



**Sewerage System to
Vatakara Municipality**

**Construction of 7MLD Capacity
Sewerage Treatment Plant and Laying
Sewerage Network to Vatakara
Municipality**

DETAILED PROJECT REPORT

KERALA WATER AUTHORITY

**PPD & Sewerage Vertical Circle,
Kozhikode Circle**

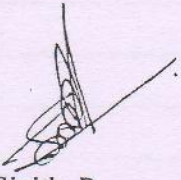
ACKNOWLEDGEMENTS


We wish to express our sincere gratitude to the Additional Chief Secretary (WRD) Sri. T K Jose IAS, Chairman KWA, Sri. Venkatesapathy S. IAS, Managing Director, KWA, Sri. Sreekumar G. Technical Member, KWA, Smt. C K Preethimol, Chief Engineer, PPD-WASCON & Sewerage Works, for the valuable guidance and support.


We express our gratitude to the authorities of Vatakara municipality for their support, without which this endeavor would not have been possible. We extend our sincere gratitude to M/S Ritech Survey, Contractor for timely completing the DGPS survey work.

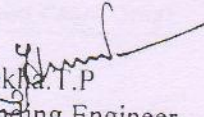
We are thankful to Sri.Chandrakumar. C.R, Executive Engineer and Sri. Biju.P.C. Executive Engineer for providing their virtual support

We express our gratefulness to all the PPD Camp Office Kozhikode staff for their valuable support and hard work. We trust that the project will become a reality as per the timeline shown, and it would be beneficial to reduce the pollution load on the Vatakara municipality and improve people's living standards in Vatakara municipality.


Sinith. P
Assistant Engineer


Mujeeburahiman.P
Asst. Exe, Engineer

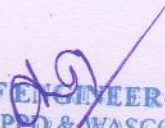

Sreekala LB
Exe. Engineer


Indulekha T.P
Superintending Engineer

ASST. EXECUTIVE ENGINEER
Regional Office
Project Planning and Development
Kerala Water Authority

Executive Engineer
PPD Regional Office
Kerala Water Authority
Kozhikode-23

SUPERINTENDING ENGINEER
Regional Office
Project Planning and Development
Kerala Water Authority
Kozhikode


CHIEF ENGINEER
Sewerage, PPD & WASCON
Kerala Water Authority
Thiruvananthapuram -33

CONTENTS

LIST OF TABLES	V
LIST OF FIGURES	VI
PROJECT AT A GLANCE	VIII
ABSTRACT OF ESTIMATE	IX
EXECUTIVE SUMMARY	XII
1. CHAPTER 1	1
INTRODUCTION	1
1.1. BACKGROUND	1
1.2. SCOPE OF THE REPORT	1
1.3. PROJECT AREA	1
1.4. POPULATION PATTERN	3
1.5. SOCIO – ECONOMIC PROFILE	3
1.6. GEOGRAPHICAL FEATURES	3
1.7. RAINFALL & TEMPERATURE	4
1.8. LAND USE	4
1.9. SOIL TYPE	4
1.10. DRAINAGE AND DRAINAGE PATTERN	5
2. CHAPTER 2	
PROJECT RATIONALE AND METHODOLOGY	
2.1. SANITATION – VISION, STATUS AND GOALS	6
2.2. NEED FOR SEWERAGE SCHEME	7
2.3. PRESENT SEWERAGE SYSTEM – OVERVIEW	9
2.4. WATER SUPPLY FACILITIES	10
2.4.1 PRESENT SYSTEM	10
2.4.2 ONGOING AND PROPOSED WATER SUPPLY SYSTEM	10
2.4.3 GROUND WATER SOURCES	
2.5 METHODOLOGY FOR PREPARATION OF SEWERAGE MASTERPLAN	11
2.6 FIELD INVESTIGATIONS	11
2.6.1 SURVEY WORK	11
2.6.2 SOCIAL SURVEY	12
3. CHAPTER 3	12
DESIGN CRITERIA	
3.1. SEWAGE COLLECTION & CONVEYANCE SYSTEM	13
3.2. ESTIMATION OF QUANTITY OF SEWAGE	13
3.2.1 INFILTRATION AND LEAKAGE	14
3.2.2 ESTIMATION OF INDUSTRIAL SEWAGE	14
3.3. DESIGN PERIOD	14
3.4. VARIATION IN RATE OF FLOW	15
3.5. HYDRALIC DESIGN OF SEWERS	15
3.5.1 DEPTH OF FLOW	16
3.5.2 HYDRALIC FORMULAE FOR DESIGN OF SEWAGE	16
3.5.3 PERCAPITA SEWAGE FLOW	16

3.5.4	MINIMUM VELOCITY OF FLOW	16
3.5.5	RECOMMENDED SLOPES FOR MINIMUM VELOCITY	16
3.5.6	EROSION AND MAXIMUM VELOCITY OF FLOW	17
3.5.7	SEWER TRANSTIONS	17
3.5.8	MINIMUM PIPE DIAMETER	17
3.6.	MATERIAL OF CONSTRUCTION FOR GRAVITY SEWERS	17
3.6.1	BENEFITS OF HDPE PIPES FOR SEWERS	20
3.7	MANHOLES	21
3.7.1	GENERAL	21
3.7.2	TYPE OF MANHOLES	21
3.7.2.1	STRAIGHT – THROUGH MANHOLES	21
3.7.2.2	JUNCTION MANHOLES	21
3.7.2.3	DROP MANHOLES	21
3.7.2.4	FLUSHING MANHOLES	21
3.7.3	MATERIAL OF CONSTRUCTION FOR MANHOLE	22
3.7.3.1	BRICK MASONRY MANHOLES	22
3.7.3.2	RCC MANHOLES	22
3.7.3.3	HDPE MANHOLES	23
4.	CHAPTER 4	24
	PROPOSED SEWERAGE SYSTEM	24
4.1.	POPULATION PROJECTION	24
4.2.	COLLECTION SYSTEM	26
4.2.1	SEWERAGE NETWORK AND MANHOLES	27
4.2.2	DETAILS OF SEWER NETWORK	28
4.2.3	MANHOLES	28
4.3.	PUMPING STATION AND RISING MAIN	28
4.3.1	GENERAL	28
4.3.2	LIFTING STAION/PUMPING STATION	28
4.3.3	DETAILS OF PUMPING STATION	29
4.3.4	DETAILS OF LIFTING STATION	34
4.3.5	PUMPING MAINS AND LIFTING MAINS	35
4.4.	PUMP AND OPERATION CONTROL	36
4.5.	LAYING OF SEWER NETWORK	37
4.6.	GANTRY	38
4.7.	ARRANGEMENT FOR POWER SUPPLY	38
5.	CHAPTER 5	39
	PROPOSED SEWERAGE TREATMENT PLANT	39
5.1.	GENERAL	39
5.2.	CHARACTERISTICS OF SEWERAGE	39
5.2.1	INFLUENT CHARACTERISTICS	39
5.2.2	EFFLUENT CHARACTERISTICS	40
5.3.	CAPACITY CALCULATION OF STP	40
5.4.	UNIT OF OPERATIONS IN TREATMENT OF SEWAGE	41
5.5.	THE PROPOSAL PFD PROCESS FLOW DIAGRAM OF PROPOSED STP	42
5.6.	SELECTION OF TECHNOLOGY FOR THE PROPOSED STP	43

5.6.1.FEATURES OF MBBR	43
5.6.2.NITRIFICATION	46
5.6.3.DENITRIFICATION	46
5.6.4.PHOSPHOROUS REMOVAL	46
5.6.5.A20 PROCESS	47
5.7 PROPOSED TREATMENT UNITS	47
5.7.1 RECEIVING CHAMBERS	48
5.7.2 SCREEN CHANNEL	48
5.7.3 GRIT SEPERATOR	48
5.7.4 APPROACH CHANNEL FOR PARSHALL FLUME	48
5.7.5 EQUALISATION TANK	48
5.7.6 MIXING EQUIPMENT	48
5.7.7 SEWAGE PUMP PUMPING TO MBBR	49
5.7.8 MOVING BED BIO REACTOR	49
5.7.9 AIR BLOWERS	49
5.7.10 SECONDARY CLARIFIER	49
5.7.11 SLUDGE SUMP	49
5.7.12 THICKNER FEED PUMP	49
5.7.13 SLUDGE THICKNER	49
5.7.14 CENTRIFUGE FEED PUMP	50
5.7.15 SLUDGE CENTRIFUGE	50
5.7.16 PRESSURE SAND FILTER	50
5.7.17 ACTIVATED CARBON FILTER	51
5.7.18 TREATED WATER TANK	51
5.7.19 CHLORINE CONTACT TANK	51
5.7.20 EFFLUENT CHANNEL	51
5.7.21 OUT FALL	51
5.8 DETAILED DESIGN	52
5.9 POWER EQIPMENT	52
5.10 OTHER FACILITIES	52
5.11 PLAN FOR REUSE OF RECYCLED SEWAGE	52
5.12 MAINTANENCE OF AN ECO FRIENDLY SYSTEM	53
5.13 PRELIMINARY STRUCTURAL DESIGN OF COMPONENTS	53
5.14. LAND REQUIRED FOR STP AND WELLS	54
5.15. SMART MANAGEMENT AND ONLINE MONITORING USING INTERNET	54
5.16. ODOUR CONTROL ETHODS	58
5.17. PREVENTION OF ODOUR	58
5.18. CONTROL OF ODOUR BY CHEMICAL ADDITION	59

6. CHAPTER 6	61
COST ESTIMATE, OPERATION AND MANINTENANCE CHARGES	61
6.1. DETAILED ESTIMATE	61
6.1.1 GENERAL	61
6.1.2 DETAILED ESTIMATE OF COMPONENTS	61
6.2 PROPOSED SEWERAGE SYSTEM O&M	61
6.3 SEWER NETWORK MAINTENANCE	62
6.4 TYPES OF MAINTENANCE	62
6.4.1 STEPS TO BE TAKEN FOR OPERATION AND MAINTENANCE	62
6.4.2 INSTITUTIONAL STRUCTURE	63
6.4.3 PREVENTIVE MAINTENANCE	63
6.4.4 BREAK DOWN MAINTENANCE	63
6.4.5 PERFORMANCE LEVEL TO BE ACHIEVED	64
6.5 ON COMPLETION OF MAINTENANCE WORKS RESTORE EVERYTHING TO THE ORIGINAL CONDITION	64
6.6 SAFETY PRACTICES	64
6.7 O & M CHARGES	65
6.8 POWER CHARGES	65
7. CHAPTER 7	66
IMPLEMENTATIONS OF THE PROJECT	
7.1. IMPLEMENTING AGENCY	66
7.2. IMPLEMENTATION SCHEDULE	66
7.3. STEPS TO BE TAKEN IN TENDERING STAGE	66
7.4. INTEGRATION WITH OTHER PROJECTS	67
7.5. ENVIORNMENTAL IMPACT MANAGEMENT	67
8. CHAPTER 8	
CONCLUSION AND RECOMMENDATIONS	68

LIST OF TABLES

No.	Name	Page. No.
1.1	Population Pattern	3
1.2	Land Use Pattern	4
2.1	Water Tank Details	9
3.1	Design Period of Sewerage Components	15
3.2	Peak Factor	15
3.3	Recommended Slope	16
3.4	Pipe Material Comparison	19
3.5	Recommended Size of Manholes	21
4.1	Population Projection	23
4.2	Zone Boundary	23
4.3	STP Capacity	24
4.4	Network Details	27
4.5	Excavation Details	28
4.6	Details of Manholes	28
4.7	Pumping Stations Details	30
4.8	Lifting Station Details	34
4.9	Pumping Mains and Lifting Mains	35
4.10	Details of Pump Sets	36
5.1	Influent Characteristics	39
5.2	Effluent Characteristics	40
5.3	Unit Operations	41
5.4	Land Details	57
5.5	Control of odour by chemical addition	60
7.1	Implementation Schedule	68

LIST OF FIGURES

No.	Name	Page. No.
1.1	Project Area	2
1.2	River Basin	5
2.1	Waste Water	8
2.2	DGPS Survey	12
4.1	Network Sketch	27
4.2	LS/PS Location Details	29
4.3	Location of Pumping Station – 1(satellite map)	30
4.4	Location of Pumping Station – 1	30
4.5	Location of Pumping Station – 2(satellite map)	31
4.6	Location of Pumping Station – 2	31
4.7	Location of Pumping Station – 3(satellite map)	32
4.8	Location of Pumping Station – 3	32
4.9	Location of Pumping Station – 4(satellite map)	33
4.10	Location of Pumping Station – 4	33
5.1	Process Flow Diagram	42
5.2	MBBR Carrier media in a MBBR tank	44
5.3	Pressure Sand Filter	50
5.4	Activated Carbon Filter	51
5.5	Proposed Site for STP	56
1	Layout	
2	Hydraulic Flow Diagram	
3	Raw Sewage Pump Well	
4	Receiving Chamber	
5	Equalisation Tank	
6	MBBR Tank	
7	SST	
8	Filter Feed Tank	
9	Sludge Sump	
10	Sludge Thickener	
11	Thickened Sludge Sump	
12	Centrate Sump	
13	Treated Water Tank	
14	Centrifuge Structure	
15	Chlorinator Room	

16	Blower Room
17	Administrative Building, MCC and Lab
18	Sludge Storage Shed
19	ASF/PSF
20	DG Room
21	Security Room
22	Septage Tank
23	Pumping Station – Typical
24	Manhole Typical
25	Control/Generator Room
26	Network Drawing

APPENDIX

- APPENDIX I - Design of STP
- APPENDIX II - Equalisation Tank Design
- APPENDIX III - Detailed Estimate
- APPENDIX IV - Design of Wet Wells & Lifting Stations
- APPENDIX V - Design of Pump set
- APPENDIX VI - Power calculation
- APPENDIX VII - Flex Table - Conduits
- APPENDIX VIII - Flex Table – Manhole
- APPENDIX IX - Copy of Municipal Resolution

General Abstract

**SEWERAGE SYSTEM TO VATAKARA MUNICIPALITY - CONSTRUCTION OF 7
MLD CAPACITY SEWAGE TREATMENT PLANT AND LAYING SEWERAGE NET
WORK TO VATAKARA MUNICIPALITY**

(Dsr year: 2018)

SI No	Heading Description	Amount
1	PART-A- STP- ESTIMATE NO: 2022/15079(WITHOUT GST)	108971288.72
2	PART-B- ELECTRO MECHANICAL- ESTIMATE NO: 2022/4736(WITHOUT GST)	62412302.08
3	PART-C- NETWORK- ESTIMATE NO: 2022/15077(WITHOUT GST)	1178970816.45
4	PART- D- O&M ESTIMATE NO: 2022/15078(WITHOUT GST)	468302286.73
5	PART-E- CENTAGE CHARGES @ 10% OF (A B C D)	181865669.40
6	PART-F-GST @18% OF (A B C D)	327358204.90
7	PART- G- DPR PREPERATION CHARGES@2.5% OF (A B C)	33758860.18
8	PART-H-UNFORSEEN ITEMS	8360571.54
Total		2370000000.00
Centage @		0.0%
Centage Amount		0.00
Provision for GST payments (in %) @		0.0%
Amount reserved for GST payments		0.00
Total & Centage		2370000000.00
Lumpsum for round off		0.00
GRAND TOTAL Rs		2370000000.00
Rounded Grand Total Rs		2,37,00,00,000
Rupees Two Hundred Thirty Seven Crore Only		

SINITH P
ASSISTANT ENGINEER
Camp Office
Project Planning and Development Unit
Kerala Water Authority
Kozhikode

MUJEEBU RAHIMAN.P
ASST. EXECUTIVE ENGINEER
Regional Office
Project Planning and Development
Kerala Water Authority
Kozhikode

SREEKALA. L.B
Executive Engineer
RPO Regional Office
Kerala Water Authority
Kozhikode

INDULEKHA T.P
SUPERINTENDING ENGINEER
Regional Office
Project Planning and Development
Kerala Water Authority
Kozhikode

CHIEF ENGINEER
Sewerage, RFD & WASCON
Kerala Water Authority
Thiruvananthapuram -33

ABSTRACT OF ESTIMATE

Sl No	Heading Description	Amount in Rs.
1.	SEWAGE TREATMENT PLANT	
2.	RAW SEWAGE RECEIVING CHAMBER CUM WELL	4163292.59
3.	SEPTAGE RECEIVING UNIT	1409313.70
4.	INLETCHEMBER/SCREENCHANNEL/GRIT CHEMBER/PARSHALLFLUME	4230942.94
5.	EQUALISATION TANK	12494382.70
6.	MBBR 1 & 2	20638170.50
7.	SECONDARY CLARIFIER	8555225.07
8.	SLUDGE SUMP	461926.12
9.	SLUDGE THICKNER	1988499.25
10.	THICKENED SLUDGE SUMP	548152.87
11.	FILTER FEED TANK	1399838.72
12.	TREATED WATER TANK	2808836.92
13.	CENTRATE SUMP	361140.77
14.	ADMINISTRATIVE/LABORATORY/CHEMICALHOUSE/ CONTROL ROOM BUILDING	5220116.06
15.	SECURITY CABIN	304934.50
16.	AIR BLOWER BUILDING	2680605.70
17.	CHLORINATION BUILDING	2059670.04
18.	COMPOUND WALL AND GATE	2783632.82
19.	STP LAND DEVELOPMENT & APPROACH ROAD AND INTERNAL SERVICE ROADS	12244283.80
20.	EFFLUENT DISPOSAL AND STORM WATER DRAINS	1731997.73
21.	TRANSFORMER BUILDING	3226943.61
22.	CENTRIFUGE BUILDING	3192624.39
23.	PSF/ACF FOUNDATION	1307480.33
24.	SLUDGE SHED	659277.60
25.	LANDSCAPING, GREEN BELT FORMATION AND REUSE OF TREATED WATER	1000000.00

26	ODOUR CONTROL SYSTEM	10000000.00
27	PROVIDING SOLAR ENERGY SYSTEM	3500000.00
28	MECHANICAL WORKS	37994257.1
29	ELECTRICAL WORKS	11518044.98
30	CHARGES FOR POWER ALLOCATION TO KSEB AND POWER EXTENSION BY CABLE	10000000
30	TOOLS AND PLANTS	400000
31	PROVIDING SCADA SYSTEM	2500000.00
	SEWER NETWORK	
32	LAYING OF SEWER NETWORK	426462941.17
33	ROAD RESTORATION WORK OF LAYING OF SEWERS AND PUMPING MAIN.	115020454.96
34	CONSTRUCTION OF PUMPING STATIONS	7775904.47
35	COMPOUND WALL WITH GATE FOR PUMPING STATIONS	10331337.33
36	CONSTRUCTION OF SCREEN CHAMBER AND VALVE CHAMBER	4395062.49
37	CONSTRUCTION OF VALVE CHAMBER	1122354.22
38	CONSTRUCTION OF CONTROL ROOM AND GENERATOR ROOM	5139572.64
39	PROVIDING CABLE TRENCHES	723069.85
40	BATH CUM TOILETS	1430684.04
41	MECHANICAL, ELECTRICAL - PUMPSETS, GRIT CHAMBER SCREEN, GENERATOR, TRANSFORMER & ALLIED WORKS COMPLETE	13279218.56
42	PUMPING MAINS	23600726.77
43	LAYING HDPE PIPES VIA HDD METHOD ABOVE 3M DEPTH	64021168.14
44	CONSTRUCTION OF MAN HOLES	224649530.9
45	ROAD RESTORATION - TO PWD/NH	240457879.44
46	LIFTING STATIONS AND ALLIED WORKS	37760911.48
47	WATER SUPPLY AND SANATORY ARRANGEMENTS, ELECTRICAL WIRING IN PUMPING STATIONS	1000000.00
48	LINE EXTENSION, DEPOSIT TO KSEB, ETC	1800000.00

	O&M FOR 10 YEARS	
49	O&M FOR STP	93038460.61
50	O&M FOR SEWERAGE NETWORK	176927710.1
	ELECTRICITY CHARGES FOR 10 YEARS	198336116.00
	TOTAL	1818656694
	DPR Preparation Charge@2.5%	33758860.18
	CENTAGE@10%	181865669.40
	GST@18%	327358204.90
	LUMP SUM	8360571.54
	GRAND TOTAL	2370000000.00
	Rupees Two Hundred and Thirty Seven Crores Only	

EXECUTIVE SUMMARY

Long-term development has long been recognised as requiring environmental conservation. Proper sewage and septage control is a vital component in attaining this. Although the state has achieved great progress in the drinking water sector, the sewerage sector has trailed far behind. Unplanned urbanisation and poor sewage management have polluted water resources on a large scale. This has grown into a complicated issue that affects both the environment and public health. Recognizing the threat, the government has spent the last few years debating and implementing measures to combat it. In addition, the National Green Tribunal (NGT) has ordered that a sewerage system be installed throughout the state.

The local bodies, who have been constitutionally entrusted with the responsibility of environmental protection, have only limited infrastructure and expertise to tackle the situation. Hence Kerala Water Authority, being a state wide establishment with qualified and experienced personnel in Public Health Engineering, has been considered by the government to take up the responsibility. As per the Kerala Water Supply and Sewerage Act, 1986 KWA has the function of rendering services in collection and disposal of waste water. KWA, as a knowledge partner, service provider and central agency for coordinating the activities related to the planning and implementation of sewerage systems for LSGIs can contribute in scientific and systematic way. To meet the growing demand for waste water management, KWA established a Sewerage Vertical Wing, led by the Chief Engineer, PPD & WASCON. The former Sewerage Circle office in Kochi, which had a Superintending Engineer, one Executive Engineer, and two Assistant Executive Engineers, has now been merged with this. In addition to their existing responsibilities, the PPD Wing's three circle offices in Thiruvananthapuram, Kochi, and Kozhikode have been designated as Sewage Circle offices. This wing is responsible for the investigation, planning, design, and DER preparation of sewerage projects.

This Detailed Engineering Report envisions the establishment of sewerage facilities to the vatakara municipality to meet the sewerage demand up to the year 2053, using 2023 as the base year and a design period of 30 years. and other factors. A septage zone is also proposed in areas where the population density is less than 1500/km². Furthermore, septage treatment is proposed in densely populated areas where there is no road network.

The scheme covers 23.33 km² area in vatakara Municipality's with the design population of 38010. This proposal includes 7 MLD STP with MBBR technology at Narayana Nagaram of Vatakara Municipality, sewer network of 71467.8 m, 2590 manholes, four pumping stations and 17 number of lifting stations. Manholes at 30 m intervals and at all densely intersections

are proposed to facilitate maintenance operations. The total Estimated cost of the project including ten years Operation and Maintenance cost comes to Rs.237 crore

[Signature]
SINITH P
ASSISTANT ENGINEER

Camp Office
Project Planning and Development
Kerala Water Authority
Kozhikode

[Signature]
MWEEBU RAHIMAN.P

ASST. EXECUTIVE ENGINEER
Regional Office
Project Planning and Development
Kerala Water Authority
K

[Signature]
SREEKALA L B

Executive Engineer
PPD Regional Office
Kerala Water Authority
Kozhikode-78

[Signature]
INDULEKHA.T.P
SUPERINTENDING ENGINEER

Regional Office
Project Planning and Development
Kerala Water Authority
Kozhikode

[Signature]
CHIEF ENGINEER
Sewerage, PPD & WASCON
Kerala Water Authority
Thiruvananthapuram -33
[Signature]

CHAPTER 1

INTRODUCTION

1.1 BACKGROUND

Provision of drinking water and sanitation facilities has always been a key priority in our country as it is directly related with the health of the community and the responsibility for providing these services lies with the public domain. With unplanned urbanization the sewage management and pollution of water resources has become a complex challenge to the environment as well as to the public health. Even though Kerala State has achieved significant results in terms of improved water supply coverage through Kerala Water Authority, the sanitation sector could not cope up with the water supply sector. Immediate removal of sewage from its source of generation followed by proper treatment and safe disposal into environment in an eco-friendly manner or reuse is highly necessary to protect the public health and environment.

1.2 SCOPE OF THE REPORT

The scope of this work consists of planning and design of a comprehensive sewerage scheme for Vatakara Municipality of Kozhikode district in Kerala State. The project proposes a well-planned sewerage pipe line network for the core area of Municipality, pumping stations, and sewerage treatment plant with MBBR technology so as to ensure the quality of effluent as per KSPCB Standards. Septage management facility will be provided for the area where laying sewerage network is not feasible.

1.3 PROJECT AREA

Vatakara is situated about 49 km to the north of Kozhikode City, approximately 44 km to the south of Kannur City, and adjacent to Mahe. The town lies by the side of a river variously called the Moorad River, the Kuttiady River, or Kottakkal River. The town's position relative to this river led to it being called Vadakkekara (north bank), later contracted to Vatakara. Towards the east, near the panchayats of Nadapuram and Kuttiady, Vadakara borders the Wayanad district along the Western Ghats section. In the west, like many of the towns in Kerala, Vatakara is flanked by the Arabian Sea. The Kuttiyadi river meets the sea to the south of Vatakara, forming small islands and sandbars near the river mouth.

Vadakara is a town and a municipal council in Kozhikode district in the state of Kerala, India. Badagara is also written in English. Vadakara is the second largest city of Kozhikode district in the Indian state of Kerala. It is located between Kozhikode and Mahe, north of Kozhikode city. Vadakara is a coastal town surrounded by beautiful landscapes. In the mythology of Kerala, this place is known as Kadathanad. The historic Lokanarkavu Temple is located here

Vatakara Municipality is well connected with road, rail and air. NH 66 passes through Municipality Vartakara Railway station is situated in the heart of city. The latitude for Vatakara Kerala, India is: 11°34'2"N and the longitude is: 5°36'2"E. Vatakara Municipality is in Vatakara Taluk of Kozhikode district and there are 47 Divisions in Vatakara Municipality. The Municipality is under Vatakara Parliament Constituency and Vatakara Assembly Constituency

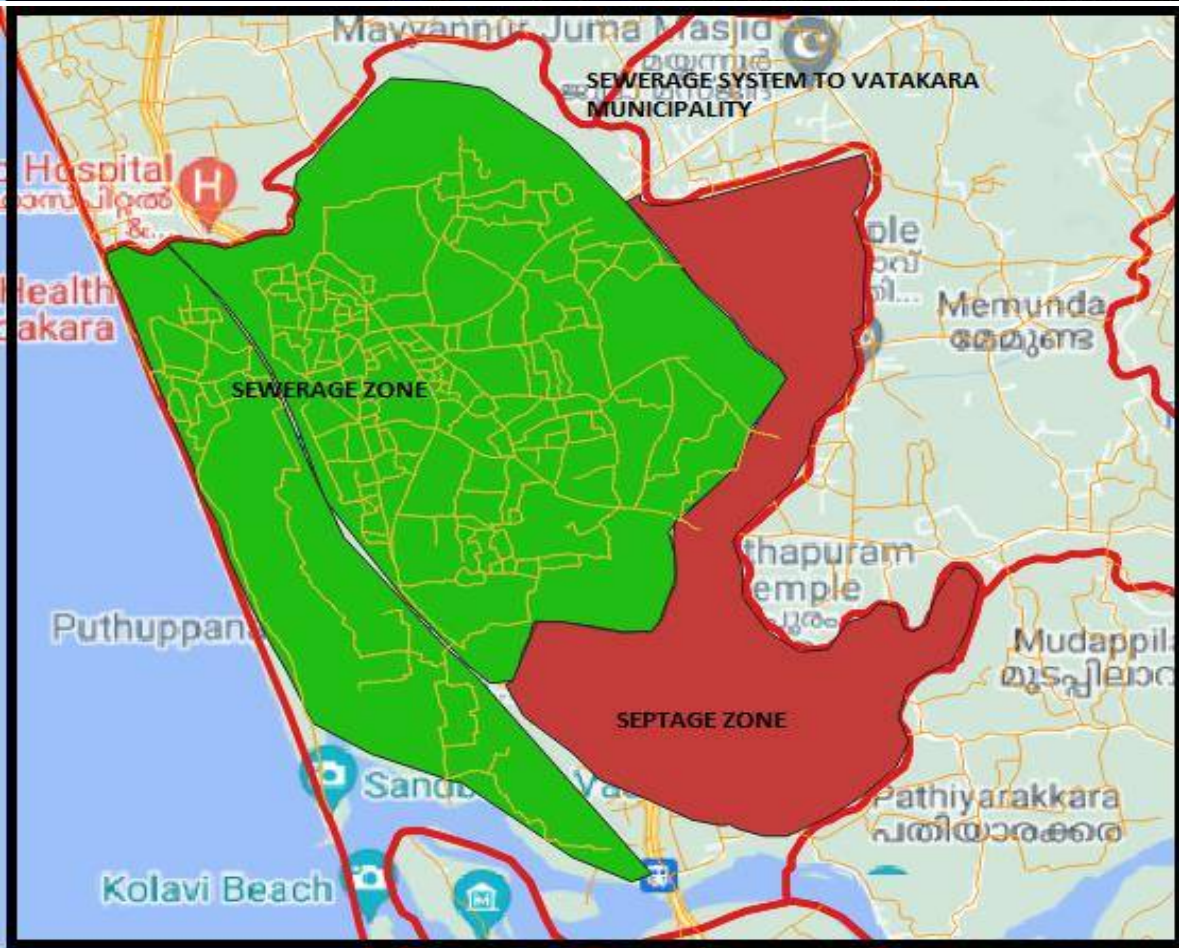
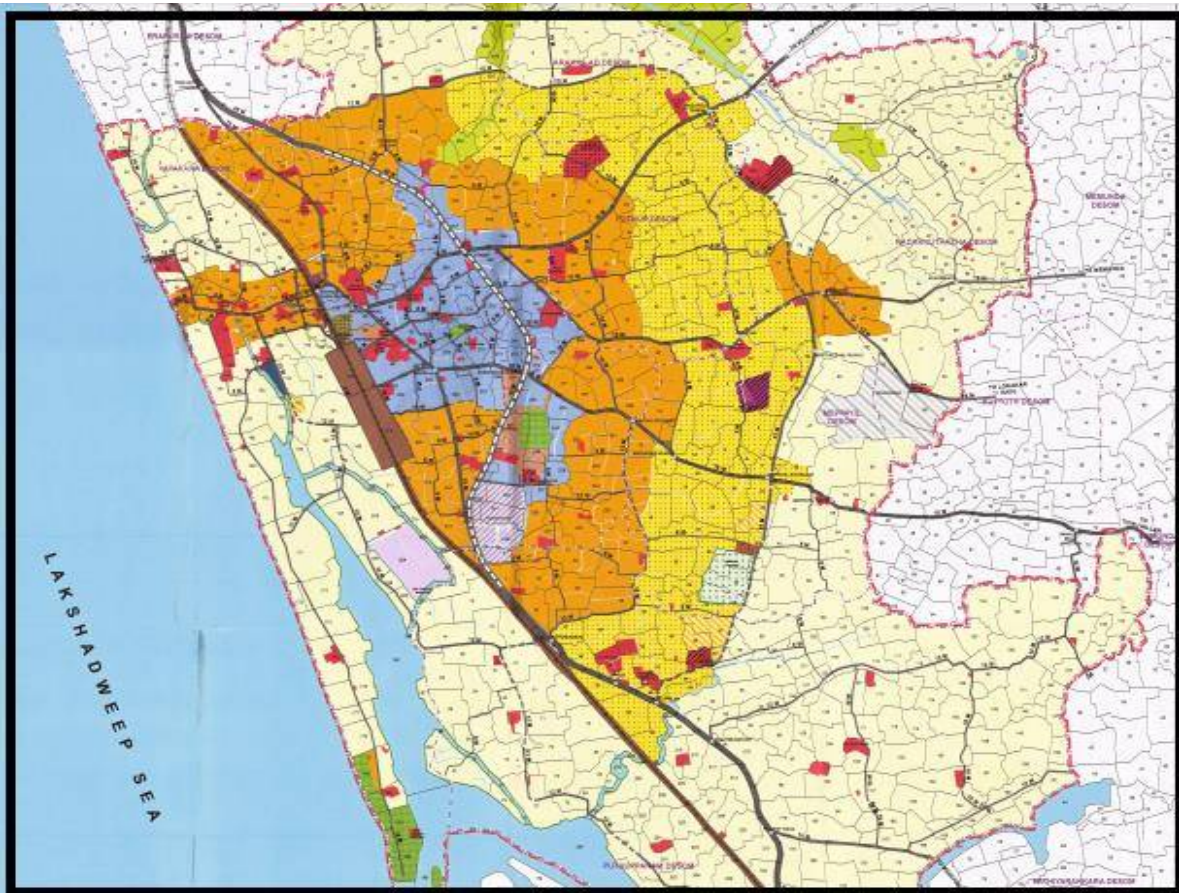


Figure 1.1: Project Area

1.4 POPULATION PATTERN

The Vatakara Municipality has population of 75295 of which 35531 are males while 39764 are females as per report released by Census India 2011. Density of population is 3227.2/sq.km

Population as per 2011 census	Male	Female	SC/ST
75295	35531	39764	1190

Table 1.1 Population Pattern

1.5 SOCIO-ECONOMIC PROFILE

As Vatakara municipality is fast developing. There are many business establishments existing within the Municipality. The number of business establishments is increasing year by year as lots of construction activities are going on in Municipality. Literacy rate vatakara is 95.11%, which is higher than Kerala average of 94.00%. A good number of people are engaged in business, employed in Government offices and private establishments. A minority of the population are agriculturists, the main agriculture product being coconut and arecanut. Small section of people in the coastal area is employed in fishing. The important public offices in Municipality are located in the Civil Station Building. Other major institutions are

1. District Hospital
2. Cooperative Hospital
3. Asha Hospital
4. CEE yem Hospital
5. Janatha Hospital
6. Parco Hospital
7. BEM HSS
8. St Antonys GHS
9. Govt HSS Puthur
10. Govt Sanskrith HSS
11. Municipal Town Hall

1.6 GEOGRAPHICAL FEATURES

Vatakara Municipality covers area of 23.33 km² and the boundaries are

South- Chorode panchayath

North- Moorad River

East- Maniyur, Villiappally panchayath

West- Arabian Sea The coast covers a length of 30km. The altitude varies from +1 at the coast to +16 in the sea.

1.7 RAINFALL & TEMPERATURE

Vatakara Municipality has a mean annual temperature 27°C. The mean annual rainfall is 3100mm. The south west monsoon occurs between May and October. There is an average 160 rainy days in a year. Excessive rain fall causes frequent floods in rivers and canals causing submerges in low level areas.

1.8 LAND USE

The current land use pattern indicates that 58% of the land is for residential use which comprises houses in individual plot scattered all over the city. Commercial area is comparatively less and comprises small establishment.

SI No	Land use	Percentage
1	Residential	72.72
2	Transport	3.53
3	Agriculture	14
4	Water bodies	6.18
5	commercial	0.1
6	Common land	2.37
7	others	1.1

Table 1.2 Land use Pattern

1.9 SOIL TYPE

The alluvium consists of sand, silt and clay, its thickness varies between 2 and 8 m and the ground water occurs under phreatic condition. There are two types of alluvium - riverine and coastal. Coastal alluvium occurs in the western part of district and the riverine alluvium occurs along river courses. The abstraction structures in alluvium are dug wells and filter point wells wherever the saturated sand thickness is 4 m or more. The depth of wells ranges between 3.14 and 9.12 m below the ground level. The depth to water level ranges from around 2.00 to 6.63 m below the ground level in pre-monsoon period and from 0.99 to 4.03 m below the ground level in post-monsoon period. The yield of wells ranges between 30 and 80 m³/day

The midland terrain is generally covered by very porous laterite and forms potential phreatic aquifers along topographic lows and valleys. The depth of water level ranges around 2.11 to 16.86 m below the ground level in pre-monsoon and around 0.33 to 11.84 m below the ground level in post-monsoon and are developed by open dug wells. The depth of wells ranges between 7.06 and 18.06 m below the ground level. The yield of the dug wells ranges between 5 to 10m³/ day.

1.10 DRAINAGE AND DRAINAGE PATTERN

The rivers provide a cheap transport facility and a network of water transport system. The major river in Vatakara Municipality is Kuttiadi River (Moorad). The Kuttiadi River originates at a height of 1334 m on the western slopes of Wayanad plateau. The river is also known by the name of Moorad River. It has a length of 75 km and flows through Vatakara and Quilandy taluks. It flows in northerly direction at first then bends and takes southwesterly direction of flow. At Thurayur it is joined by the Agalapuzha. Further it takes a “U” turn and flows north-westerly direction as the Moorad River developing lagoons and joins the sea at Kottakkal near Vatakara. During the course of river, bed falls by about 600 m within a distance of about 3 km. This water falls is locally known as Orkateri falls. The main tributaries are Kadiyangad puzha and Olipuzha. The river is dammed at Kakkayam for the hydroelectric project and the tail end waters of the project are stored at Peruvannamamuzhi, for irrigation



Figure 1.2: Kuttiadi River Basin

CHAPTER 2

PROJECT RATIONALE AND METHODOLOGY

2.1 SANITATION – VISION, STATUS AND GOALS

To address the situation of inadequate sanitation facilities to the urban population, the Government of India has formally approved the National Urban Sanitation Policy in 2008 which envisions the creation of totally sanitized cities and towns. The policy articulates awareness generation and behaviour change, open defecation free cities in which all urban dwellers have access to safe sanitation, integrated city wide sanitation planning and sanitary and safe disposal of urban wastes.

The vision of the policy is that the municipality shall be totally sanitized, healthy and liveable and ensure and sustain good public health and environmental outcomes for all the citizens with a special focus on hygienic and affordable sanitation. The policy articulates the following goals-

1. Awareness Generation and Behavioural Change
2. Open Defecation Free Cities
3. Integrated City Wide Sanitation
4. Sanitary and Safe Disposal
5. Proper Operation and Maintenance of all Sanitary Installations

Wastewater disposal and treatment is a major problem in cities in Kerala. The wastewater from toilets has been disposed through septic tanks and soak pits and grey form of wastewater from kitchen and bathrooms is directly discharged into the sludge drains without any treatment. As per Census 2011, 45.45% of the urban households have “no drainage”. There are 14.32% of the households connected to centralized sewerage system. About 97.43% of the households in the urban areas of Kerala state have a toilet within their residential premises. Almost 56.69% of them are connected to septic tanks, 21.87% to pit latrines while households having connection to the centralized sewer system are about 14.32%. There are both technical and institutional dimensions to the problem of septic tanks in the state of Kerala. The septic tanks design does not comply with the national guidelines with reference to planning, design and construction. Local masons are unaware of the existing design and construction guidelines to construct and design the septic tanks. There are multiple agencies involved in operation and maintenance of water and sanitation services in Kerala. Septage management is viewed as private provision with limited role of urban local bodies. Another set of reasons cited for urgency in taking up septage management is the occupational hazards for emptying the septic tanks. The Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013 has expanded the definition of workers engaged in such sanitation works by including the practice of septic tank emptying and manual handling of such faecal sludge. The revised Manual Scavenging Act will require states to gear up the Municipal bodies in discharging their responsibilities effectively. In the absence of efficient waste water treatment systems and solid waste management systems, untreated domestic and industrial wastes, and agriculture-runoff flow into the rivers polluting the rivers in Kerala. There has been widespread bacteriological contamination of faecal origin in ground and surface water which relate to

proximity of increasing numbers of leach pit latrines, leakages from septic tanks, washing, bathing and other domestic activities. Hence the goals for setting a sewerage strategy for a district will involve multi-faceted approach to cover every habitation and other institutions and establishments. This will render adequate results in both short term and long-term development plans. If a plan has been chalked out which can provide a systematic and flexible implementation mode, stage by stage implementation and better control over the system can be achieved. A district level plan document for sewerage prepared by KWA will create a backbone for the subsequent formation of detailed engineering reports for ULBs.

National Green Tribunal (NGT) while considering various OAs related to pollution of river trenches, pollution of coastal regions, pollution of ground water and restoration of water bodies in various States and UTs has ordered that all States and UTs shall ensure that various measures are taken to prevent the pollution of river stretches, water bodies and coastal areas on priority basis and within specified time limits. One of the directions is to ensure 100% treatment of sewage at least to the extent of in-situ remediation. Following this, being the agency for ensuring sewerage services in the State, Kerala Water Authority (KWA) has created a separate Vertical with in it exclusively for preparation of DPR sewerage works across the State. The newly formed Sewerage Vertical of KWA has prepared Preliminary Engineering Report for establishing a sewerage network/ septage management across the State.

As per order no GO(Rt) No.352/2021/P&EA dated 16/8/2021 Administrative Sanction has been accorded for conducting DGPS levelling survey work for 28 Urban Local Bodies and DPR preparation of 4 corporations in Kerala and Vatakara Municipality is one among them. PPD and Sewerage Vertical Circle, Kozhikode is assigned with the task of preparation of DPR for sewerage scheme for Vatakara Municipality.

2.2 NEED FOR SEWERAGE SCHEME

The sewerage project in respect of which considerable public and social resources are being used, form a basic infrastructure for the country and an indisputable indicator of civilization and development. The works cover a number of substantial social needs and aim to improve the quality of life and to protect public health and the environment. Some of the benefits and advantages of the sewerage system are as follows:

(a) Upgrading the quality of life

The quality of life and the hygienic conditions in the areas where the system operates have already improved. The operation of the sewerage system has relieved these areas to a great extent from previous problems that were caused by the continuous emptying of cesspools. In the past, hotels and blocks of apartments were required to empty and maintain septic tanks and soak ways. The sewerage system provides a healthier and more appropriate way to manage liquid wastes.

(b) Preserving the natural environment

Previously, all sewage waste was discharged in septic tanks and cesspits, resulting in the pollution of the ground water of the areas where such waste was discharged. Polluted waters then ended in the sea and caused various risks and other environmental problems. With the operation of the sewerage system no more pollution of ground water is effected and the discharge of sewage waste has significantly been reduced moreover, the wastewater treatment plant produces by-products

such as treated biosolids and methane. Treated sludge is used as a soil-improving substance mainly for tree cultivations whilst methane is being used for electricity generation, covering part of the power, required to operate the plant.

c) Saving and processing waters

Water is a substantial natural resource for our country and it should be managed in the best possible manner. The tertiary treated effluent at the wastewater treatment plant is reused for agricultural and other purposes. On completion of the project, the amount of water to be saved is expected to exceed 1.45 million cubic metres per year.

(d) Economic development and tourism

The most significant advantage of the system is maintaining sustainable development, the protection of the environment and improvement of the quality of life in our town, with a further impact on the development of tourism and the economy in general.

(e) Standard of living

As a result of the above, the sewerage system contributes to further development and increase of the standard of living of the town of Koyilandy inhabitants. Considering all the above advantages, there is no doubt that if we all cooperate at this time, ourselves and our children will enjoy a better quality of life in the years to come and that we will secure a better environment.



Figure 2.1: Wastewater

2.3 PRESENT SEWERAGE SYSTEM- OVERVIEW

Today Vadakara is a commercial focal point in Calicut district with all the amenities for a modern township including hospitals, schools, colleges, hotels and recreational facilities. Vatakara comprises of natural drains major drains, road side drains, shoulder drains all of which discharge into the Arabian Sea. The growth of Vadakara, unaccompanied by necessary infrastructure has precipitated problems by a large magnitude. The drains here are overburdened during the rainy season and Vadakara has been facing tremendous water clogging issues as well as sewerage problems virtually every monsoon. The existing infrastructure and drainage system in the town has been gravely insufficient in handling the excess water whenever there is a downpour. Now the scenario is that people staying nearby the drains, mainly Town area, are facing serious difficulties such as water stagnation, unfavourable surroundings, communicable diseases and other socio economic issues.



There is an existing treatment plant of 1 Lakh Litre capacity at Narayananagaram which is grossly insufficient as per requirement. Also waste water generated at present is not treated properly. The sewage coming to the plant is first passed through a Bar screen which then flows to the Equalization tank and then to the Anaerobic upflow filter tank. It is then flown to an Aeration tank which then moves to a Hopper bottom settling tank. At this stage the treated sewage goes to a Sludge tank and is then moved again to the aeration tank and the process continues. From the settling tank

it is being carried to a Pressure sand filter then to pressure carbon filter and finally to the treated water storage tank. It is then discharged out. It is clear that even after the treatment from the existing plant there is no much improvement to the treated waste water. So it is certain that the plant is inefficiently working.

2.3.2 Solid waste management

Hariyali, the green task force comprising 54 women selected from various wards, is the spine of Vadakara's waste management system. They charge ₹50 per home and ₹100 or more from commercial establishments as monthly fee for collecting non-biodegradable waste. "They collect various types of waste every month. The municipality has made arrangements to replace plastic bags with cloth bags, by engaging various tailoring units. There are units for repair and recycling of LED bulbs. Following the success of the initiative, the civic body has been entrusted by the State government to set up a Green Technology Centre to cater for nearby panchayats as well.

2.4 WATER SUPPLY FACILITIES

2.4.1 PRESENT SYSTEM

The existing major water source for Vatakara Municipality is Kuttiady river, and Major Water Supply Scheme is Augmentation of Vatakara Water Supply Scheme (13 MLD) with intake at Kooramkottukadavu and treatment plant at Kappumala in Velom Panchayath. The total length of transmission main is about 21 km. From the Treatment Plant at Kappumala water flows by gravity to various Service Reservoirs at Avangottumala, Puthiyapp and Janatha road respectively.

Service Reservoir and Distribution System

1. Avangottumala - GLSR 6 LL
2. Puthiyapp - OHSR 10 LL
3. Janatha road - OHSR 20 LL

A distribution network of around 100km has been laid for the Municipality. There are 9500 Number of FHTCs and 650 Street Taps in this scheme. Due to inadequate capacity of the system water supply in the municipality has for long time being restricted to alternate days. Also during summer season due to salt intrusion pumping is being interrupted in many days for the scheme.

2.4.3 GROUND WATER SOURCES

Most of the people depends ground water source, open wells and shallow tube wells for their drinking water needs. Studies have revealed that

- Almost all samples were contaminated with Total Coli forms
- Level of bacteriological contamination is very high during monsoon

- Elevated areas had comparatively lesser level of contamination
- Contamination was higher in the vicinity of onsite sanitation structures especially in open wells situated within 10-15 m from latrines
- In a number of cases cause of contamination is of human origin

2.5 METHODOLOGY FOR PREPARATION OF SEWERAGE MASTER PLAN

The following tasks have been performed during the planning of the proposed Sewerage System:

- Data Collection and Field Visits
- Review of adequacy of existing sewerage system
- field levelling survey using DGPS
- Social survey
- Population Projection and Sewage Flow Estimation
- Design of Sewage Collection System
- STP site identification, assessing area requirement
- Phasing of construction of STP
- Capital cost and O & M costs
-

2.6. FIELD INVESTIGATIONS

General Field investigations like topographic survey, geotechnical investigation, and sewage samples analysis to be conducted to ascertain the topography of the area, the soil classifications and to ascertain its characteristics for designing the type of treatment, which forms the basis for proceeding further in designing the sewerage system.

2.6.1 SURVEY WORK

Topographical Survey Topographical survey forms a very important component in formulating the sewerage project. A detailed topographical survey has been performed covering the area using DGPS and Total Station. Topographical survey of the project area was conducted using DGPS and Total station. Ground Levels have been taken along the roads at suitable intervals along straight portions and at all junctions of alignment. Important features and obligatory points like junctions such as culverts, major drains, and public utilities, cross roads, railway line have been captured. Using the topographical survey data and detailed base map showing the features like roads, land marks, public buildings, parks etc. has been developed.



Fig. 2.2: DGPS Survey

2.6.2 SOCIAL SURVEY

Social Survey was carried out for locating each building for arriving the sewer load in manholes. Identifying and arriving possible shock loads from institutions such as, flats, and other establishments are very important for avoiding overflows in manholes. Moreover, the areas likely to be developed in future are to be identified for arriving sewer load to be incorporated in design.

CHAPTER 3

DESIGN CRITERIA

3.1 SEWAGE COLLECTION & CONVEYANCE SYSTEM

The sewerage system or storm water carriage system can be separate system or combined system or partially separate system depending on domestic sewage and rain water are drained through two separate set of pipes or through single set of piping. However, the combined system is not quite suitable in tropical Indian conditions as;

- i) Heavy and concentrated rainfall occurs during the monsoon period and thus there is a large variation in the quantity of sewage during different months of the year,
- ii) Dry weather flow is generally a very small proportion of the total flow and hence sewers are likely to get silted up due to low velocity of flow in lean periods,
- iii) Capital funds are limited,
- iv) Treatment costs and pumping costs are significantly reduced in separate system due to reduction in quantity.
- v) If the system is oversized, external flushing to attain the areas where the self-cleansing velocity is not attained which will increase the O&M cost. It affects system efficiency.

The pipes for collection can have;

- i) Zonal pattern in which entire city is divided into suitable zones and a separate interceptor is provided for each zone,
- ii) Radial pattern in which sewers are laid radially outwards from the center of the city to dispose sewage at multiple points,
- iii) Interceptor pattern in which sewers are intercepted by large size sewers laid along the natural watercourses or,
- iv) Fan pattern in which the STP is located at a certain point and the entire sewage flow is directed towards this point.

3.2 ESTIMATION OF QUANTITY OF SEWAGE

Separate drainage system is proposed for rain water as such only dry weather flow will pass through sewers. The connection of roof, backyard and foundation drains to the sanitary sewers should be avoided and hence shall not be considered for estimation of sanitary sewage. The prevalent sewerage systems in India do receive rain water even if separate system for rain water exists but sewers are designed for 30 years and have spare capacity in early phases of implementation and considering that by end of 30 years' sewerage system will become water tight to rain water, it is appropriate to design system assuming no rain water penetration in sewers. The quantity of domestic sewage can be best estimated by quantity of water supply consumption minus evaporation plus sewage flow from personal water sources which are other than those of community water supply and this water reaching to sewers. Another important factor in Indian cities is generally less connectivity of sewage to the sewerage system as many people continue to use on site sanitation i.e. septic tanks and soak pits etc. particularly in colonies where sewerage system is laid after a

long gap of construction of houses which is a general phenomenon in Indian cities. In actual practice about 70-80% of the water supplied is reaching to sewers. As such 80% of quantity of water supply can be taken as sewage generation.

3.2.1 INFILTRATION AND LEAKAGE.

Some quantity of ground water or subsoil water may infiltrate into sewers through defective joints, broken pipes etc. This is significant when water table is high and head of ground water is more than the head of sewage in sewers. Some quantity of sewage may leak out from defective joints and defective pipes when head of sewage is more in sewers than head of ground water outside. Infiltration and leakage mainly depends on quality of construction and water table levels. Infiltration can be considered 5000-50000 liters per day per hectare or 500-5000 liters per day per km length of sewers or 250-500 liters per day per manhole for sewers laid below ground water level.

3.2.2 ESTIMATION OF INDUSTRIAL SEWAGE

The quantity of industrial sewage will vary with type and size of industry, the manufacturing processes involved, degree of water reuse and onsite treatment methods that are used, if any. However, in general the quantity of industrial sewage may be taken 80 to 90 % of quantity of water supplied through public water supply system. Some industries develop their own source of water supply and may discharge their liquid waste into sewers. This should be estimated separately for large industries. It may, however, be stated that industrial sewage should be treated to the standards prescribed by the Pollution Control Boards before being discharged into sewers.

3.3 DESIGN PERIOD

Sewerage projects are normally designed to meet the requirements over a period of 30 years after their completion. However, the period of 30 years may be modified in respect of certain components of the project depending on their useful life or the facility for carrying out extensions when required and rate of interest, so that expenditure far ahead of its utilization is avoided. As such design period for various main components has been taken as indicated in Table below.

S. N	Design Component	Design Period	Remarks
1	Land Acquisition for STP, SPS, sewers etc.	30 Years	Land acquisition in future difficult
2	Sewer network (laterals, Trunk mains, Outfall etc.)	30 Years	Replacement difficult and costly
3	Pumping mains	30 Years	Cost may be economical
4	Pumping Stations- Civil Work	30 Years	Life of civil structure is 30 years
5	Pumping Machinery	15 Years	Life of pumping machinery is 15 years

6	Sewage Treatment Plants	30 Years	The construction shall be modular in phased manner as actual population less than design population and in Indian cities initially flows are much less due to connectivity problems
7	Effluent disposal and utilization	30 Years	Provision of design capacities in the initial stages itself is economical

Table 3.1: Design Period of Sewerage Components

3.4 VARIATION IN RATE OF FLOW

The rate of flow of sewage varies from season to season (seasonal or monthly variation), from day to day (daily variation) and from hour to hour (hourly variation). For design of sewers maximum or peak flow rates are adopted. The value of peak factor (ratio of maximum flow to average flow) depends on the contributing population and the values recommended in the Manual on Sewerage and Sewage Treatment prepared by CPHEEO are given in Table below.

S.N	Contributing Population	Peak Factor
1	Up to 20,000	3.00
2	20,000 – 50,000	2.50
3	50,000 – 7,50,000	2.25
4	Above 7,50,000	2.00

Table 3.2: Peak Factor

The variation between maximum and average rates of flow is large for domestic and lateral sewers because they receive the flow directly from the source. This variation gradually diminishes as the flow reaches the branch or sub main sewers and the main sewers. Minimum rate of flow: The minimum rate of flow may vary from 0.5 to 0.33 of the average flow.

3.5 HYDRAULIC DESIGN OF SEWERS

The design for sewage collection system presumes flow to be steady and uniform. The unsteady and non-uniform sewage flow characteristics are accounted in the design by proper sizing of manhole. The sewage is mostly liquid containing about 0.1% of solid matter and hence follows same laws of flow as water. However the difference in design for water supply network and sewer network is, i) In order to avoid clogging of sewers due to settlement of heavier particles of solids, sewers are to be laid at such gradient that self-cleansing velocity is achieved at all values of discharge and that the inner surface of the sewers should be capable of resisting the wear and tear due to abrasive action of solid particles and ii) sewage flows under gravity as open channel flow and as such sewers are laid at continuous downward gradient.

3.5.1 DEPTH OF FLOW

The sewers shall not run full as otherwise the pressure will rise above or fall below the atmospheric pressure and condition of open channel flow will cease to exist. Moreover, from consideration of ventilation, sewers should not be designed to run full. In case of circular sewers, the Manning's formula reveals that:

The velocity at 0.8 depth of flow is 1.14 times the velocity at full depth of flow.

The discharge at 0.8 depth of flow is 0.98 times the discharge at full depth of flow.

Accordingly, the maximum depth of flow in design shall be limited to 0.80 of the diameter at ultimate peak flow.

3.5.2 HYDRAULIC FORMULAE FOR DESIGN OF SEWERS

Manning's formula has been used for design of sewers in case of gravity flow. For pressure flow (Pumping Mains), the Hazen-William's formula has been used. Sewer Network design has been done with the help of Manning's Formulae i.e.

$$\text{Velocity } V = [(1/n) \times (R^{2/3} \cdot S^{1/2})] \text{ (in m/s)}$$

For Circular Sections

$$V = (1/n) (3.968 \times 10^{-3} D^{2/3} S^{1/2}) \quad Q = (1/n) (3.118 \times 10^{-6} D^8 / 3 S^{1/2})$$

Where, Q = discharge in lps, S = slope of hydraulic gradient; D = internal diameter of pipe line in mm; R = hydraulic radius in m; n = Manning's Coefficient of roughness

3.5.3 PER CAPITA SEWAGE FLOW

The rate of water supply has been adopted 150 LPCD at consumer end throughout the whole design period as water supply schemes are designed with per capita supply of 150lcd in Kerala. 80 percent of the water supply has been considered as sewage flow into the sewerage system

3.5.4 MINIMUM VELOCITY OF FLOW

A minimum velocity of 0.6 m/s for present peak flow and 0.8 m/s at design peak flow is recommended for sanitary sewers. Thus the sewers are designed on the assumption that although silting might occur at minimum flow, it would be flushed out during peak flows.

3.5.5 RECOMMENDED SLOPES FOR MINIMUM VELOCITY

For sewers running partially full, for a given flow and slope, velocity is little influenced by pipe diameter. As such for present peak flows up to 30 lps, the slopes given in Table below may be adopted which would ensure minimum velocity of 0.6 m/s in the early years.

S.N	Present Peak Flow in LPS	Slope per 1000
1	2	6.0
2	3	4.0
3	5	3.1
4	10	2.0

5	15	1.3
6	20	1.2
7	30	1.0

Table 3.3: Recommended slope

3.5.6 EROSION AND MAXIMUM VELOCITY OF FLOW

Erosion of sewers is caused by sand and other gritty material in the sewer and also by excessive velocity. Non-scouring or limiting velocities in sewers of different materials are given in CPHEEO manual. Accordingly, maximum velocity for cement concrete pipes is 2.5- 3.00 m/s.

3.5.7 SEWER TRANSITIONS

Sewers shall be designed to ensure that the energy gradient is a continuous smooth line, thus transitions from larger to smaller diameters shall not be made. The crowns of sewers shall be kept continuous. In no case, the hydraulic flow line in the large sewers shall be higher than the incoming sewer. To avoid backing up, the crown of outgoing sewer shall not be higher than the crown of incoming sewer

3.5.8 MINIMUM PIPE DIAMETER

Minimum pipe diameter recommended in CPHEEO manual is 150 mm except that in hilly areas, where extreme slopes are prevalent, 100 mm can be used. Some states and ULBs have started adopting minimum diameter as 200 mm or even 250 mm. The logic is Maintenance of sewer system is generally not good and 150 mm dia sewer will block frequently and remain un-attended for some time, Quality of construction in smaller size RCC main such as 150 mm is not good ,The sewerage system is not totally closed one and undesired waste such as solid waste and drains finds way in sewerage, making smaller size sewer lines more prone to frequent blocking ,The cost of pipe line element is only about 15 percent of total project cost and increase in pipe size from minimum of 150 mm to minimum of 200 mm size will increase cost of project by 2 percent whereas flow capacity increases by more than 80 percent.

The minimum diameter may be adopted as 200 mm for cities having present / base year population of over 1 lakh. However, depending on growth potential in certain areas even 150 mm diameter can also be considered. However, in towns having present / base year population of less than 1 lakh, the minimum diameter of 200mm shall be adopted.

The house sewer connection pipe to public sewer shall be (a) minimum 100 mm or higher based on the number of houses / flats connected and (b) subject to the receiving public sewer being of higher diameter. In this project 200 mm diameter have been suggested as minimum diameter in design of sewerage network.

3.6 MATERIAL OF CONSTRUCTION FOR GRAVITY SEWERS

Brickwork is used for large diameters as sewers can be constructed in any shape. However, now it is not common. Concrete pipes are commonly used now as can be manufactured to any reasonable strength and laying is easy and jointing is leak proof. However, these pipes are subject to corrosion where acid discharges are carried or where velocities are not sufficient to prevent septic conditions or where the soil is highly acidic or contains excessive sulphates. Only high alumina cement

concrete should be used when it is exposed to corrosive sewage or industrial wastes. Salt glazed stoneware pipes are mostly manufactured in sizes 80-1000 mm but sizes greater than 380 mm are generally not used due to economic considerations. The length of these pipes is 60 cm, 75 cm and 90 cm. These pipes are good for corrosion resistance and erosion resistance. However due to less length, more joints, difficulty in jointing, requirement of special bedding and less compressive strength of pipes manufactured in India; use of these pipes is reducing in India.

S · N	EVALU ATION CRITE RIA	RCC PIPES	DI PIPES	HDPE PIPES	DWC PIPES	HDPE
1	Type of Joint	Available in both collar and S&S joints.	Tyton joint With rubber gasket	Butt fusion welding process.	Simple push fit joints with Elastomeric sealing Ring for online system or with extra couplers.	
2	Weight	Heavy	Lighter than R.C.C.	Light	Very Light in Comparison of Other Solid Wall Pipes.	
3	Corrosion resistance	To prevent corrosion sulphate resistant cement concrete to be used for pipe manufacture.	Protective layers are Required to protect corrosion	Highly corrosion resistant	Highly corrosion resistant	
4	Remarks on Cost	NP2 is Cheapest among all materials	Costlier than other pipes but cheaper than HDPE pipes.	Smaller diameter pipes are cheaper and higher diameter Pipes are costlier.	Uses minimal material for equal strength, therefore cost cheaper from other pipes.	
5	Infiltration	Infiltration is less	Infiltration is very less	Infiltration is very less	Infiltration is very less	

6	Workability	due to heavy weight handling to be done with care	Good	Light weight for easy handling.	They are user friendly, very fast and inexpensive in installation
7	Jointing	Jointing is easy in S&S pipes with Rubber ring joints.	Jointing is easy in S&S pipes with Rubber ring joints.	Jointing is expensive	Joining time is 2-5 minutes per joint
8	Maintenance	Almost nil if proper velocity is maintained.	Minimum	Pipe may get damaged due to rodding	Maintenance is low because of non-adherence of sewage elements.
9	Previous Experience/Performance	In use for long period and performance is Good	It is durable pipe. Performance is yet to be proven	Recent use started in India. It is durable.	They are maintenance free and therefore, once installed, will lie underground for years.
10	Trenchless compatibility	Micro tunnelling	Micro tunnelling	HDD & Micro tunnelling	Not suitable for Trenchless

Table 3.4: Pipe material Comparison

AC pipes cannot stand high superimposed loads, subject to corrosion from acids in sewage and high sulphate soils, require special bedding and weak against erosion where high velocities are encountered; as such use of AC pipe is not prevalent. Cast iron, DI and steel pipes are not used due to high cost. uPVC pipes are manufactured in sizes 75-, 90,110,140,160,250,290- and 315-mm outer dia. uPVC pipes are smooth, light, easy to joint and have leak proof joint. Rates are also low. These days these pipes are used for making connection from house to sewer but not prevalent in street sewers.

GRP pipes are widely used in other countries where corrosion resistant pipes are required at reasonable rates. When using concrete or reinforced concrete, high density sulphur resistant cement should be used. These pipes are made of slag cement that contains fewer calcareous (CaOH₂) particles than pipes made of Portland cement. These particles react with the sulphuric acid (created

by bacterial dissipation of hydrogen sulphide) in sewers, causing the aforementioned crown corrosion. If this particular cement is not used, lifetime of concrete sewers cannot be expected more than 30 years. A comparative study of characteristics of various pipe options for gravity sewers is presented in table above.

3.6.1 BENEFITS OF HDPE PIPES FOR SEWERS

When compared to other common wastewater piping system materials, such as PVC, ductile iron, or concrete, HDPE pipe offers significant benefits. Some of these include:

- **Chemical Resistance.** Hydrogen sulphide gas (H₂S) corrosion is a serious threat to conventional sewer lines, like concrete and ductile iron, greatly reducing their service life. WL Plastics HDPE pipe is not attacked, corroded or degraded by H₂S, ensuring a service life of 100 years.
- **Anti-corrosive properties.** HDPE piping systems are immune to the harmful effects of corrosion and tuberculation, common factors that reduces the operational life of concrete and ductile iron wastewater systems. HDPE also resists other corrosive or harmful agents, including scaling and organics such as fungi, bacteria, and other microbial contaminants.
- **Leak-free.** HDPE pipe is joined together via heat fusion, creating a welded, leak- free joint unlike conventional bell and spigot joints. These leak-free joints prevent infiltration and exfiltration making it a truly sanitary piping system.
- **Durability.** HDPE pipe is resistant to fatigue from water hammer and surge events in sewer force mains. HDPE pipe is also abrasion resistant, ensuring that flowing water and slurries won't damage the pipe throughout its service life.
- **Lightweight.** HDPE pipes are much lighter in weight compared with ductile iron or concrete alternatives, which makes transportation and installation significantly easier and safer.
- **Cost-effectiveness.** HDPE pipe is cost competitive with other sewer pipe options. HDPE pipe is faster, easier, and safer to install due to longer cut lengths and more linear footage per truck, which significantly reduce the overall project costs. With low maintenance costs and long service life, HDPE pipe is the ideal solution for wastewater systems.

However, HDPE pipes are slightly costlier compare to RCC pipe but as of now most of sewer pipes are laid through Trenchless technology method and because of this, plastic pipes like HDPE/ uPVC are most suitable and easy to use for trenchless as well as open cut trench method for pipe laying. The use of HDPE pipes are more economical and to be considered for smaller diameter pipes up to 110mm where they are available on coils thereby avoiding joints. Hence lesser number of joints thereby reducing leaks and the rates of pipes are reasonable. As a general pipe policy decision the use of HDPE pipe shall be preferred up to 200mm & occasionally upto 350mm (source- KWA pipe policy, page 19).

Therefore, considering the above benefits of HDPE pipe over RCC pipes, HDPE pipes are recommended to use for maximum stretch of network. The pipe policy of KWA also favours adoption of HDPE pipes. However, RCC pipe (HDPE lined) has been recommended for higher diameter pipe (i.e. above 700 mm) as HDPE pipes for higher diameter pipes are not easily available and very costly for large diameter and generally not manufactured.

3.7 MANHOLES

3.7.1 GENERAL

A manhole is an opening constructed on the alignment of a sewer for facilitating a person to access the sewer for the purpose of inspection, testing, cleaning and removal of obstructions from the sewer line. Manholes will be located at:

- Change of direction
 - Change of slope
 - Change of pipe diameter
 - Change of material
 - Ginning of each line at points of branches
- Manhole Sizes

Sl.No	Depth of Manhole(m)	Diameter of Manhole(m)
1	Up to 2.50m	1.2m
2	Above 2.50m and up to 9.0m	1.5 m

Table 3.5: Size of manholes provided

3.7.2 TYPE OF MANHOLES

3.7.2.1 STRAIGHT – THROUGH MANHOLES

The simplest type of manhole is that built on a straight run of sewer with no side junctions. Where there is change in the size of sewer, the soffit or crown level of the two sewers should be the same, except where special conditions require otherwise.

3.7.2.3 JUNCTION MANHOLES

A manhole is provided at every junction of two or more sewers, and the curved portions of the inverts of tributary sewers have been formed within the manhole. The gradient of the smaller sewer may be steepened from the previous manhole sufficiently to reduce the difference of invert level at the point of junction to a convenient amount.

3.7.2.4 DROP MANHOLES

As per CPHEEO manual, drop manhole is to be provided when a sewer connects with another sewer, where the difference in level between water lines (peak flow levels) of main line and the invert level of branch line is more than 600mm or a drop of more than 600mm is required to be given in the same line and it is uneconomical or impractical to arrange the connection within 600mm.

The drop pipe may be either outside the manhole shaft and encased in concrete or supported on brackets inside the shaft. If the drop pipe is outside the shaft, a continuation of the sewer should be built through the shaft wall to form a rodding and inspection eye, which should be provided with a half blank flange. If the drop pipe inside the shaft, it should be in cast iron/ductile iron and it would be advantageous to provide adequate means for rodding and water cushion of 150mm depth should also be provided. The drop pipe should terminate at its lower end with a plan or duck-foot bend

turned so as to discharge its flow at 45 degrees or less to the direction of the flow in the main sewer and the pipe, unless of cast iron, should be surrounded with 150mm concrete.

3.7.2.5 FLUSHING MANHOLES

Where it is not possible to obtain self-cleansing velocities due to flatness of the gradient especially at the starting point of branch sewers which receive very little flow, it is essential that some form of flushing device to be incorporated in the system. Flushing can be very conveniently accomplished using a fire hydrant or tanker and hose pipe.

The upper reaches of lateral sewers, the discharges shall be partially full even at the ultimate design flow conditions, because of necessity of adopting the prescribed minimum size of sewer. In such situations, flushing arrangements have to be provided in the initial years.

3.7.3 MATERIAL OF CONSTRUCTION FOR MANHOLE

3.7.3.1 BRICK MASONRY MANHOLES

Bricks used for construction of manholes shall conform to the relevant Indian Standards. They shall be sound, hard and homogeneous in texture, well burnt in kiln without being vitrified, table moulded, deep red, cherry or copper coloured, of regular shape and size and shall have sharp and square and parallel faces. The bricks shall be free from pores, chips, flaws or humps of any kind. Bricks containing unground particles and/or which absorb water more than 1/6 th of their weight when soaked in water for twenty-four hours shall be rejected. Over burnt or under burnt bricks shall be liable to rejection. The bricks shall give a clear ringing sound when struck and shall have a minimum crushing strength of 35 Kg/sq.cm unless otherwise noted in drawings.

The class and quality requirements of bricks shall be as laid down in IS: 1077. The size of the brick shall be 23.0 x 11.5 x 7.5 or unless otherwise specified. Mortar for brick masonry shall be prepared as per IS: 2250. Manholes shall be constructed in brick masonry with cement mortar (1:4), 20 mm thick inside plaster with plasticized water proofing material consisting of 12 mm thick backing coat in CM 1:3 and 8 mm thick finishing coat in CM 1:1 and 15 mm thick outside plaster in CM 1:3. Whenever a pipe enters or leaves a manhole, bricks on edge must be cut to a proper form and laid around the upper end of the pipe so as to form an arch. All around the pipes, there shall be a joint of cement mortar (1:2) 13 mm thick between it and the bricks. The manhole base has been kept as 150mm for manholes upto 1m depth, and 200mm for manholes from 1 to 2 m depth and 300 mm for greater depths. In all cases, the thickness shall be counter checked for uplift conditions based on maximum ground water elevations at the site on the soil side by considering empty manhole conditions.

The thickness of walls shall be typically one brick up to 1.5 m deep manholes, one and a half brick for depths greater than 1.5 m. The actual thickness in any case shall be verified on the basis of engineering design in difficult soil conditions

3.7.3.2 RCC MANHOLES

The idea of RCC manholes is essentially to quicken the work of construction in the roads by adopting precast sections assembled at site. Thus, the issues related to their construction are more of design itself and quality control in casting. In general, plain and reinforced concrete work for manholes shall be carried out in accordance with the specification given in CPHEEO manual

otherwise specified in this specification. Wherever good quality of brick and workmanship of the construction cannot be ensured, it is advisable to go in for RCC manholes. The provisions of IS: 456 and IS3370 Part I, II and IV shall inter alia apply to the design. The entire structure shall at all times be designed to the condition where the ground water is at ground level itself and the inside is empty and there is no superimposed load on the manhole and not considering the skin friction of the manhole side wall with the soil.

Now the newly available precast RCC chambers shall be conveniently used for the manholes upto 6.0m or more depth. This will make the construction very easy and faster. So the same are proposed for Kozhikode scheme.

3.7.3.3 HDPE MANHOLES

Polyethylene manholes remain leak-free because there is no chemical attack. The toughness of polyethylene eliminates the chance of cracking during installation. There is no infiltration of external ground water, reducing the amount of treatment required. There is no exfiltration of sewage to the environment. HDPE manholes are available with ladders installed. Ladder design has been inspected and meets all OSHA dimensional requirements.

CHAPTER 4

PROPOSED SEWERAGE SYSTEM

4.1 POPULATION PROJECTION

Population of the city normally depends on factors such as birth and death rates, migration, industrial development, general environmental conditions etc. Usually the population forecast of a city is made on the basis of methods of population forecast as provided for in section 1.5 of the CPHEO manual for sewerage and sewerage treatment. The latest available census records are that of 2011. As far as Kerala is concerned it is quite different from other states on education, health, life expectancy etc. The demographic pattern of the state therefore is quite different and need to take into account all the developmental parameters so as to avoid undue over designs.

The anticipation of future growth in any community in terms of population or commercial and industrial expansion forms the basis for preparation of plan for providing the amenities including installation of sewers in the area to be served. The anticipated population, its density and its waste production is generally estimated for a specified planning period. The recommended planning period is 30 years.

The populations of a city as per census records are as follows

2001 75847

2011 75295

As the population decreases present population is taken for the design

Current Year	2022
Execution Period	2 Year
Design Year	2054
Design Period	30 Years
Sewerage	38020
Septage	37285

Based on the population density a septage zone is also proposed to area where population density is below 1500/km². In addition, in the high density populated areas but where there is no road network, septage treatment is proposed.

The following institutions will be discharging their waste water to the public sewerage system

Hospital 150 bed	2Nos
Hospital 200 bed	2Nos
Hospital 80 bed	1Nos
Hotel 70 rooms	12Nos
Restaurants 50 seats	3Nos
Hostels 80 persons	2Nos

Schools/Colleges 800 students	4 Nos
Offices 75 persons	8Nos
Total area of the municipality	21.3 sq. Km
Number of households	16738
Average roofs area per household	60m ²
Maximum intensity of rainfall	110mm
Per capita water supply	150lpcd
Total length of network	69 Km
Number of treatment plants	1Nos
Number of pumping stations	4Nos
No of lifting stations	18 Nos

Water supply to institutions

Hospital 150 beds 2x150x450	= 135000 L
Hospital 200 beds 2x200x450	=180000 L
Hospital 80 beds 1x80x340	= 27200 L
Hotel's 70 rooms 12x70x180	=151200 L
Restaurants 50seats 3x50x70	=17500 L
Hostels 80 persons 2x80x135	= 21600 L
School's 800 students 5x800x45	= 180000 L
Offices 75 staff x75x45	= 60000 L
Others	=140000LL
Total	= 912500 L

STP		
Total sewage flow (Dry weather flow)	5.47	MLD
Ground water infiltration	0.37	
Unauthorised rain water connection		
Number of persons giving un authorised connection	1 in	100
Number of households in 2021	7602	
Number of households in 2054	7602	
Number of houses giving un authorised connection	77	
Un authorised water entering the sewer	0.4235	MLD
septage load	0.3	MLD
Capacity of Sewage Treatment plant	6.5635	MLD

Capacity of plant is taken as 7 MLD.

4.2 COLLECTION SYSTEM

The collection system has been designed for ultimate year peak flow. The cumulative flows and the cumulative contributory population are discussed zone wise in the succeeding sections. The design diameter and slope have been finalized based on the minimum flow velocity of 0.60 m/s (present peak flow) with maximum velocity of 3.00 m/sec.

The system has been designed using EPASWWM software. Design calculations are shown in Annexure attached. The sewerage system network has been so planned to limit lifting and pumping stations. The Maximum depth of the sewer lines are kept at 5.5 m from the existing ground level. However, in two places more than 5.5 m depth of cutting provided to avoid additional lifting stations

SEWERAGE NETWORK AND MANHOLES

Design & estimates of the sewer collection system has prepared so as to limit the depth of excavation and to accommodate changes in location of STP. It is proposed to have separate collection System for each sub-Zone with a common STP

It will have 17 lifting stations and 4 Nos pumping station. Sewage collected in well of LS-1 will be pumped to a MH No n1064. LS2 will be another lifting station which will pump to MH no 563, LS3 will pump to MH no 82, LS 4 to MH no 255 and LS 5 to MH no 279, LS 6 to MH no 248, LS 7 to MH no n23, LS 8 to MH no 1780, LS 9 to MH no 1706, LS 10 to MH no 1548, LS 11 to MH no 3169 and LS12 to n3194, LS 13 to n 3896 , LS 14 to n 928, LS 15 to n 1467, LS 16 to n1631.LS 17 to n1861 respectively. Sewage collected in wet well 1 is pumped to manhole 1117, well2 to well 1, well3 to n2554 well 4 to n1822.

Based on the analysis of the topography of the city area and its surroundings, the existing and future land use of the area, the existing status of water courses, the proposal for network, manholes have been arrived.

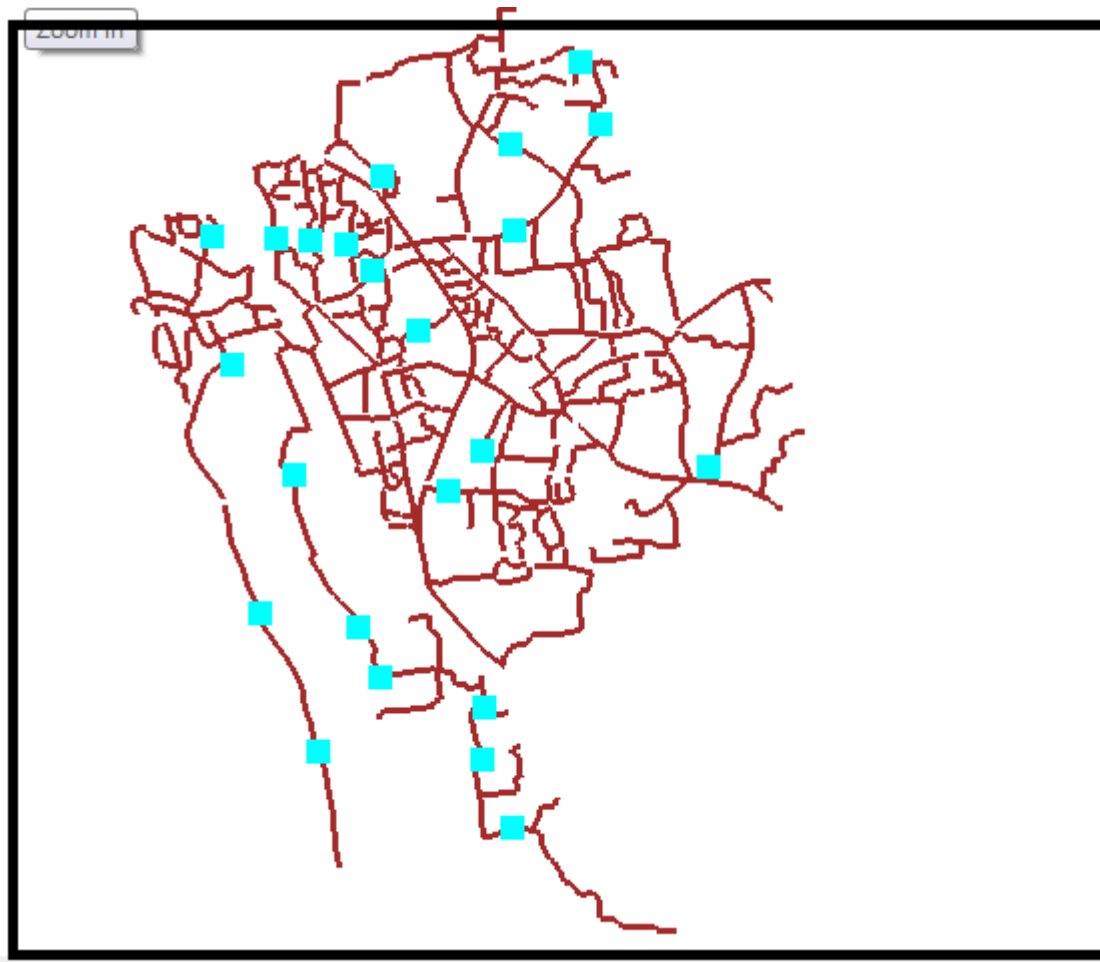


Figure 4.1: Network Sketch

4.2.1 DETAILS OF SEWER NETWORK

Abstract of sewer network is furnished below

SI NO	Diameter in mm	Pipe Material	Length in metres
1	200	HDPE PE100, PN8	67003.2
2	250	HDPE PE100, PN8	1407
3	315	HDPE PE100, PN8	1022.3
4	400	HDPE PE100, PN8	1241.1
5	500	HDPE PE100, PN8	254.4
6	560	HDPE PE100, PN8	539.8
	Total		71467.8

Table 4.4: Network details

Up to 3 meter depth of sewer line open cutting is proposed and above 3 m depth pipe laying through HDD method is proposed.

	200mm	250mm	315mm	400mm	500mm	560mm	Total
Open Cut in metres	57382.5	791.2	476.9	1125.3	-	-	59775.9
HDD in metres	9620.7	615.8	545.4	115.8	254.4	539.8	11691.9
Total	67003.2	1407	1022.3	1241.1	254.4	539.8	71467.8

Table 4.5: Excavation Details

4.2.3 MANHOLES

Total number of manholes comes to 2519

Manhole depth in Meters	No of manholes
Up to 1.5	1671
1.5 to 2.5	382
2.5 to 3.5	282
3.5 to 4.5	134
4.5 above	121
Total	2590

Table 4.6: Details of Manholes

4.3 PUMPING STATION AND RISING MAIN

4.3.1 GENERAL

Pumping or force mains deliver wastewater discharged from a pumping station to its destination, which may be a treatment plant or the final disposal point.

4.3.2 LIFTING STATION /PUMPING STATION

Pump stations are normally required in a sewage collection system to lift the sewage against a gradient or to limit the depth of cutting of the pertinent sewer line. A simplified form of the pump station, called a Lift Station, is also employed for the same purpose. The primary difference between a pump station and a lift station is that the Pump Station shall handle greater flows with arrangements for removal of floating material and grit prior to pumping through a force main. Lift Stations will have only an enlarged manhole as a wet well with pumps installed and a small control room adjacent to it, for lifting the sewage to ground level.

Lift stations are generally used to restrict the depth of cutting and discharging normally to the manhole in a downstream trunk sewer. No screens and grit wells are provided in lift stations.

Pumping and lifting stations shall use submersible pumps, such stations have a single well, circular or rectangular, in which pumps are installed. Superstructure requirement is minimum. The pump stations have been designed considering easy removal and reinstallation of the pumps without disturbing the connecting delivery pipe work.

Hydraulic Criteria:

According to the existing ground level contour from the topographic survey, the number of pumping stations has been finalized. Lift stations are generally proposed where depth of cutting exceeds 5.5 m. However in a few places (20 pipes) more than 5.5 m depth of cutting provided to avoid additional lifting stations. The location of pumping stations is at lower points of the network, but away from public and flood areas. Overflow is not allowed

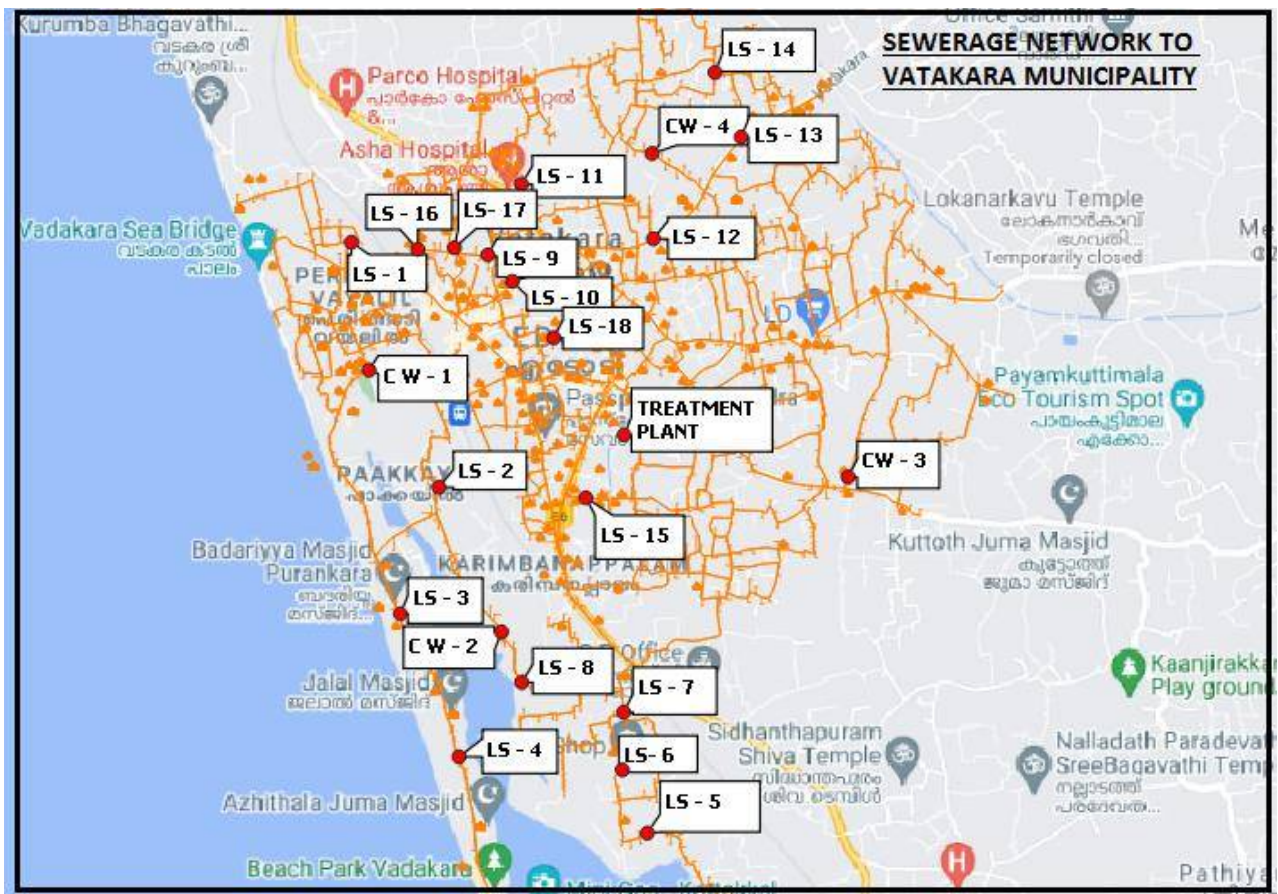


Figure. 4.2 LS/PS Location details

4.3.3 DETAILS OF PUMPING STATIONS

Sl No	Wet well No	Peak Flow in LPS	Detention Period in Minutes	Storage Capacity m3	SWD in Metres	Diameter in metres	Total Depth in metres
1	PH1	43.98	10	26.39	1	6	5.11

2	PH2	20.17	10	12.10	1	4	5.21
3	PH3	20.72	10	12.43	1	4	6.35
4	PH4	36.33	10	21.8	1	5.3	5.47
5	STP-PH	192.4	10	115.44	1.9	8.9	35.81

Table 4.7: Pumping station details

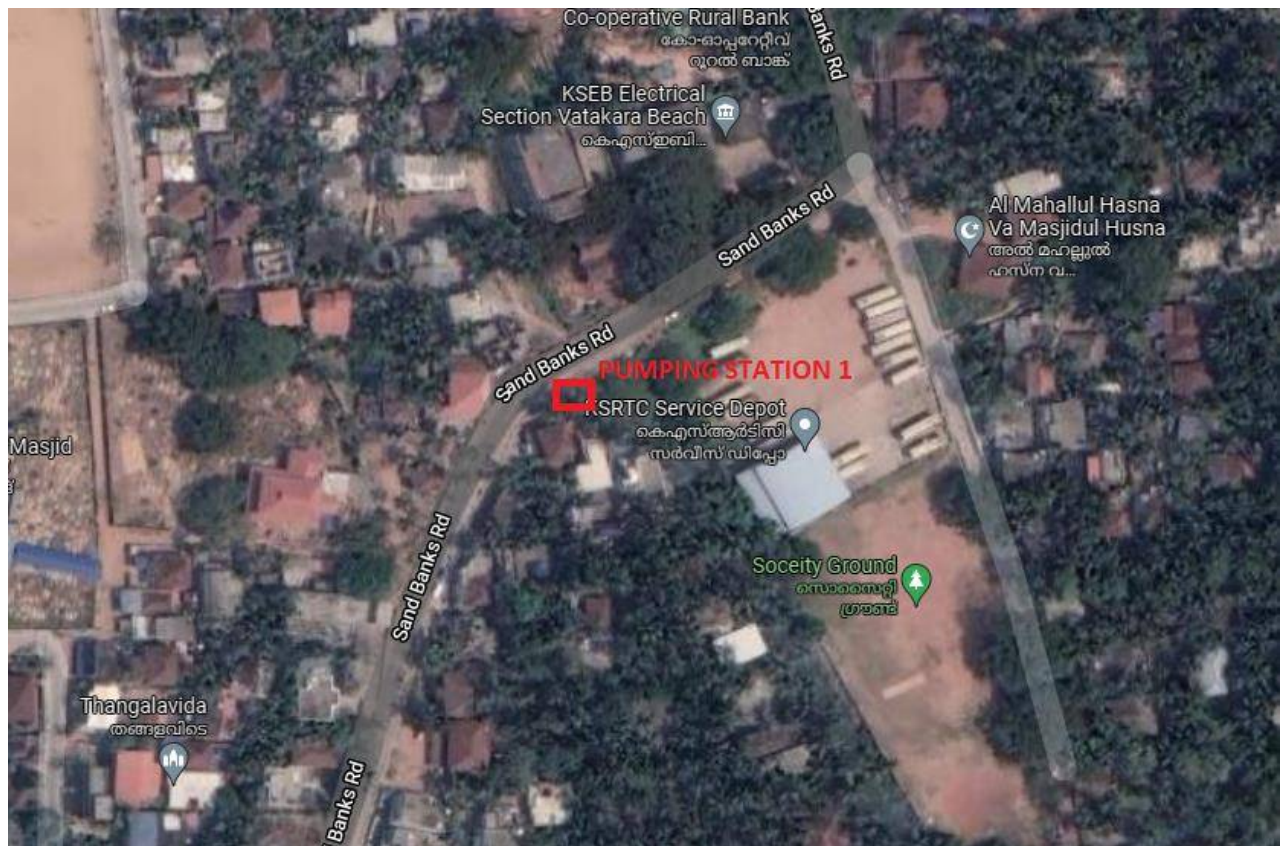


Figure. 4.3 Location of Pumping Station 1 (Satelite map)



Figure. 4.4 Location of Pumping Station 1

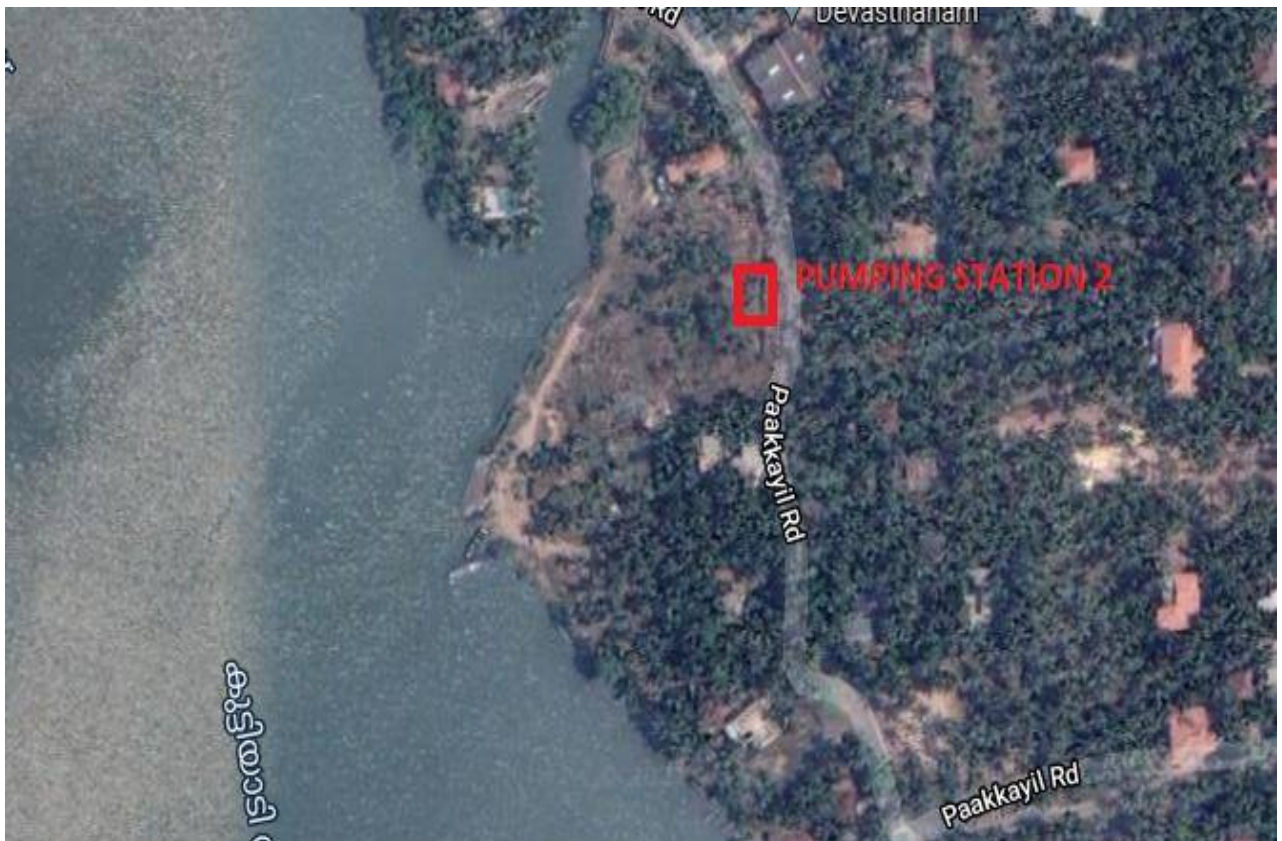


Figure. 4.5 Location of Pumping Station 2 (Satelite map)



Figure. 4.6 Location of Pumping Station 2

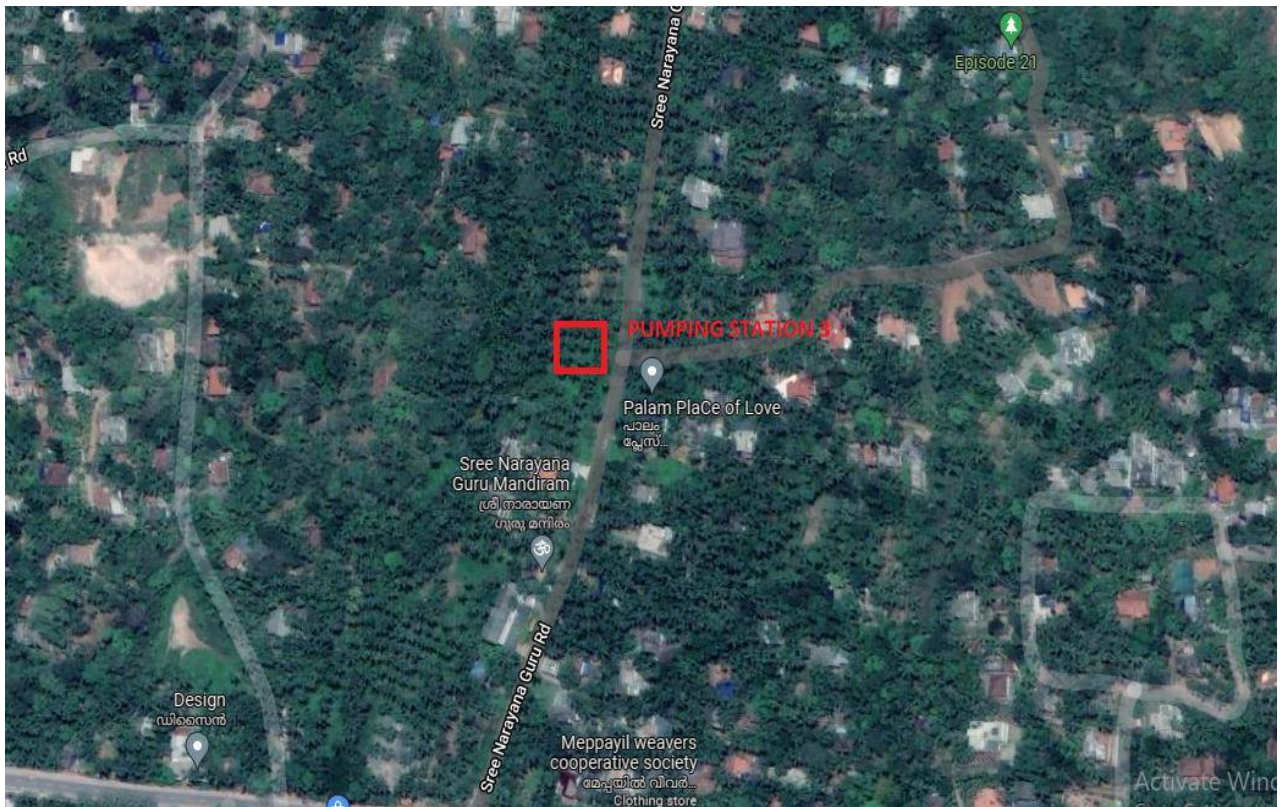


Figure. 4.7 Location of Pumping Station 3 (Satelite map)



Figure. 4.8 Location of Pumping Station 3

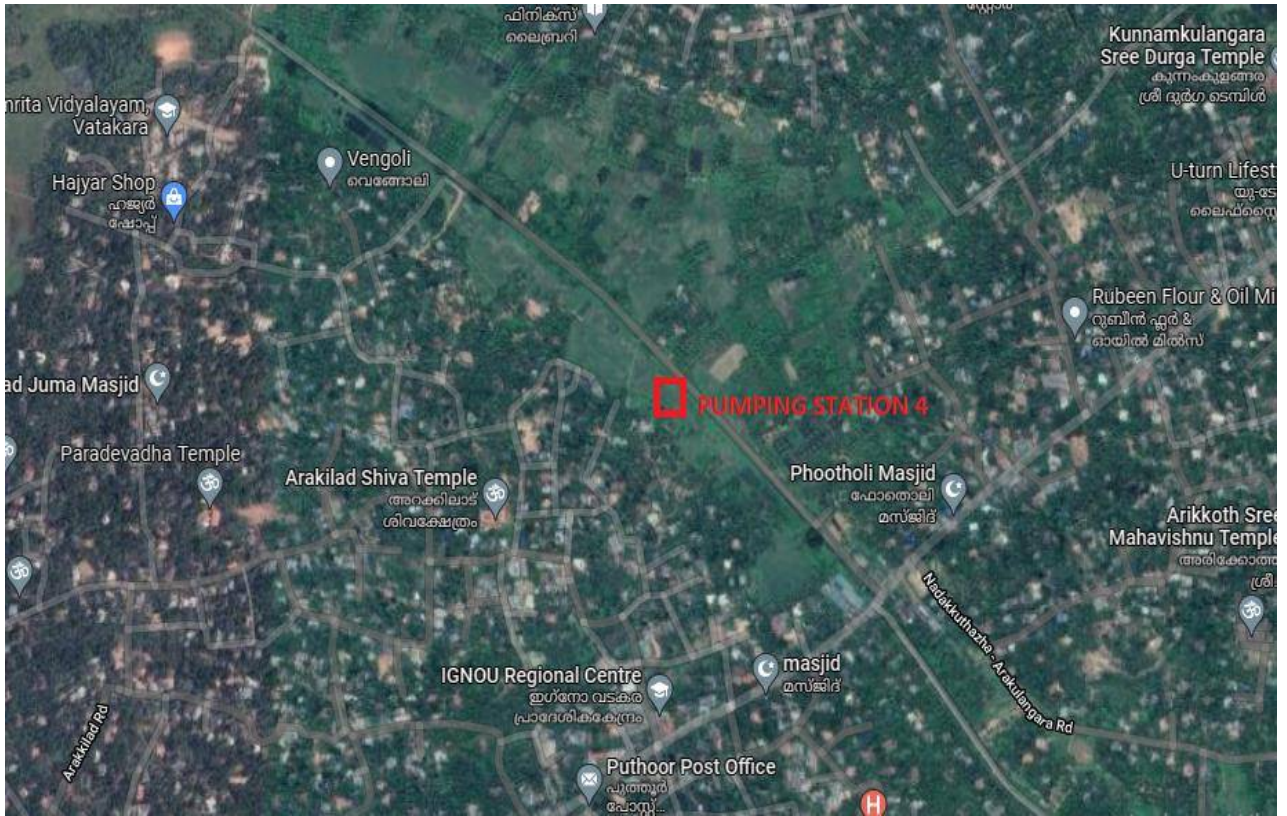


Figure. 4.9 Location of Pumping Station 4 (Satelite map)



Figure. 4.10 Location of Pumping Station 4

4.3.4 DETAILS OF LIFTING STATIONS

Eighteen number lifting stations are proposed at various places

S1 No	LS No	Peak Flow in LPS	Detention Period in Minutes	Storage Capacity m ³	SWD in Metres	Diameter in metres	Total Depth in metres
1	LS1	1.68	10	1.01	1	1.2	5.48
2	LS2	8.06	10	4.84	1	2.5	5.73
3	LS3	4.7	10	2.82	1	2	4.1
4	LS4	1.33	10	0.80	1	1.2	5
5	LS5	1.26	10	0.76	1	1.2	4.7
6	LS6	4.27	10	2.56	1	2	7
7	LS7	9.73	10	5.84	1	2.8	6.67
8	LS8	13.8	10	8.28	1	3.3	2.08
9	LS9	1.61	10	0.97	1.5	1.2	5.82
10	LS10	2.6	10	1.56	1	1.5	5.92
11	LS11	1.4	10	0.84	1	1.2	4.6
12	LS12	2.87	10	1.72	1	1.5	4.94
13	LS13	1.12	10	0.67	1	1.2	5.68
14	LS14	15.97	10	9.58	1	3	6.28
15	LS15	7.94	10	4.76	1	2.5	2.08
16	LS16	10.3	10	6.18	1	2.7	2.18
17	LS17	10.29	10	6.17	1	3	2.51

Table 4.8: Lifting station details

4.3.5 PUMPING MAINS AND LIFTING MAINS

SI NO	Name	Length in metres	Diameter in mm	Material	Route
1	LS 1	40	100	DI	MH1387 to 1064
2	LS 2	40	100	DI	MH567 to 563
3	LS 3	650	100	DI	MH56 to 82
4	LS 4	50	100	DI	MH23 to 255
5	LS5	50	100	DI	MH263 to 265
6	LS6	50	100	DI	MH345 to 347
7	LS7	50	100	DI	MH3321 to MH397
8	LS8	50	100	DI	MH494 to 499
9	LS9	650	150	DI	MH1631 to 1780
10	LS10	60	100	DI	MH 1704 to 1706
11	LS11	60	100	DI	MH1547 to 1548
12	LS12	40	100	DI	MH1849 to 3169
13	LS13	50	100	DI	MH3766 to 3793
14	LS-14	50	100	DI	MH3710 to 3896
15	LS-15	40	100	DI	MH926ti MH928
16	LS-16	270	100	DI	MH253 to MH1467
17	LS-17	600	150	DI	MH 1467 to MH 1531
18	LS-18	450	150	DI	MH1871 to MH 1861
19	WELL 1	1469	250	DI	to MH 1117
20	WELL2	2700	250	DI	to WELL1
21	WELL3	950	200	DI	to MH 2554
22	WELL4	965	250	DI	To MH 1822
23	Well- STP	20	500	DI	To Receiving Chamber

Table 4.9: Pumping mains and Lifting mains

4.4 PUMP AND OPERATION CONTROL

Fluid level activated switches will be provided to start and to stop the pumps depending upon the quantity of sewage available in the pump house. This will ensure that the pumps will not run dry. A sluice valve will be provided on the suction side and a sluice valve and a non- return valve will be provided on the delivery side. Flow meter (digital type) will be provided to measure the quantity of sewage flowing out of the pumping station. It will be an integrating type indicating instantaneous flow and the cumulative flow.

4.4.1 DETAILS OF PUMP SETS

SI NO	Name	Number of Pump sets	HP	Type	Remarks
1	LS1	2	0.5	Submersible	
2	LS2	2	2	Submersible	
3	LS3	2	1.5	Submersible	
4	LS4	2	0.5	Submersible	
5	LS5	2	0.5	Submersible	
6	LS6	2	1	Submersible	
7	LS7	2	2	Submersible	
8	LS8	2	4	Submersible	
9	LS9	2	1	Submersible	
10	LS10	2	1	Submersible	
11	LS11	2	0.5	Submersible	
12	LS12	2	1	Submersible	
13	LS13	2	0.5	Submersible	
14	LS-14	2	4	Submersible	
15	LS-15	2	2	Submersible	
16	LS-16	2	4	Submersible	
17	LS-17	2	3	Submersible	
15	PH1	2	19	Submersible	
16	PH2	2	7	Submersible	
17	PH3	2	18	Submersible	
18	PH4	2	20	Submersible	
16	STP-PH	3	32	Submersible	

Table 4.11: Details of pump sets

4.5 LAYING OF SEWER NETWORK

In the following sections, important matters in connection with the laying of sewer network and making the system efficiencies illustrated in detail.

EXCAVATION AND LAYING

1. On all excavation work, safety precautions for the protection of life and property are essential; and measures to avoid too great in conveniences to the public are desirable. Such measures and precautions include the erection and maintenance of signs (to forewarn public), barricades, bridges and detours; placing and maintenance of lights both for illumination and as danger signals; provision of watchmen to exclude unauthorized persons, particularly children from tress passing on the work.
2. Computation of the safe load carrying capacity of the pipe when installed and bedded in themannertobespecifiedusingasuitablefactorofsafetyandmakingcertainthedesignsupportin gstrengththus obtained is greater than the maximum load to be applied.
3. Sewers may be laid in trenches or under embankment in areas which may be temporarily or permanently submerged in water. The fill load in such cases will be reduced and will correspond to the buoyant weight of the fill material. However, effect of submergence could be ignored which provides an additional factor of safety, but it may be necessary to check whether a pipe is subject to flotation. Under submergence, the minimum height of the fill material that will be required to prevent flotation ignoring the frictional forces in the fill can be determined. Wherever sufficient height of fill material is not available, anti-flotation blocks should be provided.
4. All rigid pipes may be tested for strength in the laboratory by the three-edge bearing test (ultimate load).
5. Width of the trench specified for a particular job should be minimum in consonance with the requirements of adequate working space to allow access to all parts and joints of pipe.
6. The Field Engineer should keep in touch with the Design Engineer throughout the duration of the Project and any deviation from the design assumptions due to the exigencies of work, should be immediately investigated and corrective measures taken in time.
7. All pipes used on the work should be tested as per the IS specifications and test certificates of the manufacturers should be furnished for every consignment brought to the site.
8. Whenever shoring is used, the pulling out of planks on completion of work, should be carried out in stages and this should be properly supervised to ensure that the space occupied by the planks is properly backfilled.
9. Proper backfilling methods both as regards to selection of materials, methods of placing and proper compaction should be in general agreement with the design assumptions.
10. In quicksand conditions, it is necessary to anchor the sewer to the ground and hold it at the

grade as laid in the face of soil sinkage.

11. The type of bedding (granular, concrete cradle, full concrete encasement etc.) would depend on the soil strata and depth at which sewer is laid.
12. It is understood that the line (horizontal alignment) and grade layout of a sewer line as per design must be carried out meticulously. The horizontal layout determines the location as well as direction of the sewer line, while slope (grade) of the line provides the necessary hydraulic carrying capacity of the sewerage system.
13. The location of the trench is generally laid out first as an offset line running parallel to the proposed sewer centre line. This offset line is demarcated by wooden stakes driven into the ground surface at intervals of, say, 15 m. The offset line, as is clear, is quite away from the sewer centre line with a view not to allow it being disturbed during construction; however, it must be proximate enough so that the transfer of measurements to the actual trench can readily be done.

4.6 GANTRY

Gantry of adequate capacity having floor control pendant will be provided for handling heavy parts of equipment's, valves etc. during erection and maintenance of pumping stations. Proper opening to lift the heavy equipment will be provided at motor floor slab in pumping station.

4.7 ARRANGEMENTS FOR POWER SUPPLY

KSEB will supply power at 11/22KV HT supply or 440 V LT supply for the operation of pumps in the pumping stations and for operation of equipment in the STP. In respect of HT supply, suitable transformers would be provided to step down the voltages to 440V. In case the Horse Power of pump set is less than 75HP, 440V LT supply will be availed. Each pumping station shall have Motor control centre for start-stop and other controls for protection and safety of motors and other auxiliary equipment. Capacitors of suitable capacity would be provided to improve the power factor to so that power consumption can be brought down.

CHAPTER 5

PROPOSED SEWERAGE TREATMENT PLANT

5.1 GENERAL

The constituents of concern found in wastewater are removed by physical, chemical, and biological methods. The individual methods usually are classified as physical unit operations, chemical unit processes, and biological unit processes. Treatment methods in which the application of physical forces predominate are known as physical unit operations. Examples of physical unit operations include screening, mixing, sedimentation, gas transfer, filtration and adsorption. Treatment methods in which the removal or conversion of constituents is brought about by the addition of chemicals or other chemical reactions are known as chemical unit processes. Examples of chemical unit processes include disinfection, oxidation and precipitation. Treatment methods in which the removal of constituents is brought about by biological activity are known as biological unit processes. Biological treatment is used primarily to remove the biodegradable organic constituents and nutrients in waste water. From practical observations, the rates at which physical, chemical and biological reactions and conversions occur are important, as they will affect the size of the treatment facilities that must be provided. The rate at which reactions and conversions occur, and the degree of their completion, is generally a function of the constituents involved, the temperature, and the type of reactor. The fundamental basis for the analysis of the physical, chemical and biological unit operations and processes used for wastewater treatment is the material mass balance principle in which an accounting of the mass is made before and after reactions and conversions have taken place.

5.2 CHARACTERISTICS OF SEWAGE

5.2.1 INFLUENT CHARACTERISTICS

Parameters	Units	Value
Biochemical Oxygen Demand (BOD ₅)	mg/l	250
Chemical Oxygen Demand (COD)	mg/l	400
pH	Units	6.00-7.00
Total Suspended Solids (TSS)	mg/l	400
Total Dissolved Solids (TDS)	mg/l	800
Total Organic Nitrogen (Kjeldhal)	mg/l	>35<55
Oil and Grease	mg/l	>1<10

Table 5.1: Influent Characteristics

5.2.2 EFFLUENT CHARACTERISTICS

Parameters	Units	Value
Biochemical Oxygen Demand (BOD5)	mg/l	<10
Chemical Oxygen Demand (COD)	mg/l	<50
pH	Units	5.5– 9
Total Suspended Solids (TSS)	mg/l	<20
Total Dissolved Solids (TDS)	mg/l	100

Table 5.2: Effluent Characteristics (NGT order dated 30.04.2019)

5.3 CAPACITY CALCULATION OF STP

The details of forecasting of population and demand is shown below

Last census Population 2011	75295 Persons
Population with network coverage	38010
Septage population	38285
Design period	30 Years
Execution period	2 Years
Projected population 2054	38010 Persons (as population decreases)
Per capita water supply	150 LPCD
Waste water generated	80% of water supply
Quantity of waste water generated	4.56MLD
Groundwater Infiltration for pipeline & Manholes	5000L/km/day
Total Ground water infiltration	0.37 MLD
Number of persons per house	5Persons
Average roof area	55m ²
Rainfall intensity	100mm/day
Number of household sin 2054	7602Nos
Waste water generated accounted for Rain water	0.423 MLD
Non domestic demand	0.912MLD
Total sewerage load	6.265
Septage load	0.28

Total

6.54

Say

7 MLD

5.4 UNIT OPERATIONS IN TREATMENT OF SEWAGE

SI No.	Unit	Function	Unit Operations /Phases
1	Primary	<ul style="list-style-type: none"> ● Removal of rags, floating matter, grit, oil and grease etc. 	<ul style="list-style-type: none"> ● Screening ● Grit removal ● Oil and grease trap
2	Secondary	<ul style="list-style-type: none"> ● Removal of Bio degradable organic matter and suspended solids ● Also include nutrient removal (Nitrate and Phosphate) in advanced technologies 	<ul style="list-style-type: none"> ● Aerobic suspended growth (Aerobic and anaerobic)Lagoon ● Nitrate and phosphate removal ● Chemical oxidation ● Suspended growth ● Nitrification/De-nitrification ● Air stripping ● Ion exchange ● Chemical treatment ● Biological nutrient removal
3	Tertiary	<ul style="list-style-type: none"> ● Polishing the effluent for reuse application 	<ul style="list-style-type: none"> ● Pathogen removal ● Chlorine compounds ● O₃ ,UV Radiation ● Membrane filtration ● Filtration variation ● Carbon Adsorption ● Iron exchange

Table 5.3: Unit Operations

5.5 THE PROPOSED PFD PROCESS FLOW DIAGRAM OF PROPOSED STP

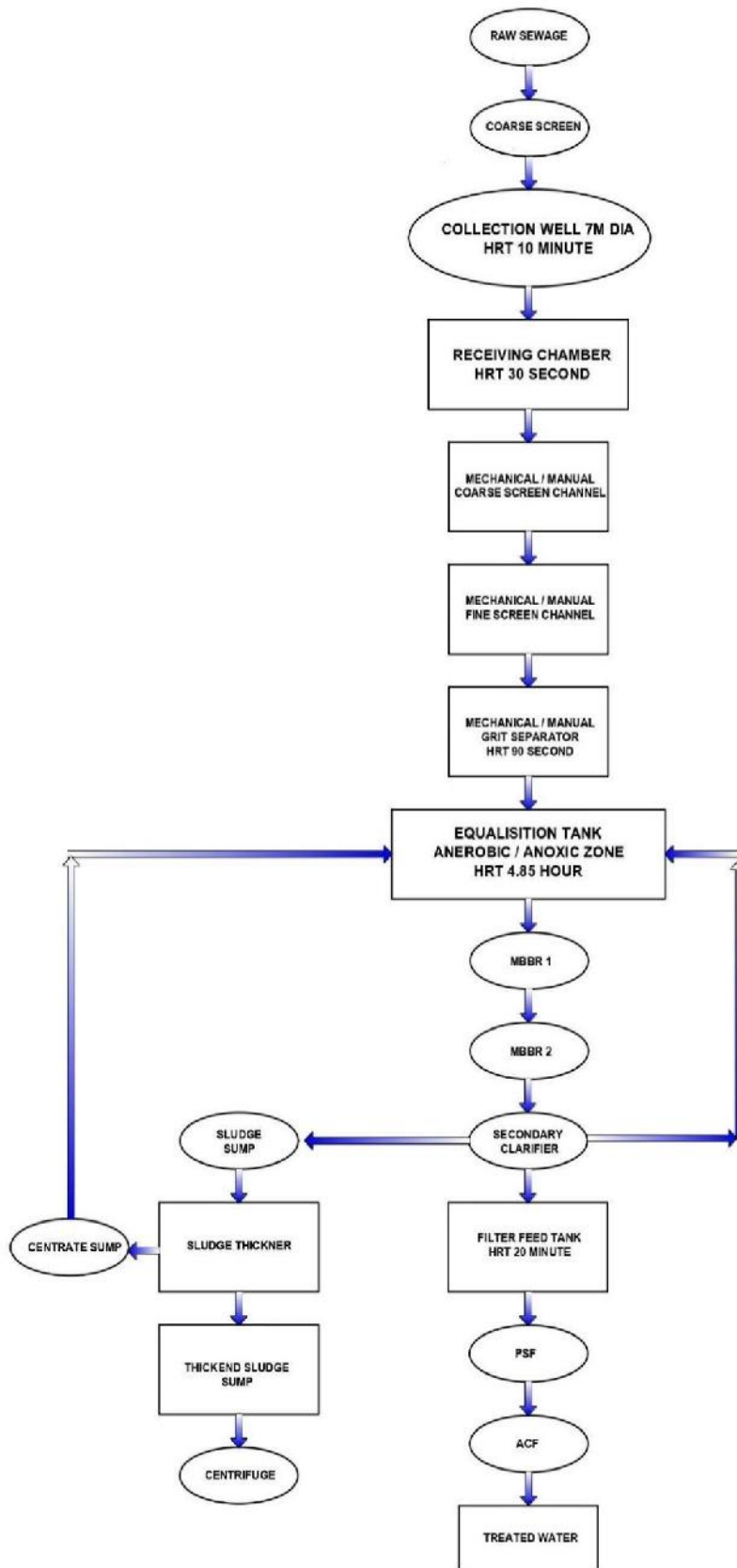


Figure 5.1 Process Flow Diagram

5.6 SELECTION OF TECHNOLOGY FOR THE PROPOSED STP

MBBR Technology is opted for secondary treatment in this project for following reasons.

1. MBBR has been in existence for a long time, also in India is approved technology.
2. Minimum footprint
3. Better Stabilized sludge
4. Better Effluent Quality
5. Less sophisticated
6. Spare parts available
7. Lower lifecycle cost
8. Nil odour nuisance and other environmental hazards

5.6.1 FEATURES OF MBBR

Biochemical oxygen demand (BOD) is an indirect measure of the concentration of biodegradable organic matter in water or wastewater. Organic matter (as measured by BOD) is one of the major constituents removed from wastewater in domestic wastewater treatment plants. The reason for being concerned about organic matter in water is its effect on dissolved oxygen in the receiving stream. Dissolved oxygen in water is essential for much of aquatic life, so organic contaminants that affect dissolved oxygen level in water are of concern.

The two major reactions that take place in the organic carbon cycle are biological oxidation of waste organic matter and photosynthesis, which is the process by which green plants produce organic matter from carbon dioxide and water in reactions that are catalysed by sunlight and the chlorophyll in the green plants. Through the biological oxidation process, aerobic microorganisms utilize oxygen in breaking down organic matter to carbon dioxide and water together with small amounts of other end products.

The process takes place as aerobic microorganisms utilize the waste organic matter as their food (energy) source. The process uses oxygen, so if it is taking place in a water body, dissolved oxygen is consumed. A large quantity of organic matter in the water will result in multiplication of microorganisms and rapid removal of dissolved oxygen, leading to oxygen depletion below the level needed by aquatic life. This is also the process that takes place in biological oxidation processes in wastewater treatment plants for removal of organic matter from the incoming wastewater.

The MBBR process for wastewater treatment was invented and initially developed by Professor Hallvard Ødegaard in the late 1980s at the Norwegian University of Science and Technology. Use of this wastewater treatment process has spread rapidly.

The MBBR process is an attached growth biological wastewater treatment process. That is, the microorganisms that carry out the treatment are attached to a solid medium, as in trickling filter or RBC systems. By contrast, in a suspended growth biological wastewater treatment process, like the activated sludge process, the microorganisms that carry out the treatment are kept suspended

in the mixed liquor in the aeration tank. In the conventional attached growth biological treatment processes, like trickling filter or RBC systems the microorganisms are attached to a medium that is fixed in place and the wastewater being treated flows past the surfaces of the medium with their attached biological growth. Which are described in more detail in the next section. The MBBR treatment processes typically take place in a tank like an activated sludge aeration tank. In contrast, an MBBR process utilizes small plastic carrier media, which are kept suspended by a diffused air aeration system for an aerobic process or by a mechanical mixing system for an anoxic or anaerobic process. A sieve is typically used at the tank exit to keep the carrier media in the tank.

MBBR processes use plastic media support carriers like those shown in Figure 11. As shown in Figure, the carrier is typically designed to have a high surface area per unit volume, so that there is a lot of surface area on which the microorganisms attach and grow. Two properties of the carrier are needed for the process design calculations are the specific surface area in m^2 / m^3 and the void ratio. The specific surface area of MBBR carriers is typically in the range from 350 to 1200 m^2 / m^3 and the void ratio typically ranges from 60% to 90%. Design values for these carrier properties should be obtained from the carrier manufacturer or vendor (Harlan H. Bengtson).

The MBBR wastewater treatment process is quite flexible and can be used in several different ways:

1. Single stage BOD removal
 2. Two stage BOD removal
 3. Two stage BOD removal and Nitrification
 4. Single stage tertiary Nitrification
 5. Pre-Anoxic Denitrification
 6. Post-Anoxic Denitrification
- (Harlan H. Bengtson).

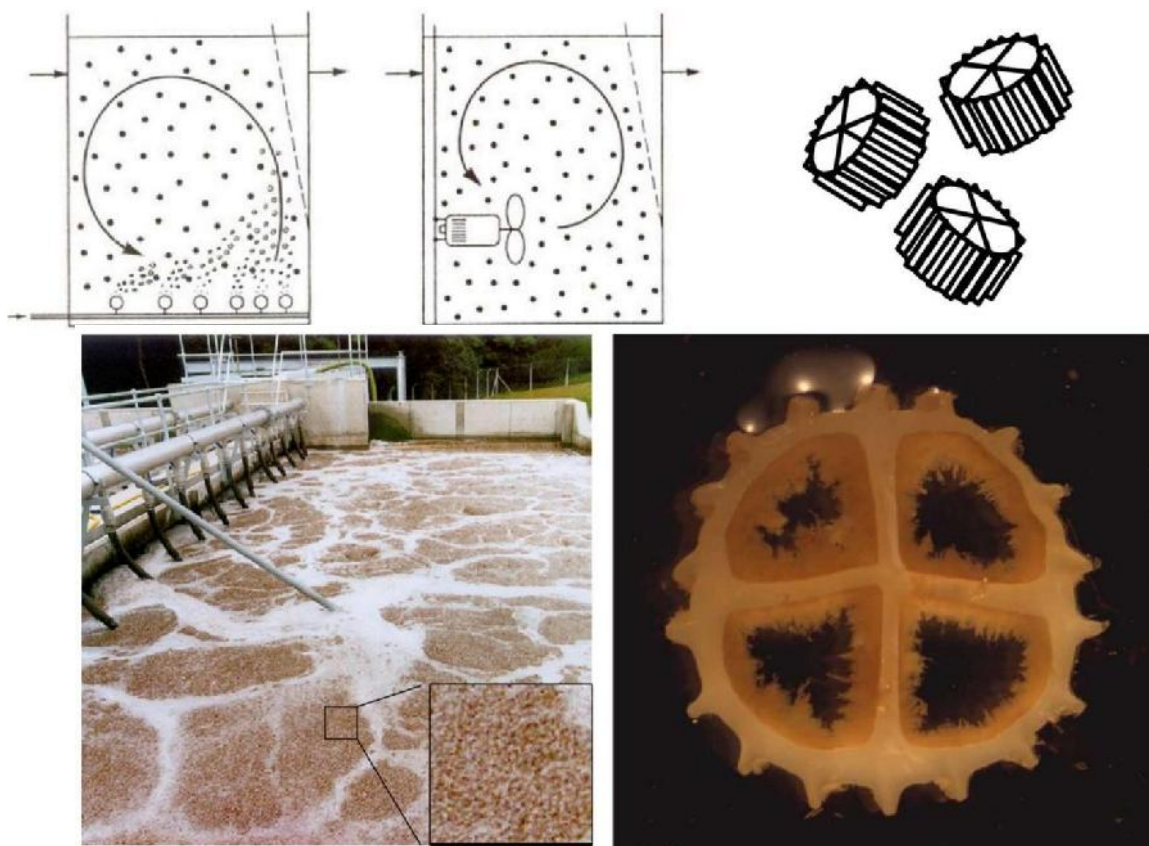


Fig. 5.2 MBBR Carrier media in a MBBR tank

The idea behind the development of the moving bed biofilm process was to adopt the best from both the activated sludge process and the biofilter processes without including the worst. Contrary to most biofilm reactors, the moving bed biofilm reactor utilises the whole tank volume for biomass growth, as does also the activated sludge reactor. Contrary to the activated sludge reactor, it does not need any sludge recycle, as also the case in other biofilm reactors. This is achieved by having the biomass grow on carriers that move freely in the water volume of the reactor, kept within the reactor by a sieve arrangement at the reactor outlet. Since no sludge recirculation takes place, only the surplus biomass must be separated – a considerable advantage over activated sludge process. The reactor may be used for both aerobic, anoxic and anaerobic processes (H. Ødegaard).

The key design parameter for sizing the MBBR tank is the surface area loading rate (SALR), typically with units of $\text{g/m}^2/\text{day}$ that is g/day of BOD coming into the MBBR tank per m^2 of carrier surface area. Using design values for wastewater flow rate and BOD concentration entering the MBBR tank, the loading rate in g BOD/day can be calculated. Then dividing BOD loading rate in g/day by the SALR in $\text{g/m}^2/\text{day}$ gives the required carrier surface area in m^2 . The carrier fill %, carrier specific surface area, and carrier % void space can then be used to calculate the required carrier volume, tank volume and the volume of liquid in the reactor (Harlan H. Bengtson).

As an improvement over the attached growth systems, the concept of trapping the microbes into the attached biomass concentration and long solids retention time in a biological reactor can limit the waste sludge production for a given reduction of BOD. This is due to the higher biomass concentration in the reactor due to the immobilized biomass and hence the Food/Microorganism ratio Nitrification going beyond the extended aeration. It is stated that during aeration, the synthesis and accumulation of readily biodegradable storage compounds are observed and these can be used for denitrification under starvation conditions.

Enhancing active biomass concentration, prolonging the life of immobilized carrier and improving the stability of immobilized microorganism play important roles in the process efficiency. The construction, operation, preventing clogging and reducing renewal costs are challenges in the commercial engineering of this technology. However, the fact remains that there are commercially operating STPs built with this technology in our country using various patented media of the respective vendors and with their own design criteria. As such, this technology holds the potential of reducing the footprint of the STP especially in land locked high density urban centres and thus merits its relative consideration.

The requirements for reactor media are high specific surface area, high percent void space, resistance to abrasion or disintegration during placement, insolubility in sewage and resistance to spalling and flaking. The inbuilt configuration must permit hydraulic self-cleaning of the media itself and thereby safeguarding the need to take the reactor out of service to attend for cleaning the clogged media.

Netting to hold back media is an important requirement and is usually provided near the top outlet of the treated sewage in the form of spread-out netting across the entire plan area or a netted cowl around the off take of the outlet pipe. Care is needed periodically to renew these.

5.6.2 NITRIFICATION

Biological nitrification/denitrification is a two-step process. The first step is nitrification, which is conversion of ammonia to nitrate through the action of nitrifying bacteria. The second step is nitrate conversion (denitrification), which is carried out by facultative heterotrophic bacteria under anoxic conditions.

There are two groups of chemoautotrophic bacteria that can be associated with the process of nitrification. One group (Nitrosomonas) derives its energy through the oxidation of ammonium to nitrite, whereas the other group (Nitrobacter) obtains energy through the oxidation of nitrite to nitrate. Both the groups, collectively called Nitrifiers, obtain carbon required, from inorganic carbon forms.

Combined system is favoured method of operation as it is less sensitive to load variations - owing to larger sized aeration tank - generally produces a smaller volume of surplus sludge owing to higher values of q_c adopted, and better sludge settleability.

Care should be taken to ensure that the oxygenation capacity of aeration tank is sufficient to meet oxygen uptake due to carbonaceous demand and nitrification. Recycling of sludge must be rapid enough to prevent denitrification (and rising sludge) owing to anoxic conditions in the settling tank. This is rising sludge happens, the tertiary filters will chock very fast and will result reduction in plant capacity.

In separate system, the first tank can be smaller in size since a higher F/M ratio (Food to Microorganism Ratio) can be used, but this makes the system somewhat more sensitive to load variations and also tends to produce more sludge for disposal. An additional settling tank is also necessary between the two aeration tanks to keep the sludge separate. A principal advantage of this system is its higher efficiency of nitrification and its better performance when toxic substances are feared to be in the inflow.

5.6.3 DENITRIFICATION

The biological reduction of nitrate (NO_3) to nitrogen gas (N_2) by facultative heterotrophic bacteria is called Denitrification. "Heterotrophic" bacteria need a carbon source as food to live. "Facultative" bacteria can get their oxygen by taking dissolved oxygen out of the water or by taking it off of nitrate molecules.

Denitrification occurs when oxygen levels are depleted and nitrate becomes the primary oxygen source for microorganisms. The process is performed under anoxic conditions, when the dissolved oxygen concentration is less than 0.5 mg/L, ideally less than 0.2. When bacteria break apart nitrate (NO_3^-) to gain the oxygen (O_2), the nitrate is reduced to nitrous oxide (N_2O), and, in turn, nitrogen gas (N_2). Since nitrogen gas has low water solubility, it escapes into the atmosphere as gas bubbles.

Free nitrogen is the major component of air; thus, its release does not cause any environmental concern.

5.6.4 PHOSPHOROUS REMOVAL

The consciousness to restrict the phosphorous in the treated sewage before Discharge into the environment to curtail eutrophication is being recognised. The phosphorous can be removed by a process called as the luxury uptake. There are at least six different variations of these processes

which have all been developed in advanced countries and every situation will need a separate evaluation and validation.

An alternative process is to introduce a chemical precipitation either in the secondary clarifier or as a separate tertiary stage where phosphorous is precipitated by coagulating with Ferric or Aluminium salts. There is also another technology of high Lime followed by acidification or carbonation whereby in addition to phosphorous removal, colour, heavy metals, fluorides, silica and magnesium can also be simultaneously removed. It is necessary to conduct lab studies to establish the efficiency and the type of chemicals.

5.6.5 A2O PROCESS

The combined removal of carbon, nitrogen and phosphorus can be achieved by several biological treatment processes. Two common biological treatment processes are the A2O and Barden-pho processes. The A2O process is a modification of A/O phosphorus removal process is to include an anoxic stage for denitrification. Influent and return activated sludge flow into the anaerobic tank while nitrified liquor is recycled with a circulating pump from the aerobic (nitrification) tank to the anoxic (denitrification) tank. Ammonia nitrogen is oxidized to nitrite or nitrate in the aerobic tank, and then nitrite or nitrate is denitrified to nitrogen gas in the anoxic tank

5.7 PROPOSED TREATMENT UNITS

SLNo	Unit	Size in metres	Number
1	Receiving Chamber	2.25X1.9X2	1
2	Coarse Screen Channel	2.75X1X1	2
3	Distribution chamber	1X1X2.25	2
4	Fine Screen Channel	2.75X1X1	2
5	Distribution chamber	2.25X1X1	1
6	Grit Chamber	4.5X4.5X3	2
7	Parshall Flume	3X2X1	1
8	Equalisation Tank	15.4 ϕ X5	2
9	MBBR Tank 1	15.1 ϕ X5	2
10	MBBR Tank 2	14 ϕ X5	2
11	Secondary clarifier	14.7 ϕ X3.3	2
12	Filter feed tank	5.4X5.4X3.85	1
13	Sludge Sump	3 ϕ X2.85	1
14	Sludge Thickener	8 ϕ X2.85	1
15	Thickened Sludge Sump	3.4 ϕ X2.5	1
16	Centrate Sump	2.2 ϕ X2.5	1
17	Treated water tank	9.4X9.4X3.85	1

5.7.1 RECEIVING CHAMBER

The sewage received in the collection well located at the plant premises is pumped to the receiving chamber. The average quantity of flow in to the receiving chamber is assumed to be 304.35 cum/hr whereas peak flow is taken as 760.87 cum/hr. Dimension of receiving chamber is 2.25×1.9×2m with a free board of 0.5m.

5.7.2 SCREEN CHANNEL

After receiving chamber, sewage passes through screening chambers provided. The principal role of the fine screening is to remove floating materials from the sewage that could damage subsequent process equipment, eliminate materials that may inhibit the beneficial reuse of bio solids and reduce overall treatment process effectiveness. Screened materials are mechanically removed by the scrappers. In case of emergency, the screen chamber can be by passed to the manual screen chamber so that the treatment is continuously ensured. Sizes provided are:

Mechanical and Manual Coarse Screen Channel- 2.75x1x1, Screen with 60-degree inclination

Mechanical and Manual Fine Screen Channel-2.75x1x1, Screen with 45-degree inclination

5.7.3 GRIT SEPARATOR

The grit chamber is used to remove grit, consisting of sand, gravel, cinder, or other heavy solids materials that have specific gravity much higher than those of the organic solids in waste water. Grit chambers are provided to protect moving mechanical equipment from abrasion and abnormal wear; avoid deposition in pipelines, channels, and conduits; and to reduce frequency of digester cleaning. Two numbers of grit chambers are provided in the plant (one stand by) with a dimension of 4.5x4.5 x3 m.

5.7.4 APPROACH CHANNEL FOR PARSHALL FLUME

A Parshall flume is a fixed, hydraulic structure that is placed in a flow stream to determine the flow of water. The flume accelerates flow by both a contraction of the parallel sidewalls and a drop in the floor elevation in the throat. It is used to measure volumetric flow rate in industrial discharges, municipal sewer lines, and influent/effluent flows in waste water treatment plants.

5.7.5 EQUALISATION TANK

Flow equalization is used to minimize the variability of water and waste water flow rates and composition. Each unit operation in a treatment train is designed for specific waste water characteristics. Improved efficiency and control are possible when all unit operations are carried out at uniform flow conditions. The equalization tanks are provided (i) to balance fluctuating flows or concentrations, (ii) to assist self-neutralization, or (iii) to even out the effect of a periodic "slug" discharge from a batch process. The design is done to have a hydraulic retention time of 5.45 hours. Circular with 15.4 m diameter proposed with a depth of 5m (2 numbers). Equalization tank is divided into Anaerobic and Anoxic areas with the help of baffle wall for denitrification

5.7.6 MIXING EQUIPMENT

Mixers are often employed in equalization basins to achieve homogeneity in and to aerate the wastewater. Various types of mixers are available. The classification of mixers depends on the flow

pattern the mixers produce.

5.7.7 MOVING BED BIOREACTOR (MBBR)

Moving Bed Biofilm Bioreactor (MBBR) process uses the whole tank volume for biomass growth. It uses simple floating media, which are carriers for attached growth of bio films. Biofilm carrier movement is caused by the agitation of air bubbles. This compact treatment system is effective in removal of BOD as well as nitrogen and phosphorus while facilitating effective solids separation. Design of the reactor is based on the actual wastewater characteristics and local conditions. MBBR units are placed in series based on the load entering each reactor. Two circular MBBR tank is designed in series with diameter 15.1m and 14m and a depth of 5m for single stream. Two streams are proposed to treat 3.50 MLD in each stream.

5.7.8 AIR BLOWERS

Aeration is the most critical component of a treatment system using the Moving Bed Bio Reactor. A well designed aeration system has a direct impact on the level of sewage treatment it achieves. An ample and evenly distributed oxygen supply in an aeration system is the key to rapid, economically-liable, and effective waste water treatment. Two numbers (3W+1S) of air blowers of 52 HP each with a total air discharge of 4971 cum/ hr. are provided.

5.7.9 SECONDARY CLARIFIER

Clarifiers are settling tanks built with mechanical means for continuous removal of solids being deposited by sedimentation. A clarifier is generally used to remove solid particulates or suspended solids from liquid for clarification and (or) thickening. Secondary Clarifier is a circular basin in which effluent from the MBBR process is held for a period of time during which the heavier biomass (microorganisms) settle to the bottom as “activated sludge”. There is no need for sludge recirculation in MBBR due to its high MLSS values. So secondary settling tanks are just used for removing excess settleable solids present in the effluent comes out from MBBR tanks. Two numbers of secondary clarifier with 14.70m diameter and 3.3m depth is provided with a retention period of 3.10 hrs.

5.7.11 SLUDGE SUMP

Total sludge generated in the secondary clarifier is calculated as 1600.31kg/day. Sludge sump is designed to have a hydraulic retention time of 2hrs. One number of sludge sump having circular shape with diameter 3m and depth 2.35 m is provided.

5.7.12 THICKENER FEED PUMP

The major function of sludge thickener feed pump is to transfer the sludge from sludge sump to sludge thickener. Two numbers (1W+1SB) of non-clog, submersible pumps are provided with a discharge of 31.38cum/hr.

5.7.13 SLUDGE THICKENER

Sludge thickening normally refers to the process of reducing the free water content of sludge or Thickening is a procedure used to increase the solids content of sludge by removing a portion of the liquid fraction. Sludge thickener with diameter 8m and depth 2.85m provided.

5.7.14 CENTRIFUGE FEED PUMP

The major function of Centrifuge feed pump is to transfer the sludge from thickened sludge sump to Centrifuge. Two numbers (1W+1SB) of non-clog, submersible pumps are provided with a discharge of 9.6cum/hr.

5.7.15 SLUDGE CENTRIFUGE

Centrifugal thickening and dewatering of sewage sludge is a high speed process that uses the force from rapid rotation of a cylindrical bowl to separate wastewater solids from liquid. The centrifugal force in the decanters is utilized to separate the solids from the water. The use of organic flocculants, the poly electrolytes, made it possible to coagulate the fines sludge particles to relatively large sludge floc in the centrifugal field so that reliable separation of solids and water could take place.

5.7.16 PRESSURE SAND FILTER (PSF)

The treated water which is collected in the filter feed tank shall be pumped into the Pressure Sand Filter using the Filter Feed Pumps. They are the most popular method for removal of turbidity from water. The Pressure Sand Filter consists of a multiple layer of sand with a variety in size and specific gravity. These Filters are designed to remove turbidity and suspended particles present in the feed water with minimum pressure drop. Raw water flows down wards through the filter bed and as the suspended matter, which is treated by addition of a coagulant like alum or poly electrolyte, is retained on the sand surface and between the sand grains immediately below the surface. There is steady rise in the loss of head over a period of time and the flow reduces once the pressure drop across the filter is excessive. The filter is then taken out of service and cleaning of the filter media is effected by flow reversal also called as backwash. To assist in cleaning the bed, the backwash operation is sometimes preceded by air scouring by way of agitation through the under drain system. The air scouring agitates the sand with a scrubbing action, which loosens the intercepted particles.



Fig 5.3: Pressure Sand Filter

Pressure sand filter is designed to have a dimension of 2.4m \varnothing and 2.5m height (3 numbers). The

work pressure is 3.5bar and it can be increased up to a maximum of 3.50 bar. Materials used in pressures and filter are sand and anthracite (Dual media).

5.7.17 ACTIVATED CARBON FILTER(ACF)

Filtered wastewater from Pressure sand filter is then passed through the Activated Carbon Filter. They are generally employed in the process of removing organic compounds and/or extracting free chlorine from water, thereby making the water suitable for discharge.

Activated carbon is commonly used for removing organic constituents and residual disinfectants in water supplies. This not only improves taste and minimizes health hazards; it protects other water treatment units such as reverse osmosis membranes and ion exchange resins from possible damage due to oxidation or organic fouling. Activated carbon is a favored water treatment technique because of its multifunctional nature and the fact that it adds nothing detrimental to the treated water. Most activated carbons are made from raw materials such as nut shells, wood, coal and petroleum.

Carbon filtering is a method of filtering that uses a bed of activated carbon to remove contaminant sand impurities, using chemical adsorption. Each particle/granule of carbon provides a large surface area/pore structure, allowing contaminants the maximum possible exposure to the active sites within the filter media.

The dimension of Activated Carbon Filter is 2.6mØx2.5m height (3 Numbers).



Fig5.4: Activated Carbon Filter

5.7.18 TREATED WATER TANK

The treated water is finally fed in to the treated water tank having a capacity of 176.40 m³. Treated water from Activated Carbon filter is pumped in to the treated water tank of dimension 6.6x6.6x3.35m. Hydraulic retention time of 60 minutes is given in the treated water tank.

5.7.19 CHLORINE CONTACT TANK

No separate Chlorine contact tank is proposed. Filter feed water tank is proposed as chlorine contact tank itself.

5.7.20 EFFLUENT CHANNEL

Effluent Conveyance System called as Effluent Channel is provided to carry treated effluent from

STP to the stream which leads to water body.

5.7.20 OUT FALL

The disinfected clear effluent shall be let out to the stream through a RCC covered channel of adequate slope.

5.8 DETAILED DESIGN

Detailed design of the Sewage Treatment Plant with MBBR Technology is provided in the annexure

5.9 POWER REQUIREMENT

The total running power requirement is 295HP/220KW and the installed capacity is 470HP/350KW. The single largest motor capacity is 52HP (Air blower). An Indoor type transformer and a Generator is proposed with the following capacities.

- a. Transformer : 350KVA
- b. Generator : 350KVA

5.10 OTHER FACILITIES

Following provisions are also included in the proposal

- 5.7.21 Comfort room cum office in the laboratory
- 5.7.22 Internal Roads
- 5.7.23 Storm Water Drain
- 5.7.24 Providing Lawns
- 5.7.25 Planting trees
- 5.7.26 Bye-passing Arrangements
- 5.7.27 Walk ways for all major elevated units
- 5.7.28 Walkways/ground pavements
- 5.7.29 Water Supply and sanitation arrangements
- 5.7.30 Laboratory

5.11 PLAN FOR REUSE OF RECYCLED SEWAGE

In the planning and implementation of water reclamation and reuse, the reclaimed water application will usually govern the wastewater treatment needed to protect public health and the environment, and the degree of reliability required for the treatment processes and operation (Metcalf and Eddy). The major waste water reuse categories are as follows:

- a] agricultural irrigation, crop irrigation and commercial nurseries

- b] Landscape irrigation
- c] industrial recycling and reuse
- d] groundwater recharge, groundwater replenishment and saltwater intrusion control
- e] recreational/environmental uses
- f] Non potable urban reuse

5.12 MAINTENANCE OF AN ECO-FRIENDLY SYSTEM

Since the treated water contains plant nutrients also, it will be beneficial for the environment when discharged as soil infiltration. Care has also been taken to properly treat the sludge produced during the operation. It has also been decided to impart a green environment to the STP units with special methods of growing plants at the exterior of plant components and space between units. Maximum utilization of space has been taken at the planning and design stage itself and using the natural treatment properties of the soil, such decentralized systems provide good opportunities to use the natural environment. They can help reduce the level of difficulty and cost to treat pollutants, such as nutrients, and keeping them from entering lakes, rivers, and streams. The soil acts as a natural filter and provides final treatment by removing harmful bacteria, viruses, and nutrients.

Treated Water disposal: The treated water can be used for gardening and floor washing in Sewage Treatment Plant. Treated water can be supplied to agricultural nurseries, industrial purposes, etc on demand. Surplus water can be discharged to nearest water body.

Sludge disposal & handling: The washed screenings, grit etc. will be daily removed to the disposal sites. Suitable arrangements will be made for disposal of sludge. Dewatering and packing unit after making cakes is proposed in the estimate. Sludge may be used as bio- compost (Fertilizer) on demand

5.13 PRELIMINARY STRUCTURAL DESIGN OF COMPONENTS

For the various units of the STP structural analysis and design have been performed in accordance with the stipulations of all relevant Indian Standard Codes of practice. For the reinforced concrete elements, special attention has been given to arrive at the preliminary dimensions to satisfy norms and conditions for the water retaining structures. For the metallic structures like pressure filter units, similar approach has been adopted. Since the units are constantly in contact with aggressive environment like sewage, non-corrosive coating for reinforcing steel and water proofing application for the inner side of reinforced concrete structures are recommended. These provisions are already given in the detailed estimates. During the execution stage, a detailed structural analysis of the components can be performed. However, the dimensions are expected to fall within the limits of the values obtained from the preliminary analysis. In the case of foundations, simple raft and beam-slab type raft is adopted for safety considerations. Since the soil nature is observed to be satisfactory to withstand medium loading conditions, deep foundations are not suggested. Soil analysis reports available for the locality has been examined to arrive at a decision. However, during the execution stage, detailed soil investigations can be performed. Cover for the reinforced concrete elements is to be given in accordance with the exposure conditions given in the IS 456 Code of practice.

5.14 SEPTAGE

Septage or septic tank waste refers to the partially treated matter stored in and pumped out of a septic tank. In other words, faecal sludge from septic tanks is known as Septage, but faecal sludge and Septage are interchangeably used in India. Septage is a by-product of pretreatment of household wastewater in a septic tank where it accumulates over time. It is generally pumped out of a septic tank or onsite sanitation system using a vacuum tanker. Septage is the liquid and solid material that is pumped from a septic tank, cesspool, or other such onsite treatment facilities after it has accumulated over a period of time

5.14.1 SEPTAGE MANAGEMENT

Sanitation often focuses only on the provisioning of physical infrastructure— toilets or latrines—in order to increase the ‘coverage of toilets’, or to look at the epitome of sanitation: ODF cities. But in order to provide tangible and sustainable sanitation, there is a need to focus on the entire ‘sanitation chain’. In simple terms, a sanitation chain (the term ‘sanitation chain’ is often used interchangeably with ‘service chain’, or ‘sanitation value chain’, but in this study ‘sanitation chain’ is preferred) is an outline for understanding how faecal waste flows through each system. It sets out interlinked steps vital to manage septage and effluent from generation to disposal or end use, thereby summarizing the city-level outcomes and current status of the same.

5.14.2 TRANSPORTATION OF SEPTAGE

Transportation is a very vital stage in the sanitation value chain and so are safety measures involved in it. Vehicles that carry Septage act as mobile sewer networks for OSS. Ideally, an ultimate discharge point of collected Septage is an STP or Septage treatment plant. The two main types of vehicles used in India are:

Truck-mounted vacuum tankers: These trucks have vacuum pumps with sizes based on lift elevation, pumping distance, volume of sludge to be removed, and volume of the tank. Their capacity varies between 3,000–10,000 liters.

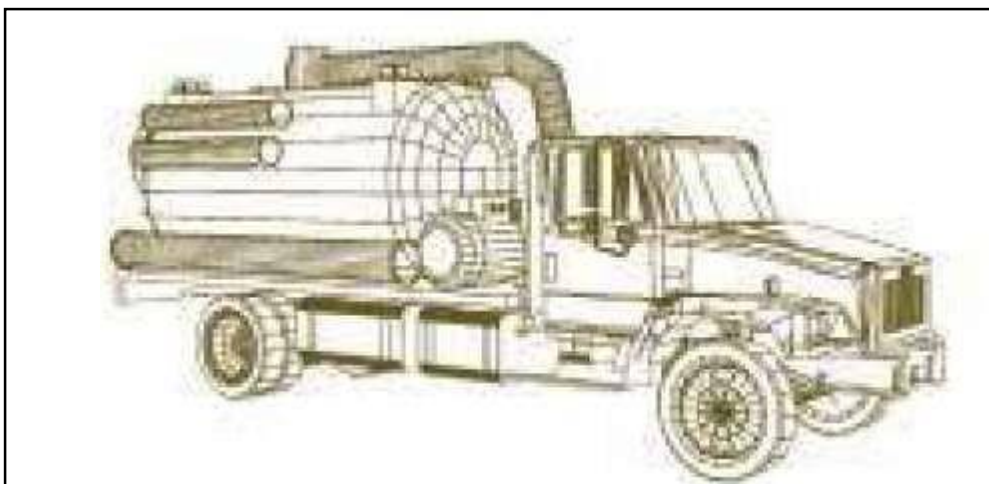


Figure 12: Truck-mounted vacuum tankers

Tractor-mounted tankers: These vehicles are locally made across India, but their capacity is similar to that of vacuum trucks. The motor, the tank and the tractor are assembled according to the complementing capacity of each module.

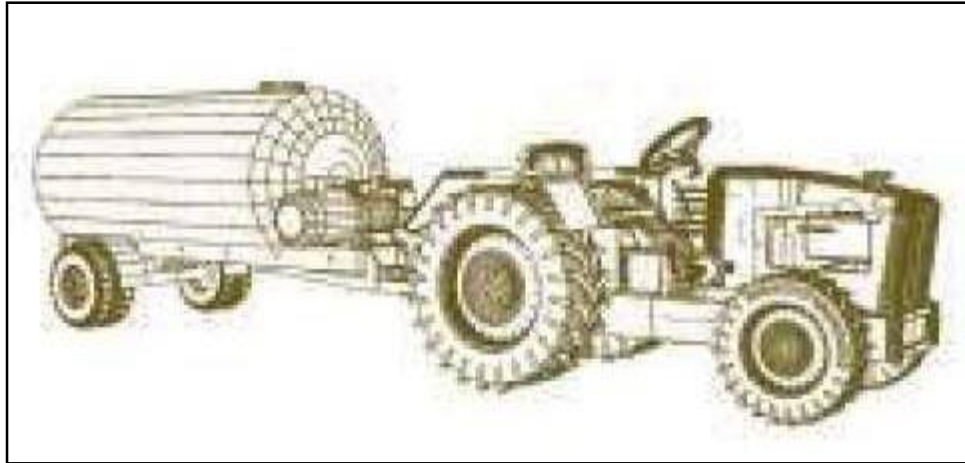


Figure 13: Tractor-mounted tankers

Septage transportation is one of the most important components of Septage management. There is need for evolving a standard method of collection, handling and transportation of Septage. Desludging trucks act as a “mobile sewer network” for onsite sanitation systems. They collect the Septage at the household level and transport it to treatment or disposal sites, thereby complimenting the functions of underground sewer network. It may be assumed that one vehicle having a capacity of 2,000 liters shall clean 3 to 10 septic tanks per day. This is based on the frequency of cleaning of septic tanks (once in 2 – 3 years) and also the distance from the location of septic tanks to the Septage treatment facility. The vehicles are available in different capacities from 2,000 up to 12,000 liters. It is to be noted that the requirement of machines also varies depending upon the capacity of vehicles, road width etc. In case of bigger cities having sufficient width of roads, vehicles having larger capacities may be adopted. Adequate provision for standby machines for cleaning of septic tanks may also be made. Small scale vacuum trucks called Vacutug (from 200 up to 2,000 Liters capacity) also are recommended for use in areas inaccessible to large desludging vehicles. The Vacutug is mounted on wheels and can be attached to a small vehicle. It can be manufactured locally to offer flexibility and mobility without losing the capacity to collect a substantial volume of fecal sludge within one operation.

For the purpose of planning sewerage /septage management systems for this proposal the project area is broadly categorized into two areas with high population density and with low population density. Networked system with STPS is proposed for the first category where density of population is more than 1500 per km². Further more septage treatment is proposed in densely populated areas where there is no road network. Septage load from the entire Vatakara municipality is proposed to be transported to the 7 MLD STP with MBBR technology at Narayana Nagaram where co treatment facility will be provided.

5.14.3 SEPTAGE CO-TREATMENT PROPOSED

Septage collected from the septage zone is proposed to be treated in the sewage treatment plant. Capacity of septage load is considered while designing the sewerage treatment plant. A septage collecting tank of size 6m x 3m x 3m is proposed to collect the septage received by trucks. The septage is diluted with the effluent from secondary clarifier and proposed to pump to receiving chamber of sewerage treatment plant.

5.15 LAND REQUIRED FOR STP AND WELLS

The details of land required for Sewage Treatment Plant, pumping stations and lifting stations are detailed below. Procurement of land is the sole responsibility of Municipal Authority.

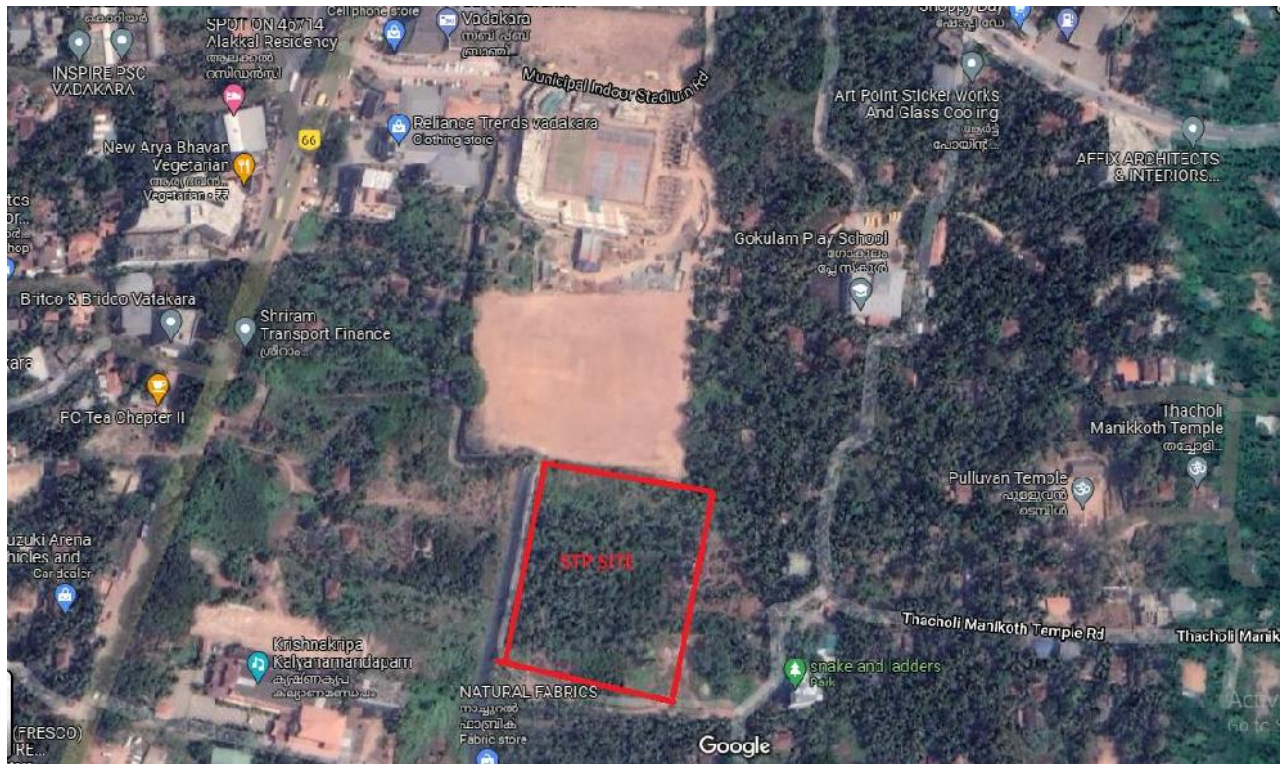


Figure5.5- Proposed site for STP

Sl No	Components	Area required in cents	Latitude and Longitude
1	Sewage Treatment Plant	180 (vatakara village)-Private Land-Paddy Land	11.59059627, 75.59422381
2	Wet well and Pump house, PH 1	5 (KSRTC Land)	11.59564430, 75.58283828
3	Wet well and Pump house, PH 2	5(Private Land)	11.58274909, 75.58917498
4	Wet well and Pump house, PH 3	5(Private Land)	11.59052119, 75.60667195
5	Wet well and Pump house, PH 4	5(Private Land)	11.60653592, 75.59682782
3	Lifting Station, LS1	2	11.60199964, 75.58191396
4	Lifting Station, LS2	2	11.59021606, 75.58594591
5	Lifting Station, LS3	2	11.58340943, 75.58430120
6	Lifting Station, LS4	2	11.57654440, 75.58710648
7	Lifting Station, LS5	2	11.57266171, 75.59653842
8	Lifting Station, LS6	2	11.57804411, 75.59481449
9	Lifting Station, LS7	2	11.58211371, 75.58974404
10	Lifting Station, LS8	2	11.60154283, 75.58855025
11	Lifting Station, LS9	2	11.60025431, 75.58993161
12	Lifting Station, LS10	2	11.60491267, 75.59042003
13	Lifting Station, LS11	2	11.60223829, 75.59696839
14	Lifting Station, LS12	2	11.60744893, 75.60133282
15	Lifting Station, LS13	2	11.61050041, 75.60035333
16	Lifting Station, LS14	2	11.58940930, 75.59370258
17	Lifting Station, LS15	2	11.60182217, 75.58510430
18	Lifting Station, LS16	2	11.60172880, 75.58683618
19	Lifting Station, LS17	2	11.59733383, 75.59216590

Table 5.4: Land details

5.16 SMART MANAGEMENT AND ON-LINE MONITORING USING INTERNET OF THINGS (IoT)

Advancement in the field of digital technology has enabled the wastewater treatment system operators and managers to control and enhance the performance of various components of the system. Internet of things (IoT) consists of a network of physical objects using various sensors as end points to enable monitoring from a remote station.

For the sewerage treatment plant, a network of various sensors can capture the variations of values of parameters like temperature, dissolved oxygen, chemical composition, TDS etc. at different control points of the system. The continuous data obtained through IoT is used by a customized algorithm for synthesis to impart a decision-making procedure. A centralized information processing system (CIPS) can be formed for this task. In addition to this smart water flow meters can also be coupled to this digital environment. IoT in wastewater management can also be used to calculate residual chemicals after the treatment. This data can be further used to calculate the efficiency of the treatment process and ensure that water quality standards are met before it is discharged in a waterbody.

By using real-time data gathered through different embedded sensors, performance characteristics of machines can be monitored that further increase the productivity of equipment and boost maintenance tasks. In the present study for the hospital, provision for implementing a IoT based control of the units in STP have been suggested.

5.17 ODOUR CONTROL METHODS

Odours are a complex combination of a wide variety of compounds; however, the certain compounds and groups of compounds that contribute specifically to sewage odours, and significantly determine the selection of the control technology. These include the following:

- *Hydrogen sulphide, and
- *Ammonia.

Odor control is a complex and time-consuming challenge, often requiring a combination of methods for treating odorous gases and for removing or reducing the potential causes of the odours. If an odor problem is severe enough to affect the community, an emergency response and solution to the problem must be carried out quickly. The approach for selecting an odour control method or technology includes the following steps:

- A. Identify the odour source and characteristics through sampling and analysis.
- B. List and assign priorities to controlling a specific odour problem, recognizing considerations such as cost, plant location, future upgrading of various sewage processes, severity of the odour problem, and the nature of the affected area.
- C. Select one or more odour control method or technology for implementation to meet the objectives of steps “a” and “b” taking in to consideration the advantages and disadvantage of each.
- D. Monitor odour missions from the treated air for process adjustments and for feedback to evaluate the solution’s effectiveness.

Hydrogen sulphide (H_2S) is the most common odorous gas found in sewage collection and treatment systems and results from the reduction of sulphate by bacteria under an aerobic conditions. Its characteristic rotten-egg odour is well known. The gas is corrosive, toxic and soluble in sewage. Hydrogen sulphide is considered a broad-spectrum poison, meaning it can poison several different

systems in the body.

5.18 PREVENTION OF ODOUR

Hydrogen sulphide production can be controlled by maintaining conditions that prevent the build-up of sulphides in the sewage. The presence of oxygen at concentrations of more than 1.0 mg/L in the sewage prevents sulphide build-up because sulphide produced by anaerobic bacteria is aerobically oxidized. Maintaining anaerobic environment inhibits the anaerobic degradation process, which contributes to the generation of hydrogen sulphide. A check list is given below:

- Prevent corrosion in the collection well of the facility by blowing air through the facility
- Avoid storing screenings and grit generated in the grit chamber for a long time. Dispose of screenings and grit at appropriate intervals
- Retention time of sludge in the sludge treatment facilities should be appropriate (Do not retain sludge for a long time)
- Maintain sewage at neutral pH range because most of the sulphide is present at a pH value of less than 7.

Following is a short checklist of operational considerations for controlling odours of primary treatment facilities: (May also apply in other facilities)

- Remove scum routinely, with increased frequency during warm weather.
- Remove sludge before it can bubble or float.
- Wash weirs and other points where floatable and slime collect. Some facilities use submerged pipes with holes rather than effluent troughs. The submerged pipes do not splash the primary effluent, thereby reducing the release of hydrogen sulphide.
- Wash down all spills and grease coatings.
- When draining a tank, immediately flush it completely. If sludge does not drain quickly, spray lime, calcium hypochlorite, or potassium permanganate on the sludge surface to reduce odours. Because even a clean tank can produce odours, flushing the tank with a chlorine solution or keeping the tank floor covered with a low concentration of chlorine solution will reduce odours.
- If the sewage is septic, add chemicals in the collection system or at the plant, as appropriate, to reduce sulphides.
- If tanks are covered for odour control, keep plates and access hatches in place.
- Routinely check any odour scrubbers or deodorizers for plugging, adequate supply of chemicals, proper pressures for demisting, and/or effectiveness of carbon.
- The splashing of primary sewage into weir troughs and effluent channels can result in the release of hydrogen sulphide. If possible, try to minimize the splashing of primary sewage in to the channel or weirs. If it cannot be accomplished operationally, then installing submerged sewer pipes may be

necessary. This will require tank modifications to verify the plant hydraulics and provide proper control to avoid fluctuations in the tank levels.

- Minimize the stripping of hydrogen sulphide from the sewage when using channel air diffuser systems. Adoption of the following regular practices will not only increase removal efficiency but will provide better working conditions for the operator:
- Regularly remove accumulations from the inlet baffles and outlet weirs with a hose or a broom with stiff bristles. Only experience will determine the necessary frequency.
- Cleans cum removal equipment regularly; otherwise, obnoxious odours and a nun sightly appearance will result.
- Keep cover plates in place except when operations or maintenance require the irremovable.
- Immediately flush and remove all sewage and sludge spills. Avoid hosing down motors and enclosed control devices.
- Establish a house keeping schedule for the primary treatment area, including galleries, stairwells, control rooms, and related buildings, and assign responsibility for each item to a specific employee.
- Re paint surfaces as necessary for surface protection and appearance.

5.19 CONTROL OF ODOUR BY CHEMICAL ADDITION

Chemical addition can control odors in STP by preventing anaerobic conditions or controlling the release of odorous substances.

Chemical	Effective against
Oxidizers	
Ozone	Atmospheric hydrogen sulphide only
Hydrogen peroxide	Hydrogen sulphide, also acts as oxygen source
Chlorine	Hydrogen sulphide and other reduced sulphur compounds
Sodium and calcium hypochlorite	Hydrogen sulphide and other reduced sulphur compounds
Potassium permanganate	Hydrogen sulphide and other reduced sulphur compounds

Table 5.5 Control of odour by chemical addition

CHAPTER 6

COST ESTIMATE, OPERATION AND MAINTENANCE CHARGES

6.1 DETAILED ESTIMATE

6.1.1 GENERAL

The detailed estimate for the STP components and Network components is prepared in accordance with the Delhi Schedule of Rates (DSR) 2018 provisions after applying District Cost Index. For certain items, market rates are adopted. The estimate prepared in Kerala Water Authority Price software.

6.1.2 DETAILED ESTIMATE OF COMPONENTS

The detailed estimates have been divided into components as Raw sewage well, Receiving Chamber, Screen Chamber, Grit chamber, Equalization Tank, Aeration/MBBR Tank, Secondary Settling Tank, Filter Feed Tank, Treated Water tank, Sludge sump, Sludge Thickener, Thickened sludge Centrifuge Structure, Centrate sump, Chlorinator room, Air blower room, Administrative Building, Well and pump house, Sewer network, Control room, etc, Mechanical works, Electrical installations and instrumentation, Operation and maintenance. The total estimate amount comes to Rs. 237 Crores including O&M for 10 years. Salient features of the estimate are detailed below

- The estimate is prepared with DSR 2018 and cost index 36.44%
- RCC M30 is proposed for all concrete works
- Sulphate Resistant Cement is proposed for the structures above plinth level
- Epoxy coating is provided for reinforcement bars.
- waterproofing treatment is proposed for STP structures
- Proposed STP site is low lying area, hence earth filling is proposed
- Odour control system by Activated Carbon (re-generable type) Scrubbers is proposed (100 Lakhs provided)
- Roof top type Solar Energy System is provided
- 350KVA Diesel Generator is proposed
- SCADA in Sewage Treatment Plant is proposed
- PWD approved rates are taken for PWD/NH road reformation
- O&M for 10 years is taken for STP and Sewer network
- Electricity charges is not included

Detailed estimate is enclosed as annexure.

6.2 PROPOSED SEWERAGE SYSTEM O&M

On completion of the construction, the system should be commissioned in phases. Trial commissioning and operation of all the components of the project shall be carried out in phases and any defects found during the period shall be attended immediately. The following components require regular supervision, operation and maintenance.

1. Sewerage Network.
2. Pumping Stations.

3. Sewage Treatment Plants.

For the efficient operation and maintenance of sewerage system, proper planning, staff/labor, tools & equipment and spares are required. For estimating the O&M cost for the Sewerage system, the cost is broadly categorized into

1. Establishment Charges
2. O&M for Network maintenance cost
3. O&M for STP

6.3 SEWER NETWORK MAINTENANCE

For the purpose of maintenance, the jet rodding machine will be used along with other components for maintenance of the collection system. It can either be procured or can be hired. The staff shall be properly trained to operate the jet rodding machine.

All the new connections shall be given under the supervision of O&M staff. No unauthorized connection shall be given to the sewerage system. Sewer inspections and maintenance should be planned. The whole sewerage system should be marked on a plan and divided into sections and areas.

Quality maintenance shall be the most important step in smooth functioning of the proposed sewers. This includes the optimum use of labour, equipment and material to keep the system in good condition.

6.4 TYPES OF MAINTENANCE

There are two types of maintenance of an underground sewerage system - preventive and emergency. It is necessary that preventive or routine maintenance are carried out to prevent any breakdown of the system and to avoid emergency operations to deal with clogged sewer lines or over flowing manholes or backing up of sewage into a house or structural failure of the system. Preventive maintenance is more economical and provides for reliability in operations of the sewer facilities. Emergency repairs, which would be very rare if proper maintenance is carried out will also have to be provided for proper inspection and preventive maintenance is a necessity.

The organization required for the maintenance of the sewerage system will vary with the size and type of the sewerage system and the relative age of the system. The larger the municipality, the larger and more complex will be its maintenance organization. The size of the organization will vary from a couple of employees to several hundred regular employees. The primary effort of the staff is to maintain sewers free flowing and unobstructed.

6.4.1 STEPS TO BE TAKEN FOR OPERATION AND MAINTENANCE OF THE SEWERAGE NETWORK DETAILED IN THIS SECTION ARE AIMED AT

- 6.4.1.1 Regular maintenance of the system for proper functioning
- 6.4.1.2 Preventing any breakdown of the system
- 6.4.1.3 Emergency operations to deal with clogged sewer lines or overflowing manholes
- 6.4.1.4 Preventing back flow of sewage into residence sand

6.4.1.5 Preventing structural failure of the system.

6.4.2 INSTITUTIONAL STRUCTURE

Operation and maintenance of the proposed scheme shall be carried out through the maintenance wing of KWA.

The following list gives the duties that are to be performed for proper sewer maintenance:

- 6.4.2.1 Inspection of sewers, sewer appurtenance sand Sewage Treatment Plant.
- 6.4.2.2 Cleaning of sewers and sewer appurtenances.
- 6.4.2.3 Checking manhole conditions for deposition of silt etc.
- 6.4.2.4 Replacing broken manhole covers.
- 6.4.2.5 Raising the manhole cover for the construction of culverts, resurfacing etc.
- 6.4.2.6 Approval of sewer connection applications and executing connections
- 6.4.2.7 Maintaining records of sewers and STP including:
- 6.4.2.8 Daily operation and maintenance report
- 6.4.2.9 Complaints register
- 6.4.2.10 Stock of equipment
- 6.4.2.11 Disposal of silt, garbage removed after cleanings ewer, manholes and treatment plants.
- 6.4.2.12 Removal of debris, brick bats etc. After any repair work.
- 6.4.2.13 Identifying locations where regular maintenance is needed (problem areas) in sewers and STP.
- 6.4.2.14 Ensuring work is carried out correctly and safely with due regards to health and safety regulations.
- 6.4.2.15 Adopting preventive maintenance within the sub division as a whole, conducting periodic staff meeting and record of the proceedings.

6.4.3 PREVENTIVE MAINTENANCE

In order to maintain the sewer system in satisfactory manner, desilting of manholes and sewers is to be done by any of the following methods suitable for the purpose.

- a) By manually by ball passing method
- b) By drag bucket machine
- c) By jet rodding machine

6.4.4 BREAK DOWN MAINTENANCE

The work of each sewer maintenance gang would consist of the following:

- 1) The house sewer obstruction and main sewer obstruction or any other related complaints to be attended with high priority.
- 2) There were line leaks/complaints are to be attended with high priority.
- 3) Any silt or mud removed during sewer cleaning operation shall be removed from the roads within 24 hours to approved location.

It shall be the responsibility of the O&M division to arrange for traffic control and to obtain permission from concerned agencies for traffic diversion etc. for purpose of maintenance. All necessary precautions shall be taken. After the maintenance works are completed roads, cables, utilities etc shall be restored to the original condition.

6.4.5 PERFORMANCE LEVEL TO BE ACHIEVED

- a) Collection system shall be maintained without over flows from manholes/sewers on to streets or into storm water drains.
- b) Silt and trash removed from sewers during removal of block ages/routine cleaning of sewers shall be disposed of hygienically within 24hours.
- c) Preventive maintenance shall be carried out as per approved schedule.
- d) Duration of break down maintenance shall not exceed the specified norms.
- e) All safety precautions shall be taken in sewer maintenance`

6.5 ON COMPLETION OF MAINTENANCE WORKS RESTORE EVERYTHING TO THE ORIGINAL CONDITION. PROPOSED SEWERAGE SYSTEM O&M

On completion of the construction, the system should be commissioned in phases. Trial commissioning and operation of all the components of the project shall be carried out in phases and any defects found during the period shall be attended immediately. The following components require regular supervision, operation and maintenance.

6.5.1 Sewerage Network.

6.5.2 Pumping Stations.

6.5.3 Sewage Treatment Plants.

6.6 SAFTEY PRACTICES

Sewer cleaning is an occupation that has an overall accident frequency rate that is relatively higher than any other industry. The employer has the responsibility of providing the worker with a safe place to work. Never the less, the worker has the overall responsibility and must ensure that it is a safe place to work. This can only be done by constantly thinking of safety and working safely. The worker has the responsibility of protecting not only himself, but also all other plant personnel or visitors by establishing safety procedures for the plant and then ensuring they are followed. He must train himself to analyze jobs, work areas and procedures from a safety stand point and learn to recognize potentiality hazardous actions or conditions. When he recognizes a hazard, he must take immediate steps to eliminate it through corrective action. If correction is not possible, guard against the hazard by proper use of warning signs and devices / by establishing and maintaining safety procedures. As an individual, the supervisor can be held liable for injuries or property damage, which results from an accident caused by his negligence.

6.7 O &M CHARGES

O&M Charge for STP (10 years) including GST	109785383.5
O&M Charge for sewer network and allied works (10 years) including GST	208774697.9
Electricity Charges for 10 years including GST	234036616.9
Total	552596698.3

6.8 POWER CHARGES

Power calculation details appended separately. As per the calculation sheet attached, total electricity consumption for STP, well, pumping stations, etc for one year is 2833373 units. The total amount for electricity charges @ Rs7 per unit cost for one year comes to Rs.1,98,33,612/-. Electricity charges is included in the O&M charges.

CHAPTER 7

IMPLIMENTATION OF THE PROJECT

7.1 IMPLEMENTING AGENCY

Kerala Water Authority is the responsible agency in Government sector in the water supply sector and sewerage Sector for implementation of Major Projects under various funding agencies AMRUTH, NABARD, Rebuild Kerala, ADB assistance, and also STATE PLAN Works. Being high value projects Implementation of sewerage projects also requires an agency with expertise and having sufficient human resources. Implementation can be done through concerned Project Divisions of KWA.

7.2 STEPS TO TAKEN WHILE TENDERING.

Conditions should be incorporated in the NIT that detailed field survey and design of network shall be carried out for ascertaining the levels due to road developments if any and in order to accommodate the fact that sewer network design based on gravity flow and accurate levels with Total Station equipment along both sides of road and centre of road is required. Due to limitation of fund and time DGPS survey along one side of the road is only taken in the present proposal. Additional changes required for satisfactory completion of work additional sewer lines required with additional manholes, lifting stations required due to future developments in the scheme area shall also be included in the scope of work while implementing the project. Better and advanced technology for treatment to be considered for STP while implementing the project. Soil investigation of STP site, well sites not carried out as the land proposed are private lands. Hence detailed soil investigation is to be carried out and type of foundation of the structures to be changed accordingly.

7.3 INTEGRATION WITH OTHER PROJECTS

Planning and design of sewerage schemes can be combined with other water projects. This is since most of these projects are inter-related and environment sensitive. Hence the location of an STP, collection wells and coverage of sewerage networks in an area depends upon the water supply system existing in that area, proximity of irrigation canals, water bodies and flood routing structures if any. Planning shall also be done for integrating with road development projects in the scheme area so as to execute all road reformation works after laying sewerage system.

7.4 SUPPORT ACTIVITIES

It has been observed that in many cases of the implementation of the sewerage projects, public protests are experienced by the implementing agencies and authorities. This is because of the unawareness of the local people about the treatment process, disposal of sludge and re-use of treated sewage etc. In this regard, it is essential to educate the consumers to make them aware

of the waste management process thereby encouraging them to come up with sewerage connections. The state government is promoting the waste management concept in all the possible ways. More support is needed from the Local Self Government Departments, Suchitwa Mission Kerala, Haritha Keralam Mission Kerala and all the other departments by organizing programmers for motivation public through seminars and awareness classes.

7.4 IMPLIMENTATION SCHEDULE

Proposed implementation Schedule is provided above. The project is proposed to complete within a period of two years.

		2022				2023						2024	
		5,6	7,8	9,10	11,12	1,2	3,4	5,6	7,8	9,10	11,12	1,2	3,4
1	Appraisal of the report												
2	Sanction of the project												
3	Tendering, and awarding work												
4	Civil works												
5	Mechanical works												
6	Electrical and instrumentation works												
7	Sewer network and allied works												
8	Trial and commissioning												

Table 7.1: Implementation Schedule

7.5 ENVIRONMENTAL IMPACT MANAGEMENT

The project area is not falling under environmental sensitive zones. There are no natural reserve forests or parks or the presence of coastal belt.

During the construction phase, the emissions from movement of vehicles used for project activity may affect the air quality due to the particulate matter generated during loading, transporting, unloading of materials during construction. Movement of heavy vehicles and concrete mixer would generate considerable noise in the surrounding environment. Hence a proper traffic management plan is recommended during the construction activities.

Sludge generated in the STP must be properly disposed off by transforming it into fertilizer products or bricks for low impact construction activities. Recycled water generated from the STP is to be used as per the guide lines already given.

Regarding the positive impacts, it is to be noted that water quality of the rivers and streams will be greatly improved along with the general environment. The large quantity of recycled water will be useful for multiple purposes including agriculture.

CHAPTER 8

CONCLUSION AND RECOMMENDATION

- The responsibility of providing sewerage systems rest with local bodies which can be facilitated by Kerala Water Authority. KWA has recently set up a Sewerage Vertical with four sewerage circles towards this. The idea and vision behind it are to visualize and materialize complete sewerage schemes for the State as it is vital for a safe environment. Moreover, there are directions from the Honourable National Green Tribunal (NGT) for ensuring the installation of Effluent Treatment Plants (ETPs), Common Effluent Treatment Plants (CETPs), Sewage Treatment Plants (STPs) and other pollution control measures. Hon. NGT has also directed to take necessary action to abate discharge of pollution into rivers (OA No. 673 of 2018).
- This proposal includes 7 MLD STP with MBBR technology Narayana nagar in Vatakara Municipality, a sewer network of 71.5 km, 2590 manholes, four pumping stations and Seventeen lifting stations. Manholes at 30 m intervals and at all intersections are proposed to facilitate maintenance operations.
- Septage load from entire Vatakara Municipality is proposed to be treated in the 7 MLD STP for where Co-treatment facility provided
- The cost estimate of the project is excluding land cost. The fund for land has to be provided by the local bodies /Government, according to the source of funding for the scheme.
- If sufficient funds and lands are made available, the projects can be taken up by KWA and can be completed in 2 years. For efficient control of operation and maintenance a monitoring cell at institutional level is to be formed.
- For better performance of the system testing of influent samples, effluent samples after treatment from each unit is to be tested at regular intervals and modifications if any shall be made at the initial stage itself so as to ensure efficiency of individual units and effluent standards as per design.
- Better and advanced technology for treatment to be considered for STP while implementing the project.

APPENDICES

DESIGN OF STP WITH MOVING BED BIOFILM-REACTOR (MBBR)						
Average flow	7	MLD				
Design flow	7.304	MLD	7304348	LPD	7304	m ³ /day
Working hours	23		7304	KLD	304.35	m ³ /hour
Assumed peak factor	2.5					
Peak design flow	18.26	MLD	18260870	LPD	18261	m ³ /day
					760.87	m ³ /hour
Raw Sewage Characteristics						
Average sewage flow entering the STP	304.35	m ³ /hour				
Peak flow entering the STP	760.87	m ³ /hour				
COD	400	mg/l				
Primary ST/ET effluent BOD	250	mg/l				
Thickener overflow return as fraction of plant flow	0.15					
Thickener overflow return	1.096	MLD				
Thickener overflow return BOD	500	mg/l				
Centrate from sludge dewatering as fraction of plant flow	0.006					
Centrate from sludge dewatering return	0.04383	MLD				
Centrate from sludge dewatering return BOD	380	mg/l				
Influent BOD to aeration tank	283.1	mg/l				
TSS	400	mg/l				
Total Nitrogen (As N)	40	mg/l				
Total Phosphorous (As P)	7	mg/l				
Faecal Coliform	30000000	mpn/100 ml				
E Coliform	40000000	mpn/100 ml				
Chlorides as Cl	125	mg/l				
pH	6					
Treated Sewage Characteristics (after filtration)						
COD	50	mg/l				
BOD	10	mg/l				
TSS	10	mg/l				
Total Nitrogen (As N)	9	mg/l				
Total Phosphorous (As P)	1	mg/l				
E Coliform	1000	mpn/100 ml				
pH	7					
Receiving Chamber						
Average quantity of flow	304.35	m ³ /hour				
Peak flow	760.87	m ³ /hour				
	0.211	m ³ /sec				
Average Retention Time for peak flow	30	sec	offset to wall	0.3	m	
Volume of the inlet chamber	6.34	m ³	free board	0.5	m	
Assumed depth of flow	1.5	m	total height	2	m	
Area required for inlet chamber	4.23	m ²	wall thickness	0.25	m	
Length of the tank	2.25	m	slab thickness	0.3	m	
Breadth of the tank	1.88	fix	1.9	m	area in m ²	10.05
Mechanical Coarse Screen Channel						
Peak design flow	0.211	m ³ /sec				
Number of screen	1					
Peak flow rate per screen	0.211	m ³ /sec				
Velocity at peak flow	0.8	m/sec	assumed			
Velocity through clean bar screen	0.86	m/sec				
Length of channel U/S	1	m				
Width of channel provided	0.8	m				
Depth of flow	0.33	m				
Area required for screen	0.264	sqm				
Headloss through bar screen	0.01	m	assuming head loss coefficient = 0.7			
Assumed depth of flow after inserting bar screen	0.3	m	0.34	(control value)		
Width of channel required	0.88	m	fix	1	m	
Clear bar spacing	20	mm	(20 to 50 mm)			
Bar thickness	10	mm	(5 to 15 mm)			
Number of bars	20					
Clear bar spacing obtained	42	mm	OK			
Inside width of screen (openings)	0.8	m				

Full height of channel	1	m	fb	0.5		
Angle of inclination	60	degree	1.05	rad		
Actual velocity at peak flow	0.78	<i>(between 0.60 m/sec and 0.90 m/sec)</i>				
Length of channel required D/S	1.73	m	fix	1.75	m	2.75
Manual Coarse Screen Channel						
Peak design flow	0.2114	m ³ /sec				
Number of screen	1					
Peak flow rate per screen	0.211	m ³ /sec				
Velocity at peak flow	0.8	m/sec	assumed			
Velocity through clean bar screen	0.90	m/sec				
Length of channel U/S	1	m	wall thickness	0.25	m	
Width of channel provided	0.8	m	offset to wall	0.25	m	
Depth of flow	0.33	m	slab thickness	0.30	m	
Area required for screen	0.264	sqm				
Headloss through bar screen	0.01	m	<i>assuming head loss coefficient = 0.7</i>			
Assumed depth of flow after inserting bar screen	0.32	m	0.34	(control value)		
Width of channel required	0.83	m	fix	1	m	
Clear bar spacing	20	mm	<i>(20 to 50 mm)</i>			
Bar thickness	10	mm	<i>(5 to 15 mm)</i>			
Number of bars	25					
Clear bar spacing obtained	31	mm	OK			
Inside width of screen (openings)	0.75	m			area in m ²	5.5
Full height of channel	1	m	fb	0.3		
Angle of inclination	60	degree	1.05	rad		
Actual velocity at peak flow	0.82	<i>(between 0.60 m/sec and 0.90 m/sec)</i>				
Length of channel required D/S	1.73	m	fix	1.75	m	
Mechanical Fine Screen Channel						
Peak design flow	0.211	m ³ /sec				
Number of screen	1					
Peak flow rate per screen	0.211	m ³ /sec				
Velocity at peak flow	0.8	m/sec	assumed			
Velocity through clean bar screen	1.10	m/sec				
Length of channel U/S	1.75	m	wall thickness	0.25	m	
Width of channel provided	0.6	m	offset to wall	0.25	m	
Depth of flow	0.44	m	slab thickness	0.30	m	
Area required for screen	0.26	sqm				
Headloss through bar screen	0.04	m	<i>assuming head loss coefficient = 0.7</i>			
Assumed depth of flow after inserting bar screen	0.5	m	0.48	(control value)		
Width of channel required	0.53	m	fix	1	m	
Clear bar spacing	6	mm	<i>(up to 6 mm)</i>			
Bar thickness	10	mm	<i>(5 to 15 mm)</i>			
Number of bars	63					
Clear bar spacing obtained	6.0	mm				
Inside width of screen (openings)	0.37	m				
Full height of channel	1	m	fb	0.5		
Angle of inclination	45	degree	0.79	rad		
Actual velocity at peak flow	1.19	<i>(between 0.60 m/sec and 1.20 m/sec)</i>				
Length of channel required D/S	1.00	m	fix	1	m	2.75
Daily screening quantity						
Daily sewage quantity	7304	m ³ /day				
Rate of screening quantity	0.015	m ³ /1000 m ³				
Daily screening quantity	0.1096	m ³ /day				
Grit Separator Chamber						
Number of grit units	1	SB		1		
Peak flow	0.2114	m ³ /sec				
Flow in one unit	0.2114	m ³ /sec				
Grit particle size	0.2	mm				
HRT	90	sec	<i>(45 to 90 sec, typical 60)</i>			
Volume of grit chamber	19.02	m ³				
SOR	900	m ³ /m ² /day	<i>(empirical, from observations)</i>			
	0.010	m ³ /m ² /sec				
Area required	20.29	m ²	wall thickness	0.25	m	

SWD	2.50	m	slab thickness	0.30	m	
Side of square channel	4.50	m	offset to wall	0.3	m	
Fix length	4.5	m	freeboard	0.5	m	
Fix width	4.5	m	area given	20.25	m ²	NOT OK
Shape factor	0.85		volume given	50.63	m ³	OK
Specific gravity of liquid	2.65					
Kinematic viscosity	1.003E-06	m ² /sec				
V _p in m/sec	0.036		let $Nr < 1$, apply Stoke's law to get terminal velocity v_p			
N _r	6		apply Newton's equation			
assumed velocity in m/sec	0.0146					
N _r	2				area in m ²	31.36
drag coefficient Cd	11.95					
v _p in m/sec	0.019					
Critical displacement velocity, V _c	0.0190	m/sec		R _t	1.80	
Horizontal velocity of flow, V _h	0.0188	m/sec	OK	R _v	1.01	
Equalisation Tank						
Number of units	2					
Average design flow	152.17	m ³ /hour				
Volume of tank required	829.00	m ³	from detailed analysis			
HRT	5.45	hours	free board	0.50	m	
SWD	4.5	m	offset to wall	0.45	m	
Area required for each tank	184.22	m ²	wall thickness	0.3	m	
Diameter of circular tank	15.32	m	fix	15.4	m	
Side if square tank	13.57	m	fix length	13.6	m	
Thickness of foundation slab	0.45	m	fix breadth	13.6	m	
Actual capacity provided	838.2	m ³	circular	OK		
	832.32	m ³	rectangular	OK	area in m ²	456.02
Sewage pump- for pumping to MBBR tank						
Number of pumping system	2	SB		2		
Type of pump set	fugal sewage transfer-non clog					
Average flow	3652.17	m ³ /day				
Peak design flow	9130.43	m ³ /day				
Flow capacity of each pump	152.17	m ³ /hour				
Peak factor	1.20					
Discharge	50.72	LPS	0.0507	m ³ /sec		
Head required	12	m				
Efficiency	50%					
Power required	16.23	HP	fix	17	HP	
Energy	278.51	kwh				
Moving Bed Bio-Reactor (MBBR)-Single Stage						
Number of tanks proposed	2					
Average design flow/tank	3652.17	m ³ /day				
Number of streams	2					
BOD of incoming sewage	283.11	mg/l				
TSS of incoming sewage	400	mg/l				
BOD expected after treatment	10	mg/l				
BOD to be removed	273.11	mg/l				
BOD removal % expected	96.47					
BOD loading rate/volume	4	kg/m ³ /day	4-7 kg/m ³ /day as per M&E			
Actual BOD loading rate	1033.98	kg/day				
Quantity of BOD to be removed per day	997.46	kg/day				
Volume of reactor required	258.50	m ³				
Surface area loading rate (SALR) for BOD removal	7.50	g/m ² /day				
Required carrier surface area	137864.30	m ²				
Specific surface area of carrier	450.00	m ² /m ³				
Required carrier volume	306.37	m ³				
Volume of media required	40%					
	103.40	m ³	depth of base	0.9	m	
Volume of tank required-BOD loading rate/volume method	361.89	m ³	slab thickness	0.35	m	
Volume of tank required- SALR method	765.91	m ³	offset to wall	0.45	m	

Volume of each tank	765.91	m ³	total height	5.00	m	
SWD	4.5	m	wall thickness	0.30	m	
Area of each tank	170.20	m ²	fix dia	15.1	m	
Diameter of circular tank	14.72	m	length	13.4	m	
Side of square tank	13.05	m	breadth	13.4	m	
Actual capacity provided-circular	805.86	m ³	OK			
Actual capacity provided-rectangular	808.02	m ³	OK			
Fix capacity	805.86	m ³				
Actual volume of media obtained	322.34	m ³				
Actual carrier surface area	145054.80	m ²				
Volume of liquid in the tank	676.92	m ³				
Hydraulic Retention Time at design average flow	2.22	hours	133.5	minutes		
Hydraulic Retention Time at peak flow	0.89	hours	53.4	minutes		
SARR for the given SALR	6.94	g/m ² /day			area in m ²	444.02
Estimated BOD removal rate	1006.32	kg/day				
Actual BOD removal rate %	97.32	BOD of effluent	7.57	mg/l		ok
Moving Bed Bio-Reactor (MBBR)-Single Stage Nitrification						
Number of tanks proposed	2					
Average design flow/tank	3652.17	m ³ /day				
Number of streams	2					
BOD of incoming sewage	10.00	mg/l				
NH ₄ -N of incoming sewage	40.00	mg/l				
Alkalinity as CaCO ₃	140.00	mg/l				
Target effluent NH ₃ -N	3.30	mg/l	% removal	91.75		
DL level to be maintained in tank	2.00	mg/l				
Design minimum waste water temperature	20.00	°C				
SARR _{max}	0.61		SARR temp coefft. Θ	1.058		
Minimum NH ₃ -N at SARR _{max}	0.50		SARR _T	0.81	g/m ² /day	
Design value of SALR	0.88	g/m ² /day				
NH ₃ -N loading rate	146.09	kg/day				
Required carrier surface area	165752.22	m ² /day				
Specific surface area of carrier	600.00	m ² /m ³				
Required carrier volume	276.25	m ³ /day	depth of base	0.65	m	
Volume of media required	40%		slab thickness	0.35	m	
Volume of tank required- SALR method	690.63	m ³	offset to wall	0.45	m	
Volume of each tank	690.63	m ³	total height	5.00	m	
SWD	4.5	m	wall thickness	0.30	m	
Area of each tank	153.47	m ²	fix dia	14	m	
Diameter of circular tank	13.98	m	fix length	12.4	m	
Side of square tank	12.39	m	fix breadth	12.4	m	
Actual capacity provided-circular	692.72	m ³	OK			
Actual capacity provided-rectangular	691.92	m ²	OK			
Fix capacity	692.72	m ³				
Actual volume of media obtained	277.09	m ³				
Actual carrier surface area	166252.80	m ²			area in m ²	386.42
Volume of liquid in the tank	581.89	m ³				
Hydraulic Retention Time at design average flow	1.91	hours	114.71	minutes		
Hydraulic Retention Time at peak flow	0.76	hours	45.89	minutes		
Estimated NH ₃ -N removal rate	134.44	kg/day				
NH ₃ -N of effluent	3.19	mg/l				
BOD SALR	0.22	g/m ² /day	<i>should be < 0.5 to achieve good nitrification</i>			
Using the equivalent weight of CaCO ₃ as 50, the equivalent weight of NaHCO ₃ as 84, the alkalinity use for nitrification as 7.14 g CaCO ₃ /g NH ₃ -N and the target effluent alkalinity as 80 mg/L as CaCO ₃ , give the calculated alkalinity requirement as 118.5 mg/L as CaCO ₃ .						
Influent alkalinity	140.00	mg/l				
Target effluent alkalinity	80.00	mg/l				
Alkalinity used for Nitrification	7.14	g CaCO ₃ /g NH ₃ -N				
Alkalinity to be added	202.04	mg/l				

Rate of alkalinity addition needed as CaCO ₃	737.88	kg/day			
Equiv wt. of CaCO ₃	50.00	g/equivalent			
Equiv wt. of NaHCO ₃	84.00	g/equivalent			
Daily NaHCO ₃ requirement	1239.63	kg/day NaHCO ₃			
Blower air requirement					
BOD loading/tank	1033.98	kg/day			
NH ₃ -N loading rate/tank	146.09	kg/day			
Oxygen uptake ratio-BOD	1.50	kg of O ₂ /kg of BOD			
Oxygen uptake ratio-NH ₃ -N	4.35	kg of O ₂ /kg of NH ₃ -N			
Oxygen required for BOD loading	1550.97	kg/day			
Oxygen required for NH ₃ -N loading	635.48	kg/day			
Percentage of O ₂ in air	21.00				
Weight of air required-BOD loading	7385.59	kg/day			
Weight of air required-NH ₃ -N loading	3026.09	kg/day			
Density of air	1.225	kg/m ³			
Volume of air-BOD loading	6029.05	m ³ /day			
Volume of air-NH ₃ -N loading	2470.28	m ³ /day			
Air transfer efficiency of diffuser	0.100				
Quantity of air required-BOD loading	60290.51	m ³ /day			
Quantity of air required-NH ₃ -N loading	24702.75	m ³ /day			
Factor of safety	1.10				
Volume of air required-BOD loading	2763.32	m ³ /hour			
Volume of air required-NH ₃ -N loading	1132.21	m ³ /hour			
Volume of equalisation tank	829.00	m ³			
Normal inflow	0.085	m ³ /sec			
Air requirement for equalisation tank	1.25	m ³ /m ³ /hour			
Air requirement for sludge tank	3.00	m ³ /m ³ /hour			
Volume of ET	829.00	m ³			
Volume of air required for ET	1036.25	m ³ /hour			
Volume of air required for ST	39.22	m ³			
Total air required	4971.00	m ³ /hour			
Capacity of blower	4971.00	m ³ /hour			
Number of blowers working	3.00	SB	1		
Air required per blower	1657.00	m ³ /hour			
Pressure given	0.60	kg/cm ²	5.89	m	
Volumetric efficiency	70%				
Power required for blower motor	51.96	HP		kw	
Fix power of blower motor	52.00	HP			
Energy/tank	2791.11	kwh			
Alum solution tank					
number of units	1				
dosage of alum	50	ppm			
requirement for 8 hours	121.740	kg			
volume of solution at 10% strength/unit	1.100	m ³			
length of tank	1.2	m			
breadth of tank	1.2	m			
liquid depth	0.76	m			
total depth	1	m			
solution flow rate	0.1375	m ³ /hour			
Lime solution tank					
number of units	1				
dosage of lime	35	ppm			
requirement for 8 hours	85.22	kg			
volume of solution at 10% strength/unit	0.79	m ³			
length of tank	1.1	m			
breadth of tank	1.1	m			
liquid depth	0.65	m			
total depth	1	m			
solution flow rate	0.09875	m ³ /hour			

Secondary Clarifier						
No. of Tanks	2					
Average Flow in each tank	3652.17	m ³ /day				
SOR	25.00	m ³ /m ² /day				
SWD	2.80	m				
Solid conc. In settled sludge -%	0.8 to 0.9	%				
Withdrawal frequency - continuous						
Area Required for the Tank	146.09	m ²				
Diametre Required for Secondary Settling Tank	13.64	m				
Assumed Detention Period	3.10	hrs				
Volume	471.74	m ³		FB	0.5	
Depth of the Clarifier assumed	2.80	m				
Area of the Clarifier	168.48	m ²				
Provide Secondary Clarifier of Diametrer	14.70	m				
Surface Loading Rate	21.68	m ³ /m ² /day		OK		
Check for Peak flow	48.77	m ³ /m ² /day		OK		
Sludge Sump						
Number of units	1					
Average flow/tank	7304.35	m ³ /day				
TSS	400	mg/l				
BOD	283.11	mg/l				
Assumed TSS Sludge	30%					
Assumed BOD Sludge	35%					
Sludge generated-TSS	876.5	kg/day				
Sludge generated-BOD	723.8	kg/day				
Total sludge	1600.31	kg/day				
% sludge with 1.02 specific gravity	10%					
Sludge volume per day/tank	156.89	m ³ /day				
	6.54	m ³ /hour				
Assumed HRT	2	hours	freeboard	0.35	m	
Volume of tank	13.07	m ³	slab thickness	0.3	m	
Assumed SWD	2	m	offset to wall	0.3	m	
Area of the tank	6.54	m ²	wall thickness	0.25	m	
Diameter of circular tank	2.89	m	fix	3	m	
Actual capacity provided	14.14	m ³			area in m ²	4.10
Pump for Sludge transfer to Thickner						
Number of pumps	1.00	W	1	SB		
Specific gravity of liquid	1.03					
Type of pump set	fugal sewage transfer-non clog					
Working hours	5.00	hours				
Discharge required	31.38	m ³ /hour	0.008716	m ³ /sec		
Required head	15.00	m				
Velocity in sludge transfer pipe adopted	0.70	m/sec				
Pipe diameter required	125.91	mm	fix	150	mm	
Efficiency	50%					
Power required	3.49	HP	fix	4.00	HP	
Energy	13.00	kwh				
Sludge Thickener						
Number of units	1					
Total sludge	1600.31	kg/day				
Solids Loading Rate	40	kg/m ² /day				
Thickening area required	40.01	m ²				
Surface Loading Rate	12	m ³ /m ² /day				
Thickening area required	13.07	m ²	freeboard	0.35	m	
Maximum area	40.01	m ²	slab thickness	0.35	m	
Area of distribution chamber	20%		offset to wall	0.35	m	
Total area required	48.01	m ²	wall thickness	0.3	m	
Diameter of circular tank	7.82	m	fix	8	m	
Thickening area available	50.27	m ²				
SWD	2.5	m				
Actual volume provided	125.66	m ³				

Thickened sludge consistency	3%	of total sludge volume				
Thickened sludge volume	48.01	m ³ /day			area in m ²	9.30
Pump for Sludge transfer to Centrifuge						
Type of pump set	Screw pump					
Number of pumps	1.00	W	1	SB		
Volume of thickened sludge to be pumped	48.01	m ³ /day				
Working hours of centrifuge	5.00	hours				
Discharge required	9.60	m ³ /hour	2.7E-03	m ³ /sec		
Head required	15.00	m				
Efficiency	50%					
Power required	1.07	fix	1.50	HP		
Energy	3.979	kwh				
Sludge Centrifuge and Dosing Tanks						
Number of centrifuges	1	SB	1			
Capacity of centrifuge	0.25	m ³ /hour				
Poly electrolyte dosing for centrifuge & thickener	10%					
Sludge volume	1600.31	kg/day				
Dose	2	kg/1000 kg				
Quantity of Poly Electrolyte	3.20	kg/day				
Concentration	0.1					
Volume of tanks @ 24 hour	3.20	m ³				
	3200.62	litres				
Volume	133.36	litres/hour				
Volume required for 8 hours	1.07	m ³				
Liquid depth of tank	1	m				
Area required	1.07	m ²				
side of square tank	1.03	m	fix	1.2	area in m ²	2.88
Chlorine contact tank						
HRT	30	minutes	offset to wall	0.3	m	
Average flow	304.35	m ³ /hour	wall thickness	0.25	m	
Volume of tank	152.17	m ³	slab thickness	0.35	m	
Assumed liquid depth	3.5	m	freeboard	0.35	m	
Area of the tank	43.48	m ²			area in m ²	59.29
side of square tank	6.59	m	fix	6.6	m	
Filter feed tank						
HRT	20	minutes	offset to wall	0.3	m	
Average flow	304.35	m ³ /hour	wall thickness	0.25	m	
Volume of tank	101.45	m ³	slab thickness	0.3	m	
Assumed liquid depth	3.5	m	freeboard	0.35	m	
Area of the tank	28.99	m ²				
side of square tank	5.38	m	fix length	5.4	m	
			fix breadth	5.4	m	
Volume provided	102.06	OK			area in m ²	42.25
Pressure Sand Filter						
Number of units	7					
Average flow/filter	1043.48	m ³ /day				
Filter operating hours	20	hours				
Operating flow/filter	52.17	m ³ /hour				
Filter Loading Rate	12	m ³ /m ² /hour				
Area of the filter required	4.35	m ²				
Area of each filter	4.35	sqm				
Diameter of filter required	2.35	m	fix	2.4	m	
Height of the filter	2.5	m	offset to wall	0.5	m	
Operating pressure	3.5	Bar				
Filter media	Sand				area in m ²	80.92
Activated Carbon Filter						
Number of units	7					
Average flow/filter	1043.48	m ³ /day				
Filter operating hours	20	hours				
Operating flow/filter	52.17	m ³ /hour				

Filter Loading Rate	10	m ³ /m ² /hour			
Area of the filter required	5.22	m ²			
Area of each filter	5.22	sqm			
Diameter of filter required	2.58	m	fix	2.6	m
Height of the filter	2.5	m	offset to wall	0.5	m
Operating pressure	3.5	Bar			
Filter media	activated Carbon			area in m ²	90.72
Pump for clarified water to PSF and ACF					
Type of pump set	CF				
Number of pumps	7.00	W	1	SB	
Discharge of clarified water required/pum set	43.48	m ³ /hour			
Working hours of pumps	20.00	hours			
Discharge required/pump set	52.17	m ³ /hour	1.4E-02	m ³ /sec	
Head required	40.00	m			
Efficiency	60%				
Power required	12.88	fix	13.00	HP	
Energy	192.21	kwh			
Treated Water Tank					
HRT	60	minutes	offset to wall	0.3	m
Average flow	304.35	m ³ /hour	wall thickness	0.3	m
Volume of the tank	304.3	m ³	slab thickness	0.35	m
Assumed liquid depth	3.5	m	freeboard	0.35	m
Area of the tank	86.96	m ²			
Number of tanks	1		fix length	9.4	m
Area of one tank	86.96	m ²	fix breadth	9.4	m
Side of square tank	9.33	m			
Volume provided	309.26	m ³	OK		

APPENDIX II

DESIGN OF CO-TREATMENT UNIT FOR SEPTAGE WITH STP						
Design population	37285					
Sludge deposit coefficient	95	litres/person/year				
Sludge deposit	9.70	KLD				
Average septage flow	9.7	KLD				
Working hours	24					
Design flow	9.70	KLD	9700	LPD	9.7	m ³ /day
Maximum peak factor expected	1.5		10	KLD	0.40	m ³ /hour
Peak design flow	14.55	KLD	14550	LPD	15	m ³ /day
					0.61	m ³ /hour
Number of trips/day	8				0.00017	cum/sec
Quantity of septage obtained in single trip with peak factor	1.82	m ³				
Raw Septage Characteristics						
COD	25000	mg/l				
BOD	5000	mg/l				
TSS	7000	mg/l				
Treated Sewage Characteristics (after filtration)						
COD	50	mg/l				
BOD	10	mg/l				
TSS	20	mg/l				
Receiving Chamber						
Average quantity of flow	0.40	m ³ /hour				
Peak flow	0.61	m ³ /hour				
	0.00017	m ³ /sec				
Average Retention Time for peak flow	600	sec	offset to wal	0.3	m	
Volume of the inlet chamber	0.1010	m ³	free board	0.35	m	
Assumed depth of flow	1	m	total height	1.35	m	
Area required for inlet chamber	0.10	m ²	wall thicknes	0.25	m	
Length of the tank	0.5	m	slab thicknes	0.3	m	
Breadth of the tank	0.20	fix	0.2	m	area in m ²	2.08
Design of Dilution Chamber from Mass-balance Principle						
Target outflow BOD (actual incoming BOD to S)	265	mg/l				
Target outflow TSS (actual incoming TSS to S)	400	mg/l	PF			
Volume of recycled water used for dilution	33800	litres				
Quantity of septage obtained as above	1.82	m ³	ratio of dilution		2.00	
BOD of diluted septage	264.80	mg/l	ok			
TSS of diluted septage	376.41	mg/l	ok			
Total volume of dilution tank	35.62	m ³				
Liquid depth adopted inside dilution tank	2.50	m	side of square tank		3.77	m
Length of dilution tank adopted	5.00	m				
Breadth of dilution tank adopted	3.50	m	volume	43.75	m ³	ok
Average outflow from dilution tank	7.92	m ³ /hour				
Design of Dilution Chamber from Mass-balance Principle (continued)						
Average quantity of flow	7.92	m ³ /hour				
Peak flow	11.87	m ³ /hour				
	0.00330	m ³ /sec				
Average Retention Time for peak flow	300	sec	offset to wal	0.15	m	
Volume of the inlet chamber	0.99	m ³	free board	0.75	m	
Assumed depth of flow	1.5	m	total height	1.5	m	
Area required for inlet chamber	0.66	m ²	wall thicknes	0.25	m	
Length of the tank	1.5	m	slab thicknes	0.3	m	
Breadth of the tank	0.44	fix	0.75	m	area in m ²	3.565

Breadth of baffle wall inside	0.75	m				
Manual Coarse Screen Channel						
Peak design flow	0.00330	m ³ /sec				
Number of screen	1					
Peak flow rate per screen	0.0033	m ³ /sec				
Velocity at peak flow	0.75	m/sec	assumed			
Velocity through clean bar screen	0.85	m/sec				
Length of channel U/S	1	m	wall thickne	0.25	m	
Width of channel provided	0.6	m	offset to wal	0.25	m	
Depth of flow	0.01	m	slab thicknes	0.30	m	
Area required for screen	0.00	sqm				
Headloss through bar screen	0.01	m	<i>assuming head loss coefficient = 0.7</i>			
Assumed depth of flow after inserting bar scre	0.1	m	0.02	(control value)		
Width of channel required	0.04	m	fix	0.45	m	
Clear bar spacing	20	mm	(20 to 50 mm)			
Bar thickness	10	mm	(5 to 15 mm)			
Number of bars	15					
Clear bar spacing obtained	21	mm	OK			
Inside width of screen (openings)	0.3	m			area in m ²	3.625
Full height of channel	1.5	m	fb	0.3		
Angle of inclination	45	degree	0.79	rad		
Actual velocity at peak flow	0.58	<i>(between 0.60 m/sec and 0.90 m/sec)</i>				
Length of channel required D/S	1.50	m	fix	1.5	m	
Sewage pump- for pumping to equalisation tank of STP						
Number of pumps	1	SB	1			
Type of pump set	submersible centrifugal sewage transfer-non clog					
Average flow	7.92	m ³ /hour				
Peak design flow	11.87	m ³ /hour				
Working hours	23					
Flow capacity of each pump	12.39	m ³ /hour				
Peak factor	1.20					
Discharge	4.13	LPS	0.0041	m ³ /sec		
Head required	10	m				
Efficiency	50%					
Power required	1.10	HP	fix	3.25	HP	
Energy	18.90	kwh				

APP III-Equalization tank- Anoxic

Anaerobic Zone			
Vlume		1658.00	m ³
Detention time		5.45	
HRT of Anerobic Zone		1 hr	
Volume		304.3478	305
Area		87.14286	
Anoxic Zone			
NH4-N influent		40	mg/l
NH4-N effluent		5	mg/l
Influent nitrogen loading		160	Kg
operating temperature		25°c	
5 % Nitrogen Assimilated in BOD removal		12	mg/l
NH3-N to be Nitrified		23	mg/l
NO3-N Generated @75% Nitrification of NH3-N		17.25	mg/l
NO3-N effluent		4	mg/l
NO3-N to be Dentirified		13.25	mg/l
MLVSS/MLSS		0.72	assumed
Specific denitrification rate, Udn		0.04	/d .04 to .42
Dissolved oxygen		0.5	mg/l
Overall denitrification rate		0.030772	
MLSS in aeration tank		4000	mg/l
Anoxic Retentioin time HRTdn		0.134556	per day
		3.229347	hr
Volume required		982.8446	m ³
Volume available in Equalization tank for anoxic region		1353.65	m ³
So ok			
RAS Recycle ratio Assumed		0.5	
Internal recycle ratio (Nitrate recycle)		4.1	
Total quantity of sewage to be pumped to next unit		3880.435	
Capacity of each pump			

General Abstract

**SEWERAGE SYSTEM TO VATAKARA MUNICIPALITY - CONSTRUCTION OF 7
MLD CAPACITY SEWAGE TREATMENT PLANT AND LAYING SEWERAGE NET
WORK TO VATAKARA MUNICIPALITY**

(Dsr year: 2018)

SI No	Heading Description	Amount
1	PART-A- STP- ESTIMATE NO: 2022/15079(WITHOUT GST)	108971288.72
2	PART-B- ELECTRO MECHANICAL- ESTIMATE NO: 2022/4736(WITHOUT GST)	62412302.08
3	PART-C- NETWORK- ESTIMATE NO: 2022/15077(WITHOUT GST)	1178970816.45
4	PART- D- O&M ESTIMATE NO: 2022/15078(WITHOUT GST)	468302286.73
5	PART-E- CENTAGE CHARGES @ 10% OF (A B C D)	181865669.40
6	PART-F-GST @18% OF (A B C D)	327358204.90
7	PART- G- DPR PREPERATION CHARGES@2.5% OF (A B C)	33758860.18
8	PART-H-UNFORSEEN ITEMS	8360571.54
	Total	2370000000.00
	Centage @	0.0%
	Centage Amount	0.00
	Provision for GST payments (in %) @	0.0%
	Amount reserved for GST payments	0.00
	Total & Centage	2370000000.00
	Lumpsum for round off	0.00
	GRAND TOTAL Rs	2370000000.00
	Rounded Grand Total Rs 2,37,00,00,000	
	Rupees Two Hundred Thirty Seven Crore Only	

General Abstract

**SEWERAGE SYSTEM TO VATAKARA MUNICIPALITY - CONSTRUCTION OF 7
MLD CAPACITY SEWAGE TREATMENT PLANT AND LAYING SEWERAGE NET
WORK TO VATAKARA MUNICIPALITY- STP**

(Dsr year: 2018)

SI No	Heading Description	Amount
1	RAW SEWAGE RECEIVING CHAMBER CUM WELL	4163292.59
2	SEPTAGE RECEIVING UNIT	1409313.70
3	INLET CHAMBER / SCREEN CHANNEL / GRIT CHAMBER / PARSHALL FLUME	4230942.94
4	EQUALISATION TANK	12494382.70
5	MBBR 1 AND MBBR 2	20638170.50
6	SECONDARY CLARIFIER	8555225.07
7	SLUDGE SUMP	461926.12
8	SLUDGE THICKNER	1988499.25
9	THICKENED SLUDGE SUMP	548152.87
10	FILTER FEED TANK	1399838.72
11	TREATED WATER TANK	2808836.92
12	CENTRATE SUMP	361140.77
13	Administrative/Laboratory/Chemical House / Control Room Building	5220116.06
14	Security Cabin	304934.50
15	Air Blower Building	2680605.70
16	Chlorination Building	2059670.04
17	Transformer Building	3226943.61
18	Centrifuge Building	3192624.39
19	PSF/ACF Foundation	1307480.33
20	Sludge Shed	659277.60
21	STP Land Development & Approach Road and internal Service Roads	12244283.80
22	Effluent Disposal and Storm Water Drains	1731997.73
23	Compound wall and Gate	2783632.82
24	Landscaping, green belt formation and re-use of treated water	1000000.00
25	Odour Control System	10000000.00
26	Providing Solar Energy System	3500000.00
Total		108971288.72
Centage @		0.0%
Centage Amount		0.00
Provision for GST payments (in %) @		18.0%

Amount reserved for GST payments	19614831.97
Total & Centage	128586120.68
Lumpsum for round off	0.00
GRAND TOTAL Rs	128586120.68
Rounded Grand Total Rs 12,85,86,121	
Rupees Twelve Crore Eighty Five Lakh Eighty Six Thousand One Hundred and Twenty One Only	



Kerala Water Authority

PRICE

Detailed Estimate

**SEWERAGE SYSTEM TO VATAKARA MUNICIPALITY - CONSTRUCTION OF 7
MLD CAPACITY SEWAGE TREATMENT PLANT AND LAYING SEWERAGE NET
WORK TO VATAKARA MUNICIPALITY- STP**

(Dsr year: 2018)

Sl No	Description	No	L	B	D	CF	Quantity	Remark	
1 RAW SEWAGE RECEIVING CHAMBER CUM WELL (Cost Index:36.44 %)									
1	2.1.1 Earth work in surface excavation not exceeding 30 cm in depth but exceeding 1.5m in width as well as 10 sqm on plan including disposal of excavated earth up to 50 m and lift up to 1.5 m, disposed soil to be levelled and neatly dressed:All Kinds of soil								
		1	10.000	10.000			100.000		
		Total Quantity						100.000 sqm	
		Total Deducted Quantity						0.000 sqm	
		Net Total Quantity						100.000 sqm	
		Say 100.000 sqm @ Rs 109.63 / sqm						Rs 10963.00	
2	100.3.7.1 Earthwork open well excavation (above water) for wells of dia. above 6.0m and upto 9.0 m in all kinds of soil and conveying and depositing the spoil within initial lead of 50m and lift up to 1.5 m including neat banking. NEW DATA								
	For Collection well	3.14/4	8.300	8.300	1.500		81.118		
		Total Quantity						81.118 cum	
		Total Deducted Quantity						0.000 cum	
		Net Total Quantity						81.118 cum	
		Say 81.118 cum @ Rs 454.55 / cum						Rs 36872.19	
3	100.3.7.2 Earthwork open well excavation (above water) for wells of dia. above 6.0m and upto 9.0 m in all kinds of soil and conveying and depositing the spoil within initial lead of 50m and lift from 1.50m to 3.0 m including neat banking. NEW DATA								
	For Collection well	3.14/4	8.300	8.300	1.500		81.118		
		Total Quantity						81.118 cum	
		Total Deducted Quantity						0.000 cum	
		Net Total Quantity						81.118 cum	

	Say 81.118 cum @ Rs 499.98 / cum						Rs 40557.38	
4	100.3.7.13 Earthwork open well excavation (in or under water) for wells of dia. above 6.0m and upto 9.0 m in all kinds of soil and conveying and depositing the spoil within initial lead of 50m and lift from 3.0m to 4.5 m including neat banking. NEW DATA							
	For Collection well	3.14/4	8.300	8.300	1.500		81.118	
	Total Quantity						81.118 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						81.118 cum	
	Say 81.118 cum @ Rs 654.57 / cum						Rs 53097.41	
5	100.3.8.14 Earthwork open well excavation (in or under water) for wells of dia. above 6.0m and upto 9.0 m in ordinary rock in ordinary rock and conveying and depositing the spoil within initial lead of 50m and lift from 4.5m to 6.0 m including neat banking. NEW DATA							
	For Collection well	3.14/4	8.300	8.300	1.500		81.118	
	Total Quantity						81.118 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						81.118 cum	
	Say 81.118 cum @ Rs 1815.40 / cum						Rs 147261.62	
6	100.3.8.15 Earthwork open well excavation (in or under water) for wells of dia. above 6.0m and upto 9.0 m in ordinary rock in ordinary rock and conveying and depositing the spoil within initial lead of 50m and lift from 6.0m to 7.5 m including neat banking. NEW DATA							
	For Collection well	3.14/4	8.300	8.300	1.500		81.118	
	Total Quantity						81.118 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						81.118 cum	
	Say 81.118 cum @ Rs 1955.05 / cum						Rs 158589.75	
7	100.3.8.16 Earthwork open well excavation (in or under water) for wells of dia. above 6.0m and upto 9.0 m in ordinary rock in ordinary rock and conveying and depositing the spoil within initial lead of 50m and lift from 7.5m to 9.0 m including neat banking. NEW DATA							
		3.14/4	8.300	8.300	0.500		27.040	
	Total Quantity						27.040 cum	

	Total Deducted Quantity							0.000 cum
	Net Total Quantity							27.040 cum
	Say 27.040 cum @ Rs 2094.70 / cum							Rs 56640.69
8	5.7 Reinforced cement concrete work in well - steining excluding the cost of centering, shuttering, finishing and reinforcement, with 1:1.5:3 (1 cement : 1.5 coarse sand (Zone - III) : 3 graded stone aggregate 20 mm nominal size)							
	For steining up to Top	3.14	7.350	0.300	7.700		53.313	
	Total Quantity							53.313 cum
	Total Deducted Quantity							0.000 cum
	Net Total Quantity							53.313 cum
	Say 53.313 cum @ Rs 8611.41 / cum							Rs 459100.10
9	4.1.8 Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level:1:4:8 (1 cement : 4 coarse sand : 8 graded stone aggregate 40 nominal size)							
	Well Bottom portion	3.14/4	8.300	8.300	0.300		16.224	
	Total Quantity							16.224 cum
	Total Deducted Quantity							0.000 cum
	Net Total Quantity							16.224 cum
	Say 16.224 cum @ Rs 6857.61 / cum							Rs 111257.86
10	5.1.2 Providing and laying in position specified grade of reinforced cement concrete, excluding the cost of centering, shuttering, finishing and reinforcement - All work up to plinth level:1:1:5:3 (1 cement 1.5 coarse sand :3 graded stone aggregate 20 mm nominal size)							
	well base	3.14/4	7.000	7.000	0.300		11.540	
	Total Quantity							11.540 cum
	Total Deducted Quantity							0.000 cum
	Net Total Quantity							11.540 cum
	Say 11.540 cum @ Rs 9142.09 / cum							Rs 105499.72
11	4.15 Extra for laying concrete in or under water and or liquid mud including cost of pumping or bailing out water and removing slush etc. complete. Note for item No. 4.15 : - The quantity will be calculated by multiplying the depth measured from the sub-soil water level upto centre of gravity of concrete under sub-soil water level with quantity of concrete in cum executed under the sub-soil water. The depth of centre of gravity shall be reconed correct to 0.10 m 0.05 m or more shall be taken as 0.10 m and less than 0.05 m ignored.							

	Well bottom	3.14/4	7.000	7.000	0.300		11.540	
	Side wall	3.14	7.350	0.300	1.000		6.924	
	Total Quantity						18.464 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						18.464 cum	
	Say 18.464 cum @ Rs 941.23 / cum						Rs 17378.87	
12	5.22.4 Steel reinforcement for R.C.C work including straightening, cutting, bending, placing in position and binding all complete upto plinth level Hot rolled deformed bars							
	@120kg/m3	1	53.313			120.0	6397.560	
		1	11.540			120.0	1384.800	
		1	14.863			120.0	1783.560	
	Total Quantity						9565.920 kilogram	
	Total Deducted Quantity						0.000 kilogram	
	Net Total Quantity						9565.920 kilogram	
	Say 9565.920 kilogram @ Rs 98.92 / kilogram						Rs 946260.81	
13	5.3 Reinforced cement concrete work in beams, suspended floors, roofs, having slope up to 15 ⁰ landings, balconies, shelves, chajjas, lintels, bands, plain window sills, staircases and spiral stair cases up to floor five level excluding the cost of centering, shuttering, finishing and reinforcement, with 1:1.5:3 (1 cement : 1.5 coarse sand (Zone III) : 3 graded stone aggregate 20 mm nominal size).							
	Cover slab	3.14/4	7.700	7.700	0.300		13.963	
	Beam	2	5.000	0.300	0.300		0.900	
	Total Quantity						14.863 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						14.863 cum	
	Say 14.863 cum @ Rs 11564.93 / cum						Rs 171889.55	
14	od357982/2021_2022 Centering and shuttering including strutting propping etc and removal of form etc. Well Steining for circular works							
	steining up to Top - Outer	3.14	7.700		7.700		186.171	
	steining up to Top - Inner	3.14	7.000		7.400		162.653	
	Total Quantity						348.824 sqm	
	Total Deducted Quantity						0.000 sqm	

		Net Total Quantity						348.824 sqm
		Say 348.824 sqm @ Rs 301.51 / sqm						Rs 105173.92
15	5.9.5 Centering and shuttering including strutting, etc. and removal of form for:Lintels, beams, plinth beams, girders bressumers and cantilevers							
	for beam	2	5.000	0.900			9.000	
		Total Quantity						9.000 sqm
		Total Deducted Quantity						0.000 sqm
		Net Total Quantity						9.000 sqm
		Say 9.000 sqm @ Rs 653.89 / sqm						Rs 5885.01
16	5.9.3 Centering and shuttering including strutting, etc. and removal of form for:Suspended floors, roofs, landings, balconies and access platform							
	slab for working plat form over the well and beam	3.14/4	7.700	7.700			46.543	
	Beam bottom	2	5.000	0.300			-3.000	
		Total Quantity						46.543 sqm
		Total Deducted Quantity						-3.000 sqm
		Net Total Quantity						43.543 sqm
		Say 43.543 sqm @ Rs 820.89 / sqm						Rs 35744.01
17	19.16 Providing orange colour safety foot rest of minimum 6 mm thick plastic encapsulated as per IS: 10910 on 12 mm dia steel bar conforming to IS:1786, having minimum cross section as 23 mm x 25 mm and over all minimum length 263 mm and width as 165 mm with minimum 112 mm space between protruded legs having 2 mm tread on top surface by ribbing or chequering besides necessary and adequate anchoring projections on tail length on 138 mm as per standard drawing and suitable to with stand the bend test and chemical resistance test as per specifications and having manufactures permanent identification mark to be visible even after fixing including fixing in manholes with 30x20x15 cm cement concrete block 1:3:6 (1cement: 3 coarse sand: 6 graded stone aggregate 20 mm nominal size)Complete as per design							
	steps	1	4*14				56.000	
		Total Quantity						56.000 No
		Total Deducted Quantity						0.000 No
		Net Total Quantity						56.000 No
		Say 56.000 No @ Rs 548.42 / No						Rs 30711.52
18	14.72 Providing and fixing double scaffolding system (cup lock type) on the exterior side, upto seven story hight made with 40 mm dia. M.S. tube 1.5 m centre to centre, horizontal & vertical tubes joining with cup & lock							

	system with M.S. tubes, M.S. tube challies, M.S. clamps and M.S. staricase system in the scaffolding for working platform etc. and maintaining it in a serviceable condition for the required duration as approved and removing it there after. The scaffolding system shall be stiffened with bracings, runners, connection with the building etc wherever required for inspection of work at required location with essential safety features for the workmen etc. complete as per directions and approval of Engineer- in Charge. The elevational area of the scaffolding shall be measured for payment purpose. The payment will be made once irrespective of duration of scaffolding. Note:- This item to be used for maintenance work judicially, necessary deduction for scaffolding in the existing item to be done .							
		1	3.140	7.000	7.700		169.246	
	Total Quantity						169.246 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						169.246 sqm	
	Say 169.246 sqm @ Rs 305.56 / sqm						Rs 51714.81	
19	13.7.1 12 mm cement plaster finished with a floating coat of neat cement of mix:1:3 (1 cement : 3 fine sand)							
	Bottom of well	3.14/4	7.000	7.000			38.465	
	inside of steining	3.14	7.000		7.700		169.246	
	Cover slab Top	3.14/4	7.700	7.700			46.543	
	Steining out	3.14	7.700	0.600			14.507	
	beam	2	5.000	0.900			9.000	
	Total Quantity						277.761 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						277.761 sqm	
	Say 277.761 sqm @ Rs 403.73 / sqm						Rs 112140.45	
20	13.52.2 Finishing with Epoxy paint (two or more coats) at all locations prepared and applied as per manufacturer's specifications including appropriate priming coat, preparation of surface, etc. complete. On concrete work							
	Bottom of well	3.14/4	7.700	7.700			46.543	
	inside of steining	3.14	7.000		7.700		169.246	
	Total Quantity						215.789 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						215.789 sqm	
	Say 215.789 sqm @ Rs 224.31 / sqm						Rs 48403.63	
21	100.7.1 Bailing out water with 5 HP engine and pumpset including conveyance to the site, erection, dismantling and taking back of engine and pump, cost of fuel lubricating oil and other stores pay of staff etc.							

	complete. NEW DATA (Prepared based on PHED SDB - Item No.1070)								
		1	5*0.746	30.000	4.000		447.600		
		Total Quantity					447.600 Kwh		
		Total Deducted Quantity					0.000 Kwh		
		Net Total Quantity					447.600 Kwh		
		Say 447.600 Kwh @ Rs 37.18 / Kwh					Rs 16641.77		
22	100.7.2 Bailing out water with engine and pumpset above 5 HP upto 10 HP including conveyance to the site, erection, dismantling and taking back of engine and pump, cost of fuel lubricating oil and other stores pay of staff etc. complete. NEW DATA (Prepared based on PHED SDB - Item No.1070)								
		1	10*0.746	30.000	4.000		895.200		
		Total Quantity					895.200 Kwh		
		Total Deducted Quantity					0.000 Kwh		
		Net Total Quantity					895.200 Kwh		
		Say 895.200 Kwh @ Rs 18.56 / Kwh					Rs 16614.91		
23	100.98.1008 Engaging Coolie								
		1	50.000				50.000		
		Total Quantity					50.000 Day		
		Total Deducted Quantity					0.000 Day		
		Net Total Quantity					50.000 Day		
		Say 50.000 Day @ Rs 884.27 / Day					Rs 44213.50		
24	100.1.1 Excavating trenches of required width for pipes, cables, etc including excavation for sockets, and dressing of sides, ramming of bottoms, depth up to 1.5 m, including getting out the excavated soil, and then returning the soil as required, in layers not exceeding 20 cm in depth, including consolidating each deposited layer by ramming, watering, etc. and disposing of surplus excavated soil as directed, within a lead of 50 m : All kinds of soil (Ref. Item No. 2.10.1 of DSR)								
		1	7.600	1.600	1.500		18.241		
		Total Quantity					18.241 cum		
		Total Deducted Quantity					0.000 cum		
		Net Total Quantity					18.241 cum		
		Say 18.241 cum @ Rs 558.99 / cum					Rs 10196.54		

25	100.1.2 Excavating trenches of required width for pipes, cables, etc including excavation for sockets, and dressing of sides, ramming of bottoms, depth exceeding 1.5m but not exceeding 3 m, including getting out the excavated soil, and then returning the soil as required, in layers not exceeding 20 cm in depth, including consolidating each deposited layer by ramming, watering, etc. and disposing of surplus excavated soil as directed, within a lead of 50 m: 1.50m to 3.0m All kinds of soil (Ref. Item No. 2.11 of DSR)	1	7.600	1.600	1.500		18.241	
		Total Quantity					18.241 cum	
		Total Deducted Quantity					0.000 cum	
		Net Total Quantity					18.241 cum	
		Say 18.241 cum @ Rs 666.03 / cum					Rs 12149.05	
26	100.1.3 Excavating trenches of required width for pipes, cables, etc including excavation for sockets, and dressing of sides, ramming of bottoms, depth exceeding 3m in depth but not exceeding 4.5 m, including getting out the excavated soil, and then returning the soil as required, in layers not exceeding 20 cm in depth, including consolidating each deposited layer by ramming, watering, etc. and disposing of surplus excavated soil as directed, within a lead of 50 m : 3.0m to 4.50m All kinds of soil (Ref. Item No. 2.12 of DSR)	1	7.600	1.600	1.500		18.241	
		Total Quantity					18.241 cum	
		Total Deducted Quantity					0.000 cum	
		Net Total Quantity					18.241 cum	
		Say 18.241 cum @ Rs 773.07 / cum					Rs 14101.57	
27	100.1.4 Excavating trenches of required width for pipes, cables, etc including excavation for sockets, and dressing of sides, ramming of bottoms, depth exceeding 4.5m in depth but not exceeding 6 m, including getting out the excavated soil, and then returning the soil as required, in layers not exceeding 20 cm in depth, including consolidating each deposited layer by ramming, watering, etc. and disposing of surplus excavated soil as directed, within a lead of 50 m : 4.5m to 6.0m All kinds of soil. (Ref. Item No. 2.12 of DSR)	1	7.600	1.600	0.500		6.080	
		Total Quantity					6.080 cum	
		Total Deducted Quantity					0.000 cum	
		Net Total Quantity					6.080 cum	
		Say 6.080 cum @ Rs 880.11 / cum					Rs 5351.07	

28	100.6.1 Providing steel sheet shoring to the sides of the trenches to depths of above 4.00 m but not exceeding 6.00m using 6 mm M.S. sheet 0.50 M wide stiffen on edges with 50 mm x 50mm x 6 mm M.S. angles driving down vertically on either side one after another in lines and levels with suitable pile driving equipments and accessories to a maximum depth of 0.50 M below the bottom of the proposed excavation 0.5 M above ground level suitably braced by horizontal walling pieces at 75 x 150 mm x 8 mm angles on either side at intervals not exceeding 1.50M and horizontal screw jack type struts at 1.50M intervals and maintaining the shoring till the pipes are laid and works are completed, dismantling, cleaning and restacking for reuse including all labour, hire charges and conveyance for equipments, tools and plants and sundries etc. complete.		1	7.6*2+1.6* 2		5.000	0.5	46.000	
		Total Quantity						46.000 sqm	
		Total Deducted Quantity						0.000 sqm	
		Net Total Quantity						46.000 sqm	
		Say 46.000 sqm @ Rs 753.83 / sqm						Rs 34676.18	
29	4.1.5 Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level:1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size)		1	8.200	1.600	0.200		2.624	
		Total Quantity						2.624 cum	
		Total Deducted Quantity						0.000 cum	
		Net Total Quantity						2.624 cum	
		Say 2.624 cum @ Rs 7413.74 / cum						Rs 19453.65	
30	5.37.1 Providing and laying in position ready mixed M-25 grade concrete for reinforced cement concrete work, using cement content as per approved design mix, manufactured in fully automatic batching plant and transported to site of work in transit mixer for all leads, having continuous agitated mixer, manufactured as per mix design of specified grade for reinforced cement concrete work including pumping of R.M.C. from transit mixer to site of laying, excluding the cost of centering, shuttering finishing and reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in -charge. Note:- Cement content considered in this item is @330 kg/cum. Excess /less cement used as per design mix is payable/recoverable separately.All work upto plinth level								
	Base slab		1	7.300	1.000	0.300		2.190	
	side wall		2	7.600	0.300	5.000		22.800	
	inner wall		3	1.600	0.300	5.000		7.200	
	Crossing wall		1	6.000	0.200	5.000		6.001	

	Roof slab	1	7.300	1.000	0.100		0.730		
	Total Quantity						38.921 cum		
	Total Deducted Quantity						0.000 cum		
	Net Total Quantity						38.921 cum		
	Say 38.921 cum @ Rs 9947.98 / cum						Rs 387185.33		
31	4.12 Extra for providing and mixing water proofing material in cement concrete work in doses by weight of cement as per manufacturer's specification .								
	Total Qty of CC	1	38.921			330.0	12843.930		
	Total Quantity						12843.930 kg		
	Total Deducted Quantity						0.000 kg		
	Net Total Quantity						12843.930 kg		
	Say 12843.930 kg @ Rs 1.36 / kg						Rs 17467.74		
32	5.22.6 Steel reinforcement for R.C.C work including straightening, cutting, bending, placing in position and binding all complete upto plinth levelThermo - Mechanically Treated bars of grade Fe-500D or more								
	@120kg/m3	1	38.921			120.0	4670.520		
	Total Quantity						4670.520 kilogram		
	Total Deducted Quantity						0.000 kilogram		
	Net Total Quantity						4670.520 kilogram		
	Say 4670.520 kilogram @ Rs 98.92 / kilogram						Rs 462007.84		
33	5.9.1 Centering and shuttering including strutting, etc. and removal of form for:Foundations, footings, bases of columns, etc for mass concrete								
	Base PCC	2	8.200		0.200		3.280		
		2	2.100		0.200		0.841		
	Base slab	2	7.600		0.300		4.560		
	„	2	1.600		0.300		0.960		
	Total Quantity						9.641 sqm		
	Total Deducted Quantity						0.000 sqm		
	Net Total Quantity						9.641 sqm		
	Say 9.641 sqm @ Rs 337.42 / sqm						Rs 3253.07		
34	5.9.2 Centering and shuttering including strutting, etc. and removal of form for:Walls (any thickness) including attached pilasters, butteresses, plinth and string courses etc.								

	side wall	2*2	7.600		5.000		152.000		
	innerwall	3*2	1.600		5.000		48.000		
	cross wall	2*2	6.000		5.000		120.000		
	Total Quantity						320.000 sqm		
	Total Deducted Quantity						0.000 sqm		
	Net Total Quantity						320.000 sqm		
	Say 320.000 sqm @ Rs 721.70 / sqm						Rs 230944.00		
35	13.1.1 12 mm cement plaster of mix:1:4 (1 cement : 4 fine sand)								
	side wall	2*2	7.600		5.000		152.000		
	innerwall	3*2	1.600		5.000		48.000		
	cross wall	1*2	6.000		5.000		60.000		
	Bottom	1	7.000	1.000			7.000		
	Total Quantity						267.000 sqm		
	Total Deducted Quantity						0.000 sqm		
	Net Total Quantity						267.000 sqm		
	Say 267.000 sqm @ Rs 316.06 / sqm						Rs 84388.02		
36	22.23.1 Kerala Water Authority Providing and applying integral crystalline slurry of hydrophilic in nature for waterproofing treatment to the RCC structures like retaining walls of the basement, water tanks, roof slabs, podiums, reservoir, sewage & water treatment plant, tunnels/ subway and bridge deck etc., prepared by mixing in the ratio of 5 : 2 (5 parts integral crystalline slurry : 2 parts water) for vertical surfaces and 3 : 1 (3 parts integral crystalline slurry : 1 part water) for horizontal surfaces and applying the same from negative (internal) side with the help of synthetic fiber brush. The material shall meet the requirements as specified in ACI-212-3R-2010 i.e by reducing permeability of concrete by more than 90% compared with control concrete as per DIN 1048 and resistant to 16 bar hydrostatic pressure on negative side. The crystalline slurry shall be capable of self-healing of cracks up to a width of 0.50mm. The work shall be carried out all complete as per specification and the direction of the engineer in-charge. The product performance shall carry guarantee for 10 years against any leakage. For vertical surface two coats @ 0.70 kg per sqm								
	side wall	2	7.600		5.000		76.000		
	innerwall	4	1.600		5.000		32.000		
	cross wall	2	6.000		5.000		60.000		
	Total Quantity						168.000 sqm		
	Total Deducted Quantity						0.000 sqm		
	Net Total Quantity						168.000 sqm		
	Say 168.000 sqm @ Rs 573.87 / sqm						Rs 96410.16		

37	22.23.2 Providing and applying integral crystalline slurry of hydrophilic in nature for waterproofing treatment to the RCC structures like retaining walls of the basement, water tanks, roof slabs, podiums, reservoir, sewage & water treatment plant, tunnels/ subway and bridge deck etc., prepared by mixing in the ratio of 5 : 2 (5 parts integral crystalline slurry : 2 parts water) for vertical surfaces and 3 : 1 (3 parts integral crystalline slurry : 1 part water) for horizontal surfaces and applying the same from negative (internal) side with the help of synthetic fiber brush. The material shall meet the requirements as specified in ACI-212-3R-2010 i.e. by reducing permeability of concrete by more than 90% compared with control concrete as per DIN 1048 and resistant to 16 bar hydrostatic pressure on negative side. The crystalline slurry shall be capable of self-healing of cracks up to a width of 0.50mm. The work shall be carried out all complete as per specification and the direction of the engineer in-charge. The product performance shall carry guarantee for 10 years against any leakage. For horizontal surface one coat @ 1.10 kg per sqm.							
	Base slab	1	7.000	1.000			7.000	
	Total Quantity						7.000 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						7.000 sqm	
	Say 7.000 sqm @ Rs 442.27 / sqm						Rs 3095.89	
SI No	Description	No	L	B	D	CF	Quantity	Remark
2 SEPTAGE RECEIVING UNIT (Cost Index: 36.44 %)								
1	2.6.1 Earth work in excavation by mechanical means (Hydraulic excavator)/manual means over areas (exceeding 30 cm in depth, 1.5 m in width as well as 10 sqm on plan) including disposal of excavated earth, lead up to 50 m and lift up to 1.5 m, disposed earth to be levelled and neatly dressed. All kinds of soil							
		1	9.000	4.000	2.350		84.601	
	Total Quantity						84.601 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						84.601 cum	
	Say 84.601 cum @ Rs 215.37 / cum						Rs 18220.52	
2	4.1.5 Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level: 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size)							
		1	9.000	4.000	0.200		7.200	
	Total Quantity						7.200 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						7.200 cum	
	Say 7.200 cum @ Rs 7413.74 / cum						Rs 53378.93	

3	5.37.1 Providing and laying in position ready mixed M-25 grade concrete for reinforced cement concrete work, using cement content as per approved design mix, manufactured in fully automatic batching plant and transported to site of work in transit mixer for all leads, having continuous agitated mixer, manufactured as per mix design of specified grade for reinforced cement concrete work including pumping of R.M.C. from transit mixer to site of laying, excluding the cost of centering, shuttering finishing and reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in -charge. Note:- Cement content considered in this item is @330 kg/cum. Excess /less cement used as per design mix is payable/recoverable separately.All work upto plinth level								
	bottom	1	9.000	4.000	0.300		10.800		
	side upto GL	1	2*(8.75+3.75)	0.300	1.350		10.125		
	Total Quantity						20.925 cum		
	Total Deducted Quantity						0.000 cum		
	Net Total Quantity						20.925 cum		
	Say 20.925 cum @ Rs 9947.98 / cum						Rs 208161.48		
4	5.37.2 Providing and laying in position ready mixed M-25 grade concrete for reinforced cement concrete work, using cement content as per approved design mix, manufactured in fully automatic batching plant and transported to site of work in transit mixer for all leads, having continuous agitated mixer, manufactured as per mix design of specified grade for reinforced cement concrete work including pumping of R.M.C. from transit mixer to site of laying, excluding the cost of centering, shuttering finishing and reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in -charge. Note:- Cement content considered in this item is @330 kg/cum. Excess /less cement used as per design mix is payable/recoverable separately.All work above plinth level upto floor V level								
	slab	1	9.000	4.000	0.1500		5.400		
	side upto slab	1	2*(8.75+3.75)	0.300	1.850		13.875		
	Total Quantity						19.275 cum		
	Total Deducted Quantity						0.000 cum		
	Net Total Quantity						19.275 cum		
	Say 19.275 cum @ Rs 11610.43 / cum						Rs 223791.04		
5	5.34.1 Extra for providing richer mixes at all floor levels. Note:- Excess/less cement over the specified cement content used is payable/ recoverable separately.Providing M-30 grade concrete instead of M-25 grade BMC/RMC. (Note:- Cement content considered in M-30 is @ 340 kg/cum).								
		1	40.200				40.200		
	Total Quantity						40.200 cum		

	Total Deducted Quantity							0.000 cum
	Net Total Quantity							40.200 cum
	Say 40.200 cum @ Rs 82.61 / cum							Rs 3320.92
6	4.12 Extra for providing and mixing water proofing material in cement concrete work in doses by weight of cement as per manufacturer's specification .							
		1	40.200	330.000			13266.001	
	Total Quantity							13266.001 kg
	Total Deducted Quantity							0.000 kg
	Net Total Quantity							13266.001 kg
	Say 13266.001 kg @ Rs 1.36 / kg							Rs 18041.76
7	od357974/2021_2022 Extra for providing sulphate resistant cement for the structures above plinth level.							
		1	40.200				40.200	
	Total Quantity							40.200 cum
	Total Deducted Quantity							0.000 cum
	Net Total Quantity							40.200 cum
	Say 40.200 cum @ Rs 1899.47 / cum							Rs 76358.69
8	5.22.6 Steel reinforcement for R.C.C work including straightening, cutting, bending, placing in position and binding all complete upto plinth level Thermo - Mechanically Treated bars of grade Fe-500D or more @120 kg/m3							
		1	40.200	120.000			4824.000	
	Total Quantity							4824.000 kilogram
	Total Deducted Quantity							0.000 kilogram
	Net Total Quantity							4824.000 kilogram
	Say 4824.000 kilogram @ Rs 98.92 / kilogram							Rs 477190.08
9	od357975/2021_2022 Extra for providing epoxy coating for reinforcement bars.							
		1	40.200		120.000		4824.000	
	Total Quantity							4824.000 kg
	Total Deducted Quantity							0.000 kg
	Net Total Quantity							4824.000 kg
	Say 4824.000 kg @ Rs 2.32 / kg							Rs 11191.68
10	5.9.1 Centering and shuttering including strutting, etc. and removal of form for:Foundations, footings, bases of							

	columns, etc for mass concrete							
	FOR PCC	1	2*(9+4)	0.200			5.200	
	FOR BASE SLAB	1	2*(8.5+3.5)	0.300			7.200	
	Total Quantity						12.400 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						12.400 sqm	
	Say 12.400 sqm @ Rs 337.42 / sqm						Rs 4184.01	
11	5.9.2 Centering and shuttering including strutting, etc. and removal of form for:Walls (any thickness) including attached pilasters, buttersesses, plinth and string courses etc.							
	Inside	1	2*8.5+2*3.5		2.850		68.400	
	Out side	1	2*9+2*4		2.850		74.101	
	Total Quantity						142.501 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						142.501 sqm	
	Say 142.501 sqm @ Rs 721.70 / sqm						Rs 102842.97	
12	5.9.3 Centering and shuttering including strutting, etc. and removal of form for:Suspended floors, roofs, landings, balconies and access platform							
	FOR COVER SLAB	1	9.000	4.000			36.000	
	Total Quantity						36.000 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						36.000 sqm	
	Say 36.000 sqm @ Rs 820.89 / sqm						Rs 29552.04	
13	13.7.1 12 mm cement plaster finished with a floating coat of neat cement of mix:1:3 (1 cement : 3 fine sand)							
	ITEM NO 10	1	12.400				12.400	
	ITEM NO 11	1	142.501				142.501	
	ITEM NO 13	1	36.000				36.000	
	Total Quantity						190.901 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						190.901 sqm	
	Say 190.901 sqm @ Rs 403.73 / sqm						Rs 77072.46	

14	13.52.2 Finishing with Epoxy paint (two or more coats) at all locations prepared and applied as per manufacturer's specifications including appropriate priming coat, preparation of surface, etc. complete. On concrete work								
	Wall Out side	1	2*(9+4)		2.850		74.101		
	cover slab outside	1	9.000	4.000			36.000		
	Total Quantity						110.101 sqm		
	Total Deducted Quantity						0.000 sqm		
	Net Total Quantity						110.101 sqm		
	Say 110.101 sqm @ Rs 224.31 / sqm							Rs 24696.76	
15	22.23.1 Providing and applying integral crystalline slurry of hydrophilic in nature for waterproofing treatment to the RCC structures like retaining walls of the basement, water tanks, roof slabs, podiums, reservoir, sewage & water treatment plant, tunnels/ subway and bridge deck etc., prepared by mixing in the ratio of 5 : 2 (5 parts integral crystalline slurry : 2 parts water) for vertical surfaces and 3 : 1 (3 parts integral crystalline slurry : 1 part water) for horizontal surfaces and applying the same from negative (internal) side with the help of synthetic fiber brush. The material shall meet the requirements as specified in ACI-212-3R-2010 i.e by reducing permeability of concrete by more than 90% compared with control concrete as per DIN 1048 and resistant to 16 bar hydrostatic pressure on negative side. The crystalline slurry shall be capable of self-healing of cracks up to a width of 0.50mm. The work shall be carried out all complete as per specification and the direction of the engineer in-charge. The product performance shall carry guarantee for 10 years against any leakage. For vertical surface two coats @ 0.70 kg per sqm								
	Side wall inside all around	1	2*(8.5+3.5)		2.850		68.400		
	Total Quantity						68.400 sqm		
	Total Deducted Quantity						0.000 sqm		
	Net Total Quantity						68.400 sqm		
	Say 68.400 sqm @ Rs 573.87 / sqm							Rs 39252.71	
16	22.23.2 Providing and applying integral crystalline slurry of hydrophilic in nature for waterproofing treatment to the RCC structures like retaining walls of the basement, water tanks, roof slabs, podiums, reservoir, sewage & water treatment plant, tunnels/ subway and bridge deck etc., prepared by mixing in the ratio of 5 : 2 (5 parts integral crystalline slurry : 2 parts water) for vertical surfaces and 3 : 1 (3 parts integral crystalline slurry : 1 part water) for horizontal surfaces and applying the same from negative (internal) side with the help of synthetic fiber brush. The material shall meet the requirements as specified in ACI-212-3R-2010 i.e by reducing permeability of concrete by more than 90% compared with control concrete as per DIN 1048 and resistant to 16 bar hydrostatic pressure on negative side. The crystalline slurry shall be capable of self-healing of cracks up to a width of 0.50mm. The work shall be carried out all complete as per specification and the direction of the engineer in-charge. The product performance shall carry guarantee for 10 years against any leakage. For horizontal surface one coat @ 1.10 kg per sqm.								

	Cover slab inside	1	8.500	3.500			29.750		
	Base slab top	1	8.500	3.500			29.750		
	Total Quantity						59.500 sqm		
	Total Deducted Quantity						0.000 sqm		
	Net Total Quantity						59.500 sqm		
	Say 59.500 sqm @ Rs 442.27 / sqm							Rs 26315.07	
17	100.36.1 Filling water with 5000 litre tankers fitted in lorry and conveying water from a distance of 5 km (average) to the reservoir site and pumping the water into the reservoir of height not less than 3 m using 5 HP diesel engine pump set , hire for tanker lorry, tools and other appliances and cost of water etc. complete. "(Ref. No. 000, Technical Circular)"								
		1	8.500	3.500	2.850		84.788		
	Total Quantity						84.788 Kilo litre		
	Total Deducted Quantity						0.000 Kilo litre		
	Net Total Quantity						84.788 Kilo litre		
	Say 84.788 Kilo litre @ Rs 185.67 / Kilo litre							Rs 15742.59	
Sl No	Description	No	L	B	D	CF	Quantity	Remark	
3INLET CHAMBER / SCREEN CHANNEL / GRIT CHAMBER / PARSHALL FLUME								(Cost Index:36.44 %)	
1	2.6.1 Earth work in excavation by mechanical means (Hydraulic excavator)/manual means over areas (exceeding 30 cm in depth, 1.5 m in width as well as 10 sqm on plan) including disposal of excavated earth, lead up to 50 m and lift up to 1.5 m, disposed earth to be levelled and neatly dressed.All kinds of soil								
	Receiving chamber footing	4	1.600	1.600	1.500		15.361		
	Receiving and Distribution chamber footing	6	1.900	1.900	1.500		32.491		
	Grit chamber Footing	6	2.200	2.200	1.500		43.561		
	Parshallflume and Distribution chamber	6	1.900	1.900	1.500		32.491		
	Staircase column footing	3	1.600	1.600	1.500		11.521		
	Total Quantity						135.425 cum		
	Total Deducted Quantity						0.000 cum		
	Net Total Quantity						135.425 cum		
	Say 135.425 cum @ Rs 215.37 / cum							Rs 29166.48	

2	4.1.5 Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level:1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size)							
	Receiving chamber footing	4	1.600	1.600	0.200		2.049	
	Receiving and Distribution chamber footing	6	1.900	1.900	0.200		4.332	
	Grit chamber Footing	6	2.200	2.200	0.200		5.809	
	Parshalflume and Distribution chamber	6	1.900	1.900	0.200		4.332	
	Staircase column footing	3	1.600	1.600	0.200		1.537	
						Total Quantity	18.059 cum	
						Total Deducted Quantity	0.000 cum	
						Net Total Quantity	18.059 cum	
						Say 18.059 cum @ Rs 7413.74 / cum	Rs 133884.73	
3	5.37.1 Providing and laying in position ready mixed M-25 grade concrete for reinforced cement concrete work, using cement content as per approved design mix, manufactured in fully automatic batching plant and transported to site of work in transit mixer for all leads, having continuous agitated mixer, manufactured as per mix design of specified grade for reinforced cement concrete work including pumping of R.M.C. from transit mixer to site of laying, excluding the cost of centering, shuttering finishing and reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in-charge. Note:- Cement content considered in this item is @330 kg/cum. Excess /less cement used as per design mix is payable/recoverable separately.All work upto plinth level							
	Receiving chamber footing Size 1.2 x 1.2 x 0.9 m	4	1.200	1.200	0.150		0.864	
		4	0.700	0.700	0.750		1.470	
	Receiving and Distribution chamber footing Size 1.5 x 1.5 x 0.9 m	6	1.500	1.500	0.150		2.025	
		6	0.900	0.900	0.750		3.646	
	Grit chamber Footing Size 1.8x1.8x0.9m	6	1.800	1.800	0.150		2.916	

		6	1.100	1.100	0.750		5.446		
	Parshalflume and Distribution chamber footing Size 1.5 x 1.5 x 0.9 m	6	1.500	0.150	0.150		0.203		
		6	0.900	0.900	0.750		3.646		
	Staircase column footing Size 1.2 x 1.2 x 0.9 m	3	1.200	1.200	0.150		0.648		
		3	0.700	0.700	0.750		1.103		
	Pedastral column-Reciving chamber	4	0.250	0.400	0.400		0.161		
	Pedastral column-Reciving and Distribution chamber	6	0.250	0.450	0.400		0.270		
	Pedastral column-staircase	3	0.200	0.400	0.400		0.097		
	Pedastral column-Gritchamber	6	0.250	0.500	0.400		0.301		
	Pedastral column-Parshalflume and Distribution chamber	6	0.250	0.450	0.400		0.270		
		Total Quantity					23.066 cum		
		Total Deducted Quantity					0.000 cum		
		Net Total Quantity					23.066 cum		
		Say 23.066 cum @ Rs 9947.98 / cum					Rs 229460.11		
4	<p>5.37.2 Providing and laying in position ready mixed M-25 grade concrete for reinforced cement concrete work, using cement content as per approved design mix, manufactured in fully automatic batching plant and transported to site of work in transit mixer for all leads, having continuous agitated mixer, manufactured as per mix design of specified grade for reinforced cement concrete work including pumping of R.M.C. from transit mixer to site of laying, excluding the cost of centering, shuttering finishing and reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in-charge. Note:- Cement content considered in this item is @330 kg/cum. Excess /less cement used as per design mix is payable/recoverable separately.All work above plinth level upto floor V level</p>								
	Plinth level beam	1	106.860	0.250	0.450		12.022		
	Reciving chamber column 250x400	4	0.250	0.400	2.550		1.020		

Receiving and Distribution chamber column 250x450	6	0.250	0.450	3.000		2.026	
Grit chamber Column 250x500	6	0.250	0.500	2.200		1.651	
Parshalflume and Distribution chamber column 250x450	6	0.250	0.450	3.000		2.026	
Staircase column 200x400	1	0.200	0.400	1.500		0.121	
Staircase column 200x400	1	0.200	0.400	3.000		0.241	
Staircase column 200x400	1	0.200	0.400	5.000		0.401	
Receiving chamber base slab	1	2.250	1.900	0.200		0.855	
Receiving chamber side wall	1	2.750	0.250	2.000		1.375	
	2	1.900	0.250	2.000		1.900	
	1	2.750	0.250	1.000		0.688	
Coarse and fine screen chamber base slab	2	6.500	1.000	0.200		2.600	
Coarse and fine screen chamber side wall	3	7.350	0.250	1.000		5.513	
Distribution Chamber base slab	1	1.250	2.250	0.200		0.563	
Grit chamber base slab -side portion	2	5.750	1.000	0.200		2.301	
Grit chamber base slab -Centre portion	2	4.500	4.500	0.200		8.100	
Grit Chamber side portion wall	4	3.6400	0.250	1.000		3.640	
Grit Chamber side wall	2	9.500	0.250	2.500		11.875	
Grit Chamber side wall(H)	3	4.500	0.250	2.500		8.438	

	parshelfume and distribution chamber base slab	1	5.000	2.000	0.200		2.000		
	parshelfume and distribution chamber side wall	2	5.500	0.250	1.000		2.750		
	parshelfume and distribution chamber short wall	1	2.250	0.250	1.000		0.563		
	Allround verandha slab	1	66.110	1.000	0.150		9.917		
	verandha beam	15	1.000	0.250	0.400		1.500		
	Staircase -steps	18	1.000	0.300	0.150		0.810		
	Staircase -landing	1	1.000	1.000	0.150		0.150		
		1	1.700	1.000	0.150		0.255		
		Total Quantity					85.301 cum		
		Total Deducted Quantity					0.000 cum		
		Net Total Quantity					85.301 cum		
		Say 85.301 cum @ Rs 11610.43 / cum					Rs 990381.29		
5	4.12 Kerala Water Authority Extra for providing and mixing water proofing material in cement concrete work in doses by weight of cement as per manufacturer's specification .								
	Reciving chamber base slab	1	2.250	1.700	0.200	330.0	252.451		
	Reciving chamber side wall	1	2.750	0.250	2.000	330.0	453.750		
		2	1.700	0.250	2.000	330.0	561.000		
		1	2.750	0.250	1.000	330.0	226.875		
	Coarse and fine screen chamber base slab	2	6.500	1.000	0.200	330.0	858.000		
	Coarse and fine screen chamber side wall	3	7.350	0.250	1.000	330.0	1819.125		
	Distribution Chamber base slab	1	1.250	2.250	0.200	330.0	185.625		
	Grit chamber base slab -side portion	2	5.425	1.000	0.200	330.0	716.100		

	Grit chamber base slab -Centre portion	2	4.300	4.300	0.200	330.0	2440.680		
	Grit Chamber side portion wall	4	3.300	0.250	1.000	330.0	1089.000		
	Grit Chamber side wall	2	9.100	0.250	2.500	330.0	3753.750		
	Grit Chamber side wall(H)	3	4.300	0.250	2.500	330.0	2660.625		
	parshelfume and distribution chamber base slab	1	5.000	2.000	0.200	330.0	660.000		
	parshelfume and distribution chamber side wall	2	5.500	0.250	1.000	330.0	907.500		
	parshelfume and distribution chamber short wall	1	2.250	0.250	1.000	330.0	185.625		
	Total Quantity						16770.106 kg		
	Total Deducted Quantity						0.000 kg		
	Net Total Quantity						16770.106 kg		
	Kerala Water Authority Say 16770.106 kg @ Rs 1.36 / kg						Rs 22807.34		
6	5.22.6 Steel reinforcement for R.C.C work including straightening, cutting, bending, placing in position and binding all complete upto plinth-levelThermo - Mechanically Treated bars of grade Fe-500D or more								
	From item no 3 @120 kg/m3	1			23.066	120.0	2767.920		
	From item no 4 @120 kg/m3	1			85.301	120.0	10236.120		
	Total Quantity						13004.040 kilogram		
	Total Deducted Quantity						0.000 kilogram		
	Net Total Quantity						13004.040 kilogram		
	Say 13004.040 kilogram @ Rs 98.92 / kilogram						Rs 1286359.64		
7	od357974/2021_2022 Extra for providing sulphate resistant cement for the structures above plinth level.								
	ITEM NO 3 &4	1	108.307				108.307		
	Total Quantity						108.307 cum		
	Total Deducted Quantity						0.000 cum		

	Net Total Quantity						108.307 cum	
	Say 108.307 cum @ Rs 1899.47 / cum						Rs 205725.90	
8	5.9.1 Centering and shuttering including strutting, etc. and removal of form for:Foundations, footings, bases of columns, etc for mass concrete							
	Receiving chamber footing Size 1.2 x 1.2 x 0.9 m	4	4.800		0.150		2.880	
	Receiving and Distribution chamber footing Size 1.5 x 1.5 x 0.9 m	6	6.000		0.150		5.400	
	Grit chamber Footing Size 1.8x1.8x0.9m	6	7.200		0.150		6.480	
	Parshalflume and Distribution chamber footing Size 1.5 x 1.5 x 0.9 m	6	6.000		0.150		5.400	
	Staircase column footing Size 1.2 x 1.2 x 0.9 m	3	4.800		0.150		2.160	
	Pedastral column- Receiving chamber	4	1.300		0.400		2.080	
	Pedastral column- Receiving and Distribution chamber	6	1.400		0.400		3.360	
	Pedastral column- staircase	3	1.200		0.400		1.440	
	Pedastral column- Grit chamber	6	1.500		0.400		3.601	
	Pedastral column- Parshalflume and Distribution chamber	6	1.400		0.400		3.360	
	Total Quantity						36.161 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						36.161 sqm	
	Say 36.161 sqm @ Rs 337.42 / sqm						Rs 12201.44	
9	5.9.2 Centering and shuttering including strutting, etc. and removal of form for:Walls (any thickness) including							

	attached pilasters, buttersesses, plinth and string courses etc.							
	Reciving chamber side wall	2	2.750		2.200		12.101	
		4	1.900		2.200		16.720	
		2	2.750		1.000		5.500	
	Coarse and fine screen chamber side wall	6	8.750		1.000		52.500	
	Grit Chamber side portion wall	8	3.6400		1.000		29.120	
	Grit Chamber side wall	4	9.500		2.500		95.000	
	Grit Chamber cross wall	6	4.750		2.500		71.250	
	parshelfume and distribution chamber side wall	4	5.500		1.000		22.000	
		2	2.250		1.000		4.500	
	Total Quantity						308.691 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						308.691 sqm	
	Say 308.691 sqm @ Rs 721.70 / sqm						Rs 222782.29	
10	5.9.3 Centering and shuttering including strutting, etc. and removal of form for:Suspended floors, roofs, landings, balconies and access platform							
	Reciving chamber base slab	1	2.250	1.900			4.275	
	Coarse and fine screen chamber base slab	2	8.500	1.000			17.000	
	Grit chamber base slab -side portion	2	5.750	1.000			11.500	
	Grit chamber base slab -Centre portion	2	4.500	4.500			40.500	
	parshelfume and distribution chamber base slab	1	5.250	2.000			10.500	
	Total Quantity						83.775 sqm	

		Total Deducted Quantity					0.000 sqm	
		Net Total Quantity					83.775 sqm	
		Say 83.775 sqm @ Rs 820.89 / sqm					Rs 68770.06	
11	5.9.5 Centering and shuttering including strutting, etc. and removal of form for:Lintels, beams, plinth beams, girders bressumers and cantilevers							
	Allround verandha slab	1	66.110	1.150			76.027	
	Plinth beam (GL)	1	106.860	1.150			122.889	
	verandha beam	15	1.000	0.250+0.4*2			15.750	
	Staircase -steps	18	1.000	0.300*2+0.15*2			16.200	
	Staircase -landing	1	1.000	1.000			1.000	
		1	1.700	1.000			1.700	
		Total Quantity					233.566 sqm	
		Total Deducted Quantity					0.000 sqm	
		Net Total Quantity					233.566 sqm	
		Say 233.566 sqm @ Rs 653.89 / sqm					Rs 152726.47	
12	5.9.6 Centering and shuttering including strutting, etc. and removal of form for:Columns, Pillars, Piers, Abutments, Posts and Struts							
	Reciving chamber column 250x400	4	0.250*2+0.4*2		2.550		13.260	
	Reciving and Distribution chamber column 250x450	6	0.250*2+0.45*2		3.550		29.820	
	Grit chamber Column250x500	6	0.250*2+0.5*2		2.000		18.000	
	Parshalflume and Distribution chamber column250x450	6	0.250*2+0.45*2		3.550		29.820	
	Staircase column 200x400	1	0.2*2+0.4*2		1.500		1.801	
	Staircase column 200x400	1	0.200*2+0.4*2		3.000		3.601	

	Staircase column 200x400	1	0.200*2+0 .4*2		5.750		6.901		
	Total Quantity						103.203 sqm		
	Total Deducted Quantity						0.000 sqm		
	Net Total Quantity						103.203 sqm		
	Say 103.203 sqm @ Rs 869.05 / sqm						Rs 89688.57		
13	13.7.1 12 mm cement plaster finished with a floating coat of neat cement of mix:1:3 (1 cement : 3 fine sand)								
	Reciving chamber base slab- top and bottom	2	2.250	1.900			8.550		
	Reciving chamber side wall- inside and out side	2	2.750		2.200		12.101		
		4	1.000		2.200		8.800		
		2	2.750		1.000		5.500		
	Coarse and fine screen chamber base slab-top and bottom	4	8.500	1.000			34.000		
	Coarse and fine screen chamber side wall	6	8.750		1.000		52.500		
	Grit chamber base slab -side portion -top and bottom	4	5.750	1.000			23.000		
	Grit chamber base slab -Centre portion - top and botom	4	4.500	4.500			81.000		
	Grit Chamber sidewall-inside and out side	4	9.500		2.300		87.400		
		6	4.750		2.300		65.550		
	parshelfume and distribution chamber base slab-top and bottom	2	5.250	2.000			21.000		

	parshelfume and distribution chamber side wall-inside and out side	4	5.500		1.000		22.000	
	Allround verandha slab-top and bottom	2	66.111	1.000	0.150		19.834	
	verandha -edge	1	66.111	0.150			9.917	
	verandha beam	15	1.000	1.050			15.750	
	Staircase -steps	18	1.000	0.900			16.200	
	Staircase -waist slab bottom	1	15.000	1.000			15.000	
	Staircase -landing -top only	1	1.000	1.000			1.000	
		1	1.700	1.000			1.700	
	Plinth level beam	1	106.860		1.400		149.604	
	Reciving chamber column 250x400	4	0.250*2+0.4*2		2.550		13.260	
	Reciving and Distribution chamber column 250x450	6	0.250*2+0.45*2		3.550		29.820	
	Grit chamber Column250x500	6	0.250*2+0.5*2		2.000		18.000	
	Parshalflume and Distribution chamber column250x450	6	0.250*2+0.45*2		3.550		29.820	
	Staircase column 200x400	1	0.2*2+0.4*2		1.500		1.801	
	Staircase column 200x400	1	0.200*2+0.4*2		3.000		3.601	
	Staircase column 200x400	1	0.200*2+0.4*2		5.750		6.901	
						Total Quantity	753.609 sqm	
						Total Deducted Quantity	0.000 sqm	
						Net Total Quantity	753.609 sqm	
						Say 753.609 sqm @ Rs 403.73 / sqm	Rs 304254.56	
14	13.52.2 Finishing with Epoxy paint (two or more coats) at all locations prepared and applied as per manufacturer's specifications including appropriate priming coat, preparation of surface, etc. complete.On							

	concrete work							
	Qty same as item no-13	1	753.609				753.609	
	Total Quantity						753.609 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						753.609 sqm	
	Say 753.609 sqm @ Rs 224.31 / sqm						Rs 169042.03	
15	<p>22.23.1 Providing and applying integral crystalline slurry of hydrophilic in nature for waterproofing treatment to the RCC structures like retaining walls of the basement, water tanks, roof slabs, podiums, reservoir, sewage & water treatment plant, tunnels/ subway and bridge deck etc., prepared by mixing in the ratio of 5 : 2 (5 parts integral crystalline slurry : 2 parts water) for vertical surfaces and 3 : 1 (3 parts integral crystalline slurry : 1 part water) for horizontal surfaces and applying the same from negative (internal) side with the help of synthetic fiber brush. The material shall meet the requirements as specified in ACI-212-3R-2010 i.e by reducing permeability of concrete by more than 90% compared with control concrete as per DIN 1048 and resistant to 16 bar hydrostatic pressure on negative side. The crystalline slurry shall be capable of self-healing of cracks up to a width of 0.50mm. The work shall be carried out all complete as per specification and the direction of the engineer in-charge. The product performance shall carry guarantee for 10 years against any leakage. For vertical surface two coats @ 0.70 kg per sqm</p>							
	Receiving chamber side wall- inside and out side	1	6.300		2.200		13.861	
	Coarse and fine screen chamber side wall	4	8.750		1.000		35.000	
	Grit Chamber receiving portion- inside	2	16.530		1.000		33.060	
	Grit Chamber -inside	2	18.000		2.500		90.000	
	parashelfume and distribution chamber side wall- inside	2	5.250		1.000		10.500	
	parashelfume and distribution chamber cross wall- inside	1	2.000		1.000		2.000	
	Total Quantity						184.421 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						184.421 sqm	
	Say 184.421 sqm @ Rs 573.87 / sqm						Rs 105833.68	

16	22.23.2 Providing and applying integral crystalline slurry of hydrophilic in nature for waterproofing treatment to the RCC structures like retaining walls of the basement, water tanks, roof slabs, podiums, reservoir, sewage & water treatment plant, tunnels/ subway and bridge deck etc., prepared by mixing in the ratio of 5 : 2 (5 parts integral crystalline slurry : 2 parts water) for vertical surfaces and 3 : 1 (3 parts integral crystalline slurry : 1 part water) for horizontal surfaces and applying the same from negative (internal) side with the help of synthetic fiber brush. The material shall meet the requirements as specified in ACI-212-3R-2010 i.e. by reducing permeability of concrete by more than 90% compared with control concrete as per DIN 1048 and resistant to 16 bar hydrostatic pressure on negative side. The crystalline slurry shall be capable of self-healing of cracks up to a width of 0.50mm. The work shall be carried out all complete as per specification and the direction of the engineer in-charge. The product performance shall carry guarantee for 10 years against any leakage. For horizontal surface one coat @ 1.10 kg per sqm.							
	Receiving chamber base slab- top and bottom	2	2.250	1.900			8.550	
	Coarse and fine screen chamber base slab-top and bottom	4	8.500	1.000			34.000	
	Grit chamber base slab -side portion -top and bottom	4	5.750	1.000			23.000	
	Grit chamber base slab -Centre portion -top and bottom	4	4.500	4.500			81.000	
	parshelfume and distribution chamber base slab-top and bottom	2	5.250	2.000			21.000	
	Total Quantity						167.550 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						167.550 sqm	
	Say 167.550 sqm @ Rs 442.27 / sqm						Rs 74102.34	
17	50.10.1 Steel work in built up G I tubular (round, square or rectangular hollow tubes etc.) trusses etc., including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer, including welding and bolted with special shaped washers etc. complete							
	All round verandha	1	700.000				700.000	
	Total Quantity						700.000 kg	
	Total Deducted Quantity						0.000 kg	
	Net Total Quantity						700.000 kg	

SI No	Description	No	L	B	D	CF	Quantity	Remark
Say 700.000 kg @ Rs 191.08 / kg							Rs 133756.00	
4EQUALISATION TANK (Cost Index:36.44 %)								
1	2.6.1 Earth work in excavation by mechanical means (Hydraulic excavator)/manual means over areas (exceeding 30 cm in depth, 1.5 m in width as well as 10 sqm on plan) including disposal of excavated earth, lead up to 50 m and lift up to 1.5 m, disposed earth to be levelled and neatly dressed.All kinds of soil							
		2*3.14/4	17.100	17.100	0.500		229.542	
Total Quantity							229.542 cum	
Total Deducted Quantity							0.000 cum	
Net Total Quantity							229.542 cum	
Say 229.542 cum @ Rs 215.37 / cum							Rs 49436.46	
2	4.1.5 Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level:1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size)							
		2*3.14/4	17.100	17.100	0.200		91.817	
Total Quantity							91.817 cum	
Total Deducted Quantity							0.000 cum	
Net Total Quantity							91.817 cum	
Say 91.817 cum @ Rs 7413.74 / cum							Rs 680707.37	
3	5.37.1 Providing and laying in position ready mixed M-25 grade concrete for reinforced cement concrete work, using cement content as per approved design mix, manufactured in fully automatic batching plant and transported to site of work in transit mixer for all leads, having continuous agitated mixer, manufactured as per mix design of specified grade for reinforced cement concrete work including pumping of R.M.C. from transit mixer to site of laying, excluding the cost of centering, shuttering finishing and reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in -charge. Note:- Cement content considered in this item is @330 kg/cum. Excess /less cement used as per design mix is payable/recoverable separately.All work upto plinth level							
		2*3.14/4	16.900	16.900	0.300		134.523	
Total Quantity							134.523 cum	
Total Deducted Quantity							0.000 cum	
Net Total Quantity							134.523 cum	
Say 134.523 cum @ Rs 9947.98 / cum							Rs 1338232.11	
4	5.37.2							

	Providing and laying in position ready mixed M-25 grade concrete for reinforced cement concrete work, using cement content as per approved design mix, manufactured in fully automatic batching plant and transported to site of work in transit mixer for all leads, having continuous agitated mixer, manufactured as per mix design of specified grade for reinforced cement concrete work including pumping of R.M.C. from transit mixer to site of laying, excluding the cost of centering, shuttering finishing and reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in-charge. Note:- Cement content considered in this item is @330 kg/cum. Excess /less cement used as per design mix is payable/recoverable separately.All work above plinth level upto floor V level						
	c/c	2*3.14	15.700	5.000	0.300		147.894
	Baffle wall	2	13.000	5.000	0.100		13.000
	Walkway	2*3.14	17.000	1.000	0.100		10.677
	cantilever beams	2*8	1.000	0.250	0.250		1.000
	Stair-step	2*29	1.000	0.50*0.30* 0.15			1.305
	Stair - Landing	2*11	1.000	1.000	0.120		2.640
	Stair- Waist	2*11	6.300	1.000	0.120		16.632
	Walkway to MBBR	2*11	2.000	1.200	0.120		6.336
	Total Quantity						199.484 cum
	Total Deducted Quantity						0.000 cum
	Net Total Quantity						199.484 cum
	Say 199.484 cum @ Rs 11610.43 / cum						Rs 2316095.02
5	5.34.1 Extra for providing richer mixes at all floor levels. Note:- Excess/less cement over the specified cement content used is payable/ recoverable separately.Providing M-30 grade concrete instead of M-25 grade BMC/RMC. (Note:- Cement content considered in M-30 is @ 340 kg/cum).						
	Qty Vide Item No:3	1	134.523				134.523
	Qty Vide Item No:4	1	199.484				199.484
	Total Quantity						334.007 cum
	Total Deducted Quantity						0.000 cum
	Net Total Quantity						334.007 cum
	Say 334.007 cum @ Rs 82.61 / cum						Rs 27592.32
6	4.12 Extra for providing and mixing water proofing material in cement concrete work in doses by weight of cement as per manufacturer's specification .						
	Qty Vide Item No:3&4	1	334.100	330.000			110253.00 1

	Total Quantity						110253.001 kg
	Total Deducted Quantity						0.000 kg
	Net Total Quantity						110253.001 kg
	Say 110253.001 kg @ Rs 1.36 / kg						Rs 149944.08
7	od357974/2021_2022 Extra for providing sulphate resistant cement for the structures above plinth level.						
	Qty Vide Item No:3&4	1	334.100				334.100
	Total Quantity						334.100 cum
	Total Deducted Quantity						0.000 cum
	Net Total Quantity						334.100 cum
	Say 334.100 cum @ Rs 1899.47 / cum						Rs 634612.93
8	5.22.6 Steel reinforcement for R.C.C work including straightening, cutting, bending, placing in position and binding all complete upto plinth levelThermo - Mechanically Treated bars of grade Fe-500D or more						
	Qty Vide Item No:3&4@120 kg/m3	1	334.100	120.000			40092.000
	Total Quantity						40092.000 kilogram
	Total Deducted Quantity						0.000 kilogram
	Net Total Quantity						40092.000 kilogram
	Say 40092.000 kilogram @ Rs 98.92 / kilogram						Rs 3965900.64
9	od357975/2021_2022 Extra for providing epoxy coating for reinforcement bars.						
	Qty Vide Item No:3&4@120 kg/m3	1	334.100	120.000			40092.000
	Total Quantity						40092.000 kg
	Total Deducted Quantity						0.000 kg
	Net Total Quantity						40092.000 kg
	Say 40092.000 kg @ Rs 2.32 / kg						Rs 93013.44
10	5.9.1 Centering and shuttering including strutting, etc. and removal of form for:Foundations, footings, bases of columns, etc for mass concrete						
	BASE SLAB	2*3.14	16.900	0.300			31.840
	Total Quantity						31.840 sqm
	Total Deducted Quantity						0.000 sqm
	Net Total Quantity						31.840 sqm

	Say 31.840 sqm @ Rs 337.42 / sqm						Rs 10743.45	
11	5.9.2 Centering and shuttering including strutting, etc. and removal of form for:Walls (any thickness) including attached pilasters, buttersesses, plinth and string courses etc.							
	Inside	2*3.14	15.400	5.000			483.560	
	Outside	2*3.14	16.000	5.000			502.401	
	Baffle	2*2	13.000	4.500			234.000	
	Total Quantity						1219.961 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						1219.961 sqm	
	Say 1219.961 sqm @ Rs 721.70 / sqm						Rs 880445.85	
12	5.9.3 Centering and shuttering including strutting, etc. and removal of form for:Suspended floors, roofs, landings, balconies and access platform							
	Walkway	2*3.14	17.000	1.000			106.760	
	Stair- Landing	2*1	1.000	1.000			2.000	
	Stair- Waist	2*1	6.300	1.000			12.600	
	Stair- Step	2*29	1.000	0.150			8.700	
	Walkway to MBBR	2*1	2.000	1.200			4.800	
	Total Quantity						134.860 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						134.860 sqm	
	Say 134.860 sqm @ Rs 820.89 / sqm						Rs 110705.23	
13	5.9.5 Centering and shuttering including strutting, etc. and removal of form for:Lintels, beams, plinth beams, girders bressumers and cantilevers							
		2*8	1.000	0.750			12.000	
	Total Quantity						12.000 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						12.000 sqm	
	Say 12.000 sqm @ Rs 653.89 / sqm						Rs 7846.68	
14	13.7.1 12 mm cement plaster finished with a floating coat of neat cement of mix:1:3 (1 cement : 3 fine sand)							
	Qty vide Item No:10	1	31.840				31.840	
	FOR BASE FLOOR	2*3.14/4	15.400	15.400			372.342	

	Qty vide Item No:11	1	1219.961				1219.961	
	Qty vide Item No:12	1	134.860				134.860	
	Qty vide Item No:13	1	12.000				12.000	
	Total Quantity						1771.003 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						1771.003 sqm	
	Say 1771.003 sqm @ Rs 403.73 / sqm						Rs 715007.04	
15	<p>13.52.2 Finishing with Epoxy paint (two or more coats) at all locations prepared and applied as per manufacturer's specifications including appropriate priming coat, preparation of surface, etc. complete. On concrete work</p>							
	Tank	2	3.140	16.000	5.000		502.401	
	Walkway	2	3.140	17.000			106.760	
	Beams	2*8	1.000	0.750			12.000	
	Total Quantity						621.161 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						621.161 sqm	
	Say 621.161 sqm @ Rs 224.31 / sqm						Rs 139332.62	
16	<p>22.23.1 Kerala Water Authority Providing and applying integral crystalline slurry of hydrophilic in nature for waterproofing treatment to the RCC structures like retaining walls of the basement, water tanks, roof slabs, podiums, reservoir, sewage & water treatment plant, tunnels/ subway and bridge deck etc., prepared by mixing in the ratio of 5 : 2 (5 parts integral crystalline slurry : 2 parts water) for vertical surfaces and 3 : 1 (3 parts integral crystalline slurry : 1 part water) for horizontal surfaces and applying the same from negative (internal) side with the help of synthetic fiber brush. The material shall meet the requirements as specified in ACI-212-3R-2010 i.e by reducing permeability of concrete by more than 90% compared with control concrete as per DIN 1048 and resistant to 16 bar hydrostatic pressure on negative side. The crystalline slurry shall be capable of self-healing of cracks up to a width of 0.50mm. The work shall be carried out all complete as per specification and the direction of the engineer in-charge. The product performance shall carry guarantee for 10 years against any leakage. For vertical surface two coats @ 0.70 kg per sqm</p>							
	Tank 1	2*3.14	15.400	5.000			483.560	
	Tank 2	2*3.14	14.000	5.000			439.600	
	Baffle	2	13.000	4.500			117.000	
	Total Quantity						1040.160 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						1040.160 sqm	
	Say 1040.160 sqm @ Rs 573.87 / sqm						Rs 596916.62	

17	22.23.2 Providing and applying integral crystalline slurry of hydrophilic in nature for waterproofing treatment to the RCC structures like retaining walls of the basement, water tanks, roof slabs, podiums, reservoir, sewage & water treatment plant, tunnels/ subway and bridge deck etc., prepared by mixing in the ratio of 5 : 2 (5 parts integral crystalline slurry : 2 parts water) for vertical surfaces and 3 : 1 (3 parts integral crystalline slurry : 1 part water) for horizontal surfaces and applying the same from negative (internal) side with the help of synthetic fiber brush. The material shall meet the requirements as specified in ACI-212-3R-2010 i.e. by reducing permeability of concrete by more than 90% compared with control concrete as per DIN 1048 and resistant to 16 bar hydrostatic pressure on negative side. The crystalline slurry shall be capable of self-healing of cracks up to a width of 0.50mm. The work shall be carried out all complete as per specification and the direction of the engineer in-charge. The product performance shall carry guarantee for 10 years against any leakage. For horizontal surface one coat @ 1.10 kg per sqm.							
	BASE FLOOR	2*3.14/4	15.400	15.400			372.342	
	Total Quantity						372.342 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						372.342 sqm	
	Say 372.342 sqm @ Rs 442.27 / sqm						Rs 164675.70	
18	100.36.1 Filling water with 5000 litre tankers fitted in lorry and conveying water from a distance of 5 km (average) to the reservoir site and pumping the water into the reservoir of height not less than 3 m using 5 HP diesel engine pump set, hire for tanker lorry, tools and other appliances and cost of water etc. complete. "(Ref. No. 000, Technical Circular)"							
		2*3.14/4	15.400	15.400	5.000		1861.707	
	Total Quantity						1861.707 Kilo litre	
	Total Deducted Quantity						0.000 Kilo litre	
	Net Total Quantity						1861.707 Kilo litre	
	Say 1861.707 Kilo litre @ Rs 185.67 / Kilo litre						Rs 345663.14	
19	50.10.1 Steel work in built up G I tubular (round, square or rectangular hollow tubes etc.) trusses etc., including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer, including welding and bolted with special shaped washers etc. complete							
		2	700.000				1400.000	
	Total Quantity						1400.000 kg	
	Total Deducted Quantity						0.000 kg	
	Net Total Quantity						1400.000 kg	
	Say 1400.000 kg @ Rs 191.08 / kg						Rs 267512.00	
SI No	Description	No	L	B	D	CF	Quantity	Remark
5MBBR 1 AND MBBR 2 (Cost Index:36.44 %)								

1	2.6.1 Earth work in excavation by mechanical means (Hydraulic excavator)/manual means over areas (exceeding 30 cm in depth, 1.5 m in width as well as 10 sqm on plan) including disposal of excavated earth, lead up to 50 m and lift up to 1.5 m, disposed earth to be levelled and neatly dressed.All kinds of soil							
	TANK 1	2*3.14/4	16.100	16.100	0.550		223.828	
	TANK 2	2*3.14/4	15.000	15.000	0.550		194.288	
	Total Quantity						418.116 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						418.116 cum	
	Say 418.116 cum @ Rs 215.37 / cum						Rs 90049.64	
2	4.1.5 Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level:1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size)							
	TANK 1	2*3.14/4	16.100	16.100	0.200		81.392	
	TANK 2	2*3.14/4	15.000	15.000	0.200		70.650	
	Total Quantity						152.042 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						152.042 cum	
	Say 152.042 cum @ Rs 7413.74 / cum						Rs 1127199.86	
3	5.37.1 Providing and laying in position ready mixed M-25 grade concrete for reinforced cement concrete work, using cement content as per approved design mix, manufactured in fully automatic batching plant and transported to site of work in transit mixer for all leads, having continuous agitated mixer, manufactured as per mix design of specified grade for reinforced cement concrete work including pumping of R.M.C. from transit mixer to site of laying, excluding the cost of centering, shuttering finishing and reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in -charge. Note:- Cement content considered in this item is @330 kg/cum. Excess /less cement used as per design mix is payable/recoverable separately.All work upto plinth level							
	TANK 1	2*3.14/4	16.100	16.100	0.350		142.436	
	TANK 2	2*3.14/4	15.000	15.000	0.350		123.638	
	Total Quantity						266.074 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						266.074 cum	
	Say 266.074 cum @ Rs 9947.98 / cum						Rs 2646898.83	
4	5.37.2							

	Providing and laying in position ready mixed M-25 grade concrete for reinforced cement concrete work, using cement content as per approved design mix, manufactured in fully automatic batching plant and transported to site of work in transit mixer for all leads, having continuous agitated mixer, manufactured as per mix design of specified grade for reinforced cement concrete work including pumping of R.M.C. from transit mixer to site of laying, excluding the cost of centering, shuttering finishing and reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in-charge. Note:- Cement content considered in this item is @330 kg/cum. Excess /less cement used as per design mix is payable/recoverable separately.All work above plinth level upto floor V level								
	FOR WALLS (TANK 1)	2*3.14	15.400	0.300	5.000		145.068		
	MBBR TANK 1 RCC SHAFT CHAMBER	2	7.200	0.150	5.000		10.800		
	FOR WALLS (TANK 2)	2*3.14	14.300	0.300	5.000		134.706		
	Walkway(TANK 1)	2*3.14	16.600	1.000	0.100		10.425		
	Walkway (TANK 2)	2*3.14	15.500	1.000	0.100		9.734		
	Cantilever beams	2*10	1.000	0.250	0.250		1.250		
	WALKWAY TO MBBR - SLAB	2	5.000	1.500	0.150		2.250		
	Total Quantity						314.233 cum		
	Total Deducted Quantity						0.000 cum		
	Net Total Quantity						314.233 cum		
	Say 314.233 cum @ Rs 11610.43 / cum						Rs 3648380.25		
5	5.34.1 Extra for providing richer mixes at all floor levels. Note:- Excess/less cement over the specified cement content used is payable/ recoverable separately.Providing M-30 grade concrete instead of M-25 grade BMC/RMC. (Note:- Cement content considered in M-30 is @ 340 kg/cum).								
	Qty vide item 3&4	1	580.307				580.307		
	Total Quantity						580.307 cum		
	Total Deducted Quantity						0.000 cum		
	Net Total Quantity						580.307 cum		
	Say 580.307 cum @ Rs 82.61 / cum						Rs 47939.16		
6	4.12 Extra for providing and mixing water proofing material in cement concrete work in doses by weight of cement as per manufacturer's specification .								
	Qty vide item 3&4	1	580.307		330.000		191501.31 0		

						Total Quantity	191501.310 kg
						Total Deducted Quantity	0.000 kg
						Net Total Quantity	191501.310 kg
						Say 191501.310 kg @ Rs 1.36 / kg	Rs 260441.78
7	od357974/2021_2022 Extra for providing sulphate resistant cement for the structures above plinth level.						
	Qty vide item 3&4	1	580.307				580.307
						Total Quantity	580.307 cum
						Total Deducted Quantity	0.000 cum
						Net Total Quantity	580.307 cum
						Say 580.307 cum @ Rs 1899.47 / cum	Rs 1102275.74
8	5.22.6 Steel reinforcement for R.C.C work including straightening, cutting, bending, placing in position and binding all complete upto plinth level Thermo - Mechanically Treated bars of grade Fe-500D or more						
	@120kg/m3	1	580.307	120.000			69636.840
						Total Quantity	69636.840 kilogram
						Total Deducted Quantity	0.000 kilogram
						Net Total Quantity	69636.840 kilogram
						Say 69636.840 kilogram @ Rs 98.92 / kilogram	Rs 6888476.21
9	od357975/2021_2022 Extra for providing epoxy coating for reinforcement bars.						
	@120kg/m3	1	580.307	120.000			69636.840
						Total Quantity	69636.840 kg
						Total Deducted Quantity	0.000 kg
						Net Total Quantity	69636.840 kg
						Say 69636.840 kg @ Rs 2.32 / kg	Rs 161557.47
10	5.9.1 Centering and shuttering including strutting, etc. and removal of form for: Foundations, footings, bases of columns, etc for mass concrete						
	FOR TANK 1	2	3.14*16.4	0.350			36.048
	FOR TANK 2	2	3.14*15.3	0.350			33.630
						Total Quantity	69.678 sqm
						Total Deducted Quantity	0.000 sqm
						Net Total Quantity	69.678 sqm
						Say 69.678 sqm @ Rs 337.42 / sqm	Rs 23510.75

11	5.9.2 Centering and shuttering including strutting, etc. and removal of form for:Walls (any thickness) including attached pilasters, buttersesses, plinth and string courses etc.						
	For tank 1 outside	2*3.14	15.700		5.000		492.980
	inside	2*3.14	15.100		5.000		474.141
	For tank 2 outside	2*3.14	14.600		5.000		458.440
	inside	2*3.14	14.000		5.000		439.600
	MBBR Tank 1 RCC Shaft chamber	2*2	7.200		5.000		144.000
	Total Quantity						2009.161 sqm
	Total Deducted Quantity						0.000 sqm
	Net Total Quantity						2009.161 sqm
	Say 2009.161 sqm @ Rs 721.70 / sqm						Rs 1450011.49
12	5.9.3 Centering and shuttering including strutting, etc. and removal of form for:Suspended floors, roofs, landings, balconies and access platform						
	Walkway 1	2	3.14*16.7		1.150		120.608
	Walkway to MBBR1 to MBBR 2-Beam	2	2*5		0.25+.35* 2		19.000
	Walkway to MBBR- Slab	2	5.000		1.500		15.000
	Walkway 2	2	3.14*15.6		1.150		112.664
	Total Quantity						267.272 sqm
	Total Deducted Quantity						0.000 sqm
	Net Total Quantity						267.272 sqm
	Say 267.272 sqm @ Rs 820.89 / sqm						Rs 219400.91
13	5.9.5 Centering and shuttering including strutting, etc. and removal of form for:Lintels, beams, plinth beams, girders bressumers and cantilevers						
	Cantilever beam	2*10	1.000	0.750			15.000
	Total Quantity						15.000 sqm
	Total Deducted Quantity						0.000 sqm
	Net Total Quantity						15.000 sqm
	Say 15.000 sqm @ Rs 653.89 / sqm						Rs 9808.35
14	13.7.1 12 mm cement plaster finished with a floating coat of neat cement of mix:1:3 (1 cement : 3 fine sand)						

	Item No:10	1	69.678				69.678		
	Item No:11	1	2009.161				2009.161		
	Item No:12	1	267.272				267.272		
	Item No:13	1	15.000				15.000		
	Total Quantity						2361.111 sqm		
	Total Deducted Quantity						0.000 sqm		
	Net Total Quantity						2361.111 sqm		
	Say 2361.111 sqm @ Rs 403.73 / sqm						Rs 953251.34		
15	13.52.2 Finishing with Epoxy paint (two or more coats) at all locations prepared and applied as per manufacturer's specifications including appropriate priming coat, preparation of surface, etc. complete. On concrete work								
	Tank 1	2	3.14*15.7		5.000		492.980		
	Tank 2	2	3.14*14.6		5.000		458.440		
	Walkway 1	2	16.700	1.000			33.400		
		2	15.600	1.000			31.200		
	Beams	3*2	1.000	0.250			1.500		
	Total Quantity						1017.520 sqm		
	Total Deducted Quantity						0.000 sqm		
	Net Total Quantity						1017.520 sqm		
	Say 1017.520 sqm @ Rs 224.31 / sqm						Rs 228239.91		
16	22.23.1 Providing and applying integral crystalline slurry of hydrophilic in nature for waterproofing treatment to the RCC structures like retaining walls of the basement, water tanks, roof slabs, podiums, reservoir, sewage & water treatment plant, tunnels/ subway and bridge deck etc., prepared by mixing in the ratio of 5 : 2 (5 parts integral crystalline slurry : 2 parts water) for vertical surfaces and 3 : 1 (3 parts integral crystalline slurry : 1 part water) for horizontal surfaces and applying the same from negative (internal) side with the help of synthetic fiber brush. The material shall meet the requirements as specified in ACI-212-3R-2010 i.e by reducing permeability of concrete by more than 90% compared with control concrete as per DIN 1048 and resistant to 16 bar hydrostatic pressure on negative side. The crystalline slurry shall be capable of self-healing of cracks up to a width of 0.50mm. The work shall be carried out all complete as per specification and the direction of the engineer in-charge. The product performance shall carry guarantee for 10 years against any leakage. For vertical surface two coats @ 0.70 kg per sqm								
	tank 1 inside	2*3.14	15.100		5.000		474.141		
	tank 2 inside	2*3.14	14.000		5.000		439.600		
	Total Quantity						913.741 sqm		
	Total Deducted Quantity						0.000 sqm		

	Net Total Quantity						913.741 sqm	
	Say 913.741 sqm @ Rs 573.87 / sqm						Rs 524368.55	
17	22.23.2 Providing and applying integral crystalline slurry of hydrophilic in nature for waterproofing treatment to the RCC structures like retaining walls of the basement, water tanks, roof slabs, podiums, reservoir, sewage & water treatment plant, tunnels/ subway and bridge deck etc., prepared by mixing in the ratio of 5 : 2 (5 parts integral crystalline slurry : 2 parts water) for vertical surfaces and 3 : 1 (3 parts integral crystalline slurry : 1 part water) for horizontal surfaces and applying the same from negative (internal) side with the help of synthetic fiber brush. The material shall meet the requirements as specified in ACI-212-3R-2010 i.e. by reducing permeability of concrete by more than 90% compared with control concrete as per DIN 1048 and resistant to 16 bar hydrostatic pressure on negative side. The crystalline slurry shall be capable of self-healing of cracks up to a width of 0.50mm. The work shall be carried out all complete as per specification and the direction of the engineer-in-charge. The product performance shall carry guarantee for 10 years against any leakage. For horizontal surface one coat @ 1.10 kg per sqm.							
	tank 1	2*3.14/4	15.100	15.100			357.976	
	tank 2	2*3.14/4	14.000	14.000			307.720	
	Total Quantity						665.696 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						665.696 sqm	
	Say 665.696 sqm @ Rs 442.27 / sqm						Rs 294417.37	
18	100.36.1 Kerala Water Authority Filling water with 5000 litre tankers fitted in lorry and conveying water from a distance of 5 km (average) to the reservoir site and pumping the water into the reservoir of height not less than 3 m using 5 HP diesel engine pump set, hire for tanker lorry, tools and other appliances and cost of water etc. complete. "(Ref. No. 000, Technical Circular)"							
	tank 1	2	3.14/4	15.100*15 .1	5.000		1789.879	
	tank 2	2	3.14/4	14*14	5.000		1538.601	
	Total Quantity						3328.480 Kilo litre	
	Total Deducted Quantity						0.000 Kilo litre	
	Net Total Quantity						3328.480 Kilo litre	
	Say 3328.480 Kilo litre @ Rs 185.67 / Kilo litre						Rs 617998.88	
19	50.10.1 Steel work in built up G I tubular (round, square or rectangular hollow tubes etc.) trusses etc., including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer, including welding and bolted with special shaped washers etc. complete							
		2	900.000				1800.000	
	Total Quantity						1800.000 kg	

							Total Deducted Quantity	0.000 kg
							Net Total Quantity	1800.000 kg
							Say 1800.000 kg @ Rs 191.08 / kg	Rs 343944.00
Sl No	Description	No	L	B	D	CF	Quantity	Remark
6SECONDARY CLARIFIER (Cost Index:36.44 %)								
1	2.6.1 Earth work in excavation by mechanical means (Hydraulic excavator)/manual means over areas (exceeding 30 cm in depth, 1.5 m in width as well as 10 sqm on plan) including disposal of excavated earth, lead up to 50 m and lift up to 1.5 m, disposed earth to be levelled and neatly dressed.All kinds of soil							
	TRENCH	2	3.14/4	14.7*14.7	1.300		441.040	
							Total Quantity	441.040 cum
							Total Deducted Quantity	0.000 cum
							Net Total Quantity	441.040 cum
							Say 441.040 cum @ Rs 215.37 / cum	Rs 94986.78
2	4.1.5 Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level:1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size)							
		2	3.14/4	14.7*14.7	0.200		67.853	
							Total Quantity	67.853 cum
							Total Deducted Quantity	0.000 cum
							Net Total Quantity	67.853 cum
							Say 67.853 cum @ Rs 7413.74 / cum	Rs 503044.50
3	5.37.1 Providing and laying in position ready mixed M-25 grade concrete for reinforced cement concrete work, using cement content as per approved design mix, manufactured in fully automatic batching plant and transported to site of work in transit mixer for all leads, having continuous agitated mixer, manufactured as per mix design of specified grade for reinforced cement concrete work including pumping of R.M.C. from transit mixer to site of laying, excluding the cost of centering, shuttering finishing and reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in -charge. Note:- Cement content considered in this item is @330 kg/cum. Excess /less cement used as per design mix is payable/recoverable separately.All work upto plinth level							
		2	3.14/4	14.7*14.7	0.300	1.15	117.046	
							Total Quantity	117.046 cum
							Total Deducted Quantity	0.000 cum
							Net Total Quantity	117.046 cum

	Say 117.046 cum @ Rs 9947.98 / cum						Rs 1164371.27	
4	<p>5.37.2 Providing and laying in position ready mixed M-25 grade concrete for reinforced cement concrete work, using cement content as per approved design mix, manufactured in fully automatic batching plant and transported to site of work in transit mixer for all leads, having continuous agitated mixer, manufactured as per mix design of specified grade for reinforced cement concrete work including pumping of R.M.C. from transit mixer to site of laying, excluding the cost of centering, shuttering finishing and reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in -charge. Note:- Cement content considered in this item is @330 kg/cum. Excess /less cement used as per design mix is payable/recoverable separately.All work above plinth level upto floor V level</p>							
	Wall	2*3.14	15.000	0.300	3.300		93.258	
	chamber	2*3.14	14.000	0.500	0.100		4.397	
	Walkway	2*3.14	16.500	1.200	0.100		12.435	
	Cantilever beam	2*8	1.000	0.250	0.250		1.000	
	RCC HOLLOW COLUMN	2*3.14	0.500	0.100	4.400		1.382	
	Total Quantity						112.472 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						112.472 cum	
	Say 112.472 cum @ Rs 11610.43 / cum						Rs 1305848.28	
5	<p>5.34.1 Extra for providing richer mixes at all floor levels. Note:- Excess/less cement over the specified cement content used is payable/ recoverable separately.Providing M-30 grade concrete instead of M-25 grade BMC/RMC. (Note:- Cement content considered in M-30 is @ 340 kg/cum).</p>							
	Qty Vide Item No:3&4	1	229.518				229.518	
	Total Quantity						229.518 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						229.518 cum	
	Say 229.518 cum @ Rs 82.61 / cum						Rs 18960.48	
6	<p>4.12 Extra for providing and mixing water proofing material in cement concrete work in doses by weight of cement as per manufacturer's specification .</p>							
	Qty Vide Item No:3&4	1	229.518		330.000		75740.940	
	Total Quantity						75740.940 kg	
	Total Deducted Quantity						0.000 kg	
	Net Total Quantity						75740.940 kg	

	Say 75740.940 kg @ Rs 1.36 / kg						Rs 103007.68	
7	od357974/2021_2022 Extra for providing sulphate resistant cement for the structures above plinth level.							
	Qty Vide Item No:3&4	1	229.518				229.518	
	Total Quantity						229.518 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						229.518 cum	
	Say 229.518 cum @ Rs 1899.47 / cum						Rs 435962.56	
8	5.22.6 Steel reinforcement for R.C.C work including straightening, cutting, bending, placing in position and binding all complete upto plinth level Thermo - Mechanically Treated bars of grade Fe-500D or more							
	Qty Vide Item No:3&4 @ 120kg/m3	1	229.518	120.000			27542.160	
	Total Quantity						27542.160 kilogram	
	Total Deducted Quantity						0.000 kilogram	
	Net Total Quantity						27542.160 kilogram	
	Say 27542.160 kilogram @ Rs 98.92 / kilogram						Rs 2724470.47	
9	od357975/2021_2022 Extra for providing epoxy coating for reinforcement bars.							
	Qty Vide Item No:3&4 @ 120kg/m3	1	229.518	120.000			27542.160	
	Total Quantity						27542.160 kg	
	Total Deducted Quantity						0.000 kg	
	Net Total Quantity						27542.160 kg	
	Say 27542.160 kg @ Rs 2.32 / kg						Rs 63897.81	
10	5.9.1 Centering and shuttering including strutting, etc. and removal of form for: Foundations, footings, bases of columns, etc for mass concrete							
		2*3.14	15.300	0.350			33.630	
	Total Quantity						33.630 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						33.630 sqm	
	Say 33.630 sqm @ Rs 337.42 / sqm						Rs 11347.43	
11	5.9.2 Centering and shuttering including strutting, etc. and removal of form for: Walls (any thickness) including attached pilasters, butteresses, plinth and string courses etc.							

	Wall Inside	3.14*2	14.700		3.300		304.643	
	Wall outside including walkway	3.14*2	16.500		3.300		341.946	
	RCC hollow column center	2*3.14	0.300		4.600		8.667	
	Total Quantity						655.256 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						655.256 sqm	
	Say 655.256 sqm @ Rs 721.70 / sqm						Rs 472898.26	
12	5.9.3 Centering and shuttering including strutting, etc. and removal of form for:Suspended floors, roofs, landings, balconies and access platform							
	chamber	3.14*2	13.000	0.500			40.820	
	Walkway	3.14*2	16.500	1.200			124.345	
	Walkway to SST 1 To SST 2-Beam	2	2*5	.25+.35*2			19.000	
	Walkway to SST 2 - Slab	1	5.000	1.500			7.500	
	Total Quantity						191.665 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						191.665 sqm	
	Say 191.665 sqm @ Rs 820.89 / sqm						Rs 157335.88	
13	5.9.5 Centering and shuttering including strutting, etc. and removal of form for:Lintels, beams, plinth beams, girders bressumers and cantilevers							
		2*8	1.200	0.750			14.400	
	Total Quantity						14.400 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						14.400 sqm	
	Say 14.400 sqm @ Rs 653.89 / sqm						Rs 9416.02	
14	13.7.1 12 mm cement plaster finished with a floating coat of neat cement of mix:1:3 (1 cement : 3 fine sand)							
	Qty Vide Item No:10	1	33.630				33.630	
	Qty Vide Item No:11	1	655.256				655.256	
	Qty Vide Item No:12	1	191.665				191.665	

	Qty Vide Item No:13	1	14.400				14.400	
	Total Quantity						894.951 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						894.951 sqm	
	Say 894.951 sqm @ Rs 403.73 / sqm						Rs 361318.57	
15	<p>13.52.2 Finishing with Epoxy paint (two or more coats) at all locations prepared and applied as per manufacturer's specifications including appropriate priming coat, preparation of surface, etc. complete. On concrete work</p>							
	Outer wall	2	3.140	15.300	3.300		317.078	
	Walkway	2	3.140	16.500	1.000		103.620	
	Beams	2*8	1.000	0.750			12.000	
	Walkway to SST1 to SST2 -beam	2	2*5	.25+.35*2			19.000	
	Walkway to SST2 - Slab	1	5.000	1.5*2			15.000	
	Total Quantity						466.698 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						466.698 sqm	
	Say 466.698 sqm @ Rs 224.31 / sqm						Rs 104685.03	
16	<p>22.23.1 Providing and applying integral crystalline slurry of hydrophilic in nature for waterproofing treatment to the RCC structures like retaining walls of the basement, water tanks, roof slabs, podiums, reservoir, sewage & water treatment plant, tunnels/ subway and bridge deck etc., prepared by mixing in the ratio of 5 : 2 (5 parts integral crystalline slurry : 2 parts water) for vertical surfaces and 3 : 1 (3 parts integral crystalline slurry : 1 part water) for horizontal surfaces and applying the same from negative (internal) side with the help of synthetic fiber brush. The material shall meet the requirements as specified in ACI-212-3R-2010 i.e by reducing permeability of concrete by more than 90% compared with control concrete as per DIN 1048 and resistant to 16 bar hydrostatic pressure on negative side. The crystalline slurry shall be capable of self-healing of cracks up to a width of 0.50mm. The work shall be carried out all complete as per specification and the direction of the engineer in-charge. The product performance shall carry guarantee for 10 years against any leakage. For vertical surface two coats @0.70 kg per sqm</p>							
	For Wall	2*3.14/4	14.400	14.400		1.15	374.389	
	For column	2	3.140	0.300	4.600		8.667	
	SST Trough chamber	2	3.14*14.1 5	1*2			177.725	
	Total Quantity						560.781 sqm	
	Total Deducted Quantity						0.000 sqm	

	Net Total Quantity						560.781 sqm	
	Say 560.781 sqm @ Rs 573.87 / sqm						Rs 321815.39	
17	<p>22.23.2</p> <p>Providing and applying integral crystalline slurry of hydrophilic in nature for waterproofing treatment to the RCC structures like retaining walls of the basement, water tanks, roof slabs, podiums, reservoir, sewage & water treatment plant, tunnels/ subway and bridge deck etc., prepared by mixing in the ratio of 5 : 2 (5 parts integral crystalline slurry : 2 parts water) for vertical surfaces and 3 : 1 (3 parts integral crystalline slurry : 1 part water) for horizontal surfaces and applying the same from negative (internal) side with the help of synthetic fiber brush. The material shall meet the requirements as specified in ACI-212-3R-2010 i.e by reducing permeability of concrete by more than 90% compared with control concrete as per DIN 1048 and resistant to 16 bar hydrostatic pressure on negative side. The crystalline slurry shall be capable of self-healing of cracks up to a width of 0.50mm. The work shall be carried out all complete as per specification and the direction of the engineer-in-charge. The product performance shall carry guarantee for 10 years against any leakage. For horizontal surface one coat @ 1.10 kg per sqm.</p>							
	For floor	2*3.14/4	14.700	14.700			339.262	
	Total Quantity						339.262 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						339.262 sqm	
	Say 339.262 sqm @ Rs 442.27 / sqm						Rs 150045.40	
18	<p>100.36.1</p> <p>Filling water with 5000 litre tankers fitted in lorry and conveying water from a distance of 5 km (average) to the reservoir site and pumping the water into the reservoir of height not less than 3 m using 5 HP diesel engine pump set, hire of tanker lorry, tools and other appliances and cost of water etc. complete. "(Ref. No. 000, Technical Circular)"</p>							
		2*3.14/4	14.700	14.700	3.300		1119.563	
	Total Quantity						1119.563 Kilo litre	
	Total Deducted Quantity						0.000 Kilo litre	
	Net Total Quantity						1119.563 Kilo litre	
	Say 1119.563 Kilo litre @ Rs 185.67 / Kilo litre						Rs 207869.26	
19	<p>50.10.1</p> <p>Steel work in built up G I tubular (round, square or rectangular hollow tubes etc.) trusses etc., including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer, including welding and bolted with special shaped washers etc. complete</p>							
		2	900.000				1800.000	
	Total Quantity						1800.000 kg	
	Total Deducted Quantity						0.000 kg	
	Net Total Quantity						1800.000 kg	
	Say 1800.000 kg @ Rs 191.08 / kg						Rs 343944.00	

SI No	Description	No	L	B	D	CF	Quantity	Remark	
7SLUDGE SUMP (Cost Index:36.44 %)									
1	2.6.1 Earth work in excavation by mechanical means (Hydraulic excavator)/manual means over areas (exceeding 30 cm in depth, 1.5 m in width as well as 10 sqm on plan) including disposal of excavated earth, lead up to 50 m and lift up to 1.5 m, disposed earth to be levelled and neatly dressed.All kinds of soil								
	FOR TRENCH	3.14/4	4.400	4.400	0.400		6.080		
	Total Quantity							6.080 cum	
	Total Deducted Quantity							0.000 cum	
	Net Total Quantity							6.080 cum	
	Say 6.080 cum @ Rs 215.37 / cum							Rs 1309.45	
2	4.1.5 Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level:1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size)								
	FOR PCC	3.14/4	4.400	4.400	0.100		1.520		
	Total Quantity							1.520 cum	
	Total Deducted Quantity							0.000 cum	
	Net Total Quantity							1.520 cum	
	Say 1.520 cum @ Rs 7413.74 / cum							Rs 11268.88	
3	5.22.6 Steel reinforcement for R.C.C work including straightening, cutting, bending, placing in position and binding all complete upto plinth levelThermo - Mechanically Treated bars of grade Fe-500D or more								
	@120kg/m3	1	13.496	120.000			1619.520		
	Total Quantity							1619.520 kilogram	
	Total Deducted Quantity							0.000 kilogram	
	Net Total Quantity							1619.520 kilogram	
	Say 1619.520 kilogram @ Rs 98.92 / kilogram							Rs 160202.92	
4	5.34.1 Extra for providing richer mixes at all floor levels. Note:- Excess/less cement over the specified cement content used is payable/ recoverable separately.Providing M-30 grade concrete instead of M-25 grade BMC/RMC. (Note:- Cement content considered in M-30 is @ 340 kg/cum).								
		1	13.496				13.496		
	Total Quantity							13.496 cum	
	Total Deducted Quantity							0.000 cum	
	Net Total Quantity							13.496 cum	

	Say 13.496 cum @ Rs 82.61 / cum						Rs 1114.90	
5	<p>5.37.1 Providing and laying in position ready mixed M-25 grade concrete for reinforced cement concrete work, using cement content as per approved design mix, manufactured in fully automatic batching plant and transported to site of work in transit mixer for all leads, having continuous agitated mixer, manufactured as per mix design of specified grade for reinforced cement concrete work including pumping of R.M.C. from transit mixer to site of laying, excluding the cost of centering, shuttering finishing and reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in -charge. Note:- Cement content considered in this item is @330 kg/cum. Excess /less cement used as per design mix is payable/recoverable separately.All work upto plinth level</p>							
	FOR BASE SLAB	3.14/4	4.200	4.200	0.300		4.155	
	Total Quantity						4.155 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						4.155 cum	
	Say 4.155 cum @ Rs 9947.98 / cum						Rs 41333.86	
6	<p>5.37.2 Providing and laying in position ready mixed M-25 grade concrete for reinforced cement concrete work, using cement content as per approved design mix, manufactured in fully automatic batching plant and transported to site of work in transit mixer for all leads, having continuous agitated mixer, manufactured as per mix design of specified grade for reinforced cement concrete work including pumping of R.M.C. from transit mixer to site of laying, excluding the cost of centering, shuttering finishing and reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in -charge. Note:- Cement content considered in this item is @330 kg/cum. Excess /less cement used as per design mix is payable/recoverable separately.All work above plinth level upto floor V level</p>							
	FOR TANK WALLS	3.14	3.300	0.300	2.350		7.306	
	COVER SLAB	3.14/4	3.600	3.600	0.200		2.035	
	Manhole	1	0.500	0.500	0.200		-0.050	
	Total Quantity						9.341 cum	
	Total Deducted Quantity						-0.050 cum	
	Net Total Quantity						9.291 cum	
	Say 9.291 cum @ Rs 11610.43 / cum						Rs 107872.51	
7	<p>4.12 Extra for providing and mixing water proofing material in cement concrete work in doses by weight of cement as per manufacturer's specification .</p>							
		1	13.496		330.000		4453.680	
	Total Quantity						4453.680 kg	
	Total Deducted Quantity						0.000 kg	

	Net Total Quantity						4453.680 kg	
	Say 4453.680 kg @ Rs 1.36 / kg						Rs 6057.00	
8	od357975/2021_2022 Extra for providing epoxy coating for reinforcement bars.							
	@120kg/m3	1	13.496	120.000			1619.520	
	Total Quantity						1619.520 kg	
	Total Deducted Quantity						0.000 kg	
	Net Total Quantity						1619.520 kg	
	Say 1619.520 kg @ Rs 2.32 / kg						Rs 3757.29	
9	od357974/2021_2022 Extra for providing sulphate resistant cement for the structures above plinth level.							
		1	13.496				13.496	
	Total Quantity						13.496 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						13.496 cum	
	Say 13.496 cum @ Rs 1899.47 / cum						Rs 25635.25	
10	5.9.1 Centering and shuttering including strutting, etc. and removal of form for:Foundations, footings, bases of columns, etc for mass concrete							
	FOR PCC	3.14	4.400		0.100		1.382	
	FOR FLOOR SLAB	3.14	4.200		0.300		3.957	
	Total Quantity						5.339 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						5.339 sqm	
	Say 5.339 sqm @ Rs 337.42 / sqm						Rs 1801.49	
11	5.9.2 Centering and shuttering including strutting, etc. and removal of form for:Walls (any thickness) including attached pilasters, butteresses, plinth and string courses etc.							
	INSIDE	1	3.14*3		2.350		22.137	
	OUTSIDE	1	3.14*3.6		2.350		26.565	
	Total Quantity						48.702 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						48.702 sqm	
	Say 48.702 sqm @ Rs 721.70 / sqm						Rs 35148.23	
12	5.9.3							

	Centering and shuttering including strutting, etc. and removal of form for:Suspended floors, roofs, landings, balconies and access platform							
	Cover slab	3.14/4	3.000	3.000			7.065	
	Total Quantity						7.065 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						7.065 sqm	
	Say 7.065 sqm @ Rs 820.89 / sqm						Rs 5799.59	
13	13.7.1 12 mm cement plaster finished with a floating coat of neat cement of mix:1:3 (1 cement : 3 fine sand)							
	OUT SIDE	1	3.14*3.6		2.350		26.565	
	INSIDE	1	3.14*3		2.350		22.137	
	BASE SLAB	1	3.14/4	3.000	3.000		7.065	
	COVERING SLAB	1	2*3.14/4	3.300	3.300		17.098	
	Total Quantity						72.865 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						72.865 sqm	
	Say 72.865 sqm @ Rs 403.73 / sqm						Rs 29417.79	
14	13.52.2 Finishing with Epoxy paint (two or more coats) at all locations prepared and applied as per manufacturer's specifications including appropriate priming coat, preparation of surface, etc. complete. On concrete work							
	TANK WALL OUTSIDE	3.14	3.600	2.350			26.565	
	COVERING SLAB OUTSIDE	3.14/4	3.600	3.600			10.174	
	Total Quantity						36.739 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						36.739 sqm	
	Say 36.739 sqm @ Rs 224.31 / sqm						Rs 8240.93	
15	22.23.1 Providing and applying integral crystalline slurry of hydrophilic in nature forwaterproofing treatment to the RCC structures like retaining walls of the basement,water tanks, roof slabs, podiums, reserrior, sewage & water treatment plant, tunnels/ subway and bridge deck etc., prepared by mixing in the ratio of 5 : 2 (5 partsintegral crystalline slurry : 2 parts water) for vertical surfaces and 3 : 1 (3 partsintegral crystalline slurry : 1 part water) for horizontal surfaces and applying thesame from negative (internal) side with the help of synthetic fiber brush. The materialshall meet the requirements as specified in ACI-212-3R-2010 i.e by reducingpermeability of concrete by more than 90% compared with control concrete as perDIN							

	1048 and resistant to 16 bar hydrostatic pressure on negative side. The crystalline slurry shall be capable of self-healing of cracks up to a width of 0.50mm. The work shall be carried out all complete as per specification and the direction of the engineer in-charge. The product performance shall carry guarantee for 10 years against any leakage. For vertical surface two coats @0.70 kg per sqm							
	TANK WALL INSIDE	3.14	3.000		2.350		22.138	
	COVERING SLAB BOTTOM	3.14/4	3.000	3.000			7.065	
	Total Quantity						29.203 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						29.203 sqm	
	Say 29.203 sqm @ Rs 573.87 / sqm						Rs 16758.73	
16	22.23.2 Providing and applying integral crystalline slurry of hydrophilic in nature for waterproofing treatment to the RCC structures like retaining walls of the basement, water tanks, roof slabs, podiums, reservoir, sewage & water treatment plant, tunnels/ subway and bridge deck etc., prepared by mixing in the ratio of 5 : 2 (5 parts integral crystalline slurry : 2 parts water) for vertical surfaces and 3 : 1 (3 parts integral crystalline slurry : 1 part water) for horizontal surfaces and applying the same from negative (internal) side with the help of synthetic fiber brush. The material shall meet the requirements as specified in ACI-212-3R-2010 i.e by reducing permeability of concrete by more than 90% compared with control concrete as per DIN 1048 and resistant to 16 bar hydrostatic pressure on negative side. The crystalline slurry shall be capable of self-healing of cracks up to a width of 0.50mm. The work shall be carried out all complete as per specification and the direction of the engineer in-charge. The product performance shall carry guarantee for 10 years against any leakage. For horizontal surface one coat @1.10 kg per sqm.							
	FOR BASE SLAB INSIDE	3.14/4	3.000	3.000			7.065	
	Total Quantity						7.065 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						7.065 sqm	
	Say 7.065 sqm @ Rs 442.27 / sqm						Rs 3124.64	
17	100.36.1 Filling water with 5000 litre tankers fitted in lorry and conveying water from a distance of 5 km (average) to the reservoir site and pumping the water into the reservoir of height not less than 3 m using 5 HP diesel engine pump set , hire for tanker lorry, tools and other appliances and cost of water etc. complete. "(Ref. No. 000, Technical Circular)"							
	TANK INSIDE VOLUME	3.14/4	3.000	3.000	2.350		16.603	
	Total Quantity						16.603 Kilo litre	
	Total Deducted Quantity						0.000 Kilo litre	
	Net Total Quantity						16.603 Kilo litre	

SI No	Description	No	L	B	D	CF	Quantity	Remark
Say 16.603 Kilo litre @ Rs 185.67 / Kilo litre							Rs 3082.68	
8SLUDGE THICKNER (Cost Index:36.44 %)								
1	2.6.1 Earth work in excavation by mechanical means (Hydraulic excavator)/manual means over areas (exceeding 30 cm in depth, 1.5 m in width as well as 10 sqm on plan) including disposal of excavated earth, lead up to 50 m and lift up to 1.5 m, disposed earth to be levelled and neatly dressed.All kinds of soil							
		1	3.14/4	8.6*8.6	1.000		58.059	
Total Quantity							58.059 cum	
Total Deducted Quantity							0.000 cum	
Net Total Quantity							58.059 cum	
Say 58.059 cum @ Rs 215.37 / cum							Rs 12504.17	
2	4.1.5 Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level:1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size)							
		1	3.14/4	8.6*8.6	0.200	1.15	13.354	
Total Quantity							13.354 cum	
Total Deducted Quantity							0.000 cum	
Net Total Quantity							13.354 cum	
Say 13.354 cum @ Rs 7413.74 / cum							Rs 99003.08	
3	5.37.1 Providing and laying in position ready mixed M-25 grade concrete for reinforced cement concrete work, using cement content as per approved design mix, manufactured in fully automatic batching plant and transported to site of work in transit mixer for all leads, having continuous agitated mixer, manufactured as per mix design of specified grade for reinforced cement concrete work including pumping of R.M.C. from transit mixer to site of laying, excluding the cost of centering, shuttering finishing and reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in -charge. Note:- Cement content considered in this item is @330 kg/cum. Excess /less cement used as per design mix is payable/recoverable separately.All work upto plinth level							
		1	3.14/4	8.6*8.6	0.350	1.15	23.369	
Total Quantity							23.369 cum	
Total Deducted Quantity							0.000 cum	
Net Total Quantity							23.369 cum	
Say 23.369 cum @ Rs 9947.98 / cum							Rs 232474.34	
4	5.37.2							

	Providing and laying in position ready mixed M-25 grade concrete for reinforced cement concrete work, using cement content as per approved design mix, manufactured in fully automatic batching plant and transported to site of work in transit mixer for all leads, having continuous agitated mixer, manufactured as per mix design of specified grade for reinforced cement concrete work including pumping of R.M.C. from transit mixer to site of laying, excluding the cost of centering, shuttering finishing and reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in-charge. Note:- Cement content considered in this item is @330 kg/cum. Excess /less cement used as per design mix is payable/recoverable separately.All work above plinth level upto floor V level							
	Wall	3.14	8.300	0.300	2.850		22.284	
	chamber	3.14	8.600	0.500	0.100		1.351	
		3.14	8.000	0.300	0.100		0.754	
	Walkway	3.14	9.600	1.000	0.100		3.015	
	Cantilever beam	4	1.000	0.250	0.250		0.250	
	Step	19	0.50*.3*.1 5	1.000			0.428	
	Step Waist	1	5.600	1.000	0.120		0.672	
	Total Quantity						28.754 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						28.754 cum	
	Say 28.754 cum @ Rs 11610.43 / cum						Rs 333846.30	
5	5.34.1 Extra for providing richer mixes at all floor levels. Note:- Excess/less cement over the specified cement content used is payable/ recoverable separately.Providing M-30 grade concrete instead of M-25 grade BMC/RMC. (Note:- Cement content considered in M-30 is @ 340 kg/cum).							
	Qty Vide Item No: 3 &4	1	52.123				52.123	
	Total Quantity						52.123 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						52.123 cum	
	Say 52.123 cum @ Rs 82.61 / cum						Rs 4305.88	
6	4.12 Extra for providing and mixing water proofing material in cement concrete work in doses by weight of cement as per manufacturer's specification .							
	Qty Vide Item No: 3&4	1	52.123		330.000		17200.590	
	Total Quantity						17200.590 kg	
	Total Deducted Quantity						0.000 kg	

	Net Total Quantity						17200.590 kg	
	Say 17200.590 kg @ Rs 1.36 / kg						Rs 23392.80	
7	od357974/2021_2022 Extra for providing sulphate resistant cement for the structures above plinth level.							
	Qty Vide Item No: 3&4	1	52.123				52.123	
	Total Quantity						52.123 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						52.123 cum	
	Say 52.123 cum @ Rs 1899.47 / cum						Rs 99006.07	
8	5.22.6 Steel reinforcement for R.C.C work including straightening, cutting, bending, placing in position and binding all complete upto plinth level Thermo - Mechanically Treated bars of grade Fe-500D or more							
	Qty Vide Item No: 3&4 @ 120km/m3	1	52.123	120.000			6254.760	
	Total Quantity						6254.760 kilogram	
	Total Deducted Quantity						0.000 kilogram	
	Net Total Quantity						6254.760 kilogram	
	Say 6254.760 kilogram @ Rs 98.92 / kilogram						Rs 618720.86	
9	od357975/2021_2022 Extra for providing epoxy coating for reinforcement bars.							
	Qty Vide Item No: 3&4 @ 120km/m3	1	52.123	120.000			6254.760	
	Total Quantity						6254.760 kg	
	Total Deducted Quantity						0.000 kg	
	Net Total Quantity						6254.760 kg	
	Say 6254.760 kg @ Rs 2.32 / kg						Rs 14511.04	
10	5.9.1 Centering and shuttering including strutting, etc. and removal of form for: Foundations, footings, bases of columns, etc for mass concrete							
		3.14	8.600	0.350			9.452	
	Total Quantity						9.452 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						9.452 sqm	
	Say 9.452 sqm @ Rs 337.42 / sqm						Rs 3189.29	
11	5.9.2 Centering and shuttering including strutting, etc. and removal of form for: Walls (any thickness) including							

	attached pilasters, butteresesses, plinth and string courses etc.							
	Wall Inside	3.14	8.000		2.850		71.592	
	Outside	3.14	8.600		0.300		8.102	
	Total Quantity						79.694 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						79.694 sqm	
	Say 79.694 sqm @ Rs 721.70 / sqm						Rs 57515.16	
12	5.9.3 Centering and shuttering including strutting, etc. and removal of form for:Suspended floors, roofs, landings, balconies and access platform							
	chamber	3.14	8.600	0.500			13.502	
	cover slab	3.14/4	8.600	8.600			58.059	
	Walkway	3.14	9.600	1.000			30.144	
	Stair -step	19	0.150	1.000			2.850	
	Stair Waist	1	5.600	1.000			5.600	
	Total Quantity						110.155 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						110.155 sqm	
	Say 110.155 sqm @ Rs 820.89 / sqm						Rs 90425.14	
13	5.9.5 Centering and shuttering including strutting, etc. and removal of form for:Lintels, beams, plinth beams, girders bressumers and cantilevers							
		4	1.000	0.750			3.000	
	Total Quantity						3.000 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						3.000 sqm	
	Say 3.000 sqm @ Rs 653.89 / sqm						Rs 1961.67	
14	13.7.1 12 mm cement plaster finished with a floating coat of neat cement of mix:1:3 (1 cement : 3 fine sand)							
	Qty Vide Item No:10	1	9.452				9.452	
	Qty Vide Item No:11	1	79.694				79.694	
	Qty Vide Item No:12	2	110.155				220.310	
	Qty Vide Item No:13	2	3.000				6.000	
	Total Quantity						315.456 sqm	

		Total Deducted Quantity					0.000 sqm	
		Net Total Quantity					315.456 sqm	
		Say 315.456 sqm @ Rs 403.73 / sqm					Rs 127359.05	
15	13.52.2 Finishing with Epoxy paint (two or more coats) at all locations prepared and applied as per manufacturer's specifications including appropriate priming coat, preparation of surface, etc. complete. On concrete work							
	Outer wall	1	3.140	8.600	2.850		76.962	
	Walkway	1	3.140	9.600	1.000		30.144	
	Beams	4	1.000	0.750			3.000	
		Total Quantity					110.106 sqm	
		Total Deducted Quantity					0.000 sqm	
		Net Total Quantity					110.106 sqm	
		Say 110.106 sqm @ Rs 224.31 / sqm					Rs 24697.88	
16	22.23.1 Providing and applying integral crystalline slurry of hydrophilic in nature for waterproofing treatment to the RCC structures like retaining walls of the basement, water tanks, roof slabs, podiums, reservoir, sewage & water treatment plant, tunnels/ subway and bridge deck etc., prepared by mixing in the ratio of 5 : 2 (5 parts integral crystalline slurry : 2 parts water) for vertical surfaces and 3 : 1 (3 parts integral crystalline slurry : 1 part water) for horizontal surfaces and applying the same from negative (internal) side with the help of synthetic fiber brush. The material shall meet the requirements as specified in ACI-212-3R-2010 i.e. by reducing permeability of concrete by more than 90% compared with control concrete as per DIN 1048 and resistant to 16 bar hydrostatic pressure on negative side. The crystalline slurry shall be capable of self-healing of cracks up to a width of 0.50mm. The work shall be carried out all complete as per specification and the direction of the engineer in-charge. The product performance shall carry guarantee for 10 years against any leakage. For vertical surface two coats @ 0.70 kg per sqm							
	wall inside	3.14	8.000	2.850			71.592	
	chamber inside & outside	2*3.14	8.600	0.500			27.004	
		Total Quantity					98.596 sqm	
		Total Deducted Quantity					0.000 sqm	
		Net Total Quantity					98.596 sqm	
		Say 98.596 sqm @ Rs 573.87 / sqm					Rs 56581.29	
17	22.23.2 Providing and applying integral crystalline slurry of hydrophilic in nature for waterproofing treatment to the RCC structures like retaining walls of the basement, water tanks, roof slabs, podiums, reservoir, sewage & water treatment plant, tunnels/ subway and bridge deck etc., prepared by mixing in the ratio of 5 : 2 (5 parts integral crystalline slurry : 2 parts water) for vertical surfaces and 3 : 1 (3 parts integral crystalline slurry : 1 part water) for horizontal surfaces and applying the same from negative (internal) side with the							

	help of synthetic fiber brush. The material shall meet the requirements as specified in ACI-212-3R-2010 i.e by reducing permeability of concrete by more than 90% compared with control concrete as per DIN 1048 and resistant to 16 bar hydrostatic pressure on negative side. The crystalline slurry shall be capable of self-healing of cracks up to a width of 0.50mm. The work shall be carried out all complete as per specification and the direction of the engineer in-charge. The product performance shall carry guarantee for 10 years against any leakage. For horizontal surface one coat @ 1.10 kg per sqm.							
	base slab inside	3.14/4	8.000	8.000		1.15	57.776	
	cover slab bottom	3.14/4	8.000	8.000			50.240	
	Total Quantity						108.016 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						108.016 sqm	
	Say 108.016 sqm @ Rs 442.27 / sqm						Rs 47772.24	
18	100.36.1 Filling water with 5000 litre tankers fitted in lorry and conveying water from a distance of 5 km (average) to the reservoir site and pumping the water into the reservoir of height not less than 3 m using 5 HP diesel engine pump set , hire for tanker lorry, tools and other appliances and cost of water etc. complete. "(Ref. No. 000, Technical Circular)"							
		3.14/4	8.000	8.000	2.850		143.184	
	Total Quantity						143.184 Kilo litre	
	Total Deducted Quantity						0.000 Kilo litre	
	Net Total Quantity						143.184 Kilo litre	
	Say 143.184 Kilo litre @ Rs 185.67 / Kilo litre						Rs 26584.97	
19	50.10.1 Steel work in built up G I tubular (round, square or rectangular hollow tubes etc.) trusses etc., including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer, including welding and bolted with special shaped washers etc. complete							
		1	600.000				600.000	
	Total Quantity						600.000 kg	
	Total Deducted Quantity						0.000 kg	
	Net Total Quantity						600.000 kg	
	Say 600.000 kg @ Rs 191.08 / kg						Rs 114648.00	
Sl No	Description	No	L	B	D	CF	Quantity	Remark
9THICKENED SLUDGE SUMP (Cost Index:36.44 %)								
1	2.6.1 Earth work in excavation by mechanical means (Hydraulic excavator)/manual means over areas (exceeding 30 cm in depth, 1.5 m in width as well as 10 sqm on plan) including disposal of excavated earth, lead up to 50 m and lift up to 1.5 m, disposed earth to be levelled and neatly dressed. All kinds of soil							

	FOR TRENCH	3.14	2.400	2.400	0.500		9.044	
		Total Quantity					9.044 cum	
		Total Deducted Quantity					0.000 cum	
		Net Total Quantity					9.044 cum	
		Say 9.044 cum @ Rs 215.37 / cum					Rs 1947.81	
2	4.1.5 Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level:1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size)							
		3.14	2.400	2.400	0.200		3.618	
		Total Quantity					3.618 cum	
		Total Deducted Quantity					0.000 cum	
		Net Total Quantity					3.618 cum	
		Say 3.618 cum @ Rs 7413.74 / cum					Rs 26822.91	
3	5.37.1 Providing and laying in position ready mixed M-25 grade concrete for reinforced cement concrete work, using cement content as per approved design mix, manufactured in fully automatic batching plant and transported to site of work in transit mixer for all leads, having continuous agitated mixer, manufactured as per mix design of specified grade for reinforced cement concrete work including pumping of R.M.C. from transit mixer to site of laying, excluding the cost of centering, shuttering finishing and reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in -charge. Note:- Cement content considered in this item is @330 kg/cum. Excess /less cement used as per design mix is payable/recoverable separately.All work upto plinth level							
		3.14/4	4.600	4.600	0.300		4.984	
		Total Quantity					4.984 cum	
		Total Deducted Quantity					0.000 cum	
		Net Total Quantity					4.984 cum	
		Say 4.984 cum @ Rs 9947.98 / cum					Rs 49580.73	
4	5.37.2 Providing and laying in position ready mixed M-25 grade concrete for reinforced cement concrete work, using cement content as per approved design mix, manufactured in fully automatic batching plant and transported to site of work in transit mixer for all leads, having continuous agitated mixer, manufactured as per mix design of specified grade for reinforced cement concrete work including pumping of R.M.C. from transit mixer to site of laying, excluding the cost of centering, shuttering finishing and reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in -charge. Note:- Cement content considered in this item is @330 kg/cum. Excess /less cement used as per design mix is payable/recoverable separately.All work above plinth level upto floor V level							

	Cover slab	3.14/4	4.000	4.000	0.120		1.508	
	Side wall	3.14	3.700	0.300	2.500		8.714	
	Manhole	1	0.500	0.500	0.120		-0.030	
						Total Quantity	10.222 cum	
						Total Deducted Quantity	-0.030 cum	
						Net Total Quantity	10.192 cum	
						Say 10.192 cum @ Rs 11610.43 / cum	Rs 118333.50	
5	5.34.1 Extra for providing richer mixes at all floor levels. Note:- Excess/less cement over the specified cement content used is payable/ recoverable separately. Providing M-30 grade concrete instead of M-25 grade BMC/RMC. (Note:- Cement content considered in M-30 is @ 340 kg/cum).							
		1	15.206				15.206	
						Total Quantity	15.206 cum	
						Total Deducted Quantity	0.000 cum	
						Net Total Quantity	15.206 cum	
						Say 15.206 cum @ Rs 82.61 / cum	Rs 1256.17	
6	4.12 Extra for providing and mixing water proofing material in cement concrete work in doses by weight of cement as per manufacturer's specification .							
		1	15.206		330.000		5017.980	
						Total Quantity	5017.980 kg	
						Total Deducted Quantity	0.000 kg	
						Net Total Quantity	5017.980 kg	
						Say 5017.980 kg @ Rs 1.36 / kg	Rs 6824.45	
7	od357974/2021_2022 Extra for providing sulphate resistant cement for the structures above plinth level.							
		1	15.206				15.206	
						Total Quantity	15.206 cum	
						Total Deducted Quantity	0.000 cum	
						Net Total Quantity	15.206 cum	
						Say 15.206 cum @ Rs 1899.47 / cum	Rs 28883.34	
8	5.22.6 Steel reinforcement for R.C.C work including straightening, cutting, bending, placing in position and binding all complete upto plinth level Thermo - Mechanically Treated bars of grade Fe-500D or more							
	@120kg/m3	1	15.206	120.000			1824.720	

						Total Quantity	1824.720 kilogram
						Total Deducted Quantity	0.000 kilogram
						Net Total Quantity	1824.720 kilogram
						Say 1824.720 kilogram @ Rs 98.92 / kilogram	Rs 180501.30
9	od357975/2021_2022 Extra for providing epoxy coating for reinforcement bars.						
	@120kg/m3	1	15.206	120.000			1824.720
						Total Quantity	1824.720 kg
						Total Deducted Quantity	0.000 kg
						Net Total Quantity	1824.720 kg
						Say 1824.720 kg @ Rs 2.32 / kg	Rs 4233.35
10	5.9.1 Centering and shuttering including strutting, etc. and removal of form for:Foundations, footings, bases of columns, etc for mass concrete						
	FOR PCC	3.14	4.800		0.200		3.015
	FOR BASE SLAB	3.14	4.600		0.300		4.334
						Total Quantity	7.349 sqm
						Total Deducted Quantity	0.000 sqm
						Net Total Quantity	7.349 sqm
						Say 7.349 sqm @ Rs 337.42 / sqm	Rs 2479.70
11	5.9.2 Centering and shuttering including strutting, etc. and removal of form for:Walls (any thickness) including attached pilasters, butteresses, plinth and string courses etc.						
	FOR SIDE WALLS	2*3.14	3.700		2.620		60.879
						Total Quantity	60.879 sqm
						Total Deducted Quantity	0.000 sqm
						Net Total Quantity	60.879 sqm
						Say 60.879 sqm @ Rs 721.70 / sqm	Rs 43936.37
12	5.9.3 Centering and shuttering including strutting, etc. and removal of form for:Suspended floors, roofs, landings, balconies and access platform						
	FOR COVERING SLAB	3.14/4	4.000	4.000			12.560
	Manhole	1	0.500	0.500			-0.250
						Total Quantity	12.560 sqm

		Total Deducted Quantity					-0.250 sqm	
		Net Total Quantity					12.310 sqm	
		Say 12.310 sqm @ Rs 820.89 / sqm					Rs 10105.16	
13	13.7.1 12 mm cement plaster finished with a floating coat of neat cement of mix:1:3 (1 cement : 3 fine sand)							
	FLOOR SLAB	3.14/4	3.400	3.400			9.075	
	TANK WALL	2*3.14	3.700		2.500		58.090	
	COVERING SLAB	2*3.14/4	3.700	3.700			21.494	
		Total Quantity					88.659 sqm	
		Total Deducted Quantity					0.000 sqm	
		Net Total Quantity					88.659 sqm	
		Say 88.659 sqm @ Rs 403.73 / sqm					Rs 35794.30	
14	13.52.2 Finishing with Epoxy paint (two or more coats) at all locations prepared and applied as per manufacturer's specifications including appropriate priming coat, preparation of surface, etc. complete. On concrete work							
	TANK WALL OUTSIDE	3.14	4.000		2.620		32.908	
	COVERING SLAB TOP	3.14/4	4.000	4.000			12.560	
		Total Quantity					45.468 sqm	
		Total Deducted Quantity					0.000 sqm	
		Net Total Quantity					45.468 sqm	
		Say 45.468 sqm @ Rs 224.31 / sqm					Rs 10198.93	
15	22.23.1 Providing and applying integral crystalline slurry of hydrophilic in nature for waterproofing treatment to the RCC structures like retaining walls of the basement, water tanks, roof slabs, podiums, reservoir, sewage & water treatment plant, tunnels/ subway and bridge deck etc., prepared by mixing in the ratio of 5 : 2 (5 parts integral crystalline slurry : 2 parts water) for vertical surfaces and 3 : 1 (3 parts integral crystalline slurry : 1 part water) for horizontal surfaces and applying the same from negative (internal) side with the help of synthetic fiber brush. The material shall meet the requirements as specified in ACI-212-3R-2010 i.e by reducing permeability of concrete by more than 90% compared with control concrete as per DIN 1048 and resistant to 16 bar hydrostatic pressure on negative side. The crystalline slurry shall be capable of self-healing of cracks up to a width of 0.50mm. The work shall be carried out all complete as per specification and the direction of the engineer in-charge. The product performance shall carry guarantee for 10 years against any leakage. For vertical surface two coats @ 0.70 kg per sqm							
	TANK WALL INSIDE	3.14	3.200		2.500		25.120	

	COVERING SLAB INSIDE	3.14/4	3.200	3.200			8.039	
	Total Quantity						33.159 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						33.159 sqm	
	Say 33.159 sqm @ Rs 573.87 / sqm						Rs 19028.96	
16	<p>22.23.2 Providing and applying integral crystalline slurry of hydrophilic in nature for waterproofing treatment to the RCC structures like retaining walls of the basement, water tanks, roof slabs, podiums, reservoir, sewage & water treatment plant, tunnels/ subway and bridge deck etc., prepared by mixing in the ratio of 5 : 2 (5 parts integral crystalline slurry : 2 parts water) for vertical surfaces and 3 : 1 (3 parts integral crystalline slurry : 1 part water) for horizontal surfaces and applying the same from negative (internal) side with the help of synthetic fiber brush. The material shall meet the requirements as specified in ACI-212-3R-2010 i.e. by reducing permeability of concrete by more than 90% compared with control concrete as per DIN 1048 and resistant to 16 bar hydrostatic pressure on negative side. The crystalline slurry shall be capable of self-healing of cracks up to a width of 0.50mm. The work shall be carried out all complete as per specification and the direction of the engineer in-charge. The product performance shall carry guarantee for 10 years against any leakage. For horizontal surface one coat @ 1.10 kg per sqm.</p>							
	FLOOR SLAB INSIDE	3.14/4	3.400	3.400			9.075	
	Total Quantity						9.075 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						9.075 sqm	
	Say 9.075 sqm @ Rs 442.27 / sqm						Rs 4013.60	
17	<p>100.36.1 Filling water with 5000 litre tankers fitted in lorry and conveying water from a distance of 5 km (average) to the reservoir site and pumping the water into the reservoir of height not less than 3 m using 5 HP diesel engine pump set, hire for tanker lorry, tools and other appliances and cost of water etc. complete. "(Ref. No. 000, Technical Circular)"</p>							
		3.14/4	3.400	3.400	2.500		22.687	
	Total Quantity						22.687 Kilo litre	
	Total Deducted Quantity						0.000 Kilo litre	
	Net Total Quantity						22.687 Kilo litre	
	Say 22.687 Kilo litre @ Rs 185.67 / Kilo litre						Rs 4212.30	
SI No	Description	No	L	B	D	CF	Quantity	Remark
10 FILTER FEED TANK (Cost Index: 36.44 %)								

1	2.6.1 Earth work in excavation by mechanical means (Hydraulic excavator)/manual means over areas (exceeding 30 cm in depth, 1.5 m in width as well as 10 sqm on plan) including disposal of excavated earth, lead up to 50 m and lift up to 1.5 m, disposed earth to be levelled and neatly dressed.All kinds of soil		1	6.800	6.800	0.500		23.120	
		Total Quantity						23.120 cum	
		Total Deducted Quantity						0.000 cum	
		Net Total Quantity						23.120 cum	
		Say 23.120 cum @ Rs 215.37 / cum						Rs 4979.35	
2	4.1.5 Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level:1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size)		1	6.800	6.800	0.200		9.248	
		Total Quantity						9.248 cum	
		Total Deducted Quantity						0.000 cum	
		Net Total Quantity						9.248 cum	
		Say 9.248 cum @ Rs 7413.74 / cum						Rs 68562.27	
3	5.37.1 Providing and laying in position ready mixed M-25 grade concrete for reinforced cement concrete work, using cement content as per approved design mix, manufactured in fully automatic batching plant and transported to site of work in transit mixer for all leads, having continuous agitated mixer, manufactured as per mix design of specified grade for reinforced cement concrete work including pumping of R.M.C. from transit mixer to site of laying, excluding the cost of centering, shuttering finishing and reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in -charge. Note:- Cement content considered in this item is @330 kg/cum. Excess /less cement used as per design mix is payable/recoverable separately.All work upto plinth level		1	6.600	6.600	0.300		13.068	
		Total Quantity						13.068 cum	
		Total Deducted Quantity						0.000 cum	
		Net Total Quantity						13.068 cum	
		Say 13.068 cum @ Rs 9947.98 / cum						Rs 130000.20	
4	5.37.2 Providing and laying in position ready mixed M-25 grade concrete for reinforced cement concrete work, using cement content as per approved design mix, manufactured in fully automatic batching plant and transported to site of work in transit mixer for all leads, having continuous agitated mixer, manufactured as per mix design of specified grade for reinforced cement concrete work including pumping of R.M.C.								

	from transit mixer to site of laying, excluding the cost of centering, shuttering finishing and reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in-charge. Note:- Cement content considered in this item is @330 kg/cum. Excess /less cement used as per design mix is payable/recoverable separately.All work above plinth level upto floor V level							
	Long Wall	2	6.000	0.300	3.850		13.860	
	Short Wall	2	5.400	0.300	3.850		12.475	
	Total Quantity						26.335 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						26.335 cum	
	Say 26.335 cum @ Rs 11610.43 / cum						Rs 305760.67	
5	5.34.1 Extra for providing richer mixes at all floor levels. Note:- Excess/less cement over the specified cement content used is payable/ recoverable separately.Providing M-30 grade concrete instead of M-25 grade BMC/RMC. (Note:- Cement content considered in M-30 is @ 340 kg/cum).							
		1	39.403				39.403	
	Total Quantity						39.403 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						39.403 cum	
	Say 39.403 cum @ Rs 82.61 / cum						Rs 3255.08	
6	4.12 Extra for providing and mixing water proofing material in cement concrete work in doses by weight of cement as per manufacturer's specification							
		1	39.403		330.000		13002.990	
	Total Quantity						13002.990 kg	
	Total Deducted Quantity						0.000 kg	
	Net Total Quantity						13002.990 kg	
	Say 13002.990 kg @ Rs 1.36 / kg						Rs 17684.07	
7	od357974/2021_2022 Extra for providing sulphate resistant cement for the structures above plinth level.							
		1	39.403				39.403	
	Total Quantity						39.403 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						39.403 cum	
	Say 39.403 cum @ Rs 1899.47 / cum						Rs 74844.82	
8	5.22.6							

	Steel reinforcement for R.C.C work including straightening, cutting, bending, placing in position and binding all complete upto plinth level Thermo - Mechanically Treated bars of grade Fe-500D or more						
	@120kg/m3	1	39.403	120.000			4728.360
	Total Quantity						4728.360 kilogram
	Total Deducted Quantity						0.000 kilogram
	Net Total Quantity						4728.360 kilogram
	Say 4728.360 kilogram @ Rs 98.92 / kilogram						Rs 467729.37
9	od357975/2021_2022 Extra for providing epoxy coating for reinforcement bars.						
	@120kg/m3	1	39.403	120.000			4728.360
	Total Quantity						4728.360 kg
	Total Deducted Quantity						0.000 kg
	Net Total Quantity						4728.360 kg
	Say 4728.360 kg @ Rs 2.32 / kg						Rs 10969.80
10	5.9.1 Centering and shuttering including strutting, etc. and removal of form for: Foundations, footings, bases of columns, etc for mass concrete						
	PCC	4	6.800	0.200			5.440
	Base	4	6.600	0.300			7.920
	Total Quantity						13.360 sqm
	Total Deducted Quantity						0.000 sqm
	Net Total Quantity						13.360 sqm
	Say 13.360 sqm @ Rs 337.42 / sqm						Rs 4507.93
11	5.9.2 Centering and shuttering including strutting, etc. and removal of form for: Walls (any thickness) including attached pilasters, buttresses, plinth and string courses etc.						
	c/c	4*2	5.700	3.850			175.560
	Total Quantity						175.560 sqm
	Total Deducted Quantity						0.000 sqm
	Net Total Quantity						175.560 sqm
	Say 175.560 sqm @ Rs 721.70 / sqm						Rs 126701.65
12	13.7.1 12 mm cement plaster finished with a floating coat of neat cement of mix:1:3 (1 cement : 3 fine sand)						
	c/c	4*2	5.700	3.850			175.560
	FLOOR SLAB INSIDE	1	5.400	5.400			29.161

							Total Quantity	204.721 sqm
							Total Deducted Quantity	0.000 sqm
							Net Total Quantity	204.721 sqm
							Say 204.721 sqm @ Rs 403.73 / sqm	Rs 82652.01
13	13.52.2	Finishing with Epoxy paint (two or more coats) at all locations prepared and applied as per manufacturer's specifications including appropriate priming coat, preparation of surface, etc. complete. On concrete work						
	OUTSIDE WALL	4	6.000	3.850			92.400	
							Total Quantity	92.400 sqm
							Total Deducted Quantity	0.000 sqm
							Net Total Quantity	92.400 sqm
							Say 92.400 sqm @ Rs 224.31 / sqm	Rs 20726.24
14	22.23.1	Providing and applying integral crystalline slurry of hydrophilic in nature for waterproofing treatment to the RCC structures like retaining walls of the basement, water tanks, roof slabs, podiums, reservoir, sewage & water treatment plant, tunnels/ subway and bridge deck etc., prepared by mixing in the ratio of 5 : 2 (5 parts integral crystalline slurry : 2 parts water) for vertical surfaces and 3 : 1 (3 parts integral crystalline slurry : 1 part water) for horizontal surfaces and applying the same from negative (internal) side with the help of synthetic fiber brush. The material shall meet the requirements as specified in ACI-212-3R-2010 i.e by reducing permeability of concrete by more than 90% compared with control concrete as per DIN 1048 and resistant to 16 bar hydrostatic pressure on negative side. The crystalline slurry shall be capable of self-healing of cracks up to a width of 0.50mm. The work shall be carried out all complete as per specification and the direction of the engineer-in-charge. The product performance shall carry guarantee for 10 years against any leakage. For vertical surface two coats @ 0.70 kg per sqm						
		4	5.400	3.850			83.161	
							Total Quantity	83.161 sqm
							Total Deducted Quantity	0.000 sqm
							Net Total Quantity	83.161 sqm
							Say 83.161 sqm @ Rs 573.87 / sqm	Rs 47723.60
15	22.23.2	Providing and applying integral crystalline slurry of hydrophilic in nature for waterproofing treatment to the RCC structures like retaining walls of the basement, water tanks, roof slabs, podiums, reservoir, sewage & water treatment plant, tunnels/ subway and bridge deck etc., prepared by mixing in the ratio of 5 : 2 (5 parts integral crystalline slurry : 2 parts water) for vertical surfaces and 3 : 1 (3 parts integral crystalline slurry : 1 part water) for horizontal surfaces and applying the same from negative (internal) side with the help of synthetic fiber brush. The material shall meet the requirements as specified in ACI-212-3R-2010 i.e by reducing permeability of concrete by more than 90% compared with control concrete as per DIN 1048 and resistant to 16 bar hydrostatic pressure on negative side. The crystalline slurry shall be capable of self-healing of cracks up to a width of 0.50mm. The work shall be carried out all complete as per						

	specification and the direction of the engineer-in-charge. The product performance shall carry guarantee for 10 years against any leakage. For horizontal surface one coat @ 1.10 kg per sqm.							
		1	5.400	5.400			29.161	
	Total Quantity						29.161 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						29.161 sqm	
	Say 29.161 sqm @ Rs 442.27 / sqm						Rs 12897.04	
16	100.36.1 Filling water with 5000 litre tankers fitted in lorry and conveying water from a distance of 5 km (average) to the reservoir site and pumping the water into the reservoir of height not less than 3 m using 5 HP diesel engine pump set, hire for tanker lorry, tools and other appliances and cost of water etc. complete. "(Ref. No. 000, Technical Circular)"							
		1	5.400	5.400	3.850		112.267	
	Total Quantity						112.267 Kilo litre	
	Total Deducted Quantity						0.000 Kilo litre	
	Net Total Quantity						112.267 Kilo litre	
	Say 112.267 Kilo litre @ Rs 185.67 / Kilo litre						Rs 20844.61	
Sl No	Description	No	L	B	D	CF	Quantity	Remark
11 TREATED WATER TANK (Cost Index: 36.44 %)								
1	2.6.1 Earth work in excavation by mechanical means (Hydraulic excavator)/manual means over areas (exceeding 30 cm in depth, 1.5 m in width as well as 10 sqm on plan) including disposal of excavated earth, lead up to 50 m and lift up to 1.5 m, disposed earth to be levelled and neatly dressed. All kinds of soil							
		1	10.900	10.900	0.500		59.405	
	Total Quantity						59.405 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						59.405 cum	
	Say 59.405 cum @ Rs 215.37 / cum						Rs 12794.05	
2	4.1.5 Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level: 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size)							
		1	10.900	10.900	0.200		23.762	
	Total Quantity						23.762 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						23.762 cum	

							Say 23.762 cum @ Rs 7413.74 / cum	Rs 176165.29	
3	5.37.1	<p>Providing and laying in position ready mixed M-25 grade concrete for reinforced cement concrete work, using cement content as per approved design mix, manufactured in fully automatic batching plant and transported to site of work in transit mixer for all leads, having continuous agitated mixer, manufactured as per mix design of specified grade for reinforced cement concrete work including pumping of R.M.C. from transit mixer to site of laying, excluding the cost of centering, shuttering finishing and reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in -charge. Note:- Cement content considered in this item is @330 kg/cum. Excess /less cement used as per design mix is payable/recoverable separately.All work upto plinth level</p>							
		1	10.700	10.700	0.300		34.347		
		Total Quantity						34.347 cum	
		Total Deducted Quantity						0.000 cum	
		Net Total Quantity						34.347 cum	
		Say 34.347 cum @ Rs 9947.98 / cum						Rs 341683.27	
4	5.37.2	<p>Providing and laying in position ready mixed M-25 grade concrete for reinforced cement concrete work, using cement content as per approved design mix, manufactured in fully automatic batching plant and transported to site of work in transit mixer for all leads, having continuous agitated mixer, manufactured as per mix design of specified grade for reinforced cement concrete work including pumping of R.M.C. from transit mixer to site of laying, excluding the cost of centering, shuttering finishing and reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in -charge. Note:- Cement content considered in this item is @330 kg/cum. Excess /less cement used as per design mix is payable/recoverable separately.All work above plinth level upto floor V level</p>							
	Long Wall	2	10.000	0.300	3.850		23.100		
	Short Wall	2	9.400	0.300	3.850		21.714		
		Total Quantity						44.814 cum	
		Total Deducted Quantity						0.000 cum	
		Net Total Quantity						44.814 cum	
		Say 44.814 cum @ Rs 11610.43 / cum						Rs 520309.81	
5	5.34.1	<p>Extra for providing richer mixes at all floor levels. Note:- Excess/less cement over the specified cement content used is payable/ recoverable separately.Providing M-30 grade concrete instead of M-25 grade BMC/RMC. (Note:- Cement content considered in M-30 is @ 340 kg/cum).</p>							
		1	79.161				79.161		
		Total Quantity						79.161 cum	
		Total Deducted Quantity						0.000 cum	

		Net Total Quantity					79.161 cum	
		Say 79.161 cum @ Rs 82.61 / cum					Rs 6539.49	
6	4.12 Extra for providing and mixing water proofing material in cement concrete work in doses by weight of cement as per manufacturer's specification .							
		1	79.161		330.000		26123.130	
		Total Quantity					26123.130 kg	
		Total Deducted Quantity					0.000 kg	
		Net Total Quantity					26123.130 kg	
		Say 26123.130 kg @ Rs 1.36 / kg					Rs 35527.46	
7	od357974/2021_2022 Extra for providing sulphate resistant cement for the structures above plinth level.							
		1	79.161				79.161	
		Total Quantity					79.161 cum	
		Total Deducted Quantity					0.000 cum	
		Net Total Quantity					79.161 cum	
		Say 79.161 cum @ Rs 1899.47 / cum					Rs 150363.94	
8	5.22.6 Steel reinforcement for R.C.C work including straightening, cutting, bending, placing in position and binding all complete upto plinth level Thermo - Mechanically Treated bars of grade Fe-500D or more							
	@120kg/m3	1	79.161	120.000			9499.320	
		Total Quantity					9499.320 kilogram	
		Total Deducted Quantity					0.000 kilogram	
		Net Total Quantity					9499.320 kilogram	
		Say 9499.320 kilogram @ Rs 98.92 / kilogram					Rs 939672.73	
9	od357975/2021_2022 Extra for providing epoxy coating for reinforcement bars.							
	@120kg/m3	1	79.161	120.000			9499.320	
		Total Quantity					9499.320 kg	
		Total Deducted Quantity					0.000 kg	
		Net Total Quantity					9499.320 kg	
		Say 9499.320 kg @ Rs 2.32 / kg					Rs 22038.42	
10	5.9.1 Centering and shuttering including strutting, etc. and removal of form for:Foundations, footings, bases of columns, etc for mass concrete							

	FOR PCC	1	4*10.9	0.200			8.720	
	FOR BASE SLAB	1	4*10.7	0.300			12.840	
	Total Quantity						21.560 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						21.560 sqm	
	Say 21.560 sqm @ Rs 337.42 / sqm						Rs 7274.78	
11	5.9.2 Centering and shuttering including strutting, etc. and removal of form for:Walls (any thickness) including attached pilasters, buttersesses, plinth and string courses etc.							
	Inside Wall	1	4*9.4		3.850		144.761	
	Outside Wall	1	4*10		3.850		154.000	
	Total Quantity						298.761 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						298.761 sqm	
	Say 298.761 sqm @ Rs 721.70 / sqm						Rs 215615.81	
12	13.7.1 12 mm cement plaster finished with a floating coat of neat cement of mix:1:3 (1 cement : 3 fine sand)							
	OUTSIDE WALL	1	4*10		3.850		154.000	
	INSIDE WALL	1	4*9.4		3.850		144.761	
	INSIDE FLOOR	1	9.400		9.400		88.361	
	WALL TOP	1	4*9.700		0.300		11.640	
	Total Quantity						398.762 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						398.762 sqm	
	Say 398.762 sqm @ Rs 403.73 / sqm						Rs 160992.18	
13	13.52.2 Finishing with Epoxy paint (two or more coats) at all locations prepared and applied as per manufacturer's specifications including appropriate priming coat, preparation of surface, etc. complete. On concrete work							
		1	4*10		3.850		154.000	
	Total Quantity						154.000 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						154.000 sqm	
	Say 154.000 sqm @ Rs 224.31 / sqm						Rs 34543.74	
14	22.23.1							

	<p>Providing and applying integral crystalline slurry of hydrophilic in nature for waterproofing treatment to the RCC structures like retaining walls of the basement, water tanks, roof slabs, podiums, reservoir, sewage & water treatment plant, tunnels/ subway and bridge deck etc., prepared by mixing in the ratio of 5 : 2 (5 parts integral crystalline slurry : 2 parts water) for vertical surfaces and 3 : 1 (3 parts integral crystalline slurry : 1 part water) for horizontal surfaces and applying the same from negative (internal) side with the help of synthetic fiber brush. The material shall meet the requirements as specified in ACI-212-3R-2010 i.e. by reducing permeability of concrete by more than 90% compared with control concrete as per DIN 1048 and resistant to 16 bar hydrostatic pressure on negative side. The crystalline slurry shall be capable of self-healing of cracks up to a width of 0.50mm. The work shall be carried out all complete as per specification and the direction of the engineer in-charge. The product performance shall carry guarantee for 10 years against any leakage. For vertical surface two coats @ 0.70 kg per sqm</p>							
	FOR WALLS	1	4*9.4		3.850		144.761	
	Total Quantity						144.761 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						144.761 sqm	
	Say 144.761 sqm @ Rs 573.87 / sqm						Rs 83074.00	
15	<p>22.23.2 Providing and applying integral crystalline slurry of hydrophilic in nature for waterproofing treatment to the RCC structures like retaining walls of the basement, water tanks, roof slabs, podiums, reservoir, sewage & water treatment plant, tunnels/ subway and bridge deck etc., prepared by mixing in the ratio of 5 : 2 (5 parts integral crystalline slurry : 2 parts water) for vertical surfaces and 3 : 1 (3 parts integral crystalline slurry : 1 part water) for horizontal surfaces and applying the same from negative (internal) side with the help of synthetic fiber brush. The material shall meet the requirements as specified in ACI-212-3R-2010 i.e. by reducing permeability of concrete by more than 90% compared with control concrete as per DIN 1048 and resistant to 16 bar hydrostatic pressure on negative side. The crystalline slurry shall be capable of self-healing of cracks up to a width of 0.50mm. The work shall be carried out all complete as per specification and the direction of the engineer in-charge. The product performance shall carry guarantee for 10 years against any leakage. For horizontal surface one coat @ 1.10 kg per sqm.</p>							
	FOR BASE SLAB INSIDE	1	9.400	9.400			88.361	
	Total Quantity						88.361 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						88.361 sqm	
	Say 88.361 sqm @ Rs 442.27 / sqm						Rs 39079.42	
16	<p>100.36.1 Filling water with 5000 litre tankers fitted in lorry and conveying water from a distance of 5 km (average) to the reservoir site and pumping the water into the reservoir of height not less than 3 m using 5 HP diesel engine pump set, hire for tanker lorry, tools and other appliances and cost of water etc. complete. "(Ref. No. 000, Technical Circular)"</p>							
		1	9.400	9.400	3.850		340.187	

							Total Quantity	340.187 Kilo litre
							Total Deducted Quantity	0.000 Kilo litre
							Net Total Quantity	340.187 Kilo litre
							Say 340.187 Kilo litre @ Rs 185.67 / Kilo litre	Rs 63162.52
SI No	Description	No	L	B	D	CF	Quantity	Remark
12CENTRATE SUMP (Cost Index:36.44 %)								
1	2.6.1 Earth work in excavation by mechanical means (Hydraulic excavator)/manual means over areas (exceeding 30 cm in depth, 1.5 m in width as well as 10 sqm on plan) including disposal of excavated earth, lead up to 50 m and lift up to 1.5 m, disposed earth to be levelled and neatly dressed.All kinds of soil							
		3.14/4	3.600	3.600	0.500		5.087	
							Total Quantity	5.087 cum
							Total Deducted Quantity	0.000 cum
							Net Total Quantity	5.087 cum
							Say 5.087 cum @ Rs 215.37 / cum	Rs 1095.59
2	4.1.5 Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level:1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size)							
		3.14/4	3.600	3.600	0.200		2.035	
							Total Quantity	2.035 cum
							Total Deducted Quantity	0.000 cum
							Net Total Quantity	2.035 cum
							Say 2.035 cum @ Rs 7413.74 / cum	Rs 15086.96
3	5.37.1 Providing and laying in position ready mixed M-25 grade concrete for reinforced cement concrete work, using cement content as per approved design mix, manufactured in fully automatic batching plant and transported to site of work in transit mixer for all leads, having continuous agitated mixer, manufactured as per mix design of specified grade for reinforced cement concrete work including pumping of R.M.C. from transit mixer to site of laying, excluding the cost of centering, shuttering finishing and reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in -charge. Note:- Cement content considered in this item is @330 kg/cum. Excess /less cement used as per design mix is payable/recoverable separately.All work upto plinth level							
		3.14/4	3.600	3.600	0.300		3.053	
							Total Quantity	3.053 cum
							Total Deducted Quantity	0.000 cum

	Net Total Quantity						3.053 cum	
	Say 3.053 cum @ Rs 9947.98 / cum						Rs 30371.18	
4	<p>5.37.2 Providing and laying in position ready mixed M-25 grade concrete for reinforced cement concrete work, using cement content as per approved design mix, manufactured in fully automatic batching plant and transported to site of work in transit mixer for all leads, having continuous agitated mixer, manufactured as per mix design of specified grade for reinforced cement concrete work including pumping of R.M.C. from transit mixer to site of laying, excluding the cost of centering, shuttering finishing and reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in -charge. Note:- Cement content considered in this item is @330 kg/cum. Excess /less cement used as per design mix is payable/recoverable separately.All work above plinth level upto floor V level</p>							
	Cover slab	3.14/4	2.800	2.800	0.120		0.739	
	Side wall	3.14	2.500	0.300	2.500		5.888	
	Manhole	1	0.500	0.500	0.120		-0.030	
	Total Quantity						6.627 cum	
	Total Deducted Quantity						-0.030 cum	
	Net Total Quantity						6.597 cum	
	Say 6.597 cum @ Rs 11610.43 / cum						Rs 76594.01	
5	<p>5.34.1 Extra for providing richer mixes at all floor levels. Note:- Excess/less cement over the specified cement content used is payable/ recoverable separately.Providing M-30 grade concrete instead of M-25 grade BMC/RMC. (Note:- Cement content considered in M-30 is @ 340 kg/cum).</p>							
		1	9.650				9.650	
	Total Quantity						9.650 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						9.650 cum	
	Say 9.650 cum @ Rs 82.61 / cum						Rs 797.19	
6	<p>4.12 Extra for providing and mixing water proofing material in cement concrete work in doses by weight of cement as per manufacturer's specification .</p>							
		1	9.650		330.000		3184.500	
	Total Quantity						3184.500 kg	
	Total Deducted Quantity						0.000 kg	
	Net Total Quantity						3184.500 kg	
	Say 3184.500 kg @ Rs 1.36 / kg						Rs 4330.92	
7	od357974/2021_2022							

	Extra for providing sulphate resistant cement for the structures above plinth level.							
		1	9.650				9.650	
	Total Quantity						9.650 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						9.650 cum	
	Say 9.650 cum @ Rs 1899.47 / cum						Rs 18329.89	
8	5.22.6 Steel reinforcement for R.C.C work including straightening, cutting, bending, placing in position and binding all complete upto plinth level Thermo - Mechanically Treated bars of grade Fe-500D or more							
	@120kg/m3	1	9.650	120.000			1158.000	
	Total Quantity						1158.000 kilogram	
	Total Deducted Quantity						0.000 kilogram	
	Net Total Quantity						1158.000 kilogram	
	Say 1158.000 kilogram @ Rs 98.92 / kilogram						Rs 114549.36	
9	od357975/2021_2022 Extra for providing epoxy coating for reinforcement bars.							
	@120kg/m3	1	9.650	120.000			1158.000	
	Total Quantity						1158.000 kg	
	Total Deducted Quantity						0.000 kg	
	Net Total Quantity						1158.000 kg	
	Say 1158.000 kg @ Rs 2.32 / kg						Rs 2686.56	
10	5.9.1 Centering and shuttering including strutting, etc. and removal of form for: Foundations, footings, bases of columns, etc for mass concrete							
	PCC	3.14	3.600		0.200		2.261	
	FLOOR SLAB	3.14	3.400		0.300		3.203	
	Total Quantity						5.464 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						5.464 sqm	
	Say 5.464 sqm @ Rs 337.42 / sqm						Rs 1843.66	
11	5.9.2 Centering and shuttering including strutting, etc. and removal of form for: Walls (any thickness) including attached pilasters, butresses, plinth and string courses etc.							
	FOR TANK WALL	2*3.14	2.500		2.600		40.820	
	Total Quantity						40.820 sqm	

		Total Deducted Quantity					0.000 sqm	
		Net Total Quantity					40.820 sqm	
		Say 40.820 sqm @ Rs 721.70 / sqm					Rs 29459.79	
12	5.9.3 Centering and shuttering including strutting, etc. and removal of form for:Suspended floors, roofs, landings, balconies and access platform							
	FOR COVERING SLAB	3.14/4	2.200	2.200			3.800	
	Manhole	1	0.500	0.500			-0.250	
		Total Quantity					3.800 sqm	
		Total Deducted Quantity					-0.250 sqm	
		Net Total Quantity					3.550 sqm	
		Say 3.550 sqm @ Rs 820.89 / sqm					Rs 2914.16	
13	13.7.1 12 mm cement plaster finished with a floating coat of neat cement of mix:1:3 (1 cement : 3 fine sand)							
	FOR FLLOR SLAB	3.14/4	2.200	2.200			3.800	
	TANK WALL INSIDE &OUTSIDE	2*3.14	2.500	2.500			39.250	
	COVERING SLAB	2*3.144	2.500	2.500			39.301	
		Total Quantity					82.351 sqm	
		Total Deducted Quantity					0.000 sqm	
		Net Total Quantity					82.351 sqm	
		Say 82.351 sqm @ Rs 403.73 / sqm					Rs 33247.57	
14	13.52.2 Finishing with Epoxy paint (two or more coats) at all locations prepared and applied as per manufacturer's specifications including appropriate priming coat, preparation of surface, etc. complete.On concrete work							
	TANK WALL OUTSIDE	3.14	2.800	2.620	2.500		57.588	
	COVERING SLAB OUTSIDE	3.14/4	2.800	2.800			6.155	
		Total Quantity					63.743 sqm	
		Total Deducted Quantity					0.000 sqm	
		Net Total Quantity					63.743 sqm	
		Say 63.743 sqm @ Rs 224.31 / sqm					Rs 14298.19	
15	22.23.1							

	<p>Providing and applying integral crystalline slurry of hydrophilic in nature for waterproofing treatment to the RCC structures like retaining walls of the basement, water tanks, roof slabs, podiums, reservoir, sewage & water treatment plant, tunnels/ subway and bridge deck etc., prepared by mixing in the ratio of 5 : 2 (5 parts integral crystalline slurry : 2 parts water) for vertical surfaces and 3 : 1 (3 parts integral crystalline slurry : 1 part water) for horizontal surfaces and applying the same from negative (internal) side with the help of synthetic fiber brush. The material shall meet the requirements as specified in ACI-212-3R-2010 i.e. by reducing permeability of concrete by more than 90% compared with control concrete as per DIN 1048 and resistant to 16 bar hydrostatic pressure on negative side. The crystalline slurry shall be capable of self-healing of cracks up to a width of 0.50mm. The work shall be carried out all complete as per specification and the direction of the engineer in-charge. The product performance shall carry guarantee for 10 years against any leakage. For vertical surface two coats @ 0.70 kg per sqm</p>						
	TANK WALL INSIDE	3.14	2.200		2.500		17.270
	COVERING SLAB INSIDE	3.14/4	2.200	2.200			3.800
	Total Quantity						21.070 sqm
	Total Deducted Quantity						0.000 sqm
	Net Total Quantity						21.070 sqm
	Say 21.070 sqm @ Rs 573.87 / sqm						Rs 12091.44
16	<p>22.23.2 Providing and applying integral crystalline slurry of hydrophilic in nature for waterproofing treatment to the RCC structures like retaining walls of the basement, water tanks, roof slabs, podiums, reservoir, sewage & water treatment plant, tunnels/ subway and bridge deck etc., prepared by mixing in the ratio of 5 : 2 (5 parts integral crystalline slurry : 2 parts water) for vertical surfaces and 3 : 1 (3 parts integral crystalline slurry : 1 part water) for horizontal surfaces and applying the same from negative (internal) side with the help of synthetic fiber brush. The material shall meet the requirements as specified in ACI-212-3R-2010 i.e. by reducing permeability of concrete by more than 90% compared with control concrete as per DIN 1048 and resistant to 16 bar hydrostatic pressure on negative side. The crystalline slurry shall be capable of self-healing of cracks up to a width of 0.50mm. The work shall be carried out all complete as per specification and the direction of the engineer in-charge. The product performance shall carry guarantee for 10 years against any leakage. For horizontal surface one coat @ 1.10 kg per sqm.</p>						
	FOR FLOOR SLAB	3.14/4	2.200	2.200			3.800
	Total Quantity						3.800 sqm
	Total Deducted Quantity						0.000 sqm
	Net Total Quantity						3.800 sqm
	Say 3.800 sqm @ Rs 442.27 / sqm						Rs 1680.63
17	<p>100.36.1 Filling water with 5000 litre tankers fitted in lorry and conveying water from a distance of 5 km (average) to the reservoir site and pumping the water into the reservoir of height not less than 3 m using 5 HP diesel engine pump set, hire for tanker lorry, tools and other appliances and cost of water etc. complete. "(Ref. No. 000, Technical Circular)"</p>						

	TANK INSIDE VOLUME	3.14/4	2.200	2.200	2.500		9.499	
	Total Quantity						9.499 Kilo litre	
	Total Deducted Quantity						0.000 Kilo litre	
	Net Total Quantity						9.499 Kilo litre	
	Say 9.499 Kilo litre @ Rs 185.67 / Kilo litre						Rs 1763.68	
SI No	Description	No	L	B	D	CF	Quantity	Remark
13Administrative/Laboratory/Chemical House / Control Room Building (Cost Index:36.44 %)								
1	2.8.1 Earth work in excavation by mechanical means (Hydraulic excavator) /manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan), including dressing of sides and ramming of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m.All kinds of soil							
	FOR FOOTING	16	1.500	1.500	1.500		54.000	
	FOR STEP	1	2.000	2.000	0.200		0.800	
	FOR RAMP	1	3.000	1.500	0.150		0.675	
	Total Quantity						55.475 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						55.475 cum	
	Say 55.475 cum @ Rs 298.80 / cum						Rs 16575.93	
2	4.1.3 Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level:1:2:4 (cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size)							
	FOR RAMP	1	3.000	1.500	0.150		0.675	
	Total Quantity						0.675 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						0.675 cum	
	Say 0.675 cum @ Rs 8040.95 / cum						Rs 5427.64	
3	4.1.8 Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level:1:4:8 (1 cement : 4 coarse sand : 8 graded stone aggregate 40 nominal size)							
	FOR FOOTING	16	1.500	1.500	0.100		3.600	
	FOR STEP	1	2.000	2.000	0.100		0.400	
	FOR RAMP	1	3.000	1.500	0.150		0.675	

						Total Quantity	4.675 cum	
						Total Deducted Quantity	0.000 cum	
						Net Total Quantity	4.675 cum	
						Say 4.675 cum @ Rs 6857.61 / cum	Rs 32059.33	
4	50.2.25.1 Filling with contractor's own earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift up to 1.5 m as per direction of site Engineer-in-charge							
	Office Room	1	7.000	5.000	0.500		17.500	
	stair	1	7.000	3.000	0.500		10.500	
	chemical room	1	6.000	4.000	0.500		12.000	
	visitors room	1	4.000	4.000	0.500		8.000	
	Ramp	1*0.50	2.000	1.500	0.600		0.900	
						Total Quantity	48.900 cum	
						Total Deducted Quantity	0.000 cum	
						Net Total Quantity	48.900 cum	
						Say 48.900 cum @ Rs 529.11 / cum	Rs 25873.48	
5	5.37.1 Providing and laying in position ready mixed M-25 grade concrete for reinforced cement concrete work, using cement content as per approved design mix, manufactured in fully automatic batching plant and transported to site of work in transit mixer for all leads, having continuous agitated mixer, manufactured as per mix design of specified grade for reinforced cement concrete work including pumping of R.M.C. from transit mixer to site of laying, excluding the cost of centering, shuttering finishing and reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in -charge. Note:- Cement content considered in this item is @330 kg/cum. Excess /less cement used as per design mix is payable/recoverable separately.All work upto plinth level							
	FOR FIRST FOOTING	16	1.400	1.400	0.250		7.840	
	FOR SECOND FOOTING	16	0.167	3.920	0.350		3.666	
	COLUMN UP TO PLINTH BEAM	16	0.400	0.200	0.800		1.025	
	PLINTH BEAMS	3	11.100	0.200	0.450		2.998	
	„	4	10.400	0.200	0.450		3.744	
	„	1	3.200	0.200	0.450		0.289	
	FLOOR SLAB	1	11.300	10.600	0.100		11.979	

		Total Quantity					31.541 cum	
		Total Deducted Quantity					0.000 cum	
		Net Total Quantity					31.541 cum	
		Say 31.541 cum @ Rs 9947.98 / cum					Rs 313769.24	
6	5.37.2	<p>Providing and laying in position ready mixed M-25 grade concrete for reinforced cement concrete work, using cement content as per approved design mix, manufactured in fully automatic batching plant and transported to site of work in transit mixer for all leads, having continuous agitated mixer, manufactured as per mix design of specified grade for reinforced cement concrete work including pumping of R.M.C. from transit mixer to site of laying, excluding the cost of centering, shuttering finishing and reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in -charge. Note:- Cement content considered in this item is @330 kg/cum. Excess /less cement used as per design mix is payable/recoverable separately.All work above plinth level upto floor V level</p>						
	Column Above Plinth	16	0.400	0.200	3.250		4.161	
	SUN SHADE DOOR	2	2.000	1.200	0.080		0.384	
	SUN SHADE W3	7	1.900	0.600	0.080		0.639	
	SUN SHADE RS	1	3.400	1.200	0.080		0.327	
	SUN SHADE V	1	1.000	0.600	0.080		0.048	
	LINTELS	3	11.100	0.200	0.150		1.000	
	„	3	10.400	0.200	0.150		0.936	
	„	1	3.200	0.200	0.150		0.097	
	BEAMS	6	3.100	0.200	0.450		1.675	
	„	2	4.000	0.200	0.450		0.721	
	„	2	3.200	0.200	0.450		0.577	
	„	2	4.200	0.200	0.450		0.757	
	„	4	5.500	0.200	0.450		1.981	
	„	4	1.700	0.200	0.450		0.613	
	„	4	4.200	0.200	0.450		1.513	
	STAIR CASE WAIST SLAB	2	3.700	1.500	0.125		1.388	
	LANDING	1	3.000	1.500	0.125		0.563	
	STEPS	22*.50	1.500	0.300	0.150		0.743	
	ROOF SLAB	1	11.300	10.600	0.125		14.973	
	First Floor - COLUMN UP TO ROOF SLAB	16	0.400	0.200	3.250		4.161	

	LINTELS	2	11.100	0.200	0.150		0.666	
	„	4	10.400	0.200	0.150		1.248	
	„	1	1.700	0.200	0.150		0.052	
	SUN SHADE	8	2.000	0.600	0.080		0.768	
	„	1	1.000	0.600	0.080		0.048	
	Beams	6	3.100	0.200	0.450		1.675	
	„	2	4.000	0.200	0.450		0.721	
	„	2	3.200	0.200	0.450		0.577	
	„	2	4.200	0.200	0.450		0.757	
	„	4	5.500	0.200	0.450		1.981	
	„	4	1.700	0.200	0.450		0.613	
	„	4	4.200	0.200	0.450		1.513	
	Roof slab	1	11.900	11.200	0.125		16.660	
	Column	16	0.200	0.400	0.600		-0.768	
	OPENING	1	1.500	0.200	0.150		-0.045	
						Total Quantity	64.536 cum	
						Total Deducted Quantity	-0.813 cum	
						Net Total Quantity	63.723 cum	
						Say 63.723 cum @ Rs 11610.43 / cum	Rs 739851.43	
7	5.22.6 Steel reinforcement for R.C.C work including straightening, cutting, bending, placing in position and binding all complete upto plinth level Thermo - Mechanically Treated bars of grade Fe-500D or more							
	@ 100 Kg/ Cum of CC - Footing	1	31.541			100.0	3154.100	
	@ 100 Kg/ Cum of CC	1	63.723			100.0	6372.300	
						Total Quantity	9526.400 kilogram	
						Total Deducted Quantity	0.000 kilogram	
						Net Total Quantity	9526.400 kilogram	
						Say 9526.400 kilogram @ Rs 98.92 / kilogram	Rs 942351.49	
8	14.12 Providing and fixing 16 mm M.S. Fan clamps of standard shape and size in existing R.C.C. slab, including cutting chase, anchoring clamp to reinforcement bar, including cleaning, refilling, making good the chase with matching concrete, plastering and painting the exposed portion of the clamps complete.							
	Fixing on ceiling	6					6.000	
						Total Quantity	6.000 No	

		Total Deducted Quantity					0.000 No	
		Net Total Quantity					6.000 No	
		Say 6.000 No @ Rs 503.53 / No					Rs 3021.18	
9	5.9.1 Centering and shuttering including strutting, etc. and removal of form for:Foundations, footings, bases of columns, etc for mass concrete							
	FOR FIRST FOOTING	16*4	1.400		0.250		22.400	
		Total Quantity					22.400 sqm	
		Total Deducted Quantity					0.000 sqm	
		Net Total Quantity					22.400 sqm	
		Say 22.400 sqm @ Rs 337.42 / sqm					Rs 7558.21	
10	5.9.3 Centering and shuttering including strutting, etc. and removal of form for:Suspended floors, roofs, landings, balconies and access platform							
	GF Slab	1	11.300	10.600			119.780	
	Slab Edge	1	43.800		0.125		5.475	
	FF slab	1	11.900	11.200			133.280	
	Slab Edge	1	46.200		0.125		5.775	
		Total Quantity					264.310 sqm	
		Total Deducted Quantity					0.000 sqm	
		Net Total Quantity					264.310 sqm	
		Say 264.310 sqm @ Rs 820.89 / sqm					Rs 216969.44	
11	5.9.5 Centering and shuttering including strutting, etc. and removal of form for:Lintels, beams, plinth beams, girders bressumers and cantilevers							
	SUN SHADE DOOR	2	2.000	1.200			4.800	
	SUN SHADE W3	7	1.900	0.600			7.980	
	SUN SHADE RS	1	3.400	1.200			4.080	
	SUN SHADE V	1	1.000	0.600			0.600	
	Shade side	24	0.600		0.100		1.440	
	LINTELS	3*2	11.100		0.150		9.990	
	„	3*2	10.400		0.150		9.360	
	„	1*2	3.200		0.150		0.960	
	Op. Bottom	1	0.600	0.200			0.120	

		7	1.500	0.200			2.101	
		1	3.000	0.200			0.601	
	BEAMS	6	3.100		1.100		20.461	
	„	2	4.000		1.100		8.800	
	„	2	3.200		1.100		7.041	
	„	2	4.200		1.100		9.241	
	„	4	5.500		1.100		24.201	
	„	4	1.700		1.100		7.480	
	„	4	4.200		1.100		18.481	
	STAIR CASE WAIST SLAB	2	3.700	1.500			11.101	
	Side	2	3.700		0.125		0.925	
	LANDING	1	3.000	1.500			4.500	
	Side	1	6.000		0.150		0.900	
	STEPS	22	1.500		0.150		4.950	
	Side	44*0.50	0.300	0.150			0.990	
	LINTELS	2*2	11.100		0.150		6.660	
	„	4*2	10.400		0.150		12.480	
	„	1*2	1.700		0.150		0.510	
	SUN SHADE	8	2.000	0.600			9.600	
	„	1	1.000	0.600			0.600	
	Edge	8*2	1.500		0.100		2.401	
		1*2	0.600		0.100		0.120	
	Beams	6	3.100		1.100		20.461	
	„	2	4.000		1.100		8.800	
	„	2	3.200		1.100		7.041	
	„	2	4.200		1.100		9.241	
	„	4	5.500		1.100		24.201	
	„	4	1.700		1.100		7.480	
	„	4	4.200		1.100		18.481	
	PLINTH BEAMS	3*2	11.100		0.450		29.970	
	„	4*2	10.400		0.450		37.441	
	„	1*2	3.200		0.450		2.881	

						Total Quantity	359.471 sqm	
						Total Deducted Quantity	0.000 sqm	
						Net Total Quantity	359.471 sqm	
						Say 359.471 sqm @ Rs 653.89 / sqm	Rs 235054.49	
12	5.9.6	Centering and shuttering including strutting, etc. and removal of form for:Columns, Pillars, Piers, Abutments, Posts and Struts						
	COLUMN UP TO PLINTH BEAM	16	1.200		0.800		15.360	
	GF Column	16	1.200		3.250		62.400	
	FF Columns	16	1.200	3.250			62.400	
						Total Quantity	140.160 sqm	
						Total Deducted Quantity	0.000 sqm	
						Net Total Quantity	140.160 sqm	
						Say 140.160 sqm @ Rs 869.05 / sqm	Rs 121806.05	
13	50.6.7.2	Laterate masonry with neatly dressed laterate stone of size 40x20x15cm or nearest size in cement mortar 1:6 for super structure above plinth level up to floor two level including all cost of materials, labour charges etc.						
	GF Walls	3	11.100	0.200	3.200		21.313	
	„	3	10.400	0.200	3.200		19.969	
	„	1	3.200	0.200	3.200		2.049	
	FF - Walls	2	11.100	0.200	3.200		14.209	
	„	4	10.400	0.200	3.200		26.625	
	„	1	7.000	0.200	3.200		4.480	
	Parapet	1	45.400	0.200	0.600		5.448	
	Doors	1	1.200	0.200	2.100		-0.504	
	„	4	1.000	0.200	2.100		-1.680	
	„	2	0.800	0.200	2.100		-0.672	
	W	15	1.500	0.200	1.500		-6.750	
	V	2	0.600	0.200	0.500		-0.120	
	Rolling Shutter	1	2.000	0.200	2.400		-0.960	
	Column	2*16	0.200	0.400	3.200		-8.192	
						Total Quantity	94.093 cum	
						Total Deducted Quantity	-18.878 cum	

	Net Total Quantity						75.215 cum	
	Say 75.215 cum @ Rs 7968.75 / cum						Rs 599369.53	
14	13.1.1 12 mm cement plaster of mix:1:4 (1 cement : 4 fine sand)							
	Building Outside-Long Wall	2	11.300		3.900		88.140	
	Short Wall	2	10.600		3.900		82.680	
	Building inside-Long Wall	4	10.900		3.300		143.880	
	Short Wall	4	10.000		3.300		132.000	
	Toilet out side	2	1.600		3.300		10.560	
	Toilet in side	2	1.500		3.300		9.900	
	Sun shade	7	2.100		0.700		10.290	
	„	2	2.200		1.300		5.721	
	„	1	1.200		0.700		0.840	
	Step top	1	1.500		1.500		2.250	
	„ Side	2	0.900		0.300		0.540	
	Ramp	2*0.50	0.300		1.500		0.450	
	FF - Outside wall	2	11.300		3.300		74.580	
	„	2	10.600		3.300		69.960	
	FF - inside	2	10.700		3.300		70.620	
	„	4	10.000		3.300		132.000	
	„	1	5.700		3.300		18.810	
	„	1	7.000		3.300		23.100	
	Toilet inside	2	1.500		3.300		9.900	
	Parapet wall	1	45.400		1.400		63.560	
	Door	1	1.200		2.100		-2.520	
	„	4	1.000		2.100		-8.400	
	„	8	0.800		2.100		-13.440	
	Window	15	1.500		1.500		-33.750	
	ventilator	2	0.600		0.500		-0.600	
	Rs	1*2	2.000		2.400		-9.600	
	Total Quantity						949.781 sqm	
	Total Deducted Quantity						-68.310 sqm	

	Net Total Quantity						881.471 sqm	
	Say 881.471 sqm @ Rs 316.06 / sqm						Rs 278597.72	
15	13.16.1 6 mm cement plaster of mix:1:3 (1 cement : 3 fine sand)							
	GF- slab-Bottom	1	10.700		10.000		107.000	
	Beam Bottom	1	82.800		0.850		70.380	
	Sun shad Door	2	2.000		1.200		4.800	
	„ W	7	1.900		0.600		7.980	
	„ V	1	0.900		0.600		0.540	
	Sun shad edge	1	30.200		0.100		3.020	
	Stair Waist Slab	2	3.700		1.700		12.580	
	Landing	1	3.000		1.500		4.500	
	FF - Roof slab-Bottom	1	10.700		10.000		107.000	
	Beam Bottom	1	82.800		0.850		70.380	
	Shade , W	8	1.900		0.600		9.120	
	„ V	1	0.900		0.600		0.540	
	Roof Slab Edge	1	33.700		0.300		10.111	
	Shade Edge	1	30.200		0.100		3.020	
	Total Quantity						410.971 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						410.971 sqm	
	Say 410.971 sqm @ Rs 269.26 / sqm						Rs 110658.05	
16	13.7.1 12 mm cement plaster finished with a floating coat of neat cement of mix:1:3 (1 cement : 3 fine sand)							
	Roof top	1	11.900	11.200			133.280	
	Total Quantity						133.280 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						133.280 sqm	
	Say 133.280 sqm @ Rs 403.73 / sqm						Rs 53809.13	
17	11.41.2 Providing and laying vitrified floor tiles in different sizes (thickness to be specified by the manufacturer) with water absorption less than 0.08% and conforming to IS : 15622, of approved make, in all colours and shades, laid on 20 mm thick cement mortar 1:4(1 cement : 4 coarse sand), including grouting the joints with white cement and matching pigments etc., complete.Size of Tile 600 x 600 mm.							
	Office room	1	7.000	7.000			49.000	

	Skirting-office room	1	26.500	0.100			2.651	
	Vistors room	1	4.000	4.000			16.000	
	Skirting-	1	14.200	0.100			1.420	
	Chemical Room	1	6.000	4.000			24.000	
	Skirting-	1	20.000	0.100			2.000	
	Stair Case Room	1	3.000	7.000			21.000	
	Step	22	1.500	0.450			14.851	
	Landing	1	3.000	1.500			4.500	
	Controll Room	1	7.000	5.000			35.000	
	Laboratory Room	1	10.200	4.000			40.800	
	Passage	1	7.000	1.500			10.500	
							Total Quantity	221.722 sqm
							Total Deducted Quantity	0.000 sqm
							Net Total Quantity	221.722 sqm
							Say 221.722 sqm @ Rs 1777.34 / sqm	Rs 394075.38
18	11.37 Providing and laying Ceramic glazed floor tiles of size 300x300 mm (thickness to be specified by the manufacturer), of 1st quality conforming to IS : 15622, of approved make, in colours such as White, Ivory, Grey, Fume Red Brown, laid on 20 mm thick cement mortar 1:4 (1 Cement : 4 Coarse sand), including pointing the joints with white cement and matching pigment etc., complete.							
	Passage	1	1.500	1.500			2.250	
	„	1	3.000	1.500			4.500	
							Total Quantity	6.750 sqm
							Total Deducted Quantity	0.000 sqm
							Net Total Quantity	6.750 sqm
							Say 6.750 sqm @ Rs 1097.86 / sqm	Rs 7410.55
19	11.38 Providing and laying Ceramic glazed floor tiles of size 300x300 mm (thickness to be specified by the manufacturer), of 1st quality conforming to IS : 15622, of approved make, in all colours, shades, except White, Ivory, Grey, Fume Red Brown, laid on 20 mm thick bed of cement mortar 1:4 (1 cement : 4 Coarse sand), including pointing the joints with white cement and matching pigments etc., complete.							
	Wall Tile	1	6.000	2.100			12.601	
	„	1	9.000	2.100			18.901	
	Door	2	0.800	2.100			-3.360	
							Total Quantity	31.502 sqm

						Total Deducted Quantity	-3.360 sqm
						Net Total Quantity	28.142 sqm
						Say 28.142 sqm @ Rs 1180.55 / sqm	Rs 33223.04
20	10.6.1	Supplying and fixing rolling shutters of approved make, made of required size M.S. laths, interlocked together through their entire length and jointed together at the end by end locks, mounted on specially designed pipe shaft with brackets, side guides and arrangements for inside and outside locking with push and pull operation complete, including the cost of providing and fixing necessary 27.5 cm long wire springs manufactured from high tensile steel wire of adequate strength conforming to IS: 4454 - part 1 and M.S. top cover of required thickness for rolling shutters.80x1.25 mm M.S. laths with 1.25 mm thick top cover					
	RS	1	2.000	2.400			4.800
						Total Quantity	4.800 sqm
						Total Deducted Quantity	0.000 sqm
						Net Total Quantity	4.800 sqm
						Say 4.800 sqm @ Rs 3487.20 / sqm	Rs 16738.56
21	10.7	Providing and fixing ball bearing for rolling shutters.					
	For Rs	1					1.000
						Total Quantity	1.000 Nos
						Total Deducted Quantity	0.000 Nos
						Net Total Quantity	1.000 Nos
						Say 1.000 Nos @ Rs 497.32 / Nos	Rs 497.32
22	10.3	Providing and fixing in position collapsible steel shutters with vertical channels 20x10x2 mm and braced with flat iron diagonals 20x5 mm size, with top and bottom rail of T-iron 40x40x6 mm, with 40 mm dia steel pulleys, complete with bolts, nuts,locking arrangement, stoppers, handles, including applying a priming coat of approved steel primer .					
		1	1.500		2.100		3.151
						Total Quantity	3.151 sqm
						Total Deducted Quantity	0.000 sqm
						Net Total Quantity	3.151 sqm
						Say 3.151 sqm @ Rs 10269.91 / sqm	Rs 32360.49
23	13.43.1	Applying one coat of water thinnable cement primer of approved brand and manufacture on wall surface:Water thinnable cement primer					

	Building Outside-Long Wall	2	11.300		3.900		88.140	
	Short Wall	2	10.600		3.900		82.680	
	Building inside-Long Wall	4	10.900		3.300		143.880	
	Short Wall	4	10.000		3.300		132.000	
	Toilet out side	2	1.600		3.300		10.560	
	Toilet in side	2	1.500		3.300		9.900	
	Sun shade	7	2.100		0.700		10.290	
	„	2	2.200		1.300		5.721	
	„	1	1.200		0.700		0.840	
	Step top	1	1.500		1.500		2.250	
	„ Side	2	0.900		0.300		0.540	
	Ramp	2*0.50	0.300		1.500		0.450	
	FF - Outside wall	2	11.300		3.300		74.580	
	„	2	10.600		3.300		69.960	
	FF - inside	2	10.700		3.300		70.620	
	„	4	10.000		3.300		132.000	
	„	1	5.700		3.300		18.810	
	„	1	7.000		3.300		23.100	
	Toilet inside	2	1.500		3.300		9.900	
	Parapet wall	1	45.400		1.400		63.560	
	Door	1	1.200		2.100		-2.520	
	„	4	1.000		2.100		-8.400	
	„	8	0.800		2.100		-13.440	
	Window	15	1.500		1.500		-33.750	
	ventilator	2	0.600		0.500		-0.600	
	Rs	1*2	2.000		2.400		-9.600	
	GF- slab-Bottom	1	10.700		10.000		107.000	
	Beam Bottom	1	82.800		0.850		70.380	
	Sun shad Door	2	2.000		1.200		4.800	
	„ W	7	1.900		0.600		7.980	
	„ V	1	0.900		0.600		0.540	

	Sun shad edge	1	30.200		0.100		3.020	
	Stair Waist Slab	2	3.700		1.700		12.580	
	Landing	1	3.000		1.500		4.500	
	FF - Roof slab-Bottom	1	10.700		10.000		107.000	
	Beam Bottom	1	82.800		0.850		70.380	
	Shade , W	8	1.900		0.600		9.120	
	„ V	1	0.900		0.600		0.540	
	Roof Slab Edge	1	33.700		0.300		10.111	
	Shade Edge	1	30.200		0.100		3.020	
						Total Quantity	1360.752 sqm	
						Total Deducted Quantity	-68.310 sqm	
						Net Total Quantity	1292.442 sqm	
						Say 1292.442 sqm @ Rs 71.09 / sqm	Rs 91879.70	
24	13.60.1 Wall painting with acrylic emulsion paint of approved brand and manufacture to give an even shade:Two or more coats on new work							
	Building Outside-Long Wall	2	11.300		3.900		88.140	
	Short Wall	2	10.600		3.900		82.680	
	Building inside-Long Wall	4	10.900		3.300		143.880	
	Short Wall	4	10.000		3.300		132.000	
	Toilet out side	2	1.600		3.300		10.560	
	Toilet in side	2	1.500		3.300		9.900	
	Sun shade	7	2.100		0.700		10.290	
	„	2	2.200		1.300		5.721	
	„	1	1.200		0.700		0.840	
	Step top	1	1.500		1.500		2.250	
	„ Side	2	0.900		0.300		0.540	
	Ramp	2*0.50	0.300		1.500		0.450	
	FF - Outside wall	2	11.300		3.300		74.580	
	„	2	10.600		3.300		69.960	
	FF - inside	2	10.700		3.300		70.620	
	„	4	10.000		3.300		132.000	

	„	1	5.700		3.300		18.810	
	„	1	7.000		3.300		23.100	
	Toilet inside	2	1.500		3.300		9.900	
	Parapet wall	1	45.400		1.400		63.560	
	Door	1	1.200		2.100		-2.520	
	„	4	1.000		2.100		-8.400	
	„	8	0.800		2.100		-13.440	
	Window	15	1.500		1.500		-33.750	
	ventilator	2	0.600		0.500		-0.600	
	Rs	1*2	2.000		2.400		-9.600	
	GF- slab-Bottom	1	10.700		10.000		107.000	
	Beam Bottom	1	82.800		0.850		70.380	
	Sun shad Door	2	2.000		1.200		4.800	
	„ W	7	1.900		0.600		7.980	
	„ V	1	0.900		0.600		0.540	
	Sun shad edge	1	30.200		0.100		3.020	
	Stair Waist Slab	2	3.700		1.700		12.580	
	Landing	1	3.000		1.500		4.500	
	FF - Roof slab-Bottom	1	10.700		10.000		107.000	
	Beam Bottom	1	82.800		0.850		70.380	
	Shade , W	8	1.900		0.600		9.120	
	„ V	1	0.900		0.600		0.540	
	Roof Slab Edge	1	33.700		0.300		10.111	
	Shade Edge	1	30.200		0.100		3.020	
							Total Quantity	1360.752 sqm
							Total Deducted Quantity	-68.310 sqm
							Net Total Quantity	1292.442 sqm
							Say 1292.442 sqm @ Rs 152.34 / sqm	Rs 196890.61
25	13.61.1 Painting with synthetic enamel paint of approved brand and manufacture to give an even shade:Two or more coats on new work							
	Widow grill	15	1.500	1.500			33.750	
	Ventilator	2	0.600	0.500			0.600	

	Rolling shutter	1	2.000	2.400		2.5	12.000	
	CG	1	1.500	2.100			3.151	
	Total Quantity						49.501 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						49.501 sqm	
	Say 49.501 sqm @ Rs 143.94 / sqm						Rs 7125.17	
26	<p>21.1.1.1 Providing and fixing aluminium work for doors, windows, ventilators and partitions with extruded built up standard tubular sections/ appropriate Z sections and other sections of approved make conforming to IS : 733 and IS: 1285, fixing with dash fasteners of required dia and size, including necessary filling up the gaps at junctions, i.e. at top, bottom and sides with required EPDM rubber/ neoprene gasket etc. Aluminium sections shall be smooth, rust free, straight, mitred and jointed mechanically wherever required including cleat angle, Aluminium snap beading for glazing /paneling, C.P. brass/ stainless steel screws, all complete as per architectural drawings and the directions of Engineer-in-charge.(Glazing, paneling and dash fasteners to be paid for separately):For fixed portionAnodised aluminium (anodised transparent or dyed to required shade according to IS : 1868, Minimum anodic coating of grade AC 15)</p>							
	For window frames	15	1.500	1.500		4.5	151.875	
	Ventilator	2	0.600	0.500		4.5	2.700	
	Doors	1	1.200	2.100		4.5	11.340	
	„	4	1.000	2.100			8.400	
	Total Quantity						174.315 kg	
	Total Deducted Quantity						0.000 kg	
	Net Total Quantity						174.315 kg	
	Say 174.315 kg @ Rs 502.17 / kg						Rs 87535.76	
27	<p>21.1.2.1 For shutters of doors, windows & ventilators including providing and fixing hinges / pivots and making provision for fixing of fittings wherever required including the cost of EPDM rubber/ neoprene gasket required (Fittings shall be paid for separately)Anodised aluminium (anodised transparent or dyed to required shade according to IS : 1868, Minimum anodic coating of grade AC 15)</p>							
	For window Shutter	15*3	0.470	1.440		3.0	91.368	
	Ventilator	2	0.570	0.470		3.0	1.608	
	Doors	1	1.060	1.960		4.5	9.350	
	„	4	0.860	1.960			6.743	
	Total Quantity						109.069 kg	
	Total Deducted Quantity						0.000 kg	
	Net Total Quantity						109.069 kg	
	Say 109.069 kg @ Rs 608.11 / kg						Rs 66325.95	

28	21.3.1 Providing and fixing glazing in aluminium door, window, ventilator shutters and partitions etc. with EPDM rubber / neoprene gasket etc. complete as per the architectural drawings and the directions of Engineer - in -Charge. (Cost of aluminium snap beading shall be paid in basic item):With float glass panes of 4.0 mm thickness							
	For window Shutter	15*3	0.460	1.430		3.0	88.804	
	Ventilator	2	0.560	0.460		3.0	1.546	
	Doors	1*2	0.980	0.900		4.5	7.938	
	„	4*2	0.780	0.900			5.617	
						Total Quantity	103.905 sqm	
						Total Deducted Quantity	0.000 sqm	
						Net Total Quantity	103.905 sqm	
						Say 103.905 sqm @ Rs 1184.03 / sqm	Rs 123026.64	
29	9.48.2 Providing and fixing M.S. Grills of required pattern in frames of windows etc. with M.S. flats, square or round bars etc. including priming coat with approved steel primer all complete.Fixed to openings/ wooden frames with rawl plugs screws etc							
	For window frames	15	1.500	1.500		20.0	675.000	
	Ventilator	2	0.600	0.500		20.0	12.000	
						Total Quantity	687.000 kg	
						Total Deducted Quantity	0.000 kg	
						Net Total Quantity	687.000 kg	
						Say 687.000 kg @ Rs 217.35 / kg	Rs 149319.45	
30	10.28 Providing and fixing stainless steel (Grade 304) railing made of Hollow tubes, channels, plates etc., including welding, grinding, buffing, polishing and making curvature (wherever required) and fitting the same with necessary stainless steel nuts and bolts complete, i/c fixing the railing with necessary accessories & stainless steel dash fasteners, stainless steel bolts etc., of required size on the top of the floor or the side of waist slab with suitable arrangement as per approval of Engineer-in-charge, (for payment purpose only weight of stainless steel members shall be considered excluding fixing accessories such as nuts, bolts, fasteners etc.)							
	Stair hand rail	1	22.000	0.800		14.0	246.401	
	Ramp Hand rail	2	3.000	0.800		14.0	67.201	
						Total Quantity	313.602 kg	
						Total Deducted Quantity	0.000 kg	
						Net Total Quantity	313.602 kg	
						Say 313.602 kg @ Rs 681.59 / kg	Rs 213747.99	

31	9.117.1 Providing and fixing factory made uPVC door frame made of uPVC extruded sections having an overall dimension as below (tolerance ± 1 mm), with wall thickness 2.0mm (± 0.2 mm), corners of the door frame to be jointed with galvanized brackets and stainless steel screws, joints mitred and plastic welded. The hinge side vertical of the frames reinforced by galvanized M.S. tube of size 19 x 19 mm and 1 mm (± 0.1 mm) wall thickness and 3 nos. stainless steel hinges fixed to the frame complete as per manufacturer's specification and direction of Engineer-in-charge Extruded section profile size 48x40 mm							
	Toilet door frame	2	5.000				10.000	
	Total Quantity						10.000 metre	
	Total Deducted Quantity						0.000 metre	
	Net Total Quantity						10.000 metre	
	Say 10.000 metre @ Rs 262.58 / metre						Rs 2625.80	
32	9.118.3 Providing and fixing to existing door frames 25 mm thick PVC flush door shutters made out of a one piece Multi chamber extruded PVC section of the size of 762 mm x 25 mm or less as per requirement with and average wall thickness of 1 mm (± 0.3 mm). PVC foam end cap of size 23x10 mm area provided on both vertical edges to ensure the overall thickness of 25 mm. An M.S. tube having dimensions 19 mm x 19 mm and 1.0 mm (± 0.1 mm) is inserted along the hinge side of the door. Core of the door shutter should be filled with High Density Polyurethane foam. The Top & Bottom edges of the shutter are covered with an end -cap of the size 25 mm x 11 mm. Door shutter shall be reinforced with special polymeric reinforcements as per manufacturer,s specification and direction of Engineer-in-charge to take up necessary hardware and fixtures. Stickers indicating the locations of hardware will be pasted at appropriate places.							
	Toilet door Shutter	2	0.750	2.000			3.000	
	Total Quantity						3.000 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						3.000 sqm	
	Say 3.000 sqm @ Rs 3058.64 / sqm						Rs 9175.92	
33	17.2.1 Providing and fixing white vitreous china pedestal type water closet (European type W.C. pan) with seat and lid, 10 litre low level white P.V.C. flushing cistern, including flush pipe, with manually controlled device (handle lever), conforming to IS : 7231, with all fittings and fixtures complete, including cutting and making good the walls and floors wherever required:W.C. pan with ISI marked white solid plastic seat and lid							
	For Toilet	2					2.000	
	Total Quantity						2.000 No	
	Total Deducted Quantity						0.000 No	
	Net Total Quantity						2.000 No	
	Say 2.000 No @ Rs 6231.49 / No						Rs 12462.98	

34	17.7.2 Providing and fixing wash basin with C.I. brackets, 15 mm C.P. brass pillar taps, 32 mm C.P. brass waste of standard pattern, including painting of fittings and brackets, cutting and making good the walls wherever require:White Vitreous China Wash basin size 630 x 450 mm with a single 15 mm C.P. brass pillar tap							
	For toilet	2					2.000	
	Out side	1					1.000	
							Total Quantity	3.000 No
							Total Deducted Quantity	0.000 No
							Net Total Quantity	3.000 No
							Say 3.000 No @ Rs 3258.80 / No	Rs 9776.40
35	18.9.2 Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply including all CPVC plain & brass threaded fittings. This includes jointing of pipes & fittings with one step CPVC solvent cement, trenching , refilling & testing of joints complete as per direction of Engineer- in-Charge. External work20 mm nominal outer dia pipes							
		1	45.000				45.000	
							Total Quantity	45.000 metre
							Total Deducted Quantity	0.000 metre
							Net Total Quantity	45.000 metre
							Say 45.000 metre @ Rs 300.51 / metre	Rs 13522.95
36	18.9.3 Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply including all CPVC plain & brass threaded fittings. This includes jointing of pipes & fittings with one step CPVC solvent cement, trenching , refilling & testing of joints complete as per direction of Engineer- in-Charge. External work25 mm nominal outer dia pipes							
		1	25.000				25.000	
							Total Quantity	25.000 metre
							Total Deducted Quantity	0.000 metre
							Net Total Quantity	25.000 metre
							Say 25.000 metre @ Rs 386.88 / metre	Rs 9672.00
37	18.9.4 Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply including all CPVC plain & brass threaded fittings. This includes jointing of pipes & fittings with one step CPVC solvent cement, trenching , refilling & testing of joints complete as per direction of Engineer- in-Charge. External work32 mm nominal outer dia pipes							
		1	50.000				50.000	
							Total Quantity	50.000 metre

		Total Deducted Quantity					0.000 metre	
		Net Total Quantity					50.000 metre	
		Say 50.000 metre @ Rs 490.02 / metre					Rs 24501.00	
38	18.19.1.2	Providing and fixing gun metal non-return valve of approved quality (screwed end):25 mm nominal boreVertical						
		1					1.000	
		Total Quantity					1.000 No	
		Total Deducted Quantity					0.000 No	
		Net Total Quantity					1.000 No	
		Say 1.000 No @ Rs 597.54 / No					Rs 597.54	
39	18.49.1	Providing and fixing C.P brass bib cock of approved quality conforming to IS: 8931.15 mm nominal bore						
		2					2.000	
		Total Quantity					2.000 No	
		Total Deducted Quantity					0.000 No	
		Net Total Quantity					2.000 No	
		Say 2.000 No @ Rs 496.23 / No					Rs 992.46	
40	18.58.2.1	Providing and fixing PTMT grating of approved quality and colour.Rectangular type with openable circular lid150 mm nominal size square 100 mm diameter of the inner hinged round grating						
		2					2.000	
		Total Quantity					2.000 No	
		Total Deducted Quantity					0.000 No	
		Net Total Quantity					2.000 No	
		Say 2.000 No @ Rs 200.16 / No					Rs 400.32	
41	17.31	Providing and fixing 600x450 mm beveled edge mirror of superior glass (of approved quality) complete with 6 mm thick hard board ground fixed to wooden cleats with C.P. brass screws and washers complete.						
		2					2.000	
		Total Quantity					2.000 No	
		Total Deducted Quantity					0.000 No	
		Net Total Quantity					2.000 No	
		Say 2.000 No @ Rs 1519.87 / No					Rs 3039.74	
42	18.48							

	Providing and placing on terrace (at all floor levels) polyethylene water storage tank :ISI 12701 marked, with cover and suitable locking arrangement and making necessary holes for inlet, outlet and overflow pipes but without fittings and the base support for tank.							
	at roof	1	1000.000				1000.000	
	Total Quantity						1000.000 Litre	
	Total Deducted Quantity						0.000 Litre	
	Net Total Quantity						1000.000 Litre	
	Say 1000.000 Litre @ Rs 10.44 / Litre						Rs 10440.00	
Sl No	Description	No	L	B	D	CF	Quantity	Remark
14Security Cabin (Cost Index:36.44 %)								
1	2.8.1 Earth work in excavation by mechanical means (Hydraulic excavator) /manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan), including dressing of sides and ramming of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m.All kinds of soil							
	Foundation	2	3.150	0.600	0.700		2.646	
	„	2	1.950	0.600	0.700		1.638	
	Step	1	1.000	0.700	0.100		0.070	
	Total Quantity						4.354 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						4.354 cum	
	Say 4.354 cum @ Rs 298.80 / cum						Rs 1300.98	
2	4.1.8 Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level:1:4:8 (1 cement : 4 coarse sand : 8 graded stone aggregate 40 nominal size)							
	Foundation	2	3.150	0.600	0.100		0.378	
	„	2	1.950	0.600	0.100		0.234	
	Step	1	1.000	0.700	0.100		0.070	
	Floor	1	2.500	2.500	0.080		0.500	
	Total Quantity						1.182 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						1.182 cum	
	Say 1.182 cum @ Rs 6857.61 / cum						Rs 8105.70	
3	7.1.1 Random rubble masonry with hard stone in foundation and plinth including levelling up with cement							

	concrete 1:6:12 (1 cement : 6 coarse sand : 12 graded stone aggregate 20 mm nominal size) up to plinth level with:Cement mortar 1:6 (1 cement : 6 coarse sand)						
	Foundation	2	3.150	0.600	0.600		2.268
	„	2	1.950	0.600	0.600		1.404
	Step	1	3.000	0.450	0.450		0.608
	Floor	1	2.100	0.450	0.450		0.426
	Total Quantity						4.706 cum
	Total Deducted Quantity						0.000 cum
	Net Total Quantity						4.706 cum
	Say 4.706 cum @ Rs 7249.94 / cum						Rs 34118.22
4	50.6.7.2 Laterate masonry with neatly dressed laterate stone of size 40x20x15cm or nearest size in cement mortar 1:6 for super structure above plinth level up to floor two level including all cost of materials, labour charges etc.						
	Wall	4	2.700	0.200	2.850		6.157
	Parapet	4	3.200	0.200	0.300		0.769
	Step	1	1.000	0.600	0.200		0.120
	„	1	1.000	0.300	0.200		0.060
	Door	1	1.000	0.200	2.100		-0.420
	Window	2	1.500	0.200	1.500		-0.900
	Total Quantity						7.106 cum
	Total Deducted Quantity						-1.320 cum
	Net Total Quantity						5.786 cum
	Say 5.786 cum @ Rs 7968.75 / cum						Rs 46107.19
5	5.37.1 Providing and laying in position ready mixed M-25 grade concrete for reinforced cement concrete work, using cement content as per approved design mix, manufactured in fully automatic batching plant and transported to site of work in transit mixer for all leads, having continuous agitated mixer, manufactured as per mix design of specified grade for reinforced cement concrete work including pumping of R.M.C. from transit mixer to site of laying, excluding the cost of centering, shuttering finishing and reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in -charge. Note:- Cement content considered in this item is @330 kg/cum. Excess /less cement used as per design mix is payable/recoverable separately.All work upto plinth level						
	Plinth Belt	4	2.750	0.250	0.150		0.413
	Total Quantity						0.413 cum
	Total Deducted Quantity						0.000 cum

	Net Total Quantity						0.413 cum	
	Say 0.413 cum @ Rs 9947.98 / cum						Rs 4108.52	
6	<p>5.37.2 Providing and laying in position ready mixed M-25 grade concrete for reinforced cement concrete work, using cement content as per approved design mix, manufactured in fully automatic batching plant and transported to site of work in transit mixer for all leads, having continuous agitated mixer, manufactured as per mix design of specified grade for reinforced cement concrete work including pumping of R.M.C. from transit mixer to site of laying, excluding the cost of centering, shuttering finishing and reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in -charge. Note:- Cement content considered in this item is @330 kg/cum. Excess /less cement used as per design mix is payable/recoverable separately.All work above plinth level upto floor V level</p>							
	Lintel	4	2.700	0.200	0.150		0.324	
	Shade	1	2.900	0.600	0.100		0.175	
	„	2	1.900	0.600	0.100		0.228	
	Roof slab	1	3.500	3.500	0.120		1.470	
	Total Quantity						2.197 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						2.197 cum	
	Say 2.197 cum @ Rs 11610.43 / cum						Rs 25508.11	
7	<p>5.22.6 Steel reinforcement for R.C.C work including straightening, cutting, bending, placing in position and binding all complete upto plinth level Thermo - Mechanically Treated bars of grade Fe-500D or more</p>							
	@80 Kg/ 1Cum of CC	1	2.197+.41 3			80.0	208.800	
	Total Quantity						208.800 kilogram	
	Total Deducted Quantity						0.000 kilogram	
	Net Total Quantity						208.800 kilogram	
	Say 208.800 kilogram @ Rs 98.92 / kilogram						Rs 20654.50	
8	<p>5.9.3 Centering and shuttering including strutting, etc. and removal of form for:Suspended floors, roofs, landings, balconies and access platform</p>							
	Lintel	4	2.500		0.150		1.500	
	„	4	2.900		0.150		1.740	
	Bottom	1	1.000	0.200			0.200	
	Bottom	2	1.500	0.200			0.601	
	p-Beam	4	2.500		0.150		1.500	

	„	4	3.000		0.150		1.800	
	Shade	2	2.100	0.600			2.520	
	„	1	3.100	0.600			1.860	
	Side	6	0.600	0.100			0.360	
	Total Quantity						12.081 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						12.081 sqm	
	Say 12.081 sqm @ Rs 820.89 / sqm						Rs 9917.17	
9	5.9.5 Centering and shuttering including strutting, etc. and removal of form for:Lintels, beams, plinth beams, girders bressumers and cantilevers							
	Slab Bott.	1	2.500	2.500			6.250	
	Proj.	4	3.200	0.300			3.840	
	Edge	4	3.500	0.120			1.680	
	Total Quantity						11.770 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						11.770 sqm	
	Say 11.770 sqm @ Rs 653.89 / sqm						Rs 7696.29	
10	13.1.1 12 mm cement plaster of mix:1:4 (1 cement : 4 fine sand)							
	inside wall	4	2.500		3.000		30.000	
	out side	4	2.900		3.000		34.800	
	Basement	4	3.000		0.600		7.200	
	parapet	4	3.300		0.850		11.220	
	Door	1	1.000	2.100			-2.100	
	Window	2	1.500	1.500			-4.500	
	Total Quantity						83.220 sqm	
	Total Deducted Quantity						-6.600 sqm	
	Net Total Quantity						76.620 sqm	
	Say 76.620 sqm @ Rs 316.06 / sqm						Rs 24216.52	
11	13.7.1 12 mm cement plaster finished with a floating coat of neat cement of mix:1:3 (1 cement : 3 fine sand)							
	Roof top	3.1	3.100				9.611	
	Total Quantity						9.611 sqm	

		Total Deducted Quantity					0.000 sqm	
		Net Total Quantity					9.611 sqm	
		Say 9.611 sqm @ Rs 403.73 / sqm					Rs 3880.25	
12	13.16.1 6 mm cement plaster of mix:1:3 (1 cement : 3 fine sand)							
	Slab bott.	1	2.500	2.500			6.250	
	„ proj.	4	3.200	0.300			3.840	
	Slab edge	4	3.500	0.120			1.680	
	Shade	2*2	1.900	0.600			4.560	
	„	2	3.000	0.600			3.600	
	Shade edge	6	0.600	0.100			0.360	
		Total Quantity					20.290 sqm	
		Total Deducted Quantity					0.000 sqm	
		Net Total Quantity					20.290 sqm	
		Say 20.290 sqm @ Rs 269.26 / sqm					Rs 5463.29	
13	11.41.2 Providing and laying vitrified floor tiles in different sizes (thickness to be specified by the manufacturer) with water absorption less than 0.08% and conforming to IS : 15622, of approved make, in all colours and shades, laid on 20 mm thick cement mortar 1:4(1 cement : 4 coarse sand), including grouting the joints with white cement and matching pigments etc., complete. Size of Tile 600 x 600 mm.							
	Floor	1	2.500	2.500			6.250	
	Skirting	1	10.000	0.100			1.000	
	Step	1	1.000	0.600			0.600	
	„ side	2	0.600	0.200			0.240	
	„	2	0.300	0.200			0.120	
	Rise	1	1.000	0.600			0.600	
		Total Quantity					8.810 sqm	
		Total Deducted Quantity					0.000 sqm	
		Net Total Quantity					8.810 sqm	
		Say 8.810 sqm @ Rs 1777.34 / sqm					Rs 15658.37	
14	21.1.1.1 Providing and fixing aluminium work for doors, windows, ventilators and partitions with extruded built up standard tubular sections/ appropriate Z sections and other sections of approved make conforming to IS : 733 and IS: 1285, fixing with dash fasteners of required dia and size, including necessary filling up the gaps at junctions, i.e. at top, bottom and sides with required EPDM rubber/ neoprene gasket etc. Aluminium sections shall be smooth, rust free, straight, mitred and jointed mechanically wherever							

	required including cleat angle, Aluminium snap beading for glazing /paneling, C.P. brass/ stainless steel screws, all complete as per architectural drawings and the directions of Engineer-in-charge.(Glazing, paneling and dash fasteners to be paid for separately):For fixed portionAnodised aluminium (anodised transparent or dyed to required shade according to IS : 1868, Minimum anodic coating of grade AC 15)								
	Door	1	1.000	2.100		4.5	9.451		
	window	2	1.500	1.500		4.5	20.250		
	Total Quantity						29.701 kg		
	Total Deducted Quantity						0.000 kg		
	Net Total Quantity						29.701 kg		
	Say 29.701 kg @ Rs 502.17 / kg						Rs 14914.95		
15	21.3.1 Providing and fixing glazing in aluminium door, window, ventilator shutters and partitions etc. with EPDM rubber / neoprene gasket etc. complete as per the architectural drawings and the directions of Engineer - in -Charge. (Cost of aluminium snap beading shall be paid in basic item):With float glass panes of 4.0 mm thickness								
	Door	1*2	0.880	0.900			1.584		
	window	2*2	0.920	1.430			5.263		
	Total Quantity						6.847 sqm		
	Total Deducted Quantity						0.000 sqm		
	Net Total Quantity						6.847 sqm		
	Say 6.847 sqm @ Rs 1184.03 / sqm						Rs 8107.05		
16	9.48.2 Providing and fixing M.S. Grills of required pattern in frames of windows etc. with M.S. flats, square or round bars etc. including priming coat with approved steel primer all complete.Fixed to openings/ wooden frames with rawl plugs screws etc								
	Window grill	2	1.500	1.500		20.0	90.000		
	Total Quantity						90.000 kg		
	Total Deducted Quantity						0.000 kg		
	Net Total Quantity						90.000 kg		
	Say 90.000 kg @ Rs 217.35 / kg						Rs 19561.50		
17	13.43.1 Applying one coat of water thinnable cement primer of approved brand and manufacture on wall surface:Water thinnable cement primer								
	inside wall	4	2.500		3.000		30.000		
	out side	4	2.900		3.000		34.800		
	Basement	4	3.000		0.600		7.200		

	parapet	4	3.300		0.850		11.220		
	Slab bott.	1	2.500	2.500			6.250		
	,, proj.	4	3.200	0.300			3.840		
	Slab edge	4	3.500	0.120			1.680		
	Shade	2*2	1.900	0.600			4.560		
	,,	2	3.000	0.600			3.600		
	Shade edge	6	0.600	0.100			0.360		
	Total Quantity						103.510 sqm		
	Total Deducted Quantity						0.000 sqm		
	Net Total Quantity						103.510 sqm		
	Say 103.510 sqm @ Rs 71.09 / sqm							Rs 7358.53	
18	13.82.2 Wall painting with acrylic emulsion paint, having VOC (Volatile Organic Compound) content less than 50 grams/ litre, of approved brand and manufacture including applying additional coats wherever required, to achieve even shade and colour.Two coats								
	inside wall	4	2.500		3.000		30.000		
	out side	4	2.900		3.000		34.800		
	Basement	4	3.000		0.600		7.200		
	parapet	4	3.300		0.850		11.220		
	Slab bott.	1	2.500	2.500			6.250		
	,, proj.	4	3.200	0.300			3.840		
	Slab edge	4	3.500	0.120			1.680		
	Shade	2*2	1.900	0.600			4.560		
	,,	2	3.000	0.600			3.600		
	Shade edge	6	0.600	0.100			0.360		
	Total Quantity						103.510 sqm		
	Total Deducted Quantity						0.000 sqm		
	Net Total Quantity						103.510 sqm		
	Say 103.510 sqm @ Rs 126.55 / sqm							Rs 13099.19	
19	13.62.1 Painting with synthetic enamel paint of approved brand and manufacture of required colour to give an even shade:Two or more coats on new work over an under coat of suitable shade with ordinary paint of approved brand and manufacture .								
	Window grill	2	1.500	1.500			4.500		
	Total Quantity						4.500 sqm		

							Total Deducted Quantity	0.000 sqm
							Net Total Quantity	4.500 sqm
							Say 4.500 sqm @ Rs 209.84 / sqm	Rs 944.28
20	17.7.2	Providing and fixing wash basin with C.I. brackets, 15 mm C.P. brass pillar taps, 32 mm C.P. brass waste of standard pattern, including painting of fittings and brackets, cutting and making good the walls wherever require:White Vitreous China Wash basin size 630 x 450 mm with a single 15 mm C.P. brass pillar tap						
	on out side wall	1						1.000
							Total Quantity	1.000 No
							Total Deducted Quantity	0.000 No
							Net Total Quantity	1.000 No
							Say 1.000 No @ Rs 3258.80 / No	Rs 3258.80
21	18.9.2	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply including all CPVC plain & brass threaded fittings. This includes jointing of pipes & fittings with one step CPVC solvent cement, trenching , refilling & testing of joints complete as per direction of Engineer- in-Charge. External work20 mm nominal outer dia pipes						
		1	25.000					25.000
							Total Quantity	25.000 metre
							Total Deducted Quantity	0.000 metre
							Net Total Quantity	25.000 metre
							Say 25.000 metre @ Rs 300.51 / metre	Rs 7512.75
22	18.9.3	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply including all CPVC plain & brass threaded fittings. This includes jointing of pipes & fittings with one step CPVC solvent cement, trenching , refilling & testing of joints complete as per direction of Engineer- in-Charge. External work25 mm nominal outer dia pipes						
		1	25.000					25.000
							Total Quantity	25.000 metre
							Total Deducted Quantity	0.000 metre
							Net Total Quantity	25.000 metre
							Say 25.000 metre @ Rs 386.88 / metre	Rs 9672.00
23	18.9.4	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply including all CPVC plain & brass threaded fittings. This includes jointing of pipes & fittings with one step CPVC solvent cement, trenching , refilling & testing of joints complete as per direction of Engineer- in-Charge. External work32 mm nominal outer dia pipes						

		1	25.000				25.000	
	Total Quantity						25.000 metre	
	Total Deducted Quantity						0.000 metre	
	Net Total Quantity						25.000 metre	
	Say 25.000 metre @ Rs 490.02 / metre						Rs 12250.50	
24	17.31	Providing and fixing 600x450 mm beveled edge mirror of superior glass (of approved quality) complete with 6 mm thick hard board ground fixed to wooden cleats with C.P. brass screws and washers complete.						
		1					1.000	
	Total Quantity						1.000 No	
	Total Deducted Quantity						0.000 No	
	Net Total Quantity						1.000 No	
	Say 1.000 No @ Rs 1519.87 / No						Rs 1519.87	
Sl No	Description	No	L	B	D	CF	Quantity	Remark
15Air Blower Building (Cost Index:36.44 %)								
1	2.8.1	Earth work in excavation by mechanical means (Hydraulic excavator) /manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan), including dressing of sides and ramming of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m.All kinds of soil						
	Column	12	1.900	1.900	1.500		64.981	
		4	1.600	1.600	1.500		15.361	
	Ramp	1	2.500	2.000	0.150		0.750	
	Total Quantity						81.092 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						81.092 cum	
	Say 81.092 cum @ Rs 298.80 / cum						Rs 24230.29	
2	4.1.5	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level:1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size)						
	Footing	12	1.900	1.900	0.100		4.332	
	„	4	1.600	1.600	0.100		1.025	
	Ramp	1	2.500	2.000	0.150		0.750	
	Total Quantity						6.107 cum	

		Total Deducted Quantity					0.000 cum	
		Net Total Quantity					6.107 cum	
		Say 6.107 cum @ Rs 7413.74 / cum					Rs 45275.71	
3	5.9.1 Centering and shuttering including strutting, etc. and removal of form for:Foundations, footings, bases of columns, etc for mass concrete							
	Footing - at corner	4*4	1.400		0.150		3.360	
	,, at intermediate	8*4	1.700		0.150		8.160	
	,, inside	4*4	1.700		0.150		4.080	
		Total Quantity					15.600 sqm	
		Total Deducted Quantity					0.000 sqm	
		Net Total Quantity					15.600 sqm	
		Say 15.600 sqm @ Rs 337.42 / sqm					Rs 5263.75	
4	5.9.3 Centering and shuttering including strutting, etc. and removal of form for:Suspended floors, roofs, landings, balconies and access platform							
	Roof slab	1	11.000	9.000			99.000	
	Edge	1	40.000		0.120		4.800	
		Total Quantity					103.800 sqm	
		Total Deducted Quantity					0.000 sqm	
		Net Total Quantity					103.800 sqm	
		Say 103.800 sqm @ Rs 820.89 / sqm					Rs 85208.38	
5	5.9.5 Centering and shuttering including strutting, etc. and removal of form for:Lintels, beams, plinth beams, girders bressumers and cantilevers							
	Plinth beam - inside	1	35.800		0.500		17.900	
	,, outside	1	37.800		0.500		18.900	
	Beam side	4*2	8.200		0.500		32.800	
	,, Bottom	4	8.200	0.200			6.560	
	Beam side	4*2	10.200		0.500		40.800	
	,, side	4	10.200	0.200			8.160	
	Lintel	2	18.000		0.200		7.200	
	,,	2	18.800		0.200		7.521	
	Shade	1	36.330	0.600			21.798	
	,,	1	3.670	0.750			2.753	

	Shade side	8	0.600	0.100			0.480		
	Ramp	1	5.000	2.000			10.000		
	„	2	2.000	0.200			0.800		
	„	1	5.000	0.200			1.000		
	Total Quantity						176.672 sqm		
	Total Deducted Quantity						0.000 sqm		
	Net Total Quantity						176.672 sqm		
	Say 176.672 sqm @ Rs 653.89 / sqm							Rs 115524.05	
6	5.9.6 Centering and shuttering including strutting, etc. and removal of form for:Columns, Pillars, Piers, Abutments, Posts and Struts								
	Column Pedestal	16	1.400		0.500		11.200		
	column	16	1.400	5.200			116.480		
	Total Quantity						127.680 sqm		
	Total Deducted Quantity						0.000 sqm		
	Net Total Quantity						127.680 sqm		
	Say 127.680 sqm @ Rs 869.05 / sqm							Rs 110960.30	
7	5.37.1 Providing and laying in position ready mixed M-25 grade concrete for reinforced cement concrete work, using cement content as per approved design mix, manufactured in fully automatic batching plant and transported to site of work in transit mixer for all leads, having continuous agitated mixer, manufactured as per mix design of specified grade for reinforced cement concrete work including pumping of R.M.C. from transit mixer to site of laying, excluding the cost of centering, shuttering finishing and reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in -charge. Note:- Cement content considered in this item is @330 kg/cum. Excess /less cement used as per design mix is payable/recoverable separately.All work upto plinth level								
	Column footing	4	1.400	1.400	0.150		1.176		
	„ Sloped Portion	4	1.400	1.400	0.75/3		1.960		
	Column footing	8	1.700	1.700	0.150		3.468		
	„ Sloped Portion	8	1.700	1.700	0.75/3		5.780		
	Column footing	4	1.700	1.700	0.150		1.734		
	„ Sloped Portion	4	1.700	1.700	0.75/3		2.890		
	Column Pedestal	16	0.500	0.200	0.500		0.800		
	Plinth beam	1	37.800	0.200	0.500		3.780		
	Grade slab	1	10.400	8.400	0.200		17.473		

						Total Quantity	39.061 cum
						Total Deducted Quantity	0.000 cum
						Net Total Quantity	39.061 cum
						Say 39.061 cum @ Rs 9947.98 / cum	Rs 388578.05
8	5.37.2	<p>Providing and laying in position ready mixed M-25 grade concrete for reinforced cement concrete work, using cement content as per approved design mix, manufactured in fully automatic batching plant and transported to site of work in transit mixer for all leads, having continuous agitated mixer, manufactured as per mix design of specified grade for reinforced cement concrete work including pumping of R.M.C. from transit mixer to site of laying, excluding the cost of centering, shuttering finishing and reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in -charge. Note:- Cement content considered in this item is @330 kg/cum. Excess /less cement used as per design mix is payable/recoverable separately.All work above plinth level upto floor V level</p>					
	Lintel	1	37.600	0.200	0.200		1.505
	Shade	1	3.670	0.750	0.100		0.276
	Shade	1	36.330	0.600	0.100		2.180
	Ramp	1	5.000	2.000	0.200		2.000
	Column	16	0.200	0.500	5.200		8.320
	Beam	4	8.200	0.200	0.500		3.280
	„	4	10.200	0.200	0.500		4.080
	Slab	1	11.000	9.000	0.120		11.880
						Total Quantity	33.521 cum
						Total Deducted Quantity	0.000 cum
						Net Total Quantity	33.521 cum
						Say 33.521 cum @ Rs 11610.43 / cum	Rs 389193.22
9	5.22.6	<p>Steel reinforcement for R.C.C work including straightening, cutting, bending, placing in position and binding all complete upto plinth levelThermo - Mechanically Treated bars of grade Fe-500D or more</p>					
	@ 100 Kg / 1 Cum of CC	1	39.061+33.52			100.0	7258.100
						Total Quantity	7258.100 kilogram
						Total Deducted Quantity	0.000 kilogram
						Net Total Quantity	7258.100 kilogram
						Say 7258.100 kilogram @ Rs 98.92 / kilogram	Rs 717971.25
10	50.2.26.1	<p>Filling with contractor own earth (excluding rock) in open areas in layers not exceeding 20 cm in depth,</p>					

	consolidating each deposited layer by ramming and watering, lead up to 50 m and lift up to 1.5 m as per direction of site Engineer-in-charge.							
	Basement Filling	1	10.000	8.000	0.500		40.000	
	Total Quantity						40.000 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						40.000 cum	
	Say 40.000 cum @ Rs 297.37 / cum						Rs 11894.80	
11	50.6.7.2 Laterate masonry with neatly dressed laterate stone of size 40x20x15cm or nearest size in cement mortar 1:6 for super structure above plinth level up to floor two level including all cost of materials, labour charges etc.							
	wall	6	2.670	0.200	4.500		14.418	
	„	6	2.330	0.200	4.500		12.582	
	Window	11	1.500	0.200	1.500		-4.950	
	Rs	1	2.000	0.200	2.400		-0.960	
	Total Quantity						27.000 cum	
	Total Deducted Quantity						-5.910 cum	
	Net Total Quantity						21.090 cum	
	Say 21.090 cum @ Rs 7968.75 / cum						Rs 168060.94	
12	13.1.1 12 mm cement plaster of mix:1:4 (1 cement : 4 fine sand)							
	Outside	2	10.400		5.200		108.161	
	„	2	8.400		5.200		87.361	
	Inside	1	36.000		5.200		187.201	
	Column	4	1.400		5.200		29.120	
	Opening side	1	6.800		0.230		1.564	
	Parapet	1	39.600		0.850		33.661	
	Shade Top	1	36.330		0.600		21.798	
	„	1	3.670		0.750		2.753	
	Window	11	1.500		1.500		-24.750	
	Rs	1*2	2.000		2.400		-9.600	
	Total Quantity						471.619 sqm	
	Total Deducted Quantity						-34.350 sqm	
	Net Total Quantity						437.269 sqm	

	Say 437.269 sqm @ Rs 316.06 / sqm						Rs 138203.24	
13	13.16.1 6 mm cement plaster of mix:1:3 (1 cement : 3 fine sand)							
	Ceiling	1	10.000	8.000			80.000	
	Beam side	2*2	10.000		0.500		20.000	
	„	2*2	8.000		0.500		16.000	
	Shade Bott.	1	36.330		0.600		21.798	
	„	1	3.670		0.750		2.753	
	Slab Proj.	2	8.400	0.300			5.040	
	„	2	11.000	0.300			6.600	
	Edge	1	40.000	0.120			4.800	
	Total Quantity						156.991 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						156.991 sqm	
	Say 156.991 sqm @ Rs 269.26 / sqm						Rs 42271.40	
14	13.43.1 Applying one coat of water thinnable cement primer of approved brand and manufacture on wall surface:Water thinnable cement primer							
	Outside	2	10.400		5.200		108.161	
	„	2	8.400		5.200		87.361	
	Inside	1	36.000		5.200		187.201	
	Column	4	1.400		5.200		29.120	
	Opening side	1	6.800		0.230		1.564	
	Parapet	1	39.600		0.850		33.661	
	Shade Top	1	36.330		0.600		21.798	
	„	1	3.670		0.750		2.753	
	Window	11	1.500		1.500		-24.750	
	Rs	1*2	2.000		2.400		-9.600	
	Ceiling	1	10.000	8.000			80.000	
	Beam side	2*2	10.000		0.500		20.000	
	„	2*2	8.000		0.500		16.000	
	Shade Bott.	1	36.330		0.600		21.798	
	„	1	3.670		0.750		2.753	
	Slab Proj.	2	8.400	0.300			5.040	

	„	2	11.000	0.300			6.600	
	Edge	1	40.000	0.120			4.800	
							Total Quantity	628.610 sqm
							Total Deducted Quantity	-34.350 sqm
							Net Total Quantity	594.260 sqm
							Say 594.260 sqm @ Rs 71.09 / sqm	Rs 42245.94
15	13.82.2							
	Wall painting with acrylic emulsion paint, having VOC (Volatile Organic Compound) content less than 50 grams/ litre, of approved brand and manufacture including applying additional coats wherever required, to achieve even shade and colour.Two coats							
	Outside	2	10.400		5.200			108.161
	„	2	8.400		5.200			87.361
	Inside	1	36.000		5.200			187.201
	Column	4	1.400		5.200			29.120
	Opening side	1	6.800		0.230			1.564
	Parapet	1	39.600		0.850			33.661
	Shade Top	1	36.330		0.600			21.798
	„	1	3.670		0.750			2.753
	Window	11	1.500		1.500			-24.750
	Rs	1*2	2.000		2.400			-9.600
	Ceiling	1	10.000	8.000				80.000
	Beam side	2*2	10.000		0.500			20.000
	„	2*2	8.000		0.500			16.000
	Shade Bott.	1	36.330		0.600			21.798
	„	1	3.670		0.750			2.753
	Slab Proj.	2	8.400	0.300				5.040
	„	2	11.000	0.300				6.600
	Edge	1	40.000	0.120				4.800
							Total Quantity	628.610 sqm
							Total Deducted Quantity	-34.350 sqm
							Net Total Quantity	594.260 sqm
							Say 594.260 sqm @ Rs 126.55 / sqm	Rs 75203.60
16	11.41.2							
	Providing and laying vitrified floor tiles in different sizes (thickness to be specified by the manufacturer)							

	with water absorption less than 0.08% and conforming to IS : 15622, of approved make, in all colours and shades, laid on 20 mm thick cement mortar 1:4(1 cement : 4 coarse sand), including grouting the joints with white cement and matching pigments etc., complete. Size of Tile 600 x 600 mm.							
	Floor finishing	1	10.000	8.000			80.000	
	Skirting	1	36.000	0.100			3.600	
	Total Quantity						83.600 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						83.600 sqm	
	Say 83.600 sqm @ Rs 1777.34 / sqm						Rs 148585.62	
17	10.4 Providing and fixing 1 mm thick M.S. sheet sliding- shutters, with frame and diagonal braces of 40x40x6 mm angle iron, 3 mm M.S. gusset plates at the junction and corners, 25 mm dia pulley, 40x40x6 mm angle and T-iron guide at the top and bottom respectively, including applying a priming coat of approved steel primer.							
	Windows	11	1.500		1.500		24.750	
	Total Quantity						24.750 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						24.750 sqm	
	Say 24.750 sqm @ Rs 5912.90 / sqm						Rs 146344.28	
18	10.6.1 Supplying and fixing rolling shutters of approved make, made of required size M.S. laths, interlocked together through their entire length and jointed together at the end by end locks, mounted on specially designed pipe shaft with brackets, side guides and arrangements for inside and outside locking with push and pull operation complete, including the cost of providing and fixing necessary 27.5 cm long wire springs manufactured from high tensile steel wire of adequate strength conforming to IS: 4454 - part 1 and M.S. top cover of required thickness for rolling shutters.80x1.25 mm M.S. laths with 1.25 mm thick top cover							
	Front Op.	1	2.000		2.400		4.800	
	Total Quantity						4.800 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						4.800 sqm	
	Say 4.800 sqm @ Rs 3487.20 / sqm						Rs 16738.56	
19	13.61.1 Painting with synthetic enamel paint of approved brand and manufacture to give an even shade:Two or more coats on new work							
	Windows	11	1.500		1.500	2.0	49.500	
	Rs	1	2.000		2.400	2.5	12.000	

	Total Quantity						61.500 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						61.500 sqm	
	Say 61.500 sqm @ Rs 143.94 / sqm						Rs 8852.31	
SI No	Description	No	L	B	D	CF	Quantity	Remark
16Chlorination Building (Cost Index:36.44 %)								
1	2.8.1 Earth work in excavation by mechanical means (Hydraulic excavator) /manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan), including dressing of sides and ramming of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m.All kinds of soil							
	Column Footing	10	1.700	1.700	1.500		43.350	
	Ramp	1	3.000	3.000	0.150		1.350	
	Neutralization pit	1	3.100	3.100	1.800		17.298	
	Total Quantity						61.998 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						61.998 cum	
	Say 61.998 cum @ Rs 298.80 / cum						Rs 18525.00	
2	4.1.5 Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level:1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size)							
	Column Footing	10	1.700	1.700	0.100		2.890	
	Ramp	1	3.000	3.000	0.150		1.350	
	Neutralization pit	1	3.100	3.100	0.100		0.962	
	Flooring	1	10.000	8.000	0.100		8.000	
	Total Quantity						13.202 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						13.202 cum	
	Say 13.202 cum @ Rs 7413.74 / cum						Rs 97876.20	
3	5.9.1 Centering and shuttering including strutting, etc. and removal of form for:Foundations, footings, bases of columns, etc for mass concrete							
	Footing	10*4	1.500	1.500	0.200		18.000	
	Total Quantity						18.000 sqm	
	Total Deducted Quantity						0.000 sqm	

	Net Total Quantity						18.000 sqm	
	Say 18.000 sqm @ Rs 337.42 / sqm						Rs 6073.56	
4	5.9.3 Centering and shuttering including strutting, etc. and removal of form for:Suspended floors, roofs, landings, balconies and access platform							
	Shade	1	36.330	0.600			21.798	
	„	1	3.670	0.750			2.753	
	Slab	1	11.000	9.000			99.000	
	Slab edge	1	40.000		0.120		4.800	
	Total Quantity						128.351 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						128.351 sqm	
	Say 128.351 sqm @ Rs 820.89 / sqm						Rs 105362.05	
5	5.9.5 Centering and shuttering including strutting, etc. and removal of form for:Lintels, beams, plinth beams, girders bressumers and cantilevers							
	Plinth beam- outer	1	37.600		0.450		16.920	
	„	1	36.000		0.450		16.200	
	Ramp	2*0.5	3.000		0.450		1.350	
	Lintel	6*2	3.000		0.150		5.400	
	„	4*2	3.450		0.150		4.140	
	Beam	6*2	3.000		0.300		10.800	
	„	4*2	3.450		0.300		8.280	
	„	2*2	8.000		0.600		19.200	
	„	6*2	3.000		0.300		10.800	
	Tunner support	2*2	1.500		0.450		2.700	
	„	2*2	5.000		0.450		9.000	
	Total Quantity						104.790 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						104.790 sqm	
	Say 104.790 sqm @ Rs 653.89 / sqm						Rs 68521.13	
6	5.9.6 Centering and shuttering including strutting, etc. and removal of form for:Columns, Pillars, Piers, Abutments, Posts and Struts							
	Column Pedestal	10	1.400		0.700		9.800	

	Column above Plinth	10	1.400		5.000		70.000		
	Neutralization pit outer	4	2.900		1.700		19.720		
	„ inner	4	2.500		1.500		15.000		
	Total Quantity						114.520 sqm		
	Total Deducted Quantity						0.000 sqm		
	Net Total Quantity						114.520 sqm		
	Say 114.520 sqm @ Rs 869.05 / sqm						Rs 99523.61		
7	50.2.26.1 Filling with contractor own earth (excluding rock) in open areas in layers not exceeding 20 cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift up to 1.5 m as per direction of site Engineer-in-charge.								
	Basement inside	1	10.000	8.000	0.400		32.000		
	Pit	1	2.900	2.900	0.400		-3.364		
	Total Quantity						32.000 cum		
	Total Deducted Quantity						-3.364 cum		
	Net Total Quantity						28.636 cum		
	Say 28.636 cum @ Rs 297.37 / cum						Rs 8515.49		
8	5.37.1 Providing and laying in position ready mixed M-25 grade concrete for reinforced cement concrete work, using cement content as per approved design mix, manufactured in fully automatic batching plant and transported to site of work in transit mixer for all leads, having continuous agitated mixer, manufactured as per mix design of specified grade for reinforced cement concrete work including pumping of R.M.C. from transit mixer to site of laying, excluding the cost of centering, shuttering finishing and reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in-charge. Note:- Cement content considered in this item is @330 kg/cum. Excess /less cement used as per design mix is payable/recoverable separately.All work upto plinth level								
	Footing	10	1.500	1.500	0.200		4.500		
	„, Sloped portion	10/3	1.500	1.500	0.500		3.750		
	Column Pedestal	10	0.200	0.500	0.700		0.700		
	Plinth beam	2	10.400	0.200	0.450		1.872		
	„	2	8.000	0.200	0.450		1.441		
	Ramp	1/2	3.000	2.000	0.450		1.350		
	Naturalization pit	1	2.900	2.900	0.200		1.683		
	„ wall	4	2.700	0.200	1.500		3.240		
	Total Quantity						18.536 cum		

		Total Deducted Quantity					0.000 cum	
		Net Total Quantity					18.536 cum	
		Say 18.536 cum @ Rs 9947.98 / cum					Rs 184395.76	
9	<p>5.37.2 Providing and laying in position ready mixed M-25 grade concrete for reinforced cement concrete work, using cement content as per approved design mix, manufactured in fully automatic batching plant and transported to site of work in transit mixer for all leads, having continuous agitated mixer, manufactured as per mix design of specified grade for reinforced cement concrete work including pumping of R.M.C. from transit mixer to site of laying, excluding the cost of centering, shuttering finishing and reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in-charge. Note:- Cement content considered in this item is @330 kg/cum. Excess /less cement used as per design mix is payable/recoverable separately.All work above plinth level upto floor V level</p>							
	Column above plinth	10	0.200	0.500	4.900		4.900	
	Lintel	6	3.000	0.200	0.150		0.540	
	„	4	3.450	0.200	0.150		0.415	
	Shade	1	36.330	0.600	0.100		2.180	
	„	1	3.670	0.750	0.100		0.276	
	Beam	6	3.000	0.200	0.300		1.080	
	„	4	3.450	0.200	0.300		0.829	
	„	2	8.000	0.200	0.600		1.920	
	„	6	3.000	0.200	0.300		1.080	
	Slab	1	11.000	9.000	0.120		11.880	
	Tunner support	2	1.500	0.300	0.450		0.405	
	„	2	5.000	0.300	0.450		1.350	
		Total Quantity					26.855 cum	
		Total Deducted Quantity					0.000 cum	
		Net Total Quantity					26.855 cum	
		Say 26.855 cum @ Rs 11610.43 / cum					Rs 311798.10	
10	<p>5.22.6 Steel reinforcement for R.C.C work including straightening, cutting, bending, placing in position and binding all complete upto plinth levelThermo - Mechanically Treated bars of grade Fe-500D or more</p>							
	@100 Kg 1Cum of CC	1	26.855+18.536			100.0	4539.100	
		Total Quantity					4539.100 kilogram	
		Total Deducted Quantity					0.000 kilogram	

	Net Total Quantity						4539.100 kilogram	
	Say 4539.100 kilogram @ Rs 98.92 / kilogram						Rs 449007.77	
11	50.6.7.2 Laterate masonry with neatly dressed laterate stone of size 40x20x15cm or nearest size in cement mortar 1:6 for super structure above plinth level up to floor two level including all cost of materials, labour charges etc.							
	wall	6	3.000	0.200	4.500		16.201	
	„	4	3.450	0.200	4.500		12.421	
	Ramp side	2*1/2	3.000	0.200	0.450		0.271	
	Parapet	1	39.200	0.200	0.300		2.353	
	Window	3	1.500	0.200	1.500		-1.350	
	Opening	4	2.000	0.200	2.100		-3.360	
	Door	1	1.000	0.200	2.400		-0.480	
	Rs	1	3.000	0.200	3.000		-1.800	
	Total Quantity						31.246 cum	
	Total Deducted Quantity						-6.990 cum	
	Net Total Quantity						24.256 cum	
	Say 24.256 cum @ Rs 7968.75 / cum						Rs 193290.00	
12	13.1.1 12 mm cement plaster of mix:1:4 (1 cement : 4 fine sand)							
	Outer wall	1	37.600		5.000		188.000	
	inner wall	1	36.000		5.000		180.000	
	pit inside	1	2.500	2.500			6.250	
	„	4	2.500	1.500			15.000	
	Tunnr Stand	2	1.500	1.200			3.600	
	„	2	5.000	1.200			12.000	
	side	2*4	0.300	0.450			1.080	
	Parapet	1	39.200	0.850			33.320	
	Shade top	1	36.330	0.600			21.798	
	„	1	3.670	0.750			2.753	
	Edge	8	0.600	0.100			0.480	
	Window	3	1.500		1.500		-6.750	
	Door	1	1.000		2.400		-2.400	
	Rs	1*2	3.000		3.000		-18.000	

	Op	4*2	2.000		2.100		-33.600		
	Total Quantity						464.281 sqm		
	Total Deducted Quantity						-60.750 sqm		
	Net Total Quantity						403.531 sqm		
	Say 403.531 sqm @ Rs 316.06 / sqm						Rs 127540.01		
13	13.16.1 6 mm cement plaster of mix:1:3 (1 cement : 3 fine sand)								
	Shade	1	36.330	0.600			21.798		
	„	1	3.670	0.750			2.753		
	Ceiling	1	10.000	8.000			80.000		
	Beam	2*2	8.000	0.600			19.200		
	„	2*2	10.000	0.300			12.000		
	Slab Proj.	1	38.800	0.300			11.640		
	Slab Edge	1	40.000	0.120			4.800		
	Total Quantity						152.191 sqm		
	Total Deducted Quantity						0.000 sqm		
	Net Total Quantity						152.191 sqm		
	Say 152.191 sqm @ Rs 269.26 / sqm						Rs 40978.95		
14	11.41.2 Providing and laying vitrified floor tiles in different sizes (thickness to be specified by the manufacturer) with water absorption less than 0.08% and conforming to IS : 15622, of approved make, in all colours and shades, laid on 20 mm thick cement mortar 1:4(1 cement : 4 coarse sand), including grouting the joints with white cement and matching pigments etc., complete. Size of Tile 600 x 600 mm.								
	Flor finishing	1	10.000	8.000			80.000		
	Skirting	1	36.000	0.100			3.600		
	Total Quantity						83.600 sqm		
	Total Deducted Quantity						0.000 sqm		
	Net Total Quantity						83.600 sqm		
	Say 83.600 sqm @ Rs 1777.34 / sqm						Rs 148585.62		
15	13.43.1 Applying one coat of water thinnable cement primer of approved brand and manufacture on wall surface:Water thinnable cement primer								
	Outer wall	1	37.600		5.000		188.000		
	inner wall	1	36.000		5.000		180.000		
	pit inside	1	2.500	2.500			6.250		

	„	4	2.500	1.500			15.000	
	Tunnr Stand	2	1.500	1.200			3.600	
	„	2	5.000	1.200			12.000	
	side	2*4	0.300	0.450			1.080	
	Parapet	1	39.200	0.850			33.320	
	Shade top	1	36.330	0.600			21.798	
	„	1	3.670	0.750			2.753	
	Edge	8	0.600	0.100			0.480	
	Window	3	1.500		1.500		-6.750	
	Door	1	1.000		2.400		-2.400	
	Rs	1*2	3.000		3.000		-18.000	
	Op	4*2	2.000		2.100		-33.600	
	Shade	1	36.330	0.600			21.798	
	„	1	3.670	0.750			2.753	
	Ceiling	1	10.000	8.000			80.000	
	Beam	2*2	8.000	0.600			19.200	
	„	2*2	10.000	0.300			12.000	
	Slab Proj.	1	38.800	0.300			11.640	
	Slab Edge	1	40.000	0.120			4.800	
						Total Quantity	616.472 sqm	
						Total Deducted Quantity	-60.750 sqm	
						Net Total Quantity	555.722 sqm	
						Say 555.722 sqm @ Rs 71.09 / sqm	Rs 39506.28	
16	13.82.2 Wall painting with acrylic emulsion paint, having VOC (Volatile Organic Compound) content less than 50 grams/ litre, of approved brand and manufacture including applying additional coats wherever required, to achieve even shade and colour. Two coats							
	Outer wall	1	37.600		5.000		188.000	
	inner wall	1	36.000		5.000		180.000	
	pit inside	1	2.500	2.500			6.250	
	„	4	2.500	1.500			15.000	
	Tunnr Stand	2	1.500	1.200			3.600	
	„	2	5.000	1.200			12.000	
	side	2*4	0.300	0.450			1.080	

	Parapet	1	39.200	0.850			33.320	
	Shade top	1	36.330	0.600			21.798	
	„	1	3.670	0.750			2.753	
	Edge	8	0.600	0.100			0.480	
	Window	3	1.500		1.500		-6.750	
	Door	1	1.000		2.400		-2.400	
	Rs	1*2	3.000		3.000		-18.000	
	Op	4*2	2.000		2.100		-33.600	
	Shade	1	36.330	0.600			21.798	
	„	1	3.670	0.750			2.753	
	Ceiling	1	10.000	8.000			80.000	
	Beam	2*2	8.000	0.600			19.200	
	„	2*2	10.000	0.300			12.000	
	Slab Proj.	1	38.800	0.300			11.640	
	Slab Edge	1	40.000	0.120			4.800	
						Total Quantity	616.472 sqm	
						Total Deducted Quantity	-60.750 sqm	
						Net Total Quantity	555.722 sqm	
						Say 555.722 sqm @ Rs 126.55 / sqm	Rs 70326.62	
17	10.4 Providing and fixing 1 mm thick M.S. sheet sliding- shutters, with frame and diagonal braces of 40x40x6 mm angle iron, 3 mm M.S. gusset plates at the junction and corners, 25 mm dia pulley, 40x40x6 mm angle and T-iron guide at the top and bottom respectively, including applying a priming coat of approved steel primer.							
	Window	3	1.500		1.500		6.750	
						Total Quantity	6.750 sqm	
						Total Deducted Quantity	0.000 sqm	
						Net Total Quantity	6.750 sqm	
						Say 6.750 sqm @ Rs 5912.90 / sqm	Rs 39912.08	
18	10.5.1 Providing and fixing 1 mm thick M.S. sheet door with frame of 40x40x6 mm angle iron and 3 mm M.S. gusset plates at the junctions and corners, all necessary fittings complete, including applying a priming coat of approved steel primer.Using M.S. angels 40x40x6 mm for diagonal braces							
	Door	1	1.000	2.400			2.400	
						Total Quantity	2.400 sqm	

Total Deducted Quantity							0.000 sqm	
Net Total Quantity							2.400 sqm	
Say 2.400 sqm @ Rs 5244.96 / sqm							Rs 12587.90	
19	10.6.1	Supplying and fixing rolling shutters of approved make, made of required size M.S. laths, interlocked together through their entire length and jointed together at the end by end locks, mounted on specially designed pipe shaft with brackets, side guides and arrangements for inside and outside locking with push and pull operation complete, including the cost of providing and fixing necessary 27.5 cm long wire springs manufactured from high tensile steel wire of adequate strength conforming to IS: 4454 - part 1 and M.S. top cover of required thickness for rolling shutters.80x1.25 mm M.S. laths with 1.25 mm thick top cover						
	Front gate	1	3.000		3.000		9.000	
Total Quantity							9.000 sqm	
Total Deducted Quantity							0.000 sqm	
Net Total Quantity							9.000 sqm	
Say 9.000 sqm @ Rs 3487.20 / sqm							Rs 31384.80	
20	13.61.1	Painting with synthetic enamel paint of approved brand and manufacture to give an even shade:Two or more coats on new work						
	Door	1	1.000		2.400	2.25	5.400	
	Window	3	1.500		1.500	2.0	13.500	
	Rs	1	3.000		3.000	2.5	22.500	
Total Quantity							41.400 sqm	
Total Deducted Quantity							0.000 sqm	
Net Total Quantity							41.400 sqm	
Say 41.400 sqm @ Rs 143.94 / sqm							Rs 5959.12	
SI No	Description	No	L	B	D	CF	Quantity	Remark
17Transformer Building (Cost Index:36.44 %)								
1	2.8.1	Earth work in excavation by mechanical means (Hydraulic excavator) /manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan), including dressing of sides and ramming of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m.All kinds of soil						
	Column Footing	15	1.900	1.900	1.500		81.225	
	Ramp	3	3.000	2.000	0.150		2.700	
	Cable Trench	1	20.000	1.000	0.850		17.000	
Total Quantity							100.925 cum	

		Total Deducted Quantity					0.000 cum	
		Net Total Quantity					100.925 cum	
		Say 100.925 cum @ Rs 298.80 / cum					Rs 30156.39	
2	4.1.8 Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level:1:4:8 (1 cement : 4 coarse sand : 8 graded stone aggregate 40 nominal size)							
	Column Footing	15	1.900	1.900	0.100	5.415		
	Ramp	3	3.000	2.000	0.100	1.801		
	Cable Trench	1	20.000	1.000	0.100	2.000		
		Total Quantity					9.216 cum	
		Total Deducted Quantity					0.000 cum	
		Net Total Quantity					9.216 cum	
		Say 9.216 cum @ Rs 6857.61 / cum					Rs 63199.73	
3	5.1.2 Providing and laying in position specified grade of reinforced cement concrete, excluding the cost of centering, shuttering, finishing and reinforcement - All work up to plinth level:1:1:5:3 (1 cement 1.5 coarse sand :3 graded stone aggregate 20 mm nominal size)							
	Column Footing	15	1.700	1.700	0.250	10.838		
	Trapezoidal Portion	15/3	1.700	1.700	0.500	7.225		
	Column pedestal	15	0.200	0.500	1.100	1.651		
	Plinth Beam	2	3.700	0.200	0.450	0.667		
	„	3	4.900	0.200	0.450	1.324		
	„	3*4	3.150	0.200	0.450	3.402		
	Ramp Top	3	3.000	3.000	0.100	2.700		
		Total Quantity					27.807 cum	
		Total Deducted Quantity					0.000 cum	
		Net Total Quantity					27.807 cum	
		Say 27.807 cum @ Rs 9142.09 / cum					Rs 254214.10	
4	50.5.33.2 Providing and laying in position machine batched and machine mixed design mix M-20 grade cement concrete for reinforced cement concrete work, using cement content as per approved design mix, including pumping of concrete to site of laying but excluding the cost of centering, shuttering, finishing and reinforcement, including admixtures in recommended proportions as per IS: 9103 to accelerate, retard setting of concrete, improve workability without impairing strength and durability as per direction of Engineer-in-charge.Note:- Cement content considered in this item is @ 330 kg/cum. Excess or less cement used as per design mix is payable or recoverable separately. All work above plinth level upto							

	floor V level							
	Column Above plinth	15	0.200	0.500	5.000		7.500	
	Lintel	2	8.600	0.200	0.200		0.688	
	„	12	3.150	0.200	0.200		1.512	
	Shade	1	14.800	0.600	0.100		0.889	
	„	2	10.100	0.600	0.100		1.212	
	„	1	14.800	0.750	0.100		1.110	
	Girder Beam	2	13.200	0.300	0.300		2.376	
	Corbell	2*5	0.200	0.400	0.450		0.361	
	Roof beam	2	8.600	0.200	0.500		1.720	
	„	12	3.150	0.200	0.300		2.268	
	Roof slab	1	14.200	10.700	0.120		18.233	
	Total Quantity						37.869 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						37.869 cum	
	Say 37.869 cum @ Rs 11135.00 / cum						Rs 421671.32	
5	5.9.1 Centering and shuttering including strutting, etc. and removal of form for:Foundations, footings, bases of columns, etc for mass concrete							
	Footing Side	15*4	1.700		0.250		25.500	
	Ramb side	3*2	3.000	0.100			1.801	
	Total Quantity						27.301 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						27.301 sqm	
	Say 27.301 sqm @ Rs 337.42 / sqm						Rs 9211.90	
6	5.9.3 Centering and shuttering including strutting, etc. and removal of form for:Suspended floors, roofs, landings, balconies and access platform							
	Shade	1	14.800	0.600			8.880	
	„	2	10.100	0.600			12.120	
	„	1	14.800	0.750			11.101	
	Edge	1	36.200	0.100			3.621	
	„	1	16.000	0.100			1.600	
	Roof Slab	4	3.150	4.000			50.400	

	„	4	3.150	5.500			69.300	
	Slab Pro.	1	48.600	0.300			14.580	
	Slab edge	1	49.800	0.120			5.976	
							Total Quantity	177.578 sqm
							Total Deducted Quantity	0.000 sqm
							Net Total Quantity	177.578 sqm
							Say 177.578 sqm @ Rs 820.89 / sqm	Rs 145772.00
7	5.9.5 Centering and shuttering including strutting, etc. and removal of form for:Lintels, beams, plinth beams, girders bressumers and cantilevers							
	lintel	12*2	3.150	0.200			15.121	
	„	2*2	8.600	0.200			6.880	
	Girder beam	2*1	13.200	0.900			23.760	
	Roof Beem	12*2	3.150	0.300			22.680	
	„	2*2	8.600	0.500			17.200	
	Plinth beam	12*2	3.150	0.450			34.020	
	„	2*2	3.700	0.450			6.660	
	„	3*2	4.900	0.450			13.230	
							Total Quantity	139.551 sqm
							Total Deducted Quantity	0.000 sqm
							Net Total Quantity	139.551 sqm
							Say 139.551 sqm @ Rs 653.89 / sqm	Rs 91251.00
8	5.9.6 Centering and shuttering including strutting, etc. and removal of form for:Columns, Pillars, Piers, Abutments, Posts and Struts							
	Column Pedestal	15	1.400	1.100			23.100	
	„,Colun	15	1.400	5.000			105.000	
	Corbel	10	0.400	1.100			4.400	
	„	10	0.200	0.450			0.901	
							Total Quantity	133.401 sqm
							Total Deducted Quantity	0.000 sqm
							Net Total Quantity	133.401 sqm
							Say 133.401 sqm @ Rs 869.05 / sqm	Rs 115932.14
9	5.22.6							

	Steel reinforcement for R.C.C work including straightening, cutting, bending, placing in position and binding all complete upto plinth level Thermo - Mechanically Treated bars of grade Fe-500D or more							
	@ 100Kg of Steel per 1Cum of cc	1	27.807+37 .869			100.0	6567.600	
	Total Quantity						6567.600 kilogram	
	Total Deducted Quantity						0.000 kilogram	
	Net Total Quantity						6567.600 kilogram	
	Say 6567.600 kilogram @ Rs 98.92 / kilogram						Rs 649666.99	
10	50.6.7.2 Laterate masonry with neatly dressed laterate stone of size 40x20x15cm or nearest size in cement mortar 1:6 for super structure above plinth level up to floor two level including all cost of materials, labour charges etc.							
	Wall	12	3.150	0.200	4.700		35.532	
	„	2	3.700	0.200	4.500		6.661	
	„	3	4.900	0.200	4.500		13.230	
	cable trench	2	20.000	0.200	0.750		6.000	
	ramp side	6*1/2	3.000	0.200	0.400		0.721	
	parapet	1	49.000	0.200	0.400		3.921	
	Window	9	1.500	0.200	1.500		-4.050	
	Rs	2	3.000	0.200	3.000		-3.600	
	„	1	3.000	0.200	2.400		-1.440	
	Op	2	1.500	0.200	2.400		-1.440	
	„	1	4.900	0.200	1.500		-1.470	
	Total Quantity						66.065 cum	
	Total Deducted Quantity						-12.000 cum	
	Net Total Quantity						54.065 cum	
	Say 54.065 cum @ Rs 7968.75 / cum						Rs 430830.47	
11	13.1.1 12 mm cement plaster of mix:1:4 (1 cement : 4 fine sand)							
	Inside	2	13.200	5.000			132.000	
	„	2	4.000	5.000			40.000	
	„	4	6.500	5.000			130.000	
		4	5.500	5.000			110.000	
	Column	7	0.800	5.000			28.000	
	Cable trench	2	20.000	0.750			30.000	

	„	4	0.600	0.750			1.800	
	„ Top	2	42.400	0.230			19.504	
	Out side	2	13.600	5.450			148.240	
	„	2	10.100	5.450			110.090	
	Ramp side	6*1/2	3.000	0.450			4.051	
	parapet	1	49.000	1.000			49.000	
	Window	9	1.500	1.500			-20.250	
	Rs	2*2	3.000	3.000			-36.000	
	„	1*2	3.000	2.400			-14.399	
	Ope	2*2	1.500	2.400			-14.399	
	„	1	4.900	1.500			-7.350	
	Ventilator	14	0.900	0.600			-7.560	
							Total Quantity	802.685 sqm
							Total Deducted Quantity	-99.958 sqm
							Net Total Quantity	702.727 sqm
							Say 702.727 sqm @ Rs 316.06 / sqm	Rs 222103.90
12	13.7.1							
	12 mm cement plaster finished with a floating coat of neat cement of mix:1:3 (1 cement : 3 fine sand)							
	roof top	1	13.800	10.300			142.141	
	Shade top	1	14.800	0.600			8.880	
	„	1	14.800	0.750			11.101	
	,	2	10.100	0.600			12.120	
	Ramp top	3	3.000	3.000			27.000	
							Total Quantity	201.242 sqm
							Total Deducted Quantity	0.000 sqm
							Net Total Quantity	201.242 sqm
							Say 201.242 sqm @ Rs 403.73 / sqm	Rs 81247.43
13	13.16.1							
	6 mm cement plaster of mix:1:3 (1 cement : 3 fine sand)							
	Roof Bottom	1	13.200	4.000			52.800	
	„	2	6.500	5.500			71.500	
	Beam	3*2	3.700	0.500			11.101	
	„	3*2	4.900	0.500			14.701	

	Shade Bott.	1	14.800	0.600			8.880		
	„	1	14.800	0.750			11.101		
	„	2	10.100	0.600			12.120		
	Total Quantity						182.203 sqm		
	Total Deducted Quantity						0.000 sqm		
	Net Total Quantity						182.203 sqm		
	Say 182.203 sqm @ Rs 269.26 / sqm						Rs 49059.98		
14	11.41.2 Providing and laying vitrified floor tiles in different sizes (thickness to be specified by the manufacturer) with water absorption less than 0.08% and conforming to IS : 15622, of approved make, in all colours and shades, laid on 20 mm thick cement mortar 1:4(1 cement : 4 coarse sand), including grouting the joints with white cement and matching pigments etc., complete. Size of Tile 600 x 600 mm.								
	Floor	1	13.200	4.000			52.800		
	Skirting	1	34.400	0.100			3.440		
	Flor	2	5.500	6.500			71.500		
	Skirting	2	24.000	0.100			4.801		
	Cable Trench	1	20.000	0.600			-12.000		
	Total Quantity						132.541 sqm		
	Total Deducted Quantity						-12.000 sqm		
	Net Total Quantity						120.541 sqm		
	Say 120.541 sqm @ Rs 1777.34 / sqm						Rs 214242.34		
15	10.6.1 Supplying and fixing rolling shutters of approved make, made of required size M.S. laths, interlocked together through their entire length and jointed together at the end by end locks, mounted on specially designed pipe shaft with brackets, side guides and arrangements for inside and outside locking with push and pull operation complete, including the cost of providing and fixing necessary 27.5 cm long wire springs manufactured from high tensile steel wire of adequate strength conforming to IS: 4454 - part 1 and M.S. top cover of required thickness for rolling shutters.80x1.25 mm M.S. laths with 1.25 mm thick top cover								
	Rolling shutter	2	3.000	3.000			18.000		
	„	1	3.000	2.400			7.200		
	Total Quantity						25.200 sqm		
	Total Deducted Quantity						0.000 sqm		
	Net Total Quantity						25.200 sqm		
	Say 25.200 sqm @ Rs 3487.20 / sqm						Rs 87877.44		
16	9.48.1								

	Providing and fixing M.S. Grills of required pattern in frames of windows etc. with M.S. flats, square or round bars etc. including priming coat with approved steel primer all complete.Fixed to steel windows by welding						
	Window grill	9	1.500	1.500		16.0	324.000
	Ventilator	14	0.900	0.600		16.0	120.961
	Total Quantity						444.961 kg
	Total Deducted Quantity						0.000 kg
	Net Total Quantity						444.961 kg
	Say 444.961 kg @ Rs 195.79 / kg						Rs 87118.91
17	21.1.1.1 Providing and fixing aluminium work for doors, windows, ventilators and partitions with extruded built up standard tubular sections/ appropriate Z sections and other sections of approved make conforming to IS : 733 and IS: 1285, fixing with dash fasteners of required dia and size, including necessary filling up the gaps at junctions, i.e. at top, bottom and sides with required EPDM rubber/ neoprene gasket etc. Aluminium sections shall be smooth, rust free, straight, mitred and jointed mechanically wherever required including cleat angle, Aluminnium snap beading for glazing /paneling, C.P. brass/ stainless steel screws, all complete as per architectural drawings and the directions of Engineer-in-charge.(Glazing, paneling and dash fasteners to be paid for separately):For fixed portionAnodised aluminium (anodised transparent or dyed to required shade according to IS : 1868, Minimum anodic coating of grade AC 15)						
	Window	9	1.500	1.500		4.5	91.125
	Ventilator	14	0.900	0.600		4.5	34.020
	Total Quantity						125.145 kg
	Total Deducted Quantity						0.000 kg
	Net Total Quantity						125.145 kg
	Say 125.145 kg @ Rs 502.17 / kg						Rs 62844.06
18	21.3.1 Providing and fixing glazing in aluminium door, window, ventilator shutters and partitions etc. with EPDM rubber / neoprene gasket etc. complete as per the architectural drawings and the directions of Engineer - in -Charge. (Cost of aluminium snap beading shall be paid in basic item):With float glass panes of 4.0 mm thickness						
	Window	9*2	0.720	1.420			18.404
	Venti	14	0.820	0.520			5.970
	Total Quantity						24.374 sqm
	Total Deducted Quantity						0.000 sqm
	Net Total Quantity						24.374 sqm
	Say 24.374 sqm @ Rs 1184.03 / sqm						Rs 28859.55
19	13.43.1 Applying one coat of water thinnable cement primer of approved brand and manufacture on wall						

surface:Water thinnable cement primer								
	Inside	2	13.200	5.000			132.000	
	„	2	4.000	5.000			40.000	
	„	4	6.500	5.000			130.000	
		4	5.500	5.000			110.000	
	Column	7	0.800	5.000			28.000	
	„ Top	2	42.400	0.230			19.504	
	Out side	2	13.600	5.450			148.240	
	„	2	10.100	5.450			110.090	
	Ramp side	6*1/2	3.000	0.450			4.051	
	parapet	1	49.000	1.000			49.000	
	Window	9	1.500	1.500			-20.250	
	Rs	2*2	3.000	3.000			-36.000	
	„	1*2	3.000	2.400			-14.399	
	Ope	2*2	1.500	2.400			-14.399	
	„	1	4.900	1.500			-7.350	
	Ventilator	14	0.900	0.600			-7.560	
	Roof Bottom	1	13.200	4.000			52.800	
	„	2	6.500	5.500			71.500	
	Beam	3*2	3.700	0.500			11.101	
	„	3*2	4.900	0.500			14.701	
	Shade Bott.	1	14.800	0.600			8.880	
	„	1	14.800	0.750			11.101	
	„	2	10.100	0.600			12.120	
							Total Quantity	953.088 sqm
							Total Deducted Quantity	-99.958 sqm
							Net Total Quantity	853.130 sqm
							Say 853.130 sqm @ Rs 71.09 / sqm	Rs 60649.01
20	13.61.1							
	Painting with synthetic enamel paint of approved brand and manufacture to give an even shade:Two or more coats on new work							
	Window	9	1.500	1.500			20.250	
	Vent.	14	0.900	0.600			7.561	

	Rs	2	3.000	3.000		2.5	45.000		
	„	1	3.000	2.400		2.5	18.000		
		Total Quantity						90.811 sqm	
		Total Deducted Quantity						0.000 sqm	
		Net Total Quantity						90.811 sqm	
		Say 90.811 sqm @ Rs 143.94 / sqm						Rs 13071.34	
21	13.82.2	Wall painting with acrylic emulsion paint, having VOC (Volatile Organic Compound) content less than 50 grams/ litre, of approved brand and manufacture including applying additional coats wherever required, to achieve even shade and colour.Two coats							
	Inside	2	13.200	5.000			132.000		
	„	2	4.000	5.000			40.000		
	„	4	6.500	5.000			130.000		
		4	5.500	5.000			110.000		
	Column	7	0.800	5.000			28.000		
	„ Top	2	42.400	0.230			19.504		
	Out side	2	13.600	5.450			148.240		
	„	2	10.100	5.450			110.090		
	Ramp side	6*1/2	3.000	0.450			4.051		
	parapet	1	49.000	1.000			49.000		
	Window	9	1.500	1.500			-20.250		
	Rs	2*2	3.000	3.000			-36.000		
	„	1*2	3.000	2.400			-14.399		
	Ope	2*2	1.500	2.400			-14.399		
	„	1	4.900	1.500			-7.350		
	Ventilator	14	0.900	0.600			-7.560		
	Roof Bottom	1	13.200	4.000			52.800		
	„	2	6.500	5.500			71.500		
	Beam	3*2	3.700	0.500			11.101		
	„	3*2	4.900	0.500			14.701		
	Shade Bott.	1	14.800	0.600			8.880		
	„	1	14.800	0.750			11.101		
	„	2	10.100	0.600			12.120		
		Total Quantity						953.088 sqm	

							Total Deducted Quantity	-99.958 sqm	
							Net Total Quantity	853.130 sqm	
							Say 853.130 sqm @ Rs 126.55 / sqm	Rs 107963.60	
Sl No	Description	No	L	B	D	CF	Quantity	Remark	
18Centrifuge Building (Cost Index:36.44 %)									
1	2.8.1 Earth work in excavation by mechanical means (Hydraulic excavator) /manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan), including dressing of sides and ramming of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m.All kinds of soil								
	Footing	10	2.000	2.000	1.600		64.000		
	Ramp	1	3.000	3.000	0.150		1.350		
							Total Quantity	65.350 cum	
							Total Deducted Quantity	0.000 cum	
							Net Total Quantity	65.350 cum	
							Say 65.350 cum @ Rs 298.80 / cum	Rs 19526.58	
2	4.1.8 Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level:1:4:8 (1 cement : 4 coarse sand : 8 graded stone aggregate 40 nominal size)								
	Footing	10	2.000	2.000	0.100		4.000		
	Plinth Bottom	9	3.130	0.350	0.100		0.986		
	„	4	2.800	0.350	0.100		0.392		
	„	4	2.980	0.350	0.100		0.418		
	Floor PCC	6	3.130	3.330	0.100		6.254		
	Ramp	1	3.000	3.000	0.100		0.900		
							Total Quantity	12.950 cum	
							Total Deducted Quantity	0.000 cum	
							Net Total Quantity	12.950 cum	
							Say 12.950 cum @ Rs 6857.61 / cum	Rs 88806.05	
3	2.25 Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift up to 1.5 m.								
	Plinth inside	6	3.130	3.330	0.350		21.889		
	Ramp	1/2	3.000	3.000	0.300		1.350		

							Total Quantity	23.239 cum
							Total Deducted Quantity	0.000 cum
							Net Total Quantity	23.239 cum
							Say 23.239 cum @ Rs 260.19 / cum	Rs 6046.56
4	5.1.3	Providing and laying in position specified grade of reinforced cement concrete, excluding the cost of centering, shuttering, finishing and reinforcement - All work up to plinth level:1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size)						
	Ramp	1	3.000	3.000	0.100		0.900	
							Total Quantity	0.900 cum
							Total Deducted Quantity	0.000 cum
							Net Total Quantity	0.900 cum
							Say 0.900 cum @ Rs 8642.31 / cum	Rs 7778.08
5	5.37.1	Providing and laying in position ready mixed M-25 grade concrete for reinforced cement concrete work, using cement content as per approved design mix, manufactured in fully automatic batching plant and transported to site of work in transit mixer for all leads, having continuous agitated mixer, manufactured as per mix design of specified grade for reinforced cement concrete work including pumping of R.M.C. from transit mixer to site of laying, excluding the cost of centering, shuttering finishing and reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in -charge. Note:- Cement content considered in this item is @330 kg/cum. Excess /less cement used as per design mix is payable/recoverable separately.All work upto plinth level						
	Column Footing	10	1.800	1.800	0.200		6.481	
	„	10/3	1.800	1.800	0.700		7.560	
	Grade slab	6	3.130	3.330	0.120		7.505	
	Column pedestal	10	0.250	0.600	0.400		0.600	
	Plinth beam	9	3.130	0.250	0.450		3.170	
	„	4	2.800	0.250	0.450		1.260	
	„	4	3.980	0.250	0.450		1.791	
							Total Quantity	28.367 cum
							Total Deducted Quantity	0.000 cum
							Net Total Quantity	28.367 cum
							Say 28.367 cum @ Rs 9947.98 / cum	Rs 282194.35
6	50.5.33.2	Providing and laying in position machine batched and machine mixed design mix M-20 grade cement concrete for reinforced cement concrete work, using cement content as per approved design mix,						

	including pumping of concrete to site of laying but excluding the cost of centering, shuttering, finishing and reinforcement, including admixtures in recommended proportions as per IS: 9103 to accelerate, retard setting of concrete, improve workability without impairing strength and durability as per direction of Engineer-in-charge. Note:- Cement content considered in this item is @ 330 kg/cum. Excess or less cement used as per design mix is payable or recoverable separately. All work above plinth level upto floor V level							
	GF Column	10	0.250	0.600	4.000		6.000	
	„Beam Bi	9	3.130	0.250	0.350		2.465	
	„	4	2.800	0.250	0.350		0.980	
	„	2	6.200	0.250	0.550		1.706	
	GF Slab	1	10.800	7.800	0.120		10.109	
	FF Column	10	0.250	0.600	4.000		6.000	
	Beam	9	3.130	0.250	0.350		2.465	
		4	2.800	0.250	0.350		0.980	
		4	2.980	0.250	0.550		1.639	
	FF Slab	1	11.000	8.000	0.120		10.560	
	Lintel	1	3.330	0.200	0.400		0.267	
	Shade	1	3.500	0.750	0.100		0.263	
	Stair Opening	1	2.000	3.330	0.120		-0.799	
	Total Quantity						43.434 cum	
	Total Deducted Quantity						-0.799 cum	
	Net Total Quantity						42.635 cum	
	Say 42.635 cum @ Rs 11135.00 / cum						Rs 474740.73	
7	5.9.1 Centering and shuttering including strutting, etc. and removal of form for: Foundations, footings, bases of columns, etc for mass concrete							
	Column Footing	10*4	1.800	1.800	0.200		25.921	
	Total Quantity						25.921 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						25.921 sqm	
	Say 25.921 sqm @ Rs 337.42 / sqm						Rs 8746.26	
8	5.9.3 Centering and shuttering including strutting, etc. and removal of form for: Suspended floors, roofs, landings, balconies and access platform							
	Floor slab	6	3.130	3.330			62.538	

	Op Side	1	8.660	0.120			1.040	
	FF Slab	6	3.130	3.330			62.538	
	Proj	2	11.000	0.300			6.600	
	„	2	7.400	0.300			4.440	
	Proj. GF	2	10.800	0.200			4.320	
	„	2	7.400	0.200			2.961	
	Slab edge	1	37.200	0.120			4.464	
	„	1	38.000	0.120			4.560	
	Shade	1	3.500	0.750			2.625	
	„ Edge	2	0.750	0.100			0.151	
						Total Quantity	156.237 sqm	
						Total Deducted Quantity	0.000 sqm	
						Net Total Quantity	156.237 sqm	
						Say 156.237 sqm @ Rs 820.89 / sqm	Rs 128253.39	
9	5.9.5 Centering and shuttering including strutting, etc. and removal of form for:Lintels, beams, plinth beams, girders bressumers and cantilevers							
	Plinth Beam	9*2	3.130	0.450			25.353	
	„	4*2	2.800	0.450			10.080	
	„	4*2	2.980	0.450			10.728	
	Lintel	1*2	3.330	0.400			2.664	
	Op Bottom	1	3.330	0.200			0.666	
	Beam GF & FF	18*2	3.130	0.350			39.438	
	„	8*2	2.800	0.350			15.680	
	„	4*2	6.200	0.550			27.281	
						Total Quantity	131.890 sqm	
						Total Deducted Quantity	0.000 sqm	
						Net Total Quantity	131.890 sqm	
						Say 131.890 sqm @ Rs 653.89 / sqm	Rs 86241.55	
10	5.9.6 Centering and shuttering including strutting, etc. and removal of form for:Columns, Pillars, Piers, Abutments, Posts and Struts							
	Column Pedestal	10	1.700		0.850		14.450	
	GF Column	10	1.700		4.000		68.000	

	FF Column	10	1.700		4.000		68.000	
	Total Quantity						150.450 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						150.450 sqm	
	Say 150.450 sqm @ Rs 869.05 / sqm						Rs 130748.57	
11	5.22.6 Steel reinforcement for R.C.C work including straightening, cutting, bending, placing in position and binding all complete upto plinth level Thermo - Mechanically Treated bars of grade Fe-500D or more							
	@120kg / 1Cum CC	1	28.37+42. 57			120.0	8512.800	
	Total Quantity						8512.800 kilogram	
	Total Deducted Quantity						0.000 kilogram	
	Net Total Quantity						8512.800 kilogram	
	Say 8512.800 kilogram @ Rs 98.92 / kilogram						Rs 842086.18	
12	50.6.7.2 Laterate masonry with neatly dressed laterate stone of size 40x20x15cm or nearest size in cement mortar 1:6 for super structure above plinth level up to floor two level including all cost of materials, labour charges etc.							
	Wall	5	3.130	0.200	3.650		11.425	
	„	4	2.800	0.200	3.650		8.176	
	Over RS	1	3.130	0.200	0.350		0.220	
	FF wall	6	3.130	0.200	3.650		13.710	
	„	4	2.800	0.200	3.650		8.176	
	Total Quantity						41.707 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						41.707 cum	
	Say 41.707 cum @ Rs 7968.75 / cum						Rs 332352.66	
13	13.1.1 12 mm cement plaster of mix:1:4 (1 cement : 4 fine sand)							
	inside	2	7.000		4.000		56.000	
	„	2	10.000		4.000		80.000	
	column	2*4	0.350		4.000		11.200	
	FF inside	2	7.000		4.000		56.000	
	„	2	10.000		4.000		80.000	
	Column	2*4	0.350		4.000		11.200	

	Out side wall	1	35.600		8.450		300.820		
	parapt	1	37.200		1.000		37.200		
	Rolling Shutter	1*2	3.000	3.000			-18.000		
	Total Quantity						632.420 sqm		
	Total Deducted Quantity						-18.000 sqm		
	Net Total Quantity						614.420 sqm		
	Say 614.420 sqm @ Rs 316.06 / sqm						Rs 194193.59		
14	13.7.1 12 mm cement plaster finished with a floating coat of neat cement of mix:1:3 (1 cement : 3 fine sand)								
	Roof top	1	10.600	7.600			80.560		
	Shade toop	1	3.500	0.750			2.625		
	Ramp	1	3.000	3.000			9.000		
	Total Quantity						92.185 sqm		
	Total Deducted Quantity						0.000 sqm		
	Net Total Quantity						92.185 sqm		
	Say 92.185 sqm @ Rs 403.73 / sqm						Rs 37217.85		
15	13.16.1 6 mm cement plaster of mix:1:3 (1 cement : 3 fine sand)								
	Slab Bott	2	10.000	7.000			140.000		
	Beam	4*2	6.200	0.550			27.281		
	„	2*2	9.400	0.350			13.160		
	Proj GF	1	36.400	0.550			20.020		
	„ FF	1	36.800	0.450			16.560		
	Shade	1	3.500	0.750			2.625		
	Ramp side	2*1/2	3.000	0.450			1.350		
	Total Quantity						220.996 sqm		
	Total Deducted Quantity						0.000 sqm		
	Net Total Quantity						220.996 sqm		
	Say 220.996 sqm @ Rs 269.26 / sqm						Rs 59505.38		
16	11.41.2 Providing and laying vitrified floor tiles in different sizes (thickness to be specified by the manufacturer) with water absorption less than 0.08% and conforming to IS : 15622, of approved make, in all colours and shades, laid on 20 mm thick cement mortar 1:4(1 cement : 4 coarse sand), including grouting the joints with white cement and matching pigments etc., complete.Size of Tile 600 x 600 mm.								
	GF & FF Floor	2	10.000	7.000			140.000		

	Skirting	2	34.000	0.100			6.801	
	Stair Portion	1	3.130	2.000			-6.260	
	Total Quantity						146.801 sqm	
	Total Deducted Quantity						-6.260 sqm	
	Net Total Quantity						140.541 sqm	
	Say 140.541 sqm @ Rs 1777.34 / sqm						Rs 249789.14	
17	<p>10.6.2 Supplying and fixing rolling shutters of approved make, made of required size M.S. laths, interlocked together through their entire length and jointed together at the end by end locks, mounted on specially designed pipe shaft with brackets, side guides and arrangements for inside and outside locking with push and pull operation complete, including the cost of providing and fixing necessary 27.5 cm long wire springs manufactured from high tensile steel wire of adequate strength conforming to IS: 4454 - part 1 and M.S. top cover of required thickness for rolling shutters.80x1.20 mm M.S. laths with 1.20 mm thick top cover</p>							
	Rolling Shuter	1	3.000	3.000			9.000	
	Total Quantity						9.000 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						9.000 sqm	
	Say 9.000 sqm @ Rs 3320.81 / sqm						Rs 29887.29	
18	<p>10.25.1 Item Shifted to Sub head 14 as item 14.73 Item Shifted to head 14 as item 14.74 Steel work welded in built up sections/framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer using structural steel etc. as required. In stringers, treads, landings etc. of stair cases, including use of chequered plate wherever required, all complete</p>							
	Stair	2	2.500	0.900		30.0	135.000	
	Landing	1	2.000	1.000		30.0	60.000	
	Hand rail	1	9.000		0.900	15.0	121.500	
	„	1	5.500		0.900	15.0	74.250	
	Total Quantity						390.750 kg	
	Total Deducted Quantity						0.000 kg	
	Net Total Quantity						390.750 kg	
	Say 390.750 kg @ Rs 110.93 / kg						Rs 43345.90	
19	<p>13.43.1 Applying one coat of water thinnable cement primer of approved brand and manufacture on wall surface: Water thinnable cement primer</p>							
	inside	2	7.000		4.000		56.000	
	„	2	10.000		4.000		80.000	

	column	2*4	0.350		4.000		11.200	
	FF inside	2	7.000		4.000		56.000	
	„	2	10.000		4.000		80.000	
	Column	2*4	0.350		4.000		11.200	
	Out side wall	1	35.600		8.450		300.820	
	parapt	1	37.200		1.000		37.200	
	Rolling Shutter	1*2	3.000	3.000			-18.000	
	Slab Bott	2	10.000	7.000			140.000	
	Beam	4*2	6.200	0.550			27.281	
	„	2*2	9.400	0.350			13.160	
	Proj GF	1	36.400	0.550			20.020	
	„ FF	1	36.800	0.450			16.560	
	Shade	1	3.500	0.750			2.625	
	Ramp side	2*1/2	3.000	0.450			1.350	
						Total Quantity	853.416 sqm	
						Total Deducted Quantity	-18.000 sqm	
						Net Total Quantity	835.416 sqm	
						Say 835.416 sqm @ Rs 71.09 / sqm	Rs 59389.72	
20	13.61.1	Painting with synthetic enamel paint of approved brand and manufacture to give an even shade:Two or more coats on new work						
	Rolling Shutter	1	3.000	3.000		2.5	22.500	
	Stair	2	2.500	0.900			4.500	
	Landing	1	2.000	1.000			2.000	
	Hand rail	1	14.500	0.900			13.050	
						Total Quantity	42.050 sqm	
						Total Deducted Quantity	0.000 sqm	
						Net Total Quantity	42.050 sqm	
						Say 42.050 sqm @ Rs 143.94 / sqm	Rs 6052.68	
21	13.82.2	Wall painting with acrylic emulsion paint, having VOC (Volatile Organic Compound) content less than 50 grams/ litre, of approved brand and manufacture including applying additional coats wherever required, to achieve even shade and colour.Two coats						
	inside	2	7.000		4.000		56.000	

	„	2	10.000		4.000		80.000	
	column	2*4	0.350		4.000		11.200	
	FF inside	2	7.000		4.000		56.000	
	„	2	10.000		4.000		80.000	
	Column	2*4	0.350		4.000		11.200	
	Out side wall	1	35.600		8.450		300.820	
	parapt	1	37.200		1.000		37.200	
	Rolling Shutter	1*2	3.000	3.000			-18.000	
	Slab Bott	2	10.000	7.000			140.000	
	Beam	4*2	6.200	0.550			27.281	
	„	2*2	9.400	0.350			13.160	
	Proj GF	1	36.400	0.550			20.020	
	„ FF	1	36.800	0.450			16.560	
	Shade	1	3.500	0.750			2.625	
	Ramp side	2*1/2	3.000	0.450			1.350	
						Total Quantity	853.416 sqm	
						Total Deducted Quantity	-18.000 sqm	
						Net Total Quantity	835.416 sqm	
						Say 835.416 sqm @ Rs 126.55 / sqm	Rs 105721.89	
SI No	Description	No	L	B	D	CF	Quantity	Remark
19PSF/ACF Foundation (Cost Index:36.44 %)								
1	2.6.1 Earth work in excavation by mechanical means (Hydraulic excavator)/manual means over areas (exceeding 30 cm in depth, 1.5 m in width as well as 10 sqm on plan) including disposal of excavated earth, lead up to 50 m and lift up to 1.5 m, disposed earth to be levelled and neatly dressed.All kinds of soil							
		1	28.200	8.200	0.300		69.372	
						Total Quantity	69.372 cum	
						Total Deducted Quantity	0.000 cum	
						Net Total Quantity	69.372 cum	
						Say 69.372 cum @ Rs 215.37 / cum	Rs 14940.65	
2	4.1.6 Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level:1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 40 mm nominal size)							

		1	28.200	8.200	0.150		34.686	
	Total Quantity						34.686 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						34.686 cum	
	Say 34.686 cum @ Rs 7256.36 / cum						Rs 251694.10	
3	5.37.1 Providing and laying in position ready mixed M-25 grade concrete for reinforced cement concrete work, using cement content as per approved design mix, manufactured in fully automatic batching plant and transported to site of work in transit mixer for all leads, having continuous agitated mixer, manufactured as per mix design of specified grade for reinforced cement concrete work including pumping of R.M.C. from transit mixer to site of laying, excluding the cost of centering, shuttering finishing and reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in -charge. Note:- Cement content considered in this item is @330 kg/cum. Excess /less cement used as per design mix is payable/recoverable separately.All work upto plinth level							
		1	28.000	8.000	0.300		67.200	
	Total Quantity						67.200 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						67.200 cum	
	Say 67.200 cum @ Rs 9947.98 / cum						Rs 668504.26	
4	5.9.1 Centering and shuttering including strutting, etc. and removal of form for:Foundations, footings, bases of columns, etc for mass concrete							
		1	72.000		0.300		21.600	
	Total Quantity						21.600 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						21.600 sqm	
	Say 21.600 sqm @ Rs 337.42 / sqm						Rs 7288.27	
5	5.22.6 Steel reinforcement for R.C.C work including straightening, cutting, bending, placing in position and binding all complete upto plinth levelThermo - Mechanically Treated bars of grade Fe-500D or more							
		1	67.200			40.0	2688.000	
	Total Quantity						2688.000 kilogram	
	Total Deducted Quantity						0.000 kilogram	
	Net Total Quantity						2688.000 kilogram	
	Say 2688.000 kilogram @ Rs 98.92 / kilogram						Rs 265896.96	
6	13.7.1							

	12 mm cement plaster finished with a floating coat of neat cement of mix:1:3 (1 cement : 3 fine sand)							
		1	28.000	8.000			224.000	
		1	72.000		0.300		21.600	
	Total Quantity						245.600 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						245.600 sqm	
	Say 245.600 sqm @ Rs 403.73 / sqm						Rs 99156.09	
SI No	Description	No	L	B	D	CF	Quantity	Remark
20Sludge Shed (Cost Index:36.44 %)								
1	2.8.1 Earth work in excavation by mechanical means (Hydraulic excavator) /manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan), including dressing of sides and ramming of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m.All kinds of soil							
		4	1.700	1.700	1.600		18.496	
	Total Quantity						18.496 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						18.496 cum	
	Say 18.496 cum @ Rs 298.80 / cum						Rs 5526.60	
2	4.1.8 Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level:1:4:8 (1 cement : 4 coarse sand : 8 graded stone aggregate 40 nominal size)							
	Column Footing	4	1.700	1.700	0.100		1.156	
	Floor PCC	1	5.000	5.000	0.100		2.500	
	Plinth Bottom	2	5.000	0.350	0.100		0.351	
		2	4.600	0.350	0.100		0.322	
	Total Quantity						4.329 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						4.329 cum	
	Say 4.329 cum @ Rs 6857.61 / cum						Rs 29686.59	
3	2.25 Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift up to 1.5 m.							
	Plinth inside filling	1	5.000	5.000	0.350		8.750	

							Total Quantity	8.750 cum
							Total Deducted Quantity	0.000 cum
							Net Total Quantity	8.750 cum
							Say 8.750 cum @ Rs 260.19 / cum	Rs 2276.66
4	50.6.7.1	Laterate masonry with neatly dressed laterate stone of size 40x20x15cm or nearest size in cement mortar 1:6 for foundation and basement including all cost of materials, labour charges etc.						
	Outer wall	2	5.000	0.200	4.300		8.600	
		2	4.600	0.200	4.300		7.912	
	Rolling shutter	1	2.400	0.200	3.000		-1.440	
							Total Quantity	16.512 cum
							Total Deducted Quantity	-1.440 cum
							Net Total Quantity	15.072 cum
							Say 15.072 cum @ Rs 7216.83 / cum	Rs 108772.06
5	50.5.33.2	Providing and laying in position machine batched and machine mixed design mix M-20 grade cement concrete for reinforced cement concrete work, using cement content as per approved design mix, including pumping of concrete to site of laying but excluding the cost of centering, shuttering, finishing and reinforcement, including admixtures in recommended proportions as per IS: 9103 to accelerate, retard setting of concrete, improve workability without impairing strength and durability as per direction of Engineer-in-charge. Note:- Cement content considered in this item is @ 330 kg/cum. Excess or less cement used as per design mix is payable or recoverable separately. All work above plinth level upto floor V level						
							Column	
	Column	4	0.200	0.400	4.500		1.441	
							Lintel	
	over wall	2	4.600	0.200	0.200		0.368	
		1	5.000	0.200	0.200		0.200	
		1	5.000	0.200	0.300		0.300	
							shade	
		1	5.400	0.600	0.100		0.325	
							Tie beam	
		2	5.000	0.200	0.200		0.400	
		2	4.600	0.200	0.200		0.368	
							Total Quantity	3.402 cum
							Total Deducted Quantity	0.000 cum

		Net Total Quantity					3.402 cum	
		Say 3.402 cum @ Rs 11135.00 / cum					Rs 37881.27	
6	5.37.1	Providing and laying in position ready mixed M-25 grade concrete for reinforced cement concrete work, using cement content as per approved design mix, manufactured in fully automatic batching plant and transported to site of work in transit mixer for all leads, having continuous agitated mixer, manufactured as per mix design of specified grade for reinforced cement concrete work including pumping of R.M.C. from transit mixer to site of laying, excluding the cost of centering, shuttering finishing and reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in -charge. Note:- Cement content considered in this item is @330 kg/cum. Excess /less cement used as per design mix is payable/recoverable separately.All work upto plinth level						
		Column footing-raft						
	Column Footing	4	1.500	1.500	0.150		1.350	
	Isolated Portion	4/3	1.500	1.500	0.350		1.050	
		Column footing-Column						
	Column Pedestal	4	0.200	0.400	0.900		0.289	
		Plinth beam						
	PB1	2	5.000	0.200	0.450		0.900	
	PB2	2	4.600	0.200	0.450		0.828	
		Total Quantity					4.417 cum	
		Total Deducted Quantity					0.000 cum	
		Net Total Quantity					4.417 cum	
		Say 4.417 cum @ Rs 9947.98 / cum					Rs 43940.23	
7	5.22.6	Steel reinforcement for R.C.C work including straightening, cutting, bending, placing in position and binding all complete upto plinth level Thermo - Mechanically Treated bars of grade Fe-500D or more						
	@100 Kg / Cum of Concrete Qty , ie	1	3.402+4.417		100.000		781.900	
			17					
		Total Quantity					781.900 kilogram	
		Total Deducted Quantity					0.000 kilogram	
		Net Total Quantity					781.900 kilogram	
		Say 781.900 kilogram @ Rs 98.92 / kilogram					Rs 77345.55	
8	5.9.1	Centering and shuttering including strutting, etc. and removal of form for:Foundations, footings, bases of columns, etc for mass concrete						
	Column footing	4*4	1.500		0.150		3.600	

						Total Quantity	3.600 sqm	
						Total Deducted Quantity	0.000 sqm	
						Net Total Quantity	3.600 sqm	
						Say 3.600 sqm @ Rs 337.42 / sqm	Rs 1214.71	
9	5.9.6	Centering and shuttering including strutting, etc. and removal of form for:Columns, Pillars, Piers, Abutments, Posts and Struts						
		4	1.200		4.500		21.600	
						Total Quantity	21.600 sqm	
						Total Deducted Quantity	0.000 sqm	
						Net Total Quantity	21.600 sqm	
						Say 21.600 sqm @ Rs 869.05 / sqm	Rs 18771.48	
10	5.9.5	Centering and shuttering including strutting, etc. and removal of form for:Lintels, beams, plinth beams, girders bressumers and cantilevers						
						Lintel		
	over wall	2*2	4.600		0.200		3.680	
		1*2	5.000		0.200		2.000	
		1*2	5.000		0.300		3.000	
	Bottom	1	2.400	0.200			0.480	
	shade	1	5.600	0.600			3.360	
	Tie beam	2*2	5.000		0.200		4.000	
		2*2	4.600		0.200		3.680	
						Plinth beam		
	PB1	2*2	5.000		0.450		9.000	
	PB2	2*2	4.600		0.450		8.280	
						Total Quantity	37.480 sqm	
						Total Deducted Quantity	0.000 sqm	
						Net Total Quantity	37.480 sqm	
						Say 37.480 sqm @ Rs 653.89 / sqm	Rs 24507.80	
11	12.1.1	Providing corrugate G.S. sheet roofing including vertical/ curved surface fixed with polymer coated J or L hooks, bolts and nuts 8 mm diameter with bitumen and G.I. limpet washers or with G.I. limpet washers filled with white lead, including a coat of approved steel primer and two coats of approved paint on overlapping of sheets complete (up to any pitch in horizontal / vertical or curved surfaces), excluding the cost of purlins, rafters and trusses and including cutting to size and shape wherever required.1.00 mm						

	thick with zinc coating not less than 275 gm/m ²						
	Roofing	2	4.000	6.600			52.800
	Total Quantity						52.800 sqm
	Total Deducted Quantity						0.000 sqm
	Net Total Quantity						52.800 sqm
	Say 52.800 sqm @ Rs 1461.95 / sqm						Rs 77190.96
12	13.1.1 12 mm cement plaster of mix:1:4 (1 cement : 4 fine sand)						
	inside wall	4	5.000	4.500			90.000
	outside wall	4	5.400	4.900			105.841
	basement	4	5.400	0.300			6.480
	Tie beam top	4	5.200	0.200			4.160
	Rolling shutter	2	2.400	3.000			-14.399
	Total Quantity						206.481 sqm
	Total Deducted Quantity						-14.399 sqm
	Net Total Quantity						192.082 sqm
	Say 192.082 sqm @ Rs 316.06 / sqm						Rs 60709.44
13	13.9.2 Cement plaster 1:3 (1 cement : 3 coarse sand) finished with a floating coat of neat cement.20 mm cement plaster						
		1	5.000	5.000			25.000
	Total Quantity						25.000 sqm
	Total Deducted Quantity						0.000 sqm
	Net Total Quantity						25.000 sqm
	Say 25.000 sqm @ Rs 545.69 / sqm						Rs 13642.25
14	10.2 Structural steel work riveted, bolted or welded in built up sections, trusses and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer all complete.						
	For truss - 75x75mm IS angle	4*2	3.800			6.78	206.112
	Horizontal Tie,	4*2	5.400			6.78	292.896
	Brazing 45x45 mm MS Angle	4*2	2.000			3.95	63.200
		4*4	1.000			3.95	63.200
	vertical	4*1	2.000			3.95	31.600

	Purlin 50x50 mm MS Tub 16g	2*5	6.500			4.42	287.300	
	Total Quantity						944.308 kg	
	Total Deducted Quantity						0.000 kg	
	Net Total Quantity						944.308 kg	
	Say 944.308 kg @ Rs 120.54 / kg						Rs 113826.89	
15	13.43.1 Applying one coat of water thinnable cement primer of approved brand and manufacture on wall surface:Water thinnable cement primer							
	inside wall	4	5.000	4.500			90.000	
	outside wall	4	5.400	4.900			105.841	
	basement	4	5.400	0.300			6.480	
	Tie beam top	4	5.200	0.200			4.160	
	Rolling shutter	2	2.400	3.000			-14.399	
	Total Quantity						206.481 sqm	
	Total Deducted Quantity						-14.399 sqm	
	Net Total Quantity						192.082 sqm	
	Say 192.082 sqm @ Rs 71.09 / sqm						Rs 13655.11	
16	13.82.2 Kerala Water Authority Wall painting with acrylic emulsion paint, having VOC (Volatile Organic Compound) content less than 50 grams/ litre, of approved brand and manufacture including applying additional coats wherever required, to achieve even shade and colour.Two coats							
	inside wall	4	5.000	4.500			90.000	
	outside wall	4	5.400	4.900			105.841	
	basement	4	5.400	0.300			6.480	
	Tie beam top	4	5.200	0.200			4.160	
	Rolling shutter	2	2.400	3.000			-14.399	
	Total Quantity						206.481 sqm	
	Total Deducted Quantity						-14.399 sqm	
	Net Total Quantity						192.082 sqm	
	Say 192.082 sqm @ Rs 126.55 / sqm						Rs 24307.98	
17	13.48.3 Finishing with Deluxe Multi surface paint system for interiors and exteriors using primer as per manufacturers specifications:Painting Steel work with Deluxe Multi Surface Paint to give an even shade. Two or more coat applied @ 0.90 ltr/10 sqm over an under coat of primer applied @ 0.80 ltr/10 sqm of approved brand and manufacture							

	Rolling Shutter	1	2.400	3.000		2.5	18.000		
	Truss work	4 *1/2	5.400	2.000		0.5	10.800		
	Purline	2*5	5.800	0.200			11.600		
	Total Quantity						40.400 sqm		
	Total Deducted Quantity						0.000 sqm		
	Net Total Quantity						40.400 sqm		
	Say 40.400 sqm @ Rs 149.06 / sqm						Rs 6022.02		
SI No	Description	No	L	B	D	CF	Quantity	Remark	
21STP Land Development & Approach Road and internal Service Roads (Cost Index:36.44 %)									
1	2.32 Clearing grass and removal of the rubbish up to a distance of 50 m outside the periphery of the area cleared.								
	STP Site area	1	114.500	77.800			8908.100		
	Total Quantity						8908.100 sqm		
	Total Deducted Quantity						0.000 sqm		
	Net Total Quantity						8908.100 sqm		
	Say 8908.100 sqm @ Rs 7.57 / sqm						Rs 67434.32		
2	2.33.3 Felling trees of the girth (measured at a height of 1 m above ground level) including cutting of trunks and branches, removing the roots and stacking of serviceable material and disposal of unserviceable material. Beyond 120 cm girth up to and including 240 cm girth								
	STP Site	15					15.000		
	Total Quantity						15.000 No		
	Total Deducted Quantity						0.000 No		
	Net Total Quantity						15.000 No		
	Say 15.000 No @ Rs 9310.60 / No						Rs 139659.00		
3	od357976/2021_2022 Filling with contractor own earth (excluding rock) in open areas in layers not exceeding 20 cm in depth, consolidating each deposited layer by ramming and watering, With all lead and lift as per direction of site Engineer-in-charge.								
	STP Site filling	1	115.000	78.000	1.500		13455.000		
	Total Quantity						13455.000 cum		
	Total Deducted Quantity						0.000 cum		
	Net Total Quantity						13455.000 cum		
	Say 13455.000 cum @ Rs 384.45 / cum						Rs 5172774.75		

4	100.41.39 Supply ,stacking,spreading and consolidating of Quarry Muck in the trench of pipe line, including carriage, loading ,unloading & stacking up to any lead.							
	Approach road Base	1	100.000	5.000	0.300		150.000	
	Internal	2	110+73	5.000	0.200		366.000	
	Total Quantity						516.000 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						516.000 cum	
	Say 516.000 cum @ Rs 549.44 / cum						Rs 283511.04	
5	od357977/2021_2022 Construction of granular sub-base by providing graded material, spreading in uniform layers with a motor grader on a prepared surface, mixing by mix in-place method with rotavator at OMC, and compacting with a vibratory roller to achieve the desired density, complete as per clause 401. Grading-V - For sub-base cum drainage layer - Mix in Place Method 							
	Approach road	1	100.000	5.000	0.300		150.000	
	Internal Road	2	110+73	5.000	0.300		549.000	
	Total Quantity						699.000 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						699.000 cum	
	Say 699.000 cum @ Rs 3729.38 / cum						Rs 2606836.62	
6	od357978/2021_2022 Providing and applying primer coat with bitumen emulsion (SS) on prepared surface of granular Base including clearing of road surface and spraying primer at the rate of 0.70 - 1.0 kg/sqm using mechanical means							
	Approach road	1	100.000	5.000			500.000	
	Internal Road	2	110+73	5.000			1830.000	
	Total Quantity						2330.000 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						2330.000 sqm	
	Say 2330.000 sqm @ Rs 59.03 / sqm						Rs 137539.90	
7	od357979/2021_2022 Providing and applying tack coat with bitumen emulsion(RS) using emulsion pressure distributor at the rate of 0.20 - 0.30 kg per sqm on the prepared bituminous surface cleaned with mechanical broom							
	Approach road	1	100.000	5.000			500.000	
	Internal Road	2	110+73	5.000			1830.000	

						Total Quantity	2330.000 sqm
						Total Deducted Quantity	0.000 sqm
						Net Total Quantity	2330.000 sqm
						Say 2330.000 sqm @ Rs 10.41 / sqm	Rs 24255.30
8	od357980/2021_2022	<p>Providing, laying and rolling of open graded premix carpet of 20 mm thickness with 0.27 cum of 12 mm departmental aggregates premixed with 12.96 kg of bitumen per 10 sqm using penetration grade bitumen to required line, grade and level on a previously prepared base, after priming the existing surface with 5 kg of bitumen (VG 30) 10 sqm including mixing in a suitable plant, laying and rolling with a three wheel static roller of 80-100 KN capacity, finished to required level and grades, followed by a seal coat of 0.09 cum of 6 mm departmental aggregates premixed with 8.64 kg of bitumen per 10 sqm. By Manual Means.</p>					
	Approach road	1	100.000	5.000			500.000
	Internal Road	2	110+73	5.000			1830.000
						Total Quantity	2330.000 sqm
						Total Deducted Quantity	0.000 sqm
						Net Total Quantity	2330.000 sqm
						Say 2330.000 sqm @ Rs 176.52 / sqm	Rs 411291.60
9	od357981/2021_2022	<p>Seal Coat - Manual Means - Type C - Bitumen S-65 Providing and laying seal coat sealing the voids in a bituminous surface laid to the specified levels, grade and cross fall using Type A, Type B and Type C as per Technical Specification Clause 510 A. By Manual Means:-Case - III : Type C</p>					
	Approach road	1	100.000	5.000			500.000
	Internal Road	2	110+73	5.000			1830.000
						Total Quantity	2330.000 sqm
						Total Deducted Quantity	0.000 sqm
						Net Total Quantity	2330.000 sqm
						Say 2330.000 sqm @ Rs 78.00 / sqm	Rs 181740.00
10	16.91.2	<p>Providing and laying factory made chamfered edge Cement Concrete paver blocks in footpath, parks, lawns, drive ways or light traffic parking etc, of required strength, thickness & size/ shape, made by table vibratory method using PU mould, laid in required colour & pattern over 50mm thick compacted bed of sand, compacting and proper embedding/laying of inter locking paver blocks into the sand bedding layer through vibratory compaction by using plate vibrator, filling the joints with sand and cutting of paver blocks as per required size and pattern, finishing and sweeping extra sand. complete all as per direction of Engineer-in-Charge. 80 mm thick C.C. paver block of M-30 grade with approved color design and pattern.</p>					
		1	200.000	3.000			600.000

		Total Quantity				600.000 sqm
		Total Deducted Quantity				0.000 sqm
		Net Total Quantity				600.000 sqm
		Say 600.000 sqm @ Rs 1128.84 / sqm				Rs 677304.00
11	16.59.1	<p>Manufacturing, supplying and fixing retro reflective sign boards made up of 2 mmthick aluminium sheet, face to be fully covered with high intensity encapsulatedtype heat activated retro reflective sheeting conforming to type - IV of ASTM-D4956-01 in blue and silver white or other colour combination including subjectmatter, message (bi-lingual), symbols and borders etc. as per IRC: 67- 2001, pastedon substrate by an adhesive backing which shall be activated by applying heatand pressure conforming to class-2 of ASTM-D-4956-01 and fixing the same withsuitable sized aluminium alloy rivets @ 20 cm c/c to back support frame of M.S.angle iron of size 25x25x3 mm along with theft resistant measures, mounted andfixed with 2 Nos M.S. angles of size 35x35x5 mm to a vertical post made up to M.S.Tee section ISMT 50x50x6 mm welded with base plate of size 100x100x 5 mm at thebottom end and including making holes in pipes, angles flats, providing & fixingM.S. message plate of required size, steel work to be painted with two or morecoats of synthetic enamel paint of required shade and of approved brand &manufacture over priming coat of zinc chromate yellow primer (vertical MS-Teesupport to be painted in black and white colours). Backside of aluminium sheet tobe painted with two or more coats of epoxy paint over and including appropriatepriming coat including all leads and lifts etc. complete as per drawing , specification and direction of Engineer-in-Charge.Mandatory / Regulatory sign boards of 900 mm diametre with support length of 3750 mm</p>				
		3				3.000
		Total Quantity				3.000 No
		Total Deducted Quantity				0.000 No
		Net Total Quantity				3.000 No
		Say 3.000 No @ Rs 7103.70 / No				Rs 21311.10
12	16.59.2	<p>Manufacturing, supplying and fixing retro reflective sign boards made up of 2 mmthick aluminium sheet, face to be fully covered with high intensity encapsulatedtype heat activated retro reflective sheeting conforming to type - IV of ASTM-D4956-01 in blue and silver white or other colour combination including subjectmatter, message (bi-lingual), symbols and borders etc. as per IRC: 67- 2001, pastedon substrate by an adhesive backing which shall be activated by applying heatand pressure conforming to class-2 of ASTM-D-4956-01 and fixing the same withsuitable sized aluminium alloy rivets @ 20 cm c/c to back support frame of M.S.angle iron of size 25x25x3 mm along with theft resistant measures, mounted andfixed with 2 Nos M.S. angles of size 35x35x5 mm to a vertical post made up to M.S.Tee section ISMT 50x50x6 mm welded with base plate of size 100x100x 5 mm at thebottom end and including making holes in pipes, angles flats, providing & fixingM.S. message plate of required size, steel work to be painted with two or morecoats of synthetic enamel paint of required shade and of approved brand &manufacture over priming coat of zinc chromate yellow primer (vertical MS-Teesupport to be painted in black and white colours). Backside of aluminium sheet tobe painted with two or more coats of epoxy paint over and including appropriatepriming coat including all leads and lifts etc. complete as per drawing , specification and direction of Engineer-in-Charge.Cautionary / warning sign boards of equilateral</p>				

	triangular shape having each side of 900 mm with support length of 3650 mm							
		3					3.000	
	Total Quantity						3.000 No	
	Total Deducted Quantity						0.000 No	
	Net Total Quantity						3.000 No	
	Say 3.000 No @ Rs 5370.69 / No						Rs 16112.07	
13	16.69 Providing and laying at or near ground level factory made kerb stone of M-25 grade cement concrete in position to the required line, level and curvature jointed with cement mortar 1:3 (1 cement : 3 coarse sand) , including making joints with or without grooves (thickness of joints except at sharp curve shall not to more than 5 mm), including making drainage opening wherever required complete etc. as per direction of Engineer-in-charge (length of finished kerb edging shall be measured for payment). (Precast C.C. kerb stone shall be approved by Engineer-in-Charge)							
		2	200.000	0.200	0.300		24.000	
	Total Quantity						24.000 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						24.000 cum	
	Say 24.000 cum @ Rs 9921.30 / cum						Rs 238111.20	
14	7.1.1 Random rubble masonry with hard stone in foundation and plinth including levelling up with cement concrete 1:6:12 (1 cement : 6 coarse sand : 12 graded stone aggregate 20 mm nominal size) up to plinth level with:Cement mortar 1:6 (1 cement : 6 coarse sand)							
	Side wall of newly formed Road	2	100.000	(1+0.5)/2	2.000		300.000	
	Total Quantity						300.000 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						300.000 cum	
	Say 300.000 cum @ Rs 7249.94 / cum						Rs 2174982.00	
15	5.1.2 Providing and laying in position specified grade of reinforced cement concrete, excluding the cost of centering, shuttering, finishing and reinforcement - All work up to plinth level:1:1:5:3 (1 cement 1.5 coarse sand :3 graded stone aggregate 20 mm nominal size							
	Top of side wall of newly formed Road	2	100.000	0.500	0.100		10.000	
	Total Quantity						10.000 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						10.000 cum	

SI No	Description	No	L	B	D	CF	Quantity	Remark
Say 10.000 cum @ Rs 9142.09 / cum							Rs 91420.90	
22Effluent Disposal and Storm Water Drains (Cost Index:36.44 %)								
1	2.8.1 Earth work in excavation by mechanical means (Hydraulic excavator) /manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan), including dressing of sides and ramming of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m.All kinds of soil							
	For Drain	1	360.000	0.800	0.800		230.400	
Total Quantity							230.400 cum	
Total Deducted Quantity							0.000 cum	
Net Total Quantity							230.400 cum	
Say 230.400 cum @ Rs 298.80 / cum							Rs 68843.52	
2	4.1.8 Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level:1:4:8 (1 cement : 4 coarse sand : 8 graded stone aggregate 40 nominal size)							
	Drain bottom	1	360.000	0.800	0.100		28.800	
Total Quantity							28.800 cum	
Total Deducted Quantity							0.000 cum	
Net Total Quantity							28.800 cum	
Say 28.800 cum @ Rs 6857.61 / cum							Rs 197499.17	
3	4.1.3 Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level:1:2:4 (cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size)							
	Drain Bottom	1	360.000	0.800	0.100		28.800	
	Side wall	2	360.000	0.200	0.600		86.400	
Total Quantity							115.200 cum	
Total Deducted Quantity							0.000 cum	
Net Total Quantity							115.200 cum	
Say 115.200 cum @ Rs 8040.95 / cum							Rs 926317.44	
4	5.9.2 Centering and shuttering including strutting, etc. and removal of form for:Walls (any thickness) including attached pilasters, butteresses, plinth and string courses etc.							
	Drain inside	1*2	360.000	0.600			432.000	
Total Quantity							432.000 sqm	

							Total Deducted Quantity	0.000 sqm
							Net Total Quantity	432.000 sqm
							Say 432.000 sqm @ Rs 721.70 / sqm	Rs 311774.40
5	13.1.1 12 mm cement plaster of mix:1:4 (1 cement : 4 fine sand)							
	Drain Bottom and Wall Top	1	360.000	0.800			288.000	
	Side wall	1*2	360.000	0.600			432.000	
							Total Quantity	720.000 sqm
							Total Deducted Quantity	0.000 sqm
							Net Total Quantity	720.000 sqm
							Say 720.000 sqm @ Rs 316.06 / sqm	Rs 227563.20
SI No	Description	No	L	B	D	CF	Quantity	Remark
23Compound wall and Gate (Cost Index:36.44 %)								
1	2.8.1 Earth work in excavation by mechanical means (Hydraulic excavator) /manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan), including dressing of sides and ramming of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m.All kinds of soil							
	Compound wall foundation	1	380.000	0.500	0.450		85.500	
	Gate Pillar footing	3	1.000	1.000	0.750		2.250	
							Total Quantity	87.750 cum
							Total Deducted Quantity	0.000 cum
							Net Total Quantity	87.750 cum
							Say 87.750 cum @ Rs 298.80 / cum	Rs 26219.70
2	4.1.8 Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level:1:4:8 (1 cement : 4 coarse sand : 8 graded stone aggregate 40 nominal size)							
	Compound wall foundation	1	380.000	0.500	0.100		19.000	
	Gate pillar	3	1.000	1.000	0.100		0.301	
							Total Quantity	19.301 cum
							Total Deducted Quantity	0.000 cum
							Net Total Quantity	19.301 cum

	Say 19.301 cum @ Rs 6857.61 / cum						Rs 132358.73	
3	7.1.1 Random rubble masonry with hard stone in foundation and plinth including levelling up with cement concrete 1:6:12 (1 cement : 6 coarse sand : 12 graded stone aggregate 20 mm nominal size) up to plinth level with:Cement mortar 1:6 (1 cement : 6 coarse sand)							
	Compound wall foundation	1	380.000	0.450	0.450		76.950	
	Total Quantity						76.950 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						76.950 cum	
	Say 76.950 cum @ Rs 7249.94 / cum						Rs 557882.88	
4	50.6.7.2 Laterate masonry with neatly dressed laterate stone of size 40x20x15cm or nearest size in cement mortar 1:6 for super structure above plinth level up to floor two level including all cost of materials, labour charges etc.							
	Wall	1	380.000	0.200	1.800		136.800	
	Pillar Addl.	118	0.350	0.150	1.800		11.151	
	Total Quantity						147.951 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						147.951 cum	
	Say 147.951 cum @ Rs 7968.75 / cum						Rs 1178984.53	
5	5.1.2 Providing and laying in position specified grade of reinforced cement concrete, excluding the cost of centering, shuttering, finishing and reinforcement - All work up to plinth level:1:1:5:3 (1 cement 1.5 coarse sand :3 graded stone aggregate 20 mm nominal size)							
	Gate Piller Footing	3	1.000	1.000	0.150		0.450	
	„	3/3	1.000	1.000	0.450		0.450	
	Total Quantity						0.900 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						0.900 cum	
	Say 0.900 cum @ Rs 9142.09 / cum						Rs 8227.88	
6	5.2.2 Reinforced cement concrete work in walls (any thickness), including attached pilasters, buttresses, plinth and string courses, fillets, columns, pillars, piers, abutments, posts and struts etc. up tot floor five level excluding cost of centering, shuttering, finishing and reinforcement :1:1.5:3(1 cement : 1.5 coarse sand : 3 graded stone aggregate 20 mm nominal size)							
	gate pillar	3	0.300	0.300	2.100		0.567	

						Total Quantity	0.567 cum	
						Total Deducted Quantity	0.000 cum	
						Net Total Quantity	0.567 cum	
						Say 0.567 cum @ Rs 11022.71 / cum		Rs 6249.88
7	5.9.1	Centering and shuttering including strutting, etc. and removal of form for:Foundations, footings, bases of columns, etc for mass concrete						
	Footing side	3*4	1.000		0.150		1.800	
						Total Quantity	1.800 sqm	
						Total Deducted Quantity	0.000 sqm	
						Net Total Quantity	1.800 sqm	
						Say 1.800 sqm @ Rs 337.42 / sqm		Rs 607.36
8	5.9.2	Centering and shuttering including strutting, etc. and removal of form for:Walls (any thickness) including attached pilasters, buttersesses, plinth and string courses etc.						
	gate pille	3*4	0.300		2.100		7.561	
						Total Quantity	7.561 sqm	
						Total Deducted Quantity	0.000 sqm	
						Net Total Quantity	7.561 sqm	
						Say 7.561 sqm @ Rs 721.70 / sqm		Rs 5456.77
9	13.1.1	12 mm cement plaster of mix:1:4 (1 cement : 4 fine sand)						
	Compound wall sides	2	380.000	1.800			1368.000	
	Piller sides	118*2	0.150	1.800			63.721	
	Top	1	380.000	0.230			87.400	
	Piiller Top	118	0.150	0.350			6.195	
	Gate pillar	2	1.000	2.100			4.200	
	„	1	1.200	2.100			2.520	
	Top	3	0.300	0.300			0.270	
						Total Quantity	1532.306 sqm	
						Total Deducted Quantity	0.000 sqm	
						Net Total Quantity	1532.306 sqm	
						Say 1532.306 sqm @ Rs 316.06 / sqm		Rs 484300.63
10	13.43.1	Applying one coat of water thinnable cement primer of approved brand and manufacture on wall						

	surface:Water thinnable cement primer							
	Compound wall sides	2	380.000	1.800			1368.000	
	Pillar sides	118*2	0.150	1.800			63.721	
	Top	1	380.000	0.230			87.400	
	Piiller Top	118	0.150	0.350			6.195	
	Gate pillar	2	1.000	2.100			4.200	
	„	1	1.200	2.100			2.520	
	Top	3	0.300	0.300			0.270	
	Total Quantity						1532.306 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						1532.306 sqm	
	Say 1532.306 sqm @ Rs 71.09 / sqm						Rs 108931.63	
11	13.60.1 Wall painting with acrylic emulsion paint of approved brand and manufacture to give an even shade:Two or more coats on new work							
	Compound wall sides	2	380.000	1.800			1368.000	
	Pillar sides	118*2	0.150	1.800			63.721	
	Top	1	380.000	0.230			87.400	
	Piiller Top	118	0.150	0.350			6.195	
	Gate pillar	2	1.000	2.100			4.200	
	„	1	1.200	2.100			2.520	
	Top	3	0.300	0.300			0.270	
	Total Quantity						1532.306 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						1532.306 sqm	
	Say 1532.306 sqm @ Rs 152.34 / sqm						Rs 233431.50	
12	10.25.2 Item Shifted to Sub head 14 as item 14.73Item Shifted to head 14 as item 14.74Steel work welded in built up sections/framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer using structural steel etc. as required.In gratings, frames, guard bar, ladder, railings, brackets, gates and similar works							
	Main gate	1	4.000	1.800		30.0	216.000	
	Vicat Gate	1	1.000	1.800		20.0	36.000	
	Total Quantity						252.000 kg	
	Total Deducted Quantity						0.000 kg	

	Net Total Quantity						252.000 kg	
	Say 252.000 kg @ Rs 155.13 / kg						Rs 39092.76	
13	13.62.1 Painting with synthetic enamel paint of approved brand and manufacture of required colour to give an even shade:Two or more coats on new work over an under coat of suitable shade with ordinary paint of approved brand and manufacture .							
	Main gate	1	4.000	1.800			7.200	
	Vicat Gate	1	1.000	1.800			1.800	
	Total Quantity						9.000 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						9.000 sqm	
	Say 9.000 sqm @ Rs 209.84 / sqm						Rs 1888.56	
SI No	Description	No	L	B	D	CF	Quantity	Remark
24Landscaping, green belt formation and re-use of treated water								
Lump-Sum Total						Rs 1000000.00		
SI No	Description	No	L	B	D	CF	Quantity	Remark
25Odour Control System								
Lump-Sum Total						Rs 10000000.00		
SI No	Description	No	L	B	D	CF	Quantity	Remark
26Providing Solar Energy System								
Lump-Sum Total						Rs 3500000.00		
Total						108971288.72		
Centage @						0.0%		
Centage Amount						0.00		
Provision for GST payments (in %) @						18.0%		
Amount reserved for GST payments						19614831.97		
Total & Centage						128586120.68		
Lumpsum for round off						0.00		
GRAND TOTAL Rs						128586120.68		
Rounded Grand Total Rs						12,85,86,121		
Rupees Twelve Crore Eighty Five Lakh Eighty Six Thousand One Hundred and Twenty One Only								

General Abstract

**SEWERAGE SYSTEM TO VATAKARA MUNICIPALITY - CONSTRUCTION OF 7
MLD CAPACITY SEWAGE TREATMENT PLANT AND LAYING SEWERAGE NET
WORK TO VATAKARA MUNICIPALITY- ELECTRO-MECHANICAL**

(Dsr year: 2018)

SI No	Heading Description	Amount
1	MECHANICAL WORKS	37994257.11
2	ELECTRICAL WORKS	11518044.98
3	Charges for Power allocation to KSEB and power extension by cable	10000000.00
4	Tools and Plants	400000.00
5	Providing SCADA system	2500000.00
	Total	62412302.08
	Centage @	0.0%
	Centage Amount	0.00
	Provision for GST payments (in %) @	18.0%
	Amount reserved for GST payments	11234214.38
	Total & Centage	73646516.46
	Lumpsum for round off	0.00
	GRAND TOTAL Rs	73646516.46
	Rounded Grand Total Rs	7,36,46,516
	Rupees Seven Crore Thirty Six Lakh Forty Six Thousand Five Hundred and Sixteen Only	

Detailed Estimate

**SEWERAGE SYSTEM TO VATAKARA MUNICIPALITY - CONSTRUCTION OF 7
MLD CAPACITY SEWAGE TREATMENT PLANT AND LAYING SEWERAGE NET
WORK TO VATAKARA MUNICIPALITY- ELECTRO-MECHANICAL**

(Dsr year: 2018)

Sl No	Description	No	L	B	D	CF	Quantity	Remark	
1MECHANICAL WORKS (Cost Index:36.44 %)									
1	od357813/2021_2022 Supply at site,erection, testing and commissioning of self priming, non clog centrifugal submersible sewage transfer pump for rated continuous duty and efficiency (from reputed manufacturers complying to IS 1520 and conforming to other relevant standards), CI construction, bronze impeller,complete with 3 phase motor, SS shaft, with automatic pedestal coupling, delivery bend, required wire chain, washers, SS bolts etc including Double Flange DI/CI PN 1 rating sluice valves, Pressure gauges, Double Flange DI/CI PN 1 rating NRVs with DI/I/Pipes connecting common delivery suitable for operation on 415 +/-10% volts, 50 HZ, AC power supply etc. complete in all respects with detachable arrangements, level indicators for automatic switch on & switch off as required by the standard specifications complete with all accessories as per technical specification or as directed by Engineer In Charge.Pumps shall have dry run protection & high/ low level alarm. Electrical Control panel shall be supplied with the pump as per the specifications in the Electrical BOQ Three phase Motor with IP 68 protection (2W 1S)"- Raw Sewage Transfer Pump-32hp-3 Nos								
		3					3.000		
						Total Quantity	3.000 No		
						Total Deducted Quantity	0.000 No		
						Net Total Quantity	3.000 No		
						Say 3.000 No @ Rs 1189376.00 / No	Rs 3568128.00		
2	od357815/2021_2022 Supply at site,erection, testing and commissioning of self priming, non clog centrifugal submersible sewage transfer pump for rated continuous duty and efficiency (from reputed manufacturers complying to IS 1520 and conforming to other relevant standards), CI construction, bronze impeller,complete with 3 phase motor, SS shaft, with automatic pedestal coupling, delivery bend, required wire chain, washers, SS bolts etc including Double Flange DI/CI PN 1 rating sluice valves, Pressure gauges, Double Flange DI/CI PN 1 rating NRVs with DI/I/Pipes connecting common delivery suitable for operation on 415 +/-10% volts, 50 HZ, AC power supply etc. complete in all respects with detachable arrangements, level indicators for automatic switch on & switch off as required by the standard specifications complete with all accessories as per technical specification or as directed by Engineer In Charge.Pumps shall have dry run protection & high/ low level alarm. Electrical Control panel shall be supplied with the pump as per the specifications in the Electrical BOQ Motor : three phase motor with IP 68 Protection"-Pump for septage tank to inlet-2 HP								

		2					2.000		
	Total Quantity						2.000 No		
	Total Deducted Quantity						0.000 No		
	Net Total Quantity						2.000 No		
	Say 2.000 No @ Rs 69690.00 / No						Rs 139380.00		
3	od357817/2021_2022 Supply,erection, testing and commissioning of direct driven floating mixers of approximately 3HP or as required with the rotating arm for rated continuous duty mixing and efficiency, complete set with 3 phase motor, including rotary paddles, gear box, cables, wall mooring and anchoring system with all electro mechancial equipments etc complete for the equalization tank . Electrical Control panel shall be supplied with the pump as per the specifications in the Electrical BOQ or as directed by the Engineer in Charge								
		4					4.000		
	Total Quantity						4.000 No		
	Total Deducted Quantity						0.000 No		
	Net Total Quantity						4.000 No		
	Say 4.000 No @ Rs 139380.00 / No						Rs 557520.00		
4	od357819/2021_2022 Supply at site,erection, testing and commissioning of self priming, non clog centrifugal submersible sewage transfer pump for rated continuous duty and efficiency (from reputed manufacturers complying to IS 1520 and conforming to other relevant standards), CI construction, bronze impeller,complete with 3 phase motor, SS shaft, with automatic pedestal coupling, delivery bend, required wire chain, washers, SS bolts etc including Double Flange DI/CI PN 1 rating sluice valves, Pressure gauges, Double Flange DI/CI PN 1 rating NRVs with DI/I/Pipes connecting common delivery suitable for operation on 415 /-10% volts, 50 HZ, AC power supply etc. complete in all respects with detachable arrangements, level indicators for automatic switch on & switch off as required by the standard specifications complete with all accessories as per technical specification or as directed by Engineer In Charge.Pumps shall have dry run protection & high/ low level alarm. Electrical Control panel shall be supplied with the pump as per the specifications in the Electrical BOQ Motor : three phase motor with IP 68 Protection"-Sludge Thickener Feed Pump-4 HP- 2 nos								
	Sludge Thickener Feed Pump	2					2.000		
	Total Quantity						2.000 No		
	Total Deducted Quantity						0.000 No		
	Net Total Quantity						2.000 No		
	Say 2.000 No @ Rs 174225.00 / No						Rs 348450.00		
5	od361021/2021_2022 Supply at site,erection, testing and commissioning of self priming, non clog centrifugal submersible sewage transfer pump for rated continuous duty and efficiency (from reputed manufacturers complying to IS 1520 and conforming to other relevant standards), CI construction, bronze impeller,complete with 3								

	phase motor, SS shaft, with automatic pedestal coupling, delivery bend, required wire chain, washers, SS bolts etc including Double Flange DI/CI PN 1 rating sluice valves, Pressure gauges, Double Flange DI/CI PN 1 rating NRVs with DI/I/Pipes connecting common delivery suitable for operation on 415 /-10% volts, 50 HZ, AC power supply etc. complete in all respects with detachable arrangements, level indicators for automatic switch on & switch off as required by the standard specifications complete with all accessories as per technical specification or as directed by Engineer In Charge.Pumps shall have dry run protection & high/ low level alarm. Electrical Control panel shall be supplied with the pump as per the specifications in the Electrical BOQ Motor : three phase motor with IP 68 Protection"-Clarifier to sludge Sump Pump-3 HP- 2 nos							
		4					4.000	
		Total Quantity					4.000 No	
		Total Deducted Quantity					0.000 No	
		Net Total Quantity					4.000 No	
		Say 4.000 No @ Rs 97566.00 / No					Rs 390264.00	
6	od357821/2021_2022 Supply at site,erection, testing and commissioning of self priming, non clog centrifugal submersible sewage transfer pump for rated continuous duty and efficiency (from reputed manufacturers complying to IS 1520 and conforming to other relevant standards), CI construction, bronze impeller,complete with 3 phase motor, SS shaft, with automatic pedestal coupling, delivery bend, required wire chain, washers, SS bolts etc including Double Flange DI/CI PN 1 rating sluice valves, Pressure gauges, Double Flange DI/CI PN 1 rating NRVs with DI/I/Pipes connecting common delivery suitable for operation on 415 /-10% volts, 50 HZ, AC power supply etc. complete in all respects with detachable arrangements, level indicators for automatic switch on & switch off as required by the standard specifications complete with all accessories as per technical specification or as directed by Engineer In Charge.Pumps shall have dry run protection & high/ low level alarm. Electrical Control panel shall be supplied with the pump as per the specifications in the Electrical BOQ Motor : three phase motor with IP 68 Protection"- Sludge transfer to centrifuge pump-1.50 HP- 2Nos							
		2					2.000	
		Total Quantity					2.000 No	
		Total Deducted Quantity					0.000 No	
		Net Total Quantity					2.000 No	
		Say 2.000 No @ Rs 55752.00 / No					Rs 111504.00	
7	od357822/2021_2022 Supply at site,erection, testing and commissioning of self priming, non clog centrifugal submersible sewage transfer pump for rated continuous duty and efficiency (from reputed manufacturers complying to IS 1520 and conforming to other relevant standards), CI construction, bronze impeller,complete with 3 phase motor, SS shaft, with automatic pedestal coupling, delivery bend, required wire chain, washers, SS bolts etc including Double Flange DI/CI PN 1 rating sluice valves, Pressure gauges, Double Flange DI/CI PN 1 rating NRVs with DI/I/Pipes connecting common delivery suitable for operation on 415 /-10% volts, 50 HZ, AC power supply etc. complete in all respects with detachable arrangements, level indicators for automatic switch on & switch off as required by the standard specifications complete with all accessories							

	as per technical specification or as directed by Engineer In Charge.Pumps shall have dry run protection & high/ low level alarm. Electrical Control panel shall be supplied with the pump as per the specifications in the Electrical BOQ Motor : three phase motor with IP 68 Protection"-Centrate sump to equalisation tank Pump-3HP- 2Nos						
		2					2.000
	Total Quantity						2.000 No
	Total Deducted Quantity						0.000 No
	Net Total Quantity						2.000 No
	Say 2.000 No @ Rs 111504.00 / No						Rs 223008.00
8	od357824/2021_2022 Supplying and fixing of mono block centrifugal pump, for rated continuous duty and best efficiency CI construction, CI impeller, complete with 3 phase motor,FRP motor cover, pressure gauge, operation on 415 +/-10% volts, 50 HZ, AC power supply etc including sluice valves, Pressure gauges, NRVs with DI/I/Pipes connecting common delivery suitable for complete in all respects as required by the standard specifications and shall suit following capacities complete with all accessories as per technical specification.Pumps shall have dry run protection & high/ low level alarm. Electrical Control panel shall be supplied with the pump as per the specifications in the Electrical BOQ Motor : three phase motor with IP 68 Protection"- Pump for clarifier to PSF-13HP-8 Nos						
		8					8.000
	Total Quantity						8.000 No
	Total Deducted Quantity						0.000 No
	Net Total Quantity						8.000 No
	Say 8.000 No @ Rs 332189.00 / No						Rs 2657512.00
9	od357826/2021_2022 Supplying and fixing of mono block centrifugal pump, for rated continuous duty and best efficiency CI construction, CI impeller, complete with 3 phase motor,FRP motor cover, pressure gauge, operation on 415 +/-10% volts, 50 HZ, AC power supply etc including sluice valves, Pressure gauges, NRVs with DI/I/Pipes connecting common delivery suitable for complete in all respects as required by the standard specifications and shall suit following capacities complete with all accessories as per technical specification.Pumps shall have dry run protection & high/ low level alarm. Electrical Control panel shall be supplied with the pump as per the specifications in the Electrical BOQ Motor : three phase motor with IP 68 Protection"- Treated water to septage tank-4hp- 2Nos						
		2					2.000
	Total Quantity						2.000 No
	Total Deducted Quantity						0.000 No
	Net Total Quantity						2.000 No
	Say 2.000 No @ Rs 102212.00 / No						Rs 204424.00
10	od357828/2021_2022 "Air Blower Supply,erection, testing and commissioning of twin lobe air blower for indoor application						

	complete with acoustic canopy, air filter, motor of 1500 rpm , pulleys, pressure gauges, pressure relief valve, acoustic hood, suction silencer with suitable flanges, common motor and compressor base frame with motor belt tightening arrangement interconnecting line with flanges including all accessories complete as per technical specification or as Directed by Engineer in Charge Capacity: 2763 m3/hr. Pressure: 0.6 kg/sqcm Motor : three phase motor with IP 68 Protection (3W 1 S)" 52- - 4NosHP								
		4						4.000	
		Total Quantity					4.000 No		
		Total Deducted Quantity					0.000 No		
		Net Total Quantity					4.000 No		
		Say 4.000 No @ Rs 1087164.00 / No					Rs 4348656.00		
11	od357831/2021_2022 "Bubble Diffuser for MBBR Tank Supplying at site, erection, testing & commissioning of Fine Bubble Diffuser (retrievable type using rope and pulley arrangement) for the aeration system of the MBBR Tansk (2Nos) with diffusers of sufficient size and length made of EPDM make with SS tee 1" x 1" , SS lifting hook 8 mm, SS foundation bolt 6 mm, SS C clamp suitable for 1" O.D, hose, PP Rope, PP swivel nut, PP sleeve, Silicone Washer, SS hose clamp, RCC block complete at a minimum rating of 95m/hr as per technical specification or as directed by the Engineer in Charge"								
		4						4.000	
		Total Quantity					4.000 No		
		Total Deducted Quantity					0.000 No		
		Net Total Quantity					4.000 No		
		Say 4.000 No @ Rs 209070.00 / No					Rs 836280.00		
12	od357832/2021_2022 "Bubble Diffuser for Equalisation Tank Supplying at site, erection, testing & commissioning of Coarse Bubble Diffuser (retrievable type using rope and pulley arrangement) for the aeration system of the Equalization Tank with diffusers of sufficient size and length made of EPDM make with SS tee 1" x 1" , SS lifting hook 8 mm, SS foundation bolt 6 mm, SS C clamp suitable for 1" O.D, hose, PP Rope, PP swivel nut, PP sleeve, Silicone Washer, SS hose clamp, RCC block complete at a minimum rating of 95m/hr as per technical specification or as directed by the Engineer in Charge"								
		4						4.000	
		Total Quantity					4.000 No		
		Total Deducted Quantity					0.000 No		
		Net Total Quantity					4.000 No		
		Say 4.000 No @ Rs 80724.25 / No					Rs 322897.00		
13	od357834/2021_2022 "Air Grid Pipe Supply and installation of air pipes (HDPE) aly into valves and other aecessories as								

	required for the blowers to various tanks as a complete unit"						
		1					1.000
	Total Quantity						1.000 set
	Total Deducted Quantity						0.000 set
	Net Total Quantity						1.000 set
	Say 1.000 set @ Rs 290375.00 / set						Rs 290375.00
14	od357837/2021_2022 "MBBR Media Supplying and fixing of non- clogging freely moving biomass media of polypropylene construction Sp.Gravity 0.93 for MBBR reactor with surface area not less than 450m/m, length 16-20 mm, dia 22 mm complete as per technical specification or as directed by Engineer in Charge"						
		1	599.430				599.430
	Total Quantity						599.430 cum
	Total Deducted Quantity						0.000 cum
	Net Total Quantity						599.430 cum
	Say 599.430 cum @ Rs 10453.50 / cum						Rs 6266141.51
15	od357838/2021_2022 "Gas Chlorinator system Supply at site, erection, testing and commissioning of electronic chlorine dosing system (gas filled Chlorine) with all wetted parts in PP construction suitable for pumping Chlorine gas including booster pumps, valves, suctions and delivery lines using heavy duty PVC tubes, gas line diffusers, emergency repair kit, FRP motor cover etc.complete with all accessories. Capacity : 500gm to 1kg/hr with 2nos of chlorine tonners"						
		2					2.000
	Total Quantity						2.000 set
	Total Deducted Quantity						0.000 set
	Net Total Quantity						2.000 set
	Say 2.000 set @ Rs 464600.00 / set						Rs 929200.00
16	od357841/2021_2022 "Electromagnetic flow meter Supply, installation, testing and commissioning of electro magnetic/ Ultra Sonic D/F permanent conduit flow meter with flow recorder, digital flow indicator, flow integrator with sensors, 7digit totaliser, transmittal and digital display arrangements and all accessories including housing arrangements, internal data logger, to save upto 2000 linesof data etc. complete to fix as per the specifications . Flow range of 10 to 600LPS, One display shall be installed at the main control centre"						
		2					2.000
	Total Quantity						2.000 No

							Total Deducted Quantity	0.000 No
							Net Total Quantity	2.000 No
							Say 2.000 No @ Rs 87112.50 / No	Rs 174225.00
17	od357842/2021_2022 "Lifting Mechanism for Air Grid Supply , installation & commissioning of the manually operating chain pulley mechanism to lift the equipments from a height not less than 5m including all equipments , foundation etc"							
		5						5.000
	Total Quantity							5.000 No
	Total Deducted Quantity							0.000 No
	Net Total Quantity							5.000 No
	Say 5.000 No @ Rs 11615.00 / No							Rs 58075.00
18	od357843/2021_2022 "SS Gates Supplying at site, installation testing and commissioning of all materials, fabricating, fixing and commissioning of spindle operated open channel sluice gates/shutter of DI make with a peak flow of 145LPS and velocity less than 1m/s at the inleta and outlet of the screen channel to suit the channel sizes as per drawings, tender specifications and as directed by Engineer in Charge"							
		8						8.000
	Total Quantity							8.000 set
	Total Deducted Quantity							0.000 set
	Net Total Quantity							8.000 set
	Say 8.000 set @ Rs 17422.50 / set							Rs 139380.00
19	od357844/2021_2022 "Mechanical Coarse Screen Supplying all materials, fabricating, fixing and commissioning of mechanical SS Screen Bar of following or nearest suitable size made of flats having 50mm x 10mm and 20mm clear space across the screen chamber channel (fixed type) at 70 inclination including cost of mechanical screen grab bucket and arrangement for automated scrapping clogged materials suitable for operation on 415+/-10% volts, 50 HZ, AC power supply etc. complete in all respects as required by the standard specifications complete with all accessories as per technical specification"							
		1						1.000
	Total Quantity							1.000 set
	Total Deducted Quantity							0.000 set
	Net Total Quantity							1.000 set
	Say 1.000 set @ Rs 69690.00 / set							Rs 69690.00
20	od357845/2021_2022 "Mechanical Fine Screen							

	Supplying all materials, fabricating, fixing and commissioning of mechanical SS Screen Bar of following or nearest suitable size made of flats having 50mm x 10mm and 6mm clear space across the screen chamber channel (fixed type) at 70 inclination including cost of mechanical screen grab bucket and arrangement for automated scrapping clogged materials suitable for operation on 415+/-10% volts, 50 HZ, AC power supply etc. complete in all respects as required by the standard specifications complete with all accessories as per technical specification"							
		1					1.000	
		Total Quantity					1.000 set	
		Total Deducted Quantity					0.000 set	
		Net Total Quantity					1.000 set	
		Say 1.000 set @ Rs 116150.00 / set					Rs 116150.00	
21	od357846/2021_2022 "Manual Coarse Screen Supplying all materials, fabricating, fixing and commissioning of Manual SS Screen Bar of following or nearest suitable size made of flats having 50mm x 10mm and 20mm clear space across the screen chamber channel (fixed type) at 45 inclination including cost of screen grab bucket and arrangement for manual scrapping clogged materials as per drawings, tender specifications and as directed by Engineer in Charge"							
		1					1.000	
		Total Quantity					1.000 set	
		Total Deducted Quantity					0.000 set	
		Net Total Quantity					1.000 set	
		Say 1.000 set @ Rs 34845.00 / set					Rs 34845.00	
22	od357847/2021_2022 "Gritting Mechanism Supplying at site all electro-mechanical equipments, fabricating, fixing and commissioning of the gritting mechanism to suit gritting chamber sizes as per drawings, tender specifications or as directed by Engineer in Charge."							
		2					2.000	
		Total Quantity					2.000 No	
		Total Deducted Quantity					0.000 No	
		Net Total Quantity					2.000 No	
		Say 2.000 No @ Rs 545905.00 / No					Rs 1091810.00	
23	od357848/2021_2022 "Clarifier Mechanism Supplying all materials, fabricating, fixing and commissioning of Bridge mounted central driven type clarifier mechanical rake for the half diameter of the Clarifier Tank as per drawings including all feed well, drive and rake mechanism with removable scrappers with sufficient 3phase motor and gears etc complete as per tender specifications and as directed by Engineer in Charge"							

		2					2.000	
	Total Quantity						2.000 No	
	Total Deducted Quantity						0.000 No	
	Net Total Quantity						2.000 No	
	Say 2.000 No @ Rs 813050.00 / No						Rs 1626100.00	
24	od357849/2021_2022 "Sludge Thickener Mechanism Supplying all materials, fabricating, fixing and commissioning of Bridge mounted central driven type sludge thickening mechanism for the full diameter of the Sludge Thickener tank as per drawings including all feed well, drive and rake mechanism with removable scrappers with sufficient 3phase motor and gears etc complete as per tender specifications and as directed by Engineer in Charge"							
		1					1.000	
	Total Quantity						1.000 No	
	Total Deducted Quantity						0.000 No	
	Net Total Quantity						1.000 No	
	Say 1.000 No @ Rs 313605.00 / No						Rs 313605.00	
25	od357850/2021_2022 "Poly Electrolyte dosing system Supplying and fixing of electronic dosing pump with all wetted parts in PP construction suitable for pumping Poly Electrolyte solution including cost of suitable agitators, control gears, valve, suction and delivery lines using heavy duty PVC tubes, HD, FRP motor cover etc. and complete with all accessories to prepare 5% solution of 0.2kg/hr"							
		2					2.000	
	Total Quantity						2.000 No	
	Total Deducted Quantity						0.000 No	
	Net Total Quantity						2.000 No	
	Say 2.000 No @ Rs 92920.00 / No						Rs 185840.00	
26	od357851/2021_2022 "High Pressure Jet Pump Supply and commissioning of portable high pressure water pumps (along with 500litre water tanks to supply water to the pumps) all mounted on a suitable medium vehicle platform for clearing the wells, pumps, and other equipments using high pressure gauges, safety arrangements etc complete as per standards"							
		1					1.000	
	Total Quantity						1.000 No	
	Total Deducted Quantity						0.000 No	
	Net Total Quantity						1.000 No	

								Say 1.000 No @ Rs 34845.00 / No	Rs 34845.00
27	od357852/2021_2022 "Portable Hoist - 500kg Supply and commissioning of portable Monkey type Hoist with capacity upto 500kg, with lifting height of 6m, 5HP Motor, 415V 50Hz all mounted on a suitable medium vehicle platform for easy shifting of equipments and materials whenever required with complete set as per standards"								
			1						1.000
								Total Quantity	1.000 No
								Total Deducted Quantity	0.000 No
								Net Total Quantity	1.000 No
								Say 1.000 No @ Rs 104535.00 / No	Rs 104535.00
28	od357853/2021_2022 "Wheel Barrow Supply of three wheel type wheel barrow of capacity 200ltrs"								
			1						1.000
								Total Quantity	1.000 No
								Total Deducted Quantity	0.000 No
								Net Total Quantity	1.000 No
								Say 1.000 No @ Rs 29037.50 / No	Rs 29037.50
29	od357854/2021_2022 "Aluminium Ladder Supply, Installation of aluminium ladders with caging on each elevated structures of required height as per the drawings or as directed by the Engineer in Charges"								
			4						4.000
								Total Quantity	4.000 No
								Total Deducted Quantity	0.000 No
								Net Total Quantity	4.000 No
								Say 4.000 No @ Rs 6969.00 / No	Rs 27876.00
30	od357855/2021_2022 "FRP Ladder Supply, Installation of FRP ladders with caging on each elevated structures of required height as per the drawings or as directed by the Engineer in Charges"								
			6						6.000
								Total Quantity	6.000 No
								Total Deducted Quantity	0.000 No
								Net Total Quantity	6.000 No

							Say 6.000 No @ Rs 34845.00 / No	Rs 209070.00
31	od357856/2021_2022 "Monorail Crane Supply, Installation and commissioning in position mechanically operated mono rail crane of load bearing capacity of 2tonnes suitable for operation on 415+/-10% volts, 50 HZ, AC power supply etc. with 6m lift & span upto 20m complete in all respects as required by the standard specifications complete with all accessories as per technical specification"							
			1					1.000
							Total Quantity	1.000 No
							Total Deducted Quantity	0.000 No
							Net Total Quantity	1.000 No
							Say 1.000 No @ Rs 406525.00 / No	Rs 406525.00
32	od357857/2021_2022 "Pressure sand filter Supply at site, erection and commissioning of pressure sand filter vertical type pressure vessel fabricated with MS construction with epoxy coating inside and anti corrosive treatment outside, two coats of paint outside (pain quality as instructed by Engineer) withstand a minimum test pressure of 7.0Kg/cm with as operating pressure of 3.5 Kg/cm, complete with valves and dual filter media including graded pebble and sand and antracite , frontal piping, butterfly valves, internals, pressure gauges, strainers, supporting structure, back wash arrangement, etc and all other accessories tested twice the working pressure supported over pebble/gravel with inspection manholes etc complete as per specification or as directed by Engineer in Charge. The scope shall include complete piping with MS fabricated pipes and specials including valves Flow Rate:52 m3/hour Diameter - 2.4m. Height - 2.5m"							
			7					7.000
							Total Quantity	7.000 No
							Total Deducted Quantity	0.000 No
							Net Total Quantity	7.000 No
							Say 7.000 No @ Rs 522675.00 / No	Rs 3658725.00
33	od357858/2021_2022 "Activated Carbon filter Supply at site, erection and commissioning of Activated Carbon filter vertical type pressure vessel fabricated with MS construction with epoxy coating inside and anti corrosive treatment outside, two coats of paint outside (pain quality as instructed by Engineer) withstand a minimum test pressure of 7.0Kg/cm with as operating pressure of 3.5 Kg/cm, complete with valves and filter media including activated carbon of approved grade and quality , frontal piping, butterfly valves, internals, pressure gauges, strainers, supporting structure, back wash arrangement, etc and all other accessories tested twice the working pressure supported over pebble/gravel with inspection manholes etc complete as per specification or as directed by Engineer in Charge. The scope shall include complete piping with MS fabricated pipes and specials including valves Flow rate - 52 m/hr. Diameter - 2.6m. Height - 2.5m"							
			7					7.000

		Total Quantity				7.000 No	
		Total Deducted Quantity				0.000 No	
		Net Total Quantity				7.000 No	
		Say 7.000 No @ Rs 551712.50 / No				Rs 3861987.50	
34	od357859/2021_2022 "Centrifuge System Supply at site, installation and commissioning of filter press /centrifuge system. Filter Press shall be automated, recessed type press with SS fabricated structure pipe button surface and SS flat parallel bar, with PP cloth. Filter operations to be mechanical. Outlet cake consistency should not be more than 35% moisture. The capacity of the filter press shall be 1cum/hr. The Filter Press Unit shall be mounted on a platform and all around drain system to be provided to prevent the filtrate water from contaminating the entire surroundings as per the specifications or as directed by the engineer in charge"	2				2.000	
		Total Quantity				2.000 No	
		Total Deducted Quantity				0.000 No	
		Net Total Quantity				2.000 No	
		Say 2.000 No @ Rs 348450.00 / No				Rs 696900.00	
35	od357860/2021_2022 SLUDGE DEWATERING and Packing UNIT -Volute is a dewatering unit for convenient sludge dewatering.Machine is available for dry sludge (DS) output of 1.0kg/hr to 750kg/hr the Sludge to be dried from 70% moisture content to 10%.The similar type can be suggested.The Packing of the dried sludge to be packed in the packing machine.The necessary electrification civil works,cost of packing machine,cost of gunny bags for 6months.The machines suggested should be cost effective	2				2.000	
		Total Quantity				2.000 L.S	
		Total Deducted Quantity				0.000 L.S	
		Net Total Quantity				2.000 L.S	
		Say 2.000 L.S @ Rs 1200000.00 / L.S				Rs 2400000.00	
36	10.28 Providing and fixing stainless steel (Grade 304) railing made of Hollow tubes, channels, plates etc., including welding, grinding, buffing, polishing and making curvature (wherever required) and fitting the same with necessary stainless steel nuts and bolts complete, i/c fixing the railing with necessary accessories & stainless steel dash fasteners, stainless steel bolts etc., of required size on the top of the floor or the side of waist slab with suitable arrangement as per approval of Engineer-in-charge, (for payment purpose only weight of stainless steel members shall be considered excluding fixing accessories such as nuts, bolts, fasteners etc.)	1	100.000			100.000	
		Total Quantity				100.000 kg	

							Total Deducted Quantity	0.000 kg
							Net Total Quantity	100.000 kg
							Say 100.000 kg @ Rs 681.59 / kg	Rs 68159.00
37	18.73.1	Providing and laying Double Flanged (Screwed / Welded) Centrifugally (Spun) Ductile Iron Pipes of Class K - 9 conforming to IS: 8329 :100 mm dia Ductile Iron Double Flanged						
		1	50.000					50.000
							Total Quantity	50.000 metre
							Total Deducted Quantity	0.000 metre
							Net Total Quantity	50.000 metre
							Say 50.000 metre @ Rs 1815.06 / metre	Rs 90753.00
38	18.73.2	Providing and laying Double Flanged (Screwed / Welded) Centrifugally (Spun) Ductile Iron Pipes of Class K - 9 conforming to IS: 8329 :150 mm dia Ductile Iron Double Flanged						
		1	20.000					20.000
							Total Quantity	20.000 metre
							Total Deducted Quantity	0.000 metre
							Net Total Quantity	20.000 metre
							Say 20.000 metre @ Rs 2722.86 / metre	Rs 54457.20
39	18.73.3	Providing and laying Double Flanged (Screwed / Welded) Centrifugally (Spun) Ductile Iron Pipes of Class K - 9 conforming to IS: 8329 :200 mm dia Ductile Iron Double Flanged						
		1	20.000					20.000
							Total Quantity	20.000 metre
							Total Deducted Quantity	0.000 metre
							Net Total Quantity	20.000 metre
							Say 20.000 metre @ Rs 3436.45 / metre	Rs 68729.00
40	18.73.5	Providing and laying Double Flanged (Screwed / Welded) Centrifugally (Spun) Ductile Iron Pipes of Class K - 9 conforming to IS: 8329 :300 mm dia Ductile Iron Double Flanged						
		1	40.000					40.000
							Total Quantity	40.000 metre
							Total Deducted Quantity	0.000 metre
							Net Total Quantity	40.000 metre
							Say 40.000 metre @ Rs 6262.46 / metre	Rs 250498.40

41	18.73.8 Providing and laying Double Flanged (Screwed / Welded) Centrifugally (Spun) Ductile Iron Pipes of Class K - 9 conforming to IS: 8329 :450 mm dia Ductile Iron Double Flanged		1	40.000				40.000	
		Total Quantity						40.000 metre	
		Total Deducted Quantity						0.000 metre	
		Net Total Quantity						40.000 metre	
		Say 40.000 metre @ Rs 10666.33 / metre						Rs 426653.20	
42	18.73.9 Providing and laying Double Flanged (Screwed / Welded) Centrifugally (Spun) Ductile Iron Pipes of Class K - 9 conforming to IS: 8329 :500 mm dia Ductile Iron Double Flanged		1	40.000				40.000	
		Total Quantity						40.000 metre	
		Total Deducted Quantity						0.000 metre	
		Net Total Quantity						40.000 metre	
		Say 40.000 metre @ Rs 15051.17 / metre						Rs 602046.80	
SI No	Description	No	L	B	D	CF	Quantity	Remark	
2ELECTRICAL WORKS (Cost Index:36.44 %)									
1	od357814/2021_2022 "350kVA Indoor Transformer and 11 kv indoor free standing cubicle type vcb switch gear panel of suitable capacity Supplying, installation, testing and commissioning of 350KVA, 11KV/433V, 3 Phase, 50 Hz, Dyn 11, indoor ONAN type, copper wound transformer with OFF load tap changing arrangement on HV and LV side complete with all accessories i/c first filling of filtered dehydrated oil and confirming to IS 2026 (Part 1 to Part 5) & as per specification attached complete in all respects as required at site or as directed by the Engineer In Charge including supply installation commissioning of suitable rated 11kv cubicle type vcb panel and suitable rated 11kv cable and termination		1					1.000	
		Total Quantity						1.000 No	
		Total Deducted Quantity						0.000 No	
		Net Total Quantity						1.000 No	
		Say 1.000 No @ Rs 1500000.00 / No						Rs 1500000.00	
2	od357816/2021_2022 "CT - PT Unit and TOD meter Supplying, installation, testing and commissioning of Indoor type 11KV CT-PT Unit 3Phase Dry type confirming to IS 2026 (Part 1 to Part 5) & as per KSEB specification complete in all respects as required at site or as directed by the Engineer In Charge"		1					1.000	
		Total Quantity						1.000 No	

								Total Deducted Quantity	0.000 No
								Net Total Quantity	1.000 No
								Say 1.000 No @ Rs 200000.00 / No	Rs 200000.00
3	od357818/2021_2022 "10kA Surge (Lightning Arrester) Supply & Installation of Heavy Duty hot dipped galvanized 10kA lightning arrester suitable for the 11kV incoming line complying IS: 3070 (Part - III) & IEC 60099 - 4 (2009) 50Hz, rated voltage of 12kV with a operating load of 10kV with terminals made of MS/Aluminium with Zinc plating full set or as directed by the Engineer in Charge"								
		3						3.000	
								Total Quantity	3.000 No
								Total Deducted Quantity	0.000 No
								Net Total Quantity	3.000 No
								Say 3.000 No @ Rs 4646.00 / No	Rs 13938.00
4	od357820/2021_2022 Main LT panel Supplying, installation, testing and commissioning of S3phase 415V, 50Hz, floor mounted MS Cubicle type panel board suitable for connecting 350 kva transformer and all motors including all inter connections, wiring in all etc using 14 gauge CRCA sheet painted with 2coats of superior quality enamel paint of approved color over a coat of superior quality iron primer of approved quality as per specification complete in all respects as required at site conforming to relevant BIS standards and KSEB standards or as directed by the Engineer In Charge. 								
		1						1.000	
								Total Quantity	1.000 No
								Total Deducted Quantity	0.000 No
								Net Total Quantity	1.000 No
								Say 1.000 No @ Rs 350000.00 / No	Rs 350000.00
5	od357823/2021_2022 "Earthing Equipments for Transformer Earthing with copper earth plate 600 mm X 600 mm X 3 mm thick including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe of 2.7 meter long etc. with charcoal/ coke and salt as required."								
		1						1.000	
								Total Quantity	1.000 L.S
								Total Deducted Quantity	0.000 L.S
								Net Total Quantity	1.000 L.S
								Say 1.000 L.S @ Rs 250000.00 / L.S	Rs 250000.00
6	od357825/2021_2022 "350KVA Diesel Generator Providing, Installing, Testing and Commissioning of ?Silent Type? Diesel Generating set alongwith having Prime Power Rating of 350 KVA, 415 volts at 1500 RPM, 0.8 lagging								

	power factor at 415 V suitable for 50 Hz, 3 phase system& for 0.85 Load Factor .						
		1					1.000
	Total Quantity						1.000 No
	Total Deducted Quantity						0.000 No
	Net Total Quantity						1.000 No
	Say 1.000 No @ Rs 2323000.00 / No						Rs 2323000.00
7	od357827/2021_2022 "Auto Mains Failure Unit (AMF Panel) Fabricating, Installing, Testing & Commissioning of automatic mains failure control including auto by- pass panel, suitable for 350 KVA silent type DG set complete with relays, timers, set of CTs for metering & protection and energy analyser to indicate currents, phase and line voltages, frequency, power factor, KWH, KVARH & provision for overload, short circuit, restricted earth fault, under frequency, control cabling from AMF panel to diesel engine and elsewhere if required, all complete .						
		1					1.000
	Total Quantity						1.000 No
	Total Deducted Quantity						0.000 No
	Net Total Quantity						1.000 No
	Say 1.000 No @ Rs 232300.00 / No						Rs 232300.00
8	od357829/2021_2022 "Earthing Equipments for DG Kerala Water Authority Earthing with copper earth plate 600 mm X 600 mm X 3 mm thick including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe of 2.7 meter long etc. with charcoal/ coke and salt as required."						
		1					1.000
	Total Quantity						1.000 L.S
	Total Deducted Quantity						0.000 L.S
	Net Total Quantity						1.000 L.S
	Say 1.000 L.S @ Rs 102139.99 / L.S						Rs 102139.99
9	od357830/2021_2022 "Main Control Centre Design, Fabrication, Supply, Installation and commissioning of Electrical Control Panel of cubical construction with fully automated feature (indoor type) preferably floor mounted fabricated of 2mm thick CRCA Sheets compartmentised with hinge lock doors with Dust, vermi proof and powder coated with approved shade. The panel shall have enough size to accomadate the individual control centres of each equipment set with individual MCCB's/MCB of appropriate capacity and also to have provision for Busbars, ACBs & RCCB's as specified below with cable alley, interconnections having all accessories mounting and internal wiring, earth terminals, numbering etc, complete in all respect suitable for operation on 415V, 3 phase 50Hz AC supply with enclosure protection class IP 54 as required. Including supply, installation, termination testing & Commissioning of the all power and control cables as per						

	specifications or as directed by the Engineer In Charge."						
		1					1.000
	Total Quantity						1.000 L.S
	Total Deducted Quantity						0.000 L.S
	Net Total Quantity						1.000 L.S
	Say 1.000 L.S @ Rs 2323000.00 / L.S						Rs 2323000.00
10	od357833/2021_2022 Wiring for Each equipment Supplying and Laying of PVC insulated and PVC sheathed / XLPE power cable of Aluminium conductor XLPE power cables as per IS:7098/Part-I/88 with latest ammendments 1.1 kv grad of required size direct in ground including excavation, sand cushioning, protective covering and refilling the trench etc. as required in the specifications or as directed by the Engineer in Charge.						
		1					1.000
	Total Quantity						1.000 L.S
	Total Deducted Quantity						0.000 L.S
	Net Total Quantity						1.000 L.S
	Say 1.000 L.S @ Rs 1889258.73 / L.S						Rs 1889258.73
11	od357835/2021_2022 Brass Glands & Aluminium Lugs Supplying and making end termination with brass compression gland and aluminium lugs for required size of PVC insulated and PVC sheathed I XLPE aluminium conductor cable of 1.1 kV grade as required.						
		1					1.000
	Total Quantity						1.000 L.S
	Total Deducted Quantity						0.000 L.S
	Net Total Quantity						1.000 L.S
	Say 1.000 L.S @ Rs 251238.26 / L.S						Rs 251238.26
12	od357836/2021_2022 "Power Distribution Board (Control Room & Centrifuge Building) Supplying and fixing of following ways surface/ recess mounting, vertical type, 415 V, TPN MCB distribution board of sheet steel, dust protected, duly powder painted, inclusive of 200 A, tinned copper bus bar, common neutral link, earth bar, din bar for mounting MCBs (but without MCBs and incomer) as required. (Note : Vertical type MCB TPDB is normally used where 3 phase outlets are required.) 12 way (4 + 36), Double door (i) Incoming - 63A MCCB & 63A , 100mA RCCB ii) Outgoing Feeders - 4Nos of 25A MCCB with 25A, 30mA RCCBs iii) Outgoing Feeders - 1Nos of 6A MCB iv) Outgoing Feeders - 2Nos Spares"						
		1					1.000
	Total Quantity						1.000 L.S
	Total Deducted Quantity						0.000 L.S
	Net Total Quantity						1.000 L.S
	Say 1.000 L.S @ Rs 251238.26 / L.S						Rs 251238.26
	Total Quantity						1.000 L.S

							Total Deducted Quantity	0.000 L.S
							Net Total Quantity	1.000 L.S
							Say 1.000 L.S @ Rs 66073.09 / L.S	Rs 66073.09
13	od357839/2021_2022 "Wiring & Lighting accessories :- Wiring for circuit/submain wiring along with earthwire with required sizes of FRLS PVC insulated copper conductor, supply and fitting of GI boxes along with modular base and cover plates, supplying and fixing following modular switch/ sockets, supply, installation, testing and commissioning of all accessories and fixtures as approved by dept.							
		1					1.000	
							Total Quantity	1.000 L.S
							Total Deducted Quantity	0.000 L.S
							Net Total Quantity	1.000 L.S
							Say 1.000 L.S @ Rs 274846.91 / L.S	Rs 274846.91
14	od357840/2021_2022 "EXTERNAL LIGHTING Providing external lighting arrangements by supplying and laying of PVC insulated and PVC sheathed / XLPE power cable of Copper conductor XLPE control cables as per is:7098/Part-I/88 with latest amendments 1.1 kv grade of required size direct in ground including MCCB/MCB/RCCB, supply and erection of mettalic poles, strret light poles, earthing and safety equipments ,fire extinguishers ,etc . complete including necessary excavation, sand cushioning, protective covering and refilling the trench etc. as required in the specifications or as directed by the Engineer in Charge."							
		1					1.000	
							Total Quantity	1.000 L.S
							Total Deducted Quantity	0.000 L.S
							Net Total Quantity	1.000 L.S
							Say 1.000 L.S @ Rs 1742250.00 / L.S	Rs 1742250.00
SI No	Description	No	L	B	D	CF	Quantity	Remark
3Charges for Power allocation to KSEB and power extension by cable								
							Lump-Sum Total	Rs 1000000.00
SI No	Description	No	L	B	D	CF	Quantity	Remark
4Tools and Plants								
							Lump-Sum Total	Rs 400000.00
SI No	Description	No	L	B	D	CF	Quantity	Remark
5Providing SCADA system								
							Lump-Sum Total	Rs 2500000.00
							Total	62412302.08
							Centage @	0.0%

Centage Amount	0.00
Provision for GST payments (in %) @	18.0%
Amount reserved for GST payments	11234214.38
Total & Centage	73646516.46
Lumpsum for round off	0.00
GRAND TOTAL Rs	73646516.46
Rounded Grand Total Rs 7,36,46,516	
Rupees Seven Crore Thirty Six Lakh Forty Six Thousand Five Hundred and Sixteen Only	



Kerala Water Authority

PRICE

General Abstract

**SEWERAGE SYSTEM TO VATAKARA MUNICIPALITY - CONSTRUCTION OF
7MLD CAPACITY SEWAGE TREATMENT PLANT AND LAYING SEWERAGE
NETWORK TO VATAKARA MUNICIPALITY - NETWORK**

(Dsor year: 2018)

SI No	Heading Description	Amount
1	Laying of sewer network	426462941.17
2	Road Restoration work of laying of sewers and pumping main.	115020454.96
3	Construction of Pumping stations	7775904.47
4	Compound wall with gate for Pumping stations	10331337.33
5	Construction of screen chamber and Valve chamber	4395062.49
6	Construction of Valve chamber	1122354.22
7	Construction of Control room and Generator Room	5139572.64
8	Providing Cable Trenches	723069.85
9	Bath cum Toilets	1430684.04
10	Mechanical, Electrical - Pumpsets, grit chamber screen, generator, transformer &&& allied works complete	13279218.56
11	Pumping mains	23600726.77
12	Laying PE pipes via HDD Method above 3m depth	64021168.14
13	Construction of Man holes	224649530.90
14	Road Restoration - to PWD/NH	240457879.44
15	Lifting Stations and Allied work	37760911.48
16	Water Supply and Sanatory arrangements, Electrical wiring in pumping stations	1000000.00
17	Line extension , Deposit to KSEB, etc	1800000.00
Total		1178970816.45
Centage @		0.0%
Centage Amount		0.00
Provision for GST payments (in %) @		18.0%
Amount reserved for GST payments		212214746.96
Total & Centage		1391185563.41
Lumpsum for round off		0.00
GRAND TOTAL Rs		1391185563.41
Rounded Grand Total Rs 1,39,11,85,563		
Rupees One Hundred Thirty Nine Crore Eleven Lakh Eighty Five Thousand Five Hundred and Sixty Three Only		

Detailed Estimate

**SEWERAGE SYSTEM TO VATAKARA MUNICIPALITY - CONSTRUCTION OF
7MLD CAPACITY SEWAGE TREATMENT PLANT AND LAYING SEWERAGE
NETWORK TO VATAKARA MUNICIPALITY - NETWORK**

(Dsor year: 2018)

Sl No	Description	No	L	B	D	CF	Quantity	Remark
1 Laying of sewer network (Cost Index:36.44 %)								
1	100.59.1 Cutting the bituminous / concrete roads with cutting machine for a minimum depth of 200mm along the sides of proposed alignment of the pipe to be laid without causing any damage to other utilities, including the charges for hire and conveyance of tools and plant, cost of consumables and charges for lighting, watching, ribbon fencing, caution boards, traffice diversion, and as per the direction of departmental officers etc. complete, before carrying out the demolition of bituminous / concrete road by mechanical means and carrying out the excavation.							
	Sewer	1	59775.900				59775.900	
	Inspection Chamber to Manhole	1	68000.000				68000.000	
							Total Quantity	127775.900 metre
							Total Deducted Quantity	0.000 metre
							Net Total Quantity	127775.900 metre
							Say 127775.900 metre @ Rs 30.63 / metre	Rs 3913775.82
2	15.43.2 Dismantling manually / by mechanical means including stacking of serviceable material and disposal of unserviceable material within 50 metres lead as per direction of Engineer -in-Charge:Bituminous road							
	Sewer	1	59775.900	1.000			59775.900	
	Inspection Chamber to Manhole	1	68000.000	0.600			40800.000	
							Total Quantity	100575.900 sqm
							Total Deducted Quantity	0.000 sqm
							Net Total Quantity	100575.900 sqm
							Say 100575.900 sqm @ Rs 363.20 / sqm	Rs 36529166.88
3	15.2.1 Demolishing cement concrete manually / by mechanical means including disposal of material within 50 metres lead as per direction of Engineer - in-Charge.Nominal concrete 1:3:6 or richer mix (i/c equivalent design mix)							

	Demolishing of cement concrete (Municipality roads)	1	2500.000	1.000	0.100		250.000		
	Inspection Chamber to Manhole	1	2500.000	0.600	0.100		150.000		
	Total Quantity						400.000 cum		
	Total Deducted Quantity						0.000 cum		
	Net Total Quantity						400.000 cum		
	Say 400.000 cum @ Rs 2057.94 / cum							Rs 823176.00	
4	4.1.2 Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level:1:1/2:3 (cement : 11/2 coarse sand : 3 graded stone aggregate 20 mm nominal size)								
	R e c o n c r e t i n g demolished roads (Municipality roads)	1	2500.000	1.000	0.100		250.000		
	Inspection Chamber to Manhole	1	2500.000	0.600	0.100		150.000		
	Total Quantity						400.000 cum		
	Total Deducted Quantity						0.000 cum		
	Net Total Quantity						400.000 cum		
	Say 400.000 cum @ Rs 8540.67 / cum							Rs 3416268.00	
5	100.8.2 Fencing 1.50m high with two rows of casuarina poles (girth 15cm to 24cm) tied with coir yarn on vertical casuarina pole (girth 15cm to 24cm) fixed at 1.5m intervals. NEW DATA (Prepared based on PWD SDB - Item No.1009)								
	Sewer	1	59775.900	0.600			35865.540		
	Inspection Chamber to Manhole	1	68000.000	0.600			40800.000		
	Total Quantity						76665.540 metre		
	Total Deducted Quantity						0.000 metre		
	Net Total Quantity						76665.540 metre		
	Say 76665.540 metre @ Rs 96.77 / metre							Rs 7418924.31	
6	100.8.1 Fencing one side of trenches, 1.50 m height with two rows of 10 cm plastic caution tape in vertical casuarina pole (girth 15cm to 24cm) fixed at 2 m intervals. (Data Prepared based on PWD SDB - Item No.1009)								

	Sewer	1	59775.900	0.200			11955.180	
	Inspection Chamber to Manhole	1	68000.000	0.200			13600.000	
	Total Quantity						25555.180 metre	
	Total Deducted Quantity						0.000 metre	
	Net Total Quantity						25555.180 metre	
	Say 25555.180 metre @ Rs 28.12 / metre						Rs 718611.66	
7	<p>100.1.1 Excavating trenches of required width for pipes, cables, etc including excavation for sockets, and dressing of sides, ramming of bottoms, depth up to 1.5 m, including getting out the excavated soil, and then returning the soil as required, in layers not exceeding 20 cm in depth, including consolidating each deposited layer by ramming, watering, etc. and disposing of surplus excavated soil as directed, within a lead of 50 m :</p> <p>All kinds of soil (Ref. Item No. 2.10.1 of DSR)</p>							
	Quantity from calculation sheet	1	77115.149			0.8	61692.120	
	Inspection Chamber to Manhole	1	68000.000	0.600	1.100	0.8	35904.000	
	Total Quantity						97596.120 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						97596.120 cum	
	Say 97596.120 cum @ Rs 558.99 / cum						Rs 5455255.12	
8	<p>100.1.5 Excavating trenches of required width for pipes, cables, etc including excavation for sockets, and dressing of sides, ramming of bottoms, depth up to 1.5 m, including getting out the excavated soil, and then returning the soil as required, in layers not exceeding 20 cm in depth, including consolidating each deposited layer by ramming, watering, etc. and disposing of surplus excavated soil as directed, within a lead of 50 m :"</p> <p>Ordinary Rock. (Ref. Item No. 2.13.1 of DSR)</p>							
	Quantity from calculation sheet	1	77115.149			0.2	15423.030	
	Inspection Chamber to Manhole	1	68000.000	0.600	1.100	0.2	8976.000	
	Total Quantity						24399.030 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						24399.030 cum	

	Say 24399.030 cum @ Rs 811.82 / cum						Rs 19807620.53	
9	<p>100.1.2 Excavating trenches of required width for pipes, cables, etc including excavation for sockets, and dressing of sides, ramming of bottoms, depth exceeding 1.5m but not exceeding 3 m, including getting out the excavated soil, and then returning the soil as required, in layers not exceeding 20 cm in depth, including consolidating each deposited layer by ramming, watering, etc. and disposing of surplus excavated soil as directed, within a lead of 50 m: 1.50m to 3.0m All kinds of soil (Ref. Item No. 2.11 of DSR)</p>							
	Quantity from calculation sheet	1	16200.274			0.8	12960.220	
	Total Quantity						12960.220 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						12960.220 cum	
	Say 12960.220 cum @ Rs 666.03 / cum						Rs 8631895.33	
10	<p>100.1.6 Excavating trenches of required width for pipes, cables, etc including excavation for sockets, and dressing of sides, ramming of bottoms, depth exceeding 1.5m but not exceeding 3 m, including getting out the excavated soil, and then returning the soil as required, in layers not exceeding 20 cm in depth, including consolidating each deposited layer by ramming, watering, etc. and disposing of surplus excavated soil as directed, within a lead of 50 m : 1.50m to 3.0m. Ordinary Rock. (Ref. Item No. 2.14 of DSR)</p>							
	Quantity from calculation sheet	1	16200.274			0.2	3240.055	
	Total Quantity						3240.055 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						3240.055 cum	
	Say 3240.055 cum @ Rs 1003.79 / cum						Rs 3252334.81	
11	<p>2.17.2 Close timbering in case of shafts, wells, cesspits, manholes and the like including strutting, shoring and packing cavities (wherever required) etc. complete (Measurements to be taken of the face area timbered).Depth exceeding 1.5 m but not exceeding 3 m</p>							
		2	16200.274	2.250			72901.233	
	Total Quantity						72901.233 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						72901.233 sqm	
	Say 72901.233 sqm @ Rs 192.52 / sqm						Rs 14034945.38	

12	2.23 Extra for planking and strutting in open timbering if required to be left permanently in position (Face area of the timber permanently left to be measured).						
		1	1500.000	2.800			4200.000
	Total Quantity						4200.000 sqm
	Total Deducted Quantity						0.000 sqm
	Net Total Quantity						4200.000 sqm
	Say 4200.000 sqm @ Rs 971.93 / sqm						Rs 4082106.00
13	od364998/2021_2022 Supplying, Providing bedding with m sand for sewer lines as per specifications to be laid wherever necessary with all lead and lift.						
	beding for lines	1	15000.000	0.800	0.100		1200.000
	Total Quantity						1200.000 cum
	Total Deducted Quantity						0.000 cum
	Net Total Quantity						1200.000 cum
	Say 1200.000 cum @ Rs 2303.86 / cum						Rs 2764632.00
14	5.1.3 Providing and laying in position specified grade of reinforced cement concrete, excluding the cost of centering, shuttering, finishing and reinforcement - All work up to plinth level:1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size)						
	R C C bedding concrete where ever necessary	1	13000.000	0.600	0.100		780.000
	Total Quantity						780.000 cum
	Total Deducted Quantity						0.000 cum
	Net Total Quantity						780.000 cum
	Say 780.000 cum @ Rs 8642.31 / cum						Rs 6741001.80
15	100.98.226 Supply of uPVC Pipe, IS 4985: 2000 , 8kg/cm ² , 160mm Dia.						
	MH to IC	1	68000.000				68000.000
	Total Quantity						68000.000 metre
	Total Deducted Quantity						0.000 metre
	Net Total Quantity						68000.000 metre
	Say 68000.000 metre @ Rs 905.95 / metre						Rs 61604600.00
16	100.98.214 Supply of uPVC Pipe, IS 4985: 2000 , 6kg/cm ² , 110mm Dia.						

	house connection	6000	8.000				48000.000		
	Total Quantity						48000.000 metre		
	Total Deducted Quantity						0.000 metre		
	Net Total Quantity						48000.000 metre		
	Say 48000.000 metre @ Rs 291.80 / metre						Rs 14006400.00		
17	od365002/2021_2022 Conveying to site, lowering into trenches, laying to correct line and grade using CC holding clamps, 160mm PVC SN 8 (8 Kg/Cm2) S & S Sewerage pipes conforming to I.S.15328, including jointing the pipes using rubber rings as per approved methods with rubber gasket for flexible joints as per specification including cost of gasket, to correct line , de watering with all rates of recuperation etc, providing bedding for pipe line trenches with available earth, hydraulic testing the line to the required test pressure as per IS, CPHEEO specifications, lighting, watching, providing caution boards etc. wherever required, during laying and jointing the pipes including hire for all tools etc complete including commissioning for the following diamters								
	MH to IC	1	68000.000				68000.000		
	Total Quantity						68000.000 metre		
	Total Deducted Quantity						0.000 metre		
	Net Total Quantity						68000.000 metre		
	Say 68000.000 metre @ Rs 214.42 / metre						Rs 14580560.00		
18	100.9.9 Laying UPVC pipes of class 2 to class 6 and specials, lowering to the trenches already made, placing in position aligning the pipe line to the lines and levels and jointing the pipes and specials with solvent cement and testing the pipe line with water to the required test pressure (excluding cost of pipes and specials). 110 mm nominal outer dia pipes.								
	House connection	6000	8.000				48000.000		
	Total Quantity						48000.000 metre		
	Total Deducted Quantity						0.000 metre		
	Net Total Quantity						48000.000 metre		
	Say 48000.000 metre @ Rs 129.07 / metre						Rs 6195360.00		
19	60.2.3 Bailing out water using pump above 5 HP and Up to 10 HP-Bailing out water with engine and pump set above 5HP and up to 10HP, including conveyance to site and erection, cost of fuel, lubrication oil and other stores, pay of staff etc complete								
		200	8.000	5.000*.74 6			5968.000		
	Total Quantity						5968.000 hour		
	Total Deducted Quantity						0.000 hour		

							Net Total Quantity	5968.000 hour
							Say 5968.000 hour @ Rs 435.24 / hour	Rs 2597512.32
20	60.2.4 BAILING OUT WATER USING PUMP ABOVE 10HP AND UP TO 20HP - Bailing out water with engine and pump set above 10HP and up to 20HP, including conveyance to site and erection, cost of fuel, lubrication oil and other stores, pay of staff etc complete							
		40	15.000*.7 46	5.000				2238.000
							Total Quantity	2238.000 hour
							Total Deducted Quantity	0.000 hour
							Net Total Quantity	2238.000 hour
							Say 2238.000 hour @ Rs 540.40 / hour	Rs 1209415.20
21	60.2.5 BAILING OUT WATER USING PUMP ABOVE 20HP AND UP TO 30HP -Bailing out water with engine and pump set above 25HP and up to 30HP, including conveyance to site and erection, cost of fuel, lubrication oil and other stores, pay of staff etc complete							
		80	25.000*.7 46	5.000				7460.000
							Total Quantity	7460.000 hour
							Total Deducted Quantity	0.000 hour
							Net Total Quantity	7460.000 hour
							Say 7460.000 hour @ Rs 978.66 / hour	Rs 7300803.60
22	od365003/2021_2022 Supply of PE Pipe PE 100 (IS 14333/ sewerage pipe with latest IS), 8kg, 200mm Outer Dia.							
		1	67003.200					67003.200
							Total Quantity	67003.200 metre
							Total Deducted Quantity	0.000 metre
							Net Total Quantity	67003.200 metre
							Say 67003.200 metre @ Rs 1268.79 / metre	Rs 85012990.13
23	od365004/2021_2022 Supply of PE Pipe PE 100 (IS 14333), 8kg, 250mm Outer Dia							
		1	1407.000					1407.000
							Total Quantity	1407.000 metre
							Total Deducted Quantity	0.000 metre
							Net Total Quantity	1407.000 metre
							Say 1407.000 metre @ Rs 2079.09 / metre	Rs 2925279.63

24	od374979/2021_2022 Supply of PE Pipe, PE100, PN8, 315mm dia, conforming to IS 1433 (Sewerage Pipe)						
		1	1022.300				1022.300
	Total Quantity						1022.300 metre
	Total Deducted Quantity						0.000 metre
	Net Total Quantity						1022.300 metre
	Say 1022.300 metre @ Rs 2671.45 / metre						Rs 2731023.33
25	od374982/2021_2022 Supply of PE Pipe, PE100, PN8, 400mm dia, conforming to IS 1433 (Sewerage Pipe)						
		1	1241.100				1241.100
	Total Quantity						1241.100 metre
	Total Deducted Quantity						0.000 metre
	Net Total Quantity						1241.100 metre
	Say 1241.100 metre @ Rs 4297.55 / metre						Rs 5333689.31
26	od391648/2021_2022 Supply of PE Pipe, PE100, PN8, 500mm dia, conforming to IS 1433 (Sewerage Pipe)						
		1	254.400				254.400
	Total Quantity						254.400 metre
	Total Deducted Quantity						0.000 metre
	Net Total Quantity						254.400 metre
	Say 254.400 metre @ Rs 6620.55 / metre						Rs 1684267.92
27	od391651/2021_2022 Supply of PE Pipe, PE100, PN8, 560mm dia, conforming to IS 1433 (Sewerage Pipe)						
		1	539.800				539.800
	Total Quantity						539.800 metre
	Total Deducted Quantity						0.000 metre
	Net Total Quantity						539.800 metre
	Say 539.800 metre @ Rs 8304.73 / metre						Rs 4482893.25
28	100.10.7 Laying HDPE pipes (IS : 4984)on land portion including conveying within initial lead and aligning the pipes, electro-fusion welding using automatic or semi automatic electrofusion machines, testing the pipe line thus fabricated to suit the hydraulic working pressure and after testing , aligning the pipeline, lowering the pipe in position into the trenches already made, testing the line to suitable pressure with potable water before back filling and leveling the trenches including all labour charge, hire for appliances etc. complete but excluding cost of pipe and fittings. 200 mm OD HDPE pipe						

	NEW DATA						
	Open cut	1	57382.500				57382.500
	Total Quantity						57382.500 metre
	Total Deducted Quantity						0.000 metre
	Net Total Quantity						57382.500 metre
	Say 57382.500 metre @ Rs 321.86 / metre						Rs 18469131.45
29	<p>100.10.9 Laying HDPE pipes (IS : 4984)on land portion including conveying within initial lead and aligning the pipes, electro-fusion welding using automatic or semi automatic electrofusion machines, testing the pipe line thus fabricated to suit the hydraulic working pressure and after testing , aligning the pipeline, lowering the pipe in position into the trenches already made, testing the line to suitable pressure with potable water before back filling and leveling the trenches including all labour charge, hire for appliances etc. complete but excluding cost of pipe and fittings. 250 mm OD HDPE pipe NEW DATA</p>						
	Open cut	1	791.200				791.200
	Total Quantity						791.200 metre
	Total Deducted Quantity						0.000 metre
	Net Total Quantity						791.200 metre
	Say 791.200 metre @ Rs 444.59 / metre						Rs 351759.61
30	<p>100.10.11 Laying HDPE pipes (IS : 4984)on land portion including conveying within initial lead and aligning the pipes, electro-fusion welding using automatic or semi automatic electrofusion machines, testing the pipe line thus fabricated to suit the hydraulic working pressure and after testing , aligning the pipeline, lowering the pipe in position into the trenches already made, testing the line to suitable pressure with potable water before back filling and leveling the trenches including all labour charge, hire for appliances etc. complete but excluding cost of pipe and fittings. 315 mm OD HDPE pipe NEW DATA</p>						
	open cut	1	476.900				476.900
	Total Quantity						476.900 metre
	Total Deducted Quantity						0.000 metre
	Net Total Quantity						476.900 metre
	Say 476.900 metre @ Rs 584.65 / metre						Rs 278819.58
31	<p>100.10.13 Laying HDPE pipes (IS : 4984)on land portion including conveying within initial lead and aligning the pipes, electro-fusion welding using automatic or semi automatic electrofusion machines, testing the pipe line thus fabricated to suit the hydraulic working pressure and after testing , aligning the pipeline, lowering the pipe in position into the trenches already made, testing the line to suitable pressure with potable</p>						

	water before back filling and leveling the trenches including all labour charge, hire for appliances etc. complete but excluding cost of pipe and fittings. 400 mm OD HDPE pipe NEW DATA							
		1	1125.300				1125.300	
	Total Quantity						1125.300 metre	
	Total Deducted Quantity						0.000 metre	
	Net Total Quantity						1125.300 metre	
	Say 1125.300 metre @ Rs 734.87 / metre						Rs 826949.21	
32	7.6.1 Coursed rubble masonry (first sort) with hard stone in foundation and plinth with:Cement mortar 1:6 (1 cement : 6 coarse sand)							
	Culvert regions / RR portions	1	8.000	0.400	0.450		1.441	
		8	6.000	0.450	0.450		9.720	
	Total Quantity						11.161 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						11.161 cum	
	Say 11.161 cum @ Rs 8661.01 / cum						Rs 96665.53	
33	5.1.2 Providing and laying in position specified grade of reinforced cement concrete, excluding the cost of centering, shuttering, finishing and reinforcement - All work up to plinth level:1:1:5:3 (1 cement 1.5 coarse sand :3 graded stone aggregate 20 mm nominal size)							
	Anchor required	50	0.700	(.5+.8)/2	0.700		15.925	
	Total Quantity						15.925 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						15.925 cum	
	Say 15.925 cum @ Rs 9142.09 / cum						Rs 145587.78	
34	5.22.6 Steel reinforcement for R.C.C work including straightening, cutting, bending, placing in position and binding all complete upto plinth levelThermo - Mechanically Treated bars of grade Fe-500D or more							
	steel	1	15.900			60.0	954.000	
	Total Quantity						954.000 kilogram	
	Total Deducted Quantity						0.000 kilogram	
	Net Total Quantity						954.000 kilogram	
	Say 954.000 kilogram @ Rs 98.92 / kilogram						Rs 94369.68	

35	od365005/2021_2022 Constructing inspection chambers of size 0.45x0.45m (inside) and 0.60m deep with RCC M20 using 20mm broken stone for floor slab ,RCC M20 slab using 20mm broken stone for removable cover slab, Brick work in CM 1:6 for walls, PCC 1:4:8 using 20mm broken stone for levelling course below foundation including earth work excavation in all classes of soil,, plastering the inside with CM 1:3, 9mm thick with neat cement flush coat, providing necessary slope in the benching towards main sewer, providing provision for connecting main sewer and service connections, conveying, lifting, placing the cover slab in position by suitable means, conveying and disposing the surplus earth with all lead and lift as per drawings and specifications , including the cost of reinforcement , testing the chamber and sulphate resistant cement shall be used for the the construction of inspection chamber		1	800.000			800.000	
		Total Quantity					800.000 No	
		Total Deducted Quantity					0.000 No	
		Net Total Quantity					800.000 No	
		Say 800.000 No @ Rs 7276.70 / No					Rs 5821360.00	
36	od365006/2021_2022 Constructing inspection chambers of size 0.45x0.45m (inside) and 0.45m deep with RCC M20 using 20mm broken stone for floor slab ,RCC M20 slab using 20mm broken stone for removable cover slab, Brick work in CM 1:6 for walls, PCC 1:4:8 using 20mm broken stone for leveling course below foundation including earth work excavation in all classes of soil, , plastering the inside with CM 1:3, 9mm thick with neat cement flush coat, providing necessary slope in the benching towards main sewer, providing provision for connecting main sewer and service connections, conveying, lifting, placing the cover slab in position by suitable means, conveying and disposing the surplus earth with all lead and lift as per drawings and specifications , including the cost of reinforcement , testing the chamber and sulphate resistant cement shall be used for the the construction of inspection chamber		1	1800.000			1800.000	
		Total Quantity					1800.000 No	
		Total Deducted Quantity					0.000 No	
		Net Total Quantity					1800.000 No	
		Say 1800.000 No @ Rs 3673.89 / No					Rs 6613002.00	
37	od365007/2021_2022 Constructing inspection chambers of size 0.60x0.60m (inside) and 0.90m deep with RCC M20 using 20mm broken stone for floor slab ,RCC M20 slab using 20mm broken stone for removable cover slab, Brick work in CM 1:6 for walls, PCC 1:4:8 using 20mm broken stone for leveling course below foundation including earth work excavation in all classes of soil, plastering the inside with CM 1:3, 9mm thick with neat cement flush coat, providing necessary slope in the benching towards main sewer, providing provision for connecting main sewer and service connections, conveying, lifting, placing the cover slab in position by suitable means, conveying and disposing the surplus earth with all lead and lift as per drawings and specifications , including the cost of reinforcement , testing the chamber and sulphate resistant cement shall be used for the the construction of inspection chamber		1	600.000			600.000	

		Total Quantity					600.000 No	
		Total Deducted Quantity					0.000 No	
		Net Total Quantity					600.000 No	
		Say 600.000 No @ Rs 7929.36 / No					Rs 4757616.00	
38	od365008/2021_2022 Constructing inspection chambers of size 0.60x0.60m (inside) and 0.60m deep with RCC M20 using 20mm broken stone for floor slab ,RCC M20 slab using 20mm broken stone for removable cover slab, Brick work in CM 1:6 for walls, PCC 1:4:8 using 20mm broken stone for leveling course below foundation including earth work excavation in all classes of soil, plastering the inside with CM 1:3, 9mm thick with neat cement flush coat, providing necessary slope in the benching towards main sewer, providing provision for connecting main sewer and service connections, conveying, lifting, placing the cover slab in position by suitable means, conveying and disposing the surplus earth with all lead and lift as per drawings and specifications , including the cost of reinforcement , testing the chamber and sulphate resistant cement shall be used for the the construction of inspection chamber							
		1	800.000				800.000	
		Total Quantity					800.000 No	
		Total Deducted Quantity					0.000 No	
		Net Total Quantity					800.000 No	
		Say 800.000 No @ Rs 7472.74 / No					Rs 5978192.00	
39	od365009/2021_2022 Constructing inspection chambers of size 0.60x0.60m (inside) and 0.75m deep with RCC M20 using 20mm broken stone for floor slab ,RCC M20 slab using 20mm broken stone for removable cover slab, Brick work in CM 1:6 for walls, PCC 1:4:8 using 20mm broken stone for leveling course below foundation including earth work excavation in all classes of soil, plastering the inside with CM 1:3, 9mm thick with neat cement flush coat, providing necessary slope in the benching towards main sewer, providing provision for connecting main sewer and service connections, conveying, lifting, placing the cover slab in position by suitable means, conveying and disposing the surplus earth with all lead and lift as per drawings and specifications , including the cost of reinforcement , testing the chamber and sulphate resistant cement shall be used for the the construction of inspection chamber							
	Qty	1	400.000				400.000	
		Total Quantity					400.000 No	
		Total Deducted Quantity					0.000 No	
		Net Total Quantity					400.000 No	
		Say 400.000 No @ Rs 7687.45 / No					Rs 3074980.00	
40	od17012/2022_2023 Providing and drilling with Horizontal drilling machine and air compressor for inserting 800 mm MS casing pipe through the hole formed including cost of pipes, cost of mobilization installation and all labour charges etc.							
	NH Crossing	1	50.000				50.000	

	Railway crossing	1	40.000				40.000	
	Total Quantity						90.000 metre	
	Total Deducted Quantity						0.000 metre	
	Net Total Quantity						90.000 metre	
	Say 90.000 metre @ Rs 40000.00 / metre						Rs 360000.00	
SI No	Description	No	L	B	D	CF	Quantity	Remark
2Road Restoration work of laying of sewers and pumping main. (Cost Index:36.44 %)								
1	od364967/2021_2022 Excavation for roadwork in soil with hydraulic excavator of 0.9Cum bucket capacity including cutting and loading in tippers, trimming bottom and side slopes, in accordance with requirements of lines, grades and cross sections and transporting to the embankment location within all lifts and lead up to 1000m							
	Sewer- Municipality Roads	1	35375.900	1.200	0.300		12735.324	
	pumping mains	1	3780.000	1.000	0.300		1134.000	
	Lifting stations	1	3200.000	1.000	0.300		960.000	
	Manhole to Inspection Chamber	1	45000.000	1.000	0.300		13500.000	
	Total Quantity						28329.324 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						28329.324 cum	
	Say 28329.324 cum @ Rs 58.08 / cum						Rs 1645367.14	
2	100.41.39 Supply ,stacking,spreading and consolidating of Quarry Muck in the trench of pipe line, including carriage, loading ,unloading & stacking up to any lead.							
	Sewer- Municipality Roads	1	35375.900	1.200	0.300		12735.324	
	pumping mains	1	3780.000	1.000	0.300		1134.000	
	Lifting stations	1	3200.000	1.000	0.300		960.000	
	Manhole to Inspection Chamber	1	45000.000	1.000	0.300		13500.000	
	Total Quantity						28329.324 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						28329.324 cum	
	Say 28329.324 cum @ Rs 549.44 / cum						Rs 15565263.78	
3	16.79 Providing , laying spreading and compacting graded stone aggregate (size range 53 mm to 0.075 mm) to							

wet mix macadam (WMM) specification including premixing the material with water at OMC in mechanical mix plant, carriage of mixed material by tipper to site, for all leads & lifts, laying in uniform layers with mechanical paver finisher in sub - base / base course on well prepared surface and compacting with vibratory roller of 8 to 10 tonne capacity to achieve the desired density, complete as per specifications and directions of Engineer - in- Charge.							
Sewer- Municipality Roads	1	35375.900	1.200	0.300		12735.324	
pumping mains	1	3780.000	1.000	0.300		1134.000	
Lifting stations	1	3200.000	1.000	0.300		960.000	
Manhole to Inspection Chamber	1	45000.000	1.000	0.300		13500.000	
Total Quantity						28329.324 cum	
Total Deducted Quantity						0.000 cum	
Net Total Quantity						28329.324 cum	
Say 28329.324 cum @ Rs 3128.64 / cum						Rs 88632256.24	
4	od364979/2021_2022 Providing and applying primer coat with bitumen emulsion (SS) on prepared surface of granular Base including clearing of road surface and spraying primer at the rate of 0.70 - 1.0 kg/sqm using mechanical means						
Sewer- Municipality Roads	1	35375.900	1.200	0.300		12735.324	
pumping mains	1	3780.000	1.000	0.300		1134.000	
Lifting stations	1	3200.000	1.000	0.300		960.000	
Manhole to Inspection Chamber	1	45000.000	1.000	0.300		13500.000	
Total Quantity						28329.324 sqm	
Total Deducted Quantity						0.000 sqm	
Net Total Quantity						28329.324 sqm	
Say 28329.324 sqm @ Rs 59.03 / sqm						Rs 1672280.00	
5	od364982/2021_2022 Providing and applying tack coat with bitumen emulsion(RS) using emulsion pressure distributor at the rate of 0.20 - 0.30 kg per sqm on the prepared bituminous surface cleaned with mechanical broom						
Sewer- Municipality Roads	1	35375.900	1.200	0.300		12735.324	
pumping mains	1	3780.000	1.000	0.300		1134.000	
Lifting stations	1	3200.000	1.000	0.300		960.000	

	Manhole to Inspection Chamber	1	45000.000	1.000	0.300		13500.000		
	Total Quantity						28329.324 sqm		
	Total Deducted Quantity						0.000 sqm		
	Net Total Quantity						28329.324 sqm		
	Say 28329.324 sqm @ Rs 10.41 / sqm						Rs 294908.26		
6	od364985/2021_2022 Providing, laying and rolling of open graded premix carpet of 20 mm thickness with 0.27 cum of 12 mm departmental aggregates premixed with 12.96 kg of bitumen per 10 sqm using penetration grade bitumen to required line, grade and level on a previously prepared base, after priming the existing surface with 5 kg of bitumen (VG 30) 10 sqm including mixing in a suitable plant, laying and rolling with a three wheel static roller of 80-100 KN capacity, finished to required level and grades, followed by a seal coat of 0.09 cum of 6 mm departmental aggregates premixed with 8.64 kg of bitumen per 10 sqm. By Manual Means.								
	Sewer- Municipality Roads	1	35375.900	1.200	0.300		12735.324		
	pumping mains	1	3780.000	1.000	0.300		1134.000		
	Lifting stations	1	3200.000	1.000	0.300		960.000		
	Manhole to Inspection Chamber	1	45000.000	1.000	0.300		13500.000		
	Kerala Water Authority Total Quantity						28329.324 sqm		
	Total Deducted Quantity						0.000 sqm		
	Net Total Quantity						28329.324 sqm		
	Say 28329.324 sqm @ Rs 176.52 / sqm						Rs 5000692.27		
7	od364986/2021_2022 Seal Coat - Manual Means - Type C - Bitumen S-65 Providing and laying seal coat sealing the voids in a bituminous surface laid to the specified levels, grade and cross fall using Type A, Type B and Type C as per Technical Specification Clause 510 A. By Manual Means:-Case - III : Type C								
	Sewer- Municipality Roads	1	35375.900	1.200	0.300		12735.324		
	pumping mains	1	3780.000	1.000	0.300		1134.000		
	Lifting stations	1	3200.000	1.000	0.300		960.000		
	Manhole to Inspection Chamber	1	45000.000	1.000	0.300		13500.000		
	Total Quantity						28329.324 sqm		
	Total Deducted Quantity						0.000 sqm		
	Net Total Quantity						28329.324 sqm		

SI No	Description	No	L	B	D	CF	Quantity	Remark
Say 28329.324 sqm @ Rs 78.00 / sqm							Rs 2209687.27	
3Construction of Pumping stations (Cost Index:36.44 %)								
1	2.31 Clearing jungle including uprooting of rank vegetation, grass, brush wood, trees and saplings of girth up to 30 cm measured at a height of 1 m above ground level and removal of rubbish up to a distance of 50 m outside the periphery of the area cleared							
		4	20.000	20.000			1600.000	average 40 cents
Total Quantity							1600.000 sqm	
Total Deducted Quantity							0.000 sqm	
Net Total Quantity							1600.000 sqm	
Say 1600.000 sqm @ Rs 14.87 / sqm							Rs 23792.00	
2	od364960/2021_2022 Sinking wells above up to 3.50 m dia. and up to 6.00 m inside and depth up to 3.00 m below spring level in in 50% all kind of soil and 50% ordinary rocksoil (specify type of soil) to lines and levels and plumb by scooping out earth from inside and below the steining using necessary appliances including hire and labour for the same including dumping the spoil beyond the initial lead of 50 m etc. complete.Initial depth upto 1.5m							
	PH1	1	1.500				1.500	
	PH2	1	1.500				1.500	
	PH3	1	1.500				1.500	
	PH4	1	1.500				1.500	
Total Quantity							6.000 metre	
Total Deducted Quantity							0.000 metre	
Net Total Quantity							6.000 metre	
Say 6.000 metre @ Rs 42720.83 / metre							Rs 256324.98	
3	od364963/2021_2022 Sinking wells above up to 3.50 m dia. and up to 6.00 m inside and depth up to 3.00 m below spring level in in 50% all kind of soil and 50% ordinary rocksoil (specify type of soil) to lines and levels and plumb by scooping out earth from inside and below the steining using necessary appliances including hire and labour for the same including dumping the spoil beyond the initial lead of 50 m etc. complete.First depth upto 1.5m to 3.0m							
	PH1	1	1.500				1.500	
	PH2	1	1.500				1.500	
	PH3	1	1.500				1.500	
	PH4	1	1.500				1.500	

		Total Quantity						6.000 metre
		Total Deducted Quantity						0.000 metre
		Net Total Quantity						6.000 metre
		Say 6.000 metre @ Rs 46357.39 / metre						Rs 278144.34
4	od364969/2021_2022 Sinking wells above up to 3.50 m dia. and up to 6.00 m inside and depth up to 3.00 m below spring level in in 50% all kind of soil and 50% ordinary rocksoil (specify type of soil) to lines and levels and plumb by scooping out earth from inside and below the steining using necessary appliances including hire and labour for the same including dumping the spoil beyond the initial lead of 50 m etc. complete.First depth upto 3.0m to 4.5m							
	PH1	1	1.500				1.500	
	PH2	1	1.500				1.500	
	PH3	1	1.500				1.500	
	PH4	1	1.500				1.500	
		Total Quantity						6.000 metre
		Total Deducted Quantity						0.000 metre
		Net Total Quantity						6.000 metre
		Say 6.000 metre @ Rs 49992.72 / metre						Rs 299956.32
5	od364971/2021_2022 Sinking wells above up to 3.50 m dia. and up to 6.00 m inside and depth up to 3.00 m below spring level in in 50% all kind of soil and 50% ordinary rocksoil (specify type of soil) to lines and levels and plumb by scooping out earth from inside and below the steining using necessary appliances including hire and labour for the same including dumping the spoil beyond the initial lead of 50 m etc. complete.First depth upto 4.5m to 6.0m							
	PH1	1	0.610				0.610	
	PH2	1	0.710				0.710	
	PH3	1	1.500				1.500	
	PH4	1	0.970				0.970	
		Total Quantity						3.790 metre
		Total Deducted Quantity						0.000 metre
		Net Total Quantity						3.790 metre
		Say 3.790 metre @ Rs 53630.54 / metre						Rs 203259.75
6	od364974/2021_2022 Sinking wells above up to 3.50 m dia. and up to 6.00 m inside and depth up to 3.00 m below spring level in in 50% all kind of soil and 50% ordinary rocksoil (specify type of soil) to lines and levels and plumb by scooping out earth from inside and below the steining using necessary appliances including hire and labour for the same including dumping the spoil beyond the initial lead of 50 m etc. complete.First depth							

	upto 6.0m to 7.5m						
	PH3	1	0.350				0.350
	Total Quantity						0.350 metre
	Total Deducted Quantity						0.000 metre
	Net Total Quantity						0.350 metre
	Say 0.350 metre @ Rs 57265.88 / metre						Rs 20043.06
7	<p>100.7.1 Bailing out water with 5 HP engine and pumpset including conveyance to the site, erection, dismantling and taking back of engine and pump, cost of fuel lubricating oil and other stores pay of staff etc. complete. NEW DATA (Prepared based on PHED SDB - Item No.1070</p>						
		4	5000.000				20000.000
	Total Quantity						20000.000 Kwh
	Total Deducted Quantity						0.000 Kwh
	Net Total Quantity						20000.000 Kwh
	Say 20000.000 Kwh @ Rs 37.18 / Kwh						Rs 743600.00
8	<p>od364961/2021_2022 Reinforcement cement concrete M-30 using 20mm & down size (nominal size) broken stone using SRC for raft slab, well kerb and steining excluding formwork, curing etc complete as per the specifications and drawings with all lead and lift</p>						
	PH1	1	3.14/4	(7*7)-(6*6)	7.040		71.844
	Bottom Plug	1	3.14/4	7*7	0.500		19.233
	curb top rectangular	1	3.140	6.5*0.50	0.200		2.041
	Curb triangular	1	3.14/2	6.5*.50	0.500		2.552
	Cover slab	1	3.14/4	7*7	0.200		7.694
	PH2	1	3.14/4	(5*5)-(4*4)	6.270		44.298
	Bottom Plug	1	3.14/4	5*5	0.500		9.813
	curb top rectangular	1	3.140	4.5*0.5	0.200		1.414
	Curb triangular	1	3.14/2	4.5*0.5	0.500		1.767
	Cover slab	1	3.14/4	5*5	0.200		3.926
	PH3	1	3.14/4	(5*5)-(4*4)	7.050		49.809
	Bottom Plug	1	3.14/4	5*5	0.500		9.813
	curb top rectangular	1	3.140	4.5*.5	0.200		1.414
	Curb triangular	1	3.14/2	4.5*.5	0.500		1.767
	Cover slab	1	3.14/4	5*5	0.200		3.926

	PH4	1	3.14/4	(6.3*6.3)- (5.3*5.3)	6.960		63.378		
	Bottom Plug	1	3.14/4	6.3*6.3	0.500		15.579		
	curb top rectangular	1	3.140	5.8*0.5	0.200		1.822		
	Curb triangular	1	3.14/2	5.8*0.5	0.500		2.277		
	Cover slab	1	3.4/4	6.3*6.3	0.200		6.748		
	Total Quantity						321.115 cum		
	Total Deducted Quantity						0.000 cum		
	Net Total Quantity						321.115 cum		
	Say 321.115 cum @ Rs 9555.17 / cum							Rs 3068308.41	
9	5.22.6 Steel reinforcement for R.C.C work including straightening, cutting, bending, placing in position and binding all complete upto plinth level Thermo - Mechanically Treated bars of grade Fe-500D or more								
		1	321.115			80.0	25689.200		
	Total Quantity						25689.200 kilogram		
	Total Deducted Quantity						0.000 kilogram		
	Net Total Quantity						25689.200 kilogram		
	Say 25689.200 kilogram @ Rs 98.92 / kilogram							Rs 2541175.66	
10	5.9.1 Centering and shuttering including strutting, etc. and removal of form for: Foundations, footings, bases of columns, etc for mass concrete								
	Curb- PH1	1	3.140	6.500	1.200		24.492		
	Curb- PH2	1	3.140	4.500	1.200		16.956		
	Curb- PH3	1	3.140	4.500	1.200		16.956		
	Curb- PH4	1	3.140	5.800	1.200		21.855		
	Total Quantity						80.259 sqm		
	Total Deducted Quantity						0.000 sqm		
	Net Total Quantity						80.259 sqm		
	Say 80.259 sqm @ Rs 337.42 / sqm							Rs 27080.99	
11	5.9.3 Centering and shuttering including strutting, etc. and removal of form for: Suspended floors, roofs, landings, balconies and access platform								
	Cover slab- PH1	1	3.140/4	7*7			38.465		
	Cover slab- PH1	1	3.14/4	5*5			19.625		
	Cover slab- PH1	1	3.14/4	5*5			19.625		

	Cover slab- PH1	1	3.14/4	6.3*6.3			31.157	
	Total Quantity						108.872 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						108.872 sqm	
	Say 108.872 sqm @ Rs 820.89 / sqm						Rs 89371.94	
12	5.9.12 Centering and shuttering including strutting, etc. and removal of form for:Well steining							
	PH1	2	3.140	6.500	5.110		208.591	
	PH2	2	3.140	4.500	4.000		113.040	
	PH3	2	3.140	4.500	4.000		113.040	
	PH4	2	3.140	5.800	5.300		193.048	
	Total Quantity						627.719 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						627.719 sqm	
	Say 627.719 sqm @ Rs 251.25 / sqm						Rs 157714.40	
13	od364977/2021_2022 Supplying providing and fixing CI encapsulated steps at 30.00cm c/c in a staggered manner including all labour charges, etc complete as per the instruction of the engineer in-charge.							
	PH1	1	41.000				41.000	
	PH2	1	36.000				36.000	
	PH3	1	41.000				41.000	
	PH4	1	40.000				40.000	
	Total Quantity						158.000 No	
	Total Deducted Quantity						0.000 No	
	Net Total Quantity						158.000 No	
	Say 158.000 No @ Rs 424.89 / No						Rs 67132.62	
SI No	Description	No	L	B	D	CF	Quantity	Remark
4Compound wall with gate for Pumping stations (Cost Index:36.44 %)								
1	2.2.1 Earth work in rough excavation, banking excavated earth in layers not exceeding 20 cm in depth, breaking clods, watering, rolling each layer with 1/2 tonne roller or wooden or steel rammers, and rolling every 3rd and top-most layer with power roller of minimum 8 tonnes and dressing up in embankments for roads, flood banks, marginal banks and guide banks or filling up ground depressions, lead up to 50 m and lift up to 1.5 m:All kinds of soil							
		4	374.600	0.600	0.800		719.233	

							Total Quantity	719.233 cum
							Total Deducted Quantity	0.000 cum
							Net Total Quantity	719.233 cum
							Say 719.233 cum @ Rs 884.54 / cum	Rs 636190.36
2	7.1.1	Random rubble masonry with hard stone in foundation and plinth including levelling up with cement concrete 1:6:12 (1 cement : 6 coarse sand : 12 graded stone aggregate 20 mm nominal size) up to plinth level with:Cement mortar 1:6 (1 cement : 6 coarse sand)						
		4	374.600	0.450	0.450			303.427
							Total Quantity	303.427 cum
							Total Deducted Quantity	0.000 cum
							Net Total Quantity	303.427 cum
							Say 303.427 cum @ Rs 7249.94 / cum	Rs 2199827.54
3	6.1.2	Brick work with common burnt clay F.P.S (non modular) bricks of class designation 7.5 in foundation and plinth in:Cement mortar 1:6 (1 cement : 6 coarse sand)						
		4	374.600	0.220	1.800			593.367
							Total Quantity	593.367 cum
							Total Deducted Quantity	0.000 cum
							Net Total Quantity	593.367 cum
							Say 593.367 cum @ Rs 7293.33 / cum	Rs 4327621.34
4	13.1.1	12 mm cement plaster of mix:1:4 (1 cement : 4 fine sand)						
		2*4	374.600		1.800			5394.241
							Total Quantity	5394.241 sqm
							Total Deducted Quantity	0.000 sqm
							Net Total Quantity	5394.241 sqm
							Say 5394.241 sqm @ Rs 316.06 / sqm	Rs 1704903.81
5	13.43.1	Applying one coat of water thinnable cement primer of approved brand and manufacture on wall surface:Water thinnable cement primer						
		2*4	374.600		1.800			5394.241
							Total Quantity	5394.241 sqm
							Total Deducted Quantity	0.000 sqm
							Net Total Quantity	5394.241 sqm

	Say 5394.241 sqm @ Rs 71.09 / sqm						Rs 383476.59	
6	13.44.1 Finishing walls with water proofing cement paint of required shade:New work (Two or more coats applied @ 3.84 kg/10 sqm)							
		2*4	374.600		1.800		5394.241	
	Total Quantity						5394.241 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						5394.241 sqm	
	Say 5394.241 sqm @ Rs 108.06 / sqm						Rs 582901.68	
7	10.25.2 Item Shifted to Sub head 14 as item 14.73Item Shifted to head 14 as item 14.74Steel work welded in built up sections/framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer using structural steel etc. as required.In gratings, frames, guard bar, ladder, railings, brackets, gates and similar works							
	MS gate	4	800.000				3200.000	
	Total Quantity						3200.000 kg	
	Total Deducted Quantity						0.000 kg	
	Net Total Quantity						3200.000 kg	
	Say 3200.000 kg @ Rs 155.13 / kg						Rs 496416.00	
SI No	Description	No	L	B	D	CF	Quantity	Remark
5Construction of screen chamber and Valve chamber (Cost Index:36.44 %)								
1	od364961/2021_2022 Reinforcement cement concrete M-30using 20mm&down size (nominal size) broken stone using SRC for raft slab ,well kerb and steining excluding formwork,curing etc complete.as per the specifications and drawings with alllead and lift							
	Well 1- Side wall	1	2*(3+2)	0.500	6.390		31.950	
	Well 2- Sidewall	1	2*(3+2)	0.500	5.620		28.100	
	Well 3- Sidewall	1	2*(3+2)	0.500	6.400		32.000	
	Well 4- Sidewall	1	2*(3+2)	0.500	6.310		31.550	
	working platform	4	2.500	0.750	0.150		1.125	
	bottom plug	4	2.500	1.500	0.450		6.750	
	Total Quantity						131.475 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						131.475 cum	
	Say 131.475 cum @ Rs 9555.17 / cum						Rs 1256265.98	
2	5.9.1							

	Centering and shuttering including strutting, etc. and removal of form for:Foundations, footings, bases of columns, etc for mass concrete								
	Well 1 - Side	2	2*(3+2)		6.390		127.800		
	Well 2 - Side	2	2*(3+2)		5.620		112.400		
	Well 3 - Side	2	2*(3+2)		6.400		128.000		
	Well 4 - Side	2	2*(3+2)		6.310		126.200		
	working platform	4	2.500		0.150		1.500		
	Total Quantity						495.900 sqm		
	Total Deducted Quantity						0.000 sqm		
	Net Total Quantity						495.900 sqm		
	Say 495.900 sqm @ Rs 337.42 / sqm						Rs 167326.58		
3	5.22.6 Steel reinforcement for R.C.C work including straightening, cutting, bending, placing in position and binding all complete upto plinth levelThermo - Mechanically Treated bars of grade Fe-500D or more								
		1	131.475			100.0	13147.500		
	Total Quantity						13147.500 kilogram		
	Total Deducted Quantity						0.000 kilogram		
	Net Total Quantity						13147.500 kilogram		
	Say 13147.500 kilogram @ Rs 98.92 / kilogram						Rs 1300550.70		
4	od364973/2021_2022 Sinking section for screen chamber of internal dimension of 2.5 m x 1.5 m as per approved design , drawing specification to the given alignment and to any depth in all kinds of strata including soft rock, including excavation, dewatering until completion of works application of knetledge for alround seating of well , removal of bouldars, burried timbers, trunks,fossils, including depositingthe excavated stuff and stacking of useful materials and disposal of the surplus earth/unsuitable material as directed by the engineer with necessarry shoring and strutting, barricading etcincluding cost of ringbunds/cofferdams/approved suitable arrangementys for diversion of water cours etc. The rate include providing the required equipments, oil lubricants,labour and any other mechanical operationthat may be required in all respects for succesfull completion of work, including cost of materials , tools and plants, machinaries, powersupply at site etc, including all necessary safety arrangements like danger lighting, fencing etc including cost of all materials and labour charges with all lead and lift etc as per the direction of Engineer for upto 6.00m beyond initial 4.50m depth.								
	PH1	1	1.500				1.500		
	PH2	1	1.120				1.120		
	PH3	1	1.500				1.500		
	PH4	1	1.500				1.500		
	Total Quantity						5.620 metre		

		Total Deducted Quantity				0.000 metre	
		Net Total Quantity				5.620 metre	
		Say 5.620 metre @ Rs 24201.55 / metre				Rs 136012.71	
5	<p>od364976/2021_2022</p> <p>Sinking section for screen chamber of internal dimension of 2.5 m x 1.5 m as per approved design , drawing specification to the given alignment and to any depth in all kinds of strata including soft rock, including excavation, dewatering until completion of works application of knetledge for alround seating of well , removal of bouldars, burried timbers, trunks,fossils, including depositingthe excavated stuff and stacking of useful materials and disposal of the surplus earth/unsuitable material as directed by the engineer with necessarry shoring and strutting, barricading etcincluding cost of ringbunds/cofferdams/approved suitable arrangementys for diversion of water cours etc. The rate include providing the required equipments, oil lubricants,labour and any other mechanical operationthat may be required in all respects for succesfull completion of work, including cost of materials , tools and plants, machinaries, powersupply at site etc, including all necessarry safety arrangements like danger lighting, fencing etc including cost of all materials and labour charges with all lead and lift etc as per the direction of Engineer for upto 4.50m beyond initial 3.00m depth.</p>						
	PH1	1	1.500			1.500	
	PH2	1	1.500			1.500	
	PH3	1	1.500			1.500	
	PH4	1	1.500			1.500	
		Total Quantity				6.000 metre	
		Total Deducted Quantity				0.000 metre	
		Net Total Quantity				6.000 metre	
		Say 6.000 metre @ Rs 15751.66 / metre				Rs 94509.96	
6	<p>od364978/2021_2022</p> <p>Sinking section for screen chamber of internal dimension of 2.5 m x 1.5 m as per approved design , drawing specification to the given alignment and to any depth in all kinds of strata including soft rock, including excavation, dewatering until completion of works application of knetledge for alround seating of well , removal of bouldars, burried timbers, trunks,fossils, including depositingthe excavated stuff and stacking of useful materials and disposal of the surplus earth/unsuitable material as directed by the engineer with necessarry shoring and strutting, barricading etcincluding cost of ringbunds/cofferdams/approved suitable arrangementys for diversion of water cours etc. The rate include providing the required equipments, oil lubricants,labour and any other mechanical operationthat may be required in all respects for succesfull completion of work, including cost of materials , tools and plants, machinaries, powersupply at site etc, including all necessarry safety arrangements like danger lighting, fencing etc including cost of all materials and labour charges with all lead and lift etc as per the direction of Engineer for upto 3.00m below ground level</p>						
	PH1	1	3.000			3.000	
	PH2	1	3.000			3.000	
	PH3	1	3.000			3.000	

	PH4	1	3.000				3.000	
	Total Quantity						12.000 metre	
	Total Deducted Quantity						0.000 metre	
	Net Total Quantity						12.000 metre	
	Say 12.000 metre @ Rs 14834.78 / metre						Rs 178017.36	
7	<p>100.7.1 Bailing out water with 5 HP engine and pumpset including conveyance to the site, erection, dismantling and taking back of engine and pump, cost of fuel lubricating oil and other stores pay of staff etc. complete. NEW DATA (Prepared based on PHED SDB - Item No.1070)</p>							
		4	5000.000				20000.000	
	Total Quantity						20000.000 Kwh	
	Total Deducted Quantity						0.000 Kwh	
	Net Total Quantity						20000.000 Kwh	
	Say 20000.000 Kwh @ Rs 37.18 / Kwh						Rs 743600.00	
8	<p>od364983/2021_2022 Providing and laying in position cement concrete of specified grade. using sulphate resistant cement , excluding the cost of centering and shuttering - All work up to plinth level: 1:2:4 (cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size).</p>							
		4	3.500	2.500	0.500		17.500	
	Total Quantity						17.500 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						17.500 cum	
	Say 17.500 cum @ Rs 7951.69 / cum						Rs 139154.57	
9	<p>13.7.2 12 mm cement plaster finished with a floating coat of neat cement of mix:1:4 (1 cement : 4 fine sand)</p>							
	Well 1-Side wall	2	2*(3+2)		6.390		127.800	
	Well 2-Side wall	2	2*(3+2)		5.620		112.400	
	Well 3-Side wall	2	2*(3+2)		6.400		128.000	
	Well 4-Side wall	2	2*(3+2)		6.310		126.200	
	Working Platform	4	2.500		0.150		1.500	
	Total Quantity						495.900 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						495.900 sqm	
	Say 495.900 sqm @ Rs 388.79 / sqm						Rs 192800.96	

10	13.44.1 Finishing walls with water proofing cement paint of required shade:New work (Two or more coats applied @ 3.84 kg/10 sqm)								
	Well 1-Side wall	2	2*(3+2)		6.390		127.800		
	Well 2-Side wall	2	2*(3+2)		5.620		112.400		
	Well 3-Side wall	2	2*(3+2)		6.400		128.000		
	Well 4-Side wall	2	2*(3+2)		6.310		126.200		
	Working Platform	4	2.500		0.150		1.500		
	Total Quantity						495.900 sqm		
	Total Deducted Quantity						0.000 sqm		
	Net Total Quantity						495.900 sqm		
	Say 495.900 sqm @ Rs 108.06 / sqm						Rs 53586.95		
11	13.65.1 Painting with black anti- corrosive bitumastic paint of approved brand and manufacture to give an even shade:Two or more coats on new work								
	Well 1-Side wall	2	2*(3+2)		6.390		127.800		
	Well 2-Side wall	2	2*(3+2)		5.620		112.400		
	Well 3-Side wall	2	2*(3+2)		6.400		128.000		
	Well 4-Side wall	2	2*(3+2)		6.310		126.200		
	Working Platform	4	2.500		0.150		1.500		
	Total Quantity						495.900 sqm		
	Total Deducted Quantity						0.000 sqm		
	Net Total Quantity						495.900 sqm		
	Say 495.900 sqm @ Rs 125.59 / sqm						Rs 62280.08		
12	od364977/2021_2022 Supplying providing and fixing CI encapsulated steps at 30.00cm c/c in a staggered manner including all labour charges, etc complete as per the instruction of the engineer in-charge.								
	Well 1	43					43.000		
	Well 2	38					38.000		
	Well 3	43					43.000		
	Well 4	43					43.000		
	Total Quantity						167.000 No		
	Total Deducted Quantity						0.000 No		
	Net Total Quantity						167.000 No		
	Say 167.000 No @ Rs 424.89 / No						Rs 70956.63		

SI No	Description	No	L	B	D	CF	Quantity	Remark
6Construction of Valve chamber (Cost Index:36.44 %)								
1	100.1.1 Excavating trenches of required width for pipes, cables, etc including excavation for sockets, and dressing of sides, ramming of bottoms, depth up to 1.5 m, including getting out the excavated soil, and then returning the soil as required, in layers not exceeding 20 cm in depth, including consolidating each deposited layer by ramming, watering, etc. and disposing of surplus excavated soil as directed, within a lead of 50 m : All kinds of soil (Ref. Item No. 2.10.1 of DSR)							
	Well 1 - Qty- valve chamber 1	1	6.600	2.600	1.800		30.888	
	qty - valve chamber 2	1	2.600	1.600	1.800		7.488	
	Well 2 - Qty- valve chamber 1	1	4.800	2.600	1.800		22.465	
	qty - valve chamber 2	1	2.600	1.600	1.800		7.488	
	Well 3 - Qty- valve chamber 1	1	4.600	2.600	1.800		21.528	
	qty - valve chamber 2	1	2.600	1.600	1.800		7.488	
	Well 4- Qty- valve chamber 1	1	5.900	2.600	1.800		27.613	
	qty - valve chamber 2	1	2.600	1.600	1.800		7.488	
							Total Quantity	132.446 cum
							Total Deducted Quantity	0.000 cum
							Net Total Quantity	132.446 cum
							Say 132.446 cum @ Rs 558.99 / cum	Rs 74035.99
2	100.1.2 Excavating trenches of required width for pipes, cables, etc including excavation for sockets, and dressing of sides, ramming of bottoms, depth exceeding 1.5m but not exceeding 3 m, including getting out the excavated soil, and then returning the soil as required, in layers not exceeding 20 cm in depth, including consolidating each deposited layer by ramming, watering, etc. and disposing of surplus excavated soil as directed, within a lead of 50 m: 1.50m to 3.0m All kinds of soil (Ref. Item No. 2.11 of DSR)							
	Well 1 - Qty- valve chamber 1	1	6.600	2.600	0.300		5.148	
	qty - valve chamber 2	1	2.600	1.600	0.300		1.248	
	Well 2 - Qty- valve chamber 1	1	4.800	2.600	0.300		3.744	

	qty - valve chamber 2	1	2.600	1.600	0.300		1.248		
	Well 3 - Qty- valve chamber 1	1	4.600	2.600	0.300		3.588		
	qty - valve chamber 2	1	2.600	1.600	0.300		1.248		
	Well 4- Qty- valve chamber 1	1	5.900	2.600	0.300		4.602		
	qty - valve chamber 2	1	2.600	1.600	0.300		1.248		
	Total Quantity						22.074 cum		
	Total Deducted Quantity						0.000 cum		
	Net Total Quantity						22.074 cum		
	Say 22.074 cum @ Rs 666.03 / cum							Rs 14701.95	
3	5.1.2 Providing and laying in position specified grade of reinforced cement concrete, excluding the cost of centering, shuttering, finishing and reinforcement - All work up to plinth level:1:1:5:3 (1 cement 1.5 coarse sand :3 graded stone aggregate 20 mm nominal size								
	Well 1- Qty- valve chamber 1-sidewall	1	2*(6.4+2)	0.200	1.500		5.041		
	bottom plug	1	6.400	2.400	0.300		4.608		
	cover slab	1	6.400	2.400	0.200		3.072		
	Well 2- Qty- valve chamber 1-sidewall	1	2*(4.6+2)	0.200	1.500		3.960		
	bottom plug	1	4.600	2.400	0.300		3.312		
	cover slab	1	4.600	2.400	0.200		2.208		
	Well 3- Qty- valve chamber 1-sidewall	1	2*(4.4)	0.200	1.500		2.641		
	bottom plug	1	4.400	2.400	0.300		3.168		
	cover slab	1	4.400	2.400	0.200		2.112		
	Well 4- Qty- valve chamber 1-sidewall	1	2*(5.7+2)	0.200	1.500		4.620		
	bottom plug	1	5.700	2.400	0.300		4.104		
	cover slab	1	5.700	2.400	0.200		2.736		
	qty - valve chamber 2-side wall	4	2*(2.2+1.2)	0.200	1.500		8.161		
	bottom plug	4	2.400	1.400	0.300		4.032		
	cover slab	4	2.400	1.400	0.200		2.688		
	Total Quantity						56.463 cum		

		Total Deducted Quantity					0.000 cum	
		Net Total Quantity					56.463 cum	
		Say 56.463 cum @ Rs 9142.09 / cum					Rs 516189.83	
4	5.22.6 Steel reinforcement for R.C.C work including straightening, cutting, bending, placing in position and binding all complete upto plinth level Thermo - Mechanically Treated bars of grade Fe-500D or more							
		1	56.463			80.0	4517.040	
		Total Quantity					4517.040 kilogram	
		Total Deducted Quantity					0.000 kilogram	
		Net Total Quantity					4517.040 kilogram	
		Say 4517.040 kilogram @ Rs 98.92 / kilogram					Rs 446825.60	
5	13.9.1 Cement plaster 1:3 (1 cement : 3 coarse sand) finished with a floating coat of neat cement.12 mm cement plaster							
	Well 1- Qty- valve chamber 1-sidewall	1	2*(6.4+2)		1.500		25.201	
	bottom plug	1	6.400		0.300		1.920	
	cover slab	1	6.400		0.200		1.281	
	Well 2- Qty- valve chamber 1-sidewall	1	2*(4.6+2)		1.500		19.800	
	bottom plug	1	4.600		0.300		1.380	
	cover slab	1	4.600		0.200		0.920	
	Well 3- Qty- valve chamber 1-sidewall	1	2*(4.4)		1.500		13.201	
	bottom plug	1	4.400		0.300		1.320	
	cover slab	1	4.400		0.200		0.881	
	Well 4- Qty- valve chamber 1-sidewall	1	2*(5.7+2)		1.500		23.100	
	bottom plug	1	5.700		0.300		1.710	
	cover slab	1	5.700		0.200		1.141	
	qty - valve chamber 2-side wall	4	2*(2.2+1.2)		1.500		40.801	
	bottom plug	4	2.400		0.300		2.880	
	cover slab	4	2.400		0.200		1.920	
		Total Quantity					137.456 sqm	

Total Deducted Quantity							0.000 sqm	
Net Total Quantity							137.456 sqm	
Say 137.456 sqm @ Rs 414.71 / sqm							Rs 57004.38	
6	od364977/2021_2022 Supplying providing and fixing CI encapsulated steps at 30.00cm c/c in a staggered manner including all labour charges, etc complete as per the instruction of the engineer in-charge.							
	Qty	4	8.000				32.000	
Total Quantity							32.000 No	
Total Deducted Quantity							0.000 No	
Net Total Quantity							32.000 No	
Say 32.000 No @ Rs 424.89 / No							Rs 13596.48	
SI No	Description	No	L	B	D	CF	Quantity	Remark
7Construction of Control room and Generator Room (Cost Index:36.44 %)								
1	2.2.1 Earth work in rough excavation, banking excavated earth in layers not exceeding 20 cm in depth, breaking clods, watering, rolling each layer with 1/2 tonne roller or wooden or steel rammers, and rolling every 3rd and top-most layer with power roller of minimum 8 tonnes and dressing up in embankments for roads, flood banks, marginal banks and guide banks or filling up ground depressions, lead up to 50 m and lift up to 1.5 m:All kinds of soil							
	For Column footing	4*8	1.700	1.700	1.600		147.968	
Total Quantity							147.968 cum	
Total Deducted Quantity							0.000 cum	
Net Total Quantity							147.968 cum	
Say 147.968 cum @ Rs 884.54 / cum							Rs 130883.61	
2	4.1.6 Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level:1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 40 mm nominal size)							
	For column footing	4*8	1.700	1.700	0.100		9.248	
	Floor	4	5.000	4.000	0.150		12.000	
	„	4	5.000	4.000	0.080		6.400	
Total Quantity							27.648 cum	
Total Deducted Quantity							0.000 cum	
Net Total Quantity							27.648 cum	
Say 27.648 cum @ Rs 7256.36 / cum							Rs 200623.84	
3	5.1.2							

	Providing and laying in position specified grade of reinforced cement concrete, excluding the cost of centering, shuttering, finishing and reinforcement - All work up to plinth level:1:1:5:3 (1 cement 1.5 coarse sand :3 graded stone aggregate 20 mm nominal size							
	Footing	4*8	1.500	1.500	0.200		14.400	
	Isolated Portion	4*8/3	1.500	1.500	0.450		10.800	
	Column Pedestal	4*8	0.200	0.400	1.200		3.073	
	Grade slab	4	5.000	4.000	0.150		12.000	
	Plinth beam	4*2*3	3.270	0.200	0.450		7.064	
	„	4*2	3.600	0.200	0.450		2.593	
	„	4	4.000	0.200	0.450		1.441	
	Ramp	4*2	3.000	1.500	0.100		3.600	
						Total Quantity	54.971 cum	
						Total Deducted Quantity	0.000 cum	
						Net Total Quantity	54.971 cum	
						Say 54.971 cum @ Rs 9142.09 / cum	Rs 502549.83	
4	5.2.2 Reinforced cement concrete work in walls (any thickness), including attached pilasters, buttresses, plinth and string courses, fillets, columns, pillars, piers, abutments, posts and struts etc. up tot floor five level excluding cost of centering, shuttering, finishing and reinforcement :1:1.5:3(1 cement : 1.5 coarse sand : 3 graded stone aggregate 20 mm nominal size)							
	Column Above Plinth	4*8	0.200	0.400	4.900		12.545	
	Lintel	4*2	3.270	0.200	0.300		1.570	
	„	4*4	3.270	0.200	0.150		1.570	
	„	4*2	3.600	0.200	0.150		0.865	
	„	4	4.000	0.200	0.150		0.480	
	Shade	4	11.800	0.750	0.100		3.541	
	„	4	11.8+2*4. 4	0.600	0.100		4.945	
	Vertical	2*4	0.600	0.100	0.900		0.432	
	Beam	4	3.600	0.200	0.330		0.951	
	„	2*3	3.270	0.200	0.230		0.903	
	Slab	1	11.200	5.000	0.120		6.720	
						Total Quantity	34.522 cum	
						Total Deducted Quantity	0.000 cum	
						Net Total Quantity	34.522 cum	

	Say 34.522 cum @ Rs 11022.71 / cum						Rs 380525.99	
5	5.9.1 Centering and shuttering including strutting, etc. and removal of form for:Foundations, footings, bases of columns, etc for mass concrete							
	Footing PCC	8*4	1.700	1.700	0.100		9.248	
	Footing RCC	8*4	1.500	1.500	0.200		14.400	
	Total Quantity						23.648 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						23.648 sqm	
	Say 23.648 sqm @ Rs 337.42 / sqm						Rs 7979.31	
6	5.9.5 Centering and shuttering including strutting, etc. and removal of form for:Lintels, beams, plinth beams, girders bressumers and cantilevers							
	Plinth beam	4	30.000		0.450		54.000	
	„	4*4	4.000		0.450		28.800	
	„	4*3*2	3.270		0.450		35.316	
	Lintel	4*2*2	3.270		0.300		15.696	
	Bottom	4*2	3.270	0.200			5.232	
	Lintel	4*4*2	3.270		0.150		15.696	
	Lintel	4*2*2	3.600		0.150		8.640	
	„	4*1*2	4.000		0.150		4.800	
	Bottom	4*5	1.500	0.200			6.001	
	Beam	4*4*2	3.600		0.330		38.017	
	Bottom	4*4	3.600	0.200			11.521	
	Beam	4*6*2	3.270		0.230		36.101	
	Bottom	6	3.270	0.200			3.925	
	Total Quantity						263.745 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						263.745 sqm	
	Say 263.745 sqm @ Rs 653.89 / sqm						Rs 172460.22	
7	5.9.6 Centering and shuttering including strutting, etc. and removal of form for:Columns, Pillars, Piers, Abutments, Posts and Struts							
	Column up to Plinth	4*8	1.200		0.750		28.800	
	Column above Plinth	4*8	1.200	4.900			188.160	

						Total Quantity	216.960 sqm	
						Total Deducted Quantity	0.000 sqm	
						Net Total Quantity	216.960 sqm	
						Say 216.960 sqm @ Rs 869.05 / sqm	Rs 188549.09	
8	5.9.20	Centering and shuttering including strutting, etc. and removal of form for:Suspended floors, roofs, landings, balconies and access platform with water proof ply 12 mm thick						
	Shade	4	11.800	0.750			35.401	
	„	4	11.8+2*4. 4	0.600			49.441	
	Vertical	4*2*2	0.600		0.900		8.640	
	Shade Edge	4*6	0.600		0.100		1.440	
	„	4*2	0.750		0.100		0.601	
	Slab	4*3	4.000	3.270			156.960	
	„ Projection	4*2	11.200	0.120			10.752	
	„	4*2	5.000	0.120			4.800	
						Total Quantity	268.035 sqm	
						Total Deducted Quantity	0.000 sqm	
						Net Total Quantity	268.035 sqm	
						Say 268.035 sqm @ Rs 923.02 / sqm	Rs 247401.67	
9	50.6.7.2	Laterate masonry with neatly dressed laterate stone of size 40x20x15cm or nearest size in cement mortar 1:6 for super structure above plinth level up to floor two level including all cost of materials, labour charges etc.						
	Masonry wall	4*6	3.270	0.200	4.650		72.987	
	„	4*2	3.600	0.200	4.550		26.209	
	„	4	4.000	0.200	4.900		15.681	
	Parapet wall	4	31.600	0.200	0.400		10.113	
	Lintel	4*4	3.270	0.200	0.150		-1.569	
	„	4*2	3.270	0.200	0.300		-1.569	
	„	4*2	3.600	0.200	0.150		-0.864	
	„	4	4.000	0.200	0.150		-0.480	
	RS Opening	4*2	3.270	0.200	3.000		-15.696	
	Window	4*4	1.500	0.200	1.500		-7.200	
	Door op	4	1.500	2.400			-14.399	

		Total Quantity					124.990 cum	
		Total Deducted Quantity					-41.777 cum	
		Net Total Quantity					83.213 cum	
		Say 83.213 cum @ Rs 7968.75 / cum					Rs 663103.59	
10	5.22.6 Steel reinforcement for R.C.C work including straightening, cutting, bending, placing in position and binding all complete upto plinth level Thermo - Mechanically Treated bars of grade Fe-500D or more							
	@ 100 Kg of Steel of 1 Cum of CC	4	13.745+15 .065			100.0	11524.000	
		Total Quantity					11524.000 kilogram	
		Total Deducted Quantity					0.000 kilogram	
		Net Total Quantity					11524.000 kilogram	
		Say 11524.000 kilogram @ Rs 98.92 / kilogram					Rs 1139954.08	
11	13.1.1 12 mm cement plaster of mix:1:4 (1 cement : 4 fine sand)							
	Room inside	4*2	18.000	4.900			705.600	
	Column sides	4*4*2	0.200	4.900			31.361	
	Op. Side	4*2	9.270	0.200			14.832	
	„	4	6.300	0.200			5.040	
	Out side	4	30.000	4.900			588.000	
	Parapet wall	4	31.600	1.000			126.400	
	Window	4*4	1.500	1.500			-36.000	
	Open.	4*1*2	1.500	2.400			-28.799	
	Rs	4*2*2	3.270		3.000		-156.960	
		Total Quantity					1471.233 sqm	
		Total Deducted Quantity					-221.759 sqm	
		Net Total Quantity					1249.474 sqm	
		Say 1249.474 sqm @ Rs 316.06 / sqm					Rs 394908.75	
12	50.13.1 9 mm cement plastering of mix : 1:3 (1 cement : 3 fine sand) including all cost of materials, labour charges etc complete							
	Ceiling	4*2	5.000	4.000			160.000	
	Beam sides	2*2*4	4.000	0.330			21.120	
	Slab Proj.	4	31.500	0.300			37.800	
	Edge	4	32.400	0.150			19.440	

	Shade Bottom & Top	2*4	11.800	0.750			70.801		
	„	2*4	11.800	0.600			56.640		
	„	4*2*2	4.400	0.600			42.240		
	Vertical	4*2*2	0.600	0.900			8.640		
	Roof Top	4	10.200	4.000			163.200		
	Total Quantity						579.881 sqm		
	Total Deducted Quantity						0.000 sqm		
	Net Total Quantity						579.881 sqm		
	Say 579.881 sqm @ Rs 293.14 / sqm						Rs 169986.32		
13	<p>10.6.1 Supplying and fixing rolling shutters of approved make, made of required size M.S. laths, interlocked together through their entire length and jointed together at the end by end locks, mounted on specially designed pipe shaft with brackets, side guides and arrangements for inside and outside locking with push and pull operation complete, including the cost of providing and fixing necessary 27.5 cm long wire springs manufactured from high tensile steel wire of adequate strength conforming to IS: 4454 - part 1 and M.S. top cover of required thickness for rolling shutters.80x1.25 mm M.S. laths with 1.25 mm thick top cover</p>								
		4*2	3.270		3.000		78.480		
	Total Quantity						78.480 sqm		
	Total Deducted Quantity						0.000 sqm		
	Net Total Quantity						78.480 sqm		
	Say 78.480 sqm @ Rs 3487.20 / sqm						Rs 273675.46		
14	<p>od364991/2021_2022 Supplying and providing aluminium window with powder coated aluminium sections for frames and shutters with 4mm thick glass panels as per drawings and specifications including all fittings and fixing charges</p>								
	Windows	4*4	1.500		1.500		36.000		
	Total Quantity						36.000 sqm		
	Total Deducted Quantity						0.000 sqm		
	Net Total Quantity						36.000 sqm		
	Say 36.000 sqm @ Rs 3852.42 / sqm						Rs 138687.12		
15	<p>4.1.3 Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level:1:2:4 (cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size)</p>								
	Screading Concrete (Panel Room)	4	4.000	5.000	0.040		3.200		

									Total Quantity	3.200 cum
									Total Deducted Quantity	0.000 cum
									Net Total Quantity	3.200 cum
									Say 3.200 cum @ Rs 8040.95 / cum	Rs 25731.04
16	13.9.1	Cement plaster 1:3 (1 cement : 3 coarse sand) finished with a floating coat of neat cement.12 mm cement plaster								
	Floor Finishing	4*2	4.000	5.000					160.000	
	Rammp	4*2	3.000	1.500					36.000	
									Total Quantity	196.000 sqm
									Total Deducted Quantity	0.000 sqm
									Net Total Quantity	196.000 sqm
									Say 196.000 sqm @ Rs 414.71 / sqm	Rs 81283.16
17	13.43.1	Applying one coat of water thinnable cement primer of approved brand and manufacture on wall surface:Water thinnable cement primer								
	Room inside	4*2	18.000	4.900					705.600	
	Column sides	4*4*2	0.200	4.900					31.361	
	Op. Side	4*2	9.270	0.200					14.832	
	„	4	6.300	0.200					5.040	
	Out side	4	30.000	4.900					588.000	
	Parapet wall	4	31.600	1.000					126.400	
	Window	4*4	1.500	1.500					-36.000	
	Open.	4*2	1.500	2.400					-28.799	
	Rs	4*2*2	3.270			3.000			-156.960	
	Ceiling	4*2	5.000	4.000					160.000	
	Beam sides	4*2*2	4.000	0.330					21.120	
	Slab Proj.	4	31.500	0.300					37.800	
	Edge	4	32.400	0.150					19.440	
	Shade Bottom & Top	4*2	11.800	0.750					70.801	
	„	4*2	11.800	0.600					56.640	
	„	4*2*2	4.400	0.600					42.240	
	Vertical	4*2*2	0.600	0.900					8.640	
									Total Quantity	1887.914 sqm

		Total Deducted Quantity					-221.759 sqm	
		Net Total Quantity					1666.155 sqm	
		Say 1666.155 sqm @ Rs 71.09 / sqm					Rs 118446.96	
18	13.44.1 Finishing walls with water proofing cement paint of required shade:New work (Two or more coats applied @ 3.84 kg/10 sqm)							
	Room inside	4*2	18.000	4.900			705.600	
	Column sides	4*4*2	0.200	4.900			31.361	
	Op. Side	4*2	9.270	0.200			14.832	
	„	4	6.300	0.200			5.040	
	Out side	4	30.000	4.900			588.000	
	Parapet wall	4	31.600	1.000			126.400	
	Window	4*4	1.500	1.500			-36.000	
	Open.	4*1*2	1.500	2.400			-28.799	
	Rs	4*2*2	3.270		3.000		-156.960	
	Ceiling	4*2	5.000	4.000			160.000	
	Beam sides	4*2*2	4.000	0.330			21.120	
	Slab Proj.	4	31.500	0.300			37.800	
	Edge	4	32.400	0.150			19.440	
	Shade Bottom & Top	4*2	11.800	0.750			70.801	
	„	4*2	11.800	0.600			56.640	
	„	4*2*2	4.400	0.600			42.240	
	Vertical	4*2*2	0.600	0.900			8.640	
		Total Quantity					1887.914 sqm	
		Total Deducted Quantity					-221.759 sqm	
		Net Total Quantity					1666.155 sqm	
		Say 1666.155 sqm @ Rs 108.06 / sqm					Rs 180044.71	
19	10.25.2 Item Shifted to Sub head 14 as item 14.73Item Shifted to head 14 as item 14.74Steel work welded in built up sections/framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer using structural steel etc. as required.In gratings, frames, guard bar, ladder, railings, brackets, gates and similar works							
	Window grill	4*4	1.500	1.500		16.0	576.000	
		Total Quantity					576.000 kg	
		Total Deducted Quantity					0.000 kg	

	Net Total Quantity						576.000 kg	
	Say 576.000 kg @ Rs 155.13 / kg						Rs 89354.88	
20	13.61.1 Painting with synthetic enamel paint of approved brand and manufacture to give an even shade:Two or more coats on new work							
	Window	4*4	1.500	1.500			36.000	
	Rolling shutter	4*2	3.270	3.000		2.5	196.201	
	Total Quantity						232.201 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						232.201 sqm	
	Say 232.201 sqm @ Rs 143.94 / sqm						Rs 33423.01	
SI No	Description	No	L	B	D	CF	Quantity	Remark
8Providing Cable Trenches (Cost Index:36.44 %)								
1	4.1.8 Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level:1:4:8 (1 cement : 4 coarse sand : 8 graded stone aggregate 40 nominal size)							
		4	6.000	1.050	0.100		2.521	
	Total Quantity						2.521 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						2.521 cum	
	Say 2.521 cum @ Rs 6857.61 / cum						Rs 17288.03	
2	5.1.2 Providing and laying in position specified grade of reinforced cement concrete, excluding the cost of centering, shuttering, finishing and reinforcement - All work up to plinth level:1:1:5:3 (1 cement 1.5 coarse sand :3 graded stone aggregate 20 mm nominal size)							
		4	6.000	1.050	0.100		2.521	
	Total Quantity						2.521 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						2.521 cum	
	Say 2.521 cum @ Rs 9142.09 / cum						Rs 23047.21	
3	13.9.1 Cement plaster 1:3 (1 cement : 3 coarse sand) finished with a floating coat of neat cement.12 mm cement plaster							
		4	6.000	1.050	1.050		26.461	
	Total Quantity						26.461 sqm	

Total Deducted Quantity							0.000 sqm	
Net Total Quantity							26.461 sqm	
Say 26.461 sqm @ Rs 414.71 / sqm							Rs 10973.64	
4	od364965/2021_2022 supplying and providing checkered plate 6mm thick over the cable trench including painting with a coat of iron primer							
		4	30.000	0.800			96.000	
Total Quantity							96.000 sqm	
Total Deducted Quantity							0.000 sqm	
Net Total Quantity							96.000 sqm	
Say 96.000 sqm @ Rs 6997.51 / sqm							Rs 671760.96	
SI No	Description	No	L	B	D	CF	Quantity	Remark
9Bath cum Toilets (Cost Index:36.44 %)								
1	2.2.1 Earth work in rough excavation, banking excavated earth in layers not exceeding 20 cm in depth, breaking clods, watering, rolling each layer with 1/2 tonne roller or wooden or steel rammers, and rolling every 3rd and top-most layer with power roller of minimum 8 tonnes and dressing up in embankments for roads, flood banks, marginal banks and guide banks or filling up ground depressions, lead up to 50 m and lift up to 1.5 m:All kinds of soil							
	WALL	4	9.920	0.900	0.700		24.999	
	STEPS	4	1.000	0.750	0.150		0.450	
Total Quantity							25.449 cum	
Total Deducted Quantity							0.000 cum	
Net Total Quantity							25.449 cum	
Say 25.449 cum @ Rs 884.54 / cum							Rs 22510.66	
2	4.1.6 Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level:1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 40 mm nominal size)							
	WALL	4	9.920	0.900	0.100		3.572	
	STEPS	4	1.000	0.750	0.100		0.301	
Total Quantity							3.873 cum	
Total Deducted Quantity							0.000 cum	
Net Total Quantity							3.873 cum	
Say 3.873 cum @ Rs 7256.36 / cum							Rs 28103.88	
3	7.1.1							

	Random rubble masonry with hard stone in foundation and plinth including levelling up with cement concrete 1:6:12 (1 cement : 6 coarse sand : 12 graded stone aggregate 20 mm nominal size) up to plinth level with:Cement mortar 1:6 (1 cement : 6 coarse sand)						
	FOUNDATION	4*2	9.920	0.600	0.600		28.570
	BASEMENT	4*2	9.920	0.450	0.450		16.071
	Total Quantity						44.641 cum
	Total Deducted Quantity						0.000 cum
	Net Total Quantity						44.641 cum
	Say 44.641 cum @ Rs 7249.94 / cum						Rs 323644.57
4	6.4.1 Brick work with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 in superstructure above plinth level up to floor V level in all shapes and sizes in:Cement mortar 1:4 (1 cement : 4 coarse sand)(from floor 2 level up to floor 5 level)						
	Walls	4*2	9.920	0.230	2.700		49.283
	steps	4*2*3	1.000	0.250	0.150		0.900
	door	4*2	0.800	0.230	1.700		-2.502
	windows/ventilator	4*2	0.700	0.230	0.500		-0.644
	Total Quantity						50.183 cum
	Total Deducted Quantity						-3.146 cum
	Net Total Quantity						47.037 cum
	Say 47.037 cum @ Rs 9249.88 / cum						Rs 435086.61
5	5.3 Reinforced cement concrete work in beams, suspended floors, roofs, having slope up to 15 ⁰ landings, balconies, shelves, chajjas, lintels, bands, plain window sills, staircases and spiral stair cases up to floor five level excluding the cost of centering, shuttering, finishing and reinforcement, with1:1.5:3 (1 cement : 1.5 coarse sand (Zone III) : 3 graded stone aggregate 20 mm nominal size).						
	roof slab	4*2	3.160	2.660	0.150		10.087
	lintel	4*2	9.920	0.230	0.150		2.738
	sunshade	4*2	2.580	0.600	0.100		1.239
	Total Quantity						14.064 cum
	Total Deducted Quantity						0.000 cum
	Net Total Quantity						14.064 cum
	Say 14.064 cum @ Rs 11564.93 / cum						Rs 162649.18
6	5.22.6 Steel reinforcement for R.C.C work including straightening, cutting, bending, placing in position and binding all complete upto plinth levelThermo - Mechanically Treated bars of grade Fe-500D or more						

		4	3.500			80.0	1120.000		
	Total Quantity						1120.000 kilogram		
	Total Deducted Quantity						0.000 kilogram		
	Net Total Quantity						1120.000 kilogram		
	Say 1120.000 kilogram @ Rs 98.92 / kilogram						Rs 110790.40		
7	4.1.8 Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level:1:4:8 (1 cement : 4 coarse sand : 8 graded stone aggregate 40 nominal size)								
		4*2	2.000	2.500	0.100		4.000		
	Total Quantity						4.000 cum		
	Total Deducted Quantity						0.000 cum		
	Net Total Quantity						4.000 cum		
	Say 4.000 cum @ Rs 6857.61 / cum						Rs 27430.44		
8	13.1.1 12 mm cement plaster of mix:1:4 (1 cement : 4 fine sand)								
	Walls	4*2*2	9.920		2.700		428.545		
	steps	4*2*3	1.000		0.150		3.600		
	door	4*2	-0.800		1.700		-10.880		
	windows/ventilator	4*2	0.700		0.500		-2.800		
	Total Quantity						432.145 sqm		
	Total Deducted Quantity						-13.680 sqm		
	Net Total Quantity						418.465 sqm		
	Say 418.465 sqm @ Rs 316.06 / sqm						Rs 132260.05		
9	50.13.1 9 mm cement plastering of mix : 1:3 (1 cement : 3 fine sand) including all cost of materials, labour charges etc complete								
	roof slab	4*2*2	3.160	2.660			134.490		
	sunshade	4*2*2	2.800	0.600			26.880		
	Total Quantity						161.370 sqm		
	Total Deducted Quantity						0.000 sqm		
	Net Total Quantity						161.370 sqm		
	Say 161.370 sqm @ Rs 293.14 / sqm						Rs 47304.00		
10	13.33.1 Pointing on stone work with cement mortar 1:3 (1 cement : 3 fine sand):Flush/ Ruled pointing								

	FOUNDATION	4*2	9.920		0.600		47.616	
	BASEMENT	4*2	9.920		0.450		35.712	
	Total Quantity						83.328 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						83.328 sqm	
	Say 83.328 sqm @ Rs 338.10 / sqm						Rs 28173.20	
11	od364980/2021_2022 Supplying and fixing PVC door of size 0.8x2.10m as per the standard specification including all fittings and labour charges ,etc. .complete							
		4	2.000				8.000	
	Total Quantity						8.000 No	
	Total Deducted Quantity						0.000 No	
	Net Total Quantity						8.000 No	
	Say 8.000 No @ Rs 4816.51 / No						Rs 38532.08	
12	5.18.1 Providing precast cement concrete jali 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 6 mm nominal size) reinforced with 1.6 mm dia mild steel wire including centering and shuttering, roughening cleaning, fixing and finishing in cement mortar 1:3 (1 cement : 3 fine sand) etc. complete excluding plastering of the jambs, sills and soffits.50 mm thick							
		2*4	1.500		1.000		12.000	
	Total Quantity						12.000 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						12.000 sqm	
	Say 12.000 sqm @ Rs 1746.02 / sqm						Rs 20952.24	
13	11.37 Providing and laying Ceramic glazed floor tiles of size 300x300 mm (thickness to be specified by the manufacturer), of 1st quality conforming to IS : 15622, of approved make, in colours such as White, Ivory, Grey, Fume Red Brown, laid on 20 mm thick cement mortar 1:4 (1 Cement : 4 Coarse sand), including pointing the joints with white cement and matching pigment etc., complete.							
		4*2	3.000	1.500			36.000	
	Total Quantity						36.000 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						36.000 sqm	
	Say 36.000 sqm @ Rs 1097.86 / sqm						Rs 39522.96	
14	13.37.1 White washing with lime to give an even shade:New work (three or more coats)							

	side wall	4*2	3.000		1.800		43.200		
	top	4*2	3.000		1.500		36.000		
	Total Quantity						79.200 sqm		
	Total Deducted Quantity						0.000 sqm		
	Net Total Quantity						79.200 sqm		
	Say 79.200 sqm @ Rs 33.84 / sqm							Rs 2680.13	
15	13.40 Distemping with dry distemper of approved brand and manufacture (two or more coats) of required shade on new work, over and including water thinnable priming coat to give an even shade:								
	side wall	2*4	3.000		1.800		43.200		
	top	2*4	3.000		1.500		36.000		
	Total Quantity						79.200 sqm		
	Total Deducted Quantity						0.000 sqm		
	Net Total Quantity						79.200 sqm		
	Say 79.200 sqm @ Rs 139.44 / sqm							Rs 11043.65	
SI No	Description	No	L	B	D	CF	Quantity	Remark	
10Mechanical, Electrical - Pumpsets, grit chamber screen, generator, transformer &&& allied works complete (Cost Index:36.44 %)									

Kerala Water Authority
PRICE

1	<p>od364955/2021_2022</p> <p>Supply, delivery and erection of non-clog sewage submersible pump sets with stainless steel impeller to pass soft solids upto 50mm size per separate special specification. including cost of required submersible cable to suit the site condition ,starter with control board, Submersible cables required as per site conditions should be supplied with two capacitance type level guards for operating automatically autocoupler SS chain ,guide rail etc for the following duty condition. MSB(Separate pannels for H&C PS 1,Asramom and H&C PS 2 pump houses)
Fabrication supply,conveyance,installation testing and commissioning of floor/wall mounting dust and vermin proof cubicle type MV panel board confirming of the fallowing components/devicess and complying to IS 8623
Fabrication of fully partitioned ,dust and vermin proof enclosure for panel assembly as per form 4 of IS 8623 using 2mm CRCA sheet as per approved design and requirement, with front and rear accessembly ,bus bar chambers,hinged doors for all switch gear components ,earthing the door using 4sq.mm braided copper conductor, providing necessary cut-outs for mounting meters,relays,indication lamps,bus bar inter connections etc,detachable covers for busbar chamber and cable alley,power coating the assembly after subjecting to 7 tank process etc as required. CRCA sheet alone be used for the fabrication.Angles/flats/slotted angles etc shall not be used forthe fabrication of panel assembly. The panel shaii be provided with base frame from ISMS 75.Necessary barriers and shrouding with 2mm/3mm SMC Sheets shall be provided.Heavy duty neoprene beeding of aproprate sizes shall be used to make the panel dust and vermin proof. The control board should have necessary tripping devices and indicating devices for safety of motor and pumpsets with necessary isolator near the wet well site - lpd and head in m as follow as per actual site condition.>Outgoing
(i)H&C PS2: 150A TP MCCB to control the submersible pump set-5Nos,
(b). 150 A TP MCCB to control the capacitor bank - 1 no(c)Providing suitable rating capacitor bank with APFC Panel-1No.(d)150A 25Ka TP MCCB spare -1No.
(ii)ASRAMOM: a,150A 16KA TP MCCB to control submersible pump sets at Asramom-5Nos,b,150A 16 KA TPMCCB to control the capacitor bank-1No c, Providing suitable rating capacitor bank with APFC Panel (d) (iii)H&C PS1(a)150A 25 KA TPMCCB -2 Nos,(b) 150A 25KA TPMCCB-2Nos,(c)150A 25 KA TPMCCB-2Nos (d) Providing suitable ratings(3Nos 40Kvar) capacitor bank with APFC Panel-1No.
N.B (a) Necessary CTs should be provided for safe guarding the instruments wherever necessary .Interlocking should be provided for standby pump sets.
(b)
Cabling
 Supply ,delivery and laying of following size L.T cable (1.1KV Grade)including jointing material,cable carrier system like trenches,cable trays pipe sleeves etc as per IE rules including cost of flat submersible cable connecting main panel board and submersible pump sets thro starter control board and isolator 3 ½ core 95 sq mm armoured aluminum conductor cable length as per site condition.connection from suction up to header line.(three year additional replacement warranty additional to 2 years = total 5 year -Including replacement of parts or pump,motors,panel board fully.)</p>						
	PH1	2	19.000				38.000
	PH2	2	7.000				14.000
	PH3	2	18.000				36.000
	PH4	2	20.000				40.000
	Total Quantity						128.000 Hp
	Total Deducted Quantity						0.000 Hp
	Net Total Quantity						128.000 Hp
	Say 128.000 Hp @ Rs 25395.04 / Hp						Rs 3250565.12

2	od364962/2021_2022 Supply and delivery of suitable flexible joint coupling upto 200mm for easy dismantling of delivery pipes and valves with Tie bolts with angular deflection 5 Degree						
		4*3					12.000
	Total Quantity						12.000 No
	Total Deducted Quantity						0.000 No
	Net Total Quantity						12.000 No
	Say 12.000 No @ Rs 10350.00 / No						Rs 124200.00
3	od364966/2021_2022 Supply and delivery of 250 mm suitable flexible joint coupling for easy dismantling of delivery pipes and valves with Tie bolts with angular deflection 5 Degree						
		4*3					12.000
	Total Quantity						12.000 No
	Total Deducted Quantity						0.000 No
	Net Total Quantity						12.000 No
	Say 12.000 No @ Rs 12650.00 / No						Rs 151800.00
4	od364970/2021_2022 Supply and delivery of 200 mm CI Sluice Valves suitable for the sewage pump sets one no. for each pump sets .						
		4					4.000
	Total Quantity						4.000 No
	Total Deducted Quantity						0.000 No
	Net Total Quantity						4.000 No
	Say 4.000 No @ Rs 80500.00 / No						Rs 322000.00
5	od364981/2021_2022 Supply, delivery and erection of Multistage force Pump 600LPM X 30M head suitable for cleaning the screen chamber,Pumpset during servicing with 16 m of 20 mm dia hose required for operating the pump .						
		4					4.000
	Total Quantity						4.000 set
	Total Deducted Quantity						0.000 set
	Net Total Quantity						4.000 set
	Say 4.000 set @ Rs 63250.00 / set						Rs 253000.00
6	od364984/2021_2022 Supply and delivery of breathing apparatus with Oxygen cylinder mask etc complete .						
		4					4.000
	Total Quantity						4.000 set

	Total Deducted Quantity								0.000 set
	Net Total Quantity								4.000 set
	Say 4.000 set @ Rs 86250.00 / set								Rs 345000.00
7	od364987/2021_2022 Supply and delivery of Diaphragm type pressure gauge with necessary S.S tubes and isolating valves								
		4						4.000	
	Total Quantity								4.000 No
	Total Deducted Quantity								0.000 No
	Net Total Quantity								4.000 No
	Say 4.000 No @ Rs 6900.00 / No								Rs 27600.00
8	od364988/2021_2022 Supply and fixing of Electro magnetic flow meter suitable for remote sensing operation with required pipes, specials and accessories at laminar flow region (full flow) including cost of pit cover slab etc								
		4						4.000	
	Total Quantity								4.000 No
	Total Deducted Quantity								0.000 No
	Net Total Quantity								4.000 No
	Say 4.000 No @ Rs 345000.00 / No								Rs 1380000.00
9	od364989/2021_2022 Supply, delivery and erecting of following safety items ,including cost of same. I. Fire extinguisher of 5 Kg capacity (powder type 2 no's) II. Fire buckets with stand 5no's III. Electric quality Rubber mat to be laid in front of all the panel boards including starter panels 								
		4						4.000	
	Total Quantity								4.000 No
	Total Deducted Quantity								0.000 No
	Net Total Quantity								4.000 No
	Say 4.000 No @ Rs 46000.00 / No								Rs 184000.00
10	100.98.460 Supply of CI Double Flanged Sluice Valve Conforming to IS 14846 - 2000, Sluice Valve with Cap PN 1.6, Size 150mm.								
		4*2						8.000	3 + 1
	Total Quantity								8.000 No
	Total Deducted Quantity								0.000 No
	Net Total Quantity								8.000 No
	Say 8.000 No @ Rs 6770.65 / No								Rs 54165.20

11	100.31.1.5 "Conveying and fixing C.I. sluice valves (with cap) by providing complete with bolts, nuts, rubber insertions etc. excluding the cost of valve (the tail pieces if required will be paid separately) : 200 mm diameter. Class I" Data derived from item no.18.31.4.1 of DAR		4*2				8.000	3 + 1
		Total Quantity					8.000 Nos	
		Total Deducted Quantity					0.000 Nos	
		Net Total Quantity					8.000 Nos	
		Say 8.000 Nos @ Rs 1567.42 / Nos					Rs 12539.36	
12	100.98.461 Supply of CI Double Flanged Sluice Valve Conforming to IS 14846 - 2000, Sluice Valve with Cap PN 1.6, Size 200mm.		2*4				8.000	
		Total Quantity					8.000 No	
		Total Deducted Quantity					0.000 No	
		Net Total Quantity					8.000 No	
		Say 8.000 No @ Rs 11794.00 / No					Rs 94352.00	
13	od364990/2021_2022 Supply and delivery of 200 mm Non-Return Ball valve made up of DI and ball of Aluminum with MVR coated for the common header.		2*4				8.000	
		Total Quantity					8.000 No	
		Total Deducted Quantity					0.000 No	
		Net Total Quantity					8.000 No	
		Say 8.000 No @ Rs 25875.00 / No					Rs 207000.00	
14	od364992/2021_2022 Supply, delivery and erection of 200 mm CIDF Pipes and fittings suitable for the pump set offered and as per drawings enclosed including cost of puddle collars required		4				4.000	
		Total Quantity					4.000 No	
		Total Deducted Quantity					0.000 No	
		Net Total Quantity					4.000 No	
		Say 4.000 No @ Rs 12075.00 / No					Rs 48300.00	
15	od364993/2021_2022 Supply, delivery and erection of 200 mm CIDF Pipes and fittings suitable for the pump set offered and as							

	per drawings enclosed including cost of puddle collars required						
		4					4.000
	Total Quantity						4.000 kg
	Total Deducted Quantity						0.000 kg
	Net Total Quantity						4.000 kg
	Say 4.000 kg @ Rs 174.22 / kg						Rs 696.88
16	od364994/2021_2022 Supply and fixing of stainless steel screen made of bars of size 50 mm x 10 mm for fixing across the screen chamber channel (fixed type) at 45 degree inclination for a clear passage of 40 mm solids and suitable for manual cleaning including cost of of screen ,Grab bucket and lifting arrangement material and fixing charges for 1.00m x 1.30m size.						
	for each ps	4					4.000
	Total Quantity						4.000 No
	Total Deducted Quantity						0.000 No
	Net Total Quantity						4.000 No
	Say 4.000 No @ Rs 103500.00 / No						Rs 414000.00
17	od364995/2021_2022 Supply , delivery , erecting and maintenance of 2 ton or suitable capacity hand operated pulley block hoist with mono rail traveling on single girder with over head traveling trolley for a clear lift according to site condition for a travel of 9 (well dia+3m) meters or suitable design for erection and easy loading and unloading of Pumps and specials from trucks.						
	one for each pump house	4					4.000
	Total Quantity						4.000 No
	Total Deducted Quantity						0.000 No
	Net Total Quantity						4.000 No
	Say 4.000 No @ Rs 402500.00 / No						Rs 1610000.00
18	od374680/2021_2022 Estimate for Mechanical and Allied Electrical works - ELECTRICAL PANELS AND CABLES Supply, Delivery of M.V control panel of wall mounting type made up of 14 SWG M.S Sheet of size to suit the L.T metering arrangements by KSEB. The board is to be supplied with 3 Nos of fuse carriers, MCCB with neutral and earthing arrangements as per I.E rules. Supply and delivery of floor mounting type MV control panel of vermin proof, dust proof, modular type consisting of the following accessories and controls. The control panel shall be of enclosed type and built with compartmentalized modular type cubical. All cubical shall be constructed from 14 SWG, M.S sheet at the bottom and rear and 12 SWG M.S Sheet at front. . The interior and exterior of the panels and compartment shall be treated with one coat of primer and two coats of stove enameled light gray shade suitable for electric applications. The panel should be supplied with 4 nos of copper bus bars of ample carrying capacity properly sleeved with respective colour codes.Set1 Incoming 1. 150 A MCCB / 35KA with over load, short circuit protection 2. (0-500 v) Voltmeter						

<p>(w) selector switch -1set3. Ammeter 0-300A with phase selector switch – 1 set4. 3 phase / 4 wire KWH meter – 1 no5. Earth fault relay – 1 set6. Slide locking type fuses – 1set Supply and installation of suitable starters in the above pump houseses(7). 63 A TPN MCCB for lighting control and spare – 2noN.B (a) Necessary CTs should be provided for safe guarding the instruments wherever necessary(b) The supply should be terminated through A.M.F panel of Genset offered for Auto start operation during EB power failure with in 15 secsTwin earthing the plant and equipment as per IE roles including cost of GI flats (continuous earthing) etc complete.set1Cabling Supply ,delivery and laying of following size L.T cable (1.1KV Grade)including jointing material,cable carrier system like trenches,cable trays pipe sleeves etc as per IE rules excluding cost of flat submersible cable connecting main panel board and submersible pump sets thro starter control board and isolator 3 ½ core 35 sq mm armoured aluminum conductor cable of suitable length as per site condition connecting EB pole and EB meter and control panel boardm30 SupplyLighting LoadSupply and completion of required house wiring for accommodating the following including DB panels, cost of wire, cost of PVC conduits, earthing etc.1. SV lamp to be fixed on the top of control room -1no (250w)2. Industrial type tube lights inside the control room.-8 nos (40w)3. 4 Nos CFL (not exceeding 25 W) at suitable locations with fittings.4. 15 A plug and socket with control switch – 2 nos5. 5 A plug and socket with control switch – 2 nos6. Portable lamp with 25W CFL bulb and 15 M cable-1 no7. Pedestal fan -1 no The above electrical items as per IE rules includes cost of materials such as bulbs and fittings etc. Supply and delivery of silent diesel generator set of 82.5 Kva with AMF panel with suitable engine capacity conforming to relevant IS specifications, water cooled, six cylinders comprising of suitable alternator 3 phase, 0.8PF, 4 pole with panel board, digital type voltmeter, ammeter, Hertz meter, kwh meter, MCCB with acoustic enclosure as per CPCIP norms including cost of battery charger, cost of battery etc. complete, including cost of cabling, earthing, etc. suitable for outdoor application as per IE rules including cost of platform etc. complete.set1 Air valves Supply and delivery of following safety items ,including cost of same.L SI. Fire extinguisher of required capacity (powder type 2 no's) II. Fire buckets with stand 5no's III. Rubber mat to be laid in front of all the panel boards including starter panelsSupply and delivery of tools required for maintenance works including double end spanners, ring spanners, screw drivers,etc and Supply and erection of 1 number 20KVA Diesel Generator</p>								
		4					4.000	
							Total Quantity	4.000 No
							Total Deducted Quantity	0.000 No
							Net Total Quantity	4.000 No
							Say 4.000 No @ Rs 1200000.00 / No	Rs 4800000.00
SI No	Description	No	L	B	D	CF	Quantity	Remark
11Pumping mains (Cost Index:36.44 %)								
1	100.1.1 Excavating trenches of required width for pipes, cables, etc including excavation for sockets, and dressing of sides, ramming of bottoms, depth up to 1.5 m, including getting out the excavated soil, and then returning the soil as required, in layers not exceeding 20 cm in depth, including consolidatingeach deposited layer by ramming, watering, etc. and disposing of surplus excavated soil as directed, within a lead of 50 m : All kinds of soil (Ref. Item No. 2.10.1 of DSR)							

	PH1 to manhole (N1117)	1	1469.000	0.900	1.200	0.8	1269.217	
	PH2 - PH1	1	2700.000	0.900	1.200	0.8	2332.800	
	PH3 to manhole (N2554)	1	950.000	0.800	1.150	0.8	699.200	
	P H 4 t o manhole(N1822)	1	965.000	0.900	1.200	0.8	833.761	
	Total Quantity						5134.978 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						5134.978 cum	
	Say 5134.978 cum @ Rs 558.99 / cum						Rs 2870401.35	
2	<p>100.1.5 Excavating trenches of required width for pipes, cables, etc including excavation for sockets, and dressing of sides, ramming of bottoms, depth up to 1.5 m, including getting out the excavated soil, and then returning the soil as required, in layers not exceeding 20 cm in depth, including consolidating each deposited layer by ramming, watering, etc. and disposing of surplus excavated soil as directed, within a lead of 50 m :"</p> <p>Ordinary Rock. (Ref. Item No. 2.13.1 of DSR)</p>							
	PH1 to manhole (N1117)	1	1469.000	0.900	1.200	0.18	285.574	
	PH2 - PH1	1	2700.000	0.900	1.200	0.18	524.880	
	PH3 to manhole (N2554)	1	950.000	0.800	1.150	0.18	157.320	
	P H 4 t o manhole(N1822)	1	965.000	0.900	1.200	0.18	187.596	
	Total Quantity						1155.370 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						1155.370 cum	
	Say 1155.370 cum @ Rs 811.82 / cum						Rs 937952.47	
3	<p>100.1.9 Excavating trenches of required width for pipes, cables, etc including excavation for sockets, and dressing of sides, ramming of bottoms, depth up to 1.5 m, including getting out the excavated soil, and then returning the soil as required, in layers not exceeding 20 cm in depth, including consolidating each deposited layer by ramming, watering, etc. and disposing of surplus excavated soil as directed, within a lead of 50 m</p> <p>Hard Rock(Requiring Blasting). (Ref. Item No. 2.13.2 of DSR)</p>							

	PH1 to manhole (N1117)	1	1469.000	0.900	1.200	0.02	31.731	
	PH2 - PH1	1	2700.000	0.900	1.200	0.02	58.320	
	PH3 to manhole (N2554)	1	950.000	0.800	1.150	0.02	17.480	
	PH4 to manhole (N1822)	1	965.000	0.900	1.200	0.02	20.844	
	Total Quantity						128.375 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						128.375 cum	
	Say 128.375 cum @ Rs 1149.71 / cum						Rs 147594.02	
4	15.2.1 Demolishing cement concrete manually / by mechanical means including disposal of material within 50 metres lead as per direction of Engineer - in-Charge. Nominal concrete 1:3:6 or richer mix (i/c equivalent design mix)							
	Concrete Roads	1	250.000	1.000	0.150		37.500	
	Total Quantity						37.500 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						37.500 cum	
	Say 37.500 cum @ Rs 2057.94 / cum						Rs 77172.75	
5	100.98.117 Supply of DI K9 Pipe Conforming to IS 8329/2000, 200mm Dia.							
	PH3 to manhole	1	950.000				950.000	
	Total Quantity						950.000 metre	
	Total Deducted Quantity						0.000 metre	
	Net Total Quantity						950.000 metre	
	Say 950.000 metre @ Rs 2100.55 / metre						Rs 199522.50	
6	100.98.118 Supply of DI K9 Pipe Conforming to IS 8329/2000, 250mm Dia.							
	PH1,PH2 &PH4	1	5134.000				5134.000	
	Total Quantity						5134.000 metre	
	Total Deducted Quantity						0.000 metre	
	Net Total Quantity						5134.000 metre	
	Say 5134.000 metre @ Rs 2811.20 / metre						Rs 14432700.80	
7	100.14.3 Conveying and laying S&S Centrifugally Cast (Spun) / Ductile Iron Pipes conforming to IS: 8329							

	excluding cost of pipes and specials : 200 mm dia Ductile Iron Class K-9 Pipes Data derived from 18.72.17 in DAR						
	PH3 to manhole	1	950.000				950.000
	Total Quantity						950.000 metre
	Total Deducted Quantity						0.000 metre
	Net Total Quantity						950.000 metre
	Say 950.000 metre @ Rs 122.86 / metre						Rs 116717.00
8	100.14.4 Conveying and laying S&S Centrifugally Cast (Spun) / Ductile Iron Pipes conforming to IS: 8329 excluding cost of pipes and specials : 250 mm dia Ductile Iron Class K-9 Pipes Data derived from 18.72.18 in DAR						
	PH1,PH2,PH4	1	5134.000				5134.000
	Total Quantity						5134.000 metre
	Total Deducted Quantity						0.000 metre
	Net Total Quantity						5134.000 metre
	Say 5134.000 metre @ Rs 164.07 / metre						Rs 842335.38
9	100.8.1 Fencing one side of trenches, 1.50 m height with two rows of 10 cm plastic caution tape in vertical casuarina pole (girth 15cm to 24cm) fixed at 2 m intervals. (Data Prepared based on PWD SDB - Item No.1009)						
		1	3000.000				3000.000
	Total Quantity						3000.000 metre
	Total Deducted Quantity						0.000 metre
	Net Total Quantity						3000.000 metre
	Say 3000.000 metre @ Rs 28.12 / metre						Rs 84360.00
10	18.70.3 Providing push - on-joints to Centrifugally (Spun) Cast Iron Pipes or Ductile Iron Pipes including testing of joints and including the cost of rubber gasket:200 mm dia pipes						
		190					190.000
	Total Quantity						190.000 joint
	Total Deducted Quantity						0.000 joint
	Net Total Quantity						190.000 joint
	Say 190.000 joint @ Rs 260.40 / joint						Rs 49476.00
11	18.70.4						

	Providing push - on-joints to Centrifugally (Spun) Cast Iron Pipes or Ductile Iron Pipes including testing of joints and including the cost of rubber gasket:250 mm dia pipes						
		1027					1027.000
	Total Quantity						1027.000 joint
	Total Deducted Quantity						0.000 joint
	Net Total Quantity						1027.000 joint
	Say 1027.000 joint @ Rs 317.97 / joint						Rs 326555.19
12	18.83.5 Labour for cutting C.I. pipe with steel saw.200 mm diameter C.I. pipe						
		8					8.000
	Total Quantity						8.000 Each Cut
	Total Deducted Quantity						0.000 Each Cut
	Net Total Quantity						8.000 Each Cut
	Say 8.000 Each Cut @ Rs 433.40 / Each Cut						Rs 3467.20
13	18.83.6 Labour for cutting C.I. pipe with steel saw.250 mm diameter C.I. pipe						
		40					40.000
	Total Quantity						40.000 Each Cut
	Total Deducted Quantity						0.000 Each Cut
	Net Total Quantity						40.000 Each Cut
	Say 40.000 Each Cut @ Rs 539.01 / Each Cut						Rs 21560.40
14	18.68.1 Providing and laying D.I specials of class K - 12 suitable for push - on jointing as per IS : 9523 :Upt 600 mm dia						
		1	60.000				60.000
	Total Quantity						60.000 quintal
	Total Deducted Quantity						0.000 quintal
	Net Total Quantity						60.000 quintal
	Say 60.000 quintal @ Rs 20247.70 / quintal						Rs 1214862.00
15	100.35.3 Testing 200mm DI/CI pipeline with potable water to the required test pressure 200 mm dia Observed Data derived from item no.1020 of PHED DATA						
		1	950.000				950.000
	Total Quantity						950.000 metre

							Total Deducted Quantity	0.000 metre
							Net Total Quantity	950.000 metre
							Say 950.000 metre @ Rs 40.14 / metre	Rs 38133.00
16	100.35.4 Testing 250mm DI/CI pipeline with potable water to the required test pressure . 250 mm dia Observed Data derived from item no.1022 of PHED DATA							
		1	5134.000					5134.000
							Total Quantity	5134.000 metre
							Total Deducted Quantity	0.000 metre
							Net Total Quantity	5134.000 metre
							Say 5134.000 metre @ Rs 51.20 / metre	Rs 262860.80
17	5.1.3 Providing and laying in position specified grade of reinforced cement concrete, excluding the cost of centering, shuttering, finishing and reinforcement - All work up to plinth level:1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size)							
	pipe supports/ anchor blocks	10	1.000	1.000	1.000			10.000
							Total Quantity	10.000 cum
							Total Deducted Quantity	0.000 cum
							Net Total Quantity	10.000 cum
							Say 10.000 cum @ Rs 8642.31 / cum	Rs 86423.10
18	5.9.1 Centering and shuttering including strutting, etc. and removal of form for:Foundations, footings, bases of columns, etc for mass concrete							
		10	4.000					40.000
							Total Quantity	40.000 sqm
							Total Deducted Quantity	0.000 sqm
							Net Total Quantity	40.000 sqm
							Say 40.000 sqm @ Rs 337.42 / sqm	Rs 13496.80
19	5.22.6 Steel reinforcement for R.C.C work including straightening, cutting, bending, placing in position and binding all complete upto plinth levelThermo - Mechanically Treated bars of grade Fe-500D or more							
		1	10.000			80.0		800.000
							Total Quantity	800.000 kilogram
							Total Deducted Quantity	0.000 kilogram

SI No	Description	No	L	B	D	CF	Quantity	Remark
Net Total Quantity							800.000 kilogram	
Say 800.000 kilogram @ Rs 98.92 / kilogram								Rs 79136.00
12Laying PE pipes via HDD Method above 3m depth (Cost Index:36.44 %)								
1	od364954/2021_2022 :Installation of PE -250mm-315mm mm dia PE pipe by horizontal directional drilling method in all types of soil above /below water table for pumping /gravity /distribution main including preparing and setting up the plat and equipment, installing new pipe work, testing and commissioning including cost of pipe (6 m line pipe with butt joint all related civil /mechanical works like entry /exits pit as necessary. De watering ,drilling stringing, reaming, pulling back the new pipe on the designed alignment and monitoring by approved guidance system. wastage of pipes, proper disposal of drilling fluid /bentonite slurry. Proper back filling og pit and holes by approved borrow material as per specification approved method statement or as directed by engineer in charge. also using Ground penetrating radar survey in corridor with to detect buried utilities on the map of corridor with information of locations and depths to the top of various utilities detected .work to be conducted using 500MHZ and 300MHZ antenna or latest for the best possible resolution and penetration including hydrolic testing							
	250MM HDPE	1	615.800				615.800	
	315MM HDPE	1	545.400				545.400	
Total Quantity							1161.200 metre	
Total Deducted Quantity							0.000 metre	
Net Total Quantity							1161.200 metre	
Say 1161.200 metre @ Rs 6445.97 / metre								Rs 7485060.36
2	od364959/2021_2022 Installation of PE pipe between 110mm & 225mm outer dia by HDD method for on grade gravity sewer including preparing and setting up the plant and equipment,preparing new pipe work material making of entry pit and exit pit up to required depth installing new pipe work and commissioning system or making the system or making the system ready for commissioning by HDD operating including all related civil and mechanical works like excavation shoring/strutting etc drilling stringing reaming and pulling back the new pipe work on the designed borne path alignment proper disposal of drilling fluid and back fill of site after completion all inclusive as per Conditions HDPE pipes also using Ground penetrating radar survey in corridor with to detect buried utilities on the map of corridor with information of locations and depths to the top of various utilities detected .work to be conducted using 500MHZ and 300MHZ antenna or latest forthe best possible resolution and penetration							
	200MM HDPE	1	9620.700				9620.700	
Total Quantity							9620.700 metre	
Total Deducted Quantity							0.000 metre	
Net Total Quantity							9620.700 metre	
Say 9620.700 metre @ Rs 5100.12 / metre								Rs 49066724.48

3	od374940/2021_2022 Installation of PE -355mm-500mm mm dia PE pipe by horizontal directional drilling method in all types of soil above /below water table for pumping /gravity /distribution main including preparing and setting up the plant and equipment, installing new pipe work, testing and commissioning excluding cost of pipe (6 m line pipe with butt joint all related civil /mechanical works like entry /exits pit as necessary. Dewatering, drilling stringing, reaming, pulling back the new pipe on the designed alignment and monitoring by approved guidance system. wastage of pipes, proper disposal of drilling fluid /bentonite slurry. Proper back filling pit and holes by approved borrow material as per specification approved method statement or as directed by engineer in charge. Also using Ground penetrating radar survey in corridor with to detect buried utilities on the map of corridor with information of locations and depths to the top of various utilities detected. Work to be conducted using 500MHZ and 300MHZ antenna or latest for the best possible resolution and penetration including hydraulic testing							
	400mm HDPE	1	115.800				115.800	
	500mm HDPE	1	254.400				254.400	
	Total Quantity						370.200 metre	
	Total Deducted Quantity						0.000 metre	
	Net Total Quantity						370.200 metre	
	Say 370.200 metre @ Rs 7337.60 / metre						Rs 2716379.52	
4	od374944/2021_2022 : Installation of HDPE -560mm-710mm mm dia PE pipe by horizontal directional drilling method in all types of soil above /below water table for pumping /gravity /distribution main including preparing and setting up the plant and equipment, installing new pipe work, testing and commissioning excluding cost of pipe (6 m line pipe with butt joint all related civil /mechanical works like entry /exits pit as necessary. Dewatering, drilling stringing, reaming, pulling back the new pipe on the designed alignment and monitoring by approved guidance system. wastage of pipes, proper disposal of drilling fluid /bentonite slurry. Proper back filling pit and holes by approved borrow material as per specification approved method statement or as directed by engineer in charge. Also using Ground penetrating radar survey in corridor with to detect buried utilities on the map of corridor with information of locations and depths to the top of various utilities detected. Work to be conducted using 500MHZ and 300MHZ antenna or latest for the best possible resolution and penetration including hydraulic testing							
	560mm	1	539.800				539.800	
	Total Quantity						539.800 metre	
	Total Deducted Quantity						0.000 metre	
	Net Total Quantity						539.800 metre	
	Say 539.800 metre @ Rs 8805.12 / metre						Rs 4753003.78	
SI No	Description	No	L	B	D	CF	Quantity	Remark
13Construction of Man holes (Cost Index:36.44 %)								

1	od364953/2021_2022 Constructing manholes of different depths as per drawings and specifications on sewer lines and provided with tight fitting approved make heavy duty CI manhole cover with frame 600 mm dia, embedded into the cover slab, providing provision of encapsulated PVC/CI foot rests @ 30 cm apart in a staggered manner, bottom slab, side wall and cover slab with RCC M30 with a provision of PCC 1:3:6, 10 cm thick below floor slab, inside to be plastered with CM. 1:3, 12mm thick one coat with a neat cement flushing coat, two coats of anticorrosive bituminous paint to the outside surfaces, providing benching and channelling inside the manhole with CC M30 as per drawings and specifications. The rate shall include earthwork excavation for all leads and lifts, backfilling, de-watering, side protection with steel shoring, provision of pipe connection for inlet, outlet and service connection pipes, providing danger lights, barricades etc. and disposing the surplus earth away with all leads and lifts as directed upto manhole depth 1.5m (internal dia-1200mm)							
			1671				1671.000	275-(123- already done, 50- precast MH)
	Total Quantity						1671.000 No	
	Total Deducted Quantity						0.000 No	
	Net Total Quantity						1671.000 No	
	Say 1671.000 No @ Rs 58049.94 / No						Rs 97001449.74	
2	od364958/2021_2022 Constructing manholes of different depths as per drawings and specifications on sewer lines and provided with tight fitting approved make heavy CI manhole cover with frame 600 mm dia, embedded into the cover slab, providing provision of encapsulated PVC/CI foot rests @ 30 cm apart in a staggered manner, bottom slab, side wall and cover slab with RCC M30 with a provision of PCC 1:3:6, 10 cm thick below floor slab, inside to be plastered with CM. 1:3, 12mm thick one coat with a neat cement flushing coat, two coats of anticorrosive bituminous paint to the outside surfaces, providing benching and channelling inside the manhole with CC M30 as per drawings and specifications. The rate shall include earthwork excavation for all leads and lifts, backfilling, de-watering, side protection with steel shoring, provision of pipe connection for inlet, outlet and service connection pipes, providing danger lights, barricades etc. and disposing the surplus earth away with all leads and lifts as directed upto manhole depth 2.5m (internal diameter 1200m)							
			382				382.000	
	Total Quantity						382.000 No	
	Total Deducted Quantity						0.000 No	
	Net Total Quantity						382.000 No	
	Say 382.000 No @ Rs 76668.65 / No						Rs 29287424.30	
3	od364964/2021_2022 Constructing manholes of different depths as per drawings and specifications on sewer lines and provided with tight fitting approved make heavy CI manhole cover with frame 600 mm dia, embedded into							

	the cover slab, providing provision of encapsulated PVC/CI foot rests @ 30 cm apart in a staggered manner, bottom slab, side wall and cover slabwith RCC M30 with a provision of PCC 1:3:6, 10 cm thick below floor slab, inside to be plastered with CM. 1:3, 12mm thick one coat with a neat cement flushing coat, two coats of anticorrosive bituminous paint to the outside surfaces, providing benching and channelling inside the manhole with CC M30 as per drawings and specifications. The rate shall include earthwork excavation for all leads and lifts, backfilling, de-watering, side protection with steel shoring, provision of pipe connection for inlet, outlet and service connection pipes, providing danger lights, barricades etc.and disposing the surplus earth away with all leads and lifts as directed upto manhole depth 3.5m (internal diameter - 1500mm)						
		282					282.000
	Total Quantity						282.000 No
	Total Deducted Quantity						0.000 No
	Net Total Quantity						282.000 No
	Say 282.000 No @ Rs 153988.35 / No						Rs 43424714.70
4	od364968/2021_2022 Constructing manholes of different depths as per drawings and specifications on sewer lines and provided with tight fitting approved make heavy CI manhole cover with frame 600 mm dia, embeded into the cover slab, providing provision of encapsulated PVC/CI foot rests @ 30 cm apart in a staggered manner, bottom slab, side wall and cover slabwith RCC M30 with a provision of PCC 1:3:6, 10 cm thick below floor slab, inside to be plastered with CM. 1:3, 12mm thick one coat with a neat cement flushing coat, two coats of anticorrosive bituminous paint to the outside surfaces, providing benching and channelling inside the manhole with CC M30 as per drawings and specifications. The rate shall include earthwork excavation for all leads and lifts, backfilling, de-watering, side protection with steel shoring, provision of pipe connection for inlet, outlet and service connection pipes, providing danger lights, barricades etc.and disposing the surplus earth away with all leads and lifts as directed upto manhole depth upto 4.5m (internal diameter-1500mm)						
		134					134.000
	Total Quantity						134.000 No
	Total Deducted Quantity						0.000 No
	Net Total Quantity						134.000 No
	Say 134.000 No @ Rs 196474.41 / No						Rs 26327570.94
5	od364972/2021_2022 Constructing manholes of different depths as per drawings and specifications on sewer lines and provided with tight fitting approved make heavy CI manhole cover with frame 600 mm dia, embeded into the cover slab, providing provision of encapsulated PVC/CI foot rests @ 30 cm apart in a staggered manner, bottom slab, side wall and cover slabwith RCC M30 with a provision of PCC 1:3:6, 10 cm thick below floor slab, inside to be plastered with CM. 1:3, 12mm thick one coat with a neat cement flushing coat, two coats of anticorrosive bituminous paint to the outside surfaces, providing benching and channelling inside the manhole with CC M30 as per drawings and specifications. The rate shall include earthwork excavation for all leads and lifts, backfilling, de-watering, side protection with steel shoring, provision of pipe connection for inlet, outlet and service connection pipes, providing danger lights,						

barricades etc.and disposing the surplus earth away with all leads and lifts as directed upto manhole depth upto 5.50m (internal diameter-1500mm)								
		121					121.000	asramom-4, h&C2-18, H&C1-3
Total Quantity							121.000 No	
Total Deducted Quantity							0.000 No	
Net Total Quantity							121.000 No	
Say 121.000 No @ Rs 236432.82 / No							Rs 28608371.22	
SI No	Description	No	L	B	D	CF	Quantity	Remark
14Road Restoration - to PWD/NH (Cost Index:36.44 %)								
1	od364952/2021_2022 PWD Berm Cutting							
	For Inspection Chamber	4400	1.000	1.000			4400.000	
Total Quantity							4400.000 sqm	
Total Deducted Quantity							0.000 sqm	
Net Total Quantity							4400.000 sqm	
Say 4400.000 sqm @ Rs 304.95 / sqm							Rs 1341780.00	
2	od364956/2021_2022 PWD Road reformation Charges- BT Cutting							
		1	2000.000	1.000		1.5	3000.000	
Total Quantity							3000.000 sqm	
Total Deducted Quantity							0.000 sqm	
Net Total Quantity							3000.000 sqm	
Say 3000.000 sqm @ Rs 2619.13 / sqm							Rs 7857390.00	
3	od364957/2021_2022 Road restoration charges for BM & BC Tar Cutting							
	PWD	1	31804.000	1.000	1.500		47706.000	
	NH	1	12900.000	1.000	1.500		19350.000	
Total Quantity							67056.000 sqm	
Total Deducted Quantity							0.000 sqm	
Net Total Quantity							67056.000 sqm	
Say 67056.000 sqm @ Rs 3448.74 / sqm							Rs 231258709.44	
SI No	Description	No	L	B	D	CF	Quantity	Remark

15Lifting Stations and Allied work (Cost Index:36.44 %)									
1	100.3.1.1 Earthwork open well excavation (above water) for wells of dia. upto 2.50 m in all kinds of soil and conveying and depositing the spoil within initial lead of 50m and lift up to 1.5 m including neat banking. NEW DATA (Prepared based on PHED SDB - Item No.1071 & 1074)								
	LS1	3.14/4	1.800	1.800	1.500		3.816		
	LS2	3.14/4	3.100	3.100	1.500		11.316		
	LS3	3.14/4	2.600	2.600	1.500		7.960		
	LS4	3.14/4	1.800	1.800	1.500		3.816		
	LS5	3.14/4	1.800	1.800	1.500		3.816		
	LS6	3.14/4	2.600	2.600	1.500		7.960		
	LS9	3.14/4	1.800	1.800	1.500		3.816		
	LS10	3.14/4	2.100	2.100	1.500		5.193		
	LS11	3.14/4	1.800	1.800	1.500		3.816		
	LS12	3.14/4	2.100	2.100	1.500		5.193		
	LS13	3.14/4	1.800	1.800	1.500		3.816		
	LS15	3.14/4	3.100	3.100	1.500		11.316		
	Total Quantity						71.834 cum		
	Total Deducted Quantity						0.000 cum		
	Net Total Quantity						71.834 cum		
	Say 71.834 cum @ Rs 535.87 / cum						Rs 38493.69		
2	100.3.1.2 Earthwork open well excavation (above water) for wells of dia. upto 2.50 m in all kinds of soil and conveying and depositing the spoil within initial lead of 50m and lift from 1.5m to 3.0m including neat banking. NEW DATA (Prepared based on PHED SDB - Item No.1073 & 1076)								
	LS1	3.14/4	1.800	1.800	1.500		3.816		
	LS2	3.14/4	3.100	3.100	1.500		11.316		
	LS3	3.14/4	2.600	2.600	1.500		7.960		
	LS4	3.14/4	1.800	1.800	1.500		3.816		
	LS5	3.14/4	1.800	1.800	1.500		3.816		
	LS6	3.14/4	2.600	2.600	1.500		7.960		
	LS9	3.14/4	1.800	1.800	1.500		3.816		
	LS10	3.14/4	2.100	2.100	1.500		5.193		
	LS11	3.14/4	1.800	1.800	1.500		3.816		

	LS12	3.14/4	2.100	2.100	1.500		5.193		
	LS13	3.14/4	1.800	1.800	1.500		3.816		
	LS15	3.14/4	3.100	3.100	0.580		4.376		
	Total Quantity						64.894 cum		
	Total Deducted Quantity						0.000 cum		
	Net Total Quantity						64.894 cum		
	Say 64.894 cum @ Rs 589.49 / cum						Rs 38254.36		
3	100.3.1.3 Earthwork open well excavation (above water) for wells of dia. upto 2.50 m in all kinds of soil and conveying and depositing the spoil within initial lead of 50m and lift from 3.0m to 4.5m including neat banking. NEW DATA (Prepared based on PHED SDB - Item No.1073 & 1076)								
	LS1	3.14/4	1.800	1.800	1.500		3.816		
	LS2	3.14/4	3.100	3.100	1.500		11.316		
	LS3	3.14/4	2.600	2.600	1.100		5.838		
	LS4	3.14/4	1.800	1.800	1.500		3.816		
	LS5	3.14/4	1.800	1.800	1.500		3.816		
	LS6	3.14/4	2.600	2.600	1.500		7.960		
	LS9	3.14/4	1.800	1.800	1.500		3.816		
	LS10	3.14/4	2.100	2.100	1.500		5.193		
	LS11	3.14/4	1.800	1.800	1.500		3.816		
	LS12	3.14/4	2.100	2.100	1.500		5.193		
	LS13	3.14/4	1.800	1.800	1.500		3.816		
	Total Quantity						58.396 cum		
	Total Deducted Quantity						0.000 cum		
	Net Total Quantity						58.396 cum		
	Say 58.396 cum @ Rs 643.04 / cum						Rs 37550.96		
4	100.3.1.4 Earth work open well excavation (above water for wells of dia. upto 2.50 m in all kinds of soil and conveying and depositing the spoil within intial lead of 50m and lift from 4.5 m to 6.0m including neat banking. NEW DATA(Prepared based on PHED SDB- Item No. 1073&1076)								
	LS1	3.14/4	1.800	1.800	0.980		2.493		
	LS2	3.14/4	3.100	3.100	1.230		9.279		
	LS4	3.14/4	1.800	1.800	0.500		1.272		

	LS5	3.14/4	1.800	1.800	0.200		0.509		
	LS6	3.14/4	2.600	2.600	1.500		7.960		
	LS9	3.14/4	1.800	1.800	1.320		3.358		
	LS10	3.14/4	2.100	2.100	1.420		4.916		
	LS11	3.14/4	1.800	1.800	0.100		0.255		
	LS12	3.14/4	2.100	2.100	0.440		1.524		
	LS13	3.14/4	1.800	1.800	1.180		3.002		
	Total Quantity						34.568 cum		
	Total Deducted Quantity						0.000 cum		
	Net Total Quantity						34.568 cum		
	Say 34.568 cum @ Rs 696.66 / cum						Rs 24082.14		
5	100.3.1.5 Earthwork open well excavation (above water) for wells of dia. upto 2.50 m in all kinds of soil and conveying and depositing the spoil within initial lead of 50m and lift from 6.0m to 7.5m including neat banking. NEW DATA (Prepared based on PHED SDB - Item No.1073 & 1076)								
	LS6	3.14/4	2.600	2.600	1.000		5.307		
	Total Quantity						5.307 cum		
	Total Deducted Quantity						0.000 cum		
	Net Total Quantity						5.307 cum		
	Say 5.307 cum @ Rs 750.22 / cum						Rs 3981.42		
6	100.3.3.1 Earthwork open well excavation (above water) for wells of dia. above 2.5m and upto 3.50 m in all kinds of soil and conveying and depositing the spoil within initial lead of 50m and lift up to 1.5 m including neat banking. NEW DATA (Prepared based on PHED SDB - Item No.1080 & 1083)								
	LS7	3.14/4	3.400	3.400	1.500		13.612		
	LS8	3.14/4	3.900	3.900	1.500		17.910		
	LS16	3.14/4	3.300	3.300	1.500		12.823		
	LS17	3.14/4	3.600	3.600	1.500		15.261		
	Total Quantity						59.606 cum		
	Total Deducted Quantity						0.000 cum		
	Net Total Quantity						59.606 cum		
	Say 59.606 cum @ Rs 513.76 / cum						Rs 30623.18		
7	100.3.3.2 Earthwork open well excavation (above water) for wells of dia. above 2.5m and upto 3.50 m in all kinds of								

	soil and conveying and depositing the spoil within initial lead of 50m and lift from 1.5m to 3.0 m including neat banking. NEW DATA (Prepared based on PHED SDB - Item No.1082 & 1085)							
	LS7	3.14/4	3.400	3.400	1.500		13.612	
	LS8	3.14/4	3.900	3.900	0.580		6.926	
	LS16	3.14/4	3.300	3.300	0.680		5.814	
	LS17	3.14/4	3.600	3.600	1.010		10.276	
	Total Quantity						36.628 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						36.628 cum	
	Say 36.628 cum @ Rs 565.13 / cum						Rs 20699.58	
8	100.3.3.13 Earthwork open well excavation (in or under water) for wells of dia. above 2.5m and upto 3.50 m in all kinds of soil and conveying and depositing the spoil within initial lead of 50m and lift from 3.0m to 4.5 m including neat banking. NEW DATA (Prepared based on PHED SDB - Item No.1081 & 1084)							
	LS7	3.14/4	3.400	3.400	1.500		13.612	
	Total Quantity						13.612 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						13.612 cum	
	Say 13.612 cum @ Rs 739.78 / cum						Rs 10069.89	
9	100.3.4.14 Earthwork open well excavation (in or under water) for wells of dia. above 2.5m and upto 3.50 m in ordinary rock in ordinary rock and conveying and depositing the spoil within initial lead of 50m and lift from 4.5m to 6.0 m including neat banking. NEW DATA (Prepared based on PHED SDB - Item No.1087)							
	LS7	3.14/4	3.400	3.400	1.500		13.612	
	Total Quantity						13.612 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						13.612 cum	
	Say 13.612 cum @ Rs 2077.50 / cum						Rs 28278.93	
10	100.3.4.15 Earthwork open well excavation (in or under water) for wells of dia. above 2.5m and upto 3.50 m in ordinary rock in ordinary rock and conveying and depositing the spoil within initial lead of 50m and lift from 6.0m to 7.5 m including neat banking. NEW DATA (Prepared based on PHED SDB - Item No.1087)							
	LS7	3.14/4	3.400	3.400	0.670		6.080	

		Total Quantity					6.080 cum	
		Total Deducted Quantity					0.000 cum	
		Net Total Quantity					6.080 cum	
		Say 6.080 cum @ Rs 2237.27 / cum					Rs 13602.60	
11	100.7.1 Bailing out water with 5 HP engine and pumpset including conveyance to the site, erection, dismantling and taking back of engine and pump, cost of fuel lubricating oil and other stores pay of staff etc. complete. NEW DATA (Prepared based on PHED SDB - Item No.1070)							
		14	200.000				2800.000	
		Total Quantity					2800.000 Kwh	
		Total Deducted Quantity					0.000 Kwh	
		Net Total Quantity					2800.000 Kwh	
		Say 2800.000 Kwh @ Rs 37.18 / Kwh					Rs 104104.00	
12	5.37.1 Providing and laying in position ready mixed M-25 grade concrete for reinforced cement concrete work, using cement content as per approved design mix, manufactured in fully automatic batching plant and transported to site of work in transit mixer for all leads, having continuous agitated mixer, manufactured as per mix design of specified grade for reinforced cement concrete work including pumping of R.M.C. from transit mixer to site of laying, excluding the cost of centering, shuttering finishing and reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in-charge. Note:- Cement content considered in this item is @330 kg/cum. Excess /less cement used as per design mix is payable/recoverable separately.All work upto plinth level							
	Lifting station -1 Bottom Plugging	3.14/4	1.800	1.800	0.300		0.764	
	„ Well Steaning	3.14	1.500	0.300	5.480		7.744	
	Cover Slab	3.14/4	1.800	1.800	0.200		0.509	
	Lifting station -2 Bottom Plugging	3.14/4	3.100	3.100	0.300		2.264	
	„ Well Steaning	3.14	2.900	0.300	5.730		15.654	
	Cover Slab	3.14/4	3.100	3.100	0.200		1.509	
	Lifting station -3 Bottom Plugging	3.14/4	2.600	2.600	0.300		1.592	
	„ Well Steaning	3.14	2.300	0.300	4.100		8.884	
	Cover Slab	3.14/4	2.600	2.600	0.200		1.062	
	Lifting station -4 Bottom Plugging	3.14/4	1.800	1.800	0.300		0.764	

	„ Well Steaning	3.14	1.500	0.300	5.000		7.065	
	Cover Slab	3.14/4	1.800	1.800	0.200		0.509	
	Lifting station -5 Bottom Plugging	3.14/4	1.800	1.800	0.300		0.764	
	„ Well Steaning	3.14	1.500	0.300	4.700		6.642	
	Cover Slab	3.14/4	1.800	1.800	0.200		0.509	
	Lifting station -6 Bottom Plugging	3.14/4	2.600	2.600	0.300		1.592	
	„ Well Steaning	3.14	2.300	0.300	7.000		15.167	
	Cover Slab	3.14/4	2.600	2.600	0.200		1.062	
	Lifting station -7 Bottom Plugging	3.14/4	3.400	3.400	0.300		2.723	
	„ Well Steaning	3.14	3.100	0.300	6.670		19.478	
	Cover Slab	3.14/4	3.400	3.400	0.200		1.815	
	Lifting station -8 Bottom Plugging	3.14/4	3.900	3.900	0.300		3.582	
	„ Well Steaning	3.14	3.600	0.300	2.080		7.054	
	Cover Slab	3.14/4	3.900	3.900	0.200		2.388	
	Lifting station -9 Bottom Plugging	3.14/4	1.800	1.800	0.300		0.764	
	„ Well Steaning	3.14	1.500	0.300	5.820		8.224	
	Cover Slab	3.14/4	1.800	1.800	0.200		0.509	
	Lifting station -10 Bottom Plugging	3.14/4	2.100	2.100	0.300		1.039	
	„ Well Steaning	3.14	1.800	0.300	5.920		10.038	
	Cover Slab	3.14/4	2.100	2.100	0.200		0.693	
	Lifting station -11 Bottom Plugging	3.14/4	1.800	1.800	0.300		0.764	
	„ Well Steaning	3.14	1.500	0.300	4.600		6.500	
	Cover Slab	3.14/4	1.800	1.800	0.200		0.509	
	Lifting station -12 Bottom Plugging	3.14/4	2.100	2.100	0.300		1.039	
	„ Well Steaning	3.14	1.800	0.300	4.940		8.377	
	Cover Slab	3.14/4	2.100	2.100	0.200		0.693	

	Lifting station -13 Bottom Plugging	3.14/4	1.800	1.800	0.300		0.764		
	„ Well Steaning	3.14	1.500	0.300	5.680		8.026		
	Cover Slab	3.14/4	1.800	1.800	0.200		0.509		
	Lifting station -14 Bottom Plugging	3.14/4	3.600	3.600	0.300		3.053		
	„ Well Steaning	3.14	3.300	0.300	6.280		19.523		
	Cover Slab	3.14/4	3.600	3.600	0.200		2.035		
	Lifting station -15 Bottom Plugging	3.14/4	3.100	3.100	0.300		2.264		
	„ Well Steaning	3.14	2.800	0.300	2.080		5.487		
	Cover Slab	3.14/4	3.100	3.100	0.200		1.509		
	Lifting station -16 Bottom Plugging	3.14/4	3.300	3.300	0.300		2.565		
	„ Well Steaning	3.14	3.000	0.300	2.180		6.161		
	Cover Slab	3.14/4	3.300	3.300	0.200		1.710		
	Lifting station -17 Bottom Plugging	3.14/4	3.600	3.600	0.300		3.053		
	„ Well Steaning	3.14	3.300	0.300	2.510		7.803		
	Cover Slab	3.14/4	3.600	3.600	0.200		2.035		
	Manhole	17	0.450	0.600	0.300		-1.377		
	Total Quantity						216.742 cum		
	Total Deducted Quantity						-1.377 cum		
	Net Total Quantity						215.365 cum		
	Say 215.365 cum @ Rs 9947.98 / cum						Rs 2142446.71		
13	5.34.1 Extra for providing richer mixes at all floor levels. Note:- Excess/less cement over the specified cement content used is payable/ recoverable separately. Providing M-30 grade concrete instead of M-25 grade BMC/RMC. (Note:- Cement content considered in M-30 is @ 340 kg/cum).								
	Richer mix	1	215.365				215.365		
	Total Quantity						215.365 cum		
	Total Deducted Quantity						0.000 cum		
	Net Total Quantity						215.365 cum		
	Say 215.365 cum @ Rs 82.61 / cum						Rs 17791.30		
14	4.12 Extra for providing and mixing water proofing material in cement concrete work in doses by weight of								

	cement as per manufacturer's specification .							
	Qty of cement @340Kg x 150.758	1	215.365			340.0	73224.100	
	Total Quantity						73224.100 kg	
	Total Deducted Quantity						0.000 kg	
	Net Total Quantity						73224.100 kg	
	Say 73224.100 kg @ Rs 1.36 / kg						Rs 99584.78	
15	5.9.2 Centering and shuttering including strutting, etc. and removal of form for:Walls (any thickness) including attached pilasters, butteresses, plinth and string courses etc.							
	Stening inside - LS -1	3.14	1.200	5.480			20.649	
	Stening Outside - LS -1	3.14	1.800	5.780			32.669	
	Stening inside - LS -2	3.14	2.500	5.730			44.981	
	Stening Outside - LS -2	3.14	3.100	6.030			58.697	
	Stening inside - LS -3	3.14	2.000	4.100			25.748	
	Stening Outside - LS -3	3.14	2.600	4.400			35.922	
	Stening inside - LS -4	3.14	1.200	5.000			18.840	
	Stening Outside - LS -4	3.14	1.800	5.300			29.956	
	Stening inside - LS -5	3.14	1.200	4.700			17.710	
	Stening Outside - LS -5	3.14	1.800	5.000			28.260	
	Stening inside - LS -6	3.14	2.000	7.000			43.960	
	Stening Outside - LS -6	3.14	2.600	7.300			59.598	
	Stening inside - LS -7	3.14	2.800	6.670			58.643	
	Stening Outside - LS -7	3.14	3.400	6.970			74.412	
	Stening inside - LS -8	3.14	3.300	2.080			21.553	
	Stening Outside - LS -8	3.14	3.900	2.380			29.146	
	Stening inside - LS -9	3.14	1.200	5.820			21.930	

	Stening Outside - LS - 9	3.14	1.800	6.120			34.591	
	Stening inside - LS - 10	3.14	1.500	5.920			27.884	
	Stening Outside - LS - 10	3.14	2.100	6.220			41.015	
	Stening inside - LS - 11	3.14	1.200	4.600			17.333	
	Stening Outside - LS - 11	3.14	1.800	4.900			27.695	
	Stening inside - LS - 12	3.14	1.200	4.940			18.614	
	Stening Outside - LS - 12	3.14	1.800	5.240			29.617	
	Stening inside - LS - 13	3.14	1.200	5.680			21.403	
	Stening Outside - LS - 13	3.14	1.800	5.980			33.799	
	Stening inside - LS - 14	3.14	3.000	6.280			59.158	
	Stening Outside - LS - 14	3.14	3.600	6.580			74.381	
	Stening inside - LS - 15	3.14	2.500	2.080			16.329	
	Stening Outside - LS - 15	3.14	3.100	2.380			23.167	
	Stening inside - LS - 16	3.14	2.700	2.180			18.483	
	Stening Outside - LS - 16	3.14	3.300	2.480			25.698	
	Stening inside - LS - 17	3.14	3.000	2.510			23.645	
	Stening Outside - LS - 17	3.14	3.600	2.810			31.765	
	Total Quantity						1147.251 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						1147.251 sqm	
	Say 1147.251 sqm @ Rs 721.70 / sqm						Rs 827971.05	

16	5.9.20 Centering and shuttering including strutting, etc. and removal of form for:Suspended floors, roofs, landings, balconies and access platform with water proof ply 12 mm thick							
	LS- 1,LS 4, LS5, LS 9,LS 11 & LS13 Cover slab	6*3.14/4	1.800	1.800			15.261	
	,, Side	6*3.14	2.400		0.200		9.044	
	LS- 2 , LS 15, Cover slab	2*3.14/4	3.100	3.100			15.088	
	,, Side	2*3.14	3.700		0.200		4.648	
	LS- 3 ,LS 6 ,Cover slab	2*3.14/4	2.600	2.600			10.614	
	,, Side	2*3.14	3.200		0.200		4.020	
	LS- 7, Cover slab	3.14/4	3.400	3.400			9.075	
	,, Side	3.14	4.000		0.200		2.513	
	LS- 10,LS 12 Cover slab	2*3.14/4	2.100	2.100			6.924	
	,, Side	2*3.14	2.700		0.200		3.392	
	LS- 16 Cover slab	3.14/4	3.300	3.300			8.549	
	,, Side	3.14	3.900		0.200		2.450	
	LS- 8, Cover slab	3.14/4	3.900	3.900			11.940	
	,, Side	3.14	4.500		0.200		2.826	
	LS- 14,LS 17, Cover slab	2*3.14/4	3.600	3.600			20.348	
	,, Side	2*3.14	4.200		0.200		5.276	
	Total Quantity						131.968 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						131.968 sqm	
	Say 131.968 sqm @ Rs 923.02 / sqm						Rs 121809.10	
17	5.22.1 Steel reinforcement for R.C.C work including straightening, cutting, bending, placing in position and binding all complete upto plinth levelMild steel and Medium Tensile steel bars							
	Steel reinforcement @ 100Kg/ 1Cum of CC	1	215.365			100.0	21536.500	
	Total Quantity						21536.500 kg	
	Total Deducted Quantity						0.000 kg	

	Net Total Quantity						21536.500 kg	
	Say 21536.500 kg @ Rs 97.28 / kg						Rs 2095070.72	
18	100.41.34 Supplying and fixing Rectangular CI manhole cover 455x610 mm with frame (low duty) charges including all cost, labour charges etc complete.							
	Fixing on Cover slab	17					17.000	
	Total Quantity						17.000 No	
	Total Deducted Quantity						0.000 No	
	Net Total Quantity						17.000 No	
	Say 17.000 No @ Rs 2815.71 / No						Rs 47867.07	
19	100.98.115 Supply of DI K9 Pipe Conforming to IS 8329/2000, 100mm Dia.							
	LS1,LS2,LS11,LS14	4	40.000				160.000	
	LS4,LS5,LS6,LS7,LS12,LS13	6	50.000				300.000	
	LS3,LS8	2	650.000				1300.000	
	LS9,LS10	2	60.000				120.000	
	LS15	1	270.000				270.000	
	LS16	1	600.000				600.000	
	LS17	1	450.000				450.000	
	Total Quantity						3200.000 metre	
	Total Deducted Quantity						0.000 metre	
	Net Total Quantity						3200.000 metre	
	Say 3200.000 metre @ Rs 1143.05 / metre						Rs 3657760.00	
20	100.1.1 Excavating trenches of required width for pipes, cables, etc including excavation for sockets, and dressing of sides, ramming of bottoms, depth up to 1.5 m, including getting out the excavated soil, and then returning the soil as required, in layers not exceeding 20 cm in depth, including consolidating each deposited layer by ramming, watering, etc. and disposing of surplus excavated soil as directed, within a lead of 50 m : All kinds of soil (Ref. Item No. 2.10.1 of DSR)							
	LS1,LS2,LS11,LS14	4	40.000				160.000	
	LS4,LS5,LS6,LS7,LS12,LS13	6	50.000				300.000	
	LS3,LS8	2	650.000				1300.000	

	LS9,LS10	2	60.000				120.000	
	LS15	1	270.000				270.000	
	LS16	1	600.000				600.000	
	LS17	1	450.000				450.000	
	Total Quantity						3200.000 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						3200.000 cum	
	Say 3200.000 cum @ Rs 558.99 / cum						Rs 1788768.00	
21	100.8.1 Fencing one side of trenches, 1.50 m height with two rows of 10 cm plastic caution tape in vertical casuarina pole (girth 15cm to 24cm) fixed at 2 m intervals. (Data Prepared based on PWD SDB - Item No.1009)							
		1	1000.000				1000.000	
	Total Quantity						1000.000 metre	
	Total Deducted Quantity						0.000 metre	
	Net Total Quantity						1000.000 metre	
	Say 1000.000 metre @ Rs 28.12 / metre						Rs 28120.00	
22	100.14.1 Conveying and laying S&S Centrifugally Cast (Spun) / Ductile Iron Pipes conforming to IS: 8329 excluding cost of pipes and specials : 100 mm dia Ductile Iron Class K-9 Pipes Data derived from 18.72.15 in DAR							
		1	2400.000				2400.000	
	Total Quantity						2400.000 metre	
	Total Deducted Quantity						0.000 metre	
	Net Total Quantity						2400.000 metre	
	Say 2400.000 metre @ Rs 59.21 / metre						Rs 142104.00	
23	18.68.1 Providing and laying D.I specials of class K - 12 suitable for push - on jointing as per IS : 9523 :Upt 600 mm dia							
		1	14.000				14.000	
	Total Quantity						14.000 quintal	
	Total Deducted Quantity						0.000 quintal	
	Net Total Quantity						14.000 quintal	
	Say 14.000 quintal @ Rs 20247.70 / quintal						Rs 283467.80	
24	18.70.1							

	Providing push - on-joints to Centrifugally (Spun) Cast Iron Pipes or Ductile Iron Pipes including testing of joints and including the cost of rubber gasket:100 mm dia pipes							
		1	650.000				650.000	
	Total Quantity						650.000 joint	
	Total Deducted Quantity						0.000 joint	
	Net Total Quantity						650.000 joint	
	Say 650.000 joint @ Rs 108.54 / joint						Rs 70551.00	
25	18.83.2 Labour for cutting C.I. pipe with steel saw.100 mm diameter C.I. pipe							
		30					30.000	
	Total Quantity						30.000 Each Cut	
	Total Deducted Quantity						0.000 Each Cut	
	Net Total Quantity						30.000 Each Cut	
	Say 30.000 Each Cut @ Rs 172.94 / Each Cut						Rs 5188.20	
26	100.35.1 Testing 100mm DI/CI pipeline with potable water to the required test pressure 100 mm dia Observed Data derived from item no.1016 of PHED DATA							
		1	3200.000				3200.000	
	Total Quantity						3200.000 metre	
	Total Deducted Quantity						0.000 metre	
	Net Total Quantity						3200.000 metre	
	Say 3200.000 metre @ Rs 23.49 / metre						Rs 75168.00	
27	od364997/2021_2022 Pumpset- Supply, Installation, Commissioning, testing and trial run of SUBMERSIBLE SLURRY HANDLING TYPE PUMP various capacities for lifting stations							
	LS1	2	0.500				1.000	
	LS2	2	2.000				4.000	
	LS3	2	1.500				3.000	
	LS4	2	0.500				1.000	
	LS5	2	0.500				1.000	
	LS6	2	1.000				2.000	
	LS7	2	2.000				4.000	
	LS8	2	4.000				8.000	
	LS9	2	1.000				2.000	

	LS10	2	1.000				2.000		
	LS11	2	0.500				1.000		
	LS12	2	1.000				2.000		
	LS13	2	0.500				1.000		
	LS14	2	4.000				8.000		
	LS15	2	2.000				4.000		
	LS16	2	4.000				8.000		
	LS17	2	3.000				6.000		
	Total Quantity						58.000 L.S		
	Total Deducted Quantity						0.000 L.S		
	Net Total Quantity						58.000 L.S		
	Say 58.000 L.S @ Rs 290375.00 / L.S						Rs 16841750.00		
28	od364999/2021_2022 Supple and erection of Indoor Type Generator (5 Numbers-Suitable Capacity-1KVA to 5 KVA)								
	LS1	1	1.200				1.200		
	LS2	1	4.800				4.800		
	LS3	1	3.600				3.600		
	LS4	1	1.200				1.200		
	LS5	1	1.200				1.200		
	LS6	1	2.400				2.400		
	LS7	1	4.800				4.800		
	LS8	1	9.600				9.600		
	LS9	1	2.400				2.400		
	LS10	1	2.400				2.400		
	LS11	1	1.200				1.200		
	LS12	1	2.400				2.400		
	LS13	1	1.200				1.200		
	LS14	1	9.600				9.600		
	LS15	1	4.800				4.800		
	LS16	1	9.600				9.600		
	LS17	1	7.200				7.200		
	Total Quantity						69.600 L.S		
	Total Deducted Quantity						0.000 L.S		

	Net Total Quantity						69.600 L.S		
	Say 69.600 L.S @ Rs 29037.50 / L.S							Rs 2021010.00	
29	od365000/2021_2022 Automatic Control system								
		17					17.000		
	Total Quantity						17.000 No		
	Total Deducted Quantity						0.000 No		
	Net Total Quantity						17.000 No		
	Say 17.000 No @ Rs 100000.00 / No							Rs 1700000.00	
30	od365001/2021_2022 Control Room and Generator Room								
		17					17.000		
	Total Quantity						17.000 No		
	Total Deducted Quantity						0.000 No		
	Net Total Quantity						17.000 No		
	Say 17.000 No @ Rs 320279.00 / No							Rs 5444743.00	
SI No	Description	No	L	B	D	CF	Quantity	Remark	
16Water Supply and Sanatory arrangements, Electrical wiring in pumping stations									
Kerala Water Authority						Lump-Sum Total	Rs 1000000.00		
SI No	Description	No	L	B	D	CF	Quantity	Remark	
17Line extension , Deposit to KSEB, etc									
						Lump-Sum Total	Rs 1800000.00		
						Total	1178970816.45		
						Centage @	0.0%		
						Centage Amount	0.00		
						Provision for GST payments (in %) @	18.0%		
						Amount reserved for GST payments	212214746.96		
						Total & Centage	1391185563.41		
						Lumpsum for round off	0.00		
						GRAND TOTAL Rs	1391185563.41		
						Rounded Grand Total Rs	1,39,11,85,563		
Rupees One Hundred Thirty Nine Crore Eleven Lakh Eighty Five Thousand Five Hundred and Sixty Three Only									

General Abstract

**SEWERAGE SYSTEM TO VATAKARA MUNICIPALITY - CONSTRUCTION OF 7
MLD CAPACITY SEWAGE TREATMENT PLANT AND LAYING SEWERAGE NET
WORK TO VATAKARA MUNICIPALITY- O&M**

(Dsor year: 2018)

SI No	Heading Description	Amount
1	STP-Providing skilled and experienced personnals for the monitoring of the day to day operation and maintenance of the all systems for STP	4765399.85
2	STP-Periodical cleaning STP units	13383.00
3	STP-Upkeep of Civil structures, maintaining Landscaping etc.	204358.68
4	STP-Annual Chemicals charges	893176.75
5	STP-Major repairs and maintenance of Electro Mechanical work (Break down maintainence).	80000.00
6	STP-Others	884745.00
7	STP-Annual Operation and Maintenance for 9 years (2nd year to 10th year)	86197397.33
8	SEWER- O&M OF WET WELLS AND CONNECTED WORKS	8995775.40
9	SEWER- O&M OF CIVIL, ELECTRICAL, MECHANICAL WORKS, O&M OF LIFTING STATIONS, ETC	1190000.00
10	SEWER-O&M OF SEWER LINE	2823615.05
11	SEWER-O&M for 2nd year to 10th Year	163918319.67
12	Electricity Charges for 10 years @ Rs 19833611.6 per year	198336116.00
	Total	468302286.73
	Centage @	0.0%
	Centage Amount	0.00
	Provision for GST payments (in %) @	18.0%
	Amount reserved for GST payments	84294411.61
	Total & Centage	552596698.34
	Lumpsum for round off	0.00
	GRAND TOTAL Rs	552596698.34
	Rounded Grand Total Rs 55,25,96,698	
	Rupees Fifty Five Crore Twenty Five Lakh Ninety Six Thousand Six Hundred and Ninety Eight Only	

Detailed Estimate

**SEWERAGE SYSTEM TO VATAKARA MUNICIPALITY - CONSTRUCTION OF 7
MLD CAPACITY SEWAGE TREATMENT PLANT AND LAYING SEWERAGE NET
WORK TO VATAKARA MUNICIPALITY- O&M**

(Dsor year: 2018)

Sl No	Description	No	L	B	D	CF	Quantity	Remark	
1STP-Providing skilled and experienced personnels for the monitoring of the day to day operation and maintenance of the all systems for STP (Cost Index:36.44 %)									
1	od360766/2021_2022 Plant Manager (Call on duty)								
		1	365.000				365.000		
		Total Quantity						365.000 Day	
		Total Deducted Quantity						0.000 Day	
		Net Total Quantity						365.000 Day	
		Say 365.000 Day @ Rs 1563.28 / Day						Rs 570597.20	
2	100.98.1030 Engaging Operator (pile/ Special Machine)								
		3	365.000				1095.000		
		Total Quantity						1095.000 Day	
		Total Deducted Quantity						0.000 Day	
		Net Total Quantity						1095.000 Day	
		Say 1095.000 Day @ Rs 1169.56 / Day						Rs 1280668.20	
3	100.98.1032 Engaging Technician								
		Process Chemist(Call on duty)							
	Single shift	1	365.000				365.000		
		Total Quantity						365.000 Day	
		Total Deducted Quantity						0.000 Day	
		Net Total Quantity						365.000 Day	
		Say 365.000 Day @ Rs 1228.16 / Day						Rs 448278.40	
4	100.98.1009 Engaging Fitter (grade 1)								

	Mechanic(General shift)	1	365.000				365.000	
	Total Quantity						365.000 Day	
	Total Deducted Quantity						0.000 Day	
	Net Total Quantity						365.000 Day	
	Say 365.000 Day @ Rs 1169.56 / Day						Rs 426889.40	
5	100.98.1008 Engaging Coolie							
	Sweeper/Cleaner(General shift)	3	365.000				1095.000	
	Total Quantity						1095.000 Day	
	Total Deducted Quantity						0.000 Day	
	Net Total Quantity						1095.000 Day	
	Say 1095.000 Day @ Rs 884.27 / Day						Rs 968275.65	
6	100.98.1036 Supply of Security Guard without gun.							
	Security guards							
		1*3	365.000				1095.000	
	Total Quantity						1095.000 No	
	Total Deducted Quantity						0.000 No	
	Net Total Quantity						1095.000 No	
	Say 1095.000 No @ Rs 977.80 / No						Rs 1070691.00	
SI No	Description	No	L	B	D	CF	Quantity	Remark
2STP-Periodical cleaning STP units (Cost Index:36.44 %)								
1	2.31 Clearing jungle including uprooting of rank vegetation, grass, brush wood, trees and saplings of girth up to 30 cm measured at a height of 1 m above ground level and removal of rubbish up to a distance of 50 m outside the periphery of the area cleared							
		2	450.000				900.000	
	Total Quantity						900.000 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						900.000 sqm	
	Say 900.000 sqm @ Rs 14.87 / sqm						Rs 13383.00	
SI No	Description	No	L	B	D	CF	Quantity	Remark
3STP-Upkeep of Civil structures, maintaining Landscaping etc. (Cost Index:36.44 %)								

1	od360759/2021_2022 Maintaining the garden as per the direction of department officers							
	For each month for a year							
		1	12.000				12.000	
	Total Quantity						12.000 Month	
	Total Deducted Quantity						0.000 Month	
	Net Total Quantity						12.000 Month	
	Say 12.000 Month @ Rs 5264.39 / Month						Rs 63172.68	
2	13.99.1 Painting with synthetic enamel paint of approved brand and manufacture of required colour to give an even shade :One or more coats on old work							
		1	200.000				200.000	
	Total Quantity						200.000 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						200.000 sqm	
	Say 200.000 sqm @ Rs 94.69 / sqm						Rs 18938.00	
3	13.51.2 Painting with silicon & acrylic emulsion based water thinnable sealer of approved brand and manufacture on wet or patchy portion of plastered surfaces:Two coats							
	P a i n t i n g Area:4000m2. Two painting within O& M Period. Area= 2x4000/10=800m2 / year	1	800.000				800.000	
	Total Quantity						800.000 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						800.000 sqm	
	Say 800.000 sqm @ Rs 152.81 / sqm						Rs 122248.00	
SI No	Description	No	L	B	D	CF	Quantity	Remark
4STP-Annual Chemicals charges (Cost Index:36.44 %)								
1	od360762/2021_2022 Supply of liquid chlorine in Tonne Cylinders (3.5 PPM dosage) 							
	7 MLD@5PPM	7	5.000	365.000			12775.000	
	Total Quantity						12775.000 kg	
	Total Deducted Quantity						0.000 kg	

		Net Total Quantity					12775.000 kg	
		Say 12775.000 kg @ Rs 26.45 / kg					Rs 337898.75	
2	od360763/2021_2022 Supply and delivery of Hydrated lime as per specification (7 PPM dosage) 							
		7	7.000	365.000			17885.000	
		Total Quantity					17885.000 kg	
		Total Deducted Quantity					0.000 kg	
		Net Total Quantity					17885.000 kg	
		Say 17885.000 kg @ Rs 14.05 / kg					Rs 251284.25	
3	od360767/2021_2022 Supply and delivery of Alum at (7 PPM dosage) as per specification 							
		7	7.000	365.000			17885.000	
		Total Quantity					17885.000 kg	
		Total Deducted Quantity					0.000 kg	
		Net Total Quantity					17885.000 kg	
		Say 17885.000 kg @ Rs 13.75 / kg					Rs 245918.75	
4	od360769/2021_2022 Other Chemicals							
		1					1.000	
		Total Quantity					1.000 L.S	
		Total Deducted Quantity					0.000 L.S	
		Net Total Quantity					1.000 L.S	
		Say 1.000 L.S @ Rs 58075.00 / L.S					Rs 58075.00	
SI No	Description	No	L	B	D	CF	Quantity	Remark
5STP-Major repairs and maintenance of Electro Mechanical work (Break down maintenance). (Cost Index:36.44 %)								
1	od360776/2021_2022 Rewinding of motors and its assembly and putting into use for the break down maintenance for the pumps of the following considering the salvage values of the components.							
		1					1.000	
		Total Quantity					1.000 set	
		Total Deducted Quantity					0.000 set	
		Net Total Quantity					1.000 set	
		Say 1.000 set @ Rs 80000.00 / set					Rs 80000.00	
SI No	Description	No	L	B	D	CF	Quantity	Remark

6STP-Others (Cost Index:36.44 %)							
1	od360768/2021_2022 Testing and calibration of electrical meters and relays,ammeter and voltmeters,cranes and hoists,testing of ELCB,testing of earth pit,testing and cathodic protection of MS line,environmental monitoring,sludge testing,transformer testing and other inspection charges payable to inspecting agencies excluding the Govt.agencies.						
		1					1.000
	Total Quantity						1.000 No
	Total Deducted Quantity						0.000 No
	Net Total Quantity						1.000 No
	Say 1.000 No @ Rs 10000.00 / No						Rs 10000.00
2	od360775/2021_2022 Attending the repairs in the valves,actuators,electro magnetic flow meters and connected works						
		1					1.000
	Total Quantity						1.000 No
	Total Deducted Quantity						0.000 No
	Net Total Quantity						1.000 No
	Say 1.000 No @ Rs 10000.00 / No						Rs 10000.00
3	od360777/2021_2022 Attending repairs in the E.O.T crane including changing of spare if any during servicing						
		1					1.000
	Total Quantity						1.000 No
	Total Deducted Quantity						0.000 No
	Net Total Quantity						1.000 No
	Say 1.000 No @ Rs 6000.00 / No						Rs 6000.00
4	od360778/2021_2022 Transformer air filtration and topup oil in transformer,replacement of tap changing mechanism,replacement of dial thermometer,replacement of terminal bushes(HT),painting of the transformer etc.						
		1					1.000
	Total Quantity						1.000 No
	Total Deducted Quantity						0.000 No
	Net Total Quantity						1.000 No
	Say 1.000 No @ Rs 6000.00 / No						Rs 6000.00
5	od360779/2021_2022 Attending emergency repair works in starter like replacement of fixed contacts,moving contacts,auxiliary						

	contacts, replacement of over load relays, replacement of timer, no volt coil, repair work in switches like replacement of fixed contacts, moving contacts, fuse carrier sets. HRC fuse base and carriers, replacement of isolator, isolator bridges, repair of oil circuit breaker and air circuit breaker like replacement of fixed contacts, moving contacts, replacement of operating mechanism sets, tripping mechanism sets, no volt coils control circuit etc.						
		1					1.000
	Total Quantity						1.000 No
	Total Deducted Quantity						0.000 No
	Net Total Quantity						1.000 No
	Say 1.000 No @ Rs 10000.00 / No						Rs 10000.00
6	od360780/2021_2022 Hire charges of Tools and Plants required for the day to day operation of the Plant and equipment s						
		1					1.000
	Total Quantity						1.000 No
	Total Deducted Quantity						0.000 No
	Net Total Quantity						1.000 No
	Say 1.000 No @ Rs 8000.00 / No						Rs 8000.00
7	od360781/2021_2022 Supply and maintenance of emergency personal and fire fighting equipment s including periodical check up, refilling and getting sanction from concerned departments, license renewal etc except renewal of Factories and Boilers and Electrical Inspectorate						
		1					1.000
	Total Quantity						1.000 No
	Total Deducted Quantity						0.000 No
	Net Total Quantity						1.000 No
	Say 1.000 No @ Rs 8000.00 / No						Rs 8000.00
8	od360782/2021_2022 Repair and maintenance of control/instrumentation cabling, communication cabling, instrumentation cabling etc for the proper upkeep of SCADA and telemetry system including repair of all faulty components whenever necessary						
		1					1.000
	Total Quantity						1.000 No
	Total Deducted Quantity						0.000 No
	Net Total Quantity						1.000 No
	Say 1.000 No @ Rs 10000.00 / No						Rs 10000.00
9	od360783/2021_2022						

	Maintenance of SCADA system like Hardware including servers,printers,monitors etc for control room Scada,office stationary items.software for control room Scada,ups for control room including batteries,interface to regional telemetry system, etc including replacing of all faulty components whenever necessary							
		1					1.000	
	Total Quantity						1.000 No	
	Total Deducted Quantity						0.000 No	
	Net Total Quantity						1.000 No	
	Say 1.000 No @ Rs 25000.00 / No						Rs 25000.00	
10	od360784/2021_2022 Replacement of Catridge one time between 5 to 10 years							
		1					1.000	
	Total Quantity						1.000 L.S	
	Total Deducted Quantity						0.000 L.S	
	Net Total Quantity						1.000 L.S	
	Say 1.000 L.S @ Rs 60000.00 / L.S						Rs 60000.00	
11	od360785/2021_2022 Generator Fuel charges							
		1	100.000				100.000	
	Total Quantity						100.000 hour	
	Total Deducted Quantity						0.000 hour	
	Net Total Quantity						100.000 hour	
	Say 100.000 hour @ Rs 7317.45 / hour						Rs 731745.00	
SI No	Description	No	L	B	D	CF	Quantity	Remark
7STP-Annual Operation and Maintenance for 9 years (2nd year to 10th year) (Cost Index:36.44 %)								
1	od360772/2021_2022 STP-Annual Operation and Maintenance for 9 year							
	2 nd Year - Add 8 % to 1st year	1	1.080				1.080	
	3rd Year - Add 16 % to 1st year	1	1.160				1.160	
	4th Year - Add 24 % to 1st year	1	1.240				1.240	
	5th Year - Add 32 % to 1st year	1	1.320				1.320	

	6th Year - Add 40 % to 1st year	1	1.400					1.400	
	7th Year - Add 48 % to 1st year	1	1.480					1.480	
	8th Year - Add 56 % to 1st year	1	1.560					1.560	
	9th Year - Add 64 % to 1st year	1	1.640					1.640	
	10th Year - Add 72 % to 1st year	1	1.720					1.720	
Total Quantity								12.600 No	
Total Deducted Quantity								0.000 No	
Net Total Quantity								12.600 No	
Say 12.600 No @ Rs 6841063.28 / No								Rs 86197397.33	
SI No	Description	No	L	B	D	CF	Quantity	Remark	
8SEWER- O&M OF WET WELLS AND CONNECTED WORKS (Cost Index:36.44 %)									
1	100.98.1030 Engaging Operator (pile/ Special Machine)								
		4	3.000	365.000			4380.000		
Kerala Water Authority Total Quantity								4380.000 Day	
Total Deducted Quantity								0.000 Day	
Net Total Quantity								4380.000 Day	
Say 4380.000 Day @ Rs 1169.56 / Day								Rs 5122672.80	
2	100.98.1008 Engaging Coolie								
		4	3.000	365.000			4380.000		
Total Quantity								4380.000 Day	
Total Deducted Quantity								0.000 Day	
Net Total Quantity								4380.000 Day	
Say 4380.000 Day @ Rs 884.27 / Day								Rs 3873102.60	
SI No	Description	No	L	B	D	CF	Quantity	Remark	
9SEWER- O&M OF CIVIL, ELECTRICAL, MECHANICAL WORKS, O&M OF LIFTING STATIONS, ETC (Cost Index:36.44 %)									
1	od360760/2021_2022 Civil structures maintenance and painting								
		1					1.000		

								Total Quantity	1.000 L.S
								Total Deducted Quantity	0.000 L.S
								Net Total Quantity	1.000 L.S
								Say 1.000 L.S @ Rs 150000.00 / L.S	Rs 150000.00
2	od360764/2021_2022 Replacement of mechanical items (Including painting existing items)								
		1						1.000	
								Total Quantity	1.000 L.S
								Total Deducted Quantity	0.000 L.S
								Net Total Quantity	1.000 L.S
								Say 1.000 L.S @ Rs 150000.00 / L.S	Rs 150000.00
3	od360765/2021_2022 Replacement of electrical items (Including painting existing items)								
		1						1.000	
								Total Quantity	1.000 L.S
								Total Deducted Quantity	0.000 L.S
								Net Total Quantity	1.000 L.S
								Say 1.000 L.S @ Rs 150000.00 / L.S	Rs 150000.00
4	od360770/2021_2022 Cotton waste ,Lubricants (oil and Grease)soap ,chemicals,Glass ware,safety equipment & Devices, Cleaning etc.. for wet well and pumping station								
		12						12.000	
								Total Quantity	12.000 L.S
								Total Deducted Quantity	0.000 L.S
								Net Total Quantity	12.000 L.S
								Say 12.000 L.S @ Rs 15000.00 / L.S	Rs 180000.00
5	od360774/2021_2022 Generator Fuel Charges for Wet wells (4 Nos) and Lifting Stations (17 Nos)								
		1						1.000	
								Total Quantity	1.000 No
								Total Deducted Quantity	0.000 No
								Net Total Quantity	1.000 No
								Say 1.000 No @ Rs 560000.00 / No	Rs 560000.00
SI No	Description	No	L	B	D	CF	Quantity	Remark	
10SEWER-O&M OF SEWER LINE (Cost Index:36.44 %)									

1	100.98.1008 Engaging Coolie							
		1	365.000				365.000	
		Total Quantity					365.000 Day	
		Total Deducted Quantity					0.000 Day	
		Net Total Quantity					365.000 Day	
		Say 365.000 Day @ Rs 884.27 / Day					Rs 322758.55	
2	100.98.1009 Engaging Fitter (grade 1)							
		1	365.000				365.000	
		Total Quantity					365.000 Day	
		Total Deducted Quantity					0.000 Day	
		Net Total Quantity					365.000 Day	
		Say 365.000 Day @ Rs 1169.56 / Day					Rs 426889.40	
3	100.98.1035 Supply of sewer man.							
		2	365.000				730.000	
		Total Quantity					730.000 No	
		Total Deducted Quantity					0.000 No	
		Net Total Quantity					730.000 No	
		Say 730.000 No @ Rs 884.27 / No					Rs 645517.10	
4	od360771/2021_2022 Vehicle hire charges							
		12					12.000	
		Total Quantity					12.000 Month	
		Total Deducted Quantity					0.000 Month	
		Net Total Quantity					12.000 Month	
		Say 12.000 Month @ Rs 29037.50 / Month					Rs 348450.00	
5	od360773/2021_2022 Rent for sewer cleaning machine and Truck for sewer septage conveyance							
		1					1.000	
		Total Quantity					1.000 L.S	
		Total Deducted Quantity					0.000 L.S	
		Net Total Quantity					1.000 L.S	

SI No	Description	No	L	B	D	CF	Quantity	Remark
Say 1.000 L.S @ Rs 1080000.00 / L.S							Rs 1080000.00	
11SEWER-O&M for 2nd year to 10th Year (Cost Index:36.44 %)								
1	od360761/2021_2022 SEWER-Annual Operation and Maintenance for 9 year							
	2 nd Year - Add 8 % to 1st year	1	1.080				1.080	
	3rd Year - Add 16 % to 1st year	1	1.160				1.160	
	4th Year - Add 24 % to 1st year	1	1.240				1.240	
	5th Year - Add 32 % to 1st year	1	1.320				1.320	
	6th Year - Add 40 % to 1st year	1	1.400				1.400	
	7th Year - Add 48 % to 1st year	1	1.480				1.480	
	8th Year - Add 56 % to 1st year	1	1.560				1.560	
	9th Year - Add 64 % to 1st year	1	1.640				1.640	
	10th Year - Add 45 % to 1st year	1	1.720				1.720	
Total Quantity							12.600 No	
Total Deducted Quantity							0.000 No	
Net Total Quantity							12.600 No	
Say 12.600 No @ Rs 13009390.45 / No							Rs 163918319.67	
SI No	Description	No	L	B	D	CF	Quantity	Remark
12Electricity Charges for 10 years @ Rs 19833611.6 per year								
Lump-Sum Total							Rs 198336116.00	
Total							468302286.73	
Centage @							0.0%	
Centage Amount							0.00	
Provision for GST payments (in %) @							18.0%	
Amount reserved for GST payments							84294411.61	
Total & Centage							552596698.34	

Lumpsum for round off	0.00
GRAND TOTAL Rs	552596698.34
Rounded Grand Total Rs 55,25,96,698	
Rupees Fifty Five Crore Twenty Five Lakh Ninety Six Thousand Six Hundred and Ninety Eight Only	



Kerala Water Authority

PRICE

APPENDIX-V-DESIGN OF WETWELLS AND LIFTING STATIONS

Sl no.	Name of wetwel	Peak flowLPS	Detenti on Period in min.	storag e capacit y m ³	SWD (m)	Area m ²	Size	Depth upto invert of pipe	Total Depth
1	LS1	1.68	10.00	1.01	1.00	1.01	1.13	4.48	5.48
							say 1.2 m dia		
		1.68							
2	LS2	8.06	10.00	4.84	1.00	4.84	2.48	4.73	5.73
							say 2.5m dia		
		8.06							
3	LS3	4.70	10.00	2.82	1.00	2.82	1.90	3.1	4.10
							say 2 m dia		
		4.70							
4	LS4	1.33	10.00	0.80	1.00	0.80	1.01	4	5.00
							say 1.2m dia		
		1.33							
5	LS5	1.26	10.00	0.76	1.00	0.76	0.98	3.7	4.70
							say 1.2 m dia		
		1.26							
6	LS6	4.27	10.00	2.56	1.00	2.56	1.81	6	7.00
							say 2 m dia		
		4.27							
7	LS7	9.73	10.00	5.84	1.00	5.84	2.73	5.67	6.67
							say 2.8 m dia		
		9.73							
8	LS8	13.80	10.00	8.28	1.00	8.28	3.25	1.08	2.08
							say 3.3 m dia		
		13.80							
9	LS9	1.61	10.00	0.97	1.00	0.97	1.11	4.82	5.82
							say 1.2m dia		
		1.61							
10	LS10	2.60	10.00	1.56	1.00	1.56	1.41	4.92	5.92
							say1.5m dia		
		2.60							
11	LS11	1.40	10.00	0.84	1.00	0.84	1.03	3.6	4.60
							say 1.2m dia		
		1.40							
12	LS12	2.87	10.00	1.72	1.00	1.72	1.48	3.94	4.94
							say1.5m dia		
		2.87							

13	LS13	1.12	10.00	0.67	1.00	0.67	0.92	4.68	5.68
							say 1.2m dia		
14	LS 14	15.97	10.00	9.58	1.50	6.39	2.85	4.78	6.28
		15.97					say 3m dia		
15	LS15	7.94	10.00	4.76	1.00	4.76	2.46	1.08	2.08
		7.94					say 2.5m dia		
16	LS16	10.30	10.00	6.18	1.10	5.62	2.68	1.08	2.18
		10.30					say 2.7m dia		
17	LS17	10.29	10.00	6.17	1.00	6.17	2.80	1.51	2.51
		10.29					say 3m dia		
18	WELL	43.98	10.00	26.39	1.00	26.39	5.80	4.11	5.11
		43.98					say 6 m dia		
19	WELL	20.17	10.00	12.10	1.00	12.10	3.93	4.21	5.21
		20.17					say 4 m dia		
20	WELL	20.72	10.00	12.43	1.00	12.43	3.98	5.35	6.35
		20.72					say 4 m dia		
21	WELL	36.33	10.00	21.80	1.00	21.80	5.27	4.47	5.47
		36.33					say 5.3 m dia		
22	STP WELL	192.40	10.00	115.44	1.90	60.76	8.80	33.91	35.81
		192.40					say 8.9m dia		

				0.3833	0.9582	m3/mint												4 HP	
15	LS15	mh	270	3.1760	7.9400	Ltrs/sec	0.0079	1.00	0.1006	150	0.1500	0.4495	1.37	0.371	10.00	2.00	12.37	1.64	
	mh253	N1467	mh	0.0032	0.0079	m3/sec													
				0.1906	0.4764	m3/mint													
16	LS16		600	4.1200	10.3000	Ltrs/sec	0.0103	1.00	0.1145	100	0.1000	1.3121	17.55	10.530	10.00	2.00	22.53	3.87	
	n1467	N1631		0.0041	0.0103	m3/sec													
				0.2472	0.6180	m3/mint													
17	LS17	mh	450	4.1160	10.2900	Ltrs/sec	0.0103	1.00	0.1145	150	0.1500	0.5826	2.31	1.038	12.00	2.00	15.04	2.58	
	N1871	N1861	mh	0.0041	0.0103	m3/sec													
				0.2470	0.6174	m3/mint													
18	COLLECT ION WELL 1	mh	1469	17.5920	43.9800	Ltrs/sec	0.0440	1.00	0.2367	250	0.2500	0.8964	3.28	4.813	19.00	2.00	25.81	18.92	
	WELL 1	N1117	mh	0.0176	0.0440	m3/sec													
				1.0555	2.3749	m3/mint													
19	collection well 2	WELL1	2700	8.0680	20.1700	Ltrs/sec	0.0202	1.00	0.1603	250	0.2500	0.4111	0.69	1.861	16.00	2.00	19.86	6.68	
				0.0081	0.0202	m3/sec													
				0.4841	1.2102	m3/mint													
20	WELL 3	mh	950	8.2880	20.7200	Ltrs/sec	0.0207	1.00	0.1625	200	0.2000	0.6599	2.22	2.108	46.00	2.00	50.11	17.30	
	WELL3	N2554		0.0083	0.0207	m3/sec													
				0.4973	1.2432	m3/mint													
21	WELL 4	N1822	965	14.5320	36.3300	Ltrs/sec	0.0363	1.00	0.2151	250	0.2500	0.7405	2.24	2.157	28.00	2.00	32.16	19.47	
				0.0145	0.0363	m3/sec													
				0.8719	2.1798	m3/mint													
22	COLLECTI ON WELL	receiving chamber	20	76.9600	192.4000	Ltrs/sec	0.1732	1.00	0.4697	500	0.5000	0.8823	1.59	0.032	16.00	2.00	18.03	59.47	
				0.0770	0.1732	m3/sec													
				4.6176	10.3896	m3/mint													
																			32HP- 2 Nos

APPENDIX- VII-POWER CALCULATION

Sl no.	Name	Pumpset Capacity in HP	Pumpset Capacity in KW	No of Pumpset	No of Stand by	Working Time	Power Consumption/ day	Power Consumption/ year	Power cost @Rs7/unit	Remarks
STP										
1	Raw Sewage Pump	32	23.872	3	1	20	954.88	348531.2	2439718.4	
2	Septage tank to inlet	2	1.492	2	1	10	14.92	5445.8	38120.6	
3	Coarse Screen	2	1.492	2	1	12	17.904	6534.96	45744.72	
4	Fine Screen	2	1.492	2	1	12	17.904	6534.96	45744.72	
5	Belt Conveyors	2	1.492	2	1	12	17.904	6534.96	45744.72	
6	Grit Scraper Motor	2.5	1.865	2	1	12	22.38	8168.7	57180.9	
7	Air Blower	52	38.792	4	1	24	2793.024	1019453.8	7136176.32	
8	Sludge Transfer to Thickner Pump	4	2.984	2	1	12	35.808	13069.92	91489.44	
9	Sludge Transfer to Centrifuge Pump	1.5	1.119	2	1	12	13.428	4901.22	34308.54	
10	Clarified water to ASF/PSF Pump	13	9.698	8	1	20	1357.72	495567.8	3468974.6	
11	Anoxic Tank Mixer	3	2.238	3	1	24	107.424	39209.76	274468.32	
12	Clarifier to Sludge Sump Pump	3	2.238	2	1	12	26.856	9802.44	68617.08	
13	Treated Water to Septage Tank	4	2.984	2	1	10	29.84	10891.6	76241.2	
14	Centrate Sump to EQ Tank	3	2.238	2	1	12	26.856	9802.44	68617.08	
15	High Pressure Jet Pump	1	0.746	1	0	1	0.746	272.29	1906.03	
16	Miss. Pumps/mixers etc/lighting /valves etc		30	1		10	300	109500	766500	
NET WORK										

1	LS1	0.5	0.373	2	1	24	8.952	3267.48	22872.36	
2	LS2	2	1.492	2	1	24	35.808	13069.92	91489.44	
3	LS3	1.5	1.119	2	1	24	26.856	9802.44	68617.08	
4	LS4	0.5	0.373	2	1	24	8.952	3267.48	22872.36	
5	LS5	0.5	0.373	2	1	24	8.952	3267.48	22872.36	
6	LS6	1	0.746	2	1	24	17.904	6534.96	45744.72	
7	LS7	2	1.492	2	1	24	35.808	13069.92	91489.44	
8	LS8	4	2.984	2	1	24	71.616	26139.84	182978.88	
9	LS9	1	0.746	2	1	24	17.904	6534.96	45744.72	
10	LS10	1	0.746	2	1	24	17.904	6534.96	45744.72	
11	LS11	0.5	0.373	2	1	24	8.952	3267.48	22872.36	
12	LS12	1	0.746	2	1	24	17.904	6534.96	45744.72	
13	LS13	0.5	0.373	2	1	24	8.952	3267.48	22872.36	
14	LS14	4	2.984	2	1	24	71.616	26139.84	182978.88	
15	LS15	2	1.492	2	1	24	35.808	13069.92	91489.44	
16	LS16	4	2.984	2	1	24	71.616	26139.84	182978.88	
17	LS17	3	2.238	2	1	24	53.712	19604.88	137234.16	
18	WELL1	19	14.174	2	1	24	340.176	124164.24	869149.68	
19	WELL2	7	5.222	2	1	24	125.328	45744.72	320213.04	
20	WELL3	18	13.428	2	1	24	322.272	117629.28	823404.96	
21	WELL4	20	14.92	2	1	24	358.08	130699.2	914894.4	
22	STP Ligting		15			12	180	65700	459900	
23	Ligting-Well and Lifting stations		15			12	180	65700	459900	
	TOTAL							2833373.1	19833611.6	

APPENDIX- VIII- FLEX TABLE- CONDUITS

ID	Label	Start Node	Invert (Start) (m)	Stop Node	Invert (Stop) (m)	Length (User Define) (m)	Length (Scaled) (m)	Slope (Calculate) (%)	Diameter (mm)	Velocity (m/s)	Capacity (Full Flow) (L/s)	Elevation Ground (Start) (m)	Elevation Ground (Stop) (m)	Size (Display)
3865	p4	n4	2.6783	n5	2.5583	30	30	0.4	168.5	0.16	14.2287	3.7612	3.961	200 mm
3866	p5	n5	2.5583	n6	2.4383	30	29.9	0.4	168.5	0.2	14.2287	3.961	4.123	200 mm
3867	p6	n6	2.4383	n7	2.3153	30.7	30.7	0.4	168.5	0.23	14.2287	4.123	4.0558	200 mm
3868	p7	n7	2.3153	n8	2.1953	30	30	0.4	168.5	0.25	14.2287	4.0558	4.1425	200 mm
3869	p8	n8	2.1953	n9	2.0517	35.9	35.9	0.4	168.5	0.27	14.2287	4.1425	4.1729	200 mm
3870	p9	n9	2.0517	n10	1.9283	30.8	31.2	0.4	168.5	0.28	14.2287	4.1729	4.0884	200 mm
3872	p11	n10	1.9283	n11	1.8083	30	29.7	0.4	168.5	0.3	14.2287	4.0884	4.1736	200 mm
3873	p12	n11	1.8083	n12	1.6883	30	30	0.4	168.5	0.31	14.2287	4.1736	4.2427	200 mm
3874	p13	n12	1.6883	n13	1.5683	30	30	0.4	168.5	0.32	14.2287	4.2427	4.4966	200 mm
3875	p14	n13	1.5683	n14	1.4209	36.9	36.9	0.4	168.5	0.33	14.2287	4.4966	4.5725	200 mm
3876	p15	n14	1.4209	n15	1.3009	30	30	0.4	168.5	0.34	14.2287	4.5725	4.4394	200 mm
3877	p16	n15	1.3009	n16	1.1809	30	30	0.4	168.5	0.35	14.2287	4.4394	4.3064	200 mm
3878	p17	n16	1.1809	n17	1.0609	30	30	0.4	168.5	0.36	14.2287	4.3064	4.1535	200 mm
3879	p18	n17	1.0609	n18	0.9409	30	30	0.4	168.5	0.37	14.2287	4.1535	3.909	200 mm
3880	p19	n18	0.9409	MH-237	0.8232	29.4	29.4	0.4	168.5	0.37	14.2287	3.909	3.9276	200 mm
3882	p21	n20	0.5767	n21	0.4141	40.7	40.5	0.4	168.5	0.38	14.2287	4.0376	4.1286	200 mm
3883	p22	n21	0.4141	n22	0.2941	30	30	0.4	168.5	0.39	14.2287	4.1286	4.1143	200 mm
3884	p23	n22	0.2941	n23	0.1741	30	30	0.4	168.5	0.39	14.2287	4.1143	3.951	200 mm
3885	p24	n23	0.1741	LS 4	0.0859	22.1	22.1	0.4	168.5	0.4	14.2287	3.951	4.0892	200 mm
3887	p26	MH-255	3.1424	n26	3.0224	30	30.9	0.4	168.5	0.4	14.2287	4.2253	4.264	200 mm
3888	p27	n26	3.0224	MH-238	2.9163	26.5	26.5	0.4	168.5	0.41	14.2287	4.264	4.179	200 mm
3890	p29	n28	2.8089	n29	2.6889	30	30	0.4	168.5	0.41	14.2287	4.2139	4.261	200 mm
3891	p30	n29	2.6889	n30	2.5823	26.6	26.6	0.4	168.5	0.42	14.2287	4.261	4.244	200 mm
3892	p31	n30	2.5823	n31	2.4798	25.6	25.6	0.4	168.5	0.42	14.2287	4.244	4.3521	200 mm
3893	p32	n31	2.4798	n32	2.3598	30	30	0.4	168.5	0.43	14.2287	4.3521	4.5698	200 mm
3894	p33	n32	2.3598	n33	2.2398	30	30	0.4	168.5	0.43	14.2287	4.5698	4.7394	200 mm
3895	p34	n33	2.2398	MH-252	2.1198	30	30	0.4	168.5	0.44	14.2287	4.7394	4.8785	200 mm
3897	p36	n35	1.9712	n36	1.8512	30	30	0.4	168.5	0.44	14.2287	5.0852	4.9607	200 mm
3898	p37	n36	1.8512	n37	1.7312	30	30	0.4	168.5	0.45	14.2287	4.9607	4.636	200 mm
3899	p38	n37	1.7312	n38	1.6611	17.5	17.5	0.4	168.5	0.45	14.2287	4.636	4.645	200 mm
3900	p39	n38	1.6611	n39	1.56	25.3	25.3	0.4	168.5	0.46	14.2287	4.645	4.6262	200 mm
3901	p40	n39	1.56	n40	1.44	30	30	0.4	168.5	0.46	14.2287	4.6262	4.41	200 mm
3902	p41	n40	1.44	n41	1.3742	16.5	16.5	0.4	168.5	0.46	14.2287	4.41	4.499	200 mm
3903	p42	n41	1.3742	n42	1.3142	15	15	0.4	168.5	0.47	14.2287	4.499	4.4219	200 mm
3906	p45	n44	1.1629	n45	1.0429	30	30	0.4	168.5	0.48	14.2287	4.3911	4.4564	200 mm
3907	p46	n45	1.0429	n46	0.9229	30	30	0.4	168.5	0.48	14.2287	4.4564	4.5511	200 mm
3908	p47	n46	0.9229	n47	0.8029	30	30	0.4	168.5	0.49	14.2287	4.5511	4.674	200 mm
3909	p48	n47	0.8029	n48	0.6875	28.9	28.8	0.4	168.5	0.49	14.2287	4.674	4.577	200 mm
3910	p49	n48	0.6875	n49	0.6343	13.3	13.3	0.4	168.5	0.49	14.2287	4.577	4.5821	200 mm
3911	p50	n49	0.6343	n50	0.5143	30	30	0.4	168.5	0.5	14.2287	4.5821	4.5988	200 mm
3912	p51	n50	0.5143	n51	0.3943	30	30	0.4	168.5	0.5	14.2287	4.5988	4.7759	200 mm
3913	p52	n51	0.3943	n52	0.2743	30	30	0.4	168.5	0.5	14.2287	4.7759	4.906	200 mm
3914	p53	n52	0.2743	n53	0.2327	10.4	10.4	0.4	168.5	0.51	14.2287	4.906	4.843	200 mm
3915	p54	n53	0.2327	n54	0.1355	24.3	24.3	0.4	168.5	0.51	14.2287	4.843	4.844	200 mm
3916	p55	n54	0.1355	n55	0.0555	20	20	0.4	168.5	0.51	14.2287	4.844	4.8344	200 mm
3917	p56	n55	0.0555	n56	-0.0645	30	30	0.4	168.5	0.52	14.2287	4.8344	4.7956	200 mm
3918	p57	n56	-0.0645	n57	1.0742	30	30	3.8	168.5	0.9	43.8306	4.7956	4.762	200 mm

3919	p58	n57	1.0742	n58	1.1928	29.7	29.6	0.4	168.5	0.4	14.2287	4.762	4.681	200 mm
3920	p59	n58	1.1928	MH-239	1.2737	20.2	20.2	0.4	168.5	0.39	14.2287	4.681	4.696	200 mm
3924	p63	n62	1.4623	n63	1.5404	19.5	19.5	0.4	168.5	0.39	14.2287	4.707	4.6897	200 mm
3925	p64	n63	1.5404	n64	1.6604	30	30	0.4	168.5	0.38	14.2287	4.6897	4.6689	200 mm
3926	p65	n64	1.6604	n65	1.7804	30	30	0.4	168.5	0.38	14.2287	4.6689	4.65	200 mm
3927	p66	n65	1.7804	n66	1.8692	22.2	22.2	0.4	168.5	0.37	14.2287	4.65	4.6763	200 mm
3928	p67	n66	1.8692	n67	1.9892	30	30	0.4	168.5	0.36	14.2287	4.6763	4.7945	200 mm
3929	p68	n67	1.9892	n68	2.1092	30	30	0.4	168.5	0.35	14.2287	4.7945	4.8353	200 mm
3930	p69	n68	2.1092	n69	2.2292	30	30	0.4	168.5	0.34	14.2287	4.8353	4.8529	200 mm
3931	p70	n69	2.2292	n70	2.3492	30	30	0.4	168.5	0.33	14.2287	4.8529	4.938	200 mm
3932	p71	n70	2.3492	n71	2.4662	29.3	29.2	0.4	168.5	0.32	14.2287	4.938	4.917	200 mm
3933	p72	n71	2.4662	n72	2.5277	15.4	15.4	0.4	168.5	0.31	14.2287	4.917	4.9703	200 mm
3934	p73	n72	2.5277	n73	2.6477	30	30	0.4	168.5	0.3	14.2287	4.9703	5.057	200 mm
3935	p74	n73	2.6477	n74	2.7127	16.3	16.2	0.4	168.5	0.29	14.2287	5.057	5.01	200 mm
3936	p75	n74	2.7127	n75	2.8309	29.6	29.6	0.4	168.5	0.27	14.2287	5.01	5.0213	200 mm
3937	p76	n75	2.8309	n76	2.9587	32	32	0.4	168.5	0.25	14.2287	5.0213	5.1086	200 mm
3938	p77	n76	2.9587	n77	3.0816	30.7	30.7	0.4	168.5	0.23	14.2287	5.1086	5.0445	200 mm
3939	p78	n77	3.0816	n78	3.2016	30	30	0.4	168.5	0.21	14.2287	5.0445	5.15	200 mm
3942	p81	n80	3.3259	MH-256	4.0678	30	30	2.47	168.5	0.15	35.3792	5.0405	5.1507	200 mm
3944	p83	n82	4.0811	n83	3.9683	28.2	28.2	0.4	168.5	0.58	14.2287	5.164	5.0827	200 mm
3945	p84	n83	3.9683	n84	3.8483	30	30	0.4	168.5	0.58	14.2287	5.0827	5.037	200 mm
3946	p85	n84	3.8483	n85	3.7161	33.1	33.1	0.4	168.5	0.58	14.2287	5.037	4.934	200 mm
3947	p86	n85	3.7161	MH-240	3.5913	31.2	31.2	0.4	168.5	0.58	14.2287	4.934	4.9971	200 mm
3951	p91	n90	3.3317	n91	3.2117	30	30	0.4	168.5	0.58	14.2287	4.8861	4.9931	200 mm
3952	p92	n91	3.2117	n92	3.0917	30	30	0.4	168.5	0.59	14.2287	4.9931	5.05	200 mm
3953	p93	n92	3.0917	n93	2.9686	30.8	30.8	0.4	168.5	0.59	14.2287	5.05	4.947	200 mm
3954	p94	n93	2.9686	n94	2.8654	25.8	25.8	0.4	168.5	0.59	14.2287	4.947	4.998	200 mm
3957	p97	n96	2.7424	n97	2.6224	30	30	0.4	168.5	0.59	14.2287	4.9899	4.9409	200 mm
3958	p98	n97	2.6224	n98	2.5024	30	30	0.4	168.5	0.6	14.2287	4.9409	4.797	200 mm
3959	p99	n98	2.5024	n99	2.4239	19.6	19.6	0.4	168.5	0.6	14.2287	4.797	4.836	200 mm
3961	p101	n100	2.3285	n101	2.2085	30	29.4	0.4	168.5	0.6	14.2287	4.7696	4.6826	200 mm
3962	p102	n101	2.2085	n102	2.0885	30	30	0.4	168.5	0.6	14.2287	4.6826	4.5608	200 mm
3963	p103	n102	2.0885	n103	1.9685	30	29.7	0.4	168.5	0.61	14.2287	4.5608	4.5168	200 mm
3966	p106	n105	1.7942	n106	1.6742	30	30	0.4	168.5	0.61	14.2287	4.4609	4.556	200 mm
3969	p109	n108	3.1981	n109	3.1207	19.4	19.4	0.4	168.5	0.16	14.2287	4.281	4.687	200 mm
3975	p115	n114	2.9386	n115	2.8192	29.9	29.9	0.4	168.5	0.25	14.2287	4.8	4.6184	200 mm
3981	p121	n120	2.69	n121	2.6166	18.4	18.3	0.4	168.5	0.3	14.2287	4.934	4.856	200 mm
3995	p135	n134	1.9304	n135	1.8104	30	30	0.4	168.5	0.48	14.2287	4.6381	4.5645	200 mm
3996	p136	n135	1.8104	n136	1.6904	30	30	0.4	168.5	0.49	14.2287	4.5645	4.4608	200 mm
3997	p137	n136	1.6904	n137	1.5704	30	30	0.4	168.5	0.49	14.2287	4.4608	4.454	200 mm
3998	p138	n137	1.5704	n138	1.4514	29.7	29.7	0.4	168.5	0.49	14.2287	4.454	4.3187	200 mm
4000	p140	n130	2.233	n140	2.8675	27.6	27.6	2.3	168.5	0.76	34.0911	4.917	4.793	200 mm
4003	p143	n142	3.0364	n143	3.1188	20.6	20.6	0.4	168.5	0.36	14.2287	5.125	5.217	200 mm
4004	p144	n143	3.1188	n144	3.1598	10.2	10.3	0.4	168.5	0.35	14.2287	5.217	5.237	200 mm
4013	p153	n153	3.5639	n154	3.6227	14.7	14.7	0.4	168.5	0.3	14.2287	5.034	5.014	200 mm
4014	p154	n154	3.6227	n155	3.6463	5.9	5.9	0.4	168.5	0.28	14.2287	5.014	4.914	200 mm
4015	p155	n155	3.6463	n156	3.7237	19.4	19.3	0.4	168.5	0.27	14.2287	4.914	4.908	200 mm
4016	p156	n156	3.7237	n157	3.8437	30	30	0.4	168.5	0.25	14.2287	4.908	4.9266	200 mm
4019	p159	n159	4.1968	n160	4.2857	22.2	22	0.4	168.5	0.2	14.2287	5.379	5.5133	200 mm
4023	p163	n163	1.2037	n164	1.0837	30	30	0.4	168.5	0.5	14.2287	3.6148	3.137	200 mm
4024	p164	n164	1.0837	n165	-0.4995	16.7	16.7	9.5	168.5	1.56	69.3536	3.137	3.249	200 mm
4033	p173	n140	2.8675	n175	3.2432	30	30	1.25	168.5	0.42	25.1772	4.793	4.7751	200 mm
4034	p174	n175	3.2432	n176	3.3915	37.1	37.1	0.4	168.5	0.27	14.2287	4.7751	4.905	200 mm
4035	p175	n176	3.3915	n177	3.6271	58.9	58.9	0.4	168.5	0.25	14.2287	4.905	4.9276	200 mm
4036	p176	n177	3.6271	n178	3.7544	31.8	31.8	0.4	168.5	0.23	14.2287	4.9276	4.8373	200 mm

4044	p184	n184	4.3485	n185	3.9115	30	30	1.46	168.5	0.26	27.1531	5.4314	4.9944	200 mm
4045	p185	n185	3.9115	n186	2.8021	29	29	3.83	168.5	0.45	44.003	4.9944	4.589	200 mm
4100	p240	n240	2.029	n241	1.3303	30	30	2.33	168.5	0.31	34.3396	3.1119	2.4132	200 mm
4101	p241	n241	1.3303	n242	1.2103	30	29.8	0.4	168.5	0.2	14.2287	2.4132	2.351	200 mm
4103	p243	n243	1.0926	n244	1.0182	18.6	18.6	0.4	168.5	0.27	14.2287	2.535	2.504	200 mm
4104	p244	n244	1.0182	n245	0.1948	30	30	2.74	168.5	0.55	37.2665	2.504	2.469	200 mm
4109	p249	n249	0.4862	n250	0.6063	30	30	0.4	168.5	0.3	14.2287	2.455	2.44	200 mm
4112	p252	n252	0.7758	n253	0.8958	30	30	0.4	168.5	0.27	14.2287	2.529	2.4509	200 mm
4116	p256	n256	1.0718	n257	1.1918	30	30	0.4	168.5	0.2	14.2287	2.409	2.4027	200 mm
4117	p257	n257	1.1918	n258	1.2671	18.8	18.8	0.4	168.5	0.16	14.2287	2.4027	2.35	200 mm
4122	p262	n262	-0.0421	n263	-0.1621	30	29.8	0.4	168.5	0.39	14.2287	2.711	2.8451	200 mm
4128	p268	n268	3.7676	n269	3.6476	30	30	0.4	168.5	0.4	14.2287	5.0836	5.886	200 mm
4129	p269	n269	3.6476	n270	3.5434	26	26	0.4	168.5	0.41	14.2287	5.886	5.1387	200 mm
4133	p273	n273	3.1599	n274	3.0399	30	30	0.4	168.5	0.43	14.2287	4.952	4.7616	200 mm
4134	p274	n274	3.0399	n275	2.9199	30	30	0.4	168.5	0.43	14.2287	4.7616	4.582	200 mm
4140	p280	n280	2.5528	n281	1.8638	30	30	2.3	168.5	0.83	34.0931	5.1295	5.616	200 mm
4143	p283	n283	1.9525	n284	2.0725	30	30	0.4	168.5	0.39	14.2287	5.4736	5.0418	200 mm
4145	p285	n285	2.3125	n286	2.4325	30	30	0.4	168.5	0.37	14.2287	4.165	3.852	200 mm
4146	p286	n286	2.4325	n287	2.546	28.4	28.4	0.4	168.5	0.37	14.2287	3.852	3.632	200 mm
4161	p301	n301	8.3916	n302	9.4117	29.9	29	3.41	168.5	0.6	41.5277	9.4745	11.3783	200 mm
4162	p302	n302	9.4117	n303	9.5317	30	34.7	0.4	168.5	0.27	14.2287	11.3783	11.955	200 mm
4167	p307	n308	9.7244	n309	9.8169	23.1	28.3	0.4	168.5	0.2	14.2287	11.526	12.539	200 mm
4189	p330	n331	7.9221	n332	5.9355	25.9	25.6	7.66	168.5	0.75	62.2592	9.005	8.463	200 mm
4192	p333	n334	1.7632	n335	1.6432	30	30	0.4	168.5	0.53	14.2287	5.629	5.2572	200 mm
4193	p334	n335	1.6432	n336	1.5232	30	30	0.4	168.5	0.53	14.2287	5.2572	4.9783	200 mm
4200	p341	n342	1.1648	n343	1.1411	5.9	5.9	0.4	168.5	0.54	14.2287	4.165	4.233	200 mm
4203	p344	n345	1.0787	MH-280	0.9587	30	30	0.4	168.5	0.54	14.2287	4.2346	4.7305	200 mm
4205	p346	n347	0.8391	n348	0.728	27.8	27.8	0.4	168.5	0.54	14.2287	5.794	5.6804	200 mm
4206	p347	n348	0.728	n349	0.608	30	30	0.4	168.5	0.55	14.2287	5.6804	5.1197	200 mm
4209	p350	n351	0.4672	n352	0.3472	30	30	0.4	168.5	0.55	14.2287	4.9716	5.0913	200 mm
4212	p353	n354	0.2277	LS-6	0.1077	30	30	0.4	168.5	0.56	14.2287	5.3427	6.1029	200 mm
4214	p355	n332	5.9355	n357	6.0555	30	29.7	0.4	168.5	0.57	14.2287	8.463	8.098	200 mm
4215	p356	n357	6.0555	n358	6.1254	17.5	17.5	0.4	168.5	0.56	14.2287	8.098	7.965	200 mm
4216	p357	n358	6.1254	n359	6.213	21.9	21.9	0.4	168.5	0.56	14.2287	7.965	8.373	200 mm
4256	p397	n397	3.8515	n398	3.7817	17.5	17.5	0.4	168.5	0.58	14.2287	9.5916	9.497	200 mm
4257	p398	n398	3.7817	n399	3.6617	30	30	0.4	168.5	0.58	14.2287	9.497	9.0127	200 mm
4258	p399	n399	3.6617	n400	3.5418	30	30	0.4	168.5	0.59	14.2287	9.0127	7.8289	200 mm
4259	p400	n400	3.5418	n401	3.4339	27	27	0.4	168.5	0.59	14.2287	7.8289	7.087	200 mm
4268	p409	n409	2.8596	n410	2.7397	30	30	0.4	168.5	0.6	14.2287	8.461	7.6262	200 mm
4269	p410	n410	2.7397	n411	2.6826	14.3	14	0.4	168.5	0.6	14.2287	7.6262	7.038	200 mm
4270	p411	n411	2.6826	n412	2.6639	4.7	4.7	0.4	168.5	0.61	14.2287	7.038	6.689	200 mm
4271	p412	n412	2.6639	n413	2.6198	11	11	0.4	168.5	0.61	14.2287	6.689	6.2446	200 mm
4272	p413	n413	2.6198	n414	2.5217	24.5	30.6	0.4	168.5	0.61	14.2287	6.2446	4.936	200 mm
4276	p417	n417	2.3607	n418	1.8734	30	31.2	1.63	168.5	1.02	28.6864	4.3335	2.9563	200 mm
4279	p420	n420	-0.4404	n421	-0.3204	30	28.5	0.4	168.5	0.38	14.2287	2.803	2.4278	200 mm
4285	p426	n425	-0.1482	n426	-0.0942	13.5	13.5	0.4	168.5	0.37	14.2287	2.377	2.182	200 mm
4286	p427	n426	-0.0942	n427	0.0258	30	30	0.4	168.5	0.36	14.2287	2.182	2.2861	200 mm
4287	p428	n427	0.0258	n428	0.1458	30	29.9	0.4	168.5	0.35	14.2287	2.2861	2.339	200 mm
4290	p431	n430	0.2607	n431	0.3394	19.7	19.7	0.4	168.5	0.33	14.2287	2.228	2.186	200 mm
4293	p434	n433	0.4335	n434	0.5092	18.9	18.9	0.4	168.5	0.31	14.2287	2.317	2.244	200 mm
4294	p435	n434	0.5092	n435	0.6369	31.9	31.9	0.4	168.5	0.3	14.2287	2.244	2.35	200 mm
4299	p440	n439	0.8921	n440	1.0121	30	27.4	0.4	168.5	0.23	14.2287	2.427	2.215	200 mm
4300	p441	n440	1.0121	n441	1.1321	30	30	0.4	168.5	0.2	14.2287	2.215	2.215	200 mm
4301	p443	n441	1.1321	n443	1.3291	26.8	27.1	0.73	168.5	0.2	19.2778	2.215	2.412	200 mm
4305	p447	n446	-0.7423	n447	-0.6223	30	30	0.4	168.5	0.39	14.2287	2.647	2.5181	200 mm

4324	p467	n465	0.1274	n466	0.2474	30	30.2	0.4	168.5	0.33	14.2287	2.3624	2.3311	200 mm
4333	p476	n474	0.8072	n475	0.9272	30	30	0.4	168.5	0.27	14.2287	2.257	2.4078	200 mm
4334	p477	n475	0.9272	n476	1.038	27.7	27.7	0.4	168.5	0.25	14.2287	2.4078	2.565	200 mm
4337	p480	n478	1.1509	n479	1.2403	22.4	22.1	0.4	168.5	0.2	14.2287	2.598	2.521	200 mm
4338	p481	n479	1.2403	n480	1.4001	39.9	39.9	0.4	168.5	0.16	14.2287	2.521	2.483	200 mm
4344	p487	n485	-1.2492	n486	-1.3669	29.4	29.4	0.4	168.5	0.67	14.2287	2.6507	2.664	200 mm
4347	p490	n488	-1.4866	n489	-1.6066	30	30	0.4	168.5	0.68	14.2287	2.5768	2.4375	200 mm
4352	p495	n493	-1.917	n494	-2.0624	36.4	37	0.4	168.5	0.68	14.2287	2.292	2.3731	200 mm
4362	p505	n502	-2.498	n503	-2.6682	42.6	42.5	0.4	168.5	0.68	14.2287	2.475	2.313	200 mm
4363	p506	n503	-2.6682	n504	-2.7444	19.1	19	0.4	168.5	0.68	14.2287	2.313	2.373	200 mm
4366	p509	n506	-2.8905	LS-7	-3.0105	30	30	0.4	168.5	0.69	14.2287	2.224	2.664	200 mm
4371	p515	n512	2.1991	n513	1.6063	25.4	25.4	2.34	168.5	1.33	34.404	3.282	2.6892	200 mm
4372	p516	n513	1.6063	n514	1.0311	8.3	8.3	6.92	168.5	1.97	59.1598	2.6892	2.114	200 mm
4375	p519	n516	-1.9921	n517	-1.8721	30	30.9	0.4	168.5	0.69	14.2287	2.342	2.3728	200 mm
4379	p523	n520	-1.7344	n521	-1.6144	30	30	0.4	168.5	0.69	14.2287	2.33	2.4419	200 mm
4382	p526	n523	-1.4636	n524	-1.3436	30	30	0.4	168.5	0.69	14.2287	2.506	2.4505	200 mm
4383	p527	n524	-1.3436	n525	-1.2236	30	30	0.4	168.5	0.69	14.2287	2.4505	2.3313	200 mm
4384	p528	n525	-1.2236	n526	-1.1036	30	30	0.4	168.5	0.69	14.2287	2.3313	2.2748	200 mm
4404	p549	n546	0.1428	n547	0.2628	30	30	0.4	168.5	0.67	14.2287	2.379	2.435	200 mm
4405	p550	n547	0.2628	n548	0.3828	30	30	0.4	168.5	0.67	14.2287	2.435	2.5323	200 mm
4406	p551	n548	0.3828	n549	0.483	25.1	25	0.4	168.5	0.67	14.2287	2.5323	2.544	200 mm
4407	p552	n549	0.483	n550	0.603	30	30	0.4	168.5	0.67	14.2287	2.544	2.5143	200 mm
4408	p553	n550	0.603	n551	0.723	30	30	0.4	168.5	0.67	14.2287	2.5143	2.5083	200 mm
4415	p560	n556	1.1974	n557	1.2795	20.5	20.5	0.4	168.5	0.66	14.2287	2.582	2.638	200 mm
4416	p562	n557	1.2795	n559	1.3611	20.4	20.4	0.4	168.5	0.66	14.2287	2.638	2.628	200 mm
4417	p563	n559	1.3611	n560	1.4436	20.6	20.5	0.4	168.5	0.66	14.2287	2.628	2.611	200 mm
4418	p564	n560	1.4436	n561	1.4781	8.6	8.6	0.4	168.5	0.66	14.2287	2.611	2.749	200 mm
4427	p573	n569	-2.1405	n570	-2.08	15.1	15.1	0.4	168.5	0.65	14.2287	2.598	2.558	200 mm
4443	p589	n585	-1.2837	n586	-1.1637	30	30	0.4	168.5	0.64	14.2287	2.322	2.294	200 mm
4446	p592	n588	-1.044	n589	-0.9914	13.2	13.1	0.4	168.5	0.64	14.2287	2.3451	2.404	200 mm
4447	p593	n589	-0.9914	n590	-0.9171	18.6	18.4	0.4	168.5	0.64	14.2287	2.404	2.397	200 mm
4448	p594	n590	-0.9171	n591	-0.8792	9.5	9.2	0.4	168.5	0.64	14.2287	2.397	2.411	200 mm
4449	p595	n591	-0.8792	n592	-0.7592	30	30	0.4	168.5	0.64	14.2287	2.411	2.4394	200 mm
4450	p596	n592	-0.7592	n593	-0.6812	19.5	19.5	0.4	168.5	0.63	14.2287	2.4394	2.442	200 mm
4451	p597	n593	-0.6812	n594	-0.5612	30	30	0.4	168.5	0.63	14.2287	2.442	2.3923	200 mm
4454	p600	n596	-0.4311	n597	-0.3111	30	30	0.4	168.5	0.63	14.2287	2.358	2.4332	200 mm
4455	p601	n597	-0.3111	n598	-0.1911	30	30	0.4	168.5	0.63	14.2287	2.4332	2.4785	200 mm
4458	p604	n600	-0.0426	n601	0.0774	30	30	0.4	168.5	0.62	14.2287	2.74	2.3976	200 mm
4459	p605	n601	0.0774	n602	0.2268	37.4	37.4	0.4	168.5	0.62	14.2287	2.3976	2.381	200 mm
4460	p606	n602	0.2268	n603	0.3468	30	30	0.4	168.5	0.62	14.2287	2.381	2.2503	200 mm
4461	p607	n603	0.3468	n604	0.4874	35.1	35.1	0.4	168.5	0.62	14.2287	2.2503	2.424	200 mm
4462	p608	n604	0.4874	n605	0.6074	30	30	0.4	168.5	0.62	14.2287	2.424	2.3076	200 mm
4463	p610	n605	0.6074	n607	0.7274	30	30.4	0.4	168.5	0.62	14.2287	2.3076	2.5485	200 mm
4464	p611	n607	0.7274	n608	0.8474	30	30	0.4	168.5	0.61	14.2287	2.5485	2.9341	200 mm
4465	p612	n608	0.8474	n609	0.9235	19	19	0.4	168.5	0.61	14.2287	2.9341	3.183	200 mm
4466	p613	n609	0.9235	n610	0.9673	11	11	0.4	168.5	0.61	14.2287	3.183	3.4222	200 mm
4467	p615	n610	0.9673	n612	1.0872	30	30	0.4	168.5	0.61	14.2287	3.4222	4.4752	200 mm
4470	p618	n614	1.2209	n615	3.9255	30	29.6	9.02	168.5	0.74	67.5497	4.754	5.0084	200 mm
4477	p625	n621	6.7661	n622	4.6277	29.9	29.7	7.15	168.5	0.68	60.1548	7.849	5.7106	200 mm
4478	p626	n622	4.6277	n623	4.2786	30	30	1.16	168.5	0.39	24.2703	5.7106	5.3615	200 mm
4479	p627	n623	4.2786	n624	3.8909	30	30	1.29	168.5	0.43	25.576	5.3615	4.9738	200 mm
4480	p628	n624	3.8909	n625	2.5723	18.1	18.1	7.28	168.5	0.81	60.6885	4.9738	4.668	200 mm
4481	p629	n625	2.5723	n626	2.4523	30	30	0.4	168.5	0.43	14.2287	4.668	3.7874	200 mm
4482	p630	n626	2.4523	n627	2.3323	30	31.3	0.4	168.5	0.43	14.2287	3.7874	3.4649	200 mm
4486	p634	n630	1.7449	n631	1.4639	30	30	0.94	168.5	0.61	21.7702	2.8278	2.5468	200 mm

4487	p635	n631	1.4639	n632	1.3598	26	26	0.4	168.5	0.45	14.2287	2.5468	2.457	200 mm
4488	p636	n632	1.3598	n633	1.3121	11.9	11.9	0.4	168.5	0.46	14.2287	2.457	2.585	200 mm
4490	p638	n634	1.1536	n635	-1.1428	18.3	18.3	12.6	168.5	1.58	79.8048	2.9392	3.342	200 mm
4493	p641	n637	1.5154	n638	1.3954	30	32.3	0.4	168.5	0.61	14.2287	4.3576	4.1361	200 mm
4497	p645	n641	1.1182	n642	0.9982	30	29.9	0.4	168.5	0.62	14.2287	4.3863	4.531	200 mm
4498	p646	n642	0.9982	n643	0.9446	13.4	13.4	0.4	168.5	0.63	14.2287	4.531	4.39	200 mm
4499	p647	n643	0.9446	n644	0.8246	30	30	0.4	168.5	0.63	14.2287	4.39	4.211	200 mm
4500	p648	n644	0.8246	n645	0.7046	30	30	0.4	168.5	0.63	14.2287	4.211	3.8835	200 mm
4506	p654	n650	-1.3745	n651	-1.2905	30	30	0.28	210.7	0.69	21.6049	3.5499	3.625	250 mm
4507	p655	n651	-1.2905	n652	-1.2268	22.8	22.8	0.28	210.7	0.69	21.6049	3.625	3.6092	250 mm
4508	p656	n652	-1.2268	n635	-1.1428	30	30	0.28	210.7	0.68	21.6049	3.6092	3.342	250 mm
4509	p657	n635	-1.1428	n653	-1.118	8.9	8.9	0.28	210.7	0.66	21.6049	3.342	2.887	250 mm
4510	p658	n653	-1.118	n654	-1.0588	21.1	21.1	0.28	210.7	0.66	21.6049	2.887	2.7975	250 mm
4511	p659	n654	-1.0588	n655	-0.9748	30	30	0.28	210.7	0.66	21.6049	2.7975	2.6248	250 mm
4512	p660	n655	-0.9748	n656	-0.9197	19.7	19.7	0.28	210.7	0.66	21.6049	2.6248	2.481	250 mm
4515	p663	n658	-0.8698	n659	-0.7498	30	30	0.4	168.5	0.73	14.2287	2.403	2.6416	200 mm
4516	p664	n659	-0.7498	n660	-0.6298	30	30	0.4	168.5	0.73	14.2287	2.6416	2.8866	200 mm
4519	p667	n165	-0.4995	n662	-0.3795	30	30	0.4	168.5	0.7	14.2287	3.249	3.4009	200 mm
4524	p672	n625	2.5723	n668	2.6923	30	21.8	0.4	168.5	0.38	14.2287	4.668	5.154	200 mm
4525	p673	n668	2.6923	n669	2.8331	35.2	43.8	0.4	168.5	0.37	14.2287	5.154	5.223	200 mm
4526	p674	n669	2.8331	n670	2.9531	30	30	0.4	168.5	0.37	14.2287	5.223	5.18	200 mm
4536	p684	n680	7.1989	n681	7.2751	19.1	19.1	0.4	168.5	0.16	14.2287	8.3519	8.358	200 mm
4538	p686	n682	6.8441	n683	6.149	30	30	2.32	168.5	0.31	34.2516	7.927	7.2319	200 mm
4539	p687	n683	6.149	n684	5.9181	7.2	7.2	3.2	168.5	0.42	40.2572	7.2319	7.001	200 mm
4540	p688	n684	5.9181	n685	5.1119	22.8	22.8	3.54	168.5	0.49	42.3333	7.001	6.1948	200 mm
4541	p689	n685	5.1119	n686	4.5338	30	30	1.93	168.5	0.43	31.2351	6.1948	5.6167	200 mm
4542	p690	n686	4.5338	n687	4.2662	30	30	0.89	168.5	0.36	21.246	5.6167	5.3491	200 mm
4543	p691	n687	4.2662	n673	3.04	14.7	15	8.36	168.5	0.82	65.0446	5.3491	5.265	200 mm
4544	p692	n673	3.04	n689	3.082	10.5	10.2	0.4	168.5	0.28	14.2287	5.265	5.312	200 mm
4545	p693	n689	3.082	n690	3.1211	9.8	9.8	0.4	168.5	0.27	14.2287	5.312	5.276	200 mm
4546	p694	n690	3.1211	n691	3.1884	16.8	16.8	0.4	168.5	0.25	14.2287	5.276	5.086	200 mm
4547	p695	n691	3.1884	n692	3.202	3.4	3.4	0.4	168.5	0.23	14.2287	5.086	5.0016	200 mm
4548	p696	n692	3.202	n693	3.2447	10.7	10.7	0.4	168.5	0.2	14.2287	5.0016	4.854	200 mm
4549	p697	n693	3.2447	n694	3.3219	19.3	19.3	0.4	168.5	0.16	14.2287	4.854	4.4048	200 mm
4551	p699	n401	3.4339	n696	4.6881	26.9	26.9	4.66	168.5	0.48	48.5512	7.087	6.4202	200 mm
4552	p700	n696	4.6881	n697	4.8081	30	30	0.4	168.5	0.16	14.2287	6.4202	5.891	200 mm
4560	p708	n704	8.6512	n705	9.7331	30	30	3.61	168.5	1.02	42.7515	9.7341	11.143	200 mm
4561	p709	n705	9.7331	n706	10.8781	17.8	17.8	6.43	168.5	0.44	57.0273	11.143	11.961	200 mm
4562	p710	n705	9.7331	n707	9.7737	10.1	10.1	0.4	168.5	0.46	14.2287	11.143	10.946	200 mm
4563	p711	n707	9.7737	n708	9.8987	31.3	31.3	0.4	168.5	0.46	14.2287	10.946	11.7409	200 mm
4568	p716	n712	10.0862	n713	10.2061	30	29.4	0.4	168.5	0.42	14.2287	12.5939	13.782	200 mm
4571	p719	n715	10.3281	n716	10.4481	30	30	0.4	168.5	0.41	14.2287	13.5592	12.8775	200 mm
4572	p720	n716	10.4481	n717	10.568	30	30	0.4	168.5	0.41	14.2287	12.8775	11.9909	200 mm
4573	p721	n717	10.568	n718	10.6071	9.8	9.8	0.4	168.5	0.4	14.2287	11.9909	11.69	200 mm
4574	p722	n718	10.6071	n719	10.6901	5.6	5.5	1.49	168.5	0.62	27.5	11.69	11.773	200 mm
4577	p725	n721	12.1548	n722	13.7364	29.9	29.9	5.28	168.5	0.94	51.7088	13.2377	14.8193	200 mm
4580	p728	n724	16.3285	n725	17.8305	30	30	5.01	168.5	0.86	50.3735	17.4114	18.9134	200 mm
4583	p731	n727	19.3521	n728	21.0483	30	30	5.66	168.5	0.86	53.539	20.435	22.1312	200 mm
4584	p732	n728	21.0483	n729	22.4443	30	30	4.66	168.5	0.78	48.5559	22.1312	23.5272	200 mm
4585	p733	n729	22.4443	n730	23.4414	30	30	3.33	168.5	0.67	41.0272	23.5272	24.5243	200 mm
4586	p734	n730	23.4414	n731	23.9776	30	30	1.79	168.5	0.52	30.0841	24.5243	25.0605	200 mm
4590	p738	n734	25.2159	n735	25.9162	30	30	2.34	168.5	0.49	34.3802	26.2988	26.9991	200 mm
4591	p739	n735	25.9162	n736	26.6435	30	30	2.43	168.5	0.47	35.0336	26.9991	27.7264	200 mm
4592	p740	n736	26.6435	n737	27.5685	30	30	3.09	168.5	0.47	39.5124	27.7264	28.6514	200 mm
4593	p741	n737	27.5685	n738	28.2845	30	30	2.39	168.5	0.37	34.7609	28.6514	29.3674	200 mm

4594	p742	n738	28.2845	n739	28.4414	30	30	0.52	168.5	0.18	16.271	29.3674	29.5243	200 mm
4607	p755	n702	8.0631	n752	7.8248	30	30	0.79	168.5	0.61	20.0491	9.146	8.9077	200 mm
4608	p756	n752	7.8248	n753	7.245	30	30	1.93	168.5	0.84	31.2819	8.9077	8.3279	200 mm
4609	p757	n753	7.245	n754	5.8415	30	30	4.68	168.5	1.16	48.6855	8.3279	6.9244	200 mm
4610	p758	n754	5.8415	n755	4.0557	30	30	5.96	168.5	1.27	54.9354	6.9244	5.1386	200 mm
4611	p759	n755	4.0557	n756	2.9007	30	30	3.85	168.5	1.1	44.1591	5.1386	3.9836	200 mm
4612	p760	n756	2.9007	n757	2.2047	30	29.4	2.32	168.5	0.92	34.2717	3.9836	3.2876	200 mm
4613	p761	n757	2.2047	n758	2.0334	30	30.8	0.57	168.5	0.57	17.0009	3.2876	3.1163	200 mm
4614	p762	n758	2.0334	n759	1.9002	30	30.5	0.44	168.5	0.52	14.989	3.1163	2.9831	200 mm
4615	p763	n759	1.9002	n760	1.5162	60	60	0.64	168.5	0.6	17.9983	2.9831	2.5991	200 mm
4616	p764	n760	1.5162	n761	1.3962	30	30	0.4	168.5	0.51	14.2287	2.5991	2.5207	200 mm
4617	p765	n761	1.3962	n762	1.2762	30	30	0.4	168.5	0.51	14.2287	2.5207	2.5164	200 mm
4618	p766	n762	1.2762	n763	1.1562	30	30	0.4	168.5	0.52	14.2287	2.5164	2.4707	200 mm
4619	p767	n763	1.1562	n764	1.0439	28.1	28.1	0.4	168.5	0.52	14.2287	2.4707	2.428	200 mm
4620	p768	n764	1.0439	n765	0.9324	27.9	27.9	0.4	168.5	0.52	14.2287	2.428	2.515	200 mm
4621	p769	n765	0.9324	n766	0.8124	30	30	0.4	168.5	0.53	14.2287	2.515	2.4555	200 mm
4622	p771	n766	0.8124	n768	0.7298	20.7	20.9	0.4	168.5	0.53	14.2287	2.4555	2.51	200 mm
4623	p772	n768	0.7298	n769	0.6098	30	30	0.4	168.5	0.53	14.2287	2.51	2.4522	200 mm
4624	p773	n769	0.6098	n770	0.5086	25.3	25.3	0.4	168.5	0.53	14.2287	2.4522	2.461	200 mm
4627	p777	n772	0.9867	n774	1.1067	30	30.4	0.4	168.5	0.5	14.2287	2.1612	2.2907	200 mm
4628	p778	n774	1.1067	n775	1.1585	13	13	0.4	168.5	0.5	14.2287	2.2907	2.348	200 mm
4635	p785	n781	1.7873	n782	2.1331	30	30	1.15	168.5	0.71	24.1535	2.8702	3.216	200 mm
4636	p786	n782	2.1331	n783	3.199	30	30	3.56	168.5	1.04	42.4215	3.216	4.2819	200 mm
4642	p792	n788	8.7039	n789	10.3846	30	29.9	5.61	168.5	1.13	53.2951	9.7868	11.4675	200 mm
4643	p793	n789	10.3846	n790	12.1125	30	30	5.77	168.5	1.12	54.0382	11.4675	13.1954	200 mm
4644	p794	n790	12.1125	n791	12.7111	9.1	9.3	6.56	168.5	1.16	57.5977	13.1954	13.794	200 mm
4645	p795	n770	0.5086	n792	0.3886	30	30	0.4	168.5	0.63	14.2287	2.461	2.4879	200 mm
4646	p796	n792	0.3886	n793	0.2686	30	30	0.4	168.5	0.63	14.2287	2.4879	2.6031	200 mm
4647	p797	n793	0.2686	n794	0.1486	30	30	0.4	168.5	0.63	14.2287	2.6031	2.8985	200 mm
4648	p798	n794	0.1486	n795	0.0634	21.3	21.3	0.4	168.5	0.63	14.2287	2.8985	3.082	200 mm
4649	p799	n795	0.0634	n796	-0.0566	30	30	0.4	168.5	0.64	14.2287	3.082	3.038	200 mm
4655	p806	n802	1.3539	n803	1.4403	21.6	17.3	0.4	168.5	0.6	14.2287	3.116	2.928	200 mm
4656	p807	n803	1.4403	n804	1.489	12.2	12.2	0.4	168.5	0.59	14.2287	2.928	3.153	200 mm
4657	p808	n804	1.489	n805	1.609	30	30	0.4	168.5	0.58	14.2287	3.153	3.04	200 mm
4658	p809	n805	1.609	n806	1.729	30	30	0.4	168.5	0.58	14.2287	3.04	3.3424	200 mm
4659	p811	n806	1.729	n808	2.2318	30	30.7	1.68	168.5	0.9	29.1252	3.3424	3.3147	200 mm
4660	p812	n808	2.2318	n809	2.3733	30	30	0.47	168.5	0.55	15.4524	3.3147	3.5323	200 mm
4661	p813	n809	2.3733	n810	2.4933	30	30	0.4	168.5	0.52	14.2287	3.5323	3.5762	200 mm
4662	p814	n810	2.4933	n811	2.7127	30	30	0.73	168.5	0.64	19.2394	3.5762	3.7956	200 mm
4663	p815	n811	2.7127	n812	3.6507	30	30	3.13	168.5	1.07	39.7874	3.7956	4.7336	200 mm
4664	p816	n812	3.6507	n813	4.8688	30	30	4.07	168.5	1.16	45.3568	4.7336	5.9517	200 mm
4672	p824	n820	5.4734	n821	8.6499	29.8	29.8	10.6	168.5	0.65	73.4155	6.5563	9.7328	200 mm
4677	p829	n825	7.3015	n826	5.6837	30	30	5.4	168.5	0.41	52.2881	8.3844	6.7666	200 mm
4678	p830	n826	5.6837	n827	4.7941	24.6	24.6	3.62	168.5	0.44	42.7728	6.7666	5.877	200 mm
4679	p831	n806	1.729	n828	1.8401	27.8	27.8	0.4	168.5	0.37	14.2287	3.3424	2.923	200 mm
4680	p832	n828	1.8401	n829	2.1726	30	30	1.11	168.5	0.53	23.6866	2.923	3.2555	200 mm
4681	p833	n829	2.1726	n830	2.3871	17.2	17.2	1.25	168.5	0.53	25.1355	3.2555	3.47	200 mm
4682	p834	n830	2.3871	n831	2.645	12.8	12.8	2.01	168.5	0.62	31.908	3.47	3.7279	200 mm
4683	p835	n831	2.645	n832	3.4815	30	30	2.79	168.5	0.67	37.5745	3.7279	4.5644	200 mm
4684	p836	n832	3.4815	n833	4.0481	22.2	22.2	2.56	168.5	0.63	35.9649	4.5644	5.131	200 mm
4685	p837	n833	4.0481	n834	4.1327	7.8	7.8	1.08	168.5	0.45	23.4044	5.131	5.2156	200 mm
4686	p838	n834	4.1327	n827	4.7941	25	25	2.64	168.5	0.6	36.5704	5.2156	5.877	200 mm
4687	p839	n827	4.7941	n835	5.0555	30	30	0.87	168.5	0.35	21.0021	5.877	6.1384	200 mm
4688	p840	n835	5.0555	n836	5.6699	30	30	2.05	168.5	0.44	32.1993	6.1384	6.7528	200 mm
4689	p841	n836	5.6699	n837	6.7263	30	30	3.52	168.5	0.49	42.2315	6.7528	7.8092	200 mm

4690	p842	n837	6.7263	n838	7.7391	28.5	28.5	3.55	168.5	0.44	42.3887	7.8092	8.822	200 mm
4695	p847	n815	6.0418	n843	6.195	38.3	38.3	0.4	168.5	0.42	14.2287	7.865	8.1243	200 mm
4696	p848	n843	6.195	n844	6.2148	5	5	0.4	168.5	0.42	14.2287	8.1243	8.169	200 mm
4697	p849	n844	6.2148	n845	6.2867	18	18	0.4	168.5	0.39	14.2287	8.169	7.52	200 mm
4698	p850	n845	6.2867	n846	6.3092	5.6	5.6	0.4	168.5	0.39	14.2287	7.52	7.506	200 mm
4704	p856	n842	7.8961	n851	9.9225	29.9	29.9	6.77	168.5	0.96	58.539	8.979	11.0054	200 mm
4705	p857	n851	9.9225	n852	12.5289	29.9	29.9	8.72	168.5	1.03	66.4456	11.0054	13.6118	200 mm
4706	p858	n852	12.5289	n853	15.4454	29.8	29.8	9.78	168.5	1.04	70.3454	13.6118	16.8005	200 mm
4709	p861	n855	17.4431	n856	17.0971	13.7	13.7	2.53	168.5	0.32	35.7661	18.526	18.18	200 mm
4710	p862	n856	17.0971	n858	15.67	16.2	16.2	8.8	168.5	0.59	66.7321	18.18	16.7529	200 mm
4711	p863	n858	15.67	n859	14.16	30	30	5.04	168.5	0.55	50.5073	16.7529	15.2429	200 mm
4712	p864	n859	14.16	n860	13.592	30	30	1.89	168.5	0.43	30.9604	15.2429	14.6749	200 mm
4713	p865	n860	13.592	n861	13.4021	17.3	17.3	1.1	168.5	0.38	23.5668	14.6749	14.485	200 mm
4716	p868	n863	13.2101	n864	13.0869	8.5	8.5	1.46	168.5	0.47	27.1594	14.293	14.1698	200 mm
4717	p869	n864	13.0869	n865	12.8303	13.6	13.5	1.89	168.5	0.53	30.9605	14.1698	13.9132	200 mm
4718	p870	n865	12.8303	n866	12.4641	10.9	10.9	3.36	168.5	0.68	41.2376	13.9132	13.547	200 mm
4719	p871	n866	12.4641	n867	12.3731	3.5	3.5	2.58	168.5	0.63	36.1064	13.547	13.456	200 mm
4720	p872	n867	12.3731	n868	12.3409	8.1	8	0.4	168.5	0.34	14.2287	13.456	13.579	200 mm
4722	p874	n869	12.082	n870	11.8613	30	30	0.74	168.5	0.45	19.2968	13.1649	12.9442	200 mm
4723	p875	n870	11.8613	n871	11.6461	23.9	23.9	0.9	168.5	0.5	21.3469	12.9442	12.729	200 mm
4724	p876	n871	11.6461	n872	11.5262	30	30	0.4	168.5	0.38	14.2287	12.729	13.1416	200 mm
4725	p877	n872	11.5262	n873	11.4158	27.6	27.6	0.4	168.5	0.39	14.2287	13.1416	14.6	200 mm
4726	p878	n873	11.4158	n874	10.5057	29.4	29.4	3.1	168.5	0.81	39.591	14.6	11.5886	200 mm
4727	p879	n874	10.5057	n875	8.8705	29.9	29.9	5.47	168.5	1	52.6027	11.5886	9.9534	200 mm
4728	p880	n875	8.8705	n876	8.51	30	30	1.2	168.5	0.6	24.6618	9.9534	9.5929	200 mm
4729	p881	n876	8.51	n877	6.6661	29.9	29.9	6.16	168.5	1.08	55.8409	9.5929	7.749	200 mm
4730	p882	n877	6.6661	n878	5.7281	11.3	11.3	8.29	168.5	1.21	64.7599	7.749	6.811	200 mm
4731	p883	n879	-0.1298	n880	-0.2498	30	30	0.4	168.5	0.64	14.2287	3.038	2.9156	200 mm
4732	p884	n880	-0.2498	n881	-0.3704	30.1	30.1	0.4	168.5	0.64	14.2287	2.9156	2.9332	200 mm
4733	p885	n881	-0.3704	n882	-0.4904	30	30	0.4	168.5	0.64	14.2287	2.9332	2.996	200 mm
4734	p886	n882	-0.4904	n883	-0.6104	30	30	0.4	168.5	0.64	14.2287	2.996	3.1749	200 mm
4735	p887	n883	-0.6104	n884	-0.7304	30	30	0.4	168.5	0.64	14.2287	3.1749	3.6531	200 mm
4736	p888	n884	-0.7304	n885	-0.8504	30	30	0.4	168.5	0.65	14.2287	3.6531	3.8394	200 mm
4737	p889	n885	-0.8504	n886	-0.9704	30	29.9	0.4	168.5	0.65	14.2287	3.8394	3.8743	200 mm
4738	p890	n886	-0.9704	n887	-1.0106	10.1	10.2	0.4	168.5	0.65	14.2287	3.8743	3.882	200 mm
4741	p893	n889	-1.0947	n890	-1.2147	30	30	0.4	168.5	0.65	14.2287	3.927	3.8635	200 mm
4744	p896	n892	2.9191	n893	3.0671	12.7	12.7	1.17	168.5	0.24	24.3248	4.002	4.15	200 mm
4746	p899	n895	2.8749	n896	2.7469	32	32	0.4	168.5	0.16	14.2287	3.9578	4.0348	200 mm
4748	p901	n897	2.5088	n898	2.3885	30.1	30.1	0.4	168.5	0.31	14.2287	4.0997	4.0032	200 mm
4749	p903	n898	2.3885	n900	2.2685	30	30.7	0.4	168.5	0.32	14.2287	4.0032	4.0187	200 mm
4750	p904	n900	2.2685	n901	2.1193	37.3	37.3	0.4	168.5	0.33	14.2287	4.0187	3.921	200 mm
4751	p905	n901	2.1193	n902	1.9993	30	30	0.4	168.5	0.34	14.2287	3.921	3.7313	200 mm
4756	p910	n906	1.843	n907	1.723	30	30	0.4	168.5	0.36	14.2287	3.801	3.8352	200 mm
4757	p911	n907	1.723	n908	1.603	30	30	0.4	168.5	0.37	14.2287	3.8352	3.8555	200 mm
4760	p914	n910	1.4594	n911	1.3394	30	30	0.4	168.5	0.38	14.2287	3.8343	3.8189	200 mm
4761	p915	n911	1.3394	n912	1.2648	18.7	18.6	0.4	168.5	0.39	14.2287	3.8189	3.745	200 mm
4762	p916	n912	1.2648	n913	1.1448	30	30	0.4	168.5	0.4	14.2287	3.745	3.7527	200 mm
4763	p917	n913	1.1448	n914	1.0248	30	30	0.4	168.5	0.4	14.2287	3.7527	3.7743	200 mm
4764	p918	n914	1.0248	n915	0.9048	30	30.6	0.4	168.5	0.41	14.2287	3.7743	3.8322	200 mm
4766	p920	n917	0.7779	n918	0.5485	57.3	57.3	0.4	168.5	0.48	14.2287	3.8483	3.902	200 mm
4773	p927	n892	-1.605	n923	-1.6858	28.9	28.6	0.28	210.7	0.68	21.6049	4.002	3.466	250 mm
4774	p928	n923	-1.6858	n924	-1.7698	30	29.9	0.28	210.7	0.68	21.6049	3.466	2.9498	250 mm
4775	p929	n924	-1.7698	n925	-1.8196	17.8	17.8	0.28	210.7	0.68	21.6049	2.9498	2.814	250 mm
4776	p930	n925	-1.8196	n926	-1.8951	27	27	0.28	210.7	0.68	21.6049	2.814	2.884	250 mm
4777	p931	n926	-1.8951	LS 14	-1.9679	26	26	0.28	210.7	0.68	21.6049	2.884	2.809	250 mm

4779	p933	n928	1.8159	n929	1.7319	30	30	0.28	210.7	0.68	21.6049	2.941	3.2375	250 mm
4780	p934	n929	1.7319	n930	1.6479	30	30	0.28	210.7	0.68	21.6049	3.2375	3.6277	250 mm
4781	p935	n930	1.6479	n931	0.1319	16.8	18.1	9.03	210.7	2.43	122.6876	3.6277	3.877	250 mm
4783	p937	n844	6.2148	n933	11.6301	44.4	44.4	12.2	168.5	0.76	78.596	8.169	12.713	200 mm
4784	p938	n933	11.6301	n934	14.2905	29.9	29.9	8.9	168.5	0.61	67.1302	12.713	15.3734	200 mm
4785	p939	n934	14.2905	n935	15.9311	23	23	7.13	168.5	0.45	60.0601	15.3734	17.014	200 mm
4786	p940	n186	2.8021	n936	2.9221	30	30	0.4	168.5	0.33	14.2287	4.589	5.0061	200 mm
4801	p956	n186	2.8021	n952	2.7656	9.1	9.1	0.4	168.5	0.36	14.2287	4.589	4.4747	200 mm
4802	p957	n952	2.7656	n953	2.6456	30	30	0.4	168.5	0.37	14.2287	4.4747	4.1898	200 mm
4803	p958	n953	2.6456	n954	2.5256	30	30.2	0.4	168.5	0.37	14.2287	4.1898	3.9265	200 mm
4805	p960	n954	2.5256	n955	2.4056	30	29.8	0.4	168.5	0.38	14.2287	3.9265	3.704	200 mm
4806	p961	n955	2.4056	n956	2.2856	30	30	0.4	168.5	0.39	14.2287	3.704	3.4254	200 mm
4807	p962	n956	2.2856	n957	1.2079	30	30	3.59	168.5	0.85	42.6413	3.4254	3.157	200 mm
4808	p963	n957	1.2079	n958	1.1393	17.2	17.2	0.4	168.5	0.62	14.2287	3.157	3.089	200 mm
4809	p964	n958	1.1393	n666	-0.1904	13.7	13.7	9.68	168.5	1.95	69.9875	3.089	3.252	200 mm
4810	p965	n666	-0.1904	n959	-0.0679	30.6	30.6	0.4	168.5	0.55	14.2287	3.252	3.2108	200 mm
4811	p966	n959	-0.0679	n960	0.0521	30	30	0.4	168.5	0.55	14.2287	3.2108	3.4128	200 mm
4812	p967	n960	0.0521	n679	0.1721	30	30	0.4	168.5	0.55	14.2287	3.4128	3.642	200 mm
4813	p968	n679	0.1721	n962	0.2471	18.8	18.8	0.4	168.5	0.54	14.2287	3.642	3.545	200 mm
4814	p969	n962	0.2471	n963	0.3671	30	30	0.4	168.5	0.54	14.2287	3.545	3.4361	200 mm
4815	p970	n963	0.3671	n964	0.4871	30	30	0.4	168.5	0.54	14.2287	3.4361	3.253	200 mm
4818	p973	n966	0.6333	n967	0.6737	10.1	10.1	0.4	168.5	0.53	14.2287	3.6371	3.707	200 mm
4819	p974	n967	0.6737	n968	0.7533	19.9	19.9	0.4	168.5	0.53	14.2287	3.707	3.827	200 mm
4820	p975	n968	0.7533	n969	0.8733	30	30	0.4	168.5	0.53	14.2287	3.827	4.0561	200 mm
4821	p976	n969	0.8733	n695	0.9932	30	30	0.4	168.5	0.53	14.2287	4.0561	4.795	200 mm
4822	p977	n695	0.9932	n970	1.1131	30	30	0.4	168.5	0.52	14.2287	4.795	6.1514	200 mm
4823	p978	n970	1.1131	n971	1.1695	14.1	14.3	0.4	168.5	0.52	14.2287	6.1514	6.503	200 mm
4828	p983	n974	1.3341	n975	1.3601	6.5	6.5	0.4	168.5	0.51	14.2287	4.792	4.596	200 mm
4829	p984	n975	1.3601	n976	1.4102	12.5	12.5	0.4	168.5	0.51	14.2287	4.596	4.4539	200 mm
4832	p987	n978	1.5398	n979	1.6598	30	30	0.4	168.5	0.5	14.2287	4.316	4.4926	200 mm
4837	p992	n983	1.8447	n984	1.8663	5.4	5.4	0.4	168.5	0.53	14.2287	5.387	5.229	200 mm
4838	p993	n984	1.8663	n985	1.9291	15.7	15.7	0.4	168.5	0.51	14.2287	5.229	4.727	200 mm
4839	p994	n985	1.9291	n986	2.049	30	30	0.4	168.5	0.51	14.2287	4.727	4.0498	200 mm
4840	p995	n986	2.049	n987	2.169	30	30	0.4	168.5	0.5	14.2287	4.0498	3.6619	200 mm
4841	p996	n987	2.169	n988	2.289	30	29.7	0.4	168.5	0.5	14.2287	3.6619	3.5961	200 mm
4842	p997	n988	2.289	n989	2.3521	15.8	15.8	0.4	168.5	0.5	14.2287	3.5961	3.49	200 mm
4843	p998	n989	2.3521	n990	2.4201	17	17	0.4	168.5	0.49	14.2287	3.49	3.503	200 mm
4844	p999	n990	2.4201	n991	3.1656	30	29.9	2.49	168.5	0.94	35.4699	3.503	4.2485	200 mm
4845	p1000	n991	3.1656	n992	4.6838	30	30	5.07	168.5	1.19	50.6455	4.2485	5.7667	200 mm
4846	p1001	n992	4.6838	n993	6.3595	30	30	5.6	168.5	1.22	53.2144	5.7667	7.4424	200 mm
4847	p1002	n993	6.3595	n994	8.0735	30	29.9	5.72	168.5	1.22	53.82	7.4424	9.1564	200 mm
4848	p1003	n994	8.0735	n995	8.6951	24.3	24.3	2.55	168.5	0.91	35.9511	9.1564	10.978	200 mm
4849	p1004	n995	8.6951	n996	10.9891	31.7	31.7	7.25	168.5	0.74	60.5591	10.978	12.072	200 mm
4851	p1006	n997	10.4591	n998	10.1986	13.8	13.8	1.89	168.5	0.28	30.9638	11.542	11.2815	200 mm
4852	p1007	n998	10.1986	n999	9.5019	30	30	2.32	168.5	0.37	34.2914	11.2815	10.5848	200 mm
4853	p1008	n999	9.5019	n1000	8.3838	30	30	3.73	168.5	0.5	43.4478	10.5848	9.4667	200 mm
4854	p1009	n1000	8.3838	n1001	6.4738	29.9	29.9	6.38	168.5	0.66	56.8317	9.4667	7.5567	200 mm
4857	p1012	n1003	5.2871	n1004	3.195	28.9	28.9	7.25	168.5	0.78	60.583	6.37	4.2779	200 mm
4858	p1013	n1004	3.195	n1005	2.4232	30	30	2.57	168.5	0.57	36.0915	4.2779	3.5061	200 mm
4859	p1014	n1005	2.4232	n1006	2.2411	18.2	18.2	1	168.5	0.43	22.4797	3.5061	3.324	200 mm
4860	p1015	n1006	2.2411	n1007	2.1686	18.1	20.6	0.4	168.5	0.32	14.2287	3.324	3.402	200 mm
4861	p1016	n1007	2.1686	n1008	2.0646	26	23.3	0.4	168.5	0.33	14.2287	3.402	3.5	200 mm
4863	p1019	n996	10.9891	n1011	12.6342	30	30	5.49	168.5	0.63	52.7263	12.072	13.7171	200 mm
4864	p1020	n1011	12.6342	n1012	13.9352	30	30	4.34	168.5	0.52	46.8742	13.7171	15.0181	200 mm
4865	p1021	n1012	13.9352	n1013	14.9099	30	30	3.25	168.5	0.43	40.5651	15.0181	15.9928	200 mm

4866	p1022	n1013	14.9099	n1014	15.3769	30	30	1.56	168.5	0.26	28.0693	15.9928	16.4598	200 mm
4868	p1024	n1015	15.7182	n1016	15.3311	8.9	8.9	4.34	168.5	0.38	46.8516	16.8011	16.414	200 mm
4869	p1025	n1016	11.6582	n1017	11.5383	30	30	0.4	168.5	0.37	14.2287	16.414	14.9993	200 mm
4870	p1026	n1017	11.5383	n1018	11.4184	30	29.9	0.4	168.5	0.38	14.2287	14.9993	13.394	200 mm
4871	p1027	n1018	11.4184	n1019	10.864	30	30	1.85	168.5	0.66	30.6008	13.394	11.9469	200 mm
4872	p1028	n1019	10.864	n1020	9.1677	30	37.3	5.66	168.5	1	53.5412	11.9469	10.2506	200 mm
4875	p1031	n1022	7.5547	n1023	5.8348	30	30	5.74	168.5	1.04	53.9119	8.6376	6.9177	200 mm
4876	p1032	n1023	5.8348	n1024	5.4941	12.1	12.1	2.82	168.5	0.82	37.799	6.9177	6.577	200 mm
4877	p1033	n1024	5.4941	n1025	5.0622	17.9	17.9	2.41	168.5	0.79	34.9281	6.577	6.1451	200 mm
4878	p1034	n1025	5.0622	n1026	4.3958	30	30	2.22	168.5	0.77	33.5352	6.1451	5.4787	200 mm
4879	p1035	n1026	4.3958	n1027	4.1481	9.5	9.5	2.61	168.5	0.83	36.3185	5.4787	5.231	200 mm
4880	p1036	n1027	4.1481	n1028	4.0993	12.2	12.2	0.4	168.5	0.45	14.2287	5.231	5.284	200 mm
4881	p1037	n1028	4.0993	n1029	4.0587	10.1	10.1	0.4	168.5	0.45	14.2287	5.284	5.218	200 mm
4882	p1038	n1029	4.0587	MH-241	3.9682	19.9	19.9	0.46	168.5	0.48	15.1845	5.218	5.0511	200 mm
4884	p1040	n1031	3.834	n1032	3.4344	30	30	1.33	168.5	0.7	25.9657	4.9169	4.5173	200 mm
4885	p1041	n1032	3.4344	n1033	3.2961	22.2	22.2	0.62	168.5	0.55	17.7574	4.5173	4.379	200 mm
4886	p1042	n1033	3.2961	n1034	3.1761	30	30	0.4	168.5	0.47	14.2287	4.379	4.5233	200 mm
4887	p1043	n1034	3.1761	n1035	3.0561	30	30	0.4	168.5	0.47	14.2287	4.5233	4.7199	200 mm
4888	p1044	n1035	3.0561	n1036	2.9361	30	30	0.4	168.5	0.48	14.2287	4.7199	4.9361	200 mm
4889	p1045	n1036	2.9361	n1037	2.8699	16.6	16.6	0.4	168.5	0.48	14.2287	4.9361	5.052	200 mm
4890	p1046	n1037	2.8699	n1038	2.8161	13.4	13.4	0.4	168.5	0.49	14.2287	5.052	5.1209	200 mm
4891	p1047	n1038	2.8161	n1039	2.6961	30	30	0.4	168.5	0.49	14.2287	5.1209	5.2882	200 mm
4892	p1048	n1039	2.6961	n1040	2.5761	30	30	0.4	168.5	0.49	14.2287	5.2882	5.4143	200 mm
4895	p1051	n1042	2.4417	n1043	2.3827	14.8	14.8	0.4	168.5	0.5	14.2287	5.2189	4.983	200 mm
4896	p1052	n1043	2.3827	n1044	4.1061	20.8	20.7	8.31	168.5	0.58	64.8365	4.983	5.189	200 mm
4897	p1053	n1044	4.1061	n1045	4.2153	9.3	9.3	1.18	168.5	0.24	24.4377	5.189	5.2982	200 mm
4901	p1057	n1047	2.2663	n1048	2.1463	30	30	0.4	168.5	0.51	14.2287	4.4863	4.1903	200 mm
4902	p1058	n1048	2.1463	n1049	2.0263	30	30	0.4	168.5	0.52	14.2287	4.1903	3.9245	200 mm
4903	p1059	n1049	2.0263	n1050	1.9063	30	30	0.4	168.5	0.52	14.2287	3.9245	3.654	200 mm
4906	p1062	n1052	1.8108	n1053	1.6908	30	30	0.4	168.5	0.54	14.2287	3.786	3.5192	200 mm
4907	p1063	n1053	1.6908	n1054	1.5708	30	30	0.4	168.5	0.54	14.2287	3.5192	3.4708	200 mm
4908	p1064	n1054	1.5708	n1055	1.489	20.5	20.5	0.4	168.5	0.54	14.2287	3.4708	3.452	200 mm
4916	p1072	n1061	8.8391	n1062	9.4093	30	30	1.9	168.5	0.77	31.0209	9.922	10.4922	200 mm
4917	p1073	n1062	9.4093	n1063	9.7548	30	30	1.15	168.5	0.64	24.1452	10.4922	10.8377	200 mm
4918	p1074	n1063	9.7548	n1064	10.5933	30	30	2.8	168.5	0.86	37.6168	10.8377	11.6762	200 mm
4921	p1077	n1066	15.5013	n1067	15.6213	30	30	0.4	168.5	0.32	14.2287	17.978	17.5827	200 mm
4922	p1078	n1067	15.6213	n1068	15.7413	30	30	0.4	168.5	0.31	14.2287	17.5827	17.2646	200 mm
4923	p1079	n1068	15.7413	n1069	15.8613	30	30	0.4	168.5	0.3	14.2287	17.2646	17.0532	200 mm
4924	p1080	n1069	15.8613	n1070	15.9041	10.7	10.7	0.4	168.5	0.28	14.2287	17.0532	16.987	200 mm
4925	p1081	n1070	15.9041	n1071	16.3602	30	30	1.52	168.5	0.43	27.7388	16.987	17.4431	200 mm
4926	p1082	n1071	16.3602	n1072	17.9988	29.9	29.9	5.47	168.5	0.62	52.6315	17.4431	19.0817	200 mm
4927	p1083	n1072	17.9988	n1073	18.6961	24.1	24.1	2.9	168.5	0.46	38.2769	19.0817	19.779	200 mm
4934	p1090	n1079	15.3027	n1080	14.5971	16.3	16	4.33	168.5	0.38	46.7928	16.3856	15.68	200 mm
4935	p1091	n1080	14.5971	n1081	14.3781	13.7	13.7	1.6	168.5	0.33	28.4744	15.68	15.461	200 mm
4936	p1092	n1081	14.3781	n1082	14.2581	30	30	0.4	168.5	0.23	14.2287	15.461	15.3578	200 mm
4941	p1097	n1086	14.236	n1087	14.1486	21.9	24.7	0.4	168.5	0.16	14.2287	15.3189	15.952	200 mm
4942	p1098	n1087	14.1486	n1088	13.7012	30	30	1.49	168.5	0.32	27.4835	15.952	14.7841	200 mm
4943	p1099	n1088	13.7012	n1089	11.9905	30	29.9	5.71	168.5	0.58	53.7678	14.7841	13.0734	200 mm
4944	p1101	n1089	11.9905	n1091	9.6697	29.3	29.9	7.93	168.5	0.72	63.3715	13.0734	10.7526	200 mm
4945	p1102	n1091	9.6697	n1092	6.952	29.9	29.9	9.1	168.5	0.8	67.8494	10.7526	8.0349	200 mm
4946	p1103	n1092	6.952	n1093	4.2155	29.5	29.5	9.28	168.5	0.85	68.544	8.0349	6.138	200 mm
4947	p1104	n815	6.0418	n1094	8.0907	30	30	6.84	168.5	1.08	58.8235	7.865	9.1736	200 mm
4948	p1105	n1094	8.0907	n1095	9.3902	30	30	4.34	168.5	0.91	46.8464	9.1736	10.4731	200 mm
4949	p1106	n1095	9.3902	n1096	9.6811	20.2	20.2	1.44	168.5	0.61	27.0056	10.4731	10.764	200 mm
4950	p1107	n1096	9.6811	n1097	10.1011	6	6	7.04	168.5	0.68	59.6923	10.764	11.184	200 mm

4951	p1108	n1097	10.1011	n1098	11.5386	30	30	4.8	168.5	0.55	49.2803	11.184	12.6215	200 mm
4952	p1109	n1098	11.5386	n1099	13.8598	29.9	29.9	7.76	168.5	0.57	62.6735	12.6215	14.9427	200 mm
4953	p1110	n1099	13.8598	n1100	14.9691	15	15	7.39	168.5	0.46	61.1387	14.9427	16.052	200 mm
4956	p1113	n1096	9.6811	n1101	10.1491	30	30	1.56	168.5	0.56	28.0992	10.764	11.232	200 mm
4957	p1114	n1101	10.1491	n1102	11.7286	30	30	5.27	168.5	0.84	51.6649	11.232	12.8115	200 mm
4960	p1117	n1084	14.1141	n1104	15.9212	30	29.9	6.03	168.5	0.69	55.261	15.203	17.0041	200 mm
4961	p1118	n1104	15.9212	n1105	17.8749	29.9	29.9	6.53	168.5	0.66	57.4709	17.0041	18.9578	200 mm
4962	p1119	n1105	17.8749	n1106	19.5983	30	29.9	5.75	168.5	0.58	53.9664	18.9578	20.6812	200 mm
4963	p1120	n1106	19.5983	n1107	21.2498	30	29.6	5.51	168.5	0.51	52.8298	20.6812	22.3327	200 mm
4965	p1122	n1107	21.2498	n1108	22.3751	27.8	28.2	4.04	168.5	0.37	45.2386	22.3327	23.458	200 mm
4967	p1124	n1109	21.7731	n1110	20.0141	30	29.9	5.87	168.5	0.42	54.5225	22.856	21.097	200 mm
4968	p1125	n1110	20.0141	n1111	17.9156	29.9	29.9	7.01	168.5	0.55	59.5712	21.097	18.9985	200 mm
4969	p1126	n1111	17.9156	n1112	16.5687	30	30	4.49	168.5	0.54	47.693	18.9985	17.6516	200 mm
4970	p1127	n1112	16.5687	n1113	15.4377	30	30	3.77	168.5	0.55	43.6961	17.6516	16.5206	200 mm
4971	p1128	n1113	15.4377	n1114	13.8197	30	30	5.4	168.5	0.66	52.2827	16.5206	14.9026	200 mm
4972	p1129	n1114	13.8197	n1115	12.1167	30	29.9	5.69	168.5	0.71	53.6464	14.9026	13.1996	200 mm
4973	p1130	n1115	12.1167	n1116	11.2046	30	30	3.04	168.5	0.61	39.2337	13.1996	12.2875	200 mm
4974	p1131	n1116	11.2046	n1117	10.7961	23.6	23.6	1.73	168.5	0.52	29.5881	12.2875	11.879	200 mm
4976	p1133	n1118	21.5271	n1119	21.4589	17.1	17.1	0.4	168.5	0.16	14.2287	22.61	23.845	200 mm
4977	p1134	n1119	21.4589	n1120	21.3389	30	30.7	0.4	168.5	0.2	14.2287	23.845	24.8307	200 mm
4979	p1136	n1120	21.3389	n1121	21.2334	26.4	25.6	0.4	168.5	0.28	14.2287	24.8307	25.109	200 mm
4980	p1137	n1121	21.2334	n1122	21.1136	30	29.9	0.4	168.5	0.3	14.2287	25.109	23.3689	200 mm
4981	p1138	n1122	21.1136	n1123	19.4221	27.3	27.3	6.21	168.5	0.8	56.041	23.3689	20.505	200 mm
4982	p1139	n1123	19.4221	n1124	16.0817	29.8	29.8	11.2	168.5	1.02	75.3102	20.505	17.1646	200 mm
4983	p1140	n1124	16.0817	n1125	14.0601	15.6	15.6	13	168.5	1.1	80.9879	17.1646	15.143	200 mm
4984	p1141	n1125	14.0601	n1126	12.404	14.2	14.2	11.7	168.5	1.1	76.9121	15.143	13.4869	200 mm
4985	p1142	n1126	12.404	n1127	12.2341	2.9	3	5.76	168.5	0.89	53.9985	13.4869	13.317	200 mm
4986	p1143	n1127	12.2341	n1128	9.5136	26.9	26.9	10.1	168.5	1.11	71.533	13.317	10.5965	200 mm
4989	p1146	n1130	6.6161	n878	5.7281	20.2	20.2	4.39	168.5	0.86	47.1583	7.699	6.811	200 mm
4990	p1147	n878	5.7281	n1131	3.763	29.9	29.9	6.57	168.5	1.31	57.6464	6.811	4.8459	200 mm
4991	p1148	n1131	3.763	n1132	3.0654	30	30	2.33	168.5	0.92	34.3125	4.8459	4.1483	200 mm
4992	p1149	n1132	3.0654	n1133	2.7808	30	30	0.95	168.5	0.68	21.9114	4.1483	3.8637	200 mm
4993	p1150	n1133	2.7808	n1134	2.6501	30	30	0.44	168.5	0.51	14.8528	3.8637	3.733	200 mm
4994	p1152	n1134	2.6501	n1136	2.5301	30	30.5	0.4	168.5	0.5	14.2287	3.733	3.7744	200 mm
4995	p1153	n1136	2.5301	n1137	2.4111	29.8	29.8	0.4	168.5	0.51	14.2287	3.7744	3.837	200 mm
4996	p1154	n1137	2.4111	n1138	2.3609	12.6	12.5	0.4	168.5	0.51	14.2287	3.837	3.76	200 mm
4997	p1155	n1138	2.3609	n1139	2.2996	15.3	15.3	0.4	168.5	0.56	14.2287	3.76	3.614	200 mm
4998	p1156	n1139	2.2996	n1140	2.1881	27.9	27.9	0.4	168.5	0.56	14.2287	3.614	3.842	200 mm
4999	p1157	n1140	2.1881	n1141	2.1259	15.5	15.5	0.4	168.5	0.57	14.2287	3.842	3.54	200 mm
5000	p1158	n1141	2.1259	n1142	2.0059	30	30	0.4	168.5	0.57	14.2287	3.54	3.5798	200 mm
5001	p1159	n1142	2.0059	n1143	1.8859	30	30	0.4	168.5	0.57	14.2287	3.5798	3.6557	200 mm
5002	p1160	n1143	1.8859	n1144	1.7659	30	30	0.4	168.5	0.58	14.2287	3.6557	3.9136	200 mm
5003	p1161	n1144	1.7659	n1145	1.646	30	30	0.4	168.5	0.58	14.2287	3.9136	4.7049	200 mm
5004	p1162	n1145	1.646	n1146	1.5309	28.8	28.8	0.4	168.5	0.59	14.2287	4.7049	4.7	200 mm
5005	p1164	n1146	3.6171	n1148	6.4938	9.6	10.3	30	168.5	1.12	123.2241	4.7	8.646	200 mm
5008	p1167	n1150	9.2771	n1151	12.7111	26.1	26.1	13.2	168.5	0.68	81.6516	10.36	13.794	200 mm
5009	p1168	n1138	2.3609	n1152	2.8675	13.8	13.8	3.66	168.5	0.84	43.044	3.76	3.9504	200 mm
5010	p1169	n1152	2.8675	n1153	3.0892	30	30	0.74	168.5	0.47	19.3393	3.9504	4.1721	200 mm
5011	p1170	n1153	3.0892	n1154	3.4861	30	30	1.32	168.5	0.57	25.8784	4.1721	4.569	200 mm
5012	p1171	n1154	3.4861	n1155	3.9667	30	30	1.6	168.5	0.6	28.4745	4.569	5.0496	200 mm
5013	p1172	n1155	3.9667	n1156	4.6094	30	30	2.14	168.5	0.64	32.9331	5.0496	5.6923	200 mm
5014	p1173	n1156	4.6094	n1157	6.7581	60	60	3.58	168.5	0.75	42.589	5.6923	7.841	200 mm
5015	p1174	n1157	6.7581	n1158	8.2281	30	30	4.91	168.5	0.82	49.8336	7.841	9.311	200 mm
5016	p1175	n1158	8.2281	n1159	8.889	12.8	12.7	5.18	168.5	0.55	51.2202	9.311	9.9719	200 mm
5017	p1176	n1159	8.889	n1160	10.0436	30	30	3.85	168.5	0.46	44.1499	9.9719	11.1265	200 mm

5018	p1177	n1160	10.0436	n1161	10.8591	30.2	30.2	2.7	168.5	0.33	36.9523	11.1265	11.942	200 mm
5021	p1180	n1163	19.1094	n1164	18.1792	30	30	3.1	168.5	0.33	39.6236	20.1923	19.2621	200 mm
5022	p1181	n1164	18.1792	n1165	17.1066	30	30	3.58	168.5	0.44	42.5528	19.2621	18.1895	200 mm
5026	p1185	n1168	9.3135	n1169	8.6423	30	30	2.24	168.5	0.49	33.6564	10.3964	9.7252	200 mm
5027	p1186	n1169	8.6423	n1170	8.3857	30	30	0.86	168.5	0.37	20.8095	9.7252	9.4686	200 mm
5028	p1187	n1170	8.3857	n1158	8.2281	28.9	28.9	0.55	168.5	0.33	16.6202	9.4686	9.311	200 mm
5030	p1190	n1117	10.7961	n1172	9.5668	30	30	4.1	168.5	2.33	45.5558	11.879	10.6919	200 mm
5031	p1191	n1172	9.5668	n1173	8.6288	30	30	3.13	210.7	2.17	72.2099	10.6919	9.7539	250 mm
5037	p1197	n1178	5.4431	n1179	5.1727	8	8	3.38	168.5	0.48	41.3843	6.526	6.2556	200 mm
5038	p1198	n1179	5.1727	n1180	4.7641	30	30	1.36	168.5	0.38	26.2558	6.2556	5.847	200 mm
5043	p1203	n1184	8.7654	n1185	10.7976	29.9	29.9	6.79	168.5	0.62	58.6236	9.8483	11.8805	200 mm
5044	p1204	n1185	10.7976	n1186	13.1243	29.9	29.9	7.78	168.5	0.57	62.7464	11.8805	14.2072	200 mm
5045	p1205	n1186	13.1243	n1187	15.4395	29.9	29.9	7.74	168.5	0.47	62.5928	14.2072	16.5224	200 mm
5048	p1208	n1183	5.5142	n1190	5.6341	30	31.8	0.4	168.5	0.28	14.2287	8.248	7.215	200 mm
5049	p1209	n1190	5.6341	n1191	5.7151	20.2	24	0.4	168.5	0.27	14.2287	7.215	6.798	200 mm
5052	p1212	n1193	6.1912	n1194	7.6681	30	30	4.93	168.5	0.55	49.9508	7.2741	8.751	200 mm
5053	p1213	n1194	7.6681	n1195	9.9351	29.9	29.9	7.58	168.5	0.56	61.9381	8.751	11.018	200 mm
5054	p1214	n1195	9.9351	n1196	11.9517	29.9	29.9	6.74	168.5	0.44	58.4065	11.018	13.0346	200 mm
5059	p1219	n1200	18.9411	n1201	18.0432	17.3	17.2	5.21	168.5	0.55	51.3269	20.024	19.1261	200 mm
5060	p1220	n1201	18.0432	n1202	16.6804	30	30	4.55	168.5	0.58	47.9752	19.1261	17.7633	200 mm
5061	p1221	n1202	16.6804	n1189	15.8301	23.1	23.1	3.69	168.5	0.58	43.191	17.7633	16.913	200 mm
5062	p1222	n1189	15.8301	n1203	14.4915	30	30	4.47	168.5	0.65	47.547	16.913	15.5744	200 mm
5065	p1225	n1198	13.2641	n1205	11.7321	25.6	25.6	5.99	168.5	0.79	55.0788	14.347	12.815	200 mm
5066	p1226	n1205	11.7321	n1206	7.6269	29.7	29.7	13.8	168.5	1.1	83.6415	12.815	8.7098	200 mm
5067	p1227	n1206	7.6269	n1207	4.2747	29.8	29.8	11.3	168.5	1.07	75.4682	8.7098	5.3576	200 mm
5068	p1228	n1207	4.2747	n1208	2.9371	21.2	21.2	6.3	168.5	0.91	56.4718	5.3576	4.02	200 mm
5076	p1236	n1215	2.8334	n1093	4.2155	29.9	29.9	4.62	168.5	0.86	48.3526	3.9163	6.138	200 mm
5077	p1237	n1093	4.2155	n1216	4.2961	20.2	20.2	0.4	168.5	0.3	14.2287	6.138	5.379	200 mm
5078	p1238	n1216	4.2961	n1217	4.4091	9.6	9.6	1.18	168.5	0.41	24.3906	5.379	5.492	200 mm
5079	p1239	n1217	4.4091	n1218	5.4311	18.9	18.9	5.4	168.5	0.66	52.2884	5.492	6.514	200 mm
5080	p1240	n1218	5.4311	n1219	7.2238	29.9	29.9	5.99	168.5	0.64	55.0509	6.514	8.3067	200 mm
5081	p1241	n1219	7.2238	n1220	8.1065	29.7	29.7	2.97	168.5	0.46	38.7701	8.3067	11.098	200 mm
5082	p1242	n1220	8.1065	n1221	8.1964	22.5	22.5	0.4	168.5	0.2	14.2287	11.098	9.2793	200 mm
5083	p1243	n1221	8.1964	n1222	10.0725	29.9	29.9	6.27	168.5	0.43	56.3253	9.2793	11.1554	200 mm
5088	p1248	n1225	13.6981	n1226	14.6898	25.5	25.4	3.9	168.5	0.73	44.4094	14.781	15.7727	200 mm
5090	p1250	n1227	18.5455	n1228	21.234	29.9	29.9	9	168.5	0.88	67.4844	19.6284	22.3169	200 mm
5093	p1253	n1230	27.5642	n1231	28.1435	30	30	1.93	168.5	0.35	31.2673	28.6471	29.2264	200 mm
5097	p1257	n791	12.7111	n1234	13.3889	30	29.8	2.26	168.5	0.64	33.8332	13.794	15.0536	200 mm
5098	p1258	n1234	13.3889	n1235	13.5089	30	30	0.4	168.5	0.34	14.2287	15.0536	15.602	200 mm
5099	p1259	n1235	13.5089	n1236	13.5895	20.2	20.1	0.4	168.5	0.33	14.2287	15.602	15.795	200 mm
5100	p1260	n1236	13.5895	n1237	13.6803	22.7	22.7	0.4	168.5	0.32	14.2287	15.795	16.392	200 mm
5101	p1261	n1237	13.6803	n1238	13.7703	22.5	22.5	0.4	168.5	0.31	14.2287	16.392	17.924	200 mm
5102	p1262	n1238	13.7703	n1239	13.8261	14	14	0.4	168.5	0.3	14.2287	17.924	14.909	200 mm
5103	p1263	n1239	13.8261	n1240	14.9479	30	29.4	3.74	168.5	0.62	43.5262	14.909	16.0308	200 mm
5104	p1264	n1240	14.9479	n1241	15.3471	12	11.3	3.33	168.5	0.56	41.0333	16.0308	16.43	200 mm
5108	p1268	n1244	20.4584	n1245	21.9031	10.8	10.8	13.3	168.5	0.78	82.1697	21.5413	22.986	200 mm
5111	p1271	n1247	25.0461	n1248	26.2811	7	7	17.7	168.5	0.64	94.592	26.129	27.364	200 mm
5115	p1275	n1250	28.9885	n1251	28.8261	13.1	13.1	1.24	168.5	0.24	25.0176	30.0714	29.909	200 mm
5123	p1283	n1251	28.8261	n1259	28.7827	10.9	10.9	0.4	168.5	0.2	14.2287	29.909	30.007	200 mm
5124	p1284	n1259	28.7827	n1260	28.7297	13.3	13.3	0.4	168.5	0.23	14.2287	30.007	29.884	200 mm
5125	p1285	n1260	28.7297	n1261	28.6627	16.8	16.7	0.4	168.5	0.25	14.2287	29.884	29.7572	200 mm
5126	p1286	n1261	28.6627	n1262	28.4318	30	30	0.77	168.5	0.34	19.7342	29.7572	29.5147	200 mm
5129	p1289	n1264	28.6111	n1265	28.1935	30	30	1.39	168.5	0.25	26.5434	29.694	29.2764	200 mm
5132	p1292	n1162	10.8261	n1268	12.2911	30	30	4.89	168.5	1.05	49.7495	11.909	13.374	200 mm
5133	p1293	n1268	12.2911	n1269	14.4796	29.9	29.9	7.31	168.5	1.2	60.8448	13.374	15.5625	200 mm

5134	p1294	n1269	14.4796	n1270	16.4855	29.9	29.9	6.7	168.5	1.15	58.2425	15.5625	17.5684	200 mm
5135	p1295	n1270	16.4855	n1271	17.778	30	30	4.31	168.5	0.97	46.7203	17.5684	18.8609	200 mm
5136	p1296	n1271	17.778	n1272	18.8238	30	30	3.49	168.5	0.89	42.0178	18.8609	19.9067	200 mm
5137	p1297	n1272	18.8238	n1273	20.0731	30	30	4.17	168.5	0.94	45.9329	19.9067	21.156	200 mm
5138	p1298	n1273	20.0731	n1274	20.297	30	30	0.75	168.5	0.5	19.4546	21.156	22.777	200 mm
5139	p1299	n1274	20.297	n1275	20.4169	30	30	0.4	168.5	0.4	14.2287	22.777	24.2628	200 mm
5142	p1302	n1277	20.5515	n1278	20.6714	30	30	0.4	168.5	0.34	14.2287	25.285	24.6669	200 mm
5145	p1305	n1280	20.9397	n1281	20.9801	10.1	10.2	0.4	168.5	0.28	14.2287	22.169	22.063	200 mm
5146	p1306	n1281	20.9801	n1282	21.162	30	26.5	0.61	168.5	0.31	17.5174	22.063	22.2449	200 mm
5147	p1307	n1282	21.162	n1283	21.9775	30	30	2.72	168.5	0.49	37.0985	22.2449	23.0604	200 mm
5148	p1308	n1283	21.9775	n1284	22.8036	30	30	2.76	168.5	0.45	37.3387	23.0604	23.8865	200 mm
5149	p1309	n1284	22.8036	n1285	22.8861	6.2	6.2	1.33	168.5	0.31	25.9102	23.8865	23.969	200 mm
5150	p1310	n1285	22.8861	n1286	23.0501	12.7	13.9	1.3	168.5	0.25	25.616	23.969	24.133	200 mm
5154	p1314	n1289	23.1601	n1290	22.4297	30	30	2.44	168.5	0.31	35.1098	24.243	23.5126	200 mm
5155	p1315	n1290	22.4297	n1291	21.1184	30	30	4.38	168.5	0.75	47.0592	23.5126	22.2013	200 mm
5156	p1316	n1291	21.1184	n1292	19.4613	30	29.9	5.53	168.5	0.84	52.9186	22.2013	20.5442	200 mm
5157	p1317	n1292	19.4613	n1293	18.0083	30	30	4.85	168.5	0.82	49.5448	20.5442	19.0912	200 mm
5158	p1318	n1293	18.0083	n1294	16.6601	25.3	25.3	5.33	168.5	0.87	51.9443	19.0912	17.743	200 mm
5159	p1319	n1294	16.6601	n1295	14.9617	35	35	4.85	168.5	0.86	49.5584	17.743	16.0446	200 mm
5160	p1320	n1295	14.9617	n1296	13.59	30	30	4.58	168.5	0.86	48.132	16.0446	14.6729	200 mm
5161	p1321	n1296	13.59	n1297	13.0881	12.2	12.2	4.12	168.5	0.85	45.6854	14.6729	14.171	200 mm
5162	p1322	n1297	13.0881	n1298	12.351	17.8	17.3	4.14	168.5	0.87	45.7696	14.171	13.4339	200 mm
5163	p1323	n1298	12.351	n1299	10.5586	30	29.9	5.99	168.5	1	55.0367	13.4339	11.6415	200 mm
5164	p1324	n1299	10.5586	n1300	8.6295	29.9	29.9	6.44	168.5	1.05	57.106	11.6415	9.7124	200 mm
5165	p1325	n1300	8.6295	n1301	6.5115	29.9	29.9	7.08	168.5	1.1	59.8474	9.7124	7.5944	200 mm
5168	p1328	n1303	4.7121	n1304	4.3673	30	30	1.15	168.5	0.66	24.1226	5.795	5.4502	200 mm
5171	p1331	MH-253	4.2014	n1307	4.3732	30	30	0.57	168.5	0.69	17.028	5.445	5.4561	200 mm
5172	p1332	n1307	4.3732	n1308	4.5098	30	30	0.46	168.5	0.63	15.1782	5.4561	5.5927	200 mm
5173	p1333	n1308	4.5098	n1309	4.9012	30	30	1.31	168.5	0.93	25.6989	5.5927	5.9841	200 mm
5174	p1334	n1309	4.9012	n1310	5.9432	30	30	3.48	168.5	1.31	41.9423	5.9841	7.0261	200 mm
5175	p1335	n1310	5.9432	n1311	7.9309	29.9	29.9	6.64	168.5	1.64	57.9771	7.0261	9.0138	200 mm
5176	p1336	n1311	7.9309	n1312	10.5365	29.9	29.9	8.72	168.5	1.8	66.4243	9.0138	11.6194	200 mm
5181	p1341	n1316	17.0221	n1317	19.5587	28.6	28.4	8.87	168.5	1.09	67.0003	18.105	20.6416	200 mm
5182	p1342	n1317	19.5587	n1318	21.5761	21.7	21.7	9.3	168.5	1.08	68.6125	20.6416	22.659	200 mm
5185	p1345	n1320	22.5641	n1321	24.3482	27.7	27.9	6.45	168.5	0.9	57.1372	23.647	25.4311	200 mm
5187	p1347	n1321	24.3482	n1322	25.7671	30	29.7	4.74	168.5	0.79	48.9599	25.4311	26.85	200 mm
5188	p1348	n1314	14.9471	n1323	17.0767	30.3	30.3	7.03	168.5	1.44	59.6333	16.03	18.1596	200 mm
5189	p1349	n1323	17.0767	n1324	18.6856	30	30	5.37	168.5	1.3	52.1348	18.1596	19.7685	200 mm
5193	p1353	n1327	20.1542	n1328	20.5971	30	30	1.48	168.5	0.49	27.3362	21.2371	21.68	200 mm
5194	p1354	n1328	20.5971	n1329	20.9318	26.3	26.3	1.27	168.5	0.44	25.3656	21.68	22.035	200 mm
5203	p1363	n1337	23.9368	n1338	25.2989	30	30	4.55	168.5	0.47	47.9615	25.0197	26.3818	200 mm
5204	p1364	n1338	25.2989	n1339	26.6593	30	30	4.54	168.5	0.38	47.9324	26.3818	27.7422	200 mm
5206	p1366	n1016	11.6582	n1341	11.8205	40.6	40.2	0.4	168.5	0.36	14.2287	16.414	16.2515	200 mm
5213	p1373	n1346	11.9915	n1347	12.1114	30	30	0.4	168.5	0.31	14.2287	14.7874	13.6526	200 mm
5214	p1374	n1347	12.1114	n1348	12.1961	21.2	21.5	0.4	168.5	0.3	14.2287	13.6526	13.69	200 mm
5216	p1376	n1348	12.1961	n1349	13.2417	25.5	25.7	4.09	168.5	0.6	45.521	13.69	14.3246	200 mm
5217	p1377	n1349	13.2417	n1350	13.8331	30	30	1.97	168.5	0.44	31.5929	14.3246	14.916	200 mm
5218	p1378	n1348	12.1961	n1351	12.3161	30	29.7	0.4	168.5	0.16	14.2287	13.69	13.399	200 mm
5232	p1392	n1364	15.7908	n1365	14.8416	30	30	3.17	168.5	0.42	40.0311	16.8737	15.9245	200 mm
5233	p1393	n1365	14.8416	n1350	13.8331	30	30	3.36	168.5	0.48	41.2623	15.9245	14.916	200 mm
5235	p1395	n1366	16.1804	n1367	15.4714	30	30	2.36	168.5	0.31	34.5914	17.2633	16.5543	200 mm
5236	p1396	n1367	15.4714	n1368	14.5442	30	30	3.09	168.5	0.42	39.5631	16.5543	15.6271	200 mm
5237	p1397	n1368	14.5442	n1369	13.9771	13.5	13.5	4.19	168.5	0.52	46.0605	15.6271	15.06	200 mm
5238	p1398	n1369	13.9771	n1370	11.7713	16.4	15.6	13.5	168.5	0.86	82.6349	15.06	13.242	200 mm
5239	p1399	n1370	11.7713	n1371	11.8776	26.6	26.5	0.4	168.5	0.35	14.2287	13.242	14.7206	200 mm

5240	p1400	n1371	11.8776	n1372	11.9976	30	30	0.4	168.5	0.34	14.2287	14.7206	14.94	200 mm
5241	p1401	n1372	11.9976	n1373	12.1035	26.5	26.5	0.4	168.5	0.33	14.2287	14.94	14.452	200 mm
5245	p1405	n1376	12.3867	n1377	12.2175	42.3	42.3	0.4	168.5	0.31	14.2287	15.584	15.609	200 mm
5246	p1406	n1377	12.2175	n1373	12.1035	28.5	28.5	0.4	168.5	0.32	14.2287	15.609	14.452	200 mm
5249	p1409	n1379	11.3833	n1380	9.0858	29.9	29.9	7.68	168.5	0.46	62.3514	12.4662	10.1687	200 mm
5250	p1410	n1380	9.0858	n1381	7.8879	30	29.5	4	168.5	0.45	44.9798	10.1687	8.9708	200 mm
5251	p1411	n1381	7.8879	n1382	6.5889	30	30	4.33	168.5	0.52	46.8369	8.9708	7.6718	200 mm
5252	p1412	n1382	6.5889	n1383	5.7221	27.8	27.8	3.12	168.5	0.51	39.7475	7.6718	6.805	200 mm
5259	p1419	n1374	12.5132	n1388	12.6331	30	30	0.4	168.5	0.28	14.2287	14.829	13.716	200 mm
5287	p1447	n1322	25.7671	n1415	26.479	19	19	3.74	168.5	0.64	43.5019	26.85	27.5619	200 mm
5288	p1448	n1415	26.479	n1416	27.2127	30	30	2.45	168.5	0.54	35.1956	27.5619	28.6829	200 mm
5289	p1449	n1416	27.2127	n1417	27.2711	14.6	14.6	0.4	168.5	0.27	14.2287	28.6829	29.229	200 mm
5292	p1452	n1340	27.4521	n1419	28.9594	30	30	5.03	168.5	0.55	50.4616	28.535	30.0423	200 mm
5293	p1453	n1419	28.9594	n1420	30.4654	30	30	5.03	168.5	0.49	50.4413	30.0423	31.5483	200 mm
5294	p1454	n1420	30.4654	n1421	31.8953	30	30	4.77	168.5	0.39	49.1404	31.5483	32.9782	200 mm
5296	p1456	n1422	32.5571	n1423	31.5374	30	30	3.4	168.5	0.34	41.4917	33.64	32.6203	200 mm
5297	p1457	n1423	31.5374	n1424	30.1033	30	30	4.79	168.5	0.48	49.2125	32.6203	31.1862	200 mm
5298	p1458	n1424	30.1033	n1425	27.3664	11.5	11.5	23.8	168.5	0.97	109.7536	31.1862	30.768	200 mm
5304	p1464	n1425	27.3664	n1431	27.2464	30	30	0.4	168.5	0.3	14.2287	30.768	29.996	200 mm
5305	p1465	n1431	27.2464	n1432	27.1395	26.7	26	0.4	168.5	0.31	14.2287	29.996	29.164	200 mm
5308	p1468	n1434	26.8714	n1435	27.6381	30	30	2.56	168.5	0.32	35.9714	27.9543	28.721	200 mm
5310	p1470	n1432	27.1395	n1436	27.0883	12.8	12.8	0.4	168.5	0.32	14.2287	29.164	28.7991	200 mm
5311	p1471	n1436	27.0883	n1437	25.4176	30	27.7	5.58	168.5	0.84	53.1177	28.7991	27.617	200 mm
5312	p1472	n1437	25.4176	n1438	25.4729	13.8	13.8	0.4	168.5	0.2	14.2287	27.617	27.2216	200 mm
5313	p1473	n1438	25.4729	n1439	25.5928	30	30	0.4	168.5	0.16	14.2287	27.2216	26.6757	200 mm
5320	p1480	n1444	17.9798	n1445	20.2953	29.9	29.9	7.74	168.5	0.57	62.5961	19.0627	21.3782	200 mm
5321	p1481	n1445	20.2953	n1446	23.1516	29.9	29.9	9.57	168.5	0.5	69.5809	21.3782	24.2345	200 mm
5326	p1486	n1450	23.0541	n1451	22.5276	21.2	21.2	2.49	168.5	0.39	35.4781	24.137	23.6105	200 mm
5327	p1487	n1451	22.5276	n1452	21.2918	30	30	4.12	168.5	0.52	45.6857	23.6105	22.3747	200 mm
5328	p1488	n1452	21.2918	n1453	19.8771	30	30	4.72	168.5	0.59	48.8865	22.3747	20.96	200 mm
5330	p1490	n1437	25.4176	n1454	25.3318	21.4	21.7	0.4	168.5	0.36	14.2287	27.617	27.0293	200 mm
5331	p1491	n1454	25.3318	n1455	23.6068	29.9	29.9	5.77	168.5	0.93	54.0277	27.0293	24.6897	200 mm
5332	p1492	n1455	23.6068	n1453	19.8771	29.8	29.8	12.5	168.5	1.32	79.645	24.6897	20.96	200 mm
5333	p1493	n1453	19.8771	n1456	16.6519	25.3	25.3	12.8	168.5	1.42	80.3885	20.96	17.7348	200 mm
5334	p1494	n1456	16.6519	n1457	12.9225	29.8	29.8	12.5	168.5	1.43	79.6418	17.7348	14.0054	200 mm
5335	p1495	n1457	12.9225	n1458	10.2703	29.9	32.5	8.88	168.5	1.29	67.0269	14.0054	11.3532	200 mm
5336	p1496	n1458	10.2703	n1459	8.5772	30	30.7	5.65	168.5	1.11	53.4899	11.3532	9.6601	200 mm
5337	p1497	n1459	8.5772	n1460	7.3451	30	26.9	4.11	168.5	1.01	45.6158	9.6601	8.428	200 mm
5338	p1498	n1460	7.3451	n1461	6.0257	30	30	4.4	168.5	1.05	47.205	8.428	7.1086	200 mm
5339	p1499	n1461	6.0257	n1462	5.4259	30	30	2	168.5	0.8	31.8155	7.1086	6.5088	200 mm
5340	p1500	n1462	5.4259	n1463	4.6711	30	30	2.52	168.5	0.87	35.6975	6.5088	5.754	200 mm
5346	p1506	n1303	4.7121	n1468	4.9488	16.3	16.2	1.46	168.5	0.49	27.154	5.795	6.0317	200 mm
5347	p1507	n1468	4.9488	n1469	5.3807	30	30	1.44	168.5	0.46	26.9943	6.0317	6.547	200 mm
5348	p1508	n1469	5.3807	n1470	5.4501	17.3	17.3	0.4	168.5	0.28	14.2287	6.547	6.533	200 mm
5351	p1511	n1472	6.8149	n1473	9.6242	29.9	30.6	9.41	168.5	0.68	69.0071	7.8978	10.7071	200 mm
5352	p1512	n1473	9.6242	n1474	13.946	29.7	29.3	14.6	168.5	0.7	85.8484	10.7071	15.0289	200 mm
5353	p1513	n1474	13.946	n1475	19.6061	29.5	30.2	19.2	168.5	0.61	98.6124	15.0289	20.689	200 mm
5355	p1515	n1476	21.0751	n1477	21.0021	18.3	18.2	0.4	168.5	0.16	14.2287	22.158	23.463	200 mm
5356	p1516	n1477	21.0021	n1478	20.9704	7.9	7.9	0.4	168.5	0.2	14.2287	23.463	23.2094	200 mm
5358	p1518	n1479	20.7276	n1480	18.2851	29.9	29.7	8.17	168.5	0.81	64.3122	21.8105	19.368	200 mm
5362	p1522	n1483	20.8118	n1484	20.6513	30	30	0.54	168.5	0.36	16.4568	21.8947	21.7342	200 mm
5365	p1525	n1486	19.3236	n1487	18.765	30	30	1.86	168.5	0.53	30.7049	20.4065	19.8479	200 mm
5366	p1526	n1487	18.765	n1480	18.2851	15.5	15.5	3.1	168.5	0.65	39.6378	19.8479	19.368	200 mm
5367	p1527	n1480	18.2851	n1488	13.7026	29.7	29.7	15.5	168.5	1.37	88.4454	19.368	14.7855	200 mm
5368	p1528	n1488	13.7026	n1489	10.3246	29.8	29.8	11.3	168.5	1.25	75.7452	14.7855	11.4075	200 mm

5369	p1529	n1489	10.3246	n1490	8.3843	29.9	27.9	6.48	168.5	1.04	57.2821	11.4075	9.4672	200 mm
5370	p1530	n1490	8.3843	n1491	7.5771	30	36	2.69	168.5	0.78	36.9088	9.4672	8.66	200 mm
5373	p1533	n1493	5.0953	n1467	4.4654	15.2	15.2	4.16	168.5	0.95	45.871	6.1782	5.92	200 mm
5376	p1536	n1495	19.8221	n1496	18.6292	30	30	3.98	168.5	0.45	44.8846	20.905	19.7121	200 mm
5377	p1537	n1496	18.6292	n1497	17.3681	30	30	4.21	168.5	0.52	46.1495	19.7121	18.451	200 mm
5378	p1538	n1497	17.3681	n1498	16.1435	30	30	4.09	168.5	0.56	45.4763	18.451	17.2264	200 mm
5379	p1539	n1498	16.1435	n1499	15.0802	30	29.8	3.55	168.5	0.66	42.3679	17.2264	16.1631	200 mm
5380	p1540	n1499	15.0802	n1500	14.4717	30	30	2.03	168.5	0.56	32.0486	16.1631	15.5546	200 mm
5381	p1541	n1500	14.4717	n1501	14.2841	14.8	14.8	1.27	168.5	0.49	25.3435	15.5546	15.367	200 mm
5396	p1556	n1467	4.4654	n1515	5.8052	30	30	4.47	168.5	0.95	47.5595	5.92	6.8881	200 mm
5397	p1557	n1515	5.8052	n1516	7.1075	30	30	4.35	168.5	0.92	46.8977	6.8881	8.1904	200 mm
5398	p1558	n1516	7.1075	n1517	8.5147	30	30	4.7	168.5	0.93	48.7494	8.1904	9.5976	200 mm
5399	p1559	n1517	8.5147	n1518	10.3285	29.9	29.9	6.06	168.5	1	55.3732	9.5976	11.4114	200 mm
5400	p1560	n1518	10.3285	n1519	11.9988	27.6	27.6	6.06	168.5	0.99	55.3659	11.4114	13.641	200 mm
5401	p1561	n1519	11.9988	n1520	15.8218	29.8	29.8	12.8	168.5	1.14	80.5526	13.641	16.9047	200 mm
5402	p1562	n1520	15.8218	n1521	18.9935	29.8	29.8	10.6	168.5	1.03	73.3595	16.9047	20.0764	200 mm
5403	p1563	n1521	18.9935	n1522	22.017	29.9	29.8	10.1	168.5	0.99	71.6003	20.0764	23.0999	200 mm
5404	p1564	n1522	22.017	n1523	23.5866	29.9	29.9	5.25	168.5	0.76	51.5286	23.0999	25.1283	200 mm
5407	p1567	n1441	23.7268	n1525	23.8434	29.2	29.2	0.4	168.5	0.28	14.2287	26.336	26.918	200 mm
5408	p1568	n1525	23.8434	n1526	26.9398	30	30	10.3	168.5	0.64	72.3016	26.918	28.0227	200 mm
5409	p1569	n1526	26.9398	n1527	28.1781	30	30	4.13	168.5	0.37	45.7294	28.0227	29.261	200 mm
5415	p1576	n1532	28.0191	n1533	27.4484	30	30	1.9	168.5	0.28	31.0362	29.102	28.5313	200 mm
5420	p1581	n1537	22.8547	n1538	22.7348	30	30	0.4	168.5	0.43	14.2287	26.543	25.7737	200 mm
5422	p1583	n1539	22.6148	n1540	22.4949	30	32.3	0.4	168.5	0.45	14.2287	25.1815	23.84	200 mm
5428	p1589	n1545	18.3282	n1546	18.2083	30	30	0.4	168.5	0.47	14.2287	20.9358	22.2729	200 mm
5429	p1590	n1546	18.2083	n1547	18.1123	24	24.1	0.4	168.5	0.47	14.2287	22.2729	23.448	200 mm
5432	p1593	n1548	22.7451	n1549	22.091	30	30	2.18	168.5	0.9	33.2263	23.828	23.1739	200 mm
5438	p1599	n1554	23.3681	n1555	23.4411	18.2	18.2	0.4	168.5	0.25	14.2287	24.5996	24.524	200 mm
5441	p1602	n1557	23.8686	n1558	23.9886	30	30	0.4	168.5	0.2	14.2287	25.1398	25.843	200 mm
5446	p1607	n1562	23.3942	n1547	18.1123	36.4	35.5	14.5	168.5	0.7	85.6883	24.4771	23.448	200 mm
5449	p1610	n1564	26.0691	n1565	25.5844	30	30	1.62	168.5	0.33	28.5951	27.152	26.6673	200 mm
5450	p1611	n1565	25.5844	n1566	24.8066	30	30	2.59	168.5	0.44	36.2306	26.6673	25.8895	200 mm
5451	p1612	n1566	24.8066	n1567	23.8851	30	30	3.07	168.5	0.7	39.4365	25.8895	24.968	200 mm
5452	p1613	n1525	23.8434	n1568	23.9633	30	30	0.4	168.5	0.23	14.2287	26.918	26.4061	200 mm
5453	p1614	n1568	23.9633	n1569	24.0833	30	30	0.4	168.5	0.2	14.2287	26.4061	25.7868	200 mm
5454	p1615	n1569	24.0833	n1570	24.1841	25.2	25.2	0.4	168.5	0.16	14.2287	25.7868	25.267	200 mm
5455	p1616	n1519	11.9988	n1571	12.1188	30	30	0.4	168.5	0.25	14.2287	13.641	14.4423	200 mm
5462	p1623	n1577	22.3556	n1578	22.1043	24.5	24.5	1.03	168.5	0.4	22.7988	25.275	23.1872	200 mm
5463	p1624	n1578	22.1043	n1579	20.2795	29.9	29.9	6.1	168.5	0.76	55.5412	23.1872	21.3624	200 mm
5464	p1625	n1579	20.2795	n1580	18.8923	30	30	4.63	168.5	0.72	48.4015	21.3624	19.9752	200 mm
5465	p1626	n1580	18.8923	n1581	17.3731	30	29.7	5.07	168.5	0.78	50.661	19.9752	18.456	200 mm
5467	p1628	n1583	15.6437	n1584	10.0271	29.5	29.5	19.1	168.5	0.61	98.2157	16.7266	11.11	200 mm
5471	p1632	n1587	16.0891	n1588	14.6091	30	25.4	4.94	168.5	0.4	50.0037	17.172	15.692	200 mm
5472	p1633	n1588	14.6091	n1589	12.4455	29.9	32.9	7.23	168.5	0.56	60.4974	15.692	13.5284	200 mm
5473	p1634	n1589	12.4455	n1586	9.8901	29.9	31.5	8.54	168.5	0.68	65.738	13.5284	11.414	200 mm
5474	p1635	n1581	17.3731	n1590	15.7442	30	30	5.44	168.5	0.83	52.4662	18.456	16.8271	200 mm
5475	p1636	n1590	15.7442	n1591	13.6278	29.9	29.9	7.07	168.5	0.94	59.8256	16.8271	14.7107	200 mm
5476	p1637	n1591	13.6278	n1582	11.8511	24.2	24.2	7.35	168.5	0.97	60.9706	14.7107	12.934	200 mm
5477	p1638	n1582	11.8511	n1592	9.0598	29.9	29.9	9.35	168.5	1.08	68.7732	12.934	10.1427	200 mm
5478	p1639	n1592	9.0598	n1593	7.1553	29.9	29.9	6.36	168.5	0.96	56.7507	10.1427	8.2382	200 mm
5479	p1640	n1593	7.1553	n1594	6.0301	25.5	25.5	4.42	168.5	0.87	47.3056	8.2382	7.113	200 mm
5480	p1641	n1577	22.3556	n1595	22.4756	30	30	0.4	168.5	0.27	14.2287	25.275	24.9326	200 mm
5486	p1647	n1600	23.1872	n1601	23.0672	30	30	0.4	168.5	0.2	14.2287	24.7737	24.2866	200 mm
5487	p1648	n1601	23.0672	n1597	22.6041	30	29.7	1.54	168.5	0.37	27.9567	24.2866	23.687	200 mm
5504	p1666	n1586	9.8901	n1617	9.4831	19.8	19.8	2.05	168.5	0.51	32.2374	11.414	10.566	200 mm

5507	p1669	n1617	9.4831	n1620	11.133	19.3	19.3	8.57	168.5	0.68	65.8468	10.566	12.2159	200 mm
5508	p1670	n1620	11.133	n1621	14.0833	29.9	29.8	9.88	168.5	0.63	70.7294	12.2159	15.1662	200 mm
5509	p1671	n1621	14.0833	n1622	17.5168	29.8	29.8	11.5	168.5	0.54	76.3648	15.1662	18.5997	200 mm
5519	p1681	n1631	5.3507	n1632	5.6498	16.5	16.5	1.81	168.5	0.62	30.2881	7.2	6.762	200 mm
5522	p1684	n1634	5.7909	n1635	6.0571	30	30	0.89	168.5	0.45	21.1924	6.8738	7.14	200 mm
5523	p1685	n1631	5.3507	n1636	5.4351	21.1	21.1	0.4	168.5	0.48	14.2287	7.2	6.518	200 mm
5524	p1686	n1636	5.4351	n1637	5.4835	10.4	12.1	0.47	168.5	0.5	15.3409	6.518	6.5664	200 mm
5525	p1687	n1637	5.4835	n1638	5.9857	23.2	21.6	2.16	168.5	0.85	33.0788	6.5664	7.113	200 mm
5526	p1688	n1638	5.9857	n1594	6.0301	11.1	11.1	0.4	168.5	0.46	14.2287	7.113	7.113	200 mm
5529	p1691	n1640	7.3818	n1619	8.4661	30	30	3.62	168.5	0.79	42.7847	8.4647	9.549	200 mm
5530	p1692	n1619	8.4661	n1641	9.7651	20.1	20.1	6.46	168.5	0.61	57.1652	9.549	10.848	200 mm
5531	p1693	n1641	9.7651	n1642	11.8731	29.9	29.9	7.04	168.5	0.55	59.7049	10.848	12.956	200 mm
5532	p1694	n1642	11.8731	n1643	14.3504	29.9	29.9	8.29	168.5	0.48	64.7576	12.956	15.4333	200 mm
5534	p1696	n1501	14.2841	n1645	13.9971	11.5	11.2	2.5	168.5	0.64	35.5563	15.367	15.08	200 mm
5539	p1701	n1649	11.7402	n1650	10.0559	30	30	5.62	168.5	0.42	53.3503	12.8231	11.1388	200 mm
5540	p1702	n1650	10.0559	n1651	8.8288	30	30	4.09	168.5	0.45	45.5231	11.1388	9.9117	200 mm
5541	p1703	n1651	8.8288	n1652	7.5533	30	30	4.26	168.5	0.52	46.4126	9.9117	8.6362	200 mm
5547	p1709	n1656	6.9868	n1657	8.4396	30	25	4.85	168.5	0.55	49.5403	8.0697	9.5225	200 mm
5548	p1710	n1657	8.4396	n1658	13.1739	29.6	29.6	16	168.5	0.73	90.0352	9.5225	14.2568	200 mm
5549	p1711	n1658	13.1739	n1659	15.3971	27.2	27.2	8.19	168.5	0.48	64.3665	14.2568	16.48	200 mm
5553	p1716	n1661	11.1441	n1663	10.9919	38.1	38.1	0.4	168.5	0.2	14.2287	12.227	12.604	200 mm
5555	p1718	n1664	19.9348	n1665	18.5439	30	30	4.64	168.5	0.48	48.4673	21.0177	19.6268	200 mm
5556	p1719	n1665	18.5439	n1666	17.3094	30	30	4.12	168.5	0.52	45.6607	19.6268	18.3923	200 mm
5558	p1721	n1667	16.354	n1668	14.3801	29.9	28.4	6.6	168.5	0.75	57.7743	17.4369	15.463	200 mm
5563	p1726	n1671	9.4826	n1672	8.4362	30	30	3.49	168.5	0.35	42.0307	10.5655	9.5191	200 mm
5564	p1727	n1672	8.4362	n1673	7.7275	30	30	2.36	168.5	0.37	34.5834	9.5191	8.8104	200 mm
5567	p1730	n1675	7.2532	n1676	7.3336	20.1	20.1	0.4	168.5	0.55	14.2287	8.572	8.587	200 mm
5568	p1731	n1676	7.3336	n1677	7.3641	7.6	7.6	0.4	168.5	0.55	14.2287	8.587	8.447	200 mm
5569	p1732	n1677	7.3641	n1678	8.0551	56.3	56.3	1.23	168.5	0.82	24.9352	8.447	9.138	200 mm
5570	p1733	n1678	8.0551	n1679	10.7591	53.1	53.1	5.09	168.5	1.35	50.7681	9.138	11.842	200 mm
5581	p1745	n1679	10.7591	n1690	16.067	71.3	70.9	7.45	168.5	1.53	61.4049	11.842	19.251	200 mm
5593	p1757	n1648	13.7851	n1702	13.6652	30	26.6	0.4	168.5	0.36	14.2287	14.868	15.3738	200 mm
5594	p1758	n1702	13.6652	n1703	13.5452	30	33.5	0.4	168.5	0.36	14.2287	15.3738	15.9936	200 mm
5595	p1759	n1703	13.5452	n1704	13.4253	30	30	0.4	168.5	0.42	14.2287	15.9936	16.9152	200 mm
5596	p1760	n1704	13.4253	LS 9	13.3053	30	30	0.4	168.5	0.42	14.2287	16.9152	18.1208	200 mm
5598	p1762	n1706	18.4684	n1707	18.3484	30	30	0.4	168.5	0.43	14.2287	19.5513	20.4415	200 mm
5599	p1763	n1707	18.3484	n1660	16.4247	7.5	7.5	25.6	168.5	1.87	113.8108	20.4415	20.386	200 mm
5602	p1766	n1709	16.5319	n1710	16.6519	30	30	0.4	168.5	0.31	14.2287	21.042	20.8558	200 mm
5603	p1767	n1710	16.6519	n1711	16.756	26	26	0.4	168.5	0.3	14.2287	20.8558	20.631	200 mm
5613	p1777	n1718	17.9253	n1719	16.8624	30	30	3.55	168.5	0.44	42.3679	19.271	17.9453	200 mm
5614	p1778	n1719	16.8624	n1720	15.1683	30	29.9	5.66	168.5	0.58	53.5054	17.9453	16.2512	200 mm
5615	p1779	n1720	15.1683	n1721	13.3049	29.9	29.9	6.22	168.5	0.65	56.1256	16.2512	14.3878	200 mm
5621	p1785	n1670	10.9073	n1725	10.803	26.1	35.2	0.4	168.5	0.34	14.2287	13.199	13.8005	200 mm
5622	p1786	n1725	10.803	n1726	10.683	30	21.5	0.4	168.5	0.35	14.2287	13.8005	14.12	200 mm
5623	p1787	n1726	10.683	n1727	10.563	30	30	0.4	168.5	0.36	14.2287	14.12	14.287	200 mm
5626	p1790	n1729	6.6248	n1730	6.7445	29.9	29.9	0.4	168.5	0.57	14.2287	10.0589	8.1002	200 mm
5627	p1792	n1728	10.3568	n1732	10.3177	9.8	9.1	0.4	168.5	0.38	14.2287	12.738	12.287	200 mm
5628	p1793	n1732	6.5016	n1733	6.3935	27	27	0.4	168.5	0.61	14.2287	12.287	12.6	200 mm
5631	p1796	n1735	6.2625	n1736	6.1431	29.8	29.8	0.4	168.5	0.62	14.2287	12.066	8.9477	200 mm
5632	p1797	n1736	6.1431	n1737	5.9078	29.9	29.9	0.79	168.5	0.8	19.9465	8.9477	6.9907	200 mm
5633	p1798	n1737	5.9078	n1738	4.6555	30	27.5	4.18	168.5	1.46	45.9874	6.9907	5.7384	200 mm
5638	p1803	n1735	10.9831	n1743	11.3627	11.9	11.9	3.2	168.5	0.52	40.2494	12.066	12.4456	200 mm
5639	p1804	n1743	11.3627	n1744	11.4981	30	29.1	0.45	168.5	0.24	15.1138	12.4456	12.751	200 mm
5641	p1807	n1744	11.4981	n1746	11.6181	30	31.1	0.4	168.5	0.2	14.2287	12.751	12.701	200 mm
5642	p1808	n1746	11.6181	n1747	13.2741	25	25	6.63	168.5	0.44	57.9254	12.701	14.357	200 mm

5644	p1810	n1162	10.8261	n1748	9.8371	18.6	18.6	5.32	168.5	1.1	51.9052	11.909	10.92	200 mm
5647	p1813	n1750	7.9768	n1751	6.4024	30	30	5.26	168.5	1.12	51.5732	9.0597	7.4853	200 mm
5648	p1814	n1751	6.4024	n1752	5.3833	30	30	3.4	168.5	0.97	41.4777	7.4853	6.4662	200 mm
5649	p1815	n1752	5.3833	n1180	4.7641	18.9	18.9	3.27	168.5	0.97	40.6796	6.4662	5.847	200 mm
5650	p1816	n1180	4.7641	n1753	4.2697	30	30	1.65	168.5	0.79	28.8865	5.847	5.3526	200 mm
5651	p1817	n1753	4.2697	n1754	3.8576	30	30	1.37	168.5	0.75	26.3664	5.3526	4.9405	200 mm
5654	p1820	n1567	23.8851	n1756	23.1914	19.8	19.8	3.51	168.5	0.75	42.1306	24.968	24.2743	200 mm
5655	p1821	n1756	23.1914	n1757	22.0479	30	30	3.81	168.5	0.99	43.9387	24.2743	23.1308	200 mm
5656	p1822	n1757	22.0479	n1758	21.1381	30	30	3.03	168.5	0.92	39.1838	23.1308	22.221	200 mm
5657	p1823	n1758	21.1381	n1759	20.531	30	30	2.02	168.5	0.74	32.0101	22.221	21.6139	200 mm
5658	p1824	n1759	20.531	n1760	20.2391	43.1	43	0.68	168.5	0.51	18.5192	21.6139	21.322	200 mm
5663	p1829	n1762	20.0461	n1763	19.9696	19.1	18.6	0.4	168.5	0.44	14.2287	21.129	21.216	200 mm
5671	p1838	n1767	19.7046	n1768	19.5935	27.8	27.8	0.4	168.5	0.59	14.2287	21.449	21.43	200 mm
5682	p1849	n1775	19.1483	n1776	19.0283	30	30.7	0.4	168.5	0.6	14.2287	21.074	20.675	200 mm
5684	p1851	n1776	19.0283	n1777	18.9322	24	23.3	0.4	168.5	0.6	14.2287	20.675	20.1252	200 mm
5686	p1853	n1777	18.9322	n1778	18.2115	30	30.1	2.4	168.5	1.15	34.8771	20.1252	19.2944	200 mm
5687	p1854	n1778	18.2115	n1779	17.3043	30	30	3.03	168.5	1.25	39.1269	19.2944	18.3872	200 mm
5688	p1855	n1779	17.3043	n1780	15.6127	30	30.7	5.65	168.5	1.57	53.4678	18.3872	16.863	200 mm
5689	p1857	n1711	16.756	n1782	16.8759	30	30.4	0.4	168.5	0.28	14.2287	20.631	19.6696	200 mm
5690	p1858	n1782	16.8759	n1783	16.9958	30	30	0.4	168.5	0.27	14.2287	19.6696	18.9602	200 mm
5693	p1861	n1644	17.1501	n1785	17.9222	30	30	2.58	168.5	0.44	36.0989	18.233	19.0051	200 mm
5694	p1862	n1785	17.9222	n1623	19.1881	30	30.4	4.22	168.5	0.46	46.2365	19.0051	20.271	200 mm
5695	p1864	n1623	19.1881	n1616	20.1831	25.5	25.5	3.9	168.5	0.36	44.4141	20.271	21.266	200 mm
5716	p1885	n1805	18.8913	n1806	17.7861	26	25.9	4.26	168.5	0.37	46.4289	19.9742	18.869	200 mm
5717	p1886	n1806	17.7861	n1807	16.6496	30	30	3.79	168.5	0.45	43.8028	18.869	17.7325	200 mm
5718	p1887	n1807	16.6496	n1808	16.1264	30	30	1.75	168.5	0.47	29.7166	17.7325	17.2093	200 mm
5726	p1895	n1813	17.9921	n1814	19.1759	30	30	3.95	265.6	2.07	150.4445	19.1721	20.3559	315mm
5729	p1898	n1816	20.75	n1817	21.7431	30	30	3.31	265.6	1.94	137.7944	21.93	22.9231	315mm
5730	p1899	n1817	21.7431	n1818	22.8587	30	30	3.72	265.6	2.02	146.0439	22.9231	24.0387	315mm
5731	p1900	n1818	22.8587	n1819	23.6095	30	30	2.5	265.6	1.75	119.7847	24.0387	24.8877	315mm
5732	p1901	n1819	23.6095	n1820	23.6691	27.1	27.1	0.22	265.6	0.71	35.5104	24.8877	25.434	315mm
5736	p1905	n1823	22.0808	n1824	20.4804	30	30	5.34	168.5	0.41	52.0058	23.1637	21.5633	200 mm
5737	p1906	n1824	20.4804	n1825	19.164	30	30	4.39	168.5	0.46	47.1505	21.5633	20.2469	200 mm
5738	p1907	n1825	19.164	n1826	18.0984	30	30	3.55	168.5	0.49	42.4139	20.2469	19.1813	200 mm
5739	p1908	n1826	18.0984	n1827	17.6003	30	30	1.66	168.5	0.41	28.9909	19.1813	18.6832	200 mm
5740	p1909	n1827	17.6003	n1828	17.4991	8.9	8.9	1.14	168.5	0.39	24.0002	18.6832	18.582	200 mm
5741	p1910	n1828	17.4991	n1829	17.3791	30	30	0.4	168.5	0.28	14.2287	18.582	19.0153	200 mm
5742	p1911	n1829	17.3791	n1830	17.2918	21.8	21.8	0.4	168.5	0.3	14.2287	19.0153	19.492	200 mm
5743	p1912	n1830	17.2918	n1804	17.1719	30	30.6	0.4	168.5	0.31	14.2287	19.492	18.857	200 mm
5745	p1916	n1832	23.163	n1834	21.8165	30	30	4.49	168.5	0.38	47.686	24.2459	22.8994	200 mm
5748	p1919	n1836	20.1651	n1837	19.4224	30	30	2.48	168.5	0.62	35.4108	21.248	20.5053	200 mm
5749	p1920	n1837	19.4224	n1838	18.7581	29.6	29.6	2.25	168.5	0.62	33.7251	20.5053	19.841	200 mm
5750	p1921	n1838	18.7581	n1839	18.6621	17.2	17.2	0.56	168.5	0.39	16.8174	19.841	19.745	200 mm
5753	p1924	n1841	18.5261	n1842	18.4061	30	30	0.4	168.5	0.4	14.2287	19.8786	20.5481	200 mm
5754	p1925	n1842	18.4061	LS 11	18.2862	30	30	0.4	168.5	0.41	14.2287	20.5481	21.8894	200 mm
5756	p1927	n1780	15.6127	n1845	15.5553	14.2	13.4	0.4	335.9	1.03	89.9355	16.863	16.8056	400mm
5757	p1928	n1845	15.5553	n1846	14.7504	30	30	2.68	335.9	2.06	231.9883	16.8056	16.0007	400mm
5758	p1929	n1846	14.7504	n1847	13.8106	30	30	3.13	335.9	2.18	250.6853	16.0007	15.0609	400mm
5759	p1930	n1847	13.8106	n1848	12.9947	30	30	2.72	335.9	2.07	233.5735	15.0609	14.245	400mm
5760	p1931	n1848	12.9947	n1849	12.6188	26.4	26.4	1.43	335.9	1.64	169.0373	14.245	14.041	400mm
5763	p1934	n1851	12.4722	n1852	12.4103	30.9	30.9	0.2	335.9	0.81	63.3301	13.7225	13.784	400mm
5764	p1935	n1852	12.4103	n1853	12.3504	30	30	0.2	335.9	0.81	63.3301	13.784	13.676	400mm
5765	p1936	n1853	12.3504	n1854	12.3393	5.6	5.6	0.2	335.9	0.81	63.3301	13.676	13.713	400mm
5766	p1937	n1854	12.3393	n1855	12.2793	30	30	0.2	335.9	0.81	63.3301	13.713	13.9381	400mm
5767	p1938	n1855	12.2793	n1856	11.4023	30	30	2.92	335.9	2.23	242.117	13.9381	14.295	400mm

5768	p1939	n1856	11.4023	n1857	11.3358	33.3	33.3	0.2	335.9	0.81	63.3301	14.295	14.489	400mm
5769	p1941	n1857	11.3358	n1859	11.2509	42.5	43.3	0.2	335.9	0.81	63.3301	14.489	14.481	400mm
5770	p1943	n1859	11.2509	n1861	11.1894	30.7	31.3	0.2	335.9	0.81	63.3301	14.481	13.771	400mm
5774	p1947	n1864	6.9831	n1865	4.5395	29.9	29.9	8.17	168.5	0.72	64.3157	8.066	5.6224	200 mm
5775	p1948	n1865	4.5395	n1866	3.0785	30	30	4.88	168.5	0.64	49.681	5.6224	4.1614	200 mm
5779	p1952	n1869	2.6166	n1870	2.5106	26.5	26.5	0.4	168.5	0.32	14.2287	3.941	3.79	200 mm
5780	p1953	n1870	2.5106	n1871	2.3985	28	28	0.4	168.5	0.33	14.2287	3.79	3.87	200 mm
5784	p1957	n1874	2.7953	n1875	2.9371	30	43	0.47	168.5	0.73	15.471	3.8782	4.02	200 mm
5785	p1958	n1875	2.9371	n1876	3.2661	30	30	1.1	168.5	1	23.5573	4.02	4.349	200 mm
5786	p1959	n1876	3.2661	n1740	3.7405	30	30	1.58	168.5	1.14	28.2913	4.349	4.841	200 mm
5798	p1971	n1730	6.7445	n1885	6.8141	17.4	17.6	0.4	168.5	0.57	14.2287	8.1002	7.897	200 mm
5799	p1972	n1885	6.8141	n1886	7.0132	24.2	24.2	0.82	168.5	0.74	20.3961	7.897	8.1364	200 mm
5800	p1973	n1886	7.0132	n1887	7.1332	30	30	0.4	168.5	0.56	14.2287	8.1364	8.3273	200 mm
5801	p1974	n1887	7.1332	n1675	7.2532	30	30	0.4	168.5	0.56	14.2287	8.3273	8.572	200 mm
5805	p1978	n1890	3.8035	n1891	2.9657	30	30	2.79	335.9	2.17	236.6871	5.0538	4.216	400mm
5806	p1979	n1891	2.9657	n1892	2.4556	30	30	1.7	335.9	1.82	184.6553	4.216	3.7059	400mm
5807	p1980	n1892	2.4556	n1893	1.9994	30	30	1.52	335.9	1.74	174.6433	3.7059	3.2497	400mm
5810	p1983	n1895	1.7797	n1896	1.7325	23.6	23.6	0.2	335.9	0.8	63.3301	3.03	3.06	400mm
5813	p1986	n1898	1.6705	n1899	1.6128	28.8	28.8	0.2	335.9	0.81	63.3301	3.106	3.117	400mm
5814	p1987	n1899	1.6128	n1900	1.5826	15.1	15.1	0.2	335.9	0.81	63.3301	3.117	3.071	400mm
5822	p1995	n1906	2.7503	n1907	2.8267	30	30	0.25	335.9	0.92	71.4309	4.002	4.077	400mm
5823	p1996	n1907	2.8267	n1908	3.4723	30	30	2.15	335.9	2.11	207.7681	4.077	4.7226	400mm
5824	p1997	n1908	3.4723	n1909	4.3465	30	30	2.92	335.9	2.36	241.7831	4.7226	5.5968	400mm
5827	p2000	n1911	5.7957	n1912	7.0525	30	30	4.19	335.9	2.69	289.9883	7.046	8.3028	400mm
5840	p2017	n1926	0.1412	n1927	0.0866	18.8	18.8	0.29	420	1.14	138.5684	3.4405	3.308	500mm
5841	p2018	n1927	0.0866	n1928	-0.0032	30	30	0.3	420	1.16	140.5554	3.308	3.2695	500mm
5842	p2019	n1928	-0.0032	n1929	-0.093	30	30	0.3	420	1.16	140.5554	3.2695	3.3069	500mm
5845	p2023	n1932	-0.215	n1933	-0.3047	30	30	0.3	420	1.16	140.5554	3.2541	3.1032	500mm
5846	p2026	n1933	-0.3047	n1935	-1.478	30	30.6	3.91	420	3.11	508.1723	3.1032	3.1285	500mm
5851	p2031	n1939	2.145	n1940	2.2113	30	30	0.22	265.6	0.7	35.595	3.325	3.4749	315mm
5852	p2032	n1940	2.2113	n1941	2.2773	30	30	0.22	265.6	0.7	35.5104	3.4749	3.6481	315mm
5853	p2033	n1941	2.2773	n1942	2.3433	30	30	0.22	265.6	0.7	35.5104	3.6481	3.984	315mm
5857	p2037	n1945	2.5448	n1946	2.6267	20.5	27.6	0.4	168.5	0.39	14.2287	4.901	5.063	200 mm
5858	p2038	n1946	2.6267	n1947	2.7467	30	30	0.4	168.5	0.39	14.2287	5.063	4.9415	200 mm
5859	p2039	n1947	2.7467	n1948	2.8667	30	30	0.4	168.5	0.38	14.2287	4.9415	4.5875	200 mm
5865	p2045	n1952	4.351	n1953	5.0825	30	30	2.44	168.5	0.67	35.1358	5.4339	6.1654	200 mm
5866	p2046	n1953	5.0825	n1954	6.5807	30	30	5	168.5	0.85	50.3093	6.1654	7.6636	200 mm
5867	p2047	n1954	6.5807	n1955	8.9937	29.9	29.9	8.07	168.5	1	63.9108	7.6636	10.0772	200 mm
5868	p2050	n1937	-1.4066	n1958	-1.3407	30	30.4	0.22	265.6	0.54	35.5104	3.313	2.642	315mm
5871	p2054	n1961	-1.2458	n1962	-1.1798	30	30	0.22	265.6	0.54	35.5104	2.5106	2.224	315mm
5872	p2055	n1962	-1.1798	n1963	-1.1396	18.3	18.3	0.22	265.6	0.54	35.5104	2.224	2.226	315mm
5873	p2056	n1963	-1.1396	n1964	-1.0839	25.3	25.3	0.22	265.6	0.72	35.5104	2.226	2.191	315mm
5874	p2057	n1964	-1.0839	n1965	-1.0525	14.3	14.3	0.22	265.6	0.72	35.5104	2.191	2.209	315mm
5877	p2060	n1967	-1.0229	n1968	-1.0112	5.3	5.3	0.22	265.6	0.72	35.5104	2.218	2.119	315mm
5878	p2061	n1968	-1.0112	n1969	-0.9937	7.9	7.9	0.22	265.6	0.72	35.5104	2.119	2.228	315mm
5879	p2062	n1969	-0.9937	n1970	-0.9475	21	21	0.22	265.6	0.72	35.5104	2.228	2.2	315mm
5880	p2063	n1970	-0.9475	n1971	-0.9148	14.9	14.9	0.22	265.6	0.72	35.5104	2.2	2.287	315mm
5881	p2064	n1971	-0.9148	n1972	-0.9059	4	4	0.22	265.6	0.72	35.5104	2.287	2.261	315mm
5882	p2065	n1972	-0.9059	n1973	-0.8775	12.9	12.9	0.22	265.6	0.72	35.5104	2.261	2.269	315mm
5883	p2066	n1973	-0.8775	n1974	-0.8621	7	7	0.22	265.6	0.72	35.5104	2.269	2.2674	315mm
5884	p2067	n1974	-0.8621	n1975	-0.7961	30	30	0.22	265.6	0.72	35.5104	2.2674	2.166	315mm
5885	p2068	n1975	-0.7961	n1976	-0.7284	30.8	30.8	0.22	265.6	0.72	35.5104	2.166	2.486	315mm
5886	p2069	n1976	-0.7284	n1977	1.7433	44.2	44.2	5.59	168.5	0.71	53.183	2.486	2.8262	200 mm
5890	p2073	n1980	2.8068	n1981	4.0145	30	30	4.03	168.5	0.6	45.154	3.8897	5.0974	200 mm
5893	p2076	n1983	6.9779	n1984	8.7388	30	29.9	5.88	168.5	0.65	54.5515	8.0608	9.8217	200 mm

5894	p2077	n1984	8.7388	n1985	9.9912	30	30	4.18	168.5	0.56	45.9901	9.8217	11.0741	200 mm
5895	p2078	n1985	9.9912	n1986	12.1828	29.9	29.9	7.33	168.5	0.65	60.8888	11.0741	13.2657	200 mm
5898	p2081	n1944	4.9169	n1989	8.2059	29.3	29.3	11.2	210.7	2.95	136.7721	6.042	12.2029	250 mm
5902	p2085	n1992	8.3176	n1993	8.4187	28.9	27.6	0.35	210.7	0.79	24.1413	11.162	12.396	250 mm
5906	p2089	n1995	11.519	n1996	14.3474	29.9	29.9	9.47	168.5	0.68	69.2398	12.6019	15.4303	200 mm
5907	p2090	n1996	14.3474	n1997	16.3046	29.9	29.9	6.54	168.5	0.56	57.5306	15.4303	17.3875	200 mm
5908	p2091	n1997	16.3046	n1998	18.8445	29.9	29.9	8.5	168.5	0.57	65.5925	17.3875	19.9274	200 mm
5909	p2092	n1998	18.8445	n1999	19.0653	30	30	0.74	168.5	0.21	19.3064	19.9274	20.622	200 mm
5910	p2093	n1999	19.0653	n2000	19.1299	12.9	12.9	0.5	168.5	0.15	15.8917	20.622	20.2128	200 mm
5914	p2097	n2003	16.2788	n1988	15.0911	30	30	3.96	168.5	0.37	44.7793	17.3617	16.174	200 mm
5915	p2098	n1976	-0.7284	n2004	-0.7023	11.8	11.8	0.22	265.6	0.71	35.5104	2.486	2.819	315mm
5916	p2099	n2004	-0.7023	n2005	-0.672	13.8	13.8	0.22	265.6	0.71	35.5104	2.819	2.7345	315mm
5917	p2100	n2005	-0.672	n2006	-0.606	30	30	0.22	265.6	0.71	35.5104	2.7345	2.6357	315mm
5918	p2101	n2006	-0.606	n2007	-0.54	30	30	0.22	265.6	0.71	35.5104	2.6357	2.449	315mm
5919	p2103	n2007	-0.54	n2009	-0.5008	17.8	17.8	0.22	265.6	0.71	35.5104	2.449	2.4771	315mm
5920	p2104	n2009	-0.5008	n2010	-0.4348	30	30	0.22	265.6	0.71	35.5104	2.4771	2.5587	315mm
5922	p2106	n2010	-0.4348	n2011	-0.3688	30	30.1	0.22	265.6	0.71	35.5104	2.5587	2.8666	315mm
5923	p2107	n2011	-0.3688	n2012	-0.3028	30	30	0.22	265.6	0.71	35.5104	2.8666	2.876	315mm
5924	p2108	n2012	-0.3028	n2013	-0.2477	25.1	25.1	0.22	265.6	0.71	35.5104	2.876	2.686	315mm
5926	p2110	n931	0.1319	n2014	0.2518	30	29.5	0.4	168.5	0.24	14.2287	3.877	2.5601	200 mm
5927	p2111	n2014	0.2518	n2015	0.3718	30	30	0.4	168.5	0.23	14.2287	2.5601	2.259	200 mm
5928	p2112	n2015	0.3718	n2016	0.4918	30	30	0.4	168.5	0.22	14.2287	2.259	2.1356	200 mm
5929	p2113	n2016	0.4918	n2017	0.6118	30	30	0.4	168.5	0.21	14.2287	2.1356	2.0942	200 mm
5930	p2114	n2017	0.6118	n2018	0.7318	30	30	0.4	168.5	0.19	14.2287	2.0942	2.0644	200 mm
5931	p2115	n2018	0.7318	n2019	0.8518	30	30	0.4	168.5	0.17	14.2287	2.0644	2.0454	200 mm
5932	p2116	n2019	0.8518	n2020	0.9501	19.7	19.7	0.5	168.5	0.15	15.8917	2.0454	2.033	200 mm
5933	p2117	n931	0.1319	n2021	0.0872	16	15.2	0.28	210.7	0.68	21.6049	3.877	3.793	250 mm
5934	p2118	n2021	0.0872	n2022	0.0249	22.3	21.8	0.28	210.7	0.68	21.6049	3.793	3.5619	250 mm
5935	p2119	n2022	0.0249	n2023	-0.0591	30	30	0.28	210.7	0.69	21.6049	3.5619	3.3593	250 mm
5936	p2120	n2023	-0.0591	n2024	-0.1431	30	30	0.28	210.7	0.7	21.6049	3.3593	3.1937	250 mm
5941	p2125	n2027	0.9274	n2028	0.9871	14.9	15.9	0.4	168.5	0.6	14.2287	2.577	2.592	200 mm
5942	p2126	n2028	0.9871	n2029	1.175	47	47.1	0.4	168.5	0.6	14.2287	2.592	2.526	200 mm
5945	p2129	n2031	1.3032	n2032	1.4232	30	30	0.4	168.5	0.58	14.2287	2.7006	2.8387	200 mm
5946	p2130	n2032	1.4232	n2033	1.5432	30	30	0.4	168.5	0.58	14.2287	2.8387	3.2181	200 mm
5952	p2136	n2037	1.7536	n2038	1.8736	30	30	0.4	168.5	0.34	14.2287	3.4292	3.215	200 mm
5953	p2137	n2038	1.8736	n2039	1.977	25.9	25.8	0.4	168.5	0.33	14.2287	3.215	4.165	200 mm
5954	p2138	n2039	1.977	n2040	2.0441	16.8	16.8	0.4	168.5	0.32	14.2287	4.165	3.127	200 mm
5957	p2141	n2029	1.175	n2042	1.205	4.9	4.3	0.62	168.5	0.33	17.6439	2.526	2.695	200 mm
5958	p2142	n2042	1.205	n2043	1.325	30	30	0.4	168.5	0.28	14.2287	2.695	2.5259	200 mm
5959	p2143	n2043	1.325	n2044	1.3377	3.2	3.1	0.4	168.5	0.27	14.2287	2.5259	2.508	200 mm
5961	p2145	n2044	1.3377	n2045	1.4577	30	30	0.4	168.5	0.26	14.2287	2.508	2.5406	200 mm
5962	p2146	n2045	1.4577	n2046	1.6421	24.1	24.8	0.77	168.5	0.32	19.6946	2.5406	2.725	200 mm
5964	p2148	n2046	1.6421	n2047	1.8256	30	29.1	0.61	168.5	0.28	17.5965	2.725	2.9085	200 mm
5965	p2149	n2047	1.8256	n2048	2.2374	30	30	1.37	168.5	0.35	26.3582	2.9085	3.3203	200 mm
5966	p2150	n2048	2.2374	n2049	3.0771	30	30	2.8	168.5	0.42	37.645	3.3203	4.16	200 mm
5967	p2151	n2049	3.0771	n2050	4.6091	30	30	5.11	168.5	0.47	50.8736	4.16	5.692	200 mm
5968	p2152	n2050	4.6091	n2051	6.8536	29.9	29.9	7.5	168.5	0.48	61.6182	5.692	7.9365	200 mm
5969	p2153	n2051	6.8536	n2052	9.314	29.9	29.9	8.23	168.5	0.4	64.5372	7.9365	10.3969	200 mm
5971	p2156	n2027	0.9274	n2054	1.2045	3.6	3	7.64	168.5	1.33	62.1958	2.577	2.733	200 mm
5972	p2157	n2054	1.2045	n2055	1.3245	30	30	0.4	168.5	0.46	14.2287	2.733	2.5738	200 mm
5973	p2158	n2055	1.3245	n2056	1.4037	19.8	19.8	0.4	168.5	0.46	14.2287	2.5738	2.503	200 mm
5976	p2161	n2058	1.4441	n2059	1.6517	7.8	7.8	2.66	168.5	0.88	36.7006	2.527	2.792	200 mm
5977	p2162	n2059	1.6517	n2060	1.6971	11.4	11.4	0.4	168.5	0.45	14.2287	2.792	2.78	200 mm
5981	p2166	n2063	2.4919	n2064	2.958	30	30	1.55	168.5	0.7	28.0416	3.5748	4.0409	200 mm
5982	p2167	n2064	2.958	n2065	3.562	30	30	2.01	168.5	0.76	31.9286	4.0409	4.6449	200 mm

5983	p2168	n2065	3.562	n2066	4.7655	30	30	4.01	168.5	0.95	45.076	4.6449	5.8484	200 mm
5988	p2173	n2068	5.1271	n2071	6.1577	30	30	3.44	168.5	0.88	41.713	6.21	7.2406	200 mm
5989	p2174	n2071	6.1577	n2072	7.7135	30	27.9	5.19	168.5	1	51.2669	7.2406	8.7964	200 mm
5990	p2175	n2072	7.7135	n2073	8.2511	8.1	9.2	6.61	168.5	1.07	57.8555	8.7964	9.334	200 mm
5992	p2177	n2035	1.6742	n2075	2.9256	30	29.3	4.17	168.5	1.28	45.9573	3.547	4.0085	200 mm
5993	p2178	n2075	2.9256	n2076	3.5571	30	30	2.11	168.5	1	32.6444	4.0085	4.64	200 mm
5994	p2179	n2076	3.5571	n2077	4.1074	30	30	1.84	168.5	0.94	30.4752	4.64	5.1903	200 mm
5995	p2180	n2077	4.1074	n2070	4.6431	16.8	16.8	3.19	168.5	1.14	40.1991	5.1903	5.726	200 mm
6002	p2188	n2083	14.8641	n2084	14.2041	5.1	9.4	12.9	168.5	0.77	80.9085	15.947	15.287	200 mm
6006	p2192	n2087	9.616	n2088	6.3958	29.8	29.8	10.8	168.5	0.88	73.9427	10.6989	7.4787	200 mm
6007	p2193	n2088	6.3958	n2089	4.5727	29.9	29.9	6.09	168.5	0.74	55.5147	7.4787	5.6556	200 mm
6008	p2194	n2089	4.5727	n2090	3.4299	30	24.6	3.81	168.5	0.64	43.9241	5.6556	4.5128	200 mm
6011	p2197	n1258	26.4031	n2092	23.3425	29.8	29.8	10.3	168.5	0.88	72.0506	27.486	24.4254	200 mm
6012	p2198	n2092	23.3425	n2093	19.4506	29.8	29.7	13.1	168.5	1	81.3714	24.4254	20.5335	200 mm
6013	p2200	n2093	19.4506	n2095	15.6684	29.8	29.8	12.7	168.5	1.03	80.2035	20.5335	16.7513	200 mm
6016	p2203	n2097	9.0469	n2098	6.5677	29.9	29.9	8.3	168.5	1.04	64.804	10.1298	7.6506	200 mm
6017	p2204	n2098	6.5677	n2099	5.4241	20.6	20.6	5.54	168.5	0.91	52.9562	7.6506	6.507	200 mm
6018	p2205	n2099	5.4241	n2100	5.4014	5.7	5.7	0.4	168.5	0.37	14.2287	6.507	6.57	200 mm
6021	p2208	n2102	5.1931	n2103	5.1621	6.3	6.3	0.49	168.5	0.42	15.7494	6.276	6.245	200 mm
6022	p2210	n1258	26.4031	n1267	27.1051	9	8.7	7.79	168.5	0.76	62.773	27.486	28.188	200 mm
6023	p2211	n1267	27.1051	n2105	27.8462	19.6	19.6	3.79	168.5	0.45	43.7692	28.188	28.9291	200 mm
6024	p2212	n2105	27.8462	n2106	28.4011	30	30	1.85	168.5	0.28	30.6022	28.9291	29.484	200 mm
6027	p2215	n2108	27.5059	n2109	26.869	30	30	2.12	168.5	0.53	32.7853	28.5888	27.9519	200 mm
6029	p2217	n2109	26.869	n2111	26.4431	20	20	2.13	168.5	0.56	32.8556	27.9519	27.535	200 mm
6032	p2220	n2112	26.5799	n2113	26.7714	30	30	0.64	168.5	0.4	17.9761	27.6628	27.8543	200 mm
6033	p2221	n2113	26.7714	n2114	27.4386	30	30	2.23	168.5	0.6	33.5555	27.8543	28.5215	200 mm
6034	p2222	n2114	27.4386	n2115	27.727	30	30	0.96	168.5	0.44	22.0628	28.5215	29.3009	200 mm
6035	p2223	n2115	27.727	n2116	27.8518	31.2	31.2	0.4	168.5	0.31	14.2287	29.3009	29.312	200 mm
6061	p2251	n2116	27.8518	n2143	27.9673	28.9	28.9	0.4	168.5	0.3	14.2287	29.312	29.198	200 mm
6062	p2252	n2143	27.9673	n2144	28.048	20.2	20.2	0.4	168.5	0.28	14.2287	29.198	29.4064	200 mm
6063	p2253	n2144	28.048	n2121	28.168	30	29.9	0.4	168.5	0.27	14.2287	29.4064	29.544	200 mm
6068	p2258	n2148	26.2207	n2149	26.093	31.9	31.9	0.4	168.5	0.25	14.2287	30.339	30.488	200 mm
6071	p2261	n2151	25.9381	n2152	25.895	10.8	10.8	0.4	168.5	0.28	14.2287	30.1334	30.087	200 mm
6074	p2264	n2154	25.8184	n2155	25.6984	30	30	0.4	168.5	0.31	14.2287	30.0196	29.5556	200 mm
6076	p2266	n2155	25.6984	n2157	25.5784	30	30	0.4	168.5	0.32	14.2287	29.5556	28.7778	200 mm
6077	p2267	n2157	25.5784	n2158	25.4584	30	30	0.4	168.5	0.33	14.2287	28.7778	27.9096	200 mm
6078	p2268	n2158	25.4584	n2159	24.6465	29.9	29.9	2.71	168.5	0.67	37.0603	27.9096	25.7294	200 mm
6079	p2270	n2159	24.6465	n2161	20.6931	29.7	30.9	13.3	168.5	1.18	82.0394	25.7294	21.776	200 mm
6081	p2272	n2161	20.6931	n2142	19.0681	11.1	9.9	14.7	168.5	1.25	86.236	21.776	20.151	200 mm
6083	p2274	n2162	16.5944	n2163	14.2654	29.9	29.9	7.79	168.5	1.08	62.7796	17.6773	15.3483	200 mm
6086	p2277	n2111	26.4431	n2166	26.3231	30	30	0.4	168.5	0.41	14.2287	27.535	28.0591	200 mm
6088	p2279	n2166	26.3231	n2168	26.2779	11.3	11.3	0.4	168.5	0.42	14.2287	28.0591	28.262	200 mm
6089	p2280	n2168	26.2779	n2169	26.1579	30	30	0.4	168.5	0.42	14.2287	28.262	28.1213	200 mm
6090	p2281	n2169	26.1579	n2170	26.0813	19.2	19.2	0.4	168.5	0.43	14.2287	28.1213	27.936	200 mm
6094	p2285	n2170	26.0813	n2174	25.9614	30	30	0.4	168.5	0.43	14.2287	27.936	28.9968	200 mm
6095	p2286	n2174	25.9614	n2107	25.9123	12.3	12.3	0.4	168.5	0.44	14.2287	28.9968	29.264	200 mm
6096	p2287	n2107	25.9123	n2175	25.8584	13.5	13.4	0.4	168.5	0.44	14.2287	29.264	29.524	200 mm
6097	p2288	n2175	25.8584	n2176	25.7384	30	30	0.4	168.5	0.45	14.2287	29.524	29.3892	200 mm
6098	p2289	n2176	25.7384	n2177	25.6185	30	30	0.4	168.5	0.45	14.2287	29.3892	28.826	200 mm
6099	p2290	n2177	25.6185	n2178	23.4203	29.7	29.6	7.41	168.5	1.28	61.2561	28.826	24.5032	200 mm
6100	p2291	n2178	23.4203	n2179	17.1451	29.3	29.3	21.4	168.5	1.87	104.0447	24.5032	18.228	200 mm
6101	p2292	n2179	17.1451	n2180	12.385	29.6	29.6	16.1	168.5	1.71	90.2038	18.228	13.4679	200 mm
6102	p2293	n2180	12.385	n2181	9.672	29.9	29.9	9.08	168.5	1.42	67.8018	13.4679	10.7549	200 mm
6103	p2294	n2181	9.672	n2182	7.3232	29.9	29.9	7.86	168.5	1.36	63.0554	10.7549	8.4061	200 mm
6104	p2295	n2182	7.3232	n2183	5.7659	30	30	5.2	168.5	1.18	51.292	8.4061	6.8488	200 mm

6105	p2296	n2183	5.7659	n2103	5.1621	15.6	15.6	3.86	168.5	1.07	44.2048	6.8488	6.245	200 mm
6132	p2324	n2148	26.2207	n2210	26.2947	18.5	18.5	0.4	168.5	0.23	14.2287	30.339	30.51	200 mm
6133	p2325	n2210	26.2947	n2211	26.4146	30	30	0.4	168.5	0.2	14.2287	30.51	29.5429	200 mm
6134	p2326	n2211	26.4146	n2188	26.5081	23.4	23.4	0.4	168.5	0.16	14.2287	29.5429	27.591	200 mm
6142	p2334	n2218	26.3761	n2219	22.6803	29.8	29.8	12.4	168.5	0.66	79.2688	27.459	23.7632	200 mm
6143	p2335	n2219	22.6803	n2220	19.0532	29.8	29.8	12.2	168.5	0.76	78.5276	23.7632	20.1361	200 mm
6144	p2336	n2220	19.0532	n2221	15.5776	29.8	29.8	11.7	168.5	0.82	76.8315	20.1361	16.6605	200 mm
6145	p2337	n2221	15.5776	n2165	12.7511	21.5	21.5	13.1	168.5	0.9	81.5157	16.6605	13.834	200 mm
6146	p2338	n2165	12.7511	n2222	10.8206	29.9	29.9	6.45	168.5	1.12	57.1269	13.834	11.9035	200 mm
6149	p2341	n2224	7.4471	n2225	5.6823	30	29.9	5.89	168.5	1.13	54.6112	8.53	6.7652	200 mm
6150	p2342	n2225	5.6823	n2226	4.3401	24.9	21.7	5.38	168.5	1.11	52.1912	6.7652	5.423	200 mm
6154	p2346	n2229	3.1472	n2230	2.2231	30	29.3	3.08	168.5	0.93	39.4984	4.2301	3.306	200 mm
6155	p2348	n2230	2.2231	n2232	2.1791	2.8	3.4	1.55	168.5	0.74	27.9993	3.306	3.262	200 mm
6156	p2349	n2232	2.1791	n2233	2.1133	16.5	16.5	0.4	168.5	0.46	14.2287	3.262	3.46	200 mm
6157	p2350	n2233	2.1133	n2234	2.0916	5.4	5.4	0.4	168.5	0.46	14.2287	3.46	3.465	200 mm
6168	p2361	n2244	1.3279	n2245	1.2723	13.9	13.9	0.4	168.5	0.49	14.2287	3.766	3.681	200 mm
6169	p2362	n2245	1.2723	n2246	1.1334	34.7	34.7	0.4	168.5	0.5	14.2287	3.681	4.048	200 mm
6171	p2364	n2247	1.0134	n2248	0.8934	30	30	0.4	168.5	0.55	14.2287	4.1966	4.3029	200 mm
6172	p2365	n2248	0.8934	n2249	0.7861	26.8	26.8	0.4	168.5	0.55	14.2287	4.3029	4.508	200 mm
6173	p2366	n2249	0.7861	n2250	0.6661	30	30	0.4	168.5	0.55	14.2287	4.508	4.4486	200 mm
6176	p2369	n2252	0.4943	n2253	0.449	11.3	11.3	0.4	168.5	0.56	14.2287	4.7623	5.044	200 mm
6189	p2382	n2264	25.0651	n2265	24.9111	18.1	18.1	0.85	168.5	0.22	20.769	26.148	25.994	200 mm
6190	p2383	n2265	24.9111	n2266	24.5961	7.2	7.2	4.36	168.5	0.46	46.982	25.994	25.679	200 mm
6191	p2384	n2266	24.5961	n2267	24.1314	4.7	4.7	9.93	168.5	0.7	70.8812	25.679	25.2143	200 mm
6192	p2385	n2267	24.1314	n2268	20.1431	29.7	30.7	13.4	168.5	0.86	82.4011	25.2143	21.226	200 mm
6195	p2388	n2269	18.7281	n2270	18.6081	30	33.7	0.4	168.5	0.28	14.2287	19.811	20.4759	200 mm
6198	p2391	n2272	18.4576	n2273	18.3521	26.4	26.4	0.4	168.5	0.31	14.2287	20.864	19.766	200 mm
6201	p2394	n2275	13.2766	n2276	9.4964	29.8	29.8	12.7	168.5	1.1	80.1817	14.3595	10.5793	200 mm
6202	p2395	n2276	9.4964	n2277	6.8108	29.9	29.9	8.99	168.5	1	67.4592	10.5793	7.8937	200 mm
6203	p2396	n2277	6.8108	n2278	4.9507	29.9	29.9	6.21	168.5	0.91	56.0761	7.8937	6.0336	200 mm
6204	p2397	n2278	4.9507	n2279	3.6402	30	30	4.37	168.5	0.82	47.0443	6.0336	4.7231	200 mm
6206	p2399	n1849	12.6188	n2280	12.6831	16.1	16.1	0.4	168.5	0.66	14.2287	14.041	13.766	200 mm
6209	p2402	n2282	16.2437	n2283	18.331	29.9	29.9	6.98	168.5	0.38	59.4224	17.3266	19.4139	200 mm
6213	p2406	n2286	17.9768	n2287	15.1848	29.9	29.5	9.35	168.5	0.62	68.7935	19.0597	16.2677	200 mm
6214	p2407	n2287	15.1848	n2288	12.3958	29.9	29.9	9.34	168.5	0.68	68.7447	16.2677	13.4787	200 mm
6215	p2408	n2288	12.3958	n2073	8.2511	41.8	41.8	9.92	168.5	0.77	70.8598	13.4787	9.334	200 mm
6217	p2410	n2073	8.2511	n2290	9.7658	30	29.8	5.06	168.5	0.88	50.5858	9.334	10.8487	200 mm
6218	p2411	n2290	9.7658	n2291	10.8001	20.5	20.5	5.05	168.5	0.87	50.5582	10.8487	11.883	200 mm
6221	p2415	n2291	10.8001	n2295	12.9059	29.9	30.3	7.04	168.5	0.68	59.6853	11.883	13.9888	200 mm
6222	p2416	n2295	12.9059	n2296	15.8611	29.9	29.9	9.9	168.5	0.7	70.7867	13.9888	16.944	200 mm
6223	p2417	n2296	15.8611	n2297	19.7092	29.7	29.7	12.9	168.5	0.67	80.9259	16.944	20.7921	200 mm
6224	p2418	n2297	19.7092	n2298	22.1761	15.3	15.3	16.2	168.5	0.61	90.4855	20.7921	23.259	200 mm
6229	p2423	n2291	10.8001	n2303	12.1779	30	30	4.6	168.5	0.72	48.2371	11.883	13.2608	200 mm
6230	p2424	n2303	12.1779	n2304	14.3799	29.9	29.9	7.36	168.5	0.82	61.0328	13.2608	15.4628	200 mm
6242	p2436	n2314	15.7841	n2315	16.4255	30	30	2.14	168.5	0.45	32.9008	16.867	17.5084	200 mm
6245	p2439	n2301	20.1001	n2317	22.0481	25.4	28.5	7.67	168.5	0.46	62.2913	21.183	23.131	200 mm
6248	p2443	n2318	21.3962	n2319	19.7038	30	30	5.65	168.5	0.42	53.4806	22.4791	20.7867	200 mm
6249	p2444	n2319	19.7038	n2320	18.5461	14.9	14.9	7.75	168.5	0.57	62.6257	20.7867	19.629	200 mm
6250	p2445	n2320	18.5461	n2321	17.8961	10.1	10.1	6.42	168.5	0.61	57.0166	19.629	18.979	200 mm
6251	p2446	n2321	17.8961	n2322	16.6538	34.8	34.8	3.57	168.5	0.54	42.4832	18.979	17.7367	200 mm
6252	p2447	n1927	0.0866	n2323	1.5101	29.1	29	4.9	168.5	1.02	49.7765	3.308	2.593	200 mm
6255	p2450	n2324	1.7279	n2325	1.8161	10.4	12.7	0.85	168.5	0.53	20.7433	2.8108	2.899	200 mm
6256	p2451	n2325	1.8161	n2326	1.9988	19.6	17.9	0.93	168.5	0.54	21.7079	2.899	3.0817	200 mm
6263	p2458	n2332	3.0264	n2333	3.6648	30	30	2.13	168.5	0.68	32.823	4.1093	4.7477	200 mm
6264	p2459	n2333	3.6648	n2334	4.9116	30	30	4.16	168.5	0.85	45.8877	4.7477	5.9945	200 mm

6265	p2460	n2334	4.9116	n2335	5.9581	18.3	18.3	5.71	168.5	0.93	53.7705	5.9945	7.041	200 mm
6266	p2461	n2335	5.9581	n2336	6.1751	3.1	3.3	6.9	168.5	0.86	59.1143	7.041	7.258	200 mm
6268	p2463	n2336	6.1751	n2337	8.4664	29.9	29.9	7.67	168.5	0.76	62.2896	7.258	9.5493	200 mm
6269	p2464	n2337	8.4664	n2338	10.6977	29.9	29.9	7.46	168.5	0.72	61.4473	9.5493	11.7806	200 mm
6272	p2467	n2340	11.1431	n2341	11.6521	7.9	8.6	6.44	168.5	0.63	57.0697	12.226	12.735	200 mm
6274	p2469	n2341	11.6521	n2342	14.1655	29.9	28.6	8.41	168.5	0.65	65.2384	12.735	15.2484	200 mm
6276	p2471	n2335	5.9581	n2344	7.7511	14.8	14.8	12.1	168.5	0.82	78.3324	7.041	8.834	200 mm
6277	p2472	n2344	7.7511	n2345	10.1831	29.9	29.9	8.14	168.5	0.68	64.1942	8.834	11.4217	200 mm
6278	p2473	n2345	10.1831	n2346	10.303	30	30	0.4	168.5	0.22	14.2287	11.4217	12.1548	200 mm
6279	p2474	n2346	10.303	n2347	10.3891	21.5	21.5	0.4	168.5	0.21	14.2287	12.1548	11.472	200 mm
6280	p2475	n2347	10.3891	n2348	12.5267	29.9	29.9	7.14	168.5	0.53	60.1341	11.472	13.6096	200 mm
6281	p2476	n2348	12.5267	n2349	14.6141	27.5	27.5	7.58	168.5	0.46	61.9486	13.6096	15.697	200 mm
6284	p2479	n2322	16.6538	n2352	15.8372	30	30	2.72	168.5	0.52	37.1223	17.7367	16.9201	200 mm
6285	p2480	n2352	15.8372	n2353	15.3471	17.6	17.8	2.78	168.5	0.56	37.5111	16.9201	16.43	200 mm
6291	p2487	n2359	12.1567	n2360	10.3997	29.9	29.9	5.87	168.5	0.79	54.5004	13.2396	11.4826	200 mm
6292	p2488	n2360	10.3997	n2361	9.8571	15.4	15.4	3.51	168.5	0.69	42.1729	11.4826	10.94	200 mm
6293	p2489	n2361	9.8571	n2362	9.8355	5.4	5.4	0.4	168.5	0.33	14.2287	10.94	11.781	200 mm
6294	p2490	n2362	9.8355	n2363	8.8291	29.9	29.9	3.36	168.5	0.72	41.2477	11.781	9.912	200 mm
6295	p2491	n2363	8.8291	n2364	8.7331	6.8	6.8	1.41	168.5	0.55	26.7517	9.912	9.816	200 mm
6302	p2500	n2253	0.449	n2372	0.3722	19.2	19.2	0.4	168.5	0.64	14.2287	5.044	5.01	200 mm
6303	p2501	n2372	0.3722	n2373	0.2522	30	30	0.4	168.5	0.7	14.2287	5.01	5.1038	200 mm
6308	p2506	n2377	-0.0231	n2378	3.9442	30	30	13.2	168.5	1.66	81.8129	4.978	5.0271	200 mm
6309	p2507	n2378	3.9442	n2379	4.5586	30	30	2.05	168.5	0.85	32.202	5.0271	5.6415	200 mm
6310	p2508	n2379	4.5586	n2380	5.4016	30	30	2.81	168.5	0.95	37.718	5.6415	6.4845	200 mm
6311	p2509	n2380	5.4016	n2381	6.2808	30	30	2.93	168.5	0.95	38.5209	6.4845	7.3637	200 mm
6312	p2510	n2381	6.2808	n2382	7.2432	30	30	3.21	168.5	0.97	40.3084	7.3637	8.3261	200 mm
6313	p2511	n2382	7.2432	n2383	8.49	30	30	4.16	168.5	1.05	45.8866	8.3261	9.5729	200 mm
6314	p2512	n2383	8.49	n2384	9.7619	30	30	4.24	168.5	1.05	46.3472	9.5729	10.8448	200 mm
6315	p2513	n2384	9.7619	n2385	11.0138	30	30	4.18	168.5	1.04	45.981	10.8448	12.0967	200 mm
6316	p2514	n2385	11.0138	n2386	12.4556	30	30	4.81	168.5	1.08	49.3442	12.0967	13.5385	200 mm
6319	p2517	n2388	14.5511	n2389	16.1887	30	29.9	5.47	168.5	0.67	52.606	15.634	17.327	200 mm
6320	p2518	n2389	16.1887	n2390	16.3084	29.9	29.9	0.4	168.5	0.25	14.2287	17.327	19.151	200 mm
6321	p2519	n2390	16.3084	n2391	16.4047	24.1	24.4	0.4	168.5	0.23	14.2287	19.151	19.552	200 mm
6323	p2521	n2391	16.4047	n2392	16.5246	30	29	0.4	168.5	0.2	14.2287	19.552	18.5872	200 mm
6324	p2522	n2392	16.5246	n2393	16.6421	29.4	29.4	0.4	168.5	0.16	14.2287	18.5872	17.725	200 mm
6327	p2525	n2395	15.3955	n2396	17.6138	29.9	29.9	7.42	168.5	1.13	61.2681	16.4784	18.6967	200 mm
6328	p2526	n2396	17.6138	n2397	20.9973	29.8	29.8	11.4	168.5	1.29	75.7946	18.6967	22.0802	200 mm
6335	p2533	n2403	24.4891	n2404	25.7734	30	28.1	4.29	168.5	0.86	46.5714	25.572	26.8563	200 mm
6336	p2534	n2404	25.7734	n2405	27.4733	30	30	5.68	168.5	0.93	53.5985	26.8563	28.5562	200 mm
6337	p2535	n2405	27.4733	n2406	28.2907	13.3	13.3	6.16	168.5	0.93	55.8156	28.5562	29.463	200 mm
6338	p2536	n2406	28.2907	n2407	28.3494	14.7	14.7	0.4	168.5	0.35	14.2287	29.463	29.712	200 mm
6339	p2537	n2407	28.3494	n2408	28.4694	30	30	0.4	168.5	0.34	14.2287	29.712	29.5523	200 mm
6343	p2542	n2411	29.9915	n2412	31.8623	29.9	34.5	6.25	168.5	0.83	56.2362	31.0744	32.9452	200 mm
6344	p2543	n2412	31.8623	n2413	33.6137	30	27.8	5.85	168.5	0.79	54.4042	32.9452	34.6966	200 mm
6346	p2545	n2413	33.6137	n2414	34.5131	18.7	21.2	4.81	168.5	0.7	49.3132	34.6966	35.596	200 mm
6353	p2552	n2419	37.7066	n2420	37.8265	30	30	0.4	168.5	0.23	14.2287	38.9281	39.5181	200 mm
6354	p2553	n2420	37.8265	n2421	37.9465	30	30	0.4	168.5	0.2	14.2287	39.5181	40.0205	200 mm
6380	p2579	n2444	-0.1778	n2445	-0.2978	30	30	0.4	168.5	0.72	14.2287	4.603	4.7525	200 mm
6381	p2580	n2445	-0.2978	n2446	3.7939	30	30	13.6	168.5	2.31	83.0858	4.7525	4.8988	200 mm
6382	p2581	n2446	3.7939	n2447	3.8991	26.3	26.3	0.4	168.5	0.64	14.2287	4.8988	5.103	200 mm
6383	p2582	n2447	3.8991	n2448	4.0191	30	30	0.4	168.5	0.64	14.2287	5.103	5.102	200 mm
6384	p2583	n2448	4.0191	n2449	4.3182	30	30	1	168.5	0.9	22.4641	5.102	5.4011	200 mm
6387	p2586	n2451	4.6691	n2452	4.926	30	30	0.86	168.5	0.79	20.8269	5.752	6.0089	200 mm
6388	p2587	n2452	4.926	n2453	5.2019	30	30	0.92	168.5	0.81	21.5721	6.0089	6.2848	200 mm
6389	p2588	n2453	5.2019	n2454	5.324	30	30	0.41	168.5	0.6	14.3574	6.2848	6.5451	200 mm

6390	p2589	n2454	5.324	n2455	5.4295	26.4	26.4	0.4	168.5	0.59	14.2287	6.5451	6.709	200 mm
6391	p2590	n2455	5.4295	n2456	5.5495	30	30	0.4	168.5	0.59	14.2287	6.709	6.6324	200 mm
6392	p2591	n2456	5.5495	n2457	5.95	30	30	1.34	168.5	0.91	25.9957	6.6324	7.1324	200 mm
6393	p2592	n2457	5.95	n2458	6.0244	18.6	18.6	0.4	168.5	0.59	14.2287	7.1324	7.19	200 mm
6394	p2593	n2458	6.0244	n2459	6.0631	9.7	9.7	0.4	168.5	0.58	14.2287	7.19	7.146	200 mm
6395	p2594	n2459	6.0631	n2460	6.1796	20.3	20.3	0.57	168.5	0.66	17.0302	7.146	7.2625	200 mm
6396	p2595	n2460	6.1796	n2461	6.3939	30	30	0.71	168.5	0.71	19.013	7.2625	7.4768	200 mm
6397	p2596	n2461	6.3939	n2462	6.8355	30	30	1.47	168.5	0.92	27.2955	7.4768	7.9184	200 mm
6398	p2597	n2462	6.8355	n2463	7.2978	30	30.5	1.54	168.5	0.94	27.9302	7.9184	8.4229	200 mm
6399	p2598	n2463	7.2978	n2464	7.313	3.8	3.7	0.4	168.5	0.57	14.2287	8.4229	8.478	200 mm
6401	p2600	n2464	7.313	n2465	7.3441	7.8	7.4	0.4	168.5	0.57	14.2287	8.478	8.427	200 mm
6402	p2601	n2465	7.3441	n2466	7.7052	22.2	22.2	1.63	168.5	0.94	28.6817	8.427	8.7881	200 mm
6403	p2602	n2466	7.7052	n2467	8.1166	30	30	1.37	168.5	0.88	26.3448	8.7881	9.1995	200 mm
6404	p2603	n2467	8.1166	n2468	8.6337	30	30	1.72	168.5	0.95	29.5423	9.1995	9.7166	200 mm
6405	p2604	n2468	8.6337	n2469	8.8043	30	30	0.57	168.5	0.64	16.9638	9.7166	9.8872	200 mm
6406	p2605	n2469	8.8043	n2470	9.0963	30	30	0.97	168.5	0.77	22.1934	9.8872	10.1792	200 mm
6407	p2606	n2470	9.0963	n2471	9.9656	30	30	2.9	168.5	1.13	38.322	10.1792	11.0485	200 mm
6408	p2607	n2471	9.9656	n2472	10.3225	10.1	10	3.55	168.5	1.21	42.4016	11.0485	12.327	200 mm
6409	p2608	n2472	10.3225	n2473	10.4425	30	30	0.4	168.5	0.55	14.2287	12.327	11.5254	200 mm
6410	p2609	n2473	10.4425	n2474	10.7021	22.7	22.7	1.15	168.5	0.8	24.085	11.5254	11.785	200 mm
6411	p2610	n2474	10.7021	n2475	11.8202	23.2	23.2	4.83	168.5	0.94	49.4328	11.785	12.9031	200 mm
6414	p2613	n2477	16.0489	n2478	16.4041	14.2	14.2	2.51	168.5	0.71	35.605	17.1318	17.487	200 mm
6415	p2614	n2478	16.4041	n2479	18.9372	15.6	15.6	16.2	168.5	1.33	90.6557	17.487	20.0201	200 mm
6416	p2615	n2479	18.9372	n2480	22.8114	29.7	29.7	13	168.5	1.2	81.228	20.0201	23.8943	200 mm
6417	p2616	n2480	22.8114	n2481	24.9961	29.9	29.9	7.3	168.5	0.97	60.7918	23.8943	26.079	200 mm
6418	p2617	n2481	24.9961	n2482	26.5353	30	30	5.14	168.5	0.83	51.0024	26.079	27.6182	200 mm
6422	p2621	n2485	30.9951	n2486	32.0272	17.8	17.8	5.79	168.5	0.75	54.1118	32.078	33.1101	200 mm
6423	p2622	n2486	32.0272	n2487	33.1531	30	30	3.76	168.5	0.62	43.5993	33.1101	34.236	200 mm
6424	p2623	n2487	33.1531	n2488	33.9293	30	30	2.59	168.5	0.51	36.1931	34.236	35.0122	200 mm
6425	p2624	n2488	33.9293	n2489	35.7959	29.9	29.9	6.24	168.5	0.65	56.1833	35.0122	36.8788	200 mm
6426	p2625	n2489	35.7959	n2490	38.5861	29.6	29.6	9.43	168.5	0.68	69.0846	36.8788	39.669	200 mm
6427	p2626	n2490	38.5861	n2491	39.9866	19.7	19.7	7.12	168.5	0.55	60.0451	39.669	41.0695	200 mm
6428	p2627	n2491	39.9866	n2492	40.3303	32.5	32.5	1.06	168.5	0.23	23.1447	41.0695	41.4132	200 mm
6432	p2631	n2496	3.7551	n2497	3.8751	30	30	0.4	168.5	0.5	14.2287	5.004	4.958	200 mm
6433	p2632	n2497	3.8751	n2498	3.9691	12.1	12.1	0.78	168.5	0.63	19.8704	4.958	5.1	200 mm
6434	p2633	n2498	3.9691	n2499	4.0891	30	30	0.4	168.5	0.5	14.2287	5.1	5.27	200 mm
6435	p2634	n2499	4.0891	n2500	4.2091	30	30	0.4	168.5	0.49	14.2287	5.27	5.472	200 mm
6436	p2635	n2500	4.2091	n2501	4.3291	30	30	0.4	168.5	0.49	14.2287	5.472	5.7	200 mm
6437	p2636	n2501	4.3291	n2502	4.4491	30	30	0.4	168.5	0.49	14.2287	5.7	5.532	200 mm
6438	p2637	n2502	4.4491	n2503	5.0851	30	30	2.12	168.5	0.87	32.7569	5.532	6.168	200 mm
6439	p2638	n2503	5.0851	n2504	5.3061	30	30	0.74	168.5	0.59	19.3095	6.168	6.389	200 mm
6440	p2639	n2504	5.3061	n2505	5.6171	30	30	1.04	168.5	0.66	22.9063	6.389	6.7	200 mm
6441	p2640	n2505	5.6171	n2506	5.8691	30	30	0.84	168.5	0.61	20.6193	6.7	6.952	200 mm
6442	p2641	n2506	5.8691	n2507	6.1781	30	30	1.03	168.5	0.65	22.8325	6.952	7.261	200 mm
6447	p2646	n2511	6.6151	n2512	7.1791	30	30	1.88	168.5	0.78	30.8522	7.698	8.262	200 mm
6448	p2647	n2512	7.1791	n2513	7.9981	42.1	42.4	1.95	168.5	0.71	31.3825	8.262	9.081	200 mm
6449	p2648	n2513	7.9981	n2367	8.646	27.4	27.1	2.37	168.5	0.75	34.6268	9.081	9.93	200 mm
6452	p2651	n2516	10.7584	n2517	11.9091	15.2	15.2	7.55	168.5	0.69	61.8193	11.8413	12.992	200 mm
6453	p2652	n2517	11.9091	n2518	12.4851	30	30	1.92	168.5	0.4	31.1839	12.992	13.568	200 mm
6454	p2653	n2518	12.4851	n2519	13.0561	30	30	1.9	168.5	0.35	31.0442	13.568	14.259	200 mm
6455	p2654	n2519	13.0561	n2520	13.1761	30	30	0.4	168.5	0.16	14.2287	14.259	14.259	200 mm
6457	p2656	n2521	13.4471	n2522	12.2271	30	30	4.07	168.5	0.32	45.3912	14.53	13.31	200 mm
6458	p2657	n2522	12.2271	n1993	8.4187	30	30	12.7	168.5	0.58	80.171	13.31	12.396	200 mm
6459	p2658	n2512	7.1791	n2524	7.7121	30	30	1.78	168.5	0.52	29.9874	8.262	8.795	200 mm
6460	p2659	n2524	7.7121	n2525	8.2651	30	30	1.84	168.5	0.51	30.5499	8.795	9.348	200 mm

6461	p2660	n2525	8.2651	n2526	10.5691	29.9	29.9	7.71	168.5	0.79	62.4512	9.348	11.652	200 mm
6462	p2661	n2526	10.5691	n2527	13.2471	29.9	29.9	8.96	168.5	0.79	67.3519	11.652	14.33	200 mm
6463	p2662	n2527	13.2471	n2528	17.0591	59.6	59.6	6.4	168.5	0.66	56.916	14.33	18.142	200 mm
6464	p2663	n2528	17.0591	n2529	20.3531	29.9	29.8	11	168.5	0.73	74.7351	18.142	21.436	200 mm
6465	p2664	n2529	20.3531	n2530	23.3761	29.8	29.8	10.1	168.5	0.64	71.6189	21.436	24.459	200 mm
6466	p2665	n2530	23.3761	n2531	26.5231	29.9	29.9	10.5	168.5	0.52	73.0241	24.459	27.606	200 mm
6468	p2667	n2532	30.1451	n2533	27.4721	26.9	26.9	9.96	168.5	2.77	70.9843	31.228	28.555	200 mm
6469	p2668	n2533	27.4721	n2534	24.7741	29.9	29.9	9.03	168.5	2.68	67.603	28.555	25.857	200 mm
6470	p2669	n2534	24.7741	n2535	22.2271	29.9	29.9	8.52	168.5	2.63	65.673	25.857	23.31	200 mm
6471	p2670	n2535	22.2271	n2536	20.5291	30	30	5.67	168.5	2.26	53.568	23.31	21.612	200 mm
6472	p2671	n2536	20.5291	n2537	18.9969	29.6	29.6	5.18	168.5	2.2	51.1769	21.612	20.122	200 mm
6473	p2672	n2537	18.9969	n2538	18.8749	19.6	19.6	0.62	210.7	0.99	32.2455	20.122	20	250 mm
6474	p2673	n2538	18.8749	n2539	18.8404	11.5	11.5	0.3	210.7	0.73	22.3334	20	21.312	250 mm
6475	p2674	n2539	18.8404	n2540	17.2099	36.7	36.7	4.44	210.7	2.06	86.0375	21.312	18.335	250 mm
6476	p2675	n2540	17.2099	n2541	15.4629	30	30	5.83	210.7	2.27	98.6103	18.335	16.588	250 mm
6477	p2676	n2541	15.4629	n2542	12.8359	29.9	29.9	8.79	210.7	2.64	121.0637	16.588	13.961	250 mm
6478	p2677	n2542	12.8359	n2543	10.2149	29.9	29.9	8.77	210.7	2.64	120.9051	13.961	11.34	250 mm
6479	p2678	n2543	10.2149	n2544	8.6019	30	29.9	5.39	210.7	2.22	94.753	11.34	9.727	250 mm
6484	p2683	n2532	30.1451	n2549	30.9811	30	30	2.79	168.5	1.73	37.5746	31.228	32.064	200 mm
6485	p2684	n2549	30.9811	n2550	32.1701	27.9	27.9	4.27	168.5	2.03	46.4767	32.064	33.253	200 mm
6486	p2685	n2550	32.1701	n2551	33.8761	30	30	5.7	168.5	2.26	53.6941	33.253	34.959	200 mm
6487	p2686	n2551	33.8761	n2552	36.7731	29.8	29.8	9.71	168.5	2.74	70.0987	34.959	37.856	200 mm
6488	p2687	n2552	36.7731	n2553	38.6921	29.9	29.9	6.41	168.5	2.36	56.9665	37.856	39.775	200 mm
6489	p2688	n2553	38.6921	n2554	39.9181	11.8	11.8	10.4	168.5	2.81	72.5477	39.775	41.001	200 mm
6491	p2690	n2555	39.9351	n2556	39.6421	30	30	0.98	168.5	0.22	22.2335	41.018	40.725	200 mm
6492	p2691	n2556	39.6421	n2557	39.2491	30	30	1.31	168.5	0.31	25.7496	40.725	40.332	200 mm
6493	p2692	n2557	39.2491	n2558	38.4531	49.6	49.6	1.6	168.5	0.37	28.4889	40.332	39.536	200 mm
6494	p2693	n2558	38.4531	n2560	37.9381	30	30.3	1.72	168.5	0.58	29.4767	39.536	39.021	200 mm
6495	p2694	n2560	37.9381	n2561	37.4821	30	30.2	1.52	168.5	0.57	27.7368	39.021	38.565	200 mm
6496	p2695	n2561	37.4821	n2562	37.3581	7.5	6.9	1.66	168.5	0.6	28.9452	38.565	38.441	200 mm
6497	p2696	n2372	0.3722	n2564	3.7131	22.3	22.3	15	168.5	1.8	87.0012	5.01	4.796	200 mm
6498	p2697	n2564	3.7131	n2565	4.9471	30	30	4.12	168.5	1.13	45.6585	4.796	6.03	200 mm
6499	p2698	n2565	4.9471	n2566	7.8531	29.9	29.9	9.73	168.5	1.52	70.184	6.03	8.936	200 mm
6500	p2699	n2566	7.8531	n2567	11.4191	29.8	29.8	12	168.5	1.63	77.8378	8.936	12.502	200 mm
6501	p2700	n2567	11.4191	n2568	16.9571	18.5	18.5	30	168.5	2.22	123.2241	12.502	22.165	200 mm
6504	p2703	n2570	20.8601	n2571	22.6728	29.9	29.9	6.06	168.5	1.25	55.3842	21.943	24.087	200 mm
6505	p2704	n2571	22.6728	n2572	22.7895	29.2	29.2	0.4	168.5	0.47	14.2287	24.087	24.917	200 mm
6506	p2705	n2572	22.7895	n2573	22.9095	30	30	0.4	168.5	0.47	14.2287	24.917	24.164	200 mm
6507	p2706	n2573	22.9095	n2574	22.9351	6.4	6.4	0.4	168.5	0.46	14.2287	24.164	24.018	200 mm
6508	p2707	n2574	22.9351	n2575	23.9491	42.1	42.1	2.41	168.5	0.87	34.9151	24.018	25.032	200 mm
6509	p2708	n2575	23.9491	n2576	25.7111	29.9	29.9	5.89	168.5	1.18	54.5773	25.032	26.794	200 mm
6510	p2709	n2576	25.7111	n2577	29.3591	29.8	29.8	12.3	168.5	1.51	78.7806	26.794	30.442	200 mm
6511	p2710	n2577	29.3591	n2578	32.0641	29.9	29.9	9.06	168.5	1.34	67.702	30.442	33.147	200 mm
6512	p2711	n2578	32.0641	n2579	34.9951	25.1	25.1	11.7	168.5	1.45	76.8481	33.147	36.078	200 mm
6515	p2714	n2581	35.9351	n2582	36.5421	30	30	2.02	168.5	0.77	32.0014	37.018	37.625	200 mm
6516	p2715	n2582	36.5421	n2583	36.7601	30	30	0.73	168.5	0.53	19.178	37.625	37.963	200 mm
6517	p2716	n2583	36.7601	n2584	36.8801	30	30	0.4	168.5	0.42	14.2287	37.963	37.963	200 mm
6518	p2717	n2584	36.8801	n2562	37.3581	11.6	11.3	4.13	168.5	0.95	45.728	37.963	38.441	200 mm
6519	p2718	n2562	37.3581	n2585	37.3971	6	12.4	0.65	168.5	0.35	18.1517	38.441	38.48	200 mm
6520	p2719	n2585	37.3971	n2586	37.5741	30	23.9	0.59	168.5	0.33	17.2807	38.48	38.657	200 mm
6521	p2720	n2586	37.5741	n2587	37.7863	30	30	0.71	168.5	0.33	18.9243	38.657	39.351	200 mm
6522	p2721	n2587	37.7863	n2588	37.9061	30	30	0.4	168.5	0.25	14.2287	39.351	38.989	200 mm
6523	p2722	n2588	37.9061	n2589	38.1054	30	30	0.66	168.5	0.27	18.3391	38.989	39.425	200 mm
6524	p2723	n2589	38.1054	n2590	38.2091	25.9	25.9	0.4	168.5	0.2	14.2287	39.425	39.292	200 mm
6525	p2724	n2590	38.2091	n2591	39.3401	30	30	3.77	168.5	0.36	43.6969	39.292	40.423	200 mm

6532	p2731	n2595	39.8391	n2597	41.3975	28.4	28.4	5.49	168.5	0.58	52.7185	40.922	42.4804	200 mm
6533	p2732	n2597	41.3975	n2598	41.6042	30	30	0.69	168.5	0.25	18.6794	42.4804	43.35	200 mm
6536	p2735	n2600	42.3761	n2601	42.2561	30	30	0.4	168.5	0.16	14.2287	43.459	43.3537	200 mm
6537	p2736	n2601	42.2561	n2602	42.0299	30	30	0.75	168.5	0.25	19.535	43.3537	43.1128	200 mm
6538	p2737	n2602	42.0299	n2603	41.6851	27	27	1.28	168.5	0.34	25.4191	43.1128	42.768	200 mm
6539	p2738	n2603	41.6851	n2604	40.8548	30	30	2.77	168.5	0.49	37.4332	42.768	41.9377	200 mm
6540	p2739	n2604	40.8548	n2605	40.0986	30	30	2.52	168.5	0.51	35.7242	41.9377	41.1815	200 mm
6541	p2740	n2605	40.0986	n2606	39.3913	30	30	2.36	168.5	0.53	34.5507	41.1815	40.4742	200 mm
6542	p2741	n2606	39.3913	n2607	38.5068	30	30	2.95	168.5	0.6	38.6361	40.4742	39.5897	200 mm
6543	p2742	n2607	38.5068	n2558	38.4531	4.8	4.8	1.12	168.5	0.44	23.8402	39.5897	39.536	200 mm
6560	p2760	n2626	7.7841	n2627	9.4498	30	42.5	5.56	168.5	1.02	53.0563	8.867	10.5327	200 mm
6561	p2761	n2627	9.4498	n2628	11.0111	30	30	5.21	168.5	0.99	51.3584	10.5327	12.094	200 mm
6562	p2762	n2628	11.0111	n2629	13.1757	29.9	31.4	7.23	168.5	1.09	60.5112	12.094	14.2586	200 mm
6570	p2770	n2636	23.0111	n2637	24.7507	11.5	11.5	15.1	168.5	1.24	87.4998	24.094	26.408	200 mm
6571	p2771	n2637	24.7507	n2638	24.8706	30	30	0.4	168.5	0.34	14.2287	26.408	25.9535	200 mm
6574	p2774	n2640	25.3433	n2641	29.8426	29.7	29.7	15.2	168.5	1.14	87.6241	26.4262	30.9255	200 mm
6575	p2775	n2641	29.8426	n2642	33.9865	29.7	29.7	14	168.5	1.06	84.035	30.9255	35.0694	200 mm
6576	p2776	n2642	33.9865	n2643	35.0561	11	11	9.72	168.5	0.9	70.1218	35.0694	36.139	200 mm
6581	p2781	n2647	36.9754	n2648	37.0961	30.2	30.2	0.4	168.5	0.25	14.2287	38.252	38.179	200 mm
6582	p2782	n2648	37.0961	n2649	37.856	30	30	2.53	168.5	0.44	35.8123	38.179	38.9389	200 mm
6599	p2800	n2536	20.5291	n2667	21.4952	30	30	3.22	168.5	0.59	40.3864	21.612	22.5781	200 mm
6600	p2801	n2667	21.4952	n2668	22.8198	30	30	4.42	168.5	0.64	47.2961	22.5781	23.9027	200 mm
6601	p2802	n2668	22.8198	n2669	23.9161	27.2	27.2	4.04	168.5	0.6	45.2003	23.9027	24.999	200 mm
6604	p2805	n2671	24.9207	n2672	25.71	30	30	2.63	168.5	0.48	36.4989	26.0036	26.7929	200 mm
6605	p2806	n2672	25.71	n2673	26.4557	30	30	2.49	168.5	0.45	35.4746	26.7929	27.5386	200 mm
6606	p2807	n2673	26.4557	n2674	27.829	30	30	4.58	168.5	0.53	48.1592	27.5386	28.9119	200 mm
6607	p2808	n2674	27.829	n2675	30.1051	21	21	10.9	168.5	0.67	74.155	28.9119	31.188	200 mm
6608	p2809	n1993	8.4187	n2676	8.5227	30	30	0.35	210.7	0.79	24.0583	12.396	10.8998	250 mm
6609	p2810	n2676	8.5227	n2544	8.6019	23	23	0.35	210.7	0.78	23.975	10.8998	9.727	250 mm
6610	p2811	n2544	8.6019	n2678	8.7612	30	30	0.53	168.5	0.42	16.3946	9.727	9.8441	200 mm
6611	p2812	n2678	8.7612	n2679	8.8449	11.5	11.7	0.73	168.5	0.47	19.1629	9.8441	10.228	200 mm
6612	p2813	n2679	8.8449	n2680	10.3682	30	32.3	5.08	168.5	0.86	50.72	10.228	11.4511	200 mm
6613	p2814	n2680	10.3682	n2681	12.493	29.9	29.9	7.1	168.5	0.96	59.9534	11.4511	13.5759	200 mm
6620	p2821	n2687	21.2413	n2688	24.9203	29.8	29.8	12.4	168.5	1	79.0882	22.3242	26.0032	200 mm
6621	p2822	n2688	24.9203	n2689	27.7705	29.9	29.9	9.55	168.5	0.88	69.5065	26.0032	28.8534	200 mm
6622	p2823	n2689	27.7705	n2690	30.2596	29.9	29.9	8.33	168.5	0.82	64.9118	28.8534	31.3425	200 mm
6623	p2824	n2690	30.2596	n2691	31.7052	30	30	4.83	168.5	0.65	49.4256	31.3425	32.7881	200 mm
6624	p2825	n2691	31.7052	n2692	32.5213	30	30	2.72	168.5	0.52	37.1127	32.7881	33.6042	200 mm
6625	p2826	n2692	32.5213	n2693	33.1097	30	30	1.96	168.5	0.44	31.5136	33.6042	34.1926	200 mm
6626	p2827	n2693	33.1097	n2694	33.5554	30	30	1.49	168.5	0.39	27.4206	34.1926	34.6383	200 mm
6636	p2838	n2704	31.0075	n2705	31.806	30	30	2.66	168.5	0.33	36.7113	32.0904	32.8889	200 mm
6637	p2839	n2705	31.806	n2706	32.945	30	30	3.8	168.5	0.31	43.8512	32.8889	34.0279	200 mm
6641	p2843	n2708	41.7151	n2709	41.8648	30	30	0.5	168.5	0.15	15.8917	43.2791	42.9477	200 mm
6643	p2845	n2710	40.1973	n2711	37.5188	29.9	29.9	8.96	168.5	0.41	67.3586	41.2802	38.6017	200 mm
6644	p2846	n2711	37.5188	n2712	35.1965	29.9	29.9	7.76	168.5	0.52	62.6879	38.6017	36.2794	200 mm
6645	p2847	n2712	35.1965	n2697	34.1121	30	30	3.62	168.5	0.47	42.7951	36.2794	35.195	200 mm
6647	p2849	n2679	8.8449	n2713	8.9649	30	30	0.4	168.5	0.21	14.2287	10.228	10.2647	200 mm
6648	p2850	n2713	8.9649	n2714	9.0849	30	30	0.4	168.5	0.19	14.2287	10.2647	10.4285	200 mm
6649	p2851	n2714	9.0849	n2715	9.2049	30	30	0.4	168.5	0.17	14.2287	10.4285	10.7692	200 mm
6650	p2852	n2715	9.2049	n2716	9.3546	30	30	0.5	168.5	0.15	15.8917	10.7692	10.4375	200 mm
6652	p2854	n1955	8.9937	n2717	9.0171	5.9	6	0.4	168.5	0.34	14.2287	10.0772	10.1	200 mm
6654	p2856	n2717	9.0171	n2718	10.3447	19.9	19.6	6.66	168.5	0.76	58.0651	10.1	11.971	200 mm
6655	p2857	n2718	10.3447	n2719	10.4291	21.1	21.1	0.4	168.5	0.28	14.2287	11.971	11.512	200 mm
6656	p2858	n2719	10.4291	n2720	12.3569	29.9	29.9	6.44	168.5	0.71	57.0868	11.512	13.4398	200 mm
6657	p2859	n2720	12.3569	n2721	14.5481	29.9	29.3	7.32	168.5	0.72	60.8841	13.4398	15.631	200 mm

6659	p2861	n2721	14.5481	n2722	15.9868	30	30.6	4.8	168.5	0.6	49.2919	15.631	17.0697	200 mm
6660	p2862	n2722	15.9868	n2723	17.4483	30	30	4.88	168.5	0.57	49.6884	17.0697	18.5312	200 mm
6661	p2863	n2723	17.4483	n2724	18.7057	30	30	4.2	168.5	0.51	46.0822	18.5312	19.7886	200 mm
6662	p2864	n2724	18.7057	n2725	20.3252	30	30	5.41	168.5	0.52	52.3068	19.7886	21.4081	200 mm
6663	p2865	n2725	20.3252	n2726	22.8197	29.9	29.9	8.35	168.5	0.57	64.992	21.4081	23.9026	200 mm
6664	p2866	n2726	22.8197	n2727	25.8723	29.8	29.8	10.2	168.5	0.53	71.9572	23.9026	26.9552	200 mm
6665	p2867	n2727	25.8723	n2728	28.925	29.8	29.8	10.2	168.5	0.43	71.9572	26.9552	30.0079	200 mm
6667	p2869	n2717	9.0171	n2730	9.7314	30	30	2.38	168.5	0.48	34.7207	10.1	10.8143	200 mm
6668	p2870	n2730	9.7314	n2731	11.0818	30	30	4.51	168.5	0.58	47.755	10.8143	12.1647	200 mm
6669	p2871	n2731	11.0818	n2732	12.7917	30	29.9	5.71	168.5	0.61	53.7564	12.1647	13.8746	200 mm
6670	p2872	n2732	12.7917	n2733	15.2207	29.9	29.9	8.12	168.5	0.67	64.1218	13.8746	16.3036	200 mm
6671	p2873	n2733	15.2207	n2351	16.3281	12.3	12.3	9	168.5	0.66	67.5062	16.3036	17.411	200 mm
6672	p2874	n2351	16.3281	n2734	18.5932	29.9	29.9	7.58	168.5	0.55	61.9214	17.411	19.6761	200 mm
6673	p2875	n2734	18.5932	n2735	22.3781	24.6	24.6	15.4	168.5	0.64	88.1925	19.6761	23.461	200 mm
6676	p2878	n2737	26.1302	n2738	31.3176	29.5	29.5	17.6	168.5	0.46	94.2929	27.2131	32.4005	200 mm
6680	p2882	n2741	27.6336	n2742	27.7535	30	30	0.4	168.5	0.48	14.2287	29.8558	31.1727	200 mm
6681	p2883	n2742	27.7535	n2743	27.8734	30	30	0.4	168.5	0.48	14.2287	31.1727	31.9203	200 mm
6682	p2884	n2743	27.8734	n2744	27.9934	30	30	0.4	168.5	0.48	14.2287	31.9203	32.517	200 mm
6683	p2885	n2744	27.9934	n2745	28.1134	30	30	0.4	168.5	0.47	14.2287	32.517	33.3831	200 mm
6684	p2886	n2745	28.1134	n2746	28.2333	30	30	0.4	168.5	0.47	14.2287	33.3831	33.7	200 mm
6685	p2888	n2746	28.2333	n2748	28.3533	30	30.3	0.4	168.5	0.46	14.2287	33.7	33.6021	200 mm
6686	p2889	n2748	28.3533	n2749	28.4712	29.5	29.5	0.4	168.5	0.46	14.2287	33.6021	32.564	200 mm
6689	p2892	n2751	31.5957	n2752	29.3177	56.7	56.7	4.02	168.5	0.36	45.0902	32.6786	30.4006	200 mm
6690	p2893	n2752	29.3177	n2753	26.165	29.8	29.8	10.6	168.5	0.65	73.1395	30.4006	27.2479	200 mm
6691	p2894	n2753	26.165	n2754	23.0267	29.8	29.8	10.5	168.5	0.72	72.9597	27.2479	24.1096	200 mm
6692	p2895	n2754	23.0267	n2755	20.1936	29.9	29.9	9.49	168.5	0.74	69.2866	24.1096	21.2765	200 mm
6693	p2896	n2755	20.1936	n2756	17.9784	29.9	29.9	7.4	168.5	0.74	61.2158	21.2765	19.0613	200 mm
6694	p2897	n2756	17.9784	n2757	17.8357	35.7	33.5	0.4	168.5	0.28	14.2287	19.0613	19.489	200 mm
6695	p2898	n2757	17.8357	n2758	15.3007	23.4	22.3	10.8	168.5	0.94	74.0635	19.489	16.3836	200 mm
6696	p2899	n2758	15.3007	n2759	12.6099	29.9	29.9	9.01	168.5	0.91	67.5353	16.3836	13.6928	200 mm
6697	p2900	n2759	12.6099	n2760	10.329	29.9	29.9	7.63	168.5	0.89	62.1276	13.6928	11.4119	200 mm
6698	p2901	n2760	10.329	n2761	8.8428	30	30	4.96	168.5	0.8	50.1079	11.4119	9.9257	200 mm
6702	p2905	n2764	7.876	n2765	7.5591	27.5	27.5	1.15	168.5	0.65	24.1615	9.247	8.925	200 mm
6706	p2909	n2768	13.7731	n2769	12.7629	22.9	22.9	4.42	168.5	0.38	47.2833	14.856	13.8458	200 mm
6707	p2910	n2769	12.7629	n2770	9.7137	29.8	29.8	10.2	168.5	0.64	71.9166	13.8458	10.7966	200 mm
6708	p2911	n2770	9.7137	n2771	6.5642	29.8	29.8	10.6	168.5	0.72	73.1136	10.7966	7.6471	200 mm
6709	p2912	n2771	6.5642	n1911	5.7957	30	30	2.56	168.5	0.48	36.0147	7.6471	7.046	200 mm
6715	p2918	n2776	12.3092	n2777	9.9971	32.6	32.3	7.1	168.5	0.45	59.9423	13.3921	11.08	200 mm
6718	p2921	n2778	9.6318	n2777	9.9971	16.7	26.5	2.19	168.5	0.66	33.3033	10.7147	11.08	200 mm
6721	p2924	n2780	11.8803	n2781	13.9281	29.9	29.9	6.84	168.5	0.92	58.8471	12.9632	15.011	200 mm
6722	p2925	n1856	11.4023	n2782	11.5223	30	28.7	0.4	168.5	0.31	14.2287	14.295	14.0402	200 mm
6723	p2926	n2782	11.5223	n2783	11.6422	30	27.6	0.4	168.5	0.3	14.2287	14.0402	12.7251	200 mm
6726	p2929	n2785	14.9421	n2786	17.0957	29.9	29.9	7.2	168.5	0.73	60.3586	16.025	18.1786	200 mm
6727	p2930	n2786	17.0957	n2787	19.0761	26.8	26.8	7.4	168.5	0.69	61.2026	18.1786	20.159	200 mm
6728	p2931	n2787	19.0761	n2788	22.3705	29.8	29.8	11	168.5	0.53	74.7771	20.159	23.4534	200 mm
6730	p2933	n1859	11.2509	n2790	16.8641	29.6	29.6	19	168.5	1.14	98.0036	14.481	17.947	200 mm
6731	p2934	n2790	16.8641	n2791	19.9344	29.8	29.8	10.3	168.5	0.88	72.1653	17.947	21.0173	200 mm
6732	p2935	n2791	19.9344	n2792	22.3071	27.2	27.2	8.72	168.5	0.79	66.4339	21.0173	23.39	200 mm
6741	p2944	n2800	14.0256	n2799	16.6111	23.7	23.7	10.9	168.5	0.66	74.3237	15.1085	17.694	200 mm
6746	p2949	n2803	14.7961	n2781	13.9281	12.6	12.6	6.89	168.5	0.68	59.0721	15.879	15.011	200 mm
6751	p2954	n2336	6.1751	n2808	8.7951	29.9	29.7	8.77	168.5	0.66	66.6188	7.258	9.878	200 mm
6752	p2955	n2808	8.7951	n2809	11.9612	29.8	29.8	10.6	168.5	0.66	73.2941	9.878	13.0441	200 mm
6753	p2956	n2809	11.9612	n2810	15.1961	29.8	29.8	10.8	168.5	0.61	74.0988	13.0441	16.279	200 mm
6754	p2957	n2810	15.1961	n2811	18.7479	29.8	29.8	11.9	168.5	0.57	77.6825	16.279	19.8308	200 mm
6755	p2958	n2811	18.7479	n2812	21.9168	29.8	29.8	10.6	168.5	0.44	73.3278	19.8308	22.9997	200 mm

6762	p2965	n2781	13.9281	n2818	14.7174	30	30	2.63	168.5	0.54	36.5033	15.011	15.8003	200 mm
6763	p2966	n2818	14.7174	n2817	17.4651	24.7	24.7	11.1	168.5	0.86	75.0671	15.8003	18.548	200 mm
6764	p2967	n2817	17.4651	n2819	18.178	30	30	2.38	168.5	0.43	34.6872	18.548	19.2609	200 mm
6765	p2968	n2819	18.178	n2820	19.1616	30	30	3.28	168.5	0.43	40.7501	19.2609	20.2445	200 mm
6766	p2969	n2820	19.1616	n2821	20.8844	30	29.9	5.75	168.5	0.42	53.9567	20.2445	21.9673	200 mm
6771	p2974	n2825	20.4245	n2787	19.0761	30	26.4	4.5	168.5	0.47	47.7204	21.5074	20.159	200 mm
6772	p2975	n2796	23.3501	n2826	23.7605	30	30	1.37	168.5	0.31	26.313	24.433	24.8434	200 mm
6773	p2976	n2826	23.7605	n2827	24.9057	30	30	3.82	168.5	0.36	43.9703	24.8434	25.9886	200 mm
6778	p2981	n2831	25.0508	n2813	23.8491	30	30	4.01	168.5	1.14	45.0412	26.1337	24.932	200 mm
6782	p2985	n2833	22.7729	n2834	22.2611	30	29.8	1.71	168.5	0.86	29.3842	23.8558	23.344	200 mm
6785	p2988	n2836	22.1116	n2837	21.8717	60	60	0.4	168.5	0.56	14.2287	23.6024	25.026	200 mm
6786	p2989	n2837	21.8717	n2838	21.8079	16	15.9	0.4	168.5	0.61	14.2287	25.026	25.5252	200 mm
6787	p2990	n2838	21.8079	n2839	21.6879	30	30	0.4	168.5	0.62	14.2287	25.5252	25.885	200 mm
6788	p2991	n2839	21.6879	n2840	21.5728	28.8	28.8	0.4	168.5	0.62	14.2287	25.885	25.5953	200 mm
6789	p2992	n2840	21.5728	n2823	21.4528	30	30	0.4	168.5	0.62	14.2287	25.5953	25.389	200 mm
6792	p2995	n2842	21.3136	n2828	21.1437	42.5	42.5	0.4	168.5	0.62	14.2287	25.9051	26.631	200 mm
6793	p2996	n2828	21.1437	n2843	21.0357	27	27	0.4	168.5	0.63	14.2287	26.631	26.251	200 mm
6794	p2997	n2843	21.0357	n2789	20.9157	30	30	0.4	168.5	0.63	14.2287	26.251	25.497	200 mm
6795	p2998	n2789	20.9157	n2844	20.7361	44.9	44.9	0.4	168.5	0.63	14.2287	25.497	25.0518	200 mm
6796	p2999	n2844	20.7361	n2845	20.6161	30	29.5	0.4	168.5	0.63	14.2287	25.0518	25.009	200 mm
6798	p3001	n2845	20.6161	n2846	20.5314	21.2	21.7	0.4	168.5	0.64	14.2287	25.009	25.115	200 mm
6799	p3002	n2846	20.5314	n2847	20.4881	10.8	10.8	0.4	168.5	0.64	14.2287	25.115	25.1027	200 mm
6800	p3003	n2847	20.4881	n2848	20.3681	30	30	0.4	168.5	0.64	14.2287	25.1027	25.0001	200 mm
6801	p3004	n2848	20.3681	n2849	20.2481	30	30	0.4	168.5	0.64	14.2287	25.0001	24.798	200 mm
6804	p3007	n2851	14.7909	n2852	14.7981	1.8	4.5	0.4	168.5	0.65	14.2287	17.8593	17.939	200 mm
6807	p3010	n2854	19.8099	n2855	20.1455	29.9	29.9	1.12	168.5	0.94	23.8322	20.8928	23.3116	200 mm
6808	p3011	n2855	20.1455	n2849	20.2481	25.7	25.7	0.4	168.5	0.64	14.2287	23.3116	24.798	200 mm
6809	p3012	n2852	14.7981	n2856	14.8899	23	23	0.4	168.5	0.27	14.2287	17.939	16.972	200 mm
6810	p3013	n2856	14.8899	n2857	15.0071	29.3	29.3	0.4	168.5	0.25	14.2287	16.972	16.09	200 mm
6811	p3014	n2857	15.0071	n2858	17.2106	29.9	29.9	7.37	168.5	0.64	61.0632	16.09	18.2935	200 mm
6812	p3015	n2858	17.2106	n2859	19.5337	29.9	29.9	7.77	168.5	0.57	62.6998	18.2935	20.6166	200 mm
6813	p3016	n2859	19.5337	n2860	22.1927	29.9	29.9	8.9	168.5	0.49	67.1125	20.6166	23.2756	200 mm
6815	p3018	n2749	28.4712	n2861	28.5912	30	30	0.4	168.5	0.46	14.2287	32.564	32.2414	200 mm
6823	p3026	n2867	32.9579	n2868	32.838	30	30	0.4	168.5	0.16	14.2287	34.0408	34.906	200 mm
6824	p3027	n2868	32.838	n2869	32.7754	15.6	12.3	0.4	168.5	0.2	14.2287	34.906	34.095	200 mm
6827	p3030	n2871	30.1965	n2872	27.6373	29.9	30.8	8.56	168.5	0.74	65.8295	31.2794	28.7202	200 mm
6828	p3031	n2872	27.6373	n2873	24.948	29.9	29.9	9	168.5	0.79	67.4939	28.7202	26.0309	200 mm
6829	p3032	n2873	24.948	n2874	22.6081	29.9	29.9	7.82	168.5	0.8	62.9258	26.0309	23.691	200 mm
6832	p3035	n2876	22.4437	n2877	22.3086	33.8	33.8	0.4	168.5	0.31	14.2287	24.6209	25.147	200 mm
6833	p3036	n2877	22.3086	n2878	22.2486	15	15	0.4	168.5	0.32	14.2287	25.147	23.9236	200 mm
6834	p3037	n2878	22.2486	n2879	20.3046	29.9	29.9	6.5	168.5	0.88	57.3741	23.9236	21.3875	200 mm
6835	p3038	n2879	20.3046	n2880	18.2251	29.9	29.9	6.95	168.5	0.93	59.301	21.3875	19.308	200 mm
6836	p3039	n2880	18.2251	n2881	15.7795	29.9	29.9	8.18	168.5	1.01	64.3412	19.308	16.8624	200 mm
6837	p3040	n2881	15.7795	n2882	13.1682	29.9	29.9	8.74	168.5	1.06	66.4971	16.8624	14.2511	200 mm
6838	p3041	n2882	13.1682	n2883	11.161	29.9	29.9	6.71	168.5	0.98	58.2605	14.2511	12.2439	200 mm
6839	p3042	n2883	11.161	n2884	9.1955	29.9	29.9	6.57	168.5	0.99	57.6524	12.2439	10.2784	200 mm
6840	p3043	n2884	9.1955	n2767	7.689	30	30	5.03	168.5	0.92	50.4406	10.2784	8.93	200 mm
6841	p3044	n2767	7.689	n2885	7.809	30	30	0.4	168.5	0.6	14.2287	8.93	9.1587	200 mm
6842	p3045	n2885	7.809	n2886	7.9154	26.6	26.6	0.4	168.5	0.59	14.2287	9.1587	9.178	200 mm
6843	p3046	n2886	7.9154	n2887	8.0191	25.9	25.9	0.4	168.5	0.59	14.2287	9.178	9.102	200 mm
6844	p3047	n2789	20.9157	n2888	25.2549	30	30	14.5	168.5	0.7	85.576	25.497	26.3378	200 mm
6845	p3048	n2888	25.2549	n2889	26.0291	20.2	20.2	3.84	168.5	0.36	44.0985	26.3378	27.112	200 mm
6848	p3051	n2891	26.1436	n2892	26.2531	27.4	26.9	0.4	168.5	0.16	14.2287	27.335	27.336	200 mm
6850	p3053	n2893	26.5911	n2894	26.5402	12.7	12.7	0.4	168.5	0.16	14.2287	27.674	28.041	200 mm
6851	p3054	n2894	26.5402	n2895	26.3786	40.4	40.4	0.4	168.5	0.2	14.2287	28.041	28.5397	200 mm

6852	p3055	n2895	26.3786	n2896	26.1433	58.8	61.3	0.4	168.5	0.23	14.2287	28.5397	28.5138	200 mm
6855	p3058	n2898	26.0282	n2899	24.9805	30	29.9	3.5	168.5	0.57	42.0769	27.6767	26.0634	200 mm
6856	p3059	n2899	24.9805	n2900	21.7242	29.8	29.8	10.9	168.5	0.9	74.3443	26.0634	22.8071	200 mm
6857	p3060	n2900	21.7242	n2901	18.4941	29.8	29.8	10.9	168.5	0.94	74.1183	22.8071	19.577	200 mm
6868	p3073	n2912	21.9592	n1836	20.1651	37.9	37.9	4.74	168.5	0.7	48.9611	23.2901	21.248	200 mm
6872	p3077	n2914	22.994	n2916	22.3358	30	30	2.2	168.5	0.3	33.3278	24.0769	23.4187	200 mm
6873	p3078	n2916	22.3358	n2917	21.6799	30	30	2.19	168.5	0.37	33.2707	23.4187	22.7628	200 mm
6874	p3079	n2917	21.6799	n1816	20.75	30	30	3.1	168.5	0.47	39.6163	22.7628	21.93	200 mm
6876	p3081	n2918	35.1857	n2919	35.0189	41.7	41.7	0.4	168.5	0.16	14.2287	36.2686	36.2418	200 mm
6877	p3082	n2919	35.0189	n2920	34.2481	18.7	18.7	4.13	168.5	0.45	45.7357	36.2418	35.331	200 mm
6878	p3083	n2920	34.2481	n2921	33.6795	11.3	11.3	5.03	168.5	0.55	50.4443	35.331	34.7624	200 mm
6879	p3084	n2921	33.6795	n2922	32.2645	30	30	4.72	168.5	0.59	48.8919	34.7624	33.3474	200 mm
6880	p3085	n2922	32.2645	n2923	31.9391	8	8	4.06	168.5	0.6	45.3548	33.3474	33.022	200 mm
6885	p3090	n2926	29.2586	n2927	29.3786	30	30	0.4	168.5	0.41	14.2287	31.667	31.1307	200 mm
6886	p3091	n2927	29.3786	n2928	29.4986	30	30	0.4	168.5	0.4	14.2287	31.1307	30.7214	200 mm
6887	p3092	n2928	29.4986	n2929	29.5711	18.1	18.1	0.4	168.5	0.39	14.2287	30.7214	30.654	200 mm
6890	p3095	n2931	30.6209	n2932	31.8081	18.2	19	6.52	168.5	1.01	57.443	31.7038	32.891	200 mm
6892	p3097	n2933	28.9427	n2934	28.8227	30	30	0.4	168.5	0.16	14.2287	30.0256	30.334	200 mm
6893	p3098	n2934	28.8227	n2935	28.5406	19	19	1.49	168.5	0.32	27.4293	30.334	29.6235	200 mm
6894	p3099	n2935	28.5406	n2936	25.1541	42.2	42.2	8.02	168.5	0.66	63.7164	29.6235	26.237	200 mm
6895	p3100	n2936	25.1541	n2937	24.3546	28	28	2.86	168.5	0.5	38.0489	26.237	25.4375	200 mm
6896	p3101	n2937	24.3546	n2938	21.3918	29.8	29.8	9.93	168.5	0.82	70.8908	25.4375	22.4747	200 mm
6897	p3102	n2938	21.3918	n2939	17.8736	29.8	29.8	11.8	168.5	0.92	77.3149	22.4747	18.9565	200 mm
6898	p3103	n2939	17.8736	n2940	15.4151	29.9	29.9	8.22	168.5	0.85	64.5104	18.9565	16.498	200 mm
6899	p3104	n2940	15.4151	n2941	14.0931	30	29.4	4.41	168.5	0.72	47.2508	16.498	15.176	200 mm
6901	p3106	n2941	14.0931	n2942	14.0119	20.3	20.8	0.4	168.5	0.32	14.2287	15.176	18.908	200 mm
6902	p3107	n2942	14.0119	n2943	11.0688	28.4	28.4	10.4	168.5	1.03	72.4244	18.908	12.1517	200 mm
6903	p3108	n2943	11.0688	n2944	9.9161	30	28.9	3.85	168.5	0.75	44.1132	12.1517	10.999	200 mm
6907	p3112	n2947	8.04	n2948	8.1191	19.8	19.8	0.4	168.5	0.36	14.2287	9.465	9.202	200 mm
6908	p3113	n2948	8.1191	n2949	8.733	18.4	18.4	3.34	168.5	0.73	41.1062	9.202	9.8159	200 mm
6909	p3114	n2949	8.733	n2950	10.0541	30	30	4.41	168.5	0.79	47.2332	9.8159	11.137	200 mm
6910	p3115	n2950	10.0541	n2951	11.734	30	29.9	5.61	168.5	0.84	53.2815	11.137	12.8169	200 mm
6911	p3116	n2951	11.734	n2952	14.7017	29.9	29.8	9.94	168.5	0.98	70.9377	12.8169	15.7846	200 mm
6912	p3117	n2952	14.7017	n2901	18.4941	29.8	29.8	12.7	168.5	1.03	80.3111	15.7846	19.577	200 mm
6913	p3134	n2968	5.2564	n2969	5.0549	50.4	47.3	0.4	168.5	0.68	14.2287	6.982	6.9347	200 mm
6918	p3147	n2980	23.3591	n2981	21.9115	12.9	19	11.2	168.5	0.53	75.393	24.442	22.9944	200 mm
6919	p3148	n2981	21.9115	n2982	18.8027	29.8	25.4	10.4	168.5	0.64	72.6163	22.9944	19.8856	200 mm
6922	p3151	n2984	14.9008	n2985	13.9888	30	30	3.04	168.5	0.54	39.2331	15.9837	15.0717	200 mm
6923	p3152	n2985	13.9888	n2986	13.3438	30	30	2.15	168.5	0.51	32.9947	15.0717	14.4267	200 mm
6924	p3153	n2986	13.3438	n2987	12.7254	30	30	2.06	168.5	0.53	32.3049	14.4267	13.8083	200 mm
6925	p3154	n2987	12.7254	n2988	11.4476	30	30	4.26	168.5	0.71	46.4547	13.8083	12.5305	200 mm
6926	p3155	n2988	11.4476	n2989	11.3181	30	30	0.43	168.5	0.33	14.7819	12.5305	12.401	200 mm
6927	p3156	n2989	11.3181	n2990	10.8984	30	30	1.4	168.5	0.51	26.6069	12.401	11.9813	200 mm
6928	p3157	n2990	10.8984	n2991	10.5731	35.5	35.5	0.92	168.5	0.46	21.5314	11.9813	11.656	200 mm
6931	p3160	n2944	9.9161	n2993	9.674	20.7	18.5	1.17	168.5	0.63	24.3175	10.999	10.7569	200 mm
6932	p3161	n2993	9.674	n2994	9.3242	30	30	1.17	168.5	0.63	24.2933	10.7569	10.4071	200 mm
6933	p3162	n2994	9.3242	n2995	8.8637	30	30	1.54	168.5	0.71	27.8733	10.4071	9.9466	200 mm
6934	p3163	n2995	8.8637	n2887	8.0191	30	30	2.82	168.5	0.88	37.7552	9.9466	9.102	200 mm
6935	p3164	n2887	8.0191	n2996	8.2135	33.8	33.8	0.58	168.5	0.59	17.0679	9.102	9.498	200 mm
6936	p3165	n2996	8.2135	n2997	8.3905	44.3	44.3	0.4	168.5	0.52	14.2287	9.498	9.4734	200 mm
6937	p3166	n2997	8.3905	n2998	9.1687	30	30	2.6	168.5	1	36.241	9.4734	10.2516	200 mm
6938	p3167	n2998	9.1687	n2999	10.6435	30	30	4.92	168.5	1.25	49.9145	10.2516	11.7264	200 mm
6939	p3168	n2999	10.6435	n3000	12.2317	29.7	29.7	5.35	168.5	1.28	52.0523	11.7264	15.081	200 mm
6962	p3198	n3028	39.3365	n3029	40.215	30	30	2.93	168.5	0.34	38.5051	40.4194	41.2979	200 mm
6965	p3201	n2932	31.8081	n3031	34.0698	29.9	29.2	7.56	168.5	1.05	61.8647	32.891	35.1527	200 mm

6966	p3202	n3031	34.0698	n3032	35.2601	30	30	3.97	168.5	0.82	44.8361	35.1527	36.343	200 mm
6967	p3203	n3032	35.2601	n3033	35.735	30	30	1.58	168.5	0.58	28.3044	36.343	36.8179	200 mm
6968	p3204	n3033	35.735	n3034	36.3013	30	30	1.89	168.5	0.6	30.917	36.8179	37.3842	200 mm
6969	p3205	n3034	36.3013	n3026	36.8641	18.1	18.1	3.11	168.5	0.7	39.6474	37.3842	37.947	200 mm
6970	p3206	n2493	39.9091	n3035	39.2051	14.5	18.4	4.87	168.5	0.39	49.6406	40.992	40.288	200 mm
6974	p3210	n3037	38.4434	n3038	37.572	30	29.6	2.91	168.5	0.34	38.3498	39.5263	38.6549	200 mm
6976	p3212	n3038	37.572	n3039	37.2306	30	30.4	1.14	168.5	0.29	24.0002	38.6549	38.3135	200 mm
6977	p3213	n3039	37.2306	n3040	36.9009	30	30	1.1	168.5	0.33	23.584	38.3135	37.9838	200 mm
6978	p3214	n3040	36.9009	n3041	35.963	30	30	3.13	168.5	0.51	39.7864	37.9838	37.0459	200 mm
6979	p3215	n3041	35.963	n3042	34.7055	30	30	4.2	168.5	0.61	46.0831	37.0459	35.7884	200 mm
6982	p3218	n3035	39.2051	n3045	37.2018	29.9	25.9	6.69	168.5	0.54	58.2041	40.288	38.2847	200 mm
6983	p3219	n3045	37.2018	n3046	34.9627	29.9	29.9	7.48	168.5	0.64	61.5452	38.2847	36.0456	200 mm
6984	p3220	n3046	34.9627	n3047	32.942	29.9	29.9	6.75	168.5	0.67	58.4565	36.0456	34.0249	200 mm
6985	p3221	n3047	32.942	n3048	31.9068	30	30	3.45	168.5	0.57	41.8042	34.0249	32.9897	200 mm
6988	p3224	n3050	31.8008	n3051	31.6808	30	30	0.4	168.5	0.3	14.2287	32.899	33.7447	200 mm
6989	p3225	n3051	31.6808	n3052	31.561	30	29.4	0.4	168.5	0.31	14.2287	33.7447	35.2613	200 mm
6991	p3227	n3052	31.561	n3053	31.4411	30	30.6	0.4	168.5	0.32	14.2287	35.2613	36.6606	200 mm
6992	p3228	n3053	31.4411	n3054	31.3335	26.9	26.8	0.4	168.5	0.33	14.2287	36.6606	36.78	200 mm
6994	p3230	n3054	31.3335	n3055	31.1785	38.8	38.9	0.4	168.5	0.34	14.2287	36.78	36.673	200 mm
6995	p3231	n3055	31.1785	n3056	31.0585	30	30	0.4	168.5	0.35	14.2287	36.673	36.2954	200 mm
6996	p3232	n3056	31.0585	n3057	30.9385	30	30	0.4	168.5	0.36	14.2287	36.2954	35.9718	200 mm
6999	p3235	n2474	10.7021	n3060	11.2665	30	30	1.88	168.5	0.85	30.8746	11.785	12.9825	200 mm
7000	p3236	n3060	11.2665	n3061	11.3864	30	30	0.4	168.5	0.49	14.2287	12.9825	14.3898	200 mm
7001	p3237	n3061	11.3864	n3062	11.4398	13.3	13.3	0.4	168.5	0.48	14.2287	14.3898	14.945	200 mm
7002	p3238	n3062	11.4398	n3063	11.5251	21.3	21.3	0.4	168.5	0.48	14.2287	14.945	12.608	200 mm
7003	p3239	n3063	11.5251	n3064	12.5171	5.3	5.3	18.8	168.5	1.84	97.451	12.608	13.6	200 mm
7004	p3240	n3064	12.5171	n3065	17.3001	20.8	20.8	23	168.5	1.96	107.9091	13.6	18.383	200 mm
7005	p3241	n3065	17.3001	n3066	21.3342	29.7	29.7	13.6	168.5	1.61	82.8727	18.383	22.4171	200 mm
7006	p3242	n3066	21.3342	n3067	24.2865	29.8	29.8	9.89	168.5	1.43	70.7645	22.4171	25.3694	200 mm
7007	p3243	n3067	24.2865	n3068	26.1953	29.9	29.9	6.38	168.5	1.21	56.8048	25.3694	27.2782	200 mm
7008	p3244	n3068	26.1953	n3069	27.6009	30	30	4.69	168.5	1.08	48.7219	27.2782	28.6838	200 mm
7009	p3245	n3069	27.6009	n3070	28.9708	30	30	4.57	168.5	1.05	48.1	28.6838	30.0537	200 mm
7010	p3246	n3070	28.9708	n3071	30.765	59.8	59.8	3	168.5	0.9	38.9692	30.0537	34.8557	200 mm
7011	p3247	n3071	30.765	n3059	30.8174	13.1	13.1	0.4	168.5	0.44	14.2287	34.8557	36.042	200 mm
7012	p3248	n3059	30.8174	n3072	35.8489	30	30	16.8	168.5	1.25	92.1499	36.042	36.9644	200 mm
7013	p3249	n3072	35.8489	n3073	35.9267	19.5	19.4	0.4	168.5	0.33	14.2287	36.9644	37.765	200 mm
7014	p3250	n3073	35.9267	n3074	36.0419	28.8	28.8	0.4	168.5	0.32	14.2287	37.765	39.301	200 mm
7015	p3251	n3074	36.0419	n3075	38.571	30	30	8.43	168.5	0.78	65.3212	39.301	39.677	200 mm
7016	p3252	n3075	38.571	n3076	38.6909	30	30	0.4	168.5	0.25	14.2287	39.677	40.2416	200 mm
7017	p3253	n3076	38.6909	n3077	38.8109	30	30	0.4	168.5	0.23	14.2287	40.2416	40.6241	200 mm
7018	p3254	n3077	38.8109	n3078	38.8892	19.6	19.6	0.4	168.5	0.2	14.2287	40.6241	40.724	200 mm
7019	p3255	n3078	38.8892	n3079	39.0091	30	30	0.4	168.5	0.16	14.2287	40.724	40.092	200 mm
7051	p3287	n3074	36.0419	n3109	36.1541	28.1	28	0.4	168.5	0.23	14.2287	39.301	39.756	200 mm
7052	p3288	n3109	36.1541	n3110	36.2741	30	30	0.4	168.5	0.2	14.2287	39.756	39.1936	200 mm
7053	p3289	n3110	36.2741	n3111	36.3939	30	30	0.4	168.5	0.16	14.2287	39.1936	37.4768	200 mm
7087	p3323	n3141	28.7213	n3142	27.0174	30	30	5.69	168.5	0.78	53.6616	29.8042	28.1003	200 mm
7088	p3324	n3142	27.0174	n3143	26.0166	30	30	3.34	168.5	0.67	41.1039	28.1003	27.0995	200 mm
7089	p3325	n3143	26.0166	n3144	25.3982	30	30	2.06	168.5	0.59	32.3072	27.0995	26.4811	200 mm
7103	p3339	n3155	24.9011	n3156	24.5659	30	30	1.12	168.5	0.5	23.7801	25.984	25.6488	200 mm
7104	p3340	n3156	24.5659	n3157	23.9061	30	30	2.2	168.5	0.65	33.3696	25.6488	24.989	200 mm
7108	p3347	n3163	22.4875	n3164	22.4483	9.8	8.5	0.4	168.5	0.39	14.2287	26.612	26.565	200 mm
7109	p3348	n3164	22.4483	n3165	22.4261	5.6	5.1	0.4	168.5	0.4	14.2287	26.565	26.154	200 mm
7110	p3349	n3165	22.4261	n3007	22.3677	14.6	15.8	0.4	168.5	0.41	14.2287	26.154	25.312	200 mm
7112	p3354	n3169	22.3944	n3170	22.2744	30	30	0.4	168.5	0.41	14.2287	23.4773	24.1778	200 mm
7115	p3357	n3172	22.0975	n3173	17.3356	25.7	25.7	18.5	168.5	1.63	96.7657	23.5576	21.967	200 mm

7116	p3358	n3173	17.3356	n3174	17.216	29.9	29.9	0.4	168.5	0.46	14.2287	21.967	19.3662	200 mm
7117	p3359	n3174	17.216	n3175	15.4185	29.9	29.9	6.02	168.5	1.21	55.1985	19.3662	16.5014	200 mm
7118	p3360	n3175	15.4185	n3176	12.3068	29.8	29.8	10.4	168.5	1.49	72.6496	16.5014	13.3897	200 mm
7119	p3361	n3176	12.3068	n3177	9.3841	29.9	29.9	9.79	168.5	1.47	70.3855	13.3897	10.467	200 mm
7120	p3362	n3177	9.3841	n3178	7.1703	29.9	29.9	7.4	168.5	1.34	61.1964	10.467	8.2532	200 mm
7121	p3363	n3178	7.1703	n3179	6.0402	30	30	3.77	168.5	1.07	43.6868	8.2532	7.1231	200 mm
7124	p3366	n3181	5.8887	n2972	5.7687	30	30	0.4	168.5	0.49	14.2287	6.9793	7.0097	200 mm
7125	p3367	n2970	4.9172	n3182	5.6348	38.9	38.9	1.84	168.5	0.98	30.549	6.988	6.7724	200 mm
7128	p3370	n3184	5.8363	n3185	5.9811	12.5	12.5	1.16	168.5	0.83	24.2178	6.9192	7.064	200 mm
7129	p3371	n3185	5.9811	n3186	6.2093	30	30	0.76	168.5	0.67	19.6197	7.064	7.2922	200 mm
7130	p3372	n3186	6.2093	n3187	6.6057	30	30	1.32	168.5	0.8	25.8635	7.2922	7.6886	200 mm
7131	p3373	n3187	6.6057	n3188	7.1699	30	30	1.88	168.5	0.91	30.8564	7.6886	8.2528	200 mm
7132	p3374	n3188	7.1699	n3189	8.0855	30	30	3.05	168.5	1.07	39.3107	8.2528	9.1684	200 mm
7133	p3375	n3189	8.0855	n3190	9.3336	30	30	4.16	168.5	1.19	45.9104	9.1684	10.4165	200 mm
7134	p3376	n3190	9.3336	n3191	10.6485	30	30	4.39	168.5	1.2	47.1239	10.4165	11.7314	200 mm
7135	p3377	n3191	10.6485	n3192	12.1618	30	30	5.05	168.5	1.25	50.5619	11.7314	13.2447	200 mm
7136	p3378	n3192	12.1618	n3193	13.7055	30	30	5.15	168.5	1.25	51.067	13.2447	14.7884	200 mm
7137	p3379	n3193	13.7055	n3194	14.4741	14.2	14.2	5.42	168.5	1.27	52.3605	14.7884	15.557	200 mm
7275	p3518	n3334	30.7312	n3335	30.6112	30	30	0.4	168.5	0.16	14.2287	31.8141	32.4229	200 mm
7276	p3519	n3335	30.6112	n3336	30.4912	30	30	0.4	168.5	0.2	14.2287	32.4229	33.2	200 mm
7277	p3520	n3336	30.4912	n3337	30.412	19.8	19.8	0.4	168.5	0.23	14.2287	33.2	32.6117	200 mm
7278	p3521	n3337	30.412	n3338	29.381	29.9	29.9	3.45	168.5	0.53	41.7618	32.6117	30.4639	200 mm
7279	p3522	n3338	29.381	n3339	25.4962	29.7	29.7	13.1	168.5	0.9	81.3247	30.4639	26.5791	200 mm
7280	p3523	n3339	25.4962	n3340	20.5501	29.6	29.6	16.7	168.5	1.04	91.9962	26.5791	21.633	200 mm
7281	p3524	n3340	20.5501	n3341	18.1014	29.9	29.9	8.2	168.5	0.85	64.4029	21.633	19.1843	200 mm
7282	p3525	n3341	18.1014	n3342	17.6298	30	30	1.57	168.5	0.5	28.2087	19.1843	18.7127	200 mm
7285	p3528	n3344	7.8475	n3345	6.5448	30	30	4.35	168.5	0.79	46.905	8.9304	7.6277	200 mm
7286	p3529	n3345	6.5448	n3185	5.9811	30	30	1.88	168.5	0.6	30.8438	7.6277	7.064	200 mm
7352	p3596	n3160	22.7911	n3161	22.6874	25.9	25.9	0.4	168.5	0.37	14.2287	23.874	25.4846	200 mm
7353	p3597	n3161	22.6874	n3162	22.5675	30	30	0.4	168.5	0.38	14.2287	25.4846	26.708	200 mm
7354	p3598	n3162	22.5675	n3163	22.4875	20	20	0.4	168.5	0.39	14.2287	26.708	26.612	200 mm
7357	p3601	n3166	23.6853	n3167	20.4636	29.8	29.8	10.8	168.5	0.53	73.9358	24.7682	21.5465	200 mm
7358	p3602	n3167	20.4636	n3168	17.8128	29.9	29.9	8.87	168.5	0.61	67.0082	21.5465	18.8957	200 mm
7359	p3603	n3168	17.8128	n3411	15.7724	29.9	29.9	6.82	168.5	0.62	58.7418	18.8957	16.8553	200 mm
7360	p3604	n3411	15.7724	n3412	15.4191	30	32.9	1.18	168.5	0.36	24.413	16.8553	16.502	200 mm
7361	p3605	n3412	15.4191	n3413	15.3857	8.4	5.5	0.4	168.5	0.27	14.2287	16.502	18.2	200 mm
7362	p3606	n3413	15.3857	n3414	15.3085	19.3	19.3	0.4	168.5	0.28	14.2287	18.2	17.97	200 mm
7363	p3607	n3414	15.3085	n3415	15.1924	29	29	0.4	168.5	0.3	14.2287	17.97	18.535	200 mm
7364	p3608	n3415	15.1924	n3416	15.1727	4.9	4.9	0.4	168.5	0.31	14.2287	18.535	18.3841	200 mm
7365	p3609	n3416	15.1727	n3417	15.0528	30	30	0.4	168.5	0.32	14.2287	18.3841	17.4442	200 mm
7366	p3610	n3417	15.0528	n3418	14.1631	29.9	29.9	2.97	168.5	0.67	38.794	17.4442	15.246	200 mm
7367	p3611	n3007	22.3677	n3006	22.3286	9.8	9.8	0.4	168.5	0.41	14.2287	25.312	25.1827	200 mm
7368	p3612	n3006	22.3286	n3005	22.2086	30	30	0.4	168.5	0.42	14.2287	25.1827	24.955	200 mm
7369	p3613	n3005	22.2086	n3004	22.055	38.4	38.4	0.4	168.5	0.42	14.2287	24.955	24.602	200 mm
7370	p3614	n3004	22.055	n3003	22.0345	5.1	5.1	0.4	168.5	0.43	14.2287	24.602	24.4669	200 mm
7371	p3615	n3003	22.0345	n3002	21.2106	29.9	29.9	2.76	168.5	0.86	37.3402	24.4669	22.2935	200 mm
7372	p3616	n3002	21.2106	n3001	18.0357	29.8	29.8	10.6	168.5	1.39	73.3966	22.2935	19.1186	200 mm
7373	p3617	n3001	18.0357	n3000	12.2317	29.7	29.7	19.5	168.5	1.75	99.4195	19.1186	15.081	200 mm
7374	p3618	n3000	12.2317	n3419	12.3517	30	30	0.4	168.5	0.38	14.2287	15.081	14.0304	200 mm
7375	p3619	n3419	12.3517	n3420	12.4501	24.6	24.6	0.4	168.5	0.37	14.2287	14.0304	13.533	200 mm
7376	p3620	n3420	12.4501	n3421	13.4776	30	30	3.43	168.5	0.78	41.6504	13.533	14.648	200 mm
7377	p3621	n3421	13.4776	n3422	13.5839	26.6	26.6	0.4	168.5	0.36	14.2287	14.648	15.172	200 mm
7378	p3622	n3422	13.5839	n3423	13.7039	30	30	0.4	168.5	0.35	14.2287	15.172	14.7868	200 mm
7379	p3623	n3423	13.7039	n3418	14.1631	29.7	29.7	1.55	168.5	0.55	27.9606	14.7868	15.246	200 mm
7387	p3631	n2954	7.3344	n2955	6.8683	30	30	1.55	168.5	1.11	28.0463	8.4173	7.9512	200 mm

7388	p3632	n2955	6.8683	n2956	6.7483	30	30	0.4	168.5	0.67	14.2287	7.9512	7.8314	200 mm
7389	p3633	n2956	6.7483	n2957	6.5554	30	30	0.64	168.5	0.8	18.0378	7.8314	7.6383	200 mm
7390	p3634	n2957	6.5554	n2958	6.3305	30	30	0.75	168.5	0.85	19.4801	7.6383	7.4134	200 mm
7391	p3635	n2958	6.3305	n2959	6.2105	30	30	0.4	168.5	0.67	14.2287	7.4134	7.3151	200 mm
7392	p3636	n2959	6.2105	n2960	6.0905	30	30	0.4	168.5	0.68	14.2287	7.3151	7.275	200 mm
7393	p3637	n2960	6.0905	n2961	6.0397	12.7	12.7	0.4	168.5	0.68	14.2287	7.275	7.282	200 mm
7394	p3638	n2961	6.0397	n2962	5.9197	30	30	0.4	168.5	0.68	14.2287	7.282	7.284	200 mm
7398	p3642	n2965	5.5907	n2966	5.4883	25.6	25.6	0.4	168.5	0.68	14.2287	7.003	7.058	200 mm
7399	p3643	n2966	5.4883	n2967	5.3764	28	28	0.4	168.5	0.68	14.2287	7.058	7.0377	200 mm
7400	p3644	n2967	5.3764	n2968	5.2564	30	30	0.4	168.5	0.68	14.2287	7.0377	6.982	200 mm
7404	p3648	n2969	5.0549	n2970	4.9172	34.4	34.4	0.4	168.5	0.69	14.2287	6.9347	6.988	200 mm
7406	p3650	n3431	18.9351	n3432	18.2169	33.7	33.7	2.13	168.5	0.29	32.8532	20.018	19.2998	200 mm
7407	p3651	n3432	18.2169	n3433	18.0282	47.2	47.2	0.4	168.5	0.2	14.2287	19.2998	20.021	200 mm
7410	p3654	n3435	17.8698	n3436	17.7499	30	30	0.4	168.5	0.25	14.2287	20.2928	20.8762	200 mm
7411	p3655	n3436	17.7499	n3437	17.6299	30	30	0.4	168.5	0.27	14.2287	20.8762	21.2958	200 mm
7414	p3658	n3439	17.499	n3173	17.3356	40.9	40.9	0.4	168.5	0.3	14.2287	22.62	21.967	200 mm
7417	p3661	n2974	26.2826	n2975	25.5115	30	47.7	2.57	168.5	0.32	36.0724	27.3655	26.5944	200 mm
7418	p3662	n2975	25.5115	n2976	24.1622	30	30	4.5	168.5	0.47	47.7376	26.5944	25.2451	200 mm
7419	p3663	n2976	24.1622	n2977	22.2194	29.9	29.9	6.49	168.5	0.61	57.3087	25.2451	23.3023	200 mm
7420	p3664	n2977	22.2194	n2978	20.0975	29.9	29.9	7.09	168.5	0.68	59.912	23.3023	21.1804	200 mm
7421	p3665	n2978	20.0975	n1839	18.6621	30	30	4.79	168.5	0.64	49.2358	21.1804	19.745	200 mm
7424	p3668	n3440	25.8724	n2910	25.3717	30	30	1.67	168.5	0.38	29.0653	26.9553	26.4546	200 mm
7425	p3669	n2910	25.3717	n3441	22.1581	29.8	24.5	10.8	168.5	0.79	73.8422	26.4546	23.241	200 mm
7426	p3670	n3441	22.1581	n2911	22.0463	28	33.1	0.4	168.5	0.27	14.2287	23.241	24.157	200 mm
7427	p3671	n2911	22.0463	n2912	21.9592	21.8	21.8	0.4	168.5	0.28	14.2287	24.157	23.2901	200 mm
7435	p3679	n3447	23.1739	n3448	23.2939	30	30	0.4	168.5	0.4	14.2287	26.8855	26.7872	200 mm
7436	p3680	n3448	23.2939	n3449	23.4139	30	30	0.4	168.5	0.36	14.2287	26.7872	26.6073	200 mm
7437	p3681	n3449	23.4139	n3450	23.5339	30	30	0.4	168.5	0.36	14.2287	26.6073	26.4483	200 mm
7438	p3682	n3450	23.5339	n3451	23.6539	30	30	0.4	168.5	0.35	14.2287	26.4483	26.3825	200 mm
7439	p3683	n3451	23.6539	n3452	23.7739	30	30	0.4	168.5	0.34	14.2287	26.3825	26.2266	200 mm
7440	p3684	n3452	23.7739	n3453	23.8779	26	26	0.4	168.5	0.33	14.2287	26.2266	26.035	200 mm
7445	p3689	n3457	24.1721	n3458	25.8433	30	29.9	5.58	168.5	0.74	53.1434	25.255	26.9262	200 mm
7446	p3690	n3458	25.8433	n3459	27.4911	30	30	5.5	168.5	0.7	52.7704	26.9262	28.574	200 mm
7447	p3691	n3459	27.4911	n3460	28.3676	30	30	2.92	168.5	0.53	38.4603	28.574	29.4505	200 mm
7452	p3696	n3464	28.1135	n3465	28.0992	3.6	6.6	0.4	168.5	0.23	14.2287	29.1964	29.243	200 mm
7453	p3697	n3465	28.0992	n3466	25.4062	29.9	26.9	9.02	168.5	0.74	67.5518	29.243	26.4891	200 mm
7454	p3698	n3466	25.4062	n3467	21.9938	29.8	29.8	11.5	168.5	0.86	76.1298	26.4891	23.0767	200 mm
7455	p3699	n3467	21.9938	n3468	19.5296	29.9	29.9	8.24	168.5	0.81	64.5856	23.0767	20.6125	200 mm
7456	p3700	n3468	19.5296	n3469	18.0771	30	30	4.85	168.5	0.71	49.5369	20.6125	19.16	200 mm
7459	p3703	n3471	17.1754	n3472	14.3006	29.5	27.1	9.74	168.5	1	70.2077	18.281	15.3835	200 mm
7460	p3704	n3472	14.3006	n3473	12.2214	29.9	29.9	6.95	168.5	0.93	59.296	15.3835	13.3043	200 mm
7461	p3705	n3473	12.2214	n3474	9.3683	29.9	29.9	9.56	168.5	1.07	69.5433	13.3043	10.4512	200 mm
7462	p3706	n3474	9.3683	n3475	7.54	29.9	29.9	6.11	168.5	0.93	55.5938	10.4512	8.6229	200 mm
7463	p3707	n3475	7.54	n3476	6.1924	30	30	4.5	168.5	0.85	47.7065	8.6229	7.2753	200 mm
7464	p3708	n3476	6.1924	n3477	5.7098	30	30	1.61	168.5	0.61	28.5394	7.2753	6.7927	200 mm
7467	p3711	n3479	4.8701	n3480	4.7501	30	30	0.4	168.5	0.39	14.2287	5.953	6.0896	200 mm
7470	p3714	n3482	4.5871	n3483	4.294	30	30	0.98	168.5	0.55	22.2382	5.67	5.8203	200 mm
7511	p3757	n3524	4.1578	n3525	4.0378	30	30	0.4	168.5	0.61	14.2287	6.1025	6.2226	200 mm
7514	p3760	n3483	4.294	n3528	4.414	30	30.3	0.4	168.5	0.57	14.2287	5.8203	5.7834	200 mm
7515	p3761	n3528	4.414	n3529	4.534	30	30	0.4	168.5	0.57	14.2287	5.7834	5.6169	200 mm
7521	p3768	n3535	6.0645	n3536	7.9522	30	30	6.29	168.5	1.07	56.4435	8.577	9.0351	200 mm
7523	p3770	n3537	8.9438	n3538	10.4043	30	30	4.88	168.5	0.93	49.671	10.0267	11.4872	200 mm
7525	p3772	n3539	12.1422	n3540	13.8923	29.9	29.9	5.85	168.5	0.94	54.3924	13.2251	14.9752	200 mm
7526	p3773	n3540	13.8923	n3541	15.8681	23.3	23.3	8.5	168.5	1.05	65.57	14.9752	16.951	200 mm
7529	p3776	n3543	3.7597	n3544	3.6919	16.9	16.9	0.4	168.5	0.62	14.2287	6.319	6.419	200 mm

7530	p3777	n3544	3.6919	n3545	3.5874	26.1	27.3	0.4	168.5	0.62	14.2287	6.419	6.409	200 mm
7531	p3778	n3545	3.5874	n3546	3.4942	23.3	21.2	0.4	168.5	0.62	14.2287	6.409	6.436	200 mm
7532	p3779	n3546	3.4942	n3547	3.3742	30	30	0.4	168.5	0.62	14.2287	6.436	6.1877	200 mm
7533	p3780	n3547	3.3742	n3548	3.3134	15.2	15.2	0.4	168.5	0.63	14.2287	6.1877	5.884	200 mm
7534	p3781	n3548	3.3134	n3549	3.1934	30	30	0.4	168.5	0.63	14.2287	5.884	6.1193	200 mm
7535	p3782	n3549	3.1934	n3550	3.0944	24.8	24.8	0.4	168.5	0.63	14.2287	6.1193	6.243	200 mm
7536	p3783	n3550	3.0944	n3551	2.9886	26.4	26.4	0.4	168.5	0.63	14.2287	6.243	6.226	200 mm
7537	p3784	n3551	2.9886	n3552	2.8686	30	30	0.4	168.5	0.63	14.2287	6.226	6.3861	200 mm
7540	p3787	n3554	2.7233	n3555	2.6033	30	30	0.4	168.5	0.64	14.2287	6.2996	6.2576	200 mm
7541	p3788	n3555	2.6033	n3556	2.5391	16	17.3	0.4	168.5	0.64	14.2287	6.2576	6.061	200 mm
7544	p3791	n3558	6.1301	n3559	6.2501	30	30	0.4	168.5	0.5	14.2287	8.715	8.5303	200 mm
7545	p3792	n3559	6.2501	n3560	6.37	30	30	0.4	168.5	0.49	14.2287	8.5303	7.7907	200 mm
7546	p3793	n3560	6.37	n3561	6.4568	21.7	21.7	0.4	168.5	0.49	14.2287	7.7907	7.554	200 mm
7547	p3794	n3561	6.4568	n3562	6.5768	30	30	0.4	168.5	0.49	14.2287	7.554	7.8742	200 mm
7551	p3798	n3565	6.7921	n3566	9.2896	29.8	29.8	8.39	168.5	1.39	65.1518	7.875	10.4623	200 mm
7552	p3799	n3566	9.2896	n3567	9.3107	5.3	5.3	0.4	168.5	0.47	14.2287	10.4623	11.454	200 mm
7553	p3800	n3567	9.3107	n3568	9.4768	41.5	41.5	0.4	168.5	0.46	14.2287	11.454	10.5597	200 mm
7554	p3801	n3568	9.4768	n3569	10.7909	30	30	4.39	168.5	1.07	47.1104	10.5597	11.8738	200 mm
7555	p3802	n3569	10.7909	n3570	12.3523	30	30	5.21	168.5	1.13	51.3599	11.8738	13.4352	200 mm
7557	p3804	n3572	13.5281	n3573	14.5278	30	30	3.34	168.5	0.48	41.0822	14.611	15.6107	200 mm
7558	p3805	n3573	14.5278	n3574	16.5559	29.9	29.9	6.78	168.5	0.54	58.5636	15.6107	17.6388	200 mm
7561	p3808	n3576	19.1171	n3577	18.0379	30	30	3.6	168.5	0.35	42.691	20.2	19.1208	200 mm
7562	p3809	n3577	18.0379	n3578	16.6432	30	30	4.65	168.5	0.48	48.5333	19.1208	17.7261	200 mm
7563	p3810	n3578	16.6432	n3541	15.8681	19.2	19.2	4.04	168.5	0.51	45.1903	17.7261	16.951	200 mm
7564	p3811	n3541	15.8681	n3580	16.8973	30	30.3	3.43	168.5	0.68	41.6849	16.951	17.9802	200 mm
7565	p3812	n3581	25.0571	n3582	26.6213	29.9	29.9	5.23	168.5	0.55	51.4578	26.14	28.5875	200 mm
7566	p3813	n3582	26.6213	n3583	26.7401	29.7	29.7	0.4	168.5	0.2	14.2287	28.5875	29.595	200 mm
7582	p3829	n3580	16.8973	n3599	18.024	30	30	3.76	168.5	0.68	43.6131	17.9802	19.1069	200 mm
7583	p3830	n3599	18.024	n3600	19.7578	30	29.9	5.79	168.5	0.75	54.1295	19.1069	20.8407	200 mm
7584	p3831	n3600	19.7578	n3601	22.3072	29.9	29.9	8.53	168.5	0.82	65.7034	20.8407	23.3901	200 mm
7585	p3832	n3601	22.3072	n3602	24.9252	29.9	29.9	8.77	168.5	0.79	66.605	23.3901	26.0081	200 mm
7586	p3833	n3602	24.9252	n3581	25.0571	19.9	19.9	0.66	168.5	0.3	18.311	26.0081	26.14	200 mm
7646	p3893	n3661	16.0288	n3662	13.2556	29.9	29.9	9.28	168.5	1.13	68.5491	17.1117	14.3385	200 mm
7647	p3894	n3662	13.2556	n3663	10.329	29.9	29.9	9.8	168.5	1.17	70.4322	14.3385	11.4119	200 mm
7648	p3895	n3663	10.329	n3664	8.092	29.9	38.2	7.48	168.5	1.08	61.5263	11.4119	9.1749	200 mm
7649	p3896	n3664	8.092	n3665	6.4263	30	21.7	5.56	168.5	0.99	53.0567	9.1749	7.5092	200 mm
7650	p3897	n3665	6.4263	n3666	5.7982	30	30	2.09	168.5	0.71	32.5593	7.5092	6.8811	200 mm
7651	p3898	n3666	5.7982	n3667	5.6015	30	30	0.66	168.5	0.48	18.2154	6.8811	6.6844	200 mm
7654	p3901	n3669	5.3711	n3670	5.2511	30	30	0.4	168.5	0.42	14.2287	6.454	6.5676	200 mm
7655	p3903	n3670	5.2511	n3672	5.1311	30	30.6	0.4	168.5	0.42	14.2287	6.5676	6.5108	200 mm
7656	p3904	n3672	5.1311	n3673	5.0111	30	30	0.4	168.5	0.43	14.2287	6.5108	6.2385	200 mm
7657	p3905	n3673	5.0111	n3674	4.8911	30	30	0.4	168.5	0.43	14.2287	6.2385	6.1734	200 mm
7658	p3906	n3674	4.8911	n3556	2.5391	20.3	17.9	11.6	168.5	1.43	76.5023	6.1734	6.061	200 mm
7659	p3907	n3556	2.5391	n3675	2.4191	30	30.9	0.4	168.5	0.67	14.2287	6.061	6.098	200 mm
7660	p3908	n3675	2.4191	n3676	4.9795	16.9	18	15.1	168.5	1.05	87.5422	6.098	6.119	200 mm
7661	p3909	n3676	4.9795	n3677	5.0101	7.6	7.6	0.4	168.5	0.28	14.2287	6.119	6.093	200 mm
7662	p3910	n3677	5.0101	n3678	5.3301	30	30	1.07	168.5	0.38	23.2351	6.093	6.413	200 mm
7663	p3911	n3678	5.3301	n3679	5.9024	30	30	1.91	168.5	0.43	31.0786	6.413	6.9853	200 mm
7664	p3912	n3679	5.9024	n3680	7.421	30	30	5.07	168.5	0.55	50.6501	6.9853	8.5039	200 mm
7665	p3913	n3680	7.421	n3681	9.5433	29.9	29.9	7.09	168.5	0.55	59.918	8.5039	10.6262	200 mm
7670	p3918	n3685	16.2887	n3686	16.1953	23.4	23.4	0.4	168.5	0.16	14.2287	17.3716	17.389	200 mm
7671	p3919	n3686	16.1953	n3687	15.1791	24.2	24.2	4.2	168.5	0.46	46.1009	17.389	16.262	200 mm
7672	p3920	n3687	15.1791	n3688	13.8453	30	30	4.45	168.5	0.92	47.4604	16.262	14.9282	200 mm
7675	p3923	n3687	15.1791	n3689	16.8523	30	29.9	5.59	168.5	0.94	53.1748	16.262	17.9352	200 mm
7676	p3924	n3689	16.8523	n3690	18.6127	30	29.9	5.88	168.5	0.94	54.5434	17.9352	19.6956	200 mm

7677	p3925	n3690	18.6127	n3691	19.5402	30	30	3.09	168.5	0.73	39.5707	19.6956	20.6231	200 mm
7680	p3928	n3693	21.043	n3694	23.125	29.9	29.9	6.96	168.5	0.89	59.3375	22.1259	24.2079	200 mm
7686	p3934	n3699	31.2531	n3700	32.5501	30	30	4.33	168.5	0.61	46.809	32.336	33.7098	200 mm
7687	p3935	n3700	32.5501	n3701	32.6701	30	30	0.4	168.5	0.25	14.2287	33.7098	33.753	200 mm
7688	p3936	n3701	32.6701	n3702	33.3887	30	30	2.4	168.5	0.43	34.8251	33.753	34.4716	200 mm
7689	p3937	n3702	33.3887	n3703	34.3933	30	30	3.35	168.5	0.43	41.1832	34.4716	35.4762	200 mm
7690	p3938	n3703	34.3933	n3704	34.6281	23.9	23.9	0.98	168.5	0.22	22.3179	35.4762	35.711	200 mm
7693	p3941	n3706	28.3162	n3707	23.4368	29.6	29.6	16.5	168.5	0.84	91.3416	29.3991	24.5197	200 mm
7694	p3942	n3707	23.4368	n3708	19.9307	29.8	29.8	11.8	168.5	0.82	77.1952	24.5197	21.0136	200 mm
7699	p3947	n3712	2.2556	n3713	2.117	34.7	34.7	0.4	168.5	0.68	14.2287	6.5095	6.412	200 mm
7700	p3948	n3713	2.117	n3714	5.1461	13	13	23.4	168.5	1.68	108.7653	6.412	6.229	200 mm
7701	p3949	n3714	5.1461	n3715	5.3238	22.2	28	0.8	168.5	0.5	20.1406	6.229	6.4067	200 mm
7702	p3950	n3715	5.3238	n3716	5.7466	30	24.2	1.41	168.5	0.61	26.7179	6.4067	6.893	200 mm
7705	p3953	n3718	5.7903	n3719	6.0254	30	29.3	0.78	168.5	0.47	19.9169	6.8732	7.1083	200 mm
7706	p3954	n3719	6.0254	n3720	6.5128	30	30	1.63	168.5	0.6	28.6816	7.1083	7.5957	200 mm
7707	p3955	n3720	6.5128	n3721	7.5189	30	30	3.36	168.5	0.75	41.2138	7.5957	8.6018	200 mm
7708	p3956	n3721	7.5189	n3722	8.8316	30	30	4.38	168.5	0.81	47.0842	8.6018	9.9145	200 mm
7709	p3957	n3722	8.8316	n3723	10.6829	29.9	29.9	6.18	168.5	0.89	55.9422	9.9145	11.7658	200 mm
7710	p3958	n3723	10.6829	n3724	12.9611	29.9	29.9	7.62	168.5	0.92	62.0907	11.7658	14.044	200 mm
7711	p3959	n3684	14.9801	n3725	14.8675	28.2	28	0.4	168.5	0.16	14.2287	16.063	16.316	200 mm
7712	p3960	n3725	14.8675	n3724	12.9611	25.6	25.6	7.46	168.5	0.56	61.4408	16.316	14.044	200 mm
7715	p3963	n3727	14.8452	n3728	18.6552	29.8	29.8	12.8	168.5	0.95	80.4971	15.9281	19.7381	200 mm
7717	p3965	n3730	24.4611	n3731	25.5525	28.7	28.7	3.81	168.5	0.55	43.9017	25.544	26.989	200 mm
7719	p3967	n3731	25.5525	n3732	25.6211	17.2	25.6	0.4	168.5	0.23	14.2287	26.989	26.704	200 mm
7731	p3979	n3743	17.3359	n3744	16.3863	30	30	3.17	168.5	0.33	40.0536	18.4188	17.4692	200 mm
7732	p3980	n3744	16.3863	n3745	13.952	29.9	29.9	8.14	168.5	0.58	64.1929	17.4692	15.0349	200 mm
7733	p3981	n3745	13.952	n3746	11.1831	29.9	29.9	9.27	168.5	0.68	68.497	15.0349	12.266	200 mm
7736	p3984	n3748	10.32	n3749	9.3401	30	30	3.27	168.5	0.56	40.6737	11.4029	10.423	200 mm
7737	p3985	n3749	9.3401	n3750	9.297	10.8	10.8	0.4	168.5	0.28	14.2287	10.423	13.36	200 mm
7740	p3988	n3752	9.7751	n3753	10.3992	30	30	2.08	168.5	0.82	32.4547	10.858	11.4821	200 mm
7741	p3989	n3753	10.3992	n3754	12.0108	30	29.9	5.38	168.5	1.13	52.1871	11.4821	13.0937	200 mm
7742	p3990	n3754	12.0108	MH-258	13.807	30	30	6	168.5	1.16	55.095	13.0937	14.8899	200 mm
7744	p3992	MH-259	15.3854	n3757	17.2006	29.9	29.9	6.06	168.5	1.17	55.3952	16.4683	18.2835	200 mm
7745	p3993	n3757	17.2006	n3758	17.6371	29.9	29.9	1.46	168.5	0.7	27.1826	18.2835	20.6675	200 mm
7746	p3994	n3758	17.6371	n3759	17.7567	29.9	29.9	0.4	168.5	0.44	14.2287	20.6675	23.1042	200 mm
7747	p3995	n3759	17.7567	n3760	17.8462	22.4	22.4	0.4	168.5	0.43	14.2287	23.1042	23.1	200 mm
7750	p3998	n3750	9.297	n3763	8.3426	18.2	18.2	5.23	168.5	1.21	51.4625	13.36	9.4255	200 mm
7751	p3999	n3763	8.3426	n3764	7.4121	30	30	3.1	168.5	1.02	39.6342	9.4255	8.495	200 mm
7754	p4002	n3766	7.2534	LS 12	7.1338	29.9	29.9	0.4	168.5	0.5	14.2287	9.1445	11.0761	200 mm
7813	p4063	n3819	4.5997	n3820	4.4063	69.1	61.4	0.28	210.7	0.69	21.6049	6.663	6.537	250 mm
7814	p4064	n3820	4.4063	n3821	4.3484	20.7	20.7	0.28	210.7	0.69	21.6049	6.537	6.536	250 mm
7815	p4065	n3821	4.3484	n3822	4.2644	30	30	0.28	210.7	0.69	21.6049	6.536	6.6389	250 mm
7816	p4066	n3822	4.2644	n3823	4.2086	20	20	0.28	210.7	0.69	21.6049	6.6389	6.672	250 mm
7817	p4067	n3823	4.2086	n3824	4.1498	21	21	0.28	210.7	0.69	21.6049	6.672	6.538	250 mm
7818	p4068	n3824	4.1498	n3825	4.0798	25	25	0.28	210.7	0.69	21.6049	6.538	6.553	250 mm
7819	p4069	n3825	4.0798	n3826	3.9958	30	30	0.28	210.7	0.69	21.6049	6.553	6.4853	250 mm
7820	p4070	n3826	3.9958	n3827	3.9499	16.4	16.4	0.28	210.7	0.69	21.6049	6.4853	6.463	250 mm
7822	p4072	MH-274	1.5423	n3829	1.6047	15.6	15.6	0.4	168.5	0.71	14.2287	6.5015	6.529	200 mm
7823	p4073	n3829	1.6047	n3830	1.683	19.6	19.6	0.4	168.5	0.71	14.2287	6.529	6.477	200 mm
7824	p4074	n3830	1.683	n3831	1.803	30	30	0.4	168.5	0.71	14.2287	6.477	6.6002	200 mm
7825	p4075	n3831	1.803	n3832	1.8909	22	22	0.4	168.5	0.71	14.2287	6.6002	6.987	200 mm
7826	p4076	n3832	1.8909	n3833	1.9269	9	9	0.4	168.5	0.71	14.2287	6.987	6.324	200 mm
7827	p4077	n3833	1.9269	n3834	2.0469	30	28.9	0.4	168.5	0.7	14.2287	6.324	6.4689	200 mm
7828	p4078	n3834	2.0469	n3713	2.117	17.5	17.5	0.4	168.5	0.7	14.2287	6.4689	6.412	200 mm
7852	p4102	n3858	26.6651	n3859	25.4623	30	30	4.01	168.5	0.36	45.071	27.748	26.5452	200 mm

7853	p4103	n3859	25.4623	n3860	23.4829	29.9	29.9	6.61	168.5	0.54	57.8555	26.5452	24.5658	200 mm
7886	p4137	n3861	21.9161	n3891	21.7962	30	30	0.4	168.5	0.25	14.2287	22.999	24.2394	200 mm
7887	p4139	n3891	21.7962	n3893	21.6763	30	30.6	0.4	168.5	0.27	14.2287	24.2394	23.6494	200 mm
7892	p4144	LS 13	11.3238	n3710	11.4394	28.9	29.2	0.4	168.5	0.38	14.2287	16	16.93	200 mm
7894	p4146	n3710	11.4394	n3898	11.559	29.9	30	0.4	168.5	0.33	14.2287	16.93	14.7577	200 mm
7895	p4147	n3898	11.559	n3899	11.6788	30	29.9	0.4	168.5	0.32	14.2287	14.7577	13.0026	200 mm
7896	p4148	n3899	11.6788	n3835	11.7481	17.3	17.3	0.4	168.5	0.31	14.2287	13.0026	12.831	200 mm
7910	p4162	n3572	13.5281	n3911	14.7054	30	30	3.93	168.5	0.63	44.5819	14.611	15.7883	200 mm
7913	p4165	n3913	19.0067	n3914	21.5008	29.9	29.9	8.34	168.5	0.67	64.9768	20.0896	22.5837	200 mm
7914	p4166	n3914	21.5008	n3915	24.0445	29.9	29.9	8.51	168.5	0.59	65.6304	22.5837	25.1274	200 mm
7915	p4167	n3915	24.0445	n3916	26.1144	29.9	29.9	6.92	168.5	0.45	59.1637	25.1274	27.1973	200 mm
7918	p4170	n3918	25.5892	n3919	23.6711	29.9	29.9	6.41	168.5	0.44	56.9433	26.6721	24.754	200 mm
7919	p4171	n3919	23.6711	n3920	21.5958	29.9	29.9	6.93	168.5	0.55	59.2418	24.754	22.6787	200 mm
7920	p4172	n3920	21.5958	n3921	19.3173	29.9	29.9	7.62	168.5	0.65	62.0944	22.6787	20.4002	200 mm
7923	p4175	n3923	16.8841	n3924	14.3521	21.9	21.9	11.6	168.5	0.86	76.4802	17.967	15.435	200 mm
7924	p4176	n3924	14.3521	n3925	12.8146	30	26.8	5.13	168.5	0.69	50.9647	15.435	13.8975	200 mm
7928	CO-2	n949	3.6169	n951	3.8681		31.1	0.81	168.5	0.21	20.2123	4.6998	4.951	200 mm
7929	CO-4	n944	3.3539	n942	3.2009		38.3	0.4	168.5	0.25	14.2287	5.1793	5.745	200 mm
7933	p1372	(MH-2	11.9499	n1346	11.9915	10.4	10.5	0.4	168.5	0.32	14.2287	15.2352	14.7874	200 mm
7936	p1017	(n1008	2.0646	MH-3	2.0289	8.9	8.5	0.4	168.5	0.34	14.2287	3.5	3.4562	200 mm
7937	p1017	(MH-3	2.0289	n1009	1.4506	21.1	21.1	2.74	168.5	0.69	37.2556	3.4562	3.3527	200 mm
7938	CO-8	n1055	1.489	n1009	1.4506		9.6	0.4	168.5	0.54	14.2287	3.452	3.3527	200 mm
7939	CO-10	n1009	1.4506	n1058	1.3813		17.3	0.4	168.5	0.58	14.2287	3.3527	3.167	200 mm
7944	CO-14	n983	1.8447	n981	1.811		8.4	0.4	168.5	0.49	14.2287	5.387	5.562	200 mm
7945	CO-16	n978	1.5398	n976	1.4102		32.4	0.4	168.5	0.5	14.2287	4.316	4.4539	200 mm
7947	p981	(n971	1.1695	MH-5	1.2561	21.7	18.6	0.4	168.5	0.52	14.2287	6.503	5.7211	200 mm
7949	CO-18	n974	1.3341	MH-5	1.2561		19.5	0.4	168.5	0.51	14.2287	4.792	5.7211	200 mm
7950	CO-20	n1052	1.8108	n1050	1.9063		23.9	0.4	168.5	0.52	14.2287	3.786	3.654	200 mm
7952	p941	(n936	2.9221	MH-6	2.9382	4	4.9	0.4	168.5	0.32	14.2287	5.0061	5.0384	200 mm
7953	p941	(2MH-6	2.9382	n937	2.9541	4	4.9	0.4	168.5	0.31	14.2287	5.0384	5.07	200 mm
7962	CO-26	n148	3.3344	n146	3.2492		21.3	0.4	168.5	0.33	14.2287	4.744	4.952	200 mm
7963	CO-28	n151	3.4311	n153	3.5639		32.3	0.41	168.5	0.31	14.4222	4.514	5.034	200 mm
7964	CO-30	n160	4.2857	n162	4.4281		35.6	0.4	168.5	0.16	14.2287	5.5133	5.511	200 mm
7966	CO-34	n937	2.9541	n939	3.0566		25.6	0.4	168.5	0.3	14.2287	5.07	5.592	200 mm
7968	CO-38	n157	3.8437	n159	4.1968		37.8	0.94	168.5	0.31	21.7532	4.9266	5.379	200 mm
7969	CO-40	n130	2.233	n132	2.1587		18.6	0.4	168.5	0.47	14.2287	4.917	4.8221	200 mm
7972	p134	(2MH-9	2.0129	n134	1.9304	20.6	20.9	0.4	168.5	0.48	14.2287	4.6822	4.6381	200 mm
7975	p162	(2MH-10	1.2862	n163	1.2037	20.6	18.7	0.4	168.5	0.5	14.2287	3.7499	3.6148	200 mm
7976	CO-42	n138	1.4514	MH-10	1.2862		41.3	0.4	168.5	0.5	14.2287	4.3187	3.7499	200 mm
7977	CO-44	n165	-0.4995	n660	-0.6298		32.6	0.4	168.5	0.73	14.2287	3.249	2.8866	200 mm
7978	CO-46	n658	-0.8698	n656	-0.9197		17.8	0.28	210.7	0.66	21.6049	2.403	2.481	250 mm
7980	p637	(n633	1.3121	MH-11	1.2523	14.9	14.8	0.4	168.5	0.46	14.2287	2.585	2.7186	200 mm
7981	p637	(2MH-11	1.2523	n634	1.1536	24.7	24.9	0.4	168.5	0.46	14.2287	2.7186	2.9392	200 mm
7983	p631	(n627	2.3323	MH-12	2.0858	9.2	11.8	2.67	168.5	0.86	36.7686	3.4649	3.1687	200 mm
7985	CO-48	MH-243	1.9171	MH-12	2.0858		9.1	1.85	168.5	0.76	30.625	3	3.1687	200 mm
7987	p683	(n621	6.7661	MH-13	7.0603	17.5	17	1.68	168.5	0.38	29.1338	7.849	8.1432	200 mm
7988	p683	(2MH-13	7.0603	n680	7.1989	12.4	12.5	1.11	168.5	0.29	23.7362	8.1432	8.3519	200 mm
7989	CO-50	n126	2.4414	n124	2.5069		16.4	0.4	168.5	0.32	14.2287	4.93	4.913	200 mm
7997	CO-58	n128	2.3097	n126	2.4414		32.9	0.4	168.5	0.33	14.2287	4.831	4.93	200 mm
8000	CO-64	n114	2.9386	n111	3.0429		26.1	0.4	168.5	0.23	14.2287	4.8	4.711	200 mm
8001	CO-66	n111	3.0429	n109	3.1207		19.4	0.4	168.5	0.2	14.2287	4.711	4.687	200 mm
8003	CO-70	n650	-1.3745	n648	-1.5008		45.1	0.28	210.7	0.69	21.6049	3.5499	3.544	250 mm
8004	CO-72	n640	1.238	n638	1.3954		39.4	0.4	168.5	0.62	14.2287	4.1039	4.1361	200 mm
8005	CO-74	n637	1.5154	n106	1.6742		39.7	0.4	168.5	0.61	14.2287	4.3576	4.556	200 mm
8006	CO-76	n96	2.7424	n94	2.8654		30.8	0.4	168.5	0.59	14.2287	4.9899	4.998	200 mm

8008	CO-80	n80	3.3259	n78	3.2016		31.1	0.4	168.5	0.17	14.2287	5.0405	5.15	200 mm
8009	CO-82	n619	5.8131	MH-15	5.4183		12.5	3.15	168.5	0.33	39.9236	6.896	6.5012	200 mm
8010	CO-84	MH-15	5.4183	n616	4.538		38.4	2.29	168.5	0.37	34.0667	6.5012	5.6209	200 mm
8011	CO-86	n614	1.2209	n612	1.0872		33.4	0.4	168.5	0.61	14.2287	4.754	4.4752	200 mm
8012	CO-88	n596	-0.4311	n594	-0.5612		32.5	0.4	168.5	0.63	14.2287	2.358	2.3923	200 mm
8013	CO-90	n588	-1.044	n586	-1.1637		29.9	0.4	168.5	0.64	14.2287	2.3451	2.294	200 mm
8015	p587(1	n583	-1.4464	MH-16	-1.3304	29	28.8	0.4	168.5	0.65	14.2287	2.654	2.3632	200 mm
8028	CO-96	n572	-1.918	n570	-2.08		40.5	0.4	168.5	0.65	14.2287	2.472	2.558	200 mm
8030	p571(1	n567	-2.2989	MH-20	-2.2482	12.7	12.7	0.4	168.5	0.66	14.2287	2.393	2.5244	200 mm
8032	CO-98	n569	-2.1405	MH-20	-2.2482		26.9	0.4	168.5	0.66	14.2287	2.598	2.5244	200 mm
8034	CO-102	n563	1.6291	n561	1.4781		37.8	0.4	168.5	0.66	14.2287	2.712	2.749	200 mm
8035	CO-104	n556	1.1974	n554	1.0536		35.9	0.4	168.5	0.67	14.2287	2.582	2.466	200 mm
8036	CO-106	n553	0.8607	n551	0.723		34.4	0.4	168.5	0.67	14.2287	2.448	2.5083	200 mm
8037	CO-108	n546	0.1428	n544	0.0161		31.7	0.4	168.5	0.68	14.2287	2.379	2.4309	200 mm
8042	CO-112	n540	-0.2549	n538	-0.3533		24.6	0.4	168.5	0.68	14.2287	2.444	2.426	200 mm
8044	CO-116	n531	-0.7875	n529	-0.9713		45.9	0.4	168.5	0.68	14.2287	2.474	2.501	200 mm
8045	CO-118	n529	-0.9713	n526	-1.1036		33.1	0.4	168.5	0.68	14.2287	2.501	2.2748	200 mm
8046	CO-120	n523	-1.4636	n521	-1.6144		37.7	0.4	168.5	0.69	14.2287	2.506	2.4419	200 mm
8047	CO-122	n520	-1.7344	n517	-1.8721		34.4	0.4	168.5	0.69	14.2287	2.33	2.3728	200 mm
8055	CO-126	n512	2.1991	MH-23	2.3968		9.8	2.02	168.5	1.26	32.0024	3.282	3.4797	200 mm
8057	CO-130	n506	-2.8905	n504	-2.7444		36.5	0.4	168.5	0.69	14.2287	2.224	2.373	200 mm
8060	p504(2	MH-24	-2.3441	n502	-2.498	38.5	38.5	0.4	168.5	0.68	14.2287	2.4786	2.475	200 mm
8061	CO-132	MH-24	-2.3441	n499	-2.2623		20.5	0.4	168.5	0.68	14.2287	2.4786	2.511	200 mm
8064	CO-138	n488	-1.4866	n486	-1.3669		29.9	0.4	168.5	0.67	14.2287	2.5768	2.664	200 mm
8065	CO-140	n485	-1.2492	n483	-1.1235		31.4	0.4	168.5	0.67	14.2287	2.6507	2.4793	200 mm
8066	CO-142	MH-244	-1.0093	n444	-0.8839		31.3	0.4	168.5	0.67	14.2287	2.352	2.541	200 mm
8067	CO-144	n444	-0.8839	n420	-0.4404		21.8	2.03	168.5	0.69	32.0551	2.541	2.803	200 mm
8068	CO-146	n444	-0.8839	n418	1.8734		24	11.5	168.5	2.06	76.2585	2.541	2.9563	200 mm
8069	CO-148	n421	-0.3204	n425	-0.1482		43	0.4	168.5	0.37	14.2287	2.4278	2.377	200 mm
8070	CO-150	n435	0.6369	n437	0.742		26.3	0.4	168.5	0.28	14.2287	2.35	2.33	200 mm
8072	p438(1	n437	0.742	MH-25	0.7682	6.5	6.5	0.4	168.5	0.27	14.2287	2.33	2.3386	200 mm
8074	CO-152	MH-25	0.7682	n439	0.8921		31	0.4	168.5	0.25	14.2287	2.3386	2.427	200 mm
8076	CO-154	n444	-0.8839	n446	-0.7423		35.4	0.4	168.5	0.39	14.2287	2.541	2.647	200 mm
8089	CO-168	n474	0.8072	n472	0.6746		33.1	0.4	168.5	0.28	14.2287	2.257	2.3525	200 mm
8090	CO-170	n476	1.038	n478	1.1509		28.2	0.4	168.5	0.23	14.2287	2.565	2.598	200 mm
8092	CO-174	n44	1.1629	n42	1.3142		37.8	0.4	168.5	0.47	14.2287	4.3911	4.4219	200 mm
8093	CO-176	MH-247	2.4982	n414	2.5217		5.9	0.4	168.5	0.61	14.2287	4.63	4.936	200 mm
8100	CO-178	MH-257	3.301	n401	3.4339		33.2	0.4	168.5	0.59	14.2287	7.1726	7.087	200 mm
8101	CO-180	n354	0.2277	n352	0.3472		29.9	0.4	168.5	0.56	14.2287	5.3427	5.0913	200 mm
8102	CO-182	n351	0.4672	n349	0.608		35.2	0.4	168.5	0.55	14.2287	4.9716	5.1197	200 mm
8103	CO-184	n345	1.0787	n343	1.1411		15.6	0.4	168.5	0.54	14.2287	4.2346	4.233	200 mm
8104	CO-186	n342	1.1648	n340	1.3036		34.7	0.4	168.5	0.53	14.2287	4.165	4.222	200 mm
8107	p328(1	n329	8.7169	MH-31	8.2724	16.4	16.4	2.71	168.5	0.45	37.06	9.7998	9.3553	200 mm
8109	CO-190	n331	7.9221	MH-31	8.2724		23	1.53	168.5	0.4	27.7813	9.005	9.3553	200 mm
8118	CO-202	n301	8.3916	n299	7.0511		24.4	5.49	168.5	0.74	52.6918	9.4745	8.134	200 mm
8122	CO-204	n299	7.0511	MH-33	6.0977		20.8	4.59	168.5	0.72	48.2228	8.134	7.1806	200 mm
8123	CO-206	MH-33	6.0977	n296	5.1811		22.8	4.03	168.5	0.72	45.149	7.1806	6.264	200 mm
8124	CO-208	n296	5.1811	n293	4.6981		31	1.56	168.5	0.53	28.0966	6.264	5.781	200 mm
8125	CO-210	n291	3.8016	n289	2.6951		42.1	2.63	168.5	0.68	36.4653	4.8845	3.778	200 mm
8126	CO-212	n283	1.9525	n281	1.8638		22.2	0.4	168.5	0.4	14.2287	5.4736	5.616	200 mm
8127	CO-214	n334	1.7632	n281	1.8638		25.2	0.4	168.5	0.52	14.2287	5.629	5.616	200 mm
8128	CO-216	MH-249	2.8135	n275	2.9199		26.6	0.4	168.5	0.44	14.2287	4.8779	4.582	200 mm
8131	p272(2	MH-34	3.2571	n273	3.1599	24.3	24.1	0.4	168.5	0.42	14.2287	4.6155	4.952	200 mm
8140	p263(1	n263	-0.1621	MH-277	-0.2566	23.6	23.5	0.4	168.5	0.39	14.2287	2.8451	2.9974	200 mm
8147	p255(2	MH-39	1.0489	n256	1.0718	5.7	5.7	0.4	168.5	0.23	14.2287	2.3709	2.409	200 mm

8150	p242(1	n242	1.2103	MH-40	1.1279	20.6	20.6	0.4	168.5	0.23	14.2287	2.351	2.4798	200 mm
8151	p242(2	MH-40	1.1279	n243	1.0926	8.8	8.8	0.4	168.5	0.25	14.2287	2.4798	2.535	200 mm
8183	p1510(	MH-50	6.2962	n1472	6.8149	12.4	11.8	4.2	168.5	0.57	46.0964	7.3791	7.8978	200 mm
8184	CO-238	n1470	5.4501	MH-50	6.2962		27.6	3.07	168.5	0.54	39.4	6.533	7.3791	200 mm
8189	p1517(	n1478	20.9704	MH-52	20.915	13.9	13.9	0.4	168.5	0.23	14.2287	23.2094	22.5618	200 mm
8193	p1517(	MH-52	20.915	MH-54	20.899	4	4	0.4	168.5	0.25	14.2287	22.5618	22.3756	200 mm
8194	p1517(	MH-54	20.899	n1479	20.7276	12.1	12.1	1.42	168.5	0.42	26.7726	22.3756	21.8105	200 mm
8197	p1524(	MH-55	20.0157	n1486	19.3236	18.9	18.9	3.66	168.5	0.64	43.0241	21.0986	20.4065	200 mm
8198	CO-240	MH-55	20.0157	n1484	20.6513		41	1.55	168.5	0.48	27.9962	21.0986	21.7342	200 mm
8202	CO-242	n1483	20.8118	MH-56	21.7331		42.3	2.18	168.5	0.3	33.1834	21.8947	22.816	200 mm
8209	CO-244	n1652	7.5533	MH-58	6.2852		38.4	3.31	168.5	0.52	40.9062	8.6362	7.3681	200 mm
8210	CO-246	MH-58	6.2852	n1635	6.0571		23.1	0.99	168.5	0.37	22.3695	7.3681	7.14	200 mm
8213	p1708(	MH-59	6.7036	n1656	6.9868	21.9	26.8	1.3	168.5	0.38	25.6085	7.7865	8.0697	200 mm
8214	CO-248	n1635	6.0571	MH-59	6.7036		37.2	1.74	168.5	0.45	29.6478	7.14	7.7865	200 mm
8216	CO-252	n1324	18.6856	n1326	19.7511		32.6	3.27	168.5	0.98	40.6643	19.7685	20.834	200 mm
8218	p1352(	n1326	19.7511	MH-60	19.9389	12.7	12.7	1.48	168.5	0.63	27.3215	20.834	21.0218	200 mm
8219	p1352(	MH-60	19.9389	n1327	20.1542	14.6	14.7	1.48	168.5	0.51	27.3215	21.0218	21.2371	200 mm
8220	CO-254	n1329	20.9318	n1331	20.9581		6.6	0.4	168.5	0.28	14.2287	22.035	22.041	200 mm
8221	CO-256	n1335	22.5971	n1337	23.9368		32.1	4.18	168.5	0.52	45.9702	23.68	25.0197	200 mm
8223	CO-260	n1318	21.5761	n1320	22.5641		9.9	9.97	168.5	1.07	71.0255	22.659	23.647	200 mm
8226	p1479(	MH-61	17.3598	n1444	17.9798	23.2	22.4	2.67	168.5	0.45	36.7659	18.4427	19.0627	200 mm
8230	p1485(	MH-62	23.4284	n1450	23.0541	3.6	10.5	10.3	168.5	0.52	72.3726	24.5113	24.137	200 mm
8233	CO-268	n1463	4.6711	n1467	4.4654		51.4	0.4	168.5	0.46	14.2287	5.754	5.92	200 mm
8238	p1683(	MH-63	5.7412	n1634	5.7909	12.4	12.6	0.4	168.5	0.35	14.2287	6.8342	6.8738	200 mm
8239	CO-274	n1632	5.6498	MH-63	5.7412		22.8	0.4	168.5	0.36	14.2287	6.762	6.8342	200 mm
8241	p1689(	n1594	6.0301	MH-64	6.4294	20.3	20.3	1.97	168.5	0.67	31.5542	7.113	7.5123	200 mm
8243	CO-276	n1617	9.4831	n1619	8.4661		32.2	3.16	168.5	0.68	39.9848	10.566	9.549	200 mm
8244	CO-278	n1584	10.0271	n1586	9.8901		34.3	0.4	168.5	0.2	14.2287	11.11	11.414	200 mm
8253	p1531(	n1491	7.5771	MH-67	6.6575	13.5	11.1	6.83	168.5	1.1	58.7993	8.66	7.7404	200 mm
8255	CO-282	MH-67	6.6575	n1493	5.0953		43.8	3.56	168.5	0.89	42.4745	7.7404	6.1782	200 mm
8258	p1717(	MH-68	20.399	n1664	19.9348	13.3	13.4	3.49	168.5	0.35	42.0078	21.4819	21.0177	200 mm
8260	p1720(	n1666	17.3094	MH-69	16.8719	13.7	13.7	3.19	168.5	0.52	40.1618	18.3923	17.9548	200 mm
8265	CO-284	n1668	14.3801	n1670	10.9073		33.7	10.3	168.5	0.92	72.1946	15.463	13.199	200 mm
8266	CO-286	n1280	20.9397	n1278	20.6714		67.1	0.4	168.5	0.3	14.2287	22.169	24.6669	200 mm
8267	CO-288	n1277	20.5515	n1275	20.4169		33.6	0.4	168.5	0.37	14.2287	25.285	24.2628	200 mm
8271	p1714(	MH-72	12.8899	n1661	11.1441	50.5	50.5	3.46	168.5	0.34	41.8445	13.9728	12.227	200 mm
8278	CO-290	n1712	16.3051	n1714	16.1867		29.6	0.4	168.5	0.53	14.2287	22.053	21.241	200 mm
8280	p1772(	n1714	16.1867	MH-75	16.1047	20.5	20.5	0.4	168.5	0.53	14.2287	21.241	19.8775	200 mm
8281	p1772(	MH-75	16.1047	n1690	16.067	9.4	9.5	0.4	168.5	0.54	14.2287	19.8775	19.251	200 mm
8298	p1788(	n1727	10.563	MH-80	10.4113	37.9	37.1	0.4	168.5	0.37	14.2287	14.287	13.1474	200 mm
8299	p1788(	MH-80	10.4113	n1728	10.3568	13.6	13.7	0.4	168.5	0.37	14.2287	13.1474	12.738	200 mm
8309	CO-304	n1738	4.6555	n1740	3.7405		44.3	2.07	168.5	1.14	32.344	5.7384	4.841	200 mm
8310	CO-306	n1740	3.7405	n1754	3.8576		29.3	0.4	168.5	0.49	14.2287	4.841	4.9405	200 mm
8311	CO-308	n1874	2.7953	n1871	2.3985		18.8	2.11	168.5	1.27	32.641	3.8782	3.87	200 mm
8312	CO-310	n1869	2.6166	n1867	2.7557		34.8	0.4	168.5	0.31	14.2287	3.941	3.8386	200 mm
8314	p1949(	n1866	3.0785	MH-83	2.8997	16.6	16.6	1.08	168.5	0.4	23.335	4.1614	3.9826	200 mm
8315	p1949(	MH-83	2.8997	n1867	2.7557	13.4	13.4	1.08	168.5	0.42	23.335	3.9826	3.8386	200 mm
8318	p1946(	MH-84	9.3662	n1864	6.9831	25.2	24.3	9.46	168.5	0.68	69.2042	10.4491	8.066	200 mm
8322	CO-312	MH-84	9.3662	MH-85	11.4236		24.6	8.37	168.5	0.58	65.0991	10.4491	12.5065	200 mm
8326	p1945(	MH-87	11.8124	MH-85	11.4236	4.8	5	8.11	168.5	0.47	64.0565	12.8953	12.5065	200 mm
8328	CO-316	n1861	11.1894	n1921	11.1009		36.9	0.24	335.9	0.89	69.3747	13.771	13.2227	400mm
8329	CO-318	n1914	8.4637	n1912	7.0525		37.3	3.78	335.9	2.59	275.3087	9.714	8.3028	400mm
8330	CO-320	n1911	5.7957	n1909	4.3465		37.4	3.88	335.9	2.61	278.8969	7.046	5.5968	400mm
8331	CO-322	n1906	2.7503	n1904	2.6897		23.7	0.26	335.9	0.92	71.6499	4.002	4.1231	400mm
8332	CO-324	n1203	14.4915	n1198	13.2641		37.4	3.28	168.5	0.63	40.7447	15.5744	14.347	200 mm

8334	p1202	n1183	5.5142	MH-88	7.8027	11.9	10.1	19.2	168.5	1.19	98.5074	8.248	8.8856	200 mm
8335	p1202	MH-88	7.8027	n1184	8.7654	18	18.1	5.34	168.5	0.82	51.9951	8.8856	9.8483	200 mm
8339	CO-32	n1208	2.9371	n1211	2.8905		11.6	0.4	168.5	0.35	14.2287	4.02	3.985	200 mm
8341	p1232	n1211	2.8905	MH-90	2.7997	10.3	10.3	0.88	168.5	0.48	21.1275	3.985	3.8826	200 mm
8347	p1233	n1212	2.6448	MH-92	2.3308	18.7	18.7	1.68	168.5	0.62	29.1642	3.7277	3.4137	200 mm
8349	CO-32	MH-92	2.3308	n1214	2.0071		18.1	1.79	168.5	0.65	30.1222	3.4137	3.09	200 mm
8350	CO-33	n1084	14.1141	n1102	11.7286		31	7.69	168.5	0.92	62.3971	15.203	12.8115	200 mm
8352	CO-33	n1082	14.2581	n1084	14.1141		36	0.4	168.5	0.25	14.2287	15.3578	15.203	200 mm
8354	CO-33	n1148	6.4938	n1150	9.2771		35.5	7.85	168.5	0.66	63.0325	8.646	10.36	200 mm
8358	CO-34	n1168	9.3135	MH-93	12.1443		46.9	6.04	168.5	0.65	55.2681	10.3964	13.2272	200 mm
8361	CO-34	n1130	6.6161	n1128	9.5136		33.3	8.7	168.5	1.07	66.3636	7.699	10.5965	200 mm
8363	p873	n1868	12.3409	MH-95	12.3189	5.5	5.5	0.4	168.5	0.35	14.2287	13.579	13.5032	200 mm
8364	p873	MH-95	12.3189	n869	12.082	24.5	24.5	0.97	168.5	0.49	22.1204	13.5032	13.1649	200 mm
8365	CO-34	n863	13.2101	n861	13.4021		11.9	1.62	168.5	0.46	28.6282	14.293	14.485	200 mm
8366	CO-34	n842	7.8961	n849	6.9881		34.3	2.64	168.5	0.71	36.5842	8.979	8.071	200 mm
8369	p853	MH-96	6.351	n849	6.9881	22.3	22.3	2.86	168.5	0.74	38.0329	7.4339	8.071	200 mm
8370	CO-35	MH-96	6.351	n846	6.3092		10.5	0.4	168.5	0.38	14.2287	7.4339	7.506	200 mm
8371	CO-35	n841	8.1141	n838	7.7391		8.2	4.58	168.5	0.38	48.1683	9.197	8.822	200 mm
8373	CO-35	n823	9.1901	n821	8.6499		27	2	168.5	0.29	31.8505	10.273	9.7328	200 mm
8374	CO-35	n820	5.4734	n818	3.5554		29.9	6.42	168.5	0.61	57.014	6.5563	4.6383	200 mm
8376	p821	n1817	2.6411	MH-97	3.0321	8.3	8.3	4.73	168.5	0.63	48.9283	3.724	4.115	200 mm
8377	p821	MH-97	3.0321	n818	3.5554	11.1	11.1	4.73	168.5	0.59	48.9283	4.115	4.6383	200 mm
8378	CO-36	n817	2.6411	n804	1.489		40.5	2.84	168.5	0.56	37.9391	3.724	3.153	200 mm
8379	CO-36	n708	9.8987	n711	9.9662		16.9	0.4	168.5	0.44	14.2287	11.7409	11.761	200 mm
8381	CO-36	n713	10.2061	n715	10.3281		30.5	0.4	168.5	0.42	14.2287	13.782	13.5592	200 mm
8383	p726	n1722	13.7364	MH-99	14.4726	21.6	21.4	3.41	168.5	0.79	41.5133	14.8193	15.5555	200 mm
8389	p2227	n2119	28.2742	MH-101	28.2557	4.6	4.6	0.4	168.5	0.23	14.2287	29.519	29.511	200 mm
8391	CO-36	n2149	26.093	n2151	25.9381		38.7	0.4	168.5	0.27	14.2287	30.488	30.1334	200 mm
8392	CO-36	n2152	25.895	n2154	25.8184		19.2	0.4	168.5	0.3	14.2287	30.087	30.0196	200 mm
8394	p2273	n2142	19.0681	MH-102	18.1155	11.5	11.5	8.28	168.5	1.06	64.7207	20.151	19.1984	200 mm
8395	p2273	MH-102	18.1155	n2162	16.5944	18.4	18.4	8.28	168.5	1.08	64.7207	19.1984	17.6773	200 mm
8397	CO-37	n2163	14.2654	n2165	12.7511		20.1	7.53	168.5	1.08	61.739	15.3483	13.834	200 mm
8399	p2363	n2246	1.1334	MH-104	1.0728	15.1	15.2	0.4	168.5	0.54	14.2287	4.048	4.123	200 mm
8400	p2363	MH-104	1.0728	n2247	1.0134	14.9	15.3	0.4	168.5	0.54	14.2287	4.123	4.1966	200 mm
8401	CO-37	n2273	18.3521	n2275	13.2766		32.7	15.5	168.5	1.14	88.6088	19.766	14.3595	200 mm
8402	CO-37	n1929	-0.093	n1932	-0.215		40.8	0.3	420	1.16	140.5554	3.3069	3.2541	500mm
8403	CO-37	n2496	3.7551	n2253	0.449		31.3	10.6	168.5	1.62	73.1008	5.004	5.044	200 mm
8404	CO-37	n2056	1.4037	n2058	1.4441		10.1	0.4	168.5	0.46	14.2287	2.503	2.527	200 mm
8408	CO-38	n2060	1.6971	n2062	1.8491		11.2	1.36	168.5	0.68	26.1847	2.78	2.932	200 mm
8412	CO-38	n2070	4.6431	n2103	5.1621		19.4	2.67	168.5	1.07	36.7768	5.726	6.245	200 mm
8413	CO-38	n2033	1.5432	n2035	1.6742		32.7	0.4	168.5	0.58	14.2287	3.2181	3.547	200 mm
8414	CO-38	n2029	1.175	n2031	1.3032		32.1	0.4	168.5	0.59	14.2287	2.526	2.7006	200 mm
8416	p2139	n2040	2.0441	MH-107	2.2539	13.4	13.4	1.56	168.5	0.51	28.1325	3.127	3.3368	200 mm
8431	CO-39	n2083	14.8641	MH-111	20.2366		28	19.2	168.5	0.78	98.6107	15.947	21.3195	200 mm
8433	CO-39	MH-111	20.2366	n2079	23.1031		38.1	7.53	168.5	0.46	61.7483	21.3195	24.186	200 mm
8436	p2207	MH-112	5.3211	n2102	5.1931	30.1	30.2	0.43	168.5	0.39	14.6606	6.4138	6.276	200 mm
8437	CO-39	MH-112	5.3211	n2100	5.4014		20.1	0.4	168.5	0.38	14.2287	6.4138	6.57	200 mm
8439	p2202	n2096	13.219	MH-113	12.3224	6.4	4.5	14	168.5	1.17	84.3203	14.3019	13.4053	200 mm
8440	p2202	MH-113	12.3224	n2097	9.0469	23.3	23.4	14	168.5	1.2	84.3203	13.4053	10.1298	200 mm
8442	p2201	n2095	15.6684	MH-114	15.0705	7.3	7.3	8.22	168.5	0.92	64.4891	16.7513	16.1534	200 mm
8443	p2201	MH-114	15.0705	n2096	13.219	22.5	24	8.22	168.5	0.95	64.4891	16.1534	14.3019	200 mm
8448	p2356	MH-115	1.6857	n2240	1.6085	19.3	19.3	0.4	168.5	0.48	14.2287	3.4428	3.356	200 mm
8449	CO-40	n2244	1.3279	n2242	1.4694		35.4	0.4	168.5	0.49	14.2287	3.766	3.536	200 mm
8450	CO-40	n734	25.2159	n732	24.4011		33.1	2.46	168.5	0.54	35.3085	26.2988	25.484	200 mm
8451	CO-40	n725	17.8305	n727	19.3521		29.9	5.09	168.5	0.85	50.7694	18.9134	20.435	200 mm

8452	CO-408	MH-99	14.4726	n724	16.3285		38.3	4.85	168.5	0.87	49.5276	15.5555	17.4114	200 mm
8453	CO-410	n1241	15.3471	n1244	20.4584		47.5	10.8	168.5	0.79	73.8006	16.43	21.5413	200 mm
8456	p1249	(n1226	14.6898	MH-116	17.2288	39.4	39.4	6.44	168.5	0.84	57.0929	15.7727	18.3117	200 mm
8457	p1249	(MH-116	17.2288	n1227	18.5455	20.4	19.8	6.44	168.5	0.81	57.0929	18.3117	19.6284	200 mm
8458	CO-414	n1231	28.1435	n1233	28.2311		20.6	0.43	168.5	0.17	14.6808	29.2264	29.314	200 mm
8460	CO-418	n2364	8.7331	n2367	8.646		21.8	0.4	168.5	0.36	14.2287	9.816	9.93	200 mm
8461	CO-420	n1935	-1.478	n1937	-1.4066		35.7	0.2	335.9	0.62	63.3301	3.1285	3.313	400mm
8462	CO-422	n1995	11.519	n1992	8.3176		17.1	18.7	168.5	0.91	97.3188	12.6019	11.162	200 mm
8463	CO-424	n2373	0.2522	n2375	0.1193		33.2	0.4	168.5	0.7	14.2287	5.1038	5.0819	200 mm
8464	CO-426	n2375	0.1193	n2377	-0.0231		35.6	0.4	168.5	0.7	14.2287	5.0819	4.978	200 mm
8465	CO-428	n2511	6.6151	n2509	6.4766		34.6	0.4	168.5	0.46	14.2287	7.698	7.616	200 mm
8466	CO-430	n704	8.6512	n702	8.0631		32.8	1.79	168.5	0.81	30.1119	9.7341	9.146	200 mm
8467	CO-432	n770	0.5086	n772	0.9867		29.7	1.61	168.5	0.83	28.5457	2.461	2.1612	200 mm
8470	CO-436	n796	-0.0566	n879	-0.1298		18.3	0.4	168.5	0.64	14.2287	3.038	3.038	200 mm
8471	CO-438	n887	-1.0106	n889	-1.0947		21	0.4	168.5	0.65	14.2287	3.882	3.927	200 mm
8473	p894(1	n890	-1.2147	MH-118	-1.3334	29.7	29.7	0.4	168.5	0.65	14.2287	3.8635	3.8923	200 mm
8477	p895(2	MH-119	-1.4578	n892	-1.605	30.2	30.3	0.49	168.5	0.71	15.6982	3.9418	4.002	200 mm
8478	CO-440	MH-118	-1.3334	MH-119	-1.4578		31.1	0.4	168.5	0.65	14.2287	3.8923	3.9418	200 mm
8480	p900(1	n896	2.7469	MH-120	2.615	33	33	0.4	168.5	0.2	14.2287	4.0348	4.0707	200 mm
8481	p900(2	MH-120	2.615	n897	2.5088	26.6	26.6	0.4	168.5	0.3	14.2287	4.0707	4.0997	200 mm
8484	CO-446	n906	1.843	n902	1.9993		39.1	0.4	168.5	0.35	14.2287	3.801	3.7313	200 mm
8485	CO-448	n908	1.603	n910	1.4594		35.9	0.4	168.5	0.38	14.2287	3.8555	3.8343	200 mm
8488	CO-454	n920	0.3567	n1923	0.2717		29.2	0.29	420	1.14	138.5684	3.885	4.1356	500mm
8489	CO-456	n918	0.5485	n920	0.3567		36.5	0.53	168.5	0.57	16.3051	3.902	3.885	200 mm
8490	CO-458	n920	0.3567	n1904	2.6897		43.7	5.34	335.9	2.94	327.3324	3.885	4.1231	400mm
8493	p2035	(MH-121	2.4855	n1944	4.9169	23.3	23.3	10.4	210.7	2.88	131.8891	5.0422	6.042	250 mm
8494	CO-460	MH-121	2.4855	n1945	2.5448		14.8	0.4	168.5	0.39	14.2287	5.0422	4.901	200 mm
8495	CO-462	n1942	2.3433	MH-121	2.4855		35.7	0.4	210.7	0.84	25.7841	3.984	5.0422	250 mm
8496	CO-464	n1989	8.2059	n1992	8.3176		31.2	0.36	210.7	0.8	24.4296	12.2029	11.162	250 mm
8497	CO-466	n2516	10.7584	n2367	8.646		39.7	5.32	168.5	0.66	51.8753	11.8413	9.93	200 mm
8498	CO-468	n719	10.6901	n721	12.1548		24	6.11	168.5	1.01	55.5971	11.773	13.2377	200 mm
8499	CO-470	n731	23.9776	n732	24.4011		26.1	1.62	168.5	0.49	28.6308	25.0605	25.484	200 mm
8500	CO-472	n740	28.4811	n2117	28.4066		18.6	0.4	168.5	0.16	14.2287	29.564	29.531	200 mm
8501	CO-474	n2117	28.4066	n2119	28.2742		33.1	0.4	168.5	0.2	14.2287	29.531	29.519	200 mm
8502	CO-476	MH-101	28.2557	n2121	28.168		21.9	0.4	168.5	0.25	14.2287	29.511	29.544	200 mm
8503	CO-478	n2112	26.5799	n2111	26.4431		34.2	0.4	168.5	0.35	14.2287	27.6628	27.535	200 mm
8505	CO-482	n1262	28.4318	n2108	27.5059		33.7	2.75	168.5	0.55	37.3015	29.5147	28.5888	200 mm
8507	p1252	(n1229	24.6886	MH-122	26.4812	18.6	17.6	9.63	168.5	0.76	69.8285	25.7715	27.5641	200 mm
8508	p1252	(MH-122	26.4812	n1230	27.5642	11.2	11.2	9.63	168.5	0.69	69.8285	27.5641	28.6471	200 mm
8510	p1251	(n1228	21.234	MH-123	23.0396	15.6	17.4	11.6	168.5	0.92	76.599	22.3169	24.1225	200 mm
8511	p1251	(MH-123	23.0396	n1229	24.6886	14.2	13.7	11.6	168.5	0.86	76.599	24.1225	25.7715	200 mm
8513	p1245	(n791	12.7111	MH-124	13.1856	16.6	16.7	2.87	168.5	0.7	38.0775	13.794	14.2685	200 mm
8515	CO-484	n1225	13.6981	MH-124	13.1856		25.5	2.01	168.5	0.6	31.8847	14.781	14.2685	200 mm
8516	CO-486	n785	6.8271	n788	8.7039		15.6	12	168.5	1.48	77.9322	7.91	9.7868	200 mm
8517	CO-488	n783	3.199	n785	6.8271		43.7	8.31	168.5	1.39	64.8381	4.2819	7.91	200 mm
8518	CO-490	n779	1.6281	n781	1.7873		39.8	0.4	168.5	0.49	14.2287	2.759	2.8702	200 mm
8519	CO-492	n777	1.2891	n779	1.6281		37.3	0.91	168.5	0.66	21.46	2.372	2.759	200 mm
8520	CO-494	n775	1.1585	n777	1.2891		32.6	0.4	168.5	0.49	14.2287	2.348	2.372	200 mm
8521	CO-496	n1245	21.9031	n1247	25.0461		16.6	18.9	168.5	0.78	97.7499	22.986	26.129	200 mm
8524	CO-502	n2084	14.2041	MH-109	11.7822		31.5	7.69	168.5	0.7	62.4021	15.287	12.8651	200 mm
8525	CO-504	MH-109	11.7822	n2087	9.616		40	5.41	168.5	0.66	52.3485	12.8651	10.6989	200 mm
8528	p2195	(n2090	3.4299	MH-125	2.9712	18.2	20	2.52	168.5	0.57	35.7127	4.5128	4.0541	200 mm
8530	CO-508	MH-107	2.2539	MH-125	2.9712		32.9	2.18	168.5	0.56	33.2372	3.3368	4.0541	200 mm
8531	CO-510	n2037	1.7536	n2035	1.6742		19.9	0.4	168.5	0.34	14.2287	3.4292	3.547	200 mm
8532	CO-512	n1265	28.1935	n1267	27.1051		35.7	3.05	168.5	0.42	39.2716	29.2764	28.188	200 mm

8541	CO-524	n2216	29.1316	n2218	26.3761		47.5	5.8	168.5	0.42	54.2016	30.2145	27.459	200 mm
8543	p2339	(n2222	10.8206	MH-127	9.5462	21.4	21.4	5.95	168.5	1.11	54.8565	11.9035	10.6291	200 mm
8545	CO-526	MH-127	9.5462	n2224	7.4471		38.4	5.47	168.5	1.09	52.6036	10.6291	8.53	200 mm
8546	CO-528	n2226	4.3401	n2229	3.1472		33.1	3.6	168.5	0.97	42.6893	5.423	4.2301	200 mm
8547	CO-530	n2234	2.0916	n2236	1.9298		40.5	0.4	168.5	0.47	14.2287	3.465	3.592	200 mm
8548	CO-532	n2236	1.9298	n2238	1.7791		37.7	0.4	168.5	0.47	14.2287	3.592	3.39	200 mm
8551	CO-536	n2238	1.7791	MH-115	1.6857		23.3	0.4	168.5	0.48	14.2287	3.39	3.4428	200 mm
8552	CO-538	n2240	1.6085	n2242	1.4694		34.8	0.4	168.5	0.49	14.2287	3.356	3.536	200 mm
8553	CO-540	n2279	3.6402	n2246	1.1334		18.1	13.8	168.5	1.25	83.6161	4.7231	4.048	200 mm
8555	CO-542	n2272	18.4576	n2270	18.6081		37.6	0.4	168.5	0.3	14.2287	20.864	20.4759	200 mm
8556	CO-544	n2269	18.7281	n2268	20.1431		8.2	17.2	168.5	1	93.408	19.811	21.226	200 mm
8559	p2368	(MH-130	0.5604	n2252	0.4943	16.5	16.5	0.4	168.5	0.56	14.2287	4.5755	4.7623	200 mm
8560	CO-546	MH-130	0.5604	n2250	0.6661		26.4	0.4	168.5	0.56	14.2287	4.5755	4.4486	200 mm
8561	CO-548	n2024	-0.1431	n2013	-0.2477		37.3	0.28	210.7	0.7	21.6049	3.1937	2.686	250 mm
8562	CO-550	n2013	-0.2477	n2027	0.9274		14	8.41	168.5	1.99	65.2557	2.686	2.577	200 mm
8563	CO-552	n2062	1.8491	n2063	2.4919		29.9	2.15	168.5	0.79	33.0118	2.932	3.5748	200 mm
8564	CO-554	n2066	4.7655	n2068	5.1271		43.6	0.83	168.5	0.54	20.4865	5.8484	6.21	200 mm
8565	CO-556	n2304	14.3799	n2305	15.7358		33	4.11	168.5	0.64	45.5792	15.4628	16.9127	200 mm
8566	CO-558	n2314	15.7841	n2305	15.7358		12.1	0.4	168.5	0.27	14.2287	16.867	16.9127	200 mm
8568	p2437	(n2315	16.4255	MH-131	17.4641	22.3	22.3	4.66	168.5	0.54	48.538	17.5084	18.547	200 mm
8570	CO-560	MH-131	17.4641	n2301	20.1001		26	10.1	168.5	0.64	71.6398	18.547	21.183	200 mm
8576	CO-566	n2286	17.9768	n2284	19.8701		33.6	5.64	168.5	0.42	53.4281	19.0597	20.953	200 mm
8577	CO-568	n2282	16.2437	n1988	15.0911		32.6	3.53	168.5	0.37	42.2705	17.3266	16.174	200 mm
8581	CO-570	MH-133	17.7873	n2003	16.2788		45.4	3.32	168.5	0.29	40.9877	18.8702	17.3617	200 mm
8583	CO-574	n1977	1.7433	n1980	2.8068		59.8	1.78	168.5	0.47	30.0145	2.8262	3.8897	200 mm
8584	CO-576	n1981	4.0145	n1983	6.9779		29.8	9.93	168.5	0.81	70.8862	5.0974	8.0608	200 mm
8585	CO-578	n1986	12.1828	n1988	15.0911		43.7	6.66	168.5	0.6	58.0431	13.2657	16.174	200 mm
8586	CO-580	n1780	15.6127	n1810	16.483		25.8	3.38	265.6	1.97	139.1835	16.863	17.663	315mm
8587	CO-582	n1810	16.483	n1813	17.9921		38.2	3.95	265.6	2.08	150.5123	17.663	19.1721	315mm
8588	CO-584	n1814	19.1759	n1816	20.75		43.3	3.64	265.6	2.01	144.3337	20.3559	21.93	315mm
8589	CO-586	n1834	21.8165	n1836	20.1651		33	5.01	168.5	0.49	50.3408	22.8994	21.248	200 mm
8590	CO-588	n1820	23.6691	n1822	23.76		41.3	0.22	265.6	0.71	35.5104	25.434	24.94	315mm
8591	CO-590	n1839	18.6621	n1841	18.5261		34	0.4	168.5	0.39	14.2287	19.745	19.8786	200 mm
8593	CO-594	n3170	22.2744	n3172	22.0975		44.2	0.4	168.5	0.42	14.2287	24.1778	23.5576	200 mm
8594	CO-596	n2972	5.7687	n2970	4.9172		21.6	3.94	168.5	1.11	44.6613	7.0097	6.988	200 mm
8595	CO-598	n3182	5.6348	n3184	5.8363		50.4	0.4	168.5	0.57	14.2287	6.7724	6.9192	200 mm
8600	CO-608	n1851	12.4722	n1849	12.6188		34.9	0.42	335.9	1.09	91.7893	13.7225	14.041	400mm
8602	p3005	(n2280	12.6831	MH-134	14.2721	19.2	19.2	8.29	168.5	1.97	64.7661	13.766	15.355	200 mm
8604	CO-610	MH-134	14.2721	n2851	14.7909		37.5	1.38	168.5	1.04	26.4593	15.355	17.8593	200 mm
8605	CO-612	n2852	14.7981	n2854	19.8099		33.7	14.9	168.5	2.37	86.788	17.939	20.8928	200 mm
8607	CO-616	n2783	11.6422	n2785	14.9421		30.4	10.9	168.5	0.9	74.1064	12.7251	16.025	200 mm
8612	p2973	(MH-136	21.2377	n2825	20.4245	12.8	14.9	6.33	168.5	0.43	56.6058	22.3206	21.5074	200 mm
8614	CO-622	n2792	22.3071	n2794	23.1191		33.1	2.46	168.5	0.47	35.2536	23.39	24.202	200 mm
8615	CO-624	n2794	23.1191	n2796	23.3501		18.2	1.27	168.5	0.34	25.3622	24.202	24.433	200 mm
8616	CO-626	n2797	21.4323	n2799	16.6111		47.9	10.1	168.5	0.51	71.354	22.5152	17.694	200 mm
8618	p2951	(n2805	22.4788	MH-137	21.0384	16.6	16.6	8.7	168.5	0.49	66.368	23.5617	22.1213	200 mm
8623	CO-630	MH-137	21.0384	MH-138	17.9552		28.8	10.7	168.5	0.65	73.5873	22.1213	19.0381	200 mm
8624	CO-630	MH-138	17.9552	n2803	14.7961		29.5	10.7	168.5	0.72	73.5873	19.0381	15.879	200 mm
8627	p2009	(MH-139	11.0492	n1921	11.1009	21.5	21.5	0.24	335.9	0.89	69.3747	12.7501	13.2227	400mm
8628	CO-632	MH-139	11.0492	n2800	14.0256		29.6	10.1	168.5	0.7	71.374	12.7501	15.1085	200 mm
8629	CO-634	MH-139	11.0492	n1917	10.547		31.6	1.59	335.9	1.88	178.4137	12.7501	11.7973	400mm
8631	CO-638	n2780	11.8803	n2777	9.9971		31.5	5.97	168.5	0.9	54.978	12.9632	11.08	200 mm
8633	p2003	(n1914	8.4637	MH-140	9.0511	16.7	15.6	3.52	335.9	2.52	265.7233	9.714	10.3014	400mm
8635	CO-640	MH-140	9.0511	n2778	9.6318		19.6	2.96	168.5	0.75	38.7066	10.3014	10.7147	200 mm
8636	CO-642	n1917	10.547	MH-140	9.0511		43.3	3.45	335.9	2.49	263.1031	11.7973	10.3014	400mm

8638	CO-646	n2842	21.3136	n2823	21.4528		34.8	0.4	168.5	0.62	14.2287	25.9051	25.389	200 mm
8639	CO-648	n2817	17.4651	n2814	18.0483		40.2	1.45	168.5	0.26	27.1023	18.548	19.1312	200 mm
8642	CO-650	n2773	16.3201	MH-141	16.1535		33.4	0.5	168.5	0.15	15.8917	17.403	17.6531	200 mm
8643	CO-650	MH-141	16.1535	n2343	16.0377		29	0.4	168.5	0.17	14.2287	17.6531	17.8701	200 mm
8646	p2470	n2342	14.1655	MH-142	15.9502	20.3	20	8.77	168.5	0.62	66.6401	15.2484	17.0331	200 mm
8647	p2470	MH-142	15.9502	n2343	16.0377	9.5	8.9	0.92	168.5	0.26	21.5433	17.0331	17.8701	200 mm
8648	CO-654	n2340	11.1431	n2338	10.6977		25.2	1.77	168.5	0.42	29.9293	12.226	11.7806	200 mm
8649	CO-656	n2836	22.1116	n2834	22.2611		37.4	0.4	168.5	0.52	14.2287	23.6024	23.344	200 mm
8650	CO-658	n2833	22.7729	n2813	23.8491		37.2	2.89	168.5	1.03	38.2602	23.8558	24.932	200 mm
8657	CO-666	n2326	1.9988	n2330	2.3601		39.7	0.91	168.5	0.52	21.4528	3.0817	3.443	200 mm
8659	CO-670	n2330	2.3601	n2332	3.0264		24.8	2.69	168.5	0.76	36.8937	3.443	4.1093	200 mm
8661	p2449	n2323	1.5101	MH-144	1.6559	20.1	19.5	0.73	168.5	0.52	19.1673	2.593	2.7388	200 mm
8662	p2449	MH-144	1.6559	n2324	1.7279	9.9	9.3	0.73	168.5	0.51	19.1673	2.7388	2.8108	200 mm
8666	CO-672	n1952	4.351	MH-145	3.4901		42	2.05	168.5	0.63	32.203	5.4339	4.573	200 mm
8669	p2043	MH-146	3.0691	MH-145	3.4901	10.7	12.1	3.93	168.5	0.81	44.6176	4.152	4.573	200 mm
8671	CO-674	MH-146	3.0691	MH-147	3.0395		7.4	0.4	168.5	0.37	14.2287	4.152	4.465	200 mm
8673	CO-678	n1923	0.2717	n1926	0.1412		44.9	0.29	420	1.14	138.5684	4.1356	3.4405	500mm
8674	CO-680	n1937	-1.4066	n1939	2.145		43.3	8.2	265.6	2.62	216.8511	3.313	3.325	315mm
8675	CO-682	n1958	-1.3407	n1961	-1.2458		43.1	0.22	265.6	0.54	35.5104	2.642	2.5106	315mm
8676	CO-684	n2831	25.0508	MH-143	27.4935		34.2	7.14	168.5	1.36	60.1094	26.1337	32.3948	200 mm
8677	CO-686	n2737	26.1302	n2735	22.3781		34.7	10.8	168.5	0.51	74.019	27.2131	23.461	200 mm
8678	CO-688	n2861	28.5912	n2729	28.7736		45.6	0.4	168.5	0.45	14.2287	32.2414	33.779	200 mm
8679	CO-690	n2729	28.7736	n2865	28.9292		38.9	0.4	168.5	0.45	14.2287	33.779	32.898	200 mm
8680	CO-692	n2865	28.9292	n2923	29.0849		38.9	0.4	168.5	0.44	14.2287	32.898	33.022	200 mm
8681	CO-694	n2923	29.0849	n2926	29.2586		43.4	0.4	168.5	0.41	14.2287	33.022	31.667	200 mm
8682	CO-696	n2929	29.5711	n2931	30.6209		39.1	2.68	168.5	0.76	36.8484	30.654	31.7038	200 mm
8684	p3196	n3026	36.8641	MH-148	37.9553	20.2	20.2	5.4	168.5	0.62	52.2753	37.947	39.0382	200 mm
8690	p3197	MH-151	38.8068	n3028	39.3365	18.6	18.6	2.85	168.5	0.41	37.9942	39.8897	40.4194	200 mm
8691	CO-698	MH-148	37.9553	MH-151	38.8068		21.2	4.02	168.5	0.51	45.1295	39.0382	39.8897	200 mm
8694	CO-704	n3048	31.9068	n3050	31.8008		26.5	0.4	168.5	0.28	14.2287	32.9897	32.899	200 mm
8695	CO-706	n3057	30.9385	n3059	30.8174		30.3	0.4	168.5	0.37	14.2287	35.9718	36.042	200 mm
8701	CO-718	n2386	12.4556	n2388	14.5511		42.3	4.95	168.5	1.08	50.0596	13.5385	15.634	200 mm
8702	CO-720	n2444	-0.1778	n2377	-0.0231		38.7	0.4	168.5	0.72	14.2287	4.603	4.978	200 mm
8703	CO-722	n2449	4.3182	n2451	4.6691		31.8	1.1	168.5	0.93	23.6168	5.4011	5.752	200 mm
8704	CO-724	n2451	4.6691	n2622	4.8958		30	0.76	168.5	0.53	19.5595	5.752	5.9787	200 mm
8706	CO-726	n2626	7.7841	MH-152	5.4251		37.7	6.26	168.5	1.08	56.2786	8.867	6.508	200 mm
8707	CO-728	MH-152	5.4251	n2622	4.8958		50.1	1.06	168.5	0.59	23.1261	6.508	5.9787	200 mm
8710	p2764	MH-153	14.0321	n2631	15.681	18.8	18.8	8.77	168.5	1.12	66.608	15.115	16.7639	200 mm
8711	CO-730	MH-153	14.0321	n2629	13.1757		9.3	9.25	168.5	1.16	68.4067	15.115	14.2586	200 mm
8712	CO-732	n2631	15.681	n2633	20.8821		33.6	15.5	168.5	1.35	88.4941	16.7639	21.965	200 mm
8714	p2767	n2633	20.8821	MH-154	22.1813	9.2	9.2	14.1	168.5	1.26	84.5562	21.965	23.2642	200 mm
8716	CO-734	n2636	23.0111	MH-154	22.1813		32.2	2.58	168.5	0.69	36.1283	24.094	23.2642	200 mm
8717	CO-736	n2638	24.8706	n2640	25.3433		41.7	1.14	168.5	0.48	23.9659	25.9535	26.4262	200 mm
8718	CO-738	n2643	35.0561	n2645	36.8758		25.4	7.16	168.5	0.77	60.1938	36.139	38.16	200 mm
8719	CO-740	n2645	36.8758	n2647	36.9754		24.9	0.4	168.5	0.27	14.2287	38.16	38.252	200 mm
8720	CO-742	n2649	37.856	n2651	39.3121		39.3	3.71	168.5	0.45	43.3298	38.9389	40.395	200 mm
8721	CO-744	n2651	39.3121	n2654	41.3841		23.7	8.74	168.5	0.49	66.5061	40.395	42.467	200 mm
8722	CO-746	n2395	15.3955	n2388	14.5511		39.3	2.15	168.5	0.75	32.9856	16.4784	15.634	200 mm
8726	CO-748	MH-155	24.2824	n2397	20.9973		42.3	7.76	168.5	1.11	62.6634	26.4952	22.0802	200 mm
8727	CO-750	MH-155	24.2824	n2400	24.3817		24.8	0.4	168.5	0.39	14.2287	26.4952	26.807	200 mm
8728	CO-752	n2400	24.3817	n2403	24.4891		26.8	0.4	168.5	0.38	14.2287	26.807	25.572	200 mm
8729	CO-754	n2408	28.4694	n2411	29.9915		34.2	4.45	168.5	0.77	47.4643	29.5523	31.0744	200 mm
8730	CO-756	n2414	34.5131	n2416	37.1819		48.1	5.55	168.5	0.71	53.0143	35.596	38.2648	200 mm
8731	CO-758	n2417	37.6765	n2416	37.1819		18.5	2.67	168.5	0.52	36.7365	38.793	38.2648	200 mm
8732	CO-760	n2417	37.6765	n2419	37.7066		7.5	0.4	168.5	0.25	14.2287	38.793	38.9281	200 mm

8736	CO-762	n2421	37.9465	MH-156	38.0261		19.9	0.4	168.5	0.16	14.2287	40.0205	39.109	200 mm
8749	p2612	(MH-159	14.6653	n2477	16.0489	20.7	20.8	6.67	168.5	1.01	58.1199	15.7482	17.1318	200 mm
8750	CO-772	MH-159	14.6653	n2475	11.8202		38.8	7.33	168.5	1.07	60.9187	15.7482	12.9031	200 mm
8754	CO-774	MH-160	27.4844	n2482	26.5353		23.2	4.1	168.5	0.75	45.5486	28.5673	27.6182	200 mm
8758	CO-776	MH-161	29.008	MH-160	27.4844		21.8	6.99	168.5	0.87	59.483	30.0909	28.5673	200 mm
8759	CO-778	n2485	30.9951	MH-161	29.008		26.3	7.55	168.5	0.86	61.8124	32.078	30.0909	200 mm
8760	CO-780	n2681	12.493	n2683	14.5831		35.4	5.9	168.5	0.88	54.6535	13.5759	15.666	200 mm
8761	CO-782	n2685	16.009	n2683	14.5831		23.9	5.98	168.5	0.87	54.9976	17.0919	15.666	200 mm
8763	p2819	(n2685	16.009	MH-162	17.2944	18.8	18.8	6.83	168.5	0.87	58.7899	17.0919	18.3773	200 mm
8765	CO-784	MH-162	17.2944	n2687	21.2413		40.1	9.85	168.5	0.96	70.5956	18.3773	22.3242	200 mm
8767	CO-788	n2694	33.5554	n2697	34.1121		49.4	1.13	168.5	0.33	23.8788	34.6383	35.195	200 mm
8768	CO-790	n2704	31.0075	n2675	30.1051		29.7	3.04	168.5	0.39	39.2014	32.0904	31.188	200 mm
8770	CO-794	n2669	23.9161	n2671	24.9207		32.6	3.08	168.5	0.53	39.4836	24.999	26.0036	200 mm
8771	CO-796	n2708	41.7151	n2598	41.6042		27.7	0.4	168.5	0.17	14.2287	43.2791	43.35	200 mm
8772	CO-798	n2595	39.8391	n2593	39.5291		12.9	2.4	168.5	0.47	34.8629	40.922	40.612	200 mm
8773	CO-800	n3024	38.9704	n2593	39.5291		40.9	1.37	168.5	0.42	26.2935	40.0533	40.612	200 mm
8774	CO-802	n3026	36.8641	n3024	38.9704		31.2	6.74	168.5	0.76	58.4243	37.947	40.0533	200 mm
8775	CO-804	n3141	28.7213	n3044	31.8041		37.1	8.31	168.5	0.85	64.8666	29.8042	32.887	200 mm
8776	CO-806	n3044	31.8041	n3042	34.7055		38.8	7.49	168.5	0.79	61.553	32.887	35.7884	200 mm
8777	CO-808	n3155	24.9011	n3144	25.3982		29.7	1.67	168.5	0.56	29.0833	25.984	26.4811	200 mm
8778	CO-810	n3160	22.7911	n3157	23.9061		38.6	2.89	168.5	0.73	38.2361	23.874	24.989	200 mm
8815	p3526	(n3342	17.6298	MH-167	15.8194	21.9	21.9	8.26	168.5	0.92	64.6418	18.7127	16.9023	200 mm
8817	CO-858	n3344	7.8475	MH-167	15.8194		66.9	11.9	168.5	1.08	77.6807	8.9304	16.9023	200 mm
8822	CO-862	n2965	5.5907	MH-168	5.78		47.3	0.4	168.5	0.68	14.2287	7.003	7.2173	200 mm
8823	CO-864	MH-168	5.78	n2962	5.9197		34.9	0.4	168.5	0.68	14.2287	7.2173	7.284	200 mm
8824	CO-866	n2954	7.3344	n2765	7.5591		17.3	1.3	168.5	1.04	25.6733	8.4173	8.925	200 mm
8830	CO-872	n2765	7.5591	n2767	7.689		32.5	0.4	168.5	0.63	14.2287	8.925	8.93	200 mm
8833	CO-876	n2945	7.9654	n2761	8.8428		32.2	2.73	168.5	0.67	37.1362	9.402	9.9257	200 mm
8834	CO-878	n2947	8.04	n2945	7.9654		18.7	0.4	168.5	0.37	14.2287	9.465	9.402	200 mm
8835	CO-880	n2945	7.9654	n2764	7.876		22.3	0.4	168.5	0.44	14.2287	9.402	9.247	200 mm
8836	CO-882	n3435	17.8698	n3433	18.0282		39.6	0.4	168.5	0.23	14.2287	20.2928	20.021	200 mm
8837	CO-884	n3439	17.499	n3437	17.6299		32.7	0.4	168.5	0.28	14.2287	22.62	21.2958	200 mm
8838	CO-886	n3181	5.8887	n3179	6.0402		37.9	0.4	168.5	0.49	14.2287	6.9793	7.1231	200 mm
8840	CO-890	n3440	25.8724	n2891	26.1436		29.8	0.91	168.5	0.27	21.4604	26.9553	27.335	200 mm
8843	CO-896	n2876	22.4437	n2874	22.6081		41.1	0.4	168.5	0.3	14.2287	24.6209	23.691	200 mm
8844	CO-898	n2871	30.1965	n2869	32.7754		33.2	7.76	168.5	0.65	62.6599	31.2794	34.095	200 mm
8848	p3149	(n2982	18.8027	MH-173	16.8845	21.9	21.9	8.78	168.5	0.66	66.6496	19.8856	17.9674	200 mm
8850	CO-904	n2984	14.9008	MH-173	16.8845		36.6	5.42	168.5	0.62	52.3592	15.9837	17.9674	200 mm
8851	CO-906	n2944	9.9161	n2991	10.5731		42.1	1.56	168.5	0.56	28.0929	10.999	11.656	200 mm
8857	CO-912	n3860	23.4829	n3861	21.9161		21.9	7.16	168.5	0.63	60.1798	24.5658	22.999	200 mm
8859	CO-916	n3762	18.0027	n3893	21.6763		41.2	8.91	168.5	0.84	67.1555	22.707	23.6494	200 mm
8860	CO-918	n3762	18.0027	n3760	17.8462		39.1	0.4	168.5	0.43	14.2287	22.707	23.1	200 mm
8861	CO-920	n3750	9.297	n3752	9.7751		18.5	2.59	168.5	0.89	36.1944	13.36	10.858	200 mm
8862	CO-922	n3764	7.4121	n3766	7.2534		39.7	0.4	168.5	0.5	14.2287	8.495	9.1445	200 mm
8863	CO-924	n3746	11.1831	n3748	10.32		32.4	2.66	168.5	0.48	36.6906	12.266	11.4029	200 mm
8879	CO-932	n3734	26.7171	MH-178	25.8672		24.2	3.51	168.5	0.35	42.149	27.8	26.9501	200 mm
8880	CO-934	n3732	25.6211	MH-178	25.8672		22	1.12	168.5	0.29	23.7835	26.704	26.9501	200 mm
8881	CO-936	n3728	18.6552	n3730	24.4611		35.4	16.4	168.5	0.98	91.1217	19.7381	25.544	200 mm
8882	CO-938	n3724	12.9611	n3727	14.8452		36.7	5.13	168.5	0.72	50.978	14.044	15.9281	200 mm
8887	CO-942	MH-179	12.8702	n3681	9.5433		35.2	9.44	168.5	0.5	69.1212	13.9531	10.6262	200 mm
8891	p3927	(MH-181	20.1181	n3693	21.043	26.3	26.3	3.52	168.5	0.73	42.1954	21.201	22.1259	200 mm
8892	CO-944	n3691	19.5402	MH-181	20.1181		18.2	3.18	168.5	0.72	40.1048	20.6231	21.201	200 mm
8897	p3930	(MH-182	28.7347	MH-183	30.1014	10.9	10.9	12.5	168.5	1.02	79.5597	29.8176	31.1843	200 mm
8899	CO-946	n3694	23.125	MH-182	28.7347		37.7	14.9	168.5	1.13	86.7817	24.2079	29.8176	200 mm
8900	CO-948	MH-183	30.1014	n3697	31.1274		40.4	2.54	168.5	0.57	35.8457	31.1843	33.6754	200 mm

8901	CO-950	n3697	31.1274	n3699	31.2531		31.4	0.4	168.5	0.28	14.2287	33.6754	32.336	200 mm
8903	p3940	(n3705	32.7986	MH-184	30.5144	15.1	15.1	15.1	168.5	0.6	87.4598	33.8815	31.5973	200 mm
8904	p3940	(MH-184	30.5144	n3706	28.3162	14.5	14.5	15.1	168.5	0.71	87.4598	31.5973	29.3991	200 mm
8905	CO-952	n3710	11.4394	n3708	19.9307		35.4	24	168.5	1.14	110.2579	16.93	21.0136	200 mm
8906	CO-954	n3896	18.1641	n3762	18.0027		40.3	0.4	168.5	0.39	14.2287	19.247	22.707	200 mm
8907	CO-956	n3925	12.8146	n3835	11.7481		34.3	3.11	168.5	0.61	39.6969	13.8975	12.831	200 mm
8908	CO-958	n3921	19.3173	n3923	16.8841		37.7	6.45	168.5	0.66	57.1255	20.4002	17.967	200 mm
8910	CO-962	n3911	14.7054	n3912	16.6638		28.3	6.93	168.5	0.72	59.2355	15.7883	17.7467	200 mm
8911	CO-964	n3912	16.6638	n3913	19.0067		29.4	7.96	168.5	0.72	63.4658	17.7467	20.0896	200 mm
8912	CO-966	n3688	13.8453	n3570	12.3523		31.2	4.78	168.5	0.96	49.1856	14.9282	13.4352	200 mm
8913	CO-968	n3570	12.3523	n3572	13.5281		35.8	3.29	168.5	0.69	40.7741	13.4352	14.611	200 mm
8915	CO-970	n3574	16.5559	MH-185	18.7091		8.3	25.8	168.5	0.71	114.2581	17.6388	19.792	200 mm
8921	CO-976	n3583	26.7401	MH-186	26.8926		38.1	0.4	168.5	0.16	14.2287	29.595	27.9755	200 mm
8935	p3771	(n3538	10.4043	MH-190	11.4025	17.2	17.2	5.8	168.5	0.97	54.1942	11.4872	12.4854	200 mm
8936	p3771	(MH-190	11.4025	n3539	12.1422	12.7	13.2	5.8	168.5	0.95	54.1942	12.4854	13.2251	200 mm
8939	p3769	(n3536	7.9522	MH-192	8.4334	14.5	14.6	3.31	168.5	0.84	40.9169	9.0351	9.5163	200 mm
8940	p3769	(MH-192	8.4334	n3537	8.9438	15.4	15.6	3.31	168.5	0.83	40.9169	9.5163	10.0267	200 mm
8941	CO-984	n3535	6.0645	n3558	6.1301		16.4	0.4	168.5	0.5	14.2287	8.577	8.715	200 mm
8942	CO-986	n3533	5.6401	n3535	6.0645		35	1.21	168.5	0.84	24.7859	6.723	8.577	200 mm
8943	CO-988	n3529	4.534	n3531	5.5327		25.9	3.85	168.5	1.27	44.1602	5.6169	8.0171	200 mm
8944	CO-990	n3531	5.5327	n3533	5.6401		26.8	0.4	168.5	0.56	14.2287	8.0171	6.723	200 mm
8945	CO-992	n3524	4.1578	n3483	4.294		34.1	0.4	168.5	0.61	14.2287	6.1025	5.8203	200 mm
8946	CO-994	n3525	4.0378	n3527	3.8863		37.9	0.4	168.5	0.62	14.2287	6.2226	6.366	200 mm
8947	CO-996	n3527	3.8863	n3543	3.7597		31.6	0.4	168.5	0.62	14.2287	6.366	6.319	200 mm
8948	CO-998	n3552	2.8686	n3554	2.7233		36.3	0.4	168.5	0.63	14.2287	6.3861	6.2996	200 mm
8949	CO-1000	n3675	2.4191	n3712	2.2556		40.9	0.4	168.5	0.68	14.2287	6.098	6.5095	200 mm
8950	CO-1002	n3716	5.7466	n3718	5.7903		10.9	0.4	168.5	0.38	14.2287	6.893	6.8732	200 mm
8953	p4062	(MH-193	4.6857	n3819	4.5997	30.7	36.3	0.28	210.7	0.69	21.6049	6.5929	6.663	250 mm
8954	CO-1004	(MH-193	4.6857	n3817	4.8053		42.7	0.28	210.7	0.69	21.6049	6.5929	6.302	250 mm
8955	CO-1006	n3817	4.8053	n2970	4.9172		39.9	0.28	210.7	0.69	21.6049	6.302	6.988	250 mm
8956	CO-1008	n3669	5.3711	n3667	5.6015		35.8	0.64	168.5	0.49	18.0372	6.454	6.6844	200 mm
8957	CO-1010	n3661	16.0288	n1804	17.1719		33.7	3.4	168.5	0.77	41.4639	17.1117	18.857	200 mm
8959	p1883	(n1803	19.2861	MH-194	18.493	28.4	28.4	2.79	168.5	0.49	37.5726	20.369	19.5759	200 mm
8960	p1883	(MH-194	18.493	n1804	17.1719	25.8	25.8	5.13	168.5	0.65	50.9343	19.5759	18.857	200 mm
8961	CO-1012	n1803	19.2861	n1801	19.7917		39	1.3	168.5	0.35	25.6172	20.369	20.8746	200 mm
8964	p1880	(MH-195	20.2046	n1801	19.7917	19.7	19.8	2.09	168.5	0.36	32.5412	21.2875	20.8746	200 mm
8965	CO-1014	(MH-195	20.2046	n1799	20.4055		13.5	1.49	168.5	0.26	27.416	21.2875	21.4884	200 mm
8978	CO-1016	n3445	23.0042	n1537	22.8547		37.4	0.4	168.5	0.41	14.2287	26.8326	26.543	200 mm
8979	CO-1018	n3445	23.0042	n3447	23.1739		42.4	0.4	168.5	0.41	14.2287	26.8326	26.8855	200 mm
8980	CO-1020	n3455	24.0273	n3453	23.8779		37.4	0.4	168.5	0.32	14.2287	26.076	26.035	200 mm
8981	CO-1022	n3455	24.0273	n3457	24.1721		36.2	0.4	168.5	0.31	14.2287	26.076	25.255	200 mm
8982	CO-1024	n3460	28.3676	n3462	28.8091		33.4	1.32	168.5	0.38	25.8752	29.4505	29.892	200 mm
8984	p3695	(n3463	28.6157	MH-199	28.3835	13.9	13.9	1.67	168.5	0.27	29.1072	29.6986	29.4664	200 mm
8985	p3695	(MH-199	28.3835	n3464	28.1135	16.1	15.6	1.67	168.5	0.34	29.1072	29.4664	29.1964	200 mm
8987	p3701	(n3469	18.0771	MH-200	17.3035	18.8	18.8	4.12	168.5	0.7	45.6743	19.16	18.3864	200 mm
8989	CO-1026	(MH-200	17.3035	n3471	17.1754		32	0.4	168.5	0.32	14.2287	18.3864	18.281	200 mm
8990	CO-1028	n3477	5.7098	n3479	4.8701		39.2	2.14	168.5	0.69	32.9066	6.7927	5.953	200 mm
8991	CO-1030	n3480	4.7501	n3482	4.5871		32.2	0.51	168.5	0.43	15.9992	6.0896	5.67	200 mm
8993	p1582	(n1538	22.7348	MH-201	22.6691	16.4	16.4	0.4	168.5	0.44	14.2287	25.7737	25.4492	200 mm
8994	p1582	(MH-201	22.6691	n1539	22.6148	13.6	13.7	0.4	168.5	0.44	14.2287	25.4492	25.1815	200 mm
8996	p1586	(n1542	18.7621	MH-202	18.6328	32.3	32.3	0.4	168.5	0.46	14.2287	19.845	19.7258	200 mm
8997	p1586	(MH-202	18.6328	n1543	18.5103	30.6	30.8	0.4	168.5	0.46	14.2287	19.7258	19.6129	200 mm
8998	CO-1034	n1540	22.4949	n1542	18.7621		46.9	7.96	168.5	1.3	63.4556	23.84	19.845	200 mm
8999	CO-1036	n1543	18.5103	n1545	18.3282		45.5	0.4	168.5	0.47	14.2287	19.6129	20.9358	200 mm
9000	CO-1038	n1562	23.3942	n1560	23.7421		41.4	0.84	168.5	0.22	20.6317	24.4771	24.825	200 mm

9005	CO-104	MH-204	24.1026	n1558	23.9886		28.5	0.4	168.5	0.16	14.2287	25.1855	25.843	200 mm
9006	CO-104	n1557	23.8686	n1555	23.4411		41.5	1.03	168.5	0.32	22.8385	25.1398	24.524	200 mm
9007	CO-104	n1554	23.3681	n1551	21.7956		39.9	3.95	168.5	0.59	44.6833	24.5996	23.118	200 mm
9010	p1595	(MH-205	21.8802	n1551	21.7956	21.2	21.2	0.4	168.5	0.5	14.2287	22.9631	23.118	200 mm
9011	CO-105	MH-205	21.8802	n1549	22.091		36.5	0.58	168.5	0.56	17.0882	22.9631	23.1739	200 mm
9012	CO-105	n1537	22.8547	n1535	26.5831		40.7	9.16	168.5	0.68	68.0857	26.543	27.666	200 mm
9013	CO-105	n1533	27.4484	n1535	26.5831		25.4	3.41	168.5	0.43	41.5516	28.5313	27.666	200 mm
9015	CO-105	n1775	19.1483	n1773	19.2988		37.6	0.4	168.5	0.6	14.2287	21.074	21.366	200 mm
9016	CO-106	n1773	19.2988	n1771	19.4272		32.1	0.4	168.5	0.59	14.2287	21.366	21.425	200 mm
9017	CO-106	n1771	19.4272	n1768	19.5935		41.6	0.4	168.5	0.59	14.2287	21.425	21.43	200 mm
9018	CO-106	n1767	19.7046	n1765	19.831		31.6	0.4	168.5	0.44	14.2287	21.449	21.167	200 mm
9021	CO-106	n1762	20.0461	n1760	20.2391		34.5	0.56	168.5	0.48	16.8386	21.129	21.322	200 mm
9022	CO-107	n1564	26.0691	n1530	26.4441		37.5	1	168.5	0.22	22.4995	27.152	27.527	200 mm
9024	CO-107	n813	4.8688	n815	6.0418		33.1	3.54	168.5	1.1	42.3384	5.9517	7.865	200 mm
9025	CO-107	n1200	18.9411	MH-89	20.0655		19.2	5.84	168.5	0.52	54.3869	20.024	21.1484	200 mm
9026	CO-107	MH-90	2.7997	n1212	2.6448		14.9	1.04	168.5	0.52	22.9155	3.8826	3.7277	200 mm
9028	CO-108	n1191	5.7151	n1193	6.1912		36.9	1.29	168.5	0.38	25.5656	6.798	7.2741	200 mm
9029	CO-108	n1175	5.3483	n1183	5.5142		41.5	0.4	168.5	0.37	14.2287	8.791	8.248	200 mm
9032	CO-109	n1900	1.5826	n1902	1.4881		47.2	0.2	335.9	0.81	63.3301	3.071	3.331	400mm
9033	CO-109	n1896	1.7325	n1898	1.6705		31	0.2	335.9	0.81	63.3301	3.06	3.106	400mm
9034	CO-109	n1893	1.9994	n1895	1.7797		43.7	0.5	335.9	1.16	100.3967	3.2497	3.03	400mm
9035	CO-109	n1890	3.8035	n1888	5.2801		35.4	4.18	335.9	2.51	289.4112	5.0538	7.032	400mm
9036	CO-109	n1888	5.2801	n1175	5.3483		34.1	0.2	335.9	0.8	63.3301	7.032	8.791	400mm
9037	CO-110	n1175	5.3483	n1173	8.6288		39.9	8.22	210.7	3.11	117.0473	8.791	9.7539	250 mm
9043	p1195	(n1176	6.6575	MH-208	6.1726	12.6	12.6	3.84	168.5	0.36	44.0984	7.7404	7.2555	200 mm
9045	CO-110	MH-208	6.1726	n1178	5.4431		21.4	3.42	168.5	0.43	41.5863	7.2555	6.526	200 mm
9046	CO-111	n1673	7.7275	n1675	7.2532		20.5	2.31	168.5	0.42	34.2042	8.8104	8.572	200 mm
9047	CO-111	MH-69	16.8719	n1667	16.354		17.5	2.97	168.5	0.54	38.7521	17.9548	17.4369	200 mm
9053	CO-112	n1721	13.3049	n1723	12.4431		34.5	2.5	168.5	0.51	35.5629	14.3878	13.526	200 mm
9054	CO-112	n1712	16.3051	MH-73	16.3713		16.6	0.4	168.5	0.53	14.2287	22.053	21.2626	200 mm
9056	CO-112	n1660	16.4247	n1709	16.5319		26.8	0.4	168.5	0.42	14.2287	20.386	21.042	200 mm
9057	CO-113	n1645	13.9971	n1648	13.7851		18.8	1.13	168.5	0.5	23.8827	15.08	14.868	200 mm
9058	CO-113	n1494	21.0958	n1495	19.8221		25.4	5.02	168.5	0.4	50.4268	22.1787	20.905	200 mm
9061	CO-113	n1333	21.9621	n1335	22.5971		18	3.52	168.5	0.53	42.2217	23.045	23.68	200 mm
9062	CO-114	n1301	6.5115	n1303	4.7121		40.8	4.41	168.5	0.95	47.265	7.5944	5.795	200 mm
9064	CO-114	n1312	10.5365	n1314	14.9471		67.3	6.56	168.5	1.55	57.6137	11.6194	16.03	200 mm
9065	CO-114	n1331	20.9581	n1333	21.9621		36.6	2.74	168.5	0.52	37.2441	22.041	23.045	200 mm
9066	CO-114	n1340	27.4521	n1417	27.2711		45.2	0.4	168.5	0.25	14.2287	28.535	29.229	200 mm
9067	CO-115	n1322	25.7671	n1434	26.8714		40	2.76	168.5	0.4	37.3807	26.85	27.9543	200 mm
9072	CO-115	n1314	14.9471	n1316	17.0221		32	6.48	168.5	1.06	57.2487	16.03	18.105	200 mm
9073	CO-116	MH-61	17.3598	n1316	17.0221		30.4	1.11	168.5	0.36	23.6971	18.4427	18.105	200 mm
9075	CO-116	n1441	23.7268	n1523	23.5866		35.1	0.4	168.5	0.3	14.2287	26.336	25.1283	200 mm
9081	CO-116	n1425	27.3664	MH-212	27.5325		41.5	0.4	168.5	0.23	14.2287	30.768	30.3447	200 mm
9082	CO-116	MH-212	27.5325	MH-211	27.6827		37.6	0.4	168.5	0.2	14.2287	30.3447	29.9618	200 mm
9083	CO-116	MH-211	27.6827	n1529	27.8325		37.5	0.4	168.5	0.16	14.2287	29.9618	28.9154	200 mm
9087	CO-117	n1571	12.1188	MH-213	12.271		38.1	0.4	168.5	0.23	14.2287	14.4423	13.3539	200 mm
9088	CO-117	MH-213	12.271	n1574	18.8821		33.6	19.7	168.5	0.79	99.8029	13.3539	19.965	200 mm
9090	p1621	(n1574	18.8821	MH-214	22.3429	23.5	23.1	14.7	168.5	0.59	86.3828	19.965	23.4258	200 mm
9093	CO-117	n1595	22.4756	n1597	22.6041		32.1	0.4	168.5	0.25	14.2287	24.9326	23.687	200 mm
9094	CO-117	n1600	23.1872	n1598	23.3458		39.7	0.4	168.5	0.16	14.2287	24.7737	24.4287	200 mm
9103	CO-119	MH-64	6.4294	n1640	7.3818		43.3	2.2	168.5	0.68	33.3573	7.5123	8.4647	200 mm
9104	CO-119	n1644	17.1501	n1783	16.9958		38.6	0.4	168.5	0.25	14.2287	18.233	18.9602	200 mm
9107	CO-119	n1374	12.5132	n1376	12.3867		31.6	0.4	168.5	0.3	14.2287	14.829	15.584	200 mm
9108	CO-120	MH-2	11.9499	n1344	11.8904		14.9	0.4	168.5	0.33	14.2287	15.2352	15.863	200 mm
9109	CO-120	n1344	11.8904	n1361	16.0496		22.5	18.5	168.5	0.61	96.7683	15.863	17.1325	200 mm

9110	CO-120	n1362	16.5411	n1364	15.7908		31.9	2.35	168.5	0.31	34.517	17.624	16.8737	200 mm
9112	CO-120	n1387	5.5834	n1383	5.7221		34.7	0.4	168.5	0.27	14.2287	10.1474	6.805	200 mm
9113	CO-120	n1065	10.8991	n1387	5.5834		29.3	18.2	168.5	1.51	95.9039	11.982	10.1474	200 mm
9114	CO-120	n1370	11.7713	n1065	10.8991		37.4	2.33	168.5	0.72	34.3582	13.242	11.982	200 mm
9115	CO-120	n1344	11.8904	n1341	11.8205		17.5	0.4	168.5	0.35	14.2287	15.863	16.2515	200 mm
9116	CO-120	n1061	8.8391	n995	8.6951		36	0.4	168.5	0.45	14.2287	9.922	10.978	200 mm
9117	CO-120	n1020	9.1677	n1022	7.5547		21.9	7.35	168.5	1.11	60.9938	10.2506	8.6376	200 mm
9118	CO-120	n1040	2.5761	n1042	2.4417		33.6	0.4	168.5	0.49	14.2287	5.4143	5.2189	200 mm
9119	CO-120	n1043	2.3827	n1047	2.2663		29.1	0.4	168.5	0.51	14.2287	4.983	4.4863	200 mm
9120	CO-120	n939	3.0566	MH-4	3.1485		23	0.4	168.5	0.28	14.2287	5.592	5.9305	200 mm
9121	CO-120	MH-4	3.1485	n942	3.2009		13.1	0.4	168.5	0.27	14.2287	5.9305	5.745	200 mm
9122	CO-120	n944	3.3539	n946	3.4616		26.9	0.4	168.5	0.23	14.2287	5.1793	4.693	200 mm
9123	CO-120	n946	3.4616	n949	3.6169		38.8	0.4	168.5	0.2	14.2287	4.693	4.6998	200 mm
9124	CO-120	n142	3.0364	n140	2.8675		42.2	0.4	168.5	0.37	14.2287	5.125	4.793	200 mm
9125	CO-120	n151	3.4311	n148	3.3344		24.2	0.4	168.5	0.32	14.2287	4.514	4.744	200 mm
9126	CO-120	n146	3.2492	n144	3.1598		22.4	0.4	168.5	0.34	14.2287	4.952	5.237	200 mm
9127	CO-120	MH-7	4.1049	n180	3.9173		46.9	0.4	168.5	0.16	14.2287	5.1878	5.135	200 mm
9128	CO-120	n180	3.9173	n178	3.7544		36.3	0.45	168.5	0.21	15.0626	5.135	4.8373	200 mm
9129	CO-120	n132	2.1587	MH-9	2.0129		36.5	0.4	168.5	0.47	14.2287	4.8221	4.6822	200 mm
9130	CO-120	n662	-0.3795	n664	-0.2678		27.9	0.4	168.5	0.7	14.2287	3.4009	2.994	200 mm
9131	CO-120	n664	-0.2678	n666	-0.1904		19.4	0.4	168.5	0.7	14.2287	2.994	3.252	200 mm
9132	CO-120	n635	-1.1428	n676	2.3218		34.4	10.1	168.5	0.7	71.3612	3.342	3.47	200 mm
9134	p680(1	n676	2.3218	MH-216	2.5152	48.3	48.3	0.4	168.5	0.2	14.2287	3.47	3.76	200 mm
9136	CO-120	n964	0.4871	n966	0.6333		36.5	0.4	168.5	0.54	14.2287	3.253	3.6371	200 mm
9137	CO-120	n979	1.6598	n981	1.811		37.8	0.4	168.5	0.5	14.2287	4.4926	5.562	200 mm
9138	CO-120	n600	-0.0426	n598	-0.1911		37.1	0.4	168.5	0.63	14.2287	2.74	2.4785	200 mm
9139	CO-120	MH-16	-1.3304	n585	-1.2837		11.7	0.4	168.5	0.65	14.2287	2.3632	2.322	200 mm
9141	CO-120	n579	-1.6263	n583	-1.4464		45	0.4	168.5	0.65	14.2287	1.439	2.654	200 mm
9144	CO-120	n577	-1.8	n572	-1.918		29.5	0.4	168.5	0.65	14.2287	2.685	2.472	200 mm
9145	CO-120	n579	-1.6263	n577	-1.8		43.4	0.4	168.5	0.65	14.2287	1.439	2.685	200 mm
9146	CO-120	n567	-2.2989	LS2	-2.4774		44.6	0.4	168.5	0.66	14.2287	2.393	2.251	200 mm
9147	CO-120	n554	1.0536	n553	0.8607		48.2	0.4	168.5	0.67	14.2287	2.466	2.448	200 mm
9148	CO-120	n544	0.0161	n541	-0.1341		37.5	0.4	168.5	0.68	14.2287	2.4309	2.59	200 mm
9149	CO-120	n540	-0.2549	n541	-0.1341		30.2	0.4	168.5	0.68	14.2287	2.444	2.59	200 mm
9150	CO-120	n538	-0.3533	n536	-0.4882		33.7	0.4	168.5	0.68	14.2287	2.426	2.152	200 mm
9151	CO-120	n536	-0.4882	n533	-0.567		19.7	0.4	168.5	0.68	14.2287	2.152	2.42	200 mm
9152	CO-120	n533	-0.567	n531	-0.7875		55.1	0.4	168.5	0.68	14.2287	2.42	2.474	200 mm
9153	CO-120	n516	-1.9921	n514	-2.1525		40.1	0.4	168.5	0.69	14.2287	2.342	2.114	200 mm
9154	CO-120	MH-278	-2.1323	n494	-2.0624		17.5	0.4	168.5	0.68	14.2287	2.404	2.3731	200 mm
9155	CO-120	n493	-1.917	n491	-1.781		34	0.4	168.5	0.68	14.2287	2.292	2.4151	200 mm
9156	CO-120	n491	-1.781	n489	-1.6066		43.6	0.4	168.5	0.68	14.2287	2.4151	2.4375	200 mm
9157	CO-120	n428	0.1458	n430	0.2607		28.7	0.4	168.5	0.34	14.2287	2.339	2.228	200 mm
9158	CO-120	n431	0.3394	n433	0.4335		23.5	0.4	168.5	0.32	14.2287	2.186	2.317	200 mm
9162	CO-130	n406	3.0808	n404	3.1998		29.7	0.4	168.5	0.6	14.2287	8.857	7.994	200 mm
9163	CO-130	MH-29	2.9826	n406	3.0808		24.6	0.4	168.5	0.6	14.2287	7.6935	8.857	200 mm
9164	CO-130	n409	2.8596	MH-29	2.9826		30.8	0.4	168.5	0.6	14.2287	8.461	7.6935	200 mm
9165	CO-130	n447	-0.6223	n450	-0.4974		31.2	0.4	168.5	0.38	14.2287	2.5181	2.44	200 mm
9166	CO-130	n450	-0.4974	n453	-0.3529		36.1	0.4	168.5	0.37	14.2287	2.44	2.567	200 mm
9167	CO-130	n453	-0.3529	n456	-0.2393		28.4	0.4	168.5	0.37	14.2287	2.567	2.586	200 mm
9168	CO-130	n456	-0.2393	n460	-0.0701		42.3	0.4	168.5	0.36	14.2287	2.586	2.534	200 mm
9169	CO-130	n460	-0.0701	n463	0.0327		25.7	0.4	168.5	0.35	14.2287	2.534	2.481	200 mm
9170	CO-130	n463	0.0327	n465	0.1274		23.7	0.4	168.5	0.34	14.2287	2.481	2.3624	200 mm
9173	CO-130	n468	0.4208	MH-217	0.5463		31.4	0.4	168.5	0.31	14.2287	2.209	2.2799	200 mm
9174	CO-130	MH-217	0.5463	n472	0.6746		32.1	0.4	168.5	0.3	14.2287	2.2799	2.3525	200 mm
9175	CO-130	n466	0.2474	n468	0.4208		43.4	0.4	168.5	0.32	14.2287	2.3311	2.209	200 mm

9176	CO-132	n327	11.0691	n324	11.7731		43.2	1.63	168.5	0.27	28.7186	12.152	12.856	200 mm
9177	CO-132	n329	8.7169	n327	11.0691		47.1	4.99	168.5	0.49	50.2774	9.7998	12.152	200 mm
9180	CO-133	n311	9.9181	n309	9.8169		25.3	0.4	168.5	0.16	14.2287	11.001	12.539	200 mm
9181	CO-133	n308	9.7244	MH-32	9.6262		24.5	0.4	168.5	0.23	14.2287	11.526	11.0186	200 mm
9183	CO-133	MH-32	9.6262	n303	9.5317		23.6	0.4	168.5	0.25	14.2287	11.0186	11.955	200 mm
9184	CO-134	n293	4.6981	n291	3.8016		30.1	2.98	168.5	0.69	38.8052	5.781	4.8845	200 mm
9185	CO-134	n289	2.6951	n287	2.546		37.3	0.4	168.5	0.36	14.2287	3.778	3.632	200 mm
9187	p284(1	n284	2.0725	MH-218	2.1936	30.3	30.3	0.4	168.5	0.39	14.2287	5.0418	4.5996	200 mm
9188	p284(2	MH-218	2.1936	n285	2.3125	29.7	29.7	0.4	168.5	0.38	14.2287	4.5996	4.165	200 mm
9190	CO-134	MH-254	1.3582	n336	1.5232		41.3	0.4	168.5	0.53	14.2287	4.431	4.9783	200 mm
9191	CO-134	n280	2.5528	n278	2.6939		35.3	0.4	168.5	0.44	14.2287	5.1295	5.096	200 mm
9192	CO-135	MH-34	3.2571	MH-35	3.3543		24.3	0.4	168.5	0.42	14.2287	4.6155	4.4372	200 mm
9193	CO-135	MH-35	3.3543	n270	3.5434		23.5	0.8	168.5	0.53	20.1637	4.4372	5.1387	200 mm
9194	CO-135	n268	3.7676	MH-279	3.8681		25.1	0.4	168.5	0.39	14.2287	5.0836	4.951	200 mm
9195	CO-135	MH-250	0.0864	n245	0.1948		27.1	0.4	168.5	0.38	14.2287	2.7355	2.469	200 mm
9196	CO-135	n245	0.1948	n247	0.3262		32.8	0.4	168.5	0.32	14.2287	2.469	2.4675	200 mm
9197	CO-136	n247	0.3262	n249	0.4862		40	0.4	168.5	0.31	14.2287	2.4675	2.455	200 mm
9198	CO-136	n250	0.6063	n252	0.7758		42.4	0.4	168.5	0.28	14.2287	2.44	2.529	200 mm
9199	CO-136	n253	0.8958	MH-39	1.0489		38.3	0.4	168.5	0.25	14.2287	2.4509	2.3709	200 mm
9209	CO-138	n678	2.6741	MH-216	2.5152		39.7	0.4	168.5	0.16	14.2287	3.757	3.76	200 mm
9210	CO-138	n130	2.233	n128	2.3097		19.2	0.4	168.5	0.34	14.2287	4.917	4.831	200 mm
9211	CO-138	n124	2.5069	n121	2.6166		27.4	0.4	168.5	0.31	14.2287	4.913	4.856	200 mm
9212	CO-139	n120	2.69	n117	2.7526		15.6	0.4	168.5	0.28	14.2287	4.934	4.676	200 mm
9213	CO-139	n117	2.7526	n115	2.8192		16.7	0.4	168.5	0.27	14.2287	4.676	4.6184	200 mm
9214	CO-139	n105	1.7942	n103	1.9685		43.6	0.4	168.5	0.61	14.2287	4.4609	4.5168	200 mm
9215	CO-139	n645	0.7046	n648	-1.5008		32	6.89	168.5	1.76	59.0708	3.8835	3.544	200 mm
9220	CO-140	n1073	18.6961	n1075	18.9801		10.7	2.66	168.5	0.39	36.6644	19.779	20.063	200 mm
9221	CO-140	n1075	18.9801	n1077	20.7441		31	5.7	168.5	0.42	53.7039	20.063	21.827	200 mm
9224	p715(1	n711	9.9662	MH-221	10.0683	25.5	25.5	0.4	168.5	0.43	14.2287	11.761	12.4701	200 mm
9225	p715(2	MH-221	10.0683	n712	10.0862	4.5	4.5	0.4	168.5	0.43	14.2287	12.4701	12.5939	200 mm
9226	CO-140	n915	0.9048	n917	0.7779		31.7	0.4	168.5	0.45	14.2287	3.8322	3.8483	200 mm
9227	CO-140	n1003	5.2871	n1001	6.4738		9.3	12.8	168.5	0.9	80.3871	6.37	7.5567	200 mm
9228	CO-140	n957	1.2079	n1058	1.3813		43.3	0.4	168.5	0.58	14.2287	3.157	3.167	200 mm
9229	CO-141	n1967	-1.0229	n1965	-1.0525		13.5	0.22	265.6	0.72	35.5104	2.218	2.209	315mm
9230	CO-141	n2353	15.3471	n2359	12.1567		33	9.68	168.5	0.9	69.9973	16.43	13.2396	200 mm
9231	CO-141	n2896	26.1433	n2898	26.0282		28.8	0.4	168.5	0.25	14.2287	28.5138	27.6767	200 mm
9234	p3795(	n3562	6.5768	MH-222	6.6347	14.5	14.5	0.4	168.5	0.48	14.2287	7.8742	8.127	200 mm
9236	CO-141	MH-222	6.6347	n3565	6.7921		39.4	0.4	168.5	0.48	14.2287	8.127	7.875	200 mm
9237	CO-142	n1165	17.1066	MH-93	12.1443		39.3	12.6	168.5	0.77	79.951	18.1895	13.2272	200 mm
9238	CO-142	n1763	19.9696	n1765	19.831		34.7	0.4	168.5	0.44	14.2287	21.216	21.167	200 mm
9239	CO-142	n1748	9.8371	n1750	7.9768		32	5.82	168.5	1.15	54.2676	10.92	9.0597	200 mm
9240	CO-142	n2570	20.8601	n2568	16.9571		38.2	10.2	168.5	1.51	71.9504	21.943	22.165	200 mm
9241	CO-142	n2581	35.9351	n2579	34.9951		34.7	2.71	168.5	0.86	37.0217	37.018	36.078	200 mm
9242	CO-143	n2509	6.4766	n2507	6.1781		58.7	0.51	168.5	0.5	16.0454	7.616	7.261	200 mm
9243	CO-143	n670	2.9531	n673	3.04		21.7	0.4	168.5	0.36	14.2287	5.18	5.265	200 mm
9245	CO-143	MH-147	3.0395	n1948	2.8667		43.2	0.4	168.5	0.38	14.2287	4.465	4.5875	200 mm
9247	CO-143	n648	-1.5008	WELL 1	-1.6136		31.9	0.35	265.6	0.93	44.9939	3.544	2.5	315mm
9250	CO-144	n1066	15.5013	n853	15.4454		14	0.4	168.5	0.33	14.2287	17.978	16.8005	200 mm
9259	CO-145	n1551	21.7956	n1767	19.7046		35.2	5.94	168.5	1.34	54.8067	23.118	21.449	200 mm
9270	CO-145	MH-143	27.4935	n2741	27.6336		35	0.4	168.5	0.49	14.2287	32.3948	29.8558	200 mm
9278	CO-146	MH-226	21.5001	MH-227	17.3301	60	57.2	6.95	168.5	0.45	59.31	22.583	18.413	200 mm
9280	CO-146	MH-227	17.3301	MH-229	15.9001		32.3	4.43	168.5	0.38	47.3533	18.413	16.983	200 mm
9286	CO-147	n614	1.2209	MH-231	1.2909		17.5	0.4	168.5	0.6	14.2287	4.754	4.96	200 mm
9291	CO-147	n1467	4.4654	LS16	3.9171		37	1.48	168.5	1.14	27.4026	5.92	5	200 mm
9292	CO-148	n1660	16.4247	MH-73	16.3713		13.3	0.4	168.5	0.53	14.2287	20.386	21.2626	200 mm

9298	CO-148	MH-226	21.5001	n1287	23.0461		22.9	6.76	168.5	0.44	58.4745	22.583	24.129	200 mm
9304	p1789	(MH-235	6.5438	n1729	6.6248	20.3	19.3	0.4	168.5	0.57	14.2287	11.5757	10.0589	200 mm
9305	CO-148	n1717	17.9811	n1718	17.9253		14	0.4	168.5	0.16	14.2287	19.064	19.271	200 mm
9308	p1217	(MH-236	21.2295	MH-89	20.0655	15.5	15.5	7.49	168.5	0.46	61.5814	22.3124	21.1484	200 mm
9309	CO-148	n616	4.538	n615	3.9255		29.9	2.05	168.5	0.41	32.1874	5.6209	5.0084	200 mm
9335	CO-149	MH-237	0.8232	n20	0.5767		61.6	0.4	168.5	0.35	13.1342	3.9276	4.0376	200 mm
9337	CO-149	MH-238	2.9163	n28	2.8089		26.9	0.4	168.5	0.38	13.1342	4.179	4.2139	200 mm
9339	CO-149	MH-239	1.2737	n62	1.4623		47.1	0.4	168.5	0.37	13.1342	4.696	4.707	200 mm
9341	CO-149	MH-240	3.5913	n90	3.3317		64.9	0.4	168.5	0.55	13.1342	4.9971	4.8861	200 mm
9343	CO-149	MH-241	3.9682	n1031	3.834		30	0.45	168.5	0.45	13.8913	5.0511	4.9169	200 mm
9347	CO-150	n630	1.7449	MH-243	1.9171		29.9	0.58	168.5	0.48	15.7505	2.8278	3	200 mm
9351	CO-150	n483	-1.1235	MH-244	-1.0093		28.5	0.4	168.5	0.63	13.1342	2.4793	2.352	200 mm
9353	CO-150	n417	2.3607	MH-247	2.4982		34.4	0.4	168.5	0.58	13.1342	4.3335	4.63	200 mm
9355	CO-150	MH-248	6.3231	n359	6.213		27.5	0.4	168.5	0.53	13.1342	7.406	8.373	200 mm
9357	CO-151	n278	2.6939	MH-249	2.8135		29.9	0.4	168.5	0.41	13.1342	5.096	4.8779	200 mm
9359	CO-151	n262	-0.0421	MH-250	0.0864		32.1	0.4	168.5	0.36	13.1342	2.711	2.7355	200 mm
9363	CO-151	MH-252	2.1198	n35	1.9712		37.1	0.4	168.5	0.41	13.1342	4.8785	5.0852	200 mm
9365	CO-151	n1304	4.3673	MH-253	4.2014		41.5	0.4	168.5	0.43	13.1342	5.4502	5.445	200 mm
9367	CO-152	MH-254	1.3582	n340	1.3036		13.7	0.4	168.5	0.5	13.1342	4.431	4.222	200 mm
9370	CO-152	MH-253	4.2014	LS15	2.9171		8.5	15.2	168.5	2.31	80.9531	5.445	4	200 mm
9372	CO-152	n1631	5.3507	LS 8	4.9171		18.1	2.4	168.5	1.39	32.1859	7.2	6	200 mm
9376	CO-152	n640	1.238	n641	1.1182		30	0.4	168.5	0.58	13.1342	4.1039	4.3863	200 mm
9379	CO-153	n99	2.4239	n100	2.3285		23.8	0.4	168.5	0.57	13.1342	4.836	4.7696	200 mm
9396	CO-154	n332	5.9355	MH-281	3.9171		13.3	15.2	168.5	2.01	81.0228	8.463	5	200 mm
9398	CO-154	MH-257	3.301	n404	3.1998		25.3	0.4	168.5	0.56	13.1342	7.1726	7.994	200 mm
9401	CO-154	n1547	18.1123	LS 10	18.0766		8.9	0.4	168.5	0.46	13.1342	23.448	23	200 mm
9411	CO-155	MH-259	15.3854	MH-258	13.807		30	5.27	168.5	1.05	47.6741	16.4683	14.8899	200 mm
9417	CO-155	n514	-2.1525	well 2	-2.2087		18.7	0.3	210.7	0.68	20.6568	2.114	2	250 mm
9419	CO-155	n1387	5.5834	LS1	5.516		16.8	0.4	168.5	0.43	14.2287	10.1474	10	200 mm
9423	CO-155	n2445	-0.2978	well 3	-0.3518		19.3	0.28	210.7	0.71	21.6049	4.7525	5	250 mm
9429	CO-156	n1733	6.3935	n1735	6.2625		32.8	0.4	168.5	0.58	13.1342	12.6	12.066	200 mm
9430	CO-156	n1732	6.5016	MH-235	6.5438		10.5	0.4	168.5	0.54	13.1342	12.287	11.5757	200 mm
9432	CO-156	n1871	2.3985	LS18	2.3631		8.9	0.4	168.5	0.65	13.1342	3.87	3.87	200 mm
9433	CO-156	n1670	10.9073	n1663	10.9919		21.1	0.4	168.5	0.22	13.1342	13.199	12.604	200 mm
9448	CO-157	MH-266	-1.6278	n1935	-1.478		39.8	0.38	470.5	1.29	196.8761	2.71	3.1285	560mm
9449	CO-157	MH-266	-1.6278	MH-267	-1.7667		36.9	0.38	470.5	1.29	196.8761	2.71	2.76	560mm
9450	CO-157	MH-268	-1.9222	MH-267	-1.7667		41.4	0.38	470.5	1.29	196.8761	2.38	2.76	560mm
9451	CO-157	MH-269	-2.0754	MH-268	-1.9222		40.8	0.38	470.5	1.29	196.8761	2.45	2.38	560mm
9452	CO-157	MH-270	-2.1824	MH-269	-2.0754		28.4	0.38	470.5	1.29	196.8761	2.3	2.45	560mm
9453	CO-158	MH-271	-2.2961	MH-270	-2.1824		30.3	0.38	470.5	1.29	196.8761	2.6	2.3	560mm
9454	CO-158	MH-272	-2.4728	MH-271	-2.2961		47	0.38	470.5	1.29	196.8761	2.8	2.6	560mm
9455	CO-158	MH-273	-2.5894	MH-272	-2.4728		31	0.38	470.5	1.29	196.8761	2.69	2.8	560mm
9456	CO-158	MH-399	-2.7141	MH-273	-2.5894		33.2	0.38	470.5	1.29	196.8761	2	2.69	560mm
9459	CO-158	MH-274	1.5423	WELL 4	1.5311		4	0.28	265.6	0.76	37.177	6.5015	6	315mm
9460	CO-159	MH-274	1.5423	n3827	3.9499		29.9	8.04	265.6	2.44	198.1637	6.5015	6.463	315mm
9463	CO-147	MH-229	15.9001	MH-275	14.1366		74.6	2.36	168.5	0.31	34.5872	16.983	15.2195	200 mm
9464	CO-147	MH-275	14.1366	n1151	12.7111		58.6	2.43	168.5	0.31	35.0759	15.2195	13.794	200 mm
9468	CO-159	n56	-0.0645	LS3	-0.1009		9.1	0.4	168.5	0.54	13.1342	4.7956	3	200 mm
9470	CO-147	MH-231	1.2909	MH-276	1.3971	26.5	65.5	0.4	168.5	0.6	14.2287	4.96	4.845	200 mm
9471	CO-147	MH-276	1.3971	n1146	1.5309	33.5	58.2	0.4	168.5	0.6	14.2287	4.845	4.7	200 mm
9473	CO-159	MH-277	-0.2566	LS-5	-0.4009		36.1	0.4	168.5	0.37	13.1342	2.9974	3.3031	200 mm
9475	CO-159	MH-278	-2.1323	n499	-2.2623		32.5	0.4	168.5	0.64	13.1342	2.404	2.511	200 mm
9481	CO-160	MH-280	0.9587	n347	0.8391		29.9	0.4	168.5	0.51	13.1342	4.7305	5.794	200 mm
9484	CO-160	MH-281	3.9171	n397	3.8515		16.4	0.4	168.5	0.55	13.1342	5	9.5916	200 mm
9599	CO-160	MH-282	10.8771	MH-285	10.0571		17	4.84	168.5	0.34	45.6753	11.96	11.14	200 mm

9600	CO-160	MH-285	10.0571	MH-286	8.6511		30.2	4.65	168.5	0.41	44.8012	11.14	9.734	200 mm
9601	CO-160	MH-286	8.6511	MH-287	8.0631		33.4	1.76	168.5	0.33	27.5374	9.734	9.146	200 mm
9602	CO-160	MH-287	8.0631	MH-288	7.8248		30.1	0.79	168.5	0.27	18.4787	9.146	8.9077	200 mm
9603	CO-160	MH-288	7.8248	MH-289	7.245		30	1.93	168.5	0.4	28.849	8.9077	8.3279	200 mm
9604	CO-160	MH-289	7.245	MH-290	5.8415		31.8	4.41	168.5	0.56	43.6264	8.3279	6.9244	200 mm
9605	CO-160	MH-290	5.8415	MH-291	4.0557		30.4	5.87	168.5	0.65	50.3131	6.9244	5.1386	200 mm
9606	CO-160	MH-291	4.0557	MH-292	2.9007		29.1	3.97	168.5	0.59	41.3676	5.1386	3.9836	200 mm
9607	CO-160	MH-292	2.9007	MH-293	2.2047		30.4	2.29	168.5	0.51	31.4131	3.9836	3.2876	200 mm
9608	CO-160	MH-293	2.2047	MH-294	2.0334		29.6	0.58	168.5	0.32	15.8051	3.2876	3.1163	200 mm
9609	CO-160	MH-294	2.0334	MH-295	1.9002		30.6	0.44	168.5	0.3	13.708	3.1163	2.9831	200 mm
9610	CO-160	MH-295	1.9002	MH-296	1.5162		60.7	0.63	168.5	0.35	16.5125	2.9831	2.5991	200 mm
9611	CO-160	MH-296	1.5162	MH-297	1.403		28.3	0.4	168.5	0.31	13.1342	2.5991	2.5207	200 mm
9612	CO-160	MH-297	1.403	MH-298	1.279		31	0.4	168.5	0.31	13.1342	2.5207	2.5164	200 mm
9613	CO-160	MH-298	1.279	MH-299	1.1616		29.4	0.4	168.5	0.32	13.1342	2.5164	2.4707	200 mm
9614	CO-160	MH-299	1.1616	MH-300	1.0485		28.3	0.4	168.5	0.33	13.1342	2.4707	2.428	200 mm
9615	CO-160	MH-300	1.0485	MH-301	0.939		27.4	0.4	168.5	0.33	13.1342	2.428	2.515	200 mm
9616	CO-160	MH-301	0.939	MH-302	0.8153		30.9	0.4	168.5	0.34	13.1342	2.515	2.4555	200 mm
9617	CO-160	MH-302	0.8153	MH-303	0.7348		20.1	0.4	168.5	0.34	13.1342	2.4555	2.51	200 mm
9618	CO-160	MH-303	0.7348	MH-304	0.6056		32.3	0.4	168.5	0.35	13.1342	2.51	2.4522	200 mm
9619	CO-160	MH-304	0.6056	MH-305	0.5038		25.5	0.4	168.5	0.35	13.1342	2.4522	2.461	200 mm
9620	CO-160	MH-305	0.5038	MH-306	0.3827		30.3	0.4	168.5	0.36	13.1342	2.461	2.4879	200 mm
9621	CO-160	MH-306	0.3827	MH-307	0.2621		30.2	0.4	168.5	0.36	13.1342	2.4879	2.603	200 mm
9622	CO-160	MH-307	0.2621	MH-308	0.1454		29.2	0.4	168.5	0.37	13.1342	2.603	2.8985	200 mm
9623	CO-160	MH-308	0.1454	MH-309	0.0607		21.2	0.4	168.5	0.37	13.1342	2.8985	3.082	200 mm
9624	CO-160	MH-309	0.0607	MH-310	-0.0602		30.2	0.4	168.5	0.38	13.1342	3.082	3.038	200 mm
9625	CO-160	MH-310	-0.0602	MH-311	-0.1301		17.5	0.4	168.5	0.38	13.1342	3.038	3.038	200 mm
9626	CO-160	MH-311	-0.1301	MH-312	-0.2538		30.9	0.4	168.5	0.38	13.1342	3.038	2.9156	200 mm
9627	CO-160	MH-312	-0.2538	MH-313	-0.3719		29.5	0.4	168.5	0.39	13.1342	2.9156	2.9332	200 mm
9628	CO-160	MH-313	-0.3719	MH-314	-0.4914		29.9	0.4	168.5	0.39	13.1342	2.9332	2.996	200 mm
9629	CO-160	MH-314	-0.4914	MH-315	-0.6157		31.1	0.4	168.5	0.6	13.1342	2.996	3.1749	200 mm
9630	CO-160	MH-315	-0.6157	MH-316	-0.7341		29.6	0.4	168.5	0.6	13.1342	3.1749	3.6531	200 mm
9631	CO-160	MH-316	-0.7341	MH-317	-0.8556		30.4	0.4	168.5	0.6	13.1342	3.6531	3.8394	200 mm
9632	CO-160	MH-317	-0.8556	MH-319	-0.9763		30.2	0.4	168.5	0.6	13.1342	3.8394	3.8743	200 mm
9633	CO-160	MH-319	-0.9763	MH-320	-1.0174		10.3	0.4	168.5	0.6	13.1342	3.8743	3.882	200 mm
9634	CO-160	MH-320	-1.0174	MH-321	-1.1005		20.8	0.4	168.5	0.61	13.1342	3.882	3.927	200 mm
9635	CO-160	MH-321	-1.1005	MH-322	-1.2213		30.2	0.4	168.5	0.61	13.1342	3.927	3.8635	200 mm
9636	CO-160	MH-322	-1.2213	MH-323	-1.342		30.2	0.4	168.5	0.61	13.1342	3.8635	3.8923	200 mm
9637	CO-160	MH-323	-1.342	MH-324	-1.4679		31.5	0.4	168.5	0.61	13.1342	3.8923	3.9418	200 mm
9638	CO-160	MH-324	-1.4679	MH-325	-1.5899		30.5	0.4	168.5	0.61	13.1342	3.9418	4.002	200 mm
9640	CO-160	MH-326	2.8749	MH-327	2.7252		31.9	0.47	168.5	0.15	14.2304	3.9578	4.0348	200 mm
9641	CO-160	MH-327	2.7252	MH-328	2.5957		32.4	0.4	168.5	0.17	13.1342	4.0348	4.0707	200 mm
9645	CO-160	MH-329	2.482	MH-330	2.3633		29.7	0.4	168.5	0.22	13.1342	4.0997	4.0032	200 mm
9646	CO-160	MH-330	2.3633	MH-331	2.2406		30.7	0.4	168.5	0.23	13.1342	4.0032	4.0187	200 mm
9647	CO-160	MH-331	2.2406	MH-332	2.0899		37.7	0.4	168.5	0.24	13.1342	4.0187	3.921	200 mm
9648	CO-170	MH-332	2.0899	MH-333	1.97		30	0.4	168.5	0.25	13.1342	3.921	3.7113	200 mm
9649	CO-170	MH-333	1.97	MH-334	1.8032		41.7	0.4	168.5	0.27	13.1342	3.7113	3.801	200 mm
9650	CO-170	MH-334	1.8032	MH-335	1.691		28.1	0.4	168.5	0.39	13.1342	3.801	3.8352	200 mm
9651	CO-170	MH-335	1.691	MH-336	1.5731		29.5	0.4	168.5	0.4	13.1342	3.8352	3.8555	200 mm
9652	CO-170	MH-336	1.5731	MH-337	1.4312		35.5	0.4	168.5	0.4	13.1342	3.8555	3.8343	200 mm
9653	CO-170	MH-337	1.4312	MH-338	1.3072		31	0.4	168.5	0.4	13.1342	3.8343	3.8189	200 mm
9654	CO-170	MH-338	1.3072	MH-339	1.2377		17.4	0.4	168.5	0.47	13.1342	3.8189	3.745	200 mm
9655	CO-170	MH-339	1.2377	MH-340	1.1111		31.6	0.4	168.5	0.48	13.1342	3.745	3.7527	200 mm
9656	CO-170	MH-340	1.1111	MH-341	0.9921		29.7	0.4	168.5	0.48	13.1342	3.7527	3.7743	200 mm
9657	CO-170	MH-341	0.9921	MH-342	0.8704		30.4	0.4	168.5	0.48	13.1342	3.7743	3.8322	200 mm
9658	CO-170	MH-342	0.8704	MH-343	0.7427		31.9	0.4	168.5	0.48	13.1342	3.8322	3.8483	200 mm

9659	CO-172	MH-343	0.7427	MH-344	0.5174		56.3	0.4	168.5	0.49	13.1342	3.8483	3.902	200 mm
9660	CO-172	MH-344	0.5174	MH-345	0.3649		38.1	0.4	168.5	0.14	13.1342	3.902	3.885	200 mm
9661	CO-172	MH-345	0.3649	MH-346	2.712		42.8	5.49	168.5	1.26	48.6363	3.885	4.1231	200 mm
9662	CO-172	MH-346	2.712	MH-347	2.8042		23	0.4	168.5	0.49	13.1342	4.1231	4.002	200 mm
9663	CO-173	MH-347	2.8042	MH-348	2.9248		30.1	0.4	168.5	0.49	13.1342	4.002	4.0077	200 mm
9664	CO-173	MH-348	2.9248	MH-349	3.6397		29.6	2.41	168.5	0.93	32.2592	4.0077	4.7226	200 mm
9665	CO-173	MH-349	3.6397	MH-350	4.5139		29.5	2.96	168.5	0.99	35.7376	4.7226	5.5968	200 mm
9666	CO-173	MH-350	4.5139	MH-351	5.9631		36.7	3.95	168.5	1.09	41.2902	5.5968	7.046	200 mm
9667	CO-173	MH-351	5.9631	MH-352	7.2199		30.4	4.13	168.5	1.1	42.2174	7.046	8.3028	200 mm
9668	CO-174	MH-352	7.2199	MH-353	8.6311		37.1	3.8	168.5	1.07	40.4961	8.3028	9.714	200 mm
9669	CO-174	MH-353	8.6311	MH-354	9.2185		15.3	3.84	168.5	1.07	40.7088	9.714	10.3014	200 mm
9670	CO-174	MH-354	9.2185	MH-355	10.7144		43.5	3.44	168.5	1.03	38.499	10.3014	11.7973	200 mm
9671	CO-174	MH-355	10.7144	MH-356	10.8459		31.2	0.42	168.5	0.48	13.4796	11.7973	12.7501	200 mm
9672	CO-174	MH-356	10.8459	MH-357	10.9332		21.8	0.4	168.5	0.47	13.1342	12.7501	13.2227	200 mm
9673	CO-175	MH-357	10.9332	MH-358	11.0811		37	0.4	168.5	0.47	13.1342	13.2227	13.771	200 mm
9674	CO-175	MH-358	11.0811	MH-359	11.2051		31	0.4	168.5	0.47	13.1342	13.771	14.481	200 mm
9675	CO-175	MH-359	11.2051	MH-360	11.3781		43.3	0.4	168.5	0.46	13.1342	14.481	14.489	200 mm
9676	CO-175	MH-360	11.3781	MH-361	11.5109		33.2	0.4	168.5	0.46	13.1342	14.489	14.295	200 mm
9677	CO-175	MH-361	11.5109	MH-362	11.6338		30.7	0.4	168.5	0.46	13.1342	14.295	13.9381	200 mm
9678	CO-176	MH-362	11.6338	MH-363	11.7533		29.9	0.4	168.5	0.46	13.1342	13.9381	13.713	200 mm
9679	CO-176	MH-363	11.7533	MH-364	11.774		5.2	0.4	168.5	0.45	13.1342	13.713	13.676	200 mm
9680	CO-176	MH-364	11.774	MH-365	11.8925		29.6	0.4	168.5	0.45	13.1342	13.676	13.784	200 mm
9681	CO-176	MH-365	11.8925	MH-366	12.0167		31.1	0.4	168.5	0.45	13.1342	13.784	13.7225	200 mm
9685	CO-177	MH-367	12.157	MH-368	12.2687		27.9	0.4	168.5	0.44	13.1342	14.041	14.245	200 mm
9686	CO-177	MH-368	12.2687	MH-369	13.978		28.8	5.94	168.5	1.08	50.5959	14.245	15.0609	200 mm
9687	CO-177	MH-369	13.978	MH-370	14.9178		29.7	3.17	168.5	0.86	36.9475	15.0609	16.0007	200 mm
9688	CO-177	MH-370	14.9178	MH-371	15.7223		30.6	2.63	168.5	0.8	33.6968	16.0007	16.8056	200 mm
9689	CO-178	MH-371	15.7223	MH-372	15.7801		14.5	0.4	168.5	0.41	13.1342	16.8056	16.863	200 mm
9690	CO-178	MH-372	15.7801	MH-373	17.3043		29.1	5.24	168.5	0.9	47.5216	16.863	18.3872	200 mm
9691	CO-178	MH-373	17.3043	MH-374	18.2115		30.6	2.96	168.5	0.73	35.7548	18.3872	19.2944	200 mm
9692	CO-178	MH-374	18.2115	MH-375	18.9369		29.8	2.44	168.5	0.67	32.4162	19.2944	20.1252	200 mm
9693	CO-178	MH-375	18.9369	MH-376	19.0318		23.7	0.4	168.5	0.35	13.1342	20.1252	20.675	200 mm
9694	CO-179	MH-376	19.0318	MH-377	19.1519		30	0.4	168.5	0.34	13.1342	20.675	21.074	200 mm
9695	CO-179	MH-377	19.1519	MH-378	19.3029		37.8	0.4	168.5	0.34	13.1342	21.074	21.366	200 mm
9696	CO-179	MH-378	19.3029	MH-379	19.4377		33.7	0.4	168.5	0.33	13.1342	21.366	21.425	200 mm
9697	CO-179	MH-379	19.4377	MH-380	19.5954		39.4	0.4	168.5	0.32	13.1342	21.425	21.43	200 mm
9698	CO-179	MH-380	19.5954	MH-381	19.7105		28.8	0.4	168.5	0.31	13.1342	21.43	21.449	200 mm
9699	CO-180	MH-381	19.7105	MH-382	19.8319		30.4	0.4	168.5	0.31	13.1342	21.449	21.167	200 mm
9700	CO-180	MH-382	19.8319	MH-383	19.9721		35.1	0.4	168.5	0.3	13.1342	21.167	21.216	200 mm
9701	CO-180	MH-383	19.9721	MH-384	20.0461		18.5	0.4	168.5	0.29	13.1342	21.216	21.129	200 mm
9702	CO-180	MH-384	20.0461	MH-386	20.2391		34.3	0.56	168.5	0.32	15.5707	21.129	21.322	200 mm
9703	CO-180	MH-386	20.2391	MH-387	20.531		42.3	0.69	168.5	0.33	17.2476	21.322	21.6139	200 mm
9704	CO-181	MH-387	20.531	MH-388	21.1381		30	2.02	168.5	0.47	29.5465	21.6139	22.221	200 mm
9705	CO-181	MH-388	21.1381	MH-389	22.0479		30.4	2.99	168.5	0.51	35.9094	22.221	23.1308	200 mm
9706	CO-181	MH-389	22.0479	MH-390	23.1914		29.1	3.92	168.5	0.54	41.1371	23.1308	24.2743	200 mm
9707	CO-181	MH-390	23.1914	MH-391	23.8851		20.1	3.45	168.5	0.48	38.5596	24.2743	24.968	200 mm
9708	CO-181	MH-391	23.8851	MH-392	24.8066		30.3	3.04	168.5	0.43	36.2128	24.968	25.8895	200 mm
9709	CO-182	MH-392	24.8066	MH-393	25.5844		30.1	2.59	168.5	0.37	33.3906	25.8895	26.6673	200 mm
9710	CO-182	MH-393	25.5844	MH-394	26.0691		29.2	1.66	168.5	0.29	26.7495	26.6673	27.152	200 mm
9711	CO-182	MH-394	26.0691	MH-395	26.4441		38	0.99	168.5	0.19	20.6388	27.152	27.527	200 mm
9712	CO-182	MH-328	2.5957	MH-329	2.482		28.4	0.4	168.5	0.2	13.1342	4.0707	4.0997	200 mm
9713	CO-183	n802	1.3539	MH-314	-0.4914		34.2	5.39	168.5	1.44	48.2182	3.116	2.996	200 mm
9714	CO-183	n1215	2.8334	MH-334	1.8032		27.9	3.69	168.5	0.77	39.8892	3.9163	3.801	200 mm
9715	CO-183	n1214	2.0071	MH-338	1.3072		31.1	2.25	168.5	0.68	31.176	3.09	3.8189	200 mm
9716	CO-183	n1902	1.4881	MH-345	0.3649		42.6	2.63	335.9	2.01	212.135	3.331	3.885	400mm

9717	CO-183	MH-345	0.3649	n920	0.3567		3.5	0.24	335.9	0.82	63.5023	3.885	3.885	400mm
9718	CO-183	n1723	12.4431	MH-368	12.2687		43.6	0.4	168.5	0.27	13.1342	13.526	14.245	200 mm
9719	CO-184	n1808	16.1264	MH-372	15.7801		11.3	3.07	168.5	0.57	36.3867	17.2093	16.863	200 mm
9724	CO-184	n1787	20.1631	MH-379	19.4377		11.7	6.21	168.5	0.41	51.7453	21.246	21.425	200 mm
9725	CO-185	MH-367	12.157	MH-366	12.0167		35.1	0.4	168.5	0.47	14.2287	14.041	13.7225	200 mm
9726	CO-185	MH-325	-1.5899	n892	-1.605		3.8	0.4	168.5	0.65	14.2287	4.002	4.002	200 mm
9729	CO-185	MH-400	-2.8237	MH-399	-2.7141		29.2	0.38	470.5	1.29	196.8761	2.1	2	560mm
9731	CO-185	MH-400	-2.8237	MH-401	-2.9375		30.3	0.38	470.5	1.29	196.8761	2.1	1.9	560mm
9733	CO-185	MH-401	-2.9375	MH-402	-2.9978		16	0.38	470.5	1.29	196.8761	1.9	2.1	560mm
9735	CO-186	MH-402	-2.9978	MH-403	-3.1686		45.4	0.38	470.5	1.29	196.8761	2.1	2.08	560mm
9737	CO-186	MH-403	-3.1686	MH-404	-3.2878		31.7	0.38	470.5	1.29	196.8761	2.08	1.8	560mm
9739	CO-186	MH-404	-3.2878	MH-405	-3.393		28	0.38	470.5	1.29	196.8761	1.8	1.8	560mm
9741	CO-186	MH-405	-3.393	plant	-3.5073		30.4	0.38	470.5	1.29	196.8761	1.8	30.4	560mm

APPENDIX- IX- FLEX TABLE- MANHOLE

ID	Label	Elevation (Ground) (m)	Elevation (Rim) (m)	Elevation (Invert) (m)	Flow (Total In) (L/s)	Flow (Total Out) (L/s)	Depth (Out) (m)	Hydraulic Grade Line (Out) (m)	Hydraulic Grade Line (In) (m)	Depth (Structure) (m)
33	n4	3.7612	3.7612	2.6783	0	0.07	0.01	2.6868	2.6868	1.08
34	n5	3.961	3.961	2.5583	0.07	0.14	0.01	2.5701	2.5701	1.4
35	n6	4.123	4.123	2.4383	0.14	0.21	0.01	2.4525	2.4525	1.68
36	n7	4.0558	4.0558	2.3153	0.21	0.28	0.02	2.3317	2.3317	1.74
37	n8	4.1425	4.1425	2.1953	0.28	0.35	0.02	2.2135	2.2135	1.95
38	n9	4.1729	4.1729	2.0517	0.35	0.42	0.02	2.0716	2.0716	2.12
39	n10	4.0884	4.0884	1.9283	0.42	0.49	0.02	1.9497	1.9497	2.16
40	n11	4.1736	4.1736	1.8083	0.49	0.56	0.02	1.8311	1.8311	2.37
41	n12	4.2427	4.2427	1.6883	0.56	0.63	0.02	1.7124	1.7124	2.55
42	n13	4.4966	4.4966	1.5683	0.63	0.7	0.03	1.5937	1.5937	2.93
43	n14	4.5725	4.5725	1.4209	0.7	0.77	0.03	1.4475	1.4475	3.15
44	n15	4.4394	4.4394	1.3009	0.77	0.84	0.03	1.3287	1.3287	3.14
45	n16	4.3064	4.3064	1.1809	0.84	0.91	0.03	1.2098	1.2098	3.13
46	n17	4.1535	4.1535	1.0609	0.91	0.98	0.03	1.0908	1.0908	3.09
47	n18	3.909	3.909	0.9409	0.98	1.05	0.03	0.9719	0.9719	2.97
49	n20	4.0376	4.0376	0.5767	1.05	1.12	0.03	0.6087	0.6087	3.46
50	n21	4.1286	4.1286	0.4141	1.12	1.19	0.03	0.4471	0.4471	3.71
51	n22	4.1143	4.1143	0.2941	1.19	1.26	0.03	0.328	0.328	3.82
52	n23	3.951	3.951	0.1741	1.26	1.33	0.03	0.209	0.209	3.78
55	n26	4.264	4.264	3.0224	1.33	1.4	0.04	3.0581	3.0581	1.24
57	n28	4.2139	4.2139	2.8089	1.4	1.47	0.04	2.8454	2.8454	1.41
58	n29	4.261	4.261	2.6889	1.47	1.54	0.04	2.7263	2.7263	1.57
59	n30	4.244	4.244	2.5823	1.54	1.61	0.04	2.6206	2.6206	1.66
60	n31	4.3521	4.3521	2.4798	1.61	1.68	0.04	2.5188	2.5188	1.87
61	n32	4.5698	4.5698	2.3598	1.68	1.75	0.04	2.3996	2.3996	2.21
62	n33	4.7394	4.7394	2.2398	1.75	1.82	0.04	2.2805	2.2805	2.5
64	n35	5.0852	5.0852	1.9712	1.82	1.89	0.04	2.0127	2.0127	3.11
65	n36	4.9607	4.9607	1.8512	1.89	1.96	0.04	1.8935	1.8935	3.11
66	n37	4.636	4.636	1.7312	1.96	2.03	0.04	1.7742	1.7742	2.9
67	n38	4.645	4.645	1.6611	2.03	2.1	0.04	1.7049	1.7049	2.98
68	n39	4.6262	4.6262	1.56	2.1	2.17	0.04	1.6045	1.6045	3.07
69	n40	4.41	4.41	1.44	2.17	2.24	0.05	1.4853	1.4853	2.97
70	n41	4.499	4.499	1.3742	2.24	2.31	0.05	1.4202	1.4202	3.12
71	n42	4.4219	4.4219	1.3142	2.31	2.38	0.05	1.3608	1.3608	3.11
73	n44	4.3911	4.3911	1.1629	2.38	2.45	0.05	1.2101	1.2101	3.23
74	n45	4.4564	4.4564	1.0429	2.45	2.52	0.05	1.0908	1.0908	3.41
75	n46	4.5511	4.5511	0.9229	2.52	2.59	0.05	0.9715	0.9715	3.63
76	n47	4.674	4.674	0.8029	2.59	2.66	0.05	0.8523	0.8523	3.87
77	n48	4.577	4.577	0.6875	2.66	2.73	0.05	0.7375	0.7375	3.89
78	n49	4.5821	4.5821	0.6343	2.73	2.8	0.05	0.6851	0.6851	3.95

79	n50	4.5988	4.5988	0.5143	2.8	2.87	0.05	0.5657	0.5657	4.08
80	n51	4.7759	4.7759	0.3943	2.87	2.94	0.05	0.4464	0.4464	4.38
81	n52	4.906	4.906	0.2743	2.94	3.01	0.05	0.327	0.327	4.63
82	n53	4.843	4.843	0.2327	3.01	3.08	0.05	0.286	0.286	4.61
83	n54	4.844	4.844	0.1355	3.08	3.15	0.05	0.1893	0.1893	4.71
84	n55	4.8344	4.8344	0.0555	3.15	3.22	0.05	0.1099	0.1099	4.78
85	n56	4.7956	4.7956	-0.0645	4.627	4.697	0.07	0.0051	0.0051	4.86
86	n57	4.762	4.762	1.0742	1.337	1.407	0.03	1.1064	1.1064	3.69
87	n58	4.681	4.681	1.1928	1.267	1.337	0.03	1.2276	1.2276	3.49
91	n62	4.707	4.707	1.4623	1.197	1.267	0.04	1.4976	1.4976	3.24
92	n63	4.6897	4.6897	1.5404	1.127	1.197	0.03	1.5735	1.5735	3.15
93	n64	4.6689	4.6689	1.6604	1.057	1.127	0.03	1.6925	1.6925	3.01
94	n65	4.65	4.65	1.7804	0.987	1.057	0.03	1.8114	1.8114	2.87
95	n66	4.6763	4.6763	1.8692	0.917	0.987	0.03	1.8993	1.8993	2.81
96	n67	4.7945	4.7945	1.9892	0.847	0.917	0.03	2.0182	2.0182	2.81
97	n68	4.8353	4.8353	2.1092	0.777	0.847	0.03	2.1371	2.1371	2.73
98	n69	4.8529	4.8529	2.2292	0.707	0.777	0.03	2.256	2.256	2.62
99	n70	4.938	4.938	2.3492	0.637	0.707	0.03	2.3748	2.3748	2.59
100	n71	4.917	4.917	2.4662	0.567	0.637	0.02	2.4906	2.4906	2.45
101	n72	4.9703	4.9703	2.5277	0.497	0.567	0.02	2.5506	2.5506	2.44
102	n73	5.057	5.057	2.6477	0.427	0.497	0.02	2.6692	2.6692	2.41
103	n74	5.01	5.01	2.7127	0.357	0.427	0.02	2.7327	2.7327	2.3
104	n75	5.0213	5.0213	2.8309	0.287	0.357	0.02	2.8493	2.8493	2.19
105	n76	5.1086	5.1086	2.9587	0.217	0.287	0.02	2.9753	2.9753	2.15
106	n77	5.0445	5.0445	3.0816	0.147	0.217	0.01	3.0961	3.0961	1.96
107	n78	5.15	5.15	3.2016	0.077	0.147	0.01	3.2137	3.2137	1.95
109	n80	5.0405	5.0405	3.3259	0.007	0.077	0.01	3.3348	3.3348	1.71
111	n82	5.164	5.164	4.0811	0	4.76	0.07	4.1482	4.1482	1.08
112	n83	5.0827	5.0827	3.9683	4.76	4.83	0.07	4.0359	4.0359	1.11
113	n84	5.037	5.037	3.8483	4.83	4.9	0.07	3.9165	3.9165	1.19
114	n85	4.934	4.934	3.7161	4.9	4.97	0.07	3.7848	3.7848	1.22
118	n90	4.8861	4.8861	3.3317	4.97	5.04	0.07	3.4009	3.4009	1.55
119	n91	4.9931	4.9931	3.2117	5.04	5.11	0.07	3.2815	3.2815	1.78
120	n92	5.05	5.05	3.0917	5.11	5.18	0.07	3.162	3.162	1.96
121	n93	4.947	4.947	2.9686	5.18	5.25	0.07	3.0395	3.0395	1.98
122	n94	4.998	4.998	2.8654	5.25	5.32	0.07	2.9368	2.9368	2.13
124	n96	4.9899	4.9899	2.7424	5.32	5.39	0.07	2.8143	2.8143	2.25
125	n97	4.9409	4.9409	2.6224	5.39	5.46	0.07	2.6948	2.6948	2.32
126	n98	4.797	4.797	2.5024	5.46	5.53	0.07	2.5753	2.5753	2.29
127	n99	4.836	4.836	2.4239	5.53	5.6	0.08	2.5007	2.5007	2.41
128	n100	4.7696	4.7696	2.3285	5.6	5.67	0.07	2.4024	2.4024	2.44
129	n101	4.6826	4.6826	2.2085	5.67	5.74	0.07	2.2829	2.2829	2.47
130	n102	4.5608	4.5608	2.0885	5.74	5.81	0.07	2.1634	2.1634	2.47
131	n103	4.5168	4.5168	1.9685	5.81	5.88	0.08	2.0439	2.0439	2.55
133	n105	4.4609	4.4609	1.7942	5.88	5.95	0.08	1.8702	1.8702	2.67
134	n106	4.556	4.556	1.6742	5.95	6.02	0.08	1.7507	1.7507	2.88
136	n108	4.281	4.281	3.1981	0	0.07	0.01	3.2066	3.2066	1.08

137	n109	4.687	4.687	3.1207	0.07	0.14	0.01	3.1326	3.1326	1.57
139	n111	4.711	4.711	3.0429	0.14	0.21	0.01	3.0572	3.0572	1.67
142	n114	4.8	4.8	2.9386	0.21	0.28	0.02	2.955	2.955	1.86
143	n115	4.6184	4.6184	2.8192	0.28	0.35	0.02	2.8374	2.8374	1.8
145	n117	4.676	4.676	2.7526	0.35	0.42	0.02	2.7725	2.7725	1.92
148	n120	4.934	4.934	2.69	0.42	0.49	0.02	2.7114	2.7114	2.24
149	n121	4.856	4.856	2.6166	0.49	0.56	0.02	2.6395	2.6395	2.24
152	n124	4.913	4.913	2.5069	0.56	0.63	0.02	2.531	2.531	2.41
154	n126	4.93	4.93	2.4414	0.63	0.7	0.03	2.4668	2.4668	2.49
156	n128	4.831	4.831	2.3097	0.7	0.77	0.03	2.3364	2.3364	2.52
158	n130	4.917	4.917	2.233	2.24	2.31	0.05	2.279	2.279	2.68
160	n132	4.8221	4.8221	2.1587	2.31	2.38	0.05	2.2053	2.2053	2.66
162	n134	4.6381	4.6381	1.9304	2.45	2.52	0.05	1.9783	1.9783	2.71
163	n135	4.5645	4.5645	1.8104	2.52	2.59	0.05	1.859	1.859	2.75
164	n136	4.4608	4.4608	1.6904	2.59	2.66	0.05	1.7398	1.7398	2.77
165	n137	4.454	4.454	1.5704	2.66	2.73	0.05	1.6204	1.6204	2.88
166	n138	4.3187	4.3187	1.4514	2.73	2.8	0.05	1.5021	1.5021	2.87
168	n140	4.793	4.793	2.8675	1.4	1.47	0.03	2.9005	2.9005	1.93
170	n142	5.125	5.125	3.0364	0.91	0.98	0.03	3.0663	3.0663	2.09
171	n143	5.217	5.217	3.1188	0.84	0.91	0.03	3.1477	3.1477	2.1
172	n144	5.237	5.237	3.1598	0.77	0.84	0.03	3.1876	3.1876	2.08
174	n146	4.952	4.952	3.2492	0.7	0.77	0.03	3.2759	3.2759	1.7
176	n148	4.744	4.744	3.3344	0.63	0.7	0.03	3.3598	3.3598	1.41
179	n151	4.514	4.514	3.4311	0.56	0.63	0.02	3.4552	3.4552	1.08
181	n153	5.034	5.034	3.5639	0.49	0.56	0.02	3.5865	3.5865	1.47
182	n154	5.014	5.014	3.6227	0.42	0.49	0.02	3.6441	3.6441	1.39
183	n155	4.914	4.914	3.6463	0.35	0.42	0.02	3.6662	3.6662	1.27
184	n156	4.908	4.908	3.7237	0.28	0.35	0.02	3.742	3.742	1.18
185	n157	4.9266	4.9266	3.8437	0.21	0.28	0.02	3.8602	3.8602	1.08
187	n159	5.379	5.379	4.1968	0.14	0.21	0.01	4.2091	4.2091	1.18
188	n160	5.5133	5.5133	4.2857	0.07	0.14	0.01	4.2975	4.2975	1.23
190	n162	5.511	5.511	4.4281	0	0.07	0.01	4.4366	4.4366	1.08
191	n163	3.6148	3.6148	1.2037	2.87	2.94	0.05	1.2557	1.2557	2.41
192	n164	3.137	3.137	1.0837	2.94	3.01	0.05	1.1314	1.1314	2.05
193	n165	3.249	3.249	-0.4995	13.67	13.74	0.13	-0.3663	-0.3663	3.75
203	n175	4.7751	4.7751	3.2432	0.35	0.42	0.02	3.2606	3.2606	1.53
204	n176	4.905	4.905	3.3915	0.28	0.35	0.02	3.4097	3.4097	1.51
205	n177	4.9276	4.9276	3.6271	0.21	0.28	0.02	3.6435	3.6435	1.3
206	n178	4.8373	4.8373	3.7544	0.14	0.21	0.01	3.7687	3.7687	1.08
208	n180	5.135	5.135	3.9173	0.07	0.14	0.01	3.9289	3.9289	1.22
212	n184	5.4314	5.4314	4.3485	0	0.07	0.01	4.3556	4.3556	1.08
213	n185	4.9944	4.9944	3.9115	0.07	0.14	0.01	3.9216	3.9216	1.08
214	n186	4.589	4.589	2.8021	0.84	0.91	0.03	2.8309	2.8309	1.79
268	n240	3.1119	3.1119	2.029	0	0.07	0.01	2.0361	2.0361	1.08
269	n241	2.4132	2.4132	1.3303	0.07	0.14	0.01	1.3422	1.3422	1.08
270	n242	2.351	2.351	1.2103	0.14	0.21	0.01	1.2246	1.2246	1.14
271	n243	2.535	2.535	1.0926	0.28	0.35	0.02	1.1109	1.1109	1.44

272	n244	2.504	2.504	1.0182	0.35	0.42	0.02	1.0357	1.0357	1.49
273	n245	2.469	2.469	0.1948	1.05	1.12	0.03	0.2267	0.2267	2.27
275	n247	2.4675	2.4675	0.3262	0.56	0.63	0.02	0.3503	0.3503	2.14
277	n249	2.455	2.455	0.4862	0.49	0.56	0.02	0.509	0.509	1.97
278	n250	2.44	2.44	0.6063	0.42	0.49	0.02	0.6277	0.6277	1.83
280	n252	2.529	2.529	0.7758	0.35	0.42	0.02	0.7957	0.7957	1.75
281	n253	2.4509	2.4509	0.8958	0.28	0.35	0.02	0.9141	0.9141	1.56
284	n256	2.409	2.409	1.0718	0.14	0.21	0.01	1.086	1.086	1.34
285	n257	2.4027	2.4027	1.1918	0.07	0.14	0.01	1.2036	1.2036	1.21
286	n258	2.35	2.35	1.2671	0	0.07	0.01	1.2756	1.2756	1.08
290	n262	2.711	2.711	-0.0421	1.12	1.19	0.03	-0.0091	-0.0091	2.75
291	n263	2.8451	2.8451	-0.1621	1.19	1.26	0.03	-0.1282	-0.1282	3.01
296	n268	5.0836	5.0836	3.7676	1.26	1.33	0.03	3.8024	3.8024	1.32
297	n269	5.886	5.886	3.6476	1.33	1.4	0.04	3.6833	3.6833	2.24
298	n270	5.1387	5.1387	3.5434	1.4	1.47	0.03	3.5765	3.5765	1.6
301	n273	4.952	4.952	3.1599	1.61	1.68	0.04	3.199	3.199	1.79
302	n274	4.7616	4.7616	3.0399	1.68	1.75	0.04	3.0798	3.0798	1.72
303	n275	4.582	4.582	2.9199	1.75	1.82	0.04	2.9607	2.9607	1.66
306	n278	5.096	5.096	2.6939	1.82	1.89	0.04	2.7354	2.7354	2.4
308	n280	5.1295	5.1295	2.5528	1.89	1.96	0.04	2.5911	2.5911	2.58
309	n281	5.616	5.616	1.8638	3.29	3.36	0.06	1.9195	1.9195	3.75
311	n283	5.4736	5.4736	1.9525	1.26	1.33	0.03	1.9873	1.9873	3.52
312	n284	5.0418	5.0418	2.0725	1.19	1.26	0.03	2.1064	2.1064	2.97
313	n285	4.165	4.165	2.3125	1.05	1.12	0.03	2.3444	2.3444	1.85
314	n286	3.852	3.852	2.4325	0.98	1.05	0.03	2.4635	2.4635	1.42
315	n287	3.632	3.632	2.546	0.91	0.98	0.03	2.576	2.576	1.09
317	n289	3.778	3.778	2.6951	0.84	0.91	0.03	2.724	2.724	1.08
319	n291	4.8845	4.8845	3.8016	0.77	0.84	0.02	3.8265	3.8265	1.08
321	n293	5.781	5.781	4.6981	0.7	0.77	0.02	4.7219	4.7219	1.08
324	n296	6.264	6.264	5.1811	0.63	0.7	0.02	5.2038	5.2038	1.08
327	n299	8.134	8.134	7.0511	0.49	0.56	0.02	7.0714	7.0714	1.08
329	n301	9.4745	9.4745	8.3916	0.42	0.49	0.02	8.4105	8.4105	1.08
330	n302	11.3783	11.3783	9.4117	0.35	0.42	0.02	9.4291	9.4291	1.97
331	n303	11.955	11.955	9.5317	0.28	0.35	0.02	9.5499	9.5499	2.42
336	n308	11.526	11.526	9.7244	0.14	0.21	0.01	9.7387	9.7387	1.8
337	n309	12.539	12.539	9.8169	0.07	0.14	0.01	9.8288	9.8288	2.72
339	n311	11.001	11.001	9.9181	0	0.07	0.01	9.9266	9.9266	1.08
351	n324	12.856	12.856	11.7731	0	0.07	0.01	11.7802	11.7802	1.08
354	n327	12.152	12.152	11.0691	0.07	0.14	0.01	11.0792	11.0792	1.08
356	n329	9.7998	9.7998	8.7169	0.14	0.21	0.01	8.7293	8.7293	1.08
358	n331	9.005	9.005	7.9221	0.28	0.35	0.02	7.9381	7.9381	1.08
359	n332	8.463	8.463	5.9355	4.83	4.9	0.06	5.997	5.997	2.53
361	n334	5.629	5.629	1.7632	3.36	3.43	0.06	1.8195	1.8195	3.87
362	n335	5.2572	5.2572	1.6432	3.43	3.5	0.06	1.7001	1.7001	3.61
363	n336	4.9783	4.9783	1.5232	3.5	3.57	0.06	1.5807	1.5807	3.46
367	n340	4.222	4.222	1.3036	3.57	3.64	0.06	1.3618	1.3618	2.92
369	n342	4.165	4.165	1.1648	3.64	3.71	0.06	1.2235	1.2235	3

370	n343	4.233	4.233	1.1411	3.71	3.78	0.06	1.2004	1.2004	3.09
372	n345	4.2346	4.2346	1.0787	3.78	3.85	0.06	1.1386	1.1386	3.16
374	n347	5.794	5.794	0.8391	3.85	3.92	0.06	0.8996	0.8996	4.95
375	n348	5.6804	5.6804	0.728	3.92	3.99	0.06	0.7889	0.7889	4.95
376	n349	5.1197	5.1197	0.608	3.99	4.06	0.06	0.6695	0.6695	4.51
378	n351	4.9716	4.9716	0.4672	4.06	4.13	0.06	0.5293	0.5293	4.5
379	n352	5.0913	5.0913	0.3472	4.13	4.2	0.06	0.4099	0.4099	4.74
381	n354	5.3427	5.3427	0.2277	4.2	4.27	0.06	0.2909	0.2909	5.12
384	n357	8.098	8.098	6.0555	4.41	4.48	0.06	6.1204	6.1204	2.04
385	n358	7.965	7.965	6.1254	4.34	4.41	0.06	6.1898	6.1898	1.84
386	n359	8.373	8.373	6.213	4.27	4.34	0.06	6.2769	6.2769	2.16
424	n397	9.5916	9.5916	3.8515	4.9	4.97	0.07	3.9202	3.9202	5.74
425	n398	9.497	9.497	3.7817	4.97	5.04	0.07	3.8509	3.8509	5.72
426	n399	9.0127	9.0127	3.6617	5.04	5.11	0.07	3.7315	3.7315	5.35
427	n400	7.8289	7.8289	3.5418	5.11	5.18	0.07	3.6121	3.6121	4.29
428	n401	7.087	7.087	3.4339	5.32	5.39	0.07	3.5058	3.5058	3.65
431	n404	7.994	7.994	3.1998	5.39	5.46	0.07	3.2722	3.2722	4.79
433	n406	8.857	8.857	3.0808	5.46	5.53	0.07	3.1537	3.1537	5.78
436	n409	8.461	8.461	2.8596	5.6	5.67	0.07	2.9335	2.9335	5.6
437	n410	7.6262	7.6262	2.7397	5.67	5.74	0.07	2.8141	2.8141	4.89
438	n411	7.038	7.038	2.6826	5.74	5.81	0.08	2.7576	2.7576	4.36
439	n412	6.689	6.689	2.6639	5.81	5.88	0.08	2.7393	2.7393	4.03
440	n413	6.2446	6.2446	2.6198	5.88	5.95	0.08	2.6957	2.6957	3.62
441	n414	4.936	4.936	2.5217	5.95	6.02	0.08	2.5984	2.5984	2.41
444	n417	4.3335	4.3335	2.3607	6.02	6.09	0.07	2.4295	2.4295	1.97
445	n418	2.9563	2.9563	1.8734	6.09	6.16	0.07	1.9426	1.9426	1.08
447	n420	2.803	2.803	-0.4404	1.12	1.19	0.03	-0.4107	-0.4107	3.24
448	n421	2.4278	2.4278	-0.3204	1.05	1.12	0.03	-0.2884	-0.2884	2.75
452	n425	2.377	2.377	-0.1482	0.98	1.05	0.03	-0.1171	-0.1171	2.53
453	n426	2.182	2.182	-0.0942	0.91	0.98	0.03	-0.0643	-0.0643	2.28
454	n427	2.2861	2.2861	0.0258	0.84	0.91	0.03	0.0546	0.0546	2.26
455	n428	2.339	2.339	0.1458	0.77	0.84	0.03	0.1736	0.1736	2.19
457	n430	2.228	2.228	0.2607	0.7	0.77	0.03	0.2873	0.2873	1.97
458	n431	2.186	2.186	0.3394	0.63	0.7	0.03	0.3649	0.3649	1.85
460	n433	2.317	2.317	0.4335	0.56	0.63	0.02	0.4576	0.4576	1.88
461	n434	2.244	2.244	0.5092	0.49	0.56	0.02	0.532	0.532	1.73
462	n435	2.35	2.35	0.6369	0.42	0.49	0.02	0.6582	0.6582	1.71
464	n437	2.33	2.33	0.742	0.35	0.42	0.02	0.7619	0.7619	1.59
466	n439	2.427	2.427	0.8921	0.21	0.28	0.02	0.9085	0.9085	1.53
467	n440	2.215	2.215	1.0121	0.14	0.21	0.01	1.0264	1.0264	1.2
468	n441	2.215	2.215	1.1321	0.07	0.14	0.01	1.144	1.144	1.08
469	n443	2.412	2.412	1.3291	0	0.07	0.01	1.3365	1.3365	1.08
470	n444	2.541	2.541	-0.8839	8.61	8.68	0.1	-0.7889	-0.7889	3.42
472	n446	2.647	2.647	-0.7423	1.19	1.26	0.03	-0.7084	-0.7084	3.39
473	n447	2.5181	2.5181	-0.6223	1.12	1.19	0.03	-0.5893	-0.5893	3.14
475	n450	2.44	2.44	-0.4974	1.05	1.12	0.03	-0.4655	-0.4655	2.94
478	n453	2.567	2.567	-0.3529	0.98	1.05	0.03	-0.3218	-0.3218	2.92

481	n456	2.586	2.586	-0.2393	0.91	0.98	0.03	-0.2094	-0.2094	2.83
485	n460	2.534	2.534	-0.0701	0.84	0.91	0.03	-0.0412	-0.0412	2.6
488	n463	2.481	2.481	0.0327	0.77	0.84	0.03	0.0605	0.0605	2.45
490	n465	2.3624	2.3624	0.1274	0.7	0.77	0.03	0.154	0.154	2.23
491	n466	2.3311	2.3311	0.2474	0.63	0.7	0.03	0.2728	0.2728	2.08
493	n468	2.209	2.209	0.4208	0.56	0.63	0.02	0.4449	0.4449	1.79
497	n472	2.3525	2.3525	0.6746	0.42	0.49	0.02	0.696	0.696	1.68
499	n474	2.257	2.257	0.8072	0.35	0.42	0.02	0.827	0.827	1.45
500	n475	2.4078	2.4078	0.9272	0.28	0.35	0.02	0.9454	0.9454	1.48
501	n476	2.565	2.565	1.038	0.21	0.28	0.02	1.0544	1.0544	1.53
503	n478	2.598	2.598	1.1509	0.14	0.21	0.01	1.1652	1.1652	1.45
504	n479	2.521	2.521	1.2403	0.07	0.14	0.01	1.2522	1.2522	1.28
505	n480	2.483	2.483	1.4001	0	0.07	0.01	1.4086	1.4086	1.08
508	n483	2.4793	2.4793	-1.1235	8.75	8.82	0.1	-1.0275	-1.0275	3.6
510	n485	2.6507	2.6507	-1.2492	8.82	8.89	0.1	-1.1527	-1.1527	3.9
511	n486	2.664	2.664	-1.3669	8.89	8.96	0.1	-1.2699	-1.2699	4.03
513	n488	2.5768	2.5768	-1.4866	8.96	9.03	0.1	-1.3891	-1.3891	4.06
514	n489	2.4375	2.4375	-1.6066	9.03	9.1	0.1	-1.5086	-1.5086	4.04
516	n491	2.4151	2.4151	-1.781	9.1	9.17	0.1	-1.6826	-1.6826	4.2
518	n493	2.292	2.292	-1.917	9.17	9.24	0.1	-1.8181	-1.8181	4.21
519	n494	2.3731	2.3731	-2.0624	9.24	9.31	0.1	-1.963	-1.963	4.44
524	n499	2.511	2.511	-2.2623	9.31	9.38	0.1	-2.1624	-2.1624	4.77
527	n502	2.475	2.475	-2.498	9.45	9.52	0.1	-2.3971	-2.3971	4.97
528	n503	2.313	2.313	-2.6682	9.52	9.59	0.1	-2.5669	-2.5669	4.98
529	n504	2.373	2.373	-2.7444	9.59	9.66	0.1	-2.6426	-2.6426	5.12
531	n506	2.224	2.224	-2.8905	9.66	9.73	0.1	-2.7883	-2.7883	5.11
536	n512	3.282	3.282	2.1991	9.8	9.87	0.09	2.2876	2.2876	1.08
537	n513	2.6892	2.6892	1.6063	9.87	9.94	0.09	1.6951	1.6951	1.08
538	n514	2.114	2.114	-2.1525	20.1	20.17	0.16	-1.9914	-1.9914	4.27
540	n516	2.342	2.342	-1.9921	10.09	10.16	0.11	-1.8868	-1.8868	4.33
541	n517	2.3728	2.3728	-1.8721	10.02	10.09	0.1	-1.7673	-1.7673	4.24
544	n520	2.33	2.33	-1.7344	9.95	10.02	0.1	-1.6301	-1.6301	4.06
545	n521	2.4419	2.4419	-1.6144	9.88	9.95	0.1	-1.5106	-1.5106	4.06
547	n523	2.506	2.506	-1.4636	9.81	9.88	0.1	-1.3602	-1.3602	3.97
548	n524	2.4505	2.4505	-1.3436	9.74	9.81	0.1	-1.2407	-1.2407	3.79
549	n525	2.3313	2.3313	-1.2236	9.67	9.74	0.1	-1.1212	-1.1212	3.55
550	n526	2.2748	2.2748	-1.1036	9.6	9.67	0.1	-1.0017	-1.0017	3.38
552	n529	2.501	2.501	-0.9713	9.53	9.6	0.1	-0.8699	-0.8699	3.47
554	n531	2.474	2.474	-0.7875	9.46	9.53	0.1	-0.6866	-0.6866	3.26
556	n533	2.42	2.42	-0.567	9.39	9.46	0.1	-0.4665	-0.4665	2.99
559	n536	2.152	2.152	-0.4882	9.32	9.39	0.1	-0.3882	-0.3882	2.64
561	n538	2.426	2.426	-0.3533	9.25	9.32	0.1	-0.2539	-0.2539	2.78
563	n540	2.444	2.444	-0.2549	9.18	9.25	0.1	-0.1559	-0.1559	2.7
564	n541	2.59	2.59	-0.1341	9.11	9.18	0.1	-0.0356	-0.0356	2.72
567	n544	2.4309	2.4309	0.0161	9.04	9.11	0.1	0.1141	0.1141	2.41
569	n546	2.379	2.379	0.1428	8.97	9.04	0.1	0.2403	0.2403	2.24
570	n547	2.435	2.435	0.2628	8.9	8.97	0.1	0.3598	0.3598	2.17

571	n548	2.5323	2.5323	0.3828	8.83	8.9	0.1	0.4793	0.4793	2.15
572	n549	2.544	2.544	0.483	8.76	8.83	0.1	0.579	0.579	2.06
573	n550	2.5143	2.5143	0.603	8.69	8.76	0.1	0.6986	0.6986	1.91
574	n551	2.5083	2.5083	0.723	8.62	8.69	0.1	0.8181	0.8181	1.79
576	n553	2.448	2.448	0.8607	8.55	8.62	0.09	0.9554	0.9554	1.59
577	n554	2.466	2.466	1.0536	8.48	8.55	0.09	1.1478	1.1478	1.41
579	n556	2.582	2.582	1.1974	8.41	8.48	0.09	1.2911	1.2911	1.38
580	n557	2.638	2.638	1.2795	8.34	8.41	0.09	1.3727	1.3727	1.36
581	n559	2.628	2.628	1.3611	8.27	8.34	0.09	1.4538	1.4538	1.27
582	n560	2.611	2.611	1.4436	8.2	8.27	0.09	1.5359	1.5359	1.17
583	n561	2.749	2.749	1.4781	8.13	8.2	0.09	1.5699	1.5699	1.27
585	n563	2.712	2.712	1.6291	0	8.13	0.09	1.7204	1.7204	1.08
589	n567	2.393	2.393	-2.2989	7.99	8.06	0.09	-2.2082	-2.2082	4.69
591	n569	2.598	2.598	-2.1405	7.85	7.92	0.09	-2.0507	-2.0507	4.74
592	n570	2.558	2.558	-2.08	7.78	7.85	0.09	-1.9907	-1.9907	4.64
594	n572	2.472	2.472	-1.918	7.71	7.78	0.09	-1.8292	-1.8292	4.39
599	n577	2.685	2.685	-1.8	7.64	7.71	0.09	-1.7116	-1.7116	4.48
601	n579	1.439	1.439	-1.6263	7.57	7.64	0.09	-1.5384	-1.5384	3.07
605	n583	2.654	2.654	-1.4464	7.5	7.57	0.09	-1.359	-1.359	4.1
607	n585	2.322	2.322	-1.2837	7.36	7.43	0.09	-1.1972	-1.1972	3.61
608	n586	2.294	2.294	-1.1637	7.29	7.36	0.09	-1.0777	-1.0777	3.46
610	n588	2.3451	2.3451	-1.044	7.22	7.29	0.09	-0.9585	-0.9585	3.39
611	n589	2.404	2.404	-0.9914	7.15	7.22	0.08	-0.9064	-0.9064	3.4
612	n590	2.397	2.397	-0.9171	7.08	7.15	0.08	-0.8326	-0.8326	3.31
613	n591	2.411	2.411	-0.8792	7.01	7.08	0.08	-0.7952	-0.7952	3.29
614	n592	2.4394	2.4394	-0.7592	6.94	7.01	0.08	-0.6757	-0.6757	3.2
615	n593	2.442	2.442	-0.6812	6.87	6.94	0.08	-0.5982	-0.5982	3.12
616	n594	2.3923	2.3923	-0.5612	6.8	6.87	0.08	-0.4787	-0.4787	2.95
618	n596	2.358	2.358	-0.4311	6.73	6.8	0.08	-0.3491	-0.3491	2.79
619	n597	2.4332	2.4332	-0.3111	6.66	6.73	0.08	-0.2296	-0.2296	2.74
620	n598	2.4785	2.4785	-0.1911	6.59	6.66	0.08	-0.1101	-0.1101	2.67
622	n600	2.74	2.74	-0.0426	6.52	6.59	0.08	0.0379	0.0379	2.78
623	n601	2.3976	2.3976	0.0774	6.45	6.52	0.08	0.1574	0.1574	2.32
624	n602	2.381	2.381	0.2268	6.38	6.45	0.08	0.3064	0.3064	2.15
625	n603	2.2503	2.2503	0.3468	6.31	6.38	0.08	0.4258	0.4258	1.9
626	n604	2.424	2.424	0.4874	6.24	6.31	0.08	0.5659	0.5659	1.94
627	n605	2.3076	2.3076	0.6074	6.17	6.24	0.08	0.6854	0.6854	1.7
628	n607	2.5485	2.5485	0.7274	6.1	6.17	0.08	0.8049	0.8049	1.82
629	n608	2.9341	2.9341	0.8474	6.03	6.1	0.08	0.9244	0.9244	2.09
630	n609	3.183	3.183	0.9235	5.96	6.03	0.08	1	1	2.26
631	n610	3.4222	3.4222	0.9673	5.89	5.96	0.08	1.0434	1.0434	2.45
632	n612	4.4752	4.4752	1.0872	5.82	5.89	0.08	1.1627	1.1627	3.39
634	n614	4.754	4.754	1.2209	5.75	5.82	0.08	1.2959	1.2959	3.53
635	n615	5.0084	5.0084	3.9255	0.21	0.28	0.01	3.9398	3.9398	1.08
636	n616	5.6209	5.6209	4.538	0.14	0.21	0.01	4.5504	4.5504	1.08
639	n619	6.896	6.896	5.8131	0	0.07	0.01	5.8202	5.8202	1.08
641	n621	7.849	7.849	6.7661	0.21	0.28	0.01	6.7804	6.7804	1.08

642	n622	5.7106	5.7106	4.6277	0.28	0.35	0.02	4.6437	4.6437	1.08
643	n623	5.3615	5.3615	4.2786	0.35	0.42	0.02	4.296	4.296	1.08
644	n624	4.9738	4.9738	3.8909	0.42	0.49	0.02	3.9097	3.9097	1.08
645	n625	4.668	4.668	2.5723	1.61	1.68	0.04	2.6113	2.6113	2.1
646	n626	3.7874	3.7874	2.4523	1.68	1.75	0.04	2.4922	2.4922	1.34
647	n627	3.4649	3.4649	2.3323	1.75	1.82	0.04	2.3693	2.3693	1.13
650	n630	2.8278	2.8278	1.7449	1.89	1.96	0.04	1.7832	1.7832	1.08
651	n631	2.5468	2.5468	1.4639	1.96	2.03	0.04	1.5069	1.5069	1.08
652	n632	2.457	2.457	1.3598	2.03	2.1	0.04	1.4036	1.4036	1.1
653	n633	2.585	2.585	1.3121	2.1	2.17	0.04	1.3565	1.3565	1.27
654	n634	2.9392	2.9392	1.1536	2.24	2.31	0.04	1.1953	1.1953	1.79
655	n635	3.342	3.342	-1.1428	16.75	16.82	0.14	-1.003	-1.003	4.48
657	n637	4.3576	4.3576	1.5154	6.02	6.09	0.08	1.5924	1.5924	2.84
658	n638	4.1361	4.1361	1.3954	6.09	6.16	0.08	1.4729	1.4729	2.74
660	n640	4.1039	4.1039	1.238	6.16	6.23	0.08	1.3197	1.3197	2.87
661	n641	4.3863	4.3863	1.1182	6.23	6.5	0.08	1.1981	1.1981	3.27
662	n642	4.531	4.531	0.9982	6.5	6.57	0.08	1.0786	1.0786	3.53
663	n643	4.39	4.39	0.9446	6.57	6.64	0.08	1.0255	1.0255	3.45
664	n644	4.211	4.211	0.8246	6.64	6.71	0.08	0.906	0.906	3.39
665	n645	3.8835	3.8835	0.7046	6.71	6.78	0.07	0.7774	0.7774	3.18
668	n648	3.544	3.544	-1.5008	23.81	43.98	0.21	-1.2904	-1.2904	5.04
670	n650	3.5499	3.5499	-1.3745	16.96	17.03	0.15	-1.2197	-1.2197	4.92
671	n651	3.625	3.625	-1.2905	16.89	16.96	0.14	-1.1485	-1.1485	4.92
672	n652	3.6092	3.6092	-1.2268	16.82	16.89	0.14	-1.0864	-1.0864	4.84
673	n653	2.887	2.887	-1.118	14.16	14.23	0.13	-0.986	-0.986	4
674	n654	2.7975	2.7975	-1.0588	14.09	14.16	0.13	-0.9337	-0.9337	3.86
675	n655	2.6248	2.6248	-0.9748	14.02	14.09	0.12	-0.8508	-0.8508	3.6
676	n656	2.481	2.481	-0.9197	13.95	14.02	0.12	-0.7961	-0.7961	3.4
678	n658	2.403	2.403	-0.8698	13.88	13.95	0.12	-0.7466	-0.7466	3.27
679	n659	2.6416	2.6416	-0.7498	13.81	13.88	0.13	-0.6154	-0.6154	3.39
680	n660	2.8866	2.8866	-0.6298	13.74	13.81	0.13	-0.4959	-0.4959	3.52
682	n662	3.4009	3.4009	-0.3795	10.59	10.66	0.11	-0.2707	-0.2707	3.78
684	n664	2.994	2.994	-0.2678	10.52	10.59	0.11	-0.1595	-0.1595	3.26
686	n666	3.252	3.252	-0.1904	10.45	10.52	0.11	-0.0826	-0.0826	3.44
687	n668	5.154	5.154	2.6923	1.05	1.12	0.03	2.7242	2.7242	2.46
688	n669	5.223	5.223	2.8331	0.98	1.05	0.03	2.8641	2.8641	2.39
689	n670	5.18	5.18	2.9531	0.91	0.98	0.03	2.983	2.983	2.23
692	n673	5.265	5.265	3.04	0.84	0.91	0.03	3.0689	3.0689	2.23
694	n676	3.47	3.47	2.3218	0.14	0.21	0.01	2.3342	2.3342	1.15
696	n678	3.757	3.757	2.6741	0	0.07	0.01	2.6826	2.6826	1.08
697	n679	3.642	3.642	0.1721	3.93	4	0.06	0.2332	0.2332	3.47
698	n680	8.3519	8.3519	7.1989	0.07	0.14	0.01	7.209	7.209	1.15
699	n681	8.358	8.358	7.2751	0	0.07	0.01	7.2836	7.2836	1.08
700	n682	7.927	7.927	6.8441	0	0.07	0.01	6.8512	6.8512	1.08
701	n683	7.2319	7.2319	6.149	0.07	0.14	0.01	6.1591	6.1591	1.08
702	n684	7.001	7.001	5.9181	0.14	0.21	0.01	5.9305	5.9305	1.08
703	n685	6.1948	6.1948	5.1119	0.21	0.28	0.01	5.1262	5.1262	1.08

704	n686	5.6167	5.6167	4.5338	0.28	0.35	0.02	4.5498	4.5498	1.08
705	n687	5.3491	5.3491	4.2662	0.35	0.42	0.02	4.2837	4.2837	1.08
706	n689	5.312	5.312	3.082	0.35	0.42	0.02	3.1019	3.1019	2.23
707	n690	5.276	5.276	3.1211	0.28	0.35	0.02	3.1393	3.1393	2.15
708	n691	5.086	5.086	3.1884	0.21	0.28	0.02	3.2048	3.2048	1.9
709	n692	5.0016	5.0016	3.202	0.14	0.21	0.01	3.2163	3.2163	1.8
710	n693	4.854	4.854	3.2447	0.07	0.14	0.01	3.2566	3.2566	1.61
711	n694	4.4048	4.4048	3.3219	0	0.07	0.01	3.3305	3.3305	1.08
712	n695	4.795	4.795	0.9932	3.37	3.44	0.06	1.0496	1.0496	3.8
713	n696	6.4202	6.4202	4.6881	0.07	0.14	0.01	4.6982	4.6982	1.73
714	n697	5.891	5.891	4.8081	0	0.07	0.01	4.8166	4.8166	1.08
719	n702	9.146	9.146	8.0631	2.37	2.44	0.04	8.106	8.106	1.08
721	n704	9.7341	9.7341	8.6512	2.3	2.37	0.04	8.6935	8.6935	1.08
722	n705	11.143	11.143	9.7331	2.23	2.3	0.04	9.7747	9.7747	1.41
723	n706	11.961	11.961	10.8781	0	0.07	0.01	10.8852	10.8852	1.08
724	n707	10.946	10.946	9.7737	2.09	2.16	0.04	9.818	9.818	1.17
725	n708	11.7409	11.7409	9.8987	1.82	2.09	0.04	9.9423	9.9423	1.84
728	n711	11.761	11.761	9.9662	1.75	1.82	0.04	10.007	10.007	1.79
729	n712	12.5939	12.5939	10.0862	1.61	1.68	0.04	10.1252	10.1252	2.51
730	n713	13.782	13.782	10.2061	1.54	1.61	0.04	10.2444	10.2444	3.58
732	n715	13.5592	13.5592	10.3281	1.47	1.54	0.04	10.3656	10.3656	3.23
733	n716	12.8775	12.8775	10.4481	1.4	1.47	0.04	10.4847	10.4847	2.43
734	n717	11.9909	11.9909	10.568	1.33	1.4	0.04	10.6037	10.6037	1.42
735	n718	11.69	11.69	10.6071	1.26	1.33	0.03	10.6419	10.6419	1.08
736	n719	11.773	11.773	10.6901	1.19	1.26	0.03	10.7207	10.7207	1.08
738	n721	13.2377	13.2377	12.1548	1.12	1.19	0.03	12.1845	12.1845	1.08
739	n722	14.8193	14.8193	13.7364	1.05	1.12	0.03	13.7653	13.7653	1.08
741	n724	17.4114	17.4114	16.3285	0.91	0.98	0.03	16.3554	16.3554	1.08
742	n725	18.9134	18.9134	17.8305	0.84	0.91	0.03	17.8564	17.8564	1.08
744	n727	20.435	20.435	19.3521	0.77	0.84	0.02	19.377	19.377	1.08
745	n728	22.1312	22.1312	21.0483	0.7	0.77	0.02	21.0721	21.0721	1.08
746	n729	23.5272	23.5272	22.4443	0.63	0.7	0.02	22.467	22.467	1.08
747	n730	24.5243	24.5243	23.4414	0.56	0.63	0.02	23.4628	23.4628	1.08
748	n731	25.0605	25.0605	23.9776	0.49	0.56	0.02	23.9979	23.9979	1.08
749	n732	25.484	25.484	24.4011	0.42	0.49	0.02	24.42	24.42	1.08
751	n734	26.2988	26.2988	25.2159	0.35	0.42	0.02	25.2333	25.2333	1.08
752	n735	26.9991	26.9991	25.9162	0.28	0.35	0.02	25.9322	25.9322	1.08
753	n736	27.7264	27.7264	26.6435	0.21	0.28	0.01	26.6578	26.6578	1.08
754	n737	28.6514	28.6514	27.5685	0.14	0.21	0.01	27.5809	27.5809	1.08
755	n738	29.3674	29.3674	28.2845	0.07	0.14	0.01	28.2946	28.2946	1.08
756	n739	29.5243	29.5243	28.4414	0	0.07	0.01	28.4495	28.4495	1.08
757	n740	29.564	29.564	28.4811	0	0.07	0.01	28.4896	28.4896	1.08
769	n752	8.9077	8.9077	7.8248	2.44	2.51	0.04	7.8684	7.8684	1.08
770	n753	8.3279	8.3279	7.245	2.51	2.58	0.04	7.2891	7.2891	1.08
771	n754	6.9244	6.9244	5.8415	2.58	2.65	0.04	5.8862	5.8862	1.08
772	n755	5.1386	5.1386	4.0557	2.65	2.72	0.05	4.101	4.101	1.08
773	n756	3.9836	3.9836	2.9007	2.72	2.79	0.05	2.9465	2.9465	1.08

774	n757	3.2876	3.2876	2.2047	2.79	2.86	0.05	2.2514	2.2514	1.08
775	n758	3.1163	3.1163	2.0334	2.86	2.93	0.05	2.084	2.084	1.08
776	n759	2.9831	2.9831	1.9002	2.93	3	0.05	1.9479	1.9479	1.08
777	n760	2.5991	2.5991	1.5162	3	3.07	0.05	1.5695	1.5695	1.08
778	n761	2.5207	2.5207	1.3962	3.07	3.14	0.05	1.4499	1.4499	1.12
779	n762	2.5164	2.5164	1.2762	3.14	3.21	0.05	1.3306	1.3306	1.24
780	n763	2.4707	2.4707	1.1562	3.21	3.28	0.06	1.2112	1.2112	1.31
781	n764	2.428	2.428	1.0439	3.28	3.35	0.06	1.0995	1.0995	1.38
782	n765	2.515	2.515	0.9324	3.35	3.42	0.06	0.9886	0.9886	1.58
783	n766	2.4555	2.4555	0.8124	3.42	3.49	0.06	0.8692	0.8692	1.64
784	n768	2.51	2.51	0.7298	3.49	3.56	0.06	0.7871	0.7871	1.78
785	n769	2.4522	2.4522	0.6098	3.56	3.63	0.06	0.6679	0.6679	1.84
786	n770	2.461	2.461	0.5086	6.62	6.69	0.08	0.5898	0.5898	1.95
788	n772	2.1612	2.1612	0.9867	2.92	2.99	0.05	1.0342	1.0342	1.17
789	n774	2.2907	2.2907	1.1067	2.85	2.92	0.05	1.1585	1.1585	1.18
790	n775	2.348	2.348	1.1585	2.78	2.85	0.05	1.2097	1.2097	1.19
792	n777	2.372	2.372	1.2891	2.71	2.78	0.05	1.3396	1.3396	1.08
794	n779	2.759	2.759	1.6281	2.64	2.71	0.05	1.6733	1.6733	1.13
796	n781	2.8702	2.8702	1.7873	2.57	2.64	0.05	1.8365	1.8365	1.08
797	n782	3.216	3.216	2.1331	2.5	2.57	0.04	2.1772	2.1772	1.08
798	n783	4.2819	4.2819	3.199	2.43	2.5	0.04	3.2425	3.2425	1.08
800	n785	7.91	7.91	6.8271	1.96	2.43	0.04	6.8699	6.8699	1.08
803	n788	9.7868	9.7868	8.7039	1.89	1.96	0.04	8.7422	8.7422	1.08
804	n789	11.4675	11.4675	10.3846	1.82	1.89	0.04	10.4222	10.4222	1.08
805	n790	13.1954	13.1954	12.1125	1.75	1.82	0.04	12.1495	12.1495	1.08
806	n791	13.794	13.794	12.7111	1.68	1.75	0.04	12.7472	12.7472	1.08
807	n792	2.4879	2.4879	0.3886	6.69	6.76	0.08	0.4703	0.4703	2.1
808	n793	2.6031	2.6031	0.2686	6.76	6.83	0.08	0.3508	0.3508	2.33
809	n794	2.8985	2.8985	0.1486	6.83	6.9	0.08	0.2313	0.2313	2.75
810	n795	3.082	3.082	0.0634	6.9	6.97	0.08	0.1467	0.1467	3.02
811	n796	3.038	3.038	-0.0566	6.97	7.04	0.08	0.0271	0.0271	3.09
816	n802	3.116	3.116	1.3539	5.48	5.55	0.07	1.4195	1.4195	1.76
817	n803	2.928	2.928	1.4403	5.41	5.48	0.07	1.5128	1.5128	1.49
818	n804	3.153	3.153	1.489	5.34	5.41	0.07	1.561	1.561	1.66
819	n805	3.04	3.04	1.609	4.85	4.92	0.07	1.6773	1.6773	1.43
820	n806	3.3424	3.3424	1.729	4.78	4.85	0.07	1.7967	1.7967	1.61
821	n808	3.3147	3.3147	2.2318	3.36	3.73	0.05	2.285	2.285	1.08
822	n809	3.5323	3.5323	2.3733	3.29	3.36	0.05	2.4267	2.4267	1.16
823	n810	3.5762	3.5762	2.4933	3.22	3.29	0.06	2.5484	2.5484	1.08
824	n811	3.7956	3.7956	2.7127	3.15	3.22	0.05	2.7621	2.7621	1.08
825	n812	4.7336	4.7336	3.6507	3.08	3.15	0.05	3.6995	3.6995	1.08
826	n813	5.9517	5.9517	4.8688	3.01	3.08	0.05	4.9171	4.9171	1.08
828	n815	7.865	7.865	6.0418	2.94	3.01	0.05	6.0895	6.0895	1.82
830	n817	3.724	3.724	2.6411	0.35	0.42	0.02	2.6585	2.6585	1.08
831	n818	4.6383	4.6383	3.5554	0.21	0.28	0.01	3.5697	3.5697	1.08
833	n820	6.5563	6.5563	5.4734	0.14	0.21	0.01	5.4857	5.4857	1.08
834	n821	9.7328	9.7328	8.6499	0.07	0.14	0.01	8.66	8.66	1.08

836	n823	10.273	10.273	9.1901	0	0.07	0.01	9.1972	9.1972	1.08
838	n825	8.3844	8.3844	7.3015	0	0.07	0.01	7.3086	7.3086	1.08
839	n826	6.7666	6.7666	5.6837	0.07	0.14	0.01	5.6938	5.6938	1.08
840	n827	5.877	5.877	4.7941	0.49	0.56	0.02	4.8144	4.8144	1.08
841	n828	2.923	2.923	1.8401	0.98	1.05	0.03	1.8711	1.8711	1.08
842	n829	3.2555	3.2555	2.1726	0.91	0.98	0.03	2.1995	2.1995	1.08
843	n830	3.47	3.47	2.3871	0.84	0.91	0.03	2.413	2.413	1.08
844	n831	3.7279	3.7279	2.645	0.77	0.84	0.02	2.6698	2.6698	1.08
845	n832	4.5644	4.5644	3.4815	0.7	0.77	0.02	3.5054	3.5054	1.08
846	n833	5.131	5.131	4.0481	0.63	0.7	0.02	4.0708	4.0708	1.08
847	n834	5.2156	5.2156	4.1327	0.56	0.63	0.02	4.1542	4.1542	1.08
848	n835	6.1384	6.1384	5.0555	0.28	0.35	0.02	5.0716	5.0716	1.08
849	n836	6.7528	6.7528	5.6699	0.21	0.28	0.01	5.6842	5.6842	1.08
850	n837	7.8092	7.8092	6.7263	0.14	0.21	0.01	6.7386	6.7386	1.08
851	n838	8.822	8.822	7.7391	0.07	0.14	0.01	7.7492	7.7492	1.08
854	n841	9.197	9.197	8.1141	0	0.07	0.01	8.1212	8.1212	1.08
855	n842	8.979	8.979	7.8961	0.91	0.98	0.03	7.923	7.923	1.08
856	n843	8.1243	8.1243	6.195	1.54	1.61	0.04	6.2333	6.2333	1.93
857	n844	8.169	8.169	6.2148	1.47	1.54	0.04	6.2522	6.2522	1.95
858	n845	7.52	7.52	6.2867	1.19	1.26	0.03	6.3205	6.3205	1.23
859	n846	7.506	7.506	6.3092	1.12	1.19	0.03	6.3422	6.3422	1.2
862	n849	8.071	8.071	6.9881	0.98	1.05	0.03	7.0159	7.0159	1.08
864	n851	11.0054	11.0054	9.9225	0.84	0.91	0.03	9.9484	9.9484	1.08
865	n852	13.6118	13.6118	12.5289	0.77	0.84	0.02	12.5538	12.5538	1.08
866	n853	16.8005	16.8005	15.4454	0.7	0.77	0.02	15.4692	15.4692	1.36
868	n855	18.526	18.526	17.4431	0	0.07	0.01	17.4502	17.4502	1.08
869	n856	18.18	18.18	17.0971	0.07	0.14	0.01	17.1072	17.1072	1.08
870	n858	16.7529	16.7529	15.67	0.14	0.21	0.01	15.6824	15.6824	1.08
871	n859	15.2429	15.2429	14.16	0.21	0.28	0.01	14.1743	14.1743	1.08
872	n860	14.6749	14.6749	13.592	0.28	0.35	0.02	13.6081	13.6081	1.08
873	n861	14.485	14.485	13.4021	0.35	0.42	0.02	13.4195	13.4195	1.08
875	n863	14.293	14.293	13.2101	0.42	0.49	0.02	13.229	13.229	1.08
876	n864	14.1698	14.1698	13.0869	0.49	0.56	0.02	13.1072	13.1072	1.08
877	n865	13.9132	13.9132	12.8303	0.56	0.63	0.02	12.8518	12.8518	1.08
878	n866	13.547	13.547	12.4641	0.63	0.7	0.02	12.4868	12.4868	1.08
879	n867	13.456	13.456	12.3731	0.7	0.77	0.03	12.3997	12.3997	1.08
880	n868	13.579	13.579	12.3409	0.77	0.84	0.03	12.3687	12.3687	1.24
881	n869	13.1649	13.1649	12.082	0.91	0.98	0.03	12.1089	12.1089	1.08
882	n870	12.9442	12.9442	11.8613	0.98	1.05	0.03	11.8891	11.8891	1.08
883	n871	12.729	12.729	11.6461	1.05	1.12	0.03	11.678	11.678	1.08
884	n872	13.1416	13.1416	11.5262	1.12	1.19	0.03	11.5592	11.5592	1.62
885	n873	14.6	14.6	11.4158	1.19	1.26	0.03	11.4464	11.4464	3.18
886	n874	11.5886	11.5886	10.5057	1.26	1.33	0.03	10.5371	10.5371	1.08
887	n875	9.9534	9.9534	8.8705	1.33	1.4	0.03	8.9027	8.9027	1.08
888	n876	9.5929	9.5929	8.51	1.4	1.47	0.03	8.543	8.543	1.08
889	n877	7.749	7.749	6.6661	1.47	1.54	0.03	6.7	6.7	1.08
890	n878	6.811	6.811	5.7281	2.58	2.65	0.04	5.7728	5.7728	1.08

891	n879	3.038	3.038	-0.1298	7.04	7.11	0.08	-0.0456	-0.0456	3.17
892	n880	2.9156	2.9156	-0.2498	7.11	7.18	0.08	-0.1651	-0.1651	3.17
893	n881	2.9332	2.9332	-0.3704	7.18	7.25	0.09	-0.2852	-0.2852	3.3
894	n882	2.996	2.996	-0.4904	7.25	7.32	0.09	-0.4047	-0.4047	3.49
895	n883	3.1749	3.1749	-0.6104	7.32	7.39	0.09	-0.5242	-0.5242	3.79
896	n884	3.6531	3.6531	-0.7304	7.39	7.46	0.09	-0.6437	-0.6437	4.38
897	n885	3.8394	3.8394	-0.8504	7.46	7.53	0.09	-0.7633	-0.7633	4.69
898	n886	3.8743	3.8743	-0.9704	7.53	7.6	0.09	-0.8828	-0.8828	4.84
899	n887	3.882	3.882	-1.0106	7.6	7.67	0.09	-0.9225	-0.9225	4.89
901	n889	3.927	3.927	-1.0947	7.67	7.74	0.09	-1.0061	-1.0061	5.02
902	n890	3.8635	3.8635	-1.2147	7.74	7.81	0.09	-1.1257	-1.1257	5.08
904	n892	4.002	4.002	-1.605	15.62	15.69	0.13	-1.4718	-1.4718	5.61
905	n893	4.15	4.15	3.0671	0	0.07	0.01	3.0742	3.0742	1.08
906	n895	3.9578	3.9578	2.8749	0	0.07	0.01	2.8834	2.8834	1.08
907	n896	4.0348	4.0348	2.7469	0.07	0.14	0.01	2.7587	2.7587	1.29
908	n897	4.0997	4.0997	2.5088	0.51	0.58	0.02	2.5321	2.5321	1.59
909	n898	4.0032	4.0032	2.3885	0.58	0.65	0.02	2.4131	2.4131	1.61
910	n900	4.0187	4.0187	2.2685	0.65	0.72	0.03	2.2943	2.2943	1.75
911	n901	3.921	3.921	2.1193	0.72	0.79	0.03	2.1462	2.1462	1.8
912	n902	3.7313	3.7313	1.9993	0.79	0.86	0.03	2.0273	2.0273	1.73
916	n906	3.801	3.801	1.843	0.86	0.93	0.03	1.8722	1.8722	1.96
917	n907	3.8352	3.8352	1.723	0.93	1	0.03	1.7533	1.7533	2.11
918	n908	3.8555	3.8555	1.603	1	1.07	0.03	1.6343	1.6343	2.25
920	n910	3.8343	3.8343	1.4594	1.07	1.14	0.03	1.4916	1.4916	2.37
921	n911	3.8189	3.8189	1.3394	1.14	1.21	0.03	1.3727	1.3727	2.48
922	n912	3.745	3.745	1.2648	1.21	1.28	0.03	1.299	1.299	2.48
923	n913	3.7527	3.7527	1.1448	1.28	1.35	0.04	1.1799	1.1799	2.61
924	n914	3.7743	3.7743	1.0248	1.35	1.42	0.04	1.0608	1.0608	2.75
925	n915	3.8322	3.8322	0.9048	1.42	1.99	0.04	0.9474	0.9474	2.93
927	n917	3.8483	3.8483	0.7779	1.99	2.56	0.05	0.8262	0.8262	3.07
928	n918	3.902	3.902	0.5485	2.26	3.267	0.15	0.6998	0.6998	3.35
930	n920	3.885	3.885	0.3567	135.23	135.3	0.34	0.6922	0.6922	3.53
933	n923	3.466	3.466	-1.6858	15.69	15.76	0.13	-1.5522	-1.5522	5.15
934	n924	2.9498	2.9498	-1.7698	15.76	15.83	0.13	-1.6358	-1.6358	4.72
935	n925	2.814	2.814	-1.8196	15.83	15.9	0.13	-1.6852	-1.6852	4.63
936	n926	2.884	2.884	-1.8951	15.9	15.97	0.13	-1.7603	-1.7603	4.78
938	n928	2.941	2.941	1.8159	0	16.01	0.14	1.951	1.951	1.13
939	n929	3.2375	3.2375	1.7319	16.01	16.05	0.14	1.8672	1.8672	1.51
940	n930	3.6277	3.6277	1.6479	16.05	16.09	0.11	1.7546	1.7546	1.98
941	n931	3.877	3.877	0.1319	16.32	16.36	0.14	0.2692	0.2692	3.75
943	n933	12.713	12.713	11.6301	0.14	0.21	0.01	11.6425	11.6425	1.08
944	n934	15.3734	15.3734	14.2905	0.07	0.14	0.01	14.3006	14.3006	1.08
945	n935	17.014	17.014	15.9311	0	0.07	0.01	15.9382	15.9382	1.08
946	n936	5.0061	5.0061	2.9221	0.63	0.7	0.03	2.9475	2.9475	2.08
947	n937	5.07	5.07	2.9541	0.49	0.56	0.02	2.9769	2.9769	2.12
949	n939	5.592	5.592	3.0566	0.42	0.49	0.02	3.078	3.078	2.54
952	n942	5.745	5.745	3.2009	0.28	0.35	0.02	3.2191	3.2191	2.54

954	n944	5.1793	5.1793	3.3539	0.21	0.28	0.02	3.3703	3.3703	1.83
956	n946	4.693	4.693	3.4616	0.14	0.21	0.01	3.4759	3.4759	1.23
958	n949	4.6998	4.6998	3.6169	0.07	0.14	0.01	3.6287	3.6287	1.08
960	n951	4.951	4.951	3.8681	0	0.07	0.01	3.8753	3.8753	1.08
961	n952	4.4747	4.4747	2.7656	0.91	0.98	0.03	2.7956	2.7956	1.71
962	n953	4.1898	4.1898	2.6456	0.98	1.05	0.03	2.6767	2.6767	1.54
963	n954	3.9265	3.9265	2.5256	1.05	1.12	0.03	2.5576	2.5576	1.4
964	n955	3.704	3.704	2.4056	1.12	1.19	0.03	2.4386	2.4386	1.3
965	n956	3.4254	3.4254	2.2856	1.19	1.26	0.03	2.3162	2.3162	1.14
966	n957	3.157	3.157	1.2079	6.17	6.24	0.08	1.286	1.286	1.95
967	n958	3.089	3.089	1.1393	6.24	6.31	0.07	1.2094	1.2094	1.95
968	n959	3.2108	3.2108	-0.0679	4.07	4.14	0.06	-0.0057	-0.0057	3.28
969	n960	3.4128	3.4128	0.0521	4	4.07	0.06	0.1137	0.1137	3.36
970	n962	3.545	3.545	0.2471	3.86	3.93	0.06	0.3077	0.3077	3.3
971	n963	3.4361	3.4361	0.3671	3.79	3.86	0.06	0.4271	0.4271	3.07
972	n964	3.253	3.253	0.4871	3.72	3.79	0.06	0.5466	0.5466	2.77
974	n966	3.6371	3.6371	0.6333	3.65	3.72	0.06	0.6921	0.6921	3
975	n967	3.707	3.707	0.6737	3.58	3.65	0.06	0.732	0.732	3.03
976	n968	3.827	3.827	0.7533	3.51	3.58	0.06	0.8108	0.8108	3.07
977	n969	4.0561	4.0561	0.8733	3.44	3.51	0.06	0.9302	0.9302	3.18
978	n970	6.1514	6.1514	1.1131	3.3	3.37	0.06	1.1689	1.1689	5.04
979	n971	6.503	6.503	1.1695	3.23	3.3	0.06	1.2246	1.2246	5.33
982	n974	4.792	4.792	1.3341	3.09	3.16	0.05	1.388	1.388	3.46
983	n975	4.596	4.596	1.3601	3.02	3.09	0.05	1.4135	1.4135	3.24
984	n976	4.4539	4.4539	1.4102	2.95	3.02	0.05	1.4629	1.4629	3.04
986	n978	4.316	4.316	1.5398	2.88	2.95	0.05	1.5919	1.5919	2.78
987	n979	4.4926	4.4926	1.6598	2.81	2.88	0.05	1.7112	1.7112	2.83
989	n981	5.562	5.562	1.811	2.74	2.81	0.05	1.8618	1.8618	3.75
991	n983	5.387	5.387	1.8447	1.87	2.74	0.05	1.8949	1.8949	3.54
992	n984	5.229	5.229	1.8663	3.08	3.55	0.06	1.9236	1.9236	3.36
993	n985	4.727	4.727	1.9291	3.01	3.08	0.05	1.9824	1.9824	2.8
994	n986	4.0498	4.0498	2.049	2.94	3.01	0.05	2.1017	2.1017	2
995	n987	3.6619	3.6619	2.169	2.87	2.94	0.05	2.221	2.221	1.49
996	n988	3.5961	3.5961	2.289	2.8	2.87	0.05	2.3404	2.3404	1.31
997	n989	3.49	3.49	2.3521	2.73	2.8	0.05	2.4028	2.4028	1.14
998	n990	3.503	3.503	2.4201	2.66	2.73	0.05	2.4702	2.4702	1.08
999	n991	4.2485	4.2485	3.1656	2.59	2.66	0.04	3.2103	3.2103	1.08
1000	n992	5.7667	5.7667	4.6838	2.52	2.59	0.04	4.728	4.728	1.08
1001	n993	7.4424	7.4424	6.3595	2.45	2.52	0.04	6.4031	6.4031	1.08
1002	n994	9.1564	9.1564	8.0735	2.38	2.45	0.04	8.1165	8.1165	1.08
1003	n995	10.978	10.978	8.6951	2.31	2.38	0.04	8.7375	8.7375	2.28
1004	n996	12.072	12.072	10.9891	0.28	0.35	0.02	11.0051	11.0051	1.08
1005	n997	11.542	11.542	10.4591	0	0.07	0.01	10.4662	10.4662	1.08
1006	n998	11.2815	11.2815	10.1986	0.07	0.14	0.01	10.2087	10.2087	1.08
1007	n999	10.5848	10.5848	9.5019	0.14	0.21	0.01	9.5143	9.5143	1.08
1008	n1000	9.4667	9.4667	8.3838	0.21	0.28	0.01	8.3981	8.3981	1.08
1009	n1001	7.5567	7.5567	6.4738	0.28	0.35	0.02	6.4898	6.4898	1.08

1011	n1003	6.37	6.37	5.2871	0.35	0.42	0.02	5.3045	5.3045	1.08
1012	n1004	4.2779	4.2779	3.195	0.42	0.49	0.02	3.2139	3.2139	1.08
1013	n1005	3.5061	3.5061	2.4232	0.49	0.56	0.02	2.4435	2.4435	1.08
1014	n1006	3.324	3.324	2.2411	0.56	0.63	0.02	2.2652	2.2652	1.08
1015	n1007	3.402	3.402	2.1686	0.63	0.7	0.03	2.194	2.194	1.23
1016	n1008	3.5	3.5	2.0646	0.7	0.77	0.03	2.0912	2.0912	1.44
1017	n1009	3.3527	3.3527	1.4506	4.77	4.84	0.07	1.5183	1.5183	1.9
1018	n1011	13.7171	13.7171	12.6342	0.21	0.28	0.01	12.6485	12.6485	1.08
1019	n1012	15.0181	15.0181	13.9352	0.14	0.21	0.01	13.9475	13.9475	1.08
1020	n1013	15.9928	15.9928	14.9099	0.07	0.14	0.01	14.92	14.92	1.08
1021	n1014	16.4598	16.4598	15.3769	0	0.07	0.01	15.3839	15.3839	1.08
1022	n1015	16.8011	16.8011	15.7182	0	0.07	0.01	15.7253	15.7253	1.08
1023	n1016	16.414	16.414	11.6582	0.98	1.05	0.03	11.6892	11.6892	4.76
1024	n1017	14.9993	14.9993	11.5383	1.05	1.12	0.03	11.5702	11.5702	3.46
1025	n1018	13.394	13.394	11.4184	1.12	1.19	0.03	11.4482	11.4482	1.98
1026	n1019	11.9469	11.9469	10.864	1.19	1.26	0.03	10.8946	10.8946	1.08
1027	n1020	10.2506	10.2506	9.1677	1.26	1.33	0.03	9.1992	9.1992	1.08
1029	n1022	8.6376	8.6376	7.5547	1.33	1.4	0.03	7.5869	7.5869	1.08
1030	n1023	6.9177	6.9177	5.8348	1.4	1.47	0.03	5.8679	5.8679	1.08
1031	n1024	6.577	6.577	5.4941	1.47	1.54	0.03	5.5281	5.5281	1.08
1032	n1025	6.1451	6.1451	5.0622	1.54	1.61	0.03	5.0968	5.0968	1.08
1033	n1026	5.4787	5.4787	4.3958	1.61	1.68	0.04	4.4312	4.4312	1.08
1034	n1027	5.231	5.231	4.1481	1.68	1.95	0.04	4.1903	4.1903	1.08
1035	n1028	5.284	5.284	4.0993	1.95	2.02	0.04	4.1422	4.1422	1.18
1036	n1029	5.218	5.218	4.0587	2.02	2.09	0.04	4.1009	4.1009	1.16
1038	n1031	4.9169	4.9169	3.834	2.09	2.16	0.04	3.8743	3.8743	1.08
1039	n1032	4.5173	4.5173	3.4344	2.16	2.23	0.04	3.4753	3.4753	1.08
1040	n1033	4.379	4.379	3.2961	2.23	2.3	0.05	3.342	3.342	1.08
1041	n1034	4.5233	4.5233	3.1761	2.3	2.37	0.05	3.2226	3.2226	1.35
1042	n1035	4.7199	4.7199	3.0561	2.37	2.44	0.05	3.1033	3.1033	1.66
1043	n1036	4.9361	4.9361	2.9361	2.44	2.51	0.05	2.984	2.984	2
1044	n1037	5.052	5.052	2.8699	2.51	2.58	0.05	2.9184	2.9184	2.18
1045	n1038	5.1209	5.1209	2.8161	2.58	2.65	0.05	2.8654	2.8654	2.3
1046	n1039	5.2882	5.2882	2.6961	2.65	2.72	0.05	2.7461	2.7461	2.59
1047	n1040	5.4143	5.4143	2.5761	2.72	2.79	0.05	2.6267	2.6267	2.84
1049	n1042	5.2189	5.2189	2.4417	2.79	2.86	0.05	2.493	2.493	2.78
1050	n1043	4.983	4.983	2.3827	3	3.07	0.05	2.4359	2.4359	2.6
1051	n1044	5.189	5.189	4.1061	0.07	0.14	0.01	4.1162	4.1162	1.08
1052	n1045	5.2982	5.2982	4.2153	0	0.07	0.01	4.2223	4.2223	1.08
1054	n1047	4.4863	4.4863	2.2663	3.07	3.14	0.05	2.3201	2.3201	2.22
1055	n1048	4.1903	4.1903	2.1463	3.14	3.21	0.05	2.2007	2.2007	2.04
1056	n1049	3.9245	3.9245	2.0263	3.21	3.28	0.06	2.0814	2.0814	1.9
1057	n1050	3.654	3.654	1.9063	3.28	3.35	0.06	1.962	1.962	1.75
1059	n1052	3.786	3.786	1.8108	3.15	3.72	0.06	1.8697	1.8697	1.98
1060	n1053	3.5192	3.5192	1.6908	3.72	3.79	0.06	1.7502	1.7502	1.83
1061	n1054	3.4708	3.4708	1.5708	3.79	3.86	0.06	1.6308	1.6308	1.9
1062	n1055	3.452	3.452	1.489	3.86	3.93	0.06	1.5496	1.5496	1.96

1065	n1058	3.167	3.167	1.3813	4.84	4.91	0.07	1.4495	1.4495	1.79
1068	n1061	9.922	9.922	8.8391	1.89	1.96	0.04	8.8814	8.8814	1.08
1069	n1062	10.4922	10.4922	9.4093	1.82	1.89	0.04	9.4469	9.4469	1.08
1070	n1063	10.8377	10.8377	9.7548	1.75	1.82	0.04	9.7918	9.7918	1.08
1071	n1064	11.6762	11.6762	10.5933	0	1.75	0.04	10.6294	10.6294	1.08
1072	n1065	11.982	11.982	10.8991	1.19	1.26	0.03	10.9297	10.9297	1.08
1073	n1066	17.978	17.978	15.5013	0.63	0.7	0.03	15.5267	15.5267	2.48
1074	n1067	17.5827	17.5827	15.6213	0.56	0.63	0.02	15.6454	15.6454	1.96
1075	n1068	17.2646	17.2646	15.7413	0.49	0.56	0.02	15.7641	15.7641	1.52
1076	n1069	17.0532	17.0532	15.8613	0.42	0.49	0.02	15.8826	15.8826	1.19
1077	n1070	16.987	16.987	15.9041	0.35	0.42	0.02	15.924	15.924	1.08
1078	n1071	17.4431	17.4431	16.3602	0.28	0.35	0.02	16.3762	16.3762	1.08
1079	n1072	19.0817	19.0817	17.9988	0.21	0.28	0.01	18.0131	18.0131	1.08
1080	n1073	19.779	19.779	18.6961	0.14	0.21	0.01	18.7085	18.7085	1.08
1082	n1075	20.063	20.063	18.9801	0.07	0.14	0.01	18.9902	18.9902	1.08
1084	n1077	21.827	21.827	20.7441	0	0.07	0.01	20.7512	20.7512	1.08
1086	n1079	16.3856	16.3856	15.3027	0	0.07	0.01	15.3097	15.3097	1.08
1087	n1080	15.68	15.68	14.5971	0.07	0.14	0.01	14.6072	14.6072	1.08
1088	n1081	15.461	15.461	14.3781	0.14	0.21	0.01	14.3924	14.3924	1.08
1089	n1082	15.3578	15.3578	14.2581	0.21	0.28	0.02	14.2745	14.2745	1.1
1091	n1084	15.203	15.203	14.1141	0.63	0.7	0.02	14.1368	14.1368	1.09
1093	n1086	15.3189	15.3189	14.236	0	0.07	0.01	14.2446	14.2446	1.08
1094	n1087	15.952	15.952	14.1486	0.07	0.14	0.01	14.1587	14.1587	1.8
1095	n1088	14.7841	14.7841	13.7012	0.14	0.21	0.01	13.7136	13.7136	1.08
1096	n1089	13.0734	13.0734	11.9905	0.21	0.28	0.01	12.0049	12.0049	1.08
1097	n1091	10.7526	10.7526	9.6697	0.28	0.35	0.02	9.6857	9.6857	1.08
1098	n1092	8.0349	8.0349	6.952	0.35	0.42	0.02	6.9694	6.9694	1.08
1099	n1093	6.138	6.138	4.2155	0.91	0.98	0.03	4.2424	4.2424	1.92
1100	n1094	9.1736	9.1736	8.0907	1.26	1.33	0.03	8.1222	8.1222	1.08
1101	n1095	10.4731	10.4731	9.3902	1.19	1.26	0.03	9.4208	9.4208	1.08
1102	n1096	10.764	10.764	9.6811	1.12	1.19	0.03	9.7108	9.7108	1.08
1103	n1097	11.184	11.184	10.1011	0.21	0.28	0.01	10.1154	10.1154	1.08
1104	n1098	12.6215	12.6215	11.5386	0.14	0.21	0.01	11.551	11.551	1.08
1105	n1099	14.9427	14.9427	13.8598	0.07	0.14	0.01	13.8699	13.8699	1.08
1106	n1100	16.052	16.052	14.9691	0	0.07	0.01	14.9762	14.9762	1.08
1107	n1101	11.232	11.232	10.1491	0.77	0.84	0.02	10.174	10.174	1.08
1108	n1102	12.8115	12.8115	11.7286	0.7	0.77	0.02	11.7524	11.7524	1.08
1110	n1104	17.0041	17.0041	15.9212	0.28	0.35	0.02	15.9372	15.9372	1.08
1111	n1105	18.9578	18.9578	17.8749	0.21	0.28	0.01	17.8893	17.8893	1.08
1112	n1106	20.6812	20.6812	19.5983	0.14	0.21	0.01	19.6107	19.6107	1.08
1113	n1107	22.3327	22.3327	21.2498	0.07	0.14	0.01	21.2599	21.2599	1.08
1114	n1108	23.458	23.458	22.3751	0	0.07	0.01	22.3822	22.3822	1.08
1115	n1109	22.856	22.856	21.7731	0	0.07	0.01	21.7802	21.7802	1.08
1116	n1110	21.097	21.097	20.0141	0.07	0.14	0.01	20.0242	20.0242	1.08
1117	n1111	18.9985	18.9985	17.9156	0.14	0.21	0.01	17.9279	17.9279	1.08
1118	n1112	17.6516	17.6516	16.5687	0.21	0.28	0.01	16.583	16.583	1.08
1119	n1113	16.5206	16.5206	15.4377	0.28	0.35	0.02	15.4537	15.4537	1.08

1120	n1114	14.9026	14.9026	13.8197	0.35	0.42	0.02	13.8371	13.8371	1.08
1121	n1115	13.1996	13.1996	12.1167	0.42	0.49	0.02	12.1356	12.1356	1.08
1122	n1116	12.2875	12.2875	11.2046	0.49	0.56	0.02	11.2249	11.2249	1.08
1123	n1117	11.879	11.879	10.7961	0.56	43.63	0.16	10.9599	10.9599	1.08
1124	n1118	22.61	22.61	21.5271	0	0.07	0.01	21.5356	21.5356	1.08
1125	n1119	23.845	23.845	21.4589	0.07	0.14	0.01	21.4707	21.4707	2.39
1126	n1120	24.8307	24.8307	21.3389	0.14	0.41	0.02	21.3586	21.3586	3.49
1127	n1121	25.109	25.109	21.2334	0.41	0.48	0.02	21.2546	21.2546	3.88
1128	n1122	23.3689	23.3689	21.1136	0.48	0.55	0.02	21.1337	21.1337	2.26
1129	n1123	20.505	20.505	19.4221	0.55	0.62	0.02	19.4434	19.4434	1.08
1130	n1124	17.1646	17.1646	16.0817	0.62	0.69	0.02	16.1043	16.1043	1.08
1131	n1125	15.143	15.143	14.0601	0.69	0.76	0.02	14.0838	14.0838	1.08
1132	n1126	13.4869	13.4869	12.404	0.76	0.83	0.02	12.4287	12.4287	1.08
1133	n1127	13.317	13.317	12.2341	0.83	0.9	0.03	12.2599	12.2599	1.08
1134	n1128	10.5965	10.5965	9.5136	0.9	0.97	0.03	9.5403	9.5403	1.08
1136	n1130	7.699	7.699	6.6161	0.97	1.04	0.03	6.6438	6.6438	1.08
1137	n1131	4.8459	4.8459	3.763	2.65	2.72	0.05	3.8083	3.8083	1.08
1138	n1132	4.1483	4.1483	3.0654	2.72	2.79	0.05	3.1113	3.1113	1.08
1139	n1133	3.8637	3.8637	2.7808	2.79	2.86	0.05	2.831	2.831	1.08
1140	n1134	3.733	3.733	2.6501	2.86	2.93	0.05	2.702	2.702	1.08
1141	n1136	3.7744	3.7744	2.5301	2.93	3	0.05	2.5826	2.5826	1.24
1142	n1137	3.837	3.837	2.4111	3	3.07	0.05	2.4643	2.4643	1.43
1143	n1138	3.76	3.76	2.3609	4.26	4.33	0.06	2.4246	2.4246	1.4
1144	n1139	3.614	3.614	2.2996	4.33	4.4	0.06	2.3639	2.3639	1.31
1145	n1140	3.842	3.842	2.1881	4.4	4.47	0.06	2.2529	2.2529	1.65
1146	n1141	3.54	3.54	2.1259	4.47	4.54	0.07	2.1913	2.1913	1.41
1147	n1142	3.5798	3.5798	2.0059	4.54	4.61	0.07	2.0718	2.0718	1.57
1148	n1143	3.6557	3.6557	1.8859	4.41	4.98	0.07	1.9547	1.9547	1.77
1149	n1144	3.9136	3.9136	1.7659	4.98	5.05	0.07	1.8352	1.8352	2.15
1150	n1145	4.7049	4.7049	1.646	5.05	5.12	0.07	1.7158	1.7158	3.06
1151	n1146	4.7	4.7	1.5309	5.4	5.47	0.07	1.6033	1.6033	3.17
1152	n1148	8.646	8.646	6.4938	0.21	0.28	0.01	6.5081	6.5081	2.15
1154	n1150	10.36	10.36	9.2771	0.14	0.21	0.01	9.2895	9.2895	1.08
1155	n1151	13.794	13.794	12.7111	0.07	0.14	0.01	12.7212	12.7212	1.08
1156	n1152	3.9504	3.9504	2.8675	1.12	1.19	0.03	2.8972	2.8972	1.08
1157	n1153	4.1721	4.1721	3.0892	1.05	1.12	0.03	3.118	3.118	1.08
1158	n1154	4.569	4.569	3.4861	0.98	1.05	0.03	3.514	3.514	1.08
1159	n1155	5.0496	5.0496	3.9667	0.91	0.98	0.03	3.9936	3.9936	1.08
1160	n1156	5.6923	5.6923	4.6094	0.84	0.91	0.03	4.6353	4.6353	1.08
1161	n1157	7.841	7.841	6.7581	0.77	0.84	0.02	6.783	6.783	1.08
1162	n1158	9.311	9.311	8.2281	0.7	0.77	0.02	8.2519	8.2519	1.08
1163	n1159	9.9719	9.9719	8.889	0.14	0.21	0.01	8.9013	8.9013	1.08
1164	n1160	11.1265	11.1265	10.0436	0.07	0.14	0.01	10.0537	10.0537	1.08
1165	n1161	11.942	11.942	10.8591	0	0.07	0.01	10.8662	10.8662	1.08
1166	n1162	11.909	11.909	10.8261	1.79	1.86	0.04	10.8634	10.8634	1.08
1167	n1163	20.1923	20.1923	19.1094	0	0.07	0.01	19.1165	19.1165	1.08
1168	n1164	19.2621	19.2621	18.1792	0.07	0.14	0.01	18.1893	18.1893	1.08

1169	n1165	18.1895	18.1895	17.1066	0.14	0.21	0.01	17.119	17.119	1.08
1172	n1168	10.3964	10.3964	9.3135	0.28	0.35	0.02	9.3295	9.3295	1.08
1173	n1169	9.7252	9.7252	8.6423	0.35	0.42	0.02	8.6598	8.6598	1.08
1174	n1170	9.4686	9.4686	8.3857	0.42	0.49	0.02	8.4055	8.4055	1.08
1175	n1172	10.6919	10.6919	9.5668	43.63	43.7	0.18	9.7433	9.7433	1.13
1176	n1173	9.7539	9.7539	8.6288	43.7	43.77	0.18	8.8053	8.8053	1.13
1178	n1175	8.791	8.791	5.3483	44.81	54.61	0.23	5.5799	5.5799	3.44
1179	n1176	7.7404	7.7404	6.6575	0	0.07	0.01	6.6646	6.6646	1.08
1181	n1178	6.526	6.526	5.4431	0.14	0.21	0.01	5.4555	5.4555	1.08
1182	n1179	6.2556	6.2556	5.1727	0.21	0.28	0.01	5.187	5.187	1.08
1183	n1180	5.847	5.847	4.7641	2.42	2.49	0.04	4.8074	4.8074	1.08
1186	n1183	8.248	8.248	5.5142	0.97	1.04	0.07	5.5809	5.5809	2.73
1187	n1184	9.8483	9.8483	8.7654	0.21	0.68	0.02	8.7878	8.7878	1.08
1188	n1185	11.8805	11.8805	10.7976	0.14	0.21	0.01	10.81	10.81	1.08
1189	n1186	14.2072	14.2072	13.1243	0.07	0.14	0.01	13.1344	13.1344	1.08
1190	n1187	16.5224	16.5224	15.4395	0	0.07	0.01	15.4466	15.4466	1.08
1192	n1189	16.913	16.913	15.8301	0.35	0.42	0.02	15.8475	15.8475	1.08
1193	n1190	7.215	7.215	5.6341	0.35	0.42	0.02	5.654	5.654	1.58
1194	n1191	6.798	6.798	5.7151	0.28	0.35	0.02	5.7333	5.7333	1.08
1196	n1193	7.2741	7.2741	6.1912	0.21	0.28	0.01	6.2055	6.2055	1.08
1197	n1194	8.751	8.751	7.6681	0.14	0.21	0.01	7.6804	7.6804	1.08
1198	n1195	11.018	11.018	9.9351	0.07	0.14	0.01	9.9452	9.9452	1.08
1199	n1196	13.0346	13.0346	11.9517	0	0.07	0.01	11.9588	11.9588	1.08
1201	n1198	14.347	14.347	13.2641	0.49	0.56	0.02	13.2844	13.2844	1.08
1203	n1200	20.024	20.024	18.9411	0.14	0.21	0.01	18.9535	18.9535	1.08
1204	n1201	19.1261	19.1261	18.0432	0.21	0.28	0.01	18.0576	18.0576	1.08
1205	n1202	17.7633	17.7633	16.6804	0.28	0.35	0.02	16.6964	16.6964	1.08
1206	n1203	15.5744	15.5744	14.4915	0.42	0.49	0.02	14.5104	14.5104	1.08
1208	n1205	12.815	12.815	11.7321	0.56	0.63	0.02	11.7536	11.7536	1.08
1209	n1206	8.7098	8.7098	7.6269	0.56	0.73	0.02	7.6501	7.6501	1.08
1210	n1207	5.3576	5.3576	4.2747	0.63	0.8	0.02	4.299	4.299	1.08
1211	n1208	4.02	4.02	2.9371	0.8	0.87	0.03	2.9653	2.9653	1.08
1214	n1211	3.985	3.985	2.8905	0.87	0.94	0.03	2.9168	2.9168	1.09
1215	n1212	3.7277	3.7277	2.6448	0.91	1.08	0.03	2.6731	2.6731	1.08
1217	n1214	3.09	3.09	2.0071	1.15	1.22	0.03	2.0372	2.0372	1.08
1218	n1215	3.9163	3.9163	2.8334	0.98	1.05	0.03	2.8613	2.8613	1.08
1219	n1216	5.379	5.379	4.2961	0.42	0.49	0.02	4.3175	4.3175	1.08
1220	n1217	5.492	5.492	4.4091	0.35	0.42	0.02	4.4265	4.4265	1.08
1221	n1218	6.514	6.514	5.4311	0.28	0.35	0.02	5.4472	5.4472	1.08
1222	n1219	8.3067	8.3067	7.2238	0.21	0.28	0.01	7.2382	7.2382	1.08
1223	n1220	11.098	11.098	8.1065	0.14	0.21	0.01	8.1188	8.1188	2.99
1224	n1221	9.2793	9.2793	8.1964	0.07	0.14	0.01	8.2083	8.2083	1.08
1225	n1222	11.1554	11.1554	10.0725	0	0.07	0.01	10.0795	10.0795	1.08
1228	n1225	14.781	14.781	13.6981	0.7	0.77	0.02	13.7219	13.7219	1.08
1229	n1226	15.7727	15.7727	14.6898	0.63	0.7	0.02	14.7125	14.7125	1.08
1230	n1227	19.6284	19.6284	18.5455	0.49	0.56	0.02	18.5657	18.5657	1.08
1231	n1228	22.3169	22.3169	21.234	0.42	0.49	0.02	21.2529	21.2529	1.08

1232	n1229	25.7715	25.7715	24.6886	0.28	0.35	0.02	24.7046	24.7046	1.08
1233	n1230	28.6471	28.6471	27.5642	0.14	0.21	0.01	27.5766	27.5766	1.08
1234	n1231	29.2264	29.2264	28.1435	0.07	0.14	0.01	28.1536	28.1536	1.08
1236	n1233	29.314	29.314	28.2311	0	0.07	0.01	28.2395	28.2395	1.08
1237	n1234	15.0536	15.0536	13.3889	0.77	0.84	0.02	13.4138	13.4138	1.66
1238	n1235	15.602	15.602	13.5089	0.7	0.77	0.03	13.5355	13.5355	2.09
1239	n1236	15.795	15.795	13.5895	0.63	0.7	0.03	13.6149	13.6149	2.21
1240	n1237	16.392	16.392	13.6803	0.56	0.63	0.02	13.7044	13.7044	2.71
1241	n1238	17.924	17.924	13.7703	0.49	0.56	0.02	13.7931	13.7931	4.15
1242	n1239	14.909	14.909	13.8261	0.42	0.49	0.02	13.8475	13.8475	1.08
1243	n1240	16.0308	16.0308	14.9479	0.35	0.42	0.02	14.9653	14.9653	1.08
1244	n1241	16.43	16.43	15.3471	0.28	0.35	0.02	15.3631	15.3631	1.08
1247	n1244	21.5413	21.5413	20.4584	0.21	0.28	0.01	20.4727	20.4727	1.08
1248	n1245	22.986	22.986	21.9031	0.14	0.21	0.01	21.9155	21.9155	1.08
1250	n1247	26.129	26.129	25.0461	0.07	0.14	0.01	25.0562	25.0562	1.08
1251	n1248	27.364	27.364	26.2811	0	0.07	0.01	26.2882	26.2882	1.08
1253	n1250	30.0714	30.0714	28.9885	0	0.07	0.01	28.9955	28.9955	1.08
1254	n1251	29.909	29.909	28.8261	0.07	0.14	0.01	28.838	28.838	1.08
1261	n1258	27.486	27.486	26.4031	0.35	0.42	0.02	26.4205	26.4205	1.08
1262	n1259	30.007	30.007	28.7827	0.14	0.21	0.01	28.7969	28.7969	1.22
1263	n1260	29.884	29.884	28.7297	0.21	0.28	0.02	28.7461	28.7461	1.15
1264	n1261	29.7572	29.7572	28.6627	0.28	0.35	0.02	28.6787	28.6787	1.09
1265	n1262	29.5147	29.5147	28.4318	0.35	0.42	0.02	28.4493	28.4493	1.08
1267	n1264	29.694	29.694	28.6111	0	0.07	0.01	28.6182	28.6182	1.08
1268	n1265	29.2764	29.2764	28.1935	0.07	0.14	0.01	28.2036	28.2036	1.08
1270	n1267	28.188	28.188	27.1051	0.28	0.35	0.02	27.1211	27.1211	1.08
1271	n1268	13.374	13.374	12.2911	1.72	1.79	0.04	12.3277	12.3277	1.08
1272	n1269	15.5625	15.5625	14.4796	1.65	1.72	0.04	14.5154	14.5154	1.08
1273	n1270	17.5684	17.5684	16.4855	1.58	1.65	0.04	16.5207	16.5207	1.08
1274	n1271	18.8609	18.8609	17.778	1.51	1.58	0.03	17.8123	17.8123	1.08
1275	n1272	19.9067	19.9067	18.8238	1.44	1.51	0.03	18.8573	18.8573	1.08
1276	n1273	21.156	21.156	20.0731	1.37	1.44	0.03	20.1058	20.1058	1.08
1277	n1274	22.777	22.777	20.297	1.3	1.37	0.03	20.3289	20.3289	2.48
1278	n1275	24.2628	24.2628	20.4169	1.03	1.3	0.03	20.4513	20.4513	3.85
1280	n1277	25.285	25.285	20.5515	0.76	1.03	0.03	20.5822	20.5822	4.73
1281	n1278	24.6669	24.6669	20.6714	0.49	0.76	0.03	20.6979	20.6979	4
1283	n1280	22.169	22.169	20.9397	0.42	0.49	0.02	20.9611	20.9611	1.23
1284	n1281	22.063	22.063	20.9801	0.35	0.42	0.02	21	21	1.08
1285	n1282	22.2449	22.2449	21.162	0.28	0.35	0.02	21.1785	21.1785	1.08
1286	n1283	23.0604	23.0604	21.9775	0.21	0.28	0.01	21.9918	21.9918	1.08
1287	n1284	23.8865	23.8865	22.8036	0.14	0.21	0.01	22.8159	22.8159	1.08
1288	n1285	23.969	23.969	22.8861	0.07	0.14	0.01	22.8962	22.8962	1.08
1289	n1286	24.133	24.133	23.0501	0	0.07	0.01	23.0572	23.0572	1.08
1290	n1287	24.129	24.129	23.0461	0	0.07	0.01	23.0532	23.0532	1.08
1292	n1289	24.243	24.243	23.1601	0	0.07	0.01	23.1672	23.1672	1.08
1293	n1290	23.5126	23.5126	22.4297	0.07	0.64	0.02	22.4513	22.4513	1.08
1294	n1291	22.2013	22.2013	21.1184	0.64	0.71	0.02	21.1413	21.1413	1.08

1295	n1292	20.5442	20.5442	19.4613	0.71	0.78	0.02	19.4853	19.4853	1.08
1296	n1293	19.0912	19.0912	18.0083	0.78	0.85	0.02	18.0333	18.0333	1.08
1297	n1294	17.743	17.743	16.6601	0.85	0.92	0.03	16.6862	16.6862	1.08
1298	n1295	16.0446	16.0446	14.9617	0.92	0.99	0.03	14.9888	14.9888	1.08
1299	n1296	14.6729	14.6729	13.59	0.99	1.06	0.03	13.6179	13.6179	1.08
1300	n1297	14.171	14.171	13.0881	0.56	1.13	0.03	13.117	13.117	1.08
1301	n1298	13.4339	13.4339	12.351	1.13	1.2	0.03	12.3808	12.3808	1.08
1302	n1299	11.6415	11.6415	10.5586	1.2	1.27	0.03	10.5893	10.5893	1.08
1303	n1300	9.7124	9.7124	8.6295	1.27	1.34	0.03	8.6611	8.6611	1.08
1304	n1301	7.5944	7.5944	6.5115	1.34	1.41	0.03	6.5438	6.5438	1.08
1306	n1303	5.795	5.795	4.7121	1.97	2.04	0.04	4.7511	4.7511	1.08
1307	n1304	5.4502	5.4502	4.3673	2.04	2.11	0.05	4.413	4.413	1.08
1310	n1307	5.4561	5.4561	4.3732	5.76	5.83	0.07	4.4411	4.4411	1.08
1311	n1308	5.5927	5.5927	4.5098	5.69	5.76	0.07	4.5817	4.5817	1.08
1312	n1309	5.9841	5.9841	4.9012	5.62	5.69	0.07	4.9676	4.9676	1.08
1313	n1310	7.0261	7.0261	5.9432	5.55	5.62	0.07	6.0092	6.0092	1.08
1314	n1311	9.0138	9.0138	7.9309	4.78	5.55	0.07	7.9964	7.9964	1.08
1315	n1312	11.6194	11.6194	10.5365	4.71	5.48	0.07	10.6016	10.6016	1.08
1317	n1314	16.03	16.03	14.9471	4.64	4.71	0.06	15.0073	15.0073	1.08
1319	n1316	18.105	18.105	17.0221	1.26	1.33	0.03	17.0536	17.0536	1.08
1320	n1317	20.6416	20.6416	19.5587	0.91	0.98	0.03	19.5856	19.5856	1.08
1321	n1318	22.659	22.659	21.5761	0.84	0.91	0.03	21.602	21.602	1.08
1323	n1320	23.647	23.647	22.5641	0.77	0.84	0.02	22.589	22.589	1.08
1324	n1321	25.4311	25.4311	24.3482	0.7	0.77	0.02	24.372	24.372	1.08
1325	n1322	26.85	26.85	25.7671	0.63	0.7	0.02	25.7898	25.7898	1.08
1326	n1323	18.1596	18.1596	17.0767	3.24	3.31	0.05	17.1268	17.1268	1.08
1327	n1324	19.7685	19.7685	18.6856	2.27	3.24	0.05	18.7352	18.7352	1.08
1329	n1326	20.834	20.834	19.7511	1.3	2.27	0.04	19.7924	19.7924	1.08
1330	n1327	21.2371	21.2371	20.1542	0.56	0.63	0.02	20.1756	20.1756	1.08
1331	n1328	21.68	21.68	20.5971	0.49	0.56	0.02	20.6174	20.6174	1.08
1332	n1329	22.035	22.035	20.9318	0.42	0.49	0.02	20.9507	20.9507	1.1
1334	n1331	22.041	22.041	20.9581	0.35	0.42	0.02	20.978	20.978	1.08
1336	n1333	23.045	23.045	21.9621	0.28	0.35	0.02	21.9781	21.9781	1.08
1338	n1335	23.68	23.68	22.5971	0.21	0.28	0.01	22.6114	22.6114	1.08
1340	n1337	25.0197	25.0197	23.9368	0.14	0.21	0.01	23.9492	23.9492	1.08
1341	n1338	26.3818	26.3818	25.2989	0.07	0.14	0.01	25.309	25.309	1.08
1342	n1339	27.7422	27.7422	26.6593	0	0.07	0.01	26.6664	26.6664	1.08
1343	n1340	28.535	28.535	27.4521	0.21	0.28	0.02	27.4685	27.4685	1.08
1344	n1341	16.2515	16.2515	11.8205	0.84	0.91	0.03	11.8494	11.8494	4.43
1347	n1344	15.863	15.863	11.8904	0.77	0.84	0.03	11.9182	11.9182	3.97
1349	n1346	14.7874	14.7874	11.9915	0.56	0.63	0.02	12.0156	12.0156	2.8
1350	n1347	13.6526	13.6526	12.1114	0.49	0.56	0.02	12.1342	12.1342	1.54
1351	n1348	13.69	13.69	12.1961	0.42	0.49	0.02	12.2175	12.2175	1.49
1352	n1349	14.3246	14.3246	13.2417	0.28	0.35	0.02	13.2577	13.2577	1.08
1353	n1350	14.916	14.916	13.8331	0.21	0.28	0.01	13.8474	13.8474	1.08
1354	n1351	13.399	13.399	12.3161	0	0.07	0.01	12.3246	12.3246	1.08
1364	n1361	17.1325	17.1325	16.0496	0	0.07	0.01	16.0567	16.0567	1.08

1365	n1362	17.624	17.624	16.5411	0	0.07	0.01	16.5482	16.5482	1.08
1367	n1364	16.8737	16.8737	15.7908	0.07	0.14	0.01	15.8009	15.8009	1.08
1368	n1365	15.9245	15.9245	14.8416	0.14	0.21	0.01	14.8539	14.8539	1.08
1369	n1366	17.2633	17.2633	16.1804	0	0.07	0.01	16.1874	16.1874	1.08
1370	n1367	16.5543	16.5543	15.4714	0.07	0.14	0.01	15.4815	15.4815	1.08
1371	n1368	15.6271	15.6271	14.5442	0.14	0.21	0.01	14.5566	14.5566	1.08
1372	n1369	15.06	15.06	13.9771	0.21	0.28	0.01	13.9914	13.9914	1.08
1373	n1370	13.242	13.242	11.7713	1.12	1.19	0.03	11.801	11.801	1.47
1374	n1371	14.7206	14.7206	11.8776	0.77	0.84	0.03	11.9054	11.9054	2.84
1375	n1372	14.94	14.94	11.9976	0.7	0.77	0.03	12.0242	12.0242	2.94
1376	n1373	14.452	14.452	12.1035	0.63	0.7	0.03	12.1289	12.1289	2.35
1377	n1374	14.829	14.829	12.5132	0.42	0.49	0.02	12.5346	12.5346	2.32
1379	n1376	15.584	15.584	12.3867	0.49	0.56	0.02	12.4095	12.4095	3.2
1380	n1377	15.609	15.609	12.2175	0.56	0.63	0.02	12.2416	12.2416	3.39
1382	n1379	12.4662	12.4662	11.3833	0	0.07	0.01	11.3903	11.3903	1.08
1383	n1380	10.1687	10.1687	9.0858	0.07	0.14	0.01	9.0959	9.0959	1.08
1384	n1381	8.9708	8.9708	7.8879	0.14	0.21	0.01	7.9002	7.9002	1.08
1385	n1382	7.6718	7.6718	6.5889	0.21	0.28	0.01	6.6032	6.6032	1.08
1386	n1383	6.805	6.805	5.7221	0.28	0.35	0.02	5.7403	5.7403	1.08
1390	n1387	10.1474	10.1474	5.5834	1.61	1.68	0.04	5.6224	5.6224	4.56
1391	n1388	13.716	13.716	12.6331	0	0.42	0.02	12.653	12.653	1.08
1418	n1415	27.5619	27.5619	26.479	0.42	0.49	0.02	26.4979	26.4979	1.08
1419	n1416	28.6829	28.6829	27.2127	0.35	0.42	0.02	27.2302	27.2302	1.47
1420	n1417	29.229	29.229	27.2711	0.28	0.35	0.02	27.2894	27.2894	1.96
1422	n1419	30.0423	30.0423	28.9594	0.14	0.21	0.01	28.9717	28.9717	1.08
1423	n1420	31.5483	31.5483	30.4654	0.07	0.14	0.01	30.4755	30.4755	1.08
1424	n1421	32.9782	32.9782	31.8953	0	0.07	0.01	31.9024	31.9024	1.08
1425	n1422	33.64	33.64	32.5571	0	0.07	0.01	32.5642	32.5642	1.08
1426	n1423	32.6203	32.6203	31.5374	0.07	0.14	0.01	31.5475	31.5475	1.08
1427	n1424	31.1862	31.1862	30.1033	0.14	0.21	0.01	30.1157	30.1157	1.08
1428	n1425	30.768	30.768	27.3664	0.42	0.49	0.02	27.3878	27.3878	3.4
1434	n1431	29.996	29.996	27.2464	0.49	0.56	0.02	27.2692	27.2692	2.75
1435	n1432	29.164	29.164	27.1395	0.56	0.63	0.02	27.1636	27.1636	2.02
1437	n1434	27.9543	27.9543	26.8714	0.07	0.14	0.01	26.8815	26.8815	1.08
1438	n1435	28.721	28.721	27.6381	0	0.07	0.01	27.6452	27.6452	1.08
1439	n1436	28.7991	28.7991	27.0883	0.63	0.7	0.02	27.111	27.111	1.71
1440	n1437	27.617	27.617	25.4176	0.84	0.91	0.03	25.4464	25.4464	2.2
1441	n1438	27.2216	27.2216	25.4729	0.07	0.14	0.01	25.4847	25.4847	1.75
1442	n1439	26.6757	26.6757	25.5928	0	0.07	0.01	25.6014	25.6014	1.08
1444	n1441	26.336	26.336	23.7268	0.42	0.49	0.02	23.7482	23.7482	2.61
1447	n1444	19.0627	19.0627	17.9798	0.14	0.21	0.01	17.9922	17.9922	1.08
1448	n1445	21.3782	21.3782	20.2953	0.07	0.14	0.01	20.3054	20.3054	1.08
1449	n1446	24.2345	24.2345	23.1516	0	0.07	0.01	23.1587	23.1587	1.08
1453	n1450	24.137	24.137	23.0541	0.07	0.14	0.01	23.0642	23.0642	1.08
1454	n1451	23.6105	23.6105	22.5276	0.14	0.21	0.01	22.54	22.54	1.08
1455	n1452	22.3747	22.3747	21.2918	0.21	0.28	0.01	21.3061	21.3061	1.08
1456	n1453	20.96	20.96	19.8771	1.53	1.6	0.03	19.9117	19.9117	1.08

1457	n1454	27.0293	27.0293	25.3318	0.91	0.98	0.03	25.3587	25.3587	1.7
1458	n1455	24.6897	24.6897	23.6068	0.98	1.25	0.03	23.6373	23.6373	1.08
1459	n1456	17.7348	17.7348	16.6519	1.6	1.67	0.04	16.6872	16.6872	1.08
1460	n1457	14.0054	14.0054	12.9225	1.67	1.74	0.04	12.9585	12.9585	1.08
1461	n1458	11.3532	11.3532	10.2703	1.74	1.81	0.04	10.3071	10.3071	1.08
1462	n1459	9.6601	9.6601	8.5772	1.81	1.88	0.04	8.6148	8.6148	1.08
1463	n1460	8.428	8.428	7.3451	1.88	1.95	0.04	7.3834	7.3834	1.08
1464	n1461	7.1086	7.1086	6.0257	1.95	2.02	0.04	6.0646	6.0646	1.08
1465	n1462	6.5088	6.5088	5.4259	2.02	2.09	0.04	5.4654	5.4654	1.08
1466	n1463	5.754	5.754	4.6711	2.09	2.16	0.04	4.7155	4.7155	1.08
1470	n1467	5.92	5.92	4.4654	4.69	10.3	0.09	4.5559	4.5559	1.45
1471	n1468	6.0317	6.0317	4.9488	0.49	0.56	0.02	4.9691	4.9691	1.08
1472	n1469	6.547	6.547	5.3807	0.42	0.49	0.02	5.3996	5.3996	1.17
1473	n1470	6.533	6.533	5.4501	0.35	0.42	0.02	5.47	5.47	1.08
1475	n1472	7.8978	7.8978	6.8149	0.21	0.28	0.01	6.8292	6.8292	1.08
1476	n1473	10.7071	10.7071	9.6242	0.14	0.21	0.01	9.6366	9.6366	1.08
1477	n1474	15.0289	15.0289	13.946	0.07	0.14	0.01	13.9561	13.9561	1.08
1478	n1475	20.689	20.689	19.6061	0	0.07	0.01	19.6132	19.6132	1.08
1479	n1476	22.158	22.158	21.0751	0	0.07	0.01	21.0836	21.0836	1.08
1480	n1477	23.463	23.463	21.0021	0.07	0.14	0.01	21.014	21.014	2.46
1481	n1478	23.2094	23.2094	20.9704	0.14	0.21	0.01	20.9847	20.9847	2.24
1482	n1479	21.8105	21.8105	20.7276	0.35	0.42	0.02	20.7451	20.7451	1.08
1483	n1480	19.368	19.368	18.2851	1.04	1.11	0.03	18.3138	18.3138	1.08
1486	n1483	21.8947	21.8947	20.8118	0.07	0.64	0.02	20.8345	20.8345	1.08
1487	n1484	21.7342	21.7342	20.6513	0.14	0.51	0.02	20.6706	20.6706	1.08
1489	n1486	20.4065	20.4065	19.3236	0.28	0.55	0.02	19.3437	19.3437	1.08
1490	n1487	19.8479	19.8479	18.765	0.55	0.62	0.02	18.7863	18.7863	1.08
1491	n1488	14.7855	14.7855	13.7026	1.11	1.18	0.03	13.7322	13.7322	1.08
1492	n1489	11.4075	11.4075	10.3246	1.18	1.25	0.03	10.3551	10.3551	1.08
1493	n1490	9.4672	9.4672	8.3843	1.25	1.32	0.03	8.4156	8.4156	1.08
1494	n1491	8.66	8.66	7.5771	1.32	1.39	0.03	7.6092	7.6092	1.08
1496	n1493	6.1782	6.1782	5.0953	1.46	1.53	0.03	5.129	5.129	1.08
1497	n1494	22.1787	22.1787	21.0958	0	0.07	0.01	21.1029	21.1029	1.08
1498	n1495	20.905	20.905	19.8221	0.07	0.14	0.01	19.8322	19.8322	1.08
1499	n1496	19.7121	19.7121	18.6292	0.14	0.21	0.01	18.6415	18.6415	1.08
1500	n1497	18.451	18.451	17.3681	0.21	0.28	0.01	17.3824	17.3824	1.08
1501	n1498	17.2264	17.2264	16.1435	0.28	0.55	0.02	16.1636	16.1636	1.08
1502	n1499	16.1631	16.1631	15.0802	0.55	0.62	0.02	15.1015	15.1015	1.08
1503	n1500	15.5546	15.5546	14.4717	0.62	0.69	0.02	14.4942	14.4942	1.08
1504	n1501	15.367	15.367	14.2841	0.69	0.76	0.02	14.3078	14.3078	1.08
1518	n1515	6.8881	6.8881	5.8052	1.33	1.4	0.03	5.8374	5.8374	1.08
1519	n1516	8.1904	8.1904	7.1075	1.26	1.33	0.03	7.139	7.139	1.08
1520	n1517	9.5976	9.5976	8.5147	1.19	1.26	0.03	8.5453	8.5453	1.08
1521	n1518	11.4114	11.4114	10.3285	1.12	1.19	0.03	10.3582	10.3582	1.08
1522	n1519	13.641	13.641	11.9988	1.05	1.12	0.03	12.0277	12.0277	1.64
1523	n1520	16.9047	16.9047	15.8218	0.7	0.77	0.02	15.8456	15.8456	1.08
1524	n1521	20.0764	20.0764	18.9935	0.63	0.7	0.02	19.0162	19.0162	1.08

1525	n1522	23.0999	23.0999	22.017	0.56	0.63	0.02	22.0384	22.0384	1.08
1526	n1523	25.1283	25.1283	23.5866	0.49	0.56	0.02	23.6068	23.6068	1.54
1528	n1525	26.918	26.918	23.8434	0.35	0.42	0.02	23.8633	23.8633	3.07
1529	n1526	28.0227	28.0227	26.9398	0.07	0.14	0.01	26.9499	26.9499	1.08
1530	n1527	29.261	29.261	28.1781	0	0.07	0.01	28.1851	28.1851	1.08
1531	n1529	28.9154	28.9154	27.8325	0	0.07	0.01	27.8411	27.8411	1.08
1532	n1530	27.527	27.527	26.4441	0	0.07	0.01	26.4512	26.4512	1.08
1534	n1532	29.102	29.102	28.0191	0	0.07	0.01	28.0262	28.0262	1.08
1535	n1533	28.5313	28.5313	27.4484	0.07	0.14	0.01	27.4585	27.4585	1.08
1537	n1535	27.666	27.666	26.5831	0.14	0.21	0.01	26.5955	26.5955	1.08
1539	n1537	26.543	26.543	22.8547	1.69	1.76	0.04	22.8947	22.8947	3.69
1540	n1538	25.7737	25.7737	22.7348	1.76	1.83	0.04	22.7757	22.7757	3.04
1541	n1539	25.1815	25.1815	22.6148	1.9	1.97	0.04	22.6572	22.6572	2.57
1542	n1540	23.84	23.84	22.4949	1.97	2.04	0.04	22.534	22.534	1.35
1544	n1542	19.845	19.845	18.7621	2.04	2.11	0.04	18.8059	18.8059	1.08
1545	n1543	19.6129	19.6129	18.5103	2.18	2.25	0.05	18.5557	18.5557	1.1
1547	n1545	20.9358	20.9358	18.3282	2.25	2.32	0.05	18.3742	18.3742	2.61
1548	n1546	22.2729	22.2729	18.2083	2.32	2.39	0.05	18.2549	18.2549	4.06
1549	n1547	23.448	23.448	18.1123	2.53	2.6	0.05	18.1631	18.1631	5.34
1550	n1548	23.828	23.828	22.7451	0	2.67	0.04	22.79	22.79	1.08
1551	n1549	23.1739	23.1739	22.091	2.67	2.74	0.05	22.1366	22.1366	1.08
1553	n1551	23.118	23.118	21.7956	3.16	3.23	0.05	21.8451	21.8451	1.32
1556	n1554	24.5996	24.5996	23.3681	0.28	0.35	0.02	23.3842	23.3842	1.23
1557	n1555	24.524	24.524	23.4411	0.21	0.28	0.02	23.4575	23.4575	1.08
1559	n1557	25.1398	25.1398	23.8686	0.14	0.21	0.01	23.881	23.881	1.27
1560	n1558	25.843	25.843	23.9886	0.07	0.14	0.01	24.0004	24.0004	1.85
1562	n1560	24.825	24.825	23.7421	0	0.07	0.01	23.7492	23.7492	1.08
1564	n1562	24.4771	24.4771	23.3942	0.07	0.14	0.01	23.4043	23.4043	1.08
1566	n1564	27.152	27.152	26.0691	0.07	0.14	0.01	26.0792	26.0792	1.08
1567	n1565	26.6673	26.6673	25.5844	0.14	0.21	0.01	25.5968	25.5968	1.08
1568	n1566	25.8895	25.8895	24.8066	0.21	0.78	0.02	24.8306	24.8306	1.08
1569	n1567	24.968	24.968	23.8851	0.78	0.85	0.02	23.9101	23.9101	1.08
1570	n1568	26.4061	26.4061	23.9633	0.14	0.21	0.01	23.9776	23.9776	2.44
1571	n1569	25.7868	25.7868	24.0833	0.07	0.14	0.01	24.0952	24.0952	1.7
1572	n1570	25.267	25.267	24.1841	0	0.07	0.01	24.1926	24.1926	1.08
1573	n1571	14.4423	14.4423	12.1188	0.21	0.28	0.02	12.1352	12.1352	2.32
1576	n1574	19.965	19.965	18.8821	0.07	0.14	0.01	18.8922	18.8922	1.08
1579	n1577	25.275	25.275	22.3556	0.35	0.42	0.02	22.373	22.373	2.92
1580	n1578	23.1872	23.1872	22.1043	0.42	0.49	0.02	22.1232	22.1232	1.08
1581	n1579	21.3624	21.3624	20.2795	0.49	0.56	0.02	20.2998	20.2998	1.08
1582	n1580	19.9752	19.9752	18.8923	0.56	0.63	0.02	18.9138	18.9138	1.08
1583	n1581	18.456	18.456	17.3731	0.63	0.7	0.02	17.3958	17.3958	1.08
1584	n1582	12.934	12.934	11.8511	0.84	0.91	0.03	11.877	11.877	1.08
1585	n1583	16.7266	16.7266	15.6437	0	0.07	0.01	15.6507	15.6507	1.08
1586	n1584	11.11	11.11	10.0271	0.07	0.14	0.01	10.039	10.039	1.08
1588	n1586	11.414	11.414	9.8901	0.35	0.42	0.02	9.9075	9.9075	1.52
1589	n1587	17.172	17.172	16.0891	0	0.07	0.01	16.0962	16.0962	1.08

1590	n1588	15.692	15.692	14.6091	0.07	0.14	0.01	14.6192	14.6192	1.08
1591	n1589	13.5284	13.5284	12.4455	0.14	0.21	0.01	12.4579	12.4579	1.08
1592	n1590	16.8271	16.8271	15.7442	0.7	0.77	0.02	15.7681	15.7681	1.08
1593	n1591	14.7107	14.7107	13.6278	0.77	0.84	0.02	13.6526	13.6526	1.08
1594	n1592	10.1427	10.1427	9.0598	0.91	0.98	0.03	9.0867	9.0867	1.08
1595	n1593	8.2382	8.2382	7.1553	0.98	1.05	0.03	7.1832	7.1832	1.08
1596	n1594	7.113	7.113	6.0301	2.17	2.24	0.05	6.0753	6.0753	1.08
1597	n1595	24.9326	24.9326	22.4756	0.28	0.35	0.02	22.4938	22.4938	2.46
1599	n1597	23.687	23.687	22.6041	0.21	0.28	0.02	22.6205	22.6205	1.08
1600	n1598	24.4287	24.4287	23.3458	0	0.07	0.01	23.3543	23.3543	1.08
1602	n1600	24.7737	24.7737	23.1872	0.07	0.14	0.01	23.199	23.199	1.59
1603	n1601	24.2866	24.2866	23.0672	0.14	0.21	0.01	23.0796	23.0796	1.22
1617	n1616	21.266	21.266	20.1831	0	0.07	0.01	20.1902	20.1902	1.08
1618	n1617	10.566	10.566	9.4831	0.63	0.7	0.02	9.5058	9.5058	1.08
1620	n1619	9.549	9.549	8.4661	0.91	0.98	0.03	8.493	8.493	1.08
1621	n1620	12.2159	12.2159	11.133	0.14	0.21	0.01	11.1454	11.1454	1.08
1622	n1621	15.1662	15.1662	14.0833	0.07	0.14	0.01	14.0934	14.0934	1.08
1623	n1622	18.5997	18.5997	17.5168	0	0.07	0.01	17.5239	17.5239	1.08
1624	n1623	20.271	20.271	19.1881	0.07	0.14	0.01	19.1982	19.1982	1.08
1632	n1631	7.2	7.2	5.3507	3.43	13.8	0.11	5.4562	5.4562	1.85
1633	n1632	6.762	6.762	5.6498	0.91	0.98	0.03	5.6767	5.6767	1.11
1635	n1634	6.8738	6.8738	5.7909	0.77	0.84	0.03	5.8187	5.8187	1.08
1636	n1635	7.14	7.14	6.0571	0.7	0.77	0.02	6.0809	6.0809	1.08
1637	n1636	6.518	6.518	5.4351	2.38	2.45	0.05	5.4824	5.4824	1.08
1638	n1637	6.5664	6.5664	5.4835	2.31	2.38	0.04	5.5283	5.5283	1.08
1639	n1638	7.113	7.113	5.9857	2.24	2.31	0.04	6.0273	6.0273	1.13
1641	n1640	8.4647	8.4647	7.3818	0.98	1.05	0.03	7.4097	7.4097	1.08
1642	n1641	10.848	10.848	9.7651	0.14	0.21	0.01	9.7775	9.7775	1.08
1643	n1642	12.956	12.956	11.8731	0.07	0.14	0.01	11.8832	11.8832	1.08
1644	n1643	15.4333	15.4333	14.3504	0	0.07	0.01	14.3575	14.3575	1.08
1645	n1644	18.233	18.233	17.1501	0.21	0.28	0.02	17.1665	17.1665	1.08
1646	n1645	15.08	15.08	13.9971	0.76	0.83	0.02	14.0218	14.0218	1.08
1649	n1648	14.868	14.868	13.7851	0.83	0.9	0.03	13.8138	13.8138	1.08
1650	n1649	12.8231	12.8231	11.7402	0	0.07	0.01	11.7472	11.7472	1.08
1651	n1650	11.1388	11.1388	10.0559	0.07	0.14	0.01	10.066	10.066	1.08
1652	n1651	9.9117	9.9117	8.8288	0.14	0.21	0.01	8.8412	8.8412	1.08
1653	n1652	8.6362	8.6362	7.5533	0.21	0.28	0.01	7.5676	7.5676	1.08
1657	n1656	8.0697	8.0697	6.9868	0.21	0.28	0.01	7.0011	7.0011	1.08
1658	n1657	9.5225	9.5225	8.4396	0.14	0.21	0.01	8.4519	8.4519	1.08
1659	n1658	14.2568	14.2568	13.1739	0.07	0.14	0.01	13.184	13.184	1.08
1660	n1659	16.48	16.48	15.3971	0	0.07	0.01	15.4042	15.4042	1.08
1661	n1660	20.386	20.386	16.4247	3.39	3.46	0.06	16.4812	16.4812	3.96
1662	n1661	12.227	12.227	11.1441	0.07	0.14	0.01	11.156	11.156	1.08
1663	n1663	12.604	12.604	10.9919	0.14	0.21	0.01	11.0067	11.0067	1.61
1664	n1664	21.0177	21.0177	19.9348	0.07	0.14	0.01	19.9449	19.9449	1.08
1665	n1665	19.6268	19.6268	18.5439	0.14	0.21	0.01	18.5562	18.5562	1.08
1666	n1666	18.3923	18.3923	17.3094	0.21	0.28	0.01	17.3237	17.3237	1.08

1667	n1667	17.4369	17.4369	16.354	0.35	0.42	0.02	16.3714	16.3714	1.08
1668	n1668	15.463	15.463	14.3801	0.42	0.49	0.02	14.399	14.399	1.08
1670	n1670	13.199	13.199	10.9073	0.7	0.77	0.03	10.9339	10.9339	2.29
1671	n1671	10.5655	10.5655	9.4826	0	0.07	0.01	9.4896	9.4896	1.08
1672	n1672	9.5191	9.5191	8.4362	0.07	0.14	0.01	8.4463	8.4463	1.08
1673	n1673	8.8104	8.8104	7.7275	0.14	0.21	0.01	7.7399	7.7399	1.08
1675	n1675	8.572	8.572	7.2532	4.3	4.37	0.06	7.3173	7.3173	1.32
1676	n1676	8.587	8.587	7.3336	4.02	4.09	0.06	7.3954	7.3954	1.25
1677	n1677	8.447	8.447	7.3641	3.95	4.02	0.06	7.4253	7.4253	1.08
1678	n1678	9.138	9.138	8.0551	3.88	3.95	0.05	8.11	8.11	1.08
1679	n1679	11.842	11.842	10.7591	3.81	3.88	0.05	10.8135	10.8135	1.08
1689	n1690	19.251	19.251	16.067	3.74	3.81	0.05	16.1209	16.1209	3.18
1701	n1702	15.3738	15.3738	13.6652	0.9	0.97	0.03	13.695	13.695	1.71
1702	n1703	15.9936	15.9936	13.5452	0.97	1.54	0.04	13.5826	13.5826	2.45
1703	n1704	16.9152	16.9152	13.4253	1.54	1.61	0.04	13.4636	13.4636	3.49
1705	n1706	19.5513	19.5513	18.4684	0	1.69	0.04	18.5075	18.5075	1.08
1706	n1707	20.4415	20.4415	18.3484	1.69	1.76	0.04	18.3846	18.3846	2.09
1708	n1709	21.042	21.042	16.5319	0.56	1.63	0.04	16.5705	16.5705	4.51
1709	n1710	20.8558	20.8558	16.6519	0.49	0.56	0.02	16.6747	16.6747	4.2
1710	n1711	20.631	20.631	16.756	0.42	0.49	0.02	16.7773	16.7773	3.88
1711	n1712	22.053	22.053	16.3051	3.53	3.6	0.06	16.363	16.363	5.75
1713	n1714	21.241	21.241	16.1867	3.6	3.67	0.06	16.2451	16.2451	5.05
1716	n1717	19.064	19.064	17.9811	0	0.07	0.01	17.9896	17.9896	1.08
1717	n1718	19.271	19.271	17.9253	0.07	0.14	0.01	17.9354	17.9354	1.35
1718	n1719	17.9453	17.9453	16.8624	0.14	0.21	0.01	16.8747	16.8747	1.08
1719	n1720	16.2512	16.2512	15.1683	0.21	0.28	0.01	15.1827	15.1827	1.08
1720	n1721	14.3878	14.3878	13.3049	0.28	0.35	0.02	13.321	13.321	1.08
1722	n1723	13.526	13.526	12.4431	0.35	0.42	0.02	12.4637	12.4637	1.08
1724	n1725	13.8005	13.8005	10.803	0.77	0.84	0.03	10.8308	10.8308	3
1725	n1726	14.12	14.12	10.683	0.84	0.91	0.03	10.7119	10.7119	3.44
1726	n1727	14.287	14.287	10.563	0.91	0.98	0.03	10.593	10.593	3.72
1727	n1728	12.738	12.738	10.3568	1.05	1.12	0.03	10.3887	10.3887	2.38
1728	n1729	10.0589	10.0589	6.6248	4.65	4.72	0.07	6.6916	6.6916	3.43
1729	n1730	8.1002	8.1002	6.7445	4.58	4.65	0.07	6.8107	6.8107	1.36
1730	n1732	12.287	12.287	6.5016	5.91	5.98	0.08	6.5778	6.5778	5.79
1731	n1733	12.6	12.6	6.3935	5.98	6.05	0.08	6.4738	6.4738	6.21
1733	n1735	12.066	12.066	6.2625	6.33	6.4	0.08	6.3417	6.3417	5.8
1734	n1736	8.9477	8.9477	6.1431	6.4	6.47	0.07	6.2142	6.2142	2.8
1735	n1737	6.9907	6.9907	5.9078	6.47	6.54	0.07	5.9792	5.9792	1.08
1736	n1738	5.7384	5.7384	4.6555	6.54	6.61	0.07	4.7273	4.7273	1.08
1738	n1740	4.841	4.841	3.7405	9.24	9.31	0.09	3.8263	3.8263	1.1
1741	n1743	12.4456	12.4456	11.3627	0.21	0.28	0.01	11.377	11.377	1.08
1742	n1744	12.751	12.751	11.4981	0.14	0.21	0.01	11.512	11.512	1.25
1743	n1746	12.701	12.701	11.6181	0.07	0.14	0.01	11.63	11.63	1.08
1744	n1747	14.357	14.357	13.2741	0	0.07	0.01	13.2812	13.2812	1.08
1745	n1748	10.92	10.92	9.8371	1.86	1.93	0.04	9.8752	9.8752	1.08
1747	n1750	9.0597	9.0597	7.9768	1.93	2	0.04	8.0156	8.0156	1.08

1748	n1751	7.4853	7.4853	6.4024	2	2.07	0.04	6.4417	6.4417	1.08
1749	n1752	6.4662	6.4662	5.3833	2.07	2.14	0.04	5.4234	5.4234	1.08
1750	n1753	5.3526	5.3526	4.2697	2.49	2.56	0.04	4.3137	4.3137	1.08
1751	n1754	4.9405	4.9405	3.8576	2.56	2.63	0.05	3.9068	3.9068	1.08
1753	n1756	24.2743	24.2743	23.1914	0.85	1.92	0.04	23.2294	23.2294	1.08
1754	n1757	23.1308	23.1308	22.0479	0.92	1.99	0.04	22.0865	22.0865	1.08
1755	n1758	22.221	22.221	21.1381	0.99	1.56	0.03	21.1722	21.1722	1.08
1756	n1759	21.6139	21.6139	20.531	1.56	1.63	0.03	20.5659	20.5659	1.08
1757	n1760	21.322	21.322	20.2391	1.63	1.7	0.04	20.2753	20.2753	1.08
1759	n1762	21.129	21.129	20.0461	1.7	1.77	0.04	20.0862	20.0862	1.08
1760	n1763	21.216	21.216	19.9696	1.77	1.84	0.04	20.0106	20.0106	1.25
1762	n1765	21.167	21.167	19.831	1.84	1.91	0.04	19.8727	19.8727	1.34
1764	n1767	21.449	21.449	19.7046	5.14	5.21	0.07	19.7751	19.7751	1.74
1765	n1768	21.43	21.43	19.5935	5.21	5.28	0.07	19.6647	19.6647	1.84
1768	n1771	21.425	21.425	19.4272	5.28	5.35	0.07	19.4988	19.4988	2
1770	n1773	21.366	21.366	19.2988	5.35	5.42	0.07	19.3709	19.3709	2.07
1772	n1775	21.074	21.074	19.1483	5.42	5.49	0.07	19.2209	19.2209	1.93
1773	n1776	20.675	20.675	19.0283	5.49	5.56	0.07	19.1014	19.1014	1.65
1774	n1777	20.1252	20.1252	18.9322	5.56	5.63	0.07	18.9982	18.9982	1.19
1775	n1778	19.2944	19.2944	18.2115	5.63	5.7	0.07	18.2779	18.2779	1.08
1776	n1779	18.3872	18.3872	17.3043	5.7	5.77	0.07	17.3712	17.3712	1.08
1777	n1780	16.863	16.863	15.6127	33.8	47.67	0.17	15.7866	15.7866	1.25
1778	n1782	19.6696	19.6696	16.8759	0.35	0.42	0.02	16.8958	16.8958	2.79
1779	n1783	18.9602	18.9602	16.9958	0.28	0.35	0.02	17.0141	17.0141	1.96
1781	n1785	19.0051	19.0051	17.9222	0.14	0.21	0.01	17.9346	17.9346	1.08
1782	n1787	21.246	21.246	20.1631	0	0.07	0.01	20.1702	20.1702	1.08
1793	n1799	21.4884	21.4884	20.4055	0	0.07	0.01	20.4126	20.4126	1.08
1795	n1801	20.8746	20.8746	19.7917	0.14	0.21	0.01	19.804	19.804	1.08
1797	n1803	20.369	20.369	19.2861	0.21	0.28	0.01	19.3004	19.3004	1.08
1798	n1804	18.857	18.857	17.1719	0.91	0.98	0.03	17.1988	17.1988	1.69
1799	n1805	19.9742	19.9742	18.8913	0	0.07	0.01	18.8984	18.8984	1.08
1800	n1806	18.869	18.869	17.7861	0.07	0.14	0.01	17.7962	17.7962	1.08
1801	n1807	17.7325	17.7325	16.6496	0.14	0.41	0.02	16.6669	16.6669	1.08
1802	n1808	17.2093	17.2093	16.1264	0.41	0.48	0.02	16.1451	16.1451	1.08
1804	n1810	17.663	17.663	16.483	27.96	28.03	0.13	16.6158	16.6158	1.18
1807	n1813	19.1721	19.1721	17.9921	27.89	27.96	0.13	18.1247	18.1247	1.18
1808	n1814	20.3559	20.3559	19.1759	27.82	27.89	0.13	19.3085	19.3085	1.18
1810	n1816	21.93	21.93	20.75	27.75	27.82	0.13	20.8823	20.8823	1.18
1811	n1817	22.9231	22.9231	21.7431	27.47	27.54	0.13	21.8747	21.8747	1.18
1812	n1818	24.0387	24.0387	22.8587	27.4	27.47	0.13	22.9902	22.9902	1.18
1813	n1819	24.8877	24.8877	23.6095	27.33	27.4	0.13	23.7407	23.7407	1.28
1814	n1820	25.434	25.434	23.6691	27.26	27.33	0.17	23.8403	23.8403	1.76
1816	n1822	24.94	24.94	23.76	0	27.26	0.17	23.9341	23.9341	1.18
1817	n1823	23.1637	23.1637	22.0808	0	0.07	0.01	22.0879	22.0879	1.08
1818	n1824	21.5633	21.5633	20.4804	0.07	0.14	0.01	20.4905	20.4905	1.08
1819	n1825	20.2469	20.2469	19.164	0.14	0.21	0.01	19.1764	19.1764	1.08
1820	n1826	19.1813	19.1813	18.0984	0.21	0.28	0.01	18.1128	18.1128	1.08

1821	n1827	18.6832	18.6832	17.6003	0.28	0.35	0.02	17.6163	17.6163	1.08
1822	n1828	18.582	18.582	17.4991	0.35	0.42	0.02	17.519	17.519	1.08
1823	n1829	19.0153	19.0153	17.3791	0.42	0.49	0.02	17.4005	17.4005	1.64
1824	n1830	19.492	19.492	17.2918	0.49	0.56	0.02	17.3146	17.3146	2.2
1825	n1832	24.2459	24.2459	23.163	0	0.07	0.01	23.17	23.17	1.08
1826	n1834	22.8994	22.8994	21.8165	0.07	0.14	0.01	21.8266	21.8266	1.08
1828	n1836	21.248	21.248	20.1651	0.63	0.7	0.02	20.1878	20.1878	1.08
1829	n1837	20.5053	20.5053	19.4224	0.7	0.77	0.02	19.4462	19.4462	1.08
1830	n1838	19.841	19.841	18.7581	0.77	0.84	0.03	18.7837	18.7837	1.08
1831	n1839	19.745	19.745	18.6621	1.19	1.26	0.03	18.696	18.696	1.08
1833	n1841	19.8786	19.8786	18.5261	1.26	1.33	0.03	18.5609	18.5609	1.35
1834	n1842	20.5481	20.5481	18.4061	1.33	1.4	0.04	18.4418	18.4418	2.14
1837	n1845	16.8056	16.8056	15.5553	47.67	47.74	0.16	15.7185	15.7185	1.25
1838	n1846	16.0007	16.0007	14.7504	47.74	47.81	0.16	14.9138	14.9138	1.25
1839	n1847	15.0609	15.0609	13.8106	47.81	47.88	0.16	13.9741	13.9741	1.25
1840	n1848	14.245	14.245	12.9947	47.88	47.95	0.16	13.1583	13.1583	1.25
1841	n1849	14.041	14.041	12.6188	55.97	56.04	0.19	12.8084	12.8084	1.42
1843	n1851	13.7225	13.7225	12.4722	56.04	56.11	0.24	12.7167	12.7167	1.25
1844	n1852	13.784	13.784	12.4103	56.11	56.18	0.24	12.6528	12.6528	1.37
1845	n1853	13.676	13.676	12.3504	56.18	56.25	0.24	12.5872	12.5872	1.33
1846	n1854	13.713	13.713	12.3393	56.25	56.32	0.23	12.5741	12.5741	1.37
1847	n1855	13.9381	13.9381	12.2793	56.32	56.39	0.18	12.4574	12.4574	1.66
1848	n1856	14.295	14.295	11.4023	56.95	57.02	0.25	11.6528	11.6528	2.89
1849	n1857	14.489	14.489	11.3358	57.02	57.09	0.25	11.5878	11.5878	3.15
1850	n1859	14.481	14.481	11.2509	57.58	57.65	0.26	11.5076	11.5076	3.23
1851	n1861	13.771	13.771	11.1894	57.65	67.55	0.26	11.4514	11.4514	2.58
1854	n1864	8.066	8.066	6.9831	0.21	0.28	0.01	6.9974	6.9974	1.08
1855	n1865	5.6224	5.6224	4.5395	0.28	0.35	0.02	4.5555	4.5555	1.08
1856	n1866	4.1614	4.1614	3.0785	0.35	0.42	0.02	3.0959	3.0959	1.08
1857	n1867	3.8386	3.8386	2.7557	0.49	0.56	0.02	2.7786	2.7786	1.08
1859	n1869	3.941	3.941	2.6166	0.56	0.63	0.02	2.6407	2.6407	1.32
1860	n1870	3.79	3.79	2.5106	0.63	0.7	0.03	2.536	2.536	1.28
1861	n1871	3.87	3.87	2.3985	10.22	10.29	0.11	2.5093	2.5093	1.47
1864	n1874	3.8782	3.8782	2.7953	9.45	9.52	0.09	2.8822	2.8822	1.08
1865	n1875	4.02	4.02	2.9371	9.38	9.45	0.1	3.0323	3.0323	1.08
1866	n1876	4.349	4.349	3.2661	9.31	9.38	0.09	3.3523	3.3523	1.08
1875	n1885	7.897	7.897	6.8141	4.51	4.58	0.07	6.8798	6.8798	1.08
1876	n1886	8.1364	8.1364	7.0132	4.44	4.51	0.06	7.0721	7.0721	1.12
1877	n1887	8.3273	8.3273	7.1332	4.37	4.44	0.06	7.1978	7.1978	1.19
1878	n1888	7.032	7.032	5.2801	54.61	54.68	0.18	5.4554	5.4554	1.75
1880	n1890	5.0538	5.0538	3.8035	54.68	54.75	0.18	3.9789	3.9789	1.25
1881	n1891	4.216	4.216	2.9657	54.75	54.82	0.18	3.1413	3.1413	1.25
1882	n1892	3.7059	3.7059	2.4556	54.82	54.89	0.18	2.6313	2.6313	1.25
1883	n1893	3.2497	3.2497	1.9994	54.89	54.96	0.18	2.1766	2.1766	1.25
1885	n1895	3.03	3.03	1.7797	54.96	55.03	0.24	2.0217	2.0217	1.25
1886	n1896	3.06	3.06	1.7325	55.03	55.1	0.24	1.9744	1.9744	1.33
1888	n1898	3.106	3.106	1.6705	55.1	55.17	0.24	1.9117	1.9117	1.44

1889	n1899	3.117	3.117	1.6128	55.17	55.24	0.24	1.8521	1.8521	1.5
1890	n1900	3.071	3.071	1.5826	55.24	55.31	0.24	1.8198	1.8198	1.49
1892	n1902	3.331	3.331	1.4881	55.31	55.38	0.18	1.6646	1.6646	1.84
1894	n1904	4.1231	4.1231	2.6897	69.82	69.89	0.2	2.889	2.889	1.43
1896	n1906	4.002	4.002	2.7503	69.75	69.82	0.25	3.0037	3.0037	1.25
1897	n1907	4.077	4.077	2.8267	69.68	69.75	0.26	3.0895	3.0895	1.25
1898	n1908	4.7226	4.7226	3.4723	69.61	69.68	0.2	3.6712	3.6712	1.25
1899	n1909	5.5968	5.5968	4.3465	69.54	69.61	0.2	4.5454	4.5454	1.25
1901	n1911	7.046	7.046	5.7957	69.47	69.54	0.2	5.9945	5.9945	1.25
1902	n1912	8.3028	8.3028	7.0525	69.12	69.19	0.2	7.2507	7.2507	1.25
1904	n1914	9.714	9.714	8.4637	69.05	69.12	0.2	8.6619	8.6619	1.25
1906	n1917	11.7973	11.7973	10.547	67.86	67.93	0.2	10.7433	10.7433	1.25
1909	n1921	13.2227	13.2227	11.1009	67.55	67.58	0.25	11.3505	11.3505	2.12
1911	n1923	4.1356	4.1356	0.2717	135.3	135.34	0.34	0.6072	0.6072	3.86
1913	n1926	3.4405	3.4405	0.1412	135.34	135.38	0.34	0.4764	0.4764	3.3
1914	n1927	3.308	3.308	0.0866	136.98	137.02	0.33	0.4212	0.4212	3.22
1915	n1928	3.2695	3.2695	-0.0032	137.02	137.06	0.33	0.3308	0.3308	3.27
1916	n1929	3.3069	3.3069	-0.093	137.06	137.1	0.33	0.2393	0.2393	3.4
1918	n1932	3.2541	3.2541	-0.215	137.1	137.14	0.32	0.1089	0.1089	3.47
1919	n1933	3.1032	3.1032	-0.3047	137.14	137.18	0.26	-0.04	-0.04	3.41
1920	n1935	3.1285	3.1285	-1.478	192.36	192.4	0.38	-1.1017	-1.1017	4.61
1922	n1937	3.313	3.313	-1.4066	55.15	55.18	0.36	-1.0475	-1.0475	4.72
1924	n1939	3.325	3.325	2.145	25.32	25.36	0.13	2.271	2.271	1.18
1925	n1940	3.4749	3.4749	2.2113	25.28	25.32	0.16	2.3752	2.3752	1.26
1926	n1941	3.6481	3.6481	2.2773	25.24	25.28	0.17	2.4427	2.4427	1.37
1927	n1942	3.984	3.984	2.3433	25.2	25.24	0.17	2.5087	2.5087	1.64
1929	n1944	6.042	6.042	4.9169	23.89	23.92	0.13	5.0482	5.0482	1.13
1930	n1945	4.901	4.901	2.5448	1.21	1.24	0.11	2.6543	2.6543	2.36
1931	n1946	5.063	5.063	2.6267	1.18	1.21	0.04	2.6618	2.6618	2.44
1932	n1947	4.9415	4.9415	2.7467	1.15	1.18	0.03	2.7796	2.7796	2.19
1933	n1948	4.5875	4.5875	2.8667	1.12	1.15	0.03	2.899	2.899	1.72
1937	n1952	5.4339	5.4339	4.351	0.88	0.91	0.03	4.377	4.377	1.08
1938	n1953	6.1654	6.1654	5.0825	0.85	0.88	0.03	5.108	5.108	1.08
1939	n1954	7.6636	7.6636	6.5807	0.82	0.85	0.02	6.6057	6.6057	1.08
1940	n1955	10.0772	10.0772	8.9937	0.79	0.82	0.02	9.0182	9.0182	1.08
1941	n1958	2.642	2.642	-1.3407	29.76	29.79	0.34	-1.0011	-1.0011	3.98
1943	n1961	2.5106	2.5106	-1.2458	29.72	29.76	0.31	-0.9345	-0.9345	3.76
1944	n1962	2.224	2.224	-1.1798	29.68	29.72	0.29	-0.8883	-0.8883	3.4
1945	n1963	2.226	2.226	-1.1396	29.64	29.68	0.28	-0.8601	-0.8601	3.37
1946	n1964	2.191	2.191	-1.0839	29.61	29.64	0.26	-0.8218	-0.8218	3.27
1947	n1965	2.209	2.209	-1.0525	29.57	29.61	0.25	-0.803	-0.803	3.26
1949	n1967	2.218	2.218	-1.0229	29.54	29.57	0.24	-0.7861	-0.7861	3.24
1950	n1968	2.119	2.119	-1.0112	29.51	29.54	0.23	-0.7794	-0.7794	3.13
1951	n1969	2.228	2.228	-0.9937	29.48	29.51	0.22	-0.7691	-0.7691	3.22
1952	n1970	2.2	2.2	-0.9475	29.44	29.48	0.21	-0.7394	-0.7394	3.15
1953	n1971	2.287	2.287	-0.9148	29.41	29.44	0.2	-0.7155	-0.7155	3.2
1954	n1972	2.261	2.261	-0.9059	29.37	29.41	0.2	-0.7085	-0.7085	3.17

1955	n1973	2.269	2.269	-0.8775	29.33	29.37	0.19	-0.6851	-0.6851	3.15
1956	n1974	2.2674	2.2674	-0.8621	29.3	29.33	0.19	-0.6717	-0.6717	3.13
1957	n1975	2.166	2.166	-0.7961	29.27	29.3	0.19	-0.6104	-0.6104	2.96
1958	n1976	2.486	2.486	-0.7284	29.24	29.27	0.18	-0.5442	-0.5442	3.21
1959	n1977	2.8262	2.8262	1.7433	0.4	0.43	0.02	1.761	1.761	1.08
1962	n1980	3.8897	3.8897	2.8068	0.36	0.4	0.02	2.8239	2.8239	1.08
1963	n1981	5.0974	5.0974	4.0145	0.33	0.36	0.02	4.0306	4.0306	1.08
1965	n1983	8.0608	8.0608	6.9779	0.29	0.33	0.02	6.9934	6.9934	1.08
1966	n1984	9.8217	9.8217	8.7388	0.26	0.29	0.01	8.7534	8.7534	1.08
1967	n1985	11.0741	11.0741	9.9912	0.23	0.26	0.01	10.005	10.005	1.08
1968	n1986	13.2657	13.2657	12.1828	0.19	0.23	0.01	12.1958	12.1958	1.08
1970	n1988	16.174	16.174	15.0911	0.16	0.19	0.01	15.1028	15.1028	1.08
1971	n1989	12.2029	12.2029	8.2059	23.86	23.89	0.13	8.3371	8.3371	4
1974	n1992	11.162	11.162	8.3176	23.83	23.86	0.17	8.4854	8.4854	2.84
1975	n1993	12.396	12.396	8.4187	23.56	23.59	0.17	8.5871	8.5871	3.98
1977	n1995	12.6019	12.6019	11.519	0.2	0.24	0.01	11.5322	11.5322	1.08
1978	n1996	15.4303	15.4303	14.3474	0.16	0.2	0.01	14.3594	14.3594	1.08
1979	n1997	17.3875	17.3875	16.3046	0.12	0.16	0.01	16.3153	16.3153	1.08
1980	n1998	19.9274	19.9274	18.8445	0.08	0.12	0.01	18.8537	18.8537	1.08
1981	n1999	20.622	20.622	19.0653	0.04	0.08	0.01	19.0732	19.0732	1.56
1982	n2000	20.2128	20.2128	19.1299	0	0.04	0.01	19.1361	19.1361	1.08
1985	n2003	17.3617	17.3617	16.2788	0.04	0.08	0.01	16.2865	16.2865	1.08
1986	n2004	2.819	2.819	-0.7023	28.78	28.81	0.18	-0.5192	-0.5192	3.52
1987	n2005	2.7345	2.7345	-0.672	28.75	28.78	0.18	-0.4897	-0.4897	3.41
1988	n2006	2.6357	2.6357	-0.606	28.71	28.75	0.18	-0.4245	-0.4245	3.24
1989	n2007	2.449	2.449	-0.54	28.68	28.71	0.18	-0.3588	-0.3588	2.99
1990	n2009	2.4771	2.4771	-0.5008	28.65	28.68	0.18	-0.3198	-0.3198	2.98
1991	n2010	2.5587	2.5587	-0.4348	28.62	28.65	0.18	-0.254	-0.254	2.99
1992	n2011	2.8666	2.8666	-0.3688	28.59	28.62	0.18	-0.1881	-0.1881	3.24
1993	n2012	2.876	2.876	-0.3028	28.52	28.59	0.18	-0.1223	-0.1223	3.18
1994	n2013	2.686	2.686	-0.2477	28.45	28.52	0.18	-0.0674	-0.0674	2.93
1995	n2014	2.5601	2.5601	0.2518	0.2	0.23	0.02	0.2717	0.2717	2.31
1996	n2015	2.259	2.259	0.3718	0.17	0.2	0.01	0.3857	0.3857	1.89
1997	n2016	2.1356	2.1356	0.4918	0.15	0.17	0.01	0.5046	0.5046	1.64
1998	n2017	2.0942	2.0942	0.6118	0.11	0.15	0.01	0.624	0.624	1.48
1999	n2018	2.0644	2.0644	0.7318	0.08	0.11	0.01	0.7423	0.7423	1.33
2000	n2019	2.0454	2.0454	0.8518	0.04	0.08	0.01	0.8608	0.8608	1.19
2001	n2020	2.033	2.033	0.9501	0	0.04	0.01	0.9563	0.9563	1.08
2002	n2021	3.793	3.793	0.0872	16.36	16.4	0.14	0.2255	0.2255	3.71
2003	n2022	3.5619	3.5619	0.0249	16.4	17.4	0.14	0.169	0.169	3.54
2004	n2023	3.3593	3.3593	-0.0591	17.4	18.4	0.15	0.0932	0.0932	3.42
2005	n2024	3.1937	3.1937	-0.1431	18.4	19.4	0.17	0.0234	0.0234	3.34
2008	n2027	2.577	2.577	0.9274	7.98	8.05	0.08	1.0069	1.0069	1.65
2009	n2028	2.592	2.592	0.9871	5.6	5.67	0.07	1.061	1.061	1.6
2010	n2029	2.526	2.526	1.175	5.53	5.6	0.07	1.2484	1.2484	1.35
2012	n2031	2.7006	2.7006	1.3032	5.06	5.1	0.07	1.3729	1.3729	1.4
2013	n2032	2.8387	2.8387	1.4232	5.02	5.06	0.07	1.4926	1.4926	1.42

2014	n2033	3.2181	3.2181	1.5432	4.98	5.02	0.07	1.6123	1.6123	1.67
2016	n2035	3.547	3.547	1.6742	4.91	4.98	0.07	1.7429	1.7429	1.87
2018	n2037	3.4292	3.4292	1.7536	0.74	0.78	0.03	1.7804	1.7804	1.68
2019	n2038	3.215	3.215	1.8736	0.7	0.74	0.03	1.8997	1.8997	1.34
2020	n2039	4.165	4.165	1.977	0.66	0.7	0.03	2.0024	2.0024	2.19
2021	n2040	3.127	3.127	2.0441	0.62	0.66	0.02	2.0688	2.0688	1.08
2023	n2042	2.695	2.695	1.205	0.39	0.43	0.04	1.2484	1.2484	1.49
2024	n2043	2.5259	2.5259	1.325	0.36	0.39	0.02	1.3442	1.3442	1.2
2025	n2044	2.508	2.508	1.3377	0.32	0.36	0.02	1.3562	1.3562	1.17
2026	n2045	2.5406	2.5406	1.4577	0.28	0.32	0.02	1.4752	1.4752	1.08
2027	n2046	2.725	2.725	1.6421	0.24	0.28	0.01	1.6564	1.6564	1.08
2028	n2047	2.9085	2.9085	1.8256	0.2	0.24	0.01	1.8394	1.8394	1.08
2029	n2048	3.3203	3.3203	2.2374	0.16	0.2	0.01	2.2495	2.2495	1.08
2030	n2049	4.16	4.16	3.0771	0.12	0.16	0.01	3.0879	3.0879	1.08
2031	n2050	5.692	5.692	4.6091	0.08	0.12	0.01	4.6184	4.6184	1.08
2032	n2051	7.9365	7.9365	6.8536	0.04	0.08	0.01	6.8612	6.8612	1.08
2033	n2052	10.3969	10.3969	9.314	0	0.04	0.01	9.3193	9.3193	1.08
2034	n2054	2.733	2.733	1.2045	2.24	2.31	0.04	1.2461	1.2461	1.53
2035	n2055	2.5738	2.5738	1.3245	2.17	2.24	0.05	1.3697	1.3697	1.25
2036	n2056	2.503	2.503	1.4037	2.1	2.17	0.04	1.4482	1.4482	1.1
2038	n2058	2.527	2.527	1.4441	2.03	2.1	0.04	1.4878	1.4878	1.08
2039	n2059	2.792	2.792	1.6517	1.96	2.03	0.04	1.6908	1.6908	1.14
2040	n2060	2.78	2.78	1.6971	1.89	1.96	0.04	1.7394	1.7394	1.08
2042	n2062	2.932	2.932	1.8491	1.82	1.89	0.04	1.8867	1.8867	1.08
2043	n2063	3.5748	3.5748	2.4919	1.75	1.82	0.04	2.5288	2.5288	1.08
2044	n2064	4.0409	4.0409	2.958	1.68	1.75	0.04	2.9941	2.9941	1.08
2045	n2065	4.6449	4.6449	3.562	1.61	1.68	0.04	3.5974	3.5974	1.08
2046	n2066	5.8484	5.8484	4.7655	1.54	1.61	0.03	4.8002	4.8002	1.08
2048	n2068	6.21	6.21	5.1271	1.47	1.54	0.03	5.1611	5.1611	1.08
2050	n2070	5.726	5.726	4.6431	3.85	3.92	0.05	4.6978	4.6978	1.08
2051	n2071	7.2406	7.2406	6.1577	1.4	1.47	0.03	6.1908	6.1908	1.08
2052	n2072	8.7964	8.7964	7.7135	1.33	1.4	0.03	7.7457	7.7457	1.08
2053	n2073	9.334	9.334	8.2511	1.26	1.33	0.03	8.2826	8.2826	1.08
2055	n2075	4.0085	4.0085	2.9256	4.06	4.13	0.06	2.9818	2.9818	1.08
2056	n2076	4.64	4.64	3.5571	3.99	4.06	0.06	3.6127	3.6127	1.08
2057	n2077	5.1903	5.1903	4.1074	3.92	3.99	0.06	4.1625	4.1625	1.08
2059	n2079	24.186	24.186	23.1031	0	0.07	0.01	23.1102	23.1102	1.08
2062	n2083	15.947	15.947	14.8641	0.14	0.21	0.01	14.8765	14.8765	1.08
2063	n2084	15.287	15.287	14.2041	0.21	0.28	0.01	14.2184	14.2184	1.08
2066	n2087	10.6989	10.6989	9.616	0.35	0.39	0.02	9.6328	9.6328	1.08
2067	n2088	7.4787	7.4787	6.3958	0.39	0.43	0.02	6.4134	6.4134	1.08
2068	n2089	5.6556	5.6556	4.5727	0.43	0.47	0.02	4.5912	4.5912	1.08
2069	n2090	4.5128	4.5128	3.4299	0.47	0.51	0.02	3.4492	3.4492	1.08
2071	n2092	24.4254	24.4254	23.3425	0.42	0.49	0.02	23.3614	23.3614	1.08
2072	n2093	20.5335	20.5335	19.4506	0.49	0.56	0.02	19.4709	19.4709	1.08
2073	n2095	16.7513	16.7513	15.6684	0.56	0.63	0.02	15.6899	15.6899	1.08
2074	n2096	14.3019	14.3019	13.219	0.7	0.77	0.02	13.2428	13.2428	1.08

2075	n2097	10.1298	10.1298	9.0469	0.84	0.91	0.03	9.0728	9.0728	1.08
2076	n2098	7.6506	7.6506	6.5677	0.91	0.98	0.03	6.5946	6.5946	1.08
2077	n2099	6.507	6.507	5.4241	0.98	1.05	0.03	5.4551	5.4551	1.08
2078	n2100	6.57	6.57	5.4014	1.05	1.12	0.03	5.4333	5.4333	1.17
2080	n2102	6.276	6.276	5.1931	1.19	1.26	0.03	5.2252	5.2252	1.08
2081	n2103	6.245	6.245	5.1621	3.78	3.85	0.05	5.2163	5.2163	1.08
2082	n2105	28.9291	28.9291	27.8462	0.07	0.14	0.01	27.8563	27.8563	1.08
2083	n2106	29.484	29.484	28.4011	0	0.07	0.01	28.4082	28.4082	1.08
2084	n2107	29.264	29.264	25.9123	1.82	1.89	0.04	25.9538	25.9538	3.35
2085	n2108	28.5888	28.5888	27.5059	0.42	0.49	0.02	27.5248	27.5248	1.08
2086	n2109	27.9519	27.9519	26.869	0.49	0.56	0.02	26.8892	26.8892	1.08
2088	n2111	27.535	27.535	26.4431	1.4	1.47	0.04	26.4796	26.4796	1.09
2089	n2112	27.6628	27.6628	26.5799	0.77	0.84	0.03	26.6077	26.6077	1.08
2090	n2113	27.8543	27.8543	26.7714	0.7	0.77	0.02	26.7953	26.7953	1.08
2091	n2114	28.5215	28.5215	27.4386	0.63	0.7	0.02	27.4613	27.4613	1.08
2092	n2115	29.3009	29.3009	27.727	0.56	0.63	0.02	27.7485	27.7485	1.57
2093	n2116	29.312	29.312	27.8518	0.49	0.56	0.02	27.8746	27.8746	1.46
2094	n2117	29.531	29.531	28.4066	0.07	0.14	0.01	28.4184	28.4184	1.12
2096	n2119	29.519	29.519	28.2742	0.14	0.21	0.01	28.2884	28.2884	1.24
2098	n2121	29.544	29.544	28.168	0.28	0.35	0.02	28.1862	28.1862	1.38
2117	n2142	20.151	20.151	19.0681	0.91	0.98	0.03	19.095	19.095	1.08
2118	n2143	29.198	29.198	27.9673	0.42	0.49	0.02	27.9887	27.9887	1.23
2119	n2144	29.4064	29.4064	28.048	0.35	0.42	0.02	28.0679	28.0679	1.36
2123	n2148	30.339	30.339	26.2207	0.21	0.28	0.02	26.2371	26.2371	4.12
2124	n2149	30.488	30.488	26.093	0.28	0.35	0.02	26.1112	26.1112	4.4
2126	n2151	30.1334	30.1334	25.9381	0.35	0.42	0.02	25.958	25.958	4.2
2127	n2152	30.087	30.087	25.895	0.42	0.49	0.02	25.9164	25.9164	4.19
2129	n2154	30.0196	30.0196	25.8184	0.49	0.56	0.02	25.8412	25.8412	4.2
2130	n2155	29.5556	29.5556	25.6984	0.56	0.63	0.02	25.7225	25.7225	3.86
2132	n2157	28.7778	28.7778	25.5784	0.63	0.7	0.03	25.6038	25.6038	3.2
2133	n2158	27.9096	27.9096	25.4584	0.7	0.77	0.02	25.4823	25.4823	2.45
2134	n2159	25.7294	25.7294	24.6465	0.77	0.84	0.02	24.6714	24.6714	1.08
2135	n2161	21.776	21.776	20.6931	0.84	0.91	0.03	20.7191	20.7191	1.08
2136	n2162	17.6773	17.6773	16.5944	1.05	1.12	0.03	16.6232	16.6232	1.08
2137	n2163	15.3483	15.3483	14.2654	1.12	1.19	0.03	14.2951	14.2951	1.08
2139	n2165	13.834	13.834	12.7511	1.54	1.61	0.03	12.7858	12.7858	1.08
2140	n2166	28.0591	28.0591	26.3231	1.47	1.54	0.04	26.3605	26.3605	1.74
2142	n2168	28.262	28.262	26.2779	1.54	1.61	0.04	26.3163	26.3163	1.98
2143	n2169	28.1213	28.1213	26.1579	1.61	1.68	0.04	26.197	26.197	1.96
2144	n2170	27.936	27.936	26.0813	1.68	1.75	0.04	26.1212	26.1212	1.85
2148	n2174	28.9968	28.9968	25.9614	1.75	1.82	0.04	26.0022	26.0022	3.04
2149	n2175	29.524	29.524	25.8584	1.89	1.96	0.04	25.9007	25.9007	3.67
2150	n2176	29.3892	29.3892	25.7384	1.96	2.03	0.04	25.7814	25.7814	3.65
2151	n2177	28.826	28.826	25.6185	2.03	2.1	0.04	25.6581	25.6581	3.21
2152	n2178	24.5032	24.5032	23.4203	2.1	2.17	0.04	23.4607	23.4607	1.08
2153	n2179	18.228	18.228	17.1451	2.17	2.24	0.04	17.1861	17.1861	1.08
2154	n2180	13.4679	13.4679	12.385	2.24	2.31	0.04	12.4267	12.4267	1.08

2155	n2181	10.7549	10.7549	9.672	2.31	2.38	0.04	9.7144	9.7144	1.08
2156	n2182	8.4061	8.4061	7.3232	2.38	2.45	0.04	7.3662	7.3662	1.08
2157	n2183	6.8488	6.8488	5.7659	2.45	2.52	0.04	5.8095	5.8095	1.08
2162	n2188	27.591	27.591	26.5081	0	0.07	0.01	26.5166	26.5166	1.08
2183	n2210	30.51	30.51	26.2947	0.14	0.21	0.01	26.309	26.309	4.22
2184	n2211	29.5429	29.5429	26.4146	0.07	0.14	0.01	26.4265	26.4265	3.13
2189	n2216	30.2145	30.2145	29.1316	0	0.07	0.01	29.1387	29.1387	1.08
2191	n2218	27.459	27.459	26.3761	0.07	0.14	0.01	26.3862	26.3862	1.08
2192	n2219	23.7632	23.7632	22.6803	0.14	0.21	0.01	22.6926	22.6926	1.08
2193	n2220	20.1361	20.1361	19.0532	0.21	0.28	0.01	19.0675	19.0675	1.08
2194	n2221	16.6605	16.6605	15.5776	0.28	0.35	0.02	15.5937	15.5937	1.08
2195	n2222	11.9035	11.9035	10.8206	1.61	1.68	0.04	10.856	10.856	1.08
2197	n2224	8.53	8.53	7.4471	1.75	1.82	0.04	7.484	7.484	1.08
2198	n2225	6.7652	6.7652	5.6823	1.82	1.89	0.04	5.72	5.72	1.08
2199	n2226	5.423	5.423	4.3401	1.89	1.96	0.04	4.3785	4.3785	1.08
2202	n2229	4.2301	4.2301	3.1472	1.96	2.03	0.04	3.1863	3.1863	1.08
2203	n2230	3.306	3.306	2.2231	2.03	2.1	0.04	2.2627	2.2627	1.08
2204	n2232	3.262	3.262	2.1791	2.1	2.17	0.04	2.2236	2.2236	1.08
2205	n2233	3.46	3.46	2.1133	2.17	2.24	0.05	2.1585	2.1585	1.35
2206	n2234	3.465	3.465	2.0916	2.24	2.31	0.05	2.1376	2.1376	1.37
2208	n2236	3.592	3.592	1.9298	2.31	2.38	0.05	1.9763	1.9763	1.66
2210	n2238	3.39	3.39	1.7791	2.38	2.45	0.05	1.8263	1.8263	1.61
2212	n2240	3.356	3.356	1.6085	2.52	2.59	0.05	1.6571	1.6571	1.75
2214	n2242	3.536	3.536	1.4694	2.59	2.66	0.05	1.5188	1.5188	2.07
2216	n2244	3.766	3.766	1.3279	2.66	2.73	0.05	1.378	1.378	2.44
2217	n2245	3.681	3.681	1.2723	2.73	2.8	0.05	1.3231	1.3231	2.41
2218	n2246	4.048	4.048	1.1334	3.78	3.85	0.06	1.1933	1.1933	2.91
2219	n2247	4.1966	4.1966	1.0134	3.92	3.99	0.06	1.0743	1.0743	3.18
2220	n2248	4.3029	4.3029	0.8934	3.99	4.06	0.06	0.9549	0.9549	3.41
2221	n2249	4.508	4.508	0.7861	4.06	4.13	0.06	0.8482	0.8482	3.72
2222	n2250	4.4486	4.4486	0.6661	4.13	4.2	0.06	0.7288	0.7288	3.78
2224	n2252	4.7623	4.7623	0.4943	4.27	4.34	0.06	0.5581	0.5581	4.27
2225	n2253	5.044	5.044	0.449	7.35	7.42	0.09	0.5353	0.5353	4.6
2236	n2264	26.148	26.148	25.0651	0	0.07	0.01	25.0722	25.0722	1.08
2237	n2265	25.994	25.994	24.9111	0.07	0.14	0.01	24.9212	24.9212	1.08
2238	n2266	25.679	25.679	24.5961	0.14	0.21	0.01	24.6085	24.6085	1.08
2239	n2267	25.2143	25.2143	24.1314	0.21	0.28	0.01	24.1458	24.1458	1.08
2240	n2268	21.226	21.226	20.1431	0.28	0.35	0.02	20.1591	20.1591	1.08
2241	n2269	19.811	19.811	18.7281	0.35	0.42	0.02	18.748	18.748	1.08
2242	n2270	20.4759	20.4759	18.6081	0.42	0.49	0.02	18.6295	18.6295	1.87
2244	n2272	20.864	20.864	18.4576	0.49	0.56	0.02	18.4804	18.4804	2.41
2245	n2273	19.766	19.766	18.3521	0.56	0.63	0.02	18.3736	18.3736	1.41
2247	n2275	14.3595	14.3595	13.2766	0.63	0.7	0.02	13.2993	13.2993	1.08
2248	n2276	10.5793	10.5793	9.4964	0.7	0.77	0.02	9.5203	9.5203	1.08
2249	n2277	7.8937	7.8937	6.8108	0.77	0.84	0.02	6.8356	6.8356	1.08
2250	n2278	6.0336	6.0336	4.9507	0.84	0.91	0.03	4.9766	4.9766	1.08
2251	n2279	4.7231	4.7231	3.6402	0.91	0.98	0.03	3.6671	3.6671	1.08

2252	n2280	13.766	13.766	12.6831	7.95	8.02	0.14	12.8266	12.8266	1.08
2254	n2282	17.3266	17.3266	16.2437	0.04	0.08	0.01	16.2513	16.2513	1.08
2255	n2283	19.4139	19.4139	18.331	0	0.04	0.01	18.3363	18.3363	1.08
2256	n2284	20.953	20.953	19.8701	0	0.07	0.01	19.8772	19.8772	1.08
2258	n2286	19.0597	19.0597	17.9768	0.07	0.14	0.01	17.9869	17.9869	1.08
2259	n2287	16.2677	16.2677	15.1848	0.14	0.21	0.01	15.1972	15.1972	1.08
2260	n2288	13.4787	13.4787	12.3958	0.21	0.28	0.01	12.4102	12.4102	1.08
2262	n2290	10.8487	10.8487	9.7658	0.91	0.98	0.03	9.7927	9.7927	1.08
2263	n2291	11.883	11.883	10.8001	0.84	0.91	0.03	10.826	10.826	1.08
2266	n2295	13.9888	13.9888	12.9059	0.21	0.28	0.01	12.9203	12.9203	1.08
2267	n2296	16.944	16.944	15.8611	0.14	0.21	0.01	15.8734	15.8734	1.08
2268	n2297	20.7921	20.7921	19.7092	0.07	0.14	0.01	19.7193	19.7193	1.08
2269	n2298	23.259	23.259	22.1761	0	0.07	0.01	22.1832	22.1832	1.08
2272	n2301	21.183	21.183	20.1001	0.07	0.14	0.01	20.1102	20.1102	1.08
2274	n2303	13.2608	13.2608	12.1779	0.49	0.56	0.02	12.1981	12.1981	1.08
2275	n2304	15.4628	15.4628	14.3799	0.42	0.49	0.02	14.3988	14.3988	1.08
2276	n2305	16.9127	16.9127	15.7358	0.35	0.42	0.02	15.7532	15.7532	1.18
2285	n2314	16.867	16.867	15.7841	0.28	0.35	0.02	15.8023	15.8023	1.08
2286	n2315	17.5084	17.5084	16.4255	0.21	0.28	0.01	16.4398	16.4398	1.08
2288	n2317	23.131	23.131	22.0481	0	0.07	0.01	22.0552	22.0552	1.08
2289	n2318	22.4791	22.4791	21.3962	0	0.07	0.01	21.4033	21.4033	1.08
2290	n2319	20.7867	20.7867	19.7038	0.07	0.14	0.01	19.7139	19.7139	1.08
2291	n2320	19.629	19.629	18.5461	0.14	0.21	0.01	18.5585	18.5585	1.08
2292	n2321	18.979	18.979	17.8961	0.21	0.28	0.01	17.9104	17.9104	1.08
2293	n2322	17.7367	17.7367	16.6538	0.28	0.35	0.02	16.6698	16.6698	1.08
2294	n2323	2.593	2.593	1.5101	1.53	1.6	0.03	1.5447	1.5447	1.08
2295	n2324	2.8108	2.8108	1.7279	1.39	1.46	0.03	1.7608	1.7608	1.08
2296	n2325	2.899	2.899	1.8161	1.32	1.39	0.03	1.8482	1.8482	1.08
2297	n2326	3.0817	3.0817	1.9988	1.25	1.32	0.03	2.0301	2.0301	1.08
2301	n2330	3.443	3.443	2.3601	1.18	1.25	0.03	2.3906	2.3906	1.08
2303	n2332	4.1093	4.1093	3.0264	1.11	1.18	0.03	3.056	3.056	1.08
2304	n2333	4.7477	4.7477	3.6648	1.04	1.11	0.03	3.6934	3.6934	1.08
2305	n2334	5.9945	5.9945	4.9116	0.97	1.04	0.03	4.9393	4.9393	1.08
2306	n2335	7.041	7.041	5.9581	0.9	0.97	0.03	5.9848	5.9848	1.08
2307	n2336	7.258	7.258	6.1751	0.56	0.63	0.02	6.1966	6.1966	1.08
2308	n2337	9.5493	9.5493	8.4664	0.32	0.36	0.02	8.4826	8.4826	1.08
2309	n2338	11.7806	11.7806	10.6977	0.28	0.32	0.02	10.713	10.713	1.08
2311	n2340	12.226	12.226	11.1431	0.24	0.28	0.01	11.1574	11.1574	1.08
2312	n2341	12.735	12.735	11.6521	0.2	0.24	0.01	11.6653	11.6653	1.08
2313	n2342	15.2484	15.2484	14.1655	0.16	0.2	0.01	14.1775	14.1775	1.08
2314	n2343	17.8701	17.8701	16.0377	0.08	0.12	0.01	16.047	16.047	1.83
2315	n2344	8.834	8.834	7.7511	0.23	0.27	0.01	7.765	7.765	1.08
2316	n2345	11.4217	11.4217	10.1831	0.19	0.23	0.01	10.1961	10.1961	1.24
2317	n2346	12.1548	12.1548	10.303	0.15	0.19	0.01	10.3166	10.3166	1.85
2318	n2347	11.472	11.472	10.3891	0.11	0.15	0.01	10.4013	10.4013	1.08
2319	n2348	13.6096	13.6096	12.5267	0.07	0.11	0.01	12.5357	12.5357	1.08
2320	n2349	15.697	15.697	14.6141	0	0.07	0.01	14.6212	14.6212	1.08

2322	n2351	17.411	17.411	16.3281	0.12	0.19	0.01	16.3398	16.3398	1.08
2323	n2352	16.9201	16.9201	15.8372	0.35	0.42	0.02	15.8547	15.8547	1.08
2324	n2353	16.43	16.43	15.3471	0.42	0.49	0.02	15.366	15.366	1.08
2329	n2359	13.2396	13.2396	12.1567	0.49	0.56	0.02	12.177	12.177	1.08
2330	n2360	11.4826	11.4826	10.3997	0.56	0.63	0.02	10.4211	10.4211	1.08
2331	n2361	10.94	10.94	9.8571	0.63	0.7	0.03	9.8825	9.8825	1.08
2332	n2362	11.781	11.781	9.8355	0.7	0.77	0.02	9.8594	9.8594	1.95
2333	n2363	9.912	9.912	8.8291	0.77	0.84	0.02	8.854	8.854	1.08
2334	n2364	9.816	9.816	8.7331	0.84	0.91	0.03	8.762	8.762	1.08
2336	n2367	9.93	9.93	8.646	1.26	1.33	0.03	8.6775	8.6775	1.28
2340	n2372	5.01	5.01	0.3722	10.29	10.36	0.11	0.4789	0.4789	4.64
2341	n2373	5.1038	5.1038	0.2522	10.36	10.43	0.11	0.3594	0.3594	4.85
2343	n2375	5.0819	5.0819	0.1193	10.43	10.5	0.11	0.227	0.227	4.96
2345	n2377	4.978	4.978	-0.0231	13.02	13.09	0.13	0.1043	0.1043	5
2346	n2378	5.0271	5.0271	3.9442	2.45	2.52	0.04	3.9878	3.9878	1.08
2347	n2379	5.6415	5.6415	4.5586	2.38	2.45	0.04	4.6016	4.6016	1.08
2348	n2380	6.4845	6.4845	5.4016	2.31	2.38	0.04	5.444	5.444	1.08
2349	n2381	7.3637	7.3637	6.2808	2.24	2.31	0.04	6.3225	6.3225	1.08
2350	n2382	8.3261	8.3261	7.2432	2.17	2.24	0.04	7.2842	7.2842	1.08
2351	n2383	9.5729	9.5729	8.49	2.1	2.17	0.04	8.5303	8.5303	1.08
2352	n2384	10.8448	10.8448	9.7619	2.03	2.1	0.04	9.8016	9.8016	1.08
2353	n2385	12.0967	12.0967	11.0138	1.96	2.03	0.04	11.0529	11.0529	1.08
2354	n2386	13.5385	13.5385	12.4556	1.89	1.96	0.04	12.4939	12.4939	1.08
2356	n2388	15.634	15.634	14.5511	1.82	1.89	0.04	14.5887	14.5887	1.08
2357	n2389	17.327	17.327	16.1887	0.28	0.35	0.02	16.2047	16.2047	1.14
2358	n2390	19.151	19.151	16.3084	0.21	0.28	0.02	16.3248	16.3248	2.84
2359	n2391	19.552	19.552	16.4047	0.14	0.21	0.01	16.419	16.419	3.15
2360	n2392	18.5872	18.5872	16.5246	0.07	0.14	0.01	16.5365	16.5365	2.06
2361	n2393	17.725	17.725	16.6421	0	0.07	0.01	16.6506	16.6506	1.08
2363	n2395	16.4784	16.4784	15.3955	1.4	1.47	0.03	15.4285	15.4285	1.08
2364	n2396	18.6967	18.6967	17.6138	1.33	1.4	0.03	17.646	17.646	1.08
2365	n2397	22.0802	22.0802	20.9973	1.26	1.33	0.03	21.0288	21.0288	1.08
2368	n2400	26.807	26.807	24.3817	1.12	1.19	0.03	24.4147	24.4147	2.43
2371	n2403	25.572	25.572	24.4891	1.05	1.12	0.03	24.521	24.521	1.08
2372	n2404	26.8563	26.8563	25.7734	0.98	1.05	0.03	25.8012	25.8012	1.08
2373	n2405	28.5562	28.5562	27.4733	0.91	0.98	0.03	27.5002	27.5002	1.08
2374	n2406	29.463	29.463	28.2907	0.84	0.91	0.03	28.3166	28.3166	1.17
2375	n2407	29.712	29.712	28.3494	0.77	0.84	0.03	28.3772	28.3772	1.36
2376	n2408	29.5523	29.5523	28.4694	0.7	0.77	0.03	28.496	28.496	1.08
2378	n2411	31.0744	31.0744	29.9915	0.63	0.7	0.02	30.0142	30.0142	1.08
2379	n2412	32.9452	32.9452	31.8623	0.56	0.63	0.02	31.8837	31.8837	1.08
2380	n2413	34.6966	34.6966	33.6137	0.49	0.56	0.02	33.6339	33.6339	1.08
2381	n2414	35.596	35.596	34.5131	0.42	0.49	0.02	34.532	34.532	1.08
2383	n2416	38.2648	38.2648	37.1819	0.35	0.42	0.02	37.1994	37.1994	1.08
2384	n2417	38.793	38.793	37.6765	0.28	0.35	0.02	37.6925	37.6925	1.12
2386	n2419	38.9281	38.9281	37.7066	0.21	0.28	0.02	37.723	37.723	1.22
2387	n2420	39.5181	39.5181	37.8265	0.14	0.21	0.01	37.8408	37.8408	1.69

2388	n2421	40.0205	40.0205	37.9465	0.07	0.14	0.01	37.9584	37.9584	2.07
2411	n2444	4.603	4.603	-0.1778	13.09	13.16	0.13	-0.0463	-0.0463	4.78
2412	n2445	4.7525	4.7525	-0.2978	20.65	20.72	0.16	-0.1385	-0.1385	5.05
2413	n2446	4.8988	4.8988	3.7939	7.42	7.49	0.08	3.8705	3.8705	1.1
2414	n2447	5.103	5.103	3.8991	7.35	7.42	0.09	3.9855	3.9855	1.2
2415	n2448	5.102	5.102	4.0191	7.28	7.35	0.09	4.105	4.105	1.08
2416	n2449	5.4011	5.4011	4.3182	7.21	7.28	0.08	4.3936	4.3936	1.08
2418	n2451	5.752	5.752	4.6691	7.14	7.21	0.08	4.7442	4.7442	1.08
2419	n2452	6.0089	6.0089	4.926	5.46	5.53	0.07	4.9914	4.9914	1.08
2420	n2453	6.2848	6.2848	5.2019	5.39	5.46	0.06	5.2668	5.2668	1.08
2421	n2454	6.5451	6.5451	5.324	5.32	5.39	0.07	5.3956	5.3956	1.22
2422	n2455	6.709	6.709	5.4295	5.25	5.32	0.07	5.5008	5.5008	1.28
2423	n2456	6.6324	6.6324	5.5495	5.18	5.25	0.07	5.6203	5.6203	1.08
2424	n2457	7.1324	7.1324	5.95	5.11	5.18	0.06	6.0132	6.0132	1.18
2425	n2458	7.19	7.19	6.0244	5.04	5.11	0.07	6.0942	6.0942	1.17
2426	n2459	7.146	7.146	6.0631	4.97	5.04	0.07	6.1323	6.1323	1.08
2427	n2460	7.2625	7.2625	6.1796	4.9	4.97	0.06	6.2419	6.2419	1.08
2428	n2461	7.4768	7.4768	6.3939	4.83	4.9	0.06	6.4553	6.4553	1.08
2429	n2462	7.9184	7.9184	6.8355	4.76	4.83	0.06	6.8965	6.8965	1.08
2430	n2463	8.4229	8.4229	7.2978	4.69	4.76	0.06	7.3584	7.3584	1.13
2431	n2464	8.478	8.478	7.313	4.62	4.69	0.07	7.3795	7.3795	1.16
2432	n2465	8.427	8.427	7.3441	4.55	4.62	0.07	7.4101	7.4101	1.08
2433	n2466	8.7881	8.7881	7.7052	4.48	4.55	0.06	7.7644	7.7644	1.08
2434	n2467	9.1995	9.1995	8.1166	4.41	4.48	0.06	8.1752	8.1752	1.08
2435	n2468	9.7166	9.7166	8.6337	4.34	4.41	0.06	8.6919	8.6919	1.08
2436	n2469	9.8872	9.8872	8.8043	4.27	4.34	0.06	8.8625	8.8625	1.08
2437	n2470	10.1792	10.1792	9.0963	4.2	4.27	0.06	9.1534	9.1534	1.08
2438	n2471	11.0485	11.0485	9.9656	4.13	4.2	0.06	10.0222	10.0222	1.08
2439	n2472	12.327	12.327	10.3225	4.06	4.13	0.06	10.3787	10.3787	2
2440	n2473	11.5254	11.5254	10.4425	3.99	4.06	0.06	10.5041	10.5041	1.08
2441	n2474	11.785	11.785	10.7021	3.92	3.99	0.06	10.7573	10.7573	1.08
2442	n2475	12.9031	12.9031	11.8202	1.19	1.26	0.03	11.8508	11.8508	1.08
2444	n2477	17.1318	17.1318	16.0489	1.05	1.12	0.03	16.0778	16.0778	1.08
2445	n2478	17.487	17.487	16.4041	0.98	1.05	0.03	16.4319	16.4319	1.08
2446	n2479	20.0201	20.0201	18.9372	0.91	0.98	0.03	18.964	18.964	1.08
2447	n2480	23.8943	23.8943	22.8114	0.84	0.91	0.03	22.8374	22.8374	1.08
2448	n2481	26.079	26.079	24.9961	0.77	0.84	0.02	25.0209	25.0209	1.08
2449	n2482	27.6182	27.6182	26.5353	0.7	0.77	0.02	26.5592	26.5592	1.08
2452	n2485	32.078	32.078	30.9951	0.49	0.56	0.02	31.0154	31.0154	1.08
2453	n2486	33.1101	33.1101	32.0272	0.42	0.49	0.02	32.0461	32.0461	1.08
2454	n2487	34.236	34.236	33.1531	0.35	0.42	0.02	33.1706	33.1706	1.08
2455	n2488	35.0122	35.0122	33.9293	0.28	0.35	0.02	33.9453	33.9453	1.08
2456	n2489	36.8788	36.8788	35.7959	0.21	0.28	0.01	35.8102	35.8102	1.08
2457	n2490	39.669	39.669	38.5861	0.14	0.21	0.01	38.5985	38.5985	1.08
2458	n2491	41.0695	41.0695	39.9866	0.07	0.14	0.01	39.9967	39.9967	1.08
2459	n2492	41.4132	41.4132	40.3303	0	0.07	0.01	40.3374	40.3374	1.08
2460	n2493	40.992	40.992	39.9091	0	0.07	0.01	39.9162	39.9162	1.08

2462	n2496	5.004	5.004	3.7551	2.94	3.01	0.05	3.8028	3.8028	1.25
2463	n2497	4.958	4.958	3.8751	2.87	2.94	0.05	3.9271	3.9271	1.08
2464	n2498	5.1	5.1	3.9691	2.8	2.87	0.05	4.0156	4.0156	1.13
2465	n2499	5.27	5.27	4.0891	2.73	2.8	0.05	4.1398	4.1398	1.18
2466	n2500	5.472	5.472	4.2091	2.66	2.73	0.05	4.2592	4.2592	1.26
2467	n2501	5.7	5.7	4.3291	2.59	2.66	0.05	4.3785	4.3785	1.37
2468	n2502	5.532	5.532	4.4491	2.52	2.59	0.05	4.4977	4.4977	1.08
2469	n2503	6.168	6.168	5.0851	2.45	2.52	0.04	5.1287	5.1287	1.08
2470	n2504	6.389	6.389	5.3061	2.38	2.45	0.04	5.3491	5.3491	1.08
2471	n2505	6.7	6.7	5.6171	2.31	2.38	0.04	5.6595	5.6595	1.08
2472	n2506	6.952	6.952	5.8691	2.24	2.31	0.04	5.9108	5.9108	1.08
2473	n2507	7.261	7.261	6.1781	2.17	2.24	0.04	6.2191	6.2191	1.08
2475	n2509	7.616	7.616	6.4766	2.1	2.17	0.04	6.5184	6.5184	1.14
2477	n2511	7.698	7.698	6.6151	2.03	2.1	0.04	6.6588	6.6588	1.08
2478	n2512	8.262	8.262	7.1791	1.96	2.03	0.04	7.2182	7.2182	1.08
2479	n2513	9.081	9.081	7.9981	1.33	1.4	0.03	8.0303	8.0303	1.08
2481	n2516	11.8413	11.8413	10.7584	0.28	0.35	0.02	10.7744	10.7744	1.08
2482	n2517	12.992	12.992	11.9091	0.21	0.28	0.01	11.9234	11.9234	1.08
2483	n2518	13.568	13.568	12.4851	0.14	0.21	0.01	12.4975	12.4975	1.08
2484	n2519	14.259	14.259	13.0561	0.07	0.14	0.01	13.0662	13.0662	1.2
2485	n2520	14.259	14.259	13.1761	0	0.07	0.01	13.1846	13.1846	1.08
2486	n2521	14.53	14.53	13.4471	0	0.04	0.01	13.4524	13.4524	1.08
2487	n2522	13.31	13.31	12.2271	0.04	0.08	0.01	12.2347	12.2347	1.08
2488	n2524	8.795	8.795	7.7121	0.49	0.56	0.02	7.7324	7.7324	1.08
2489	n2525	9.348	9.348	8.2651	0.42	0.49	0.02	8.284	8.284	1.08
2490	n2526	11.652	11.652	10.5691	0.35	0.42	0.02	10.5865	10.5865	1.08
2491	n2527	14.33	14.33	13.2471	0.28	0.35	0.02	13.2631	13.2631	1.08
2492	n2528	18.142	18.142	17.0591	0.21	0.28	0.01	17.0734	17.0734	1.08
2493	n2529	21.436	21.436	20.3531	0.14	0.21	0.01	20.3655	20.3655	1.08
2494	n2530	24.459	24.459	23.3761	0.07	0.14	0.01	23.3862	23.3862	1.08
2495	n2531	27.606	27.606	26.5231	0	0.07	0.01	26.5302	26.5302	1.08
2496	n2532	31.228	31.228	30.1451	21.02	21.06	0.13	30.2756	30.2756	1.08
2497	n2533	28.555	28.555	27.4721	21.06	21.1	0.13	27.6028	27.6028	1.08
2498	n2534	25.857	25.857	24.7741	21.1	21.14	0.13	24.9049	24.9049	1.08
2499	n2535	23.31	23.31	22.2271	21.14	21.18	0.13	22.358	22.358	1.08
2500	n2536	21.612	21.612	20.5291	21.62	21.69	0.13	20.6615	20.6615	1.08
2501	n2537	20.122	20.122	18.9969	21.69	21.76	0.13	19.1237	19.1237	1.13
2502	n2538	20	20	18.8749	21.76	21.83	0.16	19.0332	19.0332	1.13
2503	n2539	21.312	21.312	18.8404	21.83	21.9	0.13	18.9658	18.9658	2.47
2504	n2540	18.335	18.335	17.2099	21.9	21.97	0.13	17.3355	17.3355	1.13
2505	n2541	16.588	16.588	15.4629	21.97	22.04	0.13	15.5887	15.5887	1.13
2506	n2542	13.961	13.961	12.8359	22.04	22.11	0.13	12.9619	12.9619	1.13
2507	n2543	11.34	11.34	10.2149	22.11	22.18	0.13	10.3411	10.3411	1.13
2508	n2544	9.727	9.727	8.6019	23.34	23.41	0.17	8.7703	8.7703	1.13
2513	n2549	32.064	32.064	30.9811	20.95	21.02	0.13	31.1115	31.1115	1.08
2514	n2550	33.253	33.253	32.1701	20.91	20.95	0.13	32.3003	32.3003	1.08
2515	n2551	34.959	34.959	33.8761	20.87	20.91	0.13	34.0062	34.0062	1.08

2516	n2552	37.856	37.856	36.7731	20.83	20.87	0.13	36.9031	36.9031	1.08
2517	n2553	39.775	39.775	38.6921	20.79	20.83	0.13	38.8219	38.8219	1.08
2518	n2554	41.001	41.001	39.9181	0	20.79	0.13	40.0478	40.0478	1.08
2519	n2555	41.018	41.018	39.9351	0	0.07	0.01	39.9422	39.9422	1.08
2520	n2556	40.725	40.725	39.6421	0.07	0.14	0.01	39.6522	39.6522	1.08
2521	n2557	40.332	40.332	39.2491	0.14	0.21	0.01	39.2615	39.2615	1.08
2522	n2558	39.536	39.536	38.4531	0.77	0.84	0.02	38.478	38.478	1.08
2523	n2560	39.021	39.021	37.9381	0.84	0.91	0.03	37.964	37.964	1.08
2524	n2561	38.565	38.565	37.4821	0.91	0.98	0.03	37.509	37.509	1.08
2525	n2562	38.441	38.441	37.3581	1.47	1.54	0.03	37.3921	37.3921	1.08
2526	n2564	4.796	4.796	3.7131	2.8	2.87	0.05	3.7596	3.7596	1.08
2527	n2565	6.03	6.03	4.9471	2.73	2.8	0.05	4.993	4.993	1.08
2528	n2566	8.936	8.936	7.8531	2.66	2.73	0.05	7.8985	7.8985	1.08
2529	n2567	12.502	12.502	11.4191	2.59	2.66	0.04	11.4639	11.4639	1.08
2530	n2568	22.165	22.165	16.9571	2.52	2.59	0.04	17.0012	17.0012	5.21
2532	n2570	21.943	21.943	20.8601	2.45	2.52	0.04	20.9037	20.9037	1.08
2533	n2571	24.087	24.087	22.6728	2.38	2.45	0.04	22.7157	22.7157	1.41
2534	n2572	24.917	24.917	22.7895	2.31	2.38	0.05	22.8361	22.8361	2.13
2535	n2573	24.164	24.164	22.9095	2.24	2.31	0.05	22.9555	22.9555	1.25
2536	n2574	24.018	24.018	22.9351	2.17	2.24	0.05	22.9803	22.9803	1.08
2537	n2575	25.032	25.032	23.9491	2.1	2.17	0.04	23.9894	23.9894	1.08
2538	n2576	26.794	26.794	25.7111	2.03	2.1	0.04	25.7507	25.7507	1.08
2539	n2577	30.442	30.442	29.3591	1.96	2.03	0.04	29.3982	29.3982	1.08
2540	n2578	33.147	33.147	32.0641	1.89	1.96	0.04	32.1025	32.1025	1.08
2541	n2579	36.078	36.078	34.9951	1.82	1.89	0.04	35.0327	35.0327	1.08
2543	n2581	37.018	37.018	35.9351	1.75	1.82	0.04	35.972	35.972	1.08
2544	n2582	37.625	37.625	36.5421	1.68	1.75	0.04	36.5782	36.5782	1.08
2545	n2583	37.963	37.963	36.7601	1.61	1.68	0.04	36.7954	36.7954	1.2
2546	n2584	37.963	37.963	36.8801	1.54	1.61	0.04	36.9184	36.9184	1.08
2547	n2585	38.48	38.48	37.3971	0.42	0.49	0.02	37.4162	37.4162	1.08
2548	n2586	38.657	38.657	37.5741	0.35	0.42	0.02	37.5922	37.5922	1.08
2549	n2587	39.351	39.351	37.7863	0.28	0.35	0.02	37.8023	37.8023	1.56
2550	n2588	38.989	38.989	37.9061	0.21	0.28	0.02	37.9225	37.9225	1.08
2551	n2589	39.425	39.425	38.1054	0.14	0.21	0.01	38.1181	38.1181	1.32
2552	n2590	39.292	39.292	38.2091	0.07	0.14	0.01	38.221	38.221	1.08
2553	n2591	40.423	40.423	39.3401	0	0.07	0.01	39.3472	39.3472	1.08
2554	n2593	40.612	40.612	39.5291	0.29	0.36	0.02	39.5452	39.5452	1.08
2556	n2595	40.922	40.922	39.8391	0.22	0.29	0.01	39.8537	39.8537	1.08
2558	n2597	42.4804	42.4804	41.3975	0.15	0.22	0.01	41.4101	41.4101	1.08
2559	n2598	43.35	43.35	41.6042	0.08	0.15	0.01	41.615	41.615	1.75
2561	n2600	43.459	43.459	42.3761	0	0.07	0.01	42.3846	42.3846	1.08
2562	n2601	43.3537	43.3537	42.2561	0.07	0.14	0.01	42.2663	42.2663	1.1
2563	n2602	43.1128	43.1128	42.0299	0.14	0.21	0.01	42.0423	42.0423	1.08
2564	n2603	42.768	42.768	41.6851	0.21	0.28	0.01	41.6994	41.6994	1.08
2565	n2604	41.9377	41.9377	40.8548	0.28	0.35	0.02	40.8709	40.8709	1.08
2566	n2605	41.1815	41.1815	40.0986	0.35	0.42	0.02	40.1161	40.1161	1.08
2567	n2606	40.4742	40.4742	39.3913	0.42	0.49	0.02	39.4102	39.4102	1.08

2568	n2607	39.5897	39.5897	38.5068	0.49	0.56	0.02	38.5271	38.5271	1.08
2580	n2622	5.9787	5.9787	4.8958	1.54	1.61	0.03	4.9305	4.9305	1.08
2584	n2626	8.867	8.867	7.7841	1.4	1.47	0.03	7.8171	7.8171	1.08
2585	n2627	10.5327	10.5327	9.4498	1.33	1.4	0.03	9.482	9.482	1.08
2586	n2628	12.094	12.094	11.0111	1.26	1.33	0.03	11.0426	11.0426	1.08
2587	n2629	14.2586	14.2586	13.1757	1.19	1.26	0.03	13.2062	13.2062	1.08
2589	n2631	16.7639	16.7639	15.681	1.05	1.12	0.03	15.7099	15.7099	1.08
2591	n2633	21.965	21.965	20.8821	0.98	1.05	0.03	20.9099	20.9099	1.08
2594	n2636	24.094	24.094	23.0111	0.84	0.91	0.03	23.037	23.037	1.08
2595	n2637	26.408	26.408	24.7507	0.77	0.84	0.02	24.7755	24.7755	1.66
2596	n2638	25.9535	25.9535	24.8706	0.7	0.77	0.03	24.8973	24.8973	1.08
2598	n2640	26.4262	26.4262	25.3433	0.63	0.7	0.02	25.366	25.366	1.08
2599	n2641	30.9255	30.9255	29.8426	0.56	0.63	0.02	29.8641	29.8641	1.08
2600	n2642	35.0694	35.0694	33.9865	0.49	0.56	0.02	34.0068	34.0068	1.08
2601	n2643	36.139	36.139	35.0561	0.42	0.49	0.02	35.075	35.075	1.08
2603	n2645	38.16	38.16	36.8758	0.35	0.42	0.02	36.8932	36.8932	1.28
2605	n2647	38.252	38.252	36.9754	0.28	0.35	0.02	36.9936	36.9936	1.28
2606	n2648	38.179	38.179	37.0961	0.21	0.28	0.02	37.1125	37.1125	1.08
2607	n2649	38.9389	38.9389	37.856	0.14	0.21	0.01	37.8684	37.8684	1.08
2609	n2651	40.395	40.395	39.3121	0.07	0.14	0.01	39.3222	39.3222	1.08
2612	n2654	42.467	42.467	41.3841	0	0.07	0.01	41.3912	41.3912	1.08
2624	n2667	22.5781	22.5781	21.4952	0.4	0.44	0.02	21.5131	21.5131	1.08
2625	n2668	23.9027	23.9027	22.8198	0.36	0.4	0.02	22.8369	22.8369	1.08
2626	n2669	24.999	24.999	23.9161	0.32	0.36	0.02	23.9322	23.9322	1.08
2628	n2671	26.0036	26.0036	24.9207	0.28	0.32	0.02	24.936	24.936	1.08
2629	n2672	26.7929	26.7929	25.71	0.24	0.28	0.01	25.7243	25.7243	1.08
2630	n2673	27.5386	27.5386	26.4557	0.2	0.24	0.01	26.4688	26.4688	1.08
2631	n2674	28.9119	28.9119	27.829	0.16	0.2	0.01	27.841	27.841	1.08
2632	n2675	31.188	31.188	30.1051	0.12	0.16	0.01	30.1159	30.1159	1.08
2633	n2676	10.8998	10.8998	8.5227	23.41	23.48	0.17	8.6911	8.6911	2.38
2634	n2678	9.8441	9.8441	8.7612	1.09	1.16	0.03	8.7916	8.7916	1.08
2635	n2679	10.228	10.228	8.8449	1.05	1.09	0.03	8.8734	8.8734	1.38
2636	n2680	11.4511	11.4511	10.3682	0.85	0.89	0.03	10.3938	10.3938	1.08
2637	n2681	13.5759	13.5759	12.493	0.78	0.85	0.02	12.518	12.518	1.08
2639	n2683	15.666	15.666	14.5831	0.74	0.78	0.02	14.6071	14.6071	1.08
2641	n2685	17.0919	17.0919	16.009	0.67	0.74	0.02	16.0323	16.0323	1.08
2643	n2687	22.3242	22.3242	21.2413	0.53	0.6	0.02	21.2623	21.2623	1.08
2644	n2688	26.0032	26.0032	24.9203	0.46	0.53	0.02	24.94	24.94	1.08
2645	n2689	28.8534	28.8534	27.7705	0.42	0.46	0.02	27.7888	27.7888	1.08
2646	n2690	31.3425	31.3425	30.2596	0.38	0.42	0.02	30.2771	30.2771	1.08
2647	n2691	32.7881	32.7881	31.7052	0.34	0.38	0.02	31.7219	31.7219	1.08
2648	n2692	33.6042	33.6042	32.5213	0.3	0.34	0.02	32.537	32.537	1.08
2649	n2693	34.1926	34.1926	33.1097	0.26	0.3	0.01	33.1245	33.1245	1.08
2650	n2694	34.6383	34.6383	33.5554	0.22	0.26	0.01	33.5692	33.5692	1.08
2653	n2697	35.195	35.195	34.1121	0.18	0.22	0.01	34.1248	34.1248	1.08
2658	n2704	32.0904	32.0904	31.0075	0.08	0.12	0.01	31.0167	31.0167	1.08
2659	n2705	32.8889	32.8889	31.806	0.04	0.08	0.01	31.8137	31.8137	1.08

2660	n2706	34.0279	34.0279	32.945	0	0.04	0.01	32.9503	32.9503	1.08
2662	n2708	43.2791	43.2791	41.7151	0.04	0.08	0.01	41.7242	41.7242	1.56
2663	n2709	42.9477	42.9477	41.8648	0	0.04	0.01	41.871	41.871	1.08
2664	n2710	41.2802	41.2802	40.1973	0	0.04	0.01	40.2026	40.2026	1.08
2665	n2711	38.6017	38.6017	37.5188	0.04	0.11	0.01	37.5277	37.5277	1.08
2666	n2712	36.2794	36.2794	35.1965	0.11	0.18	0.01	35.2079	35.2079	1.08
2667	n2713	10.2647	10.2647	8.9649	0.12	0.16	0.01	8.9776	8.9776	1.3
2668	n2714	10.4285	10.4285	9.0849	0.08	0.12	0.01	9.096	9.096	1.34
2669	n2715	10.7692	10.7692	9.2049	0.04	0.08	0.01	9.214	9.214	1.56
2670	n2716	10.4375	10.4375	9.3546	0	0.04	0.01	9.3608	9.3608	1.08
2671	n2717	10.1	10.1	9.0171	0.75	0.79	0.03	9.0441	9.0441	1.08
2672	n2718	11.971	11.971	10.3447	0.4	0.44	0.02	10.3626	10.3626	1.63
2673	n2719	11.512	11.512	10.4291	0.36	0.4	0.02	10.4485	10.4485	1.08
2674	n2720	13.4398	13.4398	12.3569	0.32	0.36	0.02	12.373	12.373	1.08
2675	n2721	15.631	15.631	14.5481	0.28	0.32	0.02	14.5635	14.5635	1.08
2676	n2722	17.0697	17.0697	15.9868	0.24	0.28	0.01	16.0012	16.0012	1.08
2677	n2723	18.5312	18.5312	17.4483	0.2	0.24	0.01	17.4614	17.4614	1.08
2678	n2724	19.7886	19.7886	18.7057	0.16	0.2	0.01	18.7177	18.7177	1.08
2679	n2725	21.4081	21.4081	20.3252	0.12	0.16	0.01	20.336	20.336	1.08
2680	n2726	23.9026	23.9026	22.8197	0.08	0.12	0.01	22.829	22.829	1.08
2681	n2727	26.9552	26.9552	25.8723	0.04	0.08	0.01	25.88	25.88	1.08
2682	n2728	30.0079	30.0079	28.925	0	0.04	0.01	28.9302	28.9302	1.08
2683	n2729	33.779	33.779	28.7736	1.97	2.01	0.04	28.8163	28.8163	5.01
2684	n2730	10.8143	10.8143	9.7314	0.28	0.31	0.01	9.7464	9.7464	1.08
2685	n2731	12.1647	12.1647	11.0818	0.25	0.28	0.01	11.0961	11.0961	1.08
2686	n2732	13.8746	13.8746	12.7917	0.22	0.25	0.01	12.8052	12.8052	1.08
2687	n2733	16.3036	16.3036	15.2207	0.19	0.22	0.01	15.2333	15.2333	1.08
2688	n2734	19.6761	19.6761	18.5932	0.09	0.12	0.01	18.6024	18.6024	1.08
2689	n2735	23.461	23.461	22.3781	0.06	0.09	0.01	22.3861	22.3861	1.08
2691	n2737	27.2131	27.2131	26.1302	0.03	0.06	0.01	26.1368	26.1368	1.08
2692	n2738	32.4005	32.4005	31.3176	0	0.03	0	31.3222	31.3222	1.08
2695	n2741	29.8558	29.8558	27.6336	2.57	2.64	0.05	27.6828	27.6828	2.22
2696	n2742	31.1727	31.1727	27.7535	2.5	2.57	0.05	27.8019	27.8019	3.42
2697	n2743	31.9203	31.9203	27.8734	2.43	2.5	0.05	27.9212	27.9212	4.05
2698	n2744	32.517	32.517	27.9934	2.36	2.43	0.05	28.0405	28.0405	4.52
2699	n2745	33.3831	33.3831	28.1134	2.29	2.36	0.05	28.1597	28.1597	5.27
2700	n2746	33.7	33.7	28.2333	2.22	2.29	0.05	28.2791	28.2791	5.47
2701	n2748	33.6021	33.6021	28.3533	2.15	2.22	0.05	28.3983	28.3983	5.25
2702	n2749	32.564	32.564	28.4712	2.08	2.15	0.04	28.5154	28.5154	4.09
2704	n2751	32.6786	32.6786	31.5957	0	0.07	0.01	31.6028	31.6028	1.08
2705	n2752	30.4006	30.4006	29.3177	0.07	0.14	0.01	29.3278	29.3278	1.08
2706	n2753	27.2479	27.2479	26.165	0.14	0.21	0.01	26.1774	26.1774	1.08
2707	n2754	24.1096	24.1096	23.0267	0.21	0.28	0.01	23.041	23.041	1.08
2708	n2755	21.2765	21.2765	20.1936	0.28	0.35	0.02	20.2096	20.2096	1.08
2709	n2756	19.0613	19.0613	17.9784	0.35	0.42	0.02	17.9982	17.9982	1.08
2710	n2757	19.489	19.489	17.8357	0.42	0.49	0.02	17.8546	17.8546	1.65
2711	n2758	16.3836	16.3836	15.3007	0.49	0.56	0.02	15.321	15.321	1.08

2712	n2759	13.6928	13.6928	12.6099	0.56	0.63	0.02	12.6314	12.6314	1.08
2713	n2760	11.4119	11.4119	10.329	0.63	0.7	0.02	10.3517	10.3517	1.08
2714	n2761	9.9257	9.9257	8.8428	0.7	0.77	0.02	8.8666	8.8666	1.08
2717	n2764	9.247	9.247	7.876	1.82	1.89	0.04	7.9137	7.9137	1.37
2718	n2765	8.925	8.925	7.5591	8.54	8.61	0.08	7.6415	7.6415	1.37
2720	n2767	8.93	8.93	7.689	6.58	6.65	0.08	7.77	7.77	1.24
2721	n2768	14.856	14.856	13.7731	0	0.07	0.01	13.7802	13.7802	1.08
2722	n2769	13.8458	13.8458	12.7629	0.07	0.14	0.01	12.773	12.773	1.08
2723	n2770	10.7966	10.7966	9.7137	0.14	0.21	0.01	9.726	9.726	1.08
2724	n2771	7.6471	7.6471	6.5642	0.21	0.28	0.01	6.5786	6.5786	1.08
2726	n2773	17.403	17.403	16.3201	0	0.04	0.01	16.3263	16.3263	1.08
2729	n2776	13.3921	13.3921	12.3092	0	0.07	0.01	12.3163	12.3163	1.08
2730	n2777	11.08	11.08	9.9971	0.91	0.98	0.03	10.024	10.024	1.08
2731	n2778	10.7147	10.7147	9.6318	0.98	1.05	0.03	9.6597	9.6597	1.08
2733	n2780	12.9632	12.9632	11.8803	0.77	0.84	0.02	11.9052	11.9052	1.08
2734	n2781	15.011	15.011	13.9281	0.7	0.77	0.02	13.9519	13.9519	1.08
2735	n2782	14.0402	14.0402	11.5223	0.49	0.56	0.13	11.6529	11.6529	2.52
2736	n2783	12.7251	12.7251	11.6422	0.42	0.49	0.02	11.6645	11.6645	1.08
2738	n2785	16.025	16.025	14.9421	0.35	0.42	0.02	14.9595	14.9595	1.08
2739	n2786	18.1786	18.1786	17.0957	0.28	0.35	0.02	17.1117	17.1117	1.08
2740	n2787	20.159	20.159	19.0761	0.21	0.28	0.01	19.0904	19.0904	1.08
2741	n2788	23.4534	23.4534	22.3705	0	0.07	0.01	22.3776	22.3776	1.08
2742	n2789	25.497	25.497	20.9157	6.76	6.83	0.08	20.9979	20.9979	4.58
2743	n2790	17.947	17.947	16.8641	0.42	0.49	0.02	16.883	16.883	1.08
2744	n2791	21.0173	21.0173	19.9344	0.35	0.42	0.02	19.9519	19.9519	1.08
2745	n2792	23.39	23.39	22.3071	0.28	0.35	0.02	22.3231	22.3231	1.08
2747	n2794	24.202	24.202	23.1191	0.21	0.28	0.01	23.1334	23.1334	1.08
2749	n2796	24.433	24.433	23.3501	0.14	0.21	0.01	23.3625	23.3625	1.08
2750	n2797	22.5152	22.5152	21.4323	0	0.07	0.01	21.4394	21.4394	1.08
2752	n2799	17.694	17.694	16.6111	0.07	0.14	0.01	16.6212	16.6212	1.08
2753	n2800	15.1085	15.1085	14.0256	0.14	0.21	0.01	14.0379	14.0379	1.08
2756	n2803	15.879	15.879	14.7961	0.21	0.28	0.01	14.8104	14.8104	1.08
2758	n2805	23.5617	23.5617	22.4788	0	0.07	0.01	22.4859	22.4859	1.08
2761	n2808	9.878	9.878	8.7951	0.16	0.2	0.01	8.8072	8.8072	1.08
2762	n2809	13.0441	13.0441	11.9612	0.12	0.16	0.01	11.972	11.972	1.08
2763	n2810	16.279	16.279	15.1961	0.08	0.12	0.01	15.2053	15.2053	1.08
2764	n2811	19.8308	19.8308	18.7479	0.04	0.08	0.01	18.7555	18.7555	1.08
2765	n2812	22.9997	22.9997	21.9168	0	0.04	0.01	21.9221	21.9221	1.08
2766	n2813	24.932	24.932	23.8491	2.98	3.05	0.05	23.8971	23.8971	1.08
2767	n2814	19.1312	19.1312	18.0483	0	0.07	0.01	18.0553	18.0553	1.08
2770	n2817	18.548	18.548	17.4651	0.28	0.35	0.02	17.4811	17.4811	1.08
2771	n2818	15.8003	15.8003	14.7174	0.35	0.42	0.02	14.7348	14.7348	1.08
2772	n2819	19.2609	19.2609	18.178	0.14	0.21	0.01	18.1904	18.1904	1.08
2773	n2820	20.2445	20.2445	19.1616	0.07	0.14	0.01	19.1717	19.1717	1.08
2774	n2821	21.9673	21.9673	20.8844	0	0.07	0.01	20.8914	20.8914	1.08
2776	n2823	25.389	25.389	21.4528	5.34	6.41	0.08	21.5321	21.5321	3.94
2778	n2825	21.5074	21.5074	20.4245	0.07	0.14	0.01	20.4346	20.4346	1.08

2779	n2826	24.8434	24.8434	23.7605	0.07	0.14	0.01	23.7706	23.7706	1.08
2780	n2827	25.9886	25.9886	24.9057	0	0.07	0.01	24.9128	24.9128	1.08
2781	n2828	26.631	26.631	21.1437	6.48	6.55	0.08	21.224	21.224	5.49
2784	n2831	26.1337	26.1337	25.0508	2.71	2.98	0.05	25.0982	25.0982	1.08
2786	n2833	23.8558	23.8558	22.7729	3.05	3.12	0.05	22.8215	22.8215	1.08
2787	n2834	23.344	23.344	22.2611	3.12	3.19	0.05	22.3153	22.3153	1.08
2789	n2836	23.6024	23.6024	22.1116	3.19	4.26	0.06	22.1748	22.1748	1.49
2790	n2837	25.026	25.026	21.8717	4.06	6.13	0.08	21.949	21.949	3.15
2791	n2838	25.5252	25.5252	21.8079	6.13	6.2	0.08	21.8857	21.8857	3.72
2792	n2839	25.885	25.885	21.6879	6.2	6.27	0.08	21.7662	21.7662	4.2
2793	n2840	25.5953	25.5953	21.5728	5.27	6.34	0.08	21.6516	21.6516	4.02
2795	n2842	25.9051	25.9051	21.3136	6.41	6.48	0.08	21.3934	21.3934	4.59
2796	n2843	26.251	26.251	21.0357	6.55	6.62	0.08	21.1164	21.1164	5.22
2797	n2844	25.0518	25.0518	20.7361	6.83	6.9	0.08	20.8188	20.8188	4.32
2798	n2845	25.009	25.009	20.6161	6.9	6.97	0.08	20.6993	20.6993	4.39
2799	n2846	25.115	25.115	20.5314	6.97	7.04	0.08	20.6151	20.6151	4.58
2800	n2847	25.1027	25.1027	20.4881	7.04	7.11	0.08	20.5723	20.5723	4.61
2801	n2848	25.0001	25.0001	20.3681	7.11	7.18	0.08	20.4528	20.4528	4.63
2802	n2849	24.798	24.798	20.2481	7.18	7.25	0.09	20.3333	20.3333	4.55
2804	n2851	17.8593	17.8593	14.7909	7.81	7.88	0.08	14.8696	14.8696	3.07
2805	n2852	17.939	17.939	14.7981	7.74	7.81	0.09	14.8847	14.8847	3.14
2807	n2854	20.8928	20.8928	19.8099	7.32	7.39	0.08	19.8861	19.8861	1.08
2808	n2855	23.3116	23.3116	20.1455	7.25	7.32	0.08	20.2211	20.2211	3.17
2809	n2856	16.972	16.972	14.8899	0.28	0.35	0.02	14.9082	14.9082	2.08
2810	n2857	16.09	16.09	15.0071	0.21	0.28	0.02	15.0235	15.0235	1.08
2811	n2858	18.2935	18.2935	17.2106	0.14	0.21	0.01	17.2229	17.2229	1.08
2812	n2859	20.6166	20.6166	19.5337	0.07	0.14	0.01	19.5438	19.5438	1.08
2813	n2860	23.2756	23.2756	22.1927	0	0.07	0.01	22.1998	22.1998	1.08
2814	n2861	32.2414	32.2414	28.5912	2.01	2.08	0.04	28.6347	28.6347	3.65
2818	n2865	32.898	32.898	28.9292	1.9	1.97	0.04	28.9716	28.9716	3.97
2820	n2867	34.0408	34.0408	32.9579	0	0.07	0.01	32.9664	32.9664	1.08
2821	n2868	34.906	34.906	32.838	0.07	0.14	0.01	32.8498	32.8498	2.07
2822	n2869	34.095	34.095	32.7754	0.14	0.21	0.01	32.7878	32.7878	1.32
2824	n2871	31.2794	31.2794	30.1965	0.21	0.28	0.01	30.2108	30.2108	1.08
2825	n2872	28.7202	28.7202	27.6373	0.28	0.35	0.02	27.6534	27.6534	1.08
2826	n2873	26.0309	26.0309	24.948	0.35	0.42	0.02	24.9655	24.9655	1.08
2827	n2874	23.691	23.691	22.6081	0.42	0.49	0.02	22.6295	22.6295	1.08
2829	n2876	24.6209	24.6209	22.4437	0.49	0.56	0.02	22.4665	22.4665	2.18
2830	n2877	25.147	25.147	22.3086	0.56	0.63	0.02	22.3327	22.3327	2.84
2831	n2878	23.9236	23.9236	22.2486	0.63	0.7	0.02	22.2713	22.2713	1.68
2832	n2879	21.3875	21.3875	20.3046	0.7	0.77	0.02	20.3284	20.3284	1.08
2833	n2880	19.308	19.308	18.2251	0.77	0.84	0.02	18.25	18.25	1.08
2834	n2881	16.8624	16.8624	15.7795	0.84	0.91	0.03	15.8055	15.8055	1.08
2835	n2882	14.2511	14.2511	13.1682	0.91	0.98	0.03	13.1951	13.1951	1.08
2836	n2883	12.2439	12.2439	11.161	0.98	1.05	0.03	11.1889	11.1889	1.08
2837	n2884	10.2784	10.2784	9.1955	1.05	1.12	0.03	9.2244	9.2244	1.08
2838	n2885	9.1587	9.1587	7.809	5.39	5.46	0.07	7.8814	7.8814	1.35

2839	n2886	9.178	9.178	7.9154	5.32	5.39	0.07	7.9873	7.9873	1.26
2840	n2887	9.102	9.102	8.0191	5.25	5.32	0.07	8.0905	8.0905	1.08
2841	n2888	26.3378	26.3378	25.2549	0.07	0.14	0.01	25.265	25.265	1.08
2842	n2889	27.112	27.112	26.0291	0	0.07	0.01	26.0362	26.0362	1.08
2844	n2891	27.335	27.335	26.1436	0.07	0.14	0.01	26.1537	26.1537	1.19
2845	n2892	27.336	27.336	26.2531	0	0.07	0.01	26.2616	26.2616	1.08
2846	n2893	27.674	27.674	26.5911	0	0.07	0.01	26.5996	26.5996	1.08
2847	n2894	28.041	28.041	26.5402	0.07	0.14	0.01	26.5521	26.5521	1.5
2848	n2895	28.5397	28.5397	26.3786	0.14	0.21	0.01	26.3928	26.3928	2.16
2849	n2896	28.5138	28.5138	26.1433	0.21	0.28	0.02	26.1597	26.1597	2.37
2851	n2898	27.6767	27.6767	26.0282	0.28	0.35	0.02	26.0442	26.0442	1.65
2852	n2899	26.0634	26.0634	24.9805	0.35	0.42	0.02	24.998	24.998	1.08
2853	n2900	22.8071	22.8071	21.7242	0.42	0.49	0.02	21.7431	21.7431	1.08
2854	n2901	19.577	19.577	18.4941	0.49	0.56	0.02	18.5144	18.5144	1.08
2863	n2910	26.4546	26.4546	25.3717	0.21	0.28	0.01	25.386	25.386	1.08
2864	n2911	24.157	24.157	22.0463	0.35	0.42	0.02	22.0661	22.0661	2.11
2865	n2912	23.2901	23.2901	21.9592	0.42	0.49	0.02	21.9781	21.9781	1.33
2867	n2914	24.0769	24.0769	22.994	0	0.07	0.01	23.001	23.001	1.08
2869	n2916	23.4187	23.4187	22.3358	0.07	0.14	0.01	22.3459	22.3459	1.08
2870	n2917	22.7628	22.7628	21.6799	0.14	0.21	0.01	21.6923	21.6923	1.08
2871	n2918	36.2686	36.2686	35.1857	0	0.07	0.01	35.1942	35.1942	1.08
2872	n2919	36.2418	36.2418	35.0189	0.07	0.14	0.01	35.029	35.029	1.22
2873	n2920	35.331	35.331	34.2481	0.14	0.21	0.01	34.2605	34.2605	1.08
2874	n2921	34.7624	34.7624	33.6795	0.21	0.28	0.01	33.6938	33.6938	1.08
2875	n2922	33.3474	33.3474	32.2645	0.28	0.35	0.02	32.2805	32.2805	1.08
2876	n2923	33.022	33.022	29.0849	1.83	1.9	0.04	29.1265	29.1265	3.94
2879	n2926	31.667	31.667	29.2586	1.41	1.48	0.04	29.2953	29.2953	2.41
2880	n2927	31.1307	31.1307	29.3786	1.34	1.41	0.04	29.4144	29.4144	1.75
2881	n2928	30.7214	30.7214	29.4986	1.27	1.34	0.03	29.5335	29.5335	1.22
2882	n2929	30.654	30.654	29.5711	1.2	1.27	0.03	29.6051	29.6051	1.08
2884	n2931	31.7038	31.7038	30.6209	1.13	1.2	0.03	30.6508	30.6508	1.08
2885	n2932	32.891	32.891	31.8081	1.06	1.13	0.03	31.837	31.837	1.08
2886	n2933	30.0256	30.0256	28.9427	0	0.07	0.01	28.9513	28.9513	1.08
2887	n2934	30.334	30.334	28.8227	0.07	0.14	0.01	28.8328	28.8328	1.51
2888	n2935	29.6235	29.6235	28.5406	0.14	0.21	0.01	28.553	28.553	1.08
2889	n2936	26.237	26.237	25.1541	0.21	0.28	0.01	25.1684	25.1684	1.08
2890	n2937	25.4375	25.4375	24.3546	0.28	0.35	0.02	24.3707	24.3707	1.08
2891	n2938	22.4747	22.4747	21.3918	0.35	0.42	0.02	21.4092	21.4092	1.08
2892	n2939	18.9565	18.9565	17.8736	0.42	0.49	0.02	17.8924	17.8924	1.08
2893	n2940	16.498	16.498	15.4151	0.49	0.56	0.02	15.4354	15.4354	1.08
2894	n2941	15.176	15.176	14.0931	0.56	0.63	0.02	14.1172	14.1172	1.08
2895	n2942	18.908	18.908	14.0119	0.63	0.7	0.02	14.0347	14.0347	4.9
2896	n2943	12.1517	12.1517	11.0688	0.7	0.77	0.02	11.0926	11.0926	1.08
2897	n2944	10.999	10.999	9.9161	1.61	1.68	0.04	9.9514	9.9514	1.08
2898	n2945	9.402	9.402	7.9654	1.75	1.82	0.04	8.0061	8.0061	1.44
2900	n2947	9.465	9.465	8.04	0.91	0.98	0.03	8.07	8.07	1.42
2901	n2948	9.202	9.202	8.1191	0.84	0.91	0.03	8.148	8.148	1.08

2902	n2949	9.8159	9.8159	8.733	0.77	0.84	0.02	8.7579	8.7579	1.08
2903	n2950	11.137	11.137	10.0541	0.7	0.77	0.02	10.0779	10.0779	1.08
2904	n2951	12.8169	12.8169	11.734	0.63	0.7	0.02	11.7567	11.7567	1.08
2905	n2952	15.7846	15.7846	14.7017	0.56	0.63	0.02	14.7232	14.7232	1.08
2907	n2954	8.4173	8.4173	7.3344	8.61	8.68	0.08	7.4171	7.4171	1.08
2908	n2955	7.9512	7.9512	6.8683	8.68	8.75	0.1	6.9638	6.9638	1.08
2909	n2956	7.8314	7.8314	6.7483	8.75	8.82	0.08	6.8317	6.8317	1.08
2910	n2957	7.6383	7.6383	6.5554	8.82	8.89	0.08	6.6392	6.6392	1.08
2911	n2958	7.4134	7.4134	6.3305	8.89	8.96	0.1	6.4275	6.4275	1.08
2912	n2959	7.3151	7.3151	6.2105	8.96	9.03	0.1	6.308	6.308	1.1
2913	n2960	7.275	7.275	6.0905	9.03	9.1	0.1	6.1885	6.1885	1.18
2914	n2961	7.282	7.282	6.0397	9.1	9.17	0.1	6.1381	6.1381	1.24
2915	n2962	7.284	7.284	5.9197	9.17	9.24	0.1	6.0186	6.0186	1.36
2918	n2965	7.003	7.003	5.5907	9.31	9.38	0.1	5.6905	5.6905	1.41
2919	n2966	7.058	7.058	5.4883	9.38	9.45	0.1	5.5886	5.5886	1.57
2920	n2967	7.0377	7.0377	5.3764	9.45	9.52	0.1	5.4772	5.4772	1.66
2921	n2968	6.982	6.982	5.2564	9.52	9.59	0.1	5.3577	5.3577	1.73
2922	n2969	6.9347	6.9347	5.0549	9.59	9.66	0.1	5.1567	5.1567	1.88
2923	n2970	6.988	6.988	4.9172	16.94	17.01	0.14	5.0582	5.0582	2.07
2925	n2972	7.0097	7.0097	5.7687	2.66	2.73	0.05	5.8141	5.8141	1.24
2927	n2974	27.3655	27.3655	26.2826	0	0.07	0.01	26.2896	26.2896	1.08
2928	n2975	26.5944	26.5944	25.5115	0.07	0.14	0.01	25.5216	25.5216	1.08
2929	n2976	25.2451	25.2451	24.1622	0.14	0.21	0.01	24.1745	24.1745	1.08
2930	n2977	23.3023	23.3023	22.2194	0.21	0.28	0.01	22.2337	22.2337	1.08
2931	n2978	21.1804	21.1804	20.0975	0.28	0.35	0.02	20.1135	20.1135	1.08
2933	n2980	24.442	24.442	23.3591	0	0.07	0.01	23.3662	23.3662	1.08
2934	n2981	22.9944	22.9944	21.9115	0.07	0.14	0.01	21.9216	21.9216	1.08
2935	n2982	19.8856	19.8856	18.8027	0.14	0.21	0.01	18.8151	18.8151	1.08
2937	n2984	15.9837	15.9837	14.9008	0.28	0.35	0.02	14.9169	14.9169	1.08
2938	n2985	15.0717	15.0717	13.9888	0.35	0.42	0.02	14.0062	14.0062	1.08
2939	n2986	14.4267	14.4267	13.3438	0.42	0.49	0.02	13.3626	13.3626	1.08
2940	n2987	13.8083	13.8083	12.7254	0.49	0.56	0.02	12.7457	12.7457	1.08
2941	n2988	12.5305	12.5305	11.4476	0.56	0.63	0.02	11.4713	11.4713	1.08
2942	n2989	12.401	12.401	11.3181	0.63	0.7	0.02	11.3408	11.3408	1.08
2943	n2990	11.9813	11.9813	10.8984	0.7	0.77	0.02	10.9223	10.9223	1.08
2944	n2991	11.656	11.656	10.5731	0.77	0.84	0.02	10.598	10.598	1.08
2946	n2993	10.7569	10.7569	9.674	1.68	1.75	0.04	9.7102	9.7102	1.08
2947	n2994	10.4071	10.4071	9.3242	1.75	1.82	0.04	9.3611	9.3611	1.08
2948	n2995	9.9466	9.9466	8.8637	1.82	1.89	0.04	8.9014	8.9014	1.08
2949	n2996	9.498	9.498	8.2135	3.29	3.36	0.05	8.2642	8.2642	1.28
2950	n2997	9.4734	9.4734	8.3905	3.22	3.29	0.06	8.4456	8.4456	1.08
2951	n2998	10.2516	10.2516	9.1687	3.15	3.22	0.05	9.2181	9.2181	1.08
2952	n2999	11.7264	11.7264	10.6435	3.08	3.15	0.05	10.6923	10.6923	1.08
2953	n3000	15.081	15.081	12.2317	3.01	3.08	0.05	12.28	12.28	2.85
2954	n3001	19.1186	19.1186	18.0357	1.82	1.89	0.04	18.0733	18.0733	1.08
2955	n3002	22.2935	22.2935	21.2106	1.75	1.82	0.04	21.2475	21.2475	1.08
2956	n3003	24.4669	24.4669	22.0345	1.68	1.75	0.04	22.0707	22.0707	2.43

2957	n3004	24.602	24.602	22.055	1.61	1.68	0.04	22.0941	22.0941	2.55
2958	n3005	24.955	24.955	22.2086	1.54	1.61	0.04	22.2469	22.2469	2.75
2959	n3006	25.1827	25.1827	22.3286	1.47	1.54	0.04	22.366	22.366	2.85
2960	n3007	25.312	25.312	22.3677	1.4	1.47	0.04	22.4043	22.4043	2.94
2977	n3024	40.0533	40.0533	38.9704	0.36	0.43	0.02	38.9881	38.9881	1.08
2979	n3026	37.947	37.947	36.8641	0.71	0.78	0.02	36.8881	36.8881	1.08
2981	n3028	40.4194	40.4194	39.3365	0.07	0.14	0.01	39.3466	39.3466	1.08
2982	n3029	41.2979	41.2979	40.215	0	0.07	0.01	40.2221	40.2221	1.08
2984	n3031	35.1527	35.1527	34.0698	0.99	1.06	0.03	34.0978	34.0978	1.08
2985	n3032	36.343	36.343	35.2601	0.92	0.99	0.03	35.2872	35.2872	1.08
2986	n3033	36.8179	36.8179	35.735	0.85	0.92	0.03	35.7611	35.7611	1.08
2987	n3034	37.3842	37.3842	36.3013	0.78	0.85	0.02	36.3263	36.3263	1.08
2988	n3035	40.288	40.288	39.2051	0.07	0.14	0.01	39.2152	39.2152	1.08
2990	n3037	39.5263	39.5263	38.4434	0	0.07	0.01	38.4505	38.4505	1.08
2991	n3038	38.6549	38.6549	37.572	0.07	0.14	0.01	37.5821	37.5821	1.08
2992	n3039	38.3135	38.3135	37.2306	0.14	0.21	0.01	37.2429	37.2429	1.08
2993	n3040	37.9838	37.9838	36.9009	0.21	0.28	0.01	36.9152	36.9152	1.08
2994	n3041	37.0459	37.0459	35.963	0.28	0.35	0.02	35.979	35.979	1.08
2995	n3042	35.7884	35.7884	34.7055	0.35	0.42	0.02	34.7229	34.7229	1.08
2997	n3044	32.887	32.887	31.8041	0.42	0.49	0.02	31.823	31.823	1.08
2998	n3045	38.2847	38.2847	37.2018	0.14	0.21	0.01	37.2142	37.2142	1.08
2999	n3046	36.0456	36.0456	34.9627	0.21	0.28	0.01	34.977	34.977	1.08
3000	n3047	34.0249	34.0249	32.942	0.28	0.35	0.02	32.958	32.958	1.08
3001	n3048	32.9897	32.9897	31.9068	0.35	0.42	0.02	31.9267	31.9267	1.08
3003	n3050	32.899	32.899	31.8008	0.42	0.49	0.02	31.8222	31.8222	1.1
3004	n3051	33.7447	33.7447	31.6808	0.49	0.56	0.02	31.7036	31.7036	2.06
3005	n3052	35.2613	35.2613	31.561	0.56	0.63	0.02	31.5851	31.5851	3.7
3006	n3053	36.6606	36.6606	31.4411	0.63	0.7	0.03	31.4665	31.4665	5.22
3007	n3054	36.78	36.78	31.3335	0.7	0.77	0.03	31.3602	31.3602	5.45
3008	n3055	36.673	36.673	31.1785	0.77	0.84	0.03	31.2063	31.2063	5.49
3009	n3056	36.2954	36.2954	31.0585	0.84	0.91	0.03	31.0874	31.0874	5.24
3010	n3057	35.9718	35.9718	30.9385	0.91	0.98	0.03	30.9685	30.9685	5.03
3012	n3059	36.042	36.042	30.8174	1.75	1.82	0.04	30.8582	30.8582	5.22
3013	n3060	12.9825	12.9825	11.2665	2.59	2.66	0.04	11.3113	11.3113	1.72
3014	n3061	14.3898	14.3898	11.3864	2.52	2.59	0.05	11.435	11.435	3
3015	n3062	14.945	14.945	11.4398	2.45	2.52	0.05	11.4877	11.4877	3.51
3016	n3063	12.608	12.608	11.5251	2.38	2.45	0.05	11.5724	11.5724	1.08
3017	n3064	13.6	13.6	12.5171	2.31	2.38	0.04	12.5595	12.5595	1.08
3018	n3065	18.383	18.383	17.3001	2.24	2.31	0.04	17.3418	17.3418	1.08
3019	n3066	22.4171	22.4171	21.3342	2.17	2.24	0.04	21.3752	21.3752	1.08
3020	n3067	25.3694	25.3694	24.2865	2.1	2.17	0.04	24.3268	24.3268	1.08
3021	n3068	27.2782	27.2782	26.1953	2.03	2.1	0.04	26.2349	26.2349	1.08
3022	n3069	28.6838	28.6838	27.6009	1.96	2.03	0.04	27.6399	27.6399	1.08
3023	n3070	30.0537	30.0537	28.9708	1.89	1.96	0.04	29.0092	29.0092	1.08
3024	n3071	34.8557	34.8557	30.765	1.82	1.89	0.04	30.8027	30.8027	4.09
3025	n3072	36.9644	36.9644	35.8489	0.7	0.77	0.02	35.8728	35.8728	1.12
3026	n3073	37.765	37.765	35.9267	0.63	0.7	0.03	35.9521	35.9521	1.84

3027	n3074	39.301	39.301	36.0419	0.56	0.63	0.02	36.066	36.066	3.26
3028	n3075	39.677	39.677	38.571	0.28	0.35	0.02	38.587	38.587	1.11
3029	n3076	40.2416	40.2416	38.6909	0.21	0.28	0.02	38.7074	38.7074	1.55
3030	n3077	40.6241	40.6241	38.8109	0.14	0.21	0.01	38.8252	38.8252	1.81
3031	n3078	40.724	40.724	38.8892	0.07	0.14	0.01	38.901	38.901	1.83
3032	n3079	40.092	40.092	39.0091	0	0.07	0.01	39.0177	39.0177	1.08
3062	n3109	39.756	39.756	36.1541	0.14	0.21	0.01	36.1684	36.1684	3.6
3063	n3110	39.1936	39.1936	36.2741	0.07	0.14	0.01	36.2859	36.2859	2.92
3064	n3111	37.4768	37.4768	36.3939	0	0.07	0.01	36.4024	36.4024	1.08
3094	n3141	29.8042	29.8042	28.7213	0.49	0.56	0.02	28.7416	28.7416	1.08
3095	n3142	28.1003	28.1003	27.0174	0.56	0.63	0.02	27.0388	27.0388	1.08
3096	n3143	27.0995	27.0995	26.0166	0.63	0.7	0.02	26.0393	26.0393	1.08
3097	n3144	26.4811	26.4811	25.3982	0.7	0.77	0.02	25.422	25.422	1.08
3108	n3155	25.984	25.984	24.9011	0.77	0.84	0.02	24.926	24.926	1.08
3109	n3156	25.6488	25.6488	24.5659	0.84	0.91	0.03	24.5919	24.5919	1.08
3110	n3157	24.989	24.989	23.9061	0.91	0.98	0.03	23.933	23.933	1.08
3113	n3160	23.874	23.874	22.7911	0.98	1.05	0.03	22.8221	22.8221	1.08
3114	n3161	25.4846	25.4846	22.6874	1.05	1.12	0.03	22.7194	22.7194	2.8
3115	n3162	26.708	26.708	22.5675	1.12	1.19	0.03	22.6005	22.6005	4.14
3116	n3163	26.612	26.612	22.4875	1.19	1.26	0.03	22.5214	22.5214	4.12
3117	n3164	26.565	26.565	22.4483	1.26	1.33	0.03	22.4831	22.4831	4.12
3118	n3165	26.154	26.154	22.4261	1.33	1.4	0.04	22.4618	22.4618	3.73
3119	n3166	24.7682	24.7682	23.6853	0	0.07	0.01	23.6924	23.6924	1.08
3120	n3167	21.5465	21.5465	20.4636	0.07	0.14	0.01	20.4737	20.4737	1.08
3121	n3168	18.8957	18.8957	17.8128	0.14	0.21	0.01	17.8252	17.8252	1.08
3122	n3169	23.4773	23.4773	22.3944	0	1.47	0.04	22.4309	22.4309	1.08
3123	n3170	24.1778	24.1778	22.2744	1.47	1.54	0.04	22.3118	22.3118	1.9
3125	n3172	23.5576	23.5576	22.0975	1.54	1.61	0.03	22.1322	22.1322	1.46
3126	n3173	21.967	21.967	17.3356	2.1	2.17	0.04	17.3801	17.3801	4.63
3127	n3174	19.3662	19.3662	17.216	2.17	2.24	0.04	17.257	17.257	2.15
3128	n3175	16.5014	16.5014	15.4185	2.24	2.31	0.04	15.4602	15.4602	1.08
3129	n3176	13.3897	13.3897	12.3068	2.31	2.38	0.04	12.3492	12.3492	1.08
3130	n3177	10.467	10.467	9.3841	2.38	2.45	0.04	9.4271	9.4271	1.08
3131	n3178	8.2532	8.2532	7.1703	2.45	2.52	0.04	7.2139	7.2139	1.08
3132	n3179	7.1231	7.1231	6.0402	2.52	2.59	0.05	6.0888	6.0888	1.08
3134	n3181	6.9793	6.9793	5.8887	2.59	2.66	0.05	5.9381	5.9381	1.09
3135	n3182	6.7724	6.7724	5.6348	4.48	4.55	0.06	5.694	5.694	1.14
3137	n3184	6.9192	6.9192	5.8363	4.41	4.48	0.06	5.9012	5.9012	1.08
3138	n3185	7.064	7.064	5.9811	4.34	4.41	0.06	6.0392	6.0392	1.08
3139	n3186	7.2922	7.2922	6.2093	3.43	3.5	0.05	6.2609	6.2609	1.08
3140	n3187	7.6886	7.6886	6.6057	3.36	3.43	0.05	6.6568	6.6568	1.08
3141	n3188	8.2528	8.2528	7.1699	3.29	3.36	0.05	7.2204	7.2204	1.08
3142	n3189	9.1684	9.1684	8.0855	3.22	3.29	0.05	8.1355	8.1355	1.08
3143	n3190	10.4165	10.4165	9.3336	3.15	3.22	0.05	9.383	9.383	1.08
3144	n3191	11.7314	11.7314	10.6485	3.08	3.15	0.05	10.6974	10.6974	1.08
3145	n3192	13.2447	13.2447	12.1618	3.01	3.08	0.05	12.2101	12.2101	1.08
3146	n3193	14.7884	14.7884	13.7055	2.94	3.01	0.05	13.7532	13.7532	1.08

3147	n3194	15.557	15.557	14.4741	0	2.94	0.05	14.5212	14.5212	1.08
3282	n3334	31.8141	31.8141	30.7312	0	0.07	0.01	30.7397	30.7397	1.08
3283	n3335	32.4229	32.4229	30.6112	0.07	0.14	0.01	30.623	30.623	1.81
3284	n3336	33.2	33.2	30.4912	0.14	0.21	0.01	30.5055	30.5055	2.71
3285	n3337	32.6117	32.6117	30.412	0.21	0.28	0.01	30.4263	30.4263	2.2
3286	n3338	30.4639	30.4639	29.381	0.28	0.35	0.02	29.397	29.397	1.08
3287	n3339	26.5791	26.5791	25.4962	0.35	0.42	0.02	25.5136	25.5136	1.08
3288	n3340	21.633	21.633	20.5501	0.42	0.49	0.02	20.5689	20.5689	1.08
3289	n3341	19.1843	19.1843	18.1014	0.49	0.56	0.02	18.1217	18.1217	1.08
3290	n3342	18.7127	18.7127	17.6298	0.56	0.63	0.02	17.6512	17.6512	1.08
3292	n3344	8.9304	8.9304	7.8475	0.7	0.77	0.02	7.8714	7.8714	1.08
3293	n3345	7.6277	7.6277	6.5448	0.77	0.84	0.02	6.5697	6.5697	1.08
3358	n3411	16.8553	16.8553	15.7724	0.21	0.28	0.01	15.7867	15.7867	1.08
3359	n3412	16.502	16.502	15.4191	0.28	0.35	0.02	15.4373	15.4373	1.08
3360	n3413	18.2	18.2	15.3857	0.35	0.42	0.02	15.4055	15.4055	2.81
3361	n3414	17.97	17.97	15.3085	0.42	0.49	0.02	15.3298	15.3298	2.66
3362	n3415	18.535	18.535	15.1924	0.49	0.56	0.02	15.2152	15.2152	3.34
3363	n3416	18.3841	18.3841	15.1727	0.56	0.63	0.02	15.1968	15.1968	3.21
3364	n3417	17.4442	17.4442	15.0528	0.63	0.7	0.02	15.0755	15.0755	2.39
3365	n3418	15.246	15.246	14.1631	0.7	0.77	0.02	14.1869	14.1869	1.08
3366	n3419	14.0304	14.0304	12.3517	1.05	1.12	0.03	12.3836	12.3836	1.68
3367	n3420	13.533	13.533	12.4501	0.98	1.05	0.03	12.4811	12.4811	1.08
3368	n3421	14.648	14.648	13.4776	0.91	0.98	0.03	13.5045	13.5045	1.17
3369	n3422	15.172	15.172	13.5839	0.84	0.91	0.03	13.6128	13.6128	1.59
3370	n3423	14.7868	14.7868	13.7039	0.77	0.84	0.03	13.7317	13.7317	1.08
3378	n3431	20.018	20.018	18.9351	0	0.07	0.01	18.9422	18.9422	1.08
3379	n3432	19.2998	19.2998	18.2169	0.07	0.14	0.01	18.2287	18.2287	1.08
3380	n3433	20.021	20.021	18.0282	0.14	0.21	0.01	18.0425	18.0425	1.99
3382	n3435	20.2928	20.2928	17.8698	0.21	0.28	0.02	17.8862	17.8862	2.42
3383	n3436	20.8762	20.8762	17.7499	0.28	0.35	0.02	17.7681	17.7681	3.13
3384	n3437	21.2958	21.2958	17.6299	0.35	0.42	0.02	17.6498	17.6498	3.67
3386	n3439	22.62	22.62	17.499	0.42	0.49	0.02	17.5204	17.5204	5.12
3387	n3440	26.9553	26.9553	25.8724	0.14	0.21	0.01	25.8848	25.8848	1.08
3388	n3441	23.241	23.241	22.1581	0.28	0.35	0.02	22.1763	22.1763	1.08
3392	n3445	26.8326	26.8326	23.0042	0.91	1.48	0.04	23.0409	23.0409	3.83
3394	n3447	26.8855	26.8855	23.1739	0.84	1.41	0.04	23.2097	23.2097	3.71
3395	n3448	26.7872	26.7872	23.2939	0.77	1.34	0.03	23.3289	23.3289	3.49
3396	n3449	26.6073	26.6073	23.4139	0.9	0.97	0.03	23.4437	23.4437	3.19
3397	n3450	26.4483	26.4483	23.5339	0.83	0.9	0.03	23.5626	23.5626	2.91
3398	n3451	26.3825	26.3825	23.6539	0.76	0.83	0.03	23.6815	23.6815	2.73
3399	n3452	26.2266	26.2266	23.7739	0.69	0.76	0.03	23.8004	23.8004	2.45
3400	n3453	26.035	26.035	23.8779	0.62	0.69	0.03	23.9031	23.9031	2.16
3402	n3455	26.076	26.076	24.0273	0.55	0.62	0.02	24.0512	24.0512	2.05
3404	n3457	25.255	25.255	24.1721	0.48	0.55	0.02	24.1947	24.1947	1.08
3405	n3458	26.9262	26.9262	25.8433	0.41	0.48	0.02	25.862	25.862	1.08
3406	n3459	28.574	28.574	27.4911	0.34	0.41	0.02	27.5084	27.5084	1.08
3407	n3460	29.4505	29.4505	28.3676	0.27	0.34	0.02	28.3833	28.3833	1.08

3409	n3462	29.892	29.892	28.8091	0	0.27	0.01	28.823	28.823	1.08
3410	n3463	29.6986	29.6986	28.6157	0	0.07	0.01	28.6228	28.6228	1.08
3411	n3464	29.1964	29.1964	28.1135	0.14	0.21	0.01	28.1278	28.1278	1.08
3412	n3465	29.243	29.243	28.0992	0.21	0.28	0.01	28.1135	28.1135	1.14
3413	n3466	26.4891	26.4891	25.4062	0.28	0.35	0.02	25.4222	25.4222	1.08
3414	n3467	23.0767	23.0767	21.9938	0.35	0.42	0.02	22.0113	22.0113	1.08
3415	n3468	20.6125	20.6125	19.5296	0.42	0.49	0.02	19.5485	19.5485	1.08
3416	n3469	19.16	19.16	18.0771	0.49	0.56	0.02	18.0974	18.0974	1.08
3418	n3471	18.281	18.281	17.1754	0.63	0.7	0.02	17.1982	17.1982	1.11
3419	n3472	15.3835	15.3835	14.3006	0.7	0.77	0.02	14.3244	14.3244	1.08
3420	n3473	13.3043	13.3043	12.2214	0.77	0.84	0.02	12.2463	12.2463	1.08
3421	n3474	10.4512	10.4512	9.3683	0.84	0.91	0.03	9.3942	9.3942	1.08
3422	n3475	8.6229	8.6229	7.54	0.91	0.98	0.03	7.5669	7.5669	1.08
3423	n3476	7.2753	7.2753	6.1924	0.98	1.05	0.03	6.2202	6.2202	1.08
3424	n3477	6.7927	6.7927	5.7098	1.05	1.12	0.03	5.7386	5.7386	1.08
3426	n3479	5.953	5.953	4.8701	1.12	1.19	0.03	4.9031	4.9031	1.08
3427	n3480	6.0896	6.0896	4.7501	1.19	1.26	0.03	4.782	4.782	1.34
3429	n3482	5.67	5.67	4.5871	1.26	1.33	0.03	4.6186	4.6186	1.08
3430	n3483	5.8203	5.8203	4.294	5.95	6.02	0.08	4.3704	4.3704	1.53
3469	n3524	6.1025	6.1025	4.1578	6.02	6.09	0.08	4.2347	4.2347	1.94
3470	n3525	6.2226	6.2226	4.0378	6.09	6.16	0.08	4.1153	4.1153	2.18
3472	n3527	6.366	6.366	3.8863	6.16	6.23	0.08	3.9642	3.9642	2.48
3473	n3528	5.7834	5.7834	4.414	4.55	4.62	0.07	4.48	4.48	1.37
3474	n3529	5.6169	5.6169	4.534	4.48	4.55	0.07	4.5994	4.5994	1.08
3475	n3531	8.0171	8.0171	5.5327	4.41	4.48	0.06	5.5913	5.5913	2.48
3477	n3533	6.723	6.723	5.6401	4.34	4.41	0.06	5.7045	5.7045	1.08
3479	n3535	8.577	8.577	6.0645	4.27	4.34	0.06	6.1221	6.1221	2.51
3480	n3536	9.0351	9.0351	7.9522	1.33	1.4	0.03	7.9844	7.9844	1.08
3481	n3537	10.0267	10.0267	8.9438	1.19	1.26	0.03	8.9744	8.9744	1.08
3482	n3538	11.4872	11.4872	10.4043	1.12	1.19	0.03	10.434	10.434	1.08
3483	n3539	13.2251	13.2251	12.1422	0.98	1.05	0.03	12.17	12.17	1.08
3484	n3540	14.9752	14.9752	13.8923	0.91	0.98	0.03	13.9192	13.9192	1.08
3485	n3541	16.951	16.951	15.8681	0.84	0.91	0.03	15.894	15.894	1.08
3487	n3543	6.319	6.319	3.7597	6.23	6.3	0.08	3.8382	3.8382	2.56
3488	n3544	6.419	6.419	3.6919	6.3	6.37	0.08	3.771	3.771	2.73
3489	n3545	6.409	6.409	3.5874	6.37	6.44	0.08	3.6669	3.6669	2.82
3490	n3546	6.436	6.436	3.4942	6.44	6.51	0.08	3.5742	3.5742	2.94
3491	n3547	6.1877	6.1877	3.3742	6.51	6.58	0.08	3.4547	3.4547	2.81
3492	n3548	5.884	5.884	3.3134	6.58	6.65	0.08	3.3944	3.3944	2.57
3493	n3549	6.1193	6.1193	3.1934	6.65	6.72	0.08	3.2749	3.2749	2.93
3494	n3550	6.243	6.243	3.0944	6.72	6.79	0.08	3.1764	3.1764	3.15
3495	n3551	6.226	6.226	2.9886	6.79	6.86	0.08	3.0711	3.0711	3.24
3496	n3552	6.3861	6.3861	2.8686	6.86	6.93	0.08	2.9516	2.9516	3.52
3498	n3554	6.2996	6.2996	2.7233	6.93	7	0.08	2.8067	2.8067	3.58
3499	n3555	6.2576	6.2576	2.6033	7	7.07	0.08	2.6872	2.6872	3.65
3500	n3556	6.061	6.061	2.5391	8.89	8.96	0.1	2.6361	2.6361	3.52
3502	n3558	8.715	8.715	6.1301	2.8	2.87	0.05	6.1815	6.1815	2.58

3503	n3559	8.5303	8.5303	6.2501	2.73	2.8	0.05	6.3008	6.3008	2.28
3504	n3560	7.7907	7.7907	6.37	2.66	2.73	0.05	6.42	6.42	1.42
3505	n3561	7.554	7.554	6.4568	2.59	2.66	0.05	6.5062	6.5062	1.1
3506	n3562	7.8742	7.8742	6.5768	2.52	2.59	0.05	6.6254	6.6254	1.3
3509	n3565	7.875	7.875	6.7921	2.38	2.45	0.05	6.8394	6.8394	1.08
3510	n3566	10.4623	10.4623	9.2896	2.31	2.38	0.04	9.332	9.332	1.17
3511	n3567	11.454	11.454	9.3107	2.24	2.31	0.05	9.3567	9.3567	2.14
3512	n3568	10.5597	10.5597	9.4768	2.17	2.24	0.05	9.522	9.522	1.08
3513	n3569	11.8738	11.8738	10.7909	2.1	2.17	0.04	10.8312	10.8312	1.08
3514	n3570	13.4352	13.4352	12.3523	2.03	2.1	0.04	12.392	12.392	1.08
3516	n3572	14.611	14.611	13.5281	0.63	0.7	0.02	13.5508	13.5508	1.08
3517	n3573	15.6107	15.6107	14.5278	0.14	0.21	0.01	14.5402	14.5402	1.08
3518	n3574	17.6388	17.6388	16.5559	0.07	0.14	0.01	16.566	16.566	1.08
3520	n3576	20.2	20.2	19.1171	0	0.07	0.01	19.1242	19.1242	1.08
3521	n3577	19.1208	19.1208	18.0379	0.07	0.14	0.01	18.048	18.048	1.08
3522	n3578	17.7261	17.7261	16.6432	0.14	0.21	0.01	16.6555	16.6555	1.08
3523	n3580	17.9802	17.9802	16.8973	0.56	0.63	0.02	16.9188	16.9188	1.08
3524	n3581	26.14	26.14	25.0571	0.21	0.28	0.01	25.0716	25.0716	1.08
3525	n3582	28.5875	28.5875	26.6213	0.14	0.21	0.01	26.6337	26.6337	1.97
3526	n3583	29.595	29.595	26.7401	0.07	0.14	0.01	26.7519	26.7519	2.85
3542	n3599	19.1069	19.1069	18.024	0.49	0.56	0.02	18.0443	18.0443	1.08
3543	n3600	20.8407	20.8407	19.7578	0.42	0.49	0.02	19.7767	19.7767	1.08
3544	n3601	23.3901	23.3901	22.3072	0.35	0.42	0.02	22.3246	22.3246	1.08
3545	n3602	26.0081	26.0081	24.9252	0.28	0.35	0.02	24.9412	24.9412	1.08
3602	n3661	17.1117	17.1117	16.0288	0.98	1.05	0.03	16.0566	16.0566	1.08
3603	n3662	14.3385	14.3385	13.2556	1.05	1.12	0.03	13.2845	13.2845	1.08
3604	n3663	11.4119	11.4119	10.329	1.12	1.19	0.03	10.3588	10.3588	1.08
3605	n3664	9.1749	9.1749	8.092	1.19	1.26	0.03	8.1226	8.1226	1.08
3606	n3665	7.5092	7.5092	6.4263	1.26	1.33	0.03	6.4578	6.4578	1.08
3607	n3666	6.8811	6.8811	5.7982	1.33	1.4	0.03	5.8304	5.8304	1.08
3608	n3667	6.6844	6.6844	5.6015	1.4	1.47	0.03	5.6345	5.6345	1.08
3610	n3669	6.454	6.454	5.3711	1.47	1.54	0.04	5.4085	5.4085	1.08
3611	n3670	6.5676	6.5676	5.2511	1.54	1.61	0.04	5.2894	5.2894	1.32
3612	n3672	6.5108	6.5108	5.1311	1.61	1.68	0.04	5.1702	5.1702	1.38
3613	n3673	6.2385	6.2385	5.0111	1.68	1.75	0.04	5.051	5.051	1.23
3614	n3674	6.1734	6.1734	4.8911	1.75	1.82	0.04	4.928	4.928	1.28
3615	n3675	6.098	6.098	2.4191	9.45	9.52	0.1	2.52	2.52	3.68
3616	n3676	6.119	6.119	4.9795	0.42	0.49	0.02	4.9984	4.9984	1.14
3617	n3677	6.093	6.093	5.0101	0.35	0.42	0.02	5.03	5.03	1.08
3618	n3678	6.413	6.413	5.3301	0.28	0.35	0.02	5.3461	5.3461	1.08
3619	n3679	6.9853	6.9853	5.9024	0.21	0.28	0.01	5.9167	5.9167	1.08
3620	n3680	8.5039	8.5039	7.421	0.14	0.21	0.01	7.4333	7.4333	1.08
3621	n3681	10.6262	10.6262	9.5433	0.07	0.14	0.01	9.5534	9.5534	1.08
3624	n3684	16.063	16.063	14.9801	0	0.07	0.01	14.9886	14.9886	1.08
3625	n3685	17.3716	17.3716	16.2887	0	0.07	0.01	16.2973	16.2973	1.08
3626	n3686	17.389	17.389	16.1953	0.07	0.14	0.01	16.2054	16.2054	1.19
3627	n3687	16.262	16.262	15.1791	1.19	1.26	0.03	15.2097	15.2097	1.08

3628	n3688	14.9282	14.9282	13.8453	1.26	1.33	0.03	13.8768	13.8768	1.08
3629	n3689	17.9352	17.9352	16.8523	0.98	1.05	0.03	16.8801	16.8801	1.08
3630	n3690	19.6956	19.6956	18.6127	0.91	0.98	0.03	18.6396	18.6396	1.08
3631	n3691	20.6231	20.6231	19.5402	0.84	0.91	0.03	19.5661	19.5661	1.08
3633	n3693	22.1259	22.1259	21.043	0.7	0.77	0.02	21.0668	21.0668	1.08
3634	n3694	24.2079	24.2079	23.125	0.63	0.7	0.02	23.1477	23.1477	1.08
3637	n3697	33.6754	33.6754	31.1274	0.42	0.49	0.02	31.1463	31.1463	2.55
3639	n3699	32.336	32.336	31.2531	0.35	0.42	0.02	31.273	31.273	1.08
3640	n3700	33.7098	33.7098	32.5501	0.28	0.35	0.02	32.5661	32.5661	1.16
3641	n3701	33.753	33.753	32.6701	0.21	0.28	0.02	32.6865	32.6865	1.08
3642	n3702	34.4716	34.4716	33.3887	0.14	0.21	0.01	33.401	33.401	1.08
3643	n3703	35.4762	35.4762	34.3933	0.07	0.14	0.01	34.4034	34.4034	1.08
3644	n3704	35.711	35.711	34.6281	0	0.07	0.01	34.6352	34.6352	1.08
3645	n3705	33.8815	33.8815	32.7986	0	0.07	0.01	32.8057	32.8057	1.08
3646	n3706	29.3991	29.3991	28.3162	0.14	0.21	0.01	28.3285	28.3285	1.08
3647	n3707	24.5197	24.5197	23.4368	0.21	0.28	0.01	23.4512	23.4512	1.08
3648	n3708	21.0136	21.0136	19.9307	0.28	0.35	0.02	19.9467	19.9467	1.08
3650	n3710	16.93	16.93	11.4394	1.05	1.12	0.03	11.4713	11.4713	5.49
3652	n3712	6.5095	6.5095	2.2556	9.52	9.59	0.1	2.3569	2.3569	4.25
3653	n3713	6.412	6.412	2.117	10.92	10.99	0.11	2.2282	2.2282	4.3
3654	n3714	6.229	6.229	5.1461	1.26	1.33	0.03	5.1776	5.1776	1.08
3655	n3715	6.4067	6.4067	5.3238	1.19	1.26	0.03	5.3544	5.3544	1.08
3656	n3716	6.893	6.893	5.7466	1.12	1.19	0.03	5.7763	5.7763	1.15
3658	n3718	6.8732	6.8732	5.7903	1.05	1.12	0.03	5.8222	5.8222	1.08
3659	n3719	7.1083	7.1083	6.0254	0.98	1.05	0.03	6.0532	6.0532	1.08
3660	n3720	7.5957	7.5957	6.5128	0.91	0.98	0.03	6.5397	6.5397	1.08
3661	n3721	8.6018	8.6018	7.5189	0.84	0.91	0.03	7.5449	7.5449	1.08
3662	n3722	9.9145	9.9145	8.8316	0.77	0.84	0.02	8.8565	8.8565	1.08
3663	n3723	11.7658	11.7658	10.6829	0.7	0.77	0.02	10.7067	10.7067	1.08
3664	n3724	14.044	14.044	12.9611	0.63	0.7	0.02	12.9838	12.9838	1.08
3665	n3725	16.316	16.316	14.8675	0.07	0.14	0.01	14.8776	14.8776	1.45
3667	n3727	15.9281	15.9281	14.8452	0.42	0.49	0.02	14.8641	14.8641	1.08
3668	n3728	19.7381	19.7381	18.6552	0.35	0.42	0.02	18.6726	18.6726	1.08
3670	n3730	25.544	25.544	24.4611	0.28	0.35	0.02	24.4771	24.4771	1.08
3671	n3731	26.989	26.989	25.5525	0.21	0.28	0.01	25.5668	25.5668	1.44
3672	n3732	26.704	26.704	25.6211	0.14	0.21	0.01	25.6354	25.6354	1.08
3674	n3734	27.8	27.8	26.7171	0	0.07	0.01	26.7242	26.7242	1.08
3683	n3743	18.4188	18.4188	17.3359	0	0.07	0.01	17.343	17.343	1.08
3684	n3744	17.4692	17.4692	16.3863	0.07	0.14	0.01	16.3964	16.3964	1.08
3685	n3745	15.0349	15.0349	13.952	0.14	0.21	0.01	13.9644	13.9644	1.08
3686	n3746	12.266	12.266	11.1831	0.21	0.28	0.01	11.1974	11.1974	1.08
3688	n3748	11.4029	11.4029	10.32	0.28	0.35	0.02	10.336	10.336	1.08
3689	n3749	10.423	10.423	9.3401	0.35	0.42	0.02	9.36	9.36	1.08
3690	n3750	13.36	13.36	9.297	2.59	2.66	0.04	9.3418	9.3418	4.06
3692	n3752	10.858	10.858	9.7751	2.1	2.17	0.04	9.8154	9.8154	1.08
3693	n3753	11.4821	11.4821	10.3992	2.03	2.1	0.04	10.4388	10.4388	1.08
3694	n3754	13.0937	13.0937	12.0108	1.96	2.03	0.04	12.0499	12.0499	1.08

3697	n3757	18.2835	18.2835	17.2006	1.89	1.96	0.04	17.239	17.239	1.08
3698	n3758	20.6675	20.6675	17.6371	1.82	1.89	0.04	17.6748	17.6748	3.03
3699	n3759	23.1042	23.1042	17.7567	1.75	1.82	0.04	17.7975	17.7975	5.35
3700	n3760	23.1	23.1	17.8462	1.68	1.75	0.04	17.8861	17.8861	5.25
3702	n3762	22.707	22.707	18.0027	1.61	1.68	0.04	18.0418	18.0418	4.7
3703	n3763	9.4255	9.4255	8.3426	2.66	2.73	0.05	8.388	8.388	1.08
3704	n3764	8.495	8.495	7.4121	2.73	2.8	0.05	7.4628	7.4628	1.08
3706	n3766	9.1445	9.1445	7.2534	2.8	2.87	0.05	7.3048	7.3048	1.89
3755	n3817	6.302	6.302	4.8053	17.01	17.08	0.14	4.9467	4.9467	1.5
3757	n3819	6.663	6.663	4.5997	17.15	17.22	0.14	4.7419	4.7419	2.06
3758	n3820	6.537	6.537	4.4063	17.22	17.29	0.14	4.549	4.549	2.13
3759	n3821	6.536	6.536	4.3484	17.29	17.36	0.14	4.4915	4.4915	2.19
3760	n3822	6.6389	6.6389	4.2644	17.36	17.43	0.14	4.4079	4.4079	2.37
3761	n3823	6.672	6.672	4.2086	17.43	17.5	0.14	4.3525	4.3525	2.46
3762	n3824	6.538	6.538	4.1498	17.5	17.57	0.14	4.2942	4.2942	2.39
3763	n3825	6.553	6.553	4.0798	17.57	17.64	0.14	4.2244	4.2244	2.47
3764	n3826	6.4853	6.4853	3.9958	17.64	17.71	0.14	4.1381	4.1381	2.49
3765	n3827	6.463	6.463	3.9499	13.44	24.92	0.12	4.0748	4.0748	2.51
3767	n3829	6.529	6.529	1.6047	11.34	11.41	0.16	1.7615	1.7615	4.92
3768	n3830	6.477	6.477	1.683	11.27	11.34	0.12	1.8053	1.8053	4.79
3769	n3831	6.6002	6.6002	1.803	11.2	11.27	0.11	1.9162	1.9162	4.8
3770	n3832	6.987	6.987	1.8909	11.13	11.2	0.11	2.0036	2.0036	5.1
3771	n3833	6.324	6.324	1.9269	11.06	11.13	0.11	2.0391	2.0391	4.4
3772	n3834	6.4689	6.4689	2.0469	10.99	11.06	0.11	2.1585	2.1585	4.42
3773	n3835	12.831	12.831	11.7481	0.49	0.56	0.02	11.7709	11.7709	1.08
3795	n3858	27.748	27.748	26.6651	0	0.07	0.01	26.6722	26.6722	1.08
3796	n3859	26.5452	26.5452	25.4623	0.07	0.14	0.01	25.4724	25.4724	1.08
3797	n3860	24.5658	24.5658	23.4829	0.14	0.21	0.01	23.4952	23.4952	1.08
3798	n3861	22.999	22.999	21.9161	0.21	0.28	0.02	21.9325	21.9325	1.08
3827	n3891	24.2394	24.2394	21.7962	0.28	0.35	0.02	21.8144	21.8144	2.44
3828	n3893	23.6494	23.6494	21.6763	0.35	0.42	0.02	21.6937	21.6937	1.97
3831	n3896	19.247	19.247	18.1641	0	1.19	0.03	18.1971	18.1971	1.08
3833	n3898	14.7577	14.7577	11.559	0.63	0.7	0.03	11.5844	11.5844	3.2
3834	n3899	13.0026	13.0026	11.6788	0.56	0.63	0.02	11.7029	11.7029	1.32
3846	n3911	15.7883	15.7883	14.7054	0.35	0.42	0.02	14.7228	14.7228	1.08
3847	n3912	17.7467	17.7467	16.6638	0.28	0.35	0.02	16.6799	16.6799	1.08
3848	n3913	20.0896	20.0896	19.0067	0.21	0.28	0.01	19.021	19.021	1.08
3849	n3914	22.5837	22.5837	21.5008	0.14	0.21	0.01	21.5132	21.5132	1.08
3850	n3915	25.1274	25.1274	24.0445	0.07	0.14	0.01	24.0546	24.0546	1.08
3851	n3916	27.1973	27.1973	26.1144	0	0.07	0.01	26.1215	26.1215	1.08
3853	n3918	26.6721	26.6721	25.5892	0	0.07	0.01	25.5963	25.5963	1.08
3854	n3919	24.754	24.754	23.6711	0.07	0.14	0.01	23.6812	23.6812	1.08
3855	n3920	22.6787	22.6787	21.5958	0.14	0.21	0.01	21.6081	21.6081	1.08
3856	n3921	20.4002	20.4002	19.3173	0.21	0.28	0.01	19.3316	19.3316	1.08
3858	n3923	17.967	17.967	16.8841	0.28	0.35	0.02	16.9001	16.9001	1.08
3859	n3924	15.435	15.435	14.3521	0.35	0.42	0.02	14.3695	14.3695	1.08
3860	n3925	13.8975	13.8975	12.8146	0.42	0.49	0.02	12.8335	12.8335	1.08

7931	MH-2	15.2352	15.2352	11.9499	0.63	0.7	0.03	11.9753	11.9753	3.29
7935	MH-3	3.4562	3.4562	2.0289	0.77	0.84	0.02	2.0538	2.0538	1.43
7940	MH-4	5.9305	5.9305	3.1485	0.35	0.42	0.02	3.1684	3.1684	2.78
7946	MH-5	5.7211	5.7211	1.2561	3.16	3.23	0.05	1.3106	1.3106	4.47
7951	MH-6	5.0384	5.0384	2.9382	0.56	0.63	0.02	2.9623	2.9623	2.1
7954	MH-7	5.1878	5.1878	4.1049	0	0.07	0.01	4.1134	4.1134	1.08
7970	MH-9	4.6822	4.6822	2.0129	2.38	2.45	0.05	2.0602	2.0602	2.67
7973	MH-10	3.7499	3.7499	1.2862	2.8	2.87	0.05	1.3375	1.3375	2.46
7979	MH-11	2.7186	2.7186	1.2523	2.17	2.24	0.05	1.2975	1.2975	1.47
7982	MH-12	3.1687	3.1687	2.0858	1.82	1.89	0.04	2.1235	2.1235	1.08
7986	MH-13	8.1432	8.1432	7.0603	0.14	0.21	0.01	7.0727	7.0727	1.08
7994	MH-15	6.5012	6.5012	5.4183	0.07	0.14	0.01	5.4284	5.4284	1.08
8014	MH-16	2.3632	2.3632	-1.3304	7.43	7.5	0.09	-1.2434	-1.2434	3.69
8029	MH-20	2.5244	2.5244	-2.2482	7.92	7.99	0.09	-2.1579	-2.1579	4.77
8052	MH-23	3.4797	3.4797	2.3968	0	9.8	0.09	2.4849	2.4849	1.08
8058	MH-24	2.4786	2.4786	-2.3441	9.38	9.45	0.1	-2.2438	-2.2438	4.82
8071	MH-25	2.3386	2.3386	0.7682	0.28	0.35	0.02	0.7864	0.7864	1.57
8094	MH-29	7.6935	7.6935	2.9826	5.53	5.6	0.07	3.056	3.056	4.71
8106	MH-31	9.3553	9.3553	8.2724	0.21	0.28	0.01	8.2867	8.2867	1.08
8114	MH-32	11.0186	11.0186	9.6262	0.21	0.28	0.02	9.6427	9.6427	1.39
8119	MH-33	7.1806	7.1806	6.0977	0.56	0.63	0.02	6.1191	6.1191	1.08
8129	MH-34	4.6155	4.6155	3.2571	1.54	1.61	0.04	3.2954	3.2954	1.36
8132	MH-35	4.4372	4.4372	3.3543	1.47	1.54	0.04	3.3917	3.3917	1.08
8145	MH-39	2.3709	2.3709	1.0489	0.21	0.28	0.02	1.0653	1.0653	1.32
8149	MH-40	2.4798	2.4798	1.1279	0.21	0.28	0.02	1.1444	1.1444	1.35
8181	MH-50	7.3791	7.3791	6.2962	0.28	0.35	0.02	6.3123	6.3123	1.08
8188	MH-52	22.5618	22.5618	20.915	0.21	0.28	0.02	20.9314	20.9314	1.65
8192	MH-54	22.3756	22.3756	20.899	0.28	0.35	0.02	20.915	20.915	1.48
8195	MH-55	21.0986	21.0986	20.0157	0.21	0.48	0.02	20.0344	20.0344	1.08
8199	MH-56	22.816	22.816	21.7331	0	0.07	0.01	21.7402	21.7402	1.08
8206	MH-58	7.3681	7.3681	6.2852	0.28	0.35	0.02	6.3012	6.3012	1.08
8211	MH-59	7.7865	7.7865	6.7036	0.28	0.35	0.02	6.7196	6.7196	1.08
8217	MH-60	21.0218	21.0218	19.9389	0.63	1.3	0.03	19.97	19.97	1.08
8224	MH-61	18.4427	18.4427	17.3598	0.21	0.28	0.01	17.3741	17.3741	1.08
8228	MH-62	24.5113	24.5113	23.4284	0	0.07	0.01	23.4354	23.4354	1.08
8236	MH-63	6.8342	6.8342	5.7412	0.84	0.91	0.03	5.77	5.77	1.09
8240	MH-64	7.5123	7.5123	6.4294	1.05	1.12	0.03	6.4582	6.4582	1.08
8252	MH-67	7.7404	7.7404	6.6575	1.39	1.46	0.03	6.6904	6.6904	1.08
8256	MH-68	21.4819	21.4819	20.399	0	0.07	0.01	20.4061	20.4061	1.08
8259	MH-69	17.9548	17.9548	16.8719	0.28	0.35	0.02	16.8879	16.8879	1.08
8269	MH-72	13.9728	13.9728	12.8899	0	0.07	0.01	12.897	12.897	1.08
8272	MH-73	21.2626	21.2626	16.3713	3.46	3.53	0.06	16.4285	16.4285	4.89
8279	MH-75	19.8775	19.8775	16.1047	3.67	3.74	0.06	16.1637	16.1637	3.77
8297	MH-80	13.1474	13.1474	10.4113	0.98	1.05	0.03	10.4423	10.4423	2.74
8313	MH-83	3.9826	3.9826	2.8997	0.42	0.49	0.02	2.9185	2.9185	1.08
8316	MH-84	10.4491	10.4491	9.3662	0.14	0.21	0.01	9.3786	9.3786	1.08
8319	MH-85	12.5065	12.5065	11.4236	0.07	0.14	0.01	11.4337	11.4337	1.08

8324	MH-87	12.8953	12.8953	11.8124	0	0.07	0.01	11.8194	11.8194	1.08
8333	MH-88	8.8856	8.8856	7.8027	0.28	0.55	0.02	7.8227	7.8227	1.08
8336	MH-89	21.1484	21.1484	20.0655	0.07	0.14	0.01	20.0756	20.0756	1.08
8340	MH-90	3.8826	3.8826	2.7997	0.94	1.01	0.03	2.827	2.827	1.08
8346	MH-92	3.4137	3.4137	2.3308	1.08	1.15	0.03	2.36	2.36	1.08
8355	MH-93	13.2272	13.2272	12.1443	0.21	0.28	0.01	12.1586	12.1586	1.08
8362	MH-95	13.5032	13.5032	12.3189	0.84	0.91	0.03	12.3449	12.3449	1.18
8367	MH-96	7.4339	7.4339	6.351	1.05	1.12	0.03	6.383	6.383	1.08
8375	MH-97	4.115	4.115	3.0321	0.28	0.35	0.02	3.0481	3.0481	1.08
8382	MH-99	15.5555	15.5555	14.4726	0.98	1.05	0.03	14.5004	14.5004	1.08
8388	MH-10	29.511	29.511	28.2557	0.21	0.28	0.02	28.2721	28.2721	1.26
8393	MH-10	19.1984	19.1984	18.1155	0.98	1.05	0.03	18.1433	18.1433	1.08
8398	MH-10	4.123	4.123	1.0728	3.85	3.92	0.06	1.1333	1.1333	3.05
8415	MH-10	3.3368	3.3368	2.2539	0.55	0.62	0.02	2.2752	2.2752	1.08
8421	MH-10	12.8651	12.8651	11.7822	0.28	0.35	0.02	11.7983	11.7983	1.08
8428	MH-11	21.3195	21.3195	20.2366	0.07	0.14	0.01	20.2467	20.2467	1.08
8434	MH-11	6.4138	6.4138	5.3211	1.12	1.19	0.03	5.3536	5.3536	1.09
8438	MH-11	13.4053	13.4053	12.3224	0.77	0.84	0.02	12.3472	12.3472	1.08
8441	MH-11	16.1534	16.1534	15.0705	0.63	0.7	0.02	15.0932	15.0932	1.08
8446	MH-11	3.4428	3.4428	1.6857	2.45	2.52	0.05	1.7337	1.7337	1.76
8455	MH-11	18.3117	18.3117	17.2288	0.56	0.63	0.02	17.2503	17.2503	1.08
8472	MH-11	3.8923	3.8923	-1.3334	7.81	7.88	0.09	-1.2439	-1.2439	5.23
8475	MH-11	3.9418	3.9418	-1.4578	7.88	7.95	0.08	-1.3729	-1.3729	5.4
8479	MH-12	4.0707	4.0707	2.615	0.14	0.51	0.02	2.6368	2.6368	1.46
8491	MH-12	5.0422	5.0422	2.4855	25.16	25.2	0.17	2.6539	2.6539	2.56
8506	MH-12	27.5641	27.5641	26.4812	0.21	0.28	0.01	26.4955	26.4955	1.08
8509	MH-12	24.1225	24.1225	23.0396	0.35	0.42	0.02	23.057	23.057	1.08
8512	MH-12	14.2685	14.2685	13.1856	0.77	0.84	0.02	13.2104	13.2104	1.08
8527	MH-12	4.0541	4.0541	2.9712	0.51	0.55	0.02	2.9913	2.9913	1.08
8542	MH-12	10.6291	10.6291	9.5462	1.68	1.75	0.04	9.5824	9.5824	1.08
8557	MH-13	4.5755	4.5755	0.5604	4.2	4.27	0.06	0.6236	0.6236	4.02
8567	MH-13	18.547	18.547	17.4641	0.14	0.21	0.01	17.4765	17.4765	1.08
8578	MH-13	18.8702	18.8702	17.7873	0	0.04	0.01	17.7925	17.7925	1.08
8601	MH-13	15.355	15.355	14.2721	7.88	7.95	0.08	14.3512	14.3512	1.08
8610	MH-13	22.3206	22.3206	21.2377	0	0.07	0.01	21.2447	21.2447	1.08
8617	MH-13	22.1213	22.1213	21.0384	0.07	0.14	0.01	21.0485	21.0485	1.08
8622	MH-13	19.0381	19.0381	17.9552	0.14	0.21	0.01	17.9676	17.9676	1.08
8625	MH-13	12.7501	12.7501	11.0492	67.79	67.86	0.2	11.2455	11.2455	1.7
8632	MH-14	10.3014	10.3014	9.0511	68.98	69.05	0.2	9.2491	9.2491	1.25
8641	MH-14	17.6531	17.6531	16.1535	0.04	0.08	0.01	16.1626	16.1626	1.5
8645	MH-14	17.0331	17.0331	15.9502	0.12	0.16	0.01	15.961	15.961	1.08
8651	MH-14	32.3948	32.3948	27.4935	2.64	2.71	0.05	27.5388	27.5388	4.9
8660	MH-14	2.7388	2.7388	1.6559	1.46	1.53	0.03	1.6896	1.6896	1.08
8663	MH-14	4.573	4.573	3.4901	0.91	0.98	0.03	3.517	3.517	1.08
8667	MH-14	4.152	4.152	3.0691	0.98	1.05	0.03	3.1001	3.1001	1.08
8670	MH-14	4.465	4.465	3.0395	1.05	1.12	0.03	3.0715	3.0715	1.43
8683	MH-14	39.0382	39.0382	37.9553	0.21	0.28	0.01	37.9696	37.9696	1.08

8688	MH-15	39.8897	39.8897	38.8068	0.14	0.21	0.01	38.8192	38.8192	1.08
8705	MH-15	6.508	6.508	5.4251	1.47	1.54	0.03	5.4591	5.4591	1.08
8708	MH-15	15.115	15.115	14.0321	1.12	1.19	0.03	14.0618	14.0618	1.08
8713	MH-15	23.2642	23.2642	22.1813	0.91	0.98	0.03	22.2082	22.2082	1.08
8723	MH-15	26.4952	26.4952	24.2824	1.19	1.26	0.03	24.313	24.313	2.21
8733	MH-15	39.109	39.109	38.0261	0	0.07	0.01	38.0346	38.0346	1.08
8747	MH-15	15.7482	15.7482	14.6653	1.12	1.19	0.03	14.695	14.695	1.08
8751	MH-16	28.5673	28.5673	27.4844	0.63	0.7	0.02	27.5071	27.5071	1.08
8756	MH-16	30.0909	30.0909	29.008	0.56	0.63	0.02	29.0294	29.0294	1.08
8762	MH-16	18.3773	18.3773	17.2944	0.6	0.67	0.02	17.3166	17.3166	1.08
8814	MH-16	16.9023	16.9023	15.8194	0.63	0.7	0.02	15.8421	15.8421	1.08
8819	MH-16	7.2173	7.2173	5.78	9.24	9.31	0.1	5.8794	5.8794	1.44
8847	MH-17	17.9674	17.9674	16.8845	0.21	0.28	0.01	16.8988	16.8988	1.08
8876	MH-17	26.9501	26.9501	25.8672	0.07	0.14	0.01	25.8773	25.8773	1.08
8883	MH-17	13.9531	13.9531	12.8702	0	0.07	0.01	12.8773	12.8773	1.08
8889	MH-18	21.201	21.201	20.1181	0.77	0.84	0.02	20.143	20.143	1.08
8893	MH-18	29.8176	29.8176	28.7347	0.56	0.63	0.02	28.7562	28.7562	1.08
8896	MH-18	31.1843	31.1843	30.1014	0.49	0.56	0.02	30.1217	30.1217	1.08
8902	MH-18	31.5973	31.5973	30.5144	0.07	0.14	0.01	30.5245	30.5245	1.08
8914	MH-18	19.792	19.792	18.7091	0	0.07	0.01	18.7162	18.7162	1.08
8918	MH-18	27.9755	27.9755	26.8926	0	0.07	0.01	26.9011	26.9011	1.08
8934	MH-19	12.4854	12.4854	11.4025	1.05	1.12	0.03	11.4313	11.4313	1.08
8938	MH-19	9.5163	9.5163	8.4334	1.26	1.33	0.03	8.4649	8.4649	1.08
8951	MH-19	6.5929	6.5929	4.6857	17.08	17.15	0.14	4.8275	4.8275	1.91
8958	MH-19	19.5759	19.5759	18.493	0.28	0.35	0.02	18.509	18.509	1.08
8962	MH-19	21.2875	21.2875	20.2046	0.07	0.14	0.01	20.2147	20.2147	1.08
8983	MH-19	29.4664	29.4664	28.3835	0.07	0.14	0.01	28.3936	28.3936	1.08
8986	MH-20	18.3864	18.3864	17.3035	0.56	0.63	0.02	17.3276	17.3276	1.08
8992	MH-20	25.4492	25.4492	22.6691	1.83	1.9	0.04	22.7107	22.7107	2.78
8995	MH-20	19.7258	19.7258	18.6328	2.11	2.18	0.04	18.6774	18.6774	1.09
9002	MH-20	25.1855	25.1855	24.1026	0	0.07	0.01	24.1112	24.1112	1.08
9008	MH-20	22.9631	22.9631	21.8802	2.74	2.81	0.05	21.931	21.931	1.08
9042	MH-20	7.2555	7.2555	6.1726	0.07	0.14	0.01	6.1827	6.1827	1.08
9076	MH-21	29.9618	29.9618	27.6827	0.07	0.14	0.01	27.6946	27.6946	2.28
9080	MH-21	30.3447	30.3447	27.5325	0.14	0.21	0.01	27.5468	27.5468	2.81
9084	MH-21	13.3539	13.3539	12.271	0.14	0.21	0.01	12.2853	12.2853	1.08
9089	MH-21	23.4258	23.4258	22.3429	0	0.07	0.01	22.35	22.35	1.08
9133	MH-21	3.76	3.76	2.5152	0.07	0.14	0.01	2.527	2.527	1.24
9172	MH-21	2.2799	2.2799	0.5463	0.49	0.56	0.02	0.5691	0.5691	1.73
9186	MH-21	4.5996	4.5996	2.1936	1.12	1.19	0.03	2.2265	2.2265	2.41
9223	MH-22	12.4701	12.4701	10.0683	1.68	1.75	0.04	10.1082	10.1082	2.4
9233	MH-22	8.127	8.127	6.6347	2.45	2.52	0.05	6.6827	6.6827	1.49
9274	MH-22	22.583	22.583	21.5001	0.07	0.07	0.01	21.5072	21.5072	1.08
9275	MH-22	18.413	18.413	17.3301	0.07	0.07	0.01	17.3372	17.3372	1.08
9279	MH-22	16.983	16.983	15.9001	0.07	0.07	0.01	15.9072	15.9072	1.08
9284	MH-23	4.96	4.96	1.2909	5.47	5.47	0.07	1.3633	1.3633	3.67
9302	MH-23	11.5757	11.5757	6.5438	4.72	4.79	0.07	6.6141	6.6141	5.03

9306	MH-23	22.3124	22.3124	21.2295	0	0.07	0.01	21.2365	21.2365	1.08
9334	MH-23	3.9276	3.9276	0.8232	1.05	1.05	0.03	0.8554	0.8554	3.1
9336	MH-23	4.179	4.179	2.9163	1.4	1.4	0.04	2.9535	2.9535	1.26
9338	MH-23	4.696	4.696	1.2737	1.267	1.267	0.03	1.3077	1.3077	3.42
9340	MH-24	4.9971	4.9971	3.5913	4.97	4.97	0.07	3.6631	3.6631	1.41
9342	MH-24	5.0511	5.0511	3.9682	2.09	2.09	0.04	4.0124	4.0124	1.08
9346	MH-24	3	3	1.9171	1.89	1.89	0.04	1.9565	1.9565	1.08
9348	MH-24	2.352	2.352	-1.0093	8.68	8.75	0.1	-0.9087	-0.9087	3.36
9352	MH-24	4.63	4.63	2.4982	6.02	6.02	0.08	2.5782	2.5782	2.13
9354	MH-24	7.406	7.406	6.3231	0	4.27	0.07	6.3891	6.3891	1.08
9356	MH-24	4.8779	4.8779	2.8135	1.82	1.82	0.04	2.8559	2.8559	2.06
9358	MH-25	2.7355	2.7355	0.0864	1.12	1.12	0.03	0.1197	0.1197	2.65
9362	MH-25	4.8785	4.8785	2.1198	1.82	1.82	0.04	2.1621	2.1621	2.76
9364	MH-25	5.445	5.445	4.2014	7.94	7.94	0.08	4.2804	4.2804	1.24
9366	MH-25	4.431	4.431	1.3582	3.57	3.57	0.06	1.4183	1.4183	3.07
9375	MH-25	4.2253	4.2253	3.1424	0	1.33	0.03	3.1772	3.1772	1.08
9381	MH-25	5.1507	5.1507	4.0678	0	0.007	0	4.0701	4.0701	1.08
9397	MH-25	7.1726	7.1726	3.301	5.39	5.39	0.08	3.3761	3.3761	3.87
9405	MH-25	14.8899	14.8899	13.807	1.96	1.96	0.04	13.8453	13.8453	1.08
9410	MH-25	16.4683	16.4683	15.3854	1.96	1.96	0.04	15.4238	15.4238	1.08
9440	MH-26	2.71	2.71	-1.6278	192.4	192.4	0.38	-1.2515	-1.2515	4.34
9441	MH-26	2.76	2.76	-1.7667	192.4	192.4	0.38	-1.3904	-1.3904	4.53
9442	MH-26	2.38	2.38	-1.9222	192.4	192.4	0.38	-1.5459	-1.5459	4.3
9443	MH-26	2.45	2.45	-2.0754	192.4	192.4	0.38	-1.6991	-1.6991	4.53
9444	MH-27	2.3	2.3	-2.1824	192.4	192.4	0.38	-1.8061	-1.8061	4.48
9445	MH-27	2.6	2.6	-2.2961	192.4	192.4	0.38	-1.9198	-1.9198	4.9
9446	MH-27	2.8	2.8	-2.4728	192.4	192.4	0.38	-2.0965	-2.0965	5.27
9447	MH-27	2.69	2.69	-2.5894	192.4	192.4	0.38	-2.2131	-2.2131	5.28
9457	MH-27	6.5015	6.5015	1.5423	36.33	36.33	0.18	1.7234	1.7234	4.96
9462	MH-27	15.2195	15.2195	14.1366	0.07	0.07	0.01	14.1437	14.1437	1.08
9469	MH-27	4.845	4.845	1.3971	5.47	5.47	0.07	1.4695	1.4695	3.45
9472	MH-27	2.9974	2.9974	-0.2566	1.26	1.26	0.04	-0.2213	-0.2213	3.25
9474	MH-27	2.404	2.404	-2.1323	9.31	9.31	0.1	-2.0275	-2.0275	4.54
9478	MH-27	4.951	4.951	3.8681	0	1.26	0.03	3.902	3.902	1.08
9480	MH-28	4.7305	4.7305	0.9587	3.85	3.85	0.06	1.0212	1.0212	3.77
9483	MH-28	5	5	3.9171	4.9	4.9	0.07	3.9884	3.9884	1.08
9485	MH-28	11.96	11.96	10.8771	0	0.05	0.01	10.8832	10.8832	1.08
9488	MH-28	11.14	11.14	10.0571	0.05	0.1	0.01	10.0655	10.0655	1.08
9489	MH-28	9.734	9.734	8.6511	0.1	0.15	0.01	8.6616	8.6616	1.08
9490	MH-28	9.146	9.146	8.0631	0.15	0.2	0.01	8.0755	8.0755	1.08
9491	MH-28	8.9077	8.9077	7.8248	0.2	0.25	0.01	7.8383	7.8383	1.08
9492	MH-28	8.3279	8.3279	7.245	0.25	0.3	0.01	7.2598	7.2598	1.08
9493	MH-29	6.9244	6.9244	5.8415	0.3	0.35	0.02	5.8575	5.8575	1.08
9494	MH-29	5.1386	5.1386	4.0557	0.35	0.4	0.02	4.0728	4.0728	1.08
9495	MH-29	3.9836	3.9836	2.9007	0.4	0.45	0.02	2.9188	2.9188	1.08
9496	MH-29	3.2876	3.2876	2.2047	0.45	0.5	0.02	2.2252	2.2252	1.08
9497	MH-29	3.1163	3.1163	2.0334	0.5	0.55	0.02	2.0565	2.0565	1.08

9498	MH-29	2.9831	2.9831	1.9002	0.55	0.6	0.02	1.9222	1.9222	1.08
9499	MH-29	2.5991	2.5991	1.5162	0.6	0.65	0.03	1.5417	1.5417	1.08
9500	MH-29	2.5207	2.5207	1.403	0.65	0.7	0.03	1.4294	1.4294	1.12
9501	MH-29	2.5164	2.5164	1.279	0.7	0.75	0.03	1.3063	1.3063	1.24
9502	MH-29	2.4707	2.4707	1.1616	0.75	0.8	0.03	1.1898	1.1898	1.31
9503	MH-30	2.428	2.428	1.0485	0.8	0.85	0.03	1.0776	1.0776	1.38
9504	MH-30	2.515	2.515	0.939	0.85	0.9	0.03	0.9688	0.9688	1.58
9505	MH-30	2.4555	2.4555	0.8153	0.9	0.95	0.03	0.8461	0.8461	1.64
9506	MH-30	2.51	2.51	0.7348	0.95	1	0.03	0.7662	0.7662	1.78
9507	MH-30	2.4522	2.4522	0.6056	1	1.05	0.03	0.6378	0.6378	1.85
9508	MH-30	2.461	2.461	0.5038	1.05	1.1	0.03	0.5368	0.5368	1.96
9509	MH-30	2.4879	2.4879	0.3827	1.1	1.15	0.03	0.4164	0.4164	2.11
9510	MH-30	2.603	2.603	0.2621	1.15	1.2	0.03	0.2965	0.2965	2.34
9511	MH-30	2.8985	2.8985	0.1454	1.2	1.25	0.04	0.1805	0.1805	2.75
9512	MH-30	3.082	3.082	0.0607	1.25	1.3	0.04	0.0965	0.0965	3.02
9513	MH-31	3.038	3.038	-0.0602	1.3	1.35	0.04	-0.0237	-0.0237	3.1
9514	MH-31	3.038	3.038	-0.1301	1.35	1.4	0.04	-0.093	-0.093	3.17
9515	MH-31	2.9156	2.9156	-0.2538	1.4	1.45	0.04	-0.216	-0.216	3.17
9516	MH-31	2.9332	2.9332	-0.3719	1.45	1.5	0.04	-0.3334	-0.3334	3.31
9517	MH-31	2.996	2.996	-0.4914	7.05	7.1	0.09	-0.4032	-0.4032	3.49
9518	MH-31	3.1749	3.1749	-0.6157	7.1	7.15	0.09	-0.5271	-0.5271	3.79
9519	MH-31	3.6531	3.6531	-0.7341	7.15	7.2	0.09	-0.6451	-0.6451	4.39
9520	MH-31	3.8394	3.8394	-0.8556	7.2	7.25	0.09	-0.7662	-0.7662	4.69
9522	MH-31	3.8743	3.8743	-0.9763	7.25	7.3	0.09	-0.8866	-0.8866	4.85
9523	MH-32	3.882	3.882	-1.0174	7.3	7.35	0.09	-0.9273	-0.9273	4.9
9524	MH-32	3.927	3.927	-1.1005	7.35	7.4	0.09	-1.01	-1.01	5.03
9525	MH-32	3.8635	3.8635	-1.2213	7.4	7.45	0.09	-1.1304	-1.1304	5.08
9526	MH-32	3.8923	3.8923	-1.342	7.45	7.5	0.09	-1.2508	-1.2508	5.23
9527	MH-32	3.9418	3.9418	-1.4679	7.5	7.55	0.09	-1.3763	-1.3763	5.41
9528	MH-32	4.002	4.002	-1.5899	7.55	7.6	0.12	-1.4684	-1.4684	5.59
9529	MH-32	3.9578	3.9578	2.8749	0	0.05	0.01	2.8821	2.8821	1.08
9530	MH-32	4.0348	4.0348	2.7252	0.05	0.1	0.01	2.7357	2.7357	1.31
9531	MH-32	4.0707	4.0707	2.5957	0.1	0.15	0.01	2.6085	2.6085	1.47
9532	MH-32	4.0997	4.0997	2.482	0.15	0.2	0.01	2.4964	2.4964	1.62
9533	MH-33	4.0032	4.0032	2.3633	0.2	0.25	0.02	2.3794	2.3794	1.64
9534	MH-33	4.0187	4.0187	2.2406	0.25	0.3	0.02	2.2582	2.2582	1.78
9535	MH-33	3.921	3.921	2.0899	0.3	0.35	0.02	2.1088	2.1088	1.83
9536	MH-33	3.7113	3.7113	1.97	0.35	0.4	0.02	1.9901	1.9901	1.74
9537	MH-33	3.801	3.801	1.8032	1.45	1.5	0.04	1.8417	1.8417	2
9538	MH-33	3.8352	3.8352	1.691	1.5	1.55	0.04	1.73	1.73	2.14
9539	MH-33	3.8555	3.8555	1.5731	1.55	1.6	0.04	1.6128	1.6128	2.28
9540	MH-33	3.8343	3.8343	1.4312	1.6	1.65	0.04	1.4715	1.4715	2.4
9541	MH-33	3.8189	3.8189	1.3072	2.87	2.92	0.05	1.3612	1.3612	2.51
9542	MH-33	3.745	3.745	1.2377	2.92	2.97	0.05	1.2921	1.2921	2.51
9543	MH-34	3.7527	3.7527	1.1111	2.97	3.02	0.05	1.166	1.166	2.64
9544	MH-34	3.7743	3.7743	0.9921	3.02	3.07	0.06	1.0476	1.0476	2.78
9545	MH-34	3.8322	3.8322	0.8704	3.07	3.12	0.06	0.9262	0.9262	2.96

9546	MH-34	3.8483	3.8483	0.7427	3.12	3.17	0.06	0.7991	0.7991	3.11
9547	MH-34	3.902	3.902	0.5174	3.17	3.22	0.19	0.709	0.709	3.38
9548	MH-34	3.885	3.885	0.3649	62.02	62.07	0.33	0.6998	0.6998	3.52
9549	MH-34	4.1231	4.1231	2.712	3.37	3.42	0.05	2.763	2.763	1.41
9550	MH-34	4.002	4.002	2.8042	3.32	3.37	0.06	2.8625	2.8625	1.2
9551	MH-34	4.0077	4.0077	2.9248	3.27	3.32	0.06	2.9826	2.9826	1.08
9552	MH-34	4.7226	4.7226	3.6397	3.22	3.27	0.05	3.6895	3.6895	1.08
9553	MH-35	5.5968	5.5968	4.5139	3.17	3.22	0.05	4.5633	4.5633	1.08
9554	MH-35	7.046	7.046	5.9631	3.12	3.17	0.05	6.0121	6.0121	1.08
9555	MH-35	8.3028	8.3028	7.2199	3.07	3.12	0.05	7.2685	7.2685	1.08
9556	MH-35	9.714	9.714	8.6311	3.02	3.07	0.05	8.6793	8.6793	1.08
9557	MH-35	10.3014	10.3014	9.2185	2.97	3.02	0.05	9.2663	9.2663	1.08
9558	MH-35	11.7973	11.7973	10.7144	2.92	2.97	0.05	10.7618	10.7618	1.08
9559	MH-35	12.7501	12.7501	10.8459	2.87	2.92	0.05	10.8993	10.8993	1.9
9560	MH-35	13.2227	13.2227	10.9332	2.82	2.87	0.05	10.9868	10.9868	2.29
9561	MH-35	13.771	13.771	11.0811	2.77	2.82	0.05	11.1342	11.1342	2.69
9562	MH-35	14.481	14.481	11.2051	2.72	2.77	0.05	11.2576	11.2576	3.28
9563	MH-36	14.489	14.489	11.3781	2.67	2.72	0.05	11.4302	11.4302	3.11
9564	MH-36	14.295	14.295	11.5109	2.62	2.67	0.05	11.5625	11.5625	2.78
9565	MH-36	13.9381	13.9381	11.6338	2.57	2.62	0.05	11.6849	11.6849	2.3
9566	MH-36	13.713	13.713	11.7533	2.52	2.57	0.05	11.8039	11.8039	1.96
9567	MH-36	13.676	13.676	11.774	2.47	2.52	0.05	11.8241	11.8241	1.9
9568	MH-36	13.784	13.784	11.8925	2.42	2.47	0.05	11.942	11.942	1.89
9569	MH-36	13.7225	13.7225	12.0167	2.37	2.42	0.05	12.0657	12.0657	1.71
9570	MH-36	14.041	14.041	12.157	2.32	2.37	0.05	12.2035	12.2035	1.88
9571	MH-36	14.245	14.245	12.2687	2.27	2.32	0.05	12.3166	12.3166	1.98
9572	MH-36	15.0609	15.0609	13.978	1.8	1.85	0.04	14.0152	14.0152	1.08
9573	MH-37	16.0007	16.0007	14.9178	1.75	1.8	0.04	14.9545	14.9545	1.08
9574	MH-37	16.8056	16.8056	15.7223	1.7	1.75	0.04	15.7584	15.7584	1.08
9575	MH-37	16.863	16.863	15.7801	1.65	1.7	0.04	15.8211	15.8211	1.08
9576	MH-37	18.3872	18.3872	17.3043	1.12	1.17	0.03	17.3338	17.3338	1.08
9577	MH-37	19.2944	19.2944	18.2115	1.07	1.12	0.03	18.2403	18.2403	1.08
9578	MH-37	20.1252	20.1252	18.9369	1.02	1.07	0.03	18.965	18.965	1.19
9579	MH-37	20.675	20.675	19.0318	0.97	1.02	0.03	19.0636	19.0636	1.64
9580	MH-37	21.074	21.074	19.1519	0.92	0.97	0.03	19.183	19.183	1.92
9581	MH-37	21.366	21.366	19.3029	0.87	0.92	0.03	19.3331	19.3331	2.06
9582	MH-37	21.425	21.425	19.4377	0.82	0.87	0.03	19.467	19.467	1.99
9583	MH-38	21.43	21.43	19.5954	0.7	0.75	0.03	19.6228	19.6228	1.83
9584	MH-38	21.449	21.449	19.7105	0.65	0.7	0.03	19.7369	19.7369	1.74
9585	MH-38	21.167	21.167	19.8319	0.6	0.65	0.03	19.8574	19.8574	1.34
9586	MH-38	21.216	21.216	19.9721	0.55	0.6	0.02	19.9967	19.9967	1.24
9587	MH-38	21.129	21.129	20.0461	0.5	0.55	0.02	20.0696	20.0696	1.08
9589	MH-38	21.322	21.322	20.2391	0.45	0.5	0.02	20.2598	20.2598	1.08
9590	MH-38	21.6139	21.6139	20.531	0.4	0.45	0.02	20.5497	20.5497	1.08
9591	MH-38	22.221	22.221	21.1381	0.35	0.4	0.02	21.1552	21.1552	1.08
9592	MH-38	23.1308	23.1308	22.0479	0.3	0.35	0.02	22.0639	22.0639	1.08
9593	MH-39	24.2743	24.2743	23.1914	0.25	0.3	0.01	23.2062	23.2062	1.08

9594	MH-39	24.968	24.968	23.8851	0.2	0.25	0.01	23.8986	23.8986	1.08
9595	MH-39	25.8895	25.8895	24.8066	0.15	0.2	0.01	24.8186	24.8186	1.08
9596	MH-39	26.6673	26.6673	25.5844	0.1	0.15	0.01	25.5949	25.5949	1.08
9597	MH-39	27.152	27.152	26.0691	0.05	0.1	0.01	26.0775	26.0775	1.08
9598	MH-39	27.527	27.527	26.4441	0	0.05	0.01	26.4502	26.4502	1.08
9727	MH-39	2	2	-2.7141	192.4	192.4	0.38	-2.3378	-2.3378	4.71
9728	MH-40	2.1	2.1	-2.8237	192.4	192.4	0.38	-2.4474	-2.4474	4.92
9730	MH-40	1.9	1.9	-2.9375	192.4	192.4	0.38	-2.5613	-2.5613	4.84
9732	MH-40	2.1	2.1	-2.9978	192.4	192.4	0.38	-2.6217	-2.6217	5.1
9734	MH-40	2.08	2.08	-3.1686	192.4	192.4	0.38	-2.7933	-2.7933	5.25
9736	MH-40	1.8	1.8	-3.2878	192.4	192.4	0.37	-2.9147	-2.9147	5.09
9738	MH-40	1.8	1.8	-3.393	192.4	192.4	0.37	-3.0259	-3.0259	5.19

29/10/2021ലെ നഗരസഭാ കൗൺസിൽ യോഗത്തിലെ 1-ാം നമ്പർ തീരുമാനം

1 അജണ്ട :-

E3-11151/21 വടകര നഗരസഭ ഉൾപ്പെടെ 28 നഗര പ്രദേശങ്ങളിൽ മലിനജല ശുദ്ധീകരണ പദ്ധതി ആരംഭിക്കുന്നതിലേക്കായി വിശദമായ പ്രോജക്ട് റിപ്പോർട്ട് തയ്യാറാക്കുന്നതിനുള്ള സർവ്വെ നടപടികൾക്ക് ഭരണാനുമതി ലഭിച്ചിട്ടുണ്ടെന്നും പദ്ധതിയുടെ തുടർ നടപടിയ്ക്കായി പദ്ധതിക്ക് ആവശ്യമായ സ്ഥലം ലഭ്യമാക്കാൻ തയ്യാറാണ് എന്ന നഗരസഭയുടെ തീരുമാനം ആവശ്യമാണെന്ന് കാണിച്ചുകൊണ്ടുള്ള കേരള വാട്ടർ അതോറിറ്റിയുടെ 23-10-2021 ലെ കത്ത് കൗൺസിൽ പരിഗണനയ്ക്കായി

അജണ്ടക്കുറിപ്പ് :-

മലിനജല ശുദ്ധീകരണ ശാല സ്ഥാപിക്കുന്നതിന് കണ്ടെത്തിയ സ്ഥലത്തിന്റെ വിവരം കേരള വാട്ടർ അതോറിറ്റി കത്തിൽ പരാമർശിച്ചിട്ടുണ്ട്.

ആവശ്യമായ സ്ഥലം- 1.2 ഏക്കർ

റി.സർവ്വെ നമ്പർ -248/1

വില്ലേജ് -വടകര

ദേശം-വടകര

ഉടമസ്ഥത- സ്വകാര്യം

സ്ഥലം ഏറ്റെടുക്കുന്ന രീതി നഗരസഭയ്ക്ക് തീരുമാനിക്കാമെന്നും അറിയിച്ചിട്ടുണ്ട്.

(2)ഇത് കൂടാതെ വിവിധ സ്ഥലങ്ങളിൽ മലിനജലം ശേഖരിക്കുന്നതിന് കളക്റ്റിംഗ് കിണറുകൾക്കായി 6 ഓളം സ്ഥലങ്ങളിൽ 10 സെൻ്റ് സ്ഥലം വീതം ആവശ്യമായി വരുമെന്നും ഏതൊക്കെ സ്ഥലമാണെന്ന് സർവ്വെ നടപടി പൂർത്തിയായാൽ മാത്രമേ പറയാൻ കഴിയൂ എന്നും കത്ത് പ്രകാരം അറിയിച്ചിട്ടുണ്ട്

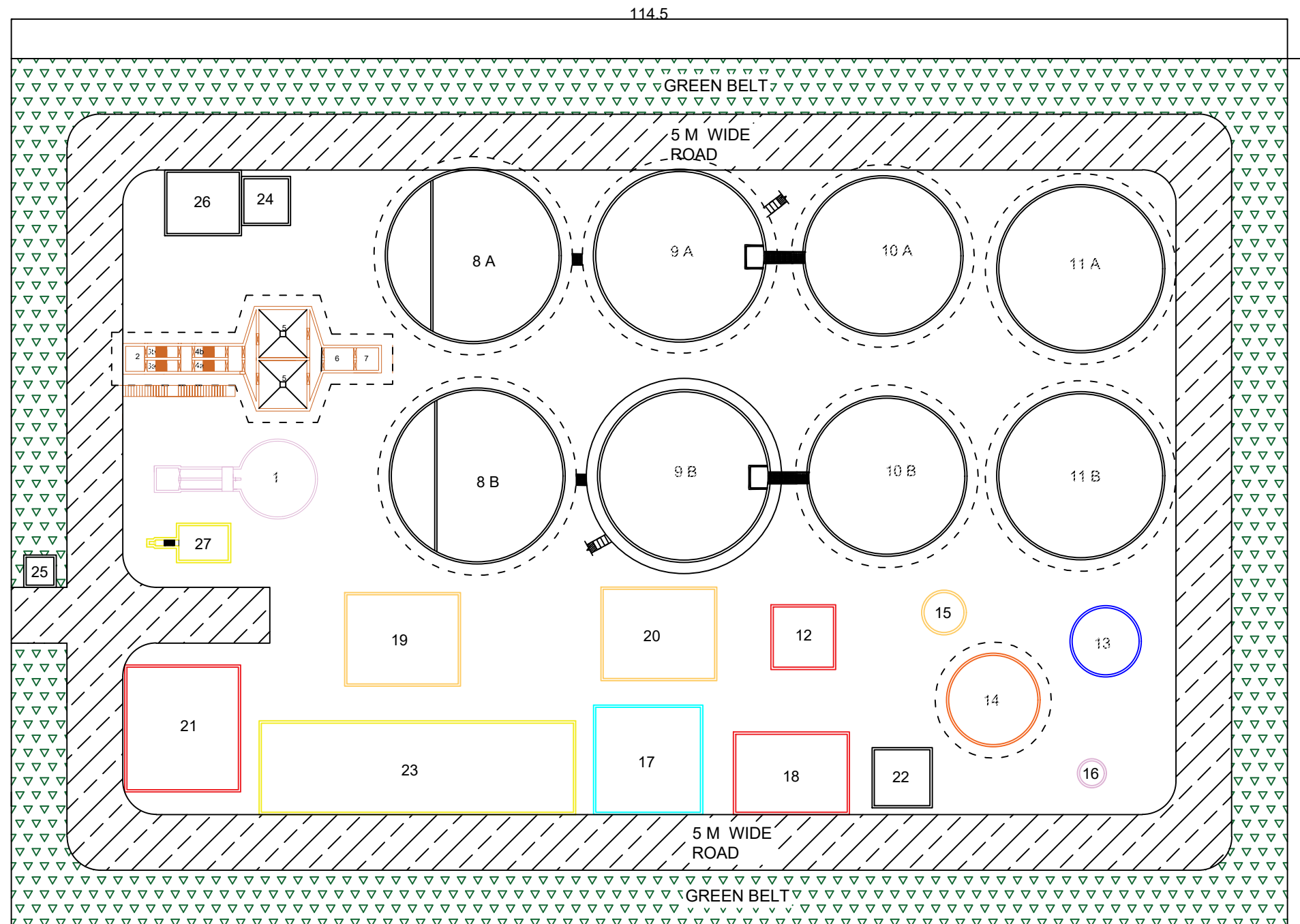
തീരുമാന നമ്പർ : 1

വിഷയം ചർച്ച ചെയ്തു. കേരള വാട്ടർ അതോറിറ്റി സുപ്രണ്ടിംഗ് എഞ്ചിനീയറുടെ 23.10.2021ലെ KWA/SE/PPD-SEW-KKD/DB2-326/2021 നമ്പർ കത്ത് പ്രകാരം മലിനജല ശുദ്ധീകരണ പ്ലാന്റ് സ്ഥാപിക്കുന്നതിനുള്ള സ്ഥലമായി കണ്ടെത്തിയ വടകര വില്ലേജ് വടകര ദേശത്ത് സർവ്വെ 248/1ൽ ഉൾപ്പെട്ട 1.2 ഏക്കർ സ്ഥലം കേന്ദ്രാവിഷ്കൃത പദ്ധതിയായ സ്വച്ഛ് ഭാരത് മിഷനിൽ ഉൾപ്പെടുത്തി ഏറ്റെടുക്കുന്നതിന് ഐക്യകണ്ഠേണ തീരുമാനിച്ചു.

(ഒപ്പ്)
ചെയർമാൻ
വടകര നഗരസഭ

//ശരിപകർപ്പ്//

സെക്രട്ടറി
വടകര നഗരസഭ



GENERAL NOTES

- ALL DIMENSIONS ARE IN METERS
- DIMENSIONS NOT IN SCALE
- FOR ESTIMATION PURPOSE ONLY

NO	DESCRIPTION	L/DIA	B
1	RAW SEWAGE WELL		
2	RECEIVING CHAMBER	2.25	1.7
3 a	COARSE SCREEN CHANNEL-MECHANICAL	2.75	1
3b	COARSE SCREEN CHANNEL-MANUAL	2.75	1
4 a	FINE SCREEN CHANNEL-MECHANICAL	2.75	1
4 b	FINE SCREEN CHANNEL-MANUAL	2.75	1
5	GRIT CHAMBER	4.3	4.3
6	PARSHALL FLUME	3	2
7	DISTRIBUTION CHAMBER	2	2
8	EQUALISATION TANK	15.4	DIA-2nos
9	MBBR 1	15.1	DIA-2nos
10	MBBR 2	14	DIA-2nos
11	SECONDARY SETTLING TANK	14.7	DIA-2nos
12	FILTER FEED TANK	5.4	4.2
13	SLUDGE SUMP	3	DIA
14	SLUDGE THICKNER	8	DIA
15	THICKNED SLUDGE SUMP	3.4	DIA
16	CENTRATE SUMP	2.2	DIA
17	TREATED WATER TANK	9.4	9.4
18	CENTRIFUGE STRUCTURE	10	7
19	CHLORINATOR ROOM	10	8
20	BLOWER ROOM	10	8
21	ADMINISTRATIVE BUILDING	10	8
22	SLUDGE STORAGE SHED	5	5
23	ASF/PSF	28	8
24	DG ROOM	4	4
25	SECURITY ROOM	2.5	2.5
26	TRANSFORMER YARD	6.5	5.5
27	SEPTAGE RECEIVING UNIT		



**PPD & SEWERAGE CIRCLE,
KERALA WATER AUTHORITY,
KOZHIKODE**

PROJECT NAME

Sewerage system to Vatakara Municipality -
Construction of 7 MLD capacity sewage
treatment plant and laying Sewerage network
to Vatakara Municipality

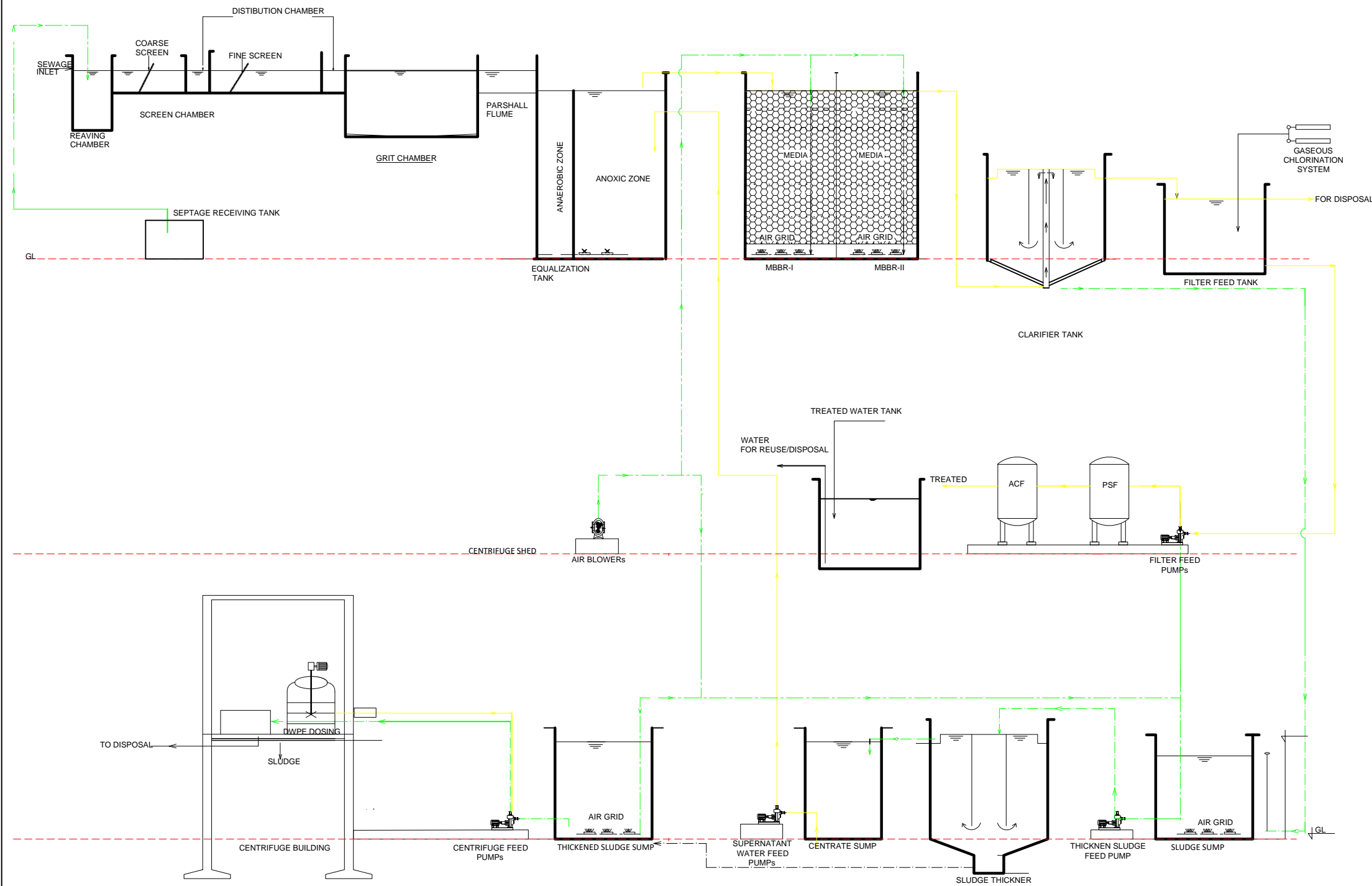
DRAWING TITLE

LAYOUT

1/VATAKARA

Not in scale


AE	AEE	EE	SE	CE
----	-----	----	----	----



GENERAL NOTES

- ALL DIMENSIONS ARE IN METERS
- DIMENSIONS NOT IN SCALE
- FOR ESTIMATION PURPOSE ONLY

No.	Revision/ Issue	Date
-----	-----------------	------


**PPD & SEWERAGE CIRCLE,
KERALA WATER AUTHORITY,
KOZHIKODE**

PROJECT NAME

Sewerage system to Vatakara Municipality
- Construction of 7 MLD capacity sewage
treatment plant and laying Sewerage
network to Vatakara Municipality

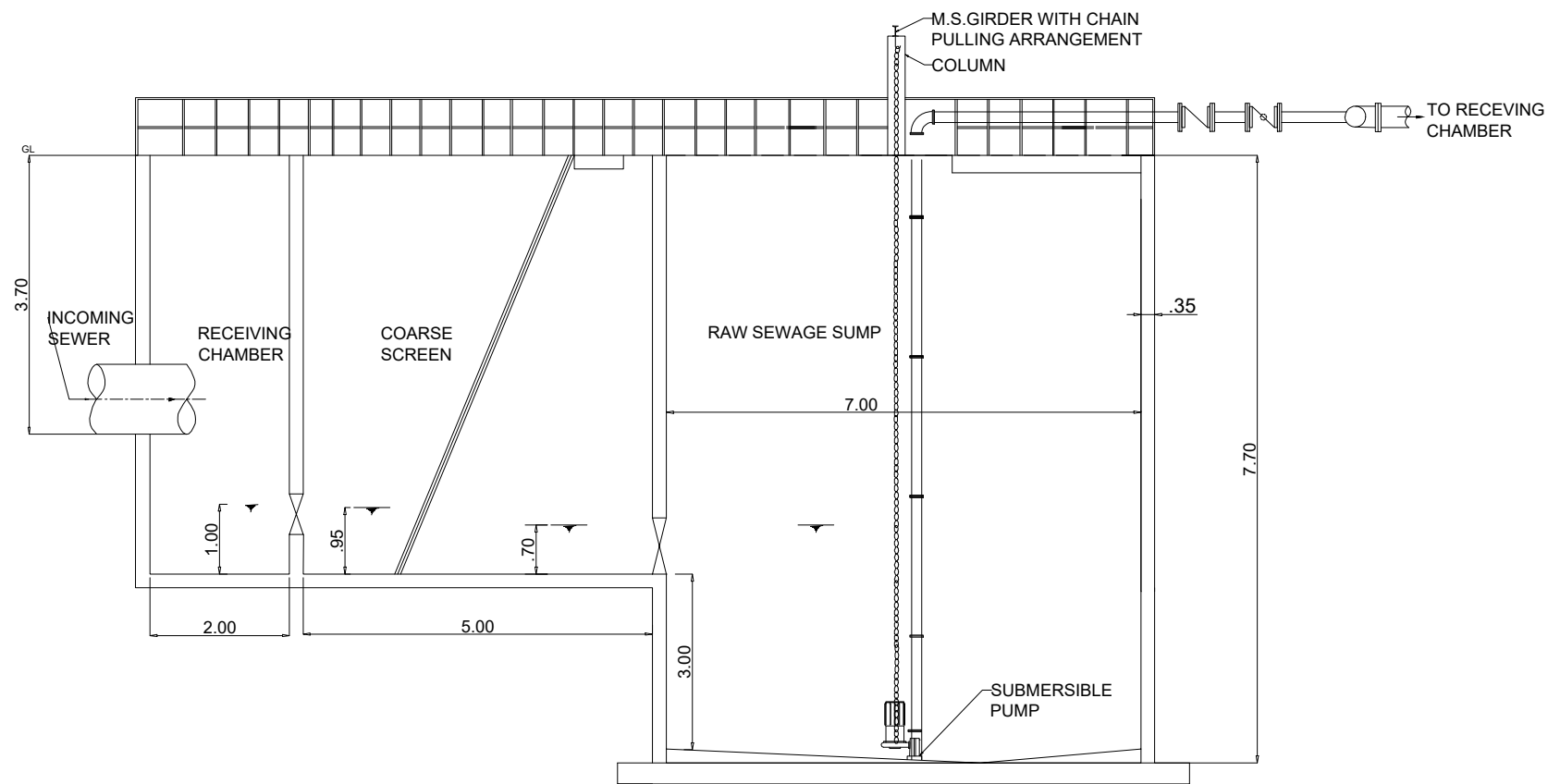
DRAWING TITLE

HYDRAULIC FLOW DIAGRAM

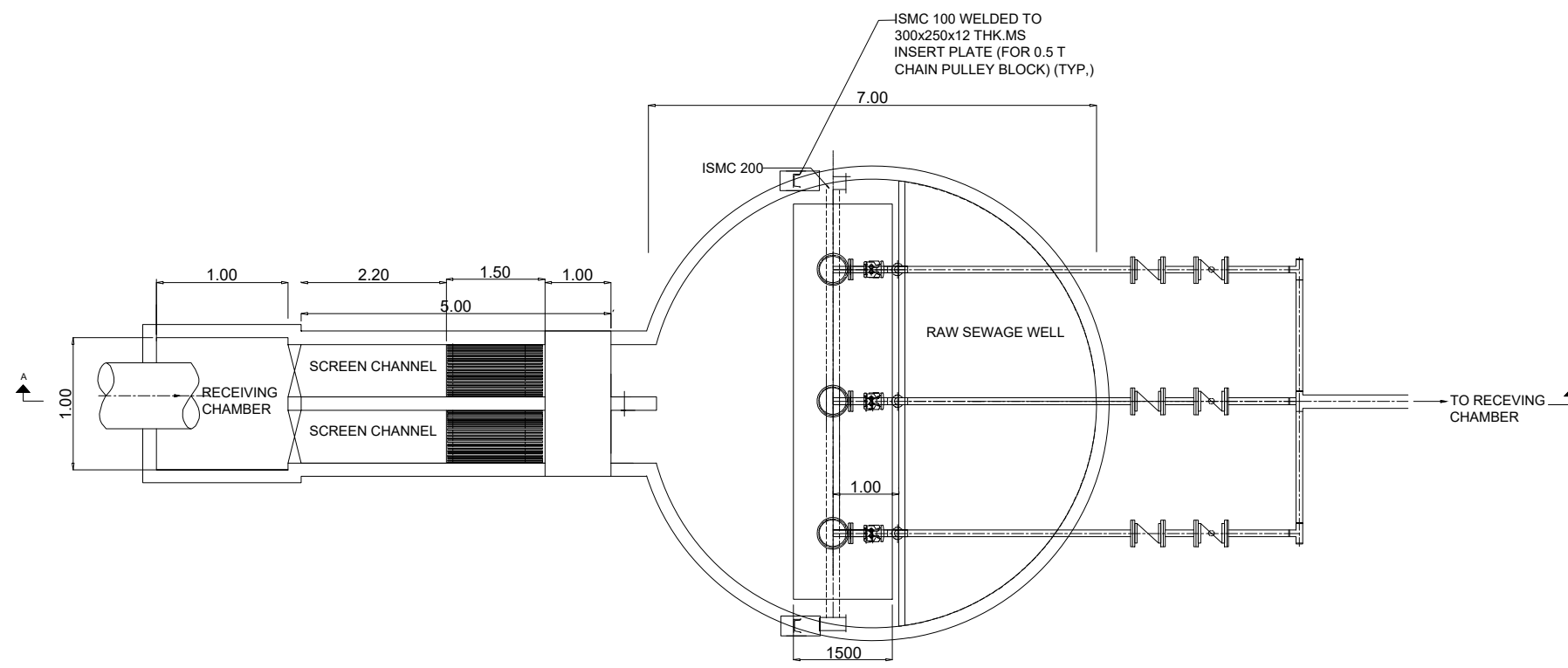
2/VATAKARA

Not in scale

AE	AEE	EE	SE	CE
----	-----	----	----	----



SECTION : A-A



PLAN

GENERAL NOTES

- ALL DIMENSIONS ARE IN METERS
- DIMENSIONS NOT IN SCALE
- FOR ESTIMATION PURPOSE ONLY

No.	Rivision/ Issue	Date



**PPD & SEWERAGE CIRCLE,
KERALA WATER AUTHORITY,
KOZHIKODE**

PROJECT NAME

Sewerage system to Vatakara Municipality
- Construction of 7 MLD capacity sewage
treatment plant and laying Sewerage
network to Vatakara Municipality

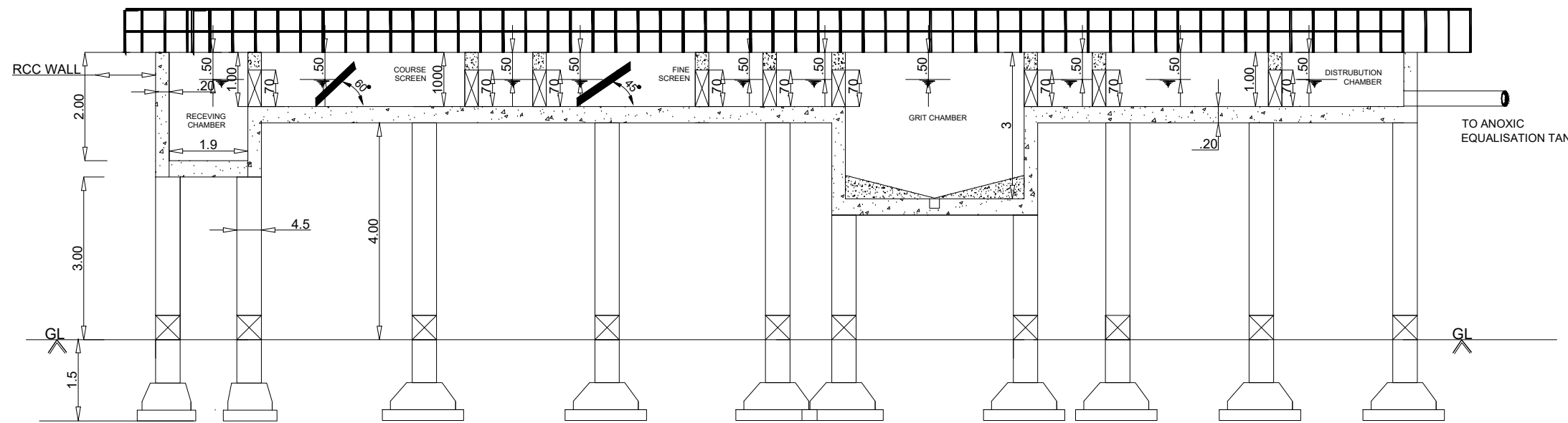
DRAWING TITLE

RAW SEWAGE WELL

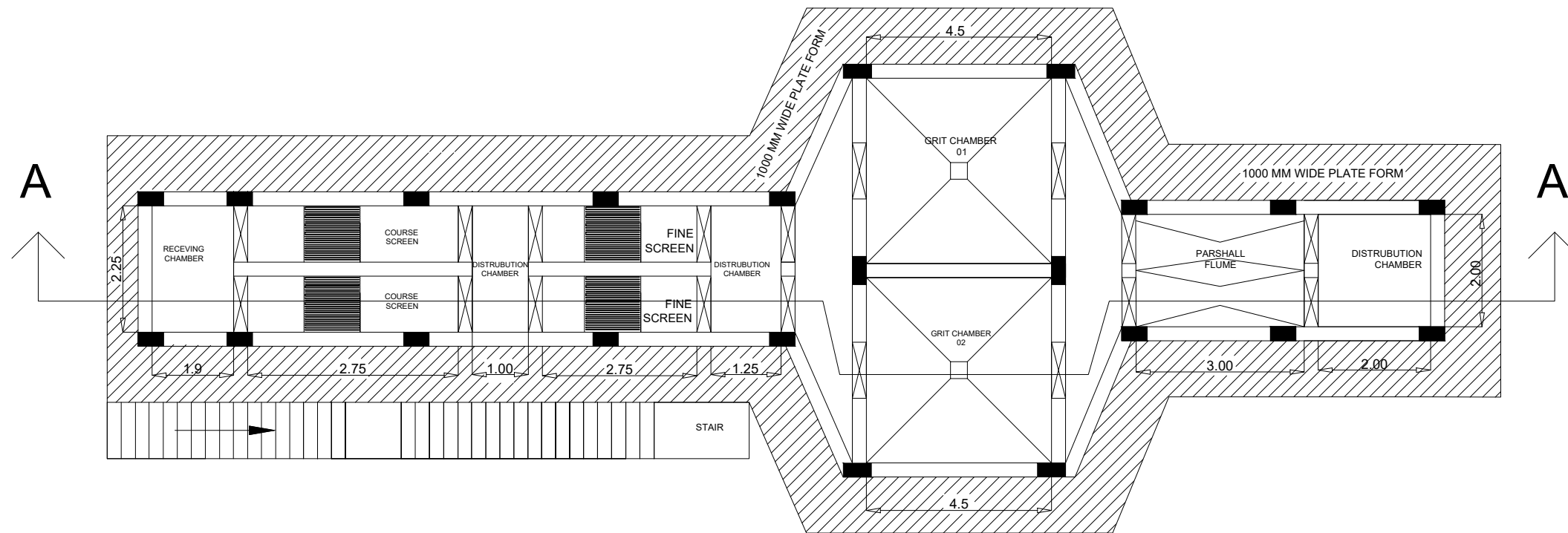
3/VATAKARA

Not in scale

AE	AEE	EE	SE	CE
----	-----	----	----	----



SECTION: A-A



PLAN

GENERAL NOTES

- ALL DIMENSIONS ARE IN METERS
- DIMENSIONS NOT IN SCALE
- FOR ESTIMATION PURPOSE ONLY

No.	Rivision/ Issue	Date



**PPD & SEWERAGE CIRCLE,
KERALA WATER AUTHORITY,
KOZHIKODE**

PROJECT NAME

Sewerage system to Vatakara Municipality
- Construction of 7 MLD capacity sewage
treatment plant and laying Sewerage
network to Vatakara Municipality

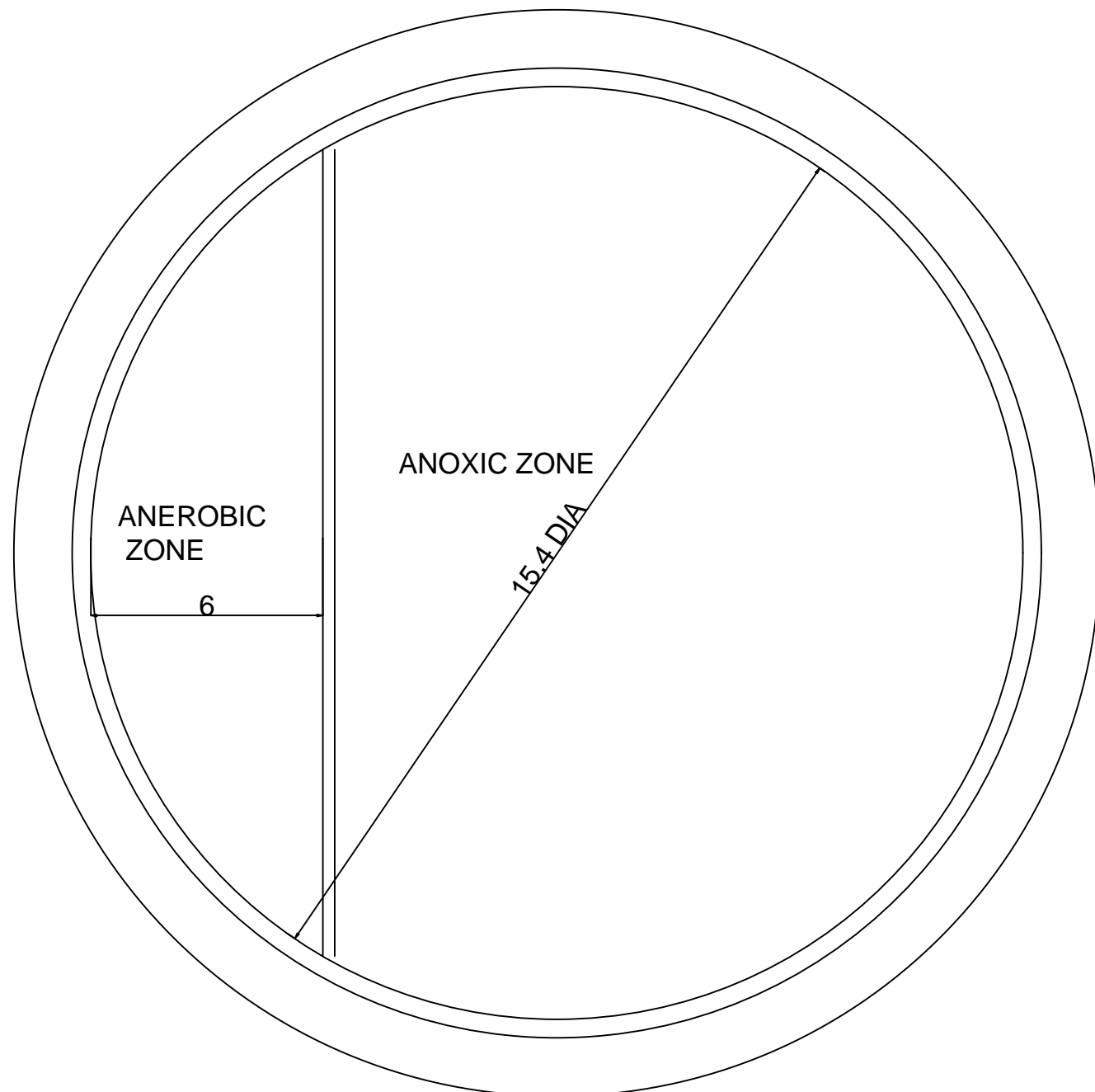
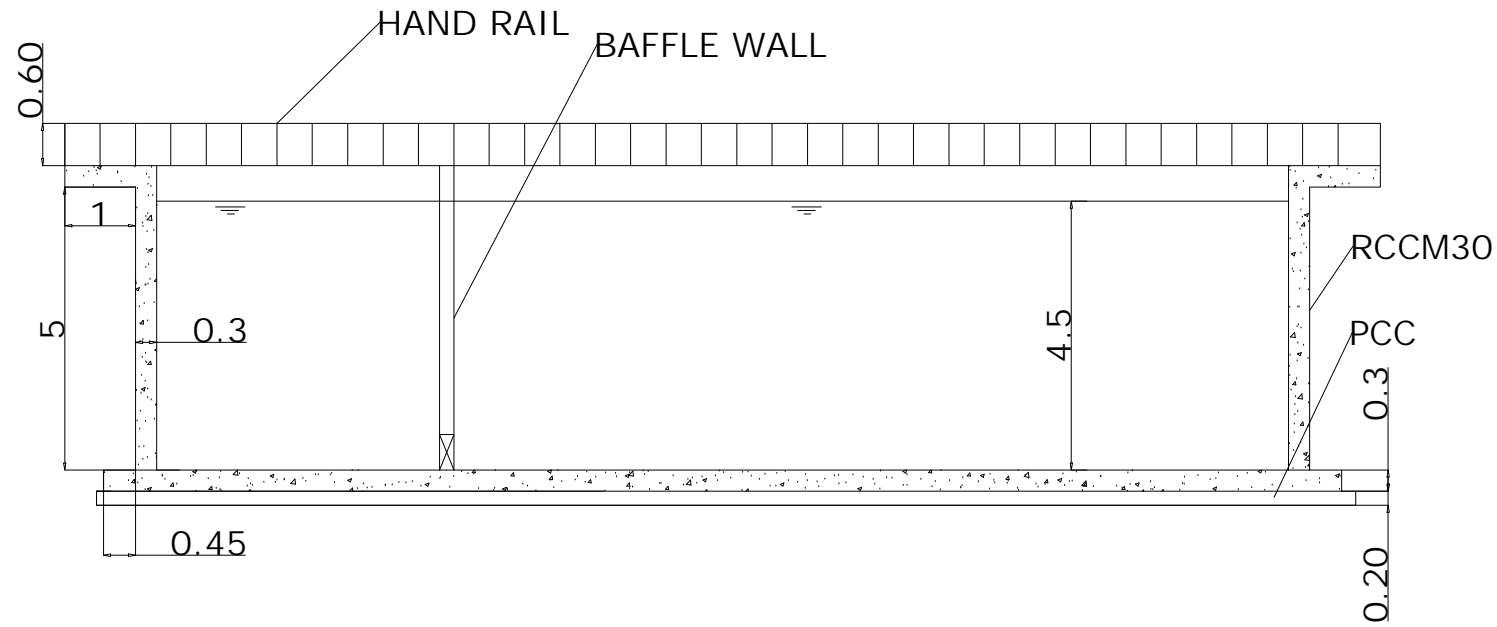
DRAWING TITLE

DETAILS OF RECEIVING CHAMBER
SCREEN RAW SEWAGE WELL

4/KOYILANDY/ZONE 2

Not in scale

AE	AEE	EE	SE	CE
----	-----	----	----	----



GENERAL NOTES

- ALL DIMENSIONS ARE IN METERS
- DIMENSIONS NOT IN SCALE
- FOR ESTIMATION PURPOSE ONLY

No.	Revision/ Issue	Date



**PPD & SEWERAGE CIRCLE,
KERALA WATER AUTHORITY,
KOZHIKODE**

PROJECT NAME

Sewerage system to Vatakara Municipality
- Construction of 7 MLD capacity sewage
treatment plant and laying Sewerage
network to Vatakara Municipality

DRAWING TITLE

EQUALISATION TANK

5/VATAKARA

Not in scale

AE	AEE	EE	SE	CE
----	-----	----	----	----

GENERAL NOTES

- ALL DIMENSIONS ARE IN METERS
- DIMENSIONS NOT IN SCALE
- FOR ESTIMATION PURPOSE ONLY

No.	Revision/ Issue	Date



**PPD & SEWERAGE CIRCLE,
KERALA WATER AUTHORITY,
KOZHIKODE**

PROJECT NAME

Sewerage system to Vatakara Municipality
- Construction of 7 MLD capacity sewage
treatment plant and laying Sewerage
network to Vatakara Municipality

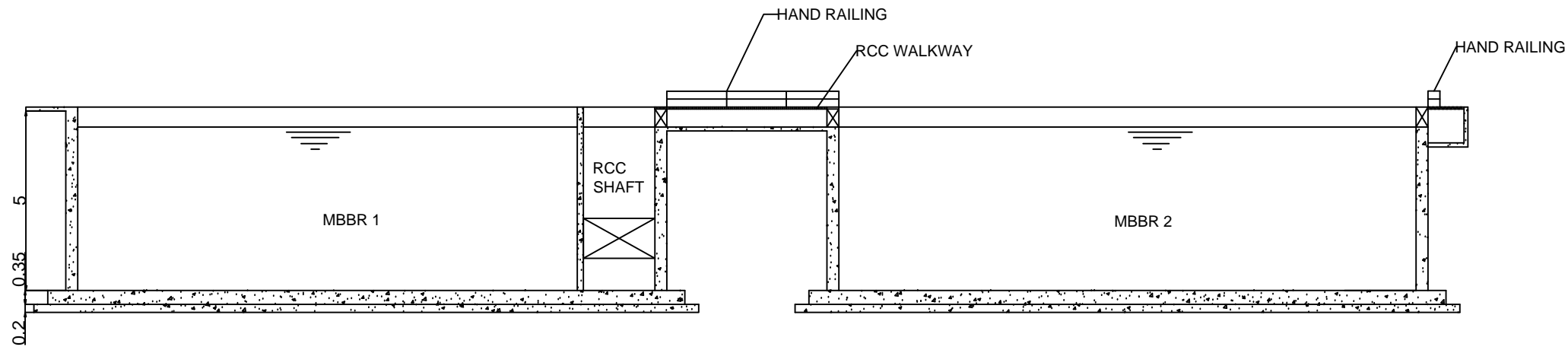
DRAWING TITLE

MBBR TANK

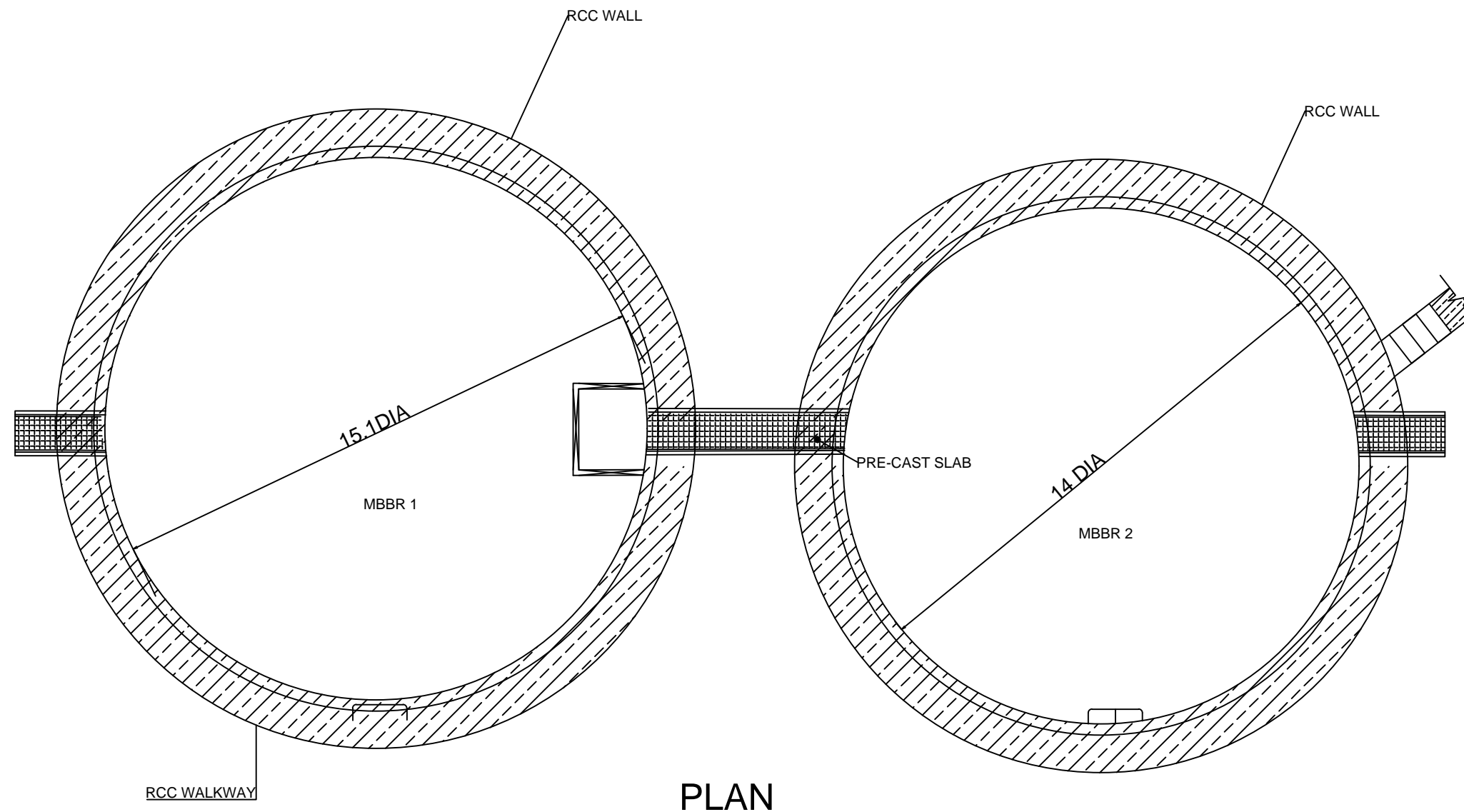
7/VATAKARA

Not in scale

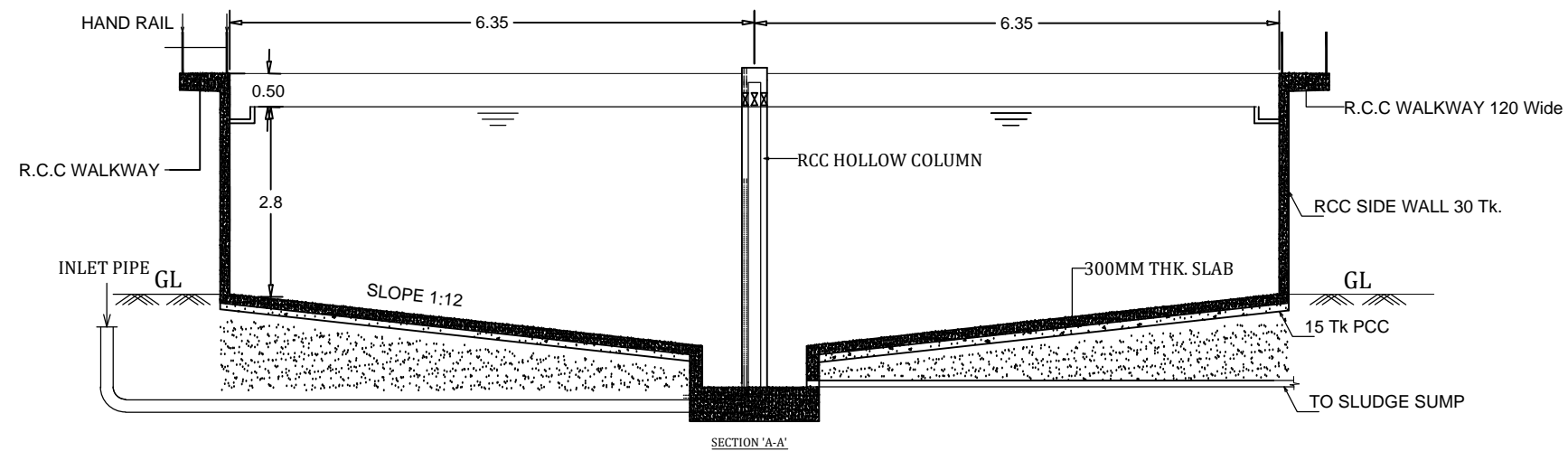
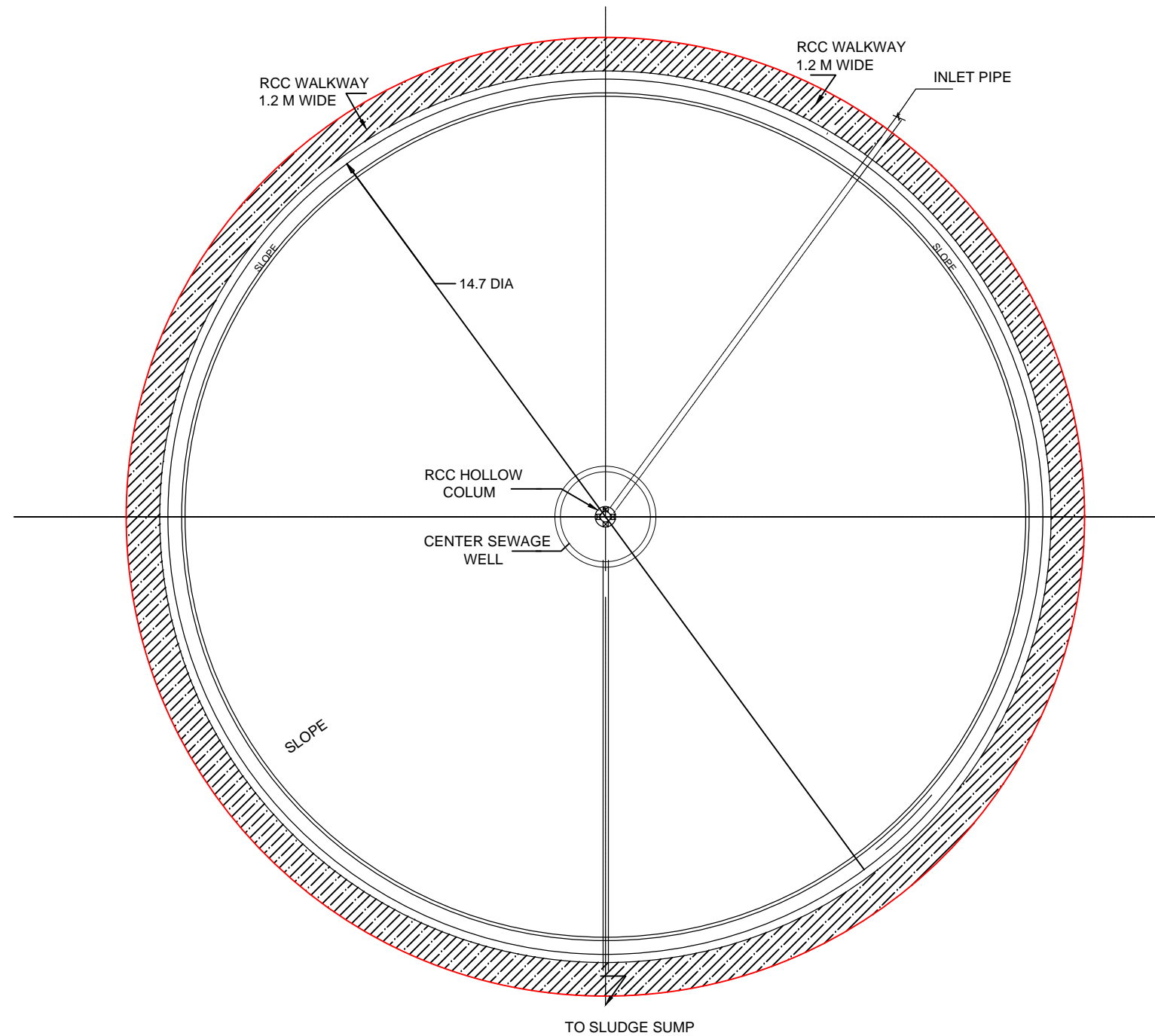
AE	AEE	EE	SE	CE
----	-----	----	----	----



SECTION AA



PLAN



GENERAL NOTES

- ALL DIMENSIONS ARE IN METERS
- DIMENSIONS NOT IN SCALE
- FOR ESTIMATION PURPOSE ONLY

No.	Revision/ Issue	Date



**PPD & SEWERAGE CIRCLE,
KERALA WATER AUTHORITY,
KOZHIKODE**

PROJECT NAME

Sewerage system to Vatakara Municipality
- Construction of 7 MLD capacity sewage
treatment plant and laying Sewerage
network to Vatakara Municipality

DRAWING TITLE

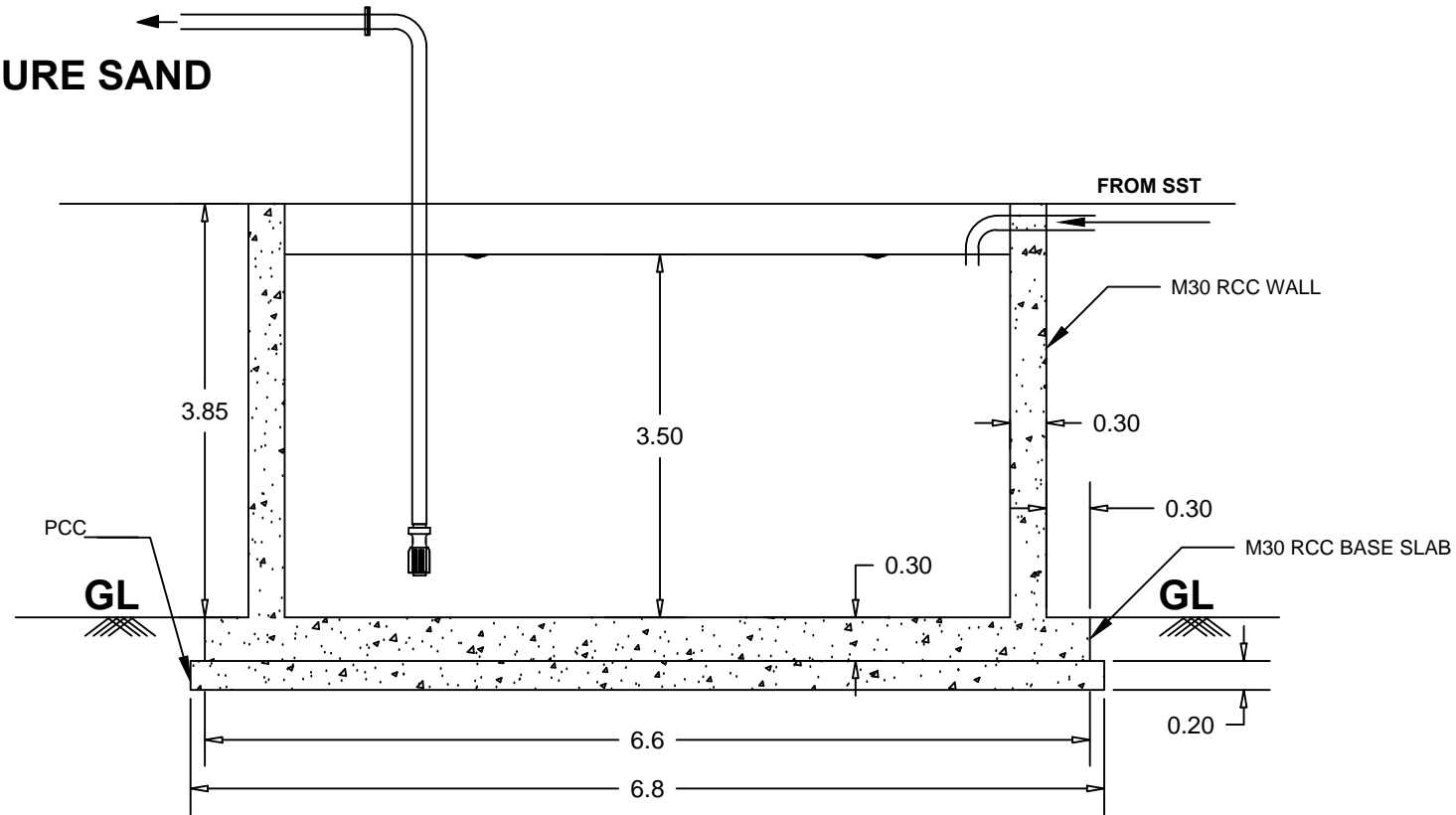
SECONDARY CLARIFIER TANK

8/VATAKARA

Not in scale

AE	AEE	EE	SE	CE
----	-----	----	----	----

TO PRESSURE SAND FILTER



SECTION AA



PLAN

GENERAL NOTES

- ALL DIMENSIONS ARE IN METERS
- DIMENSIONS NOT IN SCALE
- FOR ESTIMATION PURPOSE ONLY

No.	Revision/ Issue	Date



**PPD & SEWERAGE CIRCLE,
KERALA WATER AUTHORITY,
KOZHIKODE**

PROJECT NAME

Sewerage system to Vatakara Municipality
- Construction of 7 MLD capacity sewage
treatment plant and laying Sewerage
network to Vatakara Municipality

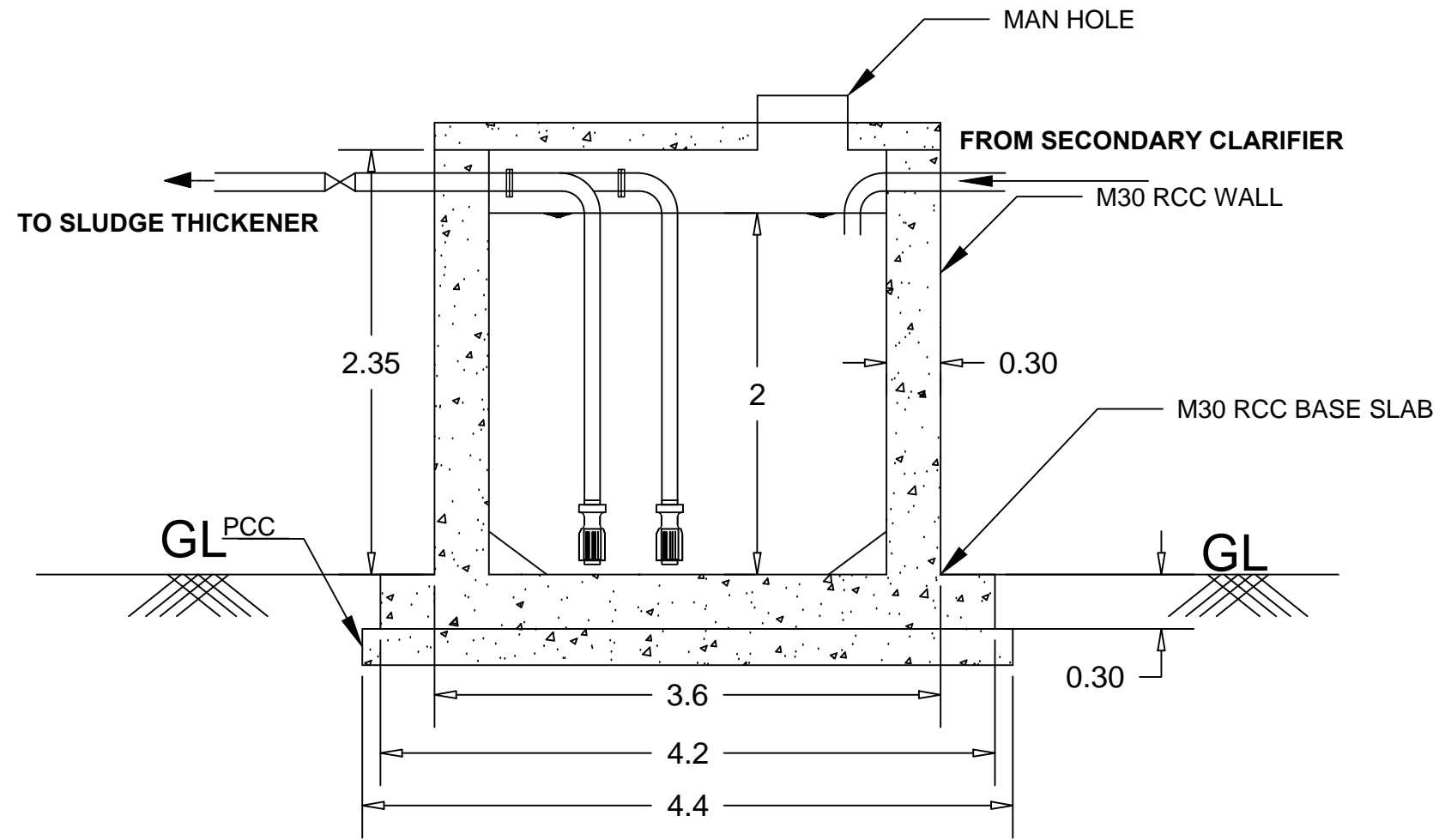
DRAWING TITLE

FILTER FEED TANK

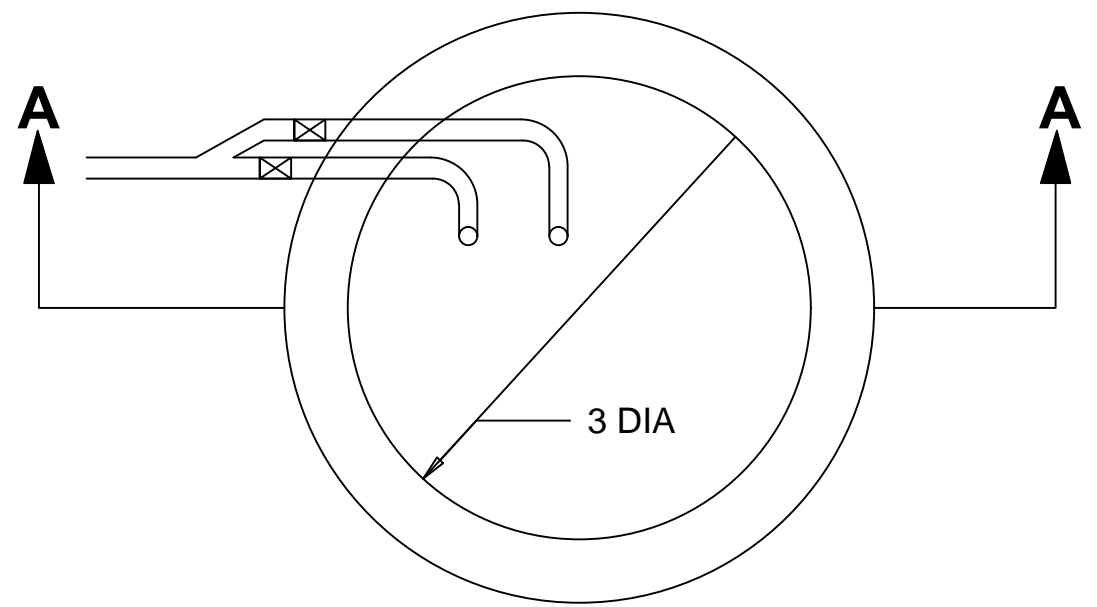
9/VATAKARA

Not in scale

AE	AEE	EE	SE	CE
----	-----	----	----	----



SECTION AA



PLAN

GENERAL NOTES

- ALL DIMENSIONS ARE IN METERS
- DIMENSIONS NOT IN SCALE
- FOR ESTIMATION PURPOSE ONLY

No.	Revision/ Issue	Date



**PPD & SEWERAGE CIRCLE,
KERALA WATER AUTHORITY,
KOZHIKODE**

PROJECT NAME

Sewerage system to Vatakara Municipality
- Construction of 7 MLD capacity sewage
treatment plant and laying Sewerage
network to Vatakara Municipality

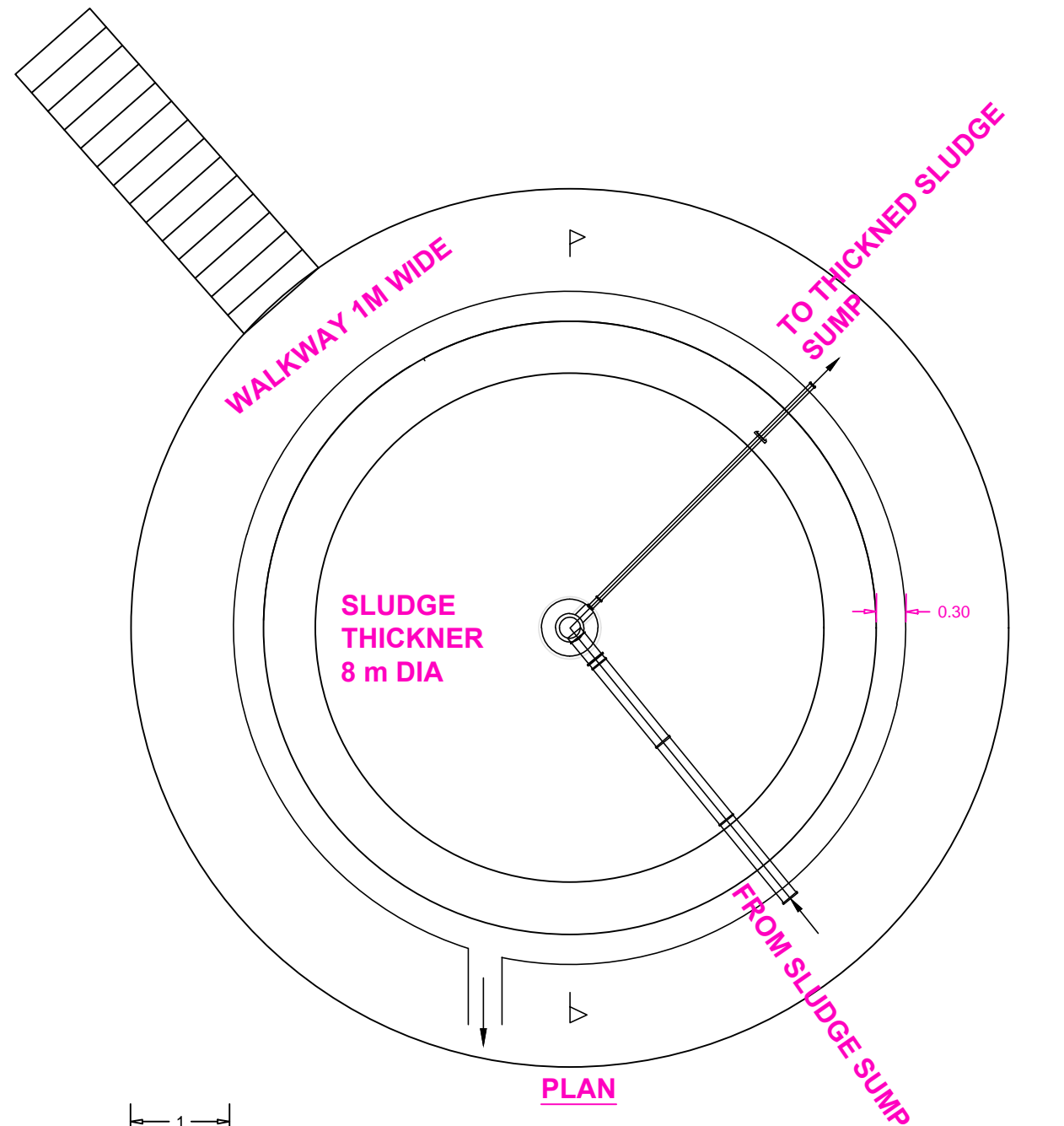
DRAWING TITLE

SLUDGE SUMP

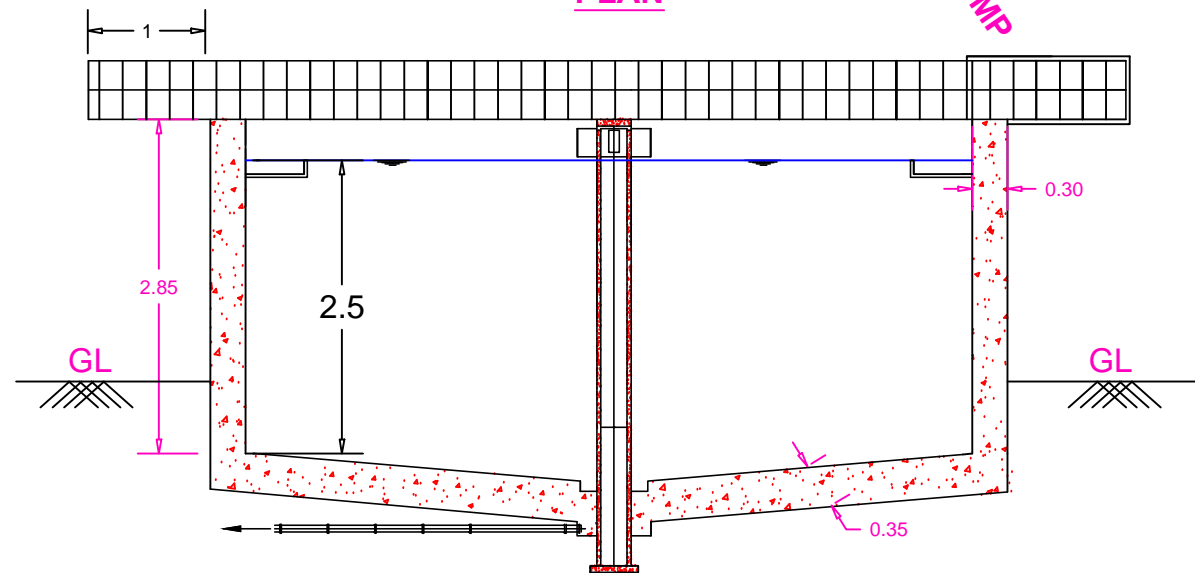
10/VATAKARA

Not in scale

AE	AEE	EE	SE	CE
----	-----	----	----	----



PLAN



**TO THICKENED
SLUDGE SUMP**

SECTION AA

GENERAL NOTES

- ALL DIMENSIONS ARE IN METERS
- DIMENSIONS NOT IN SCALE
- FOR ESTIMATION PURPOSE ONLY

No.	Revision/ Issue	Date



**PPD & SEWERAGE CIRCLE,
KERALA WATER AUTHORITY,
KOZHIKODE**

PROJECT NAME

Sewerage system to Vatakara Municipality
- Construction of 7 MLD capacity sewage
treatment plant and laying Sewerage
network to Vatakara Municipality

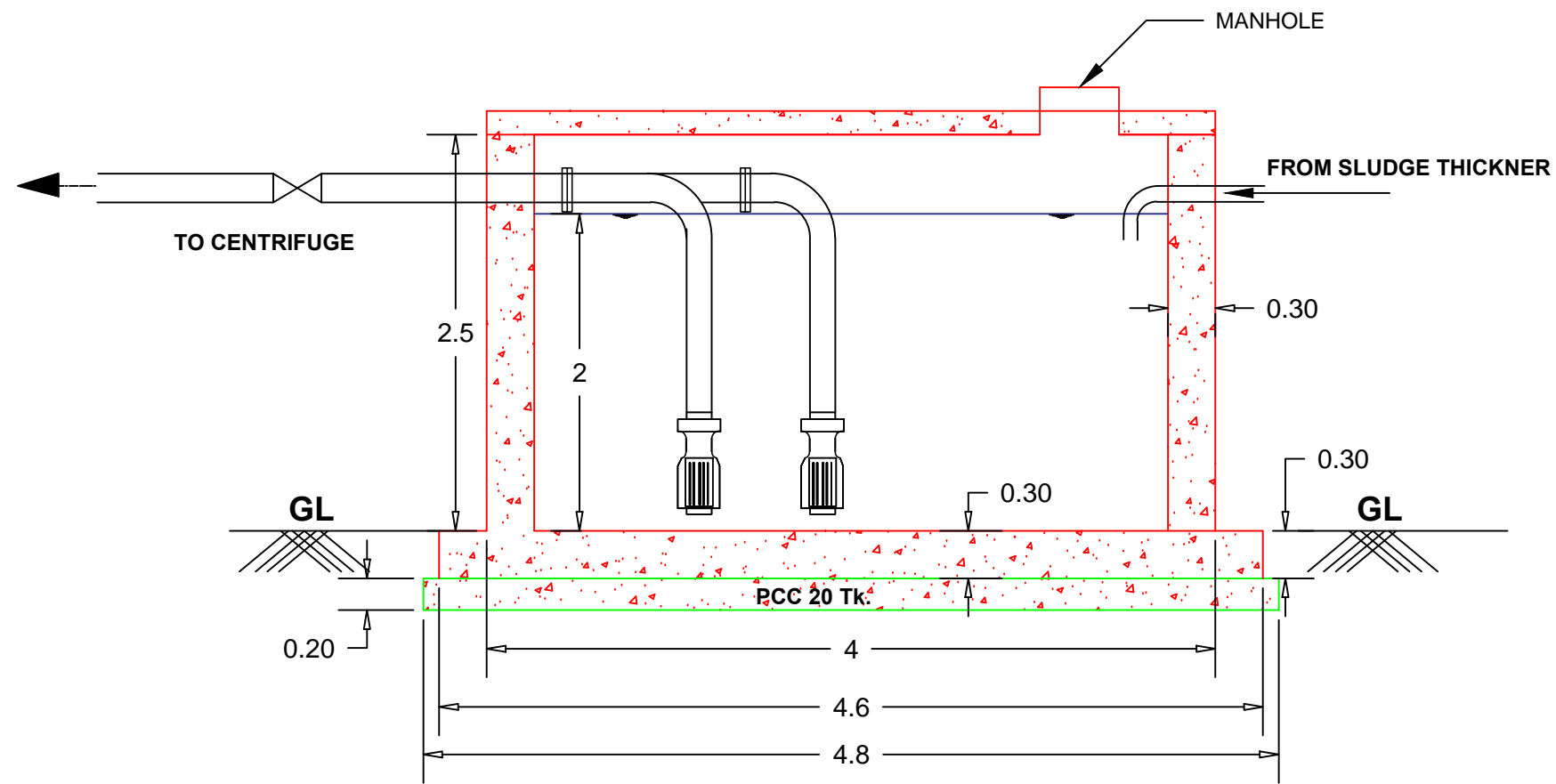
DRAWING TITLE

SLUDGE THICKNER

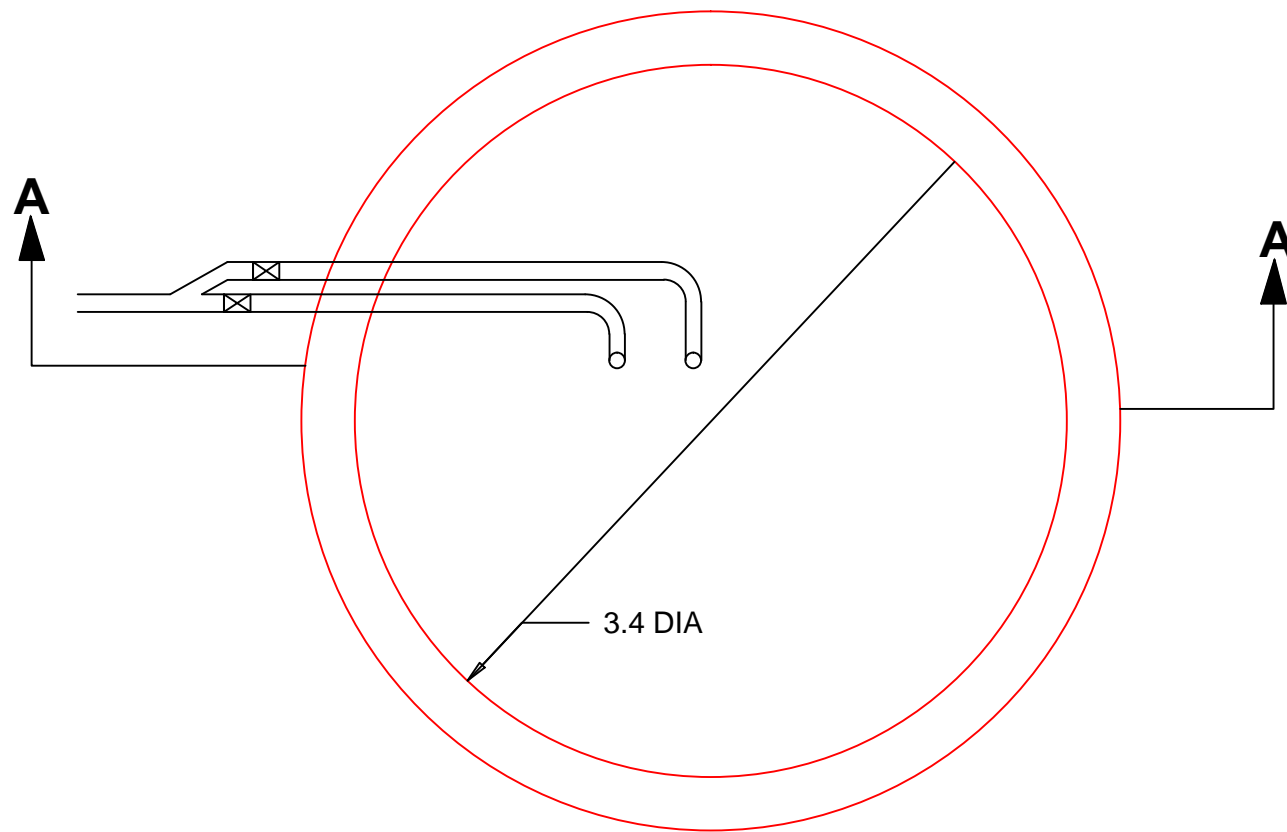
11/VATAKARA

Not in scale

AE	AEE	EE	SE	CE
----	-----	----	----	----



SECTION AA



PLAN

GENERAL NOTES

- ALL DIMENSIONS ARE IN METERS
- DIMENSIONS NOT IN SCALE
- FOR ESTIMATION PURPOSE ONLY

No.	Rivision/ Issue	Date



**PPD & SEWERAGE CIRCLE,
KERALA WATER AUTHORITY,
KOZHIKODE**

PROJECT NAME

Sewerage system to Vatakara Municipality
- Construction of 7 MLD capacity sewage
treatment plant and laying Sewerage
network to Vatakara Municipality

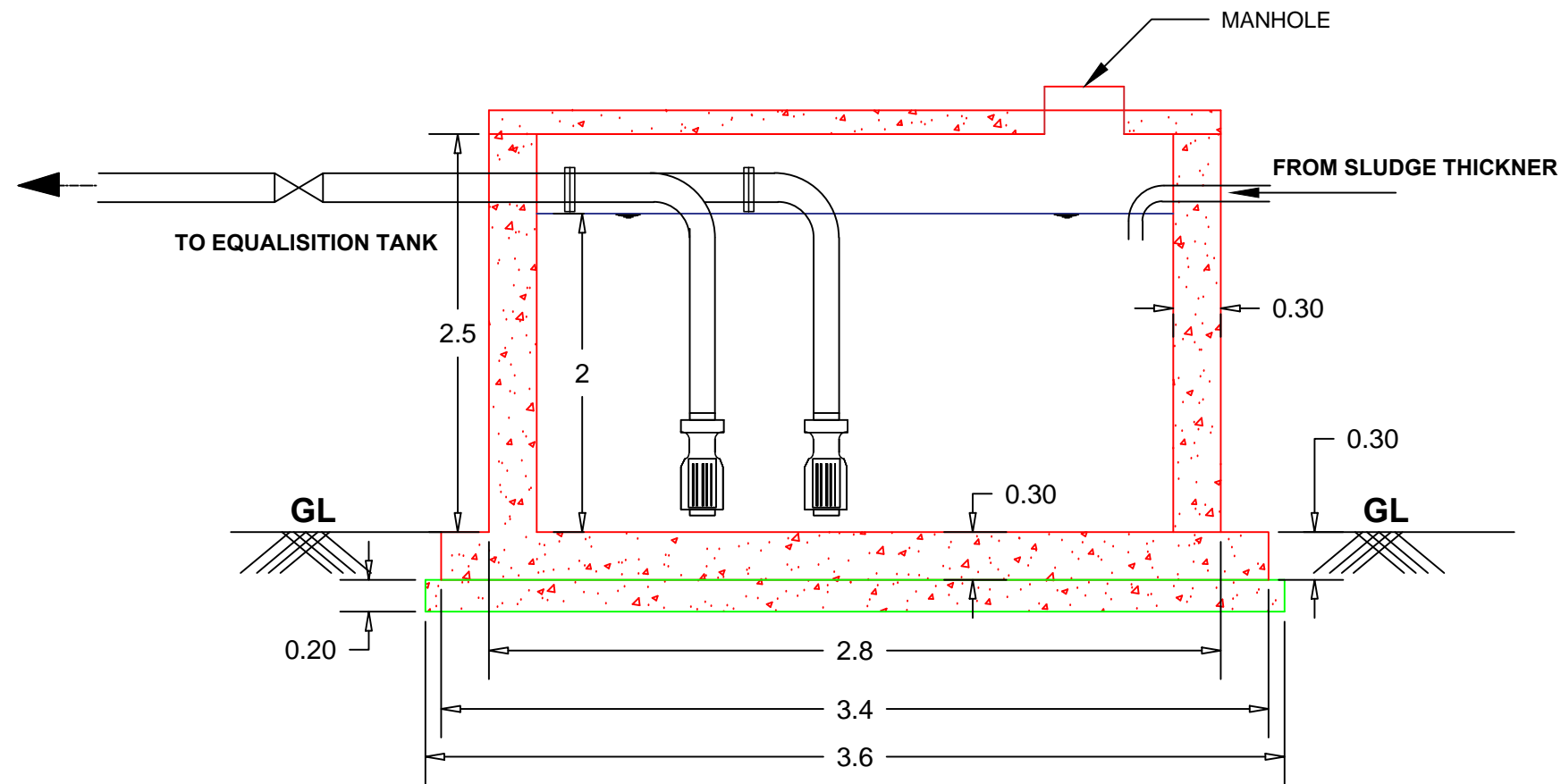
DRAWING TITLE

THICKNED SLUDGE SUMP

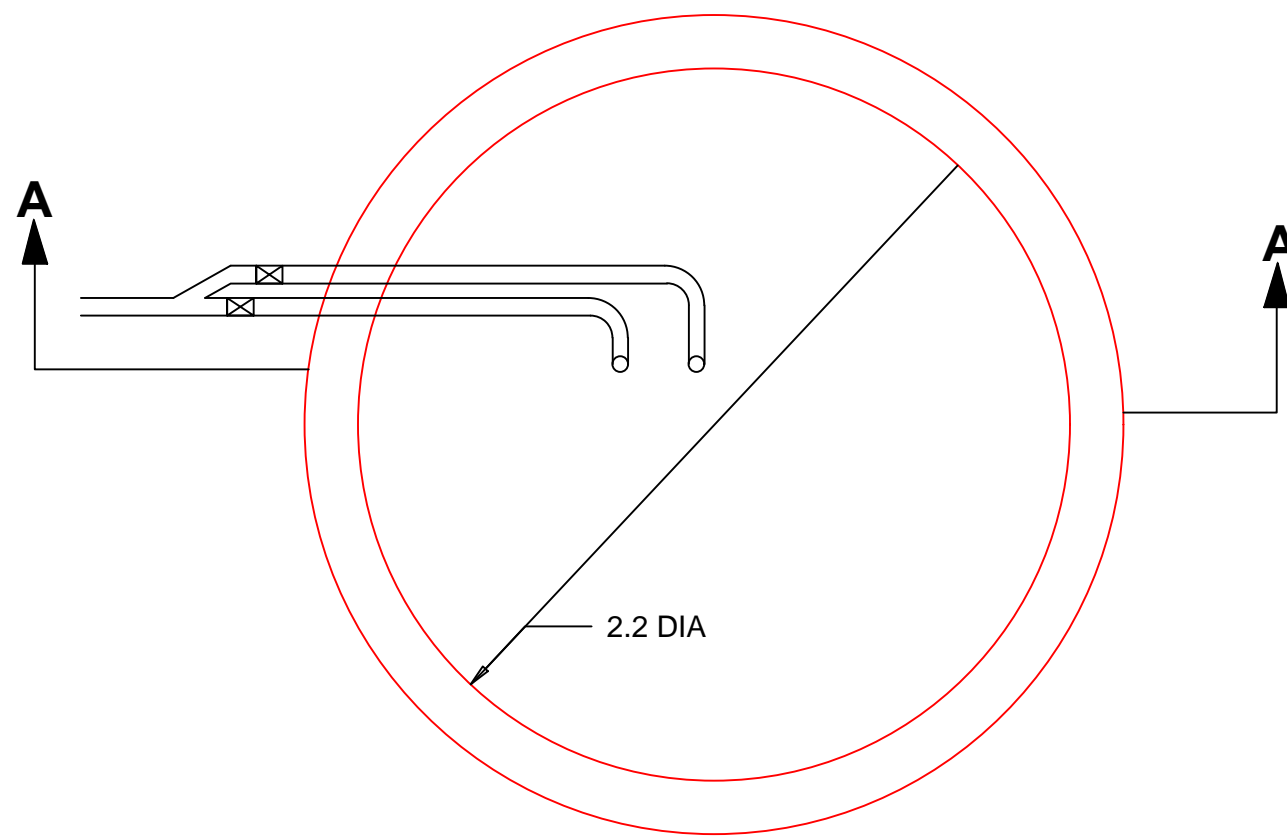
12/VATAKARA

Not in scale

AE	AEE	EE	SE	CE
----	-----	----	----	----



SECTION AA



PLAN

GENERAL NOTES

- ALL DIMENSIONS ARE IN METERS
- DIMENSIONS NOT IN SCALE
- FOR ESTIMATION PURPOSE ONLY

No.	Revision/ Issue	Date



**PPD & SEWERAGE CIRCLE,
KERALA WATER AUTHORITY,
KOZHIKODE**

PROJECT NAME

Sewerage system to Vatakara Municipality
- Construction of 7 MLD capacity sewage
treatment plant and laying Sewerage
network to Vatakara Municipality

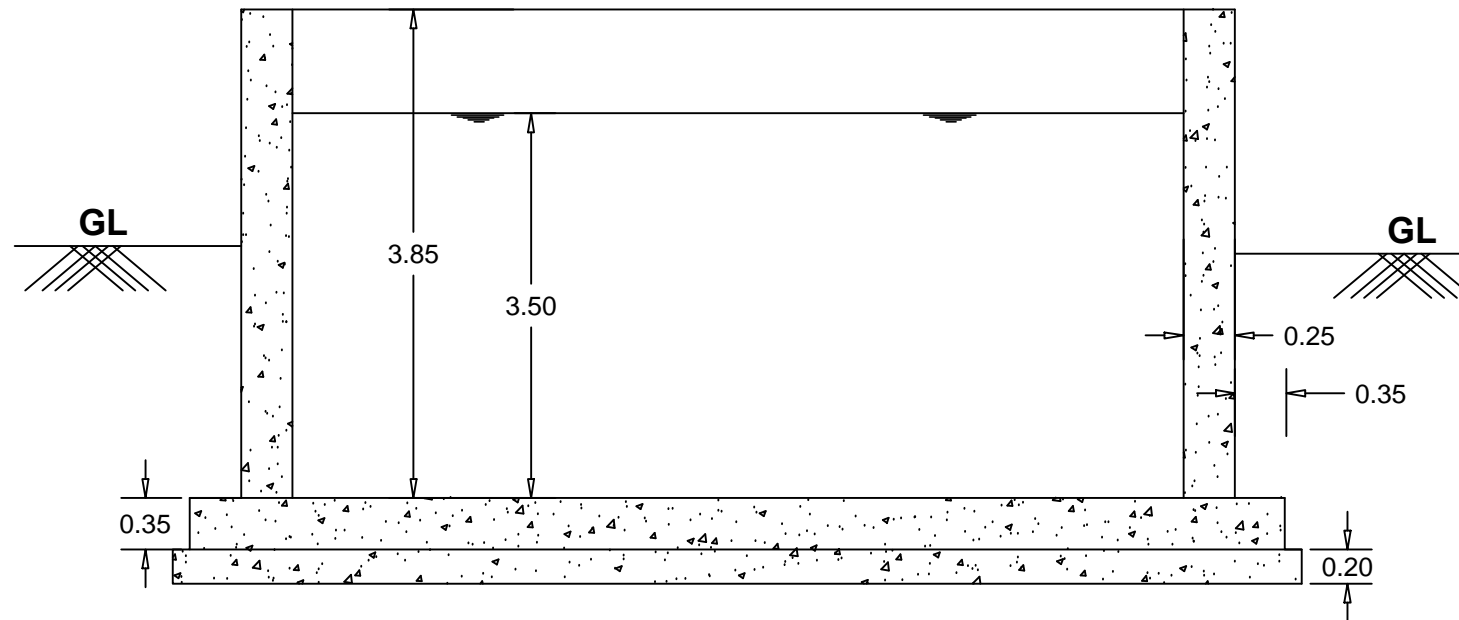
DRAWING TITLE

CENTRATE SUMP

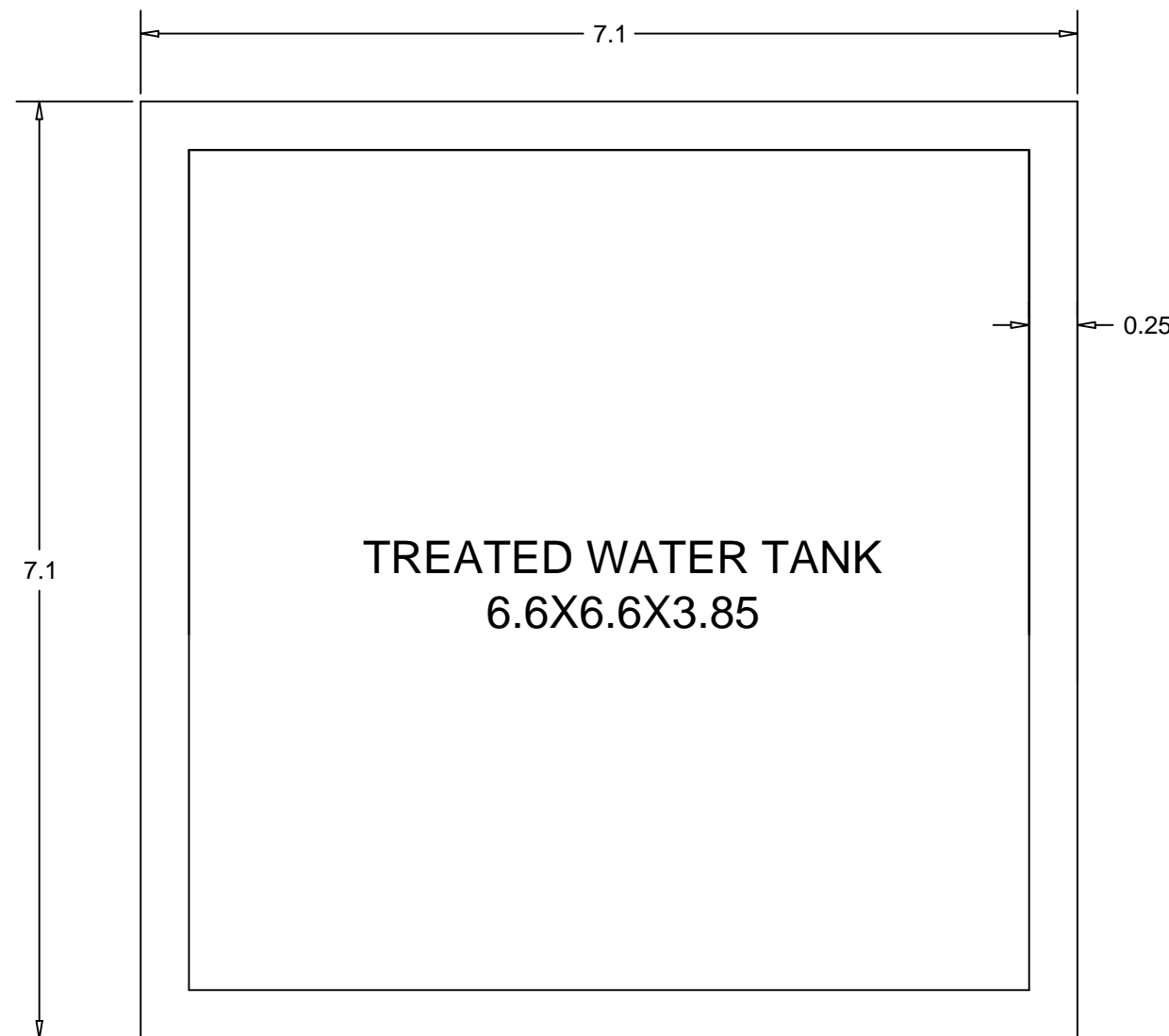
13/VATAKARA

Not in scale

AE	AEE	EE	SE	CE
----	-----	----	----	----



SECTION



PLAN

GENERAL NOTES

- ALL DIMENSIONS ARE IN METERS
- DIMENSIONS NOT IN SCALE
- FOR ESTIMATION PURPOSE ONLY

No.	Rivision/ Issue	Date



**PPD & SEWERAGE CIRCLE,
KERALA WATER AUTHORITY,
KOZHIKODE**

PROJECT NAME

Sewerage system to Vatakara Municipality
- Construction of 7 MLD capacity sewage
treatment plant and laying Sewerage
network to Vatakara Municipality

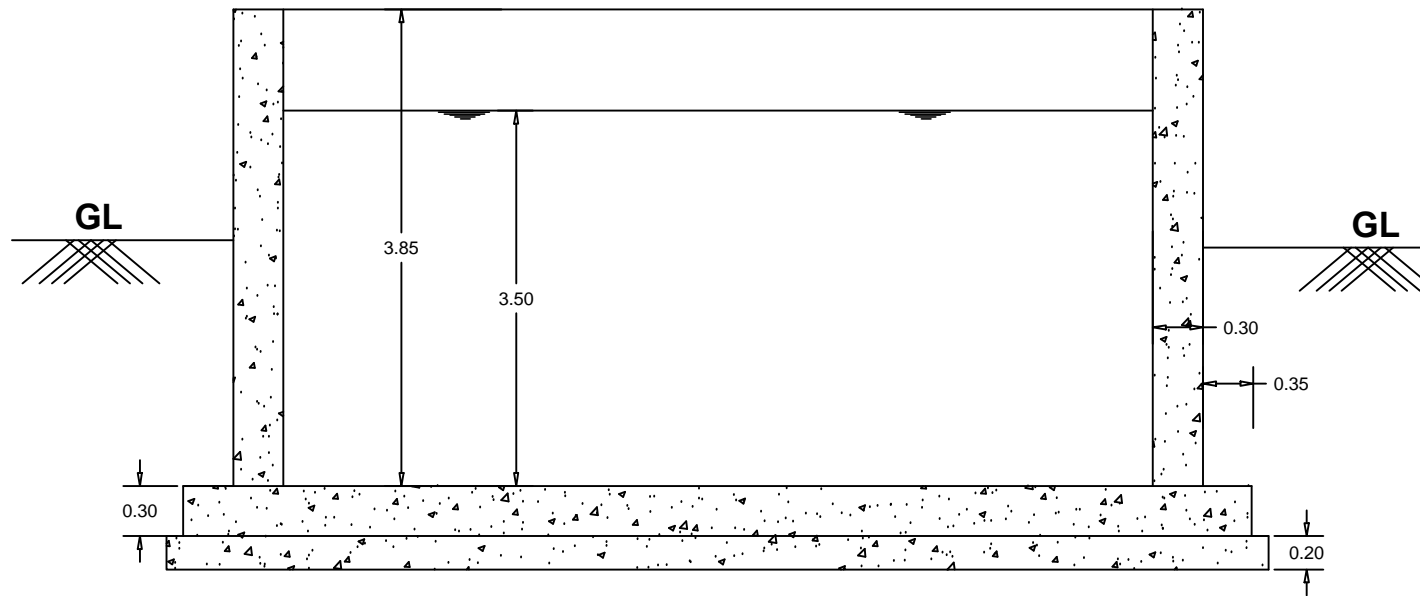
DRAWING TITLE

CHLORINE CONTACT TANK

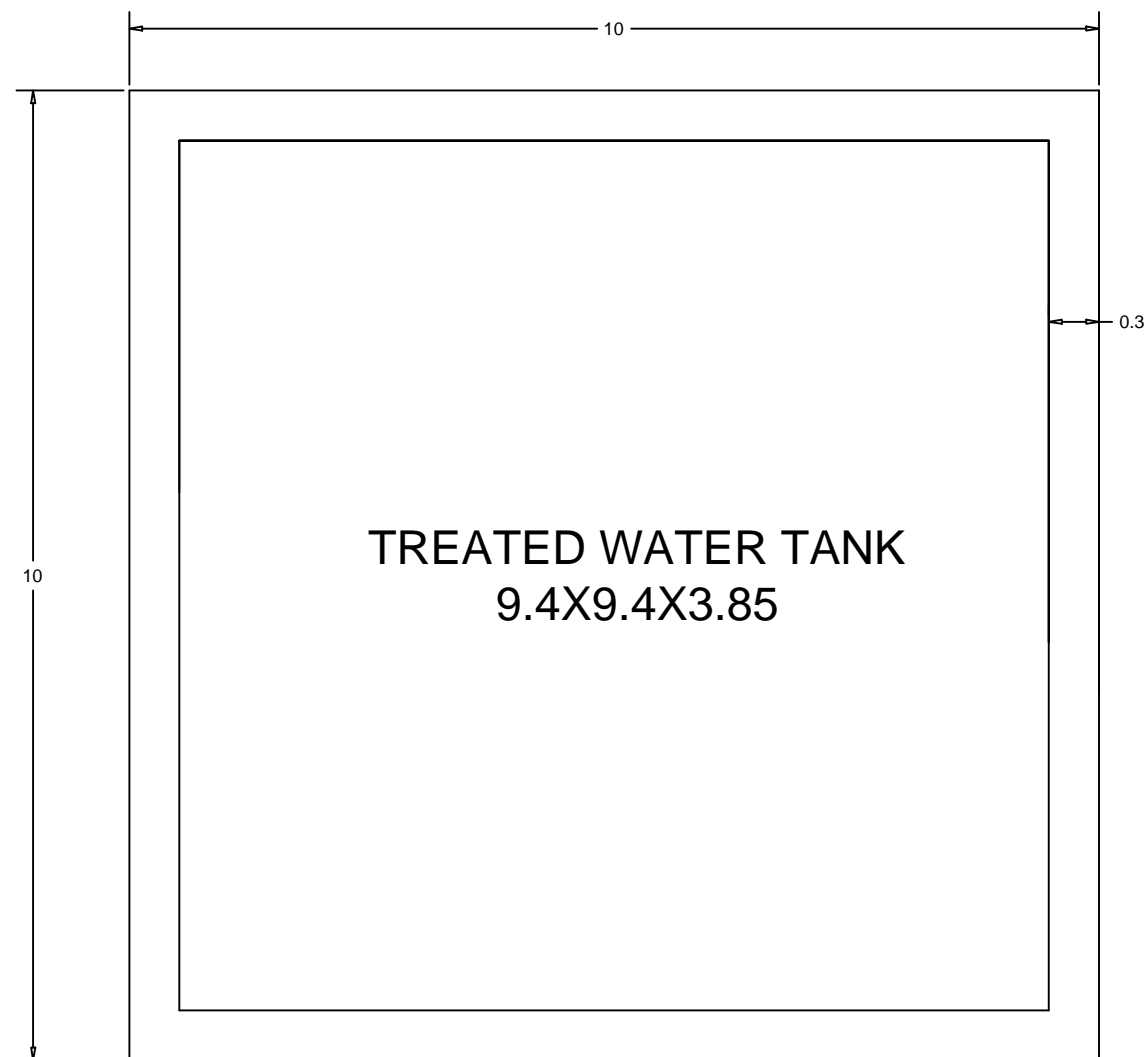
14/VATAKARA

Not in scale

AE	AEE	EE	SE	CE
----	-----	----	----	----



SECTION



PLAN

GENERAL NOTES

- ALL DIMENSIONS ARE IN METERS
- DIMENSIONS NOT IN SCALE
- FOR ESTIMATION PURPOSE ONLY

No.	Rivision/ Issue	Date



**PPD & SEWERAGE CIRCLE,
KERALA WATER AUTHORITY,
KOZHIKODE**

PROJECT NAME

Sewerage system to Vatakara Municipality
- Construction of 7 MLD capacity sewage
treatment plant and laying Sewerage
network to Vatakara Municipality

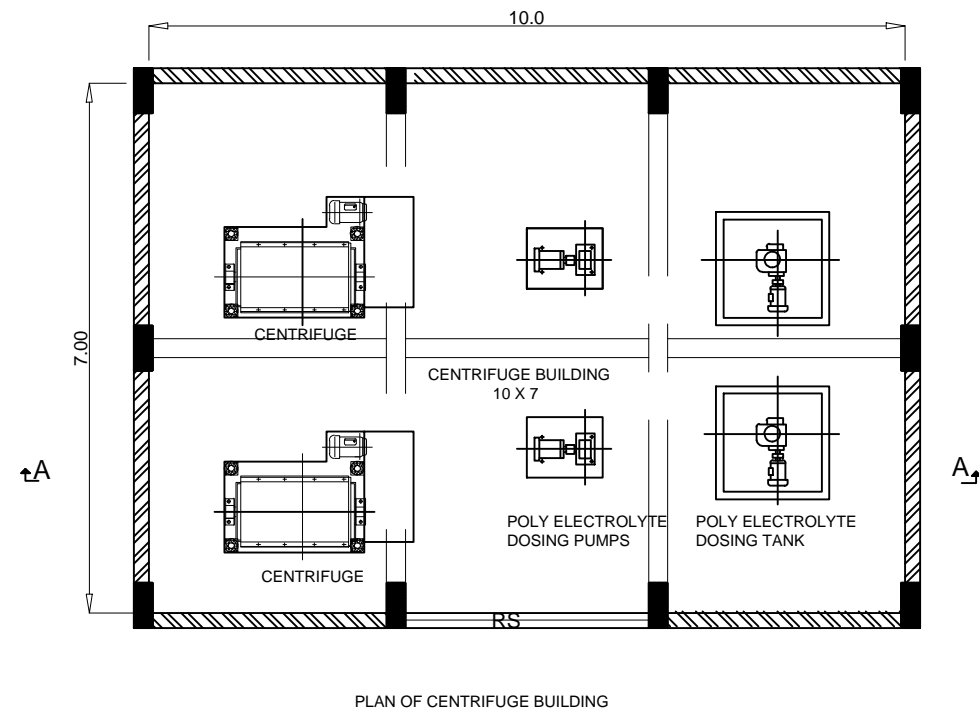
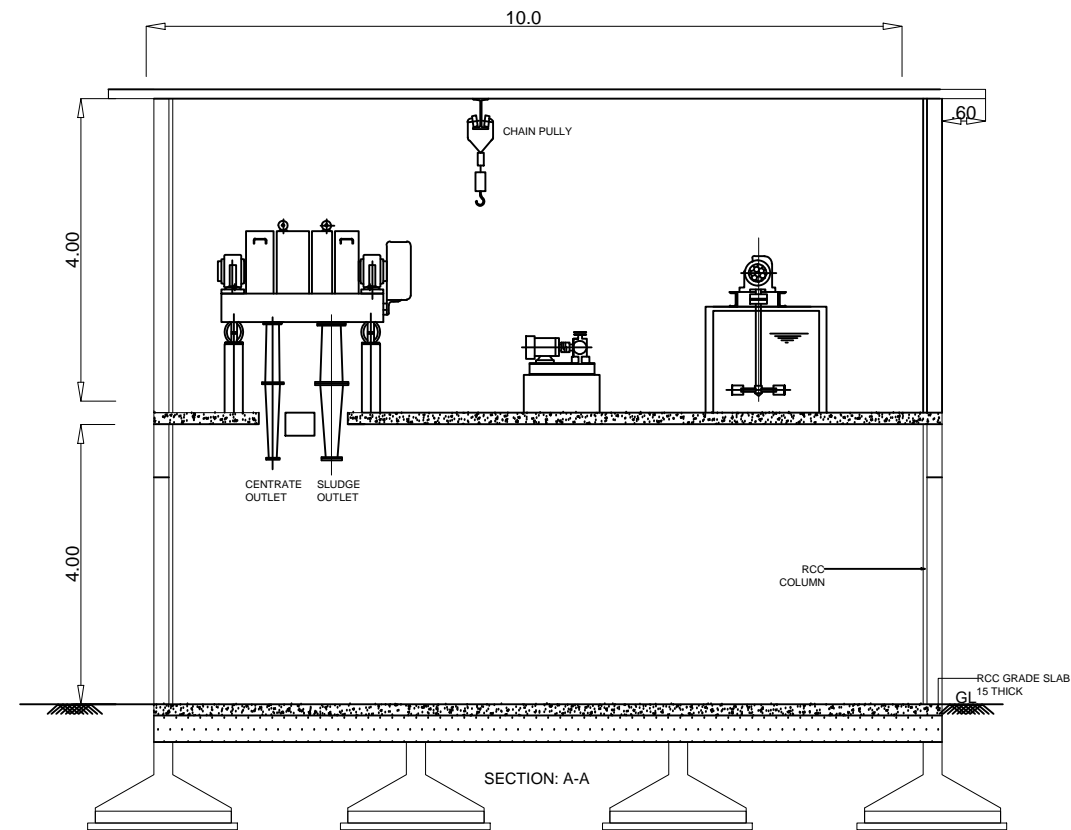
DRAWING TITLE

TREATED WATER TANK

15/VATAKARA

Not in scale

AE	AEE	EE	SE	CE
----	-----	----	----	----



GENERAL NOTES

- ALL DIMENSIONS ARE IN METERS
- DIMENSIONS NOT IN SCALE
- FOR ESTIMATION PURPOSE ONLY

No.	Revision/ Issue	Date



**PPD & SEWERAGE CIRCLE,
KERALA WATER AUTHORITY,
KOZHIKODE**

PROJECT NAME

Sewerage system to Vatakara Municipality
- Construction of 7 MLD capacity sewage
treatment plant and laying Sewerage
network to Vatakara Municipality

DRAWING TITLE

CENTRIFUGE BUILDING

16/VATAKARA

Not in scale

AE	AEE	EE	SE	CE
----	-----	----	----	----

GENERAL NOTES

- ALL DIMENSIONS ARE IN METERS
- DIMENSIONS NOT IN SCALE
- FOR ESTIMATION PURPOSE ONLY

No.	Revision/ Issue	Date



**PPD & SEWERAGE CIRCLE,
KERALA WATER AUTHORITY,
KOZHIKODE**

PROJECT NAME

Sewerage system to Vatakara Municipality
- Construction of 7 MLD capacity sewage
treatment plant and laying Sewerage
network to Vatakara Municipality

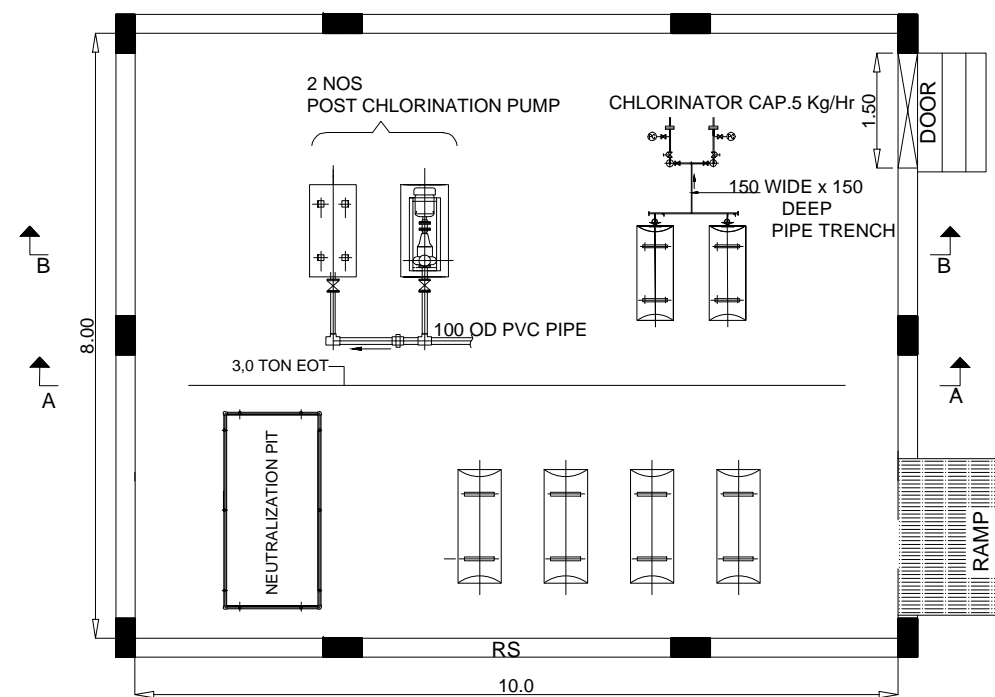
DRAWING TITLE

CHLORINATION ROOM

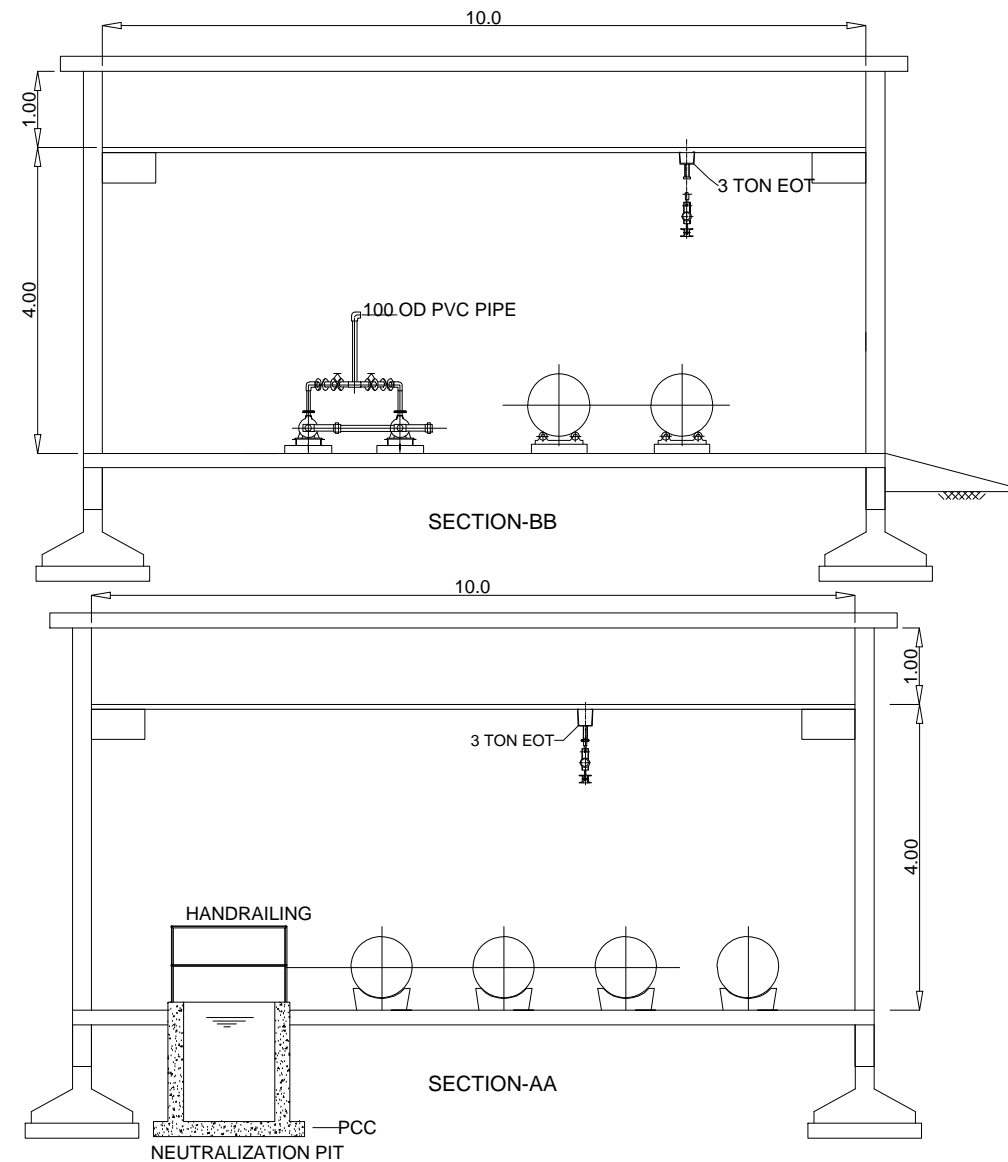
17/VATAKARA

Not in scale

AE	AEE	EE	SE	CE
----	-----	----	----	----

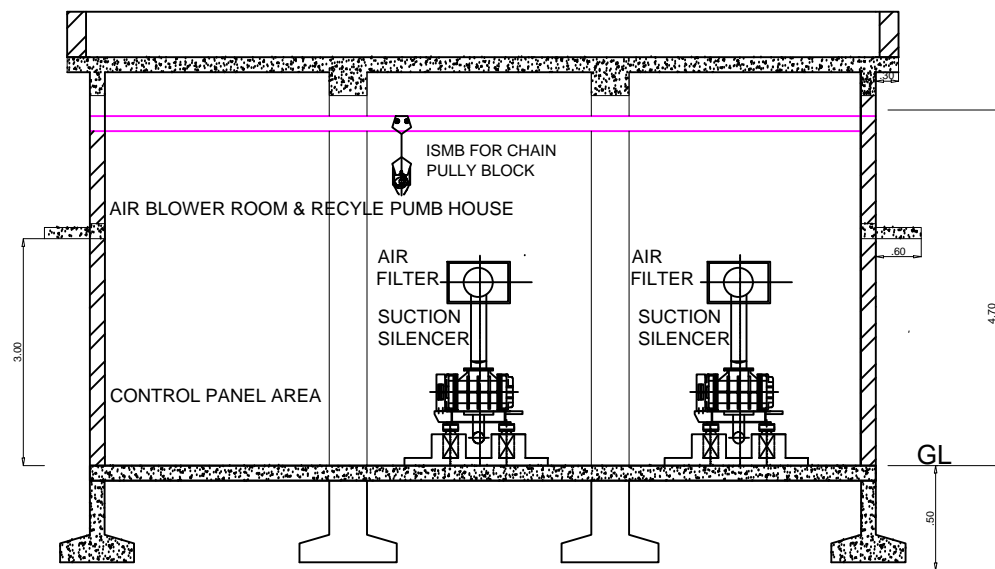


CHLORINATION BUILDING
PLAN

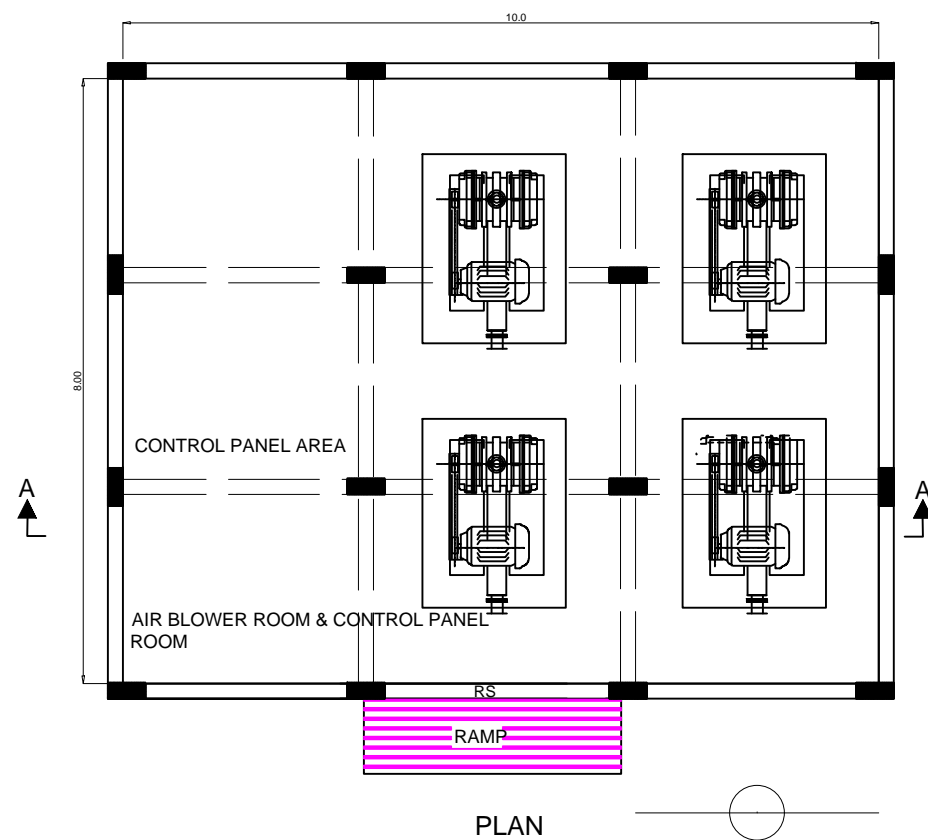


SECTION-AA

SECTION-BB



SECTION A-A



PLAN

GENERAL NOTES

- ALL DIMENSIONS ARE IN METERS
- DIMENSIONS NOT IN SCALE
- FOR ESTIMATION PURPOSE ONLY

No.	Revision/ Issue	Date



**PPD & SEWERAGE CIRCLE,
KERALA WATER AUTHORITY,
KOZHIKODE**

PROJECT NAME

Sewerage system to Vatakara Municipality
- Construction of 7 MLD capacity sewage
treatment plant and laying Sewerage
network to Vatakara Municipality

DRAWING TITLE

AIR BLOWER ROOM
AND CONTROL PANEL ROOM

18/VATAKARA

Not in scale

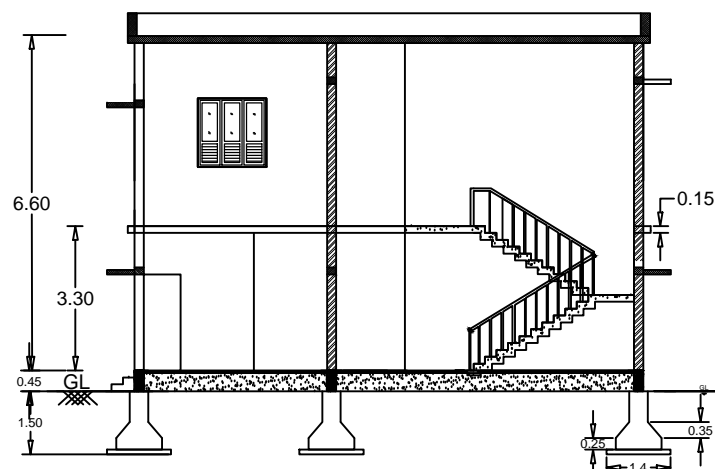
AE	AEE	EE	SE	CE
----	-----	----	----	----



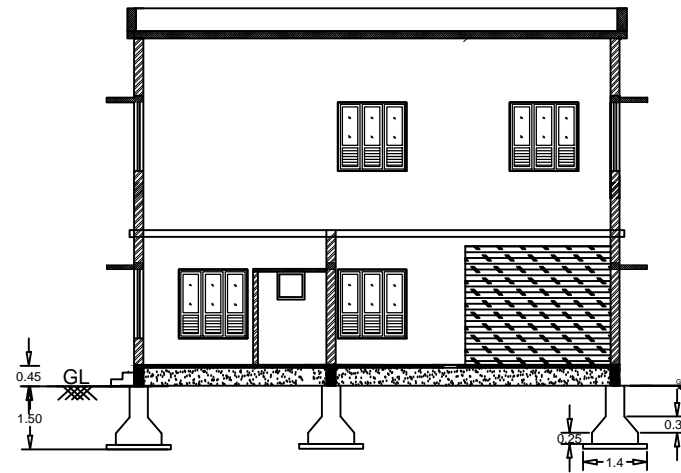
FRONT ELEVATION



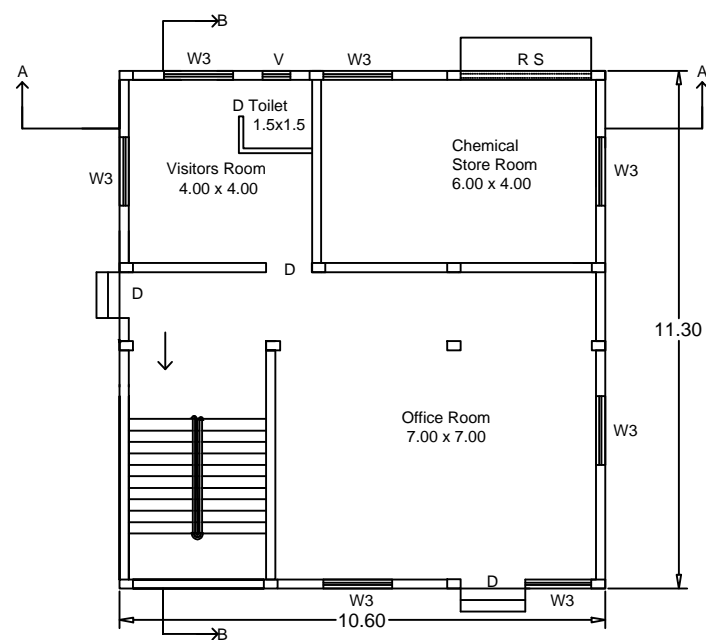
SIDE ELEVATION



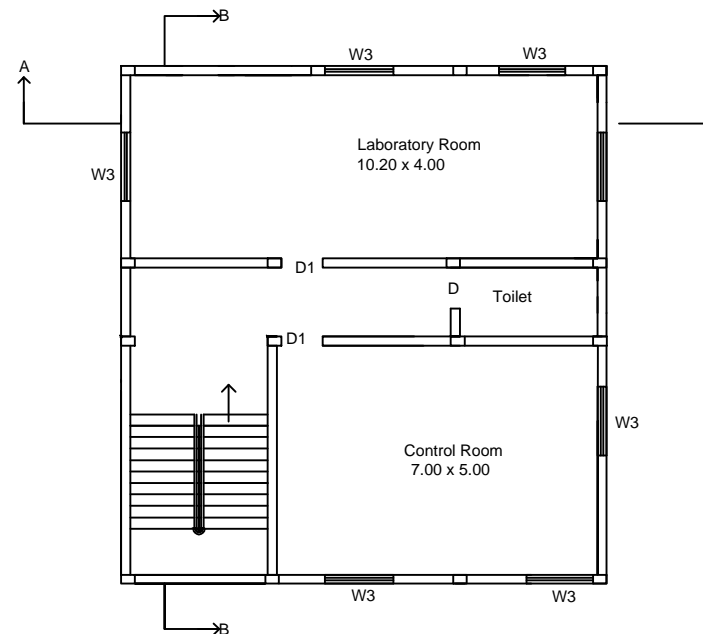
SECTION BB



SECTION BB



GROUND FLOOR PLAN



FIRST FLOOR PLAN

GENERAL NOTES

- ALL DIMENSIONS ARE IN METERS
- DIMENSIONS NOT IN SCALE
- FOR ESTIMATION PURPOSE ONLY

No.	Revision/ Issue	Date



**PPD & SEWERAGE CIRCLE,
KERALA WATER AUTHORITY,
KOZHIKODE**

PROJECT NAME

Sewerage system to Vatakara Municipality
- Construction of 7 MLD capacity sewage
treatment plant and laying Sewerage
network to Vatakara Municipality

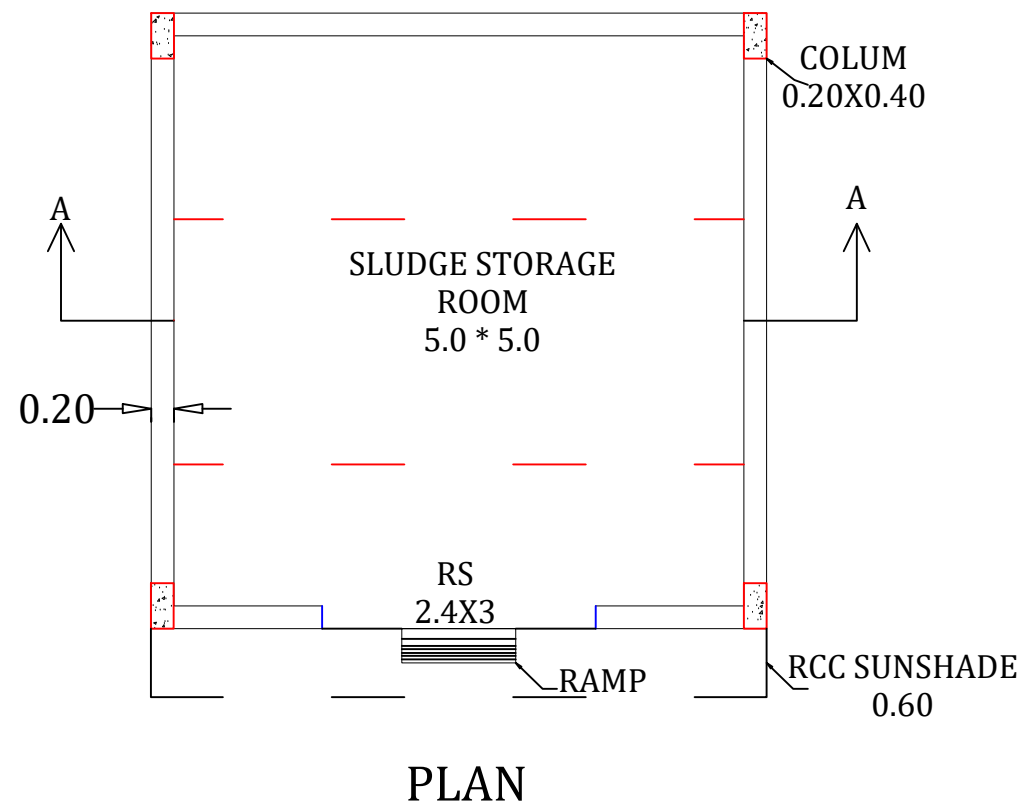
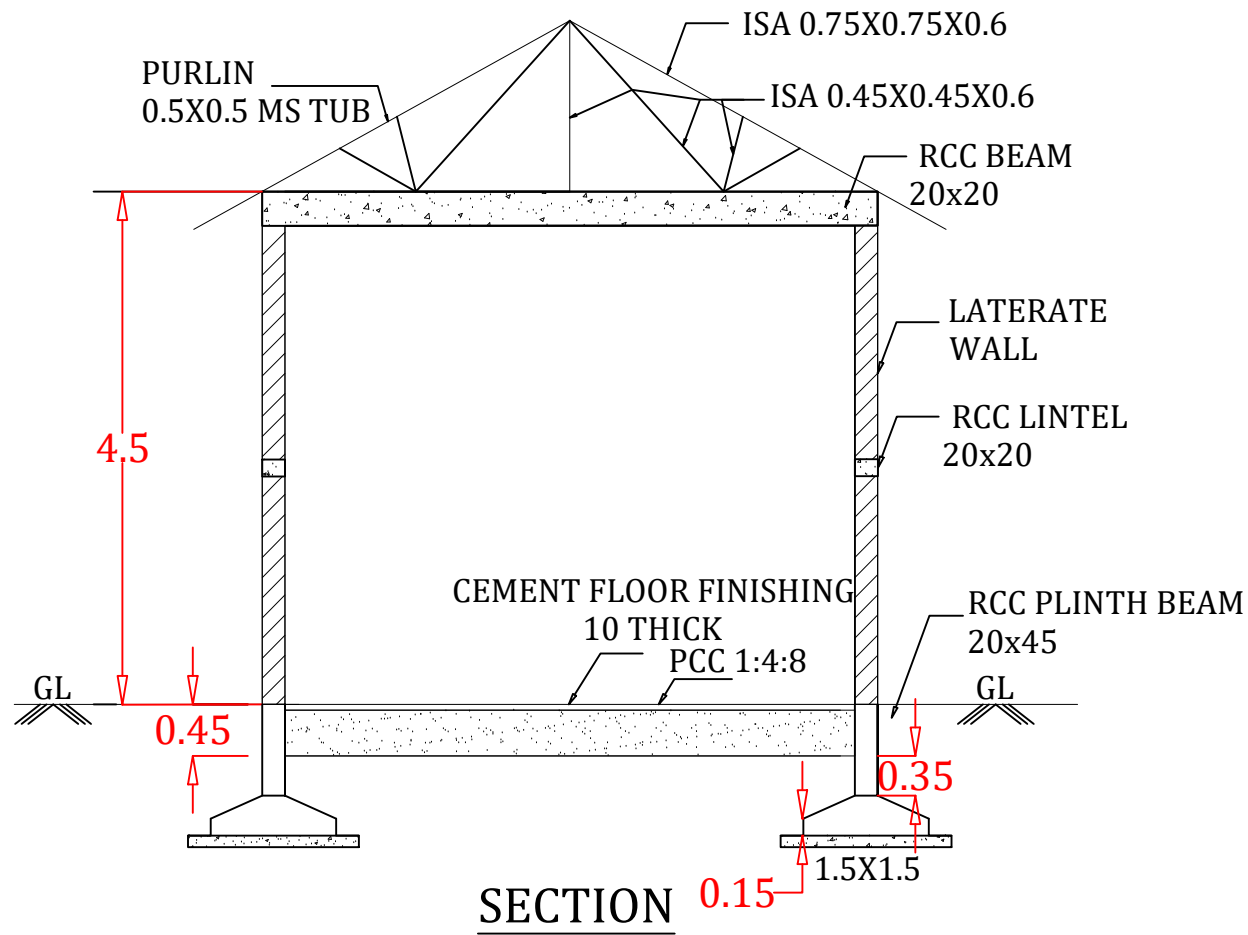
DRAWING TITLE

ADMINISTRATIVE BUILDING
MCC AND LAB

19/VATAKARA

Not in scale

AE	AEE	EE	SE	CE
----	-----	----	----	----



GENERAL NOTES

- ALL DIMENSIONS ARE IN METERS
- DIMENSIONS NOT IN SCALE
- FOR ESTIMATION PURPOSE ONLY

No.	Revision/ Issue	Date



**PPD & SEWERAGE CIRCLE,
KERALA WATER AUTHORITY,
KOZHIKODE**

PROJECT NAME

Sewerage system to Vatakara Municipality
- Construction of 7 MLD capacity sewage
treatment plant and laying Sewerage
network to Vatakara Municipality

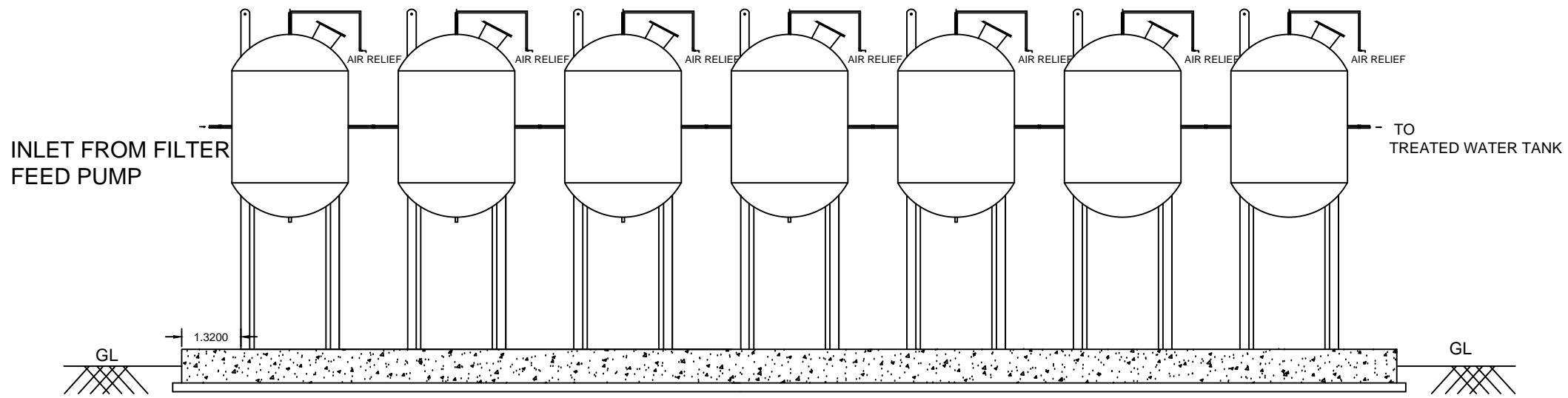
DRAWING TITLE

SLUDGE STORAGE ROOM

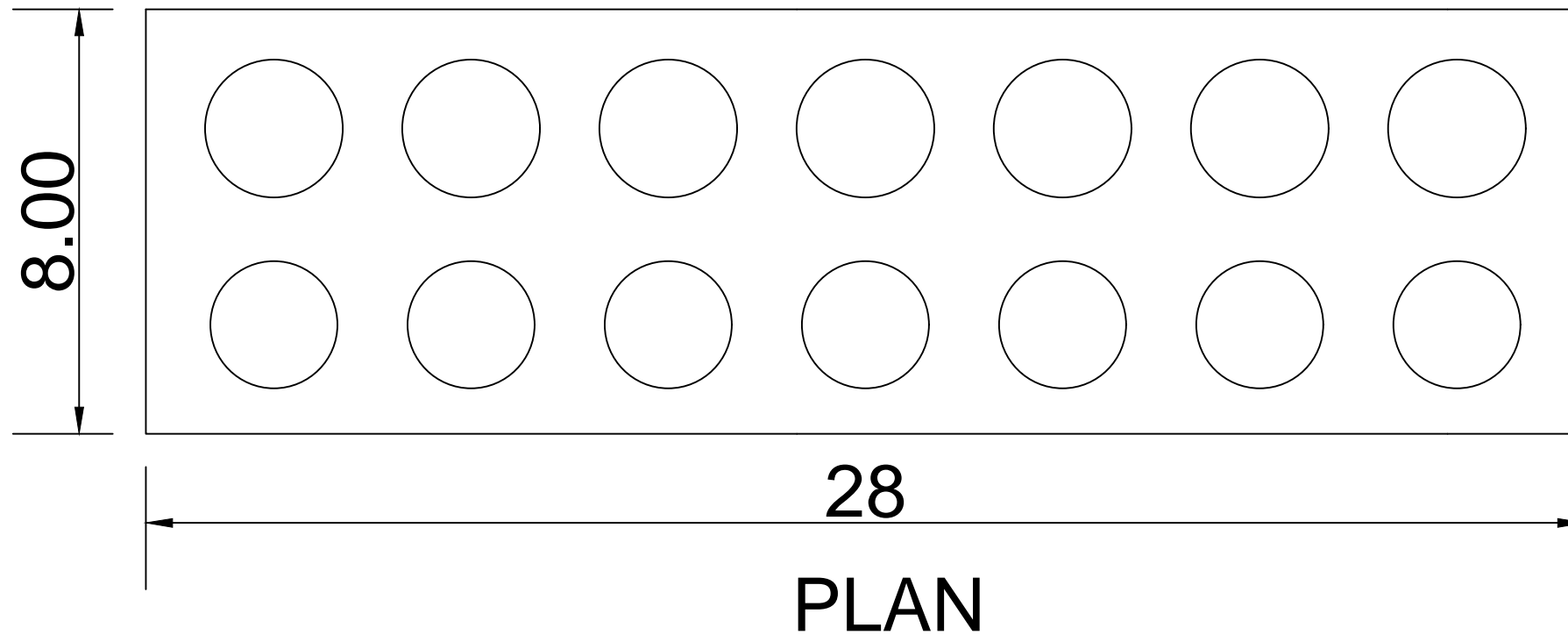
20/VATAKARA

Not in scale

AE	AEE	EE	SE	CE
----	-----	----	----	----



SECTION A A



GENERAL NOTES

- ALL DIMENSIONS ARE IN METERS
- DIMENSIONS NOT IN SCALE
- FOR ESTIMATION PURPOSE ONLY

No.	Revision/ Issue	Date



**PPD & SEWERAGE CIRCLE,
KERALA WATER AUTHORITY,
KOZHIKODE**

PROJECT NAME

Sewerage system to Vatakara Municipality
- Construction of 7 MLD capacity sewage
treatment plant and laying Sewerage
network to Vatakara Municipality

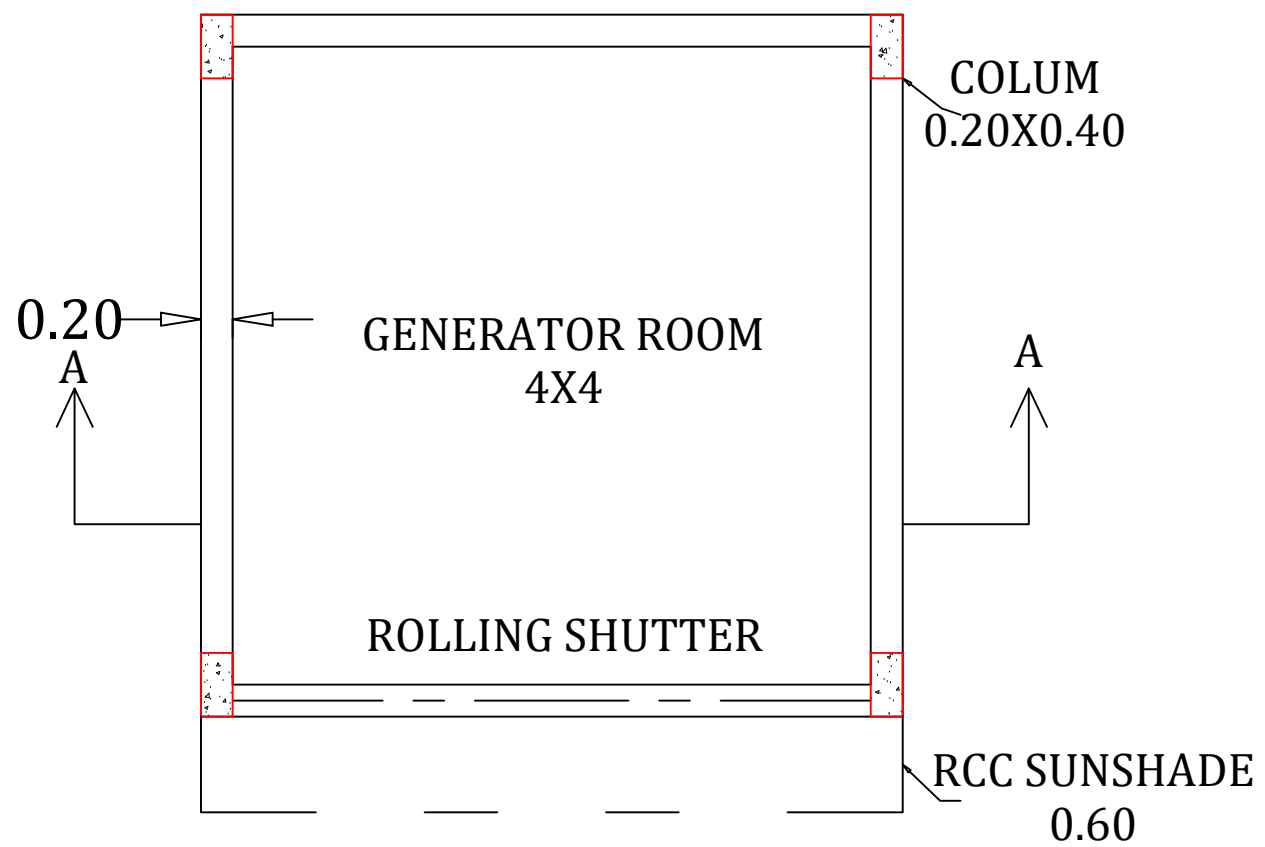
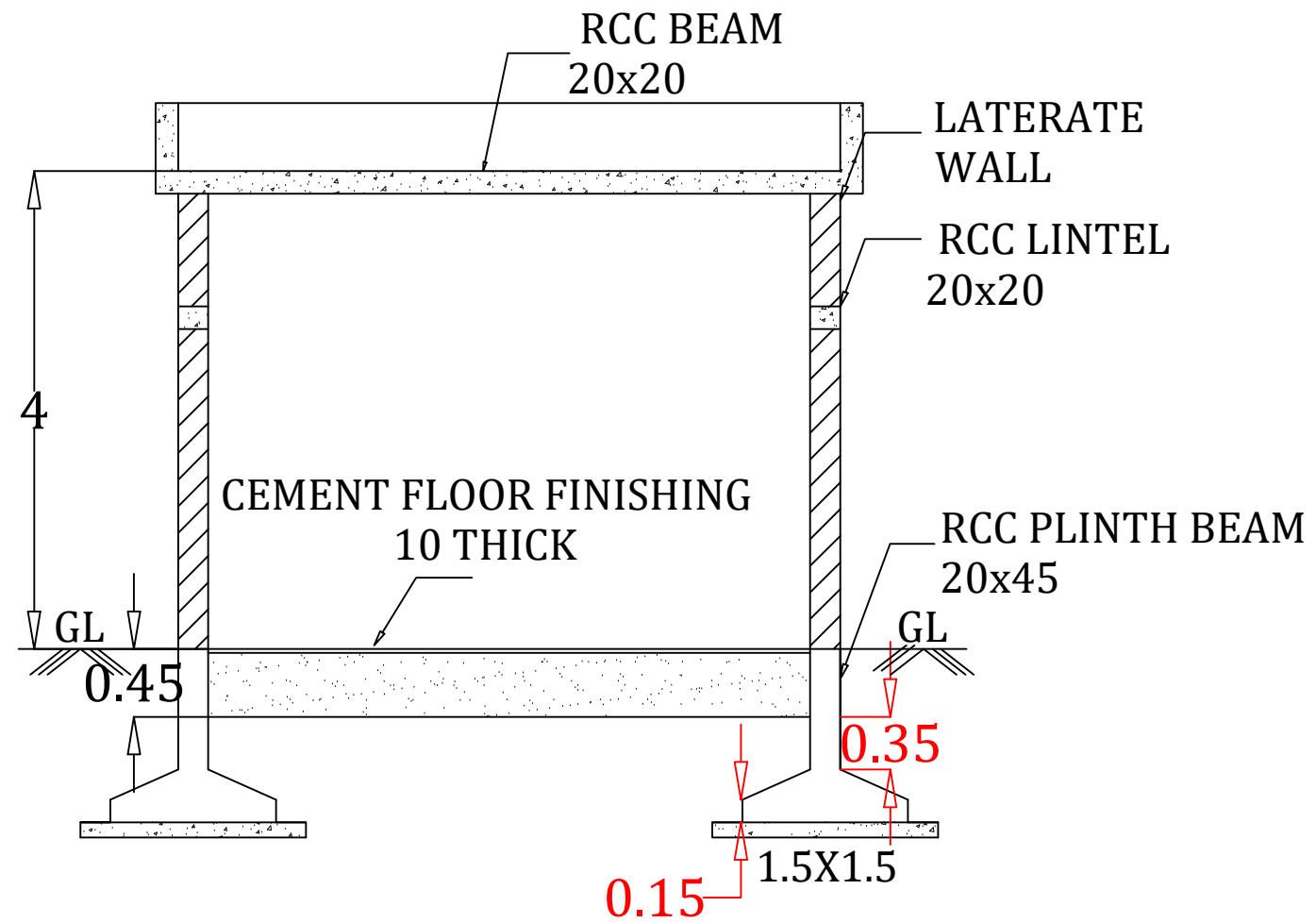
DRAWING TITLE

PSF/ACF UNIT

21/VATAKARA

Not in scale

AE	AEE	EE	SE	CE
----	-----	----	----	----



GENERAL NOTES

- ALL DIMENSIONS ARE IN METERS
- DIMENSIONS NOT IN SCALE
- FOR ESTIMATION PURPOSE ONLY

No.	Rivision/ Issue	Date



PPD & SEWERAGE CIRCLE,
KERALA WATER AUTHORITY,
KOZHIKODE

PROJECT NAME

Sewerage system to Vatakara Municipality
- Construction of 7 MLD capacity sewage
treatment plant and laying Sewerage
network to Vatakara Municipality

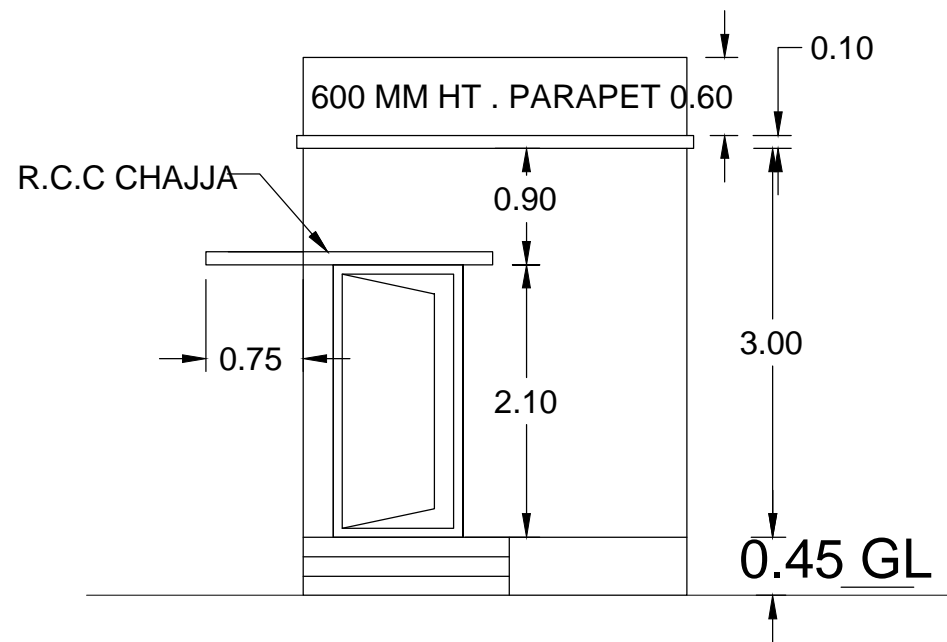
DRAWING TITLE

DG ROOM

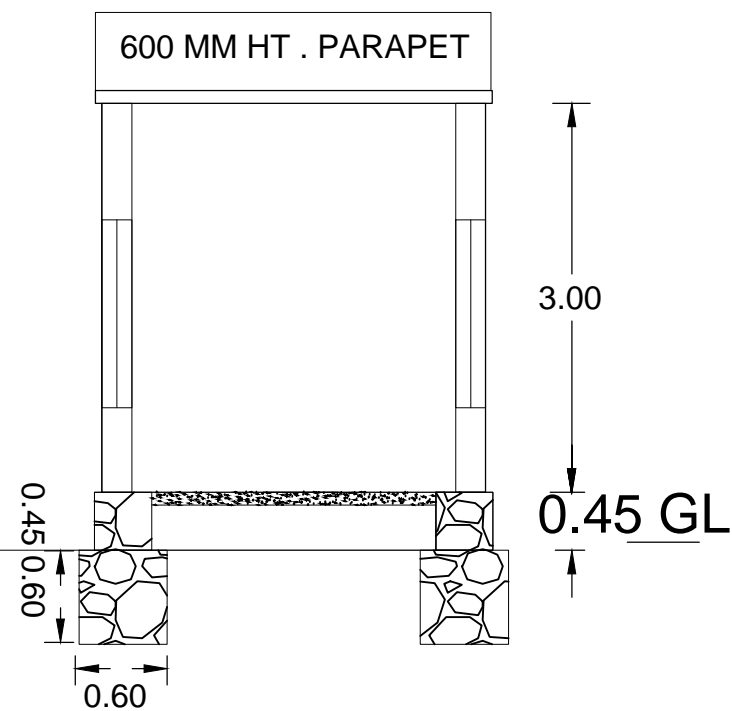
22/VATAKARA

Not in scale

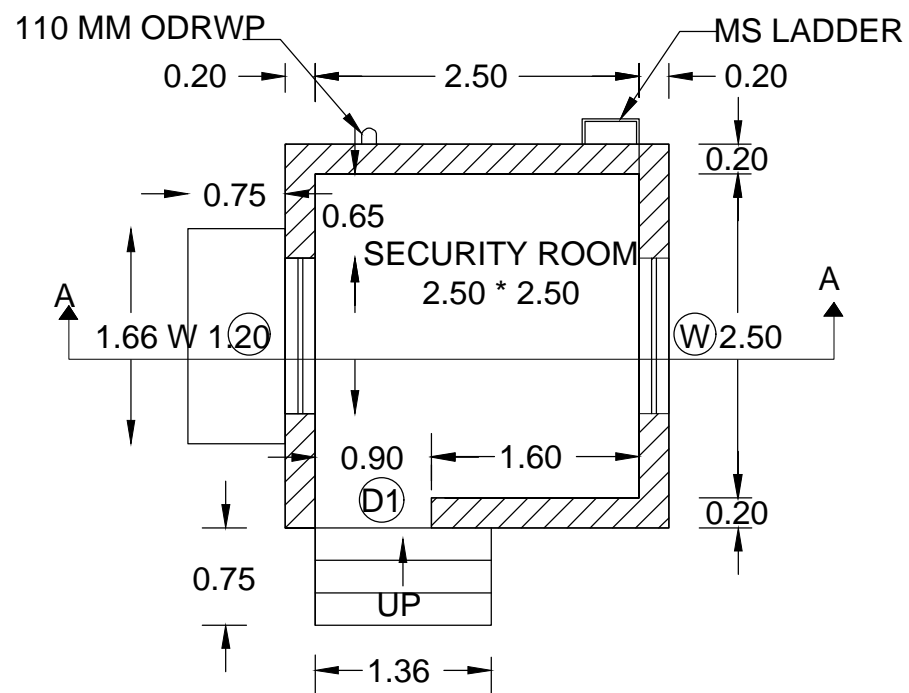
AE	AEE	EE	SE	CE
----	-----	----	----	----



ELEVATION



SECTION



PLAN

GENERAL NOTES

- ALL DIMENSIONS ARE IN METERS
- DIMENSIONS NOT IN SCALE
- FOR ESTIMATION PURPOSE ONLY

No.	Revision/ Issue	Date



**PPD & SEWERAGE CIRCLE,
KERALA WATER AUTHORITY,
KOZHIKODE**

PROJECT NAME

Sewerage system to Vatakara Municipality
- Construction of 7 MLD capacity sewage
treatment plant and laying Sewerage
network to Vatakara Municipality

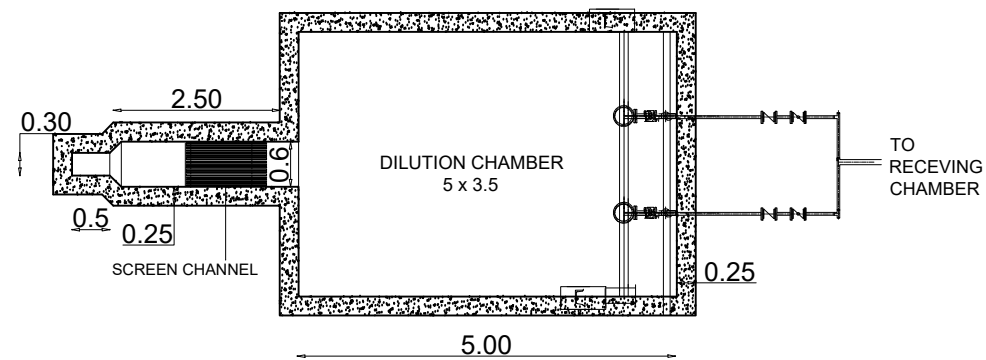
DRAWING TITLE

SECURITY ROOM

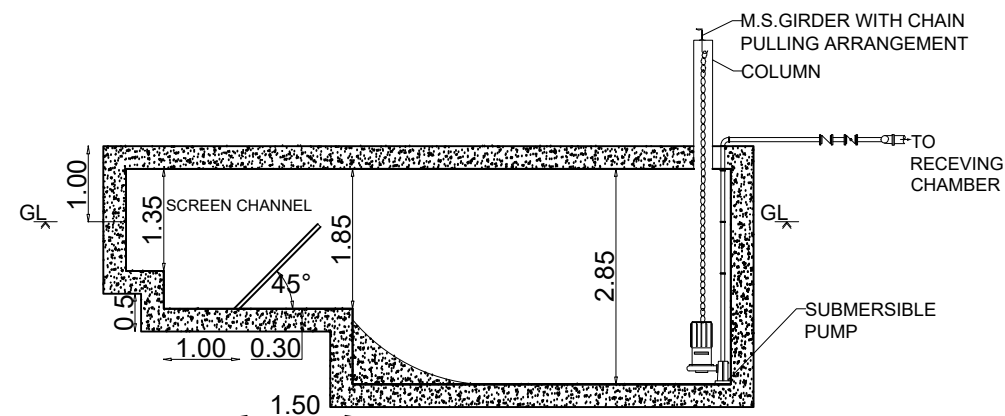
23/VATAKARA

Not in scale

AE	AEE	EE	SE	CE
----	-----	----	----	----



PLAN



SECTION : A-A

GENERAL NOTES

- ALL DIMENSIONS ARE IN METERS
- DIMENSIONS NOT IN SCALE
- FOR ESTIMATION PURPOSE ONLY

RECEIVING CHAMBER	0.30x0.50x1.35
SCREEN	2.5x0.60x1.85
DILUTION CHAMBER	5x3.5x2.85

No.	Rivision/ Issue	Date
-----	-----------------	------



**PPD & SEWERAGE CIRCLE,
KERALA WATER AUTHORITY,
KOZHIKODE**

PROJECT NAME

Sewerage system to Vatakara Municipality
- Construction of 7 MLD capacity sewage
treatment plant and laying Sewerage
network to Vatakara Municipality

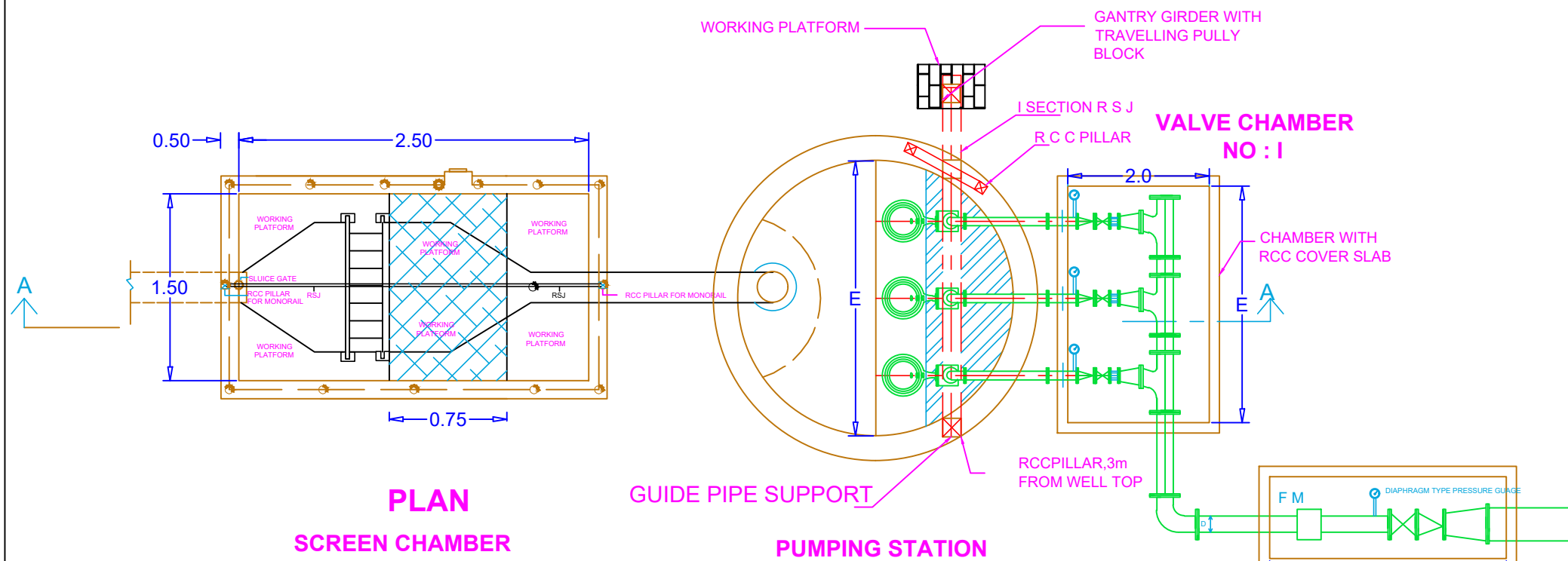
DRAWING TITLE

SEPTAGE RECEIVING UNIT

24/VATAKARA

Not in scale

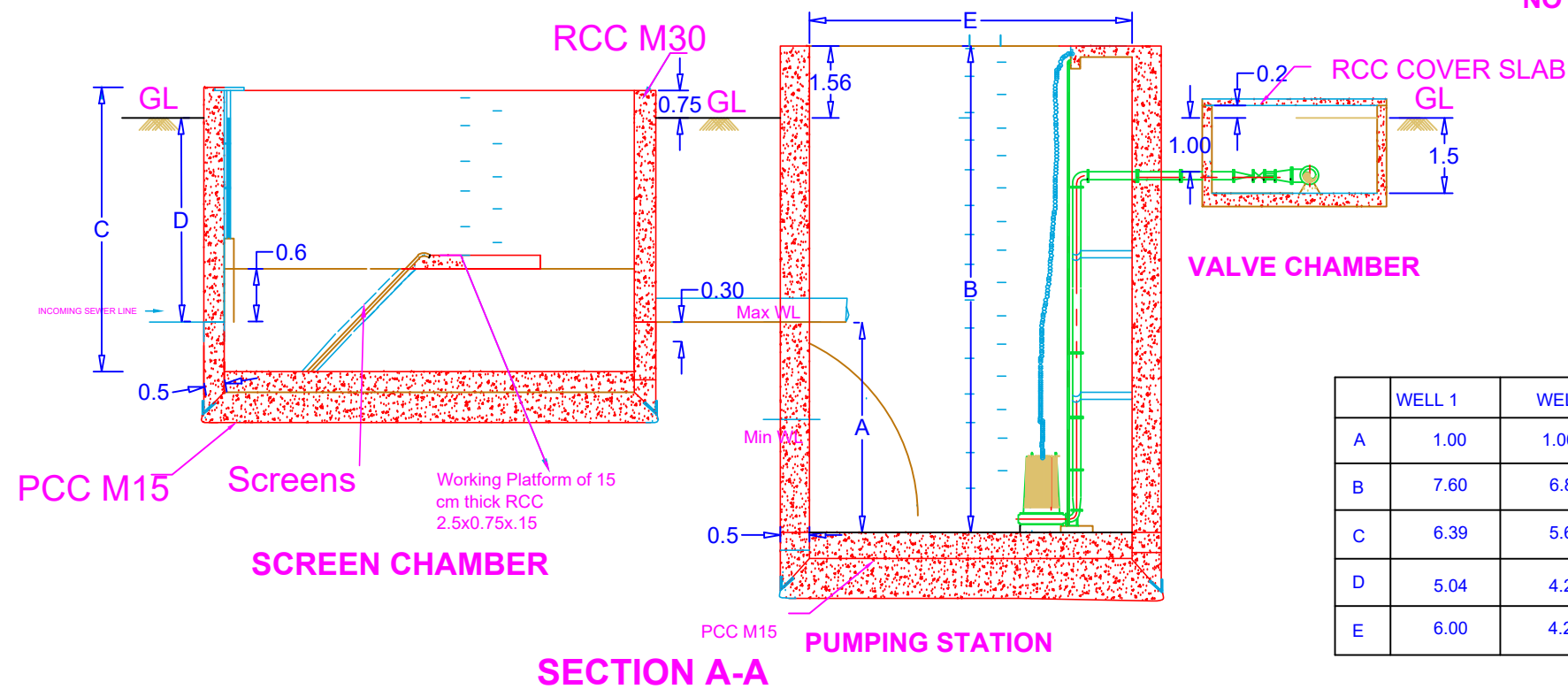
AE	AEE	EE	SE	CE
----	-----	----	----	----



PLAN
SCREEN CHAMBER

PUMPING STATION

VALVE CHAMBER NO : II



SCREEN CHAMBER

SECTION A-A

PUMPING STATION

	WELL 1	WELL 2	WELL 3	WELL 4
A	1.00	1.00	1.00	1.00
B	7.60	6.83	7.61	7.52
C	6.39	5.62	6.40	6.31
D	5.04	4.27	5.05	4.96
E	6.00	4.20	4.00	5.30

GENERAL NOTES

- ALL DIMENSIONS ARE IN METERS
- DIMENSIONS NOT IN SCALE
- FOR ESTIMATION PURPOSE ONLY

No.	Revision/ Issue	Date



**PPD & SEWERAGE CIRCLE,
KERALA WATER AUTHORITY,
KOZHIKODE**

PROJECT NAME

Sewerage system to Vatakara Municipality
- Construction of 7 MLD capacity sewage
treatment plant and laying Sewerage
network to Vatakara Municipality

DRAWING TITLE

GENERAL ARRANGEMENT OF
PUMPING STATION

25/VATAKARA

Not in scale

AE	AEE	EE	SE	CE
----	-----	----	----	----

GENERAL NOTES

- ALL DIMENSIONS ARE IN METERS
- DIMENSIONS NOT IN SCALE
- FOR ESTIMATION PURPOSE ONLY

No.	Revision/ Issue	Date



**PPD & SEWERAGE CIRCLE,
KERALA WATER AUTHORITY,
KOZHIKODE**

PROJECT NAME

Sewerage system to Vatakara Municipality
- Construction of 7 MLD capacity sewage
treatment plant and laying Sewerage
network to Vatakara Municipality

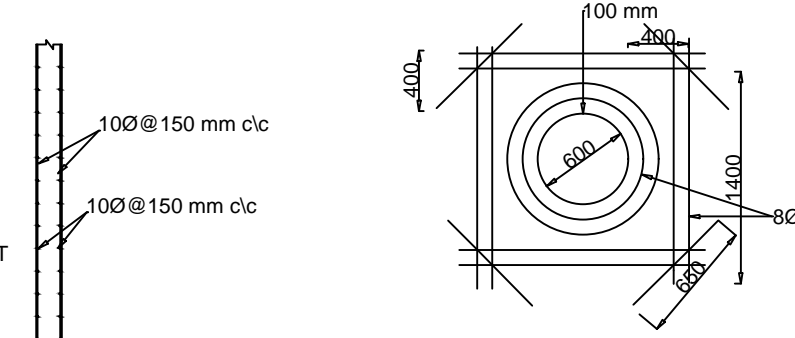
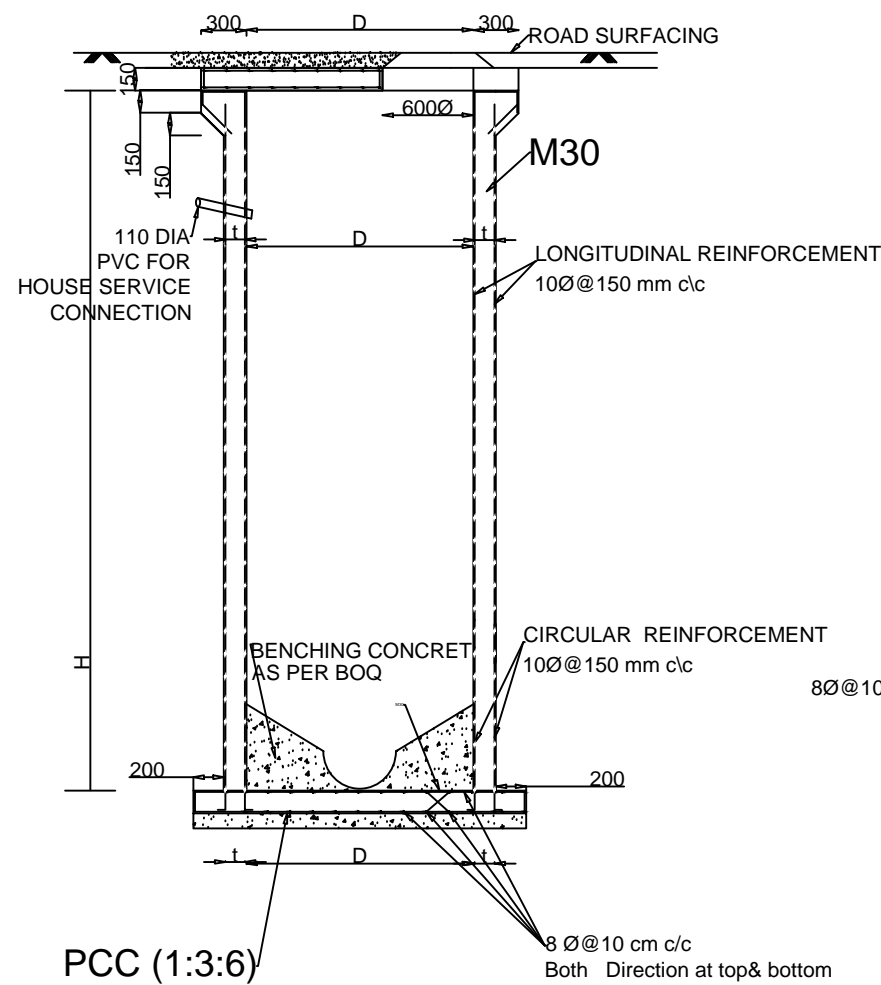
DRAWING TITLE

TYPICAL MANHOLE DETAILS

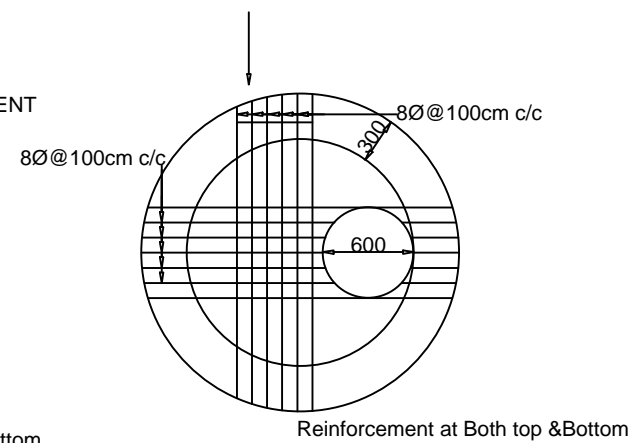
26 /VATAKARA

Not in scale

AE	AEE	EE	SE	CE
----	-----	----	----	----

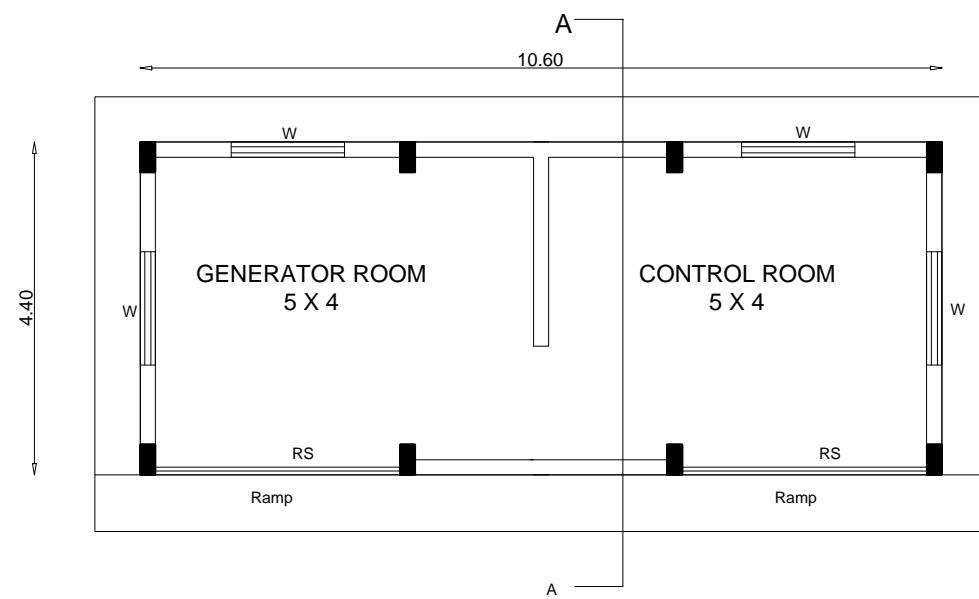


**ADDITIONAL REINFORCEMENT AROUND
MANHOLE COVER OPENING ,INLET
OPENING AND OUTLET OPENING**

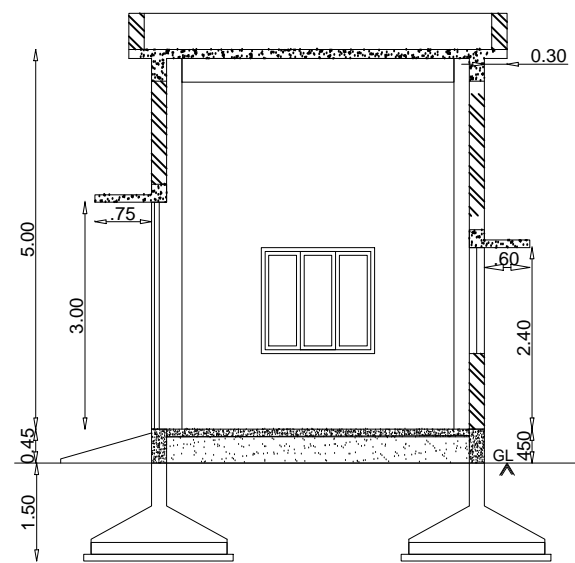


SECTION

COVER SLAB



PLAN OF GENERATOR WITH CONTROL ROOM



SECTION A A

GENERAL NOTES

- ALL DIMENSIONS ARE IN METERS
- DIMENSIONS NOT IN SCALE
- FOR ESTIMATION PURPOSE ONLY

No.	Revision/ Issue	Date



**PPD & SEWERAGE CIRCLE,
KERALA WATER AUTHORITY,
KOZHIKODE**

PROJECT NAME

Sewerage system to Vatakara Municipality
- Construction of 7 MLD capacity sewage
treatment plant and laying Sewerage
network to Vatakara Municipality

DRAWING TITLE

GENERATOR WITH CONTROL ROOM

27/VATAKARA

Not in scale

AE	AEE	EE	SE	CE
----	-----	----	----	----