

OBSTRUCTION DATA SHEET

ODS 5281
MANITOWOC COUNTY AIRPORT
MANITOWOC, WISCONSIN

DIGITIZED FROM

OC 5281
SURVEYED JULY 1988
5TH EDITION



PREPARED AND DISTRIBUTED BY
THE NATIONAL OCEAN SERVICE
U.S. DEPARTMENT OF COMMERCE
FOR THE FEDERAL AVIATION ADMINISTRATION

OBSTRUCTION DATA SHEET

The Obstruction Data Sheet (ODS) provides digital obstruction and runway data for use in aircraft arrival and departure planning. This information has been obtained using field survey and photogrammetric methods by the Photogrammetry Branch of the National Ocean Service in accordance with Federal Aviation Regulations Part 77 (FAR-77), "Objects Affecting Navigable Airspace" and FAA Nr. 405, "Specifications - Airport Obstruction Chart and Related Products."

The ODS is a derivative of the Airport Obstruction Chart (OC). The source OC is indicated on the ODS cover. All objects, both obstructing and nonobstructing, that carry an elevation on the OC are listed in the ODS. The ODS (and OC) depict a representation of objects that existed at the time of the OC field survey.

ODS information is arranged as follows:

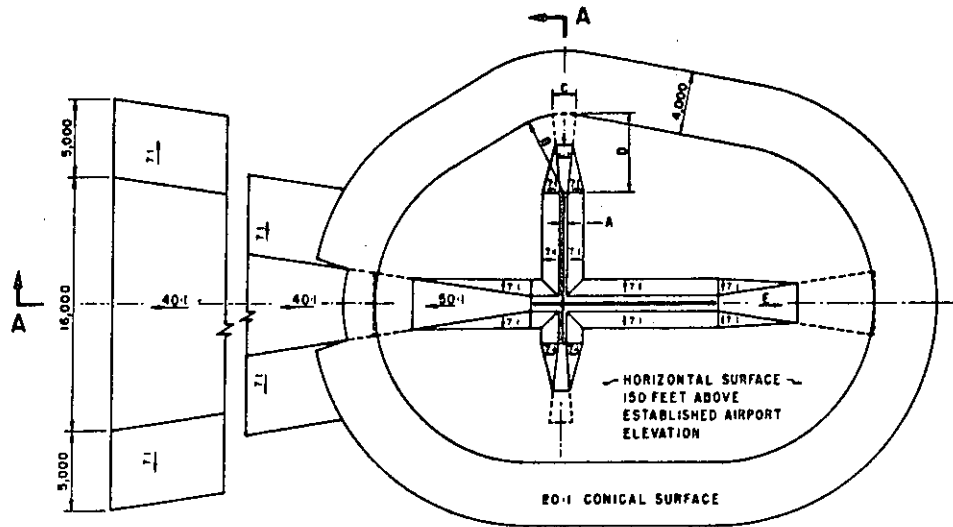
1. Objects located in FAR-77 approach (including supplemental approaches if present) or primary areas are listed with the associated runway (reference runway). For example, all objects in the Runway 9R approach or primary are listed with Runway 9R. Distances to these objects are computed from both the physical end and threshold of Runway 9R. Objects in the Runway 27L approach or primary are listed with Runway 27L. (Objects in the common 9R/27L primary area are listed with both runways.)
2. All objects not included in "1" above are listed with the Airport Reference Point (ARP).
3. Runway configuration and runway lengths, widths, and elevations are presented on the ODS last page.

The FAR-77 imaginary approach surfaces for which the obstruction surveys were performed are coded in the ODS as follows (see footnote 2 on page 3):

A(V) Utility runway - visual approach only
 A(NP) Utility runway - nonprecision instrument approach
 B(V) Nonutility runway - visual approach only
 C Nonutility runway - nonprecision instrument approach with
 visibility minimums greater than 3/4 mile
 D Nonutility runway - nonprecision instrument approach with
 visibility minimums as low as 3/4 mile
 PIR Precision instrument runway
 SUPLC ... Supplemental C underlying a B(V)

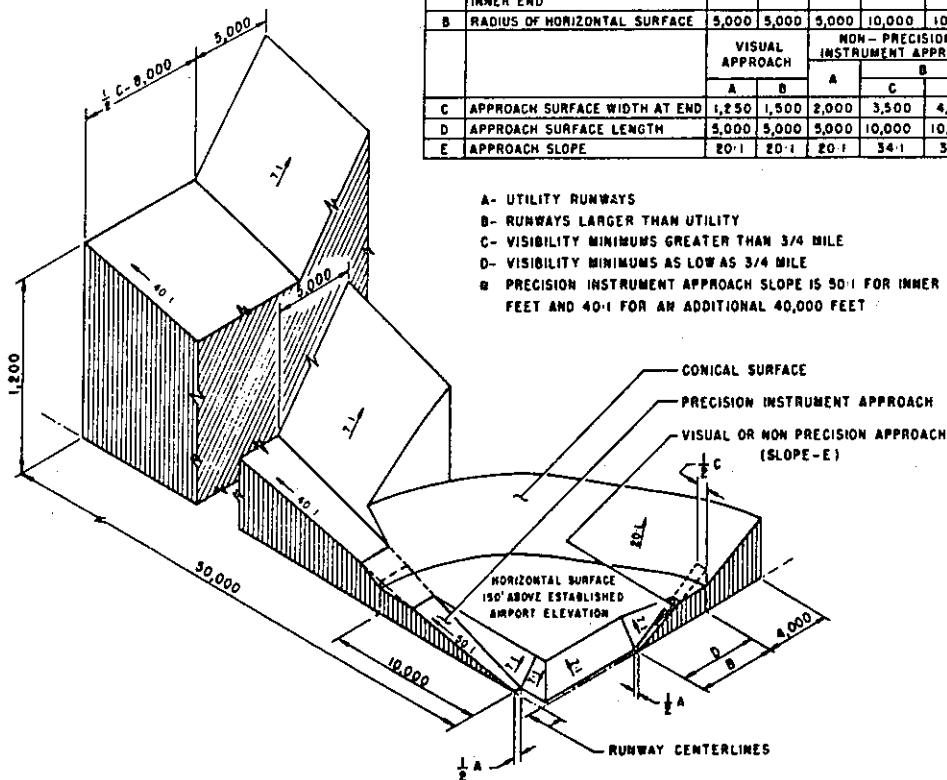
FAR-77 imaginary surface dimensions are defined on page 2 of this report.

Primary surface width is determined by the widest approach at the two approach/primary interfaces for that runway.



DIM	ITEM	DIMENSIONAL STANDARDS (FEET)					
		VISUAL RUNWAY		NON-PRECISION INSTRUMENT RUNWAY			PRECISION INSTRUMENT RUNWAY
		A	B	A	B		
A	WIDTH OF PRIMARY SURFACE AND APPROACH SURFACE WIDTH AT INNER END	250	500	500	500	1,000	1,000
B	RADIUS OF HORIZONTAL SURFACE	5,000	5,000	5,000	10,000	10,000	10,000
		VISUAL APPROACH		NON-PRECISION INSTRUMENT APPROACH			PRECISION INSTRUMENT APPROACH
		A	B	A	B		
C	APPROACH SURFACE WIDTH AT END	1,250	1,500	2,000	3,500	4,000	16,000
D	APPROACH SURFACE LENGTH	5,000	5,000	5,000	10,000	10,000	*
E	APPROACH SLOPE	20:1	20:1	20:1	34:1	34:1	*

- A- UTILITY RUNWAYS
- B- RUNWAYS LARGER THAN UTILITY
- C- VISIBILITY MINIMUMS GREATER THAN 3/4 MILE
- D- VISIBILITY MINIMUMS AS LOW AS 3/4 MILE
- * PRECISION INSTRUMENT APPROACH SLOPE IS 50:1 FOR INNER 10,000 FEET AND 40:1 FOR AN ADDITIONAL 40,000 FEET



ISOMETRIC VIEW OF SECTION A-A

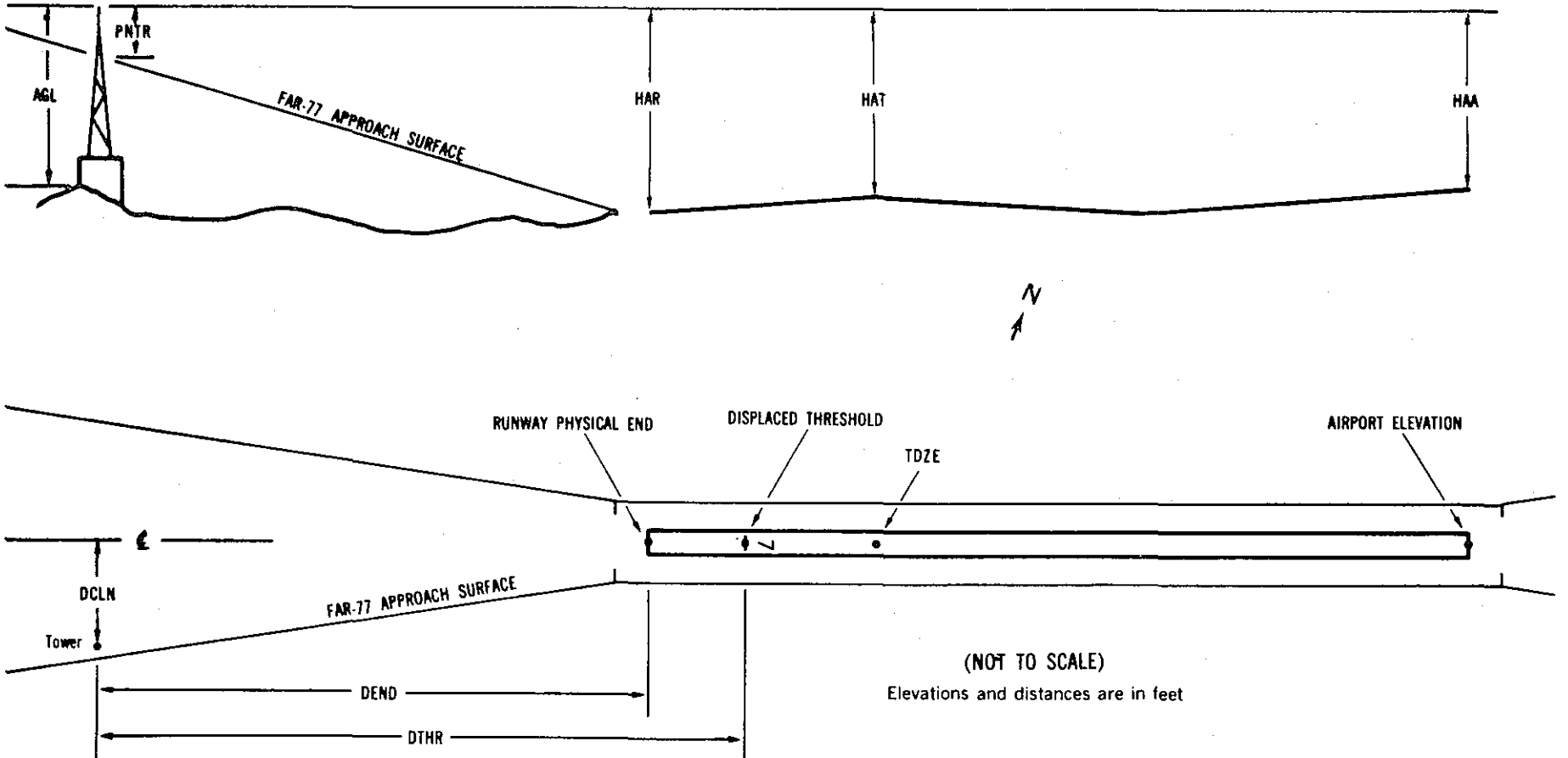
FAR-77 CIVIL AIRPORT
IMAGINARY SURFACES

ANNOTATION OF ODS DATA FORMAT

OC XXXX

AIRPORT ELEVATION XXXX

OBJECT	LAT	LONG	A ⁸	ELEV ⁹	AGL ¹⁰	HAR ¹¹	HAT ¹¹	HAA ¹¹	DEND ¹²	DTHR ¹²	DCLN ¹²	PNTR ¹³
XXXXXXXXXXXX	XXXXXX.XXX	XXXXXXXX.XXX	XX	XXXX	XXXX	XXX	XXX	XXX	XXXXX	XXXXX	XXXX	XXXX
XXXXXXXXXXXX	XXXXXX.XXX	XXXXXXXX.XXX	XX	XXXX	XXXX	XXX	XXX	XXX	XXXXX	XXXXX	XXXX	XXXX



EXPLANATION OF FOOTNOTES

- ¹ Data block identifier. If a runway number is entered (reference runway), this data block will contain data pertinent to the reference runway and to objects in the FAR-77 approach and primary area of the reference runway. If ARP is entered, this data block will contain the ARP position and data relative to all objects not in an FAR-77 approach or primary area.
- ² For the reference runway, the lowest FAR-77 approach surface for which an obstruction survey was performed. (More than one surface may be surveyed.)
- ³ Reference runway approach physical end elevation/touchdown zone elevation
- ⁴ Latitude and longitude of reference runway approach physical end
- ⁵ Reference runway geodetic azimuth reckoned clockwise from south
- ⁶ Reference runway displaced threshold elevation/touchdown zone elevation
- ⁷ Latitude and longitude of reference runway displaced threshold
- ⁸ Accuracy Code:
- | | Horizontal | Vertical |
|--|------------|----------|
| | 1 = 20 | A = 2 |
| | 2 = 40 | B = 5 |
| | | C = 20 |
- ⁹ Mean Sea Level (MSL) elevation at top of object. This value includes 15 feet added to noninterstate roads, 17 feet added to interstate roads, and 23 feet added to railroad tracks.
- ¹⁰ Height above ground level (AGL). AGLs are provided only for those objects appearing on the OC that are equal to, or greater than, 200 feet AGL. AGL accuracy is ± 10 feet.
- ¹¹ HAA - Height above airport
 HAR - Height above reference runway approach physical end
 HAT - Height above reference runway touchdown zone elevation
- ¹² DEND - Distance along reference runway centerline from point perpendicular to object to reference runway approach physical end
 DTHR - Distance along reference runway centerline from point perpendicular to object to reference runway threshold
 DCLN - Distance left (L) or right (R) of reference runway centerline as observed facing forward in a landing aircraft.
- A negative value for DEND or DTHR indicates object is in primary area on roll-out side of zero distance point.
- ¹³ PNTR - Penetration of indicated FAR-77 approach or primary surface (see footnote 2).

OC5281

AIRPORT ELEVATION 651

7 A(V) 651/651 440745.115N 08741 3.210W 2501327

OBJECT	LAT	LONG	A	ELEV	AGL	HAR	HAT	HAA	DEND	DTHR	DCLN	PNTR
GROUND	440743.50	0874104.47	1A	652		1	1	1	142		123R	1
RAILROAD	440742.64	0874112.81	1A	676		25	25	25	744		2L	-2
TREE	440736.82	0874126.31	1A	722		71	71	71	1870		220R	-13

25 A(V) 638/651 440756.281N 0874020.085W 0701357

OBJECT	LAT	LONG	A	ELEV	AGL	HAR	HAT	HAA	DEND	DTHR	DCLN	PNTR
GROUND	440743.50	0874104.47	1A	652		14	1	1	-3485		123L	1

17 PIR 646/651 440803.137N 08741 1.249W 3495903

OBJECT	LAT	LONG	A	ELEV	AGL	HAR	HAT	HAA	DEND	DTHR	DCLN	PNTR
LIGHTED WINDSOCK	440718.72	0874055.99	1A	672		26	21	21	-4496		405R	22
POST	440752.21	0874055.20	1A	653		7	2	2	-1166		242L	3
OL GLIDE SLOPE	440756.16	0874054.66	1A	692		46	41	41	-780		350L	43
TREE	440805.97	0874054.84	1A	657		11	6	6	201		510L	11
TREE	440812.90	0874055.00	1A	700		54	49	49	894		621L	40
TREE	440842.75	0874113.40	1A	725		79	74	74	4104		175R	1

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AIRPORT ELEVATION 651

35 C 650/651 440714.494N 0874049.324W 1695912

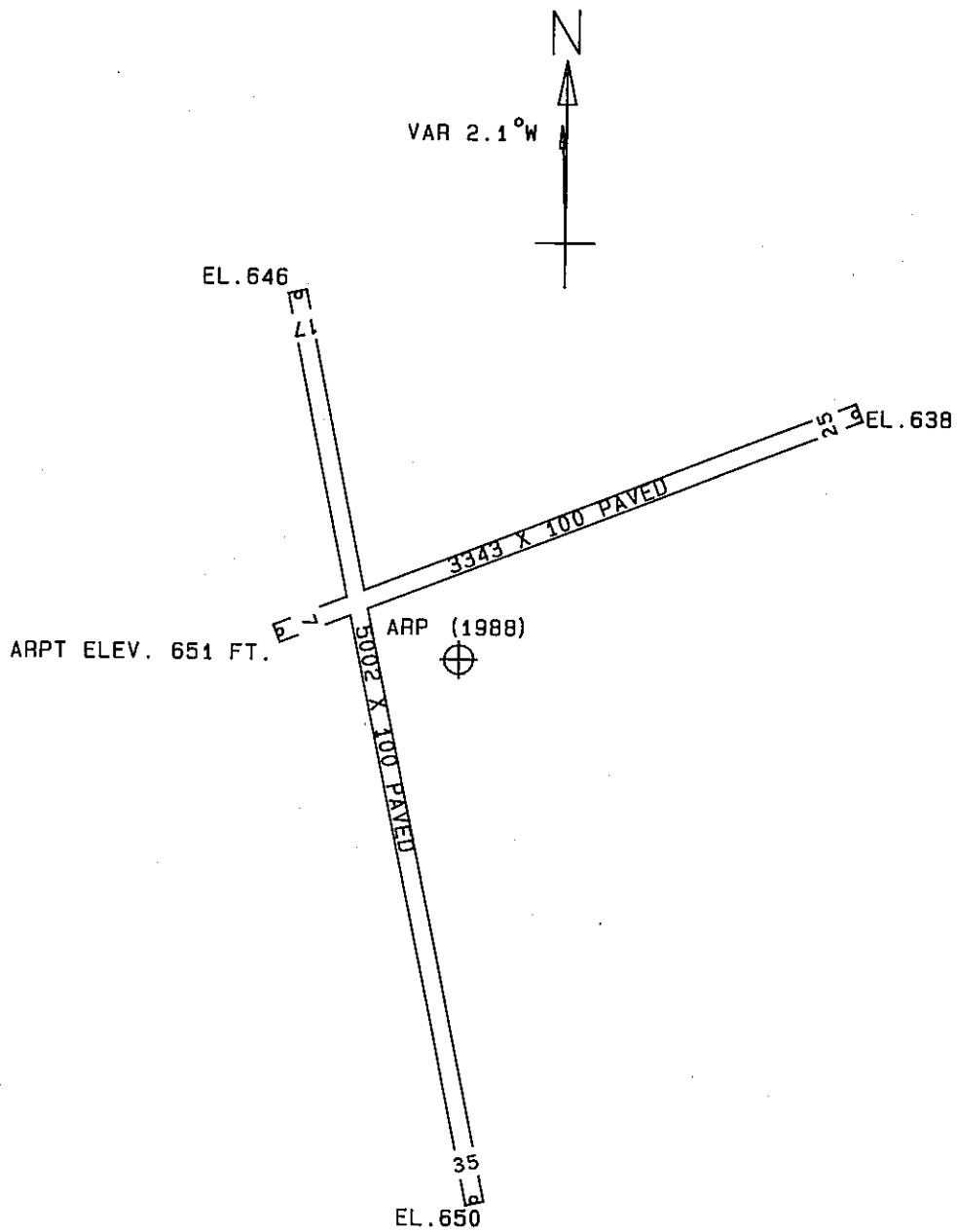
OBJECT	LAT	LONG	A	ELEV	AGL	HAR	HAT	HAA	DEND	DTHR	DCLN	PNTR
TREE	440805.97	0874054.84	1A	657		7	6	6	-5203		510R	11
OL GLIDE SLOPE	440756.16	0874054.66	1A	692		42	41	41	-4222		350R	43
POST	440752.21	0874055.20	1A	653		3	2	2	-3836		242R	3
LIGHTED WINDSOCK	440718.72	0874055.99	1A	672		22	21	21	-506		405L	22
ON ON LOCALIZER	440707.69	0874047.66	1A	655		5	4	4	700		0L	-10
ANTENNA ON BUILDING	440706.58	0874050.79	1A	662		12	11	11	771		245L	-5
ANTENNA ON HANGAR	440704.00	0874053.86	1A	688		38	37	37	989		510L	15
FLAGPOLE	440701.62	0874053.29	1A	695		45	44	44	1234		512L	15
TREE	440702.13	0874042.76	1A	678		28	27	27	1316		254R	-5
TREE	440700.21	0874042.98	1A	687		37	36	36	1505		205R	-1
POLE	440658.26	0874053.20	1A	687		37	36	36	1570		564L	-3
TREE	440659.14	0874042.68	1A	692		42	41	41	1615		207R	0
TREE	440655.67	0874050.09	1A	710		60	59	59	1868		387L	11
TREE	440654.28	0874045.42	1A	708		58	57	57	2065		75L	3
TREE	440655.03	0874039.10	1A	717		67	66	66	2071		392R	12
TREE	440652.44	0874041.50	1A	727		77	76	76	2299		174R	15
TREE	440646.40	0874049.95	1A	741		91	90	90	2794		539L	15
TREE	440644.16	0874047.14	1A	740		90	89	89	3053		378L	6

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AIRPORT ELEVATION 651

ARP 440743.576N 0874049.823W

OBJECT	LAT	LONG	A	ELEV	AGL	HAA	MAG BEARING	DISTANCE
OL VOR	440742.60	0874047.40	1A	671		20	121 22	202
OL DME	440742.17	0874046.81	1A	696		45	125 1	262
TREE	440749.02	0874032.50	1A	693		42	68 31	1378
TREE	440753.80	0874109.10	1A	692		41	308 28	1746
TREE	440745.67	0874114.17	1A	697		46	278 55	1788
TREE	440803.80	0874051.08	1A	701		50	359 33	2050
TREE	440759.96	0874027.18	1A	697		46	46 58	2340
ROD ON OL AIRPORT BEACON	440722.04	0874104.13	1A	709		58	207 41	2418
TREE	440759.74	0874022.62	1A	680		29	52 35	2572
TREE	440806.91	0874111.35	1A	690		39	328 29	2837
TREE	440800.61	0874014.68	1A	666		15	58 10	3090
TREE	440814.94	0874054.95	1A	710		59	355 23	3198
TREE	440821.21	0874117.71	1A	716		65	334 1	4320
SILO	440802.03	0873934.31	1B	707		56	73 21	5816
OL ON TANK	440649.86	0873929.39	1B	783		132	134 55	8001
ROD OL STACK	440604.39	0874005.49	1A	893	310	242	164 15	10552
ROD ON OL RADIO TOWER	440730.54	0873741.20	2A	1116	510	465	97 34	13822



TOUCHDOWN ZONE RUNWAY ELEVATION	
7	651
25	651
17	651
35	651

MANITOWOC COUNTY AIRPORT
 MANITOWOC, WISCONSIN
 (NOT TO SCALE)