ADITYA BIRLA GROUP

METHOD STATEMENT (Job safety plan & lifting plan)

FOR _____ ERECTION

Total Lifts: _____

Total Weight range: ____ MT– ____ MT

LIFT HEIGHT: _____ meter TO _____ meter (Winch)

DOCUMENT NO: UTCL/DHCW/PROJ LINE2/001

DHCW Line -2 Expansion Project

Rev. No.	Date	Description	Pre. By	Checked. By.
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CONCERNED PERSONS

Initiator	Reviewed by AFPL (Site in charge)	Approved by (UTCL MLO HRC Leader)

PURPOSE

The purpose of this procedure is to outline the sequence and to describe the main steps concerning erection of _____.

Total Lifts: _____no's Minimum lift weight – _____ MT and Max Weight: _____ MT.

SCOPE:

This procedure specifies the requirement and recommendation for Erection of _____

MAIN LIFTING EQUIPMENT

LIFTING:

DESCRIPTION OF THE MATERIAL TO BE LIFTED

Each module to be lifted has three parts and partwise lifting is envisaged, loads indicated in table above.

Lifting of Module:

Lifting and positioning of module up to Air beam level by 02 winches

WINCH SPECIFICATIONS: ___

Winch:

Winch Capacity: _____MT

Winch Make: _____

Foot mounted Motor Capacity – ____ kW

Motor Make-

Drum Dia: _____ mm

Drum length: _____ mm

Brake: Electro-hydraulic thruster brake and additional safety hand brake

Wire rope dia: _____ mm

Winch Speed: _____ MPM

SLINGING DEVICES

Sl.No.	Item Description	Quantity	Length/	Safe	Remarks	Angle

			Size	**Working Load**		
1						
2						
3						
4						
5						
6						
7						

General METHODOLOGY:

1. It is proposed to use ___no's wire rope sling (__mm dia x __ mtr length) of SWL __ MT using __ no's shackles of __ MT capacities each to hook.
2. There will be Winch of __ MT capacity which will be placed on +____ mtr elevation. Winch will be welded and secured to the __column as shown in sketch.
3. After lifting completion de-rigging gang will do de-rigging of load.

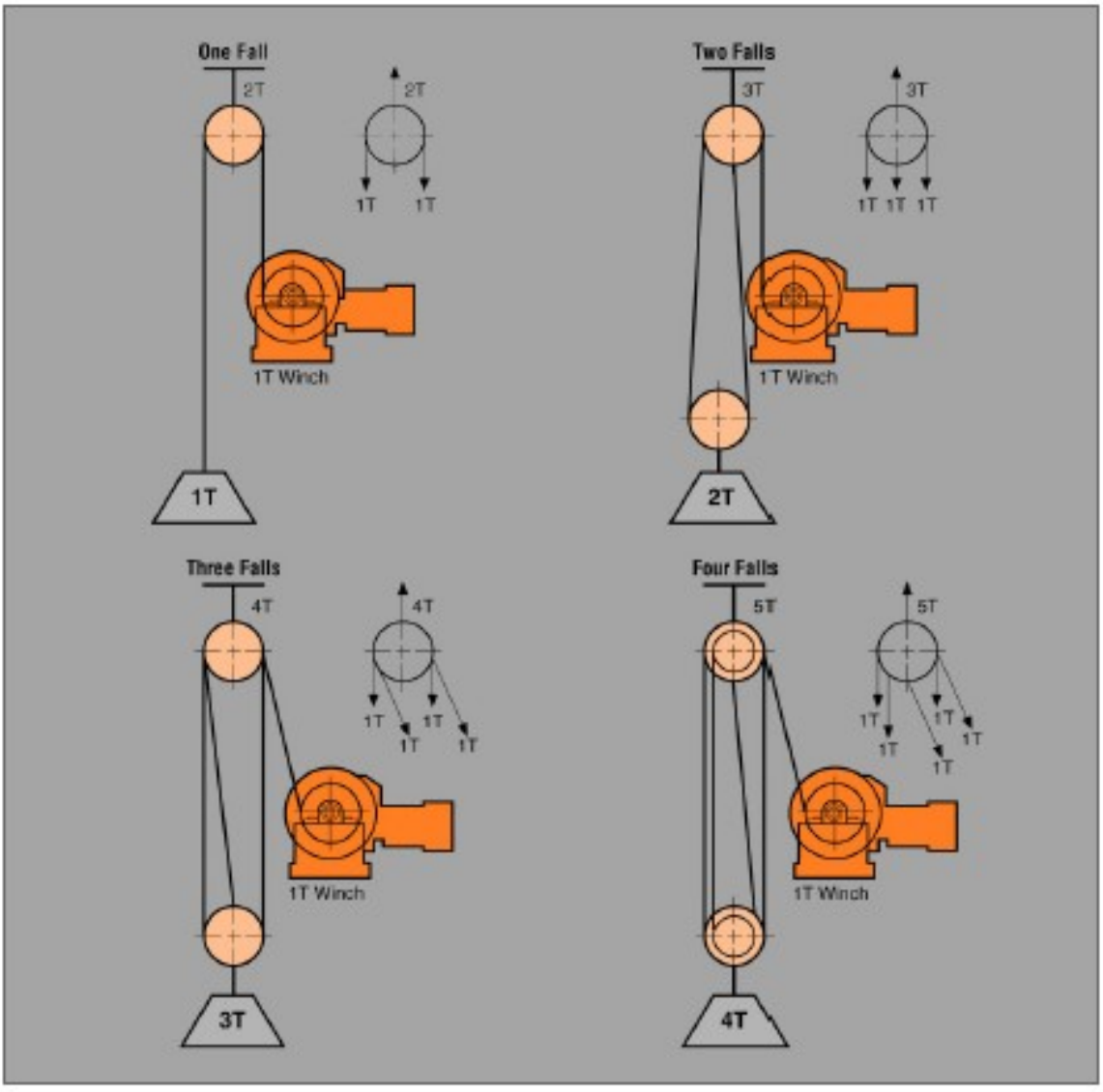
A sketch is attached below for reference.

SKETCH FOR WINCH PLACEMENT:
Sketch1

CALCULATING HEAD LOADS

Note:

Note: Since the rope is continuous, from the winch drum to the attachment point, the load is always 1 ton, no matter where measured. The head load is the number of line attachments at the head sheave x 1 ton. All loads shown ignore frictional losses in the system.



Sketch 2
As per the reference of the previous page for the placement of winch and pullies.

The lifting load will come on winch by _____ MT

Winch Calculation:

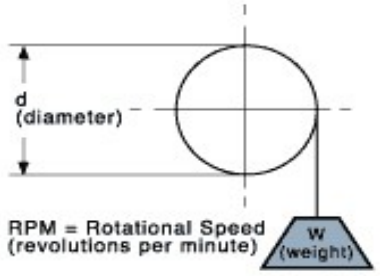
Winch 01 : ____ MT
Winch Rope dia : ____ mm
SWL of Winch Rope : ____ MT
Lifting Pulley -3 sheave : ____ MT

To support the winch capacity for lifting modules, the number of falls have been increased to ___ falls, each fall will have _____ MT capacity.

Hence the lifting capacity = _____ MT X ___ = _____ MT (Each Pulley).

Lifting Calculation for Winch:

Winch capacity: _____ MT



The Power calculation are given below: P(kW) = F(N) x V(metres/min) / 1020 x 60 In

Where P = power in kW,

F = Force (line pull) in Newton,

V = Line speed in metres/min, 1020 is a constant and 60 is a translation from minutes into seconds (Nm/sec).

Required power P = FxW / 1020x60

P = Load____ *9.81*No. of fall_____ /1020*60

P = _____ / _____

P = _____ KW

Hence the power required for _____kg lifting weight is P = _____ KW

Torque (M) = ____ X P / 60 N-m

M = _____ X ____/60
M = _____N-m

Hence the Torque load is coming on each winch is M= _____ N-m

1. CHECK POINTS BEFORE CARRYING OUT ERECTION

I. Lifting scheme is being reviewed and certified by competent agency for required lifting range (Certificate attached).

II. Review of Test Certificates/Third Party Inspection Reports for all the Lifting accessories.
III. Provide the barricade/caution boards near the area were erection activities are scheduled to take place.
IV. Only the chief rigging foreman, who is identified & authorized, shall give instructions.
V. Only authorised and trained winch operators shall be done the winch operation.
VI. Under strict supervision and close monitoring, the entire activity.
VII. Entry of unauthorized Persons/Workers to be restricted in erection area.
VIII. Work permit, lifting plan, SWP shall be obtained prior to commencement of work.
IX. The area required for carrying out this operation is to be barricaded Safety steward will monitor unauthorized entry inside barricaded area.
X. All hazards are reviewed and conveyed to the workmen through toolbox talk prior starting the activity.
XI. All workmen of other working agency present in the working area to be cleared during the entire process.

2. PRE-ARRANGEMENTS FOR ERECTION

1. The Job to be lifted is placed near to the Erection Site
2. Availability of required certified tools and tackles.
3. Sufficient level of illumination in work area.

3. LIFTING METHODOLOGY FOR _____ ERECTION

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1. Wire rope sling of (Ø___ mm) x ____ meter length – Cap.___ MT; Qty-___ No's tucked by ___MT D-shackle/Bow shackle to the required location as per the sketch3.

2. __ no's wire rope sling _____ hitch (__mm x 6mtr) of SWL __ MT, using __ no's shackles of __ MT and __MT capacities to the hooks.

3. The Lifting load will be lifted from lifting position to 200 mm and hold for 15 mints for load stability checking.
4. After stability check the load will be lifted from lifting position to +____ mtr level at desired location.

5. The load will be lifted from the _____.

6. The winch shall be placed on +___ mtr RCC floor and it (__MT) welded to the ____ structure as shown of sketch-1.

7. On the top +_____ mtr elevation one ___ pulley block (__ sheave & __ falls) will be hanged and another ___ pulley block (__ sheave and __ falls) will be tucked to the load for winch.

8. ____ mm slings ___ mtr long ____ nos will be used. The pulley block on the top will be tied from the decided structure Mark no-_____ as per the sketch 3.
9. The winch is controlled by local panel installed on the winch itself.

10. Operator to wear leather gloves and do not allow the wire rope to slide through hands.

11. Always keep hands and clothing clear of the wire rope, pulley and fairlead during operation and when spooling.

12. Pull out enough wire rope to reach your anchor point. Be sure to keep a certain amount of tension in the wire. It can become twisted and overwrap when slackened, leading to wire rope damage. To prevent losing the end, hold the winch wire rope while the work progress.

13. Attach the shackle with winch rope and load.

14. The Winch will lift the load from the location_____ and the load shall be reached at the position of _____.

15. Slowly wind the wire rope until no slack remains. Once the wire rope is under tension, stand well clear, and never step over it.

16. The rope and nip portions of the rope and pulleys must be protected from entrapment of any materials and human being.

17. Make sure all connections are secured and free of debris before continuing with the winching procedure.

18. The wire rope should be neatly wound around the spooling drum. Improper winding can cause damage to the wire rope.

19. The working Crew should not stand never behind or in front of the winch and never near the wire rope or pulleys.

20. No personal to allow the line of fire while winch is operation and suspended load.

21. While the winching start and light tension already on the wire rope, begin winching slowly and steadily. Be sure that the wire rope is winding evenly and tightly around the spooling drum.

22. Winch will simultaneously lift the load up to _____ height for _____ and inspection /check the all the lifting gadgets and structure stability.

23. After inspection completion and stable the lifting load, winch will simultaneously lift the load to the desired elevation.

24. After lifting the load to ____ level, stop the winches and lock the winches with the help of brakes and hold the rope of clamps at temporary beam where lifting pulley provided, with help of clamping.

25. The motorized winch will be operated to lift the module to the desired elevation. After securing of the load, winch will be released.

26. Then the load will be removed from the _____ lifted loction and will be made ready for the erection of next sequential load.

27. Inspect the wire rope before and after each winching operation. If the wire rope has become kinked or frayed, the wire rope needs to be replaced. Be sure to also inspect the winch hook and hook pin for signs of wear or damage. Replace if necessary.

28. Riggers will be sent for de rigging using staircase and temporary platform for the job.

29. Riggers will be using fall arrester, and full body safety harness.

ADDITIONAL SAFETY PRECAUTIONS

1. Will be provide life line with fall arrester for riggers.
2. Emergency vehicle shall be available at near lifting area always.
3. Emergency rescue plan will available.
4. Competent person test certificate will be attached as Annexure-1.