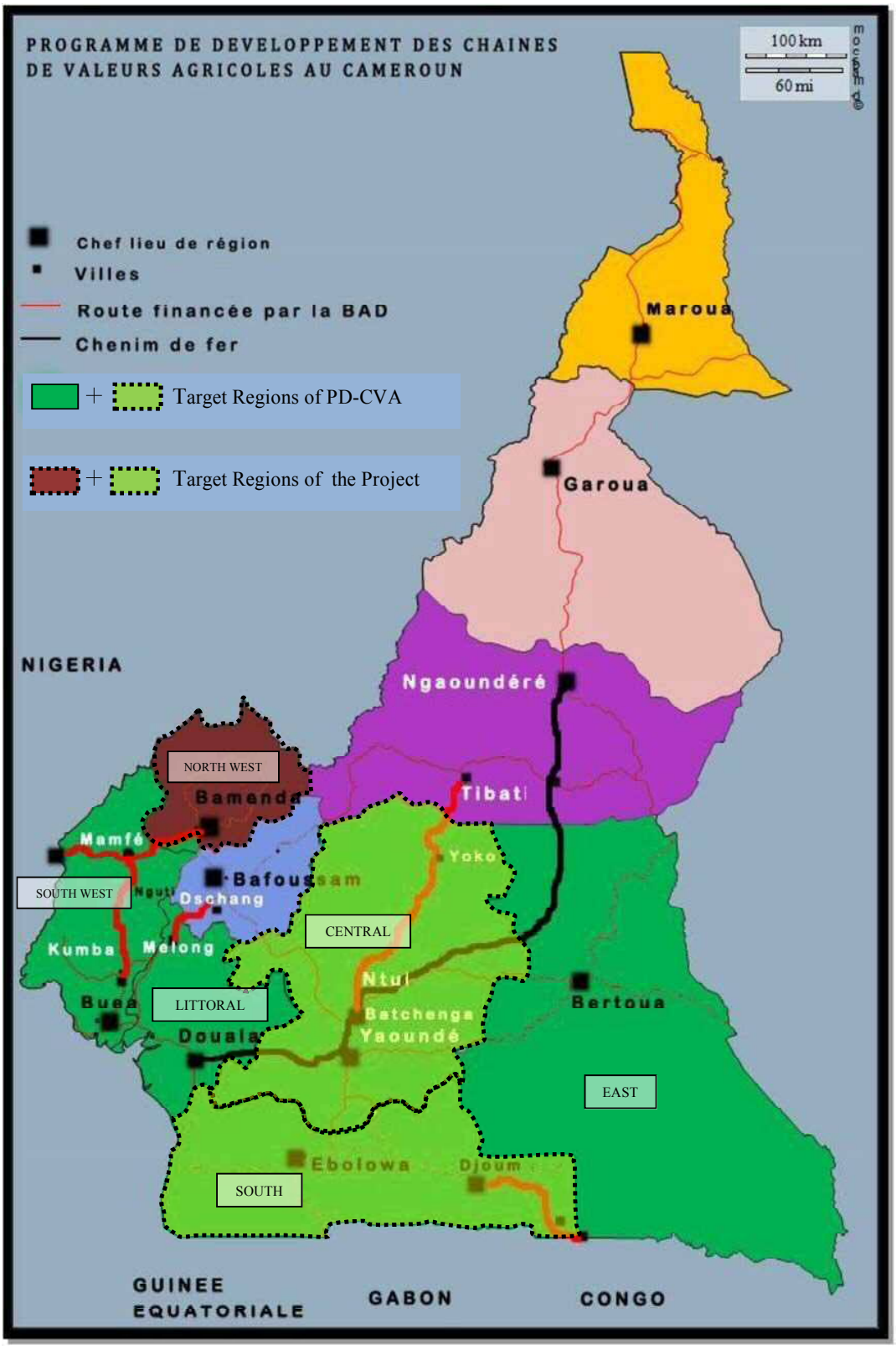
Annex

Target Region of PD-CVA (AfDB) and the Project



Target 5 Regions of PD-CVA and Target 3 Regions of the Project

Note: The area painted with lime green (CENTRAL and SOUTH) is a common target Regions of both PD-CVA and the project.

List of Construction Companies in Cameroon

LIST OF CONSTRUCTION COMPANIES IN CAMEROON

A		A Class Road Construction	8	
B		B Class Road Construction	34	48
		B+ Class Road Construction	14	
-	no color	Others (Building Construction Companies and so		

Note: Only road construction companies are colored and classified

No	Name of Company	Abbreviation	Location	BP	TEL (+237)	FAX (+237)	Email	Website
1	ADDAX PETROLEUM CAMEROON LTD		DOUALA	4023 DOUALA	33437318 / 33437319	33437317		www.addaxpetroleum.com
2	AGENCE SPECIALE DES SERVICES	ASSERS	DOUALA	15099 DOUALA	33011398		assersarl@yahoo.fr	
3	AGRI - CONSEILS SARL	AGRI - CONSEILS	YAOUNDE	1241 YAOUNDE	22013294 / 22036601			
4	ALL BUIDING	BUILDING COMPANY	DOUALA	8322 DOUALA	33410744 / 77264273	33404239		
5	ALL PRO UNITED SARL		DOUALA	12554 DOUALA	33424426	33423313		
6	ANDRADE GUTIERREZ CAMEROUN	AG	YAOUNDE		22226375			
7	ARAB CONTRACTORS CAMEROON LTD		YAOUNDE	14717 YAOUNDE	22013306 / 22202511			www.arabcont.com
8	ASQUINI-ENCORAD	AE	DOUALA	1033 DOUALA	33370601 / 33371866	33376796	asqenc@voila.fr	
9	AZEBER BTP SARL		DOUALA	9556 DOUALA	33411235			
10	BATI SERVICE		DOUALA	5741 DOUALA	33421169 / 77504383	33433319	contact@batiservice_cemac.com	
11	BATIMENTS TECHNIQUES SERVICES	BATEC'S	YAOUNDE	11731 YAOUNDE	22212551			
12	BETON CONSTRUCTION SARL		DOUALA	12539 DOUALA	33411939			
13	BOKAS SARL		YAOUNDE	3565 YAOUNDE				
14	BTP CAMEROON		DOUALA	1210 DOUALA	77599327	77599327		
15	BUILDING AND ROOFING INDUSTRY OF CAMEROON	BRIC	DOUALA	12093 DOUALA	33391777 / 77788558	33391778	kaviviane@yahoo.fr	www.bric-cameroun.com
16	CADEK SARL	CADEK	DOUALA	4042 DOUALA	33438971	33430886	cadek@camnet.cm	
17	CAM TRDE BUREAM SA - GROUPE FOURE LAGADEC	CTBSA	DOUALA	3530 DOUALA	33430108 / 99000827	33430158	secret@cantradebureau.com	
18	CAMEROON BUILDING AND BUSINESS	CBB	YAOUNDE	4824 YAOUNDE	22231149 / 22232862	22232862		
19	CAMEROON BUSINESS CENTER	CBC	GUIDER	160 GUIDER				
20	CAMEROON TAPOMO COMPANY SARL	CAMTACO SARL	YAOUNDE	4723 YAOUNDE				
21	CAMEROUN TRAVAUX MARITIMES SARL	CTM SARL	DOUALA	897 DOUALA				
22	CENTRALE D'ACHAT DU SUD	CAS SARL	YAOUNDE	6710 YAOUNDE	22230291			
23	CENTRALE D'ETUDE ET TRAVAUX PUBLICS	CETP SARL	YAOUNDE	15094 YAOUNDE	22233671			
24	CENTRE DE REALISATION ET D'ETUDES EN BAT	CREBAT SARL	DOUALA	2538 DOUALA	33412168			
25	CENTRE DES ETUDES DE ROUTES, BTP	CERBAT SARL	YAOUNDE	13258 YAOUNDE	22313712			
26	CETRA BPT SARL		YAOUNDE	15084 YAOUNDE				
27	CG COC CAMEROON LTD		YAOUNDE	11608 YAOUNDE	22200307			
28	CHANTIER 9 CAMEROUN		DOUALA	15189 DOUALA	33011514	33375526	ch7ngako@yahoo.fr	
29	CHANTIER MODERNE DU CAMEROUN	CMC SARL	BAFOUSSAM		33442533			
30	CHANTIER NAVAL ET INDUSTRIEL DU CAMEROUN	CNIC	DOUALA	2389 DOUALA	33401560 / 33403488	33406199	cnic@cnicyard.com /enquiries@cnicyard.com	www.cnicyard.com
31	CHINA ROAD AND BRIDGE CORPORATION	CRB CCO	DOUALA	6532 DOUALA	77137136			
32	CIE AFRICAINE DE CONCEPTION & CONST. EN	CACOCO BTP SARL	YAOUNDE	5787 YAOUNDE	22205264			
33	CIE FORGEL CAMEROUN SARL	FORGELCAM	DOUALA	6650 DOUALA				
34	COGETRA RB SARL	COGETRA RB SARL	YAOUNDE	916 YAOUNDE	22225059			
35	CONSTRUCTION AND MAINTENANCE OFBUILDINGS	CAMBUILD SARL	DOUALA	18805 DOUALA	33436304		cambuild@yahoo.fr	
36	COTRAM SARL	COTRAM SARL	DOUALA	790 DOUALA	99918184		hs_wamal@yahoo.fr	

37	CROISIERE BTP SARL		YAOUNDE	13461 YAOUNDE	22213288 / 99893738			
38	DIK'S BUSINESS GROUP		YAOUNDE	3546 YAOUNDE				
39	ETS SUBLIME PORTE CA		YAOUNDE	2266 YAOUNDE	22013110			
40	DTP TERRASSEMENT	DTP TERRASSEMENT	YAOUNDE	12880 YAOUNDE	22210465 / 22210467	22210466	j.austernaud@bouygues - construction.com	
41	E & T ENGINEERING SARL		DOUALA	8588 DOUALA				
42	EBENE SAL	EBENE SARL	DOUALA	12623 DOUALA	33436577			
43	EBTP		YAOUNDE	14426 YAOUNDE	99921211			
44	EDAUCE ELEC SARL	EDAUCE ELEC SARL	YAOUNDE	4480 YAOUNDE	22226967			
45	EDIL - CAM SARL	EDILCAM SARL	DOUALA	2194 DOUALA	33422224			
46	EDOK ETER CAMEROUN SA		DOUALA	1858 DOUALA	33426927 / 33422908	33432792	edoketer@yahoo.fr	
47	EFO BTP SARL		YAOUNDE	670 YAOUNDE	22219726			
48	EGTBP SARL	ABDOU BABA	MAROUA	404 MAROUA				
49	ENTREPRISE CAMEROUNAISE D'ISOLATION	E C I SARL	DOUALA	15255 DOUALA	33426691	33422859	ecisarl@yahoo.fr	
50	ENTREPRISE MODERNE DE GENIE CIVILE SARL	EMOGEC SARL	DOUALA	11559 DOUALA	33405624	33405624		
51	ENTREPRISES CAMEROUNAISE DE TRAVAUX D'EL		BAFOUSSAM	43 BAFOUSSAM	33441504			
52	ERNO GENERAL CONTRACTOR	ERNO G.C.	DOUALA	12952 DOUALA	33421732 / 33421735	33434170	ernoauto@yahoo.fr	www.erno gc
53	ESSOMBA ROGER	ETS EMBRIG	YAOUNDE	20184 YAOUNDE				
54	ETABLISSEMENT SOGERA/TELKOM MOUALA	SOGETRA/TELCOM	DOUALA	5681 DOUALA	33439145	33439145		
55	ETIENNE ENTREPRISE	TOMBEL		118 TOMBEL				
56	ETS FAIR PLAY	MME NGOU NEEKEMO EMI	YAOUNDE	10027 YAOUNDE	77702827			
57	ETS FOTSO RENE (BATIMENT & ENTRETIEN)	EFRBE	DOUALA	11971 DOUALA	33403502	33403502		
58	ETS KAMELEU GASTON	CAMSEQ-KAM	YAOUNDE	13653 YAOUNDE	22200181	22200180		
59	ETS NJIMI		BAFOUSSAM	1533 BAFOUSSAM				
60	ETS NOULA FILS		YAOUNDE	6736 YAOUNDE	96968385 / 75302711			
61	ETS OCCATRACK MATFLO CAM	NJIKE ISAAC	EDEA	400 EDEA				
62	ETS POUNGOM ALPHONSE	FTIC	YAOUNDE	13752 YAOUNDE	22200181	22200180		
63	ETS TAKA MAURICE		BAFOUSSAM	1526 BAFOUSSAM				
64	F. N. ENGINEERING SARL		YAOUNDE	2608 YAOUNDE	22201908	22201908		
65	FRUBERCAM & FRERES SARL		YAOUNDE	12572 YAOUNDE				
66	GAS ENGINEERING SARL		YAOUNDE	11044 YAOUNDE	22318969			
67	GLOBAL MODERN SERVICES CAMEROUN	GMS CAMEROUN	YAOUNDE	12588 YAOUNDE	22222432			
68	GROUP WAGA INC LTD	GROUP WAGA	DOUALA	9085 DOUALA	33429585			
69	GROUPE ANZA		YAOUNDE	14914 YAOUNDE				
70	GROUPE FIXIT	FIXIT	YAOUNDE	327 YAOUNDE	22206781	22206781		
71	GROUPE MANTOUM SARL	GM	DOUALA	8439 DOUALA	33436743 / 77937259	33436750	info@groupemantoum.	
72	GROUPE SOMAF SARL		YAOUNDE	4393 YAOUNDE	22312844			
73	GROUPE TECHNICAM SARL	GTS	YAOUNDE	5109 YAOUNDE	22206638 / 77757620			
74	GROUPEMENT D'ARCHITECTE AFRICAIN	GA2	YAOUNDE		22201648			
75	GROUPEMENT PANTECHNIKI EDOK ETER		DOUALA	1858 DOUALA	33426925			
76	HAPPY CONSTRUCTION COMPANY SARL	HCC SARL	DOUALA	12250 DOUALA	33423408	33436435		
77	INTEGRATED ENGINEERING ASSOCIATION LTD		BAMENDA	814 BAMENDA	77622199			

78	INTERNATIONAL BUSINESS CORPORATION SA IBC ACIERS &	IBC MEACIERS & METAUX	DOUALA	3629 DOUALA	33394278 / 33394277	33394276/33424283	ibc@groupibc.com	
79	JEAN DUPUCH EXPORT	J.D.E	YAOUNDE	5417 YAOUNDE	99314074 / 22239929	22239929		
80	JOE CONNER WATER CO. LTD		YAOUNDE	5199 YAOUNDE	22221461			
81	KAMDOM ALBERTINE	SOTAC TP	YAOUNDE	5402 YAOUNDE	22221477			
82	KETCH SARL	KETCH	YAOUNDE	6555 YAOUNDE				
83	L&B GENERAL BUSINESS ASSOCIATION	L&B GBA	DOUALA	13177 DOUALA	33436219		lbgbacm@yahoo.fr	
84	LA GENERALE DES TRAVAUX SARL	LGT SARL	YAOUNDE	2374 YAOUNDE	22203789			
85	LA GIEA SA	LA GIEA SA	YAOUNDE	439 YAOUNDE	22235283			
86	LES BATISSEURS REUNIS	LES BATISSEURS REUNIS	DOUALA	5908 DOUALA	33426668 / 33431618	33429276		
87	LES CIMENTERIES DU CAMEROUN	CIMENCAM	DOUALA	1323 DOUALA	33391119 / 33399438	33390984 / 33391377	contact@cimencam.lafarge.com	www.cimencam.lafarge.com
88	LEUMASSI BONAVENTURE(ENT GRANDS TRAVBAT	EGTB	BAFANG	21 BAFANG	77789104			
89	M NZWETOM THEODORE	ENT & CFC	YAOUNDE	13084 YAOUNDE	77700774			
90	MALIMBE S.A.	MALIMBE S.A.	YAOUNDE	31466 YAOUNDE	22006500			
91	N.B SERA		YAOUNDE	11099 YAOUNDE	22200232			
92	NBS SA	NBS SA	YAOUNDE	2121 YAOUNDE	22200394			
93	NDS PLASTIQUE SARL	NDS SARL	DOUALA	24223 DOUALA	33409885	33409885		
94	NGUEUDJIE JEAN	ETS EBATRAP	DSCHANG	469 DSCHANG				
95	OMNIUM SCES TERTIAIRE INDUSTRIELLE & REB	OMNIUM REB			33377483			
96	ORSIE SARL	ORSIE SARL	DOUALA	2891 DOUALA	33401740			
97	PANTECNIKI			5277 DOUALA	33422313			
98	PARC NATIONAL DU MATERIEL DU GENIE CIVIL	MATGENIE	YAOUNDE					
99	PICTET CAMEROUN	PICTET	DOUALA	858 DOUALA	33424089			
100	PROMETAL	PROMETAL	DOUALA	3061 DOUALA	3378585	33378580	info@prometal-cm.com	
101	RAZEL CAMEROUN	RAZEL	YAOUNDE	11306 YAOUNDE	22220306 / 22220780	22220308	jdmarilly@razel.fr	www.razel.fr
102	RESEAUX D'ENERGIES AFRICAINES	REA	DOUALA	15108 DOUALA	33376821			
103	ROYAL ENTERPRISE		BAMENDA	5133 BAMENDA	96662131			
104	SADRY SARL		DOUALA	1966 DOUALA	33424452 / 99707812	33424452	bahsouad@hotmail.com	
105	SAFRIC-CAMEROUN S.A	SAFRIC-CAMEROUN S.A	YAOUNDE	13445 YAOUNDE	22213964 / 77595468	22213769		
106	SECOND OEUVRE BATIMENT ET INDUSTRIE	SOBEI	YAOUNDE	190 YAOUNDE	22303403		sobeicameroon@gmail.com	
107	SGC SARL	SGC SARL	YAOUNDE	14038 YAOUNDE	22209599			
108	SIKABAT BTP SARL		YAOUNDE	4815 YAOUNDE				
109	SIMFO & SONS SARL	SIMFO & SONS SARL	BAFOUSSAM	766 BAFOUSSAM				
110	SIX INTERNATIONAL LTD		DOUALA	3124 DOUALA	33392729 / 33392685	33392685	sixInternational@broveli.net	
111	SOCIETE BUNS	SOCIETE BUNS	YAOUNDE	1130 YAOUNDE	22315275	22315275		
112	SOCIETE CAMEROUNAISE DE VERRERIE	SOCAVER SA	DOUALA	1456 DOUALA	33401378 / 33400506		sacaver@saloc.com;socall@comnet. cm	
113	SOCIETE CAMEROUNAISE D'INTERMEDIATION ETD E		DOUALA	4197 DOUALA	33423984		scinafrique@yahoo.fr	
114	SOCIETE CAMSTECH SARL	CAMSTECH SARL	YAOUNDE	15144 YAOUNDE	22034487	22034487		
115	SOCIETE DANICO SARL		YAOUNDE	13177 YAOUNDE	22211788	22217788	danicosarl@yahoo.fr	
116	SOCIETE DE CONSTRUCTIONS INDUSTRIELLE	SOCICO SARL	DOUALA	1068 DOUALA	33473949	33473949		
117	SOCIETE DE DEVELOPPEMENT ET D'INV DU CAM	SODICA SARL	YAOUNDE	4486 YAOUNDE	99657290			
118	SOCIETE DE MATERIAUX; ACCESSOIR ROUTIERS	SMAR SARL	DOUALA	2231 DOUALA	33391389			

119	SOCIETE DE TRAVAUX PUBLICS ET MAINTENANCE INDUSTRIELLE	SOTRAMAIN SARL	DOUALA	1014 DOUALA	33436730		sotramain@yahoo.fr	transco-sotramain.com
120	SOCIETE DES TECHNIQUES DES TRANSFORMATIONS SPECIALES	STS SARL	YAOUNDE	4401 YAOUNDE	22206268			
121	SOCIETE DES TRAVAUX ET FOURNITURE INDUSTRIELLE ET	SOTRAFIC	DOUALA	9056 DOUALA	33409510 / 33432331	33434445	sotrafic_sarl@yahoo.fr	
122	SOCIETE D'ETUDE ET DE TRAVAUX POUR L'UTILISATION	SETUBA	GAROUA	168 GAROUA	22271683	22272873	setubacameroun1@yahopo.fr	
123	SOCIETE D'ETUDE, REALISATION, MAINTENANCE ET CONTRÔLE	SEREMAC	YAOUNDE	7505 YAOUNDE	22032389 / 99912462	22032398	seremac.sarl@yahoo.fr	
124	SOCIETE DJEMO EBTP SARL		YAOUNDE	8412 YAOUNDE	22234297			
125	SOCIETE MANU SARL	MANU SARL	YAOUNDE	11504 YAOUNDE	22233562			
126	SOCIETE TMJR SARL	TMJR SARL	DOUALA	17204 DOUALA	33476470 / 33428374			
127	SOCIETE TRAVAUX D'ELECTRICITE	SOTEL	GAROUA	1456 GAROUA				
128	SOCIETE TRAVAUX ET MAINTENANCE SARL	SOTRAM SARL	DOUALA	1851 DOUALA	33471572	33471572		
129	SODIC SARL		YAOUNDE	14304 YAOUNDE	22229804			
130	SODPEI ELECTRONIQUE	DJOMGOUE PAUL ERIC	YAOUNDE	12831 YAOUNDE	22200181	22200180		
131	SOTRADIPRAL SARL		MBOUDA	483 MBOUDA	99377234			
132	SOTRAFER-SUCCURSALE CAMEROUN	SOTRAFER	DOUALA	2458 DOUALA	33421800 / 33431084	33421800/33438914	contact@sitrafer.com	
133	SOURCES DU CAMEROUN	SOURCES DU CAMEROUN	YAOUNDE	3784 YAOUNDE	99857261	22213790		
134	STE CAMEROUNAISE DE TRAVAUX A LA MER	SOCAMER	DOUALA	2251 DOUALA	33403352	33403352		
135	STE CAMEROUNAISE DE TRAVAUX ET DE COMMER	SOCATRACO SARL	YAOUNDE	3717 YAOUNDE				
136	STE DE FABRICATION DES TOLES ONDULES CAM	SOTOCAM	FOUMBOT	127 FOUMBOT	99975342			
137	STE NASMO SARL		DOUALA	6972 DOUALA	99901016			
138	SUCURSALE SOGEA-SATOM CAMEROUN	SUCURSALE SOGEA-SATOM CAMEROUN	YAOUNDE	5680 YAOUNDE	22201889			
139	SUPERT CONFORT SARL		YAOUNDE	8324 YAOUNDE				
140	TANO CONSTRUCTION SARL		YAOUNDE	4013 YAOUNDE	22200810			
141	TERTIAIRE ENERGIE INDUSTRIE	TEI SARL	DOUALA	5558 DOUALA	33378154			
142	TKENMALI CONSTRUCTION SARL	KC SARL	YAOUNDE	30587 YAOUNDE	22319154			
143	TOBOH BATIMENT ET SERVICES	TBS SARL	YAOUNDE	6962 YAOUNDE	22209350			
144	TOJEL CONSTRUCTION BTP SARL	TOJEL CONST BTP SARL	YAOUNDE	2317 YAOUNDE	22316221			
145	TRABES BTP SARL		YAOUNDE	20180 YAOUNDE	22302523			
146	TRANSCOGE INTERNATIONAL	TRANSINTER	YAOUNDE	6341 YAOUNDE	22204840	22206972	transcogeinternational@yahoo.fr	
147	TRAPIS SARL		DOUALA	2376 DOUALA	33423861	77706743		
148	TRAVAUX CAMEROUN	TRAVAUX CAMEROUN	YAOUNDE	5546 YAOUNDE				
149	TRAVAUX PUBLICS ET INDUSTRIELS DU CAMEROUN	TRAPIC	DOUALA	15308 DOUALA	33083765		trapic2@yahoo.fr	
150	TRAVAUX SERVICE ENTRETIN ET REPRESENTATION	TSER SARL	DOUALA	5426 DOUALA	33426110			
151	TRAVAUX SOUS MARINS CAMEROUNAIS	TSMC	DOUALA	897 DOUALA	33402101 / 99414126	33402102		
152	TSAGUE JOSEPH ROMAIN	ENI ELEC CAM	BAFOUSSAM	763 BAFOUSSAM	33444204			
153	UNDERWATER SERVICES SARL		DOUALA	8630 DOUALA	77800936			
154	UTE COBRA		DOUALA	1946 DOUALA	33424847			
155	WAEF SERVICES SARL		YAOUNDE	6803 YAOUNDE	22237391			
156	WATER ENERGINEERING AND SEVICES	W.E.S	NKOLNFOULOU		77242111			
157	YOSA INNOCENT		YAOUNDE	11697 YAOUNDE	22220137	22220137	yossmarquas42@yahoo.fr	
158	YOUTCHEU MAURICE		BAFOUSSAM	786 BAFOUSSAM				
159	EDGE	EDGE	BAMENDA		233361079 / 677433003			

The Selection of Target Arrondissement

Annex3

REPUBLIQUE DU CAMEROUN
Paix – Travail – Patrie

MINISTERE DE L'AGRICULTURE
ET DU DEVELOPPEMENT RURAL

SECRETARIAT GENERAL

DIRECTION DES ETUDES,
DES PROGRAMMES ET DE LA COOPERATION

PROJET DE DEVELOPPEMENT
DE LA RIZICULTURE PLUVIALE DE PLATEAU
EN ZONE DE FORET A PLUVIOMETRIE BIMODALE-
PRODERiP

Minader
Ministère de l'Agriculture et du Développement Rural
Ministry of Agriculture and Rural Development

PRODERiP
Upland Rice / Riz Pluvial de Plateaux

REPUBLIC OF CAMEROON
Peace-Work-Fatherland

MINISTRY OF AGRICULTURE
AND RURAL DEVELOPMENT

GENERAL SECRETARIAT

DEPARTMENT OF STUDIES,
PROGRAMS AND COOPERATION

UPLAND RICE DEVELOPPEMENT
IN THE TROPICAL FOREST ZONE

ROUTES RURALES A CONSTRUIRE OU A REHABILITER DANS LES SITES COUVERTS PAR LE PRODERIP

REGION	DEPARTEMENT	ARRONDISSEMENT	ITTINIRAIRE	Distance (Km)
CENTRE	LEKIE	EVODOULA **Population: 18,899** **Seed Provision: 547 bags**	Nkolkouda - Okok I	5
			Ekol - Nkolnguéré	5
			Evodoula - Nkolnguenang	6
			Pobo - Nkolpong	5
			Nkolsenhg I - Nkolohandja	7
			Meyos - Nkolmeyos III	10
			Nlongmenang - Nkodabel	5
			TOTAL (Evodoula)	***43***
		OBALA **Population: 78,929 【No.1 in Centre】** **Seed Provision: 887 bags 【No.3 in Centre】 *1**	Mvog Ijievi – Elig Ntsogo	12
			Nkometou - Foulou	8
			Ekabita – Nkolfep - Endinding	17
			Nkolfep – Nkometou II - Nkolobili	28
			Foulouassi - Nkolobili	8
			Endinding – Elig Ngomo - Mbankomo	13
			Nkolissogo – Ezezang Essele - Abono	11
			Nkol obang – Zima – Etong Bidzoe – Nkol Ndobo	20
			Lebobi – Elog Ngazouma – Zouatoupsi - Nkoledouma	15
			Efok – Loua - Ngongo	15
			Mboua I – Mbele I – Edokassi	25
			Mbele –Bilon -Nkoledouma	
			Mbele –Nye annam-Nkolndongo-Mengama-Ntsa Ekang- CES de Mengama-Carrefour Nye annam	
			Mbele II – Nkolkoui - Emomzok	18
			Minkama – Village pionnier	8

*1: seed provision amount as OBALA-BATCHENGA

REGION	DEPARTEMENT	ARRONDISSEMENT	ITTINIRAIRE	Distance (Km)
		OBALA	Nkometou II – Nkolfoulou III - Nkolobili	16
			Ezezang - Mfomakap	6
			Elog Ngazouma - Nkolmelen	12
			Nkolkosse – Ferme Nkolossananga	5
			TOTAL	***237***
		BASCHENGA **Population: 9,303** **Seed Provision: 887 bags *1**	Mebassa – limite Sa'a	8
			Emana – Ebang Minala	7
			Batchenga – limite Mefou - Afamba	15
			TOTAL (BATCHENGA)	***30***
	NYONG ET SO'O **Seed Provision (No Pilot Site): 146 bags**	**NKOLMETET (No Pilot-Site)** **Population: 13,647**	Carrefour Yop - Nyong	10
			Memiam – Akoeman - Binyenyali	60
			Abang – Mekomo - Nkolmetet	40
			TOTAL (NKOLMETET)	***110***
	NYONG ET MFOUMOU	AKONOLINGA **Population: 47,561 [No.2 in Centre]** **Seed Provision: 1,357 bags [No.1 in Centre]**	Mekomo - Akoudaba - Ababa	17
			Mekomo - Yebe - Nkom	10
			Ababa - Ondek	12
			Zalom - Ebal - Sololo	7
			Wouma – Abem – EmvaneSo'o – Biyoka – Ntonga	15
			Mvanmvognyengue - Melen - Teng	10
			Akonolinga - Menguemesi - Até	18
			Mbaldjap - Mingueme - Bitsogmelam	20
			Tomba I - Nkolbiba - Ntomba II	10
			Nganga - Ngoulmekong-yebekollo	8
			Meba - Emvaneso'o -Nko	30
			Koundou - Até	18
			TOTAL (Akonolinga)	***175***
	MEFOU ET AKONO	AKONO **Population: 8,511** **Seed Provision: 824 bags**	Feugmimbang – Ekoumdoum – Nkolakono - Ngoumou	10
			Feugmimbang – Nkolnlong - Nyong	20
			Feugmimbang – Nkongntsam – Oyak - Doum	20
			Nkongntsam - Nkolnlong	6
			Oyack – Sim - Nyemeyong	8
			Bilik – Okombé - Ovangoul	9
			Akono - Mbalmayo	22
			Mfida – Mezali - Ngamba	11
			Mvounkeng - Ma'anemenyi - Onangondi	10
			TOTAL (AKONO)	***116***
		NGOUMOU	Obokoué – Nkong Abok – Nkongbibega - Koli - Otélé	27

*2: seed provision amount for non-pilot sites in Nyong et So'o Department

REGION	DEPARTEMENT	ARRONDISSEMENT	ITTINIRAIRE	Distance (Km)
		NGOUMOU Population: 13,923 Seed Provision: 824 bags	Otélé – Ebolboum - Ngoumou	10
			Otélé Nkolelen - Ngoumou	12
			Otélé – Ofoumbi – Nkolmendim - Ngoumou	11
			Ngoumou – Nkoakom – Offoumounselek – Nkolmessi - Bikok	25
			Nkoakom – Nkolebembissié – Carrefour Bikop	15
			Mbalélon - Bikop	10
			Nkoakom - Feugmimbang	6
			Ngoumou (gare) – Ovangoul III	10
			TOTAL (NGOUMOU)	***126***
	MEFOU ET AFAMBA	(No Pilot-Site)	Aboto – Mebengadzama - Edzendouan	20
			Omvan – Akam - Dzouzok → NSANG – CHEFFERIE DE Main	20
			TOTAL (MFOU)	***40***
	MBAM ET INOUBOU	MAKENENE Population: 16,564 Seed Provision: 1,015 bags	Ndjabi – Kinding Ndé	14
			TOTAL (MAKENENE)	***14***
TOTAL REGION DU CENTRE				***899***
SUD	MVILA Seed Provision (No Pilot Site): 973 bags	NGOULEMAKONG Population: 14,675 [No.3 in South] Seed Provision: 429 bags [No.2 in South]	Ngoulémakong – Enamngal - Biwong Bane	40
			Ngoulémakong – Bitsogmam-Doum chefferie	40
			Doum Chefferie – Elone – Binyenyali;	35
			Binyenyali-Fone	8
			Minlamizibi - Bitsogmam	12
			TOTAI (NGOULEMAKONG)	***135***
		BIWONG BANE (No Pilot-Site) Population: 13,151	Biwong-bane – Avoundi - Mvengue	40
			Obang II - Bityili	15
			Biwong - Bane - Ngomedzap	30
			Mebae - Melangue II- Biwong Bane	25
			Ofoumbi – Ondong Adjap	15
			TOTAL (BIWONG BANE)	***125***
		BIWONG BULU (No Pilot-Site) Population: 12,867	Nkoetye - Nkolbitye	8
			Metykpale I – Biwong Bullu	40
			Biwong – Bulu - Mvangane	40
			TOTAL (BIWONG BULU)	***56***
		EBOLOWA (No Pilot-Site) Population: 40,538 [No.2 in South]	Meyo ville – Sonkot - Minkane	50
			Ebolowa - Minkok	35
			TOTAL (EBOLOWA)	***85***

Seed Provision: (973 bags) *2

Y.U.

REGION	DEPARTEMENT	ARRONDISSEMENT	ITTINIRAIRE	Distance (Km)
	DJA ET LOBO	SANGMELIMA Population: 91,740 【No.1 in South】 Seed Provision: 1,071 bags 【No.1 in South】	Sangmélima – Benyoungou – Evelessi I	38
			Avebe-Esse - Moneko'o - Nkoletoto ;	25
			Meyomadjom – Nkondongo - Nyazanga	15
			Mendong – Minkpaemioveng	20
			Oveng- yemvak - Nkoumadjap	20
			Mezesse – Endam-yembong - Mvia	35
			TOTAL (SANGMELIMA)	*153*
TOTAL REGION DU SUD				*586*
EST	KADEI	BATOURI Population: 67,007 【No.1 in East】 Seed Provision: 1,673 bags 【No.1 in East】	Batouri – Mbéndissola - Mbang	60
			Batouri (aviation) – Timangolo	30
			Dem – Boubara - Kette	80
			Meyopo - Bokoto	10
			Djengue - Bakombo	8
			Badongoué - Mele	18
			Batouri – Dja – Taparé - Ngoura	60
			TOTAL (BATOURI)	*266*
TOTAL REGION DE L'EST				*266*
TOTAL GENERAL				1743

REPUBLIQUE DU CAMEROUN
Paix – Travail - Patrie
MINISTERE DE L'AGRICULTURE
ET DU DEVELOPPEMENT RURAL
Société de Développement de la Haute Vallée du Noun
UNVDA
Société d'Etat

REPUBLIC OF CAMEROON
Peace - Work - Fatherland
MINISTRY OF AGRICULTURE
AND RURAL DEVELOPMENT
Upper Nun Valley Development Authority
UNVDA
State Corporation

LINEAIRES DES ROUTES INTERNES ET ROUTE D'ACCESS DANS LES PARCELLES RIZICOLES DE L'UNVDA NDOP (UPPER ET LOWER BAMUNKA)

	N°	TRONÇON-ITINERAIRE	LONGUEUR (KM)	SECTOR	OBSERVATION
ROUTES INTERNES	1	NDOP-BAMUNKA FONS PALACE-BAMBALANG	35	Lower Bamunka	
	2	BAMUNKA FONS PALACE- TANGOH	09	Lower Bamunka	
	3	BAMISSING-BABANKI-BALIKUMBAT ROAD	13	Upper Bamunka	
	4	MBELUE (Bamessing)-BABANKI-NGWENG-NSEMI JUNCTION (N11)	13	Upper Bamunka	
	5	BAMALI - BAMALI (3 Corners) - BAMBALANG-	40	Upper Bamunka	
		TOTAL	110		

ROUTES D'ACCESS	1	NDOP – BAMENDA	45	Upper Bamunka	
	2	BAMALI (3 Corners) – BAFANJI – GALIM – BAGAM – MBOUDA	60	Upper Bamunka	
		TOTAL	105		

SELECTED ARRONDISSEMENT for
FIELD INVESTIGATION :

PRIORITY ROUTES of MINADER
& PRODERiP :

TARGET ROUTES for Field INVESTIGATON

NORTH WEST : 170 km
CENTRAL : 412 km
SOUTH : 296 km

UNVDA, P.O Box 25 Ndop - NGOKETUNDIA DIVISION, NORTH WEST REGION, Email: unvdandop@ymail.com TELEGRAPHIC ADDRESS: UNVDAN, Tél: (237) 91 79 8372 Fax: (237) 91 79 83 18
Social Capital FCFA 1.380.000.000

Matrix for Target Road Selection

< NORTH WEST >

		Region	Department	Arrondissement	PRODERiP Zone	Route	Passing Villages	Distance (km)	Road Classification	Access to Well Prepared Principal Road (N, P, D)					Direct Benefit Population (Population Around the Route)		Zone Level Number of Rice Farmers who received Rice Seed from PRODERiP in 2015		Overall Score	Evaluation of Overall Score	Remarks	Recommendation
										Connection to Principal Road	Score	Paving Form and Condition of Connected Road	Score	Comprehensive evaluation (Score)	Number (person)	Score	Number (person)	Score			Proirity by MINADER / PRODEiP & UNVDA	
								N: National Road P: Provincial Road D: Departmental Road R: Rural Road		Direct Connection to National Road: 3 Provincial Road: 2 Departmental Road & Main Rural Road: 1		Asphalt: 2 DBST: 1 Laterite: 0			Sum of village level population in 2005 statistics	5 Points Scale	Zone Level Number of Rice Farmers who received Rice Seed from PRODERiP in 2015)	5 Points Scale		A: 1st Priority (Score > 12) B: 2nd Priority (9 < Score < 11) C: 3rd Priority (Score < 8)		
1	Original	North West	Ngo Ketunjia	Ndop, Balikumbat	-	Bamali (3 Corners) - Bafanji - Galim - Bagam - Mbouda	Bamali, Bangolan, Balikumbat,	60	D72 + P15	Direct Connection to N11 at Bamali	3	N11 : Asphalt	2	5	52,281	5	-	5	15	A	○	◎
	Exact Measurement					**Bamali (N11) - Bamali 3 Corners - Balikumbat**		15	D72													
2+6	Original	North West	Ngo Ketunjia	Ndop, Balikumbat	-	Ndop - Bamunka Fons Palace - Bambalang	Ndop, Bamunka, Bambalang, Bamali	35	R	Direct Connection to N11 at Ndop and D72 at Bamali 3 Corners	3	N11 : Asphalt	2	5	69,603	5	-	5	15	A	○	◎
	Exact Measurement					**a) Ndop (N11) - Lower Bamunka Irrigation Rice Field - Bambalang**		23	38													
						b) Bambalang - Bamali 3 Corners (D72)		15														
4	Original	North West	Ngo Ketunjia	Ndop, Balikumbat	-	Bamissing - Babanki - Balikumbat	Balikumbat	13	R	Direct Connection to D72 at Balikumbat	1	D72 : Laterite	0	1	39,751	5	-	5	11	B		
	Exact Measurement					Mbelue - Balikumbat (D72)		9.5														
5	Original	North West	Ngo Ketunjia	Ndop, Balikumbat	-	Mbelue (Bamessing) - Babanki - Ngweng - Nsemi Junction (N11)	Bamunka	13	R	Direct Connection to N11 at Bamessing and Nsemi Junction	3	N11 : Asphalt	2	5	15,310	4	-	5	14	A	△	○
	Exact Measurement					Bamessing (N11) - Mbelue - Nsemi Junction (N11)		14														

< CENTRAL >

		Region	Department	Arrondissement	PRODERiP Zone	Route	Passing Villages	Distance (km)	Road Classification	Access to Well Prepared Principal Road (N, P, D)					Direct Benefit Population (Population Around the Route)		Zone Level Number of Rice Farmers who received Rice Seed from PRODERiP in 2015		Overall Score	Evaluation of Overal Score	Remarks	Recommendation
										Connection to Principal Road	Score	Paving Form and Condition of Connetcted Road	Score	Comprehensive evaluation (Score)	Number (person)	Score	Number (person)	Score		A: 1st Priority (Score > 12) B: 2nd Priority (9 < Score < 11) C: 3rd Priority (Score < 8)	Proirity by MINADER / PRODERiP & UNVDA	
								N: National Road P: Provincial Road D: Departmental Road R: Rural Road		Direct Connection to National Road: 3 Provincial Road: 2 Departmental Road & Main Rural Road: 1		Asphalt: 2 DBST: 1 Laterite: 0			Sum of village level population in 2005 statistics	5 Points Scale	Zone Level Number of Rice Farmers who received Rice Seed from PRODERiP in 2015)	5 Points Scale				
2	Original	CENTRAL	LEKIE	OBALA	Nkometou	Nkometou - Foulou	Nkometou II, Foulou	8	R	Direct Connection to N1 at Nkometou	3	N1 : Asphalt	2	5	2,841	3	99	2	10	B		
	Exact Measurement					Nkometou II (N1) - Foulou		6.2														
3	Original	CENTRAL	LEKIE	OBALA	Nkolfep + Endinding	Ekabita - Nkolfep - Endindin	Ekabita, Nkolfep, Endinding	18	R	Direct Connestion to Main Rural Road	1	Main Rural : DBST	1	2	2,150	2	162	4	8	C		
	Exact Measurement							18														
4	Original	CENTRAL	LEKIE	OBALA	Nkolfep + Nkometou	Nkolfep - Nkometou II - Nkolobilli	Nkolfep, Nto, Nkometou II, NkometouIII, Nkolobilli,	28	R	Direct Connection to N1 at Nkometou II	3	N1 : Asphalt	2	5	5,733	4	186	4	13	A		
	Exact Measurement					Nkolfep - Nkometou II (N1) - Nkolobilli		14														
5	Original	CENTRAL	LEKIE	OBALA	Obala Rural	Foulouassi - Nkolobilli	Foulouassi, Nkolwa, Nkolobiil	8	R	Direct Connection to N1 at Foulouassi	3	N1 : Asphalt	2	5	1,841	2	66	1	8	C		
	Exact Measurement					Foulouassi (N1) - Nkolobilli		7.8														
8	Original	CENTRAL	LEKIE	OBALA	ETOUD-AYOS (Zima), Nkolfep	Nkol obang - Zima - Etongbidzoe - Nkol Ndobo	Nkolobang, Zima, Etongbizoe, Nkol Ndobo	20	R	Direct Connestion to Main Rural Road at Nkolobang	1	Main Rural Road : DBST	1	2	1,526	2	205	4	8	C	O	
	Exact Measurement					Nkolobang J.C. - Zima J.C. - Etongbidzoe J.C. - Nkolndobo Hospital		22														
9	Original	CENTRAL	LEKIE	OBALA	Obala Rural, Endinding	Lebobi - Elog Ngazouma - Zouatoupsi - Nkoledouma	Lebobi, Elogngazouma, Zouatoupsi, Nkoledouma	15	R	Direct Connection to N4 at Nkoledouma	3	N4 : Asphalt	2	5	3,593	3	141	4	12	A		
	Exact Measurement					Lebobi J.C. - Elogngazouma - Zouatoupsi J.C. - Nkoledouma (N4)		11.4														

< CENTRAL 2 >

		Region	Department	Arrondissement	PRODERIP Zone	Route	Passing Villages	Distance (km)	Road Classification	Access to Well Prepared Principal Road (N, P, D)					Direct Benefit Population (Population Around the Route)		Zone Level Number of Rice Farmers who received Rice Seed from PRODERIP in 2015		Overall Score	Evaluation of Overall Score	Remarks	Recommendation
										Connection to Principal Road	Score	Paving Form and Condition of Connetcted Road	Score	Comprehensive evaluation (Score)	Number (person)	Score	Number (person)	Score			Proirity by MINADER / PRODEIP & UNVDA	
								N: National Road P: Provincial Road D: Departmental Road R: Rural Road		Direct Connection to National Road: 3 Provincial Road: 2 Departmental Road & Main Rural Road: 1		Asphalt: 2 DBST: 1 Laterite: 0			Sum of village level population in 2005 statistics	5 Points Scale	Zone Level Number of Rice Farmers who received Rice Seed from PRODERIP in 2015)	5 Points Scale		A: 1st Priority (Score > 12) B: 2nd Priority (9 < Score < 11) C: 3rd Priority (Score < 8)		
10	Original	CENTRAL	LEKIE	OBALA	Loua	Efok - Loua - Ngongo	Efok, Loua, Ngongo	15	P13	Direct Connection to N4 at Efok	3	N4 : Asphalt	2	5	3,839	3	105	3	11	B		
	Exact Measurement					Efok J.C. (N4) - Loua J.C. - Ngongo J.C.		10														
11	1 Original	CENTRAL	LEKIE	OBALA	Loua	Mboua I - Mbele I - Ecokassi	Mboua I, Mbouall, Mbelell, Nkoledouma, Nkolndongo, Mengama, Ngongo, Ntsaekang,Lepopomo, Mvan	25	R	Direct Connection to N4 at Mboua I	3	N4 : Asphalt	2	5	6,811	4	105	3	12	A	O	⊗
	1 Exact Measurement					Mboua I (N4) - Mbele II-Edokassi																
	2 Original					Mbele - Bilon - Nkoledouma				Direct Connection to N4 at Nkoledouma	3	N4 : Asphalt										
	2 Exact Measurement					Mbele II - Bilon - Nkoledouma (N4)																
	3 Original					Mbele - Nyeannam - Nkolndongo - Mengama - Ntsa Ekang - CES de Mengama - Carrefour Nyeannam		26		Direct Connection to P13 at Nyeannam	2	P13 : Asphalt										
	3 Exact Measurement					Mbele II J.C. - Nkolodogo - Mengama - Lepopomo - Mvan																
	4 Original					-																
	4 Exact Measurement					Mengama - Ntsaekang (P13)																
12	Original	CENTRAL	LEKIE	OBALA	Minkama	MbelleII-Nkoulkoui-Emomzok	Mbele II, Nkoulkoui, Elomzok	18	R	Direct Connection to N1 at Elomzok	3	N1 : Asphalt	2	5	1,560	2	109	3	10	B		
	Exact Measurement					MbelleII-Nkolkoui-Elomzok		11														

< CENTRAL 3 >

	Region	Department	Arrondissement	PRODERiP Zone	Route	Passing Villages	Distance (km)	Road Classification	Access to Well Prepared Principal Road (N, P, D)					Direct Benefit Population (Population Around the Route)		Zone Level Number of Rice Farmers who received Rice Seed from PRODERiP in 2015		Overall Score	Evaluation of Overall Score	Remarks	Recommendation
									Connection to Principal Road	Score	Paving Form and Conditon of Connetcted	Score	Comprehensive evaluation (Score)	Number (person)	Score	Number (person)	Score		A: 1st Priority (Score > 12) B: 2nd Priority (9 < Score < 11) C: 3rd Pricrity (Score < 8)	Proirity by MINADER / PRODEiP & UNVDA	
							N: National Road P: Provincial Road D: Departmental Roac R: Rural Road		Direct Connection to National Road: 3 Provincial Road: 2 Departmental Road & Main Rural Road: 1		Asphalt: 2 DBST: 1 Laterite: 0			Sum of village level population in 2005 statistics	5 Points Scale	Zone Level Number of Rice Farmers who received Rice Seed from PRODERiP in 2015)	5 Points Scale				
13	Orginal	CENTRAL	LEKIE	OBALA	Minkama	Minkama - Village Pionnier	Minkama (N1), Village Pionnier	8	R	Direct Connection to N1 at Minkama	3	N1 : Asphalt	2	5	2.861	3	109	3	11	B		
	Exact Measurement					Minkama (N1) - Village Pionnier		6.2														
14	Orginal	CENTRAL	LEKIE	OBALA	Nkometou	Nkometou II (N1) - Nkolfoulou III - Nkolobilli	Nkoumetou II (N1), Nkolfoulou III, Nkolobilli	16	R	Direct Connection to N1 at Nkoumetou II	3	N1 : Asphalt	2	5	3.650	3	99	2	10	B		
	Exact Measurement					Nkometou II (N1) - Nkolfoulou III - Nkolobilli		16														
15	Orginal	CENTRAL	LEKIE	OBALA	Yemessoum	Ezezang-Mfomakap	Ezezang, Mfomakap (N1)	6	R	Direct Connection to N1 at Mfomakap	3	N1 : Asphalt	2	5	1.551	2	82	2	9	B		
	Exact Measurement					Ezezang-Mfomakap (N1)		5.4														
16	Orginal	CENTRAL	LEKIE	OBALA	Endinding	ElogNgazouma-Nkolmelen	Elog Ngazouma, Nkolmelen	12	R	Direct Connection to N1 at Elog Ngazouma and at Nkolmelen	3	N1: Asphalt	2	5	1.894	2	75	2	9	B		
	Exact Measurement					ElogNgazouma-Nkolmelen		6.9														

< CENTRAL 4 >

			Region	Department	Arrondissement	PRODERiP Zone	Route	Passing Villages	Distance (km)	Road Classification	Access to Well Prepared Principal Road (N, P, D)					Direct Benefit Population (Population Around the Route)		Zone Level Number of Rice Farmers who received Rice Seed from PRODERiP in 2015		Overall Score	Evaluation of Overall Score	Remarks	Recommendation
											Connection to Principal Road	Score	Paving Form and Condition of Connetcted Road	Score	Comprehensive evaluation (Score)	Number (person)	Score	Number (person)	Score			Proirity by MINADER / PRODEiP & UNVDA	
											N: National Road P: Provincial Road D: Departmental Road R: Rural Road		Direct Connection to National Road: 3 Provincial Road: 2 Departmental Road & Main Rural Road: 1		Asphalt: 2 DBST: 1 Laterite: 0		Sum of village level population in 2005 statistics	5 Points Scale	Zone Level Number of Rice Farmers who received Rice Seed from PRODERiP in 2015)	5 Points Scale		A: 1st Priority (Score > 12) B: 2nd Priority (9 < Score < 11) C: 3rd Priority (Score < 8)		
		Original	CENTRAL	NYONG ET MFOUMOU	AKONOLINGA	-	Wouma - Abem - Emvaneso'o - Biyoka - Ntonga	-	15	-	-	-	-	-	-			-					
5	1	Exact Measurement	CENTRAL	NYONG ET MFOUMOU	AKONOLINGA	ABEM	Wouma J.C. (P33) - Abem - Meba J.C. (J.C. near Nkangassie)	Wouma, Abem, Ngollé, Ngalla, Nkangassé, Metondok, Meuyos, Mingana, Emvaneso'o, Poumpoum, Ntonga, Biyoka	36	P 22	Direct Connection to P33 at Wouma	2	P33 : Laterite	0	2	4,862	3	15	4	9	B	O	
	2					EMVANESSO	Meba J.C. (J.C. near Nkangassie) - Emvaneso'o - Ntonga - Biyoka		24	R								202					
		Original	CENTRAL	NYONG ET MFOUMOU	AKONOLINGA	TENG	Mvanmvognyengue - Melen - Teng	Mvanmvognyengue, Melen, Teng	10	R	Direct Connection to D32 at Teng	1	D32 : Laterite	0	1	937	1	34	1	3	C		
6		Exact Measurement	CENTRAL	NYONG ET MFOUMOU	AKONOLINGA	TENG	Mvan Mvog Nyengue - Melen - Teng (D32)		13.4														
		Original	CENTRAL	NYONG ET MFOUMOU	AKONOLINGA	-	Akonolinga - Menguemesi - Até		18	-	-	-	-	-	-			-					
7	1	Exact Measurement	CENTRAL	NYONG ET MFOUMOU	AKONOLINGA	MENGUEMESI	**Até - Menguemesi => add to No.12**	(Até, Kamba, Menguemesi)	(15)	R	Direct Connection to N10 at Ekwa	3	N10 : Asphalt	2	5	1,454	1		3	9	B	O	
	2						Menguemesi - Ekwa (N10)	Efoulan, Emvong, Abam, Ekoundou, Menguemesi,	23	P 23								135					
8		Original	CENTRAL	NYONG ET MFOUMOU	AKONOLINGA	YEME YEME	Mbaldjap - Mingueme - Mitsogmelam	Mbaldjap, Kondan, Elombo, Mingueme, Kan, Bitsok	20	R	Direct Connection to P33 at Mbaldjap	2	P33 : Laterite	0	2	950	1	57	1	4	C		
		Exact Measurement	CENTRAL	NYONG ET MFOUMOU	AKONOLINGA	YEME YEME	Mbaldjap (P33) - Mingueme - Bitsogmelam		18.5														
11		Original	CENTRAL	NYONG ET MFOUMOU	AKONOLINGA	NKO + EMVANESSO	Meba - EmvaneSo'o - Nko	Emvane Sso, Fanso, Nkol	30	R	Direct Connection to P22 at near Nko	2	R : Laterite	0	2	1,299	1	283	5	8	C		
		Exact Measurement	CENTRAL	NYONG ET MFOUMOU	AKONOLINGA	NKO + EMVANESSO	Emvane Soo - Nko (P22)		17.4														
7-1 +12		Original	CENTRAL	NYONG ET MFOUMOU	AKONOLINGA	MENGUEMESI	Koundou - Até	Koundou, Ebolakounou, Omgbwang, Emvane, Até, Kamba, Menguemesi	18	R	Direct Connection to N10 at Koundou and P23 at Menguemesi	3	N10 : Asphalt	2	5	2,932	3	135	3	11	B	O	O
		Exact Measurement	CENTRAL	NYONG ET MFOUMOU	AKONOLINGA	MENGUEMESI	**Koundou (N10) - Até - Menguemesi (P23)**		**37**														

< SOUTH >

		Region	Department	Arrondissement	PRODERiP Zone	Route	Passing Villages	Distance (km)	Road Classification	Access to Well Prepared Principal Road (N, P, D)					Direct Benefit Population (Population Around the Route)		Zone Level Number of Rice Farmers who received Rice Seed from PRODERiP in 2015		Overall Score	Evaluation of Overall Score	Remarks	Recommendation
										Connection to Principal Road	Score	Paving Form and Condition of Connected Road	Score	Comprehensive evaluation (Score)	Number (person)	Score	Number (person)	Score		A: 1st Priority (Score > 12) B: 2nd Priority (9 < Score < 11) C: 3rd Priority (Score < 8)	Priority by MINADER / PRODERiP & UNVDA	
									N: National Road P: Provincial Road D: Departmental Road R: Rural Road	Direct Connection to National Road: 3 Provincial Road: 2 Departmental Road & Main Rural Road: 1		Asphalt: 2 DBST: 1 Laterite: 0			Sum of village level population in 2005 statistics	5 Points Scale	Zone Level Number of Rice Farmers who received Rice Seed from PRODERiP in 2015)	5 Points Scale				
1	Original	SOUTH	MVILA	NGOULEMAKONG	NGOULEMAKONG CENTER + ENAMNGAL	Ngoulémakong - Enamngal - Biwong Bane	Ngoulemakong Ville, Ekowondo, Nnemeyong, Ossoferne, Ngock, Messok I, Messok 2, Mva'a Medjap Fong, Doumou Ola, Soumou, Mekom, Enamngal I, Enamangal II, Essingang, Abiete, Mengbwa, Obang II, Ebemewomer, Ebemewomer I, Kama, Biwon Bane Ville	40	R	Direct Connection to N2 at Ngoulé makong, and D42 at Biwong Bane	3	N2 : Asphalt D42 : Laterite	2	5	8,251	4	254	5	14	A	–	O
	Exact Measurement					**Ngoulémakong (N2) - Enamngal - Biwong Bane (D42)**		**40**														
2	Original	SOUTH	MVILA	NGOULEMAKONG	NGOULEMAKONG CENTER + BITZOGMAM + DOUM	Ngoulémakong - Bitsogmam - Doum chfferie	Ngoulemakong Ville, Ebolboum, Bitsogmam, Bikob, Ebaessi, Mvaamedjap Fong Nanyop, Nkoumadjap, Doum Chefferie	40	R	Direct Connection to N2 at Ngoulé makong	3	N2 : Asphalt	2	5	4,667	3	245	4	12	A		
	Exact Measurement					Ngoulémakong (N2) - Bitsogmam - Doum chfferie		40														
5	Original	SOUTH	MVILA	NGOULEMAKONG	BITZOGMAM	Minlamizibi - Bitsogmam	Minlamizibi, Ngoulngomena, Bitsogmam	12	R	Direct Connection to N2 at Minlamizibi	3	N2 : Asphalt	2	5	1,389	1	73	2	8	C		
	Exact Measurement					Minlamizibi (N2) - Bitsogmam		14														
1	Original	SOUTH	MVILA	BIWONG BULU	MVILA	Nkoetye - Nkolbitye	Nkoetye, Adjop, Ntyilzok, Nkolbitye	8	R	Direct Connection to D39 at Nkolbitye	1	D39 : Asphalt	2	3	1,686	2	206	4	9	B	O	O
	Exact Measurement					Nkostye - Nkolbitye		8														
2	Original	SOUTH	DJA ET LOBO	SANGMELIMA	AVEBE ESE + NKOLOTOUTOU	Avebe Esse - Moneko'o - Nkoletoto	Avebe Esse, Ma'anmenyin, Moneko'o, Oveng, Ncjom Essaman Bikoko, Nkoletoto	25	R	Direct Connection to N17A at Avebe Esse and at Kroletoto	3	N17A : Laterite	0	3	3,431	3	130	3	9	B		
	Exact Measurement					Avebe Esse (N17A) - Moneko'o - Nkcletoto (N17A)		25														

< SOUTH 2 >

		Region	Department	Arrondissement	PRODERIP Zone	Route	Passing Villages	Distance (km)	Road Classification	Access to Well Prepared Principal Road (N, P, D)					Direct Benefit Population (Population Around the Route)		Zone Level Number of Rice Farmers who received Rice Seed from PRODERIP in 2015		Overall Score	Evaluation of Overall Score	Remarks	Recommendation
										Connection to Principal Road	Score	Paving Form and Condition of Connetcted Road	Score		Number (person)	Score	Number (person)	Score			Proiirity by MINADER / PRODEIP & UNVDA	
								N: National Road P: Provincial Road D: Departmental Road R: Rural Road		Direct Connection to National Road: 3 Provincial Road: 2 Departmental Road & Main Rural Road: 1		Asphalt: 2 DBST: 1 Laterite: 0		Comprehensive evaluation (Score)	Sum of village level popuation in 2005 statistics	5 Points Scale	Zone Level Number of Rice Farmers who received Rice Seed from PRODERIP in 2015)	5 Points Scale		A: 1st Priority (Score > 12) B: 2rd Priority (9 < Score < 11) C: 3rd Priority (Score < 8)		
5	Original	SOUTH	DJA ET LOBO	SANGMELIMA	Oveng Yemvak	Oveng Yemvak - Nkoumadjap	Oveng Yemvak, Evindissi, Efoulan, Nkolfong, Nkoumadjapl, Knoumadjap II	20	D35	Direct Connection to N9 at Oveng Yemvak	3	N9 : Asphalt	2	**5**	3,428	3	106	3	**11**	**B**		
	Exact Measurement					Oveng Yemvak - Nkoumadjap		20														
6	Original	SOUTH	DJA ET LOBO	SANGMELIMA	Mezesse	Mezesse - Endam yembong - Mvia	Mezesse, Essam Esse, Mvanbison, Edam Yembong, Ambom, Mvia	20	R	Direct Connection to D84 at Mezesse and at Mvia	1	D84 : DBST	1	**2**	2,156	2	35	1	**5**	**C**		
	Exact Measurement					Mezesse - Endam yembong - Mvia		20														

< EAST >

		Region	Department	Arrondissement	PRODERiP Zone	Route	Passing Villages	Distance (km)	Road Classification	Access to Well Prepared Principal Road (N, P, D)					Direct Benefit Population (Population Around the Route)		Zone Level Number of Rice Farmers who received Rice Seed from PRODERiP in 2015		Overall Score	Evaluation of Overall Score	Remarks	Recommendation
										Connection to Principal Road	Score	Paving Form anc Condition of Connetcted Road	Score	Comprehensive evaluation (Score)	Number (person)	Score	Number (person)	Score		A: 1st Priority (Score > 12) B: 2nd Priority (9 < Score < 11) C: 3rd Priority (Score < 8)	Proirity by MINADER / PRODEiP & UNVDA	
								N: National Road P: Provincial Road D: Departmental Road R: Rural Road		Direct Connection to National Road: 3 Provincial Road: 2 Departmental Road & Main Rural Road: 1		Asphalt: 2 DBST: 1 Laterite: 0			Sum of village level population in 2005 statistics	5 Points Scale	Zone Level Number of Rice Farmers who received Rice Seed from PRODERiP in 2015)	5 Points Scale				
1	Original	EAST	KADEI	BATOURI	Batouri I or II / Mbendissoa	Batouri - Mbéndissoa - Mbang	Batouri Ville, Lobi, Dimako I, Lombaya, Kombo Amoukou, Dimako II, Mbendissola, Bakombele, Mbéndissoa	60	D28 + D27	Direct Connection to N10 at Batouri	3	N10 : Laterite	0	**3**	33,491	5	100	149	3	**11**	**B**		
	Exact Measurement					Batouri (N10) - Bakombelé (before 1st Barge)		18														
2	Original	EAST	KADEI	BATOURI	Batouri I or II	Batouri (Aviation) - Timangolo	Aviation, Yoko, Borguene, Timangolo	30	R	Direct Connection to P5 at Batouri (aviation)	2	P5 : Laterite	0	**2**	2,428	2	100	149	3	**7**	**C**		
	Exact Measurement					Aviaton - Timangolo		30														
7	Original	EAST	KADEI	BATOURI	Batouri I or II / Dja / Taparé	Batouri - Dja - Taparé - Ngoura	Batouri, Avuatuin, Bougogo, Nadegbe, Garoua Sambe, Moungmana, Taparé	60	P5	Direct Connection to N10 at Batouri	3	N10 : Laterite	0	**3**	34,999	5	267	316	5	**13**	A		
	Exact Measurement					Batouri - Dja - Taparé		39														

Soil Test Result of 7 Routes

North West Province: NW1 (D72)

Target Route: NW1			Test Object: Subgrade				
Category	Items	Unit	Soil Sampling Location**				
			No.1	No.2	No.3	No.4	No.5
			32N 0655222 UTM 0660963	32N 0657277 UTM 0658179	32N 0654569 UTM 0657772	32N 0651834 UTM 0655134	32N 0652748 UTM 0652643
Soil Sampling	Sampling Depth	m	0 - 1.10	0.25 - 1.00	0 - 0.80	0 - 1.00	0.60 - 1.20
General	Soil Particle Density	g/cm3	2.620	2.517	2.521	3.190	2.617
	Natural Water Content	%	24	35.1	21.9	23.1	38.6
Particle Size	Gravel Fraction	%	6	1	3	17	3
	Sand Fraction	%	40	22	41	37	11
	Fine Particle Fraction*	%	54	77	56	46	86
Consistency	Liquid Limit: WL	%	37.9	46.4	37.5	49.8	55.4
	Plastic Limit: WP	%	28.4	32.4	23.7	31.0	39.3
	Plasticity Index: IP	-	9.5	14.0	13.8	18.8	16.1
Soil Classification	Unified Soil Classification	-	CL	CL	CL	SC	MH
	AASHTO	-	A-4(4)	A-7-5(11)	A-6(6)	A-7-5(6)	A-7-5(14)
	CEBTP	-	S3	S2	S3	S4	S2
Compaction	Maximum Dry Density	g/cm3	1.785	1.547	1.815	1.957	1.480
	Optimum Water Content	%	16.5	23.7	13.7	17.5	28.2
	CBR		12	7	15	26	6
NOTES	*Fine Particle Fraction: Silt Fraction + Clay Fraction **UTM System Road Classification: Departmental Road (D72)						

Target Route: NW1			Test Object: Borrow Pit				
Category	Items	Unit	Soil Sampling Location**				
			32N 0651797 – UTM 0655149				
			No.1	No.2	No.3	No.4	No.5
Soil Sampling	Sampling Depth	m	0.25 - 1.20	0.30 - 1.20	0.10 - 1.20	0.20 - 1.00	0.10 - 1.20
General	Soil Particle Density	g/cm3	2.587	2.903	2.851	2.644	2.796
	Natural Water Content	%	21.2	24.0	24.7	15.5	19.6
Particle Size	Gravel Fraction	%	25	25	34	39	40
	Sand Fraction	%	37	29	26	30	32
	Fine Particle Fraction*	%	38	36	40	31	28
Consistency	Liquid Limit: WL	%	21.2	60.8	58.7	55.2	54.5
	Plastic Limit: WP	%	30.2	42.3	40.6	34.6	34.9
	Plasticity Index: IP	-	21.2	18.4	18.1	20.6	19.6
Soil Classification	Unified Soil Classification	-	SC	SC	GC	GC	GC
	AASHTO	-	A-7-5(3)	A-7-5(2)	A-7-5(4)	A-2-7(2)	A-2-7(1)
	CEBTP	-	S4	S4	S4	S4	S5
Compaction	Maximum Dry Density	g/cm3	1.774	1.857	1.851	1.903	1.943
	Optimum Water Content	%	15.5	16.4	15.7	13.3	14.4
	CBR	-	21	18	26	27	39
Potential Yield		m3	2,500				
NOTES	*Fine Particle Fraction: Silt Fraction + Clay Fraction **UTM System Road Classification: Departmental Road (D72)						

North West Province: NW2

Target Route: NW2			Test Object: Subgrade				
Category	Items	Unit	Soil Sampling Location**				
			No.1	No.2	No.3	No.4	No.5
			32N 0665454 UTM 0651467	32N 0662391 UTM 0652157	32N 0659746 UTM 0653917	32N 0659288 UTM 0656888	32N 0659288 UTM 0656888
Soil Sampling	Sampling Depth	m	0 - 1.00	0.20 - 1.15	0.15 - 1.20	0.30 - 1.30	0.30 - 1.10
General	Soil Particle Density	g/cm3	3.048	2.678	2.480	2.552	2.530
	Natural Water Content	%	28.9	32.2	32.0	28.8	35.0
Particle Size	Gravel Fraction	%	2	1	0	14	0
	Sand Fraction	%	24	23	22	26	25
	Fine Particle Fraction*	%	74	76	78	60	75
Consistency	Liquid Limit: WL	%	50.8	53.8	53.6	57.8	62.5
	Plastic Limit: WP	%	36.0	34.0	33.4	37.2	35.1
	Plasticity Index: IP	-	14.8	19.8	20.2	20.5	27.5
Soil Classification	Unified Soil Classification	-	MH	MH	MH	MH	MH
	AASHTO	-	A-7-5(12)	A-7-5(15)	A-7-5(15)	A-7-5(11)	A-7-5(19)
	CEBTP	-	S2	S2	S3	S2	S2
Compaction	Maximum Dry Density	g/cm3	1.681	1.524	1,440	1.703	1.560
	Optimum Water Content	%	26.0	26.5	25.5	18.2	22.1
	CBR		10	7	15	9	10
NOTES	*Fine Particle Fraction: Silt Fraction + Clay Fraction **UTM System Road Classification: Rural Road						

Target Route: NW2			Test Object: Borrow Pit				
Category	Items	Unit	Soil Sampling Location**				
			32N 0661845 – UTM 0651550				
			No.1	No.2	No.3	No.4	No.5
Soil Sampling	Sampling Depth	m	0.60 - 1.40	0.75 - 1.50	0.20 - 1.40	0.50 - 1.40	0.20 - 1.40
General	Soil Particle Density	g/cm3	2.717	2.699	2.756	2.557	2.560
	Natural Water Content	%	14.8	14.3	16.9	20.4	15.6
Particle Size	Gravel Fraction	%	60	38	70	69	72
	Sand Fraction	%	11	18	8	8	8
	Fine Particle Fraction*	%	29	44	22	23	20
Consistency	Liquid Limit: WL	%	44.5	39.7	46.7	45.6	46.3
	Plastic Limit: WP	%	27.1	30.8	28.4	26.9	27.3
	Plasticity Index: IP	-	17.4	8.9	18.3	18.7	19.0
Soil Classification	Unified Soil Classification	-	GC	GC	GC	GC	GC
	AASHTO	-	A-2-7(1)	A-4(2)	A-2-7(1)	A-2-7(1)	A-2-7(0)
	CEBTP	-	S4	S4	S5	S4	S5
Compaction	Maximum Dry Density	g/cm3	1.878	1.860	1.900	1.865	1.780
	Optimum Water Content	%	12.3	14.2	13.9	13.2	14.5
	CBR	-	27	16	41	28	41
Potential Yield		m3	3,900 – 6,240				
NOTES	*Fine Particle Fraction: Silt Fraction + Clay Fraction **UTM System Road Classification: Rural Road						

North West Province: NW3

Target Route: NW3			Test Object: Subgrade					
Category	Items	Unit	Soil Sampling Location**					
			No.1	No.2	No.3	No.4	No.5	No.6
			32N 0654441 UTM 0661093	32N 0653681 UTM 0659097	32N 0651454 UTM 0658941	32N 0650605 UTM 0660841	32N 06526672 UTM 0661944	32N 0662391 UTM 0652157
Soil Sampling	Sampling Depth	m	0.20 - 1.00	0.00 - 0.70	0.00 - 1.00	0.00 - 1.10	0.00 - 1.00	0.00 - 0.50 ***
General	Soil Particle Density	g/cm3	2.634	2.433	2.480	2.551	2.737	2.515
	Natural Water Content	%	13.5	42.7	60.1	15.7	41.9	23.1
Particle Size	Gravel Fraction	%	54	0	0	11	4	0
	Sand Fraction	%	21	15	11	52	19	10
	Fine Particle Fraction*	%	25	85	89	37	77	90
Consistency	Liquid Limit: WL	%	54.7	62.7	61.8	29.8	57.3	33.4
	Plastic Limit: WP	%	38.5	30.7	42.5	20.7	30.3	22.7
	Plasticity Index: IP	-	16.2	32.0	19.3	9.1	27.0	10.7
Soil Classification	Unified Soil Classification	-	GC	CH	MH	SC	CH	CL
	AASHTO	-	A-2-7(1)	A-7-5(20)	A-7-5(16)	A-4(0)	A-7-5(18)	A-6(8)
	CEBTP	-	S5	S2	S2	S4	S3	S2
Compaction	Maximum Dry Density	g/cm3	1.910	1.435	1.353	1.950	1.447	1.670
	Optimum Water Content	%	12.3	24.3	31.5	10.5	31.0	15.0
	CBR		39	6	7	17	14	7
NOTES	*Fine Particle Fraction: Silt Fraction + Clay Fraction **UTM System ***Ground Water Level: 0.50m Road Classification: Rural Road							

North West Province: NW3

Target Route: NW3			Test Object: Borrow Pit				
Category	Items	Unit	Soil Sampling Location**				
			32N 0649950 – UTM 066 26 47				
			No.1	No.2	No.3	No.4	No.5
Soil Sampling	Sampling Depth	m	0 -1.00	0 -1.00	0 -1.00	0 -1.00	0 -1.00
General	Soil Particle Density	g/cm3	2.686	2.737	2.697	2.664	2.671
	Natural Water Content	%	17.4	19.5	22.4	19.4	20.4
Particle Size	Gravel Fraction	%	79	54	55	53	56
	Sand Fraction	%	14	30	30	26	29
	Fine Particle Fraction*	%	7	16	15	21	15
Consistency	Liquid Limit: WL	%	42.6	42.3	31.6	43.3	40.9
	Plastic Limit: WP	%	29.1	32.0	25.2	26.5	26.6
	Plasticity Index: IP	-	13.5	10.3	6.4	16.8	14.4
Soil Classification	Unified Soil Classification	-	GW - GM	GC	GM - GC	GC	GC
	AASHTO	-	A-2-7(0)	A-2-7(0)	A-2-4(0)	A-2-7(0)	A-2-7(0)
	CEBTP	-	S5	S5	S5	S5	S5
Compaction	Maximum Dry Density	g/cm3	1.740	1.734	1.675	1.841	1.837
	Optimum Water Content	%	18.0	19.4	17.8	14.4	13.2
	CBR	-	45	53	45	34	50
Potential Yield		m3	＞2500				
NOTES	*Fine Particle Fraction: Silt Fraction + Clay Fraction **UTM System Road Classification: Rural Road						

Central Province: C1

Target Route: C1			Test Object: Subgrade				
Category	Items	Unit	Soil Sampling Location**				
			No.1	No.2	No.3	No.4	No.5
			32N 0781400 UTM 0465003	32N 0778872 UTM 0468970	32N0779406 UTM 0465492	32N0780429 UTM 0468620	32N0780850 UTM 0471786
Soil Sampling	Sampling Depth	m	0.25 - 1.00	0 - 1.10	0 - 1.00	0.05 - 1.00	0.20 - 1.20
General	Soil Particle Density	g/cm3	2.634	2.756	2.765	2.673	2.658
	Natural Water Content	%	13.1	15.8	14.7	5.6	17.2
Particle Size	Gravel Fraction	%	31	50	52	10	6
	Sand Fraction	%	33	19	19	70	34
	Fine Particle Fraction*	%	36	31	29	20	60
Consistency	Liquid Limit: WL	%	34.1	55.4	50.5	NP	50.3
	Plastic Limit: WP	%	22.2	39.5	30.0	NP	32.0
	Plasticity Index: IP	-	12.0	16.0	20.6	NP	18.3
Soil Classification	Unified Soil Classification	-	SC	GC	GC	-	MH
	AASHTO	-	A-6(1)	A-2-7(1)	A-2-7(2)	-	A-7-5(10)
	CEBTP	-	S4	S4	S4	S4	S3
Compaction	Maximum Dry Density	g/cm3	1.890	1.905	1.920	2.046	1.785
	Optimum Water Content	%	12.8	15.0	14.8	8.3	16.5
	CBR	-	16	17.8	26	21	13
NOTES	*Fine Particle Fraction: Silt Fraction + Clay Fraction **UTM System Road Classification: Rural Road						

Target Route: C1			Test Object: Subgrade				
Category	Items	Unit	Soil Sampling Location**				
			No.6	No.7	No.8	No.9	No.10
			32N 0780262 UTM 0461876	32N 0780238 UTM 0463273	32N 779216 UTM 0463799	32N 0778557 UTM 0462487	32N 0777837 UTM 0461419
Soil Sampling	Sampling Depth	m	0 - 1.20	0 - 0.90	0.20 - 1.20	0.10 – 1.10	0.20 - 1.10
General	Soil Particle Density	g/cm3	2.714	2.666	2.670	2.606	2.681
	Natural Water Content	%	18.2	19.1	18.9	17.4	20.0
Particle Size	Gravel Fraction	%	16	25	50	1	5
	Sand Fraction	%	35	41	16	41	49
	Fine Particle Fraction*	%	49	34	34	58	46
Consistency	Liquid Limit: WL	%	26.9	41.0	51.0	33.7	37.0
	Plastic Limit: WP	%	16.1	28.4	36.4	16.1	22.2
	Plasticity Index: IP	-	10.8	12.6	14.5	17.7	14.8
Soil Classification	Unified Soil Classification	-	SC	SC	GC	CL	SC
	AASHTO	-	A-6(3)	A-2-7(1)	A-2-7(1)	A - 6(8)	A-6(4)
	CEBTP	-	S4	S5	S4	S5	S3
Compaction	Maximum Dry Density	g/cm3	2.035	1.875	1.854	1.930	1.825
	Optimum Water Content	%	10.5	13.0	14.8	12.0	16.3
	CBR	-	28.0	31	30	44	15
NOTES	*Fine Particle Fraction: Silt Fraction + Clay Fraction **UTM System Road Classification: Rural Road						

Central Province: C1

Target Route: C1			Test Object: Borrow Pit				
Category	Items	Unit	Soil Sampling Location**				
			32N 0779169 – UTM 0463894				
			No.1	No.2	No.3		
Soil Sampling	Sampling Depth	m	0.20 -1.20	0.20 -1.20	0.20 -1.30		
General	Soil Particle Density	g/cm3	2.659	2.698	2.792		
	Natural Water Content	%	18.3	14.9	18.0		
Particle Size	Gravel Fraction	%	28	49	75		
	Sand Fraction	%	37	16	11		
	Fine Particle Fraction*	%	35	37	14		
Consistency	Liquid Limit: WL	%	45.0	47.1	45.7		
	Plastic Limit: WP	%	25.7	26.9	28.0		
	Plasticity Index: IP	-	19.4	20.2	17.7		
Soil Classification	Unified Soil Classification	-	SC	GC	GC		
	AASHTO	-	A-7-6(2)	A-7-6(3)	A-2-7(0)		
	CEBTP	-	S5	S5	S5		
Compaction	Maximum Dry Density	g/cm3	1.955	2.011	2.000		
	Optimum Water Content	%	11.8	11.3	12.2		
	CBR	-	39	33	33		
Potential Yield		m3	17,156				
NOTES	*Fine Particle Fraction: Silt Fraction + Clay Fraction **UTM System Road Classification: Rural Road						

Target Route: C1			Test Object: Borrow Pit				
Category	Items	Unit	Soil Sampling Location**				
			32N 0779169 – UTM 0463894				
			No.1	No.2	No.3		
Soil Sampling	Sampling Depth	m	0.40 - 1.10	0.40 - 1.10	0.40 - 1.30		
General	Soil Particle Density	g/cm3	2.719	2.606	2.640		
	Natural Water Content	%	17.9	10.8	16.3		
Particle Size	Gravel Fraction	%	35	48	25		
	Sand Fraction	%	32	25	22		
	Fine Particle Fraction*	%	33	27	53		
Consistency	Liquid Limit: WL	%	53.8	50.4	46.0		
	Plastic Limit: WP	%	28.5	30.3	26.0		
	Plasticity Index: IP	-	25.3	20.1	20.1		
Soil Classification	Unified Soil Classification	-	GC	GC	CL		
	AASHTO	-	A-2-7(3)	A-2-7(1)	A-7-6(8)		
	CEBTP	-	S4	S5	S4		
Compaction	Maximum Dry Density	g/cm3	1.980	1.885	1.850		
	Optimum Water Content	%	12.3	12.5	13.8		
	CBR	-	25	31	30		
Potential Yield		m3	16,013				
NOTES	*Fine Particle Fraction: Silt Fraction + Clay Fraction **UTM System Road Classification: Rural Road						

Central Province: C2

Target Route: C2			Test Object: Subgrade				
Category	Items	Unit	Soil Sampling Location**				
			No.1	No.2	No.3	No.4	No.5
			PK 5+000	PK 12+000	PK 19+000	PK 26+000	
Soil Sampling	Sampling Depth	m	0 - 1.10	0 - 1.10	0 - 1.20	0 - 1.20	0 - 1.10
General	Soil Particle Density	g/cm3	2.655	2.716	2.654	2.556	2.625
	Natural Water Content	%	22.4	23.6	24.7	13.1	25.2
Particle Size	Gravel Fraction	%	1	1	1	73	1
	Sand Fraction	%	33	27	32	7	25
	Fine Particle Fraction*	%	66	72	67	20	74
Consistency	Liquid Limit: WL	%	42.8	48.7	44.5	44.7	44.2
	Plastic Limit: WP	%	26.7	30.8	31.4	33.0	25.6
	Plasticity Index: IP	-	16.2	17.8	13.1	11.7	18.6
Soil Classification	Unified Soil Classification	-	CL	CL	CL	GC	CL
	AASHTO	-	A-7-6(9)	A-7-5(12)	A-7-5(8)	A-2-7(0)	A-7-6(12)
	CEBTP	-	S3	S4	S4	S4	S3
Compaction	Maximum Dry Density	g/cm3	1.504	1.770	1.705	1.920	1.705
	Optimum Water Content	%	20.5	18.3	19.0	8.8	19.5
	CBR	-	14	16	21	28	15
NOTES	*Fine Particle Fraction: Silt Fraction + Clay Fraction **UTM System Road Classification: Rural Road						

Target Route: C2			Test Object: Borrow Pit				
Category	Items	Unit	Soil Sampling Location**				
			32N 0183166 – UTM 044 29 16				
			No.1	No.2	No.3	No.4	No.5
Soil Sampling	Sampling Depth	m	0.30 - 1.70	0.30 - 1.70	0.60 - 1.60	0.50 - 1.60	0.40 - 1.40
General	Soil Particle Density	g/cm3	2.790	2.802	2.636	2.771	2.793
	Natural Water Content	%	13.4	10.5	14.4	12.3	12.2
Particle Size	Gravel Fraction	%	72	75	68	65	64
	Sand Fraction	%	10	9	12	13	15
	Fine Particle Fraction*	%	18	16	20	22	21
Consistency	Liquid Limit: WL	%	48.8	50.5	48.2	45.3	47.3
	Plastic Limit: WP	%	30.0	28.7	28.3	27.8	28.6
	Plasticity Index: IP	-	18.7	21.8	19.9	17.5	18.6
Soil Classification	Unified Soil Classification	-	GC	GC	GC	GC	GC
	AASHTO	-	A-2-7(0)	A-2-7(0)	A-2-7(0)	A-2-7(0)	A-2-7(1)
	CEBTP	-	S6	S6	S4	S5	S5
Compaction	Maximum Dry Density	g/cm3	2.130	2.105	1.893	2.079	1.910
	Optimum Water Content	%	9.5	10.8	10.8	11.0	10.3
	CBR	-	77	72	21	44	33
Potential Yield		m3	18,681				
NOTES	*Fine Particle Fraction: Silt Fraction + Clay Fraction **UTM System Road Classification: Rural Road						

South Province: S1

Target Route: S1			Test Object: Subgrade				
Category	Items	Unit	Soil Sampling Location**				
			No.1	No.2	No.3	No.4	No.5
			32N 0761549 UTM 0341277	32N 0756249 UTM 0344018	32N 0749899 UTM 0341859	32N 0746063 UTM 0342455	32N 0742045 UTM 0342792
Soil Sampling	Sampling Depth	m	0.15 – 1.30	0.25 – 1.20	0.20 – 1.20	0.25 – 1.20	0.25 – 1.20
General	Soil Particle Density	g/cm3	2.758	2.728	2.659	2.582	2.621
	Natural Water Content	%	14.7	24.5	30.7	32.3	36.1
Particle Size	Gravel Fraction	%	66	35	1	16	7
	Sand Fraction	%	11	26	19	18	16
	Fine Particle Fraction*	%	23	39	80	66	77
Consistency	Liquid Limit: WL	%	59.4	52.1	50.6	63.2	68.4
	Plastic Limit: WP	%	33.8	37.3	38.0	35.4	22.8
	Plasticity Index: IP	-	25.6	14.8	12.6	27.8	45.7
Soil Classification	Unified Soil Classification	-	GC	GC	MH	MH	CH
	AASHTO	-	A-2-7(1)	A-7-5(2)	A-7-5(11)	A-7-5(16)	A-7-6(20)
	CEBTP	-	S4	S5	S3	S2	S4
Compaction	Maximum Dry Density	g/cm3	1,871	1.610	1.636	1.477	1.541
	Optimum Water Content	%	11.5	23.9	22.3	22.5	25.7
	CBR	-	28	31	13	8	18
NOTES	*Fine Particle Fraction: Silt Fraction + Clay Fraction **UTM System Road Classification: Rural Road						

Target Route: S1			Test Object: Borrow Pit				
Category	Items	Unit	Soil Sampling Location**				
			32N 0752487 – UTM 0342207				
			No.1	No.2	No.3	No.4	No.5
Soil Sampling	Sampling Depth	m	0.20 - 1.10	0.00 - 1.00	0.40 - 1.60	0.25 - 1.20	0.20 - 1.40
General	Soil Particle Density	g/cm3	2.902	2.899	2.820	2.789	2.819
	Natural Water Content	%	16.0	12.4	14.6	15.2	16.1
Particle Size	Gravel Fraction	%	71	73	73	64	57
	Sand Fraction	%	29	27	27	36	43
	Fine Particle Fraction*	%	23	21	21	29	32
Consistency	Liquid Limit: WL	%	51.5	50.4	55.7	49.4	49.6
	Plastic Limit: WP	%	31.5	31.4	32.8	25.8	28.1
	Plasticity Index: IP	-	20.0	19.0	22.8	23.6	21.4
Soil Classification	Unified Soil Classification	-	GC	GC	GC	GC	GC
	AASHTO	-	A-2-7(1)	A-2-7(1)	A-2-7(1)	A-2-7(2)	A-2-7(2)
	CEBTP	-	S5	S5	S5	S5	S4
Compaction	Maximum Dry Density	g/cm3	2.245	2.119	2.190	2.020	2.150
	Optimum Water Content	%	9.0	10.7	8.9	12.3	10.0
	CBR	-	39	33	32	32	30
Potential Yield		m3	9,113				
NOTES	*Fine Particle Fraction: Silt Fraction + Clay Fraction **UTM System Road Classification: Rural Road						

South Province: S2

Target Route: S2			Test Object: Subgrade				
Category	Items	Unit	Soil Sampling Location**				
			No.1	No.2	No.3	No.4	No.5
			PK 0+700	PK 2+200	PK 3+700	PK 5+200	PK 6+600
Soil Sampling	Sampling Depth	m	0 - 1.20	0 - 0.90	0.20 - 1.20	0.10 - 1.10	0 - 1.10
General	Soil Particle Density	g/cm3	2.714	2.666	2.670	2.606	2.681
	Natural Water Content	%	18.2	19.1	18.9	17.4	20.0
Particle Size	Gravel Fraction	%	16	25	50	1	5
	Sand Fraction	%	35	41	16	41	49
	Fine Particle Fraction*	%	49	34	34	58	46
Consistency	Liquid Limit: WL	%	26.9	41.0	51.0	33.7	37.0
	Plastic Limit: WP	%	16.1	28.4	36.4	16.1	22.2
	Plasticity Index: IP	-	10.8	12.6	14.5	17.7	14.8
Soil Classification	Unified Soil Classification	-	SC	SC	GC	CL	SC
	AASHTO	-	A-6(3)	A-2-7(1)	A-2-7(1)	A-6(8)	A-6(4)
	CEBTP	-	S4	S5	S4	S5	S3
Compaction	Maximum Dry Density	g/cm3	2.035	1.875	1.854	1.930	1.825
	Optimum Water Content	%	10.5	13.0	14.8	12.0	16.3
	CBR	-	28	31	30	44	15
NOTES	*Fine Particle Fraction: Silt Fraction + Clay Fraction ** Distance from the Starting Point Road Classification: Rural Road						

Target Route: S2			Test Object: Borrow Pit				
Category	Items	Unit	Soil Sampling Location**				
			32N 0760625 – UTM 0314796				
			No.1	No.2	No.3	No.4	No.5
Soil Sampling	Sampling Depth	m	0.35 - 1.10	0.35 - 1.10	1.35 - 1.60	0.40 - 1.40	0.30 - 1.70
General	Soil Particle Density	g/cm3	2.853	2.954	(1.050)	2.813	2.851
	Natural Water Content	%	19,7	17.1	16.0	25.5	16.8
Particle Size	Gravel Fraction	%	55	65	65	39	68
	Sand Fraction	%	6	6	7	12	21
	Fine Particle Fraction*	%	39	29	28	49	11
Consistency	Liquid Limit: WL	%	56.0	56.4	55.8	54.7	54.7
	Plastic Limit: WP	%	32.7	35.5	31.7	34.5	31.6
	Plasticity Index: IP	-	23.3	20.9	24.0	20.2	23.1
Soil Classification	Unified Soil Classification	-	GC	GC	GC	GC	GC
	AASHTO	-	A-7-5(4)	A-2-7(2)	A-2-7(2)	A-7-5(7)	A-7-5(3)
	CEBTP	-	S4	S5	S4	S4	S4
Compaction	Maximum Dry Density	g/cm3	1.885	2.055	2.030	1.750	1.855
	Optimum Water Content	%	15.3	13.5	14.5	18.5	16.0
	CBR	-	19	35	27	25	29
Potential Yield		m3	15,822				
NOTES	*Fine Particle Fraction: Silt Fraction + Clay Fraction **UTM System Road Classification: Rural Road						

Road Related Structures in 7 Routes

List of Related Structure
【NORTH WEST】

Route	Station	Type of Structure		Size of structure	Condition	Remarks	Plan
NW1【BAMALI(N11) - BAMALI 3 CORNERS - BALIKUMBAT】							
NW 1	0+000	-	-	-	-	**BAMALI (N11) 【START】**	
	0+500	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 6.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 9.0m
	0+600	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 6.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 9.0m
	0+700	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 6.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 9.0m
	0+800	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 6.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 9.0m
	0+900	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 6.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 9.0m
	2+400	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 6.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 9.0m
	2+500	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 6.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 9.0m
	2+700	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 6.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 9.0m
	2+900	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 6.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 9.0m
	3+000	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 6.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 9.0m
	3+200	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 6.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 9.0m
	3+300	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 6.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 9.0m
	3+350	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 6.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 9.0m
	3+400	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 6.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 9.0m
	3+450	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 6.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 9.0m
	3+500	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 6.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 9.0m
	3+550	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 6.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 9.0m
	3+600	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 6.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 9.0m
	3+650	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 6.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 9.0m
	3+700	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 6.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 9.0m
	3+750	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 6.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 9.0m
	3+800	**Bridge**	Super structure: With stone maconery, with earth slab, Sub structure: Stone maconery	Length 22.0m Width 4.5m Height: 8,5m	Sub structure: Good condition Super structure: Good Condition	Replace all	Bridge Length 22.0m (2 span) Width 7.0m Height: 8.5m
	4+000	-	-	-	-	**BAMALI 3 CORNERS**	
	4+300	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 6.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 9.0m
	4+400	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 1000mm Length 6.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 1000mm Length 9.0m

Route	Station	Type of Structure		Size of structure	Condition	Remarks	Plan
	4+700	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 6.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 9.0m
	4+800	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 6.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 9.0m
	4+900	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 6.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 9.0m
	5+000	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 6.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 9.0m
	5+100	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 6.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 9.0m
	5+600	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 6.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 9.0m
	6+100	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 1000mm Length 6.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 1000mm Length 9.0m
	6+300	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 6.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 9.0m
	6+900	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 1500mm Length 6.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Box culvert W1.5m x H1.5m Length 9.0m
	6+950	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 6.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 9.0m
	6+950					Pipe culvert should be provided @ junction to NW3	Concrete Pipe Diameter 800mm Length 9.0m
NW 1	7+200	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 6.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 9.0m
	7+300	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 6.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 9.0m
	7+420	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 6.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 9.0m
	7+480	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 6.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 9.0m
	7+580	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 6.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 9.0m
	7+840	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 6.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 9.0m
	7+980	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 6.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 9.0m
	8+130	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 6.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 9.0m
	8+260	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 6.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 9.0m
	8+400	**Bridge**	Super structure: With stone maconery, with earth slab, Sub structure: Stone maconery	Length 6.0m Width 3.5m Height: 3.5m	Sub structure: Fair condition Super structure: Fair Condition	Replace to Box Culvert	Box Culvert W 3.5m × H 3.5m Length 9.0m
	9+250	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 6.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 9.0m
	9+500	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 6.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 9.0m
	9+700	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 6.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 9.0m
	10+400	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 6.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 9.0m

Route	Station	Type of Structure		Size of structure	Condition	Remarks	Plan
NW1	11+400	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 6.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 9.0m
	11+600	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 6.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 9.0m
	12+000	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 6.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 9.0m
	12+050	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 6.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 9.0m
	12+450	**Bridge**	Super structure: With reinforced conc, with conc slab, Sub structure: Stone maconery	Length 6.0m Width 4.5m Height: 4.5m	Sub structure: Good condition Super structure: Good Condition	Keep	-
	12+600	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 6.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 9.0m
	13+100	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 6.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 9.0m
	13+300	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 6.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 9.0m
	13+400	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 6.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 9.0m
	14+000	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 6.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 9.0m
	15+000	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 6.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 9.0m
	15+500	-	-	-	-	**BALIKUMBAT 【END】**	
NW2【BAMALI 3 CORNERS - BAMBALANG】							
NW 2	0+000	-	-	-	-	**BAMALI 3 CORNERS【START】**	
	0+100	**Bridge**	Super structure: With stone maconery Sub structure: Stone maconery	Length 6.0m Width 2.5m Height: 2.5m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace to Box Culvert	Box culvert W2.5m x H2.5m Length 6.0m
	0+200	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 6.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	0+900	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 6.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	1+300	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 6.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	1+350	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 6.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	1+900	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 6.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	2+800	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 6.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	2+900	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 6.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	3+600	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 6.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	4+100	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 6.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	5+920	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 6.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	6+800	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 6.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m

Route	Station	Type of Structure		Size of structure	Condition	Remarks	Plan
	8+100	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 6.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	9+200	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 6.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	9+900	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 6.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	10+800	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 6.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	12+600	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 6.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	13+300	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 6.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	13+500	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 6.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	14+300	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 6.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	14+500	-	-	-	-	**BAMBALANG 【END】**	

NW 3A【NSEMI JUNCTION - BAMESSING (N11)】							
NW 3A	0+000	-	-	-	-	**NSEMI JUNCTION【START】**	
	1+350	**Bridge**	Super structure: I Beam, with Wooden slab, Sub structure: Concrete	Length 6.0m Width 4.0m Height: 5.0m	Sub structure: Bad condition Super structure: Good Condition	Slab is replace by concrete	Bridge Concrete Slab only Length 6.0m Width 5.0 m
		Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 4.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	2+120	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 4.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	2+200	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 4.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	2+230	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 4.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	2+350	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 4.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	3+020	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 4.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	3+100	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 4.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	3+160	**Bridge**	Super structure: I Beam, with Concrete slab, Sub structure: Stone maç onery	Length 6.0m Width 4.0m Height: 5.0m	Sub structure: Good condition Super structure: Good Condition	Keep	-
	3+300	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 4.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	3+500	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 4.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	3+550	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 4.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	5+700	Box culvert	Super structure: U shape with concrete , with Concrete slab, Sub structure: Concrete	Length 4m Width 0.8m Height: 0.8m	Sub structure: Good condition Super structure: Good Condition	**BABANKI RICE FIELD** Replace	Box culvert W1.0m x H1.0m Length 6.0m
	5+080	**Bridge**	Super structure: I Beam, with Concrete slab, Sub structure: Stone maç onery	Length 6.0m Width 4.0m Height: 5.0m	Sub structure: Good condition Super structure: Good Condition	Keep	-
	6+000	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 4.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m

Route	Station	Type of Structure		Size of structure	Condition	Remarks	Plan
	6+170	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 4.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	6+400	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 4.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	7+200	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 4.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	7+900	-	-	-	-	**MBELUE**	
	8+100	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 4.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	9+100	Box culvert	Super structure: with stone maçonery Sub structure: stone	Length 4.0m Width 1.4m Height: 1.4m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Box culvert W1.5m x H1.5m Length 6.0m
	9+700	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 4.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	10+000	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 4.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	10+ 300	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 4.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
NW 3A	10+400	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 4.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	10+600	**Bridge**	Super structure: with stone, Sub structure: Stone maç onery	Length 15.0m Width 4.0m Height: 5.0m	Sub structure: Good condition Super structure: Good Condition	Replace all	Bridge, Length 15.0m Width 6.00m Height: 5.0m
	10+800	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 4.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	11+000	-	-	-	-	**BAMESSING (N11)** **【END】**	
NW 3B【BABANKI RICE FIELD - D72】							
NW 3B	0+00	-	-	-	-	**BABANKI RICE FIELD【START】**	
	0+100	Box culvert	Super structure: U shape with Concrete , with Concrete slab, Sub structure: Concrete	Length 4m Width 0.8m Height: 0.8m	Sub structure: Poor condition Super structure: Good Condition	Replace	Box culvert W1.0m x H1.0m Length 6.0m
	0+300			Length - Width - Height -		To be provide Box Culvert	Box Culvert W1.5m x H1.5m Length 6.0m
	1+000	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 4.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	1+300	Box culvert	Super structure: with Concrete Sub structure: Concrete	Length 4.0m Width 1.0m Height: 1.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace	Box culvert W1.0m x H1.0m Length 6.0m
	1+550	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 4.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	1+600	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 4.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	1+700	Box culvert	Super structure: with Concrete Sub structure: Concrete	Length 4.0m Width 1.0m Height: 1.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace	Box culvert W1.0m x H1.0m Length 6.0m
	2+100	Box culvert	Super structure: with Concrete Sub structure: Concrete	Length 4.0m Width 1.0m Height: 1.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace	Box culvert W1.0m x H1.0m Length 6.0m
	2+800	Box culvert	Super structure: with Concrete Sub structure: Concrete	Length 4.0m Width 1.0m Height: 1.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace	Box culvert W1.0m x H1.0m Length 6.0m
	3+400	Box culvert	Super structure: with Concrete Sub structure: Concrete	Length 4.0m Width 1.0m Height: 1.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace	Box culvert W1.0m x H1.0m Length 6.0m
	3+800	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 4.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	4+100	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 4.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	4+150	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 4.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	4+500	Box culvert	Super structure: with Concrete Sub structure: Concrete	Length 4.0m Width 1.4m Height: 1.4m	Sub structure: Good condition Super structure: Good Condition	To be replaced because of overflow	Box culvert W2.0m x H1.5m Length 6.0m
	4+600	-	-	-	-	**D72【END】**	

List of Related Structure

【CENTRAL】

Route	Station	Type of Structure		Size of structure	Condition	Remarks	Plan
C1A【 MBOUA - MBELE II J.C.1 - MBELE II J.C.2 - MENGAMA J.C.1 - MENGAMA J.C.2 - LEPOPOMO - MVAN 】							
C1A	0+000	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 4.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	**MBOUA【START】**	Concrete Pipe Diameter 800mm Length 6.0m
	0+020	Gate	-	-	-	Replace all	Rain gate (new construction)
	0+270	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 4.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	0+650	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 4.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace to Box Culvert	Box culvert W2.0m x H1.0m Length 6.0m
	0+970	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 4.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	1+150	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 4.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	1+700	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 4.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	2+460	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 4.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all **MBELE II J.C.1**	Concrete Pipe Diameter 800mm Length 6.0m
	3+000	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 4.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all **MBELE II J.C.2**	Concrete Pipe Diameter 800mm Length 6.0m
	3+800	**Bridge**	Super structure: I Beam, with Conc slab, Sub structure: Stone maçonery	Length 6.0m Width 4.0m Height: 5.0m	Sub structure: Good condition Super structure: Good Condition	Keep	-
	4+300	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 4.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	6+000	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 4.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	6+500	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 4.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	7+550	Pipe culvert (set)	Pipe: reinforced concrete Inlet Outlet: reinforced conc	2set: (Diameter 1000mm Length 4.0m) 3set: (Diameter 500mm	Pipe: good condition Inlet: Good condition Out let: good condition	Keep	-
	7+850	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 4.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	8+000	-	-	-	-	**NKOLODOGO**	
	8+300	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 4.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	8+750	-	-	-	-	**MENGAMA J.C.1**	
	9+000	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 4.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	9+300	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 4.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	9+900	-	-	-	-	**MENGAMA J.C.2**	
	10+500	-	-	-	-	**LEPOPOMO**	
	11+000	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 4.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	11+200	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 4.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	11+700	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 4.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m

List of Related Structure

【CENTRAL】

Route	Station	Type of Structure		Size of structure	Condition	Remarks	Plan
C1A【 MBOUA - MBELE II J.C.1 - MBELE II J.C.2 - MENGAMA J.C.1 - MENGAMA J.C.2 - LEPOPOMO - MVAN 】							
C1A	0+000	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 4.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	**MBOUA【START】**	Concrete Pipe Diameter 800mm Length 6.0m
	0+020	Gate	-	-	-	Replace all	Rain gate (new construction)
	0+270	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 4.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	0+650	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 4.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace to Box Culvert	Box culvert W2.0m x H1.0m Length 6.0m
	0+970	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 4.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	1+150	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 4.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	1+700	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 4.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	2+460	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 4.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all **MBELE II J.C.1**	Concrete Pipe Diameter 800mm Length 6.0m
	3+000	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 4.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all **MBELE II J.C.2**	Concrete Pipe Diameter 800mm Length 6.0m
	3+800	**Bridge**	Super structure: I Beam, with Conc slab, Sub structure: Stone maçonery	Length 6.0m Width 4.0m Height: 5.0m	Sub structure: Good condition Super structure: Good Condition	Keep	-
	4+300	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 4.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	6+000	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 4.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	6+500	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 4.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	7+550	Pipe culvert (set)	Pipe: reinforced concrete Inlet Outlet: reinforced conc	2set: (Diameter 1000mm Length 4.0m) 3set: (Diameter 500mm	Pipe: good condition Inlet: Good condition Out let: good condition	Keep	-
	7+850	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 4.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	8+000	-	-	-	-	**NKOLODOGO**	
	8+300	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 4.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	8+750					**MENGAMA J.C.1**	
	9+000	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 4.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	9+300	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 4.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	9+900	-	-	-	-	**MENGAMA J.C.2**	
	10+500	-	-	-	-	**LEPOPOMO**	
	11+000	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 4.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	11+200	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 4.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	11+700	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 4.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m

Route	Station	Type of Structure		Size of structure	Condition	Remarks	Plan
C1A	12+500	-	-	-	-	**MVAN**	
	12+600	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 4.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	13+300	**Bridge**	Super structure: I Beam, with Conc slab, Sub structure: Stone maçonery	Length 4.80m Width 4.6m Height: 5.0m	Sub structure: Good condition Super structure: Good Condition	Keep **【END】**	-
C1B【 MBELE II J.C.1 - EDOKASI 】							
C1B	0+000	-	-	-	-	**MBELE II【START】**	
	1+300	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 4.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	1+950	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 4.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	3+800	-	-	-	-	**EDOKASI【END】**	
C1C【 MBELE II J.C.2 - NKOLEDUMA (N4) 】							
C1C	0+000	-	-	-	-	**MBELE II J.C.2【START】**	
	1+150	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 4.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	2+200	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 4.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	3+500	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 4.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	3+900	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 4.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	4+400	-	-	-	-	**NKOLEDOUMA (N4) 【END】**	
C1D【 MENGAMA - NTSAEKANG (P13) 】							
C1D	0+000	-	-	-	-	**MENGAMA J.C.1 【START】**	
	0+170	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 4.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	2+300	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 4.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	2+400	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 4.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	2+800	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 4.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	3+400					**NTSAEKANG (P13) 【END】**	
C2【 KOUNDOU (N10) - ATE J.C. - MENGUEMESSI (P23) 】							
C2	0+000	-	-	-	-	**KOUNDOU (N10) 【START】**	
	6+600	Pipe culvert (set of 3)	Pipe: Iron pipe Inlet Outlet :	Diameter 1000mm Length 6.0m	Pipe: Bad condition Inlet: Sedimentation Out let: Sedimentation	Replace all	Concrete Pipe Diameter 1000mm Length 6.0m
	9+050	**Bridge**	Wooden bridge	Length 4.0m Width 3.5m Height: 1.8m	Sub structure: Bad condition Super structure: Bad Condition	Replace to Box Culvert	Box culvert W2.0m x H2.0m x 2 barrel Length 6.0m
	9+150	**Bridge**	Wooden bridge	Length 8.6m Width 3.5m Height 2.4m	Sub structure: Bad condition Super structure: Bad Condition	Replace all Bridge Structure	Bridge Length 9.0m Width 6.0m Height 4.0m

Route	Station	Type of Structure		Size of structure	Condition	Remarks	Plan
C2	16+200	**Bridge**	Wooden bridge	Length 3.0m Width 3.5m Height: 2.0m	Sub structure: Bad condition Super structure: Bad Condition	Replace to Box Culvert	Box culvert W2.0m x H2.0m x 2 barrel Length 6.0m
	21+400	-	-	-	-	**ATE J.C.**	
	21+500	Pipe culvert	Pipe: Iron pipe Inlet Outlet: Stone masonry	Diameter 800mm Length 4.0m	Pipe: Bad condition Inlet: Good condition Out let: Bad condition	Replace all	Concrete Pipe Diameter 800mm Length 6.0m
	22+600	**Bridge**	Wooden bridge	Length 3.5m Width 3.5m Height: 1.8m	Sub structure: Bad condition Super structure: Bad Condition	Replace to Box Culvert	Box culvert W2.0m x H2.0m x 2 barrel Length 6.0m
	25+750	**Bridge**	Wooden bridge	Length 3.5m Width 3.5m Height: 1.5m	Sub structure: Bad condition Super structure: Bad Condition	Replace to Box Culvert	Box culvert W2.0m x H1.5m x 2 barrel Length 6.0m
	26+600	-	-	-	-	Need to Install	Concrete Pipe Diameter 800mm Length 6.0m
	27+700	**Bridge**	Wooden bridge	Length 4.0m Width 3.5m Height: 1.4m	Sub structure: Bad condition Super structure: Bad Condition	Replace to Box Culvert	Box culvert W2.0m x H1.5m x 2 barrel Length 6.0m
	27+900	**Bridge**	Wooden bridge	Length 2.0m Width 3.5m Height: 1.3m	Sub structure: Bad condition Super structure: Bad Condition	Replace all	Box culvert W2.0m x H1.5m x 2 barrel Length 6.0m
	29+100	-	-	-	-	Need to Install	Concrete Pipe Diameter 800mm Length 6.0m
	30+350	**Bridge**	Wooden bridge	Length 2.5m Width 3.5m Height: 2.0m	Sub structure: Bad condition Super structure: Bad Condition	Replace to Box Culvert	Box culvert W2.0m x H2.0m x 2 barrel Length 6.0m
	30+430	**Bridge**	Wooden bridge	Length 4.6m Width 3.5m Height: 2.2m	Sub structure: Bad condition Super structure: Bad Condition	Replace to Box Culvert	Box culvert W2.0m x H2.0m x 2 barrel Length 6.0m
	32+200	**Bridge**	Wooden bridge	Length 5.0m Width 3.5m Height: 1.7m	Sub structure: Bad condition Super structure: Bad Condition	Replace to Box Culvert	Box culvert W2.0m x H2.0m x 2 barrel Length 6.0m
	35+120	-	-	-	-	Need to Install	Concrete Pipe Diameter 800mm Length 6.0m
	35+120	**Bridge**	Wooden bridge	Length 12.5m Width 3.5m Height: 3.0m	Sub structure: Bad condition Super structure: Bad Condition	Replace	Bridge Length 12.5m Width 6.0m Height: 4.0m
	36+500	-	-	-	-	**MENGUEMESSI (P23)** **【END】**	

List of Related Structure

【SOUTH】

Route	Station	Type of Structure		Size of structure	Condition	Remarks	Plan
S1【NGOULEMAKONG (N2) - BIWONG BANE (D42)】							
S1	0 + 000	-	-	-	-	**NGOULEMAKONG (N2)【START】**	
	1 + 900	Concrete Box Culvert	Reinforced concrete	w x h : 2000mm X 1500 mm Length 7.0m	Culvert: good condition Inlet: Good condition Out let: Good condition	keep	-
	2 + 480	**Bridge**	Super structure: I Beam, with Wooden slab, Sub structure: Concrete	Length 6.0m Width 3.5m	Sub structure: Good condition Super structure: Good Condition	Slab is replace by concrete	Bridge Concrete Slab only Length 6.0m Width 5.0 m
	2 + 500	Pipe culvert	Pipe: concrete pipe Inlet Outlet: Reinforced concrete	Diameter 800mm Length 7.0m	Pipe: Good condition Inlet: Good condition Out let: Good condition	keep	-
	3 + 490	Pipe culvert	Pipe: concrete pipe Inlet Outlet: Reinforced concrete	Diameter 800mm Length 7.0m	Pipe: Good condition Inlet: Good condition Out let: Good condition	keep	-
	4 + 050	Pipe culvert	Pipe: concrete pipe Inlet Outlet: Reinforced concrete	Diameter 800mm Length 7.0m	Pipe: Good condition Inlet: Good condition Out let: Good condition	keep	-
	5 + 100	Pipe culvert	Pipe: concrete pipe Inlet Outlet: Reinforced concrete	Diameter 800mm Length 7.0m	Pipe: Good condition Inlet: Good condition Out let: Good condition	keep	-
	5 + 550	**Bridge**	Super structure: I Beam, with Wooden slab, Sub structure: Stone maconery	Length 6.0m Width 3,50m	Sub structure: Good condition Super structure: Good Condition	Slab is replace by concrete	Bridge Concrete Slab only Length 6.0m Width 5.0 m
	5 + 950	Pipe culvert	Pipe: conc pipe Inlet Outlet: Reinforced conc	Diameter 800mm Length 7.0m	Pipe: Good condition Inlet: Good condition Out let: Good condition	keep	-
	6 + 250	Pipe culvert	Pipe: conc pipe Inlet Outlet: Reinforced conc	Diameter 800mm Length 7.0m	Pipe: Good condition Inlet: Good condition Out let: Good condition	keep	-
	7 + 340	Pipe culvert	Pipe: conc pipe Inlet Outlet: Reinforced conc	Diameter 800mm X 2 Length 7.0m	Pipe: Good condition Inlet: Good condition Out let: Good condition	keep	-
	8 + 050	**Bridge**	Super structure: I Beam, with Wooden slab, Sub structure: Stone maconery	Length 6.0m Width 3,50m	Sub structure: Good condition Super structure: Good Condition	Slab is replace by concrete	Bridge Concrete Slab only Length 6.0m Width 5.0 m
	9 + 830	Pipe culvert	Pipe: concrete pipe Inlet Outlet: Reinforced concrete	Diameter 800mm Length 7.0m	Pipe: Good condition Inlet: Good condition Out let: Good condition	keep	-
	10 + 150	Pipe culvert	Pipe: concrete pipe Inlet Outlet: Reinforced concrete	Diameter 1000mm Length 7.0m	Pipe: Good condition Inlet: Good condition Out let: Good condition	keep	-
	10 + 700	Pipe culvert	Pipe: concrete pipe Inlet Outlet: Reinforced concrete	Diameter 800mm Length 7.0m	Pipe: Good condition Inlet: Good condition Out let: Good condition	keep	-
	11 + 180	Pipe culvert	Pipe: concrete pipe Inlet Outlet: Reinforced concrete	Diameter 1000mm Length 7.0m	Pipe: Good condition Inlet: Good condition Out let: Good condition	keep	-
	11 + 850	Pipe culvert	Pipe: concrete pipe Inlet Outlet: Reinforced concrete	Diameter 800mm Length 7.0m	Pipe: Good condition Inlet: Good condition Out let: Good condition	keep	-
	12 + 000	Concrete Box Culvert	Reinforced concrete	w X h : 2000mm X 1500 mm X 1 Length 7.0m	Culvert: good condition Inlet: Good condition Out let: good condition	keep	-
	14 + 350	**Bridge**	Super structure: I Beam, with Wooden slab, Sub structure: Reinforced concrete	Length 12.0m Width 3.5m	Sub structure: Good condition Super structure: Fair Condition	Slab should be replaced by concrete	Bridge Concrete Slab only Length 12.0m Width 5.0 m
	14 + 420	Concrete Box Culvert	Reinforced concrete	w X h : 2000mm X 1500 mm X 2 Length 7.0m	Culvert: good condition Inlet: Good condition Out let: good condition	keep	-
	14 + 460	Concrete Box Culvert	Reinforced concrete	w X h : 2000mm X 1500 mm X 2 Length 7.0m	Culvert: good condition Inlet: Good condition Out let: good condition	keep	-
	14 + 500	Concrete Box Culvert	Reinforced concrete	w X h : 2000mm X 2000 mm X 2 Length 7.0m	Culvert: good condition Inlet: Good condition Out let: good condition	keep	-
	17 + 280	Pipe culvert	Pipe: concrete pipe Inlet Outlet: Reinforced concrete	Diameter 800mm Length 7.0m	Pipe: Good condition Inlet: Good condition Out let: Good condition	keep	-
	18 + 950	Concrete Box Culvert	Reinforced concrete	w X h : 2000mm X 1500 mm X 1 Length 7.0m	Culvert: good condition Inlet: Good condition Out let: good condition	keep	-
	20 + 400	Pipe culvert	Pipe: concrete pipe Inlet Outlet: Reinforced concrete	Diameter 800mm Length 7.0m	Pipe: Good condition Inlet: Good condition Out let: Good condition	keep	-

Route	Station	Type of Structure		Size of structure	Condition	Remarks	Plan
S1	20 + 470	Pipe culvert	Pipe: concrete pipe Inlet Outlet: Reinforced concrete	Diameter 800mm Length 7.0m	Pipe: Good condition Inlet: Good condition Out let: Good condition	keep	-
	20 + 950	Pipe culvert	Pipe: concrete pipe Inlet Outlet: Reinforced concrete	Diameter 800mm Length 7.0m	Pipe: Good condition Inlet: Good condition Out let: Good condition	keep	-
	22 + 150	Concrete Box Culvert	Reinforced concrete	w X h : 2000mm X 1500 mm X 1 Length 7.0m	Culvert: good condition Inlet: Good condition Out let: good condition	keep	-
	24 + 080	Concrete Box Culvert	Reinforced concrete	w X h : 2000mm X 1500 mm X 1 Length 7.0m	Culvert: good condition Inlet: Good condition Out let: good condition	keep	-
	27 + 330	**Bridge**	Super structure: I Beam, with Wooden slab, Sub structure: Stone maconery	Length 6.0m Width 3.5m Height: 5.0m	Sub structure: Good condition Super structure: Fair Condition	Slab should be replaced by concrete	Bridge Concrete Slab only Length 6.0m Width 5.0 m
	28 + 330	Pipe culvert	Pipe: concrete pipe Inlet Outlet: Reinforced concrete	Diameter 800mm Length 7.0m	Pipe: Good condition Inlet: Good condition Out let: Good condition	keep	-
	28 + 850	Pipe culvert	Pipe: concrete pipe Inlet Outlet: Reinforced concrete	Diameter 800mm Length 7.0m	Pipe: Good condition Inlet: Good condition Out let: Good condition	keep	-
	29 + 900	Pipe culvert	Pipe: concrete pipe Inlet Outlet: Reinforced concrete	Diameter 800mm Length 7.0m	Pipe: Good condition Inlet: Good condition Out let: Good condition	keep	-
	30 + 250	**Bridge**	Super structure: I Beam, with Wooden slab, Sub structure: Concrete	Length 6.0m Width 3,5.0m Height: 5.0m	Sub structure: Good condition Super structure: Good Condition	Slab should be replaced by concrete	Bridge Concrete Slab only Length 6.0m Width 5.0 m
	30 + 890	Pipe culvert	Pipe: concrete pipe Inlet Outlet: Reinforced concrete	Diameter 800mm Length 7.0m	Pipe: Good condition Inlet: Good condition Out let: Good condition	keep	-
	31 + 300	Concrete Box Culvert	Reinforced concrete	w X h : 2000mm X 1500 mm X 1 Length 7.0m	Culvert: good condition Inlet: Good condition Out let: good condition	keep	-
	32 + 800	Pipe culvert	Pipe: concrete pipe Inlet Outlet: Reinforced concrete	(Diameter 800mm Length 7.0m) X 2	Pipe: Good condition Inlet: Good condition Out let: Good condition	keep	-
	32 + 940	Pipe culvert	Pipe: concrete pipe Inlet Outlet: Reinforced concrete	(Diameter 800mm Length 7.0m) X 2	Pipe: Good condition Inlet: Good condition Out let: Good condition	keep	-
	33 + 230	Pipe culvert	Pipe: concrete pipe Inlet Outlet: Reinforced concrete	Diameter 800mm Length 7.0m	Pipe: Good condition Inlet: Good condition Out let: Good condition	keep	-
	33 + 800	Pipe culvert	Pipe: concrete pipe Inlet Outlet: Reinforced concrete	Diameter 800mm Length 7.0m	Pipe: Good condition Inlet: Good condition Out let: Good condition	keep	-
	34 + 350	Pipe culvert	Pipe: concrete pipe Inlet Outlet: Reinforced concrete	Diameter 800mm Length 7.0m	Pipe: Good condition Inlet: Good condition Out let: Good condition	keep	-
	35 + 080	Concrete Box Culvert	Reinforced concrete	w X h : 2000mm X 1500 mm Length 7.0m	Culvert: good condition Inlet: Good condition Out let: good condition	keep	-
	35 + 170	Pipe culvert	Pipe: concrete pipe Inlet Outlet: Reinforced concrete	Diameter 800mm Length 7.0m	Culvert: good condition Inlet: Good condition Out let: good condition	keep	-
	35 + 420	Pipe culvert	Pipe: concrete pipe Inlet Outlet: Reinforced concrete	Diameter 800mm Length 7.0m	Culvert: good condition Inlet: Good condition Out let: good condition	keep	-
	36 + 050	**Bridge**	Super structure: I Beam, with Wooden slab, Sub structure: Concrete	Length 6.0m Width 3.5m Height: 5.0m	Sub structure: Good condition Super structure: Good Condition	Slab should be replaced by concrete	Bridge Concrete Slab only Length 6.0m Width 5.0 m
	36 + 380	Concrete Box Culvert	Reinforced concrete	w X h : 2000mm X 2000 mm Length 7.0m	Culvert: good condition Inlet: Good condition Out let: good condition	keep	-
	37 + 330	**Bridge**	Super structure: I Beam, with Wooden slab, Sub structure: Stone maconery	Length 6.0m Width 3,5.0m Height: 5.0m	Sub structure: Good condition Super structure: Good Condition	Slab should be replaced by concrete	Bridge Concrete Slab only Length 6.0m Width 5.0 m
	38 + 050	Pipe culvert	Pipe: concrete pipe Inlet Outlet: Reinforced concrete	Diameter 800mm Length 7.0m	Pipe: Good condition Inlet: Good condition Out let: Good condition	keep	-
	38 + 450	Concrete Box Culvert	Reinforced concrete	w X h : 2000mm X 1500 mm Length 7.0m	Culvert: good condition Inlet: Good condition Out let: good condition	keep	-
	39 + 190	-	-	-	-	**BIWONG BANE (D42)【END】**	

Pavement Structural Design (*AASHTO Guideline for Design of Pavement Structure*, 1993)

1. Flexible Pavement Design

$$log10(W18) = ZR \times So + log10(SN + 1) - 0.20 + \frac{log10\frac{\Delta PSI}{4.2 - 1.5}}{0.40 + \frac{1094}{(SN+1)^{5.19}}} + 2.32 \times log10(MR) - 8.07$$

Monograph Solves

W18: Predicted Number of 18-kip Equivalent Single Axle Load Applications

ZR: Standard Normal Deviate = 0

So: Overall Standard Error of the Traffic Prediction and Performance Prediction = 0.45 (Asphalt)

SN: Structural Number $= a_1D_1 + a_2D_2m_2 + a_3D_3m_3$

a_i: i th Layer Coefficient

D_i: i th Layer Thickness (inches),

m_i: i th Layer Drainage Coefficient

⊿PSI: Po－Pt

Po: Initial Design Serviceability Index ＝ 4.2 (Asphalt)

Pt: design terminal Serviceability Index ＝ 2.0 (non main road)

MR: Resilient Modules (psi)＝1,500×CBR＝1,500 × 6 (Lowest Value@NW1) ＝ 9,000

Layer coefficient

a_1 = 0.35 (Surface Course: Asphalt Concrete)

a_2 = 0.14 (Base Course: Cement Stabilized Nodular Laterite 2.5MPh)

a_3 = 0.10 (Subbase Course: Crusher-run Stone, CBR = 6 average)

Drainage Coefficient

m_2 = 1.0 (Drainage Coefficient of Base Course)

m_3 = 1.0 (Drainage Coefficient of Subbase Corse)

2. Related Data for Calculation

Traffic volume of different type vehicles was calculated based on the result of traffic survey with following assumption.

Design Period	10 years
Annual Rate of Increase	5%

In this part, 3 types of large vehicle are targeted for the calculation of design structural number (SN) with monograph above, and the results are as shown in the table below. For the calculation, SN=3 is selected as initial SN.

SN=3 Pt=2.0

Type of Vehicle	Distribution Ratio of Vehicle (%)	Number of Vehicle / Day	Load Coefficient	Number of Axle / Day	Number of Axle / 10 Years	Number of Axle	kips	Load on Rear Wheel
11Ton	60	63	3.43	216.09	788,729	2	24.25	4.85
25Ton	10	11	7.93	83.27	303,917	3	55.12	5.51
22Ton (Dump Truck)	30	32	4.72	148.68	542,682	3	48.50	4.85
Total	100	105	4.27	448	1,635,328	-	-	-

For the initial SN=3, the design SN=3.05 is obtained by assigning design inputs.

W18 =	1,635,328		*ESALs Applications Over Design Period*	Typ. Range 0.1 to 80 million
R =	75	%	*Reliability*	Typ. Range 50 to 80%
So =	0.45		*Standard Deviation*	Typ. Range 0.3 to 0.5
MR =	9,000	psi	*Subgrade Resilient Modulus*	Typ. Range 6000 to 24000 psi
Pi =	4.2		*Initial Serviceability*	Typ. Range 4.4 to 4.8
Pt =	2.0		*Terminal Serviceability*	Typ. Range 2.0 to 3.0

3. Selection of Layer Thickness

When the pavement condition set as follows, the SN = 3.14 > 3.05.

Layer No.	**Description**	**Layer Coefficient, a_i**	**Drainage Coefficient, m_i**	**Layer Thickness, inches**	**SN**
Layer 1	Asphalt	0.35	1.00	2.00	0.70
Layer 2	Base Course	0.14	1.00	6.00	0.84
Layer 3	Subbase Course	0.10	1.00	16.00	1.60
Trial SN					**3.14**

Thus, paving thickness of each layer must be as follows.

Layer	Thickness
Asphalt Pavement	5 cm
Base Course	15 cm
Subbase Course	40 cm

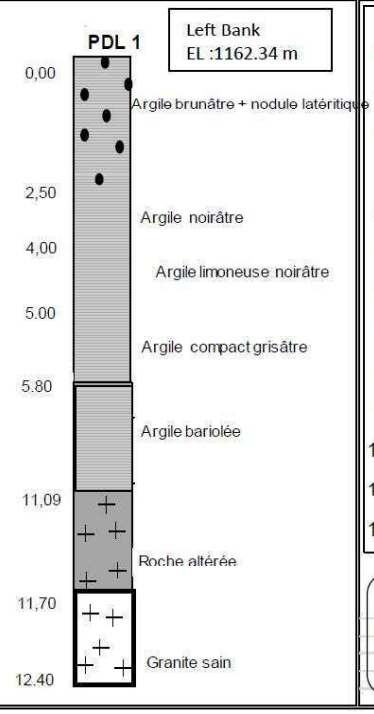
Note: Weight of Vehicle

Type of Vehicle	Name of Products	Structure of Axle (Total Number of Wheel×Number of Driving Wheel)	Number of Axle	Deadweight kg	Maximum Load kg	Gross Vehicle Weight kg
11t Cargo Truck	UD Trucks TKG-LK39NKHHDB	4×2	2	4,550	6,300	10,960
25t Cargo Truck	UD Trucks QKG-CD5ZAWHVDQ	6×2	3	9,090	15,700	24,900
22t Dump Truck	UD Trucks QKG-CW5YLNDVDP	6×4	3	10,795	11,000	21,905

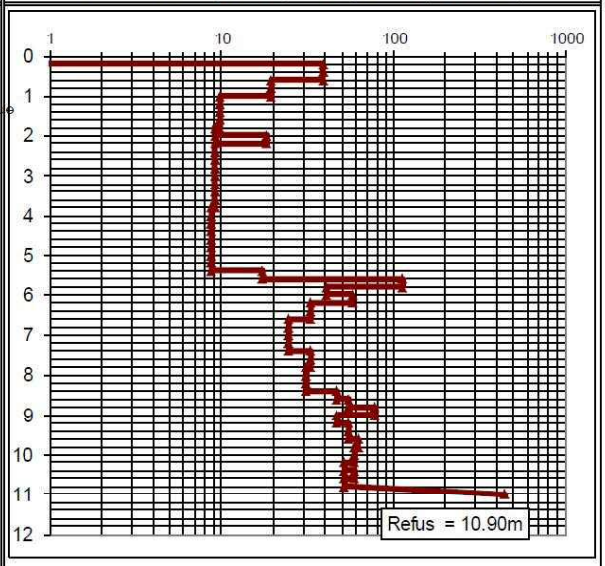
Standard Penetration Test for Bridge Construction (NW1)

BRECG BP : 7883 YDE Tél : 222-08-21 Fax : 222-31-59	Chantier : PROJET NTCI - BAMALI - 3C - BALOKUMBAT Ouvrage : RIVIERE MEKUENE 5 Monkey River)	PENETROMETRE DYNAMIQUE LOURD
Repère:	32N0657173 UTM 065 8303	Date : 20/11/2016

Coupe lithologique des tarrières manuelles



Résistance dynamique en pointe (daN/cm2)



Cactéristiques du pénétromètre		
Masse active	63,5	kg
Hauteur de chu	70	cm
Masse de l'enc	2189	kg
Poids unitaire (	5,73	kg
Section de la p	15,9	cm2

Profondeur finale de l'essai		
PDL	0	m
	0	m
	0	m

Schéma d'implantation des sondages

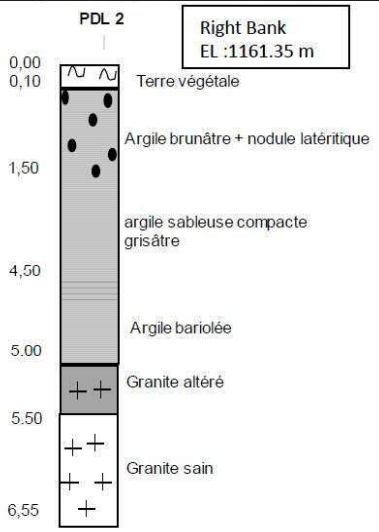
Tableau résumé des pénétrogrammes

Désignation du point de sondage	Cote par rapport au niveau du sol (fond du déblai) (m)		Résistance en pointe représentative (bars)	Capacité portante admissible (bars)
	de	à		
PDL1	0,00	0,20	1	0,05
	0,20	0,60	40	2,0
	0,60	1,00	20	1,0
	1,00	1,80	10	0,5
	1,80	5,40	9	0,45
	5,40	6,60	22	1,1
	6,60	7,40	24	1,2
	7,40	8,40	30	1,5
	8,40	9,00	38	1,9
	9,00	10,90	50	2,5
	10,90		Refus	

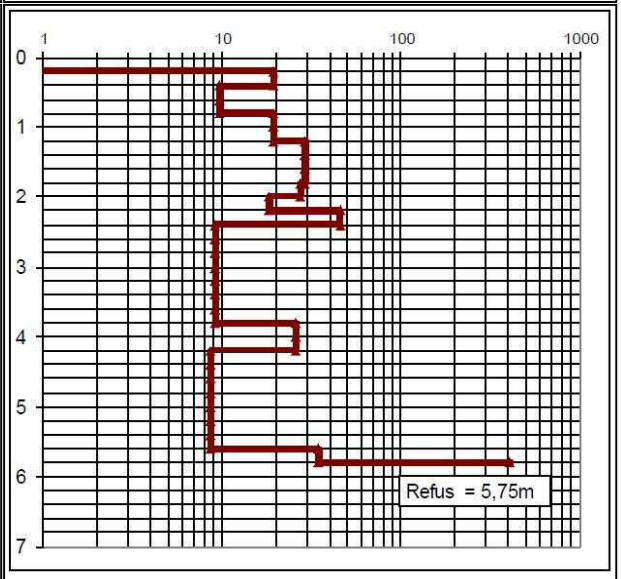
Niveau d'eau : 4,3 Refus : 10,90m

BRECG BP : 7883 YDE Tél : 222-08-21 Fax : 222-31-59	Chantier : PROJET NTCI - BAMALI - 3C - BALOKUMBAT Ouvrage : RIVIERE MEKUENE 5 Monkey River)	PENETROMETRE DYNAMIQUE LOURD
Repère:	32N0657195 UTM 065 8283	Date : 20/11/2016

Coupe lithologique des tarrières manuelles



Résistance dynamique en pointe (daN/cm2)



Cactéristiques du pénétromètre		
Masse active	63,5	kg
Hauteur de chu	70	cm
Masse de l'enc	2189	kg
Poids unitaire	5,73	kg
Section de la p	15,9	cm2

Profondeur finale de l'essai		
PDL	0	m
	0	m
	0	m

Schéma d'implantation des sondages

Tableau résumé des pénétrogrammes

Désignation du point de sondage	Cote par rapport au niveau du sol (fond du déblai) (m)		Résistance en pointe représentative (bars)	Capacité portante admissible (bars)
	de	à		
PDL2	0,00	0,20	1	0,05
	0,20	0,80	10	0,5
	0,80	2,40	18	0,9
	2,40	5,60	9	0,45
	5,60	5,75	34-400	1,7-20,0
	5,75		Refus	

Niveau d'eau : 3,50 Refus : 5,75m