

# Tailings Facility Embankment Buttress Non-Technical Summary

Appeal Reference Number: ABP-315173-22



Submitted: February 2024

## **NON TECHNICAL SUMMARY**

### **1.0 INTRODUCTION**

#### **1.1 Background to the Environmental Impact Assessment**

An Environmental Impact Assessment Report has been submitted to An Bord Pleanála as a result of a request during a third-party planning appeal (Ref: ABP-315173-22) following a grant of planning permission by Meath County Council (Ref:22/331) in October 2022.

The project concerned is the proposed reinforcement buttressing works to be undertaken on sections of the dam walls of the existing Randalstown Tailings Storage Facility (TSF) associated with the Tara Mine. The application site is the TSF located in the townlands of Simonstown, Randalstown and Sillogue, Navan, Co. Meath. Refer to Figure 1 Site Location Map. The works are proposed to be undertaken with a view to increasing the stability of the embankment dam structure in line with recent enhancements of industry standards.

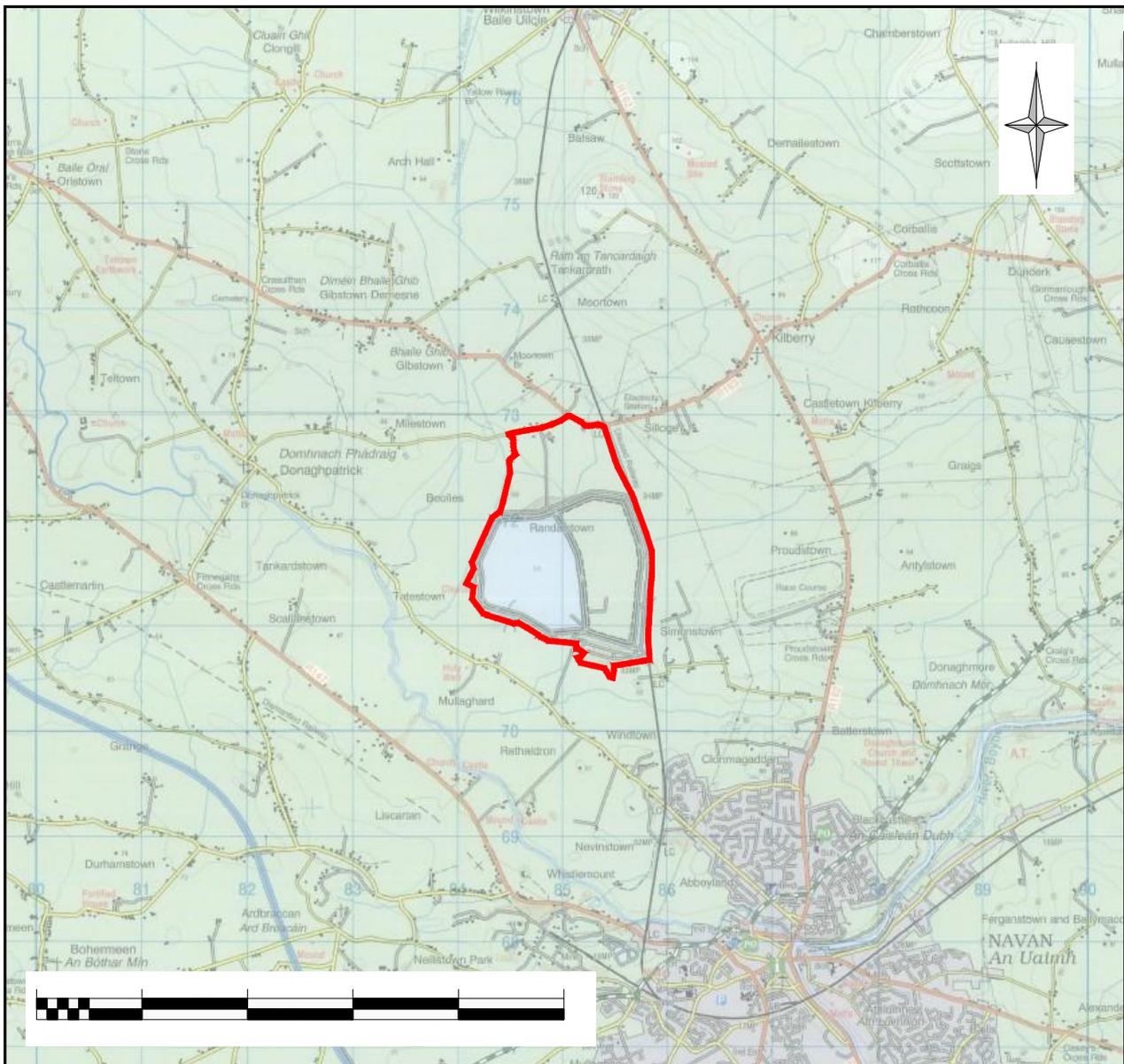
This document provides a summary of the EIAR, in particular the findings of the assessments undertaken during the Environmental Impact Assessment (EIA) process which has involved a large team of environmental specialists undertaking field work and desk-based assessment.

#### **1.2 Tara Mines Background**

Boliden Tara Mines DAC (Tara Mines), the largest operating zinc mine in Europe, is located at Knockumber, 2 km west of Navan in County Meath and 50 km northwest of Dublin.

The Tara Mine facility has been in operation since the '70s and consists of the underground mine, an aboveground ore processing facility on a footprint of approx. 72 hectares, and an aboveground tailing storage facility on a footprint of 250 hectares, part of which is the subject of this planning application. All site activities are operated and controlled under conditions of Industrial Emissions License (IEL) P0516-04 issued by the Environmental Protection Agency.

Once the marketable minerals have been extracted, the waste (i.e. 'tailings') stream is cycloned to separate coarse sand from finer slimes. Concrete is added to the coarse materials and pumped to the worked out underground mine areas as backfill. The remaining fine materials are pumped as an aqueous slime to the TSF, approximately 2.8 km north of the mine.



**Figure 1 Site Location Map**

### 1.3 Application Site and Surroundings

The TSF is approximately 2.5 km<sup>2</sup>/250Ha and exists as a ring-dike configuration specifically built in stages since 1974 to accommodate the storage of waste material from processing. The limestone in the tailings maintains the water at an alkaline pH, which allows the precipitation of all but traces of the metals remaining in solution following processing.

The area surrounding the TSF is predominantly rural and is comprised of farmland, farm dwellings and residential dwellings and a number of local watercourses including the Yellow River, Simonstown Stream and Blakes stream. The new Boyne Valley to Lakelands (BVL) Greenway is located on the old railway line running approximately 100 m to the east of the TSF and is part of a 30km walking and cycling amenity from Navan to Kingscourt, Co Cavan.

The primary access to the TSF site is via an access road that connects with the Donaghpatrick Local Road, L74141, via the R163 Kilberry Road (Kells to Slane Road). There is a good strategic road network in the immediate area, with the R163, R147 and R162 all surrounding the site, providing onward connection with a number of national routes, including the N51 and N52, and on to the M1 and M3 motorways.

#### **1.4 Background to the Proposed Development**

Boliden Tara Mines (BTM) has recently become a member of the International Council for Mining and Metals (ICMM) and is in the process of adopting the Global Industry Standard on Tailings Management (GISTM) issued in 2020. A key objective of GISTM is to address the risk of tailings embankment failure through conservative design criteria, independent of trigger mechanisms, in order to minimise potential impacts. To comply with criteria in GISTM stability of extant embankments must be evaluated using peak undrained shear strengths and with further analysis using residual undrained shear strengths. The construction of a reinforcement buttress to ensure the long-term stability in line with higher standards of industry practice was recommended and endorsed by the Independent Tailings Review Board (ITRB).

#### **1.5 EIA Regulations**

Under European environmental legislation that has been transposed into Irish Law through the Planning and Development Regulations 2001 to 2018, Meath County Council agreed with the applicant's assessment that confirmed that formal EIA was not considered a requirement and the environmental report that accompanied the planning application was considered sufficient.

During consideration of the application during the appeal process (ABP-315173-22), An Bord Pleanála advised the applicant that it considered EIA necessary under Part 2, Schedule 5 Class 2 (c) and potentially Class 10 (g) of the Planning and Development Regulations.

## **1.6 Regulation of Activities at Tara Mines**

Overall regulation in the mining sector is currently administered by the Department of the Environment, Climate and Communications. Other bodies with responsibility in relation to mining development are the Health Service Executive and the Health and Safety Authority, however, the extent of their involvement varies with the circumstances of individual proposed developments.

Local Authorities have the major role in terms of enforcement of planning legislation at the county and local level. An Bord Pleanála has responsibility for the proper planning of strategic development and the determination of appeals against planning decisions made by local authorities. The major environmental management responsibility for improving and protecting the environment lies with the Environmental Protection Agency (EPA). Once planning permission is granted for development, applications can be made to the EPA for relevant IE/IPC licence or waste permit/licence that are relevant to the specific development. In the case of the proposed development, an Article 27 determination will be made to the EPA prior to the re-use of on-site materials (greenfield soil) for the project. This application will be conducted by the Engineering and Construction (E&C) contractor.

The existing activities at Tara Mine and its associated infrastructure, including the TSF, are controlled by Meath County Council through planning conditions associated with extant planning permissions, and by the EPA through monitoring and control conditions associated with the applicant's IE Licence No. P0516-04. The monitoring data that has been collected over time as part of these requirements facilitates a valuable resource of baseline data on the environmental conditions in the vicinity of the facility and a sound basis to predict the likelihood of significant impacts from the proposed development.

The applicant will seek approval from the EPA to use mine rock as a construction material in the proposed construction works under conditions in existing IE Licence No. P0516-04.

## **1.7 EIA Methodology and Competency**

The EIA process and the reporting of it in the EIAR document has followed the legislation set out in the EIA Directive and national regulations that implement the European requirements. The EIAR sets out the qualifications and experience of the specialist contributors that have

undertaken the respective technical assessments in line with EIA and other technical guidance and best practice that is identified in the EIAR.

## **2.0 CONSULTATION**

### **2.1 Pre Planning Meeting**

A pre planning meeting (Ref: PP7792) was held with Meath County Council (MCC) on 28 October 2021, prior to submission of the original planning application P. Ref. 22/331. The issues, such as potential impact on haul routes and road conditions raised by the local authority at the pre application meeting were addressed in the Environmental Report submitted to MCC in relation to P. Ref. 22/331 and were considered to have been addressed.

### **2.2 Consultation during the Planning Process**

During the determination of the planning application by Meath County Council (MCC), there was a period of statutory consultation on the details of the proposed development. All details of the application, including plans and assessment reports, were publicly available on the planning website and at the planning offices. MCC consulted with departments within the local authority itself, as well as a range of prescribed bodies identified in the EIAR. Issues raised during this time were considered to have been adequately addressed by the applicant in their response and planning permission was granted by MCC.

### **2.3 Public Consultation**

The applicant has consulted with local communities, environmental agencies, and relevant authorities throughout the development of the project proposals to address concerns, provide project updates, and incorporate feedback into the detail of the proposed development.

In December 2023, members of the public were invited to the BTM Environmental Department office for open hours during which they were offered a tour of the facility and an opportunity to ask any questions on the proposed development. The issues raised during these sessions are identified in Chapter 2 of the EIAR and are addressed in the relevant chapters of the EIAR.

### **3.0 THE PROPOSED DEVELOPMENT**

#### **3.1 Background and Site Context**

Boliden Tara Mines (BTM) is currently in the process of implementing the Global Industry Standard on Tailings Management (GISTM), established in 2020. The Project Description Chapter of the EIAR comprehensively outlines the construction activities and associated works involved in reinforcing the embankment walls of the tailings dam with a buttress. This initiative is aimed at improving the stability of the extant embankment walls and aligning with the stringent requirements mandated by BTM's membership to ICMM and the Global Industry Standard on Tailings Management (GISTM).

The application site, Randalstown TSF, located 2.8 km north of the Tara Mine site at approximately 285160E, 271557N. has a footprint of 250 hectares, has been enlarged in six extensions over its 46-year existence. The TSF exists as a ring-dike configuration where tailings resulting from the comminution and metal recovery process at the Mine Site are pumped as an aqueous slurry for permanent storage. It is designed to operate as a large sedimentation/aeration pond where solids settle and clear water at the surface is drawn off for recirculation at the mine site. Limestone in the tailings water maintains the water at an alkaline pH, which allows the precipitation of all but traces of the metals remaining in the solution following processing. The large surface area provides adequate aeration for aerobic degradation of the organic reagents assuring a low BOD concentration in the water.

Underground mapping by the Geological Survey of Ireland (GSI) shows sandstone and shale beneath the Western half of the TSF and alluvium beneath the eastern half. The GSI's bedrock mapping of the TMF reveals it's mainly underlain by the Meath Formation, part of the Navan Group. The western half has an inlier of the older Rathkenny Formation, surrounded by younger formations. Major faults, like the Randalstown Fault, cross beneath the TMF, oriented northeast to southwest.

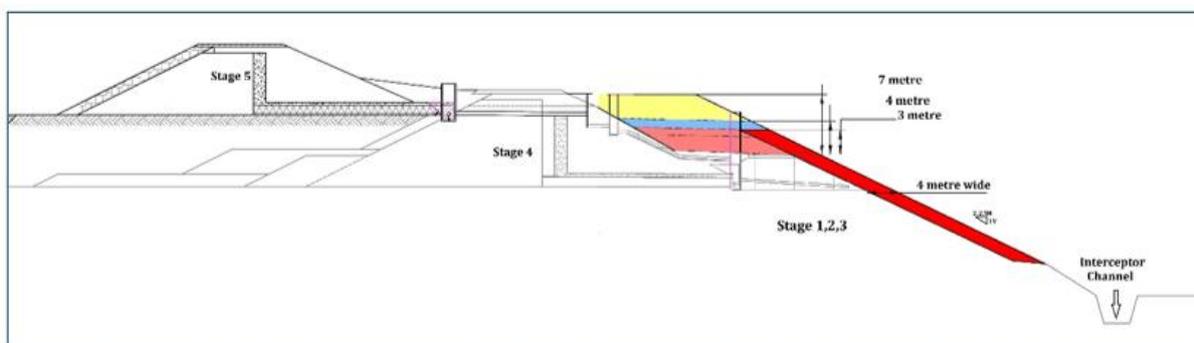
#### **3.2 Justification of Proposed Development**

Following the completion of a potential liquefaction assessment, it has been proposed that a buttress is required at the toe of Stage 4 to achieve a FoS of  $\geq 1.5$  for all static and seismic loading conditions. In order to meet the FOS of 1.1 for residual undrained strength scenario, the analysis indicated that a 4 m wide minimum buttress to the starter 1, 2 and 3 embankments

is required. This proposal has been recommended and endorsed by the Independent Tailings Review Board (ITRB). BTM propose to use imported mine rock and greenfield soil from third-party development sites as construction materials following EPA approval.

The proposed buttress is to be constructed on the downstream slope of and at the crest of the Stage 1, 2 and 3 starter embankments (Plate 1). This will provide additional support to the Stage 4 dam embankment wall in order to increase the overall stability of the upstream raises i.e., Stage 4 and Stage 5. Detailed drawings have been included in Appendix 3.A.

**Plate 1 Cross section of existing embankment walls and proposed buttress**



### 3.3 Sequence of Works

Execution of this proposed project will comprise a series of scheduled steps, including material importation, site preparation, material placement in compacted layers, drainage management, and mitigation measures identified in the various assessments undertaken. The proposed development is to add additional material to approximately 3858.8 linear metres of the existing extant embankment walls. The proposed buttress layout plan is shown in Figure 2.

The construction of the buttress will follow the sequence of works detailed below:

1. Preparatory Works including cleaning the crest of the Starter Dams, removal of any topsoil, shrubs / scrub from the side-slopes over the footprint of the proposed buttress and to facilitate plant access;
2. Installation of the Phase 1 Buttress (toe of stage 4); and
3. Installation of the Phase 2 Buttress (at ground level starter embankments)



**Figure 2 Tailings Facility and Proposed Buttress Layout Plan**

### 3.3.1 Site Preparation / Clearance

The preparatory works will include the removal of topsoil and vegetation from the crest and the side-slopes over the footprint of the proposed buttress i.e., Stage 1, 2 and 3 starter embankments and part of the Stage 4 embankment. The surface materials from a road along the crest of the starter embankments will also be removed. The topsoil and road surface materials will be stockpiled at a designated located and reinstated upon completion of construction works.

The footprint of the proposed buttress will then be graded and compacted prior to the placement of the fill. Any areas of soft or otherwise unsuitable ground will be excavated and replaced with suitable material and compacted or replaced with appropriate geosynthetics as approved by the Engineer.

### 3.3.2 Construction Phases

The construction works will be sequenced in two phases which may run concurrently and will commence at the eastern extremity of the site and proceed westward:

- Phase 1 will proceed on a horizontal basis along Stage 4 of the tailings dam. Works will begin at the level of the toe of the Stage 4 upstream raise against the embankment wall and will vary between 3, 4 and 7 metres in height (Figure 2). The material will be placed in layers along 500m sections, with each 500 m section taking approximately one month to complete. It is envisaged that the Phase 1 works will take approximately 30 weeks; and
- Phase 2 will proceed on a horizontal basis at ground level against the embankment wall of stages 1,2 and 3 (starter dams). The material will be placed in layers along 500m sections, with each 500 m section taking approximately one month to complete. It is envisaged that the Phase 2 works will take approximately 80 weeks.

### 3.4 Overview of Construction Works

Construction working hours will be set between 7 AM to 8 PM on weekdays. Material delivery times are to be adjusted to avoid school drop off hours reducing impact on local roads. No work will be undertaken on Sundays or holidays without prior agreement. Work is limited to daylight hours.

Access to the site is through the main entrance on L74141, using the weighbridge operated by BTM Security. Contractors must enter and exit through the main gates, with a sign-in/out procedure at security. Contractors must ensure the security and safety of the public and workers at the TSF, including their own plant and equipment, and prevent unauthorised entry.

The Engineering and Construction (E&C) Contractor will have responsibility for managing transport and traffic both on-site and incoming traffic to the site, ensuring clean haulage routes, providing dust suppression equipment, and maintaining on-site equipment for effective dust control. During Phase 1 Buttress Construction, attention will be focused on facilitating drainage into chimney drains leading to the Perimeter Interceptor Channel (PIC) and pumped back into the TSF. Protection and mitigation measures will be paramount, including the prevention of contamination of natural groundwater and surrounding surface waters from site runoff, with

the construction of surface water cut-off drains, ditches, swales, and sumps as needed mitigation measures identified are presented in Chapter 15 of EIAR).

Temporary stockpiles of materials will be carefully managed to prevent deterioration or contamination, and stability and maintenance of these stockpiles will be ensured. Demolition of concrete structures, such as channels and causeways, is also part of the project scope, with materials sorted and recycled where possible.

Water within the Buttress Works footprint will be managed using temporary drainage systems and pumps, directing it either into the PIC or back into the TSF. Additionally, pipelines and services within the construction zone will be adjusted to accommodate ongoing process and production needs. The project's equipment requirements have been outlined to support the construction process effectively. Overall, these works aim to enhance the structural integrity of the dam, minimise environmental impacts, and ensure the safe completion of the project.

In terms of alternatives to minimise the potential environmental effects associated with the construction of the buttress, three possible options of varying duration, for the construction programme have been proposed. The predicted impacts of all three options on the surrounding road network was assessed in the Traffic and Transport Assessment, in which Option A proposes the shortest construction period of 1.5 years (823,296 tonnes per annum), Option B proposes a construction period of 2 years (617,472 tonnes per annum) and Option C proposes the longest construction period of 3 years (411,648 tonnes per annum).

## **4.0 LANDSCAPE AND VISUAL**

The Landscape and Visual Impact Assessment (LVIA) is described in Chapter 4 of the EIAR and provides an assessment of receptor sensitivity, the likely landscape and visual effects of the proposed development and determines of the significance of effects on the surrounding environment.

### **4.1 Sensitivity**

The report includes a description of the landscape context of the proposed development and wider study area, including landform and drainage, vegetation and land use, centres of population and houses, transport routes, public amenities and facilities, and conservation

interests. The report also identifies Viewshed Reference Points (VRP's) as a basis for assessment. The assessment of the significance of landscape and visual impacts of the proposed development is measured using sensitivity of receptors weighed against the magnitude/extent of the predicted impact.

The report uses methodology as prescribed in the Environmental Protection Agency (EPA) publication 'Guidelines on the Information to be contained in Environmental Impact Statements' (2022) and the accompanying 'Advice Notes on Current Practice in the Preparation of Environmental Impact Statements' (EPA, 2003) and the Landscape Institute and the Institute of Environmental Management and Assessment publication entitled 'Guidelines for Landscape and Visual Impact Assessment' (2013).

#### **4.2 Predicted Changes**

In terms of landscape impacts, it is considered that the proposed development will have a minor physical impact on the landscape. There will be a minimal impact on the landscape character as a result of the additional buttressing to the existing tailings facility as it will occur within an area that can be generally characterised as industrial and it is an extension of a similar form to the existing TMF.

Visual impacts were specifically assessed at nine viewpoints representing different distances, angles and viewing contexts within the study area. The visual impacts at all viewpoints were deemed to be 'Imperceptible'.

Overall, there are no significant landscape and visual effects identified, and instead, the effects are deemed very minor.

#### **5.0 MATERIAL ASSETS (ROADS AND TRAFFIC)**

The term material assets refers to the physical resources in the environment, which may be of human or natural origin, hence the assessment focused on the traffic and utility services supplying the application site and its wider area, as well as waste and natural resource use. The other natural and human infrastructural elements have been considered in other assessments contained in the EIAR.

## **5.1 Traffic**

The Tailings Storage Facility is located on the L74141 Local Road approximately 2.8km northwest of Navan Town centre, 2km northwest of the N51 National Road, and 50km northwest of Dublin City.

An assessment was undertaken of the likely traffic impacts associated with the proposed development, with three options considered for the duration of construction works. Each option assumes a different annual volume of material being imported to the site. Option A proposes the shortest construction period of 1.5 years (823,296 tonnes per annum), Option B proposes a construction period of 2 years (617,472 tonnes per annum) and Option C proposes the longest construction period of 3 years (411,648 tonnes per annum).

## **5.2 Traffic Analysis**

The Traffic and Transport Assessment included a link capacity analysis to determine if the proposed development would lead to congestion on the surrounding road network. The results of the Link Capacity Analysis indicate that the surrounding roads will continue to operate within capacity for each of the assessment years for all proposed construction phase options under consideration.

Junction Capacity Analysis was undertaken at four junctions in the vicinity of the Site, and along the routes between the site and the source of materials/M3 Motorway. The results of the Junction Capacity Analysis indicated that the site access, the L74141/R162 junction and the R162/R163 junction currently operate within capacity and will continue to operate within capacity for each of the assessment years for all construction phase options under consideration both with, and without, the construction of the proposed rock and earthen reinforcement buttress.

The R162 arm of the R162/N51 roundabout, however, currently operates at capacity and will exceed capacity in all future assessment years for all construction phase options under consideration. This would however occur both with, and without, traffic generated by the proposed development. The impact of the additional construction related traffic on vehicle queues and delay at the roundabout is considered imperceptible with regards to the operation of the junction during the proposed construction period for all options under consideration.

### **5.3 Sightlines**

Sightlines at the site access have been assessed in accordance with Section 5.6.3 of TII Publication's document DN-GEO-03060, and the full required visibility for lightly trafficked areas is achievable at the access in both directions, for all drivers, from a distance of 2m back from the edge of the L74141 carriageway.

### **5.4 Utilities**

A review of the electricity, gas, water and telecommunications service infrastructure in the area has been undertaken through a review of mapping information from service providers. The potential impacts have been considered both in terms of the capacity of these to supply the proposed development and ensuring that supply to existing users will not be disrupted through damage or placing an excess burden on supplies. In accordance with best practice in construction methods, ESB Networks, Eir and Irish Water will be consulted prior to undertaking works in the vicinity of their networks. There is no gas infrastructure in and around the Application Site. There are no supply constraints within the Eir or ESB Networks.

### **5.5 Resource and Waste Management**

Disposal of industrial and commercial waste will be managed through the EPA licencing process (No. P0516-04) under which the proposed development falls. The collection of such wastes will be facilitated through arrangements with authorised waste contractors.

Once the mitigation measures identified in the EIA report (collated in Chapter 15 of the EIAR) and appropriate design standards together with operational infrastructure management plans are implemented, it is considered that any impacts on the Material Assets surrounding the proposed development will be imperceptible and not significant.

## **6.0 BIODIVERSITY**

An assessment of the biodiversity resource present was undertaken in 2021/2022 as a "Biodiversity Audit" and the results of that biodiversity audit are presented in the EIAR. The ecology specialists have been undertaking various ecological surveys within the Tara Mines Tailings Facility since 2006. Although the site has grown in stature over this period, established habitat on dam walls, etc. has not changed substantially in that time.

The recent field studies undertaken were informed by a detailed desktop study of the proposed development area and environs. This baseline data regarding the biodiversity resource present within and around the application site allowed a comprehensive assessment of any potential constraints and/or impacts (including cumulative impacts) of the proposed development on the local ecological resource. Where potential significant negative impacts were identified, mitigation measures were prescribed to minimise the potential for any such impacts to a negligible level.

## **6.1 Potential Features**

The following aspects of the ecological/biodiversity resource present within the application area were investigated:

- Botanical/Habitat surveys were undertaken within the optimum ecological window by Dr Emma Reeves, Ciarán Byrne and Dr Patrick Moran over numerous dates between April and September 2021, with an additional site visit in January 2023 in order to ascertain any significant changes in the habitats present since the 2021 surveys.
- Alien Invasive Plant Species Survey - undertaken in tandem with overall habitat surveys.
- Habitat mapping – Dr Patrick Moran utilising field data gathered during field surveys.
- Bird surveys:
  - Breeding Bird Surveys were undertaken by Dr Patrick Moran in April, June and July 2021.
  - Kingfisher surveys were undertaken by Dr Patrick Moran with in-stream surveys undertaken in June and July 2021.
  - Winter bird surveys at key times (pre-dawn, midday, dusk) were undertaken by Dr Patrick Moran during the 2021/2022 winter season (October, November, December, January, February and March).
- General mammal surveys of the survey area and environs were undertaken by Dr Patrick Moran in June (23rd and 30th) and July (1st and 29th) of 2021. Trail cameras were utilised to comprehensively assess the use of the study area by non-volant mammals. Dawn and dusk mammal surveys were undertaken by Dr Patrick Moran on the night of the 29th July and morning of the 30th of July 2021. Targeted Otter surveys were undertaken by Dr Patrick Moran on 23/06, 29/06, and 29/07. A trail

camera was deployed at the Simonstown stream at two locations (location one 23/06 – 29/06 and location two 01/07- 29/07) in order to capture any otter activity.

- An assessment of the usage of the habitat in question by bats was undertaken through the deployment of Passive Ultrasound Monitors and an emergence/dawn survey undertaken by Dr Patrick Moran on the 29th/30th of July 2021.

## **6.2 Potential Impacts**

The potential impacts identified regarding the proposed development were:

- Impacts on water quality during the construction and/or operation phase.
- Impacts on biodiversity of extant habitat.
- Impacts associated with disturbance of Otter and/or Kingfisher.
- Impacts on over-wintering birds (primarily Whooper Swan).
- Impacts associated with Alien Invasive Plant Species.
- Impacts associated with post-construction biodiversity loss.

## **6.3 Biodiversity Management**

An Ecological Clerk of Works (ECoW) must be assigned to the project prior to any commencement of construction in order to oversee works and ensure the implementation of mitigation measures to avoid any of the above potential impacts to biodiversity features that may be present. The roles of the ECoW are detailed in the Biodiversity Chapter of the EIAR. Primary mitigation measures include:

- Mitigating against hydrological impacts through implementation of measures identified in hydrology chapter.
- Mitigating against biodiversity loss of extant habitat and post construction through the preparation and implementation of a Habitat and Biodiversity Conservation and Management Plan.
- Mitigating against disturbance to Kingfisher and Otter through monitoring of the water-courses occurring proximate to the proposed buttressing works on an ongoing basis during the proposed development in order to assess activity, which must inform a post-works Conservation Management Plan for each species.

- To mitigate against disturbance of over-wintering bird populations the works should be minimised, with no supplementary artificial illumination during the months October – March inclusive.
- Mitigating against the introduction of propagules of Alien Invasive Plant Species through the preparation and implementation of an Alien Invasive Plant Species Management and Control Plan when a contractor is appointed.

Given the ecologically sensitive location of the proposed development, there is, in the absence of mitigation measures, potential for negative impacts on the biodiversity resource present. Following the implementation of an appropriate Habitat and Biodiversity Conservation and Management Plan and monitoring by an ECoW, it is envisaged that proposed works will have a net positive impact on the biodiversity resource.

## **7.0 WATER**

The construction of a reinforcement buttress to the extant embankment walls of the Randalstown Tailings Storage Facility (TSF) is proposed to enhance its stability in line with the highest standards as required by the applicant's adoption of Global Industry Standard on Tailings Management (GISTM).

### **7.1 Local Water Features**

The existing TSF and extant embankment walls are bounded by three watercourses, which are classified and protected by the Water Framework Directive (WFD). There is a large dataset of water quality monitoring results available for these watercourses which are collected as part of the Randalstown TSF monitoring network and IE Licence No. P0516-04 conditions. Sulphate is used as the key parameter for assessing the influence of the TSF on the surrounding surface water environment and there is stable trend in the dataset (2017-2023).

The WFD status, or overall condition, of the Yellow River and the adjoining River Blackwater, is classified as Poor, due to named catchment-wide pressures of agriculture, urban runoff and hydromorphology, resulting in upward trends in ammonia, total oxidised nitrogen, and orthophosphate. The Blackwater is designated as a Special Area of Conservation (SAC) and as a Special Protection Area (SPA) under European legislation and is protected for various

habitats and species. There is an area along the channel and banks of the Yellow River which is mapped as being vulnerable to flooding.

## **7.2 Water Management and Monitoring**

The discharge emission points for the Tara Mines facility, as set by their IE licence, are on the River Blackwater and the River Boyne, at 2.6km and 3.6km distance respectively from the TSF, and there are water quality monitoring results available for upstream and downstream of these points.

The TSF is mapped as being underlain by limestones, sandstones, and shales, with major faults cutting through the rocks. These rocks are generally classified as aquifers and capable of supplying water on a local scale. These rocks are overlain by till and alluvium superficial deposits. Groundwater is contained within the superficial deposits and in the bedrock below, at depths of up to 1m below ground level, and moves in a southwesterly direction, towards the Yellow River and the River Blackwater. There is also a large dataset of water quality monitoring results available for the superficial deposits and the bedrock. There is stable trend in the superficial deposits and a declining trend in the bedrock with regards to sulphate (2017-2023). The WFD status, or overall condition, of the bedrock, is classified as Good, to the south of the TSF and Poor, to the north, due to named catchment-wide pressures of agriculture, resulting in upward trends in nitrate. There are approximately 13 private wells surrounding the TSF, one of which is used for drinking purposes. These are also monitored for sulphate, amongst other parameters, and show no influence of seepage from the TSF.

The key potential impacts to the water environment are a reduction in water quality in the surrounding watercourses and groundwater as a result of construction works, accidental spillages, potential seepage from the TSF and leaching of the mine rock waste used to construct the buttress; and impacts to water levels/ flows as a result of removing the existing vegetation and topsoil. These potential impacts have been assessed and mitigation measures have been outlined to avoid and minimise the potential for negative impacts. These measures include a set of environmental commitments and guidelines on how to protect the water environment during construction, by way of a Construction Environmental Management Plan (CEMP), and a programme of water quality monitoring to evaluate the success of the CEMP in protecting the water environment. Following implementation of these mitigation measures,

no significant adverse impacts to the water environment are anticipated as a result of the proposed works.

## **8.0 AIR QUALITY**

The potential of the proposed works at the TSF to give rise to air pollutants such as Carbon monoxide, Oxides of nitrogen, Sulphur dioxide, Total particulates such as PM<sub>10</sub> and PM<sub>2.5</sub>, depositional dust, Arsenic, Cadmium, Lead, Zinc and Benzene was assessed.

In terms of the assessment, particular attention was given to sensitive receptors, including local residences and commercial units in proximity to the proposed installation, and to the potential exposure of these receptors to the cited airborne pollutants as a result of the works.

### **8.1 Potential Sources of Air Quality Impacts**

Potential sources of air quality impacts include the generation of construction dust, construction plant emissions and from emissions of construction traffic. The construction activities have been examined to identify those that have the potential for air emissions. Where applicable, a series of suitable mitigation measures have been listed within the EIAR. The overall impact of the construction phase of the plant will be negligible and effects will be short term in nature. All air quality guideline and limit values will be complied with during the construction phase of the project.

There will be no net increase in direct impacts on air quality as a result of the continued operation of the tailings facility. The current tailings facility complies with air quality guideline and limit values and is continuously monitored to assess such compliance in accordance with IE Licence No. P0516-04.

### **8.2 Predicted Changes**

Following an assessment of predicted emissions of Carbon monoxide, Oxides of nitrogen, Sulphur dioxide, Total particulates such as PM<sub>10</sub> and PM<sub>2.5</sub>, depositional dust, Arsenic, Cadmium, Lead, Zinc and Benzene, it was concluded that the facility operations will not give rise to any significant impact from cumulative emissions from facility activity and traffic, with predicted emissions remaining well within Irish statutory air quality limits. The % magnitude of

change of Process contribution relative to Annual mean limit values will be less than 1% for all potential pollutants and there considered negligible with regards to impact.

In conclusion, the proposed installation of the embankment Buttress and continued operation of the tailings facility will have a negligible impact on the surrounding population with respect to Carbon monoxide, Oxides of nitrogen, Sulphur dioxide, Total particulates such as PM<sub>10</sub> and PM<sub>2.5</sub>, Depositional dust, Arsenic, Cadmium, Lead, Zinc and Benzene.

## **9.0 NOISE**

The proposals, consisting of a rockfill and earthen reinforcement to sections of the extant embankment walls, will generate road construction traffic to the site by importation of materials for the development. The proposed development will not increase the footprint or the overall height of the structure.

There are 3 construction options proposed for the Buttress Development ranging from 1.5-year duration (Option A) to 3-year duration (Option C). Option B is 2-year duration. Each of the options vary in terms of annual volumes involved, with the shortest timeframe having higher annual traffic movement and the longest timeframe having lower associated annual traffic.

### **9.1 Noise Modelling**

Option A is assessed as construction over a 1.5-year period results in more intensive activity thereby resulting in more elevated noise levels. Therefore Option A was considered a worst case scenario and if modelled noise levels for that option were shown to be within the guideline limits then it could be concluded that the other options (Option B and Option C) would also be within those same limits.

This noise chapter has assessed the significance of the potential effects of the proposed development during construction and operation. The potential for cumulative impacts has also been assessed and none have been identified.

### **9.2 Predicted Changes**

The assessment made using the Option A timeframe demonstrate that site construction works are well within construction noise guideline limits while the increase in noise levels due to road traffic will be barely perceptible. Given that Option A is a worst-case scenario in terms of annual volumes it can be inferred that there will be less impacts for Options B or Option C.

Noise during construction of the Development will be managed to comply with best practice, legislation and guidelines current at that time so that effects are not significant. A full range of mitigation measures to ensure that noise levels will be kept to the minimum possible is set out in the EIAR.

## **10.0 POPULATION AND HUMAN HEALTH**

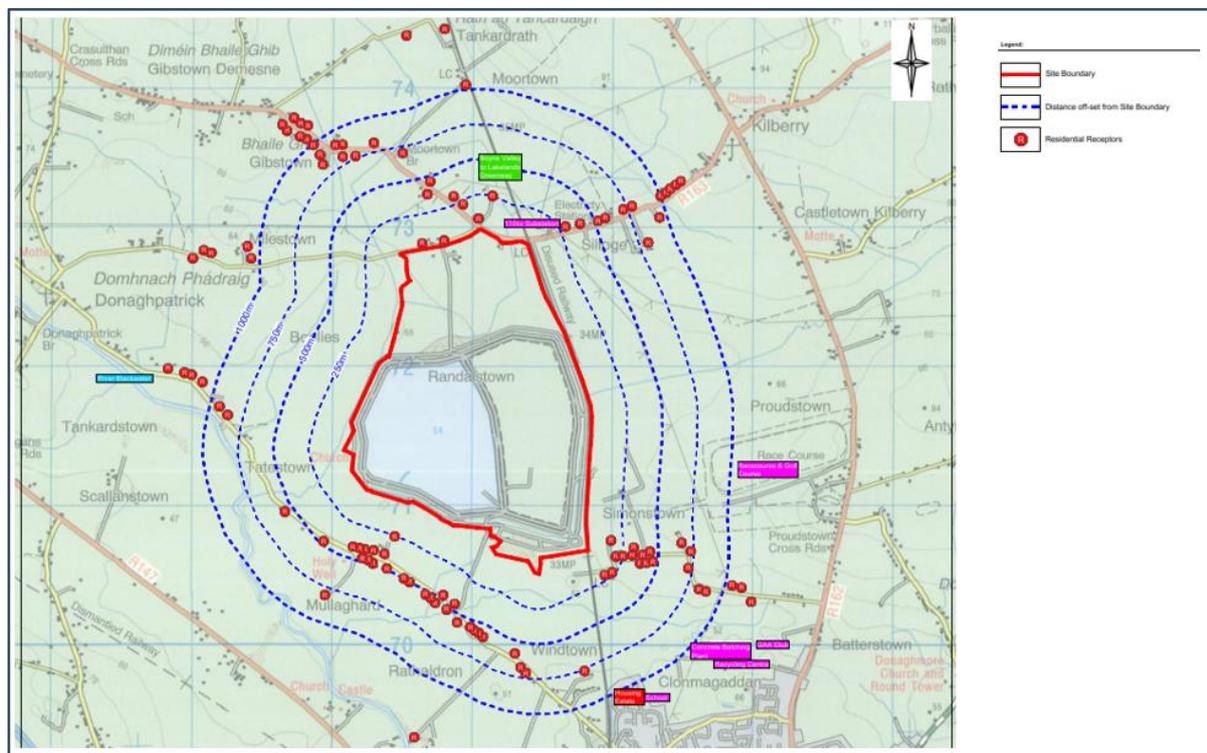
An assessment was undertaken to ensure that the potential impacts of the proposed development on the local community and services could be identified and mitigated if required. The assessment included identification of sensitive receptors within 1km of the application site and a baseline review of conditions in relation to local demographics, economic activity, availability of community services, health and safety and indicators of health status within the local community.

### **10.1 Local Settlement Patterns**

In terms of the local population, there is a low and dispersed pattern of residential development within the study area, predominantly formed of linear clusters of dwellings along the road network (refer to Figure 3).

There are approximately 11 residences indicated within 250m of the proposed development, a further 26 within 500m, and a total of approximately 76 residences within the 1km study area. Navan racecourse is within the study area, hence the close proximity of equine species is considered. A housing estate within the northwestern outskirts of Navan Town is included just outside of the south-eastern extents of the study area and the population of Navan as a whole is considered in the assessment.

A review of census data shows a rapidly evolving demographic situation and increased urbanisation in and around the Navan area, along with a need for accompanying growth of job opportunities and community services.



**Figure 4 Study Area and Receptor Map**

## 10.2 Potential Impacts

The baseline information presented in the preceding section has not identified any particular sensitivities in relation to human health. In terms of human health, the sensitivity of the population is considered to be low. The technical assessments within the chapters above have concluded that the predicted changes in pollutants are well within statutory standards and WHO guidelines. On this basis, it is considered that there would be no likely significant temporary or permanent effects on human health during the construction phase following mitigation. The proposed works are general construction/earthworks and entailing standard construction machinery. The purpose of the proposed development in itself is to increase the health and safety standards of the TSF to the highest possible standards. A range of regulations and measures are identified in Chapter 10 of the EIAR that are implemented through regulatory processes to ensure there will be no adverse impact on the health and safety of the local community arising from the development. In addition BTM is proactive in

terms of facilitating research and enhancement of mining safety, including safe closure of the mine.

The scale of community facilities and amenities available to local residents is considered to be in proportion with their rural location. The proposed development, itself, will not introduce new communities to the local area and is not expected to create any additional demand on services.

The proposed development has potential for a substantial positive influence on the local economy through the enabling the continuation of the Tara Mine complex to align to best practice in industry and to secure a continued source of direct and indirect employment. This has potential knock-on effects in terms of contributing to the overall wellbeing of the local population. The increased Factor of Safety that will be achieved for the TSF following the works is a benefit in terms of providing increased health and safety assurance, particularly in the light of climate change events.

## **11.0 CLIMATE**

### **11.1 Contribution to Greenhouse Gas Emissions**

The Greenhouse Gas Emissions component of the assessment concluded that greenhouse gas emissions associated with the proposed development as calculated will not significantly impact the achievement of proposed climate change targets.

### **11.2 Vulnerability to Climate Change**

As regards the vulnerability of the proposed development to impacts associated with climate change, such as increased flooding events, etc. the Contractor for the work will be required implement mitigation against the effects of extreme weather events, etc. through site risk assessments and method statements during construction.

In light of predicted changes associated with climate change, the design of the proposed development incorporates adaptation measures to decrease the vulnerability of the operation of the existing Tailings Storage Facility to those events.

In light of the purpose of the proposed buttressing development, it can be concluded that within the constraints of the assessment undertaken, the long-term impact of the proposed development is negligible – slight positive in terms of climate change.

## **12.0 LAND AND SOILS**

The Land and Soils chapter of this EIAR considers any potentially significant risks to Land, Soils, Geology and Human Health from the Proposed Development.

The existing TSF has been constructed under strict engineering controls and as such the risk of failure is very low. The proposed development will further reduce this risk.

### **12.1 Construction Materials**

The proposed development will use rock excavated from the Tara Mine and natural greenfield soils imported from third-party development sites (likely Clonee / via M3 motorway) for the construction of the buttress. These rocks and soils will be tested for their chemical and physical properties to ensure that they are suitable and safe for use and authorisation will be sought from the EPA.

The construction works will not require any significant excavation beyond the local removal of topsoil from the proposed buttress footprint. The works will be contained within the existing boundary of the TSF site.

### **12.2 Existing Ground Conditions**

The TSF is mapped to be underlain by manmade ground due to the construction of the TSF with till and alluvium mapped around the TSF. Beneath this, bedrock limestones, sandstones, and shales are mapped.

There are no significant land, soil or geological resources identified on the Proposed Development. The nearest notable feature is the Gibstown Castle County Geological Site, approximately 1.6km from the proposed development. The Proposed Development will not have any impact on the geology at Gibstown Castle.

### **12.3 Potential Impacts**

Potential human health risks associated with the Proposed Development will be controlled by the strict measures already adopted at the TSF and by maintaining best practice during construction.

## **13.0 CULTURAL HERITAGE**

A cultural heritage assessment was carried out by Archaeological Management Solutions Ltd (AMS). Impacts on cultural heritage from the proposed scheme during the Construction and Operational Phases are identified, described and assessed for any likely direct and indirect significant effects.

The EIA process for Cultural Heritage included the identification of known and potential cultural heritage sites or features within the study area through analysis of statutory and non-statutory heritage lists, among other sources. A walkover field survey was subsequently carried out to confirm the nature of these sites, and potential impacts were assessed to determine the significance of effects on cultural heritage from the proposed scheme.

### **13.1 Archaeological and Cultural Heritage Resources**

County Meath is rich in archaeological remains and contains a number of iconic and highly significant upstanding sites, including Brú na Bóinne, a UNESCO World Heritage Site. Two major navigable rivers run through central Meath — the Boyne and the Blackwater — the latter of which is situated to the southwest of the proposed scheme. The scheme is located along the eastern bank of a Blackwater tributary, the Yellow River in the townlands of Randalstown, Simonstown and Silloge. These three townlands converge at the eastern end of the scheme which also denotes/demarcates the borders between Donaghpatrick, Donaghmore and Kilberry Civil Parishes and the Baronies of Kells Upper, Navan Lower and Morgallian.

Excavations in Randalstown and Simonstown have revealed evidence for human activity from the Neolithic period through to the nineteenth century. The scheme is located within the Randalstown House historic demesne, which fell into the hands of the Everard family in the fifteenth century. Situated at the southwest corner of the scheme lies St Anne's Church

(ME025-002001). The chapel, built into an enclosure (Recorded Monument ME025-002), contains a vaulted crypt (ME025-002003) and graveyard (ME025-002002) and is associated with Randalstown House. Nearby St Anne's Well (ME025-045) is placed at the site of a former spring. Roman finds recovered during excavations at both the church and the holy well suggests that pre-Christian activity occurred here.

### **13.2 Potential Impacts**

Potential construction phase impacts have been identified for nine cultural heritage sites, including the enclosure (Recorded Monument ME025-002), and St Anne's Church, burial vault and graveyard as discussed above. Other features that may also be impacted are a townland boundary, and townland/civil/parish boundary, as well as the nearby Yellow River as it is considered an area of archaeological potential. While no impact is predicted for Recorded Monument ME025-001 (souterrain) and the associated early medieval house (ME025-001001), their Zone of Notification will be traversed by the proposed works.

No long-term significant effects are predicted. This is primarily because of the negligible change to the baseline environment with no increase in height and no works proposed beyond the current footprint.

### **13.3 Opportunities for Cultural Heritage**

Proposed mitigation measures include a built heritage survey and townland boundary survey, as well as protective fencing and vibration monitoring to prevent damage to St Anne's Church and associated features. Monitoring during construction shall be carried out in areas of archaeological potential including in the vicinity of the townland boundaries and works near the Yellow River. Monitoring during construction shall also be carried out in the vicinity of St Anne's Church (including the burial vault, graveyard and enclosure) as there is potential for associated remains to exist below-ground and could be impacted by grading or compaction. It is recommended that the continued development of this site is offset through dissemination of knowledge gained through surveys (e.g. publications and presentations aimed towards the local communities), and through the enhancement and maintenance of access to St Anne's Church and St Anne's Well, both of which continue to be visited by the public each year.

## **14.0 INTERACTIONS**

This chapter of the EIAR describes interactions/inter-relationships between environmental effects and the approach taken in the EIAR in relation to ensuring that the potential for in-combination effects with other potential development in the region of the application site is considered. The overall objective of this assessment is to identify, through a review of these issues, whether additional mitigation is required that would not otherwise have been identified in the individual study areas for these interacting or cumulative effects.

## **15.0 MITIGATION AND MONITORING**

Chapter 15 presents a consolidated table of all the mitigation measures identified in the EIAR identified within the technical chapters that are considered appropriate to implement in order to reduce the potential for environmental effects. The presentation of mitigation measures in a dedicated chapter is intended to assist An Bord Pleanála in its decision-making role.

Ongoing and proposed environmental monitoring locations and frequency are also identified in this dedicated chapter for ease of reference. Monitoring is intended provide assurance that aspects of the design and management are functioning as intended and therefore not generating significant effects.