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DETAILS PROJECT REPORT

Matkota District Udhamsingh Nagar (Uttarakhand)



Proposed Pradhan Mantri Awas Yojana Matkota, Uttarakhand

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ABBREVIATIONS

A&OE	Administrative and Other Expenses
AHP	Affordable Housing in Partnership
AIP	Annual Implementation Plan
BMTPC	Building Materials & Technology Pro-motion Council
CDP	City Development Plan
CLS	Credit linked subsidy
CNA	Central Nodal Agencies
CPHEEO	Central Public Health and Environmen-tal Engineering Organisation
CSMC	Central Sanctioning and Monitoring Committee
DIPP	Department of Industrial Policy and Promotion
DPR	Detailed Project Report
EMI	Equated Monthly Instalment
EWS	Economically Weaker Section
FAR	Floor Area Ratio
FSI	Floor Space Index
HFA	Housing for All
HFAPA	Housing for All Plan of Action
HUDCO	Housing and Urban Development Corporation
IEC	Information Education & Communica-tion
IFD	Integrated Finance Division
IIT	Indian Institute of Technology
IS	Indian Standard
LG	Low Income Group
MD	Mission Directorate
MoA	Memorandum of Agreement
MoHUPA	Ministry of Housing and Urban Pov-erty Alleviation
MoU	Memorandum of Understanding
NA	Non Agricultural (NA)
NBC	National Building Code
NHB	National Housing Bank
NOC	No Objection Certificate
NPV	Net Present Value
PLI	Primary Lending Institution
RWA	Residents' Welfare Association
SECC	Socio Economic and Caste Census
SFCPOA	Slum Free City Plan of Action
SLAC	State Level Appraisal Committee
SLNA	State level Nodal Agencies
SLSMC	State Level Sanctioning and Monitoring Committee
TDR	Transfer of Development Rights
TPQMA	Third Party Quality Monitoring Agency
ULB	Urban Local Body
UT	Union Territory



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Definations for the purpose of the mission

Affordable Housing Project:	Housing projects where 35% of the houses are constructed for EWS category
Beneficiary	A beneficiary family will comprise husband, wife and unmarried children. The beneficiary family should not own a pucca house (an all weather dwelling unit) either in his/her name or in the name of any member of his/her family in any part of India.
Carpet Area	Area enclosed within the walls, actual area to lay the carpet. This area does not include the thickness of the inner walls
Central Nodal Agencies	Nodal Agencies identified by Ministry for the purposes of implementation of Credit linked subsidy component of the mission
Economically Weaker Section (EWS):	EWS households are defined as households having an annual income up to Rs.3,00,000 (Rupees Three Lakhs). States/UTs shall have the flexibility to re-define the annual income criteria as per local conditions in consultation with the Centre.
EWS House	An all weather single unit or a unit in a multi-storied super structure having carpet area of upto 30 sq. m. with adequate basic civic services and infrastructure services like toilet, water, electricity etc. States can determine the area of EWS as per their local needs with information to Ministry
"Floor Area Ratio" (FAR)/FSI	The quotient obtained by dividing the total covered area (plinth area) on all the floors by the area of the plot: $\text{FAR} = \frac{\text{Total covered area on all the floors} \times 100}{\text{Plot area}}$ If States/Cities have some variations in this definition, State/City definitions will be accepted under the mission
Implementing Agencies	Implementing agencies are the agencies such as Urban Local Bodies, Development Authorities, Housing Boards etc. which are selected by State Government/SLSMC for implementing Housing for All Mission.
Low Income Group (LIG):	LIG households are defined as households having an annual income between Rs.3,00,001 (Rupees Three Lakhs One) up to Rs.6,00,000 (Rupees Six Lakhs). States/UTs shall have the flexibility to redefine the annual income criteria as per local conditions in consultation with the Centre.
Primary Lending Institutions (PLI)	Scheduled Commercial Banks, Housing Finance Companies, Regional Rural Banks (RRBs), State Cooperative Banks, Urban Cooperative Banks or any other institutions as may be identified by the Ministry
Slum	A compact area of at least 300 population or about 60-70 households of poorly built congested tenements, in unhygienic environment usually with inadequate infrastructure and lacking in proper sanitary and drinking water facilities.
State Land Nodal Agencies (SLNAs)	Nodal Agency designated by the State Governments for implementing the Mission
Transfer of Development Rights (TDR)	TDR means making available certain amount of additional built up area in lieu of the area relinquished or surrendered by the owner of the land, so that he can use extra built up area himself in some other land.



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Background:

Shelter is a basic human need next only to food and clothing. At the end of the 10th Five Year Plan, the housing shortage is estimated to be 24.7 million. However, urban areas in our country are also characterized by severe shortage of basic services like potable water, well laid out drainage system, sewerage network, sanitation facilities, electricity, roads and appropriate solid waste disposal. It is these shortages that constitute the rationale for policy focus on housing and basic services in urban areas. This policy intends to promote sustainable development of habitat in the country with a view to ensuring equitable supply of land, shelter and services at affordable prices to all sections of society. Given the magnitude of the housing shortage and budgetary constraints of both the Central and State Governments, it is amply clear that Public Sector efforts will not suffice in fulfilling the housing demand. In view of this scenario, the National Urban Housing and Habitat Policy, 2007 focuses the spotlight on multiple stake-holders namely, the Private Sector, the Cooperative Sector, the Industrial Sector for labour housing and the Services/Institutional Sector for employee housing. In this manner, the Policy will seek to promote various types of public-private partnerships for realizing the goal of Affordable Housing for All.

Housing Needs :

The magnitude of housing shortage was estimated by a Technical Group in the context of formulation of the 11th Five Year Plan. The Technical Group estimated the housing shortage at the end of the 10th Plan to be around 24.7 million for 67.4 million households. The Group further estimated that 99% of this shortage pertains To Economical Weaker Section (EWS) & Low Income Group (LIG) sectors. During the 11th Plan, the Group estimated that the total housing requirement (including backlog) will be to the tune of 26.53 million units for 75.01 million households. Whereas more than 23% of the urban population resides in slum (Census: 2001), a much higher proportion of the urban population of metropolitan cities lives in slums; it is estimated that 55% of the population of Mumbai lives in slums. It is of critical importance that the strategy of in-situ slum up gradation is adopted for preponderant proportion of the slum dwellers, since they provide valuable services to residents living close to their own dwelling places.

The Working Group on Urban Housing pertaining to the 11th Plan made different assumptions on unit cost of construction of houses in million plus cities and other urban areas for estimating the investment required for overcoming the housing shortage. The total estimated investment for meeting the housing requirement upto 2012 was estimated to be of the order of Rs.3,61,318.10 crores consisting of Rs.1,47,195 crores for mitigating housing shortage at the beginning of 11th Plan and Rs.2,14,123.10 crores for new additions

to be made during the 11th Plan period (this includes construction of pucca houses & upgradation of semi-pucca and kutcha housing units).



Magnitude of Poverty:

Non-affordability of housing by economically weaker sections of society and low income families in urban areas is directly linked with the magnitude of urban poverty. Poverty in India has declined from 320.3 million in 1993- 94 to 301.7 million in 2004-05. While there has been a decline of 18 million persons in the total numbers of the poor in India, the National Sample Survey Organization (NSSO) reports that the number of the urban poor has risen by 4.4 million persons during the same period. One fourth of the country's total urban population, numbering 80.7 million persons is below the poverty line. The urban poor constitute 26.7% of the total poor in the country. The fact that the number of urban poor has risen is in stark contrast with rural poverty, where both the total number of rural poor and its incidence vis-a-vis the rural population has fallen. The urban poor have limited access to basic services. According to the 2001 census, there is a 9% deficiency in drinking water, 26% in toilets and 23% in drainage. It is quite understandable that most of this shortage pertains to Slums.

Scope of RAY:

will provide the support to enable states to redevelop all existing slums in a holistic and integrated way and to create new affordable housing stock. The existing schemes of Affordable Housing in Partnership, and Interest Subsidy for Housing the Urban Poor (ISHUP), would be dovetailed into this scheme. No new projects under the BSUP and IHSDP scheme of the Jawahar Lal Nehru National Urban Renewal Mission (JNNURM) will be sanctioned once implementation of RAY scheme is taken up except to consume existing 11th Plan allocations that may be left uncommitted. However, projects sanctioned under the two schemes will continue to receive Central assistance as per the sanctions and the existing provision of the schemes.



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Pradhan Mantri Awas Yojana (PMAY)- Housing for all

The Hon'ble President of India has announced "By the time the Nation completes 75 years of its Independence, every family will have a pucca house with water connection, toilet facilities, 24x7 electricity supply and access.

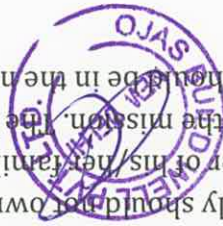
"Hon'ble Prime Minister envisioned Housing for All by 2022 when the Nation completes 75 years of its Independence. In order to achieve this objective, Central Government has launched a comprehensive mission "Pradhan Mantri Awas Yojana - Housing for All (Urban)". Mission for urban area will be implemented during 2015-2022 and this Mission will provide central assistance to implementing agencies through States and UTs for providing houses to all eligible families/ beneficiaries by 2022.

The mission seeks to address the housing requirement of urban poor including slum dwellers through following programme verticals:

- Slum rehabilitation of Slum Dwellers with participation of private developers using land as a resource • Promotion of Affordable Housing for weaker section through credit linked subsidy
- Affordable Housing in Partnership with Public & Private sectors
- Subsidy for beneficiary-led individual house construction /enhancement.

The Mission will support construction of EWS (Economically Weaker Section) houses upto 30 square meter carpet area. As per **PMAY EWS households** are defined as households having an annual income up to Rs. 3,00,000 (Rupees Three Lakhs). States/UTs will have flexibility in terms of determining the size of house and other facilities at the state level in consultation with the Ministry but without any enhanced financial assistance from Centre. According to PMAY guidelines, the minimum numbers of about 35% of the houses are constructed for EWS Category in such Affordable Housing project.

The PMAY mission will be implemented as **Centrally Sponsored Scheme (CSS)** except for the component of credit linked subsidy which will be implemented as a Central Sector Scheme. A beneficiary family will comprise husband, wife, unmarried sons and/or unmarried daughters. The beneficiary family should own a pucca house either in his/her name or in the name of any member of his/her family in any part of India to be eligible to receive central assistance under the mission. The houses constructed/acquired with central assistance under the mission should be in the name



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PMAY of India Matkota District (Udhham Singh Nagar) Uttarakhand

Mandatory Conditions:

- Availability of urban land is the biggest constraint in providing housing to all including weaker sections. Therefore, to ease administrative and regulatory bottlenecks, a set of Mandatory Conditions has been included in the Mission to facilitate growth of housing sector including affordable housing. For participating in the mission and to avail of financial assistance from Central Government, States/ UTs should agree to fulfill following Mandatory Conditions:-
- States/UTs to make suitable changes in the procedure and rules for obviating the need for separate Non Agricultural (NA) Permission if land already falls in the residential zone earmarked in Master Plan of city or area.
 - States/UTs shall prepare/amend their Master Plans earmarking land for Affordable Housing.
 - A System should be put in place to ensure single-window, time bound clearance for layout approval and building permissions at ULB level.
 - States/UTs shall adopt the approach of deemed building permission and layout approval on the basis of pre- approved lay outs and building plans for EWS/LIG housing or exempt approval for houses below certain built up area or plot area.
 - States/UTs would either legislate or amend existing rental laws on the lines of
 - model Tenancy Act being prepared by Ministry. States/UTs shall provide additional FAR/FSI/TDR and relaxed density norms for
 - slum redevelopment and low cost housing, if required.



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Need for Pilot Projects:

Given that this is a path breaking approach being taken up by the Central, State and City governments, there is a felt need to embark on a set of pilot projects with the aim of evolving, demonstrating and establishing models that can thereafter be scaled. A key objective of the programme would be to therefore incentivize innovation and encourage new approaches and solutions that can demonstrably improve the quality and quantity of shelter and services for the poor.

Such innovation could encompass:

Projects with strong community participation i.e. Slum up gradation

- redevelopment projects initiated/spearheaded by the community; or with their demonstrable involvement and participation in design, planning and implementation.

• Creation of Fresh Housing Stock and Transit Shelters.

- State/UT Government and Implementing Agencies should encourage formation of associations of beneficiaries under the scheme like RWA etc. to take care of maintenance of houses being built under the mission

- New models of public-private partnerships whereby the private sector can be encouraged to take up affordable housing for the EWS/LIG

- Innovations in planning, demonstrating integrated livelihoods, shelter and services or convergence.

- Any other innovation for which the city feels it needs to design models and determine guidelines for larger application

With this intent the Ministry of Housing & Urban Poverty Alleviation, Government of India would encourage proposals and pilot projects from institutions/agencies as below:

The following institutions are eligible to apply for pilot projects under PMAY

- States
- Urban Local Bodies through the State Level Nodal Agencies (SLNA)
- Central Government Departments and Central Public Sector



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The PMAY mission will be implemented through four verticals giving option to beneficiaries, ULBs and State Governments. These four verticals are as below:



Application Modalities:

The application should consist of a Proposal containing a brief description of the project, the stage of slum free planning that the state is in. The proposal should clearly delineate the innovations and new models the project will be piloting in terms of its scope, objective, implementation strategies. It should also clearly bring out the envisaged outcomes; and implications for state wide or regional replicability. It is expected that the implementation of the pilot projects would catalyse an innovative and effective approach to the planning and implementation of the city plans for the PMAY scheme.

Pilot Project Detailed Project Report should clearly bring out:

- In-situ development projects, including infrastructure upgrading, replacement of kucha structures with pucca structures, Incremental Housing, Affordable Housing Projects, Transit Shelters and Green field projects integrating shelter, services and livelihoods will be considered for pilots



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- Land/dwelling space to be assigned to the all slum households living in the concerned slum which will be in the form of ownership. A project which envisages grant of collective property rights would be eligible.

- Basic services including roads, water supply, sewerage, drainage, waste management and street lighting infrastructure have to be planned.

- Desirable services beyond basic services including: Fire safety plan; community Centre; local shopping complex.

- Pilot projects would need to demonstrate that the building bye laws and planning norms should not be a constraint to the slum upgrading exercise.

- Timelines to complete the project and implications for the Slum free City planning process under the PMAY scheme should be clearly laid out in the Pilot Project DPR to connect it to the Proposal.

- The DPR would be prepared as per the Delhi Schedule of Rates-2016 and would need to be submitted after approval of State Level Sanction and Monitoring Committee. For proposals pertaining to Central Government and Undertakings, DPR would be based on their respective schedule of rates.

- In view of the above considerations Urban Housing & Urban Development Authority (UHDA), a "Development Authority or the Authority" in relation to the whole of the State Area shall be as the State Authority and in relation to any development area shall be the Local Development Authority (hereinafter referred to as the Local Authority) constituted and notified under section 4 of the Act : may be called the Uttarakhand Urban and Country Planning and Development (Amendment) Act, 2013 has prepared



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Location, Geography and Climate

Uttarakhand was formed on the 9th November 2000 as the 27th State of India, when it was carved out of northern Uttar Pradesh. Located at the foothills of the Himalayan mountain ranges, it is largely a hilly State, having international boundaries with China (Tibet) in the north and Nepal in the east. On its north-west lies Himachal Pradesh, while on

The south is Uttar Pradesh. It is rich in natural resources especially water and forests with many glaciers, rivers, dense forests and snow-clad mountain peaks. Char-dhams, the four most sacred and revered Hindu temples of Badrinath, Kedarnath, Gangotri and Yamunotri are nestled in the mighty mountains. It's truly God's Land (Dev Bhoomi). Dehradun is the Capital of Uttarakhand. It is one of the most beautiful resorts in the sub mountain tracts of India, known for its scenic surroundings. The town lies in the Dun Valley, on the watershed of the Ganga and Yamuna rivers.

It is blessed with a rare bio-diversity, inter-alia, 175 rare species of aromatic & medicinal plants are found in the State. It has almost all major climatic zones, making it amenable to a variety of commercial opportunities in horticulture, floriculture and agriculture. It has a vast tourism potential in adventure, leisure, and eco-tourism.



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Proposed Pradhan Mantri Awas Yojana Matkota , Uttarakhand

Background of the Project

Shelter is a basic human need next only to food and clothing. However, urban areas in our country are also characterized by severe shortage of basic services like potable water, well laid out drainage system, sewerage network, sanitation facilities, electricity, roads and appropriate solid waste disposal. It is these shortages that constitute the rationale for policy focus on housing and basic services in urban areas. This policy intends to promote sustainable development of habitat in the country with a view to ensuring equitable supply of land, shelter and services at affordable prices to all sections of society. Given the magnitude of the housing shortage and budgetary constraints of both the Central and State Governments, it is amply clear that Public Sector efforts will not suffice in fulfilling the housing demand. In view of this scenario, Uttarakhand State government launched a scheme "Jan Awas Yojana" and Central Government has also launched a comprehensive mission "Pradhan Mantri Awas Yojana – Housing for All (Urban)". And in this connection, The Hon'ble President of India has also announced "By the time the Nation completes 75 years of its Independence, every family will have a pucca house with water connection, toilet facilities, 24x7 electricity supply and access."

Hon'ble Prime Minister envisioned Housing for All by 2022 when the Nation completes 75 years of its Independence. In order to achieve this objective, Central Government has launched a comprehensive mission "Pradhan Mantri Awas Yojana – Housing for All (Urban)". Mission for urban area will be implemented during 2015-2022 and this Mission will provide central assistance to implementing agencies through States and UTs for providing houses to all eligible families/ beneficiaries by 2022.

The mission seeks to address the housing requirement of urban poor including slum dwellers through following programme verticals:

- Slum rehabilitation of Slum Dwellers with participation of private developers using land as a resource
- Promotion of Affordable Housing for weaker section through credit linked subsidy
- Affordable Housing in Partnership with Public or Private Sectors.
- Subsidy for beneficiary-led individual house construction / enhancement.



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Defined as households having an annual income up to Rs. 3,00,000 (Rupees Three Lakhs). Uttarakhand state will have flexibility in terms of determining the size of house and other facilities at the state level in consultation with the Ministry but without any enhanced financial assistance from Centre. According to PMAY guidelines, the minimum numbers of about 35% of the houses are constructed for EWS Category as covered in the programme verticals mentioned above of such Affordable Housing project

The PMAY mission will be implemented as Centrally Sponsored Scheme (CSS) except for the component of credit linked subsidy which will be implemented as a Central Sector Scheme. A beneficiary family will comprise husband, wife, unmarried sons and/or unmarried daughters. The beneficiary family should not own a pucca house either in his/her name or in the name of any member of his/her family in any part of India to be eligible to receive central assistance under the mission. The houses constructed/acquired with central assistance under the mission should be in the name of the female head of the household or in the joint name of the male head of the household and his wife, and only in cases when there is no adult female member in the family, the house can be in the name of male member of the household.

Mandatory Conditions:

Availability of urban land is the biggest constraint in providing housing to all including weaker sections. Therefore, to ease administrative and regulatory bottlenecks, a set of Mandatory Conditions has been included in the Mission to facilitate growth of housing sector including affordable housing. For participating in the mission and to avail of financial assistance from Central Government, Uttarakhand State should agree to fulfil following Mandatory Conditions:-

- Uttarakhand state to make suitable changes in the procedure and rules for obviating the need for separate Non Agricultural (NA) Permission if land already falls in the residential zone earmarked in Master Plan of city or area.

- Uttarakhand state shall prepare/amend their Master Plans earmarking land for

- Affordable Housing.

- lines of model Tenancy Act being prepared by Ministry.



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Proposed Pradhan Mantri Awas Yojana Matkota , Uttarakhand

Objectives:

The objectives of this project are:

- To provide affordable and live able Shelter solution to Industrial Workers and workers engaged in Construction projects/activities.
- To reduce temporary/permanent establishment of new slums lacking basic physical & social infrastructure.
- To provide alternative shelter to the slum dwellers who are not eligible for relocation houses and are likely to be displaced.
- To prevent unorganized growth in housing sector.

Project Concept:

It is proposed to construct Ground + Three storied building blocks along with civic amenities like Community Facilities, Open Spaces, Park/Garden, Local Shopping, Crèche, etc. with well-developed Infrastructure networks such as Roads, Drainage, Water Supply, Sewerage, Electrification, Rain Water Harvesting, Horticulture/Site Development, Street Light, Parking, Over Head Tank, Sewerage Treatment Plant, Substation, as well as planned circulation and other features. One such building will provide **8 unit & 16 units** at one floor and to provide **928** units at total 15 Tower of such type of buildings need to be built up. The main concept behind the formulation of this scheme is to provide not just shelter for the Economical weaker Section /Lower Income Group /migrating population but also a healthy and enabling urban environment, to help them to come out of their poverty level and

- To integrate the residential areas with social network of the entire complex.
- Sustainable improvement in overall quality of life of Weaker Class / Lower income Group/industrial labours/migrating population.
- Sustainable improvement in standards of health, education and community life and increased income-earning potential of Weaker Class / Lower income Group/ migrating population by providing a livelihood training centre.
- Strong, committed and broad-based formal and informal community-based groups, which participate actively in sustainable development activities established and functioning.

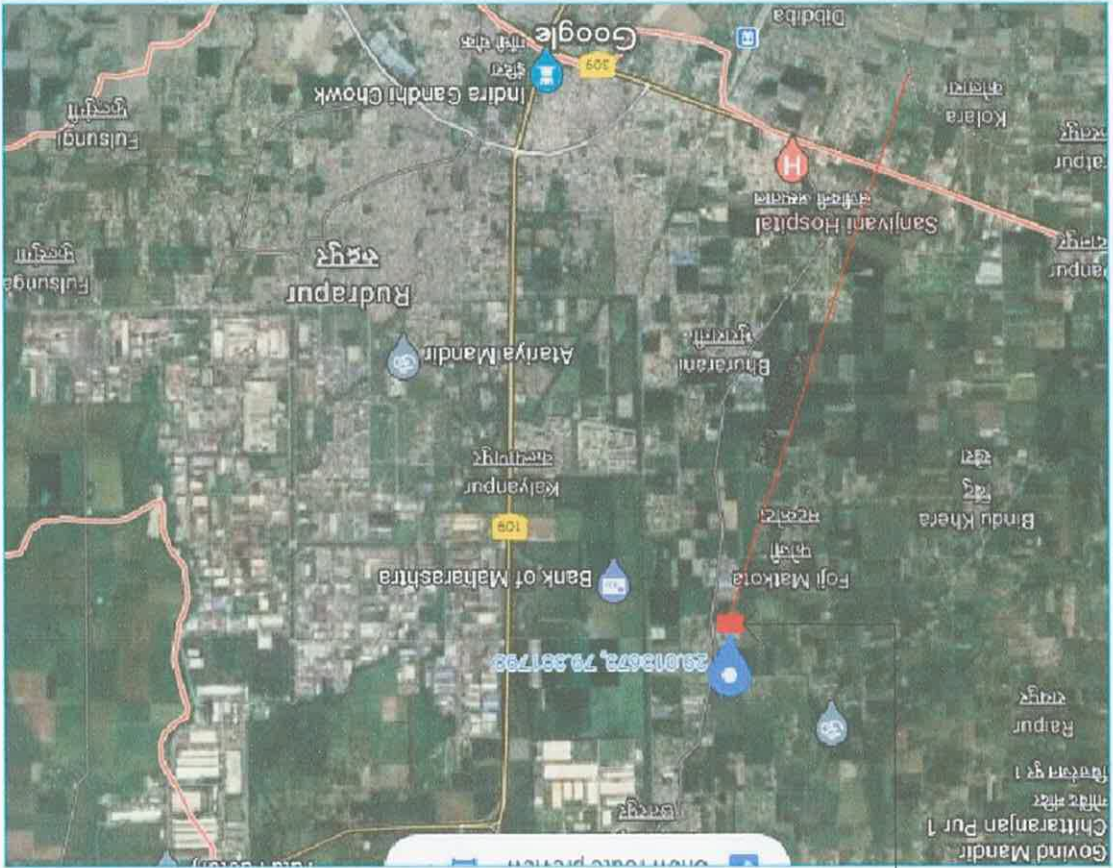


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Project Site , Location Google image & Key plan

Google Images



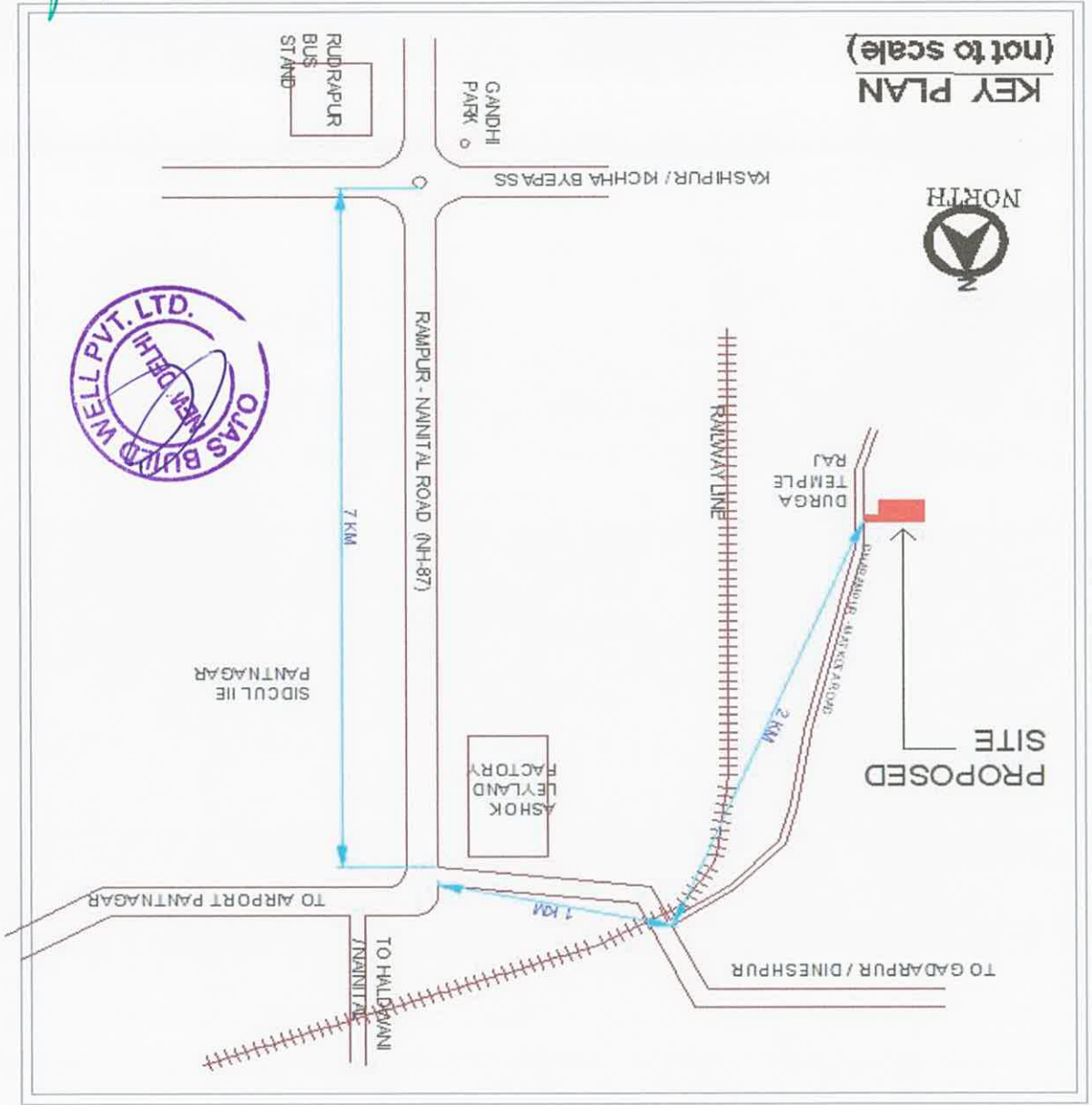
GOOGLE MAP LOCATION PLAN



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Key Plan



Monolithic Concrete Construction Technology:

Monolithic – The term is derived from Imposing in size, bulk or solidity. Characterized by massiveness and rigidity and total uniformity. The synonyms of Monolithic are Massive or Monumental.

In MCC beams, columns and filler brick walls are eliminated and instead walls made from concrete are used to take loads of the building. Here walls and slabs are cast in one operation in specially designed light weight forms / moulds. Concrete is poured in the forms and forms are removed after the setting of the concrete takes place, resulting in box like cubical structure of required architectural design.

The entire operation essentially comprises fitting and erecting the portion of shuttering / forms as already determined and then carrying out concreting of the walls and slabs. Props are so designed that they stay in position while de-shuttering of slabs takes place. The dimensional accuracy of the formwork is of high order. Therefore any possibility of errors does not rise. These forms enable rapid construction of multiple units of repetitive types.

The pre-designed form work also acts some sort of assembly line production and require few semi-skilled workers / labour.

As bricks are not used in this type of construction walls are just rendered with cement slurry to give even shed thus eliminating need of plastering resulting in saving in time and cost of plastering. After removal of form work finishing activities like fixing of doors and windows, flooring works, fixing of plumbing, sanitary and electrical services etc can be carried out as per the current / local practice.

In this system, in place of traditional RCC framed construction of columns and beams; all walls, floors, slabs, columns, beams, stairs, together with door and window openings are cast-in-place monolithically using appropriate grade of concrete in one operation. The especially custom designed modular formwork made up of Aluminium is easy to handle with minimum labour & without use of any equipment. Being modular formwork system, it facilitates in rapid construction of multiple / mass unit scale.



PAL ARCHITECT AND ENGINEER
COA No. CA/2018/96244
Case No. 141/11/2012
Date: 03/08/2018
Near by IDBI Bank, Dehradun (U.K.)
Tapovan Road Infront of PRD Ground
Mob.: 7895872139, 9412143346

Highlights of the MCC Technology :

- In the Monolithic concrete construction with Aluminium / Plastic / Steel / Composite forms system, Concrete walls and slabs are cast monolithically at one pour.

- The system allows reduction in thickness of concrete members below the minimum value than the conventional construction, thus reducing the consumption of natural resources.
- The technology reduces the cost of repair and maintenance compared to conventional system.

- Walls and slabs are cast in one operation in specially designed light weight form/ moulds in concrete.

- Concrete is poured in the forms & forms are removed after the setting of concrete takes place, resulting in box like cubical structure of required architectural design.

- The pre-designed formwork also acts some sort of assembly line production and enables rapid construction of multiple units of repetitive type.

Basic Material Requirements

Formwork system

Formwork system is propriety system and designed as per loading requirements of the structure. It has adequate stiffness to weight ratio, yielding minimum deflection under concrete loading. The panel should fix precisely, securely and require no bracing. Being recent advancement in technology, IS-14687:1999 Guidelines for falsework for concrete does not cover requirements of special type of formwork system.

Concrete

Shall be of appropriate grade based on environment condition as per IS 456:2000

Reinforcement

Shall conform to IS 1786:2008



PAL ARCHITECT AND ENGINEER
COA No. CA/2018/96244
Case No. 14/112-92
Date: 14/11/2018
Tapovan Road Infront of PRD Ground
Near by IDBI Bank, Dehradun (U.K.)
Mob.: 7895872139, 9412143346



Details of Formwork

The formwork systems used are made of lightweight Aluminum. The recommended concrete forms generally use robotics welding system for manufacturing. A soft alloy weld wire is utilized in the concrete form weld process. Fixing of the formwork is done using tie, pin & wedges system. It does not require very skilled labor to do the job.

Structural Requirements of the Construction

The Monolithic RCC construction is considered as shear wall system. The maximum spacing between cross wall shall be limited to 1.5 times the floor height if supported on two edges and 2.0 times the floor height, when supported on all four edges.

The walls are designed primarily for loading and also for in-plane lateral load (shear) and out of plane (bending) due to wind load and earthquake forces as per relevant Indian Standard Code IS 875(Pt.3):1987 and IS1893(Pt.1):2002 respectively. For out of plane loading, the plate can be assumed to be supported by floor slabs / diaphragm and cross walls and continuity can be assumed, wherever applicable.

The structural design of plain & RCC shall be as per IS 456:2000 while IS 13920:1993 is referred for ductile detailing of reinforced concrete structure. Thickness of wall below plinth level should be minimum 200 mm with double layers reinforcement.

Guidelines on Monolithic Concrete Construction prepared by BMTPC may be referred for material requirements & design aspects of this system.

Durability

Since concrete is main constituent material in this system, durability of the structure can be achieved by using proper ingredient, Grade of concrete as per IS 456:2000 and mix design in accordance with IS 10262:2009.

Thickness of the wall is generally 100 mm with the centrally placed reinforcement. Therefore, adequate cover is likely to be maintained; as a result high durability is achieved.



PAL ARCHITECT AND ENGINEER
COA No. CA/2018/96244
Case No. 2028 Date 14/11/2022
Tapovan Road Infront of PRD Ground
Near by IDBI Bank, Dehradun (U.K.)
Mob.: 7895872139, 9412143346

Ease of fixing services

All electric and plumbing fixtures, lines have to be pre-planned and placed appropriately before pouring concrete in RC walls & slabs. Post construction alternation is not desirable.

ECONOMY OF SCALE

Economy of scale depends upon the volume of work and number of repetition of the formwork. To achieve economy, minimum 100 repetitions are desirable.

For very small project of less than 500 units, this system may not prove to be economical.

Other features

Pre designed formwork acts as assembly line production and enables rapid construction of multiple/mass scale 1) units of repetitive type.

Varying work cycle is possible, however, for speed and economy 3-4 days cycle are

desirable.2)

It is flexible in design and can form any architectural or structural configuration, such as stairs, windows, etc.3)



PAL ARCHITECT AND ENGINEER
COA No. CA/2018/96244
Case No. 0038 Date: 14/11/2018
Tapovan Road Infront of PRD Ground
Near by IDBI Bank, Dehradun (U.K.)
Mob.: 7895872139, 9412143346

SPECIFICATIONS FOR EWS HOUSES - CONSTRUCTED UNDER PMAY

PMAY of Site Matkota District (Udham singh Nagar) Uttarakhand : 263153

Sl. No	ITEM	SPECIFICATION
1.	Earthwork excavation	The earthwork excavation shall be done as per CPWD specification. The foundation shall rest on firm base Same excavated good earth soil is to be filled.
2.	Filling in trenches	M-20 grade of concrete is used for all the RCC works
	Foundation (monolithic cement concrete structure)	
	Base concrete	1:4:8 grade, 10 cm thick below building foundations on hard strata.
	Plinth Filling	If excavated soil or part of excavated soil seems to be good for filling, same shall be refilled as per direction of engineer in charge
	RCC Footing/Raft/Piles	M-20 grade of concrete is used for 450mm thick raft using Self Compacting Concrete Design Mix.
	Plinth beam/grade slab	M 20 grade of concrete is used for all the works using Self Compacting Concrete Design Mix
3.	Super structure	
	a) Slabs	M 20 grade of concrete is used for all the works using Self Compacting Concrete Design Mix.
	b) Projections	M 20 grade of concrete is used for all the works using Self Compacting Concrete Design Mix
4.	Flooring	1. Everywhere in EWS unit is having ordinary Cement flooring including staircase etc. with Colour Pigment. 2. Industrial tiles flooring in parking areas.
5.	Skirting	Skirting in ordinary cement with neat punning in all rooms shall be to the height of 100mm.
6.	Kitchen platform and sink	Ordinary RCC Slab with neat cement punning and with provision for cut-out of Stainless Steel Sink.
	Putty	Putty on inner walls and ceiling.
7.	Finishing	Internal:- White washing on internal walls and ceiling External:- Water proofing cement paint
8.	Waterproofing	Toilets cement slurry mixed with water proofing treatment.
9.	Joinery	
	a) Windows	Angle iron frames and glazed shutters for windows and clerestory windows using 4 mm thick float glass panes with hillock wood.
	b) Doors	a) Angle Iron Frames and shutters – 25 mm thick flush door shutter, non-decorative type for rooms b) Angle Iron Frames and Steel shutters for block entrance & mummy of staircase. c) FRP frame and shutter for Bath and WC
10.	Doors & Window Fixtures and Fitting	Oxidised MS fittings
11.	Railings	MS railings



PAL ARCHITECT AND ENGINEER
COA No. CA/2018/96244
Case No. 19/11/2012
Date: 19/11/2012
Near by IDBI Bank, Dehradun (U.K.)
Tapovan Road Infront of PRD Ground
Mob.: 7895872139, 9412143346

Public Health & Sanitary Works

Sl. No	ITEM	SPECIFICATION
1.	Water Supply	
	Internal Areas water supply pipe (inside the Block in shafts, terrace and rising main as per drawing and design)	Unplasticised-Rigid PVC rain water pipes conforming to IS :13592
	Bib-Cock	Long body CP Brass Bib-Cock.
	Control valves	CI Wheel Gun Metal Valve.
2.	Sewerage (Sanitary & Rain water)	
	Internal areas sanitary pipe (inside the flats or inside the block and in all Bath, WC and kitchen)	Supplying, laying, jointing and testing of 110mm Dia. And 75 mm unplasticized Non-pressure Polyvinyl Chloride (PVC-U) Pipes.
	External Area	Stone Ware Pipes with all around concreting.
	Rain Water Drainage	Providing UPVC pipes of approved make for
	Pipe (inside the Block in shafts as per drawing and design)	4kg/Sq.Cms. of single socket pipe of ISI standard confirming to ISI 1352 with air tight joints, fixing with clamps and nails etc., complete for (Vent Shaft) WC Connection
3.	Sanitary Fittings	
	in W.C.	Indian type W.C. pan with 100 mm sand cast Iron P or S trap, 10 liter low level white P.V.C. flushing cistern, including flush pipe, with manually controlled device (handle lever) .
	Floor Trap	Providing 76.2mm (3") Dia. NAHANY TRAP with fall for UPVC/SWR for toilets and kitchen
	Gully Chambers	Providing and fixing square-mouth S.W. gully trap grade 'A' complete with C.I. grating brick masonry chamber with water tight C.I. cover with frame of 300x300 mm size (inside) the weight of cover to be not less than 4.50 kg and frame to be not less than 2.70 kg as per standard design :
	Internal sanitary and collecting chambers	Sewage disposal from Indian type W.C. pan & waste water from kitchen with 100 mm PVC pipe & Bathroom with 75 mm diameter PVC pipe with fittings.



Electrical Works:

Sl. No	ITEM	SPECIFICATION
1.	Point Wiring	Wiring for light point/ fan point/ exhaust fan point with 1.5 sq.mm FRLS PVC insulated copper conductor single core cable in surface / recessed PVC conduit, with Piano type switch.
2.	Wiring for circuit / Submain	Wiring for circuit/ sub main wiring along with earth wire with the following sizes of FRLS PVC insulated copper conductor, single core cable in surface/ recessed PVC conduit as required 2 X 1.5 sq. mm + 1 X 1.5 sq. mm earth wire 2 X 4 sq. mm + 1 X 4 sq. mm earth wire 2 X 6 sq. mm + 1 X 6 sq. mm earth wire
3.	PVC conduit	Supplying and fixing of following sizes of PVC conduit of along with accessories in surface/recess or cutting the wall and making good the same in case of recessed conduit as required. 20mm & 25mm dia with
4.	Switch and socket	Supplying and fixing following Piano Type switch/ socket on the switch box including connections 5/6 amps switch 15/16 amp switch 3 pin 5/6 amp socket outlet 3 pin 15/16 amp socket outlet
5	Fan regulator	Supplying and fixing stepped type electronic fan regulator
6	Switch box	Supplying and fixing of suitable size metal box with phenolic laminated sheet cover in front
7	Angle holder	Supplying and fixing brass batten/ angle holder including connection etc. as required.
8	MCCB	Providing and fixing MCCB in existing cubicle panel board including drilling holes in cubicle panel, making connections, etc. as required.

PMAY of Site Matkota District (Udhham singh Nagar) Uttarakhand : 263153



PAL ARCHITECT AND ENGINEER
COA No. CA/2018/96244
Case No. 5078 Date 19/11/2022
Tapovan Road Infront of PRD Ground
Near by IDBI Bank, Dehradun (U.K.)
Mob.: 7895872139, 9412143346



For Internal Flat	MCB Enclosure	For Common Area Service	10.	11.	12.
Supplying and fixing SPN Distribution Board with IP43 Protection (Metal Door) as per 13032 for all incoming and outgoing (With MCB/ RCCB/ Isolator)			Following way TPN distribution boards 4 way Double door 6 way Double door 8 way Double door 12 way Double door	Supplying and fixing 5 amps to 32 amps rating, 240/415 volts, miniature circuit breaker suitable for inductive load of following poles in the existing MCB DB complete with connections, Single pole Single pole and neutral Double pole Triple pole Triple pole and neutral	Isolator
					40 amps 63 amps



PAL ARCHITECT AND ENGINEER
COA No. CA/2018/96244
Case No. Date 14/11/2022
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Mob.: 7895872139, 9412143346

ABSTRACT OF PROPOSED PHYSICAL INFRASTRUCTURE

Buildings

- 1) Total 928 units are provided under the scheme
- 2) 15 Tower are designed to accommodate 928 units.
- 3) Ground + 3 storied building
- 4) Each building has 8 unit & 16 units on each floor.
- 5) Each unit has 1 Bedroom, Living Room, Kitchen, Bathroom and WC
- 6) Total no. of floors – 4
- 7) Total no of units per tower $8 \times 4 = 32$ units $16 \times 4 = 64$ units

Infrastructures

I. Storm Water Drainage

- Brick Masonry open Drain is proposed for collection of Rain Water

II. Roads and Pavers

- Internal concrete road of 5.0 mtr. and 4 mtr wide are proposed with 10 mtr. wide road as the main entry road.
- 600 mm thick factory made cement concrete inter locking paver blocks are proposed at open areas between buildings and other locations.

III. Compound Wall

- Brick Masonry Compound Wall

VII. Internal Water Supply and Sanitation Facilities

- WC's, Wash basins, Kitchen Sink, Urinal basins, water taps and all other necessary Water Supply & Sanitation facilities are proposed with proper fitting & fixtures at each floor of every building.

VIII. Internal Electrical Installations

- Sufficient nos. of electrical points for fans, Ceiling fans, call bell, light, chargers etc. are proposed in each room/corridors/stairs/baths/toilets/urinal/stores with metal box and proper wiring systems.

IX. Parking Facilities

- Sufficient Parking facilities for two Wheeler Vehicles are proposed.



PMAY of Site Matkota District (Udhham Singh Nagar) Uttarakhand - 263153
Near by IDBI Bank, Dehradun (U.K.)
Tapovan Road Infront of PRD Ground
Case No. Date.
COA No. CA/2018/96244
ARCHITECT AND ENGINEER



PROJECT COST DETAILS

As per the Scheme Guidelines of Pradhan Mantri Awas Yojana Housing for all an single unit or a unit in multi-storied super structure of EWS type Houses with all adequate basic civic services and infrastructure services like Toilet, Water, Electricity etc. So, we have designed the typical EWS dwelling unit of approx. 23.00 square meters carpet area which will have 2 rooms (i.e., living room and one bed room), a kitchen, separate bath and WC and balcony.

SI No.	Type	Nos. of Dwelling Units	Carpet Area of each unit	Super built up Area of each unit
1.	EWS	1088	23.24 sq.m	25.30 sq.m

SI No	DESCRIPTION OF WORK	AMOUNT
1	Grand Total Tower A	19116391.72
2	Grand total B to H & J to N , P , Q (14 Tower)	579376967.4
3	Grand Total other service	114739864.3
	Grand total project cost	713233223.4



PAL ARCHITECT AND ENGINEER
COA No. CA/2018/96244
Case No. 0078 Date: 14/11/2018
Tapovan Road Infront of PRD Ground
Near by IDBI Bank, Dehradun (U.K.)
Mob.: 7895872139, 9412143346

(Architecture Drawing)
Pradhan Mantri Awas Yojna EWS
(Matkota Uddham Singh nager)
(Uttarakhand)

14/11/2022
0-078
PAL ARCHITECT AND ENGINEER
COA No. CA/2018/96244
Case No. Date
Tapovan Road Infront of PRD Ground
Near by IDBI Bank, Dehradun (U.K.)
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PAL ARCHITECT AND ENGINEER

COA No. CA/011496244

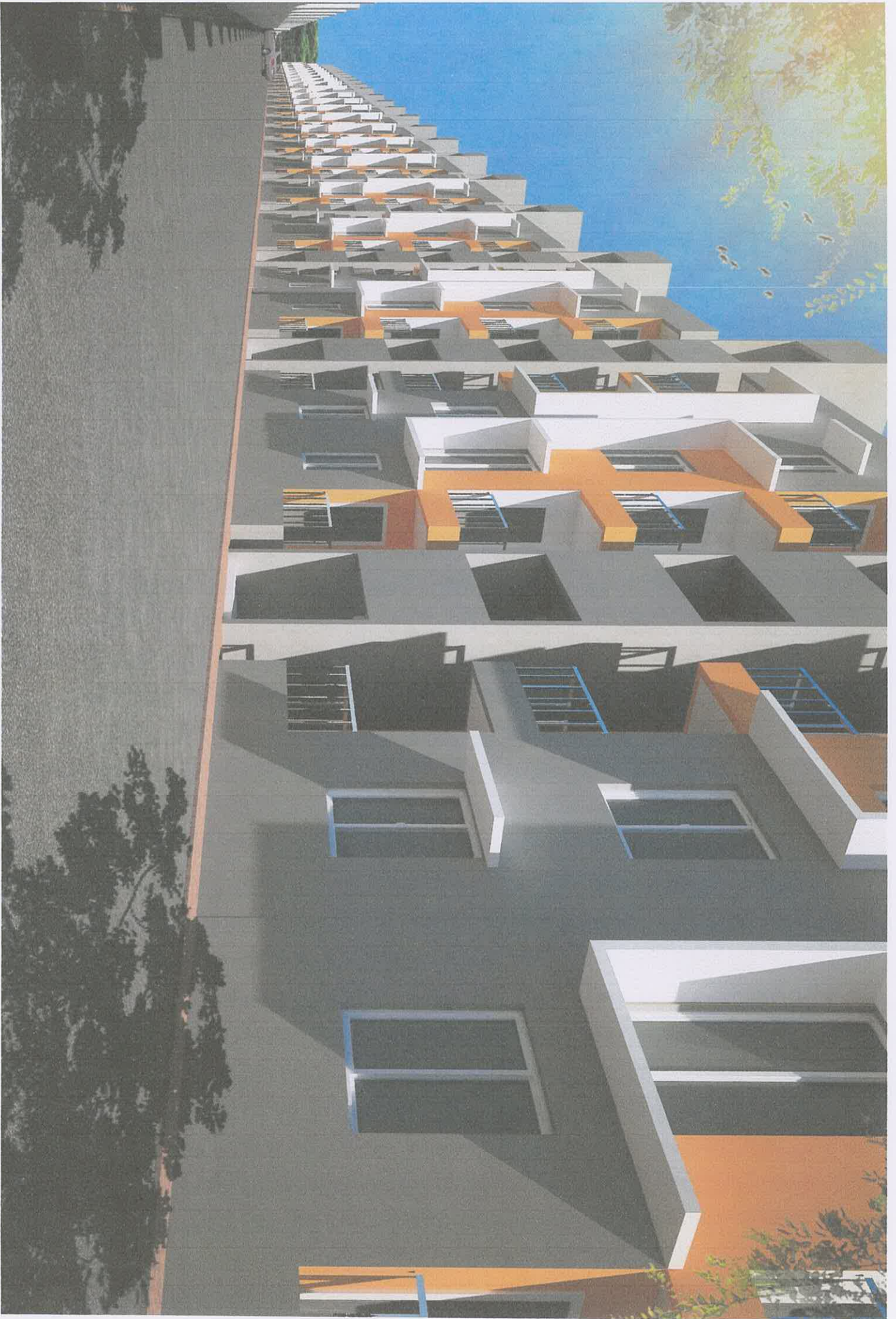
Case No. 2020-00000000

Taposil

Real Estate

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11/11/2020

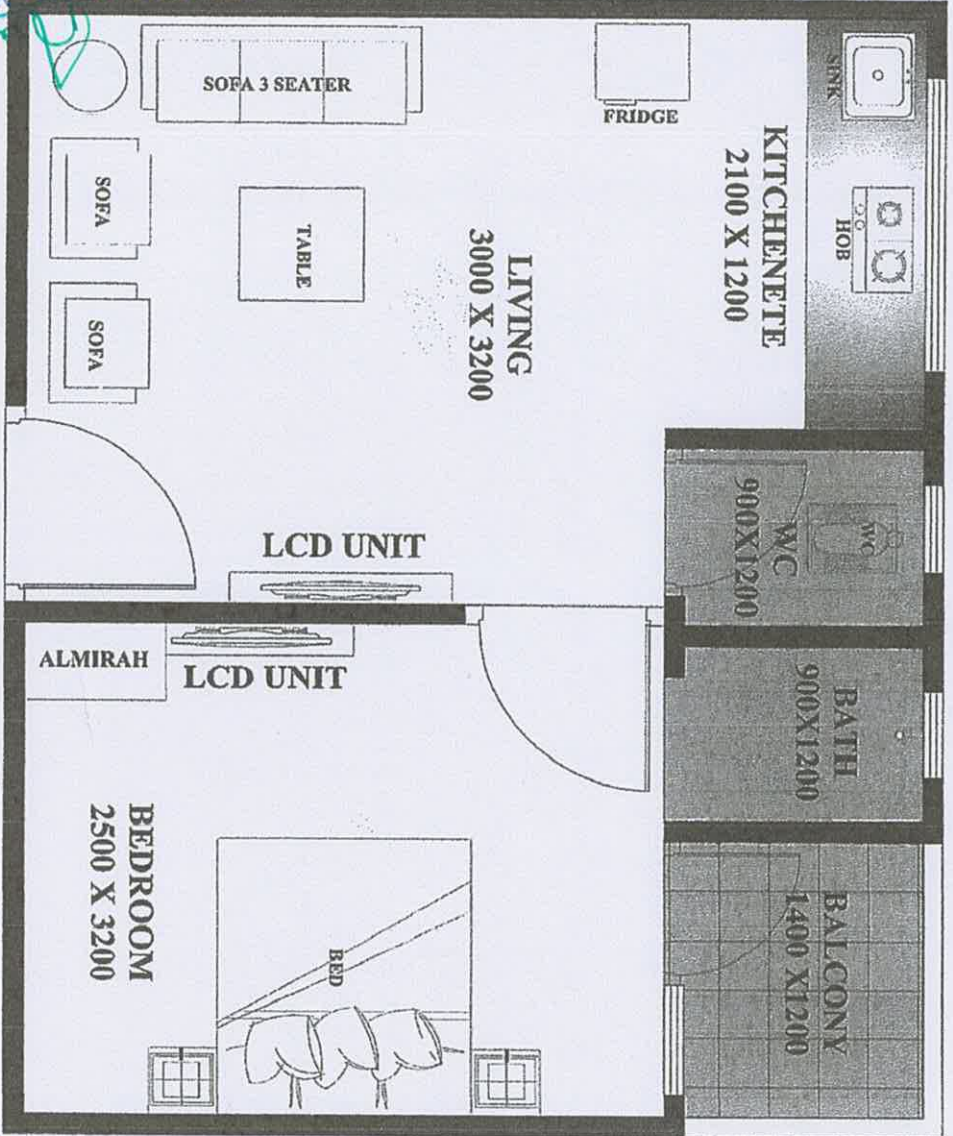




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PAL ARCHITECT AND ENGINEER
COA No. CA/2018/96244
Case No. 0070 Date: 14/11/2022
Tajpur, Gandhinagar, Gandhinagar
Near by JDBI, Gandhinagar, Gandhinagar
Mob: 7896572139, 9412143346



PAL ARCHITECT AND ENGINEER
 COA No. CA/2018/96244
 Case No. Date: 19/11/2018
 Near by IDBI Bank, Dehradun (U.K.)
 Tapovan Road in front of PRD Ground
 Mob.: 7895872139, 9412143346



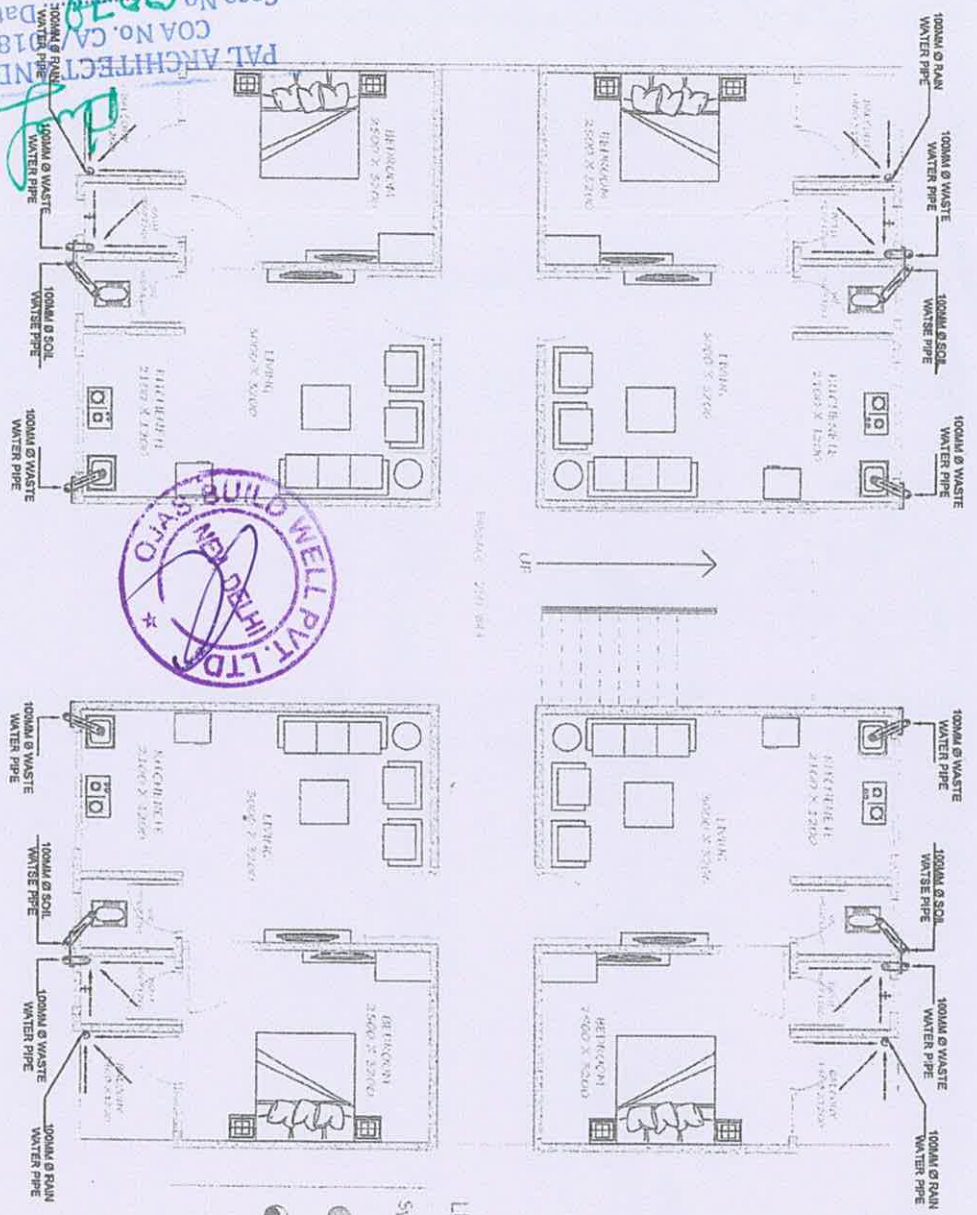
PROPOSED
SINGLE
UNIT PLAN
FOR EWS

TYPE OF UNIT	CARPET AREA OF SINGLE UNIT (IN SQMT)	WALL AREA (IN SQMT)	TOTAL BUILT-UP AREA (IN SQMT)
EWS	23.24	2.38	25.30



PAL ARCHITECT AND ENGINEER
 COA No. CA/18/96244
 Date: 19/11/2022
 Case No. 0078
 Near by IBI Bank, Dehradun (U.K.)
 Tapovan Road Infront of PRD Ground
 Mob: 7895872139, 9412143346

TYPICAL FLOOR PLAN EWS (GROUND, FIRST, SECOND & THIRD FLOOR)

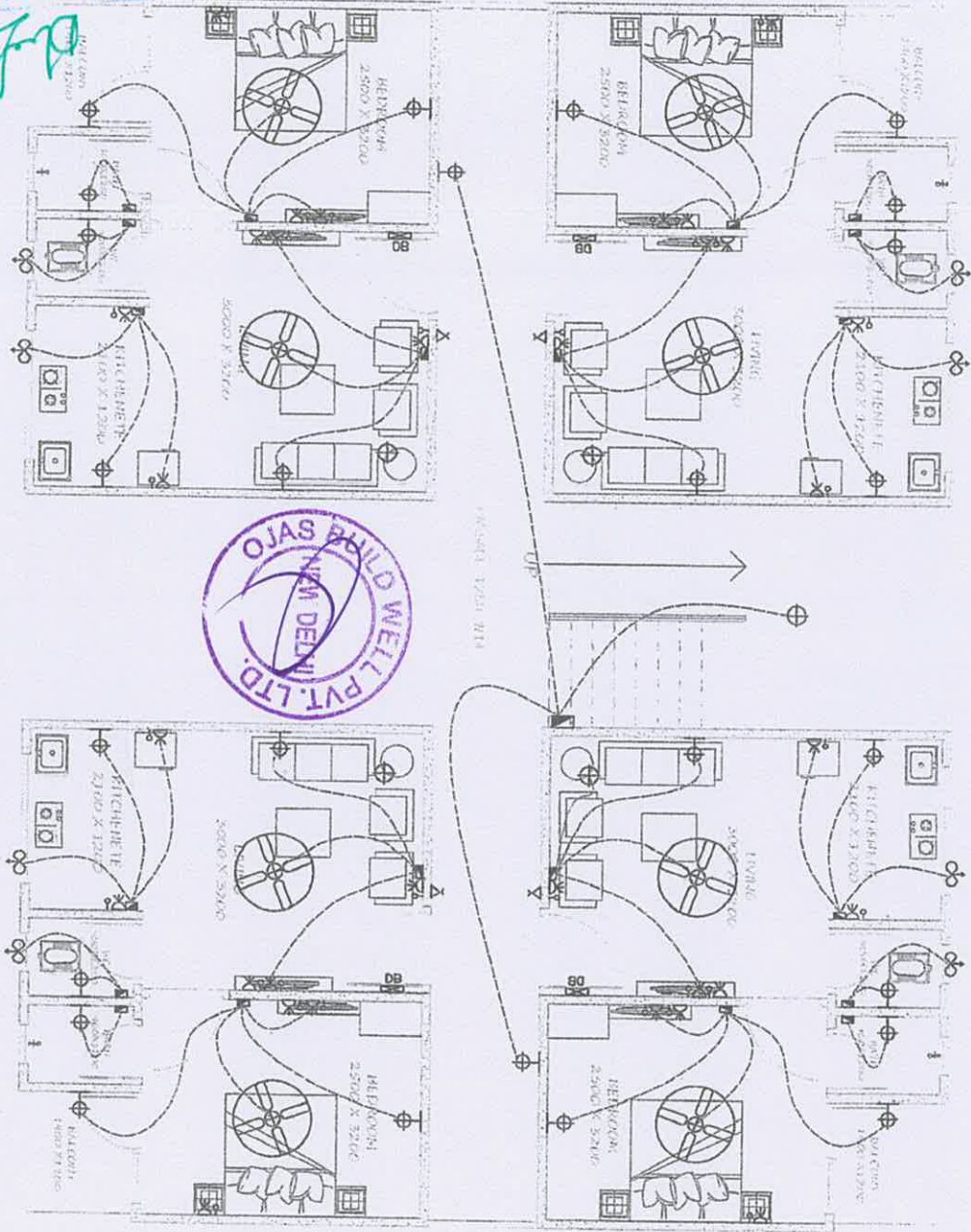


LEGENDS :-

Symbol	DESCRIPTION
	100 Ø PIPE FOR SOIL WASTE
	100 Ø PIPE FOR WASTE WATER
	100 Ø FLOOR TRAP

PLUMBING LAYOUT

TYPICAL FLOOR PLAN EWS (GROUND, FIRST, SECOND & THIRD FLOOR)



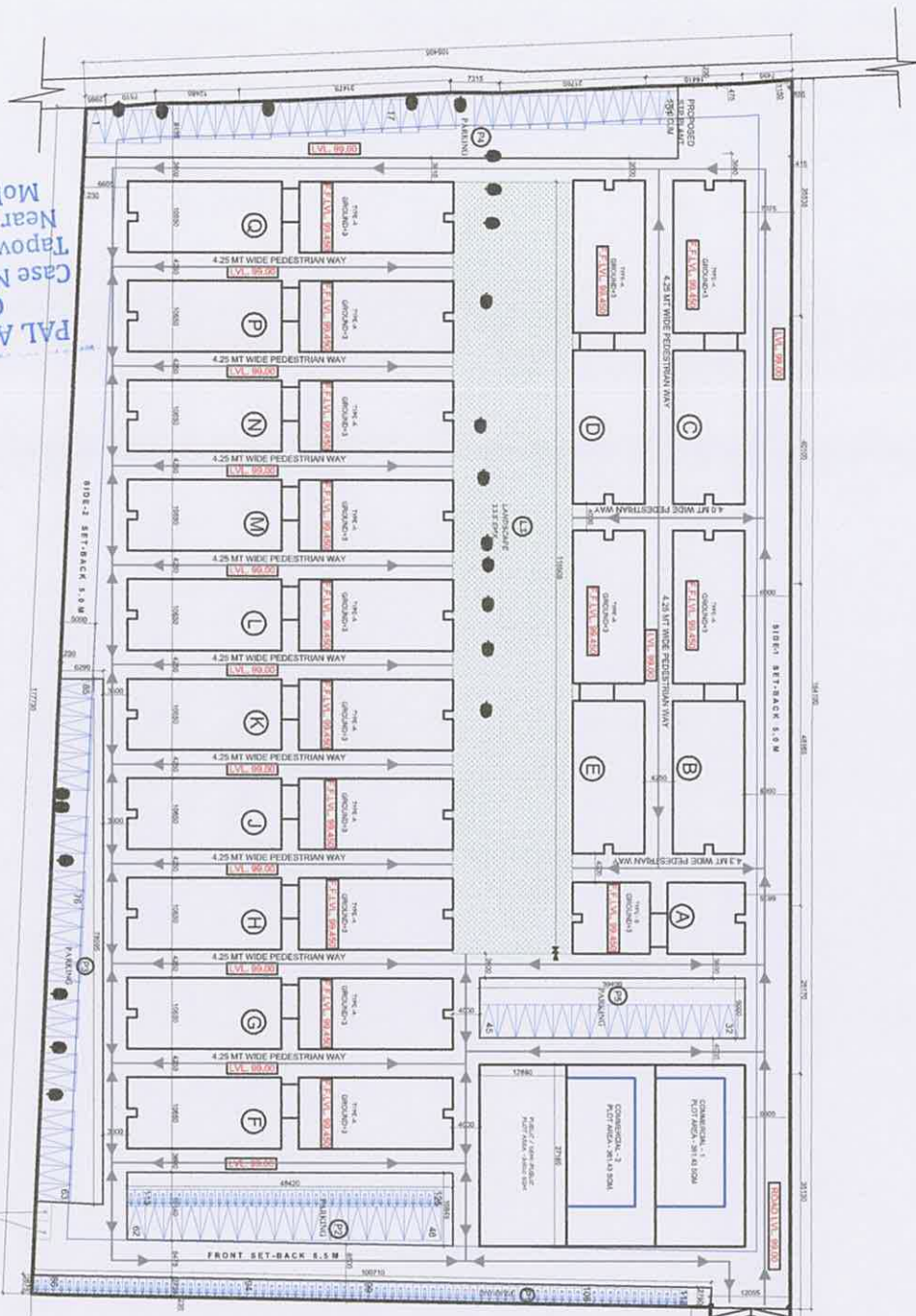
LEGENDS :

Symbol	NAME
DB	DISTRIBUTION BOARD (DB)
⊕	CEILING LIGHT
⊕	BRACKET LIGHT WALL MOUNTED
⊕	CEILING FAN 900 MM DIA
⊕	16A / 5A POWER PLUG
⊕	SWITCH BOARD
⊕	EXHAUST FAN
⊕	DOOR BELL

**ELECTRICAL
LAYOUT**

Case No. COA No. CA/2018/96244
 Date: 14/11/2022
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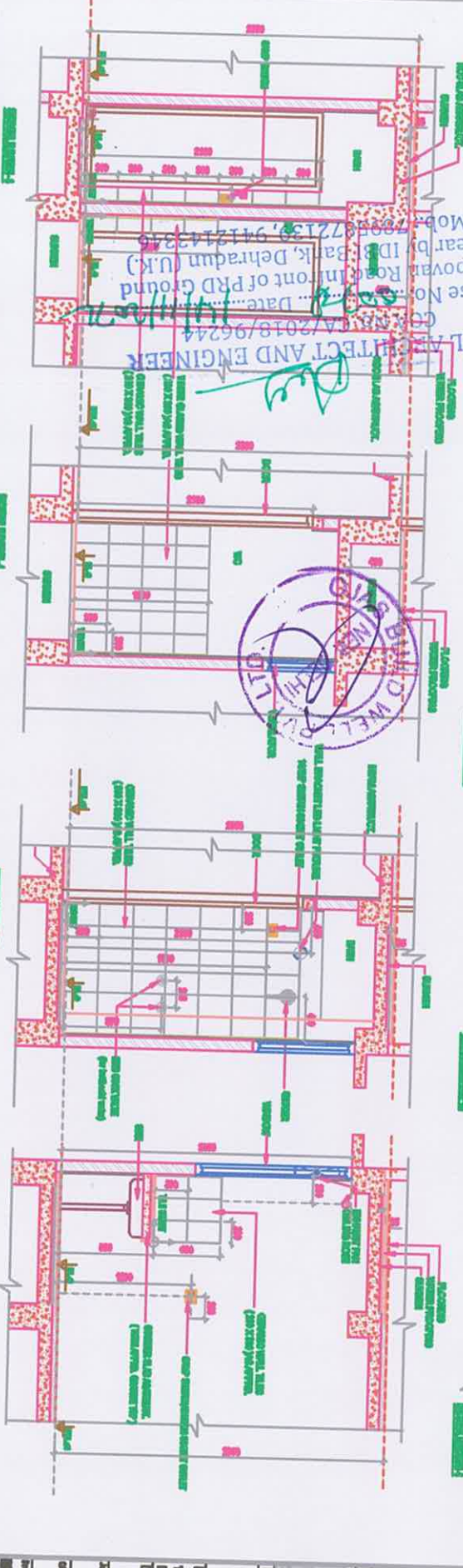


SOLID WASTE MANAGEMENT
 (TYPE BWP) (1500 BWT)



30 MTR MASTER PLAN ROAD

- ROAD AREA**
- SITE AREA - (PARKING + GREEN + RESIDENTIAL, G. COVERED AREA + COMMERCIAL)
 - = ROAD AREA
- SITE AREA**
- 19710.54 SQ.MT.
- GREEN AREA**
- 2004.32 SQ.MT.
- PARKING AREA**
- 2872.25 SQ.MT.
- RESIDENTIAL COVERED AREA**
- 6772.86 SQ.MT.
- COMMERCIAL AREA**
- 1072.86 SQ.MT.
- ROAD AREA** = 19710.54 - 12588.42 = 7122.12 SQ.MT.



MR. C. W. BELL, JR., LTD.


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Denver, CO 80233
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www.davisandassociates.com

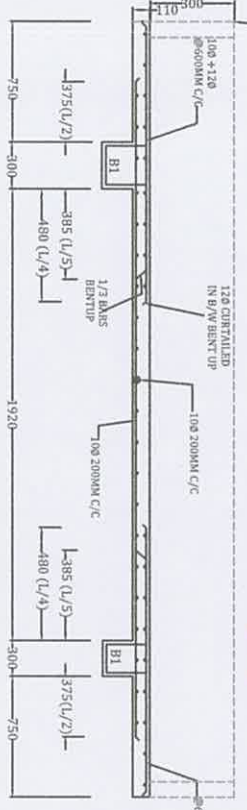
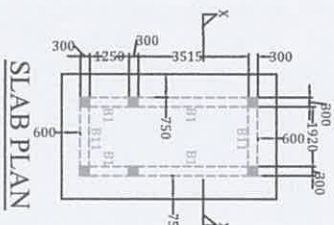
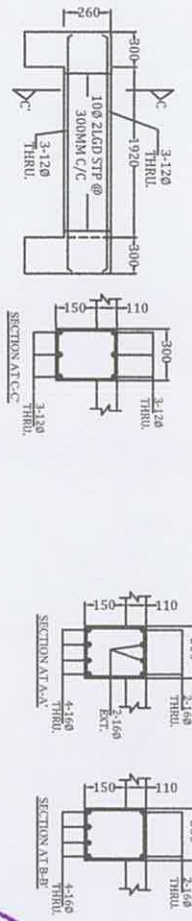
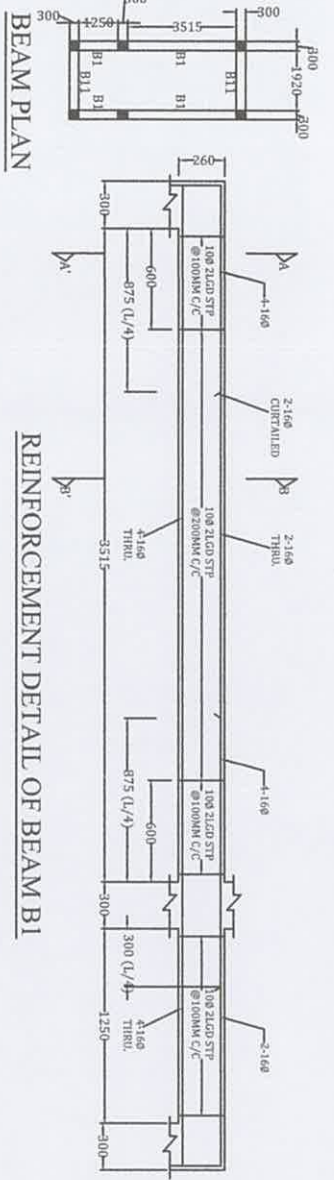
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(Structure Drawing)
Pradhan Mantri Awas Vikas Yojna EWS
Matkota Udhham Singh nager)
(Uttarakhand)

PAL ARCHITECT AND ENGINEER
COA No. CA/2018/96244
Case No. Date
Tapovan Road Infront of PRD Ground
Near by IDBI Bank, Dehradun (U.K.)
Mob.: 7895872139, 9412143346



SECTIONAL DETAIL OF SLAB REINFORCEMENT AT X-X'

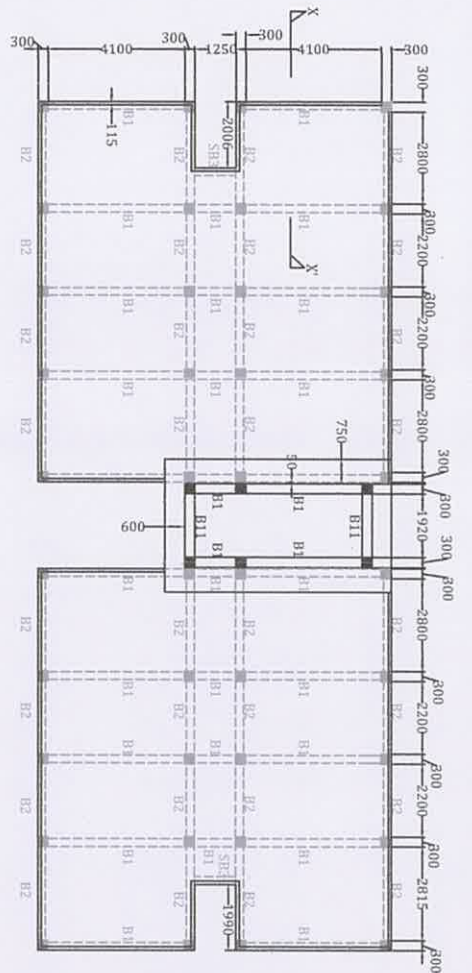


PAL ARCHITECT AND ENGINEERS
COA No. CA/2018/9624
Case No. ... Date ...
Near by IDBI Bank, Dehradun (U.K.)
Mob.: 7895872139, 9412143346

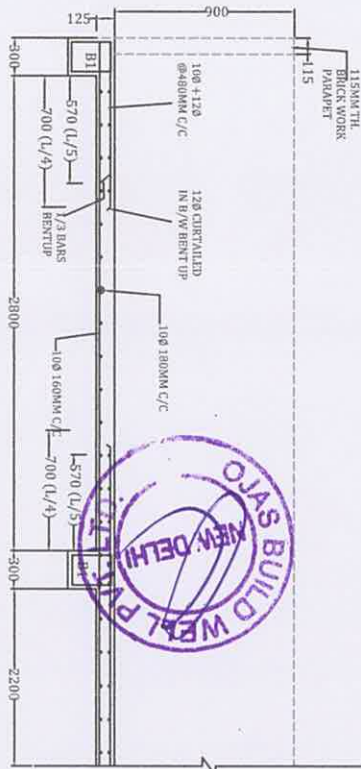
NOTE :-

1. DRAWING NOT TO SCALE FOLLOW WRITTEN DIMENSIONS ONLY.
2. ALL DIMENSIONS ARE IN M.M. UNLESS STATED OTHERWISE.
3. THE R.C.C. GRADE FOR FOUNDATION, COLUMN, BEAM, SLAB & WALL SHALL BE OF M 20
4. STEEL REINFORCEMENT BARS ARE TO BE HIGH YIELD STRENGTH COLD TWISTED DEFORMED BARS (FE 500 GRADE) AS PER IS 1786:2008. BEFORE USE IT SHOULD BE TESTED AND RECORDED.
5. THE QUALITY OF MATERIALS USED IN CONCRETE SHALL BE CHECKED REGULARLY AND LAB TEST SHALL BE DONE TO ENSURE THAT SPECIFICATIONS ARE MET.
6. THE CONCRETING SHALL BE DONE BY WEIGHT AND SITE RECORDS SHALL BE MAINTAINED.
7. REGULAR CUBE CASTING AND TESTING SHALL BE DONE AT SITE AND RECORD SHALL BE MAINTAINED.
8. P.C.C. SHALL BE OF GRADE M-7.5 (1:4:8) 75 MM THICK IN FOUNDATION.
9. DEVELOPMENT LENGTH SHOULD BE MIN. 45d (WHERE d = DIA OF BAR)
10. CLEAR COVER OF 25 MM IN BEAM, 30 MM IN COLUMN AND 50 MM IN FOUNDATION.
11. ANY DIFFICULTY SHALL BE BROUGHT TO THE DESIGNER BEFORE TAKING ANY DECISION.
12. CLOSED LINKS SHALL BE PROVIDED OVER THE ENTIRE LENGTH OVER WHICH THE LONGITUDINAL BARS ARE SPLICED. SPACING OF THESE LINKS SHALL NOT EXCEED 150 MM IN BEAM AND 100 MM IN COLUMN.
13. LAP LENGTH SHALL NOT BE LESS THAN THE DEVELOPMENT LENGTH OF THE LARGEST LONGITUDINAL BAR IN TENSION.
14. LAP SPLICES SHALL NOT BE PROVIDED:
 - A) WITHIN A JOINT.
 - B) WITHIN A DISTANCE 2D FROM THE FACE OF COLUMN / BEAM
15. MORE THAN 50% OF BARS SHALL NOT BE SPLICED AT ANY ONE SECTION.
16. STRUCTURE IS DESIGNED FOR A S.B.C. OF 7.5T/M2
17. ALL SLABS FROM GF TO FF TERRACE 110 MM THICK EXCEPT NOTED OTHERWISE

PROJECT PROPOSED EWS GROUP HOUSING UNDER PRADHAN MANTRI AWASIYA YOJANA (MODEL 2) UNIT 8 MATKOTA, U.S. NAGAR UTTARAKHAND	DRG. NO. 7	TITLE PLAN & DETAIL OF MUMTY BEAM AND SLAB	REV. R4 DATE 19/09/2022	STRUCTURE ENGG. SIGN  J.C. Bhatnagar Tech. File No. ... Authorised Structural Engineer (ASE) Regd. No. DOH-UNG-ASE-8/2019 203, Tarapal, Nainital Road, Nainital Dist: Nainital (Uttarakhand) No-993774714	DESIGNED BY: ER. HARIT VERMA B.TECH (C.E.) AM-IEI	CONSULTANT M.V.P. CONSULTANT & ASSOCIATES 203, TARA PLACE NAINITAL ROAD HALDWANI Email: consultantmvp@gmail.com
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TERRACE SLAB PLAN



SECTIONAL DETAIL OF TERRACE SLAB REINFORCEMENT AT X-X'

NOTE :-

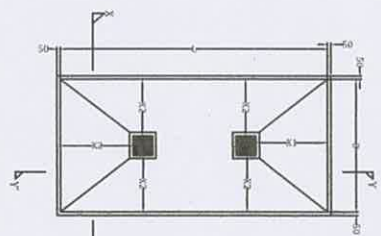
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15. MORE THAN 50 % OF BARS SHALL NOT BE SPLICED AT ANY ONE SECTION.
16. STRUCTURE IS DESIGNED FOR A S.B.C. OF 7.5T/M²
17. ALL SLABS FROM GF TO FF TERRACE 110 MM THICK EXCEPT NOTED OTHERWISE

PAL ARCHITECT AND ENGINEER
Case No. 0028
COA No. CA/2018/96244
Date: 14/11/2022
Near by IDBI Bank, Dehradun (U.K.)
Tapovan Road Infront of PRD Ground
Mob: 7895872139, 9412121433346

PROJECT	DRG. NO.	TITLE	REV.	DATE
PROPOSED EWS GROUP HOUSING UNDER PRADHAN MANTRI AWASIYA YOJANA (MODEL 2) UNIT 8 MATKOTA, U.S. NAGAR UTTARAKHAND	6	PLAN & SECTION OF TERRACE SLAB	R4	19/09/2022
			G.F.C	

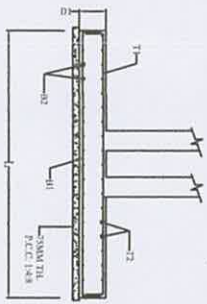
STRUCTURE ENGG. SIGN
J.C. Bhatnagar
Tech. FIE (P.V.)-Struct. E. LAKHIMPUR
Authorized Structural Engineer (ASE)
Regd. No. DOH-UKG-4/ASE-8/2019
203, Tapovan, Nainital Road, Nainital
Distt. Nainital (Uttarakhand) No-5937774714

DESIGNED BY:	CONSULTANT
ER. HARIT VERMA B.TECH (C.E.) AM-IEI	M.V.P. CONSULTANT & ASSOCIATES 203, TARA PLACE NAINITAL ROAD HALDWANI Email: consultantmvp@gmail.com



SCHEDULE FOR ISOLATED FOOTING (M20 : FE 500)

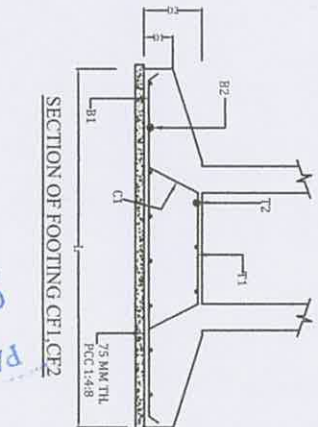
FOOTING NAME	POLYMERIZATION DETAIL		FOUNDATION REINFORCEMENT
	D1	D2	
F1	20 X 20 X 2030	150	ALONG SHORT SPAN 120 @ 200 MM C/C 120 @ 200 MM C/C
F2	2160 X 2160	200	ALONG LONG SPAN 120 @ 180 MM C/C 120 @ 200 MM C/C
F3	2400 X 2400	300	120 @ 160 MM C/C 120 @ 180 MM C/C



PLAN OF FOOTING CH3

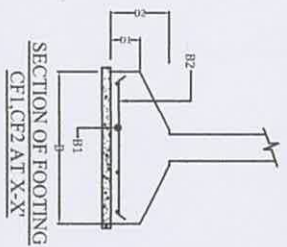
SCHEDULE FOR COMBINED FOOTING (M20 : FE 500)										
FOOTING NAME	FOUNDATION DETAIL					FOUNDATION REINFORCEMENT				
	L X B	D1	D2	X1	X2	BAR MARK				
						T1	T2	B1	D2	C1
CF1	4030 X 2060	150	300	1060	850	4-T10	12Ø 250 MM C/C	8-T200	12Ø 250 MM C/C	4-T20
CF2	6650 X 2000	300	600	2400	850	6-T200	16Ø 250 MM C/C	11-T200	16Ø 250 MM C/C	6-T200
CF3	4030 X 2060	400	-	AS PER DRG.	6-T40		16Ø 250 MM C/C	10-T40	16Ø 250 MM C/C	-

NOTE: THE DEPTH OF FOUNDATION FROM N.G.L. SHALL BE 2000 MM



CF1 & CF2

SECTION OF FOOTING CF1,CF2



SECTION OF FOOTING
CF1,CF2 AT X-X'



PROJECT	DRC. NO.	TITLE	REV.	DATE
PROPOSED EWS GROUP HOUSING UNDER PRADHAN MANTRI AWASYA YOJANA (MODEL 2) UNIT 8 MATKOTA, U.S. NAGAR UTTARAKHAND	1	PLAN AND DETAIL OF COLUMN AND FOUNDATION	R4	19/09/2022
			G.F.C	

STRUCTURE ENG. SIGN

J.C. Bellini
 Technical Director
 200, Tapscott, Hamilton Road, Hamilton
 0662 5577747

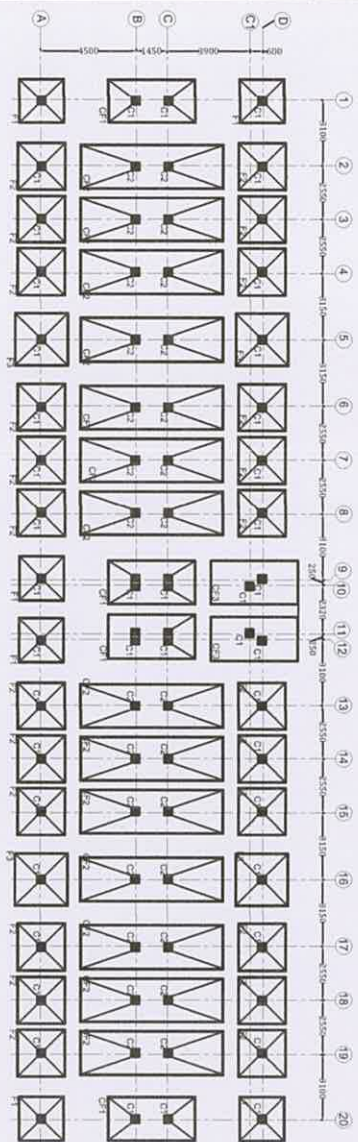
PAL ARCHITECT AND ENGINEERS
 COA No. CA/2018/96244
 Date: 14/11/2018
 Case No.
 Tapovan Road Infront of PWD Ground
 Near by IDBI Bank, Dehradun (U.K.)
 Mob.: 7895872139, 9412143346

DESIGNED BY:
ER. HARIT VERMA
B.TECH (C.E.)
AM-IEI

CONSULTANT
M.V.P. CONSULTANT & ASSOCIATES
203, TARA PLACE NAINITAL, ROAD
HALDWANI
Email: consultantmvp@gmail.com

NOTE :-
1. DRAWING NOT TO SCALE FOLLOW WRITTEN DIMENSIONS

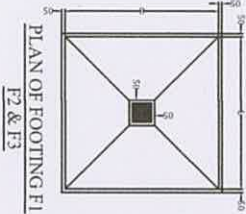
2. ALL DIMENSIONS ARE IN M.M. UNLESS STATED OTHERWISE.
3. THE R.C.C. GRADE FOR FOUNDATION, COLUMN, BEAM, SLAB & WALL SHALL BE OF M 20
4. STEEL REINFORCEMENT BARS ARE TO BE HIGH YIELD STRENGTH COLD TWISTED DEFORMED BARS (FE 500 GRADE) AS PER IS 1786:2008 BEFORE USE IT SHOULD BE TESTED AND RECORDED.
5. THE QUALITY OF MATERIALS USED IN CONCRETE SHALL BE CHECKED REGULARLY AND LAP TEST SHALL BE DONE TO ENSURE THAT SPECIFICATIONS ARE MET.
6. THE CONCRETING SHALL BE DONE BY WEIGHT AND SITE RECORDS SHALL BE MAINTAINED.
7. REGULAR CUBE CASTING AND TESTING SHALL BE DONE AT SITE AND RECORD SHALL BE MAINTAINED.
8. P.C.C. SHALL BE OF GRADE M-7.5 (1:4:8) 75 MM THICK IN FOUNDATION.
9. DEVELOPMENT LENGTH SHOULD BE MIN. 45d (WHERE d = DIA OF BAR)
10. CLEAR COVER OF 25 MM IN BEAM, 30 MM IN COLUMN AND 50 MM IN FOUNDATION.
11. ANY DIFFICULTY SHALL BE BROUGHT TO THE DESIGNER BEFORE TAKING ANY DECISION.
12. CLOSED LINKS SHALL BE PROVIDED OVER THE ENTIRE LENGTH OVER WHICH THE LONGITUDINAL BARS ARE SPLICED SPACING OF THESE LINKS SHALL NOT EXCEED 150 MM IN BEAM AND 100 MM IN COLUMN.
13. LAP LENGTH SHALL NOT BE LESS THAN THE DEVELOPMENT LENGTH OF THE LARGEST LONGITUDINAL BAR IN TENSION.
14. LAP SPLICES SHALL NOT BE PROVIDED:
 - a) WITHIN A JOINT.
 - b) WITHIN A DISTANCE 2D FROM THE FACE OF COLUMN / BEAM
15. MORE THAN 50 % OF BARS SHALL NOT BE SPLICED AT ANY ONE SECTION.
16. STRUCTURE IS DESIGNED FOR A S.B.C. OF 7.5T/M² ALL SLABS FROM GF TO FF TERRACE 110 MM THICK EXCEPT NOTED OTHERWISE



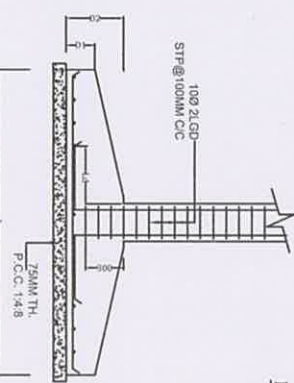
TRENCH PLAN OF FOUNDATION

SCHEDULE FOR ISOLATED FOOTING (M20 : FE 500)

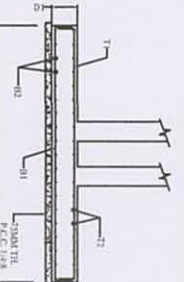
FOOTING NAME	FOUNDATION DETAIL		FOUNDATION REINFORCEMENT	
	L X B	D1	D2	
F1	2000 X 2000	150	300	120 @ 180 MM C/C
F2	2100 X 2100	200	400	120 @ 200 MM C/C
F3	2400 X 2400	200	400	120 @ 160 MM C/C



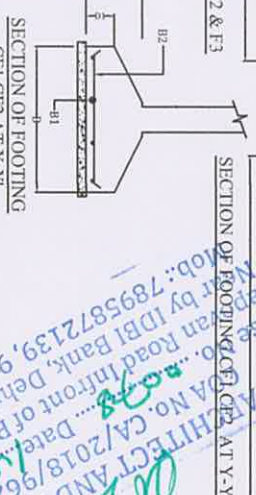
PLAN OF FOOTING F1



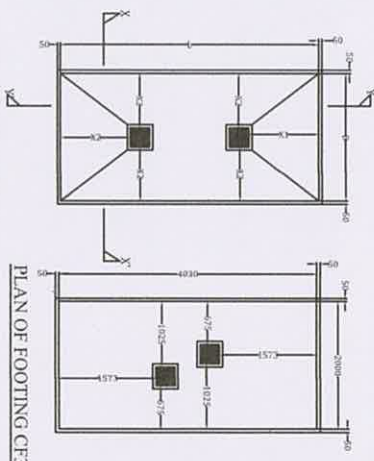
SECTION OF FOOTING F1, F2 & F3



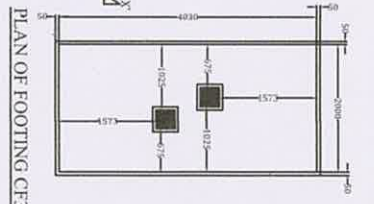
PLAN OF FOOTING CF3



SECTION OF FOOTING CF1, CF2 AT X-X



PLAN OF FOOTING CF1 & CF2



PLAN OF FOOTING CF3

- NOTE :-
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 - ALL SLABS FROM GF TO FF TERRACE 110 MM THICK EXCEPT NOTED OTHERWISE

SCHEDULE FOR COMBINED FOOTING (M20 : FE 500)										
FOOTING NAME	FOUNDATION DETAIL				FOUNDATION REINFORCEMENT					
	L X B	D1	D2	X1	X2	BAR MARK				
						T1	T2	B1	B2	C1
CF1	4000 X 2000	150	300	1000	850	4-120	120 250 MM C/C	8-120	120 250 MM C/C	4-120
CF2	6600 X 2000	300	600	2400	850	6-200	160 250 MM C/C	11-200	160 250 MM C/C	6-200
CF3	4000 X 2000	400	-	AS PER DRG.		6-160	160 250 MM C/C	10-160	160 200 MM C/C	-

NOTE: THE DEPTH OF FOOTING FROM N.G.L. SHALL BE 2000 MM

NOTE: THE DEPTH OF FOUNDATION FROM N.G.L. SHALL BE 2000 MM

PROJECT	DRG. NO.	TITLE	REV.	DATE	STRUCTURE EXTRA SIGN
PROPOSED EWS GROUP HOUSING UNDER PRADHAN MANTRI AWASAYA YOJANA (MODEL 2) UNIT 16 MATROTA, U.S. NAGAR, UTTARAKHAND	1	PLAN & DETAIL OF FOUNDATION	R4	19/09/2022	
			G.F.C		

Arch. FE Private Source, L.M.C.L.M.B.C. Authorized Structural Engineer (A.S.E) Regd. No. DSH-000-0456-2019 201, Naraina, Naraina Road, New Delhi 110028 (India) (International) No-9537714711

J.C. Bhatia

Architect and Engineer

Case No. CA/2018/19624

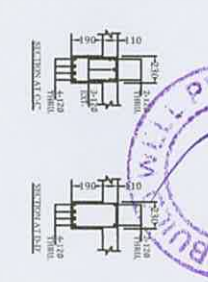
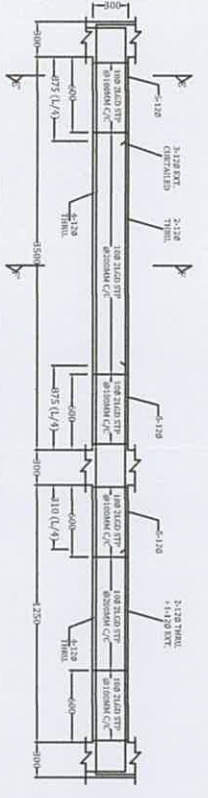
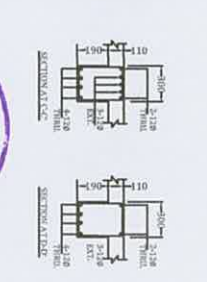
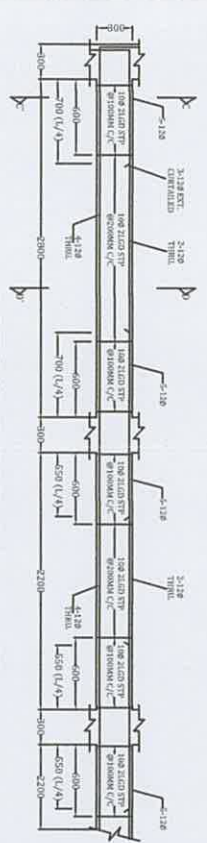
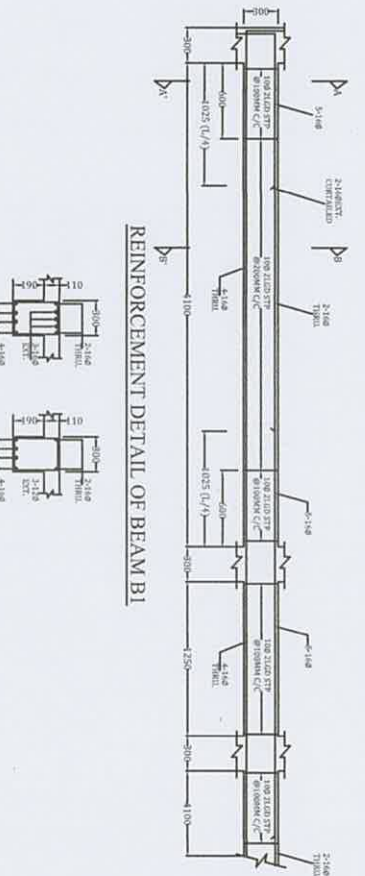
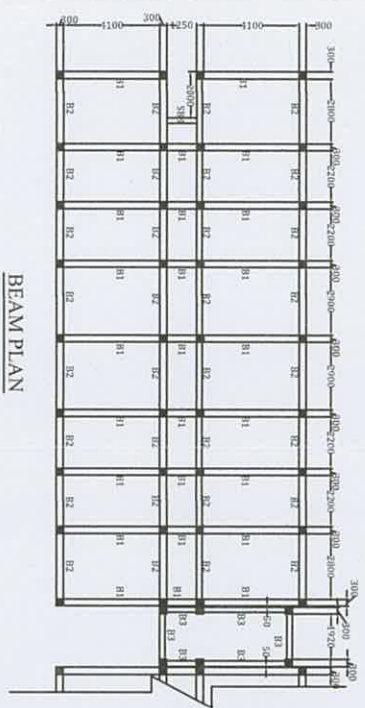
Appan Road Infront of PPD Ground

App by IDBI Bank, Dehradun (U.K.)

Mobile: 7895872139, 9422143346

DESIGNED BY: ER. HART VERMA B.TECH (CE) AM-IE

CONSULTANT: M.V.P. CONSULTANT & ASSOCIATES 203, TARA PLACE NAINITAL ROAD HALDWANI Email: consultantmv@gmail.com



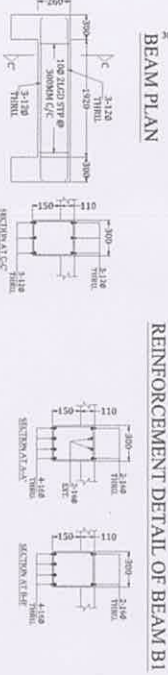
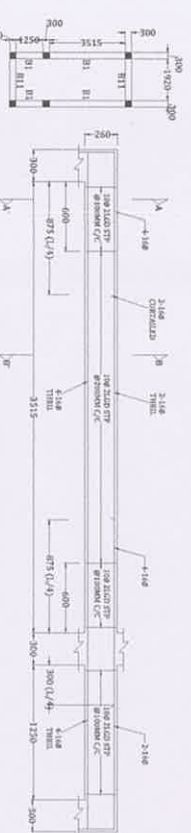
SCHEDULE FOR SLAB BEAM (TERRACE)

BEAM	WIDTH (B) (MM)	DEPTH (D) (MM)
B1	300	300
B2	300	300
B3	230	230

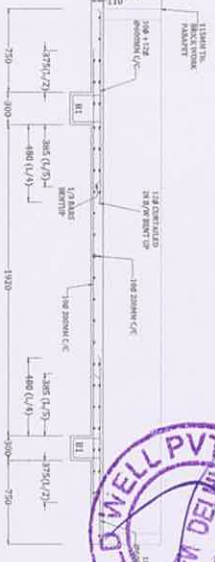
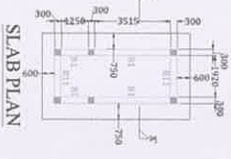
PROJECT	DRG. NO.	TITLE	REV.	DATE	STRUCTURE ENGG. SIGN
PROPOSED EWS GROUP HOUSING UNDER PRADHAN MANTRI AWASAYA YOJANA (MODEL 2) UNIT 16 MATKOTA, U.S. NAGAR, UTTARAKHAND	5	DETAIL OF TERRACE SLAB BEAM	R4	19/09/2022	G.F.C
1. I am P.V. Srinivas E. LINDHOLM INC. Authorized Structural Engineer (ASE) Regd. No. 000410051-USE-5-2019 201, Tagore, Marathi Road, Hyderabad. Dear Sir/Madam (Addressed) No. 5037774714 J.C. Bhatnagar					
DESIGNED BY:			CONSULTANT		
ER. HARIT VERMA B.TECH (C.E.) AM-IEI			M.V.P. CONSULTANT & ASSOCIATES 203, TARA PLACE NANITAL ROAD HALDWINI Email: consultantmvp@gmail.com		

NOTE :-
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17. ALL SLABS FROM GF TO FF TERRACE 110 MM THICK EXCEPT NOTED OTHERWISE



REINFORCEMENT DETAIL OF BEAM B1



SECTIONAL DETAIL OF SLAB REINFORCEMENT AT 'X-X'



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DESIGNED BY:

ER. HARIT VERMA
B.TECH (C.E.)
AM-IEI

CONSULTANT

M.V.P. CONSULTANT & ASSOCIATES
203, TARA PLACE MAINITAL ROAD
HALDWANI
Email: consultantmvp@gmail.com

PROJECT	DRG. NO.	TITLE	REV.	DATE	STRUCTURE ENGG. SIGN
PROPOSED EWS GROUP HOUSING UNDER PRADHAN MANTRI AWASAYA YOJANA (MODEL 2) UNIT 8 MATKOTA, U.S. NAGAR UTTARAKHAND	7	PLAN & DETAIL OF MUMTY BEAM AND SLAB	R4	19/09/2022	G.F.C.

100% FREE ONLINE E-DESIGNING
100% FREE ONLINE E-CONSULTING
100% FREE ONLINE E-ESTIMATING
100% FREE ONLINE E-PROJECTING
100% FREE ONLINE E-REPORTING
100% FREE ONLINE E-REVIEWING
100% FREE ONLINE E-APPROVALING
100% FREE ONLINE E-DELIVERING
100% FREE ONLINE E-ARCHIVING
100% FREE ONLINE E-RETRIEVING
100% FREE ONLINE E-REPRODUCING
100% FREE ONLINE E-RECYCLING
100% FREE ONLINE E-REPAIRING
100% FREE ONLINE E-REPLACING
100% FREE ONLINE E-REMOVING
100% FREE ONLINE E-REBUILDING
100% FREE ONLINE E-RECONSTRUCTING
100% FREE ONLINE E-RENOVATING
100% FREE ONLINE E-RESTORING
100% FREE ONLINE E-REPAIRING
100% FREE ONLINE E-REPLACING
100% FREE ONLINE E-REMOVING
100% FREE ONLINE E-REBUILDING
100% FREE ONLINE E-RECONSTRUCTING
100% FREE ONLINE E-RENOVATING
100% FREE ONLINE E-RESTORING

PAL ARCHITECT AND ENGINEER
Case No.
COA No. CA/2018/96244
Near by IDBI Bank, Dehradun (U.K.)
Tapovan Road
Mob.: 78955872139, 9412143346
Date: 14/11/2022

(Tower No A Tower)
Bill Of Quantity PMAY EWS Matkota
(Udham Singh Nager)
(Uttarakhand)
(Civil Work)

PAL ARCHITECT AND ENGINEER
COA No. CA/2018/96244
Case No. 0078 Date 14/11/2022
Tapovan Road Infront of PWD Ground
Near by IDBI Bank, Dehradun (U.K.)
Mob.: 7895872139, 9412143346

TOWER A BILL OF QUANTITY PMAY EWS MATKOTA (UDHAM SINGH NAGAR) (UTTARAKHAND)

EARTH WORK					
1	2.28.1	All kinds of soil			
2	2.32	Clearing grass and removal of the rubbish up to a distance of 50 m outside the periphery of the area cleared.			
3	2.6	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 getting out and disposal of excavated earth lead upto 50 m and lift upto 1.5 m, as directed by Engineer-in charge.			
4	2.6.1	All kinds of soil	cum	385.006	205.45
5	2.36	Extra for levelling & neatly dressing of disposed soil completely as directed by Engineer-in-charge.	cum	57.752	76.7
SUB TOTAL					83529.0611
CONCRETE WORK					
6	4.1	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level :			
7	4.1.8	1:4:8 (1 Cement : 4 coarse sand (zone-III) derived from natural sources : 8 graded stone aggregate 40 mm nominal size derived from natural sources)	cum	39.525	6326.05
8	4.20.1	4.20.1 All works upto plinth level :			
9	4.20.1.3	Concrete of M20 grade with minimum cement content of 270 kg/cum	cum	99.39	8387.15
10	4.20.2	All works above plinth and upto floor V level			
11	4.20.2.3	Concrete of M20 grade with minimum cement content of 270 kg/cum	cum	205.641	10009.5
SUB TOTAL					3141999.554
FORM WORK					
12	5.9	Centering and shuttering including strutting, propping etc. and removal of form for			
13	5.9.1	Foundations, footings, bases of columns, etc. for mass concrete	sqm	345.45	307.95
14	5.9.3	Suspended floors, roofs, landings, balconies and access platform	sqm	4261.759	766.55
15	5.9.6	Columns, pillars, Piers, Abutments, Posts and Struts	sqm	787.32	657.75
16	5.9.7	Stairs, (excluding landings) except spiral-staircases	sqm	163.63	657.75
SUB TOTAL					3998720.051
STEEL REINFORCEMENT					
17	5.22	Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete upto plinth level			
18	5.22.6	Thermo-Mechanically Treated bars of grade Fe-500D or more	kg	34027.68	89.65
SUB TOTAL					3050581.512
A.C.C BLOCK WORK					
19	6.38	Providing and laying autoclaved aerated cement blocks masonry with 100 mm thick AAC blocks in super structure above plinth level up to floor V level in cement mortar 1:4 (1 cement : 4 coarse sand). The rate includes providing and placing in position 2 Nos 6 mm dia M.S. bars at every third course of masonry work.	cum	160.25	8890.8
SUB TOTAL					1424750.7



PAL ARCHITECT AND ENGINEER
 COA No. CA/2018/96244
 Case No. 14/11/2021
 Tapovan Road Infront of PRD Ground
 Near by IDBI Bank, Dehradun (U.K.)
 Mob.: 7895872139, 9412143346

PAL ARCHITECT AND ENGINEER
 COA No. CA/2018/96244
 Date: 19/11/22
 Case No. 5038
 Tapovan Road Infront of PRD Ground
 Near by IDBI Bank, Dehradun (U.K.)
 Mob.: 7895872139, 9412143346



CLADDING WORK					
20	8.6	Mirror polishing on marble work/Granite work/stone work where ever required to give high gloss finish complete.	sqm	39.1	16328.16
SUB TOTAL					
WOOD AND P.V.C WORK					
21	9.18	Providing and fixing Pre-laminated flat pressed 3 layer (medium density) particle board or graded wood particle board 15 : 3087 marked, with one side decorative and other side balancing lamination Grade I, Type II exterior grade 15 : 12823 marked, in shelves with screws and fittings wherever required, edges to be painted with polyurethane primer (fittings to be paid separately)			
22	9.18.2	25 mm thick	sqm	285.6	428685.6
23	10.25	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.			
24	10.25.2	n gratings, frames, guard bar, ladder, railings, brackets, gates and similar works	KG	7840	1115632
25	10.26	Providing and fixing hand rail of approved size by welding etc. to steel ladder railing, balcony railing, staircase railing and similar works, including applying priming coat of approved steel primer.			
26	10.26.1	M.S. tube		337.6	53053.84
27	9.12	Extra for providing frosted glass panes 4 mm thick instead of ordinary float glass panes 4 mm thick in doors, windows and clerestory window shutters. (Area of opening for glass panes excluding portion inside rebate shall be measured).	SQM	77.76	11547.36
SUB TOTAL					
1608918.8					
28					
29	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 Fume Red Brown, laid on 20 mm thick cement mortar 1:4 (1 Cement : 4 Coarse sand), Jointing with grey cement slurry @ 3.3 kg/sqm including pointing the joints with white cement and matching pigment etc., complete.	SQM	1082.09	935.6
SUB TOTAL					
1012403.404					



S.NO.	DSR - 21	DESCRIPTION OF WORK						AMOUNT
30	13.1	12 mm cement plaster of mix :						
31	13.1.2	1:6 (1 cement: 6 fine sand)	sqm	6797.45	294.85			2004228.133
32	13.8	Providing and applying white cement based putty of average thickness 1 mm, of approved brand and manufacturer, over the plastered wall surface to prepare the surface even and smooth complete.	sqm	6797.45	123.85			841864.1825
33	13.48	Finishing with Deluxe Multi surface paint system for interiors and exteriors using Primer as per manufacturers specifications :						
34	13.48.1	Two or more coats applied on walls @ 1.25 ltr/10 sqm over and including one coat of Special primer applied @ 0.75 ltr /10 sqm	sqm	6797.45	158.95			1080454.678
35	13.47	Finishing walls with Premium Acrylic Smooth exterior paint with Silicone additives of required shade:						
36	13.47.1	New work (Two or more coats applied @ 1.43 ltr/10 sqm over and including priming coat of exterior primer applied @ 2.20 kg/10 sqm)	sqm	804.908	162.35			130676.8138
37	13.83	Wall painting with premium acrylic emulsion paint of interior grade, 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						
38	13.83.2	Two coats	sqm	5853.1	121.55			711444.305
SUB TOTAL								4768668.111
PLUMBING AND SANITARY INSTALLATIONS								
39		Plumbing and sanitary installation of 32 EWS per floor 8 unit G+3 (32 Unit) 1 tower						721307.56
ELECTRICAL WORK								
40		Internal Electrical work of 32 EWS per floor 8 unit G+3 (32 Unit) 1 tower						1335220
WATER PROOFING								
22.6		Providing and laying water proofing treatment on roofs of slabs by applying cement slurry mixed with water proofing cement compound consisting of applying: (a) after surface preparation, first layer of slurry of cement @ 0.488 kg/sqm mixed with water proofing cement compound @ 0.253 kg/sqm. (b) laying second layer of fibre glass cloth when the first layer is still green. Overlaps of joints of fibre cloth should not be less than 10 cm. (c) third layer of 1.5 mm thickness consisting of slurry of cement @ 1.289 kg/sqm mixed with water proofing cement compound @ 0.670 kg/sqm and coarse sand @ 1.289 kg/sqm. This will be allowed to air cure for 4 hours followed by water curing for 48 hours. The entire treatment will be taken upto 30 cm on parapet wall and tucked into groove in parapet all around (d) fourth and final layer of brick tiling with cement mortar (which will be paid for separately.						
		For the purpose of measurement the entire treated surface will be measured.	80.5	4	585.55			47136.775
Grand total amount for Tower A								19116391.72



PAL ARCHITECT AND ENGINEER
 COA No. CA/2018/96244
 Case No. Date: 15/11/2022
 Tapovan Road in front of PWD Ground
 Near by IDBI Bank, Dehradun (U.K.)
 Mob.: 7895872139, 9412143346

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PAL ARCHITECT AND ENGINEER
COA No. CA/2018/96244
Case No. 5098 Date: 14/11/2019
Tapovan Road Infront of PRD Ground
Near by IDBI Bank, Dehradun (U.K.)
Mob.: 7895872139, 9412143346

sno	DSR - 21	CODE	Description of work	Item	L	B	H	Measurement	Qty	No	Total Qty	Unit	Rate	Amount
2	4.1		Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level											
	4.1.8		1:4:8 (1 Cement : 4 coarse sand (zone- III) derived from natural sources : 8 graded stone aggregate 40 mm nominal size derived from natural sources)											
			(F1) Foundation P.C.C		2.02	2.02	0.075	0.306	6	1.836				
			(F2) Foundation P.C.C		2.16	2.16	0.075	0.3499	12	4.199				
			(CF1) Foundation P.C.C		4.03	2	0.075	0.6045	2	1.209				
			(CF2) Foundation P.C.C		6.65	2	0.075	0.9975	6	5.985				
			(CF3) Foundation P.C.C		4.03	2	0.075	0.6045	2	1.209				
			Sub Total		82.05	0.3	0.075			13.8335	cum	6326.05	186903.147	
			Plinth beam (PB1) P.C.C		82.05	0.3	0.075			1.846				
			Plinth beam (PB2) P.C.C		119.1	0.3	0.075			2.67				
			Plinth beam (PB3) P.C.C		82.05	0.3	0.075			1.846				
			Ground floor pcc		24.21	10.65	0.075			6.362	cum	6326.05	80612.85	
			SUB TOTAL							19.33	cum	6326.05	122282.5465	389798.5435

TOWER A DETAILED ESTIMATE OF CIVIL WORK PER FLOOR 8 UNIT G+3 (32 UNIT)

Mob: 7895872139, 9412143346



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TOWER A DETAILED ESTIMATE OF CIVIL WORK PER FLOOR 8 UNIT G+3 (32 UNIT)

sno	DSR - 21	CODE	5	5.22	5.22.6	Description of work	Item	L	B	H	Qty	No	Total Qty	Unit	Rate	Amount
						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										
						Foundation (F1) steel	12 mm	44.44			39.107	6	234.642			
						Foundation (F2) steel	12 mm	49.68			43.718	12	524.616			
						Foundation (CF1) steel	08 mm	32.24			12.73	2	25.46			
						Foundation (CF2) steel	12 mm	48.24			42.45	2	84.9			
						Foundation (CF3) steel	16 mm	118			186.44	2	372.88			
						Column (C1) steel upto plinth beam level	16 mm	10			15.8	34	537.2			
						Column (C2) steel upto plinth beam level	12 mm	5			4.4	34	149.6			
						Column (C2) steel upto plinth beam level	10 mm	16			9.76	34	331.84			
						Column (C1) steel upto Terrace level G+3	16 mm	48			75.84	34	2578.56			
						Column (C2) steel upto Terrace level G+3	12 mm	24			22	34	748			
						Column (C2) steel upto Terrace level G+3	10 mm	72			113.76	12	1365.12			
						Column (C1) steel upto Terrace to mummy level	16 mm				22.75	6	136.512			
						Plinth beam (PB1) steel	12 mm	82.05			72.204	7	505.428			
						Plinth beam (PB2) steel	10 mm	0.63			0.3843	820	315.126			
						Plinth beam (PB3) steel	12 mm	82.05			72.204	7	505.428			
						Slab steel (B1)	16 mm	65.56			103.49	7	724.43			
						Slab steel (B2)	12 mm	62.25			54.78	6	328.68			
						Slab steel (B3)	12 mm	62.25			54.78	6	328.68			
						Slab steel (SB1)	16 mm	34.72			54.855	4	219.42			
						Slab steel (SB2)	12 mm	31.13			27.39	3	82.17			
						Slab steel (SB2)	12 mm	62.25			54.78	6	328.68			
						Slab steel (SB2)	10 mm	3.16			1.9275	347	668.843			
						Slab steel (SB2)	12 mm	31.13			27.39	3	82.17			
						Slab steel (SB2)	10 mm	2.12			1.293	622	804.246			
						Slab steel (SB2)	12 mm	50.63			44.55	6	267.3			
						Slab	10 mm	2.4			1.464	622	910.608			
						Slab	10 mm	1307			797.475	4	3189.9			
						Slab	10 mm	1278			779.58	4	3118.32			
						Slab	10 mm	653.7			398.735	4	1594.94			
						Staircase	10 mm	639.2			389.91	4	1559.64			
						Staircase	12 mm	130			114.4	25	2860			
						prefection	10 mm	129			78.69	4	314.76			
						SUB TOTAL							20281.1	kg	89.65	1818201.825
																3050589.536



PAL ARCHITECT AND ENGINEER
COA No. CA/2018/96244
Case No. 0078 Date: 19/11/2022
Near by IDBI Bank, Dehradun (U.K.)
Tapovan Road in front of PRD Ground
Mob.: 7895872139, 9412143346

TOWER A DETAILED ESTIMATE OF CIVIL WORK PER FLOOR 8 UNIT G+3 (32 UNIT)

TOWER A DETAILED ESTIMATE OF CIVIL WORK PER FLOOR 8 UNIT G+3 (32 UNIT)

sno	DSR - Z1	6.38	6	Description of work	Item	L	B	H	Qty	No	Total Qty	Unit	Rate	Amount
				aerated cement blocks masonry with structure above plinth level up to floor level in cement mortar 1:4 (1 includes providing and placing in position 2 Nos 6 mm dia M.S. bars at every third course of masonry work.										
				WALL (G+3 building)	4	2.8		2.65	29.68	8	237.44			
					4	4.1		2.65	43.45	8	347.6			
					4	2.8		2.65	29.68	8	237.44			
					4	1.3		2.65	13.77	8	110.16			
					4	0.6		2.65	6.359	8	50.872			
					4	1		2.65	10.6	8	84.8			
					4	0.35		2.65	3.706	8	29.648			
					4	2.2		2.65	23.31	8	186.48			
					4	3		2.65	31.79	8	254.32			
					4	1.4		2.65	14.83	8	118.64			
					4	1.4		2.65	14.83	8	118.64			
				corridor wall	4	1.2		2.65	12.72	2	25.44			
				(Door & window) Deduction no of unit 8 x 4 floor	D1	1		2.1	2.1	2	134.4			
					D2	0.75		2.1	1.575	2	100.8			
					DW1	0.75		2.1	1.575	1	100.8			
					DW1	0.6		1.2	0.72	1	23.04			
					W1	1.5		0.9	1.35	1	43.2			
					V1	0.45		0.4	0.18	2	5.76			
											408	SQM		
											1801.48			
											408	SQM		
											1393.5			
											160.25	cum	8890.8	1424750.7
											1393.5	SQM		1424750.7
											408			
											1801.48			
											408	SQM		
											1393.5			
											160.25	cum	8890.8	1424750.7
											1393.5	SQM		1424750.7
											408			
											1801.48			
											408	SQM		
											1393.5			
											160.25	cum	8890.8	1424750.7
											1393.5	SQM		1424750.7
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											1393.5			
											160.25	cum	8890.8	1424750.7
											1393.5	SQM		1424750.7
											408			
											1801.48			
											408	SQM		
											1393.5			
											160.25	cum	8890.8	1424750.7
											1393.5	SQM		1424750.7
											408			
											1801.48			
											408	SQM		
											1393.5			
											160.25	cum	8890.8	1424750.7
											1393.5	SQM		1424750.7
											408			
											1801.48			
											408	SQM		
											1393.5			
											160.25	cum	8890.8	1424750.7
											1393.5	SQM		1424750.7
											408			
											1801.48			
											408	SQM		
											1393.5			
											160.25	cum	8890.8	1424750.7
											1393.5	SQM		1424750.7
											408			
											1801.48			
											408	SQM		
											1393.5			
											160.25	cum	8890.8	1424750.7
											1393.5	SQM		1424750.7
											408			
											1801.48			
											408	SQM		
											1393.5			
											160.25	cum	8890.8	1424750.7
											1393.5	SQM		1424750.7
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											1393.5			
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											1393.5	SQM		1424750.7
											408			
											1801.48			
											408	SQM		
											1393.5			
											160.25	cum	8890.8	1424750.7
											1393.5	SQM		1424750.7
											408			
											1801.48			
											408	SQM		
											1393.5			
											160.25	cum	8890.8	1424750.7
											1393.5	SQM		1424750.7
											408			
											1801.48			
											408	SQM		
											1393.5			
											160.25	cum	8890.8	1424750.7
											1393.5	SQM		1424750.7
											408			
											1801.48			
											408	SQM		
											1393.5			
											160.25	cum	8890.8	1424750.7
											1393.5	SQM		1424750.7
											408			
											1801.48			
											408	SQM		
											1393.5			
											160.25	cum	8890.8	1424750.7
											1393.5	SQM		1424750.7
											408			
											1801.48			
											408	SQM		
											1393.5			
											160.25	cum	8890.8	1424750.7
											1393.5	SQM		1424750.7
											408			
											1801.48			
											408	SQM		
											1393.5			
											160.25	cum	8890.8	1424750.7
											1393.5	SQM		1424750.7
											408			
											1801.48			
											408	SQM		
											1393.5			
											160.25	cum	8890.8	1424750.7
											1393.5	SQM		1424750.7
											408			
											1801.48			
											408	SQM		
											1393.5			
											160.25	cum	8890.8	1424750.7
											1393.5	SQM		1424750.7
											408			
											1801.48			
											408	SQM		
											1393.5			
											160.25	cum	8890.8	1424750.7
											1393.5	SQM		1424750.7
											408			
											1801.48			
											408	SQM		
											1393.5			
											160.25	cum	8890.8	1424750.7
											1393.5	SQM		1424750.7
											408			
											1801.48			

PAL ARCHITECT AND ENGINEER
 COA No. CA/2018/96244
 Date: 05/07/2018
 Case No. 7895872139, 9412143346
 Near by IDBI Bank, Dehradun (U.K.)
 Tapovan Road Infront of PRD Ground
 Mob: 7895872139, 9412143346



sno	DSR - Z1	CODE	Description of work	Item	Measurement			Qty	No	Total	Unit	Rate	Amount
8	13.1	13.1.2	12 mm cement plaster of mix : 1:6 (1 cement: 6 fine sand)	Wall	L	B	H						
				Wall	2.8			2.95	8	23.6			
				Wall	4.1			2.95	8	23.6			
				Wall	2.8			2.95	8	23.6			
				Wall	1.3			2.95	8	23.6			
				Wall	0.6			2.95	8	23.6			
				Wall	1			2.95	8	23.6			
				Wall	0.35			2.95	8	23.6			
				Wall	2.2			2.95	8	23.6			
				Wall	3			2.95	8	23.6			
				Wall	1.4			2.95	8	23.6			
				Wall	1.4			2.95	8	23.6			
				Wall	1.2			2.95	8	23.6			
			G.F, F.F, S.F, T.F ceiling		24.21			10.65	4	1031.34			
			INNER WALL					1554.08	4	6216.32			
								1554.08					
			(Door & window) Deduction Per floor					11.35	32	363.2			
			INNER WALL					6216.32					
			DEDUCTION					363.2					
			TOTAL					5853.1					
			OUTER WALL		4.361			2.95	8	102.912			
					2.8			2.95	8	66.08			
			CORRIDOR		10.65			2.95	2	62.835			
								231.827					
			G+3 FLOOR		1.5			0.9	8	10.8			
			DEDUCTION		0.75			2.1	8	12.6			
					0.6			1.2	8	5.76			
					0.45			0.4	8	1.44			
			G+3 FLOOR					30.6					
								122.4	4				
			WALL					927.308					
			DEDUCTION					122.4					
			TOTAL					804.908					
			PARAPET WALL		24.21			1		96.84			
					10.65			1		42.6			
			Sub total							139.44	SQM	294.85	4113.884
													2004227.543

TOWER A DETAILED ESTIMATE OF CIVIL WORK PER FLOOR 8 UNIT G+3 (32 UNIT)

PAL ARCHITECT AND ENGINEER
 COA No. CA/2018/96244
 Date: 14/11/2022
 Case No. 5238
 Tapovan Road Infront of PRD Ground
 Near by IDBI Bank, Dehradun (U.K.)
 Mob.: 7895872139, 9412143346



sno	DSR - 21	CODE	Description of work	Item	L	B	H	Qty	No	Total Qty	Unit	Rate	Amount	
9	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 Grey, Fume Red Brown, laid on 20 mm thick cement mortar 1:4 (1 Cement : 4 Coarse sand), Jointing with grey cement slurry @ 3.3 kg/sqm including pointing the joints with white cement and matching pigment etc., complete.	floor	3.27	3.002		9.8165	8	78.532				
				skirting	12.54	0.1		1.254	8	10.032				
				floor	2.101	1.2		2.521	8	20.168				
				skirting	6.602	0.1		0.6602	8	5.2816				
				floor	0.9	1.2		1.08	8	8.64				
				wall	0.9		1.52	1.368	8	10.944				
				wall	1.2		1.52	1.824	8	14.592				
				floor	2.465	3.155		7.77	8	62.16				
				skirting	11.2	0.1		1.12	8	8.96				
				floor	1.335	1.335		1.7822	8	14.2576				
				skirting	5.34	0.1		0.534	8	4.272				
				floor	24.21	1.25		30.2625		2.421				
				skirting	24.21	0.1		2.421		270.523				
				G+3 floor				270.523	4	1082.09	sqm	935.6	1012405.275	
			Mirror polishing on marble work/Granite work/stone work where ever required to give high gloss finish complete.											
Sub total														

TOWER A DETAILED ESTIMATE OF CIVIL WORK PER FLOOR 8 UNIT G+3 (32 UNIT)

TOWER A DETAILED ESTIMATE OF CIVIL WORK PER FLOOR 8 UNIT G+3 (32 UNIT)

sno	DSR - 21	CODE	Description of work	Item	L	B	H	Qty	No	Total Qty	Unit	Rate	Amount
10		13.8	Providing and applying white cement based putty of average thickness 1 mm, of approved brand and manufacture, over the plastered wall surface to prepare the surface even and smooth complete.	wall	2.8	2.95	8.26	8		66.08			
			wall	4.1	2.95	12.095	8	96.76		66.08			
			wall	2.8	2.95	8.26	8	66.08					
			wall	1.3	2.95	3.835	8	30.68					
			wall	0.6	2.95	1.77	8	14.16					
			wall	1	2.95	2.95	8	23.6					
			wall	0.35	2.95	1.0325	8	8.26					
			wall	2.2	2.95	6.49	8	51.92					
			wall	3	2.95	8.85	8	70.8					
			wall	1.4	2.95	4.13	8	33.04					
			wall	1.4	2.95	4.13	8	33.04					
			wall	1.2	2.95	3.54	8	28.32					
			G.F, F.F, S.F, T.F ceiling		24.21	10.65	257.83	4	1031.34				
								1554.08					
			INNER WALL					1554.08					
				D1	1	2.1	2.1	4.2					
				D2	0.75	2.1	1.575	2	3.15				
				DW1	0.75	2.1	1.575	1	1.575				
				DW1	0.6	1.2	0.72	1	0.72				
				W1	1.5	0.9	1.35	8	10.8				
			DEDUCTION					231.827					
			G+3 FLOOR					231.827					
				W1	1.5	0.9	1.35	8	10.8				
				DW1	0.75	2.1	1.575	8	12.6				
				DW1	0.6	1.2	0.72	8	5.76				
				V1	0.45	0.4	0.18	8	1.44				
			G+3 FLOOR					30.6					
								122.4					
			WALL					927.308					
			DEDUCTION					122.4					
			TOTAL					804.908					
								123.85					
			PARAPET WALL					24.21					
								10.65					
								1					
								48.42					
								2					
								42.6					
								139.44					
								123.85					
								99687.8558					
								17269.644					



PAL ARCHITECT AND ENGINEER
 COA No. CA/2018/96244
 Date: 14/11/2022
 Case No. 00378
 Tapovan Road Infront of PRD Ground
 Near by IDBI Bank, Dehradun (U.K.)
 Mob.: 7895872139, 9412143346

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TOWER A DETAILED ESTIMATE OF CIVIL WORK PER FLOOR 8 UNIT G+3 (32 UNIT)

sno	DSR - 21	CODE	Description of work	Item	L	B	H	Qty	No	Total Qty	Unit	Rate	Amount
		22.6	Providing and laying water proofing treatment on roofs of slabs by applying cement slurry mixed with water proofing cement compound consisting of applying:										
		(a)	after surface preparation, first layer of slurry of cement @ 0.488 kg/sqm mixed with water proofing cement compound @ 0.253 kg/sqm.										
		(b)	laying second layer of fibre glass cloth when the first layer is still green. Overlaps of joints of fibre cloth should not be less than 10 cm.										
		(c)	third layer of 1.5 mm thickness consisting of slurry of cement @ 1.289 kg/sqm mixed with water proofing cement compound @ 0.670 kg/sqm and coarse sand @ 1.289 kg/sqm. This will be allowed to air cure for 4 hours followed by water curing for 48 hours. The entire treatment will be taken upto 30 cm on parapet wall and tucked into groove in parapet all around										
		(d)	fourth and final layer of brick tiling with cement mortar (which will be paid for separately.										
			For the purpose of measurement the entire treated surface will be measured.										
					1.915	1.315		2.518	8	20.144	sqm	585.55	47181.2768
								20.144	4	80.576			
								20.144					



PAL ARCHITECT AND ENGINEER
 COA No. CA/2018/96244
 Case No. Date:
 Tapovan Road Infront of PRD Ground
 Near by IDBI Bank, Dehradun (U.K.)
 Mob.: 7895872139, 9412143346

DETAILED ESTIMATED FOR INTERNAL ELECTRICAL PER FLOOR 8 UNIT G+3 (32 UNIT)

S.NO	DSR-2022	ITEM DESCRIPTION	UNIT	QTY	RATE	AMOUNT
1	1.8	Wiring for light point/fanpoint/exhaust fan point with 1.5 sq.mm FRLS PVC insulated copper conductor single core in surface / recessed				
		medium class pvc conduit, with piano type switch, phenolic laminated sheet, suitable size				
		FRLS PVC insulated copper conductor single core cable etc. as required.				
		Group A point	Nos.	218	1221	266178
		Wiring for twin control light point with 1.5 sq.mm FRLS PVC insulated copper conductor				
		single core cable in surface / recessed medium class PVC conduit, 2 way piano type switch, phenolic laminated sheet, suitable size MS box and earthing the point with 1.5 sq.mm FRLS PVC insulated copper conductor single core cable etc. as required.	Point	20	1835	36700
		Wiring of circuit / sub main wiring along with earth wire with the following sizes of FRLS PVC insulated copper conductor, single core cable in surface / recessed medium class PVC conduit as required				
		2 X 1.5 sq. mm + 1 X 1.5 sq. mm earth wire	Meter	960	327	313920
		2 X 4 sq. mm. + 1 X 4 sq. mm. earth wire	Meter	480	428	205440
		2 X 6 sq. mm. + 1 X 6 sq. mm. earth wire	Meter	240	589	141360
2	2.3	Supplying and fixing of following sizes of medium class PVC conduit along with accessories in surface/recess including cutting the wall and making good the same in case of recessed conduit as required.				
		1.21.2 : 25 mm	Meter	192	145	27840
		Distribution board				
		Supplying and fixing following way, single pole and neutral, sheet steel, MCB distribution board, 240 Volts, on surface / recess complete with tinned copper bus bar, neutral bus bar, earth bar, din bar, interconnections, powder painted including earthing etc. as required. (But without MCB/RBBO/Isolator)	Each	32		70592
		6 way double door	Each			
		1.32	Each	96	131	12576
		Supplying and fixing brass batten/ angle holder including connection etc. as required.				
		1.25	Each	32	369	11808
		Supplying and fixing two module stepped type electronic fan regulator on the existing modular plate switch box including connections but excluding modular plate etc. as required.				
		1.38	Each	32	99	3168
		Supplying and fixing call bell / buzzer suitable for single phase, 230 volts, complete as required.				
		15/16 amp switch	Each	32	103	3296
		5/6 amps switch	Each	32	103	3296
		15/16 amp switch	Each	32	156	4992
		3 pin 5/6 amp socket outlet	Each	32	122	3904
		6 pin 15/16 amp socket outlet	Each	32	197	6304
		TV antenna socket outlet	Each	32	148	4736
		Bell Push	Each	32	140	4480
		1.23				
		Supplying and fixing following piano type switch/ socket on the existing switch box/ cover including connections etc. as required.				
		1.27.1	Each	32	298	9536
		1 or 2 Module (75 mmX75 mm)				
		1.27.2	Each	128	327	41856
		3 Module (100 mmX75 mm)				
		Supplying and fixing following size/ modules, GI box alongwith modular base & cover plate for modular switches in recess etc. as required.				
		1.27				
		0				
		0				
		0				
		0				



PAL ARCHITECT AND ENGINEER
 COA No. CA/2018/96244
 Case No. Date: 14/11/2022
 Tapovan Road Infront of PRD Ground
 Near by IDBI Bank, Dehradun (U.K.)
 Mob.: 7895872139, 9412143346





PAL ARCHITECT AND ENGINEER
COA No. CA/2018/96244
Case No. Date.
Tapovan Road Infront of PRD Ground
Near by IDBI Bank, Dehradun (U.K.)
Mob.: 7895872139, 9412143346

2.1	Supplying and fixing 5amps to 32 amps rating breaker suitable for inductive load of 240/415 volts, "C" curve, miniature circuit following poles in existing MCB DB complete etc. as required.	Each	96	256	24576	0
2.10.1	Single pole	Each	96	256	24576	0
2.14	Supplying and fixing following rating, double pole, (single phase and neutral), 240 volts, residual current circuit breaker (RCCB) having sensitivity up to 30 milli ampere in the existing MCB DB complete with connections, testing commissioning etc. as required	Each	32	2642	84544	0
2.14.2	40 amps	Each	32	2642	84544	0
9.1	Supplying and making of end terminations with brass compression gland and AL./CU. lugs for following size PVC insulated and PVC sheathed /XLPE Al Armored /Unarmored conductor cable of 1.1 kV grade as required	Each	4	468	1872	0
9.1.23	3.5C x 70 sq. mm (Al. Armored Cable)	Each	4	468	1872	0
5.4	Earthing with G.I. earth plate 600 mm X 600 mm X 6 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.	Each	1	7472	7472	0
5.7	Supplying and laying 6 SWG GI wire at 0.50 Meter below ground level for conductor earth electrode including connections / termination with GI thimble etc. as required.	meter	18	51	918	0
5.15	Providing and fixing 25 mm X 5 mm G.I. strip on surface or in recess for connections etc. as required.	meter	18	1162	20916	0
	Providing and fixing G.I. tape 20mm x 3mm thick on parapet or surface of wall for lightning conductor complete as required.	Each	2	518	1036	0
	Providing and fixing G.I. tape 20mm x 3mm thick on parapet or surface of wall for lightning conductor complete as required.	meter	200	126	25200	0
Sub Total						1335220

PAL ARCHITECT AND ENGINEER
 COA No. CA/2018/96244
 Case No. 0038 Date: 14/11/2021
 Tapovan Road Infront of PRD Ground
 Near by IDBI Bank, Dehradun (U.K.)
 Mob.: 7895872139, 9412143346



G+3 32 UNITS					S. No. DSR 2021	
DETAILED ESTIMATE OF INTERNAL PLUMBING WORK PER FLOOR 8 UNIT						
Amount (Rs)	UNIT	Qty	Rate (Rs)	DESCRIPTION OF WORK		
				Sanitary Fixtures		
	1			17.1		
				Providing and fixing water closet squatting pan (Indian type W.C. pan) with 100 mm sand cast iron P or S trap, 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 :		
185003.2	Each	32	5781.35	White Vitreous china Orissa pattern W.C. pan of size 580x440 mm with integral type foot rests.	a)	17.1.1
				Providing and fixing Stainless Steel A ISI 304 (18/8) kitchen sink as per IS 13983 with C.I. brackets and stainless steel plug 40 mm, including painting of fittings and brackets, cutting and making good the walls wherever required :		17.10
106811.2	Each	32	3337.85	Kitchen sink without drain board 610x460 mm bowl depth 200 mm		17.10.2
				Providing and fixing P.V.C. waste pipe for sink or wash basin including P.V.C. waste fittings complete.		17.28.2
				Flexible pipe		17.28.2.1
3339.2	Each	32	104.35	32 mm dia		18.51
				Providing and fixing C.P. brass long body bib cock of approved quality conforming to IS standards and weighing not less than 690 gms.		18.51.1
57096	Each	96	594.75	15 mm nominal bore	a)	
				WATER SUPPLY SYSTEM		
				Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings, including fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and testing of joints complete as per direction of Engineer in Charge. : Internal work - Exposed on wall		18.7
65020	metre	200	325.10	20 mm nominal outer dia. Pipes.	b)	18.7.2
22879.36	metre	56	408.55	25 mm nominal outer dia. Pipes.	c)	18.7.3
48091.2	metre	96	500.95	32 mm nominal outer dia. Pipes.	d)	18.7.4
16184.4	metre	24	674.35	40 mm nominal outer dia. Pipes.	e)	18.7.5



PAL ARCHITECT AND ENGINEER
COA No. CA/2018/96244
Case No. 1411/2022 Date: 14/11/2022
Tapovan Road Infront of PRD Ground
Near by IDBI Bank, Dehradun (U.K.)
Mob: 7895872139, 9412143346



DETAILED ESTIMATE OF INTERNAL PLUMBING WORK PER FLOOR 8 UNIT				
G+3 (32 unit)				
S. No.	DSR 2021	DESCRIPTION OF WORK	UNIT	Qty
a)	18.8.1	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings, i/c fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and the cost of cutting chases and making good the same including testing of joints complete as per direction of Engineer in Charge. Concealed work, including cutting chases and making good the walls etc.	Metre	48
	18.8.2	15 mm nominal outer dia Pipes.	metre	64
	18.8.3	20 mm nominal outer dia Pipes	metre	712.75
		25 mm nominal outer dia Pipes	metre	441.15
	18.17.3	40 mm dia nominal bore	Each	16
	18.17.5	65 mm dia nominal bore	Each	6
	18.18	Providing and fixing ball valve (brass) of approved quality, High or low pressure, with plastic floats complete :		
b)	18.18.2	20 mm nominal bore	Each	32
c)	18.18.3	25 mm nominal bore	Each	4
a)	18.21	Providing and fixing uplasticsed PVC connection pipe with brass unions :		
	18.21.1	30 cm length		
(i)	18.21.1.1	15 mm nominal bore	Each	32
				74.80
				2393.6
	18.33	Constructing masonry Chamber 60x60x75 cm inside, in brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for sluice valve, with C.I. surface box 100 mm top diameter, 160 mm bottom diameter and 180 mm deep (inside) with chained lid and RCC top slab 1:2:4 mix (1cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size), i/c necessary excavation, foundation concrete 1:5:10 (1cement : 5 fine sand : 10 graded stone aggregate 40 mm nominal size) and inside plastering with cement mortar 1:3 (1 cement : 3 coarse sand) 12 mm thick finished with a floating coat of neat cement complete as per standard design :		
a)	18.33.1	With common burnt clay F.P.S.(non modular) bricks of class designation 7.5	No.	4
				10102.50
				40410
	18.58	Providing and fixing PTMT grating of approved quality and colour.		
a)	18.58.1	Circular type.		
(ii)	18.58.1.2	125 mm nominal dia with 25 mm waste hole.	No.	64
				45.25





PAL ARCHITECT AND ENGINEER
COA No. CA/2018/96244
Case No. 6078 Date 14/11/2022
Tapovan Road Infront of PRD Ground
Near by IDBI Bank, Dehradun (U.K.)
Mob.: 7895872139, 9412143346

DETAILED ESTIMATE OF INTERNAL PLUMBING WORK PER FLOOR 8 UNIT					
G+3 (32 unit)					
S. No.	DSR 2021	DESCRIPTION OF WORK	UNIT	Qty	Rate (Rs)
					(Rs)
		Providing and fixing un plastised -PVC pipe clips of approved design to un plastised - PVC rain water pipes by means of 50x50x50 mm hard wood plugs, screwed with M.S. screws of required length, including cutting brick work and fixing in cement mortar 1:4 (1 cement : 4 coarse sand) and making good the wall etc. complete.	Each	64	309.5
	12.43.2	110 mm			19808
Total cost for single (G+3) tower					721307.56

S.NO.	DSR - 21	DESCRIPTION OF WORK	UNIT	QTY	RATE	AMOUNT
EARTH WORK						
1	2.28	Surface dressing of the ground including removing vegetation and in equalities not exceeding 15 cm deep and disposal of rubbish, lead up to 50 m and lift up to 1.5 m.				
2	2.28.1	All kinds of soil				
3	2.32	Clearing grass and removal of the rubbish up to a distance of 50 m outside the periphery of the area cleared.	sqm	4047	7.4	29947.8
4	2.6	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 getting out and disposal of excavated earth lead upto 50 m and lift upto 1.5 m, as directed by Engineer-in charge. 2.6.1 All kinds of soil				
5	2.6.1	All kinds of soil				
6	2.36	Extra for levelling & neatly dressing of disposed soil completely as directed by Engineer-in-charge.	cum	1654.9	76.7	126390.83
CONCRETE WORK						
SUB TOTAL						
						2266826.412
						205.45
						1654.9
			cum			
						76.7
						126390.83
FORM WORK						
7	4.1	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level :				
8	4.1.8	1:4:8 (1 Cement : 4 coarse sand (zone-III) derived from natural sources : 8 graded stone aggregate 40 mm nominal size derived from natural sources)	cum	1133.48	6326.05	7170451.154
9	4.20.1	4.20.1 All works upto plinth level :				
10	4.20.1.3	Concrete of M20 grade with minimum cement content of 270 kg /cum	cum	2726.62	8387.15	22868570.93
11	4.20.2	All works above plinth and upto floor V level				
12	4.20.2.3	Concrete of M20 grade with minimum cement content of 270 kg /cum	cum	5528.51	10009.5	55337620.85
SUB TOTAL						
						85376642.93
STEEL REINFORCEMENT						
12	5.9	Centering and shuttering including strutting, propping etc. and removal of form for				
13	5.9.1	Foundations, footings, bases of columns, etc. for mass concrete	sqm	9077.96	307.95	2795557.782
14	5.9.3	Suspended floors, roofs, landings, balconies and access platform	sqm	119342.5	766.55	91482016.37
16	5.9.6	Columns, Pillars, Piers, Abutments, Posts and Struts	sqm	18522	657.75	12182845.5
17	5.9.7	Stairs, (excluding landings) except spiral-staircases	sqm	3876.29	657.75	2549629.748
SUB TOTAL						
						109010049.4
18	5.22	Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete upto plinth level				
19	5.22.6	Thermo-Mechanically Treated bars of grade Fe-500D or more	kg	919979.2	89.65	82476135.28
SUB TOTAL						
						82476135.28



PAL ARCHITECT AND ENGINEER
COA No. CA/2018/96244
Case No. 5588
Tapovan Road Infront of PRD Ground
Near by IDBI Bank, Dehradun (U.K.)
Mob.: 7895872139, 9412143346
Date: 14/11/2022

**(Tower No 14 B to H & J to P,Q Tower)
Bill Of Quantity PMAY EWS Matkota**

**(Udham Singh Nager)
(Uttarakhand)**

(Civil Work)

PAL ARCHITECT AND ENGINEER
COA No. CA/2018/96244
Case No. Date.
Tapovan Road Infront of PRD Ground
Near by IDBI Bank, Dehradun (U.K.)
Mob: 7895872139, 9412143346

PAL ARCHITECT AND ENGINEER
COA No. CA/2018/96244
Case No. Date.
Tapovan Road Infront of PRD Ground
Near by IDBI Bank, Dehradun (U.K.)
Mob: 7895872139, 9412143346

14 TOWER B TO H & J TO N, P, Q BILL OF QUANTITY PMAY EWS MATKOTA (UDHAM SINGH NAGAR) (UTTARAKHAND)

S.NO.	DSR - 21	DESCRIPTION OF WORK	UNIT	QTY	RATE	AMOUNT
FINISHING WORK						
30	13.1	12 mm cement plaster of mix :				
31	13.1.2	1:6 (1 cement: 6 fine sand)	sqm	186214.8	294.85	54905424.93
32	13.8	Providing and applying white cement based putty of average thickness 1 mm, of approved brand and manufacturer, over the plastered wall surface to prepare the surface even and smooth complete.	sqm	186214.8	123.85	23062699.26
33	13.48	Finishing with Deluxe Multi surface paint system for interiors and exteriors using Primer as per manufacturers specifications :				
34	13.48.1	Two or more coats applied on walls @ 1.25 ltr/10 sqm over and including one coat of Special primer applied @ 0.75 ltr/10 sqm	sqm	186215	158.95	29598874.25
33	13.47	Finishing walls with Premium Acrylic Smooth exterior paint with Silicone additives of required shade:				
34	13.47.1	New work (Two or more coats applied @ 1.43 ltr/10 sqm over and including priming coat of exterior primer applied @ 2.20 kg/10 sqm)	sqm	19018.44	162.35	3087643.734
35	13.83	Wall painting with premium acrylic emulsion paint of interior grade, having VOC (Volatile Organic Compound) content less than 50 grams/ litre of approved brand and manufacturer, including applying additional coats wherever required to achieve even shade and colour				
36	13.83.2	Two coats	sqm	163888.7	121.55	19920666.62
SUB TOTAL						
PLUMBING AND SANITARY INSTALLATIONS						
37	17.3	Plumbing and sanitary installation of 896 EWS per floor 16 unit G+3 (64 Unit) total 14 tower				18228165.76
	17.3.1	Internal Electrical work of 896 EWS per floor 16 unit G+3 (64 Unit) total 14 tower				36235808
WATER PROOFING						
	22.6	Providing and laying water proofing treatment on roofs of slabs by applying cement slurry mixed with water proofing cement compound consisting of applying:				
	(a)	after surface preparation, first layer of slurry of cement @ 0.488 kg/sqm mixed with water proofing cement compound @ 0.253 kg/sqm.				
	(b)	laying second layer of fibre glass cloth when the first layer is still green. Overlaps of joints of fibre cloth should not be less than 10 cm.				
	(c)	third layer of 1.5 mm thickness consisting of slurry of cement @ 1.289 kg/sqm mixed with water proofing cement compound @ 0.670 kg/sqm and coarse sand @ 1.289 kg/sqm. This will be allowed to air cure for 4 hours followed by water curing for 48 hours. The entire treatment will be taken upto 30 cm on parapet wall and tucked into groove in parapet all around				
	(d)	fourth and final layer of brick tiling with cement mortar (which will be paid for separately.				
		For the purpose of measurement the entire treated surface will be measured.				
			2256.42	15	585.55	1321246.731
GRAND TOTAL OF 14 TOWER B TO H, J TO N, P, Q.						
						579376967.4



PAL ARCHITECT AND ENGINEER
 COA No. CA/2018/96244
 Case No. 147/11202
 Date: 14/11/2022
 Near by IDBI Bank, Dehradun (U.K.)
 Tapovan Road Infront of FRD Ground
 Mob.: 7895872139, 9412143346



14 TOWER B TO H & J TO N, P, Q DETAILED ESTIMATE OF CIVIL WORK PER FLOOR 16 UNIT G+3 (64 UNIT)

14 TOWER B TO H & J TO N, P, Q DETAILED ESTIMATE OF CIVIL WORK PER FLOOR 16 UNIT G+3 (64 UNIT)

sno	DSR - 21 CODE NO.	Description of work	Item	Measurement			Qty	No	Total Qty	Unit	Rate	Amount
				L	B	H						
2	4.1	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level:										
	4.1.8	1:4:8 (1 Cement : 4 coarse sand (zone-III) derived from natural sources : 8 graded stone aggregate 40 mm nominal size derived from natural sources)										
		Foundation (F1) P.C.C		2.02	2.02	0.075	0.306	6	1.836			
		Foundation (F2) P.C.C		2.16	2.16	0.075	0.3449	24	8.398			
		Foundation (F3) P.C.C		2.4	2.4	0.075	0.432	4	1.728			
		Foundation (CF1) P.C.C		4.03	2	0.075	0.6	4	2.418			
		Foundation (CF2) P.C.C		6.65	2	0.075	0.997	14	13.965			
		Foundation (CF3) P.C.C		4.03	2	0.075	0.6	2	1.2			
		Sub Total							29.545	cum	6326.05	186903.147
		Plinth beam (PB1) P.C.C		164.1	0.3	0.075			3.692			
		Plinth beam (PB2) P.C.C		238.2	0.3	0.075			5.359			
		Plinth beam (PB3) P.C.C		164.1	0.3	0.075			3.692			
		Ground floor pcc		48.42	10.65	0.075			38.675	cum	6326.05	80612.85
		SUB TOTAL							12.743	cum	6326.05	244659.98
												512175.977



PAL ARCHITECT AND ENGINEER
COA No. CA/2018/96244
Case No. 078 Date: 14/11/2022
Tapovan Road Infront of PRD Ground
Near by IDBI Bank, Dehradun (U.K.)
Mob.: 7895872139, 9412143346



14 TOWER B TO H & J TO N, P, Q DETAILED ESTIMATE OF CIVIL WORK PER FLOOR 16 UNIT G+3 (64 UNIT)

[illegible]

14 TOWER B TO H & J TO N, P, Q DETAILED ESTIMATE OF CIVIL WORK PER FLOOR 16 UNIT G+3 (64 UNIT)

14 TOWER B TO H & J TO N, P, Q DETAILED ESTIMATE OF CIVIL WORK PER FLOOR PER UNIT G+3 (64 UNIT)

sno	DSR - 21	CODE NO.	Description of work	Item	L	B	H	Qty	No	Total Qty	Unit	Rate	Amount
5	5.22	5.22.6	including straightening, cutting, bending, placing in position and binding all complete upto plinth level	Foundation (F1) steel	12 mm	44.44	39.107	6	234.64				
				Foundation (F2) steel	12 mm	49.68	43.718	24	1049.24				
				Foundation (F3) steel	12 mm	69.9	61.512	4	246.048				
				Foundation (CF1) steel	08 mm	32.24	12.73	4	50.93				
				Foundation (CF2) steel	20 mm	65.2	160.98	14	2253.82				
				Foundation (CF3) steel	16 mm	75	118.5	14	1659				
				Foundation (CF3) steel	16 mm	118	186.44	2	372.88				
				Fe-500D or more									
				Column (C1) steel upto plinth beam level	16 mm	10	15.8	50	790				
				Column (C2) steel upto plinth beam level	12 mm	5	4.4	50	220				
				Column (C2) steel upto plinth beam level	10 mm	16	9.76	50	488				
				Column (C2) steel upto plinth beam level	16 mm	15	23.7	28	663.6				
				Column (C1) steel upto Terrace level	10 mm	5	4.4	28	123.2				
				Column (C1) steel upto Terrace level	16 mm	48	75.84	50	3792				
				Column (C2) steel upto Terrace level	12 mm	24	22	50	1100				
				Column (C2) steel upto Terrace level	10 mm	72	113.76	28	3185.28				
				G+3	16 mm	72	113.76	28	3185.28				
				G+3	10 mm	72	44	50	2200				
				Plinth beam (PB1) steel	12 mm	164.1	144.4	7	1010.85				
				Plinth beam (PB2) steel	12 mm	238.18	209.59	6	1257.9				
				Plinth beam (PB3) steel	12 mm	164.1	144.4	7	1010.85				
				Plinth beam (PB3) steel	10 mm	1.26	0.768	820	630.25				
				Slab steel (B1)	16 mm	131.12	206.98	7	1448.86				
				Slab steel (B1)	16 mm	64	101.12	3	303.36				
				Slab steel (B2)	12 mm	124.5	109.56	6	657.36				
				Slab steel (B2)	12 mm	4.24	2.586	622	1608.74				
				Slab steel (B3)	12 mm	124.5	109.56	6	657.36				
				Slab steel (B3)	12 mm	62.25	54.78	3	164.34				
				Slab steel (SB1)	16 mm	69.44	109.71	4	438.86				
				Slab steel (SB1)	10 mm	4.24	2.586	622	1608.74				
				Slab steel (SB2)	12 mm	124.5	109.56	6	657.36				
				Slab steel (SB2)	12 mm	6.32	3.855	347	1338.45				
				Slab steel (SB2)	12 mm	62.25	54.78	3	164.34				
				Slab steel (SB2)	10 mm	4.24	2.586	622	1608.74				
				Slab steel (SB2)	12 mm	101.25	89.1	6	534.6				
				Slab	10 mm	2614.68	1594.95	4	6379.81				
				Staircase	10 mm	2556	1559.16	4	6236.64				
				Staircase	10 mm	1307.34	797.47	4	3189.9				
				projection	10 mm	1278.4	779.82	4	3119.29				
				projection	12 mm	260	228.8	25	5720				
				SUB TOTAL	10 mm	258	157.38	4	629.52				
				SUB TOTAL	12 mm	3636783.14	40566.46	kg	89.65	3636783.14			5891144.8



PAL ARCHITECT AND ENGINEER
 COA No. CA/2018/96244
 Case No. 2018/1411/2019
 Tapovan Road Infront of PRD Ground
 Near by IDBI Bank, Dehradun (U.K.)
 Mob.: 7895872139, 9412143346

14 TOWER B TO H & J TO N, P, Q DETAILED ESTIMATE OF CIVIL WORK PER FLOOR 16 UNIT G+3 (64 UNIT)

sno	DSR - 21	CODE NO.	Description of work	Item	L	B	H	Qty	No	Total Qty	Unit	Rate	Amount
6	6.38		Providing and laying autoclaved aerated cement blocks masonry with 100 mm thick AAC blocks in super structure above plinth level up to floor V level in cement mortar 1:4 (1 cement : 4 coarse sand). The rate includes providing and placing in position 2 Nos 6 mm dia M.S. bars at every third course of masonry work.										
			WALL (G+3 building)	4	2.8		2.65	29.68	16	474.88			
				4	4.1		2.65	43.45	16	695.304			
				4	2.8		2.65	29.68	16	474.88			
				4	1.3		2.65	13.77	16	220.382			
				4	0.6		2.65	6.359	16	101.75			
				4	1		2.65	10.6	16	169.6			
				4	0.35		2.65	3.706	16	59.304			
				4	2.2		2.65	23.31	16	373.11			
				4	3		2.65	31.79	16	508.66			
				4	1.4		2.65	14.83	16	237.43			
				4	1.4		2.65	14.83	16	237.43			
				4	1.2		2.65	1.59	12.72	25.44			
			WALL					3578.17			SQM		
			(Door & window) Deduction no of unit 16 x 4 floor	D1	1		2.1	2.1	2	268.8			
				D2	0.75		2.1	1.575	2	201.6			
				DW1	0.75		2.1	1.575	1	201.6			
				DW1	0.6		1.2	0.72	1	46.08			
				W1	1.5		0.9	1.35	1	86.4			
				V1	0.45		0.4	0.18	2	11.52			
								816			SQM		
			wall					3578.17					
			Deduction					816					
								2762.17			SQM		
			wall					317.64			cum		
			SUB TOTAL					2762.17					
								0.115					
								2762.17					
								2824073.71					
								2824073.71					




PAL ARCHITECT AND ENGINEER
 COA No. CA/2018/96244
 Case No. Date 14/11/2022
 Tapovan Road Infront of FRD Ground
 Near by IDBI Bank, Dehradun (U.K.)
 Mob.: 7895872139, 9412143346

14 TOWER B TO H & J TO N , P , Q DETAILED ESTIMATE OF CIVIL WORK PER FLOOR 16 UNIT G+3 (64 UNIT)

sno	DSR - 21	CODE NO.	Description of work	Item	L	B	H	Qty	No	Total Qty	Unit	Rate	Amount
7	9.18	9.18.2	Providing and fixing Pre-laminated flat pressed 3 layer (medium density) particle board or graded wood particle board 15 : 3087 marked, with one side decorative and other side balancing lamination Grade I, Type II exterior grade 15 : 12823 marked, in shelves with screws and fittings wherever required, edges to be painted with polyurethane primer (fittings to be paid separately)	D1	1			2.1	2	4.2			
				D2	0.75			2.1	2	4.2			
				DW1	0.75			2.1	1	2.1			
								8.925		8.925			
								64		64	sqm	1501	857371.2
	10.25	10.25.2	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.	D1				30	2	60			
				D2				30	2	60			
				DW1				45	1	45			
				W1				50	1	50			
				V1				15	2	30			
	10.26	10.26.1	Providing and fixing hand rail of approved size by welding etc. to steel ladder railing, balcony railing, staircase railing and similar works, including applying priming coat of approved steel primer.	M.S. tube									
				65x40				1.25	1	1.25			
				25x25				0.84	2	1.68			
				20x20				1.25	2	2.5			
				20x20				0.64	8	5.12			
	G+3 Floor	G+3 Floor	per floor 16 unit					10.55	16	168.8			
								168.8	4	675.2	kg	157.15	106107.68
	Per floor 16 unit	G+3 Floor Building	Sub Total										
	9.12	9.12	Extra for providing frosted glass panes 4 mm thick instead of ordinary float glass panes 4 mm thick in doors, windows and clerestory window shutters. (Area of opening for glass panes excluding portion inside rebate shall be measured).	DW1	0.6			1.2	1	0.72	0.72		
				W1	1.5			0.9	1	1.35	1.35		
				V1	0.45			0.4	2	0.18	0.36		
	Sub Total	G+3 Floor Building	Sub Total										



PAL ARCHITECT AND ENGINEER
COA No. CA/2018/96244
Case No. 2678
Date: 14/11/2012
Tapovan Road Infront of PRD Ground
Near by IDBI Bank, Dehradun (U.K.)
Mob.: 7895872139, 9412143346

Pal



PAL ARCHITECT AND ENGINEER
COA No. CA/2018/96244
Case No. 0028 Date: 14/11/2022
Tapovan Road Infront of PRD Ground
Near by IDBI Bank, Dehradun (U.K.)
Mob.: 7895872139, 9412143346

sno	DSR - 21	CODE NO.	Description of work	Item	Measurement	Qty	No	Total Qty	Unit	Rate	Amount
8	13.1	13.1.2	12 mm cement plaster of mix : 1:6 (1 cement: 6 fine sand)	wall	2.8	2.95	8.26	132.16	16		
				wall	4.1	2.95	12.095	193.52	16		
				wall	2.8	2.95	8.26	132.16	16		
				wall	1.3	2.95	3.835	61.36	16		
				wall	0.6	2.95	1.77	28.32	16		
				wall	1	2.95	2.95	47.2	16		
				wall	0.35	2.95	1.0325	16.52	16		
				wall	2.2	2.95	6.49	103.84	16		
				wall	3	2.95	8.85	141.6	16		
				wall	1.4	2.95	4.13	66.08	16		
				wall	1.2	2.95	3.54	56.64	16		
			G.F, F.F, S.F, T.F ceiling		48.42	10.65	515.673	4	2062.69		
							3108.17	4	12432.68		
			INNER WALL	D1	1	2.1	2.1	4.2	2		
				D2	0.75	2.1	1.575	3.15	2		
				DW1	0.75	2.1	1.575	1	1.575		
				DW1	0.6	1.2	0.72	1	0.72		
				W1	1.5	0.9	1.35	1	1.35		
				V1	0.45	0.4	0.18	2	0.36		
			(Door & window) Deduction no of unit 16 x 4 floor				11.355	64	726.4		
			INNER WALL				12432.7		726.4		
			DEDUCTION				726.4		11706.3		
			TOTAL						11706.3		
			OUTER WALL		4.361	2.95	12.865	16	205.8392		
					2.8	2.95	8.26	16	132.16		
			CORRIDOOR		10.65	2.95	31.4175	2	62.835		
							400.815	4	1603.26		
			G+3 FLOOR	W1	1.5	0.9	1.35	16	21.6		
			DEDUCTION	DW1	0.75	2.1	1.575	16	25.2		
				DW1	0.6	1.2	0.72	16	11.52		
				V1	0.45	0.4	0.18	16	2.88		
			G+3 FLOOR				61.2	4	244.8		
			WALL				1603.26		244.8		
			DEDUCTION				244.8		1358.46		
			TOTAL						1358.46		
			PARAPET WALL		48.42	1	48.42	4	193.68		
					10.65	1	10.65	4	42.6		
			Sub total						294.85		
									69667.158		
									3921811.64		

14 TOWER B TO H & J TO N , P , Q DETAILED ESTIMATE OF CIVIL WORK PER FLOOR 16 UNIT G+3 (64 UNIT)

14 TOWER B TO H & J TO N , P , Q DETAILED ESTIMATE OF CIVIL WORK PER FLOOR 16 UNIT G+3 (64 UNIT)

sno	DSR - 21	CODE NO.	Description of work	Item	L	B	H	Qty	No	Total Qty	Unit	Rate	Amount
9	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), Jointing with grey cement slurry @ 3.3 kg/sqm including pointing the joints with white cement and matching pigment etc., complete.	floor	3.27	3.002		9.8165	16	157.064			
			Living Room	skirting	12.54	0.1		1.254	16	20.064			
			Kitchen	floor	2.101	1.2		2.521	16	40.336			
			toilet	skirting	6.602	0.1		0.6602	16	10.5632			
				floor	0.9	1.2		1.08	16	17.28			
			toilet	wall	0.9	1.52		1.368	16	21.88			
				wall	1.2	1.52		1.824	16	29.18			
			Bed room	floor	2.465	3.155		7.77	16	124.32			
				skirting	11.2	0.1		1.12	16	17.92			
			Entrance	floor	1.335	1.335		1.7822	16	28.515			
				skirting	5.34	0.1		0.534	16	8.544			
			Corridor	floor	48.42	1.25		60.525					
				skirting	48.42	0.1		4.842					
			G+3 floor					S41.0332	4	2164.012	sqm	935.6	2024649.63
								S41.0332					
			8.6	Mirror polishing on marble work/Granite work/stone work where ever required to give high gloss finish complete.									
					0.3	1.5		0.45	20	7.2			
					2.06	1.25		2.575	1	2.575			
			G+3 Floor					9.775	4	39.1	sqm	417.6	16328.16
			Sub total										2040977.79



PAL ARCHITECT AND ENGINEER
 COA No. CA/2018/96244
 Case No. 14/11/2022 Date 14/11/2022
 Near by IDBI Bank, Dehradun (U.K.)
 Mob.: 7895872139, 9412143346



PAL ARCHITECT AND ENGINEER
 COA No. CA/2018/96244
 Case No. 0578 Date: 14/11/2022
 Tapovan Road Infront of PRD Ground
 Near by IDBI Bank, Dehradun (U.K.)
 Mob.: 7895872139, 9412143346

sno	DSR - 21	CODE NO.	Description of work	Item	Measurement	H	Qty	No	Total Qty	Unit	Rate	Amount
10	13.8		Providing and applying white cement based putty of average thickness 1 mm, of approved brand and manufacture, over the plastered wall surface to prepare the surface even and smooth complete.	wall	2.8	2.95	8.26	16	132.16			
				wall	4.1	2.95	12.095	16	193.52			
				wall	2.8	2.95	8.26	16	132.16			
				wall	1.3	2.95	3.835	16	61.36			
				wall	0.6	2.95	1.77	16	28.32			
				wall	1	2.95	2.95	16	47.2			
				wall	0.35	2.95	1.0325	16	16.52			
				wall	2.2	2.95	6.49	16	103.84			
				wall	3	2.95	8.85	16	141.6			
				wall	1.4	2.95	4.13	16	66.08			
			wall	1.2	2.95	3.54	16	56.64				
					48.42	10.65	515.673	4	2062.69			
			INNER WALL			3108.17	4	12432.68				
			D1	1	2.1	2.1	2	4.2				
			D2	0.75	2.1	1.575	2	3.15				
			DW1	0.75	2.1	1.575	1	1.575				
			DW1	0.6	1.2	0.72	1	0.72				
			W1	1.5	0.9	1.35	1	1.35				
			VI	0.45	0.4	0.18	2	0.36				
			(Door & window) Deduction Per floor unit 16 (64 unit)			11.355		11.355	SQM			
			INNER WALL				64	726.4				
			INNER WALL					12432.7				
			DEDUCTION					726.4				
			TOTAL					11706.3	SQM	123.85	1449825.26	
			OUTER WALL	4.361	2.95	12.865	16	205.8392				
			CORRIDOR	10.65	2.95	31.4175	2	62.835				
							400.8342					
			G+3 FLOOR				4	1603.26				
			DEDUCTION	W1	1.5	0.9	1.35	16	21.6			
				DW1	0.75	2.1	1.575	16	25.2			
				DW1	0.6	1.2	0.72	16	11.52			
				VI	0.45	0.4	0.18	16	2.88			
			G+3 FLOOR				61.2	4	244.8			
			</									



PAL ARCHITECT AND ENGINEER
 COA No. CA/2018/96244
 Case No. 0078 Date 14/11/18
 Tapovan Road Infront of PRD Ground
 Near by IDBI Bank, Dehradun (U.K.)
 Mob.: 7895872139, 9412143346

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PAL ARCHITECT AND ENGINEER
 COA No. CA/2018/96244
 Date: 14/11/2022
 Tapovan Road Infront of PRD Ground
 Near by IDBI Bank, Dehradun (U.K.)
 Mob.: 7895872139, 9412143346

sno	DSR - 21	CODE NO.	Description of work	Item	Measurement	L	B	H	Qty	No	Total Qty	Unit	Rate	Amount
11	22.6		Providing and laying water proofing treatment on roofs of slabs by applying cement slurry mixed with water proofing cement compound consisting of applying:											
		(a)	after surface preparation, first layer of slurry of cement @ 0.488 kg/sqm mixed with water proofing cement compound @ 0.253 kg/sqm.											
		(b)	laying second layer of fibre glass cloth when the first layer is still green. Overlaps of joints of fibre cloth should not be less than 10 cm.											
		(c)	third layer of 1.5 mm thickness consisting of slurry of cement @ 1.289 kg/sqm mixed with water proofing cement compound @ 0.670 kg/sqm and coarse sand @ 1.289 kg/sqm. This will be allowed to air cure for 4 hours followed by water curing for 48 hours. The entire treatment will be taken upto 30 cm on parapet wall and tucked into groove in parapet all around											
		(d)	fourth and final layer of brick tiling with cement mortar (which will be paid for separately.											
			For the purpose of measurement the entire treated surface will be measured.											
			G+3 Floor			1.915	1.315		2.518	16	40.29	sqm	585.55	94370.7513
			Sub total							4	161.166	sqm		94370.7513

14 TOWER B TO H & J TO N, P, Q DETAILED ESTIMATE OF CIVIL WORK PER FLOOR 16 UNIT G+3 (64 UNIT)

PAL ARCHITECT AND ENGINEER
COA No. CA/2018/96244
Case No. 6038 Date: 11/11/22
Tapovan Road Infront of PRD Ground
Near by IDBI Bank, Dehradun (U.K.)
Mob.: 7895872139, 9412143346



Boof



S.NO	DSR-2022	ITEM DESCRIPTION	UNIT	QTY	RATE	AMOUNT
1	1.8	Wiring for light point / fanpoint/exhaust fan point with 1.5 sq mm FRLS class pvc conduit, with piano type switch, phenolic laminated sheet, suitable size, M/S box and earthing the point with 1.5 sq mm FRLS PVC insulated copper conductor single core in surface / recessed medium	Nos.	436	1221	532356
	1.8.1	Group A point				
	1.2	Wiring for twin control light point with 1.5 sq mm FRLS PVC insulated copper conductor single core cable in surface / recessed medium class PVC conduit, 2 way piano type switch, phenolic laminated sheet, suitable size M/S box and earthing the point with 1.5 sq mm FRLS PVC insulated copper conductor single core cable etc. as required.	Point	40	1835	73400
	1.3	Wiring of circuit / sub main wiring along with earth wire with the following sizes of FRLS PVC insulated copper conductor, single core cable in surface / recessed medium class PVC conduit as required	Meter	1920	37	627840
	1.7.2	2 X 1.5 sq. mm + 1 X 1.5 sq. mm earth wire	Meter	960	428	410880
	1.7.3	2 X 4 sq. mm + 1 X 4 sq. mm earth wire	Meter	480	589	282720
	1.7.4	2 X 6 sq. mm + 1 X 6 sq. mm earth wire	Meter			
	1.27	Supplying and fixing following size/ modules, GI box along with modular base & cover plate for modular switches in recess etc. as required.				
	1.27.1	1 or 2 Module (75 mmX75 mm)	Each	64	298	19072
	1.27.2	3 Module (100 mmX75 mm)	Each	256	327	83712
	1.23	Supplying and fixing following piano type switch/ socket on the existing switch box/ cover including connections etc. as required.				
	5/6 amps switch		Each	64	103	6592
	15/16 amp switch		Each	64	156	9984
	3 pin 5/6 amp socket outlet		Each	64	122	7808
	6 pin 15/16 amp socket outlet		Each	64	197	12608
	TV antenna socket outlet		Each	64	148	9472
	Bell push		Each	64	140	8960
	1.38	Supplying and fixing call bell / buzzer suitable for single phase, 230 volts, complete as required.	Each	64	99	6336
	1.25	Supplying and fixing two module stepped type electronic fan regulator on the existing modular plate switch box including connections but excluding modular plate etc. as required.	Each	64	369	23616
	1.32	Supplying and fixing brass batten/ angle holder including connection etc. as required.	Each	192	131	25152
		Supplying and fixing of following sizes of medium class PVC conduit along with accessories in surface/recess including cutting the wall and making good the same in case of recessed conduit as required.	Meter	384	145	55680
	1.21.2	25 mm				
	2	Supplying and fixing following way, single pole and neutral, sheet steel, MCB distribution board, 240 Volts, on surface / recess complete with thinned copper bus bar, neutral bus bar, earth bar, din bar, interconnections, powder painted including earthing etc. as required (But without MCB/RCCBO/Isolator)				
	2.3.1	6 way double door	Each	64	2206	14184
	2.1	Supplying and fixing following MCB DB complete with connections, testing and commissioning etc. as required.	Each	192	256	49152
	2.14	Supplying and fixing following rating, double pole, (single phase and neutral), 240 volts, residual current circuit breaker (RCCB) having sensitivity up to 30 milli ampere in the existing MCB DB complete with connections, testing and commissioning etc. as required	Each	64	2642	169088
	2.14.2	40 amps				
	9.1	Supplying and making of end terminations with brass compression gland and AL/CU lugs for following size PVC insulated and PVC sheathed /XLPE Al Armored /Unarmored conductor cable of 1.1 KV grade as required	Each	8	468	3744
	9.1.23	3.5C x 70 sq. mm (Al Armored Cable)	Each	8	7472	59776
	5.4	Earthing with GI earth plate 600 mm X 600 mm X 6 mm thick including	Each	8		
	2.7	meter long etc. with charcoal/ coke and salt as required.				
	5.7	Supplying and laying 6 SWG GI wire at 0.50 Meter below ground level for conductor earth electrode including connections / termination with GI thimble etc. as required.	meter	36	51	1836
	5.15	for connections etc. as required.	meter	36	1162	41832
		Providing and fixing 25 mm X 5 mm GI strip on surface or in recess				
		Providing and fixing GI tape 20mm x 3mm thick on parapet or surface of wall for lightning conductor complete as required (for	meter	400	126	50400
		Sub Total				2588272

DETAILED ESTIMATED FOR INTERNAL ELECTRICAL PER FLOOR 16 UNIT G+3 (64 UNIT)



PAL ARCHITECT AND ENGINEER
COA No. CA/2018/96244
Case No. 14111228 Date 05/11/2018
Near by IDBI Bank, Dehradun (U.K.)
Tapovan Road Infront of PRD Ground
Mob.: 7895872139, 9412143346

Def

DETAILED ESTIMATE OF INTERNAL PLUMBING WORK 16 UNIT PER FLOOR					
G+3 64 UNITS					
S. No.	DSR 2021	DESCRIPTION OF WORK	UNIT	Qty	Rate (Rs)
		Sanitary Fixtures			Amount (Rs)
1	17.1	Providing and fixing water closet squatting pan (Indian type W.C. pan) with 100 mm sand cast Iron P or S trap, 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 :			
a)	17.1.1	White Vitreous china Orissa pattern W.C. pan of size 580x440 mm with integral type foot rests.	Each	64	5781.35
					370006.4
	17.10	Providing and fixing Stainless Steel A ISI 304 (18/8) kitchen sink as per IS 13983 with C.I. brackets and fittings and brackets, cutting and making good the walls wherever required :			
	17.10.2	Kitchen sink without drain board	Each	64	3337.85
					213622.4
		Providing and fixing P.V.C. waste pipe for sink or wash basin including P.V.C. waste fittings complete.			
	17.28.2	Flexible pipe			
	17.28.2.1	32 mm dia	Each	64	104.35
					1669.6
	18.51	Providing and fixing C.P. brass long body bib cock of approved quality conforming to IS standards and weighing not less than 690 gms.			
a)	18.51.1	15 mm nominal bore	Each	192	594.75
					114192
		WATER SUPPLY SYSTEM			
	18.7	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings, including fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and testing of joints complete as per direction of Engineer in Charge. : Internal work - Exposed on wall			
b)	18.7.2	20 mm nominal outer dia. Pipes.	metre	400	325.10
					130040
c)	18.7.3	25 mm nominal outer dia. Pipes.	metre	112	408.55
					45757.6
d)	18.7.4	32 mm nominal outer dia. Pipes.	metre	192	500.95
					96182.4
e)	18.7.5	40 mm nominal outer dia. Pipes.	metre	48	674.35
					32368.8





PAL ARCHITECT AND ENGINEER
COA No. CA/2018/96244
Case No. Date: ..
Tapovan Road Infront of PRD Ground
Near by IDBI Bank, Dehradun (U.K.)
Mob.: 7895872139, 9412143346

DETAILED ESTIMATE OF INTERNAL PLUMBING WORK 16 UNIT PER FLOOR					G+3 (64 unit)	
S.No.	DSR 2021	DESCRIPTION OF WORK	UNIT	Qty	Rate (Rs)	Amount (Rs)
a)	18.8.1	15 mm nominal outer dia. Pipes.	Metre	96	441.15	42350
	18.8.2	20 mm nominal outer dia Pipes	metre	128	712.75	91232
	18.8.3	25 mm nominal outer dia Pipes	metre	16	626.05	10016.8
	18.17.3	40 mm dia nominal bore	Each	32	707.30	22633.6
	18.17.5	65 mm dia nominal bore	Each	12	1490.70	17888.4
	18.18	Providing and fixing ball valve (brass) of approved quality, High or low pressure, with plastic floats complete :				
b)	18.18.2	20 mm nominal bore	Each	64	397.45	25436.8
c)	18.18.3	25 mm nominal bore	Each	4	399.15	1596.6
	18.21	Providing and fixing uplasticised PVC connection pipe with brass unions :				
a)	18.21.1	30 cm length				
(i)	18.21.1.1	15 mm nominal bore	Each	64	74.80	1196.8
	18.33	Constructing masonry Chamber 60x60x75 cm inside, in brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for sluice valve, with C.I. surface box 100 mm top diameter, 160 mm bottom diameter and 180 mm deep (inside) with chained lid and RCC to slab 1:2:4 mix (1cement : 2 coarse sand : 4 grad stone aggregate 20mm nominal size)/c necessary excavation, foundation concrete 1:5:10 (1cement : fine sand : 10 graded stone aggregate 40 mm nominal size) and inside plastering with cement mortar 1:3 (1 cement : 3 coarse sand) 12 mm thick finished with a floating coat of neat cement complete as per standard design :				
a)	18.33.1	With common burnt clay F.P.S.(nomodular) bricks of class designation 7.5	No.	4	10102.50	40410
	18.58	Providing and fixing PTMT grating of approved quality and colour.				
a)	18.58.1	Circular type.				
(ii)	18.58.1.2	125 mm nominal dia with 25 mm waste hole.	No.	128	45.25	5795.84





PAL ARCHITECT AND ENGINEER
 COA No. CA/2018/96244
 Case No. 0038 Date 14/11/2022
 Tapovan Road Infront of PRD Ground
 Near by IDBI Bank, Dehradun (U.K.)
 Mob.: 7895872139, 9412143346

G+3 (64 unit)					
DETAILED ESTIMATE OF INTERNAL PLUMBING WORK 16 UNIT PER FLOOR					
S.No.	DSR 2021	DESCRIPTION OF WORK	UNIT	Qty	Rate (Rs)
		Providing and fixing un plasticised -PVC pipe clips of approved design to un plasticised - PVC rain water pipes by means of 50x50x50 mm hard wood plugs, screwed with M.S. screws of required length, including cutting brick work and fixing in cement mortar 1:4 (1 cement : 4 coarse sand) and making good the wall etc. complete.	Each	128	309.5
					39616
Total cost for single (G+3) tower					1302011.84
Amount (Rs)					

(Other services)

Bill of Quantity PMAY EWS (Uttarakhand)

- 1- External Sewrage System
- 2- External Water Supply System
- 3- External Drainage System
- 4- C.C Paving Work Cost
- 5- Boundry Wall Construction 833.575M
- 6- Tube Wall Cost
- 7- Main Entrance gate
- 8- UG Tank And Pump room
- 9- S.T.P Tank Construction


PAL ARCHITECT AND ENGINEER
COA No. CA/2018/96244
Case No. Date: 14/11/2022
Tapovan Road Infront of PRD Ground
Near by IDBI Bank, Dehradun (U.K.)
Mob.: 7895872139, 9412143346

DETAILED ESTIMATE OF EXTERNAL SEWERAGE SYSTEM

S.NO	DSR-2022	ITEM DESCRIPTION	UNIT	QTY	RATE	AMOUNT
2.1		EARTHWORK				
2.10.1.2		Pipes, cables etc. exceeding 80 mm dia, but not exceeding 300 mm dia	Rm	2562	417.35	1069250.7
2.10.1.3		Pipes, cables etc. exceeding 300 mm dia but not exceeding 600 mm	Rm	15	651.55	9773.25
2.11		Extra for excavating trenches for pipes, cables etc. in all kinds of soil for depth exceeding 1.5 m, but not exceeding 3 m. (Rate is over corresponding basic item for depth upto 1.5 metre).	Rm	1462	127	185674
19.1		Providing, laying and jointing glazed stoneware pipes class SP-1 with stiff mixture of cement mortar in the proportion of 1:1 (cement : 1 fine sand) including testing of joints etc. complete :	Rm	3462.2	830.4	2875010.88
19.1.3		200 mm diameter	Rm			
19.1.4		250 mm diameter	Rm	155.2	1293.9	200813.28
19.1.5		300 mm diameter	Rm	151.6	1774.5	269014.2
19.2		Providing and laying cement concrete 1:5:10 (1 cement:5 coarse sand:10 graded stone aggregate 20 mm nominal size) all-round design:				
19.2.3		200 mm dia	Rm	2500	830.4	2076000
19.3		Providing and laying cement concrete 1:5:10 (1 cement:5 coarse sand:10 graded stone aggregate 20 mm nominal size) up to haunches of S.W. Pipes including 150 mm thick bed concrete as per standard design:				
19.3.5		300 mm dia	Rm	132.4	1089.1	144196.84
19.4		Providing and fixing square-mouth S.W. gully trap class SP-1 complete with C.I. grating brick masonry chamber with water tight cover to be not less than 4.50 kg and frame to be not less than 2.70 kg as per standard design :				
19.4.1		100x100 mm size P type				
19.4.1.1		With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	Each	526	2453.55	1290567.3
19.9		Constructing brick masonry circular type manhole 0.91 m internal dia at bottom and 0.56m dia at top in cement mortar 1:4 (1 cement : 4 coarse sand), inside cement plaster 12 mm thick with a floating coat of neat cement, foundation concrete 1:3:6 mix (1 cement : 3 coarse sand : 6 graded stone aggregate 40 mm nominal size), and making necessary channel in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) finished with a floating coat of neat cement, all complete as per standard design				
19.9.1		0.91 m deep with S.F.R.C. cover and frame (heavy duty, HD-20 grade designation) 560 mm internal diameter conforming to I.S. 12592, total weight of cover and frame to be not less than 182 kg., fixed in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) including centering, shuttering all complete. (Excavation, foot rests and 12mm thick cement plaster at the external surface shall be paid for separately)				
19.9.1.1		With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	Each	322.4	11886.45	3832191.48
19.11		Constructing brick masonry circular manhole 1.22 m internal dia at bottom and 0.56 m dia at top in cement mortar 1:4 (1 cement : 4 coarse sand) inside cement plaster 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished with a floating coat of neat cement foundation concrete 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 40 mm nominal size) and making necessary channel in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) finished with a floating coat of neat cement, all complete as per standard design :				



PAL ARCHITECT AND ENGINEER
 COA No. CA/2018/96244
 Date: 14/11/2022
 Case No. 2018
 Near by IDBI Bank, Dehradun (U.K.)
 Tapovan Road Infront of PRD Ground
 Mob.: 7895872139, 9412143346

PAL ARCHITECT AND ENGINEER
 COA No. CA/2018/96344
 Date: 14/11/2022
 Case No. 14/11/2022
 Near by IDBI Bank, Dehradun (U.K.)
 Tapovan Road Infront of PRD Ground
 Mob.: 7895872139, 9412143346



19.11.1	19.11.1.2	With Sewer bricks conforming IS : 4885	Each	125	22463.9	2807987.5
19.11.1	19.11.1.1	at the external surface shall be paid for separately) : complete. (excavation, foot rests and 12 mm thick cement plaster aggregate 20 mm nominal size) including centering, shuttering all cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) including centering, shuttering all total weight of cover and frame to be not less than 182 kg, fixed in designation) 560 mm internal diameter conforming to IS : 12592, 68 mm deep with SFRS Cover and frame (heavy duty HD 20 grade				
19.16	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 mmx25 mm and overall 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 manufacturer's permanent identification mark to be visible even after fixing, including fixing in manholes with 300x20x15 cm cement concrete block 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size) complete as per design.	Each	1420	487.1	691682
19.1	19.1	Extra depth for circular type manhole 0.91m internal dia (at bottom) beyond 0.91 m to 1.67 m	Meter	119	6693.95	796580.05
19.10.2	19.10.2	With Sewer bricks conforming IS : 4885				
19.3	19.3	Constructing brick masonry chamber for underground C.I. inspection chamber and bends with bricks in cement mortar 1:4 (1 cement : 4 coarse sand) C.I. cover with frame (light duty) 455x610 mm internal dimensions, total weight of cover with frame to be not less than 38 kg (weight of cover 23 kg and weight of frame 15 kg), R.C.C. top slab with 1:1.5:3 mix (1 cement : 1.5 fine sand : 3 graded stone aggregate 20 mm nominal size), foundation concrete 1:5:10 (1 cement : 5 fine sand : 10 graded stone aggregate 40 mm nominal size), inside plastering 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand), finished smooth with a floating coat of neat cement on walls and bed concrete etc. complete as per standard design:				
19.30.1	19.30.1	Inside dimensions 455x610 mm and 45 cm deep for single pipe line :				
19.30.1.1	19.30.1.1	With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	Each	254	6431.3	1633550.2
Sub Total						17882291.68

S.NO	DSR-2022	ITEM DESCRIPTION	UNIT	QTY	RATE	AMOUNT
		EARTHWORK				
2.1		Excavating trenches of required width for pipes, cables, etc including excavation for sockets, and dressing of sides, ramming of bottoms, depth upto 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 :				
2.10.1		All kinds of soil				
2.10.1.1		Pipes, cables etc, not exceeding 80 mm dia.				
2.10.1.2		Pipes, cables etc, exceeding 80 mm dia, but not exceeding 300 mm dia				
18.70.1		100 mm dia pipes		250	96.15	24037.5
18.70.2		150 mm dia pipes		250	156.05	39012.5
18.70.3		200 mm dia pipes		30	229.5	6885
18.72		Providing and laying 585 Centrifugally Cast (Spun) / Ductile Iron Pipes conforming to IS : 8329 :				
18.72.1		100 mm dia Ductile Iron Class K-7 pipes	Rm	700	1121.1	784770
18.72.2		150 mm dia Ductile Iron Class K-7 pipes	Rm	275	1601.3	440357.5
18.72.3		200 mm dia Ductile Iron Class K-7 pipes	Rm	549	1975.95	1084796.55
18.8		Disinfecting C.I. water mains by flushing with water containing bleaching powder @ 0.5 gms per litre of water and cleaning the same with fresh water, operation to be repeated three times including getting the sample of water from the disinfected main tested in the municipal laboratory.				
18.80.2		100 mm diameter C.I. pipe	100 m	7.69	1996.5	15353.085
18.80.4		150 mm diameter C.I. pipe	100 m	7.69	2974.9	22876.981
18.80.5		200 mm diameter C.I. pipe	100 m	7.69	3954.45	30409.7205
18.31		Providing and fixing C.I. sluice valves (with cap) complete with bolts, nuts, rubber insertions etc. (the tail pieces if required will be paid separately)				
18.31.1		100 mm diameter	Each	20	4097.9	81958
18.31.1.2		Class II				
18.31.3		150 mm diameter	Each	9	13512.6	121613.4
18.31.4		200 mm diameter	Each	5	27521.5	137607.5
18.31.4.2		Class II				
18.59		Providing and fixing C.I. double acting air valve of approved quality with bolts, nuts, rubber insertions etc. complete (The tail pieces, tapers etc if required will be paid separately) :				
18.59.1		50 mm dia	each	5	5171.75	25858.75
18.59.2		80 mm dia	each	3	6255.45	18766.35
18.6		Providing and fixing enclosed type water meter (bulk type) conforming to IS : 2373 and tested by Municipal Board complete with bolts, nuts, rubber insertions etc. (The tail pieces if required will be paid separately) :				
18.60.2		100 mm dia nominal bore	Each	5	4995.9	24979.5
18.60.3		150 mm dia nominal bore	Each	3	7357.35	22072.05
18.34		Constructing masonry Chamber 90x90x100 cm inside, in brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for sluice valve, with C.I. surface box 100 mm top diameter, 160 mm bottom diameter and 180 mm deep (inside) with chain lid and RCC top slab 12:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) ; 1/c necessary excavation, foundation concrete 1:5:10 (1 cement : 5 fine sand : 10 graded stone aggregate 40 mm nominal size) and inside plastering with cement mortar 1:3 (1 cement : 3 coarse sand) 12 mm thick, finished with a floating coat of neat cement complete as per standard design :	Each			
18.34.1		With common burnt clay F.P.S.(non modular) bricks of class designation 7.5	Each	36	17577.9	632804.44
19.6		Providing and laying non-pressure NP2 class (light duty) R.C.C. pipes with collars jointed with stiff mixture of cement mortar in the proportion of 1:2 (1 cement : 2 fine sand) including testing of joints etc. complete :				
19.6.3		250 mm dia. R.C.C. pipe	meter	50	811.15	40557.5
19.6.4		300 mm dia. R.C.C. pipe	meter	50	902.05	45102.5
18.61		Providing and fixing C.I. dirt box strainer for bulk type water meter with nuts, bolts, rubber insertions etc. complete conforming to IS : 2373 :				
18.61.3		150 mm dia	each	5	8394.25	41971.25
		Sub Total				4645265.037

DETAILED ESTIMATE OF EXTERNAL WATER SUPPLY SYSTEM

PAL ARCHITECT AND ENGINEER
 COA No. CA/2018/96244
 Date: 14/11/2022
 Case No. 0038
 Tapovan Road Infront of PRD Ground
 Near by IDBI Bank, Dehradun (U.K.)
 Mob.: 995872139, 9412143346



DETAILED ESTIMATE OF CIVIL WORKS OF EXTERNAL DRAINAGE SYSTEM				
S.No.	DSR No.	DESCRIPTION	UNIT	QTY.
EARTH WORK			UNIT	RATE (Rs)
AMOUNT(Rs)				
1	2.8	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.		
	2.8.1	All kinds of soil.	Cum	289.5
	a	Extra over item no. 1 for depth exceeding 1.5 m but not exceeding 3.0 m.	cum	286.85
2	2.25	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift up to 1.5 m.	cum	498.65
				253.95
				124346.61
CEMENT CONCRETE WORKS				
4	4.1	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level :		
	4.1.4	1:2:4 (1 Cement : 2 coarse sand (zone-III) : 4 graded stone aggregate 40 mm nominal size).	cum	110.58
				7226.95
				799156.131
	4.1.1	1:5:10 (1 cement : 5 fine sand : 10 graded stone aggregate 40 mm nominal size).	cum	223.65
				5660.45
				1265959.64
5	6.4	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 :		
	6.4.2	Cement mortar 1:6 (1 cement : 6 coarse sand)	cum	1888
				8288.35
				5648404.8
6	5.9.1	Centering and shuttering including strutting, propping etc. and removal of form for :		
	5.9.1	Foundations, footings, bases of columns, etc. for mass concrete.	Sqmt	258.69
				307.95
				233638.58
	5.9.2	Walls (any thickness) including attached pilasters, buteresses, plinth and string courses etc.	Sqm	11258.00
				669.55
				7537793.9
	13.4	12 mm cement plaster :		
	13.4.2	1:6 (1 cement : 6 coarse sand)	sqm	7258
				294.35
				2136392.3
	13.18	Neat cement punning	sqm	7458
				67.80
				505652.4

S.No.	DSR No.	DESCRIPTION	UNIT	QTY.	RATE (RS)	AMOUNT(RS)
1	2.8	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.				
	2.8.1	All kinds of soil.	Cum	2895	286.85	830459.7
	a	Extra over item no. 1 for depth exceeding 1.5 m but not exceeding 3.0 m.	cum	289.00	286.85	82899.65
2	2.25	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20cm in depth, consolidating, each deposited layer by ramming and watering, lead up to 50 m and lift up to 1.5 m.	cum	498.65	253.95	124346.61
		CEMENT CONCRETE WORKS				
4	4.1	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level :				
	4.1.4	1:2:4 (1 Cement : 2 coarse sand (zone-III) : 4 graded stone aggregate 40 mm nominal size).	cum	110.58	7226.95	799156.131
	4.1.11	1:5:10 (1 cement : 5 fine sand : 10 graded stone aggregate 40 mm nominal size).	cum	223.65	5660.45	1265959.64
5	6.4	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 :				
	6.4.2	Cement mortar 1:6 (1 cement : 6 coarse sand)	cum	1888	8788.35	15648404.8
6	5.9.1	Centering and shuttering including strutting, propping etc. and removal of form for :				
	5.9.1	Foundations, footings, bases of columns, etc. for mass concrete.	Sqmt	758.69	307.95	233638.58
	5.9.2	Walls (any thickness) including attached pilasters, butresses, plinth and string courses etc.	Sqm	11258.00	669.55	7537793.9
	13.4	12 mm cement plaster :				
	13.4.2	1:6 (1 cement : 6 coarse sand)	sqm	7258	294.35	2136392.3
	13.18	Neat cement punning	sqm	7458	67.80	505652.4

DETAILED ESTIMATE OF CC ROAD & PAVING

sno	DSR - 21	CODE NO.	Description of work	Item	Measurement			Qty	No	Total Qty	Unit	Rate	Amount
12	2.27		Supplying and filling in plinth with sand under floors, including watering, ramming, consolidating and dressing complete.		5325	0.03	159.75	1	1	159.75	cum	2161.2	345251.7
	4.3		Centering and shuttering including strutting, propping etc. and removal of form work for :										
	4.3.1		Foundations, footings, bases for columns		1358	0.12	162.96	2	2	325.92	cum	307.95	100367.064
	16.1		Preparation and consolidation of sub grade capacity after excavating earth to an average of 22.5 cm depth, dressing to camber and consolidating with road roller including making good the undulations etc. surplus earth with lead upto 50 metres.		14225			1	1	14225	sqm	180.5	2567612.5
	16.78		Construction of granular sub-base by providing close graded Material conforming to specifications, mixing in a mechanical mix plant at OMC, carriage of mixed material by tippers to work site, for all leads & lifts, spreading in uniform layers of specified thickness with motor grader on prepared surface and compacting with vibratory power roller to achieve the desired density, complete as per specifications and directions of Engineer-in-Charge.										
	16.78.1		With material conforming to Grade-I (size range 75 mm to 0.075 mm) having CBR Value-30										
				P1	184.4	0.125		1	1	23.05			
				P2	240.78	0.125		1	1	30.0975			
				P3	70.78	0.125		1	1	8.8475			
				P4	121.6	0.125		1	1	15.2			
				P5	243.5	0.125		1	1	30.4375			
				P6	424.8	0.125		1	1	53.1			
				P7	464.2	0.125		1	1	58.025			
				P8	1157.14	0.125		1	1	144.6425			
				P9	52	0.125		1	1	6.5			
				P10	360.96	0.125		1	1	45			
										414.9	cum	2658.1	1102845.69
	16.75		Providing and laying C.C. pavement of mix M-25 with ready mixed concrete from batching plant. The ready mixed concrete shall be laid and finished with screed board vibrator, vacuum dewatering process and finally finished by floating, brooming with wire brush etc. complete as per specifications and directions of Engineer-in-charge. (The panel shuttering work shall be paid for separately).		14225	0.125		1	1	1778.125	cum	8277.55	14718518.6
			STEEL REINFORCEMENT										
	5.22		Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete upto plinth level										
	5.22.6		Thermo-Mechanically Treated bars of grade Fe-500D or more.		22				1	41558	kg	89.65	3725674.7



PAL ARCHITECT AND ENGINEER
 COA No. CA/2018/96244
 Date: 11/11/2022
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PAL ARCHITECT AND ENGINEER
COA No. CA/2018/96244
Case No. 0078
Tapovan Road Infront of PRD Ground
Near by IDBI Bank, Dehradun (U.K.)
Mob: 7895872139, 9412143346
Date: 14/11/2012

16.47	Painting runway/taxi track/apron marking with adequate nos of coats to give uniform finish with road marking paint of superior make as approved by the Engineer-in-charge, i/c cleaning the surface of all dirt, scales, oil, grease and other foreign material etc. and lining out complete.	16.47.1	New work (Two or more coats)	2357	1	1	2357	1	2357	sqm	158.5	373584.5
16.68	Providing and laying 60mm thick factory made cement concrete interlocking paver block of M-30 grade made by block making machine with strong vibratory compaction, of approved size, design & shape, laid in required colour and pattern over and including 50mm thick compacted bed of coarse sand, filling the joints with line sand etc. all complete as per the direction of Engineer-in-charge.	P1	184.4	1	1	184.4	1	184.4	3320.16	sqm	951	3157472.16
		P2	240.78	1	1	240.78	1	240.78	360.96	sqm		26091326.9
		P3	70.78	1	1	70.78	1	70.78	52			
		P4	121.6	1	1	121.6	1	121.6	1157.14			
		P5	243.5	1	1	243.5	1	243.5	464.2			
		P6	424.8	1	1	424.8	1	424.8	464.2			
		P7	464.2	1	1	464.2	1	464.2	464.2			
		P8	1157.14	1	1	1157.14	1	1157.14	464.2			
		P9	52	1	1	52	1	52	464.2			
		P10	360.96	1	1	360.96	1	360.96	464.2			
		Sub Total							3320.16	sqm		

PAL ARCHITECT AND ENGINEER
 COA No. CA/2018/96244
 Case No. Date: 14/11/2018
 Tapovan Road in front of PRD Ground
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 Mob: 7895872139, 9412143346

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DETAILED ESTIMATE OF BOUNDARY WALL CIVIL CONSTRUCTION



DETAILED ESTIMATE OF TUBE WELL

S.No	DSR-2022	ITEM DESCRIPTION	UNIT	QTY	RATE	AMOUNT
		Boring/drilling bore well of required dia for casing/strainer pipe, by suitable method prescribed in IS: 2800 (part I), including collecting samples from different strata, preparing and submitting strata chart/bore log, including hire & running charges of all equipments, tools, plants & machineries required for the job, all complete as per direction of Engineer-in-charge, upto 90 metre depth below ground level.				
	23.1.1	All types of soil				
	23.1.1	300 mm dia	metre	59	592.05	34930.95
	23.2	Boring/drilling bore well of required dia for casing/strainer pipe, by suitable method prescribed in IS: 2800 (part I), including collecting samples from different strata, preparing and submitting strata chart/bore log, including hire & running charges of all equipments, tools, plants & machineries required for the job, all complete as per direction of Engineer-in-charge, beyond 90 metre & upto 150 metre depth below ground level.				
	23.2.1.1	300 mm dia	metre	125	690.7	86337.5
	23.1	Supplying, assembling, lowering and fixing in vertical position in bore well, ERW (Electric Resistance Welded) FE 410 mild steel screwed and socketed/plain ended casing pipes of required dia, conforming to IS: 4270, of required & approved make, including painting with outside surface with two coats of anticorrosive paint of approved brand and manufacture, fittings & labour charges, all complete, as per direction of Engineer-in-charge.				
	23.10.3	200 mm nominal size dia having minimum wall thickness 5.40 mm	metre	62.5	2082.1	130131.25
	23.11	Supplying, assembling, lowering and fixing in vertical position in bore well, ERW (Electric Resistance Welded) FE 410 plain slotted (having slot of size 1.6/3.2 mm) mild steel threaded and socketed/plain ended pipe (type A) of required dia, conforming to IS: 8110, of required & approved make, having wall thickness not less than 5.40 mm, including painting with outside surface with two coats of anticorrosive paint of approved brand and manufacture, fittings & labour charges, all complete, as per direction of Engineer-in-charge.				
	23.11.3	200 mm nominal size dia	metre	62.5	2194.85	137178.125
	23.6	Supplying, filling, spreading & levelling gravels of size range 5 mm to 10 mm, in the recharge pit, over the existing layer of boulders, for all leads & lifts, all complete as per direction of Engineer-in-charge.	cum	4.35	1309	5694.15
	23.12	Development of tube well in accordance with IS: 2800 (part I) and IS: 11189, to establish maximum rate of usable water yield without sand content (beyond permissible limit), with required capacity air compressor, running the compressor for required time till well is fully developed, measuring yield of well by "V" notch method or any other approved method, measuring static level & draw down etc. by step draw down method, collecting water samples & getting tested in approved laboratory, /c disinfection of tubewell, all complete, including hire & labour charges of air compressor, tools & accessories etc., all as per requirement and direction of Engineer-in-charge.	hour	30	916.8	27504
	23.13	Providing and fixing suitable size threaded mild steel cap or spot welded plate to the top of bore well housing/ casing pipe, removable as per requirement, all complete for borewell of:				
	23.13.3	200 mm dia	each	1	280.95	280.95
	23.14	Providing and fixing M.S. clamp of required dia to the top of casing/ housing pipe of tubewell as per IS: 2800 (part I), including necessary bolts & nuts of required size complete.				
	23.14.3	200 mm clamp	each	1	1827	1827
	23.15	Providing and fixing Ball plug/ Bottom plug of required dia to the bottom of pipe assembly of tubewell as per IS: 2800 (part I).				
	23.15.3	200 mm dia	each	1	308.55	308.55
	TOTAL Drill of Tube well civil + Electrical cost					
	Total 1 No Drilling of Tube well					
	424192.475					

PAL ARCHITECT AND ENGINEER
 COA No. CA/2018/96244
 Date: 05/08/2022
 Case No. 19/1117-01
 Near by IDEI Bank, Dehradun (U.K.)
 Tapovan Road Infront of PRD Ground
 Mob.: 78995872139, 9412143346

Mob.: 7895872139, 9412143346
 Near by IDBI Bank, Dehradun (U.K.)
 Tapovan Road in front of PRD Ground
 Case No. Date: ..
 COA No. CA/2018/96244
PAL ARCHITECT AND ENGINEER



S.NO	DSR-2022	ITEM DESCRIPTION	UNIT	QTY	RATE	AMOUNT
4.1		P/L cement concrete - all work upto plinth level : 1:5:10 (1 cement : 5 coarse sand derived from natural sources : 10 graded stone aggregate 40 mm nominal size derived from natural sources)	cum	25.12	6050.65	151992.328
9.71		Providing and fixing 15 : 12817 marked stainless steel butt hinges (heavy weight) with stainless steel screws etc. complete :	each	6	85.45	512.7
10.16.1		Steel work in built up 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 bolting with special shaped washers etc. complete.	kg			
10.16.1		Hot finished welded type tubes	kg			
		HollowSSBOsection 80x40x2mm	kg	76.8712		
		HollowSSBOsection 40x20x1.5mm	kg	134.4244		
		TOTAL		211.2956	154.9	32729.68844
10.27.2		Providing and fixing carbon steel galvanized (minimum coating 5 (yield strength 480 N/mm2), counter sunk head, comprising of 10 mm dia polyamide PA 6 grade sleeve, including drilling of hole in frame , concrete/ masonry, etc. as per direction of Engineer-in-charge.	each	36	117.3	4222.8
10.27.2		10 x 80 mm	each	36	117.3	4222.8
MAIN ENTRANCE GATE						
4.1		Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level : 1:5:10 (1 cement : 5 coarse sand (zone-III) derived from natural sources : 10 graded stone aggregate 40 mm nominal size derived from natural sources)	cum	0.072	6050.65	435.6468
9.71		Providing and fixing 15 : 12817 marked stainless steel butt hinges (heavy weight) with stainless steel screws etc. complete :	each	6	85.45	512.7
10.16.1		Steel work in built up 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 bolting with special shaped washers etc. complete.	kg			
10.16.1		Hot finished welded type tubes	kg			
		HollowSSBOsection 80x40x2mm	kg	76.8712		
		HollowSSBOsection 40x20x1.5mm	kg	134.4244		
		TOTAL		211.2956	154.9	32729.68844
10.27.2		Providing and fixing carbon steel galvanized (minimum coating 5 (yield strength 480 N/mm2), counter sunk head, comprising of 10 mm dia polyamide PA 6 grade sleeve, including drilling of hole in frame , concrete/ masonry, etc. as per direction of Engineer-in-charge.	each	36	117.3	4222.8
10.27.2		10 x 80 mm	each	36	117.3	4222.8
Total cost of 2 Main gate						
		each	each	2	239627.11	479254.22

DETAILED ESTIMATE OF UNDER GROUND TANK AND PUMP ROOM

S.NO	DSR-2022	ITEM DESCRIPTION	UNIT	QTY	RATE	AMOUNT
2.6	2.6	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 getting out and disposal of excavated earth lead upto 50 m and lift upto 1.5 m, as directed by Engineer-in-charge	cum	1050.2	205.45	215763.59
2.6.1		All kinds of soil in-charge	cum	1050.2	205.45	215763.59
		Extra over item no. 1 for depth exceeding 1.5 m but not exceeding 3.0 m.	cum	647	205.45	132926.15
		Extra over item no. 1 for depth beyond 3.0 m.	cum	42	205.45	8628.9
2.25		Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20cm in depth, consolidated each deposited layer by ramming and watering, lead up to 50 m and lift upto 1.5 m.	cum	504.2	253.95	128041.59
4.1		Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level	cum			
4.1.3		1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size)	cum	3.54	7365.15	26072.631
4.1.11		1:5:10 (1 cement : 5 fine sand : 10 graded stone aggregate 40 mm nominal size).	cum	68.2	5660.45	386042.69
		Providing and laying in position machine batched and machine mixed design mix M-25 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/less cement used as per design mix is payable/recoverable separately).	cum	560.2	7997.3	4480087.46
5.33.1		All works up to plinth level.	cum			
5.33		Centering and shuttering including strutting, propping etc. and removal of form for	cum			
5.9.1		Foundations, footings, bases of columns, etc. for mass concrete.	Sqm	55	307.95	16937.25
5.9.2		Walls (any thickness) including attached plasters, buttresses, plinth and string courses etc.	Sqm	1550	669.55	1037802.5
5.9.3		Suspended floors, roofs, landings, balconies and access platform.	Sqm	475.6	766.55	364571.18
5.22		Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete above plinth level.				
5.22A.6		Thermo-Mechanically Treated bars	Kg	55683.25	89.65	4992003.363
22.4.1		direction of Construction manager				
22.4.1		Serrated with central bulb (225 mm wide, 8-11 mm thick)	metre	75.5	285.6	21562.8
11.26		Kota stone slab flooring over 20 mm (average) thick base laid over and jointed with grey cement slurry mixed with pigment to 10 match the shade of the slab, including rubbing and polishing complete with base of cement mortar 1 : 4 (1 cement : 4 coarse sand) : 25 mm thick				
22.14		Grading roof for water proofing treatment with 25 mm thick	Sqm	49	0.1491	7.3059
22.14.1		Cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size)	cum	18.9	3.2	60.48
22.1		Providing and laying integral cement based treatment for water proofing on horizontal surface at all depth below ground level for under ground structures as directed by Engineer-in-Charge and consisting of : i) 15 layer of 25mm thick approved and specified rough stone slab over a 25mm thick base of cement mortar 1:3 (1 cement : 3 coarse sand) mixed with water proofing compound conforming to IS:2645 in the recommended proportion over the leveling course (leveling course to be paid separately). joints sealed and grouted with cement slurry mixed with water proofing compound. ii) 2nd layer of 25mm thick cement mortar 1:3 (1 cement: 3 coarse sand) mixed with water proofing compound. iii) Finishing top with stone aggregate of 10mm to 12mm nominal size spreading @ 8 cum/sqm thoroughly embedded in the 2nd layer.				
22.1.1		Using rough kota stone sqm	Sqm	400	0.342	136.8
22.2.1		Providing and laying integral cement based treatment for water proofing on the vertical surface by fixing specified stone slab 22 mm to 25 mm thick with cement slurry mixed with water proofing compound conforming to IS:2645 in recommended proportions with a gap of 20 mm (minimum) between stone slabs and the receiving surfaces and filling the gaps with neat cement slurry mixed with water proofing compound and finishing the exterior of stone slab with cement mortar 1:3 (1 cement : 3 coarse sand) 20 mm thick with neat cement punning mixed with water proofing compound in recommended proportion complete at all levels and as directed by Engineer-in-charge :				
22.2.1		Using rough kota stone	Sqm	380	0.443	168.34
6.3		Brick work with common burnt clay machine moulded perforated bricks of class designation 12.5 conforming to IS: 2222 in superstructure above plinth level up to floor five level in cement mortar 1:5 (1 cement : 6 coarse sand) :				
6.3.1		With F.P.S.(non modular) bricks	cum	16.25	8030.6	130497.25
13.4.2		1:6 (1 cement: 6 coarse sand)	Sqm	204.38	294.35	60159.253
13.37		White washing with lime to give an even shade :				
13.37.1		New work (three or more coats)	Sqm	231	32.45	7495.95
TOTAL COST						
12008965.48						



PAL ARCHITECT AND ENGINEER
 COA No. CA/2018/96244
 Date: 14/11/2022
 Case No.
 Tapovan Road, in front of PRD Ground
 Near by IDBI Bank, Dehradun (U.K.)
 Mob.: 7693872139, 9412143346

DETAILED ESTIMATE OF SEWAGE TREATMENT PLANT FOR CONSTRUCTION OF 928 HOUSES

SR NO	DSR-21	DESCRIPTION	UNIT	QTY.	RATE (RS)	AMOUNT (RS)
1	2.6	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 getting out and disposal of excavated earth lead upto 50 m and lift upto 1.5 m, as directed by Engineer-in-charge.				
	2.6.1	All kinds of soil.	cum	5528.10	205.45	1135748.14
	a	Extra over item no. 1 for depth exceeding 1.5 m but not exceeding 3.0 m.	cum	541.63	205.45	111277.88
2	b	Extra over item no. 1 for depth beyond 3.0 m.	cum	1052.50	205.45	216236.125
	2.25	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift up to 1.5 m.	cum	168.50	253.95	42790.575
	4	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level :				
4.1.11		1:5:10 (1 cement : 5 fine sand : 10 graded stone aggregate 40 mm nominal size).	cum	63.16	6050.65	382159.054
	5.5	Providing and laying in position machine batched and machine mixed design mix M-25 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/less cement used as per design mix is payable/recoverable separately).				
	5.3.1	All works up to plinth level.				
6		using M20 grade instead	cum	523.98	8320.05	4359539.79
		Centering and shuttering including strutting, propping etc. and removal of form for :				
	5.9.1	Foundations, footings, bases of columns, etc. for mass concrete.	Sqm	39.20	307.95	12071.64
5.9.2		Walls (any thickness) including attached pilasters, buttresses, plinth and string courses etc.	Sqm	2120.00	669.55	1419446
	5.9.3	Suspended floors, roofs, landings, balconies and access platform.	Sqm	442.68	766.55	339336.35
	7	Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete above plinth level.				
5.2.2A.6		Thermo-Mechanically Treated bars.	Kg	51578.00	89.65	4623967.7
	8	Providing and fixing in recommended proportion admixtures as 50per IS code for water proofing concrete as per manufacturer specification and direction of Construction manager	Per bag of Kg of cement used in the mix			
	8	Providing and Placing in position suitable PVC water stops conforming to IS:12200 for construction/ expansion joints between two RCC members and fixed to the reinforcement with binding wire before pouring concrete etc. complete :				
22.4	22.4.1	Serrated with central bulb (225mm wide, 8-11mm thick).	M	154.00	285.60	43982.4



PAL ARCHITECT AND ENGINEER
 COA No. CA/2018/96244
 Date: 19/11/2022
 Case No. 60078
 Near by IDBI Bank, Dehradun (U.K.)
 Tapovan Road Infront of PKD Ground
 Mob: 7895872139, 9412143346

DETAILED ESTIMATE OF SEWAGE TREATMENT PLANT FOR CONSTRUCTION OF 928 HOUSES

SR NO	DSR-21	DESCRIPTION	UNIT	QTY.	RATE (RS)	AMOUNT (RS)
9		Providing and fixing 500 mm dia CI manhole cover and frame (medium duty). Weight of cover not less than 58 Kg.				
10	11.26	Kota stone slab flooring over 20 mm (average) thick base laid over and jointed with grey cement slurry mixed with pigment to match the shade of the slab, including rubbing and polishing complete with base of cement mortar 1 : 4 (1 cement : 4 coarse sand) : 25 mm thick	sqm	159.60	1706.60	272373.36
11	22.14	Grading roof for water proofing treatment with 25 mm thick				
12	22.14.1	Cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size)	cum	6.25	3.20	20
13	22.1	Providing and laying integral cement based treatment for water proofing on horizontal surface at all depth below ground level for under ground structures as directed by Engineer-in-Charge and consisting of : i) 1st layer of 22mm to 25mm thick approved and specified rough stone slab over a 25mm thick base of cement mortar 1:3 (1 cement : 3 coarse sand) mixed with water proofing compound conforming to IS:2645 in the recommended proportion over the leveling course (leveling course to be paid separately). Joints sealed and grouted with cement slurry mixed with water proofing compound. ii) 2nd layer of 25mm thick cement mortar 1:3 (1 cement : 3 coarse sand) mixed with water proofing compound in recommended proportions. iii) Finishing top with stone aggregate of 10mm to 12mm nominal size spreading @ 8 cum/sqm thoroughly embedded in the 2nd layer.				
22.1.1		Using rough kota stone.	Sqm	558.66	0.342	191.06
22.2		Providing and laying integral cement based treatment for water proofing on the vertical surface by fixing specified stone slab 22 mm to 25 mm thick with cement slurry mixed with water proofing compound conforming to IS:2645 in recommended proportions with a gap of 20 mm (minimum) between stone slabs and the receiving surfaces and filling the gaps with neat cement slurry mixed with water proofing compound and finishing the exterior of stone slab with cement mortar 1:3 (1 cement : 3 coarse sand) 20 mm thick with neat cement punning mixed with water proofing compound in recommended proportion complete at all levels and as directed by Engineer-in-charge :				
22.2.1		Using rough Kota stone	sqm	248.99	0.443	110.262
22.2.3		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 guaranteed for 10 years against any leakage.				

PAL ARCHITECT AND ENGINEER
 COA No. CA/2018/96244
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DETAILED ESTIMATE OF SEWAGE TREATMENT PLANT FOR CONSTRUCTION OF 928 HOUSES

Sr.NO	DSR-21	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
15	6.3	Brick work with common burnt clay machine moulded perforated bricks of class designation 12.5 conforming to IS: 2222 in superstructure above plinth level up to floor five level in cement mortar 1:6 (1 cement : 6 coarse sand) :				
	6.3.1	With F.P.S.(non modular) bricks.	CUM	9.58	8030.60	76933.148
	13.4	12 mm cement plaster of mix :				
16	13.4.2	1:6 (1 cement: 6 coarse sand)	Sqm	138.57	294.35	40788.07
17	13.37	White washing with lime to give an even shade :				
	13.37.1	New work (three or more coats)	One Square Metre	168.25	32.45	5459.712
TOTAL CIVIL WORK OF STP						13082431.22



PAL ARCHITECT AND ENGINEER
 COA No. CA/2018/96244
 Date: 14/11/22
 Case No. 500
 Tapovan Road Infront of PRD Ground
 Near by IDBI Bank, Dehradun (U.K.)
 Mob.: 7895872139, 9412143346

1
2
3

OTHER SERVICES

1	External sewerage system					17882291.68
2	External water supply system					4645265.037
3	External Drainage system					34092449.21
4	C.C Paving work cost					26091326.9
5	Boundary wall construction 568.115					6033688.08
6	Tube well cost					424192.475
7	Main Entrance gate					479254.22
8	U.G Tank and Pump Room					12008965.48
9	S.T.P Construction					13082431.22
	other service					114739864.3

Grand total tower A
Grand total B to H & J to N, P, Q (14 Tower)
Grand Total other service
Grand total project cost

19116391.72
579376967.4
114739864.3
713233223.4



05/11/22
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PAL ARCHITECT AND ENGINEER
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