Government of Nepal
Ministry of Federal Affairs and Local Development
Department of Local Infrastructure and Agricultural Roads

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra
Swiss Agency for Development and Cooperation SDC

Short Span Trail Bridge Standard

Suspended Type

Steel & Construction Drawings

Volume III: Standard Drawings

HELVETAS Swiss Intercooperation NEPAL

Third Edition: May 2017

Trail Bridge Support Unit

FOREWORD

Congruent with HMG's Policy and the Decentralization Act shall the Central Government focus on policy matters, as well as issuing and monitoring norms and standards and shall the Local Governments focus on the implementation thereof.

With this division of mandates, a demarcation policy as well as two technical manuals are DoLIDAR's prime tools for harnessing the trail bridge sector. The first manual on Long Span Trail Bridges (LTSB), this manual on Short Span Trail Bridges (SSTB) together with the demarcation policy form the single most important accomplishment for said sector.

Niranjan P. Chalise
Director General
DoLIDAR March 2002

The Trail Bridge Section (TBS formerly Suspension Bridge Division, SBD) of the Department of Local Infrastructure and Agricultural Roads (DoLIDAR) is proud on its long-term collaboration with its Swiss Partners represented by Helvetas for project execution and SDC being the funding agent. The collaboration dates back to 1972 and has resulted in the construction of over 500 trail bridges primarily on Main Trails.

In 1989, HMG and Helvetas initiated a new project "Bridge Building at the Local Level (BBLL)" based on indigenous technologies that maximized local resources while minimizing the environmental impact. In its original form, Communities take the lead building their bridges off the main trail according to procedures developed by BBLL. The demand for these bridges that are generally of a short span has proven to be very high resulting in the construction of over 1000 "BBLL bridges" till today. Meanwhile, Local Governments have commenced a vital role supporting the Communities, which will eventually yield BBLL sustainable.

Encouraged by BBLL's success, SBD carefully assessed the situation and decided to develop the Short Span Trail Bridge (SSTB) Handbook for application by any bridge building agent. This new Manual is intended for national application complementing the ”SBD Standard Design" that primarily deals with Long Span Trail Bridges (LBST). The development of the SSTB-Manual was spearheaded by Helvetas with relentless inputs by Robi Groeli.

Meanwhile, a demarcation policy has been put in place, indicating the applications by the two bridge types, LSTB and SSTB. The Demarcation Policy essentially puts down a cut off point of 120 m span below which SSTB norms apply and above which LSTB norms apply. The reader is referred to the Policy for the finer details of the applications.

I, on behalf of DoLIDAR/TBS, acknowledge the valuable efforts put up by the project team and extend my sincere thanks to all those who were involved in the preparation of this Hand Book.

Neeraj Shah
Senior Divisional Engineer
DoLIDAR/TBS January 2002

Despite the rugged topography of the Himalayan State of Nepal, the people established and maintained a traditional trail network for centuries. Footpaths and mule trails are the lifelines for the exchange of goods, the sick going to health posts and the children going to school. Despite great efforts in road construction, a large part of the hill population will depend on the traditional trail network for decades to come.

The Himalayan drainage system consists of countless rivers, which divide the hill areas into many micro economic areas. River crossings are the critical links for roads as well as for trails. For bridging shorter spans, the Nepalese have developed in numerous Regions simple, yet remarkable local techniques. This Handbook is an attempt to standardize the indigenous local trail bridge types for span of up to 120 meters, thereby making them conform to modern engineering practices. It encompasses the practical experience made under HELVETAS' local trail bridge programme named "Bridge Building at the Local Level," BBLL, and the Suspension Bridge Project SBP under HMG's Suspension Bridge Division SBD. The Handbook named "Short Span Trail Bridge Standard" is complementary to SBD's "Long Span Trail Bridge Standard" which is applicable for bridges exceeding 120 meter span.

We acknowledge with thanks the efforts provided by the project teams of HMG's Trail Bridge Section and Helvetas under the leadership of Robi Groeli and Gyanendra Rajbhandari. Om B. Khadka was responsible to convert all the standard drawings, sketches and photos onto computer and also for all the desktop publishing.

Our sincere thanks go to all persons who have been involved in the preparation of this Handbook and forwarded their valuable comments and suggestions.
We hope that this long awaited Handbook will be widely used by technicians appointed to construct a pedestrian trail bridge of limited span of up to 120 meters.

HELVETAS Nepal, Swiss Association for International Cooperation
P.O. Box 688 Kathmandu, Nepal January 2002

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Department of Local Infrastructure Development and Agricultural Roads / DoLIDAR
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The views, interpretations, and calculation in this Handbook are the author's and are not attributable to SBD and Helvetas. Anyone using this manual should verify the calculations according to the specific conditions of the site on which the bridges are to be constructed.

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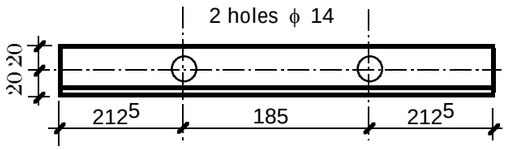
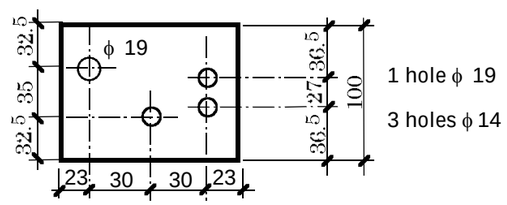
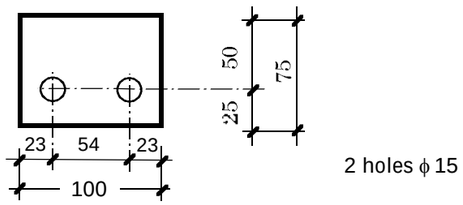
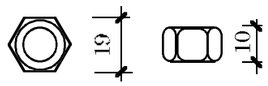
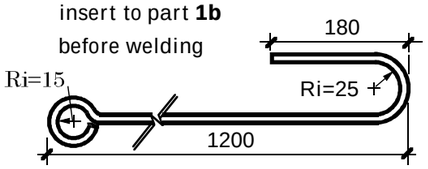
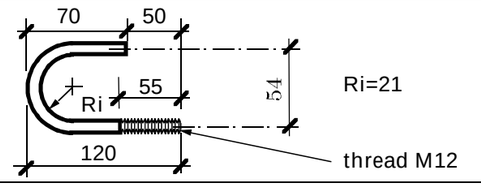
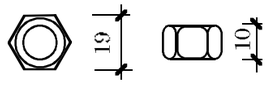
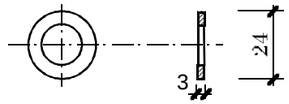
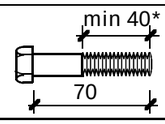
Steel Drawings

Table of Contents

Construction Drawings

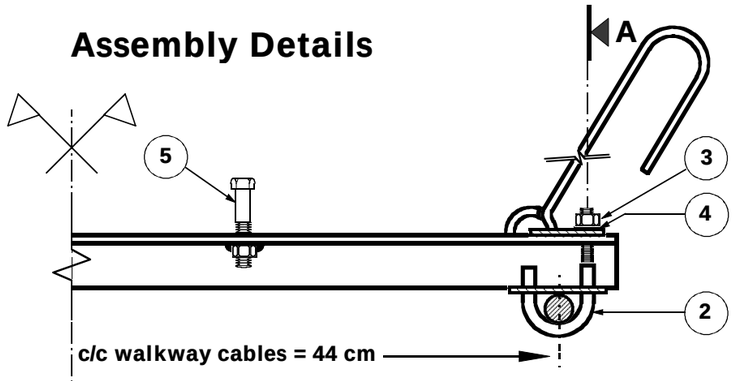
Part No.		Section [mm]	Quantity [nos]	Working Drawing	Weight kg / pc	Weight total kg
1	a	**Angle 40/40/5 610**	**2**		**1.83**	**3.66B**
	b	**Flat 100/6 -106**	**2**		**0.50**	**1.00B**
	c	**Flat 100/6 -75**	**2**		**0.35**	**0.70B**
	d	**Hex Nut M12 IS 1363**	**4**		**0.015**	**0.06C**
	e	**Plain Rod ϕ 8 -1480**	**2**		**0.58**	**1.16B**
2		**Rod (J - Hook) ϕ 12 - 209**	**2.1**		**0.19**	**0.40B**
3		**Hex Nut M 12 IS 1363**	**2.1**		**0.015**	**0.03C**
4		**Plain Washer ϕ 13**	**6.3**		**0.005**	**0.03C**
5		**Hex Bolt M 12x70 IS 1363**	**4.2**		**0.08**	**0.34C**

IS 1363, hot dip galvanized acc. to: IS 1367, Part XIII

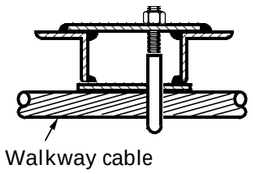
A = 7.60 kg **Transportation Weight** **B + C + 0.22 kg**	**B = 6.92 kg** **Total Structural Steel =** **Steel to be galvanized**	**C = 0.46 kg** **Nuts, Bolts, Washers**

All steelparts must be **hot dip galvanized** according to IS 2629 & 2633, min thickness = 80 μ m

Assembly Details

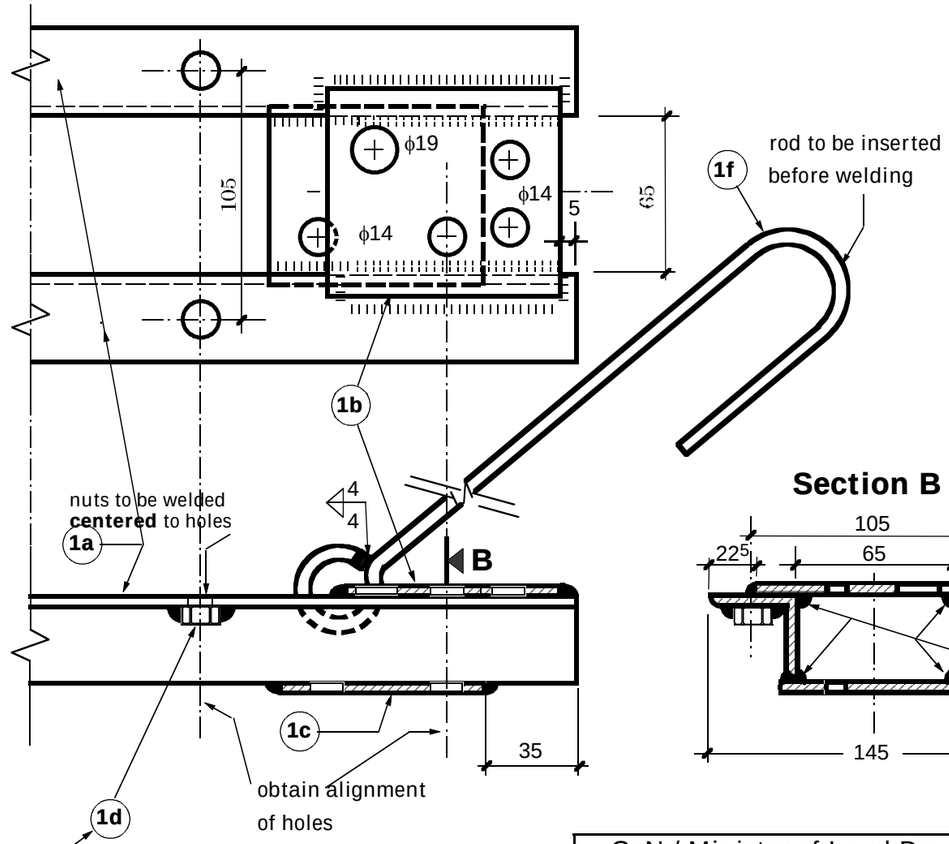


Section A



Welding Detail of Part No. 1

For obtaining uniformity, the use of templates and jigs is mandatory



Section B

Required Nos of Crossbeams per bridge:
= Span in [m]

All structural steel must comply with:
IS 226 - 1975 for structural steel
IS 800 - 1984 for general construction in steel

For Delivery:
- The suspenders shall be folded together with the crossbeam and to be bound with a binding wire
- All sharp corners are to be grinded off

GoN / Ministry of Local Development
DoLIDAR / Short SpanTrail Bridge Standard

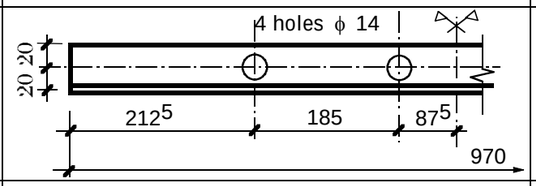
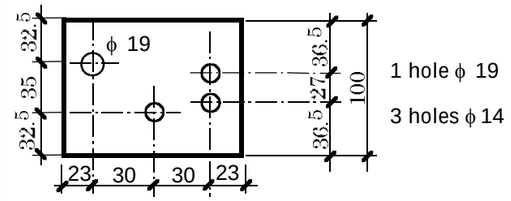
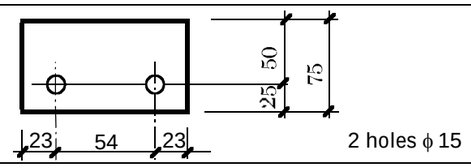
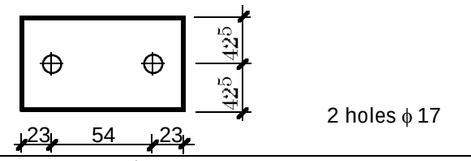
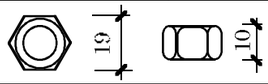
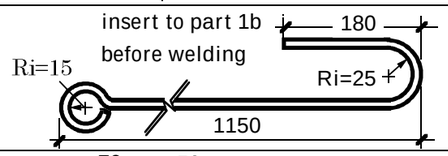
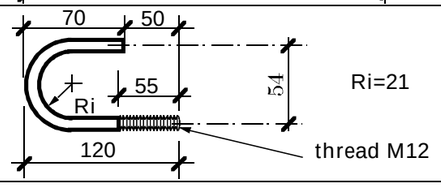
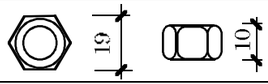
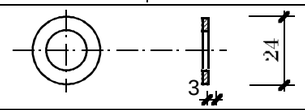
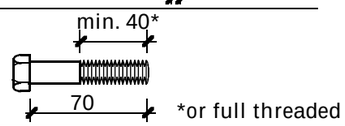
Bridge Name:
No: Span:

Steel Drawing:

Crossbeam for Suspended Bridge for 2 Walkway Cables
for walkway width = 34 cm

*Nos of Crossbeam required: _____

Date : August1, 2016 **Drawing No. 01D**

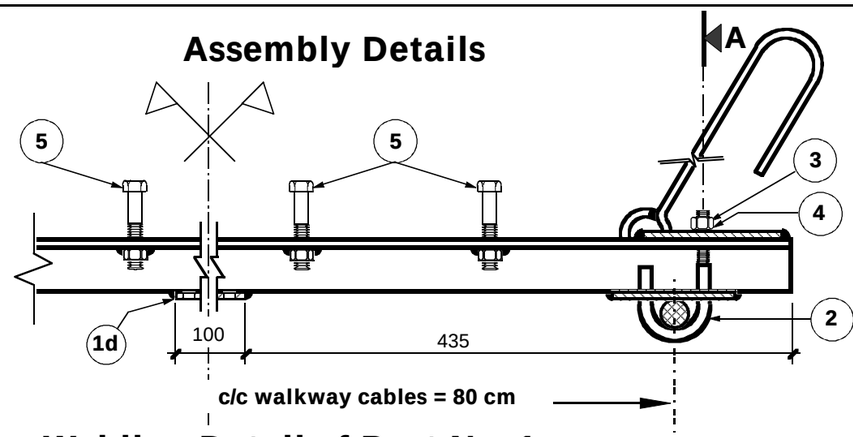
Part No.		Section [mm]	Quantity [nos]	Working Drawing	Weight kg / pc	Weight total kg
1	a	**Angle 40/40/5 970**	**2**		**2.91**	**5.82B**
	b	**Flat 100/6 -106**	**2**		**0.50**	**1.00B**
	c	**Flat 100/6 -75**	**2**		**0.35**	**0.70B**
	d	**Flat 100/6 -85**	**1**		**0.40**	**0.40B**
	e	**Hex Nut M 12 IS 1363**	**8**		**0.015**	**0.12C**
	f	**Plain Rod ϕ 8 -1430**	**2**		**0.56**	**1.12B**
2		**Rod (J - Hook) ϕ 12 - 209**	**2.1**		**0.19**	**0.40B**
3		**Hex Nut M 12 IS 1363**	**2.1**		**0.015**	**0.03C**
4		**Plain Washer ϕ 13**	**10.5**		**0.005**	**0.05C**
5		**Hex Bolt M 12x70 IS 1363**	**8.4**		**0.08**	**0.67C**

IS 1363, hot dip galvanized acc.to: IS 1367, Part XIII

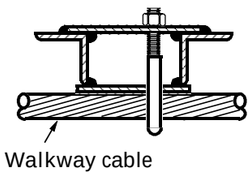
A = 10.60 kg	B = 9.44 kg	C = 0.88 kg
Transportation Weight B + C + 0.28 kg	**Total Structural Steel = Steel to be galvanized**	**Nuts, Bolts, Washers**

All steelparts must be **hot dip galvanized** according to IS 2629 & 2633, min thickness = 80 μ m

Assembly Details

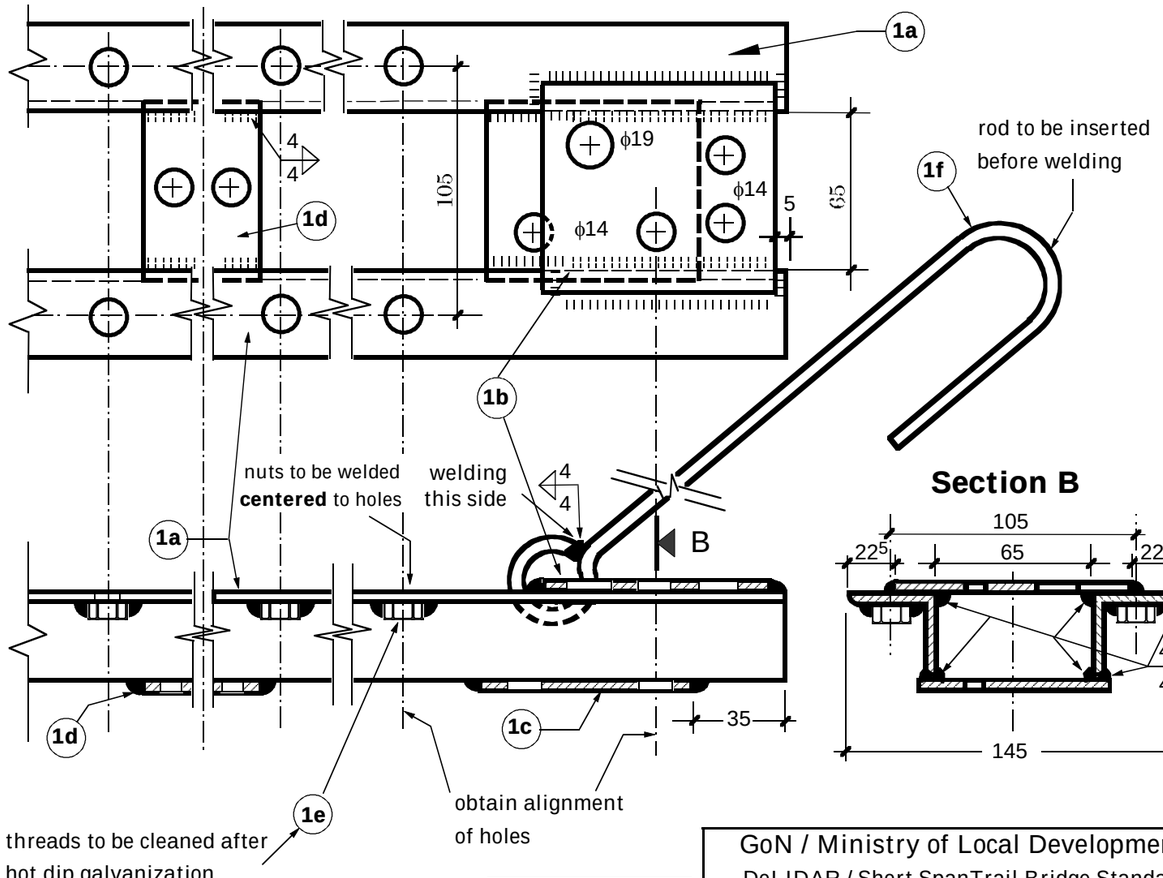


Section A



Welding Detail of Part No. 1

For obtaining uniformity, the use of templates and jigs is mandatory



Section B

All structural steel must comply with:
IS 226 - 1975 for structural steel
IS 800 - 1984 for general construction in steel

For Delivery:
- The suspenders shall be folded together with the crossbeam and to be bound with a binding wire
- Fit one hex nut and one washer to each J - hook.
- All sharp corners are to be grinded off

Required Nos of Crossbeams per bridge:
= Span in [m]

GoN / Ministry of Local Development
DoLIDAR / Short SpanTrail Bridge Standard

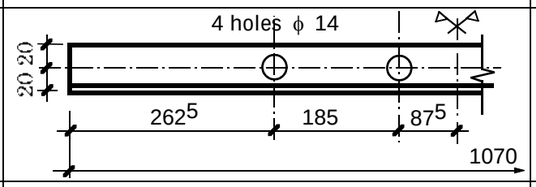
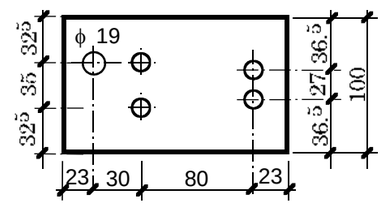
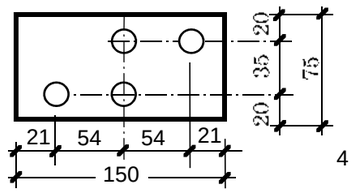
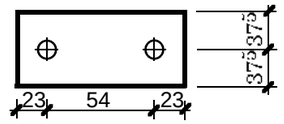
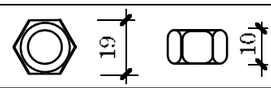
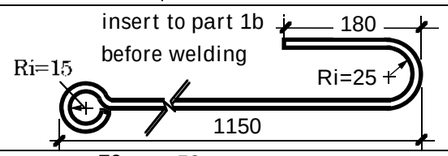
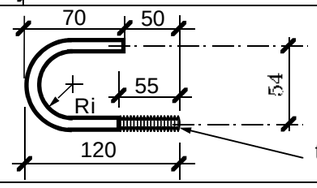
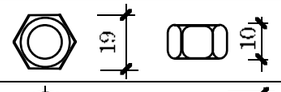
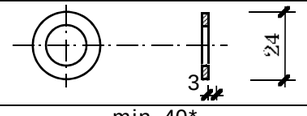
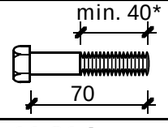
Bridge Name:
No: Span:

Steel Drawing:

Crossbeam for Suspended Bridge for 2 Walkway Cables
for walkway width = 70 cm

*Nos of Crossbeam required: ----------

Date : August1, 2016 **Drawing No. 02D**

Part No.		Section [mm]	Quantity [nos]	Working Drawing	Weight kg / pc	Weight total kg
1	a	Angle 40/40/5 1070	2		3.21	6.42[B]
	b	Flat 100/6 -156	2	 1 hole ϕ 19 4 holes ϕ 14	0.73	1.46[B]
	c	Flat 75/6 -150	2	 4 holes ϕ 15	0.53	1.06[B]
	d	Flat 75/6 -100	1	 2 holes ϕ 17	0.35	0.35[B]
	e	Hex Nut M 12 IS 1363	8	 to be welded to part **1a**	0.015	0.12[C]
	f	Plain Rod ϕ 8 -1430	2		0.56	1.12[B]
2		Rod (J - Hook) ϕ 12 - 209	4.2	 Ri=21 thread M12	0.19	0.80[B]
3		Hex Nut M 12 IS 1363	4.2		0.015	0.06[C]
4		Plain Washer ϕ 13	12.6		0.005	0.06[C]
5		Hex Bolt M 12x70 IS 1363	8.4	 *or full threaded	0.08	0.67[C]

IS 1363, hot dip galvanized acc. to: IS 1367, Part XIII

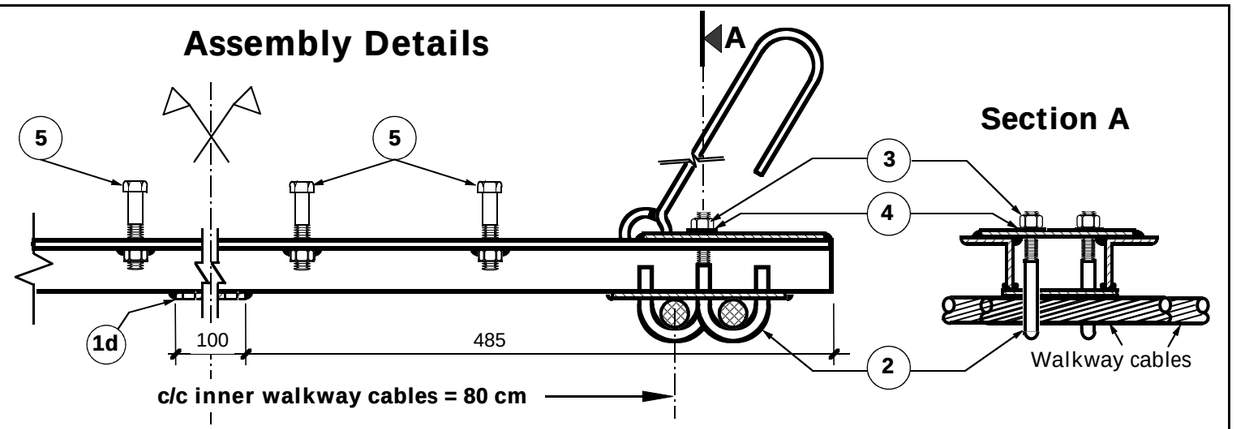
A = 12.45 kg
Transportation Weight
B + C + 0.32 kg

B = 11.21 kg
Total Structural Steel =
Steel to be galvanized

C = 0.92 kg
Nuts, Bolts, Washers

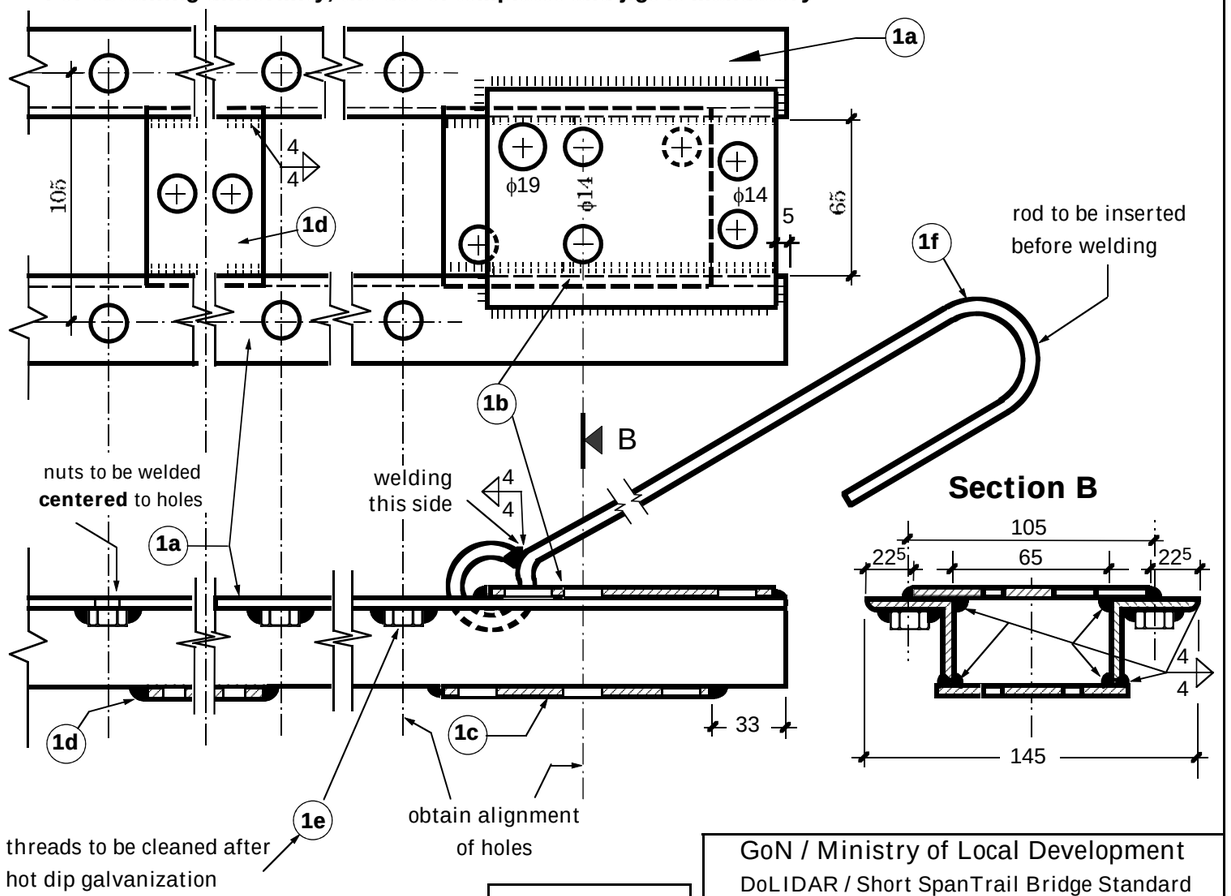
All steelparts must be **hot dip galvanized** according to IS 2629 & 2633, min thickness = 80 μm

Assembly Details



Welding Detail of Part No. 1

For obtaining uniformity, the use of templates and jigs is mandatory



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IS 226 - 1975 for structural steel
IS 800 - 1984 for general construction in steel

For Delivery:
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- Fit one hex nut and one washer to each J - hook.
- All sharp corners are to be grinded off

Required Nos of Crossbeams per bridge:
= Span in [m]

GoN / Ministry of Local Development
DoLIDAR / Short SpanTrail Bridge Standard

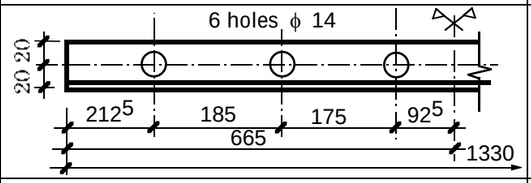
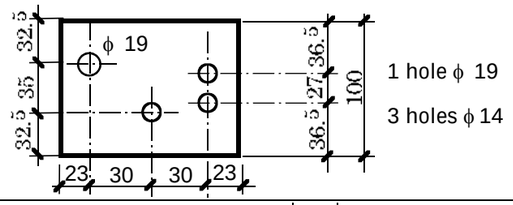
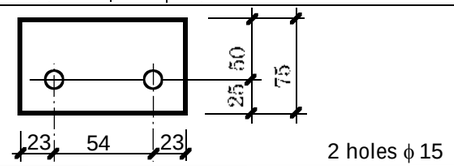
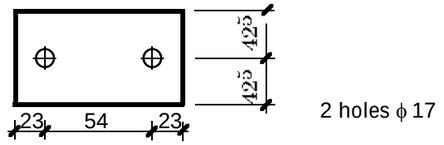
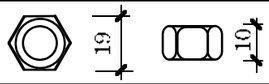
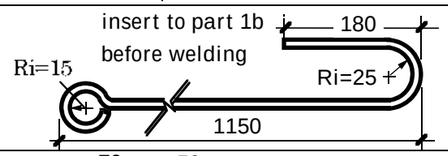
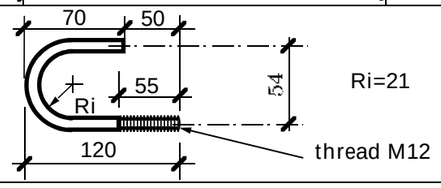
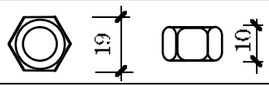
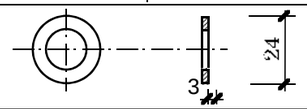
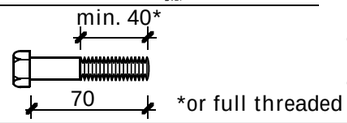
Bridge Name:
No: Span:

Steel Drawing:

Crossbeam for Suspended Bridge for 4 Walkway Cables
for walkway width = 70 cm

*Nos of Crossbeam required: ----------

Date : August1, 2016 **Drawing No. 02D4**

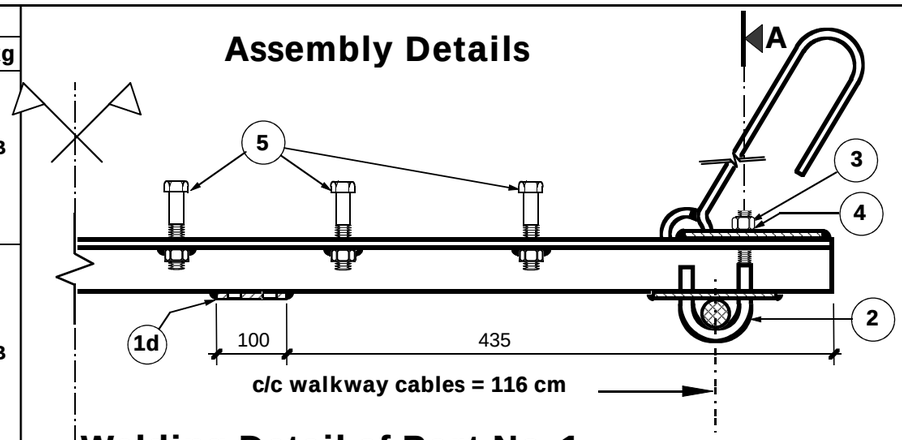
Part No.		Section [mm]	Quantity [nos]	Working Drawing	Weight kg / pc	Weight total kg
1	a	**Angle 40/40/5 1330**	**2**		**3.99**	**7.98B**
	b	**Flat 100/6 -106**	**2**		**0.50**	**1.00B**
	c	**Flat 100/6 -75**	**2**		**0.35**	**0.70B**
	d	**Flat 100/6 -85**	**2**		**0.40**	**0.80B**
	e	**Hex Nut M 12 IS 1363**	**12**		**0.015**	**0.18C**
	f	**Plain Rod ϕ 8 -1430**	**2**		**0.56**	**1.12B**
2		**Rod (J - Hook) ϕ 12 - 209**	**2.1**		**0.19**	**0.40B**
3		**Hex Nut M 12 IS 1363**	**2.1**		**0.015**	**0.03C**
4		**Plain Washer ϕ 13**	**14.7**		**0.005**	**0.07C**
5		**Hex Bolt M 12x70 IS 1363**	**12.6**		**0.08**	**1.01C**

hot dip galvanized acc. to: IS 1363, IS 1367, Part XIII

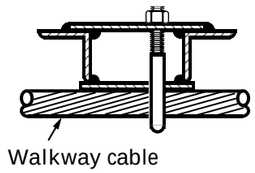
A = 13.64 kg **Transportation Weight** **B + C + 0.35 kg**	**B = 12.00 kg** **Total Structural Steel =** **Steel to be galvanized**	**C = 1.29 kg** **Nuts, Bolts, Washers**

All steelparts must be **hot dip galvanized** according to IS 2629 & 2633, min thickness = 80 μm

Assembly Details

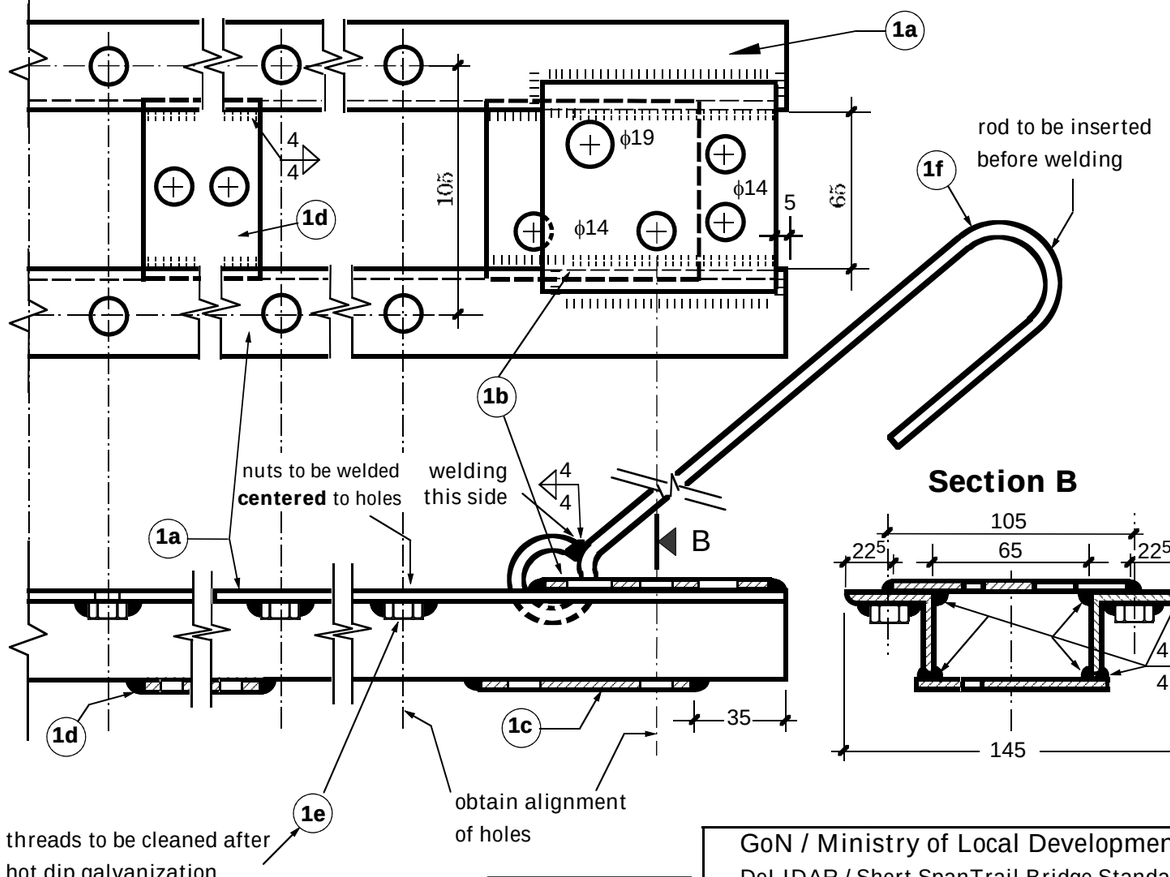


Section A



Welding Detail of Part No. 1

For obtaining uniformity, the use of templates and jigs is mandatory



Section B

All structural steel must comply with:
IS 226 - 1975 for structural steel
IS 800 - 1984 for general construction in steel

For Delivery:
- The suspenders shall be folded together with the crossbeam and to be bound with a binding wire
- Fit one hex nut and one washer to each J - hook.
- All sharp corners are to be grinded off

Required Nos of Crossbeams per bridge:
= Span in [m]

GoN / Ministry of Local Development
DoLIDAR / Short SpanTrail Bridge Standard

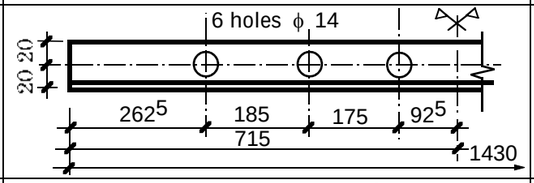
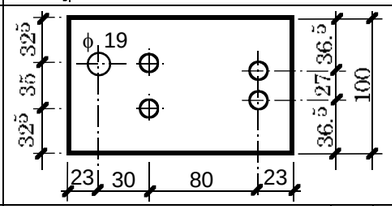
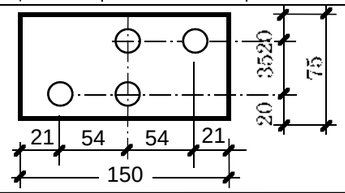
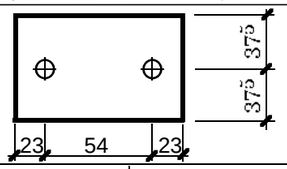
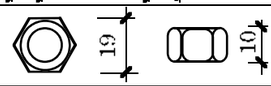
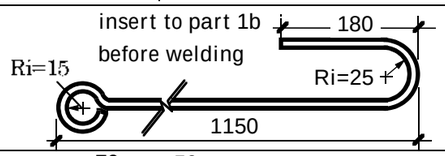
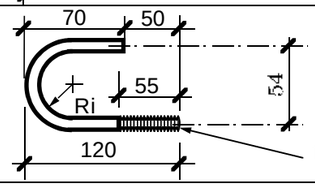
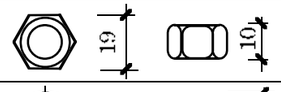
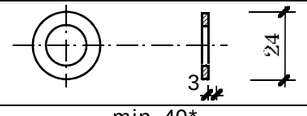
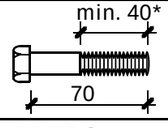
Bridge Name:
No: Span:

Steel Drawing:

Crossbeam for Suspended Bridge for 2 Walkway Cables
for walkway width = 106 cm

*Nos of Crossbeam required: ----------

Date : August1, 2016 **Drawing No. 03D**

Part No.		Section [mm]	Quantity [nos]	Working Drawing	Weight kg / pc	Weight total kg
1	a	Angle 40/40/5 1430	2		4.29	8.58[B]
	b	Flat 100/6 -156	2	 1 hole ϕ 19 4 holes ϕ 14	0.73	1.46[B]
	c	Flat 75/6 -150	2	 4 holes ϕ 15	0.53	1.06[B]
	d	Flat 75/6 -100	2	 2 holes ϕ 17	0.35	0.70[B]
	e	Hex Nut M 12 IS 1363	12	 to be welded to part **1a**	0.015	0.18[C]
	f	Plain Rod ϕ 8 -1430	2		0.56	1.12[B]
2		Rod (J - Hook) ϕ 12 - 209	4.2	 Ri=21 thread M12	0.19	0.80[B]
3		Hex Nut M 12 IS 1363	4.2		0.015	0.06[C]
4		Plain Washer ϕ 13	16.8	 IS 1363, hot dip galvanized acc. to: IS 1367, Part XIII	0.005	0.08[C]
5		Hex Bolt M 12x70 IS 1363	12.6	 *or full threaded	0.08	1.01[C]

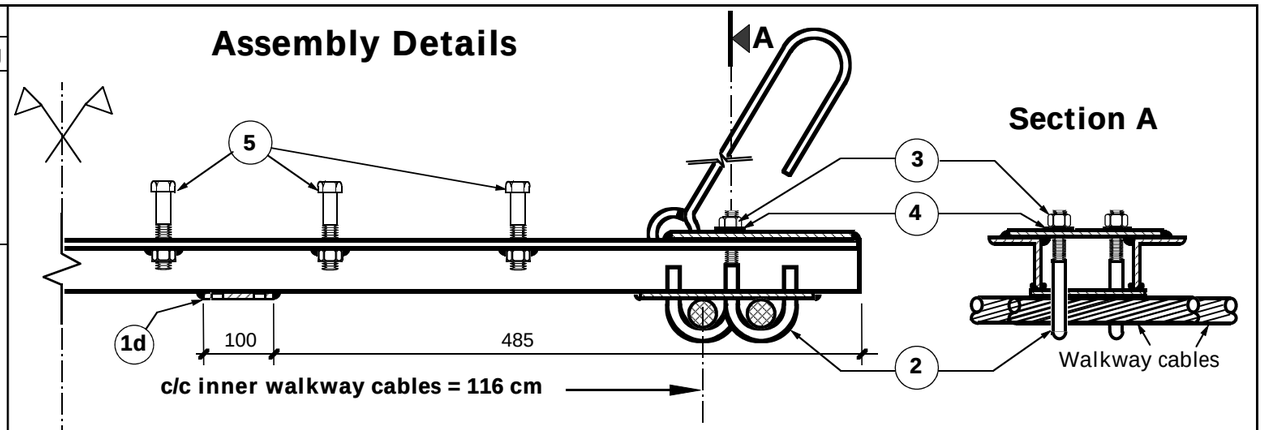
A = 15.40 kg
Transportation Weight
B + C + 0.35 kg

B = 13.72 kg
Total Structural Steel =
Steel to be galvanized

C = 1.34 kg
Nuts, Bolts, Washers

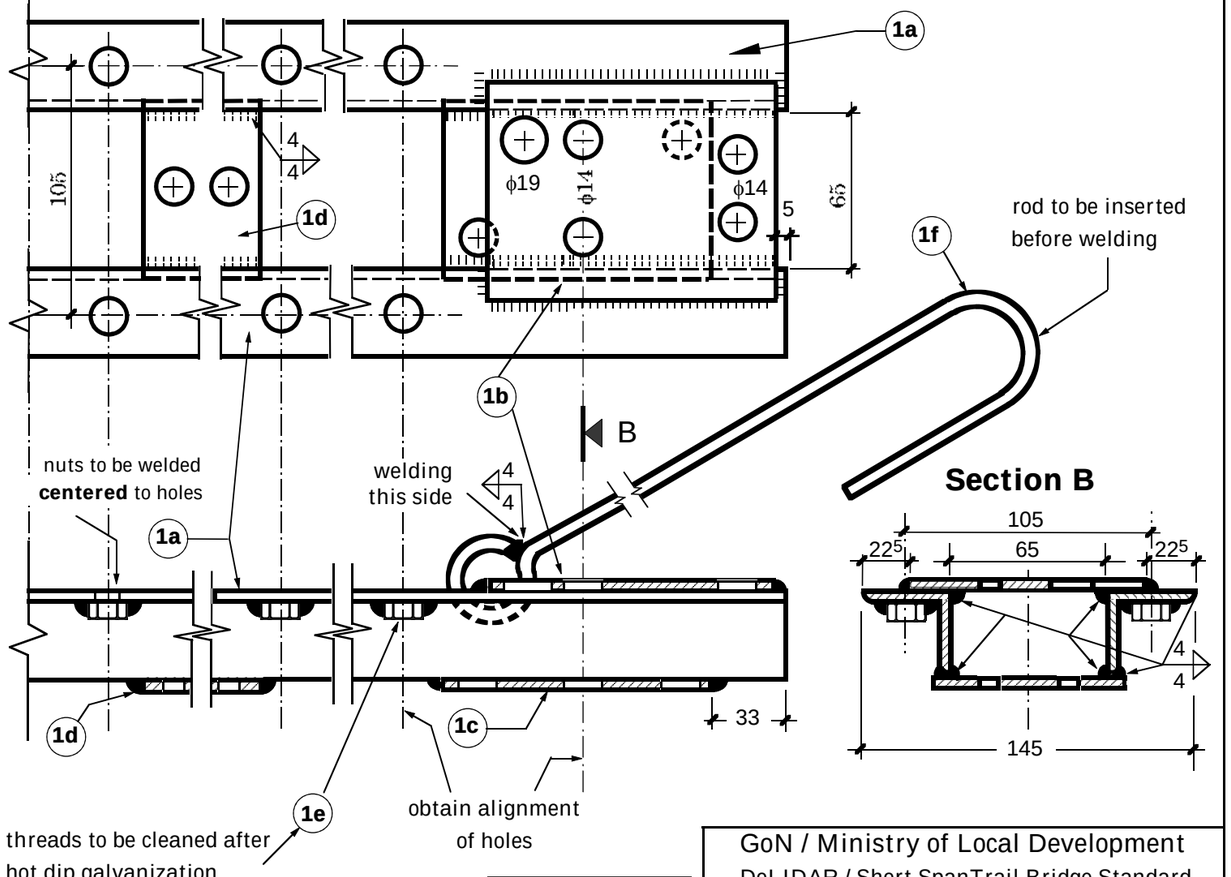
All steelparts must be **hot dip galvanized** according to IS 2629 & 2633, min thickness = 80 μm

Assembly Details



Welding Detail of Part No. 1

For obtaining uniformity, the use of templates and jigs is mandatory



All structural steel must comply with:
IS 226 - 1975 for structural steel
IS 800 - 1984 for general construction in steel

For Delivery:
- The suspenders shall be folded together with the crossbeam and to be bound with a binding wire
- Fit one hex nut and one washer to each J - hook.
- All sharp corners are to be grinded off

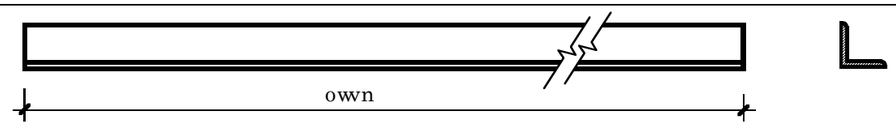
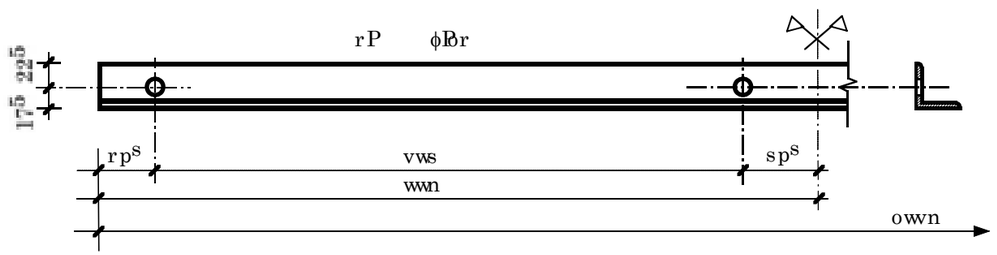
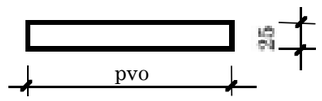
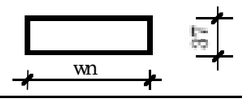
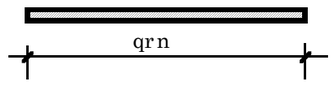
Required Nos of Crossbeams per bridge:
= Span in [m]

GoN / Ministry of Local Development
DoLIDAR / Short SpanTrail Bridge Standard
Bridge Name:
No: Span:
Steel Drawing:

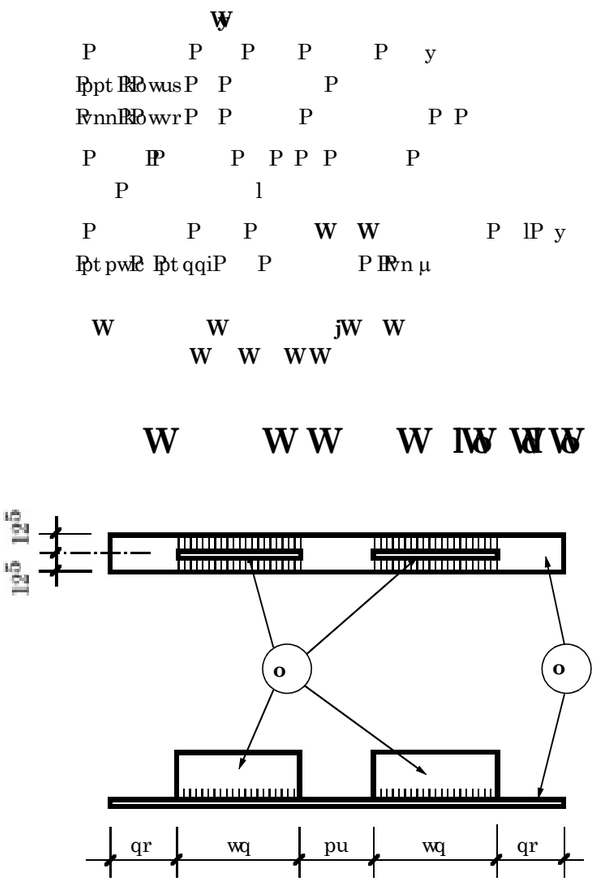
Crossbeam for Suspended Bridge for 4 Walkway Cables
for walkway width = 106 cm

*Nos of Crossbeam required: ----------

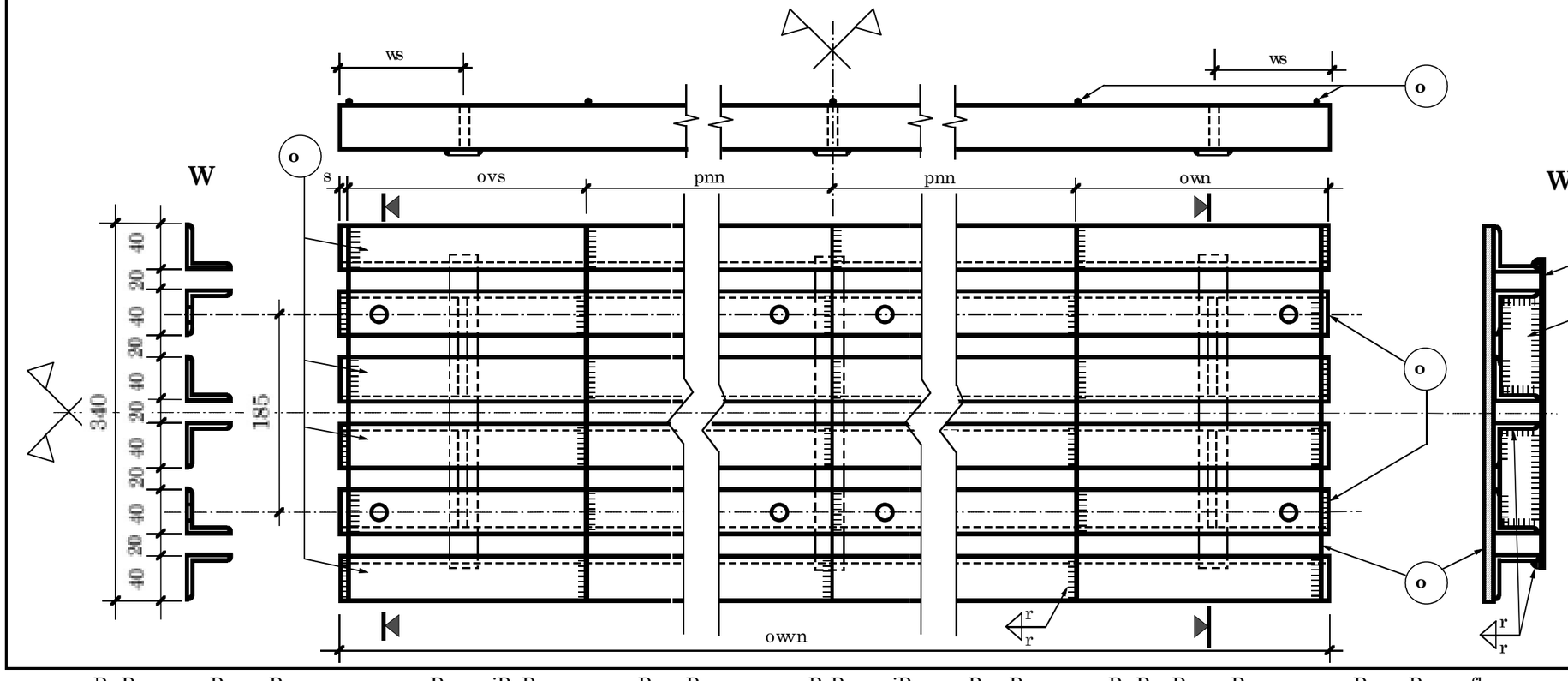
Date : August1,2016 **Drawing No. 03D4**

W l			W	WW	W
O	snmsmm loxwn Hot rolled ref. to IS 811 and 808	s		rltu	oslps
	snmsmm loxwn	p		rltu	vlop
	ptm WWpwo	r		nlov	nlto
	rvm WWzn	u		nlnw	nlsw
	WW ¤:wWWsn	oo		nlor	olsr
W	W WWpslvrW		W W WWW W W W	Wy	prlvw

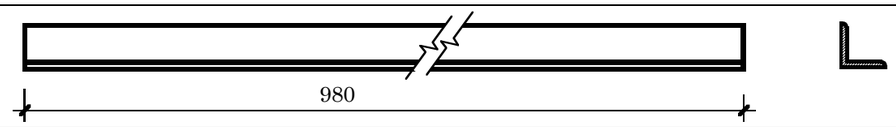
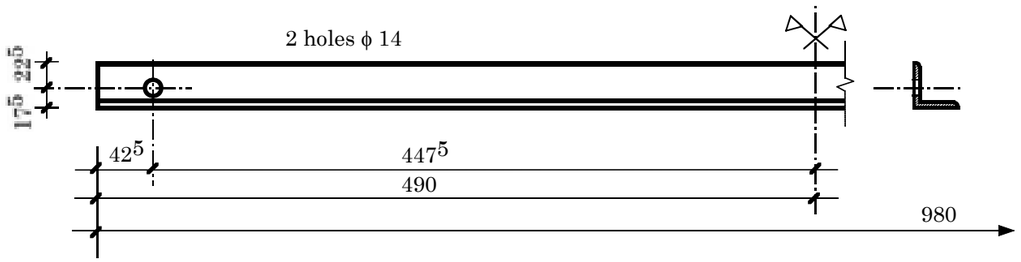
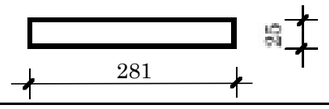
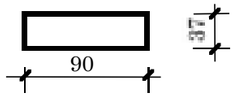
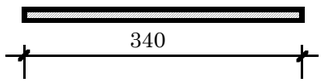
W



unP	WW WWlpn
ont P	P PP Wlt WW WWlpng
ont P	P PP Wlt WW WWlwng



P P P P P iP P P P P P iP P P P P P P P P u

Part No.		Section [mm]	Quantity [nos]	Working Drawing	Weight kg / pc	Weight total kg
1	a	Angle 40/40/3 -980 Hot rolled ref. to IS 811 and 808	4		1.76	7.04
	b	Angle 40/40/3 -980	2		1.76	3.52
	c	Flat 25/3 l = 281	2		0.17	0.34
	d	Flat 37/3 l = 90	4		0.08	0.32
	e	RI - Bar ¤:8 - 340	6		0.13	0.78
Total Transportation Weight = 12.44 kg				Total Structural Steel = Steel to be galvanized :		12.00

Specifications :

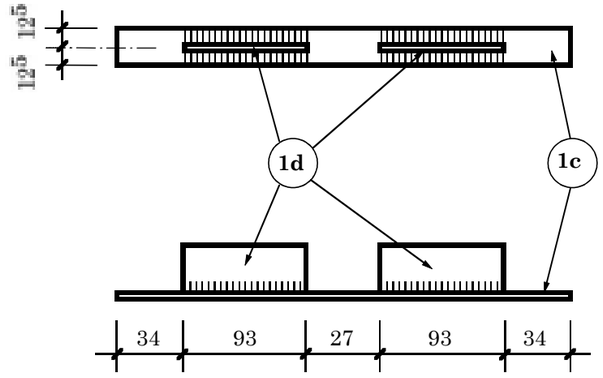
All structural steel must comply with:
IS 226 - 1975 for structural steel
IS 800 - 1984 for general construction in steel

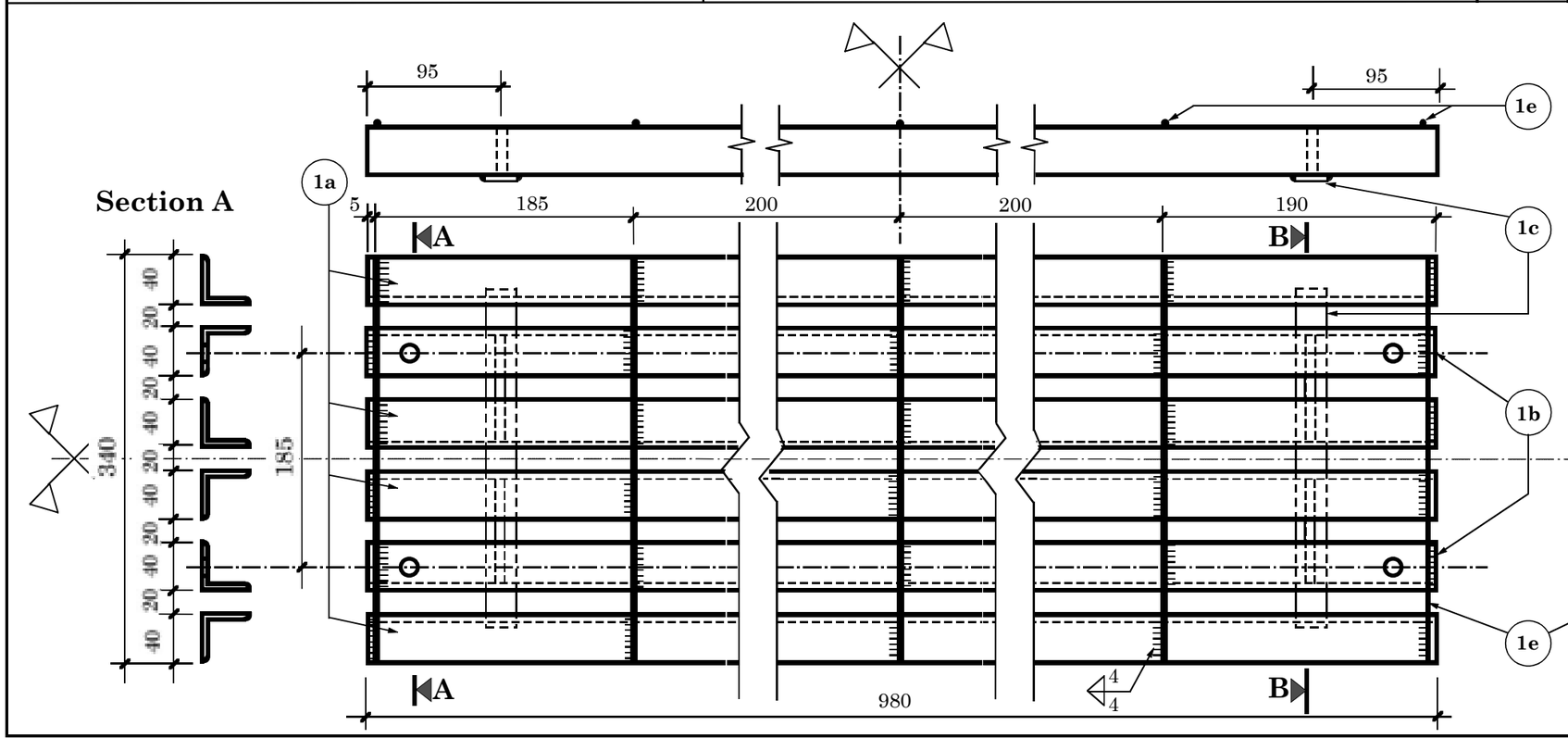
All sharp corners are to be grinded off before galvanization

All steelparts must be **hot dip galvanized** acc. to:
IS 2629 & 2633, min thickness = 80 µ m

For obtaining uniformity, the use of templates and jigs is mandatory

Welding Detail of Part no. 1c & 1d





Required Nos of Pannel for one Bridge:

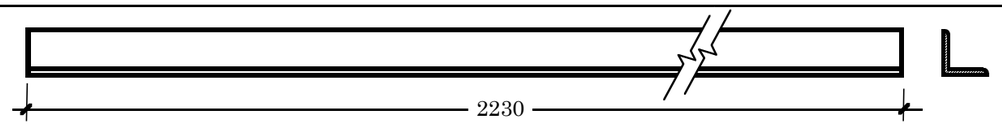
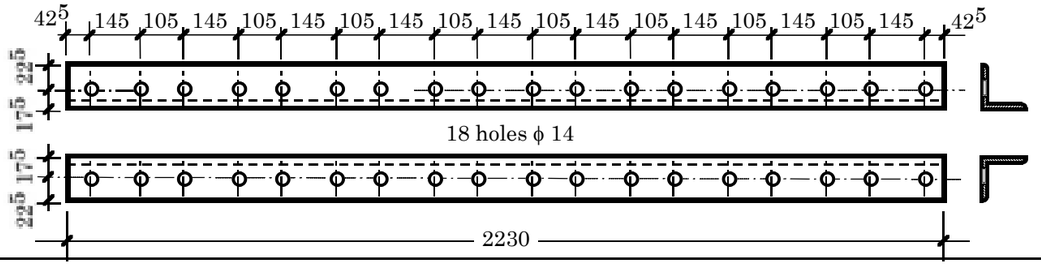
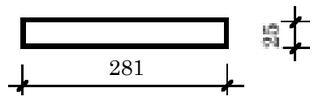
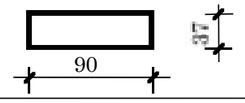
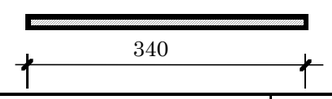
1 piece

GoN / Ministry of Local Development
DoLIDAR / Short SpanTrail Bridge Standard
Bridge Name:
No: Span:
Steel Drawing:

Steeldeck Standard Half Panel
(for all Bridge types)
length = 98 cm / width = 34 cm

*Nos required: 1

Date : August1, 2016 **Drawing No. 09A**

Part No.		Section [mm]	Quantity [nos]	Working Drawing	Weight kg / pc	Weight total kg
1	a	Angle 40/40/3 -2230 Hot rolled ref. to 811 and 905	4		4.01	16.04
	b	Angle 40/40/3 -2230	2		4.01	8.02
	c	Flat 25/3 l = 281	10		0.17	1.70
	d	Flat 37/3 l = 90	20		0.08	1.60
	e	RI - Bar ¤:8 - 340	10		0.13	1.30
Total Transportation Weight = 29.77 kg				Total Structural Steel = Steel to be galvanized:		28.66

Specifications :

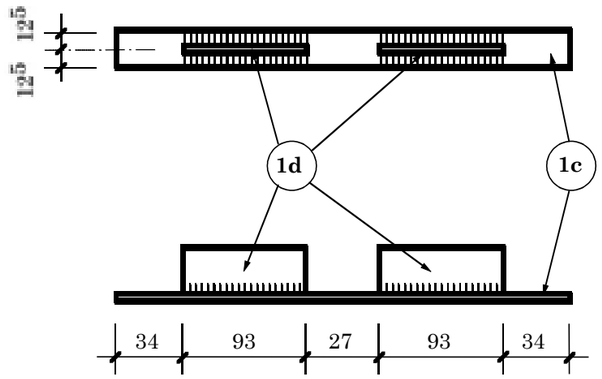
All structural steel must comply with:
IS 226 - 1975 for structural steel
IS 800 - 1984 for general construction in steel

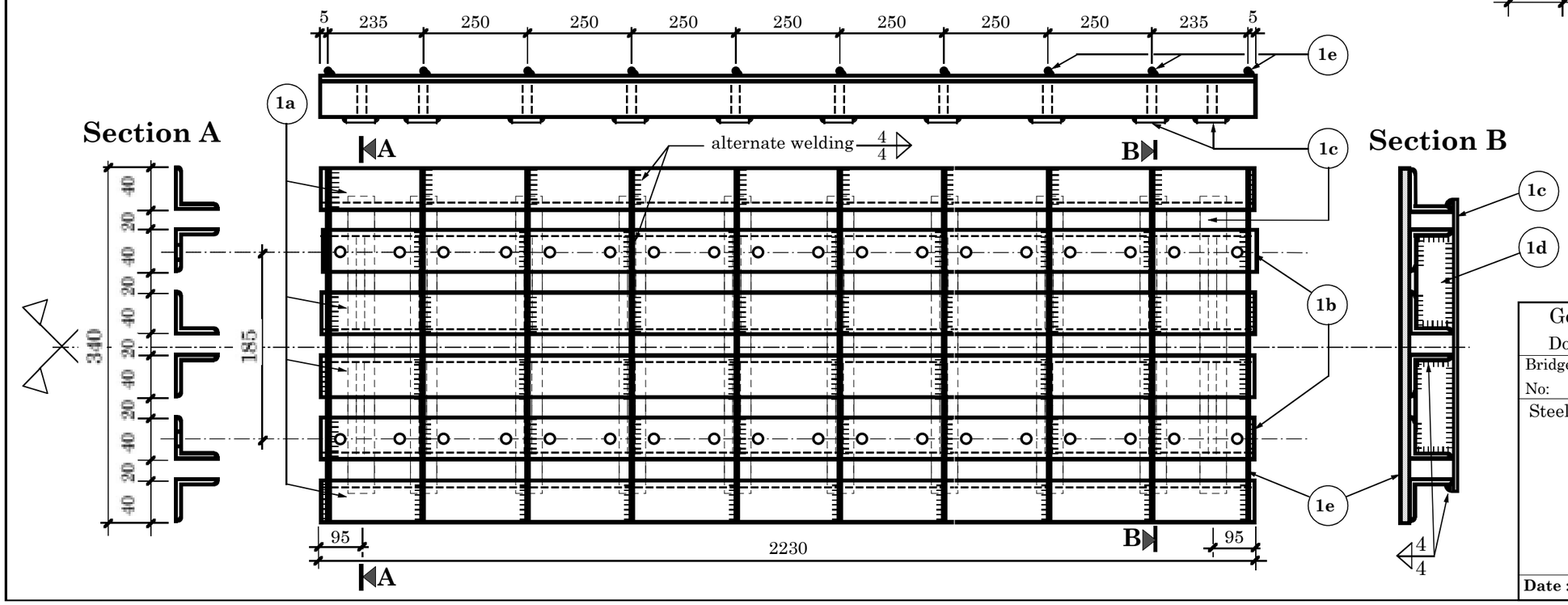
All sharp corners are to be grinded off before galvanization

All steelparts must be **hot dip galvanized** acc. to:
IS 2629 & 2633, min thickness = 80 µ m

For obtaining uniformity, the use of templates and jigs is mandatory

Welding Detail of Part no. 1c & 1d





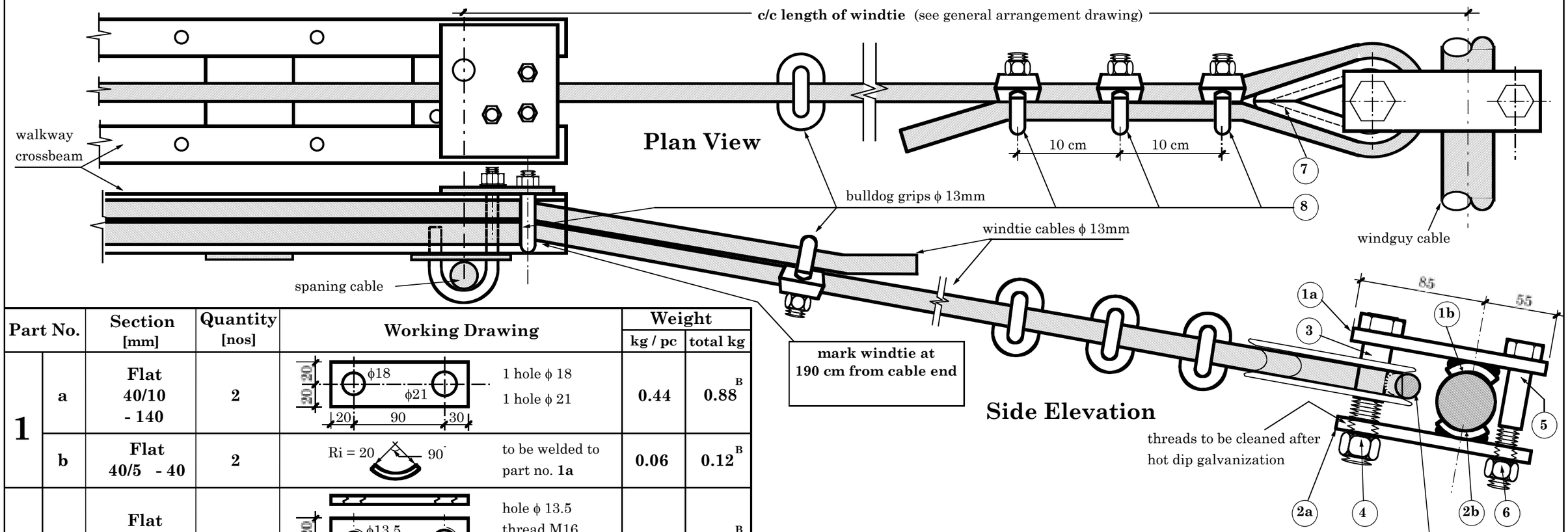
*Required Nos of Pannels:	
70 cm walkway	**2 pieces**
106 cm walkway	**3 pieces**

GoN / Ministry of Local Development
DoLIDAR / Short SpanTrail Bridge Standard
Bridge Name:
No: Span:
Steel Drawing:

Steeldeck Special Panel
(for all Bridge types)
length = 223 cm / width = 34 cm
(final length to be cut at the site)

*Nos required: ----------

Date : August1, 2016 **Drawing No. 10A**



Part No.		Section [mm]	Quantity [nos]	Working Drawing	Weight kg / pc	Weight total kg
1	a	Flat 40/10 - 140	2	ϕ18, ϕ21, 20, 20, 20, 90, 30 — 1 hole ϕ 18; 1 hole ϕ 21	0.44	0.88 B
	b	Flat 40/5 - 40	2	Ri = 20, 90° — to be welded to part no. **1a**	0.06	0.12 B
2	a	Flat 40/10 - 140	2	ϕ13.5, ϕ17, 20, 20, 20, 90, 30 — hole ϕ 13.5 thread M16; hole ϕ 17 thread M20	0.44	0.88 B
	b	Flat 40/5 - 40	2	Ri = 20, 90° — to be welded to part no. **2a**	0.06	0.12 B
3		Hex bolt M20 - 90	2.1	50, 90	0.30	0.63 C
4		Hex nut M20	2.1	30, 16	0.05	0.11 C
5		Hex bolt M16 - 90	2.1	50, 90	0.17	0.36 C
6		Hex nut M16	2.1	24, 13	0.03	0.06 C
7		Open Thimble	2.1	IS 2315 galvanized, for cable ϕ 13 mm	0.12	0.25 D
8		Bulldog Grip	10.5	IS 2361 galvanized, for cable ϕ 13 mm	0.28	2.94 D

IS 1363, galvanized acc. to: IS 1367, Part XIII

A = 6.39 kg Transportation wt. B+C+D+0.04 kg	**B = 2.00 kg Total Structural Steel = Steel to be galvanized**	**C = 1.16 kg Nuts, Bolts, Washers**	**D = 3.19 kg Bulldog Grips & Thimbles**

cutting length for a single windtie cable is c/c length plus 220 cm

For obtaining uniformity, the use of templates and jigs is mandatory

For Delivery :

All the cable clamps have to be assembled with each one Nut and Bolt M16 & M20 and one thimble.

All sharp corners are to be grinded off.

Specifications :

All structural steel must comply with:
IS 226 - 1975 for structural steel
IS 800 - 1984 for general construction in steel
All steel parts must be **hot dip galvanized** acc. to:
IS 2629 & 2633, min thickness = 80 μ m

GoN / Ministry of Local Development
DoLIDAR / Short SpanTrail Bridge Standard
Bridge Name:
No: Span:
Steel Drawing:

Windtie Cable Clamps for Suspension or Suspended Bridge
for one pair of 13mm windties
for windguy cables ϕ 26, 32 or 36 mm

Nos of pairs required: ----------

Date : August 1, 2016 **Drawing No. 11A**

Part No.		Section [mm]	Quantity [nos]	Working Drawing (not to scale)	Weight kg / pc	Weight total kg
1	a	Flat 75/6 l = 90	4	1 hole ϕ 17	0.32 galvanized	1.28g
	b	Flat 100/10 l = 700	4	6 holes ϕ 17, 1 hole ϕ 46	5.50 galvanized gas cutting prohibited	22.00g
	c	IS Round Bar ¤ 75 or 3" l = 110	2	hole ¤ 10	3.82 galvanized	7.64g
		drill hole ϕ 31[1], cut thread **M 35** and fit **tightly** with part no **1d** before galvanization				
	d	Rod ¤ 36 l = 650	2	thread M36	5.20 galvanized	10.40g
	e	Rod ¤ 10 l = 60	4	fix and weld to part No.**1c** before galvanization	0.04 galvanized	0.16g
2	a	IS Round Bar ¤ 75 or 3" l =220	1	mill down 15, 2 holes ¤ 38	7.64 galvanized	7.64g
	b	Rod ¤ 6 l = 130	2	to be welded to part No. 2a	0.03 galvanized	0.06g
3		Plate 350/200/6	1	5 holes ¤ 17	3.30	3.30
4		Angle 40/40/5 l = 270	2	4 holes ϕ 17	0.81	1.62
5		Flat 100/6 l = 1800	4	8 holes ¤ 18	8.48	33.92

Notes : All Structural steel must comply with : IS 226 - 1975 for structural steel. IS 800-1984 for general construction in steel.

Part No.	[mm]	Quantity [nos]	Working Drawing (not to scale)	Weight kg / pc	Weight total kg
6	Hex Bolt M16x40	30	IS 1363, galvanized acc. to: IS 1367, Part XIII	0.096	2.88C
7	Hex Nut M16	30		0.03	0.90C
8	Hex Nut M36	6		0.37	2.22C
9	Bulldog Grip	.....	M.S. forged Bulldog grip acc to ISI 2361-1970 for cable ¤ .....mm	.....	d .....
10	open Thimble	1	Thimble according to ISI 2315-1978 for cable ¤ .....mm	.....	d .....
11	Plain Rod ¤ 16 l=1200	6	1200	1.90	11.40R

A = ...kg.
Total transportation Weight
B+C+D+R+0.30 kg.

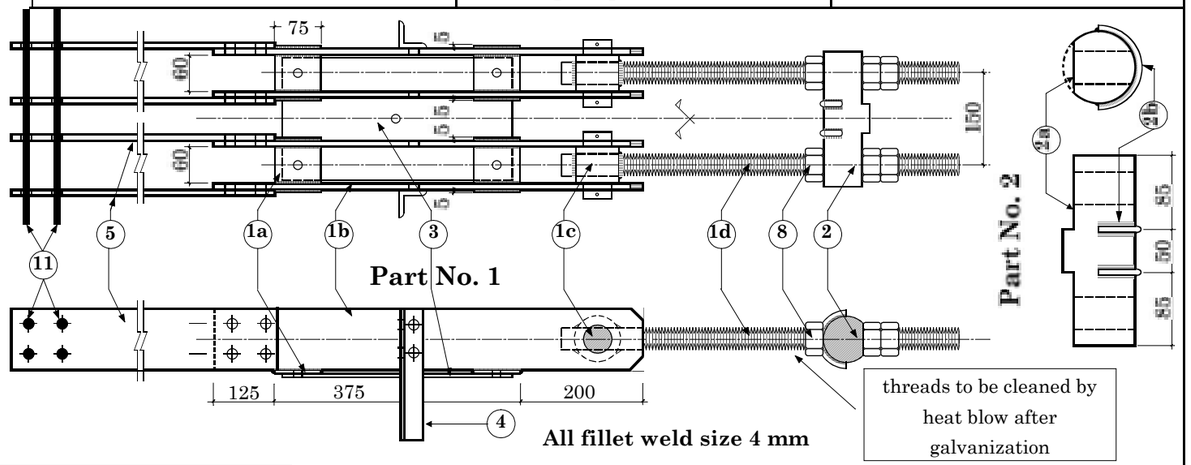
B =88.02 kg.
Total Structural Steel

g = 49.18 kg.
Structural Steel to be galvanized

C = 6.00 kg
Nuts, Bolts, Washers

D = ... kg.
Bulldog Grips & Thimbles

R = 11.40 kg
Reinforcement Steel



The following steelparts must be **hot dip galvanized** acc. to IS 2629 & 2633, min thickness = 80 µ m
Part No. 1 & 2
All Nuts & Bolts must conform to IS 1363 and are **galvanized** acc. to IS 1367, Part XIII

Related construction drawings are :
51Acon 53Acon
52Acon 54Acon

Transportation Weights of welded Parts:
- Part No. 1 = 18.78 kg
- Part No. 2 = 6.05 kg

Cable ¤ mm	Bulldog grips for one cable	Weight. (kg/pc) Thimble	Bulldog grip
26	5	0.75	1.10
32	6	1.85	1.30

GoN / Ministry of Local Development
DoLIDAR / Short SpanTrail Bridge Standard

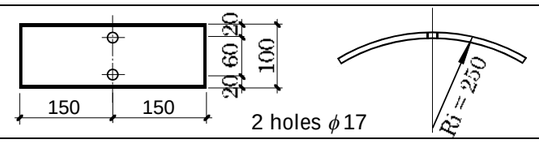
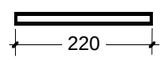
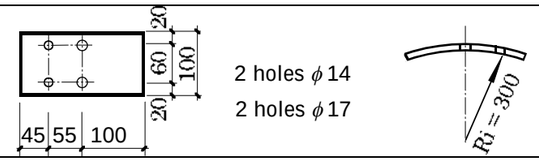
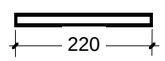
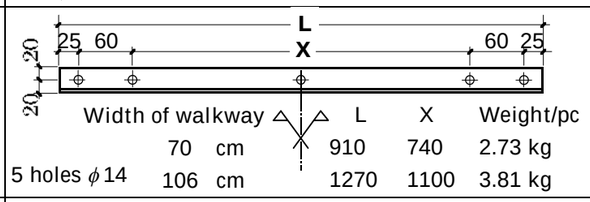
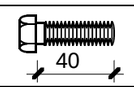
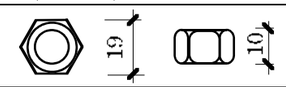
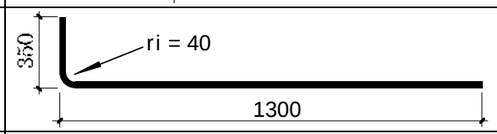
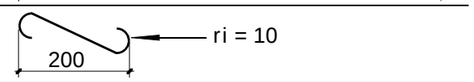
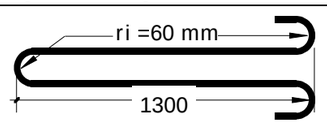
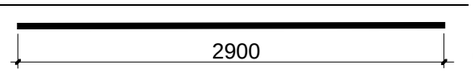
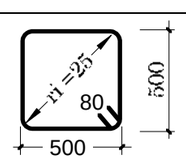
Bridge Name:
No: Span:

Steelpart List & Welding Detail for one Anchor :

Gravity Anchor for Windguy Cable

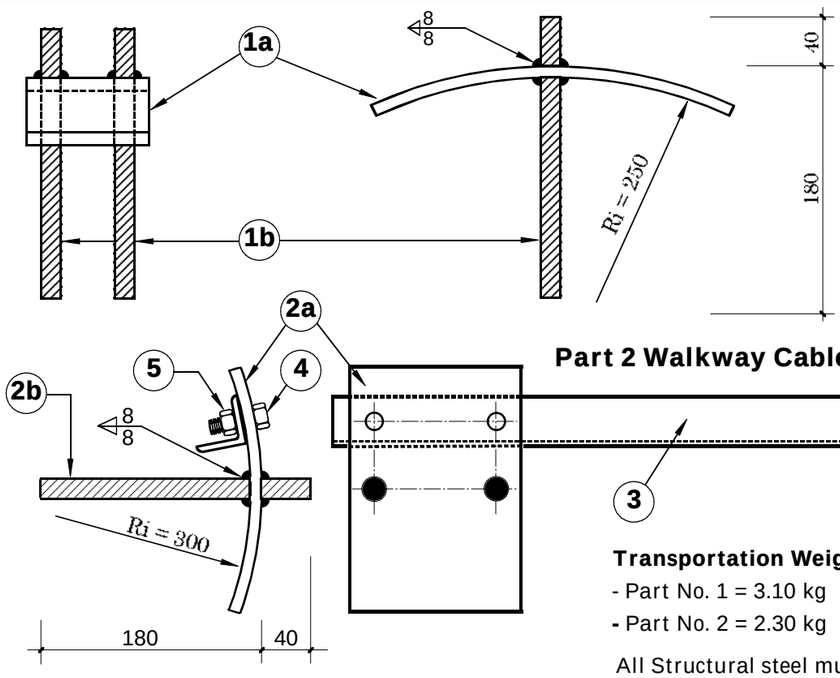
for one Cable end¤ (26 or 32 mm)
Nos. of Foundation required :

Date : August1, 2016 **Drawing No. 50A**

Part No.		Section [mm]	Quantity [nos]	Working Drawing	Weight Kg/pc	Weight total Kg
1	a	**Plate 100/300/10**	2		2.36 *galvanized*	4.72[g]
	b	**Ri-Bar ϕ16 l = 220**	4		0.35 *galvanized*	1.40[g]
2	a	**Plate 100/200/10**	2		1.57 *galvanized*	3.14[g]
	b	**Ri-Bar ϕ16 l = 220**	4		0.35 *galvanized*	1.40[g]
3		**Angle (spacer) 40/40/5 l = ...**	1		..... *untreated*	.....[U]
4		**Hex bolt M12 - 40**	4	 *galvanized*	0.065	0.26[C]
5		**Hex nut M12**	4	 *galvanized*	0.015	0.06[C]
6		**Ri - Bar ϕ16 l = 1650**	4	 For Concrete Core of Limb Wall	2.61	10.44[R]
7		**Ri-Bar ϕ6 l = 320**	10		0.07	0.70[R]
8		**Ri - Bar ϕ16 l = ...**	2	 For Concrete Core of Limb Wall	.....	.....[R]
9		**Bulldog Grip ϕ ....**	2	for fixing first suspender at handrail cable ϕ 26 or 32 MS forged, according to ISI standard, **hot dip galvanized**	.....	.....[D]
10		**Plain Rod ϕ20 l = 3100**	2*	 *Erection Hooks needed at one bank only	7.65	.....[R]
11		**Ri-Bar ϕ20 l = 2900**	4	 For Deadman Beam	7.16	28.64[R]
12		**Ri - Bar ϕ12 l = 2200**	11		1.96	21.56[R]

Part No.	Section [mm]	Quantity [nos]	Working Drawing	Weight Kg/pc	Weight total Kg
13	Bulldog Grips MS forged ISI standard ϕ 13	12	for fixing & joining **Fixation Cable** ϕ 13mm hot dip galvanized	0.28	3.36[D]
14	ϕ	.....	for **Handrail Cable** ϕ 26 or 32mm	.....	.....[D]
15	ϕ	.....	for **Walkway Cable** ϕ 26 or 32mm	.....	.....[D]
16		1	Binding Wire	1.00	1.00[R]

A = ... kg. **Total transportation Weight B+C+D+R+ 1.16 kg.**	**B = ... kg. Total Structural Steel = (u+g)**	**g = 10.66 kg. Steel to be galvanized** .....
C = 0.32 kg Nuts, Bolts, Washers	**D = ... kg Bulldog Grips**	**R = ... kg Reinforcement Steel**



Transportation Weight of welded parts :

- Part No. 1 = 3.10 kg
- Part No. 2 = 2.30 kg

All Structural steel must comply with :
IS 226 - 1975 for structural steel.
IS 800-1984 for general construction in steel.

Related Construction Drawings are :

- 20Dcon70 or 20Dcon106
- 21Dcon
- 41Dcon
- 22Dcon
- 42Dcon
- 23 Dcon
- 24 Dcon
- 25 Dcon
- 26 Dcon

The following steelparts must be hot dip galvanized acc. to IS 2629 & 2633, min thickness = 80 μ m
Part No. 1 & 2
All Nuts & Bolts must conform to IS 1363 and are galvanized acc. to IS 1367, Part XIII

Cable ϕ mm	Bulldog Grips for two cables	Weight. (kg/pc)	Weight. Total kg
26	10	1.10	11.00
32	12	1.30	15.60

GoN / Ministry of Local Development
DoLIDAR / Short SpanTrail Bridge Standard

Bridge Name:
No: Bank: Span:

Steel Drawing:

Saddles & Reinforcement for RCC Deadman & Gravity Soil Anchor for 2 Walkway Cables

Walkway Width : ---------- cm
Set for one Foundation
Nos of Foundation required,1 or 2 : ----------

Date : August1, 2016 **Drawing No. 20D2**

Part No. a		Section [mm]	Quantity [nos]	Working Drawing	Weight Kg/pc	Weight total Kg
1	a	**Plate 100/300/10**	2	150 150; 20 60 20; 100; 2 holes ϕ17; Ri = 250	2.36 *galvanized*	4.72[g]
	b	**Ri-Bar ϕ16 l = 220**	4	220	0.35 *galvanized*	1.40[g]
2	a	**Plate 160/200/10**	2	20 60 60 160 20; 45 55 100; 2 holes ϕ14; 3 holes ϕ17; Ri = 300	2.51 *galvanized*	5.02[g]
	b	**Ri-Bar ϕ16 l = 220**	6	220	0.35 *galvanized*	2.10[g]
3		**Angle (spacer) 40/40/5 l = ...**	1	20 25 120 L X 120 25 20; 5 holes ϕ14; Width of walkway / L / X / Weight/pc: 70 cm 1030 740 3.09 kg; 106 cm 1390 1100 4.17 kg	..... *untreated*	.....[U]
4		**Hex bolt M12 - 40**	4	40	*galvanized* 0.065	0.26[c]
5		**Hex nut M12**	4	19; 10	*galvanized* 0.015	0.06[c]
6		**Ri - Bar ϕ16 l = 1650**	4	350; ri = 40; 1300	2.61	10.44[R]
7		**Ri-Bar ϕ6 l = 320**	10	200; ri = 10	0.07	0.70[R]
8		**Ri - Bar ϕ16 l = ...**	2	L; Width of walkway / L / Weight/pc: 70 cm 2100 3.32 kg; 106 cm 2500 3.95 kg	.....	.....[R]
9		**Bulldog Grip ϕ ....**	2	for fixing first suspender at handrail cable ϕ 26 or 32 MS forged, according to ISI standard, **hot dip galvanized**	.....	.....[D]
10		**Plain Rod ϕ20 l = 3100**	4*	ri =60 mm; 1300; *Erection Hooks needed at one bank only	7.65	.....[R]
11		**Ri-Bar ϕ20 l = 2900**	8	2900	7.16	57.28[R]
12		**Ri - Bar ϕ12 l = 3350**	11	ri =25; 80; 800; 800	2.98	32.78[R]

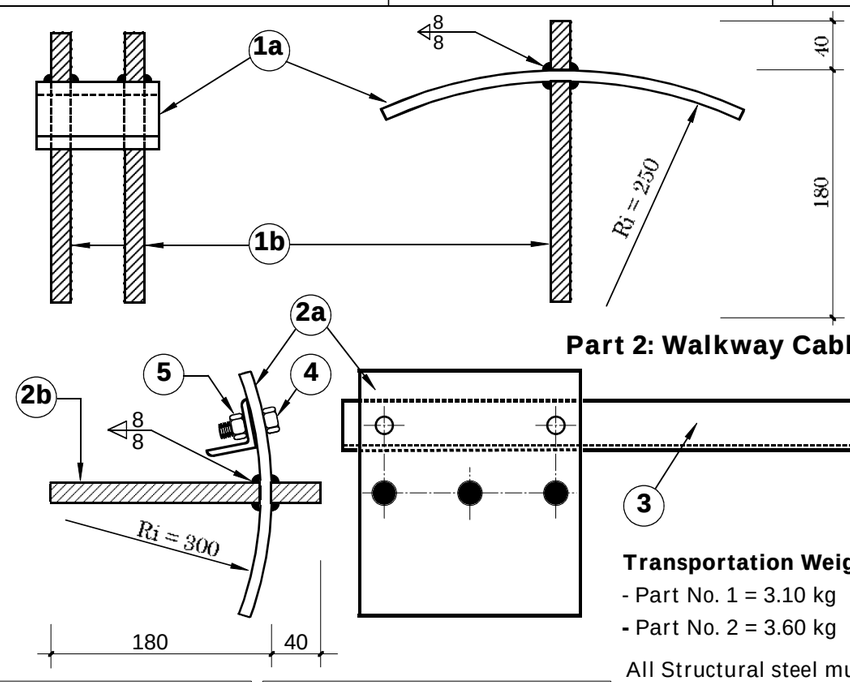
For Concrete Core of Limb Wall

For Deadman Beam

Part No.	Section [mm]	Quantity [nos]	Working Drawing	Weight Kg/pc	Weight total Kg
13	Bulldog Grips MS forged ISI standard ϕ13	12	for fixing & joining **Fixation Cable** ϕ 13mm	0.28	3.36[D]
14	Bulldog Grips MS forged ISI standard ϕ	.....	for **Handrail Cable** ϕ 26 or 32mm	.....	.....[D]
15	Bulldog Grips MS forged ISI standard ϕ	.....	for **Walkway Cable** ϕ 26 or 32mm	.....	.....[D]
16		1	Binding wire	1.00	1.00[R]

hot dip galvanized

A = ... kg. **Total transportation Weight B+C+D+R+ 1.22 kg.**	**B = ... kg.** **Total Structural Steel = (u+g)**	**g = 13.24 kg.** **Steel to be galvanized**	.....
C = 0.32 kg **Nuts, Bolts, Washers**	**D = ... kg** **Bulldog Grips**	**R = ... kg** **Reinforcement Steel**	



Part 1: Handrail Cable Saddle

Part 2: Walkway Cable Saddle

Transportation Weight of welded parts :

- Part No. 1 = 3.10 kg
- Part No. 2 = 3.60 kg

All Structural steel must comply with :
IS 226 - 1975 for structural steel.
IS 800-1984 for general construction in steel.

Related Construction Drawings are :

- 20Dcon70 or 20Dcon106
- 27Dcon - 35Dcon
- 28Dcon - 43Dcon
- 29Dcon - 44Dcon
- 30Dcon - 45Dcon
- 31Dcon - 46Dcon
- 32Dcon - 47Dcon
- 33Dcon - 48Dcon
- 34Dcon - 49Dcon

The following steelparts must be hot dip galvanized acc. to IS 2629 & 2633, min thickness = 80 μ m
Part No. 1 & 2
All Nuts & Bolts must conform to IS 1363 and are galvanized acc. to IS 1367, Part XIII

Cable ϕ mm	Bulldog Grips for four cables	Weight. (kg/pc)	Weight. Total kg
26	20	1.10	22.00
32	24	1.30	31.20

GoN / Ministry of Local Development
DoLIDAR / Short SpanTrail Bridge Standard

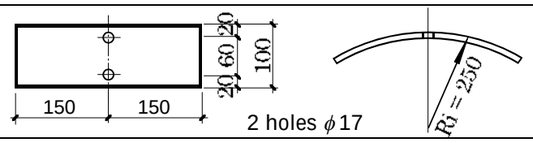
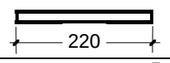
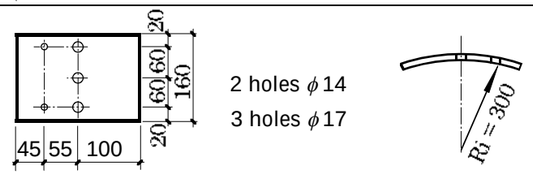
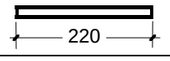
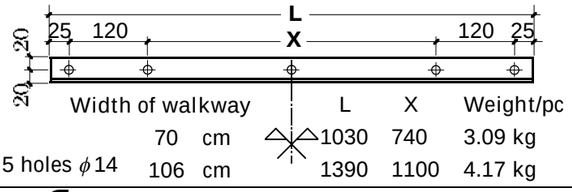
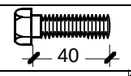
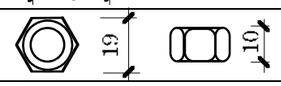
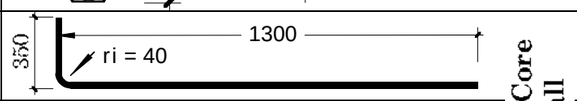
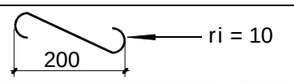
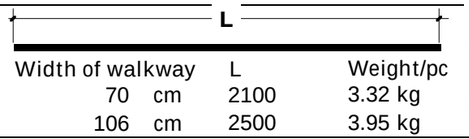
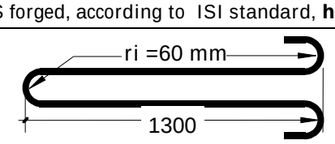
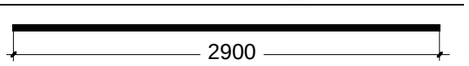
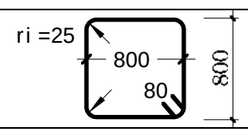
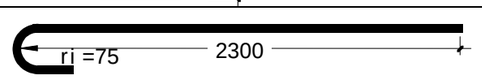
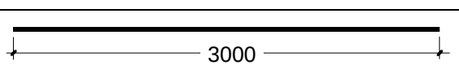
Bridge Name:
No: Bank: Span:

Steel Drawing:
Saddles & Reinforcement for RCC Deadman & Gravity Soil Anchor for 4 Walkway Cables

Walkway Width : ..... cm

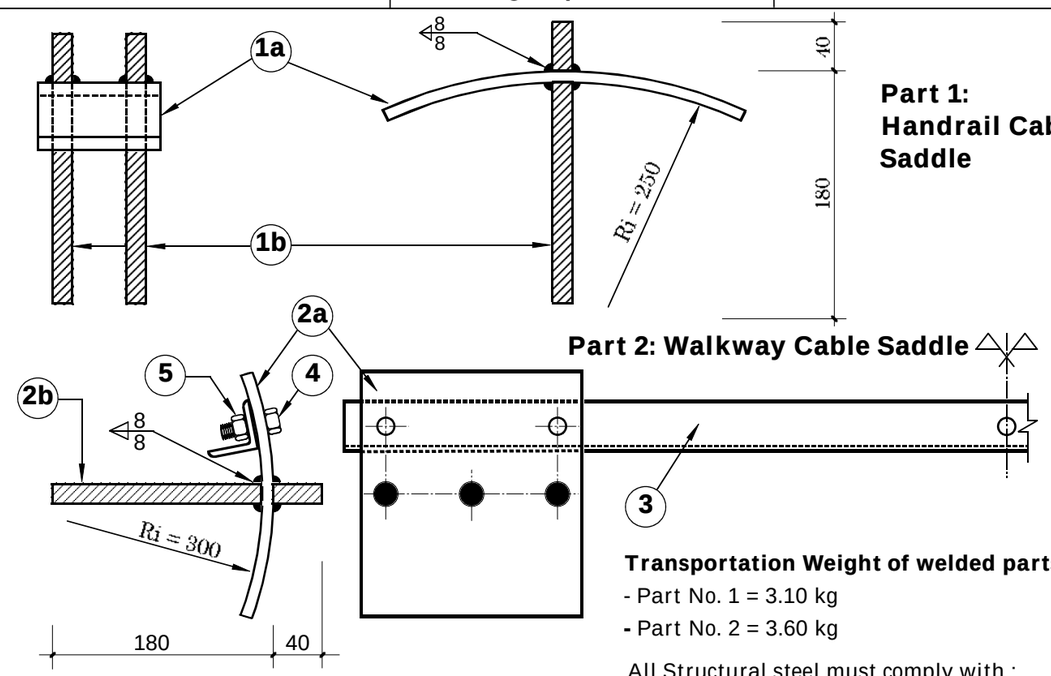
Set for one Foundation
Nos of Foundation required, 1 or 2 : .....

Date : August1, 2016 **Drawing No. 20D4**

Part No.		Section [mm]	Quantity [nos]	Working Drawing	Weight Kg/pc	Weight total Kg
1	a	**Plate 100/300/10**	2		2.36	4.72[g] galvanized
	b	**Ri-Bar ϕ16 l = 220**	4		0.35	1.40[g] galvanized
2	a	**Plate 160/200/10**	2		2.51	5.02[g] galvanized
	b	**Ri-Bar ϕ16 l = 220**	6		0.35	2.10[g] galvanized
3		**Angle (spacer) 40/40/5 l = ...**	1		.....	.....[U] untreated
4		**Hex bolt M12 - 40**	4	 galvanized	0.065	0.26[C]
5		**Hex nut M12**	4	 galvanized	0.015	0.06[C]
6		**Ri-Bar ϕ16 l = 1650**	4	 For Concrete Core of Limb Wall	2.61	10.44[R]
7		**Ri-Bar ϕ6 l = 320**	10		0.07	0.70[R]
8		**Ri - Bar ϕ16 l = ...**	2		.....	.....[R]
9		**Bulldog Grip ϕ ....**	2	for fixing first suspender at handrail cable ϕ 26 or 32 MS forged, according to ISI standard, **hot dip galvanized**	.....	.....[D]
10		**Plain Rod ϕ20 l = 3100**	4*	 *Erection Hooks needed at one bank only	7.65	.....[R]
11		**Ri-Bar ϕ20 l = 2900**	8	 For Deadman Beam	7.16	57.28[R]
12		**Ri - Bar ϕ12 l = 3350**	11		2.98	32.78[R]
13		**Ri-Bar ϕ25 l = 2550**	36		9.84	354.24[R]
14		**Ri-Bar ϕ10 l = 3000**	15		1.85	27.75[R]

Part No.	Section [mm]	Quantity [nos]	Working Drawing	Weight Kg/pc	Weight total Kg
15	Bulldog Grips MS forged ISI standard ϕ13	12	for fixing & joining **Fixation Cable** ϕ 13mm hot dip galvanized	0.28	3.36[D]
16	Bulldog Grips MS forged ISI standard ϕ.....	.....	for **Handrail Cable** ϕ 26 or 32mm hot dip galvanized	.....	.....[D]
17	Bulldog Grips MS forged ISI standard ϕ.....	.....	for **Walkway Cable** ϕ 26 or 32mm hot dip galvanized	.....	.....[D]
18			Binding wire	1.00	1.00[R]

A = ... kg. **Total transportation Weight B+C+D+R+ 1.22 kg.**	**B = ... kg.** **Total Structural Steel = (u+g)**	**g = 13.24 kg.** **Steel to be galvanized**	.....
C = 0.32 kg **Nuts, Bolts, Washers**	**D = ... kg** **Bulldog Grips**	**R = ... kg** **Reinforcement Steel**	



Part 1: Handrail Cable Saddle

Part 2: Walkway Cable Saddle

Transportation Weight of welded parts :
- Part No. 1 = 3.10 kg
- Part No. 2 = 3.60 kg

All Structural steel must comply with :
IS 226 - 1975 for structural steel.
IS 800-1984 for general construction in steel.

Related Construction Drawings are :
- 20Dcon70 or 20Dcon106 & 67D con

The following steelparts must be hot dip galvanized acc. to IS 2629 & 2633, min thickness = 80 μm
Part No. 1 & 2
All Nuts & Bolts must conform to IS 1363 and are galvanized acc. to IS 1367, Part XIII

Cable ϕ mm	Bulldog Grips for four cables	Weight. (kg/pc)	Weight. Total kg
26	20	1.10	22.00
32	24	1.30	31.20

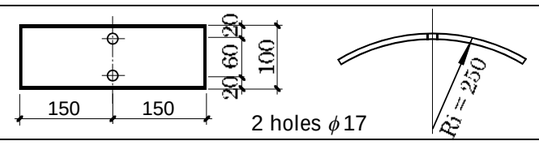
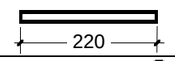
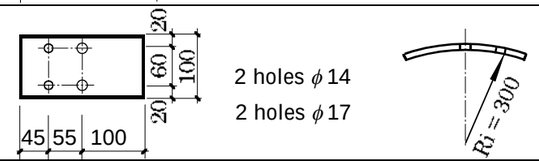
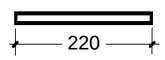
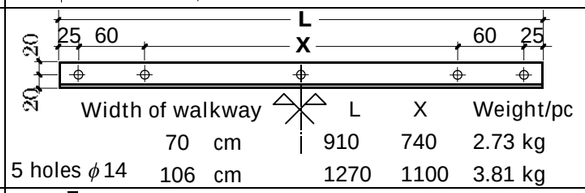
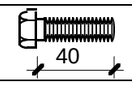
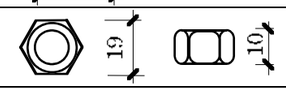
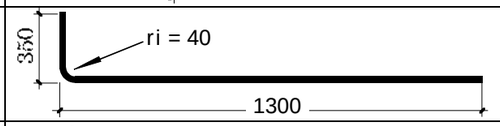
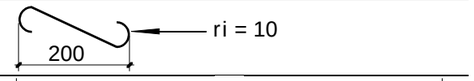
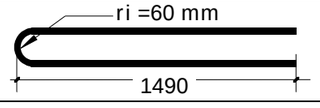
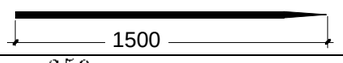
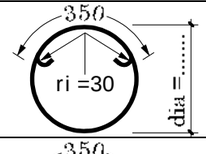
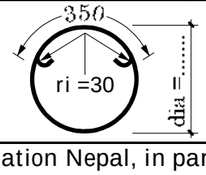
GoN / Ministry of Local Development
DoLIDAR / Short SpanTrail Bridge Standard

Bridge Name:
No: Bank: Span:
Steel Drawing:

Saddles & Reinforcement for RCC Deadman Anchor in Fractured Rock for 4 Walkway Cables

Walkway Width : ---- cm
Set for one Foundation
Nos of Foundation required,1 or 2 : ----

Date : August1, 2016 **Drawing No. 20D4S**

Part No.	Section [mm]	Quantity [nos]	Working Drawing	Weight Kg/pc	Weight total Kg
1 a	Plate 100/300/10	2		2.36 galvanized	4.72g
1 b	Ri-Bar ϕ16 l = 220	4		0.35 galvanized	1.40g
2 a	Plate 100/200/10	2		1.57 galvanized	3.14g
2 b	Ri-Bar ϕ16 l = 220	4		0.35 galvanized	1.40g
3	Angle (spacer) 40/40/5 l = ...	1	 Width of walkway / L / X / Weight/pc: 70 cm | 910 | 740 | 2.73 kg; 106 cm | 1270 | 1100 | 3.81 kg	..... untreated	.....U
4	Hex bolt M12 - 40	4	 galvanized	0.065	0.26c
5	Hex nut M12	4	 galvanized	0.015	0.06c
6	Ri - Barϕ16 l = 1650	4	 For Concrete Core of Limb Wall	2.61	10.44R
7	Ri-Bar ϕ6 l = 320	10		0.07	0.70R
8	Ri - Bar ϕ16 l = ...	2	 Width of walkway / L / Weight/pc: 70 cm | 2100 | 3.32 kg; 106 cm | 2500 | 3.95 kg	.....	.....R
9	Bulldog Grip ϕ	2	for fixing first suspender at handrail cable ϕ 26 or 32 MS forged, according to ISI standard, **hot dip galvanized**	.....	.....D
10	Plain Rod ϕ20 l = 3200	.....	 Erection Hook	7.90	.....R
11	Ri-Bar ϕ25 l = 1500	.....	 Anchor Rod	5.79	.....R
12	Ri - Bar ϕ10 l = ...	.....	 Stirrup for Handrail Cable Drum For Drum	.....	.....R
13	Ri - Bar ϕ10 l = ...	.....	 Stirrup for Walkway Cable Drum	.....	.....R

Part No.	Section [mm]	Quantity [nos]	Working Drawing	Weight Kg/pc	Weight total Kg
14	Bulldog Grips MS forged ISI standard ϕ13	12	for fixing & joining **Fixation Cable** ϕ 13mm hot dip galvanized	0.28	1.40D
15	Bulldog Grips MS forged ISI standard ϕ.....	.....	for **Handrail Cable** ϕ 26 or 32mm hot dip galvanized	.....	.....D
16	Bulldog Grips MS forged ISI standard ϕ.....	.....	for **Walkway Cable** ϕ 26 or 32mm hot dip galvanized	.....	.....D
17			Binding wire	1.00	1.00R

A = ... kg
Total transportation Weight B+C+D+R+ 1.16 kg.

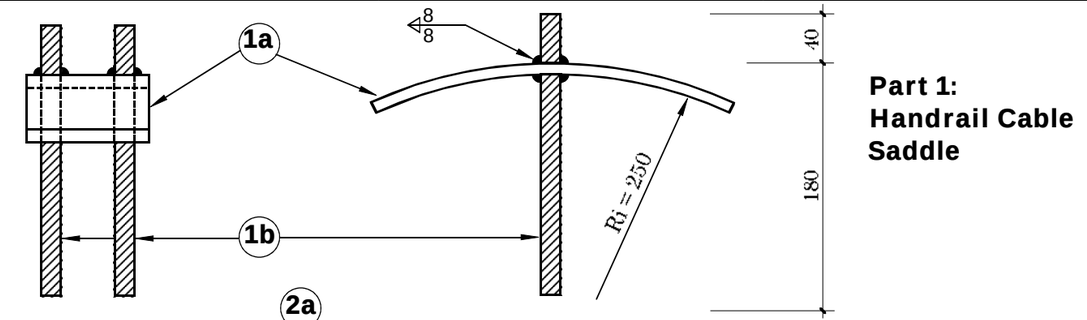
B = ... kg
Total Structural Steel = (u+g)

g = 10.66 kg
Steel to be galvanized

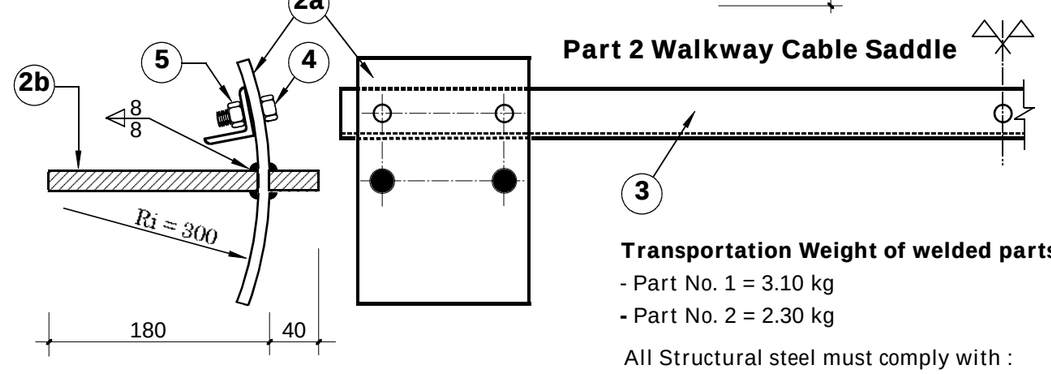
C = 0.32 kg
Nuts, Bolts, Washers

D = ... kg
Bulldog Grips

R = ... kg
Reinforcement Steel



Part 1: Handrail Cable Saddle



Part 2 Walkway Cable Saddle

Transportation Weight of welded parts :
- Part No. 1 = 3.10 kg
- Part No. 2 = 2.30 kg

All Structural steel must comply with :
IS 226 - 1975 for structural steel.
IS 800-1984 for general construction in steel.

Related Construction Drawings are :
- **20Dcon70 or 20Dcon106**
- **61Dcon**
- **63Dcon**
- **65Dcon**
- **66Dcon**

The following steelparts must be hot dip galvanized acc. to IS 2629 & 2633, min thickness = 80 μm
Part No. 1 & 2
All Nuts & Bolts must conform to IS 1363 and are galvanized acc. to IS 1367, Part XIII

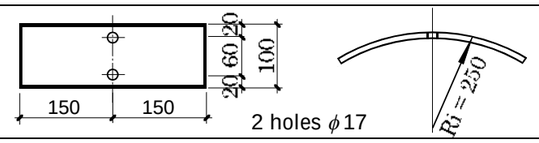
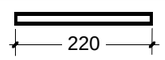
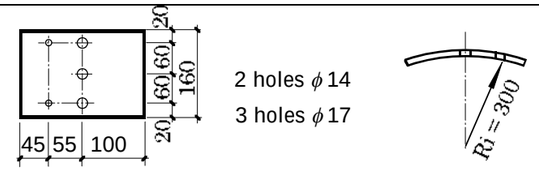
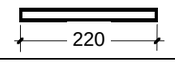
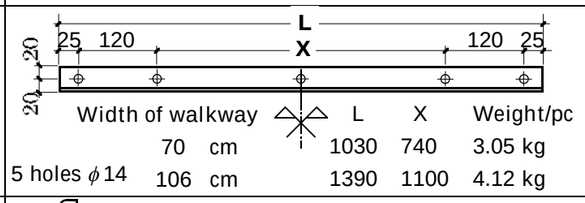
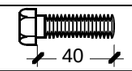
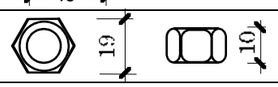
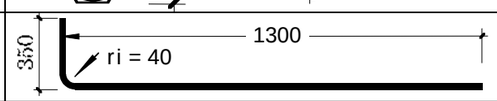
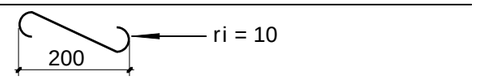
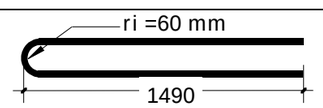
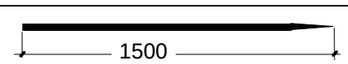
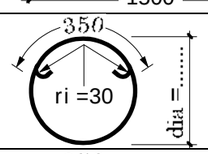
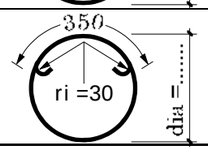
Cable ϕ mm	Bulldog Grips for two cables	Weight. (kg/pc)	Weight. Total kg
26	10	1.10	11.00
32	12	1.30	15.60

GoN / Ministry of Local Development
DoLIDAR / Short SpanTrail Bridge Standard
Bridge Name:
No: Bank: Span:
Steel Drawing:

Saddles & Reinforcement for Drum Rock Anchor for 2 Walkway Cables

Walkway Width : ---------- cm
Set for one Foundation
Nos of Foundation required,1 or 2 : ----------

Date :August1, 2016 **Drawing No. 60D2**

Part No.		Section [mm]	Quantity [nos]	Working Drawing	Weight Kg/pc	Weight total Kg
1	a	**Plate 100/300/10**	2		2.36 galvanized	4.72g
	b	**Ri-Bar ϕ16 l = 220**	4		0.35 galvanized	1.40g
2	a	**Plate 160/200/10**	2		2.51 galvanized	5.02g
	b	**Ri-Bar ϕ16 l = 220**	6		0.35 galvanized	2.10g
3		**Angle (spacer) 40/40/5 l =.....**	1	 Width of walkway / L / X / Weight/pc: 70 cm — 1030 — 740 — 3.05 kg; 106 cm — 1390 — 1100 — 4.12 kg	..... untreated	.....u
4		**Hex bolt M12 - 40**	4	 galvanized	0.065	0.26c
5		**Hex nut M12**	4	 galvanized	0.015	0.06c
6		**Ri-Bar ϕ16 l = 1650**	4	 For Concrete Core of Limb Wall	2.61	10.44R
7		**Ri-Bar ϕ6 l = 320**	10		0.07	0.70R
8		**Ri - Bar ϕ16 l = ...**	2	 Width of walkway / L / Weight/pc: 70 cm — 2100 — 3.32 kg; 106 cm — 2500 — 3.95 kg For Concrete Core of Limb Wall	.....	.....R
9		**Bulldog Grip ϕ ....**	2	for fixing first suspender at handrail cable ϕ 26 or 32 MS forged, according to ISI standard, **hot dip galvanized**	.....	.....D
10		**Plain Rod ϕ20 l = 3200**	.....		7.90	.....R
11		**Ri-Bar ϕ25 l = 1500**	.....	 Anchor Rod For Drum	5.79	.....R
12		**Ri - Bar ϕ10 l = ...**	.....	 Stirrup for Handrail Cable Drum	.....	.....R
13		**Ri - Bar ϕ10 l = ...**	.....	 Stirrup for Walkway Cable Drum	.....	.....R

Part No.	Section [mm]		Quantity [nos]	Working Drawing	Weight Kg/pc	Weight total Kg
14	Bulldog Grips MS forged ISI standard	ϕ 13	12	for fixing & joining **Fixation Cable** ϕ 13mm hot dip galvanized	0.28	1.40D
15		ϕ	.....	for **Handrail Cable** ϕ 26 or 32mm	.....	.....D
16		ϕ	.....	for **Walkway Cable** ϕ 26 or 32mm	.....	.....D

A = ... kg.
Total transportation Weight B+C+D+R+ 0.22 kg.

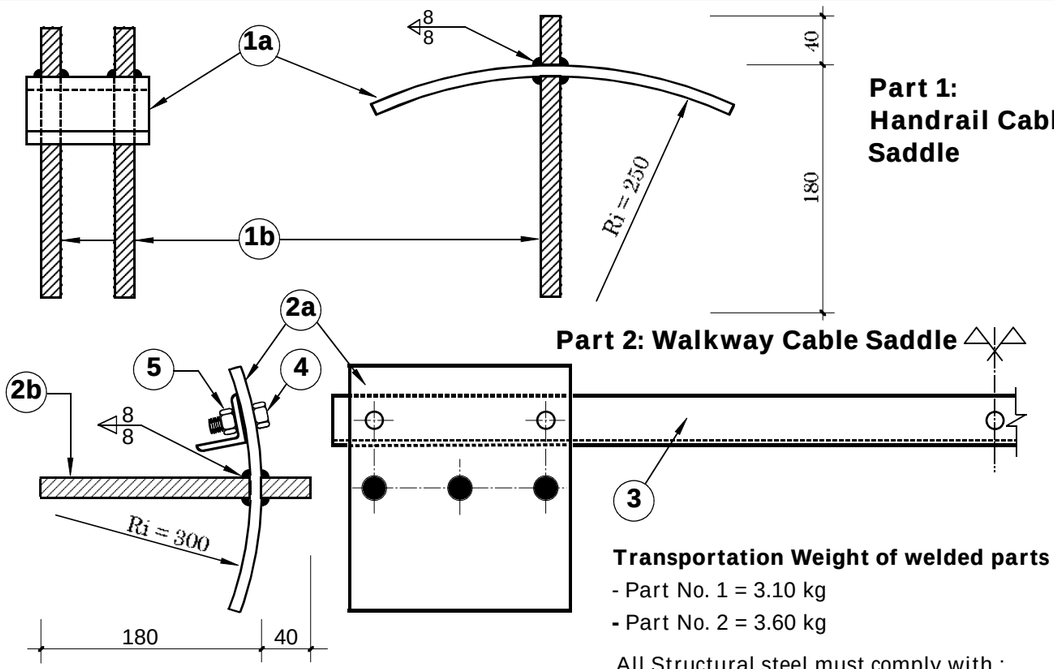
B = ... kg.
Total Structural Steel = (u+g)

g = 13.24 kg.
Steel to be galvanized

C = 0.32 kg
Nuts, Bolts, Washers

D = ... kg
Bulldog Grips

R = ... kg
Reinforcement Steel



Part 1: Handrail Cable Saddle

Part 2: Walkway Cable Saddle

Transportation Weight of welded parts :
- Part No. 1 = 3.10 kg
- Part No. 2 = 3.60 kg

All Structural steel must comply with :
IS 226 - 1975 for structural steel.
IS 800-1984 for general construction in steel.

Related Construction Drawings are :
- **20Dcon70 or 20Dcon106**
- **62Dcon**
- **64Dcon**

The following steelparts must be hot dip galvanized acc. to IS 2629 & 2633, min thickness = 80 μ m
Part No. 1 & 2
All Nuts & Bolts must conform to IS 1363 and are galvanized acc. to IS 1367, Part XIII

Cable ϕ mm	Bulldog Grips for four cables	Weight. (kg/pc)	Weight. Total kg
26	20	1.10	22.00
32	24	1.30	31.20

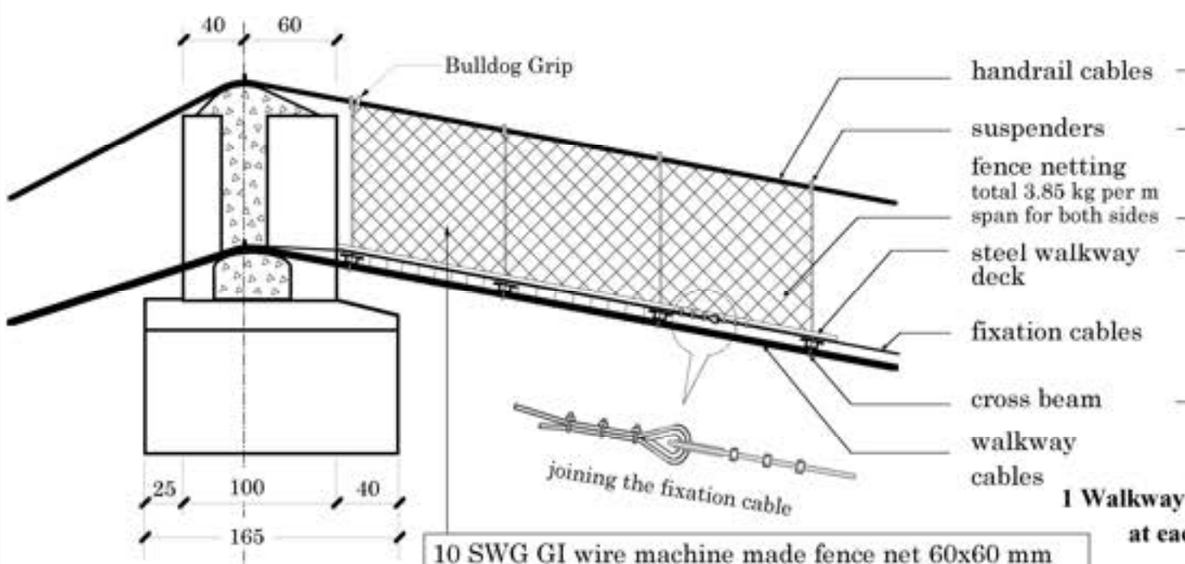
GoN / Ministry of Local Development
DoLIDAR / Short SpanTrail Bridge Standard

Bridge Name:
No: Bank: Span:
Steel Drawing:

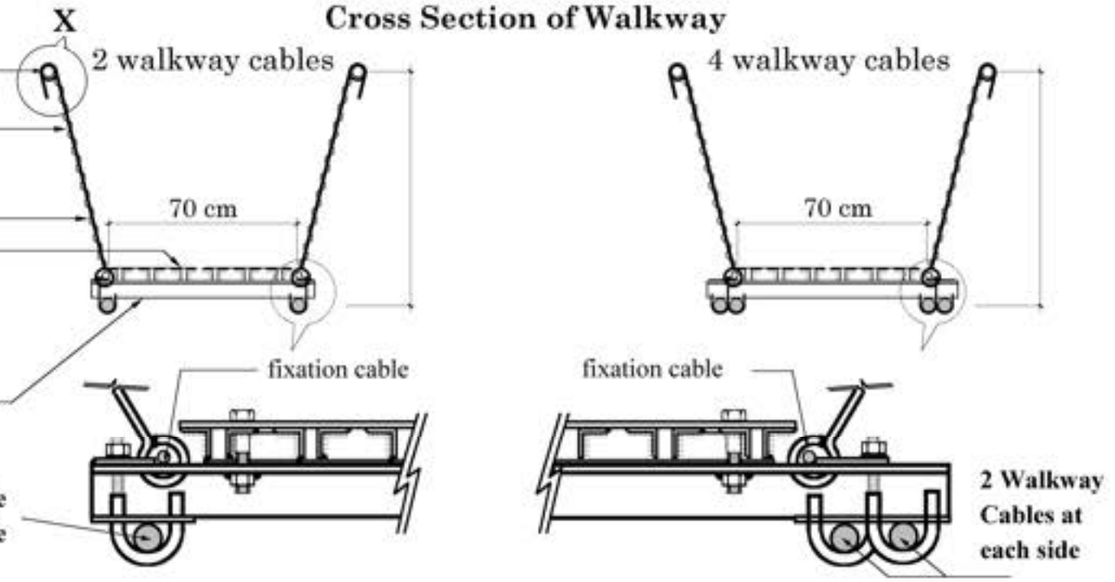
Saddles & Reinforcement for Drum Rock Anchor for 4 Walkway Cables

Walkway Width : ---------- cm
Set for one Foundation
Nos of Foundation required,1 or 2 : ----------

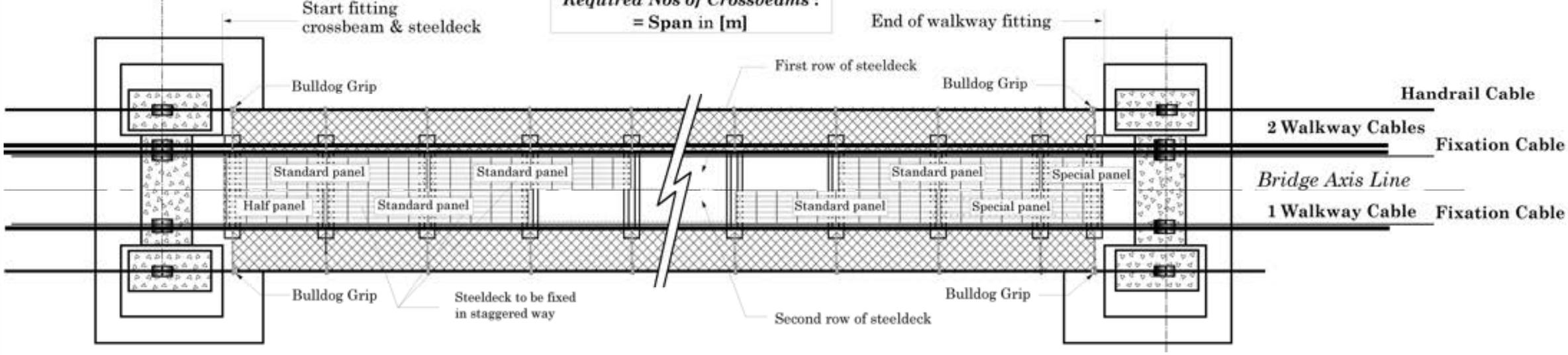
Date : August1, 2016 **Drawing No. 60D4**



10 SWG GI wire machine made fence net 60x60 mm
Chain link 1.2 m width (3.0 kg/m)
Fix wiremesh with fixation cable & suspender by 12
SWG wire @ 30 cm c/c (0.05 kg/m)



Required Nos of Crossbeams :
= Span in **[m]**



Required Nos of Steeldeck Pannels :
Standard pannels = (Span - 1.20) in **[m]**
Half pannel = 1 pc
Special pannels = 2 pcs

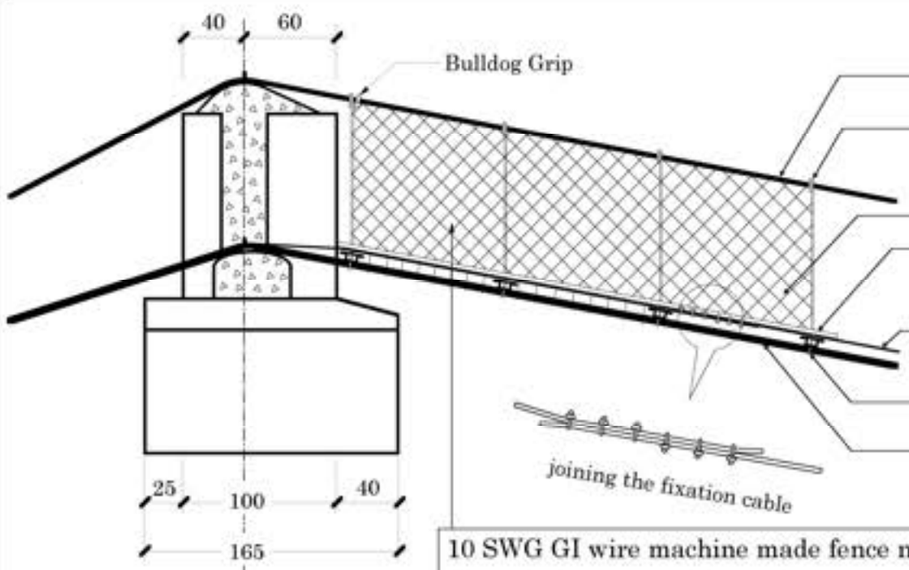
GoN / Ministry of Local Development
DoLIDAR / Short Span Trail Bridge Standard

Bridge Name:
No: Span:

Construction Drawing:

Walkway Fitting for
70 cm Walkway Width

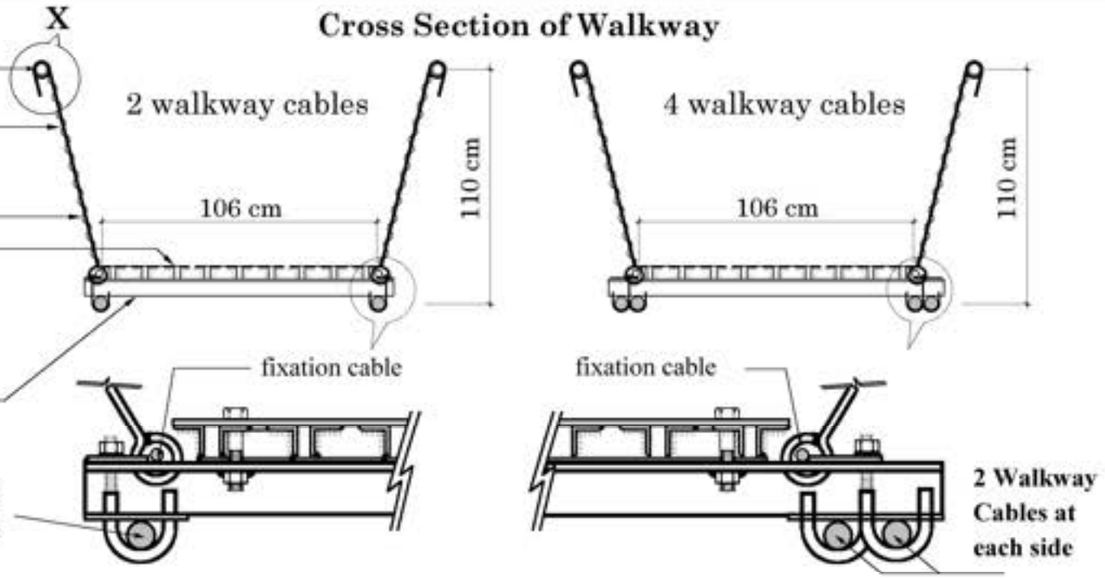
Date : August1, 2016 **Drawing No. 19Dcon70**



handrail cables
suspenders
fence netting
total 3.90 kg per m
span for both sides
steel walkway deck
fixation cables
cross beam
walkway cables

10 SWG GI wire machine made fence net 60x60 mm
Chain link 1.2 m width (3.0 kg/m)
Fix wiremesh with fixation cable & suspender by 12 SWG wire @ 30 cm c/c (0.05 kg/m)

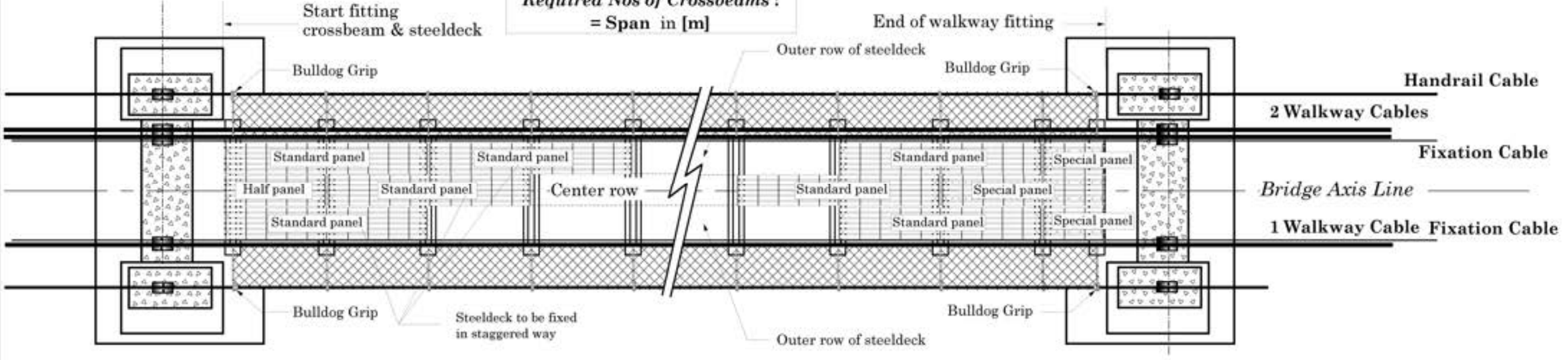
Cross Section of Walkway



1 Walkway Cable at each side

2 Walkway Cables at each side

Required Nos of Crossbeams :
= Span in **[m]**

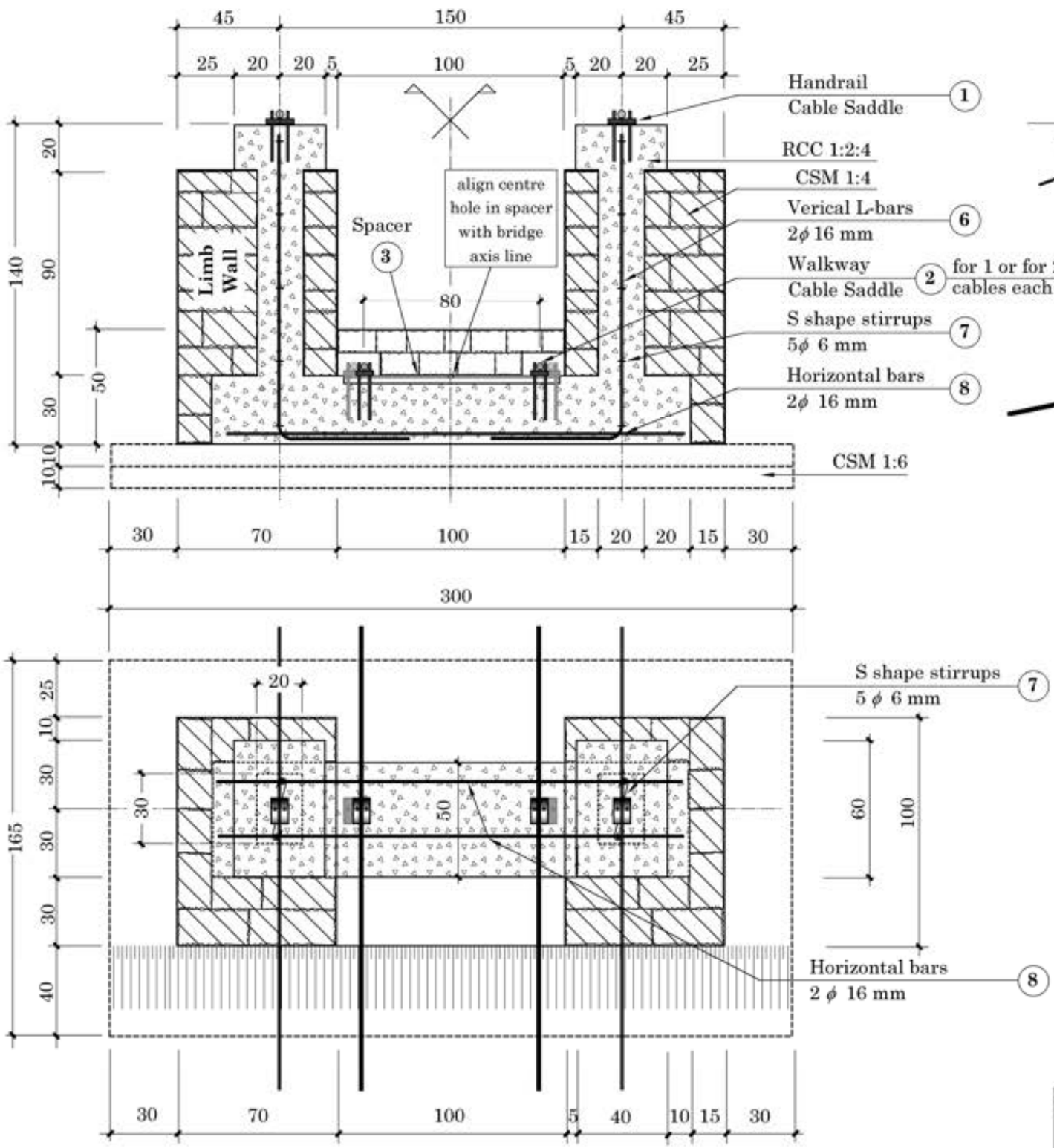


Required Nos of Steeldeck Pannels :
Standard pannels = 1.5 x (Span - 1.20) in [m]
Half pannel = 1 pc
Special pannels = 3 pcs

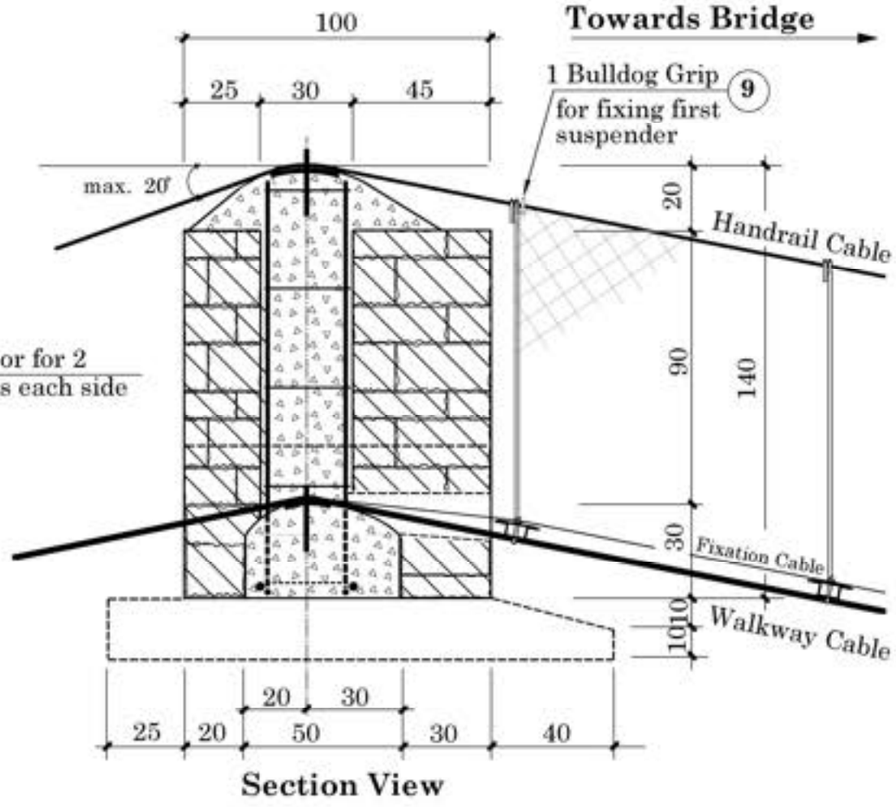
GoN / Ministry of Local Development
DoLIDAR / Short SpanTrail Bridge Standard
Bridge Name:
No: Span:
Construction Drawing:

Walkway Fitting for 106 cm Walkway Width

Date : August1, 2016 Drawing No. 19Dcon106



Plan



Section View

Standard Quantities

Cement Stone Masonry & Concrete Work	[m^3]	Cement bags /m^3	Cement bags
Chisel dressed Stone Masonry 1:4	1.41	2.28	3.21
Concrete 1:2:4	0.83	6.40	3.67

Scale 1 : 20

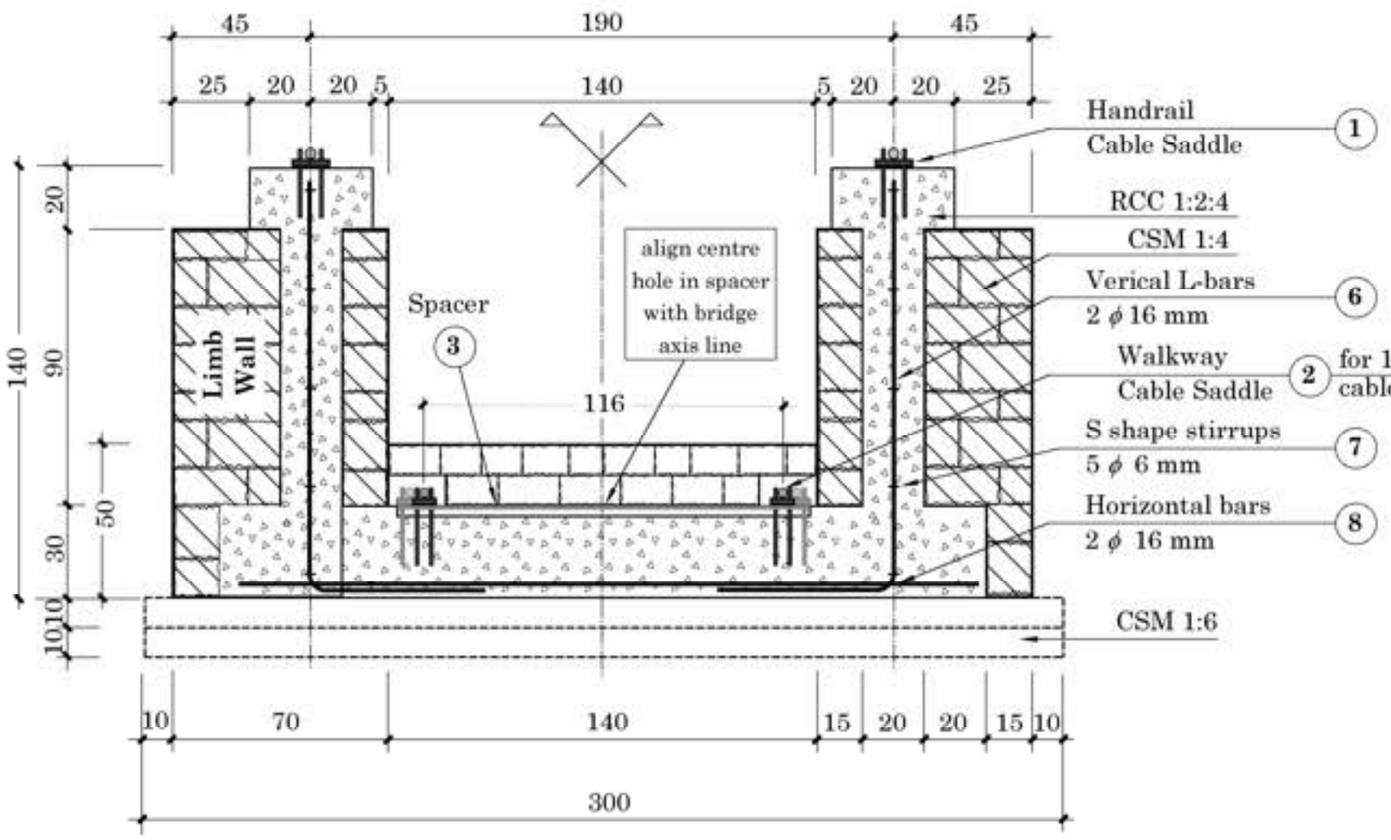
All Dimensions are in Centimeter

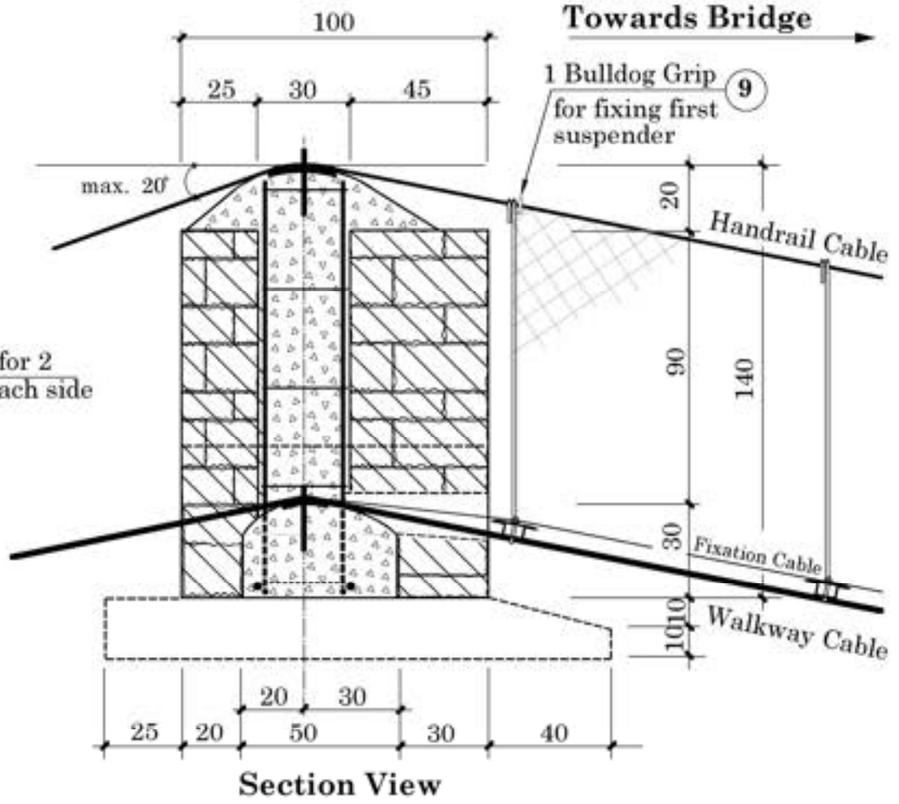
Related Steel Drawing is
20D2 , 20D4,
20D4S,
60D2 or **60D4**

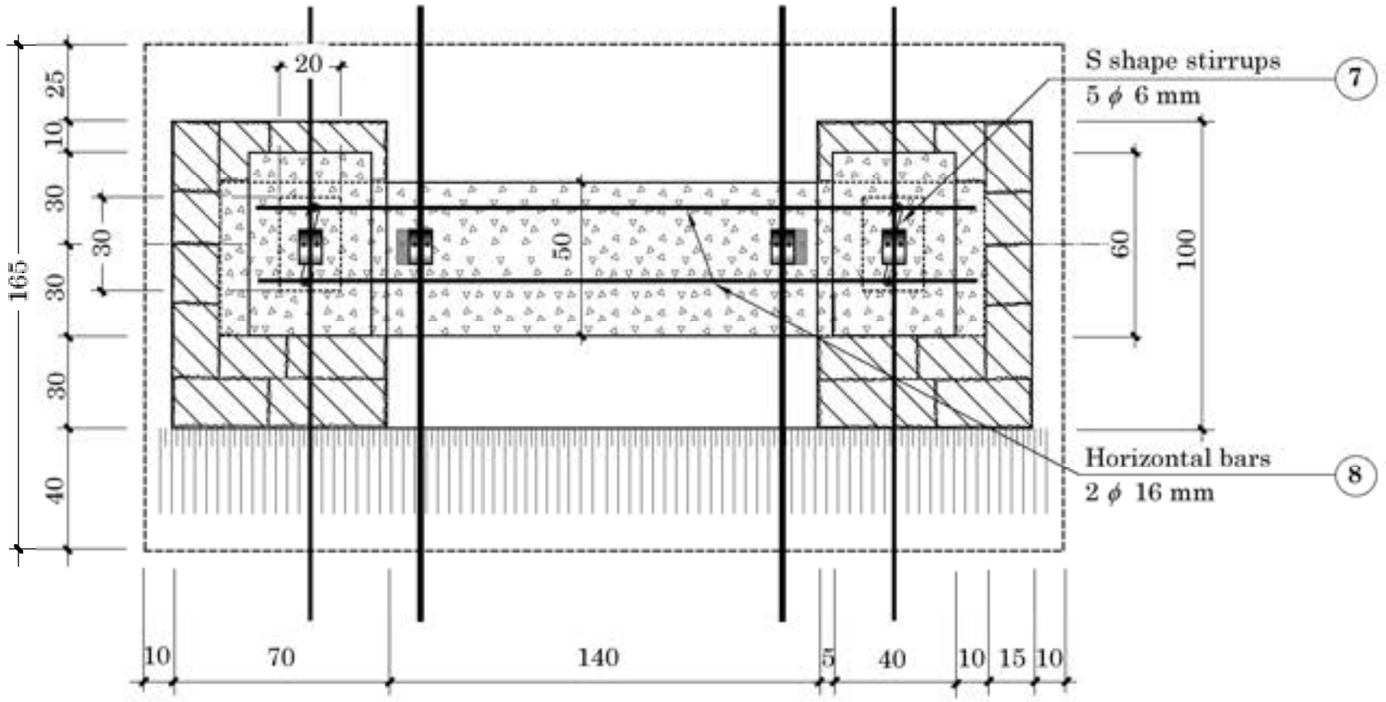
GoN / Ministry of Local Development
DoLIDAR / Short SpanTrail Bridge Standard
Bridge Name:
No: Span:
Construction Drawing:

Details of CSM Tower & RCC Core
for 70 cm Walkway Width

Date : August1, 2016 **Drawing No. 20D con70**







Standard Quantities

Cement Stone Masonry & Concrete Work	[m^3]	Cement bags /m^3	Cement bags
Chisel dressed Stone Masonry 1:4	1.41	2.28	3.21
Concrete 1:2:4	0.95	6.40	4.20

Scale 1 : 20

All Dimensions are in Centimeter

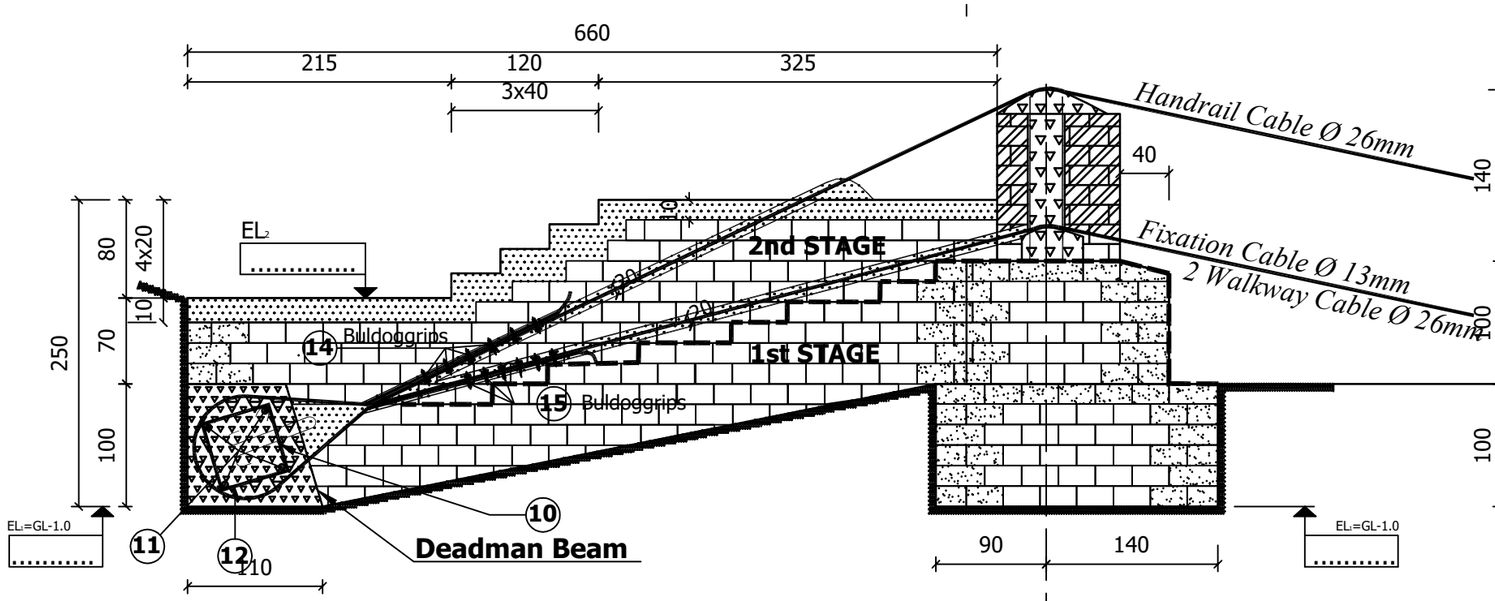
Related Steel Drawing is
20D2 , 20D4,
20D4S,
60D2 or **60D4**

GoN / Ministry of Local Development
DoLIDAR / Short SpanTrail Bridge Standard
Bridge Name:
No: Span:
Construction Drawing:

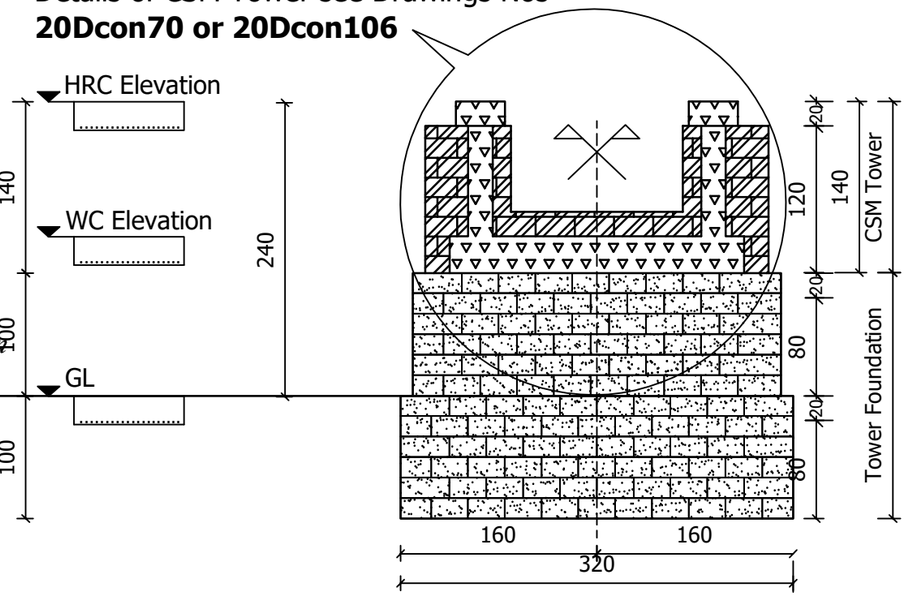
Details of CSM Tower & RCC Core
for 106 cm Walkway Width

Date : August1, 2016 **Drawing No. 20D con106**

Gravity Soil Anchor Block | Tower

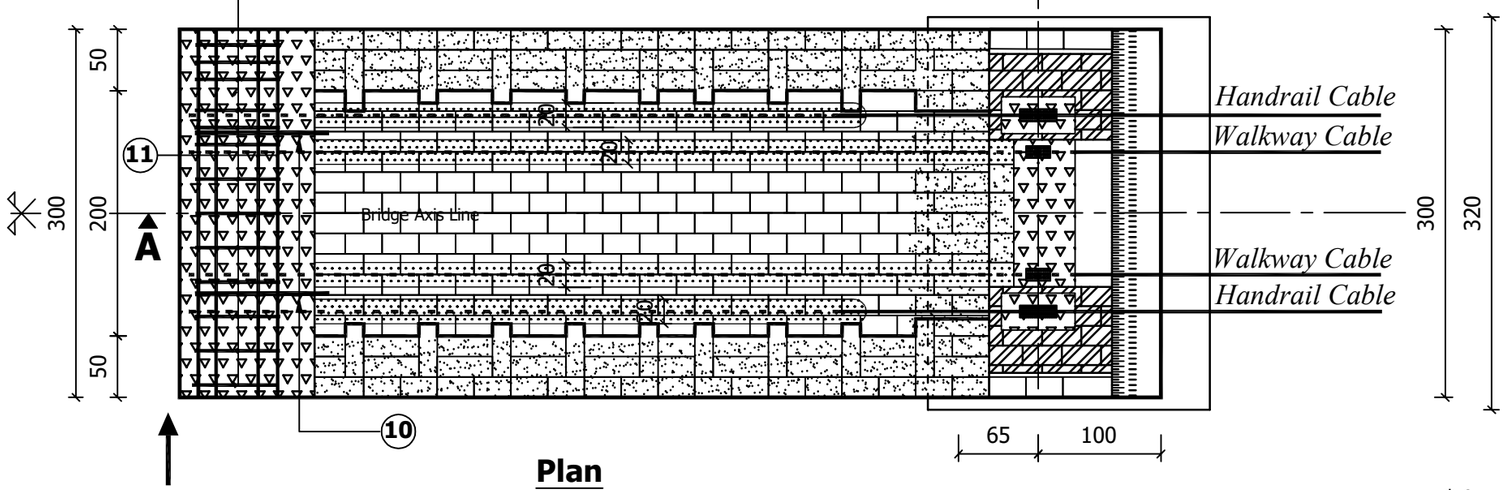


Section A-A

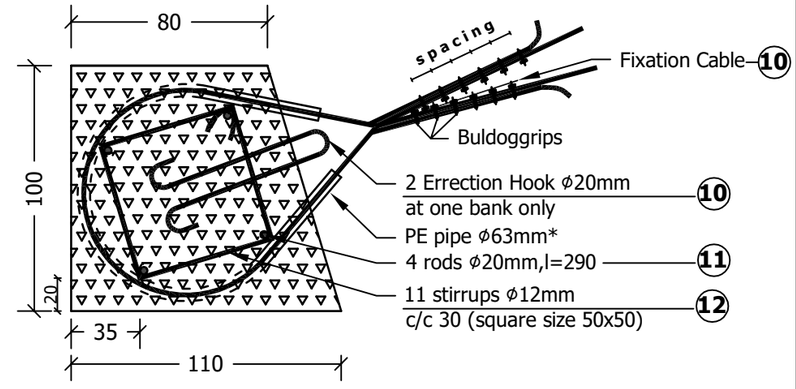


Front Elevation

Important Note : Tower Block & Dead Load should be constructed simultaneously and monolithically in stages as shown in Section A-A.



Plan



Deadman Beam

(Scale 1:25)

Provide Drainage behind deadman beam with side outlet in case of seepage water.

Construct (Hammer dressed dry stone masonry) Staircase as per site condition

Related Steel Drawing is : 20D2

*4 nos of PE Pipes, ϕ 63mm
3.5m length per cable end

Scale 1:50
All Dimension are in Centimeter

Standard Quantities

	Chisel dressed Stone Masonry in 1:4 CSM	Hammer dressed Stone Masonry in 1:6 CSM	Hammer dressed Dry Stone Masonry	Concrete 1:2:4	Concrete 1:3:6
(m^3)	See Drawing No 20Dcon70 or 20Dcon106	19.34	19.81	2.85	2.96
Cement bags		29.01	------	18.24	13.02

Nos & Spacing of Buldog Grips		
Cable ϕ mm	Nos	Spacing (cm)
13	3	10
26	5	15
32	5	20

GoN / Ministry of Local Development
DoLIDAR / Short Span Trail Bridge Standard

Bridge Name :

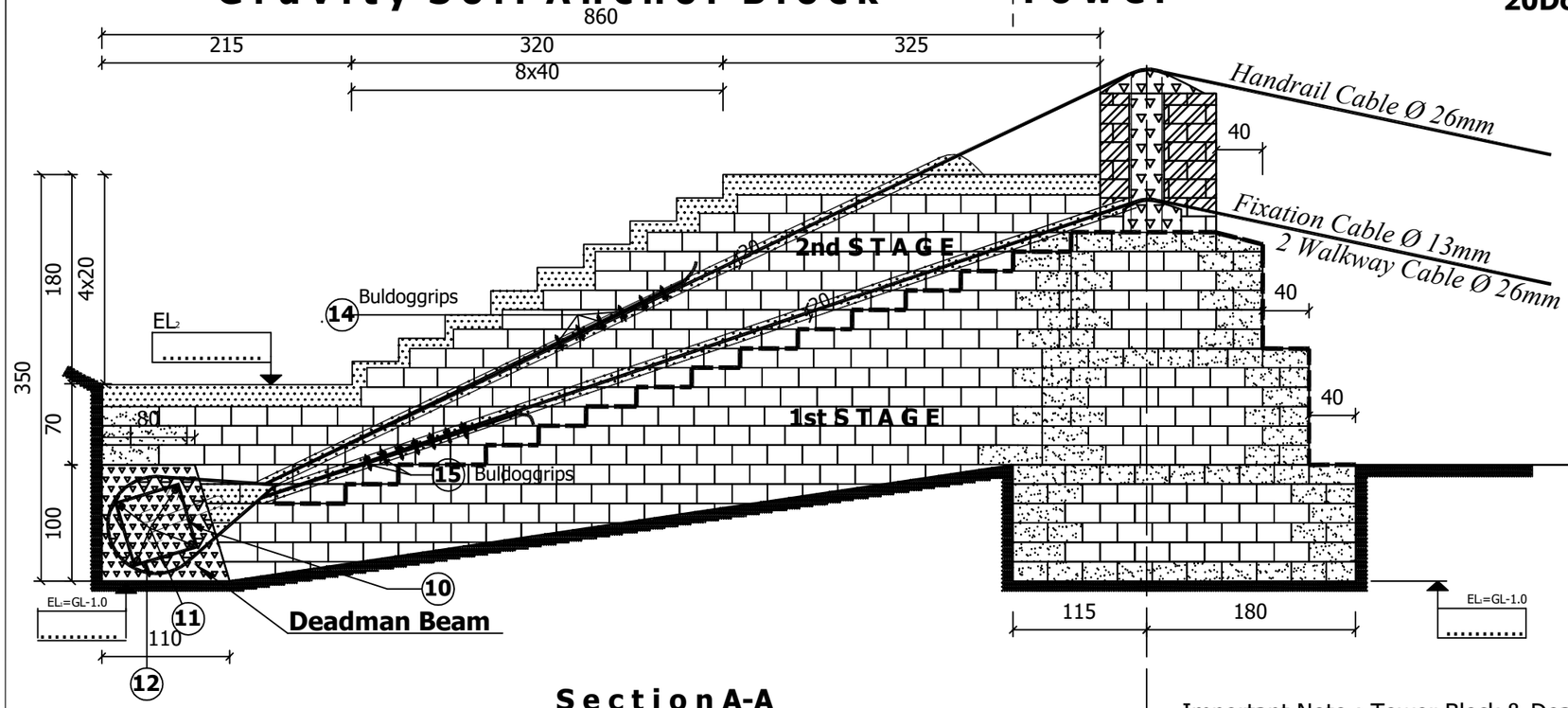
No: Bank : Span :

Construction Drawing:

Gravity Main Anchor Block in Flat Ground
Type 1F
2 Walkway Cables

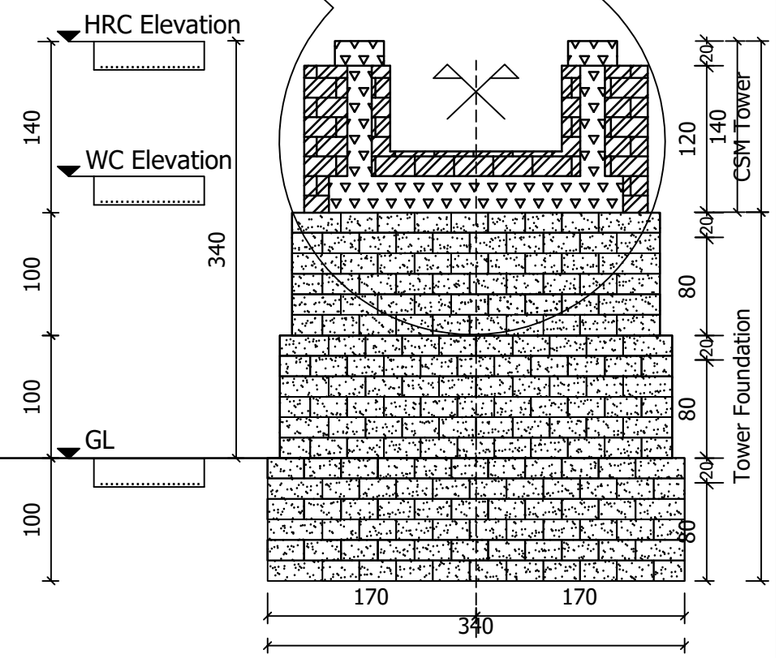
Date : August 01, 2016 Drawing No. 21Dcon

Gravity Soil Anchor Block Tower



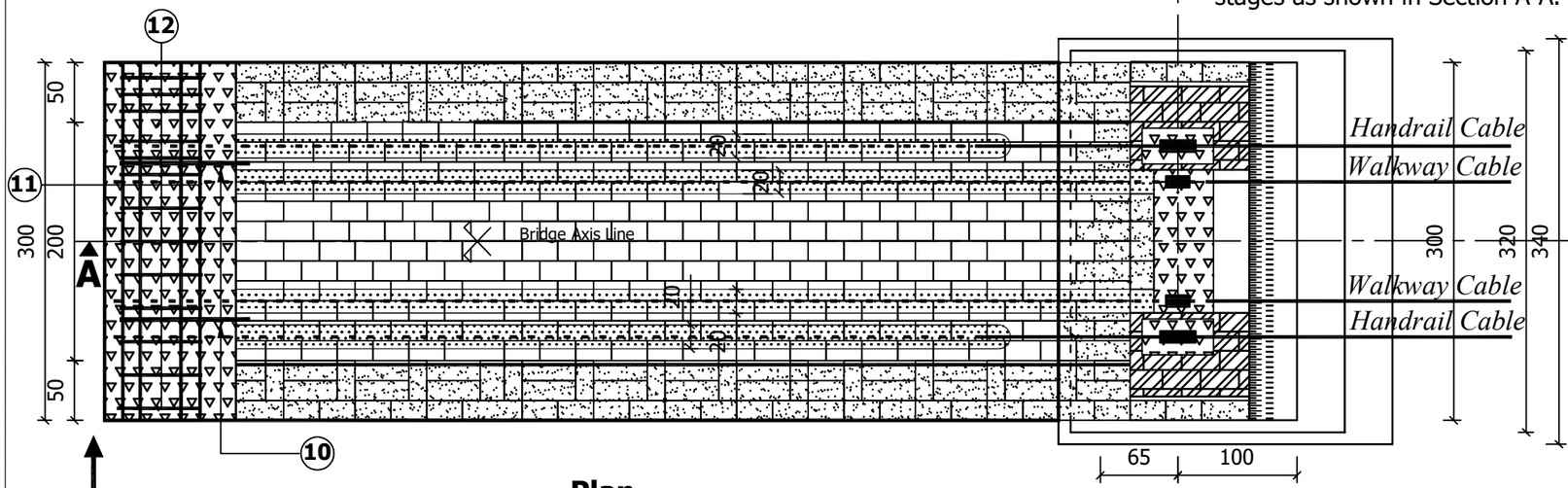
Section A-A

Details of CSM Tower see Drawings Nos
20Dcon70 or 20Dcon106

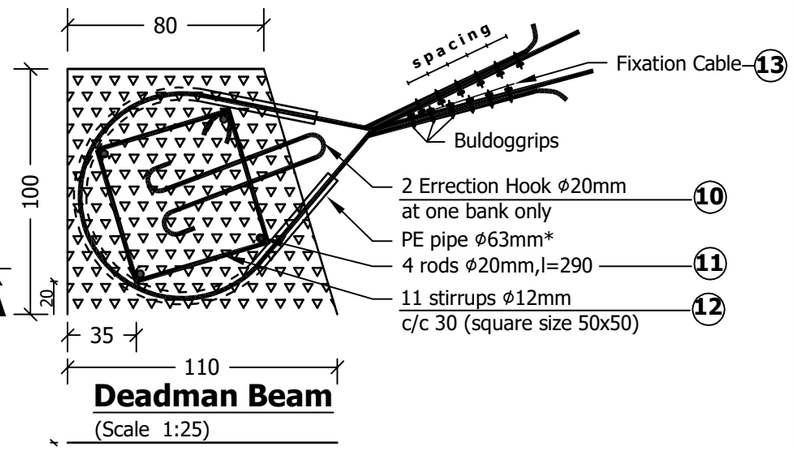


Front Elevation

Important Note : Tower Block & Dead Load should be constructed simultaneously and monolithically in stages as shown in Section A-A.



Plan



Deadman Beam
(Scale 1:25)

Provide Drainage behind deadman beam with side outlet in case of seepage water.

Construct (Hammer dressed dry stone masonry) Staircase as per site condition

Related Steel Drawing is : 20D2

*4 nos of PE Pipes, ϕ 63mm
3.5m length per cable end

Scale 1:50
All Dimension are in Centimeter

Standard Quantities

	Chisel dressed Stone Masonry in 1:4 CSM	Hammer dressed Stone Masonry in 1:6 CSM	Hammer dressed Dry Stone Masonry	Concrete 1:2:4	Concrete 1:3:6	Nos & Spacing of Buldog Grips		
						Cable ϕ mm	Nos	Spacing (cm)
(m^3)	See Drawing No 20Dcon70 or 20Dcon106	34.07	37.71	2.85	3.88	13	3	10
						26	5	15
Cement bags		51.10	------	18.24	17.07	32	5	20

GoN / Ministry of Local Development
DoLIDAR / Short Span Trail Bridge Standard

Bridge Name :

No: Bank : Span :

Construction Drawing:

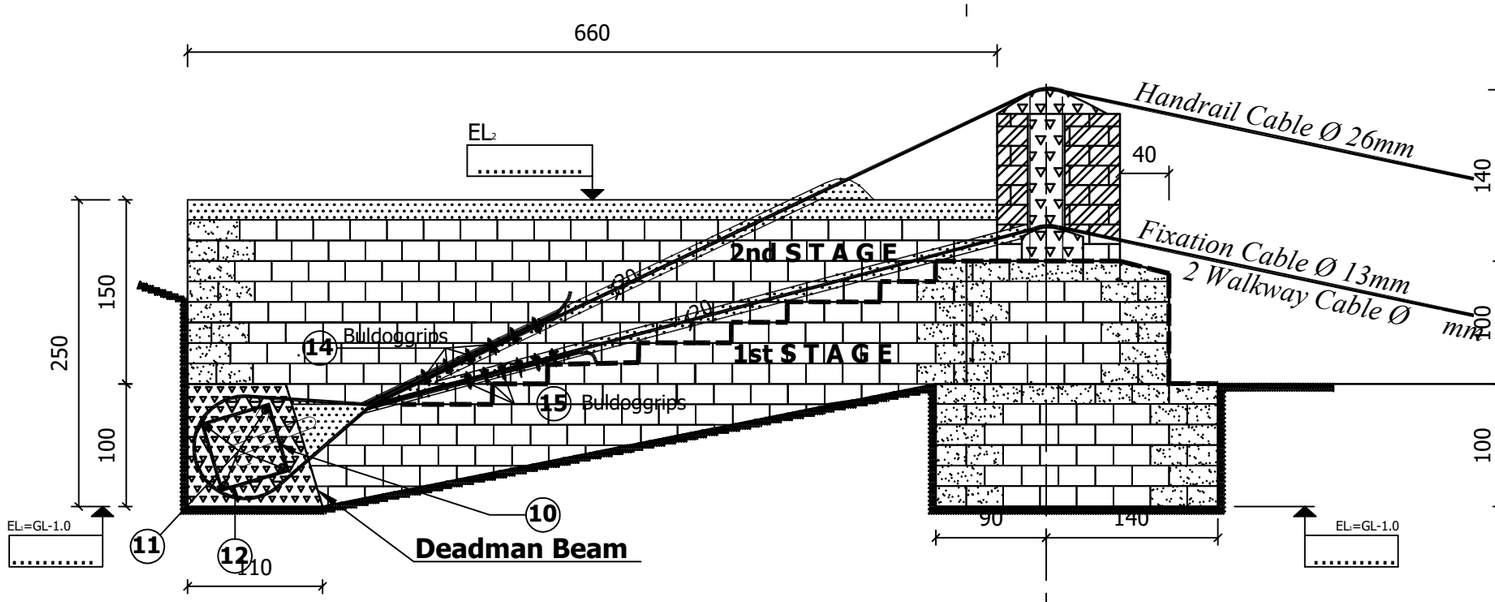
Gravity Main Anchor Block in Flat Ground

Type 2F

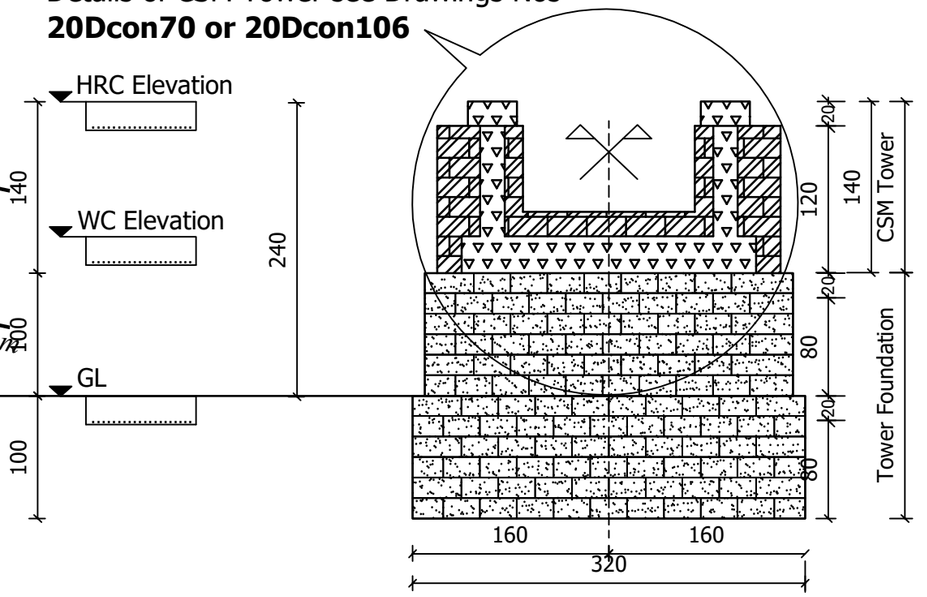
2 Walkway Cables

Date : August 01, 2016 Drawing No. 22Dcon

Gravity Soil Anchor Block | Tower

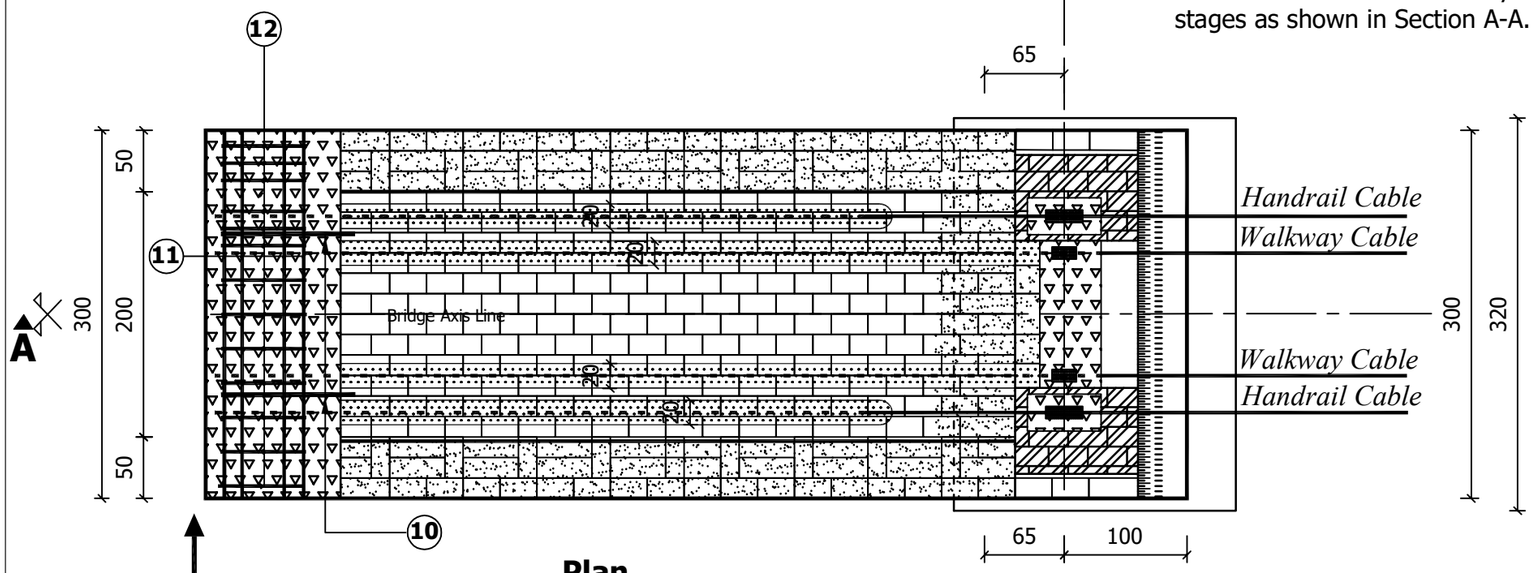


Section A-A

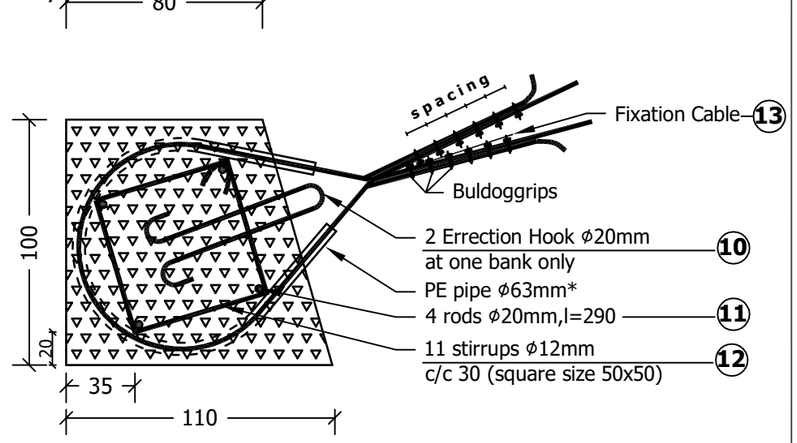


Front Elevation

Important Note : Tower Block & Dead Load should be constructed simultaneously and monolithically in stages as shown in Section A-A.



Plan



Deadman Beam

(Scale 1:25)

Provide Drainage behind deadman beam with side outlet in case of seepage water.

Construct (Hammer dressed dry stone masonry) Staircase as per site condition

Related Steel Drawing is : 20D2

*4 nos of PE Pipes, ϕ 63mm 3.5m length per cable end

Scale 1:50
All Dimension are in Centimeter

Standard Quantities

	Chisel dressed Stone Masonry in 1:4 CSM	Hammer dressed Stone Masonry in 1:6 CSM	Hammer dressed Dry Stone Masonry	Concrete 1:2:4	Concrete 1:3:6	Nos & Spacing of Buldog Grips		
						Cable ϕ mm	Nos	Spacing (cm)
(m^3)	See Drawing No 20Dcon70 or 20Dcon106	21.76	24.97	2.85	2.96	13	3	10
						26	5	15
Cement bags		32.64	------	18.24	13.02	32	5	20

GoN / Ministry of Local Development
DoLIDAR / Short Span Trail Bridge Standard

Bridge Name :

No: Bank : Span :

Construction Drawing:

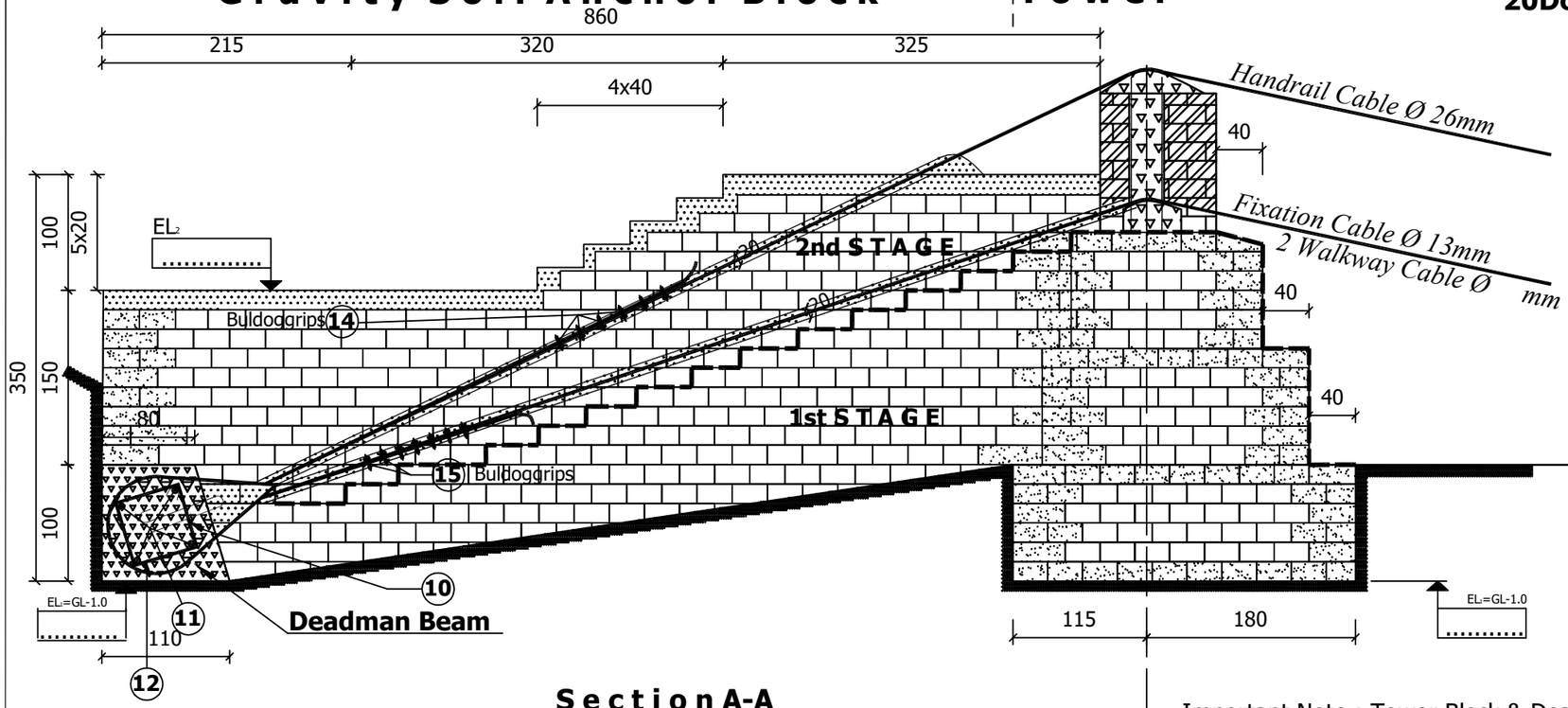
Gravity Main Anchor Block in Flat Ground

Type 4F

2 Walkway Cables

Date : August 01, 2016 Drawing No. 24Dcon

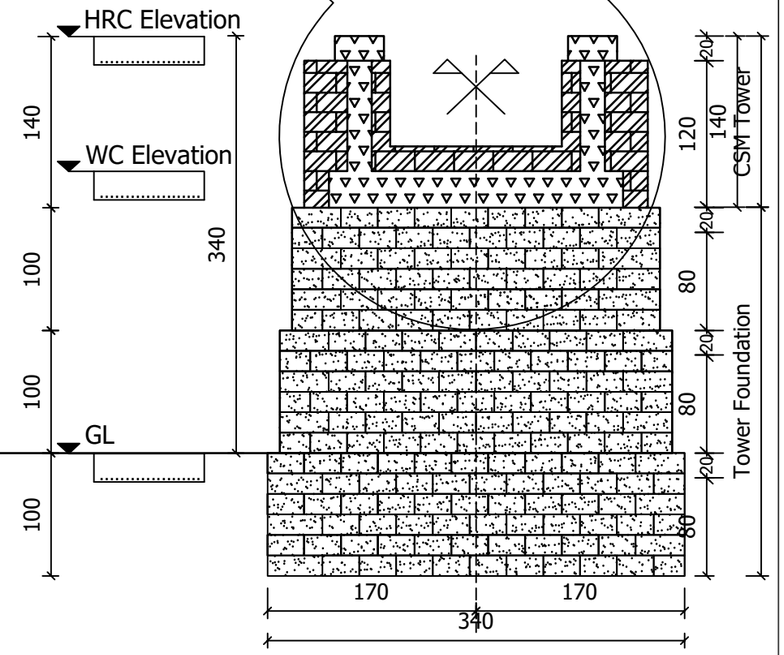
Gravity Soil Anchor Block



Section A-A

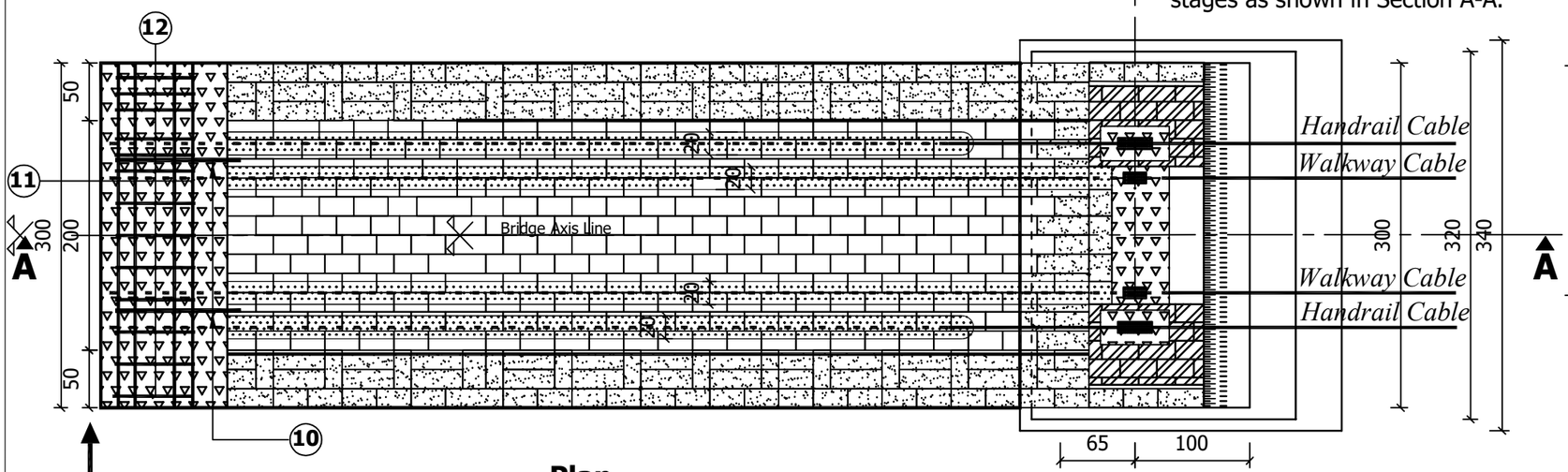
Tower

Details of CSM Tower see Drawings Nos
20Dcon70 or 20Dcon106

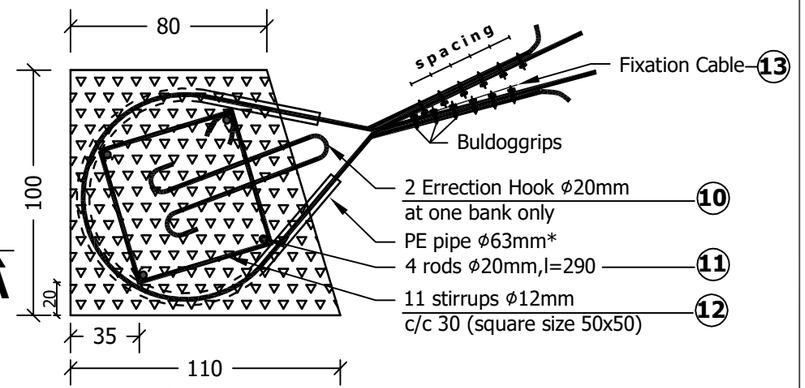


Front Elevation

Important Note : Tower Block & Dead Load should be constructed simultaneously and monolithically in stages as shown in Section A-A.



Plan



Deadman Beam
(Scale 1:25)

Provide Drainage behind deadman beam with side outlet in case of seepage water.

Construct (Hammer dressed dry stone masonry) Staircase as per site condition

Related Steel Drawing is : 20D2

*4 nos of PE Pipes, ϕ 63mm 3.5m length per cable end

Scale 1:50
All Dimension are in Centimeter

Standard Quantities

	Chisel dressed Stone Masonry in 1:4 CSM	Hammer dressed Stone Masonry in 1:6 CSM	Hammer dressed Dry Stone Masonry	Concrete 1:2:4	Concrete 1:3:6
(m^3)	See Drawing No 20Dcon70 or 20Dcon106	36.29	42.47	2.85	3.88
Cement bags		54.43	------	18.24	17.07

Nos & Spacing of Buldog Grips		
Cable ϕ mm	Nos	Spacing (cm)
13	3	10
26	5	15
32	5	20

GoN / Ministry of Local Development
DoLIDAR / Short Span Trail Bridge Standard

Bridge Name :

No: Bank : Span :

Construction Drawing:

Gravity Main Anchor Block in Flat Ground

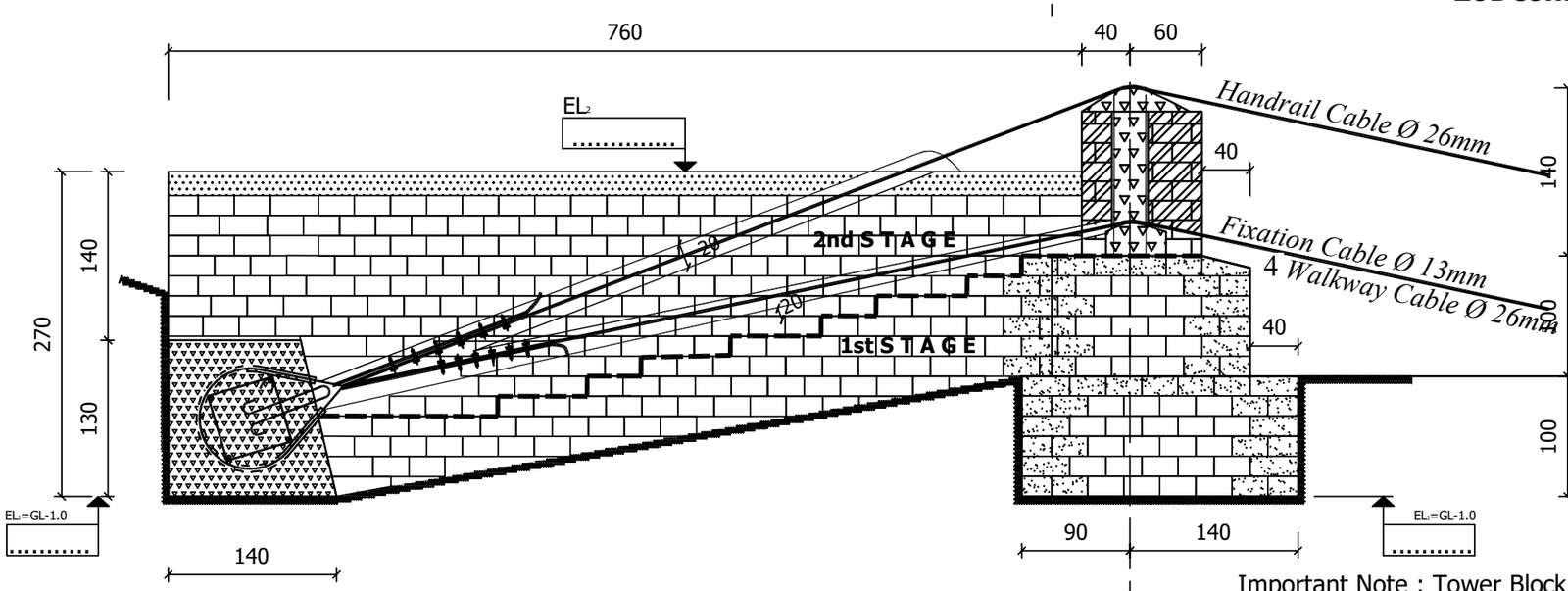
Type 5F

2 Walkway Cables

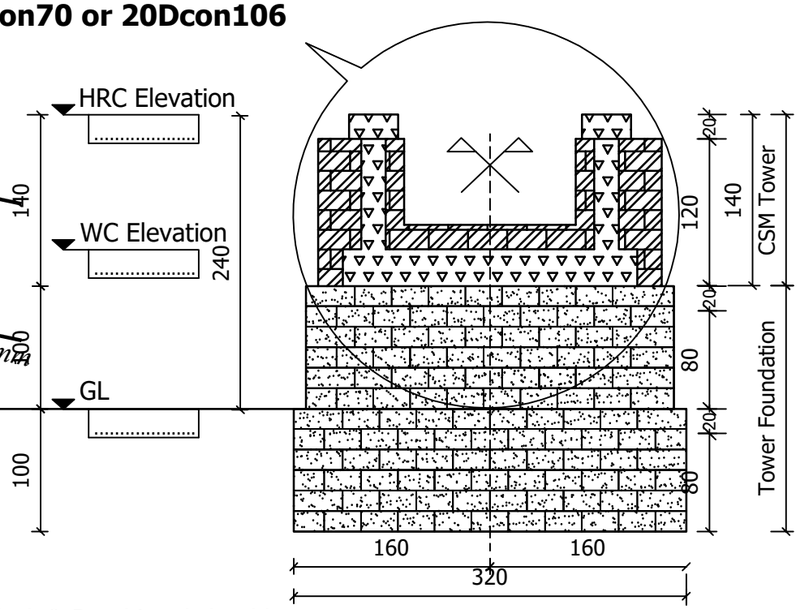
Date : August 01, 2016 Drawing No. 25Dcon

Gravity Soil Anchor Block | Tower

Details of CSM Tower see Drawings Nos
20Dcon70 or 20Dcon106

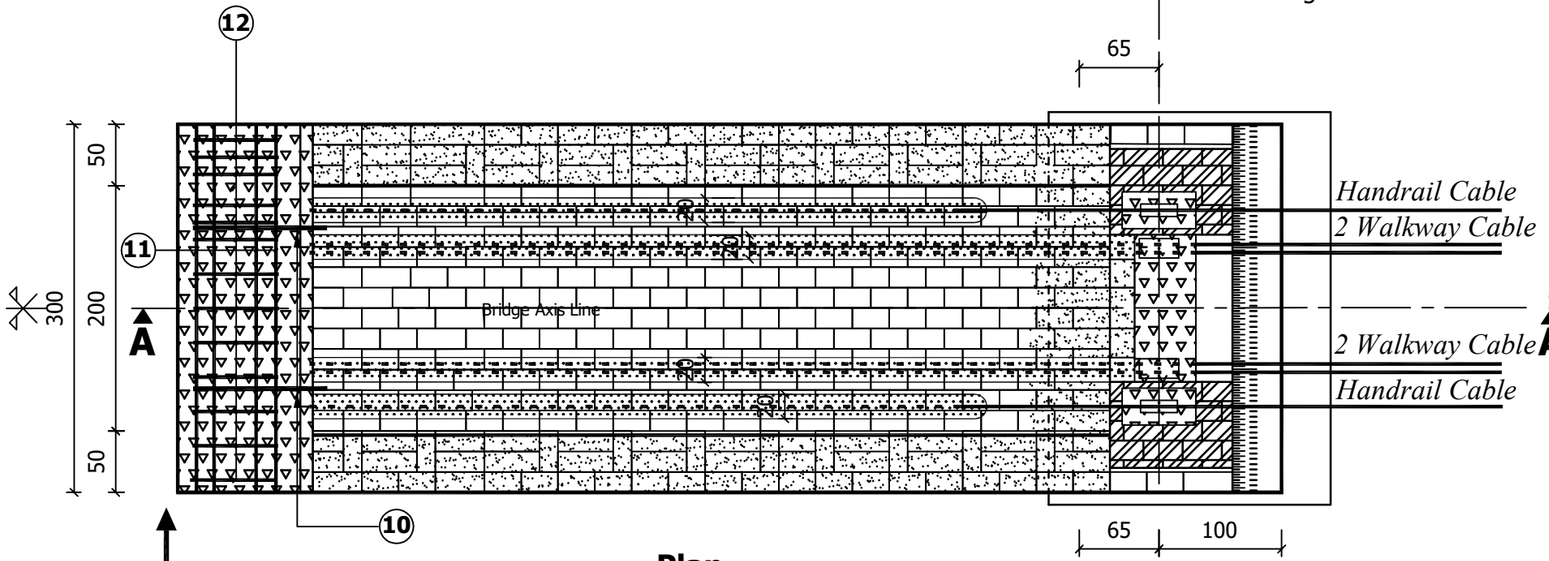


Section A-A

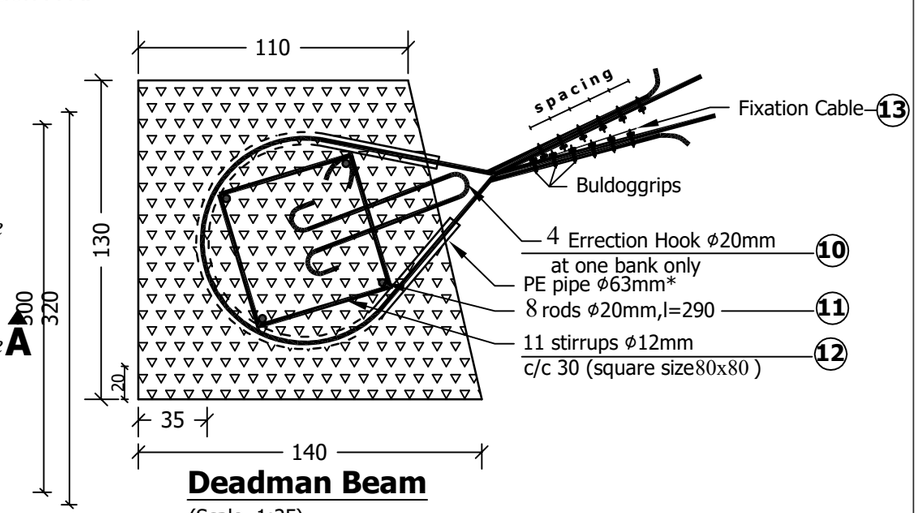


Front Elevation

Important Note : Tower Block & Dead Load should be constructed simultaneously and monolithically in stages as shown in Section A-A.



Plan



Deadman Beam

(Scale 1:25)

Provide Drainage behind deadman beam with side outlet in case of seepage water.

Construct (Hammer dressed dry stone masonry) Staircase as per site condition

Related Steel Drawing is : 20D4

*6 nos of PE Pipes, ϕ 63mm 3.5m length per cable end

Scale 1:50
All Dimension are in Centimeter

Standard Quantities

	Chisel dressed Stone Masonry in 1:4 CSM	Hammer dressed Stone Masonry in 1:6 CSM	Hammer dressed Dry Stone Masonry	Concrete 1:2:4	Concrete 1:3:6	Nos & Spacing of Buldog Grips		
						Cable ϕ mm	Nos	Spacing (cm)
(m^3)	See Drawing No 20Dcon70 or 20Dcon106	24.98	32.85	4.88	3.42	13	3	10
						26	5	15
Cement bags		37.47	------	31.23	15.05	32	5	20

GoN / Ministry of Local Development
DoLIDAR / Short Span Trail Bridge Standard

Bridge Name :

No: Bank : Span :

Construction Drawing:

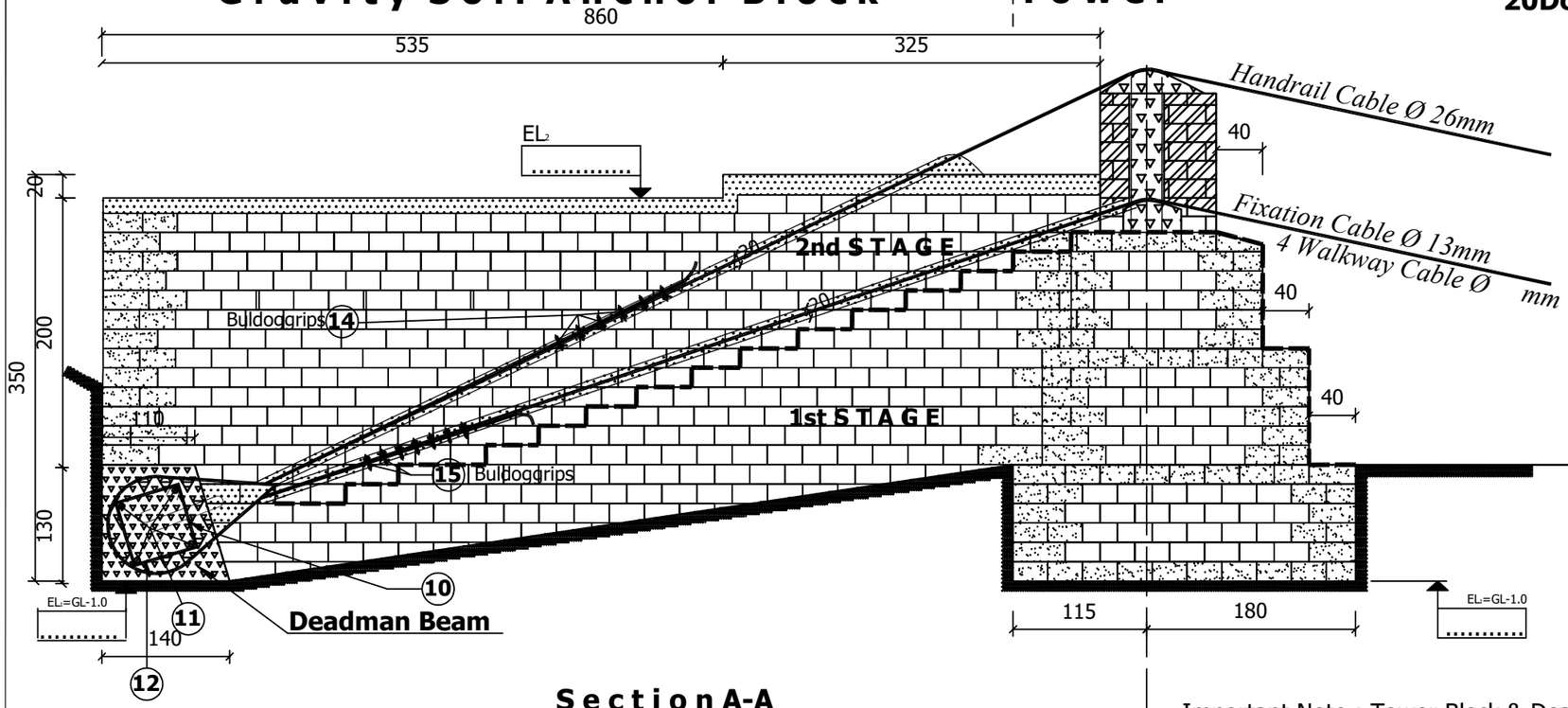
Gravity Main Anchor Block in Flat Ground

Type 7F

4 Walkway Cables

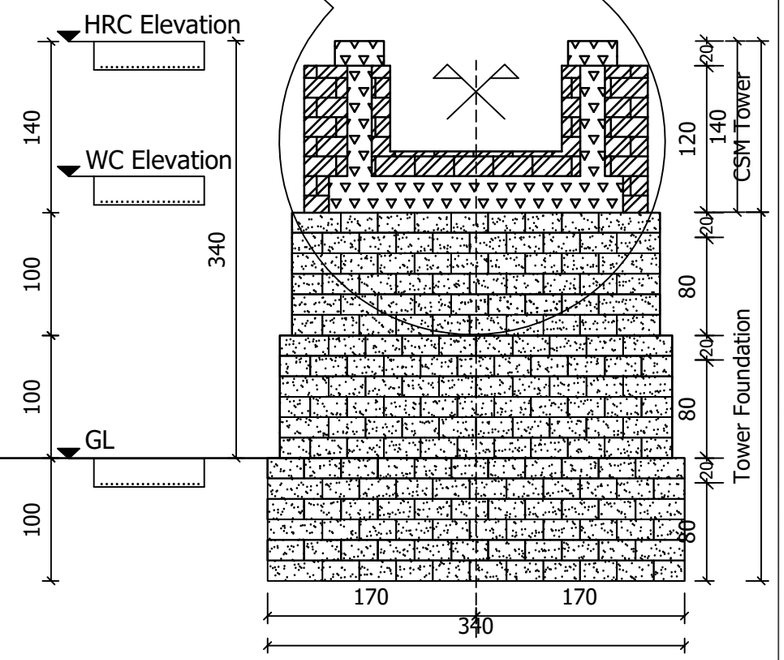
Date : August 01, 2016 Drawing No. 27Dcon

Gravity Soil Anchor Block Tower



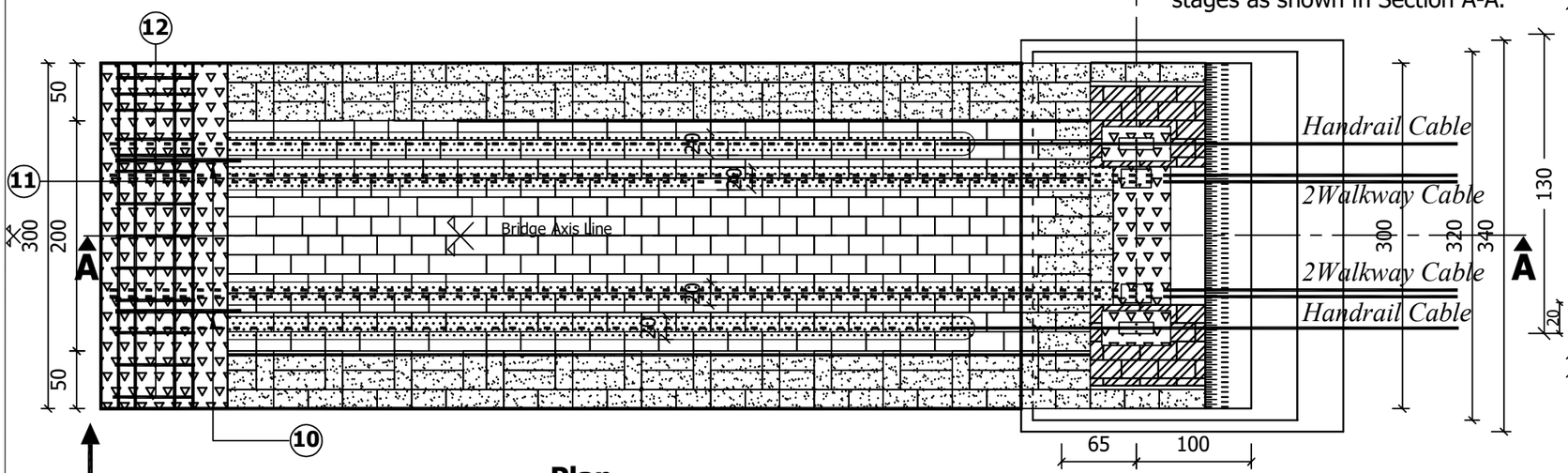
Section A-A

Details of CSM Tower see Drawings Nos **20Dcon70 or 20Dcon106**

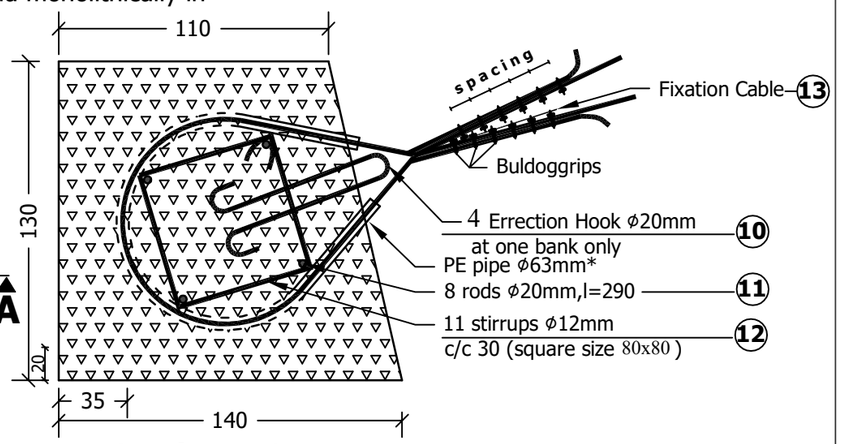


Front Elevation

Important Note : Tower Block & Dead Load should be constructed simultaneously and monolithically in stages as shown in Section A-A.



Plan



Deadman Beam

(Scale 1:25)

Provide Drainage behind deadman beam with side outlet in case of seepage water.

Construct (Hammer dressed dry stone masonry) Staircase as per site condition

Related Steel Drawing is : 20D4

*6 nos of PE Pipes, ϕ 63mm 3.5m length per cable end

Scale 1:50

All Dimension are in Centimeter

Standard Quantities

	Chisel dressed Stone Masonry in 1:4 CSM	Hammer dressed Stone Masonry in 1:6 CSM	Hammer dressed Dry Stone Masonry	Concrete 1:2:4	Concrete 1:3:6
(m^3)	See Drawing No 20Dcon70 or 20Dcon106	39.95	52.19	4.88	3.88
Cement bags		59.92	------	31.20	17.07

Nos & Spacing of Buldog Grips		
Cable ϕ mm	Nos	Spacing (cm)
13	3	10
26	5	15
32	5	20

GoN / Ministry of Local Development
DoLIDAR / Short Span Trail Bridge Standard

Bridge Name :

No: Bank : Span :

Construction Drawing:

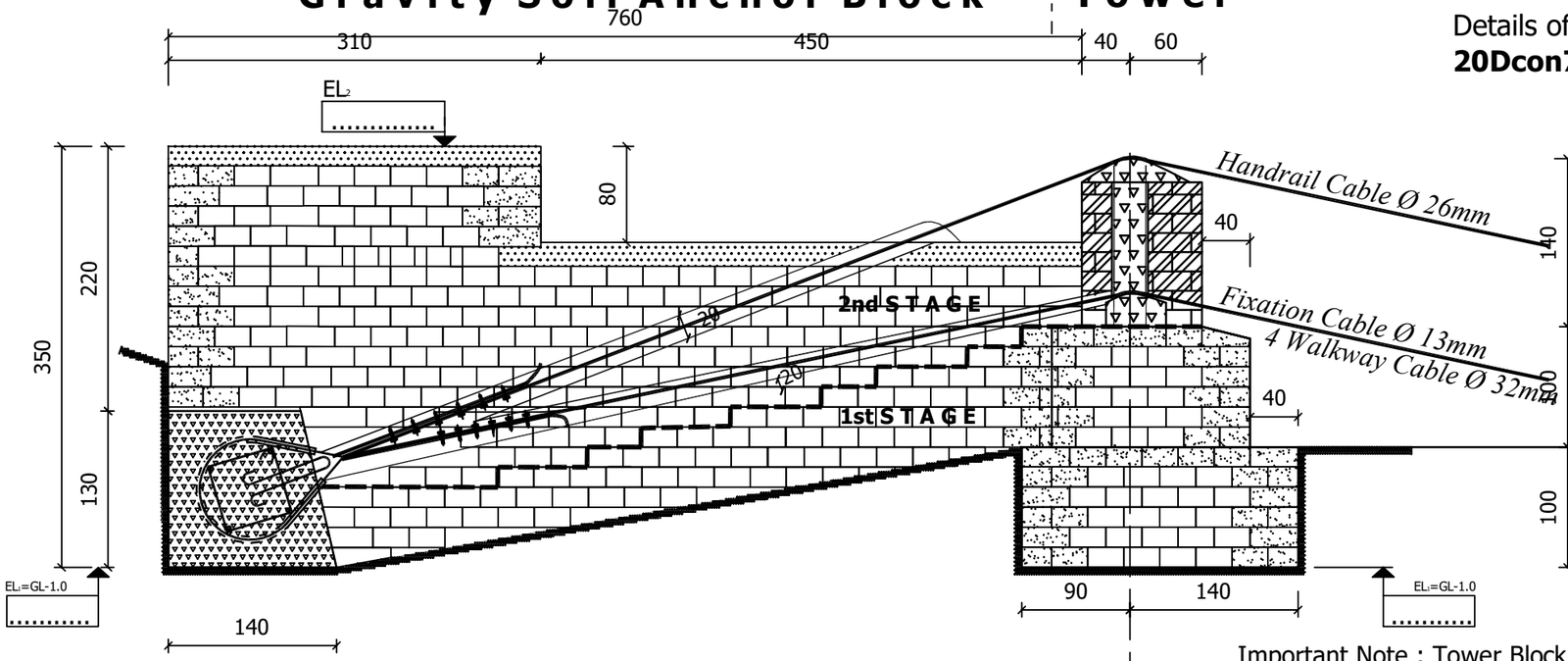
Gravity Main Anchor Block in Flat Ground

Type 8F

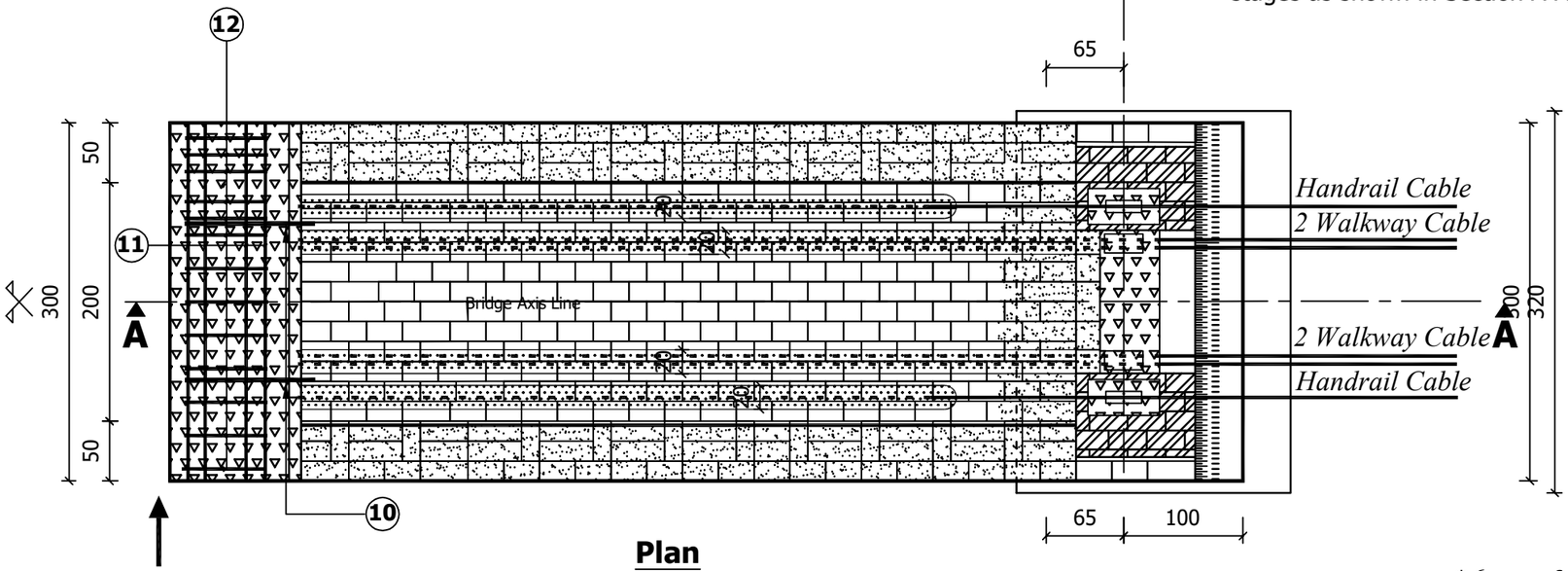
4 Walkway Cables

Date : August 01, 2016 Drawing No. 28Dcon

Gravity Soil Anchor Block | Tower



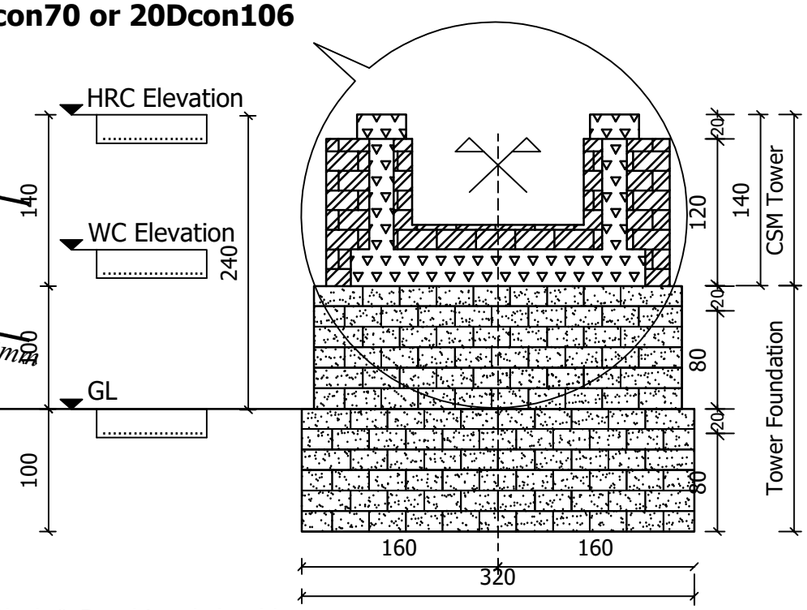
Section A-A



Plan

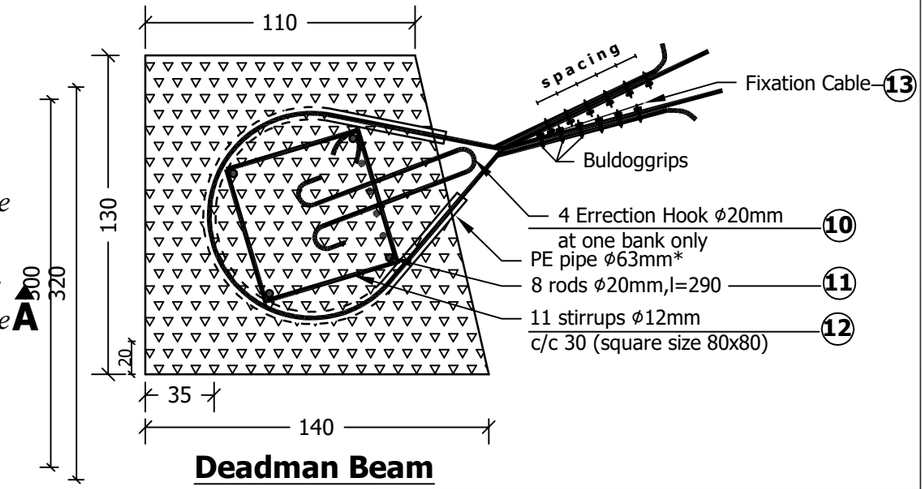
Provide Drainage behind deadman beam with side outlet in case of seepage water.

Details of CSM Tower see Drawings Nos
20Dcon70 or 20Dcon106



Front Elevation

Important Note : Tower Block & Dead Load should be constructed simultaneously and monolithically in stages as shown in Section A-A.



Deadman Beam
(Scale 1:25)

Construct (Hammer dressed dry stone masonry) Staircase as per site condition

Related Steel Drawing is : 20D4

*6 nos of PE Pipes, ϕ 63mm 3.5m length per cable end

Scale 1:50
All Dimension are in Centimeter

Standard Quantities

	Chisel dressed Stone Masonry in 1:4 CSM	Hammer dressed Stone Masonry in 1:6 CSM	Hammer dressed Dry Stone Masonry	Concrete 1:2:4	Concrete 1:3:6	Nos & Spacing of Buldog Grips		
						Cable ϕ mm	Nos	Spacing (cm)
(m^3)	See Drawing No 20Dcon70 or 20Dcon106	29.10	37.80	4.88	3.42	13	3	10
						26	5	15
Cement bags		43.64	------	31.23	15.05	32	5	20

GoN / Ministry of Local Development
DoLIDAR / Short Span Trail Bridge Standard

Bridge Name :

No: Bank : Span :

Construction Drawing:

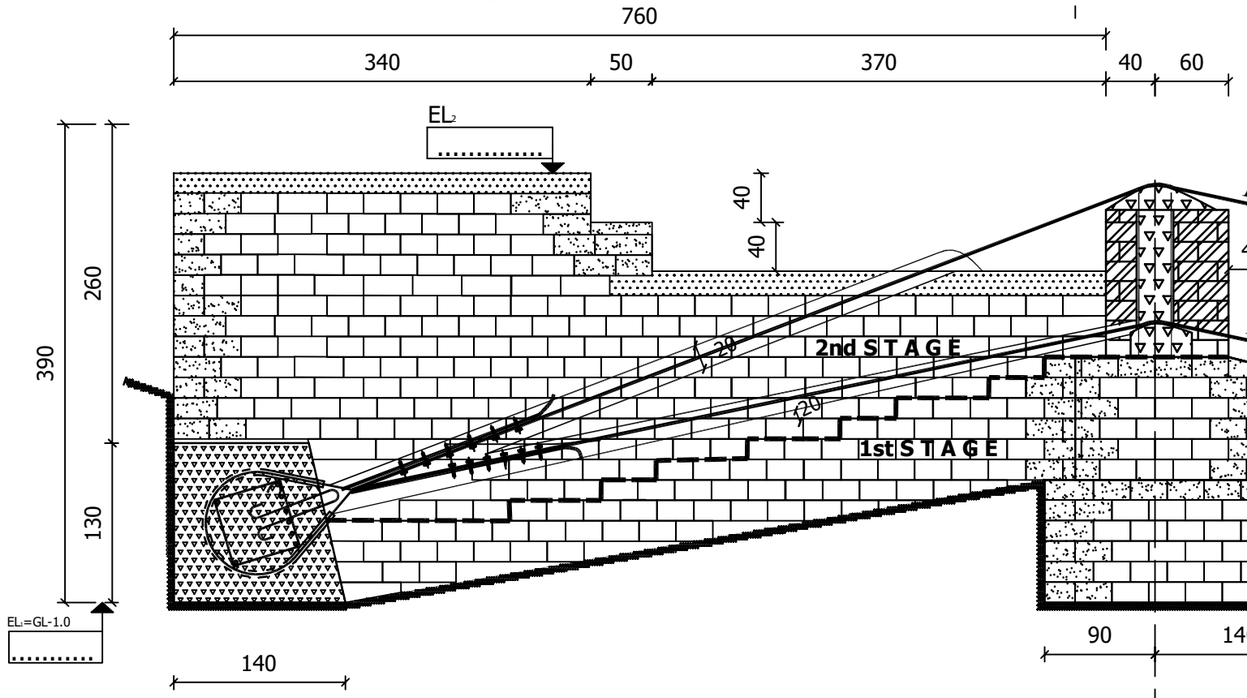
Gravity Main Anchor Block in Flat Ground

Type 10F

4 Walkway Cables

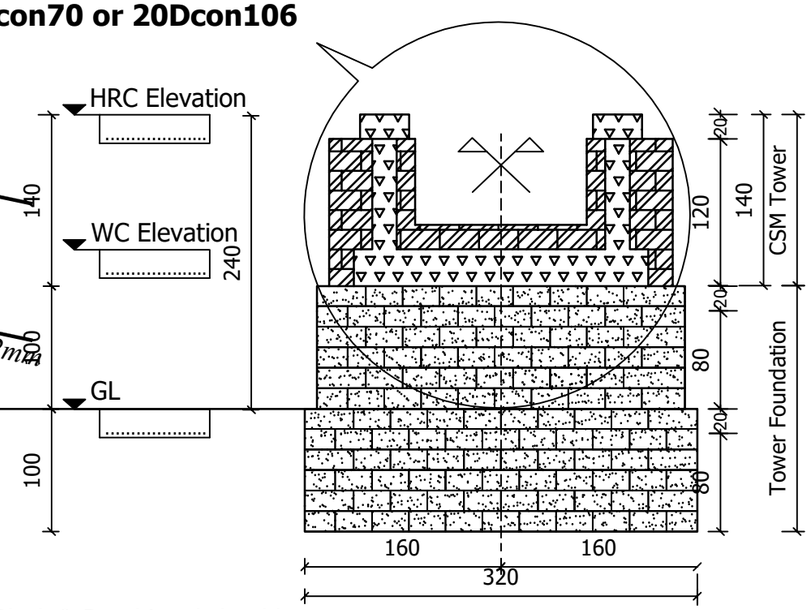
Date : August 01, 2016 Drawing No. 30Dcon

Gravity Soil Anchor Block | Tower



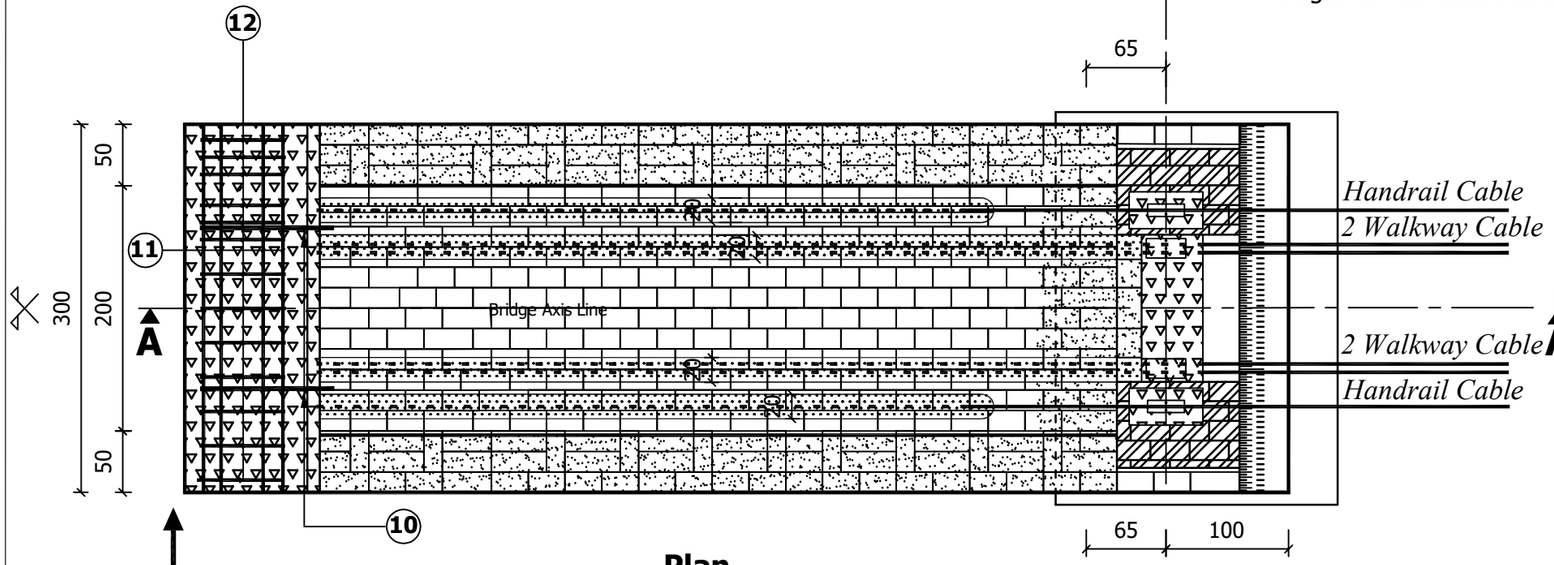
Section A-A

Details of CSM Tower see Drawings Nos
20Dcon70 or 20Dcon106

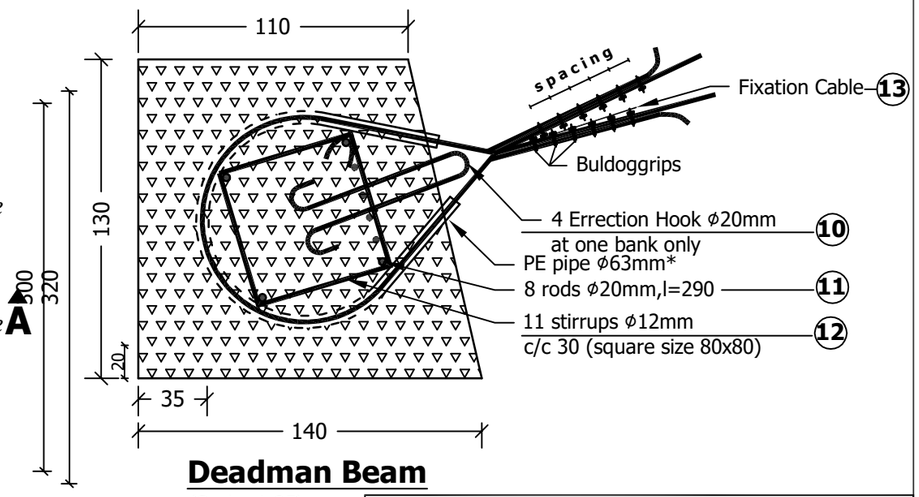


Important Note : Tower Block & Dead Load should be constructed simultaneously and monolithically in stages as shown in Section A-A.

Front Elevation



Plan



Deadman Beam

(Scale 1:25)

Provide Drainage behind deadman beam with side outlet in case of seepage water.

Construct (Hammer dressed dry stone masonry) Staircase as per site condition

Related Steel Drawing is : 20D4

* 6 nos of PE Pipes, ϕ 63mm 3.5m length per cable end

Standard Quantities

Scale 1:50
All Dimension are in Centimeter

	Chisel dressed Stone Masonry in 1:4 CSM	Hammer dressed Stone Masonry in 1:6 CSM	Hammer dressed Dry Stone Masonry	Concrete 1:2:4	Concrete 1:3:6	Nos & Spacing of Buldog Grips		
						Cable ϕ mm	Nos	Spacing (cm)
(m^3)	See Drawing No 20Dcon70 or 20Dcon106	30.50	38.65	4.88	3.42	13	3	10
						26	5	15
Cement bags		45.75	------	31.23	15.05	32	5	20

GoN / Ministry of Local Development
DoLIDAR / Short Span Trail Bridge Standard

Bridge Name :

No: Bank : Span :

Construction Drawing:

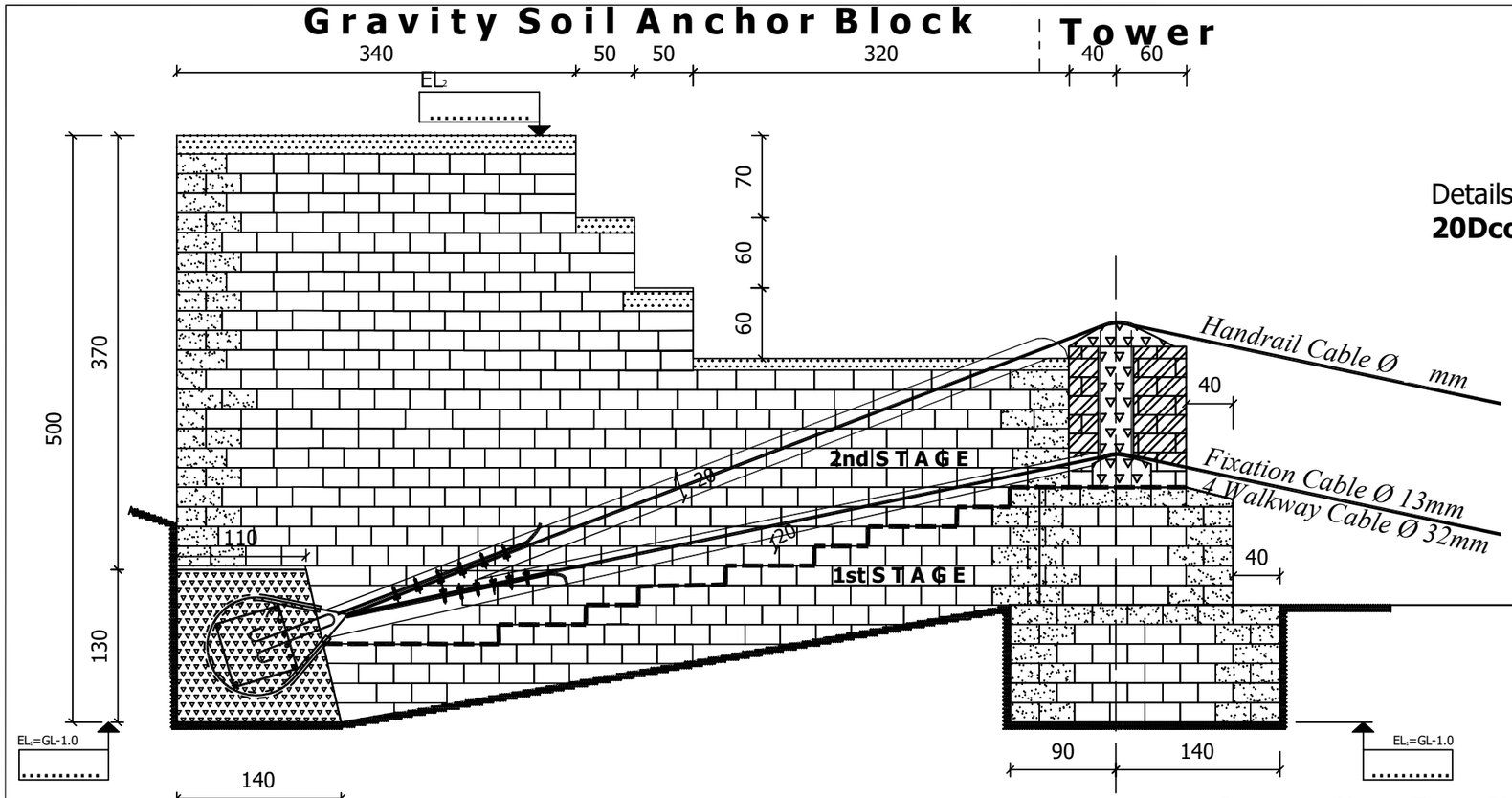
Gravity Main Anchor Block in Flat Ground

Type 12F

4 Walkway Cables

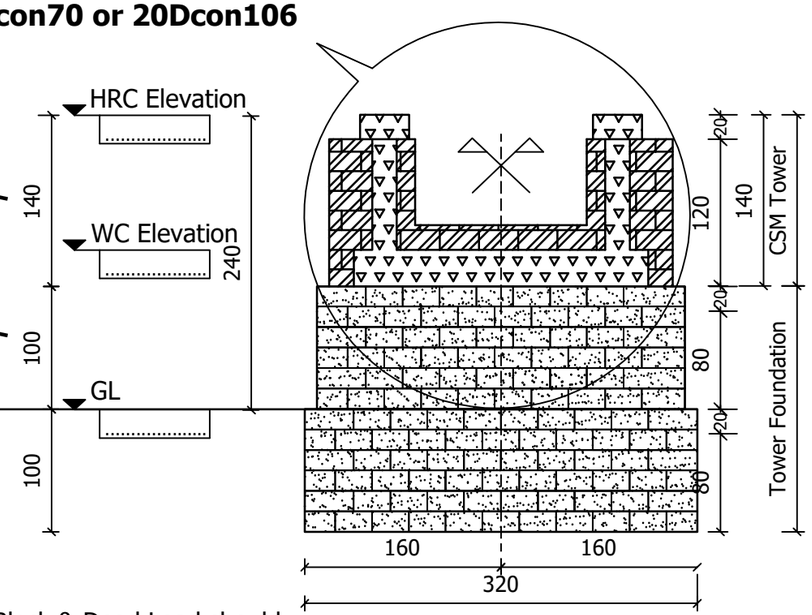
Date : August 01, 2016 Drawing No. 32Dcon

Gravity Soil Anchor Block



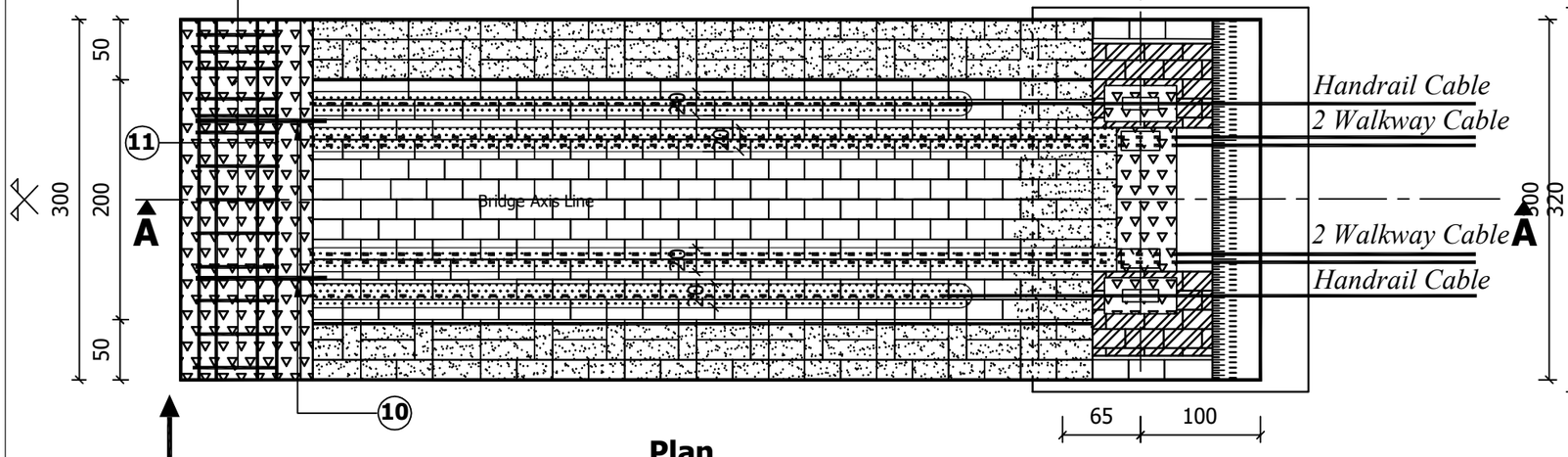
Section A-A

Details of CSM Tower see Drawings Nos
20Dcon70 or 20Dcon106

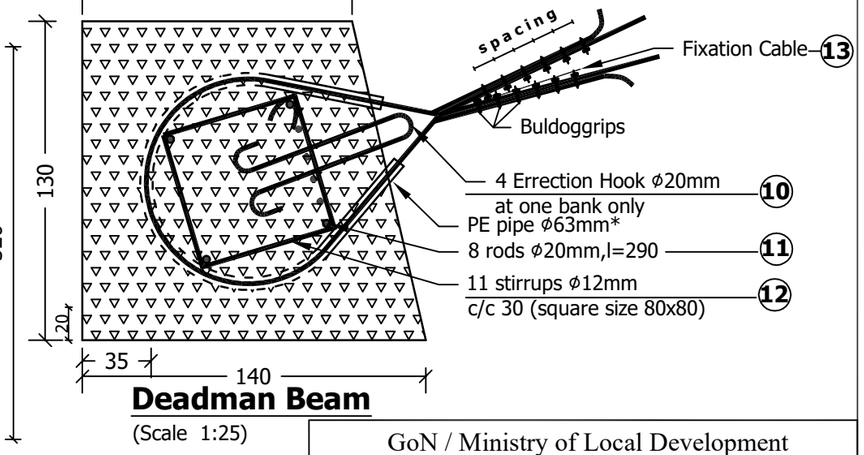


Front Elevation

Important Note : Tower Block & Dead Load should be constructed simultaneously and monolithically in stages as shown in Section A-A.



Plan



Deadman Beam

(Scale 1:25)

Provide Drainage behind deadman beam with side outlet in case of seepage water.

Construct (Hammer dressed dry stone masonry) Staircase as per site condition

Related Steel Drawing is : 20D4

*6 nos of PE Pipes, ϕ 63mm 3.5m length per cable end

Scale 1:50

All Dimension are in Centimeter

Standard Quantities

	Chisel dressed Stone Masonry in 1:4 CSM	Hammer dressed Stone Masonry in 1:6 CSM	Hammer dressed Dry Stone Masonry	Concrete 1:2:4	Concrete 1:3:6
(m^3)	See Drawing No 20Dcon70 or 20Dcon106	40.26	53.56	4.88	3.42
Cement bags		60.39	------	31.23	15.05

Nos & Spacing of Buldog Grips		
Cable ϕ mm	Nos	Spacing (cm)
13	3	10
26	5	15
32	5	20

GoN / Ministry of Local Development
DoLIDAR / Short Span Trail Bridge Standard

Bridge Name :

No: Bank : Span :

Construction Drawing:

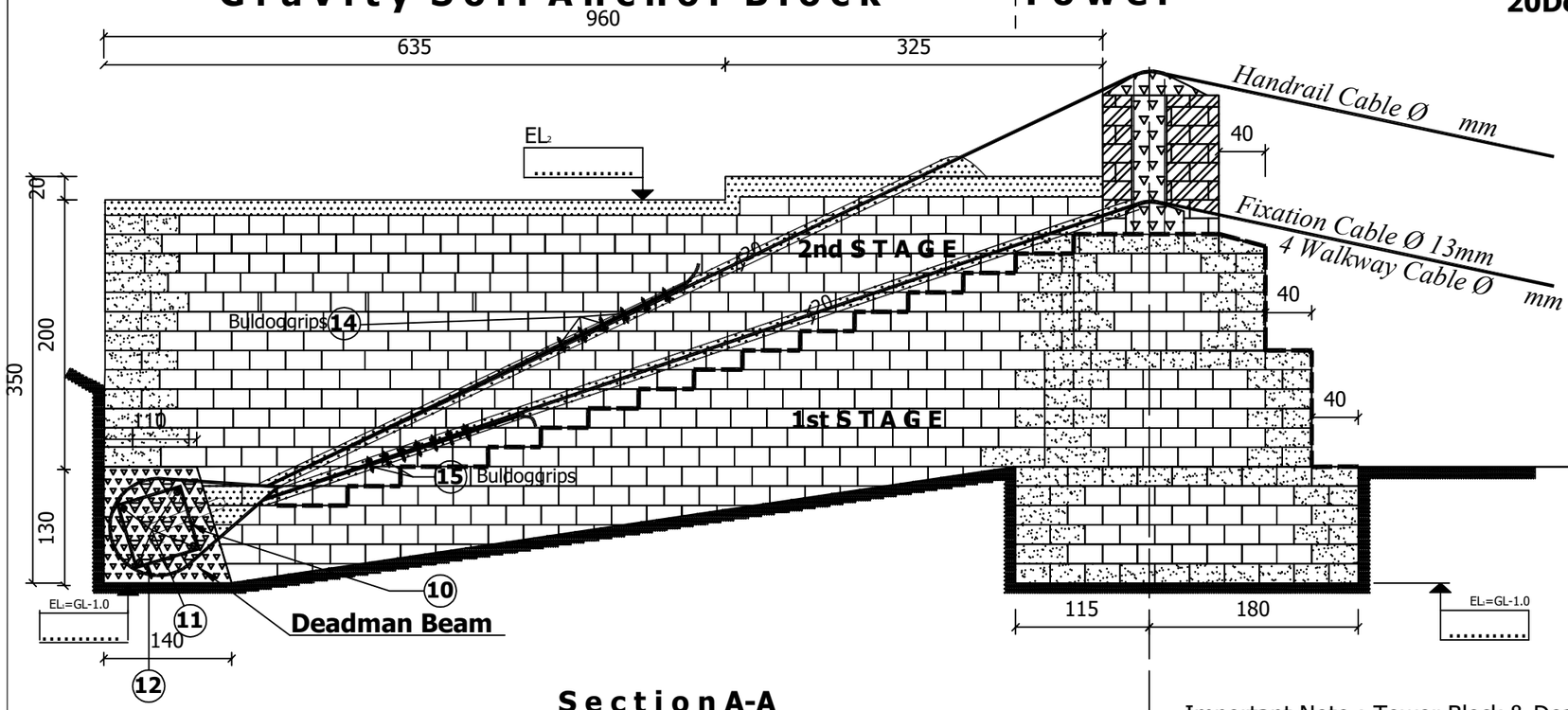
Gravity Main Anchor Block in Flat Ground

Type 12F

4 Walkway Cables

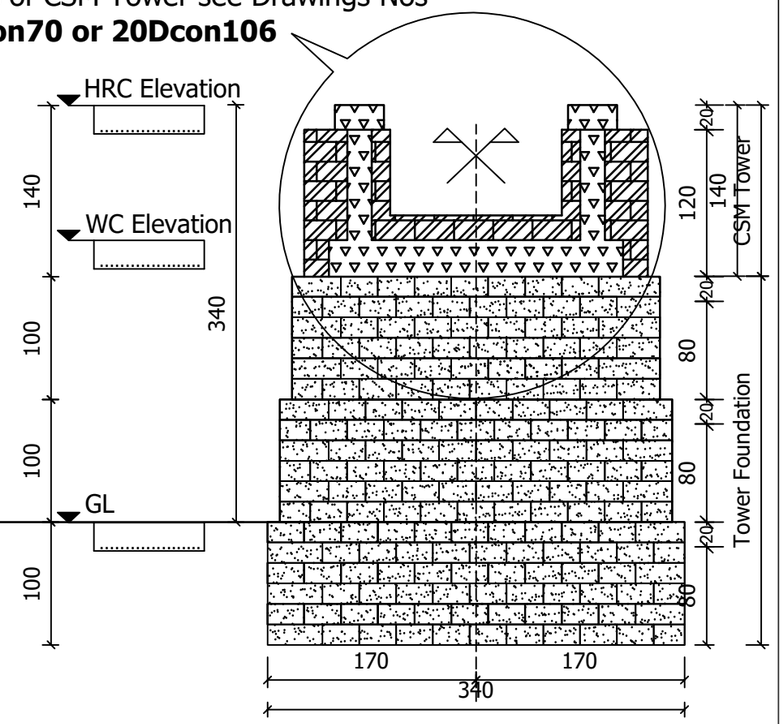
Date : August 01, 2016 Drawing No. 34Dcon

Gravity Soil Anchor Block Tower



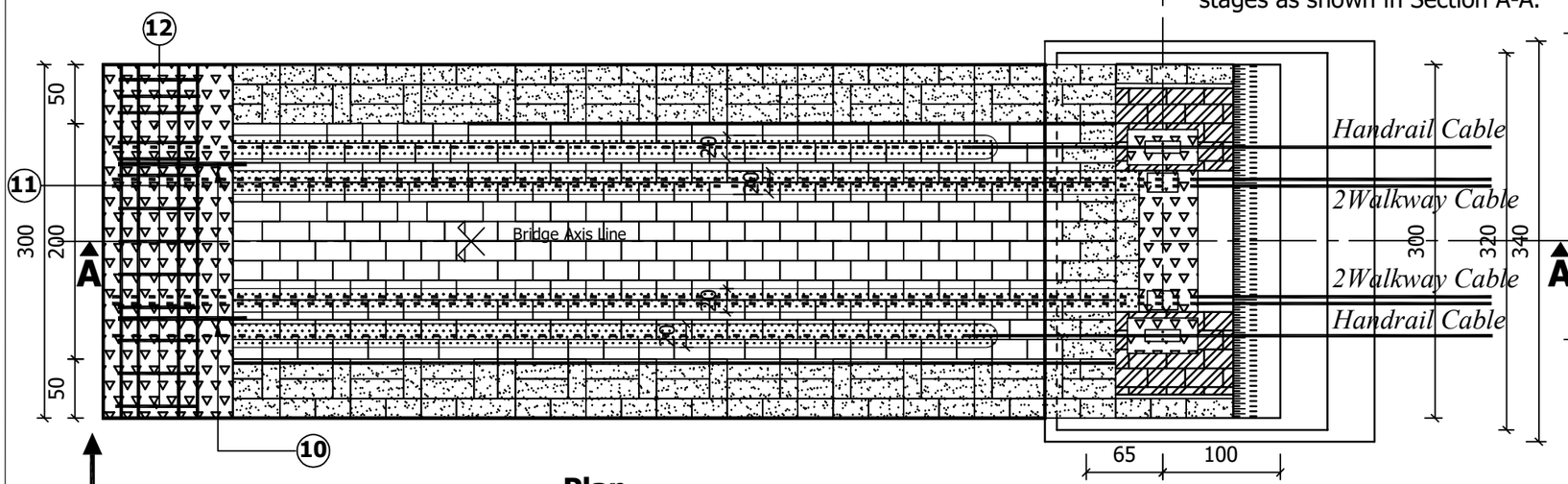
Section A-A

Details of CSM Tower see Drawings Nos **20Dcon70 or 20Dcon106**

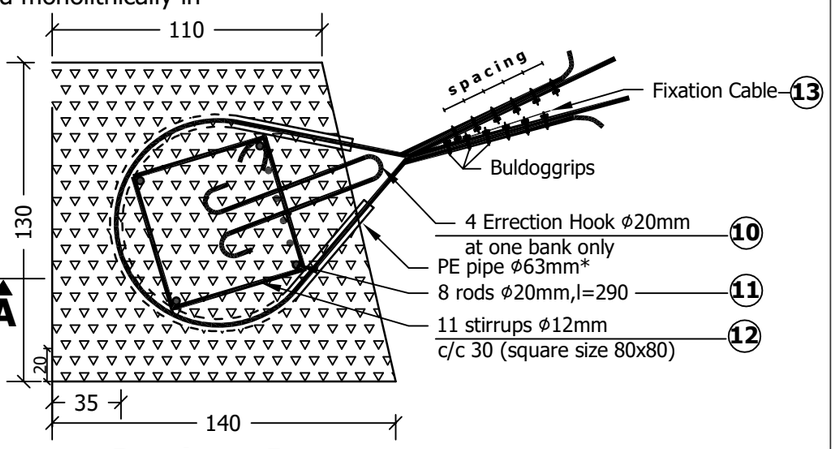


Front Elevation

Important Note : Tower Block & Dead Load should be constructed simultaneously and monolithically in stages as shown in Section A-A.



Plan



Deadman Beam

(Scale 1:25)

Provide Drainage behind deadman beam with side outlet in case of seepage water.

Construct (Hammer dressed dry stone masonry) Staircase as per site condition

Related Steel Drawing is : 20D4

*6 nos of PE Pipes, ϕ 63mm 3.5m length per cable end

Scale 1:50
All Dimension are in Centimeter

Standard Quantities

	Chisel dressed Stone Masonry in 1:4 CSM	Hammer dressed Stone Masonry in 1:6 CSM	Hammer dressed Dry Stone Masonry	Concrete 1:2:4	Concrete 1:3:6	Nos & Spacing of Buldog Grips		
						Cable ϕ mm	Nos	Spacing (cm)
(m^3)	See Drawing No 20Dcon70 or 20Dcon106	39.95	52.11	4.88	4.26	13	3	10
						26	5	15
Cement bags		59.92	------	31.23	18.74	32	5	20

GoN / Ministry of Local Development
DoLIDAR / Short Span Trail Bridge Standard

Bridge Name :

No: Bank : Span :

Construction Drawing:

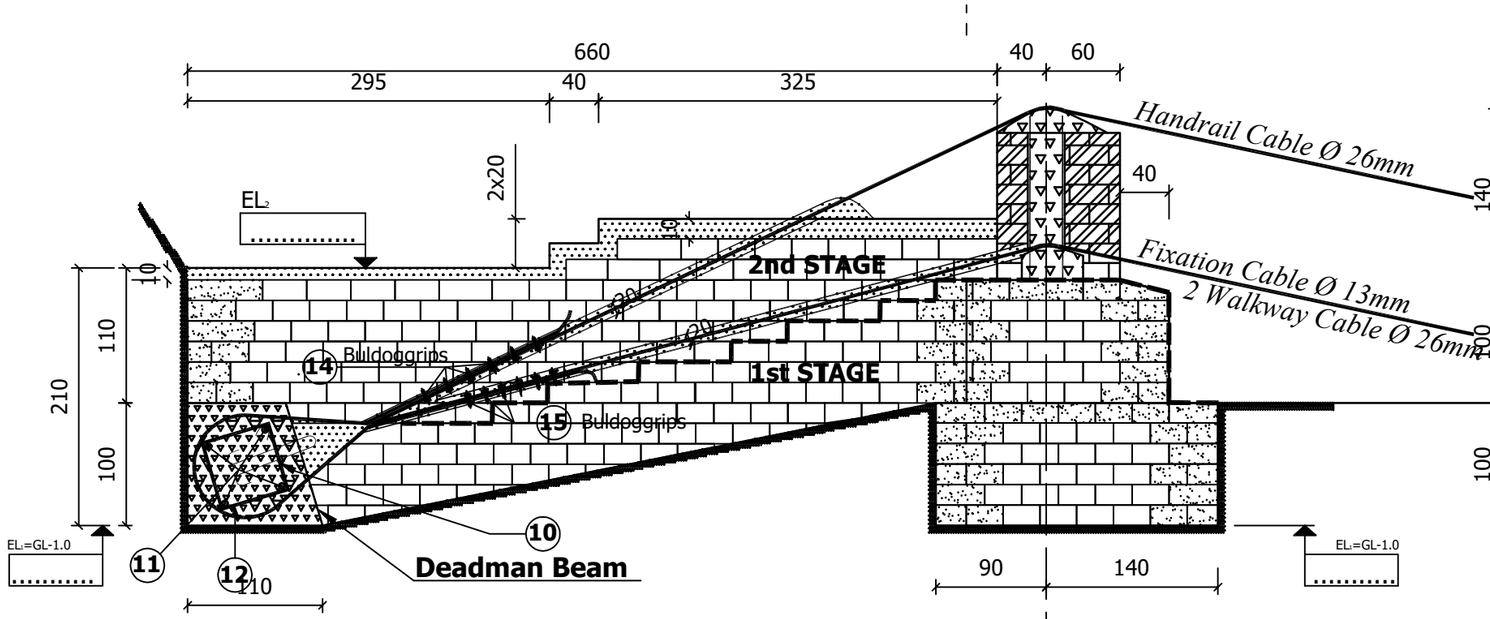
Gravity Main Anchor Block in Flat Ground

Type 8F

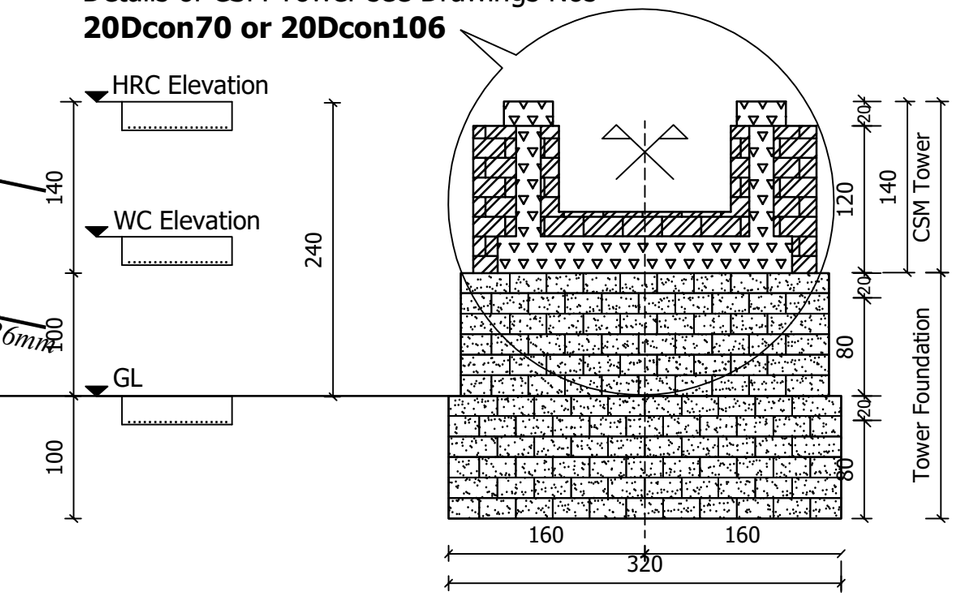
4 Walkway Cables

Date : August 01, 2016 Drawing No. 35Dcon

Gravity Soil Anchor Block | Tower

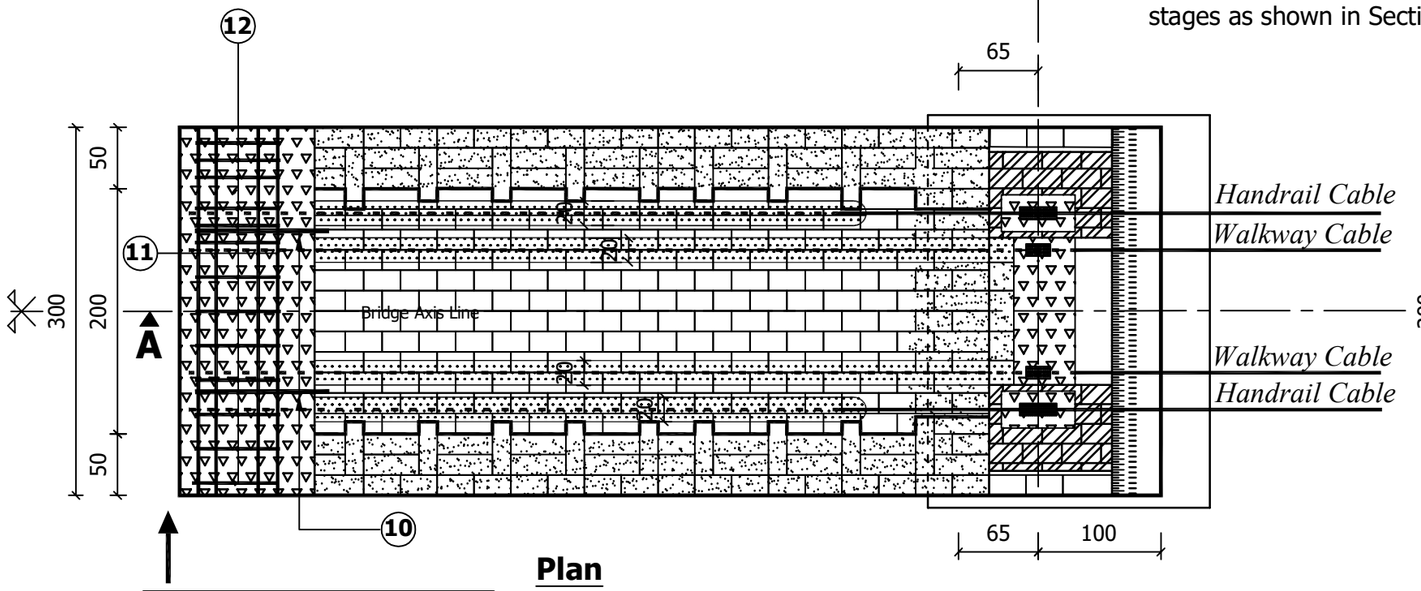


Section A-A

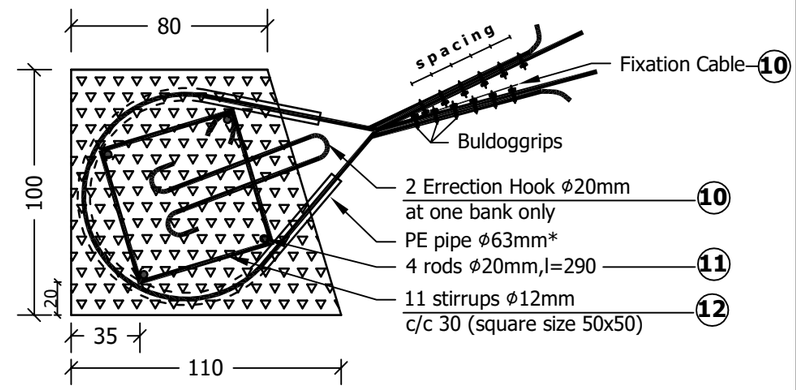


Front Elevation

Important Note : Tower Block & Dead Load should be constructed simultaneously and monolithically in stages as shown in Section A-A.



Plan



Deadman Beam

(Scale 1:25)

Provide Drainage behind deadman beam with side outlet in case of seepage water.

Construct (Hammer dressed dry stone masonry) Staircase as per site condition

Related Steel Drawing is : 20D2

*4 nos of PE Pipes, ϕ 63mm
3.5m length per cable end

Scale 1:50
All Dimension are in Centimeter

Standard Quantities

	Chisel dressed Stone Masonry in 1:4 CSM	Hammer dressed Stone Masonry in 1:6 CSM	Hammer dressed Dry Stone Masonry	Concrete 1:2:4	Concrete 1:3:6
(m^3)	See Drawing No 20Dcon70 or 20Dcon106	23.95	24.46	2.85	2.96
Cement bags		35.92	------	18.24	13.02

Nos & Spacing of Buldog Grips		
Cable ϕ mm	Nos	Spacing (cm)
13	3	10
26	5	15
32	5	20

GoN / Ministry of Local Development
DoLIDAR / Short Span Trail Bridge Standard

Bridge Name :

No: Bank : Span :

Construction Drawing:

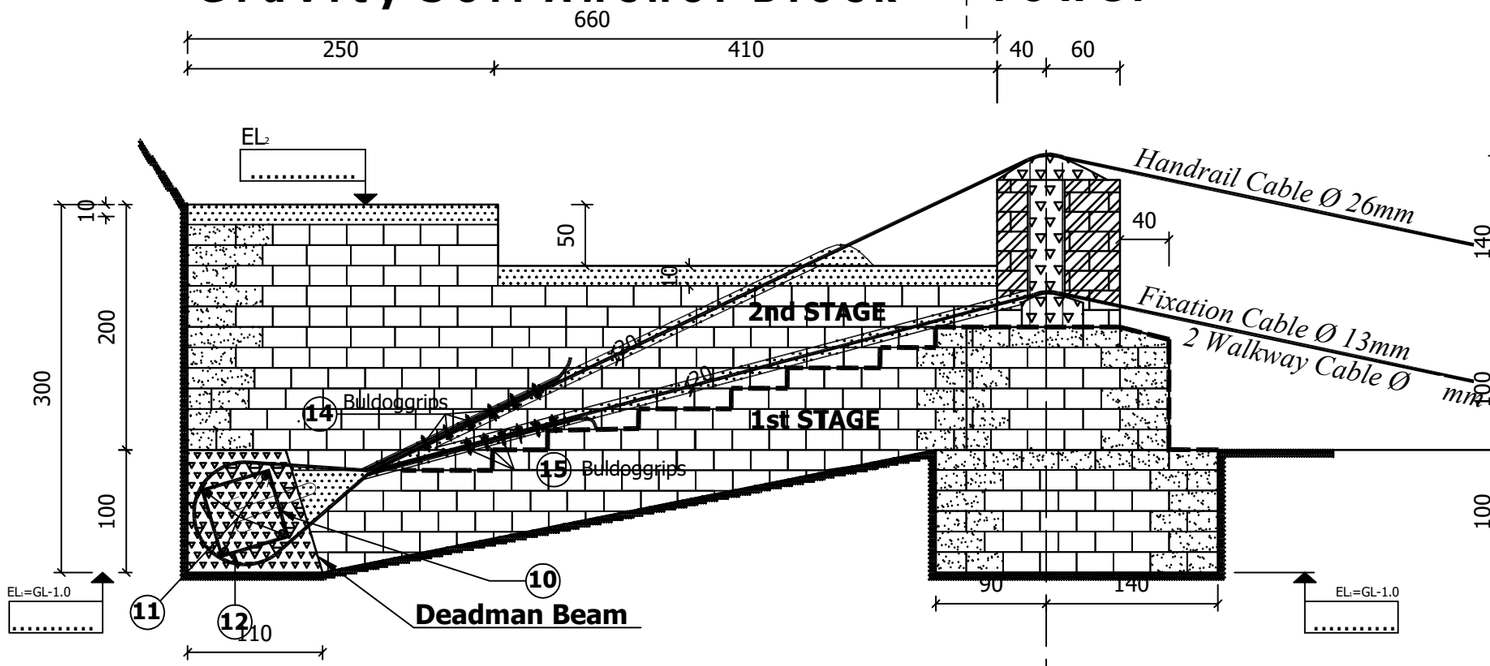
Gravity Main Anchor Block in Hill Slope

Type 1S

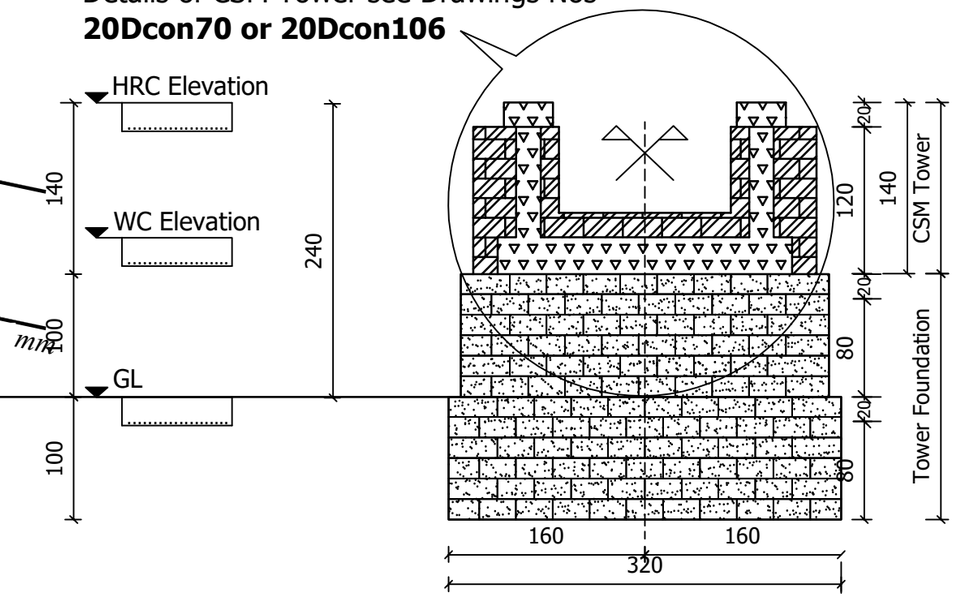
2 Walkway Cables

Date : August 01, 2016 Drawing No. 41Dcon

Gravity Soil Anchor Block | Tower

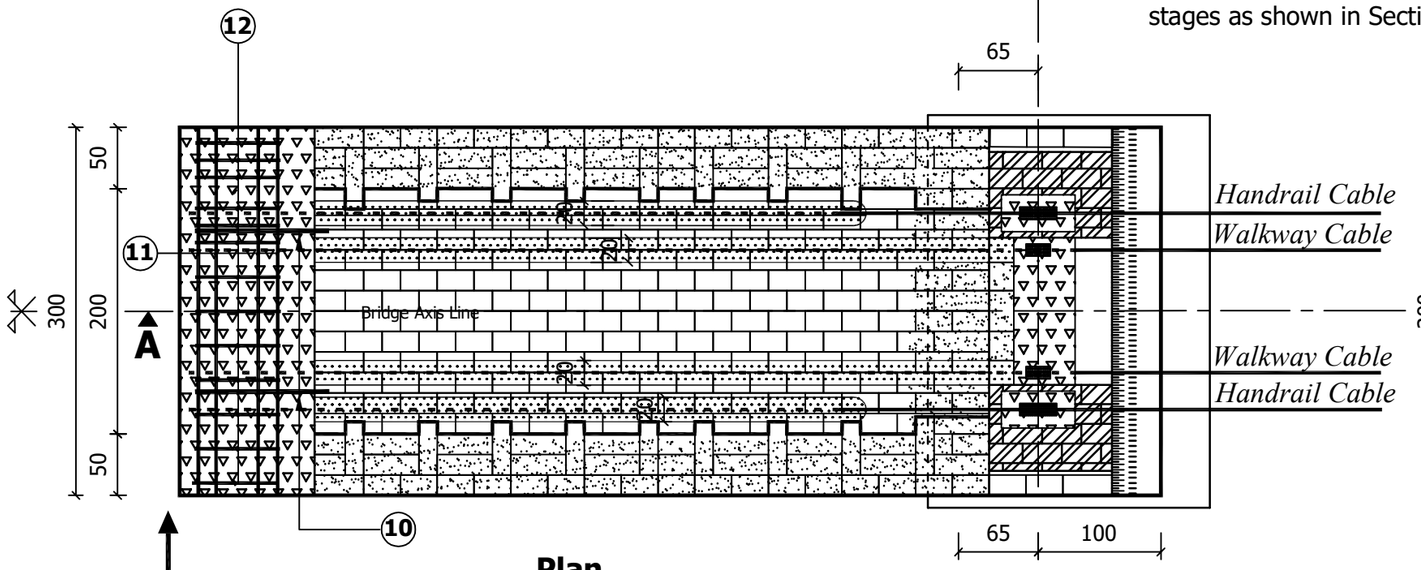


Section A-A

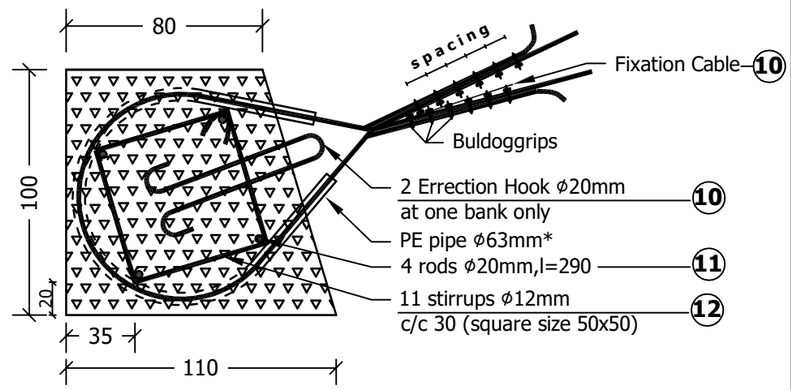


Front Elevation

Important Note : Tower Block & Dead Load should be constructed simultaneously and monolithically in stages as shown in Section A-A.



Plan



Deadman Beam

(Scale 1:25)

Provide Drainage behind deadman beam with side outlet in case of seepage water.

Construct (Hammer dressed dry stone masonry) Staircase as per site condition

Related Steel Drawing is : 20D2

*4 nos of PE Pipes, ϕ 63mm 3.5m length per cable end

Scale 1:50

All Dimension are in Centimeter

Standard Quantities

	Chisel dressed Stone Masonry in 1:4 CSM	Hammer dressed Stone Masonry in 1:6 CSM	Hammer dressed Dry Stone Masonry	Concrete 1:2:4	Concrete 1:3:6	Nos & Spacing of Buldog Grips		
						Cable ϕ mm	Nos	Spacing (cm)
(m^3)	See Drawing No 20Dcon70 or 20Dcon106	25.03	29.54	2.85	2.96	13	3	10
						26	5	15
Cement bags		37.54	------	18.24	13.02	32	5	20

GoN / Ministry of Local Development
DoLIDAR / Short Span Trail Bridge Standard

Bridge Name :

No: Bank : Span :

Construction Drawing:

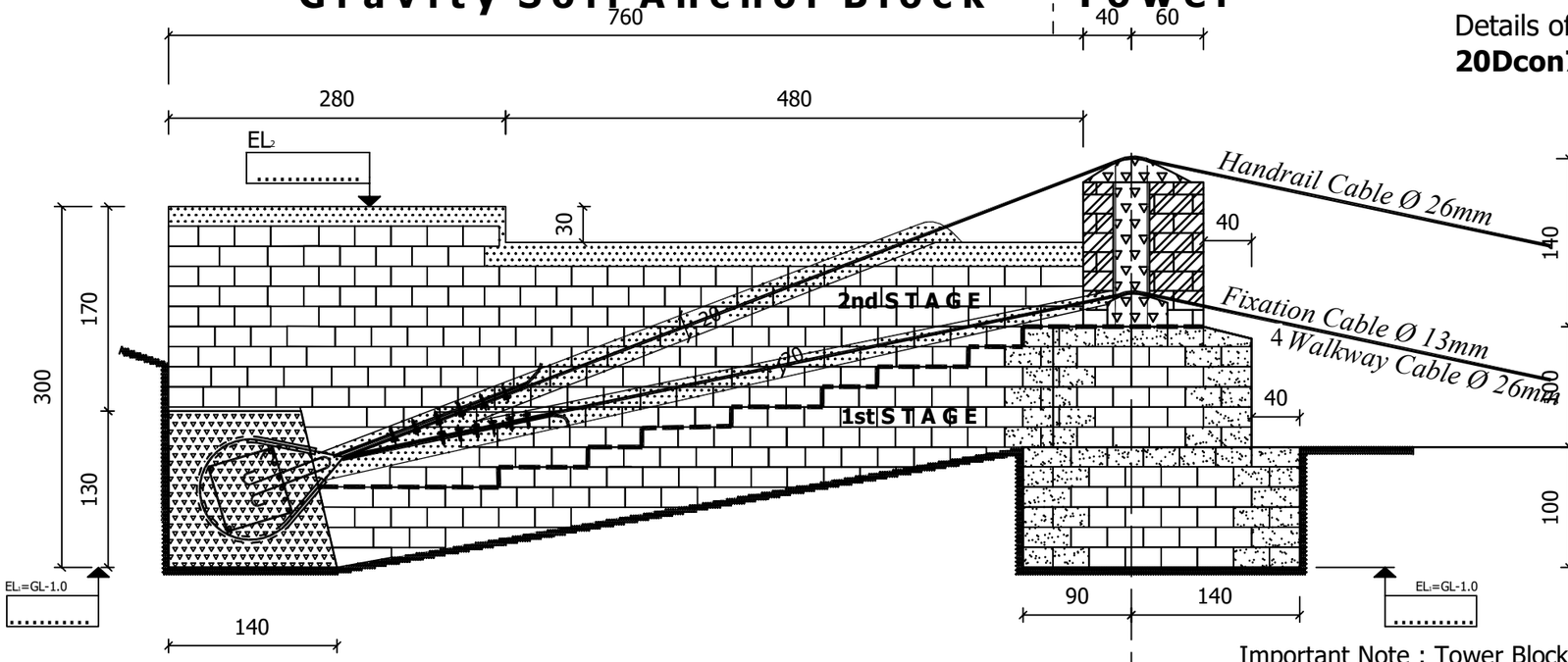
Gravity Main Anchor Block in Hill Slope

Type 2S

2 Walkway Cables

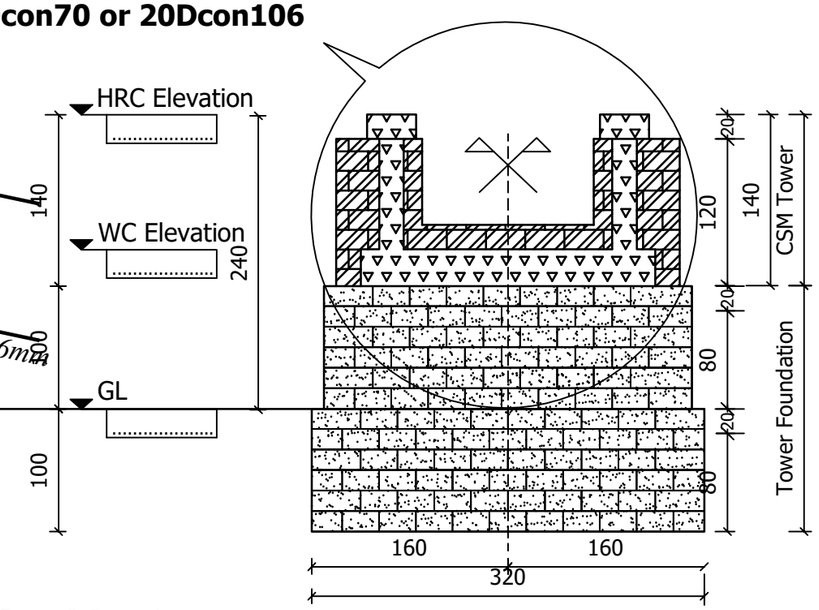
Date : August 01, 2016 Drawing No. 42Dcon

Gravity Soil Anchor Block | Tower



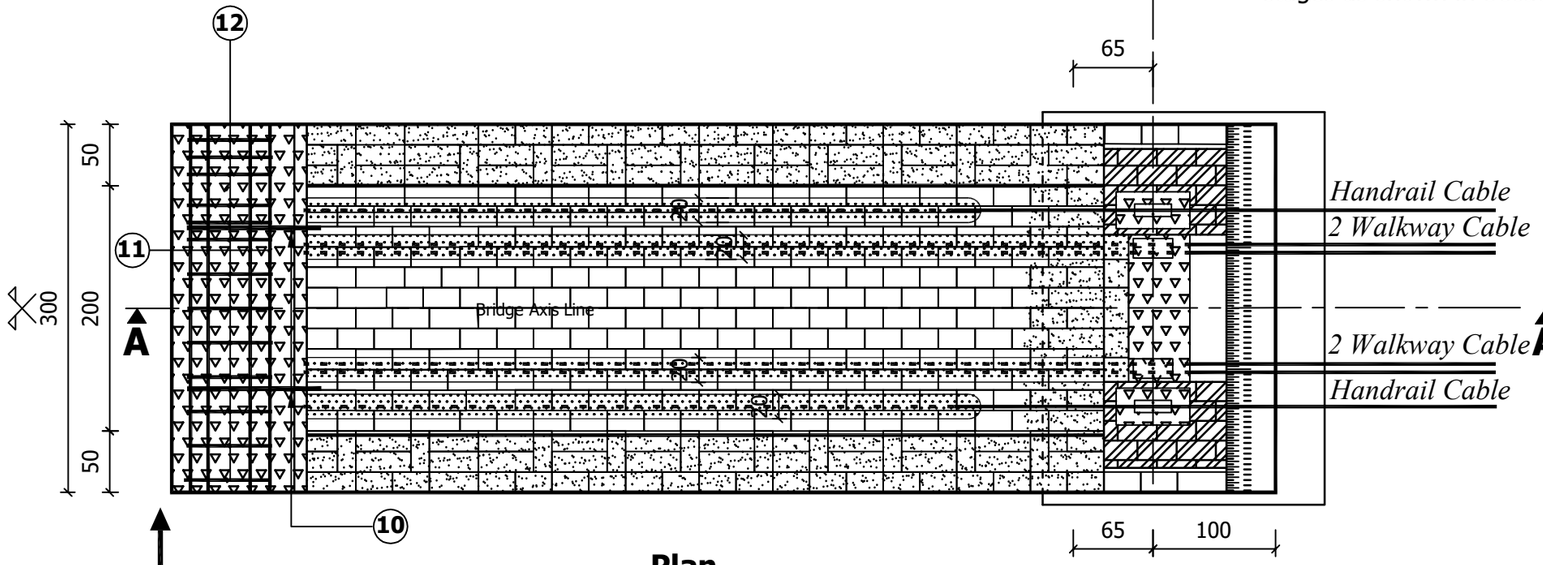
Section A-A

Details of CSM Tower see Drawings Nos
20Dcon70 or 20Dcon106

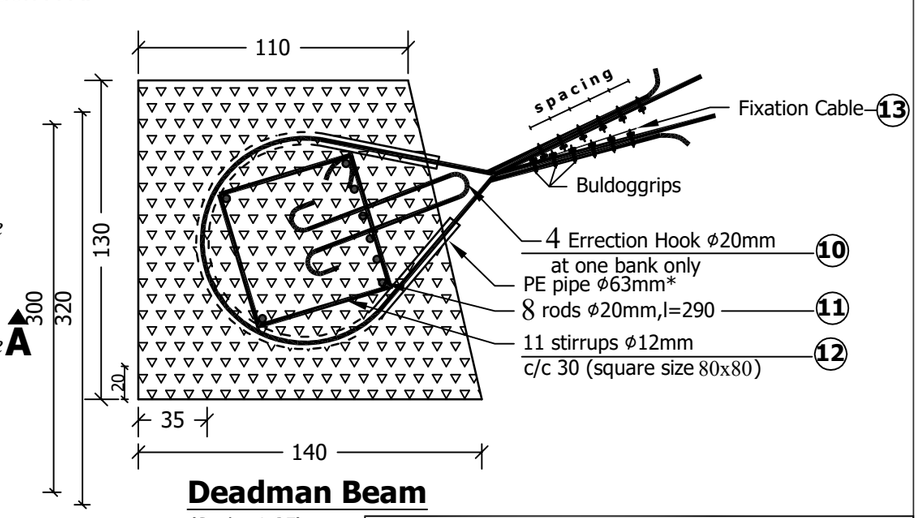


Important Note : Tower Block & Dead Load should be constructed simultaneously and monolithically in stages as shown in Section A-A.

Front Elevation



Plan



Deadman Beam

(Scale 1:25)

Provide Drainage behind deadman beam with side outlet in case of seepage water.

Construct (Hammer dressed dry stone masonry) Staircase as per site condition

Related Steel Drawing is : 20D4

*6 nos of PE Pipes, ϕ 63mm 3.5m length per cable end

Scale 1:50
All Dimension are in Centimeter

Standard Quantities

	Chisel dressed Stone Masonry in 1:4 CSM	Hammer dressed Stone Masonry in 1:6 CSM	Hammer dressed Dry Stone Masonry	Concrete 1:2:4	Concrete 1:3:6	Nos & Spacing of Buldog Grips		
						Cable ϕ mm	Nos	Spacing (cm)
(m^3)	See Drawing No 20Dcon70 or 20Dcon106	27.06	34.52	4.88	3.42	13	3	10
						26	5	15
Cement bags		40.58	------	31.23	15.05	32	5	20

GoN / Ministry of Local Development
DoLIDAR / Short Span Trail Bridge Standard

Bridge Name :

No: Bank : Span :

Construction Drawing:

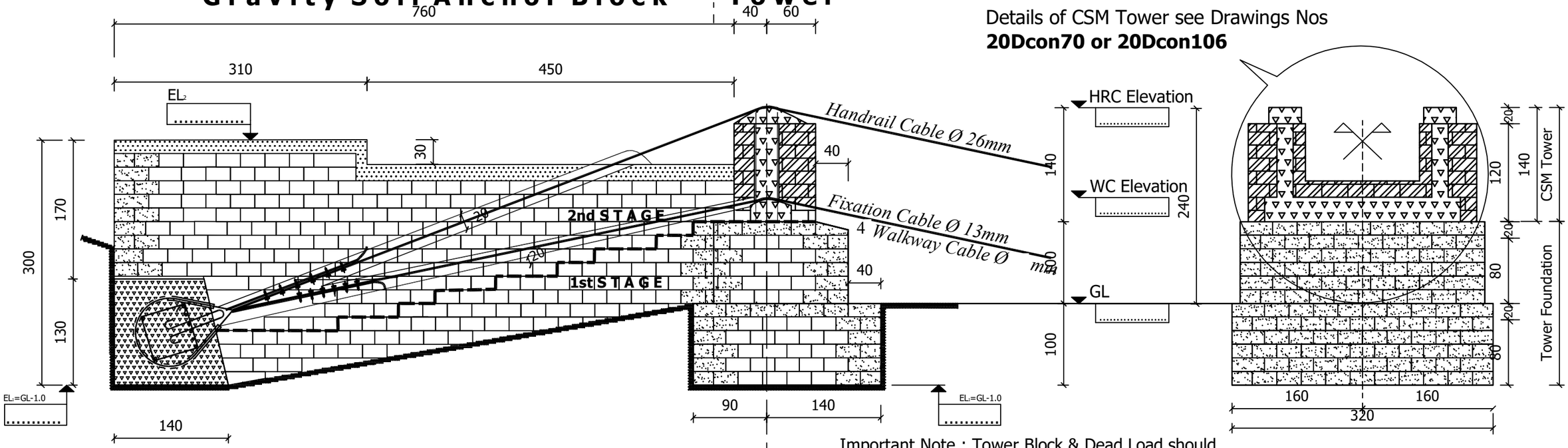
Gravity Main Anchor Block in Hill Slope

Type 3S

4 Walkway Cables

Date : August 01, 2016 Drawing No. 43Dcon

Gravity Soil Anchor Block | Tower

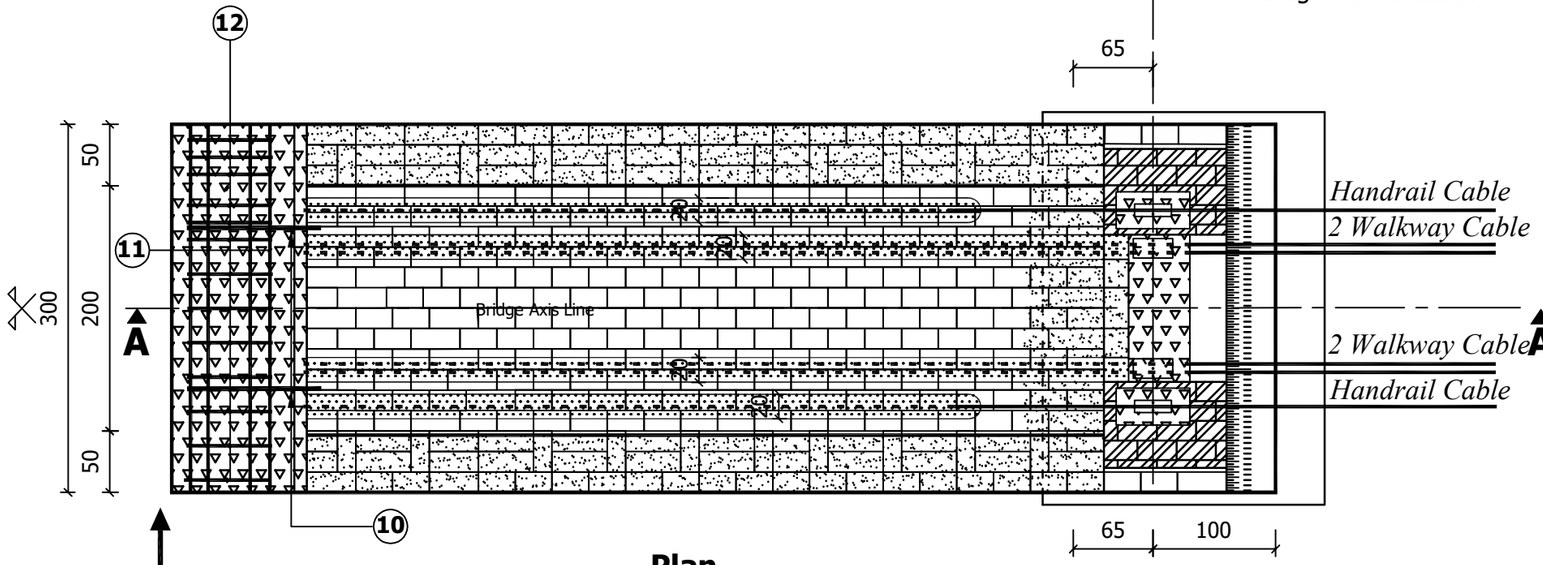


Section A-A

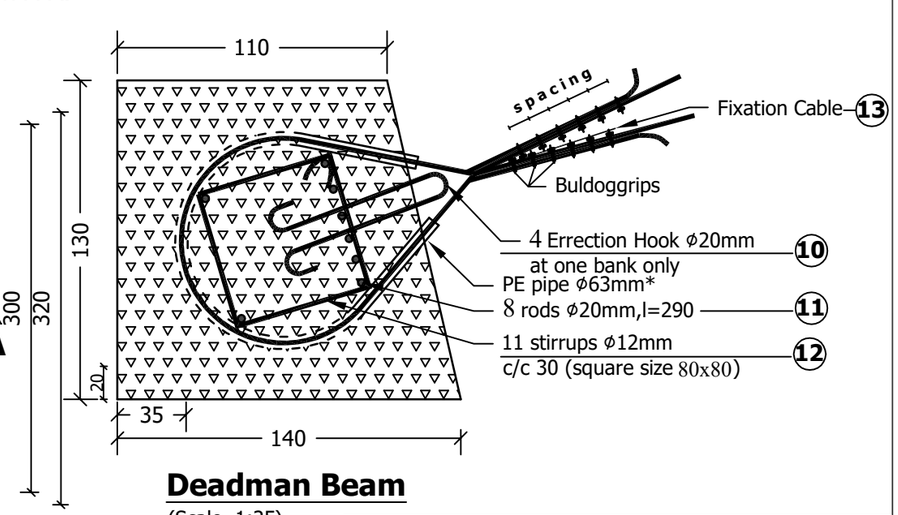
Details of CSM Tower see Drawings Nos
20Dcon70 or 20Dcon106

Important Note : Tower Block & Dead Load should be constructed simultaneously and monolithically in stages as shown in Section A-A.

Front Elevation



Plan



Deadman Beam

(Scale 1:25)

Provide Drainage behind deadman beam with side outlet in case of seepage water.

Construct (Hammer dressed dry stone masonry) Staircase as per site condition

Related Steel Drawing is : 20D4

*6 nos of PE Pipes, ϕ 63mm 3.5m length per cable end

Scale 1:50
All Dimension are in Centimeter

Standard Quantities

	Chisel dressed Stone Masonry in 1:4 CSM	Hammer dressed Stone Masonry in 1:6 CSM	Hammer dressed Dry Stone Masonry	Concrete 1:2:4	Concrete 1:3:6
(m^3)	See Drawing No 20Dcon70 or 20Dcon106	27.12	34.64	4.88	3.42
Cement bags		40.68	------	31.23	15.05

Nos & Spacing of Buldog Grips		
Cable ϕ mm	Nos	Spacing (cm)
13	3	10
26	5	15
32	5	20

GoN / Ministry of Local Development
DoLIDAR / Short Span Trail Bridge Standard

Bridge Name :

No: Bank : Span :

Construction Drawing:

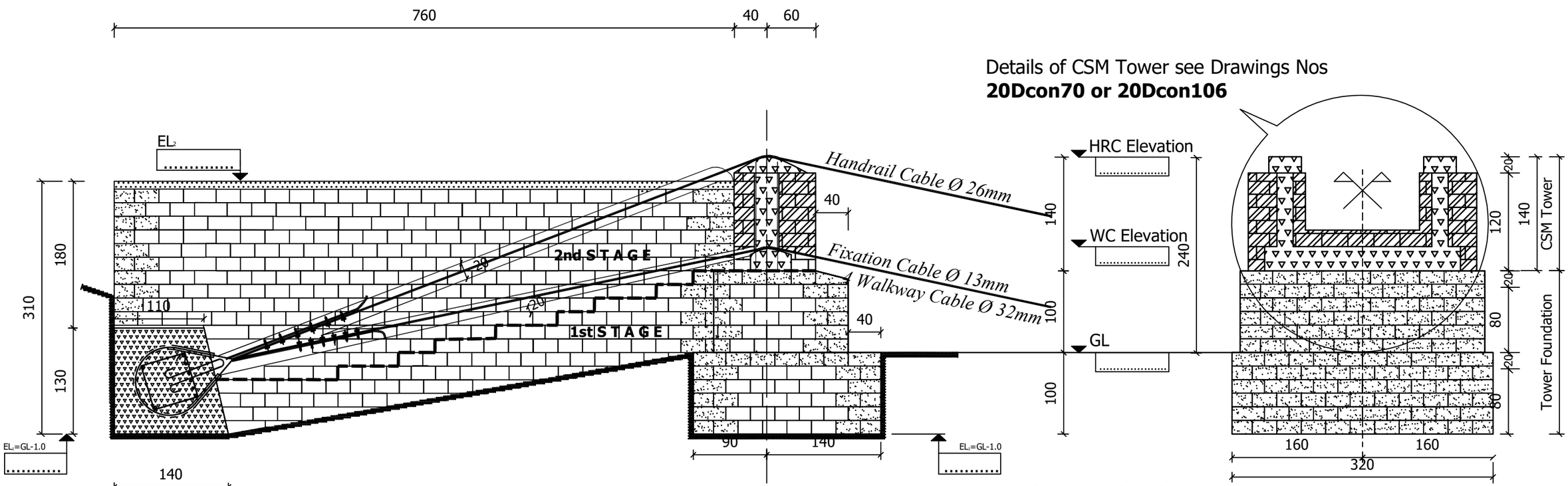
Gravity Main Anchor Block in Hill Slope

Type 4S

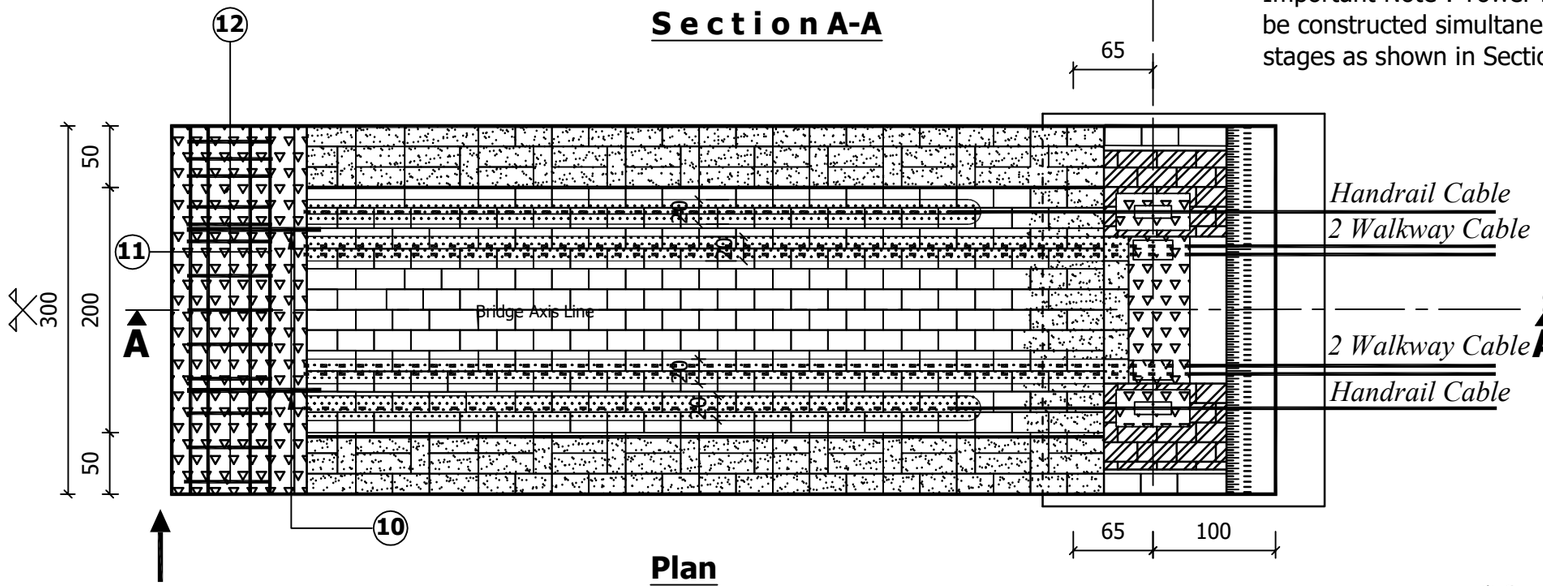
4 Walkway Cables

Date : August 01, 2016 Drawing No. 44Dcon

Gravity Soil Anchor Block | Tower



Section A-A



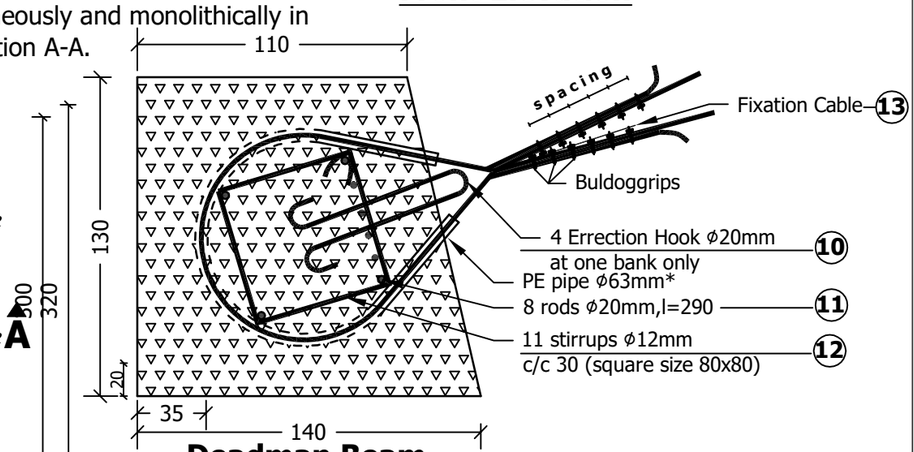
Plan

Provide Drainage behind deadman beam with side outlet in case of seepage water.

Details of CSM Tower see Drawings Nos
20Dcon70 or 20Dcon106

Front Elevation

Important Note : Tower Block & Dead Load should be constructed simultaneously and monolithically in stages as shown in Section A-A.



Deadman Beam

(Scale 1:25)

Construct (Hammer dressed dry stone masonry) Staircase as per site condition

Related Steel Drawing is : 20D4

*6 nos of PE Pipes, ϕ 63mm 3.5m length per cable end

Scale 1:50
All Dimension are in Centimeter

Standard Quantities

	Chisel dressed Stone Masonry in 1:4 CSM	Hammer dressed Stone Masonry in 1:6 CSM	Hammer dressed Dry Stone Masonry	Concrete 1:2:4	Concrete 1:3:6	Nos & Spacing of Buldog Grips		
						Cable ϕ mm	Nos	Spacing (cm)
(m^3)	See Drawing No 20Dcon70 or 20Dcon106	29.02	38.84	4.88	3.50	13	3	10
						26	5	15
Cement bags		43.53	------	31.23	15.40	32	5	20

GoN / Ministry of Local Development
DoLIDAR / Short Span Trail Bridge Standard

Bridge Name :

No: Bank : Span :

Construction Drawing:

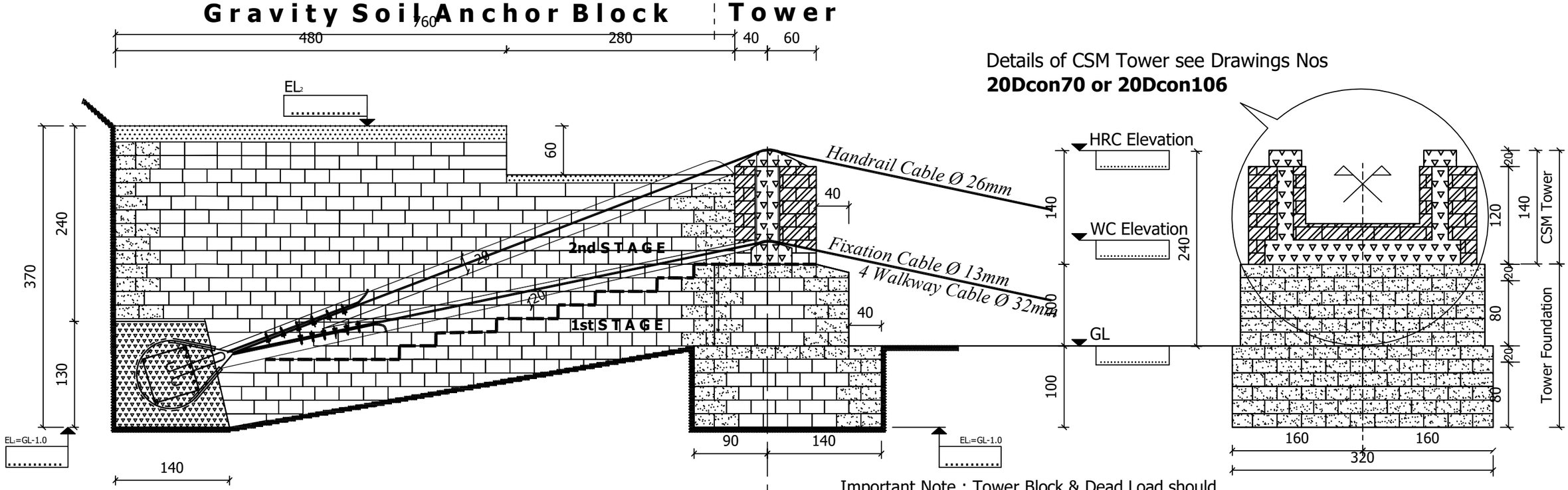
Gravity Main Anchor Block in Hill Slope

Type 5S

4 Walkway Cables

Date : August 01, 2016 Drawing No. 45Dcon

Gravity Soil Anchor Block Tower

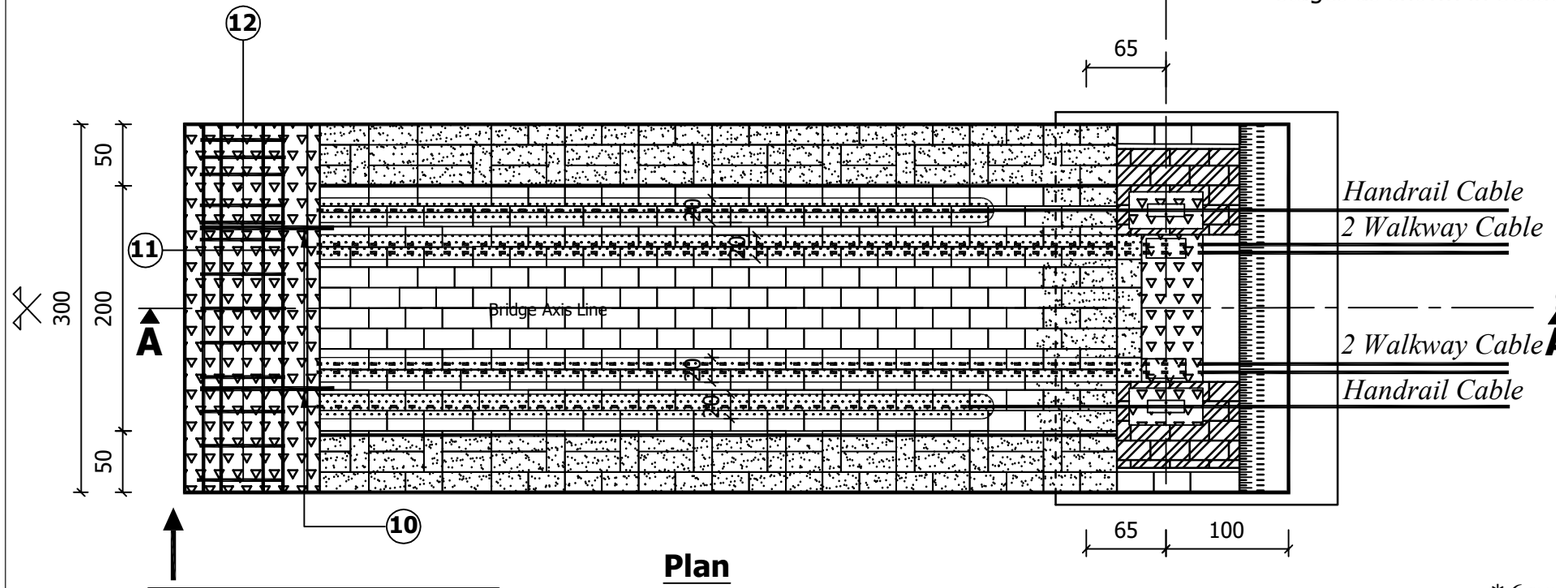


Section A-A

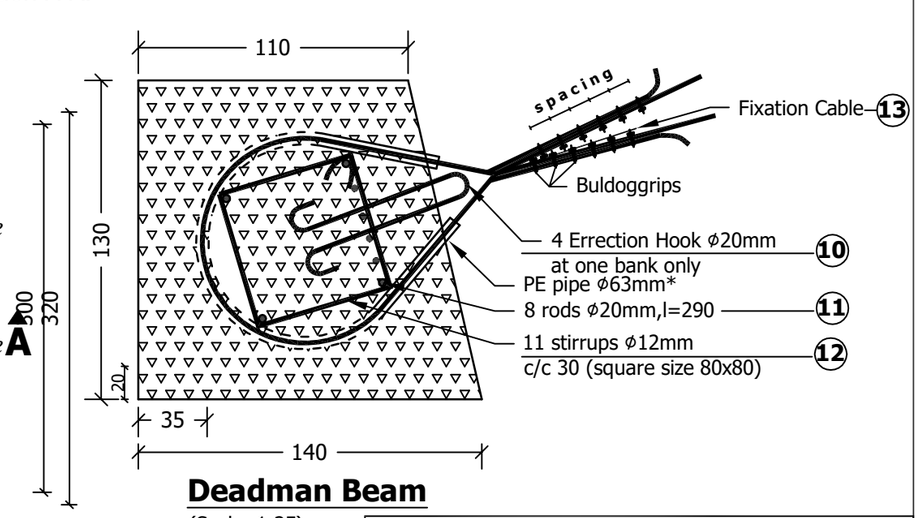
Details of CSM Tower see Drawings Nos
20Dcon70 or 20Dcon106

Important Note : Tower Block & Dead Load should be constructed simultaneously and monolithically in stages as shown in Section A-A.

Front Elevation



Plan



Deadman Beam

(Scale 1:25)

Provide Drainage behind deadman beam with side outlet in case of seepage water.

Construct (Hammer dressed dry stone masonry) Staircase as per site condition

Related Steel Drawing is : 20D4

*6 nos of PE Pipes, ϕ 63mm 3.5m length per cable end

Scale 1:50
All Dimension are in Centimeter

Standard Quantities

	Chisel dressed Stone Masonry in 1:4 CSM	Hammer dressed Stone Masonry in 1:6 CSM	Hammer dressed Dry Stone Masonry	Concrete 1:2:4	Concrete 1:3:6	Nos & Spacing of Buldog Grips		
						Cable ϕ mm	Nos	Spacing (cm)
(m^3)	See Drawing No 20Dcon70 or 20Dcon106	33.20	44.60	4.88	3.50	13	3	10
						26	5	15
Cement bags		49.79	------	31.23	15.40	32	5	20

GoN / Ministry of Local Development
DoLIDAR / Short Span Trail Bridge Standard

Bridge Name :

No: Bank : Span :

Construction Drawing:

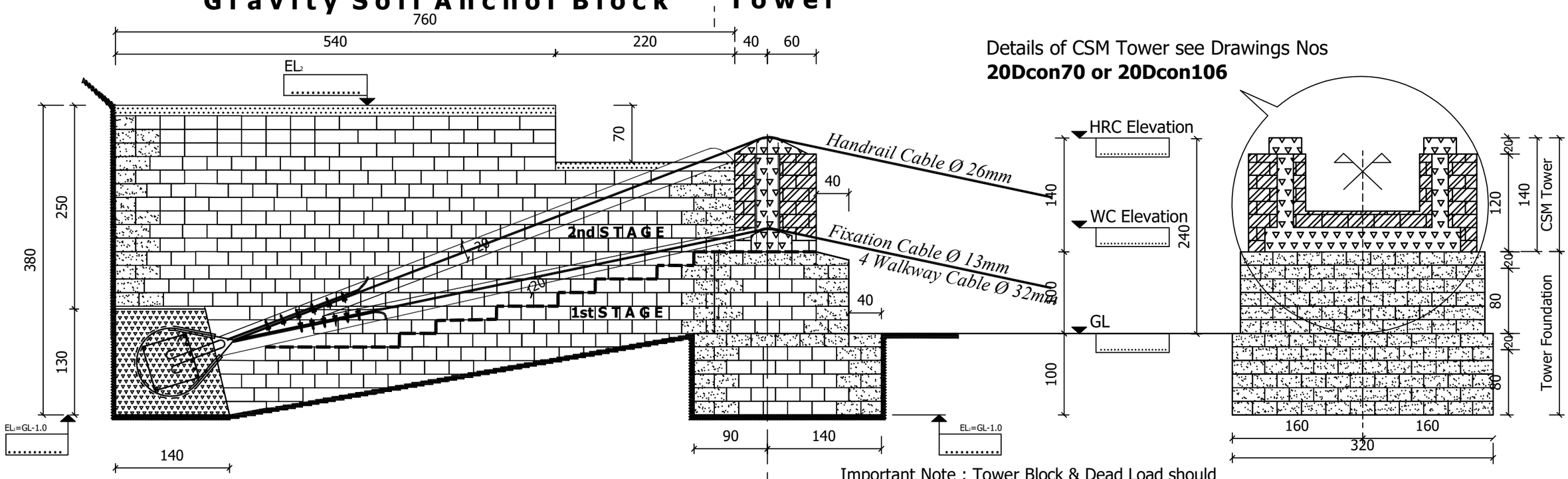
Gravity Main Anchor Block in Hill Slope

Type 6S

4 Walkway Cables

Date : August 01, 2016 Drawing No. 46Dcon

Gravity Soil Anchor Block | Tower

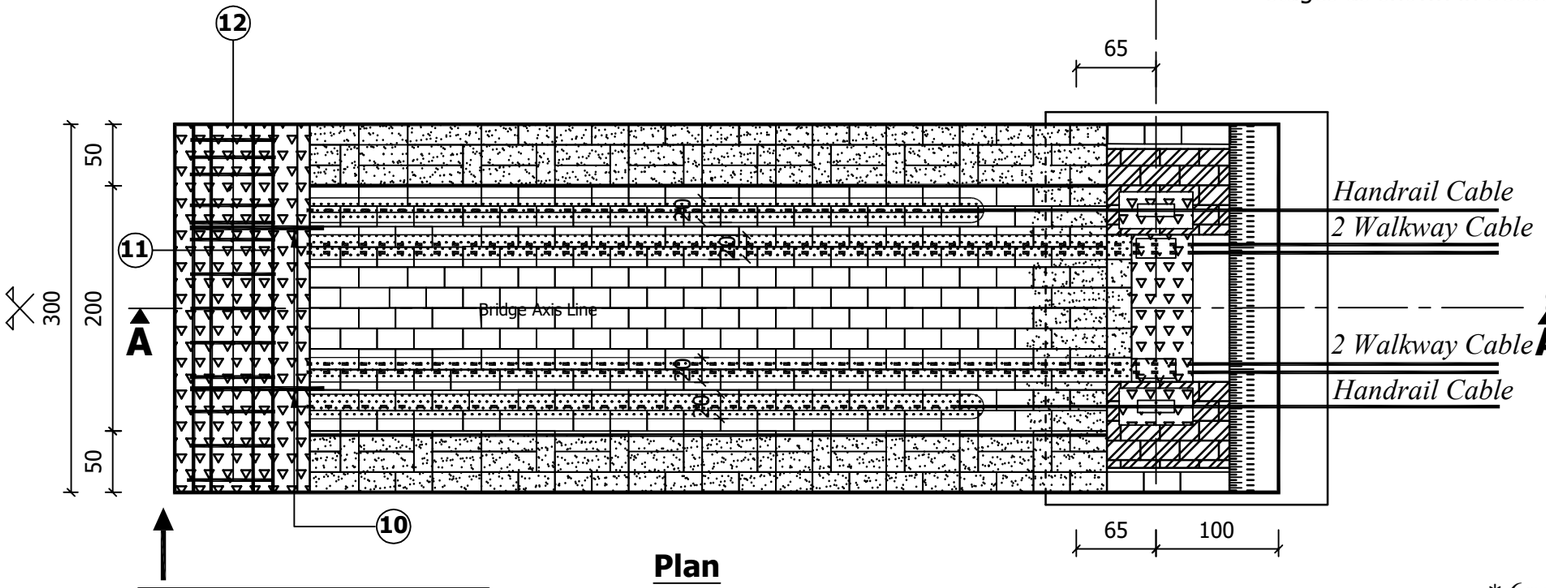


Section A-A

Details of CSM Tower see Drawings Nos
20Dcon70 or 20Dcon106

Important Note : Tower Block & Dead Load should be constructed simultaneously and monolithically in stages as shown in Section A-A.

Front Elevation

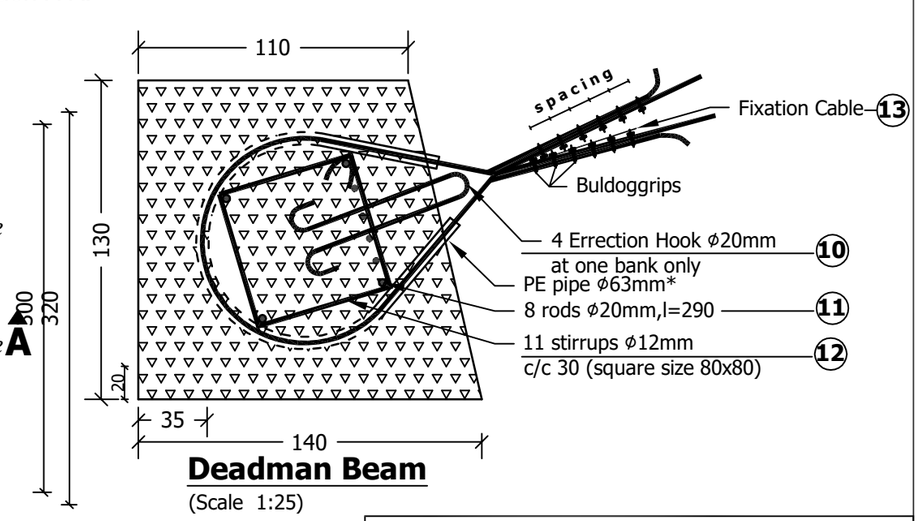


Plan

Provide Drainage behind deadman beam with side outlet in case of seepage water.

Construct (Hammer dressed dry stone masonry) Staircase as per site condition

Related Steel Drawing is : 20D4



Deadman Beam
(Scale 1:25)

* 6nos of PE Pipes, ϕ 63mm
3.5m length per cable end

Scale 1:50
All Dimension are in Centimeter

Standard Quantities

	Chisel dressed Stone Masonry in 1:4 CSM	Hammer dressed Stone Masonry in 1:6 CSM	Hammer dressed Dry Stone Masonry	Concrete 1:2:4	Concrete 1:3:6
(m^3)	See Drawing No 20Dcon70 or 20Dcon106	34.32	46.40	4.88	3.50
Cement bags		51.47	------	31.23	15.40

Nos & Spacing of Buldog Grips		
Cable ϕ mm	Nos	Spacing (cm)
13	3	10
26	5	15
32	5	20

GoN / Ministry of Local Development
DoLIDAR / Short Span Trail Bridge Standard

Bridge Name :

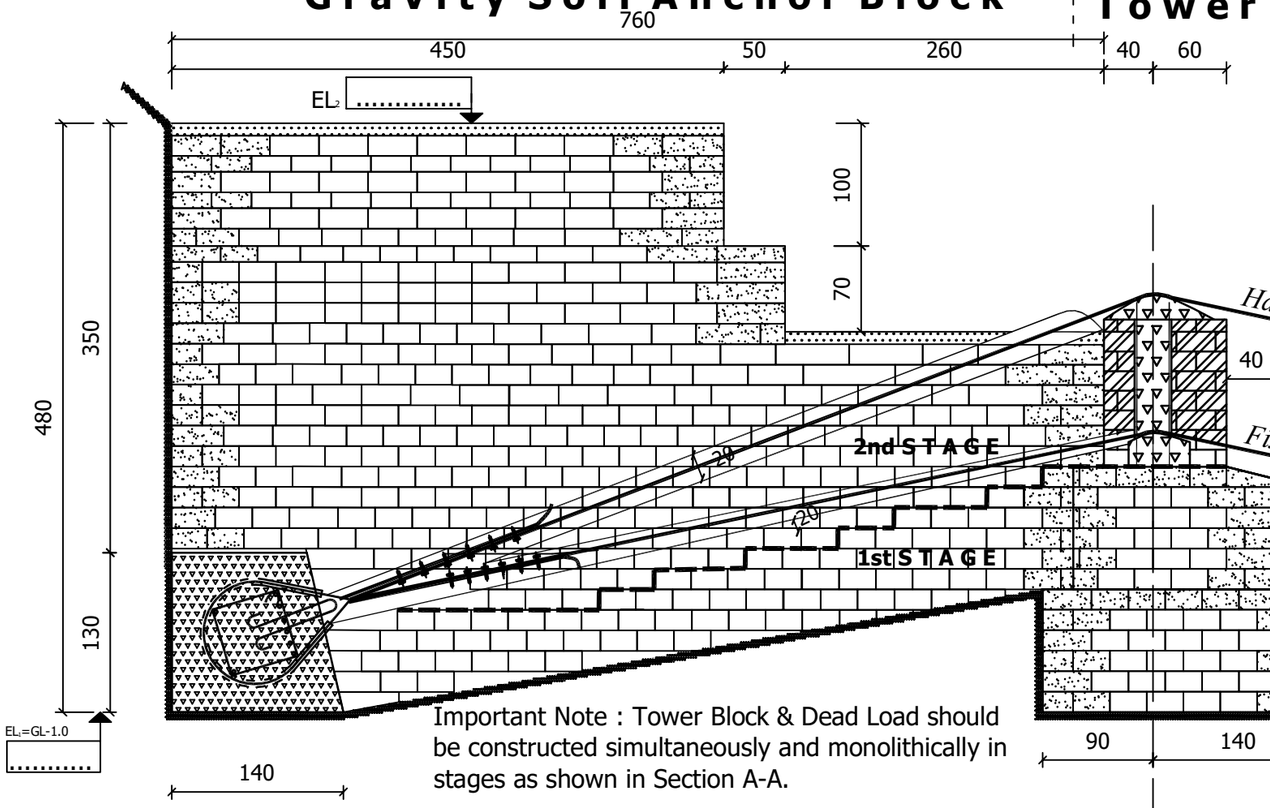
No: Bank : Span :

Construction Drawing:

Gravity Main Anchor Block in Hill Slope
Type 7S
4 Walkway Cables

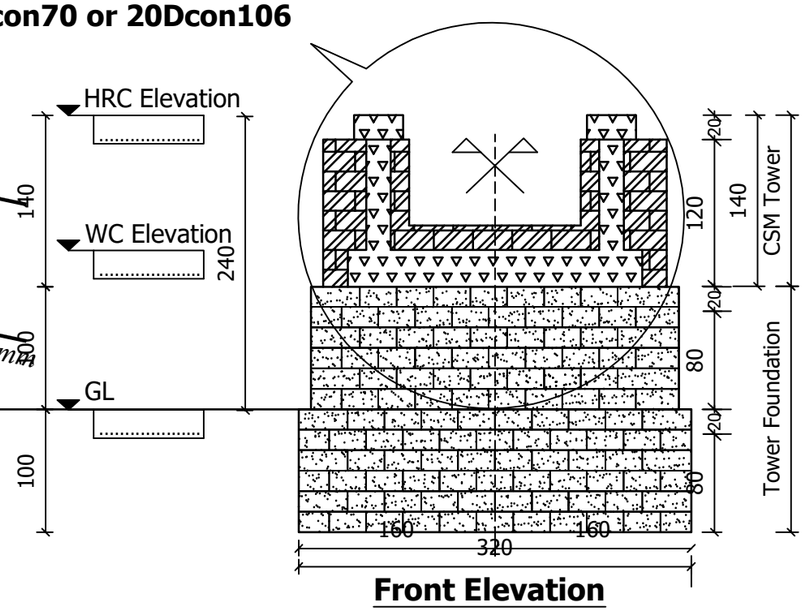
Date : August 01, 2016 Drawing No. 47Dcon

Gravity Soil Anchor Block



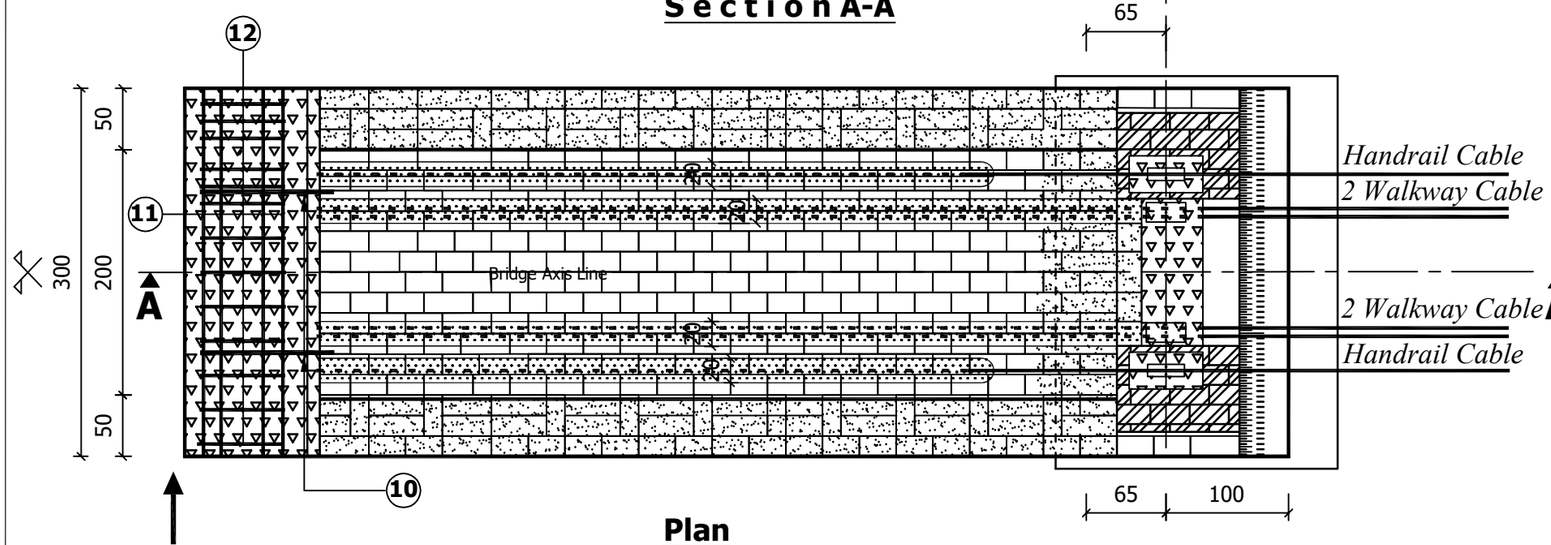
Important Note : Tower Block & Dead Load should be constructed simultaneously and monolithically in stages as shown in Section A-A.

Details of CSM Tower see Drawings Nos
20Dcon70 or 20Dcon106



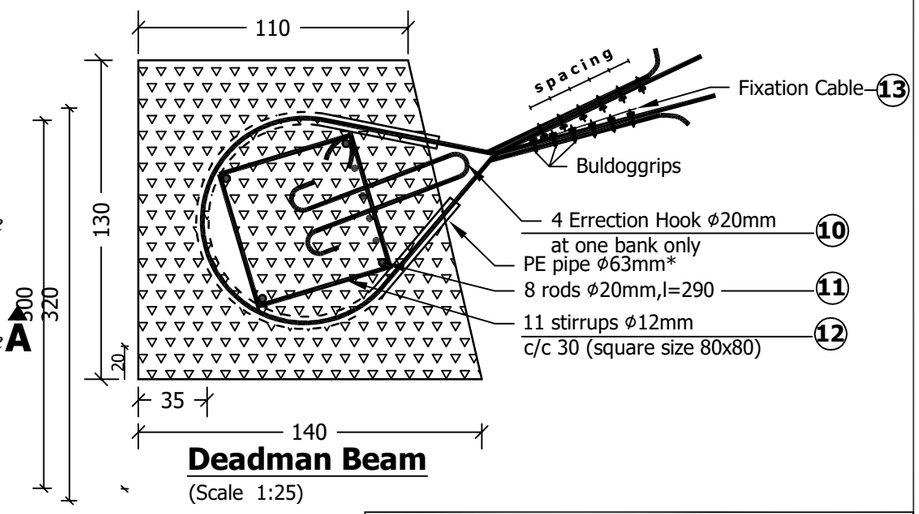
Front Elevation

Section A-A



Plan

Provide Drainage behind deadman beam with side outlet in case of seepage water.



Deadman Beam
(Scale 1:25)

Construct (Hammer dressed dry stone masonry) Staircase as per site condition

Related Steel Drawing is : 20D4

* 6nos of PE Pipes, ϕ 63mm
3.5m length per cable end

Scale 1:50
All Dimension are in Centimeter

Standard Quantities

	Chisel dressed Stone Masonry in 1:4 CSM	Hammer dressed Stone Masonry in 1:6 CSM	Hammer dressed Dry Stone Masonry	Concrete 1:2:4	Concrete 1:3:6
(m^3)	See Drawing No 20Dcon70 or 20Dcon106	41.31	54.83	4.88	3.50
Cement bags		61.97	------	31.23	15.40

Nos & Spacing of Buldog Grips		
Cable ϕ mm	Nos	Spacing (cm)
13	3	10
26	5	15
32	5	20

GoN / Ministry of Local Development
DoLIDAR / Short Span Trail Bridge Standard

Bridge Name :

No: Bank : Span :

Construction Drawing:

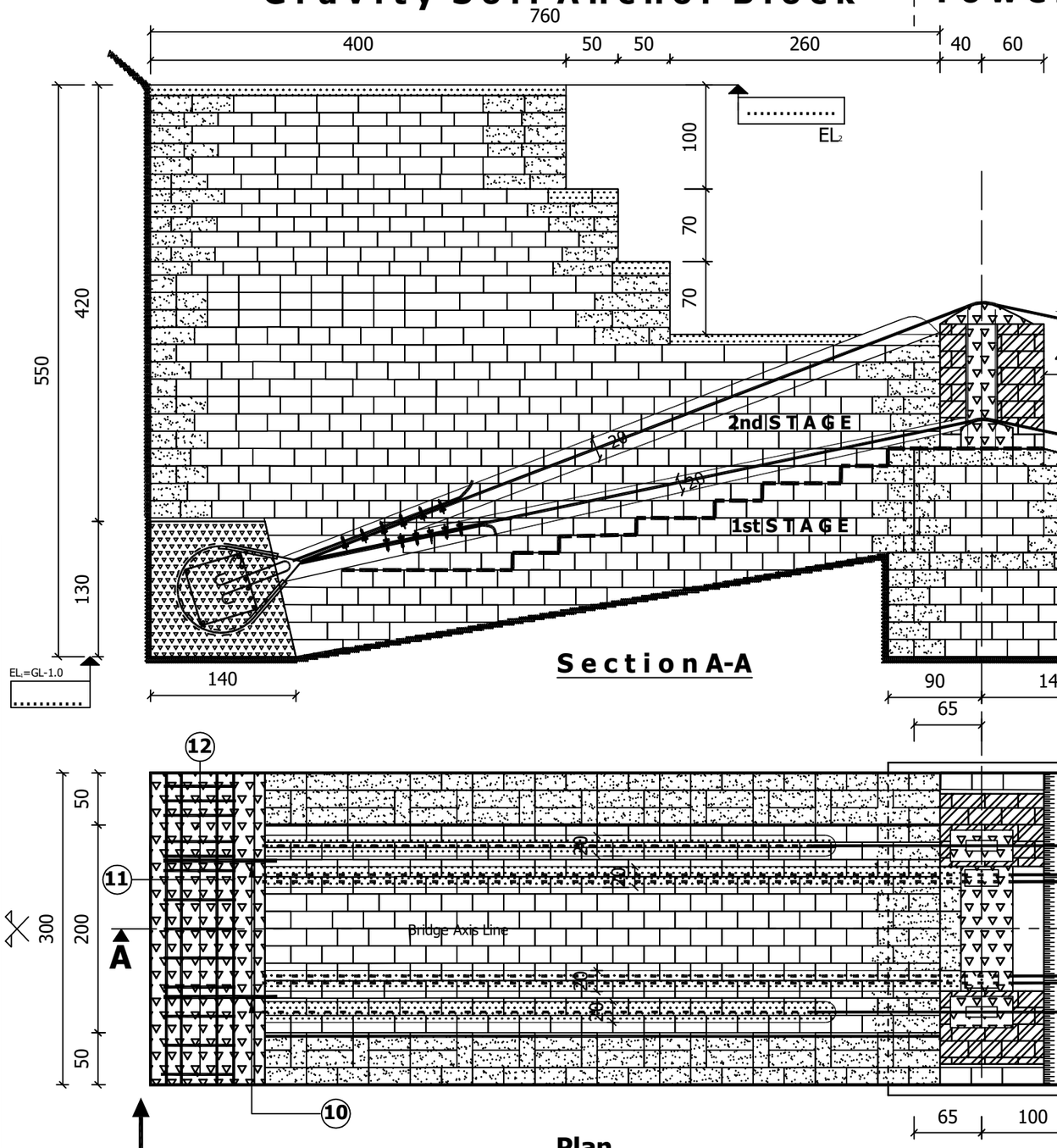
Gravity Main Anchor Block in Hill Slope

Type 8S

4 Walkway Cables

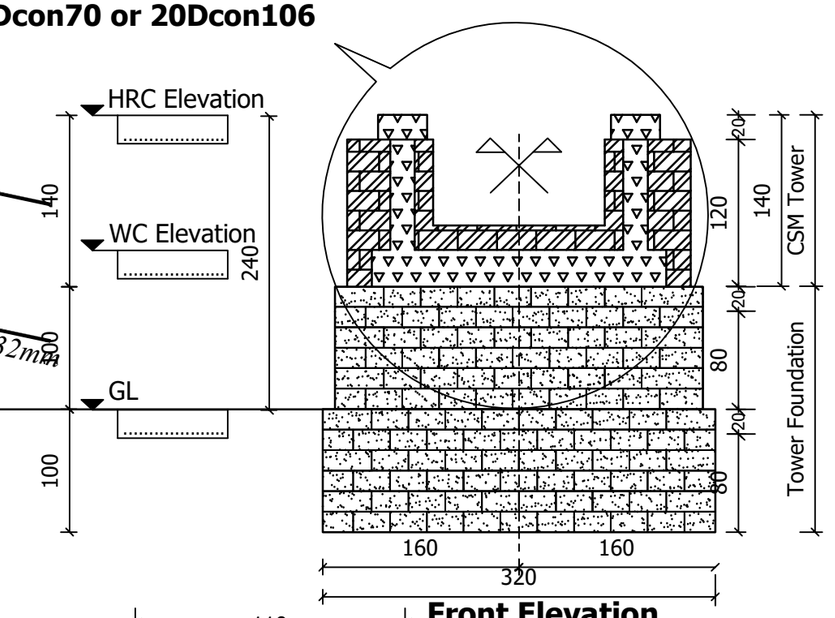
Date : August 01, 2016 Drawing No. 48Dcon

Gravity Soil Anchor Block | Tower

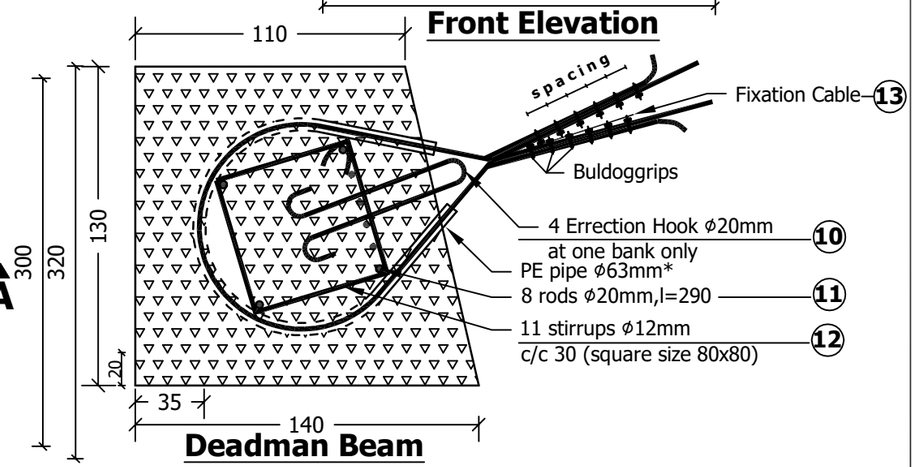


Important Note : Tower Block & Dead Load should be constructed simultaneously and monolithically in stages as shown in Section A-A.

Details of CSM Tower see Drawings Nos
20Dcon70 or 20Dcon106



Front Elevation



Deadman Beam

(Scale 1:25)

Provide Drainage behind deadman beam with side outlet in case of seepage water.

Construct (Hammer dressed dry stone masonry) Staircase as per site condition

Related Steel Drawing is : 20D4

*6 nos of PE Pipes, ϕ 63mm 3.5m length per cable end

Scale 1:50

All Dimension are in Centimeter

Standard Quantities

	Chisel dressed Stone Masonry in 1:4 CSM	Hammer dressed Stone Masonry in 1:6 CSM	Hammer dressed Dry Stone Masonry	Concrete 1:2:4	Concrete 1:3:6
(m^3)	See Drawing No 20Dcon70 or 20Dcon106	44.69	60.14	4.88	3.50
Cement bags		67.03	------	31.23	15.40

Nos & Spacing of Buldog Grips		
Cable ϕ mm	Nos	Spacing (cm)
13	3	10
26	5	15
32	5	20

GoN / Ministry of Local Development
DoLIDAR / Short Span Trail Bridge Standard

Bridge Name :

No: Bank : Span :

Construction Drawing:

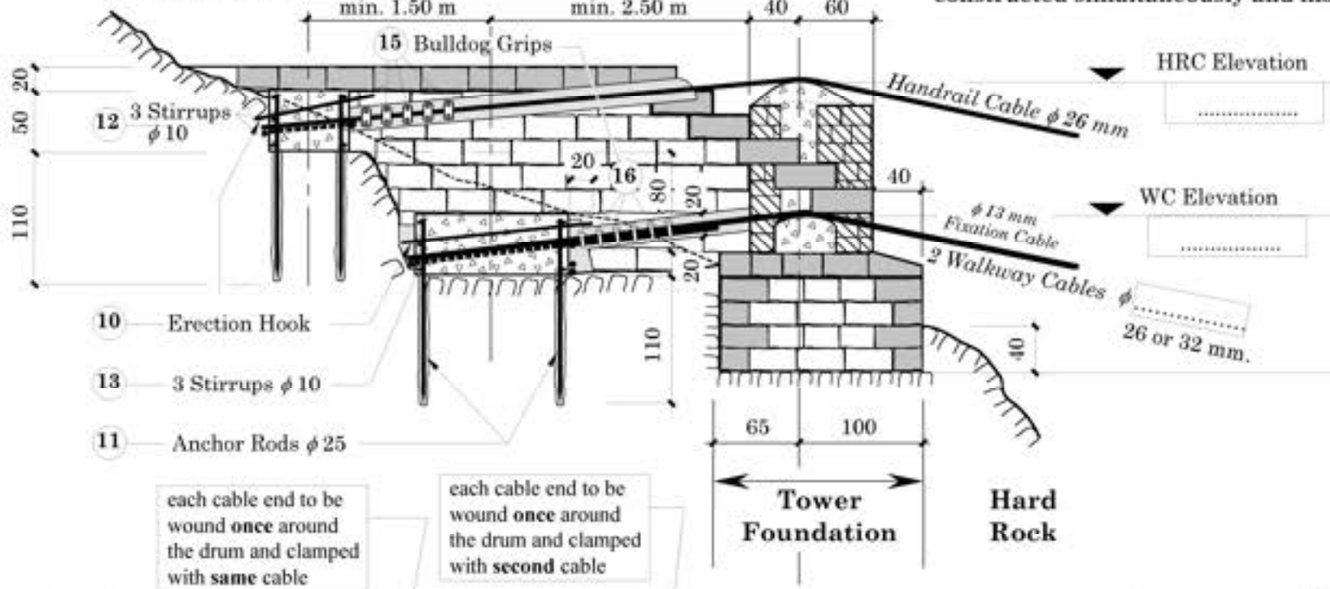
Gravity Main Anchor Block in Hill Slope

Type 9S

4 Walkway Cables

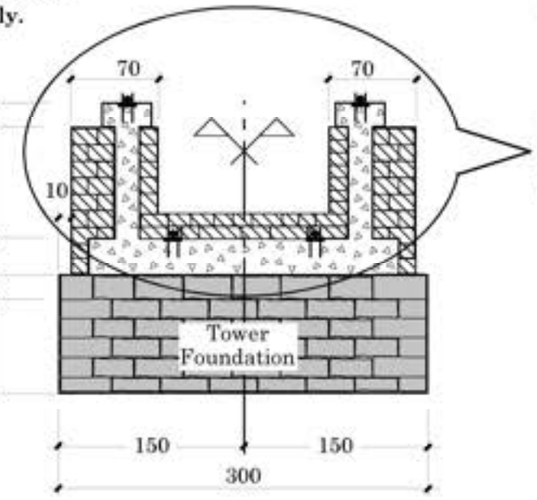
Date : August 01, 2016 Drawing No. 49Dcon

Section A-A



Important Note : Tower Block and Dead load should be constructed simultaneously and monolithically.

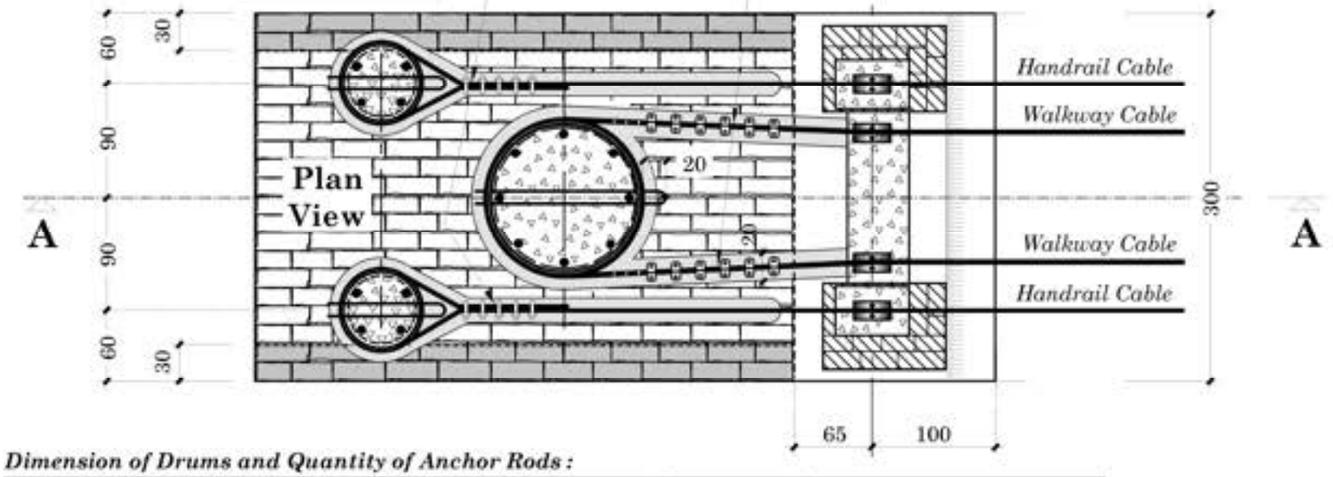
Front Elevation



Details of CSM Tower
See Drawing No. **20D con 70** or **20D con 106**

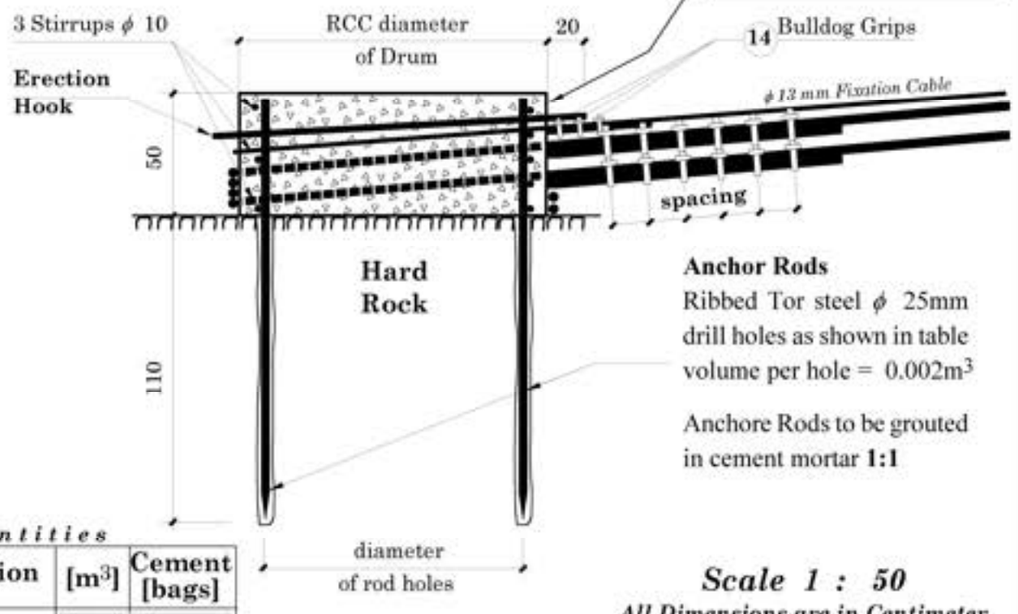
each cable end to be wound **once** around the drum and clamped with **same** cable

each cable end to be wound **once** around the drum and clamped with **second** cable



Typical Cross Section of RCC Drum

Form work for Drum is done with a bamboo mat (*Chitra*) lined with a plastic sheet.Use binding wire around the drum for fixing.



Scale 1 : 50

All Dimensions are in Centimeter

Dimension of Drums and Quantity of Anchor Rods :

Cable ϕ mm	arrangement of anchor rods	required diameter of: RCC Drum [cm]	required diameter of: circle of rod holes [cm]	Total Volume of Drum [m³]	Required Anchor Rods ϕ 25 mm [nos]	Stirrups ϕ 10 mm: nos	Stirrups ϕ 10 mm: cutting length [mm]	Stirrups ϕ 10 mm: bending dia [mm]	Stirrups ϕ 10 mm: weight kg/pc [kg]
Hand Rail Cable ϕ 26		65	50	0.35*	8* *for 2 Drums	6*	2270	530	1.40
Walkway Cable ϕ 26		100	85	0.40	8	3	3370	880	2.08
or									
Cable ϕ 32		125	110	0.65	12	3	4150	1130	2.56

Standard Quantities

Type of construction	[m³]	Cement [bags]
Chisel dressed Stone Masonry 1:4	See drawing no. 20Dcon 70 or 20Dcon106	
Hammer dressed Stone Masonry 1:6	10.00	15.00
Hammer dressed Dry Masonry	2.02	—
Concrete 1:2:4 *(Volume of Drums x6.40)	-------	* -------
Concrete 1:3:6	0.50	2.22
Broken stones Masonry	13.85	—

Related Steel Drawing is : 60D2

Nos & spacing of Bulldog Grips

Cable ϕ mm	Nos	Spacing [cm]
13	3	10
26	5	15
32	6	20

GoN / Ministry of Local Development
DoLIDAR / Short SpanTrail Bridge Standard
Bridge Name
No Bank : Span
Construction Drawing:

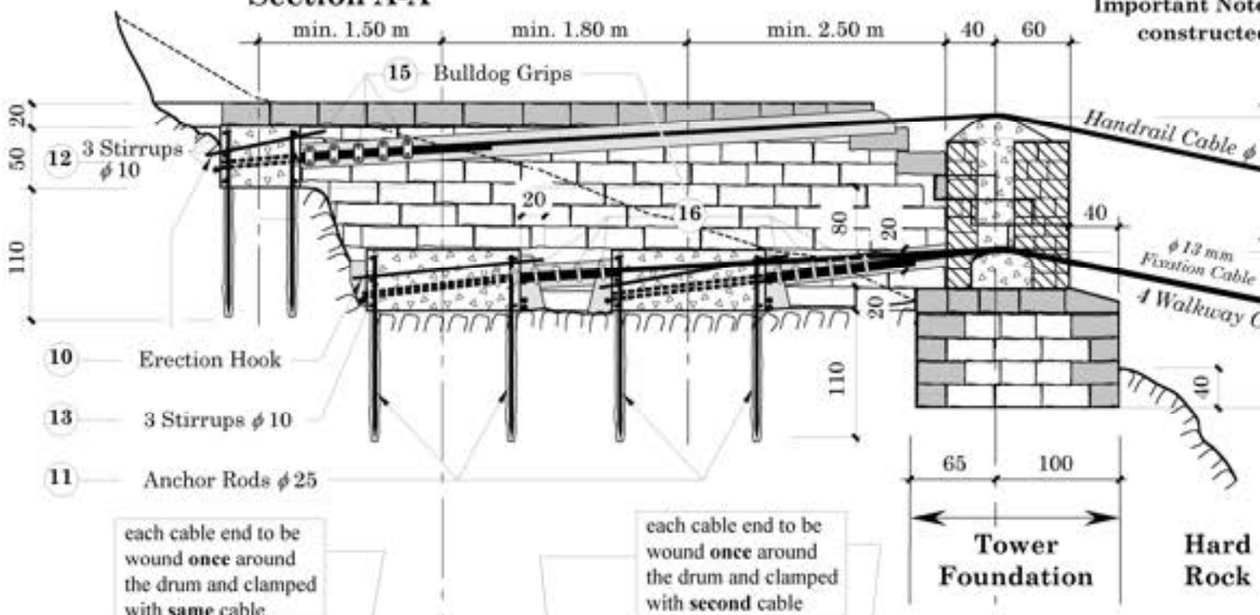
RCC Single Drum Anchor in Hard Rock

Type 1HRS

2 Walkway Cables ϕ 26 or 32 mm .....

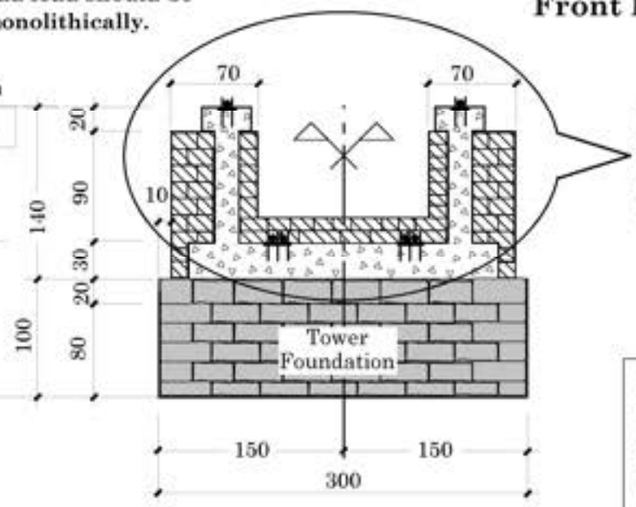
Date : August1, 2016 Drawing No. 61D con

Section A-A



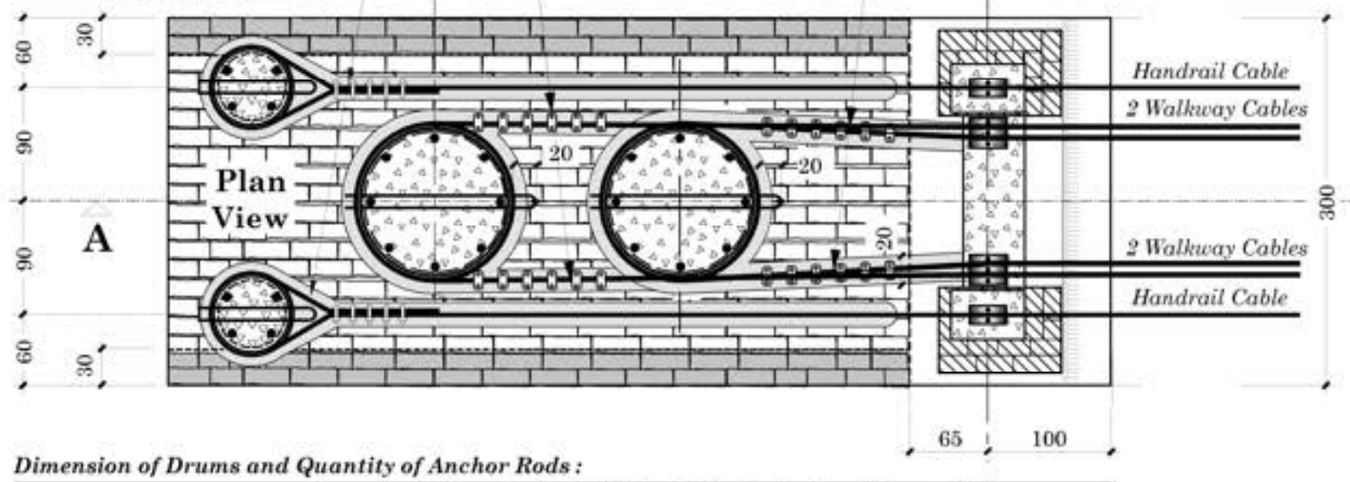
Important Note : Tower Block and Dead load should be constructed simultaneously and monolithically.

Front Elevation

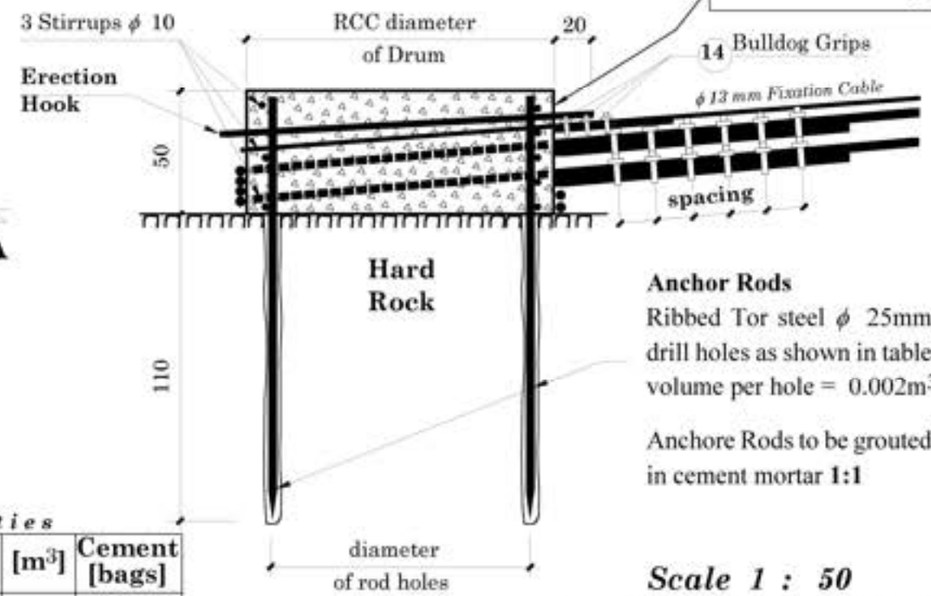


Details of CSM Tower See Drawing No. **20D con 70** or **20D con 106**

Form work for Drum is done with a bamboo mat (*Chitra)* lined with a plastic sheet.Use bindingwirearound the drum for fixing.



Typical Cross Section of RCC Drum



Anchor Rods
Ribbed Tor steel ϕ 25mm drill holes as shown in table
volume per hole = $0.002m^3$

Anchore Rods to be grouted in cement mortar **1:1**

Scale 1 : 50

All Dimensions are in Centimeter

Dimension of Drums and Quantity of Anchor Rods :

Cable ϕ mm	arrangement of anchor rods	required diameter of: RCC drum [cm]	required diameter of: circle of rod holes [cm]	Total Volume of Drum [m³]	Required Anchor Rods ϕ 25 mm [nos]	Stirrups ϕ 10 mm: nos	cutting length [mm]	bending dia [mm]	weight kg/pc [kg]
Hand Rail Cable or ϕ 26 (ϕ 32)		65 (75)	50 (60)	0.40* (0.50)*	8* (12*)	6* (6*)	2270 (2580)	530 (630)	1.40 (1.59)
Walkway Cables ϕ 26		100	85	0.80*	16*	3	3370	880	2.08
or ϕ 32		125	110	1.30*	24*	3	4150	1130	2.56

*for 2 Drums

Standard Quantities

Type of construction	[m³]	Cement [bags]
Chisel dressed Stone Masonry 1:4	See drawing no. 20Dcon 70 or 20Dcon106	
Hammer dressed Stone Masonry 1:6	10.45	15.67
Hammer dressed Stone Masonry 1:6	2.02	——
Concrete 1:2:4 *(Volume of Drums x6.40)	------	* ------
Concrete 1:3:6	1.14	5.02
Broken stones Masonry	19.97	——

Related Steel Drawing is : 60D4

Nos & spacing of Bulldog Grips

Cable ϕ mm	Nos	Spacing [cm]
13	3	10
26	5	15
32	6	20

Gon / Ministry of Local Development
DoLIDAR / Short SpanTrail Bridge Standard
Bridge Name
No Bank : Span
Construction Drawing:

RCC Single Drum Anchor in Hard Rock

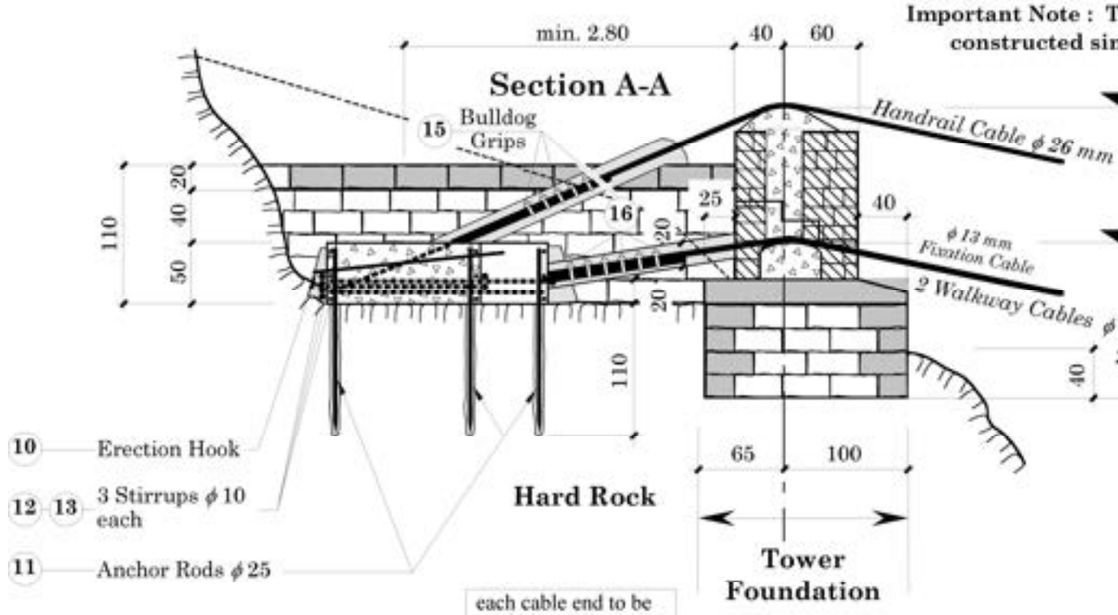
Type 2HRS

Handrail Cables ϕ 26 or 32 mm .....
4 Walkway Cables ϕ 26 or 32 mm .....

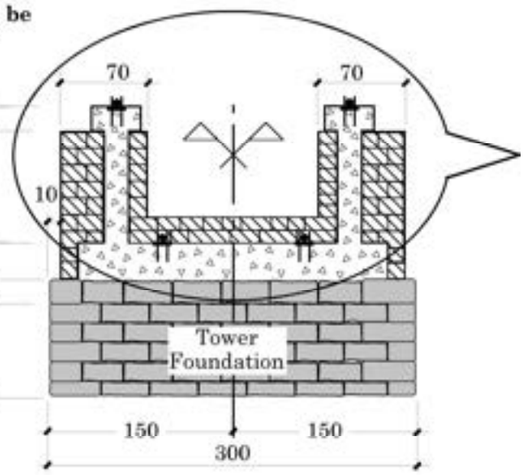
Date : August1, 2016 **Drawing No. 62D con**

Important Note : Tower Block and Dead load should be constructed simultaneously and monolithically.

Section A-A



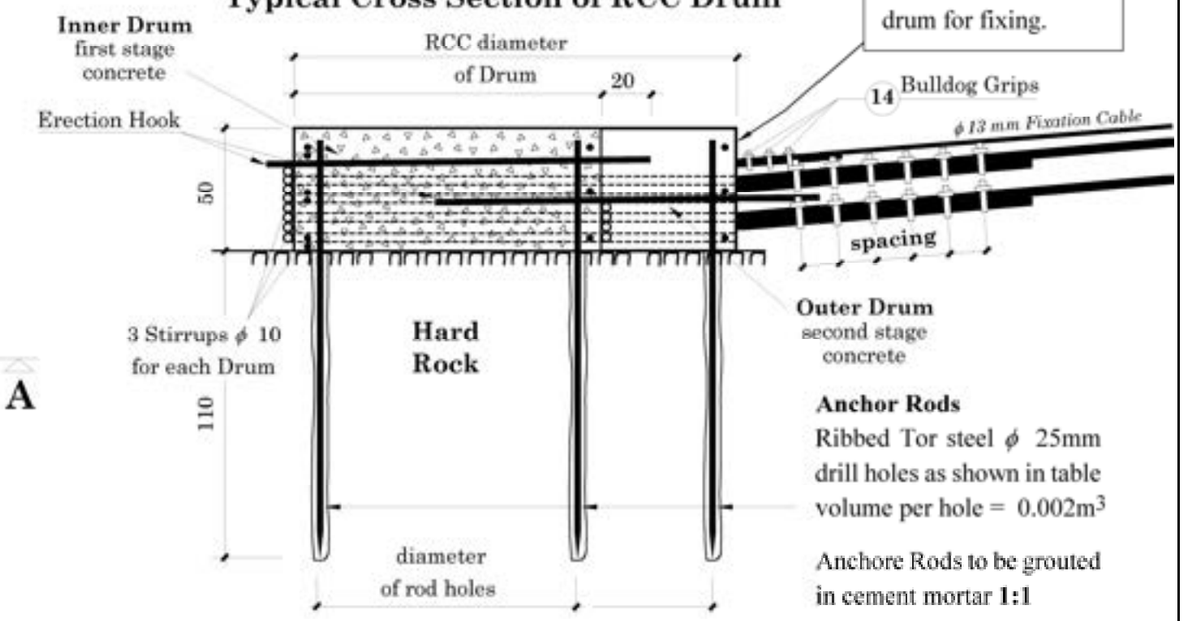
Front Elevation



Details of CSM Tower
See Drawing No. **20D con 70** or **20D con 106**

Form work for Drum is done with a bamboo mat (*Chitra)* lined with a plastic sheet.Use binding wire around the drum for fixing.

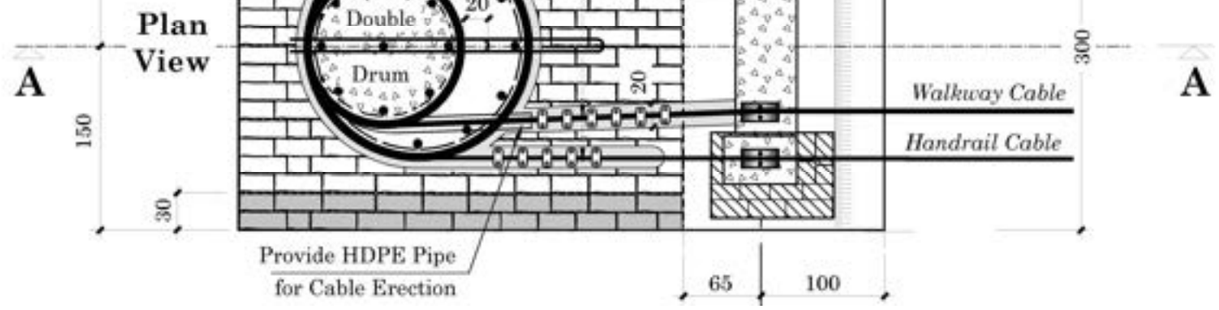
Typical Cross Section of RCC Drum



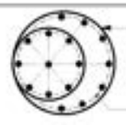
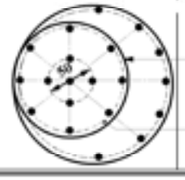
Anchor Rods
Ribbed Tor steel ϕ 25mm drill holes as shown in table
volume per hole = $0.002m^3$

Anchore Rods to be grouted in cement mortar **1:1**

Plan View



Dimension of Drums and Quantity of Anchor Rods :

Cable ϕ [mm]	arrangement of anchor rods	required diameters of: outer drum for handrail cable: RCC Drum [cm]	outer drum for handrail cable: ϕ for rod holes [cm]	inner drum for walkway cable: RCC Drum [cm]	inner drum for walkway cable: ϕ for rod holes [cm]	Total Volume of Drum [m³]	Required Anchor Rods ϕ 25 mm [nos]	Stirrups ϕ 10 mm: nos	cutting length [mm]	bending dia [mm]	weight kg/pc [kg]
Hand Rail ϕ 26		160	145	100	85	1.00	16	for inner drum: 3	3370	880	2.08
Walkway ϕ 26								for outer drum: 3	5250	1480	3.24
or											
Hand Rail ϕ 26		180	165	125	110	1.30	20	for inner drum: 3	4150	1130	2.56
Walkway ϕ 32								for outer drum: 3	5880	1680	3.63

S t a n d a r d Q u a n t i t i e s

Type of construction	[m³]	Cement [bags]
Chisel dressed Stone Masonry 1:4	See drawing no. 20Dcon 70 or 20Dcon106	
Hammer dressed Stone Masonry 1:6	6.36	9.48
Hammer dressed Dry Masonry	2.02	——
Concrete 1:2:4 *(Volume of Drums x6.40)	-------	------- *
Concrete 1:3:6	0.60	2.64
Broken stones Masonry	7.70	——

Related Steel Drawing is : 60D2

Nos & spacing of Bulldog Grips

Cable ϕ mm	Nos	Spacing [cm]
13	3	10
26	5	15
32	6	20

Scale 1 : 50

All Dimensions are in Centimeter

GoN / Ministry of Local Development
DoLIDAR / Short SpanTrail Bridge Standard

Bridge Name
No Bank : Span

Construction Drawing:

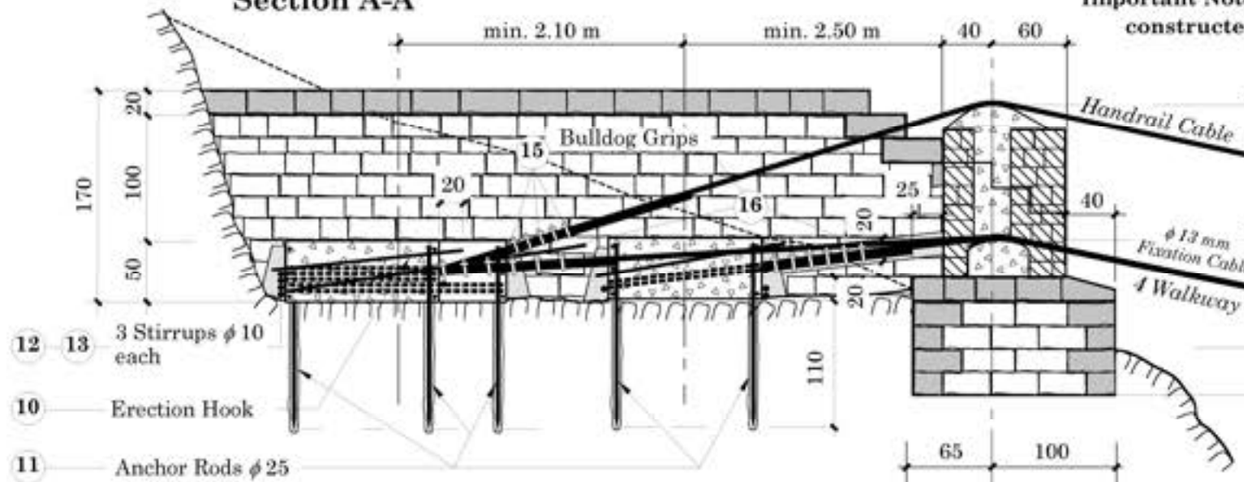
RCC Double Drum Anchor in Hard Rock

Type 1HRD

2 Walkway Cables ϕ 26 or 32 mm .....

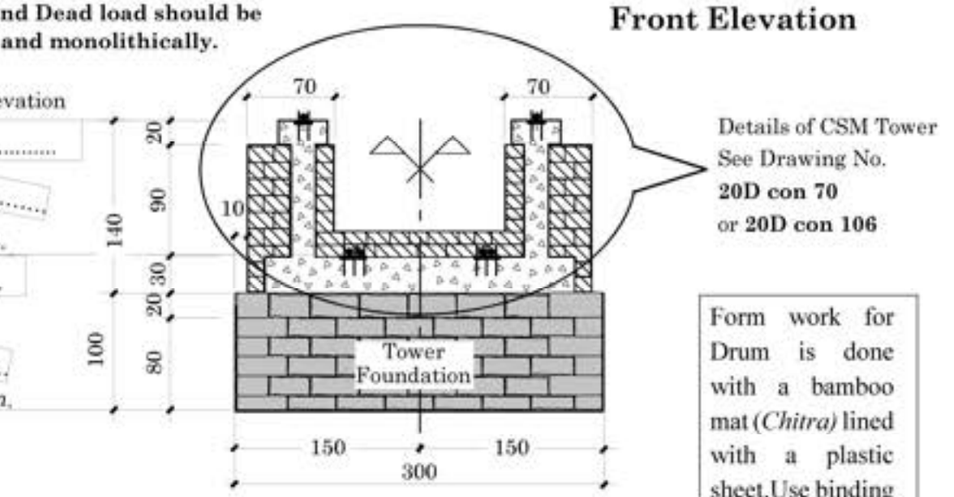
Date : August1, 2017 **Drawing No. 63D con**

Section A-A



Important Note : Tower Block and Dead load should be constructed simultaneously and monolithically.

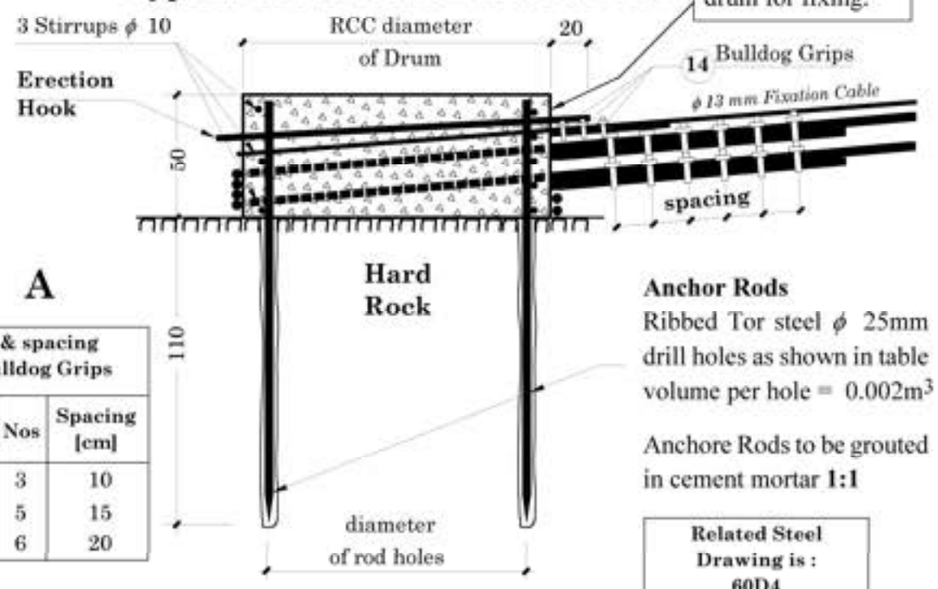
Front Elevation



Details of CSM Tower See Drawing No. **20D con 70** or **20D con 106**

Form work for Drum is done with a bamboo mat (*Chitra*) lined with a plastic sheet.Use binding wire around the drum for fixing.

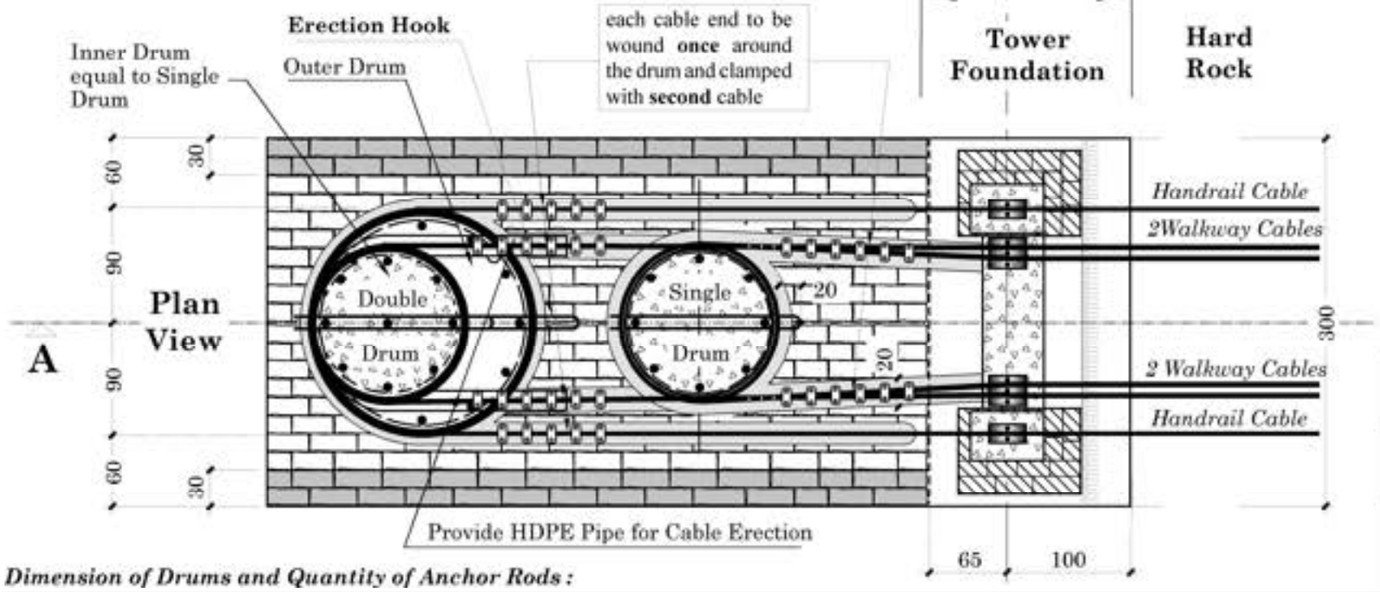
Typical Cross Section of RCC Drum



Anchor Rods
Ribbed Tor steel ϕ 25mm drill holes as shown in table
volume per hole = 0.002m³

Anchore Rods to be grouted in cement mortar **1:1**

Related Steel Drawing is : 60D4

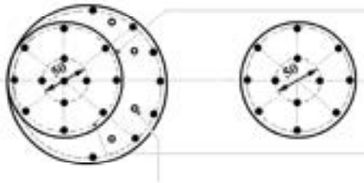


A

Nos & spacing of Bulldog Grips

Cable ϕ mm	Nos	Spacing [cm]
13	3	10
26	5	15
32	6	20

Dimension of Drums and Quantity of Anchor Rods :

Cable ϕ [mm]	arrangement of anchor rods	required diameters of: outer drum for handrail cable RCC Drum [cm]	ϕ for rod holes [cm]	inner drum for walkway cable RCC Drum [cm]	ϕ for rod holes [cm]	Total Volume of Drum [m³]	Required Anchor Rods ϕ 25 mm [nos]	Stirrups ϕ 10 mm nos	cutting length [mm]	bending dia [mm]	weight kg/pc [kg]
Hand Rail ϕ 26 / Walkway ϕ 26		160	145	100	85	1.40	16+8	for inner drum 6	3370	880	2.08
								for outer drum 3	5250	1480	3.24
or Hand Rail ϕ 26 / Walkway ϕ 32		180	165	125	110	1.89	20+12	for inner drum 6	4150	1130	2.56
								for outer drum 3	5880	1680	3.63
° If Hand Rail is ϕ 32, then 4 more anchor rods are required in double drum							24+12				

Standard Quantities

Type of construction	[m³]	Cement [bags]
Chisel dressed Stone Masonry 1:4	See drawing no. 20Dcon 70 or 20Dcon106	
Hammer dressed Stone Masonry 1:6	10.11	15.16
Hammer dressed Dry Masonry	2.02	—
Concrete 1:2:4 *(Volume of Drums x6.40)	-------	* -------
Concrete 1:3:6	0.96	4.23
Broken stones Masonry	19.74	—

Scale 1 : 50

All Dimensions are in Centimeter

GoN / Ministry of Local Development
DoLIDAR / Short SpanTrail Bridge Standard

Bridge Name
No Bank : Span

Construction Drawing:

RCC Double & Single Drum Anchor in Hard Rock

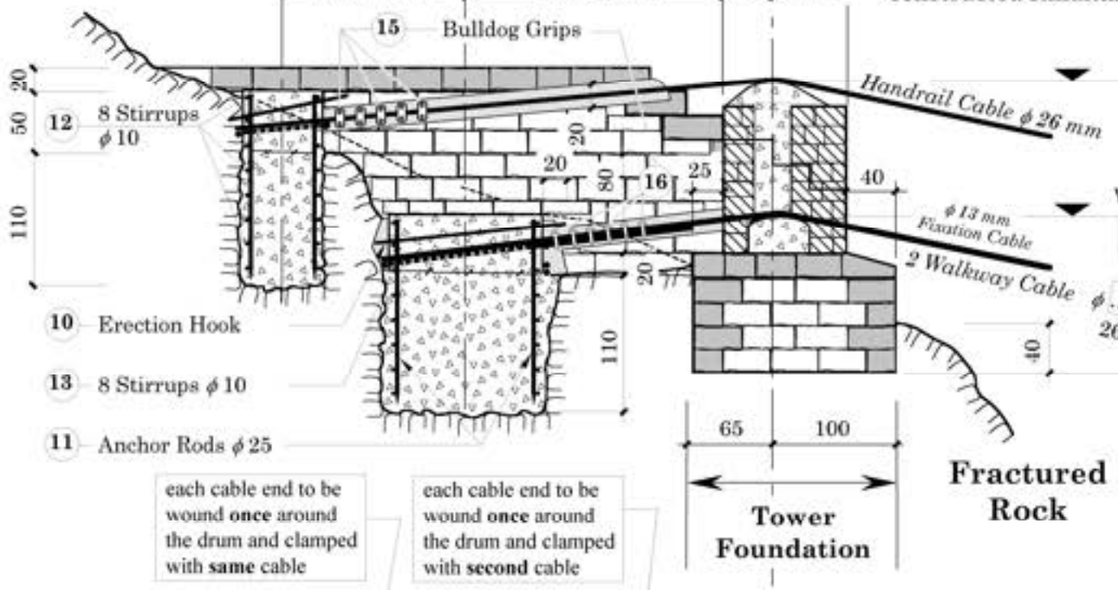
Type 2HRD

Handrail Cables ϕ 26 or 32 mm .....

4 Walkway Cables ϕ 26 or 32 mm .....

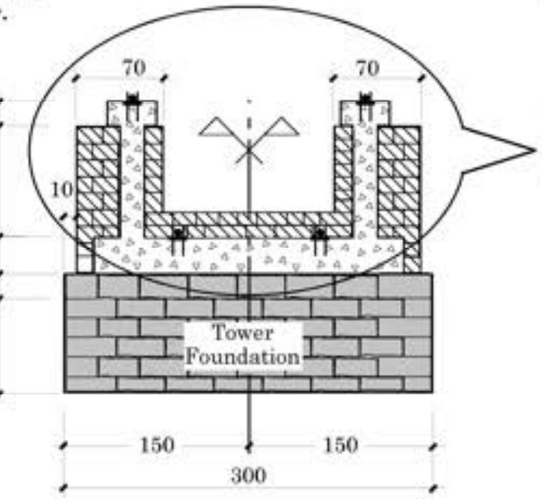
Date : August1, 2016 **Drawing No. 64D con**

Section A-A



Important Note : Tower Block and Dead load should be constructed simultaneously and monolithically.

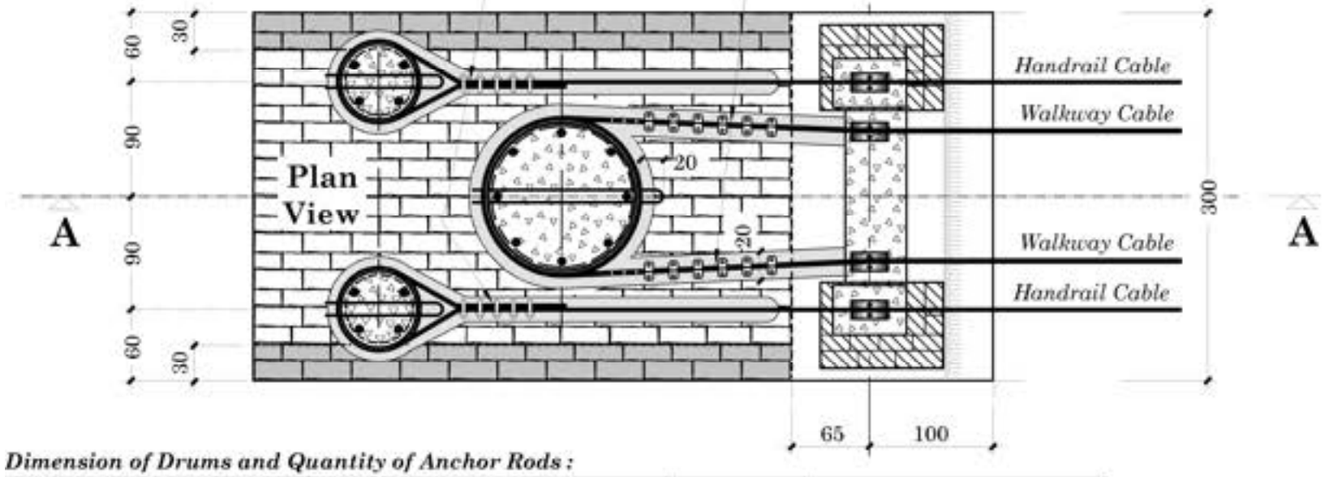
Front Elevation



Details of CSM Tower
See Drawing No. **20D con 70** or **20D con 106**

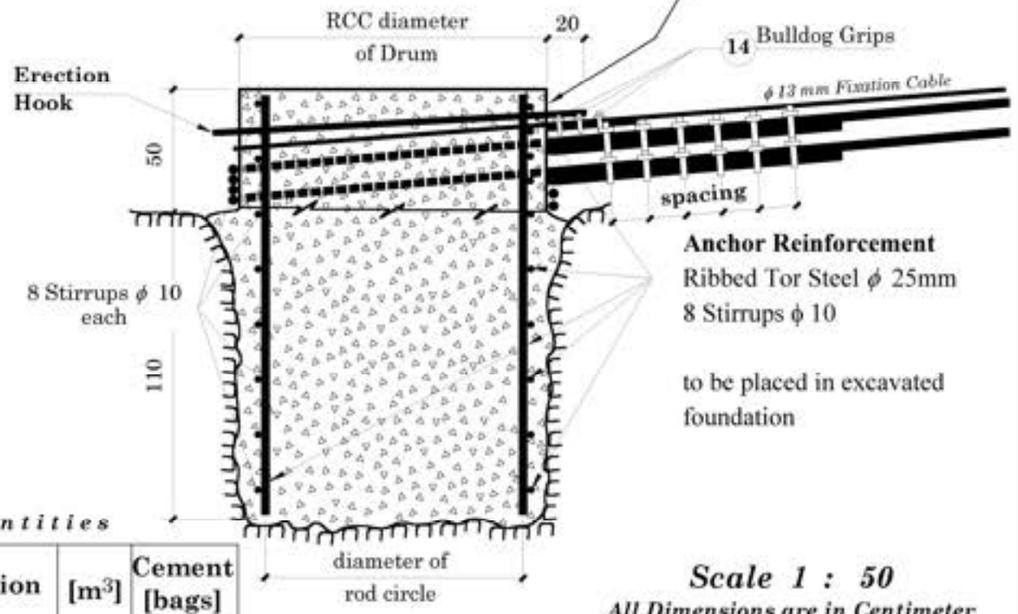
each cable end to be wound **once** around the drum and clamped with **same** cable

each cable end to be wound **once** around the drum and clamped with **second** cable



Form work for Drum is done with a bamboo mat (*Chitra*) lined with a plastic sheet.Use binding wire around the drum for fixing.

Typical Cross Section of RCC Drum



Anchor Reinforcement
Ribbed Tor Steel ϕ 25mm
8 Stirrups ϕ 10

to be placed in excavated foundation

Scale 1 : 50
All Dimensions are in Centimeter

Dimension of Drums and Quantity of Anchor Rods :

Cables ϕ mm	arrangement of anchor rods	required diameter of: RCC Drum [cm]	required diameter of: rod circle [cm]	Total Volume of Drum [m³]	Required Anchor Rods ϕ 25 mm [nos]	Stirrups ϕ 10 mm: nos	cutting length [mm]	bending dia [mm]	weight kg/pc [kg]
For Hand Rail Cable ϕ 26		65	50	1.06*	8* *for 2 Drums	16*	2270	530	1.40
For Walkway Cables ϕ 26		100	85	1.26	8	8	3370	880	2.08
or ϕ 32		125	110	1.90	12	8	4150	1130	2.56

Standard Quantities

Type of construction	[m³]	Cement [bags]
Chisel dressed Stone Masonry 1:4	See drawing no. 20Dcon 70 or 20Dcon106	
Hammer dressed Stone Masonry 1:6	10.00	15.00
Hammer dressed Dry Masonry	2.02	—
Concrete 1:2:4 *(Volume of Drums x6.40)	-----	* -----
Concrete 1:3:6	0.50	2.22
Broken stones Masonry	13.85	—

Related Steel Drawing is : 60D2

Nos & spacing of Bulldog Grips

Cable ϕ mm	Nos	Spacing [cm]
13	3	10
26	5	15
32	6	20

GoN / Ministry of Local Development
DoLIDAR / Short SpanTrail Bridge Standard
Bridge Name
No Bank : Span
Construction Drawing:

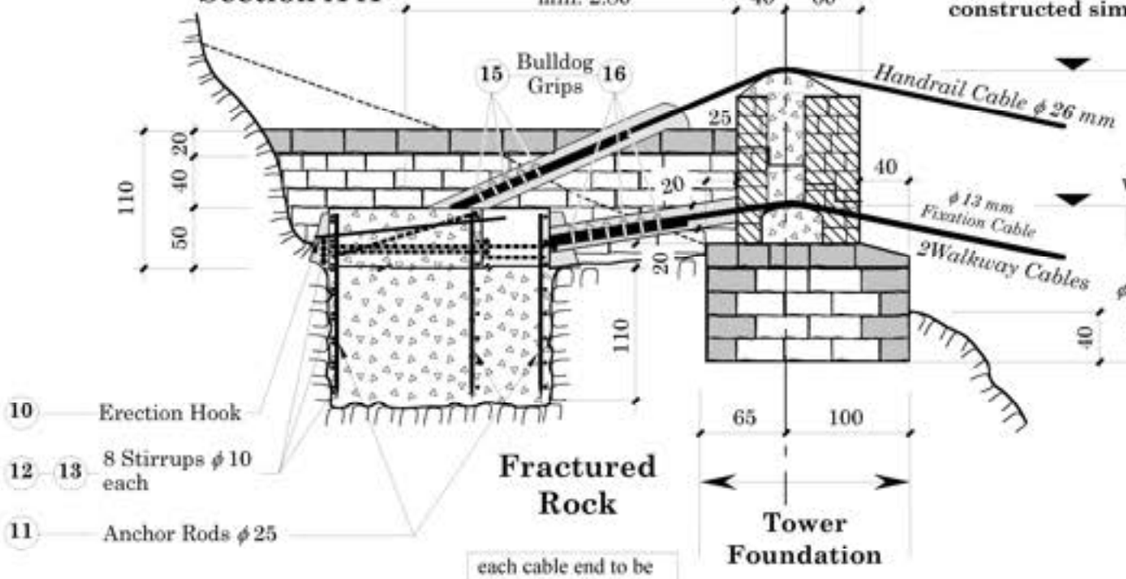
RCC Single Drum Anchor in Fractured Rock

Type 1FRS

2 Walkway Cables ϕ 26 or 32 mm .....

Date : August1, 2016 Drawing No. 65D con

Section A-A



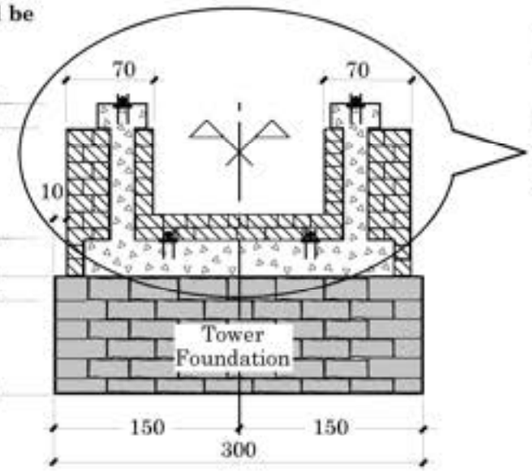
Important Note : Tower Block and Dead load should be constructed simultaneously and monolithically.

HRC Elevation .....

WC Elevation .....

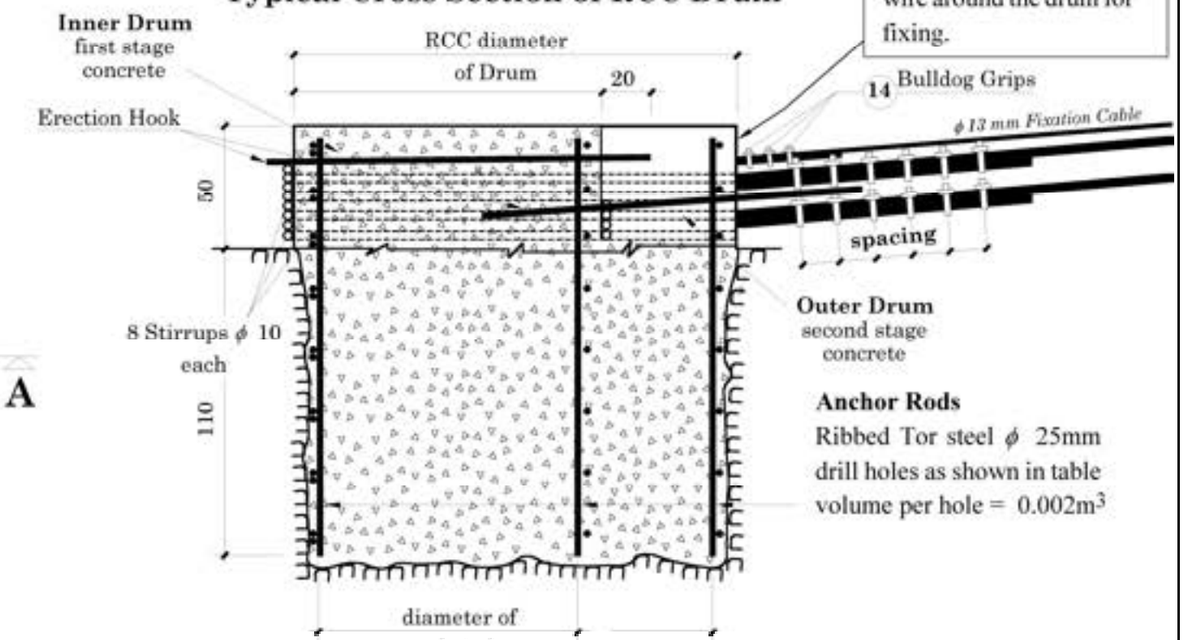
ϕ ..... 26 or 32 mm

Front Elevation

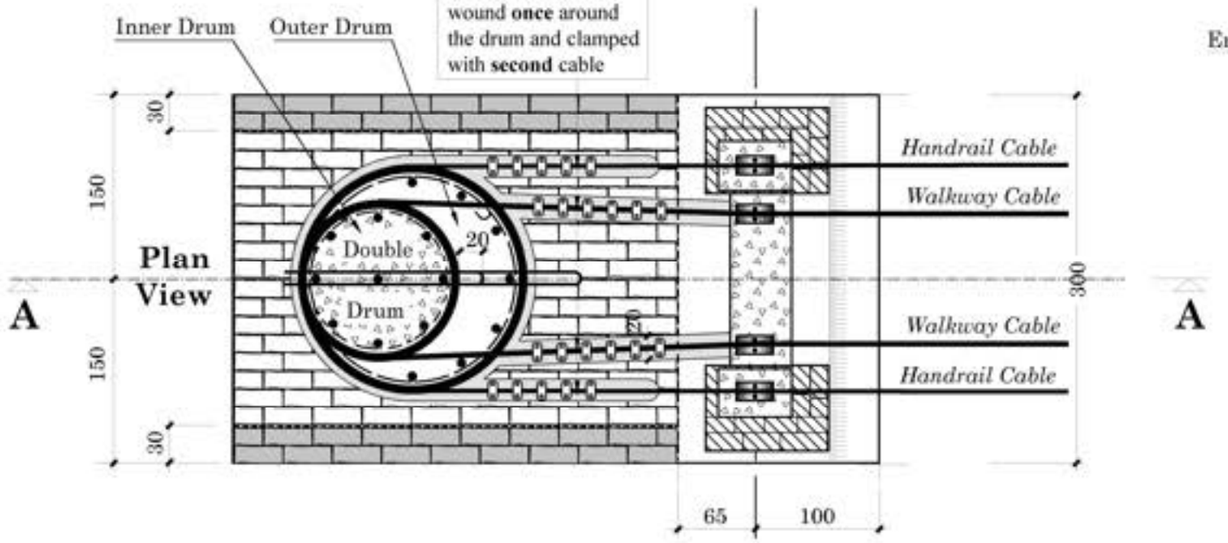


Details of CSM Tower
See Drawing No. **20D con 70** or **20D con 106**

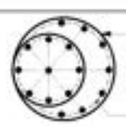
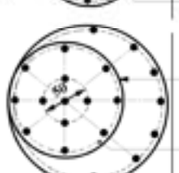
Typical Cross Section of RCC Drum



Form work for Drum is done with a bamboo mat (*Chitra*) lined with a plastic sheet. Use binding wire around the drum for fixing.



Dimension of Drums and Quantity of Anchor Rods :

Cable ϕ [mm]	arrangement of anchor rods	required diameters of: outer drum for handrail cable RCC Drum [cm]	outer drum for handrail cable ϕ for rod circle [cm]	inner drum for walkway cable RCC Drum [cm]	inner drum for walkway cable ϕ for rod circle [cm]	Total Volume of Drums [m³]	Required Anchor Rods ϕ 25 mm [nos]	Stirrups ϕ 10 mm nos	cutting length [mm]	bending dia [mm]	weight kg/pc [kg]
Hand Rail ϕ 26		160	145	100	85	3.22	16	for inner drum 8	3370	880	2.08
Walkway ϕ 26								for outer drum 8	5250	1480	3.24
or											
Hand Rail ϕ 26		180	165	125	110	4.07	20	for inner drum 8	4150	1130	2.56
Walkway ϕ 32								for outer drum 8	5880	1680	3.63

Standard Quantities

Type of construction	[m³]	Cement [bags]
Chisel dressed Stone Masonry 1:4	See drawing no. 20Dcon 70 or 20Dcon106	
Hammer dressed Stone Masonry 1:6	6.32	9.48
Hammer dressed Dry Masonry	2.02	——
Concrete 1:2:4 *(Volume of Drums x6.40)	------	* ------
Concrete 1:3:6	0.54	2.39
Broken stones Masonry	7.70	——

Related Steel Drawing is : 60D2

Nos & spacing of Bulldog Grips

Cable ϕ mm	Nos	Spacing [cm]
13	3	10
26	5	15
32	6	20

Scale 1 : 50

All Dimensions are in Centimeter

GoN / Ministry of Local Development
DoLIDAR / Short SpanTrail Bridge Standard

Bridge Name
No Bank : Span

Construction Drawing:

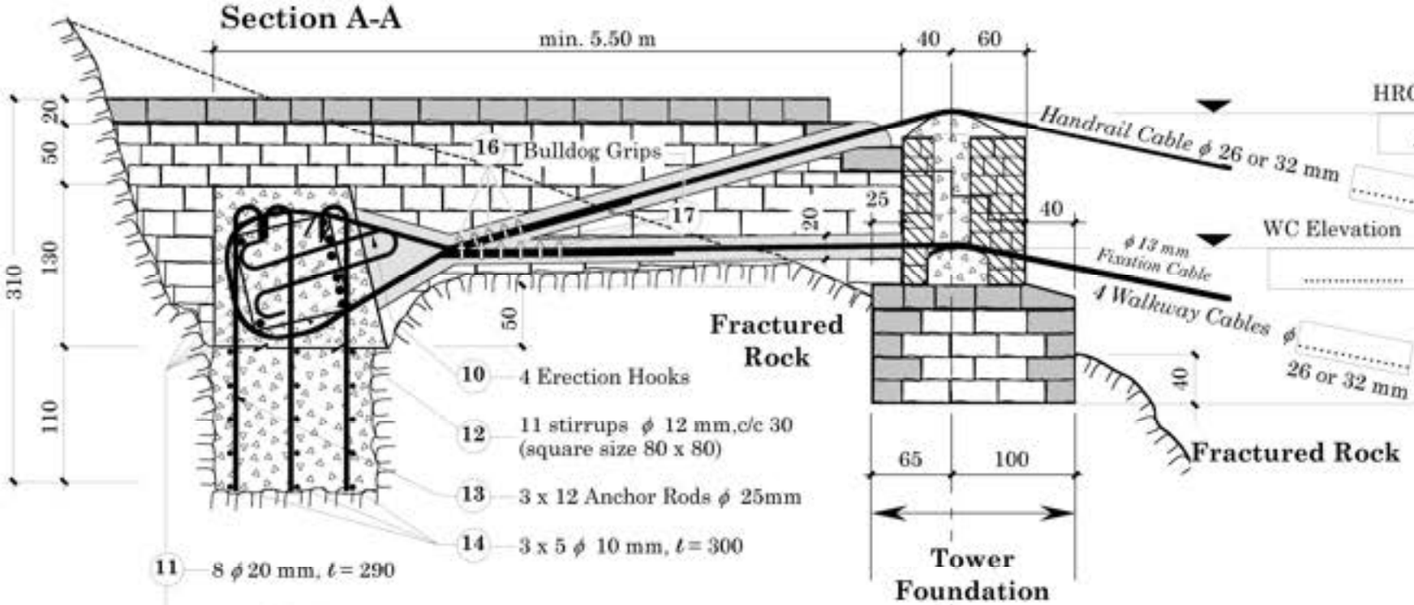
RCC Double Drum Anchor in Fractured Rock

Type 1FRD

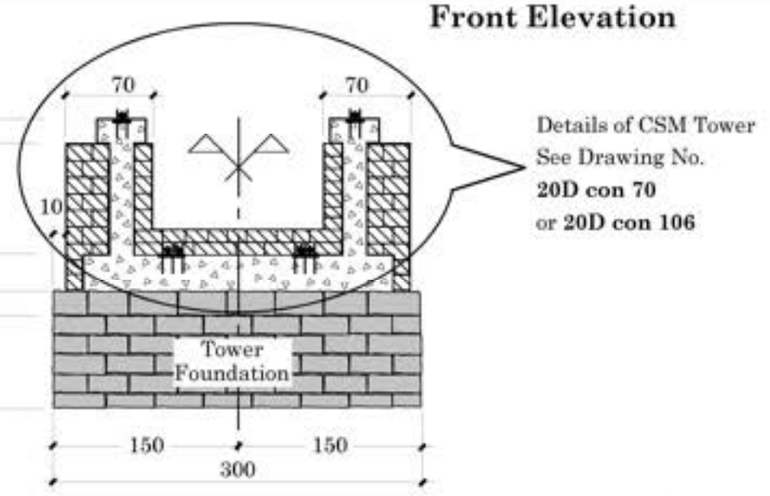
2 Walkway Cables ϕ 26 or 32 mm .....

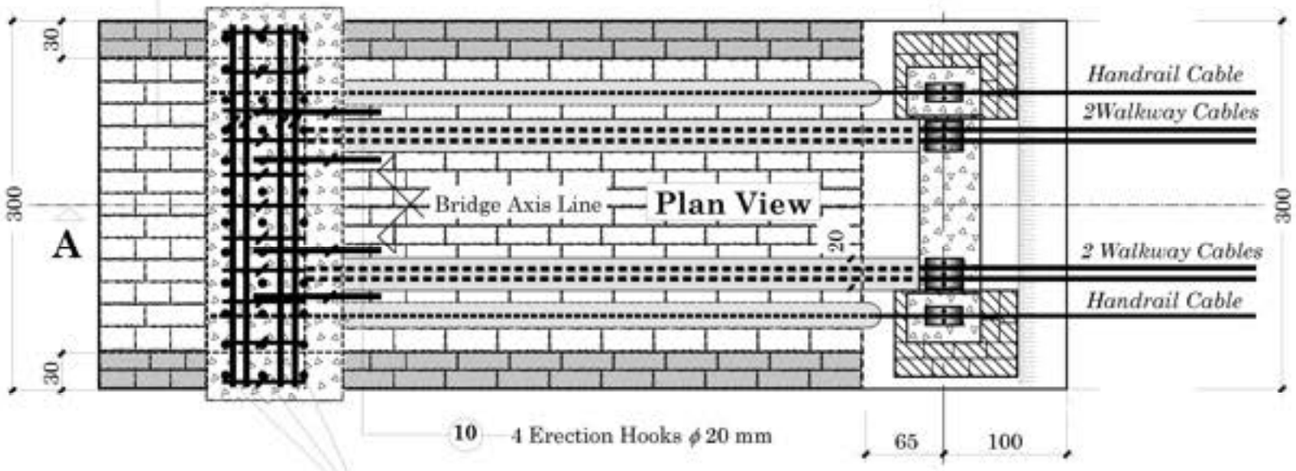
Date : August1, 2016 **Drawing No. 66D con**

Section A-A



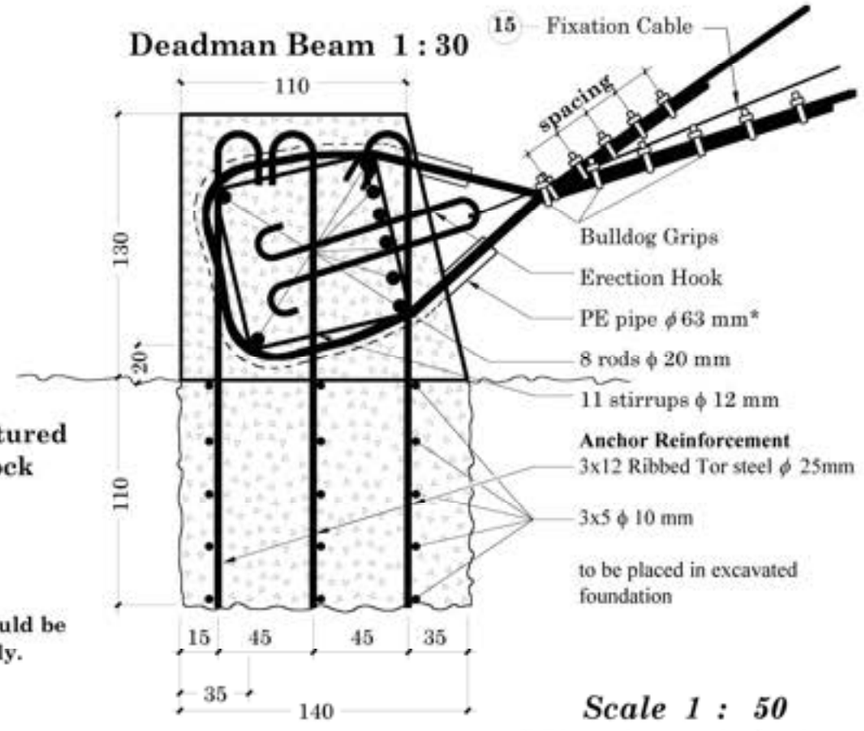
Front Elevation





Important Note : Tower Block and Dead load should be constructed simultaneously and monolithically.

Deadman Beam 1 : 30



Scale 1 : 50

All Dimensions are in Centimeter

Related Steel Drawing is : 20D4S

* 6 **nos of PE, ϕ 63 mm 3.5 m length per cable end.**

Standard Quantities

	Chisel dressed Stone Masonry 1:4	Hammer dressed Stone Masonry 1:6	Hammer dressed Stone Masonry 1:6	Concrete 1:2:4	Concrete 1:3:6	Broken Stones Masonry
[m³]	See drawing no. 20Dcon 70 or 20Dcon106	11.59	2.02	9.50	0.70	20.34
Cement bags		17.38	——	60.77	3.08	——

Nos & spacing of Bulldog Grips

Cable ϕ mm	Nos	Spacing [cm]
13	3	10
26	5	15
32	6	20

GoN / Ministry of Local Development
DoLIDAR / Short SpanTrail Bridge Standard
Bridge Name
No Bank : Span
Construction Drawing:

RCC Deadman Anchor in Fractured Rock

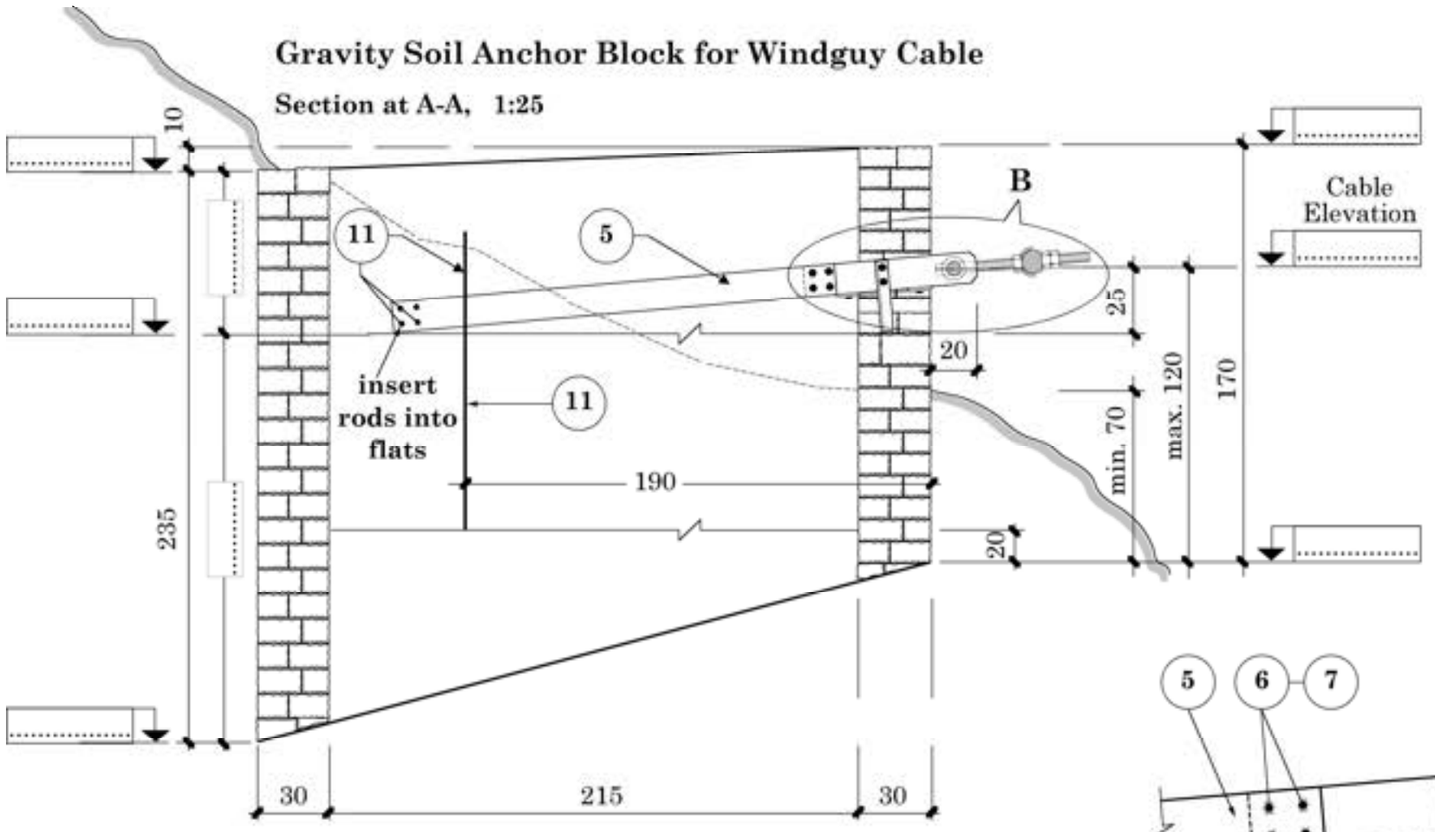
Type 2FRD

Handrail Cables ϕ 26 or 32 mm .....
4 Walkway Cables ϕ 26 or 32 mm .....

Date : August1, 2016 **Drawing No. 67D con**

Gravity Soil Anchor Block for Windguy Cable

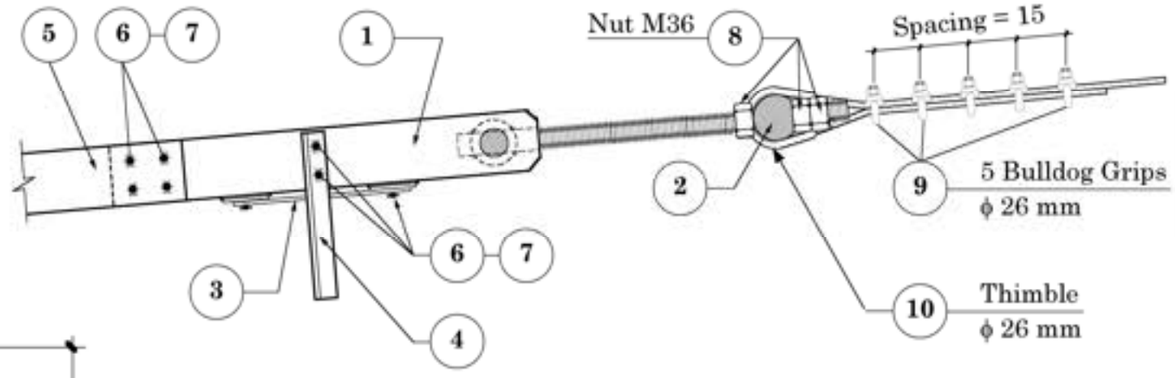
Section at A-A, 1:25



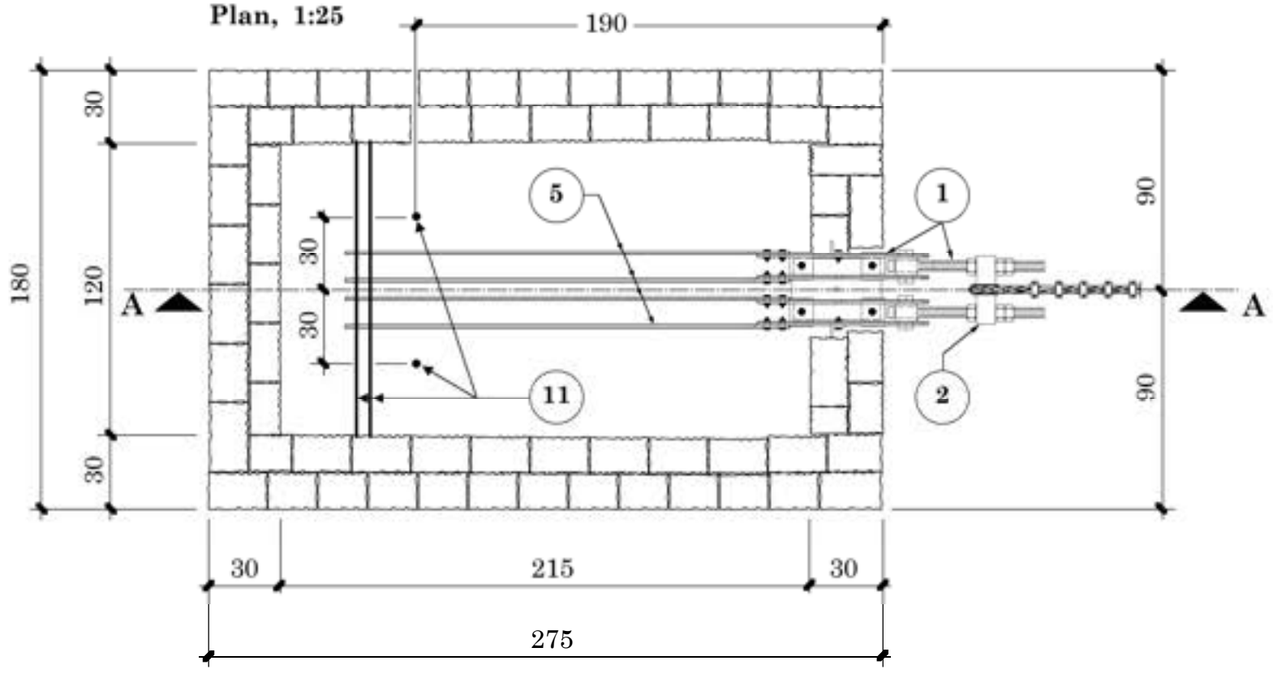
Standard Quantities

Type of Construction	[m³]
Hammer dressed Cement Stone Masonry 1:6	4.80
Plumb Concrete 1:3:6 + 50 % Boulders	5.22
Total	**10.02**

Detail at B 1:10



Plan, 1:25



Related Steel Drawing is : **50A**

Construct dry stone retaining wall as per site condition

GON / Ministry of Local Development

DoLIDAR / Short SpanTrail Bridge Standard

Bridge Name:

No: Bank: Span:

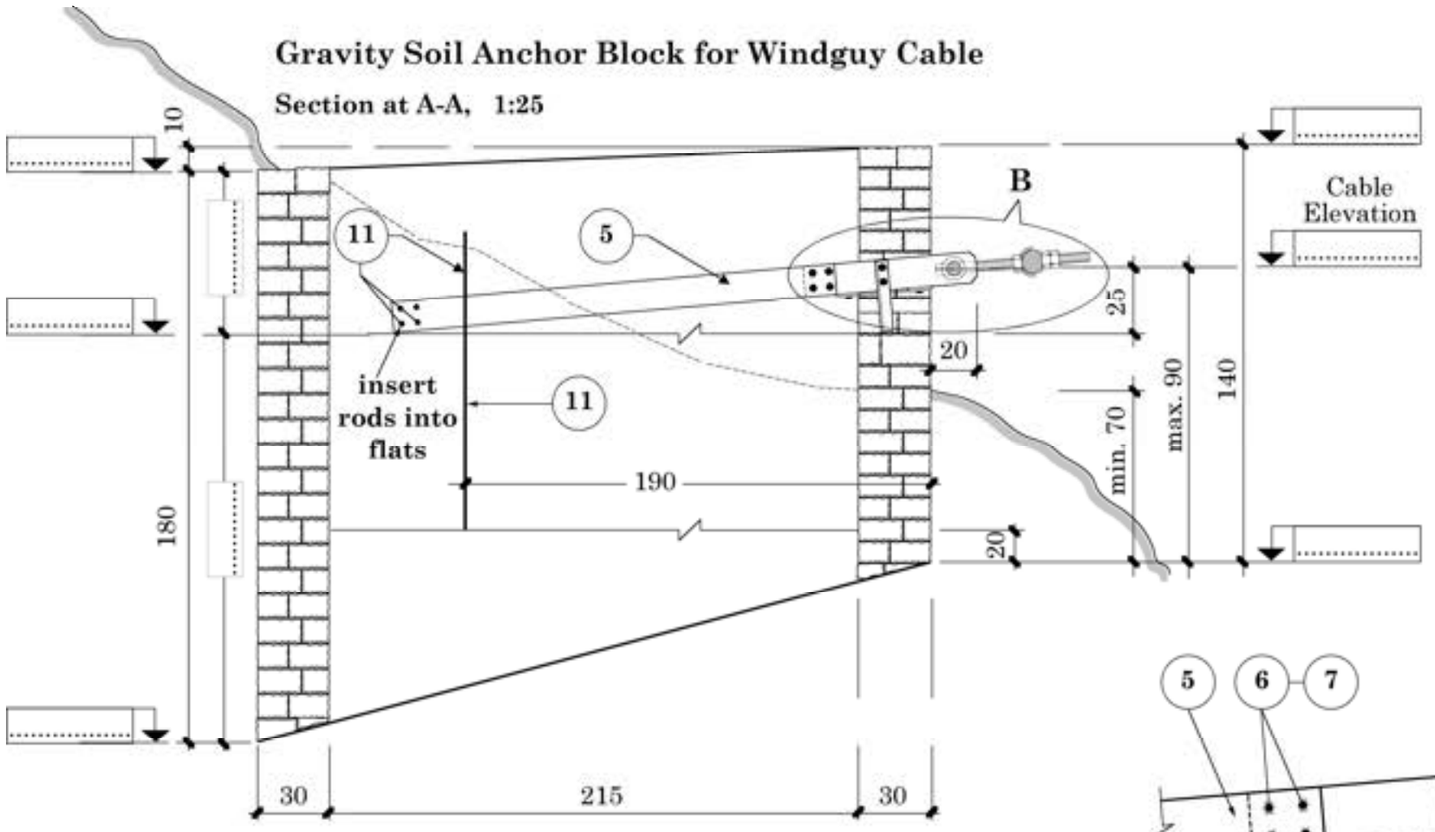
Construction Drawing:

Windguy Cable Anchor Block
for Cable ϕ 26 mm
for all Soil Types in Hill Slopes
with Turnbuckle

Date : August1,2016 **Drawing No. 51Acon**

Gravity Soil Anchor Block for Windguy Cable

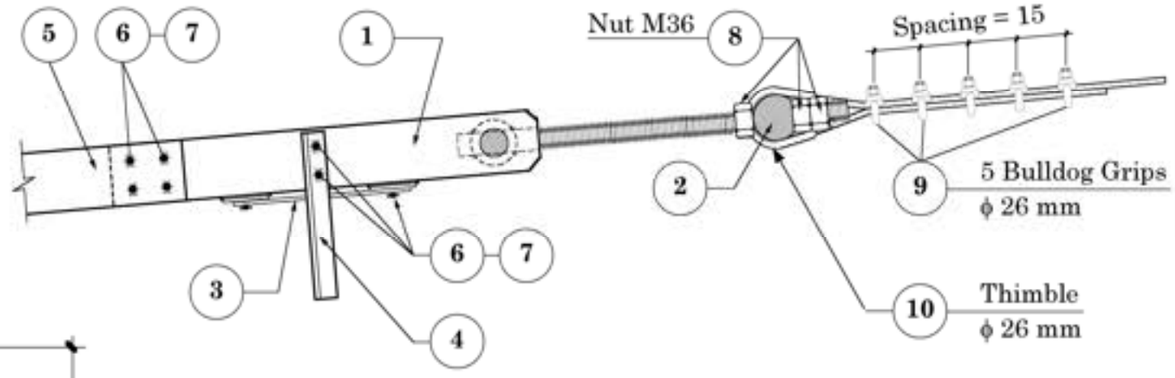
Section at A-A, 1:25



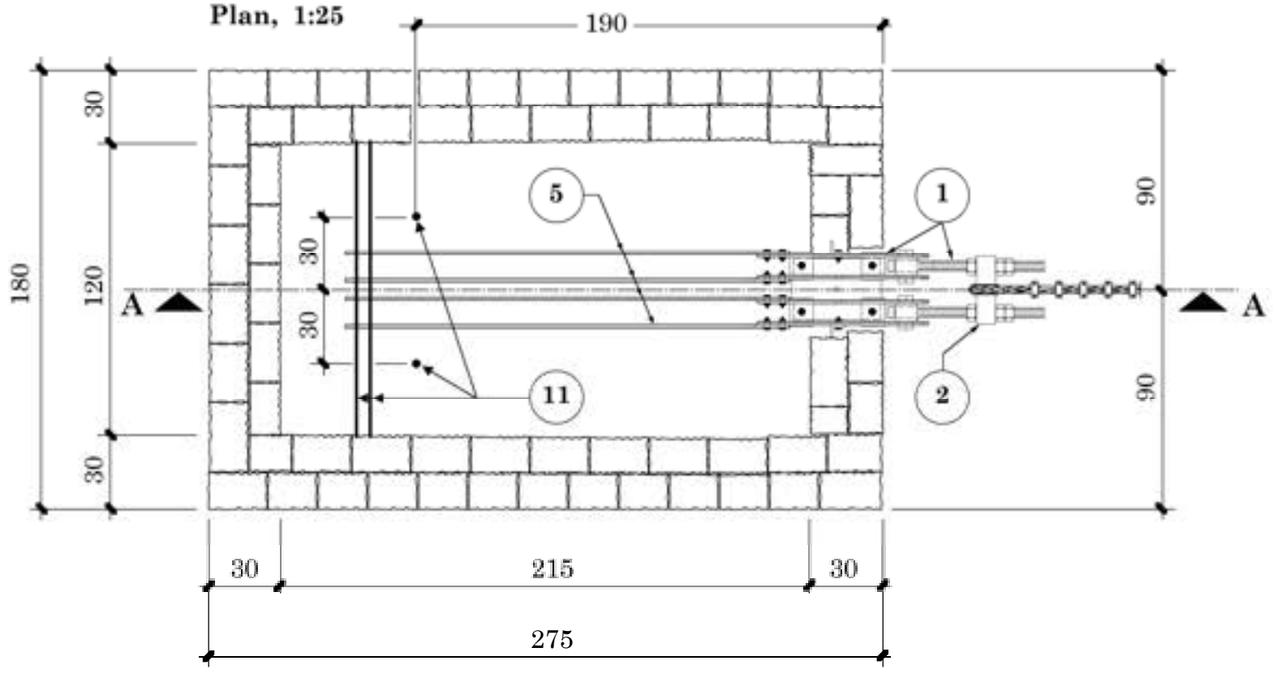
Standard Quantities

Type of Construction	[m³]
Hammer dressed Cement Stone Masonry 1:6	3.56
Plumb Concrete 1:3:6 + 50 % Boulders	3.64
Total	**7.20**

Detail at B 1:10



Plan, 1:25



Related Steel Drawing is : **50A**

Construct dry stone retaining wall as per site condition

GON / Ministry of Local Development

DoLIDAR / Short SpanTrail Bridge Standard

Bridge Name:

No: Bank: Span:

Construction Drawing:

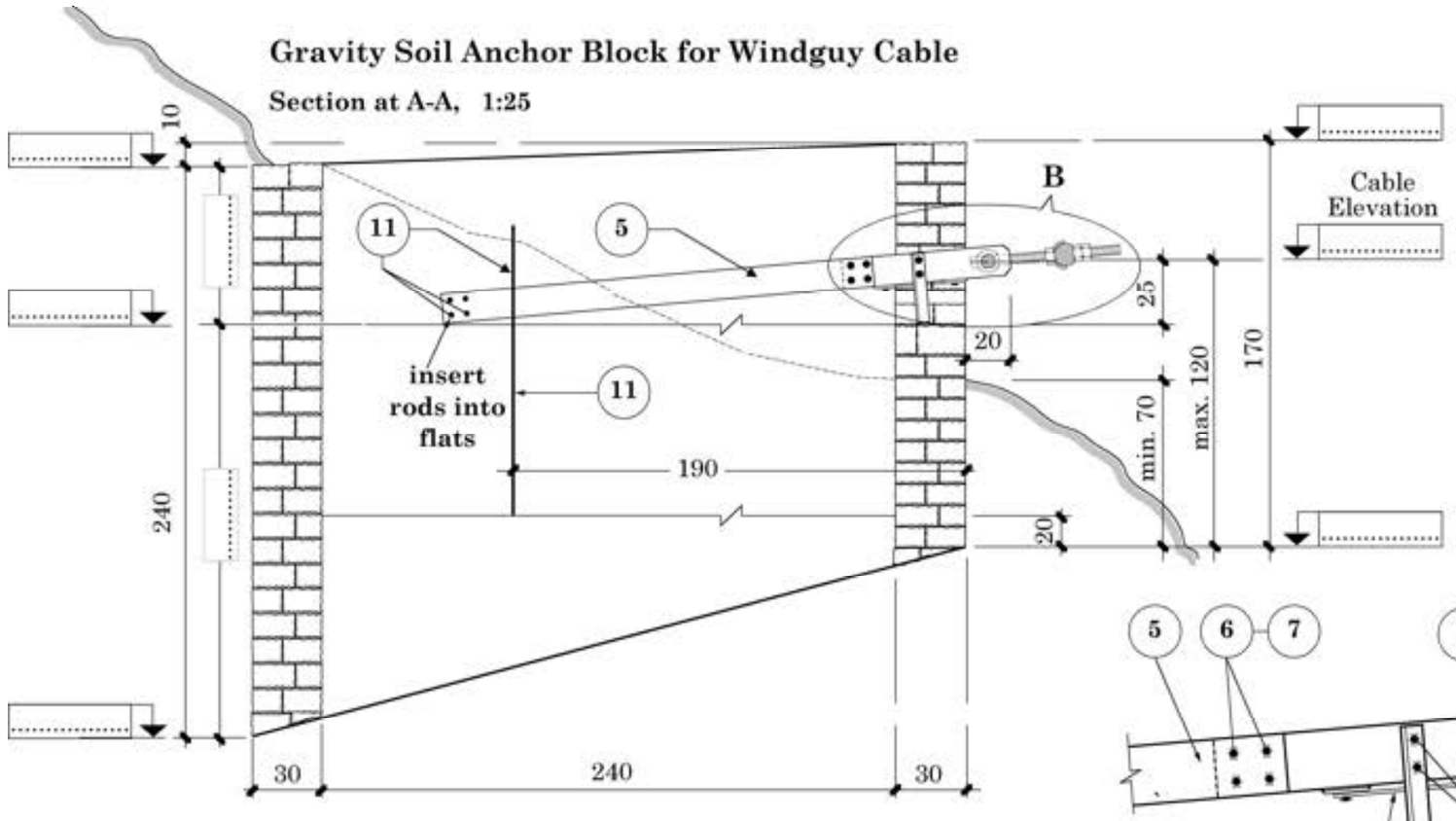
Gravity Rock Anchor Block

for Cable ϕ 26 mm

Date : August1, 2016 **Drawing No. 52Acon**

Gravity Soil Anchor Block for Windguy Cable

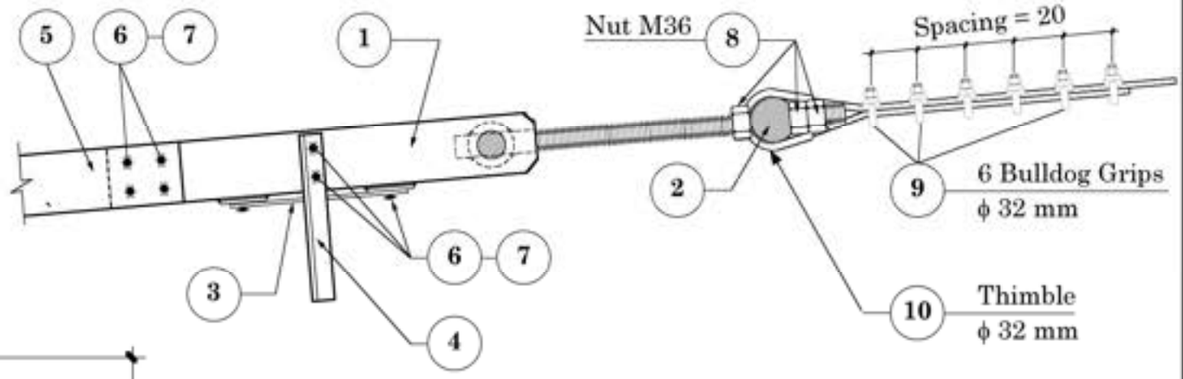
Section at A-A, 1:25



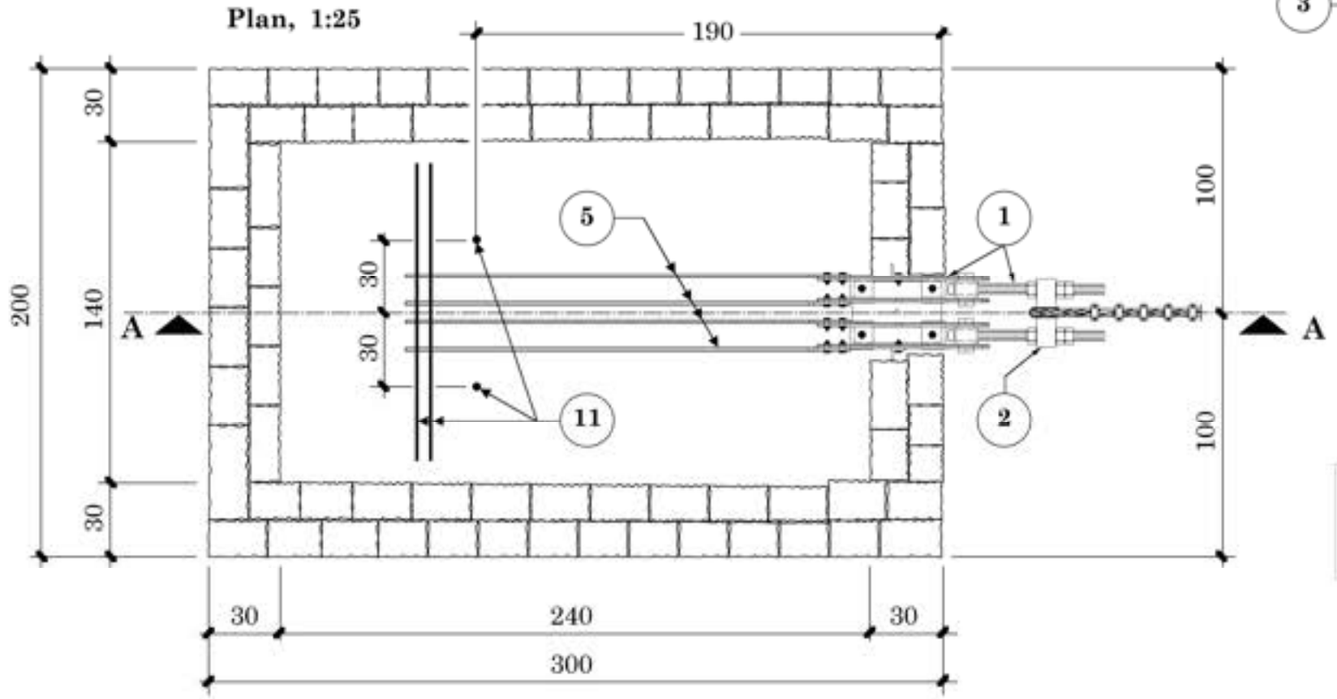
Standard Quantities

Type of Construction	[m³]
Hammer dressed Cement Stone Masonry 1:6	5.41
Plumb Concrete 1:3:6 + 50 % Boulders	6.89
Total	**12.30**

Detail at B 1:10



Plan, 1:25



Related Steel Drawing is : **50A**

Construct dry stone retaining wall as per site condition

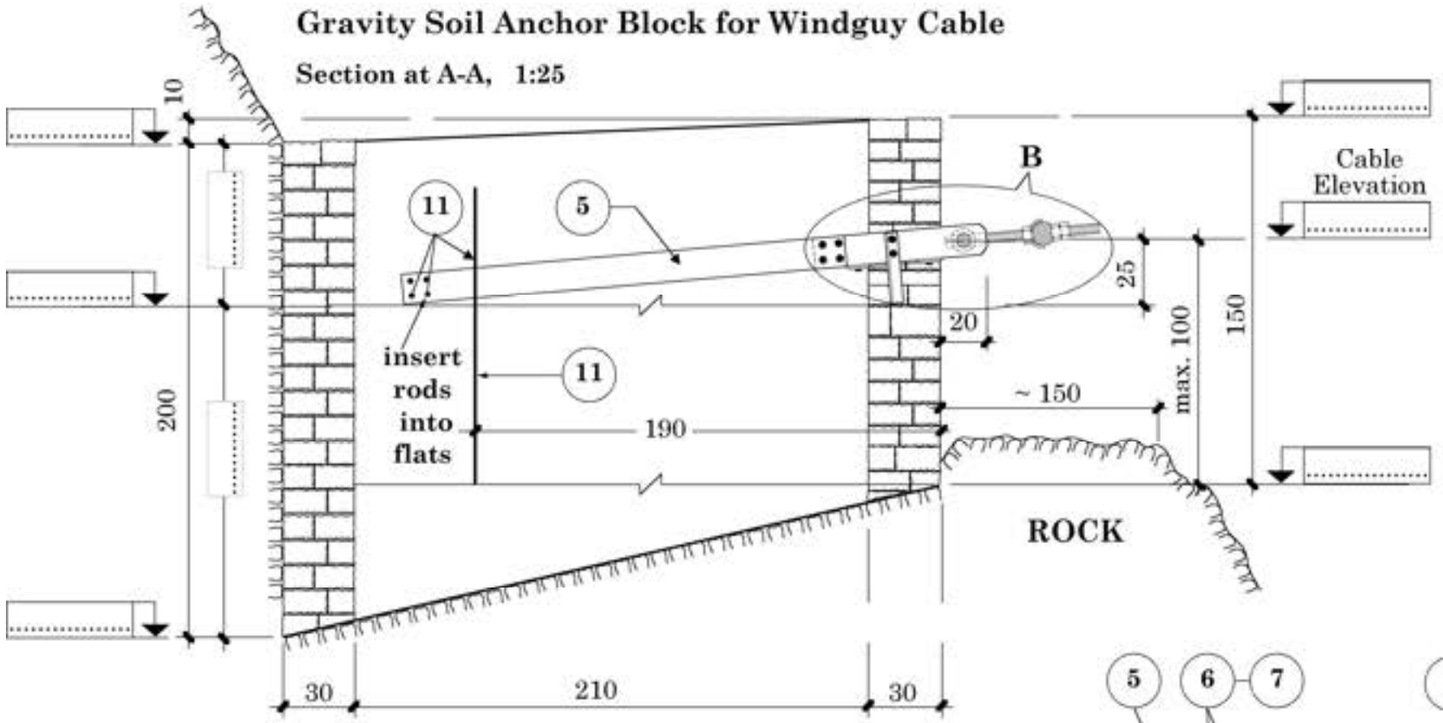
GON / Ministry of Local Development
DoLIDAR / Short SpanTrail Bridge Standard
Bridge Name:
No: Bank: Span:
Construction Drawing:

Gravity Soil Anchor Block
for Windguy Cable ϕ 32 mm

Date : August1, 2016 **Drawing No. 53Acon**

Gravity Soil Anchor Block for Windguy Cable

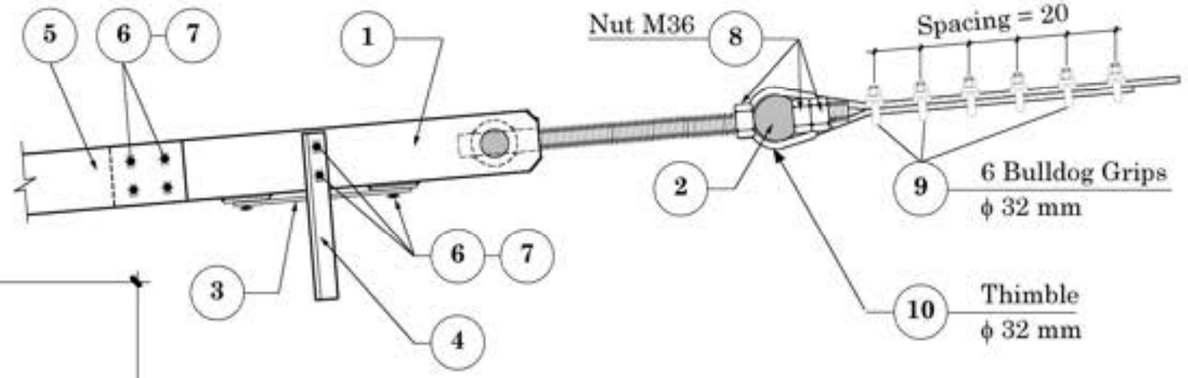
Section at A-A, 1:25



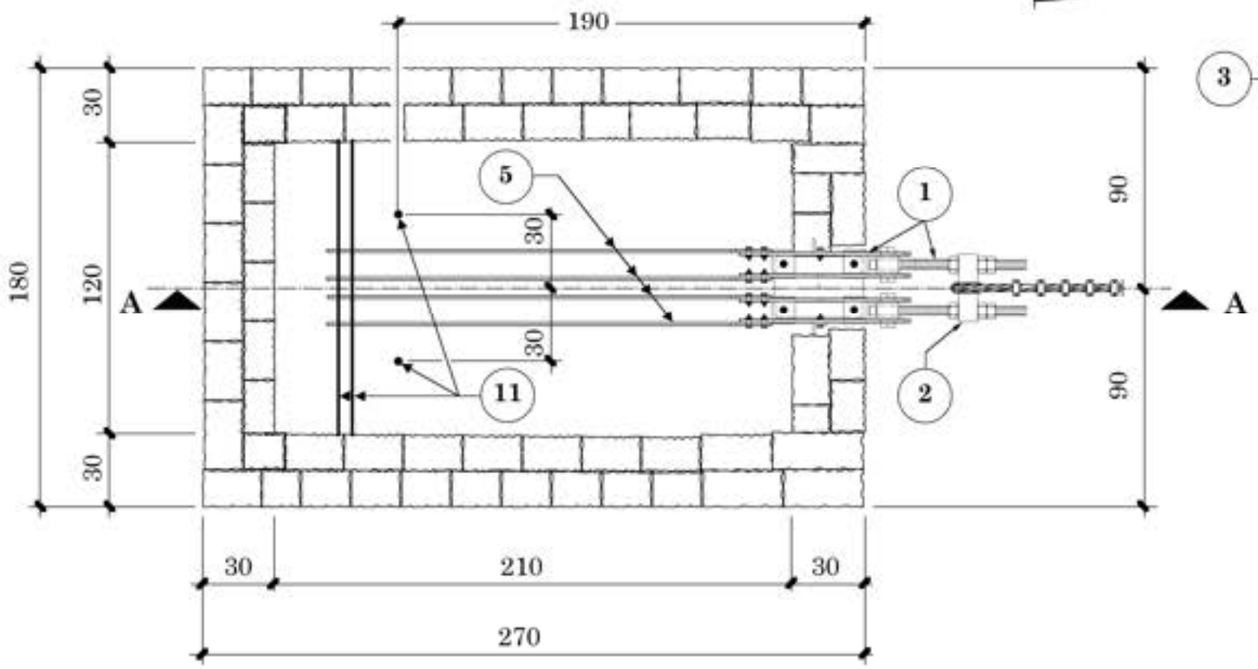
Standard Quantities

Type of Construction	[m³]
Hammer dressed Cement Stone Masonry 1:6	4.10
Plumb Concrete 1:3:6 + 50 % Boulders	4.41
Total	**8.51**

Detail at B 1:10



Plan, 1:25



Related Steel Drawing is : **50A**

Construct dry stone retaining wall as per site condition

GoN / Ministry of Local Development

DoLIDAR / Short SpanTrail Bridge Standard

Bridge Name:

No: Bank: Span:

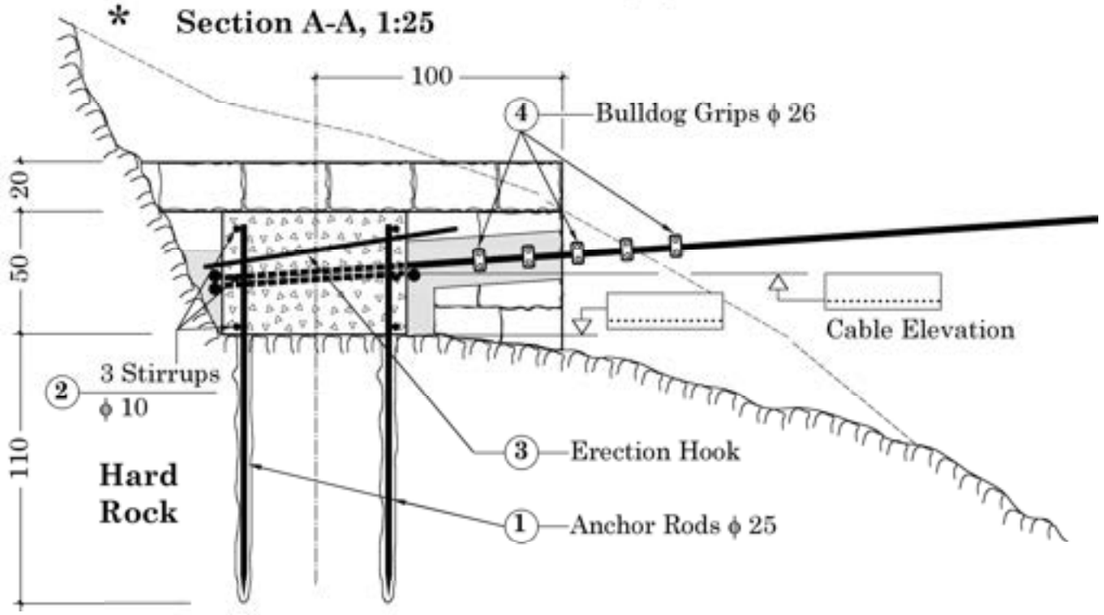
Construction Drawing:

Gravity Rock Anchor Block
for Windguy Cable ϕ 32 mm

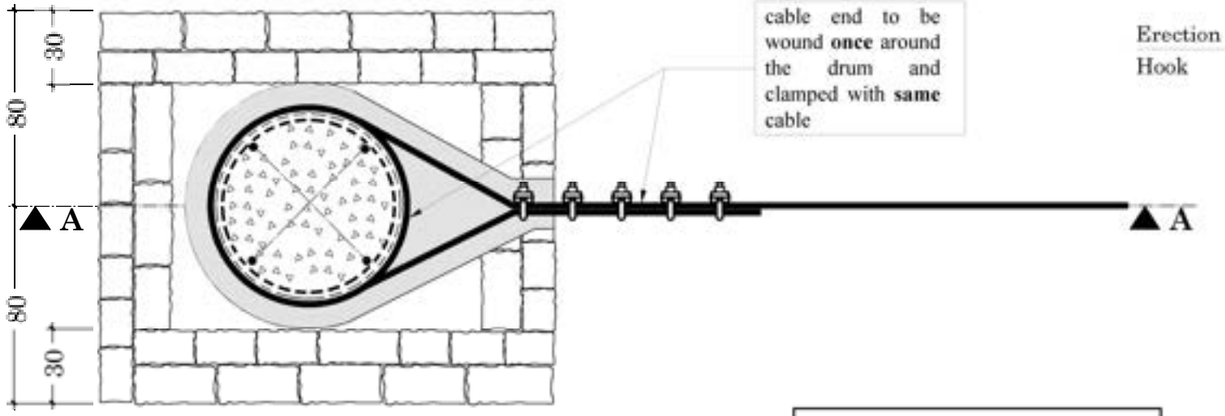
Date : August1, 2016 **Drawing No. 54Acon**

Drum Rock Anchor for Windguy Cable

* Section A-A, 1:25



Plan, 1:25



*Construct dry stone retaining wall as per site condition

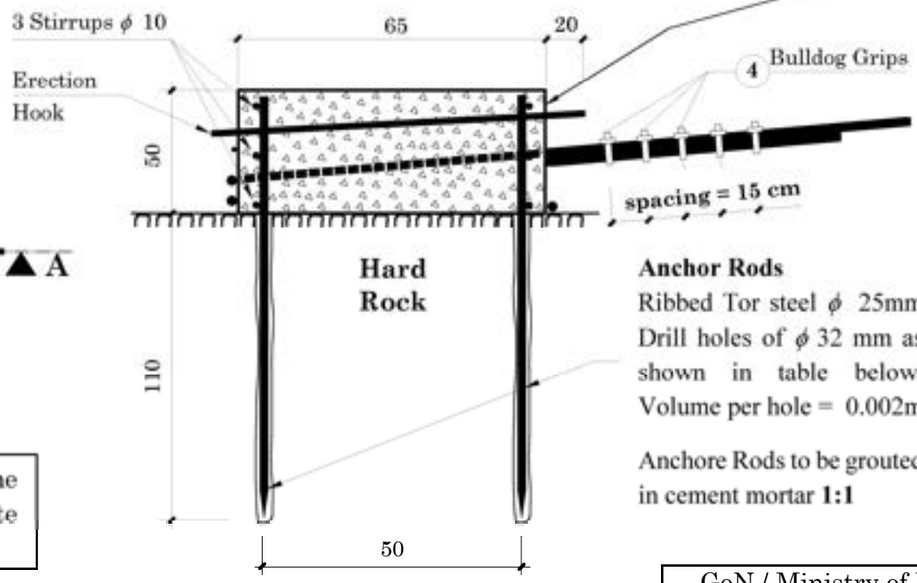
Part No	Section [mm]	Quantity [nos]	Working Drawing	Weight Kg/pc	Weight total Kg
1	Ri-Bar ϕ 25 l = 1500	4	1500 Anchor Rod	5.78	23.12R
2	Ri - Bar ϕ 10 l = 2270	3	350, ri =30, dia =530 Stirrup for Cable Drum	1.40	4.20R
3	Plain Rod ϕ 20 l = 3200	1	ri =60 mm, 1490 Erection Hook	7.90	7.90R
4	Bulldog Grip ϕ 26	5	**Bulldog Grip** for Cable ϕ 26 mm MS forged, according to ISI standard, **hot dip galvanized**	1.10	5.50D

A = 40.72 kg. **Total transportation Weight, D+R**

D = 5.50 kg. **Bulldog Grips**

R = 35.22 kg. **Reinforcement Steel**

Typical Cross Section of RCC Drum

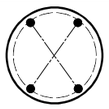


Anchor Rods
Ribbed Tor steel ϕ 25mm
Drill holes of ϕ 32 mm as shown in table below.
Volume per hole = 0.002m³

Anchore Rods to be grouted in cement mortar **1:1**

Form work for Drum is done with a bamboo mat (*Chitra)* lined with a plastic sheet.Use bindingwirearound the drum for fixing.

Dimension of Drums and Quantity of Anchor Rods :

Cable ϕ mm	arrangement of anchor rods	required diameter of: RCC Drum [cm]	required diameter of: circle of rod holes [cm]	Total Volume of Drum [m³]	Required Anchor Rods ϕ 25 mm [nos]	Stirrups ϕ 10 mm: nos	cutting length [mm]	bending dia [mm]	weight kg/pc [kg]
Cable ϕ 26		65	50	0.20	4	3	2270	530	1.40

Standard Quantitities

Type of construction	[m³]
Hammer dressed Stone Masonry 1:6	0.88
Concrete 1:2:4	0.20
Concrete 1:3:6	0.13
Broken Stones	0.32

GoN / Ministry of Local Development
DoLIDAR / Short SpanTrail Bridge Standard

Bridge Name:
No: Bank: Span:

Construction Drawing:

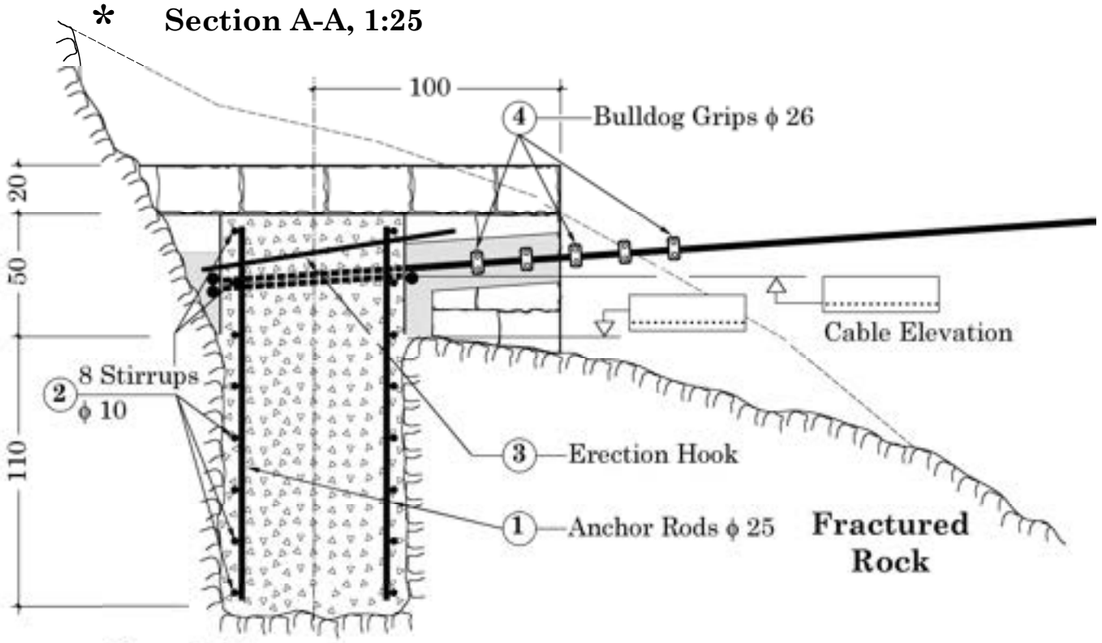
Windguy Cable Drum Anchor
for Cable ϕ 26 mm
for Hard Rock
Direct Cable Connection

Anchor Type WDR 1

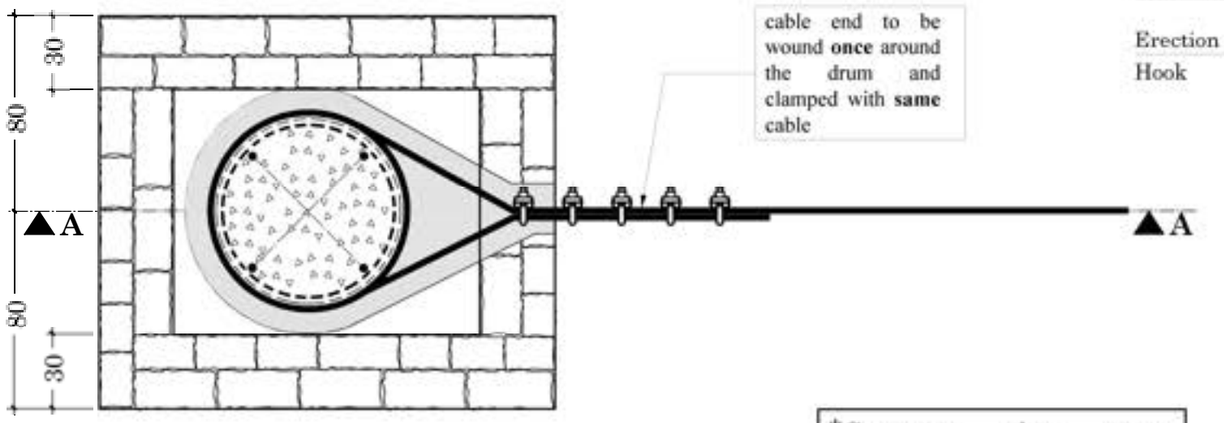
Date : August1, 2016 **Drawing No. 57Acon**

Drum Rock Anchor for Windguy Cable

Section A-A, 1:25



Plan, 1:25



*Construct dry stone retaining wall as per site condition

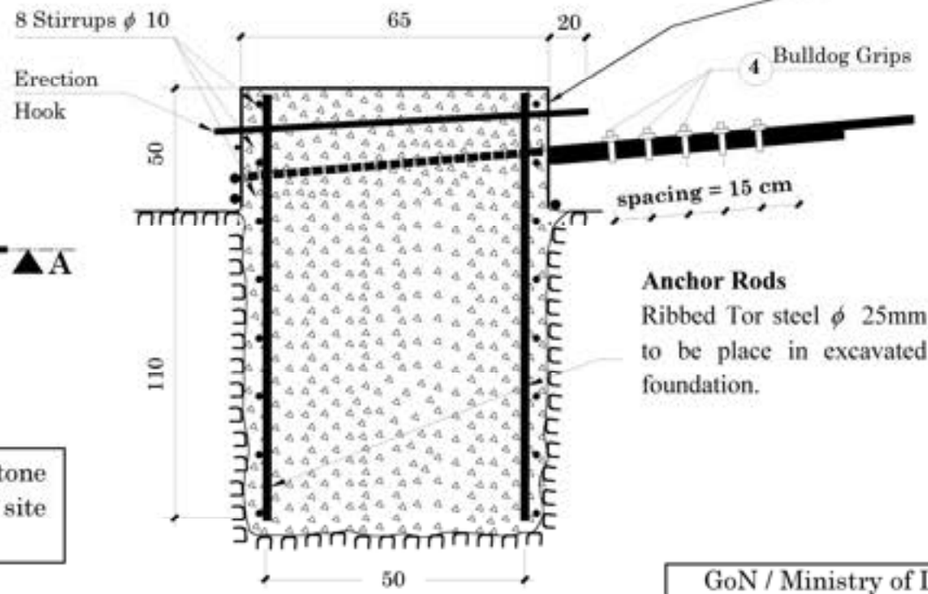
Part No	Section [mm]	Quantity [nos]	Working Drawing	Weight Kg/pc	Weight total Kg
1	Ri-Bar ϕ 25 l = 1500	4	1500 Anchor Rod	5.78	23.12R
2	Ri - Bar ϕ 10 l = 2270	8	350, ri =30, dia =530 Stirrup for Cable Drum	1.40	11.20R
3	Plain Rod ϕ 20 l = 3200	1	ri =60 mm, 1490 Erection Hook	7.90	7.90R
4	Bulldog Grip ϕ 26	5	**Bulldog Grip** for Cable ϕ 26 mm MS forged, according to ISI standard, **hot dip galvanized**	1.10	5.50D

A = 47.72 kg. **Total transportation Weight, D+R**

D = 42.22 kg. **Bulldog Grips**

R = 5.50 kg. **Reinforcement Steel**

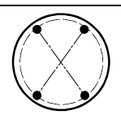
Typical Cross Section of RCC Drum



Form work for Drum is done with a bamboo mat (*Chitra*) lined with a plastic sheet.Use bindingwirearound the drum for fixing.

Anchor Rods
Ribbed Tor steel ϕ 25mm to be place in excavated foundation.

Dimension of Drums and Quantity of Anchor Rods :

Cable ϕ mm	arrangement of anchor rods	required diameter of: RCC Drum [cm]	required diameter of: rod circle [cm]	Total Volume of Drum [m³]	Required Anchor Rods ϕ 25 mm [nos]	Stirrups ϕ 10 mm: nos	cutting length [mm]	bending dia [mm]	weight kg/pc [kg]
Cable ϕ 26		65	50	0.95	4	8	2270	530	1.40

Standard Quantities

Type of construction	[m³]
Hammer dressed Stone Masonry 1:6	0.88
Concrete 1:2:4	0.95
Concrete 1:3:6	0.13
Broken Stones	0.32

GoN / Ministry of Local Development

DoLIDAR / Short SpanTrail Bridge Standard

Bridge Name:

No: Bank: Span:

Construction Drawing:

Windguy Cable Drum Anchor
for Cable ϕ 26 mm
for Fractured Rock
Direct Cable Connection
Anchor Type WDR 2

Date : August1, 2016 **Drawing No. 58Acon**