

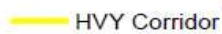
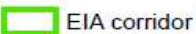



Site Sensitivity: Thyspunt – Flora



Eskom Proposed Nuclear-1 Power Station and Associated Infrastructure: High sensitivity vegetation fauna on site Thyspunt

Legend

-  HVY Corridor
-  EIA corridor
-  Vegetation

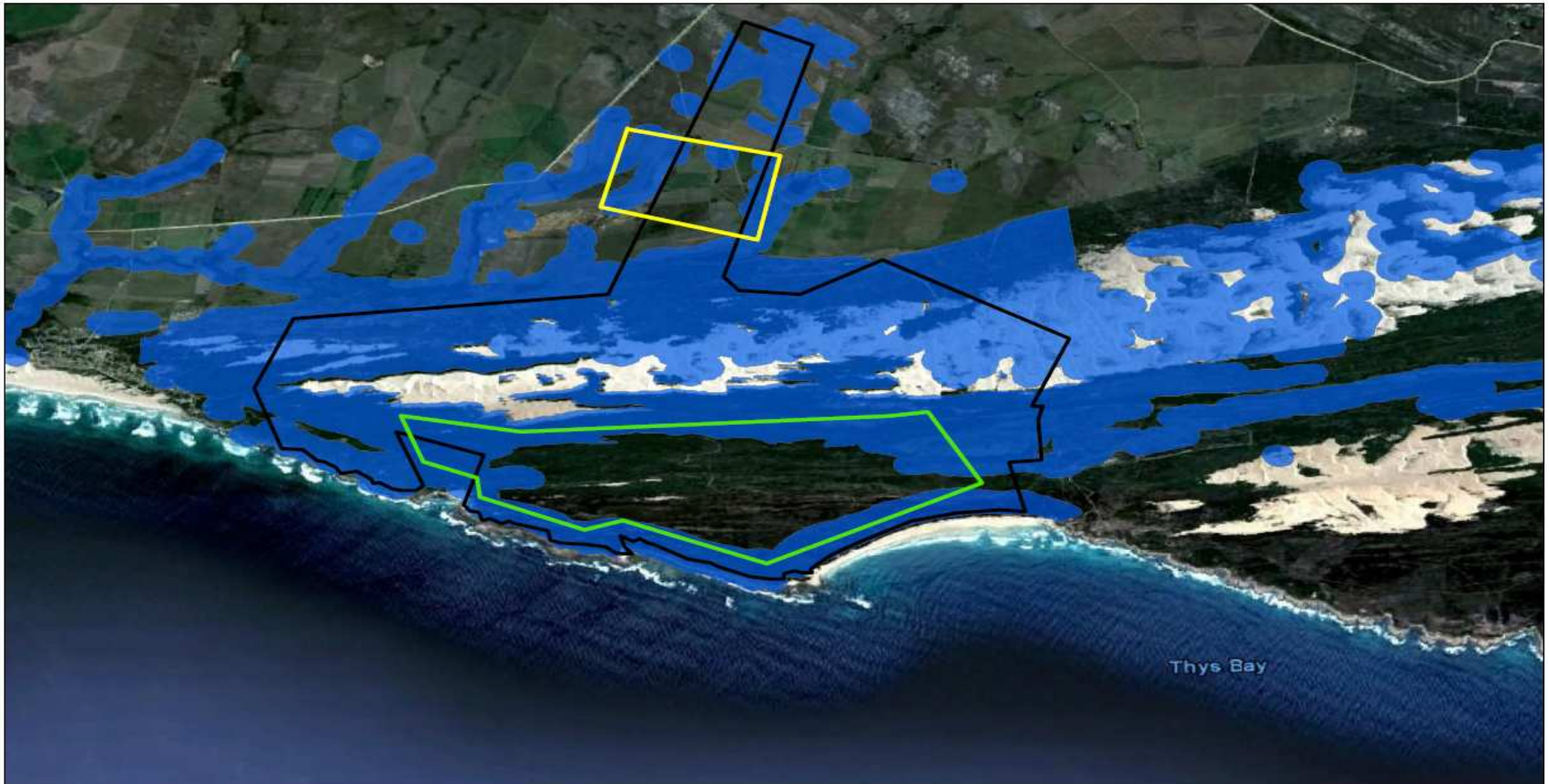


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Site Sensitivity: Thyspunt – Vertebrate Fauna



Eskom Proposed Nuclear-1 Power Station and Associated Infrastructure: High sensitivity vertebrate fauna on site Thyspunt

Legend

-  HVY Corridor
-  EIA corridor
-  Vertebrate Fauna

0 0.5 1 2 Kilometers

1:50,000





Site Sensitivity: Thyspunt – Heritage



Eskom Proposed Nuclear-1 Power Station and Associated Infrastructure: High sensitivity heritage features on site Thyspunt

Legend

-  HVY Corridor
-  EIA corridor
-  Heritage

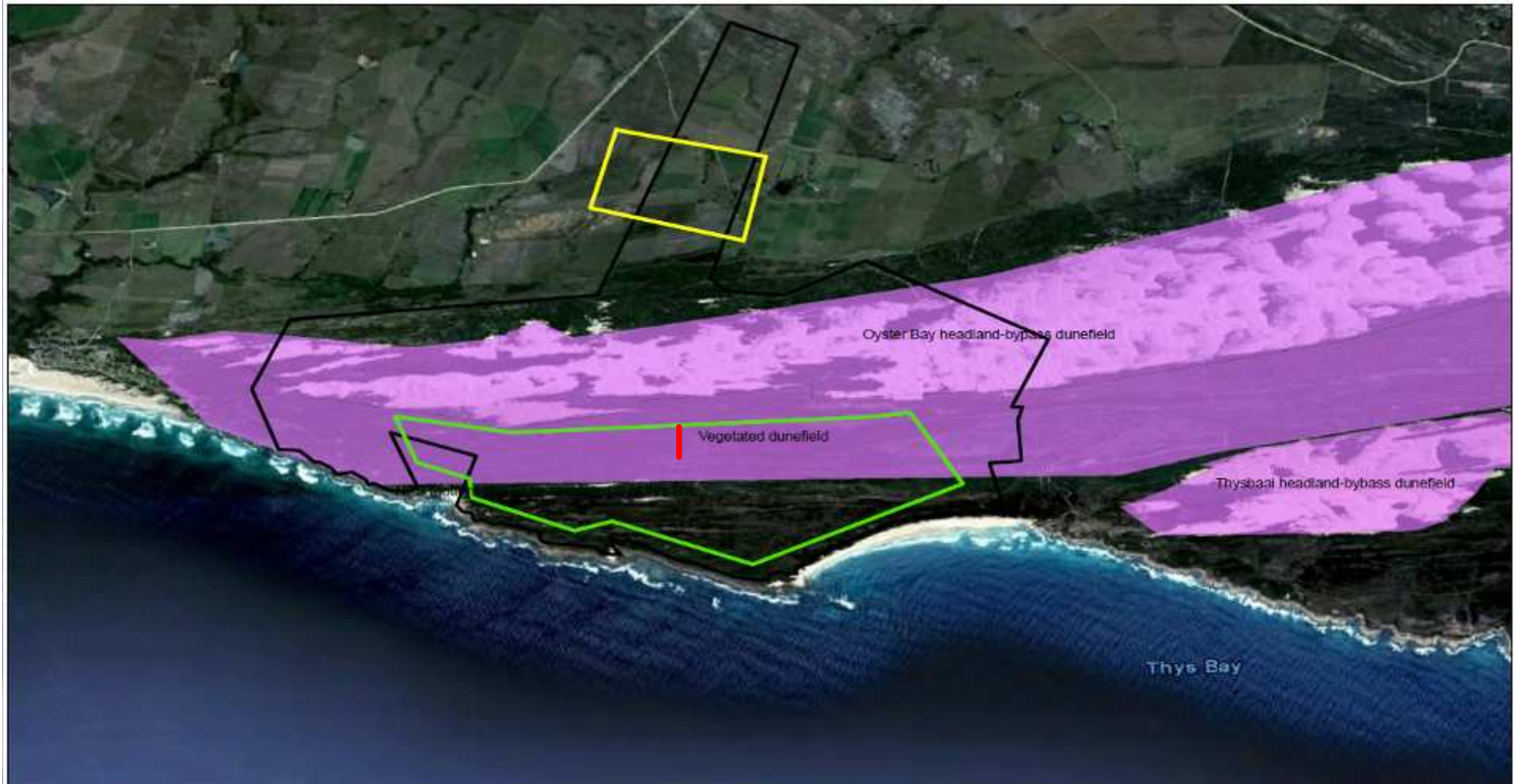


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Site Sensitivity: Thyspunt – Dunefields



Eskom Proposed Nuclear-1 Power Station and Associated Infrastructure: High sensitivity dunefields on site Thyspunt

Legend

- HVY Corridor
- EIA corridor
- Dune Geomorphology

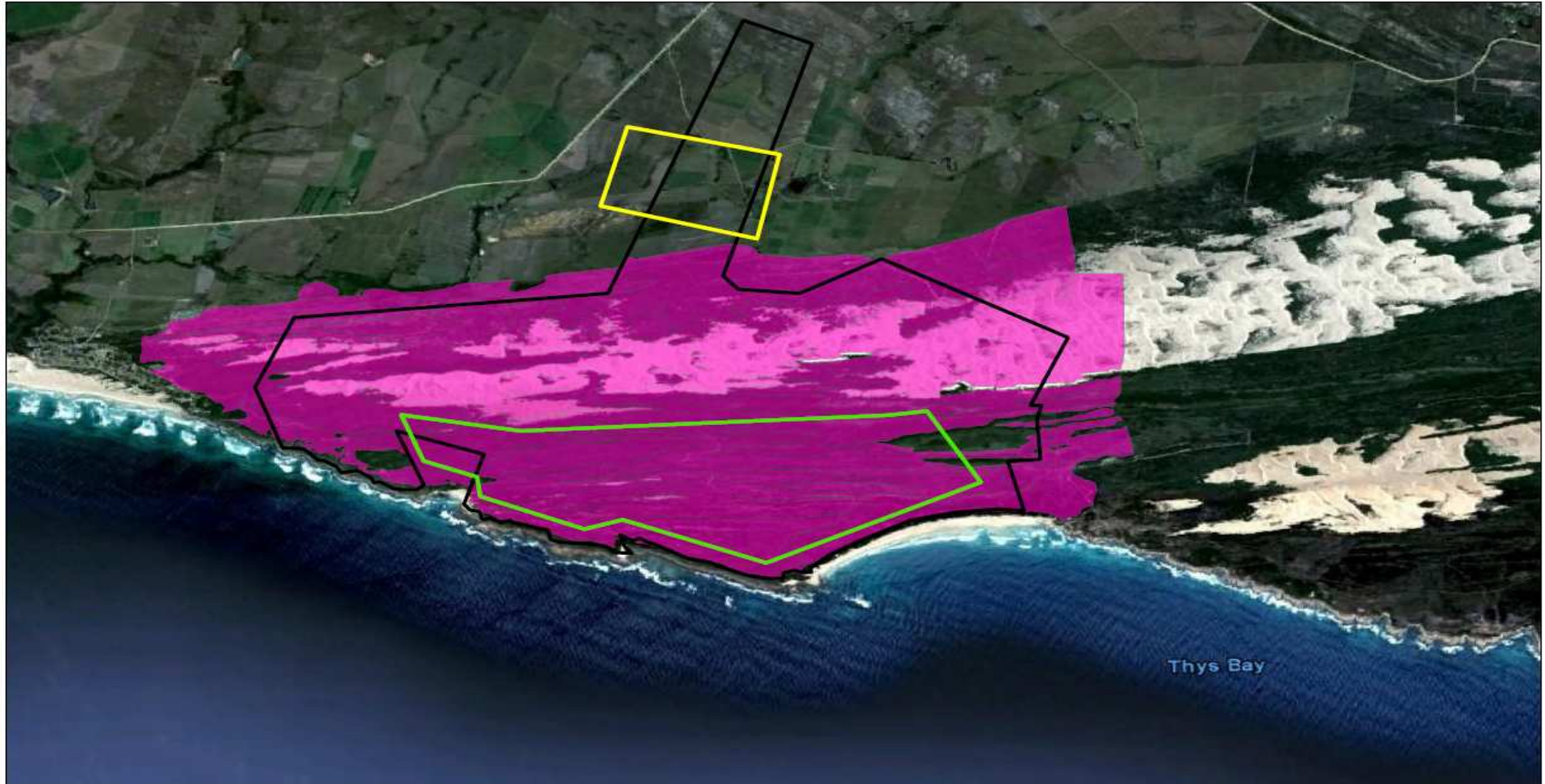


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Site Sensitivity: Thyspunt – Invertebrate Fauna



Eskom Proposed Nuclear-1 Power Station and Associated Infrastructure: High sensitivity invertebrate fauna on site Thyspunt

Legend

— HVY Corridor — EIA corridor Invertebrate Fauna

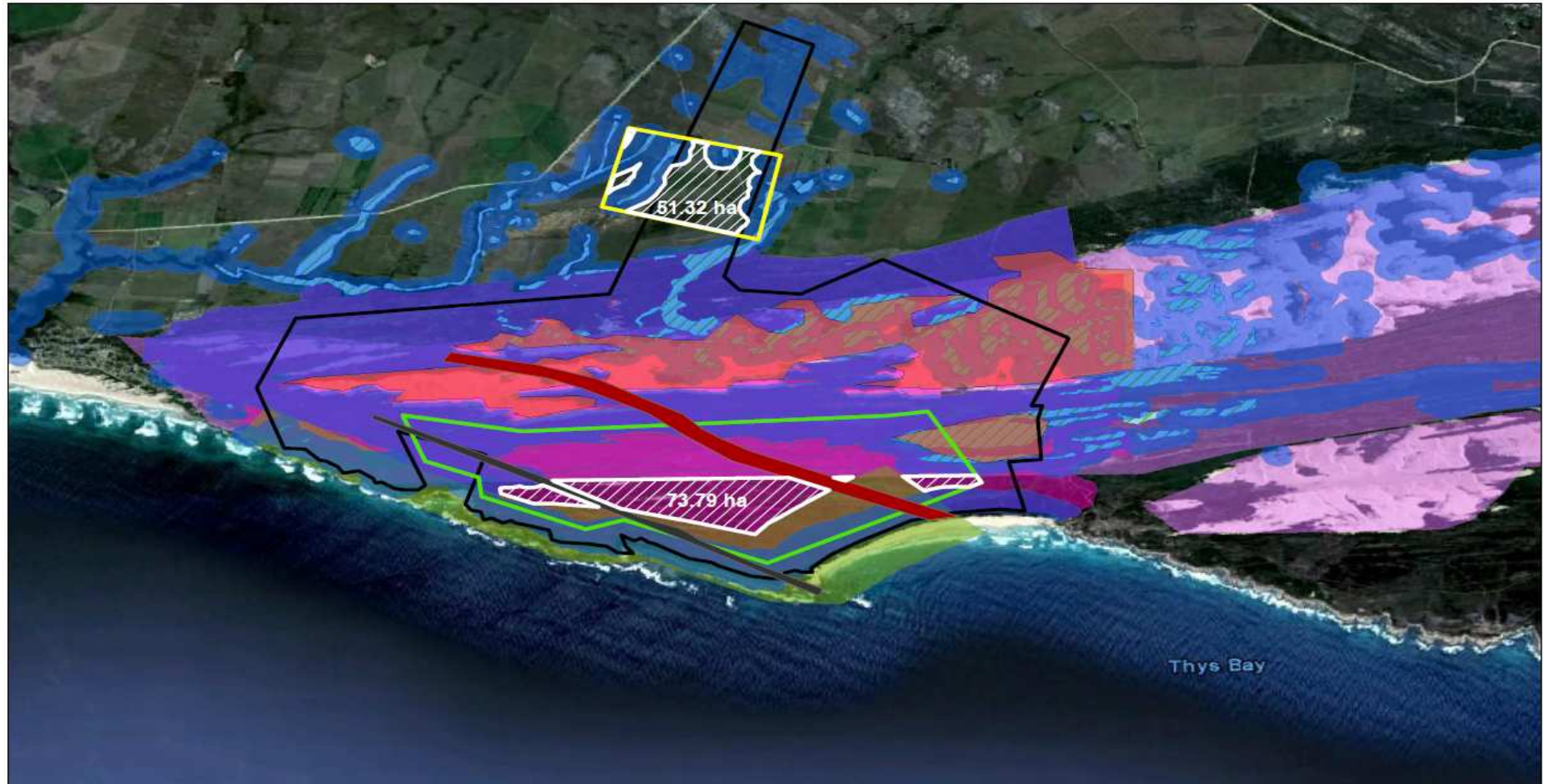
0 0.5 1 2 Kilometers

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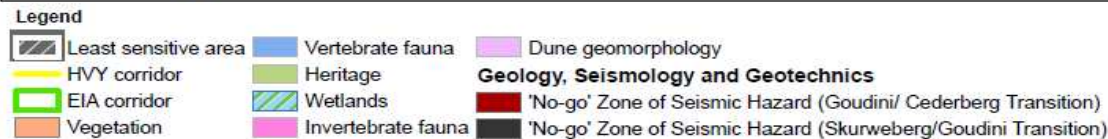




Site Sensitivity: Thyspunt – Combined Sensitivity



Eskom Proposed Nuclear-1 Power Station and Associated Infrastructure: High sensitivity features on Thyspunt site



1:50000



CONSERVATION BENEFITS

- In spite of potentially significant negative impacts, all biophysical specialists in agreement:
 - no fatal flaws at any of the sites
 - positive impacts for conservation of the area outside the footprint of the power station at **Thyspunt** and **Bantamsklip** are significant
- Acquisition of properties for conservation outside the current **Thyspunt** property for wetland conservation
- To guarantee conservation benefits, property's conservation status must be secured, i.e. declared as an official nature reserve



FORMS OF POWER GENERATION

- Nuclear generation and coal-fired power generation are the only proven base-load technologies
- Coal-fired generation is not viable in the coastal regions of the Western and Eastern Cape
- The life cycle contributions of nuclear electricity generation to greenhouse gas emissions is small compared to coal-fired electricity generation
- Renewable energy sources such as solar and wind energy do not provide the guaranteed base-load generation capacity that is required.



NUCLEAR PLANT TYPES

- Pressurised Water Reactors (PWRs) are internationally the most commonly used nuclear reactors
- The existing Koeberg nuclear power station uses PWR technology, making it a tested form of power generation that has been operating safely for the past 24 years
- Eskom is familiar with the technology from a health, safety and an operational perspective



FRESH WATER SUPPLY AND UTILISATION OF ABSTRACTED GROUNDWATER

- At all sites desalination provides a guaranteed source of fresh water supply for the lifespan of the proposed nuclear power station without jeopardising the availability of fresh water to other users
- Desalination plant is therefore the preferred alternative for the provision of fresh water at all sites, from the construction phase



MANAGEMENT OF BRINE

- The disposal of brine into the sea and the co-disposal of brine and cooling water into the sea is environmentally acceptable
- Disposal of brine directly into the sea should be utilised only during construction
- Brine should be mixed with cooling water that is discharged into the sea during the operational phase



INTAKE AND OUTLET OF WATER

- Installation of intake and outlet tunnels that obtain water from the ocean and feed cooling water into a storage area located adjacent to the cooling water pump houses is the only feasible alternative for all sites
- Outlet structures for cooling water and chemical effluent must be offshore
- All releases need to occur at the distances and depths prescribed by the relevant specialists
- Provided that the specific mitigation measures identified in the marine biology report are adhered to, offshore effluent release above the sea floor is the recommended alternative



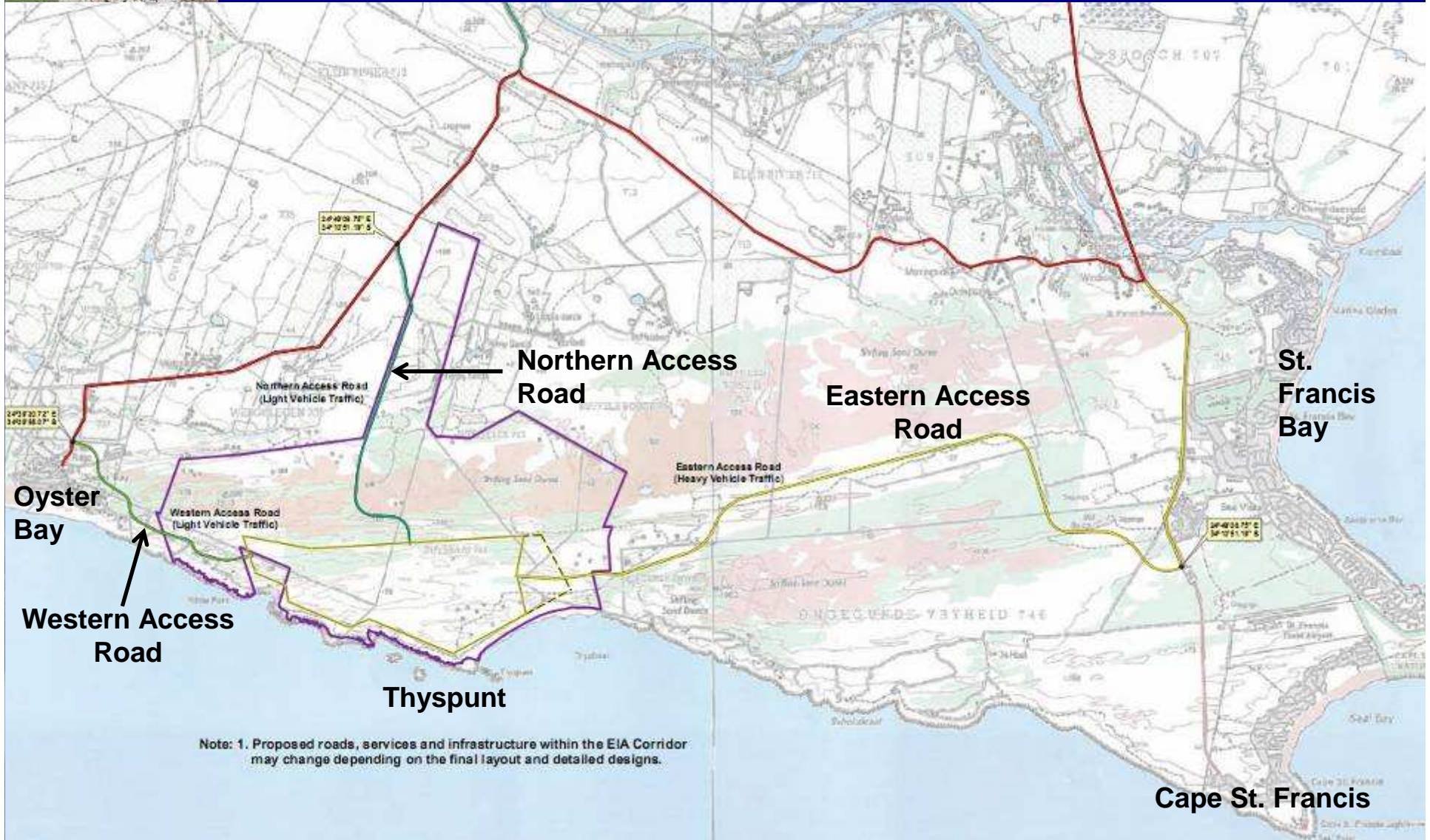
MANAGEMENT OF SPOIL MATERIAL

- Fine spoil must be disposed of in the marine environment at all sites
- Spoil material that cannot be pumped to sea, must be disposed of on land and used for activities like levelling of the HV yard and to minimise the footprint on the terrestrial environment
- Visual impact of spoil dumps must be minimised
- Transport of spoil to the panhandle at Thyspunt via conveyor belt is not recommended due to the Oyster Bay mobile dune system





ACCESS ROAD ALTERNATIVES



ACCESS TO THE THYSPUNT SITE

- Eastern Access Road is required by Eskom for heavy loads and there is no alternative to this route
- Western Access Road is favoured over the Northern Access Road, with respect to the potential impacts on agriculture, flora, wetlands, dune geomorphology and heritage resources
- Northern Access Road is favoured only in terms of visual impacts
- Western Access Road is preferred for **Thyspunt**



WASTE TYPES

- Low-level waste: \pm 940 drums (50 – 100 kg per drum) per year
- Intermediate level waste: \pm 160 x 6.3 ton concrete drums per year
- High level waste: \pm 1 880 tons of spent fuel over life of power station (60 years)



WASTE DISPOSAL

- Only feasible alternative for the disposal of Low-Level and Intermediate-Level radioactive waste is Vaalputs nuclear waste disposal site in Northern Cape
- This is the only authorised facility for this form of waste in SA. Vaalputs has sufficient capacity for the waste that will be generated by Nuclear-1
- With regards to High-Level Waste, only alternative currently available in SA is long-term storage of the spent fuel in the power station – common practice internationally
- Vaalputs may be considered as a disposal site for High-Level Waste in future



WASTE DISPOSAL

- National Radioactive Waste Management Institute established by the National Radioactive Waste Management Institute Act No. 53 of 2008)
- Act came into effect in Dec 2009
- Subject to NNR Regulations
- Institute will transfer responsibility from NECSA



NO-DEVELOPMENT ALTERNATIVE

- Given the urgent power demand in South Africa, the No-Go alternative is not considered to be an alternative, as Eskom's mandate is to provide power for the country
- Eskom would likely apply to develop coal-fired power stations if the current application is declined as coal-fired generation is the only feasible base load alternative
- Life-cycle environmental impacts of coal-fired power generation are greater than nuclear-fuelled power generation



NO-DEVELOPMENT ALTERNATIVE

- If Eskom does not utilise Bantamsklip and Thyspunt for Nuclear-1, there are two options:
 - Keep as a future nuclear site; or
 - Sell to a willing buyer - this may result in an any alternative form of land use - may not involve management of the majority of the properties as a nature reserve
 - Eskom has informal agreement with SanParks not to sell Bantamsklip to another buyer



KEY MITIGATION MEASURES

- Independent specialists have proposed mitigation measures to reduce potential negative impacts
- Draft EMP has been compiled as part of draft EIR and if authorised, it will be a legally binding document
- Compliance to EMP must be independently audited throughout construction and operation
- Mitigation measures for botanical impacts, vertebrate and invertebrate fauna, wetlands and heritage resources are particularly important
- Mitigation of heritage impacts will require the work of a site-specific team dedicated to excavations over a period of several years prior to construction

