



Mn/DOT Name: 1 HEH

NGS Name: 1 HEH

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DL2320](#) [Get Map](#)
 NGS Quad / Sta Num : 48095143/
 USGS Quad: WARROAD SW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	36	162 N	38 W	484826.85	952901.04		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1966	2021	GOOD	Horz=YES Vert=YES	YES		PROJECTS 2 IN.	STEEL ROD IMBED IN MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	USGS

Description: (2008) Stamping: 1 HEH 1966

12.5 MILES SOUTHEAST OF ROSEAU, 3.9 MILES SOUTH ALONG COUNTY ROAD 13 FROM THE JUNCTION OF COUNTY ROAD 13 AND TRUNK HIGHWAY 11 (THE JUNCTION IS 9.0 MILES EAST OF ROSEAU), THEN 3.1 MILES EAST ALONG COUNTY ROAD 12, THEN 0.8 MILE SOUTH ON COUNTY ROAD 126, 155.0 FEET NORTH OF AN ENTRANCE, 42.0 FEET WEST OF COUNTY ROAD 126, 4.3 FEET SOUTH OF A WITNESS POST.

Station Notes

MANY TREES FROM 250-310 DEGREES

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order/(Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1107.307	.033	3					VERTICAL CONTROL SURVEY	1974	USGS-VERT	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order/(Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1108.475	.262			1015.441	.197	2011	GPS - RTRN	2021	RTRN2021	
				1015.487	.013	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800	
1108.528	.131			1015.595	.066	2007	HORIZONTAL ADJUSTMENT	2009	GPS2522	
1108.495	.131			1015.595	.066	2007	GPS - STATIC	2008	HROSO	
1108.495	.131			1015.598	.066	1996	GPS - STATIC	2008	HROSO	

Geoid Separations(ft): GEOID18 = -93.035 12B = -93.008 09 = -92.913 03 = -92.894

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
<u>Latitude</u>	<u>Longitude</u>										
48 48 26.85422	95 29 01.03647			660594.759	196867.937	.131	3	GPS - RTRN	2021	RTRN2021	
48 48 26.85412	95 29 01.03640			660594.764	196867.926	.016		ADJUSTMENT	2012	GPS2800	

<u>NAD83(2007)</u>				<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
<u>Latitude</u>	<u>Longitude</u>										
48 48 26.85423	95 29 01.03718			660594.712	196867.937	.033	C	ADJUSTMENT	2009	GPS2522	
48 48 26.85423	95 29 01.03718			660594.712	196867.937	.033	C	GPS - STATIC	2008	HROSO	

<u>NAD83(1996)</u>				<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
<u>Latitude</u>	<u>Longitude</u>										
48 48 26.85420	95 29 01.03698			660594.725	196867.934	.033	C	GPS - STATIC	2008	HROSO	



State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - North Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2050305.413	1178621.530	1042156.714	17746116.842	.131	3	GPS - RTRN	2021	RTRN2021
2050305.417	1178621.519	1042156.718	17746116.832	.016		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - North Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2050305.366	1178621.532	1042156.666	17746116.845	.033	C	ADJUSTMENT	2009	GPS2522
2050305.366	1178621.532	1042156.666	17746116.845	.033	C	GPS - STATIC	2008	HR0SO

NAD83(1996)

MN State Plane - North Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2050305.379	1178621.529	1042156.679	17746116.841	.033	C	GPS - STATIC	2008	HR0SO

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/1_HEH-DL2320-3W-05OCT2021.jpg	W	Oct 5, 2021
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/1_HEH-DL2320-2-05OCT2021.jpg		Oct 5, 2021
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/1_HEH-DL2320-1-05OCT2021.jpg		Oct 5, 2021

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: 1061 CHIS SQ

NGS Name: 1061 CHIS SQ

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0397](#) [Get Map](#)
 NGS Quad / Sta Num : 48095413/
 USGS Quad: MALUNG

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	14	162 N	39 W	485101.00	953921.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
	2009	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE FOOTING - SMALL	CHISELED SQUARE	NGS

Description:

Stamping:

0.1 MILE EAST ALONG THE GREAT NORTHERN RAILWAY FROM THE STATION AT MANDUS, ROSEAU COUNTY, AND ON THE TOP OF THE END OF CONCRETE PIPE CULVERT 189.1.

Station Notes

10-27-2009 FOUND NO CULVERT AT THIS LOCATION. MAY HAVE BEEN BURIED OR REMOVED. CONSIDERED DESTROYED.

* No Horizontal or Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -92.579 12B = -92.569 09 = -92.467 03 = -92.467



Mn/DOT Name: 1069

NGS Name: 1069

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0360](#) [Get Map](#)
 NGS Quad / Sta Num : 48095141/
 USGS Quad: WARROAD

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	29	163 N	36 W	485415.00	951914.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
	1917	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
PIPE (CAPPED) DRIVEN IN GROUND (<10 FT)	PIPE CAP	USGS

Description: (2007)

Stamping: 1069

AT WARROAD, AT THE WEST END OF A LAKE OF THE WOODS, 29.0 FEET SOUTHWEST OF THE JUNCTION OF LAKE STREET AND STATE STREET, AT A PUBLIC SCHOOL, 163.0 FEET EAST OF A SCHOOL.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1067.800	.033	3				VERTICAL CONTROL SURVEY	1974	USGS-VERT	

Geoid Separations(ft): GEOID18 = -93.527 12B = -93.527 09 = -93.471 03 = -93.448

* No Horizontal Positions in the Database *



Mn/DOT Name: 1076 CHIS SQ

NGS Name: 1076 CHIS SQ

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0392](#) [Get Map](#)
 NGS Quad / Sta Num : 48095412/
 USGS Quad: SALOL

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	9	162 N	38 W	485216.00	953303.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
	2009	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE FOOTING - SMALL	CHISELED SQUARE	NGS

Description:

Stamping:

0.9 MILE EAST ALONG THE GREAT NORTHERN RAILWAY FROM THE STATION AT SALOL, ROSEAU COUNTY, AT CONCRETE CULVERT 199.1, AND ON THE TOP OF THE NORTH END. A CHISELED SQUARE.

Station Notes

10-15-2009 FOUND TWIN 24.0 INCH DIAMETER CULVERTS AT THIS LOCATION. NO CHISELED SQUARE. BELIEVE THE ORIGINAL CULVERT HAS BEEN REPLACED AND CONSIDERED THIS MARK DESTROYED.

* No Horizontal or Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -93.067 12B = -93.054 09 = -92.949 03 = -92.946



Mn/DOT Name: 1082

NGS Name: 1082

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0362](#) [Get Map](#)
 NGS Quad / Sta Num : 48095142/
 USGS Quad: WARROAD SE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	8	162 N	36 W	485216.00	951924.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
	2012	DESTROYED	Horz=NO Vert=NO	YES			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	PIPE CAP	USGS

Description: **Stamping:** 1082

1.8 MILES SOUTH OF WARROAD, 1.9 MILES SOUTH ALONG COUNTY ROAD 5 FROM THE JUNCTION OF COUNTY ROAD 5 AND TRUNK HIGHWAY 11 IN WARROAD, 0.35 MILE NORTHEAST OF A SCHOOLHOUSE AT AN ANGLE IN A ROAD, 25.0 FEET WEST OF COUNTY ROAD 5, 5.0 FEET NORTH OF A CORNER FENCE POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1079.801	.033	3					VERTICAL CONTROL SURVEY	1974	USGS-VERT	

Geoid Separations(ft): GEOID18 = -93.386 12B = -93.366 09 = -93.313 03 = -93.290

* No Horizontal Positions in the Database *

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/1082-TC0362-3W-09OCT2012.jpg	W	Oct 9, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/1082-TC0362-2-09OCT2012.jpg		Oct 9, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/1082-TC0362-1-09OCT2012.jpg		Oct 9, 2012

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: 1082 RESET

NGS Name: 1082 RESET

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 48095142/
 USGS Quad: WARROAD SE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	8	162 N	36 W	485216.09	951924.14		3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1966	2012	GOOD	Horz=NO Vert=YES	NO		PROJECTS 8 IN.	MARK IS STEEL PIPE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON POST	BENCH MARK DISK	USGS

Description: **Stamping:** 1082 RESET 1966

1.8 MILES SOUTH OF WARROAD, 1.9 MILES SOUTH ALONG COUNTY ROAD 5 FROM THE JUNCTION OF COUNTY ROAD 5 AND TRUNK HIGHWAY 11 IN WARROAD, 132.5 FEET SOUTH OF DRIVEWAY NUMBER 32919, 94.0 FEET WEST OF COUNTY ROAD 5, 1.0 FOOT SOUTH OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>				<u>Orthometric Height</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order</u>	<u>(/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>						
1079.312	.033	3					1974	USGS-VERT						

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Orthometric Height</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order</u>	<u>(/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>						
1081.304	.262			987.990	.197	2007	2012	RTRN2012						

Geoid Separations(ft): GEOID18 = -93.386 12B = -93.366 09 = -93.313 03 = -93.290

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2007)</u>				<u>Geodetic Position</u>				<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>								
48 52 16.08824	95 19 24.14166	698960.614	220478.283	.131	3	2012	RTRN2012								

State Plane and UTM Coordinates (Feet)

<u>NAD83(2007)</u>				<u>MN State Plane - North Zone</u>				<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>								
2089576.312	1200694.808	1081464.130	17768118.140	.131	3	2012	RTRN2012								



Mn/DOT Name: 1101

NGS Name: 1101

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0365](#) [Get Map](#)
 NGS Quad / Sta Num : 48095412/
 USGS Quad: SALOL

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	26	162 N	38 W	484907.00	953117.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1912	2008	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (<10 FT)	PIPE CAP	NGS

Description: Stamping: 1101

IN PEQUIS, JUST EAST OF HAY CREEK, IN THE SOUTHEAST CORNER OF A YARD FENCE AT THE RESIDENCE OF FRED PIEPER, 30.0 FEET SOUTHEAST OF A HOUSE AND 25.0 FEET NORTH OF THE CENTER OF A ROAD IN SECTION 26.

Station Notes

REPORTED DESTROYED BY THE NATIONAL GEODETIC SURVEY IN 1966. SEE STATION T=1101 RESET (TC0366).

Leveling-Derived Orthometric Heights (Feet)

NGVD29

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1099.037	.033	3				VERTICAL CONTROL SURVEY	1974	USGS-VERT

Geoid Separations(ft): GEOID18 = -93.008 12B = -92.992 09 = -92.884 03 = -92.864

* No Horizontal Positions in the Database *



Mn/DOT Name: 1148.0

NGS Name: 1148.0

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 48095423/
 USGS Quad: WANNASKA SW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	21	159 N	39 W	483432.00	954120.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1915	2007	NOT FOUND	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON POST	SEE DESCRIPTION	USGS

Description: (1915)

Stamping:

ON THE EAST SIDE OF COUNTY ROAD 18, 300.0 FEET NORTH OF THE OLD CASPERSON POST OFFICE, AT A BRIDGE OVER THE ROSEAU RIVER.

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1147.429	.033	3				VERTICAL CONTROL SURVEY	1929	CS6806	

Geoid Separations(ft): GEOID18 = -90.748 12B = -90.745 09 = -90.649 03 = -90.656

* No Horizontal Positions in the Database *



Mn/DOT Name: 1163

NGS Name: 1163

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 48095112/
 USGS Quad: ROOSEVELT

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	36	162 N	35 W	484807.00	950542.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1927	2012	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON POST	BENCH MARK DISK	USGS

Description: Stamping: 1163

AT ROOSEVELT, 156.0 FEET WEST OF THE CANADIAN PACIFIC NORTHERN RAILROAD STATION, 35.0 FEET NORTH OF A TRACK, JUST WEST OF A TELEGRAPH POLE.

Station Notes
 THE SET DATE IS UNKNOWN.

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
1084.496	.033	3				1966	USGS-VERT	VERTICAL CONTROL SURVEY				

Geoid Separations(ft): GEOID18 = -94.150 12B = -94.140 09 = -94.058 03 = -94.042

* No Horizontal Positions in the Database *



Mn/DOT Name: 1163 RESET

NGS Name: 1163 RESET

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0307](#) [Get Map](#)
 NGS Quad / Sta Num : 48095112/
 USGS Quad: ROOSEVELT

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	36	162 N	35 W	484806.00	950541.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1966	2005	DESTROYED	Horz=NO Vert=NO	NO		PROJECTS 3 IN.	MARK IS STEEL PIPE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
PIPE (CAPPED) DRIVEN IN GROUND (<10 FT)	PIPE CAP	NGS

Description: **Stamping:** 1163 RESET 1966

0.05 MILE NORTH ALONG COUNTY ROAD 17 FROM THE JUNCTION OF TRUNK HIGHWAY 11 IN ROOSEVELT, THEN 0.25 MILE NORTHWEST ALONG A VILLAGE STREET (OLD STATE HIGHWAY 11), 42.7 FEET NORTH-NORTHEAST OF THE NORTH RAIL OF THE NORTHERN MOST ONE OF THREE RAILROAD TRACKS OF THE CANADIAN NATIONAL RAILWAY, 27.6 FEET SOUTH-SOUTHWEST OF THE CENTER OF THE VILLAGE STREET, 101.0 FEET SOUTHEAST OF THE CORNER OF A LARGE CORRUGATED METAL BUILDING, 58.1 FEET SOUTH-SOUTHWEST OF A LIGHT POLE, 64.3 FEET EAST OF A RAILROAD BILL BOX MOUNTED ON A POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1163.019	.033	3					VERTICAL CONTROL SURVEY	1974	USGS-VERT	

Geoid Separations(ft): GEOID18 = -94.150 12B = -94.140 09 = -94.058 03 = -94.042

* No Horizontal Positions in the Database *



Mn/DOT Name: 1177.7

NGS Name: 1177.7

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 48095423/
 USGS Quad: WANNASKA SW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	34	159 N	39 W	483301.00	954000.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1915	1915	GOOD	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON POST	SEE DESCRIPTION	USGS

Description: (1915)

Stamping:

ALONG A ROAD ALONG THE ROSEAU RIVER, 400.0 FEET SOUTHEAST OF A CABIN, BETWEEN THE RIVER AND A ROAD AT A BRIDGE OVER A RIVER.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1177.006	.033	3				VERTICAL CONTROL SURVEY	1929	CS6806	

Geoid Separations(ft): GEOID18 = -90.581 12B = -90.567 09 = -90.472 03 = -90.502

* No Horizontal Positions in the Database *



Mn/DOT Name: 19 A

NGS Name: 19 A

County: ROSEAU, MN (Sheet 2)

NGS ACRN: DE7859	Get Map
NGS Quad / Sta Num : 48095423/	
USGS Quad: WANNASKA SW	

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	18	159 N	39 W	483551.97	954401.44	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1966	2012	GOOD	Horz=NO Vert=YES	YES	6780	FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
BRIDGE WING WALL	BENCH MARK DISK	MNDT

Description: (1973)

Stamping: 19 A

4.3 MILES SOUTH OF WANNASKA, AT TRUNK HIGHWAY 89 MILEPOINT 107.35, IN THE SOUTHEAST CORNER OF TRUNK HIGHWAY 89 BRIDGE NUMBER 6780 OVER THE SOUTH FORK OF THE ROSEAU RIVER.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>
1138.590	.016	2/1				VERTICAL ADJUSTMENT		2013	00000795
1138.590	.016	2/1				VERTICAL CONTROL SURVEY		2013	VGATK
1138.590	.016	2/1				VERTICAL ADJUSTMENT		2004	00000425-2
1138.580	.016	2/1				VERTICAL CONTROL SURVEY		2000	VGRYG

NGVD29

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>
1137.091	.033	3				VERTICAL CONTROL SURVEY		1974	USGS-VERT

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>
1138.620	.262		1047.875	.197	2007	GPS - RTRN		2012	RTRN2012

Geoid Separations(ft): GEOID18 = -90.836 12B = -90.833 09 = -90.745 03 = -90.735

Lat/Lon and County Coordinates (Feet)

NAD83(2007)

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>
48 35 51.97340	95 44 01.43712	600737.673	119933.962	.131	3	GPS - RTRN		2012	RTRN2012

State Plane and UTM Coordinates (Feet)

NAD83(2007)

<u>MN State Plane - North Zone</u>		<u>UTM - Zone 15</u>		<u>Determination Method</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		
1987454.249	1104117.086	979172.183	17671720.664	.131	3	GPS - RTRN	

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/19_A-DE7859-3E-05SEP2012.jpg	E	Sep 5, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/19_A-DE7859-2-05SEP2012.jpg		Sep 5, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/19_A-DE7859-1-05SEP2012.jpg		Sep 5, 2012

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: 2 HEH

NGS Name: 2 HEH

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 48095143/
 USGS Quad: WARROAD SW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	13	161 N	38 W	484546.40	952900.40		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1966	2007	GOOD	Horz=NO Vert=YES	YES		PROJECTS 2 IN.	STEEL SPIKE ADJ TO MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	BENCH MARK DISK	USGS

Description: (1966) Stamping: 2 HEH 1966 1123

7.0 MILES SOUTH AND 4.0 MILES EAST OF SALOL, 74.0 FEET SOUTH AND 45.0 FEET WEST OF COUNTY ROAD 126 AT A TEE-ROAD WEST (COUNTY ROAD 132).

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order/(Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>				<u>Year</u>	<u>Reference</u>		
1122.951	.033	3				VERTICAL CONTROL SURVEY			1974	USGS-VERT		

Geoid Separations(ft): GEOID18 = -92.792 12B = -92.792 09 = -92.684 03 = -92.634

* No Horizontal Positions in the Database *

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/2_HEH-3W-08AUG2007.jpg	W	Aug 8, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/2_HEH-2-08AUG2007.jpg		Aug 8, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/2_HEH-1-08AUG2007.jpg		Aug 8, 2007

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: 27 HEH

NGS Name: 27 HEH

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 48095414/
 USGS Quad: SALOL NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	20	163 N	39 W	485604.00	954327.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1966	2007	NOT FOUND	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	USGS

Description: (1966) Stamping: 27 HEH 1966

6.0 MILES NORTH AND 2.0 MILES EAST OF ROSEAU, 47.0 FEET SOUTH AND 51.0 FEET EAST OF THE CROSSROADS.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1036.100	.033	3				VERTICAL CONTROL SURVEY	1974	USGS-VERT	

Geoid Separations(ft): GEOID18 = -92.313 12B = -92.313 09 = -92.188 03 = -92.205

* No Horizontal Positions in the Database *



Mn/DOT Name: 28 HEH

NGS Name: 28 HEH

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 48095411/
 USGS Quad: SALOL NE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	13	163 N	38 W	485545.00	953020.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1966	2007	NOT FOUND	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	USGS

Description: (1966) Stamping: 28 HEH

4.2 MILES NORTH AND 3.0 MILES EAST OF SALOL, 116.0 FEET NORTH AND 41.0 FEET EAST OF THE WYE-ROADS (COUNTY ROAD 13 SOUTH AND EAST AND TOWNSHIP ROAD NORTH).

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1076.701	.033	3							VERTICAL CONTROL SURVEY	1974	USGS-VERT	

Geoid Separations(ft): GEOID18 = -93.268 12B = -93.277 09 = -93.163 03 = -93.159

* No Horizontal Positions in the Database *



Mn/DOT Name: 29 HEH

NGS Name: 29 HEH

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [AI2027](#) [Get Map](#)
 NGS Quad / Sta Num : 48095141/
 USGS Quad: WARROAD

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	1	163 N	37 W	485825.17	952137.20	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1966	2012	GOOD	Horz=NO Vert=YES	YES		FLUSH	STEEL ROD IMBED IN MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	BENCH MARK DISK	USGS

Description: (1998) **Stamping:** 29 HEH 1966

4.3 MILES NORTH-NORTHWEST ALONG TRUNK HIGHWAY 313 FROM THE JUNCTION OF TRUNK HIGHWAY 313 AND TRUNK HIGHWAY 11 IN WARROAD, AT TRUNK HIGHWAY 313 MILEPOINT 4.35, 91.0 FEET SOUTH-SOUTHWEST OF TRUNK HIGHWAY 313, 35.5 FEET SOUTH OF 400TH STREET, 3.8 FEET SOUTH-SOUTHEAST OF A POWER POLE, 2.7 FEET NORTH OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1081.402	.016	2/1				VERTICAL ADJUSTMENT	2014	00000828	
1081.402	.016	2/1				VERTICAL CONTROL SURVEY	2013	VHACK	
1081.402	.016	2/1				VERTICAL ADJUSTMENT	2000	00000365	
1081.402	.016	2/1				VERTICAL CONTROL SURVEY	1998	VWARR	

NGVD29

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1079.995	.016	2/1				VERTICAL CONTROL SURVEY	1999	VWARR	
1079.899	.033	3				VERTICAL CONTROL SURVEY	1974	USGS-VERT	

Geoid Separations(ft): GEOID18 = -93.750 12B = -93.724 09 = -93.655 03 = -93.717

*** No Horizontal Positions in the Database ***

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/29_HEH-AI2027-3S-10OCT2012.jpg	S	Oct 10, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/29_HEH-AI2027-2-10OCT2012.jpg		Oct 10, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/29_HEH-AI2027-1-10OCT2012.jpg		Oct 10, 2012

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: 3 HEH

NGS Name: 3 HEH

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 48095412/
 USGS Quad: SALOL

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	15	161 N	38 W	484547.00	953255.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1966	2007	NOT FOUND	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	USGS

Description: (1966) Stamping: 3 HEH 1966 1115

7.0 MILES SOUTH AND 1.0 MILE EAST OF SALOL, 45.0 FEET NORTH AND 70.0 FEET EAST OF COUNTY ROAD 13 AT A TEE-ROAD EAST (COUNTY ROAD 132), 4.0 FEET NORTH AND 1.0 FOOT WEST OF A FENCE CORNER.

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1115.116	.033	3				VERTICAL CONTROL SURVEY	1974	USGS-VERT	

Geoid Separations(ft): GEOID18 = -92.651 12B = -92.657 09 = -92.552 03 = -92.500

* No Horizontal Positions in the Database *



Mn/DOT Name: 3 J

NGS Name: 3 J

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 48095414/
 USGS Quad: SALOL NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	3	162 N	39 W	485328.00	953931.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1929	1966	GOOD	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON POST	BENCH MARK DISK	USGS

Description: **Stamping:** 3 J 1929

5.2 MILES NORTHEAST OF ROSEAU, 5.0 MILES EAST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND TRUNK HIGHWAY 89 IN ROSEAU, THEN 2.9 MILES NORTH ON COUNTY DITCH NUMBER 18, 30.0 FEET SOUTH AND 36.0 FEET EAST FROM AN ANGLE IN A ROAD TO THE NORTH AND WEST, IN THE SOUTHWEST CORNER OF THE JUNCTION OF THE EAST-WEST AND THE NORTH-SOUTH DITCHES.

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1049.411	.033	3				VERTICAL CONTROL SURVEY	1974	USGS-VERT	

Geoid Separations(ft): GEOID18 = -92.618 12B = -92.605 09 = -92.493 03 = -92.506

* No Horizontal Positions in the Database *



Mn/DOT Name: 3 J RESET

NGS Name: 3 J RESET

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 48095414/
 USGS Quad: SALOL NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	35	162 N	39 W	485416.00	953932.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1966	2007	NOT FOUND	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON POST	SEE DESCRIPTION	USGS

Description: (1966) Stamping: 3 J 1929 RESET 1966

2.0 MILES NORTH AND 3.1 MILES WEST OF SALOL.

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1047.901	.033	3							VERTICAL CONTROL SURVEY	1974	USGS-VERT	

Geoid Separations(ft): GEOID18 = -92.618 12B = -92.611 09 = -92.497 03 = -92.513

** No Horizontal Positions in the Database **



Mn/DOT Name: 30 HEH

NGS Name: 30 HEH

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 48095144/
 USGS Quad: WARROAD NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	11	163 N	37 W	485732.00	952350.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1966	2012	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	USGS

Description: (1966) Stamping: 30 HEH 1966

3.5 MILES NORTH AND 4.0 MILES WEST OF WARROAD, 50.0 FEET SOUTH AND 23.0 FEET EAST OF COUNTY ROAD 137 AT A TEE-ROAD NORTH.

Station Notes
 DESTROYED DUE TO ROAD CONSTRUCTION.

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
1077.301	.033	3				1974	USGS-VERT	VERTICAL CONTROL SURVEY				

Geoid Separations(ft): GEOID18 = -93.612 12B = -93.582 09 = -93.510 03 = -93.560

* No Horizontal Positions in the Database *



Mn/DOT Name: 30 KEE

NGS Name: 30 KEE

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 48095413/
 USGS Quad: MALUNG

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	32	162 N	39 W	484817.00	954324.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1966	2007	NOT FOUND	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	USGS

Description: (1966) Stamping: 30 KEE 1966

3.0 MILES SOUTH AND 2.0 MILES EAST OF ROSEAU, 5.0 FEET NORTH AND 5.0 FEET EAST OF COUNTY ROAD 21 AT A TEE-ROAD WEST, 1.7 FEET WEST OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1056.254	.033	3							VERTICAL CONTROL SURVEY	1974	USGS-VERT	

Geoid Separations(ft): GEOID18 = -92.165 12B = -92.162 09 = -92.054 03 = -92.050

* No Horizontal Positions in the Database *



Mn/DOT Name: 31 HEH

NGS Name: 31 HEH

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 48095144/
 USGS Quad: WARROAD NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	7	163 N	37 W	485729.00	952748.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1966	2007	DESTROYED	Horz=NO Vert=NO	YES			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	USGS

Description: (1966) **Stamping:** 31 HEH 1966

3.5 MILES NORTH AND 7.0 MILES WEST OF WARROAD, 126.0 FEET SOUTH AND 32.0 FEET WEST OF THE JUNCTION OF COUNTY ROAD 137 AND A TOWNSHIP ROAD WEST.

Station Notes

FOUND THE CONCRETE WITH THE DISK MISSING.

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>							<u>Project Info</u>	
<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			
1068.899	.033	3				VERTICAL CONTROL SURVEY	1974	USGS-VERT

Geoid Separations(ft): GEOID18 = -93.435 12B = -93.428 09 = -93.330 03 = -93.366

* No Horizontal Positions in the Database *

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:			
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/31_HEH-2-08MAY2007.jpg		May 8, 2007
Disk:			

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: 32 HEH

NGS Name: 32 HEH

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 48095112/
 USGS Quad: ROOSEVELT

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	13	162 N	35 W	485127.30	950644.70		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1966	2012	DESTROYED	Horz=NO Vert=NO	YES		PROJECTS 6 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	USGS

Description: (1966) **Stamping:** 32 HEH 1966

3.5 MILES NORTH AND 0.5 MILE WEST OF ROOSEVELT, 45.0 FEET SOUTH AND 50.0 FEET EAST OF COUNTY ROAD 141 AT A GRAVEL ROAD WEST, 2.8 FEET NORTHWEST OF A WITNESS POST.

Station Notes

DESTROYED FOUND THE CONCRETE LOOSE.
 THE DISK WAS TURNED IN TO THE OFFICE.

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>		
1096.199	.033	3							VERTICAL CONTROL SURVEY	1974	USGS-VERT	

Geoid Separations(ft): GEOID18 = -94.439 12B = -94.429 09 = -94.327 03 = -94.311

* No Horizontal Positions in the Database *

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/32_HEH-3E-06AUG2007.jpg	E	Aug 6, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/32_HEH-2-06AUG2007.jpg		Aug 6, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/32_HEH-1-06AUG2007.jpg		Aug 6, 2007

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: 39 HEH

NGS Name: 39 HEH

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 48095113/
 USGS Quad: SWIFT

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	9	161 N	35 W	484641.00	950921.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1966	1966	GOOD	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	USGS

Description: (1966) Stamping: 39 HEH 1966

2.0 MILES SOUTH AND 2.5 MILES WEST OF ROOSEVELT, 5.0 FEET NORTH AND 29.0 FEET WEST OF A NORTH-SOUTH TOWNSHIP ROAD AT A DIM TRAIL EAST.

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>		
1187.652	.033	3							VERTICAL CONTROL SURVEY	1974	USGS-VERT	

Geoid Separations(ft): GEOID18 = -93.684 12B = -93.694 09 = -93.582 03 = -93.566

* No Horizontal Positions in the Database *



Mn/DOT Name: 4 HEH

NGS Name: 4 HEH

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DL2329](#) [Get Map](#)
 NGS Quad / Sta Num : 48095413/
 USGS Quad: MALUNG

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NW	23	161 N	39 W	484542.37	953927.37		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1966	2020	GOOD	Horz=YES Vert=YES	YES		PROJECTS 9 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	USGS

Description: (2008) **Stamping:** 4 HEH 1966

6.0 MILES SOUTH AND 5.0 MILES EAST OF ROSEAU, 5.0 MILES SOUTH ALONG COUNTY ROAD 129 FROM THE JUNCTION OF COUNTY ROAD 129 AND TRUNK HIGHWAY 11 (THE JUNCTION IS 4.0 MILES EAST OF ROSEAU), THEN 1.0 MILE WEST ON COUNTY ROAD 2, THEN 1.0 MILE SOUTH ON COUNTY ROAD 129 (440TH AVENUE), 35.0 FEET SOUTH OF 250TH STREET, 32.0 FEET EAST OF COUNTY ROAD 129, 1.0 FOOT WEST OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			
1083.184	.033	3				1974	USGS-VERT	VERTICAL CONTROL SURVEY		

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			
1085.123	.262		992.875	.197	2011	2020	GPSBM	GPS - OPUS		
1084.985	.262		992.738	.197	2011	2020	GPSBM	GPS - OPUS		
1085.464	.262		993.220	.197	2011	2020	RTRN2020	GPS - RTRN		
			992.754	.008	2011	2012	GPS2800	HORIZONTAL ADJUSTMENT		
1085.037	.131		992.859	.066	2007	2009	GPS2522	HORIZONTAL ADJUSTMENT		
1085.037	.131		992.859	.066	2007	2008	HROSO	GPS - STATIC		
1085.037	.131		992.856	.066	1996	2008	HROSO	GPS - STATIC		

Geoid Separations(ft): GEOID18 = -92.247 12B = -92.241 09 = -92.149 03 = -92.145

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Roseau County</u>					<u>Project Info</u>	
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>							
48 45 42.37445	95 39 27.36893	618774.363	179879.252	.131	3	GPS - OPUS	2020	GPSBM
48 45 42.37470	95 39 27.36889	618774.366	179879.278	.131	3	GPS - OPUS	2020	GPSBM
48 45 42.37493	95 39 27.36737	618774.468	179879.302	.131	3	GPS - RTRN	2020	RTRN2020
48 45 42.37441	95 39 27.36619	618774.547	179879.249	.010		ADJUSTMENT	2012	GPS2800

<u>NAD83(2007)</u>		<u>Roseau County</u>					<u>Project Info</u>	
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>							
48 45 42.37455	95 39 27.36707	618774.488	179879.263	.033	C	ADJUSTMENT	2009	GPS2522
48 45 42.37455	95 39 27.36707	618774.488	179879.263	.033	C	GPS - STATIC	2008	HROSO

<u>NAD83(1996)</u>		<u>Roseau County</u>					<u>Project Info</u>	
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>							
48 45 42.37442	95 39 27.36697	618774.495	179879.250	.033	C	GPS - STATIC	2008	HROSO



State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2007845.927	1163300.456	999669.848	17730872.163	.131	3	GPS - OPUS	2020	GPSBM
2007845.930	1163300.481	999669.852	17730872.188	.131	3	GPS - OPUS	2020	GPSBM
2007846.033	1163300.501	999669.954	17730872.208	.131	3	GPS - RTRN	2020	RTRN2020
2007846.110	1163300.446	999670.032	17730872.153	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2007846.052	1163300.462	999669.973	17730872.169	.033	C	ADJUSTMENT	2009	GPS2522
2007846.052	1163300.462	999669.973	17730872.169	.033	C	GPS - STATIC	2008	HROSO

NAD83(1996)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2007846.058	1163300.449	999669.980	17730872.155	.033	C	GPS - STATIC	2008	HROSO

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/4_HEH-DL2329-3E-25JUN2020.jpg	E	Jun 25, 2020
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/4_HEH-DL2329-2-25JUN2020.jpg		Jun 25, 2020
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/4_HEH-DL2329-1-25JUN2020.jpg		Jun 25, 2020

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: 40 HEH

NGS Name: 40 HEH

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 48095113/
 USGS Quad: SWIFT

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	18	161 N	35 W	484524.00	951203.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1966	1966	GOOD	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	USGS

Description: (1966) Stamping: 40 HEH 1966

3.5 MILES SOUTH AND 4.5 MILES EAST OF ROOSEVELT, 42.0 FEET NORTH OF AN EAST-WEST TOWNSHIP ROAD.

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1181.645	.033	3							VERTICAL CONTROL SURVEY	1974	USGS-VERT	

Geoid Separations(ft): GEOID18 = -93.336 12B = -93.346 09 = -93.235 03 = -93.215

* No Horizontal Positions in the Database *



Mn/DOT Name: 41 HEH

NGS Name: 41 HEH

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 48095142/
 USGS Quad: WARROAD SE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	22	161 N	36 W	484523.10	951553.90		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1966	2008	GOOD	Horz=NO Vert=YES	YES		PROJECTS 5 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	USGS

Description: (1966) **Stamping:** 41 HEH 1966

10.0 MILES SOUTH AND 3.0 MILES EAST OF WARROAD, EAST 3.0 MILES ALONG TANGNES TRAIL FROM THE JUNCTION OF TANGNES TRAIL AND COUNTY ROAD 5, 40.0 FEET SOUTH AND 47.0 FEET WEST OF THE CROSSROADS, 1.0 FOOT SOUTH OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1170.641	.033	3				VERTICAL CONTROL SURVEY	1974	USGS-VERT	

Geoid Separations(ft): GEOID18 = -93.100 12B = -93.081 09 = -92.995 03 = -92.982

* No Horizontal Positions in the Database *

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/41_HEH-3W-14MAY2007.jpg	W	May 14, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/41_HEH-2-14MAY2007.jpg		May 14, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/41_HEH-1-14MAY2007.jpg		May 14, 2007

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: 46 HEH

NGS Name: 46 HEH

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 48095142/
 USGS Quad: WARROAD SE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	20	162 N	36 W	485037.00	951947.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1966	2007	NOT FOUND	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	USGS

Description: (1966) Stamping: 46 HEH 1966

4.5 MILES SOUTH AND 0.5 MILE WEST OF WARROAD, 42.0 FEET SOUTH AND 68.0 FEET EAST OF COUNTY ROAD 5 AT A TEE-ROAD WEST.

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1092.248	.033	3				VERTICAL CONTROL SURVEY	1974	USGS-VERT	

Geoid Separations(ft): GEOID18 = -93.258 12B = -93.235 09 = -93.163 03 = -93.146

* No Horizontal Positions in the Database *



Mn/DOT Name: 47 HEH RESET

NGS Name: 47 HEH RESET

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 48095142/
 USGS Quad: WARROAD SE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	6	161 N	36 W	484708.00	951949.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1967	2007	NOT FOUND	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	USGS

Description: (1967) Stamping: 47 HEH 1966

8.5 MILES SOUTH AND 0.5 MILE WEST OF WARROAD, 79.0 FEET NORTH AND 51.0 FEET WEST OF THE JUNCTION OF COUNTY ROAD 2 AND COUNTY ROAD 5.

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1136.199	.033	3							VERTICAL CONTROL SURVEY	1974	USGS-VERT	

Geoid Separations(ft): GEOID18 = -92.992 12B = -92.976 09 = -92.887 03 = -92.874

* No Horizontal Positions in the Database *



Mn/DOT Name: 48 HEH

NGS Name: 48 HEH

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 48095142/
 USGS Quad: WARROAD SE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	17	161 N	36 W	484524.00	951948.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1966	2007	NOT FOUND	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	USGS

Description: (1966) Stamping: 48 HEH 1966

10.5 MILES SOUTH OF WARROAD, 41.0 FEET NORTH AND 81.0 FEET EAST OF COUNTY ROAD 5 AT A TEE-ROAD EAST, 3.0 FEET NORTH OF A POWER POLE.

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1153.367	.033	3					VERTICAL CONTROL SURVEY	1974	USGS-VERT	

Geoid Separations(ft): GEOID18 = -92.890 12B = -92.871 09 = -92.779 03 = -92.762

* No Horizontal Positions in the Database *



Mn/DOT Name: 48 KEE

NGS Name: 48 KEE

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 48095421/
 USGS Quad: WANNASKA NE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	30	161 N	38 W	484357.00	953647.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1966	1967	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE POST (PREFABRICATED)	BENCH MARK DISK	USGS

Description: **Stamping:** 48 KEE 1966

2.5 MILES NORTH AND 1.1 MILES EAST OF PENCER, 205.0 FEET SOUTH AND 34.0 FEET EAST OF COUNTY ROAD 9 AT A TEE-ROAD WEST, 60.0 FEET NORTH AND 71.0 FEET EAST OF A PRIVATE DRIVE NORTH, 3.0 FEET NORTHEAST OF A TELEPHONE POLE AND A NORTH-SOUTH FENCE.

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1097.002	.033	3					VERTICAL CONTROL SURVEY	1974	USGS-VERT	

Geoid Separations(ft): GEOID18 = -92.277 12B = -92.270 09 = -92.182 03 = -92.155

* No Horizontal Positions in the Database *



Mn/DOT Name: 48 KEE RESET

NGS Name: 48 KEE RESET

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 48095421/
 USGS Quad: WANNASKA NE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	30	161 N	38 W	484355.00	953648.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1967	2007	NOT FOUND	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	USGS

Description: (1967) **Stamping:** 48 KEE 1966 RESET 1967

2.5 MILES NORTH AND 1.1 MILES EAST OF PENCER, 205.0 FEET SOUTH AND 34.0 FEET EAST OF COUNTY ROAD 9 AT A TEE-ROAD WEST, 60.0 FEET NORTH AND 71.0 FEET EAST OF A PRIVATE DRIVE NORTH, 3.0 FEET NORTHEAST OF A TELEPHONE POLE AND A NORTH-SOUTH FENCE.

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1097.002	.033	3				VERTICAL CONTROL SURVEY	1974	USGS-VERT	

Geoid Separations(ft): GEOID18 = -92.273 12B = -92.267 09 = -92.178 03 = -92.152

* No Horizontal Positions in the Database *



Mn/DOT Name: 49 KEE

NGS Name: 49 KEE

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 48095421/
 USGS Quad: WANNASKA NE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	18	160 N	38 W	484014.00	953614.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1966	2007	NOT FOUND	Horz=YES Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	USGS

Description: (1966) Stamping: 49 KEE 1966

2.0 MILES SOUTH AND 1.5 MILES EAST OF PENCER, 127.0 FEET NORTH AND 36.0 FEET EAST OF COUNTY ROAD 9 AT A TEE-ROAD WEST (COUNTY ROAD 128), 0.5 FOOT WEST OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1126.304	.033	3				VERTICAL CONTROL SURVEY	1974	USGS-VERT	

Geoid Separations(ft): GEOID18 = -91.913 12B = -91.909 09 = -91.827 03 = -91.781

* No Horizontal Positions in the Database *



Mn/DOT Name: 50 KEE

NGS Name: 50 KEE

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 48095422/
 USGS Quad: SKIME

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	12	159 N	39 W	483604.00	953613.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1966	1966	GOOD	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	USGS

Description: (1966) **Stamping:** 50 KEE 1966

6.8 MILES SOUTH AND 1.5 MILES EAST OF PENCER, 67.0 FEET NORTH AND 92.0 FEET WEST OF COUNTY ROAD 9 AT A PRIVATE DRIVE WEST, 26.0 FEET NORTHEAST OF THE NORTHEAST CORNER OF A BUILDING, 3.0 FEET SOUTHEAST OF A POWER POLE, 1.0 FOOT EAST OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>		
1169.253	.033	3							VERTICAL CONTROL SURVEY	1974	USGS-VERT	

Geoid Separations(ft): GEOID18 = -91.306 12B = -91.322 09 = -91.220 03 = -91.171

* No Horizontal Positions in the Database *



Mn/DOT Name: 54 KEE

NGS Name: 54 KEE

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 48095134/
 USGS Quad: MULLIGAN LAKE NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	29	161 N	37 W	484407.00	952740.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1966	2007	NOT FOUND	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	USGS

Description: (1966) Stamping: 54 KEE 1966

12.0 MILES SOUTH AND 6.5 MILES WEST OF WARROAD, 88.0 FEET SOUTHEAST OF A ROAD, 20.0 FEET SOUTH OF A ROAD SOUTHEAST TO A GRAVEL PIT, 1.0 FOOT NORTH OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1148.269	.033	3				VERTICAL CONTROL SURVEY	1966	USGS-VERT	

Geoid Separations(ft): GEOID18 = -92.667 12B = -92.667 09 = -92.562 03 = -92.506

* No Horizontal Positions in the Database *



Mn/DOT Name: 55 KEE

NGS Name: 55 KEE

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 48095134/
 USGS Quad: MULLIGAN LAKE NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	7	160 N	37 W	484108.00	952732.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1966	2007	NOT FOUND	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	USGS

Description: (2018) Stamping: 55 KEE 6 1966

15.5 MILES SOUTH AND 5.7 MILES WEST OF WARROAD, 92.0 FEET NORTHEAST OF THE WYE FORKS, 23.0 FEET NORTHWEST OF A TRAIL NORTHEAST, 12.0 FEET SOUTHEAST OF A TRAIL NORTH, 1.0 FOOT WEST OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>	
1233.925	.033	3				VERTICAL CONTROL SURVEY		1974	USGS-VERT	

Geoid Separations(ft): GEOID18 = -92.352 12B = -92.346 09 = -92.273 03 = -92.214

* No Horizontal Positions in the Database *



Mn/DOT Name: 56 KEE

NGS Name: 56 KEE

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DL2333](#) [Get Map](#)
 NGS Quad / Sta Num : 48095134/
 USGS Quad: MULLIGAN LAKE NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	29	160 N	37 W	483920.94	952705.89		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1966	2020	GOOD	Horz=YES Vert=YES	YES		PROJECTS 1 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	USGS

Description: (2007) **Stamping:** 56 KEE 1966

18.2 MILES SOUTHWEST OF WARROAD, 11.9 MILES SOUTH ALONG COUNTY ROAD 5 FROM THE JUNCTION OF COUNTY ROAD 5 AND TRUNK HIGHWAY 11 IN WARROAD, THEN 3.7 MILES WEST ON 235TH STREET (THOMPSON FOREST ROAD), THEN 6.6 MILES SOUTHWESTERLY ALONG BLACKS-WINNER FOREST ROAD TO CROSSROADS AND STATION 56 KEE ON THE LEFT, 89.4 FEET EAST-SOUTHEAST OF THE SOUTH LEG OF PALSBURG FOREST ROAD SIGN, 30.5 FEET EAST OF BLACKS-WINNER FOREST ROAD, 29.5 FEET SOUTH OF A TRAIL EAST, 1.2 FEET WEST OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1245.670	.033	3					VERTICAL CONTROL SURVEY	1974	USGS-VERT	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1247.268	.262			1155.135	.197	2011	GPS - OPUS	2020	GPSBM	
1247.347	.262			1155.218	.197	2011	GPS - RTRN	2020	RTRN2020	
				1155.004	.009	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800	
1247.143	.131			1155.113	.066	2007	HORIZONTAL ADJUSTMENT	2009	GPS2522	
1247.143	.131			1155.113	.066	2007	GPS - STATIC	2008	HROSO	
1247.143	.131			1155.109	.066	1996	GPS - STATIC	2008	HROSO	

Geoid Separations(ft): GEOID18 = -92.132 12B = -92.129 09 = -92.054 03 = -91.995

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>			<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>			<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
<u>Latitude</u>	<u>Longitude</u>									
48 39 20.93756	95 27 05.88586		668810.276	141610.641	.131	3	GPS - OPUS	2020	GPSBM	
48 39 20.93787	95 27 05.88601		668810.265	141610.672	.131	3	GPS - RTRN	2020	RTRN2020	
48 39 20.93814	95 27 05.88503		668810.331	141610.700	.007		ADJUSTMENT	2012	GPS2800	

<u>NAD83(2007)</u>			<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>			<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
<u>Latitude</u>	<u>Longitude</u>									
48 39 20.93820	95 27 05.88590		668810.273	141610.706	.033	C	ADJUSTMENT	2009	GPS2522	
48 39 20.93820	95 27 05.88590		668810.273	141610.706	.033	C	GPS - STATIC	2008	HROSO	

<u>NAD83(1996)</u>			<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>			<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
<u>Latitude</u>	<u>Longitude</u>									
48 39 20.93826	95 27 05.88572		668810.284	141610.712	.033	C	GPS - STATIC	2008	HROSO	

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2056327.544	1123083.470	1048081.472	17690569.508	.131	3	GPS - OPUS	2020	GPSBM
2056327.535	1123083.502	1048081.463	17690569.539	.131	3	GPS - RTRN	2020	RTRN2020
2056327.602	1123083.527	1048081.529	17690569.564	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2056327.544	1123083.535	1048081.471	17690569.573	.033	C	ADJUSTMENT	2009	GPS2522
2056327.544	1123083.535	1048081.471	17690569.573	.033	C	GPS - STATIC	2008	HROSO

NAD83(1996)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2056327.556	1123083.541	1048081.484	17690569.578	.033	C	GPS - STATIC	2008	HROSO

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/56_KEE-DL2333-3E-23JUN2020.jpg	E	Jun 23, 2020
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/56_KEE-DL2333-2-23JUN2020.jpg		Jun 23, 2020
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/56_KEE-DL2333-1-23JUN2020.jpg		Jun 23, 2020

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: 57 KEE

NGS Name: 57 KEE

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 48095133/
 USGS Quad: MULLIGAN LAKE SW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	5	159 N	37 W	483729.60	952706.30		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1966	2008	GOOD	Horz=NO Vert=YES	YES		FLUSH	STEEL ROD IMBED IN MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	USGS

Description: (2007) Stamping: 57 KEE 1966

2.0 MILES SOUTH AND 13.0 MILES EAST OF WANNASKA, 11.9 MILES SOUTH ALONG COUNTY ROAD 5 FROM THE JUNCTION OF COUNTY ROAD 5 AND TRUNK HIGHWAY 11 IN WARROAD, THEN 3.7 MILES WEST ALONG 235TH STREET (THOMPSON FOREST ROAD), THEN 8.7 MILES SOUTHWESTERLY ALONG BLACK WINNER FORESTRY ROAD, 22.0 FEET SOUTH AND 20.0 FEET EAST OF BLACKS-WINNER FOREST ROAD AT THE CROSS-TRAILS, 20.2 FEET WEST OF A WITNESS POST, 10.0 FEET WEST OF THE CHARLES VENA LEWIS SIGNPOST.

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1245.326	.033	3					VERTICAL CONTROL SURVEY	1974	USGS-VERT

Geoid Separations(ft): GEOID18 = -91.876 12B = -91.886 09 = -91.804 03 = -91.745

* No Horizontal Positions in the Database *

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/57_KEE-3E-14AUG2007.jpg	E	Aug 14, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/57_KEE-2-14AUG2007.jpg		Aug 14, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/57_KEE-1-14AUG2007.jpg		Aug 14, 2007

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: 58 KEE

NGS Name: 58 KEE

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 48095133/
 USGS Quad: MULLIGAN LAKE SW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	8	159 N	37 W	483553.10	952554.40		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1966	2008	GOOD	Horz=NO Vert=YES	YES		PROJECTS 1 IN.	STEEL ROD IMBED IN MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	USGS

Description: (2008) **Stamping:** 58 KEE 1966

4.2 MILES SOUTH AND 14.0 MILES EAST OF WANNASKA, 11.9 MILES SOUTH ALONG COUNTY ROAD 5 FROM THE JUNCTION OF COUNTY ROAD 5 AND TRUNK HIGHWAY 11 IN WARROAD, THEN 3.7 MILES WEST ALONG 235TH STREET (THOMPSON FOREST ROAD), THEN 10.7 MILES SOUTHWESTERLY ALONG BLACKS-WINNER ROAD, THEN 0.45 MILE EAST ON A FORESTRY ROAD FROM A TEE-ROAD, 65.0 FEET NORTH OF BLACKS-WINNER FOREST ROAD, 64.0 FEET NORTH OF A ROAD, 19.0 FEET WEST OF A TRAIL ON THE EAST SIDE OF A CEMETERY, 3.0 FEET NORTH, 2.6 FEET NORTHEAST OF THE SOUTHEAST CORNER POST OF THE ELKWOOD CEMETERY, 0.7 FOOT SOUTH OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1226.353	.033	3					VERTICAL CONTROL SURVEY	1974	USGS-VERT	

Geoid Separations(ft): GEOID18 = -91.722 12B = -91.729 09 = -91.644 03 = -91.588

* No Horizontal Positions in the Database *

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/58_KEE-3N-14AUG2007.jpg	N	Aug 14, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/58_KEE-2-14AUG2007.jpg		Aug 14, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/58_KEE-1-14AUG2007.jpg		Aug 14, 2007

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: 59 KEE

NGS Name: 59 KEE

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 48095133/
 USGS Quad: MULLIGAN LAKE SW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	14	159 N	37 W	483552.30	952310.30		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1966	2008	GOOD	Horz=NO Vert=YES	YES		FLUSH	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	USGS

Description: (2008) **Stamping:** 59 KEE 1966

21.5 MILES SOUTH AND 2.5 MILES WEST OF WARROAD, 11.9 MILES SOUTH ALONG COUNTY ROAD 5 FROM THE JUNCTION OF COUNTY ROAD 5 AND TRUNK HIGHWAY 11 IN WARROAD, THEN 3.7 MILES WEST ON 235TH STREET (THOMPSON FOREST ROAD), THEN 10.7 MILES SOUTHWESTERLY ALONG BLACKS-WINNER ROAD, THEN 2.5 MILES EAST ALONG A FORESTRY ROAD FROM A TEE ROAD, 37.0 FEET SOUTH OF A ROAD AT A TRAIL NORTH, 1.0 FOOT NORTH OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1215.080	.033	3				VERTICAL CONTROL SURVEY	1974	USGS-VERT	

Geoid Separations(ft): GEOID18 = -91.817 12B = -91.827 09 = -91.745 03 = -91.686

* No Horizontal Positions in the Database *

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/59_KEE-3S-17MAY2007.jpg	S	May 17, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/59_KEE-2-17MAY2007.jpg		May 17, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/59_KEE-1-17MAY2007.jpg		May 17, 2007

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: 62 KEE

NGS Name: 62 KEE

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DI2099](#) [Get Map](#)
 NGS Quad / Sta Num : 48095132/
 USGS Quad: MULLIGAN LAKE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	12	159 N	37 W	483552.90	952035.40	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1966	2007	GOOD	Horz=YES Vert=YES	YES		FLUSH	STEEL SPIKE ADJ TO MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	USGS

Description: (2003) **Stamping:** 62 KEE 1966

20.0 MILES SOUTH OF WARROAD, 12.85 MILES SOUTH ALONG COUNTY ROAD 5 FROM THE JUNCTION OF COUNTY ROAD 5 AND TRUNK HIGHWAY 11 IN WARROAD, THEN 0.55 MILE WEST ON A GRAVEL ROAD, THEN 7.9 MILES SOUTH ON A GRAVEL ROAD, 47.0 FEET NORTH AND 115.0 FEET WEST OF AN EAST-WEST TEE-ROAD NORTH, 36.0 FEET NORTH OF A CURVE WEST, 1.0 FOOT SOUTH OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1228.734	.016	2/1					VERTICAL ADJUSTMENT	2006	00000425-12	
1228.711	.016	2/1					VERTICAL CONTROL SURVEY	2005	VTURN	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1227.124	.033	3					VERTICAL CONTROL SURVEY	1974	USGS-VERT	

Geoid Separations(ft): GEOID18 = -91.913 12B = -91.929 09 = -91.831 03 = -91.768

* No Horizontal Positions in the Database *

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/62_KEE-DI2099-3N-17MAY2007.jpg	N	May 17, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/62_KEE-DI2099-2-17MAY2007.jpg		May 17, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/62_KEE-DI2099-1-17MAY2007.jpg		May 17, 2007

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: 67 KEE

NGS Name: 67 KEE

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 48095133/
 USGS Quad: MULLIGAN LAKE SW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	14	159 N	38 W	483549.60	952942.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1966	2008	GOOD	Horz=NO Vert=YES	YES		PROJECTS 2 IN.	STEEL ROD IMBED IN MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	USGS

Description: (2007) Stamping: 67 KEE 1966

4.0 MILES SOUTH AND 11.0 MILES EAST OF WANNASKA, 11.5 MILES SOUTH ALONG COUNTY ROAD 5 FROM THE JUNCTION OF COUNTY ROAD 5 AND TRUNK HIGHWAY 11 IN WARROAD, THEN 3.7 MILES WEST ALONG 235TH STREET (THOMPSON FOREST ROAD, THEN 10.7 MILES SOUTHWESTERLY ALONG BLACKS -WINNER ROAD, THEN 2.5 MILES WEST ALONG A FORESTRY ROAD FROM A TEE ROAD, 270.0 FEET SOUTH AND 54.0 FEET WEST OF THE CROSSROADS (COUNTY ROAD 18, COUNTY ROAD 19 AND A TOWNSHIP ROAD), 52.0 FEET SOUTH OF A DRIVE WEST, 2.0 FEET EAST OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1197.872	.033	3					VERTICAL CONTROL SURVEY	1974	USGS-VERT

Geoid Separations(ft): GEOID18 = -91.578 12B = -91.594 09 = -91.496 03 = -91.430

* No Horizontal Positions in the Database *

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/67_KEE-3W-14AUG2007.jpg	W	Aug 14, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/67_KEE-2-14AUG2007.jpg		Aug 14, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/67_KEE-1-14AUG2007.jpg		Aug 14, 2007

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: 68 KEE

NGS Name: 68 KEE

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 48095133/
 USGS Quad: MULLIGAN LAKE SW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	18	159 N	37 W	483501.00	952754.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1966	2007	NOT FOUND	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	USGS

Description: (1966) Stamping: 68 KEE 1966

5.0 MILES SOUTH AND 12.2 MILES EAST OF WANNASKA, 26.0 FEET NORTH AND 9.0 FEET WEST OF A ROAD AT A CURVE AND A DRAIN, 16.0 FEET WEST OF A DRAIN, 2.0 FEET SOUTH OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1206.815	.033	3				VERTICAL CONTROL SURVEY	1974	USGS-VERT	

Geoid Separations(ft): GEOID18 = -91.548 12B = -91.561 09 = -91.466 03 = -91.407

* No Horizontal Positions in the Database *



Mn/DOT Name: 6803 A

NGS Name: 6803 A

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 48095413/
 USGS Quad: MALUNG

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	19	162 N	39 W	485053.00	954445.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1970	1991	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MNDT

Description: (1991) Stamping: 6803 A 1970

1.0 MILE EAST ON TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11/TRUNK HIGHWAY 89 AND TRUNK HIGHWAY 310 IN ROSEAU, 75.0 FEET SOUTH OF TRUNK HIGHWAY 11, AT TRUNK HIGHWAY 11 STATION 229+19.

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1047.399	.033	3				VERTICAL CONTROL SURVEY	1970	CS6803	

Geoid Separations(ft): GEOID18 = -92.172 12B = -92.175 09 = -92.054 03 = -92.040

* No Horizontal Positions in the Database *



Mn/DOT Name: 6803 AA

NGS Name: 6803 AA

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DP9494](#) [Get Map](#)
 NGS Quad / Sta Num : 48095141/
 USGS Quad: WARROAD

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	34	163 N	37 W	485356.74	952405.73	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2018	GOOD	Horz=YES Vert=YES	YES		FLUSH	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 12 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014) Stamping: 6803 AA 2014

3.6 MILES WEST-SOUTHWEST OF WARROAD, 3.4 MILES WEST-SOUTHWEST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND TRUNK HIGHWAY 313 IN WARROAD, AT TRUNK HIGHWAY 11 MILEPOINT 88.25, 44.8 FEET SOUTH-SOUTHEAST OF TRUNK HIGHWAY 11, 65.1 FEET WEST-SOUTHWEST OF AN ENTRANCE, 1.5 FEET WEST-SOUTHWEST OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1123.246	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941
1123.233	.016	2/1					VERTICAL CONTROL SURVEY	2015	VKTAD

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1123.246	.131			1030.034	.066	1996	GPS - STATIC	2021	HKTAD
1123.246				1029.873	.021	2011	HORIZONTAL ADJUSTMENT	2020	GPS3390
1123.246				1029.873	.021	2011	GPS - STATIC	2020	HKTAD
1123.256	.262			1029.850	.197	2011	GPS - RTRN	2014	RTRN2014

Geoid Separations(ft): GEOID18 = -93.422 12B = -93.405 09 = -93.304 03 = -93.323

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Roseau County</u>			<u>Project Info</u>			
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
48 53 56.73711	95 24 05.73060			680034.508	230484.244	.013		ADJUSTMENT	2020	GPS3390
48 53 56.73711	95 24 05.73060			680034.508	230484.244	.013	C	GPS - STATIC	2020	HKTAD
48 53 56.73707	95 24 05.73069			680034.502	230484.240	.131	3	GPS - RTRN	2014	RTRN2014

<u>NAD83(1996)</u>				<u>Roseau County</u>			<u>Project Info</u>			
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
48 53 56.73694	95 24 05.73124			680034.466	230484.226	.033	C	GPS - STATIC	2021	HKTAD

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>			<u>Project Info</u>			
<u>MN State Plane - North Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2071060.786	1211442.569			1062969.916	17778898.165	.013		ADJUSTMENT	2020	GPS3390
2071060.786	1211442.569			1062969.916	17778898.165	.013	C	GPS - STATIC	2020	HKTAD
2071060.779	1211442.565			1062969.910	17778898.161	.131	3	GPS - RTRN	2014	RTRN2014

<u>NAD83(1996)</u>				<u>UTM - Zone 15</u>			<u>Project Info</u>			
<u>MN State Plane - North Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2071060.742	1211442.553			1062969.873	17778898.149	.033	C	GPS - STATIC	2021	HKTAD

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6803_AA-DP9494-3SE-30JUL2014.jpg	SE	Jul 30, 2014
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6803_AA-DP9494-2-30JUL2014.jpg		Jul 30, 2014
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6803_AA-DP9494-1-30JUL2014.jpg		Jul 30, 2014

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: 6803 AC

NGS Name: 6803 AC

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DP9495](#) [Get Map](#)
 NGS Quad / Sta Num : 48095144/
 USGS Quad: WARROAD NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	34	163 N	37 W	485402.60	952347.91	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2014	GOOD	Horz=NO Vert=YES	YES		PROJECTS 2 IN.	STEEL ROD IMBED IN MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE POST (PREFABRICATED)	BENCH MARK DISK	MNDT

Description: (2014) Stamping: 6803 AC 2014 19

3.5 MILES WEST-SOUTHWEST OF WARROAD, 3.5 MILES WEST-SOUTHWEST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAYS 11 AND 313 IN WARROAD, AT TRUNK HIGHWAY 11 MILEPOINT 88.5, 65.33 FEET SOUTHEAST OF TRUNK HIGHWAY 11, 2.0 FEET SOUTHWEST OF 560TH AVENUE EXTENDED, 0.5 FOOT NORTHWEST OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1127.905	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941
1127.891	.016	2/1					VERTICAL CONTROL SURVEY	2015	VKTAD

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1127.888	.262			1034.473	.197	2011	GPS - RTRN	2014	RTRN2014

Geoid Separations(ft): GEOID18 = -93.428 12B = -93.415 09 = -93.313 03 = -93.333

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Roseau County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
48 54 02.60342	95 23 47.91308			681219.180	231090.518	.131	3	GPS - RTRN	2014	RTRN2014

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - North Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2072268.564	1212001.485			1064178.593	17779454.829	.131	3	GPS - RTRN	2014	RTRN2014

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6803_AC-DP9495-3SE-25JUN2014.jpg	SE	Jun 25, 2014
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6803_AC-DP9495-2-25JUN2014.jpg		Jun 25, 2014
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6803_AC-DP9495-1-25JUN2014.jpg		Jun 25, 2014

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: 6803 B

NGS Name: 6803 B

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DP9475](#) [Get Map](#)
 NGS Quad / Sta Num : 48095413/
 USGS Quad: MALUNG

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	16	162 N	39 W	485053.86	954049.53	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1962	2014	GOOD	Horz=NO Vert=NO	YES	8580	FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CULVERT - ANY SIZE, ANY TYPE	BENCH MARK DISK	MNDT

Description: (2014) Stamping: 19

4.0 MILES EAST OF ROSEAU, 4.0 MILES EAST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAYS 11, 310 AND 89 IN ROSEAU, AT TRUNK HIGHWAY 11 MILEPOINT 74.73, IN THE SOUTHEAST WING WALL OF TRUNK HIGHWAY 11 BOX CULVERT NUMBER 8580, 64.5 FEET EAST OF COUNTY ROAD 31 (430TH AVENUE), 46.5 FEET SOUTH OF TRUNK HIGHWAY 11.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1062.262	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	
1062.275	.016	2/1					VERTICAL CONTROL SURVEY	2015	VKTAD	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1057.084	.033	3					VERTICAL CONTROL SURVEY	1970	CS6803	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1062.301	.262			969.841	.197	2011	GPS - RTRN	2014	RTRN2014	

Geoid Separations(ft): GEOID18 = -92.467 12B = -92.457 09 = -92.355 03 = -92.349

Lat/Lon and County Coordinates (Feet)

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
48 50 53.85821	95 40 49.52552	613074.996	211413.182	.131	3	GPS - RTRN	2014	RTRN2014	

State Plane and UTM Coordinates (Feet)

<u>MN State Plane - North Zone</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
2003397.781	1195035.116	995279.642	17762615.706	.131	3	GPS - RTRN	2014	RTRN2014	

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6803_B-DP9475-3S-24JUN2014.jpg	S	Jun 24, 2014
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6803_B-DP9475-2-24JUN2014.jpg		Jun 24, 2014
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6803_B-DP9475-1-24JUN2014.jpg		Jun 24, 2014

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: 6803 C

NGS Name: 6803 C

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 48095412/
 USGS Quad: SALOL

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	7	162 N	38 W	485136.00	953542.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1963	2014	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MNDT

Description: (1979) Stamping:

3.45 MILES EAST ON TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11/TRUNK HIGHWAY 89 AND TRUNK HIGHWAY 310 IN ROSEAU, 160.0 FEET NORTH OF TRUNK HIGHWAY 11, AT TRUNK HIGHWAY 11 STATION 359+35.

Station Notes

THE LATITUDE AND LONGITUDE PUT THE MARK IN A FIELD SOUTH OF TRUNK HIGHWAY 11, 160.0 FEET NORTH OF A HIGHWAY, IT IS NORTH OF A RAILROAD IN THIS VICINITY. THE DESCRIPTION PUTS THIS MARK SOUTH OF THE AIRPORT.

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1056.379	.033	3				VERTICAL CONTROL SURVEY	1970	CS6803	

Geoid Separations(ft): GEOID18 = -92.871 12B = -92.854 09 = -92.749 03 = -92.749

* No Horizontal Positions in the Database *



Mn/DOT Name: 6803 D

NGS Name: 6803 D

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 48095413/
 USGS Quad: MALUNG

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	22	162 N	39 W	485053.00	954049.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1963	2009	DESTROYED	Horz=NO Vert=NO	NO	8580	FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CULVERT - ANY SIZE, ANY TYPE	BENCH MARK DISK	MNDT

Description: (2009) Stamping: 6803 D

4.0 MILES EAST OF ROSEAU, IN THE SOUTHWEST CORNER OF A HEADWALL OF TRUNK HIGHWAY 11 W108 CULVERT 8580, AT TRUNK HIGHWAY 11 MILEPOINT 74.73.

Station Notes

THE STATION WAS DESTROYED WHEN THE CULVERT WAS REBUILT/REPLACED IN 1969.
 THERE IS AN UNSTAMPED DISK IN THE SOUTHEAST CORNER OF THE WINGWALL OF THE REPLACEMENT CULVERT.

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1060.700	.033	3				VERTICAL CONTROL SURVEY	1970	CS6803	

Geoid Separations(ft): GEOID18 = -92.467 12B = -92.457 09 = -92.355 03 = -92.352

* No Horizontal Positions in the Database *



Mn/DOT Name: 6803 E

NGS Name: 6803 E

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DP9477](#) [Get Map](#)
 NGS Quad / Sta Num : 48095413/
 USGS Quad: MALUNG

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	23	162 N	39 W	485054.19	953930.66	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1970	2014	GOOD	Horz=NO Vert=YES	YES		PROJECTS 1 IN.	STEEL ROD IMBED IN MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE POST (PREFABRICATED)	BENCH MARK DISK	MNDT

Description: (2014) Stamping: 6803 E 1970

5.0 MILES EAST OF ROSEAU, 5.05 MILES EAST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAYS 11, 310 AND 89 IN ROSEAU, AT TRUNK HIGHWAY 11 MILEPOINT 75.75, AT TRUNK HIGHWAY 11 STATION 1332+04, 100.0 FEET SOUTH OF TRUNK HIGHWAY 11, 41.0 FEET EAST OF 440TH AVENUE, 2.5 FEET EAST OF A POWER POLE WITH 4 ANCHORS, 0.3 FOOT NORTH OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1060.201	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	
1060.214	.016	2/1					VERTICAL CONTROL SURVEY	2015	VKTAD	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1058.787	.033	3					VERTICAL CONTROL SURVEY	1970	CS6803	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1060.142	.262			967.587	.197	2011	GPS - RTRN	2014	RTRN2014	

Geoid Separations(ft): GEOID18 = -92.565 12B = -92.556 09 = -92.451 03 = -92.451

Lat/Lon and County Coordinates (Feet)

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
48 50 54.18583	95 39 30.66337	618349.760	211479.657	.131	3	GPS - RTRN	2014	RTRN2014	

State Plane and UTM Coordinates (Feet)

<u>MN State Plane - North Zone</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
2008671.122	1194892.986	1000552.772	17762463.808	.131	3	GPS - RTRN	2014	RTRN2014	

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6803_E-DP9477-3S-24JUN2014.jpg	S	Jun 24, 2014
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6803_E-DP9477-2-24JUN2014.jpg		Jun 24, 2014
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6803_E-DP9477-1-24JUN2014.jpg		Jun 24, 2014

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: 6803 F

NGS Name: 6803 F

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 48095412/
 USGS Quad: SALOL

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	24	162 N	39 W	485055.00	953731.40		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1970	2009	DESTROYED	Horz=NO Vert=NO	YES			STEEL ROD IMBED IN MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE POST (PREFABRICATED)	BENCH MARK DISK	MNDT

Description: (1970) Stamping:

6.5 MILES EAST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11/TRUNK HIGHWAY 89 AND TRUNK HIGHWAY 310, 99.0 FEET SOUTH OF TRUNK HIGHWAY 11, AT TRUNK HIGHWAY 11 STATION 1411+93.

Station Notes

10-16-2009 FOUND THE TOP PART OF THE MONUMENT BUSTED OFF EXPOSING THE REBAR, WITH UNSTAMPED DISK AND O REBAR RING BURIED 0.2 FOOT NORTH OF THE WITNESS POST. TURNED THE DISK IN TO THE GEODETIC UNIT.

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1062.980	.033	3				VERTICAL CONTROL SURVEY	1970	CS6803	

Geoid Separations(ft): GEOID18 = -92.713 12B = -92.700 09 = -92.595 03 = -92.595

* No Horizontal Positions in the Database *

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:			
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6803_F-2-16OCT2009.jpg		Oct 16, 2009
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6803_F-1-16OCT2009.jpg		Oct 16, 2009

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: 6803 G

NGS Name: 6803 G

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DP9480](#) [Get Map](#)
 NGS Quad / Sta Num : 48095412/
 USGS Quad: SALOL

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	7	162 N	38 W	485139.35	953538.91	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1970	2014	GOOD	Horz=NO Vert=NO	YES	68001	FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
BRIDGE ABUTMENT	BENCH MARK DISK	MNDT

Description: (2014) **Stamping:** 6803 G 1970

8.2 MILES EAST OF ROSEAU, 8.25 MILES EAST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11, 89 AND 310 IN ROSEAU, AT TRUNK HIGHWAY 11 MILEPOINT 78.91, IN THE SOUTHEAST WING WALL OF TRUNK HIGHWAY 11 BRIDGE NUMBER 68001 OVER HAY CREEK, 26.5 FEET SOUTH OF TRUNK HIGHWAY 11.

Station Notes

THE BRIDGE WAS BUILT IN 1969 AND REBUILT IN 1998. THE CORNER WHERE THE DISK IS HAS BEEN REPAIRED. STAMPED DISK 10-29-2009.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1068.233	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	
1068.252	.016	2/1					VERTICAL CONTROL SURVEY	2015	VKTAD	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1066.681	.033	3					VERTICAL CONTROL SURVEY	1970	CS6803	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1068.174	.262			975.313	.197	2011	GPS - RTRN	2014	RTRN2014	

Geoid Separations(ft): GEOID18 = -92.877 12B = -92.861 09 = -92.756 03 = -92.756

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Roseau County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
48 51 39.35164	95 35 38.91291			633817.739	216163.741	.131	3	GPS - RTRN	2014	RTRN2014

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - North Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2024312.481	1198961.781			1016201.527	17766503.696	.131	3	GPS - RTRN	2014	RTRN2014

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6803_G-DP9480-3W-24JUN2014.jpg	W	Jun 24, 2014
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6803_G-DP9480-2-24JUN2014.jpg		Jun 24, 2014
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6803_G-DP9480-1-24JUN2014.jpg		Jun 24, 2014

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: 6803 H

NGS Name: 6803 H

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 48095412/
 USGS Quad: SALOL

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	9	162 N	38 W	485207.70	953258.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1970	2009	DESTROYED	Horz=NO Vert=NO	YES			STEEL ROD IMBED IN MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE POST (PREFABRICATED)	BENCH MARK DISK	MNDT

Description: (2009) Stamping: 6803 H 1970

1.0 MILE EAST OF SALOL, IN THE SOUTHWEST QUADRANT OF TRUNK HIGHWAY 11 AND COUNTY ROAD 13, 100.0 FEET SOUTH OF TRUNK HIGHWAY 11 STATION 1612+85.

Station Notes
 FOUND THE REMAINS OF THE MONUMENT 40.0 FEET +/- NORTH OF K 368.

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>							<u>Project Info</u>	
<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			
1073.538	.033	3				VERTICAL CONTROL SURVEY	1970	CS6803

Geoid Separations(ft): GEOID18 = -93.071 12B = -93.054 09 = -92.949 03 = -92.946

* No Horizontal Positions in the Database *

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6803_H-3S-28OCT2009.jpg	S	Oct 28, 2009
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6803_H-2-28OCT2009.jpg		Oct 28, 2009
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6803_H-1-28OCT2009.jpg		Oct 28, 2009

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: 6803 J

NGS Name: 6803 J

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DP9485](#) [Get Map](#)
 NGS Quad / Sta Num : 48095412/
 USGS Quad: SALOL

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	10	162 N	38 W	485217.38	953138.18	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1970	2014	GOOD	Horz=NO Vert=YES	YES		PROJECTS 12 IN.	STEEL ROD IMBED IN MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE POST (PREFABRICATED)	BENCH MARK DISK	MNDT

Description: (2014) Stamping: 6803 J 1970

2.0 MILES EAST OF SALOL, 2.05 MILES EAST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND 480TH AVENUE IN SALOL, AT TRUNK HIGHWAY 11 MILEPOINT 82.1, 102.0 FEET NORTH OF TRUNK HIGHWAY 11, 21.4 FEET WEST OF 500TH AVENUE, 0.3 FOOT WEST OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1086.993	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	
1086.996	.016	2/1					VERTICAL CONTROL SURVEY	2015	VKTAD	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1084.926	.033	3					VERTICAL CONTROL SURVEY	1970	CS6803	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1086.950	.262			993.814	.197	2011	GPS - RTRN	2014	RTRN2014	

Geoid Separations(ft): GEOID18 = -93.153 12B = -93.136 09 = -93.035 03 = -93.025

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
48 52 17.37759	95 31 38.18304	649884.112	220142.152	.131	3	GPS - RTRN	2014	RTRN2014	

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - North Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
<u>X</u>	<u>Y</u>								
2040523.964	1202301.589	1032418.602	17769813.600	.131	3	GPS - RTRN	2014	RTRN2014	

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6803_J-DP9485-3NW-14OCT2009.jpg	NW	Oct 14, 2009
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6803_J-DP9485-2-15OCT2009.jpg		Oct 15, 2009
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6803_J-DP9485-1-29OCT2009.jpg		Oct 29, 2009

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: 6803 K

NGS Name: 6803 K

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DP9487](#) [Get Map](#)
 NGS Quad / Sta Num : 48095411/
 USGS Quad: SALOL NE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	2	162 N	38 W	485241.07	953019.60	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1970	2014	GOOD	Horz=NO Vert=YES	YES		PROJECTS 4 IN.	STEEL ROD IMBED IN MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE POST (PREFABRICATED)	BENCH MARK DISK	MNDT

Description: (2014) Stamping: 6803 K 1970

3.2 MILES NORTHEAST OF SALOL, 3.2 MILES NORTHEAST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND 480TH AVENUE IN SALOL, AT TRUNK HIGHWAY 11 MILEPOINT 83.25, 101.0 FEET SOUTH OF TRUNK HIGHWAY 11, 29.0 FEET WEST OF COUNTY ROAD 133 (510TH AVENUE), 16.0 FEET EAST OF A POWER POLE WITH 2 GUY WIRES, 0.5 FOOT NORTH OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1089.010	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	
1089.014	.016	2/1					VERTICAL CONTROL SURVEY	2015	VKTAD	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1087.416	.033	3					VERTICAL CONTROL SURVEY	1970	CS6803	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1088.892	.262			995.677	.197	2011	GPS - RTRN	2014	RTRN2014	

Geoid Separations(ft): GEOID18 = -93.225 12B = -93.215 09 = -93.110 03 = -93.097

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>			<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>			<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
<u>Latitude</u>	<u>Longitude</u>									
48 52 41.06726	95 30 19.59588		655117.882	222586.776	.131	3	GPS - RTRN	2014	RTRN2014	

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>			<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - North Zone</u>			<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
<u>X</u>	<u>Y</u>									
2045850.474	1204537.266		1037748.935	17772039.402	.131	3	GPS - RTRN	2014	RTRN2014	

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6803_K-DP9487-3S-24JUN2014.jpg	S	Jun 24, 2014
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6803_K-DP9487-2-24JUN2014.jpg		Jun 24, 2014
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6803_K-DP9487-1-24JUN2014.jpg		Jun 24, 2014

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: 6803 L

NGS Name: 6803 L

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 48095144/
 USGS Quad: WARROAD NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	34	163 N	37 W	485342.00	952506.40		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1970	2014	DESTROYED	Horz=NO Vert=NO	YES		PROJECTS 22 IN.	STEEL ROD IMBED IN MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE POST (PREFABRICATED)	BENCH MARK DISK	MNDT

Description: (2009) Stamping: 6803 L 1970

7.35 MILES EAST OF SALOL, IN THE SOUTHEAST QUADRANT OF TRUNK HIGHWAY 11 AND 550TH AVENUE, 101.0 FEET SOUTH OF TRUNK HIGHWAY 11 STATION 1948+47, 32.0 FEET EAST OF 550TH AVENUE, 0.5 FOOT WEST OF A WITNESS POST.

Station Notes
 FOUND BROKEN CONCRETE. THE DISK WAS MISSING.

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1092.432	.033	3					VERTICAL CONTROL SURVEY	1970	CS6803	

Geoid Separations(ft): GEOID18 = -93.402 12B = -93.386 09 = -93.284 03 = -93.297

* No Horizontal Positions in the Database *

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6803_L-3S-28OCT2009.jpg	S	Oct 28, 2009
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6803_L-2-28OCT2009.jpg		Oct 28, 2009
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6803_L-1-29OCT2009.jpg		Oct 29, 2009

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: 6803 M

NGS Name: 6803 M

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 48095141/
 USGS Quad: WARROAD

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	29	163 N	36 W	485451.00	951950.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1970	2009	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MNDT

Description: (1970) Stamping: 6803 M 1970

NEAR THE JUNCTION OF TRUNK HIGHWAY 11 AND TRUNK HIGHWAY 313 IN THE NORTHWEST PART OF WARROAD, 40.0 FEET OF TRUNK HIGHWAY 11, AT TRUNK HIGHWAY 11 STATION 2225+45.

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>	
1068.000	.033	3				VERTICAL CONTROL SURVEY		1970	CS6803	

Geoid Separations(ft): GEOID18 = -93.550 12B = -93.546 09 = -93.481 03 = -93.474

* No Horizontal Positions in the Database *



Mn/DOT Name: 6803 P

NGS Name: 6803 P

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 48095413/
 USGS Quad: MALUNG

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NW	19	162 N	39 W	485052.27	954419.09		3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2009	2014	GOOD	Horz=NO Vert=NO	YES	68008	FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
BRIDGE RAILING	SURVEY DISK	MNDT

Description: (2014) **Stamping:** 6803 P 2009

1.5 MILES EAST OF ROSEAU, IN A RAIL IN THE SOUTHEAST CORNER OF TRUNK HIGHWAY 11 BRIDGE NUMBER 68008 OVER A DIVERSION DITCH, 1.35 MILES EAST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAYS 11, 89 AND 310 IN ROSEAU, AT TRUNK HIGHWAY 11 MILEPOINT 72.05, 25.0 FEET SOUTH OF TRUNK HIGHWAY 11.

Station Notes

IF THE COORDINATES AND/OR ELEVATIONS ARE ESTABLISHED OR PUBLISHED ON THIS GEODETIC CONTROL DISK, THEY SHOULD BE USED WITH CAUTION. THE GEODETIC CONTROL DISK IS LOCATED ON AN INTEGRAL ABUTMENT AND/OR A JOINTLESS BRIDGE AND IS SUBJECT TO MOVEMENT BEYOND GEODETIC TOLERANCES. THE SURVEY MARK HAS BEEN DEEMED UNSAFE DUE TO FALL RISK AND HAS BEEN ABANDONED FOR MNDOT GEODETIC USE.

* No Leveling-Derived Orthometric Heights in the Database *

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1055.359	.262		963.154	.197	2011	GPS - RTRN	2014	RTRN2014

Geoid Separations(ft): GEOID18 = -92.205 12B = -92.205 09 = -92.086 03 = -92.077

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

<u>Geodetic Position</u>		<u>Roseau County</u>			<u>Project Info</u>			
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 50 52.27225	95 44 19.08809	599058.474	211171.403	.131	3	GPS - RTRN	2014	RTRN2014

State Plane and UTM Coordinates (Feet)

NAD83(2011)

<u>MN State Plane - North Zone</u>		<u>UTM - Zone 15</u>			<u>Project Info</u>			
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1989382.463	1195347.601	981264.567	17762954.280	.131	3	GPS - RTRN	2014	RTRN2014

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6803_P-3W-24JUN2014.jpg	W	Jun 24, 2014
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6803_P-2-24JUN2014.jpg		Jun 24, 2014
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6803_P-1-24JUN2014.jpg		Jun 24, 2014

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: 6803 R

NGS Name: 6803 R

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DP9472](#) [Get Map](#)
NGS Quad / Sta Num : 48095413/
USGS Quad: MALUNG

				Reference	Reference	Vert	Horz
1/4	Sec	Twp	Rng	Latitude	Longitude	Order	Order
SW	18	162 N	39 W	485053.30	954417.28	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2014	2023	GOOD	Horz=YES Vert=YES	YES		FLUSH	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 32 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014) **Stamping:** 6803 R 2014

1.45 MILES EAST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND TRUNK HIGHWAY 89 AND TRUNK HIGHWAY 310 IN ROSEAU, AT TRUNK HIGHWAY 11 MILEPOINT 72.10, 81.2 FEET NORTH OF TRUNK HIGHWAY 11, 23.0 FEET WEST OF A GRAVEL ROAD, 1.5 FEET SOUTH OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

NAVD88				Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)		Height	Acc	Adj	Determination Method	Year	Reference
1049.424	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941
1049.443	.016	2/1					VERTICAL CONTROL SURVEY	2015	VKTAD

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88				Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)		Height	Acc	Adj	Determination Method	Year	Reference
1049.424	.131			957.462	.066	1996	GPS - STATIC	2021	HKTAD
1049.424				957.301	.023	2011	HORIZONTAL ADJUSTMENT	2020	GPS3390
1049.424				957.301	.023	2011	GPS - STATIC	2020	HKTAD
1049.499	.262			957.291	.197	2011	GPS - RTRN	2014	RTRN2014

Geoid Separations(ft): GEOID18 = -92.205 12B = -92.208 09 = -92.090 03 = -92.080

Lat/Lon and County Coordinates (Feet)

NAD83(2011)				Roseau County				Project Info		
Geodetic Position				X	Y	Acc	Order	Determination Method	Year	Reference
Latitude	Longitude									
48 50 53.30206	95 44 17.28121			599178.771	211276.428	.013		ADJUSTMENT	2020	GPS3390
48 50 53.30206	95 44 17.28121			599178.771	211276.428	.013	C	GPS - STATIC	2020	HKTAD
48 50 53.30105	95 44 17.28075			599178.802	211276.326	.131	3	GPS - RTRN	2014	RTRN2014

NAD83(1996)				Roseau County				Project Info		
Geodetic Position				X	Y	Acc	Order	Determination Method	Year	Reference
Latitude	Longitude									
48 50 53.30190	95 44 17.28184			599178.729	211276.412	.033	C	GPS - STATIC	2021	HKTAD

State Plane and UTM Coordinates (Feet)

NAD83(2011)				UTM - Zone 15				Project Info		
MN State Plane - North Zone				X	Y	Acc	Order	Determination Method	Year	Reference
X	Y									
1989506.819	1195447.791			981389.115	17763054.241	.013		ADJUSTMENT	2020	GPS3390
1989506.819	1195447.791			981389.115	17763054.241	.013	C	GPS - STATIC	2020	HKTAD
1989506.846	1195447.687			981389.142	17763054.137	.131	3	GPS - RTRN	2014	RTRN2014

NAD83(1996)				UTM - Zone 15				Project Info		
MN State Plane - North Zone				X	Y	Acc	Order	Determination Method	Year	Reference
X	Y									
1989506.776	1195447.776			981389.072	17763054.226	.033	C	GPS - STATIC	2021	HKTAD

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6803_R-DP9472-3N-26JUL2023.jpg	N	Jul 26, 2023
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6803_R-DP9472-2-26JUL2023.jpg		Jul 26, 2023
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6803_R-DP9472-1-26JUL2023.jpg		Jul 26, 2023

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: 6803 S

NGS Name: 6803 S

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DP9474](#) [Get Map](#)
 NGS Quad / Sta Num : 48095413/
 USGS Quad: MALUNG

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	21	162 N	39 W	485048.88	954144.90	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2018	GOOD	Horz=YES Vert=YES	YES		RECESSED 3 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 23 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014) **Stamping:** 6803 S 2014

3.2 MILES EAST OF ROSEAU, 3.35 MILES EAST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND TRUNK HIGHWAY 89 AND TRUNK HIGHWAY 310 IN ROSEAU, AT TRUNK HIGHWAY MILEPOINT 74.05, 67.3 FEET NORTH OF TRUNK HIGHWAY 11, 28.9 FEET EAST OF A FIELD ENTRANCE, 10.0 FEET WEST OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>	
1057.751	.016	2/1						VERTICAL ADJUSTMENT	2019	00000941	
1057.764	.016	2/1						VERTICAL CONTROL SURVEY	2015	VKTAD	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>	
1057.751	.131			965.556	.066	1996		GPS - STATIC	2021	HKTAD	
1057.751				965.398	.024	2011		HORIZONTAL ADJUSTMENT	2020	GPS3390	
1057.751				965.398	.024	2011		GPS - STATIC	2020	HKTAD	
1057.846	.262			965.457	.197	2011		GPS - RTRN	2014	RTRN2014	

Geoid Separations(ft): GEOID18 = -92.395 12B = -92.388 09 = -92.280 03 = -92.277

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Roseau County</u>			<u>Determination Method</u>			<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>	
<u>Latitude</u>	<u>Longitude</u>					<u>Acc</u>	<u>Order</u>				
48 50 48.88039	95 41 44.90139			609373.984	210886.223	.016		ADJUSTMENT	2020	GPS3390	
48 50 48.88039	95 41 44.90139			609373.984	210886.223	.016	C	GPS - STATIC	2020	HKTAD	
48 50 48.87994	95 41 44.90117			609373.999	210886.177	.131	3	GPS - RTRN	2014	RTRN2014	

<u>NAD83(1996)</u>				<u>Roseau County</u>			<u>Determination Method</u>			<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>	
<u>Latitude</u>	<u>Longitude</u>					<u>Acc</u>	<u>Order</u>				
48 50 48.88023	95 41 44.90201			609373.942	210886.207	.033	C	GPS - STATIC	2021	HKTAD	

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>			<u>Determination Method</u>			<u>Project Info</u>	
<u>MN State Plane - North Zone</u>				<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>	
<u>X</u>	<u>Y</u>					<u>Acc</u>	<u>Order</u>				
1999678.778	1194654.878			991559.872	17762242.365	.016		ADJUSTMENT	2020	GPS3390	
1999678.778	1194654.878			991559.872	17762242.365	.016	C	GPS - STATIC	2020	HKTAD	
1999678.791	1194654.832			991559.885	17762242.319	.131	3	GPS - RTRN	2014	RTRN2014	

<u>NAD83(1996)</u>				<u>UTM - Zone 15</u>			<u>Determination Method</u>			<u>Project Info</u>	
<u>MN State Plane - North Zone</u>				<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>	
<u>X</u>	<u>Y</u>					<u>Acc</u>	<u>Order</u>				
1999678.736	1194654.864			991559.830	17762242.350	.033	C	GPS - STATIC	2021	HKTAD	

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6803_S-DP9474-3N-29JUL2014.jpg	N	Jul 29, 2014
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6803_S-DP9474-2-29JUL2014.jpg		Jul 29, 2014
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6803_S-DP9474-1-29JUL2014.jpg		Jul 29, 2014

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: 6803 U

NGS Name: 6803 U

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DP9479](#) [Get Map](#)
NGS Quad / Sta Num : 48095412/
USGS Quad: SALOL

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	7	162 N	38 W	485135.50	953551.44	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2018	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 19 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014) Stamping: 6803 U 2014

7.8 MILES EAST OF ROSEAU, 8.05 MILES EAST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND TRUNK HIGHWAY 89 AND TRUNK HIGHWAY 310 IN ROSEAU, AT TRUNK HIGHWAY 11 MILEPOINT 78.75, 41.6 FEET SOUTHEAST OF TRUNK HIGHWAY 11, 10.0 FEET NORTHWEST OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1061.366	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941
1061.386	.016	2/1					VERTICAL CONTROL SURVEY	2015	VKTAD

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1061.366	.131			968.696	.066	1996	GPS - STATIC	2021	HKTAD
1061.366				968.532	.024	2011	HORIZONTAL ADJUSTMENT	2020	GPS3390
1061.366				968.532	.024	2011	GPS - STATIC	2020	HKTAD
1061.461	.262			968.617	.197	2011	GPS - RTRN	2014	RTRN2014

Geoid Separations(ft): GEOID18 = -92.857 12B = -92.844 09 = -92.739 03 = -92.739

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Roseau County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
48 51 35.50070	95 35 51.43680			632983.079	215767.358	.013		ADJUSTMENT	2020	GPS3390
48 51 35.50070	95 35 51.43680			632983.079	215767.358	.013	C	GPS - STATIC	2020	HKTAD
48 51 35.50096	95 35 51.43701			632983.065	215767.384	.131	3	GPS - RTRN	2014	RTRN2014

<u>NAD83(1996)</u>				<u>Roseau County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
48 51 35.50053	95 35 51.43743			632983.037	215767.340	.033	C	GPS - STATIC	2021	HKTAD

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - North Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2023462.782	1198598.713			1015351.176	17766142.202	.013		ADJUSTMENT	2020	GPS3390
2023462.782	1198598.713			1015351.176	17766142.202	.013	C	GPS - STATIC	2020	HKTAD
2023462.769	1198598.740			1015351.163	17766142.228	.131	3	GPS - RTRN	2014	RTRN2014

<u>NAD83(1996)</u>				<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - North Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2023462.739	1198598.698			1015351.133	17766142.186	.033	C	GPS - STATIC	2021	HKTAD

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6803_U-DP9479-3SE-29JUL2014.jpg	SE	Jul 29, 2014
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6803_U-DP9479-2-29JUL2014.jpg		Jul 29, 2014
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6803_U-DP9479-1-29JUL2014.jpg		Jul 29, 2014

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: 6803 W

NGS Name: 6803 W

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DP9484](#) [Get Map](#)
 NGS Quad / Sta Num : 48095412/
 USGS Quad: SALOL

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	10	162 N	38 W	485214.27	953202.43	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2018	GOOD	Horz=YES Vert=YES	YES		RECESSED 3 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 25 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014) Stamping: 6803 W 2014

10.0 MILES WEST-SOUTHWEST OF WARROAD, 9.8 MILES WEST-SOUTHWEST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND TRUNK HIGHWAY 313 IN WARROAD, AT TRUNK HIGHWAY 11 MILEPOINT 81.80, 80.2 FEET NORTH OF TRUNK HIGHWAY 11, 21.0 FEET WEST OF A FIELD ENTRANCE, 5.0 FEET EAST OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1079.404	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941
1079.411	.016	2/1					VERTICAL CONTROL SURVEY	2015	VKTAD

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1079.404	.131			986.409	.066	1996	GPS - STATIC	2021	HKTAD
1079.404				986.248	.022	2011	HORIZONTAL ADJUSTMENT	2020	GPS3390
1079.404				986.248	.022	2011	GPS - STATIC	2020	HKTAD
1079.539	.262			986.425	.197	2011	GPS - RTRN	2014	RTRN2014

Geoid Separations(ft): GEOID18 = -93.126 12B = -93.113 09 = -93.008 03 = -93.002

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>			<u>Roseau County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>			<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>								
48 52 14.27350	95 32 02.42920		648265.634	219814.377	.013		ADJUSTMENT	2020	GPS3390
48 52 14.27350	95 32 02.42920		648265.634	219814.377	.013	C	GPS - STATIC	2020	HKTAD
48 52 14.27324	95 32 02.42836		648265.690	219814.351	.131	3	GPS - RTRN	2014	RTRN2014

<u>NAD83(1996)</u>			<u>Roseau County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>			<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>								
48 52 14.27333	95 32 02.42983		648265.592	219814.359	.033	C	GPS - STATIC	2021	HKTAD

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - North Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>							
2038893.752	1202038.098	1030787.981	17769553.109	.013		ADJUSTMENT	2020	GPS3390
2038893.752	1202038.098	1030787.981	17769553.109	.013	C	GPS - STATIC	2020	HKTAD
2038893.807	1202038.070	1030788.036	17769553.081	.131	3	GPS - RTRN	2014	RTRN2014

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - North Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>							
2038893.709	1202038.082	1030787.938	17769553.094	.033	C	GPS - STATIC	2021	HKTAD

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6803_W-DP9484-3N-30JUL2014.jpg	N	Jul 30, 2014
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6803_W-DP9484-2-30JUL2014.jpg		Jul 30, 2014
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6803_W-DP9484-1-30JUL2014.jpg		Jul 30, 2014

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: 6803 X

NGS Name: 6803 X

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DP9486](#) [Get Map](#)
NGS Quad / Sta Num : 48095412/
USGS Quad: SALOL

				Reference	Reference	Vert	Horz
1/4	Sec	Twp	Rng	Latitude	Longitude	Order	Order
SE	2	162 N	38 W	485228.60	953045.49	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2014	2018	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 24 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014) Stamping: 6803 X 2014

9.0 WEST-SOUTHWEST OF WARROAD, 8.8 MILES WEST-SOUTHWEST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND TRUNK HIGHWAY 313 IN WARROAD, AT TRUNK HIGHWAY 11 MILEPOINT 82.85, 59.0 FEET NORTHWEST OF TRUNK HIGHWAY 11, 8.0 FEET NORTHEAST OF A FIELD ENTRANCE, 5.0 FEET SOUTHEAST OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

NAVD88				Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)		Height	Acc	Adj	Determination Method	Year	Reference
1087.613	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941
1087.616	.016	2/1					VERTICAL CONTROL SURVEY	2015	VKTAD

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88				Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)		Height	Acc	Adj	Determination Method	Year	Reference
1087.613	.131			994.640	.066	1996	GPS - STATIC	2021	HKTAD
1087.613				994.476	.024	2011	HORIZONTAL ADJUSTMENT	2020	GPS3390
1087.613				994.476	.024	2011	GPS - STATIC	2020	HKTAD
1087.698	.262			994.512	.197	2011	GPS - RTRN	2014	RTRN2014

Geoid Separations(ft): GEOID18 = -93.202 12B = -93.186 09 = -93.084 03 = -93.071

Lat/Lon and County Coordinates (Feet)

NAD83(2011)			Roseau County				Project Info		
Latitude	Longitude		X	Y	Acc	Order	Determination Method	Year	Reference
48 52 28.59970	95 30 45.48533		653397.796	221308.639	.016		ADJUSTMENT	2020	GPS3390
48 52 28.59970	95 30 45.48533		653397.796	221308.639	.016	C	GPS - STATIC	2020	HKTAD
48 52 28.60015	95 30 45.48565		653397.774	221308.685	.131	3	GPS - RTRN	2014	RTRN2014

NAD83(1996)			Roseau County				Project Info		
Latitude	Longitude		X	Y	Acc	Order	Determination Method	Year	Reference
48 52 28.59953	95 30 45.48597		653397.753	221308.622	.033	C	GPS - STATIC	2021	HKTAD

State Plane and UTM Coordinates (Feet)

NAD83(2011)			UTM - Zone 15				Project Info		
MN State Plane - North Zone			X	Y	Acc	Order	Determination Method	Year	Reference
2044081.124	1203328.164		1035977.466	17770833.606	.016		ADJUSTMENT	2020	GPS3390
2044081.124	1203328.164		1035977.466	17770833.606	.016	C	GPS - STATIC	2020	HKTAD
2044081.104	1203328.210		1035977.446	17770833.652	.131	3	GPS - RTRN	2014	RTRN2014

NAD83(1996)			UTM - Zone 15				Project Info		
MN State Plane - North Zone			X	Y	Acc	Order	Determination Method	Year	Reference
2044081.081	1203328.148		1035977.423	17770833.590	.033	C	GPS - STATIC	2021	HKTAD

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6803_X-DP9486-3NW-30JUL2014.jpg	NW	Jul 30, 2014
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6803_X-DP9486-2-30JUL2014.jpg		Jul 30, 2014
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6803_X-DP9486-1-30JUL2014.jpg		Jul 30, 2014

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: 6803 Z

NGS Name: 6803 Z

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DP9491](#) [Get Map](#)
 NGS Quad / Sta Num : 48095144/
 USGS Quad: WARROAD NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	32	163 N	37 W	485333.27	952626.16	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2018	GOOD	Horz=YES Vert=YES	YES		RECESSED 1 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 34 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014) Stamping: 6803 Z 2014

5.7 MILES WEST-SOUTHWEST OF WARROAD, 5.25 MILES WEST-SOUTHWEST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND TRUNK HIGHWAY 313 IN WARROAD, AT TRUNK HIGHWAY 11 MILEPOINT 86.45, 103.7 FEET SOUTH OF TRUNK HIGHWAY 11, 18.9 FEET EAST OF A FIELD ENTRANCE, 1.5 FEET EAST OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1086.484	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941
1086.468	.016	2/1					VERTICAL CONTROL SURVEY	2015	VKTAD

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1086.484	.131			993.325	.066	1996	GPS - STATIC	2021	HKTAD
1086.484				993.164	.023	2011	HORIZONTAL ADJUSTMENT	2020	GPS3390
1086.484				993.164	.023	2011	GPS - STATIC	2020	HKTAD
1086.435	.262			993.072	.197	2011	GPS - RTRN	2014	RTRN2014

Geoid Separations(ft): GEOID18 = -93.379 12B = -93.363 09 = -93.258 03 = -93.261

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Roseau County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
48 53 33.26878	95 26 26.15799			670673.397	228015.985	.013		ADJUSTMENT	2020	GPS3390
48 53 33.26878	95 26 26.15799			670673.397	228015.985	.013	C	GPS - STATIC	2020	HKTAD
48 53 33.26901	95 26 26.15748			670673.431	228016.008	.131	3	GPS - RTRN	2014	RTRN2014

<u>NAD83(1996)</u>				<u>Roseau County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
48 53 33.26861	95 26 26.15862			670673.356	228015.967	.033	C	GPS - STATIC	2021	HKTAD

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - North Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2061609.048	1209346.738			1053515.208	17776819.737	.013		ADJUSTMENT	2020	GPS3390
2061609.048	1209346.738			1053515.208	17776819.737	.013	C	GPS - STATIC	2020	HKTAD
2061609.082	1209346.761			1053515.243	17776819.759	.131	3	GPS - RTRN	2014	RTRN2014

<u>NAD83(1996)</u>				<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - North Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2061609.005	1209346.723			1053515.165	17776819.721	.033	C	GPS - STATIC	2021	HKTAD

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6803_Z-DP9491-3S-30JUL2014.jpg	S	Jul 30, 2014
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6803_Z-DP9491-2-30JUL2014.jpg		Jul 30, 2014
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6803_Z-DP9491-1-30JUL2014.jpg		Jul 30, 2014

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: 6804 A

NGS Name: 6804 A

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0308](#) [Get Map](#)
 NGS Quad / Sta Num : 48095112/
 USGS Quad: ROOSEVELT

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	36	162 N	35 W	484817.00	950600.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1972	2012	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	SURVEY DISK	MNDT

Description: (1981) **Stamping:** 6804-A 1972

IN ROOSEVELT, AT THE OLD SCHOOL GROUNDS, IN THE SOUTHEAST CORNER OF A WELL HOUSING, 194.0 FEET
 NORTHEAST OF A STREET, 49.0 FEET NORTHEAST OF THE SOUTHEAST CORNER OF THE ADDITION TO A BUILDING, 50.0
 FEET SOUTHEAST OF THE NORTHEAST CORNER OF A BUILDING.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1163.134	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1161.753	.016	2					VERTICAL CONTROL SURVEY	1973	Q480951	
1161.753	.016	2					VERTICAL CONTROL SURVEY	1973	L22862	

Geoid Separations(ft): GEOID18 = -94.150 12B = -94.140 09 = -94.055 03 = -94.039

* No Horizontal Positions in the Database *



Mn/DOT Name: 6804 A 1

NGS Name: 6804 A 1

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0309](#) [Get Map](#)
 NGS Quad / Sta Num : 48095112/
 USGS Quad: ROOSEVELT

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SE	36	162 N	35 W	484808.59	950552.50	1	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1972	2012	DESTROYED	Horz=NO Vert=NO	YES		FLUSH	STEEL ROD IMBED IN MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	BENCH MARK DISK	MNDT

Description: (1981) **Stamping:** 6804 A 1 1972

0.4 MILE NORTHWEST ON TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND COUNTY ROAD 17 IN ROOSEVELT, 0.15 MILE NORTHWEST OF THE RAILROAD STATION, 164.5 FEET SOUTHWEST OF THE SOUTH RAIL OF THE RAILROAD TRACKS, 71.5 FEET NORTHEAST OF TRUNK HIGHWAY 11, AT TRUNK HIGHWAY 11 MILEPOINT 105.2, 38.0 FEET NORTHWEST OF 697TH AVENUE, 1.0 FOOT SOUTH OF A WITNESS POST.

Station Notes

FOUND THE CONCRETE LOOSE.
THE DISK WAS TURNED IN TO THE OFFICE.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
1164.794	.007	1/2				VERTICAL ADJUSTMENT	1991	00000025		

<u>NGVD29</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
1163.406	.016	2				VERTICAL CONTROL SURVEY	1973	Q480951		
1163.406	.016	2				VERTICAL CONTROL SURVEY	1973	L22862		

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
			1070.670	.008	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800		
1164.794	.131		1070.752	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2833		
1164.794	.131		1070.752	.066	2007	GPS - STATIC	2011	HLOTW		
1164.794	.131		1070.752	.066	1996	GPS - STATIC	2011	HLOTW		
1164.794	.131		1070.752	.066	2007	HORIZONTAL ADJUSTMENT	2009	GPS2522		
1164.794	.131		1070.752	.066	2007	GPS - STATIC	2008	HROSO		
1164.794	.131		1070.752	.066	1996	GPS - STATIC	2008	HROSO		

Geoid Separations(ft): GEOID18 = -94.140 12B = -94.130 09 = -94.048 03 = -94.032

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Geodetic Position</u>					<u>Roseau County</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>			
48 48 08.59247	95 05 52.49759	753568.996	196065.562	.007		ADJUSTMENT	2012	GPS2800			

<u>NAD83(2007)</u>		<u>Geodetic Position</u>					<u>Roseau County</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>			
48 48 08.59255	95 05 52.49832	753568.947	196065.569	.033	C	ADJUSTMENT	2011	GPS2833			
48 48 08.59255	95 05 52.49832	753568.947	196065.569	.033	C	GPS - STATIC	2011	HLOTW			
48 48 08.59255	95 05 52.49832	753568.947	196065.569	.033	C	ADJUSTMENT	2009	GPS2522			
48 48 08.59255	95 05 52.49832	753568.947	196065.569	.033	C	GPS - STATIC	2008	HROSO			

<u>NAD83(1996)</u>		<u>Geodetic Position</u>					<u>Roseau County</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>			
48 48 08.59260	95 05 52.49802	753568.967	196065.575	.033	C	GPS - STATIC	2011	HLOTW			
48 48 08.59260	95 05 52.49802	753568.967	196065.575	.033	C	GPS - STATIC	2008	HROSO			



State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - North Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2143175.048	1174137.180	1135009.246	17741470.370	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - North Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2143175.000	1174137.189	1135009.197	17741470.379	.033	C	ADJUSTMENT	2011	GPS2833
2143175.000	1174137.189	1135009.197	17741470.379	.033	C	GPS - STATIC	2011	HLOTW
2143175.000	1174137.189	1135009.197	17741470.379	.033	C	ADJUSTMENT	2009	GPS2522
2143175.000	1174137.189	1135009.197	17741470.379	.033	C	GPS - STATIC	2008	HROSO

NAD83(1996)

MN State Plane - North Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2143175.020	1174137.194	1135009.218	17741470.383	.033	C	GPS - STATIC	2011	HLOTW
2143175.020	1174137.194	1135009.218	17741470.383	.033	C	GPS - STATIC	2008	HROSO

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6804_A_1-TC0309-3NE-01AUG2007.jpg	NE	Aug 1, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6804_A_1-TC0309-2-01AUG2007.jpg		Aug 1, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6804_A_1-TC0309-1-01AUG2007.jpg		Aug 1, 2007

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: 6804 A 2

NGS Name: 6804 A 2

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0305](#) [Get Map](#)
 NGS Quad / Sta Num : 48095112/
 USGS Quad: ROOSEVELT

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	1	161 N	35 W	484758.00	950526.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1972	2012	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	REFERENCE MARK DISK	MNDT

Description: (1981) **Stamping:** 6804 A 2 1972

AT ROOSEVELT, AT THE JUNCTION OF TRUNK HIGHWAY 11 AND COUNTY ROAD 12, 65.3 FEET NORTH OF TRUNK HIGHWAY 11, AT TRUNK HIGHWAY 11 MILEPOINT 105.6, 93.0 FEET WEST OF COUNTY ROAD 12, 52.5 FEET SOUTHWEST OF THE SOUTH RAIL OF THE RAILROAD TRACKS, 1.0 FOOT SOUTH OF A WITNESS POST.

Station Notes

DESTROYED, FOUND THE CONCRETE LOOSE.
 THE DISK WAS TURNED IN TO THE OFFICE.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1162.891	.007	1/2				VERTICAL ADJUSTMENT	1991	00000025	

NGVD29

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1161.369	.016	2				VERTICAL CONTROL SURVEY	1973	Q480951	
1161.369	.016	2				VERTICAL CONTROL SURVEY	1973	L22862	

Geoid Separations(ft): GEOID18 = -94.150 12B = -94.140 09 = -94.061 03 = -94.045

* No Horizontal Positions in the Database *



Mn/DOT Name: 6804 B

NGS Name: 6804 B

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0312](#) [Get Map](#)
 NGS Quad / Sta Num : 48095112/
 USGS Quad: ROOSEVELT

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	35	162 N	35 W	484835.54	950651.71	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1972	2012	GOOD	Horz=NO Vert=YES	YES	3741	FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
BRIDGE ABUTMENT	BENCH MARK DISK	MNDT

Description: (1981) Stamping: 6804 B 1972

1.0 MILE NORTHWEST OF ROOSEVELT, 0.85 MILE NORTHWEST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND COUNTY ROAD 42 (697TH AVENUE) IN ROOSEVELT TO TRUNK HIGHWAY 11 MILEPOINT 104.45, THEN 0.1 MILE NORTHEAST ON 690TH AVENUE, THEN 0.1 MILE NORTHWEST ON KIRKWOOD DRIVE (OLD TRUNK HIGHWAY 11), 14.0 FEET SOUTHWEST OF KIRKWOOD DRIVE (OLD TRUNK HIGHWAY 11).

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1153.072	.016	2/1					VERTICAL ADJUSTMENT	2014	00000828	
1153.075	.016	2/1					VERTICAL CONTROL SURVEY	2013	VHACK	
1153.072	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1151.687	.007	1/2					UNKNOWN/APPROXIMATE	1992	UNCHECKD	
1151.687	.016	2					VERTICAL CONTROL SURVEY	1973	Q480951	
1151.687	.016	2					VERTICAL CONTROL SURVEY	1973	L22862	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1153.026	.262			1059.001	.197	2007	GPS - RTRN	2012	RTRN2012	

Geoid Separations(ft): GEOID18 = -94.124 12B = -94.114 09 = -94.025 03 = -94.006

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2007)</u>				<u>Roseau County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>	
<u>Latitude</u>	<u>Longitude</u>									
48 48 35.54032	95 06 51.70633			749568.159	198742.199	.131	3	2012	RTRN2012	

State Plane and UTM Coordinates (Feet)

<u>NAD83(2007)</u>				<u>UTM - Zone 15</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - North Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>	
<u>X</u>	<u>Y</u>									
2139283.461	1176970.325			1131123.114	17744309.744	.131	3	2012	RTRN2012	

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6804_B-TC0312-3NW-10OCT2012.jpg	NW	Oct 10, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6804_B-TC0312-2-10OCT2012.jpg		Oct 10, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6804_B-TC0312-1-10OCT2012.jpg		Oct 10, 2012

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: 6804 C

NGS Name: 6804 C

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0316](#) [Get Map](#)
NGS Quad / Sta Num : 48095113/
USGS Quad: SWIFT

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	27	162 N	35 W	484919.55	950839.25	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1972	2012	GOOD	Horz=NO Vert=YES	YES	3744	FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
BRIDGE ABUTMENT	BENCH MARK DISK	MNDT

Description: (1981) Stamping: 6804 C 1972

2.55 MILES NORTHWEST OF ROOSEVELT, 0.85 MILE NORTHWEST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND COUNTY ROAD 42 (697TH AVENUE) IN ROOSEVELT TO TRUNK HIGHWAY 11 MILEPOINT 104.45, THEN 0.1 MILE NORTHEAST ON 690TH AVENUE, THEN 1.7 MILES NORTHWEST ON KIRKWOOD DRIVE (OLD TRUNK HIGHWAY 11), 14.0 FEET SOUTHWEST OF KIRKWOOD DRIVE (OLD TRUNK HIGHWAY 11).

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1135.368	.016	2/1					VERTICAL ADJUSTMENT	2014	00000828	
1135.368	.016	2/1					VERTICAL CONTROL SURVEY	2013	VHACK	
1135.368	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1133.994	.007	1/2					UNKNOWN/APPROXIMATE	1992	UNCHECKD	
1133.994	.016	2					VERTICAL CONTROL SURVEY	1973	Q480951	
1133.994	.016	2					VERTICAL CONTROL SURVEY	1973	L22862	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1135.382	.262			1041.419	.197	2007	GPS - RTRN	2012	RTRN2012	

Geoid Separations(ft): GEOID18 = -94.075 12B = -94.061 09 = -93.966 03 = -93.950

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2007)</u>		<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
48 49 19.55408	95 08 39.25246	742310.670	203106.224	.131	3	GPS - RTRN	2012	RTRN2012	

State Plane and UTM Coordinates (Feet)

<u>NAD83(2007)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - North Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
2132204.629	1181618.624	1124053.355	17748969.529	.131	3	GPS - RTRN	2012	RTRN2012	

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6804_C-TC0316-3NW-10OCT2012.jpg	NW	Oct 10, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6804_C-TC0316-2-10OCT2012.jpg		Oct 10, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6804_C-TC0316-1-10OCT2012.jpg		Oct 10, 2012

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: 6804 C 1

NGS Name: 6804 C 1

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0317](#) [Get Map](#)
NGS Quad / Sta Num : 48095113/
USGS Quad: SWIFT

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	27	162 N	35 W	484917.48	950840.48	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1972	2012	GOOD	Horz=NO Vert=YES	YES	8826	FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CULVERT - ANY SIZE, ANY TYPE	BENCH MARK DISK	MNDT

Description: (1981) Stamping: 6804 C 1 1972

2.55 MILES NORTHWEST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND COUNTY ROAD 42 (697TH AVENUE) IN ROOSEVELT TO TRUNK HIGHWAY 11 MILEPOINT 102.7, IN THE SOUTHEAST CORNER OF TRUNK HIGHWAY 11 DOUBLE BOX CULVERT NUMBER 8826, 23.0 FEET SOUTHEAST OF TRUNK HIGHWAY 11.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
1134.361	.016	2/1				VERTICAL ADJUSTMENT	2014	00000828		
1134.368	.016	2/1				VERTICAL CONTROL SURVEY	2013	VHACK		
1134.371	.007	1/2				VERTICAL ADJUSTMENT	1991	00000025		

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
1133.000	.007	1/2				UNKNOWN/APPROXIMATE	1992	UNCHECKD		
1133.000	.016	2				VERTICAL CONTROL SURVEY	1973	Q480951		
1133.000	.016	2				VERTICAL CONTROL SURVEY	1973	L22862		

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
1134.296	.262		1040.336	.197	2007	GPS - RTRN	2012	RTRN2012		

Geoid Separations(ft): GEOID18 = -94.068 12B = -94.055 09 = -93.960 03 = -93.943

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2007)</u>		<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
48 49 17.47992	95 08 40.47680	742231.512	202894.941	.131	3	GPS - RTRN	2012	RTRN2012	

State Plane and UTM Coordinates (Feet)

<u>NAD83(2007)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - North Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
2132117.159	1181410.643	1123965.538	17748761.730	.131	3	GPS - RTRN	2012	RTRN2012	

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6804_C_1-TC0317-3NW-10OCT2012.jpg	NW	Oct 10, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6804_C_1-TC0317-2-10OCT2012.jpg		Oct 10, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6804_C_1-TC0317-1-10OCT2012.jpg		Oct 10, 2012

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: 6804 D

NGS Name: 6804 D

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0323](#) [Get Map](#)
 NGS Quad / Sta Num : 48095113/
 USGS Quad: SWIFT

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	21	162 N	35 W	484952.00	950951.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1972	2012	DESTROYED	Horz=NO Vert=NO	NO	3743		SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	SURVEY DISK	MNDT

Description: (1981) Stamping: 6804-D 1972

2.8 MILES SOUTHEAST ON TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND COUNTY ROAD 2 AT SWIFT, IN THE SOUTHEAST ABUTMENT OF TRUNK HIGHWAY 11 BRIDGE NUMBER 3743 OVER A SMALL CREEK, AT TRUNK HIGHWAY 11 MILEPOINT 101.5, OPPOSITE RAILROAD MILEPOINT 29.1.

Station Notes

DESTROYED, A NEW CULVERT IS IN PLACE.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1123.334	.007	1/2				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1121.966	.016	2				VERTICAL CONTROL SURVEY	1973	Q480951
1121.966	.016	2				VERTICAL CONTROL SURVEY	1973	L22862

Geoid Separations(ft): GEOID18 = -94.039 12B = -94.022 09 = -93.927 03 = -93.914

* No Horizontal Positions in the Database *



Mn/DOT Name: 6804 D 1

NGS Name: 6804 D 1

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0324](#) [Get Map](#)
 NGS Quad / Sta Num : 48095113/
 USGS Quad: SWIFT

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	21	162 N	35 W	484949.56	950958.90	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1972	2012	GOOD	Horz=NO Vert=YES	YES	8825	FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CULVERT - ANY SIZE, ANY TYPE	BENCH MARK DISK	MNDT

Description: (1981) Stamping: 6804 D 1 1972

2.8 MILES SOUTHEAST ON TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND COUNTY ROAD 2 AT SWIFT, IN THE SOUTHEAST CORNER OF TRUNK HIGHWAY 11 DOUBLE BOX CULVERT NUMBER 8825 AT A SMALL CREEK, 23.0 FEET SOUTHEAST OF TRUNK HIGHWAY 11, AT TRUNK HIGHWAY 11 MILEPOINT 101.5.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1122.327	.016	2/1					VERTICAL ADJUSTMENT	2014	00000828	
1122.327	.016	2/1					VERTICAL CONTROL SURVEY	2013	VHACK	
1122.327	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1120.972	.007	1/2					UNKNOWN/APPROXIMATE	1992	UNCHECKD	
1120.972	.016	2					VERTICAL CONTROL SURVEY	1973	Q480951	
1120.972	.016	2					VERTICAL CONTROL SURVEY	1973	L22862	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1122.248	.262			1028.338	.197	2007	GPS - RTRN	2012	RTRN2012	

Geoid Separations(ft): GEOID18 = -94.022 12B = -94.006 09 = -93.911 03 = -93.897

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2007)</u>		<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
48 49 49.56339	95 09 58.90053	736941.428	206077.873	.131	3	GPS - RTRN	2012	RTRN2012	

State Plane and UTM Coordinates (Feet)

<u>NAD83(2007)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - North Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
2126957.346	1184800.769	1118812.354	17752160.293	.131	3	GPS - RTRN	2012	RTRN2012	

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6804_D_1-TC0324-3NW-10OCT2012.jpg	NW	Oct 10, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6804_D_1-TC0324-2-10OCT2012.jpg		Oct 10, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6804_D_1-TC0324-1-10OCT2012.jpg		Oct 10, 2012

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: 6804 E

NGS Name: 6804 E

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0325](#) [Get Map](#)
 NGS Quad / Sta Num : 48095113/
 USGS Quad: SWIFT

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	20	162 N	35 W	485008.00	951042.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1972	2012	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	SURVEY DISK	MNDT

Description: (1981) **Stamping:** 6804-E 1972

2.8 MILES SOUTHEAST ON TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND COUNTY ROAD 2 IN SWIFT, 77.0 FEET NORTHEAST OF TRUNK HIGHWAY 11, AT TRUNK HIGHWAY 11 MILEPOINT 100.8, 56.0 FEET WEST-SOUTHWEST OF A RAILROAD CROSSING POST, 50.8 FEET SOUTHWEST OF THE SOUTH RAIL OF THE RAILROAD TRACKS, 40.0 FEET WEST OF A TOWNSHIP ROAD, 1.0 FOOT SOUTH OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1118.010	.016	2					VERTICAL CONTROL SURVEY	1993	POSTED	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1116.635	.016	2					VERTICAL CONTROL SURVEY	1973	Q480951	
1116.635	.016	2					VERTICAL CONTROL SURVEY	1973	L22862	

Geoid Separations(ft): GEOID18 = -93.996 12B = -93.973 09 = -93.881 03 = -93.871

* No Horizontal Positions in the Database *



Mn/DOT Name: 6804 F

NGS Name: 6804 F

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0328](#) [Get Map](#)
 NGS Quad / Sta Num : 48095113/
 USGS Quad: SWIFT

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	18	162 N	35 W	485057.00	951237.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1972	2012	DESTROYED	Horz=NO Vert=NO	NO	3742		SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	SURVEY DISK	MNDT

Description: (1981) **Stamping:** 6804-F 1972

0.5 MILE SOUTHEAST ON TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND COUNTY ROAD 2 IN SWIFT, IN THE NORTHWEST ABUTMENT OF OLD TRUNK HIGHWAY 11 BRIDGE NUMBER 3742 OVER A SMALL CREEK, AT TRUNK HIGHWAY 11 MILEPOINT 99.2, OPPOSITE RAILROAD MILEPOINT 31.5, THE ABUTMENT MAY HAVE SETTLED ABOUT 1.0 FOOT.

Station Notes

DESTROYED DUE TO A NEW BRIDGE.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1089.598	.016	2				VERTICAL CONTROL SURVEY	1993	POSTED	

NGVD29

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1088.197	.016	2				VERTICAL CONTROL SURVEY	1973	Q480951	
1088.197	.016	2				VERTICAL CONTROL SURVEY	1973	L22862	

Geoid Separations(ft): GEOID18 = -93.911 12B = -93.871 09 = -93.792 03 = -93.792

* No Horizontal Positions in the Database *



Mn/DOT Name: 6804 G

NGS Name: 6804 G

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0332](#) [Get Map](#)
 NGS Quad / Sta Num : 48095113/
 USGS Quad: SWIFT

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	11	162 N	36 W	485144.00	951434.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1972	2012	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	SURVEY DISK	MNDT

Description: (1981) **Stamping:** 6804-G 1972

1.1 MILES NORTHWEST ON TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND COUNTY ROAD 2 IN SWIFT, 80.0 FEET NORTHEAST OF TRUNK HIGHWAY 11, AT TRUNK HIGHWAY 11 MILEPOINT 97.4, 102.0 FEET SOUTHWEST OF A POWER POLE NUMBER 57, 57.0 FEET WEST-SOUTHWEST OF A RAILROAD CROSSING POST, 50.6 FEET SOUTHWEST OF THE SOUTH RAIL OF THE RAILROAD TRACKS, 44.0 FEET WEST OF A TOWNSHIP ROAD, 1.0 FOOT SOUTH OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1085.434	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025	
<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1083.640	.016	2					VERTICAL CONTROL SURVEY	1973	Q480951	
1083.640	.016	2					VERTICAL CONTROL SURVEY	1973	L22862	

Geoid Separations(ft): GEOID18 = -93.789 12B = -93.733 09 = -93.681 03 = -93.687

* No Horizontal Positions in the Database *



Mn/DOT Name: 6804 H

NGS Name: 6804 H

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0340](#) [Get Map](#)
 NGS Quad / Sta Num : 48095141/
 USGS Quad: WARROAD

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	32	163 N	36 W	485339.00	951844.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1972	1998	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MAT FOUNDATION (NON-PAVEMENT)	SURVEY DISK	MNDT

Description: (1981) Stamping: 6804 H 1972

0.7 MILE SOUTH AND SOUTHEAST ON TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND LAKE STREET IN WARROAD, IN THE SOUTHEAST CORNER OF THE BASE OF AN ABANDONED RAILROAD SIGNAL, 164.0 FEET NORTHEAST OF TRUNK HIGHWAY 11, AT TRUNK HIGHWAY 11 MILEPOINT 93.5, 20.0 FEET SOUTHWEST OF THE SOUTH RAIL OF A RAILROAD, AT RAILROAD MILEPOINT 37.1, 17.0 FEET SOUTHWEST OF OLD TRUNK HIGHWAY 11, 3.0 FEET SOUTH OF A RAILROAD CROSSING AND A STOP SIGN POST, THE GEODETIC CREW SEARCHED FOR AND DID NOT LOCATE THE RAILROAD SIGNAL IN 1998.

Station Notes
 THE STATION WAS DESTROYED.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1076.058	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025	
<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1074.709	.016	2					VERTICAL CONTROL SURVEY	1973	Q480951	
1074.709	.016	2					VERTICAL CONTROL SURVEY	1973	L22862	

Geoid Separations(ft): GEOID18 = -93.510 12B = -93.507 09 = -93.455 03 = -93.425

* No Horizontal Positions in the Database *



Mn/DOT Name: 6804 J

NGS Name: 6804 J

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0342](#) [Get Map](#)
 NGS Quad / Sta Num : 48095141/
 USGS Quad: WARROAD

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	32	163 N	36 W	485348.70	951858.15	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1972	2012	GOOD	Horz=NO Vert=YES	YES		FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE FOOTING - SMALL	BENCH MARK DISK	MNDT

Description: (1981) Stamping: 6804 J 1972

0.5 MILE SOUTH AND SOUTHEAST ON TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND LAKE STREET IN WARROAD, 229.0 FEET NORTHEAST OF TRUNK HIGHWAY 11, AT TRUNK HIGHWAY 11 MILEPOINT 93.3, IN THE WEST CORNER OF THE BASE OF A MICROWAVE TOWER, 116.0 FEET SOUTHWEST OF THE SOUTHWEST CORNER OF A FENCE AROUND AN ELECTRICAL SUB-STATION.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1072.485	.016	2/1					VERTICAL ADJUSTMENT	2014	00000828	
1072.488	.016	2/1					VERTICAL CONTROL SURVEY	2013	VHACK	
1072.458	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1071.117	.007	1/2					UNKNOWN/APPROXIMATE	1992	UNCHECKD	
1071.117	.016	2					VERTICAL CONTROL SURVEY	1973	Q480951	
1071.117	.016	2					VERTICAL CONTROL SURVEY	1973	L22862	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1072.488	.262			979.033	.197	2007	GPS - RTRN	2012	RTRN2012	

Geoid Separations(ft): GEOID18 = -93.507 12B = -93.504 09 = -93.455 03 = -93.425

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2007)</u>				<u>Roseau County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>	
<u>Latitude</u>	<u>Longitude</u>									
48 53 48.69943	95 18 58.15163			700595.463	229883.066	.131	3	2012	RTRN2012	

State Plane and UTM Coordinates (Feet)

<u>NAD83(2007)</u>				<u>UTM - Zone 15</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - North Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>	
<u>X</u>	<u>Y</u>									
2091582.388	1210027.692			1083486.706	17777446.333	.131	3	2012	RTRN2012	

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6804_J-TC0342-3NE-09OCT2012.jpg	NE	Oct 9, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6804_J-TC0342-2-09OCT2012.jpg		Oct 9, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6804_J-TC0342-1-09OCT2012.jpg		Oct 9, 2012

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: 6804 K

NGS Name: 6804 K

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0343](#) [Get Map](#)
 NGS Quad / Sta Num : 48095141/
 USGS Quad: WARROAD

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	32	163 N	36 W	485352.00	951912.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1972	2005	DESTROYED	Horz=NO Vert=NO	NO		PROJECTS 6 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE POST (PREFABRICATED)	SURVEY DISK	MNDT

Description: (1972) **Stamping:** 6804 K 1972

0.47 MILE SOUTH ON TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND LAKE STREET IN WARROAD, 0.1 MILE SOUTHEAST OF COUNTY ROAD 5 SOUTH, 0.1 MILE WEST OF A MICROWAVE TOWER, 91.0 FEET SOUTHEAST OF AN ENTRANCE, 76.7 FEET NORTHEAST OF TRUNK HIGHWAY 11, AT TRUNK HIGHWAY 11 MILEPOINT 93.2, 0.5 FOOT EAST OF A WITNESS POST.

Station Notes
 THE STATION WAS DESTROYED.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1070.782	.016	2				VERTICAL CONTROL SURVEY	1993	POSTED	
<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1069.417	.016	2				VERTICAL CONTROL SURVEY	1973	Q480951	
1069.417	.016	2				VERTICAL CONTROL SURVEY	1973	L22862	

Geoid Separations(ft): GEOID18 = -93.500 12B = -93.497 09 = -93.445 03 = -93.418

* No Horizontal Positions in the Database *



Mn/DOT Name: 6804 L

NGS Name: 6804 L

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0345](#) [Get Map](#)
 NGS Quad / Sta Num : 48095141/
 USGS Quad: WARROAD

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	29	163 N	36 W	485409.47	951911.88	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1972	2012	GOOD	Horz=NO Vert=YES	YES	9059	FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
BRIDGE ABUTMENT	BENCH MARK DISK	MNDT

Description: (1981) **Stamping:** 6804 L 1972

IN WARROAD, 0.15 MILE SOUTH ON TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND LAKE STREET, IN AN ABUTMENT AT THE SOUTHEAST CORNER OF TRUNK HIGHWAY 11 BRIDGE NUMBER 9059 OVER THE WARROAD RIVER, 7.5 FEET EAST OF THE WEST EDGE OF A WALKWAY, 5.7 FEET NORTH OF THE SOUTH EDGE OF A BRIDGE, 0.5 FOOT EAST OF THE EAST EDGE OF A RAILING, 2.0 FEET DOWN FROM THE TOP OF A RAILING.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
1073.243	.016	2/1				VERTICAL ADJUSTMENT	2014	00000828		
1073.243	.016	2/1				VERTICAL CONTROL SURVEY	2013	VHACK		
1073.243	.016	2/1				VERTICAL ADJUSTMENT	2006	00000425-12		
1073.243	.016	2/1				VERTICAL CONTROL SURVEY	2005	VTURN		
1073.243	.007	1/2				VERTICAL ADJUSTMENT	1991	00000025		

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
1071.881	.007	1/2				UNKNOWN/APPROXIMATE	1992	UNCHECKD		
1071.878	.033	3				VERTICAL CONTROL SURVEY	1987	CS6803		
1071.881	.016	2				VERTICAL CONTROL SURVEY	1973	Q480951		
1071.881	.016	2				VERTICAL CONTROL SURVEY	1973	L22862		

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
1073.279	.262		979.811	.197	2007	GPS - RTRN	2012	RTRN2012		

Geoid Separations(ft): GEOID18 = -93.523 12B = -93.520 09 = -93.464 03 = -93.445

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2007)</u>			<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>			<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
<u>Latitude</u>	<u>Longitude</u>									
48 54 09.46741	95 19 11.88291		699654.989	231977.823	.131	3	GPS - RTRN	2012	RTRN2012	

State Plane and UTM Coordinates (Feet)

<u>NAD83(2007)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - North Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
<u>X</u>	<u>Y</u>								
2090725.588	1212158.113	1082633.846	17779578.034	.131	3	GPS - RTRN	2012	RTRN2012	

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6804_L-TC0345-3N-09OCT2012.jpg	N	Oct 9, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6804_L-TC0345-2-09OCT2012.jpg		Oct 9, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6804_L-TC0345-1-09OCT2012.jpg		Oct 9, 2012

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: 6804 M

NGS Name: 6804 M

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0346](#) [Get Map](#)
 NGS Quad / Sta Num : 48095141/
 USGS Quad: WARROAD

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	29	163 N	36 W	485415.00	951915.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1972	2005	DESTROYED	Horz=NO Vert=NO	NO		PROJECTS 4 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MNDT

Description: (1981) **Stamping:** 6804 M 1972

IN WARROAD, AT THE JUNCTION OF TRUNK HIGHWAY 11 AND LAKE STREET, 40.0 FEET WEST OF TRUNK HIGHWAY 11, AT TRUNK HIGHWAY 11 MILEPOINT 92.7, 47.0 FEET NORTHWEST OF LAKE STREET EXTENDED, 11.0 FEET NORTH-NORTHWEST OF A TRAFFIC SIGNAL POLE, 23.2 FEET SOUTH-SOUTHWEST OF THE SOUTHWEST CORNER OF A LIGHT SIGNAL BOX, 6.4 FEET SOUTHWEST OF THE SOUTHWEST EDGE OF A SIDEWALK, 0.5 FOOT EAST OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1069.384	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1068.020	.033	3					VERTICAL CONTROL SURVEY	1987	CS6803	
1068.023	.016	2					VERTICAL CONTROL SURVEY	1973	Q480951	
1068.023	.016	2					VERTICAL CONTROL SURVEY	1973	L22862	

Geoid Separations(ft): GEOID18 = -93.527 12B = -93.527 09 = -93.471 03 = -93.448

* No Horizontal Positions in the Database *



Mn/DOT Name: 6804 M 1

NGS Name: 6804 M 1

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0347](#) [Get Map](#)
 NGS Quad / Sta Num : 48095141/
 USGS Quad: WARROAD

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	29	163 N	36 W	485418.39	951918.33	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1972	2012	GOOD	Horz=NO Vert=YES	YES		FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE/BITUMINOUS SLAB	BENCH MARK DISK	MNDT

Description: (2003) Stamping: 6804 M 1 1972

IN WARROAD, 0.2 MILE NORTH ALONG TRUNK HIGHWAY 11 (STATE AVENUE NORTH) FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND COUNTY ROAD 74 (LAKE STREET), THEN 0.12 MILE WEST ON LAKE STREET NORTHWEST, THEN 0.1 MILE SOUTH ON THIRD AVENUE NORTHWEST TO A QUONSET STYLE BUILDING, IN THE GARAGE DOOR SILL OF THE ELEMENTARY SCHOOL, NEAR A QUONSET STYLE BRICK BUILDING, 28.0 FEET NORTHWEST OF THE NORTHEAST CORNER OF A SCHOOL, 0.5 FOOT SOUTHEAST OF THE NORTHWEST SIDE OF AN OVERHEAD DOOR.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1070.142	.016	2/1					VERTICAL ADJUSTMENT	2014	00000828	
1070.142	.016	2/1					VERTICAL CONTROL SURVEY	2013	VHACK	
1070.142	.016	2/1					VERTICAL ADJUSTMENT	2006	00000425-12	
1070.142	.016	2/1					VERTICAL CONTROL SURVEY	2005	VTURN	
1070.142	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1068.774	.007	1/2					UNKNOWN/APPROXIMATE	1992	UNCHECKD	
1068.771	.033	3					VERTICAL CONTROL SURVEY	1987	CS6803	
1068.774	.016	2					VERTICAL CONTROL SURVEY	1973	Q480951	
1068.774	.016	2					VERTICAL CONTROL SURVEY	1973	L22862	

Geoid Separations(ft): GEOID18 = -93.530 12B = -93.527 09 = -93.471 03 = -93.451

* No Horizontal Positions in the Database *

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6804_M_1-TC0347-3SE-13OCT2009.jpg	SE	Oct 13, 2009
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6804_M_1-TC0347-2-13OCT2009.jpg		Oct 13, 2009
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6804_M_1-TC0347-1-09OCT2012.jpg		Oct 9, 2012

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: 6804 N

NGS Name: 6804 N

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0350](#) [Get Map](#)
 NGS Quad / Sta Num : 48095141/
 USGS Quad: WARROAD

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	29	163 N	36 W	485416.00	951859.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1972	1985	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE FOOTING - SMALL	SURVEY DISK	MNDT

Description: (1997) **Stamping:** 6804-N 1972

IN WARROAD, 0.2 MILE EAST ALONG LAKE STREET FROM THE JUNCTION OF LAKE STREET AND TRUNK HIGHWAY 11, THEN 0.05 MILE SOUTH ON CITY STREET, IN THE WEST CORNER OF A CONCRETE FOOTING OF THE SOUTHWEST LEG OF A WATER TANK, THE DISK WAS REMOVED WHEN THE WATER TANK WAS DISMANTLED IN 1985. THE DISK WAS RETURNED TO THE GEODETIC UNIT 11-97.

Station Notes
 THE STATION WAS DESTROYED.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1068.410	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025	
<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1067.052	.016	2					VERTICAL CONTROL SURVEY	1973	Q480951	
1067.052	.016	2					VERTICAL CONTROL SURVEY	1973	L22862	

Geoid Separations(ft): GEOID18 = -93.540 12B = -93.540 09 = -93.487 03 = -93.464

* No Horizontal Positions in the Database *



Mn/DOT Name: 6804 P

NGS Name: 6804 P

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 48095112/
 USGS Quad: ROOSEVELT

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	36	162 N	35 W	484820.00	950609.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1973	2012	DESTROYED	Horz=NO Vert=NO	NO	8827	FLUSH	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
BRIDGE HEADWALL	BENCH MARK DISK	MNHD

Description: (1973) Stamping:

IN ROOSEVELT, 0.7 MILE NORTHWEST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND COUNTY ROAD 17, IN THE SOUTHEAST HEADWALL OF AN OLD TRUNK HIGHWAY 11 BRIDGE NUMBER 8827 OVER A CREEK, 12.0 FEET SOUTHWEST OF OLD TRUNK HIGHWAY 11, 71.5 FEET NORTHWEST OF A WOOD RAILROAD CULVERT.

Station Notes

A NEW CULVERT IS IN PLACE.

* No Horizontal or Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -94.144 12B = -94.134 09 = -94.048 03 = -94.032



Mn/DOT Name: 6804 Q

NGS Name: 6804 Q

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DP0907](#) [Get Map](#)
 NGS Quad / Sta Num : 48095141/
 USGS Quad: WARROAD

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	29	163 N	36 W	485411.88	951911.54	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2012	2018	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 45 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2012) Stamping: 6804 Q 2012

IN WARROAD, 1.05 MILES SOUTHEAST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND TRUNK HIGHWAY 313 IN WARROAD, AT TRUNK HIGHWAY 11 MILEPOINT 92.75, 50.6 FEET EAST OF TRUNK HIGHWAY 11, 203.6 FEET SOUTH OF RIVER STREET NORTHEAST, 87.3 FEET NORTH-NORTHEAST OF THE NORTHEAST CORNER OF A BRIDGE OVER THE WARROAD RIVER, 1.5 FEET WEST OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1068.279	.016	2/1					VERTICAL ADJUSTMENT	2014	00000828
1068.279	.016	2/1					VERTICAL CONTROL SURVEY	2013	VHACK

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1068.279				974.804	.018	2011	HORIZONTAL ADJUSTMENT	2020	GPS3362
1068.279	.131			974.949	.066	1996	GPS - STATIC	2020	HGRACE
1068.279				974.804	.018	2011	GPS - STATIC	2020	HGRACE
1068.252	.262			974.785	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -93.527 12B = -93.523 09 = -93.468 03 = -93.448

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Roseau County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
48 54 11.87694	95 19 11.54372			699674.991	232222.270	.016		ADJUSTMENT	2020	GPS3362
48 54 11.87694	95 19 11.54372			699674.991	232222.270	.016	C	GPS - STATIC	2020	HGRACE

<u>NAD83(2007)</u>				<u>Roseau County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
48 54 11.87667	95 19 11.54423			699674.958	232222.242	.131	3	GPS - RTRN	2012	RTRN2012

<u>NAD83(1996)</u>				<u>Roseau County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
48 54 11.87678	95 19 11.54420			699674.959	232222.253	.033	C	GPS - STATIC	2020	HGRACE

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - North Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2090755.256	1212401.583			1082663.948	17779821.420	.016		ADJUSTMENT	2020	GPS3362
2090755.256	1212401.583			1082663.948	17779821.420	.016	C	GPS - STATIC	2020	HGRACE

<u>NAD83(2007)</u>				<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - North Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2090755.221	1212401.556			1082663.913	17779821.393	.131	3	GPS - RTRN	2012	RTRN2012

<u>NAD83(1996)</u>				<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - North Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2090755.223	1212401.567			1082663.916	17779821.404	.033	C	GPS - STATIC	2020	HGRACE



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6804_Q-DP0907-3E-05NOV2018.jpg	E	Nov 5, 2018
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6804_Q-DP0907-2-05NOV2018.jpg		Nov 5, 2018
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6804_Q-DP0907-1-05NOV2018.jpg		Nov 5, 2018

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: 6804 R

NGS Name: 6804 R

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DP0910](#) [Get Map](#)
 NGS Quad / Sta Num : 48095142/
 USGS Quad: WARROAD SE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	10	162 N	36 W	485219.75	951607.90	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2012	2018	GOOD	Horz=YES Vert=YES	YES		RECESSED 1 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 29 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2012) Stamping: 6804 R 2012

3.1 MILES SOUTHEAST OF WARROAD, 4.35 MILES SOUTHEAST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND TRUNK HIGHWAY 313 IN WARROAD, AT TRUNK HIGHWAY 11 MILEPOINT 96.0, 73.0 FEET SOUTHWEST OF TRUNK HIGHWAY 11, 3.4 FEET NORTHEAST OF A FENCE LINE, 1.5 FEET NORTHEAST OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>	
1082.413	.016	2/1						VERTICAL ADJUSTMENT	2014	00000828	
1082.409	.016	2/1						VERTICAL CONTROL SURVEY	2013	VHACK	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>	
1082.413				988.804	.017	2011		HORIZONTAL ADJUSTMENT	2020	GPS3362	
1082.413	.131			988.948	.066	1996		GPS - STATIC	2020	HGRACE	
1082.413				988.804	.017	2011		GPS - STATIC	2020	HGRACE	
1082.340	.262			988.771	.197	2007		GPS - RTRN	2012	RTRN2012	

Geoid Separations(ft): GEOID18 = -93.658 12B = -93.619 09 = -93.569 03 = -93.569

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Roseau County</u>			<u>Determination Method</u>			<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>		<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>										
48 52 19.74602	95 16 07.90219			712075.983	220996.030		.013		ADJUSTMENT	2020	GPS3362
48 52 19.74602	95 16 07.90219			712075.983	220996.030		.013	C	GPS - STATIC	2020	HGRACE

<u>NAD83(2007)</u>				<u>Roseau County</u>			<u>Determination Method</u>			<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>		<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>										
48 52 19.74682	95 16 07.90220			712075.981	220996.111		.131	3	GPS - RTRN	2012	RTRN2012

<u>NAD83(1996)</u>				<u>Roseau County</u>			<u>Determination Method</u>			<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>		<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>										
48 52 19.74587	95 16 07.90267			712075.951	220996.014		.033	C	GPS - STATIC	2020	HGRACE

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>			<u>Determination Method</u>			<u>Project Info</u>	
<u>MN State Plane - North Zone</u>				<u>X</u>	<u>Y</u>		<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>										
2102702.166	1200692.678			1094588.401	17768092.618		.013		ADJUSTMENT	2020	GPS3362
2102702.166	1200692.678			1094588.401	17768092.618		.013	C	GPS - STATIC	2020	HGRACE

<u>NAD83(2007)</u>				<u>UTM - Zone 15</u>			<u>Determination Method</u>			<u>Project Info</u>	
<u>MN State Plane - North Zone</u>				<u>X</u>	<u>Y</u>		<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>										
2102702.168	1200692.759			1094588.403	17768092.699		.131	3	GPS - RTRN	2012	RTRN2012

<u>NAD83(1996)</u>				<u>UTM - Zone 15</u>			<u>Determination Method</u>			<u>Project Info</u>	
<u>MN State Plane - North Zone</u>				<u>X</u>	<u>Y</u>		<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>										
2102702.133	1200692.663			1094588.369	17768092.603		.033	C	GPS - STATIC	2020	HGRACE



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6804_R-DP0910-3SW-03DEC2012.jpg	SW	Dec 3, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6804_R-DP0910-2-03DEC2012.jpg		Dec 3, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6804_R-DP0910-1-03DEC2012.jpg		Dec 3, 2012

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: 6804 S

NGS Name: 6804 S

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DP0913](#) [Get Map](#)
 NGS Quad / Sta Num : 48095113/
 USGS Quad: SWIFT

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	18	162 N	35 W	485101.91	951256.32	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2012	2018	GOOD	Horz=YES Vert=YES	YES		RECESSED 1 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 19 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2012) Stamping: 6804 S 2012

5.9 MILES SOUTHEAST OF WARROAD, 7.2 MILES SOUTHEAST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND TRUNK HIGHWAY 313 IN WARROAD, AT TRUNK HIGHWAY 11 MILEPOINT 98.85, 59.2 FEET NORTHEAST OF TRUNK HIGHWAY 11, 15.1 FEET SOUTHEAST OF AN ENTRANCE, 1.5 FEET NORTHWEST OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1085.477	.016	2/1					VERTICAL ADJUSTMENT	2014	00000828
1085.477	.016	2/1					VERTICAL CONTROL SURVEY	2013	VHACK

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1085.477				991.648	.017	2011	HORIZONTAL ADJUSTMENT	2020	GPS3362
1085.477	.131			991.789	.066	1996	GPS - STATIC	2020	HGRACE
1085.477				991.648	.017	2011	GPS - STATIC	2020	HGRACE
1085.398	.262			991.629	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -93.888 12B = -93.845 09 = -93.769 03 = -93.773

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Roseau County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
48 51 01.91053	95 12 56.32160			724980.549	213260.417	.013		ADJUSTMENT	2020	GPS3362
48 51 01.91053	95 12 56.32160			724980.549	213260.417	.013	C	GPS - STATIC	2020	HGRACE

<u>NAD83(2007)</u>				<u>Roseau County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
48 51 01.91062	95 12 56.32256			724980.484	213260.425	.131	3	GPS - RTRN	2012	RTRN2012

<u>NAD83(1996)</u>				<u>Roseau County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
48 51 01.91037	95 12 56.32208			724980.517	213260.400	.033	C	GPS - STATIC	2020	HGRACE

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - North Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2115290.353	1192451.740			1107160.363	17759830.549	.013		ADJUSTMENT	2020	GPS3362
2115290.353	1192451.740			1107160.363	17759830.549	.013	C	GPS - STATIC	2020	HGRACE

<u>NAD83(2007)</u>				<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - North Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2115290.289	1192451.751			1107160.299	17759830.560	.131	3	GPS - RTRN	2012	RTRN2012

<u>NAD83(1996)</u>				<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - North Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2115290.321	1192451.725			1107160.331	17759830.533	.033	C	GPS - STATIC	2020	HGRACE



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6804_S-DP0913-3NE-27NOV2012.jpg	NE	Nov 27, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6804_S-DP0913-2-27NOV2012.jpg		Nov 27, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6804_S-DP0913-1-27NOV2012.jpg		Nov 27, 2012

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: 6804 T

NGS Name: 6804 T

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DP0914](#) [Get Map](#)
 NGS Quad / Sta Num : 48095113/
 USGS Quad: SWIFT

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	18	162 N	35 W	485039.61	951202.49	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2012	2018	GOOD	Horz=YES Vert=YES	YES		RECESSED 1 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 15 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2012) Stamping: 6804 T 2012

5.3 MILES NORTHWEST OF ROOSEVELT, 5.5 MILES NORTHWEST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND COUNTY ROAD 42 IN ROOSEVELT, AT TRUNK HIGHWAY 11 MILEPOINT 99.65, 67.5 FEET SOUTHWEST OF TRUNK HIGHWAY 11, 146.0 FEET NORTHWEST OF 650TH AVENUE, 6.9 FEET NORTHEAST OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1091.087	.016	2/1					VERTICAL ADJUSTMENT	2014	0000828	
1091.087	.016	2/1					VERTICAL CONTROL SURVEY	2013	VHACK	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1091.087				997.222	.017	2011	HORIZONTAL ADJUSTMENT	2020	GPS3362	
1091.087	.131			997.363	.066	1996	GPS - STATIC	2020	HGRACE	
1091.087				997.222	.017	2011	GPS - STATIC	2020	HGRACE	
1091.012	.262			997.196	.197	2007	GPS - RTRN	2012	RTRN2012	

Geoid Separations(ft): GEOID18 = -93.934 12B = -93.901 09 = -93.815 03 = -93.815

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
48 50 39.61046	95 12 02.49301	728608.865	211044.940	.013		ADJUSTMENT	2020	GPS3362	
48 50 39.61046	95 12 02.49301	728608.865	211044.940	.013	C	GPS - STATIC	2020	HGRACE	

<u>NAD83(2007)</u>		<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
48 50 39.61059	95 12 02.49353	728608.830	211044.953	.131	3	GPS - RTRN	2012	RTRN2012	

<u>NAD83(1996)</u>		<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
48 50 39.61031	95 12 02.49349	728608.833	211044.924	.033	C	GPS - STATIC	2020	HGRACE	

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - North Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
X	Y					ADJUSTMENT	2020	GPS3362	
2118828.081	1190094.201	1110693.470	17757467.138	.013		ADJUSTMENT	2020	GPS3362	
2118828.081	1190094.201	1110693.470	17757467.138	.013	C	GPS - STATIC	2020	HGRACE	

<u>NAD83(2007)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - North Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
X	Y					GPS - RTRN	2012	RTRN2012	
2118828.047	1190094.216	1110693.436	17757467.152	.131	3	GPS - RTRN	2012	RTRN2012	

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - North Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
X	Y					GPS - STATIC	2020	HGRACE	
2118828.049	1190094.187	1110693.438	17757467.124	.033	C	GPS - STATIC	2020	HGRACE	



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6804_T-DP0914-3SW-04DEC2012.jpg	SW	Dec 4, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6804_T-DP0914-2-04DEC2012.jpg		Dec 4, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6804_T-DP0914-1-04DEC2012.jpg		Dec 4, 2012

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: 6804 U

NGS Name: 6804 U

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DP0917](#) [Get Map](#)
 NGS Quad / Sta Num : 48095113/
 USGS Quad: SWIFT

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	27	162 N	35 W	484915.43	950836.40	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2012	2020	GOOD	Horz=YES Vert=YES	YES		RECESSED 1 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 25 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2012) Stamping: 6804 U 2012

2.15 MILES NORTHWEST OF ROOSEVELT, 2.45 MILES NORTHWEST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND COUNTY ROAD 42 IN ROOSEVELT, AT TRUNK HIGHWAY 11 MILEPOINT 102.75, 56.6 FEET SOUTHWEST OF TRUNK HIGHWAY 11, 11.7 FEET SOUTHEAST OF A FIELD ENTRANCE, 1.5 FEET NORTHEAST OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1134.958	.016	2/1					VERTICAL ADJUSTMENT	2014	00000828	
1134.965	.016	2/1					VERTICAL CONTROL SURVEY	2013	VHACK	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1135.073	.262			1041.005	.197	2011	GPS - OPUS	2020	GPSBM	
1135.034	.262			1040.966	.197	2011	GPS - OPUS	2020	GPSBM	
1135.021	.262			1040.962	.197	2011	GPS - RTRN	2020	RTRN2020	
1134.958				1040.930	.016	2011	HORIZONTAL ADJUSTMENT	2020	GPS3362	
1134.958	.131			1041.071	.066	1996	GPS - STATIC	2020	HGRACE	
1134.958				1040.930	.016	2011	GPS - STATIC	2020	HGRACE	
1134.857	.262			1040.897	.197	2007	GPS - RTRN	2012	RTRN2012	

Geoid Separations(ft): GEOID18 = -94.068 12B = -94.058 09 = -93.960 03 = -93.947

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>			<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>			<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
<u>Latitude</u>	<u>Longitude</u>									
48 49 15.42774	95 08 36.39998		742507.079	202690.570	.131	3	GPS - OPUS	2020	GPSBM	
48 49 15.42796	95 08 36.39966		742507.101	202690.593	.131	3	GPS - OPUS	2020	GPSBM	
48 49 15.42752	95 08 36.39959		742507.106	202690.548	.131	3	GPS - RTRN	2020	RTRN2020	
48 49 15.42809	95 08 36.39935		742507.121	202690.606	.013		ADJUSTMENT	2020	GPS3362	
48 49 15.42809	95 08 36.39935		742507.121	202690.606	.013	C	GPS - STATIC	2020	HGRACE	

<u>NAD83(2007)</u>			<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>			<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
<u>Latitude</u>	<u>Longitude</u>									
48 49 15.42790	95 08 36.40047		742507.046	202690.586	.131	3	GPS - RTRN	2012	RTRN2012	

<u>NAD83(1996)</u>			<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>			<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
<u>Latitude</u>	<u>Longitude</u>									
48 49 15.42794	95 08 36.39983		742507.089	202690.591	.033	C	GPS - STATIC	2020	HGRACE	

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - North Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2132384.411	1181195.509	1124232.379	17748546.167	.131	3	GPS - OPUS	2020	GPSBM
2132384.433	1181195.531	1124232.401	17748546.188	.131	3	GPS - OPUS	2020	GPSBM
2132384.436	1181195.486	1124232.404	17748546.144	.131	3	GPS - RTRN	2020	RTRN2020
2132384.454	1181195.543	1124232.422	17748546.201	.013		ADJUSTMENT	2020	GPS3362
2132384.454	1181195.543	1124232.422	17748546.201	.013	C	GPS - STATIC	2020	HGRACE

NAD83(2007)

MN State Plane - North Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2132384.379	1181195.526	1124232.347	17748546.184	.131	3	GPS - RTRN	2012	RTRN2012

NAD83(1996)

MN State Plane - North Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2132384.422	1181195.529	1124232.390	17748546.187	.033	C	GPS - STATIC	2020	HGRACE

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6804_U-DP0917-3SW-24JUN2020.jpg	SW	Jun 24, 2020
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6804_U-DP0917-2-24JUN2020.jpg		Jun 24, 2020
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6804_U-DP0917-1-24JUN2020.jpg		Jun 24, 2020

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: 6804 V

NGS Name: 6804 V

County: ROSEAU, MN (Sheet 2)

NGS ACRN: DP0918	Get Map
NGS Quad / Sta Num : 48095112/	
USGS Quad: ROOSEVELT	

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	26	162 N	35 W	484848.54	950727.46	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2012	2018	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 27 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2012) Stamping: 6804 V 2012

1.2 MILES NORTHWEST OF ROOSEVELT, 1.45 MILES NORTHWEST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND COUNTY ROAD 42 IN ROOSEVELT, AT TRUNK HIGHWAY 11 MILEPOINT 103.75, 57.5 FEET NORTHEAST OF TRUNK HIGHWAY 11, 1.5 FEET SOUTHWEST OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>	
1148.118	.016	2/1				2014	00000828	VERTICAL ADJUSTMENT				
1148.118	.016	2/1				2013	VHACK	VERTICAL CONTROL SURVEY				

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>	
1148.118			1054.050	.015	2011	2020	GPS3362	HORIZONTAL ADJUSTMENT				
1148.118	.131		1054.181	.066	1996	2020	HGRACE	GPS - STATIC				
1148.118			1054.050	.015	2011	2020	HGRACE	GPS - STATIC				
1148.059	.262		1054.060	.197	2007	2012	RTRN2012	GPS - RTRN				

Geoid Separations(ft): GEOID18 = -94.104 12B = -94.098 09 = -94.002 03 = -93.986

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Geodetic Position</u>		<u>Roseau County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 48 48.53935	95 07 27.45899	747157.322	200027.173	.013		ADJUSTMENT	2020	GPS3362
48 48 48.53935	95 07 27.45899	747157.322	200027.173	.013	C	GPS - STATIC	2020	HGRACE

<u>NAD83(2007)</u>		<u>Geodetic Position</u>		<u>Roseau County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 48 48.53945	95 07 27.46030	747157.234	200027.182	.131	3	GPS - RTRN	2012	RTRN2012

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Roseau County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 48 48.53924	95 07 27.45946	747157.290	200027.162	.033	C	GPS - STATIC	2020	HGRACE

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>		<u>MN State Plane - North Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2136925.449	1178349.863	1128767.831	17745693.122	.013		ADJUSTMENT	2020	GPS3362
2136925.449	1178349.863	1128767.831	17745693.122	.013	C	GPS - STATIC	2020	HGRACE

<u>NAD83(2007)</u>		<u>MN State Plane - North Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2136925.361	1178349.876	1128767.743	17745693.135	.131	3	GPS - RTRN	2012	RTRN2012

<u>NAD83(1996)</u>		<u>MN State Plane - North Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2136925.417	1178349.853	1128767.799	17745693.112	.033	C	GPS - STATIC	2020	HGRACE



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6804_V-DP0918-3NE-04DEC2012.jpg	NE	Dec 4, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6804_V-DP0918-2-04DEC2012.jpg		Dec 4, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6804_V-DP0918-1-04DEC2012.jpg		Dec 4, 2012

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: 6806 F

NGS Name: 6806 F

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [AJ8622](#) [Get Map](#)
 NGS Quad / Sta Num : 48095424/
 USGS Quad: WANNASKA

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	6	160 N	39 W	484159.17	954403.86	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1998	2012	DESTROYED	Horz=NO Vert=NO	NO		FLUSH	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	SURVEY DISK	MNDT

Description: (1998) **Stamping:** 6806 F 1998

3.0 MILES NORTH OF WANNASKA, 2.95 MILES NORTH ALONG TRUNK HIGHWAY 89 FROM THE JUNCTION OF TRUNK HIGHWAY 89 AND THE ROSEAU RIVER IN WANNASKA, AT TRUNK HIGHWAY 89 MILEPOINT 114.40, 79.0 FEET NORTH OF COUNTY ROAD 20, 165.0 FEET NORTHEAST OF TRUNK HIGHWAY 89, 78.0 FEET EAST OF A ROAD, 12.4 FEET SOUTH OF A POWER POLE, 47.7 FEET EAST-SOUTHEAST OF A CABLE MARKER, 3.0 FEET SOUTH OF A WITNESS POST.

Station Notes

THE DISK WAS TURNED IN TO THE OFFICE.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1089.345	.016	2/1					VERTICAL ADJUSTMENT	2004	0000425-2	
1089.332	.016	2/1					VERTICAL CONTROL SURVEY	2000	VGRYG	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
				997.721	.008	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800	
				997.826	.010	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300	
1089.335	.131			997.816	.066	1996	HORIZONTAL ADJUSTMENT	2002	GPS1666	
1089.335	.131			997.816	.066	1996	GPS - STATIC	2001	HGRYG	

Geoid Separations(ft): GEOID18 = -91.637 12B = -91.647 09 = -91.545 03 = -91.519

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Roseau County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
48 41 59.16808	95 44 03.86439			600371.507	157147.231	.010		ADJUSTMENT	2012	GPS2800

<u>NAD83(2007)</u>				<u>Roseau County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
48 41 59.16832	95 44 03.86516			600371.455	157147.255	.013		ADJUSTMENT	2007	GPS2300

<u>NAD83(1996)</u>				<u>Roseau County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
48 41 59.16815	95 44 03.86517			600371.454	157147.238	.033	C	ADJUSTMENT	2002	GPS1666
48 41 59.16815	95 44 03.86517			600371.453	157147.238	.033	C	GPS - STATIC	2001	HGRYG



State Plane and UTM Coordinates (Feet)

NAD83(2011)

<u>MN State Plane - North Zone</u>		<u>UTM - Zone 15</u>		<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
1988559.184	1141314.147	980342.573	17708919.233	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

<u>MN State Plane - North Zone</u>		<u>UTM - Zone 15</u>		<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
1988559.133	1141314.173	980342.522	17708919.259	.013		ADJUSTMENT	2007	GPS2300

NAD83(1996)

<u>MN State Plane - North Zone</u>		<u>UTM - Zone 15</u>		<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
1988559.132	1141314.155	980342.521	17708919.242	.033	C	ADJUSTMENT	2002	GPS1666
1988559.132	1141314.156	980342.521	17708919.242	.033	C	GPS - STATIC	2001	HGRYG



Mn/DOT Name: 6806 G

NGS Name: 6806 G

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [AJ8623](#) [Get Map](#)
 NGS Quad / Sta Num : 48095424/
 USGS Quad: WANNASKA

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	7	160 N	39 W	484106.58	954402.79	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1998	2017	GOOD	Horz=YES Vert=YES	YES		FLUSH	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 15 FT)	SURVEY DISK	MNDT

Description: (1998) **Stamping:** 6806 G 1998

2.0 MILES NORTH OF WANNASKA, 1.9 MILES NORTH ALONG TRUNK HIGHWAY 89 FROM THE JUNCTION OF TRUNK HIGHWAY 89 AND THE ROSEAU RIVER IN WANNASKA, AT TRUNK HIGHWAY 89 MILEPOINT 113.4, 37.0 FEET NORTH OF 200TH STREET, 154.0 FEET EAST OF TRUNK HIGHWAY 89, 78.0 FEET EAST OF A CABLE MARKER, 13.0 FEET WEST OF A POWER POLE, 2.8 FEET WEST OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
1099.722	.016	2/1				VERTICAL ADJUSTMENT	2013	00000795		
1099.722	.016	2/1				VERTICAL CONTROL SURVEY	2013	VGATK		
1099.722	.016	2/1				VERTICAL ADJUSTMENT	2004	00000425-2		
1099.706	.016	2/1				VERTICAL CONTROL SURVEY	2000	VGRYG		

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
1099.722			1008.187	.009	2011	HORIZONTAL ADJUSTMENT	2018	GPS3232		
1099.722			1008.187	.009	2011	GPS - STATIC	2018	HGATK		
1099.722	.131		1008.279	.066	1996	GPS - STATIC	2018	HGATK		
1099.850	.262		1008.285	.197	2011	GPS - RTRN	2016	RTRN2016		
1099.739	.262		1008.282	.197	2007	GPS - RTRN	2012	RTRN2012		
			1008.187	.009	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800		
			1008.292	.010	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300		
1099.703	.131		1008.279	.066	1996	HORIZONTAL ADJUSTMENT	2002	GPS1666		
1099.703	.131		1008.279	.066	1996	GPS - STATIC	2001	HGRYG		

Geoid Separations(ft): GEOID18 = -91.555 12B = -91.565 09 = -91.460 03 = -91.427

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>			<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
48 41 06.57567	95 44 02.79392		600472.417	151817.496	.007		ADJUSTMENT	2018	GPS3232	
48 41 06.57567	95 44 02.79392		600472.417	151817.496	.007	C	GPS - STATIC	2018	HGATK	
48 41 06.57535	95 44 02.79472		600472.363	151817.463	.131	3	GPS - RTRN	2016	RTRN2016	
48 41 06.57567	95 44 02.79392		600472.417	151817.496	.013		ADJUSTMENT	2012	GPS2800	

<u>NAD83(2007)</u>			<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
48 41 06.57606	95 44 02.79426		600472.394	151817.535	.131	3	GPS - RTRN	2012	RTRN2012	
48 41 06.57592	95 44 02.79467		600472.366	151817.521	.013		ADJUSTMENT	2007	GPS2300	

<u>NAD83(1996)</u>			<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
48 41 06.57575	95 44 02.79468		600472.366	151817.503	.033	C	GPS - STATIC	2018	HGATK	
48 41 06.57575	95 44 02.79468		600472.366	151817.503	.033	C	ADJUSTMENT	2002	GPS1666	
48 41 06.57575	95 44 02.79468		600472.365	151817.505	.033	C	GPS - STATIC	2001	HGRYG	

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1988449.360	1135984.750	980223.249	17703589.601	.007		ADJUSTMENT	2018	GPS3232
1988449.360	1135984.750	980223.249	17703589.601	.007	C	GPS - STATIC	2018	HGATK
1988449.306	1135984.720	980223.194	17703589.571	.131	3	GPS - RTRN	2016	RTRN2016
1988449.360	1135984.750	980223.249	17703589.601	.013		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1988449.339	1135984.791	980223.227	17703589.641	.131	3	GPS - RTRN	2012	RTRN2012
1988449.311	1135984.777	980223.199	17703589.628	.013		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1988449.310	1135984.760	980223.198	17703589.611	.033	C	GPS - STATIC	2018	HGATK
1988449.310	1135984.760	980223.198	17703589.611	.033	C	ADJUSTMENT	2002	GPS1666
1988449.310	1135984.760	980223.198	17703589.611	.033	C	GPS - STATIC	2001	HGRYG

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6806_G-AJ8623-3N-05SEP2012.jpg	N	Sep 5, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6806_G-AJ8623-2-05SEP2012.jpg		Sep 5, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6806_G-AJ8623-1-05SEP2012.jpg		Sep 5, 2012

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: 6806 H

NGS Name: 6806 H

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [AJ8624](#) [Get Map](#)
 NGS Quad / Sta Num : 48095424/
 USGS Quad: WANNASKA

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	31	160 N	39 W	483828.91	954403.92	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1998	2012	DESTROYED	Horz=NO Vert=NO	NO		FLUSH	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	SURVEY DISK	MNDT

Description: (1998) **Stamping:** 6806 H 1998

1.0 MILE SOUTH OF WANNASKA, 1.2 MILES SOUTH ALONG TRUNK HIGHWAY 89 FROM THE JUNCTION OF TRUNK HIGHWAY 89 AND THE ROSEAU RIVER IN WANNASKA, AT TRUNK HIGHWAY 89 MILEPOINT 110.35, 97.0 FEET EAST OF TRUNK HIGHWAY 89, 67.0 FEET SOUTH OF COUNTY ROAD 4, 7.6 FEET NORTH OF A FENCE, 11.0 FEET SOUTHEAST OF A POWER POLE, 23.3 FEET EAST-NORTHEAST OF A CABLE MARKER, 2.9 FEET NORTH OF A WITNESS POST.

Station Notes

THE DISK WAS TURNED IN TO THE OFFICE.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1115.496	.016	2/1					VERTICAL ADJUSTMENT	2004	0000425-2	
1115.480	.016	2/1					VERTICAL CONTROL SURVEY	2000	VGRYG	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
				1024.260	.009	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800	
				1024.368	.010	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300	
1115.483	.131			1024.352	.066	1996	HORIZONTAL ADJUSTMENT	2002	GPS1666	
1115.483	.131			1024.352	.066	1996	GPS - STATIC	2001	HGRYG	

Geoid Separations(ft): GEOID18 = -91.237 12B = -91.253 09 = -91.148 03 = -91.112

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Roseau County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
48 38 28.91469	95 44 03.92064			600483.965	135838.550	.013		ADJUSTMENT	2012	GPS2800

<u>NAD83(2007)</u>				<u>Roseau County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
48 38 28.91496	95 44 03.92133			600483.918	135838.577	.013		ADJUSTMENT	2007	GPS2300

<u>NAD83(1996)</u>				<u>Roseau County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
48 38 28.91485	95 44 03.92139			600483.915	135838.566	.033	C	ADJUSTMENT	2002	GPS1666
48 38 28.91485	95 44 03.92139			600483.914	135838.567	.033	C	GPS - STATIC	2001	HGRYG



State Plane and UTM Coordinates (Feet)

NAD83(2011)

<u>MN State Plane - North Zone</u>		<u>UTM - Zone 15</u>		<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
1987829.353	1120018.456	979575.007	17687622.981	.013		ADJUSTMENT	2012	GPS2800

NAD83(2007)

<u>MN State Plane - North Zone</u>		<u>UTM - Zone 15</u>		<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
1987829.308	1120018.485	979574.961	17687623.010	.013		ADJUSTMENT	2007	GPS2300

NAD83(1996)

<u>MN State Plane - North Zone</u>		<u>UTM - Zone 15</u>		<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
1987829.304	1120018.474	979574.957	17687622.999	.033	C	ADJUSTMENT	2002	GPS1666
1987829.304	1120018.474	979574.957	17687622.999	.033	C	GPS - STATIC	2001	HGRYG



Mn/DOT Name: 6806 H RESET

NGS Name: 6806 H RESET

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DO8839](#) [Get Map](#)
 NGS Quad / Sta Num : 48095424/
 USGS Quad: WANNASKA

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	31	160 N	39 W	483828.91	954403.92	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2012	2017	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 15 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2012) **Stamping:** 6806 H RESET 2012

1.0 MILE SOUTH OF WANNASKA, 1.2 MILES SOUTH ALONG TRUNK HIGHWAY 89 FROM THE JUNCTION OF TRUNK HIGHWAY 89 AND THE ROSEAU RIVER IN WANNASKA, AT TRUNK HIGHWAY 89 MILEPOINT 110.35, 97.0 FEET EAST OF TRUNK HIGHWAY 89, 67.0 FEET SOUTH OF COUNTY ROAD 4 (170TH STREET), 7.6 FEET NORTH OF A FENCE, 11.0 FEET SOUTHEAST OF A POWER POLE, 23.3 FEET EAST-NORTHEAST OF A CABLE MARKER, 2.9 FEET NORTH OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1115.293	.016	2/1					VERTICAL ADJUSTMENT	2013	00000795	
1115.293	.016	2/1					VERTICAL CONTROL SURVEY	2013	VGATK	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1115.293				1024.079	.020	2011	HORIZONTAL ADJUSTMENT	2018	GPS3232	
1115.293				1024.079	.020	2011	GPS - STATIC	2018	HGATK	
1115.293	.131			1024.243	.066	1996	GPS - STATIC	2018	HGATK	
1115.359	.262			1024.106	.197	2011	GPS - RTRN	2016	RTRN2016	
1115.290	.262			1024.145	.197	2007	GPS - RTRN	2012	RTRN2012	

Geoid Separations(ft): GEOID18 = -91.237 12B = -91.253 09 = -91.148 03 = -91.112

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
48 38 28.91463	95 44 03.92052	600483.973	135838.544	.010		ADJUSTMENT	2018	GPS3232	
48 38 28.91463	95 44 03.92052	600483.973	135838.544	.010	C	GPS - STATIC	2018	HGATK	
48 38 28.91487	95 44 03.92118	600483.929	135838.568	.131	3	GPS - RTRN	2016	RTRN2016	

<u>NAD83(2007)</u>		<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
48 38 28.91516	95 44 03.92106	600483.936	135838.597	.131	3	GPS - RTRN	2012	RTRN2012	

<u>NAD83(1996)</u>		<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
48 38 28.91454	95 44 03.92111	600483.934	135838.535	.033	C	GPS - STATIC	2018	HGATK	

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - North Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
1987829.361	1120018.450	979575.015	17687622.975	.010		ADJUSTMENT	2018	GPS3232
1987829.361	1120018.450	979575.015	17687622.975	.010	C	GPS - STATIC	2018	HGATK
1987829.318	1120018.476	979574.971	17687623.001	.131	3	GPS - RTRN	2016	RTRN2016

NAD83(2007)

MN State Plane - North Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
1987829.327	1120018.505	979574.980	17687623.030	.131	3	GPS - RTRN	2012	RTRN2012

NAD83(1996)

MN State Plane - North Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
1987829.321	1120018.442	979574.975	17687622.967	.033	C	GPS - STATIC	2018	HGATK

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6806_H_RESET-DO8839-3S-05SEP2012.jpg	S	Sep 5, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6806_H_RESET-DO8839-2-05SEP2012.jpg		Sep 5, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6806_H_RESET-DO8839-1-05SEP2012.jpg		Sep 5, 2012

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: 6806 K

NGS Name: 6806 K

County: ROSEAU, MN (Sheet 2)

NGS ACRN: AJ8626	Get Map
NGS Quad / Sta Num : 48095423/	
USGS Quad: WANNASKA SW	

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	18	159 N	39 W	483501.18	954359.87	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1998	2012	DESTROYED	Horz=NO Vert=NO	NO		FLUSH	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	SURVEY DISK	MNDT

Description: (1998) Stamping: 6806 K 1998

5.0 MILES SOUTH OF WANNASKA, 5.25 MILES SOUTH ALONG TRUNK HIGHWAY 89 FROM THE JUNCTION OF TRUNK HIGHWAY 89 AND THE ROSEAU RIVER IN WANNASKA, AT TRUNK HIGHWAY 89 MILEPOINT 106.40, 83.0 FEET EAST OF TRUNK HIGHWAY 89, 84.0 FEET NORTH OF COUNTY ROAD 18, 3.2 FEET EAST OF A WITNESS POST.

Station Notes

THE DISK WAS TURNED IN TO THE OFFICE.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
1146.008	.016	2/1					VERTICAL ADJUSTMENT	2004	0000425-2		
1145.998	.016	2/1					VERTICAL CONTROL SURVEY	2000	VGRYG		

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
				1055.293	.006	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800		
				1055.398	.008	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300		
1145.995	.131			1055.378	.066	1996	HORIZONTAL ADJUSTMENT	2002	GPS1666		
1145.995	.131			1055.378	.066	1996	GPS - STATIC	2001	HGRYG		

Geoid Separations(ft): GEOID18 = -90.682 12B = -90.676 09 = -90.590 03 = -90.594

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Geodetic Position</u>				<u>Roseau County</u>				<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>					
48 35 01.18378	95 43 59.87056	600871.133	114787.191	.007		ADJUSTMENT	2012	GPS2800					

<u>NAD83(2007)</u>				<u>Geodetic Position</u>				<u>Roseau County</u>				<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>					
48 35 01.18392	95 43 59.87139	600871.077	114787.204	.007		ADJUSTMENT	2007	GPS2300					

<u>NAD83(1996)</u>				<u>Geodetic Position</u>				<u>Roseau County</u>				<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>					
48 35 01.18383	95 43 59.87150	600871.070	114787.195	.033	C	ADJUSTMENT	2002	GPS1666					
48 35 01.18383	95 43 59.87150	600871.069	114787.195	.033	C	GPS - STATIC	2001	HGRYG					

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>				<u>MN State Plane - North Zone</u>				<u>UTM - Zone 15</u>				<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>					
1987384.183	1098969.368	979093.229	17666572.512	.007		ADJUSTMENT	2012	GPS2800					

<u>NAD83(2007)</u>				<u>MN State Plane - North Zone</u>				<u>UTM - Zone 15</u>				<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>					
1987384.127	1098969.384	979093.173	17666572.528	.007		ADJUSTMENT	2007	GPS2300					

<u>NAD83(1996)</u>				<u>MN State Plane - North Zone</u>				<u>UTM - Zone 15</u>				<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>					
1987384.120	1098969.375	979093.166	17666572.519	.033	C	ADJUSTMENT	2002	GPS1666					
1987384.119	1098969.375	979093.166	17666572.519	.033	C	GPS - STATIC	2001	HGRYG					



Mn/DOT Name: 6806 N

NGS Name: 6806 N

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DE7856](#) [Get Map](#)
NGS Quad / Sta Num : 48095424/
USGS Quad: WANNASKA

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SW	31	160 N	39 W	483738.38	954404.08	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1998	2012	GOOD	Horz=NO Vert=YES	YES		FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CULVERT - ANY SIZE, ANY TYPE	VERTICAL CONTROL DISK	MNDT

Description: (1998) Stamping: 6806 N 1998

2.2 MILES SOUTH OF WANNASKA, AT THE SOUTHEAST CORNER OF A BOX CULVERT OVER A DRAINAGE DITCH, 2.1 MILES SOUTH ON TRUNK HIGHWAY 89 FROM THE JUNCTION OF TRUNK HIGHWAY 89 AND A BRIDGE IN WANNASKA, AT TRUNK HIGHWAY 89 MILEPOINT 109.5, 38.0 FEET EAST OF TRUNK HIGHWAY 89, 104.5 FEET NORTH OF COUNTY ROAD 8 (160TH STREET).

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
1121.881	.016	2/1				VERTICAL ADJUSTMENT	2013	00000795		
1121.881	.016	2/1				VERTICAL CONTROL SURVEY	2013	VGATK		
1121.881	.016	2/1				VERTICAL ADJUSTMENT	2004	00000425-2		
1121.865	.016	2/1				VERTICAL CONTROL SURVEY	2000	VGRYG		

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
1121.868	.262		1030.844	.197	2007	GPS - RTRN	2012	RTRN2012		

Geoid Separations(ft): GEOID18 = -91.115 12B = -91.132 09 = -91.027 03 = -90.997

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2007)</u>			<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
48 37 38.38132	95 44 04.08348		600500.961	130717.084	.131	3	GPS - RTRN	2012	RTRN2012	

State Plane and UTM Coordinates (Feet)

<u>NAD83(2007)</u>			<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - North Zone</u>			<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
			979380.602	17682504.916	.131	3	GPS - RTRN	2012	RTRN2012	

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6806_N-DE7856-3E-05SEP2012.jpg	E	Sep 5, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6806_N-DE7856-2-05SEP2012.jpg		Sep 5, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6806_N-DE7856-1-05SEP2012.jpg		Sep 5, 2012

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: 6806 Q

NGS Name: 6806 Q

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DO8842](#) [Get Map](#)
 NGS Quad / Sta Num : 48095423/
 USGS Quad: WANNASKA SW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	7	159 N	39 W	483553.70	954401.40	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2012	2016	DESTROYED	Horz=NO Vert=NO	YES		RECESSED 1 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2012) **Stamping:** 6806 Q 2012

4.0 MILES SOUTH OF WANNASKA, 4.1 MILES SOUTH ALONG TRUNK HIGHWAY 89 FROM THE JUNCTION OF TRUNK HIGHWAY 89 AND THE ROSEAU RIVER IN WANNASKA, AT TRUNK HIGHWAY 89 MILEPOINT 107.4, 52.3 FEET EAST OF TRUNK HIGHWAY 89, 117.4 FEET NORTH OF 140TH STREET (MINIMUM MAINTENANCE ROAD), 1.5 FEET SOUTH OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1134.269	.016	2/1					VERTICAL ADJUSTMENT	2013	00000795	
1134.269	.016	2/1					VERTICAL CONTROL SURVEY	2013	VGATK	

Geoid Separations(ft): GEOID18 = -90.840 12B = -90.836 09 = -90.751 03 = -90.738

* No Horizontal Positions in the Database *

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6806_Q-DO8842-3E-03OCT2012.jpg	E	Oct 3, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6806_Q-DO8842-2-03OCT2012.jpg		Oct 3, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6806_Q-DO8842-1-03OCT2012.jpg		Oct 3, 2012

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: 6810 A

NGS Name: 6810 A

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [AI2025](#) [Get Map](#)
 NGS Quad / Sta Num : 48095141/
 USGS Quad: WARROAD

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	7	163 N	36 W	485642.00	952027.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1998	2007	DESTROYED	Horz=NO Vert=NO	NO		PROJECTS 2 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 30 FT)	SURVEY DISK	MNDT

Description: (1998) Stamping: 6810 A 1998

2.9 MILES NORTH-NORTHWEST OF WARROAD, 2.15 MILES NORTH-NORTHWEST ALONG TRUNK HIGHWAY 313 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND TRUNK HIGHWAY 313 ABOUT 0.8 MILE NORTHWEST OF WARROAD, AT TRUNK HIGHWAY 313 MILEPOINT 2.2, 52.2 FEET NORTH-NORTHWEST OF COUNTY ROAD 13, 40.2 FEET EAST-NORTHEAST OF THE EAST RAIL OF THE TRACKS, 48.0 FEET SOUTHEAST OF THE CORNER OF A RAILROAD SHED, 41.9 FEET NORTHEAST OF A SEMAPHORE, 1.4 FEET WEST OF A WITNESS POST.

Station Notes

FOUND THE MARK WITH THE CAP OFF. THE DISK WAS RESET AS 6810 A RESET.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1070.050	.016	2/1				VERTICAL ADJUSTMENT	2000	00000365
1070.050	.016	2/1				VERTICAL CONTROL SURVEY	1998	VWARR

NGVD29

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1068.643	.016	2/1				VERTICAL CONTROL SURVEY	1999	VWARR

Geoid Separations(ft): GEOID18 = -93.691 12B = -93.658 09 = -93.592 03 = -93.638

* No Horizontal Positions in the Database *



Mn/DOT Name: 6810 A RESET

NGS Name: 6810 A RESET

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DL2336](#) [Get Map](#)
 NGS Quad / Sta Num : 48095141/
 USGS Quad: WARROAD

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	7	163 N	36 W	485642.29	952027.32	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2007	2012	GOOD	Horz=NO Vert=NO	YES		PROJECTS 2 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 30 FT)	SURVEY DISK	MNDT

Description: (2008) Stamping: 6810 A RESET 1998 2007

2.9 MILES NORTH-NORTHWEST OF WARROAD, 2.15 MILES NORTH-NORTHWEST ALONG TRUNK HIGHWAY 313 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND TRUNK HIGHWAY 313, AT TRUNK HIGHWAY 313 MILEPOINT 2.2, THEN 0.05 MILE EAST ON COUNTY ROAD 13, 52.2 FEET NORTH-NORTHWEST OF COUNTY ROAD 13, 48.0 FEET SOUTHEAST OF THE CORNER OF A RAILROAD SHED, 41.9 FEET NORTHEAST OF A SEMAPHORE, 40.2 FEET EAST-NORTHEAST OF THE EAST RAIL OF THE TRACKS, 1.4 FEET WEST OF A WITNESS POST.

Station Notes

THE SURVEY MARK IS ON RAILROAD PROPERTY AND HAS BEEN ABANDONED FOR MNDOT GEODETIC USE.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1070.034	.016	2/1				VERTICAL ADJUSTMENT	2014	00000828	
1070.034	.016	2/1				VERTICAL CONTROL SURVEY	2013	VHACK	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1069.975	.262		976.383	.197	2007	GPS - RTRN	2012	RTRN2012	
			976.320	.010	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800	
1070.011	.131		976.425	.066	2007	HORIZONTAL ADJUSTMENT	2009	GPS2522	
1070.044	.131		976.425	.066	2007	GPS - STATIC	2008	HROSO	
1070.044	.131		976.415	.066	1996	GPS - STATIC	2008	HROSO	

Geoid Separations(ft): GEOID18 = -93.691 12B = -93.658 09 = -93.592 03 = -93.638

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
48 56 42.29312	95 20 27.31898	694450.334	247412.189	.007		ADJUSTMENT	2012	GPS2800	

NAD83(2007)

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
48 56 42.29259	95 20 27.31920	694450.319	247412.135	.131	3	GPS - RTRN	2012	RTRN2012	
48 56 42.29313	95 20 27.31963	694450.290	247412.190	.033	C	ADJUSTMENT	2009	GPS2522	
48 56 42.29313	95 20 27.31963	694450.290	247412.190	.033	C	GPS - STATIC	2008	HROSO	

NAD83(1996)

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
48 56 42.29309	95 20 27.31939	694450.306	247412.186	.033	C	GPS - STATIC	2008	HROSO	

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - North Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2086136.073	1227787.037	1078073.267	17795213.288	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - North Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2086136.057	1227786.984	1078073.251	17795213.235	.131	3	GPS - RTRN	2012	RTRN2012
2086136.029	1227787.039	1078073.224	17795213.290	.033	C	ADJUSTMENT	2009	GPS2522
2086136.029	1227787.039	1078073.224	17795213.290	.033	C	GPS - STATIC	2008	HROSO

NAD83(1996)

MN State Plane - North Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2086136.046	1227787.035	1078073.240	17795213.286	.033	C	GPS - STATIC	2008	HROSO

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6810_A_RESET-DL2336-3E-09OCT2012.jpg	E	Oct 9, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6810_A_RESET-DL2336-2-09OCT2012.jpg		Oct 9, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6810_A_RESET-DL2336-1-09OCT2012.jpg		Oct 9, 2012

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: 6810 B

NGS Name: 6810 B

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [AI2026](#) [Get Map](#)
 NGS Quad / Sta Num : 48095141/
 USGS Quad: WARROAD

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	6	163 N	36 W	485733.00	952104.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1998	2012	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE)	SURVEY DISK	MNDT

Description: (1999) **Stamping:** 6810 B 1998

4.0 MILES NORTH-NORTHWEST OF WARROAD, 3.25 MILES NORTH-NORTHWEST ALONG TRUNK HIGHWAY 313 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND TRUNK HIGHWAY 313 ABOUT 0.8 MILE NORTHWEST OF WARROAD, AT TRUNK HIGHWAY 313 MILEPOINT 3.3, 41.0 FEET NORTH OF COUNTY ROAD 137, 96.5 FEET WEST-SOUTHWEST OF TRUNK HIGHWAY 313, 4.0 FEET SOUTHEAST OF A POWER POLE, 2.8 FEET SOUTH-SOUTHWEST OF TELEPHONE-PEDESTAL NUMBER 5031, 1.7 FEET SOUTH OF A WITNESS POST, THE DISK WAS TURNED IN TO THE GEODETIC UNIT.

Station Notes

THE STATION WAS DESTROYED. COULD NOT FIND THE ROD TO RESET THE MARK.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1064.525	.016	2/1				VERTICAL ADJUSTMENT	2000	00000365
1064.522	.016	2/1				VERTICAL CONTROL SURVEY	1998	VWARR

NGVD29

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1063.115	.016	2/1				VERTICAL CONTROL SURVEY	1999	VWARR

Geoid Separations(ft): GEOID18 = -93.727 12B = -93.691 09 = -93.628 03 = -93.684

* No Horizontal Positions in the Database *



Mn/DOT Name: 6810 C

NGS Name: 6810 C

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [AI2029](#) [Get Map](#)
 NGS Quad / Sta Num : 48095141/
 USGS Quad: WARROAD

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	25	164 N	37 W	485917.50	952206.41	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1998	2012	GOOD	Horz=NO Vert=YES	YES		PROJECTS 3 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 40 FT)	SURVEY DISK	MNDT

Description: (1998) Stamping: 6810 C 1998

6.0 MILES NORTH-NORTHWEST OF WARROAD, 5.4 MILES NORTH-NORTHWEST ALONG TRUNK HIGHWAY 313 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND TRUNK HIGHWAY 313 ABOUT 0.8 MILE NORTHWEST OF WARROAD, AT TRUNK HIGHWAY 313 MILEPOINT 5.45, 38.0 FEET SOUTH OF 410TH STREET, ABOUT 250.0 FEET EAST-NORTHEAST OF TRUNK HIGHWAY 313, 79.1 FEET SOUTHEAST OF A CABLE MARKER, 69.3 FEET SOUTHEAST OF A TELEPHONE POLE NUMBER KA572, 68.8 FEET NORTH-NORTHEAST OF A TELEPHONE POLE, 47.2 FEET EAST-NORTHEAST OF THE EAST RAIL OF THE TRACKS, 5.6 FEET WEST-NORTHWEST OF A POWER POLE, 2.0 FEET WEST-SOUTHWEST OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
1074.276	.016	2/1				VERTICAL ADJUSTMENT	2014	00000828		
1074.276	.016	2/1				VERTICAL CONTROL SURVEY	2013	VHACK		
1074.276	.016	2/1				VERTICAL ADJUSTMENT	2000	00000365		
1074.279	.016	2/1				VERTICAL CONTROL SURVEY	1998	VWARR		

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
1072.872	.016	2/1				VERTICAL CONTROL SURVEY	1999	VWARR		

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
1074.171	.262		980.493	.197	2007	GPS - RTRN	2012	RTRN2012		
			980.461	.011	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800		
1074.276	.131		980.569	.066	2007	HORIZONTAL ADJUSTMENT	2009	GPS2522		
1074.276	.131		980.569	.066	2007	GPS - STATIC	2008	HROSO		
1074.276	.131		980.559	.066	1996	GPS - STATIC	2008	HROSO		

Geoid Separations(ft): GEOID18 = -93.776 12B = -93.763 09 = -93.678 03 = -93.740

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Roseau County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
48 59 17.49828	95 22 06.41271			687673.714	263073.081	.010		ADJUSTMENT	2012	GPS2800

<u>NAD83(2007)</u>				<u>Roseau County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
48 59 17.49787	95 22 06.41305			687673.692	263073.039	.131	3	GPS - RTRN	2012	RTRN2012
48 59 17.49831	95 22 06.41333			687673.673	263073.084	.033	C	ADJUSTMENT	2009	GPS2522
48 59 17.49831	95 22 06.41333			687673.673	263073.084	.033	C	GPS - STATIC	2008	HROSO

<u>NAD83(1996)</u>				<u>Roseau County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
48 59 17.49827	95 22 06.41310			687673.688	263073.080	.033	C	GPS - STATIC	2008	HROSO

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2079984.595	1243704.740	1071951.906	17811140.152	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2079984.571	1243704.699	1071951.882	17811140.111	.131	3	GPS - RTRN	2012	RTRN2012
2079984.553	1243704.744	1071951.865	17811140.156	.033	C	ADJUSTMENT	2009	GPS2522
2079984.553	1243704.744	1071951.865	17811140.156	.033	C	GPS - STATIC	2008	HROSO

NAD83(1996)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2079984.568	1243704.739	1071951.880	17811140.151	.033	C	GPS - STATIC	2008	HROSO

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6810_C-AI2029-3E-10OCT2012.jpg	E	Oct 10, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6810_C-AI2029-2-10OCT2012.jpg		Oct 10, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6810_C-AI2029-1-10OCT2012.jpg		Oct 10, 2012

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: 6810 D

NGS Name: 6810 D

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [AI2030](#) [Get Map](#)
 NGS Quad / Sta Num : 48095144/
 USGS Quad: WARROAD NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	26	164 N	37 W	485951.20	952231.20	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1998	2012	DESTROYED	Horz=NO Vert=NO	NO		RECESSED 2 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	SURVEY DISK	MNDT

Description: (1998) **Stamping:** 6810 D 1998

6.8 MILES NORTH-NORTHWEST OF WARROAD, 6.1 MILES NORTH-NORTHWEST ALONG TRUNK HIGHWAY 313 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND TRUNK HIGHWAY 313 ABOUT 0.8 MILE NORTHWEST OF WARROAD, AT TRUNK HIGHWAY 313 MILEPOINT 6.15, 31.0 FEET WEST-SOUTHWEST OF NORTHBOUND TRUNK HIGHWAY 313, 51.0 FEET EAST-NORTHEAST OF SOUTHBOUND TRUNK HIGHWAY 313, 66.8 FEET NORTH OF A LIGHT POLE WITH TWO LIGHTS, 143.4 FEET NORTH-NORTHWEST OF THE NORTHEAST CORNER OF THE UNITED STATES CUSTOMS BUILDING, 1.0 FOOT SOUTHWEST OF THE BACK OF A CURB, 0.85 FOOT WEST OF THE NORTHWEST CORNER OF A SIDE WALK, NO WITNESS POST WAS SET.

Station Notes

DESTROYED DUE TO THE BUILDING BEING REMOVED.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
1076.622	.016	2/1				VERTICAL ADJUSTMENT	2000	00000365		
1076.628	.016	2/1				VERTICAL CONTROL SURVEY	1998	VWARR		

NGVD29

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
1075.221	.016	2/1				VERTICAL CONTROL SURVEY	1999	VWARR		

Geoid Separations(ft): GEOID18 = -93.789 12B = -93.786 09 = -93.691 03 = -93.753

* No Horizontal Positions in the Database *



Mn/DOT Name: 6810 E

NGS Name: 6810 E

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DP0901](#) [Get Map](#)
 NGS Quad / Sta Num : 48095141/
 USGS Quad: WARROAD

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	19	163 N	36 W	485524.29	951953.45	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2012	2018	GOOD	Horz=YES Vert=YES	YES		FLUSH	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 30 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2012) Stamping: 6810 E 2012

0.9 MILE NORTH OF WARROAD, 0.6 MILE NORTH ALONG TRUNK HIGHWAY 313 FROM THE JUNCTION OF TRUNK HIGHWAY 313 AND TRUNK HIGHWAY 11 IN WARROAD, AT TRUNK HIGHWAY 313 MILEPOINT 0.6, 59.4 FEET WEST OF TRUNK HIGHWAY 313, 25.2 FEET NORTH OF A FIELD ENTRANCE, 1.5 FEET SOUTH OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
1069.424	.016	2/1				VERTICAL ADJUSTMENT	2014	00000828		
1069.424	.016	2/1				VERTICAL CONTROL SURVEY	2013	VHACK		

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
1069.424			975.894	.015	2011	HORIZONTAL ADJUSTMENT	2020	GPS3362		
1069.424	.131		976.064	.066	1996	GPS - STATIC	2020	HGRACE		
1069.424			975.894	.015	2011	GPS - STATIC	2020	HGRACE		
1069.424			975.894	.024	2011	HORIZONTAL ADJUSTMENT	2018	GPS3119		
1069.630	.131		976.064	.066	1996	GPS - STATIC	2017	HMNCORS07		
1069.424			975.894	.024	2011	GPS - STATIC	2017	HMNPH		
1069.430	.262		975.845	.197	2011	GPS - RTRN	2015	RTRN2015		
1069.240	.262		975.723	.197	2007	GPS - RTRN	2012	RTRN2012		

Geoid Separations(ft): GEOID18 = -93.596 12B = -93.589 09 = -93.517 03 = -93.527

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Roseau County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
48 55 24.29131	95 19 53.45201			696796.133	239531.001	.010		ADJUSTMENT	2020	GPS3362
48 55 24.29131	95 19 53.45201			696796.133	239531.001	.010	C	GPS - STATIC	2020	HGRACE
48 55 24.29131	95 19 53.45201			696796.133	239531.001	.013		ADJUSTMENT	2018	GPS3119
48 55 24.29131	95 19 53.45201			696796.133	239531.001	.013	C	GPS - STATIC	2017	HMNPH
48 55 24.29085	95 19 53.45168			696796.156	239530.955	.131	3	GPS - RTRN	2015	RTRN2015

<u>NAD83(2007)</u>				<u>Roseau County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
48 55 24.29072	95 19 53.45348			696796.036	239530.940	.131	3	GPS - RTRN	2012	RTRN2012

<u>NAD83(1996)</u>				<u>Roseau County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
48 55 24.29130	95 19 53.45258			696796.095	239531.000	.033	C	GPS - STATIC	2020	HGRACE
48 55 24.29130	95 19 53.45258			696796.095	239531.000	.033	C	GPS - STATIC	2017	HMNCORS07

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - North Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2088168.014	1219818.831	1080090.442	17787242.415	.010		ADJUSTMENT	2020	GPS3362
2088168.014	1219818.831	1080090.442	17787242.415	.010	C	GPS - STATIC	2020	HGRACE
2088168.014	1219818.831	1080090.442	17787242.415	.013		ADJUSTMENT	2018	GPS3119
2088168.014	1219818.831	1080090.442	17787242.415	.013	C	GPS - STATIC	2017	HMNPH
2088168.035	1219818.783	1080090.462	17787242.368	.131	3	GPS - RTRN	2015	RTRN2015

NAD83(2007)

MN State Plane - North Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2088167.914	1219818.774	1080090.342	17787242.358	.131	3	GPS - RTRN	2012	RTRN2012

NAD83(1996)

MN State Plane - North Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2088167.976	1219818.831	1080090.404	17787242.415	.033	C	GPS - STATIC	2020	HGRACE
2088167.976	1219818.831	1080090.404	17787242.415	.033	C	GPS - STATIC	2017	HMNCORS07

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6810_E-DP0901-3W-05NOV2018.jpg	W	Nov 5, 2018
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6810_E-DP0901-2-05NOV2018.jpg		Nov 5, 2018
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6810_E-DP0901-1-05NOV2018.jpg		Nov 5, 2018

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: 6810 F

NGS Name: 6810 F

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DP0902](#) [Get Map](#)
 NGS Quad / Sta Num : 48095141/
 USGS Quad: WARROAD

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	18	163 N	36 W	485617.99	952014.05	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2012	2018	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 45 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2012) Stamping: 6810 F 2012

1.8 MILES NORTHWEST OF WARROAD, 1.75 MILES NORTH ALONG TRUNK HIGHWAY 313 FROM THE JUNCTION OF TRUNK HIGHWAY 313 AND TRUNK HIGHWAY 11 IN WARROAD, AT TRUNK HIGHWAY 313 MILEPOINT 1.75, 31.2 FEET NORTHEAST OF TRUNK HIGHWAY 313, 40.6 FEET NORTHWEST OF CABLE BOX NUMBER 500 8-5, 1.5 FEET SOUTHWEST OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>			<u>Orthometric Height</u>				<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>			
1069.473	.016	2/1				VERTICAL ADJUSTMENT	2014	00000828			
1069.473	.016	2/1				VERTICAL CONTROL SURVEY	2013	VHACK			

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>			<u>Orthometric Height</u>				<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>			
1069.473			975.835	.018	2011	HORIZONTAL ADJUSTMENT	2020	GPS3362			
1069.473	.131		975.982	.066	1996	GPS - STATIC	2020	HGRACE			
1069.473			975.835	.018	2011	GPS - STATIC	2020	HGRACE			
1069.148	.262		975.582	.197	2007	GPS - RTRN	2012	RTRN2012			

Geoid Separations(ft): GEOID18 = -93.665 12B = -93.638 09 = -93.566 03 = -93.605

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Geodetic Position</u>				<u>Roseau County</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
48 56 17.98608	95 20 14.04717	695362.606	244958.140	.016		ADJUSTMENT	2020	GPS3362		
48 56 17.98608	95 20 14.04717	695362.606	244958.140	.016	C	GPS - STATIC	2020	HGRACE		

<u>NAD83(2007)</u>		<u>Geodetic Position</u>				<u>Roseau County</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
48 56 17.98558	95 20 14.04788	695362.559	244958.089	.131	3	GPS - RTRN	2012	RTRN2012		

<u>NAD83(1996)</u>		<u>Geodetic Position</u>				<u>Roseau County</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
48 56 17.98593	95 20 14.04765	695362.574	244958.125	.033	C	GPS - STATIC	2020	HGRACE		

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>		<u>MN State Plane - North Zone</u>				<u>UTM - Zone 15</u>			<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
2086950.483	1225298.687	1078883.032	17792723.778	.016		ADJUSTMENT	2020	GPS3362		
2086950.483	1225298.687	1078883.032	17792723.778	.016	C	GPS - STATIC	2020	HGRACE		

<u>NAD83(2007)</u>		<u>MN State Plane - North Zone</u>				<u>UTM - Zone 15</u>			<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
2086950.434	1225298.637	1078882.983	17792723.729	.131	3	GPS - RTRN	2012	RTRN2012		

<u>NAD83(1996)</u>		<u>MN State Plane - North Zone</u>				<u>UTM - Zone 15</u>			<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
2086950.451	1225298.672	1078882.999	17792723.764	.033	C	GPS - STATIC	2020	HGRACE		



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6810_F-DP0902-3E-24OCT2018.jpg	E	Oct 24, 2018
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6810_F-DP0902-2-24OCT2018.jpg		Oct 24, 2018
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6810_F-DP0902-1-24OCT2018.jpg		Oct 24, 2018

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: 6810 G

NGS Name: 6810 G

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DP0903](#) [Get Map](#)
 NGS Quad / Sta Num : 48095141/
 USGS Quad: WARROAD

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	7	163 N	36 W	485727.61	952059.45	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2012	2020	GOOD	Horz=YES Vert=YES	YES		RECESSED 3 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 30 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2012) Stamping: 6810 G 2012

3.15 MILES NORTH OF WARROAD, 3.15 MILES NORTHWEST ALONG TRUNK HIGHWAY 313 FROM THE JUNCTION OF TRUNK HIGHWAY 313 AND TRUNK HIGHWAY 11 IN WARROAD, AT TRUNK HIGHWAY 313 MILEPOINT 3.15, 29.7 FEET SOUTHWEST OF TRUNK HIGHWAY 313, 1.5 FEET NORTHEAST OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Orthometric Height</u>								<u>Year</u>	<u>Reference</u>
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>			
1067.429	.016	2/1				VERTICAL ADJUSTMENT		2014	00000828
1067.426	.016	2/1				VERTICAL CONTROL SURVEY		2013	VHACK

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Orthometric Height</u>								<u>Year</u>	<u>Reference</u>
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>			
1067.442	.262		973.719	.197	2011	GPS - OPUS		2020	GPSBM
1067.521	.262		973.797	.197	2011	GPS - OPUS		2020	GPSBM
1067.432	.262		973.748	.197	2011	GPS - RTRN		2020	RTRN2020
1067.429			973.699	.019	2011	HORIZONTAL ADJUSTMENT		2020	GPS3362
1067.429	.131		973.846	.066	1996	GPS - STATIC		2020	HGRACE
1067.429			973.699	.019	2011	GPS - STATIC		2020	HGRACE
1067.180	.262		973.558	.197	2007	GPS - RTRN		2012	RTRN2012

Geoid Separations(ft): GEOID18 = -93.724 12B = -93.687 09 = -93.625 03 = -93.681

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Roseau County</u>						<u>Project Info</u>		
<u>Geodetic Position</u>		<u>X</u>		<u>Y</u>		<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
48 57 27.60844	95 20 59.45237	692256.955	251982.186	.131	3	GPS - OPUS			2020	GPSBM
48 57 27.60826	95 20 59.45312	692256.905	251982.167	.131	3	GPS - OPUS			2020	GPSBM
48 57 27.60866	95 20 59.45444	692256.817	251982.207	.131	3	GPS - RTRN			2020	RTRN2020
48 57 27.60884	95 20 59.45219	692256.967	251982.227	.016		ADJUSTMENT			2020	GPS3362
48 57 27.60884	95 20 59.45219	692256.967	251982.227	.016	C	GPS - STATIC			2020	HGRACE

<u>NAD83(2007)</u>		<u>Roseau County</u>						<u>Project Info</u>		
<u>Geodetic Position</u>		<u>X</u>		<u>Y</u>		<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
48 57 27.60751	95 20 59.45207	692256.976	251982.092	.131	3	GPS - RTRN			2012	RTRN2012

<u>NAD83(1996)</u>		<u>Roseau County</u>						<u>Project Info</u>		
<u>Geodetic Position</u>		<u>X</u>		<u>Y</u>		<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
48 57 27.60869	95 20 59.45267	692256.935	251982.211	.033	C	GPS - STATIC			2020	HGRACE

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - North Zone		UTM - Zone 15						Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
2084125.293	1232440.506	1076071.272	17799869.819	.131	3	GPS - OPUS	2020	GPSBM	
2084125.242	1232440.490	1076071.221	17799869.803	.131	3	GPS - OPUS	2020	GPSBM	
2084125.155	1232440.532	1076071.134	17799869.846	.131	3	GPS - RTRN	2020	RTRN2020	
2084125.306	1232440.547	1076071.285	17799869.860	.016		ADJUSTMENT	2020	GPS3362	
2084125.306	1232440.547	1076071.285	17799869.860	.016	C	GPS - STATIC	2020	HGRACE	

NAD83(2007)

MN State Plane - North Zone		UTM - Zone 15						Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
2084125.310	1232440.411	1076071.289	17799869.725	.131	3	GPS - RTRN	2012	RTRN2012	

NAD83(1996)

MN State Plane - North Zone		UTM - Zone 15						Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
2084125.273	1232440.532	1076071.252	17799869.845	.033	C	GPS - STATIC	2020	HGRACE	

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6810_G-DP0903-3SW-24JUN2020.jpg	SW	Jun 24, 2020
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6810_G-DP0903-2-24JUN2020.jpg		Jun 24, 2020
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6810_G-DP0903-1-24JUN2020.jpg		Jun 24, 2020

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: 6810 H

NGS Name: 6810 H

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DP0904](#) [Get Map](#)
 NGS Quad / Sta Num : 48095141/
 USGS Quad: WARROAD

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	1	163 N	37 W	485812.48	952128.17	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2012	2018	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 45 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2012) Stamping: 6810 H 2012

4.2 MILES NORTH OF WARROAD, 4.15 MILES NORTHWEST ALONG TRUNK HIGHWAY 313 FROM THE JUNCTION OF TRUNK HIGHWAY 313 AND TRUNK HIGHWAY 11 IN WARROAD, AT TRUNK HIGHWAY 313 MILEPOINT 4.15, 34.5 FEET SOUTHWEST OF TRUNK HIGHWAY 313, 31.4 FEET NORTHEAST OF A POWER POLE, 1.5 FEET NORTHEAST OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1073.748	.016	2/1					VERTICAL ADJUSTMENT	2014	00000828	
1073.745	.016	2/1					VERTICAL CONTROL SURVEY	2013	VHACK	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1073.748				980.037	.019	2011	HORIZONTAL ADJUSTMENT	2020	GPS3362	
1073.748	.131			980.185	.066	1996	GPS - STATIC	2020	HGRACE	
1073.748				980.037	.019	2011	GPS - STATIC	2020	HGRACE	

Geoid Separations(ft): GEOID18 = -93.747 12B = -93.714 09 = -93.651 03 = -93.710

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Roseau County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
48 58 12.47730	95 21 28.16604			690293.298	256509.582	.016		ADJUSTMENT	2020	GPS3362
48 58 12.47730	95 21 28.16604			690293.298	256509.582	.016	C	GPS - STATIC	2020	HGRACE

<u>NAD83(1996)</u>				<u>Roseau County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
48 58 12.47714	95 21 28.16652			690293.266	256509.565	.033	C	GPS - STATIC	2020	HGRACE

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - North Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2082342.363	1237042.322			1074297.041	17804474.293	.016		ADJUSTMENT	2020	GPS3362
2082342.363	1237042.322			1074297.041	17804474.293	.016	C	GPS - STATIC	2020	HGRACE

<u>NAD83(1996)</u>				<u>UTM - Zone 15</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - North Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2082342.330	1237042.307			1074297.009	17804474.278	.033	C	GPS - STATIC	2020	HGRACE

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6810_H-DP0904-3SW-26NOV2012.jpg	SW	Nov 26, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6810_H-DP0904-2-26NOV2012.jpg		Nov 26, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6810_H-DP0904-1-26NOV2012.jpg		Nov 26, 2012

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: 6810 J

NGS Name: 6810 J

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DP0906](#) [Get Map](#)
 NGS Quad / Sta Num : 48095144/
 USGS Quad: WARROAD NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>					
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>					
NW	25	164 N	37 W	485952.15	952231.88	2	C					
<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>					
2012	2018	GOOD	Horz=YES Vert=YES	YES		RECESSED 3 IN.	BAR MAG IN DRILL HOLE					

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 35 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2012) Stamping: 6810 J 2012

6.0 MILES NORTHWEST OF WARROAD, 6.15 MILES NORTHWEST ALONG TRUNK HIGHWAY 313 FROM THE JUNCTION OF TRUNK HIGHWAY 313 AND TRUNK HIGHWAY 11 IN WARROAD, AT TRUNK HIGHWAY 313 MILEPOINT 6.15, 0.1 MILE SOUTHEAST OF THE CANADA/UNITED STATES BORDER, 34.5 FEET SOUTHWEST OF TRUNK HIGHWAY 313, 1.5 FEET NORTHEAST OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1075.785	.016	2/1					VERTICAL ADJUSTMENT	2014	00000828
1075.789	.016	2/1					VERTICAL CONTROL SURVEY	2013	VHACK

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1075.785				981.986	.020	2011	HORIZONTAL ADJUSTMENT	2020	GPS3362
1075.785	.131			982.134	.066	1996	GPS - STATIC	2020	HGRACE
1075.785				981.986	.020	2011	GPS - STATIC	2020	HGRACE
1075.536	.262			981.842	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -93.789 12B = -93.786 09 = -93.691 03 = -93.756

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Roseau County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
48 59 52.14685	95 22 31.87703			685939.537	266567.373	.016		ADJUSTMENT	2020	GPS3362
48 59 52.14685	95 22 31.87703			685939.537	266567.373	.016	C	GPS - STATIC	2020	HGRACE
<u>NAD83(2007)</u>				<u>Roseau County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
48 59 52.14732	95 22 31.87632			685939.583	266567.421	.131	3	GPS - RTRN	2012	RTRN2012
<u>NAD83(1996)</u>				<u>Roseau County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
48 59 52.14669	95 22 31.87751			685939.505	266567.357	.033	C	GPS - STATIC	2020	HGRACE

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - North Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2078390.040	1247265.151			1070364.184	17814703.025	.016		ADJUSTMENT	2020	GPS3362
2078390.040	1247265.151			1070364.184	17814703.025	.016	C	GPS - STATIC	2020	HGRACE
<u>NAD83(2007)</u>				<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - North Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2078390.089	1247265.197			1070364.233	17814703.071	.131	3	GPS - RTRN	2012	RTRN2012
<u>NAD83(1996)</u>				<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - North Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2078390.008	1247265.135			1070364.152	17814703.010	.033	C	GPS - STATIC	2020	HGRACE



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6810_J-DP0906-3SW-27NOV2012.jpg	SW	Nov 27, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6810_J-DP0906-2-27NOV2012.jpg		Nov 27, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/6810_J-DP0906-1-27NOV2012.jpg		Nov 27, 2012

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: 69 KEE

NGS Name: 69 KEE

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 48095133/
 USGS Quad: MULLIGAN LAKE SW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	32	159 N	37 W	483242.00	952626.20		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1966	2008	GOOD	Horz=NO Vert=YES	YES		PROJECTS 2 IN.	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	USGS

Description: (1966) **Stamping:** 69 KEE 1966

7.5 MILES SOUTH AND 13.5 MILES EAST OF WANNASKA, 11.9 MILES SOUTH ALONG COUNTY ROAD 5 FROM THE JUNCTION OF COUNTY ROAD 5 AND TRUNK HIGHWAY 11 IN WARROAD, THEN 3.7 MILES ALONG 235TH STREET (THOMPSON FOREST ROAD), THEN 2.5 MILES WEST ON A FORESTRY ROAD FROM A TEE ROAD, THEN 1.0 MILE SOUTH ON COUNTY ROAD 18, THEN 4.7 MILES SOUTHEASTERLY ALONG 130TH STREET, 50.0 FEET SOUTH OF A SNOWMOBILE TRAIL, 47.0 FEET WEST OF A NORTH-SOUTH TRAIL, 2.0 FEET EAST OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1223.905	.033	3					VERTICAL CONTROL SURVEY	1974	USGS-VERT	

Geoid Separations(ft): GEOID18 = -91.378 12B = -91.397 09 = -91.292 03 = -91.237

* No Horizontal Positions in the Database *

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/69_KEE-3N-09MAY2007.jpg	N	May 9, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/69_KEE-2-09MAY2007.jpg		May 9, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/69_KEE-1-09MAY2007.jpg		May 9, 2007

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: 87 KEE

NGS Name: 87 KEE

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 48095113/
 USGS Quad: SWIFT

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	22	161 N	35 W	484523.00	950802.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1967	2007	GOOD	Horz=NO Vert=YES	YES		PROJECTS 1 IN.	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	USGS

Description: (1967) **Stamping:** 87 KEE 1967

3.0 MILES SOUTH AND 2.0 MILES WEST OF ROOSEVELT, 27.0 FEET SOUTH AND 33.0 FEET WEST OF A FORESTRY ROAD AT A TRAIL WEST, 1.0 FOOT EAST OF A WITNESS POST.

Station Notes

NEED TO BE BRUSHED.

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1201.405	.033	3				VERTICAL CONTROL SURVEY	1974	USGS-VERT	

Geoid Separations(ft): GEOID18 = -93.609 12B = -93.628 09 = -93.527 03 = -93.507

* No Horizontal Positions in the Database *

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/87_KEE-3W-14MAY2007.jpg	W	May 14, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/87_KEE-2-14MAY2007.jpg		May 14, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/87_KEE-1-14MAY2007.jpg		May 14, 2007

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: A 1=1163 RESET

NGS Name: A 1=1163

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0532](#) [Get Map](#)
 NGS Quad / Sta Num : 48095112/
 USGS Quad: ROOSEVELT

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	36	162 N	35 W	484806.00	950540.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1966	2012	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON POST	SEE DESCRIPTION	USGS

Description: (1972)

Stamping: 1163 RESET 1966

AT ROOSEVELT, AT THE JUNCTION OF OLD TRUNK HIGHWAY 11 AND A RAILROAD, 0.25 MILE NORTHWEST OF COUNTY ROAD 12, 38.5 FEET NORTHWEST OF THE NORTHEAST CORNER OF THE RAILROAD STATION, 42.0 FEET NORTHEAST OF THE NORTHEAST RAIL OF THE NORTH TRACK, 28.0 FEET SOUTHWEST OF OLD TRUNK HIGHWAY 11.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1164.427	.007	1				VERTICAL CONTROL SURVEY	1993	POSTED	

NGVD29

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1163.019	.007	1				VERTICAL CONTROL SURVEY	1973	Q480951	
1163.019	.007	1				VERTICAL CONTROL SURVEY	1973	L22862	
1163.019	.007	1				VERTICAL CONTROL SURVEY	1941	Q480951	
1163.019	.007	1				VERTICAL CONTROL SURVEY	1935	L56 MINN	

Geoid Separations(ft): GEOID18 = -94.150 12B = -94.140 09 = -94.058 03 = -94.045

* No Horizontal Positions in the Database *



Mn/DOT Name: A 209

NGS Name: A 209

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0339](#) [Get Map](#)
 NGS Quad / Sta Num : 48095141/
 USGS Quad: WARROAD

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	4	162 N	36 W	485304.00	951737.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1935	2007	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE FOOTING - SMALL	BENCH MARK DISK	NGS

Description: (1981) **Stamping:** A-209 1935

1.8 MILES SOUTH AND SOUTHEAST ON TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND LAKE STREET IN WARROAD, 1 POLE WEST OF RAILROAD MILEPOST 36, 91.8 FEET NORTHEAST OF TRUNK HIGHWAY 11, AT TRUNK HIGHWAY 11 MILEPOINT 94.6, 35.5 FEET SOUTHWEST OF THE SOUTHWEST RAIL OF THE RAILROAD TRACKS, 18.0 FEET NORTHWEST OF A FIELD ROAD NORTH, 12.0 FEET SOUTH OF THE WEST END OF A METAL CULVERT, 4.0 FEET WEST OF A TELEPHONE POLE, 1.0 FOOT SOUTH OF A WITNESS POST.

Station Notes

THE DISK WAS TURNED IN TO THE OFFICE.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1077.619	.007	1/2				VERTICAL ADJUSTMENT	1991	00000025	

NGVD29

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1076.225	.016	2				VERTICAL CONTROL SURVEY	1973	Q480951	
1076.225	.016	2				VERTICAL CONTROL SURVEY	1973	L22862	
1076.031	.007	1				VERTICAL CONTROL SURVEY	1941	Q480951	
1076.031	.007	1				VERTICAL CONTROL SURVEY	1935	L56 MINN	

Geoid Separations(ft): GEOID18 = -93.550 12B = -93.537 09 = -93.487 03 = -93.461

* No Horizontal Positions in the Database *



Mn/DOT Name: A 318

NGS Name: A 318

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0355](#) [Get Map](#)
 NGS Quad / Sta Num : 48095144/
 USGS Quad: WARROAD NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	32	163 N	37 W	485342.00	952636.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1935	2014	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	BENCH MARK DISK	NGS

Description: (1981)

Stamping: A 318 1940

6.0 MILES EAST ON A RAILROAD FROM THE RAILROAD STATION AT SALOL, 6.0 FEET EAST OF RAILROAD MILEPOST 98,
 40.0 FEET NORTH OF THE NORTH RAIL OF THE RAILROAD TRACKS, NEAR A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1087.921	.007	1/2				VERTICAL ADJUSTMENT	1991	00000025	

NGVD29

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1086.527	.007	1				VERTICAL CONTROL SURVEY	1941	Q480951	
1086.527	.007	1				VERTICAL CONTROL SURVEY	1935	L56 MINN	

Geoid Separations(ft): GEOID18 = -93.382 12B = -93.366 09 = -93.261 03 = -93.264

* No Horizontal Positions in the Database *



Mn/DOT Name: A 368

NGS Name: A 368

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0486](#) [Get Map](#)
 NGS Quad / Sta Num : 48095141/
 USGS Quad: WARROAD

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	29	163 N	36 W	485424.90	951857.25	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1981	2012	GOOD	Horz=NO Vert=YES	YES		RECESSED 4 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
STEEL ROD (IN SLEEVE) (DEPTH 44 FT)	METAL ROD	NGS

Description: (1981) **Stamping:** A 368 1981

IN WARROAD, 0.2 MILE EAST ALONG COUNTY ROAD 74 (LAKE STREET NORTHEAST) FROM THE JUNCTION OF COUNTY ROAD 74 (LAKE STREET NORTHEAST) AND TRUNK HIGHWAY 11 IN WARROAD, THEN 0.1 MILE NORTH ON MINNESOTA AVENUE NORTHEAST, IN A LAWN AT THE SOUTHEAST CORNER OF THE UNION CONGREGATIONAL CHURCH, AT THE JUNCTION OF MINNESOTA STREET AND MACKENZIE AVENUE, 43.0 FEET NORTH OF THE NORTH CURB ON MACKENZIE AVENUE, 22.0 FEET EAST OF 2 DOORS AT THE MAIN CHURCH ENTRANCE EXTENDED, 21.0 FEET WEST OF THE WEST EDGE OF A DRIVEWAY, 7.0 FEET SOUTHEAST OF THE SOUTHEAST CORNER OF A CHURCH.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1069.119	.016	2/1				VERTICAL ADJUSTMENT	2014	00000828
1069.119	.016	2/1				VERTICAL CONTROL SURVEY	2013	VHACK
1069.119	.016	2/1				VERTICAL ADJUSTMENT	2000	00000365
1069.119	.016	2/1				VERTICAL CONTROL SURVEY	1998	VWARR
1069.119	.007	1/2				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1067.741	.016	2/1				VERTICAL CONTROL SURVEY	1999	VWARR
1067.741	.033	3				VERTICAL CONTROL SURVEY	1987	CS6803

Geoid Separations(ft): GEOID18 = -93.553 12B = -93.553 09 = -93.500 03 = -93.478

*** No Horizontal Positions in the Database ***

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/A_368-TC0486-3N-09OCT2012.jpg	N	Oct 9, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/A_368-TC0486-2-09OCT2012.jpg		Oct 9, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/A_368-TC0486-1-09OCT2012.jpg		Oct 9, 2012

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: AIRPORT BEACON 1990

NGS Name: AIRPORT BEACON 1990

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [AA9061](#) [Get Map](#)
 NGS Quad / Sta Num : 48095141/
 USGS Quad: WARROAD

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	18	163 N	36 W	485554.00	952026.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1990	1990	GOOD	Horz=? Vert=?	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
BLANK	AIRPORT BEACON	NGS

Description:

Stamping:

LOCATED AT THE ENTRANCE TO THE AIRPORT IN THE FIELD BETWEEN THE PAVED ENTRANCE ROAD AND THE UNPAVED ENTRANCE ROAD LEADING PAST THE NDB DME. THE POINT OBSERVED WAS THE SPINDLE OF THE BEACON.

Station Notes

CONTACT THE AIRPORT MANAGER BEFORE USE. WARROAD INTERNATIONAL MEMORIAL AIRPORT.

* No Horizontal or Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -93.622 12B = -93.602 09 = -93.527 03 = -93.556



Mn/DOT Name: AKER

NGS Name: AKER

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DP9492](#) [Get Map](#)
 NGS Quad / Sta Num : 48095144/
 USGS Quad: WARROAD NW

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	33	163 N	37 W	485336.97	952545.65	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2014	2018	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 19 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014) **Stamping:** AKER 2014

5.0 MILES WEST-SOUTHWEST OF WARROAD, 4.75 MILES WEST-SOUTHWEST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND TRUNK HIGHWAY 313 IN WARROAD, AT TRUNK HIGHWAY 11 MILEPOINT 86.9, 98.9 FEET SOUTH OF TRUNK HIGHWAY 11, 48.4 FEET EAST OF A GRAVEL ROAD, 10.0 FEET EAST OF A WITNESS POST.

Station Pair: FRAN - ROSEAU, MN

Leveling-Derived Orthometric Heights (Feet)

NAVD88			Orthometric Height			Ellipsoid (NAD83)			Determination Method		Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Year	Reference					
1089.115	.016	2/1				2019	00000941	VERTICAL ADJUSTMENT				
1089.099	.016	2/1				2015	VKTAD	VERTICAL CONTROL SURVEY				

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88			Orthometric Height			Ellipsoid (NAD83)			Determination Method		Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Year	Reference					
1089.115	.131		995.900	.066	1996	2021	HKTAD	GPS - STATIC				
1089.115			995.739	.023	2011	2020	GPS3390	HORIZONTAL ADJUSTMENT				
1089.115			995.739	.023	2011	2020	HKTAD	GPS - STATIC				
1089.063	.262		995.687	.197	2011	2014	RTRN2014	GPS - RTRN				

Geoid Separations(ft): GEOID18 = -93.392 12B = -93.376 09 = -93.274 03 = -93.281

Lat/Lon and County Coordinates (Feet)

NAD83(2011)		Geodetic Position		Roseau County		Acc		Order		Determination Method		Project Info	
Latitude	Longitude	X	Y	Acc	Order	Year	Reference						
48 53 36.97115	95 25 45.65476	673376.601	228416.618	.013		2020	GPS3390	ADJUSTMENT					
48 53 36.97115	95 25 45.65476	673376.601	228416.618	.013	C	2020	HKTAD	GPS - STATIC					
48 53 36.97125	95 25 45.65390	673376.658	228416.628	.131	3	2014	RTRN2014	GPS - RTRN					

NAD83(1996)		Geodetic Position		Roseau County		Acc		Order		Determination Method		Project Info	
Latitude	Longitude	X	Y	Acc	Order	Year	Reference						
48 53 36.97098	95 25 45.65539	673376.559	228416.600	.033	C	2021	HKTAD	GPS - STATIC					

State Plane and UTM Coordinates (Feet)

NAD83(2011)		MN State Plane - North Zone		UTM - Zone 15		Acc		Order		Determination Method		Project Info	
X	Y	X	Y	X	Y	Acc	Order	Year	Reference				
2064326.063	1209640.069	1056232.529	17777108.089	.013		2020	GPS3390	ADJUSTMENT					
2064326.063	1209640.069	1056232.529	17777108.089	.013	C	2020	HKTAD	GPS - STATIC					
2064326.121	1209640.077	1056232.587	17777108.097	.131	3	2014	RTRN2014	GPS - RTRN					

NAD83(1996)		MN State Plane - North Zone		UTM - Zone 15		Acc		Order		Determination Method		Project Info	
X	Y	X	Y	X	Y	Acc	Order	Year	Reference				
2064326.021	1209640.053	1056232.487	17777108.073	.033	C	2021	HKTAD	GPS - STATIC					

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/AKER-DP9492-3S-30JUL2014.jpg	S	Jul 30, 2014
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/AKER-DP9492-2-30JUL2014.jpg		Jul 30, 2014
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/AKER-DP9492-1-30JUL2014.jpg		Jul 30, 2014

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: ALGOMA

NGS Name: ALGOMA

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0682](#) [Get Map](#)
 NGS Quad / Sta Num : 48095144/1008
 USGS Quad: WARROAD NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	26	163 N	37 W	485416.27	952308.88		1

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1941	1969	DESTROYED	Horz=NO Vert=NO	NO		PROJECTS 6 IN.	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	TRIANGULATION STATION DISK	NGS

Description: (1969) Stamping: ALGOMA 1941

2.6 MILES WEST OF WARROAD, 0.3 MILE WEST ALONG LAKE STREET FROM THE JUNCTION OF LAKE STREET AND ROBERTS AVENUE IN WARROAD, THEN 1.0 MILE NORTH ALONG MOM'S WAY, THEN 2.6 MILES WESTERLY ALONG TRUNK HIGHWAY 11, THEN 49.0 FEET SOUTH ALONG PINE RIDGE ROAD.

Station Notes

THE STATION WAS DESTROYED.

* No Leveling-Derived Orthometric Heights in the Database *

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1089.237	.131		996.307	.066	1996	HORIZONTAL ADJUSTMENT	1999	17648

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1089.204						RECIPROCAL VERTICAL ANGLE	1941	HORZ

Geoid Separations(ft): GEOID18 = -93.445 12B = -93.435 09 = -93.336 03 = -93.359

Lat/Lon and County Coordinates (Feet)

<u>NAD83(1996)</u>		<u>Roseau County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 54 16.26601	95 23 08.87858	683813.453	232501.173	.033	1	ADJUSTMENT	1999	17648

<u>NAD83(1986)</u>		<u>Roseau County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 54 16.25140	95 23 08.84964	683815.402	232499.712	.033	1	ADJUSTMENT	1986	17289

<u>NAD27</u>						<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 54 96.29900	95 23 07.97300			.100	3	CLASSICAL SURVEY	1966	USGS-HORZ
48 54 16.29900	95 23 07.97300			.100	1	CLASSICAL SURVEY	1960	12443

State Plane and UTM Coordinates (Feet)

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - North Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2074916.729	1213308.365	1066828.866	17780756.764	.033	1	ADJUSTMENT	1999	17648

<u>NAD83(1986)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - North Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2074918.619	1213306.828	1066830.752	17780755.223	.033	1	ADJUSTMENT	1986	17289

<u>NAD27</u>						<u>Project Info</u>		
<u>MN State Plane - North Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1450532.740	893329.451			.100	3	CLASSICAL SURVEY	1966	USGS-HORZ
1450293.025	885224.445			.100	1	CLASSICAL SURVEY	1960	12443



Mn/DOT Name: ALGOMA 2

NGS Name: ALGOMA 2

County: ROSEAU, MN (Sheet 2)

NGS ACRN: TC0498	Get Map
NGS Quad / Sta Num : 48095144/1008	
USGS Quad: WARROAD NW	

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	26	163 N	37 W	485416.30	952308.22	2	2

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1969	2014	GOOD	Horz=NO Vert=YES	YES		FLUSH	STEEL SPIKE ADJ TO MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	TRIANGULATION STATION DISK	NGS

Description: (2009) **Stamping:** ALGOMA 2 1969

3.6 MILES WEST OF WARROAD, 2.6 MILES SOUTHWEST ON TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND TRUNK HIGHWAY 313 IN WARROAD, AT TRUNK HIGHWAY 11 MILEPOINT 89.05, 69.0 FEET SOUTH OF TRUNK HIGHWAY 11, 60.0 FEET EAST OF PINE RIDGE ROAD, 1.0 FOOT NORTH OF A WITNESS POST, 73.39 FEET NORTH OF ALGOMA 2 RM 2, 42.1 FEET SOUTHWEST OF ALGOMA 2 RM 3.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1135.657	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941
1135.651	.016	2/1					VERTICAL CONTROL SURVEY	2015	VKTAD
1135.651	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1135.660	.197			1042.721	.131	1996	HORIZONTAL ADJUSTMENT	1999	17648

Geoid Separations(ft): GEOID18 = -93.445 12B = -93.435 09 = -93.336 03 = -93.359

Lat/Lon and County Coordinates (Feet)

<u>NAD83(1996)</u>				<u>Roseau County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
48 54 16.29565	95 23 08.21738			683857.599	232504.621	.066	2	ADJUSTMENT	1999	17648

<u>NAD83(1986)</u>				<u>Roseau County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
48 54 16.28104	95 23 08.18844			683859.548	232503.159	.066	2	ADJUSTMENT	1986	17289

<u>NAD27</u>								<u>Project Info</u>		
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
48 54 16.32863	95 23 07.31182					.100	2	CLASSICAL SURVEY	1986	10744

State Plane and UTM Coordinates (Feet)

<u>NAD83(1996)</u>				<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - North Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2074960.979	1213310.062			1066873.113	17780758.380	.066	2	ADJUSTMENT	1999	17648

<u>NAD83(1986)</u>				<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - North Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2074962.868	1213308.525			1066874.999	17780756.839	.066	2	ADJUSTMENT	1986	17289

<u>NAD27</u>								<u>Project Info</u>		
<u>MN State Plane - North Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
1450337.274	885226.141					.100	2	CLASSICAL SURVEY	1986	10744



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/ALGOMA_2-TC0498-3SE-14OCT2009.jpg	SE	Oct 14, 2009
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/ALGOMA_2-TC0498-2-14OCT2009.jpg		Oct 14, 2009
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/ALGOMA_2-TC0498-1-14OCT2009.jpg		Oct 14, 2009

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: ALGOMA 2 AZ MK

NGS Name: ALGOMA 2 AZ MK

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0496](#) [Get Map](#)
 NGS Quad / Sta Num : 48095144/
 USGS Quad: WARROAD NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	26	163 N	37 W	485424.82	952247.94	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1969	2014	GOOD	Horz=NO Vert=YES	YES		PROJECTS 2 IN.	STEEL SPIKE ADJ TO MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	AZIMUTH MARK DISK	NGS

Description: (2014) Stamping: ALGOMA 2 1969

3.3 MILES WEST OF WARROAD, 2.35 MILES WEST ON TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND TRUNK HIGHWAY 313 IN WARROAD, AT TRUNK HIGHWAY 11 MILEPOINT 89.3, 71.0 FEET NORTH OF TRUNK HIGHWAY 11, 91.0 FEET WEST OF A DRIVEWAY, 0.5 FOOT EAST OF A WITNESS POST, 0.2 MILE NORTHEAST OF STATION ALGOMA 2.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1132.048	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941
1132.048	.016	2/1					VERTICAL CONTROL SURVEY	2015	VKTAD
1132.048	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1131.992	.262			1038.545	.197	2011	GPS - RTRN	2014	RTRN2014

Geoid Separations(ft): GEOID18 = -93.458 12B = -93.445 09 = -93.353 03 = -93.373

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Roseau County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
48 54 24.81558	95 22 47.94469			685203.325	233381.739	.131	3	GPS - RTRN	2014	RTRN2014

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - North Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2076340.418	1214133.239			1068253.904	17781578.963	.131	3	GPS - RTRN	2014	RTRN2014

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/ALGOMA_2_AZ_MK-TC0496-3N-14OCT2009.jpg	N	Oct 14, 2009
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/ALGOMA_2_AZ_MK-TC0496-2-14OCT2009.jpg		Oct 14, 2009
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/ALGOMA_2_AZ_MK-TC0496-1-14OCT2009.jpg		Oct 14, 2009

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: ALGOMA 2 RM 2

NGS Name: ALGOMA RM 2

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0497](#) [Get Map](#)
 NGS Quad / Sta Num : 48095144/
 USGS Quad: WARROAD NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	26	163 N	37 W	485415.58	952308.38	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1941	2014	DESTROYED	Horz=NO Vert=NO	NO		PROJECTS 4 IN.	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

Description: (1989) Stamping: ALGOMA NO 2 1941

3.6 MILES WEST ON TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND EAST LAKE STREET IN WARROAD, 2.6 MILES SOUTHWEST ON TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND TRUNK HIGHWAY 313, 142.0 FEET SOUTH OF TRUNK HIGHWAY 11, 10.0 FEET SOUTHEAST OF A FORK IN A WOODS ROAD, 73.5 FEET SOUTH OF STATION ALGOMA 2, 0.5 FOOT EAST OF A WITNESS POST.

Station Notes

THE AREA IS QUITE DENSE WITH TREES AND UNDERBRUSH MAKING MEASUREMENTS DIFFICULT. NO MAGNETIC RESPONSE EITHER.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1135.641	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025	

Geoid Separations(ft): GEOID18 = -93.445 12B = -93.435 09 = -93.336 03 = -93.359

* No Horizontal Positions in the Database *



Mn/DOT Name: ALGOMA 2 RM 3

NGS Name: ALGOMA 2 RM 3

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0499](#) [Get Map](#)
 NGS Quad / Sta Num : 48095144/
 USGS Quad: WARROAD NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	26	163 N	37 W	485416.48	952307.65	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1969	2014	GOOD	Horz=NO Vert=YES	YES		RECESSED 6 IN.	STEEL SPIKE ADJ TO MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

Description: (2014) **Stamping:** ALGOMA 2 NO 3 1969

3.6 MILES WEST OF WARROAD, 2.6 MILES SOUTHWEST ON TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND TRUNK HIGHWAY 313 IN WARROAD, AT TRUNK HIGHWAY 11 MILEPOINT 89.05, 70.0 FEET SOUTH OF TRUNK HIGHWAY 11, 102.0 FEET EAST OF PINE RIDGE ROAD SOUTH, 42.1 FEET NORTHEAST OF STATION ALGOMA 2, 0.5 FOOT NORTH OF AN OLD WITNESS POST, 1.0 FOOT WEST OF A NEWER WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1134.876	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	
1134.866	.016	2/1					VERTICAL CONTROL SURVEY	2015	VKTAD	
1134.866	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025	

Geoid Separations(ft): GEOID18 = -93.448 12B = -93.435 09 = -93.336 03 = -93.359

* No Horizontal Positions in the Database *

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/ALGOMA_2_RM_3-TC0499-3S-14OCT2009.jpg	S	Oct 14, 2009
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/ALGOMA_2_RM_3-TC0499-2-14OCT2009.jpg		Oct 14, 2009
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/ALGOMA_2_RM_3-TC0499-1-14OCT2009.jpg		Oct 14, 2009

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: ALGOMAAZ MK

NGS Name: ALGOMAAZ MK

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [CO7261](#) [Get Map](#)
 NGS Quad / Sta Num : 48095144/
 USGS Quad: WARROAD NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	26	163 N	37 W	485424.00	952249.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1941	2001	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	AZIMUTH MARK DISK	NGS

Description: Stamping: ALGOMA 1941

2.3 MILES WEST OF WARROAD, 0.3 MILE WEST ALONG LAKE STREET FROM THE JUNCTION OF LAKE STREET AND ROBERTS AVENUE IN WARROAD, THEN 1.0 MILE NORTH ALONG MOM'S WAY, THEN 2.3 MILES WESTERLY ALONG TRUNK HIGHWAY 11.

* No Horizontal or Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -93.458 12B = -93.445 09 = -93.350 03 = -93.373



Mn/DOT Name: ALGOMA RM 1

NGS Name: ALGOMA RM 1

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [CO7262](#) [Get Map](#)
 NGS Quad / Sta Num : 48095144/
 USGS Quad: WARROAD NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	26	163 N	37 W	485416.65	952307.77		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1941	1969	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

Description: **Stamping:** ALGOMA NO 1 1941

2.6 MILES WEST OF WARROAD, 0.3 MILE WEST ALONG LAKE STREET FROM THE JUNCTION OF LAKE STREET AND ROBERTS AVENUE IN WARROAD, THEN 1.0 MILE NORTH ALONG MOM'S WAY, THEN 2.6 MILES WESTERLY ALONG TRUNK HIGHWAY 11, THEN 102.0 FEET SOUTH ALONG PINE RIDGE ROAD.

* No Horizontal or Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -93.445 12B = -93.435 09 = -93.336 03 = -93.359



Mn/DOT Name: B 209

NGS Name: B 209

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0341](#) [Get Map](#)
 NGS Quad / Sta Num : 48095141/
 USGS Quad: WARROAD

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	33	163 N	36 W	485334.00	951831.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1935	2012	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	BENCH MARK DISK	NGS

Description: (1981) **Stamping:** B-209 1935

1.0 MILE SOUTHEAST OF WARROAD, 20.6 FEET EAST ON A RAILROAD FROM THE RAILROAD STATION, 20.6 FEET EAST OF RAILROAD MILEPOST 37, 46.5 FEET SOUTH OF TRUNK HIGHWAY 11, 35.0 FEET NORTH OF THE NORTH RAIL OF THE RAILROAD TRACKS, 25.0 FEET SOUTHWEST OF KIRKWOOD DRIVE.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1072.754	.007	1					VERTICAL CONTROL SURVEY	1993	POSTED	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1071.382	.007	1					VERTICAL CONTROL SURVEY	1941	Q480951	
1071.382	.007	1					VERTICAL CONTROL SURVEY	1935	L56 MINN	

Geoid Separations(ft): GEOID18 = -93.517 12B = -93.514 09 = -93.461 03 = -93.432

* No Horizontal Positions in the Database *



Mn/DOT Name: B 251

NGS Name: B 251

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 48095423/
 USGS Quad: WANNASKA SW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	1	159 N	40 W	483645.00	954403.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1935	1998	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	NGS

Description: (1998) Stamping: B 251 1935

3.2 MILES SOUTH OF WANNASKA, 3.2 MILES SOUTH ALONG TRUNK HIGHWAY 89 FROM THE JUNCTION OF TRUNK HIGHWAY 89 AND 181ST STREET IN WANNASKA.

Station Notes

THE STATION WAS DESTROYED IN 1998.

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>				<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>				<u>Year</u>	<u>Reference</u>		
1129.821	.033	3						VERTICAL CONTROL SURVEY		1974	USGS-VERT		

Geoid Separations(ft): GEOID18 = -90.981 12B = -90.991 09 = -90.889 03 = -90.869

* No Horizontal Positions in the Database *



Mn/DOT Name: B 318

NGS Name: B 318

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0402](#) [Get Map](#)
 NGS Quad / Sta Num : 48095413/
 USGS Quad: MALUNG

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	20	162 N	39 W	485045.00	954326.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1940	2006	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	BENCH MARK DISK	NGS

Description: (1981) Stamping: B 318 1940

2.0 MILES EAST ON A RAILROAD FROM THE RAILROAD STATION AT ROSEAU, 28.0 FEET EAST OF A ROAD, 50.0 FEET NORTH OF THE NORTH RAIL OF THE RAILROAD TRACKS, 2.7 FEET SOUTH OF A WITNESS POST, AT A FENCE CORNER.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1058.551	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1057.173	.033	3					VERTICAL CONTROL SURVEY	1974	USGS-VERT	
1057.173	.007	1					VERTICAL CONTROL SURVEY	1941	Q480954	
1057.173	.007	1					VERTICAL CONTROL SURVEY	1935	L56 MINN	

Geoid Separations(ft): GEOID18 = -92.267 12B = -92.267 09 = -92.152 03 = -92.142

* No Horizontal Positions in the Database *



Mn/DOT Name: B 368

NGS Name: B 368

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0504](#) [Get Map](#)
 NGS Quad / Sta Num : 48095412/
 USGS Quad: SALOL

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	2	162 N	38 W	485222.73	953112.30	1	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1981	2015	NOT FOUND	Horz=NO Vert=YES	YES		RECESSED 6 IN.	STEEL SPIKE ADJ TO MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
STEEL ROD (IN SLEEVE) (DEPTH 40 FT)	METAL ROD	NGS

Description: (2014) Stamping: B 368 1981

2.4 MILES EAST OF SALOL, 2.4 MILES EAST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND 480TH STREET IN SALOL, AT TRUNK HIGHWAY 11 MILEPOINT 82.45, 0.05 MILE NORTH OF TRUNK HIGHWAY 11, 64.5 FEET EAST-NORTHEAST OF THE SOUTHEAST CORNER OF A HOUSE, 67.5 FEET SOUTHEAST OF THE NORTHEAST CORNER OF A METAL SHED, 11.0 FEET NORTH-NORTHWEST OF A POWER POLE WITH A LIGHT, 20.0 FEET SOUTHWEST OF THE SOUTHEAST CORNER OF A METAL SHED.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1086.956	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1086.842	.262			993.679	.197	2011	GPS - RTRN	2014	RTRN2014	

Geoid Separations(ft): GEOID18 = -93.176 12B = -93.163 09 = -93.058 03 = -93.048

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Roseau County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
48 52 22.73182	95 31 12.30066			651610.038	220699.025	.131	3	GPS - RTRN	2014	RTRN2014

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - North Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2042270.608	1202789.750			1034166.057	17770298.536	.131	3	GPS - RTRN	2014	RTRN2014

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/B_368-TC0504-3N-14OCT2009.jpg	N	Oct 14, 2009
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/B_368-TC0504-2-14OCT2009.jpg		Oct 14, 2009
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/B_368-TC0504-1-14OCT2009.jpg		Oct 14, 2009

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: BADG MNDT
County: ROSEAU, MN (Sheet 2)

NGS Name: BADG

NGS ACRN: [AJ8648](#) [Get Map](#)
NGS Quad / Sta Num : 48095424/
USGS Quad: WANNASKA

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	19	160 N	39 W	484013.57	954404.65	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1998	2012	DESTROYED	Horz=NO Vert=NO	YES		FLUSH	MARKER W/BAR MAGNET

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 20 FT)	SURVEY DISK	MNDT

Description: (1998) Stamping: BADG 1998

1.0 MILE NORTH OF WANNASKA, 0.9 MILE NORTH ALONG TRUNK HIGHWAY 89 FROM THE JUNCTION OF TRUNK HIGHWAY 89 AND THE ROSEAU RIVER IN WANNASKA, AT TRUNK HIGHWAY 89 MILEPOINT 112.4, 73.0 FEET EAST TRUNK HIGHWAY 89, 41.0 SOUTH OF COUNTY ROAD 128, 92.6 FEET WEST OF A POWER POLE, 2.4 FEET EAST OF A WITNESS POST.

Station Notes

THE DISK WAS TURNED IN TO THE OFFICE.

Leveling-Derived Orthometric Heights (Feet)

NAVD88			Orthometric Height			Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference		
1105.890	.016	2/1				VERTICAL ADJUSTMENT	2004	00000425-2		
1105.877	.016	2/1				VERTICAL CONTROL SURVEY	2000	VGRYG		

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88			Orthometric Height			Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference		
			1014.457	.009	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800		
			1014.565	.010	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300		
1105.870	.131		1014.548	.066	1996	HORIZONTAL ADJUSTMENT	2002	GPS1666		
1105.870	.131		1014.548	.066	1996	GPS - STATIC	2001	HGRYG		

Geoid Separations(ft): GEOID18 = -91.457 12B = -91.470 09 = -91.361 03 = -91.329

Lat/Lon and County Coordinates (Feet)

NAD83(2011)		Geodetic Position		Roseau County		Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 40 13.57361	95 44 04.64823	600377.268	146445.183	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)		Geodetic Position		Roseau County		Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 40 13.57388	95 44 04.64894	600377.220	146445.211	.013		ADJUSTMENT	2007	GPS2300

NAD83(1996)		Geodetic Position		Roseau County		Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 40 13.57373	95 44 04.64898	600377.218	146445.196	.033	C	ADJUSTMENT	2002	GPS1666
48 40 13.57373	95 44 04.64898	600377.218	146445.196	.033	C	GPS - STATIC	2001	HGRYG

State Plane and UTM Coordinates (Feet)

NAD83(2011)		MN State Plane - North Zone		UTM - Zone 15		Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1988141.955	1130620.584	979906.307	17698225.524	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)		MN State Plane - North Zone		UTM - Zone 15		Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1988141.908	1130620.613	979906.260	17698225.553	.013		ADJUSTMENT	2007	GPS2300

NAD83(1996)		MN State Plane - North Zone		UTM - Zone 15		Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1988141.905	1130620.598	979906.257	17698225.538	.033	C	ADJUSTMENT	2002	GPS1666
1988141.905	1130620.598	979906.257	17698225.538	.033	C	GPS - STATIC	2001	HGRYG



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location: Monument: Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/BADG-AJ8648-1-28JUN2007.jpg		Jun 28, 2007

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: BADG RESET

NGS Name: BADG RESET

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DO8836](#) [Get Map](#)
 NGS Quad / Sta Num : 48095424/
 USGS Quad: WANNASKA

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	19	160 N	39 W	484013.57	954404.65	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2012	2017	GOOD	Horz=YES Vert=YES	YES		FLUSH	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 20 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2012) Stamping: BADG 1998 2012

1.0 MILE NORTH OF WANNASKA, 0.9 MILE NORTH ALONG TRUNK HIGHWAY 89 FROM THE JUNCTION OF TRUNK HIGHWAY 89 AND THE ROSEAU RIVER IN WANNASKA, AT TRUNK HIGHWAY 89 MILEPOINT 112.4, 73.0 FEET EAST TRUNK HIGHWAY 89, 41.0 SOUTH OF COUNTY ROAD 128 (190TH STREET), 92.6 FEET WEST OF A POWER POLE, 2.4 FEET EAST OF A WITNESS POST.

Station Pair: NOCK MNDT - ROSEAU, MN

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
1105.526	.016	2/1				2013	00000795					
1105.526	.016	2/1				2013	VGATK					

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
1105.526			1014.112	.018	2011	2018	GPS3232					
1105.526			1014.112	.018	2011	2018	HGATK					
1105.526	.131		1014.273	.066	1996	2018	HGATK					
1105.624	.262		1014.155	.197	2011	2016	RTRN2016					
1105.562	.262		1014.201	.197	2007	2012	RTRN2012					

Geoid Separations(ft): GEOID18 = -91.457 12B = -91.470 09 = -91.361 03 = -91.329

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Geodetic Position</u>				<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>						
48 40 13.57419	95 44 04.64846	600377.252	146445.242	.010		2018	GPS3232						
48 40 13.57419	95 44 04.64846	600377.252	146445.242	.010	C	2018	HGATK						
48 40 13.57430	95 44 04.64733	600377.328	146445.254	.131	3	2016	RTRN2016						

<u>NAD83(2007)</u>		<u>Geodetic Position</u>				<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>						
48 40 13.57384	95 44 04.64896	600377.219	146445.207	.131	3	2012	RTRN2012						

<u>NAD83(1996)</u>		<u>Geodetic Position</u>				<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>						
48 40 13.57411	95 44 04.64910	600377.209	146445.234	.033	C	2018	HGATK						

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1988141.942	1130620.643	979906.293	17698225.583	.010		ADJUSTMENT	2018	GPS3232
1988141.942	1130620.643	979906.293	17698225.583	.010	C	GPS - STATIC	2018	HGATK
1988142.018	1130620.651	979906.370	17698225.591	.131	3	GPS - RTRN	2016	RTRN2016

NAD83(2007)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1988141.907	1130620.609	979906.259	17698225.549	.131	3	GPS - RTRN	2012	RTRN2012

NAD83(1996)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1988141.898	1130620.636	979906.250	17698225.576	.033	C	GPS - STATIC	2018	HGATK

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/BADG_RESET-DO8836-3S-05SEP2012.jpg	S	Sep 5, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/BADG_RESET-DO8836-2-05SEP2012.jpg		Sep 5, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/BADG_RESET-DO8836-1-05SEP2012.jpg		Sep 5, 2012

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: BEMIS MNDT

NGS Name: BEMIS

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [AJ8649](#) [Get Map](#)
 NGS Quad / Sta Num : 48095423/
 USGS Quad: WANNASKA SW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	19	159 N	39 W	483408.37	954358.21	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1998	2012	DESTROYED	Horz=NO Vert=NO	NO		FLUSH	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	SURVEY DISK	MNDT

Description: (1998) **Stamping:** BEMIS 1998

6.3 MILES SOUTH OF WANNASKA, 6.3 MILES SOUTH ALONG TRUNK HIGHWAY 89 FROM THE JUNCTION OF TRUNK HIGHWAY 89 AND ROSEAU RIVER IN WANNASKA, AT TRUNK HIGHWAY 89 MILEPOINT 105.35, 86.0 FEET EAST TRUNK HIGHWAY 89, 26.0 FEET NORTH OF A ROAD, 6.0 FEET WEST OF A FENCE CORNER, 8.8 FEET SOUTHWEST OF A RIGHT-OF-WAY MONUMENT, 2.7 FEET WEST OF A WITNESS POST.

Station Notes

THE DISK WAS TURNED IN TO THE OFFICE.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order</u>	<u>(/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>	
1157.639	.016		2/1				2004	0000425-2	VERTICAL ADJUSTMENT				
1157.635	.016		2/1				2000	VGRYG	VERTICAL CONTROL SURVEY				

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order</u>	<u>(/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>	
				1067.078	.007	2011	2012	GPS2800	HORIZONTAL ADJUSTMENT				
				1067.183	.008	2007	2007	GPS2300	HORIZONTAL ADJUSTMENT				
1157.642	.131			1067.163	.066	1996	2002	GPS1666	HORIZONTAL ADJUSTMENT				
1157.642	.131			1067.163	.066	1996	2001	HGRYG	GPS - STATIC				

Geoid Separations(ft): GEOID18 = -90.515 12B = -90.508 09 = -90.423 03 = -90.443

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Geodetic Position</u>			<u>Roseau County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>		
48 34 08.36595	95 43 58.21053	601012.065	109434.912	.007		2012	GPS2800	ADJUSTMENT					

<u>NAD83(2007)</u>				<u>Geodetic Position</u>			<u>Roseau County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>		
48 34 08.36608	95 43 58.21137	601012.008	109434.925	.007		2007	GPS2300	ADJUSTMENT					

<u>NAD83(1996)</u>				<u>Geodetic Position</u>			<u>Roseau County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>		
48 34 08.36600	95 43 58.21148	601012.001	109434.917	.033	C	2002	GPS1666	ADJUSTMENT					
48 34 08.36600	95 43 58.21148	601012.000	109434.916	.033	C	2001	HGRYG	GPS - STATIC					



State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - North Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
1987313.458	1093616.042	979013.305	17661218.713	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - North Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
1987313.402	1093616.058	979013.249	17661218.728	.007		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - North Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
1987313.394	1093616.050	979013.241	17661218.720	.033	C	ADJUSTMENT	2002	GPS1666
1987313.394	1093616.050	979013.241	17661218.720	.033	C	GPS - STATIC	2001	HGRYG



Mn/DOT Name: BEMIS RESET

NGS Name: BEMIS RESET

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DO8844](#) [Get Map](#)
 NGS Quad / Sta Num : 48095423/
 USGS Quad: WANNASKA SW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	19	159 N	39 W	483408.37	954358.21	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2012	2017	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 10 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2012) Stamping: BEMIS 1998 2012

6.3 MILES SOUTH OF WANNASKA, 6.3 MILES SOUTH ALONG TRUNK HIGHWAY 89 FROM THE JUNCTION OF TRUNK HIGHWAY 89 AND THE ROSEAU RIVER IN WANNASKA, AT TRUNK HIGHWAY 89 MILEPOINT 105.35, 86.0 FEET EAST TRUNK HIGHWAY 89, 26.0 FEET NORTH OF A FIELD ROAD, 6.0 FEET WEST OF A FENCE CORNER, 8.8 FEET SOUTHWEST OF A RIGHT-OF-WAY MONUMENT, 2.7 FEET WEST OF A WITNESS POST.

Station Pair: SKIME MNDT - ROSEAU, MN

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1157.448	.016	2/1					VERTICAL ADJUSTMENT	2013	00000795	
1157.448	.016	2/1					VERTICAL CONTROL SURVEY	2013	VGATK	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1157.448				1066.897	.023	2011	HORIZONTAL ADJUSTMENT	2018	GPS3232	
1157.448				1066.897	.023	2011	GPS - STATIC	2018	HGATK	
1157.448	.131			1067.048	.066	1996	GPS - STATIC	2018	HGATK	
1157.485	.262			1066.976	.197	2011	GPS - RTRN	2016	RTRN2016	
1157.468	.262			1067.045	.197	2007	GPS - RTRN	2012	RTRN2012	

Geoid Separations(ft): GEOID18 = -90.515 12B = -90.508 09 = -90.423 03 = -90.443

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Roseau County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
48 34 08.36603	95 43 58.21077			601012.049	109434.920	.010		ADJUSTMENT	2018	GPS3232
48 34 08.36603	95 43 58.21077			601012.049	109434.920	.010	C	GPS - STATIC	2018	HGATK
48 34 08.36650	95 43 58.21114			601012.024	109434.967	.131	3	GPS - RTRN	2016	RTRN2016

<u>NAD83(2007)</u>				<u>Roseau County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
48 34 08.36652	95 43 58.21091			601012.039	109434.970	.131	3	GPS - RTRN	2012	RTRN2012

<u>NAD83(1996)</u>				<u>Roseau County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
48 34 08.36597	95 43 58.21147			601012.002	109434.914	.033	C	GPS - STATIC	2018	HGATK



State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - North Zone		UTM - Zone 15			Project Info			
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1987313.442	1093616.051	979013.289	17661218.721	.010		ADJUSTMENT	2018	GPS3232
1987313.442	1093616.051	979013.289	17661218.721	.010	C	GPS - STATIC	2018	HGATK
1987313.419	1093616.100	979013.266	17661218.770	.131	3	GPS - RTRN	2016	RTRN2016

NAD83(2007)

MN State Plane - North Zone		UTM - Zone 15			Project Info			
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1987313.434	1093616.101	979013.281	17661218.771	.131	3	GPS - RTRN	2012	RTRN2012

NAD83(1996)

MN State Plane - North Zone		UTM - Zone 15			Project Info			
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1987313.395	1093616.047	979013.242	17661218.717	.033	C	GPS - STATIC	2018	HGATK

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/BEMIS_RESET-DO8844-3E-05SEP2012.jpg	E	Sep 5, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/BEMIS_RESET-DO8844-2-05SEP2012.jpg		Sep 5, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/BEMIS_RESET-DO8844-1-05SEP2012.jpg		Sep 5, 2012

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: BLACK

NGS Name: BLACK

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0669](#) [Get Map](#)
 NGS Quad / Sta Num : 48095134/1012
 USGS Quad: MULLIGAN LAKE NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	32	161 N	37 W	484245.99	952730.48		1

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1941	2007	GOOD	Horz=NO Vert=YES	YES		PROJECTS 1 IN.	STEEL SPIKE ADJ TO MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	TRIANGULATION STATION DISK	NGS

Description: (2007) Stamping: BLACK 1941

14.5 MILES SOUTH-SOUTHWEST OF WARROAD, 11.9 MILES SOUTH ON COUNTY ROAD 5 FROM THE JUNCTION OF COUNTY ROAD 5 AND TRUNK HIGHWAY 11 AT WARROAD, THEN 6.2 MILES WEST AND SOUTHWEST ON A GRAVEL ROAD TO A TRAIL NORTHWEST (NEAR THE BEMIS HILL CAMPGROUND PAVILION), THEN 0.2 MILE NORTHWEST AND NORTHEAST ON A TRAIL TO A SKI SLOPE, 63.0 FEET NORTHEAST OF A TRAIL, 20.0 FEET NORTH OF A WYE-FORK, 1.0 FOOT NORTH OF A WITNESS POST, 73.0 FEET NORTHWEST OF BLACK RM 1, 72.0 FEET NORTH OF BLACK RM 2.

Station Notes

NO WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1260.047	.033	3				VERTICAL CONTROL SURVEY	1974	USGS-VERT	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1261.448	.131		1169.443	.066	1996	HORIZONTAL ADJUSTMENT	1999	17648	

Geoid Separations(ft): GEOID18 = -92.536 12B = -92.529 09 = -92.447 03 = -92.385

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
48 42 45.98983	95 27 30.48189	666970.192	162376.612	.033	1	ADJUSTMENT	1999	17648	

NAD83(1986)

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
48 42 45.97637	95 27 30.45809	666971.801	162375.262	.033	1	ADJUSTMENT	1986	17289	

NAD27

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 42 46.04930	95 27 29.57310			.100	1	CLASSICAL SURVEY	1960	12443

State Plane and UTM Coordinates (Feet)

NAD83(1996)

<u>MN State Plane - North Zone</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
2055310.808	1143905.312	1047100.666	17711392.827	.033	1	ADJUSTMENT	1999	17648	

NAD83(1986)

<u>MN State Plane - North Zone</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
2055312.361	1143903.899	1047102.217	17711391.412	.033	1	ADJUSTMENT	1986	17289	

NAD27

<u>MN State Plane - North Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1430687.071	815824.061			.100	1	CLASSICAL SURVEY	1960	12443



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/BLACK-TC0669-3NE-13AUG2007.jpg	NE	Aug 13, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/BLACK-TC0669-2-13AUG2007.jpg		Aug 13, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/BLACK-TC0669-1-13AUG2007.jpg		Aug 13, 2007

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: BLACK AZ MK

NGS Name: BLACK AZ MK

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [CO7367](#) [Get Map](#)
 NGS Quad / Sta Num : 48095134/
 USGS Quad: MULLIGAN LAKE NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	32	161 N	37 W	484259.00	952705.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1941	1966	GOOD	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	AZIMUTH MARK DISK	NGS

Description: Stamping: BLACK 1941

STATION BLACK AZ MK IS 11.5 FEET SOUTHEAST OF THE CENTER OF A TRAIL ROAD, 11.0 FEET WEST OF A TRIANGLE
 BLAZED TREE AND 1.5 FEET SOUTHEAST OF A WITNESS POST.

* No Horizontal or Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -92.562 12B = -92.559 09 = -92.470 03 = -92.415



Mn/DOT Name: BLACK RM 1

NGS Name: BLACK RM 1

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [CO7368](#) [Get Map](#)
 NGS Quad / Sta Num : 48095134/
 USGS Quad: MULLIGAN LAKE NW

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
				<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	6	160 N	37 W	484245.91	952729.50		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1941	2007	NOT FOUND	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

Description: (1966) **Stamping:** BLACK NO 1 1941

14.5 MILES SOUTH-SOUTHWEST OF WARROAD, 11.9 MILES SOUTH ON COUNTY ROAD 5 FROM THE JUNCTION OF COUNTY ROAD 5 AND TRUNK HIGHWAY 11 AT WARROAD, THEN 6.2 MILES WEST AND SOUTHWEST ON A GRAVEL ROAD TO A TRAIL NORTHWEST (NEAR THE BEMIS HILL CAMPGROUND PAVILION), THEN 0.2 MILE NORTHWEST AND NORTHEAST ALONG A TRAIL TO A SKI SLOPE, 73.0 FEET SOUTHEAST OF STATION BLACK.

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1259.751	.033	3					VERTICAL CONTROL SURVEY	1974	USGS-VERT	

Geoid Separations(ft): GEOID18 = -92.536 12B = -92.529 09 = -92.447 03 = -92.385

* No Horizontal Positions in the Database *



Mn/DOT Name: BLACK RM 2

NGS Name: BLACK RM 2

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [CO7369](#) [Get Map](#)
 NGS Quad / Sta Num : 48095134/
 USGS Quad: MULLIGAN LAKE NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	6	160 N	37 W	484245.26	952730.71		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1941	2007	NOT FOUND	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

Description: (1966) **Stamping:** BLACK NO 2 1941

14.5 MILES SOUTH-SOUTHWEST OF WARROAD, 11.9 MILES SOUTH ON COUNTY ROAD 5 FROM THE JUNCTION OF COUNTY ROAD 5 AND TRUNK HIGHWAY 11 AT WARROAD, THEN 6.2 MILES WEST AND SOUTHWEST ON A GRAVEL ROAD TO A TRAIL NORTHWEST (NEAR THE BEMIS HILL CAMPGROUND PAVILION), THEN 0.2 MILE NORTHWEST AND NORTHEAST ALONG A TRAIL TO A SKI SLOPE, 72.0 FEET SOUTH OF STATION BLACK.

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1259.453	.033	3					VERTICAL CONTROL SURVEY	1974	USGS-VERT	

Geoid Separations(ft): GEOID18 = -92.536 12B = -92.529 09 = -92.447 03 = -92.385

* No Horizontal Positions in the Database *



Mn/DOT Name: BOUNDARY MON 897 CD US

NGS Name: BOUNDARY MON 897 CD US

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC1297](#) [Get Map](#)
 NGS Quad / Sta Num : 48095414/
 USGS Quad: SALOL NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	29	164 N	39 W	485958.24	954224.14		3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1912	1971	GOOD	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	IBWC

Description: (1912) **Stamping:**

THE GENERAL TYPE OF CAST - IRON MONUMENT OF 1872-76 ARE HOLLOW IRON CASTINGS IN THE FORM OF A TRUNCATED PYRAMID 8.0 FEET HIGH SQUARE AT THE BOTTOM PYRAMIDAL CAP UPON OPPOSITE FACES LETTERS 2.0 INCHES HIGH ---OCTOBER 20 THESE MONUMENTS HAD BEEN SET ALONG THE SOUTHERN BOUNDARY OF MANITOBA BY THE COMMISSION OF 1872-76. EIGHTY FIVE OF THESE THE PRESENT NUMBERING 748 TO 832 60 WERE FOUND TO BE IN GOOD CONDITION IN 1911. THEY WERE FILLED WITH CONCRETE AND RESET IN CONCRETE BASES WITH THE TOP OF THE OBELISK 5.0 FEET ABOVE THE GROUND. THE BROKEN ONES AND ALSO THOSE THAT HAD ORIGINALLY BEEN SET EAST OF THE RED RIVER WERE DISMANTLED AND REPLACED BY NEW CAST - IRON MONUMENTS OF THE STYLE MADE IN 1908-13. THE MONUMENTS CAST IN 1908-13 IN RAISED LETTERS--ON THE NORTH FACE---CANADA--- ---UNITED STATES--- WEST FACE---TREATY OF 1908---. THE INSCRIPTIONS READ VERTICALLY FROM BOTTOM TO TOP. THE NUMBER OF THE MONUMENT IS OUTLINED WITH DRILL HOLES TO THE FACE OF THE SHAFT. THE MONUMENTS SET IN THE---MERIDIAN LINE---WERE TURNED SO THAT---UNITED STATES---APPEARS ON THE EAST SIDE AND---CANADA---ON THE WEST SIDE. THESE MONUMENTS WERE FILLED WITH CONCRETE AND SET IN CONCRETE BASES WITH THE TOP OF THE SHAFT 5.0 FEET ABOVE THE GROUND. THEY WERE USED IN 1908-13 TO MARK THE LINE FROM MONUMENT 303 EASTWARD TO THE NORTHWESTERN MOST POINT OF LAKE OF THE WOODS EXCEPT WHERE THE CAST - IRON MONUMENTS OF 1872-76 WERE RESET AS HERETOFORE DESCRIBED.

* No Leveling-Derived Orthometric Heights in the Database *

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1056.428	.262		964.480	.197	1996	HORIZONTAL ADJUSTMENT	1999	17648

Geoid Separations(ft): GEOID18 = -92.437 12B = -92.451 09 = -92.326 03 = -92.355

Lat/Lon and County Coordinates (Feet)

<u>NAD83(1996)</u>		<u>Roseau County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>							
48 59 58.24054	95 42 24.14066	606425.278	266549.537	.131	3	ADJUSTMENT	1999	17648

<u>NAD83(1986)</u>		<u>Roseau County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>							
48 59 58.22988	95 42 24.11688	606426.870	266548.466	.131	3	ADJUSTMENT	1989	17090

State Plane and UTM Coordinates (Feet)

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - North Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>							
1998932.800	1250393.217	990919.781	17817981.848	.131	3	ADJUSTMENT	1999	17648

<u>NAD83(1986)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - North Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>							
1998934.348	1250392.083	990921.327	17817980.711	.131	3	ADJUSTMENT	1989	17090



Mn/DOT Name: BOUNDARY MON 898 CD US

NGS Name: BOUNDARY MON 898 CD US

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC1298](#) [Get Map](#)
 NGS Quad / Sta Num : 48095414/
 USGS Quad: SALOL NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	27	164 N	39 W	485958.01	953955.54		3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1912	1971	GOOD	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	NGS

Description: (1929) Stamping: USCB SURVEY 1059

4.6 MILES EAST ALONG THE UNITED STATES-CANADA BORDER FROM TRUNK HIGHWAY 310, 900.0 FEET WEST OF SPRAGUE CREEK, THE YEAR SET, AND THE ELEVATION DATES ARE APPROXIMATE.

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1058.111	.033	3					VERTICAL CONTROL SURVEY	1974	USGS-VERT	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1056.428	.262			964.270	.197	1996	HORIZONTAL ADJUSTMENT	1999	17648	

Geoid Separations(ft): GEOID18 = -92.647 12B = -92.657 09 = -92.536 03 = -92.572

Lat/Lon and County Coordinates (Feet)

<u>NAD83(1996)</u>				<u>Roseau County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
48 59 58.01305	95 39 55.53739			616335.409	266586.826	.131	3	ADJUSTMENT	1999	17648

<u>NAD83(1986)</u>				<u>Roseau County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
48 59 58.00184	95 39 55.51271			616337.062	266585.700	.131	3	ADJUSTMENT	1989	17090

State Plane and UTM Coordinates (Feet)

<u>NAD83(1996)</u>				<u>UTM - Zone 15</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - North Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2008837.223	1250038.667			1000823.142	17817608.126	.131	3	ADJUSTMENT	1999	17648

<u>NAD83(1986)</u>				<u>UTM - Zone 15</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - North Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2008838.830	1250037.476			1000824.747	17817606.933	.131	3	ADJUSTMENT	1989	17090



Mn/DOT Name: BOUNDARY MON 899 CD US

NGS Name: BOUNDARY MON 899 CD US

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC1299](#) [Get Map](#)
 NGS Quad / Sta Num : 48095414/
 USGS Quad: SALOL NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	27	164 N	39 W	485957.97	953934.98		3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1912	1971	GOOD	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	NGS

Description: (1929)

Stamping:

4.85 MILES EAST ALONG THE UNITED STATES-CANADA BORDER FROM TRUNK HIGHWAY 310, 400.0 FEET EAST OF SPRAGUE CREEK, 200.0 FEET EAST OF A DIRT ROAD, THE YEAR SET, AND THE ELEVATION DATES ARE APPROXIMATE.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1056.268	.033	3				VERTICAL CONTROL SURVEY	1974	USGS-VERT	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1056.428	.262		964.243	.197	1996	HORIZONTAL ADJUSTMENT	1999	17648	

Geoid Separations(ft): GEOID18 = -92.674 12B = -92.687 09 = -92.565 03 = -92.602

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

<u>Geodetic Position</u>		<u>Roseau County</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
48 59 57.96960	95 39 34.97568	617706.646	266591.195	.131	3	ADJUSTMENT	1999	17648

NAD83(1986)

<u>Geodetic Position</u>		<u>Roseau County</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
48 59 57.95832	95 39 34.95024	617708.350	266590.062	.131	3	ADJUSTMENT	1989	17090

State Plane and UTM Coordinates (Feet)

NAD83(1996)

<u>MN State Plane - North Zone</u>		<u>UTM - Zone 15</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
2010207.639	1249988.812	1002193.398	17817555.628	.131	3	ADJUSTMENT	1999	17648

NAD83(1986)

<u>MN State Plane - North Zone</u>		<u>UTM - Zone 15</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
2010209.297	1249987.614	1002195.054	17817554.426	.131	3	ADJUSTMENT	1989	17090



Mn/DOT Name: BOUNDARY MON 900 CD US

NGS Name: BOUNDARY MON 900 CD US

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC1300](#) [Get Map](#)
NGS Quad / Sta Num : 48095414/
USGS Quad: SALOL NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	26	164 N	39 W	485957.89	953824.59		3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1912	1971	GOOD	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	IBWC

Description: (1912)

Stamping:

THE GENERAL TYPE OF CAST - IRON MONUMENT OF 1872-76 ARE HOLLOW IRON CASTINGS IN THE FORM OF A TRUNCATED PYRAMID 8.0 FEET HIGH SQUARE AT THE BOTTOM PYRAMIDAL CAP UPON OPPOSITE FACES LETTERS 2.0 INCHES HIGH ---OCTOBER 20 THESE MONUMENTS HAD BEEN SET ALONG THE SOUTHERN BOUNDARY OF MANITOBA BY THE COMMISSION OF 1872-76. EIGHTY FIVE OF THESE THE PRESENT NUMBERING 748 TO 832 60 WERE FOUND TO BE IN GOOD CONDITION IN 1911. THEY WERE FILLED WITH CONCRETE AND RESET IN CONCRETE BASES WITH THE TOP OF THE OBELISK 5.0 FEET ABOVE THE GROUND. THE BROKEN ONES AND ALSO THOSE THAT HAD ORIGINALLY BEEN SET EAST OF THE RED RIVER WERE DISMANTLED AND REPLACED BY NEW CAST - IRON MONUMENTS OF THE STYLE MADE IN 1908-13. THE MONUMENTS CAST IN 1908-13 IN RAISED LETTERS--ON THE NORTH FACE---CANADA--- ---UNITED STATES--- WEST FACE---TREATY OF 1908---. THE INSCRIPTIONS READ VERTICALLY FROM BOTTOM TO TOP. THE NUMBER OF THE MONUMENT IS OUTLINED WITH DRILL HOLES TO THE FACE OF THE SHAFT. THE MONUMENTS SET IN THE---MERIDIAN LINE---WERE TURNED SO THAT---UNITED STATES---APPEARS ON THE EAST SIDE AND---CANADA---ON THE WEST SIDE. THESE MONUMENTS WERE FILLED WITH CONCRETE AND SET IN CONCRETE BASES WITH THE TOP OF THE SHAFT 5.0 FEET ABOVE THE GROUND. THEY WERE USED IN 1908-13 TO MARK THE LINE FROM MONUMENT 303 EASTWARD TO THE NORTHWESTERN MOST POINT OF LAKE OF THE WOODS EXCEPT WHERE THE CAST - IRON MONUMENTS OF 1872-76 WERE RESET AS HERETOFORE DESCRIBED.

* No Leveling-Derived Orthometric Heights in the Database *

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1062.990	.262		970.703	.197	1996	HORIZONTAL ADJUSTMENT	1999	17648

Geoid Separations(ft): GEOID18 = -92.769 12B = -92.782 09 = -92.667 03 = -92.707

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 59 57.88903	95 38 24.58725	622400.723	266613.838	.131	3	ADJUSTMENT	1999	17648

NAD83(1986)

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 59 57.87750	95 38 24.56103	622402.480	266612.681	.131	3	ADJUSTMENT	1989	17090

State Plane and UTM Coordinates (Feet)

NAD83(1996)

<u>MN State Plane - North Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2014899.209	1249825.820	1006884.417	17817383.598	.131	3	ADJUSTMENT	1999	17648

NAD83(1986)

<u>MN State Plane - North Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2014900.918	1249824.595	1006886.124	17817382.370	.131	3	ADJUSTMENT	1989	17090



Mn/DOT Name: BOUNDARY MON 901 CD US

NGS Name: BOUNDARY MON 901 CD US

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC1301](#) [Get Map](#)
 NGS Quad / Sta Num : 48095411/
 USGS Quad: SALOL NE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	25	164 N	39 W	485957.81	953714.17		3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1912	1971	GOOD	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	CONCRETE POST	IBWC

Description: (1912)

Stamping:

THE GENERAL TYPE OF CAST - IRON MONUMENT OF 1872-76 ARE HOLLOW IRON CASTINGS IN THE FORM OF A TRUNCATED PYRAMID 8.0 FEET HIGH SQUARE AT THE BOTTOM PYRAMIDAL CAP UPON OPPOSITE FACES LETTERS 2.0 INCHES HIGH ---OCTOBER 20 THESE MONUMENTS HAD BEEN SET ALONG THE SOUTHERN BOUNDARY OF MANITOBA BY THE COMMISSION OF 1872-76. EIGHTY FIVE OF THESE THE PRESENT NUMBERING 748 TO 832 60 WERE FOUND TO BE IN GOOD CONDITION IN 1911. THEY WERE FILLED WITH CONCRETE AND RESET IN CONCRETE BASES WITH THE TOP OF THE OBELISK 5.0 FEET ABOVE THE GROUND. THE BROKEN ONES AND ALSO THOSE THAT HAD ORIGINALLY BEEN SET EAST OF THE RED RIVER WERE DISMANTLED AND REPLACED BY NEW CAST - IRON MONUMENTS OF THE STYLE MADE IN 1908-13. THE MONUMENTS CAST IN 1908-13 IN RAISED LETTERS--ON THE NORTH FACE---CANADA--- ---UNITED STATES--- WEST FACE---TREATY OF 1908---. THE INSCRIPTIONS READ VERTICALLY FROM BOTTOM TO TOP. THE NUMBER OF THE MONUMENT IS OUTLINED WITH DRILL HOLES TO THE FACE OF THE SHAFT. THE MONUMENTS SET IN THE---MERIDIAN LINE---WERE TURNED SO THAT---UNITED STATES---APPEARS ON THE EAST SIDE AND---CANADA---ON THE WEST SIDE. THESE MONUMENTS WERE FILLED WITH CONCRETE AND SET IN CONCRETE BASES WITH THE TOP OF THE SHAFT 5.0 FEET ABOVE THE GROUND. THEY WERE USED IN 1908-13 TO MARK THE LINE FROM MONUMENT 303 EASTWARD TO THE NORTHWESTERN MOST POINT OF LAKE OF THE WOODS EXCEPT WHERE THE CAST - IRON MONUMENTS OF 1872-76 WERE RESET AS HERETOFORE DESCRIBED.

* No Leveling-Derived Orthometric Heights in the Database *

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1066.271	.262		973.886	.197	1996	HORIZONTAL ADJUSTMENT	1999	17648

Geoid Separations(ft): GEOID18 = -92.864 12B = -92.877 09 = -92.769 03 = -92.805

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 59 57.80870	95 37 14.16984	627096.729	266637.725	.131	3	ADJUSTMENT	1999	17648

NAD83(1986)

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 59 57.79693	95 37 14.14282	627098.540	266636.544	.131	3	ADJUSTMENT	1989	17090

State Plane and UTM Coordinates (Feet)

NAD83(1996)

<u>MN State Plane - North Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2019592.754	1249663.976	1011577.383	17817212.737	.131	3	ADJUSTMENT	1999	17648

NAD83(1986)

<u>MN State Plane - North Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2019594.517	1249662.725	1011579.143	17817211.483	.131	3	ADJUSTMENT	1989	17090



Mn/DOT Name: BOUNDARY MON 902 CD US

NGS Name: BOUNDARY MON 902 CD US

County: ROSEAU, MN (Sheet 2)

NGS ACRN: TC1302	Get Map
NGS Quad / Sta Num : 48095411/	
USGS Quad: SALOL NE	

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	29	164 N	38 W	485957.60	953506.15		3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1912	1971	GOOD	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	IBWC

Description: (1912) **Stamping:**

THE GENERAL TYPE OF CAST - IRON MONUMENT OF 1872-76 ARE HOLLOW IRON CASTINGS IN THE FORM OF A TRUNCATED PYRAMID 8.0 FEET HIGH SQUARE AT THE BOTTOM PYRAMIDAL CAP UPON OPPOSITE FACES LETTERS 2.0 INCHES HIGH ---OCTOBER 20 THESE MONUMENTS HAD BEEN SET ALONG THE SOUTHERN BOUNDARY OF MANITOBA BY THE COMMISSION OF 1872-76. EIGHTY FIVE OF THESE THE PRESENT NUMBERING 748 TO 832 60 WERE FOUND TO BE IN GOOD CONDITION IN 1911. THEY WERE FILLED WITH CONCRETE AND RESET IN CONCRETE BASES WITH THE TOP OF THE OBELISK 5.0 FEET ABOVE THE GROUND. THE BROKEN ONES AND ALSO THOSE THAT HAD ORIGINALLY BEEN SET EAST OF THE RED RIVER WERE DISMANTLED AND REPLACED BY NEW CAST - IRON MONUMENTS OF THE STYLE MADE IN 1908-13. THE MONUMENTS CAST IN 1908-13 IN RAISED LETTERS--ON THE NORTH FACE---CANADA--- ---UNITED STATES--- WEST FACE---TREATY OF 1908---. THE INSCRIPTIONS READ VERTICALLY FROM BOTTOM TO TOP. THE NUMBER OF THE MONUMENT IS OUTLINED WITH DRILL HOLES TO THE FACE OF THE SHAFT. THE MONUMENTS SET IN THE---MERIDIAN LINE---WERE TURNED SO THAT---UNITED STATES---APPEARS ON THE EAST SIDE AND---CANADA---ON THE WEST SIDE. THESE MONUMENTS WERE FILLED WITH CONCRETE AND SET IN CONCRETE BASES WITH THE TOP OF THE SHAFT 5.0 FEET ABOVE THE GROUND. THEY WERE USED IN 1908-13 TO MARK THE LINE FROM MONUMENT 303 EASTWARD TO THE NORTHWESTERN MOST POINT OF LAKE OF THE WOODS EXCEPT WHERE THE CAST - IRON MONUMENTS OF 1872-76 WERE RESET AS HERETOFORE DESCRIBED.

* No Leveling-Derived Orthometric Heights in the Database *

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1072.832	.262		980.277	.197	1996	HORIZONTAL ADJUSTMENT	1999	17648

Geoid Separations(ft): GEOID18 = -93.028 12B = -93.044 09 = -92.946 03 = -92.982

Lat/Lon and County Coordinates (Feet)

<u>NAD83(1996)</u>		<u>Roseau County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 59 57.60440	95 35 06.14920	635634.221	266678.334	.131	3	ADJUSTMENT	1999	17648

<u>NAD83(1986)</u>		<u>Roseau County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 59 57.59220	95 35 06.12135	635636.087	266677.111	.131	3	ADJUSTMENT	1989	17090

State Plane and UTM Coordinates (Feet)

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - North Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>							
2028125.660	1249366.880	1020109.149	17816899.309	.131	3	ADJUSTMENT	1999	17648

<u>NAD83(1986)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - North Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>							
2028127.476	1249365.584	1020110.963	17816898.010	.131	3	ADJUSTMENT	1989	17090



Mn/DOT Name: BOUNDARY MON 903 CD US

NGS Name: BOUNDARY MON 903 CD US

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC1303](#) [Get Map](#)
 NGS Quad / Sta Num : 48095411/
 USGS Quad: SALOL NE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	27	164 N	37 W	485957.40	953258.38		3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1912	1971	GOOD	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	IBWC

Description: (1912) **Stamping:**

THE GENERAL TYPE OF CAST - IRON MONUMENT OF 1872-76 ARE HOLLOW IRON CASTINGS IN THE FORM OF A TRUNCATED PYRAMID 8.0 FEET HIGH SQUARE AT THE BOTTOM PYRAMIDAL CAP UPON OPPOSITE FACES LETTERS 2.0 INCHES HIGH ---OCTOBER 20 THESE MONUMENTS HAD BEEN SET ALONG THE SOUTHERN BOUNDARY OF MANITOBA BY THE COMMISSION OF 1872-76. EIGHTY FIVE OF THESE THE PRESENT NUMBERING 748 TO 832 60 WERE FOUND TO BE IN GOOD CONDITION IN 1911. THEY WERE FILLED WITH CONCRETE AND RESET IN CONCRETE BASES WITH THE TOP OF THE OBELISK 5.0 FEET ABOVE THE GROUND. THE BROKEN ONES AND ALSO THOSE THAT HAD ORIGINALLY BEEN SET EAST OF THE RED RIVER WERE DISMANTLED AND REPLACED BY NEW CAST - IRON MONUMENTS OF THE STYLE MADE IN 1908-13. THE MONUMENTS CAST IN 1908-13 IN RAISED LETTERS--ON THE NORTH FACE---CANADA--- ---UNITED STATES--- WEST FACE---TREATY OF 1908---. THE INSCRIPTIONS READ VERTICALLY FROM BOTTOM TO TOP. THE NUMBER OF THE MONUMENT IS OUTLINED WITH DRILL HOLES TO THE FACE OF THE SHAFT. THE MONUMENTS SET IN THE---MERIDIAN LINE---WERE TURNED SO THAT---UNITED STATES---APPEARS ON THE EAST SIDE AND---CANADA---ON THE WEST SIDE. THESE MONUMENTS WERE FILLED WITH CONCRETE AND SET IN CONCRETE BASES WITH THE TOP OF THE SHAFT 5.0 FEET ABOVE THE GROUND. THEY WERE USED IN 1908-13 TO MARK THE LINE FROM MONUMENT 303 EASTWARD TO THE NORTHWESTERN MOST POINT OF LAKE OF THE WOODS EXCEPT WHERE THE CAST - IRON MONUMENTS OF 1872-76 WERE RESET AS HERETOFORE DESCRIBED.

* No Leveling-Derived Orthometric Heights in the Database *

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1069.552	.262		976.839	.197	1996	HORIZONTAL ADJUSTMENT	1999	17648

Geoid Separations(ft): GEOID18 = -93.186 12B = -93.199 09 = -93.110 03 = -93.143

Lat/Lon and County Coordinates (Feet)

<u>NAD83(1996)</u>		<u>Roseau County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 59 57.40322	95 32 58.38259	644154.759	266723.111	.131	3	ADJUSTMENT	1999	17648

<u>NAD83(1986)</u>		<u>Roseau County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 59 57.39061	95 32 58.35383	644156.687	266721.848	.131	3	ADJUSTMENT	1989	17090

State Plane and UTM Coordinates (Feet)

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - North Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>							
2036641.787	1249074.561	1028624.048	17816590.769	.131	3	ADJUSTMENT	1999	17648

<u>NAD83(1986)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - North Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>							
2036643.663	1249073.223	1028625.922	17816589.428	.131	3	ADJUSTMENT	1989	17090



Mn/DOT Name: BOUNDARY MON 904 CD US

NGS Name: BOUNDARY MON 904 CD US

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC1304](#) [Get Map](#)
 NGS Quad / Sta Num : 48095411/
 USGS Quad: SALOL NE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	26	164 N	38 W	485957.21	953059.47		3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1912	1971	GOOD	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	IBWC

Description: (1912) Stamping:

THE GENERAL TYPE OF CAST - IRON MONUMENT OF 1872-76 ARE HOLLOW IRON CASTINGS IN THE FORM OF A TRUNCATED PYRAMID 8.0 FEET HIGH SQUARE AT THE BOTTOM PYRAMIDAL CAP UPON OPPOSITE FACES LETTERS 2.0 INCHES HIGH ---OCTOBER 20 THESE MONUMENTS HAD BEEN SET ALONG THE SOUTHERN BOUNDARY OF MANITOBA BY THE COMMISSION OF 1872-76. EIGHTY FIVE OF THESE THE PRESENT NUMBERING 748 TO 832 60 WERE FOUND TO BE IN GOOD CONDITION IN 1911. THEY WERE FILLED WITH CONCRETE AND RESET IN CONCRETE BASES WITH THE TOP OF THE OBELISK 5.0 FEET ABOVE THE GROUND. THE BROKEN ONES AND ALSO THOSE THAT HAD ORIGINALLY BEEN SET EAST OF THE RED RIVER WERE DISMANTLED AND REPLACED BY NEW CAST - IRON MONUMENTS OF THE STYLE MADE IN 1908-13. THE MONUMENTS CAST IN 1908-13 IN RAISED LETTERS--ON THE NORTH FACE---CANADA--- ---UNITED STATES--- WEST FACE---TREATY OF 1908---. THE INSCRIPTIONS READ VERTICALLY FROM BOTTOM TO TOP. THE NUMBER OF THE MONUMENT IS OUTLINED WITH DRILL HOLES TO THE FACE OF THE SHAFT. THE MONUMENTS SET IN THE---MERIDIAN LINE---WERE TURNED SO THAT---UNITED STATES---APPEARS ON THE EAST SIDE AND---CANADA---ON THE WEST SIDE. THESE MONUMENTS WERE FILLED WITH CONCRETE AND SET IN CONCRETE BASES WITH THE TOP OF THE SHAFT 5.0 FEET ABOVE THE GROUND. THEY WERE USED IN 1908-13 TO MARK THE LINE FROM MONUMENT 303 EASTWARD TO THE NORTHWESTERN MOST POINT OF LAKE OF THE WOODS EXCEPT WHERE THE CAST - IRON MONUMENTS OF 1872-76 WERE RESET AS HERETOFORE DESCRIBED.

* No Leveling-Derived Orthometric Heights in the Database *

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1076.113	.262		983.269	.197	1996	HORIZONTAL ADJUSTMENT	1999	17648

Geoid Separations(ft): GEOID18 = -93.327 12B = -93.340 09 = -93.241 03 = -93.284

Lat/Lon and County Coordinates (Feet)

<u>NAD83(1996)</u>		<u>Roseau County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>							
48 59 57.20866	95 30 59.46612	652085.091	266767.611	.131	3	ADJUSTMENT	1999	17648

<u>NAD83(1986)</u>		<u>Roseau County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>							
48 59 57.19569	95 30 59.43649	652087.078	266766.314	.131	3	ADJUSTMENT	1989	17090

State Plane and UTM Coordinates (Feet)

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - North Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>							
2044568.123	1248805.263	1036549.159	17816306.443	.131	3	ADJUSTMENT	1999	17648

<u>NAD83(1986)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - North Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>							
2044570.058	1248803.887	1036551.090	17816305.064	.131	3	ADJUSTMENT	1989	17090



Mn/DOT Name: BOUNDARY MON 905 CD US

NGS Name: BOUNDARY MON 905 CD US

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC1305](#) [Get Map](#)
 NGS Quad / Sta Num : 48095144/
 USGS Quad: WARROAD NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	30	164 N	37 W	485957.02	952900.44		3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1912	1971	GOOD	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	IBWC

Description: (1912) Stamping:

THE GENERAL TYPE OF CAST - IRON MONUMENT OF 1872-76 ARE HOLLOW IRON CASTINGS IN THE FORM OF A TRUNCATED PYRAMID 8.0 FEET HIGH SQUARE AT THE BOTTOM PYRAMIDAL CAP UPON OPPOSITE FACES LETTERS 2.0 INCHES HIGH ---OCTOBER 20 THESE MONUMENTS HAD BEEN SET ALONG THE SOUTHERN BOUNDARY OF MANITOBA BY THE COMMISSION OF 1872-76. EIGHTY FIVE OF THESE THE PRESENT NUMBERING 748 TO 832 60 WERE FOUND TO BE IN GOOD CONDITION IN 1911. THEY WERE FILLED WITH CONCRETE AND RESET IN CONCRETE BASES WITH THE TOP OF THE OBELISK 5.0 FEET ABOVE THE GROUND. THE BROKEN ONES AND ALSO THOSE THAT HAD ORIGINALLY BEEN SET EAST OF THE RED RIVER WERE DISMANTLED AND REPLACED BY NEW CAST - IRON MONUMENTS OF THE STYLE MADE IN 1908-13. THE MONUMENTS CAST IN 1908-13 IN RAISED LETTERS--ON THE NORTH FACE---CANADA--- ---UNITED STATES--- WEST FACE---TREATY OF 1908---. THE INSCRIPTIONS READ VERTICALLY FROM BOTTOM TO TOP. THE NUMBER OF THE MONUMENT IS OUTLINED WITH DRILL HOLES TO THE FACE OF THE SHAFT. THE MONUMENTS SET IN THE---MERIDIAN LINE---WERE TURNED SO THAT---UNITED STATES---APPEARS ON THE EAST SIDE AND---CANADA---ON THE WEST SIDE. THESE MONUMENTS WERE FILLED WITH CONCRETE AND SET IN CONCRETE BASES WITH THE TOP OF THE SHAFT 5.0 FEET ABOVE THE GROUND. THEY WERE USED IN 1908-13 TO MARK THE LINE FROM MONUMENT 303 EASTWARD TO THE NORTHWESTERN MOST POINT OF LAKE OF THE WOODS EXCEPT WHERE THE CAST - IRON MONUMENTS OF 1872-76 WERE RESET AS HERETOFORE DESCRIBED.

* No Leveling-Derived Orthometric Heights in the Database *

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1076.113	.262		983.144	.197	1996	HORIZONTAL ADJUSTMENT	1999	17648

Geoid Separations(ft): GEOID18 = -93.448 12B = -93.458 09 = -93.359 03 = -93.412

Lat/Lon and County Coordinates (Feet)

<u>NAD83(1996)</u>		<u>Roseau County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 59 57.01667	95 29 00.44191	660022.595	266815.874	.131	3	ADJUSTMENT	1999	17648

<u>NAD83(1986)</u>		<u>Roseau County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 59 57.00334	95 29 00.41142	660024.640	266814.541	.131	3	ADJUSTMENT	1989	17090

State Plane and UTM Coordinates (Feet)

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - North Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>							
2052501.773	1248539.390	1044481.503	17816025.597	.131	3	ADJUSTMENT	1999	17648

<u>NAD83(1986)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - North Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>							
2052503.764	1248537.977	1044483.491	17816024.180	.131	3	ADJUSTMENT	1989	17090



Mn/DOT Name: BOUNDARY MON 906 CD US

NGS Name: BOUNDARY MON 906 CD US

County: ROSEAU, MN (Sheet 2)

NGS ACRN: TC1306	Get Map
NGS Quad / Sta Num : 48095144/	
USGS Quad: WARROAD NW	

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	29	164 N	37 W	485956.84	952702.97		3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1912	1971	GOOD	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	IBWC

Description: (1912) Stamping:

THE GENERAL TYPE OF CAST - IRON MONUMENT OF 1872-76 ARE HOLLOW IRON CASTINGS IN THE FORM OF A TRUNCATED PYRAMID 8.0 FEET HIGH SQUARE AT THE BOTTOM PYRAMIDAL CAP UPON OPPOSITE FACES LETTERS 2.0 INCHES HIGH ---OCTOBER 20 THESE MONUMENTS HAD BEEN SET ALONG THE SOUTHERN BOUNDARY OF MANITOBA BY THE COMMISSION OF 1872-76. EIGHTY FIVE OF THESE THE PRESENT NUMBERING 748 TO 832 60 WERE FOUND TO BE IN GOOD CONDITION IN 1911. THEY WERE FILLED WITH CONCRETE AND RESET IN CONCRETE BASES WITH THE TOP OF THE OBELISK 5.0 FEET ABOVE THE GROUND. THE BROKEN ONES AND ALSO THOSE THAT HAD ORIGINALLY BEEN SET EAST OF THE RED RIVER WERE DISMANTLED AND REPLACED BY NEW CAST - IRON MONUMENTS OF THE STYLE MADE IN 1908-13. THE MONUMENTS CAST IN 1908-13 IN RAISED LETTERS--ON THE NORTH FACE---CANADA--- ---UNITED STATES--- WEST FACE---TREATY OF 1908---. THE INSCRIPTIONS READ VERTICALLY FROM BOTTOM TO TOP. THE NUMBER OF THE MONUMENT IS OUTLINED WITH DRILL HOLES TO THE FACE OF THE SHAFT. THE MONUMENTS SET IN THE---MERIDIAN LINE---WERE TURNED SO THAT---UNITED STATES---APPEARS ON THE EAST SIDE AND---CANADA---ON THE WEST SIDE. THESE MONUMENTS WERE FILLED WITH CONCRETE AND SET IN CONCRETE BASES WITH THE TOP OF THE SHAFT 5.0 FEET ABOVE THE GROUND. THEY WERE USED IN 1908-13 TO MARK THE LINE FROM MONUMENT 303 EASTWARD TO THE NORTHWESTERN MOST POINT OF LAKE OF THE WOODS EXCEPT WHERE THE CAST - IRON MONUMENTS OF 1872-76 WERE RESET AS HERETOFORE DESCRIBED.

* No Leveling-Derived Orthometric Heights in the Database *

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1076.113	.262		983.033	.197	1996	HORIZONTAL ADJUSTMENT	1999	17648

Geoid Separations(ft): GEOID18 = -93.553 12B = -93.566 09 = -93.468 03 = -93.527

Lat/Lon and County Coordinates (Feet)

<u>NAD83(1996)</u>		<u>Roseau County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 59 56.83707	95 27 02.96756	667856.719	266867.888	.131	3	ADJUSTMENT	1999	17648

<u>NAD83(1986)</u>		<u>Roseau County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 59 56.82340	95 27 02.93619	667858.824	266866.521	.131	3	ADJUSTMENT	1989	17090

State Plane and UTM Coordinates (Feet)

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - North Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>							
2060332.265	1248281.308	1052310.634	17815752.802	.131	3	ADJUSTMENT	1999	17648

<u>NAD83(1986)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - North Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>							
2060334.314	1248279.860	1052312.680	17815751.350	.131	3	ADJUSTMENT	1989	17090



Mn/DOT Name: BOUNDARY MON 907 CD US

NGS Name: BOUNDARY MON 907 CD US

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC1307](#) [Get Map](#)
 NGS Quad / Sta Num : 48095144/
 USGS Quad: WARROAD NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	28	164 N	37 W	485956.70	952528.34		3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1912	1971	GOOD	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	IBWC

Description: (1912) **Stamping:**

THE GENERAL TYPE OF CAST - IRON MONUMENT OF 1872-76 ARE HOLLOW IRON CASTINGS IN THE FORM OF A TRUNCATED PYRAMID 8.0 FEET HIGH SQUARE AT THE BOTTOM PYRAMIDAL CAP UPON OPPOSITE FACES LETTERS 2.0 INCHES HIGH ---OCTOBER 20 THESE MONUMENTS HAD BEEN SET ALONG THE SOUTHERN BOUNDARY OF MANITOBA BY THE COMMISSION OF 1872-76. EIGHTY FIVE OF THESE THE PRESENT NUMBERING 748 TO 832 60 WERE FOUND TO BE IN GOOD CONDITION IN 1911. THEY WERE FILLED WITH CONCRETE AND RESET IN CONCRETE BASES WITH THE TOP OF THE OBELISK 5.0 FEET ABOVE THE GROUND. THE BROKEN ONES AND ALSO THOSE THAT HAD ORIGINALLY BEEN SET EAST OF THE RED RIVER WERE DISMANTLED AND REPLACED BY NEW CAST - IRON MONUMENTS OF THE STYLE MADE IN 1908-13. THE MONUMENTS CAST IN 1908-13 IN RAISED LETTERS--ON THE NORTH FACE---CANADA--- ---UNITED STATES--- WEST FACE---TREATY OF 1908---. THE INSCRIPTIONS READ VERTICALLY FROM BOTTOM TO TOP. THE NUMBER OF THE MONUMENT IS OUTLINED WITH DRILL HOLES TO THE FACE OF THE SHAFT. THE MONUMENTS SET IN THE---MERIDIAN LINE---WERE TURNED SO THAT---UNITED STATES---APPEARS ON THE EAST SIDE AND---CANADA---ON THE WEST SIDE. THESE MONUMENTS WERE FILLED WITH CONCRETE AND SET IN CONCRETE BASES WITH THE TOP OF THE SHAFT 5.0 FEET ABOVE THE GROUND. THEY WERE USED IN 1908-13 TO MARK THE LINE FROM MONUMENT 303 EASTWARD TO THE NORTHWESTERN MOST POINT OF LAKE OF THE WOODS EXCEPT WHERE THE CAST - IRON MONUMENTS OF 1872-76 WERE RESET AS HERETOFORE DESCRIBED.

* No Leveling-Derived Orthometric Heights in the Database *

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1072.832	.262		979.670	.197	1996	HORIZONTAL ADJUSTMENT	1999	17648

Geoid Separations(ft): GEOID18 = -93.638 12B = -93.645 09 = -93.550 03 = -93.612

Lat/Lon and County Coordinates (Feet)

<u>NAD83(1996)</u>		<u>Roseau County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>							
48 59 56.69819	95 25 28.34448	674166.922	266912.809	.131	3	ADJUSTMENT	1999	17648

<u>NAD83(1986)</u>		<u>Roseau County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>							
48 59 56.68427	95 25 28.31230	674169.081	266911.419	.131	3	ADJUSTMENT	1989	17090

State Plane and UTM Coordinates (Feet)

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - North Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>							
2066639.661	1248076.419	1058616.881	17815536.109	.131	3	ADJUSTMENT	1999	17648

<u>NAD83(1986)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - North Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>							
2066641.764	1248074.944	1058618.981	17815534.630	.131	3	ADJUSTMENT	1989	17090



Mn/DOT Name: BOUNDARY MON 908 A CD US

NGS Name: BOUNDARY MON 908 A CD US

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC1309](#) [Get Map](#)
 NGS Quad / Sta Num : 48095144/
 USGS Quad: WARROAD NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	26	164 N	37 W	485956.44	952235.63		3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1912	2009	GOOD	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	IBWC

Description: (1912)

Stamping:

A STANDARD ORNAMENTAL CONCRETE MONUMENT SET ON THE STRAIGHT-LINE COURSE OF THE BOUNDARY BETWEEN MONUMENTS 908 AND 909 SIDE OF THE PUBLIC ROAD FROM 909, TOGETHER WITH MONUMENT 909 IT MARKS THE BOUNDARY CROSSING OF THE HIGHWAY BETWEEN WARROAD AND MIDDLEBORO THIS MONUMENT IS AN ORNAMENTAL CONCRETE OBELISK SET IN A PLAIN CONCRETE BASE. THE SURFACE OF THE OBELISK OR SHAFT IS FINISHED IN LIGHT - COLORED GRANULAR QUARTZ AGGREGATE THAT THE COLOR AND TEXTURE OF THE COARSE GRANULAR AGGREGATE SHOWS CLEAN. THE SHAFT IS 6.0 FEET 6.0 INCHES IN LENGTH AND PROJECTS 5 TO 5-1/2 FEET ABOVE THE BASE. IT IS 14.0 INCHES SQUARE AT THE BASE AND TAPERS TO A CROSS - SECTION OF 8.0 INCHES SQUARE AT THE TOP CAPPED BY A PYRAMID 4.0 INCHES IN HEIGHT. IT IS REINFORCED WITH 1/2 - INCH DIAMETER STEEL RODS EXTENDING THROUGHOUT ITS LENGTH. THE BASE OF THE MONUMENT IS 3.0 FEET 4.0 INCH DIAMETER SQUARE. THE TOP SURFACE OF THE BASE SLOPES AWAY FROM THE SHAFT UNIFORMLY ON EACH SIDE 4.0 INCHES TO THE FOOT. THE BASE PROJECTS ABOUT 4.0 INCHES ABOVE THE SURROUNDING GROUND SURFACE AND EXTENDS DOWN TO A FIRM FOUNDATION NOT LESS THAN 3.0 FEET 6.0 INCHES BELOW THE GROUND SURFACE UNLESS SOLID ROCK FORMATION IS ENCOUNTERED AT A LESSER DEPTH. THE BASE IS CONSTRUCTED OF 1--2--4 CONCRETE. THE INSCRIPTIONS ON THE SHAFT OF THE MONUMENT ARE CAST IN BLACK AGGREGATE FLUSH WITH THE SURFACE. THEY READ VERTICALLY UPWARD AND ARE AS FOLLOWS--ON THE SIDE FACING THE HIGHWAY---INTERNATIONAL BOUNDARY--- ON THE NORTH SIDE---CANADA--- THE NUMBER OF THE MONUMENT IS ENGRAVED IN THE TOP SURFACE OF THE BASE.

* No Leveling-Derived Orthometric Heights in the Database *

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order/(Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1072.832	.262		979.535	.197	1996	HORIZONTAL ADJUSTMENT	1999	17648

Geoid Separations(ft): GEOID18 = -93.789 12B = -93.789 09 = -93.694 03 = -93.756

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 59 56.44161	95 22 35.63091	685684.781	267000.105	.131	3	ADJUSTMENT	1999	17648

NAD83(1986)

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 59 56.42727	95 22 35.59859	685686.951	266998.674	.131	3	ADJUSTMENT	1989	17090

State Plane and UTM Coordinates (Feet)

NAD83(1996)

<u>MN State Plane - North Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2078152.604	1247707.655	1070127.604	17815145.909	.131	3	ADJUSTMENT	1999	17648

NAD83(1986)

<u>MN State Plane - North Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2078154.715	1247706.139	1070129.712	17815144.389	.131	3	ADJUSTMENT	1989	17090



Mn/DOT Name: BOUNDARY MON 908 CD US

NGS Name: BOUNDARY MON 908 CD US

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC1308](#) [Get Map](#)
 NGS Quad / Sta Num : 48095144/
 USGS Quad: WARROAD NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	26	164 N	37 W	485956.54	952343.29		3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1912	1971	GOOD	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	IBWC

Description: (1912)

Stamping:

THE GENERAL TYPE OF CAST - IRON MONUMENT OF 1872-76 ARE HOLLOW IRON CASTINGS IN THE FORM OF A TRUNCATED PYRAMID 8.0 FEET HIGH SQUARE AT THE BOTTOM PYRAMIDAL CAP UPON OPPOSITE FACES LETTERS 2.0 INCHES HIGH ---OCTOBER 20 THESE MONUMENTS HAD BEEN SET ALONG THE SOUTHERN BOUNDARY OF MANITOBA BY THE COMMISSION OF 1872-76. EIGHTY FIVE OF THESE THE PRESENT NUMBERING 748 TO 832 60 WERE FOUND TO BE IN GOOD CONDITION IN 1911. THEY WERE FILLED WITH CONCRETE AND RESET IN CONCRETE BASES WITH THE TOP OF THE OBELISK 5.0 FEET ABOVE THE GROUND. THE BROKEN ONES AND ALSO THOSE THAT HAD ORIGINALLY BEEN SET EAST OF THE RED RIVER WERE DISMANTLED AND REPLACED BY NEW CAST - IRON MONUMENTS OF THE STYLE MADE IN 1908-13. THE MONUMENTS CAST IN 1908-13 IN RAISED LETTERS--ON THE NORTH FACE---CANADA--- ---UNITED STATES--- WEST FACE---TREATY OF 1908---. THE INSCRIPTIONS READ VERTICALLY FROM BOTTOM TO TOP. THE NUMBER OF THE MONUMENT IS OUTLINED WITH DRILL HOLES TO THE FACE OF THE SHAFT. THE MONUMENTS SET IN THE---MERIDIAN LINE---WERE TURNED SO THAT---UNITED STATES---APPEARS ON THE EAST SIDE AND---CANADA---ON THE WEST SIDE. THESE MONUMENTS WERE FILLED WITH CONCRETE AND SET IN CONCRETE BASES WITH THE TOP OF THE SHAFT 5.0 FEET ABOVE THE GROUND. THEY WERE USED IN 1908-13 TO MARK THE LINE FROM MONUMENT 303 EASTWARD TO THE NORTHWESTERN MOST POINT OF LAKE OF THE WOODS EXCEPT WHERE THE CAST - IRON MONUMENTS OF 1872-76 WERE RESET AS HERETOFORE DESCRIBED.

* No Leveling-Derived Orthometric Heights in the Database *

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1072.832	.262		979.585	.197	1996	HORIZONTAL ADJUSTMENT	1999	17648

Geoid Separations(ft): GEOID18 = -93.730 12B = -93.730 09 = -93.635 03 = -93.697

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 59 56.53854	95 23 43.28947	681172.800	266964.681	.131	3	ADJUSTMENT	1999	17648

NAD83(1986)

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 59 56.52436	95 23 43.25752	681174.945	266963.265	.131	3	ADJUSTMENT	1989	17090

State Plane and UTM Coordinates (Feet)

NAD83(1996)

<u>MN State Plane - North Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2073642.500	1247850.900	1065618.388	17815297.535	.131	3	ADJUSTMENT	1999	17648

NAD83(1986)

<u>MN State Plane - North Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2073644.588	1247849.400	1065620.472	17815296.031	.131	3	ADJUSTMENT	1989	17090



Mn/DOT Name: BOUNDARY MON 910 CD US

NGS Name: BOUNDARY MON 910 CD US

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC1310](#) [Get Map](#)
 NGS Quad / Sta Num : 48095141/
 USGS Quad: WARROAD

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	30	164 N	36 W	485956.31	952104.81		3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1912	1978	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	IBWC

Description: (2007) Stamping:

6.6 MILES NORTH-NORTHWEST OF WARROAD, 6.2 MILES NORTH ALONG TRUNK HIGHWAY 313 FROM THE JUNCTION OF TRUNK HIGHWAY 313 AND TRUNK HIGHWAY 11 IN WARROAD, TO THE CANADIAN BORDER, THE STATION IS APPROXIMATELY 1.1 MILES EAST ALONG THE BORDER.

* No Leveling-Derived Orthometric Heights in the Database *

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order/(Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
1069.552	.262		976.169	.197	1996	HORIZONTAL ADJUSTMENT	1999	17648		

Geoid Separations(ft): GEOID18 = -93.881 12B = -93.871 09 = -93.783 03 = -93.855

Lat/Lon and County Coordinates (Feet)

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Roseau County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
48 59 56.31002	95 21 04.81086	691741.335	267049.257	.131	3	ADJUSTMENT	1999	17648		

<u>NAD83(1986)</u>		<u>Geodetic Position</u>		<u>Roseau County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
48 59 56.29570	95 21 04.77925	691743.458	267047.827	.131	3	ADJUSTMENT	1989	17090		

State Plane and UTM Coordinates (Feet)

<u>NAD83(1996)</u>		<u>MN State Plane - North Zone</u>		<u>UTM - Zone 15</u>					<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
2084206.700	1247516.948	1076180.471	17814943.986	.131	3	ADJUSTMENT	1999	17648		

<u>NAD83(1986)</u>		<u>MN State Plane - North Zone</u>		<u>UTM - Zone 15</u>					<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
2084208.765	1247515.435	1076182.533	17814942.469	.131	3	ADJUSTMENT	1989	17090		



Mn/DOT Name: BOUNDARY MON 910 OFFSET

NGS Name: BOUNDARY MON 910 OFFSET

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0678](#) [Get Map](#)
 NGS Quad / Sta Num : 48095141/
 USGS Quad: WARROAD

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	30	164 N	36 W	485956.29	952105.86		2

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1980	1980	GOOD	Horz=? Vert=YES	NO		FLUSH	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
PIPE (CAPPED) DRIVEN IN GROUND (<10 FT)	PIPE CAP	IBWC

Description: (1980)

Stamping:

STATION BOUNDARY MON 910 OFFSET IS LOCATED ABOUT 70.0 FEET WEST OF BOUNDARY MONUMENT 910.

* No Leveling-Derived Orthometric Heights in the Database *

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1062.662	.197		969.280	.131	1996	HORIZONTAL ADJUSTMENT	1999	17648	

Geoid Separations(ft): GEOID18 = -93.881 12B = -93.871 09 = -93.783 03 = -93.855

Lat/Lon and County Coordinates (Feet)

<u>NAD83(1996)</u>		<u>Roseau County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>							
48 59 56.29030	95 21 05.85790	691671.533	267046.526	.066	2	ADJUSTMENT	1999	17648

<u>NAD83(1986)</u>		<u>Roseau County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>							
48 59 56.27708	95 21 05.82239	691673.915	267045.211	.066	2	ADJUSTMENT	1986	17289

<u>NAD27</u>						<u>Project Info</u>		
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>							
48 59 56.31589	95 21 04.95990			.100	2	CLASSICAL SURVEY	1981	16669

State Plane and UTM Coordinates (Feet)

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - North Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>							
2084136.841	1247516.983	1076110.623	17814944.151	.066	2	ADJUSTMENT	1999	17648

<u>NAD83(1986)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - North Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>							
2084139.169	1247515.575	1076112.948	17814942.738	.066	2	ADJUSTMENT	1986	17289

<u>NAD27</u>						<u>Project Info</u>		
<u>MN State Plane - North Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>							
1459512.759	919432.339			.100	2	CLASSICAL SURVEY	1981	16669



Mn/DOT Name: BOUNDARY MON 911 CD US

NGS Name: BOUNDARY MON 911 CD US

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC1311](#) [Get Map](#)
 NGS Quad / Sta Num : 48095141/
 USGS Quad: WARROAD

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	29	164 N	36 W	485956.18	951943.25		3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1912	1978	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	IBWC

Description: (2007) Stamping:

6.6 MILES NORTH-NORTHWEST OF WARROAD, 6.2 MILES NORTH ALONG TRUNK HIGHWAY 313 FROM THE JUNCTION OF TRUNK HIGHWAY 313 AND TRUNK HIGHWAY 11 IN WARROAD, TO THE CANADIAN BORDER, THE STATION IS APPROXIMATELY 2.1 MILES EAST ALONG THE BORDER.

Station Notes

THE MARK WAS FOUND LYING FLAT ON THE GROUND COMPLETELY UNDER WATER.

* No Leveling-Derived Orthometric Heights in the Database *

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>							<u>Project Info</u>	
<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Year</u>	<u>Reference</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			
1059.709	.262		966.235	.197	1996	HORIZONTAL ADJUSTMENT	1999	17648

Geoid Separations(ft): GEOID18 = -93.970 12B = -93.960 09 = -93.878 03 = -93.957

Lat/Lon and County Coordinates (Feet)

<u>NAD83(1996)</u>							<u>Project Info</u>		
<u>Geodetic Position</u>		<u>Roseau County</u>			<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>						
48 59 56.18235	95 19 43.25379	697180.165	267094.141	.131	3	ADJUSTMENT	1999	17648	

<u>NAD83(1986)</u>							<u>Project Info</u>		
<u>Geodetic Position</u>		<u>Roseau County</u>			<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>						
48 59 56.16826	95 19 43.22213	697182.292	267092.735	.131	3	ADJUSTMENT	1989	17090	

State Plane and UTM Coordinates (Feet)

<u>NAD83(1996)</u>							<u>Project Info</u>		
<u>MN State Plane - North Zone</u>		<u>UTM - Zone 15</u>			<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>						
2089643.351	1247346.412	1081615.981	17814763.411	.131	3	ADJUSTMENT	1999	17648	

<u>NAD83(1986)</u>							<u>Project Info</u>		
<u>MN State Plane - North Zone</u>		<u>UTM - Zone 15</u>			<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>						
2089645.420	1247344.923	1081618.048	17814761.919	.131	3	ADJUSTMENT	1989	17090	



Mn/DOT Name: BOUNDARY MON 911 OFFSET

NGS Name: BOUNDARY MON 911 OFFSET

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0677](#) [Get Map](#)
 NGS Quad / Sta Num : 48095141/
 USGS Quad: WARROAD

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NW	29	164 N	36 W	485956.13	951944.55		2

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1980	1980	GOOD	Horz=? Vert=YES	NO		FLUSH	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
PIPE (CAPPED) DRIVEN IN GROUND (<10 FT)	PIPE CAP	IBWC

Description: (1980)

Stamping:

STATION BOUNDARY MON 911 OFFSET IS LOCATED ABOUT 86.50 FEET WEST OF BOUNDARY MONUMENT 911.

Station Notes

NO REFERENCE MARKS WERE SET AT THIS STATION.

* No Leveling-Derived Orthometric Heights in the Database *

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>		
1057.741	.197		964.266	.131	1996	HORIZONTAL ADJUSTMENT	1999	17648	

Geoid Separations(ft): GEOID18 = -93.970 12B = -93.957 09 = -93.878 03 = -93.953

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>		
48 59 56.12835	95 19 44.54721	697093.971	267087.738	.066	2	ADJUSTMENT	1999	17648	

NAD83(1986)

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>		
48 59 56.11556	95 19 44.51170	697096.354	267086.467	.066	2	ADJUSTMENT	1986	17289	

NAD27

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 59 56.15331	95 19 43.65214			.100	2	CLASSICAL SURVEY	1981	16669

State Plane and UTM Coordinates (Feet)

NAD83(1996)

<u>MN State Plane - North Zone</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>		
2089556.967	1247343.428	1081529.605	17814760.587	.066	2	ADJUSTMENT	1999	17648	

NAD83(1986)

<u>MN State Plane - North Zone</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>		
2089559.297	1247342.063	1081531.932	17814759.219	.066	2	ADJUSTMENT	1986	17289	

NAD27

<u>MN State Plane - North Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1464932.862	919258.737			.100	2	CLASSICAL SURVEY	1981	16669



Mn/DOT Name: BR 7229

NGS Name: BR 7229

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DI2070](#) [Get Map](#)
 NGS Quad / Sta Num : 48095131/
 USGS Quad: MULLIGAN LAKE NE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	19	161 N	36 W	484440.10	951950.80	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1966	2003	GOOD	Horz=? Vert=YES	YES	7229	FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
BRIDGE WING WALL	SURVEY DISK	MNDT

Description: (2003) **Stamping:** BR 7229 1966

10.5 MILES SOUTH ALONG COUNTY ROAD 5 FROM THE JUNCTION OF COUNTY ROAD 5 AND TRUNK HIGHWAY 11 IN WARROAD, 28.0 FEET SOUTH AND 18.0 FEET EAST OF THE CENTER OF A BRIDGE, IN THE SOUTHEAST CORNER OF COUNTY ROAD 5 BRIDGE NUMBER 7229 OVER THE WEST BRANCH OF THE ROSEAU RIVER.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1167.186	.016	2/1					VERTICAL ADJUSTMENT	2006	00000425-12	
1167.170	.016	2/1					VERTICAL CONTROL SURVEY	2005	VTURN	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1165.706	.033	3					VERTICAL CONTROL SURVEY	1974	USGS-VERT	

Geoid Separations(ft): GEOID18 = -92.838 12B = -92.821 09 = -92.729 03 = -92.710

* No Horizontal Positions in the Database *

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/BR_7229-DI2070-3E-10AUG2004.jpg	E	Aug 10, 2004
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/BR_7229-DI2070-2-10AUG2004.jpg		Aug 10, 2004
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/BR_7229-DI2070-1-10AUG2004.jpg		Aug 10, 2004

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: BRASS CAP

NGS Name: BRASS CAP

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0310](#) [Get Map](#)
 NGS Quad / Sta Num : 48095112/
 USGS Quad: ROOSEVELT

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	36	162 N	35 W	484820.00	950609.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1973	2012	DESTROYED	Horz=NO Vert=NO	NO	8827		SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	SEE DESCRIPTION	NGS

Description: (1981)

Stamping:

IN ROOSEVELT, IN THE SOUTHWEST HEADWALL OF AN OLD TRUNK HIGHWAY 11 BRIDGE NUMBER 8827 OVER A CREEK, 0.7 MILE NORTHWEST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND COUNTY ROAD 17, 12.0 FEET SOUTHWEST OF OLD TRUNK HIGHWAY 11, 71.5 FEET NORTHWEST OF A WOOD RAILROAD CULVERT.

Station Notes

THE CULVERT HAS BEEN REPLACED.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1154.335	.007	1/2				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1152.960	.016	2				VERTICAL CONTROL SURVEY	1973	Q480951
1152.960	.016	2				VERTICAL CONTROL SURVEY	1973	L22862

Geoid Separations(ft): GEOID18 = -94.144 12B = -94.134 09 = -94.048 03 = -94.032

* No Horizontal Positions in the Database *



Mn/DOT Name: C 209

NGS Name: C 209

County: ROSEAU, MN (Sheet 2)

NGS ACRN: TC0348	Get Map
NGS Quad / Sta Num : 48095141/	
USGS Quad: WARROAD	

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	29	163 N	36 W	485421.99	951905.47	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1935	2012	GOOD	Horz=NO Vert=YES	YES		FLUSH	STEEL ROD IMBED IN MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE POST (PREFABRICATED)	BENCH MARK DISK	NGS

Description: (2009) Stamping: C 209 1935

AT WARROAD, 0.1 MILE EAST ALONG COUNTY ROAD 74 (LAKE STREET NORTHEAST) FROM THE JUNCTION OF COUNTY ROAD 74 (LAKE STREET NORTHEAST) AND TRUNK HIGHWAY 11 IN WARROAD, THEN 0.1 MILE NORTH ON MAIN AVENUE NORTHEAST, 39.0 FEET SOUTH OF THE SOUTHWEST CORNER OF THE FORMER RAILROAD STATION (NOW A CITY OFFICE 121ST MAIN AVENUE NORTHEAST), 16.6 FEET EAST OF THE EAST RAIL OF THE RAILROAD TRACKS, AT RAILROAD MILEPOST 38, 24.5 FEET SOUTHWEST OF AN ALUMINUM FLAG POLE, 6.5 FEET EAST OF A CYCLONE FENCE AND A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1071.156	.016	2/1				VERTICAL ADJUSTMENT	2014	00000828
1071.156	.016	2/1				VERTICAL CONTROL SURVEY	2013	VHACK
1071.156	.016	2/1				VERTICAL ADJUSTMENT	2000	00000365
1071.156	.016	2/1				VERTICAL CONTROL SURVEY	1998	VWARR
1071.156	.007	1/2				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1069.778	.016	2/1				VERTICAL CONTROL SURVEY	1999	VWARR
1069.794	.007	1/2				UNKNOWN/APPROXIMATE	1992	UNCHECKD
1069.778	.033	3				VERTICAL CONTROL SURVEY	1987	CS6803
1069.794	.033	3				VERTICAL CONTROL SURVEY	1974	USGS-VERT
1069.794	.007	1				VERTICAL CONTROL SURVEY	1973	Q480951
1069.794	.007	1				VERTICAL CONTROL SURVEY	1973	L22862
1069.794	.007	1				VERTICAL CONTROL SURVEY	1941	Q480951
1069.794	.007	1				VERTICAL CONTROL SURVEY	1935	L56 MINN

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1071.189	.262		977.701	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -93.543 12B = -93.543 09 = -93.487 03 = -93.468

Lat/Lon and County Coordinates (Feet)

NAD83(2007)

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 54 21.98577	95 19 05.46749	700069.775	233251.200	.131	3	GPS - RTRN	2012	RTRN2012

State Plane and UTM Coordinates (Feet)

NAD83(2007)

<u>MN State Plane - North Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2091190.492	1213414.101	1083100.956	17780833.028	.131	3	GPS - RTRN	2012	RTRN2012



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/C_209-TC0348-3W-09OCT2012.jpg	W	Oct 9, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/C_209-TC0348-2-09OCT2012.jpg		Oct 9, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/C_209-TC0348-1-09OCT2012.jpg		Oct 9, 2012

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: C 368

NGS Name: C 368

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0494](#) [Get Map](#)
 NGS Quad / Sta Num : 48095141/
 USGS Quad: WARROAD

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	30	163 N	36 W	485442.40	952109.46	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1981	2020	GOOD	Horz=YES Vert=YES	YES		RECESSED 10 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
STEEL ROD (NO SLEEVE) (DEPTH 32 FT)	METAL ROD	NGS

Description: (2009) **Stamping:** C 368 1981

1.5 MILES WEST OF WARROAD, 1.0 MILE WEST-SOUTHWEST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND TRUNK HIGHWAY 313 AND CEDAR AVENUE IN WARROAD, AT TRUNK HIGHWAY 11 MILEPOINT 90.7, 95.0 FEET SOUTH OF TRUNK HIGHWAY 11, 67.0 FEET EAST OF COUNTY ROAD 35 (580TH AVENUE), 165.0 FEET WEST OF A TELEPHONE JUNCTION BOX, 6.2 FEET WEST OF A TELEPHONE CABLE PEDESTAL NUMBER 200, 3.0 FEET WEST OF A STATE GAME REFUGE SIGN, 1.3 FEET WEST OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1079.463	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941	
1079.463	.016	2/1				VERTICAL CONTROL SURVEY	2015	VKTAD	
1079.463	.016	2/1				VERTICAL ADJUSTMENT	2014	00000828	
1079.463	.016	2/1				VERTICAL CONTROL SURVEY	2013	VHACK	
1079.463	.007	1/2				VERTICAL ADJUSTMENT	1991	00000025	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1078.019	.033	3				VERTICAL CONTROL SURVEY	1987	CS6803	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1079.463	.131		986.186	.066	1996	GPS - STATIC	2021	HKTAD	
1079.601	.262		986.097	.197	2011	GPS - OPUS	2020	GPSBM	
1079.463			985.966	.009	2011	HORIZONTAL ADJUSTMENT	2020	GPS3390	
1079.463			985.966	.009	2011	GPS - STATIC	2020	HKTAD	
1079.417	.262		985.923	.197	2011	GPS - RTRN	2020	RTRN2020	
1079.525	.262		986.031	.197	2011	GPS - RTRN	2014	RTRN2014	
1079.473	.262		986.058	.197	2007	GPS - RTRN	2012	RTRN2012	
			985.966	.010	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800	
1079.460	.131		986.074	.066	2007	HORIZONTAL ADJUSTMENT	2009	GPS2522	
1079.460	.131		986.074	.066	2007	GPS - STATIC	2008	HROSO	
1079.460	.131		986.064	.066	1996	GPS - STATIC	2008	HROSO	

Geoid Separations(ft): GEOID18 = -93.504 12B = -93.494 09 = -93.415 03 = -93.425

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Roseau County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 54 42.40040	95 21 09.45997	691764.283	235231.606	.131	3	GPS - OPUS	2020	GPSBM
48 54 42.40093	95 21 09.45931	691764.326	235231.660	.007		ADJUSTMENT	2020	GPS3390
48 54 42.40093	95 21 09.45931	691764.326	235231.660	.007	C	GPS - STATIC	2020	HKTAD
48 54 42.39915	95 21 09.46044	691764.253	235231.479	.131	3	GPS - RTRN	2020	RTRN2020
48 54 42.40078	95 21 09.45892	691764.352	235231.645	.131	3	GPS - RTRN	2014	RTRN2014
48 54 42.40093	95 21 09.45931	691764.326	235231.660	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Roseau County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 54 42.40048	95 21 09.45998	691764.282	235231.614	.131	3	GPS - RTRN	2012	RTRN2012
48 54 42.40094	95 21 09.45996	691764.283	235231.660	.033	C	ADJUSTMENT	2009	GPS2522
48 54 42.40094	95 21 09.45996	691764.283	235231.660	.033	C	GPS - STATIC	2008	HROSO

NAD83(1996)

Geodetic Position		Roseau County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 54 42.40078	95 21 09.45992	691764.285	235231.644	.033	C	GPS - STATIC	2021	HKTAD
48 54 42.40090	95 21 09.45971	691764.300	235231.657	.033	C	GPS - STATIC	2008	HROSO

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2082969.683	1215721.926	1074885.313	17783155.439	.131	3	GPS - OPUS	2020	GPSBM
2082969.728	1215721.979	1074885.359	17783155.491	.007		ADJUSTMENT	2020	GPS3390
2082969.728	1215721.979	1074885.359	17783155.491	.007	C	GPS - STATIC	2020	HKTAD
2082969.648	1215721.801	1074885.278	17783155.313	.131	3	GPS - RTRN	2020	RTRN2020
2082969.754	1215721.963	1074885.385	17783155.475	.131	3	GPS - RTRN	2014	RTRN2014
2082969.728	1215721.979	1074885.359	17783155.491	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2082969.682	1215721.935	1074885.313	17783155.447	.131	3	GPS - RTRN	2012	RTRN2012
2082969.685	1215721.981	1074885.316	17783155.493	.033	C	ADJUSTMENT	2009	GPS2522
2082969.685	1215721.981	1074885.316	17783155.493	.033	C	GPS - STATIC	2008	HROSO

NAD83(1996)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2082969.687	1215721.965	1074885.318	17783155.477	.033	C	GPS - STATIC	2021	HKTAD
2082969.702	1215721.977	1074885.332	17783155.489	.033	C	GPS - STATIC	2008	HROSO

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/C_368-TC0494-3S-24JUN2020.jpg	S	Jun 24, 2020
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/C_368-TC0494-2-24JUN2020.jpg		Jun 24, 2020
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/C_368-TC0494-1-24JUN2020.jpg		Jun 24, 2020

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: CARLSON
County: ROSEAU, MN (Sheet 2)

NGS Name: CARLSON

NGS ACRN: [TC1263](#) [Get Map](#)
NGS Quad / Sta Num : 48095141/
USGS Quad: WARROAD

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	18	163 N	36 W	485615.68	952030.79	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1988	2012	GOOD	Horz=NO Vert=NO	YES		RECESSED 3 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
STEEL ROD (IN SLEEVE) (DEPTH 44 FT)	METAL ROD	NGS

Description: (1996) **Stamping:** CARLSON 1988

2.0 MILES NORTHWEST OF WARROAD, AT THE WARROAD INTERNATIONAL AIRPORT, 1.2 MILES NORTH ON TRUNK HIGHWAY 313 FROM THE JUNCTION OF TRUNK HIGHWAY 313 AND TRUNK HIGHWAY 11, THEN 0.5 MILE WEST ON COUNTY ROAD 13 TO AN AIRPORT ENTRANCE, THEN 0.15 MILE NORTH ON AIRPORT ROAD TO AN OFFICE AND A GATE, THEN PASS THROUGH A GATE BEARING RIGHT ACROSS AN APRON TO A TAXIWAY, THEN ALONG A TAXIWAY CROSSING RUNWAY END 31, THEN 0.2 MILE NORTHWEST ALONG THE EAST SIDE OF THE RUNWAY TO STATION CARLSON ON THE RIGHT, 170.0 FEET EAST OF THE EAST EDGE OF A RUNWAY, EAST OF THE 7TH RUNWAY LIGHT, NORTH OF NDB, 1.5 FEET NORTH OF A WITNESS POST. CONTACT THE AIRPORT MANAGER BEFORE USE.

Station Notes

THE SURVEY MARK IS ON AIRPORT PROPERTY AND HAS BEEN ABANDONED FOR MNDOT GEODETIC USE.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1070.018	.016	2/1				VERTICAL ADJUSTMENT	2014	00000828
1070.014	.016	2/1				VERTICAL CONTROL SURVEY	2013	VHACK
1070.021	.016	2/1				VERTICAL ADJUSTMENT	2000	00000365
1070.021	.016	2/1				VERTICAL CONTROL SURVEY	1998	VWARR

NGVD29

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1068.613	.016	2/1				VERTICAL CONTROL SURVEY	1999	VWARR

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1070.011	.262		976.458	.197	2007	GPS - RTRN	2012	RTRN2012
			976.350	.012	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
			976.455	.015	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
1070.011	.131		976.435	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1795
1070.011	.131		976.435	.066	1996	GPS - STATIC	2002	HWARR
1069.584	.131		976.448	.066	1996	HORIZONTAL ADJUSTMENT	1999	17648
1070.011						GPS - STATIC	1996	HORZ

NGVD29

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1068.600						GPS - STATIC	1988	HORZ

Geoid Separations(ft): GEOID18 = -93.651 12B = -93.622 09 = -93.553 03 = -93.589

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Roseau County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 56 15.67601	95 20 30.79148	694247.133	244712.126	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Roseau County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 56 15.67576	95 20 30.79085	694247.175	244712.101	.131	3	GPS - RTRN	2012	RTRN2012
48 56 15.67604	95 20 30.79213	694247.089	244712.128	.013		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Roseau County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 56 15.67598	95 20 30.79188	694247.106	244712.122	.033	C	ADJUSTMENT	2003	GPS1795
48 56 15.67598	95 20 30.79188	694247.106	244712.122	.033	C	GPS - STATIC	2002	HWARR
48 56 15.67653	95 20 30.79135	694247.141	244712.179	.033	C	ADJUSTMENT	1999	17648

NAD83(1986)

Geodetic Position		Roseau County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 56 15.66152	95 20 30.76073	694249.201	244710.679	.033	1	ADJUSTMENT	1989	GPS138

NAD27

Geodetic Position						Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 56 15.70610	95 20 29.89734			.100	1	CLASSICAL SURVEY	1989	GPS138

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2085826.098	1225097.030	1077758.425	17792524.197	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2085826.140	1225097.003	1077758.466	17792524.170	.131	3	GPS - RTRN	2012	RTRN2012
2085826.055	1225097.034	1077758.382	17792524.201	.013		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2085826.071	1225097.027	1077758.398	17792524.195	.033	C	ADJUSTMENT	2003	GPS1795
2085826.071	1225097.027	1077758.398	17792524.195	.033	C	GPS - STATIC	2002	HWARR
2085826.109	1225097.082	1077758.435	17792524.249	.033	C	ADJUSTMENT	1999	17648

NAD83(1986)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2085828.108	1225095.502	1077760.432	17792522.666	.033	1	ADJUSTMENT	1989	GPS138

NAD27

MN State Plane - North Zone						Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1461201.942	897012.848			.100	1	CLASSICAL SURVEY	1989	GPS138

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/CARLSON-TC1263-3NE-09OCT2012.jpg	NE	Oct 9, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/CARLSON-TC1263-2-09OCT2012.jpg		Oct 9, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/CARLSON-TC1263-1-09OCT2012.jpg		Oct 9, 2012

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/CLAU-DI2071-3W-07AUG2007.jpg	W	Aug 7, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/CLAU-DI2071-2-07AUG2007.jpg		Aug 7, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/CLAU-DI2071-1-07AUG2007.jpg		Aug 7, 2007

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: CLEAR

NGS Name: CLEAR

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0665](#) [Get Map](#)
 NGS Quad / Sta Num : 48095131/1009
 USGS Quad: MULLIGAN LAKE NE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	29	161 N	36 W	484401.21	951942.22	2	1

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1934	2003	GOOD	Horz=NO Vert=YES	YES		RECESSED 2 IN.	STEEL SPIKE ADJ TO MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	TRIANGULATION STATION DISK	NGS

Description: (2003) **Stamping:** CLEAR 1934

11.4 MILES SOUTH ALONG COUNTY ROAD 5 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND COUNTY ROAD 5 IN WARROAD, THEN 0.1 MILE EAST ON A TRACK ROAD, 173.80 FEET EAST-NORTHEAST OF CLEAR RM 2, 117.20 FEET SOUTH OF CLEAR RM 1, 22.8 FEET SOUTH-SOUTHWEST OF THE NORTHWEST LEG OF A TOWER, 7.0 FEET WEST OF THE SOUTHWEST LEG OF THE CLEAR FIRE TOWER.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>			<u>Year</u>	<u>Reference</u>
1209.669	.016	2/1				VERTICAL ADJUSTMENT			2006	0000425-12
1209.653	.016	2/1				VERTICAL CONTROL SURVEY			2005	VTURN

<u>NGVD29</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>			<u>Year</u>	<u>Reference</u>
1208.200	.033	3				VERTICAL CONTROL SURVEY			1974	USGS-VERT

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>			<u>Year</u>	<u>Reference</u>
1209.610	.131		1117.321	.066	1996	HORIZONTAL ADJUSTMENT			1999	17648

Geoid Separations(ft): GEOID18 = -92.795 12B = -92.782 09 = -92.693 03 = -92.667

Lat/Lon and County Coordinates (Feet)

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
48 44 01.21465	95 19 42.21545	698293.149	170312.066	.033	1	ADJUSTMENT	1999	17648	

<u>NAD83(1986)</u>		<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
48 44 01.20042	95 19 42.19087	698294.813	170310.642	.033	1	ADJUSTMENT	1986	17289	

<u>NAD27</u>		<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>								<u>Year</u>	<u>Reference</u>
48 44 01.26520	95 19 41.34270					.100	1	CLASSICAL SURVEY	1960	12443

State Plane and UTM Coordinates (Feet)

<u>NAD83(1996)</u>		<u>MN State Plane - North Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>				
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2086922.678	1150594.340	1078722.735	17718026.799	.033	1	ADJUSTMENT	1999	17648		

<u>NAD83(1986)</u>		<u>MN State Plane - North Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>				
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2086924.284	1150592.851	1078724.338	17718025.307	.033	1	ADJUSTMENT	1986	17289		

<u>NAD27</u>		<u>MN State Plane - North Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>X</u>	<u>Y</u>								<u>Year</u>	<u>Reference</u>
1462297.470	822512.323					.100	1	CLASSICAL SURVEY	1960	12443



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/CLEAR-TC0665-3E-10AUG2004.jpg	E	Aug 10, 2004
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/CLEAR-TC0665-2-10AUG2004.jpg		Aug 10, 2004
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/CLEAR-TC0665-1-10AUG2004.jpg		Aug 10, 2004

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: CLEAR AZ MK

NGS Name: CLEAR AZ MK

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [CO7460](#) [Get Map](#)
 NGS Quad / Sta Num : 48095131/
 USGS Quad: MULLIGAN LAKE NE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	29	161 N	36 W	484358.00	951947.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1934	2003	DESTROYED	Horz=NO Vert=NO	NO		FLUSH	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	AZIMUTH MARK DISK	NGS

Description: (1966) Stamping: CLEAR 1934 1966

11.85 MILES SOUTH ON COUNTY ROAD 5 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND COUNTY ROAD 5 AT WARROAD, 36.0 FEET EAST OF COUNTY ROAD 5, 12.0 FEET NORTH OF A TRACK ROAD EAST, 1.6 FEET EAST OF A WITNESS POST.

Station Notes

THE MARK WAS DESTROYED, FOUND BROKE OFF IN CONCRETE.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1207.301	.033	3				VERTICAL CONTROL SURVEY	1974	USGS-VERT	

Geoid Separations(ft): GEOID18 = -92.785 12B = -92.775 09 = -92.687 03 = -92.661

* No Horizontal Positions in the Database *



Mn/DOT Name: CLEAR RIVER FIRE TOWER

NGS Name: CLEAR RIVER FIRE TOWER

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0664](#) [Get Map](#)
 NGS Quad / Sta Num : 48095131/1010
 USGS Quad: MULLIGAN LAKE NE

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SW	29	161 N	36 W	484400.97	951942.02		4

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1934	1934	GOOD	Horz=? Vert=?	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	LOOKOUT TOWER	NGS

Description: (1934)

Stamping:

11.85 MILES SOUTH ON COUNTY ROAD 5 FROM THE JUNCTION OF COUNTY ROAD 5 AND TRUNK HIGHWAY 11 AT WARROAD, 11.0 MILES SOUTHWEST OF ROOSEVELT, ON THE EAST SIDE OF COUNTY ROAD 5.

* No Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -92.792 12B = -92.782 09 = -92.693 03 = -92.667

Lat/Lon and County Coordinates (Feet)

<u>Geodetic Position</u>		<u>Roseau County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 44 00.96866	95 19 42.02390	698306.260	170287.275	.328	4	ADJUSTMENT	1999	17648

<u>Geodetic Position</u>		<u>Roseau County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 44 00.95545	95 19 41.99956	698307.906	170285.954	.328	4	ADJUSTMENT	1986	17289

<u>Geodetic Position</u>							<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 44 01.02800	95 19 41.15800			.100	4	CLASSICAL SURVEY	1960	12443

State Plane and UTM Coordinates (Feet)

<u>MN State Plane - North Zone</u>		<u>UTM - Zone 15</u>					<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2086934.796	1150569.050	1078734.808	17718001.489	.328	4	ADJUSTMENT	1999	17648

<u>MN State Plane - North Zone</u>		<u>UTM - Zone 15</u>					<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2086936.388	1150567.664	1078736.398	17718000.102	.328	4	ADJUSTMENT	1986	17289

<u>MN State Plane - North Zone</u>							<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1462309.155	822487.937			.100	4	CLASSICAL SURVEY	1960	12443



Mn/DOT Name: CLEAR RIVER LOOKOUT TOWER

NGS Name: CLEAR RIVER LOOKOUT TOWER

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0666](#) [Get Map](#)
 NGS Quad / Sta Num : 48095131/1011
 USGS Quad: MULLIGAN LAKE NE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	29	161 N	36 W	484401.32	951941.95		4

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1941	1966	GOOD	Horz=? Vert=?	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	LOOKOUT TOWER	NGS

Description: (1966)

Stamping:

11.85 MILES SOUTH ON COUNTY ROAD 5 FROM THE JUNCTION OF COUNTY ROAD 5 AND TRUNK HIGHWAY 11 AT WARROAD, 11.0 MILES SOUTHWEST OF ROOSEVELT, ON THE EAST SIDE OF COUNTY ROAD 5, 78.02 FEET NORTHWEST OF CLEAR RM 4.

* No Leveling-Derived Orthometric Heights in the Database *

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
1207.347	.328		1115.054	.328	1996	HORIZONTAL ADJUSTMENT	1999	17648		

Geoid Separations(ft): GEOID18 = -92.795 12B = -92.782 09 = -92.693 03 = -92.667

Lat/Lon and County Coordinates (Feet)

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Roseau County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
48 44 01.32213	95 19 41.94738	698311.003	170323.152	.328	4	ADJUSTMENT	1999	17648		

<u>NAD83(1986)</u>		<u>Geodetic Position</u>		<u>Roseau County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
48 44 01.30764	95 19 41.92244	698312.691	170321.702	.328	4	ADJUSTMENT	1986	17289		

<u>NAD27</u>		<u>Geodetic Position</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 44 01.37200	95 19 41.07500			.100	4	CLASSICAL SURVEY	1960	12443

State Plane and UTM Coordinates (Feet)

<u>NAD83(1996)</u>		<u>MN State Plane - North Zone</u>		<u>UTM - Zone 15</u>					<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2086940.956	1150604.711	1078741.030	17718037.137	.328	4	ADJUSTMENT	1999	17648		

<u>NAD83(1986)</u>		<u>MN State Plane - North Zone</u>		<u>UTM - Zone 15</u>					<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2086942.585	1150603.195	1078742.656	17718035.618	.328	4	ADJUSTMENT	1986	17289		

<u>NAD27</u>		<u>MN State Plane - North Zone</u>					<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1462315.722	822522.626			.100	4	CLASSICAL SURVEY	1960	12443



Mn/DOT Name: CLEAR RM 1

NGS Name: CLEAR RM 1

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0667](#) [Get Map](#)
 NGS Quad / Sta Num : 48095131/1009
 USGS Quad: MULLIGAN LAKE NE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	29	161 N	36 W	484402.37	951942.16	2	1

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1934	2021	GOOD	Horz=YES Vert=YES	YES		FLUSH	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

Description: (1966) Stamping: CLEAR NO 1 1934

11.5 MILES SOUTH OF WARROAD, 11.4 MILES SOUTH ALONG COUNTY ROAD 5 FROM THE JUNCTION OF COUNTY ROAD 5 AND TRUCK HIGHWAY 11 IN WARROAD, THEN 0.10 MILE EAST ON FOREST ROAD 1151, 95.7 FEET NORTH OF THE NORTHWEST LEG OF A LOOKOUT TOWER, 40.0 FEET SOUTH OF FOREST ROAD 1151, 117.18 FEET NORTH OF STATION CLEAR.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>			<u>Orthometric Height</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>						
1206.369	.016	2/1				2006	00000425-12						
1206.353	.016	2/1				2005	VTURN						

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>			<u>Orthometric Height</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>						
1206.376	.262		1113.580	.197	2011	2022	GPSBM						
1206.431	.262		1113.636	.197	2011	2021	GPSBM						
1206.494	.262		1113.699	.197	2011	2021	RTRN2021						
1207.347	.131		1115.054	.066	1996	1999	17648						

<u>NGVD29</u>			<u>Orthometric Height</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>						
1207.314						1934	HORZ						

Geoid Separations(ft): GEOID18 = -92.795 12B = -92.782 09 = -92.693 03 = -92.670

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Geodetic Position</u>						<u>Roseau County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>							
48 44 02.36980	95 19 42.15770	698295.758	170429.176	.131	3	2022	GPSBM							
48 44 02.37055	95 19 42.15695	698295.808	170429.252	.131	3	2021	GPSBM							
48 44 02.37000	95 19 42.15622	698295.857	170429.197	.131	3	2021	RTRN2021							

<u>NAD83(1996)</u>		<u>Geodetic Position</u>						<u>Roseau County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>							
48 44 02.37033	95 19 42.15998	698295.605	170429.228	.033	1	1999	17648							

<u>NAD83(1986)</u>		<u>Geodetic Position</u>						<u>Roseau County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>							
48 44 02.35573	95 19 42.13520	698297.282	170427.766	.033	1	1986	17289							

<u>NAD27</u>		<u>Geodetic Position</u>						<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>				
48 44 02.42010	95 19 41.28710			.100	1	1960	12443				

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2086929.923	1150711.252	1078730.181	17718143.691	.131	3	GPS - OPUS	2022	GPSBM
2086929.975	1150711.327	1078730.233	17718143.765	.131	3	GPS - OPUS	2021	GPSBM
2086930.023	1150711.270	1078730.281	17718143.708	.131	3	GPS - RTRN	2021	RTRN2021

NAD83(1996)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2086929.771	1150711.310	1078730.030	17718143.749	.033	1	ADJUSTMENT	1999	17648

NAD83(1986)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2086931.389	1150709.783	1078731.645	17718142.219	.033	1	ADJUSTMENT	1986	17289

NAD27

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1462304.570	822629.214			.100	1	CLASSICAL SURVEY	1960	12443

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/CLEAR_RM_1-TC0667-3S-05OCT2021.jpg	S	Oct 5, 2021
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/CLEAR_RM_1-TC0667-2-05OCT2021.jpg		Oct 5, 2021
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/CLEAR_RM_1-TC0667-1-05OCT2021.jpg		Oct 5, 2021

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: CLEAR RM 2

NGS Name: CLEAR RM 2

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [CO7461](#) [Get Map](#)
 NGS Quad / Sta Num : 48095131/
 USGS Quad: MULLIGAN LAKE NE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	29	161 N	36 W	484400.87	951944.76		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1934	2004	GOOD	Horz=NO Vert=YES	NO		FLUSH	STEEL SPIKE ADJ TO MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

Description: (2003) Stamping: CLEAR NO 2 1934

11.4 MILES SOUTH ON COUNTY ROAD 5 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND COUNTY ROAD 5 AT WARROAD, THEN 0.1 MILE EAST ON A TRACK ROAD, 10.0 FEET SOUTHEAST OF A UTILITY POLE, 173.80 FEET WEST-SOUTHWEST OF STATION CLEAR, 9.0 FEET NORTH OF A DRIVEWAY.

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1207.701	.033	3					VERTICAL CONTROL SURVEY	1974	USGS-VERT	

Geoid Separations(ft): GEOID18 = -92.792 12B = -92.779 09 = -92.690 03 = -92.667

* No Horizontal Positions in the Database *



Mn/DOT Name: CLEAR RM 2 HIT

NGS Name: CLEAR RM 2 HIT

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [CO7462](#) [Get Map](#)
 NGS Quad / Sta Num : 48095131/
 USGS Quad: MULLIGAN LAKE NE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	29	161 N	36 W	484400.87	951944.76		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1934	2003	GOOD	Horz=NO Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

Description: **Stamping:**
 11.4 MILES SOUTH ON COUNTY ROAD 5 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND COUNTY ROAD 5 AT WARROAD, THEN 0.1 MILE EAST ON A TRACK ROAD.

* No Horizontal or Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -92.795 12B = -92.782 09 = -92.693 03 = -92.667



Mn/DOT Name: CLEAR RM 4

NGS Name: CLEAR RM 4

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0668](#) [Get Map](#)
 NGS Quad / Sta Num : 48095131/1009
 USGS Quad: MULLIGAN LAKE NE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	29	161 N	36 W	484401.09	951940.84	2	1

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1966	2003	GOOD	Horz=NO Vert=YES	YES		RECESSED 2 IN.	STEEL SPIKE ADJ TO MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

Description: (2004) **Stamping:** CLEAR NO 4 1934 1966

11.4 MILES SOUTH ON COUNTY ROAD 5 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND COUNTY ROAD 5 AT WARROAD, THEN 0.1 MILE EAST ON A TRACK ROAD, 64.5 FEET EAST-SOUTHEAST OF THE SOUTHEAST LEG OF A TOWER, 52.5 FEET SOUTH OF THE NORTH END OF A CONCRETE RAMP, 157.10 FEET SOUTH-SOUTHEAST OF CLEAR RM 1, 263.79 FEET EAST OF CLEAR RM 2, 78.02 FEET SOUTHEAST OF TOWER.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>			<u>Year</u>	<u>Reference</u>
1209.519	.016	2/1				VERTICAL ADJUSTMENT			2006	0000425-12
1209.505	.016	2/1				VERTICAL CONTROL SURVEY			2005	VTURN

<u>NGVD29</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>			<u>Year</u>	<u>Reference</u>
1208.101	.033	3				VERTICAL CONTROL SURVEY			1974	USGS-VERT

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>			<u>Year</u>	<u>Reference</u>
1207.347	.131		1115.054	.066	1996	HORIZONTAL ADJUSTMENT			1999	17648

Geoid Separations(ft): GEOID18 = -92.795 12B = -92.782 09 = -92.693 03 = -92.670

Lat/Lon and County Coordinates (Feet)

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Roseau County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>		<u>Year</u>	<u>Reference</u>	
48 44 01.09058	95 19 40.83742	698385.666	170300.489	.033	1	ADJUSTMENT		1999	17648	

<u>NAD83(1986)</u>		<u>Geodetic Position</u>		<u>Roseau County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>		<u>Year</u>	<u>Reference</u>	
48 44 01.07628	95 19 40.81252	698387.351	170299.058	.033	1	ADJUSTMENT		1986	17289	

<u>NAD27</u>		<u>Geodetic Position</u>					<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>		<u>Year</u>	<u>Reference</u>
48 44 01.14072	95 19 39.96476			.100	1	CLASSICAL SURVEY		1977	15935

State Plane and UTM Coordinates (Feet)

<u>NAD83(1996)</u>		<u>MN State Plane - North Zone</u>		<u>UTM - Zone 15</u>					<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>		<u>Year</u>	<u>Reference</u>
2087014.662	1150579.109	1078814.687	17718011.410	.033	1	ADJUSTMENT		1999	17648		

<u>NAD83(1986)</u>		<u>MN State Plane - North Zone</u>		<u>UTM - Zone 15</u>					<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>		<u>Year</u>	<u>Reference</u>
2087016.289	1150577.612	1078816.311	17718009.910	.033	1	ADJUSTMENT		1986	17289		

<u>NAD27</u>		<u>MN State Plane - North Zone</u>					<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>		<u>Year</u>	<u>Reference</u>
1462389.450	822497.051			.100	1	CLASSICAL SURVEY		1977	15935



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/CLEAR_RM_4-TC0668-3W-10AUG2004.jpg	W	Aug 10, 2004
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/CLEAR_RM_4-TC0668-2-10AUG2004.jpg		Aug 10, 2004
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/CLEAR_RM_4-TC0668-1-10AUG2004.jpg		Aug 10, 2004

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: CODY

NGS Name: CODY

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DP0915](#) [Get Map](#)
 NGS Quad / Sta Num : 48095113/
 USGS Quad: SWIFT

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	20	162 N	35 W	485014.63	951100.84	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2012	2020	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 28 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2012) Stamping: CODY 2012

4.3 MILES NORTHWEST OF ROOSEVELT, 4.55 MILES NORTHWEST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND COUNTY ROAD 42 IN ROOSEVELT, AT TRUNK HIGHWAY 11 MILEPOINT 100.6, 48.0 FEET SOUTHWEST OF TRUNK HIGHWAY 11, 13.2 FEET SOUTHEAST OF A FIELD ENTRANCE, 1.5 FEET NORTHWEST OF A WITNESS POST.

Station Pair: ORANGE - ROSEAU, MN

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order</u>	<u>(/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>			
1111.500	.016	2/1					VERTICAL ADJUSTMENT		2014	00000828			
1111.500	.016	2/1					VERTICAL CONTROL SURVEY		2013	VHACK			

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order</u>	<u>(/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>			
1111.625	.262			1017.646	.197	2011	GPS - OPUS		2020	GPSBM			
1111.645	.262			1017.665	.197	2011	GPS - OPUS		2020	GPSBM			
1111.477	.262			1017.524	.197	2011	GPS - RTRN		2020	RTRN2020			
1111.500				1017.580	.016	2011	HORIZONTAL ADJUSTMENT		2020	GPS3362			
1111.500	.131			1017.721	.066	1996	GPS - STATIC		2020	HGRACE			
1111.500				1017.580	.016	2011	GPS - STATIC		2020	HGRACE			
1111.428	.262			1017.564	.197	2007	GPS - RTRN		2012	RTRN2012			

Geoid Separations(ft): GEOID18 = -93.979 12B = -93.957 09 = -93.865 03 = -93.858

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Roseau County</u>						<u>Project Info</u>	
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
<u>Latitude</u>	<u>Longitude</u>								
48 50 14.63258	95 11 00.84156	732764.836	208565.436	.131	3	GPS - OPUS	2020	GPSBM	
48 50 14.63251	95 11 00.84109	732764.867	208565.429	.131	3	GPS - OPUS	2020	GPSBM	
48 50 14.63256	95 11 00.84082	732764.886	208565.435	.131	3	GPS - RTRN	2020	RTRN2020	
48 50 14.63298	95 11 00.84087	732764.882	208565.477	.013		ADJUSTMENT	2020	GPS3362	
48 50 14.63298	95 11 00.84087	732764.882	208565.477	.013	C	GPS - STATIC	2020	HGRACE	

<u>NAD83(2007)</u>		<u>Roseau County</u>						<u>Project Info</u>	
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
<u>Latitude</u>	<u>Longitude</u>								
48 50 14.63270	95 11 00.84183	732764.818	208565.448	.131	3	GPS - RTRN	2012	RTRN2012	

<u>NAD83(1996)</u>		<u>Roseau County</u>						<u>Project Info</u>	
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
<u>Latitude</u>	<u>Longitude</u>								
48 50 14.63283	95 11 00.84135	732764.850	208565.461	.033	C	GPS - STATIC	2020	HGRACE	

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - North Zone		UTM - Zone 15						Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
2122882.579	1187451.924	1114742.784	17754818.154	.131	3	GPS - OPUS	2020	GPSBM	
2122882.611	1187451.916	1114742.815	17754818.146	.131	3	GPS - OPUS	2020	GPSBM	
2122882.629	1187451.920	1114742.833	17754818.151	.131	3	GPS - RTRN	2020	RTRN2020	
2122882.627	1187451.963	1114742.831	17754818.193	.013		ADJUSTMENT	2020	GPS3362	
2122882.627	1187451.963	1114742.831	17754818.193	.013	C	GPS - STATIC	2020	HGRACE	

NAD83(2007)

MN State Plane - North Zone		UTM - Zone 15						Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
2122882.562	1187451.936	1114742.766	17754818.167	.131	3	GPS - RTRN	2012	RTRN2012	

NAD83(1996)

MN State Plane - North Zone		UTM - Zone 15						Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
2122882.594	1187451.949	1114742.798	17754818.179	.033	C	GPS - STATIC	2020	HGRACE	

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/CODY-DP0915-3SW-24JUN2020.jpg	SW	Jun 24, 2020
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/CODY-DP0915-2-24JUN2020.jpg		Jun 24, 2020
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/CODY-DP0915-1-24JUN2020.jpg		Jun 24, 2020

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: D 209

NGS Name: D 209

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0349](#) [Get Map](#)
 NGS Quad / Sta Num : 48095141/
 USGS Quad: WARROAD

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	29	163 N	36 W	485452.00	951919.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1935	1981	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE FOOTING - SMALL	BENCH MARK DISK	NGS

Description: (1981) **Stamping:** D-209 1935

IN WARROAD, 0.2 MILE NORTH OF MAIN AVENUE NORTH NORTHEAST OF THE JUNCTION OF MAIN AVENUE NORTHEAST AND GLADYS STREET, 427.18 FEET WEST FROM THE CENTERLINE OF MAIN AVENUE NORTHEAST, STATION IS 30.0 FEET EAST OF RAILROAD TRACK.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1067.393	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1066.599	.033	3					VERTICAL CONTROL SURVEY	1974	USGS-VERT	
1066.028	.007	1					VERTICAL CONTROL SURVEY	1941	Q480951	
1066.028	.007	1					VERTICAL CONTROL SURVEY	1935	L56 MINN	

Geoid Separations(ft): GEOID18 = -93.573 12B = -93.573 09 = -93.510 03 = -93.500

* No Horizontal Positions in the Database *



Mn/DOT Name: D 261

NGS Name: D 261

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 48095421/
 USGS Quad: WANNASKA NE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	7	160 N	38 W	484157.00	953616.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1935	2007	POOR	Horz=NO Vert=YES	NO		PROJECTS 3 IN.	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	NGS

Description: (1935) **Stamping:** D 261 1935

1.5 MILES EAST OF PENCER, 5.0 FEET SOUTH AND 33.0 FEET EAST OF COUNTY ROAD 9 AT A TEE-ROAD WEST (COUNTY ROAD 20), 53.0 FEET SOUTH OF A ROAD EAST, 4.0 FEET SOUTH OF A FIRE WARDEN SIGN.

Station Notes

THE MARK HAS BEEN HIT, THE DISK IS LOOSE.

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1107.668	.033	3					VERTICAL CONTROL SURVEY	1974	USGS-VERT	

Geoid Separations(ft): GEOID18 = -92.119 12B = -92.106 09 = -92.031 03 = -91.988

* No Horizontal Positions in the Database *



Mn/DOT Name: D 368

NGS Name: D 368

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0487](#) [Get Map](#)
 NGS Quad / Sta Num : 48095141/
 USGS Quad: WARROAD

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>					
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>					
NW	29	163 N	36 W	485451.11	951946.58	2	C					
<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>		<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>				
1981	2018	GOOD	Horz=YES Vert=YES		YES		RECESSED 9 IN.	BAR MAG IN DRILL HOLE				

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
STEEL ROD (NO SLEEVE) (DEPTH 32 FT)	METAL ROD	NGS

Description: (2009) **Stamping:** D 368 1981

IN WARROAD, 0.95 MILE WEST OF THE JUNCTION OF TRUNK HIGHWAY 11 AND EAST LAKE STREET, 0.1 MILE EAST OF THE JUNCTION OF TRUNK HIGHWAY 11 AND TRUNK HIGHWAY 313 NORTH, 39.0 FEET SOUTH OF TRUNK HIGHWAY 11, 32.0 FEET EAST OF THE EAST ENTRANCE TO LAKE COUNTRY GM AUTO, 13.1 FEET WEST-NORTHWEST OF A FIRE HYDRANT, 1.0 FOOT EAST OF A RIGHT-OF-WAY POST, 1.3 FEET NORTH OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1071.189	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941	
1071.189	.016	2/1				VERTICAL CONTROL SURVEY	2015	VKTAD	
1071.189	.016	2/1				VERTICAL ADJUSTMENT	2014	00000828	
1071.189	.016	2/1				VERTICAL CONTROL SURVEY	2013	VHACK	
1071.189	.016	2/1				VERTICAL ADJUSTMENT	2000	00000365	
1071.189	.016	2/1				VERTICAL CONTROL SURVEY	1998	VWARR	
1071.189	.007	1/2				VERTICAL ADJUSTMENT	1991	00000025	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1069.794	.016	2/1				VERTICAL CONTROL SURVEY	1999	VWARR	
1069.794	.033	3				VERTICAL CONTROL SURVEY	1987	CS6803	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1071.189	.131		977.800	.066	1996	GPS - STATIC	2021	HKTAD	
1071.189			977.639	.028	2011	HORIZONTAL ADJUSTMENT	2020	GPS3390	
1071.189			977.639	.028	2011	GPS - STATIC	2020	HKTAD	
1071.215	.262		977.665	.197	2011	GPS - RTRN	2014	RTRN2014	
1071.136	.262		977.652	.197	2007	GPS - RTRN	2012	RTRN2012	
			977.619	.012	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800	
			977.721	.018	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300	
1071.192	.131		977.698	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1795	
1071.192	.131		977.698	.066	1996	GPS - STATIC	2002	HWARR	

Geoid Separations(ft): GEOID18 = -93.553 12B = -93.550 09 = -93.484 03 = -93.478

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Roseau County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 54 51.11129	95 19 46.57705	697291.496	236173.219	.016		ADJUSTMENT	2020	GPS3390
48 54 51.11129	95 19 46.57705	697291.496	236173.219	.016	C	GPS - STATIC	2020	HKTAD
48 54 51.11051	95 19 46.57710	697291.494	236173.140	.131	3	GPS - RTRN	2014	RTRN2014
48 54 51.11098	95 19 46.57857	697291.395	236173.187	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Roseau County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 54 51.11059	95 19 46.57846	697291.403	236173.147	.131	3	GPS - RTRN	2012	RTRN2012
48 54 51.11096	95 19 46.57897	697291.369	236173.184	.013		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Roseau County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 54 51.11112	95 19 46.57768	697291.454	236173.202	.033	C	GPS - STATIC	2021	HKTAD
48 54 51.11089	95 19 46.57888	697291.375	236173.177	.033	C	ADJUSTMENT	2003	GPS1795
48 54 51.11089	95 19 46.57888	697291.375	236173.177	.033	C	GPS - STATIC	2002	HWARR

NAD83(1986)

Geodetic Position		Roseau County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 54 51.09600	95 19 46.54809	697293.448	236171.690	.033	C	GPS - STATIC	1996	HWARR

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2088530.028	1216443.951	1080446.296	17783867.304	.016		ADJUSTMENT	2020	GPS3390
2088530.028	1216443.951	1080446.296	17783867.304	.016	C	GPS - STATIC	2020	HKTAD
2088530.023	1216443.872	1080446.291	17783867.225	.131	3	GPS - RTRN	2014	RTRN2014
2088529.926	1216443.922	1080446.194	17783867.276	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2088529.932	1216443.883	1080446.200	17783867.236	.131	3	GPS - RTRN	2012	RTRN2012
2088529.899	1216443.921	1080446.167	17783867.274	.013		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2088529.986	1216443.935	1080446.254	17783867.288	.033	C	GPS - STATIC	2021	HKTAD
2088529.905	1216443.914	1080446.173	17783867.267	.033	C	ADJUSTMENT	2003	GPS1795
2088529.905	1216443.914	1080446.173	17783867.267	.033	C	GPS - STATIC	2002	HWARR

NAD83(1986)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2088531.917	1216442.346	1080448.183	17783865.696	.033	C	GPS - STATIC	1996	HWARR

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/D_368-TC0487-3S-24JUN2014.jpg	S	Jun 24, 2014
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/D_368-TC0487-2-24JUN2014.jpg		Jun 24, 2014
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/D_368-TC0487-1-24JUN2014.jpg		Jun 24, 2014

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: DUHAMEL

NGS Name: DUHAMEL

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DP9489](#) [Get Map](#)
 NGS Quad / Sta Num : 48095144/
 USGS Quad: WARROAD NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	31	163 N	37 W	485309.31	952900.79	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2018	GOOD	Horz=YES Vert=YES	YES		FLUSH	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 20 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014) Stamping: DUHAMEL 2014

7.5 MILES WEST-SOUTHWEST OF WARROAD, 7.25 MILES WEST-SOUTHWEST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND TRUNK HIGHWAY 313 IN WARROAD, AT TRUNK HIGHWAY 11 MILEPOINT 84.4, 38.0 FEET NORTH-NORTHWEST OF TRUNK HIGHWAY 11, 56.2 FEET EAST-NORTHEAST OF 520TH AVENUE, 5.0 FEET SOUTH-SOUTHEAST OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1090.611	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941	
1090.598	.016	2/1				VERTICAL CONTROL SURVEY	2015	VKTAD	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1090.611	.131		997.524	.066	1996	GPS - STATIC	2021	HKTAD	
1090.611			997.363	.024	2011	HORIZONTAL ADJUSTMENT	2020	GPS3390	
1090.611			997.363	.024	2011	GPS - STATIC	2020	HKTAD	
1090.634	.262		997.350	.197	2011	GPS - RTRN	2014	RTRN2014	

Geoid Separations(ft): GEOID18 = -93.294 12B = -93.281 09 = -93.176 03 = -93.163

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
48 53 09.30935	95 29 00.78884	660360.923	225494.409	.013		ADJUSTMENT	2020	GPS3390	
48 53 09.30935	95 29 00.78884	660360.923	225494.409	.013	C	GPS - STATIC	2020	HKTAD	
48 53 09.30861	95 29 00.78936	660360.889	225494.333	.131	3	GPS - RTRN	2014	RTRN2014	

<u>NAD83(1996)</u>		<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
48 53 09.30918	95 29 00.78948	660360.880	225494.391	.033	C	GPS - STATIC	2021	HKTAD	

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - North Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
		1043107.665	17774727.384	.013		ADJUSTMENT	2020	GPS3390	
2051204.591	1207235.216	1043107.665	17774727.384	.013	C	GPS - STATIC	2020	HKTAD	
2051204.554	1207235.142	1043107.627	17774727.310	.131	3	GPS - RTRN	2014	RTRN2014	

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - North Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
2051204.548	1207235.200	1043107.621	17774727.367	.033	C	GPS - STATIC	2021	HKTAD	

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/DUHAMEL-DP9489-3NW-30JUL2014.jpg	NW	Jul 30, 2014
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/DUHAMEL-DP9489-2-30JUL2014.jpg		Jul 30, 2014
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/DUHAMEL-DP9489-1-30JUL2014.jpg		Jul 30, 2014

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: E 368

NGS Name: E 368

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0495](#) [Get Map](#)
 NGS Quad / Sta Num : 48095144/
 USGS Quad: WARROAD NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	26	163 N	37 W	485423.79	952252.44	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1981	2014	GOOD	Horz=NO Vert=YES	YES		RECESSED 4 IN.	STEEL SPIKE ADJ TO MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
STEEL ROD (NO SLEEVE) (DEPTH 44 FT)	METAL ROD	NGS

Description: (2007) **Stamping:** E 368 1981

2.35 MILES WEST-SOUTHWEST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND TRUNK HIGHWAY 313 AND CEDAR AVENUE IN WARROAD, AT TRUNK HIGHWAY 11 MILEPOINT 89.25, 118.0 FEET NORTH-NORTHWEST OF TRUNK HIGHWAY 11, 19.0 FEET SOUTHWEST OF DRIVEWAY NUMBER 56721, 75.0 FEET SOUTH-SOUTHWEST OF THE SOUTHWEST CORNER OF A HOUSE, 4.5 FEET EAST-SOUTHEAST OF THE EAST CORNER OF A GARAGE, 2.5 FEET SOUTHWEST OF A POWER POLE WITH A TRANSFORMER AND A LIGHT.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1128.206	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	
1128.200	.016	2/1					VERTICAL CONTROL SURVEY	2015	VKTAD	
1128.200	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1128.436	.262			1034.991	.197	2011	GPS - RTRN	2014	RTRN2014	

Geoid Separations(ft): GEOID18 = -93.458 12B = -93.445 09 = -93.350 03 = -93.373

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Roseau County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
48 54 23.79411	95 22 52.43500			684904.379	233275.186	.131	3	GPS - RTRN	2014	RTRN2014

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - North Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2076037.478	1214038.602			1067950.824	17781484.886	.131	3	GPS - RTRN	2014	RTRN2014

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/E_368-TC0495-3N-14OCT2009.jpg	N	Oct 14, 2009
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/E_368-TC0495-2-14OCT2009.jpg		Oct 14, 2009
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/E_368-TC0495-1-14OCT2009.jpg		Oct 14, 2009

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: EDGAR

NGS Name: EDGAR

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0655](#) [Get Map](#)
 NGS Quad / Sta Num : 48095114/1005
 USGS Quad: ROOSEVELT NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	2	162 N	35 W	485311.61	950740.38		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1934	2021	GOOD	Horz=YES Vert=YES	YES		PROJECTS 1 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	TRIANGULATION STATION DISK	NGS

Description: (2008) **Stamping:** EDGAR 1934

6.0 MILES NORTHWEST OF ROOSEVELT, 5.4 MILES NORTH ON 690TH AVENUE FROM THE JUNCTION OF TRUNK HIGHWAY 11, THEN 0.65 MILE WEST ON 340TH STREET, 450.0 FEET WEST-NORTHWEST OF A HOUSE, 120.70 FEET EAST OF EDGAR RM 2, 111.09 FEET SOUTHEAST OF EDGAR RM 3, 39.0 FEET SOUTH OF 340TH STREET, 1.0 FOOT NORTH OF A WITNESS POST.

* No Leveling-Derived Orthometric Heights in the Database *

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1069.145	.262		974.617	.197	2011	GPS - OPUS	2021	GPSBM
1069.171	.262		974.644	.197	2011	GPS - RTRN	2021	RTRN2021
			974.677	.008	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
1069.191	.131		974.870	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2833
1069.191	.131		974.870	.066	2007	GPS - STATIC	2011	HLOTW
1069.191	.131		974.791	.066	1996	GPS - STATIC	2011	HLOTW
1069.191	.131		974.870	.066	2007	HORIZONTAL ADJUSTMENT	2009	GPS2522
1069.191	.131		974.772	.066	2007	GPS - STATIC	2008	HROSO
1069.191	.131		974.791	.066	1996	GPS - STATIC	2008	HROSO
1076.113	.131		982.131	.066	1996	HORIZONTAL ADJUSTMENT	1999	17648

NGVD29

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1065.943						DIGITIZED FROM MAP	1934	HORZ

Geoid Separations(ft): GEOID18 = -94.527 12B = -94.508 09 = -94.409 03 = -94.406



Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Roseau County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 53 11.61056	95 07 40.37851	745934.925	226675.991	.131	3	GPS - OPUS	2021	GPSBM
48 53 11.61088	95 07 40.37749	745934.993	226676.024	.131	3	GPS - RTRN	2021	RTRN2021
48 53 11.61103	95 07 40.37794	745934.962	226676.039	.003		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Roseau County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 53 11.61109	95 07 40.37862	745934.917	226676.045	.033	C	ADJUSTMENT	2011	GPS2833
48 53 11.61109	95 07 40.37862	745934.917	226676.045	.033	C	GPS - STATIC	2011	HLOTW
48 53 11.61109	95 07 40.37862	745934.917	226676.045	.033	C	ADJUSTMENT	2009	GPS2522
48 53 11.61109	95 07 40.37862	745934.917	226676.045	.033	C	GPS - STATIC	2008	HROSO

NAD83(1996)

Geodetic Position		Roseau County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 53 11.61112	95 07 40.37836	745934.934	226676.048	.033	C	GPS - STATIC	2011	HLOTW
48 53 11.61112	95 07 40.37836	745934.934	226676.048	.033	C	GPS - STATIC	2008	HROSO
48 53 11.61006	95 07 40.37931	745934.872	226675.939	.033	1	ADJUSTMENT	1999	17648

NAD83(1986)

Geodetic Position		Roseau County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 53 11.59189	95 07 40.35096	745936.792	226674.123	.033	1	ADJUSTMENT	1986	17289

NAD27

Geodetic Position						Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 53 11.62700	95 07 93.53300			.100	3	CLASSICAL SURVEY	1966	USGS-HORZ
48 53 11.62740	95 07 39.53320			.100	1	CLASSICAL SURVEY	1960	12443

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2136760.365	1205026.574	1128649.078	17772365.774	.131	3	GPS - OPUS	2021	GPSBM
2136760.434	1205026.605	1128649.147	17772365.805	.131	3	GPS - RTRN	2021	RTRN2021
2136760.405	1205026.621	1128649.118	17772365.821	.003		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2136760.359	1205026.628	1128649.072	17772365.828	.033	C	ADJUSTMENT	2011	GPS2833
2136760.359	1205026.628	1128649.072	17772365.828	.033	C	GPS - STATIC	2011	HLOTW
2136760.359	1205026.628	1128649.072	17772365.828	.033	C	ADJUSTMENT	2009	GPS2522
2136760.359	1205026.628	1128649.072	17772365.828	.033	C	GPS - STATIC	2008	HROSO

NAD83(1996)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2136760.377	1205026.631	1128649.090	17772365.831	.033	C	GPS - STATIC	2011	HLOTW
2136760.377	1205026.631	1128649.090	17772365.831	.033	C	GPS - STATIC	2008	HROSO
2136760.310	1205026.525	1128649.023	17772365.725	.033	1	ADJUSTMENT	1999	17648

NAD83(1986)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2136762.157	1205024.634	1128650.866	17772363.832	.033	1	ADJUSTMENT	1986	17289

NAD27

MN State Plane - North Zone						Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1508526.346	877036.252			.100	3	CLASSICAL SURVEY	1966	USGS-HORZ
1512134.595	876941.272			.100	1	CLASSICAL SURVEY	1960	12443



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/EDGAR-TC0655-3SW-05OCT2021.jpg	SW	Oct 5, 2021
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/EDGAR-TC0655-2-05OCT2021.jpg		Oct 5, 2021
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/EDGAR-TC0655-1-05OCT2021.jpg		Oct 5, 2021

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: EDGAR AZ MK

NGS Name: EDGAR AZ MK

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [CO6790](#) [Get Map](#)
 NGS Quad / Sta Num : 48095111/
 USGS Quad: ROOSEVELT NE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	35	163 N	35 W	485312.00	950713.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1941	1967	GOOD	Horz=? Vert=YES	NO		PROJECTS 4 IN.	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE POST (PREFABRICATED)	AZIMUTH MARK DISK	USGS

Description: **Stamping:** EDGAR 1941

6.0 MILES NORTHWEST OF ROOSEVELT, 1.0 MILE SOUTH OF THE SOUTH SHORE OF LAKE OF THE WOODS, 5.4 MILES NORTH ON COUNTY ROAD 141 (690TH AVENUE) FROM THE JUNCTION OF COUNTY ROAD 141 (690TH AVENUE) AND TRUNK HIGHWAY 11 JUST NORTH OF ROOSEVELT, ABOUT 0.65 MILE EAST OF STATION EDGAR, IN THE NORTHWEST ANGLE OF A CROSSROADS, 29.0 FEET NORTH OF 340TH STREET, 20.0 FEET WEST OF COUNTY ROAD 141 (690TH AVENUE), 12.0 FEET EAST OF A TELEPHONE POLE, 3.5 FEET SOUTHWEST OF A WHITE REFERENCE POST.

Station Notes

IN 1966, THE UNITED STATES GEOLOGICAL SURVEY (USGS) REPORTED THAT THE MARK WAS RECOVERED IN GOOD CONDITION BUT IS OBSTRUCTED BY TREES AND SHRUBBERY A NEW AZIMUTH MARK WAS ESTABLISHED AT THIS TIME.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order/(Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1073.400	.033	3				VERTICAL CONTROL SURVEY	1974	USGS-VERT	

Geoid Separations(ft): GEOID18 = -94.596 12B = -94.583 09 = -94.478 03 = -94.472

* No Horizontal Positions in the Database *



Mn/DOT Name: EDGAR AZ MK 2

NGS Name: EDGAR AZ MK 2

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [CO6791](#) [Get Map](#)
 NGS Quad / Sta Num : 48095114/
 USGS Quad: ROOSEVELT NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	34	163 N	35 W	485312.00	950808.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1966	2007	NOT FOUND	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE POST (PREFABRICATED)	AZIMUTH MARK DISK	USGS

Description: (1967) **Stamping:** EDGAR AZI 2 1934 1966

6.0 MILES NORTHWEST OF ROOSEVELT, 1.0 MILE SOUTH OF THE SOUTH SHORE OF LAKE OF THE WOODS, 5.4 MILES NORTH ON COUNTY ROAD 141 (690TH AVENUE) FROM THE JUNCTION OF COUNTY ROAD 141 (690TH AVENUE) AND TRUNK HIGHWAY 11, THEN 1.0 MILE WEST ON 340TH STREET, 0.35 MILE WEST OF STATION EDGAR, 52.0 FEET NORTHWEST OF THE CENTER OF A DIRT ROAD, 6.0 FEET EAST OF AN 18.0 INCH DIAMETER ELM TREE, 2.5 FEET EAST OF A WITNESS POST.

* No Horizontal or Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -94.501 12B = -94.481 09 = -94.383 03 = -94.380



Mn/DOT Name: EDGAR RM 1

NGS Name: EDGAR RM 1

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [CO6792](#) [Get Map](#)
 NGS Quad / Sta Num : 48095114/
 USGS Quad: ROOSEVELT NW

	<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u> <u>Sec</u> <u>Twp</u> <u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW 2 162 N 35 W	485311.63	950738.12		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1934	1966	DESTROYED	Horz=NO Vert=NO	NO		PROJECTS 6 IN.	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE POST (PREFABRICATED)	REFERENCE MARK DISK	USGS

Description: **Stamping:** EDGAR NO 1 1934

6.0 MILES NORTHWEST OF ROOSEVELT, 1.0 MILE SOUTH OF THE SOUTH SHORE OF LAKE OF THE WOODS, 5.4 MILES NORTH ON COUNTY ROAD 141 (690TH AVENUE) FROM THE JUNCTION OF COUNTY ROAD 11 (690TH AVENUE) AND TRUNK HIGHWAY 11, THEN 0.65 MILE WEST ON 340TH STREET, EAST OF STATION EDGAR, 33.0 FEET SOUTH OF 340TH STREET, 1.5 FEET SOUTH OF A FENCE LINE.

Station Notes

IN 1966, THE UNITED STATES GEOLOGICAL SURVEY (USGS) REPORTED THE MARK WAS FOUND TILTED OVER AND WAS DESTROYED.

* No Horizontal or Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -94.527 12B = -94.508 09 = -94.409 03 = -94.406



Mn/DOT Name: EDGAR RM 3

NGS Name: EDGAR RM 3

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [CO6794](#) [Get Map](#)
 NGS Quad / Sta Num : 48095114/
 USGS Quad: ROOSEVELT NW

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NW	2	162 N	35 W	485312.36	950741.59		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1934	2007	GOOD	Horz=YES Vert=YES	NO		RECESSED 2 IN.	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE POST (PREFABRICATED)	REFERENCE MARK DISK	USGS

Description: **Stamping:** EDGAR NO 3 1934

6.0 MILES NORTHWEST OF ROOSEVELT, 1.0 MILE SOUTH OF THE SOUTH SHORE OF LAKE OF THE WOODS, 5.4 MILES NORTH ON COUNTY ROAD 141 (690TH AVENUE) FROM THE JUNCTION OF COUNTY ROAD 11 (690TH AVENUE) AND TRUNK HIGHWAY 11, THEN 0.65 MILE WEST ON 340TH STREET, 39.0 FEET NORTH OF 340TH STREET, 43.0 FEET WEST OF THE CENTER OF A TRACK ROAD, AT THE CENTER OF A FIELD ROAD, 56.0 FEET WEST OF A CORNER FENCE POST, 7.9 FEET SOUTH OF A STEEL WITNESS POST.

* No Horizontal or Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -94.527 12B = -94.508 09 = -94.409 03 = -94.406



Mn/DOT Name: ET 2 JA 1965

NGS Name: ET 2 JA 1965

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 48095424/
 USGS Quad: WANNASKA

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	28	161 N	39 W	484449.30	954203.60		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1965	1965	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	BENCH MARK DISK	USGS

Description: Stamping: ET 2 JA 1965 1076

7.0 MILES SOUTH AND 3.0 MILES EAST OF ROSEAU, 46.0 FEET SOUTH AND 29.0 FEET EAST AND 1.6 FEET LOWER THAN THE CROSSROADS, 4.0 FEET NORTH AND 1.0 FOOT WEST OF A TELEPHONE POLE.

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1076.504	.033	3							VERTICAL CONTROL SURVEY	1974	USGS-VERT	

Geoid Separations(ft): GEOID18 = -92.011 12B = -92.008 09 = -91.916 03 = -91.909

* No Horizontal Positions in the Database *



Mn/DOT Name: ET 3 JA

NGS Name: ET 3 JA

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 48095412/
 USGS Quad: SALOL

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	13	161 N	39 W	484609.00	953651.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1965	2013	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE POST (PREFABRICATED)	BENCH MARK DISK	USGS

Description: **Stamping:** ET 3 JA 1965

7.0 MILES SOUTH-SOUTHWEST OF SALOL, 5.7 MILES SOUTH ALONG COUNTY ROAD 9 FROM THE JUNCTION OF COUNTY ROAD 9 AND TRUNK HIGHWAY 11 WEST OF SALOL, 304.0 FEET SOUTH OF COUNTY ROAD 2, 29.0 FEET WEST OF COUNTY ROAD 9, 3.0 FEET NORTH AND 1.0 FOOT WEST OF A FENCE CORNER.

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1110.175	.033	3				VERTICAL CONTROL SURVEY	1974	USGS-VERT	

Geoid Separations(ft): GEOID18 = -92.444 12B = -92.451 09 = -92.342 03 = -92.329

* No Horizontal Positions in the Database *



Mn/DOT Name: F 209

NGS Name: F 209

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0351](#) [Get Map](#)
 NGS Quad / Sta Num : 48095141/
 USGS Quad: WARROAD

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	25	163 N	37 W	485441.00	952133.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1935	1973	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	BENCH MARK DISK	NGS

Description: (1973) Stamping: F 209 1935

1.3 MILES WEST OF WARROAD, 1.0 MILE NORTH ALONG MOM'S WAY FROM THE JUNCTION OF MOM'S WAY AND LAKE STREET IN WARROAD, THEN 1.3 MILES WESTERLY ALONG TRUNK HIGHWAY 11.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1087.048	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1085.674	.007	1					VERTICAL CONTROL SURVEY	1941	Q480951	
1085.674	.007	1					VERTICAL CONTROL SURVEY	1935	L56 MINN	

Geoid Separations(ft): GEOID18 = -93.497 12B = -93.484 09 = -93.402 03 = -93.415

* No Horizontal Positions in the Database *



Mn/DOT Name: F 210

NGS Name: F 210

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DI2067](#) [Get Map](#)
 NGS Quad / Sta Num : 48095131/
 USGS Quad: MULLIGAN LAKE NE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	1	160 N	37 W	484230.30	952034.20	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1935	2007	GOOD	Horz=NO Vert=YES	YES		FLUSH	STEEL SPIKE IMBED IN MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	BENCH MARK DISK	NGS

Description: (2008) **Stamping:** F 210 1935

13.8 MILES SOUTH AND 1.0 MILE WEST OF WARROAD, 12.85 MILES SOUTH ALONG COUNTY ROAD 5 FROM THE JUNCTION OF COUNTY ROAD 5 AND TRUNK HIGHWAY 11 IN WARROAD, THEN 0.55 MILE WEST ON A GRAVEL ROAD, THEN 0.3 MILE SOUTH ON A GRAVEL ROAD, 34.0 FEET WEST OF DICKS FOREST ROAD AT A CREST, 10.0 FEET SOUTH OF A TRACK ROAD WEST, 1.0 FOOT NORTH OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1226.950	.016	2/1					VERTICAL ADJUSTMENT	2006	00000425-12	
1226.930	.016	2/1					VERTICAL CONTROL SURVEY	2005	VTURN	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1225.483	.033	3					VERTICAL CONTROL SURVEY	1974	USGS-VERT	

Geoid Separations(ft): GEOID18 = -92.641 12B = -92.641 09 = -92.539 03 = -92.500

* No Horizontal Positions in the Database *

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/F_210-DI2067-3W-10AUG2004.jpg	W	Aug 10, 2004
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/F_210-DI2067-2-10AUG2004.jpg		Aug 10, 2004
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/F_210-DI2067-1-10AUG2004.jpg		Aug 10, 2004

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: F 368

NGS Name: F 368

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0500](#) [Get Map](#)
 NGS Quad / Sta Num : 48095144/
 USGS Quad: WARROAD NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	34	163 N	37 W	485354.98	952408.96	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1981	2014	GOOD	Horz=NO Vert=YES	YES		RECESSED 4 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
STEEL ROD (NO SLEEVE) (DEPTH 32 FT)	METAL ROD	NGS

Description: (2014) **Stamping:** F 368 1981

3.4 MILES WEST OF WARROAD, 3.4 MILES WEST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAYS 11 AND 313 IN WARROAD, AT TRUNK HIGHWAY 11 MILEPOINT 88.2, 103.5 FEET SOUTHEAST OF TRUNK HIGHWAY 11, 1.5 FEET SOUTHWEST OF A RIGHT-OF-WAY POST, 1.0 FOOT NORTHEAST OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1121.664	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	
1121.651	.016	2/1					VERTICAL CONTROL SURVEY	2015	VKTAD	
1121.651	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025	

Geoid Separations(ft): GEOID18 = -93.418 12B = -93.405 09 = -93.304 03 = -93.323

* No Horizontal Positions in the Database *

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/F_368-TC0500-3SE-14OCT2009.jpg	SE	Oct 14, 2009
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/F_368-TC0500-2-14OCT2009.jpg		Oct 14, 2009
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/F_368-TC0500-1-14OCT2009.jpg		Oct 14, 2009

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: FALUN MNDT

NGS Name: FALUN

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [AB9927](#) [Get Map](#)
 NGS Quad / Sta Num : 48095142/
 USGS Quad: WARROAD SE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	20	161 N	36 W	484511.08	951948.75	2	B

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1994	2016	GOOD	Horz=YES Vert=YES	YES		FLUSH	STEEL SPIKE ADJ TO MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
STEEL ROD (NO SLEEVE) (DEPTH 33 FT)	METAL ROD	MNDT

Description: (2008) **Stamping:** FALUN 1994

10.0 MILES SOUTH OF WARROAD, 10.15 MILES SOUTH ALONG COUNTY ROAD 5 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND COUNTY ROAD 5 IN WARROAD, 850.0 FEET SOUTH OF A HIGH TENSION POWER LINE, 69.7 FEET EAST OF COUNTY ROAD 5, 22.3 FEET EAST-SOUTHEAST OF THE EAST END OF A 15.0 INCH DIAMETER METAL CULVERT, 14.0 FEET NORTH OF A FIELD ENTRANCE, 3.2 FEET SOUTH OF A WITNESS POST.

Station Notes

THE STATION IS A PUNCH MARK ON A 0.5 INCH BY 33.0 FEET LONG DRIVEN STEEL ROD (RECESSED) WITH AN ACCESS COVER (FLUSH) AND A 3.0 FOOT PINK STABILIZER SLEEVE.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1159.122	.016	2/1					VERTICAL ADJUSTMENT	2006	00000425-12	
1159.109	.016	2/1					VERTICAL CONTROL SURVEY	2005	VTURN	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1159.122				1066.245	.009	2011	HORIZONTAL ADJUSTMENT	2018	GPS3119	
1159.227	.131			1066.409	.066	1996	GPS - STATIC	2017	HMNCORS07	
1159.122				1066.245	.009	2011	GPS - STATIC	2017	HMNPH	
1159.184	.262			1066.327	.197	2011	GPS - RTRN	2015	RTRN2015	
				1066.245	.008	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800	
1159.118	.131			1066.366	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2833	
1159.118	.131			1066.366	.066	2007	GPS - STATIC	2011	HLOTW	
1159.118	.131			1066.409	.066	1996	GPS - STATIC	2011	HLOTW	
1159.118	.131			1066.366	.066	2007	HORIZONTAL ADJUSTMENT	2009	GPS2522	
1159.118	.131			1066.366	.066	2007	GPS - STATIC	2008	HROSO	
1159.118	.131			1066.409	.066	1996	GPS - STATIC	2008	HROSO	
				1066.366	.013	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300	
1159.118	.098			1066.409	.049	1996	GPS - STATIC	2004	GPS1954	
1159.040	.098			1066.409	.049	1996	GPS - STATIC	1997	GPS805-B	

Geoid Separations(ft): GEOID18 = -92.877 12B = -92.854 09 = -92.762 03 = -92.749

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Roseau County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 45 11.07986	95 19 48.74576	697779.178	177387.792	.007		ADJUSTMENT	2018	GPS3119
48 45 11.07986	95 19 48.74576	697779.178	177387.792	.007	C	GPS - STATIC	2017	HMNPH
48 45 11.07946	95 19 48.74562	697779.187	177387.752	.131	3	GPS - RTRN	2015	RTRN2015
48 45 11.07986	95 19 48.74576	697779.178	177387.792	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Roseau County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 45 11.08003	95 19 48.74665	697779.118	177387.809	.033	C	ADJUSTMENT	2011	GPS2833
48 45 11.08003	95 19 48.74665	697779.118	177387.809	.033	C	GPS - STATIC	2011	HLOTW
48 45 11.08003	95 19 48.74665	697779.118	177387.809	.033	C	ADJUSTMENT	2009	GPS2522
48 45 11.08003	95 19 48.74665	697779.118	177387.809	.033	C	GPS - STATIC	2008	HROSO
48 45 11.08003	95 19 48.74665	697779.118	177387.809	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Roseau County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 45 11.08007	95 19 48.74640	697779.135	177387.813	.033	C	GPS - STATIC	2017	HMNCORS07
48 45 11.08007	95 19 48.74640	697779.135	177387.813	.033	C	GPS - STATIC	2011	HLOTW
48 45 11.08007	95 19 48.74640	697779.135	177387.813	.033	C	GPS - STATIC	2008	HROSO
48 45 11.08007	95 19 48.74640	697779.135	177387.813	.016	B	GPS - STATIC	2004	GPS1954
48 45 11.08007	95 19 48.74640	697779.135	177387.813	.016	B	GPS - STATIC	1997	GPS805-B

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2086689.323	1157684.755	1078501.660	17725117.122	.007		ADJUSTMENT	2018	GPS3119
2086689.323	1157684.755	1078501.660	17725117.122	.007	C	GPS - STATIC	2017	HMNPH
2086689.331	1157684.715	1078501.668	17725117.081	.131	3	GPS - RTRN	2015	RTRN2015
2086689.323	1157684.755	1078501.660	17725117.122	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2086689.264	1157684.775	1078501.601	17725117.141	.033	C	ADJUSTMENT	2011	GPS2833
2086689.264	1157684.775	1078501.601	17725117.141	.033	C	GPS - STATIC	2011	HLOTW
2086689.264	1157684.775	1078501.601	17725117.141	.033	C	ADJUSTMENT	2009	GPS2522
2086689.264	1157684.775	1078501.601	17725117.141	.033	C	GPS - STATIC	2008	HROSO
2086689.264	1157684.775	1078501.601	17725117.141	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2086689.281	1157684.778	1078501.617	17725117.144	.033	C	GPS - STATIC	2017	HMNCORS07
2086689.281	1157684.778	1078501.617	17725117.144	.033	C	GPS - STATIC	2011	HLOTW
2086689.281	1157684.778	1078501.617	17725117.144	.033	C	GPS - STATIC	2008	HROSO
2086689.281	1157684.778	1078501.617	17725117.144	.016	B	GPS - STATIC	2004	GPS1954
2086689.281	1157684.778	1078501.617	17725117.144	.016	B	GPS - STATIC	1997	GPS805-B

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/FALUN-AB9927-3E-03DEC2008.jpg	E	Dec 3, 2008
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/FALUN-AB9927-2-03DEC2008.jpg		Dec 3, 2008
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/FALUN-AB9927-1-03DEC2008.jpg		Dec 3, 2008

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: FRAN

NGS Name: FRAN

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DP9493](#) [Get Map](#)
 NGS Quad / Sta Num : 48095144/
 USGS Quad: WARROAD NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	33	163 N	37 W	485343.72	952507.84	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2018	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 33 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014) Stamping: FRAN 2014

4.7 MILES WEST-SOUTHWEST OF WARROAD, 4.25 MILES WEST-SOUTHWEST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND TRUNK HIGHWAY 313 IN WARROAD, AT TRUNK HIGHWAY 11 MILEPOINT 87.4, 100.0 FEET NORTH OF TRUNK HIGHWAY 11, 65.7 FEET WEST OF 550TH AVENUE, 26.6 FEET WEST OF A RIGHT-OF-WAY POST, 26.0 FEET WEST OF A WITNESS POST.

Station Pair: AKER - ROSEAU, MN

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1092.317	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	
1092.301	.016	2/1					VERTICAL CONTROL SURVEY	2015	VKTAD	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1092.317	.131			999.119	.066	1996	GPS - STATIC	2021	HKTAD	
1092.317				998.958	.023	2011	HORIZONTAL ADJUSTMENT	2020	GPS3390	
1092.317				998.958	.023	2011	GPS - STATIC	2020	HKTAD	
1092.344	.262			998.958	.197	2011	GPS - RTRN	2014	RTRN2014	

Geoid Separations(ft): GEOID18 = -93.405 12B = -93.386 09 = -93.287 03 = -93.297

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Roseau County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
48 53 43.72452	95 25 07.83921			675897.117	229125.140	.013		ADJUSTMENT	2020	GPS3390
48 53 43.72452	95 25 07.83921			675897.117	229125.140	.013	C	GPS - STATIC	2020	HKTAD
48 53 43.72448	95 25 07.83864			675897.156	229125.136	.131	3	GPS - RTRN	2014	RTRN2014

<u>NAD83(1996)</u>				<u>Roseau County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
48 53 43.72435	95 25 07.83984			675897.076	229125.122	.033	C	GPS - STATIC	2021	HKTAD

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - North Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2066872.719	1210248.281			1058780.069	17777711.608	.013		ADJUSTMENT	2020	GPS3390
2066872.719	1210248.281			1058780.069	17777711.608	.013	C	GPS - STATIC	2020	HKTAD
2066872.757	1210248.275			1058780.107	17777711.603	.131	3	GPS - RTRN	2014	RTRN2014

<u>NAD83(1996)</u>				<u>UTM - Zone 15</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - North Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2066872.677	1210248.265			1058780.026	17777711.592	.033	C	GPS - STATIC	2021	HKTAD



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/FRAN-DP9493-3N-30JUL2014.jpg	N	Jul 30, 2014
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/FRAN-DP9493-2-30JUL2014.jpg		Jul 30, 2014
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/FRAN-DP9493-1-30JUL2014.jpg		Jul 30, 2014

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: FULL

NGS Name: FULL

County: ROSEAU, MN (Sheet 2)

NGS ACRN: TC0653	Get Map
NGS Quad / Sta Num : 48095113/1021	
USGS Quad: SWIFT	

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SE	21	162 N	35 W	484944.97	950942.62		2

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1923	2012	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	TRIANGULATION STATION DISK	NGS

Description: (1966)

Stamping: FULL 1923

3.0 MILES EAST OF SWIFT, 32.2 FEET NORTH OF THE NORTH RAIL OF A RAILROAD, 654.0 FEET EAST OF RAILROAD MILEPOST 29, 23.85 FEET SOUTHWEST OF FULL RM.

* No Leveling-Derived Orthometric Heights in the Database *

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>
1128.607	.197		1035.096	.131	1996	HORIZONTAL ADJUSTMENT		1999	17648

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>
1128.935						DIGITIZED FROM MAP		1923	HORZ

Geoid Separations(ft): GEOID18 = -94.039 12B = -94.022 09 = -93.924 03 = -93.911

Lat/Lon and County Coordinates (Feet)

<u>NAD83(1996)</u>		<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>
48 49 44.96926	95 09 42.61966	738036.789	205626.386	.066	2	ADJUSTMENT		1999	17648

<u>NAD83(1986)</u>		<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>
48 49 44.95364	95 09 42.59775	738038.275	205624.822	.066	2	ADJUSTMENT		1986	17289

<u>NAD27</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>					<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>
48 49 45.02224	95 09 41.80771			.100	2	CLASSICAL SURVEY	1977	15935	

<u>USSD</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>					<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>
48 49 45.60900	95 09 41.52500				3	CLASSICAL SURVEY			17389-86

State Plane and UTM Coordinates (Feet)

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - North Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>
2128033.962	1184306.220	1119887.955	17751663.948	.066	2	ADJUSTMENT		1999	17648

<u>NAD83(1986)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - North Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>
2128035.386	1184304.598	1119889.375	17751662.325	.066	2	ADJUSTMENT		1986	17289

<u>NAD27</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>		
<u>MN State Plane - North Zone</u>						<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>
1503405.860	856224.629			.100	2	CLASSICAL SURVEY	1977	15935	



Mn/DOT Name: FULL RM

NGS Name: FULL RM

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [CO6862](#) [Get Map](#)
 NGS Quad / Sta Num : 48095113/
 USGS Quad: SWIFT

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SE	21	162 N	35 W	484945.12	950942.35		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1923	2012	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type

UNKNOWN

Disk Type

REFERENCE MARK DISK

Mon. Agency

NGS

Description:

Stamping: FULL 1923

3.51 MILES NORTHWEST OF ROOSEVELT, 3.84 MILES NORTHWEST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND COUNTY ROAD 17.

Station Notes

FOUND THE CONCRETE LOOSE.

THE DISK WAS TURNED IN TO THE OFFICE.

* No Horizontal or Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -94.035 12B = -94.022 09 = -93.924 03 = -93.911



Mn/DOT Name: G 209

NGS Name: G 209

County: ROSEAU, MN (Sheet 2)

NGS ACRN: TC0352	Get Map
NGS Quad / Sta Num : 48095141/	
USGS Quad: WARROAD	

				Reference	Reference	Vert	Horz
1/4	Sec	Twp	Rng	Latitude	Longitude	Order	Order
NE	26	163 N	37 W	485435.32	952229.78	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1935	2018	GOOD	Horz=YES Vert=YES	YES		PROJECTS 3 IN.	STEEL SPIKE ADJ TO MON

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	BENCH MARK DISK	NGS

Description: (2009) Stamping: G 209 1935

2.6 MILES WEST OF WARROAD, 2.1 MILES WEST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND TRUNK HIGHWAY 313 IN WARROAD TO TRUNK HIGHWAY 11 MILEPOINT 89.55, THEN 0.1 MILE NORTH ON COUNTY ROAD 45 (570TH AVENUE), 51.5 FEET SOUTH OF AN OLD RAILROAD GRADE, 22.5 FEET WEST OF COUNTY ROAD 45 (570TH AVENUE), 1.5 FEET NORTH OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year Reference
1095.982	.016	2/1				VERTICAL ADJUSTMENT	2019 00000941
1095.979	.016	2/1				VERTICAL CONTROL SURVEY	2015 VKTAD
1095.966	.016	2/1				VERTICAL ADJUSTMENT	2014 00000828
1095.959	.016	2/1				VERTICAL CONTROL SURVEY	2013 VHACK
1095.907	.007	1/2				VERTICAL ADJUSTMENT	1991 00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year Reference
1094.440	.007	1/2				UNKNOWN/APPROXIMATE	1992 UNCHECKD
1094.440	.033	3				VERTICAL CONTROL SURVEY	1974 USGS-VERT
1094.440	.007	1				VERTICAL CONTROL SURVEY	1973 Q480951
1094.440	.007	1				VERTICAL CONTROL SURVEY	1941 Q480951
1094.440	.007	1				VERTICAL CONTROL SURVEY	1935 L56 MINN

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year Reference
1095.982	.131		1002.682	.066	1996	GPS - STATIC	2021 HKTAD
1095.982			1002.521	.022	2011	HORIZONTAL ADJUSTMENT	2020 GPS3390
1095.982			1002.521	.022	2011	GPS - STATIC	2020 HKTAD
1095.916	.262		1002.455	.197	2011	GPS - RTRN	2014 RTRN2014
1095.962	.262		1002.593	.197	2007	GPS - RTRN	2012 RTRN2012

Geoid Separations(ft): GEOID18 = -93.474 12B = -93.461 09 = -93.369 03 = -93.392

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Roseau County				Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year Reference
48 54 35.32301	95 22 29.78103	686405.979	234458.953	.013		ADJUSTMENT	2020 GPS3390
48 54 35.32301	95 22 29.78103	686405.979	234458.953	.013	C	GPS - STATIC	2020 HKTAD
48 54 35.32256	95 22 29.78111	686405.974	234458.907	.131	3	GPS - RTRN	2014 RTRN2014

NAD83(2007)

Geodetic Position		Roseau County				Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year Reference
48 54 35.32382	95 22 29.78129	686405.961	234459.035	.131	3	GPS - RTRN	2012 RTRN2012

NAD83(1996)

Geodetic Position		Roseau County				Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year Reference
48 54 35.32284	95 22 29.78167	686405.937	234458.935	.033	C	GPS - STATIC	2021 HKTAD

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2077584.817	1215162.024	1069500.038	17782605.375	.013		ADJUSTMENT	2020	GPS3390
2077584.817	1215162.024	1069500.038	17782605.375	.013	C	GPS - STATIC	2020	HKTAD
2077584.810	1215161.978	1069500.032	17782605.330	.131	3	GPS - RTRN	2014	RTRN2014

NAD83(2007)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2077584.802	1215162.106	1069500.024	17782605.458	.131	3	GPS - RTRN	2012	RTRN2012

NAD83(1996)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2077584.774	1215162.008	1069499.995	17782605.360	.033	C	GPS - STATIC	2021	HKTAD

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/G_209-TC0352-3S-26SEP2018.jpg	S	Sep 26, 2018
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/G_209-TC0352-2-26SEP2018.jpg		Sep 26, 2018
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/G_209-TC0352-1-26SEP2018.jpg		Sep 26, 2018

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: G 233

NGS Name: G 233

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 48095422/
 USGS Quad: SKIME

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	13	159 N	39 W	483501.00	953611.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1935	2007	NOT FOUND	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	NGS

Description: (1935) Stamping: G 233 1935

5.0 MILES SOUTH AND 6.0 MILES EAST OF WANNASKA, 28.0 FEET NORTH AND 39.0 FEET WEST OF COUNTY ROAD 9 AT A PRIVATE DRIVE WEST, 23.0 FEET SOUTH AND 10.0 FEET WEST OF A FENCE CORNER.

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1180.906	.033	3				VERTICAL CONTROL SURVEY	1974	USGS-VERT	

Geoid Separations(ft): GEOID18 = -91.148 12B = -91.161 09 = -91.060 03 = -91.017

* No Horizontal Positions in the Database *



Mn/DOT Name: G 261

NGS Name: G 261

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 48095421/
 USGS Quad: WANNASKA NE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	36	160 N	39 W	483827.00	953615.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1935	2007	NOT FOUND	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	NGS

Description: (1935) Stamping: G 261 1935

4.0 MILES SOUTH AND 1.5 MILES EAST OF PENCER, 128.0 FEET SOUTH AND 26.0 FEET WEST OF THE JUNCTION OF COUNTY ROAD 9 AND COUNTY ROAD 4, 9.0 FEET SOUTH AND 6.0 FEET WEST OF THE NORTHEAST CORNER CEMETERY POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1140.542	.033	3				VERTICAL CONTROL SURVEY	1974	USGS-VERT	

Geoid Separations(ft): GEOID18 = -91.663 12B = -91.673 09 = -91.575 03 = -91.525

* No Horizontal Positions in the Database *



Mn/DOT Name: G 368

NGS Name: G 368

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0501](#) [Get Map](#)
 NGS Quad / Sta Num : 48095144/
 USGS Quad: WARROAD NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	33	163 N	37 W	485336.66	952547.13	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1981	2014	GOOD	Horz=NO Vert=YES	YES		RECESSED 5 IN.	STEEL SPIKE ADJ TO MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
STEEL ROD (NO SLEEVE) (DEPTH 32 FT)	METAL ROD	NGS

Description: (2008) **Stamping:** G 368 1981

5.0 MILES WEST-SOUTHWEST OF WARROAD, 4.75 MILES WEST-SOUTHWEST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND TRUNK HIGHWAY 313 AND CEDAR AVENUE IN WARROAD, AT THE JUNCTION OF TRUNK HIGHWAY 11 AND 544TH AVENUE, AT TRUNK HIGHWAY 11 MILEPOINT 86.9, 114.0 FEET SOUTH OF TRUNK HIGHWAY 11, 65.0 FEET NORTH OF DRIVEWAY NUMBER 34469, 52.0 FEET WEST OF 544TH AVENUE, 5.6 FEET WEST OF A CABLE BOX, 3.0 FEET WEST OF A TELEPHONE JUNCTION BOX LP6, 1.0 FOOT EAST OF A TELEPHONE WARNING SIGN, 1.0 FOOT SOUTH OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1089.309	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	
1089.292	.016	2/1					VERTICAL CONTROL SURVEY	2015	VKTAD	
1089.292	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1089.516	.262			996.143	.197	2011	GPS - RTRN	2014	RTRN2014	
				995.917	.009	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800	
1089.302	.131			996.028	.066	2007	HORIZONTAL ADJUSTMENT	2009	GPS2522	
1089.302	.131			996.028	.066	2007	GPS - STATIC	2008	HROSO	
1089.302	.131			996.025	.066	1996	GPS - STATIC	2008	HROSO	

Geoid Separations(ft): GEOID18 = -93.392 12B = -93.373 09 = -93.274 03 = -93.281

Lat/Lon and County Coordinates (Feet)

<u>NAVD83(2011)</u>		<u>Geodetic Position</u>				<u>Roseau County</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
48 53 36.66453	95 25 47.13207	673278.171	228384.609	.131	3	GPS - RTRN	2014	RTRN2014		
48 53 36.66592	95 25 47.13756	673277.803	228384.746	.007		ADJUSTMENT	2012	GPS2800		

<u>NAVD83(2007)</u>		<u>Geodetic Position</u>				<u>Roseau County</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
48 53 36.66599	95 25 47.13828	673277.754	228384.753	.033	C	ADJUSTMENT	2009	GPS2522		
48 53 36.66599	95 25 47.13828	673277.754	228384.753	.033	C	GPS - STATIC	2008	HROSO		

<u>NAVD83(1996)</u>		<u>Geodetic Position</u>				<u>Roseau County</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
48 53 36.66598	95 25 47.13804	673277.771	228384.752	.033	C	GPS - STATIC	2008	HROSO		

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - North Zone		UTM - Zone 15						Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
2064226.441	1209611.980	1056132.864	17777080.184	.131	3	GPS - RTRN	2014	RTRN2014	
2064226.078	1209612.132	1056132.502	17777080.337	.007		ADJUSTMENT	2012	GPS2800	

NAD83(2007)

MN State Plane - North Zone		UTM - Zone 15						Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
2064226.030	1209612.140	1056132.454	17777080.345	.033	C	ADJUSTMENT	2009	GPS2522	
2064226.030	1209612.140	1056132.454	17777080.345	.033	C	GPS - STATIC	2008	HR0SO	

NAD83(1996)

MN State Plane - North Zone		UTM - Zone 15						Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
2064226.046	1209612.139	1056132.470	17777080.344	.033	C	GPS - STATIC	2008	HR0SO	

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/G_368-TC0501-3S-24JUN2014.jpg	S	Jun 24, 2014
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/G_368-TC0501-2-24JUN2014.jpg		Jun 24, 2014
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/G_368-TC0501-1-24JUN2014.jpg		Jun 24, 2014

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: GABBY

NGS Name: GABBY

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DP0920](#) [Get Map](#)
 NGS Quad / Sta Num : 48095112/
 USGS Quad: ROOSEVELT

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NW	36	162 N	35 W	484812.26	950601.57	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2012	2018	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 30 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2012) Stamping: GABBY 2012

IN ROOSEVELT, 0.15 MILE NORTHWEST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND COUNTY ROAD 42 IN ROOSEVELT, AT TRUNK HIGHWAY 11 MILEPOINT 105.1, 68.6 FEET NORTHEAST OF TRUNK HIGHWAY 11, 22.4 FEET NORTHWEST OF AN ENTRANCE, 1.7 FEET SOUTHWEST OF A RIGHT-OF-WAY POST, 1.5 FEET SOUTHEAST OF A WITNESS POST.

Station Pair: NICOLE - ROSEAU, MN

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
1160.788	.016	2/1				2014	00000828	VERTICAL ADJUSTMENT				
1160.795	.016	2/1				2013	VHACK	VERTICAL CONTROL SURVEY				

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
1160.788			1066.691	.015	2011	2020	GPS3362	HORIZONTAL ADJUSTMENT				
1160.788	.131		1066.822	.066	1996	2020	HGRACE	GPS - STATIC				
1160.788			1066.691	.015	2011	2020	HGRACE	GPS - STATIC				
1160.729	.262		1066.687	.197	2007	2012	RTRN2012	GPS - RTRN				

Geoid Separations(ft): GEOID18 = -94.137 12B = -94.127 09 = -94.042 03 = -94.029

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Geodetic Position</u>		<u>Roseau County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 48 12.25869	95 06 01.57236	752956.370	196428.723	.013		ADJUSTMENT	2020	GPS3362
48 48 12.25869	95 06 01.57236	752956.370	196428.723	.013	C	GPS - STATIC	2020	HGRACE

<u>NAD83(2007)</u>		<u>Geodetic Position</u>		<u>Roseau County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 48 12.25877	95 06 01.57363	752956.285	196428.730	.131	3	GPS - RTRN	2012	RTRN2012

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Roseau County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 48 12.25859	95 06 01.57283	752956.339	196428.712	.033	C	GPS - STATIC	2020	HGRACE

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>		<u>MN State Plane - North Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2142577.301	1174524.344	1134412.254	17741858.495	.013		ADJUSTMENT	2020	GPS3362
2142577.301	1174524.344	1134412.254	17741858.495	.013	C	GPS - STATIC	2020	HGRACE

<u>NAD83(2007)</u>		<u>MN State Plane - North Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2142577.216	1174524.354	1134412.169	17741858.506	.131	3	GPS - RTRN	2012	RTRN2012

<u>NAD83(1996)</u>		<u>MN State Plane - North Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2142577.270	1174524.334	1134412.222	17741858.486	.033	C	GPS - STATIC	2020	HGRACE



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/GABBY-DP0920-3NE-27NOV2012.jpg	NE	Nov 27, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/GABBY-DP0920-2-27NOV2012.jpg		Nov 27, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/GABBY-DP0920-1-27NOV2012.jpg		Nov 27, 2012

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: GAGING STA

NGS Name: GAGING STA

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 48095414/
 USGS Quad: SALOL NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	34	164 N	39 W	485909.00	953943.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1966	1966	GOOD	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	NGS

Description: (1966) Stamping: USGS GAGING STATION

10.0 MILES NORTH OF MANDUS, 14.0 FEET SOUTH AND 159.0 FEET WEST OF THE CROSSROADS, ON THE WEST BANK OF MUD CREEK.

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1051.599	.033	3				VERTICAL CONTROL SURVEY	1974	USGS-VERT	

Geoid Separations(ft): GEOID18 = -92.641 12B = -92.651 09 = -92.529 03 = -92.569

* No Horizontal Positions in the Database *



Mn/DOT Name: GEESE

NGS Name: GEESE

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DP0905](#) [Get Map](#)
 NGS Quad / Sta Num : 48095141/
 USGS Quad: WARROAD

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	36	164 N	37 W	485913.43	952207.11	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2012	2018	GOOD	Horz=YES Vert=YES	YES		RECESSED 5 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 42 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2012) Stamping: GEESE 2012

5.4 MILES NORTHWEST OF WARROAD, 5.4 MILES NORTHWEST ALONG TRUNK HIGHWAY 313 FROM THE JUNCTION OF TRUNK HIGHWAY 313 AND TRUNK HIGHWAY 11 IN WARROAD, AT TRUNK HIGHWAY 313 MILEPOINT 5.4, 34.8 FEET SOUTHWEST OF TRUNK HIGHWAY 313, 93.6 FEET NORTHWEST OF AN ENTRANCE TO THE UNITED STATES CUSTOMS, 1.5 FEET NORTHEAST OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1075.401	.016	2/1				VERTICAL ADJUSTMENT	2014	00000828	
1075.401	.016	2/1				VERTICAL CONTROL SURVEY	2013	VHACK	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1075.401			981.668	.019	2011	HORIZONTAL ADJUSTMENT	2020	GPS3362	
1075.401	.131		981.816	.066	1996	GPS - STATIC	2020	HGRACE	
1075.401			981.668	.019	2011	GPS - STATIC	2020	HGRACE	
1075.116	.262		981.442	.197	2007	GPS - RTRN	2012	RTRN2012	

Geoid Separations(ft): GEOID18 = -93.773 12B = -93.756 09 = -93.671 03 = -93.733

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
48 59 13.42670	95 22 07.11099	687631.370	262659.949	.016		ADJUSTMENT	2020	GPS3362	
48 59 13.42670	95 22 07.11099	687631.370	262659.949	.016	C	GPS - STATIC	2020	HGRACE	

<u>NAD83(2007)</u>		<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
48 59 13.42569	95 22 07.11038	687631.412	262659.847	.131	3	GPS - RTRN	2012	RTRN2012	

<u>NAD83(1996)</u>		<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
48 59 13.42654	95 22 07.11147	687631.339	262659.933	.033	C	GPS - STATIC	2020	HGRACE	

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - North Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
X	Y					ADJUSTMENT	2020	GPS3362	
2079925.923	1243293.586	1071892.482	17810729.164	.016		ADJUSTMENT	2020	GPS3362	
2079925.923	1243293.586	1071892.482	17810729.164	.016	C	GPS - STATIC	2020	HGRACE	

<u>NAD83(2007)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - North Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
X	Y					GPS - RTRN	2012	RTRN2012	
2079925.961	1243293.482	1071892.519	17810729.060	.131	3	GPS - RTRN	2012	RTRN2012	

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - North Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
X	Y					GPS - STATIC	2020	HGRACE	
2079925.891	1243293.570	1071892.449	17810729.148	.033	C	GPS - STATIC	2020	HGRACE	



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/GEESE-DP0905-3SW-27NOV2012.jpg	SW	Nov 27, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/GEESE-DP0905-2-27NOV2012.jpg		Nov 27, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/GEESE-DP0905-1-27NOV2012.jpg		Nov 27, 2012

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: GUIBO IBC

NGS Name: GUIBO

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0681](#) [Get Map](#)
 NGS Quad / Sta Num : 48095144/1008
 USGS Quad: WARROAD NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	26	163 N	37 W	485420.35	952307.53	2	2

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1912	2014	GOOD	Horz=NO Vert=YES	YES		RECESSED 1 IN.	STEEL SPIKE ADJ TO MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	BENCH MARK DISK	IBWC

Description: (2014) Stamping:

3.6 MILES WEST OF WARROAD, 2.6 MILES SOUTHWEST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAYS 11 AND 313 IN WARROAD TO TRUNK HIGHWAY 11 MILEPOINT 89.05, 0.05 MILE NORTH ALONG 1ST LAKEWOOD AVENUE, 98.0 FEET EAST OF THE EDGE OF 1ST LAKEWOOD AVENUE INTO LAKEWOOD PARK (MOBILE HOMES), 0.6 FOOT WEST OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1136.212	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	
1136.202	.016	2/1					VERTICAL CONTROL SURVEY	2015	VKTAD	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1136.244	.262			1042.806	.197	2011	GPS - RTRN	2014	RTRN2014	
1089.237	.197			996.304	.131	1996	HORIZONTAL ADJUSTMENT	1999	17648	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1089.204							RECIPROCAL VERTICAL ANGLE	1912	HORZ	

Geoid Separations(ft): GEOID18 = -93.451 12B = -93.438 09 = -93.340 03 = -93.363

Lat/Lon and County Coordinates (Feet)

<u>Geodetic Position</u>		<u>Roseau County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 54 20.35119	95 23 07.52943	683899.437	232916.103	.131	3	GPS - RTRN	2014	RTRN2014

<u>Geodetic Position</u>		<u>Roseau County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 54 20.35129	95 23 07.52944	683899.437	232916.114	.066	2	ADJUSTMENT	1999	17648

<u>Geodetic Position</u>		<u>Roseau County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 54 20.33663	95 23 07.50049	683901.386	232914.647	.066	2	ADJUSTMENT	1986	17289

<u>Geodetic Position</u>		<u>Roseau County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 54 20.38400	95 23 06.62400			.100	2	CLASSICAL SURVEY	1944	06239

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - North Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
2075019.077	1213719.578	1066931.950	17781167.748	.131	3	GPS - RTRN	2014	RTRN2014

NAD83(1996)

MN State Plane - North Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
2075019.076	1213719.589	1066931.949	17781167.758	.066	2	ADJUSTMENT	1999	17648

NAD83(1986)

MN State Plane - North Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
2075020.966	1213718.046	1066933.836	17781166.212	.066	2	ADJUSTMENT	1986	17289

NAD27

MN State Plane - North Zone		<u>X</u>	<u>Y</u>	Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>						<u>Year</u>	<u>Reference</u>
1450395.364	885635.640			.100	2	CLASSICAL SURVEY	1944	06239

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/GUIBO-TC0681-3E-24JUN2014.jpg	E	Jun 24, 2014
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/GUIBO-TC0681-2-24JUN2014.jpg		Jun 24, 2014
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/GUIBO-TC0681-1-24JUN2014.jpg		Jun 24, 2014

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: H 202

NGS Name: H 202

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0394](#) [Get Map](#)
 NGS Quad / Sta Num : 48095412/
 USGS Quad: SALOL

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	8	162 N	38 W	485146.53	953514.82	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1935	2014	GOOD	Horz=NO Vert=YES	YES		PROJECTS 7 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	BENCH MARK DISK	NGS

Description: (2014) **Stamping:** H 202 1935

8.55 MILES EAST OF ROSEAU, 50.0 FEET NORTH OF AN OLD RAILROAD GRADE, 8.6 MILES EAST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND TRUNK HIGHWAY 89 AND TRUNK HIGHWAY 390 IN ROSEAU AT TRUNK HIGHWAY MILEPOINT 79.25, 15.0 FEET EAST OF A DRIVEWAY, 6.5 FEET SOUTH OF A POWER POLE WITH AN ANCHOR, 0.50 FOOT SOUTH OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1065.103	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	
1065.123	.016	2/1					VERTICAL CONTROL SURVEY	2015	VKTAD	
1064.850	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1063.282	.007	1/2					UNKNOWN/APPROXIMATE	1992	UNCHECKD	
1063.282	.007	1					VERTICAL CONTROL SURVEY	1941	Q480954	
1063.282	.007	1					VERTICAL CONTROL SURVEY	1935	L56 MINN	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1065.185	.262			972.295	.197	2011	GPS - RTRN	2014	RTRN2014	

Geoid Separations(ft): GEOID18 = -92.910 12B = -92.890 09 = -92.785 03 = -92.785

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
48 51 46.52581	95 35 14.82432	635423.206	216902.664	.131	3	GPS - RTRN	2014	RTRN2014	

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - North Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
2025945.946	1199636.638	1017836.200	17767175.529	.131	3	GPS - RTRN	2014	RTRN2014	

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/H_202-TC0394-3N-24JUN2014.jpg	N	Jun 24, 2014
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/H_202-TC0394-2-24JUN2014.jpg		Jun 24, 2014
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/H_202-TC0394-1-24JUN2014.jpg		Jun 24, 2014

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: H 209

NGS Name: H 209

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0353](#) [Get Map](#)
 NGS Quad / Sta Num : 48095144/
 USGS Quad: WARROAD NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	27	163 N	37 W	485422.00	952345.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1935	1973	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	BENCH MARK DISK	NGS

Description: (1973) **Stamping:** H 209 1935

3.71 MILES WEST OF WARROAD, 3.15 MILES SOUTHWEST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND CEDAR AVENUE NORTHWEST IN WARROAD. THEN 0.23 MILE NORTH ALONG 560TH AVENUE, THEN 0.05 MILE NORTHEAST FROM THE CENTERLINE OF 560TH AVENUE.

Station Notes

THE STATION WAS DESTROYED IN 1973.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>							<u>Project Info</u>	
<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			
1095.004	.007	1/2				VERTICAL ADJUSTMENT	1991	00000025
<u>NGVD29</u>							<u>Project Info</u>	
<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			
1093.623	.007	1				VERTICAL CONTROL SURVEY	1941	Q480951
1093.623	.007	1				VERTICAL CONTROL SURVEY	1935	L56 MINN

Geoid Separations(ft): GEOID18 = -93.445 12B = -93.432 09 = -93.333 03 = -93.353

* No Horizontal Positions in the Database *



Mn/DOT Name: H 368

NGS Name: H 368

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0502](#) [Get Map](#)
 NGS Quad / Sta Num : 48095144/
 USGS Quad: WARROAD NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	32	163 N	37 W	485330.72	952735.12	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1981	2014	GOOD	Horz=NO Vert=YES	YES		RECESSED 6 IN.	STEEL SPIKE ADJ TO MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
STEEL ROD (NO SLEEVE) (DEPTH 32 FT)	METAL ROD	NGS

Description: (2014) **Stamping:** H 368 1981

7.25 MILES SOUTHWEST ON TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND EAST LAKE STREET IN WARROAD, ON THE NORTH SIDE OF TRUNK HIGHWAY 11, AT TRUNK HIGHWAY MILEPOINT 85.6, 67.7 FEET NORTH-NORTHWEST OF A TRAIL, 74.0 FEET NORTH-NORTHEAST OF THE JUNCTION OF A TRACK ROAD AND A TRAIL, 17.5 FEET SOUTH-SOUTHEAST OF THE DOUBLE DOORS AT THE WEST END OF A METAL SHED, 6.0 FEET NORTH-NORTHWEST OF THE SOUTH-SOUTHWEST CORNER OF A SHED, 1.7 FEET WEST-SOUTHWEST OF THE WEST-SOUTHWEST FACE OF A SHED, 1.3 FEET WEST-NORTHWEST OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1087.675	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	
1087.659	.016	2/1					VERTICAL CONTROL SURVEY	2015	VKTAD	
1087.659	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025	

Geoid Separations(ft): GEOID18 = -93.350 12B = -93.336 09 = -93.228 03 = -93.225

* No Horizontal Positions in the Database *

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/H_368-TC0502-3E-14OCT2009.jpg	E	Oct 14, 2009
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/H_368-TC0502-2-14OCT2009.jpg		Oct 14, 2009
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/H_368-TC0502-1-14OCT2009.jpg		Oct 14, 2009

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: HEPPNER

NGS Name: HEPPNER

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0320](#) [Get Map](#)
 NGS Quad / Sta Num : 48095113/1038
 USGS Quad: SWIFT

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	21	162 N	35 W	484943.37	950945.53	2	2

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1966	2012	GOOD	Horz=NO Vert=YES	YES		RECESSED 14 IN.	STEEL SPIKE ADJ TO MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	TRIANGULATION STATION DISK	NGS

Description: (1966) **Stamping:** HEPPNER 1966

3.7 MILES NORTHWEST ON TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND COUNTY ROAD 17 AT ROOSEVELT, AT TRUNK HIGHWAY 11 MILEPOINT 101.7, 85.5 FEET SOUTHWEST OF TRUNK HIGHWAY 11, 137.0 FEET SOUTHEAST OF DRIVEWAY NUMBER 66684/66682, 76.73 FEET WEST-NORTHWEST OF HEPPNER RM 1, 71.84 FEET SOUTHWEST OF HEPPNER RM 2, 11.5 FEET SOUTHWEST OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1134.315	.016	2/1				VERTICAL ADJUSTMENT	2014	00000828
1134.315	.016	2/1				VERTICAL CONTROL SURVEY	2013	VHACK
1134.325	.007	1/2				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1132.957	.007	1/2				UNKNOWN/APPROXIMATE	1992	UNCHECKD
1132.957	.016	2				VERTICAL CONTROL SURVEY	1973	Q480951
1132.957	.016	2				VERTICAL CONTROL SURVEY	1973	L22862

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1134.302	.262		1040.385	.197	2007	GPS - RTRN	2012	RTRN2012
1134.315	.197		1040.821	.131	1996	HORIZONTAL ADJUSTMENT	1999	17648

Geoid Separations(ft): GEOID18 = -94.032 12B = -94.016 09 = -93.917 03 = -93.904

Lat/Lon and County Coordinates (Feet)

NAD83(2007)

<u>Geodetic Position</u>		<u>Roseau County</u>		<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
48 49 43.36649	95 09 45.53528	737843.810	205461.427	.131	3	GPS - RTRN	2012	RTRN2012

NAD83(1996)

<u>Geodetic Position</u>		<u>Roseau County</u>		<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
48 49 43.36748	95 09 45.53423	737843.880	205461.528	.066	2	ADJUSTMENT	1999	17648

NAD83(1986)

<u>Geodetic Position</u>		<u>Roseau County</u>		<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
48 49 43.35044	95 09 45.50764	737845.681	205459.824	.066	2	ADJUSTMENT	1986	17289

NAD27

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>						<u>Year</u>	<u>Reference</u>
48 49 43.40348	95 09 44.67833			.100	2	CLASSICAL SURVEY	1977	15935



State Plane and UTM Coordinates (Feet)

NAD83(2007)

MN State Plane - North Zone		UTM - Zone 15			Project Info			
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2127834.596	1184149.037	1119688.345	17751507.134	.131	3	GPS - RTRN	2012	RTRN2012

NAD83(1996)

MN State Plane - North Zone		UTM - Zone 15			Project Info			
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2127834.669	1184149.136	1119688.418	17751507.233	.066	2	ADJUSTMENT	1999	17648

NAD83(1986)

MN State Plane - North Zone		UTM - Zone 15			Project Info			
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2127836.401	1184147.362	1119690.147	17751505.456	.066	2	ADJUSTMENT	1986	17289

NAD27

MN State Plane - North Zone		UTM - Zone 15			Project Info			
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1503209.455	856065.746			.100	2	CLASSICAL SURVEY	1977	15935

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/HEPPNER-TC0320-3SW-10OCT2012.jpg	SW	Oct 10, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/HEPPNER-TC0320-2-10OCT2012.jpg		Oct 10, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/HEPPNER-TC0320-1-10OCT2012.jpg		Oct 10, 2012

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: HEPPNER AZ MK

NGS Name: HEPPNER AZ MK

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0318](#) [Get Map](#)
 NGS Quad / Sta Num : 48095113/
 USGS Quad: SWIFT

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	27	162 N	35 W	484932.00	950915.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1966	2012	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	AZIMUTH MARK DISK	NGS

Description: (1966) Stamping: HEPPNER 1966

3.4 MILES NORTHWEST ON TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND COUNTY ROAD 17 AT ROOSEVELT, 74.0 FEET NORTHEAST OF TRUNK HIGHWAY 11, 54.0 FEET SOUTHWEST OF THE SOUTHWEST RAIL OF THE RAILROAD TRACKS, 2.0 FEET SOUTHWEST OF A TELEPHONE POLE, 2.0 FEET NORTHWEST OF A WITNESS POST.

Station Notes

FOUND THE CONCRETE LOOSE.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>							<u>Project Info</u>	
<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			
1136.415	.007	1/2				VERTICAL ADJUSTMENT	1991	00000025
<u>NGVD29</u>							<u>Project Info</u>	
<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			
1135.047	.016	2				VERTICAL CONTROL SURVEY	1973	Q480951
1135.047	.016	2				VERTICAL CONTROL SURVEY	1973	L22862

Geoid Separations(ft): GEOID18 = -94.048 12B = -94.035 09 = -93.940 03 = -93.924

* No Horizontal Positions in the Database *



Mn/DOT Name: HEPPNER RM 1
County: ROSEAU, MN (Sheet 2)

NGS Name: HEPPNER RM 1

NGS ACRN: [TC0319](#) [Get Map](#)
NGS Quad / Sta Num : 48095113/
USGS Quad: SWIFT

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	21	162 N	35 W	484943.13	950944.45	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1966	2012	GOOD	Horz=NO Vert=YES	YES		FLUSH	STEEL SPIKE ADJ TO MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

Description: (2008) **Stamping:** HEPPNER NO 1 1966

3.7 MILES NORTHWEST ON TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND COUNTY ROAD 17 AT ROOSEVELT, AT TRUNK HIGHWAY 11 MILEPOINT 101.7, 204.0 FEET SOUTHEAST OF DRIVEWAY NUMBER 66682/66684, 141.0 FEET SOUTHEAST OF HEPPNER RM 2, 76.73 FEET EAST-SOUTHEAST OF STATION HEPPNER, 65.0 FEET SOUTH OF TRUNK HIGHWAY 11, 27.5 FEET EAST OF A POWER POLE, 1.5 FEET NORTHWEST OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1134.581	.016	2/1					VERTICAL ADJUSTMENT	2014	00000828	
1134.581	.016	2/1					VERTICAL CONTROL SURVEY	2013	VHACK	
1134.581	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1133.210	.007	1/2					UNKNOWN/APPROXIMATE	1992	UNCHECKD	
1133.210	.016	2					VERTICAL CONTROL SURVEY	1973	Q480951	
1133.210	.016	2					VERTICAL CONTROL SURVEY	1973	L22862	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1134.515	.262			1040.595	.197	2007	GPS - RTRN	2012	RTRN2012	
				1040.559	.009	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800	
1134.578	.131			1040.661	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2833	
1134.578	.131			1040.661	.066	2007	GPS - STATIC	2011	HLOTW	
1134.578	.131			1040.684	.066	1996	GPS - STATIC	2011	HLOTW	
1134.578	.131			1040.661	.066	2007	HORIZONTAL ADJUSTMENT	2009	GPS2522	
1134.578	.131			1040.661	.066	2007	GPS - STATIC	2008	HROSO	
1134.578	.131			1040.684	.066	1996	GPS - STATIC	2008	HROSO	

Geoid Separations(ft): GEOID18 = -94.032 12B = -94.016 09 = -93.917 03 = -93.904

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Roseau County</u>			<u>Project Info</u>			
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
48 49 43.12524	95 09 44.44858			737916.839	205437.920	.007		ADJUSTMENT	2012	GPS2800

<u>NAD83(2007)</u>				<u>Roseau County</u>			<u>Project Info</u>			
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
48 49 43.12510	95 09 44.44955			737916.774	205437.905	.131	3	GPS - RTRN	2012	RTRN2012
48 49 43.12532	95 09 44.44933			737916.789	205437.928	.033	C	ADJUSTMENT	2011	GPS2833
48 49 43.12532	95 09 44.44933			737916.789	205437.928	.033	C	GPS - STATIC	2011	HLOTW
48 49 43.12532	95 09 44.44933			737916.789	205437.928	.033	C	ADJUSTMENT	2009	GPS2522
48 49 43.12532	95 09 44.44933			737916.789	205437.928	.033	C	GPS - STATIC	2008	HROSO

<u>NAD83(1996)</u>				<u>Roseau County</u>			<u>Project Info</u>			
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
48 49 43.12535	95 09 44.44907			737916.806	205437.931	.033	C	GPS - STATIC	2011	HLOTW
48 49 43.12535	95 09 44.44907			737916.806	205437.931	.033	C	GPS - STATIC	2008	HROSO

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - North Zone		UTM - Zone 15						Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
2127906.636	1184122.655	1119760.329	17751480.631	.007		ADJUSTMENT	2012	GPS2800	

NAD83(2007)

MN State Plane - North Zone		UTM - Zone 15						Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
2127906.571	1184122.642	1119760.263	17751480.618	.131	3	GPS - RTRN	2012	RTRN2012	
2127906.586	1184122.664	1119760.279	17751480.640	.033	C	ADJUSTMENT	2011	GPS2833	
2127906.586	1184122.664	1119760.279	17751480.640	.033	C	GPS - STATIC	2011	HLOTW	
2127906.586	1184122.664	1119760.279	17751480.640	.033	C	ADJUSTMENT	2009	GPS2522	
2127906.586	1184122.664	1119760.279	17751480.640	.033	C	GPS - STATIC	2008	HROSO	

NAD83(1996)

MN State Plane - North Zone		UTM - Zone 15						Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
2127906.603	1184122.667	1119760.296	17751480.643	.033	C	GPS - STATIC	2011	HLOTW	
2127906.603	1184122.667	1119760.296	17751480.643	.033	C	GPS - STATIC	2008	HROSO	

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/HEPPNER_RM_1-TC0319-3SW-10OCT2012.jpg	SW	Oct 10, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/HEPPNER_RM_1-TC0319-2-10OCT2012.jpg		Oct 10, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/HEPPNER_RM_1-TC0319-1-10OCT2012.jpg		Oct 10, 2012

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: HEPPNER RM 2
County: ROSEAU, MN (Sheet 2)

NGS Name: HEPPNER RM 2

NGS ACRN: [TC0321](#) [Get Map](#)
NGS Quad / Sta Num : 48095113/
USGS Quad: SWIFT

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	21	162 N	35 W	484943.88	950946.28	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1966	2018	GOOD	Horz=YES Vert=YES	YES		FLUSH	STEEL SPIKE ADJ TO MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

Description: (1966) **Stamping:** HEPPNER NO 2 1966

3.7 MILES NORTHWEST ON TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND COUNTY ROAD 17 IN ROOSEVELT, AT TRUNK HIGHWAY 11 MILEPOINT 101.7, 69.0 FEET SOUTHWEST OF TRUNK HIGHWAY 11, 71.84 FEET NORTHWEST OF STATION HEPPNER, 67.0 FEET SOUTHEAST OF DRIVEWAY NUMBER 66682/66684, 2.5 FEET SOUTHEAST OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>
1132.826	.016	2/1				VERTICAL ADJUSTMENT		2014	00000828
1132.826	.016	2/1				VERTICAL CONTROL SURVEY		2013	VHACK
1132.826	.007	1/2				VERTICAL ADJUSTMENT		1991	00000025

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>
1131.458	.007	1/2				UNKNOWN/APPROXIMATE		1992	UNCHECKD
1131.458	.016	2				VERTICAL CONTROL SURVEY		1973	Q480951
1131.458	.016	2				VERTICAL CONTROL SURVEY		1973	L22862

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>
1132.826			1038.856	.017	2011	HORIZONTAL ADJUSTMENT		2020	GPS3362
1132.826	.131		1038.997	.066	1996	GPS - STATIC		2020	HGRACE
1132.826			1038.856	.017	2011	GPS - STATIC		2020	HGRACE
1132.718	.262		1038.800	.197	2007	GPS - RTRN		2012	RTRN2012

Geoid Separations(ft): GEOID18 = -94.029 12B = -94.016 09 = -93.917 03 = -93.904

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>
48 49 43.87633	95 09 46.28138	737793.219	205512.449	.013		ADJUSTMENT		2020	GPS3362
48 49 43.87633	95 09 46.28138	737793.219	205512.449	.013	C	GPS - STATIC		2020	HGRACE

<u>NAD83(2007)</u>		<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>
48 49 43.87676	95 09 46.28217	737793.166	205512.492	.131	3	GPS - RTRN		2012	RTRN2012

<u>NAD83(1996)</u>		<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>
48 49 43.87618	95 09 46.28186	737793.187	205512.433	.033	C	GPS - STATIC		2020	HGRACE



State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - North Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
2127786.066	1184202.025	1119639.914	17751560.198	.013		ADJUSTMENT	2020	GPS3362
2127786.066	1184202.025	1119639.914	17751560.198	.013	C	GPS - STATIC	2020	HGRACE

NAD83(2007)

MN State Plane - North Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
2127786.014	1184202.070	1119639.863	17751560.244	.131	3	GPS - RTRN	2012	RTRN2012

NAD83(1996)

MN State Plane - North Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
2127786.034	1184202.010	1119639.882	17751560.184	.033	C	GPS - STATIC	2020	HGRACE

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/HEPPNER_RM_2-TC0321-3SW-01AUG2007.jpg	SW	Aug 1, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/HEPPNER_RM_2-TC0321-2-10OCT2012.jpg		Oct 10, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/HEPPNER_RM_2-TC0321-1-10OCT2012.jpg		Oct 10, 2012

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: J 202

NGS Name: J 202

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0395](#) [Get Map](#)
 NGS Quad / Sta Num : 48095412/
 USGS Quad: SALOL

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	18	162 N	38 W	485124.00	953651.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1935	2009	DESTROYED	Horz=NO Vert=NO	NO		PROJECTS 9 IN.	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	BENCH MARK DISK	NGS

Description: (1981) Stamping: J 202 1935

2.0 MILES WEST ON A RAILROAD FROM THE RAILROAD STATION AT SALOL, 103.1 FEET WEST OF RAILROAD MILEPOST 90, 50.0 FEET NORTHEAST OF A GRAVEL ROAD CROSSING, 48.0 FEET NORTH OF THE NORTH RAIL OF THE RAILROAD TRACKS, 12.0 FEET EAST OF A FIELD GATE, AT A WITNESS POST, AT A RIGHT-OF-WAY FENCE.

Station Notes

THE POSITION IS IN A REWORKED DITCH.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>							<u>Project Info</u>	
<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			
1061.737	.007	1/2				VERTICAL ADJUSTMENT	1991	00000025
<u>NGVD29</u>							<u>Project Info</u>	
<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			
1060.116	.007	1				VERTICAL CONTROL SURVEY	1941	Q480954
1060.116	.007	1				VERTICAL CONTROL SURVEY	1935	L56 MINN

Geoid Separations(ft): GEOID18 = -92.779 12B = -92.766 09 = -92.661 03 = -92.661

* No Horizontal Positions in the Database *



Mn/DOT Name: J 209

NGS Name: J 209

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0354](#) [Get Map](#)
 NGS Quad / Sta Num : 48095144/
 USGS Quad: WARROAD NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	33	163 N	37 W	485404.00	952505.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1935	1973	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	BENCH MARK DISK	NGS

Description: (1973) **Stamping:** J 209 1935

4.74 MILES WEST OF WARROAD, 4.22 MILES SOUTHWEST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND CEDAR AVENUE NORTHWEST IN WARROAD, THEN 0.39 MILE NORTH ALONG 550TH AVENUE, THEN 0.1 MILE NORTHEAST ALONG BITUMINOUS WALK PATH.

Station Notes

THE STATION WAS DESTROYED IN 1973.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1089.607	.007	1/2				VERTICAL ADJUSTMENT	1991	00000025	

NGVD29

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1088.220	.007	1				VERTICAL CONTROL SURVEY	1941	Q480951	
1088.220	.007	1				VERTICAL CONTROL SURVEY	1935	L56 MINN	

Geoid Separations(ft): GEOID18 = -93.415 12B = -93.402 09 = -93.300 03 = -93.313

* No Horizontal Positions in the Database *



Mn/DOT Name: J 234

NGS Name: J 234

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 48095411/
 USGS Quad: SALOL NE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	16	163 N	38 W	485638.00	953259.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1935	1966	GOOD	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	NGS

Description: (1935) Stamping: J 234 1935

5.0 MILES NORTH AND 1.0 MILE EAST OF SALOL, 30.0 FEET SOUTH AND 40.0 FEET WEST OF THE CROSS-DRAINS.

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1058.699	.033	3							VERTICAL CONTROL SURVEY	1974	USGS-VERT	

Geoid Separations(ft): GEOID18 = -93.107 12B = -93.126 09 = -93.015 03 = -93.012

* No Horizontal Positions in the Database *



Mn/DOT Name: J 368

NGS Name: J 368

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0503](#) [Get Map](#)
 NGS Quad / Sta Num : 48095411/
 USGS Quad: SALOL NE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	2	162 N	38 W	485243.57	953019.79	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1981	2017	GOOD	Horz=NO Vert=YES	YES		RECESSED 2 IN.	STEEL SPIKE ADJ TO MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
STEEL ROD (NO SLEEVE) (DEPTH 24 FT)	METAL ROD	NGS

Description: (2014) Stamping: J 368 1981

3.2 MILES NORTHEAST OF SALOL, 3.2 MILES NORTHEAST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND 480TH AVENUE IN SALOL, AT TRUNK HIGHWAY 11 MILEPOINT 83.25, 115.8 FEET NORTHWEST OF TRUNK HIGHWAY 11, 43.5 FEET WEST OF COUNTY ROAD 133 (510TH AVENUE), 40.3 FEET NORTH-NORTHEAST OF A CABLE BOX, 10.0 FEET EAST-SOUTHEAST OF A POWER POLE, 0.5 FOOT NORTHWEST OF A RIGHT-OF-WAY POST, 0.5 FOOT SOUTH-SOUTHEAST OF A WITNESS POST.

Station Notes

DUE TO TREE COVER, THIS SURVEY MARK HAS BEEN ABANDONED FOR MNDOT GEODETIC HORIZONTAL SURVEYS.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1088.331	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941	
1088.334	.016	2/1				VERTICAL CONTROL SURVEY	2015	VKTAD	
1088.334	.007	1/2				VERTICAL ADJUSTMENT	1991	00000025	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1088.213	.262		994.998	.197	2011	GPS - RTRN	2014	RTRN2014	
			995.100	.010	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800	
1088.318	.131		995.205	.066	2007	HORIZONTAL ADJUSTMENT	2009	GPS2522	
1088.318	.131		995.205	.066	2007	GPS - STATIC	2008	HROSO	
1088.318	.131		995.208	.066	1996	GPS - STATIC	2008	HROSO	

Geoid Separations(ft): GEOID18 = -93.225 12B = -93.215 09 = -93.110 03 = -93.097

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
48 52 43.56808	95 30 19.79215	655102.617	222840.121	.131	3	GPS - RTRN	2014	RTRN2014	
48 52 43.56707	95 30 19.79314	655102.552	222840.018	.013		ADJUSTMENT	2012	GPS2800	

NAD83(2007)

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
48 52 43.56717	95 30 19.79379	655102.508	222840.028	.033	C	ADJUSTMENT	2009	GPS2522	
48 52 43.56717	95 30 19.79379	655102.508	222840.028	.033	C	GPS - STATIC	2008	HROSO	

NAD83(1996)

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
48 52 43.56711	95 30 19.79358	655102.522	222840.022	.033	C	GPS - STATIC	2008	HROSO	

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2045845.246	1204791.022	1037744.172	17772293.154	.131	3	GPS - RTRN	2014	RTRN2014
2045845.177	1204790.922	1037744.102	17772293.053	.013		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2045845.134	1204790.934	1037744.059	17772293.065	.033	C	ADJUSTMENT	2009	GPS2522
2045845.134	1204790.934	1037744.059	17772293.065	.033	C	GPS - STATIC	2008	HROSO

NAD83(1996)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2045845.148	1204790.927	1037744.073	17772293.059	.033	C	GPS - STATIC	2008	HROSO

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/J_368-TC0503-3N-24JUN2014.jpg	N	Jun 24, 2014
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/J_368-TC0503-2-24JUN2014.jpg		Jun 24, 2014
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/J_368-TC0503-1-24JUN2014.jpg		Jun 24, 2014

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: K 202

NGS Name: K 202

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0396](#) [Get Map](#)
 NGS Quad / Sta Num : 48095413/
 USGS Quad: MALUNG

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	14	162 N	39 W	485106.51	953812.73	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1935	2014	GOOD	Horz=NO Vert=YES	YES		PROJECTS 13 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	BENCH MARK DISK	NGS

Description: (2014) **Stamping:** K 202 1935

6.0 MILES EAST OF ROSEAU, 6.05 MILES EAST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND TRUNK HIGHWAY 89 AND TRUNK HIGHWAY 319 IN ROSEAU TO TRUNK HIGHWAY 11 MILEPOINT 76.75, THEN 0.15 MILES NORTH ON 450TH AVENUE, 50.0 FEET NORTH OF AN OLD RAILROAD GRADE, 40.0 FEET WEST OF A ROAD (450TH AVENUE), 1.0 FOOT EAST OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1060.631	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	
1060.647	.016	2/1					VERTICAL CONTROL SURVEY	2015	VKTAD	
1060.001	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1058.617	.007	1/2					UNKNOWN/APPROXIMATE	1992	UNCHECKD	
1058.617	.033	3					VERTICAL CONTROL SURVEY	1974	USGS-VERT	
1058.617	.007	1					VERTICAL CONTROL SURVEY	1941	Q480954	
1058.617	.007	1					VERTICAL CONTROL SURVEY	1935	L56 MINN	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1060.579	.262			967.925	.197	2011	GPS - RTRN	2014	RTRN2014	

Geoid Separations(ft): GEOID18 = -92.667 12B = -92.657 09 = -92.552 03 = -92.552

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>			<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>			<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
<u>Latitude</u>	<u>Longitude</u>									
48 51 06.50837	95 38 12.73111		623554.109	212762.913	.131	3	GPS - RTRN	2014	RTRN2014	

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>			<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - North Zone</u>			<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
<u>X</u>	<u>Y</u>									
2013922.218	1195969.466		1005805.866	17763530.583	.131	3	GPS - RTRN	2014	RTRN2014	

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/K_202-TC0396-3N-24JUN2014.jpg	N	Jun 24, 2014
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/K_202-TC0396-2-24JUN2014.jpg		Jun 24, 2014
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/K_202-TC0396-1-24JUN2014.jpg		Jun 24, 2014

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: K 209

NGS Name: K 209

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0357](#) [Get Map](#)
 NGS Quad / Sta Num : 48095144/
 USGS Quad: WARROAD NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	31	163 N	37 W	485327.00	952746.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1935	2009	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	BENCH MARK DISK	NGS

Description: (2004) **Stamping:** K 209 1935

5.0 MILES EAST ON A RAILROAD FROM THE RAILROAD STATION AT SALOL, 33.0 FEET EAST OF RAILROAD MILEPOST 97, 90.9.0 FEET WEST OF COUNTY ROAD 137 (530TH AVENUE), 43.0 FEET SOUTH OF THE SOUTH RAIL OF THE RAILROAD TRACKS, NEAR A WITNESS POST.

Station Notes

10-14-2009 PULLED THE TIES, USED A MAGNETIC LOCATOR, AND PROBES, FOUND NOTHING. MOST LIKELY GRADED OUT BY RECONSTRUCTION, CONSIDERED DESTROYED.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1087.944	.007	1/2				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1086.550	.007	1				VERTICAL CONTROL SURVEY	1941	Q480951
1086.550	.007	1				VERTICAL CONTROL SURVEY	1935	L56 MINN

Geoid Separations(ft): GEOID18 = -93.343 12B = -93.330 09 = -93.222 03 = -93.215

* No Horizontal Positions in the Database *



Mn/DOT Name: K 368

NGS Name: K 368

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0505](#) [Get Map](#)
 NGS Quad / Sta Num : 48095412/
 USGS Quad: SALOL

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	9	162 N	38 W	485207.16	953257.96	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1981	2014	GOOD	Horz=NO Vert=YES	YES		RECESSED 6 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
STEEL ROD (NO SLEEVE) (DEPTH 32 FT)	METAL ROD	NGS

Description: (2014) **Stamping:** K 368 1981

1.05 MILES EAST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND 480TH AVENUE IN SALOL, AT TRUNK HIGHWAY 11 MILEPOINT 81.05, 142.0 FEET SOUTH OF TRUNK HIGHWAY 11, 87.0 FEET WEST OF 490TH AVENUE, 30.0 FEET SOUTH OF A POWER POLE WITH SIX GUY WIRES, 20.3 FEET NORTHWEST OF CABLE BOX NUMBER 400-03, 1.3 FEET NORTH OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1074.443	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	
1074.453	.016	2/1					VERTICAL CONTROL SURVEY	2015	VKTAD	
1074.453	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1074.394	.262			981.340	.197	2011	GPS - RTRN	2014	RTRN2014	
				981.366	.010	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800	
1074.440	.131			981.471	.066	2007	HORIZONTAL ADJUSTMENT	2009	GPS2522	
1074.440	.131			981.471	.066	2007	GPS - STATIC	2008	HROSO	
1074.440	.131			981.471	.066	1996	GPS - STATIC	2008	HROSO	

Geoid Separations(ft): GEOID18 = -93.071 12B = -93.054 09 = -92.949 03 = -92.946

Lat/Lon and County Coordinates (Feet)

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
48 52 07.16386	95 32 57.96145	644558.534	219064.176	.131	3	GPS - RTRN	2014	RTRN2014	
48 52 07.16373	95 32 57.96185	644558.507	219064.162	.013		ADJUSTMENT	2012	GPS2800	

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
48 52 07.16384	95 32 57.96254	644558.461	219064.173	.033	C	ADJUSTMENT	2009	GPS2522	
48 52 07.16384	95 32 57.96254	644558.461	219064.173	.033	C	GPS - STATIC	2008	HROSO	

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
48 52 07.16374	95 32 57.96234	644558.475	219064.163	.033	C	GPS - STATIC	2008	HROSO	

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - North Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
2035159.801	1201435.131	1027053.077	17768957.020	.131	3	GPS - RTRN	2014	RTRN2014
2035159.774	1201435.118	1027053.050	17768957.008	.013		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - North Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
2035159.728	1201435.131	1027053.004	17768957.020	.033	C	ADJUSTMENT	2009	GPS2522
2035159.728	1201435.131	1027053.004	17768957.020	.033	C	GPS - STATIC	2008	HROSO

NAD83(1996)

MN State Plane - North Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
2035159.741	1201435.120	1027053.017	17768957.010	.033	C	GPS - STATIC	2008	HROSO

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/K_368-TC0505-3S-24JUN2014.jpg	S	Jun 24, 2014
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/K_368-TC0505-2-24JUN2014.jpg		Jun 24, 2014
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/K_368-TC0505-1-24JUN2014.jpg		Jun 24, 2014

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: KENT

NGS Name: KENT

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DP9483](#) [Get Map](#)
 NGS Quad / Sta Num : 48095412/
 USGS Quad: SALOL

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NW	10	162 N	38 W	485209.50	953254.22	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2018	GOOD	Horz=YES Vert=YES	YES		RECESSED 1 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 14 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014) Stamping: KENT 2014

10.75 MILES WEST-SOUTHWEST OF WARROAD, 10.5 MILES WEST-SOUTHWEST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND TRUNK HIGHWAY 313 IN WARROAD, AT TRUNK HIGHWAY 11 MILEPOINT 81.1, 69.6 FEET NORTH OF TRUNK HIGHWAY 11, 166.9 FEET EAST OF COUNTY ROAD 13 (490TH AVENUE), 23.8 FEET WEST OF A FIELD ENTRANCE, 10.0 FEET NORTH OF A WITNESS POST.

Station Pair: SWANSON - ROSEAU, MN

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
1074.739	.016	2/1				2019	00000941					
1074.745	.016	2/1				2015	VKTAD					

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
1074.739	.131		981.862	.066	1996	2021	HKTAD					
1074.739			981.701	.022	2011	2020	GPS3390					
1074.739			981.701	.022	2011	2020	HKTAD					
1074.794	.262		981.734	.197	2011	2014	RTRN2014					

Geoid Separations(ft): GEOID18 = -93.074 12B = -93.058 09 = -92.953 03 = -92.949

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Geodetic Position</u>				<u>Roseau County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>					
48 52 09.50269	95 32 54.21603	644807.084	219303.191	.013		2020	GPS3390					
48 52 09.50269	95 32 54.21603	644807.084	219303.191	.013	C	2020	HKTAD					
48 52 09.50289	95 32 54.21614	644807.077	219303.211	.131	3	2014	RTRN2014					

<u>NAD83(1996)</u>		<u>Geodetic Position</u>				<u>Roseau County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>					
48 52 09.50252	95 32 54.21666	644807.042	219303.173	.033	C	2021	HKTAD					

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>		<u>MN State Plane - North Zone</u>				<u>UTM - Zone 15</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>					
2035417.617	1201664.130	1027311.303	17769185.537	.013		2020	GPS3390					
2035417.617	1201664.130	1027311.303	17769185.537	.013	C	2020	HKTAD					
2035417.610	1201664.150	1027311.297	17769185.557	.131	3	2014	RTRN2014					

<u>NAD83(1996)</u>		<u>MN State Plane - North Zone</u>				<u>UTM - Zone 15</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>					
2035417.574	1201664.114	1027311.261	17769185.521	.033	C	2021	HKTAD					



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/KENT-DP9483-3N-29JUL2014.jpg	N	Jul 29, 2014
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/KENT-DP9483-2-29JUL2014.jpg		Jul 29, 2014
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/KENT-DP9483-1-29JUL2014.jpg		Jul 29, 2014

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: L 202

NGS Name: L 202

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0398](#) [Get Map](#)
 NGS Quad / Sta Num : 48095413/
 USGS Quad: MALUNG

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	14	162 N	39 W	485101.00	953928.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1935	1935	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	BENCH MARK DISK	NGS

Description: (1935) **Stamping:** L 202 1935

AT MANDUS, AT THE RAILROAD STATION, 107.3 FEET WEST OF RAILROAD MILEPOST 88, 220.0 FEET EAST OF 440TH AVENUE, 18.0 FEET NORTH OF THE NORTH RAIL OF THE RAILROAD TRACKS, AT A WITNESS POST.

Station Notes

THE STATION WAS DESTROYED.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1062.445	.007	1/2				VERTICAL ADJUSTMENT	1991	00000025	

NGVD29

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1061.064	.007	1				VERTICAL CONTROL SURVEY	1941	Q480954	
1061.064	.007	1				VERTICAL CONTROL SURVEY	1935	L56 MINN	

Geoid Separations(ft): GEOID18 = -92.572 12B = -92.562 09 = -92.457 03 = -92.457

* No Horizontal Positions in the Database *



Mn/DOT Name: L 209
 County: ROSEAU, MN (Sheet 2)

NGS Name: L 209

NGS ACRN: [TC0358](#) [Get Map](#)
 NGS Quad / Sta Num : 48095144/
 USGS Quad: WARROAD NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	1	162 N	38 W	485309.30	952905.20	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1935	2014	GOOD	Horz=NO Vert=YES	YES		PROJECTS 9 IN.	STEEL ROD IMBED IN MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE POST (PREFABRICATED)	BENCH MARK DISK	NGS

Description: (2014) **Stamping:** L 209 1935

4.2 MILES NORTHEAST OF SALOL, 4.2 NORTHEAST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND 480TH AVENUE IN SALOL, AT TRUNK HIGHWAY 11 MILEPOINT 84.35, 225.0 FEET SOUTHWEST OF 520TH AVENUE, 120.0 FEET NORTH OF TRUNK HIGHWAY 11, 48.0 FEET SOUTH OF A TRAIL, 0.5 FOOT SOUTH OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1090.559	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	
1090.549	.016	2/1					VERTICAL CONTROL SURVEY	2015	VKTAD	
1090.549	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1089.151	.007	1/2					UNKNOWN/APPROXIMATE	1992	UNCHECKD	
1089.151	.033	3					VERTICAL CONTROL SURVEY	1974	USGS-VERT	
1089.151	.007	1					VERTICAL CONTROL SURVEY	1941	Q480951	
1089.151	.007	1					VERTICAL CONTROL SURVEY	1935	L56 MINN	

Geoid Separations(ft): GEOID18 = -93.290 12B = -93.277 09 = -93.172 03 = -93.159

* No Horizontal Positions in the Database *

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/L_209-TC0358-3N-14OCT2009.jpg	N	Oct 14, 2009
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/L_209-TC0358-2-14OCT2009.jpg		Oct 14, 2009
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/L_209-TC0358-1-14OCT2009.jpg		Oct 14, 2009

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: L 368

NGS Name: L 368

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0506](#) [Get Map](#)
 NGS Quad / Sta Num : 48095412/
 USGS Quad: SALOL

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	8	162 N	38 W	485158.85	953416.11	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1981	2014	GOOD	Horz=NO Vert=YES	YES		RECESSED 10 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
STEEL ROD (NO SLEEVE) (DEPTH 32 FT)	METAL ROD	NGS

Description: (2014) **Stamping:** L 368 1981

IN SALOL, AT THE JUNCTION OF TRUNK HIGHWAY 11 AND 480TH AVENUE, AT TRUNK HIGHWAY MILEPOINT 80.05, 113.0 FEET NORTH-NORTHWEST OF TRUNK HIGHWAY 11, 45.0 FEET SOUTH-SOUTHEAST OF AN OLD RAILROAD GRADE, 31.0 FEET WEST OF 280TH AVENUE, 3.0 FEET WEST OF A CUT-OFF POWER POLE AND TELEPHONE JUNCTION BOX 40031A, 1.3 FEET EAST OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1075.562	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941
1075.575	.016	2/1					VERTICAL CONTROL SURVEY	2015	VKTAD
1075.575	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1075.611	.262			982.646	.197	2011	GPS - RTRN	2014	RTRN2014

Geoid Separations(ft): GEOID18 = -92.979 12B = -92.966 09 = -92.861 03 = -92.857

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Roseau County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
48 51 58.85486	95 34 16.11265			639339.678	218181.616	.131	3	GPS - RTRN	2014	RTRN2014

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - North Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2029910.016	1200759.696			1021802.230	17768291.259	.131	3	GPS - RTRN	2014	RTRN2014

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/L_368-TC0506-3W-24JUN2014.jpg	W	Jun 24, 2014
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/L_368-TC0506-2-24JUN2014.jpg		Jun 24, 2014
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/L_368-TC0506-1-24JUN2014.jpg		Jun 24, 2014

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: LUND

NGS Name: LUND

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0680](#) [Get Map](#)
 NGS Quad / Sta Num : 48095142/1037
 USGS Quad: WARROAD SE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	30	162 N	36 W	484905.71	951954.71	2	1

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1966	2007	GOOD	Horz=NO Vert=YES	YES		RECESSED 2 IN.	STEEL SPIKE ADJ TO MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	TRIANGULATION STATION DISK	NGS

Description: (2003) Stamping: LUND 1966

6.0 MILES SOUTH OF WARROAD, 5.7 MILES SOUTH ALONG COUNTY ROAD 5 FROM THE JUNCTION OF COUNTY ROAD 5 AND TRUNK HIGHWAY 11, THEN 0.05 MILE WEST ON A DRIVEWAY, 138.0 FEET WEST OF A WATER PUMP, 97.63 FEET SOUTH-SOUTHEAST OF LUND RM 2, 96.92 FEET WEST OF LUND RM 1, 97.0 FEET WEST OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1126.100	.016	2/1					VERTICAL ADJUSTMENT	2006	00000425-12	
1126.094	.016	2/1					VERTICAL CONTROL SURVEY	2005	VTURN	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1124.732	.033	3					VERTICAL CONTROL SURVEY	1974	USGS-VERT	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1125.326	.131			1032.714	.066	1996	HORIZONTAL ADJUSTMENT	1999	17648	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1124.998							DIGITIZED FROM MAP	1966	HORZ	

Geoid Separations(ft): GEOID18 = -93.133 12B = -93.110 09 = -93.031 03 = -93.015

Lat/Lon and County Coordinates (Feet)

<u>NAD83(1996)</u>				<u>Roseau County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
48 49 05.70617	95 19 54.70680			697124.362	201161.722	.033	1	ADJUSTMENT	1999	17648

<u>NAD83(1986)</u>				<u>Roseau County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
48 49 05.69149	95 19 54.67957			697126.200	201160.254	.033	1	ADJUSTMENT	1986	17289

<u>NAD27</u>							<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
48 49 05.74985	95 19 53.82717					.100	1	CLASSICAL SURVEY	1977	15935

State Plane and UTM Coordinates (Feet)

NAD83(1996)

MN State Plane - North Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
2086976.496	1181465.872	1078830.419	17748895.781	.033	1	ADJUSTMENT	1999	17648

NAD83(1986)

MN State Plane - North Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
2086978.275	1181464.332	1078832.195	17748894.238	.033	1	ADJUSTMENT	1986	17289

NAD27

MN State Plane - North Zone		<u>X</u>	<u>Y</u>	Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>						<u>Year</u>	<u>Reference</u>
1462351.604	853383.127			.100	1	CLASSICAL SURVEY	1977	15935

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/LUND-TC0680-3E-10AUG2004.jpg	E	Aug 10, 2004
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/LUND-TC0680-2-10AUG2004.jpg		Aug 10, 2004
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/LUND-TC0680-1-10AUG2004.jpg		Aug 10, 2004

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: LUND AZ MK

NGS Name: LUND AZ MK

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [CO7110](#) [Get Map](#)
 NGS Quad / Sta Num : 48095142/
 USGS Quad: WARROAD SE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	30	162 N	36 W	484840.00	951951.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1966	2003	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	AZIMUTH MARK DISK	NGS

Description: Stamping: LUND 1966

IT IS 2.0 FEET NORTH OF A METAL WITNESS POST, 3.5 FEET NORTHWEST OF A FENCE CORNER AND 57.0 FEET WEST OF THE CENTER OF COUNTY ROAD 5.

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1125.113	.033	3				VERTICAL CONTROL SURVEY	1974	USGS-VERT	

Geoid Separations(ft): GEOID18 = -93.100 12B = -93.081 09 = -92.999 03 = -92.982

* No Horizontal Positions in the Database *



Mn/DOT Name: LUND RM 1

NGS Name: LUND RM 1

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [CO7111](#) [Get Map](#)
 NGS Quad / Sta Num : 48095142/
 USGS Quad: WARROAD SE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	30	162 N	36 W	484905.70	951953.26	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1966	2007	NOT FOUND	Horz=NO Vert=YES	YES		PROJECTS 2 IN.	STEEL SPIKE ADJ TO MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

Description: (1966) Stamping: LUND NO 1 1966

6.0 MILES SOUTH OF WARROAD, 5.7 MILES SOUTH ALONG COUNTY ROAD 5 FROM THE JUNCTION OF COUNTY ROAD 5 AND TRUNK HIGHWAY 11 IN WARROAD, 96.92 FEET EAST OF STATION LUND, 1.5 FEET NORTH OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1125.716	.016	2/1					VERTICAL ADJUSTMENT	2006	00000425-12	
1125.710	.016	2/1					VERTICAL CONTROL SURVEY	2005	VTURN	

Geoid Separations(ft): GEOID18 = -93.133 12B = -93.110 09 = -93.031 03 = -93.018

* No Horizontal Positions in the Database *

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/LUND_RM_1-CO7111-3S-10AUG2004.jpg	S	Aug 10, 2004
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/LUND_RM_1-CO7111-2-10AUG2004.jpg		Aug 10, 2004
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/LUND_RM_1-CO7111-1-10AUG2004.jpg		Aug 10, 2004

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: LUND RM 2

NGS Name: LUND RM 2

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [CO7112](#) [Get Map](#)
 NGS Quad / Sta Num : 48095142/
 USGS Quad: WARROAD SE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	30	162 N	36 W	484906.66	951954.96	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1966	2007	NOT FOUND	Horz=NO Vert=YES	YES		RECESSED 1 IN.	STEEL SPIKE ADJ TO MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

Description: (1966) Stamping: LUND NO 2 1966

6.0 MILES SOUTH OF WARROAD, 5.7 MILES SOUTH ALONG COUNTY ROAD 5 FROM THE JUNCTION OF COUNTY ROAD 5 AND TRUNK HIGHWAY 11 IN WARROAD, 97.63 FEET NORTH-NORTHWEST OF STATION LUND.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1125.667	.016	2/1					VERTICAL ADJUSTMENT	2006	00000425-12	
1125.660	.016	2/1					VERTICAL CONTROL SURVEY	2005	VTURN	

Geoid Separations(ft): GEOID18 = -93.133 12B = -93.110 09 = -93.031 03 = -93.015

* No Horizontal Positions in the Database *

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/LUND_RM_2-CO7112-3E-10AUG2004.jpg	E	Aug 10, 2004
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/LUND_RM_2-CO7112-2-10AUG2004.jpg		Aug 10, 2004
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/LUND_RM_2-CO7112-1-10AUG2004.jpg		Aug 10, 2004

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: M 202

NGS Name: M 202

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0399](#) [Get Map](#)
 NGS Quad / Sta Num : 48095413/
 USGS Quad: MALUNG

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	15	162 N	39 W	485056.00	954047.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1935	1981	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	BENCH MARK DISK	NGS

Description: (1981) Stamping: M 202 1935

3.75 MILES EAST OF ROSEAU, 4.07 MILES EAST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND TRUNK HIGHWAY 310 AND TRUNK HIGHWAY 89 IN ROSEAU.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1061.930	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1060.546	.007	1					VERTICAL CONTROL SURVEY	1941	Q480954	
1060.546	.007	1					VERTICAL CONTROL SURVEY	1935	L56 MINN	

Geoid Separations(ft): GEOID18 = -92.470 12B = -92.460 09 = -92.359 03 = -92.355

* No Horizontal Positions in the Database *



Mn/DOT Name: M 209

NGS Name: M 209

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0389](#) [Get Map](#)
 NGS Quad / Sta Num : 48095411/
 USGS Quad: SALOL NE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	36	163 N	38 W	485253.00	953018.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1935	1981	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	BENCH MARK DISK	NGS

Description: (1981) Stamping: M 209 1935

3.16 MILES NORTHEAST OF SALOL, 2.14 MILES NORTHEAST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND COUNTY ROAD 13, EAST OF SALOL, THEN 0.20 MILE NORTH ON COUNTY ROAD 13.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1088.728	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1087.334	.007	1					VERTICAL CONTROL SURVEY	1941	Q480954	
1087.334	.007	1					VERTICAL CONTROL SURVEY	1935	L56 MINN	

Geoid Separations(ft): GEOID18 = -93.231 12B = -93.222 09 = -93.117 03 = -93.103

* No Horizontal Positions in the Database *



Mn/DOT Name: M 368

NGS Name: M 368

County: ROSEAU, MN (Sheet 2)

NGS ACRN: TC0511	Get Map
NGS Quad / Sta Num : 48095412/	
USGS Quad: SALOL	

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SE	13	162 N	39 W	485103.65	953654.83	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1981	2020	GOOD	Horz=YES Vert=YES	YES		RECESSED 8 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
STEEL ROD (NO SLEEVE) (DEPTH 32 FT)	METAL ROD	NGS

Description: (2014) Stamping: M 368 1981

7.0 MILES EAST OF ROSEAU, 7.05 MILES EAST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND TRUNK HIGHWAY 89 AND TRUNK HIGHWAY 310 IN ROSEAU, AT TRUNK HIGHWAY 11 MILEPOINT 77.75, 101.0 FEET SOUTHEAST OF TRUNK HIGHWAY 11, 101.0 FEET WEST OF COUNTY ROAD 9, 51.9 FEET WEST OF A CABLE BOX, 44.6 FEET WEST OF A CABLE BOX, 11.5 FEET NORTHEAST OF A POWER POLE WITH A GUY WIRE, 1.3 FEET SOUTH OF A WITNESS POST.

Station Pair: MENIGHET - ROSEAU, MN

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1062.035	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941	
1062.045	.016	2/1				VERTICAL CONTROL SURVEY	2015	VKTAD	
1062.045	.007	1/2				VERTICAL ADJUSTMENT	1991	00000025	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1062.035	.131		969.368	.066	1996	GPS - STATIC	2021	HKTAD	
1062.127	.262		969.365	.197	2011	GPS - OPUS	2020	GPSBM	
1062.035			969.260	.008	2011	HORIZONTAL ADJUSTMENT	2020	GPS3390	
1062.035			969.260	.008	2011	GPS - STATIC	2020	HKTAD	
1062.426	.262		969.677	.197	2011	GPS - RTRN	2020	RTRN2020	
1061.930	.262		969.181	.197	2011	GPS - RTRN	2014	RTRN2014	
			969.260	.008	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800	
1062.039	.131		969.368	.066	2007	HORIZONTAL ADJUSTMENT	2009	GPS2522	
1062.039	.131		969.368	.066	2007	GPS - STATIC	2008	HROSO	
1062.039	.131		969.368	.066	1996	GPS - STATIC	2008	HROSO	

Geoid Separations(ft): GEOID18 = -92.762 12B = -92.749 09 = -92.644 03 = -92.644

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Roseau County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 51 03.65062	95 36 54.83326	628766.236	212509.112	.131	3	GPS - OPUS	2020	GPSBM
48 51 03.65066	95 36 54.83243	628766.291	212509.116	.010		ADJUSTMENT	2020	GPS3390
48 51 03.65066	95 36 54.83243	628766.291	212509.116	.010	C	GPS - STATIC	2020	HKTAD
48 51 03.65059	95 36 54.83360	628766.213	212509.108	.131	3	GPS - RTRN	2020	RTRN2020
48 51 03.65062	95 36 54.83225	628766.303	212509.112	.131	3	GPS - RTRN	2014	RTRN2014
48 51 03.65066	95 36 54.83243	628766.291	212509.116	.010		ADJUSTMENT	2012	GPS2800

<u>NAD83(2007)</u>		<u>Roseau County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 51 03.65078	95 36 54.83329	628766.234	212509.128	.033	C	ADJUSTMENT	2009	GPS2522
48 51 03.65078	95 36 54.83329	628766.234	212509.128	.033	C	GPS - STATIC	2008	HROSO

<u>NAD83(1996)</u>		<u>Roseau County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 51 03.65065	95 36 54.83313	628766.245	212509.115	.033	C	GPS - STATIC	2021	HKTAD
48 51 03.65065	95 36 54.83313	628766.245	212509.115	.033	C	GPS - STATIC	2008	HROSO

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - North Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2019120.308	1195509.740	1011003.074	17763061.273	.131	3	GPS - OPUS	2020	GPSBM
2019120.363	1195509.743	1011003.130	17763061.275	.010		ADJUSTMENT	2020	GPS3390
2019120.363	1195509.743	1011003.130	17763061.275	.010	C	GPS - STATIC	2020	HKTAD
2019120.285	1195509.738	1011003.051	17763061.270	.131	3	GPS - RTRN	2020	RTRN2020
2019120.375	1195509.738	1011003.142	17763061.270	.131	3	GPS - RTRN	2014	RTRN2014
2019120.363	1195509.743	1011003.130	17763061.275	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - North Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2019120.306	1195509.757	1011003.073	17763061.289	.033	C	ADJUSTMENT	2009	GPS2522
2019120.306	1195509.757	1011003.073	17763061.289	.033	C	GPS - STATIC	2008	HROSO

NAD83(1996)

MN State Plane - North Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2019120.317	1195509.743	1011003.083	17763061.276	.033	C	GPS - STATIC	2021	HKTAD
2019120.317	1195509.743	1011003.083	17763061.276	.033	C	GPS - STATIC	2008	HROSO

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/M_368-TC0511-3S-24JUN2020.jpg	S	Jun 24, 2020
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/M_368-TC0511-2-24JUN2020.jpg		Jun 24, 2020
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/M_368-TC0511-1-24JUN2020.jpg		Jun 24, 2020

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: MARINES

NGS Name: MARINES

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DP0909](#) [Get Map](#)
 NGS Quad / Sta Num : 48095141/
 USGS Quad: WARROAD

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SW	33	163 N	36 W	485318.67	951805.55	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2012	2018	GOOD	Horz=YES Vert=YES	YES		RECESSED 3 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 49 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2012) Stamping: MARINES 2012

0.9 MILE SOUTHEAST OF WARROAD, 2.5 MILES SOUTHEAST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND TRUNK HIGHWAY 313 IN WARROAD, AT TRUNK HIGHWAY 11 MILEPOINT 94.15, 25.0 FEET NORTHEAST OF TRUNK HIGHWAY 11, 9.6 FEET SOUTHWEST OF A WITNESS POST.

Station Pair: SAMMY - ROSEAU, MN

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
1078.000	.016	2/1				2014	00000828					
1078.003	.016	2/1				2013	VHACK					

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
1078.000			984.575	.018	2011	2020	GPS3362					
1078.000	.131		984.719	.066	1996	2020	HGRACE					
1078.000			984.575	.018	2011	2020	HGRACE					
1077.855	.262		984.385	.197	2007	2012	RTRN2012					

Geoid Separations(ft): GEOID18 = -93.527 12B = -93.520 09 = -93.471 03 = -93.441

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Geodetic Position</u>				<u>Roseau County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
48 53 18.66963	95 18 05.54593	704144.536	226878.454	.013		ADJUSTMENT	2020	GPS3362		
48 53 18.66963	95 18 05.54593	704144.536	226878.454	.013	C	GPS - STATIC	2020	HGRACE		

<u>NAD83(2007)</u>		<u>Geodetic Position</u>				<u>Roseau County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
48 53 18.66927	95 18 05.54656	704144.494	226878.417	.131	3	GPS - RTRN	2012	RTRN2012		

<u>NAD83(1996)</u>		<u>Geodetic Position</u>				<u>Roseau County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
48 53 18.66947	95 18 05.54641	704144.504	226878.438	.033	C	GPS - STATIC	2020	HGRACE		

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>		<u>MN State Plane - North Zone</u>				<u>UTM - Zone 15</u>		<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
2095009.769	1206884.792	1086908.022	17774297.670	.013		ADJUSTMENT	2020	GPS3362		
2095009.769	1206884.792	1086908.022	17774297.670	.013	C	GPS - STATIC	2020	HGRACE		

<u>NAD83(2007)</u>		<u>MN State Plane - North Zone</u>				<u>UTM - Zone 15</u>		<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
2095009.726	1206884.757	1086907.979	17774297.634	.131	3	GPS - RTRN	2012	RTRN2012		

<u>NAD83(1996)</u>		<u>MN State Plane - North Zone</u>				<u>UTM - Zone 15</u>		<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
2095009.736	1206884.777	1086907.990	17774297.654	.033	C	GPS - STATIC	2020	HGRACE		



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/MARINES-DP0909-3NE-27NOV2012.jpg	NE	Nov 27, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/MARINES-DP0909-2-27NOV2012.jpg		Nov 27, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/MARINES-DP0909-1-27NOV2012.jpg		Nov 27, 2012

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: MENIGHET

NGS Name: MENIGHET

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DP9478](#) [Get Map](#)
 NGS Quad / Sta Num : 48095412/
 USGS Quad: SALOL

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	13	162 N	39 W	485057.87	953716.36	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2018	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 24 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014) Stamping: MENIGHET 2014

6.7 MILES EAST OF ROSEAU, 6.75 MILES EAST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND TRUNK HIGHWAY 89 AND TRUNK HIGHWAY 310 IN ROSEAU, AT TRUNK HIGHWAY 11 MILEPOINT 77.5, 96.9 FEET NORTH-NORTHWEST OF TRUNK HIGHWAY 11, 3.4 FEET SOUTH-SOUTHEAST OF A RIGHT-OF-WAY POST, 1.5 FEET EAST OF A WITNESS POST.

Station Pair: M 368 - ROSEAU, MN

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1063.069	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	
1063.082	.016	2/1					VERTICAL CONTROL SURVEY	2015	VKTAD	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1063.069	.131			970.497	.066	1996	GPS - STATIC	2021	HKTAD	
1063.069				970.336	.023	2011	HORIZONTAL ADJUSTMENT	2020	GPS3390	
1063.069				970.336	.023	2011	GPS - STATIC	2020	HKTAD	
1063.184	.262			970.464	.197	2011	GPS - RTRN	2014	RTRN2014	

Geoid Separations(ft): GEOID18 = -92.733 12B = -92.720 09 = -92.615 03 = -92.615

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Roseau County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
48 50 57.87284	95 37 16.36065			627330.448	211913.485	.013		ADJUSTMENT	2020	GPS3390
48 50 57.87284	95 37 16.36065			627330.448	211913.485	.013	C	GPS - STATIC	2020	HKTAD
48 50 57.87245	95 37 16.36012			627330.484	211913.446	.131	3	GPS - RTRN	2014	RTRN2014

<u>NAD83(1996)</u>				<u>Roseau County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
48 50 57.87268	95 37 16.36128			627330.406	211913.469	.033	C	GPS - STATIC	2021	HKTAD

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - North Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2017662.066	1194971.353			1009543.854	17762525.577	.013		ADJUSTMENT	2020	GPS3390
2017662.066	1194971.353			1009543.854	17762525.577	.013	C	GPS - STATIC	2020	HKTAD
2017662.100	1194971.312			1009543.888	17762525.536	.131	3	GPS - RTRN	2014	RTRN2014

<u>NAD83(1996)</u>				<u>UTM - Zone 15</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - North Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2017662.024	1194971.338			1009543.811	17762525.562	.033	C	GPS - STATIC	2021	HKTAD



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/MENIGHET-DP9478-3NW-29JUL2014.jpg	NW	Jul 29, 2014
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/MENIGHET-DP9478-2-29JUL2014.jpg		Jul 29, 2014
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/MENIGHET-DP9478-1-29JUL2014.jpg		Jul 29, 2014

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: MINNESOTA ELEV 1139

NGS Name: MINNESOTA ELEV 1139

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [CO7604](#) [Get Map](#)
 NGS Quad / Sta Num : 48096123/
 USGS Quad: STRATHCONA

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	35	158 N	43 W	483236.44	961007.46		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
	2012	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	UNSPECIFIC DISK TYPE (SEE TEXT)	UNK

Description: (2012)

Stamping:

0.73 MILE SOUTH OF STRATHCONA, 0.73 MILE SOUTH ALONG TRUNK HIGHWAY 32 FROM THE JUNCTION OF TRUNK HIGHWAY 32 AND LINCOLN AVENUE IN STRATHCONA.

* No Horizontal or Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -89.678 12B = -89.701 09 = -89.573 03 = -89.652



Mn/DOT Name: MNDT BM

NGS Name: BM

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 48095414/
 USGS Quad: SALOL NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	6	162 N	39 W	485328.00	954349.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1966	1966	GOOD	Horz=? Vert=YES	NO	68502	FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
BRIDGE HEADWALL	SURVEY DISK	MNDT

Description: (1966)

Stamping:

3.0 MILES NORTH AND 1.7 MILES EAST OF ROSEAU, IN THE SOUTHEAST CORNER OF COUNTY ROAD 28 BRIDGE NUMBER 68502 OVER THE ROSEAU RIVER, 15.0 FEET SOUTH OF A ROAD.

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1043.899	.033	3					VERTICAL CONTROL SURVEY	1974	USGS-VERT	

Geoid Separations(ft): GEOID18 = -92.283 12B = -92.280 09 = -92.155 03 = -92.155

* No Horizontal Positions in the Database *



Mn/DOT Name: MNDT DISK

NGS Name: DISK

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 48095413/
 USGS Quad: MALUNG

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	17	161 N	39 W	484634.00	954328.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1966	1966	GOOD	Horz=? Vert=YES	NO	7047	FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
BRIDGE HEADWALL	SURVEY DISK	MNDT

Description: (1966)

Stamping:

5.0 MILES SOUTH AND 2.0 MILES EAST OF ROSEAU, AT MALUNG, IN THE SOUTHEAST CORNER OF COUNTY ROAD 2
 BRIDGE NUMBER 7047 OVER THE ROSEAU RIVER, 12.0 FEET SOUTH OF A ROAD.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1059.260	.033	3				VERTICAL CONTROL SURVEY	1974	USGS-VERT	

Geoid Separations(ft): GEOID18 = -92.050 12B = -92.047 09 = -91.949 03 = -91.945

* No Horizontal Positions in the Database *



Mn/DOT Name: N 202

NGS Name: N 202

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0400](#) [Get Map](#)
 NGS Quad / Sta Num : 48095413/
 USGS Quad: MALUNG

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	20	162 N	39 W	485050.48	954209.09	1	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1935	2006	DESTROYED	Horz=NO Vert=NO	YES		PROJECTS 6 IN.	STEEL SPIKE IMBED IN MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	BENCH MARK DISK	NGS

Description: (1981) Stamping: N 202 1935

2.7 MILES EAST ON TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND MAIN AVENUE NORTH IN ROSEAU, 2.0 MILES WEST OF THE MANDUS RAILROAD STATION, 165.0 FEET WEST OF RAILROAD MILEPOST 86, 54.0 FEET NORTHWEST OF COUNTY ROAD 338 (420TH AVENUE), 34.0 FEET NORTH OF THE NORTH RAIL OF A RAILROAD, 45.0 FEET WEST OF A SECTION LINE ROAD, 1.0 FOOT EAST OF A WITNESS POST, 28.0 FEET NORTHWEST OF A RAILROAD CROSSING SIGN.

Station Notes

THE BRASS DISK WAS RETURNED TO THE GEODETIC UNIT.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1057.915	.007	1/2				VERTICAL ADJUSTMENT	1991	00000025	

NGVD29

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1056.533	.007	3				VERTICAL CONTROL SURVEY	1987	CS6803	
1056.533	.007	1				VERTICAL CONTROL SURVEY	1941	Q480954	
1056.533	.007	1				VERTICAL CONTROL SURVEY	1935	L56 MINN	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
			965.582	.007	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800	
			965.694	.008	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300	
1057.915	.131		965.785	.066	1996	HORIZONTAL ADJUSTMENT	2001	GPS1526-1	

Geoid Separations(ft): GEOID18 = -92.365 12B = -92.362 09 = -92.365 03 = -92.247

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
48 50 50.47533	95 42 09.08905	607755.107	211038.296	.010		ADJUSTMENT	2012	GPS2800	

NAD83(2007)

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
48 50 50.47542	95 42 09.09000	607755.044	211038.305	.010		ADJUSTMENT	2007	GPS2300	

NAD83(1996)

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
48 50 50.47490	95 42 09.09024	607755.028	211038.252	.033	C	ADJUSTMENT	2001	GPS1526-1	

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - North Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
1998067.157	1194870.833	989948.619	17762461.319	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - North Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
1998067.094	1194870.845	989948.556	17762461.330	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - North Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
1998067.076	1194870.792	989948.537	17762461.278	.033	C	ADJUSTMENT	2001	GPS1526-1

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/N_202-TC0400-3SW-26JUN2006.jpg	SW	Jun 26, 2006
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/N_202-TC0400-2-26JUN2006.jpg		Jun 26, 2006
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/N_202-TC0400-1-26JUN2006.jpg		Jun 26, 2006

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: N 209

NGS Name: N 209

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0390](#) [Get Map](#)
 NGS Quad / Sta Num : 48095411/
 USGS Quad: SALOL NE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	2	162 N	38 W	485234.00	953136.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1935	2009	DESTROYED	Horz=NO Vert=NO	YES		PROJECTS 18 IN.	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	BENCH MARK DISK	NGS

Description: (1981) **Stamping:** N 209 1935

2.0 MILES EAST ON A RAILROAD FROM THE SALOL RAILROAD STATION, 95.0 FEET WEST OF RAILROAD MILEPOST 94, 138.0 FEET EAST OF 500TH AVENUE, 48.0 FEET SOUTH OF THE SOUTH RAIL OF A RAILROAD, AT A RIGHT-OF-WAY FENCE AND A WITNESS POST.

Station Notes

- 10-15-2009 FOUND THE MARK PROJECTING 30.0 INCHES AND LEANING 45 DEGREES.
- 10-28-2009 DESTROYED THE MARK AND TURNED THE DISK IN TO THE GEODETIC UNIT.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1082.757	.007	1/2				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1082.101	.033	3				VERTICAL CONTROL SURVEY	1974	USGS-VERT
1081.366	.007	1				VERTICAL CONTROL SURVEY	1941	Q480954
1081.366	.007	1				VERTICAL CONTROL SURVEY	1935	L56 MINN

Geoid Separations(ft): GEOID18 = -93.159 12B = -93.146 09 = -93.044 03 = -93.035

*** No Horizontal Positions in the Database ***

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/N_209-TC0390-3SE-15OCT2009.jpg	SE	Oct 15, 2009
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/N_209-TC0390-2-28OCT2009.jpg		Oct 28, 2009
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/N_209-TC0390-1-15OCT2009.jpg		Oct 15, 2009

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: N 368

NGS Name: N 368

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0512](#) [Get Map](#)
 NGS Quad / Sta Num : 48095413/
 USGS Quad: MALUNG

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	23	162 N	39 W	485054.83	953813.03	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1981	2018	GOOD	Horz=YES Vert=YES	YES		RECESSED 6 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
STEEL ROD (NO SLEEVE) (DEPTH 27 FT)	METAL ROD	NGS

Description: (2014) **Stamping:** N 368 1981

6.0 MILES EAST OF ROSEAU, 6.05 MILES EAST-SOUTHWEST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND TRUNK HIGHWAY 89 AND TRUNK HIGHWAY 310 IN ROSEAU, AT TRUNK HIGHWAY 11 MILEPOINT 76.75, 100.0 FEET SOUTH OF TRUNK HIGHWAY 11, 55.5 FEET WEST OF COUNTY ROAD 129, 23.0 FEET SOUTH OF A GUY WIRE ANCHOR, 12.5 FEET SOUTHEAST OF A TELEPHONE JUNCTION BOX NUMBER 40023, 3.5 FEET WEST OF A POWER POLE, 1.0 FOOT EAST OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1061.002	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	
1061.018	.016	2/1					VERTICAL CONTROL SURVEY	2015	VKTAD	
1061.018	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1061.002	.131			968.528	.066	1996	GPS - STATIC	2021	HKTAD	
1061.002				968.367	.024	2011	HORIZONTAL ADJUSTMENT	2020	GPS3390	
1061.002				968.367	.024	2011	GPS - STATIC	2020	HKTAD	
1060.943	.262			968.292	.197	2011	GPS - RTRN	2014	RTRN2014	

Geoid Separations(ft): GEOID18 = -92.661 12B = -92.647 09 = -92.546 03 = -92.546

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
48 50 54.83435	95 38 13.03058	623542.047	211579.618	.013		ADJUSTMENT	2020	GPS3390	
48 50 54.83435	95 38 13.03058	623542.047	211579.618	.013	C	GPS - STATIC	2020	HKTAD	
48 50 54.83439	95 38 13.03064	623542.043	211579.622	.131	3	GPS - RTRN	2014	RTRN2014	

<u>NAD83(1996)</u>		<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
48 50 54.83419	95 38 13.03121	623542.005	211579.601	.033	C	GPS - STATIC	2021	HKTAD	

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - North Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
2013863.373	1194787.557	1005744.839	17762348.785	.013		ADJUSTMENT	2020	GPS3390	
2013863.373	1194787.557	1005744.839	17762348.785	.013	C	GPS - STATIC	2020	HKTAD	
2013863.369	1194787.561	1005744.835	17762348.789	.131	3	GPS - RTRN	2014	RTRN2014	

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - North Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
2013863.330	1194787.542	1005744.796	17762348.770	.033	C	GPS - STATIC	2021	HKTAD	



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/N_368-TC0512-3S-16OCT2009.jpg	S	Oct 16, 2009
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/N_368-TC0512-2-16OCT2009.jpg		Oct 16, 2009
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/N_368-TC0512-1-16OCT2009.jpg		Oct 16, 2009

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: NICOLE

NGS Name: NICOLE

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DP0919](#) [Get Map](#)
 NGS Quad / Sta Num : 48095112/
 USGS Quad: ROOSEVELT

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	35	162 N	35 W	484821.60	950626.07	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2012	2018	GOOD	Horz=YES Vert=YES	YES		RECESSED 1 IN.	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 25 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2012) **Stamping:** NICOLE 2012

0.5 MILE NORTHWEST OF ROOSEVELT, 0.5 MILE NORTHWEST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND COUNTY ROAD 42 IN ROOSEVELT, AT TRUNK HIGHWAY 11 MILEPOINT 104.75, 54.7 FEET SOUTHWEST OF TRUNK HIGHWAY 11, 1.5 FEET NORTHEAST OF A WITNESS POST.

Station Pair: GABBY - ROSEAU, MN

Leveling-Derived Orthometric Heights (Feet)

NAVD88			Ellipsoid (NAD83)			Project Info		
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1155.982	.016	2/1				VERTICAL ADJUSTMENT	2014	00000828
1155.985	.016	2/1				VERTICAL CONTROL SURVEY	2013	VHACK

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88			Ellipsoid (NAD83)			Project Info		
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1155.985			1061.894	.015	2011	HORIZONTAL ADJUSTMENT	2020	GPS3362
1155.982	.131		1062.025	.066	1996	GPS - STATIC	2020	HGRACE
1155.985			1061.894	.015	2011	GPS - STATIC	2020	HGRACE
1155.936	.262		1061.907	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -94.127 12B = -94.117 09 = -94.029 03 = -94.016

Lat/Lon and County Coordinates (Feet)

NAD83(2011)		Roseau County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 48 21.60184	95 06 26.07149	751303.357	197353.053	.013		ADJUSTMENT	2020	GPS3362
48 48 21.60184	95 06 26.07149	751303.357	197353.053	.013	C	GPS - STATIC	2020	HGRACE

NAD83(2007)		Roseau County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 48 21.60180	95 06 26.07255	751303.286	197353.048	.131	3	GPS - RTRN	2012	RTRN2012

NAD83(1996)		Roseau County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 48 21.60174	95 06 26.07196	751303.325	197353.043	.033	C	GPS - STATIC	2020	HGRACE

State Plane and UTM Coordinates (Feet)

NAD83(2011)		UTM - Zone 15				Project Info		
MN State Plane - North Zone		X	Y	Acc	Order	Determination Method	Year	Reference
2140962.229	1175513.480	1132799.125	17742850.244	.013		ADJUSTMENT	2020	GPS3362
2140962.229	1175513.480	1132799.125	17742850.244	.013	C	GPS - STATIC	2020	HGRACE

NAD83(2007)		UTM - Zone 15				Project Info		
MN State Plane - North Zone		X	Y	Acc	Order	Determination Method	Year	Reference
2140962.158	1175513.478	1132799.054	17742850.242	.131	3	GPS - RTRN	2012	RTRN2012

NAD83(1996)		UTM - Zone 15				Project Info		
MN State Plane - North Zone		X	Y	Acc	Order	Determination Method	Year	Reference
2140962.197	1175513.471	1132799.094	17742850.235	.033	C	GPS - STATIC	2020	HGRACE



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/NICOLE-DP0919-3SW-04DEC2012.jpg	SW	Dec 4, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/NICOLE-DP0919-2-04DEC2012.jpg		Dec 4, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/NICOLE-DP0919-1-04DEC2012.jpg		Dec 4, 2012

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: NOCK MNDT
County: ROSEAU, MN (Sheet 2)

NGS Name: NOCK

NGS ACRN: [AJ8658](#) [Get Map](#)
NGS Quad / Sta Num : 48095424/
USGS Quad: WANNASKA

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	19	160 N	39 W	484013.40	954328.35	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1998	2017	GOOD	Horz=YES Vert=YES	YES		FLUSH	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 15 FT)	SURVEY DISK	MNDT

Description: (1998) Stamping: NOCK 1998

1.0 MILE NORTH OF WANNASKA, 0.9 MILE NORTH ALONG TRUNK HIGHWAY 89 FROM THE JUNCTION OF TRUNK HIGHWAY 89 AND THE ROSEAU RIVER IN WANNASKA TO TRUNK HIGHWAY 89 MILEPOINT 112.4, THEN 0.5 MILE EAST ON COUNTY ROAD 128 (190TH STREET), 57.0 FEET SOUTH OF COUNTY ROAD 128, 37.0 FEET WEST OF 410TH AVENUE, 78.8 FEET WEST-SOUTHWEST OF A POWER POLE, 2.9 FEET SOUTH OF A WITNESS POST.

Station Pair: BADG RESET - ROSEAU, MN

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1105.887	.016	2/1					VERTICAL ADJUSTMENT	2013	00000795	
1105.887	.016	2/1					VERTICAL CONTROL SURVEY	2013	VGATK	
1105.887	.016	2/1					VERTICAL ADJUSTMENT	2004	00000425-2	
1105.870	.016	2/1					VERTICAL CONTROL SURVEY	2000	VGRYG	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1105.887				1014.417	.009	2011	HORIZONTAL ADJUSTMENT	2018	GPS3232	
1105.887				1014.417	.009	2011	GPS - STATIC	2018	HGATK	
1105.887	.131			1014.509	.066	1996	GPS - STATIC	2018	HGATK	
1106.008	.262			1014.503	.197	2011	GPS - RTRN	2016	RTRN2016	
1105.877	.262			1014.476	.197	2007	GPS - RTRN	2012	RTRN2012	
				1014.417	.009	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800	
				1014.526	.010	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300	
1105.870	.131			1014.509	.066	1996	HORIZONTAL ADJUSTMENT	2002	GPS1666	
1105.870	.131			1014.509	.066	1996	GPS - STATIC	2001	HGRYG	

Geoid Separations(ft): GEOID18 = -91.489 12B = -91.506 09 = -91.397 03 = -91.361

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>			<u>Roseau County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>			<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>								
48 40 13.40156	95 43 28.34557		602814.200	146441.194	.007		ADJUSTMENT	2018	GPS3232
48 40 13.40156	95 43 28.34557		602814.200	146441.194	.007	C	GPS - STATIC	2018	HGATK
48 40 13.40162	95 43 28.34542		602814.209	146441.200	.131	3	GPS - RTRN	2016	RTRN2016
48 40 13.40156	95 43 28.34557		602814.200	146441.194	.010		ADJUSTMENT	2012	GPS2800

<u>NAD83(2007)</u>			<u>Roseau County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>			<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>								
48 40 13.40096	95 43 28.34584		602814.182	146441.133	.131	3	GPS - RTRN	2012	RTRN2012
48 40 13.40183	95 43 28.34628		602814.152	146441.221	.013		ADJUSTMENT	2007	GPS2300

<u>NAD83(1996)</u>			<u>Roseau County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>			<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>								
48 40 13.40168	95 43 28.34632		602814.149	146441.206	.033	C	GPS - STATIC	2018	HGATK
48 40 13.40168	95 43 28.34632		602814.149	146441.206	.033	C	ADJUSTMENT	2002	GPS1666
48 40 13.40168	95 43 28.34632		602814.149	146441.206	.033	C	GPS - STATIC	2001	HGRYG

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1990576.735	1130520.279	982341.117	17698120.905	.007		ADJUSTMENT	2018	GPS3232
1990576.735	1130520.279	982341.117	17698120.905	.007	C	GPS - STATIC	2018	HGATK
1990576.745	1130520.284	982341.127	17698120.911	.131	3	GPS - RTRN	2016	RTRN2016
1990576.735	1130520.279	982341.117	17698120.905	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1990576.714	1130520.218	982341.097	17698120.845	.131	3	GPS - RTRN	2012	RTRN2012
1990576.688	1130520.308	982341.070	17698120.934	.013		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1990576.685	1130520.292	982341.067	17698120.919	.033	C	GPS - STATIC	2018	HGATK
1990576.685	1130520.292	982341.067	17698120.919	.033	C	ADJUSTMENT	2002	GPS1666
1990576.685	1130520.292	982341.067	17698120.919	.033	C	GPS - STATIC	2001	HGRYG

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/NOCK-AJ8658-3S-05SEP2012.jpg	S	Sep 5, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/NOCK-AJ8658-2-05SEP2012.jpg		Sep 5, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/NOCK-AJ8658-1-05SEP2012.jpg		Sep 5, 2012

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: NOT STAMPED

NGS Name: NOT STAMPED

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 48095124/
 USGS Quad: WINTER ROAD LAKE NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	35	161 N	35 W	484258.00	950749.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1967	2007	NOT FOUND	Horz=NO Vert=YES	NO		PROJECTS 1 IN.	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON POST	SEE DESCRIPTION	USGS

Description: (1967)

Stamping:

6.0 MILES SOUTH AND 2.0 MILES WEST OF ROOSEVELT, 720.0 FEET EAST OF THE 1ST TRAIL EAST OF A CURVE IN A ROAD, 12.0 FEET SOUTH OF A TRAIL, 1.5 FEET NORTH OF A WITNESS POST.

Station Notes

THE YEAR IS UNCERTAIN. THE MONUMENT IS LOOSE (05-14-2007).

THE TIES FALL IN A GRAVEL PIT (08-07-2007).

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>		
1226.333	.033	3							VERTICAL CONTROL SURVEY	1974	USGS-VERT	

Geoid Separations(ft): GEOID18 = -93.300 12B = -93.313 09 = -93.225 03 = -93.215

* No Horizontal Positions in the Database *



Mn/DOT Name: OKON

NGS Name: OKON

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DN4466](#) [Get Map](#)
 NGS Quad / Sta Num : 48095124/
 USGS Quad: WINTER ROAD LAKE NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	34	161 N	35 W	484247.11	950852.50		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2009	2021	GOOD	Horz=YES Vert=YES	YES		FLUSH	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 28 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2009) Stamping: OKON 2009

8.0 MILES SOUTH OF ROOSEVELT, 1.8 MILES WEST ALONG COUNTY ROAD 42 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND COUNTY ROAD 42 IN ROOSEVELT, THEN 6.7 MILES SOUTH AND WEST ON ROSSEVELT FOREST ROAD 59, 20.5 FEET NORTHWEST OF NORRIS-ROOSEVELT FOREST ROAD 59, 16.7 FEET NORTHEAST OF A DELINEATOR POST, 2.0 FEET EAST OF A WITNESS POST.

* No Leveling-Derived Orthometric Heights in the Database *

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>			<u>Orthometric Height</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>	
1222.776	.262		1129.568	.197	2011	2021	GPSBM	1129.568	.197	2011	2021	GPSBM	
1222.698	.262		1129.489	.197	2011	2021	RTRN2021	1129.489	.197	2011	2021	RTRN2021	
			1129.470	.010	2011	2012	GPS2800	1129.470	.010	2011	2012	GPS2800	
1222.668	.131		1129.571	.066	2007	2011	GPS2833	1129.571	.066	2007	2011	GPS2833	
1222.668	.131		1129.571	.066	2007	2011	HLOTW	1129.571	.066	2007	2011	HLOTW	
1222.701	.131		1129.581	.066	1996	2011	HLOTW	1129.581	.066	1996	2011	HLOTW	
1222.530	.262		1129.414	.197	1996	2009	RTRN2009	1129.414	.197	1996	2009	RTRN2009	

Geoid Separations(ft): GEOID18 = -93.208 12B = -93.218 09 = -93.126 03 = -93.117

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>			<u>Roseau County</u>					<u>Project Info</u>	
<u>Geodetic Position</u>			<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>								
48 42 47.10722	95 08 52.49580		741947.573	163323.254	.131	3	GPS - OPUS	2021	GPSBM
48 42 47.10769	95 08 52.49527		741947.608	163323.302	.131	3	GPS - RTRN	2021	RTRN2021
48 42 47.10755	95 08 52.49415		741947.683	163323.289	.007		ADJUSTMENT	2012	GPS2800

<u>NAD83(2007)</u>			<u>Roseau County</u>					<u>Project Info</u>	
<u>Geodetic Position</u>			<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>								
48 42 47.10763	95 08 52.49489		741947.634	163323.297	.033	C	ADJUSTMENT	2011	GPS2833
48 42 47.10763	95 08 52.49489		741947.634	163323.297	.033	C	GPS - STATIC	2011	HLOTW

<u>NAD83(1996)</u>			<u>Roseau County</u>					<u>Project Info</u>	
<u>Geodetic Position</u>			<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>								
48 42 47.10769	95 08 52.49461		741947.652	163323.303	.033	C	GPS - STATIC	2011	HLOTW
48 42 47.10780	95 08 52.49559		741947.586	163323.313	.131	3	GPS - RTRN	2009	RTRN2009

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2130264.995	1141881.673	1122046.241	17709241.117	.131	3	GPS - OPUS	2021	GPSBM
2130265.032	1141881.720	1122046.278	17709241.163	.131	3	GPS - RTRN	2021	RTRN2021
2130265.107	1141881.703	1122046.353	17709241.147	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2130265.057	1141881.713	1122046.303	17709241.156	.033	C	ADJUSTMENT	2011	GPS2833
2130265.057	1141881.713	1122046.303	17709241.156	.033	C	GPS - STATIC	2011	HLOTW

NAD83(1996)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2130265.076	1141881.718	1122046.322	17709241.162	.033	C	GPS - STATIC	2011	HLOTW
2130265.011	1141881.731	1122046.257	17709241.175	.131	3	GPS - RTRN	2009	RTRN2009

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/OKON-DN4466-3W-05OCT2021.jpg	W	Oct 5, 2021
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/OKON-DN4466-2-05OCT2021.jpg		Oct 5, 2021
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/OKON-DN4466-1-05OCT2021.jpg		Oct 5, 2021

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: ORANGE

NGS Name: ORANGE

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DP0916](#) [Get Map](#)
 NGS Quad / Sta Num : 48095113/
 USGS Quad: SWIFT

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	21	162 N	35 W	485004.20	951035.95	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2012	2018	GOOD	Horz=YES Vert=YES	YES		RECESSED 1 IN.	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 29 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2012) **Stamping:** ORANGE 2012

3.8 MILES NORTHWEST OF ROOSEVELT, 4.2 MILES NORTHWEST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND COUNTY ROAD 42 IN ROOSEVELT, AT TRUNK HIGHWAY 11 MILEPOINT 100.95, 69.7 FEET SOUTHWEST OF TRUNK HIGHWAY 11, 13.7 FEET NORTHWEST OF A FIELD ENTRANCE, 6.2 FEET NORTHEAST OF A WITNESS POST.

Station Pair: CODY - ROSEAU, MN

Leveling-Derived Orthometric Heights (Feet)

NAVD88			Ellipsoid (NAD83)			Project Info		
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1119.545	.016	2/1				VERTICAL ADJUSTMENT	2014	00000828
1119.548	.016	2/1				VERTICAL CONTROL SURVEY	2013	VHACK

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88			Ellipsoid (NAD83)			Project Info		
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1119.545			1025.605	.016	2011	HORIZONTAL ADJUSTMENT	2020	GPS3362
1119.545	.131		1025.749	.066	1996	GPS - STATIC	2020	HGRACE
1119.545			1025.605	.016	2011	GPS - STATIC	2020	HGRACE
1119.440	.262		1025.556	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -93.999 12B = -93.976 09 = -93.884 03 = -93.874

Lat/Lon and County Coordinates (Feet)

NAD83(2011)		Roseau County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 50 04.19589	95 10 35.95410	734443.296	207528.940	.013		ADJUSTMENT	2020	GPS3362
48 50 04.19589	95 10 35.95410	734443.296	207528.940	.013	C	GPS - STATIC	2020	HGRACE

NAD83(2007)		Roseau County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 50 04.19600	95 10 35.95517	734443.224	207528.950	.131	3	GPS - RTRN	2012	RTRN2012

NAD83(1996)		Roseau County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 50 04.19574	95 10 35.95458	734443.264	207528.925	.033	C	GPS - STATIC	2020	HGRACE

State Plane and UTM Coordinates (Feet)

NAD83(2011)		UTM - Zone 15				Project Info		
MN State Plane - North Zone		X	Y	Acc	Order	Determination Method	Year	Reference
2124518.661	1186349.714	1116376.712	17753713.253	.013		ADJUSTMENT	2020	GPS3362
2124518.661	1186349.714	1116376.712	17753713.253	.013	C	GPS - STATIC	2020	HGRACE

NAD83(2007)		UTM - Zone 15				Project Info		
MN State Plane - North Zone		X	Y	Acc	Order	Determination Method	Year	Reference
2124518.590	1186349.727	1116376.641	17753713.267	.131	3	GPS - RTRN	2012	RTRN2012

NAD83(1996)		UTM - Zone 15				Project Info		
MN State Plane - North Zone		X	Y	Acc	Order	Determination Method	Year	Reference
2124518.629	1186349.700	1116376.680	17753713.239	.033	C	GPS - STATIC	2020	HGRACE



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/ORANGE-DP0916-3SW-27NOV2012.jpg	SW	Nov 27, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/ORANGE-DP0916-2-27NOV2012.jpg		Nov 27, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/ORANGE-DP0916-1-27NOV2012.jpg		Nov 27, 2012

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: P 209

NGS Name: P 209

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0391](#) [Get Map](#)
 NGS Quad / Sta Num : 48095412/
 USGS Quad: SALOL

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	3	162 N	38 W	485218.00	953256.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1935	2009	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	BENCH MARK DISK	NGS

Description: (1981) **Stamping:** P 209 1935

1.0 MILE EAST ON A RAILROAD FROM THE RAILROAD STATION AT SALOL, 49.5 FEET WEST OF RAILROAD MILEPOST 93, 78.0 FEET EAST OF COUNTY ROAD 13, 38.0 FEET NORTH OF THE NORTH RAIL OF THE RAILROAD TRACKS, 4.0 FEET EAST OF A POLE, AT A WITNESS POST.

Station Notes

10-15-2009 THE TIES FALL IN A DITCH. CONSIDER DESTROYED.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>							<u>Project Info</u>	
<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			
1074.420	.007	1/2				VERTICAL ADJUSTMENT	1991	00000025
<u>NGVD29</u>							<u>Project Info</u>	
<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			
1073.033	.033	3				VERTICAL CONTROL SURVEY	1974	USGS-VERT
1073.033	.007	1				VERTICAL CONTROL SURVEY	1941	Q480954
1073.033	.007	1				VERTICAL CONTROL SURVEY	1935	L56 MINN

Geoid Separations(ft): GEOID18 = -93.077 12B = -93.061 09 = -92.956 03 = -92.953

* No Horizontal Positions in the Database *



Mn/DOT Name: P 368
County: ROSEAU, MN (Sheet 2)

NGS Name: P 368

NGS ACRN: TC0513	Get Map
NGS Quad / Sta Num : 48095413/	
USGS Quad: MALUNG	

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NE	22	162 N	39 W	485054.14	953933.87	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1981	2018	GOOD	Horz=YES Vert=YES	YES		RECESSED 6 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
STEEL ROD (NO SLEEVE) (DEPTH 28 FT)	METAL ROD	NGS

Description: (2014) **Stamping:** P 368 1981

4.95 MILES EAST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND TRUNK HIGHWAY 89 AND TRUNK HIGHWAY 310 IN ROSEAU, AT TRUNK HIGHWAY 11 MILEPOINT 75.65, 103.0 FEET SOUTH OF TRUNK HIGHWAY 11, 174.0 FEET WEST OF 440TH AVENUE, 144.5 FEET WEST OF A TELEPHONE JUNCTION BOX, 1.0 FOOT EAST OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>	
1059.814	.016	2/1				VERTICAL ADJUSTMENT		2019	00000941	
1059.827	.016	2/1				VERTICAL CONTROL SURVEY		2015	VKTAD	
1059.827	.007	1/2				VERTICAL ADJUSTMENT		1991	00000025	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>	
1059.814	.131		967.390	.066	1996	GPS - STATIC		2021	HKTAD	
1059.814			967.232	.024	2011	HORIZONTAL ADJUSTMENT		2020	GPS3390	
1059.814			967.232	.024	2011	GPS - STATIC		2020	HKTAD	
1059.762	.262		967.213	.197	2011	GPS - RTRN		2014	RTRN2014	

Geoid Separations(ft): GEOID18 = -92.562 12B = -92.549 09 = -92.447 03 = -92.447

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>
48 50 54.14224	95 39 33.87175	618135.185	211473.856	.016		ADJUSTMENT		2020	GPS3390
48 50 54.14224	95 39 33.87175	618135.185	211473.856	.016	C	GPS - STATIC		2020	HKTAD
48 50 54.14238	95 39 33.87136	618135.211	211473.870	.131	3	GPS - RTRN		2014	RTRN2014

<u>NAD83(1996)</u>		<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>
48 50 54.14207	95 39 33.87236	618135.144	211473.839	.033	C	GPS - STATIC		2021	HKTAD

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>
2008456.482	1194895.674	1000338.135	17762466.893	.016		ADJUSTMENT		2020	GPS3390
2008456.482	1194895.674	1000338.135	17762466.893	.016	C	GPS - STATIC		2020	HKTAD
2008456.509	1194895.687	1000338.162	17762466.906	.131	3	GPS - RTRN		2014	RTRN2014

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>
2008456.441	1194895.658	1000338.094	17762466.877	.033	C	GPS - STATIC		2021	HKTAD



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/P_368-TC0513-3SE-27OCT2009.jpg	SE	Oct 27, 2009
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/P_368-TC0513-2-27OCT2009.jpg		Oct 27, 2009
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/P_368-TC0513-1-27OCT2009.jpg		Oct 27, 2009

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: PALMVIL MNDT

NGS Name: PALMVIL

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [AJ8660](#) [Get Map](#)
 NGS Quad / Sta Num : 48095424/
 USGS Quad: WANNASKA

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NW	6	159 N	39 W	483736.93	954402.95	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1998	2017	GOOD	Horz=YES Vert=YES	YES		FLUSH	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 10 FT)	SURVEY DISK	MNDT

Description: (1998) Stamping: PALMVIL 1998

2.2 MILES SOUTH OF WANNASKA, 2.2 MILES SOUTH ALONG TRUNK HIGHWAY 89 FROM THE JUNCTION OF TRUNK HIGHWAY 89 AND THE ROSEAU RIVER IN WANNASKA, AT TRUNK HIGHWAY 89 MILEPOINT 109.4, 112.0 FEET EAST OF TRUNK HIGHWAY 89, 40.0 FEET SOUTH OF 160TH STREET, 49.3 FEET EAST OF A CABLE MARKER, 2.4 FEET WEST OF A WITNESS POST.

Station Pair: SQUIRT RESET - ROSEAU, MN

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>	
1120.093	.016	2/1				2013	00000795	VERTICAL ADJUSTMENT		2013	00000795	
1120.096	.016	2/1				2013	VGATK	VERTICAL CONTROL SURVEY		2013	VGATK	
1120.096	.016	2/1				2004	00000425-2	VERTICAL ADJUSTMENT		2004	00000425-2	
1120.083	.016	2/1				2000	VGRYG	VERTICAL CONTROL SURVEY		2000	VGRYG	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>	
1120.093			1028.981	.008	2011	2018	GPS3232	HORIZONTAL ADJUSTMENT		2018	GPS3232	
1120.093			1028.981	.008	2011	2018	HGATK	GPS - STATIC		2018	HGATK	
1120.093	.131		1029.069	.066	1996	2018	HGATK	GPS - STATIC		2018	HGATK	
1120.142	.262		1029.014	.197	2011	2016	RTRN2016	GPS - RTRN		2016	RTRN2016	
1120.011	.262		1028.987	.197	2007	2012	RTRN2012	GPS - RTRN		2012	RTRN2012	
			1028.981	.008	2011	2012	GPS2800	HORIZONTAL ADJUSTMENT		2012	GPS2800	
			1029.086	.009	2007	2007	GPS2300	HORIZONTAL ADJUSTMENT		2007	GPS2300	
1120.076	.131		1029.069	.066	1996	2002	GPS1666	HORIZONTAL ADJUSTMENT		2002	GPS1666	
1120.076	.131		1029.069	.066	1996	2001	HGRYG	GPS - STATIC		2001	HGRYG	

Geoid Separations(ft): GEOID18 = -91.112 12B = -91.128 09 = -91.023 03 = -90.994

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Geodetic Position</u>		<u>Roseau County</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>			
48 37 36.93080	95 44 02.95095	600577.850	130570.494	.007		2018	GPS3232	ADJUSTMENT		
48 37 36.93080	95 44 02.95095	600577.850	130570.494	.007	C	2018	HGATK	GPS - STATIC		
48 37 36.93094	95 44 02.94948	600577.948	130570.509	.131	3	2016	RTRN2016	GPS - RTRN		
48 37 36.93080	95 44 02.95095	600577.850	130570.494	.010		2012	GPS2800	ADJUSTMENT		

<u>NAD83(2007)</u>		<u>Geodetic Position</u>		<u>Roseau County</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>			
48 37 36.93019	95 44 02.95151	600577.813	130570.432	.131	3	2012	RTRN2012	GPS - RTRN		
48 37 36.93106	95 44 02.95167	600577.801	130570.520	.010		2007	GPS2300	ADJUSTMENT		

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Roseau County</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>			
48 37 36.93094	95 44 02.95174	600577.797	130570.508	.033	C	2018	HGATK	GPS - STATIC		
48 37 36.93094	95 44 02.95174	600577.797	130570.508	.033	C	2002	GPS1666	ADJUSTMENT		
48 37 36.93094	95 44 02.95174	600577.798	130570.507	.033	C	2001	HGRYG	GPS - STATIC		

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1987714.949	1114751.055	979451.379	17682355.269	.007		ADJUSTMENT	2018	GPS3232
1987714.949	1114751.055	979451.379	17682355.269	.007	C	GPS - STATIC	2018	HGATK
1987715.049	1114751.066	979451.478	17682355.280	.131	3	GPS - RTRN	2016	RTRN2016
1987714.949	1114751.055	979451.379	17682355.269	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1987714.909	1114750.994	979451.339	17682355.209	.131	3	GPS - RTRN	2012	RTRN2012
1987714.902	1114751.083	979451.332	17682355.298	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1987714.897	1114751.071	979451.327	17682355.285	.033	C	GPS - STATIC	2018	HGATK
1987714.897	1114751.071	979451.327	17682355.285	.033	C	ADJUSTMENT	2002	GPS1666
1987714.897	1114751.071	979451.327	17682355.285	.033	C	GPS - STATIC	2001	HGRYG

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/PALMVIL-AJ8660-3S-05SEP2012.jpg	S	Sep 5, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/PALMVIL-AJ8660-2-05SEP2012.jpg		Sep 5, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/PALMVIL-AJ8660-1-05SEP2012.jpg		Sep 5, 2012

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: PINE RIDGE

NGS Name: PINE RIDGE

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0663](#) [Get Map](#)
 NGS Quad / Sta Num : 48095124/1036
 USGS Quad: WINTER ROAD LAKE NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	30	161 N	35 W	484402.61	951311.91		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1966	2020	GOOD	Horz=YES Vert=YES	YES		PROJECTS 3 IN.	STEEL ROD IMBED IN MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	TRIANGULATION STATION DISK	NGS

Description: (1966) **Stamping:** PINE RIDGE 1966

7.0 MILES SOUTHWEST OF ROOSEVELT, 9.9 MILES SOUTH ON COUNTY ROAD 5 FROM THE JUNCTION OF COUNTY ROAD 5 AND TRUNK HIGHWAY 11 AT WARROAD, THEN 3.0 MILES EAST ON TANGNES FOREST ROAD, THEN 1.45 MILES SOUTH ON DITCH 10 FOREST ROAD, THEN 2.1 MILES EAST ALONG BEDNAR FOREST ROAD, THEN 0.05 MILE SOUTH ON A DIM TRACK ROAD TO THE HIGHEST POINT ON A HILL, 1.6 MILES EAST OF THE PINE RIDGE CEMETERY, 93.1 FEET EAST OF PINE RIDGE RM 2, 93.0 FEET EAST OF A WITNESS POST, 85.5 FEET SOUTHWEST OF PINE RIDGE RM 1, 84.6 FEET SOUTH OF A WITNESS POST, 2.0 FEET NORTHWEST OF A WITNESS POST.

* No Leveling-Derived Orthometric Heights in the Database *

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1223.839	.262		1130.726	.197	2011	GPS - OPUS	2020	GPSBM
1223.823	.262		1130.710	.197	2011	GPS - OPUS	2020	GPSBM
1223.718	.262		1130.595	.197	2011	GPS - RTRN	2020	RTRN2020
			1130.618	.016	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
1223.751	.131		1130.733	.066	2007	HORIZONTAL ADJUSTMENT	2009	GPS2522
1223.751	.131		1130.733	.066	2007	GPS - STATIC	2008	HROSO
1223.751	.131		1130.762	.066	1996	GPS - STATIC	2008	HROSO
1220.470	.131		1127.842	.066	1996	HORIZONTAL ADJUSTMENT	1999	17648

NGVD29

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1220.142						DIGITIZED FROM MAP	1966	HORZ

Geoid Separations(ft): GEOID18 = -93.110 12B = -93.120 09 = -93.015 03 = -92.995

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Roseau County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 44 02.60610	95 13 11.90568	724457.003	170753.878	.131	3	GPS - OPUS	2020	GPSBM
48 44 02.60628	95 13 11.90543	724457.020	170753.897	.131	3	GPS - OPUS	2020	GPSBM
48 44 02.60629	95 13 11.90478	724457.063	170753.898	.131	3	GPS - RTRN	2020	RTRN2020
48 44 02.60670	95 13 11.90533	724457.026	170753.939	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Roseau County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 44 02.60680	95 13 11.90614	724456.971	170753.949	.033	C	ADJUSTMENT	2009	GPS2522
48 44 02.60680	95 13 11.90614	724456.971	170753.949	.033	C	GPS - STATIC	2008	HROSO

NAD83(1996)

Geodetic Position		Roseau County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 44 02.60684	95 13 11.90587	724456.989	170753.953	.033	C	GPS - STATIC	2008	HROSO
48 44 02.60671	95 13 11.90636	724456.957	170753.940	.033	1	ADJUSTMENT	1999	17648

NAD83(1986)

Geodetic Position		Roseau County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 44 02.59129	95 13 11.88211	724458.601	170752.397	.033	1	ADJUSTMENT	1986	17289

NAD27

Geodetic Position						Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 44 02.65434	95 13 11.04715			.100	1	CLASSICAL SURVEY	1977	15935

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2113083.006	1149999.416	1104879.845	17717387.071	.131	3	GPS - OPUS	2020	GPSBM
2113083.023	1149999.434	1104879.863	17717387.089	.131	3	GPS - OPUS	2020	GPSBM
2113083.066	1149999.434	1104879.906	17717387.088	.131	3	GPS - RTRN	2020	RTRN2020
2113083.031	1149999.476	1104879.871	17717387.131	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2113082.977	1149999.488	1104879.816	17717387.143	.033	C	ADJUSTMENT	2009	GPS2522
2113082.977	1149999.488	1104879.816	17717387.143	.033	C	GPS - STATIC	2008	HROSO

NAD83(1996)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2113082.995	1149999.491	1104879.835	17717387.147	.033	C	GPS - STATIC	2008	HROSO
2113082.962	1149999.479	1104879.802	17717387.134	.033	1	ADJUSTMENT	1999	17648

NAD83(1986)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2113084.544	1149997.872	1104881.381	17717385.525	.033	1	ADJUSTMENT	1986	17289

NAD27

MN State Plane - North Zone						Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1488457.669	821917.250			.100	1	CLASSICAL SURVEY	1977	15935

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/PINE_RIDGE-TC0663-3S-24JUN2020.jpg	S	Jun 24, 2020
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/PINE_RIDGE-TC0663-2-24JUN2020.jpg		Jun 24, 2020
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/PINE_RIDGE-TC0663-1-24JUN2020.jpg		Jun 24, 2020

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: PINE RIDGE AZ MK

NGS Name: PINE RIDGE AZ MK

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [CO8105](#) [Get Map](#)
 NGS Quad / Sta Num : 48095124/
 USGS Quad: WINTER ROAD LAKE NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	30	161 N	35 W	484405.42	951254.11		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1966	2009	GOOD	Horz=NO Vert=YES	YES		PROJECTS 3 IN.	STEEL ROD IMBED IN MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	AZIMUTH MARK DISK	NGS

Description: (2008) **Stamping:** PINE RIDGE 1966

7.0 MILES SOUTHWEST OF ROOSEVELT, 10.5 MILES SOUTH OF TRUNK HIGHWAY 11 FROM THE JUNCTION OF COUNTY ROAD 5 IN WARROAD, THEN 2.8 MILES SOUTHEAST AND EAST ON BEDNAR TRAIL TO A FORK, THEN 3.75 MILES NORTH AND EAST ON THE LEFT FORK, 13.0 FEET NORTH OF THE CENTER OF THE ROAD, 2.0 FEET WEST OF A METAL WITNESS POST, 1.8 MILES EAST OF A CEMETERY, 0.2 MILE EAST-NORTHEAST OF STATION PINE RIDGE.

Station Notes

DUE TO TREE COVER, THIS SURVEY MARK HAS BEEN ABANDONED FOR MNDOT GEODETIC HORIZONTAL SURVEYS.

* No Leveling-Derived Orthometric Heights in the Database *

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>
1216.992	.131		1123.869	.010	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800	
1216.992	.131		1123.977	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2833	
1216.992	.131		1123.977	.066	2007	GPS - STATIC	2011	HLOTW	
1216.992	.131		1124.007	.066	1996	GPS - STATIC	2011	HLOTW	
1217.025	.131		1123.977	.066	2007	HORIZONTAL ADJUSTMENT	2009	GPS2522	
1217.025	.131		1123.977	.066	2007	GPS - STATIC	2008	HROSO	
1217.025	.131		1124.007	.066	1996	GPS - STATIC	2008	HROSO	

Geoid Separations(ft): GEOID18 = -93.133 12B = -93.143 09 = -93.038 03 = -93.018

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 44 05.41640	95 12 54.10549	725646.777	171053.287	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 44 05.41647	95 12 54.10630	725646.722	171053.293	.033	C	ADJUSTMENT	2011	GPS2833
48 44 05.41647	95 12 54.10630	725646.722	171053.293	.033	C	GPS - STATIC	2011	HLOTW
48 44 05.41647	95 12 54.10630	725646.722	171053.293	.033	C	ADJUSTMENT	2009	GPS2522
48 44 05.41647	95 12 54.10630	725646.722	171053.293	.033	C	GPS - STATIC	2008	HROSO

NAD83(1996)

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 44 05.41651	95 12 54.10602	725646.741	171053.297	.033	C	GPS - STATIC	2011	HLOTW
48 44 05.41651	95 12 54.10602	725646.741	171053.297	.033	C	GPS - STATIC	2008	HROSO



State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - North Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2114283.686	1150251.443	1106080.834	17717637.026	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - North Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2114283.632	1150251.451	1106080.780	17717637.035	.033	C	ADJUSTMENT	2011	GPS2833
2114283.632	1150251.451	1106080.780	17717637.035	.033	C	GPS - STATIC	2011	HLOTW
2114283.632	1150251.451	1106080.780	17717637.035	.033	C	ADJUSTMENT	2009	GPS2522
2114283.632	1150251.451	1106080.780	17717637.035	.033	C	GPS - STATIC	2008	HROSO

NAD83(1996)

MN State Plane - North Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2114283.651	1150251.455	1106080.799	17717637.038	.033	C	GPS - STATIC	2011	HLOTW
2114283.651	1150251.455	1106080.799	17717637.038	.033	C	GPS - STATIC	2008	HROSO

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/PINE_RIDGE_AZ_MK-CO8105-3W-14MAY2007.jpg	W	May 14, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/PINE_RIDGE_AZ_MK-CO8105-2-14MAY2007.jpg		May 14, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/PINE_RIDGE_AZ_MK-CO8105-1-14MAY2007.jpg		May 14, 2007

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: PINE RIDGE RM 1

NGS Name: PINE RIDGE RM 1

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [CO8106](#) [Get Map](#)
 NGS Quad / Sta Num : 48095124/
 USGS Quad: WINTER ROAD LAKE NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	30	161 N	35 W	484403.30	951311.17		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1966	1966	GOOD	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

Description: **Stamping:** PINE RIDGE NO 1 1966

IT IS 2.0 FEET EAST OF A METAL WITNESS POST, 3.0 FEET SOUTHWEST OF THE PINE TREE AND 14.0 FEET EAST OF THE CENTER OF A TRACK ROAD.

* No Horizontal or Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -93.110 12B = -93.120 09 = -93.015 03 = -92.995



Mn/DOT Name: PINE RIDGE RM 2

NGS Name: PINE RIDGE RM 2

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [CO8107](#) [Get Map](#)
 NGS Quad / Sta Num : 48095124/
 USGS Quad: WINTER ROAD LAKE NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	30	161 N	35 W	484402.65	951313.29		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1966	1966	GOOD	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

Description: **Stamping:** PINE RIDGE NO 2 1966

IT IS 2.5 FEET NORTH OF A METAL WITNESS POST AND 159.0 FEET SOUTHWEST OF THE TRIANGULAR BLAZED PINE TREE.

* No Horizontal or Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -93.110 12B = -93.120 09 = -93.015 03 = -92.995



Mn/DOT Name: PRIVE MNDT
 County: ROSEAU, MN (Sheet 2)

NGS Name: PRIVE

NGS ACRN: [AI2028](#) [Get Map](#)
 NGS Quad / Sta Num : 48095141/
 USGS Quad: WARROAD

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	36	164 N	37 W	485851.83	952151.53	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1996	2012	GOOD	Horz=NO Vert=NO	YES		RECESSED 10 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
METAL ROD DRIVEN IN GROUND (<10 FT)	SURVEY DISK	MNDT

Description: (1996) **Stamping:** PRIVE 1996

5.0 MILES NORTH-NORTHWEST OF WARROAD, 4.95 MILES NORTH-NORTHWEST ALONG TRUNK HIGHWAY 313 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND TRUNK HIGHWAY 313 IN WARROAD, AT TRUNK HIGHWAY 313 MILEPOINT 4.95, 75.5 FEET EAST-NORTHEAST OF TRUNK HIGHWAY 313, 24.0 FEET NORTH-NORTHWEST OF 405TH STREET, 28.3 FEET WEST-SOUTHWEST OF THE WEST RAIL OF THE RAILROAD TRACKS, 14.4 FEET EAST OF A CABLE MARKER, 1.0 FOOT WEST-SOUTHWEST OF A WITNESS POST.

Station Notes

THE ROD DEPTH IS UNKNOWN. THE SURVEY MARK IS ON RAILROAD PROPERTY AND HAS BEEN ABANDONED FOR MNDOT GEODETIC USE.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1080.588	.016	2/1				VERTICAL ADJUSTMENT	2014	00000828
1080.588	.016	2/1				VERTICAL CONTROL SURVEY	2013	VHACK
1080.588	.016	2/1				VERTICAL ADJUSTMENT	2000	00000365
1080.588	.016	2/1				VERTICAL CONTROL SURVEY	1998	VWARR

NGVD29

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1079.181	.016	2/1				VERTICAL CONTROL SURVEY	1999	VWARR

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1080.500	.262		986.835	.197	2007	GPS - RTRN	2012	RTRN2012
			986.891	.011	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
			986.881	.017	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
1080.575	.131		986.862	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1795
1080.575	.131		986.862	.066	1996	GPS - STATIC	2002	HWARR
1080.608						GPS - STATIC	1996	HORZ

Geoid Separations(ft): GEOID18 = -93.766 12B = -93.743 09 = -93.665 03 = -93.727

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Roseau County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 58 51.83182	95 21 51.52218	688693.743	260482.007	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Roseau County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 58 51.83187	95 21 51.52488	688693.563	260482.010	.131	3	GPS - RTRN	2012	RTRN2012
48 58 51.83171	95 21 51.52621	688693.474	260481.993	.016		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Roseau County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 58 51.83166	95 21 51.52592	688693.494	260481.988	.033	C	ADJUSTMENT	2003	GPS1795
48 58 51.83166	95 21 51.52592	688693.494	260481.988	.033	C	GPS - STATIC	2002	HWARR

NAD83(1986)

Geodetic Position		Roseau County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 58 51.81683	95 21 51.49506	688695.568	260480.506	.033	C	GPS - STATIC	1996	HWARR

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2080901.280	1241075.170	1072863.598	17808509.249	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2080901.100	1241075.181	1072863.418	17808509.260	.131	3	GPS - RTRN	2012	RTRN2012
2080901.011	1241075.167	1072863.329	17808509.247	.016		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2080901.030	1241075.162	1072863.348	17808509.241	.033	C	ADJUSTMENT	2003	GPS1795
2080901.030	1241075.162	1072863.348	17808509.241	.033	C	GPS - STATIC	2002	HWARR

NAD83(1986)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2080903.044	1241073.599	1072865.359	17808507.675	.033	C	GPS - STATIC	1996	HWARR

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/PRIVE-AI2028-3NE-10OCT2012.jpg	NE	Oct 10, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/PRIVE-AI2028-2-10OCT2012.jpg		Oct 10, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/PRIVE-AI2028-1-10OCT2012.jpg		Oct 10, 2012

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: Q 202

NGS Name: Q 202

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0404](#) [Get Map](#)
 NGS Quad / Sta Num : 48095413/
 USGS Quad: MALUNG

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	19	162 N	39 W	485039.00	954445.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1935	2006	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	BENCH MARK DISK	CGS

Description: (2017) Stamping: Q 202 1935

1.0 MILE EAST ON A RAILROAD FROM THE RAILROAD STATION AT ROSEAU, 48.0 FEET SOUTH OF THE SOUTH RAIL OF A RAILROAD, 40.0 FEET EAST OF A ROAD, AT A RIGHT-OF-WAY FENCE CORNER, AT A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1052.527	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1051.156	.007	1					VERTICAL CONTROL SURVEY	1941	Q480954	
1051.156	.007	1					VERTICAL CONTROL SURVEY	1935	L56 MINN	

Geoid Separations(ft): GEOID18 = -92.165 12B = -92.168 09 = -92.047 03 = -92.037

* No Horizontal Positions in the Database *



Mn/DOT Name: Q 209

NGS Name: Q 209

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0393](#) [Get Map](#)
 NGS Quad / Sta Num : 48095412/
 USGS Quad: SALOL

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	9	162 N	38 W	485203.00	953401.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1935	2009	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	BENCH MARK DISK	NGS

Description: (1981) Stamping: Q 209 1935

AT SALOL, 66.0 FEET EAST OF THE NORTHEAST CORNER OF THE RAILROAD STATION, OPPOSITE RAILROAD MILEPOST 92, 18.0 FEET SOUTH OF THE SOUTH RAIL OF THE RAILROAD TRACKS, AT A WITNESS POST.

Station Notes

10-15-2009 PULLED THE TIES, USED THE MAGNETIC LOCATOR, AND PROBED, FOUND NOTHING. MOST LIKELY GRADED OUT WHEN THE STATION WAS REMOVED, AND THE GROUNDS LANDSCAPED.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1078.279	.007	1/2				VERTICAL ADJUSTMENT	1991	00000025	

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1076.891	.007	1				VERTICAL CONTROL SURVEY	1941	Q480954	
1076.891	.007	1				VERTICAL CONTROL SURVEY	1935	L56 MINN	

Geoid Separations(ft): GEOID18 = -92.999 12B = -92.985 09 = -92.880 03 = -92.877

* No Horizontal Positions in the Database *



Mn/DOT Name: Q 368

NGS Name: Q 368

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0514](#) [Get Map](#)
 NGS Quad / Sta Num : 48095413/
 USGS Quad: MALUNG

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	16	162 N	39 W	485055.76	954050.48	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1981	2015	GOOD	Horz=NO Vert=YES	YES		RECESSED 5 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
STEEL ROD (NO SLEEVE) (DEPTH 28 FT)	METAL ROD	NGS

Description: (2014) **Stamping:** Q 368 1981

4.0 MILES EAST OF ROSEAU, 4.05 MILES EAST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND TRUNK HIGHWAY 89 AND TRUNK HIGHWAY 310 IN ROSEAU, 151.0 FEET NORTH OF TRUNK HIGHWAY 11, 26.0 FEET WEST 430TH AVENUE, 5.5 FEET WEST OF A TELEPHONE JUNCTION BOX NUMBER 403 1, 1.0 FOOT EAST-NORTHEAST OF A WITNESS POST.

Station Notes

THE RAILROAD TRACKS HAVE BEEN REMOVED.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1059.040	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	
1059.050	.016	2/1					VERTICAL CONTROL SURVEY	2015	VKTAD	
1059.050	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1059.007	.262			966.550	.197	2011	GPS - RTRN	2014	RTRN2014	
				966.612	.007	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800	
				966.724	.008	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300	
1059.050	.131			966.812	.066	1996	HORIZONTAL ADJUSTMENT	2001	GPS1526-1	

Geoid Separations(ft): GEOID18 = -92.467 12B = -92.457 09 = -92.467 03 = -92.349

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>			<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>			<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
<u>Latitude</u>	<u>Longitude</u>									
48 50 55.75867	95 40 50.47592		613010.239	211605.403	.131	3	GPS - RTRN	2014	RTRN2014	
48 50 55.75862	95 40 50.47497		613010.302	211605.398	.013		ADJUSTMENT	2012	GPS2800	

<u>NAD83(2007)</u>			<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>			<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
<u>Latitude</u>	<u>Longitude</u>									
48 50 55.75871	95 40 50.47591		613010.239	211605.407	.013		ADJUSTMENT	2007	GPS2300	

<u>NAD83(1996)</u>			<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>			<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
<u>Latitude</u>	<u>Longitude</u>									
48 50 55.75819	95 40 50.47616		613010.223	211605.354	.033	C	ADJUSTMENT	2001	GPS1526-1	



State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - North Zone		UTM - Zone 15			Project Info			
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2003340.672	1195229.749	995222.894	17762810.448	.131	3	GPS - RTRN	2014	RTRN2014
2003340.736	1195229.741	995222.957	17762810.441	.013		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - North Zone		UTM - Zone 15			Project Info			
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2003340.673	1195229.753	995222.895	17762810.452	.013		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - North Zone		UTM - Zone 15			Project Info			
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2003340.655	1195229.700	995222.876	17762810.400	.033	C	ADJUSTMENT	2001	GPS1526-1

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/Q_368-TC0514-3W-24JUN2014.jpg	W	Jun 24, 2014
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/Q_368-TC0514-2-24JUN2014.jpg		Jun 24, 2014
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/Q_368-TC0514-1-24JUN2014.jpg		Jun 24, 2014

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: Q=1066

NGS Name: 1066

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0422](#) [Get Map](#)
 NGS Quad / Sta Num : 48095413/
 USGS Quad: MALUNG

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	29	162 N	39 W	484941.00	954326.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1907	2007	NOT FOUND	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
PIPE (CAPPED) DRIVEN IN GROUND (<10 FT)	PIPE CAP	USGS

Description: (1966) Stamping: 1066

2.0 MILES SOUTHEAST OF ROSEAU, 0.4 MILE SOUTH OF THE NORTHWEST CORNER OF SECTION 29, ALONG A ROAD TO CEDARBEND, AT A CURVE TO THE SOUTHEAST, 84.0 FEET EAST OF A HOUSE, 25.0 FEET EAST OF A NORTH-SOUTH ROAD.

Station Notes

THE TIES FALL IN A DITCH BOTTOM.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1063.846	.033	3				VERTICAL CONTROL SURVEY	1974	USGS-VERT	
1064.000	.007	1				VERTICAL CONTROL SURVEY	1941	Q480954	
1064.000	.007	1				VERTICAL CONTROL SURVEY	1935	L56 MINN	

Geoid Separations(ft): GEOID18 = -92.231 12B = -92.231 09 = -92.119 03 = -92.109

* No Horizontal Positions in the Database *



Mn/DOT Name: R 208

NGS Name: R 208

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0313](#) [Get Map](#)
 NGS Quad / Sta Num : 48095113/
 USGS Quad: SWIFT

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	26	162 N	35 W	484854.00	950737.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1935	1972	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	BENCH MARK DISK	NGS

Description: (1972) Stamping: R 208 1935

1.0 MILE EAST OF ROOSEVELT, 1.5 MILES NORTHWEST ALONG KIRKWOOD DRIVE FROM THE JUNCTION OF KIRKWOOD DRIVE AND 1ST STREET IN ROOSEVELT.

Station Notes

THE STATION WAS DESTROYED.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1147.786	.007	1				VERTICAL CONTROL SURVEY	1993	POSTED	

NGVD29

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1146.376	.007	1				VERTICAL CONTROL SURVEY	1941	Q480951	
1146.376	.007	1				VERTICAL CONTROL SURVEY	1935	L56 MINN	

Geoid Separations(ft): GEOID18 = -94.104 12B = -94.094 09 = -93.999 03 = -93.983

* No Horizontal Positions in the Database *



Mn/DOT Name: R 208 RESET

NGS Name: R 208 RESET

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0314](#) [Get Map](#)
 NGS Quad / Sta Num : 48095113/
 USGS Quad: SWIFT

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	26	162 N	35 W	484854.55	950736.86	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1972	2012	GOOD	Horz=NO Vert=YES	YES		RECESSED 6 IN.	MARKER IS STEEL ROD

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
COPPER CLAD ROD (NO SLEEVE) (DEPTH 24 FT)	VERTICAL CONTROL DISK	NGS

Description: (1981) Stamping: R 208 RESET 1972

1.65 MILES NORTHWEST OF ROOSEVELT, 0.85 MILE NORTHWEST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND COUNTY ROAD 42 (697TH AVENUE) IN ROOSEVELT, TO TRUNK HIGHWAY 11 MILEPOINT 104.45, THEN 0.1 MILE NORTHEAST ON 690TH AVENUE, THEN 0.8 MILE NORTHWEST ON KIRKWOOD DRIVE (OLD TRUNK HIGHWAY 11), 30.6 FEET NORTHWEST OF KIRKWOOD DRIVE (OLD TRUNK HIGHWAY 11), 17.7 FEET NORTHEAST OF 685TH AVENUE, 3.8 FEET SOUTHWEST OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1147.038	.016	2/1					VERTICAL ADJUSTMENT	2014	00000828	
1147.038	.016	2/1					VERTICAL CONTROL SURVEY	2013	VHACK	
1147.038	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1145.657	.007	1/2					UNKNOWN/APPROXIMATE	1992	UNCHECKD	
1145.657	.016	2					VERTICAL CONTROL SURVEY	1973	Q480951	
1145.657	.016	2					VERTICAL CONTROL SURVEY	1973	L22862	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1147.038	.262			1053.036	.197	2007	GPS - RTRN	2012	RTRN2012	

Geoid Separations(ft): GEOID18 = -94.107 12B = -94.098 09 = -94.002 03 = -93.986

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2007)</u>		<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
48 48 54.54742	95 07 36.85745	746520.104	200627.587	.131	3	GPS - RTRN	2012	RTRN2012	

State Plane and UTM Coordinates (Feet)

<u>NAD83(2007)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - North Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
2136312.530	1178975.066	1128156.080	17746319.285	.131	3	GPS - RTRN	2012	RTRN2012	

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/R_208_RESET-TC0314-3NE-10OCT2012.jpg	NE	Oct 10, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/R_208_RESET-TC0314-2-10OCT2012.jpg		Oct 10, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/R_208_RESET-TC0314-1-10OCT2012.jpg		Oct 10, 2012

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: R 209

NGS Name: R 209

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0344](#) [Get Map](#)
 NGS Quad / Sta Num : 48095141/
 USGS Quad: WARROAD

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	32	163 N	36 W	485402.87	951911.80	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1935	2012	GOOD	Horz=NO Vert=YES	YES		PROJECTS 4 IN.	STEEL ROD IMBED IN MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	BENCH MARK DISK	NGS

Description: (1981) **Stamping:** R 209 1935

AT WARROAD, 0.25 MILE SOUTH ON TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND LAKE STREET, 85.0 FEET SOUTH OF WASHINGTON STREET, 36.0 FEET EAST OF TRUNK HIGHWAY 11 (STATE AVENUE), AT TRUNK HIGHWAY 11 MILEPOINT 92.9, 2.5 FEET SOUTH OF THE SOUTH EDGE OF A SIDEWALK TO A HOUSE, 8.0 FEET EAST OF THE EAST EDGE OF A NORTH SOUTH SIDEWALK.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
1069.010	.016	2/1				VERTICAL ADJUSTMENT	2014	00000828		
1069.010	.016	2/1				VERTICAL CONTROL SURVEY	2013	VHACK		
1069.010	.016	2/1				VERTICAL ADJUSTMENT	2006	00000425-12		
1069.010	.016	2/1				VERTICAL CONTROL SURVEY	2005	VTURN		
1069.010	.007	1/2				VERTICAL ADJUSTMENT	1991	00000025		

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
1067.649	.007	1/2				UNKNOWN/APPROXIMATE	1992	UNCHECKD		
1067.649	.033	3				VERTICAL CONTROL SURVEY	1974	USGS-VERT		
1067.649	.016	2				VERTICAL CONTROL SURVEY	1973	Q480951		
1067.649	.016	2				VERTICAL CONTROL SURVEY	1973	L22862		
1067.019	.007	1				VERTICAL CONTROL SURVEY	1941	Q480951		
1067.019	.007	1				VERTICAL CONTROL SURVEY	1935	L56 MINN		

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
1069.033	.262		975.575	.197	2007	GPS - RTRN	2012	RTRN2012		

Geoid Separations(ft): GEOID18 = -93.514 12B = -93.514 09 = -93.458 03 = -93.435

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2007)</u>			<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
48 54 02.87273	95 19 11.80323		699667.595	231309.529	.131	3	GPS - RTRN	2012	RTRN2012	

State Plane and UTM Coordinates (Feet)

<u>NAD83(2007)</u>			<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - North Zone</u>			<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
<u>X</u>	<u>Y</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
2090711.717	1211489.824		1082618.772	17778909.852	.131	3	GPS - RTRN	2012	RTRN2012	

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/R_209-TC0344-3E-13OCT2009.jpg	E	Oct 13, 2009
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/R_209-TC0344-2-09OCT2012.jpg		Oct 9, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/R_209-TC0344-1-09OCT2012.jpg		Oct 9, 2012

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: R 209 A

NGS Name: R 209 A

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DI2098](#) [Get Map](#)
 NGS Quad / Sta Num : 48095141/
 USGS Quad: WARROAD

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	5	162 N	36 W	485246.30	951909.40	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1966	2003	GOOD	Horz=NO Vert=YES	YES	7228	FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
BRIDGE ABUTMENT	BENCH MARK DISK	MNDT

Description: (2003) **Stamping:** R 209 A 2003

1.5 MILES SOUTH OF WARROAD, IN THE ABUTMENT OF THE SOUTHEAST CORNER OF COUNTY ROAD 5 BRIDGE NUMBER 7228 OVER THE WARROAD RIVER EAST BRANCH, 1.3 MILES SOUTH ALONG COUNTY ROAD 5 FROM THE JUNCTION OF COUNTY ROAD 5 AND TRUNK HIGHWAY 11 IN WARROAD, 20.0 FEET EAST OF COUNTY ROAD 5.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1078.512	.016	2/1					VERTICAL ADJUSTMENT	2006	00000425-12	
1078.508	.016	2/1					VERTICAL CONTROL SURVEY	2005	VTURN	

Geoid Separations(ft): GEOID18 = -93.428 12B = -93.418 09 = -93.363 03 = -93.336

* No Horizontal Positions in the Database *

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/R_209_A-DI2098-3E-31AUG2005.jpg	E	Aug 31, 2005
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/R_209_A-DI2098-2-31AUG2005.jpg		Aug 31, 2005
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/R_209_A-DI2098-1-31AUG2005.jpg		Aug 31, 2005

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: R 368

NGS Name: R 368

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0516](#) [Get Map](#)
 NGS Quad / Sta Num : 48095413/
 USGS Quad: MALUNG

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	18	162 N	39 W	485054.30	954405.70	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1981	2023	GOOD	Horz=NO Vert=YES	YES		RECESSED 6 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
STEEL ROD (IN SLEEVE) (DEPTH 48 FT)	METAL ROD	NGS

Description: (2009) Stamping: R 368 1981

IN ROSEAU, 1.55 MILES EAST ON TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND TRUNK HIGHWAY 89 IN ROSEAU, AT TRUNK HIGHWAY 11 MILEPOINT 72.25, 190.0 FEET NORTH OF TRUNK HIGHWAY 11, 64.3 FEET EAST-SOUTHEAST OF THE SOUTHWEST CORNER OF THE EVANGELICAL COVENANT CHURCH, 129.5 FEET NORTHEAST OF A TELEPHONE JUNCTION BOX, 24.4 FEET SOUTH-SOUTHEAST OF THE SOUTHEAST CORNER OF THE BRICK PART OF THE CHURCH, 40.0 FEET WEST OF A LIGHT POLE, 38.2 FEET SOUTHEAST OF THE CENTER OF 2 DOORS TO THE CHURCH ENTRANCE, 3.0 FEET NORTH OF THE EDGE OF A BITUMINOUS PARKING LOT.

Station Notes

DUE TO TREE COVER, THIS SURVEY MARK HAS BEEN ABANDONED FOR MNDOT GEODETIC HORIZONTAL SURVEYS.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1051.789	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941
1051.809	.016	2/1				VERTICAL CONTROL SURVEY	2015	VKTAD
1051.809	.016	2/1				VERTICAL ADJUSTMENT	2013	00000795
1051.809	.016	2/1				VERTICAL CONTROL SURVEY	2013	VGATK
1051.809	.016	2/1				VERTICAL ADJUSTMENT	2009	00000591
1051.809	.016	2/1				VERTICAL CONTROL SURVEY	2006	VROXA
1051.809	.007	1/2				VERTICAL ADJUSTMENT	2004	00000425-2
1051.809	.016	2/1				VERTICAL CONTROL SURVEY	2000	VGRYG
1051.809	.007	1/2				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1050.434	.033	3				VERTICAL CONTROL SURVEY	1987	CS6803

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1051.737	.262		959.516	.197	2011	GPS - RTRN	2014	RTRN2014
1051.799	.262		959.693	.197	2007	GPS - RTRN	2012	RTRN2012
			959.595	.009	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
			959.709	.010	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
1051.802	.131		959.703	.066	1996	HORIZONTAL ADJUSTMENT	2002	GPS1666
1051.802	.131		959.703	.066	1996	GPS - STATIC	2001	HGRYG

Geoid Separations(ft): GEOID18 = -92.221 12B = -92.224 09 = -92.103 03 = -92.096

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Roseau County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 50 54.30202	95 44 05.70092	599952.815	211381.979	.131	3	GPS - RTRN	2014	RTRN2014
48 50 54.30262	95 44 05.70089	599952.816	211382.040	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Roseau County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 50 54.30241	95 44 05.69993	599952.880	211382.019	.131	3	GPS - RTRN	2012	RTRN2012
48 50 54.30269	95 44 05.70184	599952.753	211382.046	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Roseau County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 50 54.30226	95 44 05.70171	599952.761	211382.003	.033	C	ADJUSTMENT	2002	GPS1666
48 50 54.30226	95 44 05.70171	599952.760	211382.002	.033	C	GPS - STATIC	2001	HGRYG

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1990284.440	1195522.666	982166.902	17763127.667	.131	3	GPS - RTRN	2014	RTRN2014
1990284.444	1195522.726	982166.906	17763127.727	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1990284.508	1195522.703	982166.970	17763127.704	.131	3	GPS - RTRN	2012	RTRN2012
1990284.381	1195522.736	982166.843	17763127.736	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1990284.388	1195522.692	982166.850	17763127.693	.033	C	ADJUSTMENT	2002	GPS1666
1990284.388	1195522.692	982166.850	17763127.693	.033	C	GPS - STATIC	2001	HGRYG

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/R_368-TC0516-3W-26JUL2023.jpg	W	Jul 26, 2023
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/R_368-TC0516-2-26JUL2023.jpg		Jul 26, 2023
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/R_368-TC0516-1-26JUL2023.jpg		Jul 26, 2023

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: R 368 A

NGS Name: R 368 A

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DK7911](#) [Get Map](#)
 NGS Quad / Sta Num : 48095413/
 USGS Quad: MALUNG

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	17	162 N	39 W	485053.90	954301.20	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2006	2014	DESTROYED	Horz=NO Vert=NO	YES		FLUSH	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	SURVEY DISK	MNDT

Description: (2006) **Stamping:** R 368 A 2006

2.0 MILES EAST OF ROSEAU, 2.0 MILES EAST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND MAIN AVENUE NORTH IN ROSEAU, AT TRUNK HIGHWAY 11 MILEPOINT 73, 64.3 FEET NORTH OF TRUNK HIGHWAY 11, 33.2 FEET EAST OF A DRIVEWAY, 1.0 FOOT WEST OF A WITNESS POST.

Station Notes

THE DISK WAS TURNED IN TO THE OFFICE.
 THE STATION WAS RESET.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1056.382	.016	2/1					VERTICAL ADJUSTMENT	2009	00000591	
1056.396	.016	2/1					VERTICAL CONTROL SURVEY	2006	VROXA	

Geoid Separations(ft): GEOID18 = -92.303 12B = -92.303 09 = -92.188 03 = -92.178

* No Horizontal Positions in the Database *

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/R_368_A-DK7911-3N-27OCT2009.jpg	N	Oct 27, 2009
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/R_368_A-DK7911-2-27OCT2009.jpg		Oct 27, 2009
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/R_368_A-DK7911-1-27OCT2009.jpg		Oct 27, 2009

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: R 368 A RESET

NGS Name: R 368 A RESET

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DP9473](#) [Get Map](#)
 NGS Quad / Sta Num : 48095413/
 USGS Quad: MALUNG

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	17	162 N	39 W	485053.73	954301.14	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2018	GOOD	Horz=YES Vert=YES	YES		RECESSED 5 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 25 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: **Stamping:** R 368 A 2006 2014

2.0 MILES EAST OF ROSEAU, 2.35 MILES EAST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND TRUNK HIGHWAY 89/TRUNK HIGHWAY 310 IN ROSEAU, AT TRUNK HIGHWAY MILEPOINT 73.0, 64.3 FEET NORTH OF TRUNK HIGHWAY 11, 33.2 FEET EAST OF A DRIVEWAY, 1.0 FOOT WEST OF A WITNESS POST.

Station Pair: S 368 - ROSEAU, MN

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>	
1056.166	.016	2/1				2019	00000941	VERTICAL ADJUSTMENT				
1056.186	.016	2/1				2015	VKTAD	VERTICAL CONTROL SURVEY				

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>	
1056.166	.131		964.089	.066	1996	2021	HKTAD	GPS - STATIC				
1056.166			963.922	.018	2011	2020	GPS3390	HORIZONTAL ADJUSTMENT				
1056.166			963.922	.018	2011	2020	HKTAD	GPS - STATIC				
1056.186			963.922	.024	2011	2018	GPS3119	HORIZONTAL ADJUSTMENT				
1056.304	.131		964.089	.066	1996	2017	HMNCORS07	GPS - STATIC				
1056.186			963.922	.024	2011	2017	HMNPH	GPS - STATIC				
1056.067	.262		963.768	.197	2011	2015	RTRN2015	GPS - RTRN				
1056.064	.262		963.764	.197	2011	2014	RTRN2014	GPS - RTRN				

Geoid Separations(ft): GEOID18 = -92.303 12B = -92.303 09 = -92.188 03 = -92.178

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Geodetic Position</u>				<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>		
48 50 53.72743	95 43 01.13967	604271.565	211347.780	.010		2020	GPS3390	ADJUSTMENT					
48 50 53.72743	95 43 01.13967	604271.565	211347.780	.010	C	2020	HKTAD	GPS - STATIC					
48 50 53.72743	95 43 01.13967	604271.565	211347.780	.013		2018	GPS3119	ADJUSTMENT					
48 50 53.72743	95 43 01.13967	604271.565	211347.780	.013	C	2017	HMNPH	GPS - STATIC					
48 50 53.72720	95 43 01.14045	604271.513	211347.756	.131	3	2015	RTRN2015	GPS - RTRN					
48 50 53.72788	95 43 01.13961	604271.569	211347.825	.131	3	2014	RTRN2014	GPS - RTRN					

<u>NAD83(1996)</u>		<u>Geodetic Position</u>				<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>		
48 50 53.72738	95 43 01.14024	604271.527	211347.774	.033	C	2021	HKTAD	GPS - STATIC					
48 50 53.72738	95 43 01.14024	604271.527	211347.774	.033	C	2017	HMNCORS07	GPS - STATIC					

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1994598.524	1195317.784	986480.733	17762914.735	.010		ADJUSTMENT	2020	GPS3390
1994598.524	1195317.784	986480.733	17762914.735	.010	C	GPS - STATIC	2020	HKTAD
1994598.524	1195317.784	986480.733	17762914.735	.013		ADJUSTMENT	2018	GPS3119
1994598.524	1195317.784	986480.733	17762914.735	.013	C	GPS - STATIC	2017	HMNPH
1994598.471	1195317.763	986480.680	17762914.714	.131	3	GPS - RTRN	2015	RTRN2015
1994598.529	1195317.830	986480.738	17762914.781	.131	3	GPS - RTRN	2014	RTRN2014

NAD83(1996)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1994598.486	1195317.781	986480.694	17762914.731	.033	C	GPS - STATIC	2021	HKTAD
1994598.486	1195317.781	986480.694	17762914.731	.033	C	GPS - STATIC	2017	HMNCORS07

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/R_368_A_RESET-DP9473-3N-24SEP2018.jpg	N	Sep 24, 2018
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/R_368_A_RESET-DP9473-2-24SEP2018.jpg		Sep 24, 2018
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/R_368_A_RESET-DP9473-1-24SEP2018.jpg		Sep 24, 2018

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: R=1078

NGS Name: 1078

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0421](#) [Get Map](#)
 NGS Quad / Sta Num : 48095413/
 USGS Quad: MALUNG

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	3	161 N	39 W	484817.00	953957.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1907	1966	GOOD	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
PIPE (CAPPED) DRIVEN IN GROUND (<10 FT)	PIPE CAP	USGS

Description: (1966) Stamping: 1078

2.0 MILES WEST OF THE ABANDONED SITE OF G00S, 20.0 FEET SOUTH OF A ROAD, 20.0 FEET NORTH OF A LARGE BOULDER.

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1076.258	.033	3				VERTICAL CONTROL SURVEY	1974	USGS-VERT	
1076.258	.007	1				VERTICAL CONTROL SURVEY	1941	Q480954	
1076.258	.007	1				VERTICAL CONTROL SURVEY	1935	L56 MINN	

Geoid Separations(ft): GEOID18 = -92.401 12B = -92.395 09 = -92.296 03 = -92.293

* No Horizontal Positions in the Database *



Mn/DOT Name: RCHD 19

NGS Name: RCHD 19

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DL2362](#) [Get Map](#)
 NGS Quad / Sta Num : 48095414/
 USGS Quad: SALOL NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	27	164 N	39 W	485933.82	953938.92		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2008	2020	GOOD	Horz=YES Vert=YES	YES		RECESSED 3 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 29 FT)	SURVEY DISK	MN-135

Description: (2008) Stamping: 19 2008

11.0 MILES NORTH-NORTHEAST OF ROSEAU, 6.0 MILES NORTH ON TRUNK HIGHWAY 310 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND TRUNK HIGHWAY 310 IN ROSEAU, THEN 2.0 MILES EAST ON 370TH STREET, THEN 5.0 MILES NORTH-NORTHEAST ON 410TH AVENUE, 362.0 FEET EAST OF A BRIDGE, 51.9 FEET NORTH OF A GRAVEL ROAD, 15.1 FEET EAST OF 410TH AVENUE EXTENDED, 13.0 FEET NORTH OF THE EAST END OF A CULVERT, 3.4 FEET WEST OF A WITNESS POST.

* No Leveling-Derived Orthometric Heights in the Database *

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1053.882	.262		961.225	.197	2011	GPS - OPUS	2020	GPSBM
1053.971	.262		961.314	.197	2011	GPS - OPUS	2020	GPSBM
1054.135	.262		961.468	.197	2011	GPS - RTRN	2020	RTRN2020
			961.215	.008	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
1053.902	.131		961.324	.066	2007	HORIZONTAL ADJUSTMENT	2009	GPS2522
1053.902	.131		961.324	.066	2007	GPS - STATIC	2008	HROSO
1053.902	.131		961.324	.066	1996	GPS - STATIC	2008	HROSO

Geoid Separations(ft): GEOID18 = -92.657 12B = -92.667 09 = -92.546 03 = -92.585

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

<u>Geodetic Position</u>		<u>Roseau County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 59 33.81857	95 39 38.92262	617459.151	264141.714	.131	3	GPS - OPUS	2020	GPSBM
48 59 33.81760	95 39 38.92183	617459.205	264141.617	.131	3	GPS - OPUS	2020	GPSBM
48 59 33.81848	95 39 38.92394	617459.063	264141.705	.131	3	GPS - RTRN	2020	RTRN2020
48 59 33.81865	95 39 38.92159	617459.220	264141.723	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

<u>Geodetic Position</u>		<u>Roseau County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 59 33.81880	95 39 38.92225	617459.176	264141.738	.033	C	ADJUSTMENT	2009	GPS2522
48 59 33.81880	95 39 38.92225	617459.176	264141.738	.033	C	GPS - STATIC	2008	HROSO

NAD83(1996)

<u>Geodetic Position</u>		<u>Roseau County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 59 33.81873	95 39 38.92195	617459.196	264141.731	.033	C	GPS - STATIC	2008	HROSO

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2009863.468	1247550.897	1001844.541	17815118.487	.131	3	GPS - OPUS	2020	GPSBM
2009863.517	1247550.797	1001844.590	17815118.387	.131	3	GPS - OPUS	2020	GPSBM
2009863.380	1247550.890	1001844.453	17815118.481	.131	3	GPS - RTRN	2020	RTRN2020
2009863.537	1247550.903	1001844.610	17815118.493	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2009863.493	1247550.919	1001844.567	17815118.509	.033	C	ADJUSTMENT	2009	GPS2522
2009863.493	1247550.919	1001844.567	17815118.509	.033	C	GPS - STATIC	2008	HROSO

NAD83(1996)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2009863.513	1247550.911	1001844.587	17815118.502	.033	C	GPS - STATIC	2008	HROSO

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RCHD_19-DL2362-3N-24JUN2020.jpg	N	Jun 24, 2020
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RCHD_19-DL2362-2-24JUN2020.jpg		Jun 24, 2020
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RCHD_19-DL2362-1-24JUN2020.jpg		Jun 24, 2020

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: RCHD 20

NGS Name: RCHD 20

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DL2363](#) [Get Map](#)
 NGS Quad / Sta Num : 48095414/
 USGS Quad: SALOL NW

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NW	21	163 N	39 W	485604.63	954209.46		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2008	2021	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 24 FT)	SURVEY DISK	MN-135

Description: (2008) Stamping: 20 2008

6.7 MILES NORTHEAST OF ROSEAU, 6.0 MILES NORTH ON TRUNK HIGHWAY 310 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND TRUNK HIGHWAY 310 IN ROSEAU, THEN 3.0 MILES EAST ON 370TH STREET, 15.0 FEET SOUTH OF 370TH STREET, 45.0 FEET EAST OF THE SOUTH END OF A CULVERT, 1.0 FOOT EAST OF A WITNESS POST.

* No Leveling-Derived Orthometric Heights in the Database *

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>	
1042.521	.262		950.106	.197	2011	GPS - OPUS		2021	GPSBM	
1042.488	.262		950.074	.197	2011	GPS - OPUS		2021	GPSBM	
1042.485	.262		950.070	.197	2011	GPS - RTRN		2021	RTRN2021	
			950.028	.007	2011	HORIZONTAL ADJUSTMENT		2012	GPS2800	
1042.452	.131		950.136	.066	2007	HORIZONTAL ADJUSTMENT		2009	GPS2522	
1042.452	.131		950.136	.066	2007	GPS - STATIC		2008	HROSO	
1042.452	.131		950.136	.066	1996	GPS - STATIC		2008	HROSO	

Geoid Separations(ft): GEOID18 = -92.415 12B = -92.415 09 = -92.290 03 = -92.313

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>
48 56 04.63355	95 42 09.46447	607543.029	242878.488	.131	3	GPS - OPUS		2021	GPSBM
48 56 04.63380	95 42 09.46472	607543.012	242878.513	.131	3	GPS - OPUS		2021	GPSBM
48 56 04.63461	95 42 09.46307	607543.122	242878.596	.131	3	GPS - RTRN		2021	RTRN2021
48 56 04.63441	95 42 09.46324	607543.110	242878.575	.007		ADJUSTMENT		2012	GPS2800

NAD83(2007)

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>
48 56 04.63457	95 42 09.46386	607543.069	242878.591	.033	C	ADJUSTMENT		2009	GPS2522
48 56 04.63457	95 42 09.46386	607543.069	242878.591	.033	C	GPS - STATIC		2008	HROSO

NAD83(1996)

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>
48 56 04.63438	95 42 09.46368	607543.081	242878.572	.033	C	GPS - STATIC		2008	HROSO

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1999113.951	1226695.350	991055.331	17794284.089	.131	3	GPS - OPUS	2021	GPSBM
1999113.935	1226695.376	991055.315	17794284.115	.131	3	GPS - OPUS	2021	GPSBM
1999114.048	1226695.454	991055.428	17794284.193	.131	3	GPS - RTRN	2021	RTRN2021
1999114.036	1226695.434	991055.416	17794284.173	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1999113.995	1226695.452	991055.375	17794284.191	.033	C	ADJUSTMENT	2009	GPS2522
1999113.995	1226695.452	991055.375	17794284.191	.033	C	GPS - STATIC	2008	HROSO

NAD83(1996)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1999114.006	1226695.432	991055.386	17794284.171	.033	C	GPS - STATIC	2008	HROSO

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RCHD_20-DL2363-3S-05OCT2021.jpg	S	Oct 5, 2021
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RCHD_20-DL2363-2-05OCT2021.jpg		Oct 5, 2021
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RCHD_20-DL2363-1-05OCT2021.jpg		Oct 5, 2021

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: RCHD 26

NGS Name: RCHD 26

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DL2369](#) [Get Map](#)
 NGS Quad / Sta Num : 48095424/
 USGS Quad: WANNASKA

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NW	34	160 N	39 W	483825.82	954009.76		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2008	2020	DESTROYED	Horz=NO Vert=NO	YES		RECESSED 2 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 14 FT)	SURVEY DISK	MN-135

Description: (2008) Stamping: 26 2008

3.2 MILES SOUTHEAST OF WANNASKA, 3.0 MILES EAST ON COUNTY ROAD 4 FROM THE JUNCTION OF TRUNK HIGHWAY 89 AND COUNTY ROAD 4 IN WANNASKA, 343.5 FEET SOUTH OF COUNTY ROAD 4 (170TH STREET), 53.0 FEET EAST OF 430TH AVENUE, 22.0 FEET SOUTH OF A FIELD ENTRANCE, 10.0 FEET EAST-SOUTHEAST OF THE SOUTH END OF A CULVERT, 4.0 FEET NORTH OF A WITNESS POST.

Station Notes

THE SURVEY MARK WAS HIT AND BENT OVER TOO FAR.

* No Leveling-Derived Orthometric Heights in the Database *

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1128.712	.262		1037.249	.197	2011	GPS - RTRN	2020	RTRN2020
			1036.871	.010	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
1128.311	.131		1036.980	.066	2007	HORIZONTAL ADJUSTMENT	2009	GPS2522
1128.311	.131		1036.980	.066	2007	GPS - STATIC	2008	HROSO
1128.311	.131		1036.973	.066	1996	GPS - STATIC	2008	HROSO

Geoid Separations(ft): GEOID18 = -91.447 12B = -91.460 09 = -91.358 03 = -91.315

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

<u>Geodetic Position</u>		<u>Roseau County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 38 25.82532	95 40 09.76426	616212.827	135617.952	.131	3	GPS - RTRN	2020	RTRN2020
48 38 25.82486	95 40 09.76397	616212.847	135617.905	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

<u>Geodetic Position</u>		<u>Roseau County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 38 25.82506	95 40 09.76477	616212.793	135617.925	.033	C	ADJUSTMENT	2009	GPS2522
48 38 25.82506	95 40 09.76477	616212.793	135617.925	.033	C	GPS - STATIC	2008	HROSO

NAD83(1996)

<u>Geodetic Position</u>		<u>Roseau County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 38 25.82501	95 40 09.76478	616212.792	135617.920	.033	C	GPS - STATIC	2008	HROSO

State Plane and UTM Coordinates (Feet)

NAD83(2011)

<u>MN State Plane - North Zone</u>		<u>UTM - Zone 15</u>					<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2003536.488	1119176.287	995281.980	17686753.302	.131	3	GPS - RTRN	2020	RTRN2020
2003536.506	1119176.239	995281.997	17686753.254	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

<u>MN State Plane - North Zone</u>		<u>UTM - Zone 15</u>					<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2003536.453	1119176.262	995281.944	17686753.277	.033	C	ADJUSTMENT	2009	GPS2522
2003536.453	1119176.262	995281.944	17686753.277	.033	C	GPS - STATIC	2008	HROSO

NAD83(1996)

<u>MN State Plane - North Zone</u>		<u>UTM - Zone 15</u>					<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2003536.452	1119176.256	995281.943	17686753.271	.033	C	GPS - STATIC	2008	HROSO



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RCHD_26-DL2369-3E-25JUN2020.jpg	E	Jun 25, 2020
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RCHD_26-DL2369-2-25JUN2020.jpg		Jun 25, 2020
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RCHD_26-DL2369-1-25JUN2020.jpg		Jun 25, 2020

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: RCHD 27

NGS Name: RCHD 27

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DL2370](#) [Get Map](#)
 NGS Quad / Sta Num : 48095421/
 USGS Quad: WANNASKA NE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	1	160 N	39 W	484155.91	953635.24		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2008	2020	GOOD	Horz=YES Vert=YES	YES		RECESSED 1 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 21 FT)	SURVEY DISK	MN-135

Description: (2008) Stamping: 27 2008

5.0 MILES NORTHEAST OF WANNASKA, 3.0 MILES NORTH-NORTHWEST ALONG TRUNK HIGHWAY 89 FROM THE JUNCTION OF COUNTY ROAD 4 WEST AND TRUNK HIGHWAY 89 IN WANNASKA, THEN 5.8 MILES EAST ON COUNTY ROAD 20 (210TH STREET), 69.8 FEET SOUTH OF COUNTY ROAD 20 (210TH STREET), 15.7 FEET WEST OF A FIELD ENTRANCE, 2.6 FEET EAST OF A WITNESS POST.

* No Leveling-Derived Orthometric Heights in the Database *

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1108.144	.262		1016.048	.197	2011	GPS - OPUS	2020	GPSBM
1108.108	.262		1016.012	.197	2011	GPS - OPUS	2020	GPSBM
1108.216	.262		1016.130	.197	2011	GPS - RTRN	2020	RTRN2020
			1015.936	.008	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
1108.036	.131		1016.045	.066	2007	HORIZONTAL ADJUSTMENT	2009	GPS2522
1108.036	.131		1016.045	.066	2007	GPS - STATIC	2008	HROSO
1108.036	.131		1016.038	.066	1996	GPS - STATIC	2008	HROSO

Geoid Separations(ft): GEOID18 = -92.096 12B = -92.086 09 = -92.011 03 = -91.968

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 41 55.91162	95 36 35.24134	630470.252	157005.987	.131	3	GPS - OPUS	2020	GPSBM
48 41 55.91198	95 36 35.24152	630470.240	157006.023	.131	3	GPS - OPUS	2020	GPSBM
48 41 55.91223	95 36 35.24050	630470.308	157006.049	.131	3	GPS - RTRN	2020	RTRN2020
48 41 55.91169	95 36 35.24087	630470.283	157005.994	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 41 55.91188	95 36 35.24170	630470.228	157006.013	.033	C	ADJUSTMENT	2009	GPS2522
48 41 55.91188	95 36 35.24170	630470.228	157006.013	.033	C	GPS - STATIC	2008	HROSO

NAD83(1996)

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 41 55.91182	95 36 35.24165	630470.231	157006.007	.033	C	GPS - STATIC	2008	HROSO



State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2018627.950	1139983.040	1010410.681	17707534.737	.131	3	GPS - OPUS	2020	GPSBM
2018627.939	1139983.077	1010410.670	17707534.774	.131	3	GPS - OPUS	2020	GPSBM
2018628.008	1139983.100	1010410.740	17707534.797	.131	3	GPS - RTRN	2020	RTRN2020
2018627.981	1139983.046	1010410.713	17707534.744	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2018627.926	1139983.067	1010410.658	17707534.765	.033	C	ADJUSTMENT	2009	GPS2522
2018627.926	1139983.067	1010410.658	17707534.765	.033	C	GPS - STATIC	2008	HROSO

NAD83(1996)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2018627.930	1139983.061	1010410.661	17707534.758	.033	C	GPS - STATIC	2008	HROSO

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RCHD_27-DL2370-3S-25JUN2020.jpg	S	Jun 25, 2020
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RCHD_27-DL2370-2-25JUN2020.jpg		Jun 25, 2020
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RCHD_27-DL2370-1-25JUN2020.jpg		Jun 25, 2020

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: RCHD 28

NGS Name: RCHD 28

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DL2371](#) [Get Map](#)
 NGS Quad / Sta Num : 48095424/
 USGS Quad: WANNASKA

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SW	3	160 N	39 W	484157.80	954012.75		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2008	2022	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE)	SURVEY DISK	MN-135

Description: (2008) Stamping: 28 2008

2.0 MILES NORTH ON TRUNK HIGHWAY 89 FROM THE JUNCTION OF TRUNK HIGHWAY 89 AND COUNTY ROAD 4 (WEST) /COUNTY ROAD 128 (EAST), THEN 3.0 MILES EAST ON COUNTY ROAD 20 (210TH STREET), 113.0 FEET NORTHEAST OF 210TH STREET AND 430TH AVENUE, 54.0 FEET SOUTHWEST OF A UTILITY POLE, 3.5 FEET WEST OF A WITNESS POST.

Station Notes

THE ROD DEPTH IS UNKNOWN.

* No Leveling-Derived Orthometric Heights in the Database *

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1097.330	.262		1005.454	.197	2011	GPS - OPUS	2022	GPSBM
1097.501	.262		1005.625	.197	2011	GPS - RTRN	2022	RTRN2022
			1005.415	.009	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
1097.308	.131		1005.520	.066	2007	HORIZONTAL ADJUSTMENT	2009	GPS2522
1097.308	.131		1005.520	.066	2007	GPS - STATIC	2008	HROSO
1097.308	.131		1005.516	.066	1996	GPS - STATIC	2008	HROSO

Geoid Separations(ft): GEOID18 = -91.880 12B = -91.870 09 = -91.791 03 = -91.762

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 41 57.80191	95 40 12.74707	615877.194	157099.884	.131	3	GPS - OPUS	2022	GPSBM
48 41 57.80265	95 40 12.74652	615877.231	157099.959	.131	3	GPS - RTRN	2022	RTRN2022
48 41 57.80224	95 40 12.74671	615877.218	157099.917	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 41 57.80245	95 40 12.74751	615877.165	157099.938	.033	C	ADJUSTMENT	2009	GPS2522
48 41 57.80245	95 40 12.74751	615877.165	157099.938	.033	C	GPS - STATIC	2008	HROSO

NAD83(1996)

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 41 57.80237	95 40 12.74750	615877.165	157099.930	.033	C	GPS - STATIC	2008	HROSO

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2004050.437	1140653.896	995833.694	17708231.381	.131	3	GPS - OPUS	2022	GPSBM
2004050.477	1140653.970	995833.734	17708231.455	.131	3	GPS - RTRN	2022	RTRN2022
2004050.463	1140653.929	995833.719	17708231.414	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2004050.410	1140653.952	995833.666	17708231.437	.033	C	ADJUSTMENT	2009	GPS2522
2004050.410	1140653.952	995833.666	17708231.437	.033	C	GPS - STATIC	2008	HROSO

NAD83(1996)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2004050.410	1140653.944	995833.667	17708231.429	.033	C	GPS - STATIC	2008	HROSO

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RCHD_28-DL2371-3N-17JUN2008.jpg	N	Jun 17, 2008
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RCHD_28-DL2371-2-17JUN2008.jpg		Jun 17, 2008
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RCHD_28-DL2371-1-17JUN2008.jpg		Jun 17, 2008

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: RCHD 29
County: ROSEAU, MN (Sheet 2)

NGS Name: RCHD 29

NGS ACRN: [DL2372](#) [Get Map](#)
NGS Quad / Sta Num : 48095413/
USGS Quad: MALUNG

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NW	32	162 N	39 W	484908.46	954325.70		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2008	2008	GOOD	Horz=YES Vert=YES	YES		RECESSED 4 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 24 FT)	SURVEY DISK	MN-135

Description: (2008) Stamping: 29 2008

2.0 MILES SOUTHEAST OF ROSEAU, 1.0 MILE EAST ON TRUNK HIGHWAY 11 FROM THE JUNCTION OF COUNTY ROAD 24 AND TRUNK HIGHWAY 11, THEN 2.0 MILES SOUTH ON COUNTY ROAD 28 (410TH AVENUE), 93.0 FEET EAST OF 410TH AVENUE, 44.0 FEET SOUTH OF COUNTY ROAD 124 (280TH STREET), 31.0 FEET SOUTHWEST OF A FIELD ENTRANCE, 3.2 FEET NORTH OF A WITNESS POST.

* No Leveling-Derived Orthometric Heights in the Database *

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
1057.380	.131		965.152	.007	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800		
1057.380	.131		965.267	.066	2007	HORIZONTAL ADJUSTMENT	2009	GPS2522		
1057.380	.131		965.267	.066	2007	GPS - STATIC	2008	HROSO		
1057.380	.131		965.270	.066	1996	GPS - STATIC	2008	HROSO		

Geoid Separations(ft): GEOID18 = -92.208 12B = -92.205 09 = -92.093 03 = -92.086

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Geodetic Position</u>		<u>Roseau County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 49 08.46303	95 43 25.70231	602688.277	200669.942	.007		ADJUSTMENT	2012	GPS2800

<u>NAD83(2007)</u>		<u>Geodetic Position</u>		<u>Roseau County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 49 08.46312	95 43 25.70321	602688.217	200669.950	.033	C	ADJUSTMENT	2009	GPS2522
48 49 08.46312	95 43 25.70321	602688.217	200669.950	.033	C	GPS - STATIC	2008	HROSO

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Roseau County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 49 08.46299	95 43 25.70305	602688.228	200669.937	.033	C	GPS - STATIC	2008	HROSO

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>		<u>MN State Plane - North Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1992594.383	1184710.772	984456.846	17752311.094	.007		ADJUSTMENT	2012	GPS2800

<u>NAD83(2007)</u>		<u>MN State Plane - North Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1992594.323	1184710.783	984456.786	17752311.106	.033	C	ADJUSTMENT	2009	GPS2522
1992594.323	1184710.783	984456.786	17752311.106	.033	C	GPS - STATIC	2008	HROSO

<u>NAD83(1996)</u>		<u>MN State Plane - North Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1992594.333	1184710.770	984456.797	17752311.092	.033	C	GPS - STATIC	2008	HROSO



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RCHD_29-DL2372-3N-04JUN2008.jpg	N	Jun 4, 2008
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RCHD_29-DL2372-2-04JUN2008.jpg		Jun 4, 2008
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RCHD_29-DL2372-1-04JUN2008.jpg		Jun 4, 2008

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: RCHD 30

NGS Name: RCHD 30

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DL2373](#) [Get Map](#)
 NGS Quad / Sta Num : 48095142/
 USGS Quad: WARROAD SE

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SW	13	162 N	37 W	485036.05	952226.62		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2008	2008	GOOD	Horz=NO Vert=NO	YES		PROJECTS 2 IN.	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 16 FT)	SURVEY DISK	MN-135

Description: (2008) Stamping: 30 2008

4.8 MILES SOUTHWEST OF WARROAD, 3.75 MILES SOUTH ON COUNTY ROAD 35 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND COUNTY ROAD 35, THEN 1.0 MILE WEST ON COUNTY ROAD 134 (320TH STREET), THEN 1.0 MILE SOUTH ON 570TH AVENUE, 74.0 FEET NORTHEAST OF 310TH STREET AND 570TH AVENUE, 7.0 FEET SOUTH OF A WITNESS POST.

Station Notes

DO NOT USE: THE SURVEY MARK IS TO BE RESET AT A LATER DATE.

* No Leveling-Derived Orthometric Heights in the Database *

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1092.255	.131		999.027	.011	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
1092.255	.131		999.132	.066	2007	HORIZONTAL ADJUSTMENT	2009	GPS2522
1092.255	.131		999.132	.066	2007	GPS - STATIC	2008	HROSO
1092.255	.131		999.142	.066	1996	GPS - STATIC	2008	HROSO

Geoid Separations(ft): GEOID18 = -93.231 12B = -93.192 09 = -93.117 03 = -93.120

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 50 36.04945	95 22 26.62114	686864.056	210211.334	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 50 36.04954	95 22 26.62190	686864.005	210211.342	.033	C	ADJUSTMENT	2009	GPS2522
48 50 36.04954	95 22 26.62190	686864.005	210211.342	.033	C	GPS - STATIC	2008	HROSO

NAD83(1996)

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 50 36.04955	95 22 26.62166	686864.021	210211.343	.033	C	GPS - STATIC	2008	HROSO

State Plane and UTM Coordinates (Feet)

NAD83(2011)

<u>MN State Plane - North Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2077082.487	1190914.748	1068954.071	17758361.378	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

<u>MN State Plane - North Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2077082.436	1190914.759	1068954.021	17758361.388	.033	C	ADJUSTMENT	2009	GPS2522
2077082.436	1190914.759	1068954.021	17758361.388	.033	C	GPS - STATIC	2008	HROSO

NAD83(1996)

<u>MN State Plane - North Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2077082.452	1190914.759	1068954.037	17758361.389	.033	C	GPS - STATIC	2008	HROSO



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RCHD_30-DL2373-3E-15JUN2008.jpg	E	Jun 15, 2008
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RCHD_30-DL2373-2-15JUN2008.jpg		Jun 15, 2008
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RCHD_30-DL2373-1-15JUN2008.jpg		Jun 15, 2008

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: RCHD 31

NGS Name: RCHD 31

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DL2374](#) [Get Map](#)
 NGS Quad / Sta Num : 48095142/
 USGS Quad: WARROAD SE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	23	162 N	36 W	484951.37	951552.30		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2008	2021	GOOD	Horz=YES Vert=YES	YES		RECESSED 4 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 19 FT)	SURVEY DISK	MN-135

Description: (2008) Stamping: 31 2008

5.0 MILES SOUTHEAST OF WARROAD, 3.1 MILES SOUTHEAST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF COUNTY ROAD 5 AND TRUNK HIGHWAY 11 IN WARROAD, THEN 2.7 MILES SOUTH ON COUNTY ROAD 12 (620TH AVENUE), 33.0 FEET EAST OF COUNTY ROAD 12, 16.7 FEET SOUTH OF A FIELD ENTRANCE, 17.0 FEET WEST OF A WITNESS POST.

* No Leveling-Derived Orthometric Heights in the Database *

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>							<u>Project Info</u>	
<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			
1127.708	.262		1034.211	.197	2011	GPS - OPUS	2021	GPSBM
1127.701	.262		1034.204	.197	2011	GPS - OPUS	2021	GPSBM
1127.583	.262		1034.086	.197	2011	GPS - RTRN	2021	RTRN2021
			1034.089	.009	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
1127.590	.131		1034.194	.066	2007	HORIZONTAL ADJUSTMENT	2009	GPS2522
1127.590	.131		1034.194	.066	2007	GPS - STATIC	2008	HROSO
1127.590	.131		1034.217	.066	1996	GPS - STATIC	2008	HROSO

Geoid Separations(ft): GEOID18 = -93.497 12B = -93.455 09 = -93.386 03 = -93.395

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>							<u>Project Info</u>		
<u>Geodetic Position</u>		<u>Roseau County</u>			<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>						
48 49 51.36895	95 15 52.29792	713293.961	205970.798	.131	3	GPS - OPUS	2021	GPSBM	
48 49 51.36924	95 15 52.29785	713293.965	205970.828	.131	3	GPS - OPUS	2021	GPSBM	
48 49 51.36917	95 15 52.29711	713294.015	205970.821	.131	3	GPS - RTRN	2021	RTRN2021	
48 49 51.36960	95 15 52.29735	713293.998	205970.865	.007		ADJUSTMENT	2012	GPS2800	

<u>NAD83(2007)</u>							<u>Project Info</u>		
<u>Geodetic Position</u>		<u>Roseau County</u>			<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>						
48 49 51.36969	95 15 52.29811	713293.947	205970.873	.033	C	ADJUSTMENT	2009	GPS2522	
48 49 51.36969	95 15 52.29811	713293.947	205970.873	.033	C	GPS - STATIC	2008	HROSO	

<u>NAD83(1996)</u>							<u>Project Info</u>		
<u>Geodetic Position</u>		<u>Roseau County</u>			<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>						
48 49 51.36971	95 15 52.29785	713293.964	205970.875	.033	C	GPS - STATIC	2008	HROSO	

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2103323.998	1185630.769	1095183.549	17753031.456	.131	3	GPS - OPUS	2021	GPSBM
2103324.003	1185630.798	1095183.555	17753031.485	.131	3	GPS - OPUS	2021	GPSBM
2103324.053	1185630.789	1095183.604	17753031.477	.131	3	GPS - RTRN	2021	RTRN2021
2103324.038	1185630.833	1095183.589	17753031.521	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2103323.987	1185630.844	1095183.539	17753031.531	.033	C	ADJUSTMENT	2009	GPS2522
2103323.987	1185630.844	1095183.539	17753031.531	.033	C	GPS - STATIC	2008	HROSO

NAD83(1996)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2103324.005	1185630.846	1095183.556	17753031.533	.033	C	GPS - STATIC	2008	HROSO

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RCHD_31-DL2374-3E-05OCT2021.jpg	E	Oct 5, 2021
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RCHD_31-DL2374-2-05OCT2021.jpg		Oct 5, 2021
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RCHD_31-DL2374-1-05OCT2021.jpg		Oct 5, 2021

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: RCHD 32

NGS Name: RCHD 32

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DL2375](#) [Get Map](#)
 NGS Quad / Sta Num : 48095113/
 USGS Quad: SWIFT

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	4	162 N	35 W	485219.79	951004.65		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2008	2021	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 23 FT)	SURVEY DISK	MN-135

Description: (2008) Stamping: 32 2008

5.0 MILES NORTHWEST OF ROOSEVELT, 5.0 MILES NORTH ALONG COUNTY ROAD 17 FROM THE JUNCTION OF COUNTY ROAD 17 AND TRUNK HIGHWAY 11 IN ROOSEVELT, THEN 3.5 MILES WEST ALONG COUNTY ROAD 12 (330TH STREET), 58.0 FEET NORTH OF COUNTY ROAD 12/330TH STREET, 32.1 FEET WEST OF 665TH AVENUE EXTENDED, 2.0 FEET EAST OF A WITNESS POST.

* No Leveling-Derived Orthometric Heights in the Database *

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1069.768	.262		975.503	.197	2011	GPS - OPUS	2022	GPSBM
1069.630	.262		975.366	.197	2011	GPS - OPUS	2021	GPSBM
1069.565	.262		975.300	.197	2011	GPS - RTRN	2021	RTRN2021
1069.509	.262		975.366	.197	2007	GPS - RTRN	2012	RTRN2012
			975.303	.009	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
1069.552	.131		975.408	.066	2007	HORIZONTAL ADJUSTMENT	2009	GPS2522
1069.552	.131		975.408	.066	2007	GPS - STATIC	2008	HROSO
1069.552	.131		975.431	.066	1996	GPS - STATIC	2008	HROSO

Geoid Separations(ft): GEOID18 = -94.265 12B = -94.229 09 = -94.144 03 = -94.137

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 52 19.79040	95 10 04.65427	736360.205	221297.479	.131	3	GPS - OPUS	2022	GPSBM
48 52 19.79029	95 10 04.65445	736360.193	221297.468	.131	3	GPS - OPUS	2021	GPSBM
48 52 19.79100	95 10 04.65338	736360.263	221297.540	.131	3	GPS - RTRN	2021	RTRN2021
48 52 19.79090	95 10 04.65342	736360.261	221297.530	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 52 19.79070	95 10 04.65459	736360.183	221297.509	.131	3	GPS - RTRN	2012	RTRN2012
48 52 19.79098	95 10 04.65416	736360.211	221297.538	.033	C	ADJUSTMENT	2009	GPS2522
48 52 19.79098	95 10 04.65416	736360.211	221297.538	.033	C	GPS - STATIC	2008	HROSO

NAD83(1996)

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 52 19.79100	95 10 04.65390	736360.229	221297.540	.033	C	GPS - STATIC	2008	HROSO

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2126979.765	1200031.676	1118861.349	17767388.852	.131	3	GPS - OPUS	2022	GPSBM
2126979.753	1200031.665	1118861.336	17767388.842	.131	3	GPS - OPUS	2021	GPSBM
2126979.826	1200031.735	1118861.410	17767388.912	.131	3	GPS - RTRN	2021	RTRN2021
2126979.823	1200031.725	1118861.407	17767388.902	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2126979.745	1200031.707	1118861.328	17767388.883	.131	3	GPS - RTRN	2012	RTRN2012
2126979.774	1200031.735	1118861.357	17767388.911	.033	C	ADJUSTMENT	2009	GPS2522
2126979.774	1200031.735	1118861.357	17767388.911	.033	C	GPS - STATIC	2008	HROSO

NAD83(1996)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2126979.792	1200031.736	1118861.375	17767388.913	.033	C	GPS - STATIC	2008	HROSO

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RCHD_32-DL2375-3N-05OCT2021.jpg	N	Oct 5, 2021
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RCHD_32-DL2375-2-05OCT2021.jpg		Oct 5, 2021
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RCHD_32-DL2375-1-05OCT2021.jpg		Oct 5, 2021

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: RCHD 33

NGS Name: RCHD 33

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DL2376](#) [Get Map](#)
 NGS Quad / Sta Num : 48095411/
 USGS Quad: SALOL NE

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SE	9	163 N	38 W	485637.96	953259.24		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2008	2020	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 18 FT)	SURVEY DISK	MN-135

Description: (2008) Stamping: 33 2008

5.5 MILES NORTHEAST OF SALOL, 3.0 MILES EAST-NORTHEAST ON TRUNK HIGHWAY 11 FROM THE JUNCTION OF COUNTY ROAD 13 AND TRUNK HIGHWAY 11 IN SALOL, THEN 4.1 MILES NORTH ON 520TH AVENUE, THEN 3.0 MILES WEST ON 380TH STREET, 26.0 FEET SOUTHWEST OF THE WEST END OF A CULVERT, 18.2 FEET WEST OF A GRAVEL ROAD, 15.2 FEET NORTH OF 380TH STREET EXTENDED, 10.1 FEET SOUTH OF A WITNESS POST.

* No Leveling-Derived Orthometric Heights in the Database *

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1059.735	.262		966.625	.197	2011	GPS - OPUS	2020	GPSBM
1059.752	.262		966.642	.197	2011	GPS - OPUS	2020	GPSBM
1059.768	.262		966.638	.197	2011	GPS - RTRN	2020	RTRN2020
			966.553	.009	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
1059.676	.131		966.661	.066	2007	HORIZONTAL ADJUSTMENT	2009	GPS2522
1059.676	.131		966.661	.066	2007	GPS - STATIC	2008	HROSO
1059.676	.131		966.661	.066	1996	GPS - STATIC	2008	HROSO

Geoid Separations(ft): GEOID18 = -93.107 12B = -93.126 09 = -93.015 03 = -93.012

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 56 37.95598	95 32 59.23774	644256.984	246508.343	.131	3	GPS - OPUS	2020	GPSBM
48 56 37.95576	95 32 59.23766	644256.990	246508.320	.131	3	GPS - OPUS	2020	GPSBM
48 56 37.95585	95 32 59.23962	644256.859	246508.329	.131	3	GPS - RTRN	2020	RTRN2020
48 56 37.95559	95 32 59.23648	644257.069	246508.304	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 56 37.95570	95 32 59.23715	644257.024	246508.315	.033	C	ADJUSTMENT	2009	GPS2522
48 56 37.95570	95 32 59.23715	644257.024	246508.315	.033	C	GPS - STATIC	2008	HROSO

NAD83(1996)

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 56 37.95561	95 32 59.23693	644257.039	246508.306	.033	C	GPS - STATIC	2008	HROSO

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2035944.202	1228870.579	1027888.350	17796389.609	.131	3	GPS - OPUS	2020	GPSBM
2035944.206	1228870.557	1027888.355	17796389.587	.131	3	GPS - OPUS	2020	GPSBM
2035944.076	1228870.570	1027888.224	17796389.600	.131	3	GPS - RTRN	2020	RTRN2020
2035944.285	1228870.537	1027888.433	17796389.567	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2035944.240	1228870.549	1027888.388	17796389.579	.033	C	ADJUSTMENT	2009	GPS2522
2035944.240	1228870.549	1027888.388	17796389.579	.033	C	GPS - STATIC	2008	HROSO

NAD83(1996)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2035944.255	1228870.540	1027888.403	17796389.570	.033	C	GPS - STATIC	2008	HROSO

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RCHD_33-DL2376-3W-24JUN2020.jpg	W	Jun 24, 2020
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RCHD_33-DL2376-2-24JUN2020.jpg		Jun 24, 2020
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RCHD_33-DL2376-1-24JUN2020.jpg		Jun 24, 2020

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: RCHD 34

NGS Name: RCHD 34

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DL2377](#) [Get Map](#)
 NGS Quad / Sta Num : 48095421/
 USGS Quad: WANNASKA NE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	30	160 N	38 W	483854.30	953457.24		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2008	2020	GOOD	Horz=YES Vert=YES	YES		RECESSED 3 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 18 FT)	SURVEY DISK	MN-135

Description: (2008) Stamping: 34 2008

7.0 MILES SOUTHEAST OF WANNASKA, 7.0 MILES EAST ON COUNTY ROAD 4 (170TH STREET) FROM THE JUNCTION OF TRUNK HIGHWAY 89 AND COUNTY ROAD 4 IN WANNASKA, THEN 0.5 MILE NORTH ON COUNTY ROAD 138 (470TH AVENUE), 44.6 FEET WEST OF COUNTY ROAD 138, 16.2 FEET SOUTH OF A FIELD ENTRANCE, 3.8 FEET NORTH OF A WITNESS POST.

* No Leveling-Derived Orthometric Heights in the Database *

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>			<u>Orthometric Height</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>						
1142.865	.262		1051.071	.197	2011	2020	GPSBM						
1143.029	.262		1051.228	.197	2011	2020	RTRN2020						
			1050.985	.008	2011	2012	GPS2800						
1142.780	.131		1051.094	.066	2007	2009	GPS2522						
1142.780	.131		1051.094	.066	2007	2008	HROSO						
1142.780	.131		1051.087	.066	1996	2008	HROSO						

Geoid Separations(ft): GEOID18 = -91.791 12B = -91.801 09 = -91.706 03 = -91.653

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>			<u>Geodetic Position</u>				<u>Roseau County</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>Order (/Class)</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
48 38 54.29778	95 34 57.24462		637181.637	138647.892	.131	3	GPS - OPUS	2020	GPSBM		
48 38 54.29795	95 34 57.24356		637181.709	138647.910	.131	3	GPS - RTRN	2020	RTRN2020		
48 38 54.29829	95 34 57.24380		637181.692	138647.944	.010		ADJUSTMENT	2012	GPS2800		

<u>NAD83(2007)</u>			<u>Geodetic Position</u>				<u>Roseau County</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>Order (/Class)</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
48 38 54.29841	95 34 57.24465		637181.635	138647.956	.033	C	ADJUSTMENT	2009	GPS2522		
48 38 54.29841	95 34 57.24465		637181.635	138647.956	.033	C	GPS - STATIC	2008	HROSO		

<u>NAD83(1996)</u>			<u>Geodetic Position</u>				<u>Roseau County</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>Order (/Class)</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
48 38 54.29844	95 34 57.24451		637181.644	138647.959	.033	C	GPS - STATIC	2008	HROSO		

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>			<u>MN State Plane - North Zone</u>				<u>UTM - Zone 15</u>			<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>Order (/Class)</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
2024607.784	1121374.536		1016358.259	17688915.106	.131	3	GPS - OPUS	2020	GPSBM		
2024607.855	1121374.551		1016358.330	17688915.121	.131	3	GPS - RTRN	2020	RTRN2020		
2024607.841	1121374.586		1016358.315	17688915.156	.010		ADJUSTMENT	2012	GPS2800		

<u>NAD83(2007)</u>			<u>MN State Plane - North Zone</u>				<u>UTM - Zone 15</u>			<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>Order (/Class)</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
2024607.784	1121374.600		1016358.259	17688915.170	.033	C	ADJUSTMENT	2009	GPS2522		
2024607.784	1121374.600		1016358.259	17688915.170	.033	C	GPS - STATIC	2008	HROSO		

<u>NAD83(1996)</u>			<u>MN State Plane - North Zone</u>				<u>UTM - Zone 15</u>			<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>Order (/Class)</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
2024607.793	1121374.603		1016358.268	17688915.173	.033	C	GPS - STATIC	2008	HROSO		



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RCHD_34-DL2377-3W-25JUN2020.jpg	W	Jun 25, 2020
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RCHD_34-DL2377-2-25JUN2020.jpg		Jun 25, 2020
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RCHD_34-DL2377-1-25JUN2020.jpg		Jun 25, 2020

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: RCHD 35

NGS Name: RCHD 35

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DL2378](#) [Get Map](#)
 NGS Quad / Sta Num : 48095423/
 USGS Quad: WANNASKA SW

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SE	17	159 N	39 W	483500.35	954124.90		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2008	2021	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 12 FT)	SURVEY DISK	MN-135

Description: (2008) Stamping: 35 2008

5.0 MILES SOUTHEAST OF WANNASKA, 5.2 MILES SOUTH ALONG TRUNK HIGHWAY 89 FROM THE BRIDGE IN WANNASKA, THEN 2.0 MILES EAST ON COUNTY ROAD 18 (130TH STREET), 33.0 FEET SOUTHWEST OF A UTILITY POLE, 23.2 FEET WEST OF COUNTY ROAD 18 EXTENDED, 16.9 FEET NORTH OF COUNTY ROAD 18, 9.0 FEET SOUTH OF THE WEST END OF A CULVERT, 3.0 FEET SOUTHEAST OF A WITNESS POST.

* No Leveling-Derived Orthometric Heights in the Database *

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1163.301	.262		1072.475	.197	2011	GPS - OPUS	2021	GPSBM
1163.328	.262		1072.501	.197	2011	GPS - OPUS	2021	GPSBM
1163.311	.262		1072.481	.197	2011	GPS - RTRN	2021	RTRN2021
			1072.432	.008	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
1163.285	.131		1072.537	.066	2007	HORIZONTAL ADJUSTMENT	2009	GPS2522
1163.285	.131		1072.537	.066	2007	GPS - STATIC	2008	HROSO
1163.285	.131		1072.524	.066	1996	GPS - STATIC	2008	HROSO

Geoid Separations(ft): GEOID18 = -90.827 12B = -90.827 09 = -90.731 03 = -90.728

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Roseau County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 35 00.34670	95 41 24.89784	611292.141	114762.294	.131	3	GPS - OPUS	2021	GPSBM
48 35 00.34652	95 41 24.89820	611292.117	114762.276	.131	3	GPS - OPUS	2021	GPSBM
48 35 00.34728	95 41 24.89740	611292.170	114762.353	.131	3	GPS - RTRN	2021	RTRN2021
48 35 00.34690	95 41 24.89724	611292.182	114762.315	.007		ADJUSTMENT	2012	GPS2800

<u>NAD83(2007)</u>		<u>Roseau County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 35 00.34709	95 41 24.89811	611292.123	114762.334	.033	C	ADJUSTMENT	2009	GPS2522
48 35 00.34709	95 41 24.89811	611292.123	114762.334	.033	C	GPS - STATIC	2008	HROSO

<u>NAD83(1996)</u>		<u>Roseau County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 35 00.34705	95 41 24.89818	611292.118	114762.330	.033	C	GPS - STATIC	2008	HROSO

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1997795.420	1098532.582	989504.775	17666117.802	.131	3	GPS - OPUS	2021	GPSBM
1997795.395	1098532.564	989504.750	17666117.784	.131	3	GPS - OPUS	2021	GPSBM
1997795.451	1098532.640	989504.806	17666117.859	.131	3	GPS - RTRN	2021	RTRN2021
1997795.461	1098532.601	989504.816	17666117.821	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1997795.403	1098532.622	989504.758	17666117.842	.033	C	ADJUSTMENT	2009	GPS2522
1997795.403	1098532.622	989504.758	17666117.842	.033	C	GPS - STATIC	2008	HROSO

NAD83(1996)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1997795.398	1098532.618	989504.753	17666117.838	.033	C	GPS - STATIC	2008	HROSO

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RCHD_35-DL2378-3N-05OCT2021.jpg	N	Oct 5, 2021
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RCHD_35-DL2378-2-05OCT2021.jpg		Oct 5, 2021
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RCHD_35-DL2378-1-05OCT2021.jpg		Oct 5, 2021

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: RCHD 36

NGS Name: RCHD 36

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DL2379](#) [Get Map](#)
 NGS Quad / Sta Num : 48095413/
 USGS Quad: MALUNG

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SW	7	161 N	39 W	484646.34	954400.72		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2008	2021	GOOD	Horz=YES Vert=YES	YES		RECESSED 1 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 23 FT)	SURVEY DISK	MN-135

Description: (2008) Stamping: 36 2008

4.5 MILES SOUTH OF ROSEAU, 4.5 MILES SOUTH ALONG TRUNK HIGHWAY 89 FROM THE JUNCTION OF TRUNK HIGHWAY 89 AND TRUNK HIGHWAY 11 IN ROSEAU, THEN 2.05 MILES EAST-SOUTHEAST ON COUNTY ROAD 2, 70.0 FEET WEST OF COUNTY ROAD 2, 24.6 FEET SOUTH OF A FIELD ENTRANCE, 15.0 FEET NORTHWEST OF THE SOUTH END OF A CULVERT, 4.0 FEET NORTH OF A WITNESS POST.

* No Leveling-Derived Orthometric Heights in the Database *

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>			<u>Orthometric Height</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>
1058.289	.262		966.261	.197	2011	2021	GPSBM	2021	GPSBM	2021	GPSBM	2021	GPSBM
1058.161	.262		966.133	.197	2011	2021	GPSBM	2021	GPSBM	2021	RTRN2021	2021	RTRN2021
1058.246	.262		966.219	.197	2011	2012	GPS2800	2012	GPS2800	2012	GPS2800	2012	GPS2800
			966.097	.007	2011	2009	GPS2522	2009	GPS2522	2009	GPS2522	2009	GPS2522
1058.167	.131		966.199	.066	2007	2008	HROSO	2008	HROSO	2008	HROSO	2008	HROSO
1058.167	.131		966.199	.066	2007	2008	HROSO	2008	HROSO	2008	HROSO	2008	HROSO
1058.167	.131		966.196	.066	1996	2008	HROSO	2008	HROSO	2008	HROSO	2008	HROSO

Geoid Separations(ft): GEOID18 = -92.027 12B = -92.027 09 = -91.926 03 = -91.919

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>			<u>Roseau County</u>					<u>Project Info</u>	
<u>Geodetic Position</u>			<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>								
48 46 46.33856	95 44 00.72218		600423.212	186252.712	.131	3	GPS - OPUS	2021	GPSBM
48 46 46.33896	95 44 00.72186		600423.233	186252.753	.131	3	GPS - OPUS	2021	GPSBM
48 46 46.33941	95 44 00.72135		600423.267	186252.799	.131	3	GPS - RTRN	2021	RTRN2021
48 46 46.33949	95 44 00.72148		600423.258	186252.807	.010		ADJUSTMENT	2012	GPS2800

<u>NAD83(2007)</u>			<u>Roseau County</u>					<u>Project Info</u>	
<u>Geodetic Position</u>			<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>								
48 46 46.33959	95 44 00.72236		600423.199	186252.817	.033	C	ADJUSTMENT	2009	GPS2522
48 46 46.33959	95 44 00.72236		600423.199	186252.817	.033	C	GPS - STATIC	2008	HROSO

<u>NAD83(1996)</u>			<u>Roseau County</u>					<u>Project Info</u>	
<u>Geodetic Position</u>			<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>								
48 46 46.33942	95 44 00.72223		600423.208	186252.799	.033	C	GPS - STATIC	2008	HROSO

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1989761.229	1170394.341	981597.241	17737999.202	.131	3	GPS - OPUS	2021	GPSBM
1989761.252	1170394.381	981597.264	17737999.242	.131	3	GPS - OPUS	2021	GPSBM
1989761.288	1170394.425	981597.299	17737999.286	.131	3	GPS - RTRN	2021	RTRN2021
1989761.279	1170394.434	981597.291	17737999.294	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1989761.221	1170394.446	981597.232	17737999.307	.033	C	ADJUSTMENT	2009	GPS2522
1989761.221	1170394.446	981597.232	17737999.307	.033	C	GPS - STATIC	2008	HROSO

NAD83(1996)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1989761.228	1170394.429	981597.241	17737999.289	.033	C	GPS - STATIC	2008	HROSO

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RCHD_36-DL2379-3W-05OCT2021.jpg	W	Oct 5, 2021
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RCHD_36-DL2379-2-05OCT2021.jpg		Oct 5, 2021
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RCHD_36-DL2379-1-05OCT2021.jpg		Oct 5, 2021

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: RCHD 37

NGS Name: RCHD 37

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DL2380](#) [Get Map](#)
 NGS Quad / Sta Num : 48095412/
 USGS Quad: SALOL

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	34	162 N	38 W	484757.09	953255.26		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2008	2020	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 16 FT)	SURVEY DISK	MN-135

Description: (2008) Stamping: 37 2008

3.7 MILES SOUTHEAST OF SALOL, 1.0 MILE EAST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND 480TH AVENUE IN SALOL, THEN 4.75 MILES SOUTH ON COUNTY ROAD 13 (490TH AVENUE), 79.3 FEET EAST OF COUNTY ROAD 13, 33.1 FEET NORTH OF 280TH STREET, 3.0 FEET NORTH OF A WITNESS POST.

* No Leveling-Derived Orthometric Heights in the Database *

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>							<u>Project Info</u>	
<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>				<u>Year</u>	<u>Reference</u>
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>		
1101.491	.262		1008.659	.197	2011	GPS - OPUS	2020	GPSBM
1101.405	.262		1008.574	.197	2011	GPS - OPUS	2020	GPSBM
1101.533	.262		1008.705	.197	2011	GPS - RTRN	2020	RTRN2020
			1008.525	.009	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
1101.343	.131		1008.630	.066	2007	HORIZONTAL ADJUSTMENT	2009	GPS2522
1101.343	.131		1008.630	.066	2007	GPS - STATIC	2008	HROSO
1101.343	.131		1008.630	.066	1996	GPS - STATIC	2008	HROSO

Geoid Separations(ft): GEOID18 = -92.831 12B = -92.828 09 = -92.716 03 = -92.693

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>								<u>Project Info</u>		
<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>							
48 47 57.08454	95 32 55.26452	644938.895	193720.386			.131	3	GPS - OPUS	2020	GPSBM
48 47 57.08497	95 32 55.26370	644938.950	193720.430			.131	3	GPS - OPUS	2020	GPSBM
48 47 57.08455	95 32 55.26411	644938.922	193720.387			.131	3	GPS - RTRN	2020	RTRN2020
48 47 57.08516	95 32 55.26361	644938.956	193720.449			.010		ADJUSTMENT	2012	GPS2800

<u>NAD83(2007)</u>								<u>Project Info</u>		
<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>							
48 47 57.08527	95 32 55.26445	644938.899	193720.460			.033	C	ADJUSTMENT	2009	GPS2522
48 47 57.08527	95 32 55.26445	644938.899	193720.460			.033	C	GPS - STATIC	2008	HROSO

<u>NAD83(1996)</u>								<u>Project Info</u>		
<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>							
48 47 57.08519	95 32 55.26431	644938.909	193720.452			.033	C	GPS - STATIC	2008	HROSO

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2034537.255	1176095.885	1026384.464	17743619.592	.131	3	GPS - OPUS	2020	GPSBM
2034537.311	1176095.927	1026384.520	17743619.634	.131	3	GPS - OPUS	2020	GPSBM
2034537.283	1176095.886	1026384.491	17743619.592	.131	3	GPS - RTRN	2020	RTRN2020
2034537.318	1176095.946	1026384.527	17743619.653	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2034537.262	1176095.959	1026384.471	17743619.666	.033	C	ADJUSTMENT	2009	GPS2522
2034537.262	1176095.959	1026384.471	17743619.666	.033	C	GPS - STATIC	2008	HROSO

NAD83(1996)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2034537.271	1176095.951	1026384.480	17743619.658	.033	C	GPS - STATIC	2008	HROSO

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RCHD_37-DL2380-3E-25JUN2020.jpg	E	Jun 25, 2020
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RCHD_37-DL2380-2-25JUN2020.jpg		Jun 25, 2020
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RCHD_37-DL2380-1-25JUN2020.jpg		Jun 25, 2020

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: RCHD 40

NGS Name: RCHD 40

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DL2383](#) [Get Map](#)
 NGS Quad / Sta Num : 48095142/
 USGS Quad: WARROAD SE

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NE	3	161 N	36 W	484759.50	951609.10		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2008	2021	GOOD	Horz=YES Vert=YES	YES		RECESSED 3 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 13 FT)	SURVEY DISK	MN-135

Description: (2008) Stamping: 40 2008

6.5 MILES SOUTH-SOUTHEAST OF WARROAD, 6.5 MILES SOUTH ALONG COUNTY ROAD 5 FROM THE JUNCTION OF TRUNK HIGHWAY 11 IN WARROAD, THEN 2.75 MILES EAST ON COUNTY ROAD 2 (280TH STREET), 38.0 FEET SOUTH OF 280TH STREET (COUNTY ROAD 2), 17.5 FEET WEST OF A FIELD ENTRANCE, 16.0 FEET NORTHEAST OF THE WEST END OF A CULVERT, 8.0 FEET NORTH OF A WITNESS POST.

* No Leveling-Derived Orthometric Heights in the Database *

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>	
1142.544	.262		1049.240	.197	2011	2021	GPSBM	2021	GPSBM	
1142.478	.262		1049.174	.197	2011	2021	GPSBM	2021	GPSBM	
1142.435	.262		1049.128	.197	2011	2021	RTRN	2021	RTRN2021	
			1049.148	.008	2011	2012	HORIZONTAL ADJUSTMENT	2012	GPS2800	
1142.452	.131		1049.260	.066	2007	2009	HORIZONTAL ADJUSTMENT	2009	GPS2522	
1142.452	.131		1049.260	.066	2007	2008	GPS - STATIC	2008	HROSO	
1142.452	.131		1049.286	.066	1996	2008	GPS - STATIC	2008	HROSO	

Geoid Separations(ft): GEOID18 = -93.304 12B = -93.274 09 = -93.192 03 = -93.192

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>
48 47 59.49848	95 16 09.09833	712300.948	194620.287	.131	3	2021	GPSBM	2021	GPSBM
48 47 59.49852	95 16 09.09793	712300.975	194620.292	.131	3	2021	GPSBM	2021	GPSBM
48 47 59.49849	95 16 09.09724	712301.021	194620.289	.131	3	2021	RTRN	2021	RTRN2021
48 47 59.49918	95 16 09.09775	712300.986	194620.359	.007		2012	ADJUSTMENT	2012	GPS2800

NAD83(2007)

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>
48 47 59.49929	95 16 09.09851	712300.935	194620.369	.033	C	2009	ADJUSTMENT	2009	GPS2522
48 47 59.49929	95 16 09.09851	712300.935	194620.369	.033	C	2008	GPS - STATIC	2008	HROSO

NAD83(1996)

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>
48 47 59.49930	95 16 09.09826	712300.952	194620.371	.033	C	2008	GPS - STATIC	2008	HROSO

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2101882.127	1174328.453	1093722.057	17741732.917	.131	3	GPS - OPUS	2021	GPSBM
2101882.154	1174328.456	1093722.084	17741732.920	.131	3	GPS - OPUS	2021	GPSBM
2101882.200	1174328.452	1093722.130	17741732.916	.131	3	GPS - RTRN	2021	RTRN2021
2101882.168	1174328.523	1093722.098	17741732.987	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2101882.117	1174328.535	1093722.047	17741733.000	.033	C	ADJUSTMENT	2009	GPS2522
2101882.117	1174328.535	1093722.047	17741733.000	.033	C	GPS - STATIC	2008	HROSO

NAD83(1996)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2101882.134	1174328.536	1093722.064	17741733.000	.033	C	GPS - STATIC	2008	HROSO

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RCHD_40-DL2383-3S-05OCT2021.jpg	S	Oct 5, 2021
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RCHD_40-DL2383-2-05OCT2021.jpg		Oct 5, 2021
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RCHD_40-DL2383-1-05OCT2021.jpg		Oct 5, 2021

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: RCHD 41

NGS Name: RCHD 41

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DL2384](#) [Get Map](#)
 NGS Quad / Sta Num : 48095134/
 USGS Quad: MULLIGAN LAKE NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	6	160 N	37 W	484242.28	952737.63		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2008	2020	GOOD	Horz=YES Vert=YES	YES		RECESSED 6 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (<10 FT)	SURVEY DISK	MN-135

Description: (2008) Stamping: 41 2008

14.5 MILES SOUTH-SOUTHWEST OF WARROAD, 11.9 MILES SOUTH ON COUNTY ROAD 5 FROM THE JUNCTION OF TRUNK HIGHWAY 11, THEN 6.2 MILES WEST AND SOUTHWEST ON A GRAVEL ROAD (COUNTY HIGHWAY 4), 105.0 FEET EAST OF THE BEMIS HILL SHELTER, 5.6 FEET SOUTH OF A GARBAGE CAN CEMENT PAD, 5.4 FEET SOUTH OF A WITNESS POST.

Station Notes

THE ROD DEPTH IS UNKNOWN.

* No Leveling-Derived Orthometric Heights in the Database *

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1253.954	.262		1161.428	.197	2011	GPS - OPUS	2020	GPSBM
1254.158	.262		1161.632	.197	2011	GPS - RTRN	2020	RTRN2020
			1161.389	.009	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
1253.902	.131		1161.494	.066	2007	HORIZONTAL ADJUSTMENT	2009	GPS2522
1253.902	.131		1161.494	.066	2007	GPS - STATIC	2008	HROSO
1253.902	.131		1161.494	.066	1996	GPS - STATIC	2008	HROSO

Geoid Separations(ft): GEOID18 = -92.529 12B = -92.523 09 = -92.441 03 = -92.378

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 42 42.28049	95 27 37.63116	666494.111	161996.341	.131	3	GPS - OPUS	2020	GPSBM
48 42 42.28113	95 27 37.63151	666494.087	161996.406	.131	3	GPS - RTRN	2020	RTRN2020
48 42 42.28102	95 27 37.63068	666494.143	161996.395	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 42 42.28111	95 27 37.63149	666494.089	161996.404	.033	C	ADJUSTMENT	2009	GPS2522
48 42 42.28111	95 27 37.63149	666494.089	161996.404	.033	C	GPS - STATIC	2008	HROSO

NAD83(1996)

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 42 42.28113	95 27 37.63135	666494.098	161996.406	.033	C	GPS - STATIC	2008	HROSO

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2054820.062	1143544.189	1046609.302	17711032.566	.131	3	GPS - OPUS	2020	GPSBM
2054820.041	1143544.255	1046609.280	17711032.631	.131	3	GPS - RTRN	2020	RTRN2020
2054820.096	1143544.242	1046609.336	17711032.618	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2054820.042	1143544.253	1046609.281	17711032.629	.033	C	ADJUSTMENT	2009	GPS2522
2054820.042	1143544.253	1046609.281	17711032.629	.033	C	GPS - STATIC	2008	HROSO

NAD83(1996)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2054820.051	1143544.255	1046609.291	17711032.631	.033	C	GPS - STATIC	2008	HROSO

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RCHD_41-DL2384-3N-23JUN2020.jpg	N	Jun 23, 2020
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RCHD_41-DL2384-2-23JUN2020.jpg		Jun 23, 2020
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RCHD_41-DL2384-1-23JUN2020.jpg		Jun 23, 2020

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: RCHD 44

NGS Name: RCHD 44

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DL2335](#) [Get Map](#)
 NGS Quad / Sta Num : 48095133/
 USGS Quad: MULLIGAN LAKE SW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	17	159 N	38 W	483552.06	952942.68		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2008	2020	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 16 FT)	SURVEY DISK	MN-135

Description: (2008) Stamping: 44 2008

11.8 MILES SOUTHEAST OF WANNASKA, 6.0 MILES EAST ALONG COUNTY ROAD 4 FROM THE JUNCTION OF TRUNK HIGHWAY 89 (THE JUNCTION IS 1.0 MILE SOUTH OF WANNASKA), THEN 1.0 MILE SOUTH ALONG COUNTY ROAD 9, THEN 7.0 MILES EAST AND SOUTH ALONG COUNTY ROAD 19 (140TH STREET), 97.5 FEET WEST OF COUNTY ROAD 18 (510TH AVENUE), 28.0 FEET SOUTH OF COUNTY ROAD 19 (140TH STREET), 3.0 FEET WEST OF A WITNESS POST.

* No Leveling-Derived Orthometric Heights in the Database *

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>			<u>Orthometric Height</u>				<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>		<u>Year</u>	<u>Reference</u>		
1198.068	.262		1106.484	.197	2011	GPS - OPUS		2020	GPSBM		
1198.124	.262		1106.527	.197	2011	GPS - RTRN		2020	RTRN2020		
			1106.386	.008	2011	HORIZONTAL ADJUSTMENT		2012	GPS2800		
1197.963	.131		1106.494	.066	2007	HORIZONTAL ADJUSTMENT		2009	GPS2522		
1197.963	.131		1106.494	.066	2007	GPS - STATIC		2008	HROSO		
1197.963	.131		1106.491	.066	1996	GPS - STATIC		2008	HROSO		

Geoid Separations(ft): GEOID18 = -91.581 12B = -91.598 09 = -91.499 03 = -91.437

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Geodetic Position</u>					<u>Roseau County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>		<u>Year</u>	<u>Reference</u>		
48 35 52.06243	95 29 42.68202	658464.400	120348.764	.131	3	GPS - OPUS		2020	GPSBM		
48 35 52.06201	95 29 42.68231	658464.381	120348.721	.131	3	GPS - RTRN		2020	RTRN2020		
48 35 52.06292	95 29 42.68100	658464.469	120348.814	.007		ADJUSTMENT		2012	GPS2800		

<u>NAD83(2007)</u>		<u>Geodetic Position</u>					<u>Roseau County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>		<u>Year</u>	<u>Reference</u>		
48 35 52.06298	95 29 42.68191	658464.407	120348.820	.033	C	ADJUSTMENT		2009	GPS2522		
48 35 52.06298	95 29 42.68191	658464.407	120348.820	.033	C	GPS - STATIC		2008	HROSO		

<u>NAD83(1996)</u>		<u>Geodetic Position</u>					<u>Roseau County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>		<u>Year</u>	<u>Reference</u>		
48 35 52.06308	95 29 42.68166	658464.424	120348.830	.033	C	GPS - STATIC		2008	HROSO		

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>		<u>MN State Plane - North Zone</u>				<u>UTM - Zone 15</u>			<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>		<u>Year</u>	<u>Reference</u>		
2045148.900	1102248.708	1036867.323	17669753.575	.131	3	GPS - OPUS		2020	GPSBM		
2045148.879	1102248.666	1036867.302	17669753.533	.131	3	GPS - RTRN		2020	RTRN2020		
2045148.970	1102248.755	1036867.393	17669753.622	.007		ADJUSTMENT		2012	GPS2800		

<u>NAD83(2007)</u>		<u>MN State Plane - North Zone</u>				<u>UTM - Zone 15</u>			<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>		<u>Year</u>	<u>Reference</u>		
2045148.909	1102248.764	1036867.332	17669753.630	.033	C	ADJUSTMENT		2009	GPS2522		
2045148.909	1102248.764	1036867.332	17669753.630	.033	C	GPS - STATIC		2008	HROSO		

<u>NAD83(1996)</u>		<u>MN State Plane - North Zone</u>				<u>UTM - Zone 15</u>			<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>		<u>Year</u>	<u>Reference</u>		
2045148.926	1102248.773	1036867.349	17669753.640	.033	C	GPS - STATIC		2008	HROSO		



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RCHD_44-DL2335-3E-23JUN2020.jpg	E	Jun 23, 2020
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RCHD_44-DL2335-2-23JUN2020.jpg		Jun 23, 2020
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RCHD_44-DL2335-1-23JUN2020.jpg		Jun 23, 2020

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: RED

NGS Name: RED

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0336](#) [Get Map](#)
 NGS Quad / Sta Num : 48095141/1020
 USGS Quad: WARROAD

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	3	162 N	36 W	485234.13	951637.99	1	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1923	2012	DESTROYED	Horz=NO Vert=NO	YES		PROJECTS 5 IN.	STEEL ROD IMBED IN MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	TRIANGULATION STATION DISK	NGS

Description: (1966) Stamping: RED 1923

3.0 MILES SOUTHEAST OF WARROAD, 2.85 MILES SOUTH AND SOUTHEAST ON TRUNK HIGHWAY 11 FROM THE HIGH SCHOOL, AT TRUNK HIGHWAY 11 MILEPOINT 95.55, 97.0 FEET NORTHEAST OF TRUNK HIGHWAY 11, 93.02 FEET SOUTHEAST OF RED RM, 38.46 FEET EAST OF RED RM 2, 30.6 FEET SOUTHWEST OF THE SOUTHWEST RAIL OF A RAILROAD, 28.0 FEET EAST OF A TELEPHONE POLE, 1.5 FEET WEST OF A WITNESS POST.

Station Notes

THE DISK WAS TURNED IN TO THE OFFICE.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1080.503	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1079.109	.016	2					VERTICAL CONTROL SURVEY	1973	Q480951	
1079.109	.016	2					VERTICAL CONTROL SURVEY	1973	L22862	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
				987.285	.010	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800	
1080.903	.131			987.393	.066	2007	HORIZONTAL ADJUSTMENT	2009	GPS2522	
1080.903	.131			987.393	.066	2007	GPS - STATIC	2008	HROSO	
1080.903	.131			987.413	.066	1996	GPS - STATIC	2008	HROSO	
1080.510	.197			987.386	.131	1996	HORIZONTAL ADJUSTMENT	1999	17648	

Geoid Separations(ft): GEOID18 = -93.619 12B = -93.586 09 = -93.537 03 = -93.530

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Roseau County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 52 34.13294	95 16 37.99452	710047.494	222430.929	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Roseau County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 52 34.13303	95 16 37.99529	710047.442	222430.938	.033	C	ADJUSTMENT	2009	GPS2522
48 52 34.13303	95 16 37.99529	710047.442	222430.938	.033	C	GPS - STATIC	2008	HROSO

NAD83(1996)

Geodetic Position		Roseau County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 52 34.13304	95 16 37.99504	710047.459	222430.939	.033	C	GPS - STATIC	2008	HROSO
48 52 34.13366	95 16 37.99813	710047.251	222430.999	.066	2	ADJUSTMENT	1999	17648

NAD83(1986)

Geodetic Position		Roseau County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 52 34.11747	95 16 37.96917	710049.206	222429.381	.066	2	ADJUSTMENT	1986	17289

NAD27

Geodetic Position		X	Y	Acc	Order	Determination Method	Project Info	
Latitude	Longitude						Year	Reference
48 52 34.15499	95 16 37.11421			.100	2	CLASSICAL SURVEY	1977	15935

USSD

Geodetic Position		X	Y	Acc	Order	Determination Method	Project Info	
Latitude	Longitude						Year	Reference
48 52 34.74300	95 16 36.80800				3	CLASSICAL SURVEY		17389-86

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2100732.067	1202206.836	1092621.247	17769610.085	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2100732.015	1202206.846	1092621.196	17769610.096	.033	C	ADJUSTMENT	2009	GPS2522
2100732.015	1202206.846	1092621.196	17769610.096	.033	C	GPS - STATIC	2008	HROSO

NAD83(1996)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2100732.032	1202206.847	1092621.212	17769610.096	.033	C	GPS - STATIC	2008	HROSO
2100731.827	1202206.915	1092621.008	17769610.165	.066	2	ADJUSTMENT	1999	17648

NAD83(1986)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2100733.717	1202205.221	1092622.894	17769608.467	.066	2	ADJUSTMENT	1986	17289

NAD27

MN State Plane - North Zone		X	Y	Acc	Order	Determination Method	Project Info	
X	Y						Year	Reference
1476107.511	874121.919			.100	2	CLASSICAL SURVEY	1977	15935

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RED-TC0336-3NE-15AUG2007.jpg	NE	Aug 15, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RED-TC0336-2-15AUG2007.jpg		Aug 15, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RED-TC0336-1-15AUG2007.jpg		Aug 15, 2007

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: RED AZ MK

NGS Name: RED AZ MK

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0334](#) [Get Map](#)
 NGS Quad / Sta Num : 48095142/
 USGS Quad: WARROAD SE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	3	162 N	36 W	485227.69	951620.35	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1966	2012	GOOD	Horz=NO Vert=YES	YES		PROJECTS 6 IN.	STEEL SPIKE ADJ TO MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	AZIMUTH MARK DISK	NGS

Description: (1981) **Stamping:** RED 1923 1966

2.7 MILES SOUTHEAST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND COUNTY ROAD 5 IN WARROAD, AT TRUNK HIGHWAY 11 MILEPOINT 95.75, 170.0 FEET NORTHEAST OF TRUNK HIGHWAY 11, 39.0 FEET EAST OF AN OLD ROAD CROSSING, 42.0 FEET SOUTH OF KIRKWOOD DRIVE/OLD TRUNK HIGHWAY 11, 40.0 FEET NORTHEAST OF THE NORTHEAST RAIL OF THE RAILROAD TRACKS, 1.3 FEET NORTHEAST OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1081.441	.016	2/1				VERTICAL ADJUSTMENT	2014	00000828
1081.441	.016	2/1				VERTICAL CONTROL SURVEY	2013	VHACK
1080.979	.007	1/2				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1079.571	.007	1/2				UNKNOWN/APPROXIMATE	1992	UNCHECKD
1079.571	.016	2				VERTICAL CONTROL SURVEY	1973	Q480951
1079.571	.016	2				VERTICAL CONTROL SURVEY	1973	L22862

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1081.359	.262		987.803	.197	2007	GPS - RTRN	2012	RTRN2012
			987.695	.012	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
1081.330	.131		987.800	.066	2007	HORIZONTAL ADJUSTMENT	2009	GPS2522
1081.330	.131		987.800	.066	2007	GPS - STATIC	2008	HROSO
1081.330	.131		987.820	.066	1996	GPS - STATIC	2008	HROSO

Geoid Separations(ft): GEOID18 = -93.645 12B = -93.609 09 = -93.556 03 = -93.556

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 52 27.68579	95 16 20.34755	711234.694	221791.089	.016		ADJUSTMENT	2012	GPS2800

NAD83(2007)

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 52 27.68440	95 16 20.34864	711234.622	221790.947	.131	3	GPS - RTRN	2012	RTRN2012
48 52 27.68586	95 16 20.34829	711234.644	221791.095	.033	C	ADJUSTMENT	2009	GPS2522
48 52 27.68586	95 16 20.34829	711234.644	221791.095	.033	C	GPS - STATIC	2008	HROSO

NAD83(1996)

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 52 27.68588	95 16 20.34804	711234.661	221791.098	.033	C	GPS - STATIC	2008	HROSO

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - North Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2101893.015	1201520.456	1093780.826	17768921.727	.016		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - North Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2101892.938	1201520.317	1093780.748	17768921.589	.131	3	GPS - RTRN	2012	RTRN2012
2101892.965	1201520.464	1093780.776	17768921.736	.033	C	ADJUSTMENT	2009	GPS2522
2101892.965	1201520.464	1093780.776	17768921.736	.033	C	GPS - STATIC	2008	HROSO

NAD83(1996)

MN State Plane - North Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2101892.982	1201520.466	1093780.793	17768921.737	.033	C	GPS - STATIC	2008	HROSO

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RED_AZ_MK-TC0334-3E-09OCT2012.jpg	E	Oct 9, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RED_AZ_MK-TC0334-2-09OCT2012.jpg		Oct 9, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RED_AZ_MK-TC0334-1-09OCT2012.jpg		Oct 9, 2012

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: RED RM

NGS Name: RED RM

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0338](#) [Get Map](#)
 NGS Quad / Sta Num : 48095141/
 USGS Quad: WARROAD

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	3	162 N	36 W	485234.62	951639.17	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1923	2012	GOOD	Horz=NO Vert=YES	YES		FLUSH	STEEL SPIKE ADJ TO MON

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

Description: (1981) **Stamping:** RED 1923

2.85 MILES SOUTH AND SOUTHEAST ON TRUNK HIGHWAY 11 FROM THE WARROAD HIGH SCHOOL, 93.0 FEET NORTHEAST OF TRUNK HIGHWAY 11, 2.55 MILES SOUTHEAST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND COUNTY ROAD 5 IN WARROAD AT TRUNK HIGHWAY 11 MILEPOINT 95.5, 34.5 FEET SOUTHWEST OF THE SOUTHWEST RAIL OF THE RAILROAD TRACKS, 36.0 FEET WEST OF A TELEPHONE POLE, 1.0 FOOT SOUTHEAST OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

NAVD88				Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1080.733	.016	2/1				VERTICAL ADJUSTMENT	2014	00000828
1080.729	.016	2/1				VERTICAL CONTROL SURVEY	2013	VHACK
1080.667	.007	1/2				VERTICAL ADJUSTMENT	1991	00000025

NGVD29				Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1079.276	.007	1/2				UNKNOWN/APPROXIMATE	1992	UNCHECKD
1079.276	.016	2				VERTICAL CONTROL SURVEY	1973	Q480951
1079.276	.016	2				VERTICAL CONTROL SURVEY	1973	L22862

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88				Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1080.687	.262		987.154	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -93.615 12B = -93.586 09 = -93.537 03 = -93.527

Lat/Lon and County Coordinates (Feet)

NAD83(2007)		Roseau County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 52 34.62212	95 16 39.17136	709968.256	222479.605	.131	3	GPS - RTRN	2012	RTRN2012

State Plane and UTM Coordinates (Feet)

NAD83(2007)		UTM - Zone 15				Project Info		
MN State Plane - North Zone		X	Y	Acc	Order	Determination Method	Year	Reference
2100654.817	1202258.613	1092544.100	17769661.993	.131	3	GPS - RTRN	2012	RTRN2012

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RED_RM-TC0338-3NE-09OCT2012.jpg	NE	Oct 9, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RED_RM-TC0338-2-09OCT2012.jpg		Oct 9, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RED_RM-TC0338-1-09OCT2012.jpg		Oct 9, 2012

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: RED RM 2

NGS Name: RED RM 2

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0337](#) [Get Map](#)
 NGS Quad / Sta Num : 48095141/1021
 USGS Quad: WARROAD

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	3	162 N	36 W	485234.23	951638.56	1	2

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1966	2012	DESTROYED	Horz=NO Vert=NO	YES		PROJECTS 10 IN.	STEEL SPIKE ADJ TO MON

Monument Type	Disk Type	Mon. Agency
UNKNOWN	REFERENCE MARK DISK	NGS

Description: (1966) **Stamping:** RED 2 1966

2.85 MILES SOUTH AND SOUTHEAST ON TRUNK HIGHWAY 11 FROM THE HIGH SCHOOL IN ROSEAU, 2.0 FEET EAST OF A WITNESS POST, 20.0 FEET NORTH OF A TELEPHONE POLE, 24.5 FEET SOUTH OF A TELEPHONE POLE, 44.0 FEET SOUTHWEST OF THE SOUTHWEST RAIL OF THE RAILROAD TRACKS, 84.0 FEET NORTHEAST OF TRUNK HIGHWAY 11, 38.46 FEET WEST OF STATION RED, 57.58 FEET SOUTHEAST OF RED RM.

Station Notes

THE DISK WAS TURNED IN TO THE OFFICE.

Leveling-Derived Orthometric Heights (Feet)

NAVD88				Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1081.235	.007	1/2				VERTICAL ADJUSTMENT	1991	00000025
NGVD29				Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1079.814	.016	2				VERTICAL CONTROL SURVEY	1973	Q480951
1079.814	.016	2				VERTICAL CONTROL SURVEY	1973	L22862

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88				Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1081.231	.197		988.118	.131	1996	HORIZONTAL ADJUSTMENT	1999	17648

Geoid Separations(ft): GEOID18 = -93.615 12B = -93.586 09 = -93.537 03 = -93.530

Lat/Lon and County Coordinates (Feet)

NAD83(1996)				Roseau County			Project Info			
Geodetic Position				X	Y	Acc	Order	Determination Method	Year	Reference
Latitude	Longitude									
48 52 34.22742	95 16 38.55568			710009.871	222440.074	.066	2	ADJUSTMENT	1999	17648
NAD83(1986)				Roseau County			Project Info			
Geodetic Position				X	Y	Acc	Order	Determination Method	Year	Reference
48 52 34.21118	95 16 38.52637			710011.849	222438.451	.066	2	ADJUSTMENT	1986	17289
NAD27							Project Info			
Geodetic Position				X	Y	Acc	Order	Determination Method	Year	Reference
48 52 34.24875	95 16 37.67176					.100	2	CLASSICAL SURVEY	1977	15935

State Plane and UTM Coordinates (Feet)

NAD83(1996)				UTM - Zone 15			Project Info			
MN State Plane - North Zone				X	Y	Acc	Order	Determination Method	Year	Reference
X	Y									
2100694.835	1202217.465			1092584.039	17769620.779	.066	2	ADJUSTMENT	1999	17648
NAD83(1986)				UTM - Zone 15			Project Info			
MN State Plane - North Zone				X	Y	Acc	Order	Determination Method	Year	Reference
2100696.748	1202215.764			1092585.948	17769619.075	.066	2	ADJUSTMENT	1986	17289
NAD27							Project Info			
MN State Plane - North Zone				X	Y	Acc	Order	Determination Method	Year	Reference
1476070.517	874132.468					.100	2	CLASSICAL SURVEY	1977	15935



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RED_RM_2-TC0337-3NE-15AUG2007.jpg	NE	Aug 15, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RED_RM_2-TC0337-2-15AUG2007.jpg		Aug 15, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RED_RM_2-TC0337-1-15AUG2007.jpg		Aug 15, 2007

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: ROAD

NGS Name: ROAD

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0670](#) [Get Map](#)
 NGS Quad / Sta Num : 48095141/1019
 USGS Quad: WARROAD

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NE	32	163 N	36 W	485341.87	951847.51		2

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1923	2012	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	TRIANGULATION STATION DISK	NGS

Description: (1923)

Stamping: ROAD 1923

1.0 MILE EAST OF WARROAD, AT A CURVE ALONG A RAILROAD, 342.1 FEET NORTHWEST OF ROAD RM.

* No Leveling-Derived Orthometric Heights in the Database *

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>		
1079.394	.197		986.392	.131	1996	HORIZONTAL ADJUSTMENT	1999	17648	

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>		
1079.066						DIGITIZED FROM MAP	1923	HORZ	

Geoid Separations(ft): GEOID18 = -93.510 12B = -93.507 09 = -93.455 03 = -93.428

Lat/Lon and County Coordinates (Feet)

<u>NAD83(1996)</u>		<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>		
48 53 41.86761	95 18 47.50851	701314.256	229198.480	.066	2	ADJUSTMENT	1999	17648	

<u>NAD83(1986)</u>		<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>		
48 53 41.85182	95 18 47.47900	701316.245	229196.901	.066	2	ADJUSTMENT	1986	17289	

<u>NAD27</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>					<u>Year</u>	<u>Reference</u>	
48 53 41.89055	95 18 46.62271			.100	2	CLASSICAL SURVEY	1977	15935

<u>USSD</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>					<u>Year</u>	<u>Reference</u>	
48 53 42.47800	95 18 46.31200				3	CLASSICAL SURVEY		17389-86

State Plane and UTM Coordinates (Feet)

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - North Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>		
2092273.523	1209315.156	1084176.475	17776732.642	.066	2	ADJUSTMENT	1999	17648	

<u>NAD83(1986)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - North Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>		
2092275.449	1209313.500	1084178.397	17776730.982	.066	2	ADJUSTMENT	1986	17289	

<u>NAD27</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>MN State Plane - North Zone</u>						<u>Year</u>	<u>Reference</u>	
1467649.038	881230.297			.100	2	CLASSICAL SURVEY	1977	15935



Mn/DOT Name: ROAD RM

NGS Name: ROAD RM

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [CO8212](#) [Get Map](#)
 NGS Quad / Sta Num : 48095141/
 USGS Quad: WARROAD

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NE	32	163 N	36 W	485339.80	951843.46		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1923	2012	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type
 UNKNOWN

Disk Type
 REFERENCE MARK DISK

Mon. Agency
 NGS

Description: Stamping: ROAD 1923

1.0 MILE EAST OF WARROAD, AT A CURVE ALONG A RAILROAD, 342.1 FEET NORTHWEST OF ROAD RM.

* No Horizontal or Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -93.510 12B = -93.507 09 = -93.455 03 = -93.425



Mn/DOT Name: ROOSEVELT

NGS Name: ROOSEVELT

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0654](#) [Get Map](#)
 NGS Quad / Sta Num : 48095113/1004
 USGS Quad: SWIFT

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	3	162 N	35 W	484758.77	950832.53		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1934	2020	GOOD	Horz=YES Vert=YES	YES		PROJECTS 1 IN.	STEEL ROD IMBED IN MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	TRIANGULATION STATION DISK	NGS

Description: (1995) **Stamping:** ROOSEVELT 1934

2.1 MILES WEST OF ROOSEVELT, 2.05 MILES SOUTHWEST AND WEST ALONG COUNTY ROAD 2/280TH STREET FROM THE JUNCTION OF COUNTY ROAD 2/280TH STREET AND TRUNK HIGHWAY 11 IN ROOSEVELT, 32.0 FEET SOUTH OF COUNTY ROAD 2/280TH STREET, 113.05 FEET NORTHWEST OF ROOSEVELT RM 1, 99.30 FEET NORTHEAST OF ROOSEVELT RM 2, 2.2 FEET NORTH OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1194.161	.033	3					VERTICAL CONTROL SURVEY	1974	USGS-VERT	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>	
1195.562	.262		1101.648	.197	2011	GPS - OPUS		2020	GPSBM	
1195.644	.262		1101.730	.197	2011	GPS - OPUS		2020	GPSBM	
1195.572	.262		1101.661	.197	2011	GPS - RTRN		2020	RTRN2020	
1195.480	.262		1101.668	.197	2007	GPS - RTRN		2012	RTRN2012	
			1101.671	.011	2011	HORIZONTAL ADJUSTMENT		2012	GPS2800	
1195.568	.131		1101.773	.066	2007	HORIZONTAL ADJUSTMENT		2009	GPS2522	
1195.568	.131		1101.773	.066	2007	GPS - STATIC		2008	HROSO	
1195.568	.131		1101.792	.066	1996	GPS - STATIC		2008	HROSO	
1195.568	.131		1102.157	.066	1996	HORIZONTAL ADJUSTMENT		1999	17648	

Geoid Separations(ft): GEOID18 = -93.914 12B = -93.911 09 = -93.812 03 = -93.799



Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Roseau County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 47 58.77190	95 08 32.53070	742868.762	194925.497	.131	3	GPS - OPUS	2020	GPSBM
48 47 58.77154	95 08 32.53110	742868.736	194925.460	.131	3	GPS - OPUS	2020	GPSBM
48 47 58.77215	95 08 32.53055	742868.772	194925.523	.131	3	GPS - RTRN	2020	RTRN2020
48 47 58.77212	95 08 32.53061	742868.768	194925.519	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Roseau County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 47 58.77207	95 08 32.53104	742868.739	194925.514	.131	3	GPS - RTRN	2012	RTRN2012
48 47 58.77221	95 08 32.53135	742868.718	194925.528	.033	C	ADJUSTMENT	2009	GPS2522
48 47 58.77221	95 08 32.53135	742868.718	194925.528	.033	C	GPS - STATIC	2008	HROSO

NAD83(1996)

Geodetic Position		Roseau County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 47 58.77225	95 08 32.53108	742868.736	194925.532	.033	C	GPS - STATIC	2008	HROSO
48 47 58.77340	95 08 32.53166	742868.696	194925.648	.033	1	ADJUSTMENT	1999	17648

NAD83(1986)

Geodetic Position		Roseau County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 47 58.75641	95 08 32.50627	742870.419	194923.949	.033	1	ADJUSTMENT	1986	17289

NAD27

Geodetic Position						Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 47 58.81600	95 08 31.68400			.100	3	CLASSICAL SURVEY	1966	USGS-HORZ
48 47 58.81620	95 08 31.68490			.100	1	CLASSICAL SURVEY	1960	12443

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2132438.028	1173422.178	1124272.600	17740773.874	.131	3	GPS - OPUS	2020	GPSBM
2132438.001	1173422.143	1124272.573	17740773.839	.131	3	GPS - OPUS	2020	GPSBM
2132438.039	1173422.203	1124272.611	17740773.900	.131	3	GPS - RTRN	2020	RTRN2020
2132438.035	1173422.201	1124272.607	17740773.897	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2132438.006	1173422.196	1124272.578	17740773.892	.131	3	GPS - RTRN	2012	RTRN2012
2132437.985	1173422.211	1124272.558	17740773.907	.033	C	ADJUSTMENT	2009	GPS2522
2132437.985	1173422.211	1124272.558	17740773.907	.033	C	GPS - STATIC	2008	HROSO

NAD83(1996)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2132438.003	1173422.215	1124272.576	17740773.911	.033	C	GPS - STATIC	2008	HROSO
2132437.968	1173422.332	1124272.540	17740774.028	.033	1	ADJUSTMENT	1999	17648

NAD83(1986)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2132439.622	1173420.566	1124274.191	17740772.260	.033	1	ADJUSTMENT	1986	17289

NAD27

MN State Plane - North Zone						Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1507812.408	845339.642			.100	3	CLASSICAL SURVEY	1966	USGS-HORZ
1507812.349	845339.664			.100	1	CLASSICAL SURVEY	1960	12443



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/ROOSEVELT-TC0654-3S-24JUN2020.jpg	S	Jun 24, 2020
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/ROOSEVELT-TC0654-2-24JUN2020.jpg		Jun 24, 2020
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/ROOSEVELT-TC0654-1-24JUN2020.jpg		Jun 24, 2020

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: ROOSEVELT AZ MK

NGS Name: ROOSEVELT AZ MK

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [CO8236](#) [Get Map](#)
 NGS Quad / Sta Num : 48095113/
 USGS Quad: SWIFT

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	34	162 N	35 W	484800.00	950801.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1934	2012	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	AZIMUTH MARK DISK	NGS

Description: (1967) **Stamping:** ROOSEVELT 1934

0.1 MILE SOUTH ON TRUNK HIGHWAY 11 FROM THE POST OFFICE AT ROOSEVELT, THEN 1.65 MILES SOUTHWEST AND WEST ON A GRAVEL ROAD TO A TEE-ROAD SOUTH AND A SAND ROAD WEST, 28.0 FEET NORTH OF A SAND ROAD, 20.0 FEET WEST OF A TRACK ROAD, 70.0 FEET WEST-NORTHWEST OF ROOSEVELT AZ MK 1934 1966, 1.5 FEET WEST OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>		
1187.202	.033	3							VERTICAL CONTROL SURVEY	1974	USGS-VERT	

Geoid Separations(ft): GEOID18 = -93.960 12B = -93.953 09 = -93.858 03 = -93.845

* No Horizontal Positions in the Database *



Mn/DOT Name: ROOSEVELT AZ MK 1934-1966

NGS Name: ROOSEVELT AZ MK 2

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [CO8237](#) [Get Map](#)
 NGS Quad / Sta Num : 48095113/
 USGS Quad: SWIFT

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	34	162 N	35 W	484800.00	950801.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1966	2012	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	AZIMUTH MARK DISK	NGS

Description: (1966) **Stamping:** ROOSEVELT 1934 1966

0.1 MILE SOUTHEAST ON TRUNK HIGHWAY 11 FROM THE POST OFFICE AT ROOSEVELT, 1.65 MILES SOUTHWEST AND WEST ON A GRAVEL ROAD TO A TEE-ROAD SOUTH AND A SAND ROAD WEST, 20.0 FEET NORTH OF A SAND ROAD, 60.0 FEET NORTHWEST OF THE JUNCTION OF A GRAVEL ROAD AND A SAND ROAD, 70.0 FEET EAST-SOUTHEAST OF ROOSEVELT.

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
1185.943	.033	3				1974	USGS-VERT					

Geoid Separations(ft): GEOID18 = -93.960 12B = -93.953 09 = -93.858 03 = -93.845

* No Horizontal Positions in the Database *



Mn/DOT Name: ROOSEVELT RM 1

NGS Name: ROOSEVELT RM 1

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [CO8238](#) [Get Map](#)
 NGS Quad / Sta Num : 48095113/
 USGS Quad: SWIFT

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	34	162 N	35 W	484757.71	950831.99		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1934	2012	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	REFERENCE MARK DISK	NGS

Description: (1967) **Stamping:** ROOSEVELT NO 1 1934

0.1 MILE SOUTHEAST ON TRUNK HIGHWAY 11 FROM THE POST OFFICE AT ROOSEVELT, THEN 1.65 MILES SOUTHWEST AND WEST ON A GRAVEL ROAD TO A TEE-ROAD SOUTH AND A SAND ROAD WEST, THEN WEST 0.4 MILE ON A SAND ROAD, 139.0 FEET SOUTH OF A SAND ROAD, 113.05 FEET SOUTHEAST OF STATION ROOSEVELT.

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1190.263	.033	3					VERTICAL CONTROL SURVEY	1974	USGS-VERT	

Geoid Separations(ft): GEOID18 = -93.914 12B = -93.911 09 = -93.812 03 = -93.799

* No Horizontal Positions in the Database *



Mn/DOT Name: ROOSEVELT RM 2

NGS Name: ROOSEVELT RM 2

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [CO8239](#) [Get Map](#)
 NGS Quad / Sta Num : 48095113/
 USGS Quad: SWIFT

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	34	162 N	35 W	484757.90	950833.21		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1934	2012	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	REFERENCE MARK DISK	NGS

Description: (1966) **Stamping:** ROOSEVELT NO 2 1934

0.1 MILE SOUTHEAST ON TRUNK HIGHWAY 11 FROM THE POST OFFICE AT ROOSEVELT, THEN 1.65 MILES SOUTHWEST AND WEST ON A GRAVEL ROAD TO A TEE-ROAD SOUTH AND A SAND ROAD WEST, THEN 0.4 MILE WEST ON A SAND ROAD, 121.0 FEET SOUTH OF A SAND ROAD, 9.0 FEET EAST OF A ROAD TO AN ABANDONED HOUSE, 99.30 FEET NORTHEAST OF STATION ROOSEVELT.

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1192.015	.033	3					VERTICAL CONTROL SURVEY	1974	USGS-VERT	

Geoid Separations(ft): GEOID18 = -93.914 12B = -93.911 09 = -93.812 03 = -93.799

* No Horizontal Positions in the Database *



Mn/DOT Name: ROSEAU APT
County: ROSEAU, MN (Sheet 2)

NGS Name: ROSEAU APT

NGS ACRN: [TC1265](#) [Get Map](#)
NGS Quad / Sta Num : 48095413/
USGS Quad: MALUNG

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	16	162 N	39 W	485112.31	954149.70	2	B

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1988	2014	GOOD	Horz=YES Vert=YES	YES		RECESSED 3 IN.	STEEL SPIKE ADJ TO MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
STEEL ROD (NO SLEEVE) (DEPTH 29 FT)	METAL ROD	MNDT

Description: (1994) **Stamping:** ROSEAU APT 1988

2.6 MILES EAST OF ROSEAU, AT THE ROSEAU MUNICIPAL AIRPORT, 3.0 MILES EAST ON TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11/TRUNK HIGHWAY 89 AND TRUNK HIGHWAY 310 AT ROSEAU, THEN 0.05 MILE NORTH ON A GRAVEL ROAD, THEN 0.25 MILE NORTHEAST ON AIRPORT ROAD TO A GATE, THEN PASS THROUGH THE GATE AND 0.15 MILE NORTHERLY TO THE NORTH SIDE OF A TURF AND BITUMINOUS RUNWAY JUNCTION AND STATION ROSEAU APT, ABOUT 450.0 FEET NORTH OF EAST-WEST TAXI WAY TO THE MAIN RUNWAY, 122.4 FEET WEST-SOUTHWEST OF THE CENTER OF A RUNWAY, 120.7 FEET NORTH OF THE NORTH END OF A CULVERT UNDER A TURF RUNWAY, 51.2 FEET SOUTH-SOUTHWEST OF THE SOUTHWEST LEG OF A SLOPE INDICATOR LIGHT. THE SLEEVE IS VISIBLE, BUT THE DEPTH OF THE SLEEVE IS NOT KNOWN.

Station Notes
CONTACT THE AIRPORT MANAGER BEFORE USE. ROSEAU MUNICIPAL AIRPORT.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>
1057.511	.016	2/1				VERTICAL ADJUSTMENT		2019	00000941
1057.534	.016	2/1				VERTICAL CONTROL SURVEY		2015	VKTAD
1057.534	.016	2/1				VERTICAL ADJUSTMENT		2009	00000591
1057.547	.016	2/1				VERTICAL CONTROL SURVEY		2006	VROXA

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>
1057.485	.262		965.090	.197	2011	GPS - RTRN		2014	RTRN2014
			965.142	.007	2011	HORIZONTAL ADJUSTMENT		2012	GPS2800
			965.251	.008	2007	HORIZONTAL ADJUSTMENT		2007	GPS2300
1057.511	.131		965.215	.066	1996	HORIZONTAL ADJUSTMENT		2002	GPS1666
1057.511	.098		965.343	.049	1996	HORIZONTAL ADJUSTMENT		2001	GPS1526-2
1057.511	.098		965.343	.049	1996	HORIZONTAL ADJUSTMENT		2001	GPS1526-1
1057.511	.131		965.215	.066	1996	GPS - STATIC		2001	HGRYG
1057.084	.131		965.215	.066	1996	HORIZONTAL ADJUSTMENT		1999	17648
1057.413	.131		965.215	.066	1996	GPS - STATIC		1997	GPS805-C

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>
1056.199						GPS - STATIC		1988	HORZ

Geoid Separations(ft): GEOID18 = -92.401 12B = -92.395 09 = -92.287 03 = -92.283

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Roseau County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 51 12.30555	95 41 49.70407	609038.618	213258.459	.131	3	GPS - RTRN	2014	RTRN2014
48 51 12.30515	95 41 49.70345	609038.660	213258.419	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Roseau County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 51 12.30524	95 41 49.70439	609038.597	213258.428	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Roseau County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 51 12.30479	95 41 49.70429	609038.603	213258.382	.033	C	ADJUSTMENT	2002	GPS1666
48 51 12.30472	95 41 49.70464	609038.580	213258.375	.016	B	ADJUSTMENT	2001	GPS1526-2
48 51 12.30472	95 41 49.70464	609038.580	213258.375	.016	B	ADJUSTMENT	2001	GPS1526-1
48 51 12.30479	95 41 49.70429	609038.603	213258.382	.033	C	GPS - STATIC	2001	HGRYG
48 51 12.30479	95 41 49.70429	609038.603	213258.382	.033	C	ADJUSTMENT	1999	17648
48 51 12.30479	95 41 49.70429	609038.603	213258.382	.033	C	GPS - STATIC	1997	GPS805-C

NAD83(1986)

Geodetic Position		Roseau County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 51 12.29355	95 41 49.68126	609040.150	213257.252	.131	3	ADJUSTMENT	1989	GPS138

NAD27

Geodetic Position						Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 51 12.36030	95 41 48.73649			.100	3	CLASSICAL SURVEY	1989	GPS138

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1999437.451	1197038.552	991322.971	17764626.533	.131	3	GPS - RTRN	2014	RTRN2014
1999437.491	1197038.511	991323.011	17764626.491	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1999437.428	1197038.522	991322.949	17764626.502	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1999437.434	1197038.476	991322.954	17764626.456	.033	C	ADJUSTMENT	2002	GPS1666
1999437.410	1197038.470	991322.930	17764626.450	.016	B	ADJUSTMENT	2001	GPS1526-2
1999437.410	1197038.470	991322.930	17764626.450	.016	B	ADJUSTMENT	2001	GPS1526-1
1999437.434	1197038.476	991322.954	17764626.456	.033	C	GPS - STATIC	2001	HGRYG
1999437.434	1197038.476	991322.954	17764626.456	.033	C	ADJUSTMENT	1999	17648
1999437.434	1197038.476	991322.954	17764626.456	.033	C	GPS - STATIC	1997	GPS805-C

NAD83(1986)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1999438.935	1197037.286	991324.453	17764625.263	.131	3	ADJUSTMENT	1989	GPS138

NAD27

MN State Plane - North Zone						Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1374815.665	868956.504			.100	3	CLASSICAL SURVEY	1989	GPS138

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/ROSEAU_APT-TC1265-3SW-27OCT2009.jpg	SW	Oct 27, 2009
Moment:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/ROSEAU_APT-TC1265-2-27OCT2009.jpg		Oct 27, 2009
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/ROSEAU_APT-TC1265-1-27OCT2009.jpg		Oct 27, 2009

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: ROSEAU APT AZ MK

NGS Name: ROSEAU APT AZ MK

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC1268](#) [Get Map](#)
 NGS Quad / Sta Num : 48095413/
 USGS Quad: MALUNG

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	16	162 N	39 W	485143.59	954200.98	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1988	2014	GOOD	Horz=YES Vert=YES	YES		RECESSED 5 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
STEEL ROD (NO SLEEVE) (DEPTH 25 FT)	METAL ROD	NGS

Description: (2006) **Stamping:** ROSEAU APT AZ MK 1988

2.6 MILES EAST OF ROSEAU, NEAR THE END OF RUNWAY 16 AT THE ROSEAU MUNICIPAL AIRPORT, 3.0 MILES EAST ON TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11/TRUNK HIGHWAY 89 AND TRUNK HIGHWAY 310 AT ROSEAU, THEN 0.05 MILE NORTH ON A GRAVEL ROAD, THEN 0.25 MILE NORTHEAST ON AIRPORT ROAD TO A GATE AND THE AIRPORT FACILITY, THEN PASS THROUGH A GATE AND 0.7 MILE NORTHERLY ALONG THE WEST SIDE OF A RUNWAY TO STATION ROSEAU APT AZ MK, ABOUT 350.0 FEET SOUTH OF THE NORTH END OF A RUN UP AREA, 122.4 FEET WEST OF THE MAIN RUNWAY, 111.4 FEET NORTHWEST OF THE THIRD LIGHT FROM THE NORTH END OF A RUNWAY, 28.5 FEET EAST OF A SHALLOW DITCH THAT RUNS NORTH-SOUTH.

Station Notes
CONTACT THE AIRPORT MANAGER BEFORE USE. ROSEAU MUNICIPAL AIRPORT.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
1044.106	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941		
1044.122	.016	2/1				VERTICAL CONTROL SURVEY	2015	VKTAD		
1044.122	.016	2/1				VERTICAL ADJUSTMENT	2009	00000591		
1044.138	.016	2/1				VERTICAL CONTROL SURVEY	2006	VROXA		

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
1044.112	.262		951.717	.197	2011	GPS - RTRN	2014	RTRN2014		
			951.734	.008	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800		
			951.845	.009	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300		
1044.106	.131		951.937	.066	1996	HORIZONTAL ADJUSTMENT	2001	GPS1526-2		
1043.699	.262		951.809	.197	1996	HORIZONTAL ADJUSTMENT	1999	17648		

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
1042.714						GPS - STATIC	1988	HORZ		

Geoid Separations(ft): GEOID18 = -92.401 12B = -92.395 09 = -92.283 03 = -92.280

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Roseau County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 51 43.58560	95 42 00.97885	608265.825	216424.243	.131	3	GPS - RTRN	2014	RTRN2014
48 51 43.58559	95 42 00.97873	608265.833	216424.242	.020		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Roseau County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 51 43.58568	95 42 00.97968	608265.769	216424.251	.020		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Roseau County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 51 43.58516	95 42 00.97994	608265.752	216424.198	.033	C	ADJUSTMENT	2001	GPS1526-2
48 51 43.58534	95 42 00.97924	608265.799	216424.216	.131	3	ADJUSTMENT	1999	17648

NAD83(1986)

Geodetic Position		Roseau County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 51 43.57408	95 42 00.95619	608267.347	216423.085	.131	3	ADJUSTMENT	1989	GPS138

NAD27

Geodetic Position						Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 51 43.64021	95 42 00.01098			.100	3	CLASSICAL SURVEY	1989	GPS138

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1998790.400	1200232.464	990681.863	17767821.705	.131	3	GPS - RTRN	2014	RTRN2014
1998790.409	1200232.463	990681.871	17767821.703	.020		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1998790.345	1200232.475	990681.808	17767821.715	.020		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1998790.326	1200232.422	990681.788	17767821.663	.033	C	ADJUSTMENT	2001	GPS1526-2
1998790.373	1200232.439	990681.836	17767821.680	.131	3	ADJUSTMENT	1999	17648

NAD83(1986)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1998791.876	1200231.247	990683.336	17767820.484	.131	3	ADJUSTMENT	1989	GPS138

NAD27

MN State Plane - North Zone						Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1374168.564	872150.408			.100	3	CLASSICAL SURVEY	1989	GPS138

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/ROSEAU_APT_AZ_MK-TC1268-3W-27OCT2009.jpg	W	Oct 27, 2009
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/ROSEAU_APT_AZ_MK-TC1268-2-27OCT2009.jpg		Oct 27, 2009
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/ROSEAU_APT_AZ_MK-TC1268-1-27OCT2009.jpg		Oct 27, 2009

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: ROSEAU RIVER LOOKOUT TOWER

NGS Name: ROSEAU RIVER LOOKOUT TOWER

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0745](#) [Get Map](#)
NGS Quad / Sta Num : 48095421/1009
USGS Quad: WANNASKA NE

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NE	32	160 N	38 W	483826.76	953340.92		4

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1941	1941	GOOD	Horz=? Vert=?	YES			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	LOOKOUT TOWER	NGS

Description: (1941) Stamping:
10.0 MILES EAST AND 2.0 MILES SOUTH OF WANNASKA.

* No Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -91.785 12B = -91.794 09 = -91.703 03 = -91.644

Lat/Lon and County Coordinates (Feet)

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 38 26.76396	95 33 40.92198	642328.559	135896.347	.328	4	ADJUSTMENT	1999	17648

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 38 26.74820	95 33 40.90418	642329.767	135894.759	.328	4	ADJUSTMENT	1986	17289

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>						<u>Year</u>	<u>Reference</u>
48 38 26.84200	95 33 39.98500			.100	4	CLASSICAL SURVEY	1960	12443

State Plane and UTM Coordinates (Feet)

<u>MN State Plane - North Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2029641.615	1118421.684	1021387.178	17685953.457	.328	4	ADJUSTMENT	1999	17648

<u>MN State Plane - North Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2029642.759	1118420.050	1021388.319	17685951.821	.328	4	ADJUSTMENT	1986	17289

<u>MN State Plane - North Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>X</u>	<u>Y</u>						<u>Year</u>	<u>Reference</u>
1405019.129	790342.216			.100	4	CLASSICAL SURVEY	1960	12443

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/ROSEAU_RIVER_LOOKOUT_TOWER-TC0745-3NW-23OCT2010.jpg	NW	Oct 23, 2010
Monument:			
Disk:			

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: ROSEAU RUNWAY 16

NGS Name: ROSEAU RUNWAY 16

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC1266](#) [Get Map](#)
 NGS Quad / Sta Num : 48095413/
 USGS Quad: MALUNG

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	16	162 N	39 W	485143.70	954159.10		3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
	1988	GOOD	Horz=YES Vert=?	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	UNMONUMENTED	NGS

Description: **Stamping:**
 LOCATED IN THE ROSEAU MUNICIPAL AIRPORT. AT THE NORTHWEST END OF THE RUNWAY 16-34.

Station Notes
 CONTACT THE AIRPORT MANAGER BEFORE USE. ROSEAU MUNICIPAL AIRPORT.

* No Leveling-Derived Orthometric Heights in the Database *

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>		
<u>Orthometric Height</u>				<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Height</u>	<u>Acc</u>	<u>Order (Class)</u>							
1046.487	.262			954.618	.197	1996	HORIZONTAL ADJUSTMENT	1999	17648

Geoid Separations(ft): GEOID18 = -92.405 12B = -92.398 09 = -92.287 03 = -92.283

Lat/Lon and County Coordinates (Feet)

<u>NAD83(1996)</u>				<u>Roseau County</u>			<u>Project Info</u>			
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
48 51 43.72961	95 41 59.14081			608388.649	216439.564	.131	3	ADJUSTMENT	1999	17648

<u>NAD27</u>							<u>Project Info</u>			
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
48 51 43.00000	95 41 58.00000					.100		CLASSICAL SURVEY	1991	17504

State Plane and UTM Coordinates (Feet)

<u>NAD83(1996)</u>				<u>UTM - Zone 15</u>			<u>Project Info</u>			
<u>MN State Plane - North Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
1998913.736	1200242.919			990805.220	17767831.929	.131	3	ADJUSTMENT	1999	17648

<u>NAD27</u>							<u>Project Info</u>			
<u>MN State Plane - North Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
1374300.793	872081.056					.100		CLASSICAL SURVEY	1991	17504



Mn/DOT Name: ROSEAU RUNWAY 34

NGS Name: ROSEAU RUNWAY 34

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC1267](#) [Get Map](#)
 NGS Quad / Sta Num : 48095413/
 USGS Quad: MALUNG

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SE	16	162 N	39 W	485106.29	954145.67		3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
	2009	SEE DESCRIPTION	Horz=YES Vert=?	YES			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	UNMONUMENTED	NGS

Description: (2009)

Stamping:

LOCATED IN THE ROSEAU MUNICIPAL AIRPORT. AT THE SOUTHEAST END OF THE RUNWAY 16-34. HAVE MAGNETIC RESPONSE AT ENCIRCLED PAINT DOT. STATION ROSEAU RUNWAY 34 IS BELOW THE ASPHALT.

Station Notes

CONTACT THE AIRPORT MANAGER BEFORE USE. ROSEAU MUNICIPAL AIRPORT.

* No Leveling-Derived Orthometric Heights in the Database *

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1059.414	.262		967.537	.197	1996	HORIZONTAL ADJUSTMENT	1999	17648

Geoid Separations(ft): GEOID18 = -92.401 12B = -92.398 09 = -92.290 03 = -92.283

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 51 06.28765	95 41 45.66623	609312.311	212650.150	.131	3	ADJUSTMENT	1999	17648

NAD27

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>						<u>Year</u>	<u>Reference</u>
48 51 06.00000	95 41 44.00000			.100		CLASSICAL SURVEY	1991	17504

State Plane and UTM Coordinates (Feet)

NAD83(1996)

<u>MN State Plane - North Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1999686.885	1196419.890	991571.260	17764007.394	.131	3	ADJUSTMENT	1999	17648

NAD27

<u>MN State Plane - North Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>X</u>	<u>Y</u>						<u>Year</u>	<u>Reference</u>
1375110.619	868301.620			.100		CLASSICAL SURVEY	1991	17504

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/ROSEAU_RUNWAY_34-TC1267-3NW-27OCT2009.jpg	NW	Oct 27, 2009
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/ROSEAU_RUNWAY_34-TC1267-2-27OCT2009.jpg		Oct 27, 2009
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/ROSEAU_RUNWAY_34-TC1267-1-27OCT2009.jpg		Oct 27, 2009

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: ROX A

NGS Name: ROX A

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [AI9606](#) [Get Map](#)
 NGS Quad / Sta Num : 48095413/
 USGS Quad: MALUNG

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	16	162 N	39 W	485127.42	954157.51	2	B

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2000	2014	GOOD	Horz=YES Vert=YES	YES		FLUSH	STEEL ROD IMBED IN MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	HORIZONTAL CONTROL DISK	NGS

Description: (2008) **Stamping:** ROX A 2000

3.0 MILES EAST OF ROSEAU, AT THE AIRPORT, 3.0 MILES EAST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND TRUNK HIGHWAY 89 ON THE WEST SIDE OF ROSEAU TO TRUNK HIGHWAY 11 MILEPOINT 73.70, THEN 0.05 MILE NORTH ON A ROAD, THEN 0.25 MILE NORTHEAST ON A ROAD TO THE AIRPORT FACILITY, PASS THROUGH A CHAIN LINK FENCE GATE TO THE APRON AREA AND TURN LEFT ONTO A PARALLEL TAXIWAY, THEN 0.4 MILE NORTH ON A PARALLEL TAXIWAY, STATION ROX A IS IN THE MEDIAN, 400.0 FEET SOUTH OF A CONNECTOR TAXIWAY, 270.0 FEET WEST OF A RUNWAY, 40.0 FEET EAST OF A PARALLEL TAXIWAY, 5.0 FEET WEST OF A FIBERGLASS WITNESS POST.

Station Notes

CONTACT THE AIRPORT MANAGER BEFORE USE. ROSEAU MUNICIPAL AIRPORT.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1050.352	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941	
1050.372	.016	2/1				VERTICAL CONTROL SURVEY	2015	VKTAD	
1050.244	.016	2/1				VERTICAL ADJUSTMENT	2009	00000591	
1050.260	.016	2/1				VERTICAL CONTROL SURVEY	2006	VROXA	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1050.224	.262		957.829	.197	2011	GPS - RTRN	2014	RTRN2014	
			957.823	.006	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800	
1050.260	.131		957.934	.066	2007	HORIZONTAL ADJUSTMENT	2009	GPS2522	
1050.260	.131		957.934	.066	2007	GPS - STATIC	2008	HROSO	
1050.260	.131		957.938	.066	1996	GPS - STATIC	2008	HROSO	
			957.934	.008	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300	
1050.228	.131		957.938	.066	1996	HORIZONTAL ADJUSTMENT	2004	GPS2053	
1050.228	.131		957.938	.066	1996	GPS - STATIC	2004	HROSE	
1050.228	.098		957.938	.049	1996	GPS - STATIC	2004	GPS1954	
1050.188	.131		958.023	.066	1996	HORIZONTAL ADJUSTMENT	2001	GPS1526-2	

Geoid Separations(ft): GEOID18 = -92.398 12B = -92.392 09 = -92.283 03 = -92.280

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Roseau County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 51 27.41508	95 41 57.51065	608507.439	214786.722	.131	3	GPS - RTRN	2014	RTRN2014
48 51 27.41514	95 41 57.51047	608507.452	214786.728	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Roseau County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 51 27.41532	95 41 57.51149	608507.383	214786.746	.033	C	ADJUSTMENT	2009	GPS2522
48 51 27.41532	95 41 57.51149	608507.383	214786.746	.033	C	GPS - STATIC	2008	HROSO
48 51 27.41532	95 41 57.51149	608507.383	214786.746	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Roseau County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 51 27.41532	95 41 57.51129	608507.397	214786.746	.033	C	GPS - STATIC	2008	HROSO
48 51 27.41508	95 41 57.51144	608507.387	214786.721	.033	C	ADJUSTMENT	2004	GPS2053
48 51 27.41508	95 41 57.51144	608507.387	214786.721	.033	C	GPS - STATIC	2004	HROSE
48 51 27.41532	95 41 57.51129	608507.397	214786.746	.016	B	GPS - STATIC	2004	GPS1954
48 51 27.41477	95 41 57.51162	608507.375	214786.690	.033	C	ADJUSTMENT	2001	GPS1526-2

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1998967.096	1198586.644	990855.491	17766175.527	.131	3	GPS - RTRN	2014	RTRN2014
1998967.108	1198586.649	990855.504	17766175.533	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1998967.040	1198586.670	990855.436	17766175.553	.033	C	ADJUSTMENT	2009	GPS2522
1998967.040	1198586.670	990855.436	17766175.553	.033	C	GPS - STATIC	2008	HROSO
1998967.040	1198586.670	990855.436	17766175.553	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1998967.054	1198586.669	990855.449	17766175.553	.033	C	GPS - STATIC	2008	HROSO
1998967.043	1198586.645	990855.439	17766175.529	.033	C	ADJUSTMENT	2004	GPS2053
1998967.043	1198586.645	990855.439	17766175.529	.033	C	GPS - STATIC	2004	HROSE
1998967.054	1198586.669	990855.449	17766175.553	.016	B	GPS - STATIC	2004	GPS1954
1998967.030	1198586.614	990855.425	17766175.498	.033	C	ADJUSTMENT	2001	GPS1526-2

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/ROX_A-AI9606-3S-24JUN2014.jpg	S	Jun 24, 2014
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/ROX_A-AI9606-2-24JUN2014.jpg		Jun 24, 2014
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/ROX_A-AI9606-1-24JUN2014.jpg		Jun 24, 2014

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: RRWD 003
County: ROSEAU, MN (Sheet 2)

NGS Name: RRWD 003

NGS ACRN: [DL2388](#) [Get Map](#)
NGS Quad / Sta Num : 48095411/
USGS Quad: SALOL NE

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SW	32	162 N	38 W	485310.17	953504.08		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2000	2021	GOOD	Horz=YES Vert=YES	YES		RECESSED 3 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 28 FT)	SURVEY DISK	

Description: (2008) Stamping: 003

8.8 MILES EAST-NORTHEAST OF ROSEAU, 9.3 MILES EAST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND TRUNK HIGHWAY 310 IN ROSEAU, THEN 1.3 MILES NORTH ON 480TH AVENUE, THEN 0.60 MILES WEST ON 340TH STREET, 33.0 FEET NORTH OF 340TH STREET, 1.0 FOOT SOUTH OF A WITNESS POST.

* No Leveling-Derived Orthometric Heights in the Database *

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>			<u>Orthometric Height</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>
1066.071	.262		973.121	.197	2011	2021	RTRN2021	2021	RTRN	2012	GPS2800	2009	GPS2522
			973.062	.008	2011	2012	GPS2800	2012	HORIZONTAL ADJUSTMENT	2008	HROSO	2008	HROSO
1066.041	.131		973.167	.066	2007	2009	GPS2522	2009	HORIZONTAL ADJUSTMENT	2008	HROSO	2008	HROSO
1066.041	.131		973.167	.066	2007	2008	HROSO	2008	GPS - STATIC	2008	HROSO	2008	HROSO
1066.041	.131		973.167	.066	1996	2008	HROSO	2008	GPS - STATIC				

Geoid Separations(ft): GEOID18 = -92.949 12B = -92.939 09 = -92.834 03 = -92.841

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>			<u>Roseau County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>Order (/Class)</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 53 10.16890	95 35 04.08292		636078.542	225385.199	.131	3	GPS - RTRN	2021	RTRN2021
48 53 10.16931	95 35 04.08292		636078.541	225385.240	.010		ADJUSTMENT	2012	GPS2800

<u>NAD83(2007)</u>			<u>Roseau County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>Order (/Class)</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 53 10.16943	95 35 04.08363		636078.494	225385.252	.033	C	ADJUSTMENT	2009	GPS2522
48 53 10.16943	95 35 04.08363		636078.494	225385.252	.033	C	GPS - STATIC	2008	HROSO

<u>NAD83(1996)</u>			<u>Roseau County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>Order (/Class)</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 53 10.16932	95 35 04.08342		636078.508	225385.241	.033	C	GPS - STATIC	2008	HROSO

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>			<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>Order (/Class)</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2026936.302	1208086.794		1018842.140	17775623.620	.131	3	GPS - RTRN	2021	RTRN2021
2026936.303	1208086.836		1018842.142	17775623.662	.010		ADJUSTMENT	2012	GPS2800

<u>NAD83(2007)</u>			<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>Order (/Class)</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2026936.256	1208086.850		1018842.095	17775623.675	.033	C	ADJUSTMENT	2009	GPS2522
2026936.256	1208086.850		1018842.095	17775623.675	.033	C	GPS - STATIC	2008	HROSO

<u>NAD83(1996)</u>			<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>Order (/Class)</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2026936.270	1208086.838		1018842.108	17775623.664	.033	C	GPS - STATIC	2008	HROSO



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RRWD_003-DL2388-3N-05OCT2021.jpg	N	Oct 5, 2021
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RRWD_003-DL2388-2-05OCT2021.jpg		Oct 5, 2021
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RRWD_003-DL2388-1-05OCT2021.jpg		Oct 5, 2021

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: RRWD 004

NGS Name: RRWD 004

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DL2389](#) [Get Map](#)
 NGS Quad / Sta Num : 48095414/
 USGS Quad: SALOL NW

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SW	4	162 N	39 W	485259.73	954138.12		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2000	2021	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 13 FT)	SURVEY DISK	

Description: (2000) Stamping: 004

2.5 MILES NORTHEAST OF ROSEAU, 2.0 MILES EAST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 310 IN ROSEAU, THEN 2.4 MILES NORTH ON COUNTY ROAD 28 (410TH AVENUE), THEN 1.4 MILES EAST ON MATTSON ISLAND ROAD, 33.0 FEET NORTH OF MATTSON ISLAND ROAD, 0.7 FOOT SOUTH OF A WITNESS POST.

* No Leveling-Derived Orthometric Heights in the Database *

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1050.828	.262		958.381	.197	2011	GPS - OPUS	2021	GPSBM
1050.775	.262		958.328	.197	2011	GPS - OPUS	2021	GPSBM
1050.821	.262		958.374	.197	2011	GPS - RTRN	2021	RTRN2021
			958.322	.007	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
1050.785	.131		958.443	.066	2007	HORIZONTAL ADJUSTMENT	2009	GPS2522
1050.785	.131		958.443	.066	2007	GPS - STATIC	2008	HROSO
1050.785	.131		958.440	.066	1996	GPS - STATIC	2008	HROSO

Geoid Separations(ft): GEOID18 = -92.447 12B = -92.441 09 = -92.326 03 = -92.332

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

<u>Geodetic Position</u>		<u>Roseau County</u>						<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
48 52 59.73125	95 41 38.11481	609748.552	224150.756	.131	3	GPS - OPUS	2021	GPSBM	
48 52 59.73172	95 41 38.11502	609748.538	224150.803	.131	3	GPS - OPUS	2021	GPSBM	
48 52 59.73156	95 41 38.11363	609748.631	224150.788	.131	3	GPS - RTRN	2021	RTRN2021	
48 52 59.73179	95 41 38.11438	609748.581	224150.811	.007		ADJUSTMENT	2012	GPS2800	

NAD83(2007)

<u>Geodetic Position</u>		<u>Roseau County</u>						<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
48 52 59.73198	95 41 38.11515	609748.530	224150.830	.033	C	ADJUSTMENT	2009	GPS2522	
48 52 59.73198	95 41 38.11515	609748.530	224150.830	.033	C	GPS - STATIC	2008	HROSO	

NAD83(1996)

<u>Geodetic Position</u>		<u>Roseau County</u>						<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
48 52 59.73181	95 41 38.11505	609748.536	224150.813	.033	C	GPS - STATIC	2008	HROSO	



State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2000577.452	1207894.482	992483.274	17775480.465	.131	3	GPS - OPUS	2021	GPSBM
2000577.440	1207894.530	992483.262	17775480.513	.131	3	GPS - OPUS	2021	GPSBM
2000577.532	1207894.510	992483.354	17775480.494	.131	3	GPS - RTRN	2021	RTRN2021
2000577.483	1207894.535	992483.305	17775480.519	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2000577.432	1207894.556	992483.254	17775480.540	.033	C	ADJUSTMENT	2009	GPS2522
2000577.432	1207894.556	992483.254	17775480.540	.033	C	GPS - STATIC	2008	HROSO

NAD83(1996)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2000577.438	1207894.539	992483.260	17775480.522	.033	C	GPS - STATIC	2008	HROSO

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RRWD_004-DL2389-3N-05OCT2021.jpg	N	Oct 5, 2021
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RRWD_004-DL2389-2-05OCT2021.jpg		Oct 5, 2021
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RRWD_004-DL2389-1-05OCT2021.jpg		Oct 5, 2021

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: RRWD 011

NGS Name: RRWD 011

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DL2394](#) [Get Map](#)
 NGS Quad / Sta Num : 48095412/
 USGS Quad: SALOL

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	13	161 N	39 W	484611.53	953652.78		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2005	2021	GOOD	Horz=YES Vert=YES	YES		RECESSED 3 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 14 FT)	SURVEY DISK	

Description: (2008) Stamping: 011

8.2 MILES SOUTHEAST OF ROSEAU, 4.5 MILES SOUTH ALONG TRUNK HIGHWAY 89 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND TRUNK HIGHWAY 310 IN ROSEAU, THEN 7.5 MILES EAST ALONG COUNTY ROAD 2, THEN 0.4 MILE SOUTH ALONG COUNTY ROAD 9, 65.5 FEET WEST OF COUNTY ROAD 9 (460TH AVENUE), 47.0 FEET SOUTH OF 260TH STREET, 28.5 FEET SOUTH OF A FIELD ENTRANCE, 1.0 FOOT NORTH OF A WITNESS POST.

* No Leveling-Derived Orthometric Heights in the Database *

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>			<u>Orthometric Height</u>				<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>		<u>Year</u>	<u>Reference</u>		
1111.756	.262		1019.309	.197	2011	GPS - RTRN		2021	RTRN2021		
			1019.293	.008	2011	HORIZONTAL ADJUSTMENT		2012	GPS2800		
1111.743	.131		1019.398	.066	2007	HORIZONTAL ADJUSTMENT		2009	GPS2522		
1111.743	.131		1019.398	.066	2007	GPS - STATIC		2008	HROSO		
1111.743	.131		1019.394	.066	1996	GPS - STATIC		2008	HROSO		

Geoid Separations(ft): GEOID18 = -92.447 12B = -92.451 09 = -92.346 03 = -92.329

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>			<u>Geodetic Position</u>				<u>Roseau County</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
48 46 11.52661	95 36 52.77971		629111.622	182903.631	.131	3	GPS - RTRN	2021	RTRN2021		
48 46 11.52674	95 36 52.78139		629111.509	182903.643	.010		ADJUSTMENT	2012	GPS2800		

<u>NAD83(2007)</u>			<u>Geodetic Position</u>				<u>Roseau County</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
48 46 11.52687	95 36 52.78227		629111.450	182903.656	.033	C	ADJUSTMENT	2009	GPS2522		
48 46 11.52687	95 36 52.78227		629111.450	182903.656	.033	C	GPS - STATIC	2008	HROSO		

<u>NAD83(1996)</u>			<u>Geodetic Position</u>				<u>Roseau County</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
48 46 11.52675	95 36 52.78216		629111.458	182903.644	.033	C	GPS - STATIC	2008	HROSO		

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>			<u>MN State Plane - North Zone</u>				<u>UTM - Zone 15</u>			<u>Project Info</u>	
<u>X</u>	<u>Y</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
2018294.593	1165913.670		1010123.477	17733466.619	.131	3	GPS - RTRN	2021	RTRN2021		
2018294.481	1165913.687		1010123.365	17733466.636	.010		ADJUSTMENT	2012	GPS2800		

<u>NAD83(2007)</u>			<u>MN State Plane - North Zone</u>				<u>UTM - Zone 15</u>			<u>Project Info</u>	
<u>X</u>	<u>Y</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
2018294.423	1165913.702		1010123.306	17733466.651	.033	C	ADJUSTMENT	2009	GPS2522		
2018294.423	1165913.702		1010123.306	17733466.651	.033	C	GPS - STATIC	2008	HROSO		

<u>NAD83(1996)</u>			<u>MN State Plane - North Zone</u>				<u>UTM - Zone 15</u>			<u>Project Info</u>	
<u>X</u>	<u>Y</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
2018294.430	1165913.690		1010123.313	17733466.638	.033	C	GPS - STATIC	2008	HROSO		



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RRWD_011-DL2394-3W-05OCT2021.jpg	W	Oct 5, 2021
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RRWD_011-DL2394-2-05OCT2021.jpg		Oct 5, 2021
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RRWD_011-DL2394-1-05OCT2021.jpg		Oct 5, 2021

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: RRWD 012
County: ROSEAU, MN (Sheet 2)

NGS Name: RRWD 012

NGS ACRN: [DL2395](#) [Get Map](#)
NGS Quad / Sta Num : 48095143/
USGS Quad: WARROAD SW

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SW	6	161 N	37 W	484706.09	952821.26		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2005	2021	GOOD	Horz=YES Vert=YES	YES		RECESSED 3 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 12 FT)	SURVEY DISK	

Description: (2008) Stamping: 012

13.0 MILES SOUTHEAST OF ROSEAU, 5.9 MILES SOUTH ALONG COUNTY ROAD 13 FROM THE JUNCTION OF COUNTY ROAD 13 AND TRUNK HIGHWAY 11 (THE JUNCTION IS 9.0 MILES EAST OF ROSEAU), THEN 3.5 MILES EAST ALONG COUNTY ROAD 2, 51.0 FEET WEST OF A FIELD ENTRANCE, 50.0 FEET NORTH OF COUNTY ROAD 2, 1.0 FOOT WEST OF A WITNESS POST.

* No Leveling-Derived Orthometric Heights in the Database *

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>			<u>Orthometric Height</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order / (Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>
1125.040	.262		1032.117	.197	2011	2021	RTRN2021	GPS - RTRN		2021	RTRN2021		
			1032.065	.009	2011	2012	GPS2800	HORIZONTAL ADJUSTMENT		2012	GPS2800		
1124.965	.131		1032.173	.066	2007	2009	GPS2522	HORIZONTAL ADJUSTMENT		2009	GPS2522		
1124.965	.131		1032.173	.066	2007	2008	HROSO	GPS - STATIC		2008	HROSO		
1124.965	.131		1032.180	.066	1996	2008	HROSO	GPS - STATIC		2008	HROSO		

Geoid Separations(ft): GEOID18 = -92.923 12B = -92.907 09 = -92.815 03 = -92.779

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Geodetic Position</u>				<u>Roseau County</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>	
48 47 06.09310	95 28 21.25615	663330.498	188706.516	.131	3	2021	RTRN2021	GPS - RTRN		2021	RTRN2021	
48 47 06.09295	95 28 21.25689	663330.448	188706.500	.007		2012	GPS2800	ADJUSTMENT		2012	GPS2800	

<u>NAD83(2007)</u>		<u>Geodetic Position</u>				<u>Roseau County</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>	
48 47 06.09305	95 28 21.25766	663330.396	188706.509	.033	C	2009	GPS2522	ADJUSTMENT		2009	GPS2522	
48 47 06.09305	95 28 21.25766	663330.396	188706.509	.033	C	2008	HROSO	GPS - STATIC		2008	HROSO	

<u>NAD83(1996)</u>		<u>Geodetic Position</u>				<u>Roseau County</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>	
48 47 06.09305	95 28 21.25743	663330.412	188706.510	.033	C	2008	HROSO	GPS - STATIC		2008	HROSO	

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>		<u>MN State Plane - North Zone</u>				<u>UTM - Zone 15</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>	
2052716.030	1170358.247	1044552.489	17737849.576	.131	3	2021	RTRN2021	GPS - RTRN		2021	RTRN2021	
2052715.981	1170358.233	1044552.439	17737849.562	.007		2012	GPS2800	ADJUSTMENT		2012	GPS2800	

<u>NAD83(2007)</u>		<u>MN State Plane - North Zone</u>				<u>UTM - Zone 15</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>	
2052715.929	1170358.245	1044552.388	17737849.574	.033	C	2009	GPS2522	ADJUSTMENT		2009	GPS2522	
2052715.929	1170358.245	1044552.388	17737849.574	.033	C	2008	HROSO	GPS - STATIC		2008	HROSO	

<u>NAD83(1996)</u>		<u>MN State Plane - North Zone</u>				<u>UTM - Zone 15</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>	
2052715.944	1170358.245	1044552.403	17737849.574	.033	C	2008	HROSO	GPS - STATIC		2008	HROSO	



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RRWD_012-DL2395-3N-05OCT2021.jpg	N	Oct 5, 2021
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RRWD_012-DL2395-2-05OCT2021.jpg		Oct 5, 2021
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RRWD_012-DL2395-1-05OCT2021.jpg		Oct 5, 2021

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: RRWD 013
County: ROSEAU, MN (Sheet 2)

NGS Name: RRWD 013

NGS ACRN: [DL2396](#) [Get Map](#)
NGS Quad / Sta Num : 48095421/
USGS Quad: WANNASKA NE

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SE	35	161 N	38 W	484245.38	953020.23		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2005	2021	POOR	Horz=NO Vert=NO	NO		FLUSH	MARKER IS STEEL ROD

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 12 FT)	SURVEY DISK	

Description: (2008) Stamping: 013

10.5 MILES SOUTH AND 3.0 MILES EAST OF SALOL, 1.0 MILE EAST ALONG TRUNK HIGHWAY 11 FROM SALOL, THEN 10.8 MILES SOUTH ALONG COUNTY ROAD 13 TO A TEE JUNCTION, THEN 2.0 MILES EAST, 39.2 FEET NORTH OF 220TH STREET, 38.0 FEET WEST OF 510TH AVENUE, 4.0 FEET EAST OF A WITNESS POST.

Station Notes

FOUND CAP LOOSE. USE WITH CAUTION.

* No Leveling-Derived Orthometric Heights in the Database *

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>			<u>Orthometric Height</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order /Class</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>
1150.457	.131		1057.983	.009	2011	2012	GPS2800						
1150.457	.131		1058.088	.066	2007	2009	GPS2522						
1150.457	.131		1058.088	.066	2007	2008	HROSO						
1150.457	.131		1058.085	.066	1996	2008	HROSO						

Geoid Separations(ft): GEOID18 = -92.480 12B = -92.474 09 = -92.392 03 = -92.329

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>			<u>Geodetic Position</u>				<u>Roseau County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>Order /Class</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>	
48 42 45.37689	95 30 20.23215		655585.971	162214.678	.010		2012	GPS2800					

<u>NAD83(2007)</u>			<u>Geodetic Position</u>				<u>Roseau County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>Order /Class</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>	
48 42 45.37698	95 30 20.23301		655585.913	162214.686	.033	C	2009	GPS2522					
48 42 45.37698	95 30 20.23301		655585.913	162214.686	.033	C	2008	HROSO					

<u>NAD83(1996)</u>			<u>Geodetic Position</u>				<u>Roseau County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>Order /Class</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>	
48 42 45.37702	95 30 20.23285		655585.924	162214.690	.033	C	2008	HROSO					

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>			<u>MN State Plane - North Zone</u>				<u>UTM - Zone 15</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>Order /Class</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>	
2043929.378	1144194.002		1035719.880	17711701.363	.010		2012	GPS2800					

<u>NAD83(2007)</u>			<u>MN State Plane - North Zone</u>				<u>UTM - Zone 15</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>Order /Class</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>	
2043929.321	1144194.012		1035719.823	17711701.374	.033	C	2009	GPS2522					
2043929.321	1144194.012		1035719.823	17711701.374	.033	C	2008	HROSO					

<u>NAD83(1996)</u>			<u>MN State Plane - North Zone</u>				<u>UTM - Zone 15</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>Order /Class</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>	
2043929.332	1144194.016		1035719.834	17711701.378	.033	C	2008	HROSO					



Mn/DOT Name: RRWD 014

NGS Name: RRWD 014

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DL2397](#) [Get Map](#)
 NGS Quad / Sta Num : 48095422/
 USGS Quad: SKIME

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SE	1	159 N	39 W	483643.37	953612.39		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2005	2021	GOOD	Horz=YES Vert=YES	YES		RECESSED 3 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 22 FT)	SURVEY DISK	

Description: (2008) Stamping: 014

6.8 MILES EAST-SOUTHEAST OF WANNASKA, 1.1 MILES SOUTH ALONG TRUNK HIGHWAY 89 FROM THE JUNCTION OF TRUNK HIGHWAY 89 AND COUNTY ROAD 4 IN WANNASKA, THEN 6.0 MILES EAST ALONG COUNTY ROAD 4, THEN 2.0 MILES SOUTH ALONG COUNTY ROAD 9, 60.0 FEET WEST OF COUNTY ROAD 9, 45.0 FEET SOUTH OF 150TH STREET, 4.0 FEET NORTH OF A WITNESS POST.

* No Leveling-Derived Orthometric Heights in the Database *

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>	
1162.898	.262		1071.491	.197	2011	2021	GPSBM	2021	GPSBM	
1162.819	.262		1071.412	.197	2011	2021	GPSBM	2021	GPSBM	
1162.836	.262		1071.432	.197	2011	2021	RTRN	2021	RTRN2021	
			1071.389	.009	2011	2012	HORIZONTAL ADJUSTMENT	2012	GPS2800	
1162.793	.131		1071.494	.066	2007	2009	HORIZONTAL ADJUSTMENT	2009	GPS2522	
1162.793	.131		1071.494	.066	2007	2008	GPS - STATIC	2008	HROSO	
1162.793	.131		1071.487	.066	1996	2008	GPS - STATIC	2008	HROSO	

Geoid Separations(ft): GEOID18 = -91.404 12B = -91.424 09 = -91.319 03 = -91.270

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>
48 36 43.36787	95 36 12.39152	632230.413	125341.795	.131	3	2021	GPSBM	2021	GPSBM
48 36 43.36816	95 36 12.39124	632230.432	125341.824	.131	3	2021	GPSBM	2021	GPSBM
48 36 43.36833	95 36 12.38981	632230.528	125341.842	.131	3	2021	RTRN	2021	RTRN2021
48 36 43.36805	95 36 12.39096	632230.451	125341.813	.010		2012	ADJUSTMENT	2012	GPS2800

NAD83(2007)

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>
48 36 43.36819	95 36 12.39181	632230.394	125341.827	.033	C	2009	ADJUSTMENT	2009	GPS2522
48 36 43.36819	95 36 12.39181	632230.394	125341.827	.033	C	2008	GPS - STATIC	2008	HROSO

NAD83(1996)

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>
48 36 43.36820	95 36 12.39171	632230.400	125341.828	.033	C	2008	GPS - STATIC	2008	HROSO

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2019134.418	1108275.314	1010862.073	17675824.684	.131	3	GPS - OPUS	2021	GPSBM
2019134.438	1108275.342	1010862.093	17675824.713	.131	3	GPS - OPUS	2021	GPSBM
2019134.535	1108275.356	1010862.190	17675824.727	.131	3	GPS - RTRN	2021	RTRN2021
2019134.456	1108275.330	1010862.111	17675824.701	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2019134.400	1108275.346	1010862.055	17675824.717	.033	C	ADJUSTMENT	2009	GPS2522
2019134.400	1108275.346	1010862.055	17675824.717	.033	C	GPS - STATIC	2008	HROSO

NAD83(1996)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2019134.407	1108275.347	1010862.062	17675824.718	.033	C	GPS - STATIC	2008	HROSO

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RRWD_014-DL2397-3W-05OCT2021.jpg	W	Oct 5, 2021
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RRWD_014-DL2397-2-05OCT2021.jpg		Oct 5, 2021
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RRWD_014-DL2397-1-05OCT2021.jpg		Oct 5, 2021

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: RRWD 015

NGS Name: RRWD 015

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DL2398](#) [Get Map](#)
 NGS Quad / Sta Num : 48095133/
 USGS Quad: MULLIGAN LAKE SW

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SE	26	159 N	38 W	483316.61	952949.87		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2005	2021	GOOD	Horz=YES Vert=YES	YES		RECESSED 3 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 22 FT)	SURVEY DISK	

Description: (2008) Stamping: 015

12.8 MILES SOUTHEAST OF WANNASKA, 6.0 MILES SOUTH ALONG TRUNK HIGHWAY 89 FROM THE JUNCTION OF TRUNK HIGHWAY 89 AND COUNTY ROAD 4 IN WANNASKA, THEN 12.0 MILES EAST AND SOUTH ON COUNTY ROAD 18, 57.2 FEET SOUTHEAST OF COUNTY ROAD 18 (110TH STREET), 47.5 FEET NORTHEAST OF 510TH AVENUE, 4.0 FEET WEST OF A WITNESS POST.

* No Leveling-Derived Orthometric Heights in the Database *

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1220.621	.262		1129.345	.197	2011	GPS - OPUS	2021	GPSBM
1220.614	.262		1129.338	.197	2011	GPS - OPUS	2021	GPSBM
1220.582	.262		1129.305	.197	2011	GPS - RTRN	2021	RTRN2021
			1129.269	.008	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
1220.536	.131		1129.381	.066	2007	HORIZONTAL ADJUSTMENT	2009	GPS2522
1220.536	.131		1129.381	.066	2007	GPS - STATIC	2008	HROSO
1220.536	.131		1129.374	.066	1996	GPS - STATIC	2008	HROSO

Geoid Separations(ft): GEOID18 = -91.276 12B = -91.292 09 = -91.181 03 = -91.122

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 33 16.60705	95 29 49.86618	658116.471	104590.141	.131	3	GPS - OPUS	2021	GPSBM
48 33 16.60730	95 29 49.86683	658116.428	104590.165	.131	3	GPS - OPUS	2021	GPSBM
48 33 16.60708	95 29 49.86467	658116.573	104590.144	.131	3	GPS - RTRN	2021	RTRN2021
48 33 16.60757	95 29 49.86557	658116.512	104590.194	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 33 16.60759	95 29 49.86652	658116.448	104590.195	.033	C	ADJUSTMENT	2009	GPS2522
48 33 16.60759	95 29 49.86652	658116.448	104590.195	.033	C	GPS - STATIC	2008	HROSO

NAD83(1996)

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 33 16.60777	95 29 49.86617	658116.471	104590.213	.033	C	GPS - STATIC	2008	HROSO

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2044177.735	1086517.197	1035869.729	17654023.245	.131	3	GPS - OPUS	2021	GPSBM
2044177.692	1086517.224	1035869.687	17654023.272	.131	3	GPS - OPUS	2021	GPSBM
2044177.837	1086517.197	1035869.831	17654023.245	.131	3	GPS - RTRN	2021	RTRN2021
2044177.778	1086517.248	1035869.772	17654023.296	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2044177.714	1086517.252	1035869.708	17654023.300	.033	C	ADJUSTMENT	2009	GPS2522
2044177.714	1086517.252	1035869.708	17654023.300	.033	C	GPS - STATIC	2008	HROSO

NAD83(1996)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2044177.738	1086517.270	1035869.733	17654023.318	.033	C	GPS - STATIC	2008	HROSO

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RRWD_015-DL2398-3S-05OCT2021.jpg	S	Oct 5, 2021
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RRWD_015-DL2398-2-05OCT2021.jpg		Oct 5, 2021
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RRWD_015-DL2398-1-05OCT2021.jpg		Oct 5, 2021

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: RRWD 016
County: ROSEAU, MN (Sheet 2)

NGS Name: RRWD 016

NGS ACRN: [DL2399](#) [Get Map](#)
NGS Quad / Sta Num : 48095144/
USGS Quad: WARROAD NW

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NE	7	163 N	37 W	485730.29	952749.68		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2005	2020	GOOD	Horz=YES Vert=YES	YES		RECESSED 3 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 16 FT)	SURVEY DISK	

Description: (2008) Stamping: 016

7.0 MILES NORTHWEST OF WARROAD, 3.3 MILES NORTH-NORTHWEST ALONG TRUNK HIGHWAY 313 FROM THE JUNCTION OF TRUNK HIGHWAY 313 AND TRUNK HIGHWAY 11 IN WARROAD TO TRUNK HIGHWAY 313 MILEPOINT 3.3, THEN 5.5 MILES WEST ON 390TH STREET (COUNTY ROAD 137), 63.4 FEET WEST OF 530TH AVENUE, 38.6 FEET WEST OF A POWER POLE, 33.7 FEET SOUTH OF 390TH STREET, 4.1 FEET EAST OF A WITNESS POST.

* No Leveling-Derived Orthometric Heights in the Database *

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>			<u>Orthometric Height</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>		
1069.913	.262		976.478	.197	2011	2020	GPSBM	2020	GPSBM	2020	GPSBM		
1069.916	.262		976.481	.197	2011	2020	GPSBM	2020	GPSBM	2020	RTRN2020		
1069.968	.262		976.540	.197	2011	2012	GPS2800	2012	GPS2800	2009	GPS2522		
			976.232	.010	2011	2008	HROSO	2008	HROSO	2008	HROSO		
1069.683	.131		976.340	.066	2007	2009	GPS2522	2009	GPS2522	2008	HROSO		
1069.683	.131		976.340	.066	2007	2008	HROSO	2008	HROSO	2008	HROSO		
1069.683	.131		976.333	.066	1996	2008	HROSO	2008	HROSO				

Geoid Separations(ft): GEOID18 = -93.435 12B = -93.428 09 = -93.330 03 = -93.366

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Roseau County</u>						<u>Project Info</u>	
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
<u>Latitude</u>	<u>Longitude</u>								
48 57 30.29234	95 27 49.68302	664875.202	251987.120	.131	3	GPS - OPUS	2020	GPSBM	
48 57 30.29180	95 27 49.68313	664875.195	251987.065	.131	3	GPS - OPUS	2020	GPSBM	
48 57 30.29260	95 27 49.68546	664875.039	251987.145	.131	3	GPS - RTRN	2020	RTRN2020	
48 57 30.29338	95 27 49.68232	664875.248	251987.226	.010		ADJUSTMENT	2012	GPS2800	

<u>NAD83(2007)</u>		<u>Roseau County</u>						<u>Project Info</u>	
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
<u>Latitude</u>	<u>Longitude</u>								
48 57 30.29342	95 27 49.68297	664875.204	251987.230	.033	C	ADJUSTMENT	2009	GPS2522	
48 57 30.29342	95 27 49.68297	664875.204	251987.230	.033	C	GPS - STATIC	2008	HROSO	

<u>NAD83(1996)</u>		<u>Roseau County</u>						<u>Project Info</u>	
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
<u>Latitude</u>	<u>Longitude</u>								
48 57 30.29338	95 27 49.68274	664875.220	251987.226	.033	C	GPS - STATIC	2008	HROSO	

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2056763.960	1233529.445	1048715.123	17801009.197	.131	3	GPS - OPUS	2020	GPSBM
2056763.950	1233529.391	1048715.114	17801009.143	.131	3	GPS - OPUS	2020	GPSBM
2056763.798	1233529.476	1048714.961	17801009.229	.131	3	GPS - RTRN	2020	RTRN2020
2056764.009	1233529.549	1048715.173	17801009.301	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2056763.966	1233529.554	1048715.130	17801009.307	.033	C	ADJUSTMENT	2009	GPS2522
2056763.966	1233529.554	1048715.130	17801009.307	.033	C	GPS - STATIC	2008	HROSO

NAD83(1996)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2056763.981	1233529.550	1048715.145	17801009.302	.033	C	GPS - STATIC	2008	HROSO

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RRWD_016-DL2399-3S-24JUN2020.jpg	S	Jun 24, 2020
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RRWD_016-DL2399-2-24JUN2020.jpg		Jun 24, 2020
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/RRWD_016-DL2399-1-24JUN2020.jpg		Jun 24, 2020

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: S 208

NGS Name: S 208

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0315](#) [Get Map](#)
 NGS Quad / Sta Num : 48095113/
 USGS Quad: SWIFT

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	27	162 N	35 W	484913.00	950826.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1935	2012	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	BENCH MARK DISK	NGS

Description: (1981) Stamping: S-208 1935

2.4 MILES NORTHWEST ON A RAILROAD FROM THE RAILROAD STATION AT ROOSEVELT, 0.03 MILE EAST OF RAILROAD MILEPOST 28, 39.0 FEET NORTH OF A RAILROAD.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1139.834	.007	1					VERTICAL CONTROL SURVEY	1993	POSTED	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1138.426	.007	1					VERTICAL CONTROL SURVEY	1941	Q480951	
1138.426	.007	1					VERTICAL CONTROL SURVEY	1935	L56 MINN	

Geoid Separations(ft): GEOID18 = -94.078 12B = -94.068 09 = -93.970 03 = -93.953

* No Horizontal Positions in the Database *



Mn/DOT Name: S 368

NGS Name: S 368

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0515](#) [Get Map](#)
 NGS Quad / Sta Num : 48095413/
 USGS Quad: MALUNG

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	20	162 N	39 W	485052.42	954248.62	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1981	2018	GOOD	Horz=YES Vert=YES	YES		RECESSED 5 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
STEEL ROD (NO SLEEVE) (DEPTH 32 FT)	METAL ROD	NGS

Description: (2014) Stamping: S 368 1981

2.3 MILES EAST OF ROSEAU, 2.5 MILES EAST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND TRUNK HIGHWAY 89 AND TRUNK HIGHWAY 310 IN ROSEAU, AT TRUNK HIGHWAY 11 MILEPOINT 73.2, 77.0 FEET SOUTH OF TRUNK HIGHWAY 11, 167.5 FEET WEST OF A DRIVEWAY, 117.6 FEET EAST OF A POWER POLE, 113.0 FEET WEST OF A POWER POLE, 28.5 FEET SOUTH OF THE WEST END OF A CULVERT UNDER A FIELD ENTRANCE, 23.0 FEET WEST OF A FIELD ENTRANCE, 0.6 FOOT EAST OF A WITNESS POST.

Station Pair: R 368 A RESET - ROSEAU, MN

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
1057.393	.016	2/1				2019	00000941	VERTICAL ADJUSTMENT				
1057.413	.016	2/1				2015	VKTAD	VERTICAL CONTROL SURVEY				
1057.413	.016	2/1				2009	00000591	VERTICAL ADJUSTMENT				
1057.429	.016	2/1				2006	VROXA	VERTICAL CONTROL SURVEY				
1057.413	.007	1/2				1991	00000025	VERTICAL ADJUSTMENT				

<u>NGVD29</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
1056.035	.033	3				1987	CS6803	VERTICAL CONTROL SURVEY				

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
1057.393	.131		965.261	.066	1996	2021	HKTAD	GPS - STATIC				
1057.393			965.100	.024	2011	2020	GPS3390	HORIZONTAL ADJUSTMENT				
1057.393			965.100	.024	2011	2020	HKTAD	GPS - STATIC				
1057.288	.262		964.972	.197	2011	2014	RTRN2014	GPS - RTRN				

Geoid Separations(ft): GEOID18 = -92.316 12B = -92.316 09 = -92.205 03 = -92.195

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
48 50 52.41690	95 42 48.62003	605109.751	211219.736	.013		ADJUSTMENT	2020	GPS3390	
48 50 52.41690	95 42 48.62003	605109.751	211219.736	.013	C	GPS - STATIC	2020	HKTAD	
48 50 52.41730	95 42 48.62060	605109.712	211219.776	.131	3	GPS - RTRN	2014	RTRN2014	

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
48 50 52.41674	95 42 48.62067	605109.708	211219.719	.033	C	GPS - STATIC	2021	HKTAD	

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1995431.005	1195156.705	987312.935	17762752.102	.013		ADJUSTMENT	2020	GPS3390
1995431.005	1195156.705	987312.935	17762752.102	.013	C	GPS - STATIC	2020	HKTAD
1995430.968	1195156.747	987312.899	17762752.144	.131	3	GPS - RTRN	2014	RTRN2014

NAD83(1996)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1995430.961	1195156.691	987312.892	17762752.087	.033	C	GPS - STATIC	2021	HKTAD

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/S_368-TC0515-3S-27OCT2009.jpg	S	Oct 27, 2009
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/S_368-TC0515-2-27OCT2009.jpg		Oct 27, 2009
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/S_368-TC0515-1-27OCT2009.jpg		Oct 27, 2009

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: S=1101

NGS Name: 1101

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0420](#) [Get Map](#)
 NGS Quad / Sta Num : 48095412/
 USGS Quad: SALOL

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	1	161 N	39 W	484818.00	953653.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1912	2008	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	BENCH MARK DISK	NGS

Description: (1940) Stamping: 1101

0.9 MILE EAST ALONG THE ROSEAU-CEDARBEND ROAD FROM THE ABANDONED SITE OF GOOS, 45.0 FEET SOUTHWEST OF THE NORTHEAST CORNER OF SECTION 1, THE YEAR SET DATE IS APPROXIMATE.

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
1099.148	.007	1				VERTICAL CONTROL SURVEY	1941	Q480954		
1099.148	.007	1				VERTICAL CONTROL SURVEY	1935	L56 MINN		

Geoid Separations(ft): GEOID18 = -92.608 12B = -92.602 09 = -92.497 03 = -92.490

* No Horizontal Positions in the Database *



Mn/DOT Name: SALOL

NGS Name: SALOL

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [CU8129](#) [Get Map](#)
 NGS Quad / Sta Num : 48095412/
 USGS Quad: SALOL

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	9	162 N	38 W	485158.00	953414.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1912	2007	DESTROYED	Horz=NO Vert=NO	YES			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	IBWC

Description: (1928) Stamping: SALOL 1912

ON THE SOUTH SIDE OF THE GREAT NORTHERN RAILWAY, 1148.0 FEET WEST OF THE SALOL STATION, 82.0 FEET SOUTH OF A RAILWAY TRACK, BETWEEN THE RAILWAY AND THE HIGHWAY, 98.4 FEET EAST OF A NORTH-SOUTH ROAD, ON LINE WITH A CHURCH STEEPLE AND THE KITCHEN WINDOW OF THE GUSTOFSON'S HOUSE BOTH SOUTH OF STATION.

Station Notes

THIS MARK IS CONSIDERED DESTROYED AS IT WAS RESET BY THE NATIONAL GEODETIC SURVEY (NGS) IN 1941. MNDOT STATION NAME IS SALOL IBC THE NATIONAL GEODETIC SURVEY DESIGNATION IS SALOL RESET.

* No Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -92.982 12B = -92.969 09 = -92.864 03 = -92.861

Lat/Lon and County Coordinates (Feet)

							<u>Project Info</u>	
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>							
48 51 58.82600	95 34 12.90200			.100	3	CLASSICAL SURVEY	1965	USGS-HORZ

State Plane and UTM Coordinates (Feet)

							<u>Project Info</u>	
<u>MN State Plane - North Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>							
1405438.792	872664.488			.100	3	CLASSICAL SURVEY	1965	USGS-HORZ

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/SALOL-CU8129-3N-24JUN2014.jpg	N	Jun 24, 2014
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/SALOL-CU8129-2-24JUN2014.jpg		Jun 24, 2014
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/SALOL-CU8129-1-24JUN2014.jpg		Jun 24, 2014

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: SALOLAZ MK

NGS Name: SALOLAZ MK

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [CO8271](#) [Get Map](#)
 NGS Quad / Sta Num : 48095412/
 USGS Quad: SALOL

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	8	162 N	38 W	485153.00	953436.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1941	1981	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	AZIMUTH MARK DISK	NGS

Description: Stamping: SALOL 1941

8.5 MILES EAST OF ROSEAU, 9.1 MILES EAST ALONG TRUNK HIGHWAY 11 (3RD STREET) FROM THE JUNCTION OF TRUNK HIGHWAYS 11 AND 89/310 (5TH AVENUE) IN ROSEAU.

* No Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -92.956 12B = -92.939 09 = -92.834 03 = -92.834

Lat/Lon and County Coordinates (Feet)

<u>NAD27</u>							<u>Project Info</u>	
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>							
48 51 58.82600	95 34 12.90200			.100	3	CLASSICAL SURVEY	1965	USGS-HORZ

State Plane and UTM Coordinates (Feet)

<u>NAD27</u>							<u>Project Info</u>	
<u>MN State Plane - North Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>							
1405438.792	872664.488			.100	3	CLASSICAL SURVEY	1965	USGS-HORZ



Mn/DOT Name: SALOLAZ MK 2

NGS Name: SALOLAZ MK 2

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0507](#) [Get Map](#)
 NGS Quad / Sta Num : 48095412/
 USGS Quad: SALOL

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	8	162 N	38 W	485152.86	953435.90	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1969	2014	GOOD	Horz=NO Vert=YES	YES		FLUSH	STEEL SPIKE ADJ TO MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	AZIMUTH MARK DISK	NGS

Description: (2014) **Stamping:** SALOL 1941 US CBS 1969

0.4 MILE SOUTHWEST OF SALOL, 0.3 MILE WEST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND TRUNK HIGHWAY 480TH AVENUE IN SALOL, AT TRUNK HIGHWAY 11 MILEPOINT 79.95, 100.0 FEET SOUTH OF TRUNK HIGHWAY 11, 59.0 FEET NORTHEAST OF A RIGHT-OF-WAY MARKER, 13.0 FEET WEST OF A POWER POLE WITH AN ANCHOR, 2.0 FEET EAST OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1069.178	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941
1069.204	.016	2/1					VERTICAL CONTROL SURVEY	2015	VKTAD
1069.204	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1069.187	.262			976.248	.197	2011	GPS - RTRN	2014	RTRN2014

Geoid Separations(ft): GEOID18 = -92.956 12B = -92.939 09 = -92.834 03 = -92.834

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Roseau County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
48 51 52.86066	95 34 35.90372			638020.940	217564.100	.131	3	GPS - RTRN	2014	RTRN2014

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - North Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2028567.859	1200194.816			1020459.072	17767728.865	.131	3	GPS - RTRN	2014	RTRN2014

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/SALOL_AZ_MK_2-TC0507-3S-24JUN2014.jpg	S	Jun 24, 2014
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/SALOL_AZ_MK_2-TC0507-2-24JUN2014.jpg		Jun 24, 2014
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/SALOL_AZ_MK_2-TC0507-1-24JUN2014.jpg		Jun 24, 2014

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: SALOL IBC

NGS Name: SALOL RESET

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0509](#) [Get Map](#)
 NGS Quad / Sta Num : 48095412/1004
 USGS Quad: SALOL

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	9	162 N	38 W	485158.78	953413.85	2	1

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1941	2014	GOOD	Horz=NO Vert=YES	YES		FLUSH	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	TRIANGULATION STATION DISK	IBWC

Description: (2014) **Stamping:** SALOL 1912 1941

IN SALOL, 61.0 FEET NORTHWEST OF TRUNK HIGHWAY 11, 135.0 FEET EAST OF A NORTH-SOUTH ROAD (480TH AVENUE), 163.85 FEET NORTHEAST OF SALOL RM 2, 113.99 NORTHWEST OF SALOL RM 1, 111.62 FEET NORTH OF SALOL RM 3, 3.0 FEET SOUTH OF A WHITE WOODEN POST, 1.0 FOOT SOUTH OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1076.172	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941
1076.189	.016	2/1					VERTICAL CONTROL SURVEY	2015	VKTAD
1076.189	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1076.071	.262			983.102	.197	2011	GPS - RTRN	2014	RTRN2014
1076.179	.131			983.745	.066	1996	HORIZONTAL ADJUSTMENT	1999	17648

Geoid Separations(ft): GEOID18 = -92.982 12B = -92.969 09 = -92.864 03 = -92.861

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Roseau County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
48 51 58.77728	95 34 13.85119			639490.948	218174.903	.131	3	GPS - RTRN	2014	RTRN2014

<u>NAD83(1996)</u>				<u>Roseau County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
48 51 58.77970	95 34 13.84924			639491.077	218175.150	.033	1	ADJUSTMENT	1999	17648

<u>NAD83(1986)</u>				<u>Roseau County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
48 51 58.76696	95 34 13.82120			639492.961	218173.873	.033	1	ADJUSTMENT	1986	17289

<u>NAD27</u>				<u>Roseau County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
48 51 58.82600	95 34 12.90200					.100	1	CLASSICAL SURVEY	1960	12443

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - North Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
2030060.905	1200747.005	1021953.091	17768278.290	.131	3	GPS - RTRN	2014	RTRN2014

NAD83(1996)

MN State Plane - North Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
2030061.043	1200747.245	1021953.230	17768278.531	.033	1	ADJUSTMENT	1999	17648

NAD83(1986)

MN State Plane - North Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
2030062.876	1200745.895	1021955.060	17768277.177	.033	1	ADJUSTMENT	1986	17289

NAD27

MN State Plane - North Zone		<u>X</u>	<u>Y</u>	Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>						<u>Year</u>	<u>Reference</u>
1405438.792	872664.488			.100	1	CLASSICAL SURVEY	1960	12443

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/SALOL_RESET-TC0509-3N-15OCT2009.jpg	N	Oct 15, 2009
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/SALOL_RESET-TC0509-2-15OCT2009.jpg		Oct 15, 2009
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/SALOL_RESET-TC0509-1-15OCT2009.jpg		Oct 15, 2009

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: SALOL RM 1

NGS Name: SALOL RM 1

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [CO8272](#) [Get Map](#)
 NGS Quad / Sta Num : 48095412/
 USGS Quad: SALOL

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	9	162 N	38 W	485157.95	953412.67	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1941	2014	GOOD	Horz=NO Vert=YES	YES		PROJECTS 10 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

Description: (2014) **Stamping:** SALOL NO 1 US&CBS 1941

IN SALOL, AT THE JUNCTION OF TRUNK HIGHWAY 11 AND 480TH AVENUE IN SALOL, AT TRUNK HIGHWAY 11 MILEPOINT 80.05, 43.0 FEET SOUTH OF TRUNK HIGHWAY 11, 15.0 FEET EAST OF A DRIVEWAY, 113.99 SOUTHEAST OF SALOL IBC, 109.0 FEET EAST OF 480TH AVENUE 64.0 FEET EAST OF SALOL RM 3.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1078.111	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	
1078.128	.016	2/1					VERTICAL CONTROL SURVEY	2015	VKTAD	

Geoid Separations(ft): GEOID18 = -92.982 12B = -92.969 09 = -92.864 03 = -92.861

* No Horizontal Positions in the Database *

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/SALOL_RM_1-CO8272-3S-24JUN2014.jpg	S	Jun 24, 2014
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/SALOL_RM_1-CO8272-2-24JUN2014.jpg		Jun 24, 2014
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/SALOL_RM_1-CO8272-1-24JUN2014.jpg		Jun 24, 2014

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: SALOL RM 2

NGS Name: SALOL RM 2

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0508](#) [Get Map](#)
 NGS Quad / Sta Num : 48095412/
 USGS Quad: SALOL

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	9	162 N	38 W	485157.37	953415.07	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1941	2014	GOOD	Horz=NO Vert=YES	YES		PROJECTS 15 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

Description: (2014) **Stamping:** SALOL NO 2 US & CBS 1941

IN SALOL, AT THE JUNCTION OF TRUNK HIGHWAY 11 AND 480TH AVENUE IN SALOL, AT TRUNK HIGHWAY 11 MILEPOINT 80.05, 52.0 FEET SOUTHEAST OF TRUNK HIGHWAY 11, 106.0 FEET WEST OF SALOL RM 3, 39.0 FEET EAST OF 480TH AVENUE, 11.5 FEET NORTH OF A POWER POLE AND A TELEPHONE JUNCTION BOX.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1077.478	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941
1077.491	.016	2/1					VERTICAL CONTROL SURVEY	2015	VKTAD
1077.134	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1077.445	.262			984.476	.197	2011	GPS - RTRN	2014	RTRN2014

Geoid Separations(ft): GEOID18 = -92.982 12B = -92.966 09 = -92.861 03 = -92.861

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Roseau County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
48 51 57.37425	95 34 15.06675			639410.752	218032.089	.131	3	GPS - RTRN	2014	RTRN2014

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - North Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2029975.120	1200607.471			1021867.053	17768138.919	.131	3	GPS - RTRN	2014	RTRN2014

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/SALOL_RM_2-TC0508-3S-24JUN2014.jpg	S	Jun 24, 2014
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/SALOL_RM_2-TC0508-2-24JUN2014.jpg		Jun 24, 2014
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/SALOL_RM_2-TC0508-1-24JUN2014.jpg		Jun 24, 2014

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: SALOL RM 3

NGS Name: SALOL RM 3

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0510](#) [Get Map](#)
 NGS Quad / Sta Num : 48095412/
 USGS Quad: SALOL

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	8	162 N	38 W	485157.70	953413.55	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1969	2014	GOOD	Horz=NO Vert=YES	YES		PROJECTS 4 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

Description: (2014) **Stamping:** SALOL 1941 US & CBS NO 3 1969

IN SALOL, AT THE JUNCTION OF TRUNK HIGHWAY 11 AND 480TH AVENUE IN SALOL, AT TRUNK HIGHWAY 11 MILEPOINT 80.05, 50.0 FEET SOUTH OF TRUNK HIGHWAY 11, 145.0 FEET WEST OF 480TH AVENUE, 114.0 FEET SOUTHEAST OF STATION SALOL, 64.0 FEET WEST OF SALOL RM 3, 106.0 FEET EAST OF SALOL RM 2.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1076.868	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941
1076.884	.016	2/1					VERTICAL CONTROL SURVEY	2015	VKTAD
1076.832	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1076.806	.262			983.837	.197	2011	GPS - RTRN	2014	RTRN2014

Geoid Separations(ft): GEOID18 = -92.982 12B = -92.969 09 = -92.864 03 = -92.861

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Roseau County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
48 51 57.69781	95 34 13.55270			639511.739	218065.651	.131	3	GPS - RTRN	2014	RTRN2014

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - North Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2030077.358	1200637.014			1021969.341	17768168.272	.131	3	GPS - RTRN	2014	RTRN2014

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/SALOL_RM_3-TC0510-3S-24JUN2014.jpg	S	Jun 24, 2014
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/SALOL_RM_3-TC0510-2-24JUN2014.jpg		Jun 24, 2014
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/SALOL_RM_3-TC0510-1-24JUN2014.jpg		Jun 24, 2014

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: SAMMY

NGS Name: SAMMY

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DP0908](#) [Get Map](#)
 NGS Quad / Sta Num : 48095141/
 USGS Quad: WARROAD

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	32	163 N	36 W	485330.61	951830.55	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2012	2018	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 35 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2012) **Stamping:** SAMMY 2012

0.6 MILE SOUTHEAST OF WARROAD, 2.1 MILES SOUTHEAST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND TRUNK HIGHWAY 313 IN WARROAD, AT TRUNK HIGHWAY 11 MILEPOINT 93.75, 68.2 FEET SOUTHWEST OF TRUNK HIGHWAY 11, 7.7 FEET NORTHEAST OF A FENCE LINE, 1.5 FEET NORTHEAST OF A WITNESS POINT.

Station Pair: MARINES - ROSEAU, MN

Leveling-Derived Orthometric Heights (Feet)

NAVD88			Orthometric Height			Ellipsoid (NAD83)			Determination Method		Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Year	Reference			Year	Reference	
1073.876	.016	2/1				2014	00000828	VERTICAL ADJUSTMENT				
1073.879	.016	2/1				2013	VHACK	VERTICAL CONTROL SURVEY				

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88			Orthometric Height			Ellipsoid (NAD83)			Determination Method		Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Year	Reference			Year	Reference	
1073.876			980.464	.018	2011	2020	GPS3362	HORIZONTAL ADJUSTMENT				
1073.876	.131		980.608	.066	1996	2020	HGRACE	GPS - STATIC				
1073.876			980.464	.018	2011	2020	HGRACE	GPS - STATIC				
1073.745	.262		980.287	.197	2007	2012	RTRN2012	GPS - RTRN				

Geoid Separations(ft): GEOID18 = -93.514 12B = -93.510 09 = -93.458 03 = -93.428

Lat/Lon and County Coordinates (Feet)

NAD83(2011)		Geodetic Position				Roseau County		Determination Method			Project Info	
Latitude	Longitude	X	Y	Acc	Order	Year	Reference			Year	Reference	
48 53 30.60648	95 18 30.54505	702460.424	228069.685	.016		2020	GPS3362	ADJUSTMENT				
48 53 30.60648	95 18 30.54505	702460.424	228069.685	.016	C	2020	HGRACE	GPS - STATIC				
NAD83(2007)		Geodetic Position				Roseau County		Determination Method			Project Info	
Latitude	Longitude	X	Y	Acc	Order	Year	Reference			Year	Reference	
48 53 30.60602	95 18 30.54534	702460.406	228069.638	.131	3	2012	RTRN2012	GPS - RTRN				
NAD83(1996)		Geodetic Position				Roseau County		Determination Method			Project Info	
Latitude	Longitude	X	Y	Acc	Order	Year	Reference			Year	Reference	
48 53 30.60633	95 18 30.54552	702460.393	228069.670	.033	C	2020	HGRACE	GPS - STATIC				

State Plane and UTM Coordinates (Feet)

NAD83(2011)		MN State Plane - North Zone				UTM - Zone 15		Determination Method			Project Info	
X	Y	X	Y	Acc	Order	Year	Reference			Year	Reference	
2093374.116	1208141.822	1085274.826	17775557.476	.016		2020	GPS3362	ADJUSTMENT				
2093374.116	1208141.822	1085274.826	17775557.476	.016	C	2020	HGRACE	GPS - STATIC				
NAD83(2007)		MN State Plane - North Zone				UTM - Zone 15		Determination Method			Project Info	
X	Y	X	Y	Acc	Order	Year	Reference			Year	Reference	
2093374.096	1208141.776	1085274.805	17775557.430	.131	3	2012	RTRN2012	GPS - RTRN				
NAD83(1996)		MN State Plane - North Zone				UTM - Zone 15		Determination Method			Project Info	
X	Y	X	Y	Acc	Order	Year	Reference			Year	Reference	
2093374.085	1208141.807	1085274.794	17775557.462	.033	C	2020	HGRACE	GPS - STATIC				



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/SAMMY-DP0908-3SW-03DEC2012.jpg	SW	Dec 3, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/SAMMY-DP0908-2-03DEC2012.jpg		Dec 3, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/SAMMY-DP0908-1-03DEC2012.jpg		Dec 3, 2012

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: SPRINGSTEEL ISLAND

NGS Name: SPRINGSTEEL ISLAND

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 48095141/
 USGS Quad: WARROAD

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	9	163 N	36 W	485645.99	951824.87		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2005	2012	DESTROYED	Horz=NO Vert=NO	YES		FLUSH	MARKER IS STEEL ROD

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD (DEPTH 3 FT)	METAL ROD	GSC

Description: (2006)

Stamping:

2.8 MILES NORTH OF WARROAD, 2.2 MILES NORTH ALONG TRUNK HIGHWAY 313 FROM THE JUNCTION OF TRUNK HIGHWAY 313 AND TRUNK HIGHWAY 11 IN WARROAD, THEN 2.0 MILES EAST ALONG COUNTY ROAD 13 (SPRINGSTEEL ROAD) TO A BAR AND THE MAIN BUILDING OF THE SPRINGSTEEL RESORT, 16.0 FEET FROM A POWER POLE IN LINE WITH A POWER POLE AT THE MARINA BUILDING, 15.63 FEET SOUTHWEST OF A NAIL AND DISK IN A LIGHT POLE, 64.65 FEET NORTHWEST OF A NAIL AND DISK IN A BOX ELDER TREE, ON A POINT OF LAND AT THE ENTRANCE TO THE MARINA. THE STATION WAS REPLACED TWICE AS CONFIRMED BY JASON SILLIKER OF CANADA ON 04-03-13.

Station Notes

SET BY JASON SILLIKER, NATURAL RESOURCES OF CANADA, THE BENCHMARK IS 6.25 FEET ABOVE THE WATER LEVEL.

* No Horizontal or Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -93.796 12B = -93.776 09 = -93.717 03 = -93.753

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/SPRINGSTEEL_ISLAND-3NW-09OCT2012.jpg	NW	Oct 9, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/SPRINGSTEEL_ISLAND-2-09OCT2012.jpg		Oct 9, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/SPRINGSTEEL_ISLAND-1-09OCT2012.jpg		Oct 9, 2012

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: SWANSON
County: ROSEAU, MN (Sheet 2)

NGS Name: SWANSON

NGS ACRN: [DP9482](#) [Get Map](#)
NGS Quad / Sta Num : 48095412/
USGS Quad: SALOL

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	9	162 N	38 W	485205.45	953334.59	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2014	2018	GOOD	Horz=YES Vert=YES	YES		RECESSED 1 IN.	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 27 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014) Stamping: SWANSON 2014

11.2 MILES WEST-SOUTHWEST OF WARROAD, 11.05 MILES WEST-SOUTHWEST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND TRUNK HIGHWAY 313 IN WARROAD, AT TRUNK HIGHWAY 11 MILEPOINT 80.55, 63.5 FEET SOUTH OF TRUNK HIGHWAY 11, 14.5 FEET EAST OF A FIELD ENTRANCE, 10.0 FEET WEST OF A WITNESS POST.

Station Pair: KENT - ROSEAU, MN

Leveling-Derived Orthometric Heights (Feet)

NAVD88			Orthometric Height			Ellipsoid (NAD83)			Determination Method		Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj				Year	Reference		
1073.147	.016	2/1				VERTICAL ADJUSTMENT			2019	00000941		
1073.157	.016	2/1				VERTICAL CONTROL SURVEY			2015	VKTAD		

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88			Orthometric Height			Ellipsoid (NAD83)			Determination Method		Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj				Year	Reference		
1073.147	.131		980.326	.066	1996	GPS - STATIC			2021	HKTAD		
1073.147			980.165	.022	2011	HORIZONTAL ADJUSTMENT			2020	GPS3390		
1073.147			980.165	.022	2011	GPS - STATIC			2020	HKTAD		
1073.246	.262		980.228	.197	2011	GPS - RTRN			2014	RTRN2014		

Geoid Separations(ft): GEOID18 = -93.028 12B = -93.015 09 = -92.910 03 = -92.907

Lat/Lon and County Coordinates (Feet)

NAD83(2011)		Geodetic Position		Roseau County		Acc		Order		Determination Method		Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference					
48 52 05.45351	95 33 34.58695	642111.067	218871.693	.013		ADJUSTMENT	2020	GPS3390					
48 52 05.45351	95 33 34.58695	642111.067	218871.693	.013	C	GPS - STATIC	2020	HKTAD					
48 52 05.45378	95 33 34.58732	642111.043	218871.720	.131	3	GPS - RTRN	2014	RTRN2014					

NAD83(1996)		Geodetic Position		Roseau County		Acc		Order		Determination Method		Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference					
48 52 05.45333	95 33 34.58757	642111.026	218871.674	.033	C	GPS - STATIC	2021	HKTAD					

State Plane and UTM Coordinates (Feet)

NAD83(2011)		MN State Plane - North Zone		UTM - Zone 15		Acc		Order		Determination Method		Project Info	
X	Y	X	Y	X	Y	Acc	Order	Determination Method	Year	Reference			
2032706.587	1201339.616	1024599.778	17768866.016	.013		ADJUSTMENT			2020	GPS3390			
2032706.587	1201339.616	1024599.778	17768866.016	.013	C	GPS - STATIC			2020	HKTAD			
2032706.564	1201339.644	1024599.754	17768866.044	.131	3	GPS - RTRN			2014	RTRN2014			

NAD83(1996)		MN State Plane - North Zone		UTM - Zone 15		Acc		Order		Determination Method		Project Info	
X	Y	X	Y	X	Y	Acc	Order	Determination Method	Year	Reference			
2032706.545	1201339.599	1024599.736	17768865.999	.033	C	GPS - STATIC			2021	HKTAD			

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/SWANSON-DP9482-3S-29JUL2014.jpg	S	Jul 29, 2014
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/SWANSON-DP9482-2-29JUL2014.jpg		Jul 29, 2014
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/SWANSON-DP9482-1-29JUL2014.jpg		Jul 29, 2014

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: SWEDE

NGS Name: SWEDE

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC1270](#) [Get Map](#)
 NGS Quad / Sta Num : 48095141/
 USGS Quad: WARROAD

		<u>Reference</u>		<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>
SE	18	163 N	36 W	485550.88	952012.18	2 B

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1988	2012	GOOD	Horz=NO Vert=NO	YES		RECESSED 4 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
STEEL ROD (IN SLEEVE) (DEPTH 34 FT)	METAL ROD	MNDT

Description: (2008) **Stamping:** SWEDE 1988

2.0 MILES NORTHWEST OF WARROAD, 1.2 MILES NORTH ALONG TRUNK HIGHWAY 313 FROM THE JUNCTION OF TRUNK HIGHWAY 313 AND TRUNK HIGHWAY 11, THEN 0.2 MILE WEST ALONG COUNTY ROAD 13, AT THE AIRPORT, 78.1 FEET NORTH OF COUNTY ROAD 13, 221.5 FEET WEST OF A GREEN TRANSFORMER BOX, 1.0 FOOT SOUTH OF A WITNESS POST. THE FLANGE AND CONCRETE PROJECT 6.0 INCHES.

Station Notes

THE SURVEY MARK IS ON AIRPORT PROPERTY AND HAS BEEN ABANDONED FOR MNDOT GEODETIC USE.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1069.749	.016	2/1					VERTICAL ADJUSTMENT	2000	00000365	
1069.749	.016	2/1					VERTICAL CONTROL SURVEY	1998	VWARR	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1068.341	.016	2/1					VERTICAL CONTROL SURVEY	1999	VWARR	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1069.709	.262			976.179	.197	2007	GPS - RTRN	2012	RTRN2012	
				976.110	.009	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800	
1069.749	.131			976.212	.066	2007	HORIZONTAL ADJUSTMENT	2009	GPS2522	
1069.749	.131			976.212	.066	2007	GPS - STATIC	2008	HROSO	
1069.749	.131			976.196	.066	1996	GPS - STATIC	2008	HROSO	
				976.212	.013	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300	
1069.749	.098			976.196	.049	1996	GPS - STATIC	2004	GPS1954	
1069.749	.131			976.196	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1795	
1069.749	.131			976.196	.066	1996	GPS - STATIC	2002	HWARR	
1069.322	.098			976.196	.049	1996	HORIZONTAL ADJUSTMENT	1999	17648	
1069.578	.098			976.196	.049	1996	GPS - STATIC	1997	GPS805-B	
1069.578	.131			976.196	.066	1996	GPS - STATIC	1997	GPS805-C	
1069.814							GPS - STATIC	1996	HORZ	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1068.403							GPS - STATIC	1988	HORZ	

Geoid Separations(ft): GEOID18 = -93.625 12B = -93.609 09 = -93.530 03 = -93.560



Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Roseau County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 55 50.88479	95 20 12.17971	695516.610	242212.804	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Roseau County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 55 50.88456	95 20 12.17961	695516.617	242212.780	.131	3	GPS - RTRN	2012	RTRN2012
48 55 50.88481	95 20 12.18043	695516.562	242212.805	.033	C	ADJUSTMENT	2009	GPS2522
48 55 50.88481	95 20 12.18043	695516.562	242212.805	.033	C	GPS - STATIC	2008	HROSO
48 55 50.88481	95 20 12.18043	695516.562	242212.805	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Roseau County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 55 50.88477	95 20 12.18014	695516.582	242212.801	.033	C	GPS - STATIC	2008	HROSO
48 55 50.88477	95 20 12.18014	695516.582	242212.801	.016	B	GPS - STATIC	2004	GPS1954
48 55 50.88477	95 20 12.18014	695516.582	242212.801	.033	C	ADJUSTMENT	2003	GPS1795
48 55 50.88477	95 20 12.18014	695516.582	242212.801	.033	C	GPS - STATIC	2002	HWARR
48 55 50.88477	95 20 12.18014	695516.582	242212.801	.016	B	ADJUSTMENT	1999	17648
48 55 50.88477	95 20 12.18014	695516.582	242212.801	.016	B	GPS - STATIC	1997	GPS805-B
48 55 50.88477	95 20 12.18014	695516.582	242212.801	.033	C	GPS - STATIC	1997	GPS805-C

NAD83(1986)

Geodetic Position		Roseau County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 55 50.86977	95 20 12.14941	695518.650	242211.303	.033	1	ADJUSTMENT	1989	GPS138

NAD27

Geodetic Position						Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 55 50.91499	95 20 11.28719			.100	1	CLASSICAL SURVEY	1989	GPS138

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2086995.653	1222549.299	1078923.190	17789974.664	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2086995.659	1222549.275	1078923.196	17789974.640	.131	3	GPS - RTRN	2012	RTRN2012
2086995.605	1222549.302	1078923.142	17789974.667	.033	C	ADJUSTMENT	2009	GPS2522
2086995.605	1222549.302	1078923.142	17789974.667	.033	C	GPS - STATIC	2008	HROSO
2086995.605	1222549.302	1078923.142	17789974.667	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2086995.625	1222549.298	1078923.161	17789974.663	.033	C	GPS - STATIC	2008	HROSO
2086995.625	1222549.298	1078923.161	17789974.663	.016	B	GPS - STATIC	2004	GPS1954
2086995.625	1222549.298	1078923.161	17789974.663	.033	C	ADJUSTMENT	2003	GPS1795
2086995.625	1222549.298	1078923.161	17789974.663	.033	C	GPS - STATIC	2002	HWARR
2086995.625	1222549.298	1078923.161	17789974.663	.016	B	ADJUSTMENT	1999	17648
2086995.625	1222549.298	1078923.161	17789974.663	.016	B	GPS - STATIC	1997	GPS805-B
2086995.625	1222549.298	1078923.161	17789974.663	.033	C	GPS - STATIC	1997	GPS805-C

NAD83(1986)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2086997.632	1222547.719	1078925.166	17789973.080	.033	1	ADJUSTMENT	1989	GPS138

NAD27

MN State Plane - North Zone						Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1462371.428	894465.146			.100	1	CLASSICAL SURVEY	1989	GPS138



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/SWEDE-TC1270-3N-09OCT2012.jpg	N	Oct 9, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/SWEDE-TC1270-2-09OCT2012.jpg		Oct 9, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/SWEDE-TC1270-1-09OCT2012.jpg		Oct 9, 2012

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: T 208

NGS Name: T 208

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0322](#) [Get Map](#)
 NGS Quad / Sta Num : 48095113/
 USGS Quad: SWIFT

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	21	162 N	35 W	484948.00	950949.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1935	2012	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	BENCH MARK DISK	NGS

Description: (1981) **Stamping:** T-208 1935

2.9 MILES SOUTHEAST ON TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND COUNTY ROAD 2 AT SWIFT, 172.5 FEET NORTHEAST OF TRUNK HIGHWAY 11, AT TRUNK HIGHWAY 11 MILEPOINT 101.5, 40.2 FEET NORTHEAST OF THE NORTHEAST RAIL OF A RAILROAD, AT RAILROAD MILEPOST 29, 38.5 FEET SOUTHEAST OF OLD TRUNK HIGHWAY 11, 2.0 FEET SOUTHWEST OF A WITNESS POST.

Station Notes

FOUND THE CONCRETE LOOSE.
 THE DISK WAS TURNED IN TO THE OFFICE.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1125.706	.016	2				VERTICAL CONTROL SURVEY	1993	POSTED

NGVD29

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1124.338	.033	3				VERTICAL CONTROL SURVEY	1974	USGS-VERT
1124.338	.016	2				VERTICAL CONTROL SURVEY	1973	Q480951
1124.338	.016	2				VERTICAL CONTROL SURVEY	1973	L22862
1124.260	.007	1				VERTICAL CONTROL SURVEY	1941	Q480951
1124.260	.007	1				VERTICAL CONTROL SURVEY	1935	L56 MINN

Geoid Separations(ft): GEOID18 = -94.035 12B = -94.019 09 = -93.920 03 = -93.907

* No Horizontal Positions in the Database *



Mn/DOT Name: T=1101 RESET

NGS Name: 1101 RESET

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0366](#) [Get Map](#)
 NGS Quad / Sta Num : 48095412/
 USGS Quad: SALOL

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	26	162 N	38 W	484907.00	953118.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1966	2008	GOOD	Horz=? Vert=YES	NO	68505	FLUSH	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
BRIDGE ABUTMENT	SURVEY DISK	USGS

Description: (1966) Stamping: MINNESOTA 1101

AT THE ABANDONED SITE OF PEQUIS, JUST EAST OF HAY CREEK, 1800.0 FEET NORTH AND 1265.0 FEET EAST OF THE NORTHEAST CORNER OF SECTION 34, IN THE SOUTHEAST CORNER OF COUNTY ROAD 12 BRIDGE NUMBER 68505.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1096.756	.033	3				VERTICAL CONTROL SURVEY	1974	USGS-VERT	
1096.756	.007	1				VERTICAL CONTROL SURVEY	1941	Q480951	

Geoid Separations(ft): GEOID18 = -93.008 12B = -92.992 09 = -92.884 03 = -92.864

* No Horizontal Positions in the Database *



Mn/DOT Name: TAIJA

NGS Name: TAIJA

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DP0911](#) [Get Map](#)
 NGS Quad / Sta Num : 48095142/
 USGS Quad: WARROAD SE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	11	162 N	36 W	485152.89	951501.42	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2012	2018	GOOD	Horz=YES Vert=YES	YES		RECESSED 4 IN.	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 19 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2012) **Stamping:** TAIJA 2012

4.1 MILES SOUTHEAST OF WARROAD, 5.35 MILES SOUTHEAST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND TRUNK HIGHWAY 313 IN WARROAD, AT TRUNK HIGHWAY 11 MILEPOINT 97.0, 50.7 FEET SOUTHWEST OF TRUNK HIGHWAY 11, 19.0 FEET NORTHEAST OF A FENCE LINE, 1.5 FEET NORTHEAST OF A WITNESS POST.

Station Pair: VAL - ROSEAU, MN

Leveling-Derived Orthometric Heights (Feet)

NAVD88			Orthometric Height			Ellipsoid (NAD83)			Determination Method		Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Year	Reference					
1085.457	.016	2/1				2014	00000828					
1085.454	.016	2/1				2013	VHACK					

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88			Orthometric Height			Ellipsoid (NAD83)			Determination Method		Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Year	Reference					
1085.457			991.737	.017	2011	2020	GPS3362					
1085.457	.131		991.881	.066	1996	2020	HGRACE					
1085.457			991.737	.017	2011	2020	HGRACE					
1085.339	.262		991.694	.197	2007	2012	RTRN2012					

Geoid Separations(ft): GEOID18 = -93.750 12B = -93.697 09 = -93.648 03 = -93.655

Lat/Lon and County Coordinates (Feet)

NAD83(2011)		Geodetic Position		Roseau County		Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 51 52.88543	95 15 01.41905	716552.766	218325.775	.013		ADJUSTMENT	2020	GPS3362
48 51 52.88543	95 15 01.41905	716552.766	218325.775	.013	C	GPS - STATIC	2020	HGRACE

NAD83(2007)		Geodetic Position		Roseau County		Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 51 52.88559	95 15 01.41975	716552.719	218325.791	.131	3	GPS - RTRN	2012	RTRN2012

NAD83(1996)		Geodetic Position		Roseau County		Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 51 52.88527	95 15 01.41953	716552.734	218325.759	.033	C	GPS - STATIC	2020	HGRACE

State Plane and UTM Coordinates (Feet)

NAD83(2011)		MN State Plane - North Zone		UTM - Zone 15		Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2107069.740	1197847.117	1098950.362	17765239.685	.013		ADJUSTMENT	2020	GPS3362
2107069.740	1197847.117	1098950.362	17765239.685	.013	C	GPS - STATIC	2020	HGRACE

NAD83(2007)		MN State Plane - North Zone		UTM - Zone 15		Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2107069.693	1197847.134	1098950.316	17765239.703	.131	3	GPS - RTRN	2012	RTRN2012

NAD83(1996)		MN State Plane - North Zone		UTM - Zone 15		Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2107069.707	1197847.102	1098950.330	17765239.670	.033	C	GPS - STATIC	2020	HGRACE



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/TAIJA-DP0911-3SW-27NOV2012.jpg	SW	Nov 27, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/TAIJA-DP0911-2-27NOV2012.jpg		Nov 27, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/TAIJA-DP0911-1-27NOV2012.jpg		Nov 27, 2012

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: TANGN MNDT

NGS Name: TANGN

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DI2072](#) [Get Map](#)
 NGS Quad / Sta Num : 48095142/
 USGS Quad: WARROAD SE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	18	161 N	36 W	484535.35	951950.82	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2003	2007	GOOD	Horz=YES Vert=YES	YES		FLUSH	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 25 FT)	SURVEY DISK	MNDT

Description: (1966) Stamping: TANGN 2003

10.0 MILES SOUTH OF WARROAD, 9.7 MILES SOUTH ALONG COUNTY ROAD 5 FROM THE JUNCTION OF COUNTY ROAD 5 AND TRUNK HIGHWAY 11 IN WARROAD, 47.1 FEET WEST OF COUNTY ROAD 5, 13.9 FEET SOUTH OF AN ENTRANCE, 2.0 FEET NORTH OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>	
1154.023	.016	2/1				2006	00000425-12	VERTICAL ADJUSTMENT				
1154.013	.016	2/1				2005	VTURN	VERTICAL CONTROL SURVEY				

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>	
			1061.113	.008	2011	2012	GPS2800	HORIZONTAL ADJUSTMENT				
1154.033	.131		1061.231	.066	2007	2009	GPS2522	HORIZONTAL ADJUSTMENT				
1154.033	.131		1061.231	.066	2007	2008	HROSO	GPS - STATIC				
1154.033	.131		1061.271	.066	1996	2008	HROSO	GPS - STATIC				

Geoid Separations(ft): GEOID18 = -92.900 12B = -92.880 09 = -92.789 03 = -92.772

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
48 45 35.34982	95 19 50.82014	697613.719	179845.925	.007		ADJUSTMENT	2012	GPS2800	

<u>NAD83(2007)</u>		<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
48 45 35.34998	95 19 50.82097	697613.663	179845.941	.033	C	ADJUSTMENT	2009	GPS2522	
48 45 35.34998	95 19 50.82097	697613.663	179845.941	.033	C	GPS - STATIC	2008	HROSO	

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
48 45 35.35001	95 19 50.82072	697613.680	179845.944	.033	C	GPS - STATIC	2008	HROSO	

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>		<u>MN State Plane - North Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2086621.341	1160147.482	1078437.957	17727579.785	.007		ADJUSTMENT	2012	GPS2800

<u>NAD83(2007)</u>		<u>MN State Plane - North Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2086621.285	1160147.500	1078437.902	17727579.803	.033	C	ADJUSTMENT	2009	GPS2522
2086621.285	1160147.500	1078437.902	17727579.803	.033	C	GPS - STATIC	2008	HROSO

<u>NAD83(1996)</u>		<u>MN State Plane - North Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2086621.302	1160147.502	1078437.919	17727579.806	.033	C	GPS - STATIC	2008	HROSO



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/TANGN-DI2072-3W-10MAY2007.jpg	W	May 10, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/TANGN-DI2072-2-10MAY2007.jpg		May 10, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/TANGN-DI2072-1-10MAY2007.jpg		May 10, 2007

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: TBM 04 A L22862

NGS Name: TBM 04 A

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [AM6196](#) [Get Map](#)
 NGS Quad / Sta Num : 48095112/
 USGS Quad: ROOSEVELT

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	35	162 N	35 W	484843.00	950711.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1972	1972	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	MNDT

Description:

Stamping:

8.13 MILES NORTHWEST OF WILLIAMS, 7.7 MILES NORTHWEST ALONG MOM'S WAY FROM THE JUNCTION OF MOM'S WAY AND MELONEY AVENUE, THEN 259.0 FEET NORTH ON 690TH AVENUE, THEN 0.4 MILE NORTHWEST ON KIRKWOOD DRIVE, THEN 58.0 FEET SOUTHWEST OF KIRKWOOD DRIVE, IN THE 50.0 FEET ZONE OF THE RAILROAD TRACK.

* No Horizontal or Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -94.114 12B = -94.104 09 = -94.012 03 = -93.996



Mn/DOT Name: TBM 04 C L22862

NGS Name: TBM 04 C

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [AM6198](#) [Get Map](#)
 NGS Quad / Sta Num : 48095113/
 USGS Quad: SWIFT

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	20	162 N	35 W	485022.00	951117.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1972	1972	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	MNDT

Description:

Stamping:

1.82 MILES SOUTHEAST OF SWIFT, 1.74 MILES SOUTHEAST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND COUNTY ROAD 2 IN SWIFT.

* No Horizontal or Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -93.970 12B = -93.943 09 = -93.855 03 = -93.848



Mn/DOT Name: TBM 04 D L22862

NGS Name: TBM 04 D

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [AM6199](#) [Get Map](#)
 NGS Quad / Sta Num : 48095113/
 USGS Quad: SWIFT

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	13	162 N	36 W	485125.00	951349.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1972	1972	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	MNDT

Description:

Stamping:

0.47 MILE NORTHEAST OF SWIFT, 0.52 MILE NORTHEAST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND COUNTY ROAD 2 IN SWIFT.

* No Horizontal or Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -93.838 12B = -93.789 09 = -93.724 03 = -93.730



Mn/DOT Name: TBM 04 E L22862

NGS Name: TBM 04 E

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [AM6200](#) [Get Map](#)
 NGS Quad / Sta Num : 48095142/
 USGS Quad: WARROAD SE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	10	162 N	36 W	485216.00	951555.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1972	1972	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	MNDT

Description:

Stamping:

3.25 MILES SOUTHEAST OF WARROAD, 0.3 MILE WEST ALONG LAKE STREET NORTHEAST FROM THE JUNCTION FROM LAKE STREET NORTHEAST AND ROBERTS AVENUE NORTHEAST, THEN 3.5 MILES SOUTHEAST ON TRUNK HIGHWAY 11 E/MOM'S WAY/STATE AVENUE, THEN 58.0 FEET NORTHWEST.

* No Horizontal or Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -93.678 12B = -93.635 09 = -93.586 03 = -93.589



Mn/DOT Name: TBM 04 F L22862

NGS Name: TBM 04 F

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [AM6201](#) [Get Map](#)
 NGS Quad / Sta Num : 48095141/
 USGS Quad: WARROAD

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	4	162 N	36 W	485252.00	951714.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1972	1972	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	MNDT

Description:

Stamping:

2.08 MILES SOUTHEAST OF WARROAD, 0.3 MILE WEST ALONG LAKE STREET NORTHEAST FROM THE JUNCTION FROM LAKE STREET NORTHEAST AND ROBERTS AVENUE NORTHEAST, THEN 2.3 MILES SOUTHEAST ON TRUNK HIGHWAY 11 E/MOM'S WAY/STATE AVENUE, THEN 47.0 FEET NORTHWEST.

* No Horizontal or Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -93.573 12B = -93.553 09 = -93.504 03 = -93.484



Mn/DOT Name: TBM 04 G L22862

NGS Name: TBM 04 G

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [AM6202](#) [Get Map](#)
 NGS Quad / Sta Num : 48095141/
 USGS Quad: WARROAD

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	33	163 N	36 W	485320.00	951807.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1972	1972	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	MNDT

Description:

Stamping:

1.27 MILES SOUTHEAST OF WARROAD, 0.3 MILE WEST ALONG LAKE STREET NORTHEAST FROM THE JUNCTION FROM LAKE STREET NORTHEAST AND ROBERTS AVENUE NORTHEAST, THEN 1.5 MILES SOUTHEAST ON TRUNK HIGHWAY 11 E/MOM'S WAY/STATE AVENUE, THEN 71.0 FEET NORTHWEST.

* No Horizontal or Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -93.527 12B = -93.520 09 = -93.471 03 = -93.441



Mn/DOT Name: TBM 1 L7514

NGS Name: TBM 1

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [BB2344](#) [Get Map](#)
 NGS Quad / Sta Num : 48095113/
 USGS Quad: SWIFT

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	18	162 N	35 W	485100.00	951247.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1935	1935	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	NGS

Description:

Stamping:

13.1 MILES NORTHWEST OF WILLIAMS, 13.1 MILES NORTHWEST ALONG MOM'S WAY FROM THE JUNCTION OF MOM'S WAY AND MELONEY AVENUE, THEN 213.0 FEET NORTHEAST OF MOM'S WAY. IN THE 50.0 FEET ZONE OF THE RAILROAD TRACK.

* No Horizontal or Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -93.901 12B = -93.858 09 = -93.779 03 = -93.783



Mn/DOT Name: TBM 1 L8830

NGS Name: TBM 1

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0356](#) [Get Map](#)
 NGS Quad / Sta Num : 48095144/
 USGS Quad: WARROAD NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	32	163 N	37 W	485336.00	952704.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1940	2009	DESTROYED	Horz=NO Vert=NO	NO		FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	CHISELED SQUARE	NGS

Description: (1940) **Stamping:** CHISELED SQUARE

5.6 MILES EAST FROM SALOL, 5.6 MILES EAST ALONG THE GREAT NORTHERN RAILWAY FROM THE STATION AT SALOL, ON THE TOP OF CULVERT 271, AN OUTLINED SQUARE.

Station Notes

10-14-2009 FOUND TRIPLE 24.0 INCH DIAMETER CULVERTS AT THIS LOCATION, BELIEVE THE ORIGINAL CULVERT HAS BEEN REPLACED CONSIDER THIS MARK DESTROYED. THIS MARK MAY ALSO BE TBM 1 (BA2524).

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1085.201	.007	1/1				UNKNOWN/APPROXIMATE	1992	UNCHECKD	

Geoid Separations(ft): GEOID18 = -93.366 12B = -93.353 09 = -93.245 03 = -93.245

* No Horizontal Positions in the Database *



Mn/DOT Name: TBM 1 VTURN

NGS Name: TBM 1

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DI2075](#) [Get Map](#)
 NGS Quad / Sta Num : 48095141/
 USGS Quad: WARROAD

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	32	163 N	36 W	485313.20	951910.10	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2004	2011	DESTROYED	Horz=NO Vert=NO	NO			MARKER IS STEEL ROD

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
PILES AND POLES	SPIKE	MNDT

Description: (2004)

Stamping:

1.0 MILE SOUTH OF WARROAD ON COUNTY ROAD 5, 40.0 FEET WEST OF COUNTY ROAD 5, SET IN A POWER POLE.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1076.350	.016	2/1				VERTICAL ADJUSTMENT	2006	00000425-12	
1076.346	.016	2/1				VERTICAL CONTROL SURVEY	2005	VTURN	

Geoid Separations(ft): GEOID18 = -93.458 12B = -93.451 09 = -93.399 03 = -93.369

* No Horizontal Positions in the Database *



Mn/DOT Name: TBM 10 VTURN

NGS Name: TBM 10

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DI2095](#) [Get Map](#)
 NGS Quad / Sta Num : 48095131/
 USGS Quad: MULLIGAN LAKE NE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	31	161 N	36 W	484247.00	952033.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2004	2011	DESTROYED	Horz=NO Vert=NO	NO		RECESSED 3 IN.	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD (DEPTH 2 FT)	SEE DESCRIPTION	MNDT

Description: (2004)

Stamping:

12.53 MILES SOUTH ON COUNTY ROAD 5 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND COUNTY ROAD 5 AT WARROAD, 25.0 FEET WEST OF COUNTY ROAD 5.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order/(Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1212.396	.016	2/1				VERTICAL ADJUSTMENT	2006	00000425-12	
1212.379	.016	2/1				VERTICAL CONTROL SURVEY	2005	VTURN	

Geoid Separations(ft): GEOID18 = -92.664 12B = -92.664 09 = -92.562 03 = -92.526

* No Horizontal Positions in the Database *



Mn/DOT Name: TBM 11 VTURN

NGS Name: TBM 11

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DI2096](#) [Get Map](#)
 NGS Quad / Sta Num : 48095131/
 USGS Quad: MULLIGAN LAKE NE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	7	160 N	36 W	484148.00	952033.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2004	2011	DESTROYED	Horz=NO Vert=NO	NO		RECESSED 3 IN.	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD (DEPTH 2 FT)	SEE DESCRIPTION	MNDT

Description: (2004)

Stamping:

14.73 MILES SOUTH ON COUNTY ROAD 5 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND COUNTY ROAD 5, 30.0 FEET EAST OF COUNTY ROAD 5 BY A TURNOUT.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order/(Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1214.446	.016	2/1				VERTICAL ADJUSTMENT	2006	00000425-12	
1214.423	.016	2/1				VERTICAL CONTROL SURVEY	2005	VTURN	

Geoid Separations(ft): GEOID18 = -92.579 12B = -92.582 09 = -92.477 03 = -92.431

* No Horizontal Positions in the Database *



Mn/DOT Name: TBM 12 VTURN

NGS Name: TBM 12

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DI2097](#) [Get Map](#)
 NGS Quad / Sta Num : 48095131/
 USGS Quad: MULLIGAN LAKE NE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	13	160 N	37 W	484048.00	952032.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2004	2011	DESTROYED	Horz=NO Vert=NO	NO		RECESSED 3 IN.	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD (DEPTH 2 FT)	SEE DESCRIPTION	MNDT

Description: (2004)

Stamping:

15.73 MILES SOUTH ON COUNTY ROAD 5 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND COUNTY ROAD 5, 12.0 FEET WEST OF COUNTY ROAD 5.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order/(Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1220.204	.016	2/1							VERTICAL ADJUSTMENT	2006	00000425-12	
1220.181	.016	2/1							VERTICAL CONTROL SURVEY	2005	VTURN	

Geoid Separations(ft): GEOID18 = -92.477 12B = -92.487 09 = -92.382 03 = -92.329

* No Horizontal Positions in the Database *



Mn/DOT Name: TBM 13 VTURN

NGS Name: TBM 13

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DI2083](#) [Get Map](#)
 NGS Quad / Sta Num : 48095131/
 USGS Quad: MULLIGAN LAKE NE

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NE	24	160 N	37 W	483953.00	952033.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2004	2011	DESTROYED	Horz=NO Vert=NO	NO		RECESSED 3 IN.	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD (DEPTH 2 FT)	SEE DESCRIPTION	MNDT

Description: (2004)

Stamping:

16.73 MILES SOUTH ON COUNTY ROAD 5 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND COUNTY ROAD 5, 12.0 FEET WEST OF COUNTY ROAD 5.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1227.822	.016	2/1				VERTICAL ADJUSTMENT	2006	00000425-12	
1227.799	.016	2/1				VERTICAL CONTROL SURVEY	2005	VTURN	

Geoid Separations(ft): GEOID18 = -92.372 12B = -92.385 09 = -92.287 03 = -92.231

* No Horizontal Positions in the Database *



Mn/DOT Name: TBM 14 VTURN

NGS Name: TBM 14

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DI2084](#) [Get Map](#)
 NGS Quad / Sta Num : 48095131/
 USGS Quad: MULLIGAN LAKE NE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	25	160 N	37 W	483856.00	952032.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2004	2011	DESTROYED	Horz=NO Vert=NO	NO		RECESSED 3 IN.	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD (DEPTH 2 FT)	SEE DESCRIPTION	MNDT

Description: (2004)

Stamping:

17.73 MILES SOUTH ON COUNTY ROAD 5 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND COUNTY ROAD 5, 20.0 FEET WEST OF COUNTY ROAD 5.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order/(Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1235.726	.016	2/1				VERTICAL ADJUSTMENT	2006	00000425-12	
1235.703	.016	2/1				VERTICAL CONTROL SURVEY	2005	VTURN	

Geoid Separations(ft): GEOID18 = -92.260 12B = -92.273 09 = -92.182 03 = -92.123

* No Horizontal Positions in the Database *



Mn/DOT Name: TBM 15 VTURN

NGS Name: TBM 15

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DI2085](#) [Get Map](#)
 NGS Quad / Sta Num : 48095131/
 USGS Quad: MULLIGAN LAKE NE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	36	160 N	37 W	483811.00	952033.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2004	2011	DESTROYED	Horz=NO Vert=NO	NO		RECESSED 3 IN.	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD (DEPTH 2 FT)	SEE DESCRIPTION	MNDT

Description: (2004)

Stamping:

18.73 MILES SOUTH ON COUNTY ROAD 5 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND COUNTY ROAD 5, 20.0 FEET WEST OF COUNTY ROAD 5 BY A CURVE SIGNPOST.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order/(Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1236.293	.016	2/1				VERTICAL ADJUSTMENT	2006	00000425-12	
1236.270	.016	2/1				VERTICAL CONTROL SURVEY	2005	VTURN	

Geoid Separations(ft): GEOID18 = -92.172 12B = -92.185 09 = -92.093 03 = -92.034

* No Horizontal Positions in the Database *



Mn/DOT Name: TBM 2 L8830

NGS Name: TBM 2

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0401](#) [Get Map](#)
 NGS Quad / Sta Num : 48095413/
 USGS Quad: MALUNG

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	20	162 N	39 W	485046.00	954309.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1940	2009	DESTROYED	Horz=NO Vert=NO	NO		FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	SEE DESCRIPTION	NGS

Description: (1940)

Stamping:

2.0 MILES EAST OF ROSEAU, 2.0 MILES EAST ALONG THE GREAT NORTHERN RAILWAY FROM THE STATION IN ROSEAU, IN THE SOUTH END OF CONCRETE PIPE CULVERT 183.1, AN OUTLINED SQUARE.

Station Notes

10-27-2009 FOUND NO CULVERT AT THIS LOCATION. CONSIDERED DESTROYED.
 THIS MARK MAY ALSO BE TBM 2 (BA2525).

Leveling-Derived Orthometric Heights (Feet)

NGVD29

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1055.759	.007	1/1				UNKNOWN/APPROXIMATE	1992	UNCHECKD	

Geoid Separations(ft): GEOID18 = -92.290 12B = -92.290 09 = -92.175 03 = -92.165

* No Horizontal Positions in the Database *



Mn/DOT Name: TBM 2 VTURN

NGS Name: TBM 2

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DI2076](#) [Get Map](#)
 NGS Quad / Sta Num : 48095142/
 USGS Quad: WARROAD SE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	7	162 N	36 W	485156.00	951950.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2004	2011	DESTROYED	Horz=NO Vert=NO	NO			MARKER IS STEEL ROD

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
PILES AND POLES	SPIKE	MNDT

Description: (2004)

Stamping:

2.4 MILES SOUTH OF WARROAD ON COUNTY ROAD 5, SET IN A DOUBLE POWER POLE.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1081.192	.016	2/1				VERTICAL ADJUSTMENT	2006	00000425-12	
1081.186	.016	2/1				VERTICAL CONTROL SURVEY	2005	VTURN	

Geoid Separations(ft): GEOID18 = -93.350 12B = -93.327 09 = -93.264 03 = -93.248

* No Horizontal Positions in the Database *



Mn/DOT Name: TBM 3 L8830

NGS Name: TBM 3

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0403](#) [Get Map](#)
 NGS Quad / Sta Num : 48095413/
 USGS Quad: MALUNG

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	20	162 N	39 W	485045.00	954327.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1940	2009	DESTROYED	Horz=NO Vert=NO	YES		FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	CHISELED SQUARE	NGS

Description: (1940)

Stamping:

1.7 MILES EAST FROM ROSEAU, 1.7 MILES EAST ALONG THE GREAT NORTHERN RAILWAY FROM THE STATION AT ROSEAU, ON THE TOP OF A CONCRETE CULVERT, NORTH OF THE TRACK, A CHISELED SQUARE.

Station Notes

10-27-2009 THE CONCRETE CULVERT HAS BEEN REPLACED BY A CORRUGATED METAL PIPE.

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>						<u>Project Info</u>	
<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Year</u>	<u>Reference</u>
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		
1055.369	.007	1/1				1992	UNCHECKD
<u>Determination Method</u>							
UNKNOWN/APPROXIMATE							

Geoid Separations(ft): GEOID18 = -92.267 12B = -92.267 09 = -92.152 03 = -92.142

* No Horizontal Positions in the Database *

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:			
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/TBM_3-TC0403-2-27OCT2009.jpg		Oct 27, 2009
Disk:			

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: TBM 3 VTURN

NGS Name: TBM 3

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DI2077](#) [Get Map](#)
 NGS Quad / Sta Num : 48095142/
 USGS Quad: WARROAD SE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	18	162 N	36 W	485055.00	951949.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2004	2011	DESTROYED	Horz=NO Vert=NO	NO			MARKER IS STEEL ROD

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
PILES AND POLES	SPIKE	MNDT

Description: (2004)

Stamping:

3.4 MILES SOUTH OF WARROAD ON COUNTY ROAD 5, 40.0 FEET EAST OF COUNTY ROAD 5, SET IN POWER POLE NUMBER 56.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order/(Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1091.251	.016	2/1				VERTICAL ADJUSTMENT	2006	00000425-12	
1091.245	.016	2/1				VERTICAL CONTROL SURVEY	2005	VTURN	

Geoid Separations(ft): GEOID18 = -93.277 12B = -93.254 09 = -93.186 03 = -93.169

* No Horizontal Positions in the Database *



Mn/DOT Name: TBM 4 VTURN

NGS Name: TBM 4

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DI2078](#) [Get Map](#)
 NGS Quad / Sta Num : 48095142/
 USGS Quad: WARROAD SE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	19	162 N	36 W	485001.00	951950.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2004	2011	DESTROYED	Horz=NO Vert=NO	NO			MARKER IS STEEL ROD

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
PILES AND POLES	SPIKE	MNDT

Description: (2004)

Stamping:

4.4 MILES SOUTH OF WARROAD ON COUNTY ROAD 5, 60.0 FEET EAST OF COUNTY ROAD 5, SET IN POWER POLE NUMBER 71.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order/(Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1098.905	.016	2/1				VERTICAL ADJUSTMENT	2006	00000425-12	
1098.899	.016	2/1				VERTICAL CONTROL SURVEY	2005	VTURN	

Geoid Separations(ft): GEOID18 = -93.212 12B = -93.182 09 = -93.110 03 = -93.094

* No Horizontal Positions in the Database *



Mn/DOT Name: TBM 5 VTURN

NGS Name: TBM 5

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DI2079](#) [Get Map](#)
 NGS Quad / Sta Num : 48095142/
 USGS Quad: WARROAD SE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	30	162 N	36 W	484910.00	951952.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2004	2011	DESTROYED	Horz=NO Vert=NO	NO			MARKER IS STEEL ROD

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
PILES AND POLES	SPIKE	MNDT

Description: (2004)

Stamping:

5.4 MILES SOUTH OF WARROAD ON COUNTY ROAD 5, SET IN POWER POLE NUMBER 84.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1116.313	.016	2/1				VERTICAL ADJUSTMENT	2006	00000425-12	
1116.307	.016	2/1				VERTICAL CONTROL SURVEY	2005	VTURN	

Geoid Separations(ft): GEOID18 = -93.140 12B = -93.117 09 = -93.038 03 = -93.025

* No Horizontal Positions in the Database *



Mn/DOT Name: TBM 6 VTURN

NGS Name: TBM 6

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DI2080](#) [Get Map](#)
 NGS Quad / Sta Num : 48095142/
 USGS Quad: WARROAD SE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	31	162 N	36 W	484817.00	951950.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2004	2011	DESTROYED	Horz=NO Vert=NO	NO			MARKER IS STEEL ROD

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
PILES AND POLES	SPIKE	MNDT

Description: (2004)

Stamping:

7.0 MILES SOUTH OF WARROAD, 6.6 MILES SOUTH ON COUNTY ROAD 5 FROM THE JUNCTION OF COUNTY ROAD 5 AND TRUNK HIGHWAY 11, SET IN POWER POLE NUMBER 101 EAST OF COUNTY ROAD 5.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1131.034	.016	2/1				VERTICAL ADJUSTMENT	2006	00000425-12	
1131.028	.016	2/1				VERTICAL CONTROL SURVEY	2005	VTURN	

Geoid Separations(ft): GEOID18 = -93.071 12B = -93.058 09 = -92.969 03 = -92.953

* No Horizontal Positions in the Database *



Mn/DOT Name: TBM 7 VTURN

NGS Name: TBM 7

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DI2081](#) [Get Map](#)
 NGS Quad / Sta Num : 48095142/
 USGS Quad: WARROAD SE

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SW	5	161 N	36 W	484726.00	951949.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2004	2011	DESTROYED	Horz=NO Vert=NO	NO			MARKER IS STEEL ROD

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
PILES AND POLES	SPIKE	MNDT

Description: (2004)

Stamping:

8.0 MILES SOUTH OF WARROAD, 7.55 MILES SOUTH ON COUNTY ROAD 5 FROM THE JUNCTION OF COUNTY ROAD 5 AND TRUNK HIGHWAY 11, SET IN POWER POLE NUMBER 116 EAST OF COUNTY ROAD 5.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1135.303	.016	2/1				VERTICAL ADJUSTMENT	2006	00000425-12	
1135.296	.016	2/1				VERTICAL CONTROL SURVEY	2005	VTURN	

Geoid Separations(ft): GEOID18 = -93.012 12B = -92.999 09 = -92.907 03 = -92.894

* No Horizontal Positions in the Database *



Mn/DOT Name: TBM 8 VTURN

NGS Name: TBM 8

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DI2082](#) [Get Map](#)
 NGS Quad / Sta Num : 48095142/
 USGS Quad: WARROAD SE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	7	161 N	36 W	484636.00	951950.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2004	2011	DESTROYED	Horz=NO Vert=NO	NO			MARKER IS STEEL ROD

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
PILES AND POLES	SPIKE	MNDT

Description: (2004)

Stamping:

9.0 MILES SOUTH OF WARROAD, 8.45 MILES SOUTH ON COUNTY ROAD 5 FROM THE JUNCTION OF COUNTY ROAD 5 AND TRUNK HIGHWAY 11, SET IN A POWER POLE EAST OF COUNTY ROAD 5.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1137.452	.016	2/1				VERTICAL ADJUSTMENT	2006	00000425-12	
1137.445	.016	2/1				VERTICAL CONTROL SURVEY	2005	VTURN	

Geoid Separations(ft): GEOID18 = -92.959 12B = -92.943 09 = -92.851 03 = -92.841

* No Horizontal Positions in the Database *



Mn/DOT Name: TBM 9 VTURN

NGS Name: TBM 9

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DI2094](#) [Get Map](#)
 NGS Quad / Sta Num : 48095131/
 USGS Quad: MULLIGAN LAKE NE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	32	161 N	36 W	484315.00	951948.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2004	2011	DESTROYED	Horz=NO Vert=NO	NO		RECESSED 3 IN.	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD (DEPTH 2 FT)	SEE DESCRIPTION	MNDT

Description: (2004)

Stamping:

11.4 MILES SOUTH ON COUNTY ROAD 5 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND COUNTY ROAD 5 AT WARROAD, 20.0 FEET EAST OF COUNTY ROAD 5.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order/(Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1214.968	.016	2/1				VERTICAL ADJUSTMENT	2006	00000425-12	
1214.952	.016	2/1				VERTICAL CONTROL SURVEY	2005	VTURN	

Geoid Separations(ft): GEOID18 = -92.726 12B = -92.723 09 = -92.628 03 = -92.595

* No Horizontal Positions in the Database *



Mn/DOT Name: TEMPORARY POINT 1

NGS Name: TEMPORARY POINT 1

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0679](#) [Get Map](#)
 NGS Quad / Sta Num : 48095141/
 USGS Quad: WARROAD

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	1	163 N	37 W	485825.44	952134.03		2

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1980	2012	DESTROYED	Horz=NO Vert=NO	NO		FLUSH	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	PIPE CAP	IBWC

Description: (1980)

Stamping:

5.0 MILES NORTH-NORTHWEST OF WARROAD, ON THE CANADIAN NATIONAL RAILWAY RIGHT-OF-WAY, BETWEEN TRUNK HIGHWAY 313 AND THE RAILROAD TRACK, TO REACH THE STATION FROM THE INTERSECTION OF TRUNK HIGHWAY 11 AND TRUNK HIGHWAY 313 AT THE NORTHWEST EDGE OF WARROAD, 4.35 MILES NORTHWEST ON TRUNK HIGHWAY 313 TO A CROSSROAD AND THE STATION ON THE RIGHT, IT IS ABOUT 4.0 FEET WEST OF THE WEST RAIL OF THE RAILROAD AND 8.0 FEET SOUTH OF A GRAVEL ROAD.

Station Notes

THE STATION MARK IS A BRASS CAP CRIMPED TO THE TOP OF A 3.0 FOOT LENGTH OF A COPPER COATED STEEL ROD.

* No Leveling-Derived Orthometric Heights in the Database *

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1080.706	.197		987.436	.131	1996	HORIZONTAL ADJUSTMENT	1999	17648

Geoid Separations(ft): GEOID18 = -93.753 12B = -93.724 09 = -93.658 03 = -93.717

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 58 25.44202	95 21 34.03327	689888.177	257819.482	.066	2	ADJUSTMENT	1999	17648

NAD83(1986)

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 58 25.42831	95 21 33.99816	689890.534	257818.117	.066	2	ADJUSTMENT	1986	17289

NAD27

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>						<u>Year</u>	<u>Reference</u>
48 58 25.46796	95 21 33.13670			.100	2	CLASSICAL SURVEY	1981	16669

State Plane and UTM Coordinates (Feet)

NAD83(1996)

<u>MN State Plane - North Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2081989.409	1238367.301	1073946.577	17805799.743	.066	2	ADJUSTMENT	1999	17648

NAD83(1986)

<u>MN State Plane - North Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2081991.710	1238365.844	1073948.875	17805798.281	.066	2	ADJUSTMENT	1986	17289

NAD27

<u>MN State Plane - North Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>X</u>	<u>Y</u>						<u>Year</u>	<u>Reference</u>
1457365.203	910282.693			.100	2	CLASSICAL SURVEY	1981	16669



Mn/DOT Name: TRACK RM 1

NGS Name: TRACK RM 1

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [CO7588](#) [Get Map](#)
 NGS Quad / Sta Num : 48095141/
 USGS Quad: WARROAD

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	27	164 N	36 W	485956.41	951703.77		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1980	1980	GOOD	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	IBWC

Description: **Stamping:** TRACK NO 1 1980

6.52 MILES NORTHEAST OF WARROAD, ON THE UNITED STATES AND CANADA BORDER.

Station Notes

IT IS SET IN THE TOP OF A 12.0 INCH DIAMETER CYLINDRICAL CONCRETE MONUMENT THAT PROJECTS ABOUT 6.0 INCHES ABOVE THE SURFACE OF THE GROUND.

* No Horizontal or Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -94.176 12B = -94.170 09 = -94.098 03 = -94.176



Mn/DOT Name: TRACK RM 2

NGS Name: TRACK RM 2

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [CO7589](#) [Get Map](#)
 NGS Quad / Sta Num : 48095141/
 USGS Quad: WARROAD

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	27	164 N	36 W	485955.76	951702.79		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1980	1980	GOOD	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	IBWC

Description: **Stamping:** TRACK NO 2 1980

6.52 MILES NORTHEAST OF WARROAD, ON THE UNITED STATES AND CANADA BORDER.

Station Notes

IT IS 'SET IN THE TOP OF A 12.0 INCH DIAMETER CYLINDRICAL CONCRETE MONUMENT THAT PROJECTS ABOUT 6.0 INCHES ABOVE THE SURFACE OF THE GROUND.

* No Horizontal or Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -94.176 12B = -94.170 09 = -94.098 03 = -94.176



Mn/DOT Name: TREATY USE

NGS Name: TREATY USE

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 48095141/
 USGS Quad: WARROAD

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	29	163 N	36 W	485404.00	951926.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1912	2009	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	SEE DESCRIPTION	USACE

Description: (1947) Stamping:

AT WARROAD, NEAR A FENCE IN FRONT AND WEST OF A SCHOOLHOUSE, THE STATION IS A COPPER PLUG IN A CONCRETE BLOCK.

Station Notes

ALL OF THE TIES ARE GONE, AND THE AREA IS NOW A MOBILE HOME PARK.

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
1068.266	.033	3				1929	CS6804	VERTICAL CONTROL SURVEY				
1068.797	.033	3				1912	BK2	VERTICAL CONTROL SURVEY				

Geoid Separations(ft): GEOID18 = -93.507 12B = -93.504 09 = -93.445 03 = -93.425

* No Horizontal Positions in the Database *



Mn/DOT Name: TROY

NGS Name: TROY

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DP9488](#) [Get Map](#)
 NGS Quad / Sta Num : 48095144/
 USGS Quad: WARROAD NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	1	162 N	38 W	485259.35	952940.14	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2020	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 14 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014) Stamping: TROY 2014

8.2 MILES WEST-SOUTHWEST OF WARROAD, 7.8 MILES WEST-SOUTHWEST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND TRUNK HIGHWAY 313 IN WARROAD, AT TRUNK HIGHWAY 11 MILEPOINT 83.85, 69.5 FEET SOUTH-SOUTHEAST OF TRUNK HIGHWAY 11, 49.5 FEET EAST-NORTHEAST OF A FIELD ENTRANCE, 1.5 FEET NORTH-NORTHWEST OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1087.918	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941
1087.914	.016	2/1					VERTICAL CONTROL SURVEY	2015	VKTAD

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1087.918	.131			994.863	.066	1996	GPS - STATIC	2021	HKTAD
1088.026	.262			994.765	.197	2011	GPS - OPUS	2020	GPSBM
1088.013	.262			994.752	.197	2011	GPS - OPUS	2020	GPSBM
1087.918				994.703	.023	2011	HORIZONTAL ADJUSTMENT	2020	GPS3390
1087.918				994.703	.023	2011	GPS - STATIC	2020	HKTAD
1087.957	.262			994.706	.197	2011	GPS - RTRN	2020	RTRN2020
1087.951	.262			994.699	.197	2011	GPS - RTRN	2014	RTRN2014

Geoid Separations(ft): GEOID18 = -93.261 12B = -93.251 09 = -93.146 03 = -93.133

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Roseau County</u>						<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
48 52 59.35048	95 29 40.14283	657739.291	224462.266	.131	3	GPS - OPUS	2020	GPSBM	
48 52 59.35026	95 29 40.14301	657739.279	224462.243	.131	3	GPS - OPUS	2020	GPSBM	
48 52 59.35050	95 29 40.14230	657739.326	224462.268	.013		ADJUSTMENT	2020	GPS3390	
48 52 59.35050	95 29 40.14230	657739.326	224462.268	.013	C	GPS - STATIC	2020	HKTAD	
48 52 59.34975	95 29 40.14261	657739.306	224462.192	.131	3	GPS - RTRN	2020	RTRN2020	
48 52 59.35024	95 29 40.14302	657739.278	224462.241	.131	3	GPS - RTRN	2014	RTRN2014	

<u>NAD83(1996)</u>		<u>Roseau County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 52 59.35033	95 29 40.14294	657739.284	224462.250	.033	C	GPS - STATIC	2021	HKTAD

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - North Zone		UTM - Zone 15					Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2048544.105	1206307.601	1040445.649	17773804.698	.131	3	GPS - OPUS	2020	GPSBM
2048544.092	1206307.579	1040445.636	17773804.677	.131	3	GPS - OPUS	2020	GPSBM
2048544.140	1206307.601	1040445.685	17773804.699	.013		ADJUSTMENT	2020	GPS3390
2048544.140	1206307.601	1040445.685	17773804.699	.013	C	GPS - STATIC	2020	HKTAD
2048544.117	1206307.526	1040445.661	17773804.624	.131	3	GPS - RTRN	2020	RTRN2020
2048544.091	1206307.577	1040445.636	17773804.675	.131	3	GPS - RTRN	2014	RTRN2014

NAD83(1996)

MN State Plane - North Zone		UTM - Zone 15					Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2048544.097	1206307.585	1040445.641	17773804.684	.033	C	GPS - STATIC	2021	HKTAD

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/TROY-DP9488-3S-25JUN2020.jpg	S	Jun 25, 2020
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/TROY-DP9488-2-25JUN2020.jpg		Jun 25, 2020
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/TROY-DP9488-1-25JUN2020.jpg		Jun 25, 2020

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: TT 28 L

NGS Name: TT 28 L

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 48095413/
 USGS Quad: MALUNG

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	16	162 N	39 W	485054.00	954207.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1929	2006	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	USGS

Description: (1965) Stamping: TT STA NO 28 L 1929

3.0 MILES EAST OF ROSEAU, 69.0 FEET NORTH AND 31.0 FEET EAST OF TRUNK HIGHWAY 11 AT A CROSSROAD.

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1057.084	.033	3							VERTICAL CONTROL SURVEY	1974	USGS-VERT	

Geoid Separations(ft): GEOID18 = -92.369 12B = -92.365 09 = -92.257 03 = -92.250

* No Horizontal Positions in the Database *



Mn/DOT Name: TT 29 L

NGS Name: TT 29 L

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 48095413/
 USGS Quad: MALUNG

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	14	162 N	39 W	485056.82	953811.70		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1929	2009	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE POST (PREFABRICATED)	SEE DESCRIPTION	USGS

Description: (1965) Stamping: TT 29 L 1929

6.0 MILES EAST OF ROSEAU, 1.0 MILE EAST OF THE MANDUS RAILROAD STATION, 88.0 FEET NORTH AND 29.0 FEET WEST OF THE CROSSROADS, 89.0 FEET NORTH OF TRUNK HIGHWAY 11, AT TRUNK HIGHWAY 11 STATION 1384+24.

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1061.507	.033	3				VERTICAL CONTROL SURVEY	1974	USGS-VERT	
1061.336	.033	3				VERTICAL CONTROL SURVEY	1970	CS6803	

Geoid Separations(ft): GEOID18 = -92.664 12B = -92.651 09 = -92.549 03 = -92.549

* No Horizontal Positions in the Database *



Mn/DOT Name: TT 9 L

NGS Name: TT 9 L

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 48095414/
 USGS Quad: SALOL NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	8	163 N	39 W	485750.00	954232.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1929	2007	NOT FOUND	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	USGS

Description: (1966) **Stamping:** TT STA NO 9 L 1929

8.0 MILES NORTH AND 3.0 MILES EAST OF ROSEAU, 396.0 FEET SOUTHWEST OF A BRIDGE OVER MUD CREEK, ON THE WEST SIDE OF A ROAD, 30.0 FEET NORTH OF AN OLD FENCE.

Station Notes

THE STATION WAS IN POOR CONDITION.
 THE TIES ARE GONE, THE AREA HAS BEEN DISTURBED BY LOGGING.

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1045.500	.033	3				VERTICAL CONTROL SURVEY	1974	USGS-VERT	

Geoid Separations(ft): GEOID18 = -92.392 12B = -92.395 09 = -92.273 03 = -92.303

* No Horizontal Positions in the Database *



Mn/DOT Name: TURNCOAT MNDT

NGS Name: TURNCOAT

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [AB9953](#) [Get Map](#)
 NGS Quad / Sta Num : 48095132/
 USGS Quad: MULLIGAN LAKE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	12	159 N	37 W	483552.66	952034.02	2	B

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1994	2016	GOOD	Horz=YES Vert=YES	YES		RECESSED 4 IN.	STEEL SPIKE ADJ TO MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
STEEL ROD (NO SLEEVE) (DEPTH 32 FT)	METAL ROD	MNDT

Description: (2003) **Stamping:** TURNCOAT 1994

20.0 MILES SOUTH OF WARROAD, 12.85 MILES SOUTH ALONG COUNTY ROAD 5 FROM THE JUNCTION OF COUNTY ROAD 5 AND TRUNK HIGHWAY 11 IN WARROAD, THEN 0.55 MILE WEST ON A GRAVEL ROAD, THEN 7.9 MILES SOUTH ON A GRAVEL ROAD, 37.0 FEET WEST OF A GRAVEL ROAD, 24.0 FEET NORTH OF A GRAVEL ROAD, 38.0 FEET SOUTHEAST OF A ROAD, 4.6 FEET WEST OF THE CLEAR RIVER 10.0 MILES SIGNPOST, 4.7 FEET NORTHWEST OF A WITNESS POST.

Station Notes

THE STATION IS A PUNCH MARK ON A 0.5 INCH DIAMETER BY 32.0 FEET LONG DRIVEN STEEL ROD WITH AN ACCESS COVER.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1227.688	.016	2/1					VERTICAL ADJUSTMENT	2006	0000425-12	
1227.668	.016	2/1					VERTICAL CONTROL SURVEY	2005	VTURN	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1227.688				1135.775	.011	2011	HORIZONTAL ADJUSTMENT	2018	GPS3119	
1227.796	.131			1135.972	.066	1996	GPS - STATIC	2017	HMNCORS07	
1227.688				1135.775	.011	2011	GPS - STATIC	2017	HMNPH	
1227.688				1135.775	.010	2011	HORIZONTAL ADJUSTMENT	2013	GPS2958	
1227.688				1135.775	.010	2011	GPS - STATIC	2013	HRULE	
				1135.775	.008	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800	
1227.688	.131			1135.847	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2833	
1227.688	.131			1135.847	.066	2007	GPS - STATIC	2011	HLOTW	
1227.688	.131			1135.887	.066	1996	GPS - STATIC	2011	HLOTW	
1227.688	.131			1135.847	.066	2007	HORIZONTAL ADJUSTMENT	2009	GPS2522	
1227.688	.131			1135.847	.066	2007	GPS - STATIC	2008	HROSO	
1227.688	.131			1135.887	.066	1996	GPS - STATIC	2008	HROSO	
1227.688	.098			1135.887	.049	1996	GPS - STATIC	2007	HRULE	
				1135.847	.014	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300	
1227.622	.098			1135.887	.049	1996	GPS - STATIC	2004	GPS1954	
1227.616	.098			1135.887	.049	1996	GPS - STATIC	1997	GPS805-B	

Geoid Separations(ft): GEOID18 = -91.913 12B = -91.932 09 = -91.831 03 = -91.768

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Roseau County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 35 52.65562	95 20 34.02253	695344.681	120762.758	.007		ADJUSTMENT	2018	GPS3119
48 35 52.65562	95 20 34.02253	695344.681	120762.758	.007	C	GPS - STATIC	2017	HMNPH
48 35 52.65562	95 20 34.02253	695344.681	120762.758	.007		ADJUSTMENT	2013	GPS2958
48 35 52.65562	95 20 34.02252	695344.682	120762.758	.007	B	GPS - STATIC	2013	HRULE
48 35 52.65562	95 20 34.02253	695344.681	120762.758	.003		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Roseau County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 35 52.65555	95 20 34.02323	695344.634	120762.750	.033	C	ADJUSTMENT	2011	GPS2833
48 35 52.65555	95 20 34.02323	695344.634	120762.750	.033	C	GPS - STATIC	2011	HLOTW
48 35 52.65555	95 20 34.02323	695344.634	120762.750	.033	C	ADJUSTMENT	2009	GPS2522
48 35 52.65555	95 20 34.02323	695344.634	120762.750	.033	C	GPS - STATIC	2008	HROSO
48 35 52.65555	95 20 34.02323	695344.634	120762.750	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Roseau County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 35 52.65561	95 20 34.02329	695344.630	120762.756	.033	C	GPS - STATIC	2017	HMNCORS07
48 35 52.65561	95 20 34.02329	695344.630	120762.756	.033	C	GPS - STATIC	2011	HLOTW
48 35 52.65561	95 20 34.02329	695344.630	120762.756	.033	C	GPS - STATIC	2008	HROSO
48 35 52.65561	95 20 34.02329	695344.630	120762.756	.016	B	GPS - STATIC	2007	HRULE
48 35 52.65561	95 20 34.02329	695344.630	120762.756	.016	B	GPS - STATIC	2004	GPS1954
48 35 52.65561	95 20 34.02329	695344.630	120762.756	.016	B	GPS - STATIC	1997	GPS805-B

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2082014.541	1101202.546	1073731.135	17668645.615	.007		ADJUSTMENT	2018	GPS3119
2082014.541	1101202.546	1073731.135	17668645.615	.007	C	GPS - STATIC	2017	HMNPH
2082014.541	1101202.546	1073731.135	17668645.615	.007		ADJUSTMENT	2013	GPS2958
2082014.541	1101202.546	1073731.136	17668645.615	.007	B	GPS - STATIC	2013	HRULE
2082014.541	1101202.546	1073731.135	17668645.615	.003		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2082014.493	1101202.540	1073731.088	17668645.609	.033	C	ADJUSTMENT	2011	GPS2833
2082014.493	1101202.540	1073731.088	17668645.609	.033	C	GPS - STATIC	2011	HLOTW
2082014.493	1101202.540	1073731.088	17668645.609	.033	C	ADJUSTMENT	2009	GPS2522
2082014.493	1101202.540	1073731.088	17668645.609	.033	C	GPS - STATIC	2008	HROSO
2082014.493	1101202.540	1073731.088	17668645.609	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2082014.490	1101202.546	1073731.084	17668645.615	.033	C	GPS - STATIC	2017	HMNCORS07
2082014.490	1101202.546	1073731.084	17668645.615	.033	C	GPS - STATIC	2011	HLOTW
2082014.490	1101202.546	1073731.084	17668645.615	.033	C	GPS - STATIC	2008	HROSO
2082014.490	1101202.546	1073731.084	17668645.615	.016	B	GPS - STATIC	2007	HRULE
2082014.490	1101202.546	1073731.084	17668645.615	.016	B	GPS - STATIC	2004	GPS1954
2082014.490	1101202.546	1073731.084	17668645.615	.016	B	GPS - STATIC	1997	GPS805-B

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/TURNCOAT-AB9953-3E-05DEC2008.jpg	E	Dec 5, 2008
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/TURNCOAT-AB9953-2-05DEC2008.jpg		Dec 5, 2008
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/TURNCOAT-AB9953-1-05DEC2008.jpg		Dec 5, 2008

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: U 208

NGS Name: U 208

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0326](#) [Get Map](#)
 NGS Quad / Sta Num : 48095113/
 USGS Quad: SWIFT

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	20	162 N	35 W	485010.00	951043.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1935	1972	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	BENCH MARK DISK	NGS

Description: (1972) Stamping: U 208 1935

2.25 MILES SOUTHEAST OF SWIFT, 2.33 MILES SOUTHEAST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND COUNTY ROAD 2 IN SWIFT.

Station Notes

IN 1972 THE STATION WAS REPORTED DESTROYED BY DITCH CONSTRUCTION.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1117.357	.007	1				VERTICAL CONTROL SURVEY	1993	POSTED

NGVD29

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1115.952	.007	1				VERTICAL CONTROL SURVEY	1941	Q480951
1115.952	.007	1				VERTICAL CONTROL SURVEY	1935	L56 MINN

Geoid Separations(ft): GEOID18 = -93.999 12B = -93.976 09 = -93.884 03 = -93.874

* No Horizontal Positions in the Database *



Mn/DOT Name: U =1103 USGS

NGS Name: 1103=U

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0364](#) [Get Map](#)
 NGS Quad / Sta Num : 48095143/
 USGS Quad: WARROAD SW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	29	162 N	37 W	484929.00	952649.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1907	2007	NOT FOUND	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
PIPE (CAPPED) DRIVEN IN GROUND (<10 FT)	PIPE CAP	USGS

Description: (1907) Stamping: 1103

3.6 MILES EAST OF PEQUIS, 40.0 FEET SOUTH OF A LOG CABIN, 36.0 FEET NORTH OF COUNTY ROAD 12, 1.0 FOOT SOUTH OF A FENCE.

Station Notes

THE TIES FALL IN A DITCH BOTTOM.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1101.487	.007	1				VERTICAL CONTROL SURVEY	1941	Q480951	
1101.487	.007	1				VERTICAL CONTROL SURVEY	1935	L56 MINN	

Geoid Separations(ft): GEOID18 = -93.149 12B = -93.117 09 = -93.028 03 = -93.021

* No Horizontal Positions in the Database *



Mn/DOT Name: USCB MON

NGS Name: USCB MON

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 48095412/
 USGS Quad: SALOL

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	9	162 N	38 W	485158.80	953414.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1941	2014	DESTROYED	Horz=NO Vert=NO	NO		RECESSED 16 IN.	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	TRIANGULATION STATION DISK	NGS

Description: (2009) Stamping: SALOL 1912 1941

IN SALOL, 61.0 FEET NORTHWEST OF TRUNK HIGHWAY 11, 135.0 FEET EAST OF A NORTH-SOUTH ROAD (480TH AVENUE), 113.99 NORTHWEST OF SALOL RM 1, 163.85 FEET NORTHEAST OF SALOL RM 2, 111.62 FEET NORTH OF SALOL RM 3, 3.0 FEET SOUTH OF A WHITE WOODEN POST, 1.0 FOOT SOUTH OF A WITNESS POST.

Station Notes

THIS IS THE SUBSURFACE MONUMENT FOR SALOL IBC (THE NATIONAL GEODETIC SURVEY (NGS) SALOL RESET).

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1074.840	.033	3					VERTICAL CONTROL SURVEY	1974	USGS-VERT	

Geoid Separations(ft): GEOID18 = -92.982 12B = -92.969 09 = -92.864 03 = -92.861

* No Horizontal Positions in the Database *



Mn/DOT Name: V 208

NGS Name: V 208

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0327](#) [Get Map](#)
 NGS Quad / Sta Num : 48095113/
 USGS Quad: SWIFT

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	18	162 N	35 W	485041.00	951159.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1935	2012	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	BENCH MARK DISK	NGS

Description: (1981) Stamping: V-208 1935

1.1 MILES SOUTHEAST ON TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND COUNTY ROAD 2 AT SWIFT, 150.0 FEET NORTHEAST OF TRUNK HIGHWAY 11, AT TRUNK HIGHWAY 11 MILEPOINT 99.7, 57.0 FEET SOUTHWEST OF OLD TRUNK HIGHWAY 11, 43.0 FEET EAST OF A RAILROAD CROSSING POST, 32.0 FEET SOUTHWEST OF A POWER POLE NUMBER 86, 28.0 FEET EAST OF A NORTH-SOUTH TOWNSHIP ROAD, 26.0 FEET NORTHEAST OF THE NORTHEAST RAIL OF THE RAILROAD TRACKS, 17.0 FEET SOUTHWEST OF A POWER POLE, 1.0 FOOT NORTH OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1090.464	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1089.073	.016	2					VERTICAL CONTROL SURVEY	1973	Q480951	
1089.073	.016	2					VERTICAL CONTROL SURVEY	1973	L22862	
1088.928	.007	1					VERTICAL CONTROL SURVEY	1941	Q480951	
1088.928	.007	1					VERTICAL CONTROL SURVEY	1935	L56 MINN	

Geoid Separations(ft): GEOID18 = -93.940 12B = -93.907 09 = -93.822 03 = -93.822

* No Horizontal Positions in the Database *



Mn/DOT Name: V =1003 USGS

NGS Name: 1103=V

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0363](#) [Get Map](#)
 NGS Quad / Sta Num : 48095142/
 USGS Quad: WARROAD SE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	26	162 N	37 W	484933.00	952230.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1907	2007	NOT FOUND	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
PIPE (CAPPED) DRIVEN IN GROUND (<10 FT)	PIPE CAP	USGS

Description: (1907) Stamping: 1103

IN CEDARBEND, 75.0 FEET WEST OF THE BANK OF THE WARROAD RIVER, 19.0 FEET NORTH OF COUNTY ROAD 12, AT THE SOUTHEAST CORNER OF A GARDEN FENCE.

Station Notes

THE TIES FALL IN A DITCH BOTTOM.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1101.609	.007	1				VERTICAL CONTROL SURVEY	1941	Q480951	
1101.609	.007	1				VERTICAL CONTROL SURVEY	1935	L56 MINN	

Geoid Separations(ft): GEOID18 = -93.143 12B = -93.103 09 = -93.025 03 = -93.025

* No Horizontal Positions in the Database *



Mn/DOT Name: VAL

NGS Name: VAL

County: ROSEAU, MN (Sheet 2)

NGS ACRN: DP0912	Get Map
NGS Quad / Sta Num : 48095113/	
USGS Quad: SWIFT	

		<u>Reference</u>		<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Order</u>	<u>Order</u>
SE	11	162 N	36 W	2	C
		<u>Latitude</u>	<u>Longitude</u>		
		485143.19	951434.63		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2012	2020	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 37 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2012) Stamping: VAL 2012

4.5 MILES SOUTHEAST OF WARROAD, 5.75 MILES SOUTHEAST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND TRUNK HIGHWAY 313 IN WARROAD, AT TRUNK HIGHWAY 11 MILEPOINT 97.35, 58.3 FEET NORTHEAST OF TRUNK HIGHWAY 11, 69.5 FEET NORTHWEST OF 630TH AVENUE, 1.5 FEET SOUTHWEST OF A WITNESS POST.

Station Pair: TAIJA - ROSEAU, MN

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>	
1084.634	.016	2/1				2014	00000828	VERTICAL ADJUSTMENT				
1084.634	.016	2/1				2013	VHACK	VERTICAL CONTROL SURVEY				

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>	
1084.729	.262		990.943	.197	2011	2020	GPSBM	GPS - OPUS				
1084.768	.262		990.982	.197	2011	2020	GPSBM	GPS - OPUS				
1084.535	.262		990.802	.197	2011	2020	RTRN2020	GPS - RTRN				
1084.634			990.930	.017	2011	2020	GPS3362	HORIZONTAL ADJUSTMENT				
1084.634	.131		991.071	.066	1996	2020	HGRACE	GPS - STATIC				
1084.634			990.930	.017	2011	2020	HGRACE	GPS - STATIC				
1084.476	.262		990.799	.197	2007	2012	RTRN2012	GPS - RTRN				

Geoid Separations(ft): GEOID18 = -93.786 12B = -93.733 09 = -93.678 03 = -93.684

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Roseau County</u>						<u>Project Info</u>	
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
<u>Latitude</u>	<u>Longitude</u>								
48 51 43.19204	95 14 34.62954	718355.700	217364.635	.131	3	GPS - OPUS	2020	GPSBM	
48 51 43.19194	95 14 34.62968	718355.691	217364.625	.131	3	GPS - OPUS	2020	GPSBM	
48 51 43.19216	95 14 34.62905	718355.733	217364.648	.131	3	GPS - RTRN	2020	RTRN2020	
48 51 43.19256	95 14 34.62918	718355.723	217364.688	.013		ADJUSTMENT	2020	GPS3362	
48 51 43.19256	95 14 34.62918	718355.723	217364.688	.013	C	GPS - STATIC	2020	HGRACE	

<u>NAD83(2007)</u>		<u>Roseau County</u>						<u>Project Info</u>	
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
<u>Latitude</u>	<u>Longitude</u>								
48 51 43.19237	95 14 34.63018	718355.657	217364.668	.131	3	GPS - RTRN	2012	RTRN2012	

<u>NAD83(1996)</u>		<u>Roseau County</u>						<u>Project Info</u>	
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
<u>Latitude</u>	<u>Longitude</u>								
48 51 43.19241	95 14 34.62966	718355.692	217364.673	.033	C	GPS - STATIC	2020	HGRACE	

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - North Zone		UTM - Zone 15						Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
2108833.213	1196815.285	1100711.778	17764204.873	.131	3	GPS - OPUS	2020	GPSBM	
2108833.203	1196815.276	1100711.768	17764204.863	.131	3	GPS - OPUS	2020	GPSBM	
2108833.246	1196815.297	1100711.811	17764204.884	.131	3	GPS - RTRN	2020	RTRN2020	
2108833.238	1196815.338	1100711.804	17764204.925	.013		ADJUSTMENT	2020	GPS3362	
2108833.238	1196815.338	1100711.804	17764204.925	.013	C	GPS - STATIC	2020	HGRACE	

NAD83(2007)

MN State Plane - North Zone		UTM - Zone 15						Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
2108833.171	1196815.320	1100711.736	17764204.908	.131	3	GPS - RTRN	2012	RTRN2012	

NAD83(1996)

MN State Plane - North Zone		UTM - Zone 15						Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
2108833.206	1196815.323	1100711.771	17764204.911	.033	C	GPS - STATIC	2020	HGRACE	

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/VAL-DP0912-3NE-24JUN2020.jpg	NE	Jun 24, 2020
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/VAL-DP0912-2-24JUN2020.jpg		Jun 24, 2020
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/VAL-DP0912-1-24JUN2020.jpg		Jun 24, 2020

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: W 208

NGS Name: W 208

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0329](#) [Get Map](#)
 NGS Quad / Sta Num : 48095113/
 USGS Quad: SWIFT

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	18	162 N	35 W	485111.00	951312.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1935	2012	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	BENCH MARK DISK	NGS

Description: (1981) **Stamping:** W-208 1935

AT SWIFT, 180.0 FEET SOUTHEAST OF COUNTY ROAD 2, 100.0 FEET SOUTHWEST OF OLD TRUNK HIGHWAY 11, 89.0 FEET SOUTHWEST OF A POWER POLE NUMBER 73, 31.2 FEET NORTHEAST OF THE NORTHEAST RAIL OF THE RAILROAD TRACKS, AT RAILROAD MILEPOINT 32.05, OPPOSITE A SWITCH STAND, 1.0 FOOT WEST OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1086.044	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1084.588	.016	2					VERTICAL CONTROL SURVEY	1973	Q480951	
1084.588	.016	2					VERTICAL CONTROL SURVEY	1973	L22862	
1083.495	.007	1					VERTICAL CONTROL SURVEY	1941	Q480951	
1083.495	.007	1					VERTICAL CONTROL SURVEY	1935	L56 MINN	

Geoid Separations(ft): GEOID18 = -93.881 12B = -93.832 09 = -93.760 03 = -93.763

* No Horizontal Positions in the Database *



Mn/DOT Name: W 220 RESET

NGS Name: W 220 RESET

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 48095424/
 USGS Quad: WANNASKA

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	7	160 N	39 W	484125.00	954403.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1946	2005	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	NGS

Description: (1946) **Stamping:** W 220 RESET 1946

2.2 MILES NORTH OF BRIDGE NUMBER 6601 IN WANNASKA, 75.0 FEET OF TRUNK HIGHWAY 89, AT TRUNK HIGHWAY 89 STATION 643+63.

Station Notes

DESTROYED DUE TO TRUNK HIGHWAY 89 CONSTRUCTION.

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
1096.871	.033	3				VERTICAL CONTROL SURVEY	1950 CS6806					

Geoid Separations(ft): GEOID18 = -91.584 12B = -91.594 09 = -91.489 03 = -91.460

* No Horizontal Positions in the Database *



Mn/DOT Name: W 367

NGS Name: W 367

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0482](#) [Get Map](#)
 NGS Quad / Sta Num : 48095113/
 USGS Quad: SWIFT

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	21	162 N	35 W	484943.73	950950.05	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1981	2012	GOOD	Horz=NO Vert=YES	YES		RECESSED 1 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
STEEL ROD (IN SLEEVE) (DEPTH 32 FT)	METAL ROD	NGS

Description: (2007) Stamping: W 367 1981

2.95 MILES SOUTHEAST ON TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND COUNTY ROAD 2 IN SWIFT, AT TRUNK HIGHWAY 11 MILEPOINT 101.7, IN A LAWN AT THE NORTHWEST CORNER OF A LOG HOUSE AT THE LAST CHANCE RANCH, 30.5 FEET NORTHWEST OF THE NORTHEAST CORNER AND 8.5 FEET NORTHEAST OF THE NORTHWEST CORNER OF A HOUSE, 32.0 FEET SOUTH-SOUTHEAST OF THE NORTHEAST CORNER AND 32.0 FEET NORTHEAST OF THE SOUTHEAST CORNER OF A QUONSET BUILDING, 29.0 FEET EAST OF THE EAST FACE OF A QUONSET BUILDING, 3.5 FEET NORTH OF THE NORTH FACE OF A HOUSE.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1129.079	.016	2/1					VERTICAL ADJUSTMENT	2014	00000828
1129.079	.016	2/1					VERTICAL CONTROL SURVEY	2013	VHACK
1129.079	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1129.109	.262			1035.195	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -94.025 12B = -94.009 09 = -93.911 03 = -93.897

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2007)</u>				<u>Roseau County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
48 49 43.72746	95 09 50.04980			737541.269	205494.097	.131	3	GPS - RTRN	2012	RTRN2012

State Plane and UTM Coordinates (Feet)

<u>NAD83(2007)</u>				<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - North Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2127533.584	1184193.672			1119387.454	17751552.285	.131	3	GPS - RTRN	2012	RTRN2012

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/W_367-TC0482-3S-10OCT2012.jpg	S	Oct 10, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/W_367-TC0482-2-10OCT2012.jpg		Oct 10, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/W_367-TC0482-1-10OCT2012.jpg		Oct 10, 2012

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: WAR
County: ROSEAU, MN (Sheet 2)

NGS Name: WAR

NGS ACRN: [TC0492](#) [Get Map](#)
NGS Quad / Sta Num : 48095141/1018
USGS Quad: WARROAD

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	20	163 N	36 W	485500.93	951923.44	1	2

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1923	2012	DESTROYED	Horz=NO Vert=NO	YES		RECESSED 2 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	TRIANGULATION STATION DISK	NGS

Description: (2009) Stamping: WAR 1923

IN WARROAD, 0.5 MILE NORTH-NORTHWEST ON A RAILROAD FROM THE RAILROAD DEPOT, 16.5 FEET EAST OF THE EAST RAIL OF THE RAILROAD TRACKS, NEAR THE NORTH END OF A WINDOW COMPANY, 63.22 FEET NORTHWEST OF WAR RM, 24.58 FEET SOUTHWEST OF WAR RM 2 A, 1.0 FOOT NORTH OF A WITNESS POST.

Station Notes

THE DISK WAS TURNED IN TO THE OFFICE.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
1067.990	.007	1/2				VERTICAL ADJUSTMENT	1991	00000025		

<u>NGVD29</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
1066.579	.033	3				VERTICAL CONTROL SURVEY	1987	CS6803		

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
1067.977	.197		974.909	.131	1996	HORIZONTAL ADJUSTMENT	1999	17648		

<u>NGVD29</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
1066.107						RECIPROCAL VERTICAL ANGLE	1966	HORZ		

Geoid Separations(ft): GEOID18 = -93.582 12B = -93.579 09 = -93.517 03 = -93.510

Lat/Lon and County Coordinates (Feet)

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Roseau County</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 55 00.93392	95 19 23.44196	698826.078	237185.426	.066	2	ADJUSTMENT	1999	17648

<u>NAD83(1986)</u>		<u>Geodetic Position</u>		<u>Roseau County</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 55 00.91833	95 19 23.41163	698828.121	237183.867	.066	2	ADJUSTMENT	1986	17289

<u>NAD27</u>		<u>Geodetic Position</u>		<u>Roseau County</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 55 00.95818	95 19 22.55694			.100	2	CLASSICAL SURVEY	1977	15935

<u>USSD</u>		<u>Geodetic Position</u>		<u>Roseau County</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 55 01.54500	95 19 22.24000				3	CLASSICAL SURVEY		17389-86

State Plane and UTM Coordinates (Feet)

NAD83(1996)

MN State Plane - North Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2090103.544	1217394.622	1082021.334	17784815.009	.066	2	ADJUSTMENT	1999	17648

NAD83(1986)

MN State Plane - North Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2090105.524	1217392.984	1082023.310	17784813.367	.066	2	ADJUSTMENT	1986	17289

NAD27

MN State Plane - North Zone		X	Y	Acc	Order	Determination Method	Project Info	
X	Y						Year	Reference
1465478.908	889309.890			.100	2	CLASSICAL SURVEY	1977	15935

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/WAR-TC0492-3W-13OCT2009.jpg	W	Oct 13, 2009
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/WAR-TC0492-2-13OCT2009.jpg		Oct 13, 2009
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/WAR-TC0492-1-13OCT2009.jpg		Oct 13, 2009

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: WAR RM

NGS Name: WAR RM

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0493](#) [Get Map](#)
 NGS Quad / Sta Num : 48095141/
 USGS Quad: WARROAD

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	20	163 N	36 W	485500.44	951922.86	1	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1923	2012	GOOD	Horz=NO Vert=NO	YES		RECESSED 7 IN.	STEEL SPIKE ADJ TO MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

Description: (2009) Stamping: WAR 1923

0.8 MILE NORTHWEST OF WARROAD, 0.5 MILE EAST ALONG COUNTY ROAD 74 (TAYLOR ROAD) FROM THE JUNCTION OF COUNTY ROAD 74 AND TRUNK HIGHWAY 313 IN WARROAD, THEN 0.25 MILE SOUTH ALONG MAIN AVENUE NORTHEAST, THEN 0.15 MILE WEST ALONG A GRAVEL ROAD TO A SUBWAY STATION, THEN 0.05 MILE NORTHWEST ALONG A GRASS TRAIL, 37.5 FEET EAST OF THE EAST RAIL OF THE RAILROAD TRACKS, 11.0 FEET WEST OF A WITNESS POST.

Station Notes

THE SURVEY MARK IS ON RAILROAD PROPERTY AND HAS BEEN ABANDONED FOR MNDOT GEODETIC USE.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1068.193	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1066.783	.033	3					VERTICAL CONTROL SURVEY	1987	CS6803	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1068.167	.262			974.650	.197	2007	GPS - RTRN	2012	RTRN2012	

Geoid Separations(ft): GEOID18 = -93.582 12B = -93.579 09 = -93.517 03 = -93.510

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2007)</u>				<u>Roseau County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
48 55 00.44329	95 19 22.85817			698865.612	237136.125	.131	3	GPS - RTRN	2012	RTRN2012

State Plane and UTM Coordinates (Feet)

<u>NAD83(2007)</u>				<u>UTM - Zone 15</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - North Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2090141.096	1217343.792			1082058.789	17784764.117	.131	3	GPS - RTRN	2012	RTRN2012

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/WAR_RM-TC0493-3E-09OCT2012.jpg	E	Oct 9, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/WAR_RM-TC0493-2-09OCT2012.jpg		Oct 9, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/WAR_RM-TC0493-1-09OCT2012.jpg		Oct 9, 2012

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: WAR RM 2 A

NGS Name: WAR RM 2 A

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0491](#) [Get Map](#)
 NGS Quad / Sta Num : 48095141/
 USGS Quad: WARROAD

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SW	20	163 N	36 W	485501.00	951923.09	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1966	2012	DESTROYED	Horz=NO Vert=NO	YES		RECESSED 6 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	REFERENCE MARK DISK	NGS

Description: (2009) **Stamping:** WAR NO 2 A 1923 1966

0.8 MILE NORTHWEST OF WARROAD, 41.0 FEET EAST OF THE EAST RAIL OF A RAILROAD, 24.5 FEET NORTHEAST OF STATION WAR, 59.0 FEET NORTH-NORTHWEST OF WAR RM, 6.0 FEET WEST OF A SHEARED OFF WITNESS POST.

Station Notes

10-28-2009 THE MONUMENT APPEARS TO HAVE BEEN HIT, SHIFTED NORTH.
 THE DISK WAS TURNED IN TO THE OFFICE.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1068.623	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1067.212	.033	3					VERTICAL CONTROL SURVEY	1987	CS6803	

Geoid Separations(ft): GEOID18 = -93.582 12B = -93.579 09 = -93.517 03 = -93.510

* No Horizontal Positions in the Database *

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/WAR_RM_2_A-TC0491-3SW-28OCT2009.jpg	SW	Oct 28, 2009
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/WAR_RM_2_A-TC0491-2-28OCT2009.jpg		Oct 28, 2009
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/WAR_RM_2_A-TC0491-1-28OCT2009.jpg		Oct 28, 2009

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: WARROAD

NGS Name: WARROAD

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 48095141/
 USGS Quad: WARROAD

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	29	163 N	36 W	485454.00	951920.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1923	2012	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	NGS

Description: (1966) Stamping: WARROAD 1923

0.8 MILE NORTH OF WARROAD, NEAR THE CENTER OF SECTION 29, 0.84 MILE NORTHWEST OF THE RAILROAD STATION, 20.0 FEET EAST OF A RAILROAD, 25.0 FEET WEST OF WARROAD RM 1, 59.0 FEET NORTH AND 23.0 FEET WEST OF WARROAD RM 2.

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1066.599	.033	3				VERTICAL CONTROL SURVEY	1974	USGS-VERT	

Geoid Separations(ft): GEOID18 = -93.576 12B = -93.573 09 = -93.514 03 = -93.504

* No Horizontal Positions in the Database *



Mn/DOT Name: WARROAD GAGE

NGS Name: WARROAD GAGE

County: ROSEAU, MN (Sheet 2)

NGS ACRN:
NGS Quad / Sta Num : 48095141/
USGS Quad: WARROAD

[Get Map](#)

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	29	163 N	36 W	485415.37	951857.44		3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2005	2012	GOOD	Horz=YES Vert=YES	YES		FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE/BITUMINOUS SLAB	SEE DESCRIPTION	GSC

Description: (2005)

Stamping:

IN WARROAD, EAST ALONG LAKE STREET FROM THE JUNCTION OF LAKE STREET AND TRUNK HIGHWAY 11, GO ACROSS THE RAILROAD TRACKS, TAKE THE FIRST STREET TO THE SOUTH (MAIN AVENUE), TO APPROXIMATELY 405 RIVER STREET. THE POINT IS LOCATED AT THE CORNER TIP OF A SIDEWALK IN A PARK ACROSS THE STREET FROM A GAGING STATION. THE ACTUAL POINT IS THE CENTER OF AN ORANGE PAINT MARK, NOT A HOLE CHIPPED IN THE CONCRETE (SEE PHOTO).

Station Notes

SET BY JASON SILLIKER, NATURAL RESOURCES OF CANADA. INSET PICTURE IS OF MARK PHOTOGRAPHED ON 07-27-2005. NOT SUITABLE FOR GEODETIC WORK.

* No Leveling-Derived Orthometric Heights in the Database *

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>	
1066.888	.262		973.404	.197	2007	GPS - RTRN		2012	RTRN2012	

Geoid Separations(ft): GEOID18 = -93.540 12B = -93.540 09 = -93.487 03 = -93.464

Lat/Lon and County Coordinates (Feet)

NAD83(2007)

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>
48 54 15.36938	95 18 57.44419	700613.145	232586.508	.131	3	GPS - RTRN		2012	RTRN2012

State Plane and UTM Coordinates (Feet)

NAD83(2007)

<u>MN State Plane - North Zone</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>
2091707.127	1212728.390	1083616.290	17780146.471	.131	3	GPS - RTRN		2012	RTRN2012

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/WARROAD_GAGE-3N-13OCT2009.jpg	N	Oct 13, 2009
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/WARROAD_GAGE-2-13OCT2009.jpg		Oct 13, 2009
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/WARROAD_GAGE-1-19OCT2009.jpg		Oct 19, 2009

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: WARROAD LOOKOUT TOWER

NGS Name: WARROAD LOOKOUT TOWER

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0673](#) [Get Map](#)
 NGS Quad / Sta Num : 48095141/1014
 USGS Quad: WARROAD

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SE	29	163 N	36 W	485425.06	951903.90		4

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1934	1947	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	LOOKOUT TOWER	NGS

Description: (1947)

Stamping:

IN WARROAD, 184.0 FEET NORTH ALONG MAIN AVENUE FROM THE JUNCTION OF MAIN AVENUE AND MACKENZIE STREET IN WARROAD.

* No Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -93.550 12B = -93.546 09 = -93.494 03 = -93.474

Lat/Lon and County Coordinates (Feet)

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 54 25.05866	95 19 03.89570	700171.383	233563.776	.328	4	ADJUSTMENT	1999	17648

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 54 25.04345	95 19 03.86596	700173.386	233562.256	.328	4	ADJUSTMENT	1986	17289

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>						<u>Year</u>	<u>Reference</u>
48 54 25.08700	95 19 03.01500			.100	4	CLASSICAL SURVEY	1960	12443

State Plane and UTM Coordinates (Feet)

<u>MN State Plane - North Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2091304.403	1213722.418	1083215.408	17781141.100	.328	4	ADJUSTMENT	1999	17648

<u>MN State Plane - North Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2091306.345	1213720.820	1083217.347	17781139.499	.328	4	ADJUSTMENT	1986	17289

<u>MN State Plane - North Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>X</u>	<u>Y</u>						<u>Year</u>	<u>Reference</u>
1466679.544	885638.111			.100	4	CLASSICAL SURVEY	1960	12443



Mn/DOT Name: WARROAD MUNICIPAL TANK

NGS Name: WARROAD MUNICIPAL TANK

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0672](#) [Get Map](#)
 NGS Quad / Sta Num : 48095141/1015
 USGS Quad: WARROAD

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SE	29	163 N	36 W	485415.91	951858.05		4

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1934	2009	DESTROYED	Horz=NO Vert=NO	YES			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	ELEVATED TANK	NGS

Description: (1966) Stamping:
 IN THE SOUTHEAST PART OF WARROAD.

Station Notes
 10-13-2009 FOUND THE TANK HAS BEEN REMOVED AND THE AREA IS NOW IN HARBOR PARK.

* No Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -93.540 12B = -93.540 09 = -93.487 03 = -93.464

Lat/Lon and County Coordinates (Feet)

<u>Geodetic Position</u>		<u>Roseau County</u>		<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
48 54 15.91068	95 18 58.04584	700572.347	232640.927	.328	4	ADJUSTMENT	1999	17648
<u>NAD83(1986)</u>								
<u>Geodetic Position</u>		<u>Roseau County</u>		<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
48 54 15.89585	95 18 58.01648	700574.325	232639.445	.328	4	ADJUSTMENT	1986	17289
<u>NAD27</u>								
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>						<u>Year</u>	<u>Reference</u>
48 54 15.94000	95 18 57.16500			.100	4	CLASSICAL SURVEY	1960	12443

State Plane and UTM Coordinates (Feet)

<u>MN State Plane - North Zone</u>		<u>UTM - Zone 15</u>		<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
2091668.515	1212784.384	1083577.784	17780202.528	.328	4	ADJUSTMENT	1999	17648
<u>NAD83(1986)</u>								
<u>MN State Plane - North Zone</u>		<u>UTM - Zone 15</u>		<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
2091670.433	1212782.825	1083579.699	17780200.966	.328	4	ADJUSTMENT	1986	17289
<u>NAD27</u>								
<u>MN State Plane - North Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>X</u>	<u>Y</u>						<u>Year</u>	<u>Reference</u>
1467043.684	884700.178			.100	4	CLASSICAL SURVEY	1960	12443

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:			
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/WARROAD_MUNICIPAL_TANK-TC0672-2-13OCT2009.jpg		Oct 13, 2009
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/WARROAD_MUNICIPAL_TANK-TC0672-1-13OCT2009.jpg		Oct 13, 2009

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: WARROAD N BASE 2

NGS Name: WARROAD N BASE 2

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0685](#) [Get Map](#)
NGS Quad / Sta Num : 48095144/
USGS Quad: WARROAD NW

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NW	25	164 N	37 W	485956.42	952231.46		2

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1980	1996	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	TRIANGULATION STATION DISK	IBWC

Description: (1980) **Stamping:** WARROAD NORTH BASE 2 1980

6.5 MILES NORTH-NORTHWEST OF WARROAD, 6.45 MILES NORTH-NORTHWEST ALONG TRUNK HIGHWAY 313 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND TRUNK HIGHWAY 313 IN WARROAD, 0.05 MILE SOUTH OF THE CANADIAN CUSTOMS, 34.0 FEET EAST OF THE EAST RAIL OF THE RAILROAD TRACKS, 132.33 FEET SOUTH-SOUTHWEST OF WARROAD N BASE RM 1, 106.93 FEET SOUTHWEST OF WARROAD N BASE RM 2-IN 1996 THE MONUMENT WAS FOUND TIPPED OVER WITH THE DISK MISSING.

* No Leveling-Derived Orthometric Heights in the Database *

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1067.911	.197		974.611	.131	1996	HORIZONTAL ADJUSTMENT	1999	17648	

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1068.010						RECIPROCAL VERTICAL ANGLE	1980	HORZ	

Geoid Separations(ft): GEOID18 = -93.796 12B = -93.792 09 = -93.697 03 = -93.760

Lat/Lon and County Coordinates (Feet)

<u>NAD83(1996)</u>		<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
48 59 56.42078	95 22 31.45982	685962.955	267000.820	.066	2	ADJUSTMENT	1999	17648	

<u>NAD83(1986)</u>		<u>Roseau County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
48 59 56.40730	95 22 31.42432	685965.337	266999.478	.066	2	ADJUSTMENT	1986	17289	

<u>NAD27</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>						<u>Year</u>	<u>Reference</u>
48 59 56.44714	95 22 30.55872			.100	2	CLASSICAL SURVEY	1981	16669

State Plane and UTM Coordinates (Feet)

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - North Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
2078430.604	1247697.355	1070405.546	17815135.093	.066	2	ADJUSTMENT	1999	17648	

<u>NAD83(1986)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - North Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
2078432.930	1247695.920	1070407.870	17815133.654	.066	2	ADJUSTMENT	1986	17289	

<u>NAD27</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>MN State Plane - North Zone</u>							<u>Year</u>	<u>Reference</u>
1453806.549	919612.769			.100	2	CLASSICAL SURVEY	1981	16669



Mn/DOT Name: WARROAD N BASE 2 RM 1

NGS Name: WARROAD N BASE 2 RM 1

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [CO7675](#) [Get Map](#)
 NGS Quad / Sta Num : 48095144/
 USGS Quad: WARROAD NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	25	164 N	37 W	485956.00	952231.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1980	2001	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	IBWC

Description: **Stamping:** WARROAD NORTH BASE 2 NO 1 1980

6.5 MILES NORTH-NORTHWEST OF WARROAD, 6.45 MILES NORTH-NORTHWEST ALONG TRUNK HIGHWAY 313 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND TRUNK HIGHWAY 313 IN WARROAD, 0.05 MILE SOUTH OF CANADIAN CUSTOMS.

* No Horizontal or Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -93.796 12B = -93.792 09 = -93.697 03 = -93.760



Mn/DOT Name: WARROAD N BASE 2 RM 2

NGS Name: WARROAD N BASE 2 RM 2

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [CO7676](#) [Get Map](#)
 NGS Quad / Sta Num : 48095144/
 USGS Quad: WARROAD NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	25	164 N	37 W	485956.00	952231.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1980	2001	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	IBWC

Description: **Stamping:** WARROAD NORTH BASE 2 NO 2 1980

6.5 MILES NORTH-NORTHWEST OF WARROAD, 6.45 MILES NORTH-NORTHWEST ALONG TRUNK HIGHWAY 313 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND TRUNK HIGHWAY 313 IN WARROAD, 0.05 MILE SOUTH OF CANADIAN CUSTOMS.

* No Horizontal or Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -93.796 12B = -93.792 09 = -93.697 03 = -93.760



Mn/DOT Name: WARROAD N BASE AZ MK

NGS Name: WARROAD NB AZ MK

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [AI1908](#) [Get Map](#)
 NGS Quad / Sta Num : 48095141/
 USGS Quad: WARROAD

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	36	164 N	37 W	485912.33	952204.46	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1934	2012	DESTROYED	Horz=NO Vert=NO	NO		PROJECTS 12 IN.	STEEL SPIKE ADJ TO MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	AZIMUTH MARK DISK	NGS

Description: (1996) **Stamping:** NORTHBASE AZI 1934 WARROAD

5.25 MILES NORTH-NORTHWEST OF WARROAD, 5.28 MILES NORTH-NORTHWEST ALONG TRUNK HIGHWAY 313 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND TRUNK HIGHWAY 313 IN WARROAD, AT TRUNK HIGHWAY 313 MILEPOINT 5.20, AT RAILROAD MILEPOINT 44, 84.8 FEET EAST-NORTHEAST OF TRUNK HIGHWAY 313, 18.4 FEET WEST-SOUTHWEST OF THE WEST RAIL OF THE RAILROAD TRACKS, 132.3 FEET NORTH OF THE EAST LEG OF A RAILROAD CROSSING SIGN POST, 83.7 FEET SOUTH-SOUTHEAST OF A TELEPHONE PEDESTAL NUMBER 500-22, 2.5 FEET SOUTHEAST OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1076.008	.016	2/1					VERTICAL ADJUSTMENT	2000	00000365	
1076.012	.016	2/1					VERTICAL CONTROL SURVEY	1998	VWARR	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1074.604	.016	2/1					VERTICAL CONTROL SURVEY	1999	VWARR	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
				982.245	.010	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800	
1076.015	.131			982.354	.066	2007	HORIZONTAL ADJUSTMENT	2009	GPS2522	
1076.015	.131			982.354	.066	2007	GPS - STATIC	2008	HROSO	
1076.015	.131			982.344	.066	1996	GPS - STATIC	2008	HROSO	
				982.232	.018	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300	
1076.015	.131			982.213	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1795	
1076.015	.131			982.213	.066	1996	GPS - STATIC	2002	HWARR	
1075.884							GPS - STATIC	1996	HORZ	

Geoid Separations(ft): GEOID18 = -93.773 12B = -93.756 09 = -93.674 03 = -93.737



Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Roseau County				Project Info		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 59 12.33188	95 22 04.46283	687809.147	262550.802	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Roseau County				Project Info		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 59 12.33191	95 22 04.46346	687809.105	262550.804	.033	C	ADJUSTMENT	2009	GPS2522
48 59 12.33191	95 22 04.46346	687809.105	262550.804	.033	C	GPS - STATIC	2008	HROSO
48 59 12.33176	95 22 04.46685	687808.879	262550.787	.016		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Roseau County				Project Info		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 59 12.33187	95 22 04.46322	687809.121	262550.800	.033	C	GPS - STATIC	2008	HROSO
48 59 12.33171	95 22 04.46656	687808.898	262550.782	.033	C	ADJUSTMENT	2003	GPS1795
48 59 12.33171	95 22 04.46656	687808.898	262550.782	.033	C	GPS - STATIC	2002	HWARR

NAD83(1986)

Geodetic Position		Roseau County				Project Info		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 59 12.31686	95 22 04.43570	687810.973	262549.298	.033	C	GPS - STATIC	1996	HWARR

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2080099.248	1243177.479	1072065.567	17810612.752	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2080099.206	1243177.483	1072065.525	17810612.756	.033	C	ADJUSTMENT	2009	GPS2522
2080099.206	1243177.483	1072065.525	17810612.756	.033	C	GPS - STATIC	2008	HROSO
2080098.980	1243177.475	1072065.299	17810612.748	.016		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2080099.222	1243177.479	1072065.541	17810612.751	.033	C	GPS - STATIC	2008	HROSO
2080098.999	1243177.469	1072065.318	17810612.742	.033	C	ADJUSTMENT	2003	GPS1795
2080098.999	1243177.469	1072065.318	17810612.742	.033	C	GPS - STATIC	2002	HWARR

NAD83(1986)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2080101.012	1243175.904	1072067.328	17810611.174	.033	C	GPS - STATIC	1996	HWARR



Mn/DOT Name: WARROAD N BASE LEANING
 County: ROSEAU, MN (Sheet 2)

NGS Name: WARROAD N BASE LEANING

NGS ACRN: [TC0684](#) [Get Map](#)
 NGS Quad / Sta Num : 48095144/
 USGS Quad: WARROAD NW

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NE	26	164 N	37 W	485956.44	952231.26		2

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1980	1980	GOOD	Horz=? Vert=?	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	SEE DESCRIPTION	IBWC

Description:

Stamping:

7.0 MILES NORTHWEST OF WARROAD, 6.2 MILES NORTH ALONG TRUNK HIGHWAY 313 FROM THE JUNCTION OF TRUNK HIGHWAY 313 AND TRUNK HIGHWAY 11, 180.0 FEET NORTHEAST OF TRUNK HIGHWAY 313.

* No Leveling-Derived Orthometric Heights in the Database *

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1072.832	.197		979.532	.131	1996	HORIZONTAL ADJUSTMENT	1999	17648

Geoid Separations(ft): GEOID18 = -93.796 12B = -93.792 09 = -93.697 03 = -93.760

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 59 56.43859	95 22 31.26499	685975.930	267002.757	.066	2	ADJUSTMENT	1999	17648

NAD83(1986)

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 59 56.42511	95 22 31.22950	685978.310	267001.415	.066	2	ADJUSTMENT	1986	17289

NAD27

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 59 56.46495	95 22 30.36391			.100	2	CLASSICAL SURVEY	1981	16669

State Plane and UTM Coordinates (Feet)

NAD83(1996)

<u>MN State Plane - North Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2078443.646	1247698.777	1070418.588	17815136.491	.066	2	ADJUSTMENT	1999	17648

NAD83(1986)

<u>MN State Plane - North Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2078445.971	1247697.342	1070420.911	17815135.051	.066	2	ADJUSTMENT	1986	17289

NAD27

<u>MN State Plane - North Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1453819.589	919614.192			.100	2	CLASSICAL SURVEY	1981	16669



Mn/DOT Name: WARROAD NB IBC MON 909

NGS Name: WARROAD NB IBC MON 909

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0683](#) [Get Map](#)
 NGS Quad / Sta Num : 48095144/1007
 USGS Quad: WARROAD NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	25	164 N	37 W	485956.44	952231.28		1

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1912	2009	GOOD	Horz=NO Vert=YES	NO		PROJECTS 60 IN.	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	TRIANGULATION STATION DISK	IBWC

Description: (1996) **Stamping:** WARROAD NB IBC MON 909

6.5 MILES NORTH-NORTHWEST OF WARROAD, 6.45 MILES NORTH-NORTHWEST ALONG TRUNK HIGHWAY 313 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND TRUNK HIGHWAY 313 IN WARROAD, 0.05 MILE SOUTH OF THE CANADIAN CUSTOMS, CONCRETE BASE STAMPED RENEWED 1985, STAMPED UNITED STATES TO THE SOUTH-CANADA TO THE NORTH-CONVENTION OF 1818 909 TO THE EAST-TREATY OF 1908 TO THE WEST, 48.0 FEET EAST OF THE EAST RAIL OF THE RAILROAD TRACKS.

Station Notes

THE STATION IS A CHISELED X ON TOP, THE POSITION IS IN QUESTION AS THE MARK WAS RESET IN 1985 BY THE INTERNATIONAL BOUNDARY AND WATER COMMISSION.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order/(Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1073.102	.033	3				VERTICAL CONTROL SURVEY	1974	USGS-VERT	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order/(Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1074.210	.131		980.910	.066	1996	HORIZONTAL ADJUSTMENT	1999	17648	

Geoid Separations(ft): GEOID18 = -93.796 12B = -93.792 09 = -93.697 03 = -93.760

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

<u>Geodetic Position</u>		<u>Roseau County</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
48 59 56.43500	95 22 31.28341	685974.705	267002.381	.033	1	ADJUSTMENT	1999	17648

NAD83(1986)

<u>Geodetic Position</u>		<u>Roseau County</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
48 59 56.42065	95 22 31.25082	685976.893	267000.949	.033	1	ADJUSTMENT	1986	17289

NAD27

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>						<u>Year</u>	<u>Reference</u>
48 59 56.46300	95 22 30.37700			.100	1	CLASSICAL SURVEY	1960	12443

USSD

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>						<u>Year</u>	<u>Reference</u>
48 59 57.05100	95 22 30.05900				3	CLASSICAL SURVEY		17389-86



State Plane and UTM Coordinates (Feet)

NAD83(1996)

MN State Plane - North Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
2078442.407	1247698.449	1070417.349	17815136.166	.033	1	ADJUSTMENT	1999	17648

NAD83(1986)

MN State Plane - North Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
2078444.537	1247696.932	1070419.476	17815134.644	.033	1	ADJUSTMENT	1986	17289

NAD27

MN State Plane - North Zone		<u>X</u>	<u>Y</u>	Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>						<u>Year</u>	<u>Reference</u>
1453818.711	919614.020			.100	1	CLASSICAL SURVEY	1960	12443



Mn/DOT Name: WARROAD RAD STA KAD 865 MAST

NGS Name: WARROAD RAD STA KAD 865 MAST

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0675](#) [Get Map](#)
 NGS Quad / Sta Num : 48095141/1039
 USGS Quad: WARROAD

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SW	28	163 N	36 W	485419.74	951809.55		4

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1966	2009	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	RADIO/TV MAST	NGS

Description: (1966) Stamping:
 IN WARROAD, AT THE CORNER OF LAKE STREET AND 4TH AVENUE.

Station Notes
 10-13-2009 THE RADIO/TV MAST HAS BEEN REMOVED.

* No Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -93.596 12B = -93.596 09 = -93.546 03 = -93.523

Lat/Lon and County Coordinates (Feet)

<u>Geodetic Position</u>		<u>Roseau County</u>		<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
48 54 19.73700	95 18 09.54999	703808.100	233064.463	.328	4	ADJUSTMENT	1999	17648
<u>NAD83(1986)</u>								
48 54 19.72348	95 18 09.52197	703809.987	233063.114	.328	4	ADJUSTMENT	1986	17289
<u>NAD27</u>								
48 54 19.75698	95 18 08.66413			.100	4	CLASSICAL SURVEY	1977	15935

State Plane and UTM Coordinates (Feet)

<u>MN State Plane - North Zone</u>		<u>UTM - Zone 15</u>		<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
2094918.601	1213079.445	1086827.987	17780491.699	.328	4	ADJUSTMENT	1999	17648
<u>NAD83(1986)</u>								
2094920.434	1213078.021	1086829.816	17780490.273	.328	4	ADJUSTMENT	1986	17289
<u>NAD27</u>								
1470294.180	884994.290			.100	4	CLASSICAL SURVEY	1977	15935



Mn/DOT Name: WARROAD RM 1

NGS Name: WARROAD RM 1

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 48095141/
 USGS Quad: WARROAD

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	29	163 N	36 W	485454.00	951920.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1966	2012	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	NGS

Description: (1966) Stamping: WARROAD NO 1 1923 1966

0.8 MILE NORTH OF WARROAD, NEAR THE CENTER OF SECTION 29, 0.84 MILE NORTHWEST OF THE RAILROAD STATION,
 25.0 FEET EAST OF STATION WARROAD.

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1067.199	.033	3							VERTICAL CONTROL SURVEY	1974	USGS-VERT	

Geoid Separations(ft): GEOID18 = -93.576 12B = -93.573 09 = -93.514 03 = -93.504

* No Horizontal Positions in the Database *



Mn/DOT Name: WARROAD RM 2

NGS Name: WARROAD RM 2

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 48095141/
 USGS Quad: WARROAD

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	29	163 N	36 W	485454.00	951920.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1923	2012	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	NGS

Description: (1966) Stamping: WARROAD NO 2 1923

0.8 MILE NORTH OF WARROAD, NEAR THE CENTER OF SECTION 29, 0.84 MILE NORTHWEST OF THE RAILROAD STATION, 59.0 FEET SOUTH AND 23.0 FEET EAST OF STATION WARROAD, THE GEODETIC CREW SEARCHED FOR AND DID NOT FIND IN 1998.

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1066.799	.033	3				VERTICAL CONTROL SURVEY	1974	USGS-VERT	

Geoid Separations(ft): GEOID18 = -93.576 12B = -93.573 09 = -93.514 03 = -93.504

* No Horizontal Positions in the Database *



Mn/DOT Name: WARROAD RUNWAY 13

NGS Name: WARROAD RUNWAY 13

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC1273](#) [Get Map](#)
 NGS Quad / Sta Num : 48095141/
 USGS Quad: WARROAD

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	12	163 N	36 W	485631.50	952056.40		3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
	1988	GOOD	Horz=YES Vert=?	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	UNMONUMENTED	NGS

Description: (1988) **Stamping:**
 LOCATED IN THE WARROAD INTERNATIONAL AIRPORT. AT THE NORTH-WEST END OF THE RUNWAY.

Station Notes
 CONTACT THE AIRPORT MANAGER BEFORE USE. WARROAD INTERNATIONAL MEMORIAL AIRPORT.

* No Leveling-Derived Orthometric Heights in the Database *

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1071.848	.262		978.699	.197	1996	HORIZONTAL ADJUSTMENT	1999	17648

Geoid Separations(ft): GEOID18 = -93.658 12B = -93.625 09 = -93.556 03 = -93.599

Lat/Lon and County Coordinates (Feet)

<u>NAD83(1996)</u>			<u>Roseau County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>			<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>								
48 56 31.48235	95 20 56.34554		692524.114	246296.057	.131	3	ADJUSTMENT	1999	17648

<u>NAD27</u>							<u>Project Info</u>		
<u>Geodetic Position</u>			<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>								
48 56 31.00000	95 20 55.00000				.100		CLASSICAL SURVEY	1991	17504

State Plane and UTM Coordinates (Feet)

<u>NAD83(1996)</u>			<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - North Zone</u>			<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>								
2084167.086	1226748.013		1076102.639	17794177.996	.131	3	ADJUSTMENT	1999	17648

<u>NAD27</u>							<u>Project Info</u>		
<u>MN State Plane - North Zone</u>			<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>								
1459571.465	898611.043				.100		CLASSICAL SURVEY	1991	17504



Mn/DOT Name: WARROAD RUNWAY 31

NGS Name: WARROAD RUNWAY 31

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC1274](#) [Get Map](#)
 NGS Quad / Sta Num : 48095141/
 USGS Quad: WARROAD

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	12	163 N	36 W	485558.90	952012.80		3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
	1988	GOOD	Horz=YES Vert=?	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	UNMONUMENTED	NGS

Description: **Stamping:**
 LOCATED IN THE WARROAD INTERNATIONAL AIRPORT. AT THE SOUTH-EAST END OF THE RUNWAY.

Station Notes
 CONTACT THE AIRPORT MANAGER BEFORE USE. WARROAD INTERNATIONAL MEMORIAL AIRPORT.

* No Leveling-Derived Orthometric Heights in the Database *

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>			
<u>Orthometric Height</u>					<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>								
1072.045	.262			978.928	.197	1996	HORIZONTAL ADJUSTMENT	1999	17648	

Geoid Separations(ft): GEOID18 = -93.635 12B = -93.615 09 = -93.540 03 = -93.573

Lat/Lon and County Coordinates (Feet)

<u>NAD83(1996)</u>				<u>Roseau County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
48 55 58.91628	95 20 12.75796			695469.310	243026.368	.131	3	ADJUSTMENT	1999	17648

<u>NAD27</u>								<u>Project Info</u>		
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
48 55 58.00000	95 20 11.00000					.100		CLASSICAL SURVEY	1991	17504

State Plane and UTM Coordinates (Feet)

<u>NAD83(1996)</u>				<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - North Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2086980.606	1223364.129			1078909.627	17790789.417	.131	3	ADJUSTMENT	1999	17648

<u>NAD27</u>								<u>Project Info</u>		
<u>MN State Plane - North Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
1462411.360	895182.411					.100		CLASSICAL SURVEY	1991	17504



Mn/DOT Name: WARROAD SB AZ MK

NGS Name: WARROAD SB AZ MK

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [AI1907](#) [Get Map](#)
 NGS Quad / Sta Num : 48095141/
 USGS Quad: WARROAD

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	20	163 N	36 W	485549.80	951953.80	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1912	2012	DESTROYED	Horz=NO Vert=NO	NO		PROJECTS 6 IN.	STEEL SPIKE ADJ TO MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	AZIMUTH MARK DISK	IBWC

Description: (1998) **Stamping:** WARROAD SB AZI 1934

0.95 MILE NORTHWEST ON A GRAVEL ROAD FROM THE CANADIAN NATIONAL RAILROAD STATION AT WARROAD, THEN 0.2 MILE WEST AND 0.2 MILE NORTH AND 0.65 MILE NORTHWEST ON A TRACK ROAD, AT TRUNK HIGHWAY 313 MILEPOINT 1.15, 86.5 FEET WEST OF AN ENTRANCE, 45.5 FEET SOUTH OF A TRACK ROAD, 45.0 FEET EAST OF THE EAST RAIL OF THE RAILROAD TRACKS, 84.9 FEET SOUTH-SOUTHEAST OF A RAILROAD SEMAPHORE, 2.8 FEET SOUTH OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1069.699	.016	2/1					VERTICAL ADJUSTMENT	2000	00000365	
1069.699	.016	2/1					VERTICAL CONTROL SURVEY	1998	VWARR	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1068.292	.016	2/1					VERTICAL CONTROL SURVEY	1999	VWARR	
1068.499	.033	3					VERTICAL CONTROL SURVEY	1974	USGS-VERT	
1068.476	.033	3					VERTICAL CONTROL SURVEY	1963	CS6810	

Geoid Separations(ft): GEOID18 = -93.635 12B = -93.622 09 = -93.546 03 = -93.573

* No Horizontal Positions in the Database *



Mn/DOT Name: WARROAD SB RM 1

NGS Name: WARROAD SOUTH BASE RM 1

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0488](#) [Get Map](#)
 NGS Quad / Sta Num : 48095141/
 USGS Quad: WARROAD

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	20	163 N	36 W	485518.57	951934.07	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1934	2012	DESTROYED	Horz=NO Vert=NO	YES		PROJECTS 12 IN.	STEEL SPIKE ADJ TO MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	REFERENCE MARK DISK	NGS

Description: (2009) **Stamping:** WARROAD SOUTH BASE NO 1 1934

1.35 MILES NORTHWEST OF WARROAD, 0.3 MILE NORTH ALONG TRUNK HIGHWAY 313 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND TRUNK HIGHWAY 313 IN WARROAD, THEN 0.3 MILE EAST ALONG COUNTY ROAD 74, THEN 0.2 MILE NORTH ALONG THE EAST SIDE OF THE RAILROAD TRACKS, 38.7 FEET EAST OF THE EAST RAIL OF THE RAILROAD TRACKS, 36.5 FEET WEST OF A PAVED BIKE PATH, 135.15 FEET SOUTH-SOUTHEAST OF STATION WARROAD SOUTHBASE, 2.0 FEET NORTH OF A WITNESS POST.

Station Notes
THE DISK WAS TURNED IN TO THE OFFICE.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1068.689	.016	2/1					VERTICAL ADJUSTMENT	2000	00000365	
1068.692	.016	2/1					VERTICAL CONTROL SURVEY	1998	VWARR	
1068.462	.007	1					VERTICAL ADJUSTMENT	1991	00000025	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1067.285	.016	2/1					VERTICAL CONTROL SURVEY	1999	VWARR	
1067.058	.033	3					VERTICAL CONTROL SURVEY	1987	CS6803	
1067.600	.033	3					VERTICAL CONTROL SURVEY	1974	USGS-VERT	

Geoid Separations(ft): GEOID18 = -93.602 12B = -93.596 09 = -93.530 03 = -93.533

* No Horizontal Positions in the Database *

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/WARROAD_SOUTH_BASE_RM_1-TC0488-3W-13OCT2009.jpg	W	Oct 13, 2009
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/WARROAD_SOUTH_BASE_RM_1-TC0488-2-13OCT2009.jpg		Oct 13, 2009
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/WARROAD_SOUTH_BASE_RM_1-TC0488-1-13OCT2009.jpg		Oct 13, 2009

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: WARROAD SB RM 2

NGS Name: WARROAD SOUTH BASE RM 2

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0490](#) [Get Map](#)
 NGS Quad / Sta Num : 48095141/
 USGS Quad: WARROAD

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	20	163 N	36 W	485520.01	951934.01	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1934	2012	DESTROYED	Horz=NO Vert=NO	YES		PROJECTS 14 IN.	STEEL SPIKE ADJ TO MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

Description: (2009) **Stamping:** WARROAD SB NO 2 1934

1.35 MILES NORTHWEST OF WARROAD, 0.3 MILE NORTH ALONG TRUNK HIGHWAY 313 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND TRUNK HIGHWAY 313 IN WARROAD, THEN 0.3 MILE EAST ALONG COUNTY ROAD 74, THEN 0.2 MILE NORTH ALONG THE EAST SIDE OF THE RAILROAD TRACKS, 40.1 FEET EAST OF THE EAST RAIL OF THE RAILROAD TRACKS, 30.0 FEET WEST OF A PAVED BIKE PATH, 128.27 FEET NORTH-NORTHWEST OF STATION WARROAD SOUTHBASE, 2.0 FEET SOUTH OF A WITNESS POST.

Station Notes

FOUND THE CONCRETE LOOSE.
 THE DISK WAS TURNED IN TO THE OFFICE.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1068.604	.016	2/1				VERTICAL ADJUSTMENT	2000	00000365	
1068.607	.016	2/1				VERTICAL CONTROL SURVEY	1998	VWARR	
1068.423	.007	1				VERTICAL ADJUSTMENT	1991	00000025	

NGVD29

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1067.199	.016	2/1				VERTICAL CONTROL SURVEY	1999	VWARR	
1067.016	.033	3				VERTICAL CONTROL SURVEY	1987	CS6803	
1066.999	.033	3				VERTICAL CONTROL SURVEY	1974	USGS-VERT	

Geoid Separations(ft): GEOID18 = -93.602 12B = -93.596 09 = -93.530 03 = -93.533

* No Horizontal Positions in the Database *

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/WARROAD_SOUTH_BASE_RM_2-TC0490-3W-13OCT2009.jpg	W	Oct 13, 2009
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/WARROAD_SOUTH_BASE_RM_2-TC0490-2-13OCT2009.jpg		Oct 13, 2009
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/WARROAD_SOUTH_BASE_RM_2-TC0490-1-13OCT2009.jpg		Oct 13, 2009

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: WARROAD SOUTH BASE

NGS Name: WARROAD S BASE

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0489](#) [Get Map](#)
 NGS Quad / Sta Num : 48095141/1006
 USGS Quad: WARROAD

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	20	163 N	36 W	485519.84	951934.71	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1912	2012	GOOD	Horz=NO Vert=NO	YES		FLUSH	STEEL SPIKE ADJ TO MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	TRIANGULATION STATION DISK	IBWC

Description: (1994) **Stamping:** USCB SURVEY

1.0 MILE NORTH OF WARROAD, 0.3 MILE NORTH ALONG TRUNK HIGHWAY 313 FROM THE JUNCTION OF TRUNK HIGHWAY 313 AND TRUNK HIGHWAY 11 IN WARROAD, THEN 0.3 MILE EAST ALONG COUNTY ROAD 74, THEN 0.2 MILE NORTH-NORTHWEST ALONG THE EAST SIDE OF THE RAILROAD TRACKS, 48.5 FEET EAST OF THE EAST RAIL OF THE RAILROAD TRACKS, 26.0 FEET WEST OF A PAVED BIKE PATH, 135.15 FEET NORTH-NORTHWEST OF WARROAD SB RM 1, 1.3 FEET EAST OF A WITNESS POST. THE MONUMENT IS 2.5 FEET BY 2.5 FEET CONCRETE MONUMENT.

Station Notes

THE SURVEY MARK IS ON RAILROAD PROPERTY AND HAS BEEN ABANDONED FOR MNDOT GEODETIC USE.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1067.954	.016	2/1				VERTICAL ADJUSTMENT	2000	00000365
1067.954	.016	2/1				VERTICAL CONTROL SURVEY	1998	VWARR
1067.954	.007	1/2				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1066.546	.016	2/1				VERTICAL CONTROL SURVEY	1999	VWARR
1066.546	.033	3				VERTICAL CONTROL SURVEY	1987	CS6803
1066.500	.033	3				VERTICAL CONTROL SURVEY	1974	USGS-VERT

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1067.993	.262		974.463	.197	2007	GPS - RTRN	2012	RTRN2012
			974.332	.011	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
1067.944	.131		974.430	.066	2007	HORIZONTAL ADJUSTMENT	2009	GPS2522
1067.944	.131		974.430	.066	2007	GPS - STATIC	2008	HROSO
1067.944	.131		974.407	.066	1996	GPS - STATIC	2008	HROSO
			974.430	.017	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
1067.944	.131		974.407	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1795
1067.944	.131		974.407	.066	1996	GPS - STATIC	2002	HWARR
1067.518	.131		974.407	.066	1996	HORIZONTAL ADJUSTMENT	1999	17648
1067.954	.131		974.407	.066	1996	GPS - STATIC	1997	GPS805-C

Geoid Separations(ft): GEOID18 = -93.602 12B = -93.596 09 = -93.530 03 = -93.533



Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Roseau County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 55 19.83740	95 19 34.71430	698052.432	239093.094	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Roseau County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 55 19.83824	95 19 34.71488	698052.393	239093.179	.131	3	GPS - RTRN	2012	RTRN2012
48 55 19.83738	95 19 34.71466	698052.408	239093.092	.033	C	ADJUSTMENT	2009	GPS2522
48 55 19.83738	95 19 34.71466	698052.408	239093.092	.033	C	GPS - STATIC	2008	HROSO
48 55 19.83738	95 19 34.71466	698052.408	239093.092	.013		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Roseau County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 55 19.83730	95 19 34.71460	698052.412	239093.084	.033	C	GPS - STATIC	2008	HROSO
48 55 19.83730	95 19 34.71460	698052.412	239093.084	.033	C	ADJUSTMENT	2003	GPS1795
48 55 19.83730	95 19 34.71460	698052.412	239093.084	.033	C	GPS - STATIC	2002	HWARR
48 55 19.83730	95 19 34.71460	698052.412	239093.084	.033	C	ADJUSTMENT	1999	17648
48 55 19.83730	95 19 34.71460	698052.412	239093.084	.033	C	GPS - STATIC	1997	GPS805-C

NAD83(1986)

Geodetic Position		Roseau County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 55 19.82219	95 19 34.68429	698054.453	239091.575	.033	1	ADJUSTMENT	1986	17289

NAD27

Geodetic Position						Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 55 19.86200	95 19 33.82900			.100	1	CLASSICAL SURVEY	1960	12443

USSD

Geodetic Position						Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 55 20.44900	95 19 33.51500				3	CLASSICAL SURVEY		17389-86

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2089406.030	1219331.499	1081327.415	17786752.901	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2089405.993	1219331.585	1081327.379	17786752.987	.131	3	GPS - RTRN	2012	RTRN2012
2089406.005	1219331.497	1081327.391	17786752.899	.033	C	ADJUSTMENT	2009	GPS2522
2089406.005	1219331.497	1081327.391	17786752.899	.033	C	GPS - STATIC	2008	HROSO
2089406.005	1219331.497	1081327.391	17786752.899	.013		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2089406.009	1219331.489	1081327.395	17786752.891	.033	C	GPS - STATIC	2008	HROSO
2089406.009	1219331.489	1081327.395	17786752.891	.033	C	ADJUSTMENT	2003	GPS1795
2089406.009	1219331.489	1081327.395	17786752.891	.033	C	GPS - STATIC	2002	HWARR
2089406.009	1219331.489	1081327.395	17786752.891	.033	C	ADJUSTMENT	1999	17648
2089406.009	1219331.489	1081327.395	17786752.891	.033	C	GPS - STATIC	1997	GPS805-C

NAD83(1986)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2089407.988	1219329.900	1081329.371	17786751.298	.033	1	ADJUSTMENT	1986	17289

NAD27

MN State Plane - North Zone						Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1464781.383	891246.799			.100	1	CLASSICAL SURVEY	1960	12443



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/WARROAD_S_BASE-TC0489-3W-09OCT2012.jpg	W	Oct 9, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/WARROAD_S_BASE-TC0489-2-09OCT2012.jpg		Oct 9, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/WARROAD_S_BASE-TC0489-1-09OCT2012.jpg		Oct 9, 2012

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: WARROAD ST MARYS CATH CH SPIRE

NGS Name: WARROAD ST MARYS CATH CH SPIRE

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0674](#) [Get Map](#)
 NGS Quad / Sta Num : 48095141/1016
 USGS Quad: WARROAD

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NE	32	163 N	36 W	485402.33	951911.53		4

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1941	1941	GOOD	Horz=? Vert=?	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	CHURCH SPIRE	NGS

Description: (1941)

Stamping:

AT THE SOUTHWEST EDGE OF WARROAD, 50.0 FEET EAST OF TRUNK HIGHWAY 11.

* No Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -93.514 12B = -93.510 09 = -93.458 03 = -93.435

Lat/Lon and County Coordinates (Feet)

<u>Geodetic Position</u>		<u>Roseau County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 54 02.32874	95 19 11.52993	699686.457	231254.596	.328	4	ADJUSTMENT	1999	17648

<u>Geodetic Position</u>		<u>Roseau County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 54 02.31339	95 19 11.50000	699688.473	231253.062	.328	4	ADJUSTMENT	1986	17289

<u>Geodetic Position</u>							<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 54 02.36000	95 19 10.65000			.100	4	CLASSICAL SURVEY	1944	06239

State Plane and UTM Coordinates (Feet)

<u>MN State Plane - North Zone</u>		<u>UTM - Zone 15</u>					<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2090728.388	1211434.186	1082635.342	17778854.190	.328	4	ADJUSTMENT	1999	17648

<u>MN State Plane - North Zone</u>		<u>UTM - Zone 15</u>					<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2090730.343	1211432.573	1082637.293	17778852.574	.328	4	ADJUSTMENT	1986	17289

<u>MN State Plane - North Zone</u>							<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1466103.477	883350.176			.100	4	CLASSICAL SURVEY	1944	06239



Mn/DOT Name: WINNER
 County: ROSEAU, MN (Sheet 2)

NGS Name: WINNER

NGS ACRN: [DL2386](#) [Get Map](#)
 NGS Quad / Sta Num : 48095133/
 USGS Quad: MULLIGAN LAKE SW

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SW	8	159 N	37 W	483552.94	952628.51		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2008	2021	GOOD	Horz=YES Vert=YES	YES		RECESSED 4 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 27 FT)	SURVEY DISK	MN-135

Description: (2008) Stamping: WINNER 2008

14.25 MILES SOUTHEAST OF WANNASKA, 6.0 MILES EAST ALONG COUNTY ROAD 4 FROM THE JUNCTION OF TRUNK HIGHWAY 89 (THE JUNCTION IS 1.0 MILE SOUTH OF WANNASKA), THEN 1.0 MILE SOUTH ALONG COUNTY ROAD 9, THEN 7.0 MILES EAST AND SOUTH ALONG COUNTY ROAD 19 (140TH STREET), THEN 2.5 MILES EAST ALONG WINNER STATE FOREST ROAD TO A FOREST ROAD CROSSING, 83.1 FEET WEST OF BLACKS - WINNER STATE FOREST ROAD, 66.6 FEET NORTH OF NF ROAD NUMBER 48, 3.0 FEET SOUTH OF A WITNESS POST.

* No Leveling-Derived Orthometric Heights in the Database *

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1234.496	.262		1142.796	.197	2011	GPS - OPUS	2021	GPSBM
1234.515	.262		1142.816	.197	2011	GPS - OPUS	2021	GPSBM
1234.456	.262		1142.754	.197	2011	GPS - RTRN	2021	RTRN2021
			1142.740	.009	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
1234.446	.131		1142.859	.066	2007	HORIZONTAL ADJUSTMENT	2009	GPS2522
1234.446	.131		1142.859	.066	2007	GPS - STATIC	2008	HROSO
1234.446	.131		1142.845	.066	1996	GPS - STATIC	2008	HROSO

Geoid Separations(ft): GEOID18 = -91.699 12B = -91.712 09 = -91.621 03 = -91.561

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 35 52.93500	95 26 28.51008	671515.905	120553.997	.131	3	GPS - OPUS	2021	GPSBM
48 35 52.93496	95 26 28.50994	671515.915	120553.993	.131	3	GPS - OPUS	2021	GPSBM
48 35 52.93523	95 26 28.50895	671515.981	120554.021	.131	3	GPS - RTRN	2021	RTRN2021
48 35 52.93551	95 26 28.50973	671515.928	120554.049	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 35 52.93552	95 26 28.51070	671515.863	120554.050	.033	C	ADJUSTMENT	2009	GPS2522
48 35 52.93552	95 26 28.51070	671515.863	120554.050	.033	C	GPS - STATIC	2008	HROSO

NAD83(1996)

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 35 52.93571	95 26 28.51028	671515.891	120554.069	.033	C	GPS - STATIC	2008	HROSO



State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - North Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2058197.551	1101937.281	1049915.631	17669420.162	.131	3	GPS - OPUS	2021	GPSBM
2058197.560	1101937.276	1049915.640	17669420.158	.131	3	GPS - OPUS	2021	GPSBM
2058197.628	1101937.302	1049915.708	17669420.183	.131	3	GPS - RTRN	2021	RTRN2021
2058197.576	1101937.332	1049915.656	17669420.213	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - North Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2058197.511	1101937.335	1049915.591	17669420.217	.033	C	ADJUSTMENT	2009	GPS2522
2058197.511	1101937.335	1049915.591	17669420.217	.033	C	GPS - STATIC	2008	HROSO

NAD83(1996)

MN State Plane - North Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2058197.540	1101937.353	1049915.620	17669420.235	.033	C	GPS - STATIC	2008	HROSO

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/WINNER-DL2386-3NW-05OCT2021.jpg	NW	Oct 5, 2021
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/WINNER-DL2386-2-05OCT2021.jpg		Oct 5, 2021
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/WINNER-DL2386-1-05OCT2021.jpg		Oct 5, 2021

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: X 208

NGS Name: X 208

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0331](#) [Get Map](#)
 NGS Quad / Sta Num : 48095113/
 USGS Quad: SWIFT

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	12	162 N	36 W	485134.00	951413.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1935	2012	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	BENCH MARK DISK	NGS

Description: (1981) **Stamping:** X-208 1935

0.9 MILE NORTHWEST ON TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND COUNTY ROAD 2 AT SWIFT, 150.0 FEET NORTHEAST OF TRUNK HIGHWAY 11, AT TRUNK HIGHWAY 11 MILEPOINT 97.55, 48.0 FEET SOUTHWEST OF OLD TRUNK HIGHWAY 11, 36.0 FEET NORTHWEST OF A RAILROAD WHISTLE POST, 34.8 FEET NORTHEAST OF THE NORTHEAST RAIL OF THE RAILROAD TRACKS, AT RAILROAD MILEPOST 33, 1.0 FOOT SOUTH OF A WITNESS POST.

Station Notes

THE DISK WAS TURNED IN TO THE OFFICE.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1083.042	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1081.622	.016	2					VERTICAL CONTROL SURVEY	1973	Q480951	
1081.622	.016	2					VERTICAL CONTROL SURVEY	1973	L22862	
1081.225	.007	1					VERTICAL CONTROL SURVEY	1941	Q480951	
1081.225	.007	1					VERTICAL CONTROL SURVEY	1935	L56 MINN	

Geoid Separations(ft): GEOID18 = -93.812 12B = -93.756 09 = -93.697 03 = -93.704

* No Horizontal Positions in the Database *



Mn/DOT Name: X 367

NGS Name: X 367

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0483](#) [Get Map](#)
 NGS Quad / Sta Num : 48095113/
 USGS Quad: SWIFT

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	20	162 N	35 W	485023.32	951115.77	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1981	2012	GOOD	Horz=NO Vert=NO	YES		FLUSH	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
STEEL ROD (NO SLEEVE) (DEPTH 26 FT)	METAL ROD	NGS

Description: (1981) **Stamping:** X 367 1981

1.8 MILES SOUTHEAST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND COUNTY ROAD 2 IN SWIFT, AT THE OLD HIGHWAY 11 AND A RAILROAD CROSSING, AT TRUNK HIGHWAY 11 MILEPOINT 100.35, 175.0 FEET NORTHEAST OF TRUNK HIGHWAY 11, 50.0 FEET SOUTHEAST OF AN OLD CROSSOVER, 42.0 FEET NORTHEAST OF THE NORTHEAST RAIL OF THE RAILROAD TRACKS, 41.0 FEET SOUTHWEST OF OLD HIGHWAY 11, 1.0 FOOT NORTHWEST OF A WITNESS POST.

Station Notes

THE SURVEY MARK IS ON RAILROAD PROPERTY AND HAS BEEN ABANDONED FOR MNDOT GEODETIC USE.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1099.086	.016	2/1				VERTICAL ADJUSTMENT	2014	00000828	
1099.086	.016	2/1				VERTICAL CONTROL SURVEY	2013	VHACK	
1099.086	.007	1/2				VERTICAL ADJUSTMENT	1991	00000025	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1098.987	.262		1005.129	.197	2007	GPS - RTRN	2012	RTRN2012	
			1005.093	.010	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800	
1099.079	.131		1005.195	.066	2007	HORIZONTAL ADJUSTMENT	2009	GPS2522	
1099.079	.131		1005.195	.066	2007	GPS - STATIC	2008	HROSO	
1099.079	.131		1005.218	.066	1996	GPS - STATIC	2008	HROSO	

Geoid Separations(ft): GEOID18 = -93.976 12B = -93.947 09 = -93.858 03 = -93.852

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 50 23.31922	95 11 15.77278	731754.832	209433.129	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 50 23.31851	95 11 15.77476	731754.700	209433.056	.131	3	GPS - RTRN	2012	RTRN2012
48 50 23.31930	95 11 15.77354	731754.781	209433.137	.033	C	ADJUSTMENT	2009	GPS2522
48 50 23.31930	95 11 15.77354	731754.781	209433.137	.033	C	GPS - STATIC	2008	HROSO

NAD83(1996)

<u>Geodetic Position</u>		<u>Roseau County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
48 50 23.31932	95 11 15.77328	731754.798	209433.139	.033	C	GPS - STATIC	2008	HROSO

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - North Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
2121907.743	1188358.971	1113769.667	17755726.772	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - North Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
2121907.609	1188358.902	1113769.533	17755726.704	.131	3	GPS - RTRN	2012	RTRN2012
2121907.693	1188358.980	1113769.617	17755726.781	.033	C	ADJUSTMENT	2009	GPS2522
2121907.693	1188358.980	1113769.617	17755726.781	.033	C	GPS - STATIC	2008	HROSO

NAD83(1996)

MN State Plane - North Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
2121907.710	1188358.982	1113769.634	17755726.783	.033	C	GPS - STATIC	2008	HROSO

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/X_367-TC0483-3NW-10OCT2012.jpg	NW	Oct 10, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/X_367-TC0483-2-10OCT2012.jpg		Oct 10, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/X_367-TC0483-1-10OCT2012.jpg		Oct 10, 2012

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: X=1069 RESET

NGS Name: 1069 RESET

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0361](#) [Get Map](#)
 NGS Quad / Sta Num : 48095141/
 USGS Quad: WARROAD

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	29	163 N	36 W	485414.00	951914.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1973	2009	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE FOOTING - SMALL	SEE DESCRIPTION	USGS

Description: (1981) Stamping: 1069

AT WARROAD, AT THE WEST END OF THE LAKE OF THE WOODS, 29.0 FEET SOUTHWEST OF THE JUNCTION OF LAKE STREET AND STATE STREET, AT THE PUBLIC SCHOOL, 163.0 FEET EAST OF A SCHOOL.

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1067.229	.007	1				VERTICAL CONTROL SURVEY	1973	L22862	
1067.229	.007	1				VERTICAL CONTROL SURVEY	1941	Q480951	
1067.229	.007	1				VERTICAL CONTROL SURVEY	1935	L56 MINN	

Geoid Separations(ft): GEOID18 = -93.527 12B = -93.523 09 = -93.468 03 = -93.448

* No Horizontal Positions in the Database *



Mn/DOT Name: Y 192

NGS Name: Y 192

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0306](#) [Get Map](#)
 NGS Quad / Sta Num : 48095112/
 USGS Quad: ROOSEVELT

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	36	162 N	35 W	484805.00	950541.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1935	1966	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	BENCH MARK DISK	CGS

Description:

Stamping:

IN ROOSEVELT, 45.0 FEET, WEST OF THE STATION 25.0 FEET, SOUTH OF THE CENTERLINE OF TRUNK HIGHWAY 11, 30.0 FEET NORTH OF THE STATION PLATFORM. (04-01-1935 NATIONAL GEODETIC SURVEY (NGS)).

* No Horizontal or Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -94.147 12B = -94.137 09 = -94.055 03 = -94.042



Mn/DOT Name: Y 208

NGS Name: Y 208

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0333](#) [Get Map](#)
 NGS Quad / Sta Num : 48095142/
 USGS Quad: WARROAD SE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	11	162 N	36 W	485203.00	951523.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1935	2012	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	BENCH MARK DISK	NGS

Description: (1981) **Stamping:** Y-208 1935

1.9 MILES NORTHWEST ON TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND COUNTY ROAD 2 AT SWIFT, 91.7 FEET NORTHEAST OF TRUNK HIGHWAY 11, AT TRUNK HIGHWAY 11 MILEPOINT 96.7, 59.0 FEET NORTHEAST OF THE WEST END OF A METAL CULVERT, 37.5 FEET EAST OF RAILROAD MILEPOST 34 AND TELEPHONE POLE NUMBER 4, 12.0 FEET EAST OF A NORTH-SOUTH FIELD ROAD, 1.0 FOOT SOUTH OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1086.304	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1084.906	.007	1					VERTICAL CONTROL SURVEY	1973	Q480951	
1084.906	.007	1					VERTICAL CONTROL SURVEY	1973	L22862	
1084.906	.007	1					VERTICAL CONTROL SURVEY	1941	Q480951	
1084.906	.007	1					VERTICAL CONTROL SURVEY	1935	L56 MINN	

Geoid Separations(ft): GEOID18 = -93.724 12B = -93.674 09 = -93.625 03 = -93.628

* No Horizontal Positions in the Database *



Mn/DOT Name: Y 367

NGS Name: Y 367

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0484](#) [Get Map](#)
 NGS Quad / Sta Num : 48095113/
 USGS Quad: SWIFT

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	12	162 N	36 W	485128.56	951402.48	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1981	2018	DESTROYED	Horz=NO Vert=NO	YES		RECESSED 1 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
STEEL ROD (NO SLEEVE) (DEPTH 32 FT)	METAL ROD	NGS

Description: (1981) **Stamping:** Y 367 1981

0.7 MILE NORTHWEST ON TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND COUNTY ROAD 2 IN SWIFT, AT TRUNK HIGHWAY 11 MILEPOINT 97.9, 74.0 FEET SOUTHWEST OF TRUNK HIGHWAY 11, 43.0 FEET NORTH OF COUNTY ROAD 134 (320TH STREET), 202.0 FEET SOUTHWEST OF THE SOUTHWEST RAIL OF THE RAILROAD TRACKS, 1.0 FOOT EAST OF A WITNESS POST.

Station Notes

FOUND THE ROD BENT. STRAIGHTENED AND CREATED RESET MARK.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1082.511	.016	2/1					VERTICAL ADJUSTMENT	2014	00000828	
1082.511	.016	2/1					VERTICAL CONTROL SURVEY	2013	VHACK	
1082.511	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1082.422	.262			988.718	.197	2007	GPS - RTRN	2012	RTRN2012	
				988.689	.008	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800	
1082.511	.131			988.794	.066	2007	HORIZONTAL ADJUSTMENT	2009	GPS2522	
1082.511	.131			988.794	.066	2007	GPS - STATIC	2008	HROSO	
1082.511	.131			988.817	.066	1996	GPS - STATIC	2008	HROSO	

Geoid Separations(ft): GEOID18 = -93.822 12B = -93.769 09 = -93.707 03 = -93.714

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Roseau County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
48 51 28.55723	95 14 02.47715			720523.463	215907.193	.007		ADJUSTMENT	2012	GPS2800

<u>NAD83(2007)</u>				<u>Roseau County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
48 51 28.55689	95 14 02.47764			720523.431	215907.158	.131	3	GPS - RTRN	2012	RTRN2012
48 51 28.55731	95 14 02.47790			720523.413	215907.200	.033	C	ADJUSTMENT	2009	GPS2522
48 51 28.55731	95 14 02.47790			720523.413	215907.200	.033	C	GPS - STATIC	2008	HROSO

<u>NAD83(1996)</u>				<u>Roseau County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
48 51 28.55733	95 14 02.47764			720523.430	215907.202	.033	C	GPS - STATIC	2008	HROSO

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - North Zone		UTM - Zone 15			Project Info			
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2110941.568	1195273.077	1102817.131	17762659.151	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - North Zone		UTM - Zone 15			Project Info			
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2110941.535	1195273.044	1102817.098	17762659.117	.131	3	GPS - RTRN	2012	RTRN2012
2110941.519	1195273.086	1102817.081	17762659.161	.033	C	ADJUSTMENT	2009	GPS2522
2110941.519	1195273.086	1102817.081	17762659.161	.033	C	GPS - STATIC	2008	HROSO

NAD83(1996)

MN State Plane - North Zone		UTM - Zone 15			Project Info			
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2110941.536	1195273.088	1102817.099	17762659.162	.033	C	GPS - STATIC	2008	HROSO

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/Y_367-TC0484-3W-09OCT2012.jpg	W	Oct 9, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/Y_367-TC0484-2-09OCT2012.jpg		Oct 9, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/Y_367-TC0484-1-09OCT2012.jpg		Oct 9, 2012

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: Y 367 RESET

NGS Name: Y 367 RESET

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [DR4802](#) [Get Map](#)
 NGS Quad / Sta Num : 48095113/
 USGS Quad: SWIFT

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	12	162 N	36 W	485128.56	951402.48		C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2018	2018	GOOD	Horz=YES Vert=YES	YES		RECESSED 1 IN.	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
STEEL ROD (NO SLEEVE) (DEPTH 32 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: **Stamping:** Y 367 RESET 2018

0.7 MILE NORTHWEST ALONG TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND COUNTY ROAD 2 IN SWIFT, AT TRUNK HIGHWAY 11 MILEPOINT 97.9, 74.0 FEET SOUTHWEST OF TRUNK HIGHWAY 11, 43.0 FEET NORTH OF COUNTY ROAD 134 (320TH STREET), 202.0 FEET SOUTHWEST OF THE SOUTHWEST RAIL OF THE RAILROAD TRACKS, 1.0 FOOT EAST OF A WITNESS POST.

* No Leveling-Derived Orthometric Heights in the Database *

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1082.531			988.745	.018	2011	HORIZONTAL ADJUSTMENT	2020	GPS3362
1082.514	.131		988.889	.066	1996	GPS - STATIC	2020	HGRACE
1082.531			988.745	.018	2011	GPS - STATIC	2020	HGRACE

Geoid Separations(ft): GEOID18 = -93.822 12B = -93.769 09 = -93.707 03 = -93.714

Lat/Lon and County Coordinates (Feet)

NAD83(2011)		Roseau County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 51 28.55748	95 14 02.47787	720523.415	215907.217	.016		ADJUSTMENT	2020	GPS3362
48 51 28.55748	95 14 02.47787	720523.415	215907.217	.016	C	GPS - STATIC	2020	HGRACE

NAD83(1996)		Roseau County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
48 51 28.55732	95 14 02.47835	720523.383	215907.201	.033	C	GPS - STATIC	2020	HGRACE

State Plane and UTM Coordinates (Feet)

NAD83(2011)		UTM - Zone 15				Project Info		
MN State Plane - North Zone		X	Y	Acc	Order	Determination Method	Year	Reference
2110941.521	1195273.104	1102817.084	17762659.178	.016		ADJUSTMENT	2020	GPS3362
2110941.521	1195273.104	1102817.084	17762659.178	.016	C	GPS - STATIC	2020	HGRACE

NAD83(1996)		UTM - Zone 15				Project Info		
MN State Plane - North Zone		X	Y	Acc	Order	Determination Method	Year	Reference
2110941.489	1195273.088	1102817.051	17762659.162	.033	C	GPS - STATIC	2020	HGRACE

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/Y_367_RESET-DR4802-3N-05NOV2018.jpg	N	Nov 5, 2018
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/Y_367_RESET-DR4802-2-05NOV2018.jpg		Nov 5, 2018
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/Y_367_RESET-DR4802-1-05NOV2018.jpg		Nov 5, 2018

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: Y USGS=303 USE

NGS Name: 303 USE

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0359](#) [Get Map](#)
 NGS Quad / Sta Num : 48095141/
 USGS Quad: WARROAD

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	29	163 N	36 W	485417.00	951846.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1912	2009	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
PIPE (CAPPED) DRIVEN IN GROUND (<10 FT)	PIPE CAP	USGS

Description: (1981) Stamping: 303

IN WARROAD, 466.0 FEET EAST ALONG RIVER DALE DRIVE FROM THE JUNCTION OF RIVER DALE DRIVE AND ROBERTS AVENUE IN WARROAD.

Station Notes

THE LOCATION IS UNDER A WOODEN PATIO. CONSIDERED DESTROYED.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1066.714	.016	2				VERTICAL CONTROL SURVEY	1993	POSTED	

NGVD29

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1065.352	.016	2				VERTICAL CONTROL SURVEY	1973	Q480951	
1065.352	.016	2				VERTICAL CONTROL SURVEY	1973	L22862	
1065.418	.007	1				VERTICAL CONTROL SURVEY	1935	L56 MINN	

Geoid Separations(ft): GEOID18 = -93.553 12B = -93.553 09 = -93.500 03 = -93.478

* No Horizontal Positions in the Database *



Mn/DOT Name: Z 192

NGS Name: Z 192

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0311](#) [Get Map](#)
 NGS Quad / Sta Num : 48095112/
 USGS Quad: ROOSEVELT

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	36	162 N	35 W	484826.20	950629.70	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1935	2012	DESTROYED	Horz=NO Vert=NO	YES		PROJECTS 16 IN.	STEEL SPIKE ADJ TO MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	BENCH MARK DISK	NGS

Description: (1981) **Stamping:** Z 192 1935

1.0 MILE NORTHWEST ON TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND COUNTY ROAD 17 AT ROOSEVELT, 0.05 MILE NORTHEAST OF TRUNK HIGHWAY 11, AT TRUNK HIGHWAY 11 MILEPOINT 104.6, 110.0 FEET NORTHEAST OF TRUNK HIGHWAY 11 POINT OF TANGENT REFERENCE POINT, 81.0 FEET NORTHEAST OF RAILROAD MILEPOST 26, 51.0 FEET SOUTHWEST OF OLD TRUNK HIGHWAY 11, 27.8 FEET NORTHEAST OF THE NORTHEAST RAIL OF THE RAILROAD TRACKS, 1.0 FOOT NORTH OF A WITNESS POST.

Station Notes

FOUND THE CONCRETE LOOSE.
THE DISK WAS TURNED IN TO THE OFFICE.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1158.590	.007	1/2				VERTICAL ADJUSTMENT	1991	00000025	

NGVD29

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1157.196	.033	3				VERTICAL CONTROL SURVEY	1974	USGS-VERT	
1157.196	.016	2				VERTICAL CONTROL SURVEY	1973	Q480951	
1157.196	.016	2				VERTICAL CONTROL SURVEY	1973	L22862	
1156.572	.007	1				VERTICAL CONTROL SURVEY	1941	Q480951	
1156.572	.007	1				VERTICAL CONTROL SURVEY	1935	L56 MINN	

Geoid Separations(ft): GEOID18 = -94.134 12B = -94.124 09 = -94.035 03 = -94.019

* No Horizontal Positions in the Database *

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/Z_192-TC0311-3NE-01AUG2007.jpg	NE	Aug 1, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/Z_192-TC0311-2-01AUG2007.jpg		Aug 1, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/Z_192-TC0311-1-01AUG2007.jpg		Aug 1, 2007

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: Z 208

NGS Name: Z 208

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0335](#) [Get Map](#)
 NGS Quad / Sta Num : 48095142/
 USGS Quad: WARROAD SE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	3	162 N	36 W	485229.00	951619.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1935	1981	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE FOOTING - SMALL	BENCH MARK DISK	NGS

Description: (1981) Stamping: Z-208 1935

IN 1981, THE CONCRETE MONUMENT WAS FOUND PROJECTING 2.0 FEET ABOVE THE GROUND AND LOOSE.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1082.721	.016	2					VERTICAL CONTROL SURVEY	1993	POSTED	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1081.317	.016	2					VERTICAL CONTROL SURVEY	1973	Q480951	
1081.317	.016	2					VERTICAL CONTROL SURVEY	1973	L22862	
1079.502	.007	1					VERTICAL CONTROL SURVEY	1941	Q480951	
1079.502	.007	1					VERTICAL CONTROL SURVEY	1935	L56 MINN	

Geoid Separations(ft): GEOID18 = -93.648 12B = -93.612 09 = -93.563 03 = -93.560

* No Horizontal Positions in the Database *



Mn/DOT Name: Z 367

NGS Name: Z 367

County: ROSEAU, MN (Sheet 2)

NGS ACRN: TC0485	Get Map
NGS Quad / Sta Num : 48095141/	
USGS Quad: WARROAD	

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	4	162 N	36 W	485249.85	951712.83	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1981	2020	GOOD	Horz=YES Vert=YES	YES		FLUSH	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
STEEL ROD (NO SLEEVE) (DEPTH 32 FT)	METAL ROD	NGS

Description: (2007) Stamping: Z 367 1981

2.4 MILES SOUTHEAST ON TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND EAST LAKE STREET AND COUNTY ROAD 74 IN WARROAD, AT TRUNK HIGHWAY 11 MILEPOINT 95.0, 75.5 FEET SOUTHWEST OF TRUNK HIGHWAY 11, 43.0 FEET WEST OF 610TH AVENUE, 29.5 FEET WEST-SOUTHWEST OF THE NORTHWEST END OF A METAL CULVERT, 9.0 FEET NORTH-NORTHWEST OF A POWER POLE, 2.5 FEET NORTHWEST OF A RIGHT-OF-WAY POST, 1.0 FOOT SOUTHEAST OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1077.898	.016	2/1					VERTICAL ADJUSTMENT	2014	00000828	
1077.898	.016	2/1					VERTICAL CONTROL SURVEY	2013	VHACK	
1077.898	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1078.023	.262			984.450	.197	2011	GPS - OPUS	2020	GPSBM	
1077.869	.262			984.316	.197	2011	GPS - RTRN	2020	RTRN2020	
1077.878	.262			984.375	.197	2007	GPS - RTRN	2012	RTRN2012	
				984.371	.010	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800	
1077.885	.131			984.476	.066	2007	HORIZONTAL ADJUSTMENT	2009	GPS2522	
1077.885	.131			984.476	.066	2007	GPS - STATIC	2008	HROSO	
1077.885	.131			984.499	.066	1996	GPS - STATIC	2008	HROSO	

Geoid Separations(ft): GEOID18 = -93.573 12B = -93.553 09 = -93.504 03 = -93.484

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Geodetic Position</u>					<u>Roseau County</u>			<u>Project Info</u>	
		<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
48 52	49.84525	95 17	12.83104	707700.683	223996.782	.131	3	GPS - OPUS	2020	GPSBM	
48 52	49.84626	95 17	12.83041	707700.724	223996.885	.131	3	GPS - RTRN	2020	RTRN2020	
48 52	49.84620	95 17	12.83037	707700.727	223996.879	.010		ADJUSTMENT	2012	GPS2800	

<u>NAD83(2007)</u>		<u>Geodetic Position</u>					<u>Roseau County</u>			<u>Project Info</u>	
		<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
48 52	49.84570	95 17	12.83170	707700.638	223996.827	.131	3	GPS - RTRN	2012	RTRN2012	
48 52	49.84625	95 17	12.83110	707700.678	223996.883	.033	C	ADJUSTMENT	2009	GPS2522	
48 52	49.84625	95 17	12.83110	707700.678	223996.883	.033	C	GPS - STATIC	2008	HROSO	

<u>NAD83(1996)</u>		<u>Geodetic Position</u>					<u>Roseau County</u>			<u>Project Info</u>	
		<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
48 52	49.84625	95 17	12.83085	707700.695	223996.883	.033	C	GPS - STATIC	2008	HROSO	

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2098449.071	1203864.455	1090341.495	17771271.563	.131	3	GPS - OPUS	2020	GPSBM
2098449.116	1203864.556	1090341.540	17771271.664	.131	3	GPS - RTRN	2020	RTRN2020
2098449.118	1203864.550	1090341.542	17771271.658	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2098449.028	1203864.502	1090341.452	17771271.610	.131	3	GPS - RTRN	2012	RTRN2012
2098449.069	1203864.557	1090341.494	17771271.664	.033	C	ADJUSTMENT	2009	GPS2522
2098449.069	1203864.557	1090341.494	17771271.664	.033	C	GPS - STATIC	2008	HROSO

NAD83(1996)

MN State Plane - North Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2098449.086	1203864.556	1090341.510	17771271.664	.033	C	GPS - STATIC	2008	HROSO

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/Z_367-TC0485-3SW-24JUN2020.jpg	SW	Jun 24, 2020
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/Z_367-TC0485-2-24JUN2020.jpg		Jun 24, 2020
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/roseau/Z_367-TC0485-1-24JUN2020.jpg		Jun 24, 2020

** All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> **



Mn/DOT Name: Z=1085

NGS Name: 1085

County: ROSEAU, MN (Sheet 2)

NGS ACRN: [TC0330](#) [Get Map](#)
 NGS Quad / Sta Num : 48095113/
 USGS Quad: SWIFT

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	13	162 N	36 W	485114.00	951319.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1907	2012	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON POST	PIPE CAP	USGS

Description: (1981) Stamping: 1085

IN SWIFT, 300.0 FEET NORTHWEST ON TRUNK HIGHWAY 11 FROM THE JUNCTION OF TRUNK HIGHWAY 11 AND COUNTY ROAD 2, 117.0 FEET SOUTHEAST OF A POWER POLE NUMBER 71, 69.0 FEET SOUTHWEST OF OLD TRUNK HIGHWAY 11, OPPOSITE THE NORTH ENTRANCE TO A GRANARY, 38.5 FEET NORTHEAST OF THE NORTHEAST RAIL OF THE RAILROAD TRACKS.

Station Notes
 THE STATION WAS POOR.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1085.903	.016	2					VERTICAL CONTROL SURVEY	1993	POSTED	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1084.496	.016	2					VERTICAL CONTROL SURVEY	1973	Q480951	
1084.496	.016	2					VERTICAL CONTROL SURVEY	1973	L22862	
1084.125	.007	1					VERTICAL CONTROL SURVEY	1941	Q480951	
1084.125	.007	1					VERTICAL CONTROL SURVEY	1935	L56 MINN	

Geoid Separations(ft): GEOID18 = -93.871 12B = -93.825 09 = -93.753 03 = -93.756

* No Horizontal Positions in the Database *