

Government of Odisha
Works Department

Office Memorandum

File No.07556900132017- 3728 W, dated, 17.3.18

Sub: Inclusion of BOW string Girder Superstructure and Aerated Autoclaved (AAC) Fly Ash Blocks Masonry work in the Schedule of Rates-2006 for Schedule of Rates-2014.

After careful consideration Government have been pleased to approve inclusion of BOW string Girder Superstructure and Aerated Autoclaved (AAC) Fly Ash Blocks Masonry work in the Schedule of Rates-2006 for Schedule of Rates-2014 and addendum to Chapter-XXIV: Bridge Works of Schedule of Rates-2006 for Schedule of Rates-2014 (Post GST) as item No.16 (New item by inclusion) and Addendum to Chapter-I of Basic Rate of Materials of Schedule of Rates-2006 for Schedule of Rates-2014 as item No.176 & Addendum to Chapter-X of Masonry Brick Work of Schedule of Rates-2006 for Schedule of Rates-2014 as item No.11 & Addendum to Chapter-VI of Masonry Brick Work of Analysis of Rate-2006 for 2014 (Post GST) as item No.11 respectively.

1. Inclusion of BOW string Girder Superstructure and Aerated Autoclaved (AAC) Fly Ash Blocks Masonry work in the Schedule of Rates-2006 for Schedule of Rates-2014 is effective from issue of this Office Memorandum.
2. This has been concurred in by the Finance Department vide their U.O.R. No.19-WF-I dt.31.01.2018.

Encl: As above

Odisha
17/3/18
EIC - cum- Secretary to Government

Memo No. 3729

W, dated, 17.3.18

Copy forwarded to P. S. to Hon'ble Minister, Works, Odisha for information and necessary action.

Jahnu
17/3/2018
FA - cum- Addl. Secretary to Government

Memo No. 3730

W, dated, 17.3.18

Copy forwarded to OSD to Chief Secretary, Odisha / Sr. P.S. to Development Commissioner-cum-Additional Chief Secretary, Odisha / Sr. P.S. to Principal Secretary, Finance Deptt. for information and necessary action.

Jahnu
17/3/2018
FA - cum- Addl. Secretary to Government

(P.T.O.)

Memo No. 3731

W, dated, 17.3.18

Copy forwarded to the Principal Accountant General (A&E), Odisha, Bhubaneswar / Principal Accountant General (E & S R Audit), Odisha, Puri Branch, Puri for information and necessary action.

Jahalaru 17/3/2018
FA - cum- Addl. Secretary to Government

Memo No. 3732

W, dated, 17.3.18

Copy forwarded to All Departments / Managing Director, OB & CC Ltd., Bhubaneswar / Managing Director, OCC Ltd., Bhubaneswar for information and necessary action.

Jahalaru 17/3/2018
FA - cum- Addl. Secretary to Government

Memo No. 3733

W, dated, 17.3.18

Copy forwarded to EIC (Civil), Odisha / All Chief Engineers, Odisha / All Superintending Engineers / All Executive Engineers (All under Works Department) for information and wide circulation among subordinate offices.

Jahalaru 17/3/2018
FA - cum- Addl. Secretary to Government

Memo No. 3734

W, dated, 17.3.18

Copy forwarded to OSWAS Control Room with a request to upload it in the web-site of Works Department.

Jahalaru 17/3/2018
FA - cum- Addl. Secretary to Government

Memo No. 3735

W, dated, 17.3.18

Copy forwarded to the Director, Printing, Stationary & Publication, Odisha, Cuttack by e-mail (deputydirectorpp@redifmail.com) for publication of this Office Memorandum in the next issue of Odisha Gazette and supply 20 (Twenty) copies to this Department for official use.

Jahalaru 17/3/2018
FA - cum- Addl. Secretary to Government

Memo No. 3736

W, dated, 17.3.18

Copy forwarded to A/C-I Section / A/C-II Section / Road Section / Plan Section / Building Section / Budget Section / N.Hs. Section / FC & AA Section / PPP Cell / EAP Cell, Works Department for information and necessary action.

Jahalaru 17/3/2018
FA - cum- Addl. Secretary to Government

**ADDENDUM TO CHAPTER-XXIV: BRIDGE WORKS OF
SCHEDULE OF RATES-2006 FOR SCHEDULE OF RATES-2014 AS ITEM No.-16
(New item by Inclusion) POST GST.**

Item No.	Description of work	Unit	Rate in (Rs.)
14.	<p>Fabrication, Erection, Launching of BOW STRING Steel Girder:- Supply, Fabrication & Launching of BOW STRING Type structural steel girder with supply & fixing shear stud for River bridge as per the RDSO approved Drawing No. RDSO/B-10411/1 to 10411/9 and using contractors supply of 60mm clear span as per RDSO specification and standard drawing and using contractors supply of steel for fabrication of Arch girder, Hangers, Edge beam, Cross beam, Tie beam, diaphragm etc. connected with main girder should confirm to UT tested structural steel, E-250 (BR-410), e-350 (Fe-490B) E-410C (Fe-540) grade (weldable quality) steel from SAIL/TATA/RINL/TISCO as per IS 2062/2011 grade "B" fully killed along with the proper test report, both physical, chemical and fabrication of steel girder at work shop as per relevant IRC/IRS codes and specification using submerged arc welding/CO2 welding rods/CO2 gas, Bolts & nuts, shear stud and rivets for connection of splicing joints using high tensile steel/mild steel materials and as per IS 1149/1148 and for inspection as per IS 822, the fabricated girder to be transported to bridge site with contractors own trailer/truck, labour, cranes etc. at the cost of firm fabrication is carried out in the work shop complete assembled at site on a firm ground with suitable platform using Crane of suitable capacity, labour etc., sleeper rail near crane for assembling before launching as directed by the Engineer-in-Charge with Launching the fabricated BOWSTRING type steel girder in the span of River with floating arrangements of Barges of suitable capacity with the proper safety with contractors own method and arrangements approved by Engineer-in-Charge up to level of</p>	Each MT	1, 70, 963.75 Excluding GST as per detail at Annexure-A.

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	<p>pier cap & fixing in position over the suitable bearing duly arranging temporary supporting arrangements, suitable steel cribs, Rail, wooden block, lighting arrangements, if required labour, crane, crew consumables, erection tools like power jack of suitable capacity, templates, fixtures equipments and plants etc. complete as directed by Engineer-in-Charge. Any additional stagings for the purpose of launching and fabrication needed during the course of work will have to be borne by contractor at his own cost. The rate shall also be inclusive of transportation of fabricated girder parts to site by contractor's own means at his own cost. The rate shall also be inclusive of cold straightening of deformed and bent girder parts before their assembling and other ancillary steel structures where ever necessary for proper level and alignment. The rate shall be inclusive of supply, erection and dismantling of staging and scaffolding and other temporary arrangements wherever required for the purpose of assembly, erection and launching of girders. The launching has to be done as per scheme supplied by the contractor and approved by Engineer-in-Charge. The contractor has to bring all the materials after doing priming coat of etch primer (as per IS:5666) one coat of Zinc Chrome primer (as per IS:104) to the site. After transportation, assembling and erection at site two coats of finishing coat with aluminum paint as per IS:IS:2339 to be applied after touching up the priming coat if damaged in transit. No extra payment will be made for idling of men and machineries.</p>		
	<p>Note:-This rate is only valid for the BOWSTRING TYPE structural steel girder for execution of 60 meter span over river with floating arrangements of Barges of suitable capacity to meet the requirements of Bridges over National Waterways as declared by Inland Waterways Authority of India (IWAI).</p>		

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ANALYSIS OF RATES 2016 (POST GST)						
	Chapter XXIV: BRIDGE WORKS					
	Item No 14 (New item by Inclusion)					
Sl. No.	Description	Quantity required	Unit	Rate RS. P	Amount RS. P	Remarks
1	2	3	4	5	6	7

Fabrication, Erection, Launching of BOW STRING Steel Girder: - Supply, Fabrication & Launching of BOWSTRING TYPE structural steel girder with supply & fixing shear stud for River bridge as per the RDSO approved Drawing No. RDSO/B-10411/1 TO 10411/9 and using contractors supply of 60mm clear span as per RDSO specification and standard drawing and using contractors supply of steel for fabrication of Arch girder, Hangers, Edge beam, Cross beam, Tie beam, diaphragm etc. connected with main girder should confirm to UT tested structural steel, E-250(BR-410), e-350(Fe-490B)E-410C(Fe-540) grade (weldable quality) steel from SAIL/TATA/RINL/TISCO as per IS 2062/2011 grade "B" fully killed along with the proper test report, both physical, chemical and fabrication of steel girder at work shop as per relevant IRC/IRS codes and specification using submerged arc welding/CO2 weldings rods/CO2 gas, Bolts & nuts, shear stud and rivets for connection of splicing joints using high tensile steel/mild steel materials and as per IS 1149/1148 and for inspection as per IS 822, the fabricated girder to be transported to bridge site with contractors own trailer/truck, labour, cranes etc. at the cost of firm fabrication is carried out in the work shop complete assembled at site on a firm ground with suitable platform using Crane of suitable capacity, labour etc., sleeper rail near crane for assembling, before launching as directed by the Engineer-in-Charge with Launching the fabricated BOWSTRING type steel girder in the span of River with floating arrangements of Barges of suitable capacity with the proper safety with contractors own method and arrangements approved by Engineer-in-Charge up to level of pier cap & fixing in position over the suitable bearing duly arranging temporary supporting arrangements, suitable steel cribs, Rail, wooden block, lighting arrangements, if required labour, crane, crew consumables, erection tools like power jack of suitable capacity, templates, fixtures equipments and plants etc., complete as directed by Engineer-in-Charge. Any additional stagings for the purpose of launching and fabrication needed during the course of work will have to be borne by contractor at his own cost. The rate shall also be inclusive of transportation of fabricated girder parts to site by contractor's own means at his own cost. The rate shall also be inclusive of cold straightening of deformed and bent girder parts before their assembling and other ancillary steel structures where ever necessary for proper level and alignment. The rate shall be inclusive of supply,

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erection and dismantling of staging and scaffolding and other temporary arrangements wherever required for the purpose of assembly, erection and launching of girders. The launching has to be done as per scheme supplied by the contractor and approved by Engineer-in-Charge. The contractor has to bring all the materials after doing priming coat of etch primer (as per IS: 5666) one coat of Zinc Chrome primer (as per IS: 104) to the site. After transportation, assembling and erection at site two coats of finishing coat with aluminium paint as per IS: 2339 to be applied after touching up the priming coat if damaged in transit. No extra payment will be made for idling of men and machineries.

Note:- This rate is only valid for the BOWSTRING TYPE structural steel girder for execution of 60 meter span over tidal river with floating arrangements of Barges of suitable capacity to meet the requirements of Bridges over National Waterways as declared by Inland Waterways Authority of India (IWAI)

1. Fabrication of Bow-String Girder, Taking output = 330 MT

A. Materials :

i.)	Structural Steel confirming to IS 2062:2006 E350 (Fe490/E410) including 1% Burning loss and 9% wastage	363	MT	38520	13982760
	Total Cost For 330 MT				13982760.00
	Cost per MT (For Raw Materials only)				42372.00

ii)	Transportation from Steel yard to Fabrication Yard (From Tangi at Khurda District to factory at Cuttack)	1.00	MT	290	290.00
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B. Shop Fabrication charges

iii)	Fabrication including Cost of consumables, temporary hardwares, tools & tackles, all required machineries and handling equipment as may be required to complete the work, all kinds of Manpower, power, excluding blasting and painting.	1.00	MT	38100	38100.00
	Total Materials				80762.00

2.. Launching of Bow-String Girder, Taking output = 330 MT

A. Materials

i)	Structural Steel confirming to IS 2062:2006 E250 (Fe490/E410) For Temporary works including fabrication cost Rs 37080.00/MT and transportation Rs20000.00/MT.)	437	MT	57080.00	24943960.00
	Rail	56	MT	47100.00	2637600.00
	Total cost for 2970 MT				27581560.00
	Cost per MT				9286.72

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ii) —	Wooden Block	5000	Cft.	1400	7000000.00
	Total cost for 2970 MT				7000000.00
	Cost per MT				2356.00
	Total Cost of staging materials (i)+(ii)=				11642.72

B. Equipment (Rental Basis) for Erection, Shifting and Launching.

i)	Jack with power pack of lifting capacity 200 MT	2720	hour	217.39	591300.80
	85 days @ 8 working hours / day =680 hours / each Jack For 4 Jacks Working hour = 4x680=2720 hours				
ii)	Jack with power pack of lifting capacity 40 MT	850	Each day	1011.3	859605.00
	For 10 Jacks for 85 days = 850 days				
iii)	Crawler of 18 MT capacity	1530	hour	1493.04	2284351.20
	85 days @ 9 working hours / day =765 hours / each For 2 Crawlers Working hour =2x765=1530 hours				
iv)	DG Set of 125 KVA capacity	2040	hour	786.96	1605398.40
	85 days @12 working hours / day =1020 hours / each For 2DG Sets Working hour =2x1020=2040 hours				
v)	DG Set of 33 KVA capacity	1020	hour	208.70	212874.00
	85 days @12 working hours / day =1020 hours / each For 1 DG Set Working hour =1x1020=1020 hours				
vi)	DG Set of 250 KVA capacity	1020	hour	978.26	997825.20
	85 days @12 working hours / day =1020 hours / each For 1 DG Set Working hour =1x1020=1020 hours				
	Total Cost For 330 MT				6551354.60
	Cost per MT (a)				19852.59

i)	Mig Machine of 400amps .(for 3 months)	2	each	3375	6750
ii)	Arc machine of 400 amps cap.(for 3 months)	6	each	1800	10800
iii)	Hand cutting set .(for 3 months)	2	each	150	300
iv)	Grinding machine 7" .(for 3 months)	3	each	262.5	787.5
v)	Grinding machine 5" .(for 3 months)	2	each	168.75	337.5
vi)	Core cutter magnet drill machine .(for 3 months)	2	each	1500	3000
	Total Cost For 330 MT				21975
	Cost per MT (b)				66.59
	Total Cost per MT =(a)+(b) =				19919.18

C. Labour For Erection and Launching

Super Highly Skilled Fitter	1785	each	550.00	981750.00
Super Highly Skilled Cutter	255	each	600.00	153000.00
Super Highly Skilled Welder	1020	each	650.00	663000.00
Skilled Rigger	3060	each	253.50	775710.00
Semi-Skilled Khalasi	3060	each	233.50	714510.00
Unskilled labour	2295	each	213.50	489982.50
Semi-Skilled Grinder	637.5	each	233.50	148856.25
Semi-Skilled Driller	255	each	233.50	59542.50

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Special Highly Skilled Sarang	510	each	600.00	306000.00
Total Cost For 330 MT				4292351.25
Cost per MT				13007.13

D. Consumable :

Cost of consumable materials electrode, welding cable (copper & aluminium), welding holder, Oxygen, LPG etc. excluding Diesel = 6% on (A+B+C)		MT		2686.91
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E. Floating arrangement :

i)	Hire charge of Barge of Size 62.8m x 10.6m x 2.1m (Rate of 2014-15 updated to 2017-18 @5% per annum.)	540	Days	57465.66	31031457.82
ii)	Running Charges	1080	Per hr.	5730	6188400.00
iii)	Arrangement of Spud for Safety		LS.		1000000.00
	Total Cost For 2970 MT				38219857.82
	Cost per MT				12868.64
	Total for Launching of Bow-String Girder				60124.58

3. Shear stud

Details: Studs fabricate on cross girder.
 No. of cross girder in 63.4m span @2.067 m.
 =32 nos. (as per Bow String Girder Drawing)
 Studs centre to centre =75mm B/W
 length of cross girder =12.0m.
 No. of studs in length =2 x12.0m/75mm x 32 =
 10240 nos.
 this is for 330 MT

A)	Material including Fixing Stud	10240	No.	148	1515520
B)	Machineries for Total Job(9 span) Hire Charges of 500 KVA DG set	6	month	200000	1200000
	Cost for each span =				133333.3
C)	Consumable per Span Diesel per hour 40 litres @ 6 hour / day for 30 days Total Cost involved for one span (A+B+C) =	7200	Each litre	60	432000
	Cost per MT =				2080853.3
	Sub Total (1)+(2)+(3) =				6305.62
	Overhead charges @ 7.5%				147192.20
	Contractor's Profit @ 7.5%				11039.42
	Total Amount				11039.42
	Labour cess @1%				169271.04
	Total Amount				170963.75

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**ADDENDUM TO CHAPTER-I OF BASIC RATE OF MATERIALS OF SCHEDULE OF
RATES-2006 FOR SCHEDULE OF RATES-2014 AS ITEM NO.-176.**

Sl. No.	Name of Items	Unit	Cuttack (Undivided District) (Rs.)	Puri (Undivided District) (Rs.)
1	2	3	4	5
176.	Aerated Autoclaved Fly ash (AAC) blocks of different sizes having compressive strength not less than 4N/mm ² conforming to IS:2185 (Part-3)-2005 and IS:6441-1972 including all taxes, royalty and excluding conveyance (Price at Bhubaneswar).	1 Cum	3120.00	3120.00

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**ADDENDUM TO CHAPTER-X OF MASONRY BRICK WORK OF SCHEDULE OF RATES-
2006 FOR SCHEDULE OF RATES-2014 AS ITEM NO.-11.**

Sl. No.	Description	Unit	Rate
1	2	3	4
11.	Aerated Autoclaved Fly ash (AAC) bricks / masonry in filler / inside walls using A.A.C. blocks of size 625 mm x 200 mm x200 mm having compressive strength not less than 4N / mm ² conforming to IS:2185 (Part-3)-2005 and IS: 6441-1972 in cement mortar of mix (1:6) and screened and washed sand for mortar for use in superstructure including splays cutting, circular moulding, corbelling, chamfering and similar such type of works, watering and curing etc. including cost, conveyance, royalty, loading, unloading and taxes of all materials, cost of all labour, scaffolding, sundries, T&P required for the works etc. complete in all respect as directed by the Engineer-in-Charge.	1 Cum	Rate to be derived as per Analysis of Rate of respective District.

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ADDENDUM TO CHAPTER - VI OF MASONRY BRICK WORK OF ANALYSIS OF RATE -2006 FOR 2014 AS ITEM NO.11
(ANALYSIS OF RATE FOR BHUBANESWAR)

Sl No.	Description	Quantity	Unit	Rate	Amount	Remarks
1	2	3	4	5	6	7

11 Aerated Autoclaved Fly ash bricks/masonry in filler/inside walls using A.A.C blocks of size 625mmx200mm x200mm having compressive strength not less than 4N/mm² conforming to IS:2185 (Part-3)-2005 and IS:6441-1972 in cement mortar of mix (1:6) and screened and washed sand for mortar for use in superstructure including splays cutting, circular moulding, corbelling, chamfering and similar such type of works, watering and curing etc. including cost, conveyance, royalty, loading, unloading and taxes of all materials, cost of all labour, scaffolding, sundries, T&P required for the works etc. complete in all respect as directed by the Engineer-in-Charge.

Data for 1 cum/At Bhubaneswar (in F &P)

(A) Materials

Aerated Autoclaved Fly ash Block (625mmx200mm x200mm)

40 nos.=1 cum	Using 38 nos. in 1cum masonry	1	No.	@	3120.00	₹.	2964.00
Sand		0.09	Cum.	@	49.00	₹.	4.41
Cement		0.22	Qtl.	@	600.40	₹.	132.09
						₹.	3100.50

(B) Labour

Mason Special		0.35	Nos./Day	@	260.00	₹.	91.00
Man mulia including watering & curing		0.30	Nos./Day	@	200.00	₹.	60.00
Women mulia		0.30	Nos./Day	@	200.00	₹.	60.00
						₹.	211.00
(C) Overhead Charges @ 7.5%						₹.	248.36
(D) Overhead Charges @ 7.5%						₹.	248.36

(E) Carriage & Royalty

(i) AAC Blocks (625mmx200mm x200mm)-Delivered at BBSR		1	Nos.	@	0	₹.	0
(ii) Sand (within 11 km lead)		0.09	Cum.	@	246.6	₹.	22.19
(iii) Cement (Unloading)		0.22	Qtl.	@	5.5	₹.	1.21
						₹.	23.40
						₹.	3831.62
Add for Superstructure work				@	33.00	₹.	33.00
						₹.	3864.62
Add 1% labour cess						₹.	38.65
						₹.	3903.27
				Total		₹.	3903.27

Note:-The above analysis is an example for the item of work for Bhubaneswar in Khurda District. Similarly the analysis may be made for other places of work considering the rates of materials of their respective District

J. J. J.