RECEPTACLE, DUPLEX, ORANGE W/ ISOLATED GROUND, 20A\120V
61	2	EA	366250-12	SWITCH, 20A\120V
62	1	EA	368FSF-11516-9	9/8" T&G PLYWOOD SUB-FLOOR KIT
63	1	EA	379978-75	DOOR PEEP HOLE
64	2	EA	367986-139	BREAKER, 45A/240V
65	8	EA	367954-107	WALL ANGLE
66	18	EA	367954-23	CLAMP, CORNER
67				
68	1	EA	367954-123-12	CABLE LADDER, 12" GOLD CHROMATE
69	4	EA	367954-123-24	CABLE LADDER, 24" GOLD CHROMATE
70	16	FT	-	1" FLEX CONDUIT (367984-4)
71	2	EA	-	UNISTRUT
72				
73	2	EA	368015-4 ?	TAP CONNECTOR SIZED 4/0 MAIN, #4 TAP
74	1	EA	367968-30	FIRE EXTINGUISHER 10 LBS. DRY CHEMICAL W/ METER
75	4	EA	-	1", 90° FLEX CONNECTOR (367984-5)

ALL EXTERIOR FIXTURES TO BE WEATHERPROOF

ITEM	QTY	U/M	PART NO.	DESCRIPTION
76	1	EA	379902-228	RJ11 TELEPHONE JACK, WALL MOUNT
77	1	EA	379902-159	TELEPHONE, WALL MOUNT (PUSH BUTTON) #255413-MBA-20M
78	1	EA	379902-311	TELEPHONE, WALL MOUNTING ASSEMBLY
79	38	FT	-	PHONE WIRE, 4 CONDUCTOR, (367956-90-2)
80	1	EA	379890-12	LOCKGUARD, PICKPLATE
81	6	EA	367954-141	PLASTIC CABLE LADDER END CAPS
82	1	EA	379902-132-1	FIRST AID KIT
83	1	EA	379902-193	EYE WASH STATION, 1-BOTTLE, GRAINGER #2P367
84	28	EA	-	STANDOFF, FOR #2 HALO WIRE (CLIC-8)
85	1	EA	379902-340	25' PHONE CORD
86				
87	1	EA	367970-68	GROUND STRAP, DOOR - BURNDY #B018 (2-HOLE LUGS)
88	22	EA	-	LUG, 2-HOLE CRIMP, #2 WIRE (367970-52)
89	4	EA	367954-81	WALL CLIP FOR CABLE LADDER
90				
91	1	EA	367970-39	LUG, 2 HOLE - #6 WIRE
92	-	EA	-	(P, A, N & I & STRIPE LINES)
93	3	EA	367964-96	GROUND ISOLATOR SQ-D #PKGTAB
94	1	EA	367964-2	SERVICE GROUND KIT FOR EXTERIOR DISCONNECT #PKOGTA2
95	1	EA	366250-144	DISCONNECT SWITCH, 60A, NON FUSIBLE,(SQ'D #DU322)
96	1	EA	367964-94	GROUNDING KIT FOR 60A DISCONNECT (SQ'D #PK3GTA-1)
97	12	EA	367954-45	HANGER, 5/8" HANGER BRACKET
98	16	FT	-	3/4" PVC (TO COVER THREADED ROD)
99	14	EA	CLIC-17	STANDOFF, FOR #4/0 GROUND WIRE
100	2	EA	-	BOX, 2" X 4" WEATHERPROOF (367973-3)
101	2	EA	-	RECEPTACLE, GFCI DUPLEX 20A/120V (366200-63)
102	2	EA	-	COVER FOR GFCI DUPLEX RECEPTACLE (367973-109)
103	1	EA	366250-145	400A FUSED DISCONNECT (EXTERIOR)
104	2	EA	367963-54	225A FUSE FOR EXTERIOR DISCONNECT, #TR225R
105				
106	1	EA	379902-338	CORK BOARD, 2' X 3', (OFFICE DEPOT #919-753E)
107	75	FT	367956-128	4/0 THHN GREEN STRANDED WIRE
108	10	EA	367970-72	4/0 CRIMP LUGS, 2-HOLE
109	1	EA	379902-339	RJ45 TELEPHONE PLUG
110				
111	1	EA	367970-39	90 ANGLE, 2 HOLE LUG
112				
113	1	EA	367977-62-63	LABEL - "EQUIPMENT ISOLATED GROUND BAR"
114	1	EA	367977-62-60	LABEL - "MASTER GROUND BAR"
115	1	EA	367977-62-62	LABEL - "TELCO ISOLATED GROUND BAR"
116	1	EA	367977-62-61	LABEL - "CABLE ENTRANCE GROUND BAR"
117	4	EA	367977-62-64	LABEL - "DO NOT MAKE ANY ATTACHMENTS TO HALO GROUND"

PLEASE SEE THE ATTACHED OPTION SPREADSHEET FOR SELECTED ITEMS.

OPTION #1

-	1	EA	367985-165	AUTOMATIC TRANSFER SWITCH,ONAN,225A

OPTION #2

-	1	EA	366250-73	MANUAL TRANSFER SWITCH, 400A, SERVICE RATED
-	1	EA	367960-72	GENERATOR RECEPTACLE, 200A, APPLETON #AR20034RS

OPTION #3

-	1	EA	-	16 PORT PEEP (SIDEWALL LOCATION)

OPTION #4

-	1	EA	-	16 PORT PEEP (ENDWALL LOCATION)

OPTION #5

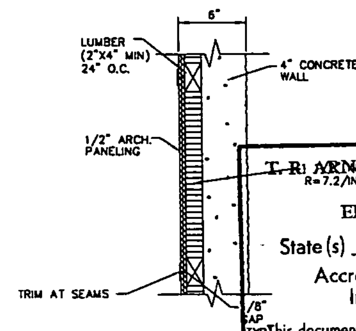
118	1	EA	349500-1	TOWER LIGHT CONTROLER, H & P #9LCA111L00AA FOR TYPE A-1

OPTION #6

118	1	EA	349500	TOWER LIGHT CONTROLER, H & P #9LCA233L00AA FOR TYPE A-2/3

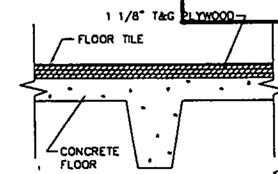
OPTION #7

118	1	EA	349500-2	TOWER LIGHT CONTROLER, H & P #277-4175 FOR TYPE E-1(SS-177)

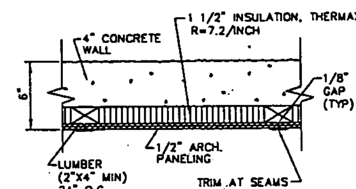


R13 WALL INSULATION DETAIL

T. R. ARNOLD & ASSOCIATES, INC.
P. O. BOX 1081
ELKHART, IN 46515
State (s) KY IBC
Accredited Evaluation and Inspection Agency
This document is certified as being in conformance with State Building Codes
Date 4/1/98
Approval of this document does not authorize or approve any omission or deviation from the requirements of applicable State Laws.



WOOD SUB FLOOR DETAIL



R13 ROOF INSULATION DETAIL

STATE OF KENTUCKY
STRUCTURAL ONLY
CHANDER
REGISTERED PROFESSIONAL ENGINEER

SHEET	1	2	3	4	5	6	7
REVISION	-	B	B	B	B	B	-

ANDREW

ANDREW CORPORATION

DRAWN BY: M. KENNEDY	DATE: 02/26/98
CHECKED BY	DATE
PROJECT ENGR	DATE
PROJECT MGR: J. WARD	DATE: 02/26/98

BILL OF MATERIAL

MOTOROLA/360 COMMUNICATION

SIZE: B | DRAWING NUMBER: RCS11516-1-95 | SCALE: N.T.S. | PLOT SCALE: .25=12 | SHEET 2 OF 7

ER010928

ANDREW CORPORATION
REINFORCED CONCRETE SHELTER SYSTEM
SHELTER MODEL RCS11516-1-95

MK	REV	DESCRIPTION	DATE	APPROVED
MK	-	INITIAL ISSUE		

BUSINESS UNIT HEADQUARTERS AND MANUFACTURING FACILITY

ANDREW – ANG
27 Amlajack Blvd
Newnan, GA U.S.A. 30265
Telephone: (770) 251-8777
FAX: (770) 304-4640

STRUCTURAL ONLY
STATE OF KENTUCKY
CHANDER P. NANGIA
9497
REGISTERED PROFESSIONAL ENGINEER
2/15/99

MANUFACTURING FACILITY

ANDREW – ASC
8430 Rovana Circle
Sacramento, CA U.S.A. 95828
Telephone: (916) 381-9378
FAX: (916) 381-9380

T. R. ARNOLD & ASSOCIATES, INC.
P. O. BOX 1081
ELKHART, IN 46515
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DESIGN OPTIONS

SPECIFIC PROJECT DRAWINGS SHALL SPECIFY WHICH OPTIONS APPLY TO A PARTICULAR SHELTER MODEL.
ALL UNITS OF A PARTICULAR MODEL NUMBER SHALL BE CONSTRUCTED WITH THE SAME DESIGN OPTIONS.

STRUCTURAL

FLOOR

SLAB THICKNESS
- ■ 2F 2" THICK
- □ 3F 3" THICK

DESIGN LIVE LOAD
- □ PSF125F 125 PSF LIVE LOAD
- ■ PSF200F 200 PSF LIVE LOAD

ROOF

OVERHANG
- □ OH0R NO OVERHANG
- ■ OH3R 3" OVERHANG

DESIGN SNOW LOAD
- ■ PSF60R 60 PSF SNOW LOAD
- □ PSF100R 100 PSF SNOW LOAD

WALLS

WALL PANEL THICKNESS
- □ 3W 3" THICK
- ■ 4W 4" THICK

INTERIOR FINISHES

FLOOR

SUBFLOOR
- □ SF0F NO SUBFLOOR
- ■ SFWF PLYWOOD, 1 1/8" THICK
- □ SFCF CEMENT BOARD____THICK

FLOOR FINISH
- ■ FFTF VINYL COMPOSITION TILE
- □ FFOF OTHER____

CEILING

PANELLING
- ■ FRP50C 1/2" FRP
- □ FRP75C 3/4" FRP
- □ CFOC OTHER____

WALLS

PANELLING
- ■ FRP50W 1/2" FRP
- □ FRP75W 3/4" FRP
- □ WFOW OTHER____

INSULATION

FLOOR
- ■ R13F NOMINAL R13 FLOOR

ROOF
- □ R2R NOMINAL R2 ROOF
- ■ R13R NOMINAL R13 ROOF
- □ R24R NOMINAL R24 ROOF

WALLS
- □ R2W NOMINAL R2 WALLS
- ■ R13W NOMINAL R13 WALLS
- □ R24W NOMINAL R24 WALLS

PANEL FINISH

FLOOR

INTERIOR SURFACE
- ■ FFF FLOAT FINISH
- □ FTF HARD TROWEL FINISH

ROOF

EXTERIOR SURFACE
- ■ FBR BROOM FINISH

WALLS

EXTERIOR SURFACE
- ■ FAW EXPOSED AGGREGATE
- □ FSW SMOOTH (FLOAT)
- □ FFLW FORMLINER____
- □ FOW OTHER____

DESIGN CRITERIA

FLOOR LIVE LOAD, PSF 200

ROOF LIVE (SNOW) LOAD, PSF 60 *1

		WINDWARD	LEEWARD	VERTICAL
WIND LOAD, MPH	150			
UBC, PSF		48.8	30.5	42.7
BOCA, PSF		60.2	42.0	54.1
SBCCI, PSF		54.5	N/A	63.6
OBBC, PSF		60.2	42.0	54.1

SEISMIC ZONE	IV
UBC, COEFFICIENT "Z"	.18
BOCA, COEFFICIENT "Z"	.22
SBCCI, COEFFICIENT "Z"	.22
OBBC, COEFFICIENT "Z"	.22

FIRE RATING OF WALLS

4" WALL (OPT "4W") 2 HOURS

* DEPENDS ON DESIGN OPTION SELECTED.

BUILDING CODE DATA

MODEL CODE	EDITION	CONSTRUCTION TYPE	OCCUPANCY/ USE GROUP
UBC	1991	V-N	B4
	1994	V-N	S2
BOCA	1990	5B	S2
	1993	5B	S2
	1996	5B	S2
NEC	1996		
SBCCI	1991	VI-UNPROTECTED	S2
	1994	VI-UNPROTECTED	S2
OBBC	1995	5B	S2

MODEL NUMBER DESIGNATION

RCS WW(W) LL(L) – DD – H(H)

REINFORCED CONCRETE SHELTER SYSTEM

WIDTH: 8' – 12'
EXAMPLE: 11.5' = 115
EXAMPLE 10.0' = 10

LENGTH: 8' – 32'

DETAIL NUMBER
DIFFERENTIATES SHELTERS OF THE SAME SIZE WITH DIFFERENT LAYOUTS

FINISHED INTERIOR HEIGHT: 8' – 10'

BASIS OF DESIGN

THESE PROJECT DRAWINGS ARE INTENDED TO BE USED IN CONJUNCTION WITH THE "SYS-RCS" REINFORCED CONCRETE SHELTER SYSTEM DRAWINGS (SHEETS 1 – 15). SEE "SYS-RCS" FOR ALL TYPICAL STRUCTURAL AND ARCHITECTURAL DETAILS, AND TYPICAL CASTING LAYOUTS. WHERE TYPICAL DETAILS ARE NOT APPLICABLE, PROJECT DRAWINGS SHALL SHOW SPECIFIC DESIGN DETAILS.

ANDREW CORPORATION — ANDREW

DRAWN BY: M. KENNEDY	DATE: 02/26/98	TITLE: SYSTEM DESIGN DATA	
CHECKED BY		MOTOROLA/360 COMMUNICATION	
PROJECT ENGR: J. WARD	DATE: 02/26/98	SIZE: B	DRAWING NUMBER: RCS11516-1-95
		SCALE: N.T.S.	PLOT SCALE: .25=12 · SHEET 1 OF 7

ER01091