DETAILED DESIGN, TECHNICAL SPECIFICATIONS AND BILL OF QUANTITIES

&

ENVIRONMENTAL AND SOCIAL SCREENING AND MONITORING FRAMEWORK

for the Contract

Ref: AL-MTE-2.3.1-1-CS-CQS

Technical Assistance for Investment Planning in Afforestation, Pasture Improvement and Erosion Control

Prepared By:

Mr. Dhimitër Pina

Mrs. Alda Schënekës (Mile)

Mr. Amarildo Guri

Mr. Fatos Tola

Contents

1. Introduction, scope and basis of the design 4
1.1 Scope and structure 4
1.2 What the design keeps from the Project, and what it changes 4
2. Design inputs and site data 5
2.1 Site data 5
2.2 Areas and quantities 6
2.3 Climate and timing 6
2.4 Design assumptions 6
3. Detailed design 6
3.1 Design parameters 7
3.2 Zones, flight blocks and seeding schedule 7
3.3 Road outlets and cut slopes 8
3.4 Aerial seeding 8
3.5 Sequence and calendar 9
3.6 Protection and monitoring 9
4. Technical specifications 10
4.1 General 10
4.2 Mapping and site preparation 11
4.3 Seed and pellets 11
4.4 Drones and flight operations (items A5–A6) 12
4.6 Calibration and trial flight 12
4.7 Verification and completion report 13
4.8 Measurement, adjustment and payment 13
5. Bill of quantities and cost estimate 13
5.1 Summary 13
5.2 Preparation and aerial seeding 14
6. Geographic information system maps, drawings and typical details 14
6.1 Design geographic information system maps 14
7. Implementation, phasing and lots 16
7.1 Responsibilities 16
7.2 Site-preparation method 17
7.3 Implementation methodology 18
7.4 Phasing 18
8. Procurement notes 20

8.1 Qualification Requirements 20
8.2 Proposed Key Personnel 20
8.3 Required Equipment 21
9. Environmental and social measures, risks and permits 22
9.1 Environmental and social measures 22
9.2 Risks 23
9.3 Permits and approvals 24
10. Conclusions 24
Annex A. Boundary coordinates 25
A.1 Treatment polygon, Dukat–Luzat, cadastral zone 1149 (18 points) 25
A.2 Zone limit of forest parcels 65/a and 65/b (6 points) 25
Annex B. Data of the Project (October 2026) 25
B.1 Identity, purpose and objectives 26
B.2 Work plan of the Project 26
B.3 The site as described in the site selection 27
B.4 Climate of the Project 27
B.5 Technique, species and planting units in the Project 28
B.6 Budget of the Project 29
B.7 Risks, sustainability, impact and monitoring in the Project 29
Annex C. Implementation Annex: environmental and social monitoring 31
1. Purpose and scope 31
2. Roles and responsibilities 32
3. Environmental and social hold points 34
4. Implementation Environmental and Social Management Plan 35
5. Monitoring plan 37
5.1 Compliance monitoring during works 37
5.2 Performance monitoring after seeding 38
5.3 Field sampling 39
6. Flight-day protocol 39
7. Incident management 39
8. Grievance mechanism during implementation 40
9. Reporting 40
10. Non-compliance and corrective action 41
Appendix A – Weekly Environmental and Social Management Plan compliance checklist (Supervisor) 42
Appendix B – Flight-day log and safety checklist (Contractor) 44
Appendix C – Incident report form 44
Appendix D – Site grievance log (Contractor site focal point) 46

Appendix E – Monitoring plot field form 46
Appendix F – environmental and social section of the seeding completion report (P6) 47
Appendix G – Contract environmental and social clauses ES-1 to ES-16 48

1. Introduction, scope and basis of the design

This document sets out the detailed design, the technical specifications and the priced bill of quantities for the afforestation of about 89.3 ha of burned and eroded forest land by drone seeding at the Dukat–Luzat pilot site: forest parcels 65/a (about 39.4 ha) and 65/b (about 48.0 ha) of the Dukat–Luzat Forest Economy, in cadastral parcel no. 7 of cadastral zone 1149 (244.6 ha in all), Tepelenë Municipality, on the slopes between the Bënça and the Drino south of the town of Tepelenë. The site lies outside the Vjosa National Park, but the Bënça and the Drino, into which its gullies drain, are part of the park. The site burned in the 2024 fire and is included in the latest update of the State Authority for Geospatial Information as one of the two forest zones selected under Decision of the Council of Ministers No. 398, dated 13 May 2020. The document finalises the Afforestation Project for the request for quotations planned for November 2026, and it applies the restoration model selected in the Restoration Model and Concept Design Package. The bill of quantities is priced in Euro (EUR), excluding value added tax.

1.1 Scope and structure

Section 2 gives the design inputs and site data. Section 3 is the detailed design: the zones, the aerial seeding and the protection and monitoring. Section 4 holds the technical specifications, written so that they can be annexed to the request for quotations. Section 5 is the bill of quantities and cost estimate. Section 6 holds the geographic information system maps, the drawing list, the typical details and the maps and photographs of the Project. Section 7 gives the responsibilities, the site-preparation method, the implementation methodology, the phasing, the lots and the inspection and test plan. Section 8 is the procurement note, and Section 9 covers environmental and social measures, risks and permits, while Section 10 gives the conclusions. Annex A holds the boundary coordinates, Annex B the data of the Project, Annex C the Technical Specifications for the request for quotations and Annex D the Implementation Annex for environmental and social monitoring.

1.2 What the design keeps from the Project, and what it changes

The site is the one selected in the Site Diagnostics and Prioritisation Report. From the Project the design keeps the verification regime and the schedule. It differs in one respect, which needs the approval of the contracting authority: the seeding rate is set at 1,520 pellets per hectare on the whole site. The species is stone pine (Pinus pinea L.) only, as in the Project.

Table 1.1. Alignment of the detailed design with the Project

Item	Detailed design
Species	Stone pine (Pinus pinea L.) only, of local provenance, approved by the contracting authority
Site and area	About 89.3 ha at Dukat–Luzat, forest parcels 65/a and 65/b
Seeding rate	1,520 pellets per ha on all zones; 135,736 pellets on 89.3 ha; a spreading rate, checked from the quantity of pellets applied over the area treated

Site preparation	Clearing of burned debris and obstacles only where they stop pellets reaching the ground; marking of boundaries
Verification of seeding	Calibration; flight tracks; reconciliation of pellets used with area seeded, tolerance ±10%; operational checks of the treated area
Establishment	Monitoring benchmarks for the Beneficiary, not guaranteed supplier outcomes, in live seedlings per hectare at month 12, fixed before the request for quotations (proposed at least 400 per ha in each seeded stratum)
Schedule	Design October 2026; request for quotations and award November 2026; seeding as late as practical within the ecologically suitable late-winter and spring period of 2027, once access is safe
Aftercare and monitoring	Not part of the contract; establishment care and monitoring by the Beneficiary
Grazing closure	Not required: the site is not used for grazing; long-term site protection and routine care remain with the Beneficiary,
Reference budget	

2. Design inputs and site data

The design rests on the cadastral and boundary data of the site selection, on the coordinate list of the treatment polygon and on the field survey of the site, which fixed the burn severity, the erosion forms, the soil and the access. Where the survey and the earlier data differ, the survey is used, and elevation and gradient are confirmed from the digital elevation model of the design survey.

2.1 Site data

Table 2.1. Site data used in the design

Item	Dukat–Luzat pilot site
Cadastre	Cadastral zone 1149, parcel no. 7 (244.6 ha in all), included in the latest update of the State Authority for Geospatial Information as one of the two forest zones selected under Decision of the Council of Ministers No. 398, dated 13 May 2020; forest parcels 65/a and 65/b of the Dukat–Luzat Forest Economy, property of Tepelenë Municipality
Parcel area and treatment area	Forest parcels 65/a about 39.4 ha and 65/b about 48.0 ha (87.4 ha); planned treatment area 89.3 ha
Boundaries	North the town of Tepelenë; west and south other forest parcels; east the road; the Drino and the Bënça close by
Distance from Tepelenë	About 500 m south of the town
Access	From the road on the south-west side of the town and from the road on the east boundary; the upper slope on foot
Aspect and slope	South-east; mean gradient 27%; 15% of the area above 45%
Elevation	About 140–430 m
Soil	Eroded Mediterranean brown soil on flysch; mean depth 22 cm; litter absent on about 60%
Burn severity	High about 24 ha, moderate about 40 ha, low about 25 ha
Erosion forms	14 gullies, six active, draining to the Drino and the Bënça
Fire	Burned in the 2024 fire
Tenure and use	Property of Tepelenë Municipality; not used for grazing
Park	Outside the Vjosa National Park; the site drains into the Bënça and the Drino, which are part of the park; about 300 m from the park boundary (Tepelenë Municipality, November 2026); only stone pine (Pinus pinea L.), a native species of local provenance

2.2 Areas and quantities

Four measures of area are in use, and they must not be mixed. Cadastral parcel no. 7 of zone 1149 covers 244.6 ha, of which the planned treatment area of 89.3 ha takes only a part. Forest parcels 65/a and 65/b cover about 39.4 ha and 48.0 ha, 87.4 ha together. The planned treatment area stated with the coordinate list is 89.3 ha, and it is the quantity basis of the bill. The 18 points of that list, taken as a closed polygon (Annex A.1), enclose 88.3 ha by the surveyor's formula, 1.0 ha less than the stated area. The six points given in the site information note of the Municipality (Annex A.2) enclose about 122.9 ha and describe the wider zone, not the treatment polygon. The design survey reconciles these figures before the flights.

Table 2.2. Area measures (ha)

Measure	Area (ha)
Cadastral parcel no. 7, zone 1149	244.6
Forest parcels 65/a and 65/b	87.4 (39.4 and 48.0)
Planned treatment area (quantity basis of the bill)	89.3
Area enclosed by the 18-point treatment polygon (Annex A.1)	88.3
Area enclosed by the six-point zone limit (Annex A.2)	122.9

2.3 Climate and timing

The site has a Mediterranean–continental climate with mild, wet winters and hot, dry summers. Mean annual rainfall is 1,426 mm, with most of it falling in autumn and winter, and mean monthly temperatures rise from 9 °C in January to 24 °C from June to August. Seed must lie in the soil when it is moist and cool, so the design uses the late winter and spring window, from January-February to April 2027, with the seeding set as late as is practical within the ecologically suitable part of that period. Flights are not planned in rain, fog or sustained wind above about 8 m/s.

2.4 Design assumptions

The design assumes that the protected areas agency gives its opinion on the need for an appropriate assessment before contract signature, on a request submitted by the Project Management Team before the request for quotations is published (the site lies outside the park, and this request and any other site approval are the responsibility of the contracting authority, not of the Contractor), and that any road outlet or cut slope on the east boundary road that discharges onto the site is repaired by the road owner before the seed is applied below it. It also assumes an establishment of 80% in spring and 60% in autumn, which are estimates and not guarantees. The site is not used for grazing, so no grazing closure is assumed. The design also assumes that safe access to the site is available before the seeding flights start, and that the programme moves if site readiness is delayed.

3. Detailed design

The design treats the 89.3 ha zone by zone. Pelleted stone pine (Pinus pinea L.) seed is spread from drones over the soil surface at 1,520 pellets per hectare.

3.1 Design parameters

Table 3.1. Principal parameters

Parameter	Value
Species	Stone pine/pinus pinea L), only, approved by the contracting authority; seed from approved sources, with approved alternative sources where necessary
Seeding density	1,520 pellets per ha on all zones
Pellets in the base contract	135,736 on 89.3 ha
Pellet size and mass (proposed by the Contractor, confirmed at calibration by supervisor)	Diameter up to about 1 cm; mass lower than the 15 g assumed in the earlier design, as declared by the Contractor; the total mass for the base contract follows from the pellet type
Flight height	Chosen by the Contractor to suit its equipment and the terrain, and recorded in the flight plan (for example 3–4 m above the ground)
Line spacing	Set by the Contractor to achieve the agreed coverage (for example 6 m); contour lines on the high-severity and steep zones
Output of one system	About 6 ha per flying day (indicative, confirmed at calibration); about 15 flying days and about 19 field days with a 25% weather margin
Establishment benchmark (for monitoring, not a supplier guarantee)	At least [400] live seedlings per ha at month 12 in each seeded stratum

3.2 Zones, flight blocks and seeding schedule

The site is divided into six micro-zones, from the survey, and the zones are grouped into five flight blocks. Zone C, above 45%, is reached from the air only. Zone E is the recovering slope that receives protection and a light enrichment. The areas are provisional until the design survey maps the burn severity of parcel 65/b.

Table 3.2. Zones, density and pellets

Block	Zone	Area (ha)	Condition	Pellets per ha	Pellets
1	A Gully heads and active gullies; F road edge and access points	8.3	Active gullies; repaired cut slopes	1,520	**12,616**
2	B High-severity slopes, 15–45%	15	No regrowth; bare soil	1,520	**22,800**
3	C Steep upper slope, above 45%	13	Reached from the air only	1,520	**19,760**
4	D Moderate-severity slopes	31	Partial cover; patchy	1,520	**47,120**
5	E Low-severity slopes	22	Resprouting	1,520	**33,440**
	Total	**89.3**			**135,736**

The rate of 1,520 pellets per hectare is applied on all zones. This rate is higher than the minimum of 1,150 per hectare stated in application manuals, because establishment from direct seeding is lower than from planting, and it follows the market practice used for the cost estimate. The rate is stated as the number of pellets spread per hectare and is checked from the quantity of pellets applied over the area treated; it does not require proof that every pellet holds a viable seed. If the Contractor's smaller, lighter pellets call for a different number of pellets per hectare to deliver the same quantity of seed, the rate is agreed with the contracting authority at calibration. The zones remain the basis of the flight blocks and of the order of the flights.

Direct seeding is used on this site with the precautions that Article 33(6) of Law No. 57/2020 "On Forests" requires. The soil keeps an average depth of about 22 cm; resprouting oak and shrubs on the low-severity slopes show that woody seedlings can establish; the seed is protected in coated pellets at a rate above the minimum of the Project; and the seeding takes place in the moist late-winter and spring window. The design will be submitted to the National Forestry Agency as the technical-economic project under Article 33(5) of the same law.

3.3 Road outlets and cut slopes

Road culverts, outlets and cut slopes are not part of the contract works, because they belong to the road owner. Where an outlet or cut slope of the road on the east boundary discharges onto the site, it is repaired before the seed is applied below it, and this is a hold point (H2).

3.4 Aerial seeding

Surface spreading with smaller, lighter pellets is an acceptable method, subject to the approval of the National Forestry Agency. The pellet is a biodegradable seed pellet; the Contractor may propose any environmentally acceptable biodegradable formulation, and neither a single layered design nor particular ingredients are prescribed. Table 3.4 lists the usual components for guidance only. Each pellet holds stone pine (Pinus pinea L.) seed, and the nutrient content is kept to the minimum needed for germination. The design assumes pellets of up to about 1 cm in diameter and of lower mass than the 20–30 mm. The size and mass of each pellet type are proposed by the Contractor and confirmed at calibration.

Table 3.4. Pellet components (indicative only)

Part	Material	Purpose
Core	Stone pine (Pinus pinea L.) seed from an approved source	The seedling
Nutrient matrix	Biodegradable nutrient carrier, if used	Feeds the first root on poor burned soil
Water-absorbing layer	Biodegradable moisture-retaining material, if used	Holds moisture around the seed through dry spells
Protective shell	Natural clay or similar biodegradable material; any repellent of biological origin	Warms the pellet in the cool season; deters rodents and birds; protects the seed in transit

The drone spreads the pellets over the soil surface; pneumatic release and embedding in the soil are not required. The Contractor selects the release method, flight height and other flight settings that suit its equipment and achieve the agreed coverage, and records them in the flight plan. For example, with lines 6 m apart there are about 1,667 m of flight line per hectare, and the release interval along the line sets the density.

Table 3.5. Release interval at the seeding rate (illustrative, lines 6 m apart)

Density	Pellets per ha	Release interval along the line	Pellets per second at 5 m/s
All zones	**1,520**	**1.10 m**	**4.6**

On the high-severity and steep zones and on the banks of the gullies, the lines follow the contour lines, so that the future stand grows in bands across the slope. Elsewhere the lines are standard strips. The flight plan excludes the strips along watercourses, roads and tracks, culverts and outlets, unburned natural vegetation, bare rock, the edge of the town, and any habitat or monument that the Park Administration Office asks to be kept clear. No flight leaves the treatment polygon or passes over the river channels of the park.

3.5 Sequence and calendar

The calendar follows the Project. The mapping and the production of pellets run in parallel in the winter, and the flights start when the soil is moist and safe access is available. The seeding window is set as late as practical within the ecologically suitable period in 2027. Delivery deadlines run from the notice to proceed and start only when the access and project inputs the Contractor needs are available. If the contract is awarded after mid-February 2027, or if approvals, site access or weather delay the work, the dates are extended reasonably or seeding moves to the next suitable season without penalty to the contractor.

Table 3.6. Calendar

Period	Activity
October 2026	Detailed design, digital maps and quantities completed
November 2026	Request for quotations published; evaluation and award
December 2026	Boundary marking and survey; final polygons; seed ordered; pellet production begins; clearing of debris
January-February 2027	Ground calibration and trial flight, recorded by the supervisor
February–April 2027	Main seeding flights, as late as practical within the suitable period and once access is safe: about 15 flying days, about 19 field days with the weather margin; steep and high-severity zones first

3.6 Protection and monitoring

Protection starts before the flights. No grazing closure is needed, as the site is not used for grazing, and the footpaths that cross the site stay open and are marked. Warning signs are set along the boundary, which is about 5 km long, and at every path that enters the units, about one every 500 m: about 12 signs, set and maintained by the Beneficiary. Long-term site protection and routine care of the seeded area remain with the Beneficiary. Fire-free strips are kept along the road and along the edge of the town.

Monitoring of establishment is not part of the contract. It is carried out by the Beneficiary, the forest and pasture unit of the Municipality. The Beneficiary sets up at least 30 permanent plots of 10 m × 10 m, at least five in each stratum, with paired untreated reference plots, counts the seedlings by species and cohort, and repeats the drone survey with visible-light, laser scanning, thermal and multispectral sensors. The plots and the drone surveys give the indicators in Table 3.7. The seeding work is accepted on completion, on the application records of clause 4.7, and does not depend on the results of this monitoring.

Table 3.7. Indicators and triggers (monitoring benchmarks for the Beneficiary)

Indicator	Method	Timing	Target or trigger	Action if missed

Pellet density applied	Reconciliation of pellets used with area seeded; operational checks	At each mission	Within ±10% of the rate in Table 3.2	Re-fly the polygon or correct the quantity
Vegetation cover and emergence	Multispectral flight with analysis of seedlings	At each campaign (months 3, 6 and 12)	Cover rising from one campaign to the next	Ground check of the patch
Establishment	Seedling counts by species and cohort in at least 30 permanent plots	Months 3, 6 and 12	At least [400] live seedlings per ha at month 12 in each seeded stratum	Assess the cause, considering weather, grazing and other external causes
Soil cover and rills	Plots, photo points, drone images	With the month 6 (autumn) and month 12 campaigns	Bare soil below 30% on the treated steep slopes by month 12	Targeted erosion measures on the failing patch
Gullies and outlets	Inspection after storms	After each major storm, by the Beneficiary	No active head-cut; culverts clear	Clearing and repair

4. Technical specifications

4.1 General

In these specifications the Contractor is the contractor of the single contract for the supply and aerial seeding, the Supervisor is the person appointed by the contracting authority, the Project Management Team of CARE4BlueSea, to supervise the works, and the Project is this Afforestation Project. Units are those of the International System of Units, coordinates are in the Albanian national grid, and reports are delivered in English. Where documents differ, the contract takes precedence over these specifications, these specifications over the bill of quantities, and the bill over the Project.

The Contractor works safely and without fire. No crew works on slopes above 45% or below a moving bank, no work is done in rain, fog or sustained wind above about 8 m/s, and every team has a first-aid kit, a means of calling for help and a fire extinguisher or beater. Waste, fuel and packaging are removed from the site (correctly applied biodegradable seed pellets are not waste and are not removed), and no work, base or flight is allowed outside the approved treatment polygon, in the active channel, on the gravel bars or in the floodplain forest.

The Contractor deploys the key personnel of the Technical Specifications: a Project Director, a Project Manager / Field Operations Manager, a Forestry / Botanical / Seed Lead, a Chief Drone Pilot and a Backup Drone Pilot (the backup role may be covered by another qualified team member), a Data / Spatial Analyst, a Pelletisation Manufacturing Lead, a Driver / Logistics Support and an Environmental and Social Focal Person. The equipment, software and data platform are those of Annex 2 of the Technical Specifications: one seeding drone with a reasonable equipment contingency

(spare parts and a replacement drone available at short notice), survey equipment suited to the site, owned or controlled pelletisation capacity, and a data repository accessible to the contracting authority.

4.2 Mapping and site preparation

Boundary marking (A1). The vertices of the treatment polygons are set out from the coordinates in Annex A with satellite navigation equipment of at least 0.5 m accuracy and marked with painted posts at every vertex and at least every 200 m along a straight boundary. Exclusion areas inside the polygon, such as watercourse strips and unburned patches, are marked in a different colour.

Site survey (A2). The Contractor surveys the gross area of the site with surveying tools of its choice that suit the site, such as drone imagery or laser scanning, with enough ground control for the outputs below. The survey is output-based and proportionate to the site: no particular sensor and no fixed terrain-model accuracy is required unless it is essential for the agreed seeding plan. The outputs are the mapping and baseline information needed for the agreed seeding plan, namely a slope map in the classes 0–15%, 15–30%, 30–50% and above 50%, the final polygons with their net areas by zone, the exclusion map for gullies, roads, streams, outcrops and the exclusion areas, and the flight blocks of Table 3.2, delivered as geographic information system files and as printable maps within 15 days of the survey.

Clearing of debris (A3). Burned trunks and branches are removed only where a continuous layer keeps a pellet from the soil, which is taken as more than about 60% cover of the surface or branches larger than 20 cm lying in a mat. Stumps are not removed, no machine works on slopes above 30%, and the timber is stacked along the contour. The area cleared is measured from the Supervisor's marks and is not more than 7 ha without the Supervisor's written instruction.

Bases (A4). There are two take-off and landing bases, one for each forest parcel, each a cleared platform of about 15 × 15 m beside a road, with vehicle access, at least 100 m from streams and from any habitat or monument named by the Park Administration Office, and 200 m from houses. No tree is felled, and the ground is restored after the flights.

4.3 Seed and pellets

The seed is stone pine (Pinus pinea L.) seed from approved seed sources, with approved alternative sources where necessary, and it complies with the national standards for forest reproductive material where these apply. Where available or legally required, each seed lot carries the seed supplier's documentation, which gives the species, the category, the region of provenance, the seed stand or collection site, the year of collection and the lot number;

Table 4.1. Seed and pellet requirements

Property	Requirement
Species and provenance	Stone pine (Pinus pinea L.) only; approved seed sources, with approved alternative sources where necessary
Purity of the seed lot	As stated in the seed supplier's information, where available or legally required
Germination of the seed lot	As stated in the seed supplier's information, where available or legally required

Seed data	1,000-seed weight, moisture, viable seeds per kg reported where available from the seed supplier
Pellet size and mass	Diameter up to about 1 cm; mass as declared by the Contractor and confirmed at calibration
Strength	Robust enough to be loaded, carried and spread without breaking up; checked visually and in the trial flight
Germination in the pellet	the seed supplier's information on the seed lot applies
Materials	Environmentally acceptable biodegradable formulation; no persistent plastic; no substance harmful to soil, water or wildlife; any repellent of biological origin and not a registered plant protection product or biocide
Storage and delivery	Dry, below 15 °C, in sealed containers; delivery notes with batch numbers

A batch that visibly fails the checks of this clause (for example damaged, wet or crumbling pellets) is replaced at the Contractor's expense before it is flown. The Supervisor may inspect the batches and the supplier's documentation at any time.

4.4 Drones and flight operations (items A5–A6)

The aircraft are multi-rotor drones with a payload suited to the pellets and the terrain, a real-time satellite positioning system, a terrain-following system where the site needs it, a dispenser suited to the pellets, and a data logger that stores the time, position, height and quantity of pellets applied in each flight. A reasonable equipment contingency is kept (spare parts, a spare dispenser or components, and a replacement aircraft available at short notice); a second aircraft does not need to be kept permanently on site; and a plan is made for a blocked dispenser. The pilot holds a current certificate, the aircraft are registered and insured, and the flights are covered by the flight permission of the Civil Aviation Authority.

Flights keep at least 200 m from houses and from the edge of the town, at least 100 m from any habitat or monument named by the Park Administration Office, and clear of people, roads in use and the river channels, and they do not leave the approved treatment polygon. The Contractor stops flying when wind exceeds about 8 m/s, in rain or in fog, and may stop at any time the conditions are unsafe. A stop is agreed with the Supervisor and recorded, and the dates are extended without penalty. Flights are planned from the final polygons and follow Section 3.4: contour lines on zones B and C and on the banks of gullies, and strips elsewhere. A daily report gives the polygons flown, the pellets loaded and released, the weather and any incident.

4.6 Calibration and trial flight

Before production the Contractor calibrates with the actual aircraft, dispenser, pellet batch and flight parameters: a witnessed ground discharge test and a trial flight, with a simple collection of the pellets spread on sample trays or sample areas to show that the rate is close to the prescribed rate. No fixed number of sampling positions and no sampling tolerances are prescribed; the Contractor and the Supervisor agree the simple check at the start of calibration. A trial block of up to 1 ha within the net treatment area verifies pellet integrity, rate, boundary control and batch logging, and counts toward the contracted area only if accepted. The Supervisor signs the result, and production does not start until it is approved. This is hold point H1.

4.7 Verification and completion report

The Supervisor verifies the work in four ways: by the calibration of 4.6; by the georeferenced flight tracks, which must show that the mapped polygon was covered; by reconciliation of the pellets loaded and used in each flight with the delivery notes and the area covered, where the rate is the quantity used divided by the area seeded and the tolerance is ±10%; and by operational checks, such as a visual check that pellets are present on the surface of the treated area, made when the Supervisor visits. No individual pellet is tracked, and no fixed sampling positions are required.

Table 4.2. Hold points and acceptance

Point	Condition	Who accepts
H1	Calibration and trial flight approved	Supervisor
H2	Culverts, outlets and cut slopes repaired below the polygon; safe access confirmed	Supervisor
H3	Each polygon flown, tracks and reconciliation within ±10%	Supervisor
H4	Completion report signed	Supervisor and Contractor

Completion of the seeding is confirmed by a short report that contains a map of the treated polygons and their areas, the flight tracks, the application rate achieved by zone, the quantities of seed and pellets used with the delivery notes and seed certificates, and photographs. It is signed by the Contractor and the Supervisor, and it is separate from the later monitoring of germination and survival. The seeding work is accepted on completion, on the basis of this report and the application records; later monitoring does not affect acceptance. The report is kept concise and is based on records normally produced during the work. The Contractor hands over the project data (maps, flight records and reports) with the completion report and keeps them available for download for [12] months after the report is signed; after that date hosting ends, and it is not linked to final acceptance. The Contractor's existing know-how, methods, pellet formulations and software remain its own. The Technical Specifications add hold point H0 (mobilisation package and permits) before field work.

4.8 Measurement, adjustment and payment

The seeding is measured per hectare of accepted net treatment area, by parcel, jointly recorded by block and signed by the Contractor and the Supervisor; the seed pellets are included in the rate per hectare.

Payments are made monthly on the hectares accepted, through interim statements and a final statement approved by the Supervisor, after acceptance.

5. Bill of quantities and cost estimate

5.1 Summary

Table 5.1. Summary of the estimate (EUR)

Part	Amount (EUR)
Aerial seeding (items A1–A9)	

Price per ha, seeding (EUR per ha)	
Base contract, excluding value added tax	
Value added tax, 20%	
Base contract, including value added tax	

5.2 Preparation and aerial seeding

Table 5.2. Bill of quantities, preparation and aerial seeding

Item	Description	Quantity	Price per ha (EUR)	Total (EUR)
A1	Boundary marking and digital mapping of the treatment polygon	89.3 ha		
A2	Site survey, mapping and baseline information, slope map and exclusion map	89.3 ha		
A3	Clearing of burned debris where it keeps pellets from the soil	89.3 ha		
A4	Preparation of two take-off and landing bases	89.3 ha		
A5	Flight planning and drone calibration	89.3 ha		
A6	Drone flight and aerial seeding service	89.3 ha		
A7	Stone pine (Pinus pinea L.) seed from approved sources in biodegradable pellets, supply and delivery (135,736 pellets; 1,520 per ha)	89.3 ha		
A8	Administrative expenses: mobilization, flight permits, insurance, reporting	89.3 ha		
A9	Key experts engaged	89.3 ha		
	Subtotal A			

6. Geographic information system maps, drawings and typical details

This section holds the geographic information system maps drawn from the coordinates of the Project, the list of the twelve drawing sheets, the typical details of the works and the maps and photographs of the Project. The maps and the typical details are issued with the request for quotations

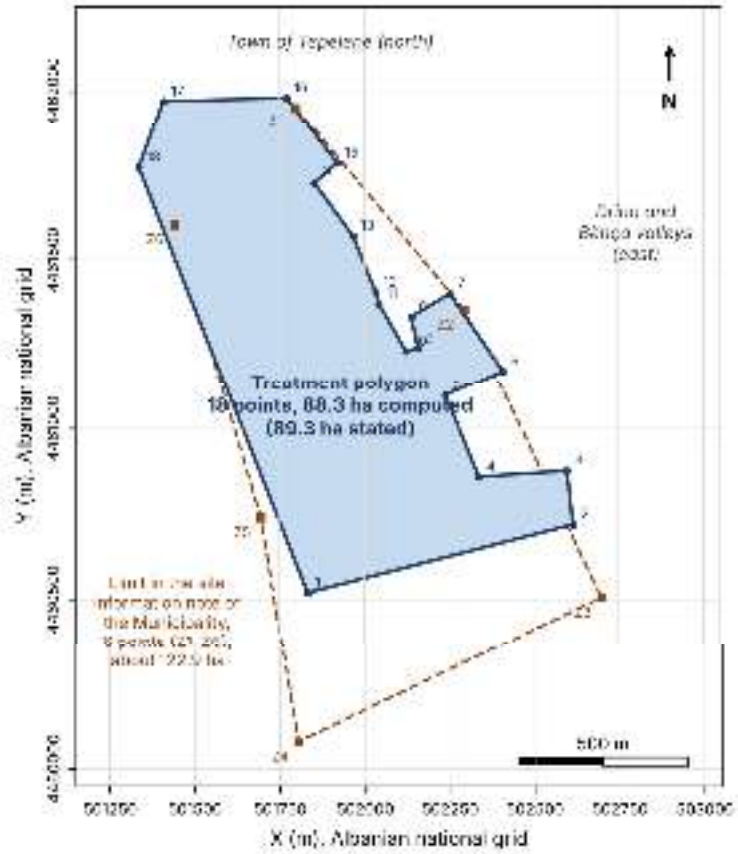
6.1 Design geographic information system maps

The maps in this section are drawn from the coordinate list of the site in the Albanian national grid. The treatment polygon and the six-point zone limit are entered as listed in Annex A, and the areas are computed from the same coordinates. The map carries a coordinate grid, a scale bar and a north arrow, and the coordinate lists of Annex A can be loaded in any mapping software to reproduce it.

Figure 6.1 shows the treatment polygon of 18 points, which encloses 88.3 ha against the 89.3 ha stated, together with the six-point limit of the zone given in the site information note of the Municipality. The two outlines do not coincide, and the design survey fixes the final polygon and its area before the flights.

Figure 6.1. Dukat–Luzat pilot site, treatment polygon

Forest parcels 80/a and 65/a, cadastral zone 1148, Tepelenë Municipality. Coordinates of the site, Albanian national grid; vertices numbered as in Annex A.



The site lies outside the Qafë Nalucat Park, the Bënça and the Drino, two of which it straddles, one east of the park.

Figure 6.1 is the map of the Project, which shows the planned area of 89.3 ha on the orthophoto, between the town of Tepelenë, the Drino and the Bënça.



Figure 6.2. Planned area of 89.3 ha on the orthophoto (map of the Project).

7. Implementation, phasing and lots

The works are carried out under one contract, in phases that follow the season, by parties with defined responsibilities. This section sets out who does what, how the site is prepared, the methodology of implementation, the phasing, the lots, and the inspection and test plan that ties each hold point to a person who signs it.

7.1 Responsibilities

Table 7.1. Who does what

Party	Responsibility
Project Management Team of CARE4BlueSea	Contracting authority; procurement; appointment of the Supervisor; environmental and social oversight; payment; the site and flight approvals that are not the Contractor's (Table 9.2); and safe access to the site
Tepelenë Municipality, forest and pasture unit	Beneficiary, owner and manager of the forest land; coordination of fire protection; monitoring of establishment (Table 3.7)
Supervisor	Appointed by the contracting authority; approves the mapping, signs the hold points H1 to H4, verifies the flights and the completion report
Contractor	Baseline mapping, pellets, flights, implementation report
Road owner	Repair of any road outlet or cut slope that discharges onto the site, before the seeding below it
Residents of Tepelenë and Luzat	Information on the works; footpaths kept open; reporting of fire and damage
Civil Aviation Authority	Flight permission and registration of the aircraft (applied for by the Contractor)
National Agency of Protected Areas and the administration of the Vjosa National Park	Opinion on appropriate assessment (requested by the Project Management Team); advice on habitats, monuments and timing to be kept clear in the park downstream

7.2 Site-preparation method

Site preparation is light, as the Project requires. The drone method does not need systematic pits or terraces, which on burned and eroded ground would add to the erosion. Preparation consists of surveying and marking the polygons, clearing debris only where a continuous layer keeps a pellet from the soil, setting up the bases, and calibrating the flight plan against the micro-relief and the density of debris. Table 7.2 lists the operations in the order in which they are done.

Table 7.2. Site-preparation operations

No.	Operation	Method	Standard	Item
1	Boundary marking and satellite positioning/geographic information system mapping	Vertices of Annex A set out with satellite navigation; painted posts at every vertex and at least every 200 m on a straight boundary; exclusion polygons in another colour	Accuracy 0.5 m or better	A1
2	Survey and orthophoto survey of the gross area	Survey tools chosen by the Contractor, with ground control; mapping and baseline information: slope classes, final polygons, exclusion map and flight blocks	Proportionate to the site and sufficient for the agreed seeding plan; delivered within 15 days of the survey	A2
3	Survey of micro-relief and debris	Walkover and drone images of the debris layer and the micro-relief, used to calibrate the flight plan	Debris is mapped for clearing where it covers more than about 60% of the surface or lies in a mat of branches over 20 cm	A2, A3
4	Clearing of burned debris	By hand, only where the layer keeps a pellet from the soil; stumps stay; no machine above 30% slope; timber stacked on the contour	Not more than 7 ha without the Supervisor's written instruction	A3
5	Take-off and landing bases	Two, one for each forest parcel, a cleared platform of about 15 × 15 m beside a road; no tree felled; ground restored after the flights	At least 100 m from streams and from any habitat or monument named by the Park Administration Office; 200 m from houses	A4
6	Flight planning and calibration	Lines and release interval set from the final polygons; dispenser calibrated on the ground and trial flight at the seeding rate	Rate close to the target at the trays or sample areas, by the check agreed with the Supervisor (H1)	A5
7	Repairs on the east boundary road	Any outlet or cut slope that discharges onto the site repaired by the road owner	Hold point H2 before seeding below an outlet	Outside the contracts

7.3 Implementation methodology

The methodology follows the sequence of the Project and the dependencies of the design: the mapping fixes the quantities and the seeding starts when the calibration is approved.

1. **Mobilisation**. Within seven days of the notice to proceed the Contractor holds a meeting with the Supervisor, the contracting authority and the Municipality, confirms the programme, submits the method statement, the flight-safety plan, the fire and emergency plan, the list of staff, the seed supplier and the pellet manufacturer, and applies for the flight permission. Delivery deadlines run from the notice to proceed and start only when the access and project inputs the Contractor needs are available.

2. **Mapping.** The boundaries are marked (A1) and the survey is made (A2). The Supervisor approves the net areas, and the adjustment rule of 4.8 applies if the total differs from 89.3 ha by more than 5%.

3. **Seed and pellets**. Seed lots are ordered with the supplier's documentation, and the pellets are made in batches and checked visually (Table 4.1). Deliveries carry notes with the batch numbers.

4. **Preparation.** Debris is cleared where it keeps the pellet from the soil (A3), the bases are set up (A4), the flights are planned (A5), and the road owner repairs any outlet that discharges onto the site (H2).

5. **Calibration and trial flight.** The dispenser is calibrated and a trial area of up to 1 ha is flown at the seeding rate, with simple collection trays or sample areas, and the Supervisor signs (H1).

6. **Main flights.** The blocks are flown in the order of sheet D-04, steep and high-severity zones first, at the density of Table 3.2. Each flight is logged, and a daily report gives the polygons flown, the pellets loaded and released, the weather and any incident. Each polygon is reconciled within ±10% (H3).

7. **Completion.** The completion report, with the map of the treated polygons, the flight tracks, the rate by zone, the quantities, the certificates and the photographs, is signed by the Contractor and the Supervisor (H4).

The Contractor reports to the Supervisor every week on progress against the programme, on the pellets used and on any stop in the flights, and the works are paid monthly on the measured area. Safety, fire and environmental rules are those of clauses 4.1 and 11.1.

7.4 Phasing

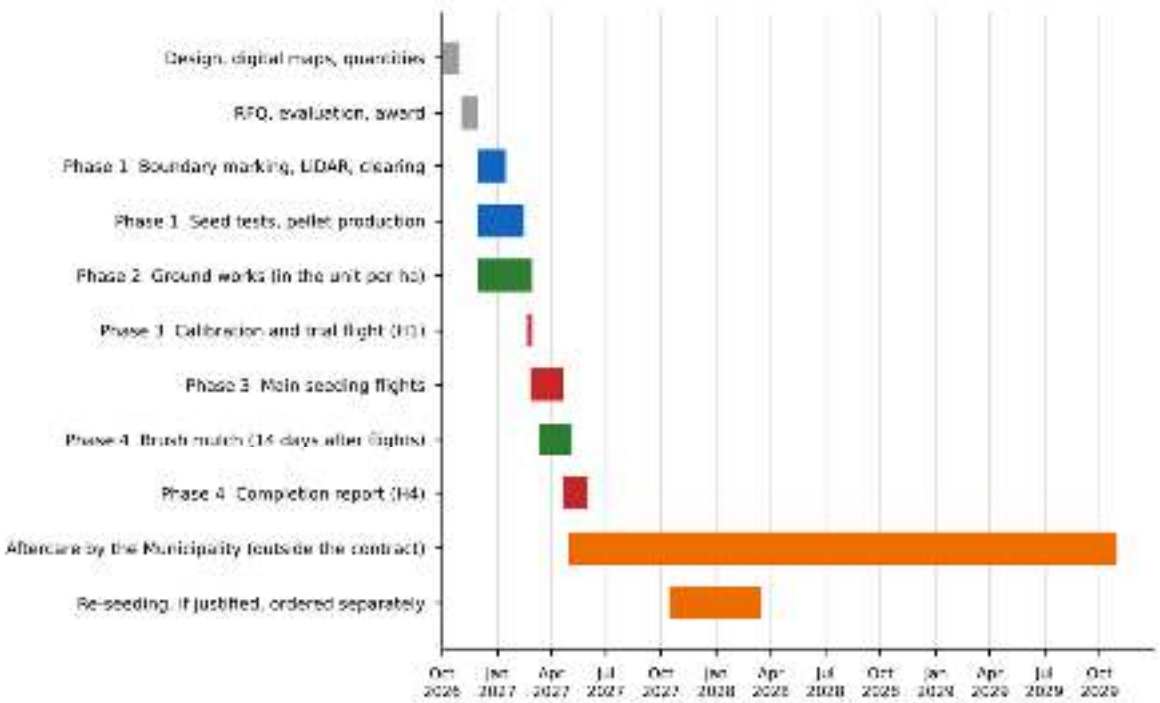
The works run in three phases, after the design and the procurement, set by the season. The preparation of the seeding starts in December and the flights must wait for the moist soil of late winter and for safe access. The seeding takes about 15 flying days, parcel 65/a first and then parcel 65/b, so that the team mobilises once. Within each parcel the blocks run in the order of sheet D-04, because the steep and high-severity ground needs the seed first and is the hardest to reach later.

Table 7.3. Phases and gates

Phase	Period	Work	Gate
0. Design and procurement	October–November 2026	Design completed; request for quotations; evaluation and award	Contract signed after the opinion of the protected areas agency, by mid-February 2027 at the latest; notice to proceed given when access and project inputs are available
1. Preparation	December 2026–January 2027	Mobilisation; boundary marking and site survey; final polygons; clearing; bases; seed supply and pellet production; permits	Net areas approved; permits in hand
2. Seeding	February–April 2027	Calibration and trial flight; flights of parcel 65/a and then parcel 65/b, block by block, with a 25% weather margin	H1 and H2 (safe access) before the flights; H3 for each polygon
3. Completion	April 2027	Completion report; acceptance on completion	H4

Figure 7.1. Programme and phasing, November 2026 to 2029

Season windows follow the Project: seeding in late winter or early spring 2027; aftercare by the Municipality, outside the contract



8. Procurement notes

8.1 Qualification Requirements

The Contractor shall:

- Be a registered legal entity with relevant experience in forestry works, afforestation, forest regeneration or aerial seeding, which may be shown by practical deployments, pilot projects, research and the experience of the proposed team; for a joint venture, the members together.
- Show relevant practical experience of a similar nature, through deployments, pilot projects, research or the experience of the proposed key personnel (without a minimum number of completed projects of the same type), such as aerial seeding or planting by drone, or afforestation of burned or eroded land;

8.2 Proposed Key Personnel

The Contractor shall deploy the key personnel below, although qualified team members may cover compatible roles and may change roles when needed, with notice to the Supervisor, provided the minimum qualifications, safety and authorisation requirements are kept:

	Position	**Role in the contract**	**Minimum qualification**	**Minimum experience**
1.	Project Director	Overall supervision of the contract; accountability to the Contracting Authority; escalation; oversight of reporting, budget and stakeholder coordination	University degree in environmental science, forestry or ecology	5 years of project leadership, contract management or implementation
2.	Project Manager / Field Operations Manager	Day-to-day implementation; operational planning; field scheduling; logistics; mobilisation of equipment; field documentation	University degree and professional qualification in engineering, forestry, environmental management or business management	3 years in field operations, project implementation, logistics or technical service delivery
3.	Forestry / Botanical / Seed Lead	Species suitability, seed sourcing, provenance, botanical assessment, restoration methodology; signs the completion report as forest engineer	University degree in forestry, botany, ecology, agronomy, plant or environmental science; licensed forest engineer where the law requires	5 years in forestry, botanical or ecological work, seed sourcing, reproductive material or restoration ecology

4.	Drone Chief Pilot	Plans and executes missions; safe and compliant flight operations; aircraft readiness; flight documentation	Valid pilot licence and authorisations for the proposed operations under Albanian aviation rules	Valid licence
5.	Backup Drone Pilot (or trained operator)	Mission continuity; operational reserve; mission set-up, loading, batteries and troubleshooting; may be covered by another qualified team member	Valid pilot licence and authorisations for the proposed operations, if the backup role includes flying the aircraft	Valid licence
6.	Data / Spatial Analyst	Baseline data, imagery and sensor processing, monitoring analysis, technical reporting, geographic deliverables	University degree in remote sensing, data science, computer science, engineering or environmental informatics	5 years in data analysis, mapping, spatial data or remote sensing
7.	Pelletisation Manufacturing Lead	Production planning, pelletisation, batch control, manufacturing records and traceability	Engineering degree, vocational qualification or equivalent practical expertise in manufacturing or process engineering	2 years in manufacturing, coating, pelletisation, granulation or similar
8.	Driver / Logistics Support	Transport of personnel, equipment, seed, pellets, batteries and consumables; field logistics	Valid driving licence for the vehicle class	Relevant driving or logistics experience

8.3 Required Equipment

No.	Equipment
1.	1 operational drone for aerial seeding; a reasonable equipment contingency (spare parts and a replacement drone available at short notice) instead of a second aircraft permanently on site; pellet dispersal mechanism with adjustable and calibratable feed control; automatic flight of pre-planned routes using satellite positioning; terrain following where the site needs it, at a flight height chosen by the Contractor; flight and application logging
2	1 drone for reconnaissance and baseline scanning; survey sensors suited to the site and the outputs required (for example a visible-light (true-colour) camera and, where useful, laser scanning, thermal or multispectral sensors);

	georeferencing with ground control; rugged controller, field tablet and processing computer
3	Drone capability to repeat the baseline polygon missions with visible-light capture and, where useful, other sensors; digital field data capture tools
4	Owned or directly controlled pelletisation machinery; seed receiving, weighing, lot registration and labelling; batch quality control and contingency supply
5	Battery inventory sufficient for daily deployment; chargers and safe portable power (generator or inverter); transport vehicles for drones, batteries, pellets and crew; battery isolation and fire controls; first aid, communications and spill response supplies
6	Mission planning; photogrammetry and mapping; geographic information system software for layer handling and export; monitoring and analysis software for baseline and follow-up comparison; operational logging of flights, polygons and material batches
7	Secure repository under the Contractor's control with download access for maps, imagery, geographic layers, reports, logs and test results; version control; backups; structured folders; hosting ends at the data handover date set in clause 4.7

9. Environmental and social measures, risks and permits

The works lie outside the Vjosa National Park, above the Bënça and the Drino, which are part of it, and next to the town of Tepelenë, on land that residents may cross on foot and use for firewood, so the design limits its footprint and keeps the footpaths open. The main risk to the investment is low establishment of the seed, followed by fire and stray animals, and each risk has a measure written into the specifications.

9.1 Environmental and social measures

No work, base or flight is allowed outside the approved treatment polygon, in the active channel, on the gravel bars or in the floodplain forest of the Drino and the Bënça, or within 10 m of permanent watercourses, and works near streams avoid the bird nesting season. The pellets are made of biodegradable materials with a composition data sheet and a safety data sheet for each ingredient; no persistent plastic and no registered pesticide, biocide or hazardous substance are used, any repellent is of biological origin and nutrients are kept to the minimum needed for germination (clause ES-9), and only stone pine (Pinus pinea L.) seed approved by the contracting authority is sown; non-native species are avoided to protect the park downstream.

The site is not used for grazing, and the footpaths and firewood routes of the residents of Tepelenë and Luzat stay open and are marked so that people and any animals pass without entering the seeded units. The residents, the schools and the Municipality are told what the pellets are, so that they are not collected. Work on slopes follows the safety rules of 4.1, and the grievance mechanism of the project is open to residents through the contracting authority and the Municipality during the works and the first season.

9.2 Risks

Table 9.1. Main risks and measures

Risk	Effect	Measure
Low establishment of seed after a dry spell or because of poor material	Cover below the target; erosion continues	Seed supplier documentation and visual pellet checks; calibration; spring window; assessment of the cause, considering weather, grazing and other external causes
Wind, rain or fog during the flight window	Flights delayed or poorly placed	Weather limits; 25% margin in the field days; the Contractor may stop flights, and the dates are extended; the estimate has no standby cost, so a late season is handled by moving the flights
New fire on the seeded units	Loss of seedlings	Fire-free strips; summer watch with the residents and the fire service; listing in the municipal fire plan
Stray animals in the seeded units	Seedlings eaten or trampled	Site not used for grazing; signs; marked footpaths; long-term protection by the Beneficiary
Moving gully or failing outlet	Seed washed away	Repair of road outlets by the road owner (H2)
Net area differs from the planned area	Quantities and payment change	Site survey; adjustment rule of 4.8
Pellet price above the reference	Contract above the reference budget of the Project	Pellet price is the largest item (about 76% of the seeding); competition in the request for quotations; price per pellet
Late award	Spring window missed	Award by mid-February 2027; otherwise the next suitable season without penalty
Seed supply short or late	Delayed flights	Early order; several approved suppliers; supplier documentation accepted; approved alternative sources or species, or seed collected in the season before, if not available on the market
Pellet mass limits the payload	Slower flights	Output per sortie confirmed at calibration for the pellet type proposed (lighter pellets are expected to improve it); equipment contingency
Seed lands on an exclusion area	Seed outside the treatment polygon or drifting towards the rivers of the park	Exclusion polygons; no-fly buffers; flight tracks checked against the map

9.3 Permits and approvals

Table 9.2. Permits and approvals

Permit or approval	Authority	When
Flight permission, operator certificate, registration or insurance of the aircraft	Civil Aviation Authority (if needed); applied for by the Contractor	Before the calibration flight
Opinion on whether an appropriate assessment is needed for works next to the Vjosa National Park	National Agency of Protected Areas and the regional administration of protected areas; requested by the Project Management Team (the site lies outside the park; this is not an obligation of the Contractor)	Request submitted before the request for quotations; need for an appropriate assessment confirmed at the joint site visit with the Park Administration Office before the start of implementation; written opinion and approval obtained before contract signature
Approval of the afforestation design (technical-economic project), Law No. 57/2020, Article 33(5) and Article 32(2)	National Forestry Agency; the design is submitted by the Project Management Team through the directorate responsible for forests (Ministry of Environment)	Design to be submitted before the request for quotations; approval before contract signature
Land access and use of the municipal forest (agreement between the Ministry of Environment and Tepelenë Municipality)	Tepelenë Municipality, Dukat–Luzat Forest Economy	Before the notice to proceed; secured by the contracting authority and the Beneficiary

10. Conclusions

The detailed design turns the Project into a package that can go to tender for the Dukat–Luzat pilot site. It keeps the verification regime and the schedule of the Project, sets the seeding rate at 1,520 pellets per hectare to allow for the lower establishment of direct seeding, with stone pine (Pinus pinea L.) seed.

The design is accompanied by a map drawn from the coordinate list of the site, by eight typical details, by the contract and the phasing of Section 7 and by the procurement note of Section 8. The zones and blocks of Table 3.2 are provisional until the design survey maps parcel 65/b and fixes the polygon, the terms of Section 8 are proposals for the contracting authority, and the opinion and approval of the protected areas agency and the approval of the design by the National Forestry Agency are needed before contract signature. Site-specific Environmental and Social Management Plan and clauses ES-1 to ES-16 (Annex C) are included in the request for quotations. .

Annex A. Boundary coordinates

The coordinates are those of the site, in the Albanian national grid, in metres. They are entered in the flight-planning software and checked in the design survey. In each table the first three columns run from point 1 down and the second three continue the numbering.

A.1 Treatment polygon, Dukat–Luzat, cadastral zone 1149 (18 points)

No.	X (m)	Y (m)	No.	X (m)	Y (m)
1	501833.6	4460520.9	10	502122.6	**4461233.2**
2	502615.4	4460720.2	11	502043.4	**4461371.8**
3	502597.5	4460877	12	502033.6	**4461406.4**
4	502337.6	4460859.1	13	501966.5	**4461571.1**
5	502239.1	4461098.8	14	501853.3	**4461726.2**
6	502409.3	4461172.7	15	501920.5	**4461784.4**
7	502252.5	4461401.2	16	501770.4	**4461981.5**
8	502138.3	4461334	17	501408.4	**4461971**
9	**502158.4**	**4461242.2**	**18**	**501336.1**	**4461771.7**

The 18 points close on point 1 and enclose 88.3 ha. The coordinate list states a planned area of 89.3 ha, and the difference is resolved in the design survey.

A.2 Zone limit of forest parcels 65/a and 65/b (6 points)

The site information note of the Municipality gives the limit of the zone of forest parcels 65/a and 65/b by six points. They enclose about 122.9 ha, more than the forest parcels, and they do not coincide with the treatment polygon of A.1 (Figure 6.1). They are recorded here for reference and are counted in no quantity.

No.	X (m)	Y (m)	No.	X (m)	Y (m)
1	501796.65	4461953.42	4	501804.43	**4460078.97**
2	502294.43	4461354.53	5	501695.54	**4460740.08**
3	**502698.87**	**4460506.75**	**6**	**501438.87**	**4461603.42**

Annex B. Data of the Project (October 2026)

This annex records the data of the Afforestation Project that are not repeated in the body of the document, so that the design can be checked against it. Where the design replaces a value of the Project by a survey value, the body of the document says so. The Project was prepared for two earlier sites, which were not retained in the site selection; where its data concern those sites, they are replaced below by the data of the Dukat–Luzat site. The pellet composition and layers, the repellent, the pellet size, the release method, the laboratory tests and the verification described in this Annex are those of the Project; where they differ from Sections 3 and 4 of this document, those Sections govern and the detailed design does not require them.

B.1 Identity, purpose and objectives

Table B.1. Identity of the Project

Item	Project
Title	Afforestation Project, Republic of Albania
Cadastre	Forest parcels 65/a and 65/b of the Dukat–Luzat Forest Economy, property of Tepelenë Municipality (cadastral zone 1149, parcel no. 7, 244.6 ha in all; latest update of the State Authority for Geospatial Information, under Decision of the Council of Ministers No. 398, dated 13 May 2020)
Municipality, unit	Tepelenë; Dukat–Luzat Forest Economy
Designer	Joint Venture Etta Cons shpk, Arabel-Studio shpk and Joklen&Co shpk, 2026
Beneficiary	Tepelenë Municipality
Subject	Afforestation by drone seeding of burned and eroded areas next to the Vjosa National Park
Area	89.3 ha planned; forest parcels 65/a of about 39.4 ha and 65/b of about 48.0 ha
Species	Stone pine (Pinus pinea L.) in the Project and in the detailed design, sown with drone systems for aerial seeding
Character	Primarily restoration; the land is already part of the forest land fund and no agricultural land, active pasture or other land use is converted into forest
Purpose	Forest rehabilitation of the burned and eroded areas, restoring vegetation cover, protecting the soil from erosion and supporting the ecological rehabilitation of the area next to the Vjosa National Park
Timeframe	2026, by phase
Expected results	Forest rehabilitation of burned and eroded areas; reduced erosion risk; expansion of the forest cover next to the Vjosa National Park

The objectives of the Project are: (a) forest rehabilitation of the burned areas by seeding native species suited to the local conditions; (b) protection of the soil from erosion on eroded areas by restoring the vegetation cover and stabilising the topsoil; (c) an increase of the forest-covered area within the forest land of Tepelenë Municipality, with long-term benefits for erosion protection, the water regime and biodiversity; (d) testing and implementation of an innovative drone afforestation method that shortens the intervention time and gives access to areas that are difficult to treat; and (e) raising awareness among the residents of Tepelenë and Luzat of the need to protect the new stands from fire and uncontrolled grazing.

B.2 Work plan of the Project

Table B.2. Work plan

Step	Responsible	Timing
Finalisation of the technical design, digital maps and quantities	Designer	October 2026
Preparation and publication of the request for quotations, evaluation and contract award	Contracting authority	November 2026

Seed sourcing and testing, pellet preparation, delivery, site preparation and flight planning	Contractor	Within the lead time declared in the bid
Drone seeding	Contractor	First feasible season after award, provisionally late winter 2026 or early spring 2027
Verification of the completed seeding	Contracting authority	After the seeding
Aftercare and monitoring	Optional, separately priced phase	Thereafter, by the seasonal calendar, for a period not yet determined

The work schedule of the Project places the boundary marking and flight planning in autumn 2026, the procurement of the certified seed or pods after the boundary marking, and the flights in the period of best soil moisture, preferably late autumn or early spring. If the contract is awarded too late for the spring window, for example after mid-February 2027, seeding moves to the next suitable season without penalty to the contractor. The basic seeding contract ends with the seeding completion report; tending and monitoring are optional and paid separately.

B.3 The site as described in the site selection

Table B.3. Description of the site

Item	Dukat–Luzat, forest parcels 65/a and 65/b
Natural boundaries	North the town of Tepelenë; west and south other forest parcels; east the road; the Drino and the Bënça close by
Area	Cadastral parcel no. 7 of zone 1149, 244.6 ha in all; planned treatment area 89.3 ha; forest parcels 65/a about 39.4 ha and 65/b about 48.0 ha
Roads and distances	About 500 m south of the town of Tepelenë; access from the road on the south-west side of the town and from the road on the east boundary
Relief and aspect	Slopes between the Bënça and the Drino; south-east aspect; mean gradient about 27%
Elevation	About 140–430 m, to be checked against the digital elevation model
Hydrology	Seasonal gullies draining to the Drino and the Bënça, tributaries of the Vjosa
Soil	Eroded Mediterranean brown soil on flysch
Vegetation	Forest and shrub cover lost in the 2024 fire; slow natural regeneration; slopes exposed to surface erosion
Fire	Burned in the 2024 fire
Park	Outside the Vjosa National Park; the site drains into the Bënça and the Drino, which are part of the park; about 300 m from the park boundary (Tepelenë Municipality, November 2026)
Land use	Not used for grazing; the site was preferred to areas that nearby villages use for grazing

B.4 Climate of the Project

The site lies in the Mediterranean–continental climate zone of the Vjosa valley, with mild, wet winters and hot, dry summers. The Project gives the mean monthly temperatures of Table C.4 and a mean annual precipitation of 1,426 mm, highest in autumn and winter and lowest in summer, and it concludes that the flights must fall in a period of sufficient soil moisture, late autumn to early winter or early spring. The Project adds that accurate data are to be taken from the nearest weather station.

Table B.4. Mean monthly temperature (°C)

Month	Temperature	Month	Temperature	Month	Temperature
January	9	May	18	September	23
February	10	June	24	October	17
March	11	July	24	November	13
April	13	August	24	December	10

B.5 Technique, species and planting units in the Project

Table B.5. Technique and requirements of the Project

Subject	Project
Species	Stone pine (Pinus pinea L.), long-needled, resistant to dry conditions and poor or eroded soils; chosen for its suitability to Mediterranean climate, fire-degraded soils, sun and wind, for the ability of its roots to stabilise slopes, and for experience in the hilly-mountainous areas of southern Albania
Method	Controlled aerial dispersal of stone pine seed packed in biodegradable capsules containing seed, nutrients and predator-repellent substances, along a pre-planned flight path over the digitally mapped site
Seeding density	1,150 seeds per ha, stated as the minimum rate; the final unit and application rate agreed in the contract
Layout	Regular, depending on the flight plan and the micro-relief; on steep slopes irregular dispersal along the contour lines is preferred, to reduce erosion further
Verification	Calibration of the dispersal system before seeding, recorded by the supervisor; georeferenced flight logs showing coverage of the polygon; reconciliation of pellets loaded and used with the delivery notes and area covered, tolerance ±10%; spot checks of pellet density in accessible sample plots
Site preparation	No systematic pits or terraces; clearing of burned debris and large obstacles where necessary, marking of the polygon boundaries, and a preliminary survey of micro-relief and plant debris to calibrate the flight plan; clearing limited to the take-off and landing areas and to debris that stops pellets reaching the ground, by the seeding contractor directly or through local labour
Planting material	Certified stone pine seed in biodegradable capsules, with certificates of origin and quality and in line with the national standards for forest reproductive material; each lot with a master certificate (species, category, region of provenance, stand or collection site, year, lot number) and a laboratory test dated within 12 months (purity, germination, 1,000-seed weight, moisture, viable seeds per kg); a new test at the contractor's expense if the certificate lacks these data; a data sheet of the pellet composition, because of the Vjosa National Park
Expected establishment	80% in spring and 60% in autumn; taken from reference rates for conventional planting, not specific to direct drone seeding, and presented as project estimates and not as guarantees
Tending and protection	Monitoring of germination and establishment by drone surveys or field visits; assessment of the cause where results are

	unsatisfactory (material, application, drought, fire, grazing, predators); warning signs and cooperation with the community and the fire service; the site is not used for grazing; any grazing restriction, long-term protection and routine care are for the Beneficiary, outside the seeding contract

Table B.6. Planting units of the Project

No.	Site	Species	Unit	Total	Of which: afforestation
1	**Dukat–Luzat (cadastral zone 1149, parcel no. 7)**	**Stone pine (Pinus pinea L.)**	**Units per ha**	**1,520 pellets per ha (detailed design)**	**1,520**

B.6 Budget of the Project

Table B.7. Reference budget of the Project (EUR, excluding value added tax)

No.	Item	Area (ha)	Cost per ha	Total value
1	Seeding, Dukat–Luzat, forest parcels 65/a and 65/b	89.3		
	Base contract excluding value added tax			
	Value added tax		20%	
	Base contract including value added tax			

The Project states that reference prices for materials and for the drone seeding service are determined on the basis of the winning bid, under the relevant items, and serve as the basis for the final calculation of the cost estimate.

B.7 Risks, sustainability, impact and monitoring in the Project

Table B.8. Other statements of the Project

Subject	Project
Risks	Weather unsuitable for flights (strong wind, heavy rain); low germination because of post-fire drought; recurrence of fire; uncontrolled grazing on young seedlings. The operator may suspend or stop flights when conditions are unsafe, by agreement with the supervisor and with the dates extended without penalty; flights need the authorisation of the Civil Aviation Authority; the estimate has no provision for weather standby or for a return in a later season
Measures	Flexible planning of the flight window by forecast; early monitoring; cooperation with the community and the fire and rescue service; warning signs and protection of the site by the Beneficiary, as the site is not used for grazing

Sustainability	Long-term monitoring by the forest and pasture unit of Tepelenë Municipality; local labour for tending; a specialised drone seeding operator; awareness among the residents of Tepelenë and Luzat; a contribution from the Municipality is expected
Protection	Municipality as managing owner, with the local fire protection and rescue service, the residents of Tepelenë and Luzat and the administration of the Vjosa National Park
Socio-economic impact	Protection of the forest function against erosion and landslides along the Drino, the Bënça and the Vjosa; better water regime and quality; short-term local employment in tending and monitoring, if the optional phases are funded; higher environmental and tourism value; these are long-term outcomes subject to establishment, protection from fire and grazing, and continued management
Economic balance	Indirect benefit through lower long-term costs of erosion and landslide damage and through ecosystem value; the payback is linked to ecosystem services and not to direct financial revenue
Evaluation and monitoring	By the forest and pasture unit with the technical manager and the drone operator: verification of the flight plan and density; periodic monitoring of germination and establishment by drone or field visits; annual reporting. Indicators: establishment and survival rate, vegetation cover, erosion processes. A germination check 3–4 months after seeding; survival assessments at the end of the first and second growing seasons; an annual report for two years; survey flights of the drone operator priced per survey as a separate optional item
Completion report	Map of the treated polygons and area, flight logs, application rate, quantities of seed and pellets with delivery notes and certificates, photographs; signed by the contractor and the supervisor; separate from the monitoring of germination and survival

Annex C. Implementation Annex: environmental and social monitoring

ENVIRONMENTAL AND SOCIAL REQUIREMENTS AND MONITORING DURING IMPLEMENTATION

Implementation of Investment Plans, Tepelenë – Dukat–Luzat pilot site, forest parcels 65/a and 65/b, property of Tepelenë Municipality, next to the Vjosa National Park

CARE4BlueSea (P176163), Subcomponent 2.3 | Contracting Authority: Project Management Team – CARE4BlueSea, Ministry of Environment | Version 1.0, November 2026

---

1. Purpose and scope

This Annex sets out how the environmental and social requirements of the World Bank Environmental and Social Framework and of the CARE4BlueSea instruments will be applied, monitored and reported **during implementation** of the drone seeding contract and the post-seeding period. It is a standalone operational document for the Contractor, the Supervisor, the Project Management Team and Tepelenë Municipality.

It covers: roles and responsibilities; environmental and social hold points that must be cleared before each phase; the implementation Environmental and Social Management Plan; the monitoring plan (compliance during works and performance after seeding); flight-day safety; incidents; grievances; reporting; non-compliance; the forms to be used (Appendices A–F); and the full text of the contract environmental and social clauses (Appendix G).

Order of precedence for environmental and social matters: (1) the environmental and social clauses ES-1 to ES-16 of the Contract (full text in Appendix G); (2) this Annex; (3) the site-specific Environmental and Social Management Plan; (4) the Contractor's approved occupational health and safety plan and work plan. Where national law and the Environmental and Social Framework differ, the more stringent requirement applies.

Table 1 – Reference documents

Document	Use in implementation
Contract environmental and social clauses ES-1 to ES-16	Contractor obligations; basis for non-compliance notices
CARE4BlueSea Grievance Mechanism Operation Manual (rev. 15.09.2026)	Grievance channels, timeframes, register, focal points
Project Labour Management Procedures, Stakeholder Engagement Plan, Resettlement Policy Framework, Environmental and Social Commitment Plan	Labour conditions; engagement; incident notification to the World Bank. The Resettlement Policy Framework is not triggered: the site is not used for grazing and no restriction of access is required
National legislation: Law No. 10440/2011 on environmental impact assessment (as amended by Laws No. 12/2015, 128/2020, 67/2024); Law No. 81/2017 on Protected Areas; Law No. 57/2020 on Forests (as amended, including by Law No. 99/2024 "On Inspection in the Republic of Albania"); Labour Code, Law No. 7961/1995 (as amended, latest by Law No. 91/2024); civil aviation rules for drones	Opinion of the protected areas agency on appropriate assessment for works next to the Vjosa National Park; forest-land approval; labour conditions (forced labour prohibited, Article 8; minimum age 16 under Article 98, raised to 18 by contract; minors and hazardous work, Articles 99–100); authorisation of the Civil Aviation Authority
Project Operations Manual (March 2025), Annex 10 Monitoring Report Template	Format of supervision/monitoring visit reports

2. Roles and responsibilities

Table 2 – environmental and social responsibility matrix (R = responsible; A = approves/accepts; S = supports; I = informed)

Environmental and social function	Environmental and social specialist of the Project Management Team	Supervisor	Contractor	Municipality	Consultant	National Agency of Protected Areas and the regional administration of protected areas	World Bank
Occupational health and safety plan, codes of conduct, induction	A	S	R	–	–	–	–
Civil Aviation Authority authorisation and flight plan with safety distances	I	A	R	I	S	–	–
Notification of the Municipality and residents of Tepelenë and Luzat before flight days	I	S	R	S	–	–	–
Seed-pod compliance (safety data sheet, samples)	I	R (check)	R (supply)	–	S	–	–
Weekly Environmental and Social Management Plan compliance checklist	A	R	S	–	–	–	–

Environmental and social function	Environmental and social specialist of the Project Management Team	Supervisor	Contractor	Municipality	Consultant	National Agency of Protected Areas and the regional administration of protected areas	World Bank
Incident reporting and investigation	R (notify World Bank)	S	R (report)	I	–	–	I
Community grievance mechanism (intake, register, response)	R	S	S (site focal point)	S (focal point)	–	–	I
Worker grievance channel	A	I	R	–	–	–	–
Fire prevention on seeded areas (post-seeding)	I	–	–	R	–	–	–
Completion report (P6) incl. Environmental and social section	A (environmental and social)	A	R	S	S	–	–
Post-seeding monitoring for 12 months by the Beneficiary (germination, survival, cover, erosion)	S	I	S (defects)	R (Beneficiary)	S (technical)	S	–
Semi-annual environmental and social reporting to the World Bank	R	S	S	S	–	–	I
Technical supervision support to Project Management Team (Task G of the World Bank terms of reference)	I	S	–	–	R	–	–

3. Environmental and social hold points

A hold point is a stage that cannot start until the listed conditions are verified. The Supervisor verifies; the Project Management Team releases. No payment is due for work carried out in breach of a hold point.

Table 3 – Hold points

Hold point	Conditions to be met	Evidence	Verified by	Released by
HP1 – Contract signature	Site-specific Environmental and Social Management Plan are attached to the Contract; written opinion of the protected areas agency on appropriate assessment and its approval of the works and of the species received; afforestation design approved by the National Forestry Agency; compliance of the pods (no registered pesticide/biocide; safety data sheets) verified at evaluation of Environmental and Social Management Plan and attached to the Contract; opinion of the protected areas agency on appropriate assessment received; opinion of the protected areas agency on appropriate assessment; land status recorded (cadastral zone 1149, parcel no. 7; forest parcels 65/a and 65/b, property of Tepelenë Municipality)	Letter of the protected areas agency; site information note of the Municipality	Environmental and social specialist of the Project Management Team	Coordinator of the Project Management Team
HP2 – Mobilisation (start of site preparation)	Occupational health and safety plan approved; codes of conduct signed by all personnel; personnel list with contracts and insurance; induction held; environmental and social focal person and site grievance mechanism focal point named; municipal grievance mechanism focal point designated and contacts published;	Approved occupational health and safety plan; signed codes; lists; induction record; grievance mechanism readiness checklist	Supervisor; environmental and social specialist of the Project Management Team	Project Management Team
HP3 – Delivery of seed pods	Seed certificates (provenance and quality); pod composition sheet and safety data sheet for each ingredient; no registered pesticide/biocide; sample retained	P2, P3; sample label	Supervisor	Environmental and social specialist of the Project Management Team (pod composition)
HP4 – First seeding flight	Authorisation of the Civil Aviation Authority; approved flight plan with safety distances and exclusion zones (watercourse strips, unburned vegetation, edge of the town, habitats named by the Park Administration Office); Municipality and residents notified at least 3 working days before; footpaths and firewood routes of residents marked and kept open; calibration recorded; baseline survey completed	P4, P5; notification record; baseline sheets	Supervisor; environmental and social specialist of the Project Management Team	Project Management Team

Hold point	Conditions to be met	Evidence	Verified by	Released by
HP5 – Acceptance of seeding	Four technical acceptance conditions met; Environmental and Social Management Plan compliance confirmed; site clean; environmental and social section of P6 complete	P6 with environmental and social section; final weekly checklist; waste receipts	Supervisor; environmental and social specialist of the Project Management Team	Project Management Team

4. Implementation Environmental and Social Management Plan

The matrix below lists the environmental and social measures to be applied during implementation, with the means of verification. Contract clause references are given in the last column.

Table 4 – Implementation Environmental and Social Management Plan

No.	Aspect	Risk / impact	Measures	Responsible	Verification	Clause
Phase 1 – Mobilisation and site preparation						
1.1	Labour conditions	Unregistered workers; child labour; unfair terms	Written contracts; social insurance; minimum age 18; wages on time; worker grievance channel	Contractor	Personnel list; contracts; spot interviews	ES-3, ES-4
1.2	Sexual exploitation and abuse and sexual harassment	Harassment or abuse of community members or workers	Signed codes of conduct; induction; confidential reporting to Project Management Team within 24 h	Contractor; environmental and social specialist of the Project Management Team	Signed codes; induction record	ES-5
1.3	Occupational health and safety on steep burned slopes	Falls, injuries from burned stumps, heat stress	Occupational health and safety plan; personal protective equipment; work in pairs; first aid; water and shade; stop work when unsafe	Contractor	Weekly checklist; site inspection	ES-6
1.4	Soil disturbance	Increased erosion from clearing	Clearing only at take-off points and obstacles; no machinery on slopes; debris along contours; no burning	Contractor	Site inspection; photos	ES-11
1.5	Fire at operating base	Ignition from fuel, batteries, smoking	Designated charging area; extinguisher; sealed fuel containers with drip trays; no open fires	Contractor	Weekly checklist	ES-11
Phase 2 – Seeding flights						

No.	Aspect	Risk / impact	Measures	Responsible	Verification	Clause
2.1	Community and road safety	Drone fall; disturbance to people, livestock, traffic	Authorisation of the Civil Aviation Authority; licensed pilots; flight plan with safety distances from houses, the edge of the town of Tepelenë and the road on the east boundary; notification of the Municipality and residents; signs; suspend when people or animals enter or wind exceeds limits; liability insurance	Contractor	Flight-day log (Appendix B); flight tracks	ES-8
2.2	Protected area and biodiversity	Works next to the Vjosa National Park, upstream of the Bënça and the Drino; seeding of unburned habitats or watercourse strips; non-native species; bird disturbance	Flights only inside the approved treatment polygon, never over the river channels; exclusion zones in flight software; only approved stone pine (Pinus pinea L.) seed; timing restrictions of the Park Administration Office respected	Contractor; Supervisor	Georeferenced tracks vs. polygons	ES-10
2.3	Seed-pod composition	Pesticides, hazardous substances or excess nutrients entering soil and water	Only approved lots used; lot numbers recorded per flight; non-compliant lots rejected	Contractor; Supervisor	Delivery notes; lot record; samples	ES-9
2.4	Waste	Packaging, damaged pods, batteries left on site	Daily collection and removal; licensed disposal; batteries returned	Contractor	Weekly checklist; receipts	ES-12
2.5	Cultural heritage	Chance finds at take-off areas	Stop work; protect; notify within 24 h; resume on written instruction	Contractor; Project Management Team	Incident record	ES-13
2.6	Community grievances	Complaints unresolved	Grievance mechanism poster on site; site focal point; record same day; forward to Project Management Team within 3 working days	Contractor; environmental and social specialist of the Project Management Team	Site grievance log (Appendix D)	ES-14
Phase 3 – Post-seeding (12 months, by the Beneficiary, outside the contract)						
3.1	Fire on seeded areas	Loss of investment; spread into the park and towards the town	Fire-awareness signs; the site in the municipal fire-prevention plan; liaison with the fire service; immediate reporting	Municipality	Fire records	–
3.2	Establishment failure	Benchmarks not reached	Monitoring by the Beneficiary per Section 5; cause analysis; only demonstrated defects in the Contractor's materials or work are corrected by the Contractor, with weather, grazing and other external causes considered; the seeding is accepted on completion (HP5)	Beneficiary; Project Management Team; Contractor for its defects	Monitoring reports (months 3, 6 and 12); cause analysis	–

5. Monitoring plan

5.1 Compliance monitoring during works

Table 5 – Compliance monitoring

Parameter	Method	Frequency	Responsible	Record	Target / threshold
Personnel inducted and codes of conduct signed	Document check	Before start; for each new worker	Supervisor	Induction lists; signed codes	100% before work
Personal protective equipment use and safe work practices	Site inspection	Weekly and on flight days	Supervisor	Appendix A	No critical non-compliance
Occupational health and safety incidents	Incident log	Continuous	Contractor; Supervisor	Appendix C	0 lost-time / serious incidents
Flights within approved polygons	Georeferenced tracks vs. polygons and exclusion zones	Each flight day	Supervisor	Appendix B; track files	No flights outside the approved polygon or over exclusion zones
Notification of the Municipality and residents before flight days	Notification record	Each flight series	Supervisor	Appendix B	100%, ≥3 working days in advance
Pod lots used match approved lots	Lot numbers vs. P2/P3	Each delivery and flight day	Supervisor	Lot record	100%
Application rate	Pods used ÷ area seeded; operational checks	Each flight day	Supervisor	Appendix B	Contract rate ±10%
Waste removed; no open burning	Site inspection; receipts	Weekly; at completion	Supervisor	Appendix A; receipts	Site clean at completion
Grievances recorded and forwarded	Site log vs. central register	Weekly	Environmental and social specialist of the Project Management Team	Appendix D; register	100% forwarded within 3 working days
Weekly Environmental and Social Management Plan checklist completed	Document check	Weekly	Environmental and social specialist of the Project Management Team	Appendix A	100% of weeks

5.2 Performance monitoring after seeding

Table 6 – Performance indicators (benchmarks of the Beneficiary's monitoring, not supplier guarantees)

No.	Indicator (unit)	Baseline	Target	Method	When	Responsible	Threshold → action
P1	Net area seeded (ha)	0	89.3 ha (net, per final design)	Flight tracks; geographic information system check	At completion	Supervisor	Coverage gap >5% → re-fly before acceptance
P2	Germination density (germinants/ha)	0	Per final design	Permanent plots	About month 3	Beneficiary (forest and pasture unit of Tepelenë Municipality)	<50% of expected → cause analysis
P3	Established seedlings (live/ha)	0	At least [400]/ha at month 12 in each seeded stratum (benchmark, not a guarantee)	Permanent plots; drone survey	Months 6 and 12	Beneficiary (forest and pasture unit of Tepelenë Municipality)	<[400]/ha in a stratum → cause analysis; correction by the Contractor only if a defect in its materials or work is demonstrated, with weather, grazing and other external causes considered
P4	Vegetation cover (%)	T0 survey	Increasing trend vs. T0	Drone orthophoto; photo points	Each monitoring campaign	Beneficiary (forest and pasture unit of Tepelenë Municipality)	No increase after 2 seasons → review
P5	Active erosion features per transect	T0 count	Stable or decreasing	Fixed transects; photo points	Each monitoring campaign	Beneficiary (forest and pasture unit of Tepelenë Municipality)	Increase >20% → targeted erosion measures
P7	Fire incidents on seeded area	–	0	Fire service / Municipality records	Each fire season	Municipality	Any → report to Project Management Team within 24 h
P8	Grievances with proposed response within 15 working days (%)	–	≥90%	Central grievance mechanism register	Quarterly	Environmental and social specialist of the Project Management Team	Below target → review focal-point performance
P9	Contribution to Project Appraisal Document indicator "Land area under sustainable landscape management practices" (ha)	0	About 89 ha (of 200 ha)	Ministry report from verified data	Mid-term; completion	Project Management Team; Vjosa Park Administration	Not verified → flag in progress report

5.3 Field sampling

- **Permanent sample plots:** square plots of 10 m × 10 m, at least 30 on the site and at least five in each stratum (slope class, aspect, gully bottoms and foot-slopes), located by a documented random or systematic method, with paired untreated reference plots. Plots are set by the Beneficiary before the seeding, using the Contractor's baseline survey; plot corners are marked with a satellite positioning point and durable markers.
- **Per plot:** live seedlings by height class; browsing damage; fire damage; ground cover (%); erosion signs; photograph to north (Appendix E).
- **Transects and photo points:** at least 3 erosion transects and 5 photo points per forest parcel, fixed at T0.
- **Drone surveys:** acquisition with sensors suited to the purpose (for example visible-light and multispectral) at the baseline (Contractor, within the site survey, with the tools it selects) and at each monitoring campaign of the Beneficiary (months 3, 6 and 12). Germinants of each species are counted in the field plots, by cohort, and not inferred from vegetation indices alone.

6. Flight-day protocol

Table 7 – Flight-day safety and environmental and social protocol

Stage	Actions	Responsible
Before the flight series (≥3 working days)	Notify the Municipality and residents of Tepelenë and Luzat (dates, hours, areas); confirm the authorisation of the Civil Aviation Authority is valid; confirm exclusion zones loaded in flight software; check the timing restrictions of the Park Administration Office	Contractor; Supervisor
Morning briefing	Weather and wind check against manufacturer limits; review of hazards; personal protective equipment check; first-aid kit and extinguisher at operating base; communication check	Contractor (environmental and social focal person)
Before take-off	Signs placed at operating base and access points; area visually checked for people and animals; pod lot numbers recorded; calibration confirmed (first day: P5)	Contractor; Supervisor
During flights	Stay within approved polygons; suspend if people or animals enter, wind exceeds limits, or any malfunction occurs; record suspensions with time and reason	Contractor (pilot)
After flights	Download georeferenced tracks; reconcile pods loaded/used per flight; collect waste and damaged pods; secure batteries and fuel; complete flight-day log (Appendix B)	Contractor; Supervisor

7. Incident management

Table 8 – Incident classification and reporting

Category	Examples	Report to	Timeframe	Follow-up
Minor	First-aid injury; minor spill; damaged pods scattered; minor community complaint	Supervisor	Same day (Appendix C)	Corrective action recorded in weekly checklist

Category	Examples	Report to	Timeframe	Follow-up
Serious	Lost-time injury; drone crash or fly-away; fire at operating base; damage to property or livestock; flight outside the approved polygon or over an exclusion zone	Supervisor and Project Management Team	Immediately; written report within 3 days	Root-cause analysis; corrective plan; Project Management Team assesses whether World Bank notification is required
Severe	Fatality; multiple serious injuries; sexual exploitation and abuse and sexual harassment allegation; wildfire spreading beyond the site; significant pollution	Project Management Team (sexual exploitation and abuse and sexual harassment confidentially)	Immediately, and within 24 h	Project Management Team notifies the World Bank per Environmental and Social Commitment Plan; independent investigation as required; work suspended if needed

8. Grievance mechanism during implementation

Community grievances are handled through the single CARE4BlueSea Project grievance mechanism. The municipal focal point and the Contractor's site focal point are local entry points; the central register is kept by the environmental and social specialist of the Project Management Team. Worker grievances go through the Contractor's worker channel; sexual exploitation and abuse and sexual harassment cases follow the confidential referral protocol.

Table 9 – grievance mechanism timeframes

Stage	Responsible	Timeframe
Receipt and recording (site log, municipality, public meeting)	Site / municipal focal point	Same day
Referral to Project Management Team	Site / municipal focal point	Within 3 working days
Central registration (C4BS-GRM-YYYY-###) and acknowledgement	Environmental and social specialist of the Project Management Team	Within 1 working day of Project Management Team receipt
Investigation and proposed response	Project Management Team with Contractor / Municipality	Within 15 working days
Corrective action, verification, closure	Responsible entity; Project Management Team verifies	Per agreed action plan
Reporting	Environmental and social specialist of the Project Management Team	Quarterly; included in semi-annual report

9. Reporting

Table 10 – Reporting schedule

Report	Prepared by	Submitted to	Frequency	Content
Flight-day log	Contractor; signed by Supervisor	Supervisor	Each flight day	Appendix B

Report	Prepared by	Submitted to	Frequency	Content
Weekly Environmental and Social Management Plan compliance checklist	Supervisor	Environmental and social specialist of the Project Management Team	Weekly during works	Appendix A
Incident report	Contractor	Supervisor; Project Management Team	Per Table 8	Appendix C
Supervision visit report	Supervisor / Consultant	Project Management Team	After each milestone visit	Project Operations Manual Annex 10 format
Seeding completion report (P6) with environmental and social section	Contractor; co-signed by Supervisor	Project Management Team	Within 10 days of the end of the seeding	Technical content + Appendix F
Post-seeding monitoring report	Beneficiary (forest and pasture unit of Tepelenë Municipality)	Project Management Team; National Agency of Protected Areas and the regional administration of protected areas	Months 3, 6 and 12	Indicators P2–P7; plot data; recommendation on corrective action
Semi-annual environmental and social report (input)	Environmental and social specialist of the Project Management Team	World Bank	Semi-annual	Environmental and Social Management Plan implementation; incidents; grievance mechanism; indicators

10. Non-compliance and corrective action

Table 11 – Non-compliance procedure

Level	Definition	Action	Deadline
1 – Observation	Minor deviation with no immediate risk	Recorded in weekly checklist; corrected on site	Next inspection
2 – Non-compliance notice	Breach of a clause or Environmental and Social Management Plan measure	Written notice by Supervisor with required corrective action	As set in notice (normally ≤5 working days)
3 – Suspension / withholding	Level 2 not corrected, or risk to people or environment	Project Management Team suspends affected work at Contractor's cost without extension of time; withholds [__]% of next payment until corrected	Until verified corrected
4 – Termination	Serious or repeated breaches, including sexual exploitation and abuse and sexual harassment	Grounds for termination under the Conditions of Contract	–

Appendix A – Weekly Environmental and Social Management Plan compliance checklist (Supervisor)

Site: _____ Week: ____ / ____ Inspector: _____ Date: _____

Item	Yes / No / not applicable	Comment / corrective action	Deadline
Labour and occupational health and safety			
All personnel on site inducted and listed; codes of conduct signed			
Personal protective equipment worn correctly (boots, gloves, helmet, high-visibility vest)			
Work in pairs; communication available			
First-aid kit and trained first-aider on site; emergency route known			
Drinking water and shade available			
Flights and community safety			
Civil Aviation Authority authorisation valid; flight plan approved			
Municipality and residents notified at least 3 working days before flight days			
Signs at operating base and access points			
Flights within the approved polygon; no flights over exclusion zones			
Materials, soil, fire, waste			
Only approved pod lots used; lot numbers recorded			
Clearing limited to take-off points and obstacles; no machinery on slopes			
Burned debris laid on contours; no burning			
Extinguisher at operating base; charging/fuel area cleared; no open fires			
Waste collected and removed; batteries secured			
Grievances and incidents			
Grievance mechanism poster displayed; site focal point present			
Grievances recorded and forwarded within 3 working days			

Item	Yes / No / not applicable	Comment / corrective action	Deadline
Incidents reported and followed up			

Signature (Supervisor): _____ Received (environmental and social specialist of the Project Management Team): _____

Appendix B – Flight-day log and safety checklist (Contractor)

Date: _____ Site: _____ Operating base satellite positioning: _____ Pilot(s): _____ Supervisor: _____

Item	Record
Notification of the Municipality and residents: date and method	
Weather and wind at start (km/h); within manufacturer limits? (yes/no)	
Morning briefing held; personal protective equipment checked (yes/no)	
Signs placed; area checked for people/livestock (yes/no)	
Pod lot numbers used	
Number of flights; polygons/micro-zones covered	
Pods loaded / pods used (no.)	
Area seeded today (ha); resulting rate (pods/ha)	
Suspensions (time, reason)	
Incidents / near misses (ref. Appendix C)	
Track files saved (file names)	
Waste collected; site left clean (yes/no)	

Signature (Contractor environmental and social focal person): _____ Signature (Supervisor): _____

Appendix C – Incident report form

Field	Entry
Date and time of incident; date reported	
Location (site, satellite positioning)	
Category (minor / serious / severe)	

Field	Entry
Description of what happened	
Persons involved / injured (no names for sexual exploitation and abuse and sexual harassment cases)	
Immediate actions taken	
Root cause	
Corrective and preventive actions; responsible; deadline	
Reported to (Supervisor / Project Management Team / World Bank) and when	
Prepared by; signature	

Appendix D – Site grievance log (Contractor site focal point)

Local ref.	Date received	Complainant (or "anonymous") and contact	Place of residence	Summary of grievance	Channel	Date forwarded to Project Management Team	Project Management Team ref. (C4BS-GRM-…)	Status

Sexual exploitation and abuse and sexual harassment grievances are not entered in this log; they are referred directly and confidentially to the Project Management Team.

Appendix E – Monitoring plot field form

Site: _____ Round: (month 3 / 6 / 12) Date: _____ Team: _____

Plot identity	Stratum (slope / aspect / gully)	Satellite positioning	Live seedlings (no.)	Height class (<5 / 5–20 / >20 cm)	Browsing (yes/no)	Fire damage (yes/no)	Ground cover (%)	Erosion signs (none / rill / gully)	Photo no.

Seedlings per ha = live seedlings in plot × 100 (for 100 m² plots).

Appendix F – environmental and social section of the seeding completion report (P6)

Item	Content to be provided
Workforce	Total workers; local workers; women; days worked
Induction and codes of conduct	Number inducted / signed vs. total personnel
Occupational health and safety	Incidents and near misses; corrective actions
Flights and community safety	Notifications made; suspensions; any flights outside polygons
Materials	Pod lots used with certificates and safety data sheet references; samples retained
Waste	Quantities removed; disposal receipts; battery returns
Grievances	Number received, forwarded and status; worker grievances
Site condition	Before/after photographs of operating bases; confirmation of clean-up
Non-compliances	Notices received and how they were closed

Appendix G – Contract environmental and social clauses ES-1 to ES-16

Full text of the environmental and social clauses to be included in the Contract (Annex 3 of the technical specifications for the request for quotations). Square brackets [ ] are to be completed by the procurement specialist of the Project Management Team. The last column refers to the measures in Table 4 (Implementation Environmental and Social Management Plan) of this Annex.

No.	Clause	Table 4 ref.
General		
ES-1	**General obligation.** The Contractor shall comply with the site-specific Environmental and Social Management Plan (Annex [__] to the Contract), with the World Bank Environmental and Social Standards as reflected therein, with applicable Albanian legislation, and with the instructions of the Contracting Authority (Project Management Team) and the Supervisor. Where requirements differ, the more stringent shall apply. The Contractor shall implement, at its own cost, all measures assigned to it in the Environmental and Social Management Plan; these costs are deemed included in the Contract Price.	All
ES-2	**Environmental and social focal person and induction.** Before mobilisation, the Contractor shall designate a named person (normally the Technical Manager) responsible for implementing this section. All personnel, including local labour, shall receive an induction before starting work, covering occupational health and safety, the Code of Conduct, flight safety, fire prevention, waste, chance finds and the grievance mechanism. Signed attendance lists shall be submitted to the Supervisor.	1.1–1.3
Labour and working conditions (Environmental and Social Standard 2)		
ES-3	**Labour and working conditions.** All workers, including those engaged through subcontractors or as local daily labour, shall have written terms of employment, be paid in full and on time, and be registered for social and health insurance in accordance with Albanian law. No person under 18 years of age shall be employed on site. The Albanian Labour Code (Law No. 7961/1995, as amended) sets a general minimum employment age of 16; this Contract sets a minimum age of 18 for all site work. Forced labour and any form of discrimination are prohibited. The Contractor shall comply with the Project Labour Management Procedures and shall keep personnel records available for inspection.	1.1
ES-4	**Worker grievance mechanism.** The Contractor shall provide its workers with an accessible channel to raise work-related concerns, shall respond to them promptly and shall not retaliate against any worker who raises a concern. A log of worker grievances and responses shall be submitted with the completion report (P6).	1.1
ES-5	**Code of Conduct (including sexual exploitation and abuse and sexual harassment).** Before starting work, every member of the Contractor's personnel shall sign the Project Code of Conduct (template provided by the Project Management Team). It prohibits sexual exploitation and abuse and sexual harassment, any sexual activity with persons under 18, violence, discrimination, and the use of alcohol or drugs at work. Breaches shall lead to removal from the site. Any sexual exploitation and abuse and sexual harassment allegation shall be reported confidentially to the Project Management Team within 24 hours.	1.2
Health, safety and incidents (Environmental and Social Standard 2, Environmental and Social Standard 4)		
ES-6	**Occupational health and safety.** Within 10 days of contract signature, together with the work plan (P1), the Contractor shall submit an occupational health and safety plan for the Supervisor's approval. The plan shall cover at least: hazards of steep and burned slopes and unstable burned trees; heat stress; drone handling; battery charging; vehicle access. It shall provide for appropriate personal protective equipment (safety boots, gloves, helmets, high-visibility vests), work in pairs with means of communication, drinking water and shade, a first-aid kit and at least one trained first-aider on site, and an emergency plan with the route to the nearest health centre. Work shall stop when conditions are unsafe.	1.3

No.	Clause	Table 4 ref.
ES-7	**Incident reporting.** Any accident or incident (injury, drone crash or fly-away, fire, damage to property, spill, or a serious complaint from the community) shall be reported to the Supervisor and the Project Management Team immediately and in any case within 24 hours. A written report with cause and corrective measures shall follow within 3 days. The Project Management Team will notify the World Bank in accordance with the Environmental and Social Commitment Plan.	1.3, 2.1
ES-8	**Flight and community safety.** Flights shall start only after authorisation by the Civil Aviation Authority (P4), shall be operated by licensed pilots, and shall remain within the approved flight polygons. Safety distances from dwellings, the edge of the town of Tepelenë, roads (including the road on the east boundary of the site) and people shall be set in the flight plan approved by the Supervisor. The Municipality and the residents of Tepelenë and Luzat shall be notified at least 3 working days before flight days. Warning signs shall be placed at the operating base and access points. Flights shall be suspended when people or livestock enter the operating area, or when wind or weather exceed the manufacturer's limits. Third-party liability insurance shall be maintained for the whole contract period.	2.1
Materials, biodiversity, soil, fire and waste (Environmental and Social Standard 3, Environmental and Social Standard 6)		
ES-9	**Seed-pod composition.** Seed pods shall be 100% biodegradable. They shall not contain any substance registered as a plant protection product or biocide, or any hazardous substance. A repellent, if used, shall be of biological origin and shall not be a registered plant protection product or biocide. Hydrogel, if used, shall be of a biodegradable type. Nutrient content shall be limited to the quantity strictly needed for germination and declared per pod. A composition data sheet and a safety data sheet for each ingredient shall be submitted with the bid and before delivery (P3). The Supervisor shall retain a sample of each lot. Non-compliant lots shall be rejected and replaced at the Contractor's cost.	2.3
ES-10	**Biodiversity and protected area.** The site lies outside the Vjosa National Park, but the Bënça and the Drino below it are part of the park. Flights, take-off, landing and storage shall take place only within the approved treatment polygon and bases, and never over the river channels. Unburned natural vegetation, riparian strips (at least 10 m from permanent watercourses) and areas marked as exclusion zones on the design maps shall not be seeded. The Contractor shall respect any timing restrictions communicated by the National Agency of Protected Areas, the regional administration of protected areas or the Park Administration Office (e.g. bird breeding periods). Only stone pine (Pinus pinea L.) seed approved by the contracting authority shall be used. Personnel shall not disturb, hunt or collect wildlife or plants.	2.2
ES-11	**Site preparation, soil protection and fire prevention.** Clearing shall be limited to take-off/landing points and to obstacles that prevent pods from reaching the ground. No excavation, pits, terraces or machinery on slopes are permitted. Burned debris shall be laid along the contour lines and shall never be burned. Open fires are prohibited, and smoking is allowed only in a designated area. Each operating base shall have a fire extinguisher. Batteries shall be charged, and fuel stored in sealed containers with drip trays, in a cleared area away from vegetation.	1.4, 1.5
ES-12	**Waste management.** All packaging, damaged pods, used batteries and other waste shall be collected daily, removed from the site and disposed of at a licensed facility. Used batteries shall be returned to the supplier or a licensed recycler. No waste shall be left on site. Seed pellets that have been correctly applied are biodegradable and are not waste; they shall not be removed from the ground. Site clean-up shall be confirmed with photographs and disposal receipts in the completion report (P6).	2.4
ES-13	**Chance finds.** If any object of possible archaeological, historical or cultural value is found, the Contractor shall stop work in the vicinity, protect and mark the area, and notify the Supervisor and the Project Management Team within 24 hours. They will inform the competent cultural heritage authority. Work shall resume only on written instruction.	2.5
Community grievances, reporting and remedies (Environmental and Social Standard 10)		
ES-14	**Community grievances and conduct.** The Contractor shall display the Project grievance mechanism poster (provided by the Project Management Team) at each operating base and name a site grievance mechanism focal point. Any complaint received shall be recorded the same day and forwarded to the Project Management Team within 3 working days, in accordance with the CARE4BlueSea Grievance Mechanism Operation Manual. The Contractor shall cooperate in the investigation and corrective action. Personnel shall not enter private property without permission. Any damage to property, crops or livestock caused by the Contractor shall be repaired or compensated.	2.6

No.	Clause	Table 4 ref.
ES-15	**Environmental and social reporting and inspection.** The Supervisor shall complete the weekly Environmental and Social Management Plan checklist (Appendix A), and the Contractor shall provide the information and access needed for it. The completion report (P6) shall include an environmental and social section covering: workforce (number, local workers, women), induction and Code of Conduct records, incidents, grievances, waste disposal receipts and site clean-up photographs. The Supervisor and the environmental and social staff of the Project Management Team may inspect the works at any time.	All
ES-16	**Non-compliance and remedies.** In case of non-compliance with this section, the Supervisor shall issue a written notice with a deadline for corrective action. If the non-compliance is not corrected within the deadline, the Project Management Team may suspend the affected work at the Contractor's cost and without extension of time, and may withhold [__]% of the next payment until it is corrected. Serious or repeated breaches, including sexual exploitation and abuse and sexual harassment, may constitute grounds for termination under the Conditions of Contract.	All