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IPad LSD Nav Pro 2 Modular User Manual

Revision No.: 1.2.5

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Table of Contents

List of Figures

Table of Icons

Icon	Inner Icons	Name	Description	Additional Information
	Global Icons	Email Button	Emails the selected information from LSD Nav.	
		Close Button	Closes out of the current view.	
		Load Button	Loads the selected file into the map.	
		Pan Screen	Allows user to move form on the screen so it isn't in the way.	Ex: Currently available on the save custom route form.
	toggles	Center GPS	Centers map on current GPS coordinates.	2.1 Center GPS Mode/Pan Mode - (Free)
	toggles	Pan Mode	Pans around the map for browsing.	
		Information	Provides legal information about the application as well as a link to the applications support page.	2.2 Information - (Free)
		Settings	Sets display, units, routing and other options.	2.3 Settings - (Free)
		Tool Menu	Brings up another menu with additional menu functions.	2.4 Tool Menu - (Free) 4.0 Tool Menu - (Pro)
		Speaker	Tests for either Targets or Geofence alert sounds.	2.4.1 Speaker - (Free)
		Points of Interest	Shows all points of interest, for the selected category, on the map.	4.0.1 Cluster (Points of Interest) - (Pro)
		Manual Route	Creates or clears a route on the view.	4.0.2 Manual Route - (Pro)
		Pad Site	Scouts Pad Site (Cold Lake, Christina Lake or Other).	5.2 Pad Site - (Requires Standard)
		Convert Coordinates	Converts coordinates from one system to another.	5.1 Convert Coordinates - (Requires Standard)
		Target Manager	Manages targets and target locations.	4.0.3 Target Manager - (Pro)

		Close	Hides the tool menu.	
		PDF	Imports PDF file into the map allows for navigation when document is geo referenced.	2.5 PDF - (Free)
		Zoom	Zooms to LSD, UTM, Lat/Long, or NTS and drops a pin with option to route from current location.	3.1 Zoom - (Std) 4.1 Zoom - (Pro)
		Pin Manager	Manages pins with options to Drop Pin, Save Pins to File, Load Pins, and Clear Pins.	3.2 Pin Manager - (Std) 4.2 Pin Manager - (Pro)
		Waypoint Manager	Manages GPX, KML, and ASC (csv txt) cogo files.	3.3 Waypoint Manager - (Std)
		Tracking	Starts, stops, and saves current track.	4.4 Tracking - (Pro)
		Township Lines	Toggles township, section, quarter section and LSD lines on or off.	3.4 Township Lines - (Std) 4.5 Township Lines - (Pro)
		Custom Maps	Manages custom maps loaded on device.	4.6 Custom Maps - (Pro): New multi layer selectable

1.0 LSD Nav Pro 2 Overview

The unique strength of the app is its real time display of the Legal Sub Division (LSD) and section line offsets. It does this by converting the latitude and longitude from the aGPS that is integrated with the cellular board. Hence it will not work with a Wi-Fi only iPad model which uses approximate coordinates of the Wi-Fi router. Cell service is not required for this computation but is required to download the background satellite imagery. To overcome this limitation, compiled off line navigable maps can be loaded or created from the app itself.

The oil patch uses LSD to uniquely identify the 400000+ wells in Western Canada. With its LSD display and zoom to LSD features, there is no need to load a dynamic database of well names. For BC, the Petroleum and Natural Gas Grid using NTS is also supported.

1.0.1 Installation and Updates

To install the application go to the app store and search for LSD Nav Pro 2. Start by installing the free package and then purchase any upgrades / addons required from within the app. This document will discuss what is available for each package of the application below.

Requires a minimum iOS of v9.1 with support for split screen.

When installing an update, **DO NOT** delete the app as this will delete all custom maps and loaded waypoint files on the app. Update over the existing app to keep custom maps and data files intact. Delete the app only as a last resort, after backing up files in iTunes.

The app comes with three packages, Free, Standard (Std), and Professional (Pro) with the option to purchase additional add on features activated with in app purchases. To purchase the Pro package a Std package must be purchased first.

Note: Black icons are not available in the current package of the app, more information on how to purchase them is available by pressing the icons.

1.0.2 Dominion Land Survey System

The app fully supports the 1st, 2nd and 3rd Dominion Land Survey (DLS) township systems used in Western Canada, implemented since 1871.

Figure 1.0.0 below shows a sample LSD, (SE) 8-4-53-25-W4, in the format (QS) L-S-T-R-M. The QS-S-T-R-M notation is used for pipelines while L-S-T-R-M is used for pad sites.

(Quarter Section)	LSD	-Section	-Township	-Range	-Meridian
(SE)	8	4	53	25	W4

Figure 1.0.1 shows where LSD 8 sits, in the south east (SE) quarter section. Figure 1.0.2 shows where the section number 4 of that LSD is located relative to neighboring sections in that township. These zoom-to diagrams are DLS spatial keyboards showing the LSD and sections zig zag design respectively.

Township numbers increases sequentially from south to north, starting at the border. Range numbers increases sequentially from east to west within W meridians and from west to east within E meridians. 1st to 6th Meridians are at 97.4579, 102, 106, 110, 114 and 118 degrees longitude. E2 is at 94 degrees but only valid in Manitoba, not Ontario.

Figure 1.0.0 below also shows a **767 m North 150 m West** offset reading. This refers to the offsets from the nearest section lines. So the value of 767 m North 150 m West means the current location is approximately 767 m North of the southern line of section 4 and 150 m West of its eastern line.
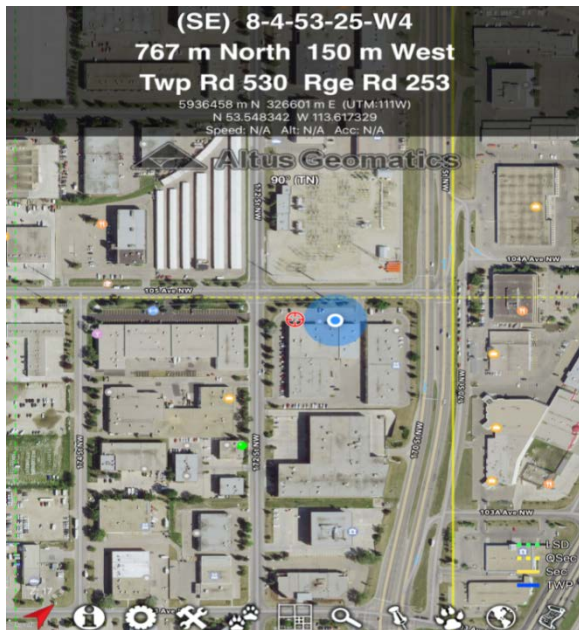
Figure 1.0.0 LSD in (Quarter Section) LSD-Section-Township-Range-Meridian Format

While the GPS coordinates may be good to about 5 m, the offsets are approximate and may be out by about 20 m on top of that.
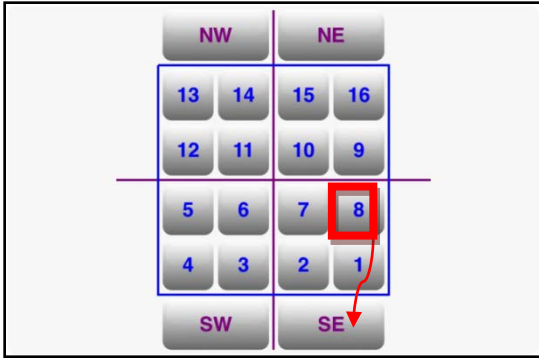
Figure 1.0.1 LSD Spatial Keyboard: Quarter Section and Legal Sub Division Serpentine Layout.
LSD 8 is in the South East quarter of the section.
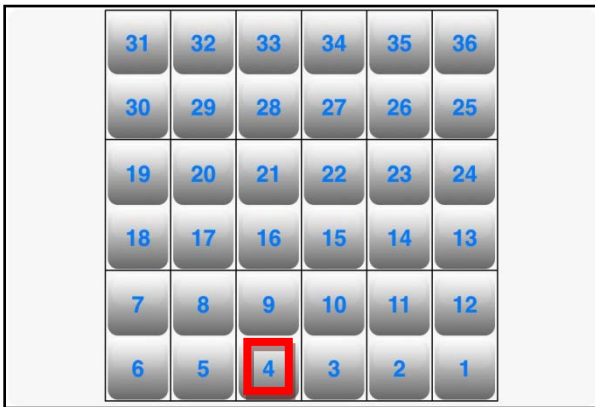
Figure 1.0.2 Section Spatial Keyboard: Section Serpentine Layout.
Section 4 of the 36 sections in a township.

2.0 LSD Nav Pro 2 Free Package

2.1 Center GPS Mode/Pan Mode - (Free)

Center GPS Mode: This is the default setting, it centers the map at the current location and does not allow the map to pan around and look at different places. While on GPS mode, if the map is swiped, pan mode is automatically set.

Pan Mode: Tapping the GPS icon changes the map to pan mode. Pan Mode is used to move around the map. This is useful for browsing an area, creating a manual route, and managing pins.

2.2 Information - (Free)

The terms of use, user tips, version of the application installed, support email address, and the app support web address is all listed on this page.

2.3 Settings - (Free)

Shows the basic settings that can be changed in the Application. These settings are divided into two categories: Show/Hide Items and Preferences. When a change is completed here, tap the **Done** button at the top right corner in Figure 2.3.0 below to make the changes take effect (some changes will only be apparent on the next load of the application). Items can be switched ON/OFF in this sub-menu. Items switched ON will be displayed while items switched OFF will not. Note: The more items switched ON in the header block, the less space is available for the navigation map. If a setting does not seem to take effect, close the app and reopen it. Note: (**Free**) Items are available in all packages, (**Std**) Items are only available in the Standard package and up, and (**Pro**) Items are only available in the Professional package and up.
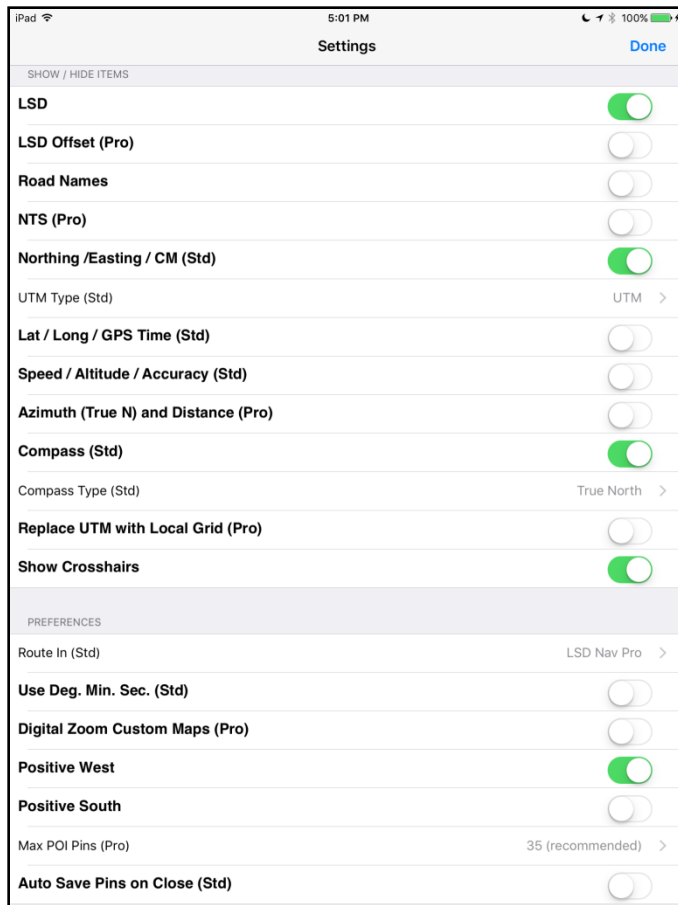
Figure 2.3.0 Settings That Can Be Changed

2.3.1 Show / Hide Items

The #1 to #9 below refer to the colored label in Figure 2.3.1. When turned on, the label outlined will be visible.

Note - On the iPhone the UTM, Lat / Long / GPS Time and Speed / Altitude / Accuracy will only be shown when in the portrait orientation.

- ➢ LSD (**Free**) (red #1): Switch ON/OFF LSD. Format (QSec) LSD-Sec-Twp-Rge-M.

- ➢ LSD Offset (**Pro**) (orange #2): Switch ON/OFF LSD offset from the nearest section lines. Note: All offsets are calculated for a 66 foot road allowance for AER (Alberta Energy Regulator) purposes.

- ➢ Road Names (**Free**) (dark green #3): Switch ON/OFF Road Names for adjacent theoretical Township and Range roads.

- ➢ NTS (**Pro**) (purple #4): Switch ON/ OFF NTS. An NTS coordinate contains Quarter (a-d), Unit (1-100), and Block (A-L) values (BC example: C-90-J 94-A-16), which are only valid in the British Columbia Petroleum and Natural Gas grid, as well as NTS # (83-105), NTS Letter (A-P), and Map Sheet (1-16) which can be used as a NTS map sheet identifier outside of British Columbia (Outside BC example: 83-H-12). Note: Approximating NTV1 using NTV2 (~ 0.5 m).

- ➢ Northing / Easting / CM (**Std**) (white #7): Switch ON/OFF Northing /Easting/CM.

- ➢ UTM Type (**Std**): Set UTM type (3TM, UTM, or 10TM). A false easting of 0 is used for 3TM and 10TM whereas 500,000 is used for UTM. To use 10TM for Fortis add 500,000 to easting values. Ontario MTM is 3TM with zones modified for municipal boundaries instead of the nominal three degree zone.

- ➢ Lat / Long / GPS Time (**Std**) (light green #8): Switch ON/OFF Lat/Long and GPS Time (hh:mm:ss converted to local time). Default positive west may be turned off for Europe or Asia where East is positive.

- ➢ Speed / Altitude / Accuracy (**Std**) (gold #9): Switch ON/OFF speed altitude and accuracy.

- ➢ Compass (**Std**) (brown #10): Switch ON /OFF compass on LSD Nav.

- ➢ Compass Type (**Std**): Select True North or Magnetic North for the compass. When set to True North, the label will display (TN), when set to Magnetic North it will display (MN).

- ➢ Replace UTM with Local Grid (**Pro**): When turned on the map will use the local grid loaded into the drawing from a JSON file instead of the UTM coordinates. To load a local grid use the open in option from the email containing the .json file.

- ➢ Show Crosshairs (**Free**) (black #11): Switch ON /OFF crosshairs that displays over the current location.

- ➢ Automated (yellow #5 and blue # 6): These features will automatically appear/disappear when dealing with Azimuth (True N) and Distance.

1 (NW) 13-34-52-25-W4
2 213 m South 26 m East
3 Twp Rd 530 Rge Rd 253
4 NTS : 83-H-12
5 Grid Bearing: 168.7° (cm: 111)
6 Az: 170.8° D: 413 m
7
5935440 m N 326752 m E (UTM:111W)
N 53° 32' 21.29" W 113° 36' 52.20"
Speed: N/A   Alt: N/A   Acc: N/A
8
9
10 109° (TN)
11
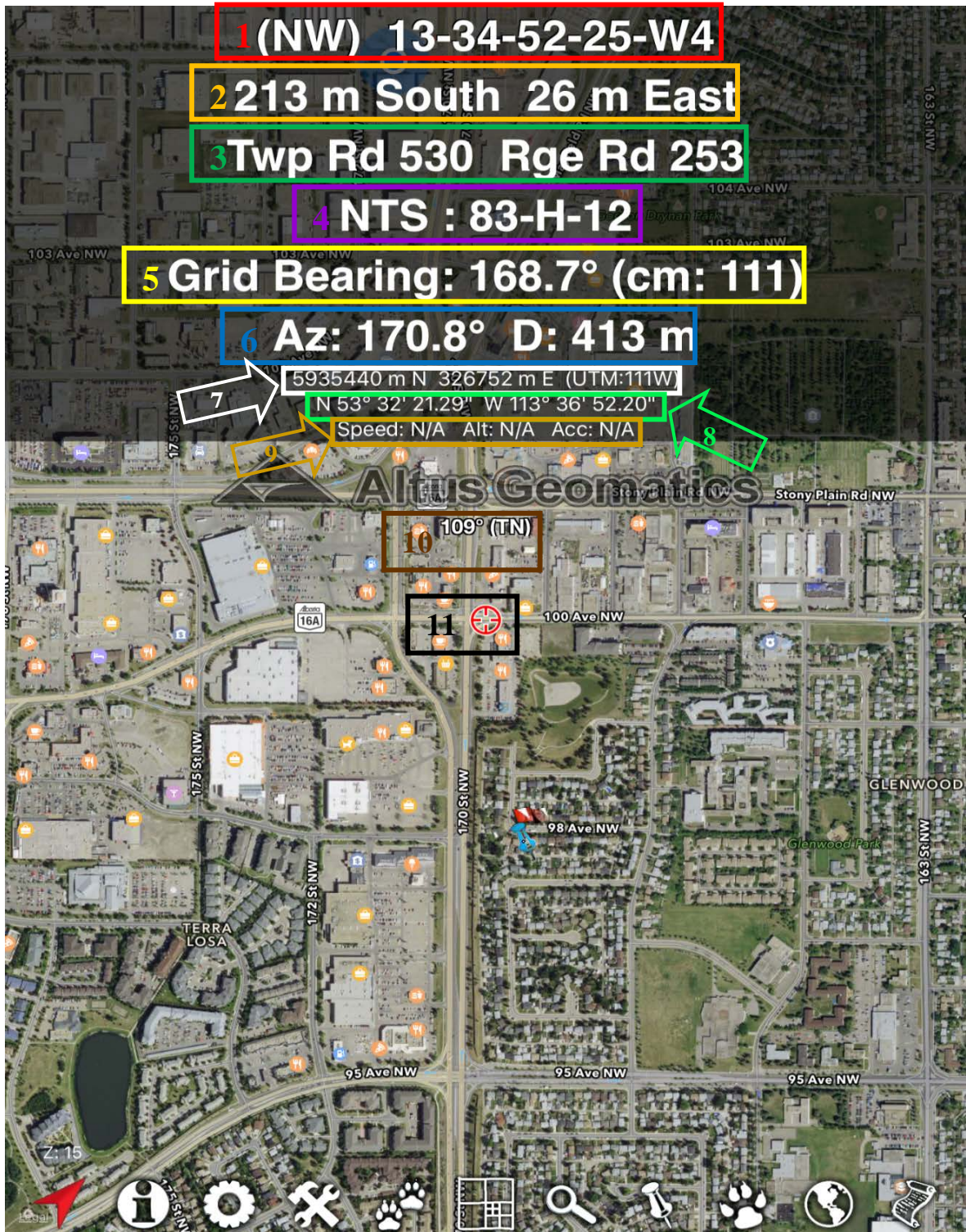
Figure 2.3.1 Settings Display

2.3.2 Preference Items

➢ Route In (**Std**): (Note: Only Apple is available for the Std package, the Pro package allows you to choose Google as well). Choose the platform for routing (LSD Nav Pro 2 app, Apple system built in Maps app, and Google Map on Safari browser). If there is a possibility of losing internet access it is suggested to Route in LSD Nav Pro 2 app because it only needs a connection when first determining the route. Apple Maps and Google Maps both re-query the route every few miles and will be unable to find it once an internet connection is lost. Apple Maps has voice turn by turn directions and Google Maps may have different satellite imagery. For Google routing, it is recommended that the Google app be installed and it will be used instead of the Google Map web page. The advantage of the Google app is that the satellite image can be turned on after routing is forwarded to it.

➢ Use Deg. Min. Sec. (**Std**): Switch ON/OFF Degrees Minutes Seconds. When turned on the Latitude/Longitude display, Zoom To options, and Pin Information will all be displayed as Deg. Min. Sec. When turned off these will all be displayed as decimal degrees. Note: Azimuth Bearing is always displayed in decimal degrees.

➢ Auto Rotate Map (**Free**): Switch ON/OFF Auto Rotate Map. When this feature is on the map will rotate like a compass with north always pointing north.

➢ XL LSD/Offset (**Free**): Switch ON/OFF XL LSD/Off. When this feature is on an extra large font is used for the LSD/Offset displays.

➢ Digital Zoom Custom Maps (**Pro**): Switch ON/OFF Digital Zoom Custom Maps. When this feature is ON, the last available layer of the custom map is kept and allows user to continue to zoom in digitally but the raster image will be pixilated. To obtain better resolution, note the zoom level (e.g. Z: 16 for level 16) at the bottom left corner of the map and request a larger scale TIL from the project manager responsible for that compiled map.

➢ Positive West (**Free**): Switch ON/OFF Positive West. Longitude by international convention has a positive east, for convenience and to avoid dealing with negative values Canada uses a positive west value.

➢ Positive South (**Free**): Switch ON/OFF Positive South. When turned on a False Northing of 10,000,000 is added, this is useful in the southern hemisphere to keep all Northing values positive following the standard UTM convention.

➢ Max POI Pins (**Pro**): Set the maximum number of POI Pins for collision detection. When more than the selected number of pins are in view some will be combined into a purple pin giving the average location of that cluster of pins. As the purple pins are zoomed in they should start to split and appear green representing an individual pin. Note: Do not route to a purple pin as it doesn't represent an actual POI just an average of all the POI's in that area. Tip: To navigate to a collision detected point, drop a pin at a green pin when zoomed in and navigate to this newly dropped pin. It may be set as Az destination as well.

➢ Auto Save Pins on Close (**Std**): Sets whether or not to automatically save pins placed when the application closes. If turned on all existing pins when the application is closed will be automatically loaded back into the map on the next open.

2.4 Tool Menu - (Free)

Displays the menu shown below in Figure 2.4.0.

➢ 2.4.1 Speaker - (Free)
➢ 4.0.1 Cluster (Points of Interest) - (Pro)
➢ 4.0.2 Manual Route - (Pro)
➢ 5.2 Pad Site - (Requires Standard)
➢ 5.1 Convert Coordinates - (Requires Standard)
➢ 4.0.3 Target Manager - (Pro)
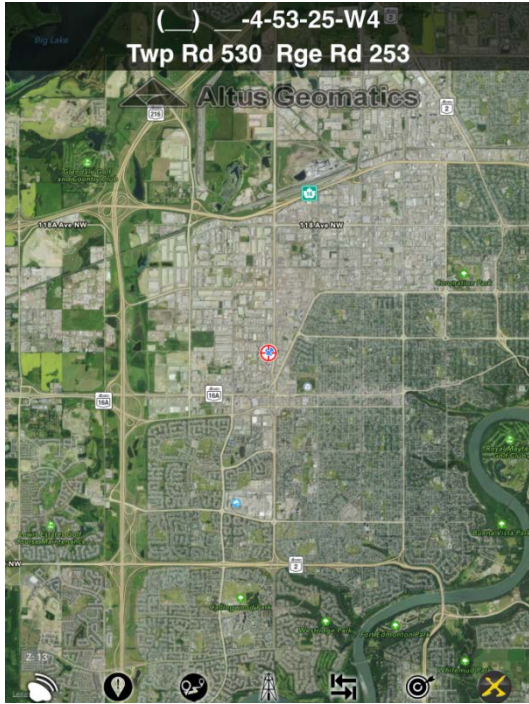
Figure 2.4.0 Tool Menu Features

2.4.1 Speaker - (Free)

Displays the menu below in Figure 2.4.1. Allows for testing of Target or Geofence alert sounds and make sure they are clearly audible on current device settings and environment. A target is a reverse geofence where an alert is activated when the device enters the zone, whereas a geofence alert is activated when the device leaves the zone.
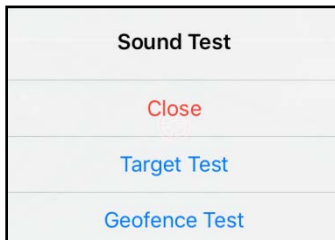
Figure 2.4.1 Speaker Features

2.5 PDF - (Free)

Imports PDF document onto the map and allows the user to navigate in the PDF when it is geo referenced.

3.0 LSD Nav Pro 2 Standard Package

Automated update information prompts are stopped with the standard package.
(Std) elements of section 2.3 Settings - (Free) are enabled.

Note: The standard package of the application includes all free elements as well as those discussed below.

3.1 Zoom - (Std)

Zooms to these coordinates:

LSD	(Figure 3.1.0), green pin,
UTM	(Figure 3.1.1), purple pin,
Lat/Long	(Figure 3.1.2), red pin,
NTS	(Figure 4.1.3), yellow pin
Address	(Figure 3.1.3), blue pin

with the option to route from current location, and drops a pin. To save and manage these pin(s) see section 3.2 Pin Manager - (Std). The difference between these zoomed pins and the dropped pins (which defaults to the thumb tack icon   ) is that the former cannot be moved while the latter can. To 'move' a zoomed pin, delete it and re-zoom to the new coordinates.

➢ Go To button: Zooms map to entered location and drops a pin. To zoom to a section corner, enter a value of 0 for offsets.

➢ Az & Dist Slider: Slide to the right (should see slider turn green) to turn on. When on the map, a course line is drawn showing the Azimuth and Distance to the pin at the Zoom To location. For a larger font, turn on and use instead the Azimuth (True N) and Distance tool from section 2.3.1 Show / Hide Items.

➢ Route Button: Calculates the route to travel from current location to the newly created pin at the entered location. The choice of the background map is in the "route in" options for section 2.3.2 Preference Items.

➢ Cancel Button: Cancels out of the Zoom Window.

Figure 3.1.0 Zoom to LSD Options.

Tap on LSD/QSec textbox to select form the its spatial keyboard in Figure 1.0.1. Tap an LSD (typically used for wells) or a QSec (typically used for pipelines).

Tap on Section textbox to select a section from its spatial keyboard in Figure 1.0.2.

Figure 3.1.1 Zoom to UTM Options.

Default is Nad83. If Nad27 were selected, the values entered here are NTV2 grid shifted to Nad83. Typical northings in Western Canada are in the 6,000,000 range. The smaller number is the easting.

Saskatchewan uses Extended zone 13 to cover the whole province. Use caution working with this extension. For example for a point (lat=50.8, lon=109.7), zooming to N=5638120, E=168862, CM=105 (zone 13 extended) will drop the purple pin at the correct latitude/longitude location and the pin heading will show the zone 13 extended coordinates. However, its ⓘ info property will show the nominal zone 12 coordinates of N=5628390, E=591611, CM=111, as will the header since the point is within the nominal zone 12 longitude range from 108° to 114 °.

Use the following cross reference for zone to CM conversion.

UTM 6° Zone	Central Meridian Longitude ° West	Nominal Range Longitudes ° West	Bc	Ab	Sk	Mb
11	117	120 to 114	√	√		
12	111	114 to 108		√	√	
13	105	108 to 102			√	
13 extended	105	110 to 101.33, whole Sk province			√	
14	99	102 to 96			√	√
15	93	96 to 90				√

Figure 3.1.1.0 Showing CM Conversion table

Figure 3.1.2 Zoom to Lat/Long Options.

To enter Latitude and Longitude in decimal degrees, turn off "Use Deg. Min. Sec" in the settings, to switch this display. Default is Nad83. If Nad27 were selected, the values entered here are NTV2 grid shifted to Nad83.

Figure 3.1.3 Zoom to Address Options.

Make sure you enter the address in the format shown (City, Province, Address) in order to correctly zoom to that location.

3.2 Pin Manager - (Std)

Tap on the icon on the main menu, not the dropped pin, to open the Pin Actions Menu. This default blue push pin icon may be changed to other icon with the Pro Package of the App using the Pin Properties in Section 4.2.1 Pin Options Menu - (Pro).

➢ **Close**: Closes the Pin Manager.

➢ **Drop Pin**: Drops a pin at the current location on the map.

➢ **Save Pins to File**: Saves all loaded pins as a point file under the name supplied. Gives the option to Append (add current points to an already existing point file) or Overwrite (replace all points on an already existing point file with current pins) as well. To save only a single pin, tap the pin and then the callout option ＞ shown in section 3.2.1 Pin Options Menu - (Std).

➢ **Load Pins**: Opens the Waypoint Manager. In order to load pins select the Points file to load and tap the Load button in the top right corner. The screen will center on the newly loaded pins.

➢ **Clear Pins**: Clears all pins from the map, if pins are not all removed this might require multiple clears. To clear only a single pin, tap the pin and then the callout option ＞ shown in section 3.2.1 Pin Options Menu - (Std).
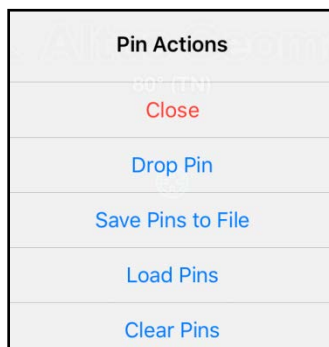
Figure 3.2.0 Pin Actions Menu
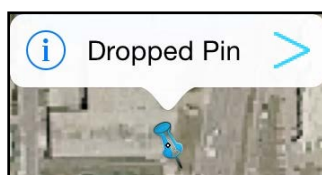
Figure 3.2.1 Dropped Pin Information Menu.
Tap the ⓘ button to view coordinates of pin; tap the ＞ callout button for additional pin functions.

3.2.1 Pin Options Menu - (Std)

Accessed by tapping on a pin and then selecting the right callout arrow > shown in the dropped pin information menu in Figure 3.2.1.0.
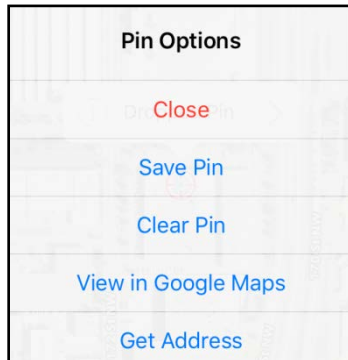
Figure 3.2.1.0 Pin Options Menu From > Callout of a Dropped Pin.
Can also be accessed by a long press at the map location.

➢ **Close**: Closes the Pin Options.

➢ **Save Pin**: Saves the selected pin to the given filename. Also gives the option to Append (add pin to existing file) or Overwrite (delete all pins in a file and add pin to that file). To save all pins to file, use section 3.2 Pin Manager - (Std).

➢ **Clear Pin**: Clears the selected pin from the current map. To clear all pins use section 3.2 Pin Manager - (Std).

➢ **View in Google Maps**: Opens up the Google Maps app if installed, otherwise opens up Google Maps web page on the Safari browser, to the coordinates of the current pin. (It is recommend to download the Google Maps app from the Apple Apps Store, especially for iPhone). The advantage of using Google is to get a potentially different satellite/aerial imagery than that displayed by Apple Maps in the LSD Nav Pro 2 app.   The Google imagery may be more recent and it may have an additional zoom level. Viewing Google image at a specific UTM or LSD is now a cinch. To get a third source of imagery, use the custom map to import from GIS as shown in Section 4.6 Custom Maps - (Pro).

➢ **Get Address**: Returns the street address of the current pin from Google.

3.3 Waypoint Manager - (Std)

The route and tracking information is stored at this menu. This is used to manage GPX, and KML files. Only GPX files can be managed in the Standard addition of the application, KML files can be managed if the add on is purchased. Each of the tabs shown in Figure 3.3.0 below has a padlock icon   on the top left which is toggled for file deletion. In order to delete a file, tap the padlock icon to display the open lock, then tap the delete icon and finally the Delete button that appears. Any of the stored files can be loaded into LSD Nav Pro 2 using the load button shown in the top right of Figure 3.3.0 below. Files may be shared or backed up via email (setup account, not webmail) with . To view the file contents, select the file then tap the button which will show the text in Figure 3.3.1 below.

➢ **GPX**: Manages files in a GPX (GPS Exchange Format).

Figure 3.3.0 Waypoint Manager Features and Tabs

Figure 3.3.1 File viewer

A GPX file is typically exported from a Garmin unit and emailed to a user. See APPENDIX B: How To Import GPX Waypoints for a summary of steps to open the attachment for display in LSD Nav Pro 2.

3.3.1 Sharing Project Pins

The following is an example of how pins can be shared amongst a project team.

Foreman 1 drops 5 pins and emails the gpx to the project Coordinator.
Foreman 2 marks up Google Earth with 4 pins and emails the KML to the Coordinator.
Foreman 3 saves 3 waypoints on a Garmin, downloads it to Garmin's free BaseCamp software and emails the GPX file to the Coordinator.

Coordinator :
(1) Downloads the emailed attachments and "Open in" LSD Nav Pro 2.
(2) Loads them onto the map, changing pin properties as desired.
(3) Saves all the 11 merged pins to an GPX file named by date, job or location.
(4) Foremen open the GPX on their respective platform to view all 11 waypoints.

3.4 Township Lines - (Std)

Toggles between township line visibility on the map. Township at map center, or current GPS location, plus eight surrounding neighbors are shown if zoomed to small scale. LSD lines are visible at larger scales. Either pinch to zoom or step through each zoom level with one finger double tap for zooming in or two finger tap for zooming out. The lines become visible at the minimum zoom levels indicated.

- ➢ Blue (Std)   - Township   (Z:10)
- ➢ Yellow solid (Std)   - Section   (Z:12)
- ➢ Yellow dash (Pro)   - Quarter Section   (Z:13)
- ➢ Green dash (Pro)   - LSD   (Z:14)

The Zoom level (switch from Road to satellite Hybrid mode for better visibility) is shown at the bottom left hand corner of the map while the township line legend is at the bottom right (v6.2).
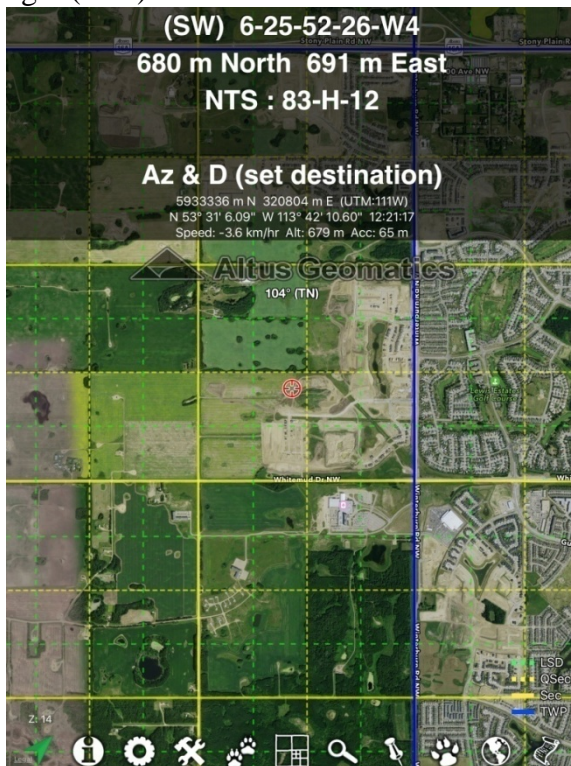
Figure 3.4.0 Township Lines

There may be approximation issues around Meridians as illustrated for the LSD lines. Section lines are drawn taking into account road allowances. On blind lines they should be pretty good approximation. However on an actual road allowance, the line is drawn approximately in the middle. Also, on a road allowance, the label (RA) should appear behind the computed offsets values. Ignore negative offsets.

4.0 LSD Nav Pro 2 Pro Package

(Pro) and (Std) elements of section 2.3 Settings - (Free) are enabled.

Note: The pro package of the application includes all standard and free elements as well as those discussed below.

4.0 Tool Menu - (Pro)

All elements discussed in section 2.4 Tool Menu - (Free) as well as those listed below.

4.0.1 Cluster (Points of Interest) - (Pro)

Shows all points of interest (POI) for the option selected in the menu displayed in Figure 4.0.1.0 below.

➢ **Clear** - Removes POIs from map.
➢ **Nav Photo Pics** - Loads pins of all photos from Nav Photo and places them at the location they were taken. Tap on the green pin, then the icon, to view picture.

The advantage to indexing photos here over Apple Maps is the ability to view photo pins on a road, hybrid satellite or custom map background, whereas Apple Maps only offers this for road view which is a useless blank map for rural areas.

➢ **All Pics** - Loads all photos from the camera with a coordinate assigned to it and places them at the location they were taken.

Note: Do not navigate to a purple pin (shown in Figure 4.0.1.1) as this shows the average location of all pins in the area, instead zoom in and navigate to a green pin (shown in Figure 4.0.1.2) which represents an actual location.
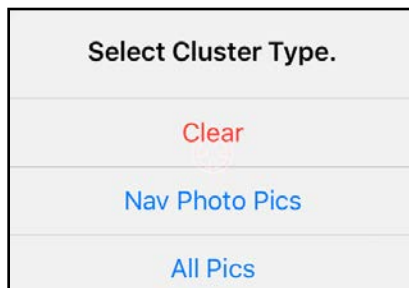
Figure 4.0.1.0 POI Features

10 elements
183178, 476515, 453514, 479691, 455410, 175349, 380055, 31503...

Kinokamau Lake
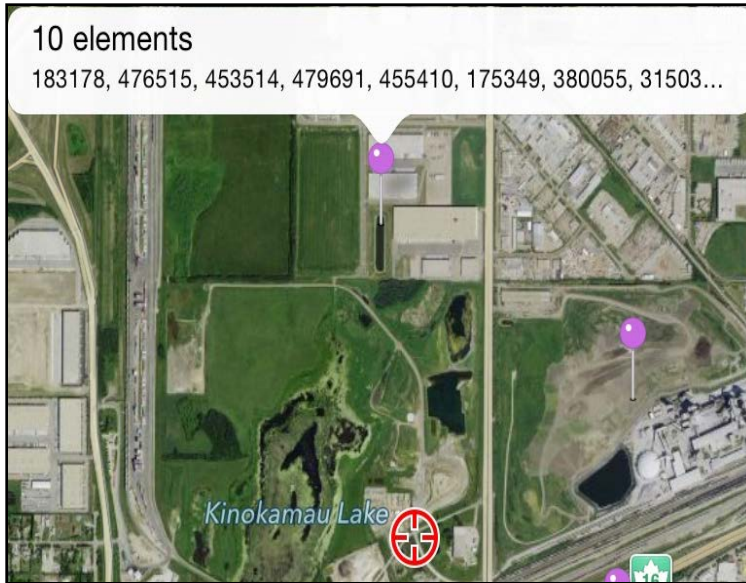
Figure 4.0.1.1 Purple Pin Clustering
Pin collision is detected.

Do not navigate to a purple pin with averaged location. Zoom in further, until the green pins showing the individual points are visible, to avoid the collision.

453514

Figure 4.0.1.2 Individual Green Pins When Zoomed In.

To navigate to the green pin, long press on the map to **Set Az and D Destination** or drop a 📍 pin, so the destination pin can be visible when zoomed out to a smaller scale map. Or do both.

4.0.2 Manual Route - (Pro)

While creating a manual route the azimuth and distance from the last point will be shown as well as the total distance of the route. In order to create a manual route tap the ⊕ button shown in Figure 4.0.2 when at the desired starting position. From there add to the route by moving the center of the screen around (it will add the junction node where the crosshair is). Tap the ⊕ button again to add addition legs, and to go back to a previous junction point use the ▽ undo button. Once complete, tap ✖ button to keep that route on the current map but not save it, or tap 🖫 to save that route for future use, managed in the Waypoint GPX Manager. To clear the route and recreate use the 🗑 button. Note: For important junctions it is a good idea to drop a pin there as well after creating the route. This feature can also be used as a traverse measuring tool since it displays the distance when creating the route.
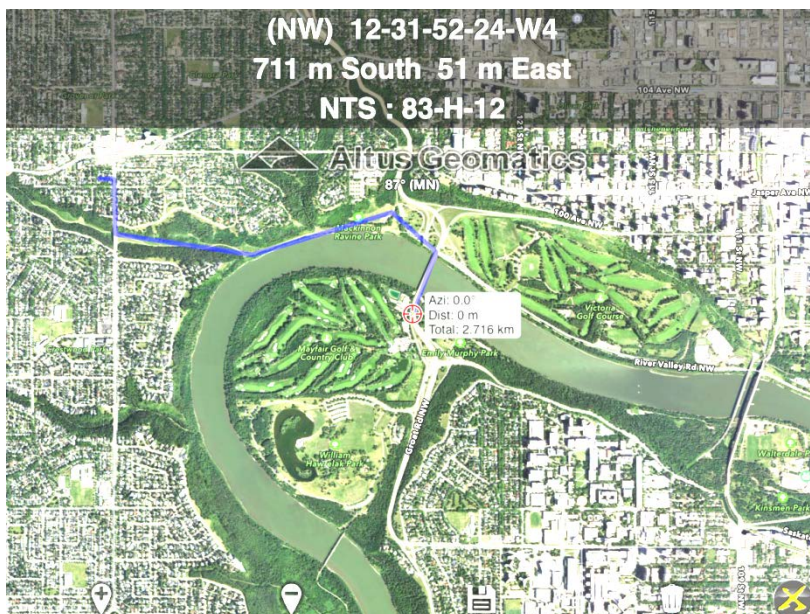
Figure 4.0.2 Manual Route Crossing River, Saved as GPX file in Waypoint Manager.
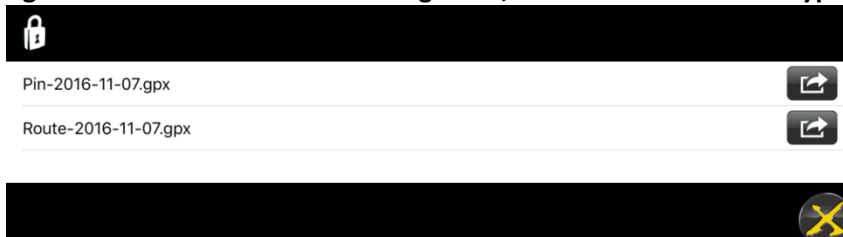
4.0.3 Target Manager - (Pro)

This tool is for the management of targets. Targets can be chosen for a specific location by holding down at that location on the map and selecting 'Create Target from Here' as shown in Figure 4.7.0. After the target fields have been filled out, set to active for a particular start/end date and start/end and save the target using the save button.

➢ **Edit Button:** Edits the target listing.

➢ **Close Button:** Closes Target Manager.

➢ **+ Button:** Adds new target information.

➢ **Email Button:** Sends target via email.

A target is a reverse geofence where an alert is activated when the device enters the zone, whereas a geofence alert is activated when the device leaves the zone. See Section 2.4.1 Speaker - (Free) for more information on testing the alert volume for targets.

4.1 Zoom - (Pro)

Zooms to these coordinates:

      NTS   (Figure 4.1.3), green pin

with the option to route from current location, and drops a pin. To save and manage these pin(s) see section 3.2 Pin Manager - (Std). The difference between these zoomed pins and the dropped pins (which defaults to the thumb tack icon 📌) is that the former cannot be moved while the latter can. To 'move' a zoomed pin, delete it and re-zoom to the new coordinates.

➢ Go To button: Zooms map to entered location and drops a pin. To zoom to a section corner, enter a value of 0 for offsets.

➢ Az & Dist Slider: Slide to the right (should see slider turn green) to turn on. When on the map, a course line is drawn showing the Azimuth and Distance to the pin at the Zoom To location. For a larger font, turn on and use instead the Azimuth (True N) and Distance tool from section 2.3.1 Show / Hide Items.

➢ Route Button: Calculates the route to travel from current location to the newly created pin at the entered location. The choice of the background map is in the "route in" options for section 2.3.2 Preference Items.

➢ Cancel Button: Cancels out of the Zoom Window.

Figure 4.1.3 Zoom to NTS Options.

Quarter, Unit, and *Block* are valid for British Columbia Petroleum and Natural Gas Grid only. *NTS #, NTS Ltr*, and *Map Sheet* are valid across Canada. The NTS # is the 1:250,000 scale mapsheet number, NTS Ltr is the 1:50,000 scale mapsheet letter and Map Sheet is the 1:20,000 mapsheet number.

4.2 Pin Manager - (Pro)

Both the Pin Manager and Pin Options sections for the Pro package of the application include all options already disscussed in Sections 3.2 Pin Manager - (Std) and 3.2.1 Pin Options Menu - (Std).

Tap on the icon on the main menu, not the dropped pin, to open the Pin Actions Menu. This default blue push pin icon may be changed to other icon in the Pin Properties in Section 4.2.1 Pin Options Menu - (Pro).

4.2.1 Pin Options Menu - (Pro)

Accessed by tapping on a pin and then selecting the right callout arrow > shown in the dropped pin information menu in Figure 4.2.1.0.
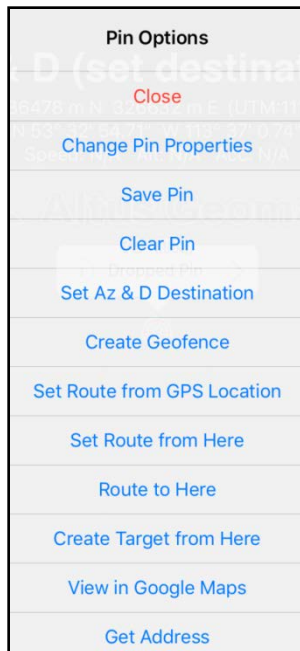
Figure 4.2.1.0 Pin Options Menu From ＞ Callout of a Dropped Pin.
Can also be accessed by a long press at the map location.

- ➢ **Close**: See section 3.2.1 Pin Options Menu - (Std).

- ➢ **Change Pin Properties**: Opens the Pin Properties Menu shown in Figure 4.2.2.0 below (Note: Not available for KML Pins).

- ➢ **Save Pin**: See section 3.2.1 Pin Options Menu - (Std) (Note: Not available for KML Pins).

- ➢ **Clear Pin**: See section 3.2.1 Pin Options Menu - (Std).

- ➢ **Set Az & D Destination:** Places an azimuth and distance destination on the map at the coordinates of the pin. After panning the map, the Azimuth and Distance to the destination should appear in the top part of the map.

- ➢ **Create/Clear Geofence**: Creates a geofence at the pin location with the radius supplied. Once a geofence has been created the button name changes to **Clear Geofence**, which clears the newly created geofence from the drawing. A geofence will make no sound when inside of it, however once the area is exited it will sound an alarm. (Make sure to run a sound test using section 2.4.1 Speaker - (Free)). To use the reverse of a geofence, i.e. sounding an alert upon entering a zone, use the target feature. To clear a geofence see section 4.7 Map Options - (Pro).

➤ **Set Route from GPS Location**: The map must currently have no route on it. 'Route from GPS Location' will set a temporary invisible starting point for a route at the current GPS Location, to finish the route add a 'Route to Here' option afterwards.

➤ **Set Route from Here**: The map must currently have no route on it. 'Route from Here' will set a temporary invisible starting point for a route at the point selected on the map, to finish the route add a 'Route to Here' option afterwards. To clear route tap the in the routing details menu shown in Figure 4.2.1.1 or tap clear route option in the route options menu in Figure 4.2.1.1 (access the route options menu by tapping the ﹥ callout on either point of a route). To save route tap the save route option in the route options menu in Figure 4.2.1.1.

➤ **Route to Here**: Creates a route from the current location to the spot held down on the map to get to the Map Options window.

➤ **Create Target from Here**: Opens the target manager with the given coordinates and allows creation of a target at that point. A target works the opposite way a geofence does, it will make no sound when outside of it, however once the area is entered it will sound an alarm. (Make sure to run a sound test using section 2.4.1 Speaker - (Free))

➤ **View in Google Maps**: See section 3.2.1 Pin Options Menu - (Std). See APPENDIX F: Frequently Asked Questions regarding multitasking split screen to get the best of Google and Apple maps simultaneously.

➤ **Get Address**: See section 3.2.1 Pin Options Menu - (Std).
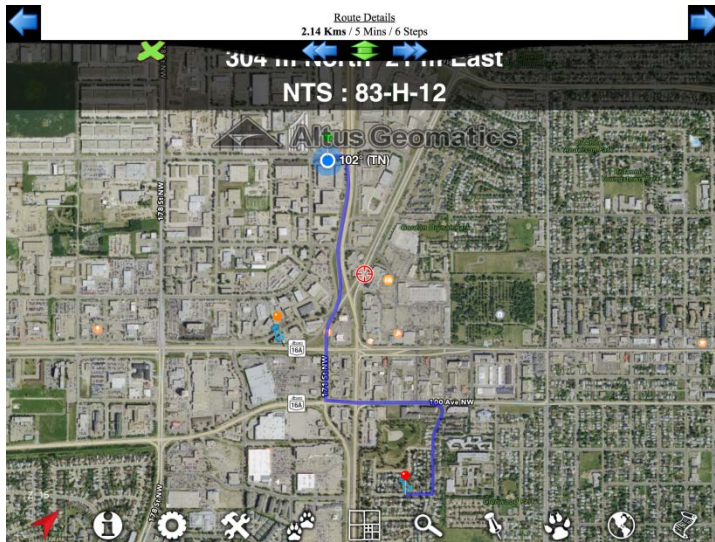
Figure 4.2.1.1 Route Details Menu For Turn by Turn Direction
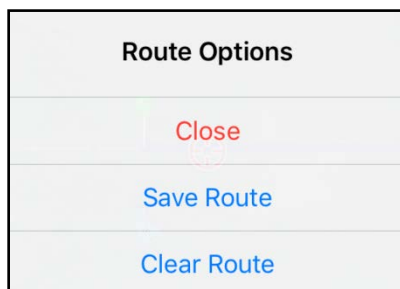
Figure 4.2.1.2 Route Options Menu

Tap on the > callout of one of the end points of the route.

4.2.2 Pin Properties Menu (Pro)

This will bring up the pin properties as shown in Figure 4.2.2.0

➢ Title: Main value that is shown when a pin is selected (by default this is Dropped Pin)

➢ Subtitle: Shown below the title when a pin is selected (by default this is blank)

➢ Edit Icons: Edit the default value that will be shown in each icon box. These are the 20 most commonly used icons and each icon can be changed to one of many available as shown in Figure 4.2.2.1 (scroll to see even for pin icons). To complete changes select the done button that appears on the left of the menu above the icons.

➢ Icons: Icon selected here is what will be displayed for the pin.

- ➢ Extra Info: Stores extra information for a pin in a txt file. Tap on the Extra Info text box to bring up the Extra Information Menu shown in Figure 4.2.2.3. Tap the + button to create a new text file. From there Figure 4.2.2.4 will come up, make sure to add .txt to the end of the file name when created. Add information for the pin in the big grey box and when complete press the Close button. Then select the newly created file from the list and it should automatically attach it to the pin.
- ➢ Cancel: Closes the Pin Properties Menu without making any changes.
- ➢ Set: Updates the Pin Properties.

The icon in the top left corner of Figure 4.2.2.0 will be the default and appear as the main menu drop pin icon.

The centering dot is made transparent to assist in re-positioning of icon to its intended geographic location.
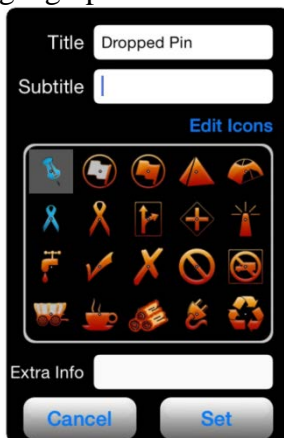
Figure 4.2.2.0 Pin Properties Menu.
The top left icon will be the default appearing in the main screen icon bar.
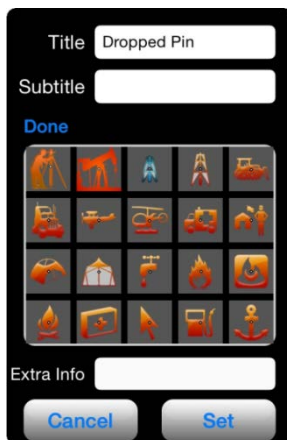
Figure 4.2.2.1 Available Pins to Change to Main 20.
Scroll to see all options available in Figure 4.2.2.2

Figure 4.2.2.2 All Pin Icons Available by Scrolling.

Close   +

test.txt

* Only txt files will show up in the list.
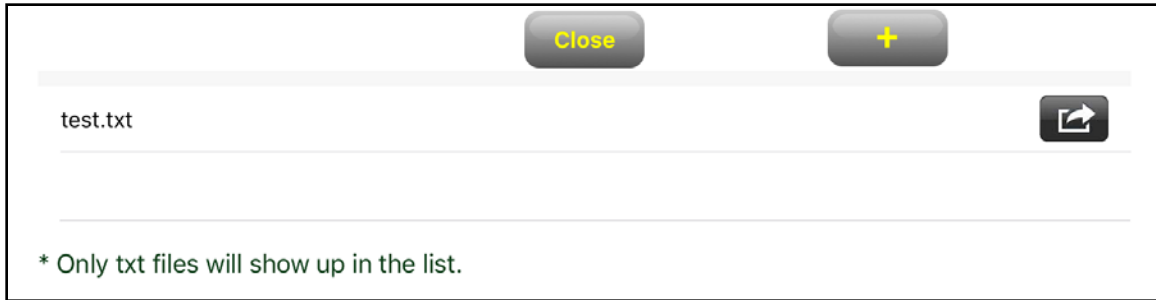
Figure 4.2.2.3 Pin Extra Information Menu

File Name :   test.txt   *

Test information about the pin

Close

* Only txt files will show up in the list.

q w e r t y u i o p ⌫

a s d f g h j k l return

⇧ z x c v b n m ! ? ⇧

.?123 ☺ 🎤 .?123 ⌨
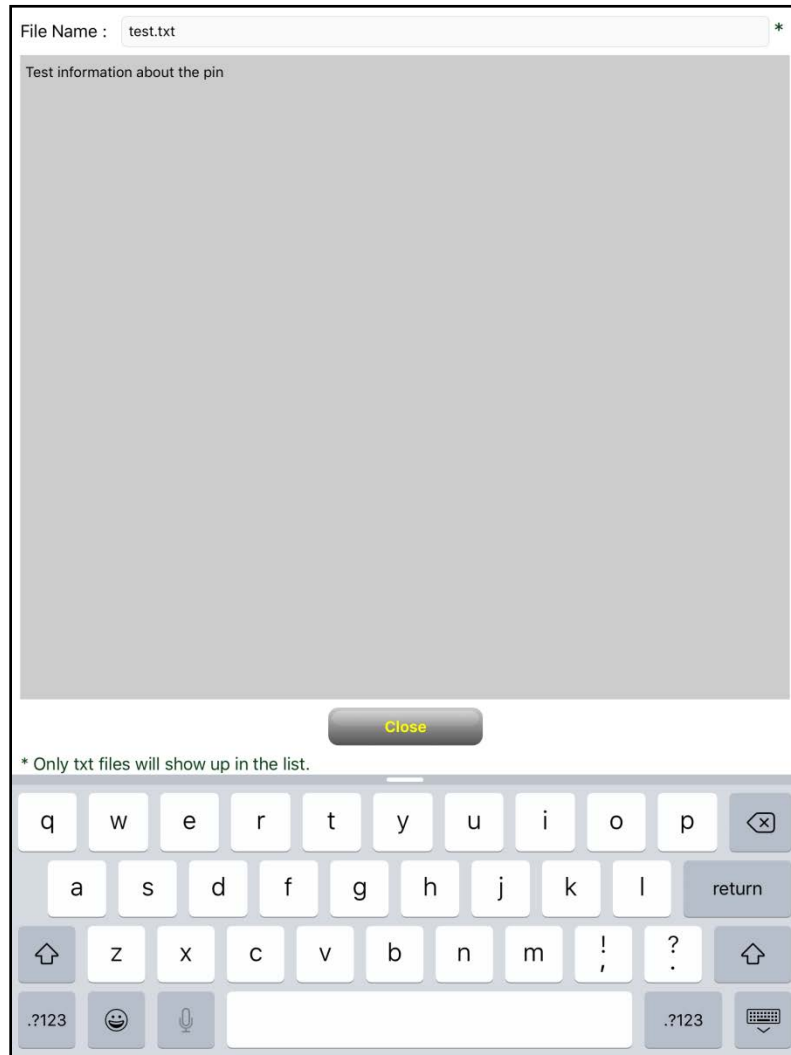
Figure 4.2.2.4 Extra Information Text Editor

4.4 Tracking - (Pro)

Starts and stops tracking. To use, supply a tracking file name or select an already existing tracking file. Once tracking has started the Paw will flash between a blue paw and a larger orange paw. This will track all movements while the device is in tracking mode and when done tap on the flashing paw again to stop the tracking (tracking will continue if the application in minimized). View or share this newly created track object in the Waypoint Manager under the GPX tab shown in Figure 3.3.0.

> ➤ Tracking File Name: Create the file name for tracking.

> ➤ Start Button: Start tracking route. Option to Overwrite or Append will be presented if the file already exists.

> ➤ Cancel Button: Cancel out of the track window.

> ➤ Clear Track Button: Clear the track just created.

Figure 4.4.0 Tracking Options

4.5 Township Lines - (Pro)

Same as 3.4 Township Lines - (Std) only Quarter Section and LSD are also shown.

> ➤ Yellow dash (Pro)   - Quarter Section   (Z:13)
> ➤ Green dash (Pro)   - LSD   (Z:14)

4.6 Custom Maps - (Pro)

Select which map to display from the list of all the custom maps loaded on the device. In order to delete an existing local map, slide left on the map in question and tap delete as shown in Figure 4.6.1.

Once loaded, use **Zoom Extends** described in section 4.7 Map Options - (Pro) to pan to the map easily.

Downloading NTS will be faster and at a better resolution if zoomed into the area required beforehand. Downloading requires connection. Once downloaded, internet connection is no longer required for offline navigation using these custom maps.

The file name is prefixed with _ in order to group them for ease of finding when the file list is long. Since **Zoom Extents** does not work on these maps, name the snapshot appropriately. Drop a pin at the center of each snapshot for a way of indexing them.

Multilayer is now supported. Multiple layers can be turned on at the same time by selecting more than one map from Figure 4.6.0 below. The first layer selected will be the base. Subsequent layer selected will be drawn on top, so if later is transparent, it and the base will overlay properly. Therefore, select a custom image layers first. Clicking on a selected layer (green 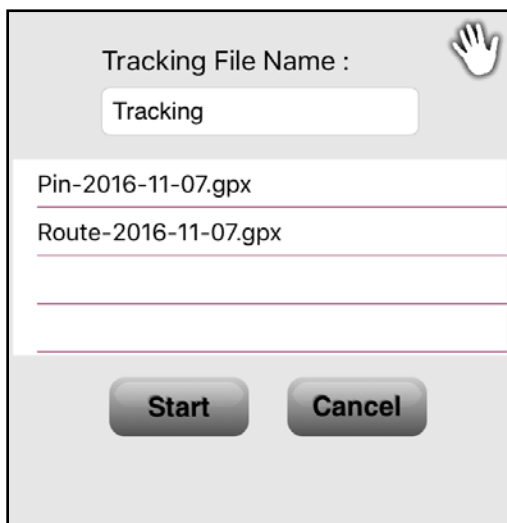highlight) will deselect it. Clicking on the Online Maps layer will turn everything off and display only the Apple default imagery. NTS are sequentially numbered if multiple queries are made. If it is desired to download these layers by section, turn on the section lines to guide your view selection and sequentially download by the ordered section.

The 'Base Map' on the bottom of the form allows you to select what you would like to see under your selected overlays. If an option other than Apple is selected then the layer will replace the Apple layer (which means that the Apple layer does not need to be downloaded as well and it saved time and download data). When selecting the layer 'Off' it will not download any layers and the base map will be white. You can use this if you have an overlay for the location you are navigating in and want to stop downloading any map images for the base.

Refer to Figure 4.6.0 below for the following instructions.

➢ ⚙️ : Brings up the layer selection shown in Figure 4.6. below. This is used to select what GIS and NTS features will be downloaded onto the map. To turn a feature off slide the bar to the left beside the feature name, to turn it back on slide it to the right. A different zoom may give a different contour interval. Note: Imagery and Contours may take longer to compute and download.

➤ : Downloads the NTS layers for the current zoom level on the map and places it on the screen. It will also save these layers as _NTS_Toporama_50K.png in the Local Maps menu.
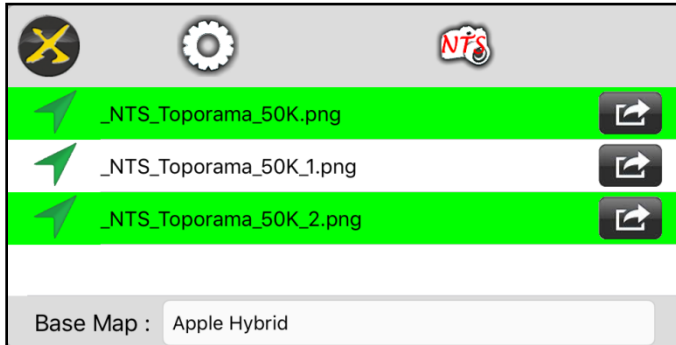
Figure 4.6.0 Custom Maps Menu
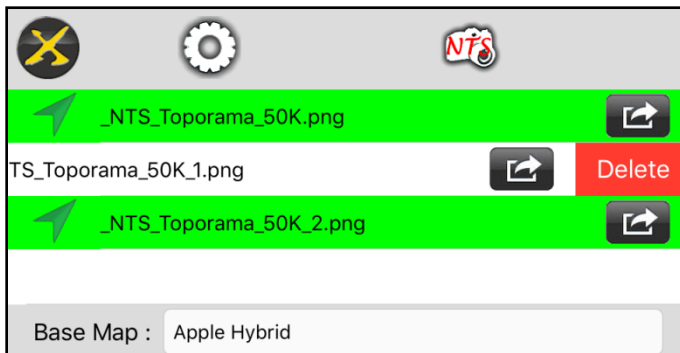
Figure 4.6.1 Custom Map Menu Delete Option

Swipe the icon, besides the file name, to the left to expose the **Delete** button.

Figure 4.6.2 Layers available from Web Mapping Services.
This doubles as the legend for the color coding and symbols.

4.7 Map Options - (Pro)

Long press and hold down on the map in order to get the Map Options menu shown in Figure 4.7.0 below.

Where routes are shown is dependent on the settings in Section 2.3.1 Show / Hide Items. There is an option to route in LSD Nav Pro 2, Maps (Apple maps), or Google maps.

Map Options

- Close
- Set Az & D Destination
- Create Geofence
- Set Route from GPS Location
- Set Route from Here
- Route to Here
- Create Target from Here
- Zoom Extents
- View in Google Maps
- Get Address
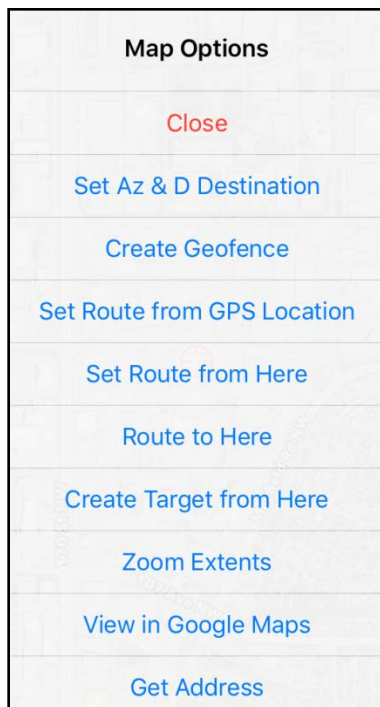
Figure 4.7.0 Map Options From Long Press on the Map

➤ **Close**: Closes the Map Options.

➤ **Set Az & D Destination**: Places an azimuth and distance destination on the map at that location. After panning the map, the Azimuth and Distance from current location to the destination location should appear in the top part of the map. (To see a course line, use the Zoom To function with Az, described in Section 3.1 Zoom - (Std)).

➤ **Create Geofence**: Creates a geofence at the given location with the radius supplied. Once a geofence has been created the button name changes to Clear Geofence, which clears the newly created geofence from the drawing. A geofence will make no sound when inside of it, however once the area is exited it will sound an alarm. (Make sure to run a sound test to before using a geofence)

➢ **Set Route from GPS Location**: The map must currently have no route on it. 'Route from GPS Location' will set an invisible starting point for a route at the currently selected location, to finish the route add a 'Route to Here' option afterwards.

➢ **Set Route from Here**: The map must currently have no route on it. 'Route from Here' will set an invisible starting point for a route at the currently selected location on the map, to finish the route add a 'Route to Here' option afterwards.

➢ **Route to Here**: Creates a route from the current location to the spot held down on the map to get to the Map Options window.

➢ **Create Target from Here**: Opens the target manager with the given coordinates and allows creation of a target at that point. A target works the opposite way a geofence does, it will make no sound when outside of it, however once the area is entered it will sound an alarm. (Make sure to run a sound test to before creating a target).

➢ **Zoom Extents**: Zooms to the extents of the loaded custom maps. If no custom maps are loaded this will not zoom properly.

➢ **View in Google Maps**: See section 3.2.1 Pin Options Menu - (Std).

➢ **Get Address**: Gives the address of the selected point on the map.

5.0 LSD Nav Pro 2 Add Ons

5.1 Convert Coordinates - (Requires Standard)

Used to convert coordinates from geographic latitude and longitude to projected rectangular northings and eastings, or from one mapping plane to another. The NTV2 grid shift file is used when transforming between the Nad83(ORIG) and Nad27 reference systems. The options available are shown in Figure 5.1.0 below.
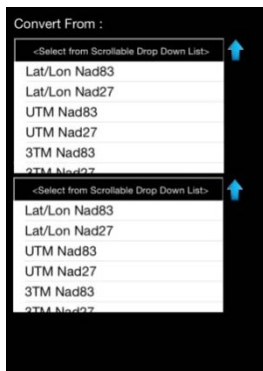
Figure 5.1.0 Coordinate Types Available For Conversion.
Scroll through the list for more items.

5.2 Pad Site - (Requires Standard)

Sets the pad site type, the options available are shown in Figure 5.2.0. Once the pad site type is selected, the range rings (zones) will be added to the map centered at the current location. The pad site can be fixed, moved, rotated or cleared as shown in Figure 5.2.1. For better performance Pan to the desired location before rotating the pad site. Once satisfied with the location and orientation, Fix it. Once fixed, the pad site will pan together with the background map.

➢   Fix On: Keeps the pad site displayed in the fixed location even when moving or

     panning in the drawing. (Off   )

➢   Pan On: Moves the background when panning around in the map. The pad site

     will always be drawn in the center of the screen. (Off   )

➤ Rotate On: Rotates the pad site by selecting one of the white arrows pointing left or right (   ). To rotate press and hold down on the arrow pointing in the direction to rotate. (Off)

➤ Clear: Clears the current pad site from the drawing.

➤ Close: Adds the pad site to the drawing in its current position.

Figure 5.2.0 Showing the Pad Site Types Available

Figure 5.2.1 Pad Site Zones and Features For Cold Lake OSE Type

Besides scouting well sites, this may also be used for lease placement. The box can be sized to the rig footprint for placing a rig on an existing site with an azimuth for flare. This would help to show where to place the next well or to show where to set conductor and flare.

5.3 KML/KMZ Import Export - (Requires Pro)

Adds ability to import and export map data in KML/KMZ file formats.
Adds Save to KML option to menu from section 4.7 Map Options - (Pro) which saves current map information to a KML file.

5.4 NTS Map (Requires Pro)

Adds option to download NTS map to show contours, feature names, roads, railway, power networks, urban areas, and water. These items can be turned on or off to customize the display.

APPENDICE

APPENDIX A: Creating a Route

When creating a route in LSD Nav Pro 2 it is important to remember what the settings are for "route in". If it is set to LSD Nav Pro 2 that is where all the routes will be created, the same goes for Maps (Apple), and Google Maps. It is recommended to route in LSD Nav Pro 2 when internet connection may be lost as Apple Maps and Google Maps will both try to re-query every few miles and no longer know the route. Another advantage to routing in LSD Nav Pro 2 is navigating in the custom compiled map underlay. The advantage to Apple Maps app is that there is a voice turn by turn, the advantage to Google Maps is that there may be a different satellite view than the one in the application which uses Apple's maps.

The program has the ability to create both manual routes or automatic routes (automatic routes are created using the values returned from Apple Maps). If navigating back roads that are unknown to Apple, the manual route option will be needed.

Apple routing for turn by turn directions is used in the app regardless of the base map used (Apple, or Custom). To get Google's turn by turn direction, route in Google web map.

APPENDIX B: How To Import GPX Waypoints

An email with an attachment of GPX can be "Open In" the app. The files may also be imported via iTunes. They are then displayed on the map using the load function in the Waypoint manager. To combine multiple files, load them one at a time and save the combined display. While saving, there is an option to append or overwrite an existing file. This can be used to manage the information, including combining multiple files.

GPX   - GPS Exchange Format is supported by many programs such as Global Mapper, OziExplorer, Garmin Mapsource, free Garmin BaseCamp.

APPENDIX C: How To Import Data Files

LSD Nav Pro 2 supports the following extensions:

File Type	Purpose	Comments
GPX	Points, routes and tracks	XPT, RTE and TRK are auto converted
TXT	Text file for points descriptions	
TIL	Tiled custom maps geopackage	Watch email size limits 5 to 20 MB
KML, KMZ	Points, lines, polygons	Keyhole Markup Language, zipped

After receiving an email attachment with a LSD Nav Pro 2 supported extensions tap on the attachment on the iPad to fully download it. Once downloaded completely, long press on the attachment and select 'Open In LSD Nav' or 'Copy to' to open it in the app. The file will automatically be added to the correct location (for example the Waypoint Manager) with the same file name as that imported. From there just find the file and load it into the map to start working with it like any other file of that type.

APPENDIX D: How To Use the Azimuth Indicator

The azimuth (from true north) and distance are computed at the center of the map to the destination waypoint. If GPS centering is ON, then the values are from the current GPS location.

The bearing is the azimuth with grid convergence (depending on which grid is selected in 3TM, UTM or 10TM in settings).

The distance is approximate and may not equal to the grid inverse scaled to ground. Its units may be changed from metric to imperial in the scale units in the app's settings.
To use the azimuth feature, follow the steps below:

1. Launch the LSD Nav Pro 2 App

2. Tap on the Settings icon

3. Toggle ON the "Azimuth (True N) and Distance (Pro)" setting and tap "Done".

4. Long press on a destination waypoint on the LSD Nav Pro 2 map (or on an existing waypoint pin) where the measurement is to be taken to.

5. In the drop down Map Options select "Set Az & D Destination"

6. Change the map mode from Center GPS to Pan Mode and move the cursor to the reference point on the map where the measurement is to be taken at.

7. When measurement is done, toggle the Pan Mode back to Center GPS.

8. Press on the destination pin, that was set in step 3, and tap the blue arrow callout icon to bring up the Pin Options menu.

9. From the drop down Pin Options menu select "Clear Pin" to delete the destination. Alternatively, setting another destination waypoint will remove the previous destination.

This feature may be used to compute an approximate inverse. Alternatively an inverse may also be approximated by dropping 2 pins and create a manual route between them.

APPENDIX E: How To Navigate in Geo Referenced PDF

LSDNavEnt2 supports

(1) viewing PDF
(2) navigating in geo referenced PDF and
(3) file sharing with the "Open In" action i.e. the PDF file extension is recognized

When receiving an email with a PDF attachment or a weblink from our FTP site, make sure the file is completely downloaded by tapping on the attachment or weblink. After the download is completed, press and hold on the file and the "Open In" dialog box will appear. Select LSDNav Ent 2. Similarly, if the PDF file is downloaded and managed in Goodreader, it can be "Open In" the LSDNavEnt2 app.

The PDF Viewer allows you to view any pdf but if the pdf is georeferenced then it will also navigate in it. You can select your coordinate system from three options. Lat/Lon, UTM, or LSD.

Sources of geo referencing PDF that have been tested and found compatible are:
(1) ESRI arcMap (from Forestry, external sources provided geometry is non binary)
(2) Altus Autocad Map with Global Mapper calibration
(3) Altus GIS website high definition PDF generator (select Web Mercator)
(4) TBC : to be tested (TBC reads and not write Geo ref PDF)

provided they are WGS84/NAD83 Lat Long or UTM or Web (Google) Mercator, preferably the later.

For a map that straddles UTM zones, the longitude of the first point (usually top or bottom left) will be used to determine the central meridian and default zone. The map portion that falls on the other zone will be displayed in the extended coordinates of the default zone.

The info button on the Library main page will give a built in explanation of how to use the Viewer. The instructions are reproduced below for your convenience to follow along when practicing its use:

Getting Started with Viewer

Before you can begin using Viewer to view your PDF files, you need to connect your device to your computer via USB cable and copy (sync) them over to it using iTunes. Once you have done that, from within Viewer, tap the *Documents* folder in the *Library*. Now simply scroll to and tap on the PDF document that you wish to view.

Viewer also supports *Open In...* from Mail and other Apps. In Mail, press and hold on a PDF attachment. When the popup appears, tap *Open In...* and then tap Viewer in the list. The document will open in Viewer and will also be found in the *Documents* folder.

Navigating Documents

To go to the next page of a document, tap in the right hand side of the screen near the edge (or swipe, or drag from right to left), to go back a page, tap in the left hand side of the screen near the edge (or swipe, or drag from left to right).

To zoom in, either double-tap with one finger in the middle of the screen or use a zoom in pinch gesture. To zoom out, double-tap with two fingers in the middle of the screen or use a zoom out pinch gesture. When zoomed in, pan the page around by holding your finger down and moving it.

To display the menu and page bars, tap once in the middle of the screen.

To quickly move around in a document, tap on the small thumbnails in the page bar on the bottom of the screen. You can also drag the slightly larger page thumbnail back and forth.

Syncing PDF Files

You need iTunes installed on your computer to be able to copy (sync) PDF files to your device:

1) Connect your device to your computer with its USB cable.

2) In iTunes, click on your device just below DEVICES.

3) Now select the *Apps* tab.

4) Scroll down to the *File Sharing* section and click on Viewer.

5) Click the *Add...* button and choose the PDF file (or files) that you want to sync (copy over) to your device in the *Open* window and click the *Open* button. iTunes will now sync the PDF files over to your device.

6) Open Viewer on your device and tap the *Documents* folder.

Please note that any PDF files that you sync over to your device will be backed up to iCloud if you have enabled that feature on your device. This could take some time and will use up some amount of your allotment of storage space.

Adding Folders

Viewer allows PDFs to be organized into folders. To create a new folder, tap the plus symbol in the *Library* toolbar. Enter in a new folder name and tap the *Done* button.

Deleting Folders

To delete folders (but not their contents), tap the check mark symbol in the *Library* toolbar. Tap the folders that you wish to delete (a check mark will appear in the top right corner of each folder) and then tap the minus symbol in the *Library* toolbar. Tap *Delete* to confirm the deletion. Any PDFs in the deleted folders will automatically be moved back into the *Documents* folder. To cancel folder selection, tap the cross symbol in the *Library* toolbar.

Please note that the *Documents* and *Recent* folders cannot be deleted, only renamed.

Renaming Folders

To rename a folder, tap the check mark symbol in the *Library* toolbar. Tap on the folder that you wish to rename and then tap the keyboard icon in the *Library* toolbar. If you select more than one folder, the keyboard icon will be disabled as you can only rename one folder at a time. Enter in a new name, or edit the existing one and tap the *Done* button.

Moving PDFs to Folders

After having created a new folder, you can move PDFs from any other folder into it to organize your collection of documents.

For example: Tap the *Documents* folder in the *Library*. Tap the check mark symbol in the folder toolbar. Tap the PDFs that you wish to move (a check mark will appear in the top right corner of each PDF thumbnail) and then tap the folder icon in the folder toolbar. Tap the folder that you wish all of the selected PDFs to be moved into. To cancel PDF selection, tap the cross symbol in the folder toolbar.

Recent Folder

The *Recent* folder keeps track of the most recently viewed documents (most recent to least recent). To clear documents from the *Recent* folder, tap the check mark symbol in the folder toolbar. Tap the PDFs that you wish to remove (a check mark will appear in the top right corner of each PDF thumbnail) and then tap the folder icon in the folder toolbar.

Renaming PDFs

To rename a PDF, tap the check mark symbol in the toolbar when in a folder. Tap on the PDF that you wish to rename and then tap the keyboard icon in the folder toolbar. If you select more than one PDF, the keyboard icon will be disabled as you can only rename one PDF at a time. Enter in a new name, or edit the existing one and tap the *Done* button.

Deleting PDFs

To permanently delete PDFs, tap the check mark symbol in a folder toolbar. Tap the PDFs that you wish to delete (a check mark will appear in the top right corner of each PDF thumbnail) and then tap the minus symbol in the folder toolbar. Tap *Delete* to confirm the deletion. To cancel PDF selection, tap the cross symbol in the folder toolbar.

Status Bar

By default, Viewer hides the status bar to enable full screen document viewing. To have Viewer show the status bar when viewing a document, press the home button and tap on *Settings*. Scroll down to *Apps* and tap on *Viewer*. Tap the ON switch to OFF.

To navigate in a pdf first open the desired pdf by single quick tapping it in the documents view. The top menu will look as follows:

The 'Done' button will go back to the documents folder but to navigate simple move the pdf and the top menu bar will change to the following.
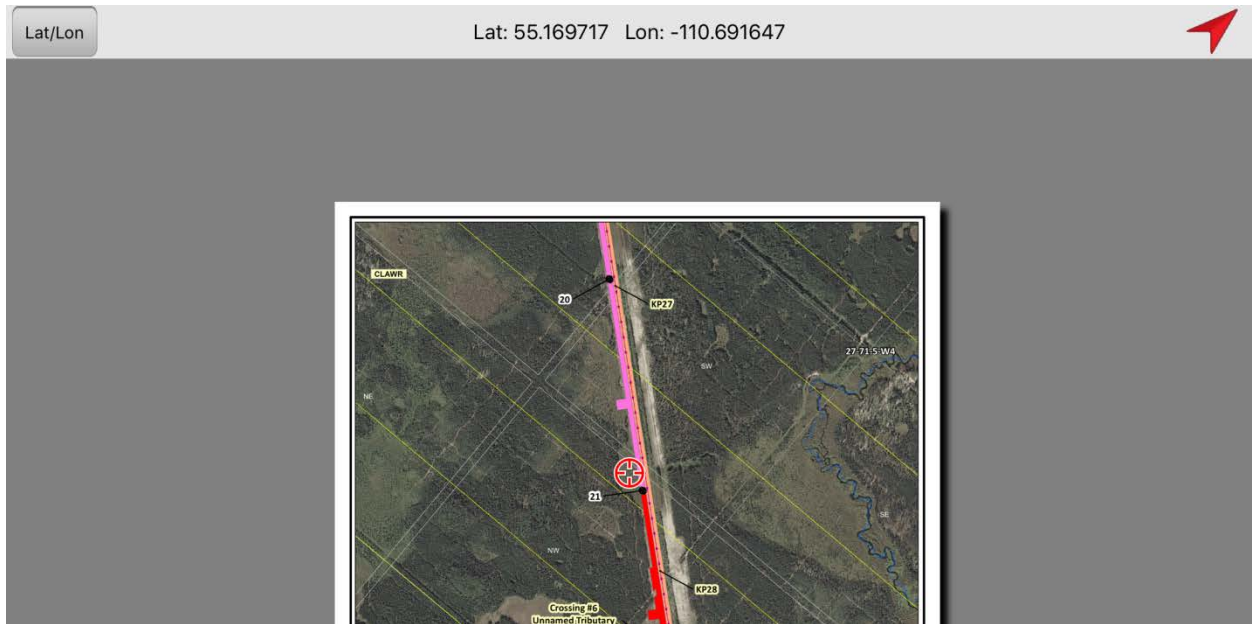
Now you can use the 'Lat/Lon' button to change the coordinate system to UTM or LSD. The red arrow in the top right corner is to start/stop navigating. The crosshairs in the middle of the screen and the arrow on the menu will change from red to green when switching the navigating on and off for a visual indication. The coordinates in the middle of the menu bar are the coordinates where the crosshairs are.

If there are multiple pdfs in a folder, swipe left/right to move to the next/previous file.
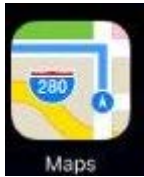
Sample for LSD offsets

Sample for UTM default and extended

APPENDIX F: Frequently Asked Questions

My screen isn't loading map/appears blank?

Apple satellite imagery is blurred or not loading

Ensure you have wifi or cellular connection. Try running Apple's Maps app:

Now re-open the Lsd Nav Pro 2 app. \

Does the app support Geospatial PDF's?

The latest version of the app (starting with Vs 7.5 build 3481) does currently support Geospatial PDF's.

How to turn Apple map view 3D to 2D ?

With two fingers on the map, swipe down.

How to reorient the map to point North ?

Click the Apple's compass at the top right hand corner. Its partially hidden due to the title block being black.

What happened to the scale bar?

Apple built in scale bar at the top left hand corner is now used. Its partially hidden due to the title block being black.

How to use multitasking with LSD Nav Pro 2 on your iPad?

To turn Multitasking features on or off, go to Settings > General > Multitasking. Multitasking can be used to open two apps at once. For example to 'open in' from multiple emails at once have LSD Nav Pro 2 and Email open beside each other to keep from going back and forth between the two.