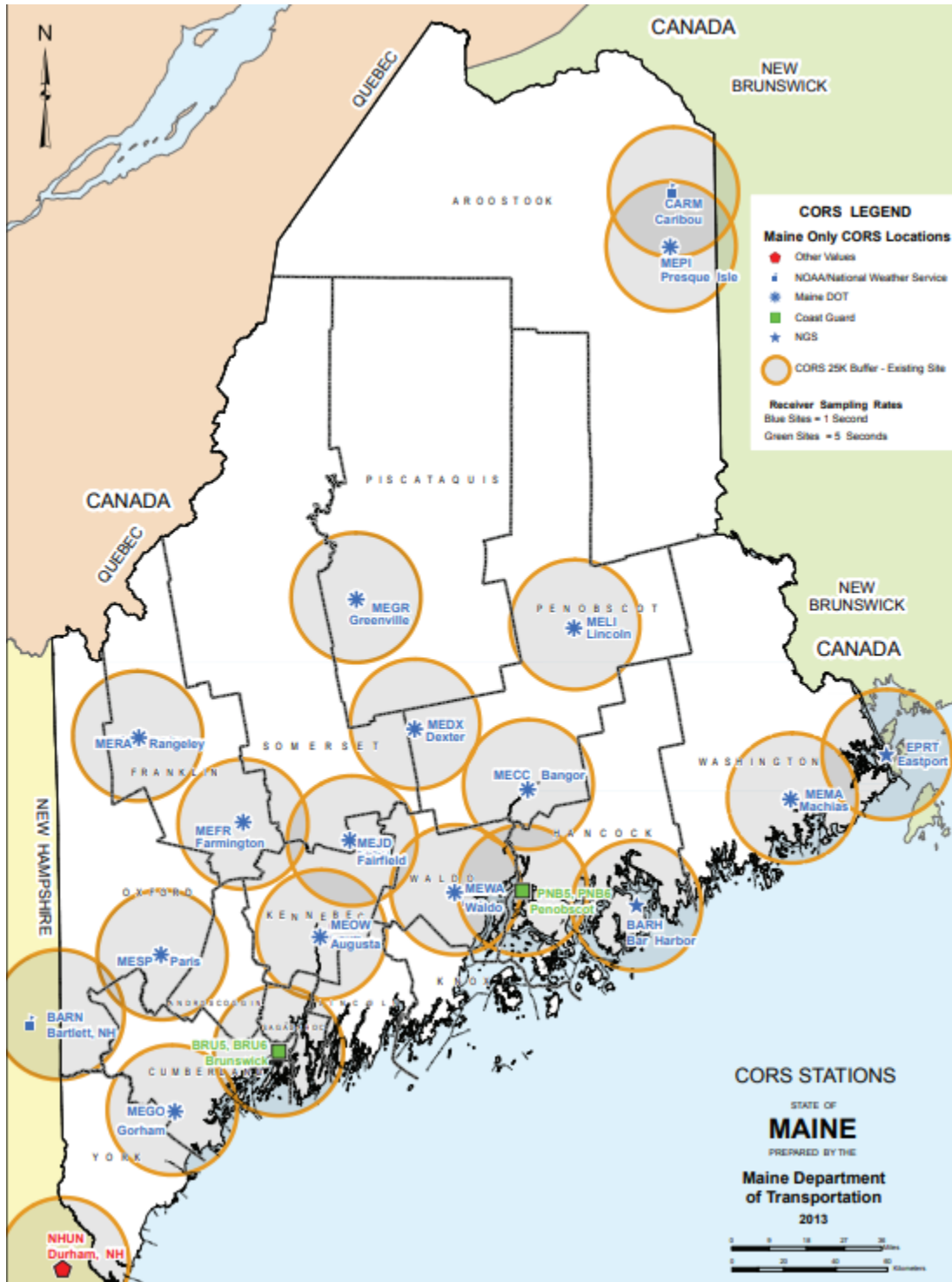


MaineCORS Rover 900Mhz with Internet VRS:

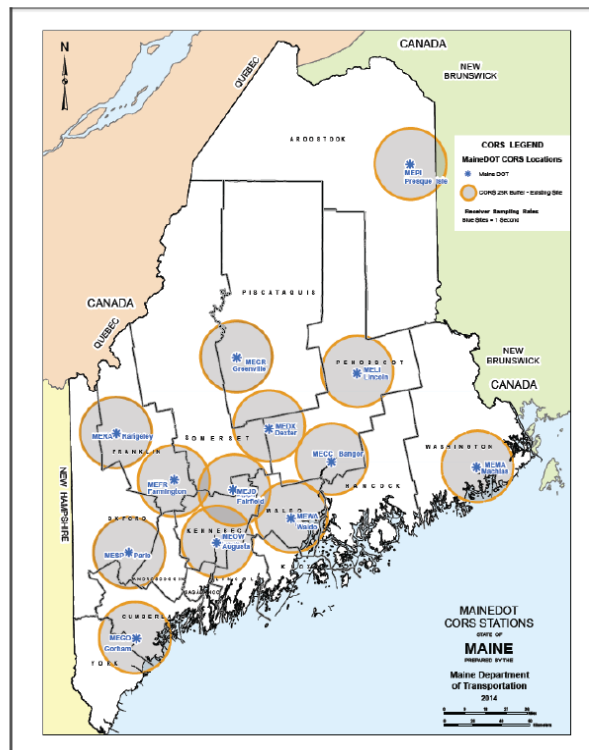
[Survey Info](#) | [MaineDOT](#)

[Maine Data Viewer](#)



MaineDOT CORS

How to obtain RINEX data files



Maine CORS [Survey Info](#) | [MaineDOT](#)

All of Maine DOT'S RTK/VRS sites can be accessed through mdotcors.maine.gov (198.182.162.169) - port 2101. Virtual Reference System Mountpoints are: VRS_CMV, VRS_RTCM, or VRS_RTCM_23. For Single-Vector Corrections, substitute the VRS for the 4-letter designation of the CORS you wish to use.

We will be removing the Trimble NetR9 and replacing it with a Trimble Alloy. When completed, MESP will have NAVSTAR, GLONASS, and Galileo constellations.

You can also go to <https://mdotcors.maine.gov/> and Login to see a Map of the sites and download RINEX data for 3 months.

Harry Nelson

MaineDOT Property Office

Harold E. Nelson, Senior Geodesist

CORS Project Manager

MaineDOT Property Office 16 State House Station Augusta, ME 04333 Email:

Harold.Nelson@maine.gov

Office Desk: 207-624-3517

Fax: 207-624-3401

Property Office: 207-624-3460

Survey, Control and Right of Way webpage: www.maine.gov/mdot/surveyinfo/

CORS DATA (RINEX): <https://mdotcors.maine.gov/>

Cheers,

Harry Nelson

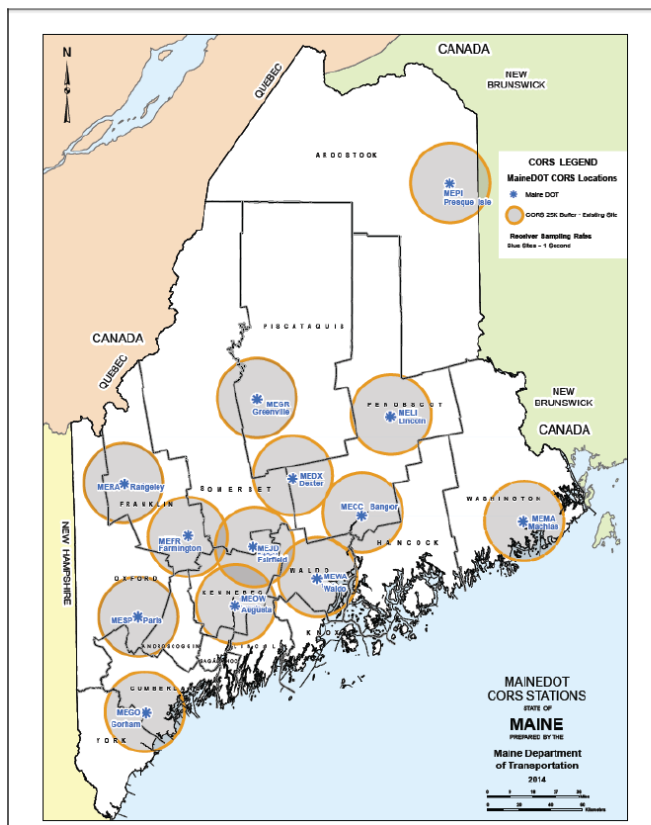
MaineDOT Property Office

Obtain Login and Password

- Contact:
- Harry Nelson: Harold.Nelson@maine.gov
207-624-3517.
- Jason Everett: Jason.Everett@maine.gov
- 207-624-3657.

Important: Guest Login is no longer an option.

MaineDOT 13 CORS



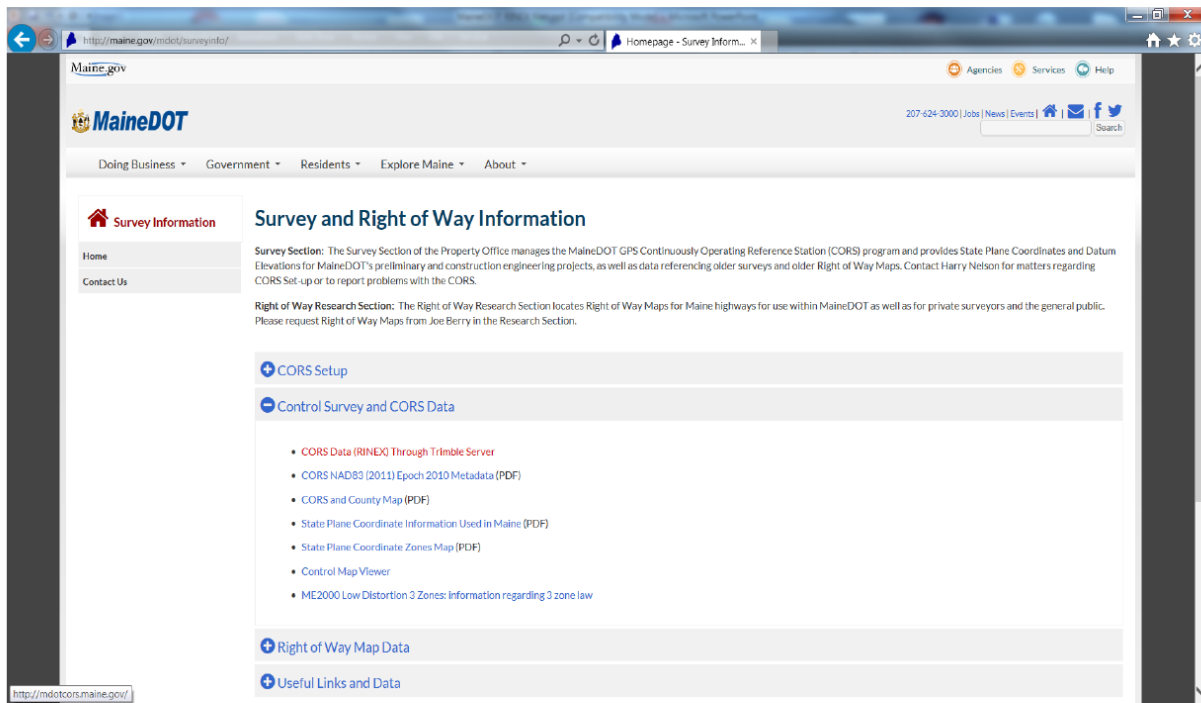
MaineDOT CORS data is provided free of charge to users who have a Login and Password. RTK users will need a cell phone data plan from a cell phone company.

Data is collected at one second intervals (epochs) and stored at the Augusta Server and is available for Real-Time-Kinematic (RTK) VRS, Single Vector, or RINEX data for post processing.

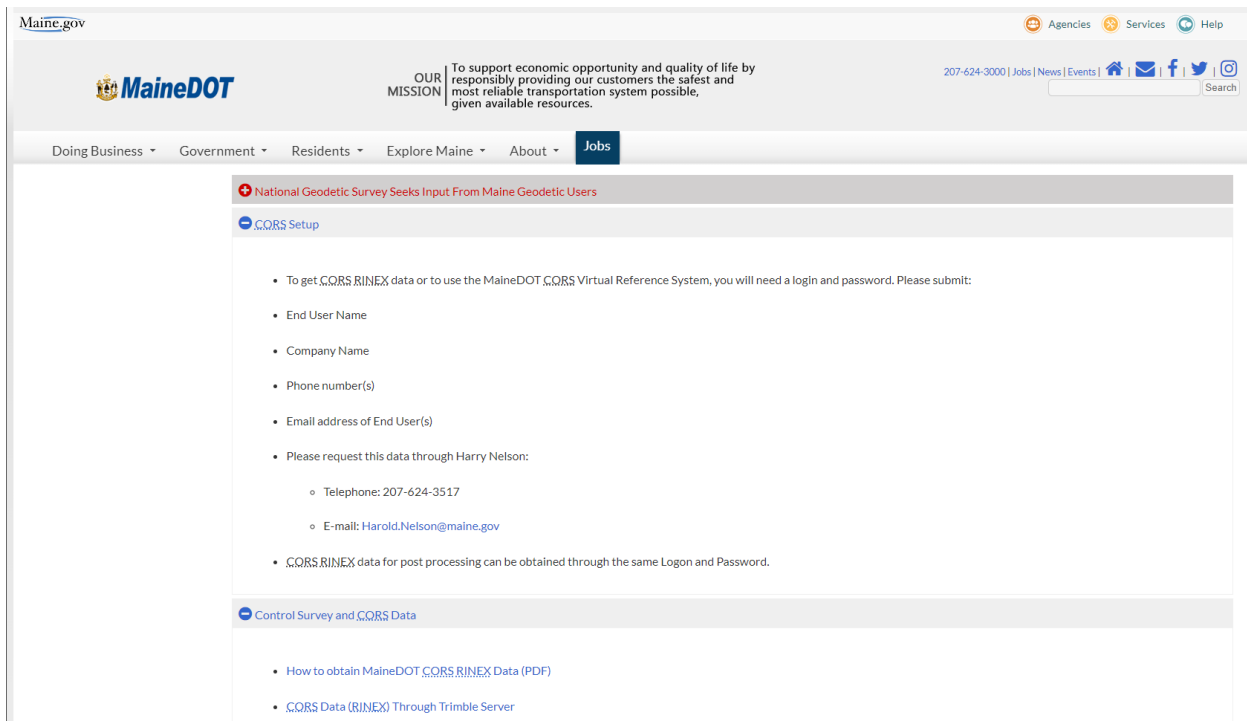
MaineDOT stores data with original integrity (one second) for 2 months. NGS saves the 1 second data for 'a period of time', then parses to 30 second epochs for long term storage.

It is advisable to obtain the RINEX files as soon as possible so you have robust data files to work with.

Go to: <http://maine.gov/mdot/surveyinfo/>



Select: **Control Survey and CORS Data**



Select: CORS Data (RINEX) Through Trimble Server

Control Survey and CORS Data

- [CORS Data \(RINEX\) Through Trimble Server](#)
- [CORS NAD83 \(2011\) Epoch 2010 Metadata \(PDF\)](#)
- [CORS and County Map \(PDF\)](#)
- [State Plane Coordinate Information Used in Maine \(PDF\)](#)
- [State Plane Coordinate Zones Map \(PDF\)](#)
- [Control Map Viewer](#)
- [ME2000 Low Distortion 3 Zones: information regarding 3 zone law](#)

Select Login



Maine Department of Transportation Pivot Web

> Home

- ▼ Home
 - ▶ Sensor Map
 - ▶ Login
- ▼ External Links
 - ▶ [MaineDOT Survey and Right of Way](#)



Welcome

Welcome to the Maine Department of Transportation Trimble Pivot Web Application!

[Login](#)

Enter User Name and Password

(Password is case sensitive)

Login

Login

Please enter your organization, user name and password to log in:

Organization: Leave Blank

User Name:


Password:

☐ Remember me next time

Login

Note: Guest Login is no longer an option

Select Reference Data Shop

**MaineDOT**
Integrity • Competence • Service

Maine Department of Transportation Pivot Web

▼ Home

- ▶ Sensor Map
- ▶ Position Scatter Plot
- ▶ Status Messages

▼ Network Information

- ▶ I95 Ionosphere
- ▶ IRIM/GRIM
- ▶ Reference Data Shop

▼ My Account

- ▶ Personal Data
- ▶ Change Password
- ▶ Logins
- ▶ Sessions
- ▶ Active Subscriptions
- ▶ Logout


▼ External Links

- ▶ MaineDOT Survey and Right of Way

Welcome

Welcome to the Maine Department of Transportation Trimble Pivot Web Application!

Logged in as Maine Department of Transportation/Harold_Nelson



Select: Start New Order

The screenshot shows the MaineDOT website's Reference Data Shop Overview page. The browser address bar displays `mdotcors.maine.gov/MemberPages/RefDataShop/Overview.aspx`. The page features the MaineDOT logo with the tagline "Integrity • Competence • Service" and the text "Maine Department of Transportation Pivot Web". A left sidebar contains a navigation menu with categories like Home, Sensor Map, Position Scatter Plot, Status Messages, Network Information, Reference Data Shop, My Account, and External Links. The main content area is titled "Reference Data Shop - Overview" and includes a description of the service, a "Start new order" button, a dropdown menu for "Not yet downloaded orders:", and a table with headers: No., Request time (local time), Items, Status, File size, and Action. The user is logged in as "Maine Department of Transportation/harold_nelson".

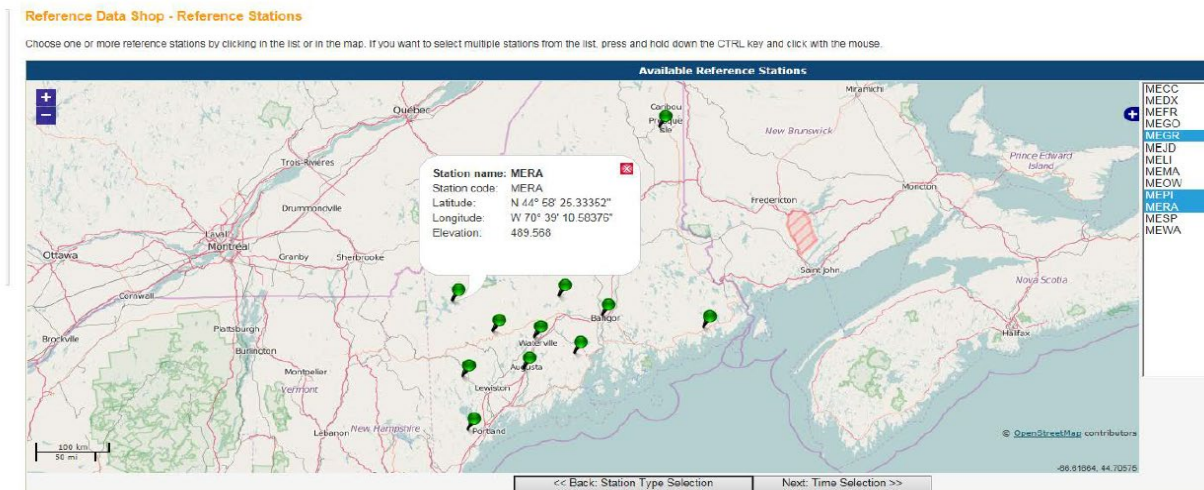
Select: Continuously Operating Reference Station (CORS)

The screenshot shows the "Reference Data Shop - Station Type" page on the MaineDOT website. It features the same MaineDOT logo and navigation sidebar as the previous page. The main content area is titled "Reference Data Shop - Station Type" and asks the user to "Please select the reference station type for your GNSS data generation:". Two options are listed: "Continuously Operating Reference Station (CORS)" and "Virtual Reference Station (VRS)". A "<< Back: Order" button is located below the options. The user is logged in as "Maine Department of Transportation/Harold_Nelson".

Note: Virtual Reference Station (VRS) is not an option.

From the listing on the right, select CORS from which you want data

(holding Ctrl key down allows you to do multiple selections)



At bottom of screen Select:

Next:Time Selection

Select:

Date, Start Time, Duration and Interval (Epoch)

Note:

Start Time Input must be the earliest start time of the day and be entered as Greenwich Mean Time aka Coordinated Universal Time, or here as GPS Time.

Duration, in Hours and Minutes, must run to the shutdown time of the last station that day.



Maine Department of Transportation Pivot Web

- Home
- Sensor Map
- Position Scatter Plot
- Status Messages
- Network Information
 - IS5 Ionosphere
 - IRIM/ORIM
- Reference Data Shop
- My Account
 - Personal Data
 - Change Password
 - Logins
 - Sessions
 - Active Subscriptions
 - Logout
- External Links
 - MaineDOT Survey and Right of Way

Logged in as Maine Department of Transportation/Hanold_Nelson

Reference Data Shop - Date & Time Selection

You have selected the following reference station(s):
(MEGR) MEGR, (MEPI) MEPI, (MERA) MERA

Please enter your desired observation period: 24 hour format:

Observation Period			
Date:	7/18/2016		
Start time:	15	h 0	m 0 s
Duration:	0	h 30	m
Interval:	15 s		
Time system: GPS = GMT [GPS time = EST + 05 hour(s) (winter time)] [GPS time = EST + 04 hour(s) (summer time)]			

<< Back: Reference Stations Next: Add to order >>

Now select:

Next: Add to order>>

Your Current Order



Maine Department of Transportation Pivot Web

- Home
 - Sensor Map
 - Position Scatter Plot
 - Status Messages
- Network Information
 - IRIS/GRIM
 - Reference Data Shop
- My Account
 - Personal Data
 - Change Password
 - Logins
 - Sessions
 - Active Subscriptions
 - Logout
- External Links
 - MaineDOT Survey and Right of Way

Logged in as Maine Department of Transportation/Harold_Nelson

Reference Data Shop - Your current Order

The following items are currently in your order. You may add further items, remove items or proceed with delivery options and data generation.

	Station	Start time	End time	Duration (min.)	Interval (sec.)	Epochs	Est. Price*
<input type="radio"/>	(MEPI) MEPI	7/18/2016 3:00 PM	7/18/2016 3:30 PM	30	15	120	0.00 \$
<input type="radio"/>	(MERA) MERA	7/18/2016 3:00 PM	7/18/2016 3:30 PM	30	15	120	0.00 \$
<input type="radio"/>	(MESP) MESP	7/18/2016 3:00 PM	7/18/2016 3:30 PM	30	15	120	0.00 \$
Total:				90		360	0.00 \$

Applying to selected item:

Login used for this order: Harold_Nelson

* Note: The displayed price is just an estimate. The true price may change due to missing epochs or overlapping contract items in your subscription and cannot be deter

All times are in the GPS time system.

Disregard Note on pricing. There is no charge for MaineDOT GPS Data
Select Next: Delivery Options

Select Delivery Options



Maine Department of Transportation Pivot Web

- Home
 - Sensor Map
 - Position Scatter Plot
 - Status Messages
- Network Information
 - IRIS/GRIM
 - Reference Data Shop
- My Account
 - Personal Data
 - Change Password
 - Logins
 - Sessions
 - Active Subscriptions
 - Logout
- External Links
 - MaineDOT Survey and Right of Way

Logged in as Maine Department of Transportation/Harold_Nelson

Reference Data Shop - Delivery Options

You can choose to either download the generated reference data files or to send them to you by e-mail. In the latter case you don't have to wait until the files are generated, which may take some time, depending on the amount of requested data.

- ☒ Download the data
- ☐ Notify me by e-mail when the data is generated
- or
- ☐ Send me the data by e-mail

Choose the file format (all files will be packed into a single ZIP archive):

Select

Next: Generate Data

Review Order



Maine Department of Transportation Pivot Web

- Home
- Sensor Map
- Position Scatter Plot
- Status Messages
- Network Information
 - IGS Ionosphere
 - IRIM/GRIM
- Reference Data Shop
- My Account
 - Personal Data
 - Change Password
 - Logins
 - Sessions
 - Active Subscriptions
 - Logout
- External Links
 - MaineDOT Survey and Right of Way

Logged in as Maine Department of TransportationHarold_Nelson

Reference Data Shop - Order #15

The following order items have been generated. You may view the details of each item, remove single items from the order or finally submit the order and download the whole package.

	Station	Start time	End time	Duration (min.)	Interval (sec.)	Epochs req./ available	Efr. Minutes	Price
<input checked="" type="radio"/>	[MEPI] MEPI	7/18/2016 3:00 PM	7/18/2016 3:30 PM	30	15	120 / 120	30	0.00 \$
<input type="radio"/>	[MERA] MERA	7/18/2016 3:00 PM	7/18/2016 3:30 PM	30	15	120 / 120	30	0.00 \$
<input type="radio"/>	[MESP] MESP	7/18/2016 3:00 PM	7/18/2016 3:30 PM	30	15	120 / 120	30	0.00 \$
Total:				90		360 / 360	90	0.00 \$

Applying to selected item: [Details](#) [Remove](#)

By downloading the order you will be charged the above total price.

Login used for this order: Harold_Nelson

[Back to Overview](#) [Cancel order](#) [Send by e-mail](#) [Download](#)

All times are in the GPS time system.

Send by email or Download

Sensor Map

CORS currently sending data to Augusta are shown in green.

CORS shown in red are not sending data to Augusta.

Depending on the problem, once green again, missing data will be sent to Augusta for the RINEX files. Depending on the issue in some cases, data is not recoverable.



Plane Coordinate Projection Zone Definitions Used in Maine

November 2015

NAD27

Maine East Zone 1801

Transverse Mercator Projection

Origin Latitude 43 50 00 N
Origin Longitude 68 30 00 W (Central Meridian)
False Northing 0.000m
False Easting 152400.305m
Positive Coordinate Direction is North and East
SF: 0.9999
1:10,000 at Central Meridian

Maine West Zone 1802

Transverse Mercator Projection

Origin Latitude 42 50 00 N
Origin Longitude 70 10 00 W (Central Meridian)
False Northing 0.000m
False Easting 152400.305m
Positive Coordinate Direction is North and East
SF: 0.99996666667
1:30,000 at Central Meridian

NAD83

Maine East Zone 1801

Transverse Mercator Projection

Origin Latitude 43 40 00 N
Origin Longitude 68 30 00 W (Central Meridian)
False Northing 0.000m
False Easting 300000.000m
Positive Coordinate Direction is North and East
SF: 0.9999
1:10,000 at Central Meridian

Maine West Zone 1802

Transverse Mercator Projection

Origin Latitude 42 50 00 N
Origin Longitude 70 10 00 W (Central Meridian)
False Northing 0.000m
False Easting 900000.000
Positive Coordinate Direction is North and East
SF: 0.99996666667
1:30,000 at Central Meridian

NAD83

ME2000 EAST ZONE 1811

Transverse Mercator
Origin Latitude 43 50 00 N
Origin Longitude 67 52 30 W (Central Meridian)
False Northing 0.000m
False Easting 700000.000m
Positive Coordinate Direction is North and East
SF: 0.99998
1:50,000 at Central Meridian

NAD83

ME2000 CENTRAL ZONE 1812

Transverse Mercator Projection
Origin Latitude 43 30 00 N
Origin Longitude 69 07 30 W (Central Meridian)
False Northing 0.000m
False Easting 500000.000m
Positive Coordinate Direction is North and East
SF: 0.99998
1:50,000 at Central Meridian

NAD83

ME2000 WEST ZONE 1813

Transverse Mercator Projection
Origin Latitude 42 50 00 N
Origin Longitude 70 22 30 W (Central Meridian)
False Northing 0.000m
False Easting 300000.000m
Positive Coordinate Direction is North and East
SF: 0.99998
1:50,000 at Central Meridian

Note: Although at this time, April 2015, the National Geodetic Survey has not officially adopted the ME2000 3 new zones coordinate system. The 3 zones do appear in the U. S. Army Corps of Engineer's CORPSCON software bearing the 1811, 1812, 1813 for the newly defined East, Central, and West Zones respectively. The four digit designation is probably not an official FIPS Zone, as they are called. ME2000 Zones also are available in Trimble, Leica, and Topcon software, as well as others.

Around 1986, when NGS published the NAD83 Datum values, there was no 'realization' in parenthesis following NAD83. As NGS improved adjustments, we began using NAD83(1992), NAD83(CORS), NAD83(1996), NAD83(2007), and now NAD83(2011), actually using NAD83(2011) Epoch 2010. When denoting the realization that resulted directly out of NAD27 conversions, such as through NGS LEFTI program, we are now noting that realization as NAD83(1986).

Plane Coordinate projection zone metadata follows the NAD83(2011) as shown above.

We are also using Geoid 12, or 12A, in which essentially there is no difference in our part of the world.

=====

Universal Transverse Mercator Projection

UTM Zone 19 North

Transverse Mercator Projection
Origin Latitude 00 00 00 N
Origin Longitude 69 00 00 W (Central Meridian)
False Northing 0.000m
False Easting 500000m
Positive Coordinate Direction is North and East
SF: 0.9996
1:2500 at Central Meridian

Canadian Plane Rectangular Coordinate System

New Brunswick Plane Rectangular Coordinate System

Stereographic Double Projection
Origin Latitude 46 30 00 N
Origin Longitude 66 30 00 W
False Northing 7,500,000m
False Easting 2,500,000m
Positive Coordinate Direction is North and East
SF: 0.999912
1:11,363.6363... at Central Meridian

Ellipsoid:
NAD83(CSRs) otherwise known as GRS80
Semi-major axis (Equatorial Radius) = 6,378,137.0m
Semi-minor axis (Polar Semi-diameter) = 6,356,752.3141
Radius of Projection Sphere is 6,379,222.285

Zone Definitions Used in New Hampshire

NAD27

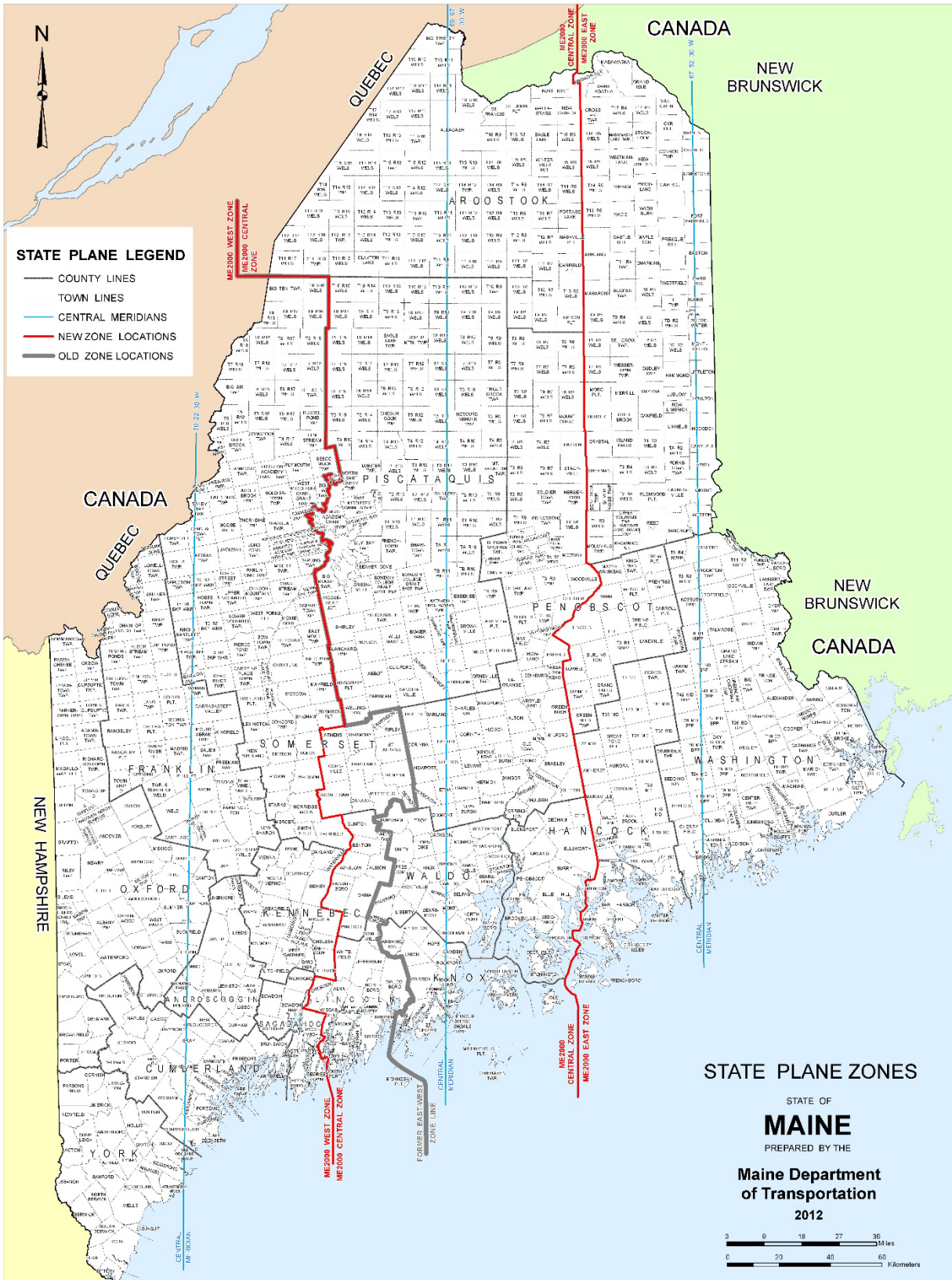
New Hampshire 2800

Transverse Mercator Projection
Origin Latitude 42 30 00 N
Origin Longitude 71 40 00 W (Central Meridian)
False Northing 0.000m
False Easting 152400.3048m
Positive Coordinate Direction is North and East
SF: 0.999966666666667
1:xxxxxxx at Central Meridian

NAD83

New Hampshire 2800

Transverse Mercator Projection
Origin Latitude 42 30 00 N
Origin Longitude 71 40 00 W (Central Meridian)
False Northing 0.00000000m
False Easting 300000.000m
Positive Coordinate Direction is North and East
SF: 0.999966666666667
1:xxxxxxx at Central Meridian



Questions and Comments?



MAINE DEPARTMENT OF TRANSPORTATION
PROPERTY OFFICE

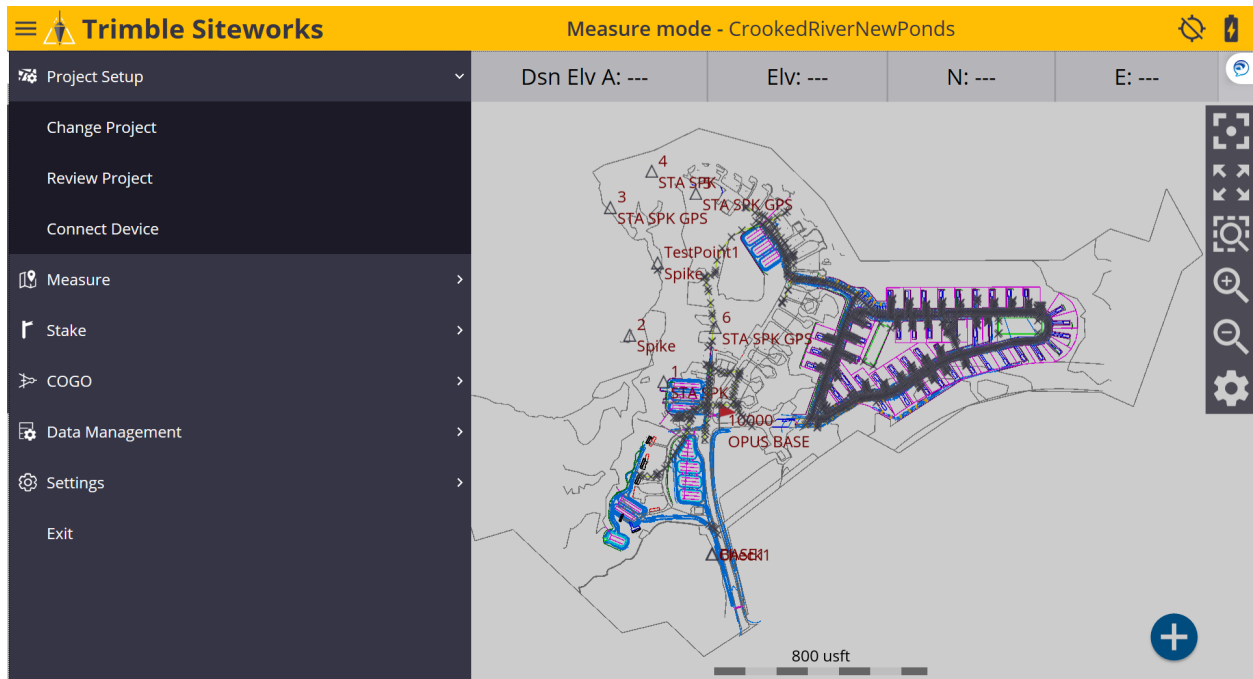
HAROLD NELSON
SENIOR GEODESIST

16 STATE HOUSE STATION
AUGUSTA, MAINE 04333-0016

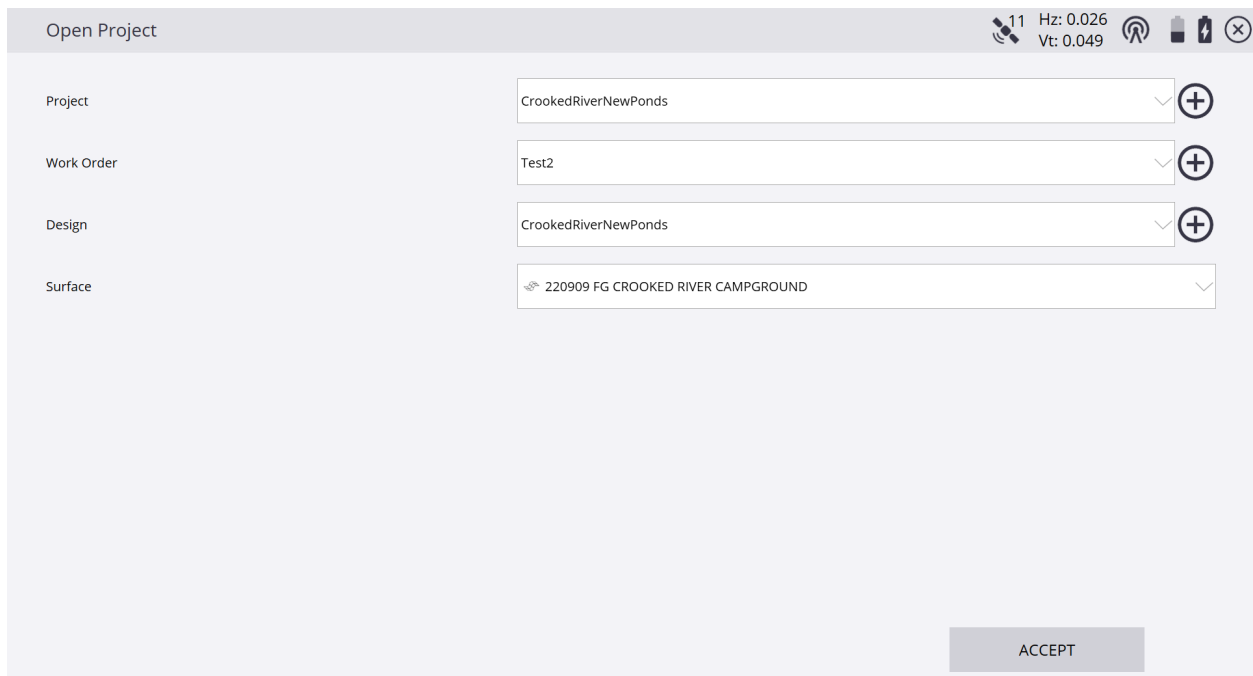
TEL: (207) 624-3517
FAX: (207) 624-3401
TTY: (888) 516-9364

e-mail: harold.nelson@maine.gov

*On the Siteworks upper left main screen tap the **3-Bar Hamburger Icon** and select **Project Setup>Change Project**.



*Tap the + (*plus sign*) to the right of the **Project** window to create a new project.



*Name your new project in the **Project** window, select the preferred project unit settings from the drop-down lists in each window, tap **NEXT**.

New Project

Mainers Mainer's Maine core

Project MaineCORS

Distances US Survey Feet

Angles Degrees

Coordinate order P, N, E, Z, D

Grid coordinate North and East

Azimuth North

Stationing 0+00.000

NEXT

*On the **Project Creation Options** screen, check the box next to **Select coordinate system** to use a coordinate system, tap **COORDINATE SYSTEM**.

Project Creation Options

☐ Select control point file

Style guide Siteworks Default

File name (.CSV) Tap to select file

☐ Select FXL file Siteworks Default.fxl

☒ Select coordinate system

COORDINATE SYSTEM

Coordinate system United States/NAD83

Zone Maine West 1802

Geoid GEOID18 (Conus)

FINISH

*On the **Select Coordinate System** screen, select the desired Coordinate System, Geoid and Zone, tap **ACCEPT**.

Select Coordinate System

Coordinate system United States/NAD83

Zone Maine West 1802

Geoid file GEOID18 (Conus) [g18us.ggf]

ACCEPT

*Once back to the **Project Creation Options** screen, tap **FINISH**.

Project Creation Options

☐ Select control point file

Style guide Siteworks Default

File name (.CSV) Tap to select file

☐ Select FXL file Siteworks Default.fxl

☒ Select coordinate system

COORDINATE SYSTEM

Coordinate system United States/NAD83

Zone Maine West 1802

Geoid GEOID18 (Conus)

FINISH

*Once back to the **Open Project** screen, tap the + (*plus sign*) and create a new **Work Order**.

Open Project

Project: MaineCORS

Work Order: (Create New Work Order)

OK

*After naming the **Work Order**, create **Instructions** in the **Instructions (optional)** window to reference the work order, tap **FINISH**.

New Work Order

Work Order: MaineCORS

Instructions (optional): Using Geoid 18

FINISH

*Tap + (*plus sign*) to create a new **Design** or use (No design needed). For this demonstration we are not using a design, tap **ACCEPT**.

Open Project

Project: MaineCORS (+)

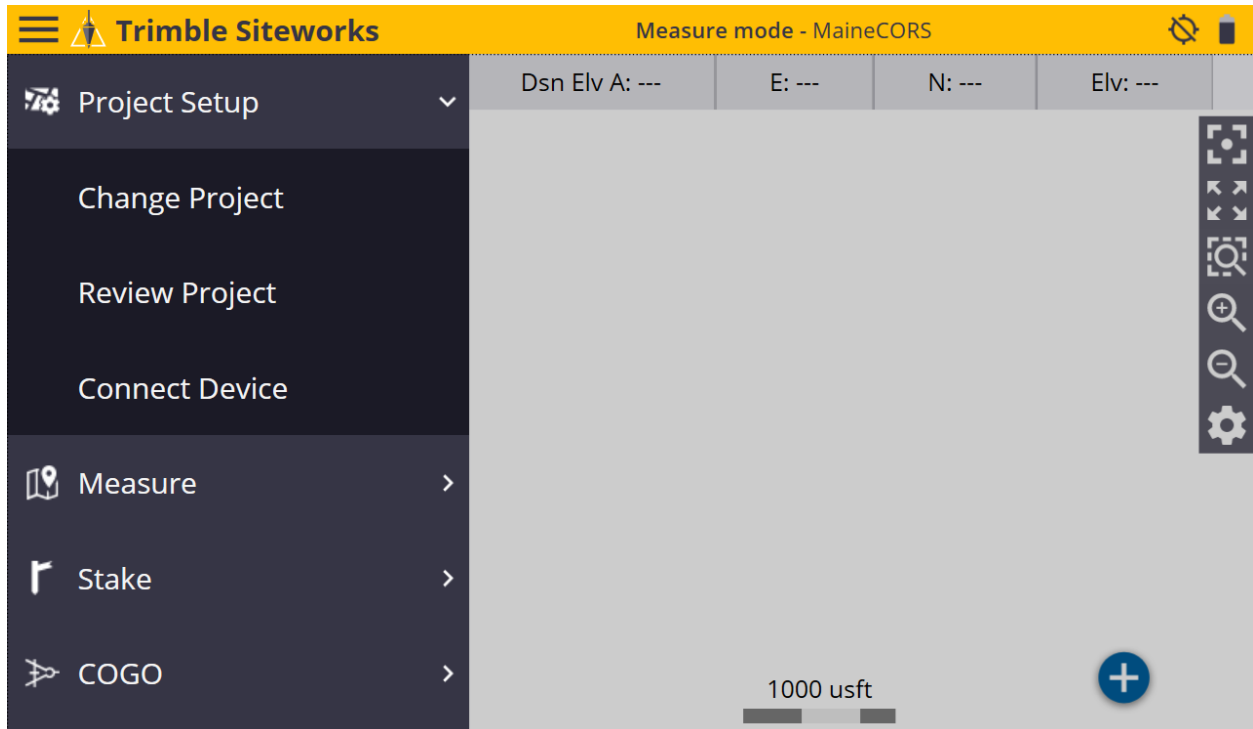
Work Order: MaineCORS (+)

Instructions: Using Geoid 18

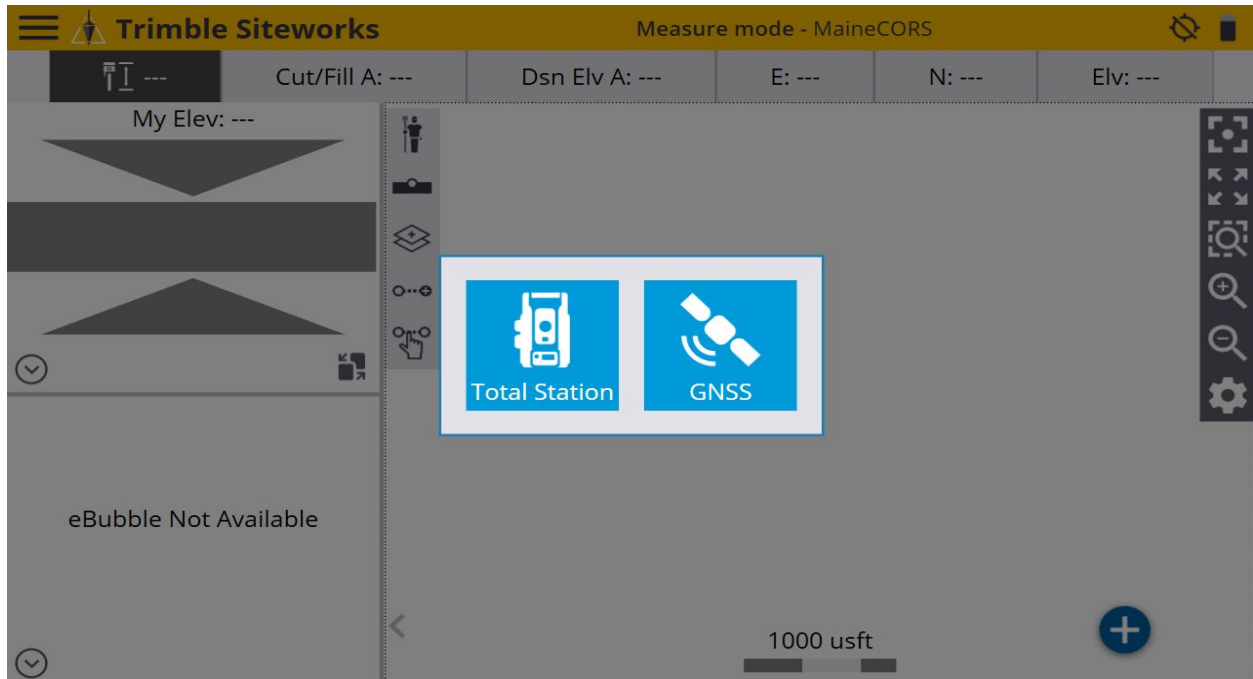
Design: (No design needed) (+)

ACCEPT

*From the Siteworks upper left main screen tap the **3-Bar Hamburger Icon** and select **Connect Device**.



*In **Connect Device** tap on the blue **GNSS Icon** to enter **Receiver Setup** screen.



*On the **Receiver Setup** screen select **Rover** from the drop-down list in the **Mode** window, then select **Bluetooth** from the drop-down list in the **Connection type** window.

Receiver Setup

Mode

Rover

Connection type

Bluetooth

SELECT

*Next, select the Rover from the drop-down list in the **Bluetooth device** window.

Receiver Setup

Mode

Rover

Connection type

Bluetooth

Bluetooth device

R780 6229F00329 Trimble

Correction method

Internet

SELECT

*Next, select **Internet** from the drop-down list in the **Correction method** window and tap **VRS connection settings** in the **VRS connection settings** window.

Receiver Setup

Mode

Rover

Connection type

Bluetooth

Bluetooth device

R780 6229F00329 Trimble

Correction method

Internet

VRS connection settings

VRS connection settings

SELECT

*On the **Receiver Setup Server** screen, input the **IP Server address**, **Port number**, **User name** and **Server passwords** into their corresponding windows.

Receiver Setup

10 Hz: 17.957 Vt: 35.268

Server address

198.182.162.169

Port number

2101

User name

John_G

Server password

ACCEPT

*On the **Receiver Setup** screen select the desired **Data stream** for the VRS connection from the drop-down list in the **Data stream** window, tap **ACCEPT**.

Receiver Setup

10 Hz: 26.360 Vt: 47.122

Data stream

VRS_RTCM_23

Details

VRS

Yes

Fee

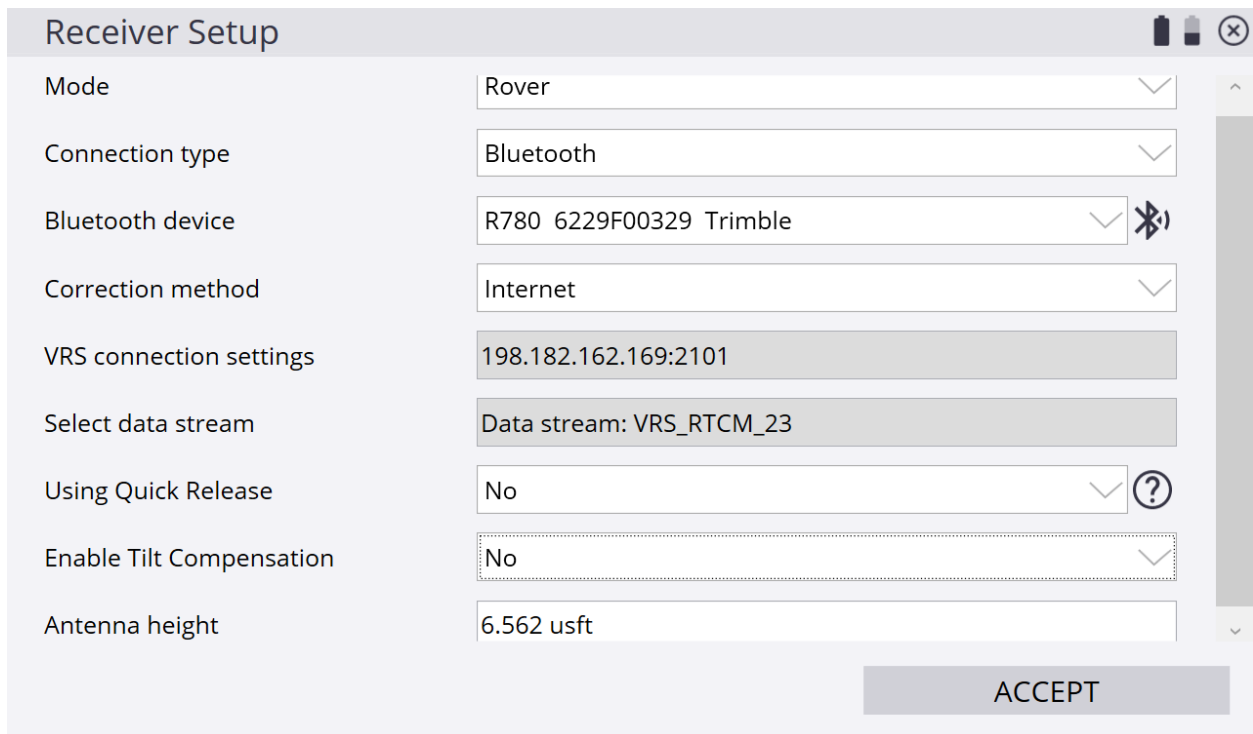
No

Description

VRS_RTCM_23

ACCEPT

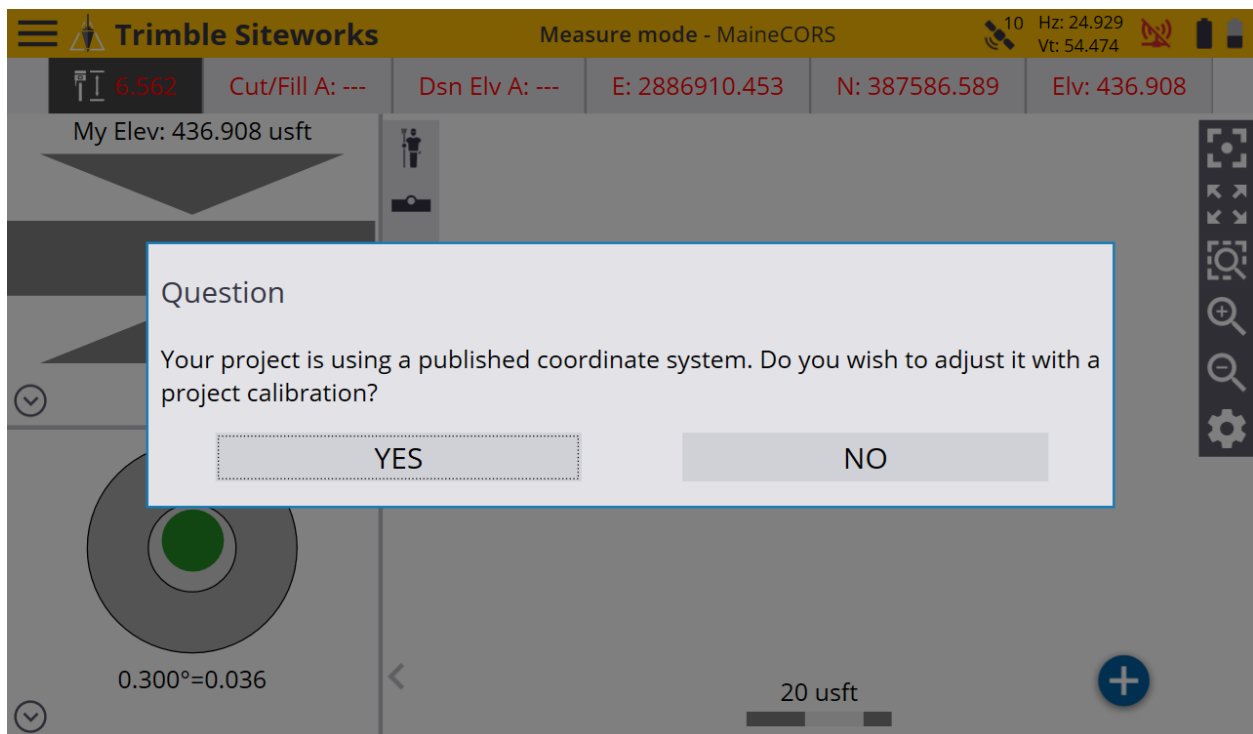
*On the **Receiver Setup** screen select the additional settings for the VRS connection from the drop-down lists in their windows, tap **ACCEPT**.

The image shows the 'Receiver Setup' screen of a mobile application. It features a list of settings on the left and their corresponding values or selection methods on the right. The settings include Mode (Rover), Connection type (Bluetooth), Bluetooth device (R780 6229F00329 Trimble), Correction method (Internet), VRS connection settings (198.182.162.169:2101), Select data stream (Data stream: VRS_RTCM_23), Using Quick Release (No), Enable Tilt Compensation (No), and Antenna height (6.562 usft). At the bottom right, there is a large 'ACCEPT' button.

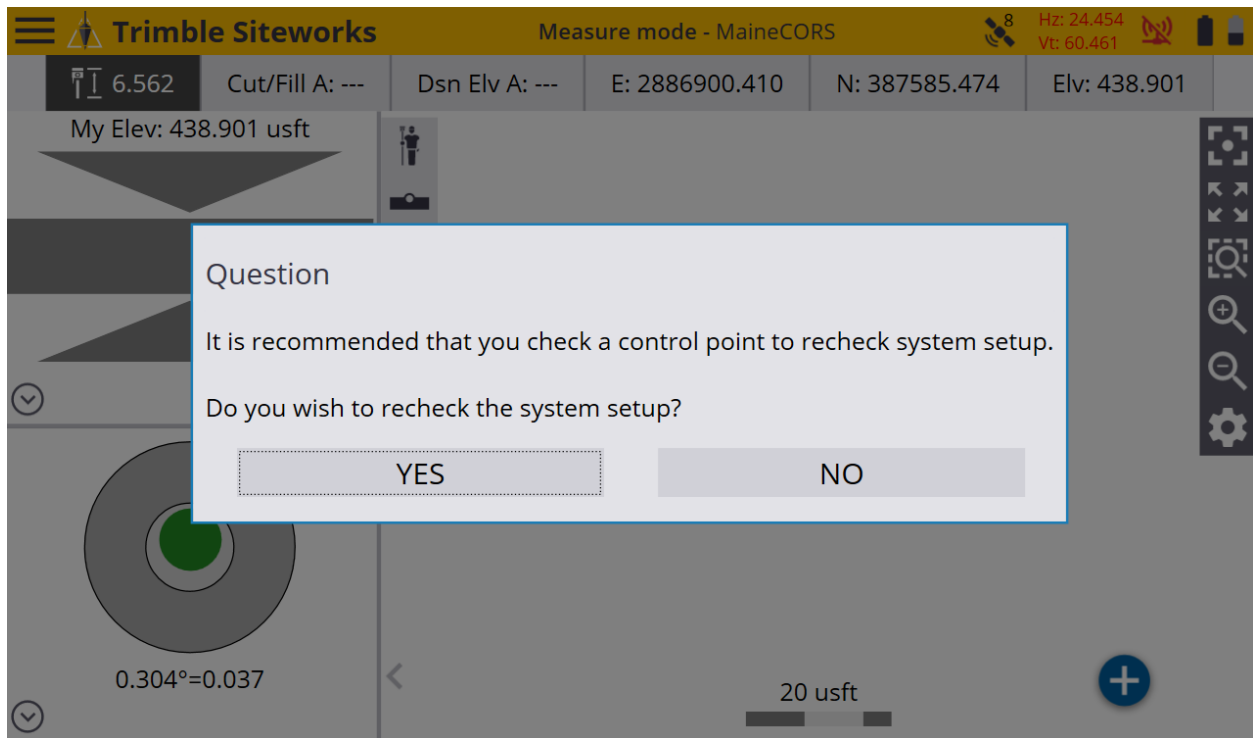
Setting	Value/Selection
Mode	Rover
Connection type	Bluetooth
Bluetooth device	R780 6229F00329 Trimble
Correction method	Internet
VRS connection settings	198.182.162.169:2101
Select data stream	Data stream: VRS_RTCM_23
Using Quick Release	No
Enable Tilt Compensation	No
Antenna height	6.562 usft

ACCEPT

*Siteworks asks if you want to adjust your project with a calibration, tap **NO**.

The image shows the Trimble Siteworks application interface. At the top, it displays 'Measure mode - MaineCORS' along with various status icons. Below this, there's a data bar showing '6.562', 'Cut/Fill A: ---', 'Dsn Elev A: ---', 'E: 2886910.453', 'N: 387586.589', and 'Elev: 436.908'. A central area shows 'My Elev: 436.908 usft' with a downward arrow. A modal dialog box is overlaid in the center, asking 'Question: Your project is using a published coordinate system. Do you wish to adjust it with a project calibration?' with 'YES' and 'NO' buttons. The background shows a map with a green circle and a scale bar indicating '20 usft'.

*Siteworks asks if you want to recheck the system setup, tap **NO**.



*Once back to the main Siteworks screen you may start working.

