

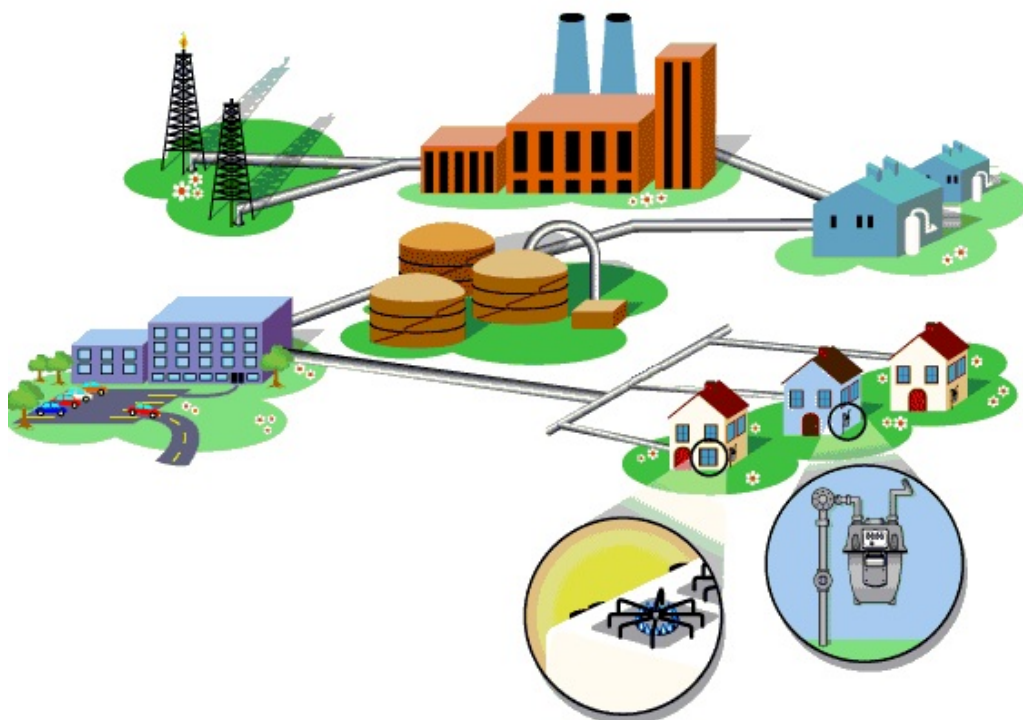


Georgian Oil & Gas Corporation

East-West Gas Pipeline Rehabilitation Project (Phase IV)

Execute Phase

Environmental Management Plan for the Construction Works on 45km Section KOBULETI



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Georgian Oil & Gas Corporation

Environmental Management Plan For the Construction Works on 45km Section KOBULETI

GEORGIA

East-West Gas Pipeline Rehabilitation Project

(Phase IV)

2016

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1. Introduction

Georgia is heavily dependent upon gas imports to supply critical industries with gas, and to heat homes. The imported gas is conveyed into Georgia from Azerbaijan and Russian Federation via high pressure gas pipelines. Georgia has two main gas pipeline corridors: (i) the North-South Corridor, which allows import of gas from Russian Federation and transit of gas to Armenia, and (ii) the East-West Corridor, which supplies gas for domestic consumption. The EWGPS - East-West (Main) Gas Pipeline System is owned by JSC GOGC, which is founded as 100% state owned enterprise. The EWGPS is operated under the long-term lease agreement by the Georgia Gas Transportation Company Ltd.

The East-West section of gas pipeline system (EWGPS) uptakes gas from Azerbaijan and supplies Eastern and Western Georgia. 500 mm diameter sections of the pipeline were constructed in the 1960s and a 700-mm diameter pipeline in the mid- to later 1970s. A number of crossover connections were also constructed and some sections replaced and abandoned during the 1990s to address integrity issues due to landslides or erosion at river crossings. The sources of gas supply to Georgia were diversified in recent years and now include supplies from Azerbaijan as well as from South Caucasus Pipeline via uptake point located near Rustavi. The technical stability of the gas sector in Georgia depends on the reliability of these pipelines. The most of the pipeline sections have received little maintenance since Georgia's independence from the former Soviet Union and have deteriorated significantly since then.

2. Need for and Objectives of this Site-Specific EMP

The objective of this EMP document provides project-specific mitigation requirements, and monitoring and institutional measures to be taken during project implementation to eliminate, offset to reduce adverse impacts to acceptable levels. The plan covers construction and operation phases. It is based on the project Environmental Impact Assessment.

The draft, or the approved EMP, as the case may be considered as included in the bidding documents, against which construction bids are received, evaluated and a contract awarded to successful bidder. Contractor is required to fulfill EMP requirements and comply with the approved EIA and the permit conditions. During construction, the Contractor will be responsible for implementing this EMP and permit conditions as well as for monitoring its own environmental compliance. Contractor's performance and compliance will be supervised by GOGC and monitored by USAID Auditors.

3. Key Provisions for Environmental Management

Environmental and social impact mitigation measures have to be further developed upon Pre-Construction Survey before proceeding with initial stages of construction (i.e., topsoil stripping, grading, vehicles crossing). The common measures and the key mitigation provisions specific to this site and work activities are listed below.

General Provisions:

General measures that will be implemented to ensure that environmental impacts are avoided or mitigated include, but are not limited to, the following:

- Delimitation of a buffer zone around the site.
- Safety warning signs, authorizing only project personnel.
- Adequate signage to ensure that areas delimited by the project are respected.
- Access to the area will be done only through approved access roads and through the RoW.
- Mobile shelters against sun and elements and rest areas shall be provided for personnel close to each active construction area.
- *The boundaries of the construction RoW shall not be violated. Signage will delineate the boundaries. In case of boundary violation, the contractor is obliged to negotiate and obtain rights on extra land with the owner of the land and comply with all applicable Georgian legislative requirements. Damage suffered by the landowner, user or any other party due to this unauthorized access is the responsibility of the contractor.*

Environmental Resources:

The following environmental resources will be provided by the Contractor:

- Oil spill response equipment and materials. (See Annex A)
- Silt control materials, including hay bales, silt fences, etc.
- An environmental officer permanently on site supervising and monitoring the works.
- Personnel on-site who are trained in the use of the oil spill response equipment and materials, which will be, if necessary, reinforced by additional personnel.
- Prior training of entire personnel and continuous toolbox talks to ensure that all workers are aware of the environmental and social requirements during the crossing works and have appropriate skills. Untrained and unskilled personnel not allowed participating in the works!
- A special folder for all supervisors working on the site that contains all necessary General and Site-Specific Environmental Management Plans, Procedures and Method Statements.

Measures to Prevent, Control or Respond to Water Pollution/Oil spill:

- Appropriate precautions shall be taken, so far as is reasonably practicable, to protect storage areas and equipment from unauthorized interference.
- Stores of potentially polluting material shall be situated on an impervious base and surrounded by an impervious bund capable of containing a volume 10% greater than the store.

- Valves shall be checked periodically on routine inspections to ascertain that they are closed and working correctly.
- Tanks will also be dipped to determine levels and possible leaks.
- Storage of chemicals, fuels and refueling points shall be a distance of 50 m or greater away from any water or irrigation courses, dry river beds and consideration given to the presence of aquifers or other water sources likely to be contaminated by spillage.
- Special consideration shall be given to any leachates arising from the surface run-off around temporary stockpiles of materials.
- All construction equipment operating on fuel (pumps, generators, welding, drilling equipment etc.) should be provided with dip trays (secondary metal containers). Those items will be located beneath the fuel/oil tanks with the volume of 10% higher than these tanks. Fuel that accumulates in the trays will be collected and disposed off per relevant requirements.
- Vehicles and mobile equipment shall be regularly inspected (See Annex B) and maintained to confirm they are not leaking or dripping. Operators shall be instructed to notify their supervisors if there are any problems with their vehicles, whereby appropriate maintenance measures shall be given. Maintenance of construction plant equipment shall be closely supervised and measures shall be implemented to prevent hydrocarbon contamination. These measures shall include use of metallic drip trays, availability of absorbent materials and disposal of any used materials.
- Major equipment and vehicles shall be refueled wherever possible on an impervious base. Care will be taken not to spill any fuel, and refueling hoses will be fitted with a commercial standard nozzle with self-closing valves, for prevention of any unwanted discharges. Drip trays will be placed under potential spill points, and absorbent materials shall be close at hand. Stationary equipment with impervious drip trays will be refueled in-situ; fuel will only be distributed via purpose built tankers.
- Higher levels of dust containment shall be used for contaminated excavated material than used for other material. Appropriate measures may include: use of fine water sprays to thoroughly moisten all surfaces and maintain surface moistness; use of protective fences or screens to provide shelter from winds; minimizing unnecessary handling of material, and; enclosure of excavated material in wind proof containers prior to removal from site.
- A parking area will be set up to limit the passage of vehicles across the working zone.
- No refueling operation will be authorized in less than 50 meters from the channels.
- A specific refueling area, geo-textile and plastic lined, filled up with sand, will be installed near the staging area (where fuel tanks/trucks are to be located).
- All equipment working on the site will be inspected for potential leaks, etc. prior to starting the work and then on a monthly basis (daily basis for engines working near or directly into the channels). (See Annex B)
- Adequate spill response contingency will be mobilized, including oil spill kits with: absorbent pads, absorbent booms, shovels, plastic and sand bags, gloves). These will be available on site during for contingency of spills reaching channels and personnel trained in the use of the equipment available on site.
- Spill contingency shall also include spaghetti booms (or equivalent equipment) to be deployed across the water downstream from the work area as a spill mitigation measure if construction works inside the channel are needed.
- The Rivers will be subject to special attention that means:
 - ✓ Spill leakage inspection of equipment on daily basis.
 - ✓ Sufficient capacity spill response equipment (absorbent pads, booms & etc.) and regular supervision.

- Incident reporting will be done as mentioned above.
- Oil spill response trainings will be done on a monthly basis to relevant personnel.
- If any refueling operation closer than 50 meters from the channel cannot be avoided due to emergency situations, this operation will be carried out following strictly the refueling operation (laying of geotextile, use of absorbent materials, availability of oil spill response kits) and will be attended by a representative of the environmental unit. Duration of the refueling operations taking place closer than 50 meters from the river will be minimized.
- All provisions of the environmental emergency response Plan apply.

Spill Response:

The magnitude of the discharge/spill will determine the extent of the actions that are to be taken. The key actions in responding to a spill to minimize its environmental impact are:

Early Detection

- Regular inspections and training shall be carried out to enable early detection. It is everyone's responsibility to be aware of potential pollution risks. (See Annex B)

Notify your Supervisor/Emergency Team

- Notify supervision, who shall notify the Site Superintendent or Environmental Manager. Emergency services shall/may be notified, as necessary.

Assess Personal Risks

- Only attempt containment and cleanup operations of spilt substances when it can be performed safely. If spilled material is flammable, eliminate sources of ignition near spill area. Personnel and neighbors are to be evacuated if they are at risk. Secure the area and establish perimeter control at a safe distance from the spill.

Stop Source of Spill

- When it can be performed safely, stop source of spill. Pollution control equipment shall be available from the site administration offices, storage and re-fuelling areas.

Contain Spill (if Liquid)

- Liquid spills – If the spill is liquid, its path shall be blocked or diverted and then soaked up using an absorbent material.

Clean-Up

- No spills shall be rinsed away. Contaminated soils and clean-up materials from spills must be handled properly using personal protective equipment, stored in a suitable container that is then labeled and stored in the designated location. Screen/cover stockpiles of polluted matter to prevent dispersion.

Dispose With Care.

- Contaminated soils and used clean-up materials shall be treated as hazardous waste and be disposed of accordingly at the designated disposal site.

Document Incident

- The Site Manager shall be responsible for ensuring a report is filed containing information on date, time, location, type and quantity of spilled material, description and cause of incident, action taken, name of person reporting the incident and recommended actions for ensuring the incident doesn't reoccur.

Spill Response Materials:

- Spill response/pollution control materials will be stored on site in close proximity to the storage and waste areas, the refueling area and the administrative offices. This equipment is

to be used to contain and clean up pollution, and care shall be taken to dispose of any absorbent materials properly. They shall not be washed away. The Site Environmental Manager shall keep stocks well maintained and replenished.

- Spill Response materials shall include the following:
 - Sand
 - Sand bags
 - Buckets and Shovels
 - Absorbent Granules
 - Absorbent Pads
 - Absorbent Booms
 - Storage Containers (kits, drums, etc.)
- Sand is one of the most versatile containment materials, which can be used to soak up spillages of oil and chemicals and used in the form of sand bags to block off substances from sensitive areas or channel them to a predetermined collection point. Sand stocks must be dry and buckets and shovels readily available. Mechanical loading shovels, excavators and dump trucks may also be used for sand distribution and clean-up. Storage containers for contaminated materials and earth will be banded, located in the waste storage area, and labeled and treated as hazardous waste.

Waste Management:

- Waste minimization/treatment study will be incorporated in General Waste Management Plan. All waste will be collected and segregated into three categories, inert, non-hazardous and hazardous.
- The following general measures will be adopted:
 - The mixing of different categories of waste shall not be permitted.
 - Areas will be assigned for each category of waste and identified accordingly.
 - Medical Waste will be segregated from all other waste.
 - Storage of waste will be located away from community living areas.
 - All waste will be removed from site and disposed of in a controlled and timely manner, see following paragraphs for details.

Inert Waste

- During the execution of this scope of work it is deemed that waste of this category will be generated during disassembling houses placed into the Row.

Non Hazardous Waste

- Non-hazardous waste generated during this scope of work will be limited to general domestic waste some plastics and rags.
- No waste will be disposed into any watercourse or body of water. Hydrotest water will pass mechanical treatment through filters prior to disposal.
- Septic tanks will be used for short-term camp. This category of waste will be collected by local suppliers who provide services in place for its treatment and disposal.

Hazardous Waste

- The following categories of hazardous waste will be generated during this scope of work:
 - Chemicals, lube oil, hydraulic oil, fuel oil, medical waste, inert waste, laboratory testing, food waste and metal waste
 - Hazardous waste will be segregated and transported for final disposal to the sites designated for disposal of hazardous waste. Incineration will not be used in site.

Waste Management Records

- The collection of waste shall be made at the end of each site survey/investigation. For each category of waste the following estimate shall be recorded on a Waste Transfer Note (See Annex C):
 - Description of the Material, Quantity (volume/liter), Special Precautions, Name of Collection/Disposal Agent, Name of transporter and Name of Ultimate Disposal Site.
 - Records of all Waste Transfer Notes shall be maintained by the Site Manager and the Site Environmental Officer will report the quantities in Weekly/Monthly Environmental Report.

Measures will also include:

- Waste bins and kits/metal drums (non-hazardous and hazardous) will be placed for proper collection and segregation in a marked/signed and dedicated area.
- Their collection will be organized on the construction site on a daily basis.
- The waste will then be transported to the approved disposal site.
- Particular attention will be paid to personnel food and cigarette smoking waste, bins and ashtrays of sufficient volume will conveniently be provided along the entire active construction area and these will be collected on a daily bases for temporary storage.
- Burial of any waste, including concrete or inert material strictly disallowed.
- Provision of adequate mobile toilet facility for workforce including treatment plant of appropriate capacity or with regular disposal at approved discharge point.
- A designated and marked hazardous waste area will also be installed, and equipped with secondary containment.
- Each construction team must have its waste bins and kits/metal drums for (non-hazardous and hazardous) waste, welding team must have several units of metal kits for the collection of waste welding rods.

Measures to Control Sediment/Silt and Erosion:

- Monitoring of turbidity and for the possible presence of oil sheens will take place before, during and after construction activity. During channel crossings and works inside the watercourse, turbidity will be visually monitored on a daily basis.
- Minimization of turbidity and of sediments accumulation downstream.
- Bulk of the streams will be directed/collected using series of temporary dams and flume pipes of sufficient capacity. In case of water infiltration the open trench is to be dewatered with pumps discharging downstream via sedimentation basin (size at least 2 x 2 x 1.0 m).
- Sufficient hose capacity will be anticipated in order to allow the de-watering into the dedicated sedimentation basin/Sediments Traps.
- Sediment control measures to be enforced. These will include straw bales, silt fences and Sediments Traps (refer to a small temporary shallow pit excavated to intercept and store sediment. The excavated material can be used to form a berm around the trap increasing its effectiveness and capacity).
- At the end of sedimentation basin filtration device will be installed (hay bales /silt fences).
- Storage of topsoil and spoil materials will not take place at less than 25 meters from channel.
- Sandbag barriers/silt fences will be installed around topsoil, subsoil and spoil storage wherever a potential washout into the channel could occur.
- Dismantling and removal of flume pipes will be carried out in a sequence minimizing sedimentation/siltation downstream.

Environmental Construction Practices:

- Follow all permit and environmental mitigation requirements.
- Leave wildlife and vegetation alone. Conduct project activities that can affect wildlife and vegetation (e.g. clearing) with care to avoid unnecessary disturbance.
- Do not dump waste in streams, ponds, lakes, rivers, wetlands, natural drainages, or other sensitive areas. Do not dump waste in the area not designated for disposal.
- Implement and maintain erosion control and storm-water measures, as appropriate, such as: drainage ditches and trenches to divert water away from active work areas; structures (e.g. straw bales, stone barriers) to prevent siltation from reaching surface waters; and sedimentation ponds to settle out storm water particulates.
- Place drip trays under all standing mobile equipment.
- Respond to spills by stopping the source of the spill and immediately notifying your supervisor. Contain any spill and clean it up using absorbent materials. Do not rinse spill away. Document and report type and quantity of spilled material, date, time, and cause of spill, and cleanup, as required.
- Maintain equipment in proper operating condition. Stockpile overburden, spoil, and fill at least 20 m from surface water and wetlands, whenever possible.
- Recycle treated wastewater as dust control, if allowed and where practicable.
- Store wastes in properly designated areas. Label all containers accurately. Store hazardous waste securely in closed containers. Ship hazardous wastes to appropriate treatment and disposal facilities, per applicable requirements.
- No fires or burning on site.
- Immediately stop work and notify your supervisor if human remains or archaeological artifacts are found.
- Immediately stop work and notify your supervisor, if contaminated soil (unusual coloration or odor) or underground storage tanks are discovered.
- Ask Supervisor or Environment, Safety, & Health Representative if you have any questions.

4. Mitigation and Monitoring Plan

This section provides, first in the form of the plain text, the Environmental Management System for the site, and then compiles into the description of each environmentally sensitive construction purposes that will be implemented to avoid or minimize the potential negative environmental and social impacts of the rehabilitation work. Every site specific construction activities correlated with identified environmental and social impacts, provides site-specific mitigation measures, as well as deals with the monitoring arrangements to ensure that the construction and operation of the project conforms to the laws and regulations of Georgia, International Guidelines for Environmental Impacts, and best environmental practice. Key parties responsible for implementation, supervision and regulation, as well as the timing of the application of monitoring actions are defined. Document also includes supervision instruments such as checklists, waste notes, acceptance certificates etc.

4.1 Environmental Management System

Personnel

The Contractor is obliged to bring ES representatives on site for implementing Project Environmental requirements.

The minimum amount of ES representatives should be but not limited to 3 persons: ES Manager and two field officers (with qualification acceptable to GOGC).

All other working personnel are obliged to observe and follow project HSE requirements and HSE personnel guidelines. Also help with equipment/materials and assist in fulfillment of works considered under HSE conditions.

Competency of Personnel

All personnel involved in various type of construction operation shall be trained and assessed for the activities that they will be performing.

All employees involved in activities shall be made fully aware of the requirements for the works which will be fully described in the subsequent task specific methodology.

Daily toolbox talks shall be conducted with the appropriate crews.

Personnel on-site who are trained in the use of the oil spill response equipment and materials, which will be, if necessary, reinforced by additional personnel.

Prior training of entire personnel and continuous toolbox talks to ensure that all workers are aware of the environmental and social requirements during the crossing works and have appropriate skills. Untrained and unskilled personnel not allowed participating in the works!

- Environmental officers permanently on site supervising and monitoring the works.
- Environmental helpers in charge of collecting the waste on a daily basis and implementing environmental measures on site.

A special folder for all supervisors working on the site that contains all necessary General and Site-Specific Environmental Management Plans, Procedures and Method Statements.

Duties and Responsibilities

The duties Responsibilities of the Project Environment Manager include (not limited to):

- Preparing environmental plans, procedures and other environmental contractual documents;
- Assisting the Project Manager in all environmental matters;
- Monitoring Project environmental activities;
- Identifies required permits and communicates necessary information to construction teams and Liaises with external Regulatory Authorities as necessary;
- Central coordination of environmental reporting activities with Environmental team members including weekly reports, monthly reports, CAR/PAR, incident reports, waste numeric & waste transfer notes and submitting to GOGC;
- Implementing permitting (Extra Land, Access Roads & etc.), training, environmental monitoring and GOGC reporting requirements;
- Coordination of ESIA's as necessary;
- Assisting pipeline construction teams with planning to ensure that environmental requirements are considered at the earliest stages;
- Managing the pre-construction survey for ROW and coordinating Environmental Assessments of additional land take of non-project land in conjunction with the GOGC;
- Assisting Pipeline Construction Teams to manage suppliers and subcontract activities and personnel in accordance with Project Environmental Requirements;
- Direct Supervision of Environmental staff (Environmental Officers, Community Liaison Officer, Environmental/Waste Helper, Geotechnical Engineer) and other specialists as required;
- Planning and carrying out training, meetings and inspections for environmental activities (including Sub-Contractors activities and personnel);
- Coordination of environmental activities with GOGC and local authorities;
- Transmittal of completed Land entry agreements (signed by foreman, ES Officer) to GOGC on weekly basis.
- The nomination of environmental officers (with Project Manager);
- Monitoring project waste management and coordinate with the waste contractor;
- Coordinate with the waste Contractor for waste transfer;
- performance of duties including:
 - ✓ Overseeing the dissemination of environmental awareness information via toolbox talks and other appropriate training techniques
 - ✓ Implementation of environmental procedures at site
 - ✓ Discover breaches of environmental requirements during site inspection

The duties Responsibilities of the Project Environmental Officer include (not limited to):

- Assisting the Environmental Manager in all environmental matters;
- Undertakes field inspection of Project activities for compliance with the Environmental Management System; (See Annex B)
- Undertakes field based training (toolbox), environmental monitoring/inspection and daily reporting, including subcontractors/suppliers as applicable;
- Assists the Environmental Manager in undertaking pre-construction survey;
- Reporting of all compliant and non-compliant situations observed to the Field Environmental Manager on daily basis including GOGC Environmental Unit;
- Preliminary development of environmental reporting requirements including CAR/PAR, incidents for approval by Field Environmental Manager;
- Undertaking tasks as assigned by the Field Environmental Manager as necessary;

- Environmental management during operations (ROW Clearing, tree felling and grading);
- Ensuring the depth of topsoil and supervise topsoil management including storage and temporary erosion control;
- Supervision of reinstatement of topsoil including temporary and permanent erosion control;
- Monitor implementation of EMP for all environmentally sensitive locations like road crossings, river/stream crossings etc.
- Supervise and guide the site Environmental helpers;
- Prepare daily inspection report and complement checklists; (See Annex B)
- Implementation of pollution prevention and oil spill prevention methods;
- Implementation of emergency procedures in case of environmental events;
- Ensure waste segregation and collection at the waste accumulation area at the equipment yard
- Maintain waste records for each type of waste;
- Inspection of equipment completing special checklist form; (See Annex B)
- Liaise closely with Local Communities in order to avoid delay of construction process on social propose;
- keeping Base of project affected people and maintain complains register;
- Communicate with project manager regarding complaints to find out ways response in timely manner;
- Keep in cooperation with local Environmental authorities;
- Complete the Land Entry Agreement that will include the information about plot (fence quality/type, temporary construction, existence of trees). Inventory must be carried out with the GPS, photo documentation is required.
- Bring of completed Land entry agreements (signed by foreman, ES Officer) to Environmental Manager on daily basis.

The Contractor shall provide the CVs for the Key Personnel, including a ES Manager with a minimum of five (3) years' of experience in Works of an equivalent nature and volume, with no less than three (1) years as manager of similar Works projects. Similarly Environmental Field Officers should have minimum 1 year experience in Works of an equivalent competence too.

The Contractor's Project Manager (assisted by the E&S Officer) will:

- Prepare and implement a Hydrostatic Test Procedure that shall be approved by GOGC.
- Develop additional mitigation measures to control nuisance to residents or land users.
- Obtain relevant abstraction and discharge (hydrotest) permits from any relevant agreements with irrigation authorities and landowners.

All Foremen (i.e. construction team leaders) will:

- Check all machinery on first arrival and reject it, or send it for maintenance, if it:
 - emits visible smoke
 - emits exhaust gases that smell of unburnt hydrocarbons
 - is leaking oil or fuel
- Make daily visual observations of plant and vehicles for oil leaks and exhaust smoke/odor.
- Organize maintenance for, or replacement of, any plant or vehicles with oil leaks or emitting exhaust that is black or smells of unburnt hydrocarbons.
- Ensure that no hazardous chemicals (including fuels and oils) are stored within 50 m of a watercourse or wetland.

- Ensure that the entire workforce receives environmental induction for pollution prevention and control.

The ROW crew will:

- Carefully remove topsoil from the entire width of the ROW, staging area, pipe storage and newly cut access road areas.
- Topsoil will be stripped to a minimum of 300 mm across the entire width of the ROW.
- Not remove topsoil if the ground is saturated as this is likely to damage the soil structure.
- Store removed topsoil towards the edge of the ROW where vehicles will not drive over it (to avoid compaction).
- Topsoil stockpile will not extend outwards beyond the edge of the ROW.
- Topsoil stockpile will be no more than 2 to 3 meters high.
- Topsoil will not be stockpiled on the edge of watercourses, canals and ditches where there is a risk of it being lost by collapse or washing away.
- Topsoil reinstatement will not occur if the topsoil moisture content is great enough to result in damage to topsoil structure during handling.
- Ensure adequate segregation of topsoil and subsoil (from excavations) to ensure the seed bank is retained.
- Replace all topsoil after the subsoil has been graded, to facilitate natural regeneration.
- If conditions are wet, diverter berms or trenches will be dug between the ROW and the wetland to prevent run-off.

The Trenching crew will:

- Ensure that excavated subsoil is stored separately from topsoil.
- Backfill trench with stored subsoil (never with topsoil!), ensure it is adequately compacted.
- Pay particular attention to compaction at the areas of possible erosion, to minimize risk of soil erosion.

The Stringing and Welding crews will:

- Ensure that topsoil is never used for stringing of pipes.
- Welding waste is collected fully to avoid leaving it in the subsoil and covering with topsoil.

Hydrotest Crew will:

- Implement all the requirements of the Hydrostatic Test Procedures.
- Ensure that relevant abstraction and discharge (hydrotest) permits from any relevant agreements with irrigation authorities and landowners are in place.
- Control the rate of discharge of hydrotest water and discharge onto mats to minimize scour. If possible, the water should be discharged to the vegetated section of the water body.
- Analyze hydrotest source water prior to abstraction and during dewatering.
- Filter and test the quality of the receiving water and hydrotest water before discharge to ensure the discharge does not adversely affect the quality of the receiving water.

The Reinstatement crew will:

- Reinstatement all temporary work areas (including staging and pipe storage area) and each section of ROW as soon as possible after construction to allow some plant growth during the cooler spring and early summer months.
- Rip any compacted sub-soils to aid drainage and the re-establishment of vegetation.
- Compacted subsoil surfaces along the ROW will be deep ripped to facilitate aeration prior to topsoiling.

- The same quantity of topsoil will be returned to the ROW as was removed during topsoil stripping.
- Harrow the topsoil after it has been replaced to aid the re-establishment of vegetation.
- Restore the natural contours of the ROW wherever possible.
- The contours of watercourses, drainage ditches and canals will be reinstated as closely as possible to their original pre-construction condition or better.
- Keep permanent benching of the river banks to the minimum consistent with bank stability.
- Restore and stabilize the banks of the rivers/streams as soon as possible after backfilling to minimize risk of erosion.
- Consider installing trench breakers either side of crossings to minimize the risk of erosion.

All Drivers will:

- Observe all national and project speed limits.
- That plant and vehicles are maintained regularly.
- Sheet vehicles carrying soil, spoil or other fine materials.
- Ensure to use only authorized access roads.
- Park vehicles only at dedicated places.

The entire workforce will be advised that:

- Plant and vehicles speed will be restricted to legal limit on roads and 30 km/hr on the ROW.
- Equipment must be well maintained and adequately silenced to avoid causing nuisance.
- Additional noise attenuation measures (noise screening) must be used where necessary to prevent nuisance.
- Equipment must be switched off when not in use and not left to idle.
- Mobile plant must not be refueled within 50 m of watercourse or wetland.
- Drip trays (metal) must be used under all static plant and equipment and cleaned where necessary.
- If a spill occurs at a location that might lead to flow into the river/stream or a small wetland, cut off trenches should be dug to intercept it.
- All spills must be cleaned up promptly and contaminated materials disposed to the designated area.
- Sediment traps must be used to trap run-off from the ROW from entering into watercourses.
- Damp down the ROW whenever necessary to prevent dust nuisance.
- Employ additional sediment control measures close to the wetland areas:
 - No unfiltered water will be discharged to the wetland
- Construction vehicles will not be allowed to drive over reinstated areas.

Measures will also include:

- All those parts of the staging area (walking pathways for instance) to be covered with fine gravel (after construction completion material should be taken out and adequately disposed off).
- No fires allowed on the site. If as an exception there is a need to reuse wood waste outdoors, fireplaces will be provided and ash disposed off by spreading; no damage to topsoil areas.
- A pre-condition photographic survey will be done commonly between GOGC and the Contractor prior to starting the work that will be used as a reference for reinstatement works.
- The crossed or disturbed channels and berms shall be stabilized within 48 hours after construction activity completion.

- The channels shall be restored to their original conditions and designed contours and all necessary precautions will be taken to ensure that the natural drainage patterns are reinstated during restoration; this involves recording accurately the original conditions.
- Implement prior agreed bioengineering and biorestation measures to enhance stream protection where disturbed and to mitigate visual impact if some trees/shrubs are cut.
- Well protected and stored topsoil will be reinstated as provided for in the ESIA.

Communication

Contractor has committed to maintaining a sufficient number of Environmental personnel on-site to supervise the work. Most members of field teams will report to the site manager for their day-to-day task work allocation. They will also coordinate with the specialist manager in the office to ensure a consistency of approach and quality and to provide feedback on the progress of the works. The manager will, in turn, ensure that the field teams are consistent in their approach, check the quality of their work, and report to the GOGC on progress.

Environmental related letters and documents will be transmitted to the company using this process and include the following:

- Monthly and / or reports;
- Incident reports;
- CAR/PAR reports;
- Audit reports;
- Correspondences (letters and transmittals);
- Etc.

Contractor Environmental personnel should monitor environmental and safety aspects of construction document and report the progress and provide relevant updates to GOGC daily. Daily toolbox talks and waste registration is also essential.

Incident reports

An environmental Incident report (See Annex D) will be issued within the 48 hours of the incident in the following cases:

- Spillage on land, larger spillage (more than 50 liters);
- Spillage into water (more than 1 liters);
- Significant CAR/NCR or as agreed with GOGC

The Site Manager shall be responsible for ensuring a report is filed containing information on date, time, location, type and quantity of spilled material, description and cause of incident, action taken, name of person reporting the incident and recommended actions for ensuring the incident doesn't reoccur.

CAR/PAR

A Corrective Action Request (CAR) relates to a situation/circumstance that is a nonconformance and that requires corrective actions to eliminate the cause of the detected nonconformance, or other undesirable situation. (CAR/PAR form is included in Annex E)

A Preventive Action Request (PAR) relates to a situation/circumstance that is a potential nonconformance and that requires preventive actions to eliminate the cause of the potential

nonconformance or other undesirable potential situation. (CAR/PAR form is included in Appendix E)

For environmental CAR/PAR, a level of severity will be determined depending on the environmental impact degree of the non-conformance:

- Level 1 (low severity) CAR/PAR - presents no immediate threat or limited harm to environment, requiring minor corrective action.
- Level 2 (medium severity) CAR/PAR - presents limited harm to the environment, but could result in damage to an important resource. Requires urgent corrective and general resources for correction, but is reversible.
- Level 3 (high severity) CAR/PAR - a critical non-compliant situation typically including material damage to an important resource or a reasonable expectation of impending damage.

4.2 Pre-construction Survey

Environmental and social impact mitigation measures have to be further developed upon Pre-Construction Survey before proceeding with initial stages of construction (i.e., topsoil stripping, grading, vehicles crossing).

During the Pre-construction Survey particular attention will be given to mitigating landscape impacts at these locations. A Pre-Construction Survey shall be undertaken to identify and locate followed by design and construction of Environmental Stabilization and Geotechnical protection for ROW.

The Contractor will carry out pre-construction surveys to ensure all irrigation channels are well documented so that they can be effectively re-instated following the completion of construction. This will include primary, secondary and tertiary channels, formally recorded channels and those used informally by land users. Flow will be maintained for all irrigation that cross the ROW e.g. via flume pipe or over pumping, so that crops on land outside the ROW are not damaged as a result of construction activities.

Surroundings (fences, trees, channels) should be assessed and reported using GPS (refer to the Annex F).

4.3 Access Roads

Access to the ROW shall normally be from public roads which intersect the ROW, or other suitable access points, providing prior consent has been obtained from GOGC, and all necessary permits have been obtained.

Access to the pipeline shall be in accordance with the approved Access Plan Drawings (See Design Drawings).

Appropriate signage shall be placed at access roads to the ROW, at access to storage yards, and along the ROW, for location identification purposes, as well as to restrict access from non-authorized personnel, including vehicles and pedestrians.

CONTRACTOR will install culverts or flume pipes at all ditches and water crossings to prevent any siltation downstream. Materials, number of pipes and diameter to be defined specifically for each stream during preconstruction survey.

Temporary bridges (Structures made from pipes (concrete or steel) designed to maintain continuous flow during construction at watercourses sites) shall be constructed. Flumes will be sized to accommodate the flow volume expected at the time of construction. After Site completion they shall be removed as soon as possible after pipeline construction activities have been completed in order to return the flow of water within the watercourse channel to normal.

Topsoil should be removed from recoverable access roads and fully reinstated after completion of the works.

Utilization of non-authorized access roads is not allowable. In order for the contractor to use such access roads, consent of local self-governance officials or land owner is essential on the additional land plot. Those roads should be reinstated upon project completion.

In case of necessity regularly spray water on access roads to control blowing dust in vicinity of local villages and farms.

4.4 Land Entry

A survey crew will establish pipeline centerline and edges of the RoW. The Company Representative shall then define the areas where the topsoil is to be stripped and stored.

The extent of agricultural land shall be agreed with company prior to the start of topsoil stripping using the land entry agreement.

4.5 Tree Felling

Contractor and GOGC Representative and local authority shall select and mark trees which are to be removed and which are to be protected.

Remove all shrubs and bushes. (All shrubs and bushes < 150 mm in diameter shall be removed using machetes or small chainsaws).

Stump removal will occur during ROW grading activities.

Tree felling must be completed in one continuous operation. The tree felling operation is completed when the tree is lying on the ground. The tree shall not be left leaning against standing tree(s) or partially cut.

The surveyor will set out wooden stakes with warning tape attached (between boundaries pegs). These shall be placed on the pipeline center line and on the both sides of the easement boundaries.

Cutting of trees and vegetation in the ROW corridor shall be managed with due consideration of Georgian regulations (Georgian Law on Forest, N 2124, 22.06.1999, Georgian Law on

Management of Forest Funds N 3345, 06.07.2010, Decree of the Government of Georgia on Approval of the Rules of Forest Use N 242, 20.08.2010) for wood cutting and relevant methodologies.

Contractor is required to conduct inventory on forest parcels as defined by the relevant legislation. Based on this, specialized tree cutting will be carried out later on in cooperation with local representatives of Legal Entity of Public Law Agency of Natural Resources.

Contractor is required to adhere to all requirements defined by the agreement between GOGC and Legal Entity of Public Law Agency of Natural Resources.

Contractor is obliged immediate transportation of cut trees to the dedicated area (location will be provided by local representatives of Legal Entity of Public Law Agency of Natural Resources). Prior to transportation representatives of Legal Entity of Public Law Agency of Natural Resources shall be notified in order for them to issue documents confirming the origin of trees and to carry out special marking.

Unauthorized disposal of cut trees is not allowed. Trees designated for cutting shall be fully transferred to the representatives of the Legal Entity of Public Law Agency of Natural Resources and corresponding acceptance acts shall be signed. Any difference between the volumes of trees designated for cutting and transferred to the Agency shall be reimbursed by the Contractor.

Trees will be assessed and where possible either avoided or uprooted and re-planted as required.

Stumps shall only be removed from the area of 2 m from pipeline centerline.

Felling activities will take the following into consideration:

- Removal of individuals of protected tree species including rare (Red Book) species, as far as practicable, will be minimized and avoided through consultation with the site environmentalists.
- Individual trees to be conserved during ROW clearance, will be identified during the Pre-construction Survey and marked with a different color tape (or similar) to denote them from trees marked to be felled; and
- No felling of trees or cutting of vegetation shall be permitted other than that strictly necessary within the ROW and at other construction facilities.

In case of violation of the tree cutting requirements, any losses incurred shall be compensated by the Contractor.

4.6 Topsoil Management

CONTRACTOR's approach to topsoil removal and storage to facilitate appropriate reinstatement of the pipeline and facilities is outlined within this section. It is understood that the success of reinstatement is dependent upon the ability of CONTRACTOR to successfully manage topsoil throughout construction. Protection of the topsoil will be ensured through its separation from subsoil, and storage in a manner that retains its structure and seed bank whilst minimizing the potential for topsoil loss.

Topsoil Stripping

Boundaries of RoW topsoil stripping shall be identified by RoW pegging at limits and specified topsoil storage areas.

Topsoil shall be stripped using hydraulic excavators fitted with wide ditching buckets and dozers pushing the topsoil. Stockpiles are limited to 2m high, side slopes <45 degrees, drained by open ditches as necessary.

Subsoil piles or banks will not be greater in height than 3m, side slopes <60 degrees, drained by open ditches as necessary.

Topsoil shall be stripped to the subsoil level throughout the length of the pipeline route in accordance with the working width, with a minimum distance of two meters from watercourses, ditches and hedges.

Subsoil shall not be placed on topsoil it's to be separated and kept isolated from subsoil and in a manner to retain the soil structure and seed base. Except where the soils will be separated by geotextile material.

All preventive erosion control works defined burring activities shall be in place prior to the removal of top soil.

Contractor shall ensure that plant and vehicles don't traverse undistributed topsoil areas.

The contractor shall ensure that the site is left in a tidy condition in order to reduce the Environmental impact of operations.

Due to the width limitation of the ROW in the areas under the ownership of the Legal Entity of Public Law Agency of Natural Resources, topsoil should be transported outside this territory and stored on a wider section of the ROW.

Topsoil and subsoil operations are carried out in a way which minimizes the risk of soil loss down into watercourses;

At no time will CONTRACTOR use topsoil for trench fill or bedding/padding.

Topsoil Storage

Topsoil shall be stripped and stacked in a manner to avoid contamination with sub-soil and / or other foreign materials. Also, where there is no danger of it falling into watercourses or onto hedges. To prevent this, erosion control works will have been defined and constructed, e.g. silt fences, straw bale barriers, timber fences. Where topsoil is identified as having a significant content of silt/sand, storage heaps shall be covered with a suitable erosion mat.

Gaps shall be left in the topsoil stacks.

Trenches shall be dug alongside of the ROW to prevent erosion and to keep the ROW as dry as possible during times of heavy rainfall.

Contractor shall ensure an adequate buffer zone is maintained between the toe of the topsoil stock and the toe of the excavated trench material, alternatively a physical barrier should be installed to prevent topsoil and subsoil mixing.(see typcl drw)

Topsoil stockpiles will be monitored. Should any adverse conditions be identified corrective actions will include:

- Erosion - temporary protective silt fencing will be erected;
- Waterlogging - a drainage channel will be cut through the stockpile;

4.7 Subsoil Management

Excavation

In locations where working in the trench is considered a risk the following measures will be taken, but not be limited to:

- Shoring of the trench walls by sheet piling, lagging or other appropriate means; and
- Dewatering of the trench/trench drying in areas of high groundwater. This will be undertaken by sufficient capacity water pumps furnished with sedimentation basin and hay-bale filters at the outlet filtration .

Where necessary, stock-proof fencing will be erected around the trench to minimize the risk to livestock. The Construction Team in collaboration with the GOGC will agree areas of fencing to be installed with relevant communities and livestock owners prior to construction.

The location of fences will be selected based on the proximity to occupied properties or other sensitive areas where they are the most appropriate measure to assure the safety of people, livestock and property. This includes the provision of fences at the crossing points mentioned above.

Backfilling

The subsoil will be returned to the pipeline trench by backhoes and spread in a manner, which allows the successive thin layers to be compacted by vibrating plate tampers to the specified degree of compaction. CONTRACTOR will use a 'flat lift' technique to tine the top 300mm (approx.) of subsoil after replacement to render the subsoil workable and loose in keeping with the adjacent undisturbed ground.

No further reinstatement will be undertaken until the joint inspection has been undertaken and any corrective action necessary completed.

Grading

The ROW shall be graded and maintained to a standard suitable for construction traffic.

Grading activities will be minimized in wetland areas to the extent possible, the disturbance will be restricted to only that necessary for the pipe ditch and any access roads adjacent to the ditch.

4.8 Hydrotest

Project Manager of the contractor in coordination with Environmental Manager (and/or Environmental supervisor) should:

- Prepare and implement hydro testing procedure to be approved by GOGC
- Utilize sediment traps/slit fences that is necessary to avoid sedimentation of waters from the construction runoff

Water abstraction should be carried out from the bank with lower inclination and with no vegetation cover on the bottom.

Water pumps utilized during the abstraction should be equipped with special fish protection devices.

Waste water from hydro test will be discharged into the specially arranged settling pond.

To avoid scouring of mineral soil, kinetic energy of water coming from the pipes should be decreased by diverting the current to specially arranged water barriers in the trench.

Hydro test team members should:

- Control water discharge speed during hydro test to minimize it and spread water current on barriers to lower the scouring.
- Control water quality before abstraction and discharge.
- Ensure water abstraction and discharge permit with all relevant agreements with entities overseeing irrigational activities and landowners.
- Filter water coming from the pipe to make sure that discharge has no negative impact on the recipient water body.

For the removal of iron, rust and sediments settling pond arranged for the construction will be used (with the approximate dimensions of 5mX5mX1m). Bottom of the pond will be covered with a waterproof membrane to avoid infiltration. Water will go through several layers of hay bales before getting into the pond and then also after leaving the pond.

Oxygen deficit resulted from hydro test will be partially restored by sprinkling water using special metal devices. In order to avoid soil erosion, water current will not be directed at the substrate. Geotextile layers will be used instead.

4.9 Landscaping and Reinstatement

Reinstatement of project areas disturbed by pipeline construction activities (e.g. ROW, camps, pipe yards, temporary access roads etc.) to the original landscape character is a specific objective aimed at achieving the ultimate goal of no harm to the environment. This requirement will need to be balanced with other Project goals of improvements to community infrastructures as a socio-economic benefit, as well as site-specific landowner requirements.

Pipeline reinstatement will be undertaken in all project affected locations. Final reinstatement of all areas will be to the standard of the prevailing site conditions to the extent practical, or better, as documented in the Pre-construction Survey records. This will include the removal of all

surface contamination, whether pre-existing or not, in accordance with the advice of CORPORATION.

The objective of this section will be to help the natural reestablishment of the vegetative cover (re-contouring the topography back to its natural state, special attention to spherical topography of land plots. Decompressing the compacted soil and redistributing the topsoil) during the restoration and re-vegetation period.

The objectives of the Reinstatement activities are to ensure that:

- Landscape is restored, as far as reasonably practicable, in areas where there would be a significant visual impact;
- Any third party property or services damaged as a result of construction activities are repaired and reinstated;
- Areas disturbed by pipeline construction activities are restored to preconstruction conditions to the greatest possible extent;
- Topsoil is handled and stored to retain soil structure, viability of its natural seed bank, and its fertility;
- Bio-restoration strategy is based on supplementing the seed bank of local species, where necessary, with suitable treatment of rare/endangered floral species to ensure their conservation.

Landscaping work shall take place to ensure that the impacted habitat is returned as close as practical to its natural condition.

During the restoration and re-vegetation period the objective of this Procedure will be to help the natural reestablishment of the vegetative cover (re-contouring the topography back to its natural state, special attention to spherical topography of land plots. Decompressing the compacted soil and redistributing the topsoil).

Trees will be assessed and where possible either avoided or uprooted and re-planted as required.

Final grading, clean up and restoration / re-vegetation activities will be completed as soon as practically possible after construction has been completed;

To substitute cut trees (that cannot be reinstated in the 8 m pipeline ROW) corresponding number and species of trees will be re-planted (or plant) in the neighboring plots.

Pipeline corridor should be restored on the territory of the spherical design, configuration and operation of drainage channels.

Third party property

The reinstatement of third party property, land and crossings will be undertaken in accordance with pre-entry agreements. Pre-Construction Survey records that detail the site conditions will supplement these agreements. Third party property, land and crossings include, but are not limited to, the following:

- Pipelines;
- Irrigation systems;
- Utilities;
- Railways; and
- Roads.

Any damage, or loss, to third party property, land or crossings resulting from pipeline construction activities will be immediately reinstated / replaced to the original condition, or better by CONTRACTOR unless provided for in the pre-entry agreement. Such requirements will be subject to negotiations between CONTRACTOR and the affected third party(s), with prior approval of CORPORATION.

The specific reinstatement measures required on private land will be agreed with the landowner prior to construction work commencing on the site in accordance with the Land Entry agreement; the details will vary on a case-by-case basis. As a minimum it is expected that the land will be returned to its pre-project condition, subject to the requirements of the landowner.

The original condition of a specific site (KP) will be considered to be that of the Pre-construction Survey records and photographs. Photographs and other data will be taken of the site prior to construction activities taking place and the boundaries and other features of the land will be recorded (GPS locations) to assist in reinstatement.

To the extent practical, all areas will be reinstated to their original condition, or better, to the satisfaction of the owner or authority, notwithstanding approval from CORPORATION. All pre-entry agreements are to be signed-off (Acceptance certificate See Annex. H) by CONTRACTOR and the owner or authority, in the presence of CORPORATION representatives, prior to demobilization from site. Photographs of the condition of the area prior to and after reinstatement will be used for reference.

Special attention shall be paid to works near the area where the proposed route comes close to the cemetery and a newly constructed local church. The contractor shall agree the work schedule within this area with GOGC before starting activities. The timing shall be selected so that it does not interfere with major holidays when number of church visitors increases. Special safety measures shall be implemented, works shall be completed in the shortest possible period, trenches shall be fenced off and open trench period limited as much as practically possible.

Reinstatement of Topsoil

Topsoil will be reinstated separately from subsoil, with care taken to avoid mixing of the materials. The depth of topsoil replacement will be a direct reflection of that excavated.

When replacing the topsoil CONTRACTOR will program the works such that areas furthest away from the stockpiles are reinstated first with reinstatement getting progressively closer to the stockpiles, thus reducing the number of vehicle movements over the reinstated topsoil.

The reinstated topsoil will then be harrowed, to protect the stability and promote vegetative growth.

Where topsoil is reinstated to agricultural land the surface will be prepared for planting. Contractor should arrange relevant lined channels to avoid flooding of private land plots (surface should be reinstated in dry conditions). As a minimum the soil will be graded and tined to remove compaction.

In the event that a shortfall of topsoil occurs, alternative methods of reinstatement (to address a lack of topsoil) will be considered. These may include:

- Importation of topsoil from sites where topsoil is in excess (if appropriate);
- Selection of biorestitution methods suitable for these conditions. (Contractor is required to recruit engineer soil specialist/agronomy with relevant qualification during the process of biorestitution).
- To avoid introduction of the foreign and/or invasive species, reinstatement shall be carried out considering local characteristics and as practically possible using local soil.

Unless otherwise deemed appropriate, CONTRACTOR will use only the topsoil excavated in a specific location for reinstatement operations in that location.

To promote fertility in the topsoil thin layers of 'equivalent material' may be added. These materials will include, but not be limited to, the following:

- Compost;
- Windrowed vegetation; and
- Mulch.

The contractor follows:

- The Working Width will be re-graded to reflect the original profile
- Topsoil will not be replaced when it, or the subsoil, is soaked or waterlogged
- The subsoil will be ripped to remove soil compaction prior to topsoil replacement.
- Stones and debris will be removed prior to topsoil replacement
- After replacement, the topsoil will be stone picked, ripped and cultivated as necessary

Watercourse Reinstatement

The following features of water crossings will be reinstated to pre-construction conditions as far as is practicable with deviations subject to approval by CORPORATION:

- Bed contours;
- Bed scour resistance along the line; and

Stabilization of all watercourses will be undertaken immediately, to the extent practical, upon completion of backfilling. Watercourse banks shall be stabilized within 48 hours of backfilling.

CONTRACTOR will introduce erosion control measures as necessary to minimize the potential for sediment release into watercourses until re-vegetation is established. The measures will also serve to stabilize the banks, helping to re-establish vegetation.

- seeding of grass;
- planting of bushes;

Until excavation starts on a watercourse, general measures to be used in order to mitigate environmental impacts, however, the following general conditions will be observed to the extent practical:

- Minimizing the time period of construction within the watercourse;
- Watercourse bed and banks shall be returned to pre-construction contours;
- All necessary precautions should be taken to ensure that the natural drainage patterns are reinstated during restoration; this involves recording accurately the original conditions.
- All measures, which will allow fish to pass up and downstream, to be taken during pipeline installation to minimize the raising of silt and for the measurement of silt loads;
- Undertake water crossings so that minimal disturbance to fish is incurred.

- Sediment control measures to be enforced. These will include straw bales, silt fences and Sediments Traps (refer to a small temporary shallow pit excavated to intercept and store sediment. The excavated material can be used to form a berm around the trap increasing its effectiveness and capacity).
- Prohibition of fuelling and other potentially contaminating operations within floodplain.
- Bio restoration should be carried out in order to enhance water channel protection in the areas of disturbance and also for minimizing the visual impact. This implies planting of bushes and seeding grass.

4.10 Biodiversity Monitoring

The main objective of monitoring is to determine whether or not construction impacts natural habitat or migration path of certain fauna representatives.

Trees marked for cutting shall be checked to confirm that they do not house protected species. Topsoil stripping and trenching activities shall also be supervised to save small mammals, rodents or snakes.

Protected species of flora that are not cut and are located close to the construction site shall be marked so that the construction personnel knows they are important items and adequate caution is exercised.

Reinstatement shall be conducted with primary focus on invasive species. Local soil shall be used for reinstatement and foreign plants shall not be introduced.

To maintain habitats and flora visual control on erosion shall be conducted. This is specially important during heavy rains.

5. Implementation Schedule and Institutional Organization

5.1 Implementation Schedule and Costs

Contractor is responsible for implementing the mitigation, monitoring, and institutional measures presented in detail in EIA and EMP. Before construction works begin, the Contractor will provide a works schedule, which includes the timing of key mitigation measures, to GOGC for their approval. This schedule must be approved by GOGC before construction work can begin. The costs for the measures identified in this site-specific EIA/EMP, are considered incorporated into the bid provided by the Contractor and included in the contract.

5.2 Institutional Arrangements

Construction Contractors by bidding and signing contract to undertake the work essentially agrees implementing the rehabilitation works in accordance with the EIA and EMP documents, subject to approval of any updates with GOGC.

For use by the Contractor, GOGC provided the following environmental and social mitigation plans in the bidding documents and these form the contractual obligation of the Contractor:

- General Waste Management Plan;
- Environmental Emergency Response Plan;

The successful construction Contractor is responsible for tailoring the plans to the specific site, integrating the requirements of these plans into their work plan, and implementing these plans comprehensively. All relevant provisions of the above-listed generic plans will be implemented by Contractor; in addition to the measures identified in this document.

The bidding document also includes GOGC's health and safety plans and procedures; with which the Contractor must comply when implementing the rehabilitation work.

GOGC Corporate and Individual Responsibilities

Since GOGC in coordination with the USAID will be responsible for ensuring the implementation of this site-specific EMP, both entities review and approve this document and associated plans developed by the Contractor before the start of the rehabilitation work. They will also maintain a strong audit and overview role during the conduct of the work to ensure that the Contractor implements the requirements of the plans appropriately and effectively.

According to Project, GOGC's Environmental Manager (a function designated to the Head of GOGC's Environment Unit) is responsible, among other things, for monitoring and verifying construction Contractor's compliance with the EMPs, and any other binding environmental requirement, and for liaising with businesses and communities affected by the work. GOGC's Construction Manager also is responsible, among other things, for monitoring and verifying Contractor's compliance with the EIA/EMPs and the Health and Safety Management Plans and Procedures. Overall oversight is to be provided by GOGC's designated Project Manager.

Contractor Corporate and Individual Responsibilities

The Contractor is responsible for enacting due diligence and best practices during the construction work, in contractual compliance with the requirements contained in EIA and this site-specific EMP. Although the GOGC is responsible for obtaining the environmental permit, the Contractor is responsible and liable for meeting the conditions specified in these permits (e.g., submitting the information required for an ecological expertise review by the State Ecological Expertise Committee within MEP) and also is responsible for obtaining all required permits for certain site-specific activities (such as water abstraction and discharge permit with all relevant agreements with entities overseeing irrigational activities and landowners, tree and forest cutting, extra lands, camp site, access roads, works in the riverbed and the river bank protection schemes, etc.) if these were not provided by GOGC by the Site Possession Date. GOGC will provide advisory support and institutional leverage to help the Contractor obtain such permits and will supervise their performance in meeting the requirements specified in those permits.

Other important requirement towards the CONTRACTOR is to indicate in its **bid** and/or in response to **bid clarification** its commitment to sub-contract waste disposal operations to professional and appropriately licenses sub-contractor. The details of the waste disposal sub-contractual arrangements should be provided to and agreed GOGC as the condition of the completion of **mobilization**. Works cannot be initiated until waste disposal arrangements are in place and endorsed in writing by the GOGC.

The Contractor will be responsible to liaise in a timely manner on performance and permit compliance related matters with relevant Georgian governmental agencies, including MEP and other agencies in the field of agriculture, forestry, water, economic development, construction, and cultural heritage, as required. The Contractor will allow responsible governmental agencies to monitor the site and be informed on any compliance issues.

Annex A. Emergency Response Equipment

The CONTRACTOR's mobilization to the site will not be considered complete unless its personnel and each Project site are equipped with the following spill prevention and response equipment:

Site Base

The site base will maintain a supply of not less than:

- Absorbent granules x 20 bags
- Heavy duty plastic bags x 50
- Geotextile 200m²
- Plastic 100m²
- Absorbent pads x 100
- Absorbent booms x 5

Major River Crossings and Aquifers (see below)

- Absorbent granules x 5 bags
- Heavy duty plastic bags x 25
- Absorbent pads x 50
- Absorbent booms x 10

Stored in a locked cabinet (Portastore or equivalent)

Principle Crews

Each principle crew will carry:

- Absorbent granules x 2 bags
- Heavy duty plastic bags x 5
- Absorbent pads x 50

Plant

Each fuel bowser will carry:

- Absorbent granules x 2 bags
- Heavy duty plastic bags x 5
- Absorbent boom x 2
- Spade x 1

Emergency Crew

Each mobile emergency crew will carry:

- Absorbent granules x 4 bags
- Heavy duty plastic bags x 10
- Absorbent boom x 5
- Spade x 2

24-Hour Emergency Response

In the event of an incident requiring additional specialist labor/materials CONTRACTOR will call for support from the 24-hour emergency service available through any specialized in-country operators and will notify GOGC. The cost of emergency response will entirely be covered by the CONTRACTOR. **The presentation to GOGC of the documentary evidence of the availability of the 24-hour response capability is the condition of the Project Contract.**

Annex B. Inspection Checklists

 <p>საქართველოს ნავთობისა და გაზის კორპორაცია Georgian Oil & Gas Corporation</p>	HEAVY EQUIPMENT inspection check-list
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Operator's name:		Tel:	
Date:		Location:	

Equipment Profile	
Type of equipment:	Equipment number:
Name of equipment:	Works for:
Model:	Parking Location:

Pollution Prevention				
Topics	Satisfactory			Remarks
	YES	NO	N/A	
• General cleanliness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• No leakages during observation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Condition of hydro hoses	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
In Case of Repairing				
• Secondary containments are available and used sufficiently	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Absorbent materials are available and used sufficiently	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Attendance of Env. representative (with oil spill kit)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• No spills on the ground	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Existence of big leakage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Mechanic's Profile				
1				2

List of responsible persons			
Print Name	Sign	Print Name	Sign

 <p>საქართველოს ნავთობისა და გაზის კორპორაცია Georgian Oil & Gas Corporation</p>	<h2>General Environmental Checklist</h2>
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Inspected Site:	Date:	Inspected By:	Company:

Waste Management				
Topics	Satisfactory			Remarks
	YES	NO	N/A	
• General cleanliness of area	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Segregation of waste (Hazard & non hazard)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Welding rods are collected and segregated separately	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Cleaning of paint, rust adhesion, dirt, slug/silicon deposits or any foreign matter are collected and segregated separately	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Enough plastic bags and bins are available	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Existence of adequate toilet facility for workforce	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Pollution Prevention				
• No spills on the ground	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Secondary containments available and cleaned up	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Oil spill kit for area available and fully furnished	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• No dumping of concrete	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• All contaminated equipment on drip trays	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• paints, toxic liquids on Secondary containments (plastic lined geotextile)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Cleaning of paint, rust adhesion, dirt, slug/silicon deposits or any foreign matter on secondary containment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• All equipment working in water sources are inspected for potential leaks, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Spill contingency equipment (spaghetti booms) deployed across the water downstream from the crossing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Erosion/Silt Control				
Topics	Satisfactory			Remarks
	YES	NO	N/A	
• No Damage to Top-soil Storage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• No Damage to lands	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• No Damage to flora	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Existence of Silt control materials, including hay bales, silt fences, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Turbidity level is visually monitored	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Existence of sedimentation basin furnished with outlet filtration	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Sandbag barriers/silt fences are installed around Top(Sub)soil and spoil storages	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Others				
• Unauthorized paths forbidden	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• No incorrectly parked vehicles	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Toolbox talks conducted	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Flume Pipe bridges have Sufficient water permeability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Additional Notes

List of responsible persons			
Print Name	Sign	Print Name	Sign

Annex C. Example of Waste Transfer Note


[CONTRACTOR NAME] WASTE TRANSFER NOTE	
Consignment Reference No: _____ [facility-year-sequential no.]	
SECTION A - DESCRIPTION OF THE WASTE	
1. Type of waste	1. [enter type of waste here e.g. grease, rags absorbents]
2. How is the waste contained?	2. [enter number and size of waste containers]
3. What is the quantity of waste?	3. [enter total quantity of waste]
4. Handling/Transport precautions	4. [enter any precautions required for handling and transport e.g. dust suppression/sheeting, spill kit etc]
SECTION B - GENERATOR OF THE WASTE	
1. CONTRACTOR	1. [enter contractors name]
2. Site	2. [enter facility name]
3. Waste Manager	3. [enter name of CONTRACTOR person responsible for waste management at the facility]
SECTION C – PERSON TRANSPORTING THE WASTE	
1. Name	1. [enter name of person transporting the waste]
2. Company	2. [enter name of transportation company]
SECTION D – RECEIPT DETAILS	
1. Date and time of receipt	1. [enter the date and time waste departs facility]
2. Name of receiving facility	2. [enter the name of the receiving facility]
3. Signature of Receipt at Receiving Facility	3. [instruct the transporter to have receiving facility sign here to document waste was received]
SECTION E – SIGNATURES	
<i>Waste Producer: [Representative at waste production site signs here] for and on behalf of CONTRACTOR]</i>	
<i>Waste Carrier: [Waste Transporter signs here] for and on behalf of the Transporter</i>	
<i>Waste Receiver: [CONTRACTOR/3rd Party treatment/disposal facility receiving waste signs here] for and on behalf of receiving facility</i>	

Copy 1:
Waste generating site Copy

Copy 2:
Treatment/disposal facility


Copy 3:
Transporter, after obtaining signature in Section D., Item 3. to return to Sub-contractor Office. Office to return to waste generating site

Annex D. Incident Report Form


 Georgian Oil & Gas Corporation		Project Name ENVIRONMENTAL INCIDENT REPORT		[Contractor Logo]
ID Number:			Date:	
Pipeline/Facilities:		Location:		
Nature of the Incident:			Severity: <input type="checkbox"/> High <input type="checkbox"/> Medium <input type="checkbox"/> Low	
Spill Quantity:			Person Involved:	
Machine Involved:			Sub Contractor Involved:	
Third Party Involvement:			Reported By: <small>[Note: To be completed by Foreman/Supervisor/Officer to whom the incident was reported.]</small>	
Description of Incident/Identification of Root Cause:				
Where External Authorities Informed? YES/NO If Yes, who? Who informed External Authorities?				
Name Witness/Person Reporting the Incident :				
Name Person Incident reported to:			Date & Time Reported:	
Incident Reported to Client:				
Name Person Incident reported to:			Date & Time Reported:	
INCIDENT REVIEW:				
<small>[to be completed by Environmental/Construction/Project Manager]</small>				
Corrective Action Taken:				
Corrective Action to be Taken:				
Action to be completed by:			Target Date:	
Action Taken to Prevent Recurrence:				
Action to be completed by:			Target Date:	
Photo Cross Reference – Attached				
Corrective Action Carried Out By:				
Close Out By:			Close Out Date:	

Internal Review:		Client Review:	
Name		Name	
Signature	Date	Signature	Date

[Rev.]	DD.MM.YYYY	[Reason for Issue]	[Full Name]	[Full Name]
Rev.	Date	Reason for Issue	Prepared by	Checked by
Designation:	Environmental Incident Report	DCC Registration:		Page 3 of 5

 Georgian Oil & Gas Corporation	Project Name ENVIRONMENTAL INCIDENT REPORT ATTACHMENT PHOTO DOCUMENTATION		<i>[Contractor Logo]</i>
Photo 01: [caption]		Photo 02: [caption]	
Photo 03: [caption]		Photo 04: [caption]	

Annex E. CAR/PAR Form

 საქართველოს ნავთობისა და გაზის კორპორაცია Georgian Oil & Gas Corporation			
EAST-WEST GAS PIPELINE REHABILITATION PROJECT (Phase IV)			
CORRECTIVE/PREVENTIVE ACTION REQUEST (CAR/PAR)			
CAR/PAR No.:		ISSUED TO:	
Type of Action: Site/Location: Referenced Documents: Origin of Action:			
Description of the Non-compliance I:			
Description of the Non-compliance II: Photographic evidence of the Non-compliance:			
Result of Investigation into the Cause/Potential Cause of Non-compliances: Corrective action required:			
Corrective Actions Proposed: GOGC Construction Manager: Signature: _____ Date: _____ GOGC Project Manager: Signature: _____ Date: _____			
Corrective Action Taken by Contractor: Contractor's Project Manager: Signature: _____ Date: _____			
GOGC Verification: Verified by GOGC Construction Manager: Signature: _____ Date: _____			

Annex F. Site Preconstruction Condition Form



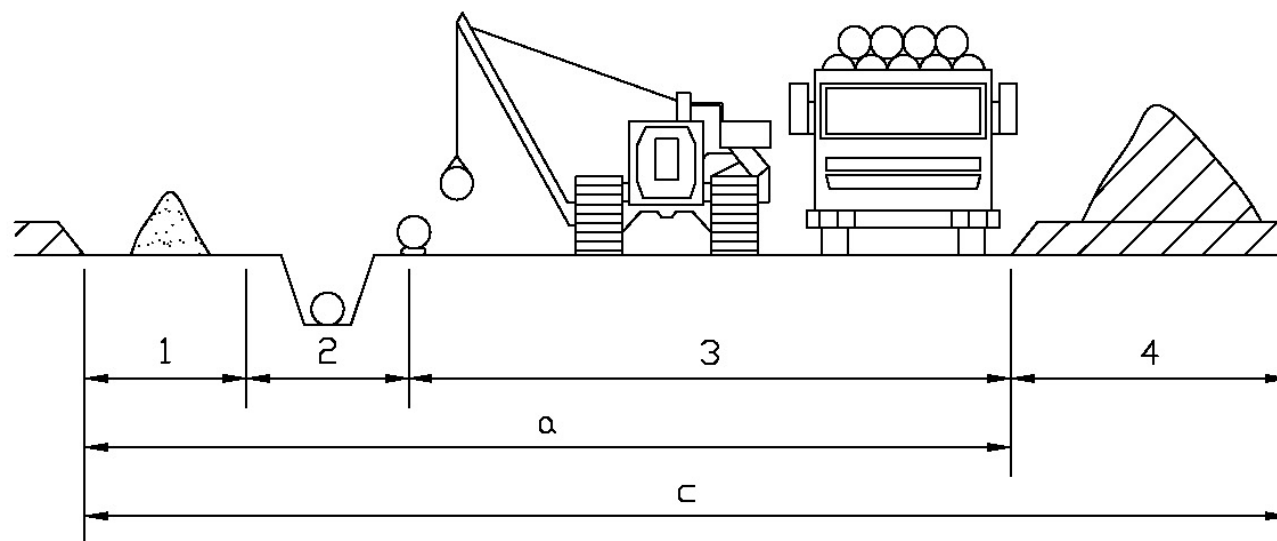
Site Preconstruction Condition

SURVEY No _____		ATTENDEES _____	CONTRACTOR _____
FROM	KP _____ to KP _____	_____	_____
DATE:	_____	_____	_____

ITEM	KP MARKER	DEVICE	GPS COORDINATES		QTY	COMMENTS	FCI ROW
			EAST	NORTH			
							<div> <div>←</div> <div>→</div> <div>↑</div> <div>↓</div> </div>
ITEM	KP MARKER	DEVICE	EAST	NORTH	QTY	COMMENTS	SKETCH
			COORDINATES				

Completion: By GOGC _____ Date: _____ By Contractor: _____ Date: _____

Annex G. ROW Preparation



მილის დიამეტრი, მმ	სამშენებლო ღირებულების პარამეტრები, მ						
	1	2	3	4	a	b	c
<426	3	3.5	11	6	17.5	0.9-1.4	23.5
529-726	3.5	3.5	13	6	20	0.9-1.9	26
820	5	3.5	13	6	21.5	1.2-3.0	27.5
1020	6	3.5	13	7	22.5	1.5-3.5	29.5
1220	7	3.5	13.5	7	24	1.6-3.5	31
1420	7	3.5	13.5	7	24	2.1-3.5	31

Annex H. Acceptance Certificate

მიღება-ჩაბარების
აქტი

2012 წელი

ჩვენ, ქვემოთ ხელის მომწერნი, ერთის მხრივ სს. „საქართველოს ნავთობისა და გაზის კორპორაცია“ (შემდგომში – „კორპორაცია“), წარმოდგენილი „კორპორაციის“ (პირადი № _____) სახით, რომელიც მოქმედებს „კორპორაციის“ გენერალური დირექტორის – _____ მიერ 2015 წლის _____ გაცემული № _____ რწმუნებულების საფუძველზე, მეორეს მხრივ, _____ (პირადი № _____) (შემდგომში, „მიწის მესაკუთრე“), და მესამეს მხრივ, _____ (შემდგომში – „მშენებელი კონტრაქტორი“) წარმოდგენილი _____ სახით, (შემდგომში ერთობლივად – „მხარეები“), შევადგინეთ წინამდებარე აქტი მასზე, რომ:

„მიწის მესაკუთრის“ საკუთრებაში არსებულ მიწის ნაკვეთზე (სარეგისტრაციო № _____) მიღსაღენის მშენებლობასა და ექსპლუატაციასთან დაკავშირებით „კორპორაციას“ და „მიწის მესაკუთრეს“ შორის გაფორმებული სერვიტუტის ხელშეკრულების (შემდგომში - „ხელშეკრულება“) შესაბამისად, „კორპორაციამ“ და „მშენებელმა კონტრაქტორმა“ გადასცეს, ხოლო „მიწის მესაკუთრემ“ მიიღო „სერვიტუტის მიწა“ „სამშენებლო პერიოდის“ დაწყებამდე არსებულ მდგომარეობაში.

„მიწის მესაკუთრე“ ადასტურებს, რომ სამშენებლო სამუშაოების დასრულების შემდეგ „მშენებელი კონტრაქტორის“ მიერ განხორციელდა „სერვიტუტის მიწის“ თავდაპირველი მდგომარეობამდე აღდგენა.

„მხარეები“ ადასტურებენ, რომ „ხელშეკრულებით“ გათვალისწინებული „კორპორაციის“ ვალდებულებები საბოლოოდ და სრულად არის შესრულებული და „მხარეებს“ ერთმანეთის მიმართ პრეტენზიები არ გააჩნიათ.

ც ვადასტურებთ ხელმოწერებით:

„კორპორაცია“	„მშენებელი კონტრაქტორი“	„მიწის მესაკუთრე“
სს. „საქართველოს ნავთობისა და გაზის კორპორაცია“ ს/კ 206237491		პირადი № _____