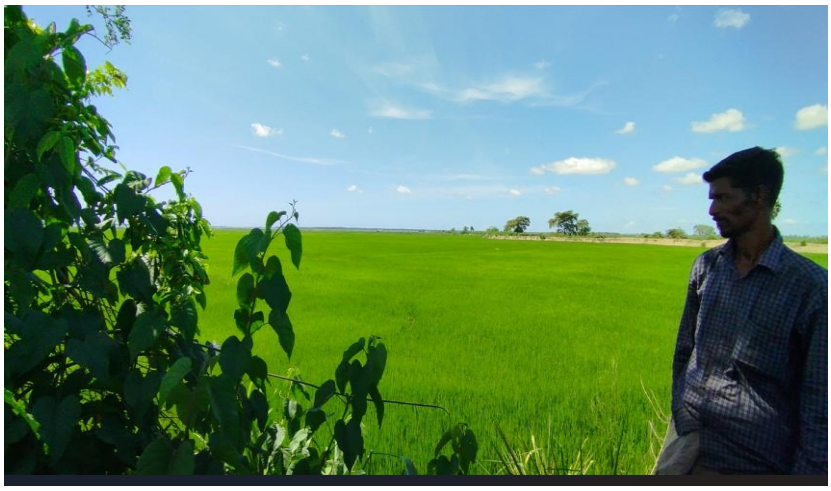

ENVRIONMENTAL SCREENING REPORT & ENVRIONMENTAL MANAGEMENT PLAN

Construction of Downstream Water Management Structures under Sagamam and Kanchikudichiaru Irrigation Schemes – Pannal Oya River Basin-

IRDCRP
Ministry of Agriculture, Livestock, Land and Irrigation

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1. Introduction

The Sagamam Tank[1] (Sangamam Kulam) itself sits downstream of the dense Kanchikudicharu forest reserve and watershed area. It is a highly significant medium-scale reservoir located in the Alayadivembu Divisional Secretariat division within the Ampara District of Eastern Sri Lanka. The reservoir itself is under the authority of the Irrigation Department, while the downstream network falls under the authority of the Provincial Irrigation Department of the Eastern Province (PID – East). It serves as the vital heartbeat for agricultural livelihoods and ecosystem balance in the coastal-adjacent dry zone.

The **Thoppan Aru** is the main river system closely linked to the Sagamam scheme. Thoppan Aru or minor branches nearby being called or recorded as **Pallavi or Pali Aru** by local communities. The project sites which are proposed by the PID – East are situated adjacent to/intersects the Pallavi Aru - a localized tributary/branch stream hydrologically linked within the larger Thoppan Aru basin system under the Sagamam Irrigation Scheme[2].

The **Kanchikudicharu Irrigation Scheme**[3] (*Kanchikudichcharu*) is a significant medium-scale irrigation network located in the **Thirukkovil Divisional Secretariat Division** of the Ampara District. Because it sits directly upstream of the **Sagamam Scheme**, the management and ecological health of Kanchikudicharu directly dictate the water security and downstream flow of the entire agricultural network below it, including minor streams like the Pallavi Aru. The main Kanchikudicharu Tank, its bund, and primary sluice structures fall under the executive authority of the Department of Irrigation (Ampara Range). The network of distributary canals, field channels, and local agricultural road infrastructure is managed under the jurisdiction of the PID – East.

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[1] The Sagamam Scheme feeds an official irrigable extent of **3,370 acres** of land. It reliably supports close to 900 farmer families, sustaining 3,370 acres of paddy cultivation during the *Maha* season and approximately 2,778 acres during the *Yala* season (Information PID – EAST)

[2] The Sagamam scheme supports tightly managed, vast area (hundreds of acres) of agricultural tracts (*Paddy fields*), any temporary water diversions or bund construction during the civil works must be coordinated with the local Farmers' Organization calendar to avoid disrupting irrigation schedules.

[3] The scheme officially feeds an irrigable area of **1,700 acres** of land. It provides direct livelihood and irrigation water to approximately 600 to 1,130 farmer families across both seasonal cultivation cycles. (**Maha Season:** 1, and 700 acres (Full capacity utilization) **Yala Season:** ~1,010 acres) – Information from the PID - EAST

Proposed structures under Sagamam schemes' Pallavi Aru and Kanchikudicharu Irrigation Scheme by the PID – East, are expected to complete under the funding assistance of IRDCRP.

I. The construction of the Kaluththanodai Anicut (Ammalveli) in the Sagamam lower basin in the Ampara district.

II. The construction of the Medaru Anicut with its channel system and the agri road in the Sagamam upper basin, Ampara.

III. The construction of Kadupuliyamadu anicut with channel system in Sagamam Scheme

IV. Renovation of Flood Bund and Agri Road in Urakkaveli Kandam

V. The construction of an Anicut/water control structure across a drainage canal/feeder canal of RB of the Kanchikudichchi Aru.

VI. Concrete Channel System Cum Agricultural Access Roads and Concrete lining of canals in Sagamam Lower Basin in Ampara

Above six activities are downstream developments under two major irrigation schemes (Sagamam and **Kanchikudicharu)** in the eastern province, where a vast extent of paddy fields remain, by the PID-East.

1.1. Ecological Significance of the Proposed Project Areas. (Pallavi Aru Area (Sagamam Scheme, Ampara) and downstream of the Kanchikudicharu Scheme.

The Pallavi Aru area, situated within the command boundaries of the Sagamam Irrigation Scheme, holds high ecological value as a functional riparian corridor and a seasonal wetland connector. Because this small water stream is hydrologically linked to the larger Thoppan Aru basin system, its ecological health directly influences both the upstream forest drainage networks and downstream coastal ecosystems.

The Kanchikudicharu Scheme and related downstream structures also directly sustain the economic livelihoods of hundreds of farming families while acting as the primary hydrological regulator for downstream networks.

- **Riparian Buffer and Habitat Connectivity**

The Pallavi Aru serves as a vital ecological bridge connecting the dense, inland Kanchikudicharu Forest Reserve watershed with the coastal-adjacent agricultural plains and scrublands of Alayadivembu and Thirukkovil.

- **Flora:** The banks of the stream support typical dry-zone riparian vegetation, characterized by trees like *Terminalia arjuna* (Kumbuk), *Maduca longifolia* (Mee), *Azadirachta indica* (kohomba), and various local reeds. These deep root systems stabilize the stream banks, prevent soil erosion, and natural filter agricultural runoff. However, farmers have cleared the majority of trees along the stream and adjacent paddy fields to prevent elephants from using

them as resting cover. Consequently, there are currently no large trees remaining across this extensive area.

- **Fauna**: During the field visits, no avifauna (birds) was observed, likely due to the lack of tree cover amidst thousands of acres of contiguous paddy fields. According to local farmers, wild fauna other than elephants is rarely seen in the area. However, crocodiles are known to inhabit the local streams. Snakes, especially cobra and pit viper is common in the paddy fields.

➢ **Wildlife Hydration and Movement (Elephants and Edge Effects)**

The Ampara District is characterized by high levels Elephant (*Elephas maximus*) movements.

- Due to its proximity to the Kanchikudicharu jungle patches, the Pallavi Aru area acts as a peripheral foraging zone and a seasonal water source for elephants moving out of the forest reserves into the matrix habitats.
- Maintaining the ecological integrity of this stream helps sustain natural movement patterns, minimizing the risk of animals straying directly into nearby village settlements, thereby acting as a passive buffer against Human-Elephant Conflict (HEC).

➢ **Aquatic Biodiversity and Wetland Dynamics**

As a seasonal distributary that experiences high flow variations between the *Maha* monsoon and the dry *Yala* season, the Pallavi Aru supports a specialized aquatic ecosystem:

- **Ichthyofauna (Fish):** The stream provides spawning and feeding habitats for indigenous freshwater common fish species.
- **Herpetofauna:** the Mugger crocodile (*Crocodylus palustris*) inhabit in water tanks and streams in the area.[4]

➢ **Eco-Hydrological Services**

The Pallavi Aru acts as an environmental regulator for the Sagamam command area:

- **Sediment Trap:** The natural bends and vegetated stretches of the stream slow down water velocity, trapping suspended sediments before they can accumulate in downstream agricultural tracts or silt up primary drainage canals.
- **Groundwater Recharge:** By holding and slowly conveying water through the dry zone, the stream bed assists in maintaining local water table levels, supporting peripheral vegetation and the shallow wells used by local communities.

However, there are no archaeological, forest, or wildlife reserves within or adjacent to the proposed project sites' impact zones.

1.2. Key Safeguard Implications for Proposed Project Activities

- **Invasive Species Proliferation:** The riparian edges are vulnerable to encroachment by terrestrial and aquatic invasive alien species (IAS), such as *Eichhornia crassipes* (common*), Salvinia molesta* (rare), *Mimosa pigra* (rare*)*, and *Lantana camara* (common*)*. Construction

[4] Crocodiles were observed in the Sagamam tank and in other few locations along the canals.

machinery must be monitored to ensure they do not act as vectors spreading these weeds into the stream ecosystem



Figure 1: Lantana camara remains along the dikes of streams



Figure 2: Mimosa pigra was observed at the lower basin of the Kanchkudichchi aru

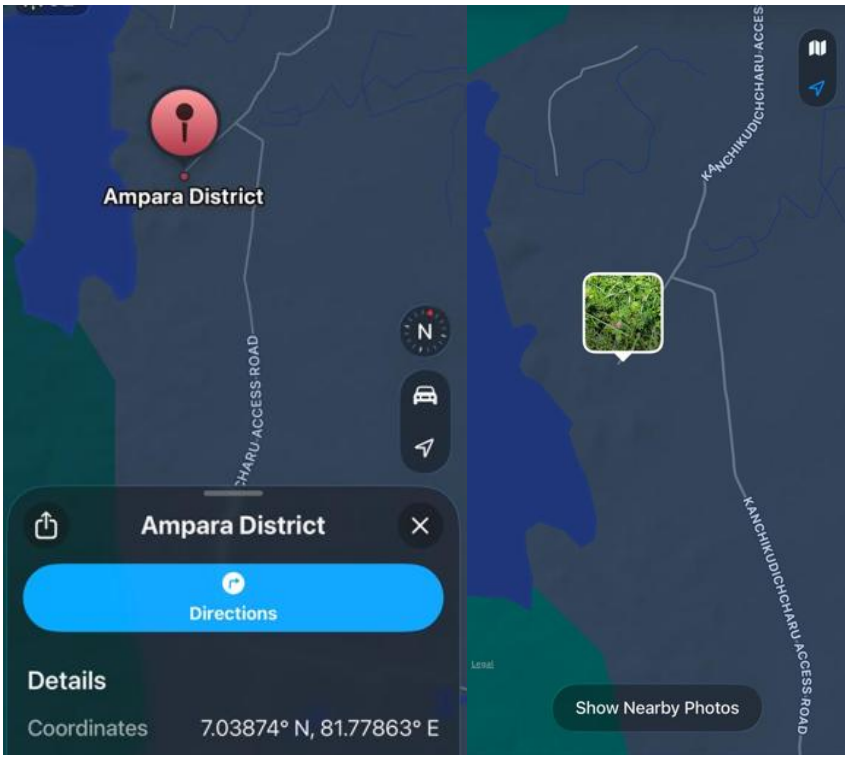

Figure 3: The location where the Mimosa pigra was observed.



Figure 4: Aquatic invasive species, mainly *Eichhornia crassipes*, are present along the canals

- **Sedimentation from Civil Works:** Any banking, widening, or desilting work must utilize silt curtains or immediate turfing to prevent heavy siltation plumes from travelling downstream into the Thoppan Aru network, which would choke downstream aquatic habitats.

- **Construction Timing:** Heavy machinery operations should be restricted to daytime hours to prevent disrupting nocturnal wildlife movements and drinking patterns along the stream corridor.
- **Water Management & Safety:** Because the scheme relies on downstream structures like the Sillikody Anicut and smaller distributary streams (like the *Pallavi Aru*), water-gating should minimize disruption to downstream *kandams* (cultivation tracts).
- **Ecosystem Connectivity:** One project site sits in close proximity to the sensitive coastal lagoon system (*Periya Kalapuva*) and the inland water streams of Ampara district. This makes it a crucial watering hub for local wildlife, and paddy farming requiring structural improvements to stay mindful of natural elephant and fauna movement.



Figure 5: The Periya Kalapuva/lagoon is margined to one of the proposed project sites.

- **Human-Elephant Conflict (HEC) & Wildlife Corridors:** Because the project sites are within the elephant roaming area, proposed civil works, must plan carefully. Construction activities must avoid night work to prevent dangerous human-elephant encounters.
- **Sedimentation and Cascading Inflows:** Since Kanchikudicharu sits at the top of the watershed, any heavy soil erosion or uncontrolled clearing along its canals quickly travels downstream into the Sagamam system, silting up smaller feeders like the Thoppan Aru and Pallavi Aru networks. Structural safeguards (like turfing canal banks and using silt traps) should be prioritized.
- **Unexploded Ordnance (UXO) Risk:** Given its history as a highly dense conflict zone prior to 2007, any excavation or dredging of older canals carries a standard precautionary requirement for UXO clearance/visual screening protocols before heavy machinery moves in.

2. Proposed works

2.1. Construction of the Kaluththanodai Anicut (Ammalveli) in the Sagamam Lower Basin

Table 1: The construction of the Kaluththanodai Anicut (Ammalveli) in the Sagamam lower basin

Item No.	Description of work	Unit	Qty
1.0	**Construction of the Coffer damming and removing after construction.**		
1.1	Cutting off the channel for diverting the water as directed by the machinery.	m^3	600.00
1.2	Earth excavation from the burrow and forming coffer dam as directed by machinery	m^3	338.00
2.4	Removing coffer dam after the construction as directed by the machinery	m^3	556.00
2.0	**Item III - Construction of 14 Bay Anicut**		
2.1	Shrub & thorny jungle clearing with uprooting and burning in upstream & downstream of the proposed Flank bund area along both sides of river as directed by machinery.	ha	1.00
2.2	Common earth excavation in the construction area of the foundation by machinery. Up to 1.5m depth.	m^3	435.00
2.3	Common earth excavation in the foundation by machinery, from 1.5m to 3.0m depth.	m^3	108.00
2.4	Common earth excavation in the foundation by machinery, from 3.0m to 4.5m depth.	m^3	85.00
3.0	**Item IV - Construction of Reinforcement concrete Retaining wall in Upstream of left & Right side in Anicut (Length - 15m+15m) including LB side turnout structure**		
3.1	Allow for dealing with water during the construction (3.0" Pump and 8.0 h/days)	Hrs	150.00
3.2	Common earth excavation in foundation and spoil to waste as directed by machinery. Up to 1.5m	m^3	105.66
3.3	Supplying and placing of 1000-gauge polythene sheet of under the concrete	m^2	87.60
3.4	Tidying up site	Item	Allow
4.0	**Item V-Construction of Reinforcement concrete Retaining wall in Downstream of left & Right side in Anicut (Length2m+2m) Drawing no: -IWWRMP/THA/PN-ANCI**		
4.1	Common earth excavation in foundation and spoil to waste as directed by machinery. Up to 1.5m	m^3	100.80
5.0	**Item VI-Improvements to U/P & D/S of RB Flank bund in Anicut**		
5.1	Stripping Top soil to a thickness of 150mm and spoil to waste as directed	m^3	40.00
5.2	Earth excavation from borrow & filling in access road including spreading watering and compaction (98%) by machinery. Lift 0.0-1.50m	m^3	4,800.0
5.3	Supplying and placing turf to newly filled earth slope in the Flank bund, including transporting and watering till turf takes root.	m^2	400.00
6.0	**Construction of Reinforced concrete lining channel - at LB channel at stn. (0+000 - 0+250.0m)**		

6.1	Common earth excavation in construction area of foundation by machinery. Up to 1.5m depth.	m^3	105.00
6.2	Tidying up site	Item	Allow

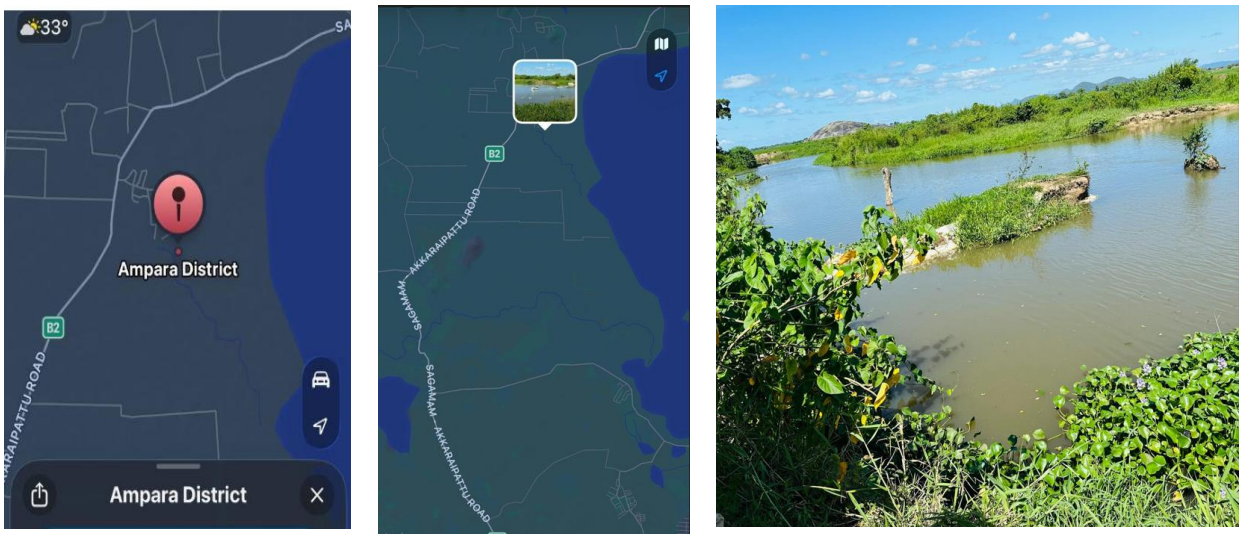

Figure 6: The location of the current sand bag structure



Figure 7: The location current structure using sand bags across Neethei aru, at the lower basin of Sagamam tank

Approximately 200 acres of paddy are cultivated under this segment of the stream, known locally as the Neethai *Aru*. This stream carries spill water from the Ambalan Oya tank—which falls under the purview of the Irrigation Department—as well as drainage water from hundreds of acres of downstream paddy fields. This stream ended up at the Periya kalapuwa/lagoon.

During the Northeast Monsoon (NEM), the stream carries a substantial volume of water, allowing the full extent of the paddy fields to be farmed. However, during the Yala season, the volume of water received in the area is insufficient to support farming. Consequently, farmers traditionally place sandbags across the stream to raise the water level, forcing it to flow into the irrigation canals feeding the paddy fields.

Because these sandbags must be removed annually prior to the NEM to prevent upstream flooding, this has become a repetitive yearly burden for the local farming community. To resolve this issue, a gated anicut is proposed to regulate and raise the water level, facilitating efficient downstream water conveyance. According to both local farmers and PID officials, this intervention will permanently eliminate a long-term logistical hurdle in water management. Furthermore, farmers currently extract water from the *Aru* (stream) using large-scale water pumps positioned at various locations along the canal segment, as depicted in Figure [X]. This practice incurs high fuel costs. The construction of the proposed anicut will eliminate this financial and operational burden.



Figure 8: A segment of the command area under the stream.

No terestrial invasive plants were observed within the proposed project area, but *Eichhornia crassipes* is in the water. However, as reported by local farmers, encounters with elephants and crocodiles are frequent. To mitigate wildlife risks, watchmen are stationed along the upper margins of the paddy fields during the farming season. Despite their presence, no historical or ongoing conflicts between crocodiles and farmers were reported. Furthermore, there are no large trees located within the project's immediate impact zone; consequently, no tree removal will be required for the execution of this project. The Akkaraipattu–Sagamam road is the main road for material transport, but the interior road to the site remains weak (Figure 10). It may not be possible to transport materials using trucks, though access should be feasible using tractors.



Figure 9: Fossil fuel-powered water pumps used to lift water from the Aru (stream) to the paddy fields.



Figure 10: The interior access road to the site



Figure 11: Proposed location for the 14-bay anicut.

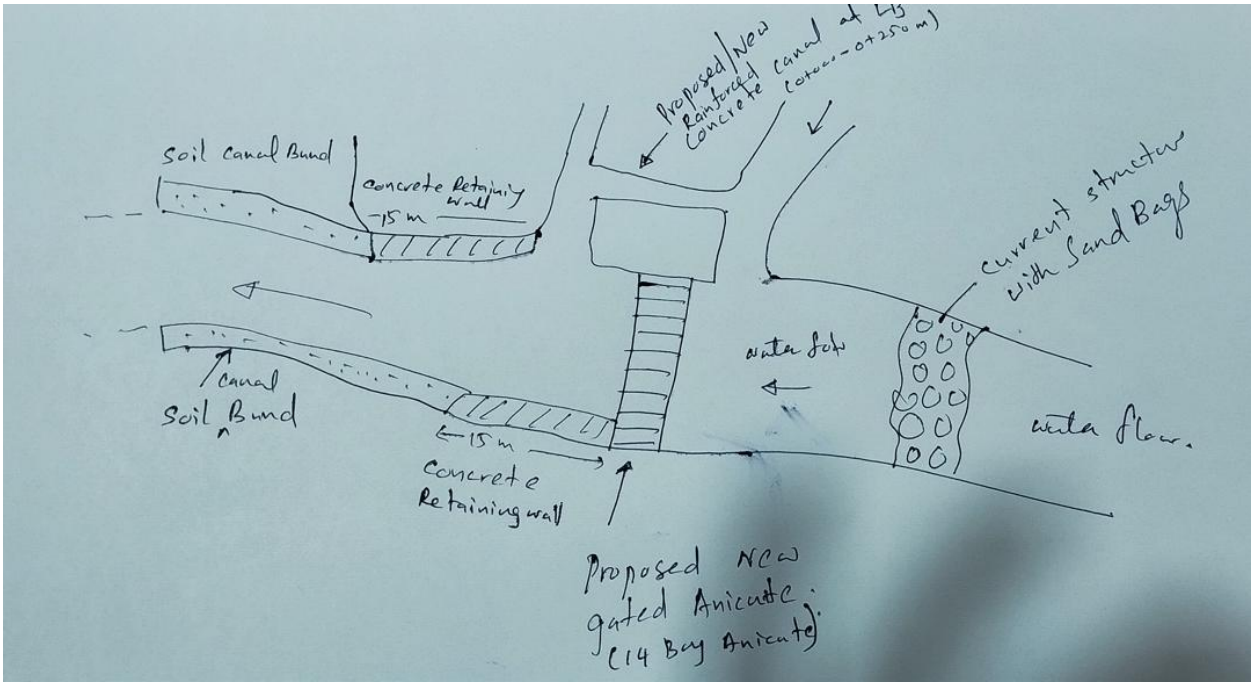

Figure 12: Schematic diagram of the proposed Kaluththanodai Anicut (Ammalveli)

2.2. Construction of the Medaru Anicut With its Channel System and the Agri Road

Table 2: The construction of the Medaru Anicut with its channel system and the agri road in the Sagamam upper basin, Ampara.

Item No	Description of work	Unit	Qty
1.0	**Construction of the Coffer damming and removing after construction**		
1.1	Alignment river for diverting channel along both sides of the river as directed by machinery	m^3	2,000.00
1.2	Earth excavation from the burrow and forming coffer dam as directed by manually	m^3	150.00
1.3	Removing the coffer dam after the construction as directed by the machinery	m^3	201.00
2.0	**Construction of the 5-Way Medaru Anicut**		
2.1	Shrub & thorny jungle clearing with uprooting and burning in upstream & downstream of the proposed Flank bund area along both sides of the river as directed by machinery.	Ha	0.32
2.2	Common earth excavation in the construction area of the foundation by machinery. Up to 1.5m depth.	m^3	270.00
2.3	Common earth excavation in the foundation by machinery, from 1.5m to 3.0m depth.	m^3	189.0
3.0	**Construction of both side (u/s, d/s - LB & RB) retaining wall including RB side turnout structure**		
3.1	Common earth excavation in channel & spoilt to waste or fill cum material lift 0-1.5 m (haul 30m) if use for refill, use compaction	Cum	291.24
3.2	Common Excavation in channel & spoilt to waste or fill cum material lift 1.5-3m	Cum	76.80
	Furnish, lay and joint of 600mm Hume pipes, including excavation and backfilling	lm	7.32
4.0	**Improvements to U/S&D/S, of LB&RB Flank bund in Anicut from 0+00 m to 0+100m**		
4.1	Stripping Top soil to a thickness of 75mm and spoil to waste as directed	m^3	33.00
4.2	Earth excavation from burrow and forming flank bund including spreading, watering and compaction (98%) by machinery. Transport-2.0km	m^3	203.00
4.3	Supplying and placing turf to newly filled earth slope in Flank bund including transporting and watering till turf takes root. haul 1.5km	m^3	800.00
5.0	**Construction of Reinforced concrete lining channel - at LB channel at stn. (0+000 - 04250.0 m)**		
5.1	Common earth excavation in the construction area of the foundation by machinery. Up to 1.5m depth	m^3	125.00
6.0 Construction of concrete agri road (Sta. .000 o 1+000 m)			
6.1	Site Clearing before construction.	L/day	5.00
6.2	Common carth excavation in road surface & spoilt to waste or fill material lifts 0-1.5 m (haul 30m) if use for refill, use compaction, watering, etc. by machinery	Cum	712.50
6.3	Trimming, levelling and compaction of original ground subgrade to 95% std using motor grader, including compaction	Sqm	4750.0

The **Penichoyadi Anicut** is constructed by the IWWRMP[5] across the **Pannal Oya[6],** is nearly 1 km away from the proposed location for the proposed **Medaru Anicut**. Drainage water from the paddy field and excess water from the Penichoyadi anicut run along the Medaru stream as illustrate in Figure 13. This area falls within the **Sagamam sub-basin** drainage network in the Ampara District.



Figure 13: Excess water from the upper stream including **Penichoyadi Anicut** runs downstream along this stream namely Medaru aru/stream

Currently, farmers place sandbags across the stream/aru every year for the Yala season (Figure 14) and remove them during the Northeast Monsoon (NEM). Because this traditional practice is temporary, they have requested a permanent solution. Consequently, the Provincial Irrigation Department (PID) – East proposes constructing an anicut at the location illustrated in Figures 14 and 15. The proposed activities are detailed in Table 2.

[5] Integrated Watershed and Water Resources Management Project

[6] Sometimes called as *Pannalgal Oya or associated branch streams of the Heda Oya / Karanda Oya catchment network in the Eastern Province*



Figure 14: The location for the proposed anicut across Medaru aru/stream and currently placed sand bags across.

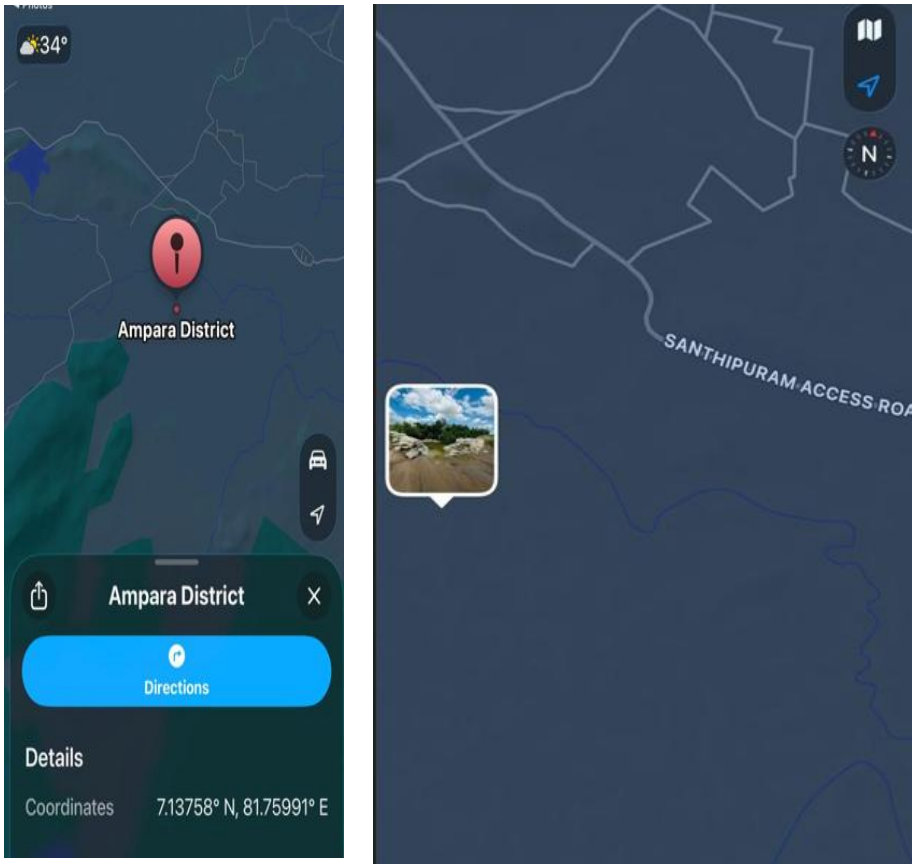

Figure 15: The location of the proposed anicut



Figure 16: Lantana camra in the only invasive observed from the project influence zone

Lantana was observed along the access road (Figure 19) and along the dikes of the stream. to the site, no other aquatic or terrestrial invasives were observed in the project impact zone.



Figure 17: Vast area of paddy is cultivated under Medaru oya/stream.



Figure 18: The stream has become silted over the years.



Figure 19: Access Road to the proposed anicut location.

Required construction materials can be transported via the Shanthipuram access road using standard vehicles; however, local site access—as illustrated in Figure 19—may require tractor transport due to road condition. Elephants are frequent visitors in the area, particularly during the cultivation off-season for food and water, when construction is scheduled. Consequently, diurnal elephant encounters should be anticipated along the access road and within the immediate site vicinity.

Furthermore, because local streams and canals are heavily silted, all earthworks under this intervention must be carefully planned to mitigate downstream sedimentation. Any surplus excavated soil (spoil) must be hauled off-site for controlled spreading in an approved area or disposed of in compliance with instructions given by the Engineer – PID-East.

2.3. Construction of Kadupuliyamadu Anicut

Table 3: Construction of Kadupuliyamadu Anicut with Channel System in Sagamam Upper Basin in Ampara District

Item No	Description of work	Unit	Qty
1.0	**Construction of Coffer damming and removing after construction.**		
1.1	Alignment river for diverting channel along both sides of river as directed by machinery	m^3	230.40
1.2	Earth excavation from burrow and forming a coffer dam as directed. (by machinery)	m^3	240.00
1.3	Removing the coffer dam after the construction as directed by the machinery	m^3	195.60
2.0			
2.1	Shrub & thorny jungle clearing with uprooting and burning in upstream & downstream of proposed Flank bund area along both sides of the river as directed by machinery.	Ha	0.14
2.2	Common earth excavation in the construction area of the foundation by machinery. Up to 1.5m depth.	m^3	392.00
2.3	Common earth excavation in the foundation by machinery from 1.5m to 3.0m depth	m^3	137.00
2.4	Common earth excavation in the foundation by machinery, from 3.0m to 4.5m depth.	m^3	82.74
3.0	**Construction of both side (u/s, d/s - LB & RB) retaining wall including RB side turnout structure**		
3.1	Common earth excavation in the construction area of the foundation by machinery up to 1.5m depth	cum	291.30
3.2	Common Excavation in channel & spoil waste or fill material lift 1.5-3m	cum	76.80
	|Furnish, lay, and joint of 600mm O Hume pipes, including excavation and back filling	lm	7.32
4.0	**Improvements to U/S&D/S, of LB&RB Flank bund in Anicut from 0+00 m to 0+50m**		
4.1	Stripping topsoil to a thickness of 75mm and spoil to waste as directed	m^3	33.00
4.2	Earth excavation from the burrow and forming a flank bund |including spreading, watering and compaction by machinery. (3Km)	m^3	203.00
4.3	Supplying and placing turf to newly filled earth slope in Flank bund, including transporting and watering till turf takes root, haul 1.5km	m^2	400.00
5.0	**Construction of 1.20mx1.00m concrete lining channel @ d/s of RB turnout - 100.0m**		
5.1	Common earth excavation in the construction area of the foundation by machinery. Up to 1.5m depth	m^3	42.00

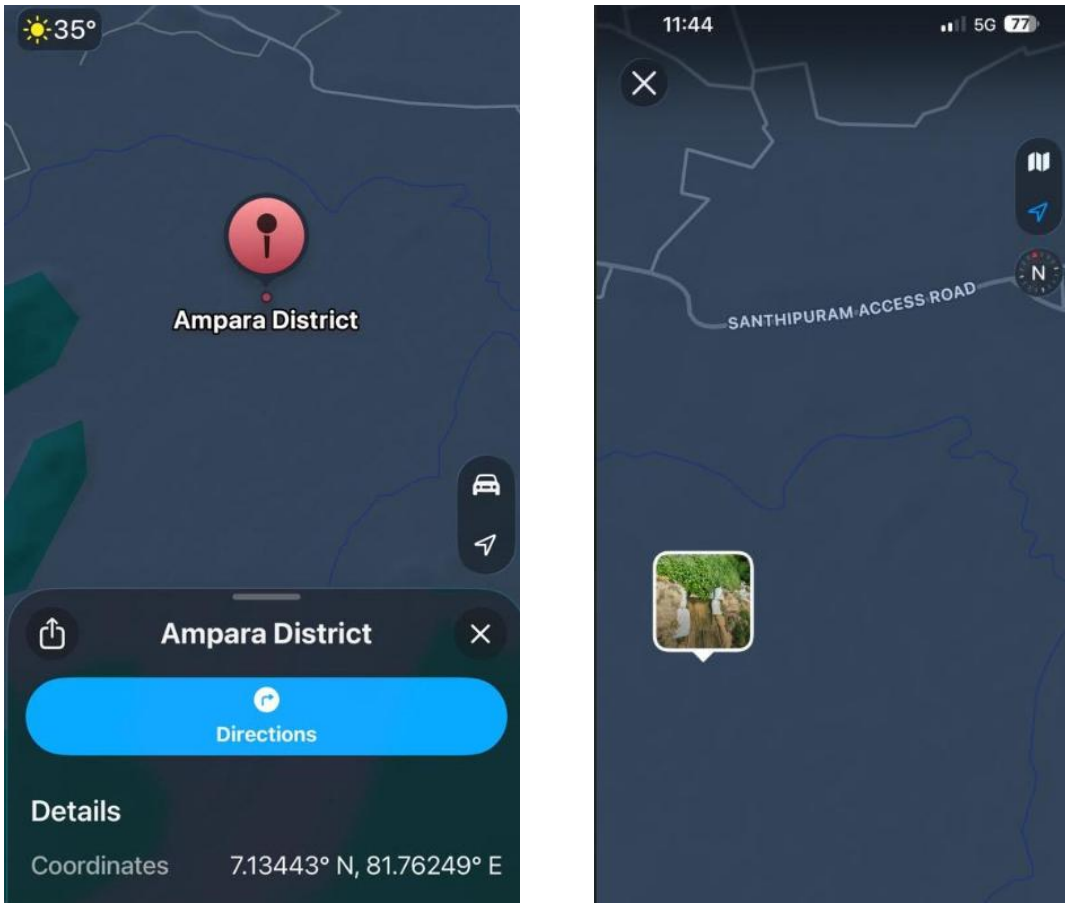

Figure 20: The proposed location for the anicut across Kadupuliyamadu aru at the Sagamam upper basin



Figure 21: Temporary soil bund constructed across Kadupuliyamadu Aru by the farmer organization

The Kadupuliyamadu Aru is a seasonal stream located in the upper area of the Sagamam Irrigation Scheme in the Ampara District. According to the famers and PID-East, during the rainy season (North-East Monsoon), the stream fills up with a lot of water. However, during the dry season (Yala season), the water level drops very low. Because water is scarce during the Yala season, farmers traditionally build temporary walls out of sandbags and soil across the stream to hold the water back and direct it into their fields. They have to remove these sandbags and soil before the heavy rains return so the area does not flood. To make things easier for the farmers, the PID – East is planning to replace these temporary sandbags with a permanent concrete structure (anicut).

Not only water availability for the hundreds of acres of paddy fields, this intervention will remove the concern of siltation at the downstream. This sand bag practice for decades is a reason for adding lot of sand and soil into the stream, then entire downstream. The stream and the nearby canals have a lot of trapped mud and loose soil.



Figure 22: Proposed location for the new anicut.

While no terrestrial invasive flora was observed along the access road or within the project impact zone, local farmers reported a recent infestation of the aquatic invasive alien species (IAS) *Eichhornia crassipes* (Water Hyacinth) within the stream. Regarding local fauna, infrequent crocodile encounters have been reported by the community. Aside from low avian and wildlife diversity, no other significant wildlife species were recorded within the area.

However, the area surrounding the stream serves as a natural habitat for wild elephants. During the cultivation off-season, when farming stops and construction begins, elephants frequently visit the stream and hundreds of acres of adjacent paddy fields in search of food and water. Consequently, project workers must exercise caution, as daytime elephant encounters are common. Additionally, local farmers have noted that venomous snakes, particularly Russell's vipers and cobras, pose another serious safety hazard in the area.



Figure 23: Access Road to the site is not convenient, and 3 -4 km across the paddy fields.

The project site is accessed via the Akkaraipattu–Sagamam Road, followed by a 3–4 km stretch along an agricultural road flanking local paddy field. Because the nearest human settlements are located more than 10 km away, project-induced impacts are highly unlikely to negatively affect local communities. While material transport along the unpaved agricultural road may present logistical challenges, tractors can be utilized to facilitate transport to the site.



Figure 24: nearly 500 acres of paddy fields are farmed using water from the Kadupuliyamadu stream.

2.4. Renovation of Flood Bund and Agri Road in Urakkaveli Kandam

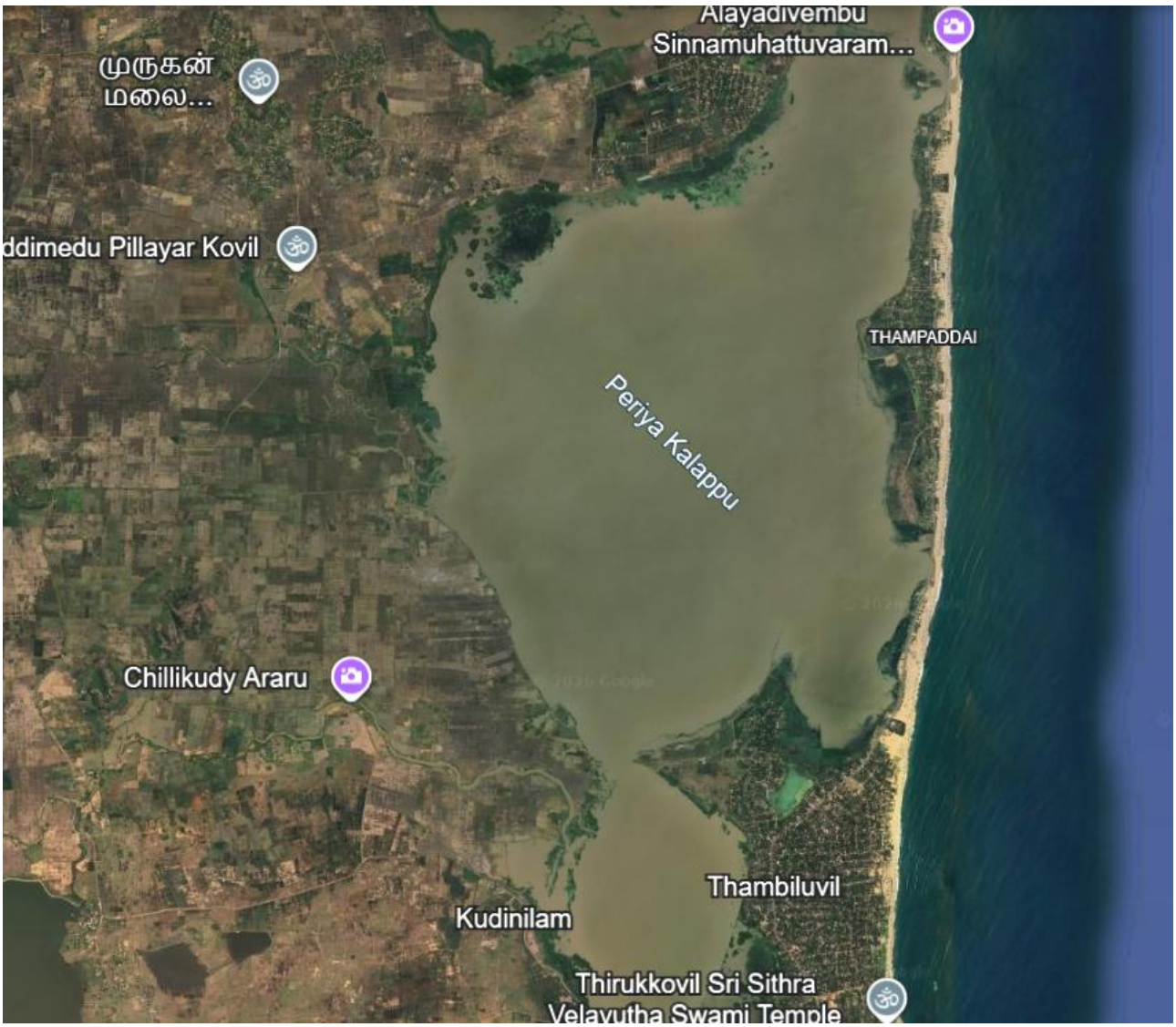

Figure 25: The Map of the proposed project area.

The Chillikudi Aru is interconnected with the Kanchikudichchi Aru and Kandegoda Ara drainage systems. Together with the Thaiipota Aru and the Ambalam Oya, these freshwater systems terminate in the Periya Kalapuwa (Periyakalapu Lagoon) (Figure 25), which is situated within the Thirukkovil and Alayadivembu Divisional Secretariat divisions along the southeastern coastal belt of the Ampara District."

During the Northeast Monsoon (NEM), these systems discharge a considerable volume of freshwater into the lagoon. Local farmers note that this influx renders the lagoon water almost entirely fresh during peak flow periods. Conversely, during the Yala season, the streams dry up and the lagoon becomes highly saline.

Consequently, the surrounding thousands of acres of paddy fields suffer from a dual threat: freshwater inundation during the monsoon and saline water intrusion during the dry season. Because the terrain is exceptionally flat and sits just slightly above mean sea level, these coastal paddy tracts act as natural flood detention basins during peak monsoonal weeks. If a heavy storm coincides with the formation of sandbars that block the mouth of the Periya Kalapuwa, drainage water backs up, submerging thousands of acres of young paddy crops. Therefore, mechanically or manually breaching the sandbar at the lagoon mouth is critical to protecting the Maha crop from devastating waterlogging.

In addition to interventions at the sandbar, PID -East has constructed a continuous earthen bund approximately 1,500 meters in length along the lagoon margin to serve as a dual-purpose flood and salinity barrier, as illustrated in Figures 26 and 27.



Figure 26: The bund constructed at the margin of the Periya Kalapuwa (lagoon) paddy fields/kandams

This flood bund was established decades ago as a dual-purpose structure designed to prevent both freshwater inundation and saltwater intrusion into the paddy fields, while simultaneously serving as an agricultural access road. Over time, the height and the strength of the bund has degraded, and it can no longer function as an accessible road for farming activities. Consequently, the local

farmers have requested that the PID-East undertake the necessary rehabilitation and renovation works (Table 6).



Figure 27: The flood bund also serves as an agricultural access road; however, its structural integrity has dilapidated.

The lagoon and parts of the canal system within the paddy fields are infested with Eichhornia crassipes (Water Hyacinth) (Figure 28); however, no other aquatic invasive alien species (IAS) were observed. Similarly, no terrestrial invasive species were recorded in the area, which is dominated primarily by native coastal flora. Furthermore, no large trees remain within the project impact zone; therefore, no tree felling will be required for this intervention.

In terms of fauna, Asian elephants are the primary seasonal visitors to the area. Their movement is concentrated within the paddy fields rather than along the immediate coastal belt. No other major or critical wildlife species were identified within the immediate project impact zone.

Table 4: Renovation of Flood Bund and Access Road with necessary structure in Urakkaveli Kandam at Sangamam

No	Description of work	Unit	Qty
1.0.	**Improvements to New Flood bund Road to Urakkavely Kandam (St. 0+000 to 0+2300m)**		
1.1	Site clearing before construction	L/days	5.00
1.2	Stripping top soil to a thickness of 75mm and spoil to waste as directed by machinery.	Cum	1035.00
1.3	Trimming, levelling, and forming of road platform by 12 ft long motor grader, including compaction with a minimum 8.0-ton vibratory roller as directed.	Sqm	13800.0
1.4	Earthwork in excavation from the burrow area and filling in road, including compaction with a minimum 8.0-ton vibratory roller, watering, removal of roots, hauling up to 3 km by tractor, lift 0.00–1.50 m, complete	Cum	9660.00
1.5	Furnishing, placing & spreading gravel, including compaction with a minimum 8.0-ton vibratory roller for road by tractor (haul-12.0km)	Cum	1552.50
1.6	Cutting turf sods, loading to hand carts and transporting upto 30m, laying and watering for 30 days. (Royalty for turf, pegging and transport beyond 30m)	Sqm	2990.00
2.0. Construction of 3Nos. Concrete in cause way for the Water range out let necessary structure in Urakkaveli kandam (Stn. 0+665m & 0+903 &1410m)			
2.1	Common earth excavation in the construction area of the foundation by machinery. Up to 1.5m depth.	m^3	33.40
2.2	1:2:4: mass concreate in structure	m^3	33.40
2.3	Furnishing and making form work for each uses including fixing and removing	m^3	171.0
2.4.	Supplying and laying polythese under causeway concrete	m^3	171.0
3.0. Construction of RCC pipe culvert - Urakkavely Kandam			
3.1	Earth excavation in the construction area of the foundation by machinery. Up to 1.5m depth.	m^3	22.50
3.2	1:2:4: mass concreate in structure	m^3	6.85
3.3	Furnishing and making form work for each uses including fixing and removing	m^3	54.51
3.4	Furnish, lay & joint of 450 mm RCC pipes including excavation & backfilling	L. Mm	65.88

3.5	Furnishing and install 450 mm dia cast iron gate including all necessary components and lifting arrengement	item	
3.6	Tiding up the site		

According to the PID - East and local farmers, a significant volume of earthwork remains under the current contract. To assist with this requirement, three private landowners have volunteered to provide soil from their respective properties. All three landowners intend to level their lands following the soil extraction to clear and prepare the plots for future commercial development. But the PID-East will check for suitable of the soil for the indented work.



Figure 28: Inland edges of the Periya Kalapuwa Lagoon heavily infested with *Eichhornia crassipes*.

2.5. Construction of an Anicut/water control structure across a drainage canal/feeder canal of RB of the Kanchikudichchi Aru.

The PID-East has proposed the construction of a water control structure/an anicut across the feeder/drainage canal of the Kanchikudichchi Aru tank Right Bank (RB) canal system to effectively manage the water resources originating from the reservoir. Proposed activities are mentioned in Table 6 below.

Table 5: Water control structure for efficient water management in KanchikudichchiAru RB canal of Thambiluvil division in Ampara division.

Item No	Description of work	Unit	Qty
1.0	**Construction of a water control structure.**		
1.1	Common excavation in channel & spoilt to waste or fill material. Lift 0-1.5m (Haul 30m)	Cum	59.20
1.2	Earth excavation from the burrow and filling in the channel bund, including compaction, watering & picking up roots Haul 1 Km by farm tractor. Lift 0-1.5 m)	Cum	582.70
1.3	1:2:4: mass concrete in structure including pacing, compacting and necessary curing arrangement	Cu.m	101.4
1.4	Furnishing, cutting, bending and placing 10 mm, 12 mm dia. tor steel reinforcement in position	Kg	3469.7
1.5	Supplying and fixing of 75 mmx 75 mm x 6 mm mild steel angle iron	m	6.40
1.6	Supplying and fixing of “H” iron 8” x 4” 96 mm) with necessary cleats to housing props including 2 coats of anticorrosive painting	m	4.38
1.7	Supplying and fixing of steel gates as per type plan	Sq. m	1.8
1.8	Supplying and fixing of lifting arrangement to the above gates	Nos.	1.0

According to the PID - East, the construction of proposed structure /anicut as illustrate in Table 6, will enable the cultivation of an additional 250 acres of paddy and 80 acres of Other Field Crops (OFC) during the Maha season. Furthermore, during the Yala season, the improved water management will allow an extra 100 acres of land to be brought under cultivation.

This is the only site visited under the proposed activities where residential houses are situated adjacent to the paddy fields (Figure 29); specifically, there are three houses located within 200 meters of the boundary where the proposed structure will be constructed (Figure 29)



Figure 29: The only location with three houses

In addition to the above, this is the only site where *Mimosa pigra* (Giant Sensitive Plant) was observed. *Lantana camara* was also recorded along the canal embankments. No aquatic invasives are present along the canal.

An elephant fence has been established around the village by the Department of Wildlife Conservation (DWC). No large trees were observed along the access road or surrounding the paddy fields; therefore, no tree felling will be required under this contract. Furthermore, no wild animal sightings were recorded around the paddy fields, and elephant encounters are rare in this specific area.However, material transport to the construction site presents a logistical concern. Due to the lack of an established access road directly to the site (Figure 30), construction materials may need to be manually carried by laborers over a distance of approximately 100 meters.



Figure 30: The location proposed to establish an anicut across the canal of Kanchkudichchi aru

2.6. Construction of the Concrete Lining Channels and Agri Roads

Table 6: Concrete Channel System Cum Agricultural Access Roads and Concrete lining of canals in Sagamam Lower Basin in Ampara

Item	Description of work	Unit	Qty
1	**Construction of the Concrete Channel system cum Sammanthar Palamadu agricultural access road at stn.(0+000 - 0+300.0m)**		
1.1	**RB Channel system with 2 nos. of pipe culvert**		
1.1.1	Common earth excavation in the construction area of the foundation by machinery. Up to 1.5m depth.	m^3	39.00
1.1.2	Supplying and placing turf to the newly filled earth slope of the embankment, including transporting and watering till turf takes root as directed haul 1.00 km.	m^2	360.00
1.2.	**LB Channel system**		
1.2.1	Common earth excavation in the construction area of the foundation by machinery. Up to 1.5m depth.	m^3	39.00
1.2.2	**Construction of concrete road in Sammanthar Palamadu Agri-Access Road (Sta. .000 to 0+300 m)**		
1.2.1	Site Clearing before construction.	L/day	5.00
1.2.2	Common earth excavation in road surface & spoilt to waste or fill material lift 0-1.5 m (haul 30m) if use for refill use compaction, watering ect by machinery.	Cum	180.00
1.2.3	Trimming, levelling and compaction of original ground/subgrade to 95% std using motor grader, including compaction	Sqm	1200.00
2.	**Construction of the Channel system cum Chanaikandum North agricultural access road at stn. (0+500 - 1+083.0m)**		
2.1	**RB Channel system with 1 nos of pipe culvert**		
2.1.1	Common earth excavation in the construction area of the foundation by machinery. Up to 1.5m depth.	m^3	77.00
2.1.2	Allow for dealing with water during the construction using with submerge pump (3.0" Pump and 8.0 h/days)	Hrs.	50.00
2.1.3	Furnish, lay, and joint of 300mm Ø Hume pipes, including excavation and backfilling	Lm	4.88
2.1.4	Supplying and placing turf to newly filled earth slope of embankment, including transporting and watering till turf takes root. as directed haul 1.00 km.	m^2	699.60
2.2	**Construction of concrete channel system cum Paddimedu North and central kandam boundry agricultural access road (Sta. .000 to 0+300 m)**		
2.2.1.	Site Clearing before construction.	L/day	5.00
2.2.2	Common earth excavation in road surface & spoilt to waste or fill material lift 0-1.5 m (haul 30m) if used for refill use compaction, watering ect by machinery.	Cum	349.80

2.2.3	Trimming, levelling, and compaction of original ground/subgrade to 95% std using motor grader, including compaction	Sqm	2332.00
3	**Construction of the Concrete Channel system cum Paddimedu North and Central kandum boundary agricultural access road at stn.(0+000 - 0+300.0m)**		
3.1	**LB Channel system with 2 nos of pipe culvert**		
3.1.1	Common earth excavation in the construction area of the foundation by machinery. Up to 1.5m depth.	m^3	45.00
3.1.2	Furnish, lay and joint of 300mm Ø Hume pipes, including excavation and backfilling	Lm	9.76
3.1.2	Supplying and placing turf to newly filled earth slope of embankment, including transporting and watering till turf takes root. as directed haul 1.00 km.	m^2	360.00
3.2	**Construction of concrete road in Paddimedu North and Central Kandam boundary Access Road (Sta. .000 to 0+300 m**		
3.2.1	Site Clearing before construction.	L/day	5.00
3.2.2	Common earth excavation in road surface & spoilt to waste or fill material lift 0-1.5 m (haul 30m) if use for refill use compaction, watering ect. by machinery.	Cum	180.00
3.2.3	Trimming, levelling and compaction of original ground/subgrade to 95% std using motor grader, including compaction	Sqm	1200.00
4	**Construction of the Concrete Channel system cum Pavankai Anicut agricultural access road at stn.(0+000 - 0+300.0m)**		
4.1.	Common earth excavation in the construction area of the foundation by machinery. Up to 1.5m depth.	m^3	21.00
4.2	Supplying and placing turf to newly filled earth slope of embankment, including transporting and watering till turf takes root. as directed haul 1.00 km.	m^2	360.00
4.3	Site Clearing before construction.	L/day	5.00
4.4	Common earth excavation in road surface & spoilt to waste or fill material lift 0-1.5 m (haul 30m) if use for refill use compaction, watering ect. by machinery.	Cum	360.0
4.5	Trimming, levelling and compaction of original ground/subgrade to 95% std using motor grader, including compaction	Sqm	1200.0

2.6.1. Construction of Concrete Channel system cum Sammanthar Palamadu agricultural access road at stn.(0+000 - 0+300.0m) -Pavankai anicut access road - 7.16844° N, 81.81326° E

Every year during the Northeast Monsoon (NEM), a substantial volume of floodwater overflows the road illustrated in figure 32, causing severe structural damage. Consequently, the eroded soil must be replaced annually. Sourcing suitable borrow material locally is highly challenging because the entire surrounding area is under active paddy cultivation, making imported soil exceptionally expensive. Despite these conditions, this road serves as the primary access route for 550 acres of

paddy tracts. Tractors and other heavy agricultural machinery regularly utilize this route for cultivation and harvesting operations. To address this recurring issue, the farmers have requested that the PID-East concrete the most vulnerable 300-meter section of the road.

No trees will need to be removed, and the construction activities will pose no threat to the local fauna. However, given that the site is located along the Sagamam–Akkaraipattu road, material transport and unloading must be executed with utmost care. Furthermore, the handling and stockpiling of soil and cement must be strictly managed to prevent the sedimentation and contamination of adjacent water canals from construction runoff.

Further to the above, certain sections of the feeder canals adjacent to the agricultural road will also be constructed of concrete, as described in Table 7, Item 1.

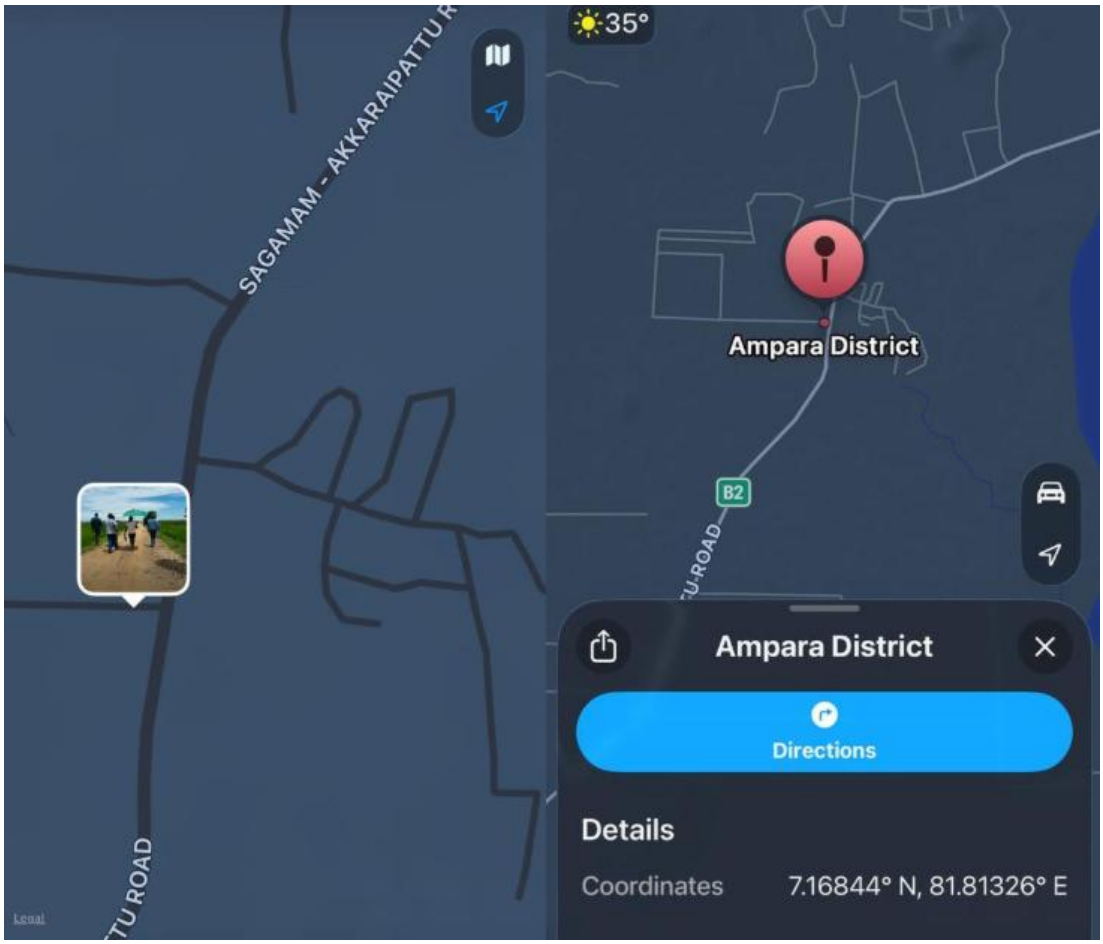

Figure 31: Location map of proposed Sammanthar Palamadu agricultural access road at stn. (0+000 - 0+300.0m)



Figure 32: A 300-meter section of the proposed road rehabilitation project, scheduled for concrete paving, running adjacent to the Sagamam–Akkaraipattu road.

2.6.2. Construction of the Channel system cum Chanaikandum North agricultural access road at stn. (0+500 - 1+083.0m)



Figure 33: The agri road to Chanaikandum North

The rehabilitation of 300 meters of the Right Bank (RB) channel system along the agricultural road (Figure 33) is proposed under this intervention, together with the rehabilitation of a 300-meter section of the agricultural road itself. The agricultural road, which serves more than 300 acres of paddy lands, is proposed for rehabilitation with concrete in areas most vulnerable to erosion during the Northeast Monsoon (NEM) period. The proposed works are detailed in Table 7, Item 2.

No trees will be removed under the proposed works, and materials will be transported along the Sagamam–Akkaraipattu road. Safe transport along public roads, as well as material unloading and placement, must be managed carefully to avoid disrupting farmers' access along the agricultural road and vehicle movements along the main road.

2.6.3. Construction of the Concrete Channel system cum Paddimedu North and Central kandum boundary agricultural access road at stn.(0+000 - 0+300.0m)

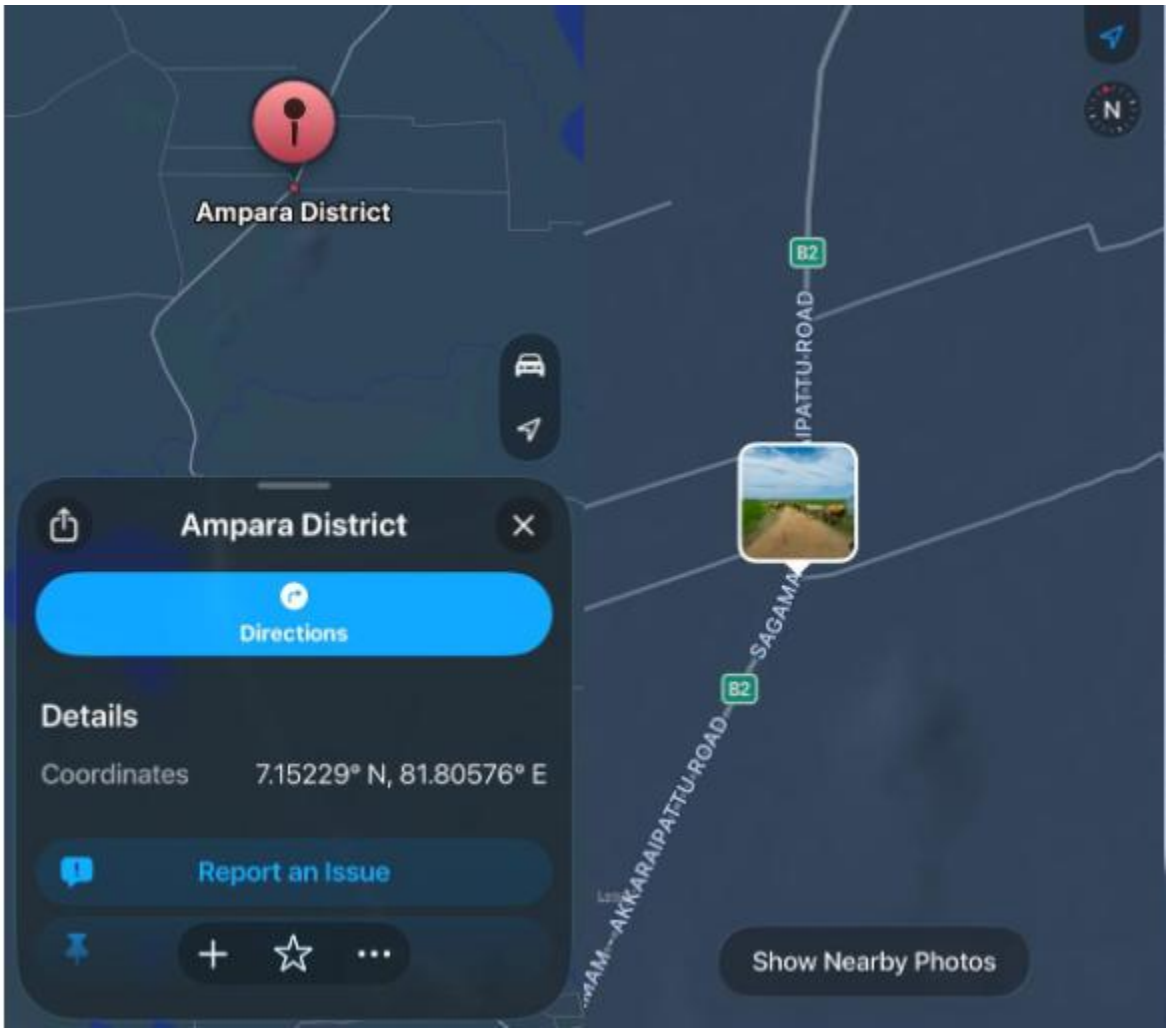

Figure 34: Location map of cum Paddimedu North and Central kandum boundary agricultural access road



Figure 35: cum Paddimedu North and Central kandum boundary agricultural access road

The agricultural road illustrated in Figure 35 and a 300-meter section of the canal system are proposed for concrete paving, given the severe erosion that occurs during the Northeast Monsoon (NEM) season. No trees will be removed for the intended works, and there is no wildlife present in the project area; elephant encounters are also extremely rare. Material transport will take place along the Sagamam–Akkaraipattu road. Haulage, unloading, and placement of materials must be managed carefully to avoid disrupting traffic or restricting access for main road and agricultural road users.

2.6.4. Construction of the **Concrete Channel system cum** Pavankai Anicut Access Road (Sta. .000 to 0+300 m)

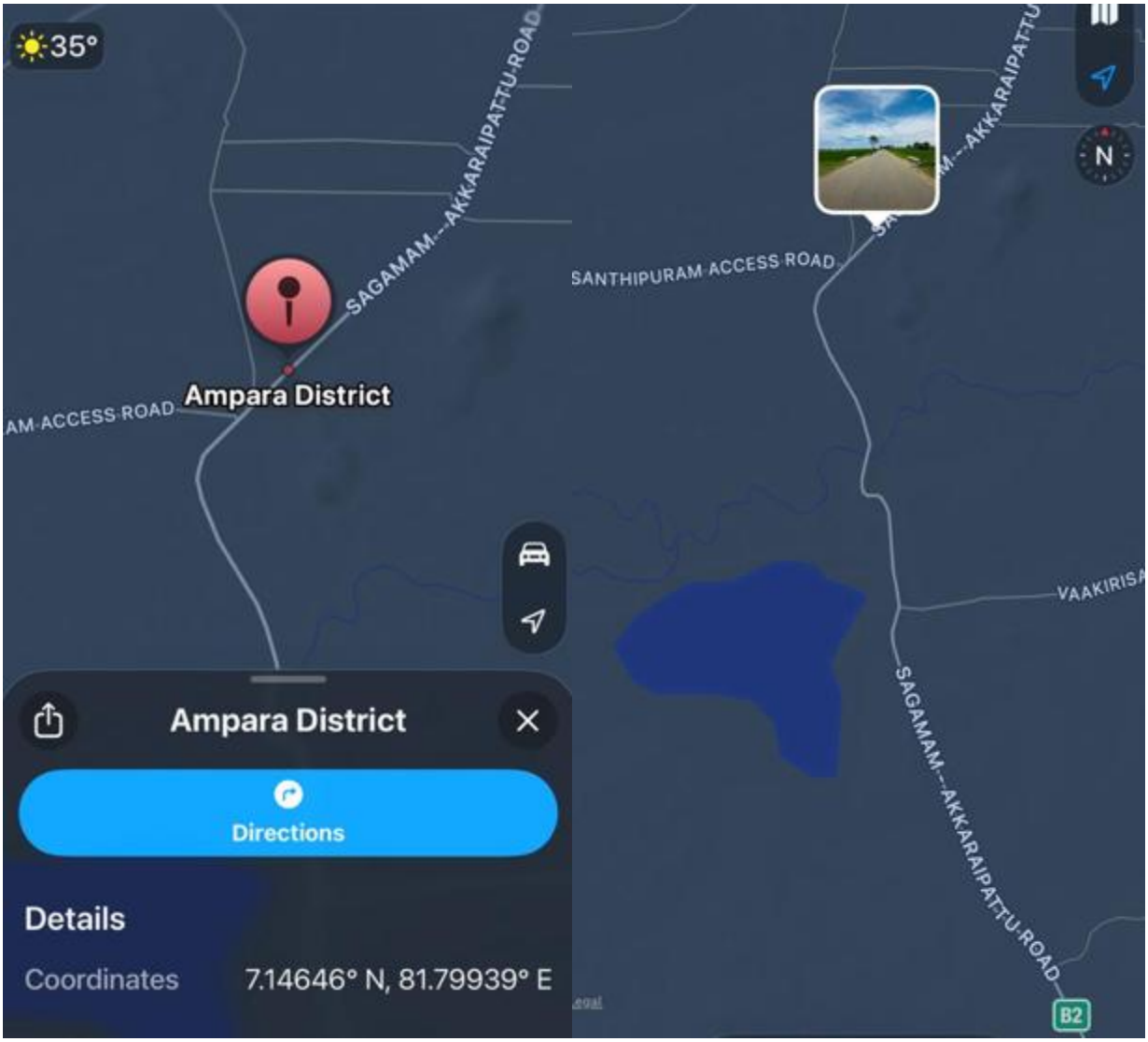

Figure 36: Starting location of the Pavankai Anicut Access Road

This route serves as the primary access road to the Panankadu Anicut (Figure 37). Every year, it sustains severe structural damage due to high-velocity flood flows during the NEM. The road spans two kilometers, providing vital transport access to both the anicut infrastructure and 550 acres of surrounding paddy fields. Due to budgetary constraints, concrete rehabilitation is currently restricted to the most critical 300-meter section of the road.

No trees will need to be removed, and wildlife encounters within the project area are unrecorded during daytime hours. However, elephants are occasionally present during the off-farming seasons. Additionally, no aquatic or terrestrial IAs were observed at the site.



Figure 37: Pavankai Anicut Access Road

3. Impact Matrix Code

Table 7: Impact Matrix Code

Risk Level	Nature of Assessment/Impact-Based Criteria	Mitigation Based Criteria
High Risk	The subproject will be classified as 'High risk' if: The sub project is expected to cause significant, severe, long-lasting, or permanent damage to the natural, physical, or social environment, cannot be mitigated or; ○ Sub-projects that involve significant conversion or degradation of critical natural habitats such as sensitive ecosystems (e.g., wetlands, primary forests, protected areas). ○ The effects extend beyond the project site, potentially impacting entire regions or even neighboring provinces. ○ The risks of the sub project are novel, complex, or the project involves specialized or hazardous processes that are difficult to manage. ○ Sub projects involving large-scale use of hazardous materials, significant air emissions, or large volumes of untreated industrial waste. ○ Sub projects that significantly alter major hydrological systems, such as large dams or barrages, which can affect river flow, aquatic biodiversity, and downstream comm**Concrete Channel System Cum Agricultural Access Road in Sagamam Lower Basin in Ampara** ○ unities. ○ Sub projects requiring the physical displacement or economic displacement (loss of land, assets, or access to resources) of a large number of people. ○ Sub projects impact on Indigenous Peoples/Vulnerable Groups ○ Sub projects that negatively affect the land, natural resources, culture, or livelihoods of Indigenous Peoples or other significantly vulnerable populations, often requiring Free, Prior, and Informed Consent (FPIC). ○ Major construction activities or infrastructure that poses severe risks to the health, safety, and security of surrounding communities (e.g., large-scale labor influx, major traffic hazards, or structural risks). ○ Destruction or significant damage to nationally or internationally recognized physical cultural resources or heritage sites.	Mitigation necessitates meticulous planning and the implementation of high-tech, costly design solutions. Even with such measures, residual effects are likely to persist.
Substantial Risk	The Subproject will be classified as a substantial risk intervention if it will directly lead to the following; ○ Activities that could lead to invasion or spread of weeds and feral animals or the use of toxic chemicals, intensive use of pesticides. ○ Activities that could dangerously lead to the exposure of sensitive/critical/vulnerable habitats.	Mitigation is feasible and effective, requiring only moderate

	○ Construction of large new infrastructure within or directly adjacent (in buffer zones) to protected areas. ○ Illegal Activities as defined specifically under the Forest Ordinance and Fauna and Flora Protection Ordinance. ○ Subprojects, those involve collection of seeds/farming materials from the wild. ○ Sub-projects that may impose changes in land use that restrict access to resources in legally designated parks or protected areas or other common property resources on which local people may depend for livelihood purposes. In addition, as per the screening the subproject will have a majority of large-scale E&S impacts that will cause irreversible damage to the environment and communities.	design-based and/or operational planning. Residual effects are expected to be nil, minor, or temporary in nature.
Moderate Risk	The subproject will be classified as 'Moderate risk' if: ○ The subproject will have a majority of reversible, small-medium scale E&S impacts, specifically limited to the civil works phase of the project that can be managed by site specific mitigation measures. ○ Require minor land acquisition or restrictions on land use, as a result of which there will be no significant impact on incomes or livelihoods. ○ Subprojects requiring adoption of Abbreviated Resettlement Action Plan (ARAP), Environmental and Social Management Plans (ESMPs) and or E&S Assessment and require further screening in line with the detailed technical designs of the respective subproject.	Mitigation is straightforward and low-cost, and it is expected to fully address the impact. No residual impacts shall remain.
Low Risk	A subproject will be classified as 'Low risk,' if: ○ The Subproject has low-negligible E&S impacts that can be managed via mitigatory codes of practice that will be defined as part of the contractual agreement/memorandums of understanding with project implementing contractors or operators. ○ The Subproject does not require any land acquisition or lead to any impact on incomes or livelihoods. ○ The Sub-project does not require formal E&S assessment, nor preparation of ESMPs and do not have identifiable negative E&S impacts.	No mitigation required or minimal preventive measures sufficient within O & M.

4. Screening

Table 8: Environmental Screening

No	Screening Questions	Yes/No	Scale of Impact	Remarks
1	Will the proposed project involve the **construction of new physical infrastructure or the rehabilitation of existing infrastructure**? Or; Will the project involve any of the following? (Select all that apply) **1.1.** Construction of new physical infrastructure (e.g., buildings, roads, anicuts, canals, sluice gates, pipelines *etc.*). **1.2.** Rehabilitation, expansion, or upgrade of existing physical infrastructure. **1.3.** Will the project activities involve changes to the original design levels of the headworks (Raise the height of tank bund? And/or raise the height or length of existing spill?) that could lead to the inundation of new areas within the catchment? **1.4.** Dredging of the tank bed and the subsequent disposal of dredged materials?	**1.1. Yes** **1.2. Yes** **1.3. No** **1.4. No** **1.5. ---** **1.6. Yes**	**Low Risk**	**1.1. New Works** New anicuts across water canals/streams **1.2. Canal Rehabilitation and Road Improvements** • General rehabilitation of canals. • Improvements to the existing agri roads • Bunds to prevent salt water/freshwater intrusion **1.6**.This mainly comprises excavated soil from construction activities, such as the proposed anicuts. The excavated material will be reused or distributed within the local area as guided by the Engineer, and shall not be transported outside of the site.

No	Screening Questions	Yes/No	Scale of Impact	Remarks
	1.5. If yes, will the dredged material be disposed of on-site or off-site?? **1.6.** Solid waste management:			
2	Will any of the planned improvements necessitate an artificial lowering of the reservoir's water level? * If the water level will be artificially lowered, please specify the anticipated duration and magnitude of the drawdown.	No	--	No reservoir/tank will involve with the proposed civil works.
3	If the water level will be artificially drawn down, please assess the potential impacts on: **16.1. Surface Water:** Will the draw down alter water flows in nearby streams, rivers, or canals, particularly during the dry season? **16.2. Groundwater:** Will the draw down affect the groundwater table or flow in local wells, especially during the dry season? **16.3. Ecology:** Is there a risk that this activity will affect the ecology of the tank bed or other important wetlands around and canal systems that depend on it? **16.4**. If a risk is identified, please describe the specific potential impacts on the ecosystem (e.g., impact on aquatic life,	**No**	--	

No	Screening Questions	Yes/No	Scale of Impact	Remarks
	changes to vegetation, effects on migratory birds and other fauna).			
4	Will the project cause localized flooding and/or poor drainage during construction?	**No**	--	No such impact is expected.
5	Will the construction and operation of the Project involve actions which will cause physical changes in the locality (topography, land use, changes in water bodies, *etc*.)	**No**	**--**	No such an impact is possible.
6	Will construction of the project cause soil erosion within the site due to steep grade or soil content?	**No**	**--**	The proposed **constructions (anicuts)** and **canal rehabilitation** work involve earthworks. However, the risk of significant soil erosion is considered minimal due to the following factors: • The construction design does not require steep embankment cuts. • The prevailing soil profile in the area is not predominantly sandy; instead, it consists of cohesive properties that are less susceptible to rapid erosion. • The construction schedule is aligned with the **dry season**. By avoiding periods of heavy monsoon rainfall, the potential for sediment runoff and water-induced erosion is significantly reduced.
7	Will the Project release pollutants or any hazardous, toxic or noxious substances to **7.1.** Air? **7.2**. Nearby surface or groundwater sources?	**7.1. Yes** **7.2. No** **7.3. No**	Low Risk	The project will generate temporary, localized emissions from the combustion of fossil fuels by construction equipment and project-related vehicles. However, these emissions will not be on a significant scale. Although dry periods can elevate dust emissions during soil disturbance, the overall impact is negligible due to the brief

No	Screening Questions	Yes/No	Scale of Impact	Remarks
	20.3. Soil?			duration and limited scope of construction. Furthermore, these activities will not release any long-term hazardous, toxic, or noxious substances. **20.2.** There are no groundwater sources along the project impact zone; no human settlements minimum within 2 km of proposed sites. Mainly the paddy fields exist for more than 100 of acres. Therefore, no such impact is expected.
8	Will the proposed activities cause **8.1**. Noise? **8.2**. Vibration? **8.3**. dust emission? **8.4.** Release of light? **8.5**. Heat energy? **8.6**. Electromagnetic radiation?	**8.1.** Yes **8.2**. Yes **8.3**. Yes **8.4.** No **8.5**. No **8.6**. No	Low Risk	Construction vehicle will generate noise and vibration, but impact on the local community will be negligible. There is no residential housing unit located within more than 1 km of the construction boundaries. hence, no noise & vibration-related disturbances to the public are anticipated during the construction phase.
9	Does the proposed location fall within or border any gazetted protected areas (PAs) designated by the Forest Department (FD) or the Department of Wildlife Conservation (DWC), Department of Archaeology or any other?	**No**	--	There are no, forest, wildlife or archeological PAs within the impact zones of the proposed sites.
10	Is the proposed project location known to contain any species protected under the Fauna and Flora Protection Ordinance, or any other sensitive species of fauna or flora? If yes, please provide details on the species and why they are considered sensitive (e.g.,	**Yes**	--	Elephants are frequent visitors around the proposed sites. Otherwise, no other fauna or flora within the project impact zone, since extended amount of paddy fields.

No	Screening Questions	Yes/No	Scale of Impact	Remarks
	critical for breeding, migration routes, *etc.).*"			
11	Will the proposed project activities cause negative effects on wildlife habitats, populations, corridors or movement?	**No**	**--**	The project area is identified as a Human-Elephant Conflict (HEC) zone, where elephants frequently encroach upon paddy lands during farming seasons. To mitigate this, local farmers have made alternative arrangements to protect their crops, including deploying watchers to guard the fields. To further safeguard the paddy fields during the cultivation periods, it is recommended to provide seasonal electric fencing that can be dismantled and stored away after each harvest.
12	Will the proposed project activities cause negative effects on impact on fish migration and navigation?	**No**	--	Such an impact is not expected.
13	Will the proposed project activities will cause increased risk of wildlife poaching and forest fires?	**Yes**	**Low Risk**	In fact, apart from elephants, wildlife is rarely seen in the area, even around the small canals. According to local farmers, wild animals are scarce, though crocodiles and water monitors are occasionally spotted in the canals.
14	Will tree felling be required for the proposed project activities? If yes, please provide an estimate of the number of trees to be felled and their species.	**No**	**--**	No trees shall be felled at the any of project site
15	Are there any areas or features of high landscape or scenic value on or around the location which could be affected by construction activity?	**No**		The project site is situated on a **flat terrain**, primarily characterized by **paddy cultivation**. no significant impacts on the natural environment or scenic value of the surrounding

No	Screening Questions	Yes/No	Scale of Impact	Remarks
				environment are anticipated or considered likely as a result of the proposed works.
16	Any invasive fauna or flora presents in the tank or surrounding area?	**yes**		In some canal segments, *Eichhornia crassipes* is present as an aquatic invasive species. Additionally, *Mimosa pigra* was observed at only a single location, while *Lantana camara* is present in the area but limited to a few scattered plants.
17	**Details of headwork structures and reservoir** • Bund Height: • Tank storage volume: Year of last rehabilitation:			Not applicable for the proposed structures
18	**Structural Integrity of Bund and Structures** 18.1. Has a structural assessment been done prior to the proposed rehabilitation? 18.2. Is the spill and tail canal large enough and clear of debris, trees, and sediment? 18.3. Are the spillway and the bund protected against erosion? Is there enough height between the normal water level and the top of the dam to handle unexpected rainfall?			Not applicable for the proposed structures
19	**Potential Losses of a Bund Failure** 19.1. Are there any houses and community buildings within the potential flood path downstream? If yes, please define. • Would a bund failure wash out roads, bridges, culverts? • Are there other tanks downstream that could fail in a cascade effect? Would a bund failure result in significant environmental or severe economic loss (e.g., to farmland, houses, roads, culverts)?			Not applicable for the proposed structures.

5. Screening Decision & Recommendation

Project Location and Scope: The proposed new constructions and rehabilitation works are located within established paddy farming areas in the Ampara District. The environmental screening process confirms that the project scope is primarily limited to downstream irrigation activities. These include:

- Constructing anicuts to regulate and efficiently divert water into paddy fields.
- Rehabilitating a flood bund (embankment).
- Rehabilitating feeder canals and agricultural access roads.

Based on the Environmental Screening, the findings are categorized and summarized below:

Social and Occupational Health and Safety

- **Standard Construction Risks:** The project involves standard construction-related occupational health and safety (OHS) risks, which must be managed through standard safety protocols and the mandatory use of Personal Protective Equipment (PPE).
- **Welfare Facilities:** Because most project sites are located away from human settlements, provisions for clean food, safe drinking water, and basic sanitary facilities must be provided for the workforce.
- **Wildlife Hazards:** Specific protocols will be implemented to mitigate risks from local wildlife, particularly to prevent snake bites and manage potential elephant encounters.

Physical Environment

- **Soil and Air Quality:** Minor, temporary soil erosion and localized dust emissions are anticipated during the construction phase, specifically during anicut construction and agricultural road development.

Biological Context

- **Protected Areas:** No protected areas, wildlife sanctuaries, archeological reserves or forest reserves were identified within or adjacent to the project's zone of influence.
- **Flora Impact:** No tree felling is required for the proposed works, and site clearance activities will be minimal.
- **Fauna and Human-Wildlife Conflict:** General wildlife presence in the immediate project area is low. While crocodiles inhabit the water streams, no attacks have been recorded historically. However, there is evidence of HEC in the broader region. During the farming season, farmers actively deploy management strategies to mitigate HEC.

Agricultural Continuity

- **Work Scheduling:** To prevent impacts on local farming activities, all civil works will be strictly scheduled during the dry season (post-Yala season) or during the fallow period between cultivation cycles.
- **Irrigation Security:** This synchronization ensures zero disruption to the active irrigation water delivery schedule.

Unidentified Explosive Objects:

- Although sub-project land areas have been officially cleared of landmines, a potential risk remains regarding Unexploded Ordnance (UXO) trapped in aquatic ecosystems. Specifically, canal segments may still contain hidden explosive remnants. Consequently, civil works involving excavation along canals/streams carry a residual risk of encountering UXO, necessitating contact relevant authorities and strict adherence to military or national mine-action safety protocols before any channel disturbance begins.

Conclusion and Recommendation

The activities proposed by the PID - East are not expected to cause significant or irreversible environmental damage. Anticipated impacts are minor, temporary, and limited to the construction phase. The project is recommended for implementation, provided that the standard mitigation measures outlined in the Environmental Management Plan (EMP) are strictly followed.

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6.: Environmental Management Plan

Table 9: Environmental Management Plan for the Proposed Works by the PID – East at the Pannal Oya

No	Potential Environmental Impacts	Key project activities causing the impacts	Mitigation Measures proposed and action to be implemented by the Contractor	Mitigation Cost	Implementation	Compliance Monitoring
1	Occupational Health and Safety: Risks to workers, particularly the potential for snake attacks during material transport, site access, and construction activities. Dehydration for workers.	**During the site access** **Material transport** **During the work** **Excavation for anicut construction**	1.1. Environment, Occupational Health and Safety Officer (EOHS Officer) shall be employed by the contractor covering the entire work program under this contract. He or she will be responsible for the daily implementation of EMP and SMP[7] (ESMP[8]). 1.2. Implement measures to prevent heat stroke and dehydration during the hot sunny days. Mandatory provision of **safe, clean drinking water accessible at all times**. It may schedule heavy work for cooler parts of the day (e.g., early morning). **Clean food shall be provided** for the workers at all times. 1.3. A **temporary workers' shelter** shall be constructed near the site to provide a rest area for the workers. 1.4. Possible risks of snake bites, insect attacks. -safety shoes and/or boots shall be provided for all workers, and their use is mandatory on the worksite to protect against snake bites, sharp objects, and other ground hazards. No one shall remain on the site after working hours. 1.5. First Aid and Emergency Response: In the event of an incident (such as a snake bite, insect attack, or any	Engineering cost[12]	Contractor	PID - EAST PMU

[7] Social Management Plan
[8] Environment and Social Management Plan
[12] Please quote the cost required to implement the necessary mitigation measures.

			other), a designated sentinel person trained in first aid and emergency response should be kept ready on site. Immediate Hospitalization Protocol: readily available facilities must be established on site for immediate hospitalization, ensuring rapid access to the necessary medical facilities. 1.6. Cooking shall not be allowed on the sites. However, if it is essential to make tea/coffee on site, the following procedure shall be followed. Select a location on bare soil, rock, or gravel, away from overhanging branches, dry grass, or fallen leaves. Create a fire buffer zone by clearing all flammable material (leaves, dry grass, twigs, *etc*.) down to the soil in a circle at least 10 feet (3 meters) in diameter around the fire site. Lay a ground cloth or large piece of foil/rock to protect the ground, then spread a layer of mineral soil, sand, or gravel at least 3-5 inches thick on top. Build the fire on this mound. The fire should be kept small to boil the required amount of water. No kerosene, diesel, or petrol is used to ignite the fire. Use only dead and downed wood that can be easily broken by hand. Never cut wood from standing trees (dead or alive). Gather wood from a wide area to minimize impact or bring it from outside. Keep extra firewood and flammable items well away from the fire buffer zone. Keep a bucket of water (or a large pot of water) and a shovel nearby at all times to quickly extinguish any embers or spreading flames. Never leave the fire unattended, even for a moment. A responsible person must be responsible for supervising the fire until it is completely out. Finally, allow the fire to burn down to fine white ash and small embers. Pour lots of water onto the fire, ensuring all embers, coals, and wood fragments are thoroughly			

			soaked. Do NOT use dirt to put out the fire, as it can smother the flames but insulate hot coals, allowing them to reignite later. Use a stick or shovel to stir the ashes and coals to ensure the water reaches the centre and bottom layers. Drown and stir repeatedly until the mixture is cool to the touch. (The ashes and pit must be cool to the touch before leave the site in the evening. Once completely cool, scatter the ashes and any unburned wood widely over the prepared area to further minimize impact. **1.7**. Ensure all equipment and vehicles are inspected, well-maintained, and operated only by certified and licensed operators. **1.8.** To prevent accidental falls and vehicle-induced collapses, all sites must be clearly demarcated. **Physical Barriers:** Use rigid barricades (e.g., scaffolding pipes or heavy-duty plastic fencing) at a minimum height of **1.1 meters** around the perimeter of the cut, as appropriate. **Warning Signage:** Post high-visibility "Deep Excavation" and "Authorized Personnel Only" signs at 10-meter intervals, as appropriate/if required. **Night Visibility:** All delineation zones must be equipped with solar-powered amber flashing lights to ensure visibility during low-light conditions or heavy rain. **Surcharge Loading:** No heavy machinery, excavated spoil, or construction materials shall be placed within **1.5 meters** (or a distance equal to the depth of the cut) from the edge of the excavation. **1.9. Elephant & crocodile Sentinel:** A dedicated **sentinel** (or lookout person) with local knowledge of elephant behavior and movement patterns must be hired. This person's sole responsibility is to monitor for			

			approaching **elephants and crocodiles** and alert the workers. **Early Warning System:** The sentinel should be equipped with a communication device (e.g., a horn, whistle, or mobile phone) to provide a clear and immediate warning to all on-site personnel. **Emergency Supplies:** A supply of **firecrackers** should be obtained from the DWC regional office under the recommendation of the PID - East[9]. These are to be used only in **emergency situations** to deter elephants and should be deployed by trained personnel. **Temporary Electric Fencing[10]:** If recommended by the DWC, a temporary electric fence shall be erected around the immediate work area. The fence must be clearly marked and powered by a low-voltage unit designed for wildlife deterrence. **No Harm Principle:** Under no circumstances shall any elephant be harmed, injured, or killed as a result of project activities. All personnel must be briefed on this non-negotiable principle **1.10. Traffic Management and Public Safety** **Site Access and Haulage** Construction materials will be transported via the Sagamam – Akkareipaththu road. As this is a transit corridor, the following protocols must be strictly enforced: • **Driver Briefings:** All drivers must be formally briefed on defensive driving techniques, strict adherence to national speed limits, and local traffic regulations. • **Scheduling:** To minimize congestion and risk, material haulage should be scheduled during **off-**			

[9] The selected bidder shall obtain the necessary administrative support from the Director of the PID - East.
[10] Required budget should be obtained under this EMP.

			peak hours (low traffic periods) whenever possible. **2. Safety on Agricultural Roads** Where agricultural access road renovations are carried out, the following safety measures are mandatory to protect famrers and infrastructure: • Signage and Awareness: Clear, high-visibility warning signs (e.g., "Construction in Progress," "Caution: Deep Excavation") must be installed at least 50 meters ahead of the work zone from both approach directions. • Night Safety and Perimeter Control: Any excavations remaining open overnight must be securely cordoned off using high-visibility reflective tape, orange safety cones, or barricades equipped with amber flashing lights to ensure visibility in low-light conditions. **1.11. Construction Material Management:** ▪ No stockpiling of excavated silt or construction materials on the road surface. Ensure the road remains clear for the passage of vehicles at all times. ▪ Identify a suitable area for temporary material storage near the tank where sufficient space is available, subject to the authority and approval of the PID - East. **1.12. Dust and Air Quality Control** **Water Sprinkling:** The contractor must implement regular water sprinkling on the dry canal banks and the road shoulder during active work hours to suppress dust, which can affect the health of villagers and visibility for riders. **1.13. Vehicle Maintenance:** Ensure that all machinery (backhoes, tractors) is well-maintained to prevent			

			excessive smoke emissions or oil leaks onto the public roadway. **1.14. Work Scheduling:** Coordinate with the local **Farmer Organization (FO)** to avoid construction during peak cultivation or harvesting times when vehicle movement (tractors/trailers) might increase temporarily. ***1.15.*** The Contractor shall note that the sub-project is located in a region previously affected by a military conflict. While terrestrial clearance has been completed, a residual risk of UXO/ERW[11] may remain within the canal beds and underwater silt. The Contractor shall strictly maintain continuous liaison with local military authorities, conduct safety briefings for the workforce, and implement the approved Chance Find Procedure. ***Suspicious / Unidentified Object Unearth*** ▼ 1. IMMEDIATE WORK STOPPAGE • Halt all heavy machinery and excavation instantly. • Turn off engines (vibrations can trigger sensitive fuses). ▼ 2. ISOLATION & SITE EVACUATION • Evacuate all workers and local bystanders immediately. • Cordon off a minimum 100-meter radius using red danger tape. • Mark the access path with clear "DANGER / MINE" warning signs. ▼ 3. FORMAL NOTIFICATION • Immediately contact the local Police Station. • Notify the closest Sri Lanka Army Camp / Detachment. • Inform the Project Engineer & Senior Environmental Specialist. ▼ 4. MILITARY SECURITY ASSESSMENT • Local Police and Army secure the perimeter.			

[11] **Unexploded Ordnance** and **Explosive Remnants of War**.

			• The Sri Lanka Army Humanitarian Demining Unit (HDU) or Bomb Disposal (EOD) Unit is dispatched to the site. ▼ 5. PROFESSIONAL NEUTRALIZATION / REMOVAL • Specialized EOD personnel inspect, defuse, or safely detonate the object in situ (on-site). • UNDER NO CIRCUMSTANCES touch, move, or bury the item. ▼ 6. SITE CLEARANCE & RESUMPTION OF CIVIL WORKS • Army/Police issue a formal safety clearance report. • Project Engineer issues written authorization to resume work.			
2	Biological Invasion: The risk of spreading invasive terrestrial and aquatic plant species.	Heavy vehicle/machinery movements cleaning/rehabilitation of canals, agri roads Material transportation.	2.1. None of the chance shall be kept to spread aquatic invasives or any other species to the canal segments. 2.2. All tools and machinery (machetes, shovels, vehicle tires, and boots) shall be cleaned before leaving the site. 2.3. Borrow material for agri road rehabilitation works to be brought from properly identified borrow pits and quarry sites; the sites should be inspected in order to ensure that no other form of invasive plant species is being carried with the borrow material. As much as possible, locate burrow sites within a radius of 10Km to the site.	Engineering cost	Contractor	PID - EAST PMU
3.	Accumulation and disposal of solid waste due to proposed activities.	Removal of vegetation. Solid waste from construction staff.	3.1. Disposal should be coordinated with the Department of PID - East and the local Farmer Organization (Govi Sanvidhana). 3.2. Always consider surrounding paddy fields. Ad-hoc dumping in one area can cause rapid pollution in the canal segments/next tanks in the area. 3.3. No labour quarters shall be allowed on site under this contract on or around the worksite due to elephant encounters. As well as no such places are	------	Contractor	PID - EAST

			available in the areas where worksites located. A suitable location shall be found by the contractor. 3.4. Reusable waste, shall be either resold or reused. 3.5. Any hazardous waste must be handled with special care and according to instructions from the local authority. 3.6. The contractor shall document all types and quantities of waste generated, including their removal from the site and their disposal locations, under the supervision of the TO - PID - EAST officer. 3.7. **Food waste must not be discarded** into the surrounding environment under any circumstances. All organic and food-related waste shall be collected in containers and **removed from the site daily**. Strict adherence to this protocol is mandatory to prevent the **attraction of elephants** and other wildlife to the work site, thereby minimizing the risk of human-wildlife conflict and ensuring the safety of personnel. 3.8. There should be no burning of wastes on site. 3.9. Workforce-related solid waste shall be removed from the site on a daily basis. 3.10. Any cleared vegetation shall be removed from the construction sites under the supervision of the PID - EAST before the commencement of proposed interventions in the bund. No debris shall be burned on the site. 3.11. All excess material should be moved immediately to a pre-identified disposal site away from the road drainage system to prevent clogging during rainy spells.			

4	Air and Noise Pollution: Impacts related to dust, noise, and vibration.	**Operation of equipment and machinery. Material storage and transport.**	1.1. Working time for noise/vibration generation activities should be restricted and carried out only from 7.00 am to 5.00 pm. 1.2. All equipment and machinery should be operated of noise not to exceed 75 dB (during construction) as practically possible. Regular maintenance of all construction vehicles and machinery to meet noise control regulations stipulated by the CEA in 1996 (Gazette Extraordinary, No 924/12). Due to urgent or unavoidable reasons, if the construction activities happen during the nighttime, it is necessary to maintain the noise level below 50 dB.	----	Contractor	PID - EAST
5	**Extraction of natural resources**	**Material (soil/earth/gravel) Sourcing**	5.1. The contractor shall source materials from pits/quarries that hold a valid Industrial Mining License (IML) or Artisanal Mining License (AML). Every load of sand, gravel, or soil transported to the site must be accompanied by a GSMB-issued Transport Permit. (Unauthorized transport is a legal offense). If purchasing from a third party, they must hold a Mineral Trading License. 5.2. Sourcing or purchasing of any material that is sourced from any protected areas and/or designated natural areas, is strictly prohibited. Materials cannot be extracted from within the statutory reservations of rivers, streams, or the tanks themselves (usually defined as 60m from a river bank and specific limits from the high-flood level of a tank) unless specifically approved for desilting. 5.3. The contractor is required to ensure that sand, aggregates (if required for this contracts), and other	-----	Contractor	PID PMU

			quarry material is sourced from licensed sources or the instructions given by the pond ownership (The Department of Agrarian Services). The contractor is required to maintain the necessary licenses and environmental clearances for all burrow and quarry material they are sourcing – including soil, fine aggregate, and coarse aggregate. 5.4. If the contractor uses a non-commercial burrow/quarry site or tank bed, the site should be remediated accordingly once material sourcing has been completed. Prior approval shall be taken from the Engineer – PID - EAST. For new borrow pits, under recommendation and approval of the PID - EAST, a **Restoration Plan** must be submitted to the PMU (or else should inform to the PMU for restoration plan). This includes plans for backfilling, slope stabilization, and replanting to prevent the pits from becoming breeding grounds for mosquitoes or safety hazards. 5.5. When there is a requirement, the contractor must submit in writing all relevant numbers and details of prerequisite licenses and their current status to the PID - EAST and/or the PMU. 5.6. To prevent accidents, borrow pits must be finished with slanted edges. This will reduce the danger to both humans and animals.			
6	**Exposing and damaging physical and cultural resources**	**Site preparatory work**	Upon discovery of physical cultural materials of Archaeological importance during construction work, the following shall be carried out; 6.1. Immediately stop the performing activity. (With the approval of the resident engineer, delineate the discovered site area.	Engineering Cost	Contractor	PID PMU

			6.2. Secure the site to prevent any damage or loss of removable objects. In case of removable antiquities or sensitive remains, a night guard should be present until the responsible authority takes over. 6.3. Through the responsible officer of PID - EAST, notify the responsible authorities, the Department of Archaeology, and local authorities within as soon as possible. 6.4. Submit a brief chance find report under the supervision of the PID - EAST officer, within a specified time period, with date and time of discovery, location of discovery, description of finding, estimated weight and dimension of PCR, and temporary protection implemented. 6.5. Responsible authorities would be in charge of protecting and preserving the site before deciding on the proper procedures to be followed. 6.6. An evaluation of the finding will be performed by the Department of Archaeology who may decide to either remove the Physical Cultural Resources (PCR) deemed to be of significance, further excavate within a specified distance of the discovery point and conserve on-site, and/or extend/reduce the areas demarcated by the contractor, etc. This should ideally take place within about 7 days. 6.7. Construction work could resume only when permission is given by the Department of Archaeology after the decision concerning the safeguard of the heritage is fully executed.			

7	**Soil erosion, sedimentation of paddy fields.**	**Construction work including, clearing surface vegetation** **Removal of top soil along the canal segments and farm road.**	7.1. Installing and maintaining erosion and sediment control measures, such as silt traps, to avoid sediment runoff into the tank and nearby lands and paddy fields, shall be done. 7.2. For any activity related to the construction, the excessive clearing of ground vegetation, or the removal of trees shall not be done. 7.3. Avoid stockpiling disposed material such as removed earth from canal rehabilitation works. Those shall be reused or disposed of appropriately as guided by the TO-PID - EAST. 7.4. All exposed soil areas shall be stabilized and re-vegetated as soon as possible on completion of works to prevent potential future erosion.	Engineering Cost	Contractor	PID
8	**Exposing and damaging physical and cultural resources**	**Site preparatory work**	Upon discovery of physical cultural materials of Archaeological importance during construction work, the following shall be carried out; 8.1. Immediately stop the performing activity. (With the approval of the resident engineer, delineate the discovered site area. 8.2. Secure the site to prevent any damage or loss of removable objects. In case of removable antiquities or sensitive remains, a night guard should be present until the responsible authority takes over. 8.3. Through the responsible officer of PID - EAST, notify the responsible authorities, the Department of Archaeology, and local authorities within as soon as possible. 8.4. Submit a brief chance find report under the supervision of the PID - EAST officer, within a specified time period, with date and time of discovery, location	---	Contractor	PID - EAST PMU

			of discovery, description of finding, estimated weight and dimension of PCR, and temporary protection implemented. 8.5. Responsible authorities would be in charge of protecting and preserving the site before deciding on the proper procedures to be followed. 8.6. An evaluation of the finding will be performed by the Department of Archaeology who may decide to either remove the Physical Cultural Resources (PCR) deemed to be of significance, further excavate within a specified distance of the discovery point and conserve on-site, and/or extend/reduce the areas demarcated by the contractor, etc. This should ideally take place within about 7 days. 8.7. Construction work could resume only when permission is given by the Department of Archaeology after the decision concerning the safeguard of the heritage is fully executed.			
9	Water Quality Degradation: water pollution stemming from construction materials and runoff.	**From the machinery, vehicles, and stores. Cement/concrete works.**	9.1. Fuel or lubricants shall not be stored anywhere on the site. 9.2. Store all oil and lubricant containers (including drums, tanks, and static plant equipment like generators) in a larger container. 9.3. Regularly inspect equipment, hoses, and storage containers for leaks, drips, or signs of wear. 9.4. Designate and use a safe area for vehicle and equipment fueling and maintenance that is away from the water body and surrounding forest patches. 9.5. If a contamination happens, use absorbent socks, granular absorbents, or temporary barriers to immediately surround the spill and prevent its spread.	Engineering Cost	Contractor	PID - EAST PMU

			9.6. Clean up the spilled area in an appropriate manner, and dispose of it appropriately under consultation with the Local Government Authority (LA - Pradeshiya Sabha). 9.7. Reporting to the PID - EAST and the PMU on the event should be performed.			