

## Annex-O:

Photographs Over-viewing around the Houses of the  
Target Population in the Attitude surveys



Utilization of River (Lower Bone River Improvement)  
in Kel. Bugis (Kotamadya Gorontalo)



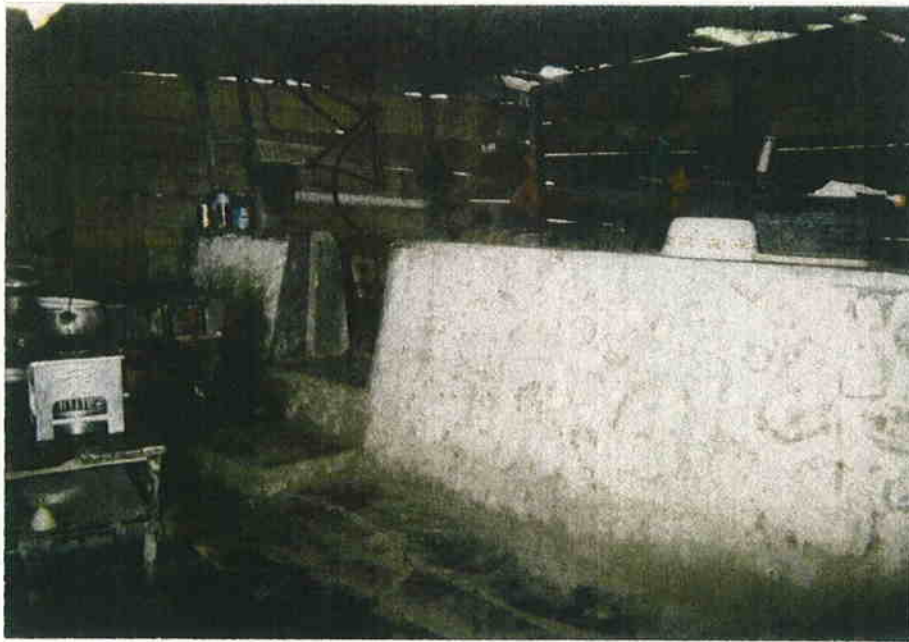
Temporary Structure in House  
(Stretch II Right, Lower Bolango River Improvement)  
in Kel. Siendeng (Kotamadya Gorontalo)



Aquaculture in River or Lake using Keramba  
(Stretch II Light, Lower Bolango River Improvement)  
in Kel. Biawao (Kotamadya Gorontalo)



Permanent-structured House  
(Tenda Shortcut, Lower Bolango River Improvement)  
in Kel. Tenda (Kotamadya Gorontalo)



Temporary-structured kitchen beside River  
(Stretch III, Lower Bolango River Improvement)  
in Kel. Molosipat W. (Kotamadya Gorontalo)



Graves of Family Members in House Premise  
(Tapodu River Improvement with Gate)  
in Desa Tualango (Kab. Gorontalo)



Mosque and Pekarangan around Existing Ditch  
(Tamalate Floodway)  
in Kel. Oluhuta (Kab. Bone-Bolango)



Bentor and the Provincial Authority Buildings under Construction  
in Kel. Botu (Kotamadya Gorontalo)

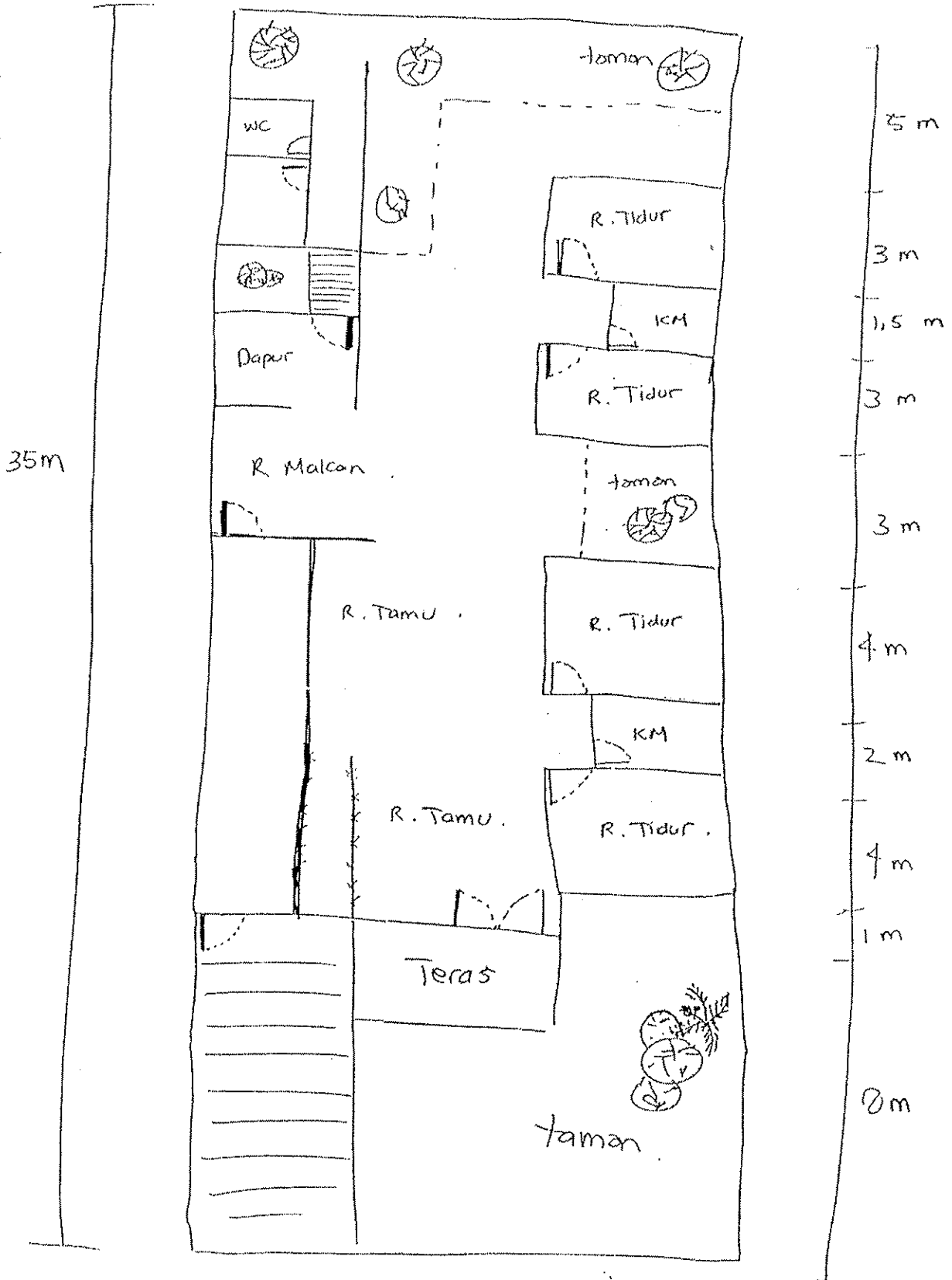
## Annex-P:

Some Sketches Showing the House or Community of the  
Target Population at Attitude Surveys

07

Kelurahan Tondq

(1) 能後保習者。位宅

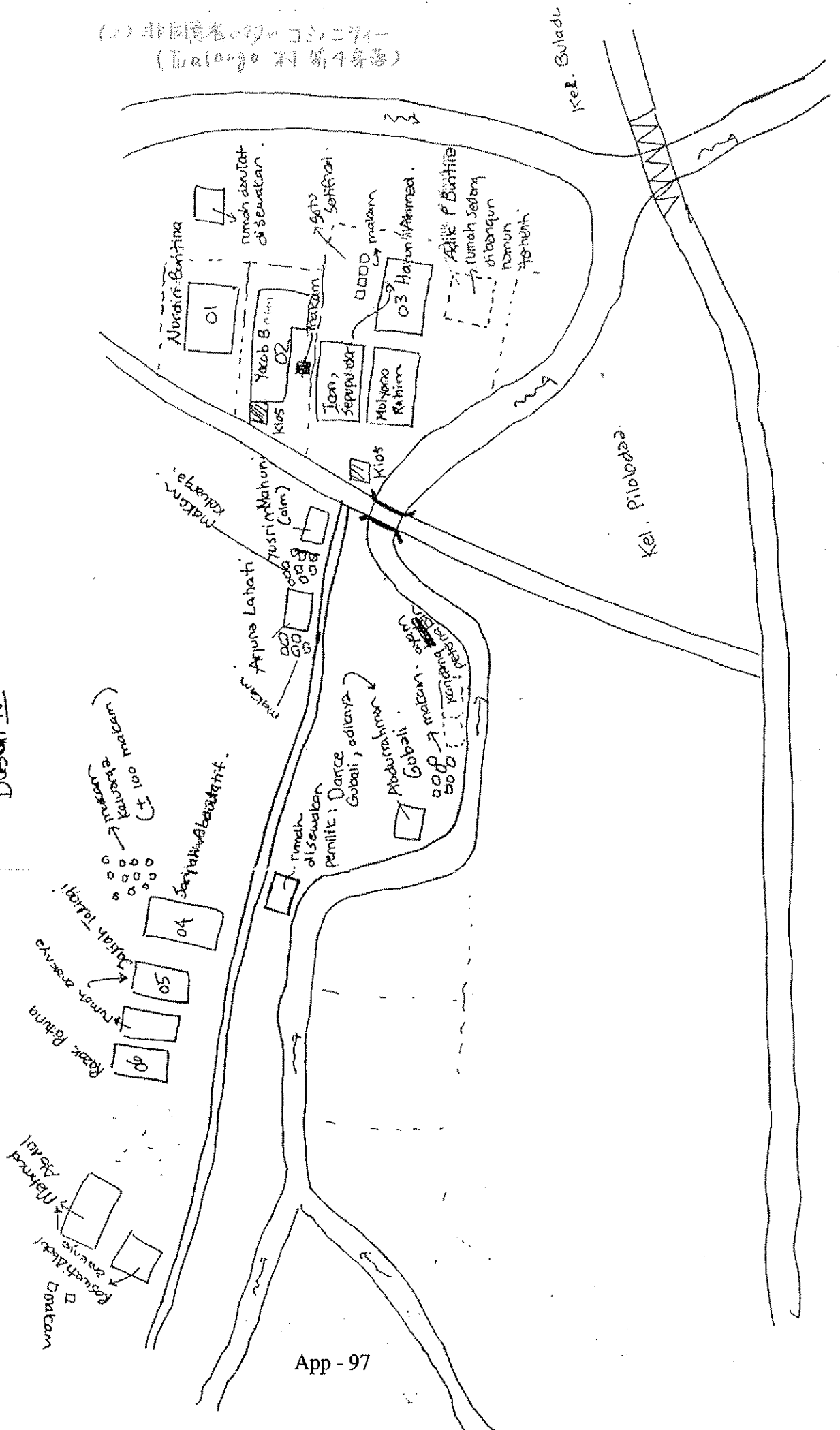


12,4 m  
App - 96

(2) 非同種者の移住の調査  
 (Tualang 村第4集落)

# DESA TUALANGGO

## Dusun IV





## Annex-Q:

Summary of Environmental Management and Monitoring Plans (RKL, RPL) concerning the Original Project Plan at the F/S stage

**Table 5.8.20 ENVIRONMENTAL MANAGEMENT PLAN ON NATURAL ENVIRONMENTAL COMPONENTS**

<i>Environmental component</i>	<i>Management objective</i>	<i>Management goal</i>	<i>Measure/Action for mitigation/enhancement</i>	<i>Evaluation criteria</i>
<b>1. Geology (erosion and groundwater and land subsidence)</b>	Erosion of river banks.	Keeping river banks being non-eroded condition.	Regular inspection and maintenance of river bank and supply of drinking water for affected households.	Same as Management goal.
	Well water	Prevention of inconvenience on drinking water supply.	Ditto	Ditto
<b>2. Land subsidence</b>	Land subsidence	Assurance of remedial measure for damage caused by land subsidence	Detection of occurrence of land subsidence phenomenon.	Ditto
	Water level of rivers and flood risks	Flood control for floods up to 20 year recurrence period.	Appropriate gate control at Tapodu gate.	Ditto
<b>3. Water regime</b>	Water level in Lake Limboto	Keeping the planned water level more than 4.0 m.	Appropriate gate control at Tapodu gate.	Ditto
	Wild plants and animals	No impacts on protected species.	Transplantation of protected species, if any.	Ditto
<b>4. Terrestrial flora and fauna</b>	Aquatic weeds (Macrophytes)	Prevention of overgrowing.	Keeping lake water level at constantly high (higher than 4.0	Ditto
	Eels and other migratory fish, if any.	Keeping fishing output as current status. /Assurance of compensation for damaged fishermen.	Keeping discharge possible enough for eel's migration and water quality in good condition in drainage channels.	Current fishing output of eels.
<b>5. Aquatic flora and fauna</b>	Other fish	Keeping fishing output more than current status.	Appropriate gate control at Tapodu gate.	Current fishing output./ Current aquaculture production.
	Air pollution caused by emission gas	Preventing health damage of nearby residents.	Keeping construction machinery and transportation vehicles in good condition by means of regular regulations./Keeping good driving manner.	Ambient air quality standards of NOx, SOx and CO, provided by Government Regulation No. 82/ Allowed dust concentration of 230 µg/m <sup>3</sup> , provided by Government Regulation No.41/1999.
	Dust	Keeping air dust in tolerable condition.	Keeping traffic rules and regulations./Keeping good driving manner.	Allowed noise level provided by Decree of Environmental Ministry No. 48, 1996.
	Noise	Keeping ambient noise level in tolerable condition.	Consideration of transportation routes, e.g. construction of Temporary exclusive road.	Water quality standards provided by Government Regulation No. 82, 2001.
	Turbidity and alkalinity in rivers and in Lake Limboto	Keeping turbidity in tolerable condition for daily water use.	Enclosure of construction site by sandbags for prevention of turbid water discharge.	Ditto
<b>6. Air Quality</b>	Alkalinity in rivers and in Lake Limboto	Keeping pH in tolerable condition for fish habitat.	Installation of on-site treatment pond of high alkali water.	Ditto
	Water quality of Lake Limboto	Keeping water quality in suitable for aquaculture.	Appropriate gate control at Tapodu gate./ Proper inspection and maintenance of sediment trap.	Ditto

**Table 5.8.21 ENVIRONMENTAL MANAGEMENT PLAN ON SOCIAL ENVIRONMENTAL COMPONENTS**

Environmental component	Management Element	Management goal	Measure/Action for Mitigation/Enhancement	Evaluation criteria
1. Resettlement	Land Acquisition	To minimize negative impact by resettlement on the affected residents	Respect the existing regulations regarding land acquisition, in order to determine fair and proper compensation conditions to all the affected residents. A combination of informal and formal approaches should be carefully designed and implemented.	(1) Keppress* No.55/1993 and Peraturan Menteri Negara Agraria/ Kepala BPN No.1/1994 (2) Keppress No.2/1993 and Peraturan Menteri Negara Agraria/ Kepala BPN No.3/1994. - Acceptance of compensation and conditions
	Land Acquisition	To minimize income loss caused by the project, of the affected residents To satisfy the people whose land is acquired by the project	Any loss of agricultural and fishery production should be taken into account to determine the amount and conditions of compensation, in direct consultation with the affected residents Provide alternative lands for continuing present activities	- The amount of compensation fairly determined by using NJOP**
2. Livelihood		To control tension among people concerned	Socialization to the affected people so as to avoid unrest	- Incident of people's unrest
	Recruitment of workers	To alleviate negative impact on income of the affected residents	Give priority of recruitment as worker in the project to the affected residents	- Recruitment of local affected residents
3. Local Population's (socialization)	Fishery promotion	To encourage growth and development of economic activity surrounding Lake Limboto	In collaboration with Dinas Perikanan: Establish Limboto Lake Spatial Plan allotting area for fish culture Training on fish culture Encourage the establishment of fisherman group	- Development of fish culture in Lake Limboto - Contribution of fishery to regional economy
	Dissemination activity (socialization)	To avoid people's unrest and resistance to the project	Socialization of the projects toward the people affected by the Tamalate Floodway, Tapodu Gate and Sediment trap construction, in order to improve the population's perception (level of acceptance) on the mentioned projects	- People's perception on the project (ref: Agree=68%, Not agree=23.1% as of June 2002)
4. People's mobility	Land Acquisition	To ease people's frustration	The amount and conditions of compensation should be fairly determined according to the agreement with land/house owners	- Acceptance of affected people on amount and conditions of compensation concluded
	Traffic conditions	To alleviate disturbance of people and vehicle's mobility and of usual function of market which is caused by project	Transportation schedule is to be carefully prepared taken into account the existing market at Pilolodaa, especially its peak periods and days of the market and surrounding traffic	- Incidence of traffic jam during construction stage
5. Access to waters	Accessibility to river and lake waters	To minimize disturbance of daily activities such as washing and bathing	Design dikes with path or stairs Individual consultation for those who suffer from difficult access to waters	- Constructed dikes - Case of individual consultation
	Accessibility to health services	Not to worsen people's access to health services, because of eventual relocation of health facilities/ personnel	Careful choice of project site in order to maintain existing health service If not avoidable, individual consultation for those who suffer from difficult access to health services	- Relocation of health facilities and personnel's residence - Case of individual consultation
6. Public health and Sanitation	Practice of waste dumping	To keep improved river streams and constructed Floodway clean	Regular investigation and cleaning of the Floodway by either local people or public service	- Situation around constructed structures (Tamalate Floodway, Tapodu gate, dikes, etc.)
	Construction waste	To avoid unorganized deposit of construction waste	Determine deposit places for each of construction sites and organize properly disposal of waste	- Situation of construction waste at project sites

\* Keppress (Presidential Decree); \*\* NJOP: (Nilai Jual Objek Pajak: Sold Value of Tax Object)

**Table 5.8.22 ENVIRONMENTAL MONITORING PLAN ON SOCIAL ENVIRONMENTAL COMPONENTS**

Environmental Component	Management Element		Monitoring plan		methodology *
	Phase	Monitoring parameter	Monitoring Sites	Frequency/ Period	
1. Resettlement	PC	Compensation (esp. its conditions)	Each project site and BPN	At every meeting of Land acquisition committee	- Progress of land acquisition processes
	PC	Compensation (esp. its conditions)	Each project site and BPN	At the conclusion of land acquisition process	- Progress of land acquisition processes - I (Land acquisition committee) - I (affected residents)
2. Livelihood	PC	Compensation (its amount & conditions)	Each project site and BPN	At the conclusion of land acquisition process	- same as mentioned in "1." above
	C	Recruited resettled residents	Each project site and contractor's office**	At the end of worker recruitment	- I+Q (recruited resettled residents)
	O/M	Fishery promotion	Lake Limboto, Dinas Perikanan	Annually	- Statistics Dinas Perikanan
3. Local Population's Opposition	PC	Incident of resistance	Village of incident	When people's unrest is observed and people's frustration expressed	- I+Q (villages at project sites)
	PC	Compensation (amount and conditions)	Each project site and BPN	At the conclusion of land acquisition process	- same as mentioned in "1." above
4. Traffic facilities	C	Crowdedness of traffic	Around Pilolodaa market and contractor's office	Before starting any construction work Once a month during construction stage, including the peak period of construction work	- FO - Number of complaints received
	PC		Each project site	At the conclusion of land acquisition process	- FO, I
5. Access to waters	C	Utilization of river and lake waters by residents	Each project site and contractor's office	When complaints are expressed	- FO, I (residents nearby) - Number of concerned complaints during construction stage - Record of consultation
	O/M		Each project site	One month after the completion of construction work	- I+Q (residents along rivers)
6. Public health and sanitation	O/M	Use of health service by affected people	Each project site and nearby health facilities	At the completion of construction works	- Statistics Dinas Kesehatan - I (health facility) - I+Q (people directly affected) - Record of consultation
	PC	Status of waste dumping by residents	Along Tamalate FW & concerned rivers	At the completion of land acquisition	- FO, I+Q (residents along concerned rivers)
7. Waste	C	Organization of waste deposit	Waste deposit for each project site & contractor's office	At the beginning, peak and end of construction work	- FO, I (Contractor)
	O/M	Status of waste dumping by residents	Along Tamalate FW & concerned rivers	One month after the completion of construction work	- FO, I+Q (residents along concerned rivers and Tamalate FW)

note: \* I: Interview; Q: Questionnaire; I+Q (...): Interview and questionnaire (target groups); FO: Field observation; FW: Floodway, \*\* contracted company for project

**Table 5.8.23 ENVIRONMENTAL MONITORING PLAN ON NATURAL ENVIRONMENTAL COMPONENTS**

<i>Environmental Component</i>	<i>Management objective</i>	<i>Phase</i>	<i>Monitoring Parameter</i>	<i>Monitoring Sites</i>	<i>Frequency/Period</i>	<i>Methodology</i>
1. Geology (erosion & sedimentation)	Erosion of river banks	O/M	Erosion point and magnitude.	Tapodu R., Bolango R., Bone R. and	After major floods when necessary.	On-site visual observation
	Well water	C & O/M	Well water level	Along Tamalate floodway and Tapodu river, and Siendeng Cutoff channel.	Once a month during and after the construction of Tamalate floodway, excavation of Tapodu river and Siendeng Cutoff channel. / Period of monitoring is to depend on monitoring result of early stage.	Manual measurement of well water level of local residents.
2. Groundwater and land subsidence	Land subsidence	C & O/M	Ground elevation (Altitude)	Ditto	Ditto	Survey of ground level elevation
	Water level of rivers and flood risks	O/M	Overflow point and Inundation area	LBB basin (Lower basin area)	After major flood when necessary.	On-site visual observation
3. Water regime	Water level in Lake Limboto	O/M	Water level	Lake Limboto and Tapodu gate	Daily for 5 years after completion of Tapodu gate.	Measurement on water gauge
	Wild plants and animals	C & O/M	Species designated as protected species.	Tamalate floodway and river widening	Before vegetation clearance.	On-site visual observation
4. Terrestrial flora and fauna	Aquatic weeds (Macrophytes)	O/M	Submerged and emergent plants.	Benteng Otanaha and other viewpoints.	Several times a year. / Up to 5 years after the construction of Tapodu gate.	Photograph taking and visual observation.
	Eels and other migratory fish, if any	O/M	Fishing output of eels	Market and each fishermen	Every day.	Report from each fishermen
5. Aquatic flora and fauna	Other fish	O/M	Eels' migration	Tapodu river and drainage channels.	Twice a month for 1 year before and after the completion of Tapodu gate.	Setup of eel trap on Tapodu river and drainage channels.
	Air pollution caused by emission gas	O/M	fishing output from Limboto	Market and each fishermen	Regularly, e.g. once a week.	Report from each fishermen
6. Air Quality	Dust	C	NOx, SOx, CO	Kec. Limboto, Telaga and Kabila. Kola Barat, Selatan and Utara	Once at peak period of each construction work on Alo R., Pohu R., Biyonga R., Tapodu R., Bolango R., Bone R., Tamalate floodway, Tamalate weir and Tapodu gate. / 9 points * times in total.	Sampling and laboratory test
	Noise	C	Dust Concentration	Utara	Regularly, e.g. once a week.	On-site survey using noise level meter.
7. Water Quality	Turbidity and alkalinity in rivers and in Lake Limboto	C	Noise Level	Lake Limboto, Alo-Pohu R., Biyonga R., Tapodu R., Bolango R., Bone R., Tamalate R.	Once at peak period of each construction work on Alo R., Pohu R., Biyonga R., Tapodu R., Bolango R., Bone R., Tamalate R., Tamalate floodway, Tamalate weir, Tapodu gate and Sediment trap. / 10 times in total.	Sampling and laboratory test
	Alkalinity in rivers and in Lake Limboto	C	TSS, Turbidity	Lake Limboto, Alo-Pohu R., Biyonga R., Tapodu R., Bolango R., Bone R., Tamalate R.	At 3 points and 2 times a year, i.e. in rainy season and dry season, 5 years after completion of Tapodu gate. / 6 points * times x 5 year = 30	On-site survey using pH meter.
7. Water Quality	Water quality of Lake Limboto	O/M	pH	Lake Limboto	At 3 points and 2 times a year, i.e. in rainy season and dry season, 5 years after completion of Tapodu gate. / 6 points * times x 5 year = 30	On-site survey and Sampling and laboratory test.
	Water quality of Lake Limboto	O/M	pH, DO, BOD5, COD, TSS, Coliform	Lake Limboto	At 3 points and 2 times a year, i.e. in rainy season and dry season, 5 years after completion of Tapodu gate. / 6 points * times x 5 year = 30	On-site survey and Sampling and laboratory test.

\* C: Construction phase, O/M: Operation and Maintenance phase.

## **Annex-R:**

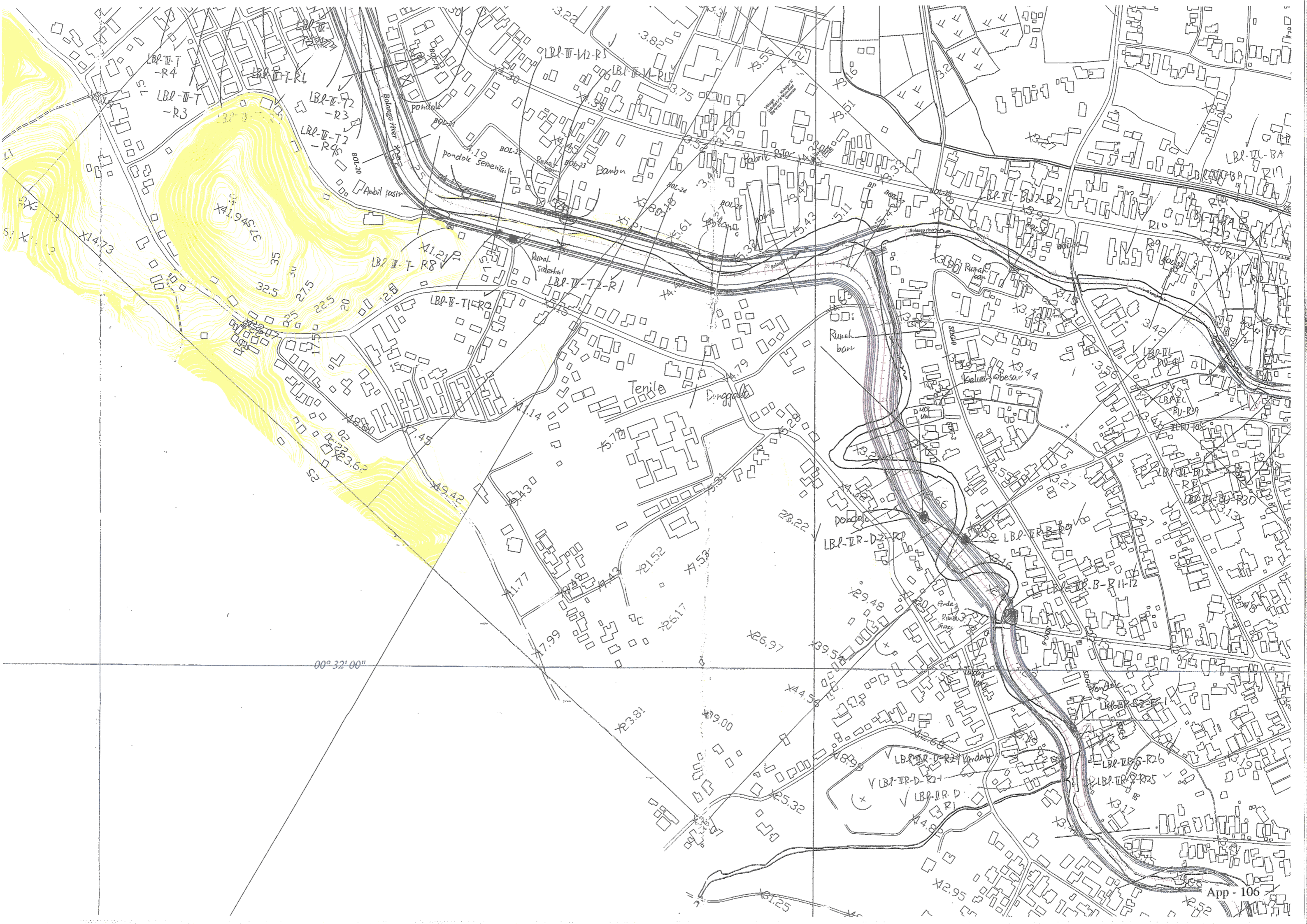
Location Maps of the Current Houses Potentially Affected  
by the Modified Project (the modified project plan  
proposed at the Follow-up Stage)

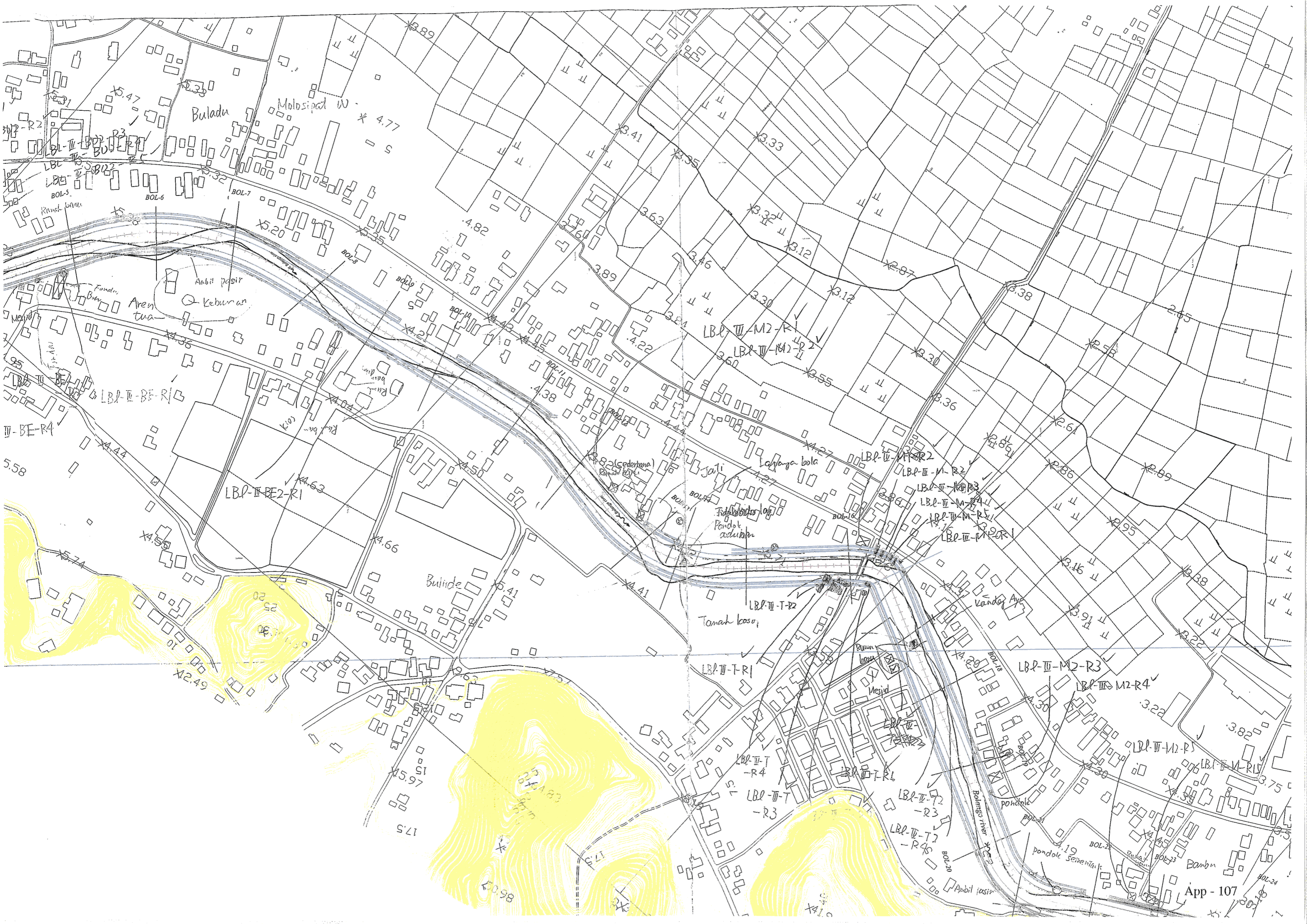


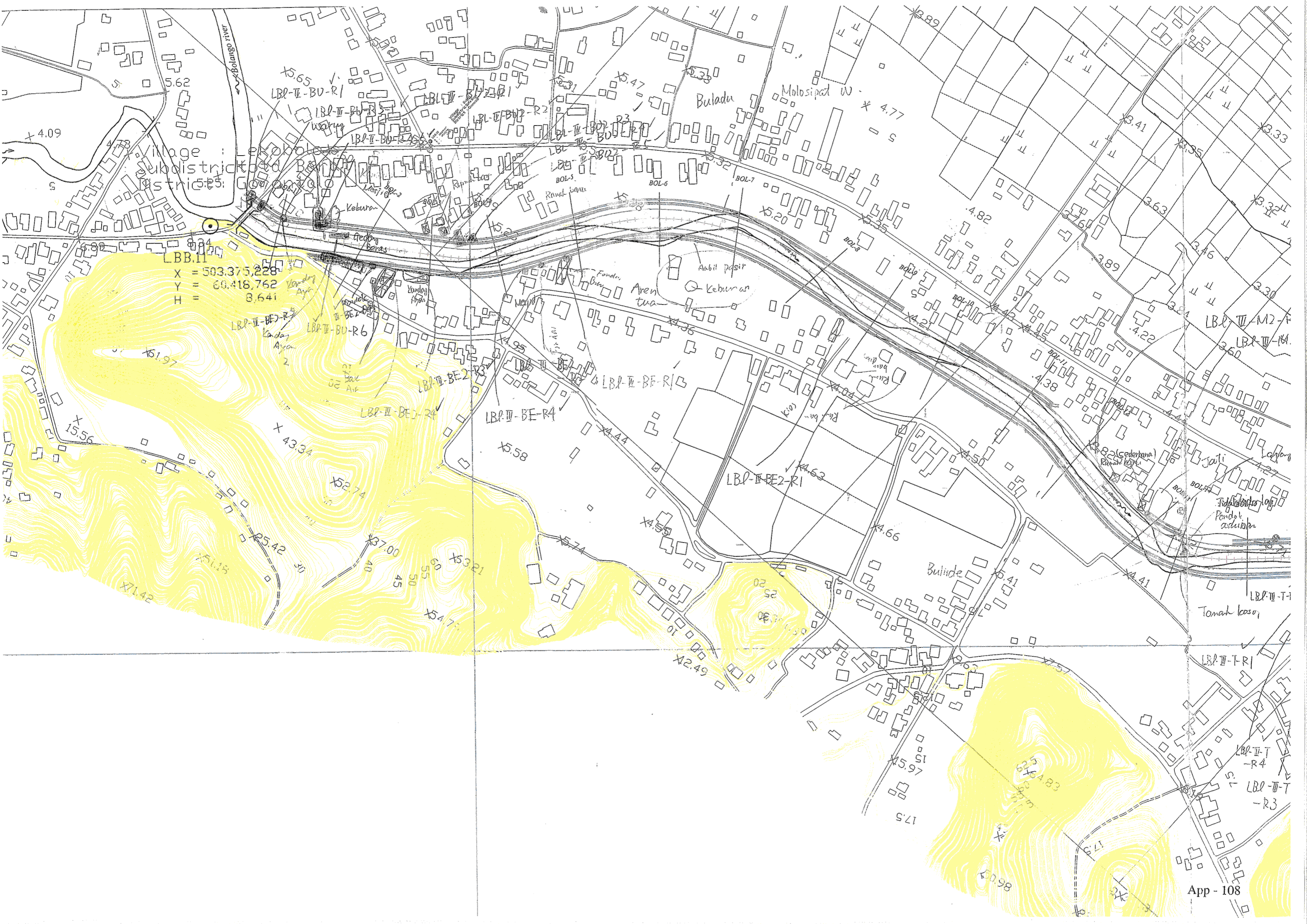


LBB-07  
X = 506,474,398  
Y = 59,606,026  
H = 3,792











Cabang S. Tamalatic  
 Irigasi Arama

Kp. Po'owo Dalam

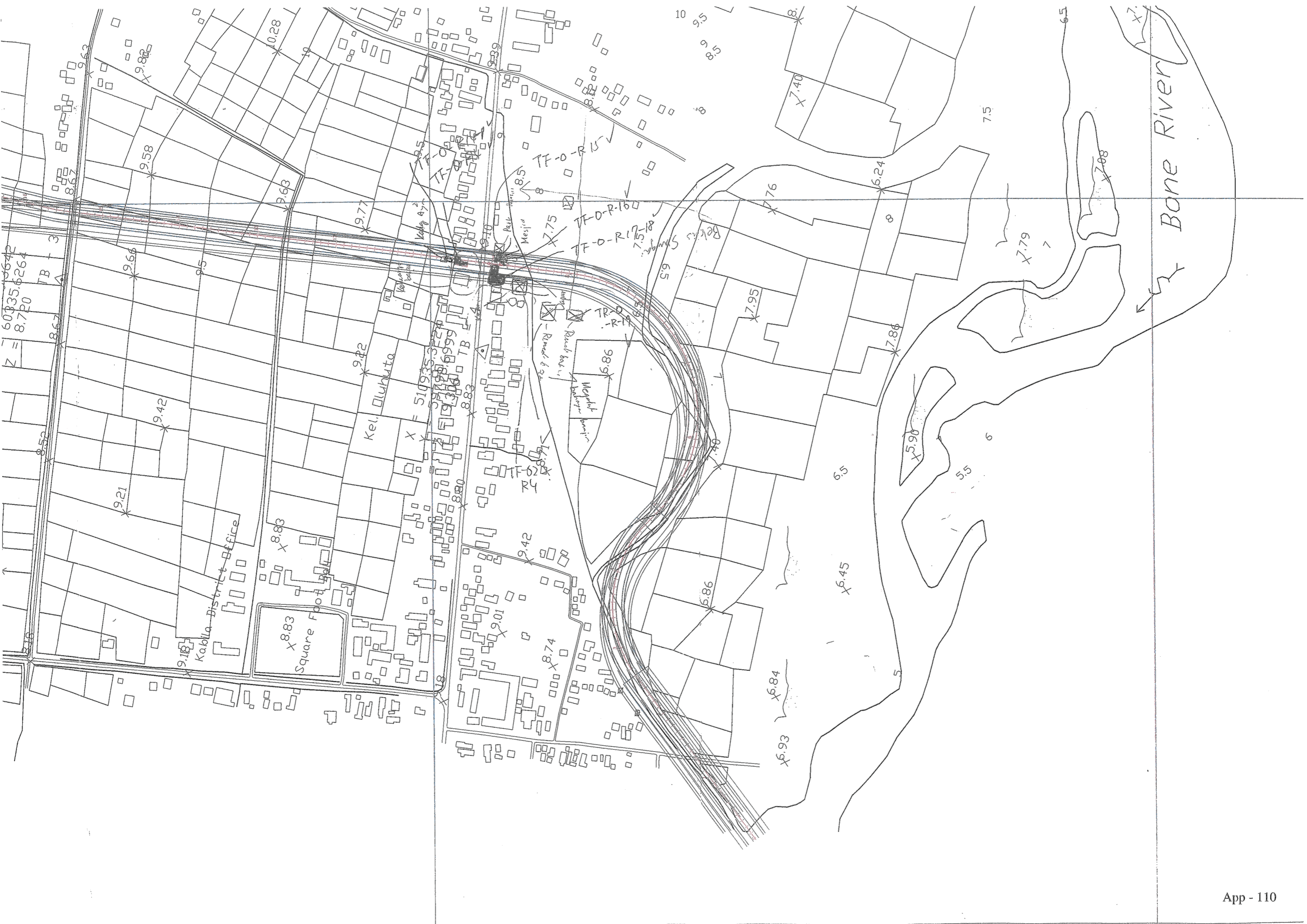
pembuagan irigasi

Powoo  
 Oluhutaa

Tam1+9L  
 X = 511514.3287  
 Y = 61830.4831  
 Z = 9.239

X = 511052.6811  
 Y = 60906.1498  
 Z = 9.064

X = 511029.3642  
 Y = 60335.6264  
 Z = 8.720



Kaballa District Office

8.83  
Square Foot

Kel. Oluhuta

Mesjid

Bone River

Z = 60335.6642  
8.720