Railway — What WaiMAP Does at Every Stage

From empty site to operation · the modules behind each step

What WaiMAP does
#07 · Construction

1 Site Screening

- Earthquake, flood, slope, land use along the corridor
- Crossings: rivers, roads, utilities
- Satellite history and data trust level

▶ **Project Brain · Data Trust**

2 Ground & Hazards

- Rock head, groundwater, boreholes
- Tunnelling and cutting ground
- Seismic, flood and climate loads

▶ **Ground model · Hazards**

3 Survey & Base Map

- Strip map along the route
- Field GPS, drone orthophoto, LiDAR
- DXF / DWG / IFC in and out

▶ **Base map · Point cloud · CAD/BIM**

4 Profile & Gradients

- Ground profile along the line
- Gradient check against the limit
- Bridges and tunnels as candidates

▶ **Profile · Terrain**

5 Earthworks & Mass Haul

- Cut / fill per km
- Balance and haul
- Borrow and spoil areas

▶ **Terrain · Mass haul**

6 Drainage & Culverts

- Catchments and peak flows
- Culverts and channels
- Flood paths across the line

▶ **Drainage · Hydraulics**

7 Power Supply

- Traction substations
- Grid connection and load flow
- Line to the substation

▶ **Substation · Electrical · Line**

8 Cost, Schedule & Cash

- BoQ, CPM schedule, crews
- Earned value, cash flow, payments
- Technical due diligence

▶ **BoQ · Schedule · EVM · TDD**

9 During Construction

- Drone orthophotos by date, swipe
- Stockpile volumes, count on site
- Progress and photo log

▶ **Orthophotos · Point cloud · Progress**

10 Observations

- Sentinel-2 old map / new map
- Corridor change, landslides, flooding
- Sentinel-1 radar flood mapping

▶ **Observations · Area watch**

Questions WaiMAP answers on the map

1. Can the terrain hold the gradient?
2. How much earth moves per km?
3. Where does water cross the line?
4. Where do traction substations go?
5. What does it cost per km?
6. Is the corridor stable over time?

Honest limits & coming

- Screening; railway standards govern
- Coming: rail alignment and track design
- Screening level on open data and your inputs