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12. Visual

12.1 Introduction

This Chapter reports the findings of a study prepared by SRK in June 2015 *Visual Impact Assessment for Öksüt Gold Mine Project* (*Annex L*), which presents an analysis of the landscape of the Project Area and surrounding area and provides a visual impact assessment of the mine site.

The visual impact of the powerline has been assessed separately to the SRK report, using the same defined landscape character units.

Mitigation measures are presented to address identified visual impacts.

12.1.1 Objectives

The specific objectives of this chapter are to:

- Develop and understanding of the nature of the landscape of the EIA Permitted Area and its surrounds;
- Identify sensitivities associated with the landscape;
- Identify specific viewpoints from which Project facilities are likely to be visible;
- Assess the impact those Project facilities will have on visual amenity;
- Make recommendations for the mitigation of visual amenity impacts.

12.2 Summary Policy Context

12.2.1 International Standards

EBRD's Sub Sectoral Environmental & Social Guidelines: Mining Open Cast refer to the negative visual impact caused by mining operations, particularly with respect to tourism or recreation. Potential mitigation measures are suggested to improve unsightly landscapes and improve visual impact, and link this to improving relations with the local community.

EBRD PR6 requires the consideration of potential landscape impacts in relation to biodiversity as part of the ESIA process.

12.2.2 International Conventions and Treaties

The *European Landscape Convention* (also known as the Florence Convention) promotes the protection, management and planning of European landscapes and organises European co-operation on landscape issues. Turkey signed to the Convention in 2000, and the Convention came into force in Turkey in March 2004.

The *European Landscape Convention* adopts a definition of landscape that:

"*Landscape is an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors*."

The *European Landscape Convention* acknowledges the value of all landscape components and their importance for ensuring the people's well-being and identity. It encourages active participation of the public in the landscape perception and evaluation; and states that parties should establish and implement landscape policies aimed at landscape protection, management and planning and introduce instruments aimed at protecting, managing and/or planning the landscape.

12.2.3 European Directives

The *European Landscape Convention* is not a legal act. The EU's legislation and policies postulate protection of the European landscape. EU legal instruments include:

- *Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora* ("Habitats Directive");
- *Directive 97/11/EC* (amending Directive 85/337/EEC) *on the assessment of the effects of certain public and private projects on the environment* ("EIA Directive");
- *Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment* ("SEA Directive");
- *Council Regulation (EEC) No 2078/92 on agricultural production methods compatible with the requirements of the protection of the environment and the maintenance of the countryside*;
- *Decision No 1600/2002/EC of the European Parliament and of the Council laying down the Sixth Community Environment Action Programme*. "The Future of the CAP" – the EU's decision to promote a "multifunctional agriculture" will also provide for "preserving rural culture and rural cultural heritage" and "providing valuable cultural landscapes".

12.2.4 Turkish Legislation

There is no specific Turkish legislation about landscape character and visual amenity. The local Sivas-Yozgat-Kayseri Environmental Plan does not provide any reference to landscape character or visual amenity.

12.2.5 Project Standards

There are no specific Project Standards with regard to visual impacts. Good international industry practice has been applied as far as reasonably practicable.

12.3 Scope and Assessment Methodology

12.3.1 Spatial Scope

Mine Site

The spatial scope of the assessment takes in areas that will be occupied by Project facilities and areas from which the Project may be visible namely, nearby settlements which represent potentially sensitive viewpoints. This results in a polygonal shaped study area that encompasses the villages of Öksüt, Gazi and Sarıca southwest of the Project area, Zile and Tombak to the west, Yukarı Develi and Ayvazhacı in the north, Yazıbaşı and Gömedi to the north-east and Epçe to the east. The study area is illustrated in Figure 12-1.

Powerline

The study area follows the powerline route and considers receptors that have visibility of the powerline. The powerline route is shown in Figure 12-2.

Figure 12-1: Mine Site Visual Impact Assessment Study Area

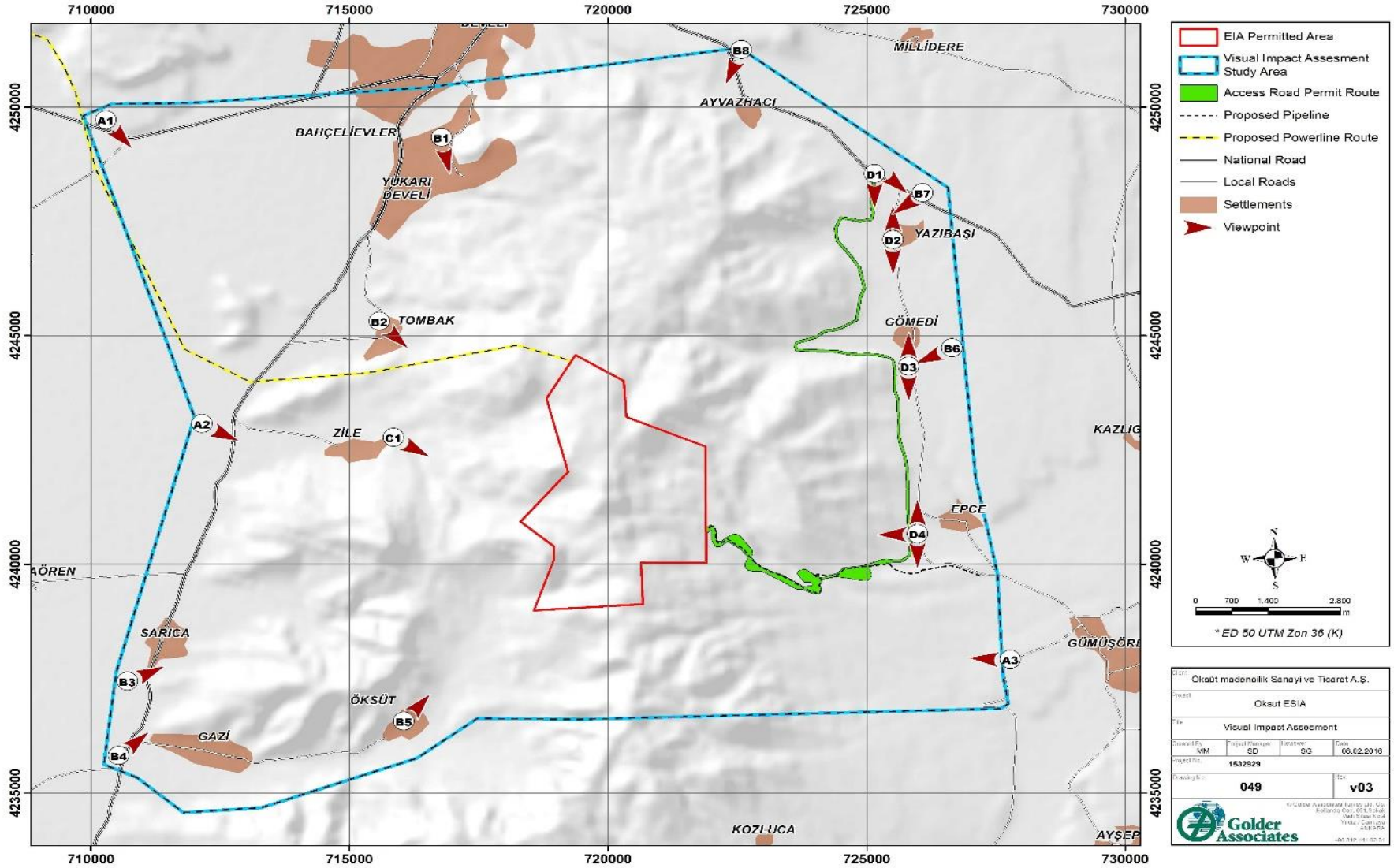
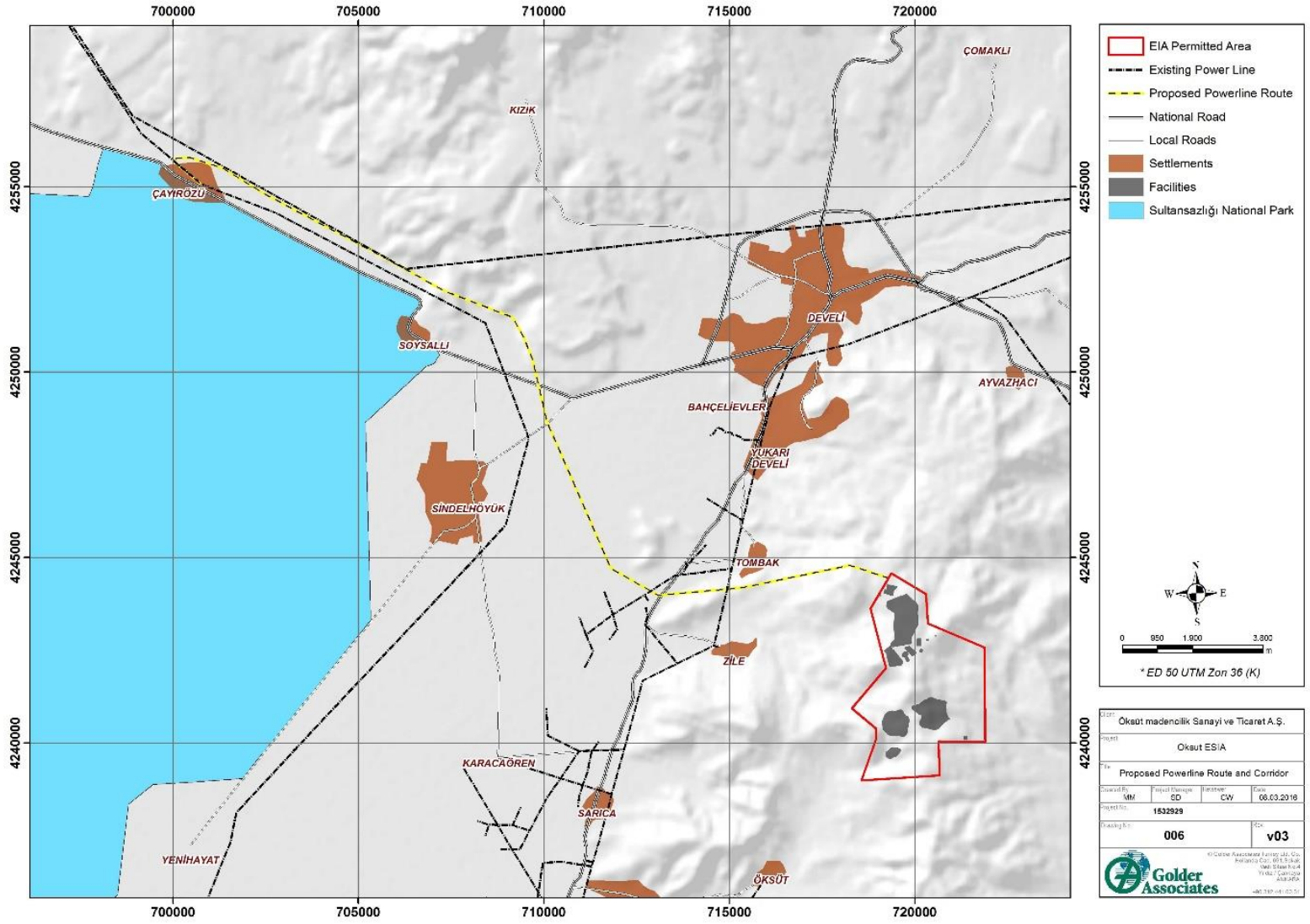


Figure 12-2: Powerline Route



12.3.2 Temporal Scope

Impacts are assessed from an end-of-Project perspective; that is, from the point of view that Project features such as the open pits, powerline, waste rock dumps and heap leach pad are fully developed. In reality, these Project features will only be fully developed once the Project is completed and therefore, the full visual impact of the features will not be experienced until the latter years of Project development (i.e. years seven and eight).

12.3.3 Methodology

Data Collection

Secondary Data
This Chapter relies upon and reproduces the information provided by SRK in June 2015 *Visual Impact Assessment for Öksüt Gold Mine Project* (*Annex L*).

Primary Data
During additional fieldwork surveys in July 2015, Golder took photographs from Yazıbası, Gömedi and Epçe in the direction of the access road and water supply line routes. These are provided in *Annex M*.

Assessment Methodology

Mine Site Methodology
This section summarises the impact assessment undertaken in the SRK Report (*Annex L*). The methodology undertaken is summarised in the paragraphs below.

Landscape Character
The SRK Report determined landscape character using the UK IEMA definition as "*the distinct and recognizable pattern of elements that occurs consistently in particular combinations of land form, soils, vegetation, land use and human settlement*"[1] and determined the existing landscape context of the study area by analysing the visual quality of land use[2], topography, vegetation[3] and anthropogenic characteristics in the study area (i.e. analysing whether the quality of the views are high, medium or low). This information is then used to determine the landscape character units in the study area. Initially, 32 landscape character units were detected and where grouped together to provide easier perception and analysis into 20 groups of similar characteristics.

Visual Quality
Visual Quality has been determined using the following formula:

Visual Quality = (Vividness + Intactness + Unity) / 3

Where:

- Vividness is the visual power of memorability of landscape components as they combine in striking and distinctive visual patterns.
- Intactness is the visual integrity of the natural and man-built landscape and its freedom from encroaching elements.
- Unity is the visual coherence and compositional harmony of the landscape considered as a whole (Office of Environmental Policy, 1981).

Visual Quality of each landscape character unit was evaluated in qualitative rankings as "Low", "Moderate" and "High" using the following qualification:

- Low: A setting that has little aesthetic value.

[1] U.K Institute of Environmental Management and Assessment (IEMA), "Guidelines for Landscape and Visual Impact Assessment", Second Edition, Spon Press, 2002.
[2] Land use characteristics of the study area have been determined using the CORINE land cover data which is provided by European Environment Agency.
[3] Vegetation data for the study area was derived from the Forest Stand Maps of Ministry of Forestry and Water Affairs.

- Moderate: A setting that has some aesthetic and visual merit.
- High: A very attractive setting with great variation and interest but no clutter

Visual Absorption Capacity

The visual absorption capacity of the study area was calculated using criteria relating to slope, density of visual pattern and height of vegetation using the following qualitative criteria:

- Low: The ability of the landscape not to visually accept a proposed development because of a uniform texture, flat slope and limited vegetation cover.
- Moderate: The ability of the landscape to less easily accept visually a particular development because of a less diverse landform, texture and vegetation.
- High: The ability of the landscape to easily accept visually a particular development because of its diverse landform, vegetation and texture.

Landscape Unit Sensitivity

"Landscape Unit Sensitivity" is the combination of "Visual Absorption Capacity" and "Visual Quality" of a Landscape Character. The Landscape Unit Sensitivity Evaluation Matrix was used to determine the landscape unit sensitivity for each landscape character unit, as shown in Table 12-1.

Table 12-1: Landscape Unit Sensitivity Evaluation Matrix

Visual Absorption Capacity	**Visual Quality**		
	Low	**Moderate**	**High**
High	Low	Low	Moderate
Moderate	Low	Moderate	High
Low	Moderate	High	High

Sensitive Viewpoints

Permanent (residential), temporary fixed (recreational) and mobile (passing by in a vehicle) sensitive viewpoints were identified and photographs and Google Earth views were taken from these locations to provide a basis for the assessment of visual impacts.

The landscape units and the landscape sensitivity at each viewpoint was determined.

Sense of Place

The strength of sense of place in the study area was determined and representative viewpoints were identified.

Visibility Analysis

Visibility analysis is undertaken in order to detect visible project units from sensitive viewpoints. ArcView 10.2 was used for GIS analysis in this study.

A composed topography was generated by using 10 m topographical contours of the study area and 3D CAD drawing of the project units. The final designs of the project units were taken.

A fuzzy viewshed[4] was calculated to provide a visibility analysis involving all sensitive viewpoints to determine the most visible project units and areas within the mine area that can be seen in the study area.

Proximity Analysis

A proximity analysis was undertaken to incorporate the effect of reduced visibility over distance. Proximity buffers were created for the viewpoints to indicate the scale and viewing distance. For the purposes of the visual impact assessment and also due to the proximity of residential areas, the analysis is limited to a radius of 5 km. A series of 1 km radii were created around the settlements.

[4] the topographically defined area that includes all the major observation points from where the project could be visible

Visual Impact Sensitivity

For each viewpoint, the landscape character units, sensitivity of landscape character units, visibility and proximity were used to determine whether there was a significant adverse impact (very low, low, moderate or high)[5].

3D Modelling and Simulation

3D modelling and simulation were used to visually display the before and after landscape of the Project Area from each identified sensitive viewpoint.

Powerline Methodology

The landscape character and sensitivity along the powerline route have been taken from the methodology described above as used in the SRK report, as the SRK report also considered these factors for the powerline corridor as part of the baseline assessment.

Sensitive viewpoints were considered to be those residences in settlements which have a view of the powerline.

The powerline's towers are generally perceived to be the major source of visual contrast, as their height and upright forms create strong vertical line contrasts that are more visible at long distances. The 154 kV powerline will have tower heights ranging from 20-30 m along the flat ground, and up to 40 m on rockier terrain.

In a study by Sullivan *et al* (2014), uninterrupted views of 230-kV towers were judged not likely to be visible to casual observers beyond 5.6 km and a major attractant of visual attention at 2.4 km[6]. As the powerline towers vary in size, the Project has adopted these distances as the potential zones of visual impact from the powerline.

12.3.4 Impact Assessment Methodology

Mine Site

Using the methodology described in 12.3.3 above, this ESIA has interpreted the following parameters as part of the impact assessment:

- Receptor sensitivity is taken to be the determined sensitivity of the landscape character unit within the view from the viewpoint (refer to
- Table 12-5). When the terminology is compared to Table 3-1, it is interchangeable apart from "moderate" which is interchangeable with "medium".
- Impact magnitude is taken to be the determined visibility of the mine site within the view from the viewpoint (refer to
- Table 12-5). When the terminology is compared with Section 3.7.2, it is interchangeable apart from "moderate" which is interchangeable with "medium".
- Potential effect significance is taken to be the determined impact significance within the view from the viewpoint (refer to
- Table 12-5). When the terminology is compared with Table 3-2, it is interchangeable apart from "minor" is interchangeable with "low" and "major" is interchangeable with "high".
- Residual effect significance was determined using the information described in the points above and applying professional judgement to whether the mitigation measures will lead to a residual effect, based on the matrix provided in Table 3-2.

[5] The qualification for each significance criterion were not determined in the SRK Report and it is assumed that the assessment was based on professional judgement.

[6] Robert G. Sullivan, Jennifer M. Abplanalp, Sherry Lahti, Kevin J. Beckman, Brian L. Cantwell, and Pamela Richmond (2014) National Association of Environmental Professionals 2014 Annual Conference

Powerline

Using the assumptions from Sullivan *et al* (2014)[7], that 230-kV towers were judged not likely to be visible to casual observers beyond 5.6 km and a major attractant of visual attention at 2.4 km, for the purposes of this assessment it has been assumed there is a potential low visual impact if there is a tower within 2.4 to 5.6 km of a settlement, and a potential high visual impact within 2.4 km of a settlement.

12.3.5 Assumptions and Limitations

Mine Site

This is a visual impact assessment which considers how the surroundings of individuals or groups of people may be specifically affected by change in the landscape. This means assessing changes in specific views and in the general visual amenity experienced by particular people in particular places. The SRK Report analysis considered how the landscape character units in the study area influenced the sensitivity of each viewpoint. A landscape effects assessment has not been undertaken.

Impacts are assessed from an end-of-Project perspective; that is, from the point of view that Project features such as the open pits, waste rock dumps and heap leach pad are fully developed. In reality, these Project features will only be fully developed once the Project is completed and therefore, the full visual impact of the features will not be experienced until the latter years of Project development (i.e. years seven and eight).

The effect of topography was not considered during proximity analysis. In order to make visibility assumptions, viewshed analysis was executed using ArcView 10.2. This analysis is based on topographic data so that precision of the viewshed analysis is directly connected to the resolution of the digital elevation model (DEM). Viewshed mapping approximates the earth's surface and may not display exact visibility incidence, however it is still considered that the viewshed analysis is representative for the purposes of this assessment.

The visual impact assessment methodology is qualitative, and therefore relies on the author's interpretation of those standards and is a subjective process. The methodology used in the SRK Visual Impact Assessment does not compare directly to the methodology described in *Chapter 3: Methodology and Approach,* however for the purposes of this ESIA, parts of it have been assumed to be interchangeable, as described in Section 12.3.4 above.

Powerline

The powerline national EIA does not consider the visual impact of the powerline. A desk-based assessment has been undertaken using landscape character criteria outlined in the SRK Visual Impact Assessment, and expert judgement to determine the potential for impacts and their significance.

[7] Robert G. Sullivan, Jennifer M. Abplanalp, Sherry Lahti, Kevin J. Beckman, Brian L. Cantwell, and Pamela Richmond (2014) National Association of Environmental Professionals 2014 Annual Conference

12.4 Baseline

12.4.1 Visual Quality of Study Area

Table 12-2 presents the defined categories for the visual quality of topographic, vegetation, land use and anthropogenic characteristics in the study area. Figures 3.1-3.5 in *Annex L* show maps of each of these characteristics.

Table 12-2: Visual Quality of the Topographic, Vegetation, Land Use and Anthropogenic Characteristics in the Study Area

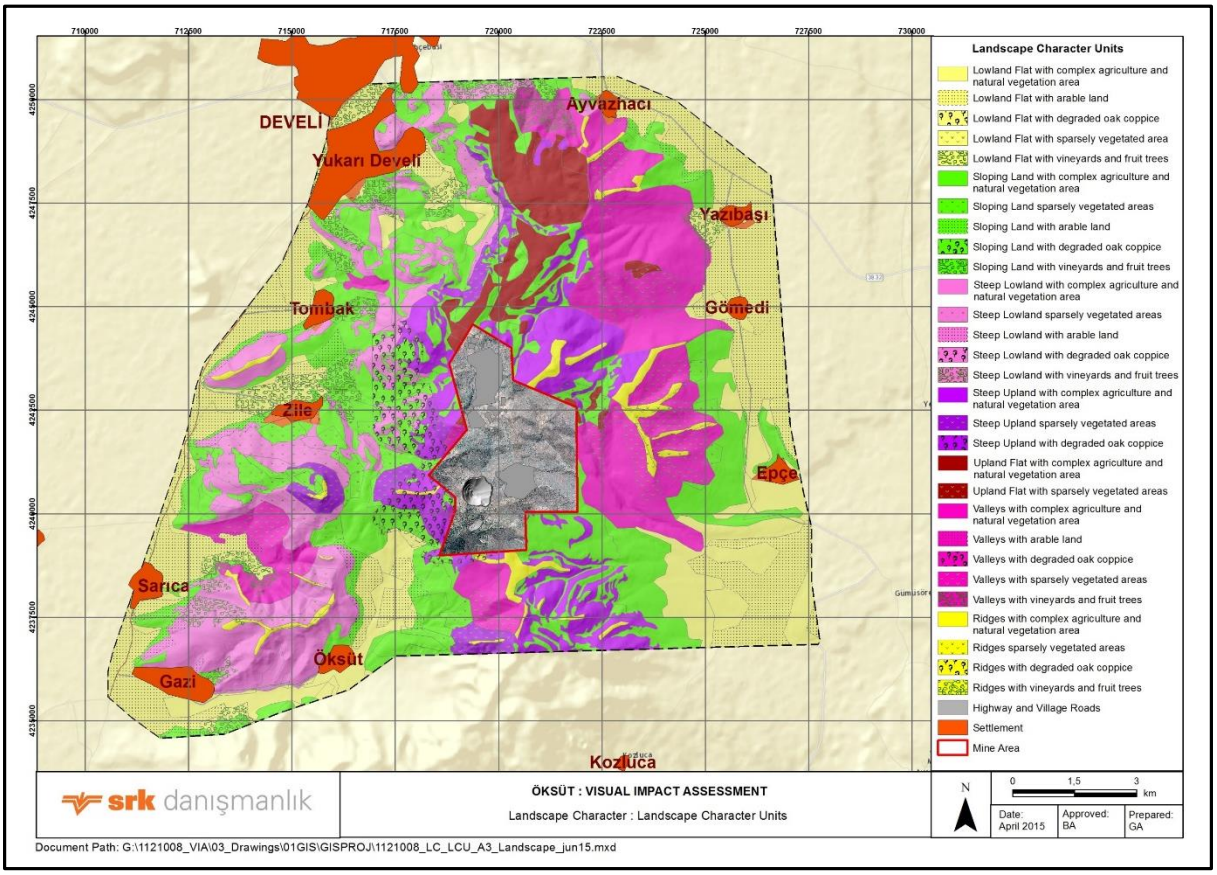
	High Quality View	Medium Quality View	Low Quality View
Topographic Features	Strong Valley Form	Upland flat	Lowland flat
	Broad Valley	Sloping land	Lower land flat
	Steep Upland	Steep lower land	Steep lowland
	-	Ridge	-
Vegetation Features	Fruit Trees and berry plantations	Degraded Oak Coppice	Arable Land
	Vineyard	Complex area with cultivation, shrubbery and grassland	Agriculture and Natural Vegetation
Land Use Features	Vineyards	Natural grass land	Discontinuous urban fabric
	-	Lands principally occupied by agriculture with significant areas of natural vegetation	Industrial and commercial units
	-	Transitional woodland-shrub	Non-irrigated arable land
	-	Sparsely vegetated areas	Permanently irrigated arable land
	-	-	Complex cultivation patterns
Anthropogenic Features	-	-	Settlements
	-	-	Roads

12.4.2 Landscape Character Units

Landscape character units were determined by a combination of topography, vegetation, land use and anthropogenic features. Thirty two different landscape character units were determined in the study area.

“Lowland flat with arable land” and “Sloping land with complex agriculture and natural vegetation area” dominate the landscape views in the study area. The landscape character units are illustrated in Figure 12-3.

Figure 12-3: Landscape Character Units of the Study Area



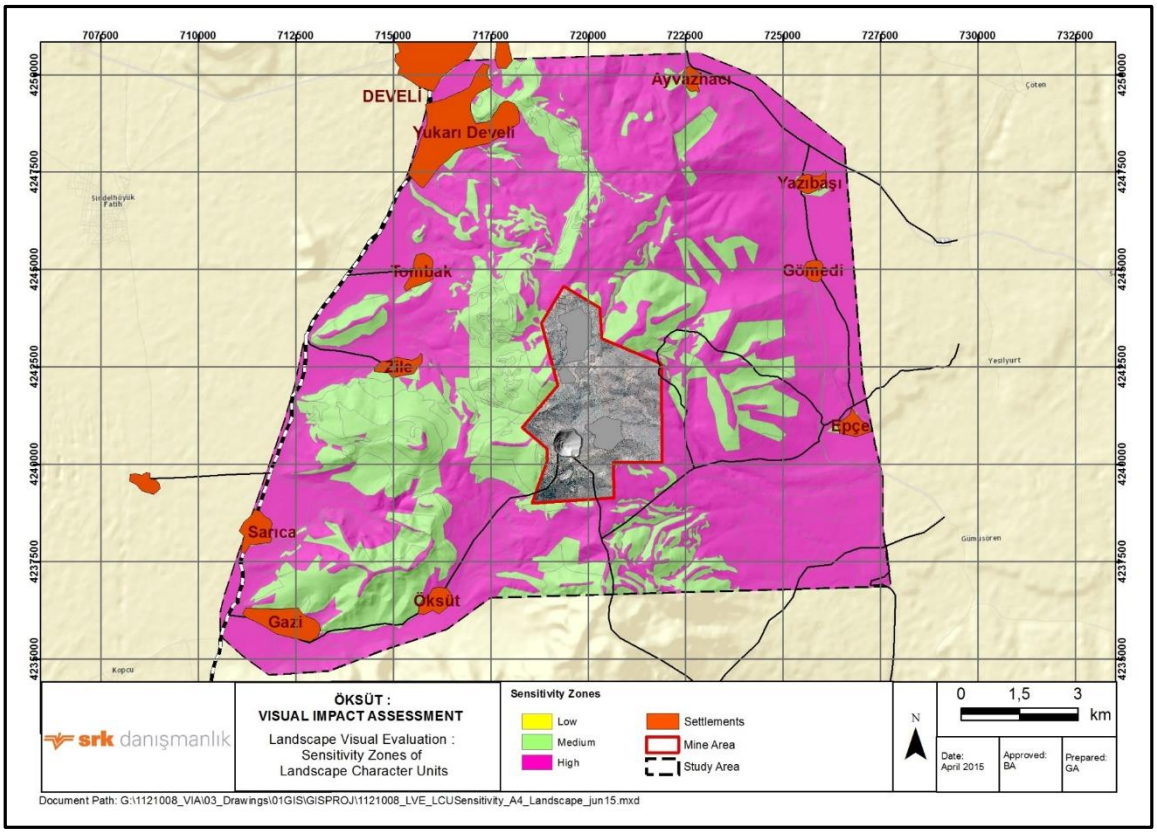
The visual quality (vividness; intactness; unity) and visual absorption capacity (slope; height of vegetation; density of visual pattern) were used to determine the sensitivity of each landscape character unit, and are shown in Table 12-3 below. Figure 12-4 presents the sensitivity zones in the study area.

Table 12-3: Landscape Character Unit Sensitivity

Landscape Character Unit	Sensitivity
Lowland Flat with complex agriculture and natural vegetation area and arable land	High
Lowland Flat with degraded oak coppice and sparsely vegetated area	High
Lowland Flat with vineyards and fruit trees	High
Sloping Land with complex agriculture and natural vegetation area and arable land	High
Sloping Land with degraded oak coppice and sparsely vegetated area	Moderate
Sloping Land with vineyards and fruit tree	High
Steep Lowland with complex agriculture and natural vegetation areas and arable land	Moderate
Steep Lowland with degraded oak coppice and sparsely vegetated areas	Moderate
Steep Lowland with vineyards and fruit trees	High
Steep Upland with complex agriculture and natural vegetation area	Moderate
Steep Upland with degraded oak coppice and sparsely vegetated area	Moderate
Upland Flat with complex agriculture and natural vegetation area	High
Upland Flat with sparsely vegetated area	High
Valleys with complex agriculture and natural vegetation area and arable land	High
Valleys with degraded oak coppice and sparsely vegetated areas	Moderate

Landscape Character Unit	Sensitivity
Valleys with vineyards and fruit trees	High
Ridges with complex agriculture and natural vegetation area	High
Ridges with degraded oak coppice and sparsely vegetated areas	High
Ridges with vineyards and fruit trees	High
Settlements, highway and village roads	Moderate

Figure 12-4: Sensitivity Zones of Landscape Character Units



12.4.3 Sensitive Viewpoints

Mine Site

The following potentially sensitive areas exist in the study area:

- The villagers located in the residential areas (permanent viewpoints);
- Acısu recreation area (temporary viewpoints);
- Road users travelling west and east along the Develi Road, Develi-Yahyalı Road and village roads (mobile viewpoints).

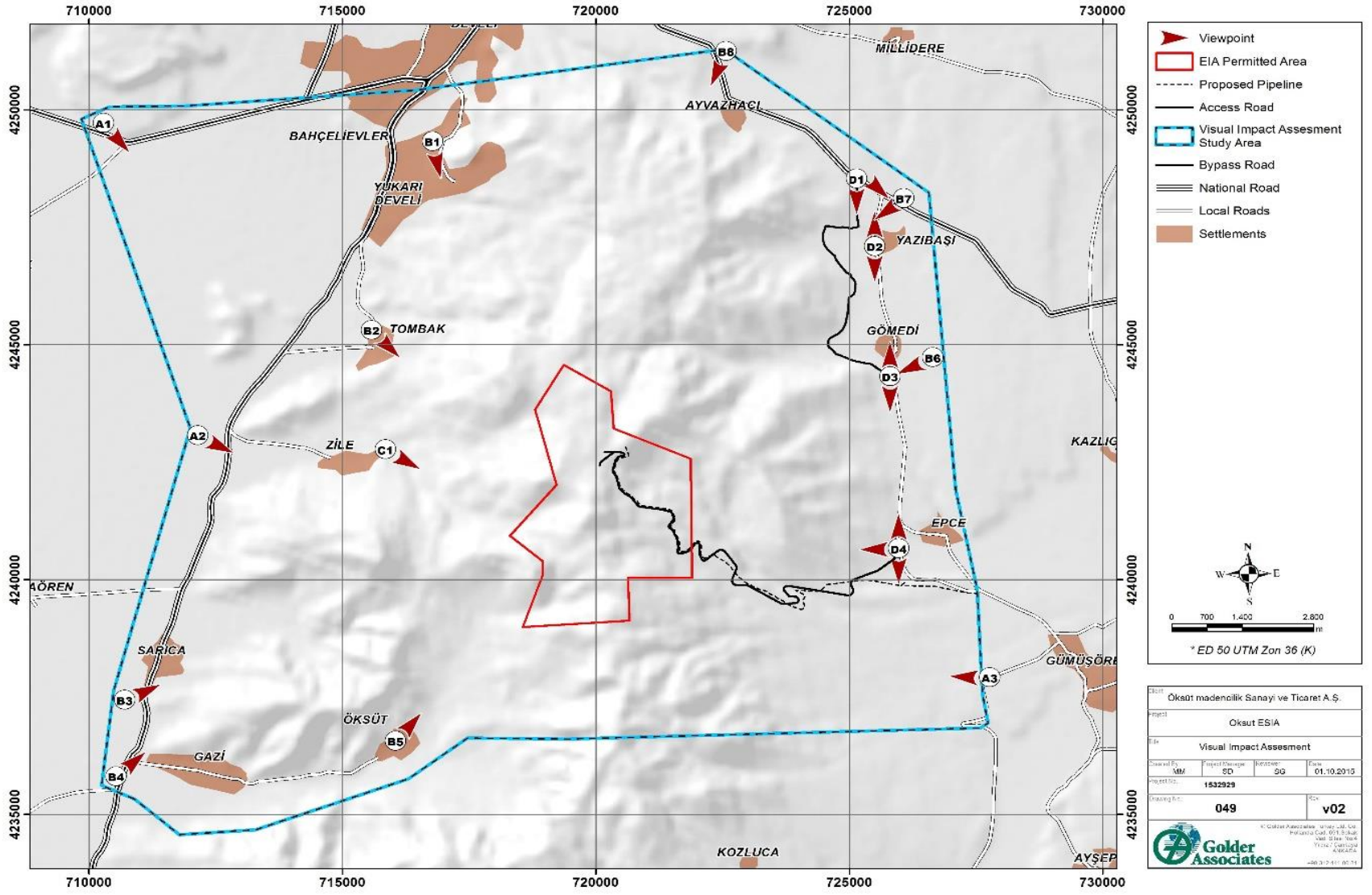
Key sensitive viewpoints are presented in Table 12-4 and are identified on Figure 12-5.

Table 12-4: Sensitive Viewpoints

#	Viewpoint Location	Landscape Units seen by viewpoint	Landscape Sensitivity
A1	Develi Road	Lowland Flat and Sloping Land with complex agriculture and natural vegetation area and arable land, Sloping Land, Steep Lowland and Steep Upland with degraded oak coppice and sparsely vegetated areas	High to Moderate
A2	Develi - Yahyalı Road	Lowland Flat with complex agriculture and natural vegetation area and arable land , Sloping Land, Steep Lowland and Steep Upland with degraded oak coppice and sparsely vegetated areas	High to Moderate
A3	Epçe-Gümüşören Road	Lowland Flat with complex agriculture and natural vegetation area and arable land, Sloping Land with complex agriculture and natural vegetation area	High
B1	View from southern-east side of Yukarı Develi	Sloping Land with vineyards and fruit tree, Sloping Land with sparsely vegetated area, Steep Lowland and Upland with sparsely vegetated areas, Upland Flat with sparsely vegetated area	High and Moderate to High
B2	View from southern-east side of Tombak	Sloping Land with sparsely vegetated area, Sloping Land, Steep Lowland and Steep Upland with degraded oak coppice and sparsely vegetated areas	Moderate
B3	View from north-east side of Sarıca	Lowland Flat and Sloping Land with complex agriculture and natural vegetation area and arable land, Steep Lowland and Valleys with sparsely vegetated areas, Sloping Land and Steep Upland with degraded oak coppice and sparsely vegetated areas	High to Moderate
B4	View from north-east side of Gazi	Steep Lowland with sparsely vegetated areas, Ridges with sparsely vegetated areas, Sloping Land and Steep Upland with degraded oak coppice and sparsely vegetated areas	Moderate and High to Moderate
B5	View from north-east side of Öksüt	Lowland Flat with complex agriculture and natural vegetation area and arable land, Sloping Land and Steep Upland with degraded oak coppice and sparsely vegetated areas	High to Moderate
B6	View from southern-west side of Gömedi	Sloping Land with sparsely vegetated area, Valleys with sparsely vegetated areas, Ridges with sparsely vegetated areas	Moderate to High
B7	View from southern-west side of Yazıbaşı	Valleys and Steep Uplands with complex agriculture and natural vegetation area	High to Moderate
B8	View from southern-west side of Ayvazhacı	Valleys and Upland Flat with complex agriculture and natural vegetation area	High
C1	Acısu recreation area	Sloping Land with complex agriculture and natural vegetation area, Steep Lowland and Steep Upland with degraded oak coppice and sparsely vegetated areas	High to Moderate

Viewpoints D1-D4 represent the photographs taken during the July 2015 fieldwork (provided in *Annex M*) and are considered to represent views of the infrastructure corridors from sensitive viewpoints in Yazıbası, Gömedi and Epçe. The viewpoints are considered to be similar to B6, B7 and B8 described in Table 12-4 above, with a landscape made up of valleys and steep uplands with complex agriculture and natural vegetation area; and of high to moderate sensitivity.

Figure 12-5: Sensitive Viewpoints looking towards mine site



Powerline

Towers 1-37, along the western end of the powerline route, where it runs outside the northern boundary of the Sultan Sazlığı wetland, the powerline will run within a few hundred metres between two existing powerlines, both of which are shown in Figure 12-6 below. As any viewpoints from outside these existing powerlines will already be modified, sensitive viewpoints in Çayirözü and Soysallı have not been considered.

Figure 12-6: Existing powerlines near Çayirözü

Sensitive viewpoints are considered to be in settlements along the powerline route where this powerline will represent a new visual intrusion.

The landscape character sensitivity for Tombak and Zile was considered for the mine site as part of the SRK report, with moderate to high sensitivity. The landscape character around Sindelhöyük is lowland arable and is considered to be of moderate to high sensitivity. As shown in Figure 12-2, there are existing powerlines surrounding the neighbourhoods of Zile, Tombak and Sindelhöyük. As views from these neighbourhoods are already intruded by existing powerlines, the sensitivity of viewpoints from these neighbourhoods are considered to be low to medium.

12.5 Impact Assessment

Scoped In

Mine Site
The viewpoints identified in the *Annex L* SRK Report have been scoped into this impact assessment.

Powerline
Residents of Zile, Tombak and Sindelhöyük who have a viewpoint of the powerline.

Scoped Out

As the views are already modified, the potential impact of the powerline on viewpoints from Çayirözü and Soysalli have been scoped out of this assessment.

The potential impact of construction of the access road and water supply pipeline was considered during the ESIA scoping phase in July 2015. Photographs were taken from potentially sensitive viewpoints at Yazıbası, Gömedi and Epçe (these are available in *Annex M*). The view of construction of these linear infrastructure components will be temporary and the construction period for all infrastructure components is under 1 year. Traffic from operation of the mine is not considered heavy enough to cause a significant effect during operation. It is therefore considered that the infrastructure components will not cause potential impacts, and have been scoped out of this assessment.

12.5.1 Impact Assessment

Mine Site

Table 12-5 summarises the visual impact at each sensitive viewpoint according to results of analysis of landscape character unit sensitivity, visibility and proximity.

Table 12-5: Summary of Visual Impacts at Sensitive Viewpoints

Sensitive Viewpoint Location	Sensitivity of Landscape Character Unit	Visibility	Proximity	Impact Significance
Develi Road (A1)	High to Moderate	Low to Moderate	Low to Very Low	**Low**
Develi-Yahyalı Road (A2)	High to Moderate	Moderate to High	Low to Very Low	**Moderate**
Epçe-Gümüşören Road (A3)	High	Moderate to High	Low to Very Low	**Moderate**
View from southern-east side of Yukarı Develi (B1)	High and Moderate to High	None	Low to Very Low	None
View from southern-east side of Tombak (B2)	Moderate	None	Low to Very Low	None
View from north-east side of Sarıca (B3)	High to Moderate	None	Low to Very Low	None
View from north-east side of Gazi (B4)	Moderate and High to Moderate	None	Low to Very Low	None
View from north-east side of Öksüt (B5)	High to Moderate	Moderate to High	Low to Very Low	**High**
View from southern-west side of Gömedi (B6)	Moderate to High	None	Low to Very Low	None
View from southern-west side of Yazıbaşı (B7)	High to Moderate	None	Low to Very Low	None
View from southern-west side of Ayvazhacı (B8)	High	None	Low to Very Low	None
Acısu recreation area (C1)	High to Moderate	Very Low	Low to Very Low	**Low**

Photomontages for all sensitive viewpoints are provided in *Annex L*[8]. A summary of potential impacts for sensitive viewpoints with a potential impact (as outlined in Table 12-5 above) is provided Table 12-6 and photomontages are provided in Figure 12-7 to Figure 12-11 below.

Table 12-6: Sensitive Viewpoint Visual Impact Assessment Summary

Sensitive Viewpoint	Impact Summary
Viewpoint A1 **Develi Road**	This viewpoint was determined as having a **low significance of impact**. As seen in Figure 12-77, this view includes lowland flat, sloping land with complex agriculture and natural vegetation area view in forward. Sensitivity of this view was determined as high to moderate sensitivity. Visibility of the mine site was defined as low to moderate which is presented on the visibility map in the bottom right corner. The HLP is partially visible from this view.
Viewpoint A2 **Develi – Yahyalı Road**	This viewpoint was determined as having a **moderate significance impact**. As seen in Figure 12-88, this view includes lowland flat with complex agriculture, natural vegetation are and arable land in forward view. Sensitivity of this view was determined as moderate to high sensitivity. Visibility of the mine site was defined as moderate to high which is presented in the visibility map in the bottom right corner. The HLP and the east of the Keltepe Pit are partially visible from this view.
Viewpoint A3 **Epçe-Gümüşören Road**	This viewpoint was determined as having **moderate significance of impact**. As seen in Figure 12-9, this view includes sloping land with sparsely vegetated area and valleys with sparsely vegetated areas in forward view. Sensitivity of this view was determined as high sensitivity. Visibility of the mine site was defined as moderate to high which is presented in the visibility map in the bottom right corner. The WRD is partially visible from this view.
Viewpoint B5 **Öksüt**	This viewpoint was determined as having **high significance of impact**. As seen in Figure 12-1010 this view includes lowland flat with complex agriculture, natural vegetation area, arable land, sloping land, steep upland with degraded oak coppice and sparsely vegetated areas. Sensitivity of this view was determined as high to moderate sensitivity. Visibility of the mine site was defined as moderate to high which was presented on the visibility map on right bottom corner. The Keltepe and Güneytepe Pits are partially visible from this view.
Viewpoint C1 **Acısu Recreation Area**	This viewpoint was determined as having **low significance of impact**. As seen in Figure 12-111 this view includes sloping land with complex agriculture, natural vegetation area, steep lowland, steep upland with degraded oak coppice and sparsely vegetated areas. Sensitivity of this view was determined as high to moderate sensitivity. Visibility of the mine site was defined as very low which is presented in the visibility map in the bottom right corner. The topsoil storage area is slightly visible from this view.

[8] Figures 6.1-6.12 in the Visual Impact Assessment for Öksüt Gold Mine Project (SRK, June 2015)

Figure 12-7: Viewpoint A1 Develi Road

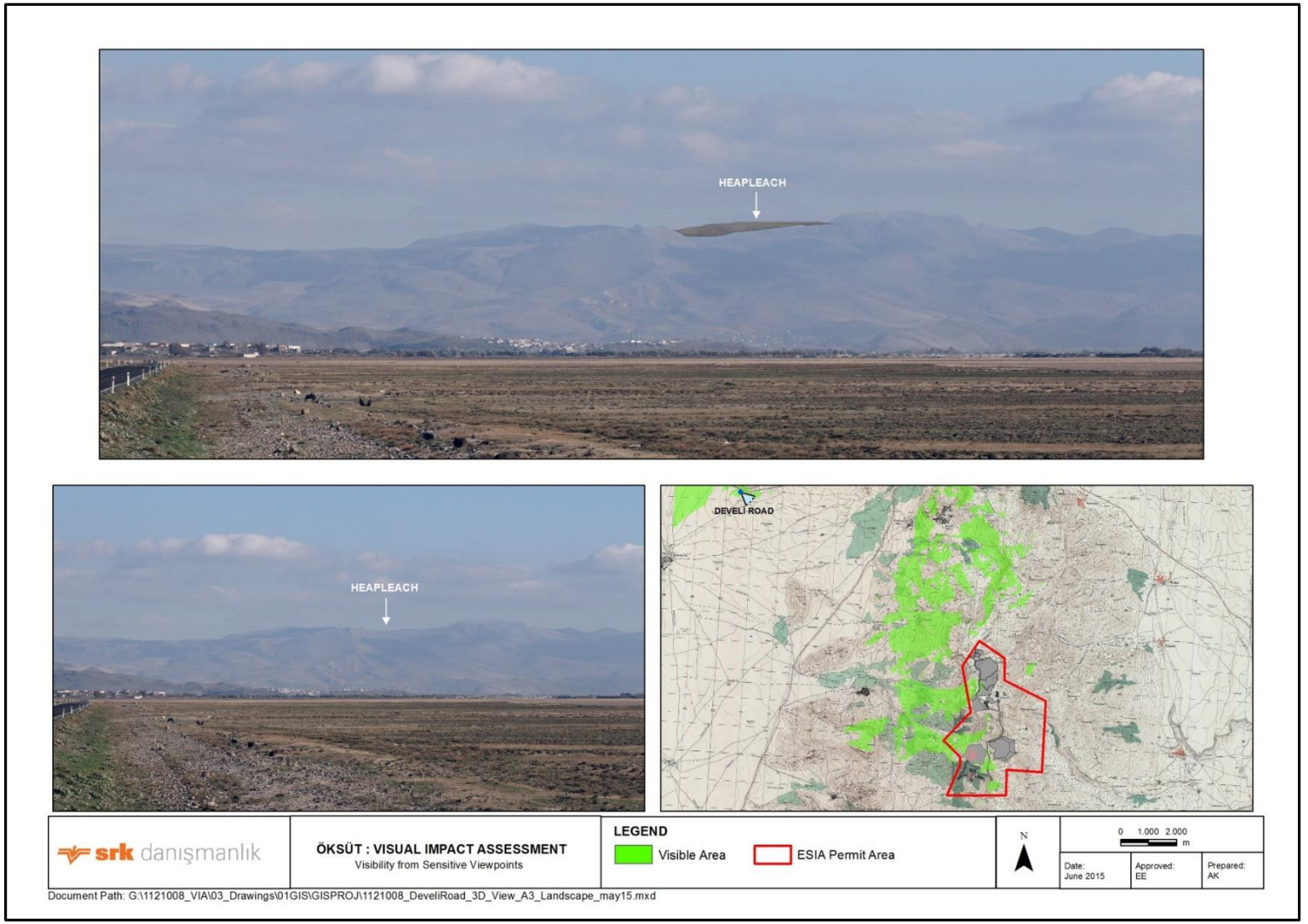


Figure 12-8: Viewpoint A2 Develi – Yahyalı Road

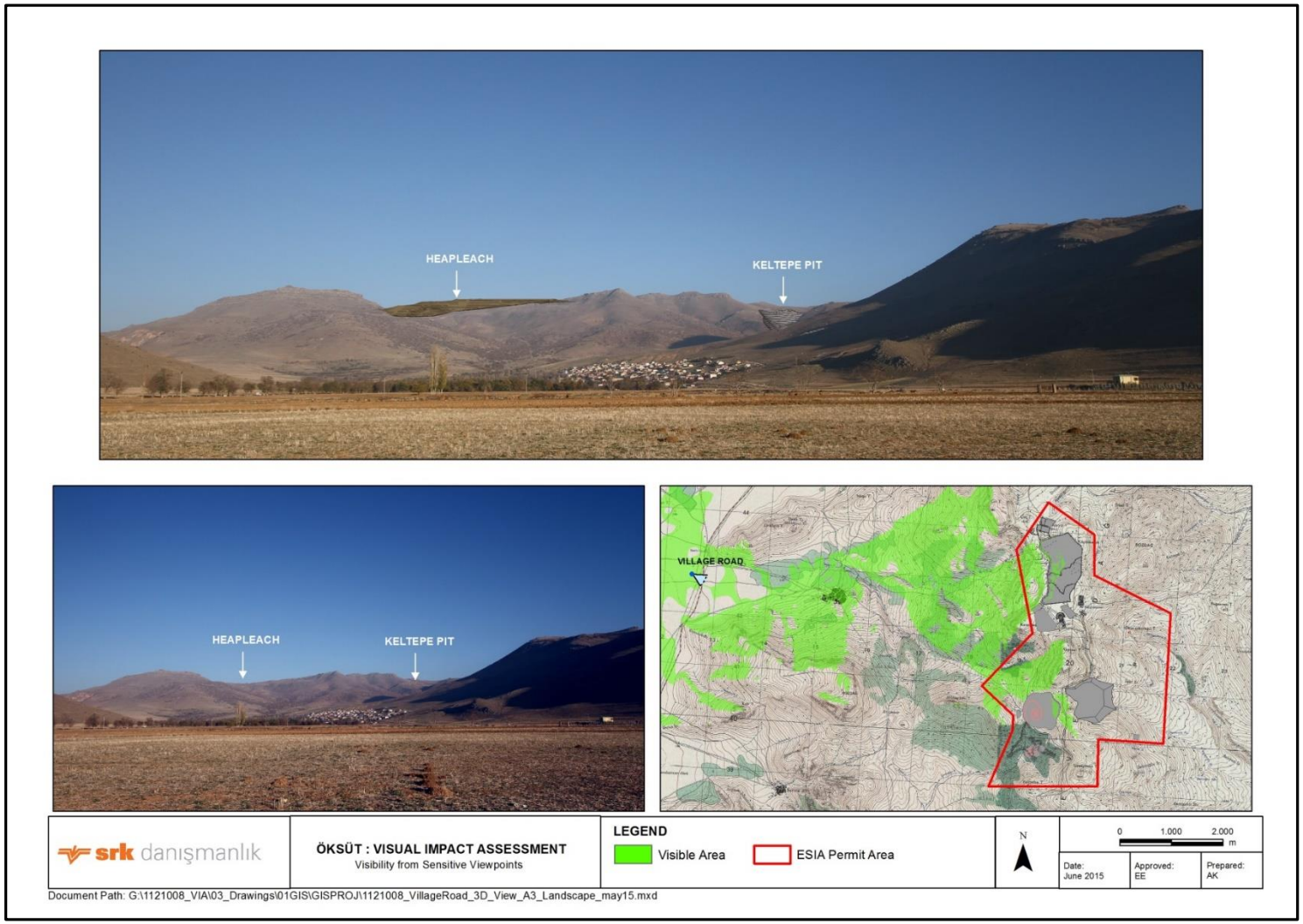


Figure 12-9: Viewpoint A3 Epçe-Gümüşören Road

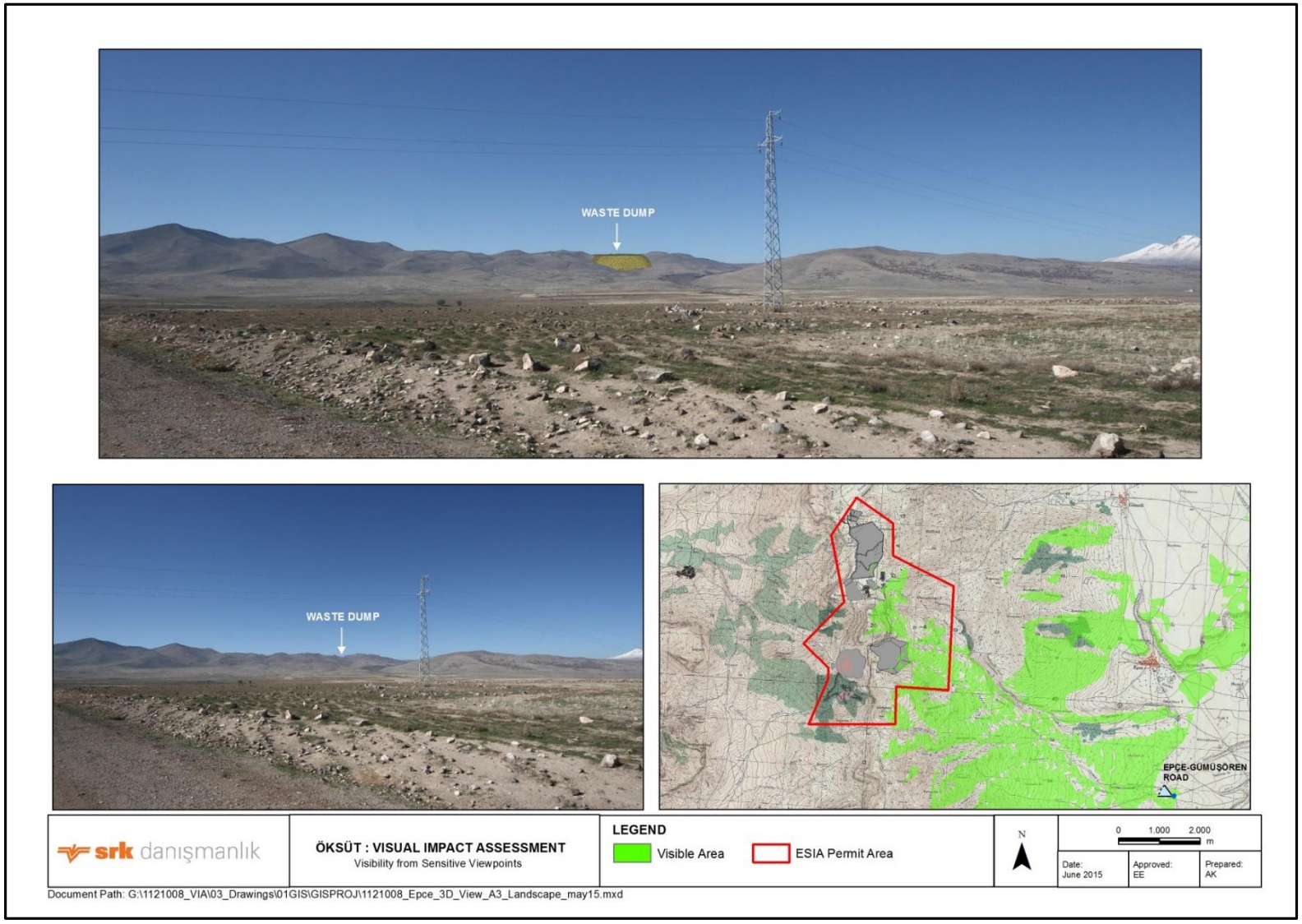


Figure 12-10: Viewpoint B5 Öksüt

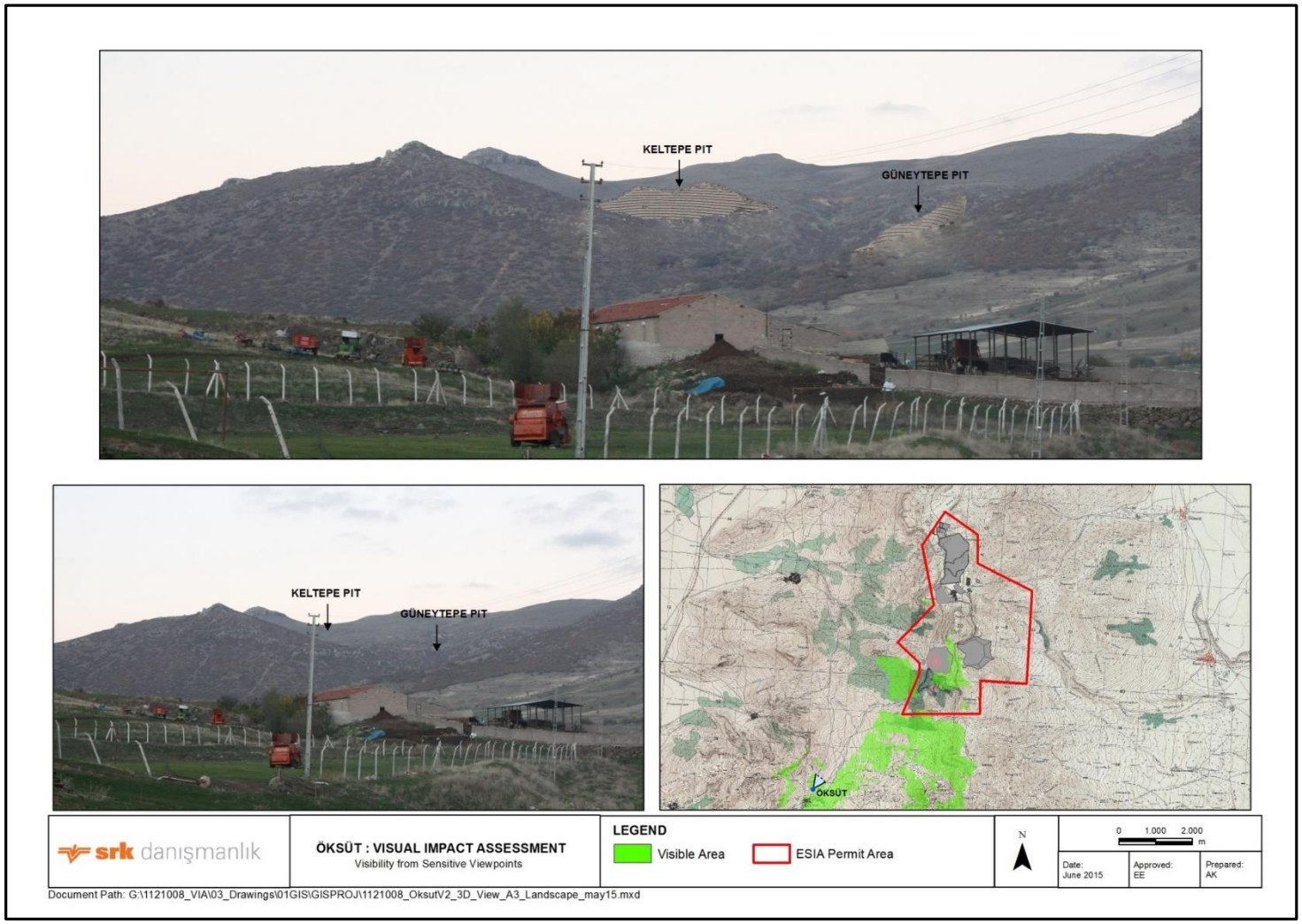
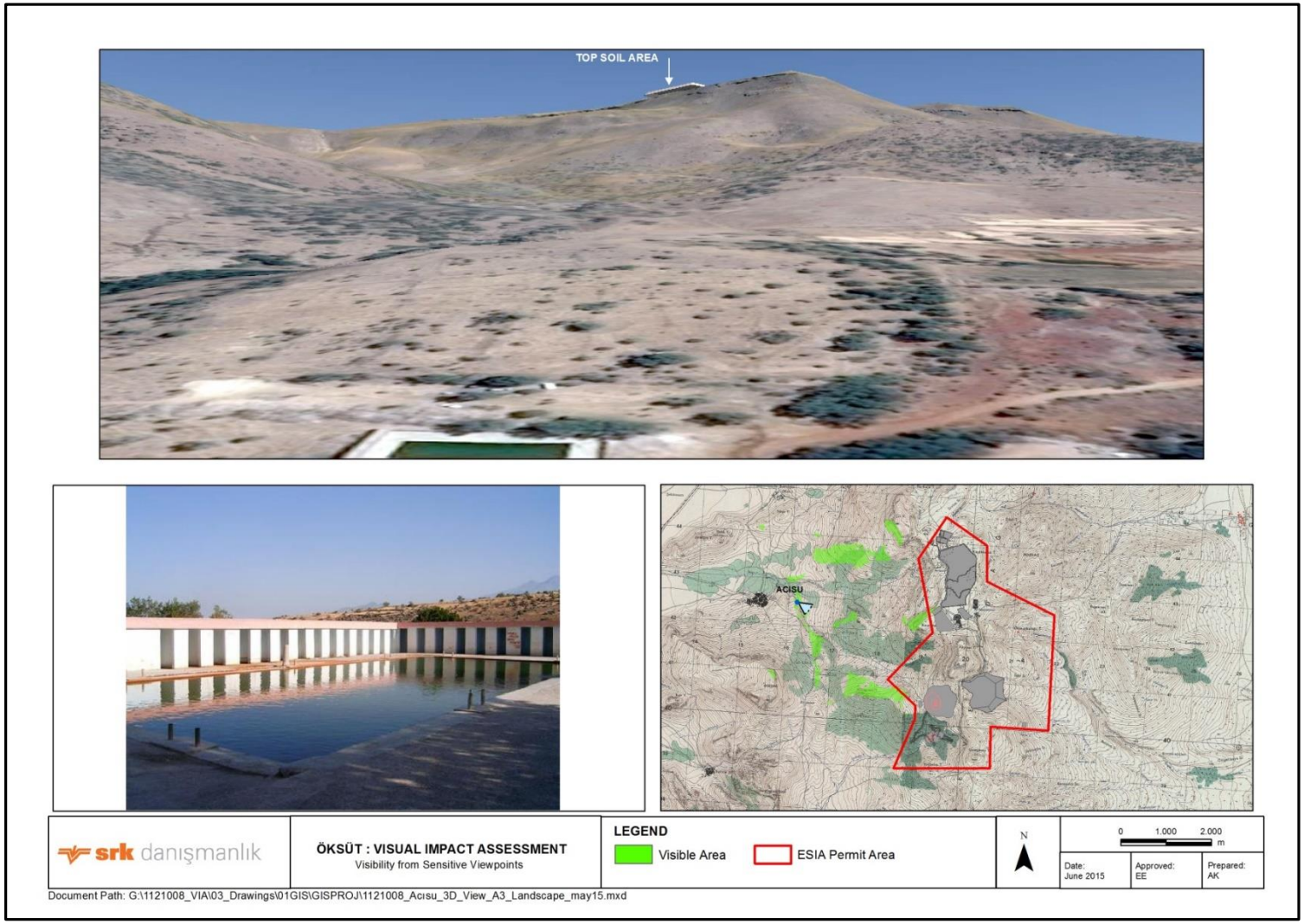


Figure 12-11: Viewpoint C1 Acısu Recreation Area



Powerline

The impact assessment considers that there is a potential low visual impact if there is a powerline tower within 5.6 km of a settlement, and a potential high visual impact within 2.4 km. These impact zones along the powerline route are shown in Figure 12-12 below (impacts on viewpoints from Çayirözü and Soysalli have been scoped out of this assessment).

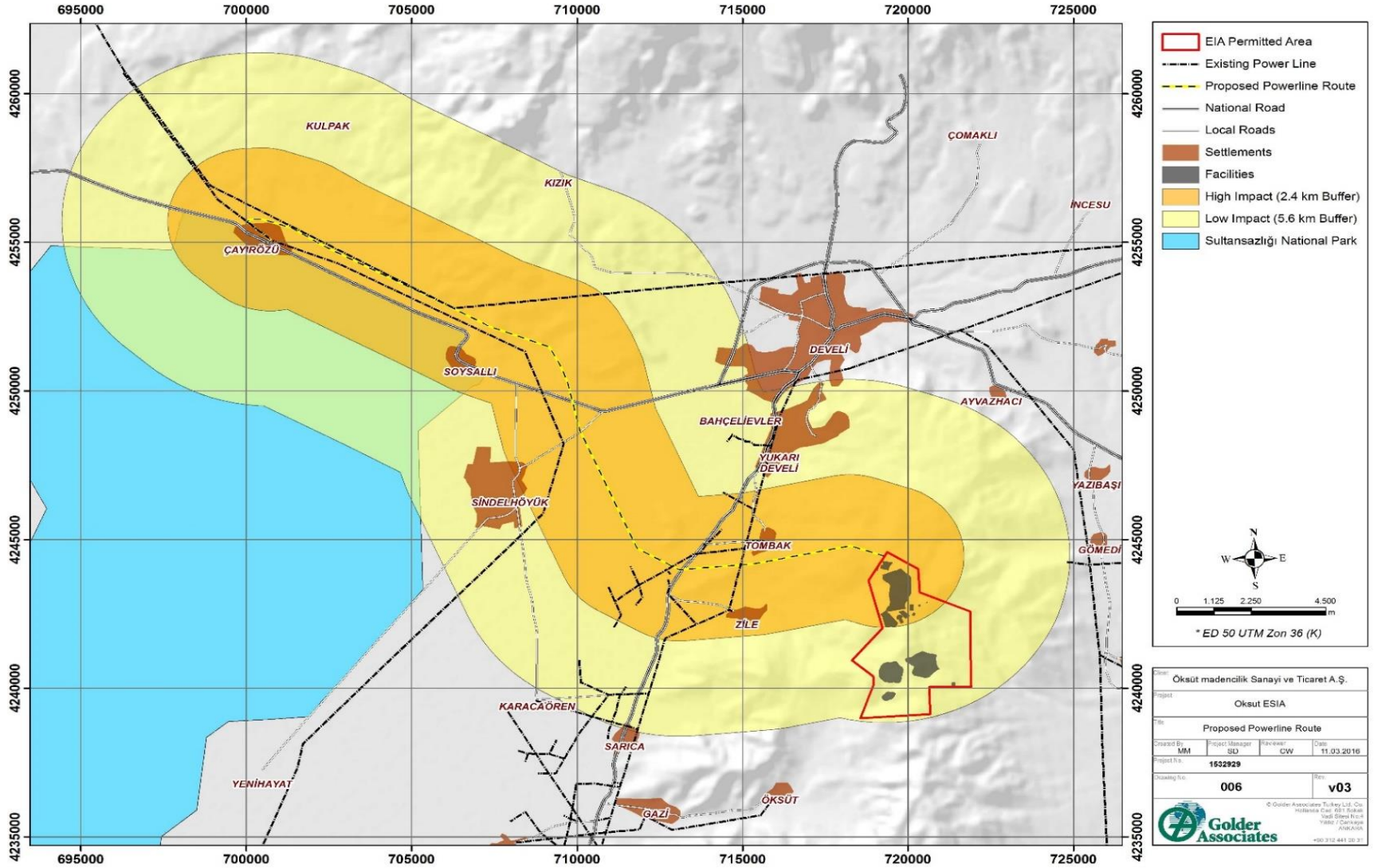
The nearest powerline towers to the remaining settlements are outlined in Table 12-7.

Table 12-7: Nearest Powerline Towers to Neighbourhoods

Neighbourhood	Tower #	Tower height	Tower distance from neighbourhood (approximate)
Zile	66	27.8 m	1.5 km: potential high impact
Tombak	66	27.8 m	500 m: potential high impact
Sindelhöyük	43	23.2 m	2 km: potential high impact

As shown in Figure 12-12, there are existing powerlines that will be in front of any views of the new powerline. This indicates that the intrusion from the new powerline will not be as severe as if the viewpoint was not already modified and the magnitude of impact is considered to be low as a result. The powerline will however be visible from some viewpoints and the effect significance is considered to be **minor to moderate**.

Figure 12-12: Potential areas of visual impact along the powerline route



12.5.2 Mitigation Measures

Screening

Screening in the form of soils and stone will be considered as the Project is situated in a rural area and sparsely vegetated area. However, this is not a practical solution for many features and associated impacts, such as the impact from the Visibility of the Keltepe and Güneytepe Pits at Öksüt.

It may be possible to plant suitable vegetation on the east side of the Develi-Yahyalı Road to reduce the visibility of the HLP and Keltepe Pit which are partially visible on an approximately 1,800 m long section of the road.

It is not possible to screen the power line.

Reclamation

The closure phase, consisting of rehabilitation and re-naturalization operations will likely cover a period of 3 years. During the closure phase, operational areas will be re-contoured. Re-contoured areas will be covered with topsoil and re-planted with suitable local species. Plant species which can grow under the conditions in the region will be identified in the Closure Plan. Reclamation will take place in the areas previously occupied by the mine facilities, with the exception of the open pits and the access road which will be maintained in order to allow monitoring activities during the post closure phase.

The open pits, WRD and HLP are the key visible Project features from various viewpoints

- The WRD and the HLF will be covered with a cover layer to minimise infiltration of precipitation. The cover layer may comprise an upper layer of soil to allow reclamation and planting, however, is it unlikely that the reclamation of these areas will bring them close to their natural state during the closure and post closure phase.
- The open pits will be surrounded by an embankment of inert material to stop the accidental entrance of surface flows.

Low Visibility Materials

Shiny building materials will be avoided.

Powerline towers will have a non-reflective finish.

Painting all or part (i.e. the base) of the powerline towers a darker grey colour would assist in reducing their prominence within such views.

Lighting

The lighting design requirements will not exceed the functional requirements of the Project and will include:

- Installing light fixtures that provide precisely directed illumination to reduce light “spillage” beyond the immediate surrounds of the project units;
- Avoiding high mast top security lighting along the periphery of the site and using only lights that are activated on movement to discourage illegal entry to the site;
- Lighting onsite should be localised to those areas where workers are operating at the time.

If it is necessary for safety purposes to use lighting along mine roads, then LED lighting that is downward directional and side-screened for the Project facilities and mine roads will be used.

Decommissioning

Decommissioning by totally or partially removing Project facilities is not possible for large scale facilities. However, the topsoil storage area will be removed during closure which will reduce the visual impact at the Acısu Recreation Area (C1).

12.5.3 Residual Effect

The residual effect is considered to be **negligible** at Develi Road (A1) and Acisu Recreation Area (C1). The residual effect is considered to be **minor adverse** at Develi – Yahyalı Road, Epçe-Gümüşören Road and Öksüt.

There are some visual receptors in close proximity to the powerline and the presence of the towers will intrude on their existing views. The residual effect is considered to be **minor adverse**.

12.6 Summary of Impacts and Mitigation Measures

A summary of potential impacts and proposed mitigation measures as described above are summarised in Table 12-8.

Table 12-8: Summary of Impacts and Mitigation Measures

Impact	Receptor	Receptor Sensitivity (1)	Impact Category	Magnitude of Impact (2)	Potential Effect Significance (3)	Design and Mitigation Measures	Management Plans, Policies and Procedures	Residual Effect Significance(4)
Visual	Viewpoint A1: Develi Road	High to Medium	negative	Low to Medium	Minor	• Rehabilitation of WRD and HLF at mine closure. • Use of non-specular materials in construction • Decommissioning and removal where possible of mine infrastructure	Mine Closure Plan	**Negligible**
Visual	Viewpoint A2: Develi – Yahyalı Road	High to Medium	negative	Medium to High	Moderate	• Rehabilitation of WRD and HLF at mine closure. • Use of non-specular materials in construction • Decommissioning and removal where possible of mine infrastructure	Mine Closure Plan	**Minor**
Visual	Viewpoint A3: Epçe-Gümüşören Road	High	negative	Medium to High	Moderate	• Rehabilitation of WRD and HLF at mine closure. • Use of non-specular materials in construction • Decommissioning and removal where possible of mine infrastructure	Mine Closure Plan	**Minor**
Visual	Viewpoint B5: Öksüt	High to Medium	negative	Medium to High	Major	• Rehabilitation of WRD and HLF at mine closure. • Use of non-specular materials in construction • Decommissioning and removal where possible of mine infrastructure	Mine Closure Plan	**Minor**
Visual	Viewpoint C1: Acısu Recreation Area	High to Medium	negative	Very Low	Minor	• Rehabilitation of WRD and HLF at mine closure. • Use of non-specular materials in construction • Decommissioning and removal where possible of mine infrastructure	Mine Closure Plan	**Negligible**
Visual	Viewpoints along powerline route	Low to Medium	negative	Low	Minor to Moderate	• Towers will have a non-reflective finish. • Painting all or part (i.e. the base) of the towers a darker grey colour would assist in reducing their prominence within such views.	-	**Minor**

Notes:

[1]Receptor sensitivity is taken to be the determined sensitivity of the landscape character unit within the view from the viewpoint (refer to Table 12-5). When the terminology is compared to Table 3-1, it is interchangeable apart from “moderate” which is interchangeable with “medium”.

[2]Impact magnitude is taken to be the determined visibility of the mine site within the view from the viewpoint (refer to Table 12-5). When the terminology is compared with Section 3.7.2, it is interchangeable apart from “moderate” which is interchangeable with “medium”.

[3]Potential effect significance is taken to be the determined impact significance within the view from the viewpoint (refer to Table 12-5). When the terminology is compared with Table 3-2, it is interchangeable apart from “minor” is interchangeable with “low” and “major” is interchangeable with “high”.

[4]Residual effect significance was determined using the information described in the points above and applying professional judgement to whether the mitigation measures will lead to a residual effect, based on the matrix provided in Table 3-2.

12.7 Monitoring Requirements

Monitoring of visual impacts primarily constitutes monitoring of community and stakeholder attitudes to mine development as it progresses. Any lodged grievances will be recorded and dealt with via the Grievance Mechanism within the Project's Stakeholder Engagement Plan.

Source Document	Monitoring Location	Parameters	Frequency
Stakeholder Engagement Plan OMAS-ESMS-SEP-PLN-001	Communities	Grievance	As lodged by grievant