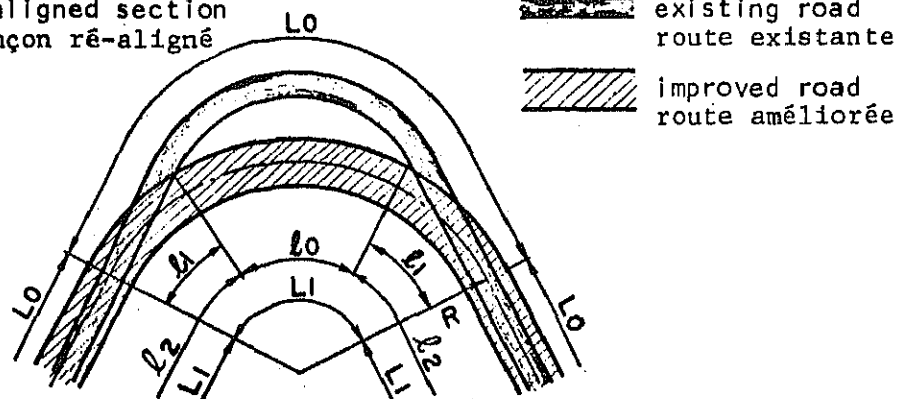


A.3.4.3 **Geometric Characteristics of Improved Alignment**
Caractéristiques Géométriques du Tracé Amélioré

NOTE

Location Emplacement :	based on the existing kilometer post suivant au poste kilomètre existante
R :	Radius of improved alignment Rayon d'alignement amélioré
L_0 :	Section length along the existing road Longueur de tronçon le long de la route existante
L_1 :	Section length after improvement Longueur de tronçon après amélioration
ΔL :	$= L_1 - L_0 =$ Reduced road length by improvement Longueur de la route réduite d'amélioration
l_0 :	Length of re-aligned section where road width of improved road does not overlap on existing road width Longueur de ré-aligné de tronçon où largeur de route améliorée ne recouvrement pas sur largeur de route existante
T :	Types of improvement Type d'amélioration
a :	widening of existing road width élargissement largeur de route existante
b :	improvement of horizontal alignment amélioration d'alignement horizontal
c :	improvement of vertical alignment amélioration d'alignement vertical
d :	new construction by re-alignment (l_0 section) nouvelle construction de ré-aligné (l_0 tronçon)

Illustration of re-aligned section
Illustration de tronçon ré-aligné



" l_1 " is the length of transferring section where width of new road overlaps partially on the existing road. " l_1 " is not shown in Table A-6-6, but is included in the length of widening section " l_2 " and is calculated as follow:

" l_1 " est largeur de tronçon transféré où largeur de nouvelle route recouvrement partial sur route existante. " l_1 " n'est pas fait entrer Tableau A-6-6, mais y compris dans la longueur de tronçon " l_2 " est calculée comme suit:

Geometric Characteristics of Improved Alignment

Caractéristiques Géométriques du Tracé Amélioré

(Section #10)
(Tronçon #10)

Location	Tracement		R	L _o	L ₁	ΔL	l _o	T
	PK	PK	m	m	m	m	m	
Kisangani	3.60 -	3.75	150	150	150			a,b
	3.75 -	3.83	∞	80	80			a,b
	3.83 -	3.93	250	100	100			a,b
	3.93 -	4.33	400	400	390	-10		a,b
	4.33 -	6.05	∞	1,720	1,720			a,c
	6.05 -	7.10	1,500	1,050	1,045	-5	250	a,b,d
	7.10 -	7.30	∞	200	200		150	a,d
	7.30 -	7.75	500	450	400	-50		a,b
	7.75 -	8.23	∞	480	480			a
	8.23 -	8.75	1,000	520	515	-5	150	a,b,d
	8.75 -	13.00		4,250	4,250			a,c
	13.00 -	13.78	2,000	780	770	-10	350	a,b,d
	13.78 -	16.55		2,770	2,770			a
	16.55 -	16.75	2,000	200	200			a,b
16.75 -	23.86		7,110	7,110			a	
Batlamaduka	23.86 -	24.75	∞	890	880	-10	800	a,b,c,d
	24.75 -	25.45	2,000	700	695	-5		a,b
	25.45 -	27.60		2,150	2,150			a
	27.60 -	28.23	1,000	630	620	-10		a,b,
	28.23 -	28.50	∞	270	260	-10	} 600	a,b,d,
	28.50 -	29.00	1,000	500	470	-30		a,d
	29.00 -	29.90	3,000	900	890	-10	400	a,d
	29.90 -	31.00	∞	1,100	1,095	-5		a,b
	31.00 -	33.00		2,000	2,000			a
	33.00 -	34.00		1,000	1,000			a,c
	34.00 -	35.50		1,500	1,500			a
35.50 -	35.90		400	400			a,c	
Basiku	35.90 -	36.60	500	700	680	-20		a,b,c

(continued)
continuee(Section #10)
Tronçon

Location		R	L _o	L ₁	ΔL	ℓ _o	T
<u>Tracement</u>		<u>m</u>	<u>m</u>	<u>m</u>	<u>m</u>	<u>m</u>	
	PK PK						
Basiku	36.60 - 36.90		300	300			a, c
	36.90 - 38.00	1,000	} 13,100	} 11,800	-1,300	} 11,800	d
	38.00 - 40.00	1,000					d
	40.00 - 40.70	1,500					d
	40.70 - 43.30	∞					d
	43.30 - 47.90	2,500					d
	47.90 - 48.60	∞					d
	48.60 - 50.00	3,000					d
Total							<u>46,400</u>
Bengamisa							

(Section #9)
Tronçon

Location		R	L _o	L ₁	ΔL	ℓ _o	T
<u>Tracement</u>		<u>m</u>	<u>m</u>	<u>m</u>	<u>m</u>	<u>m</u>	
	PK PK						
Bengamisa	50.00 - 50.20	3,000	200	200		200	a, c, d
	50.20 - 50.80	∞	600	585	-15	} 200	a, b, c
	50.80 - 51.50	1,000	700	700			a, b, c, d
	51.50 - 52.55	∞	1,050	1,040	-10		a, b, d
	52.55 - 53.10	3,000	550	495	-55	300	a, b, d
	53.10 - 53.65	∞	550	550			a, b
	53.65 - 54.15	500	500	485	-15		a, b, c
	54.15 - 54.30	∞	150	150			a
	54.30 - 54.70	400	400	390	-10		a, b
	54.70 - 55.10	∞	400	395	-5		a, b
Bakweme	55.10 - 55.45	350	350	345	-5		a, b
	55.45 - 55.75	∞	300	295	-5		a, b
	55.75 - 56.35	1,500	600	585	-15		a, b
	56.35 - 57.20	∞	850	830	-20	200	a, b, d
	57.20 - 59.40	2,000	2,200	1,700	-500	1,700	d

(Section #9)
 Trongon

Location Tracement		R	L _o	L ₁	Δ L	ℓ _o	T
PK	PK	m	m	m	m	m	
	59.40 - 59.60	∞	200	200			a,b
	59.60 - 60.14	∞	540	535	-5		a,b
	60.14 - 60.58	1,000	440	410	-30	150	a,b,d
	60.58 - 61.15	∞	570	550	-20	150	a,b,c,d
Bangwade	61.15 - 62.65	3,000	1,500	1,475	-25		a,b,c
	62.65 - 63.15	∞	500	495	-5		a,b,c
	63.15 - 63.36	300	210	205	-5		a,b,c
	63.36 - 63.48	∞	120	120			a,b,c,
	63.48 - 63.65	300	170	160	-10		a,b,c
	63.65 - 64.95	∞	1,300	1,290	-10		a,b,c
	64.95 - 65.145	500	195	185	-10		a,b,c
	65.145 - 65.50	∞	355	355			a
	65.50 - 66.45	550	950	975	+25	450	a,b,c,d
	66.45 - 66.69	∞	240	240			a,c
	66.69 - 67.60	900	910	905	-5		a,b,c
	67.60 - 68.10	∞	500	495	-5	200	a,b,c,d
	68.10 - 69.60	1,500	1,500	1,470	-30	} 1,400	a,b,d
	69.60 - 70.60	∞	1,000	970	-30		a,b,d
	70.60 - 71.30	1,500	700	660	-40	500	a,b,d
	71.30 - 72.75	∞	1,450	1,435	-15		a,b
	72.75 - 74.05	2,500	1,300	1,275	-25	} 2,300	a,b,d
	74.05 - 75.75	∞	1,700	1,685	-15		a,b,d
Badombila	75.75 - 76.75	3,000	1,000	995	-5		a,b,d
	76.75 - 77.20	∞	450	450			a,b,d
	77.20 - 77.65	500	450	450			a,b,d
	77.65 - 78.20	∞	550	540	-10		a,b
	78.20 - 78.80	2,500	600	595	-5	150	a,b,d
	78.80 - 79.50	∞	700	695	-5		a,b
	79.50 - 79.77	500	270	265	-5		a,b
	79.77 - 80.08	∞	310	310			a,b
	80.08 - 80.50	500	420	410	-10		a,b
	80.50 - 80.80	∞	300	290	-10		a,b

(continued)
(continuée)(Section
Tronçon #9)

Location	Tracement		R	L ₀	L ₁	Δ L	ℓ ₀	T
	(PK)	(PK)	(m)	(m)	(m)	(m)	(m)	
Bambwe	80.80	- 81.35	480	550	575	+25	} 1,100	a, b, d
	81.35	- 83.00	∞	1,650	1,635	-15		a, b, c, d
	83.00	- 84.22	1,000	1,220	1,230	+10	800	a, b, c, d
	84.22	- 84.35	∞	130	130			a, b
	84.35	- 84.62	250	270	265	-5		a, b
	84.62	- 84.88	∞	260	260			a, b
Bangamboli	84.88	- 85.80	600	920	925	+5	500	a, b, d
	85.80	- 86.34	∞	540	540			a, b
	86.34	- 87.21	1,000	870	855	-15		a, b
	87.21	- 87.38	∞	170	165	-5		a, b
	87.38	- 88.70	1,500	1,320	1,310	-10	500	a, b, d
	88.70	- 88.80	∞	100	100			a, b
	88.80	- 89.90	2,500	1,100	1,095	-5	400	a, b, c, d
	89.90	- 90.35	∞	450	445	-5		a, b
	90.35	- 90.93	1,000	580	565	-15		a, b
	90.93	- 91.17	∞	240	240			a, b
	91.17	- 91.42	250	250	250			a, b
	91.42	- 91.60	∞	180	180			a, b
	91.60	- 91.90	500	300	295	-5		a, b
	91.90	- 93.40	∞	1,500	1,500			a, c
Bahume	93.40	- 93.80	1,000	400	395	-5		a, b, c
	93.80	- 94.33	∞	530	525	-5		a, b
	94.33	- 94.90	1,500	570	560	-10		a, b
	94.90	- 95.30	∞	400	395	-5		a, b
	95.30	- 96.62	3,000	1,320	1,290	-30	1,000	a, b, d
	96.62	- 99.05	∞	2,430	2,400	-30	1,200	a, b, c, d
	99.05	- 99.37	1,000	320	320			a, b
	99.37	- 99.43	∞	60	60			a
	99.43	- 100.30	1,500	870	860	-10		a, b
	100.30	- 102.40	∞	2,100	2,100		800	a, b, c, d
102.40	- 103.20	1,500	800	790	-10		a, b, c	
103.20	- 103.62	∞	420	420			a, c	

(continué)

(Section #9)
Tronçon

Location Tracement		R	L ₀	L ₁	Δ L	ℓ ₀	T
PK	PK	m	m	m	m	m	
	103.62 - 104.40	4,500	780	770	-10		a, b
	104.40 - 104.85	∞	450	450			a
	104.85 - 105.18	500	330	320	-10		a, b
	105.18 - 105.28	∞	100	100			a
Badjange	105.28 - 106.10	1,500	820	805	-15		a, b
	106.10 - 106.77	∞	670	670			a, c
	106.77 - 107.26	1,500	490	485	-5		a, b, c
	107.26 - 110.63	∞	3,370	3,360	-10	500	a, b, c, d
	110.63 - 111.05	750	420	400	-20		a, b, c
	111.05 - 111.44	∞	390	390			a, c
	111.44 - 111.70	750	260	260			a, b, c
	111.70 - 112.15	∞	450	450			a, c
	112.15 - 112.82	4,500	670	660	-10		a, b
Badzamane	112.82 - 115.52	∞	2,700	2,680	-20	700	a, b, d
	115.52 - 115.90	750	380	370	-10		a, b
	115.90 - 116.28	∞	380	375	-5		a, b
	116.28 - 116.43	275	150	150			a, b
	116.43 - 116.68	∞	250	250			a, b
	116.68 - 116.85	250	170	170			a, b
	116.85 - 117.00	∞	150	145	-5		a, b
	117.00 - 117.47	750	470	455	-15	} 500	a, b, d
	117.47 - 117.95	∞	480	480			a, b, d
	117.95 - 118.27	500	320	315	-5		a, b
	118.27 - 118.59	∞	320	315	-5		a, b, c
	118.59 - 119.00	400	410	405	-5		a, b
	119.00 - 119.60	∞	600	595	-5		a, b
Bobande	119.60 - 120.00	500	400	400			a, b
	120.00 - 120.30	∞	300	300			a, b
	120.30 - 120.93	500	630	630			a, b
	120.93 - 121.35	∞	420	420			a, b
	121.35 - 122.10	3,000	750	750			a, b
	122.10 - 122.60	∞	500	500			a

(continued)
(continuée)

(Section
Tronçon #9)

Location Tracement		R	L _o	L ₁	ΔL	ℓ _o	T
PK	PK	m	m	m	m	m	
	122.60 - 123.15	2,000	550	550			a, b
	123.15 - 123.30	∞	150	150			a
	123.30 - 124.80	2,500	1,500	1,490	-10	} 600	a, b, d
	124.80 - 124.84	∞	40	40			a, d
	124.84 - 125.22	400	380	370	-10		a, b, d
	125.22 - 125.83	∞	610	610			a, b
	125.83 - 126.20	250	370	360	-10		a, b
Bokobana	126.20 - 128.05	∞	1,850	1,840	-10		a, b
	128.05 - 128.45	4,000	400	395	-5		a, b
	128.45 - 128.85	∞	400	400			a
Banalia	128.85 - 129.00	100	150	150			a, b
	Total		<u>79,000</u>	<u>77,690</u>	<u>-1,310</u>	<u>16,500</u>	

(Section
Tronçon #8)

Location Tracement		R	L _o	L ₁	ΔL	ℓ _o	T
PK	PK	m	m	m	m	m	
Banalia	Aruwimi Rv.						
	129.00 - 129.15	100	150	150			a, b
	129.15 - 129.50	∞	350	350			a, b
	129.50 - 129.95	500	450	450			a, b
Bobenge	129.95 - 130.30	∞	350	350			a, b
	130.30 - 131.20	1,000	900	900		200	a, b, d
	131.20 - 131.40	∞	200	200			a, b
	131.40 - 132.10	1,000	700	690	-10	150	a, b, d
	132.10 - 132.65	∞	550	545	-5		a, b
	132.65 - 133.42	1,000	770	760	-10	200	a, b, d
	133.42 - 133.60	∞	180	175	-5		a, b
	133.60 - 133.91	500	310	305	-5		a, b

(continued)
continuée(Section
Tronçon #8)

Location Tracement		R	L _o	L ₁	ΔL	ℓ _o	T
(PK)	(PK)	(m)	(m)	(m)	(m)	(m)	
	133.91 - 138.00	∞	4,090	4,050	-40	600	a,b,d
	138.00 - 139.15	1,500	1,150	1,120	-30	1,000	a,b,d
	139.15 - 139.50	∞	350	345	-5	350	a,b,d
	139.50 - 140.32	1,500	820	810	-10	500	a,b,d
	140.32 - 140.82	∞	500	500			a,b
	140.82 - 141.34	450	520	505	-15		a,b
	141.34 - 142.30	∞	960	950	-10		a,b
	142.30 - 143.23	1,000	930	915	-15		a,b
	143.23 - 144.72	∞	1,490	1,480	-10	1,300	a,b,d
	144.72 - 145.46	3,000	740	740			a,b
Bopando	145.46 - 146.85	∞	1,390	1,380	-10	300	a,b,d
	146.85 - 147.80	2,000	950	940	-10		a,b
	147.80 - 148.51	∞	710	700	-10		a,b
	148.51 - 149.70	3,000	1,190	1,180	-10	650	a,b,d
	149.70 - 150.65	∞	950	940	-10	200	a,b,d
	150.65 - 151.30	4,500	650	650		600	a,b,d
	151.30 - 152.00	∞	700	695	-5		a,b
	152.00 - 155.80	∞					d
	155.80 - 157.45	1,500	6,700	5,600	-1,100	5,600	d
	157.45 - 158.30	∞					d
	158.30 - 158.70	1,500					d
	158.70 - 158.80	1,500	100	100			a,b
	158.80 - 159.08	∞	280	275	-5		a,b
	159.08 - 159.35	500	270	275	+5		a,b
Zambeke	159.35 - 161.45		2,100	2,100			a
	161.45 - 163.26	∞	1,810	1,790	-20	1,200	a,b,d
	163.26 - 163.80	2,000	540	540			a,b
	163.80 - 164.50	∞	700	700			a,b
	164.50 - 164.73	300	230	230			a,b
	164.73 - 165.00	∞	270	270			a
	165.00 - 165.43	400	430	420	-10		a,b
	165.43 - 165.59	∞	160	160			a,b

(continued)
(continuée)

(Section #8)
Tronçon

Location Tracement		R	L ₀	L ₁	ΔL	l ₀	T
PK	PK	m	m	m	m	m	
	165.59 - 166.02	1,200	430	430			a,b
	166.02 - 166.24	∞	220	220			a
	166.24 - 167.05	3,000	810	795	-15		a,b
	167.05 - 167.75	∞	700	700			a
	167.75 - 168.50	4,500	750	740	-10		a,b
	168.50 - 171.63	∞	3,130	3,080	-50		d
Bodomi I I	171.63 - 177.90	10,000	6,270	6,040	-230	} 11,300	d
	177.90 - 179.50	2,500	1,600	1,480	-120		d
	179.50 - 181.90	∞	2,400	2,350	-50		d
	181.90 - 182.00	1,000	100	100			d
	182.00 - 183.00	∞	} 7,800	} 6,600	-1,200	} 6,600	d
	183.00 - 185.30	2,000					d
	185.30 - 189.80	∞					d
	189.80 - 191.60	∞	1,800	1,770	-30	} 4,400	a,b,d
	191.60 - 195.50	4,000	3,900	3,780	-120		d
	195.50 - 196.20	∞	700	695	-5		a,b,d
	196.20 - 197.40	1,500	1,200	1,185	-15	200	a,b,d
	197.40 - 198.79	∞	1,390	1,370	-20	600	a,b,d
	198.79 - 199.20	500	410	395	-15		a,b
	199.20 - 200.40	∞	1,200	1,180	-20	1,000	d
	200.40 - 202.70	4,000	2,300	2,220	-80	1,550	d
	202.70 - 203.33	∞	630	615	-15	250	d
	203.33 - 203.60	1,000	270	265	-5	200	d
Kole	203.60 - 206.00	∞	2,400	2,000	-400	2,000	d
Total			<u>77,000</u>	<u>73,245</u>	<u>-3,755</u>	<u>41,050</u>	

(continued)
(continuée)

(Section #7)
(Tronçon #7)

<u>Location</u> <u>Tracement</u>		<u>R</u>	<u>L_o</u>	<u>L₁</u>	<u>ΔL</u>	<u>L_o</u>	<u>T</u>
Kole	206.00 - 208.00	2,000	} 8,600	} 7,400	-1,200	} 7,400	d
	208.00 - 211.00	∞					d
	211.00 - 212.00	2,000					d
	212.00 - 214.60	∞					d
	214.60 - 215.52	∞	920	905	-15		a,b
Momboloso	215.52 - 215.85	500	330	330			a,b
	215.85 - 216.05	∞	200	200			a,b
	216.05 - 216.59	750	540	520	-20		a,b
	216.59 - 217.10	∞	510	500	-10		a,b
	217.10 - 218.02	2,500	920	910	-10		a,b
	218.02 - 218.40	∞	380	380			a
	218.40 - 219.30	1,500	900	880	-20		a,b
	219.30 - 219.86	∞	560	550	-10		a,b
	219.86 - 220.75	2,000	890	875	-15	400	a,b,d
	220.75 - 221.65	∞	900	900		200	a,d
	221.65 - 224.00	3,000	2,350	2,315	-35	1,100	a,b,d
	224.00 - 224.60	∞	600	600		600	a,b,d
	224.60 - 230.50	8,000	5,900	5,700	-200	4,400	d
	230.50 - 231.05	∞	550	530	-20		a,b,d
	231.05 - 232.43	2,000	1,380	1,325	-55	1,300	a,b,d
232.43 - 235.00	∞	2,570	2,570			a,d	
Tele	235.00 - 235.80	6,000	800	800			a,b
Total			<u>29,800</u>	<u>28,190</u>	<u>-1,610</u>	<u>15,400</u>	

(continued)
(continued)(Section #6)
Tronçon

	Location Tracement		R	L ₀	L ₁	ΔL	ℓ ₀	T
	PK	PK	m	m	m	m	m	
Tele	235.80	241.15	6,000	5,350	5,075	-275	2,700	a,b,d
	241.15	241.70	∞	550	545	-5		a,b
	241.70	242.30	1,000	600	590	-10	100	a,b,c,d
	242.30	242.48	∞	180	180			a,b,d
	242.48	243.20	1,000	720	710	-10		a,b
	243.20	246.85	∞	3,650	3,600	-50	2,150	a,b,d
	246.85	247.70	750	850	815	-35	400	a,b,d
	247.70	248.60	∞	900	890	-10		a,b
	248.60	251.00	1,500	2,400	2,150	-250	1,450	a,b,d
	251.00	251.20	∞	200	200			a,b
	251.20	252.65	1,500	1,450	1,335	-115	1,000	d
	252.65	254.20	∞	1,550	1,550			a
	254.20	254.50	500	300	290	-10		a,b
	254.50	254.65	∞	150	145	-5		a,b
	254.65	255.05	350	400	420	+20		a,b
	255.05	256.00	∞	950	940	-10		a,b
	256.00	256.38	1,000	380	380			a,b
	256.38	256.72	∞	340	325	-15		a,b
	256.72	257.20	2,000	480	480			a,b
	257.20	258.40	∞	1,200	1,200			a
	258.40	260.00	2,000	1,600	1,585	-15	300	a,b,d
	260.00	260.55	∞	550	545	-5		a,b
	260.55	260.95	500	400	390	-10		a,b
	260.95	261.30	∞	350	350			a,b
Besore	261.30	262.05	750	750	740	-10		a,b
	262.05	262.45	∞	400	400			a,b
	262.45	263.70	1,500	1,250	1,170	-80	700	a,b,d
	263.70	264.20	∞	500	495	-5		a,b
	264.20	264.75	400	550	535	-15		a,b
	264.75	264.85	∞	100	100			a
	264.85	265.65	1,000	800	790	-10		a,b
	265.65	265.85	∞	200	200			a,b

(continued)
(continuée)

(Section #6)
(Tronçon #6)

Location Tracement		R	L ₀	L ₁	ΔL	λ ₀	T
PK	PK	m	m	m	m	m	
	265.85 - 266.89	1,500	1,040	1,010	-30	500	a, b, d
	266.89 - 267.10	∞	210	210			a
	267.10 - 269.05	1,500	1,950	1,900	-50	} 1,150	a, b, d
	269.05 - 270.05	∞	1,000	990	-10		d
	270.05 - 271.90	3,000	1,850	1,725	-125	} 2,400	d
	271.90 - 273.15	1,500	1,250	1,230	-20		d
	273.15 - 273.83	∞	680	680			a, b
	273.83 - 274.16	350	330	320	-10		a, b
	274.16 - 274.60	∞	440	440			a
	274.60 - 275.30	1,000	700	690	-10		a, b
	275.30 - 276.65	∞	1,350	1,340	-10		a, b
	276.65 - 276.95	250	300	290	-10		a, b
	276.95 - 277.20	∞	250	250			a
	277.20 - 277.50	750	300	295	-5		a, b
	277.50 - 277.57	∞	70	70			a, b
	277.57 - 277.90	750	330	335	+5		a, b
	277.90 - 278.90	∞	1,000	995	-5		a, b
	278.90 - 279.42	1,000	520	515	-5		a, b
	279.42 - 279.70	∞	280	280			a, b
	279.70 - 280.06	400	360	345	-15		a, b
	280.06 - 280.45	∞	390	390			a
	280.45 - 280.95	1,000	500	495	-5		a, b
	280.95 - 281.13	∞	180	180			a
	281.13 - 282.00	1,000	870	850	-20		a, b
Bangbagatome	282.00 - 283.58	∞	1,580	1,570	-10	700	a, b, d
	283.58 - 284.21	2,000	630	615	-15		a, b
	284.21 - 284.50	∞	290	285	-5		a, b
	284.50 - 285.15	1,000	650	635	-15	250	a, b, d
	285.15 - 285.52	∞	370	360	-10		a, b
	285.52 - 285.80	500	280	275	-5		a, b
	285.80 - 286.60	∞	800	795	-5		a, b
	286.60 - 289.00	8,000	2,400	2,240	-160	} 2,500	d
	289.00 - 290.19	∞	1,190	1,150	-40		d

(continued)
(continúée)

(Section
Tronçon #6)

Location Tracement		R	L ₀	L ₁	ΔL	L ₀	T
PK	PK	m	m	m	m	m	
	290.19 - 290.64	500	450	440	-10		a,b
	290.64 - 291.83	∞	1,190	1,170	-20		a,b
	291.83 - 292.35	2,000	520	520			a,b
	292.35 - 293.54	∞	1,190	1,185	-5		a,b
	293.54 - 294.06	2,500	520	500	-20		a,b
	294.06 - 294.60	∞	540	530	-10		a,b
	294.60 - 295.31	1,000	710	690	-20		a,b
Mangbondwa	295.31 - 297.05	∞	1,740	1,670	-70	500	a,b,d
	297.05 - 297.95	3,000	900	890	-10		a,b
	297.95 - 298.20	∞	250	250			a
	298.20 - 300.30	3,000	2,100	2,020	-80	} 2,100	a,b,d
	300.30 - 302.70	∞	2,400	2,340	-60		a,b,d
	302.70 - 303.35	750	650	650			a,b
Mese	303.35 - 303.63	∞	280	280			a
	303.63 - 304.50	1,500	870	850	-20		a,b
	304.50 - 304.67	∞	170	170			a,b
	304.67 - 305.25	1,000	580	580		} 1,000	d
	305.25 - 306.20	∞	950	920	-30		d
Yeme	306.20 - 307.35	1,000	1,150	1,130	-20		a,b
	307.35 - 307.63	∞	280	270	-10		a,b
	307.63 - 308.06	1,000	430	410	-20		a,b
	308.06 - 308.40	∞	340	335	-5		a,b
	308.40 - 308.65	1,000	250	250			a,b
	308.65 - 309.40	∞	750	745	-5		a,b
	309.40 - 310.06	2,000	660	650	-10	400	a,b,d
	310.06 - 310.90	∞	840	820	-20		a,b
	310.90 - 311.65	2,500	750	730	-20	400	a,b,d
	311.65 - 313.66	∞	2,010	1,985	-25	} 2,200	a,b,d
	313.66 - 314.60	2,500	940	900	-40		d
	314.60 - 315.00	∞	400	400			d
	315.00 - 315.38	1,000	380	355	-25		a,b
	315.38 - 316.10	3,000	720	720			a,b

(continued)
(continuée)(Section #6)
(Tronçon #6)

Location Tracement		R	L _o	L ₁	ΔL	ℓ _o	T
PK	PK	m	m	m	m	m	
	316.10 - 318.30	∞	2,200	2,175	-25	500	a, b, d
	318.30 - 318.67	1,500	370	355	-15		a, b
	318.67 - 319.70	∞	1,030	1,030			a, b
	319.70 - 320.80	2,000	1,100	1,090	-10		a, b
	320.80 - 321.00	∞	200	200			a, b
	321.00 - 322.45	1,500	1,450	1,455	+5		a, b, c
	322.45 - 323.20	∞	750	745	-5		a, b
	323.20 - 323.45	500	250	250			a
Buta	323.45 - 324.30		850	850			a
Total			<u>88,500</u>	<u>86,375</u>	<u>-2,125</u>	<u>23,400</u>	

(Section #5)
(Tronçon #5)

Location Tracement		R	L _o	L ₁	ΔL	ℓ _o	T
PK	PK	m	m	m	m	m	
Buta	0 - 1.40	∞	1,400	1,400			a
	1.40 - 2.10	1,000	700	690	-10		a, b
	2.10 - 2.70	∞	600	595	-5		a, b
	2.70 - 3.45	750	750	730	-20		a, b
	3.45 - 4.90	∞	1,450	1,400	-50	800	a, b, d
Makala	4.90 - 5.20	750	300	305	+5		a, b
	5.20 - 5.80	∞	600	600			a, b
	5.80 - 6.30	1,500	500	490	-10		a, b, c
	6.30 - 7.66	∞	1,360	1,360			a, b
	7.66 - 8.42	1,000	760	740	-20		a, b
	8.42 - 8.70	∞	280	280			a
	8.70 - 9.10	3,000	400	390	-10		a, b
	9.10 - 10.80	∞	1,700	1,680	-20		a, b
	10.80 - 11.25	1,500	450	435	-15		a, b

(continued)
(continuée)(Section
Tronçon #5)

	Location Tracement		R	L_o	L_1	ΔL	l_o	T
	PK	PK	m	m	m	m	m	
Balía	11.25 - 11.85		∞	600	590	-10		a, b
	11.85 - 12.30		500	450	435	-15		a, b
	12.30 - 12.40		∞	100	100			a
	12.40 - 13.00		750	600	570	-30		a, b, c
	13.00 - 13.30		∞	300	295	-5		a, b, c
	13.30 - 14.70		4,000	1,400	1,380	-20		a, b, c
	14.70 - 15.90		∞	1,200	1,200			a
	15.90 - 16.60		1,500	700	690	-10		a, b
	16.60 - 16.80		∞	200	200			a
	16.80 - 18.80		2,500	2,000	2,000			a, b
	18.80 - 19.30		∞	500	490	-10		a, b
	19.30 - 19.80		1,500	500	480	-20		a, b
	19.80 - 21.45		∞	1,650	1,625	-25		a, b
	21.45 - 22.70		1,500	1,250	1,225	-25		a, b
	22.70 - 23.04		∞	340	330	-10		a, b
	23.04 - 23.60		1,000	560	545	-15		a, b
	23.60 - 25.35		∞	1,750	1,750			a
25.35 - 25.70		500	350	340	-10		a, b	
25.70 - 27.30		∞	1,600	1,600			a	
27.30 - 28.65		1,500	1,350	1,355	+5	300	a, b, d	
28.65 - 30.20		∞	1,550	1,550			a	
30.20 - 31.05		3,000	850	830	-20		a, b	
31.05 - 32.85		∞	1,800	1,800			a	
32.85 - 33.40		1,000	550	525	-25		a, b	
33.40 - 34.40		∞	1,000	980	-20		a, b	
34.40 - 35.05		2,000	650	620	-30		a, b	
35.05 - 37.00		∞	1,950	1,930	-20		a, b	
37.00 - 37.55		2,000	550	550			a, b	
37.55 - 38.00		∞	450	445	-5		a, b	
38.00 - 38.75		1,500	750	730	-20		a, b	
38.75 - 39.00		∞	250	250			a, b	
39.00 - 39.35		750	350	340	-10		a, b	

Gombo

(continued)
continué(Section #5)
Tronçon #5)

Location Tracement		R	L _o	L ₁	ΔL	ℓ _o	T
PK	PK	m	m	m	m	m	
	39.35 - 40.05	1,500	700	700			a,b
	40.05 - 40.20	∞	150	150			a,b
	40.20 - 42.00	2,500	1,800	1,755	-45		a,b,c
	42.00 - 42.90	∞	900	895	-5		a,b
	42.90 - 43.40	2,000	500	490	-10		a,b
	43.40 - 43.60	∞	200	200			a,b
	43.60 - 44.60	750	1,000	980	-20	200	a,b,d
	44.60 - 45.20	∞	600	580	-20		a,b
	45.20 - 45.75	2,000	550	540	-10	400	a,b
	45.75 - 46.65	∞	900	900			a
	46.65 - 47.30	2,000	650	635	-15		a,b
	47.30 - 47.95	∞	650	650			a,b
	47.95 - 48.40	1,000	450	450			a,b
	48.40 - 49.70		1,300	1,300			a
	49.70 - 50.10	1,000	400	385	-15		a,b
Bweke	50.10 - 52.80		2,700	2,700			a
	52.80 - 53.20	1,000	400	400			a,b
	53.20 - 54.15	∞	950	930	-20		a,b
	54.15 - 54.95	3,000	800	775	-25		a,b
	54.95 - 56.90		1,950	1,950			a
	56.90 - 57.50	1,000	600	570	-30		a,b
	57.50 - 57.70	∞	200	195	-5		a,b
	57.70 - 58.30	1,000	600	600			a,b
	58.30 - 58.75	∞	450	440	-10		a,b
	58.75 - 59.30	2,000	550	530	-20		a,b
	59.30 - 65.85		6,550	6,550			a
	65.85 - 67.00	∞	1,150	1,060	-90	800	a,b,c,d
	67.00 - 68.95	∞	1,950	1,950			a
	68.95 - 69.50		550	550			a,c
	69.50 - 74.50		5,000	5,000			a
	74.50 - 74.95	1,000	450	430	-20		a,b
Dulia	74.95 - 75.50	∞	550	535	-15		a,b
	Total		<u>75,500</u>	<u>74,620</u>	<u>-880</u>	<u>2,500</u>	

(continued)
(continuée)(Section
Tronçon #4)

	Location Tracement		R	L ₀	L ₁	ΔL	ℓ ₀	T
	PK	PK	m	m	m	m	m	
Dulia	0	- 1.40	∞	1,400	1,365	-35		a,b
	1.40	- 1.80	1,000	400	400			a,b
	1.80	- 3.00	∞	1,200	1,170	-30	750	a,b,d
	3.00	- 4.70	1,500	1,700	1,705	+5	600	a,b,d
	4.70	- 5.45	∞	750	750			a
	5.45	- 5.90	750	450	445	-5		a,b,c
	5.90	- 6.20	∞	300	300			a,c
	6.20	- 6.65	750	450	430	-20		a,b
Masipiri	6.65	- 11.90		5,250	5,250			a
	11.90	- 12.20	350	300	275	-25		a,b
	12.20	- 13.30	∞	1,100	1,100			a
	13.30	- 14.75		1,450	1,450			a,c
	14.75	- 16.50		1,750	1,750			a
	16.50	- 16.70	350	200	180	-20		a,b
	16.70	- 16.90	∞	200	200			a
	16.90	- 19.00	8,000	2,100	2,070	-30	1,500	a,b
	19.00	- 19.15	∞	150	150			a
	19.15	- 20.85	2,000	1,700	1,665	-35		a,b
	20.85	- 21.65	∞	800	775	-25	550	a,b,c
	Sasa	21.65	- 27.40		5,750	5,750		
27.40		- 27.60	400	200	185	-15		a,b
27.60		- 28.10		500	500			a,c
28.10		- 29.25		1,150	1,150			a
29.25		- 29.75		500	500			a,c
29.75		- 30.40		650	650			a
30.40		- 30.75		350	350			a,c
30.75		- 33.25		2,500	2,500			a
33.25		- 33.40	∞	150	140	-10		a,b
33.40		- 33.70	500	300	300			a,b
33.70		- 33.85	∞	150	150			a,b
33.85		- 34.20	500	350	335	-15	200	a,b,d
34.20		- 34.60	∞	400	390	-10		a,b

(continued)
continuée(Section
Tronçon #4)

Location Tracement		R	L _o	L _l	ΔL	g _o	T
PK	PK	m	m	m	m	m	
	34.60 - 34.90	500	300	290	-10		a, b
	34.90 - 37.30		2,400	2,400			a
	37.30 - 37.55	750	250	220	-30		a, b
Nziro	37.55 - 38.80	∞	1,250	1,250			a
	38.80 - 39.10	350	300	265	-35	200	a, b, d
	39.10 - 41.90	∞	2,800	2,770	-30	600	a, b, d
	41.90 - 42.55	2,000	650	650			a, b
	42.55 - 42.85	∞	300	295	-5		a, b
	42.85 - 44.45	3,000	1,600	1,580	-20		a, b
	44.45 - 44.70	1,000	250	240	-10		a, b
	44.70 - 44.85	∞	150	150			a
	44.85 - 45.15	250	300	275	-25		a, b
	45.15 - 48.25		3,100	3,100			a
	48.25 - 48.70	750	450	430	-20		a, b
	48.70 - 50.30		1,600	1,600			a
	50.30 - 50.55	750	250	235	-15		a, b
	50.55 - 52.85	∞	2,300	2,295	-5	400	a, b, d
	52.85 - 53.20	750	350	325	-25		a, b
Banangi	53.20 - 59.70		6,500	6,500			a
	59.70 - 60.10	250	400	370	-30	200	a, b
	60.10 - 64.70		4,600	4,600			a, b, c
	64.70 - 65.20	250	500	360	-140		a, b
	65.20 - 65.50		300	300		200	a, d
Likati	Total		<u>65,500</u>	<u>64,830</u>	<u>-670</u>	<u>5,200</u>	

(continued)
(continué)(Section
Tronçon #3)

	Location		R	L ₀	L ₁	ΔL	ℓ ₀	T
	Tracement							
	PK	PK	m	m	m	m	m	
Likati	65.50	- 66.00	∞	500	500			a
	66.00	- 66.50	2,000	500	480	-20		a,b
	66.50	- 68.90		2,400	2,400			a
	68.90	- 69.40	1,000	500	485	-15		a,b,c
	69.40	- 70.00		600	600			a
	70.00	- 70.80		800	800			a,c
	70.80	- 74.10		3,300	3,300			a
	74.10	- 74.70	1,000	600	595	-5		a,b
	74.70	- 74.80	∞	100	100			a,b
	74.80	- 75.30	750	500	480	-20		a,b
	75.30	- 75.50	∞	200	195	-5		a,b
	75.50	- 76.00	1,500	500	480	-20		a,b
	Libogo	76.00	- 77.30		1,300	1,300		
77.30		- 78.10		800	800			a
78.10		- 78.45	∞	350	340	-10		a,b
78.45		- 78.70	1,500	250	250			a,b
78.70		- 78.90	∞	200	200			a
78.90		- 79.60	1,500	700	670	-30		a,b
79.60		- 80.10		500	480	-20		a,b
80.10		- 80.75	3,000	650	650			a,b
80.75		- 81.90	∞	1,150	1,130	-20		a,b
81.90		- 82.10	500	200	180	-15		a,b
82.10		- 82.30	∞	200	200			a,b
82.30		- 82.70	750	400	390	-10		a,b
82.70		- 83.40	∞	700	695	-5		a,b
83.40		- 83.60	400	200	200			a,b
83.60		- 83.70	∞	100	95	-5		a,b
83.70	- 85.10	2,000	1,400	1,375	-25		a,b	
85.10	- 85.50	∞	400	385	-15		a,b	
85.50	- 86.45	3,000	950	930	-20		a,b	
86.45	- 87.00	∞	550	550			a	
87.00	- 87.70	750	700	670	-30		a,b	

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(continuée)

(Section #3)
(Tronçon #3)

Location		R	L _o	L ₁	ΔL	ℓ _o	T
Tracement							
PK	PK	m	m	m	m	m	
	87.70 - 87.90	∞	200	200			a,b
	87.90 - 89.00	1,500	1,100	1,065	-35		a,b
	89.00 - 89.10	∞	100	100			a
	89.10 - 90.50	3,000	1,400	1,375	-25	500	a,b,d
Nzongfa	90.50 - 90.75	∞	250	240	-10		a,b
	90.75 - 91.50	1,000	750	730	-20		a,b
	91.50 - 91.75	∞	250	250			a
	91.75 - 92.15	500	400	380	-20		a,b
	92.15 - 93.25	∞	1,100	1,100			a
	93.25 - 93.60	750	350	335	-15		a,b
	93.60 - 93.80	∞	200	195	-5		a,b
	93.80 - 94.05	500	250	230	-20		a,b
	94.05 - 96.70		2,650	2,650			a
	96.70 - 96.80	∞	100	95	-5		a,b
	96.80 - 97.40	1,500	600	575	-25		a,b
	97.40 - 98.25	∞	850	845	-5		a,b
	98.25 - 98.75	750	500	495	-5		a,b
	98.75 - 98.95	∞	200	195	-5		a,b
	98.95 - 99.50	1,500	550	550			a,b
	99.50 - 99.70	∞	200	200			a,b
Binga	99.70 - 100.05	750	350	340	-10		a,b
	100.05 - 100.20	∞	150	150			a
	100.20 - 101.00	1,500	800	785	-15		a,b
	101.00 - 101.20	∞	200	190	-10		a,b
	101.20 - 101.60	1,000	400	400			a,b
	101.60 - 101.85	∞	250	245	-5		a,b
	101.85 - 102.60	750	750	725	-25		a,b
	102.60 - 102.80	∞	200	190	-10		a,b
	102.80 - 103.10	750	300	300			a,b
	103.10 - 103.25	∞	150	145	-5		a,b
	103.25 - 104.00	1,000	750	750		400	a,b,d
	104.00 - 104.30	∞	300	290	-10		a,b

(continued)
(continuée)

(Section #3)
Tronçon

Location Tracement		R	L ₀	L ₁	ΔL	ℓ ₀	T
PK	PK	m	m	m	m	m	
	104.30 - 105.40	1,000	1,100	1,075	-25		a, b
	105.40 - 106.95	∞	1,550	1,515	-35		a, b
	106.95 - 108.10	1,500	1,150	1,140	-10		a, b
	108.10 - 108.60	∞	500	495	-5		a, b
	108.60 - 109.20	2,500	600	585	-15		a, b
	109.20 - 109.85	∞	650	645	-5		a, b
	109.85 - 110.15	750	300	295	-5		a, b
	110.15 - 110.40	∞	250	240	-10		a, b
	110.40 - 110.80	1,000	400	395	-5		a, b
	110.80 - 111.05	∞	250	240	-10		a, b
	111.05 - 112.10	1,500	1,050	1,020	-30	500	a, b, d
Djete-Mondila	112.10 - 112.80	∞	700	685	-15		a, b
	112.80 - 113.30	750	500	490	-10		a, b
	113.30 - 113.40	∞	100	95	-5		a, b
	113.40 - 114.25	1,000	850	830	-20		a, b
	114.25 - 114.75	∞	500	485	-15		a, b
	114.75 - 115.10	750	350	340	-10		a, b
	115.10 - 116.75	∞	1,650	1,625	-25	500	a, b, d
	116.75 - 117.90	750	1,150	1,120	-30	400	a, b, d
	117.90 - 118.30	∞	400	395	-5		a, b
	118.30 - 118.75	750	450	445	-5		a, b
	118.75 - 118.95	∞	200	200			a, b
	118.95 - 119.45	1,500	500	490	-10	} 700	a, b, d
	119.45 - 120.05	∞	600	590	-10		a, b, d
	120.05 - 120.70	750	650	635	-15		a, b
	120.70 - 121.00	∞	300	290	-10		a, b
	121.00 - 121.55	750	550	530	-20	200	a, b, d
	121.55 - 121.70	∞	150	140	-10		a, b
	121.70 - 122.05	750	350	350			a, b
	122.05 - 122.50	∞	450	435	-15	} 500	a, b, d
	122.50 - 122.80	750	300	290	-10		a, b
	122.80 - 123.00		200	195	-5		a, b

(continued)
(continuée)

(Section #3)
Tronçon

Location Tracement		R	L _o	L ₁	ΔL	λ _o	T
PK	PK	m	m	m	m	m	
	123.00 - 123.55	750	550	530	-20		a,b
	123.55 - 123.75	∞	200	195	-5		a,b
	123.75 - 124.00	300	250	240	-10		a,b
	124.00 - 124.10	∞	100	100			a,b
	124.10 - 124.40	300	300	290	-10		a,b
	124.40 - 124.80	700	400	385	-15		a,b
Bondo	124.80 - 125.00	∞	200	200			a,b
Uele Rv.							
Total			<u>59,500</u>	<u>58,465</u>	<u>-1,035</u>	<u>3,700</u>	

(Section #2)
Tronçon

Location Tracement		R	L _o	L ₁	ΔL	λ _o	T
PK	PK	m	m	m	m	m	
Bondo	125.00 - 128.10		3,100	3,100			a
	128.10 - 128.70	300	600	590	-10		a,b
	128.70 - 129.35	∞	650	650			a,b
	129.35 - 130.05	1,000	700	690	-10		a,b
	130.05 - 130.25	∞	200	200			a,b
	130.25 - 131.50	1,500	1,250	1,220	-30	100	a,b,d
	131.50 - 131.70	∞	200	200			a
	131.70 - 132.40	750	700	680	-20		a,b
	132.40 - 133.10	∞	700	680	-20		a,b
	133.10 - 134.50	2,500	1,400	1,400			a,b
Zakila	134.50 - 135.60	∞	1,100	1,085	-15		a,b
	135.60 - 136.50	1,000	900	860	-40	650	a,b,d
	136.50 - 138.00	∞	1,500	1,450	-50	600	a,b,d
	138.00 - 138.90	1,000	900	860	-40		d
	138.90 - 140.25	∞	1,350	1,330	-20	} 2,000	d

(continued)
(continuée)(Section
Tronçon #2)

Location Tracement		R	L _o	L ₁	ΔL	ℓ _o	T
PK	PK	m	m	m	m	m	
	140.25 - 140.90	3,000	650	625	-25		a, b
	140.90 - 142.55	∞	1,650	1,615	-35	800	a, b, d
	142.55 - 143.85	2,500	1,300	1,280	-20		a, b
	143.85 - 144.95	∞	1,100	1,070	-30		a, b
	144.95 - 145.40	2,000	450	450			a, b
Dekare	145.40 - 145.90	∞	500	495	-5		a, b
	145.90 - 146.30	350	400	390	-10		a, b
	146.30 - 146.50	∞	200	175	-25		a, b
	146.50 - 147.80	2,000	1,300	1,295	-5		d
	147.80 - 149.00	∞	1,200	1,175	-25	} 2,000	d
	149.00 - 149.60	1,000	600	580	-20		a, b
	149.60 - 150.80	∞	1,200	1,200			a, d
	150.80 - 151.00	3,000	200	185	-15	} 300	a, b, d
	151.00 - 151.70	∞	700	700			a, b
	151.70 - 152.60	1,500	900	875	-25		a, b
	152.60 - 153.00	∞					d
	153.00 - 154.00	1,500	} 3,200	} 2,400	-800	} 2,400	d
	154.00 - 155.80	∞					d
	155.80 - 156.90	∞	1,100	1,100			a, b
	156.90 - 157.15	500	250	240	-10		d
	157.15 - 157.95	∞	800	795	-5		d
	157.95 - 158.20	250	250	235	-15		a, b
	158.20 - 158.30	∞	100	100			a, b
	158.30 - 158.50	250	200	200			a, b
	158.50 - 158.75	∞	250	240	-10		a, b
	158.75 - 159.40	1,500	650	645	-5		a, b
	159.40 - 160.30	∞	900	900			a, b, c
Mangala	160.30 - 161.35	1,000	1,050	1,035	-15		a, b, c
	161.35 - 161.40	∞	50	50			a, b
	161.40 - 161.70	300	300	290	-10		a, b
	161.70 - 162.50	∞	800	780	-20		a, b
	162.50 - 162.75	250	250	250			a, b, d
	162.75 - 162.85	∞	100	100		} 350	a, b, d

(continued)
(continuée)

(Section #2)
(Tronçon #2)

Location Tracement		R	L ₀	L ₁	Δ L	ℓ ₀	T
PK	PK	m	m	m	m	m	
	162.85 - 163.20	250	350	345	-5		a, b
	163.20 - 163.40	∞	200	200			a, b
	163.40 - 163.75	1,000	350	335	-15		a, b
	163.75 - 164.70	∞	950	945	-5		a, b
	164.70 - 165.15	750	450	450			a, b
	165.15 - 165.30	∞	150	150			a
	165.30 - 166.85	2,000	1,550	1,545	-5	} 2,000	a, b, d
	166.85 - 168.00	∞	1,150	1,120	-30		a, b, d
	168.00 - 168.25	300	250	235	-15		a, b
	168.25 - 169.70	∞	1,450	1,450			a, b
Zongo	169.70 - 170.30	1,000	600	600			a, b
	170.30 - 170.95	∞	650	645	-5		a, b
	170.95 - 171.40	1,000	450	445	-5		a, b
	171.40 - 171.65	∞	250	250			a, b
	171.65 - 172.30	1,500	650	650			a, b
	172.30 - 174.00	∞	1,700	1,695	-5		a, b
	174.00 - 174.50	750	500	490	-10		a, b
	174.50 - 174.90	∞	400	380	-20	} 200	a, b, d
	174.90 - 175.10	250	200	175	-25		a, b, d
	175.10 - 175.30	∞	200	200			a
	175.30 - 176.40	1,000	1,100	1,100			a, b, c
	176.40 - 176.70	∞	300	300			a, b, c
	176.70 - 177.15	350	450	420	-30	100	a, b, d
Mokoza	177.15 - 178.00	∞	850	850			a, b
	178.00 - 178.60	∞	600	600			a, b, c
	178.60 - 179.30	1,500	700	690	-10	} 700	a, b, c, d
	179.30 - 180.40	∞	1,100	1,095	-5		a, b, d
	180.40 - 180.75	350	350	350			a, b
	180.75 - 181.60	∞	850	840	-10		a, b
	181.60 - 181.95	500	350	350			a, b
	181.95 - 182.10	∞	150	150			a, b
	182.10 - 182.45	1,000	350	350			a, b

(continued)
(continuée)

(Section #2)
Tronçon

Location Tracement		R	L _o	L ₁	Δ.L	ℓ _o	T
PK	PK	m	m	m	m	m	
	182.45 - 183.35	∞	900	895	-5		a, b, c
	183.35 - 184.60	4,000	1,250	1,220	-30	} 2,100	d
	184.60 - 186.80	∞	2,200	2,080	-120		a, b, d
	186.80 - 187.45	500	650	625	-25		a, b
Pelepele	187.45 - 188.30	∞	850	840	-10	400	a, b, d
	188.30 - 188.85	1,000	550	540	-10		a, b, c
	188.85 - 189.65	∞	800	790	-10		a, b
	189.65 - 190.05	1,000	400	400			a, b
	190.05 - 191.00	∞	950	950			a
	191.00 - 191.55	750	550	540	-10		a, b
	191.55 - 192.60	∞	1,050	1,050			a, b
	192.60 - 193.10	1,000	500	495	-5	} 500	a, b, d
	193.10 - 193.90	∞	800	790	-10		a, b, d
	193.90 - 194.30	750	400	400			a, b, c
	194.30 - 194.55	∞	250	250			a
	194.55 - 195.05	2,000	500	490	-10		a, b
	195.05 - 196.25	∞	1,200	1,195	-5		a, b, c
	196.25 - 196.55	750	300	290	-10		a, b
	196.55 - 196.75	∞	200	190	-10		a, b
	196.75 - 197.45	750	700	695	-5		a, b, c
	197.45 - 198.30	∞	850	850		200	a, d
	198.30 - 198.95	750	650	635	-15	100	a, b, d
	198.95 - 200.00	∞	1,050	1,035	-15		a, b
	200.00 - 200.80	750	800	770	-30	400	a, b, c, d
	200.80 - 201.15	∞	350	350			a, b, c
	201.15 - 202.05	1,500	900	885	-15		a, b, c
Bangwan	202.05 - 202.95	∞	900	895	-5		a, b
	202.95 - 203.45	1,000	500	495	-5		a, b
	203.45 - 204.05	∞	600	590	-10		a, b
	204.05 - 204.55	750	500	490	-10	200	a, b, d
	204.55 - 204.65	∞	100	100			a, b
	204.65 - 205.20	1,000	550	540	-10		a, b

(continued)
(continuée)

(Section
Tronçon #2)

Location Tracement		R	L ₀	L ₁	Δ L	ℓ ₀	T
PK	PK	m	m	m	m	m	
	205.20 - 205.80	∞	600	590	-10		a, b
	205.80 - 206.25	500	450	445	-5		a, b
	206.25 - 206.60	∞	350	350			a, b
	206.60 - 208.05	2,000	1,450	1,420	-30	800	a, b, d
	208.05 - 210.15	∞	2,100	2,085	-15		a, b
	210.15 - 211.55	1,500	1,400	1,385	-15		a, b
	211.55 - 212.05	∞	500	490	-10		a, b
	212.05 - 212.50	500	450	450			a, b
	212.50 - 212.80	∞	300	300			a
Lobi	212.80 - 213.45	1,500	650	650			a, b
	213.45 - 215.25	∞	1,800	1,775	-25	400	a, b, d
	215.25 - 215.40	250	150	145	-5		a, b, d
	215.40 - 217.30	∞	1,900	1,865	-35	1,200	a, b, d
	217.30 - 217.70	1,000	400	385	-15		a, b, d
	217.70 - 218.00	∞	300	295	-5		a, b, d
Gaya	218.00 - 218.40	1,000	400	395	-5		a, b
	218.40 - 219.05	∞	650	640	-10		a, b
	219.05 - 219.30	350	250	240	-10		a, b, d
	219.30 - 219.80	∞	500	485	-15	500	a, b, d
	219.80 - 220.10	500	300	280	-20		a, b
	220.10 - 220.90	∞	800	785	-15	500	a, b, d
	220.90 - 221.60	750	700	680	-20	500	a, b, d
	221.60 - 222.20	∞	600	580	-20		a, b
	222.20 - 222.90	1,500	700	690	-10		a, b
	222.90 - 223.75	∞	850	850			a, b
	223.75 - 224.15	4,000	400	400			a, b
	224.15 - 226.50	∞	2,350	2,335	-15	900	a, b, d
	226.50 - 226.80	750	300	300			a, b
	226.80 - 227.35	∞	550	540	-10		a, b, d
	227.35 - 228.30	2,000	950	920	-30	1,000	a, b, d
	228.30 - 229.00	∞	700	700			a, b
	229.00 - 229.20	500	200	190	-10		a, b

(continued)
(continued)

(Section #2)
Tronçon

Location Tracement		R	L _o	L ₁	Δ L	ℓ _o	T
PK	PK	m	m	m	m	m	
	229.20 - 230.70	∞	1,500	1,500			a
	230.70 - 230.90	300	200	190	-10		a,b
	230.90 - 231.45	∞	550	550			a
	231.45 - 232.15	750	700	680	-20		a,b
	232.15 - 232.50	∞	350	350			a
	232.50 - 232.75	750	250	245	-5		a,b
	232.75 - 232.85	∞	100	100			a,b
	232.85 - 233.35	750	500	490	-10		a,b
	233.35 - 233.60	300	250	250			a,b
Faka	233.60 - 233.80	∞	200	200			a
	Billi Rv.						
	233.80 - 234.50	∞	700	690	-10		a,b
	234.50 - 235.00	400	500	480	-20		a,b
	235.00 - 235.40	∞	400	395	-5		a,b
	235.40 - 235.70	250	300	290	-10	250	a,b,d
	235.70 - 236.55	∞	850	760	-90	} 700	a,b,d
	236.55 - 236.90	250	350	345	-5		a,b,d
	236.90 - 237.05	∞	150	150			a
	237.05 - 237.35	400	300	295	-5		a
	237.35 - 238.20	∞	850	850		} 600	a,b,c,d
	238.20 - 238.65	500	450	445	-5		a,b,d
	238.65 - 239.15	∞	500	495	-5		a,b,d
	239.15 - 239.90	750	750	750			a,b
	239.90 - 240.30	∞	400	395	-5		a,b,c
Tanza	240.30 - 240.80	1,000	500	500			a,b,c
	240.80 - 240.90	∞	100	95	-5		a,b
	240.90 - 241.20	1,500	300	300			a,b
	241.20 - 242.45	∞	1,250	1,245	-5		a,b
	242.45 - 243.00	750	550	530	-20	} 300	a,b,d
	243.00 - 243.10	∞	100	95	-5		a,b,d
	243.10 - 243.40	300	300	290	-10		a,b,d
	243.40 - 244.05	∞	650	645	-5		a,b,d

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(continuée)

(Section #2)
(Tronçon #2)

Location Tracement		R	L _o	L ₁	Δ L	ℓ _o	T
PK	PK	m	m	m	m	m	
244.05	- 244.30	300	250	245	-5		a, b, d
244.30	- 246.60		2,300	2,300			a, b, c
246.60	- 247.40	750	800	790	-10		a, b
247.40	- 247.70	∞	300	295	-5		a, b
247.70	- 247.95	230	250	225	-25	} 500	a, b, d
247.95	- 248.30	∞	350	335	-15		a, b, d
248.30	- 248.80	750	500	485	-15		a, b, d
Monga	248.80 - 250.00		1,200	1,200			a, b
Total			<u>125,000</u>	<u>122,335</u>	<u>-2,665</u>	<u>24,250</u>	

(Section #1)
(Tronçon #1)

Location Tracement		R	L _o	L ₁	Δ L	ℓ _o	T
PK	PK	m	m	m	m	m	
Monga	250.00 - 250.15	∞	150	145	-5		a, b
	250.15 - 250.40	230	250	245	-5		a, b
	250.40 - 250.85	∞	450	450			a
	250.85 - 251.25	350	400	390	-10		a, b
	251.25 - 251.65	∞	400	395	-5		a, b
	251.65 - 252.00	750	350	345	-5		a, b
	252.00 - 252.30	∞	300	300			a
	252.30 - 252.55	750	250	250			a, b
	252.55 - 252.75	∞	200	190	-10		a, b, c
	252.75 - 253.15	1,000	400	385	-15		a, b
	253.15 - 253.70	∞	550	550			a, b
	253.70 - 254.05	1,000	350	345	-5		a, b
Lumande	254.05 - 254.55	∞	500	495	-5		a, b
	254.55 - 254.80	750	250	250			a, b
	254.80 - 254.95	∞	150	145	-5		a, b

(continued)
(continued)

(Section #1)
Tronçon

Location Tracement		R	L ₀	L ₁	Δ L	ℓ ₀	T
PK	PK	m	m	m	m	m	
254.95	- 255.20	750	250	245	-5		a,b
255.20	- 256.10	∞	900	895	-5		a,b
256.10	- 257.10	2,000	1,000	980	-20		a,b
Fakula	257.10 - 258.65	∞	1,550	1,535	-15		a,b
	258.65 - 259.10	500	450	435	-15		a,b,c
	259.10 - 259.70	∞	600	600			a,b
	259.70 - 260.10	1,000	400	395	-5		a,b
	260.10 - 260.30	∞	200	190	-10		a,b
	260.30 - 260.80	1,000	500	485	-15		a,b
	260.80 - 261.20	∞	400	400			a,b
	261.20 - 261.40	350	200	195	-5		a,b
	261.40 - 262.15	∞	750	740	-10		a,b
	262.15 - 262.60	750	450	435	-15		a,b
	262.60 - 265.10	∞	2,500	2,500			a,b,c
	265.10 - 265.95	750	850	850		800	a,b,d
	265.95 - 266.15	∞	200	195	-5		a,b
	266.15 - 266.50	750	350	340	-10		a,b
	266.50 - 267.10	∞	600	600			a
	267.10 - 267.55	1,000	450	430	-20		a,b
	267.55 - 267.75	∞	200	200			a,b
	267.75 - 268.85	2,000	1,100	1,095	-5		a,b
	268.85 - 270.00	∞	1,150	1,120	-30	500	a,b,c,d
	270.00 - 270.55	1,000	550	455	-95		a,b,c
	270.55 - 270.90	500	350	340	-10		a,b
	270.90 - 271.10	∞	200	200			a,b,d
	271.10 - 271.55	350	450	420	-30	} 300	a,b,d
	271.55 - 271.85	∞	300	290	-10		a,b
	271.85 - 272.25	500	400	380	-20		a,b
	272.25 - 272.35	∞	100	100			a
	272.35 - 273.80	3,000	1,450	1,450		500	a,b,d
	273.80 - 274.00	∞	200	190	-10		a,b
	274.00 - 283.00	∞					d
	283.00 - 284.30	2,000	} 10,300	} 7,500	-2,800	} 7,500	d

(continued)
(continuée)

(Section #1)
Tronçon #1)

Location Tracement	PK	PK	R	L ₀	L ₁	Δ L	ℓ ₀	T
			m	m	m	m	m	
Dogba	284.30 - 285.55		4,000	1,250	1,230	-20		a,b
	285.55 - 286.00		∞	450	435	-15		a,b
	286.00 - 287.40		1,500	1,400	1,370	-30	} 1,800	a,b,d
	287.40 - 288.20		∞	800	765	-35		a,b,d
	288.20 - 289.00		2,000	800	770	-30	150	a,b,d
	289.00 - 291.15		∞	2,150	2,130	-20	1,500	a,b,d
	291.15 - 291.90		1,500	750	740	-10		a,b
	291.90 - 292.30		∞	400	390	-10		a,b
	292.30 - 292.70		500	400	390	-10		a,b,c
	292.70 - 292.95		∞	250	240	-10		a,b,c
	292.95 - 293.10		300	150	145	-5		a,b,c
	293.10 - 293.20		∞	100	95	-5		a,b,c
	293.20 - 293.35		250	150	145	-5		a,b
	293.35 - 293.50		∞	150	150			a,b
	293.50 - 294.00		750	500	495	-5		a,b
	294.00 - 294.20		∞	200	200			a,b
	294.20 - 294.60		750	400	395	-5		a,b
	294.60 - 294.70		∞	100	100			a,b
	294.70 - 295.15		750	450	445	-5		a,b,c
	295.15 - 296.80		∞	1,650	1,620	-30		a,b
	296.80 - 297.30		4,000	500	500			a,b
	297.30 - 298.15		∞	850	840	-10		a,b,c
	298.15 - 298.55		250	400	395	-5		a,b,c
	298.55 - 298.65		∞	100	100			a
	298.65 - 300.05		1,000	1,400	1,370	-30		a,b
	300.05 - 301.25		1,500	1,200	1,170	-30	400	a,b,d
	301.25 - 301.50		∞	250	250		200	a,b,d
	301.50 - 302.00		500	500	500			a,b
302.00 - 302.50		∞	500	490	-10		a,b	
302.50 - 303.10		750	600	580	-20		a,b	
303.10 - 304.15		∞	1,050	1,030	-20		a,b,c	
304.15 - 304.40		500	250	250			a,b,c	
304.40 - 304.60		∞	200	200			a,b,c	

(continued)
(continue)

(Section #1)
Tronçon

Location Tracement		R	L ₀	L ₁	Δ L	ℓ ₀	T
PK	PK	m	m	m	m	m	
304.60	- 304.80	750	200	190	-10		a,b,c
304.80	- 305.25	∞	450	450			a
305.25	- 306.55	2,500	1,300	1,275	-25		a,b
306.55	- 306.95	∞	400	385	-15	450	a,b,d
306.95	- 307.40	450	450	435	-15		a,b,d
307.40	- 307.90	∞	500	490	-10		a,b
307.90	- 308.60	750	700	705	+5		a,b,c
308.60	- 308.80	∞	200	195	-5		a,b
308.80	- 309.05	250	250	240	-10		a,b
309.05	- 309.55	∞	500	490	-10		a,b
309.55	- 309.75	230	200	195	-5		a,b
309.75	- 309.90	∞	150	150			a,b
309.90	- 310.25	230	350	345	-5	200	a,b
310.25	- 310.45	∞	200	195	-5		a,b
310.45	- 311.25	1,000	800	785	-15	300	a,b
311.25	- 311.90	∞	650	645	-5		a,b
311.90	- 312.70	2,500	800	790	-10		a,b
312.70	- 313.60	∞	900	780	-120		a,b
313.60	- 313.90	400	300	200	-100		a,b
313.90	- 314.10	∞	200	190	-10		a,b
314.10	- 314.50	500	400	400			a,b
314.50	- 314.80	∞	300	300			a
Soa	314.80 - 315.20	1,500	400	395	-5		a,b
	315.20 - 315.35	∞	150	150			a
	315.35 - 316.95	2,000	1,600	1,550	-50		a,b,c
	316.95 - 318.15	∞	1,200	1,185	-15		a,b,c
	318.15 - 318.30	350	150	140	-10		a,b
	318.30 - 318.80	∞	500	500			a
	318.80 - 319.10	500	300	290	-10		a,b
	319.10 - 319.35	∞	250	245	-5		a,b
	319.35 - 319.75	300	400	390	-10		a,b
	319.75 - 321.15	∞	1,400	1,390	-10		a,b

(continued)
(continuée)

(Section #1)
Tronçon

Location		R	L _o	L ₁	ΔL	l _o	T
Tracement							
PK	PK	m	m	m	m	m	
	321.15 - 321.50	250	350	335	-15		a,b
	321.50 - 322.00	∞	500	500			a,b
Ndu	322.00 - 322.40	250	400	395	-5		a,b
Bangassou	Bomu Rv.						
	Total		<u>72,400</u>	<u>68,285</u>	<u>-4,115</u>	<u>14,600</u>	
	G. Total		<u>718,600</u>	<u>698,955</u>	<u>-19,645</u>	<u>161,100</u>	

A.3.4.4 Ponts dormants(1) Calcul de l'écoulement

L'écoulement peut être calculé par plusieurs méthodes, et en jugeant à partir de données hydrologiques, la formule rationnelle était utilisée.

$$Q = \frac{1}{3,6} C \cdot r \cdot A$$

Q = Ecoulement maximum (m³/sec)


C = Rapport d'écoulement = 0,1

r = Intensité moyenne des pluies pendant le temps
d'écoulement (mm/h)

A = Aire du bassin (km²)

(2) Pente longitudinale des cours d'eau

Parce que la pente longitudinal des cours d'eau ne peut pas être connue par des cartes à l'échelle de 1 50,000 (aucun contour n'est donné), des rivières typiques ont été mesurées, et les résultats ont été utilisés pour estimer les pentes longitudinales des cours d'eau des rivières comme suite:

Nome de la rivière	Distance de Kisangani (Km)	Mesure de la pente de la surface de l'eau (%)	Pente moyenne des rivières (%)	
Lindi	36,8	0,04		
Ngula	58,2	0,025		
Aruwimi	129,0	0,025		
Zambeke	159,1	0,025		
Kole	196,4	0,010		
Tele	235,9	0,033		0,024
Yeme	309,1	0,017		
Rubi	323,9	0,025		
Makala	327,5	0,017		
Longa	332,3	0,020		PK8 + 0,00 (depuis Buta)
Kotili	352,1	0,010		0,010 PK64 + 2,00 (depuis Buta)
Bilo	370,5	0,010		
Likati	464,3	0,025		
Likati	477,6	0,025	0,021	
Uélé	524,8	0,025		
Bili	633,6	0,010	PK372 + 0,00 (depuis Dulia)	

(3) Calcul de la Durée des Pluies (temps de crue)

Le temps de crue peut être calculé par différentes méthodes, mais parce qu'il n'y a que quelques données pour ce calcul, la méthode suivante est adoptée.

$$t = L/v \text{ (h)}$$

t = Temps de la crue

L = Distance depuis le point de plus haut de la rivière. (km)

v = vitesse de la crue (Km/h)

$$= 72 (H/L)^{0,6}$$

H = Chute de rivière (km)

H/L = Pente

Les pentes de calculées par l'utilisation des valeurs ci-dessus estimées sont somme suite:

(Tronçon)	H/L	$(H/L)^{0,6}$	v (km/h)
depuis Kisangani depuis Buta PK36 + 800 ~ PK8 + 0,0	0,00024	0,0067	0,482
depuis Buta depuis Dulia PK8 + 0,0 ~ PK64 + 200	0,00021	0,0060	0,432
depuis Dulia ~ depuis Dulia PK 64 + 200 ~ PK322 + 0,0	0,0001	0,0039	0,281

(4) Intensité des pluies probables

D'après l'Intensité des Pluies au Congo et au Ruanda-Burundi, l'intensité des pluies probables observée par les situations climatiques au Zaïre est comme il est indiqué dans le tableau suivant.

Intensité de la pluie probable (mm/heure)

Localisation	Année de référence Durée des pluies	2 ans				5 ans				10 ans			
		10	30	60	90	10	30	60	90	10	30	60	90
LIBENGE		24,5	47,7	63,0	76,6	28,7	56,0	80,5	91,1	31,9	62,3	90,1	102,1
BUNIA		21,0	40,8	51,0	55,3	24,4	47,7	59,7	64,9	26,9	52,9	66,3	72,1
KINDU		23,4	49,3	63,9	69,7	27,6	58,5	76,1	83,1	30,7	65,4	85,3	93,2
BOENDE		27,1	54,3	68,8	72,6	31,6	63,2	80,4	84,7	34,9	70,3	89,2	93,8
MBANDAKA		24,1	47,2	59,2	66,4	28,1	55,1	69,3	77,8	31,1	61,1	76,9	86,4
KISANGANI		24,1	47,0	64,3	69,4	28,1	54,9	75,5	81,5	31,1	60,8	84,0	90,6
BASOKO		23,0	46,6	56,0	63,5	26,9	54,6	65,6	74,6	29,7	60,6	72,8	82,6

Les données ci-dessus étaient converties en intensité de 60 minutes de pluie par la formule suivante et elles ont été tracées sur un papier normal de probabilité logarithmique, pour obtenir l'intensité des pluies probables par un graphe des années respectives. (Voir à Planche A.3.4.4-(1))

$$I = R \times \frac{60}{t} \quad (\text{mm/h})$$

où: I = Intensité des pluies 60 minutes

R = Pluies probables (mm)

t = Durée des pluies (min)

(5) Dessin des ponts dormants

Pour le calcul des aires de la coupe transversale des ponts dormants, le diamètre des pont dormant était déterminé par le graphique (A.3.4.4-(2),(3)) par la formule suivante de Manning.

$$Q_0 = \frac{1}{n} \cdot R^{2/3} \cdot I^{1/2} \cdot A$$

où: Q_0 = Capacité d'écoulement de dalot (m^3/sec)

n = Coefficient de rugosité = 0,1

R = profondeur en valeur hydraulique (m)

I = pente de dalot

A = aire de la coupe transversale de dalot (m^2)

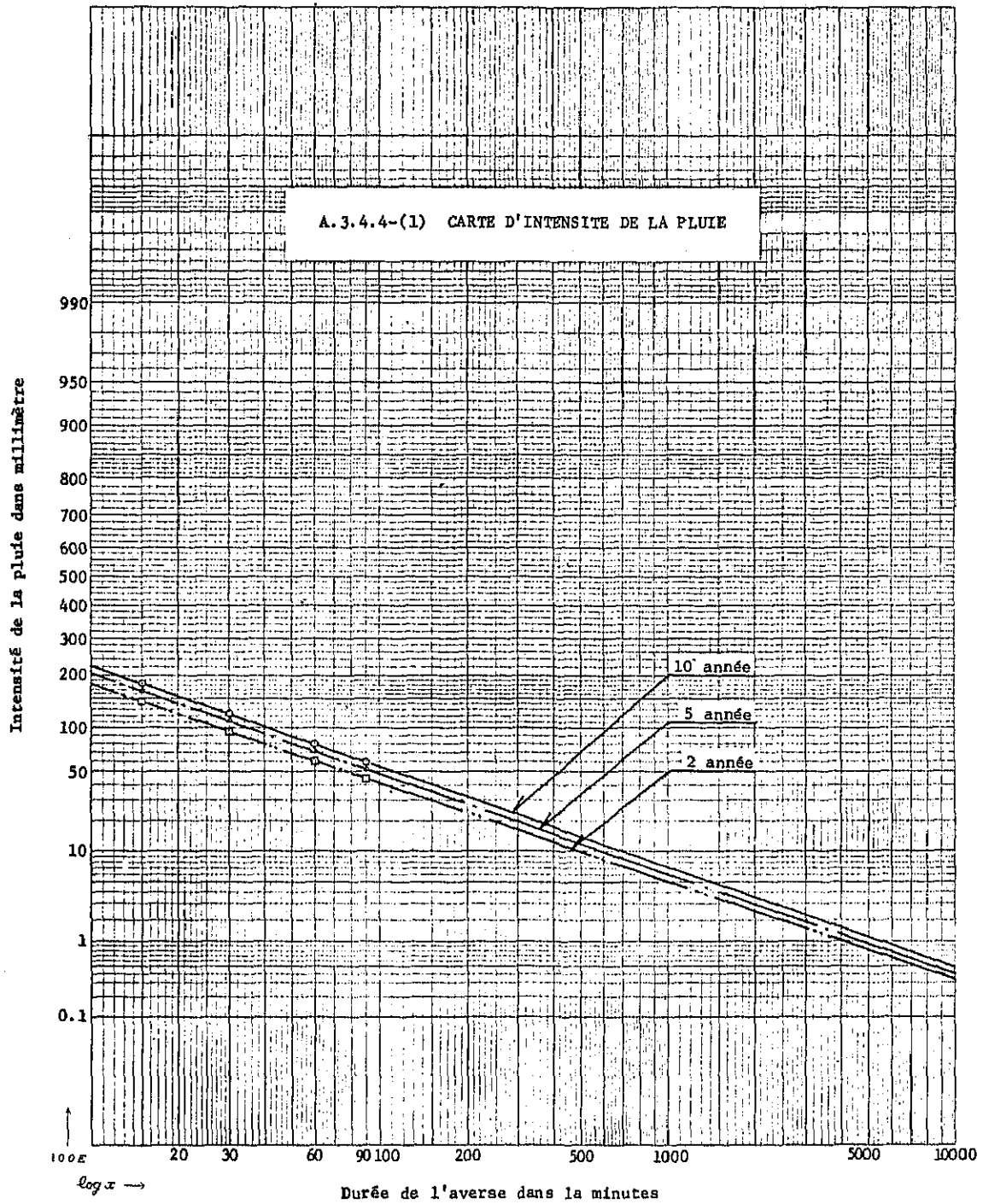
Les dalots montrés dans le calcul, (A.3.4-(4)) sont seulement ceux pour lesquels les rivières qui peuvent être reconnues comme rivière sur les cartes à une échelle de 1:50.000. Pour cela, ces dalots montrés dans le (3.4.4-(2)) ne sont pas tous ceux qui existent, et le reste des dalots existants et ceux pour les endroits qui nécessitent des dalots additionels où les eaux de croisement coulent sur la route, et ceux dont l'existence à été reconnue par la recherche, sont tous inclus dans les planches B.1.1 à B.1.19.

Dimensions des dalots dans le Tableau de Calcul:

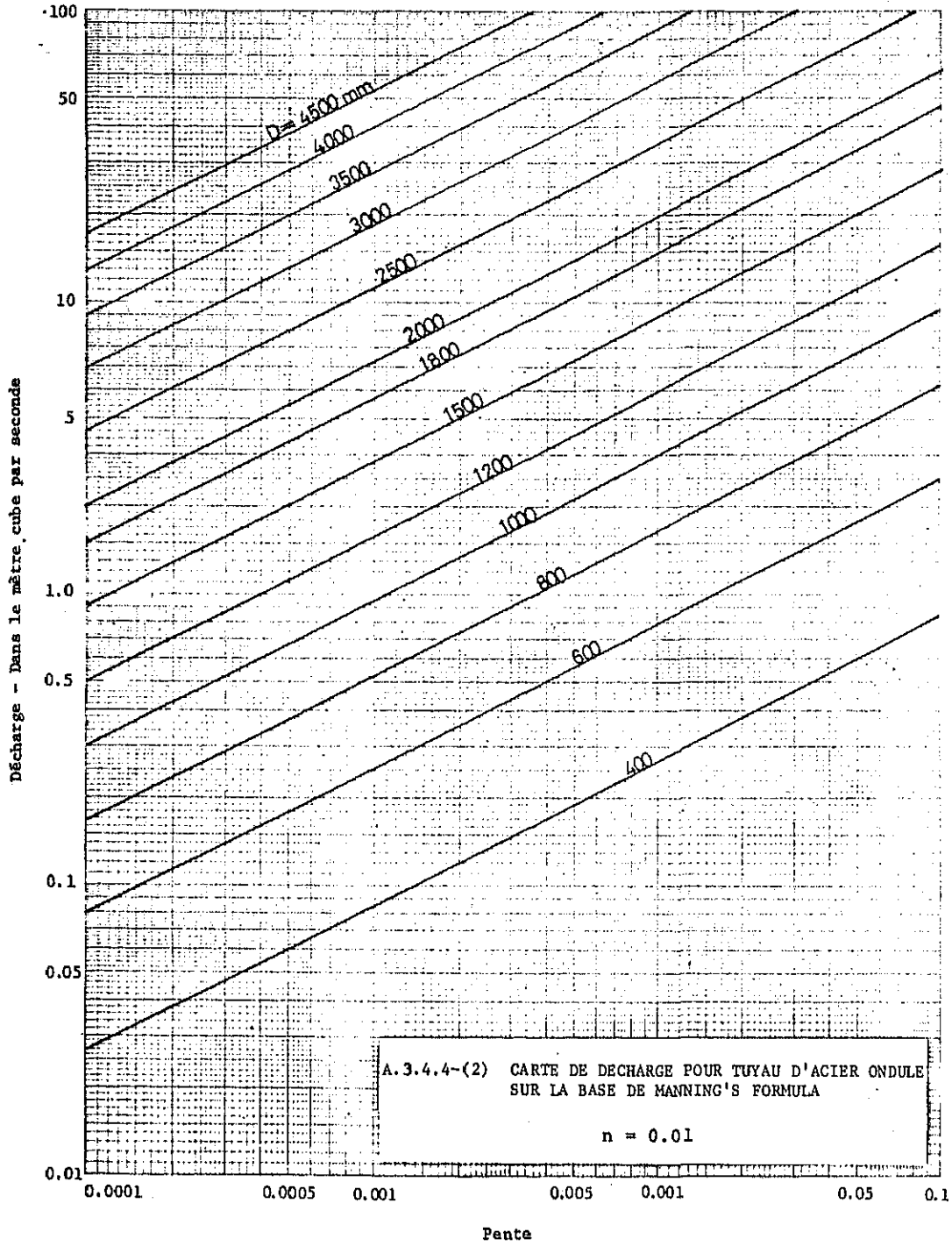
Alternative (I) Les diamètres des dalots étaient estimés par le calcul des écoulements à partir des cartes à une échelle de 1 50,000.

Alternative(II) Les diamètres des dalots étaient estimés en trouvant les marques des crues passées trouvées sur les lieux ou par informations à partir des habitants locaux pour estimer l'écoulement au moment de la crue.

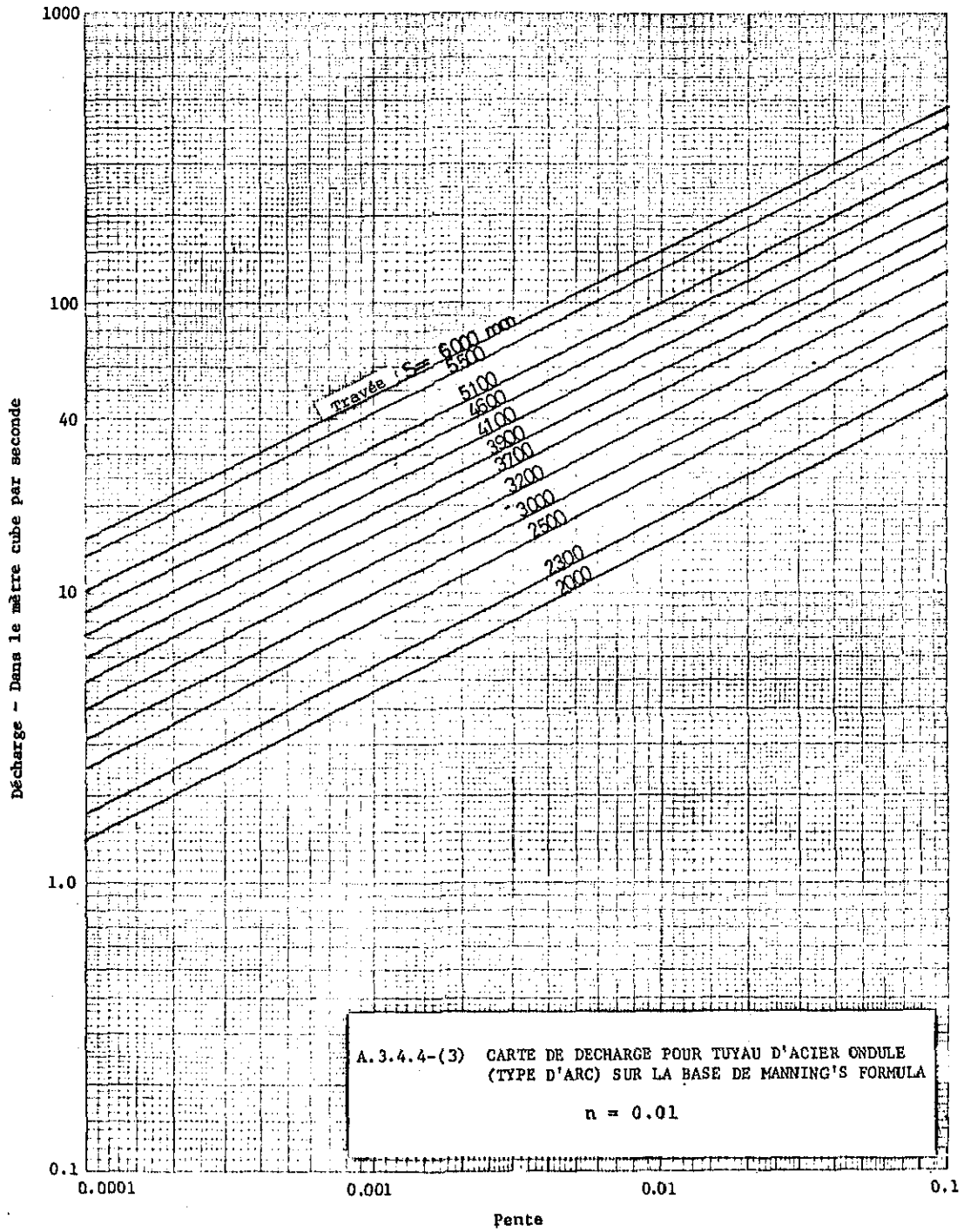
A.3.4.4-(1)



A. 3.4.4-(2)



A.3.4.4-(3)



Run-off Calculation and Size of Culverts for Existing Streams
Calcul de ruissellement et Grosseur des ponceaux pour tube de courant existant

A.3.4.4-(4)

$$Q = \frac{1}{3.6} \times C \times \gamma \times A \text{ (m}^3\text{/sec)}$$

- C : Run off coefficient 0.1
Coefficient de ruissellement 0.1
- γ : Average rainfall intensity (mm/h)
Intensité de la pluie moyenne
- A : Basin area (KM²)
Bassin versant

$$t = \frac{L}{V} \text{ (min)}$$

- L : Run off distance (m)
Longueur en thalweg principal
- V : Average run off velocity (m/sec)
Vélocité du courant moyenne
- φ : Diameter of pipe (m)
Diamètre de tuyau

$$P_{cor} : \text{Corrugated metal pipe}$$

- PC : Concrete pipe
Tuyau en béton
- C-Bx : Reinforced concrete box culvert
Dalot en béton armé
- S : Corrugated metal pipe (arched type)
Tuyau ondulé en métal

1.3.4.4-(4)

Size of Culverts
Grosseur de ponceaux

Station Position	River Rivièrè	L (KM)	t (min)	γ (mm/h)	A (KM ²)	Q (m ³ /sec)	Alternative		Remarks Remarque
							(a)	(b)	
50 + 200		12.0	1,492.0	4.9	55.0	7.4	Pcor φ2.5	Pcor φ2.9	
+ 500		13.5	1,680.0	4.4	26.0	3.1	4-φ1.2	4-φ1.2	
+ 900		29.0	3,610.0	1.9	92.0	4.9	φ2.5	2-φ2.7	
54 + 600		25.0	3,112.0	2.2	44.0	2.7	4-φ1.2	4-φ1.2	
55 + 200		15.0	1,867.2	3.8	16.0	1.7	φ1.8	2-φ2.0	
61 + 450	Angwande	4.0	497.9	15.0	10.9	4.2	6-φ1.2	3-φ1.2	
63 + 250	Azame	8.0	995.0	7.1	12.6	2.5	φ2.0	C-Box 2-(0.8x1.3)	
64 + 600	Abolo	10.0	1,244.8	5.6	14.6	2.3	φ1.8	8-φ0.6	
66 + 500	Takao	21.0	2,614.1	1.6	58.2	2.6	φ2.0	S-φ4.5	

Station Position	River Rivière	L (KM)	t (min)	Y (mm/h)	A (KM ²)	Q (m ³ /sec)	Size of Culverts Grosseur de ponceaux		Remarks Remarque	
							Alternative (a)	Alternative (b)		
70 + 600		1.5	186.7	25.0	1.6	1.1	Pcor	Ø1.5	PC	Ø0.6
79 + 100		2.3	286.3	19.0	2.0	1.0	"	Ø1.5		
80 + 400		1.3	161.8	38.0	0.6	0.6	PC	Ø0.8	PC	Ø0.6
80 + 550		6.5	809.1	8.9	12.7	3.1	Pcor	5-Ø1.2	Pcor	5-Ø0.9
92 + 450	Tongbala	6.0	746.8	9.4	12.3	3.2	"	2-Ø1.5	"	2-Ø1.0
+ 800		2.0	249.0	1.5	27.0	1.1	"	Ø1.5		
93 + 450		1.5	186.7	34.0	1.0	0.9	"	Ø1.5	Pcor	Ø1.2
98 + 650	Bode	12.0	1,493.8	4.9	58.0	7.9	"	2-S3.0	"	2-S3.6
99 + 800		5.5	684.6	12.0	12.1	4.0	"	2-Ø1.8	"	Ø1.5
101 + 400		2.0	248.9	28.0	1.3	1.0	"	Ø1.5	PC	Ø0.6
102 + 600		2.5	311.2	22.0	1.8	1.1	"	Ø1.5	Pcor	Ø0.9
105 + 750	Mobe	14.5	1,804.9	4.0	43.4	4.8	"	Ø2.5	"	Ø3.0
106 + 800		0.7	87.1	61.0	0.3	0.5	"	Ø1.2	PC	Ø0.6
111 + 180	Ambisode	11.5	1,431.5	5.0	28.5	4.0	"	2-S1.8	Pcor	3-S1.8
113 + 0	Anbutuge	18.5	2,302.9	3.0	36.4	3.0	"	2-S1.5	"	2-S1.5
+ 500	Atemae	8.5	1,058.0	6.9	9.9	1.9	"	2-Ø1.5	"	2-Ø1.2
114 + 900		2.0	249.0	27.0	1.2	0.9	"	Ø1.5	PC	Ø0.6
116 + 150		7.0	871.4	8.2	9.9	2.2	"	Ø1.8	Pcor	Ø1.2
117 + 300		1.0	124.5	47.0	0.7	0.9	"	2-Ø1.0	PC	Ø0.8
118 + 650	Andakode	5.0	622.4	11.0	8.5	2.6	"	2-Ø1.5	Pcor	Ø1.2

Station Position	River Rivière	L (KM)	t (min)	Z (mm/h)	A (KM ²)	Q (m ³ /sec)	Size of Culverts Grosseur de ponceaux		Remarks Remarque
							Alternative (a)	Alternative (b)	
124 + 900	Akolia	12.0	1,493.8	4.9	32.3	4.4	Pcor S-3.0	Pcor S-1.8	
135 + 50	Menueke	2.0	249.0	27.0	1.7	1.2	"	2-Ø1.2	
143 + 400		20.0	2,489.6	1.8	55.2	2.7	"	S-2.3	" S-4.8
144 + 800		4.0	497.9	15.0	7.8	3.2	"	S-3.2	
148 + 400		15.0	1,867.2	3.7	39.9	4.1	"	S-3.0	" 2-S3.6
173 + 100	Sangara	3.0	373.4	19.0	3.2	1.7	"	Ø1.8	" Ø1.2 " 2-Ø1.0
174 + 900		1.3	161.8	39.0	0.7	0.8	"	Ø1.2	" Ø1.0
175 + 800	Mombulubulu	5.0	622.4	12.0	7.4	2.5	"	Ø2.0	" Ø1.0
178 + 700	Saela	6.0	746.9	9.4	13.7	3.6	"	2-Ø1.8	" 2-Ø1.8
181 + 800	Malembazabene	6.0	746.9	9.4	10.6	2.8	"	2-Ø1.5	" 2-Ø1.0
185 + 900	Lengelewa	3.0	373.4	19.0	3.9	2.0	"	2-Ø1.5	" Ø1.0
188 + 200		8.5	1,058.1	6.9	29.2	5.6	"	2-Ø2.0	" Ø2.0
194 + 500		20.0	2,489.6	2.8	120.0	9.3	"	S-4.1	" S-4.3
198 + 500		2.0	249.0	27.0	2.4	1.8	"	Ø1.8	" Ø1.0
201 + 100		1.0	124.5	47.0	1.0	1.3	"	Ø1.5	
202 + 100	Bengolobo	3.5	435.7	17.0	4.2	2.0	"	2-Ø1.5	PC 2-Ø0.8
203 + 900	Kole	15.5			39.5				
231 + 600	Banzua	12.0	1,493.8	4.8	23.9	3.2	"	S-2.5	Pcor 2-S2.4
232 + 600		9.0	1,120.0	6.5	70.0	12.6	"	2-Ø2.26	" 2-Ø2.6
236 + 800	Mopondo	19.5	2,427.4	2.9	102.3	8.2	"	2-Ø2.5	" 2-Ø3.8

Station Position	River Rivière	L (KM)	t (min)	Y (mm/h)	A (KM ²)	Q (m ³ /sec)	Size of Sulverts Grosseur de ponceaux		Remarks Remarques
							Alternative (a)	Alternative (b)	
237 + 800	Lembumbu	9.5	1,182.6	6.0	18.4	3.1	Pcor 2- ϕ 1.5	PC 2- ϕ 0.8	
242 + 700		2.5	311.2	22.0	11.1	6.8	" 2- ϕ 2.0	Pcor 2- ϕ 1.2	
243 + 800		3.5	435.7	17.0	4.9	2.3	" 2- ϕ 1.5	" 2- ϕ 1.2	
245 + 500		6.0	746.9	9.5	11.7	3.1	" 2- ϕ 1.5	" 2- ϕ 1.2	
249 + 600	Mbe	11.0	1,369.3	5.3	64.1	9.4	" S-4.0		
251 + 700		3.0	373.4	19.0	2.5	1.3	" 3- ϕ 1.0	" 3- ϕ 1.0	
261 + 900	Ejongo	10.0	1,244.8	5.3	27.5	4.0	" 3- ϕ 1.5	" 3- ϕ 1.8	
262 + 800	Bnogamaga	6.5	809.1	8.9	12.7	3.1	" 3- ϕ 1.5	" 3- ϕ 0.9	
266 + 100	Bondo	5.5	684.6	11.0	6.4	1.9	" 3- ϕ 1.2	" 3- ϕ 1.0	
268 + 0	Bondua	5.0	622.4	11.0	8.0	2.9	" ϕ 1.8	" ϕ 1.8	
270 + 0		1.5	186.7	34.0	1.0	0.9	" 2- ϕ 1.0	" 2- ϕ 1.0	
271 + 500		1.0	124.5	47.0	1.5	1.9	" 2- ϕ 1.5	" 2- ϕ 1.0	
277 + 0	Bode	6.0	746.9	9.5	11.4	3.0	" S-2.5	" S-4.0	
+ 200	Bode-Manene	5.5	684.6	12.0	5.7	1.9	" S- ϕ 1.2	" S- ϕ 1.0	
288 + 200	Yagi	4.5	560.1	13.0	5.7	2.0	" S-2.0	" S-4.0	
292 + 700		4.5	560.1	13.0	12.9	4.7	" S-3.0	" S-4.0	
294 + 900		20.0	2,489.6	1.8	99.0	5.0	" S-3.2	" 2S-5.0	
299 + 300		6.0	746.9	9.5	9.7	2.6	" ϕ 2.0	" ϕ 3.0	
302 + 550		7.5	933.6	7.8	12.6	3.2	" 2- ϕ 1.5	" 2- ϕ 1.0	
310 + 600	Mabagamu	4.0	497.9	15.0	7.7	3.2	" ϕ 2.5	" ϕ 3.0	
315 + 800		5.5	684.6	12.0	12.0	4.0	" 3- ϕ 1.5	" ϕ 1.0	

Station Position	River Rivière	L (KM)	t (min)	Y (mm/h)	A (KM ²)	Q (m ³ /sec)	Size of Culverts Grosseur de ponceaux		Remarks Remarques
							Alternative (a)	Alternative (b)	
317 + 400									
From Buta de									
2 + 600		1.8	252.3	27.0	1.0	0.8	Pcor	ø1.2	
13 + 50	Nguru	4.0	827.6	8.8	3.0	0.7	"	ø1.5	Pcor ø1.9
14 + 0	Malikuta	8.0	1,655.2	4.4	18.7	2.3	"	ø2.5	" ø3.0
19 + 500	Lingiba	5.5	1,137.9	6.5	12.4	2.2	"	ø2.5	" ø3.0
22 + 100	Kon	3.0	620.7	11.0	2.0	0.6	"	ø1.5	" ø1.2
41 + 300	Gombo	7.5	1,551.7	4.6	27.4	3.5	"	S-3.2	" S-3.0
54 + 700	Maze	100.0	13,953.5	0.3	350.0	2.9	"	ø2.0	" 2-ø3.5
58 + 150	Mafari	11.5	1,604.7	4.8	27.2	3.6	"	ø2.5	" ø3.0
66 + 50	Bilo	40.0	5,581.4	1.0	510.0	14.1	"	3-ø3.0	" 3-ø4.0
69 + 250		2.0	279.1	24.0	2.3	1.7	"	ø1.8	" ø1.2
From Dulia de									
2 + 300	Mogengia	4.0	558.1	14.0	4.5	1.8	Pcor	2-ø1.8	Pcor 2-ø1.0
11 + 800	Masipiri	1.0	139.5	43.0	0.6	0.7	"	2-ø1.0	" 2-ø1.0
13 + 900	Maburuka	18.5	2,581.4	2.7	77.0	5.7	"	S-3.0	" S-3.2
16 + 900	Nabuma	15.0	2,093.0	3.5	44.5	4.3	"	S-3.0	" S-3.0
21 + 0	Makusi	3.0	418.6	18.0	3.0	1.5	"	ø1.5	" ø1.0
26 + 800	Nagobero	15.0	2,093.0	3.5	45.5	4.4	"	S-3.0	" S-3.0

Station Position	River Rivière	L (KM)	t (min)	γ (mm/h)	A (KM ²)	Q (m ³ /sec)	Size of Sulverts Grosseur de ponceaux		Remarks Remarques
							Alternative (a)	Alternative (b)	
29 + 500		1.0	139.5	43.0	0.8	0.9	Pcor 2-ø1.0	Pcor 2-ø1.0	
30 + 550	Nangende	1.0	139.5	43.0	0.6	0.7	" 2-ø1.0	" 2-ø1.0	
33 + 450		8.5	1,186.0	6.0	22.3	3.7	" ø2.5	" ø1.5	
37 + 250		1.0	139.5	43.0	0.4	0.5	" ø1.2		
38 + 750		0.7	97.7	55.0	0.2	0.3	" ø1.0	" ø1.0	
39 + 200	Mango	20.0	2,790.7	2.6	65.0	4.7	" S-3.0	" S-3.0	
43 + 400	Namenimbala	21.0	2,930.0	2.3	56.0	3.6	" ø2.5	" ø1.8	
47 + 300	Kpoyo	11.0	1,534.9	4.8	39.7	5.3	" ø2.5	" ø2.5	
48 + 700		4.0	558.1	14.0	5.8	2.2	" 2-ø1.5	" 2-ø1.0	
+ 900		5.0	697.7	10.0	3.9	1.1	" ø1.5	" 2-ø1.0	
51 + 600		2.0	279.1	25.0	3.0	2.1	" ø1.8	" ø1.5	
52 + 900		4.5	627.9	11.5	11.0	3.5	" ø2.5	" ø1.0	
55 + 600		4.5	627.9	11.5	9.0	2.9	" ø2.0	" ø1.0	
66 + 500		3.0	418.6	18.0	4.8	2.4	" ø1.8	" ø1.0	
69 + 300		4.0	558.1	14.0	11.3	4.4	" ø2.5	" ø1.0	
70 + 300	Malikambe	7.5	1,046.5	6.9	12.3	2.4	" ø1.8	" 2-ø1.0	
75 + 100	Bolongo	5.0	697.7	10.0	10.0	2.8	" ø2.0	" 2-ø1.0	
82 + 200	Maniuna	8.0	1,116.2	6.5	4.7	0.8	" ø1.5	" ø1.5	
83 + 600		23.5	3,279.0	2.1	78.0	4.6	" ø2.5	" ø2.5	
88 + 80		1.0	139.5	43.0	0.3	0.4	" ø1.0	" ø1.0	
90 + 400		4.0	558.1	13.0	3.0	0.4	" ø1.0	" ø1.0	

Station Position	River Rivière	L (KM)	t (min)	Y (mm/h)	A (KM ²)	Q (m ³ /sec)	Size of Culverts Grosseur de ponceaux		Remarks Remarques
							Alternative (a)	Alternative (b)	
91 + 500		8.0	1,116.2	6.2	10.5	1.8	Pcor 2- ϕ 1.2	Pcor 2- ϕ 1.0	
98 + 700	Kulumonene	5.5	767.4	9.4	8.8	2.3	" 2- ϕ 1.2	" 2- ϕ 1.0	
106 + 300		2.0	279.1	25.0	2.0	1.4	" ϕ 1.5	"	
108 + 400		2.3	320.9	21.5	2.5	1.5	" ϕ 1.5	" ϕ 1.0	
110 + 0		3.5	488.3	15.0	5.1	2.1	" ϕ 1.8	" ϕ 1.0	
111 + 0		2.0	279.1	25.0	1.4	1.0	" ϕ 1.5	" ϕ 1.0	
113 + 0		8.0	1,116.2	6.5	18.7	3.4	" 2- ϕ 1.8	" ϕ 1.0	
118 + 400	Keda	4.5	627.9	11.5	10.8	3.4	" 2- ϕ 1.8	"	
120 + 550	Mizaka	5.5	767.4	9.4	6.3	1.6	" 2- ϕ 1.2	" 2- ϕ 1.0	
124 + 80	Masingi	2.0	279.0	25.0	1.6	1.1	" 2- ϕ 1.0	" 2- ϕ 1.0	
131 + 500	Kule	12.0	1,674.4	4.3	39.1	4.6	" ϕ 2.5	" ϕ 1.5	
135 + 400	Bangoloma	3.5	488.3	15.0	3.6	1.5	" 2- ϕ 1.2	" ϕ 1.0	
137 + 100	Gindi	6.0	837.2	8.7	6.8	1.6	" 2- ϕ 1.5	" 2- ϕ 1.0	
141 + 300	Kingile	20.0	2,790.7	2.6	139.4	10.0	" S-4.6	" ϕ 1.0	
143 + 900		1.0	139.5	43.0	0.2	0.2	" ϕ 1.0	" 2- ϕ 1.0	
146 + 500	Mangalo	11.0	1,534.9	4.8	27.3	3.0	" 2- ϕ 1.5	" 2- ϕ 1.0	
147 + 700	Dibgo	5.0	697.7	10.0	10.1	2.8	" 2- ϕ 1.5	" ϕ 1.5	
151 + 0	Mabali	1.0	139.5	43.0	0.8	1.0	" ϕ 1.5	" ϕ 1.0	
152 + 900	Maluga	17.0	2,372.1	3.3	54.9	5.0	" ϕ 2.5	" ϕ 3.5	
160 + 600	Bagu	1.0	139.5	43.0	0.9	1.1	" ϕ 1.5	" ϕ 1.0	
162 + 200		2.2	307.0	22.0	2.6	1.6	" ϕ 1.5	" ϕ 1.0	

Size of Culverts
Grosseur de ponceaux

Station Position	River Rivière	L (KM)	t (min)	Y (mm/h)	A ² (KM ²)	Q (m ³ /sec)	Alternative		Remarks Remarque
							(a)	(b)	
162 + 750	Mangoli	4.5	627.9	11.5	7.6	2.4	Pcor	ø1.0	
163 + 100	Bavula	2.0	279.1	25.0	1.4	1.0	"	ø1.5	ø1.0
+ 900	"	4.5	627.9	11.5	6.1	1.9	"	2-ø1.5	2-ø1.0
165 + 700	Namangava	2.5	348.8	20.0	2.5	1.4	"	ø1.5	ø1.0
167 + 900	Mambia	12.5	1,744.2	4.1	12.4	1.4	"	ø1.5	ø1.5
176 + 0		0.7	97.7	56.0	0.2	0.3	"	ø1.0	ø1.0
+ 500		0.7	97.7	56.0	0.2	0.3	"	ø1.0	ø1.0
181 + 400	Lobi	3.0	418.6	18.0	3.3	1.6	"	ø1.8	
184 + 800	"	0.5	69.7	71.0	0.2	0.4	"	ø1.0	ø1.0
186 + 950	Duo (Nduo)	8.0	1,116.2	6.5	16.7	3.0	"	ø2.5	ø1.0
188 + 500	Yangola	11.0	1,534.9	4.8	29.2	3.9	"	ø2.5	ø1.5
192 + 600	Monbulu	7.0	976.7	7.2	13.6	2.7	"	2-ø1.5	2-ø1.0
193 + 100	Mabulu	2.0	279.1	25.0	1.6	1.1	"	ø1.5	ø1.0
194 + 200	"	2.5	348.8	20.0	1.7	0.9	"	ø1.5	ø1.0
195 + 900		1.0	139.5	43.0	0.3	0.4	"	ø1.0	ø1.0
197 + 100	Digbala	8.0	1,116.2	6.5	10.5	1.8	"	2-ø1.5	ø1.0
198 + 150		1.8	251.1	27.0	1.1	0.8	"	ø1.5	ø1.0
199 + 900	Digbala	8.0	1,116.2	6.5	1.4	0.3	"	ø1.0	2-ø1.0
204 + 600		2.0	279.1	25.0	2.5	1.7	"	2-ø1.5	ø1.0
212 + 100	Lobi	50.0	6,976.7	0.8	450.0	10.0	"	S-3.7	S-3.7
216 + 300		1.5	209.3	32.0	0.5	0.4	"	ø1.0	ø1.0

Station Position	River Rivière	L (KM)	t (min)	Y (mm/h)	A (KM ²)	Q (m ³ /sec)	Size of Culverts Grosseur de ponceaux		Remarks Remarque	
							Alternative (a)	Alternative (b)		
							Pcor	Pcor		
222 + 600		1.0	139.5	43.0	0.3	0.4	Pcor	Ø1.0	Pcor	Ø1.0
230 + 900	Pangabiso	3.5	488.3	15.0	3.1	1.3	"	Ø1.5	"	Ø1.0
236 + 600		2.5	348.8	20.0	3.1	1.7	"	Ø1.8	"	Ø1.0
237 + 900	Duku	8.0	1,116.2	6.5	21.0	3.8	"	2-Ø1.8	"	Ø1.8
240 + 300	Makuru	1.5	209.3	32.0	0.8	0.7	"	Ø1.2	"	Ø1.0
243 + 100	Bafumbu	4.5	627.9	11.5	5.9	1.9	"	Ø1.8	"	2-Ø1.0
245 + 500	Ingumbio	8.5	1,186.0	6.0	15.6	2.6	"	2-Ø1.5	"	Ø1.0
248 + 400		8.0	1,116.2	6.5	13.4	2.4	"	2-Ø1.5	"	S-3.7
250 + 400	Dindo (II)	5.0	697.7	10.0	6.0	1.7	"	Ø1.8	"	S-3.0
252 + 700	" (III)	4.0	558.1	13.0	6.3	2.3	"	2-Ø1.5	"	Ø1.0
265 + 100	Logbo	11.0	1,534.9	4.8	56.5	7.5	"	S-3.9	"	Ø1.5
276 + 100	Luba	11.0	1,534.9	4.8	43.4	5.8	"	S-3.2	"	S-3.2
292 + 800	Balinga (Boloko)	32.0	4,465.1	1.4	189.0	7.4	"	S-3.9	"	S-3.2
295 + 0	Bainga	6.0	837.2	8.7	10.6	2.6	"	Ø2.0	"	Ø1.5
300 + 500	Popwo	5.0	697.7	10.0	13.3	3.7	"	Ø2.5	"	Ø1.8
303 + 500		21.0	2,930.2	2.3	122.6	7.8	"	S-3.9	"	S-3.0
316 + 600	Yabongo	6.5	907.0	7.2	17.7	3.5	"	S-2.5	"	S-3.0
Total 167 locations										

In this project road improvement additional pipes of Ø1.0m are constructed at 406 locations where are considered to be necessary through the field survey and are all shown in Plates B.1.1 - B.1.19.

Dans la route améliorée de projet additionnelle les tuyaux de Ø1.0m ont construit à locations 406 où ils ont considéré nécessaire à cause de additionnelle les tuyaux de Ø1.0m ont construit à locations qui ont indiqué toutes les Planches B.1.1 - B.1.19.

Section Tronçon	Station Point d'étude	Length along Existing Road Longueur du long de route existante	Soils Classification Classification des Sols										Pavement Types Types du revêtement							
			A A S H O										Alternative I							
			A-2-4	A-2-6	A-2-7	A-4	A-6	A-7-5	A-7-6	Casagrande	I	II	III	IV	V					
	PK	km																		
8	154.0 - 158.0	4.0			0							SC			0					0
	158.0 - 159.0	1.0						0				SC					0			0
	159.0 - 160.7	1.7			0							SC			0					0
	160.7 - 161.75	1.05					0					SC					0			0
	161.75 - 162.8	1.05			0							SC			0					0
	162.8 - 165.1	2.3					0					SC					0			0
	165.1 - 168.1	3.0			0							SC			0					0
	168.1 - 180.4	12.3							0			SC					0			0
	180.4 - 188.3	7.9					0					SC			0					0
	188.3 - 191.5	3.2						0				SC					0			0
191.5 - 206.0	14.5			0							SC			0					0	
	Total	77.0																		
(Kole)																				
7	206.0 - 230.0	24.0			0							SC			0					0
	230.0 - 235.8	5.8						0				SC					0			0
	Total	29.8																		
(Tele)																				
6	235.8 - 237.0	1.2						0				SC					0			0
	237.0 - 238.5	1.5						0				SC			0					0
	238.5 - 240.5	2.0							0			SC					0			0
	240.5 - 246.9	6.4						0				SC			0					0

Section	Station	Length along Existing Road Longueur du long de route existante	Soils Classification Classification des sols						Pavement Types Types du revêtement						
			A A S H O						Alternative I						
			Point d'étude	A-2-4	A-2-6	A-2-7	A-4	A-6	A-7-5	A-7-6	Casagrande	I	II	III	IV
	PK	km													
2	240.2 - 240.95	0.75						0					0		0
	240.95- 247.25	6.3		0											0
	247.25- 250.0	2.75						0					0		0
	Total	125.0													
(Monga)	250.0 - 254.0	4.0						0					0		0
	254.0 - 284.8	30.8		0									0		0
	284.8 - 285.1	0.3						0					0		0
	285.1 - 292.6	7.5		0									0		0
	292.6 - 292.9	0.3						0					0		0
	292.9 - 294.6	1.7		0									0		0
	294.6 - 295.25	0.65						0					0		0
1	295.25- 300.0	4.75		0									0		0
	300.0 - 301.7	1.7						0					0		0
	301.7 - 303.4	1.7		0									0		0
	303.4 - 303.7	0.3						0					0		0
	303.7 - 313.25	9.55		0									0		0
	313.25- 314.45	1.2						0					0		0
	314.45- 316.4	1.95		0									0		0
	316.4 - 317.6	1.2						0					0		0
	317.6 - 319.0	1.4						0					0		0

Section Tronçon (Ndu)	Station Point d'étude PK	Length along Existing Road Longueur du long de route existante km	Soils Classification Classification des sols						Pavement Types Types du revêtement										
			A	A	S	H	O	I	II	III	IV	V	VI						
	PK																		
	319.0 - 322.4	3.4	A-2-4	A-2-6	A-2-7	A-4	A-6	A-7-5	A-7-6	Casagrande							Alternative I	Alternative II	O
	Total	72.4							SC										

Note: 1. Pavement Types I, II, III and IV shown in the Table are in the case of Alternative I. Types du revêtement I, II, III et IV ont indiqué dans le Tableau sont dans le cas d'Alternative I.

2. In the case of Alternative II, pavement types of sections of #10 and #9 in Alternative I are adopted. The rest sections are not paved in Phase I, and sections #8, #7 and #6 are paved with Type V in Phase III.

Dans le cas d'Alternative II, types du revêtement de tronçons 10 et 9 dans le Alternative I ont adopté. Le reste des tronçons n'a pas pavé dans Phase I, et tronçons 8, 7 et 6 n'ont pas pavés avec Type V dans Phase III.

A.3.4.6 (ALTERNATIVE-I) CONSTRUCTION SCHEDULE
PLAN DE CONSTRUCTION

Y E A R ANNEE		1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	
Final Report Rapport final		1/1 3/31																				
Consultants Contract Negotiation Négotiation de Projet		6/1	8/31																			
Topographic Survey Levé Topographique		9/1	4/30																			
Geological Survey Etude Géologique		11/1	8/31																			
Detailed Design Technique de l'ingénieur final		12/1	3/31																			
Bidding Documents Enchère document			2/1	5/31																		
Bidding Enchère				8/1	11/30																	
Construction	Mobilization Mobilisation			12/1	6/30																	
	Earthworks Terrassements			4/1					12/31													
	Drainage Drainage			5/1					12/31													
	Pavement Pavage	Surface Dressing Surfaçage					7/1			6/30												
		Dense Grade Asphalt Concrete Béton asphaltique																1/1		12/31		
	Bridges Ponts	Lindi River rivière 257m				1/1				12/31												
		Aruwimi River rivière 640m				1/1				12/31												
		Rubi River rivière 100m						7/1		12/31												
		Likati River rivière 84m				1/1				6/30												
		Libogo River rivière 75m							7/1	12/31												
		Small Bridges Petits Ponts 18 Bridges 375m				1/1				12/31												
	Ferry Bac	Uélé River rivière (Bondo)				9/1				12/31												
		Bili River rivière (Faka)				1/1				4/30												
		Bomu River rivière (Ndu)					5/1			8/30												
	Finishing Finissage									7/1	9/30											

(P H A S E I)

(PHASE II)

OPEN FOR TRAFFIC
COMMENCEMENT POUR TRAFIC

Lower sub-base includes Soil cement layer
Sous-couche de Sol-ciment

Kisangani - Banalia

Landing Facilities
Facilité de débarquement

Landing Facilities
Facilité de débarquement

Landing Facilities
Facilité de débarquement

YEAR ANNEE		1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	
Final Report Rapport final		1/1 3/31																						
Consultants Contract Negotiation Négociation de Projet		6/1	8/31																					
Topographic Survey Levé topographique		9/1	4/30																					
Geological Survey Etude Géologique		11/1	8/31																					
Final Engineering Technique de l'ingénieur final		12/1	3/31																					
Bidding Documents Enchère documents			2/1	5/31																				
Bidding Enchère			8/1	11/30																				
Construction	Mobilization Mobilisation		12/1	6/30																				
	Earthworks Terrassements	Kisangani - Banalia carriageway 11m Chaussée		5/1					12/31															
		Banalia Dulia Dulia Bangassou 9m 6m		5/1					12/31															
	Drainage Drainage			5/1				4/30																
	Pavement Pavage	Kisangani Banalia					1/1		6/30															
		Banalia Buta					1/1		6/30															
		Buta Ndu					1/1		6/30															
	Bridges Ponts	Existing R.C. 6 Bridges 122m Existant R.C.									1/1			12/31	W=8m									
		Lindi River rivière 257m									1/1			12/31	W=8m									
		Zambeke River rivière 28m												1/1	6/30	W=7m								
		Kole River rivière 20m												7/1	12/31	W=7m								
		Tele River rivière 42m												1/1	9/30	W=7m								
		Yeme River rivière 16m												8/1	12/31	W=7m								
		Rubi River rivière 100m									1/1			6/30	W=7m									
		Longa River rivière 25m												1/1	6/30	W=7m								
		Likati River rivière 84m												1/1	6/30	W=7m								
		Libogo Railway bridges-cum-road Pont rail-route 75m												7/1	12/31	W=7m								
	Ferry Bac	Wooden Bridges Ponts en bois 7 Bridges 122m Ponts				1/1			12/31	W=7m														
		Aruwimi River rivière (Banalia)				5/1		8/30	Landing Facilities Facilité de débarquement			1/1	6/30	35t Ferry 1 set Landing Facilities 35t Bac 1 ensemble facilité de débarquement		1/1	6/30	35t Ferry 1 set Landing Facilities 35t Bac ensemble Facilité de débarquement				1/1	6/30	
Uélé River rivière (Bondo)					9/1		12/31	Landing Facilities Facilité de débarquement																
Bili River rivière (Faka)					1/1		4/30	Landing Facilities Facilité de débarquement																
Bomu River rivière (Ndu)					5/1		8/30	Landing Facilities Facilité de débarquement																
Finishing Finissage									7/1	9/30														

OPEN FOR TRAFFIC
COMMENCEMENT POUR TRAFIC

(PHASE I)

(PHASE II)

(PHASE III)

(PHASE IV)

35t Ferry 1 set
Landing Facilities
35t Bac 1 ensemble
Facilité de débarquement

A.3.4.8 Number of Curves on Existing and Improved Road by Radius

Nombre de places de courbure sur route existante et améliorée par rayon

Section / Tronçon	R < 230m	230m ≤ R < 380m	380m ≤ R < 500m	500m ≤ R < 1,000m	1,000m ≤ R < 3,000m	3,000m ≤ R	Total
10 Existing Road/Route existante	53				9		67
10 Improved Road/Route améliorée	1	1	7	2	11	2	24
9 Existing Road/Route existante	108				69		193
9 Improved Road/Route améliorée	1	7	5	17	22	9	61
8 Existing Road/Route existante	99				53		169
8 Improved Road/Route améliorée	1	1	2	4	17	8	33
7 Existing Road/Route existante	74				12		89
7 Improved Road/Route améliorée	0	0	0	2	6	3	11
6 Existing Road/Route existante	155				30		192
6 Improved Road/Route améliorée	0	3	2	10	33	6	54
5 Existing Road/Route existante	77				36		115
5 Improved Road/Route améliorée	0	6	11	7	26	4	54
4 Existing Road/Route existante	49				19		75
4 Improved Road/Route améliorée	0	7	31	9	5	2	54
3 Existing Road/Route existante	98				40		147
3 Improved Road/Route améliorée	0	3	17	22	21	3	66
2 Existing Road/Route existante	176				43		230
2 Improved Road/Route améliorée	4	20	8	27	37	4	100
1 Existing Road/Route existante	133				33		173
1 Improved Road/Route améliorée	0	14	15	21	19	3	72
Total Existing Road/Route existante	1,022		84		344		1,450
Total Improved Road/Route améliorée	7	62	98	121	197	44	529

A.3.4.8

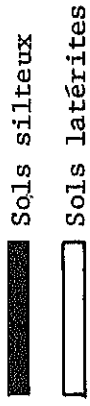
A-3.5.1-(1) ACCUMULATED LENGTH BY TERRAIN OF EXISTING AND IMPROVED ROADS
LONGUE ACCUMULEE PAR DE ROUTE EXISTANTE ET AMELIOREE

Unit , m
Unité

SECTION TRONÇON	EXISTING ROAD ROUTE EXISTANTE	TYPE	IMPROVED ROADS / ROUTE PROPOSEE				ROAD LENGTH IN FOREST LONGUEUR DE ROUTE AUX FORÊT		
			VILLAGE	FOREST FORÊT	BRIDGE PONT	TOTAL	SPARSE CLAIRSEMEE	MEDIUM MOYENNE	DENSE FORTE
10	Kisangani 46,400	EXISTING / ROUTE	3,038	27,106	276	30,420	12,471	11,375	3,260
		IMPROVED / ROUTE	939	13,561	0	14,500	4,450	6,780	2,331
		Total	3,977	40,667	276	44,920	16,921	18,155	5,591
9	79,000	EXISTING / ROUTE	3,274	57,880	36	61,190	24,514	24,080	9,286
		IMPROVED / ROUTE	2,768	13,705	27	16,500	7,776	4,251	1,678
		Total	6,042	71,585	63	77,690	32,290	28,331	10,964
8	Banalia 77,000	EXISTING / ROUTE	3,641	28,506	48	32,195	12,794	9,421	6,291
		IMPROVED / ROUTE	5,055	35,995	(640) 0	41,050	7,259	10,889	17,847
		Total	8,696	64,501	(640) 48	73,245	20,053	20,310	24,138
7	29,800	EXISTING / ROUTE	692	12,056	42	12,790	4,632	5,087	2,337
		IMPROVED / ROUTE	2,593	12,807	0	15,400	3,346	6,000	3,461
		Total	3,285	24,863	42	28,190	7,978	11,087	5,798
6	88,500	EXISTING / ROUTE	1,962	60,897	116	62,975	20,773	26,764	13,360
		IMPROVED / ROUTE	3,587	19,813	0	23,400	5,387	9,180	5,246
		Total	5,549	80,710	116	86,375	26,160	35,944	18,606
5	Bufa 75,500	EXISTING / ROUTE	3,645	68,369	106	72,120	30,322	30,463	7,584
		IMPROVED / ROUTE	1,768	732	0	2,500	110	73	549
		Total	5,413	69,101	106	74,620	30,432	30,536	8,133
4	65,500	EXISTING / ROUTE	2,523	57,006	101	59,630	20,347	24,264	12,395
		IMPROVED / ROUTE	902	4,298	0	5,200	337	2,528	1,433
		Total	3,425	61,304	101	64,830	20,684	26,792	13,828
3	59,500	EXISTING / ROUTE	3,445	51,245	75	54,765	19,614	20,202	11,429
		IMPROVED / ROUTE	1,209	2,491	0	3,700	1,150	862	479
		Total	4,654	53,736	75	58,465	20,764	21,064	11,908
2	Bondo 125,000	EXISTING / ROUTE	3,700	94,361	24	98,085	35,218	37,970	21,173
		IMPROVED / ROUTE	7,734	16,516	0	24,250	4,204	8,308	4,004
		Total	11,434	110,877	24	122,335	39,422	46,278	25,177
1	72,400 Nidu	EXISTING / ROUTE	1,948	51,737	0	53,685	24,400	15,298	12,039
		IMPROVED / ROUTE	1,078	13,522	0	14,600	8,874	3,381	1,267
		Total	3,026	65,259	0	68,285	33,274	18,679	13,306
TOTAL	718,600	EXISTING / ROUTE	27,868	509,163	824	537,855	205,085	204,924	99,154
		IMPROVED / ROUTE	27,633	133,440	(640) 27	161,100	42,893	52,252	38,295
		Total	55,501	642,603	(640) 851	698,955	247,978	257,176	137,449

A.3.5.1-(2) Distance moyenne pondurée de terre en mouvement long-trajet

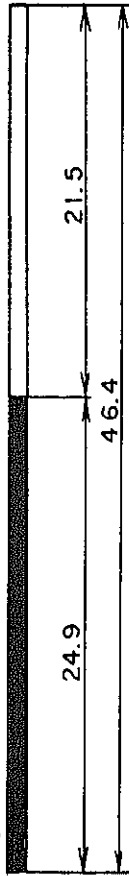
(Voir Vol.3. Tableau A.3.4,5)



Tronçon #10

(Kisangani)

(Bengamisa)

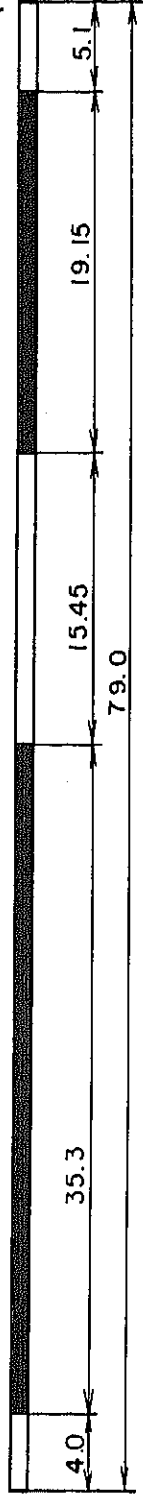


$$L_{10} = \frac{24.9}{2} = 12.45 \text{ km}$$

Tronçon # 9

(Bengamisa)

(Bandolia)

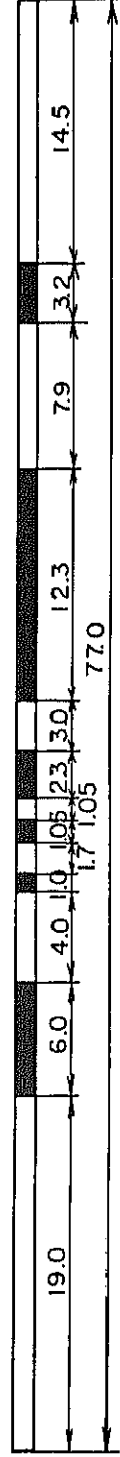


$$L_9 = \frac{35.3 \times \frac{35.3}{4} + 19.15 \times \frac{19.15}{4}}{35.3 + 19.15} = 7.4 \text{ km}$$

Tronçon # 8

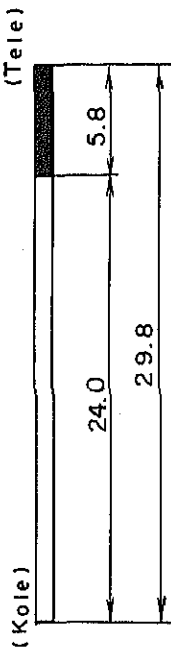
(Bandolia)

(Kole)



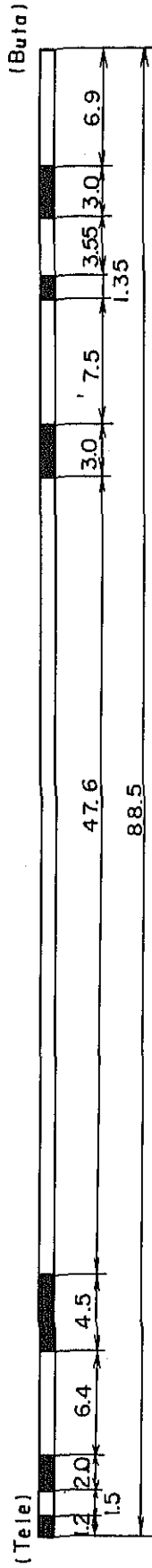
$$L_8 = \frac{6.0 \times \frac{6.0}{4} + 1.0 \times \frac{1.0}{4} + 1.05 \times \frac{1.05}{4} + 2.3 \times \frac{2.3}{4} + 12.3 \times \frac{12.3}{4} + 12.3 \times \frac{12.3}{4} \times \frac{3.2}{4}}{6.0 + 1.0 + 1.05 + 2.3 + 12.3 + 3.2} = 2.0 \text{ km}$$

Section # 7



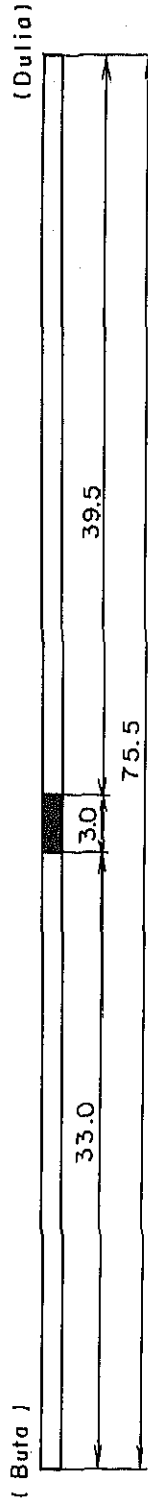
$$L_7 = \frac{5.8}{2} = 2.9 \text{ km}$$

Section # 6



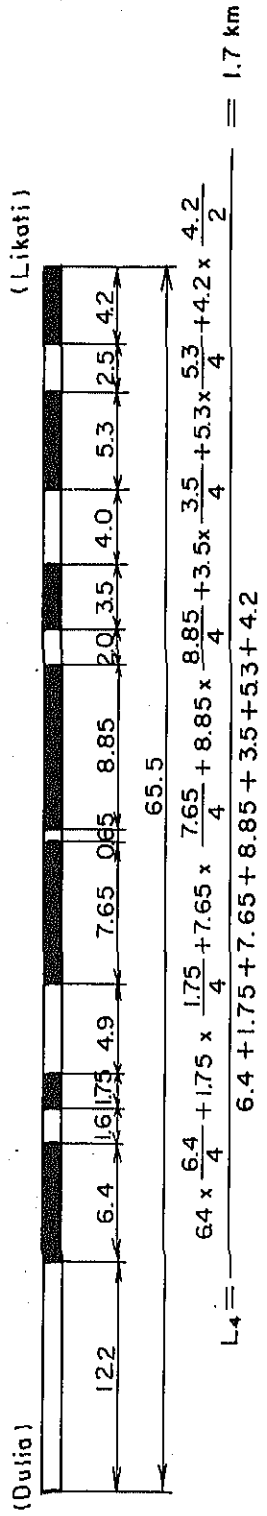
$$L_6 = \frac{1.2 \times \frac{1.2}{2} + 2.0 \times \frac{2.0}{4} + 4.5 \times \frac{4.5}{4} + 3.0 \times \frac{3.0}{4} + 1.35 \times \frac{1.35}{4} + 3.0 \times \frac{3.0}{4}}{1.2 + 2.0 + 4.5 + 3.0 + 1.35 + 3.0} = 0.8 \text{ km}$$

Section # 5



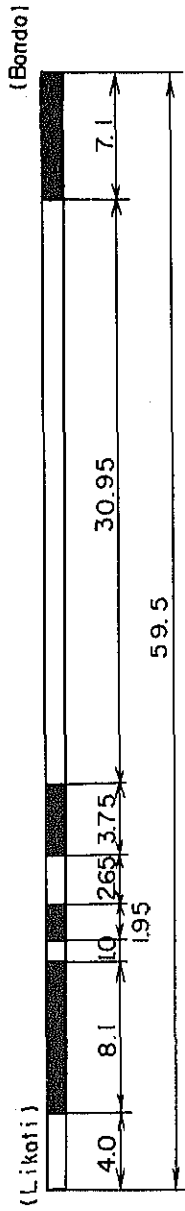
$$L_5 = \frac{3.0}{4} = 0.8 \text{ km}$$

Section # 4



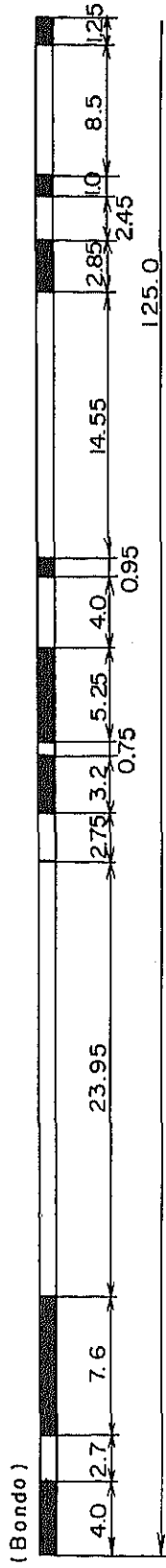
$$L_4 = \frac{6.4 \times \frac{6.4}{4} + 1.75 \times \frac{1.75}{4} + 7.65 \times \frac{7.65}{4} + 8.85 \times \frac{8.85}{4} + 3.5 \times \frac{3.5}{4} + 5.3 \times \frac{5.3}{4} + 4.2 \times \frac{4.2}{4}}{6.4 + 1.75 + 7.65 + 8.85 + 3.5 + 5.3 + 4.2} = 1.7 \text{ km}$$

Section # 3

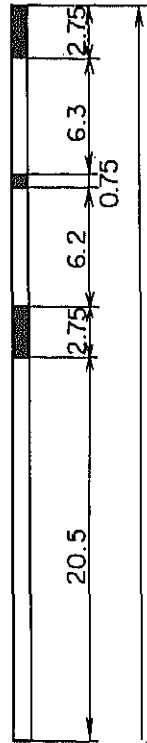


$$L_3 = \frac{8.1^2}{4} + \frac{1.95^2}{4} + \frac{3.75^2}{4} + \frac{7.1^2}{4} = 2.2 \text{ km}$$

Section # 2

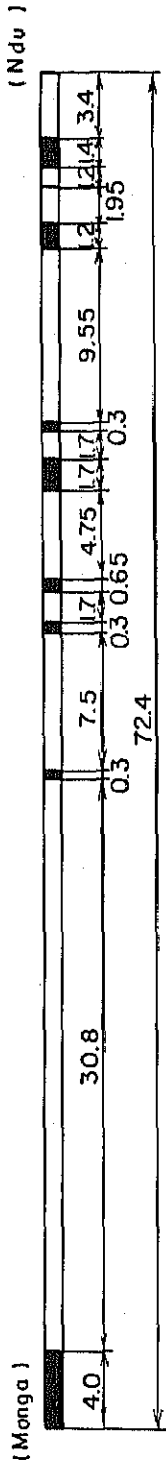


(Monga)



$$L_2 = \frac{4.0^2}{2} + \frac{7.6^2}{4} + \frac{3.2^2}{4} + \frac{5.25^2}{4} + \frac{0.75^2}{4} + \frac{2.85^2}{4} + \frac{1.0^2}{4} + \frac{1.25^2}{4} + \frac{2.75^2}{4} + \frac{0.75^2}{4} + \frac{2.75^2}{2} = 1.3 \text{ km}$$

Section # 1



$$L_1 = \frac{4.0^2 + 0.3^2 + 0.65^2 + 1.7^2 + 0.3^2 + 1.2^2 + 2.6^2}{2 + 4 + 4 + 4 + 4 + 4 + 4 + 4} = 1.0 \text{ km}$$

$$L_1 = \frac{4.0 + 0.3 + 0.3 + 0.65 + 1.7 + 0.3 + 1.2 + 2.6}{4} = 1.0 \text{ km}$$

Section	Length of Improved Road	Accumulated Length		Average Long-Haul Distance of Laterite
		Lateritic Sections	Silty Sections	
# 10	44.92 km	20.81 km	24.11 km	12.45 km
# 9	77.69	24.14	53.55	7.4
# 8	73.245	48.655	24.59	2.0
# 7	28.19	5.49	22.7	2.9
# 6	86.375	71.685	14.69	0.8
# 5	74.62	71.66	2.96	0.8
# 4	64.83	27.57	37.26	1.7
# 3	58.465	37.93	20.535	2.2
# 2	122.335	90.675	31.66	1.3
# 1	68.285	57.865	10.42	1.0
Total	698.955	456.48	242.475	

A.3.5.2

(ALTERNATIVE I) PHASE I

NET COSTS OF IMPROVEMENT / COÛTS NETS D'AMELIORATION

From
de KisanganiTo
à Bangassou (698.955 km)Unit
Unité: Zaire

ITEM ARTICLE	DESCRIPTION	UNIT UNITE	DIVISION - IV		DIVISION - III		DIVISION - II		DIVISION - I		TOTAL	
			QUANTITY QUANTITE	COST COÛT	QUANTITY QUANTITE	COST COÛT	QUANTITY QUANTITE	COST COÛT	QUANTITY QUANTITE	COST COÛT	QUANTITY QUANTITE	COST COÛT
CLEARING DEBOISEMENT				210,670		396,850		350,010		363,450		1,320,980
Clearing Deboisement	Medium Vegetation Végétation moyenne	m ²	1,123,000	56,150	1,701,000	85,050	1,841,000	92,050	1,761,000	88,050	6,426,000	321,300
Clearing & Grubbing Déboisement & l'essouchment	Sparse Forest Végétation clairsemée	m ²	996,000	39,840	1,168,000	46,720	1,383,000	55,320	1,584,000	63,360	5,131,000	205,240
"	Medium Forest Végétation moyenne	m ²	934,000	74,720	1,524,000	121,920	1,528,000	122,240	1,416,000	113,280	5,402,000	432,160
"	Dense Forest Végétation forte	m ²	333,000	39,960	1,193,000	143,160	670,000	80,400	823,000	98,760	3,019,000	362,280
EARTHWORKS TERRASSEMENTS				5,221,490		2,707,355		1,861,980		2,366,455		12,157,280
Embankment Remblai	Short Haul Transport court	m ³	502,000	602,400	981,000	1,177,200	734,000	880,800	1,404,000	1,684,800	3,621,000	4,345,200
"	Long Haul Transport long	m ³	934,000	4,613,000	444,000	1,528,300	332,000	726,000	332,000	639,550	2,042,000	7,506,850
Cut Déblai		m ³	17,400	6,090	5,300	1,855	14,800	5,180	120,300	42,105	157,800	55,230
Subgrade Replacement Hérison de replacement		m ³	-	-	-	-	19,500	250,000	-	-	19,500	250,000
SIDE SLOPES TALUS				157,900		245,100		281,000		272,300		956,800
Slope Shaping Façonnage d'un talus	Manual Labor Travail de manoeuvre	m ²	1,042,000	104,200	1,625,000	162,500	1,945,000	194,508	1,885,000	188,500	6,497,000	649,700
Grassing Gazonnement		m ²	537,000	53,700	826,000	82,600	870,000	87,000	838,000	83,800	3,071,000	307,100
DRAINAGE DRAINAGE				1,295,900		1,657,842		1,447,674		1,646,230		6,047,646
Side-ditch Excavation Contre-fossé	Laterite Latérite	lm	40,900	61,350	114,300	171,450	127,600	191,400	137,500	206,250	420,300	630,450
"	Silt Limon	lm	71,400	185,640	55,700	144,820	56,500	146,900	38,600	100,360	222,200	577,720
Side-ditch in Village Area Contre-fossé au village		lm	10,000	256,000	17,500	523,900	13,500	353,000	14,400	369,000	55,400	1,501,900
Stone-pitched Ditch Fossé maçonné en pierre		lm	6,700	249,600	900	63,600	13,800	144,100	7,600	300,200	19,000	757,500

Note: In unit in ditches is indicated in linear meter of road, consequently the real length of ditches is two times of the figure in the table.
Unité en dans les fossés a indiqué dans mètre linéaire de la longueur de route, par conséquent bobine de longueur de fossé est deux
temps de ces figures dans le tableau.

(continued)
(continuée)

ITEM ARTICLE	DESCRIPTION	UNIT UNITE	DIVISION - IV		DIVISION - III		DIVISION - II		DIVISION - I		TOTAL	
			QUANTITY QUANTITE	COST COÛT	QUANTITY QUANTITE	COST COÛT	QUANTITY QUANTITE	COST COÛT	QUANTITY QUANTITE	COST COÛT	QUANTITY QUANTITE	COST COÛT
Pipe-Culvert Pipe-ondulée	∅0.6m	lm	72	1,728	13	312	-	-	-	-	85	2,040
	∅0.8	lm	-	-	13	494	-	-	-	-	13	494
	∅1.0	lm	2,006	174,522	2,058	179,046	2,352	204,624	2,310	200,970	8,726	759,162
	∅1.2	lm	559	55,900	252	25,200	147	14,700	63	6,300	1,021	102,100
	∅1.5	lm	441	83,790	504	95,760	231	43,890	651	123,690	1,827	347,130
	∅1.8	lm	124	27,280	147	32,340	189	41,580	105	23,100	565	124,300
	∅2.0	lm	63	15,750	210	52,500	42	10,500	42	10,500	357	89,250
	∅2.5	lm	-	-	105	36,750	168	58,800	84	29,400	357	124,950
	∅3.0	lm	105	59,850	42	23,940	126	71,820	63	35,910	336	191,520
	∅4.0	lm	42	39,060	147	136,710	105	97,650	147	136,710	441	410,130
Inlet & Outlet Entrée & sortie	∅5.0	lm	21	29,400	42	58,800	-	-	21	29,400	84	117,600
	∅0.6	piece	10	360	2	120	-	-	-	-	12	480
	∅0.8	piece	-	-	2	150	-	-	-	-	2	150
	∅1.0	piece	202	13,440	192	21,640	224	16,860	220	16,840	838	68,780
	∅1.2	piece	60	6,230	24	4,170	14	1,560	6	600	104	12,560
	∅1.5	piece	42	10,420	48	17,200	22	5,660	62	15,700	174	48,980
	∅1.8	piece	14	4,480	14	6,320	18	6,030	10	3,200	56	20,030
	∅2.0	piece	6	2,700	20	12,440	4	1,960	4	2,060	34	19,160
	∅2.5	piece	-	-	10	8,260	16	10,720	8	5,440	34	24,420
	∅3.0	piece	10	8,800	4	4,920	12	10,920	6	6,000	32	30,640
	∅4.0	piece	4	5,600	14	27,800	10	15,000	14	20,800	42	69,200
	∅5.0	piece	2	4,000	4	9,200	-	-	2	3,800	8	17,000
PAVEMENT PAVAGE				6,359,700		8,603,100		7,767,700		6,571,750		29,302,250
Type - I	Short Haul Transport court	m ²	221,000	1,106,300	442,000	2,503,950	754,000	3,824,700	814,000	3,850,350	2,231,000	1,285,300
Type - II	Short Haul Transport court	m ²	96,000	504,000	583,000	3,449,650	234,000	1,205,900	-	-	913,000	5,159,550
Type - III	Long Haul Transport long	m ²	562,000	4,749,400	325,000	2,649,500	436,000	2,737,100	306,000	1,889,800	1,629,000	2,025,800
Type - IV	Short Haul Transport court	m ²	-	-	-	-	-	-	252,000	831,600	252,000	831,600
BRIDGES PONTS				2,009,250		5,229,000		1,458,500		108,000		8,804,750
Angokpa	R.C. 1 span R.C. 1 travée	lm	7.5	30,000	-	-	-	-	-	-	7.5	30,000
Aqudi	R.C. 1 span R.C. 1 travée	lm	10.5	42,000	-	-	-	-	-	-	10.5	42,000
Lindi	Plate G. 6 spans Poutre entôlées 6 travées	lm	257.5	1,673,750	-	-	-	-	-	-	257.5	1,673,750
Gula	P.C. 1 span P.C. 1 travée	lm	27	121,500	-	-	-	-	-	-	27	121,500
Badjoge	R.C. 1 span R.C. 1 travée	lm	10	40,000	-	-	-	-	-	-	10	40,000

(continued)
(continué)

ITEM ARTICLE	DESCRIPTION	UNIT UNITE	DIVISION - IV		DIVISION - III		DIVISION - II		DIVISION - I		TOTAL	
			QUANTITY QUANTITE	COST CÔÛT	QUANTITY QUANTITE	COST CÔÛT	QUANTITY QUANTITE	COST CÔÛT	QUANTITY QUANTITE	COST CÔÛT	QUANTITY QUANTITE	COST CÔÛT
Longala	R.C. 1 span R.C. 1 travée	1m	13	52,000	-	-	-	-	-	-	13	52,000
Bokokua	R.C. 1 span R.C. 1 travée	1m	12.5	50,000	-	-	-	-	-	-	12.5	50,000
Aruwimi	Plate G. 16 spans Poutre entoles 16 travées	1m	-	-	640	4,160,000	-	-	-	-	640	4,160,000
Zambeke	P.C. 2 spans P.C. 2 travées	1m	-	-	28	126,000	-	-	-	-	28	126,000
Kole	R.C. 1 span R.C. 1 travée	1m	-	-	20	90,000	-	-	-	-	20	90,000
Tele	P.C. 4 spans P.C. 4 travées	1m	-	-	42	189,000	-	-	-	-	42	189,000
Yeme	R.C. 1 span R.C. 1 travée	1m	-	-	16	64,000	-	-	-	-	16	64,000
Rubi	P.C. 4 spans P.C. 4 travées	1m	-	-	100	600,000	-	-	-	-	100	600,000
Makala	R.C. 1 span R.C. 1 travée	1m	-	-	-	-	16	64,000	-	-	16	64,000
Longa	P.C. 1 span P.C. 1 travée	1m	-	-	-	-	25	112,500	-	-	25	112,500
Koteli	R.C. 1 span R.C. 1 travée	1m	-	-	-	-	18	72,000	-	-	18	72,000
Maze II	R.C. 1 span R.C. 1 travée	1m	-	-	-	-	18	72,000	-	-	18	72,000
Bilo II	R.C. 1 span R.C. 1 travée	1m	-	-	-	-	17	68,000	-	-	17	68,000
Bilo III	R.C. 1 span R.C. 1 travée	1m	-	-	-	-	12	48,000	-	-	12	48,000
Mborge	R.C. 1 span R.C. 1 travée	1m	-	-	-	-	17	68,000	-	-	17	68,000
Likati	P.C. 3 spans P.C. 3 travées	1m	-	-	-	-	84	504,000	-	-	84	504,000
Libogo	P.C. 3 spans P.C. 3 travées	1m	-	-	-	-	75	450,000	-	-	75	450,000
Zakili	P.C. 1 span P.C. 1 travée	1m	-	-	-	-	-	-	24	108,000	24	108,000
FERRY BAC								18,000		23,000		41,000
Uele (Bondo)	Landing Facilities Facilité du débarquement	1m	-	-	-	-	120	18,000	-	-	120	18,000
Bili (Faka)	Landing Facilities Facilité du débarquement	1m	-	-	-	-	-	-	50	7,000	50	7,000
Bomu (Ndu)	Landing Facilities Facilité du débarquement	1m	-	-	-	-	-	-	100	16,000	100	16,000
TOTAL				15,254,910		18,839,247		13,185,364		11,351,185		58,630,706

Note: Net cost of improvement do not include contingencies, and costs of final engineering and supervision of construction.
Coûts nets d'amélioration non compris faux frais divers et surveillance de construction.

ITEM ARTICLE	DESCRIPTION	UNIT UNITÉ	SECTION TRONÇON - 10			SECTION TRONÇON - 9			TOTAL			
			QUANTITY QUANTITE	UNIT COST PRIX UNIT.	COST CÔT	QUANTITY QUANTITE	UNIT COST PRIX UNIT.	COST CÔT	QUANTITY QUANTITE	COST CÔT		
CLEARING DEBOISEMENT					80,950			129,720			210,670	
Clearing Deboisement	Medium Vegetation Végétation moyenne	m ²	409,000	0.05	20,350	716,000	0.05	35,800			1,123,000	56,150
Clearing & Grubbing Deboisement & l'essouchment	Sparse Forest Végétation clairsemée	m ²	346,000	0.04	13,840	650,000	0.04	26,000			996,000	39,840
"	Medium Forest Végétation moyenne	m ²	397,000	0.08	31,760	537,000	0.08	42,960			934,000	74,720
"	Dense Forest Végétation forte	m ²	125,000	0.12	15,000	208,000	0.12	24,960			333,000	39,960
EARTHWORKS TERRASSEMENTS					1,546,760			3,674,730			5,221,490	
Embankment Remblai	Short Haul Transport court	m ³	174,000	1.20	208,800	328,000	1.20	393,600			502,000	602,400
"	Long Haul Transport long	m ³	205,000	6.50	1,332,500	729,000	4.50	3,280,500			934,000	4,613,000
Cut Déblai		m ³	15,600	0.35	5,460	1,800	0.35	630			17,400	6,090
Subgrade replacement Herisson de remplacement		lm	-	-	-	-	-	-			-	-
SIDE SLOPES TALUS					58,600			99,300			157,900	
Slope Shaping Façonnage d'un talus	Manual Labor Travail de manoeuvre	m ²	390,000	0.10	39,000	652,000	0.10	65,200			1,042,000	104,200
Grassing Gazonnement		m ²	196,000	0.10	19,600	341,000	0.10	34,100			537,000	53,700
DRAINAGE DRAINAGE					313,766			982,134			1,295,900	
Side-ditch Excavation Contre-fossé	Laterite Latérite	lm	18,700	1.50	28,050	22,200	1.50	33,300			40,900	61,350
"	Silt Limon	lm	22,000	2.60	57,200	49,400	2.60	128,440			71,400	185,640
Side-ditch In Village Area Contre-fossé au village		lm	4,000	25.-	100,000	6,000	26.-	156,000			10,000	256,000
Stone-pitched Ditch Fossé maçonné en pierre		lm	1,300	30.-	39,000	5,400	39.-	210,600			6,700	249,600

ITEM ARTICLE	DESCRIPTION	UNIT UNITE	SECTION TRONÇON - 10			SECTION TRONÇON - 9			TOTAL			
			QUANTITY QUANTITE	UNIT COST PRIX UNIT.	COST COÛT	QUANTITY QUANTITE	UNIT COST PRIX UNIT.	COST COÛT	QUANTITY QUANTITE	COST COÛT		
Pipe-Culvert Pipe-ondulée	∅0.6m	1m	59	24.-	1,416	13	24.-	312		72	1,728	
	∅0.8	1m	-	-	-	-	-	-		-	-	
	∅1.0	1m	620	87.-	53,940	1,386	87.-	120,582		2,006	174,522	
	∅1.2	1m	104	100.-	10,400	455	100.-	45,500		559	55,900	
	∅1.5	1m	84	190.-	15,960	357	190.-	67,830		441	83,790	
	∅1.8	1m	-	-	-	124	220.-	27,280		124	27,280	
	∅2.0	1m	-	-	-	63	250.-	15,750		63	15,750	
	∅2.5	1m	-	-	-	-	-	-		-	-	
	∅3.0	1m	-	-	-	105	570.-	59,850		105	59,850	
	∅4.0	1m	-	-	-	42	930.-	39,060		42	39,060	
Inlet & Outlet Entree & sortie	∅5.0	1m	-	-	-	21	1,400.-	29,400		21	29,400	
	∅0.6	piece	8	35.-	280	2	40.-	80		10	360	
	∅0.8	piece	-	-	-	-	-	-		-	-	
	∅1.0	piece	70	60.-	4,200	132	70.-	9,240		202	13,440	
	∅1.2	piece	14	100.-	1,400	46	105.-	4,830		60	6,230	
	∅1.5	piece	8	240.-	1,920	34	250.-	8,500		42	10,420	
	∅1.8	piece	-	-	-	14	320.-	4,480		14	4,480	
	∅2.0	piece	-	-	-	6	450.-	2,700		6	2,700	
	∅2.5	piece	-	-	-	-	-	-		-	-	
	∅3.0	piece	-	-	-	10	880.-	8,800		10	8,800	
PAVEMENT PAVAGE					2,320,500			4,039,200			6,359,700	
	Type - I	Short Haul Transport court	m ²	143,000	4.90	700,700	78,000	5.20	405,600		221,000	1,106,300
	Type - II	Short Haul Transport court	m ²	-	-	-	96,000	5.25	504,000		96,000	504,000
	Type - III	Long Haul Transport long	m ²	178,000	9.10	1,619,800	384,000	8.15	3,129,600		562,000	4,749,400
	Type - IV	Short Haul Transport court	m ²	-	-	-	-	-	-		-	-
BRIDGES PONTS					1,745,750			263,500			2,009,250	
	Angokpa	R.C. 1 span R.C. 1 travée	1m	7.5	4,000.-	30,000	-	-	-		7.5	30,000
	Aqudi	R.C. 1 span R.C. 1 travée	1m	10.5	4,000.-	42,000	-	-	-		10.5	42,000
	Lindi	Plate G. 6 spans Poutre entôles 6 travées	1m	257.5	6,500.-	1,673,750	-	-	-		257.5	1,673,750
	Gula	P.C. 1 span P.C. 1 travée	1m	-	-	-	27	4,500.-	121,500		27	121,500
	Badjoge	R.C. 1 span R.C. 1 travée	1m	-	-	-	10	4,000.-	40,000		10	40,000

ITEM ARTICLE	DESCRIPTION	UNIT UNITE	SECTION TRONÇON - 10			SECTION TRONÇON - 9						TOTAL	
			QUANTITY QUANTITE	UNIT COST PRIX UNIT.	COST CÔT	QUANTITY QUANTITE	UNIT COST PRIX UNIT.	COST CÔT				QUANTITY QUANTITE	COST CÔT
Longala	R.C. 1 span R.C. 1 travée	1m	-	-	-	13	4,000.-	52,000				13	52,000
Bokokua	R.C. 1 span R.C. 1 travée	1m	-	-	-	12.5	4,000.-	50,000				12.5	50,000
Aruwimi	Plate G. 16 spans Poutre entoles 16 travées	1m											
Zambeke	P.C. 2 spans P.C. 2 travées	1m											
Kole	R.C. 1 span R.C. 1 travée	1m											
Tele	P.C. 4 spans P.C. 4 travées	1m											
Yeme	R.C. 1 span R.C. 1 travée	1m											
Rubi	P.C. 4 spans P.C. 4 travées	1m											
Makala	R.C. 1 span R.C. 1 travée	1m											
Longa	P.C. 1 span P.C. 1 travée	1m											
Koteli	R.C. 1 span R.C. 1 travée	1m											
Maze II	R.C. 1 span R.C. 1 travée	1m											
Bilo II	R.C. 1 span R.C. 1 travée	1m											
Bilo III	R.C. 1 span R.C. 1 travée	1m											
Mborge	R.C. 1 span R.C. 1 travée	1m											
LikatI	P.C. 3 spans P.C. 3 travées	1m											
Libogo	P.C. 3 spans P.C. 3 travées	1m											
Zakili	P.C. 1 span P.C. 1 travée	1m											
FERRY BAC													
Uele (Bondo)	Landing Facilities Facilité du débarquement	1m											
Bili (Faka)	Landing Facilities Facilité du débarquement	1m											
Bomu (Ndu)	Landing Facilities Facilité du débarquement	1m											
TOTAL					6,066,326			9,188,584					15,254,910

ITEM ARTICLE	DESCRIPTION	UNIT UNITE	SECTION TRONÇON - 8			SECTION TRONÇON - 7			SECTION TRONÇON - 6			TOTAL	
			QUANTITY QUANTITE	UNIT COST PRIX UNIT.	COST COÛT	QUANTITY QUANTITE	UNIT COST PRIX UNIT.	COST COÛT	QUANTITY QUANTITE	UNIT COST PRIX UNIT.	COST COÛT	QUANTITY QUANTITE	COST COÛT
CLEARING DEBOISEMENT					167,730			59,010			170,110		396,850
Clearing Deboisement	Medium Vegetation Végétation moyenne	m ²	645,000	0.05	32,250	249,000	0.05	12,450	807,000	0.05	40,350	1,701,000	85,050
Clearing & Grubbing Deboisement & l'essouchment	Sparse Forest Végétation clairsemée	m ²	448,000	0.04	17,920	184,000	0.04	7,360	536,000	0.04	21,440	1,168,000	46,720
"	Medium Forest Végétation moyenne	m ²	496,000	0.08	39,680	271,000	0.08	21,680	757,000	0.08	60,560	1,524,000	121,920
"	Dense Forest Végétation forte	m ²	649,000	0.12	77,880	146,000	0.12	17,520	398,000	0.12	47,760	1,193,000	143,160
EARTHWORKS TERRASSEMENTS					1,536,860			340,750			829,745		2,707,355
Embankment Remblai	Short Haul Transport court	m ³	421,000	1.20	505,200	28,000	1.20	33,600	532,000	1.20	638,400	981,000	1,177,200
"	Long Haul Transport long	m ³	217,000	4.75	1,030,750	118,000	2.60	306,800	109,000	1.75	190,750	444,000	1,528,300
Cut Déblai		m ³	2,600	0.35	910	1,000	0.35	350	1,700	0.35	595	5,300	1,855
Subgrade Remplacement Harrison de remplacement		lm	-	-	-	-	-	-	-	-	-	-	-
SIDE SLOPES TALUS					98,300			37,500			109,300		245,100
Slope Shaping Façonnage d'un talus	Manual Labor Travail de manoeuvre	m ²	661,000	0.10	66,100	251,000	0.10	25,100	713,000	0.10	71,300	1,625,000	162,500
Grassing Gazonnement		m ²	322,000	0.10	32,200	124,000	0.10	12,400	380,000	0.10	38,000	826,000	82,600
DRAINAGE DRAINAGE					609,258			240,433			808,151		1,657,842
Side-ditch Excavation Contre-fossé	Laterite Latérite	lm	42,600	1.50	63,900	4,700	1.50	7,050	67,000	1.50	100,500	114,300	171,450
"	Silt Limon	lm	21,900	2.60	56,940	20,100	2.60	52,260	13,700	2.60	35,620	55,700	144,820
Side-ditch in Village Area Contre-fossé au village		lm	8,700	30.-	261,000	3,300	28.-	92,400	5,500	31.-	170,500	17,500	523,900
Stone-pitched Ditch Fossé maçonné en pierre		lm	600	70.-	42,000	-	-	-	300	72.-	21,600	900	63,600

(continued)
(continuée)

ITEM ARTICLE	DESCRIPTION	UNIT UNITE	SECTION - 8 TRONÇON			SECTION - 7 TRONÇON			SECTION - 6 TRONÇON			TOTAL	
			QUANTITY QUANTITE	UNIT COST PRIX UNIT.	COST CÔT	QUANTITY QUANTITE	UNIT COST PRIX UNIT.	COST CÔT	QUANTITY QUANTITE	UNIT COST PRIX UNIT.	COST CÔT	QUANTITY QUANTITE	COST CÔT
Longala	R.C. 1 span R.C. 1 travée	1m											
Bokokua	R.C. 1 span R.C. 1 travée	1m											
Aruwimi	Plate G. 16 spans Poutre entoles 16 travées	1m	640	6,500	4,160,000	-	-	-	-	-	-	640	4,160,000
Zambeke	P.C. 2 spans P.C. 2 travées	1m	28	4,500	126,000	-	-	-	-	-	-	28	126,000
Kole	R.C. 1 span R.C. 1 travée	1m	20	4,500	90,000	-	-	-	-	-	-	20	90,000
Tele	P.C. 4 spans P.C. 4 travée	1m	-	-	-	42	4,500	189,000	-	-	-	42	189,000
Yeme	R.C. 1 span R.C. 1 travée	1m	-	-	-	-	-	-	16	4,000	64,000	16	64,000
Rubi	P.C. 4 spans P.C. 4 travées	1m	-	-	-	-	-	-	100	6,000	600,000	100	600,000
Makala	R.C. 1 span R.C. 1 travée	1m											
Longa	P.C. 1 span P.C. 1 travée	1m											
Koteli	R.C. 1 span R.C. 1 travée	1m											
Maze II	R.C. 1 span R.C. 1 travée	1m											
Bilo II	R.C. 1 span R.C. 1 travée	1m											
Bilo III	R.C. 1 span R.C. 1 travée	1m											
Mborge	R.C. 1 span R.C. 1 travée	1m											
Likatl	P.C. 3 spans P.C. 3 travées	1m											
Libogo	P.C. 3 spans P.C. 3 travées	1m											
Zakili	P.C. 1 span P.C. 1 travée	1m											
FERRY BAC													
Uele (Bondó)	Landing Facilities Facilité du débarquement	1m											
Bili (Faka)	Landing Facilities Facilité du débarquement	1m											
Bomu (Ndu)	Landing Facilities Facilité du débarquement	1m											
TOTAL						10,459,498		2,016,393		6,363,356		18,839,247	

ITEM ARTICLE	DESCRIPTION	UNIT UNITE	SECTION TRONÇON - 5			SECTION TRONÇON - 4			SECTION TRONÇON - 3			TOTAL	
			QUANTITY QUANTITE	UNIT COST PRIX UNIT.	COST COÛT	QUANTITY QUANTITE	UNIT COST PRIX UNIT.	COST COÛT	QUANTITY QUANTITE	UNIT COST PRIX UNIT.	COST COÛT	QUANTITY QUANTITE	COST COÛT
CLEARING DEBOISEMENT					123,510			122,850			103,650		350,010
Clearing Deboisement	Medium Vegetation Végétation moyenne	m ²	691,000	0.05	34,550	613,000	0.05	30,650	537,000	0.05	26,850	1,841,000	92,050
Clearing & Grubbing Deboisement & l'essouchment	Sprase Forest Végétation clairsemée	m ²	579,000	0.04	23,160	397,000	0.04	15,880	407,000	0.04	16,280	1,383,000	55,320
"	Medium Forest Végétation moyenne	m ²	581,000	0.08	46,480	537,000	0.08	42,960	410,000	0.08	32,800	1,528,000	122,240
"	Dense Forest Végétation forte	m ²	161,000	0.12	19,320	278,000	0.12	33,360	231,000	0.12	27,720	670,000	80,400
EARTHWORKS TERRASSEMENTS					437,960			750,580			673,440		1,861,980
Embankment Remblai	Short Haul Transport court	m ³	347,000	1.20	416,400	142,000	1.20	170,400	245,000	1.20	294,000	734,000	880,800
"	Long Haul Transport long	m ³	12,000	1.75	21,000	188,000	2.10	394,800	132,000	2.35	310,200	332,000	726,000
Cut Déblai		m ³	1,600	0.35	560	11,800	0.35	4,130	1,400	0.35	490	14,800	5,180
Subgrade replacement Hérisson de replacement		lm	-	-	-	14,500	12.50	181,250	5,000	13.75	68,750	19,500	250,000
SIDE SLOPES TALUS					105,900			92,600			83,000		281,500
Slope Shaping Façonnage d'un talus	Manual Labor Travail de manoeuvre	m ²	731,000	0.10	73,100	641,000	0.10	64,100	573,000	0.10	57,300	1,945,000	194,500
Grassing Gazonnement		m ²	328,000	0.10	32,800	285,000	0.10	28,500	257,000	0.10	25,700	870,000	87,000
DRAINAGE DRAINAGE					596,081			459,969			391,624		1,447,674
Side-ditch Excavation Contre-fossé	Laterite Latérite	lm	66,300	1.50	99,450	26,400	1.50	39,600	34,900	1.50	52,350	127,600	191,400
"	Silt Limon	lm	2,800	2.60	7,280	34,900	2.60	90,740	18,800	2.60	48,880	56,500	146,900
Side-ditch in Village Area Contre-fossé au village		lm	5,400	27.-	145,800	3,400	25.-	85,000	4,700	26.-	122,200	13,500	353,000
Stone-pitched Ditch Fossé maçonne en pierre		lm	1,900	44.-	83,600	1,300	29.-	37,700	600	38.-	22,800	3,800	144,100

(continúe)
(continued)

ITEM ARTICLE	DESCRIPTION	UNIT UNITE	SECTION TRONÇON - 5			SECTION TRONÇON - 4			SECTION TRONÇON - 3			TOTAL	
			QUANTITY QUANTITE	UNIT COST PRIX UNIT.	COST CÔT	QUANTITY QUANTITE	UNIT COST PRIX UNIT.	COST CÔT	QUANTITY QUANTITE	UNIT COST PRIX UNIT.	COST CÔT	QUANTITY QUANTITE	COST CÔT
Longala	R.C. 1 span R.C. 1 travée	1m											
Bokokua	R.C. 1 span R.C. 1 travée	1m											
Aruwimi	Plate G. 16 spans Poutre entoles 16 travées	1m											
Zambeke	P.C. 2 spans P.C. 2 travées	1m											
Kole	R.C. 1 span R.C. 1 travée	1m											
Tele	P.C. 4 spans P.C. 4 travées	1m											
Yeme	R.C. 1 span R.C. 1 travée	1m											
Rubi	P.C. 4 spans P.C. 4 travées	1m											
Makala	R.C. 1 span R.C. 1 travée	1m	16	4,000.-	64,000	-	-	-	-	-	-	16	64,000
Longa	P.C. 1 span P.C. 1 travée	1m	25	4,500.-	112,500	-	-	-	-	-	-	25	112,500
Kotell	R.C. 1 span R.C. 1 travée	1m	18	4,000.-	72,000	-	-	-	-	-	-	18	72,000
Maze II	R.C. 1 span R.C. 1 travée	1m	18	4,000.-	72,000	-	-	-	-	-	-	18	72,000
Bilo II	R.C. 1 span R.C. 1 travée	1m	17	4,000.-	68,000	-	-	-	-	-	-	17	68,000
Bilo III	R.C. 1 span R.C. 1 travée	1m	12	4,000.-	48,000	-	-	-	-	-	-	12	48,000
Mborge	R.C. 1 span R.C. 1 travée	1m	-	-	-	17	4,000.-	68,000	-	-	-	17	68,000
Likati	P.C. 3 spans P.C. 3 travées	1m	-	-	-	84	6,000.-	504,000	-	-	-	84	504,000
Libogo	P.C. 3 spans P.C. 3 travées	1m	-	-	-	-	-	-	75	6,000.-	450,000	75	450,000
Zakili	P.C. 1 span P.C. 1 travée	1m											
FERRY BAC											18,000		18,000
Uele (Bondo)	Landing Facilities Facilité du débarquement	1m	-	-	-	-	-	-	120	150.-	18,000	120	18,000
Bili (Faka)	Landing Facilities Facilité du débarquement	1m											
Bomu (Ndu)	Landing Facilities Facilité du débarquement	1m											
TOTAL					4,574,801			4,518,799			4,091,764		13,185,364

ITEM ARTICLE	DESCRIPTION	UNIT UNITE	SECTION TRONÇON - 2			SECTION TRONÇON - 1			TOTAL		
			QUANTITY QUANTITE	UNIT COST PRIX UNIT.	COST CÔT	QUANTITY QUANTITE	UNIT COST PRIX UNIT.	COST CÔT	QUANTITY QUANTITE	COST CÔT	
CLEARING DEBOISEMENT					234,650			128,800		363,450	
Clearing Deboisement	Medium Vegetation Végétation moyenne	m ²	1,109,000	0.05	55,450	652,000	0.05	32,600		1,761,000	88,050
Clearing & Grubbing Deboisement & l'essouchment	Sparse Forest Végétation clairsemée	m ²	830,000	0.04	33,200	754,000	0.04	30,160		1,584,000	63,360
"	Medium Forest Végétation moyenne	m ²	1,009,000	0.08	80,720	407,000	0.08	32,560		1,416,000	113,280
"	Dense Forest Végétation forte	m ²	544,000	0.12	65,280	279,000	0.12	33,480		823,000	98,760
EARTHWORKS TERRASSEMENTS					965,390			1,401,065		2,366,455	
Embankment Remblai	Short Haul Transport court	m ³	488,000	1.20	585,600	916,000	1.20	1,099,200		1,404,000	1,684,800
"	Long Haul Transport long	m ³	169,000	2.-	338,000	163,000	1.85	301,550		332,000	639,550
Cut Déblai		m ³	119,400	0.35	41,790	900	0.35	315		120,300	42,105
Subgrade Remplacement Hérisson de remplacement		lm	-	-	-	-	-	-		-	-
SIDE SLOPES TALUS					174,000			98,300		272,300	
Slope Shaping Façonnage d'un talus	Manual Labor Travail de manoeuvre	m ²	1,202,000	0.10	120,200	683,000	0.10	68,300		1,885,000	188,500
Grassing Gazonnement		m ²	538,000	0.10	53,800	300,000	0.10	30,000		838,000	83,800
DRAINAGE DRAINAGE					1,045,108			601,122		1,646,230	
Side-ditch Excavation Contre-fossé	Laterite Latérite	lm	82,000	1.50	123,000	55,500	1.50	83,250		137,500	206,250
"	Silt Limon	lm	28,800	2.60	74,880	9,800	2.60	25,480		38,600	100,360
Side-ditch in Village Area Contre-fossé au village		lm	11,400	25.-	285,000	3,000	28.-	84,000		14,400	369,000
Stone-pitched Ditch Fossé maçonne en pierre		lm	3,400	29.-	98,600	4,200	48.-	201,600		7,600	300,200

ITEM ARTICLE	DESCRIPTION	UNIT UNITE	SECTION TRONÇON - 2			SECTION TRONÇON - 1			TOTAL		
			QUANTITY QUANTITE	UNIT COST PRIX UNIT	COST CÔÛT	QUANTITY QUANTITE	UNIT COST PRIX UNIT	COST CÔÛT	QUANTITY QUANTITE	COST CÔÛT	
Pipe-Culvert Pipe-ondulée	∅0.6m	1m	-	-	-	-	-	-	-	-	
	∅0.8	1m	-	-	-	-	-	-	-	-	
	∅1.0	1m	1,554	87.-	135,198	756	87.-	65,772	2,310	200,970	
	∅1.2	1m	63	100.-	6,300	-	-	-	63	6,300	
	∅1.5	1m	609	190.-	115,710	42	190.-	7,980	651	123,690	
	∅1.8	1m	105	220.-	23,100	-	-	-	105	23,100	
	∅2.0	1m	21	250.-	5,250	21	250.-	5,250	42	10,500	
	∅2.5	1m	63	350.-	22,050	21	350.-	7,350	84	29,400	
	∅3.0	1m	-	-	-	63	570.-	35,910	63	35,910	
	∅4.0	1m	84	930.-	78,120	63	930.-	58,590	147	136,710	
Inlet & Outlet Entree & sortie	∅5.0	1m	21	1,400.-	29,400	-	-	-	21	29,400	
	∅0.6	piece	-	-	-	-	-	-	-	-	
	∅0.8	piece	-	-	-	-	-	-	-	-	
	∅1.0	piece	148	70.-	10,360	72	90.-	6,480	220	16,840	
	∅1.2	piece	6	100.-	600	-	-	-	6	600	
	∅1.5	piece	58	250.-	14,500	4	300.-	1,200	62	15,700	
	∅1.8	piece	10	320.-	3,200	-	-	-	10	3,200	
	∅2.0	piece	2	470.-	940	2	560.-	1,120	4	2,060	
	∅2.5	piece	6	650.-	3,900	2	770.-	1,540	8	5,440	
	∅3.0	piece	-	-	-	6	1,000.-	6,000	6	6,000	
PAVEMENT PAVAGE					4,380,050			2,191,700		6,571,750	
	Type - I	Short Haul Transport court	m ²	651,000	4.60	2,994,600	163,000	5.25	855,750	814,000	3,850,350
	Type - II	Short Haul Transport court	m ²	-	-	-	-	-	-	-	-
	Type - III	Long Haul Transport long	m ²	229,000	6.05	1,385,450	77,000	6.55	504,350	306,000	1,889,800
	Type - IV	Short Haul Transport court	m ²	-	-	-	252,000	3.30	831,660	252,000	831,600
BRIDGES PONTS					108,000			-		108,000	
	Angokpa	R.C. 1 span R.C. 1 travée	1m								
	Aqudi	R.C. 1 span R.C. 1 travée	1m								
	Lindi	Plate G. 6 spans Poutre entôles 6 travées	1m								
	Gula	P.C. 1 span P.C. 1 travée	1m								
	Badjoge	R.C. 1 span R.C. 1 travée	1m								

(continued)
(continuée)

ITEM ARTICLE	DESCRIPTION	UNIT UNITE	SECTION - 2 TRONÇON			SECTION - 1 TRONÇON			TOTAL			
			QUANTITY QUANTITE	UNIT COST PRIX UNIT.	COST CÔT	QUANTITY QUANTITE	UNIT COST PRIX UNIT.	COST CÔT	QUANTITY QUANTITE	COST CÔT		
Longala	R.C. 1 span R.C. 1 travée	1m										
Bokokua	R.C. 1 span R.C. 1 travée	1m										
Aruwimi	Plate G. 16 spans Poutre entoles 16 travées	1m										
Zambeke	P.C. 2 spans P.C. 2 travées	1m										
Kole	R.C. 1 span R.C. 1 travée	1m										
Tele	P.C. 4 spans P.C. 4 travées	1m										
Yeme	R.C. 1 span R.C. 1 travée	1m										
Rubi	P.C. 4 spans P.C. 4 travées	1m										
Makala	R.C. 1 span R.C. 1 travée	1m										
Longa	P.C. 1 span P.C. 1 travée	1m										
Koteli	R.C. 1 span R.C. 1 travée	1m										
Maze II	R.C. 1 span R.C. 1 travée	1m										
Bilo II	R.C. 1 span R.C. 1 travée	1m										
Bilo III	R.C. 1 span R.C. 1 travée	1m										
Mborge	R.C. 1 span R.C. 1 travée	1m										
Likati	P.C. 3 spans P.C. 3 travées	1m										
Libogo	P.C. 3 spans P.C. 3 travées	1m										
Zakili	P.C. 1 span P.C. 1 travée	1m	24	4,500.-	108,000	-	-	-			24	108,000
FERRY BAC					7,000			16,000				23,000
Uele (Bondo)	Landing Facilities Facilité du débarquement	1m										
Bili (Faka)	Landing Facilities Facilité du débarquement	1m	50	140.-	7,000	-	-	-			50	7,000
Bomu (Ndu)	Landing Facilities Facilité du débarquement	1m	-	-	-	100	160.-	16,000			100	16,000
TOTAL					6,914,198			4,436,987				11,351,185

A.3.5.4 (ALTERNATIVE - I) NET COSTS OF IMPROVEMENT
 PHASE - II COÛTS NETS D'AMERIORATION

(Unit : Zaire)
 (unité : Zaire)

ITEM	DESCRIP -TION	UNIT UNITE	DIVISION IV						TOTAL
			SECTION 10			SECTION 9			
			QUANTITY QUANTITE	UNIT PRICE PRIX UNITAIRE	COST COÛT	QUANTITY QUANTITE	UNIT PRICE PRIX UNITAIRE	COST COÛT	
PAVEMENT PAPAGE	Densegrade asphalt-concrete Béton asphaltique	t=5cm m ²	321,000	3,03	972,630	558,000	3,62	2,019,960	2,992,590

A.3.5.5		Alternative I		<u>Gross Costs of Improvement</u>				<u>Total</u>
		<u>Coûts brut d'amélioration</u>		<u>Division III</u>	<u>Division II</u>	<u>Division I</u>		
		<u>Division IV</u>					(unit unité : Zaire)	
Net Improvement	Phase I	15,254,910	18,839,247	13,185,364	11,351,185	58,630,706		
Cost	Phase II	2,992,590	-	-	-	2,992,590		
Coûts nets	Sub - Total	18,247,500	18,839,247	13,185,364	11,351,185	61,623,296		
Coûts d'amélioration	Sous							
Contingency		2,737,130	2,825,890	1,977,837	1,702,670	9,243,527		
Faux frais divers								
Total		20,984,630	21,665,137	15,163,201	13,053,855	70,866,823	A.3.5.5	
Final Engineering								
Technique de l'ingénieur finale		1,094,850	1,130,350	791,122	681,071	3,697,393		
Supervision								
Surveillance		912,360	941,913	659,287	567,534	3,081,094		
Total		2,007,210	2,072,263	1,450,409	1,248,605	6,778,487		
Grand Total		22,991,840	23,737,400	16,613,610	14,302,460	77,645,310		
Coût total								

ITEM ARTICLE	DESCRIPTION	UNIT UNITÉ	DIVISION-IV		DIVISION-III		DIVISION-II		DIVISION-I		TOTAL	
			QUANTITY QUANTITE	COST COÛT	QUANTITY QUANTITE	COST COÛT	QUANTITY QUANTITE	COST COÛT	QUANTITY QUANTITE	COST COÛT	QUANTITY QUANTITE	COST COÛT
CLEARING DEBOISEMENT				168,630		279,570		237,330		227,890		913,420
Clearing Deboisement	Medium Vegetation Végétation moyenne	m ²	1,123,000	56,150	1,701,000	85,050	1,841,000	92,050	1,761,000	88,050	6,426,000	321,300
Clearing & Grubbing Deboisement & l'essouchment	Light Vegetation Végétation clairsemée	m ²	725,000	29,000	725,000	29,000	790,000	31,600	805,000	32,200	3,045,000	121,800
"	Medium Vegetation Végétation moyenne	m ²	679,000	54,320	950,000	76,000	866,000	69,280	720,000	57,600	3,215,000	257,200
"	Heavy Vegetation Végétation forte	m ²	243,000	29,160	746,000	89,520	370,000	44,400	417,000	50,040	1,776,000	213,120
EARTHWORKS TERRASSEMENTS				4,071,590		1,342,355		1,037,230		1,665,705		8,116,980
Embankment Remblai	Short Haul Transport court	m ³	395,000	474,000	466,000	559,200	431,000	517,200	993,000	1,191,600	2,285,000	2,742,000
"	Long Haul Transport long	m ³	719,000	3,591,500	232,000	781,300	127,000	264,950	216,000	432,000	1,294,000	5,069,750
Cut Déblai		m ³	17,400	6,090	5,300	1,855	14,800	5,180	120,300	42,105	157,800	55,230
Subgrade Replacement Hérisson de remplacement		m ³	-	-	-	-	19,500	250,000	-	-	19,500	250,000
SIDE SLOPES TALUS				116,300		151,800		129,700		103,300		501,100
Slope Shaping Façonnage d'un talus	Manual Labor Travail de manoeuvre	m ²	625,000	62,500	955,000	95,500	1,073,000	107,300	1,033,000	103,300	3,686,000	368,600
Grassing Gazonnement		m ²	538,000	53,800	563,000	56,300	224,000	22,400	-	-	1,325,000	132,500
DRAINAGE DRAINAGE				1,178,071		1,547,239		225,500		365,721		5,316,531
Side-ditches Excavation Contre-fossés	Laterite Latérite	lm	40,900	61,350	114,300	171,450	127,600	191,400	137,500	206,250	420,300	630,450
"	Silt Limon	lm	71,400	185,640	55,700	144,820	56,500	146,900	38,600	100,360	222,200	577,720
Side-ditches in Village Area Contre-fossés au village		lm	10,000	256,000	17,500	523,900	13,500	353,000	14,400	369,000	55,400	1,501,900
Stone-pitched Ditches Fossés maçonne en pierre		lm	6,700	249,600	900	63,600	3,800	144,100	7,600	300,200	19,000	757,500
Pipe-Culverts Fûts	∅0.6m	lm	47	1,128	7	168	-	-	-	-	54	1,296
	∅0.8	lm	-	-	7	266	-	-	-	-	7	266
	∅1.0	lm	1,554	135,198	1,540	133,980	1,400	121,800	1,243	108,141	5,737	499,119
	∅1.2	lm	442	44,220	182	18,200	66	6,600	33	3,300	723	72,300
	∅1.5	lm	341	64,790	308	58,520	116	22,040	341	64,790	1,106	210,140
	∅1.8	lm	116	25,520	98	21,560	116	25,520	55	12,100	385	84,700
	∅2.0	lm	48	12,000	140	35,000	22	5,500	22	5,500	232	58,000
	∅2.5	lm	-	-	84	29,400	94	32,900	44	15,400	222	77,700
	∅3.0	lm	82	46,740	42	23,940	72	41,040	33	18,810	229	130,530
	∅4.0	lm	34	31,620	140	130,200	70	65,100	77	71,610	321	298,530
	∅5.0	lm	9	12,600	42	58,800	-	-	11	15,400	62	86,800

(continued)
(continuée)

ITEM ARTICLE	DESCRIPTION	UNIT UNITE	DIVISION-IV		DIVISION-III		DIVISION-II		DIVISION-I		TOTAL	
			QUANTITY QUANTITE	COST CÔÛT	QUANTITY QUANTITE	COST CÔÛT	QUANTITY QUANTITE	COST CÔÛT	QUANTITY QUANTITE	COST CÔÛT	QUANTITY QUANTITE	COST CÔÛT
Inlets & Outlets Entrées & sorties	∅0.6	piece	6	215	1	60	-	-	-	-	7	275
	∅0.8	piece	-	-	1	75	-	-	-	-	1	75
	∅1.0	piece	191	12,760	220	24,700	230	17,330	226	17,260	867	72,050
	∅1.2	piece	55	5,710	26	4,400	16	1,800	6	600	103	12,550
	∅1.5	piece	38	9,420	44	15,760	20	5,160	62	15,700	164	46,040
	∅1.8	piece	14	4,480	14	6,320	20	6,710	10	3,200	58	20,710
	∅2.0	piece	6	2,700	20	12,440	4	1,960	4	2,060	34	19,160
	∅2.5	piece	-	-	12	9,920	16	10,720	8	5,440	36	26,080
	∅3.0	piece	10	8,800	6	7,320	12	10,920	6	6,000	34	33,040
	∅4.0	piece	4	5,600	20	38,800	10	15,000	14	20,800	48	80,200
∅5.0	piece	1	2,000	6	13,600	-	-	2	3,800	9	19,400	
PAVEMENTS PAVAGES				6,359,700		1,371,450		1,838,100		1,790,900		1,360,150
Type - I	Short Haul Transport court	m ²	221,000	1,106,300	-	-	-	-	-	-	221,000	1,106,300
Type - II	Short Haul Transport court	m ²	96,000	504,000	-	-	-	-	-	-	96,000	504,000
Type - III	Long Haul Transport long	m ²	562,000	4,749,400	-	-	-	-	-	-	562,000	4,749,400
Laterite lower Subbase	t=40cm short haul " transport court	m ²	-	-	752,000	752,000	-	-	-	-	752,000	752,000
Latérite sous- couche	t=40cm long haul " transport long	m ²	-	-	374,000	619,450	-	-	-	-	374,000	619,450
TYPE VI	t=50cm short haul " transport court	m ²	-	-	-	-	890,000	1,157,000	1,040,000	1,352,000	1,930,000	2,509,000
	t=50cm long haul " transport long	m ²	-	-	-	-	419,000	681,000	295,000	438,000	714,000	1,120,000
BRIDGES PONTS				-		-		343,000		96,000		439,000
Makala	R.C. 1 span R.C. 1 travée	1m	-	-	-	-	16	56,000	-	-	16	56,000
	R.C. 1 span R.C. 1 travée	1m	-	-	-	-	18	63,000	-	-	18	63,000
Koteli	R.C. 1 span R.C. 1 travée	1m	-	-	-	-	18	63,000	-	-	18	63,000
	R.C. 1 span R.C. 1 travée	1m	-	-	-	-	18	63,000	-	-	18	63,000
Maze II	R.C. 1 span R.C. 1 travée	1m	-	-	-	-	17	59,500	-	-	17	59,500
	R.C. 1 span R.C. 1 travée	1m	-	-	-	-	17	59,500	-	-	17	59,500
Bilo II	R.C. 1 span R.C. 1 travée	1m	-	-	-	-	12	42,000	-	-	12	42,000
	R.C. 1 span R.C. 1 travée	1m	-	-	-	-	12	42,000	-	-	12	42,000
Bilo III	R.C. 1 span R.C. 1 travée	1m	-	-	-	-	17	59,500	-	-	17	59,500
	R.C. 1 span R.C. 1 travée	1m	-	-	-	-	17	59,500	-	-	17	59,500
Mborge	R.C. 1 span R.C. 1 travée	1m	-	-	-	-	17	59,500	-	-	17	59,500
	R.C. 1 span R.C. 1 travée	1m	-	-	-	-	17	59,500	-	-	17	59,500
Zakili	P.C. 1 span P.C. 1 travée	1m	-	-	-	-	-	-	24	96,000	24	96,000
	P.C. 1 span P.C. 1 travée	1m	-	-	-	-	-	-	24	96,000	24	96,000
FERRIES BACS				-		16,800		18,000		23,000		57,800
Aruwimi (Banalia)	Landing Facilities Facilité du débarquement	1m	-	-	120	16,800	-	-	-	-	120	16,800
	Landing Facilities Facilité du débarquement	1m	-	-	-	-	120	18,000	-	-	120	18,000
Uele (Bondo)	Landing Facilities Facilité du débarquement	1m	-	-	-	-	-	-	50	7,000	50	7,000
Bili (Faka)	Landing Facilities Facilité du débarquement	1m	-	-	-	-	-	-	100	16,000	100	16,000
Bomu (Ndu)	Landing Facilities Facilité du débarquement	1m	-	-	-	-	-	-	100	16,000	100	16,000
TOTAL			—	11,894,291	—	4,709,214	—	4,828,960	—	5,272,516	—	26,704,981

ALTERNATIVE II PHASE I

NET COSTS OF IMPROVEMENT
COÛTS NETS D'AMELIORATION DIVISION IV

From de Kisangani To à Banalia (122.610 km) Unit Unité : Zaïre

ITEM ARTICLE	DESCRIPTION	UNIT UNITE	SECTION TRONÇON - 10			SECTION TRONÇON - 9			TOTAL	
			QUANTITY QUANTITE	UNIT COST PRIX UNIT	COST COÛT	QUANTITY QUANTITE	UNIT COST PRIX UNIT	COST COÛT	QUANTITY QUANTITE	COST COÛT
CLEARING DEBOISEMENT					64,950			103,680		103,680
Clearing Deboisement	Medium Vegetation Végétation moyenne	m ²	407,000	0.05	20,350	716,000	0.05	35,800		1,123,000 56,150
Clearing & Grubbing	Light Vegetation Végétation clairemée	m ²	252,000	0.04	10,080	473,000	0.04	18,920		725,000 29,000
Deboisement & l'essouchment	Medium Vegetation Végétation moyenne	m ²	292,000	0.08	23,360	387,000	0.08	30,960		679,000 54,320
"	Heavy Vegetation Végétation forte	m ²	93,000	0.12	11,160	150,000	0.12	18,000		243,000 29,160
EARTHWORKS TERRASSEMENTS					1,344,860			2,726,730		4,071,590
Embankment Remblai	Short Haul Transport court	m ³	152,000	1.20	182,400	243,000	1.20	291,600		395,000 474,000
"	Long Haul Transport long	m ³	178,000	6.50	1,157,000	541,000	4.50	2,434,500		719,000 3,591,500
Cut Déblai		m ³	15,600	0.35	5,460	1,800	0.35	630		17,400 6,090
Subgrade Replacement Hérissage de remplacement		lm	-	-	-	-	-	-		- -
SIDE SLOPES TALUS					43,100			73,200		116,300
Slope Shaping Façonnage d'un talus	Manual Labor Travail de manoeuvre	m ²	235,000	0.10	23,500	390,000	0.10	39,000		625,000 62,500
Grassing Gazonnement		m ²	196,000	0.10	19,600	342,000	0.10	34,200		538,000 53,800
DRAINAGE DRAINAGE					298,499			879,572		1,178,071
Side-ditches Excavation Contre-fossés	Laterite Latérite	lm	18,700	1.50	28,050	22,200	1.50	33,300		40,900 61,350
"	Silt Limon	lm	22,000	2.60	57,200	49,400	2.60	128,440		71,400 185,640
Side-ditches in Village Area Contre-fossés au village		lm	4,000	25.-	100,000	6,000	26.-	156,000		10,000 256,000
Stone-pitched Ditches Fossés maçonne en pierre		lm	1,300	30.-	39,000	5,400	39.-	210,600		6,700 249,600
Pipe-Culverts Fûts	ø0.6m	lm	38	24.-	912	9	24.-	216		47 1,128
	ø0.8	lm	-	-	-	-	-	-		- -
	ø1.0	lm	496	87.-	43,152	1,058	87.-	92,046		1,554 135,198
	ø1.2	lm	104	100.-	10,400	338	100.-	33,800		442 44,200
	ø1.5	lm	67	190.-	12,730	274	190.-	52,060		341 64,790
	ø1.8	lm	-	-	-	116	220.-	25,520		116 25,520
	ø2.0	lm	-	-	-	48	250.-	12,000		48 12,000
	ø2.5	lm	-	-	-	-	-	-		- -
	ø3.0	lm	-	-	-	82	570.-	46,740		82 46,740
	ø4.0	lm	-	-	-	34	930.-	31,620		34 31,620
	ø5.0	lm	-	-	-	9	1,400.-	12,600		9 12,600

ITEM ARTICLE	DESCRIPTION	UNIT UNITÉ	SECTION TRONÇON - 10			SECTION TRONÇON - 9			TOTAL		
			QUANTITY QUANTITE	UNIT COST PRIX UNIT.	COST COÛT	QUANTITY QUANTITE	UNIT COST PRIX UNIT.	COST COÛT	QUANTITY QUANTITE	COST COÛT	
Inlets & Outlets Entrées & sorties	ø0.6	piece	5	35.-	175	1	40.-	40	6	215	
	ø0.8	piece	-	-	-	-	-	-	-	-	
	ø1.0	piece	61	60.-	3,660	130	70.-	9,100	191	12,760	
	ø1.2	piece	13	100.-	1,300	42	105.-	4,410	55	5,710	
	ø1.5	piece	8	240.-	1,920	30	250.-	7,500	38	9,420	
	ø1.8	piece	-	-	-	14	320.-	4,480	14	4,480	
	ø2.0	piece	-	-	-	6	450.-	2,700	6	2,700	
	ø2.5	piece	-	-	-	-	-	-	-	-	
	ø3.0	piece	-	-	-	10	880.-	8,800	10	8,800	
	ø4.0	piece	-	-	-	4	1,400.-	5,600	4	5,600	
ø5.0	piece	-	-	-	1	2,000.-	2,000	1	2,000		
PAVEMENTS PAVAGES				2,320,500			4,039,200			6,359,700	
Type - I	Short Haul Transport court	m ²	143,000	4.90	700,700	78,000	5.20	405,600	221,000	1,106,300	
Type - II	Short Haul Transport court	m ²	-	-	-	96,000	5.25	504,000	96,000	504,000	
Type - III	Long Haul Transport long	m ²	178,000	9.10	1,619,800	384,000	8.15	3,129,600	562,000	4,749,400	
Laterite lower Subbase	t=40cm short haul " transport court	m ²	-	-	-	-	-	-	-	-	
Latérite sous- couche	t=40cm long haul " transport long	m ²	-	-	-	-	-	-	-	-	
TYPE VI	t=50cm short haul " transport court	m ²	-	-	-	-	-	-	-	-	
	t=50cm long haul " transport long	m ²	-	-	-	-	-	-	-	-	
BRIDGES PONTS											
Makala	R.C. 1 span R.C. 1 travée	1m									
Koteli	R.C. 1 span R.C. 1 travée	1m									
Maze II	R.C. 1 span R.C. 1 travée	1m									
Bilo II	R.C. 1 span R.C. 1 travée	1m									
Bilo III	R.C. 1 span R.C. 1 travée	1m									
Mborge	R.C. 1 span R.C. 1 travée	1m									
Zakili	P.C. 1 span P.C. 1 travée	1m									
FERRIES BACS											
Aruwimi (Banalia)	Landing Facilities Facilité du débarquement	1m									
Uele (Bondo)	Landing Facilities Facilité du débarquement	1m									
Bili (Faka)	Landing Facilities Facilité du débarquement	1m									
Bomu (Ndu)	Landing Facilities Facilité du débarquement	1m									
TOTAL			—	—	4,071,909	—	—	7,822,382	—	—	11,894,291

Note: Net costs of improvement do not include contingency and costs of final engineering and supervision of construction.
Coûts nets d'amélioration non inclu faux frais divers et surveillance de construction.