



GARID
GREATER ACCRA RESILIENT AND
INTEGRATED DEVELOPMENT



GREATER ACCRA RESILIENT AND INTEGRATED DEVELOPMENT PROJECT



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ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP) FOR PROPOSED HANDLING AND TRANSPORTATION OF DREDGED MATERIAL FROM ODAWNA, KORLE-NA AND PASICO SITES TO FINAL DISPOSAL SITES IN THE GREATER ACCRA REGION

OCTOBER 20, 2023

EXECUTIVE SUMMARY

Background

Like many regions in Ghana, poor Solid Waste Management (SWM) is a significant problem in the Greater Accra Region and contributes to human health and flood risks. In January 2020, the Government of Ghana signed a financing agreement with the World Bank to implement the Greater Accra Resilient and Integrated Development (GARID) Project. The project seeks to reduce flood risk, improve solid waste management in the Odaw River basin and access to basic infrastructure and services in the targeted communities.

Project Justification

The volume of sediments in the Odaw Channel has grown over the years due to lack of consistent maintenance in the face of continuous inflow of materials. The river (and associated drains) from Caprice to the Sea therefore require dredging (referred to as deferred dredging), to restore the original design cross section and hydraulic discharge capacity of the channel. To maintain this optimal functional discharge capacity there will also require future maintenance dredging.

An Environmental (and Social) Impact Assessment (EIA/ESIA) for the deferred and maintenance dredging of the Odaw Channel was carried out in 2021. The estimated content of sand and gravel (approximately 75% of the dredged material) is enough to make beneficial use of the sand and gravel, particularly in the construction industry. The dredged material will, however, have to be treated to separate the usable from the unusable components, necessitating the establishment of handling sites for this activity. The fraction that is not usable (not readily reusable) will be safely transported and disposed of at designated final disposal sites.

Description of Activities at the Sites and Transportation

The handling and transportation of dredged material from the handling sites at Odawna, Korle-na and Pasico to the final disposal sites at Anyaa and Pokuase in the Greater Accra Region is a sub activity of Component 1 of the GARID project. This component focuses on “Climate Resilient Drainage and Flood Mitigation Measures”.

The ESIA of Deferred and Maintenance Dredging (2021) estimated the volume of the deferred dredging to be around 555,000m³ whereas the annual maintenance dredging volumes was also estimated at between 44,000 -165,000m³. The other potential benefits of the dredging include reducing the risk of flooding in the Odaw basin, loss of lives, and assets, as well as creating economic opportunities. The description of the handling and waste transportation activities covered the following areas:

- Location of handling sites;
- Project components;
- Handling sites preparation phase activities;

- Material handling and transportation; and
- Decommissioning phase activities.

The location and area covered by the respective handling sites are as follows:

- Korle-na site - covers an area of 2.39 acres, and has space for handling 33,123m³ of dredged material and adequate space to serve as equipment/machinery yard for the project;
- Pasico site - covers an area of 1.80 acres with space to handle about 14,334m³ of dredged material; and
- Odawna site – covers 0.66- acre land with the capacity to accommodate 9,138m³ of dredged material, before evacuation to the final disposal sites.

Policy, Legal, Regulatory and Institutional Framework

In line with the Environmental Assessment (EA) Regulations (LI 1652) and the World Bank OP 4.01, the EIA/ESIA for the deferred and maintenance dredging of the Odaw Channel was completed and issued an Environmental Permit for the project in October 2021 by the EPA.

The aspects of the project relating to treatment of the dredged material at the handling sites and the waste transportation to the final disposal sites (including Pokuase), however, needed further assessment and mitigation actions for the overall sustainable implementation of the project. An Environmental and Social Management Plan (ESMP) was, therefore, prepared to address the environmental and social impacts and risks with mitigation measures, among other action plans for the handling operations and waste transportation to the final disposal sites at Anyaa and Pokuase.

The other key policy, regulatory and institutional requirements reviewed and applied included the following:

- National environmental policy and related requirements -
 - National Environmental Policy, 2013;
 - Environmental Protection Agency Act, 1994 (Act 490);
 - Fees and Charges (Miscellaneous Provisions) Act, 2022 (Act 1080);
 - National Climate Change Policy, 2013;
 - Hazardous and Electronic Waste Control and Management Act, 2016 (Act 917); and
 - Hazardous, Electronic and Other Wastes (Classification), Control and Management Regulations, 2016 (LI 2250).
- Sanitation sector policy and action plans -
 - Environmental Sanitation Policy, 2010;
 - National Environmental Sanitation Strategy and Action Plan, 2010; and
 - District Environmental Sanitation Strategy and Action Plan, 2010.

- National planning and development requirements -
 - Land Use and Spatial Planning Act, 2016 (Act 925);
 - Local Governance Act, 2016 (Act 936);
 - National Building Regulations, 1996 (LI 1630);
 - Ghana Building Codes (2018);
 - Lands Commission Act, 2008 (Act 767); and
 - Land Act, 2020 (Act 1036).

- National labour, safety, and health requirements -
 - Road Traffic Act, 2008 (Act 761);
 - Ghana National Fire Service Act, 1997 (Act 537);
 - Fire Precaution (Premises) Regulations, 2003 (LI 1724);
 - National Health Policy, 2020;
 - Public Health Act, 2012 (851);
 - National Workplace HIV/AIDS Policy, 2012;
 - National HIV and AIDS Policy, 2019;
 - Imposition Restriction Act, 2020 (Act 1012);
 - Labour Act, 2003 (Act 651);
 - Factories, Offices and Shops Act, 1970 (Act 328);
 - Workmen's Compensation Act, 1987 (PNDCL 187);
 - National Employment Policy 2014;
 - National Gender Policy, 2015; and
 - Persons with Disability Act, 2006 (Act 715).

- National environmental quality and standards -
 - Ghana Standards for Health Protection – Requirements for Ambient Noise Control (GS 1222, 2018);
 - Ghana Standards for Environment and Health Protection – Requirements for Ambient Air Quality and Point Source/Stack Emissions (GS 1236, 2019); and
 - Ghana Standards for Environment and Health Protection – Requirements for Effluent Discharge (GS 1212:2019).

- World Bank requirements -
 - Environmental Assessment Policy OP 4.01;
 - Involuntary Resettlement Policy OP 4.12;
 - Gender and Development OP/BP 4.20; and
 - World Bank Group General Environmental Health and Safety Guidelines.

- Comparison of Ghana EA Regulations and the World Bank OP 4.01:
 - Impact category;
 - Social assessment;
 - Stakeholder consultation; and
 - Minimization of displacement.

- Institutional Framework -
 - Ministry of Works and Housing;
 - Hydrological Services Department;
 - Ministry of Environment, Science, Technology and Innovation;
 - Environmental Protection Agency;
 - Ministry of Sanitation and Water Resources;
 - Water Resources Commission;
 - Ministry of Roads and Highways;
 - Department of Urban Roads;
 - Land Valuation Division of Lands Commission; and
 - Metropolitan Municipal and District Assemblies (MMDAs).

Alternative Analysis of Waste Transport Route and Timing

The distances between the handling and disposal sites are long with interconnected routes providing numerous route options for waste transportation. Analysis of waste transport routes and timing focused on the following:

- Alternative transportation route to Pokuase disposal site;
- Alternative periods for waste transfer to Pokuase site;
- Alternative transportation route to Anyaa disposal site;
- Alternative periods for waste transfer to the Anyaa site; and
- Alternative analysis for handling sites.

The preferred transportation route to the Pokuase disposal site is the Ring Road West to Circle to the Nsawam Road and to Pokuase. The preferred transportation route to the Anyaa disposal site is also the Ring Road West towards Circle to the Nsawam Road and onto the Anyaa-Awoshie Road, while the preferred period for waste transfer is night-time in both cases. The preferred sites for handling the dredged materials are the Korle-na, Pasico and Odawna handling sites.

Environmental and Social Baseline Information

The baseline information for the dredging project ESIA covered the physical, social, and socio-economic environment, water and sediment quality and among others within the Odaw basin and the project metropolis and municipality. The baseline information for this ESMP is therefore restricted to the physical footprint of the handling sites and waste transfer routes as well as relevant areas of influence, to avoid repetition, except where updating the data is necessary. The main areas included:

- Location and land use of all the three handling sites;
- Drainage conditions and historical flood events at the sites;
- Ambient air quality situation at the sites and surrounding areas;
- Ambient noise levels;

- Heavy metal analysis at the sites to determine the presence, distribution and level of contamination;
- Road network and traffic conditions along the main waste transfer routes and the Anyaa and Pokuase disposal site routes;
- Climate conditions - rainfall, temperature, wind, humidity and evaporation;
- Health and disease conditions;
- Social issues; and
- Waste management.

Documents that were reviewed to support the baseline information gathering included:

- Population and Housing Census, General Report Volume 3A - Population of Regions and Districts (2021);
- Population and Housing Census, General Report Volume 3E - Economic Activity (2021);
- EIA for Deferred and Routine Maintenance Dredging of the Odaw Basin (September 2021);
- Draft Scoping Report for EIA of the Anyaa Disposal Site (May 2022); and
- *Revised Inception Report: Proposed Handling and Transportation of Dredged Material (May, 2022).*

Stakeholder Involvement

The ESIA for the dredging project involved extensive consultations with stakeholders including regulatory bodies, local government institutions and communities. The following stakeholders were further engaged for this ESMP as a follow-up to the previous one:

- Ashiedu Keteke Sub-Metro Office;
- Ablekuma South Sub-Metro Office;
- Korle-na;
 - St. Mary's Senior High School;
 - Trust Sports Emporium Ltd;
- Odawna
 - Assemblyman and community stakeholders at Odawna;
 - Businesses along Odawna route;
- Anyaa community
 - Community members along haulage route;
 - Community Association; and
- Windyhills Resident's Association (Pokuase).

Key highlights of the engagement outcomes included:

- State of the proposed haulage routes leading to the disposal sites in bad condition and should be improved;
- Measures needed to be put in place to check the noise nuisance by the waste haulage trucks at night;

- Low traffic flow after peak hours, with roads usually free, especially at night, hence the need to consider night-time transport of waste to disposal sites;
- Road accidents not rampant although the U-turns and junctions could be prone to accidents once they become busy;
- Noise generated at the Korle-na site at night could affect students in the dormitories of St. Mary’s SHS (facing the Korle-na site); and
- Flooding is a major problem at Pasico and Odawna sites, exacerbated by the accumulation of waste in the adjoining drains.

Environmental and Social Risks and Impacts

The potential impacts and risks assessed were based on the baseline conditions and the predicted change in the environmental and social variables with the implementation of the handling site activities and transportation, various stakeholder inputs on perceived impacts, and specialized knowledge of the consultants. The assessment of adverse impacts covered mainly the site preparation and operation at the handling sites, and waste transportation to the disposal sites. The beneficial impacts including sale of the recovered gravel and sand were fully addressed in the ESIA for the Deferred and Routine Maintenance Dredging Project.

The potential adverse impacts and risks assessed included the following:

- 1) Potential traffic impacts and accident risks;
- 2) Noise and vibration impacts;
- 3) Dust and other emission impacts;
- 4) Occupational health and safety risks;
- 5) Public/community health and safety risks;
- 6) Heavy metal exposure risks;
- 7) Visual intrusion;
- 8) Potential flood risks of project sites;
- 9) Waste handling and disposal impacts;
- 10) Potential fire risks;
- 11) Infringement on labour rights;
- 12) Gender-based violence and sexual exploitation and abuse;
- 13) Potential risk of spread of HIV and STIs;
- 14) Potential transmission of COVID-19; and
- 15) Physical and economic displacement.

The mitigation and monitoring measures to the assessed impacts and risks are presented in Table 1 below.

Table 1 *Potential Impacts, Mitigation and Monitoring Measures*

Source of Impact	Mitigation Measures	Monitoring Measures
1. Potential Traffic Impacts and Accident Risks		

Source of Impact	Mitigation Measures	Monitoring Measures
<p>Site Preparation Phase</p> <ul style="list-style-type: none"> • Site entry and exit conflict on the major access roads causing accidents • Poor state and narrow sections of access routes in Anyaa and Pokuase with health and safety concerns for road users and roadside households <p>Material Handling Phase</p> <p>The enumeration under the Workplace Accidents described under section 4 below also applies to this phase.</p> <p>Transportation Phase</p> <ul style="list-style-type: none"> • Site entry and exit conflict on the major access roads causing accidents. • Additional traffic generation and related congestion with elevated GHG emissions • Accident involving waste trucks affecting truck drivers and/or pedestrian • Truck break-down in transit causing accidents at nightfall • Limited storage space at handling sites. 	<ul style="list-style-type: none"> • Deployment of banksmen to control traffic and manage the entry/exit point at the various handling sites • Spot improvement and surface dressing of sections of the access routes to the disposal sites at Anyaa and Pokuase <p>Mitigation measures treated under the Workplace Accidents also applies to this phase</p> <ul style="list-style-type: none"> • Use of banksmen to regulate the entry and exit of trucks to/from the sites • Installation and use of reverse alarm on all machinery/vehicles • Adoption of night-time waste haulage to avoid traffic congestion and minimize emissions. • Scheduled maintenance of trucks • Use of trucks not older than 5 years • Transportation of waste at intervals of 10 minutes to avoid convoy movement of waste trucks • Availability of a co-driver on each trip to aid the driver, such as taking over and continuing the journey or reporting the incident, or calling the towing company • Adherence to 50km/hr speed limit for haulage trucks • Installation of GPS • Inscription of appropriate phone contacts on trucks for reporting careless/inconsiderate driving • Towing system with a third party contracted to remove breakdown trucks within 30min of reporting • Prearrangement with off-takers for sale and pick-up of aggregates and sand 	<ul style="list-style-type: none"> • Daily review of accident records and near misses at entry/exit to/from sites • Bi-weekly inspection of road conditions • Bi-weekly review of complaints by community folk through the grievance redress mechanism • Monitoring measures treated under the Workplace Accidents also applies to this phase • Monthly review of accident records and near misses (on-site and trucks in transit) • Weekly check on installation of reverse alarm and its use • Weekly review of haulage records. • Monthly review of maintenance schedule • Before the start of the project, review the year of purchase of the truck • Monthly review records of haulage intervals • Impromptu checks on the presence of a Co-drivers in waste trucks in transit • Impromptu check on compliance with speed limit. • Daily checks of GPS records on speed, time, position of truck speed, route, travel time, etc • Impromptu check on conspicuous inscription of reporting phone number on waste trucks. • Confirm the contract agreement with towing company before start of project • Monthly review of towing records (promptness and causes) • Confirm agreement with off-takers before project commencement • Weekly review off-taker pick-up schedule
2. Noise and Vibration Impact		
<p>Site Preparation Phase</p> <ul style="list-style-type: none"> • Use of bulldozer for site clearing and levelling 	<ul style="list-style-type: none"> • Erection of perimeter closed fence as noise barriers to help attenuate noise 	<ul style="list-style-type: none"> • Weekly inspection of the integrity of perimeter fencing

Source of Impact	Mitigation Measures	Monitoring Measures
<ul style="list-style-type: none"> Excavation works for drain construction and other installations <p>Material Handling Phase Machinery/equipment deployed at the handling sites</p> <p>Transportation Phase Cumulative noise from waste trucks in transit (on busy roads) to disposal sites</p>	<ul style="list-style-type: none"> Inspection of machinery and confirmation of good state and condition before use Switch off all idle engines Padded seats fitted in mobile equipment and worn-out pads promptly replaced Provision of vibration reduction gloves for handheld equipment operators. Provision and usage of PPE including earplugs <p>Mitigation measures listed above for the Site Preparation phase apply also to the Material Handling phase except for procurement and use of handheld noise monitoring meters at all sites.</p> <ul style="list-style-type: none"> Night-time haulage of waste to disposal sites during low traffic period to reduce noise Follow scheduled maintenance for the waste trucks Installation of and adherence to speed limit on disposal routes Honking prohibited in communities along the disposal route (in Anyaa and Pokuase) Advance notification of the schedule of waste transfer to residents along the disposal routes in Anyaa and Pokuase 	<ul style="list-style-type: none"> One-time review of records of the state of machinery before use Daily check for any idle engine running Weekly check on fitted pads in seats of mobile equipment Weekly check on records of provision and use of vibration reduction gloves Weekly check on provision and use of PPE Spot checks on the usage of vibration reduction gloves and other PPEs <p>Variations in the frequency of monitoring for the Material Handling phase (as distinct from the Site Preparation phase) are as follows:</p> <ul style="list-style-type: none"> Quarterly review of records of servicing Daily check for running of idle engines Monthly inspection/review of - <ul style="list-style-type: none"> Padded seats fitted in mobile equipment Records of provision of vibration reduction gloves and other PPE Integrity of perimeter fences at each site Impromptu checks on the usage of PPEs Weekly inspection of availability and use of handheld noise monitoring meters Daily review of truck movement and haulage logbooks. Quarterly review of records of servicing Impromptu check on speed limit of trucks Monthly review of records of engagement with residents on - <ul style="list-style-type: none"> Honking and noise making by trucks Speeding Advance notification Response to complaints and resolution, etc.
3. Dust and Other Emission Impact		
<p>Site Preparation Phase</p> <ul style="list-style-type: none"> Bulldozer clearing and levelling operations Delivery of laterite for site filling Foundation for installations and drain construction 	<ul style="list-style-type: none"> Erection of perimeter fencing for enclosure of the sites to reduce dust escape into the environment Provision and use of PPEs (including nose masks) to workers Inspection of machinery and confirmation of good state and condition before use Switch off all idle engines Dousing of the sites twice daily (minimum) 	<ul style="list-style-type: none"> Weekly inspection of the integrity of perimeter fencing Weekly inspection of supply stocks and use of PPEs One time review of state of machinery records before use Daily check for any idle engine running

Source of Impact	Mitigation Measures	Monitoring Measures
<p>Material Handling Phase</p> <ul style="list-style-type: none"> • Use of machinery in spreading of material, and also sorting of the dredged material <p>Transportation Phase</p> <ul style="list-style-type: none"> • The fleet of waste trucks in transit to the disposal sites 	<ul style="list-style-type: none"> • Adherence to speed limit of 30km/hr on-site • Covering of trucks carrying laterite with tarpaulin <p>Mitigation measures listed above for the Site Preparation phase apply also to the Material Handling phase except for the regular maintenance of machinery</p> <p>Portable dust monitoring meters with specialized probes to measure concentrations of different size particulates such as SO₂, etc.</p> <ul style="list-style-type: none"> • Maintaining efficient performance of waste trucks by following maintenance schedules • Covering of the waste trucks with tarpaulin to prevent dust flyoff and other releases • Installation of and adherence to speed limit on disposal routes (in Anyaa and Pokuase) 	<ul style="list-style-type: none"> • Daily check for effective dousing of the sites • Daily impromptu checks on speed limit on-site • Daily checks for tarpaulin covering on haulage trucks <p>Variations in the frequency of monitoring for the Material Handling phase (as distinct from the Site Preparation phase) are as follows:</p> <ul style="list-style-type: none"> • Monthly inspection of the integrity of perimeter fencing • Quarterly review of records of servicing of machinery/equipment • Weekly inspection of availability and usage of portable dust monitoring meters • Quarterly review of records of servicing • Daily impromptu check of tarpaulin covering of haulage trucks • Weekly impromptu check on speed limit of trucks
4. Occupational Health and Safety Risks		
<p>Site Preparation Phase</p> <p>Workplace accidents including knockdowns, slips and fall</p> <p>Material Handling Phase</p>	<ul style="list-style-type: none"> • Implementation of labour management plan which includes – <ul style="list-style-type: none"> ○ Ensuring every worker works under safe and healthy conditions ○ Training and orientation of workers on occupational health and safety protocols ○ Provision and usage of PPE ○ Provision of First Aid Box • Training of First Aid Attendants • Use of banksmen at entry/exit to the sites • Installation of reverse alarms • Usage of wheelbarrows/mechanical lifting aids • Observance of good housekeeping practices • Procurement of Workmen’s Compensation Policy (Insurance) <p>Mitigation measures listed for the Site Preparation phase apply also to the Material</p>	<ul style="list-style-type: none"> • Weekly review of records of labour management plan implementation measures including – <ul style="list-style-type: none"> ○ Safe and health working conditions ○ Training and orientation of workers • Daily impromptu checks on – <ul style="list-style-type: none"> ○ Supply and usage of PPE ○ Availability of First Aid Box • Bi-weekly records of training of First Aid Attendants (refresher) • Daily impromptu checks on – <ul style="list-style-type: none"> ○ Availability of banksmen at entry/exit to the sites ○ Use of reverse alarms ○ Lifting aids ○ Good housekeeping practices including visible signage • One-time inspection of insurance policy/certificate <p>Variations in the frequency of monitoring for the Material Handling phase (as distinct</p>

Source of Impact	Mitigation Measures	Monitoring Measures
<p>Sources of impacts for the Site Preparation phase apply also to the Material Handling phase.</p> <p>Transportation Phase Traffic accidents associated with the transportation of the waste have been treated separately under Traffic Impact and Accident Risks</p>	<p>Handling phase except for the usage of wheelbarrows/mechanical lifting aids</p> <p>Mitigation measures associated with traffic accidents for the Transportation phase also apply to the Workplace Accident.</p>	<p>from the Site Preparation phase) are as follows:</p> <ul style="list-style-type: none"> • Monthly review of records of occupational health and safety implementation measures including – <ul style="list-style-type: none"> ○ Safe and health working conditions ○ Training and orientation of workers • Daily impromptu checks on – <ul style="list-style-type: none"> ○ Provision and usage of PPE ○ Availability of First Aid Box ○ Monthly training of First Aid Attendants (refresher) • Daily impromptu checks on – <ul style="list-style-type: none"> ○ Availability of banksmen at entry/exit to the sites ○ Use of reverse alarms ○ Good housekeeping practices • One-time inspection of insurance policy/certificate <p>Monitoring measures associated with traffic accidents for the Transportation phase also apply to the Workplace Accident.</p>
5. Public/Community Health and Safety Risks		
<p>Site Preparation Phase Dust and other emissions, noise and vibration, heavy metal exposure risks, visual intrusion associated with the site preparation phase have been treated separately under the respective sections.</p> <p>Transportation Phase Knockdowns by haulage trucks</p>	<p>Mitigation measures associated with these impacts have been provided under their respective sections.</p> <ul style="list-style-type: none"> • Adherence to 30km/hr speed limit in the communities • Training of drivers on defensive driving • Installation of temporary (earthen) speed ramps • All accidents/injures/near misses and trainings will be reported, recorded and documented 	<p>Monitoring measures have also been provided accordingly.</p> <ul style="list-style-type: none"> • Bi-weekly check on the adherence to speed limit • Quarterly review training records • Monthly – <ul style="list-style-type: none"> ○ Inspect the availability of temporary speed ramps ○ Review records of accidents/injures/near misses and trainings organized
6. Heavy Metal Exposure Risks		
<p>Site Preparation Phase</p> <ul style="list-style-type: none"> • Excavation and other earthworks on-sites releasing contaminated soil • Contamination associated with transfer of excavated spoil for disposal 	<ul style="list-style-type: none"> • Bury excavated spoil at the respective handling sites and cover with layer of laterite (3-inch) • Provision and usage of appropriate PPE 	<ul style="list-style-type: none"> • Daily checks on excavated spoil buried at each site and covered with laterite • Weekly review of records of quantities of excavated spoil generated

Source of Impact	Mitigation Measures	Monitoring Measures
<ul style="list-style-type: none"> General movement (vehicular and workers) on project site picking/releasing contaminated soil particles <p>Material Handling Phase</p> <ul style="list-style-type: none"> Non-adherence to basic hygiene practices such as regular handwashing Potential washing of heavy metals by runoff into channel/lagoon 	<ul style="list-style-type: none"> Deployment of machinery for the site reparatory activities (with minimal manual involvement) to avoid human contact Provision of changing room for PPE storage area at the end of a working day Sensitization of workers on – <ul style="list-style-type: none"> Dangers of exposure to heavy metals Importance of usage of PPEs Thorough handwashing before meals and after work Practice of personal hygiene Change of working gear at close of work to avoid transferring heavy metal contaminants home Regular cleaning/laundry of working gear Provision and usage of PPE and sensitization of workers (as for Site Preparation phase) Inspection of integrity of laterite layer (3-inch) 	<ul style="list-style-type: none"> Daily check of the availability and usage of PPE by workers Weekly check on records of use of various machinery on-site Daily check for manual/human involvement in excavation and earthworks Weekly review of records of cleaning/laundry of working gear Weekly check on the state and patronage of changing room Weekly review of records of sensitization programme Impromptu spot checks and corrections on personal hygiene of workers Daily checks on working gear and changed clothes before leaving the work premises Weekly review of records on laundry and PPE supply and usage records Quarterly review of records of sensitization programme Quarterly inspection of integrity of laterite layer
7. Visual Intrusion		
<p>Site Preparation Phase</p> <ul style="list-style-type: none"> Deployment of machinery for site clearing and levelling <p>Material Handling Phase</p> <ul style="list-style-type: none"> Dredged material stockpiling operation Heaped dredged material <p>Transportation Phase</p> <ul style="list-style-type: none"> Convoy movement of waste trucks potentially causing visual nuisance Waste spills from haulage trucks 	<p>Site Preparation Phase</p> <ul style="list-style-type: none"> Construction of perimeter fence around the handling sites to obscure operations site reparatory activities Rehabilitation of perimeter fences erected at the Site Preparation Phase Heap of dredged material would not tower over the 2.5m fence wall Ensure frequent evacuation and transportation of the waste and saleable materials to avoid over-heaping <p>Transportation Phase</p> <ul style="list-style-type: none"> Trucks to move at 10-minute intervals to avoid convoy movements Loading and haulage of waste conducted at night Waste transporting trucks will be covered with tarpaulin Haulage trucks will be labelled with contact numbers for reporting of waste spills 	<ul style="list-style-type: none"> One-time inspection of availability of the perimeter fencing at each handling site Weekly inspection of the integrity of perimeter fences Monthly inspection of perimeter fences at each site to ascertain their integrity Weekly inspection of records on the quantum of waste heaped at each site Weekly review of records of waste evacuated for disposal and sand sold Weekly review records of haulage intervals and operations Weekly review of haulage records Impromptu inspection of the tailgates of haulage trucks Weekly inspection of labels on the trucks

Source of Impact	Mitigation Measures	Monitoring Measures
		<ul style="list-style-type: none"> • Monthly review of reported cases of offending drivers and action taken
8. Potential Flood Risks of Project Sites		
<p>Site Preparation Phase</p> <ul style="list-style-type: none"> • Overflow of the Odaw Channel affecting the Odawna and Pasico sites • Inadequate/absence of drains at Pasico and Korle-na areas which could affect the sites <p>Material Handling Phase</p> <ul style="list-style-type: none"> • Damaged drains at the Korle-na handling site • Inadequate drain at the Pasico handling site • Inadequate drain at the Odawna handling site 	<ul style="list-style-type: none"> • Preparatory works such as raising the frontage of the Odawna and Pasico sites towards the Odaw channel to minimize likelihood of flooding • Construction of drains of adequate sizes at the Korle-na, Pasico sites and along the route to the Odawna area <p>Korle-na Site</p> <ul style="list-style-type: none"> • Reconstruction of the damaged section of drain • Construction of road shoulder drain along the Ring Road West Road of adequate size to trap runoff <p>Pasico Site</p> <ul style="list-style-type: none"> • Lining the unlined section (12m) of the trapezoidal drain with concrete • Construction of a drain of adequate size along the Pasico wall to trap runoff from the Pasico yard • Construction of a circular drain of adequate size from the main Pasico Yard outlet of length 70.0m to Odaw River <p>Odawna Site</p> <ul style="list-style-type: none"> • Construction of a drain of adequate size along the untarred road from the VIP Bus Terminal to the Odawna handling site near the Odaw main channel 	<ul style="list-style-type: none"> • One-time check to ensure the Contractor's contract specifies raising the frontage of the sites to avoid flooding • Weekly inspection of capacity and adequacy of the constructed drains • Weekly inspection of records of flood events and effects on-sites (in the rainy season) • Quarterly checks on functionality of constructed drain • Monthly review of records of performance of the constructed drain. • Quarterly checks on effectiveness of lined drain • Monthly review of records of performance of the constructed drains • Monthly review of records of the drain performance, especially in the rainy season
9. Waste Handling and Disposal Impacts		
<p>Site Preparation Phase</p> <ul style="list-style-type: none"> • Heavy metal contaminated waste (from excavated spoil and site clearing) transferred for disposal elsewhere. • Inappropriate disposal of waste from demolished structures at Pasico and Odawna sites • Indiscriminate disposal of other solid waste generated • Liquid waste generated by workers 	<ul style="list-style-type: none"> • Excavated spoil used as filling material on-site and further covered with laterite • Waste from demolished structures at Pasico and Odawna sites collected by an accredited waste management company • Segregation of waste into colour coded bins and outsourced to an accredited waste contractor: <ul style="list-style-type: none"> ○ Domestic waste ○ Recyclable materials ○ Construction waste 	<ul style="list-style-type: none"> • Daily inspection of cleared waste and review of quantities used for filling • Daily review of records of quantities of demolished waste collected for disposal by the waste management company • One-time inspection of the waste disposal site used by waste management company • Weekly checks on the use of colour coded bins • Weekly checks on effectiveness of waste segregation practice

Source of Impact	Mitigation Measures	Monitoring Measures
<p>Material Handling Phase</p> <ul style="list-style-type: none"> Indiscriminate handling and disposal of waste generated (solid wastes) Indiscriminate handling and disposal of oily waste (Korle-na Site) Indiscriminate disposal of liquid waste (all sites) 	<ul style="list-style-type: none"> Provision of WC toilets for workers at Korle-na Provision of mobile toilet units for workers at Pasico and Odawna sites Waste from mobile toilet to be dislodged by an accredited waste management company <p>Segregated Waste</p> <ul style="list-style-type: none"> Segregation of waste into colour coded bins for the following and outsourced to a waste contractor: <ul style="list-style-type: none"> Domestic waste (all sites) Recyclable materials (all sites) Oil and lubricant related waste, including containers and rags (Korle-na site) <p>Oily Waste (Korle-na Site)</p> <ul style="list-style-type: none"> Designated impervious platform prepared as maintenance area for machinery/equipment servicing (oil and lubricant change, etc.) Maintenance area fitted with waste oil tank to collect and hold waste oil temporarily, until tank is full for return to the supplier Oil rags will be segregated into its own receptacle and collected for disposal by an accredited waste company <p>Liquid Waste (all sites)</p> <ul style="list-style-type: none"> Provision of WC toilet facility at Korle-na (existing facility) for workers Provision of mobile toilet units for workers at Pasico and Odawna sites Sanction workers engaged in open defecation and/or urination practice Grey water will be channelled into drains fitted with silt traps. Wastewater from tyre wash channelled into on-site drains fitted with silt traps 	<ul style="list-style-type: none"> Review records of general waste disposed off Weekly review of hygienic state and adequacy of toilet facilities Weekly review of records of dislodging Impromptu checks on the use of colour coded bins Weekly checks on effectiveness of waste segregation practice Monthly review of records of general waste disposed off One time inspection of availability of servicing platform Impromptu inspection of usage of the maintenance area Weekly checks on the integrity of oil tank Monthly review of records of waste oil collected and returned to supplier Impromptu inspection of adherence to separation of oily rags Monthly review of records of waste collection Monthly review of the hygienic state and adequacy of toilet facilities Quarterly review of records of offenders and sanctions applied Monthly inspection of effectiveness of silt traps
10. Potential Fire Risks		
<p>Site Preparation Phase</p> <ul style="list-style-type: none"> Machinery and equipment deployment at the handling sites Dropping of cigarette butts by smoking workers <p>Material Handling Phase Korle-na Site</p>	<ul style="list-style-type: none"> Securing of fire permit/certificate from the Ghana National Fire Service (GNFS) Construction of fire hydrants for all the sites Training workers on the usage of firefighting equipment including fire extinguisher and hydrants Provision of fire extinguishers Designating smoking areas away from fuel and oil storage area with metal bins to drop the cigarette butt and spot checking of behaviour <p>Korle-na Site-specific Mitigation Measures</p>	<ul style="list-style-type: none"> One-time inspection of availability of GNFS fire permits for each site One-time inspection of availability of fire hydrants Quarterly review of records of training Weekly inspection of fire extinguishers Monthly inspection of usage of designated smoking area, metal bins and compliance

Source of Impact	Mitigation Measures	Monitoring Measures
<ul style="list-style-type: none"> • Location of Fuel Storage Station within the Korle-na Site • An offsite GOIL Gas (LPG) Station adjacent to the Korle-na Site • Electrical hazard (overloaded outlets and circuits, etc.) • Welding sparks • Fuel and oil spills <p><i>Korle-na, Odawna and Pasico Sites</i></p> <ul style="list-style-type: none"> • Dropping of cigarette butts by smoking workers • Fuel and oil spills <p><i>Transportation Phase</i></p> <ul style="list-style-type: none"> • Fuel leakages • Electrical system failures 	<ul style="list-style-type: none"> • Installation of smoke detectors and fire alarms at the – <ul style="list-style-type: none"> ○ Fuel storage tank ○ Near the separating fence wall from the GOIL LPG Station • Area for machinery servicing and welding works situated – <ul style="list-style-type: none"> ○ At 65m from the fuel storage tank ○ At 110m from the GOIL Gas Station • Posting of legible fire safety signs, e.g., “No Smoking”, “Switch-off Engines”, etc. at the fuel storage area • Construct concrete floor and bunded area around fuel storage tank to contain spills • Prompt cleaning of accidental spills <p>General Mitigation Measures for all Sites</p> <ul style="list-style-type: none"> • Validation of fire certificate from the GNFS • Provision of fire hydrant at each of the site • Conducting weekly toolbox meeting on fire safety and use of firefighting equipment such as fire extinguisher and fire hydrants • Provision of Fire Assembly Points • Provision of fire extinguishers • Designating smoking areas away from fuel and oil storage area with metal bins to drop the cigarette butt and spot checking of behaviour • Prompt cleaning of accidental spills <ul style="list-style-type: none"> • Provision of fire extinguishers in trucks • Provision of truck spill kit • Scheduled maintenance and servicing 	<ul style="list-style-type: none"> • Quarterly testing of functionality of fire alarm and smoke detectors • One-time inspection of the stipulated distances of 65m and 110m to the fuel storage tank and GOIL Gas Station respectively from machinery servicing/welding area • Monthly inspection of legibility and adequacy of caution signages • One-time inspection of concrete floor and bunded area • Monthly inspection of spill kit <ul style="list-style-type: none"> • Annual inspection of validity of fire certificate • Quarterly check on water availability in hydrant • Weekly review of attendees of workers in toolbox meeting • One-time inspection of Fire Assembly Point • Quarterly inspection of expiration date of fire extinguishers • Monthly inspection and usage of designated smoking area, metal bins and compliance • Monthly inspection of spill kit <ul style="list-style-type: none"> • Quarterly inspection fire extinguishers • Monthly inspection of truck spill kits • Monthly review of records of servicing
11. Infringement on Labour Rights		
<p>Site Preparation Phase</p> <ul style="list-style-type: none"> • Non-issuance of employment contracts to workers • Unfair compensation payment • Inability of workers to organise or join Unions <ul style="list-style-type: none"> • Provision of ill-fitting PPE • Marginalisation of women and PWD 	<ul style="list-style-type: none"> • Issuance of employment contracts to all categories of workers to indicate <ul style="list-style-type: none"> ○ Worker compensation equal to or above the national minimum wage ○ Equal compensation for both gender of same work schedule and qualification ○ Clauses to promote formation of workers’ union and collective bargaining • Provision of adequate and suitable PPE for workers, particularly women and PWD • Employment of women and PWDs where feasible 	<ul style="list-style-type: none"> • Weekly review of records of employment contracts of workers including compensation • One-time check for availability/opportunity for workers’ union <ul style="list-style-type: none"> • Monthly review of records of supply of PPE • Daily check on usage and suitability of PPE

Source of Impact	Mitigation Measures	Monitoring Measures
<p>Material Handling Phase Sources of impacts enumerated under the Site Preparation phase also apply to the Material Handling phase</p>	<ul style="list-style-type: none"> • Provision of adequate access aids for workers with disability • Provision of adequate separate sanitary facilities for women and workers with disability <p>Mitigation measures listed for the Site Preparation phase also apply to the Material Handling phase, except:</p> <ul style="list-style-type: none"> • Provision of adequate access aids for workers with disability • Provision of adequate separate sanitary facilities for women and workers with disability 	<ul style="list-style-type: none"> • Weekly review of records of women and PWDs employed • One-time check of provision of - <ul style="list-style-type: none"> ○ Access facilities for PWD ○ Separate sanitary facilities for women and PWD <p>Variations in the frequency of monitoring for the Material Handling phase (as distinct from the Site Preparation phase) are as follows:</p> <ul style="list-style-type: none"> • Yearly review of records of employment contracts including compensation • One-time check for availability/opportunity for workers' union • Monthly review of records of supply of PPE • Daily check on usage and suitability of PPE • Yearly review of records of women and PWDs employed
<p>12. Gender-Based Violence and Sexual Exploitation and Abuse (GBV/SEA)</p>		
<p>Site Preparation Phase</p> <ul style="list-style-type: none"> • Soliciting for sexual favours from female job seekers and employees • Sexual harassment (SH)/abuse of work colleagues • Sexual harassment/abuse of community women and children <p>Material Handling Phase Sources of risks enumerated under the Site Preparation phase also apply to the Material Handling phase</p>	<ul style="list-style-type: none"> • Cases of GBV/SEA/SH will be reported through all outlets of the GRM and will be processed/handled solely by the SSS of the GARID PCU and SSS of MWH HSD • Victims will be aided to receive support from the dedicated GBV service providers in the municipality/metropolis • Education of workers on human rights protection • Support the Social Welfare and Community Development Department (SWCDD) on GBV/SEA/SH educational campaigns • Workers to sign a code of conduct <p>In addition to measures listed in the Site Preparation phase which also apply to the Material Handling phase is:</p> <ul style="list-style-type: none"> • GBV/SEA/SH Workplace Policy will be developed and implemented 	<p>Bi-weekly review of records of -</p> <ul style="list-style-type: none"> • Reported GBV/SEA/SH cases • Victims aided in accessing support • Educational campaigns on human rights protection • Educational campaigns on GBV/SEA/SH • One-time review of code of conduct signed <p>Variations in the frequency of monitoring for the Material Handling phase (as distinct from the Site Preparation phase) are as follows:</p> <ul style="list-style-type: none"> • One-time review of the GBV/SEA/SH policy <p>Quarterly review of records of -</p> <ul style="list-style-type: none"> • Reported GBV/SEA/SH cases • Victims aided in accessing support • Education programmes conducted and campaigns on GBV/SEA/SH • One-time review of code of conduct signed

Source of Impact	Mitigation Measures	Monitoring Measures
13. Potential Risk of Spread of HIV and STIs		
<p>Site Preparation Phase</p> <ul style="list-style-type: none"> Workers with high disposable income enticing young girls and women into sexual relationships Attraction of commercial sex workers and other women joining the commercial sex business Stigmatization <p>Material Handling Phase</p> <p>Sources of impacts for the Site Preparation phase apply also to the material handling phase.</p>	<ul style="list-style-type: none"> Recruiting majority of workers from the project area (Odawna, Pasico and Korle-na). Handling information on HIV status of workers with due care and confidentiality <p>Implementation of HIV/AIDs Workplace Policy, and incorporation of prevention clauses in employment contract including the following –</p> <ul style="list-style-type: none"> Awareness creation among workers through preventive programs including – <ul style="list-style-type: none"> Facilitation of voluntary testing Safe sex practices, condom use, abstinence, etc. Peer counselling Provision of condoms at accessible and convenient locations Incorporation of the Workplace HIV Policy into working conditions to prevent discrimination or stigmatisation Support to the Municipal Health Directorate of the project area (Odawna, Pasico and Korle-na) to print and distribute awareness leaflets and organise education campaign on HIV/AIDs in the community and the municipality. <p>Mitigation measures provided for the Site Preparation phase apply also to the material handling phase.</p>	<ul style="list-style-type: none"> One time review of the number of employees from the community Weekly review of grievances Weekly review of Contractor’s HIV Workplace Policy and records of implementation. <p>Weekly -</p> <ul style="list-style-type: none"> Review records of awareness programmes <ul style="list-style-type: none"> Review records of voluntary testing of workers Checks for the number of available condoms Review records of peer counselling organised Checks for availability of condoms Review records of reported cases of discrimination or stigmatisation Weekly review of records of awareness - <ul style="list-style-type: none"> Programmes among workers Campaigns and leaflets distributed in the community and municipality <p>Variations in the frequency of monitoring for the Material Handling phase (as distinct from the Site Preparation phase) are as follows:</p> <ul style="list-style-type: none"> One time review of the number of employees from the community Quarterly checks on creation of workcamp in the community Monthly records of grievances Quarterly review of Contractor’s HIV Workplace Policy and records of implementation. <p>Monthly -</p> <ul style="list-style-type: none"> Review records of awareness programmes Review records of voluntary testing of workers <ul style="list-style-type: none"> Checks for the number of available condoms

Source of Impact	Mitigation Measures	Monitoring Measures
		<ul style="list-style-type: none"> ○ Review records of peer counselling organised ● Quarterly checks for availability of condoms ● Monthly review records of reported cases of discrimination or stigmatisation ● Yearly review of records of awareness - <ul style="list-style-type: none"> ○ Programmes among workers ○ Campaigns and leaflets distributed in the community and municipality
14. Potential Transmission of COVID-19		
<p>Site Preparation Phase</p> <ul style="list-style-type: none"> ● Poor public health attitude and unhygienic habits ● Failure to allocate a budget for COVID-19 prevention measures ● Misconceptions and persons reluctance to COVID-19 vaccination ● Non-compliance with COVID-19 protocols ● Workers concealing infection <p>Material Handling Phase Sources of impacts for the Site Preparation phase apply also to the Material Handling phase.</p>	<ul style="list-style-type: none"> ● Implementation of COVID-19 protocols ● Requisite investments/budget for provision of standard COVID-19 protocol response requirements ● Requiring workers to be fully vaccinated ● Sanctioning culpable workers by a caution in the first instance, and dismissal if repeated ● Welfare relief package for infected workers who discloses COVID 19 status <p>Mitigation measures provided for the Site Preparation phase apply also to the Material Handling phase.</p>	<ul style="list-style-type: none"> ● Weekly review of number of infected workers ● Bi-weekly review records of investments made, and COVID-19 response equipment and logistics procured ● One-time review of records of vaccinated COVID-19 cards of workers ● Bi-weekly review records of number of sanctioned workers ● Weekly review records of number of beneficiaries <p>Variations in the frequency of monitoring for the Material Handling phase (as distinct from the Site Preparation phase) are as follows:</p> <ul style="list-style-type: none"> ● Monthly review of number of infected workers ● Quarterly review records of investments made, and COVID-19 response equipment and logistics procured ● One-time review of records of vaccinated COVID-19 cards of workers ● Quarterly review records of number of sanctioned workers ● Quarterly review records of number of beneficiaries
15. Physical and Economic Displacement		
<p>Site Preparation Phase (only)</p> <ul style="list-style-type: none"> ● Relocation of existing structures on the sites (at Odawna and Pasico) affecting PAPs ● Disruption of economic activities at the sites affecting livelihoods 	<ul style="list-style-type: none"> ● The mitigation measures will involve preparation and implementation of a Resettlement Action Plan (RAP) which is ongoing for the Odawna and Pasico sites. ● The RAP will outline restitution measures for the social and property impacts, and ensure that the affected persons are assisted in their efforts to improve their livelihoods and standards of living or at least to restore them, in real terms to pre-displacement levels or to levels 	<ul style="list-style-type: none"> ● Monitoring and evaluation measures will be outlined in the RAP, designed to follow the RAP implementation to the letter, for fairness and equity, with provisions for grievance redress, etc. and to ensure PAPs are satisfactorily treated and in accordance with the terms as enshrined in the RAP.

Source of Impact	Mitigation Measures	Monitoring Measures
	prevailing prior to the beginning of the project implementation, whichever is higher	

Environmental and Social Management and Monitoring Plans

The ESIA includes individual Action Plans and respective objectives and mitigation measures to address the evaluated risks and adverse impacts associated with the project. The estimated budget for the implementation of the environmental and social management and monitoring plans is USD 375,000 (i.e., USD 314,400 for management and USD 60,600 for monitoring).

The specific objectives of the Action Plans are to:

- Prevent vehicular accidents, knockdowns at the handling site and its environs and public safety in communities along haulage route;
- Minimize GHG emissions from project activities;
- Safeguard the quality of ambient air in the project area by minimizing the generation of dust and other air emissions;
- Ensure the safety of workers and the public from odour nuisance and other health and safety concerns;
- Minimise the visual impact from the project;
- To ensure that workers are not exposed to heavy metals detected in high quantities and to avoid the dire health impact associated with the ingestion or inhalation of these heavy metals;
- To minimise the exposure of the public and workers to noise and vibration;
- Ameliorate project-induced social changes and manage community apprehension; and
- To safeguard the rights of all workers and ensure fair treatment, non-discrimination and equal opportunity for all workers;
- To prevent any form of gender-based violence and sexual harassment against workers and members of the community;
- To minimise the potential risk of spread of HIV/AIDS among workers and in the project community; and
- To prevent and contain COVID-19 infections and transmission.

Grievance Redress Mechanism

The GRM is to provide all persons (both the public and employees) and groups affected during site preparation and material handling and transportation activities, avenues through which they can express their concerns and receive the needed corrective action in an appropriate and timely manner. The mechanism will provide an effective, transparent and timely system that will give employees or aggrieved persons redress and avoid litigation, minimize bad publicity, avoid/minimize delays in execution of infrastructural works, and ensure public health, safety,

and sustainability during project implementation. The GRM provides for both workers and community members and the process comprises the following tiers:

- Community Level Grievance Redress Committee (CLGRC);
- Metropolitan and Municipal Level Grievance Resolution (MMLGR);
- Project Level Grievance Resolution (PLGR); and
- The Law Court.

Decommissioning and Closure Plan

The decommissioning and closure section outlines the anticipated actions needed to guide the project in the formal closure and preparation to hand over of the handling sites to the Accra Metropolitan Assembly and the Ngleshi Stool of James Town, in accordance with the general provisions of the Memorandum of Understanding among the parties. The parties comprise of the Ministry of Works and Housing on the one hand, and the Accra Metropolitan Assembly and the Ngleshi Stool of James Town, Accra on the other.

The following stages of actions will be required to effectively decommission the three operational (handling) sites and to hand over to the original owners:

- **Pre-closure activities -**
 - Notice to relevant authorities and stakeholders;
 - Stakeholder engagements; and
 - Pre-closure report preparation to EPA.
- **Closure/shutdown of activities -**
 - Abate deposition of dredging materials and all haulage operations;
 - Evacuate all materials, equipment and facilities movable; and
 - Conduct site inventory and E&S Audit.
- **Decommissioning activities -**
 - Remove all structures and clear the sites of wastes;
 - Conduct backfilling or filling of the sites as necessary;
 - Conduct ripping to prepare the appropriate sections for revegetation; and
 - Undertake revegetation of the sites.
- **Post-closure activities –**
 - Conduct site monitoring for necessary remedial action (e.g. revegetation effectiveness and erosion control/avoidance);
 - Media monitoring (mainly detection of heavy metals and runoff water quality);
 - Facility and equipment legacy left onsite for the owners;
 - Post-closure report preparation; and
 - Handing over of sites.

The estimated budget for the decommissioning and closure action plan implementation is USD 65,000.00.

Conclusion and Recommendations

The conclusion section and recommendations highlight the need:

- To improve the 1.5km route to the final disposal sites at Pokuase;
- To improve the 700m access route at the final disposal site at Anyaa;
- For night-time haulage as the most preferable alternative;
- Good planning and consistency required to deliver project benefits; and
- Keeping communities informed and maintaining open communication.

Download the Full Report on this Link

<https://garid-accra.com/wp-content/uploads/2023/11/Handling-site.pdf>



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