

**INTERNSHIP REPORT
ON**

**“RETROFITTING/REDEVELOPMENT IN AREA-BASED
DEVELOPMENT REGION UNDER GWALIOR SMART CITY”**

Submitted to-

MADHAV INSTITUTE OF TECHNOLOGY AND SCIENCE GWALIOR
(A govt. Aided Autonomous Institute under RGPV, Bhopal (M.P) Established in 1957)

IN PARTIAL FULFILLMENT FOR REQUIREMENT FOR THE AWARD OF THE DEGREE OF

**BACHELOR of TECHNOLOGY
In
CIVIL ENGINEERING**



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Madhav Institute of Technology & Science, Gwalior
(A Govt. Aided UGC Autonomous & NAAC Accredited Institute Affiliated to R.G.P.V. Bhopal)

CERTIFICATE OF COMPLETION OF INERNSHIP



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CERTIFICATE

This is to certify that Mr. Harsh Singh Sikarwar, Enrl. No. 0901AU181023 Student of (M.I.T.S Gwalior), B.Tech, Civil Engineering 8th Sem, Gwalior M.P., has successfully completed his Internship Program starting from 12th Jan 2022 to 11th May 2022 at Gwalior Smart City Development Corporation Limited Gwalior.

During the period of His Internship, He was involved in the project in ABD region of Gwalior Smart City- "Survey of ABD Area Road, Drainage Designing Gorkhi Smart School, (Hujrat Mandi)" He was involved in support to Assistant in Preparation of Drawing, feasibility report & presentation.

We wish Him success for His bright future.

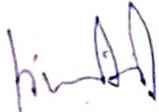
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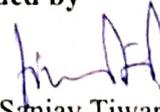

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RECOMMENDATION

It is hereby recommended that the internship report entitled — “**RETROFITTING /REDEVELOPMENT IN AREA-BASED DEVELOPMENT REGION UNDER GWALIOR SMART CITY**” which is being submitted by Harsh Singh Sikarwar completed under the guidance of Dr. Sanjay Tiwari may be accepted in the partial fulfillment of the award of the degree of Bachelor of Engineering in Civil Engineering.


for Prof. and Head
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Guided by

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When it comes to properly acknowledging someone's support and assistance, it may be a challenging undertaking, chiefly when the support offered is so wholehearted and unwavering.

I am eternally grateful to my renowned guide, **Dr. Sanjay Tiwari**, Professor of Civil Engineering Department, MITS Gwalior.

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I am really grateful to **Dr. R. K. Pandit**, Director of MITS Gwalior, for establishing an outstanding institutional environment and for giving all facilities and assistance in the preparation of my dissertation. I also acknowledge with gratitude to our supporting **Mr. VIKRAM RAJPUT** for providing the facilities needed for the accomplishment of this internship.

I take great pleasure for the organisation **GWALIOR SMART CITY AND DEVELOPMENT CORPORATION LIMITED, GWALIOR (M.P)** for providing the opportunities.

The environment of company has been valuable experience for me. It has provided an opportunity to learn at our own pace in discipline of interest. I would like to thank all those who helped me during different stages of completion of this project.

Harsh

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ABSTRACT

The construction of urban roads and highways commonly requires the setting up of some form of drainage arrangement. It is noted that the strategy for highway drainage systems is relatively simple and the drainage works are comparatively inexpensive.

Though, highway drainage forms one of the most significant operations in relation with the construction of a road as it depends on the following maintenance of the road.

The water should be prevented from reaching the road structure wherever possible or attempt should be made to eliminate it quickly from the road surface by laying a well-designed drainage arrangement. The unsuitable highway drainage leads to the deterioration of the highways in the form of washing out of highway portions and causes excessive erosion leading to the development of gullies along the roadsides or road embankments, also, It causes considerable damage to the shoulders and pavement edge due to the presence of excess water as a result It causes the failure of bituminous pavements due to stripping of bitumen from aggregates like loosening or detachment of some of the bituminous pavements layers and formation of pot holes which softens the subgrade soil and decreases its supporting power or bearing capacity.

This problem can be solved by availability of proper drainage systems in the form of surface drainage and sub-surfaces drainage. The main object of surface drainage is to remove rain water from the carriageway as rapidly as possible so that traffic may move more safely and efficiently.

The provision of surface drainage is thought of at the initial stage of location or alignment of the highway. In fact, the surface drainage forms one of the essential considerations for the location of a highway and it is seen that all the streams flow away from the highway. Thus, the drainage problem is reduced to tackling the water which falls within the roadway boundary only.

सार

राजमार्गों और शहरी सड़कों के निर्माण के लिए आम तौर पर किसी प्रकार की जल निकासी प्रणाली की स्थापना की आवश्यकता होती है। यह भी देखा गया है कि राजमार्ग जल निकासी प्रणालियों के डिजाइन तुलनात्मक रूप से सरल हैं और जल निकासी कार्य अपेक्षाकृत सस्ते हैं।

हालांकि, सड़क के निर्माण के संबंध में राजमार्ग जल निकासी सबसे महत्वपूर्ण कार्यों में से एक है क्योंकि यह सड़क के बाद के रखरखाव पर निर्भर करता है।

पानी को जहां भी संभव हो सड़क संरचना तक पहुंचने से रोका जाना चाहिए या एक अच्छी तरह से डिजाइन की गई जल निकासी प्रणाली बिछाकर इसे सड़क की सतह से जल्दी से हटाने का प्रयास किया जाना चाहिए। अनुचित राजमार्ग जल निकासी के कारण राजमार्गों के हिस्से की धुलाई के रूप में राजमार्गों की गिरावट होती है और अत्यधिक कटाव का कारण बनता है जिससे सड़कों के किनारे या सड़क के तटबंधों का निर्माण होता है, इसके अलावा, यह अतिरिक्त पानी की उपस्थिति के कारण कंधों और फुटपाथ के किनारे को काफी नुकसान पहुंचाता है, परिणामस्वरूप बिटुमिनस फुटपाथ परतों में से कुछ को ढीला या अलग करने और गठन जैसे समुच्चय से बिटुमेन को अलग करने के कारण बिटुमिनस फुटपाथ की विफलता का कारण बनता है। गमले के छेद जो सबग्रेड मिट्टी को नरम करते हैं और इसकी सहायक शक्ति या असर क्षमता को कम करते हैं

सतही जल निकासी और उप-सतह जल निकासी के रूप में उचित जल निकासी प्रणालियों की उपलब्धता से इस समस्या को हल किया जा सकता है। सतही जल निकासी का मुख्य उद्देश्य कैरिजवे से बारिश के पानी को जितनी जल्दी हो सके निकालना है ताकि यातायात अधिक सुरक्षित और कुशलता से चल सके।

सतही जल निकासी के प्रावधान को राजमार्ग के स्थान या संरक्षण के प्रारंभिक चरण में माना जाता है। वास्तव में, सतही जल निकासी एक राजमार्ग के स्थान के लिए आवश्यक कारणों में से एक है और यह देखा जाता है कि सभी धाराएँ राजमार्ग से दूर बहती हैं। इस प्रकार, जल निकासी की समस्या केवल सड़क की सीमा के भीतर आने वाले पानी से निपटने के लिए कम हो जाती है।

List of Abbreviations

HRIDAY.....	Heritage City Development and Augmentation Yojana
SCPs.....	Smart City Proposals
GMC.....	Gwalior municipal corporation
MPUDC.....	Madhya Pradesh Urban Development Corporation
GSCDCL.....	Gwalior Smart City And Development Corporation Limited
ABD.....	Area Based Development
SCM.....	Smart city Missions
SWDH.....	Storm Water Drainage Holes
ICT.....	Information And Communication Technologies
Rm.....	Running Metres
Cum.....	Cubic Metres
Sq. m.....	Square Metres
m.....	Metres

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CHAPTER I

INTRODUCTION

1.1 General

Road drainage design has as its basic objective the reduction and/or elimination of energy generated by flowing water. The energy of flowing water, increases exponentially as its velocity increases. Thus, water must not be allowed to accumulate sufficient volume or velocity by which it cause excessive wear along ditches, beneath culverts, or along uncovered running surfaces, cuts, or fills.

Provision for acceptable drainage is very important in road design and cannot be overemphasized. The existence of excess water or moisture inside the roadway will poorly affect the engineering properties of the materials by which it was constructed. Cut or fill failures, road surface wearing, and weakened subgrades subsequently a mass failure are all products of inadequate or poorly planned drainage. As already stated, most drainage problems can be evaded in the location and design of the road: Drainage design is most suitably works for alignment and gradient planning.

A road drainage system should fulfill two main conditions if it is to be operative throughout its design life:

1. It must allow the least changes in the natural drainage pattern.
2. It must drain surface and subsurface water away from the highway and disperse it in a way that prevents unnecessary collection of water in unstable areas and following downstream corrosion.

The designing of drainage structures depends on the theories of hydrology and hydraulics-the first one deals with the occurrence of water in the environment (precipitation, streamflow, soil moisture, etc.) while the second one is about the engineering properties of fluids in motion.

1.2 Topographical conditions of Gwalior district and surrounding region

Gwalior District is situated between North latitude $25^{\circ}43'$ and $26^{\circ}21'$ and East longitude $77^{\circ}40'$ and $78^{\circ}39'$ of Madhya Pradesh. Some neighbouring districts are Bhind and Morena in the North, Datia in the East and Shivpuri in the south direction. There are 3 Tehsils and 4 Blocks in the district. The district has five block headquarters which are Ghatigaon Morar, Dabra and Bhitwar and the total population of the district is 1,442,015 (As per census 2022). Gwalior district falls in Ganga basin, Yamuna Sub Basin also in Sind and Kunwari Minor basin. The entire area of Gwalior district falls in Sindh and Kunwari sub basin of Yamuna basin. The main tributaries of river Sindh are Parbati, Baisal and Pahuj. The tributaries of Kunwari river are Sank and Asan. Sank & Asan are the other major drainages of Kunwari river in the district.

The normal annual rainfall of Gwalior district is 700 mm. In Gwalior District maximum rainfall occurs during southwest monsoon period which is June to September. About 90% of the annual rainfall received during monsoon period and only 10% takes place during non- monsoon period i.e., from October to May. The surplus water for ground water revive is available only during the monsoon period. The maximum precipitation occurred at Gwalior is 895.9 mm and minimum in Dabra is 693.1 mm. With such rainfall conditions it is necessary to build a properly designed drainage system for the urban population of the city. Due to lack of drains, sewer water flows through the road. People's clothes can get dirty while coming to the market . Also, many times people slip and fall and get injured. Thus lack of proper drainage is a serious problem.

CHAPTER 2

PROJECT - I

2.1 Company profile

REDEVELOPMENT OF ROADS IN AREA-BASED DEVELOPMENT REGION UNDER GWALIOR SMART CITY

The notion of smart cities came forward with a vision of building the Indian cities more sustainable, liveable and economically viable. This notion is further divided into two aspects which are the Area Based Development and the PAN city proposals. With the combination of these two, the concept foresees to make the Indian cities smart.

According to the proposals analyses, about (65-75 %) of the project funding will be expended on area based Development and only 3 to 4 % of the population of the city will come under the direct benefit of it, because most of the projects under it are generally like old centre retrofitting/redevelopment in sense of remodelling proposed in various SCPs and for entire city project comes under PAN city scheme which deals only in restricted field IT based services like CCTV- monitoring centre, water and traffic management, educational portal, this method of arranging might improve a lived experience of local citizens fall under this area, also there are many policies in existence for urban India: the Swachh Bharat the National Urban Livelihoods Mission; and the Heritage City Development and Augmentation Yojana (HRIDAY); the National Urban Information System.

Furthermore, there are multiple infrastructure projects like city roads extension and highways, water reservoir and storage-related advancement which are generally accepted by development authorities or the State governments.

To implement smart city projects in Gwalior, Gwalior Municipal Corporation (GMC) and Madhya Pradesh Urban Development Corporation (MPUDC) has designed a special purpose vehicle called Gwalior Smart City Development Corporation Limited (GSCDCL).

CHAPTER 3

SURVEYING OF ROADS IN AREA-BASED DEVELOPMENT REGION

3.1 Objective: -

Surveying of gradient of drainage and marking of drop points, storm water drainage holes (SWDH), manholes and pipes for the purpose of designing of drainage of water to prevent water logging on roads, for easy traffic movement and to prevent the deterioration of the highways in ABD region of Gwalior Smart city mission.

3.2 Procedure: -

- ❖ Reading of map by studying the roads under ABD region and visiting the area to get the information about the physical condition of locations.
- ❖ Dividing the map of given region into further sub-sections of roads to visit for reconnaissance surveying.

3.2.1 Reconnaissance survey of existing storm water drainage

It is the preliminary survey. It is used at beginning of any project work by suggesting possible alternative ways and paths. It is required to be done with good amount of efficiency and cost accuracy for identifying these alternative ways and paths.

It is the process of identifying different possible routes and assessing the possibility of these routes in a highway between the given definite points. This survey is performed especially for new routes in the less developed areas, for which the aerial photographs are primarily used.

Significance of reconnaissance survey are as given below.

- The results of reconnaissance survey is used to generate the plan, which is helpful to know or protect the cultural resources.
- It is used to identify any archaeological sites present near the routes.
- To visit the site to know the conditions for infrastructure availability.

3.2.2 Reconnaissance Survey Methods:

- Study of Survey Sheets and Maps
- Aerial Reconnaissance Survey
- Ground Reconnaissance Survey
- Reconnaissance Survey Reports

3.2.3 Ground Reconnaissance Survey:

It consists of overall examination of ground by walking along the probable routes and gathering all accessible information necessary for evaluating the same. In the case of hill sections, it may be beneficial sometime to start the reconnaissance from an obligatory point present near the top. If an area is unapproachable for the ground reconnaissance, then aerial method should be used to clarification of doubts.

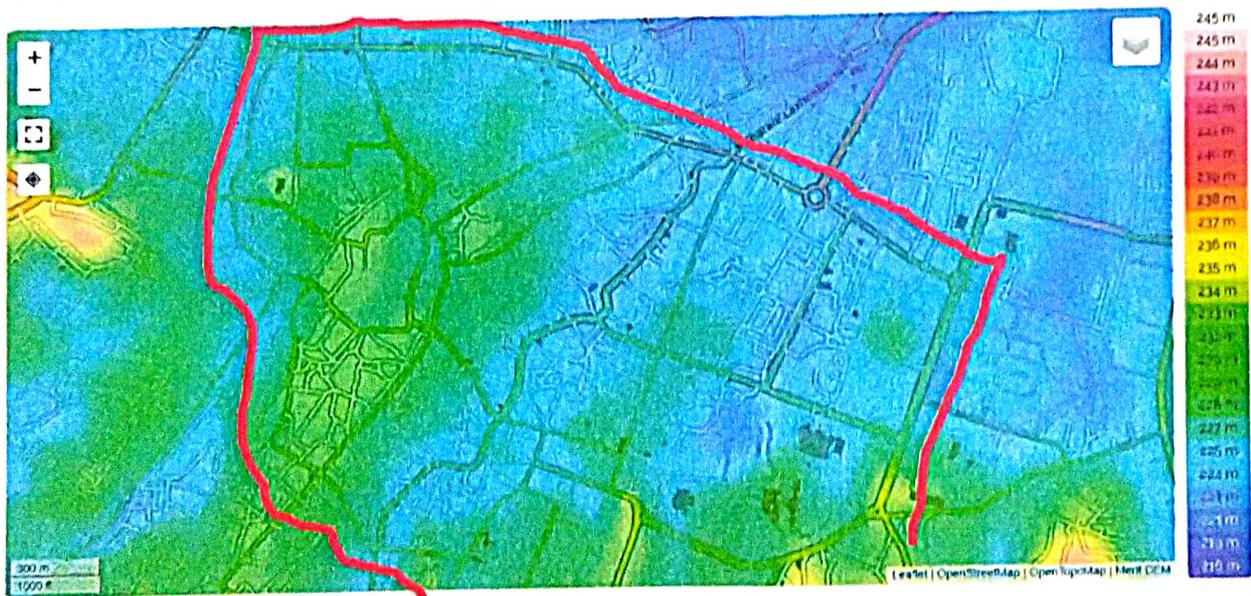


Fig. 3.1

- ❖ The starting point is chosen and the markings of manholes, SWDH and sewage pipes are marked with free-hand marking on the section of roads on the map.
- ❖ The free-hand markings of the drop points of drainage with their respective depth from ground level are marked by presuming the points with respect to road junctions, distance, buildings etc.
- ❖ The gradient of the drainage and roads are obtained by observing the flow of drainage of the respective roads.
- ❖ The gradient and direction of flow of drainage are marked with symbol of arrows on the map.

3.4 Result: -

After the marking of drop points of drainage and analysing the slopes of road sections, free-hand drawings were made of each section of road to generate the estimate for further designing of roads.

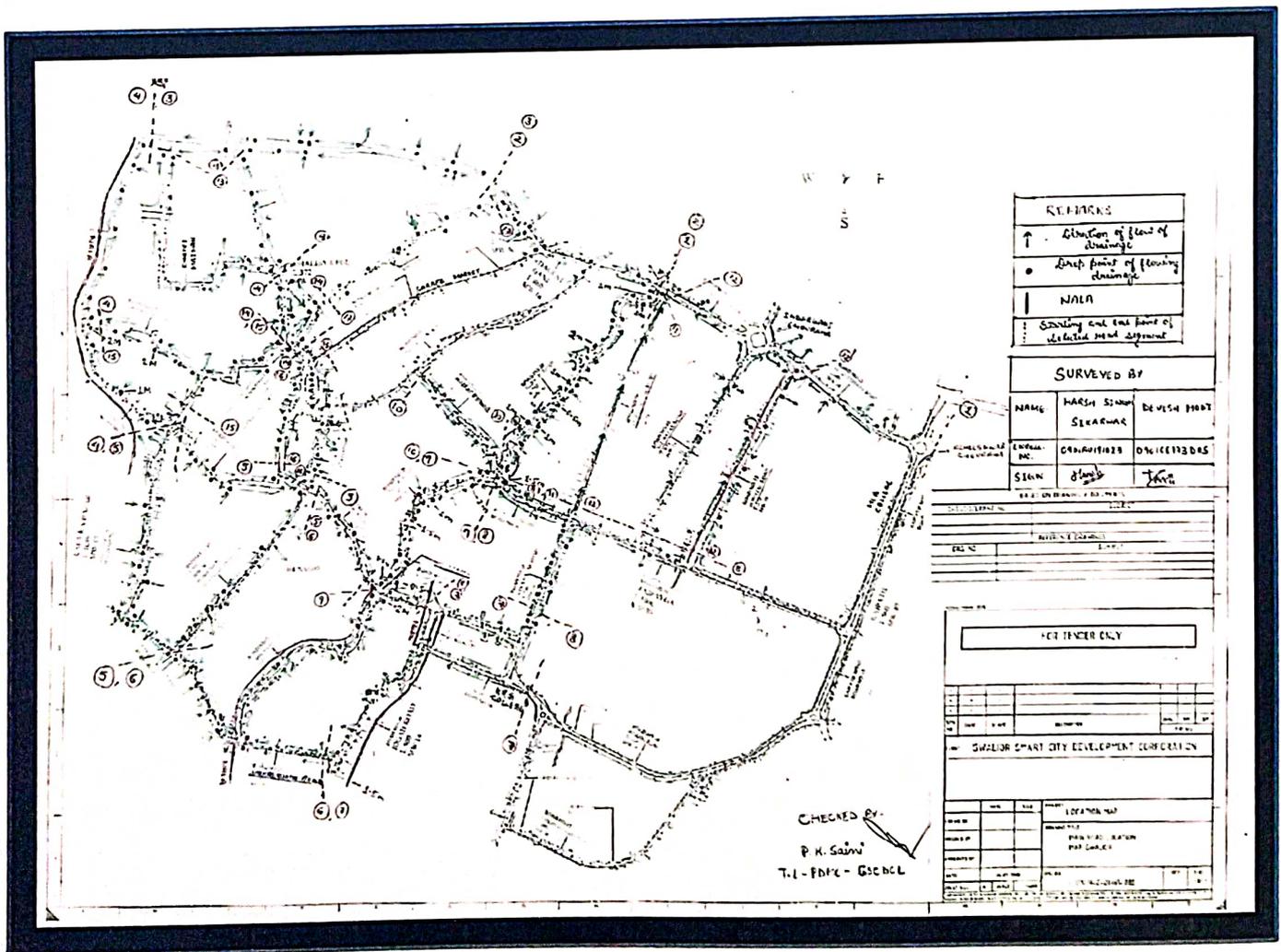


Fig 3.2
[18]

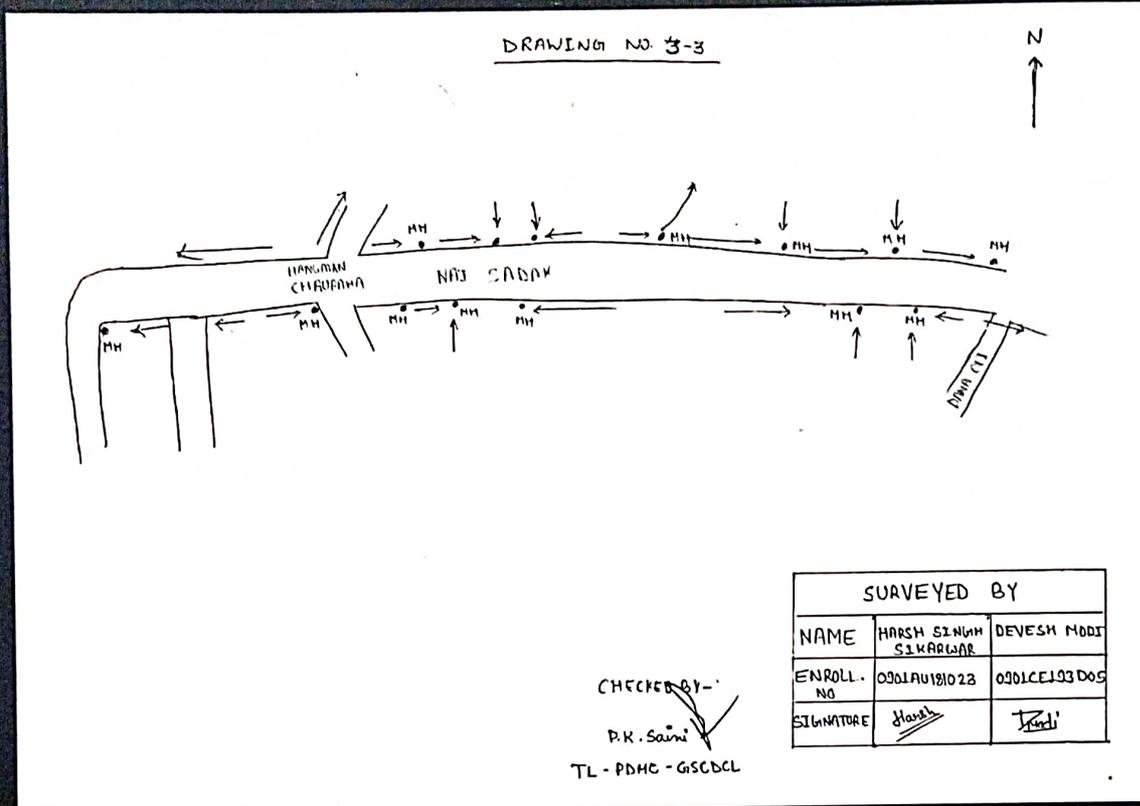


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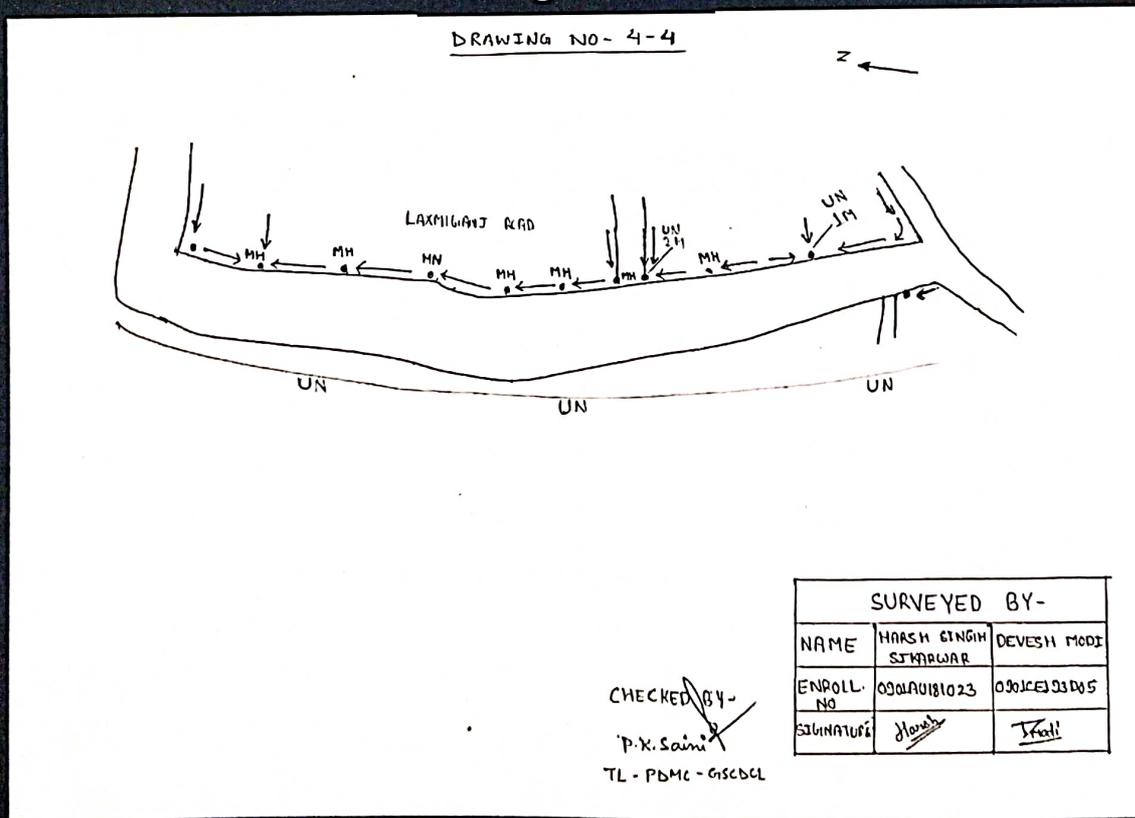


Fig 3.6

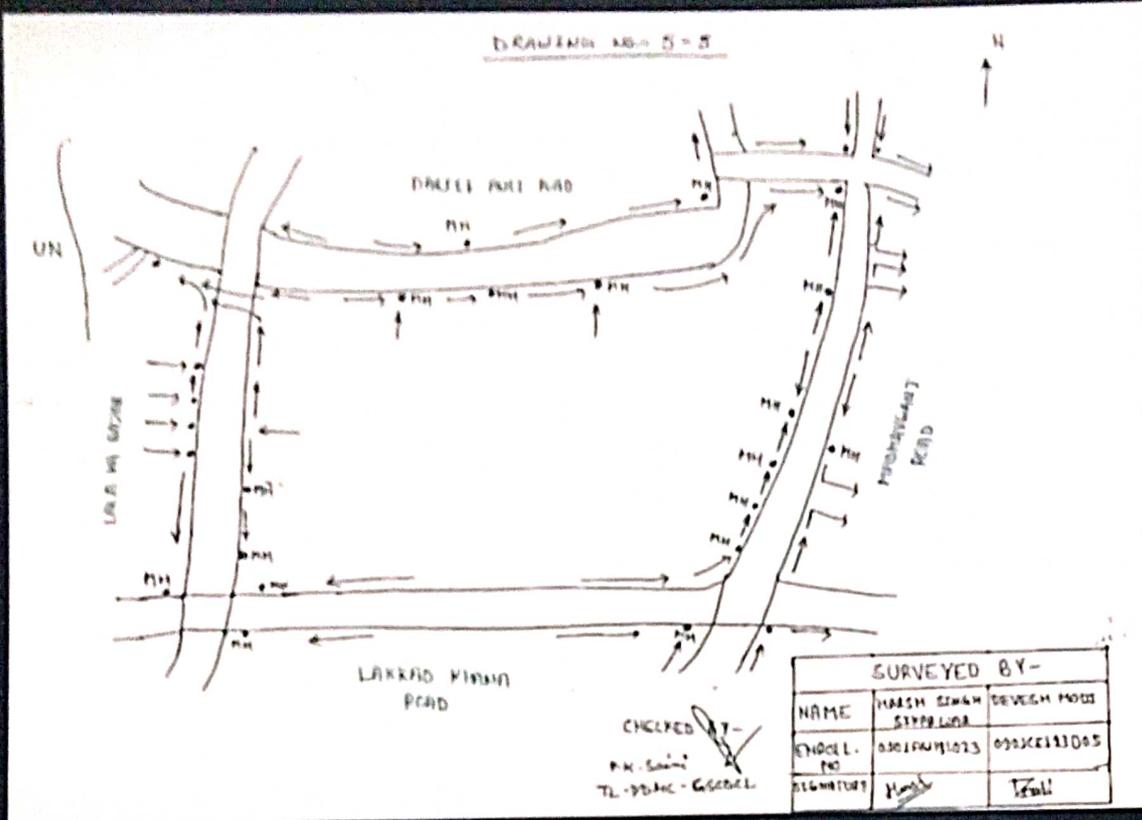


Fig. 3.7

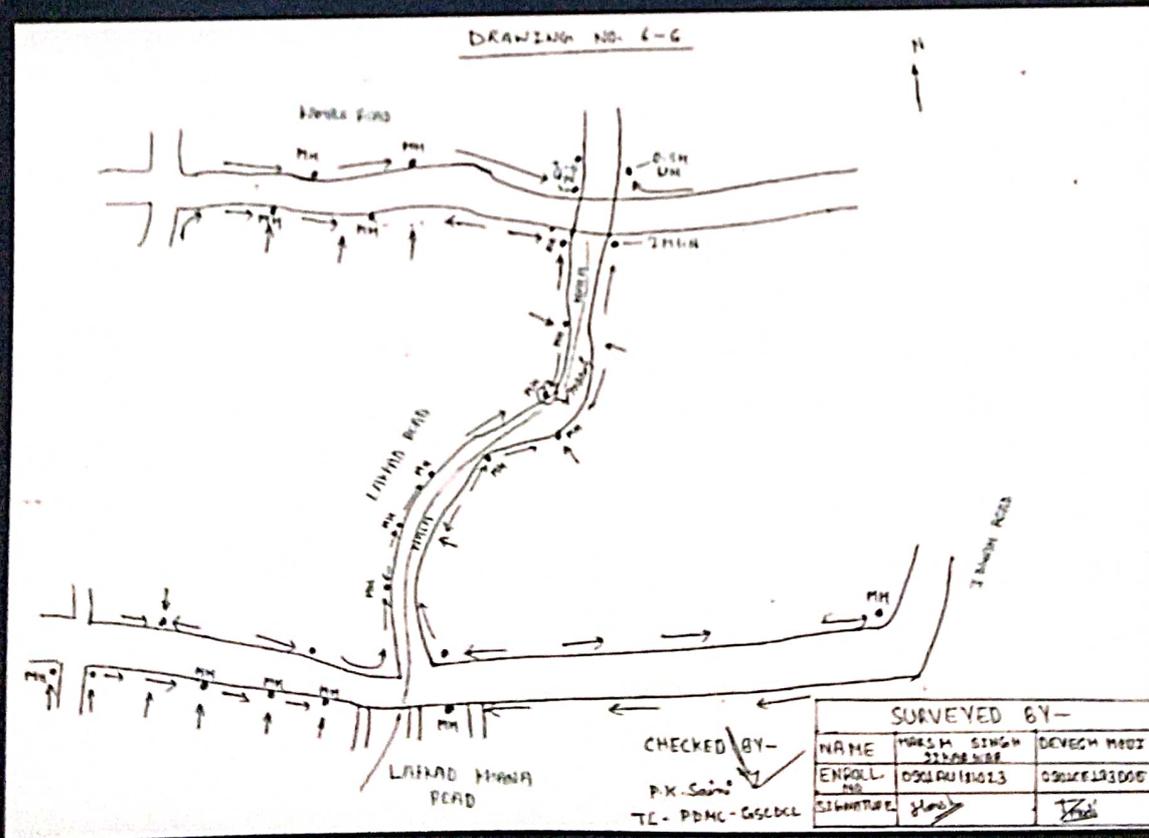


Fig 3.8

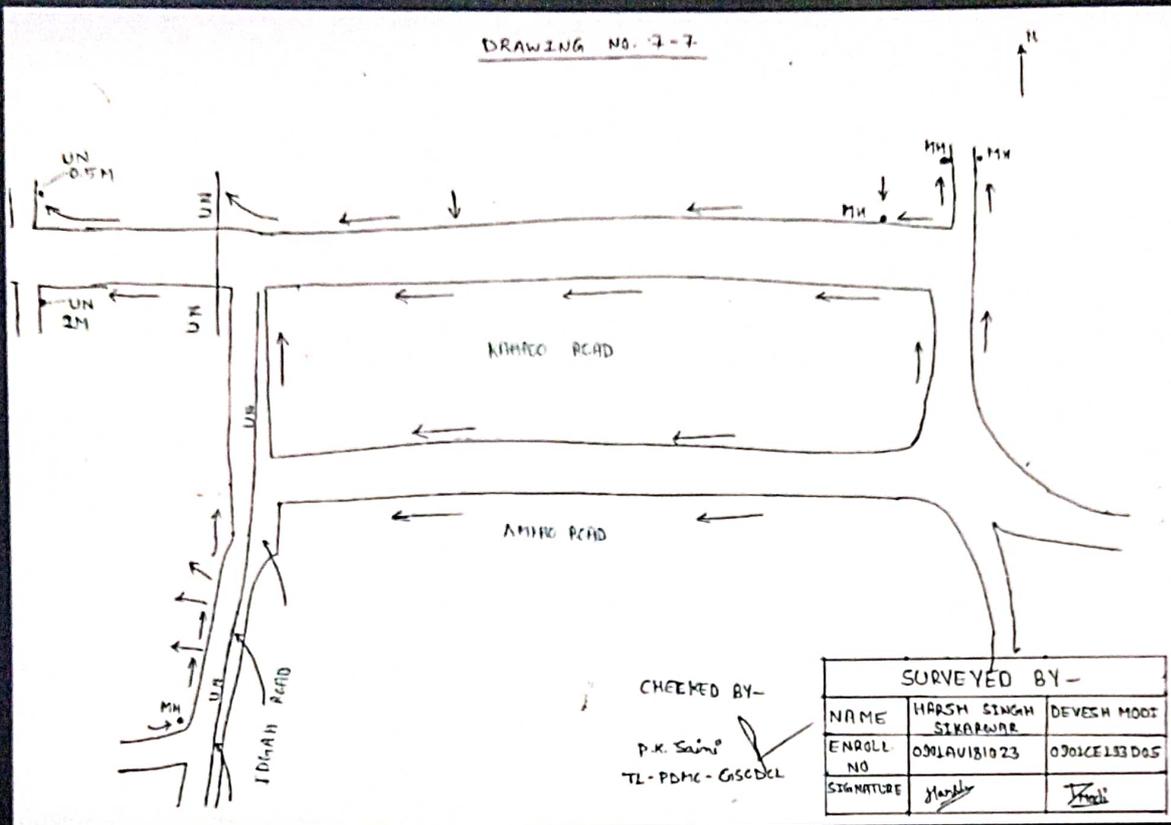


Fig 3.9

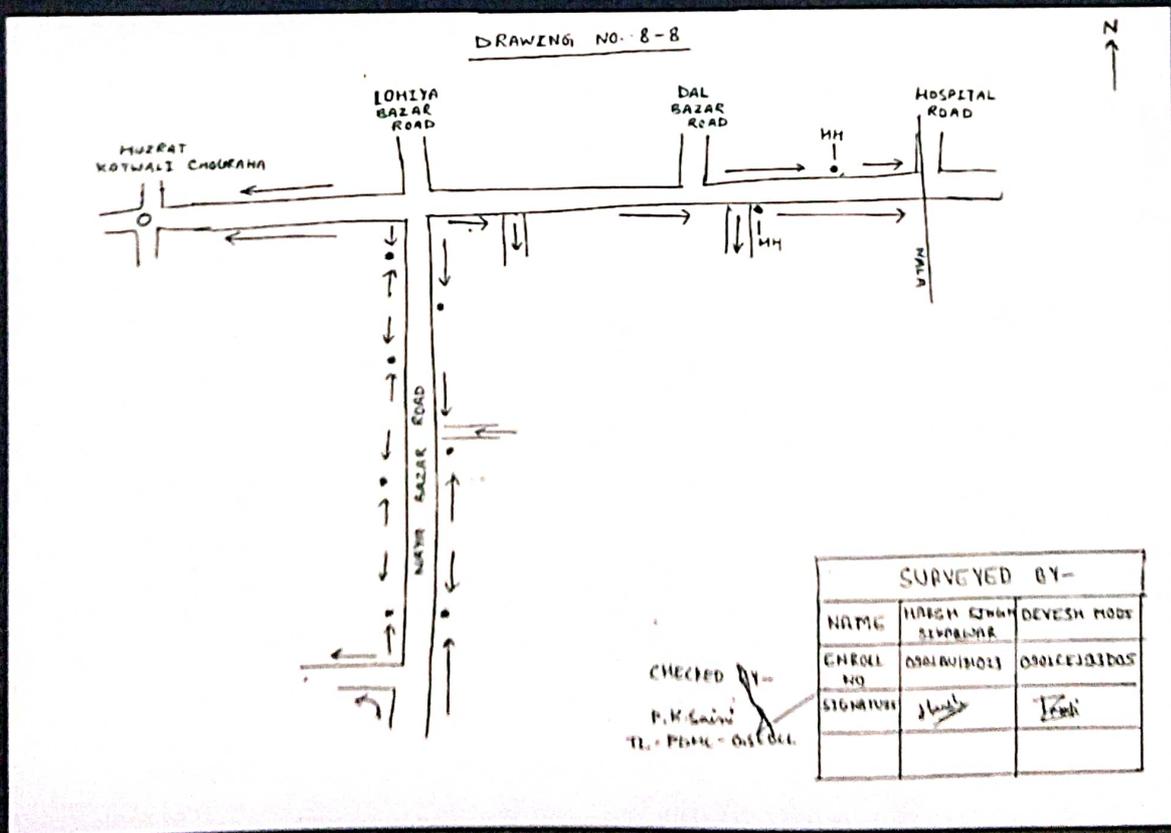
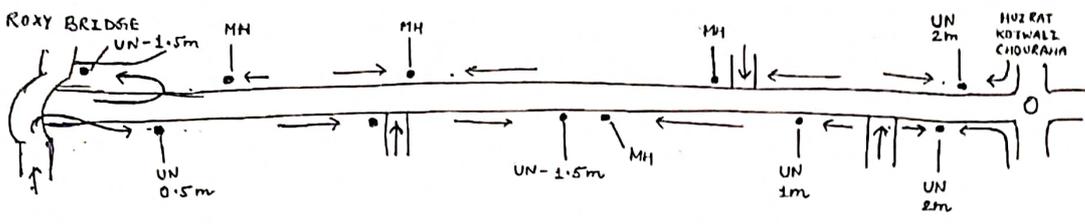


Fig 3.10

JINSI ROAD - 02
ROAD NO - 20

DRAWING NO. - 9-9



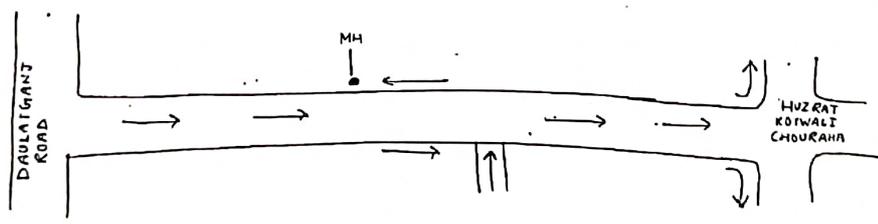
SURVEYED BY -		
NAME	HARSH SINGH SIKARWAR	DEVESH MODI
ENROLL. NO.	0901AUI81023	0901CE193005
SIGNATURE	<i>[Signature]</i>	<i>[Signature]</i>

CHECKED BY -
P.K. Saini
TL - PDMC - GSCDCL

Fig 3.11

HUZRAT KOTWALI ROAD
ROAD NO- 17

DRAWING NO. 10-10



SURVEYED BY -		
NAME	HARSH SINGH SIKARWAR	DEVESH MODI
ENROLL. NO.	0901AUI81023	0901CE193005
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Fig 3.12

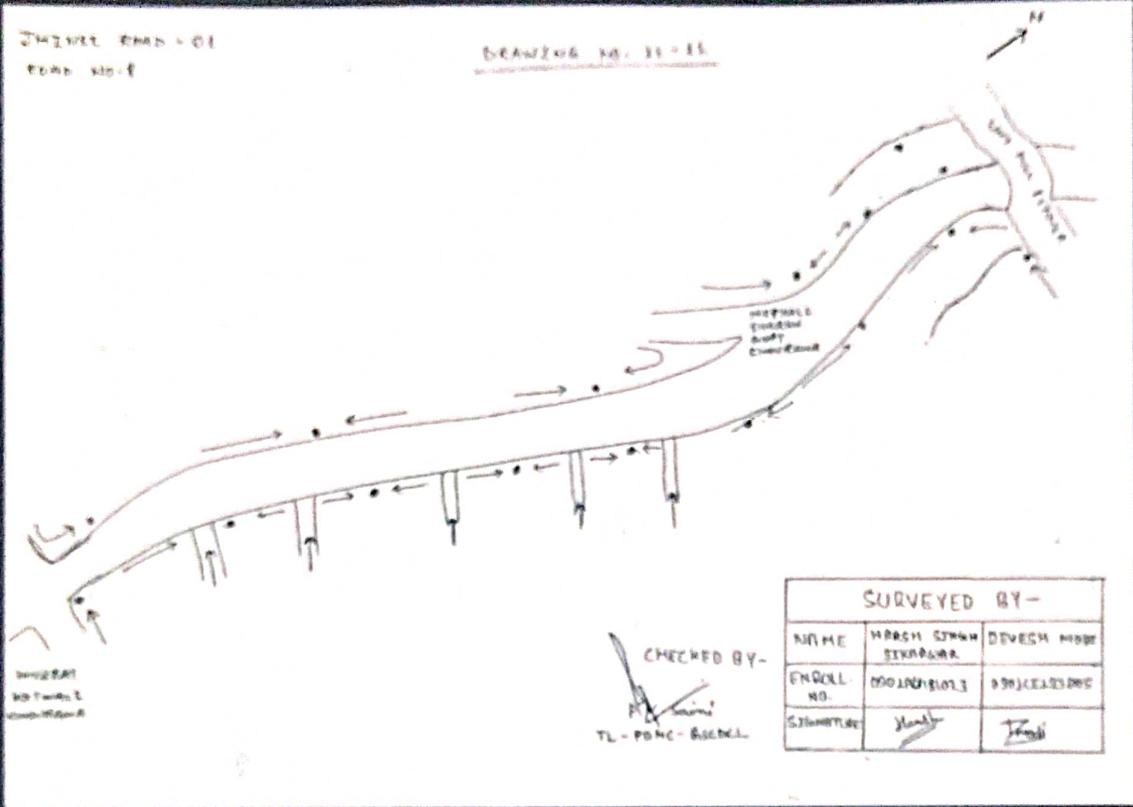


Fig 3.13

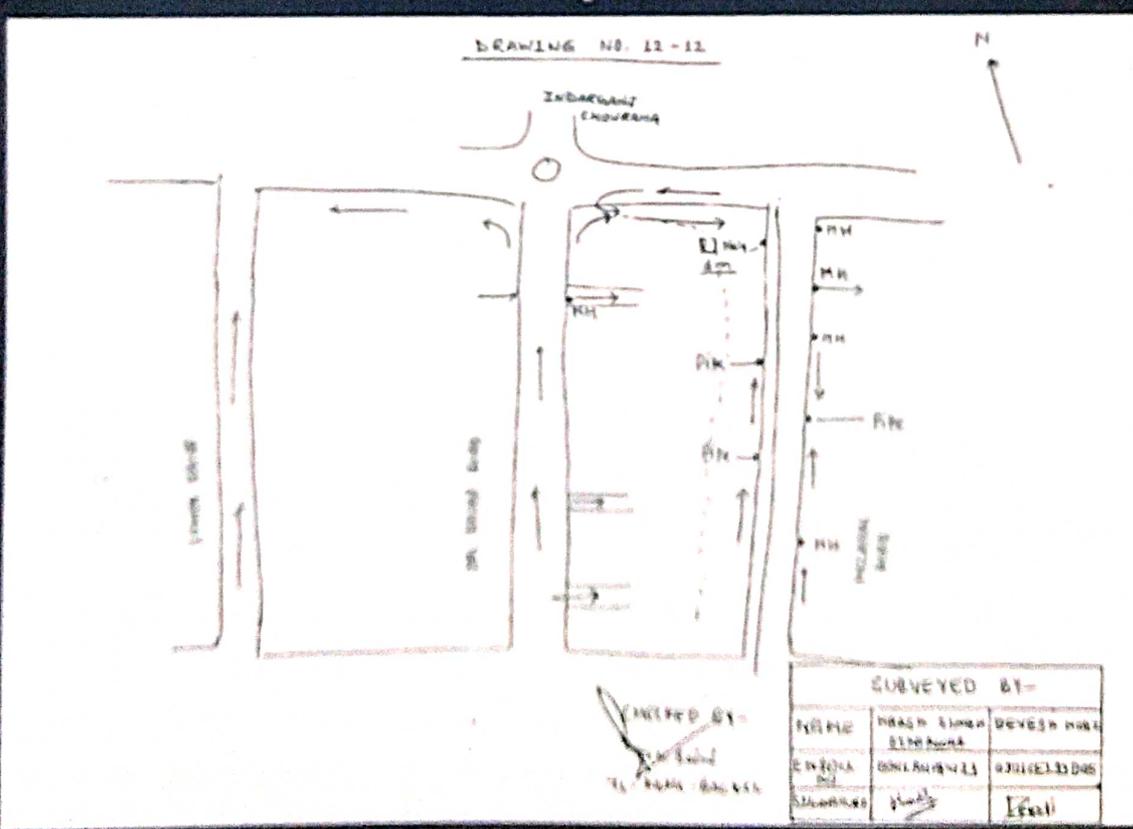


Fig 3.14

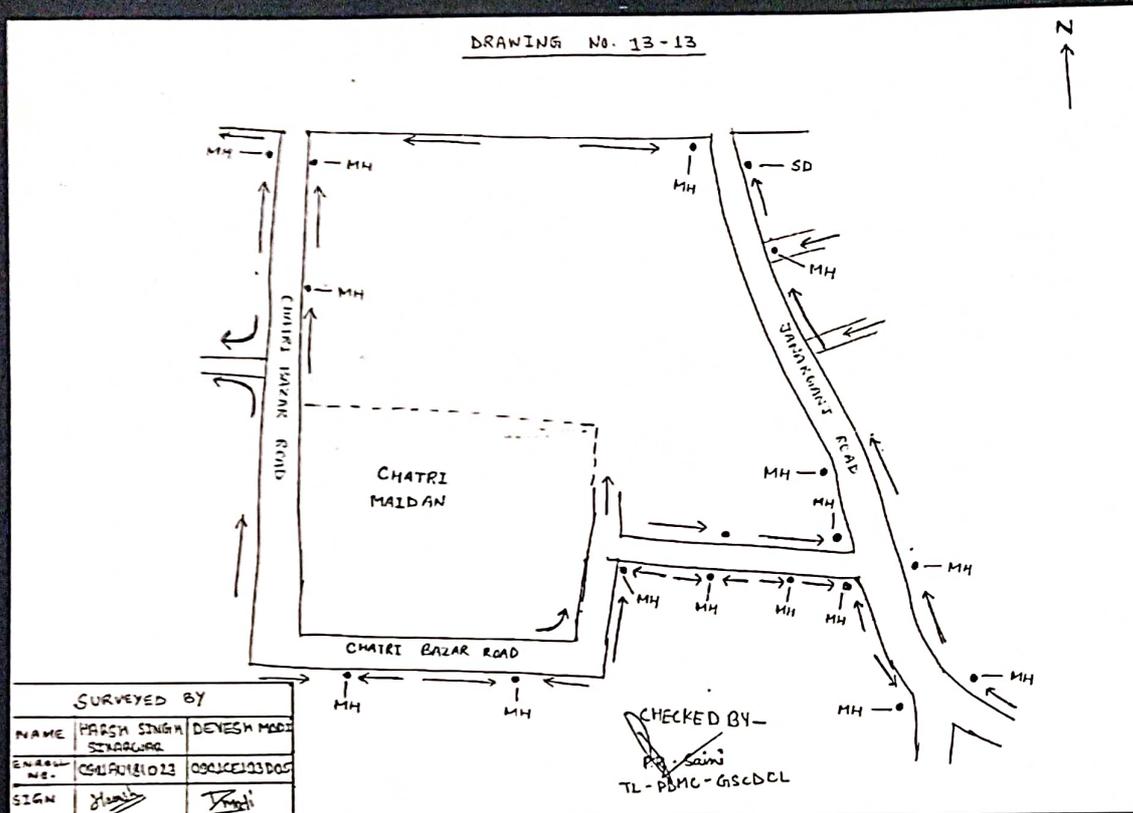


Fig 3.15

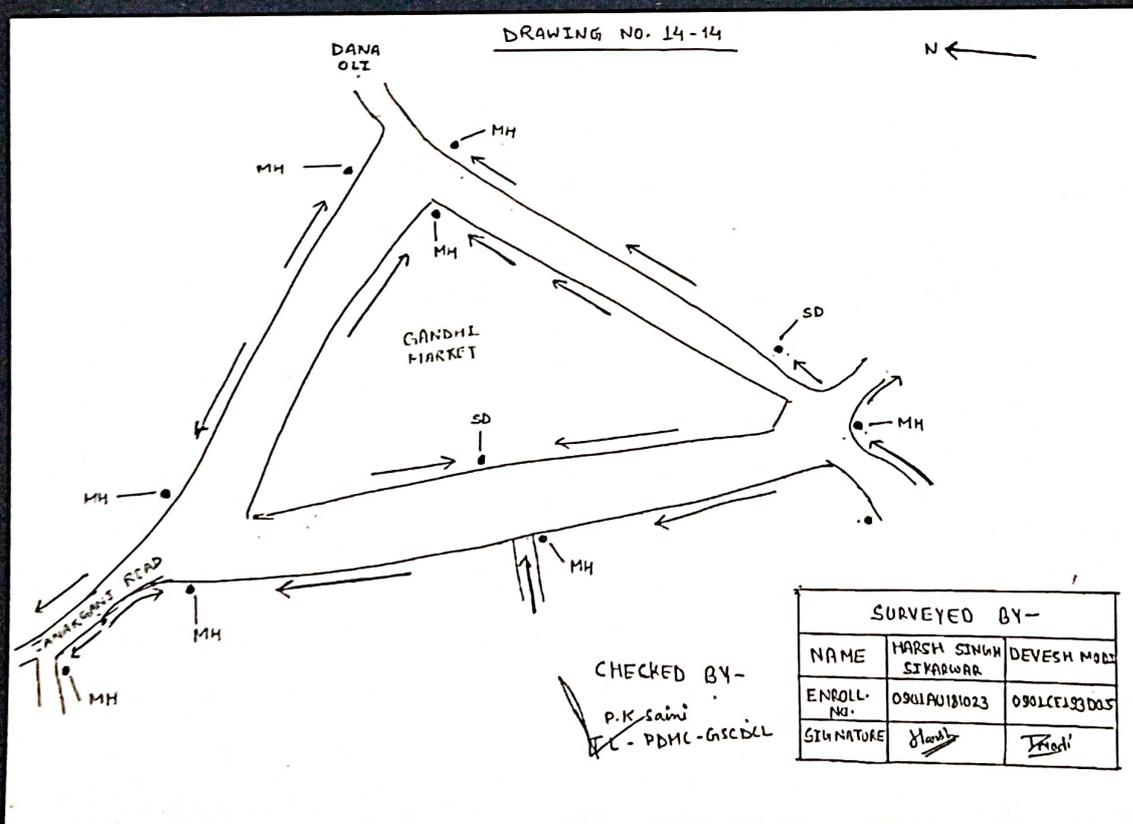


Fig 3.16

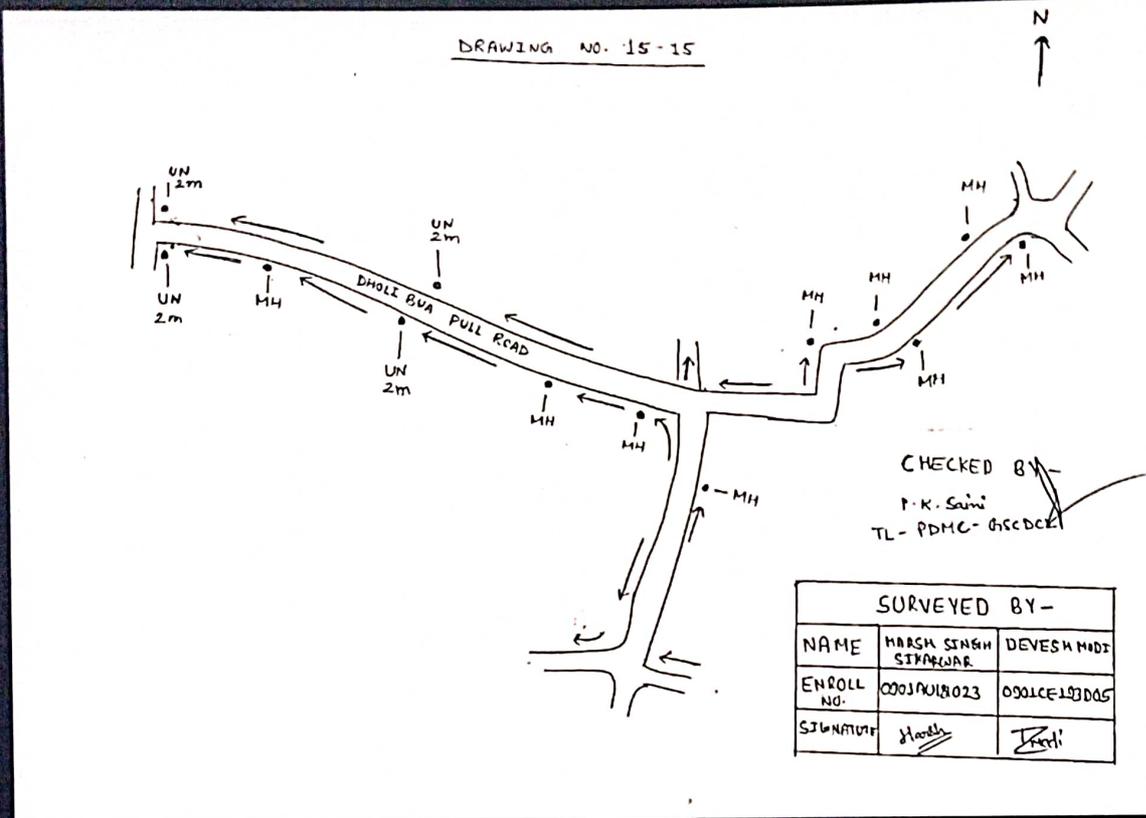


Fig 3.17

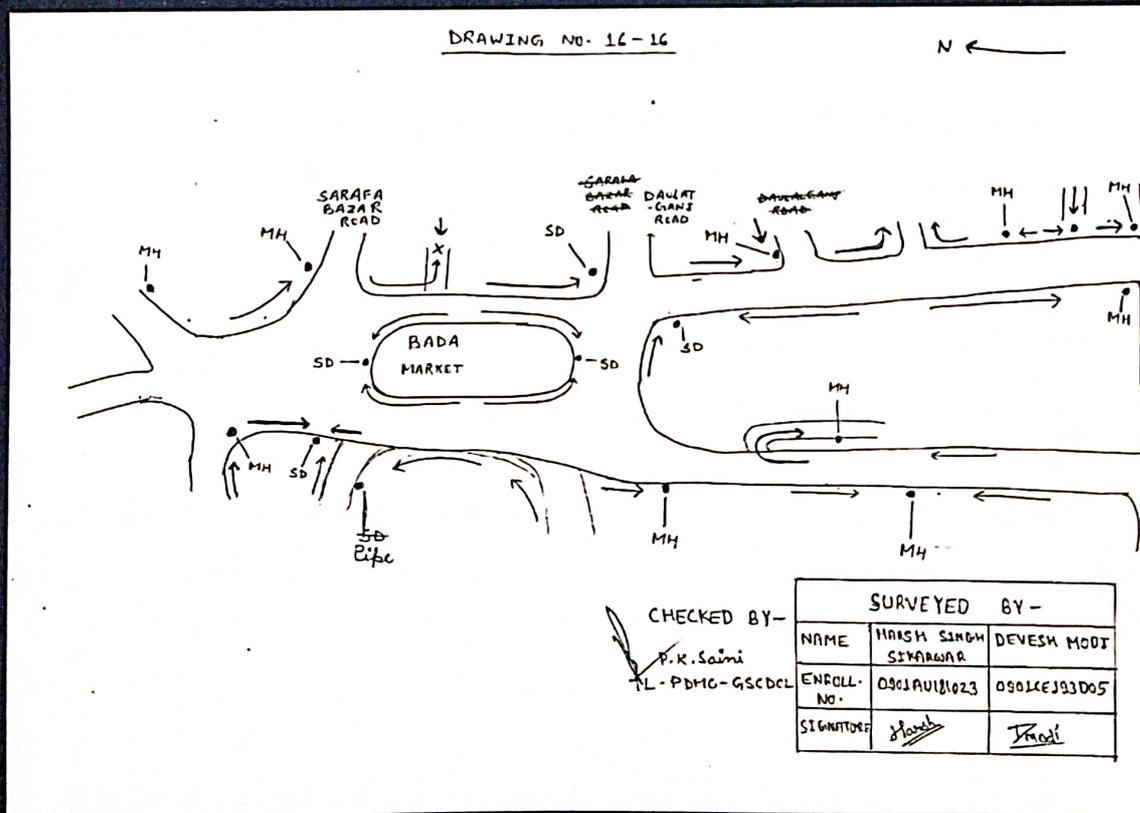


Fig 3.18

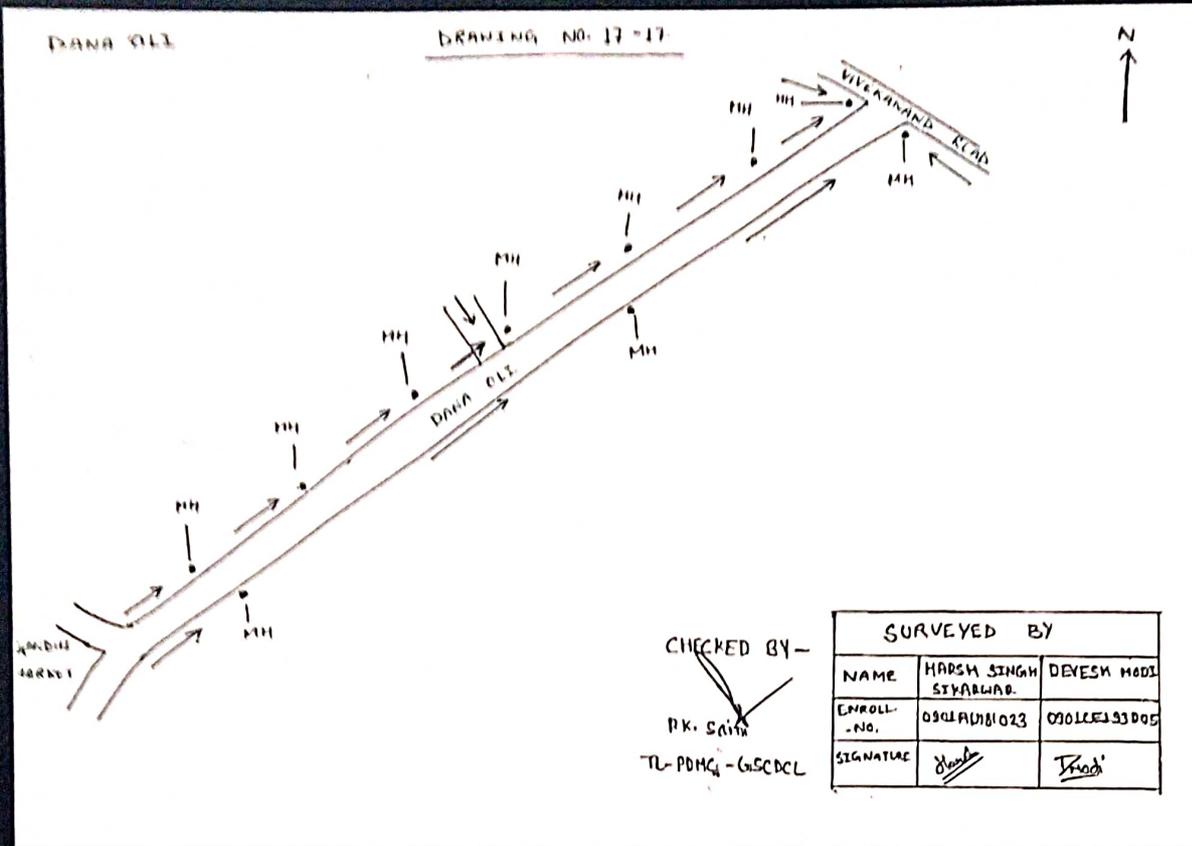


Fig 3.19

3.3 Difficulties while observing the flow of drainage for analysis of slopes of roads

1. Unavailability of flowing drains because of which dried sewage water condition in Side drains.
2. Blockage of drains by garbage, debris, people building residential or commercial properties in the way of drains, etc.
3. Unable to observe the flow of drains due to hidden drains by drain covers.

For the above-mentioned problems, *the flow of the drains was determined by talking to local people of the region and also by observing the gradient of road by eyes.*



Fig 3.20

CHAPTER 4 PROJECT - II

4.1 Project Background

CONSERVATION AND ADAPTIVE REUSE OF BHARAT SCOUT AND GUIDE (GORKHI PALACE COMPLEX) AS DIGITAL/ VIRTUAL CULTURAL HERITAGE MUSEUM

Conservation and Adaptive Reuse of the existing Bharat Scout & Guide Building (Gorkhi Palace Complex) as Digital/Virtual Cultural Heritage Museum & Planetarium is one of the six projects for Conservation and Adaptive Reuse of Heritage Buildings at Maharaj Bada which also majorly aims to increase awareness and improve the understanding values about the regional cultural heritage aided by high end digital technology and ICT solutions.

The total site delineated for this project is 4130 Sq.m or 1.02 Acres of which the standing historic building ground coverage approximately 2216.1 Sq.m. The total built-up area of the building is approximately 3182.67 Sq.m in two floors. The total carpet area of the historic building is 2476.27 Sq.m.



Fig 4.1

The Gwalior Smart City mission through this project majorly aims to: Conserve and protect the ancient character of the historic Bharat Scout and Guide (BSG) building which forms a significant part of the historic Gorkhi Palace Complex; Improve, retrofit and repair adaptively to the needs of the proposed museum; capture and encapsulate the cultural heritage values of Gird-Agra-Agimere-Malwa region via digital media; and Increase cultural and socio-technical interactivity and awareness amongst children and youth; and provide scientific education embedded recreational experience.

CHAPTER 5

ESTIMATION AND MEASUREMENT WORK

5.1 Work done under this project: -

Measurement and estimation work of different construction materials used in retrofitting work at Higher secondary school and Vajpayee memorial Museum, Gorkhi, Gwalior.

5.1.1 Materials that are measured: -

- **Cement & Lime plaster**

Plastering is the process of layering rough walls and uneven surfaces in the construction of buildings and other structures with a plastic material known as Plaster, which is a mixture of cement or lime concrete and sand along with the required quantity of water. It is measured in two dimensions with the unit of square metres.

- **Staircase granite**

The staircase is made of steps which is a combination of tread and riser. Treads are the upper horizontal portion of the step over which foot is placed and Risers are the vertical member of the step.

A horizontal platform between two successive flight of a stair is called a landing.

Measurement of the granite used in steps of staircase is taken by measuring the areas of treads, risers and landings of the staircase. The unit of measurement is square metres. (sq.m.)

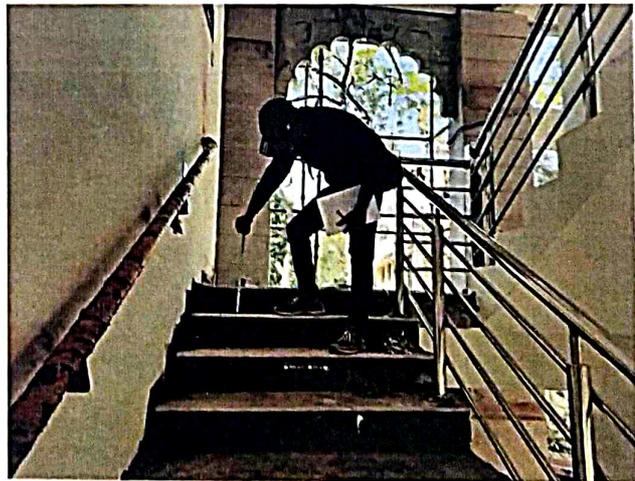


Fig 5.1

- **PCC work**

Plain Cement Concrete is used to provide a firm base on the soil before laying the main structural elements of the building. It is measured in cubic metres (cum).

- **Brick wall as propping**

These are the temporary brickwork which are used as support structures for the retrofitting work of stone windows or entrances in heritage buildings. The brick work is measured in cubic metres.



Fig 5.2

- **Stone Jali**

These are the carved perforated stone used for architectural and structural purposes in heritage buildings. They are measured in two dimensions i.e., length and height with the unit of measurement is square metres.

- **Tiles floor & Wall tiles**

Tiles are sleek elements used to cover surfaces such as floors, roofs and walls. They are measured in two dimensions with unit square metres (sq. m.).

- **Brickwork**

Brick masonry is a sturdy form of construction where bricks are systematically placed in a mortar to create a solid structure. The quantity of brickwork is measured in square metres.

- **Lime punning.**

Punning is the method of applying a thin layer of the slurry or mortar, made of cement, POP, gypsum, lime, or any such specified binding materials to the wall, ceiling, flooring, or plastering surface. The punning in some regions is also referred to as a skim coating. It is measured in two dimensions with unit of square metres.

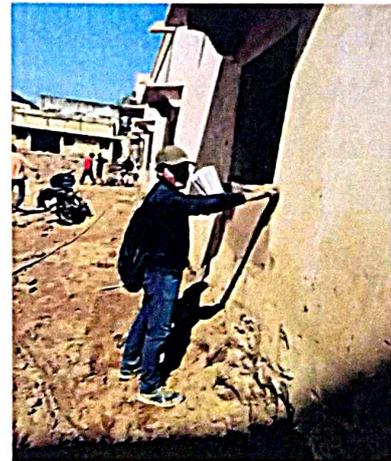
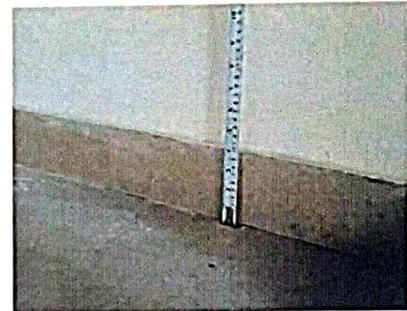


Fig 5.3

- **Skirting**

Skirting tiles are the Tiles or Board that lay in the corner or junction of the floor and wall. It is measured in square metres (sq. m.).



Fig\$5.4

- **Staircase railing**

Railing consists of five basic parts: posts, top rails, bottom rails, balusters and railing cap. Other decorative elements may be added, such as post caps, but are not necessary for a basic, sturdy design. The posts attach to the deck and provide the support for the entire framework. The top and bottom rails are secured horizontally between the posts, attaching them to each other.

The different parts are of different dimensions. Thus, all the above-mentioned parts are measured separately. And the quantity of stainless steel used in the staircase is measured in metres (m).

- **Stone musakkas, brackets**

These are is an architectural element: a structural or decorative member. It can be made of wood, stone, plaster, metal, or other media. These are measured in numbers. (nos.)



Fig 5.5

- **Wooden panels and frames.**

Wooden panels and frames are used for the purpose of windows and doors in buildings.

In construction work are used and bought with specified requirements like width and designs. They are measured in one dimension i.e., only length. The unit of measurement is metres. (m)

- **Stone Patiya platforms.**

The long stone patiya with constant thickness and width are used for platforms for kitchen, laboratories, etc. These are measured in running metres. (Rm)



Fig 5.6

Measuring tools that are used: -

- Measuring tapes of 5m for measuring small distances 30m for measuring long distances.

A tape measure, or measuring tape is a type of hand tool typically used to measure distance or size. It is like a much longer flexible ruler consisting of a case, thumb lock, blade/tape, hook, and sometimes a belt clip. A tape measure will have imperial readings, metric readings or both.

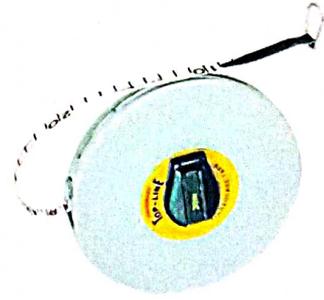


Fig 5.7

- Laser distance meter.

A Laser Distance Meter sends a pulse of laser light to the target and measures the time it takes for the reflection to return. On-board processing allows the device to add, subtract, calculate areas and volumes and to triangulate. You can measure distances at a distance. Because of the measuring principle, most laser rangefinders can only measure the minimum distances from about 5 cm to maximum distance of 30 m.



Fig 5.8

Steps to measure the materials: -

- Mentioning the material details in the measuring sheets.
- Mentioning the number of quantities for which the measurement is being done.
- Measuring the material with the help of different measuring tools and noting the length, width and height according to the SOR for the respective material.
- Calculating the total quantity of the material by evaluating the length, area or volume , whichever is needed for that material.

Result: -

After the measuring work of different construction and archeological materials that are used in the site, these measurements were then recorded in Microsoft excel sheets for the purpose of estimation and billing of quantities.

CONCLUSION

In conclusion, under the Internship programme 2022, I was the part of two projects "REDEVELOPMENT OF ROADS IN AREA-BASED DEVELOPMENT REGION UNDER GWALIOR SMART CITY" and "CONSERVATION AND ADAPTIVE REUSE OF BHARAT SCOUT AND GUIDE (GORKHI PALACE COMPLEX) AS DIGITAL/ VIRTUAL CULTURAL HERITAGE MUSEUM" in the organisation – Gwalior Smart City and Development Corporation Limited. The period of internship was four months with the joining and ending dates are 12/01/2022 and 11/05/2022 respectively.

Under the project "REDEVELOPMENT OF ROADS IN AREA-BASED DEVELOPMENT REGION UNDER GWALIOR SMART CITY" we were the part of redevelopment/extension work of roads and highways of Area-Based development region of Gwalior. Under this we surveyed the existing roads for the drainage system by analysing the slope of drainage and roads, marking the drop points with their depths from the ground level. All the surveyed details were then marked in the map of ABD region for further designing and planning work.

Under the project "CONSERVATION AND ADAPTIVE REUSE OF BHARAT SCOUT AND GUIDE (GORKHI PALACE COMPLEX) AS DIGITAL/ VIRTUAL CULTURAL HERITAGE MUSEUM" we were assigned the work of measuring the quantities of different construction materials used in retrofitting and construction work of school and museum. These measurements were then recorded in the billing sheets for estimation purposes.

References

[1.] <https://gwaliorsmartcity.org>

[2.] Surveying Vol. I, Volume 1

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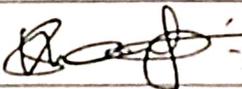
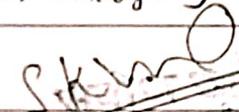
[5.] homeguides.sfgate.com

[6.] coursehero.com

[7.] 9to5civil.com

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Name of student	XXXXXXXXXXXX HARSH SINGH SIKARWAR		Department	XXXX CIVIL ENGG.	
Industry/Organization	XXXXXXXXXXXXXXXX GWALIOR SMART CITY		Date/Duration	DD/MM/YR -DD/MM/YR 12/01/2022 - 31/01/2022	
Criterion	Poor	Average	Good	Very Good	Excellent
Punctuality/Timely completion of assigned work				✓	
Learning capacity/Knowledge up gradation				✓	
Performance/Quality of work				✓	
Behaviour/Discipline/Teara work					✓
Sincerity/Hard work					✓
Comment on nature of work done/Area/Topic	Attitude is good and toward to achieve his goal.				
<u>OVERALL GRADE (Any one)</u>	<u>POOR/AVERAGE/GOOD/VERY GOOD/EXCELLENT</u>				
<u>Name of Industry Mentor</u>	VAISHANT GUPTA (Construction manager)				
<u>Signature of Industry Mentor</u>	 				

Receiving Date	xxxx	Name of Faculty Mentor	Dr. Sanjay Tiwari	Sign	xxx H
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Name of student	Harsh Singh Sikarwar		Department	Civil Engineering dept.	
Industry/Organization	Gwalior Smart City Development Corporation Limited		Date/Duration	01/02/2022-15/02/2022	
Criterion	Poor	Average	Good	Very Good	Excellent
Punctuality/Timely completion of assigned work				✓	
Learning capacity/Knowledge up gradation			✓		
Performance/Quality of work					✓
Behaviour/Discipline/Team work					✓
Sincerity/Hard work					✓
Comment on nature of work done/Area/Topic					
<u>OVERALL GRADE (Any one)</u>	<u>POOR/AVERAGE/GOOD/VERY GOOD/EXCELLENT</u>				
<u>Name of Industry Mentor</u>	TAKSHIL TIWARI (SITE ENGINEER)				
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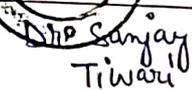
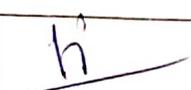

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Punctuality/Timely completion of assigned work				✓	
Learning capacity/Knowledge up gradation					✓
Performance/Quality of work					✓
Behaviour/Discipline/Team work				✓	
Sincerity/Hard work				✓	
Comment on nature of work done/Area/Topic					
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<u>Name of Industry Mentor</u>	TAKSHIL TIWARI (SITE ENGINEER)				
<u>Signature of Industry Mentor</u>					



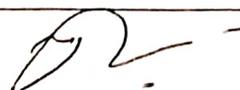
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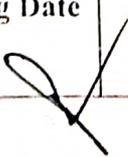


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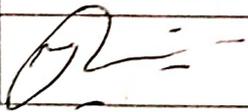
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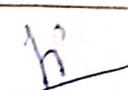

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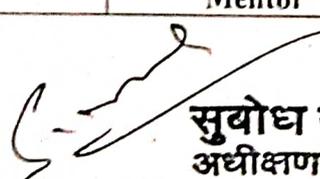
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Performance/Quality of work					✓
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<u>Name of Industry Mentor</u>	TAKSHIL TIWARI (SITE-ENGINEER)				
<u>Signature of Industry Mentor</u>					



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Industry Organization	Gwalior Smart City Development Corporation Limited	Date/Duration	01 /04/22 - 15 /04/ 22		
Criterion	Poor	Average	Good	Very Good	Excellent
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<u>Name of Industry Mentor</u>	TAKSHIL TIWARI (SITE-ENGINEER)				
<u>Signature of Industry Mentor</u>					



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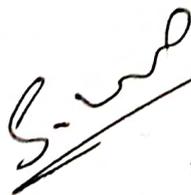

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<u>Name of Industry Mentor</u>	TAKSHIL TIWARI (SITE ENGINEER)				
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Criterion	Poor	Average	Good	Very Good	Excellent
Punctuality Timely completion of assigned work			✓		
Learning capacity Knowledge up gradation			✓		
Performance Quality of work			✓		
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<u>OVERALL GRADE (Any one)</u>	✓ <u>POOR/AVERAGE/GOOD/VERY GOOD/EXCELLENT</u>				
<u>Name of Industry Mentor</u>	TAKSHI TIWARI <i>Dr.</i> = SITE-ENGINEER				
<u>Signature of Industry Mentor</u>	<i>Dr.</i>				

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