

**STANDARD FORMAT FOR PROJECT PROFILE**

PRODUCT	Crushed Stone Coarse Aggregates for Concrete
PRODUCT CODE	08106 (based on NIC 2008)
QUALITY	IS 383 – 2016: Indian Standard Specification – Coarse and Fine Aggregates from Natural Sources for Concrete (Third Revision)
CAPACITY	Quantity: 54000 MT per annum. Value: Rs. 21600000 per annum
MONTH & YEAR	MARCH 2021
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## **A. ABOUT THE PRODUCT**

Aggregates, coarse and fine, are important raw materials for making concrete. Quality of concrete is greatly affected by various characteristics of aggregates used. Crushed stone, gravel or blue metal jelly are the terms used synonymously for coarse aggregates in the building industry. River sand or stone sand is generally used as fine aggregate for making concrete. The present project envisages manufacture of crushed stone as coarse aggregate material for making concrete. Coarse aggregate consists of various sizes viz. 6mm, 12mm, 20mm, 30mm, 40mm, etc.

## **B. MARKET**

Crushed stone coarse aggregate are a major source of raw material for making all types of plain and reinforced concrete made in-situ or precast products used in building and construction industry. Small and medium sizes of crushed stone coarse aggregates are used for both structural concrete and mass concrete. Large and very large sizes of crushed stone coarse aggregate are used for road laying, construction of fly-overs, bridges, culverts, etc. RCC pipes, pre-stressed concrete poles, concrete blocks both solid and hollow, pre-cast concrete slabs, are some other examples of precast concrete products which require crushed stone coarse aggregate as raw material.

Infrastructure development, housing for all, affordable housing is the larger objective of the government. Housing loans are included in the priority sector credit. Affordable housing projects are given the infrastructure status in the union budget for 2017-18. Government of India has announced in the month of March 2017 that the home loans are given with a front-end interest subsidy of 3 to 4% to the first-time home buyers. All these measures will benefit construction industry and home buyers and increase the demand for the product.

## **C. BASIS AND PRESUMPTIONS**

1. Salaries and wages: Minimum applicable wages were considered.
2. Interest rate: 10% on total capital investment is taken into consideration.
3. Efficiency: 75% efficiency of manpower and 75% of capacity utilization of machinery.

4. No. of shifts per day: Single shift of 8 hours per day and 300 days in a year.
5. Margin money: The promoter may bring in 25% of the total capital investment.
6. Payback period: About two-and-half years.

**D. IMPLEMENTATION SCHEDULE: 6 months**

SI No	Description of the activity
1	Selection of product
2	Preparation of the project report.
3	Selection of location
4	Marketing arrangements
5	Arrangements for financial assistance
6	Purchase of land
7	construction of building
8	Procurement of machinery and equipments
9	Obtaining EB connection
10	Erection and commissioning
11	Recruitment of manpower.
12	Trial runs
13	Commencement of commercial production
14	Registration of the enterprise

**E. TECHNICAL ASPECTS**

**1. RAW MATERIALS**

It is envisaged the unit will procure boulders of stone from the nearby stone quarries.

**2. PROCESS OF MANUFACTURE**

The stone boulders of suitable sizes procured from quarries are the input in the jaw crusher. Jaw crusher's specification defines both the input and output sizes of the stone crushed. Thus, selection of jaw crusher and input size of the stone is a major variant for achieving the desired output. Jaw crusher for primary crushing and double roller crusher for secondary crushing may also be used. The output from the crusher is passed through rotary screen for size gradation of coarse aggregate.

**3. QUALITY SPECIFICATIONS**

IS 383 – 2016: Indian Standard Specification – Coarse and Fine Aggregates from Natural Sources for Concrete (Third Revision).

The above standard specifies the requirements for quality of aggregate and various quality parameters viz. classification and size of coarse aggregate; mechanical properties such as crushing value, impact value, abrasion value, and soundness of aggregate; limits of deleterious materials; etc.

As per the above standard, coarse aggregate for mass concrete is classified as small (4.75mm to 20mm), medium (20mm to 40mm), large (40mm to 80mm) and very large (80mm to 150mm) with nominal size of the aggregate given in parentheses. The standard further specifies percentage of aggregate passing through the designated IS sieves for the above classification of size of aggregates.

#### 4. PRODUCTION CAPACITY PER YEAR

The plant and machinery proposed in the project has a production capacity of 72000 MT of crushed stone coarse aggregate. At 75% utilization of machinery and equipment and 75% efficiency of manpower, production of 54000 MT of crushed stone coarse aggregate is taken into consideration.

5. UTILITIES: 90 HP industrial electrical-power-connection is required for the project.

6. POLLUTION CONTROL NEEDS: Suitable masks and gloves may be used by workers. Registration and norms of pollution control board are to be followed.

7. ENERGY CONSERVATION NEEDS: Energy efficient motors and LED lighting may be used.

## F. FINANCIAL ASPECTS

### FIXED CAPITAL

#### 1. Land & Building

Sl. No.	Description	Qty	Unit	Rate	Amount (Rs)
1	Land	1000	Sq. Meters	600	600000
2	Building	25	Sq. Meters	12000	300000
3	Work shed	100	Sq. Meters	6000	600000
4	Bore well with pump				100000
	TOTAL				1600000

## 2. Machinery and equipment:

Sl. No.	Description	Qty	Unit	Rate (Rs)	Amount (Rs)
1	Jaw crusher – 30 TPH, 25 HP	1	No.	900000	900000
2	Roller crusher – 30 TPH, 25 HP	1	No.	700000	700000
3	Rotary screen – 30 TPH, 10 HP	1	No.	250000	250000
4	Belt conveyor – 15 HP	1	No.	500000	500000
5	Dust collector- 10 HP	1	No.	250000	250000
6	Jigs and fixtures	LS			300000
7	Material handling equipment	LS			200000
8	Electrical & EB Charges	LS			200000
9	Erection & Commissioning	LS			200000
10	Office equipment	LS			200000
	TOTAL (Rs)				3700000

## 3. PREOPERATIVE EXPENSES

Rs. 700000

## 4. TOTAL FIXED CAPITAL (F.1+F.2+F.3)=(1600000+3700000+700000) Rs. 6000000

## 5. WORKING CAPITAL

## i. Personnel (per month)

Sl. No.	Designation	No	Salary (Rs)	Amount (Rs)
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1	Supervisor	1	20000	20000
2	Skilled workers	5	10000	50000
3	Semi skilled workers	10	7500	75000
4	Watch and ward	1	7500	7500
5	Office staff	1	10000	10000
	Perquisites @ 15% (Rs)			24500
	TOTAL (Rs)			187000

## ii. Raw materials (per month)

Sl. No.	Description	Qty	Unit	Rate (Rs)	Amount (Rs)
1	Stone boulders	5000	Tons	200	1000000
	TOTAL (Rs)				1000000

## iii. Utilities (per month)

Sl. No.	Description	Qty	Unit	Rate (Rs)	Amount (Rs)
1	Power	11250	kWh	6	67500
2	Water	500	KL	5	2500
	TOTAL (Rs)				70000

## iv. Expenses (per month):

Sl. No	Particulars	Rate	Amount (Rs)
1	Consumables, repairs and maintenance	LS	50000
2	Sales expenses, office expenses, insurances, taxes	LS	25000
	TOTAL (Rs)		75000

v. Total recurring expenditure (per month) : Rs. 1332000

vi. Working Capital (on 3-months basis) : Rs. 3996000

## 6. TOTAL CAPITAL INVESTMENT

Sl. No.	Description	Amount (Rs)
1	Fixed Capital	6000000
2	Working Capital	3996000
	TOTAL (Rs)	9996000

## G. FINANCIAL ANALYSIS

## 1. Total Expenditure (per year):

Sl. No.	Description	Amount (Rs)
1	Total recurring expenditure	15984000
2	Depreciations and Amortizations	555000
3	Interest on capital investment @ 10% per annum	999600
	TOTAL (Rs)	17538600

## 2. Revenue (per year):

Sl. No.	Item	Quantity	Unit	Rate (Rs)	Amount (Rs)
1	Crushed stone coarse aggregate viz. 12mm, 20mm, 30mm	54000	Tons	400	21600000

3. Net profit per year (G.2 – G.1) : Rs 4061400

4. Net profit ratio (per cent)  $= \frac{\text{Net Profit per year}}{\text{Sales Turnover per year}} \times 100 = \frac{4061400}{21600000} \times 100 = 18.9\%$   
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5.  $= \frac{\text{Net Profit per year}}{\text{Total Capital investment}} \times 100 = \frac{3911500}{8846000} \times 100 = 44.22\%$  Rate of Return (per cent)  
 $= \frac{\text{Net Profit per year}}{\text{Total Capital Investment per year}} \times 100 = \frac{4061400}{9996000} \times 100 = 40.6\%$   
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## 6. Break-even point (% of total production envisaged)

## i. Fixed Cost (per year):

Sl No	Description	Amount (Rs)
1	Depreciations and Amortisations	555000
2	Interest on capital investment	999600
3	Insurance and taxes	60000
4	40% of salaries & wages	897600
5	40% of utilities other expenses (excluding insurance and taxes)	672000
	TOTAL (Rs)	3184200

ii. Net profit per year (as per at Sl.No.G.3) Rs. 4061400

iii. Break Even Point:  $BEP = \frac{\text{Fixed Cost per annum}}{\text{Fixed Cost per annum} + \text{Net Profit per annum}} \times 100$

$$BEP = \frac{3184200}{3184200 + 4061400} \times 100 = \frac{3184200}{7245600} \times 100 = 44\%$$

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$$\frac{\text{Fixed Cost per annum}}{\text{Fixed Cost per annum} + \text{Net Profit per annum}} \times 100$$

**H. ADDRESSES OF SUPPLIERS OF MACHINERY & EQUIPMENT**

1. M/s Deepa Machinery Manufacturers Pvt. Ltd., No.28, SIDCO Industrial Estate, Pollachi Road, Coimbatore – 641 021, Tamil Nadu.
2. M/s Geco Grinding Centre, No.636/2, Shanmuga Nagar, Singanallur, Coimbatore – 641005, Tamil Nadu.

**I. ADDRESSES OF SUPPLIERS OF RAW MATERIALS**

1. Stone boulders from stone quarry owners in nearby areas.