DONDLA VAGU NO: I O/C

GOVERNMENT OF ANDRA PRADESH,
IRRIGATION AND C.A.D DEPARTMENT.

HYDRAULIC PARTICULARS OF
DONDLAVAGU No.1 DISTRIBUTORY

PULIVENDULA BRANCH CANAL SYSTEM
PACKAGE No.93B

M/s. Ratna Infrastructure Projects Private Ltd.

PACKAGE NO.93

REPORT ACCOMPANYING THE REVISED HYDRAULIC PARTICULARS OF DONDLAVAGU DISTRIBUTORY NO.1, TAKING OFF AT KM.28.390 OF PULIVENDULA BRANCH CANAL.

Pulivendula Branch Canal system:

In the original scope of the project the Pulivendula Branch Canal contemplates to provide irrigation facility through its distributory system with a carrying capacity of 15.86 cumecs to an extent of 60,000 acres (24,293 hectares) in Khariff season in Ananthapur and Kadapa Districts.

The scope of the projects is divided into two packages.93 & 92 and which were awarded under EPC (Turn Key System) on tender basis to M/s SRK Bhailalbhai (JV) by the Superintending Engineer, GNSS.Circle, Kadapa.

The Package No.93 comprises of head reach of P.B.C. ie., Earth work excavation, C.C. lining, including repairs and improvements to existing structures from Km.0.000 to Km.33.740/33.000/35.025 of Pulivendula Branch Canal, Tumpera Deep cut from Km.0.000 to Km.6.200, Bypass Channel taking off at Km.6.200 of Tumpera Deep cut to fore shore of Chitravathi Balancing Reservoir, was concluded in agreement NO.1 Superintending Engineer/2005-2006, dated:23.7.2005.

Originally the P.B.Canal is an unlined canal which was in use for the last 20 years. Due to inadequate supplies in the canal and poor condition of the canal with insufficient discharging capacity, the quantum of water received is utilized by the ayacutdars of upper reaches only and the water never reached the tail end resulting a gap Ayacut. The distributory system in this package is proposed to be modernized so as to irrigate tail end Ayacut also on par with the head reaches. In this context, in the earlier proposals of Hydraulic Particulars the designs submitted for the distributories in the Head reaches of this package were designed using canal sections having more discharging capacities, which are now proposed to be revised. The Hydraulic Particulars of distributories were revised now using modified Penman method and arriving peak water requirements. Keeping in view the basic parameters and with a view to push required quantum of water up to tail end reaches and to avoid excess drawls in the upper reaches.

The Hydraulic Particulars are finalized based on modified Penman Method and the following are the peak water requirements.

Sl. No.	Name of canal / Distributories	Length in Km	Discharge REQ Cumecs	Discharge Designed in Cumecs	Ayacut in Acres
I)	P.B.Canal from Km.0.000 to Km.35.025	35.025	15.860	16.059	60,000
II)	Distributories				
1	Singavaram distributory takes off @ Km.1.290 of P.B.C.	1.725	0.016	0.019	60.98
2	Kallur takes off @ Km.3.229 of P.B.C.	3.600	0.057	0.059	216.22
3	Thondur takes off @ Km.11.595 of P.B.C.	16.000	3.413	3.500	
a)	Yellanur distributory takes off @ Km.5.707 of Thondur distributory (Ayacut:4599.70 acres)	9.140	1.216	1.299	12,913.00
b)	Lomada feeder channel takes off @ Km.9.18 of Thondur distributory (ayacut:2283 acres)	14.015	0.603	0.633	
4	Gurujala distributory takes off @ Km.12.65 of P.B.C.	2.362	0.179	0.181	675.50
a)	Cherlopalli (ayacut:361.59 acres)	3.000	0.096	0.099	
b)	Balapanur distributory takes off @ Km.16.96 of P.B.C.	19.500	3.849	3.884	
a)	I R Minor of Balapanur distributory (Ayacut:2190.97 acres)	9.475	0.579	0.5923	14,559.45
6	Kamasamudram tank		0.156	0.156	590.00
7	Ramapuram takes off @ Km.23.213 of P.B.C.	3.425	0.212	0.234	800.87
8	Kothapalli distributory takes off @ Km.25.068 of P.B.C.	2.650	0.146	0.150	551.43
9	Nakkalapalli takes off @ Km.26.74 of P.B.C.	2.134	0.154	0.178	583.00
10	Dondlavagu distributory No.1 takes off @ Km.28.39 of P.B.C	3.175	0.208	0.215	785.17
11	Dondlavagu distributory No.2 takes off @ Km.30.347 of P.B.C.	2.80	0.153	0.162	574.38
12	Palur distributory takes off @ Km.32.800 of P.B.C.	12.90	2.425	2.531	
a)	5R Minor of Palur distributory (Ayacut:1005.11 acres)	6.80	0.399	0.436	9174.22
Total Acres					**41484.22**

[illegible] Earth work excavation [illegible] improvements to structures of Pulivendula Branch Canal [illegible]
between [illegible] of [illegible] Branch Canal, [illegible] deep cut from Km.0.000 to Km.6.200 and Bypass [illegible]
shore of Chitravati Balancing Reservoir

REVISED HYDRAULIC PART [illegible] OF DONDLAVAGU DISTRIBUTORY NO.I FROM KM.0.000 TO KM.3.175 [illegible]

Sl No.	Chainage in Kms		Distance in Kms	Discharge in cumecs		Bed width in mts	F.S.D in mts	Side slopes	Surface fall	Value of 'n'	Velo-city in mts./sec	Loss of head in mts. due to			[illegible]		[illegible]		[illegible]
	From	To		Required	Designed							Bed fall	Struc-tures	Total	At start	At end	[illegible]	[illegible]	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	0.000	0.540	0.540	0.208	0.2960	2.00	0.30	1 1/2 : 1	1 in 2500	0.025	0.3077	0.216	5.850	6.066	238.400	232.984 232.334	238.700	[illegible] [illegible]	[illegible]
	0.540	1.180	0.640	0.163	0.1775	1.50	0.30	1 1/2 : 1	1 in 2400	0.025	0.2973	0.267	3.900	4.167	[illegible]	228.317 228.167	[illegible]	[illegible] [illegible]	
		1.600	0.420	0.059	0.0644	1.00	0.20	1 1/2 : 1	1 in 2100	0.025	0.2476	0.200	0.950	1.150	[illegible]	227.017	[illegible]	[illegible]	
		3.175	1.575	0.036	0.0373	[illegible]	0.16	1 1/2 : 1	1 in 1900	0.025	0.2243	0.829	5.800	6.629	[illegible]	220.388	[illegible]	[illegible]	
												1.512	16.500	18.012					

F.S.L AT START	238.700
AT END	220.548
DIFFERENCE	18.152
F.S.D DIFFERENCE	0.140
NET DIFFERENCE	18.012

BED LEVEL AT START	238.400	F.S.D AT START [illegible]
BED LEVEL AT END	220.388	[illegible]
DIFFERENCE	18.012	[illegible]

For : Ratna Infrastructure Projects Pvt. Ltd.

(D.V. RAMANAIAH)
General Manager & P.A. Holder.

NAME OF WORK : PACKAGE-58 : Earth work excavation, C.C. lining & improvements to structures of Pulivendula Branch Canal from Km.0.000 to Km.33.740 / 33.000 and the distributory system between Km.0.000 to Km.33.740/33.000 of Pulivendula Branch Canal, Tumpera deep cut from Km.0.000 to Km.6.200 and Bypass channel taking off @ Km.6.200 of Tumpera deep cut to fore shore of Chitravati Balancing Reservoir

REVISED HYDRAULIC PARTICULARS OF DONDLAVAGU DISTRIBUTORY NO.I FROM KM.0.000 TO KM.3.175, OFF-TAKE AT KM.28.390 OF P.B.C.

Sl No.	Chainage in Kms		Distance in Kms	Discharge in cumecs		Bed width in mts	F.S.D in mts.	Side slopes	Surface fall	Value of 'n'	Velo-city in mts./sec.	Loss of head in mts. due to			Bed level in mts		Full supply level in mts		Remarks
	From	To		Required	Designed							Bed fall	Struc-tures	Total	At start	At end	At start	At end	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	0.000	0.540	0.540	0.208	0.2960	2.00	0.30	1 1/2 : 1	1 in 2500	0.025	0.3077	0.216	5.850	6.066	238.400	232.984 232.334	238.700	233.284 232.634	Details of Drops are enclosed separately
	0.540	1.180	0.640	0.163	0.1775	1.50	0.30	1 1/2 : 1	1 in 2400	0.025	0.2973	0.267	3.900	4.167	232.334	228.317 228.167	232.634	228.617 228.367	
		1.600	0.420	0.059	0.0644	1.00	0.20	1 1/2 : 1	1 in 2100	0.025	0.2476	0.200	0.950	1.150	228.167	227.017	228.367	227.217	
		3.175	1.575	0.036	0.0373	0.50	0.16	1 1/2 : 1	1 in 1900	0.025	0.2243	0.829	5.800	6.629	227.017	220.388	227.217	220.548	
												1.512	16.500	18.012					

F.S.L AT START	238.700
AT END	220.548
DIFFERENCE	18.152
F.S.D DIFFERENCE	0.140
NET DIFFERENCE	18.012

BED LEVEL AT START	238.400
BED LEVEL AT END	220.388
DIFFERENCE	18.012

F.S.D. AT START	0.30
AT END	0.16
DIFFERENCE	0.14

For : Ratna Infrastructure Projects Pvt. Ltd.

(D.V. RAMANAIAH)
General Manager & P.A. Holder.

NAME OF WORK : PACKAGE 3B : Earth work excavation, C.C. lining & improvements to structures of Pulivendula Branch Canal from Km.0.000 to Km.33.740 / 33.000 and its distributory system between Km.0.000 to Km.33.740 / 33.000 of Pulivendula Branch Canal, Tumpera deep cut from Km.0.000 to Km.6.200 and Bypass channel taking off @ Km.6.200 of Tumpera deep cut to fore-shore of Chitravati Balancing Reservoir

REVISED HYDRAULIC PARTICULARS OF DONDLAVAGU DISTRIBUTORY NO.I FROM KM.0.000 TO KM.3.175 OFFTAKE AT KM.28.390 OF P.B.C.

Sl No.	Chainage in Kms		Distance in Kms	Discharge in cumecs		Bed width in mts	F.S.D. in mts.	Side slopes	Surface fall	Value of 'n'	Velo-city in mts./ sec	Loss of head in mts due to			Bed level in mts		Full supply level in mts		Remarks
	From	To		Required	Designed							Bed fall	Struc-tures	Total	At start	At end	At start	At end	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	0.000	0.540	0.540	0.208	0.2960	2.00	0.30	1 1/2 : 1	1 in 2500	0.025	0.3077	0.216	5.850	6.066	238.400	232.984 232.334	238.700	233.284 232.634	Details of Drops are enclosed seperately
	0.540	1.180	0.640	0.163	0.1775	1.50	0.30	1 1/2 : 1	1 in 2400	0.025	0.2973	0.267	3.900	4.167	232.334	228.317 228.167	232.634	228.617 228.367	
		1.600	0.420	0.059	0.0644	1.00	0.20	1 1/2 : 1	1 in 2100	0.025	0.2476	0.200	0.950	1.150	228.167	227.017	228.367	227.217	
		3.175	1.575	0.036	0.0373	0.60	0.16	1 1/2 : 1	1 in 1900	0.025	0.2243	0.829	5.800	6.629	227.017	220.388	227.217	220.548	
												1.512	16.500	18.012					

F.S.L AT START	238.700
AT END	220.548
DIFFERENCE	18.152
F.S.D. DIFFERENCE	0.140
NET DIFFERENCE	18.012

BED LEVEL AT START	238.400
BED LEVEL AT END	220.388
DIFFERENCE	18.012

F.S.D AT START	0.30
AT END	0.16
DIFFERENCE	0.14

For : Ratna Infrastructure Projects Pvt. Ltd.

(D.V. RAMANAIAH)
General Manager & P.A. Holder.

STATEMENT SHOWING THE DETAILES OF STRUCTURES OF DONDLAVAGU NO.1 DISTRIBUTORY

Sl. No.	Chainage in Km.	Depth of Drops in Mts.	Remarks	Other Structures At Km.
1	0.120	1.10	Existing Structure	
2	0.160	0.60	Existing Structure	
3	0.240	0.50	Existing Structure	
4	0.300	0.60	Existing Structure	
5	0.320	0.60	Existing Structure	
6	0.364	0.60	Existing Structure	
7	0.400	0.60	Existing Structure	
8	0.460	0.60	Existing Structure	
9	0.540	0.65	Existing Structure	
	Total	**5.85**		
10	0.580	0.30	Existing Structure	
11	0.600	0.30	Existing Structure	
12	0.657	0.45	Existing Structure	
13	0.710	0.30	Existing Structure	
14	0.720	0.40	Existing Structure	
15	0.800	0.50	Existing Structure	
16	0.836	0.50	Existing Structure	
17	0.975	0.60	Existing Structure	
18	1.115	0.40	Existing Structure	
19	1.180	0.15	Existing Structure	
	Total	**3.90**		
20	1.252	0.50	Existing Structure	
21	1.440	0.45	Existing Structure	
	Total	**0.95**		
22	1.700	0.20	Existing Structure	
23	1.720	0.10	Existing Structure	
24	1.780	0.50	Existing Structure	
25	2.030	0.50	Existing Structure	
26	2.425	0.80	Existing Structure	
27	2.500	0.80	Existing Structure	
28	2.705	1.00	Existing Structure	
29	2.930	0.70	Existing Structure	
30	2.950	0.40	Existing Structure	C.T.
31	3.075	0.60	Existing Structure	
32	3.120	0.20	Existing Structure	
	Total	**5.80**		

For : Ratna Infrastructure Projects Pvt. Ltd.

(D.V. [illegible] IAH)
General Manager A. Holder.

POLIVENDULA BRACH CANAL

HEAD SLUICE TAKING OFTAKE AT KM 28.390 of P.B.C		1.10M	EXI
DROP AT KM	0.120	0.60M	EXI
DROP AT KM	0.160	0.50M	EXI
DROP AT KM	0.240	0.60M	EXI
DROP AT KM	0.300	0.60M	EXI
DROP AT KM	0.364	0.60M	EXI
DROP AT KM	0.400	0.60M	EXI
DROP AT KM	0.460		
DROP AT KM	0.540	0.65M	EXI
1L P.F.C AT KM	0.540	0.30	EXI
DROP AT KM	0.580	0.30	EXI
DROP AT KM	0.600	0.45	EXI
DROP AT KM	0.657	0.30	EXI
DROP AT KM	0.710	0.40	EX
DROP AT KM	0.720	0.50	EX
DROP AT KM	0.800	0.50	EX
DROP AT KM	0.836	0.60	EX
DROP AT KM	0.975	0.40	EX
DROP AT KM	1.115		
DROP AT	1.180		
7L1 P.F.C AT KM	1.180	0.15	EX
DROP AT KM	1.252	0.50	EX
DROP AT KM	1.440	0.45	EX
DROP AT KM	1.600		
DROP AT KM	1.700	0.20	E
8L P.F.C AT KM	1.720	0.10	E
DROP AT KM	1.780	0.50	E
DROP AT KM	2.030	0.50	E
DROP AT KM	2.425	0.80	E
DROP AT KM	2.500	0.80	E
DROP AT KM	2.705	1.00	E
DROP AT KM	2.930	0.70	E
DROP AT KM	2.950	0.40	E
DROP AT KM	3.075	0.60	E
DROP AT KM	3.120	0.20	
DROP AT KM			

PONDALAVAGU No 1 DISTRIBUTORY

HYDRAULIC PARTICULARS OF Pondalavagu distributory

DESCRIPTION	REACH I From 0.00 to 0.540	REACH II From 0.540 to 1.180	REACH III From 1.180 to 1.600	REACH IV From 1.600 to 3.175
DISCHARGE (R)	0.208	0.163	0.059	0.036
DISCHARGE (D)	0.7261	0.1775	0.0644	0.0373
BED WIDTH	2.00	1.50	1.00	0.80
F.S.L	0.30	0.30	0.20	0.16
FREE BOARD	0.50	0.50	0.50	0.50
SURFACE FALL	1 in 2500	1 in 2400	1 in 2100	1 in 1900
VALUE OF N	0.025	0.025	0.025	0.025
SIDE SLOPES	1½:1	1½:1	1½:1	1½:1
VELOCITY M/sec	0.3077	0.3035	0.2476	0.2243
Ayacut	169.95 Acs	392.37 Ac	86.64 Ac	136.21 Ac

PULIVENDULA BRACH CANAL

DONDLAVAGU NO 1 DISTRIBUTORY

HEAD SLUICE TAKING OFTAKE AT KM		28390	of P.B.C	
DROP AT KM	0.120	1.10 M		EXI
DROP AT KM	0.160	0.60 M		EXI
DROP AT KM	0.240	0.50 M		EXI
DROP AT KM	0.300	0.60 M		EXI
DROP AT KM	0.364	0.60 M		EXI
DROP AT KM	0.400	0.60 M		EXI
DROP AT KM	0.460	0.60 M		EXI
1 L P.F.C AT KM	0.540			
DROP AT KM	0.540	0.65 M		EXI
DROP AT KM	0.580	0.30		EXI
DROP AT KM	0.600	0.30		EXI
DROP AT KM	0.657	0.45		EXI
DROP AT KM	0.710	0.30		EXI
DROP AT KM	0.720	0.40		EXI
DROP AT KM	0.800	0.50		EXI
DROP AT KM	0.836	0.50		EXI
DROP AT KM	0.975	0.60		EXI
DROP AT KM	1.115	0.40		EXI
7 L 1 P.F.C AT KM	1.180			
DROP AT KM	1.180	0.15		EXI
DROP AT KM	1.252	0.50		EXI
DROP AT KM	1.440	0.45		EXI
DROP AT KM	1.600			
8 L P.F.C AT KM	1.700	0.20		EXI
DROP AT KM	1.720	0.10		EXI
DROP AT KM	1.780	0.50		EXI
DROP AT KM	2.030	0.50		EXI
DROP AT KM	2.425	0.80		EXI
DROP AT KM	2.500	0.80		EXI
DROP AT KM	2.705	1.00		EXI
DROP AT KM	2.930	0.70		EXI
DROP AT KM	2.950	0.40		EXI
DROP AT KM	3.075	0.60		EXI
DROP AT KM	3.120	0.20		EXI

HYDRALIC PARTICULARS OF Dondlavagu distry No 1

DESCRIPTION	REACH I From 0.000 to 0.540	Reach II From 0.540 to 1.180	Reach III From 1.180 to 1.600	REACH IV From 1.600 to 3.175
DISCHARGE (R)	0.208	0.163	0.059	0.036
DISCHARGE (D)	0.2261	0.1775	0.0644	0.0373
BED WIDTH	2.00	1.50	1.00	0.80
F.S.L	0.30	0.30	0.20	0.16
FREE BOARD	0.50	0.50	0.50	0.50
SURFACE FALL	1 in 2500	1 in 2400	1 in 2100	1 in 1900
VALUE OF 'n'	0.025	0.025	0.025	0.025
SIDE SLOPES	1½:1	1½:1	1½:1	1½:1
VELOCITY M/Sec	0.3077	0.3035	0.2476	0.2243
Ayacut in Acres	169.95 Ac	392.37 Ac	86.64 Ac	136.21 Ac