Integrity ★ Service ★ Excellence

UxAS Waterway Monitoring Example: Message Sequence Flow

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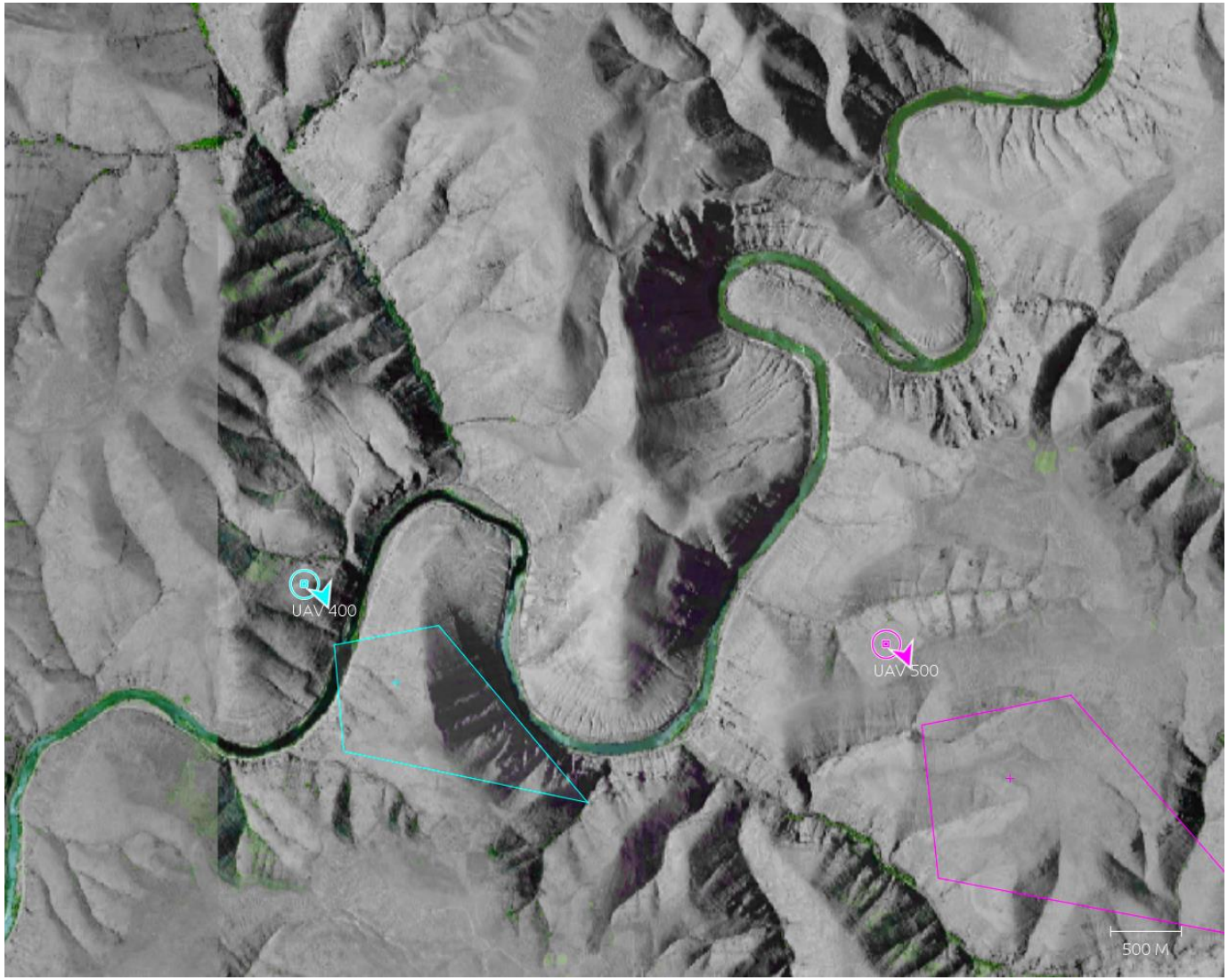
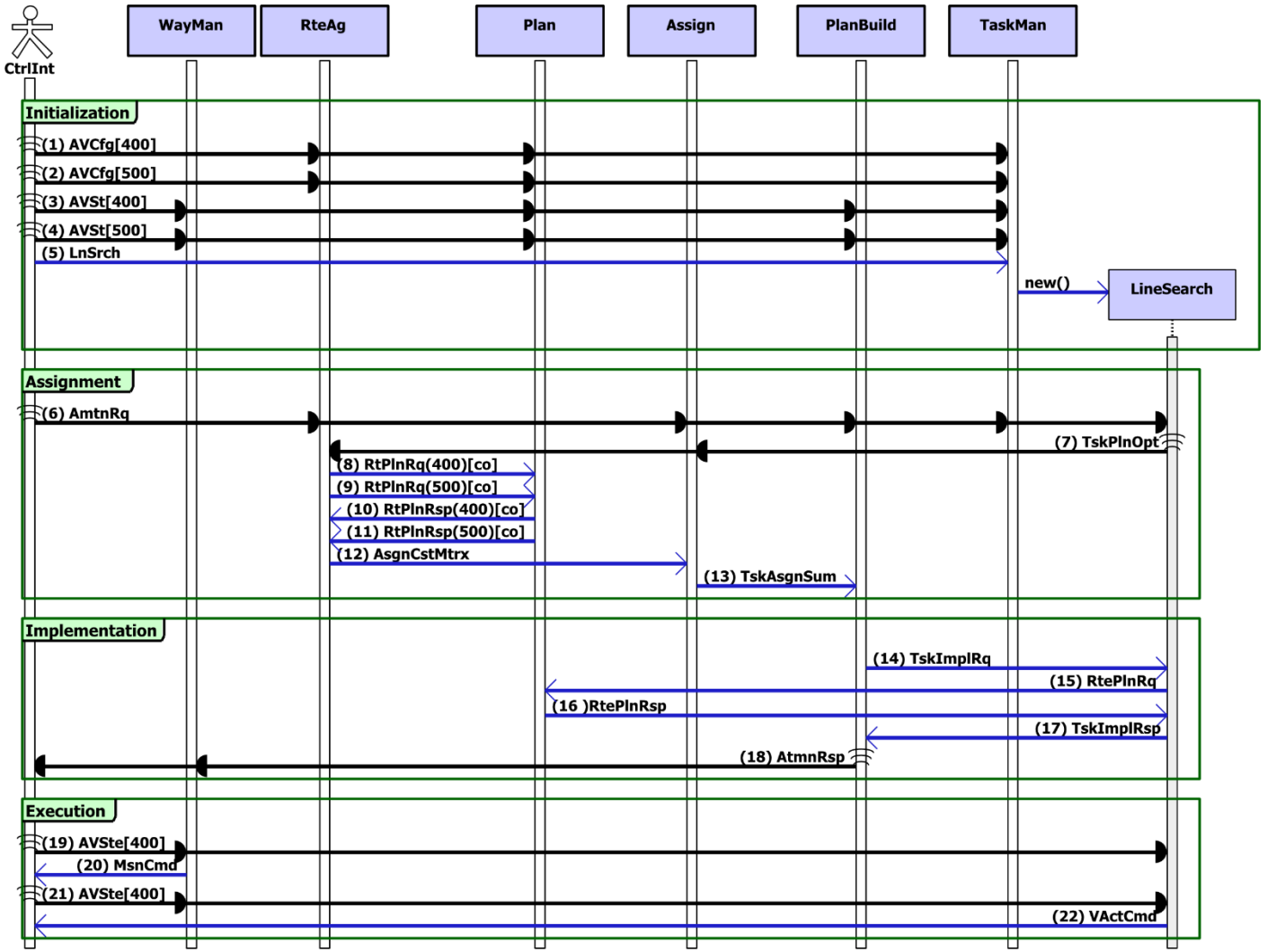
The waterway to be monitored



Problem Assumptions

- The plans/assignments are generated by UxAS on the ground.
- A ground control station manages the message traffic between UxAS and the UAVs.
- The UAVs can start monitoring from either end of a waterway section.
- Each waterway section is to be monitored only one time.
- The UAVs must fly alongside the waterway section so that the sensor angle with respect to the waterway does not change
- The path plan/assignment should seek to minimize the maximum distance traveled by either of the UAVs.

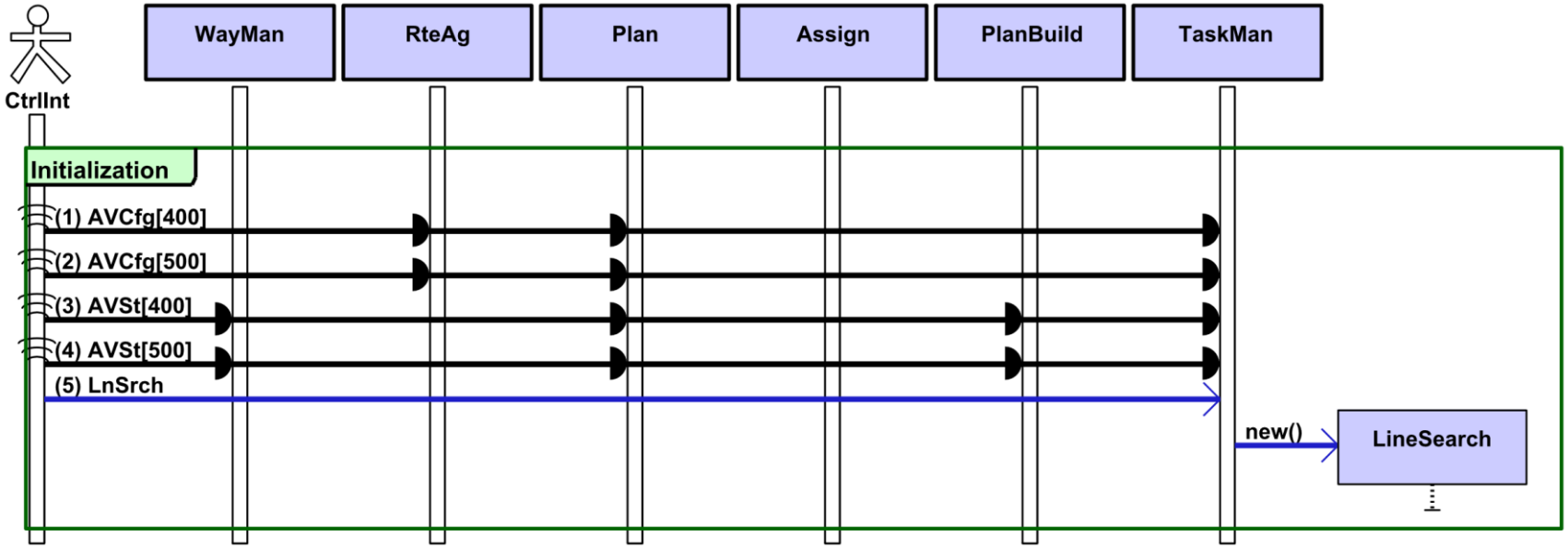
Message Sequence Flow



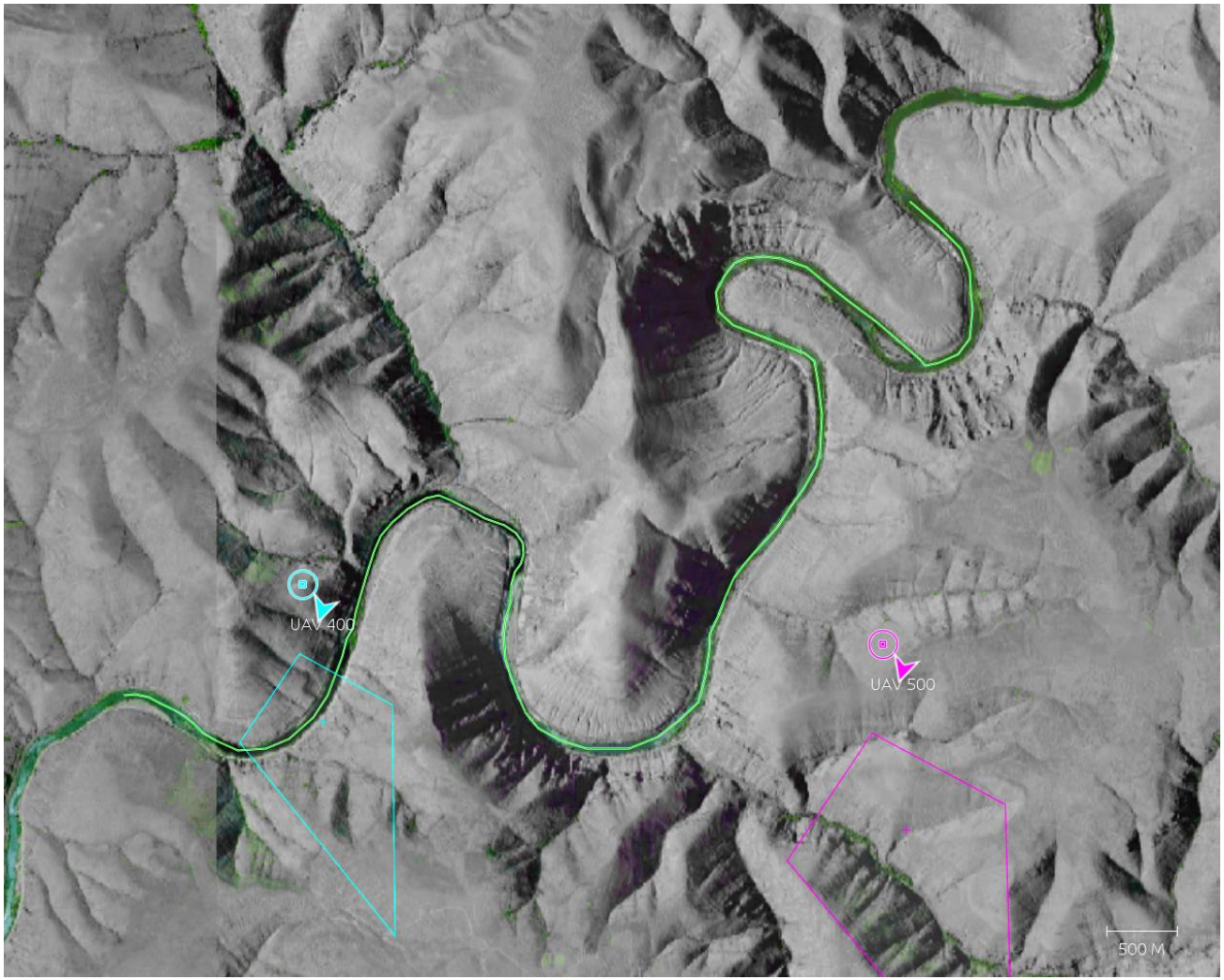
Message Sequence Flow

- The **rectangles** across the top of the diagram, and the one on the right side, represent UxAS services, which are described in the next section.
- The stick figure labeled `***CtrlInt***' is the interface to a ground control station that is connected to the UAVs via radio.
- The **horizontal lines** represent LMCP messages and the arrowheads show where messages are received. Note: messages are sent in order from top to bottom.

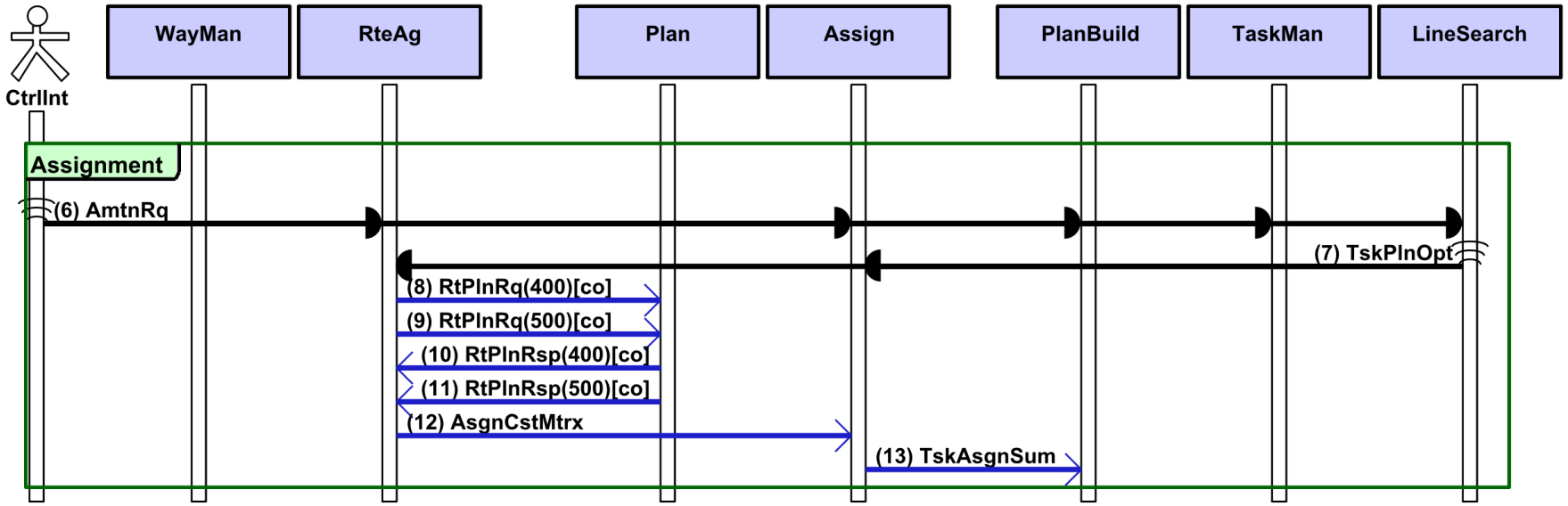
The Initialization message sequence flow diagram.



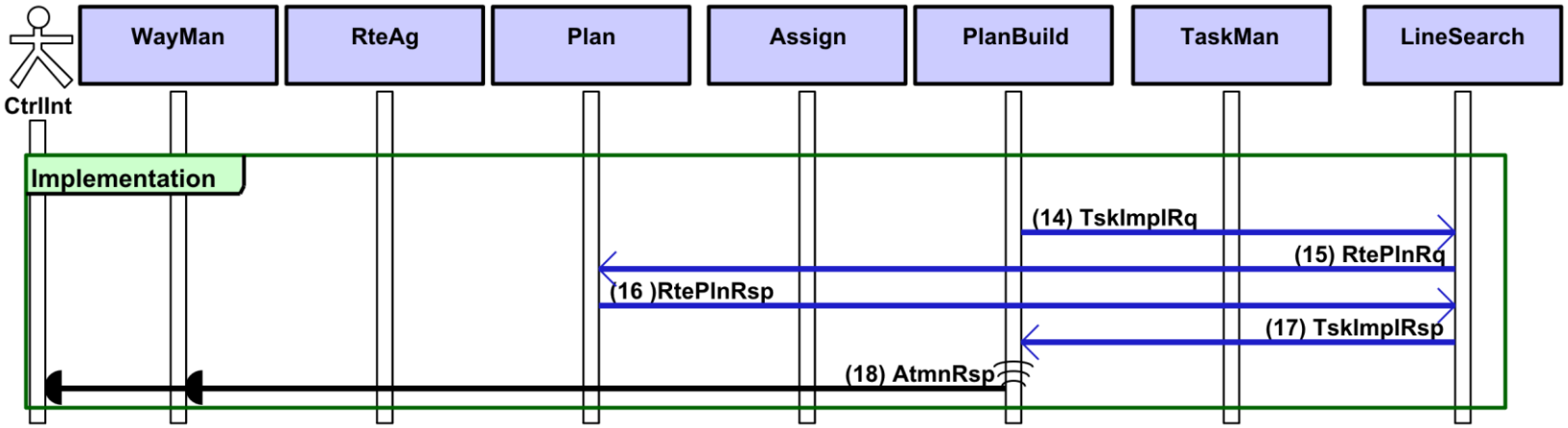
The *LineSearchTask* to search the waterway.



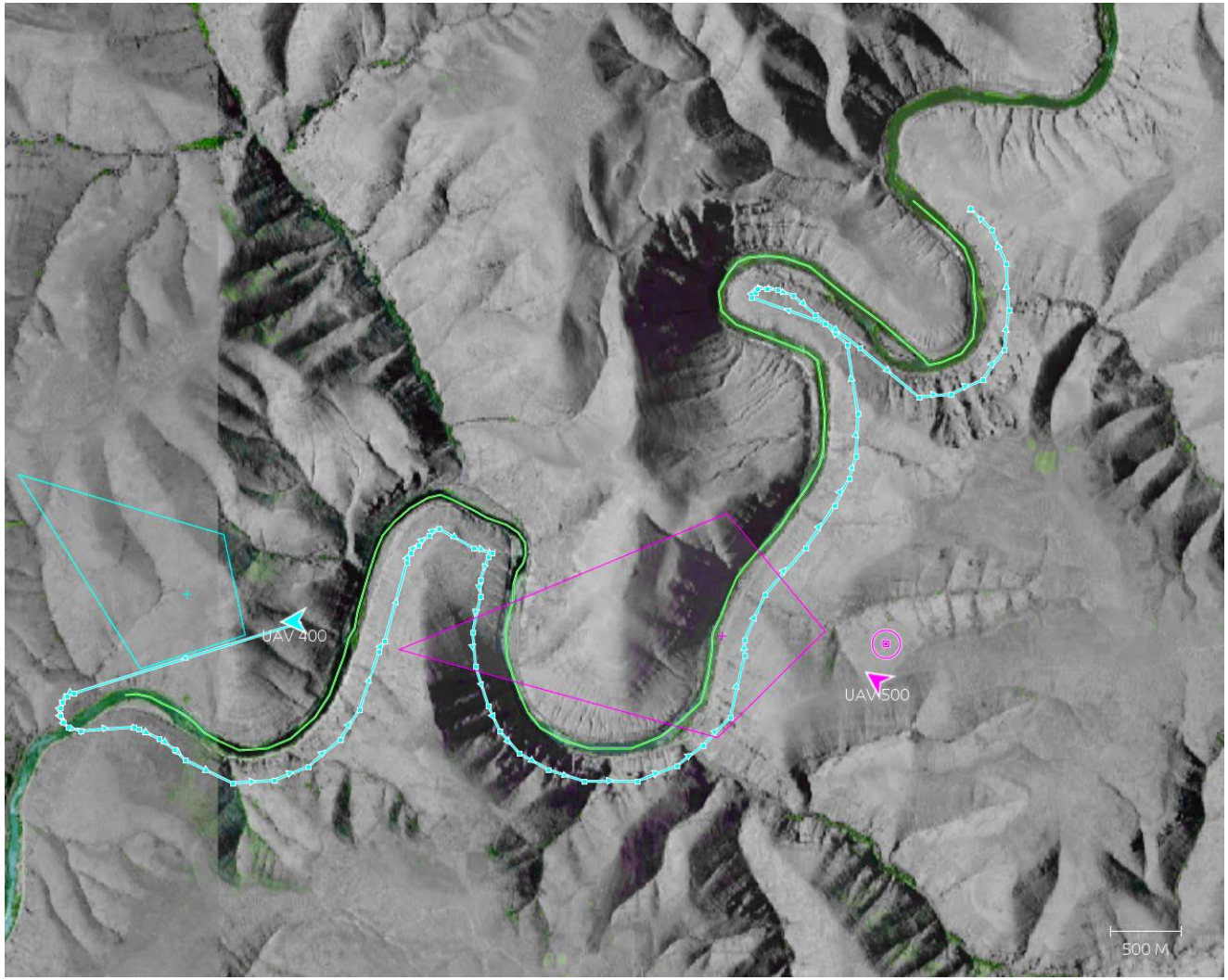
The Assignment message sequence flow diagram.



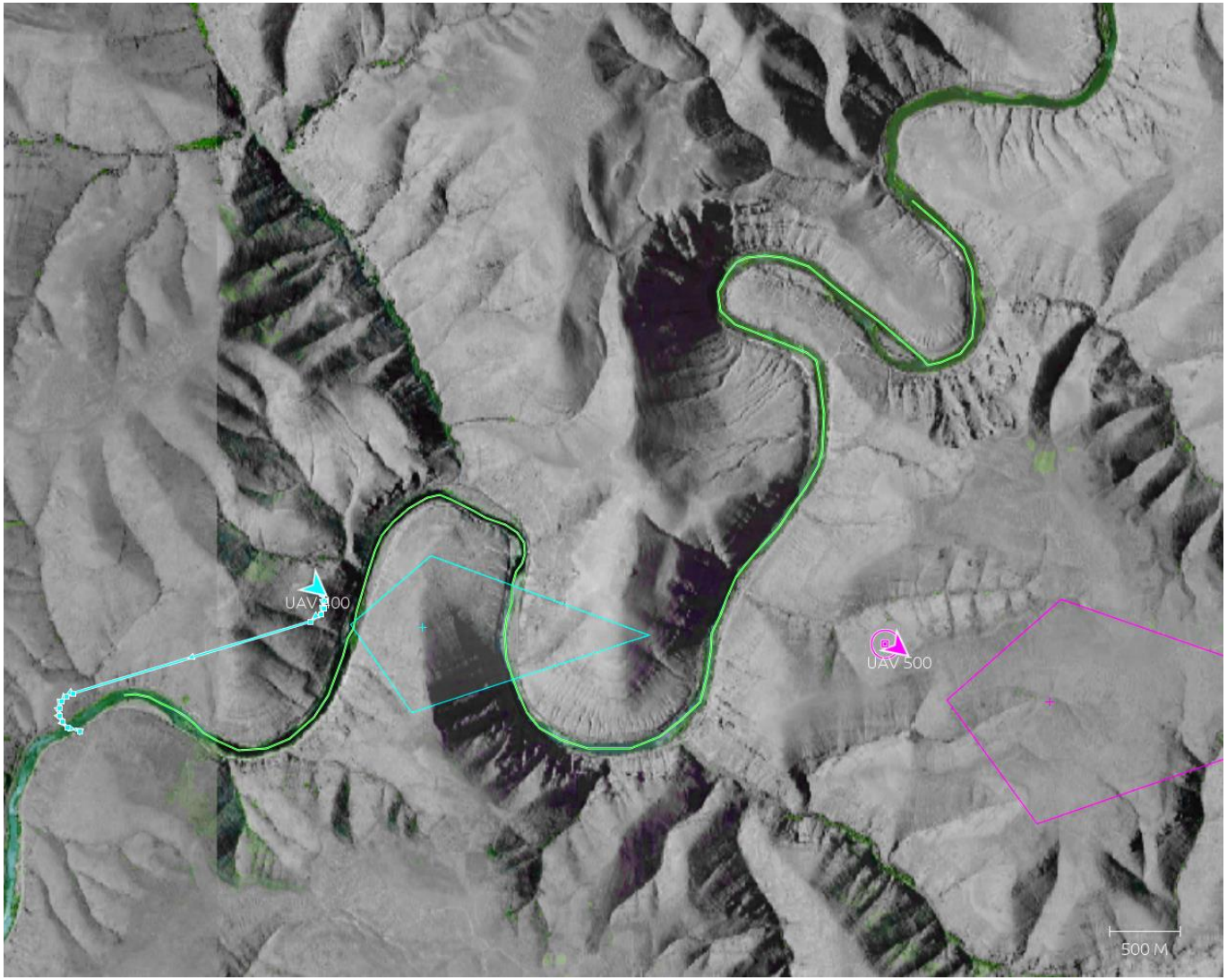
The Implementation message sequence flow diagram.



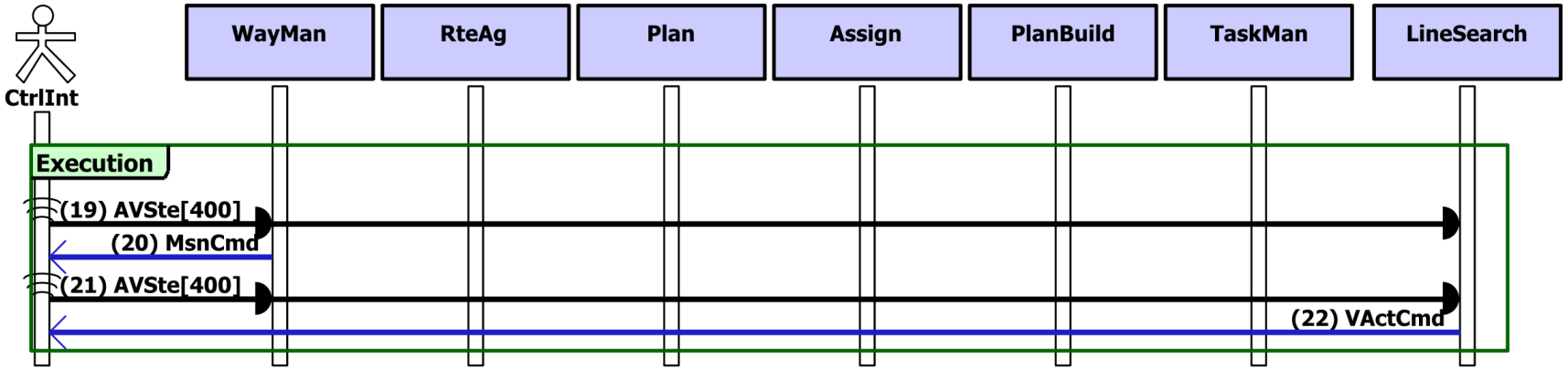
The complete set of assigned waypoints.



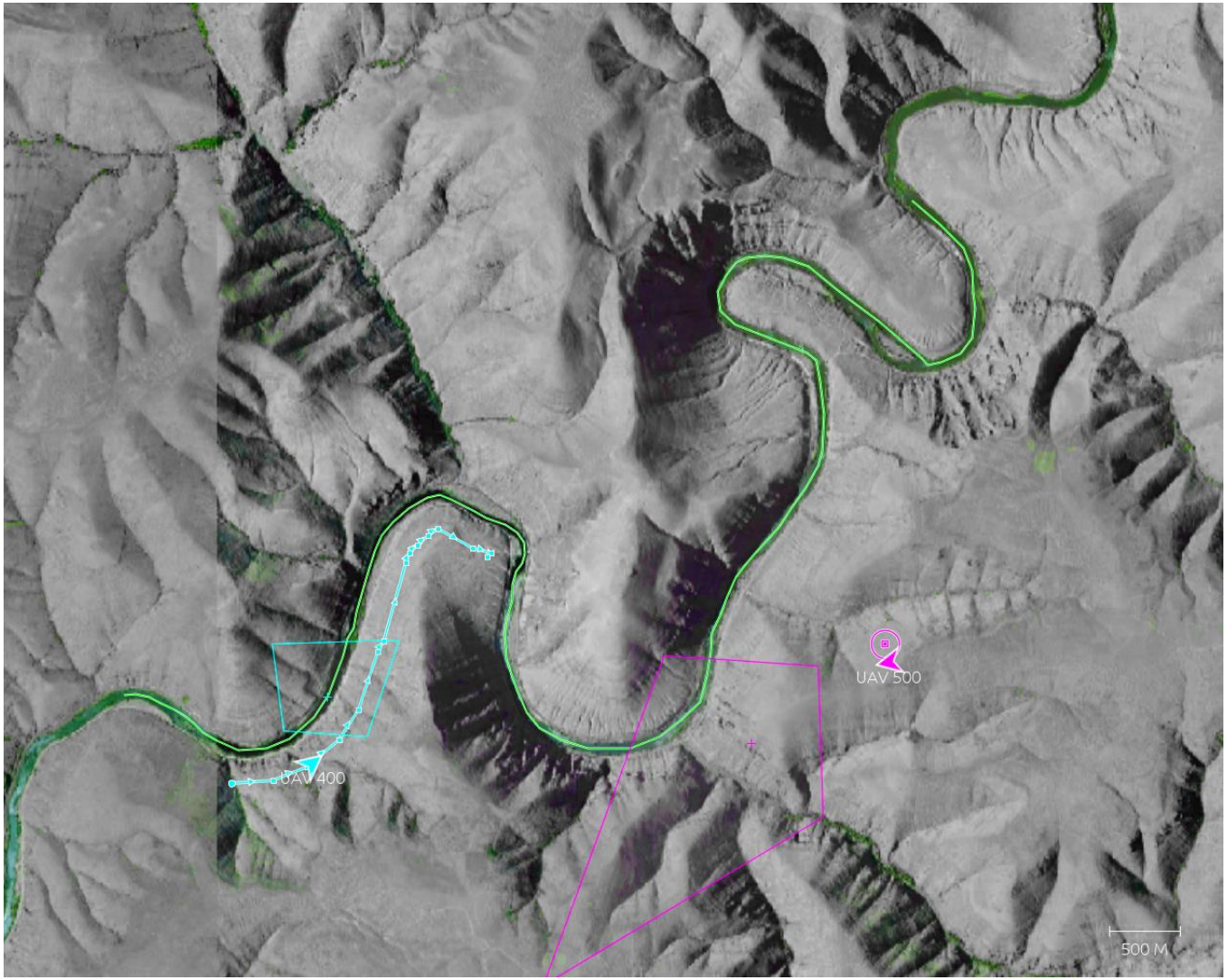
Start executing the plan.



The Execution message sequence flow diagram.



Pointing the sensor along the waterway.



Questions?