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US National Grid for work with FEMA During Natural Disasters

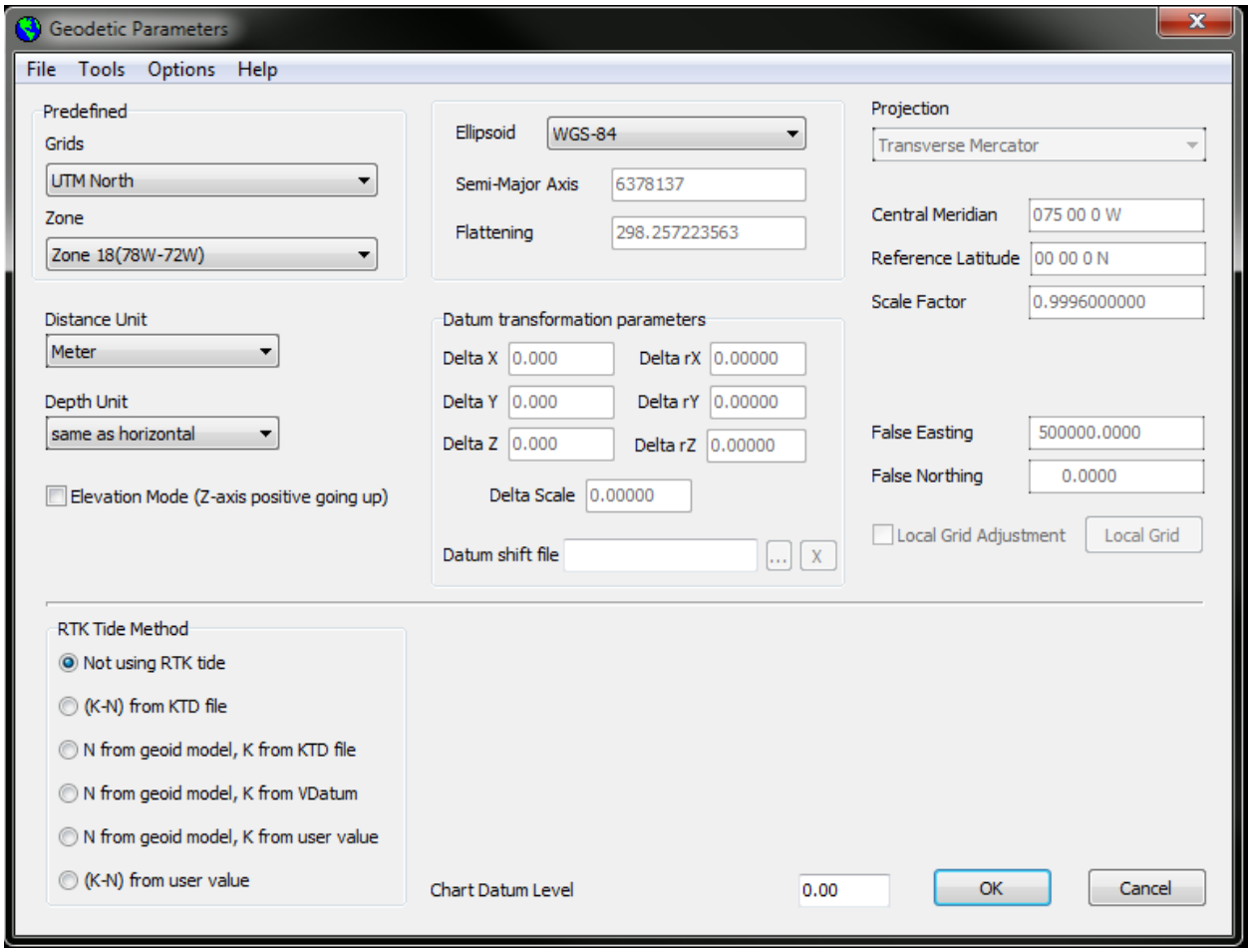
By Jerry Knisley

Working with the New Haven Fire Department illustrated the need for a custom geodesy to support the US National Grid. The use of the custom geodesy allows the survey to locate targets and produce maps that support the relief and rescue efforts during a natural disaster similar to hurricane Florence which recently came ashore in Wilmington, NC.

To modify the HYPACK® Geodesy to support the USNG is the same as creating a custom geodesy:

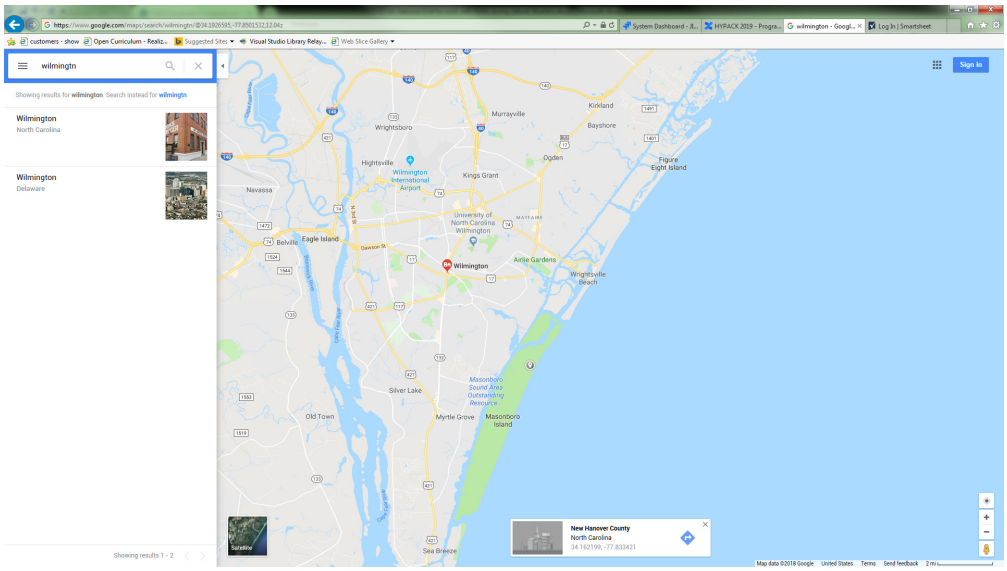
1. To begin, the **GEODETIC PARAMETERS must be set to the reference**. In the case of the US National Grid, they must be set to the appropriate UTM zone in meters.

FIGURE 1. *GEODETIC PARAMETERS Set for UTM North*



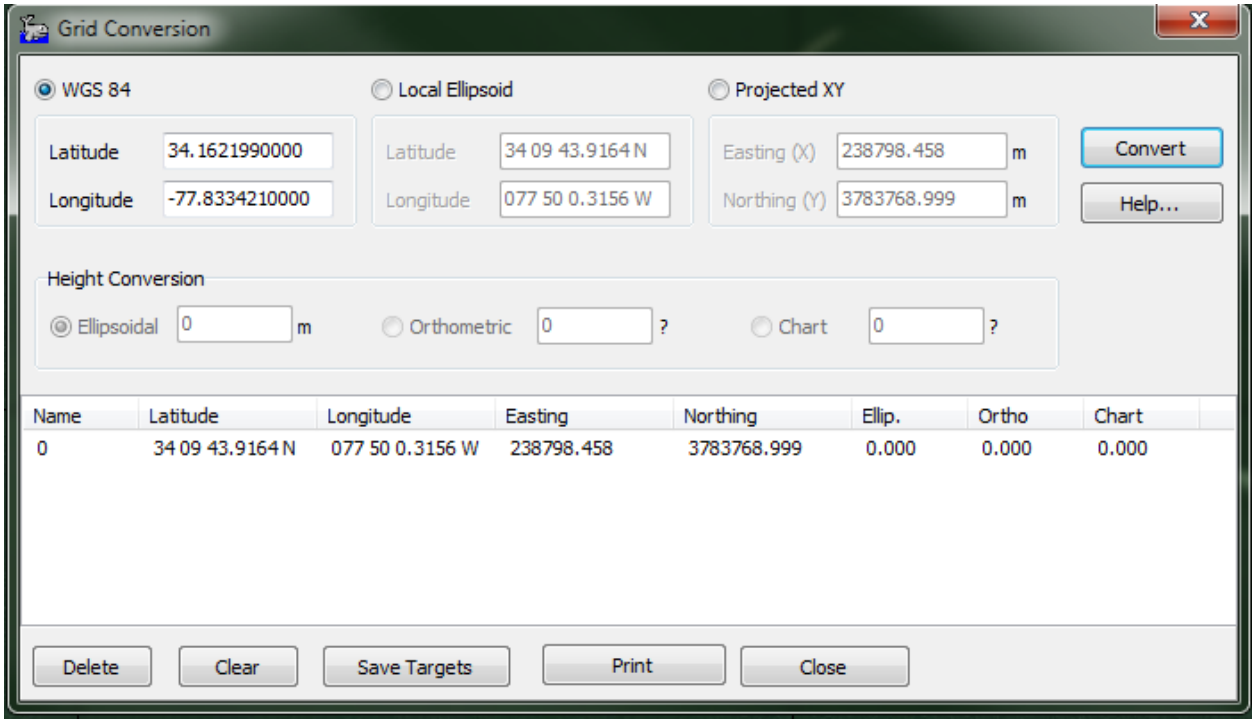
2. **Obtain a local grid coordinate that will be the base point for the local grid.**
   a. In Figure 2, **I used Google Maps online to obtain a in Latitude and Longitude point** near Wilmington, NC.

FIGURE 2. *Getting a WGS84 Lat/Lon Point at the Survey Site*



   b. **Using the HYPACK® GRID CONVERSION program, the coordinate is translated into an Easting and Northing.** This coordinate is the base point that will be used later to supply the local grid.

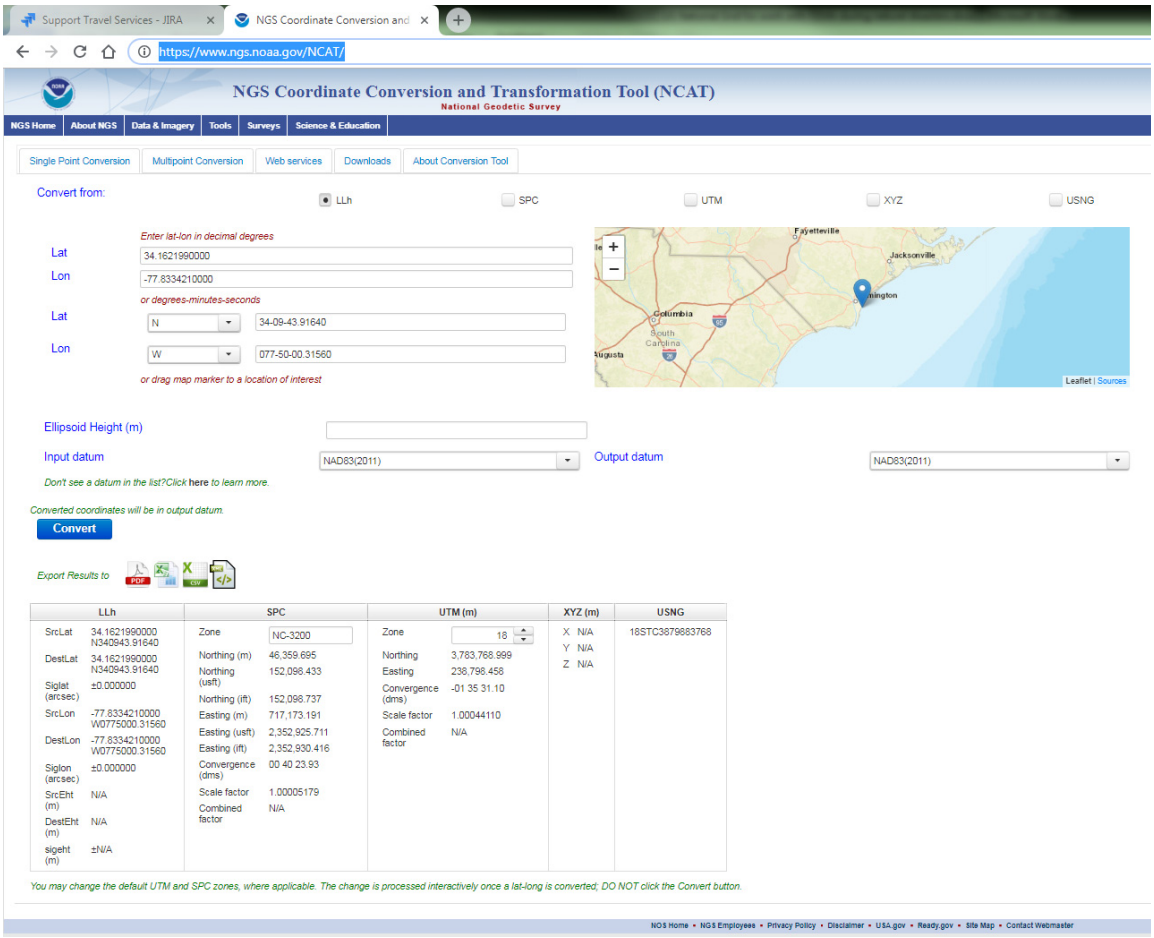
FIGURE 3. *Converting the Lat/Lon from Google Maps to UTM XY Coordinates in GRID CONVERSION*



3. **I converted the coordinates to USNG using the link to the NOAA Converter** here https://www.ngs.noaa.gov/NCAT/ .

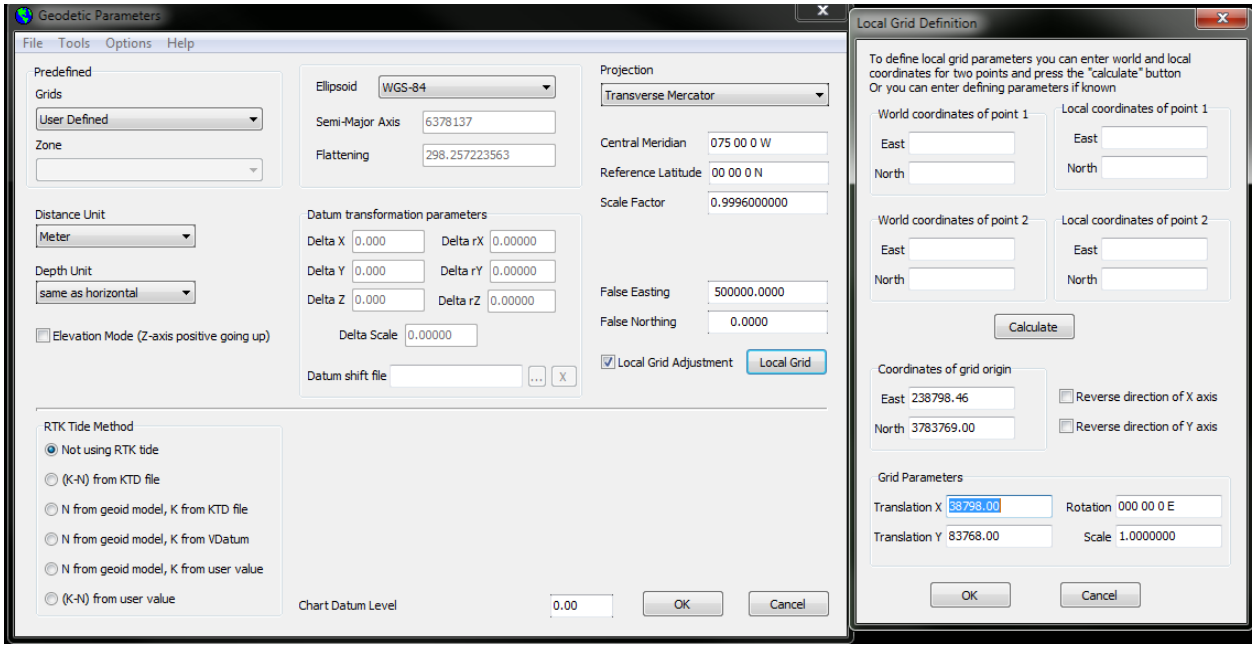
   The converted USNG coordinate is 18STC3879883768. This is a 5 digit coordinate that exists in the 18STC grid. The Easting is 38798 and the Northing is 83768.

FIGURE 4. *Converting the HYPACK® XY to USNG*



4. **In HYPACK® GEODETIC PARAMETERS, both the origin point (the point in UTM North Zone 18), as well as the converted point (the point in USNG) are entered** to provide a proper adjustment from WGS-84 GPS coordinates to the US National Grid.

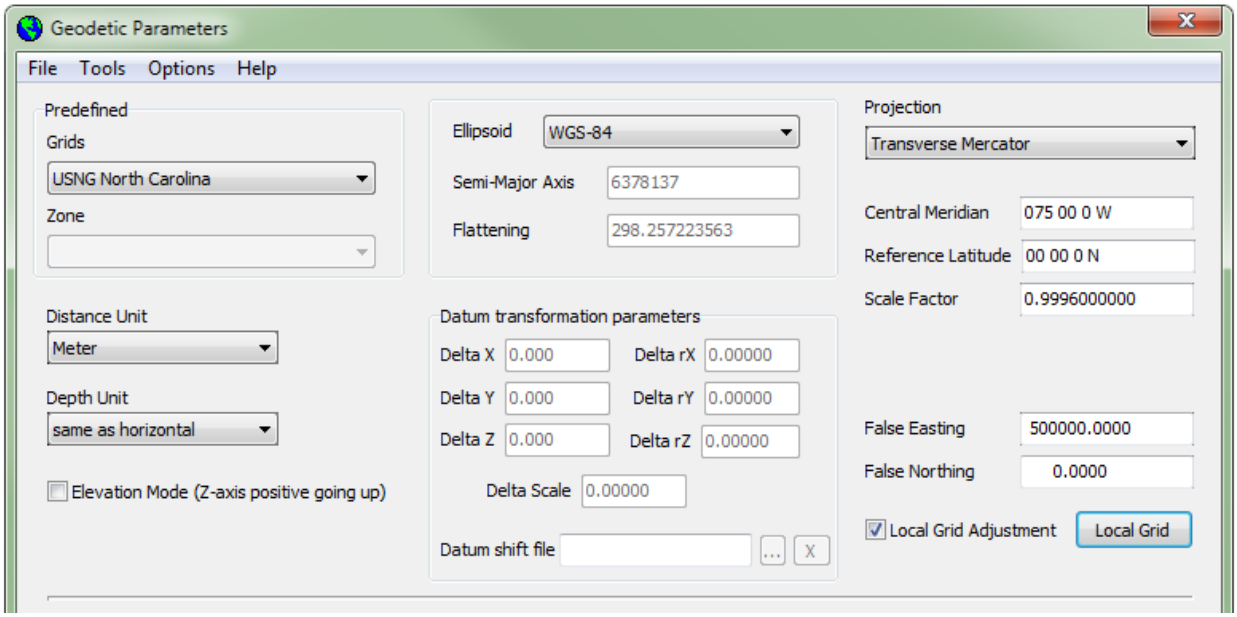
FIGURE 5. *Defining the USNG Local Grid in GEODETIC PARAMETERS*



5. And the final step is to **save the Custom Grid** in the GEODETIC PARAMETERS program under the Tools menu item.

Once the grid is saved it can be accessed as any other Predefined Grid in the GEODETIC PARAMETERS program.

FIGURE 6. *Selecting the New, Predefined USNG North Carolina Local Grid*



To verify the location, the Web Maps for the coordinate were loaded into HYPACK® under the USNG North Carolina custom grid that was created. The Easting and Northing grid and all positions recorded including targets are now referencing the USNG for North Carolina.

FIGURE 7. *HYPACK® Project in the USNG North Carolina Grid*

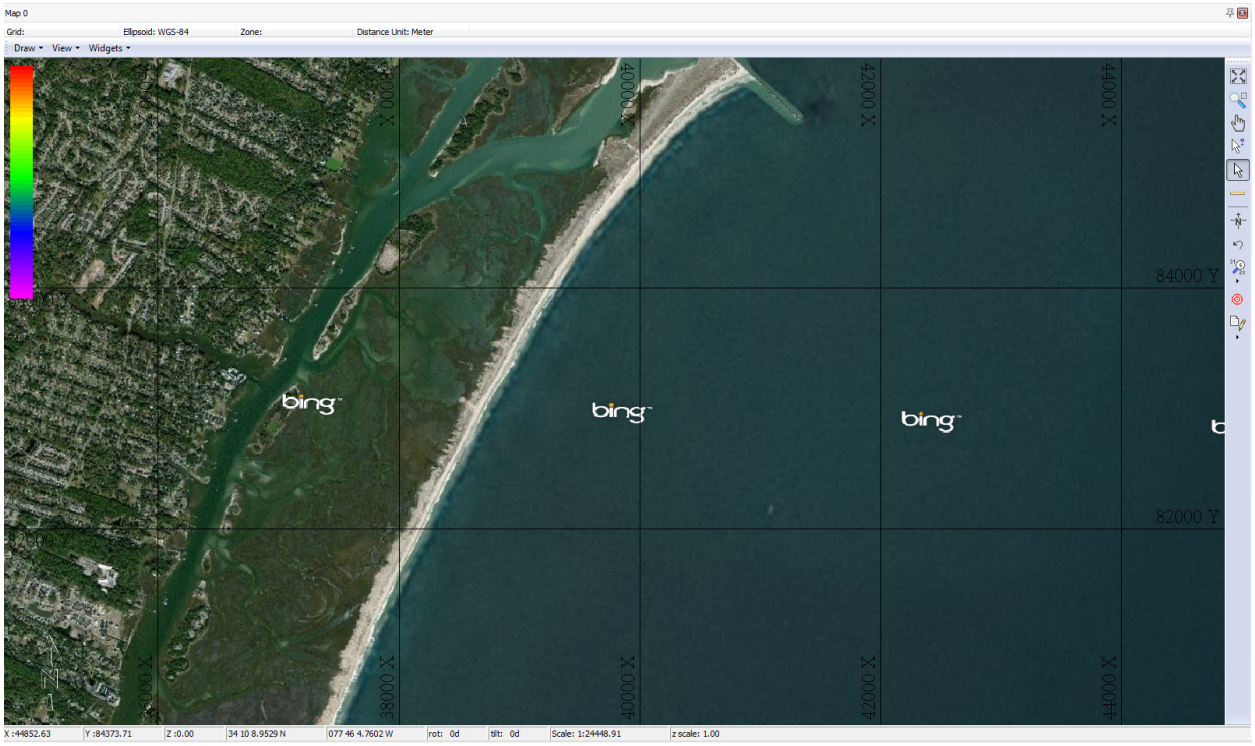
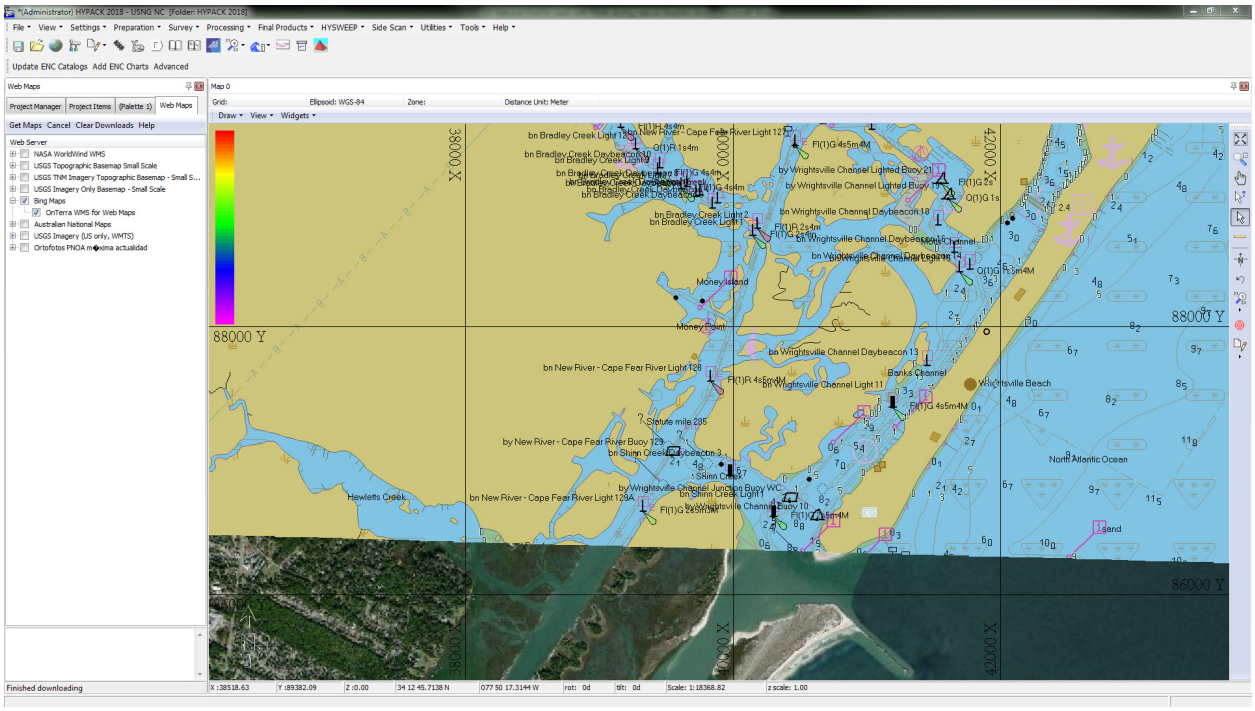


FIGURE 8. *The ENC charts are properly translated to the USNG as well.*



If there is a need for the Custom Grid created for this article please contact Help@HYPACK.com and the grid can be provided.