

भारतीय राष्ट्रीय राजमार्ग प्राधिकरण

(सडक परिवहन एवं राजमार्ग मंत्रालय, भारत सस्कार)

NATIONAL HIGHWAYS AUTHORITY OF INDIA

(Ministry of Road Transport and Highways, Govt. of India)



इं-६/47, स्पति परिसर, मार्डबोर्ड के पास, अरेश कॉलोनी, भोपाल (म.प्र.)-462016 E-6/47, Smriti Parisar, Near Sai Board, Arera Colony, Bhopal (M.P.)-462016

दुरभाष/Phone: 0755-2426638, फैक्स/Fax: 0755-2426698, ई-मेल/E-mail ID: robbopal@nhai.org

NHAI/RO-Bhopal/PIU-BPL/MPMKVVCL/Raghogarh/2025/54917 Date - 30.07.2025

Invitation of Public Comments

4-laning of Guna-Biaora Section from Km. 332.100 to Km. 426.100 of NH-46(Old NH-3) (Package-II) in the State of Madhya Pradesh on BOT (Toll) on DBFOT pattern under NHDP Phase IV - Regarding National Highway Crossing In the work to be done by Government of India in Guna District, under RDSS Scheme - Public Comments - Reg.

PD, PIU Bhopal e-file no. 289026 dated 28.07.2025. Ref:

- PD, PIU Bhopal, NHAI vide e-file note dated 28.07.2025 has submitted the proposal for MPMKVVCL Raghogarh for permission of laying of 11KV underground NH line crossing at village Dehri-1, Awan, Dehri-2, Ramdi, Patondi, Ahirkhedi of Tehsil Raghogarh District Guna in the state of MP.
- As per Ministry vide OM No. RW/NH-33044 S&R (R) dated 22.11.2016, the application shall be put out in public domain for 30 days for seeking claims and objections (on ground of public inconvenience, safety and general public interest).
- Accordingly, the public comments are hereby invited on the above proposal (copy 3. of application enclosed) for seeking claims and objections within 30 days (i.e. by 30.08.2025) on public portal [i.e. website of MoRTH (www.morth.nic.in)] beyond which no comments will be considered. The address of comments inviting authority is as under:

The Highway Administrator O/o Regional Officer, National Highways Authority of India E-6/47, Smriti Parisar, Near Sai Board Arera Colony, Bhopal (MP) - 462016 E-mail ID: robhopal@nhai.org

This is being issued with the approval of Regional Officer cum Highway Administration. 30/07/2025

Paras Bansal) Manager (T)

Copy to:

Web Admin, NHAI-HQ-with request for uploading on the NHAI website. (1)

The Senior Technical Director, NIC, Transport Bhawan, New Delhi-110001 for (ii) uploading on Ministry's Website.

(111) The Project Director, NHAI, PIU- Bhopal (M.P.) for information.

MPMKVVCL, Raghogarh (MP) (Email: mpczdgmraghogarh@gmail.com). (IV)

Application I	Details [20241123/1/5/33029/12632]
Highway	NH46 [NH46]
Name of Highway Authority	NHAI Dwarka New delhi
Highway Administration Address	Bhopal Bhopal
Whether the Fuel Station is part of Rest- area complex	No
Name of Applicant/Oil Company	Madhya Pradesh Madhya Kshetra Vidyut Vitaran Company Limited Address: NEAR OF NAGAR PALIKA RAGHOGARH GUNA MADHYA PRADESH, GUNA (MADHYA PRADESH), PIN: 473226 Phn: 9406913711 Email: ANISHRAJPUT.CZ@MP.GOV.IN
Application Category	Public Utility
Utility	Pipes
State	MADHYA PRADESH
Туре	New
Remarks	11 KV Dehri Feeder UNDER GROUND HIGHWAY CROSSING
Submitted On	17 Jun 2025 18:04:13





	Details	
1. Length in Meters *	60	
2. Width of available ROW		
I. Left side from center line towards increasing chainage OR km direction *	230.110	
II. Right side from center line towards increasing chainage OR km direction *	230.110	
3. Proposal to lay the utility		
I. Left side from center line towards increasing chainage OR km direction *	0	
II. Right side from center line towards increasing chainage OR km direction *	0	
4. Proposal to acquire the land		
. Left side from center line *	0	
I. Right side from center line	0	
5. Whether proposal is in the same side where land is not to be acquired *	No	
f not then where to lay the able *	NA HDD CROSSING	
Details of already laid services if any along the proposed route *	N/A	
. Number of Existing lanes *	4 Lane	
. Proposed number of lanes	4 Lane	

File No. HOUDIV-14012/59/2025-PIU Bhopal (Computer No. 289026)

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MPMKVV COLTD Rachocarh

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9. Service road Exists *	No
10. Proposed Service road	
Left side from center line	0
Right side from center line	0
11. Whether proposal to lay cable is after the service road or between the service road and main carriageway *	N/A
12. Whether carrying OFC Cable has been proposed on highway /bridges, If yes then mention the methodology proposed for the same *	N/A
13. Is crossing of the road involved? If Yes, is shall be either encased in pipes or through structure of conduits specially built for the	Yes, Enclosed in pipes
purpose at the expense of the agency owing the line *	
I. Whether the existing drainage structures are allowed to carry utility pipeline. *	N/A
II. Is it on a line normal to NH? *	No
III. What is the distance of crossing the utility pipelines from the existing structure?	
Crossings shall not be too near the existing structures on the National Highway, the	0.00
minimum distance being 15 mtrs. *	

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Toam Leading Services

Theme Engineering Services
Raghogarh

St. Ltd. Guns (M.P.)

M P M K-V V CO LTD Raghogath

6/2025, 16:44	MORTH Utility Portal
IV. The casing pipe (or conduit pipe in the case of electric cable) line carrying the utility line shall be of steel, cast iron or reinforced concrete and have adequate strength and be large enough to permit ready withdrawal of carrier pipe/cable Mention type of casting. *	Yes, GI PIPE
V. Ends of the casing/conduit pipe shall be sealed from outside, so that is does not act as a drainage path *	Yes
VI. The casing/conduit pipe should be as minimum extend from drain in cuts toe of slope in fills. *	Yes
VII. The installation of Casing pipe shall be as per attachment-1 of Ministry's Guidelines dated 22.11.2016 *	YES
VIII. Mention the methodology proposed for crossing of road for the proposed sewerage / gas pipeline crossing shall be boring method (HDD) (Trenchless Technology) specially where the existing road pavement is of cement concrete of dense bituminous concrete type. *	YES (HDD Method)

14. Whether the proposal satisfies the following:

Team Leads
Team Leads
Team Leads
Thems Engineering Services

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06/2025, 16:44	MoRTH Utility Portal
I. Where the ROW is more than 45 M then the duct cable shall be laid at the edge of right of way within the utility corridor of 2 M width, duly keeping in view the future widening. *	N/A
II. Where land is yet to be acquired for 4 laning and the position of new carriageway has been decided then the cable shall be laid at the edge of right of way within the utility corridor of 2 M width, on that side of existing carriageway where extra land is not proposed to be acquired for 4 laning. *	N/A
III. Where the widening plan for 4 laning is not yet decided and available ROW is around 30 M or less, a judicious decision would need to be taken for permitting the laying of cable/duct. This could be within 1.5 M to 2m of utility corridor at the edge of existing ROW, duly keeping in view the possible widening plans. *	N/A





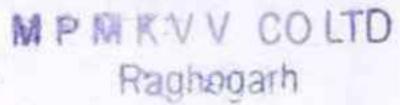
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70/2020, 10.11	
IV. Where ROW is restricted and adequate only to accommodate the carriageway, central verge, shoulders and drains (e.g. Highways in cutting through hilly/rolling terrain), the cable shall be laid clear of the drain. *	N/A
V. Where land strip for utility corridor can't be conveniently earmarked (available ROW restricted to the toe of the embankment) for laying of cable/ducts, the permission may be refused. *	N/A
15. Document/Drawings enclosed with the proposal *	Yes
I. Cross section showing the size of trench for open trenching method (is it normal size of 1.2m (min.) deep x 0.3 wide) *	N/A
II. Cross section showing the size of pit and location of cable for HDD method *	YES
III. Strip plan/ Route plan showing the OFC, Chainage width of ROW, distance of proposed, cable from the edge of ROW, important mile stone, intersections, cross drainage works etc. *	Incorporated in the Drawing
IV. Methodology of laying of the Utility Pipeline/OFC *	Yes, Enclosed.

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E Theme Engineering Services
S Pvt. Ltd. Guna (M.P.)



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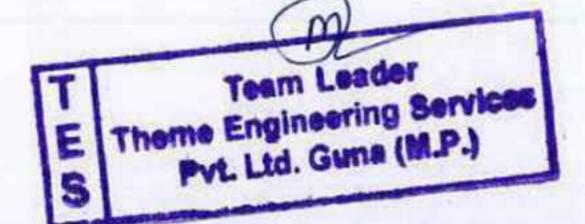
06/2025, 16:44	WONTHOU	
V. Open trenching method (may be allowed in utility corridor only where pavement is neither cement concrete nor dense bituminous concrete type) If yes what is the Methodology of refilling of trench *		N/A
(a) The trench width should be at least 30 cms but not more than 60 cms wider than the outer diameter of the pipe		N/A
(b) For filling of the trench, bedding shall be to a depth of not less than 30 cms. It shall consist of granular material, free of lumps, clods, cobbles		
and graded to yiled firm surface without sudden change in the bearing value, unsuitable soil and rock edges should be excavated and replaced by selected material *		N/A
(c) The backfill shall be completed in two stages, i) Side fill to the level of the top of the pipe and ii) Overfill to the bottom of the road crust *		N/A





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00/2025, 10.44	
(d) The side fill shall consist of granular material laid in 15 cms, layers each consolidated by mechanical tampering and controlled addition of moisture to 95% of the proctor density. Overfill shall be compacted to the same density as the material that has been removed. *	N/A
(e) The road crust shall be built to the same strength as existing crust on either side of the trench. Care shall be taken to avoid the formation of a dip at the trench. *	N/A
(f) The excavation shall be protected by flagman, signs and barricades and red lights during night hours. *	N/A
(g) If required, a diversion shall be constructed at the expense of agency owing the utility line.*	N/A
VI. Horizontal Directional Drilling (HDD) Method *	YES
VII. Laying OFC through CD Works and Method of laying (Whether to be hung outside parapet). *	N/A
16. Draft license Agreement signed by two witnesses. *	Yes





MoRTH Utility Portal

72020, 10.44		
I. The license fee estimate as per Ministry's guidelines issued vide circular no. RW/NH/33044/29/2015/S&R dated 22.11.2016. *		Yes
17. Whether Performance Bank Guarantee is as per Ministry's guidelines issued vide circular no. RW/NH/33044/29/2015/S&R, dated 22.11.2016. *		Yes
I. Confirmation of BG has been obtained as per MoRTH guidelines *		Yes
18. Affidavit/Undertaking from	the Applicant for following is to	be furnished
a) Undertaking not to Damage to other utility, if		
damage then to pay the losses either to NHAI or the concerned agency. *		Yes
b) Undertaking Renewal of Bank Guarantee as and when asked by MoRTH. *		Yes
c) Undertaking Confirming all standard condition of Ministry's guidelines. *		Yes
d) Undertaking for indemnity against all damages and claims *		Yes
e) Undertaking for management of traffic movement during laying of		Yes
utility line without hampering the traffic *		

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00/2020, 10.44	To be the Control of
f) Undertaking that if any claim is raised by the concessionaire/ contractor then the same has to be paid by the applicant. *	Yes
g) Undertaking that prior approval of the NHAI shall be obtained before undertaking any work of installation, shifting or repairs, or alteration to the utility located in the National Highway Right of Ways. *	Yes
h) Undertaking that expenditure is any incurred by NHAI for repairing any damage cause to the NH by laying, maintenance of shifting of the utility line will be borne by the applicant agency owing the line. *	Yes
i) Undertaking that text of the license deal is as per verbatim of format issued by MoRTH vide circular no. RW/NH/33044/29/2015/S&R dated 22.11.2016 *	Yes
j) Undertaking for shifting of utility as and when asked by MoRTH/ NHAI. *	Yes
k) Certificate from the applicant in the following	ng format

k) Certificate from the applicant in the following format

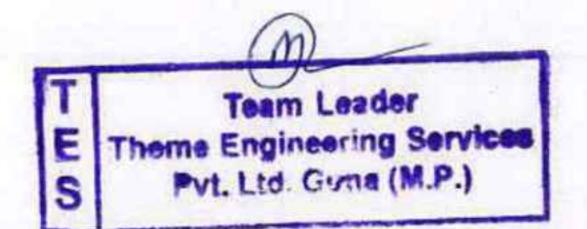
I) We do undertake that I/we will relocate service road/approach road/utilities at my/our own cost not withstanding the permission granted within such time us will be stipulated by NHAI for future six laning or/any other development

10/12

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19. Who will sign the agreement on behalf of Applicant agency? Power of Attorney to sign the agreement is available or not.	DGM MPMKVVCL Raghogarh Guna
20. The Power of Attorney is in favour of authorized signatory? *	Yes

	Locations					
Sno	State	District	Highway /Stretch	Start Point	End Point	View
1	MADHYA PRADESH	GUNA	NH46 [NH46] (223-422) From Km: 230.11 To Km: 230.11	Chainage Point: 230.11 Lat: 24.564 Lng: 77.229	Chainage Point: 230.11 Lat: 24.565 Lng: 77.229	View





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		Documents		
Sno	Stage	Document	Mandatory	Action
1	Under	Layout and Drawings	Yes	View
2	Under Submission	Any Other Supporting Document	No	
3	Under Submission	Any Document to indicate commercial activities are allowed on the land.	No	
4	Under	Safety Clearance from Directorate of Electricity	No	
5	Under	Safety Clearance from Chief Controller of Explosives	No	
6	Under	Safety Clearance from Petroleum and Explosives Safety Organisation	No	***
7	Under	Safety Clearance from Oil Industry Safety Directorate	No	-
8	Under	Safety Clearance from State/Central Pollution Control Board	No	
9	Under	Any Other Statutory Clearance as applicable	No	

			Applicable	Fee Details	
Sno	Fee Head	Stage	Fee	Amount	Status
1	Utility Fees	Technical Approval	License Fees	0	





Check List

S.No	Items	Information/Status	Remaks
1	General Information		
1.1		DGM MPMKVVCL,	
	Name and Address of the Applicant / Agency	RAGHOGARH GUNA	
1.2	National Highyway Number	NH-46	
1.3	State	MADHYA PRADESH	
1.4	Location	11 KV DEHRI-1 FEEDER	
1.5	(Chainage in KM)	230+110 LHS , 230+110 RHS	
1.6	Length in Meters	60 m Acoss the Highway	
1.7	Width of avalible ROW	60m	
	a) Width Left side from center line	30m	
	b) Width Right side from center line	30m	
1.8	Proposal to lay undergrond Eletrical cable	Across the national highyway	
0	a) Left side from the center line towards increasing chainage/ KM direction		
	b) Right side from the center line towards increasing chainage/ KM direction		
1.9	Proposal to aquire land	NA	
1.5	a) Left side from center line	NA	
	b) Right side from center line	NA	
1.11	Whether proposal is in the same side where land is not to be acquired	no acquistion of land required	
	If not then where to lay the pipelines	Across the national highyway	
1.12	Details of aready laid services, if any, along the proposed route	NA	
1.13	No of lanes (2/4/6/8 lanes)	4 lanes	
1.14	Services road existing or not	No services road exist	
	if yes then which side	No services road exist	
-	a) Left side from center line	NA	
	b) Right side from center line	NA	
1.15	Proposed service line		
2.20	a) Left side from center line		
	b) Right side from center line		
	Where proposed to lay eletrical pipeline is		
1.16	after the service road or between the service road and main carriageway		
1.17	Considered for approval / rejection based on the Ministry Circular mentioned as above		

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Manager (Tech.) E Theme Engineering Services
NHAI, PIU-Bhopal S Pvt. Ltd. Guma (M.P.)

	a) Carring of eletrical pipeline on Highway bridges shall not be permitted as eletrical pipes can accelerate the process of corrosion thus being much more injurious	NA	
	b) Carrying of Eletrical pipelines on bridges shall also discouraged however if the Eletrical supply authorities seem to have no other viable alternative and approach the highway authority well in time before the design of the bridge in finalized they may be permitted to carrry the pipeline on independent super structure supported on extended portion of piers and abutments in such a manner that in the final arangement enough free spade around the super structure of the bridge remains available for inspection and repairs.	NA	
	c) Cost of required extension of the substructure as well as that of the supporting super structure shall be borne by the agency-in-charge of the utilities	NA	
	d) Services are not being allowed indiscriminately on the parapet/any of the bridges, safety of the bridge has to be kept in view while permitting various services along bridge. Appeavals to be accorded in this regard with the concurrence of the Ministries Project Cief Engineers only.	NA	
1.18	Whether crossing of the involved	Yes	
	If yes, it shall be either enclosed in pipes or through structure or conduits specially built for that purpose at the expensed of the agency owning the line.	Yes, Enclosed in pipes	
	a) Exiting drainage structure shall not be allowed to carry the lines	Yes	
	b) Is it on a line normal to NH	Yes	
	c)Crossing shall not to be too near the exixting structure on the national highway the minimum distance bring 15 meter	Yes more than 15 mtrs	

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. Manager (Tech.)
NHAI, PIU-Bhopal

Team Leader
Thems Engineering Services
Pvt. Ltd. Guns (M.P.)

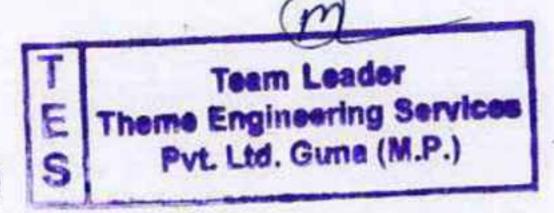
	d) The casing pipes carriying the utility lines shall be of steel, case, iron or reinforced cement concrete and have adequate strength and be large enough to permit ready with drawl of the carrier pipe/ cable.	Yes	
	e) Ends of the casing/conduit pipes shall be sealed from the outside so that it does not act as a drainage path.	Yes	
	f) The casing/ conduit pipe should as minimum extend from drain to drain in cutsand toe of the slope in the fills	Yes	
	g) The top of the caing/ conduit pipe should be at least 1.20 meter below the surface of the road.	Yes	
)	h) The casinf/conduit pipe shall be done by boring (HDD) or digging a trench. Installation by boring method shall be preferred.	Yes (HDD Method)	
2	Document/Drawing enclosed with proposal	Yes	
2.1	Cross section showing the size of trench for open trencing method (is it normal size of 1.2m x 0.3 wide)	NA	
	i) Should be greater that 60 cm wider than outer diameter of the pipe	NA	
	ii) Located as close to the extreme edge of the right 15 meter from the centre lines of the nearest carriageway.	NA	
	iii) Shall not be permitted to run along the national highways when the road formation is situated in double cutting. Nor shall these be laid over the existing culverts and bridges.	NA	
	iv) These should be so laid that their top is at least 0.6 meter below the ground level so as not to obstruct drainage of the road land.	NA	
2.2	Cross section showing the sixe pit and location of cable for HDD method	Yes	
2.3	Strip plan/ route plan showing Eletrical pipeline chainage, width of ROW, distance of proposed cable from the edge of ROW important mile stone, cross section etc.	Incorparated in the drawing	

Manager (Tech.)
NHAI, PIU-Bhopal

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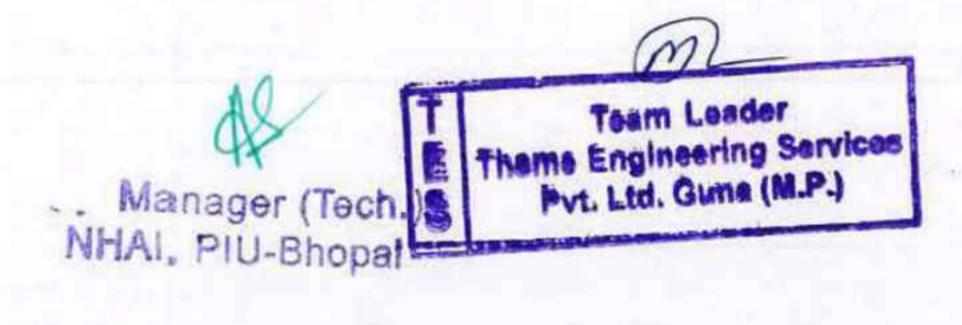


M P IM R-V V CO LTD

Fraghogath

2.4.1	Open trenching method (may be allowed in utility corriod only where pave ment is neither cement concrete nor dense bituminous concrete type If yes, methodology of refilling of trench	NA	
	a)Trench width should be at least 30 cm but not more than 60 cm wider than the outer diameter of the pipe.	NA	
	b) For thefilling of the trench bedding shall be to a depth of not less than 30 cm. it shall consist of granular material free of lumps, clods and cobbles and graded to yeild a firm surfacewithout sudden change in the bearing value unsuitable soi and rock edged should be excavated and replaced by selected material.	NA	
0	C) The side fill shall consist of granular material laid in 15 cm layers each consolidated by mechnival tampering and controlled addition of moisture of 95% of Proctor's Density. Over fill shall of compacted to the same density as the material that had been removed. Consolidation by saturation or pendingwill not be permitted.	NA	
	d) The road crust shall be built to the same strength as the existing crust on the either side of the trench care shall be taken to avoid the formation of a dip at the trench.	NA	
	e) The excavation shall be protected by flagman signs and barricades and red light during night hours.	NA	
	f) if Required a diversion shall be constructed at the expends of agency owing the utilityline.	NA	
2.4.2	Horizontal directional drilling (HDD) METHOD	yes	
3	Draft License Agreement signed by two witness	yes	

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4	Performance bank guarantee in favor of NHAI has to be obtained @Rs 200/- per running meter (parallel to NH) and Rs100000/- per crossing of NH for a period of one year initially (extendable if required till satisfactory completion of work) as a security for ensuring /making good the excavated trench for laying the cables/ducts by proper filling and compaction clearing Debris/loose earth produced due to execution of trenching at least 50 m away from the edge of the right of way. No payment shall be payable by the NHAI to the license for clearing debris/loose, earth.		
4.1	Performance BG as per above is to be obtained	YES	
4.2	Confirmation of BG has been obtained as per NHAI guidelines	YES	
5	Affidavit/undertaking from the application	YES	
5.1	Not to damage to other utility If damaged than pay the losses either to NHAI or to the concerned agency	YES	
5.2	Renewal of Bank Guarantee	YES	
5.3	Confirming all standard condition of NHAI'S guideline	YES	
5.4	Shifting of Electrical supply pipe line as and when required by NHAI at their own cost	YES	
5.5	Shifting due to 6 lanning/wedding of NII	YES	
5.6	Indemnity against all damages and alarms clause (xxiv)	YES	
5.7	Traffic movement during laying of Electrical supply pipe line to be managed by the applicant	YES	
5.8	If any claim is raised by the concessionaire then the same has to be paid by the applicant A	YES	
5.9	Prior approval of the NHAI shall be obtained before undertaking any work if installation shifting or repairs or alteration to the showing Electrical supply pipe line located in the National Highway rights or ways	YES	

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Manager (Tech.)

NHAI, PIU-Bhopal

Team Leader
Thoma Engineering Services
Pvt. Ltd. Guna (M.P.)

-			
5.10.	Expenditure if any incurred by NHAI for repairing any damage caused to the National Highway by the laying maintenance or shifting of the Electrical supply pipe line will be borne by the agency owing the line.	YES	
5.11	If the NHAI considers it necessary in future to move the utility line for any work of improvement or repairs to the road it will be carried out as desired by the NHAI at the cost of the agency owning the utility line within a reasonable time not exceeding 60 days) of the intimation given	YES	
5.12	Certified from the application in the following format	YES	
0	i) laying of Electrical supply pipe line will not have any deleterious effects on any of the bridge components and roadway safety for traffic	YES	
	ii) for 6-lanning we do undertake that will relocate service road/ utility at my own cost notwithstanding the permission granted with such time as will be stipulated by NHAI for future six lanning or any other development.	YES	
6	Who will sign the agreement on behalf of Electrical supply pipe line agency?	DGM MPMKVVCL, RAGHOGARH GUNA	
7	Certified from the Project Director		
7.1	Certified for confirming of all standard condition issued vide ministry circular no. F.NO. RW/NH-33044/29/2015/S&R 22/11/2016 Dated	YES	

Manager (Tech.)
NHAI, PIU-Bhopal

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मरेकाणका विदेशक

Project Director आरा रा.पा परि.क्रिया स्थाई ओपाल

NHAI PHU-Bhopal IM.PI

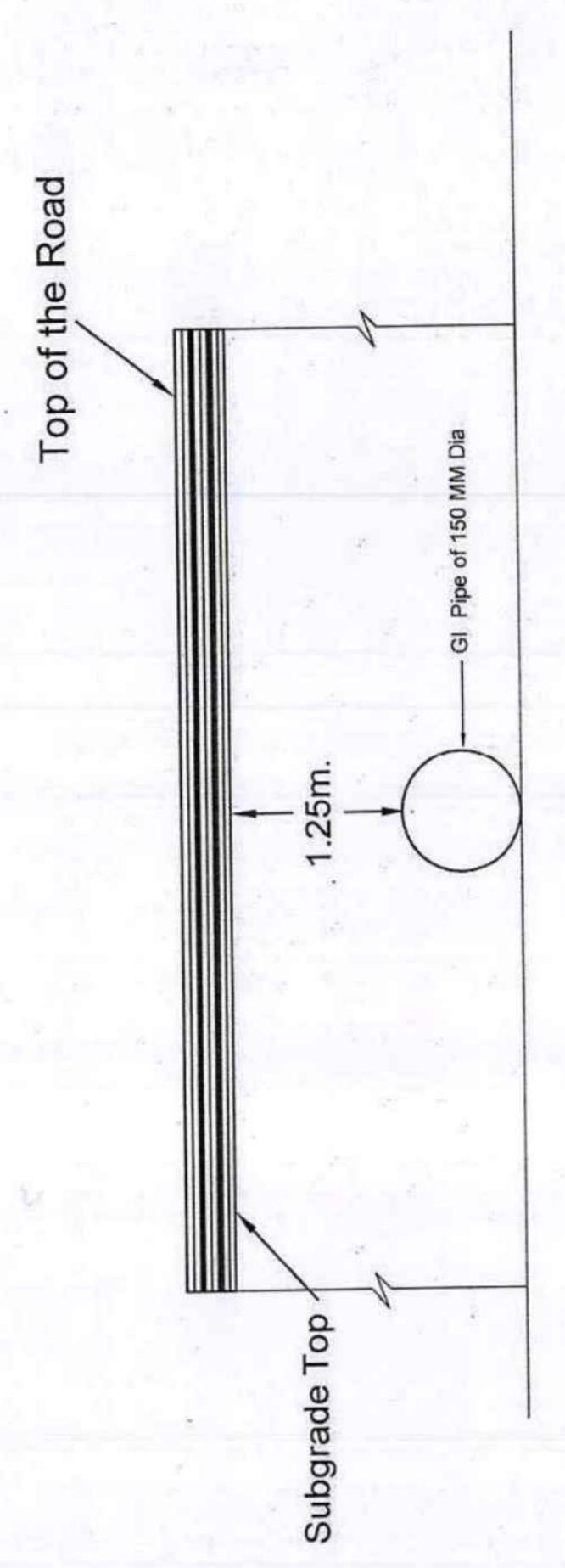
Raghngarh

Team Leader
Thems Engineering Services
S Pvt. Ltd. Guma (M.P.)

METHOD OF INSTALLATION OF CASING PIPE FOR CROSSING OF HIGHWAY

File No. HOUDIV-14012/59/2025-PIU Bhopal (Computer No. 289026)

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Cross section of HDD Crossing Pipe



The Horizontal Directional Drilling Process

The tools and techniques used in the horizontal directional drilling (HDD) process are an outgrowth of the oil well drilling industry. The components of a horizontal drilling rig used for pipeline construction are similar to those of an oil well drilling rig with the major exception being that a horizontal drilling rig is equipped with an inclined ramp as opposed to a vertical mast. HDD pilot hole operations are not unlike those involved in drilling a directional oil well. Drill pipe and downhole tools are generally interchangeable and drilling fluid is used throughout the operation to transport drilled spoil, reduce friction, stabilize the hole, etc. Because of these similarities, the process is generally referred to as drilling as opposed to boring.

Installation of a pipeline by HDD is generally accomplished in three stages as illustrated in Figure 1. The first stage consists of directionally drilling a small diameter pilot hole along a designed directional path. The second stage involves enlarging this pilot hole to a diameter suitable for installation of the pipeline. The third stage consists of pulling the pipeline back into the enlarged hole.

Pilot Hole Directional Drilling

Pilot hole directional control is achieved by using a non-rotating drill string with an asymmetrical leading edge. The asymmetry of the leading edge creates a steering bias while the non-rotating aspect of the drill string allows the steering bias to be held in a specific position while drilling. If a change in direction is required, the drill string is rolled so that the direction of bias is the same as the desired change in direction. The direction of bias is referred to as the tool face. Straight progress may be achieved by drilling with a series of offsetting tool face positions. The drill string may also be continually rotated where directional control is not required. Leading edge asymmetry can be accomplished by several methods. Typically, the leading edge will have an angular offset created by a bent sub or bent motor housing. This is illustrated schematically in Figure 2.

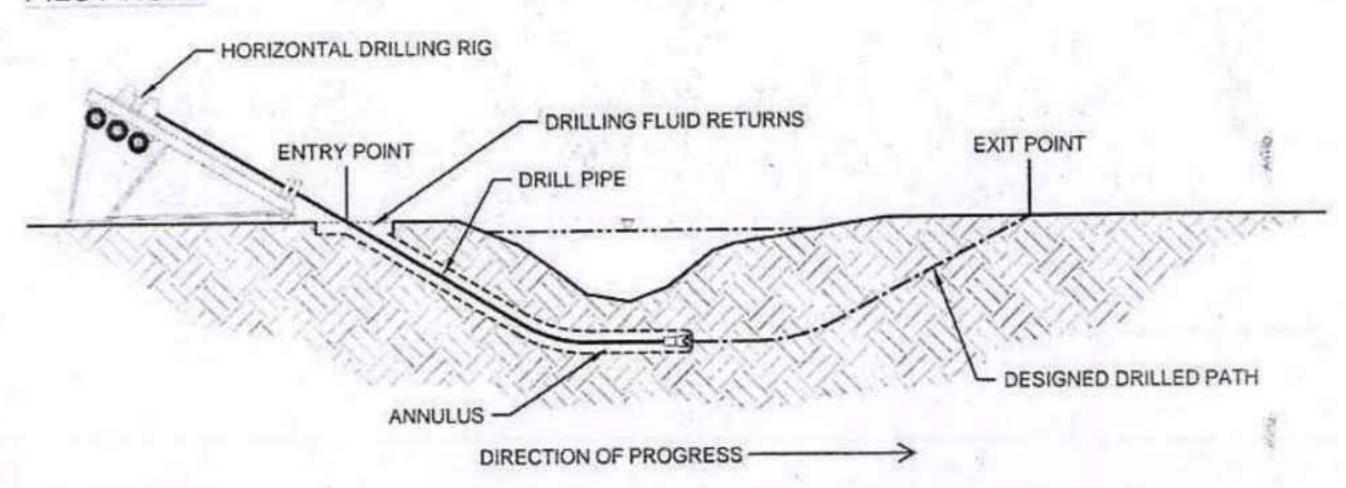
It is common in soft soils to achieve drilling progress by hydraulic cutting with a jet nozzle. In this case, the direction of flow from the nozzle can be offset from the central axis of the drill string thereby creating a steering bias. This may be accomplished by blocking selected nozzles on a standard roller cone bit or by custom fabricating a jet deflection bit. If hard spots are encountered, the drill string may be rotated to drill without directional control until the hard spot has been penetrated.



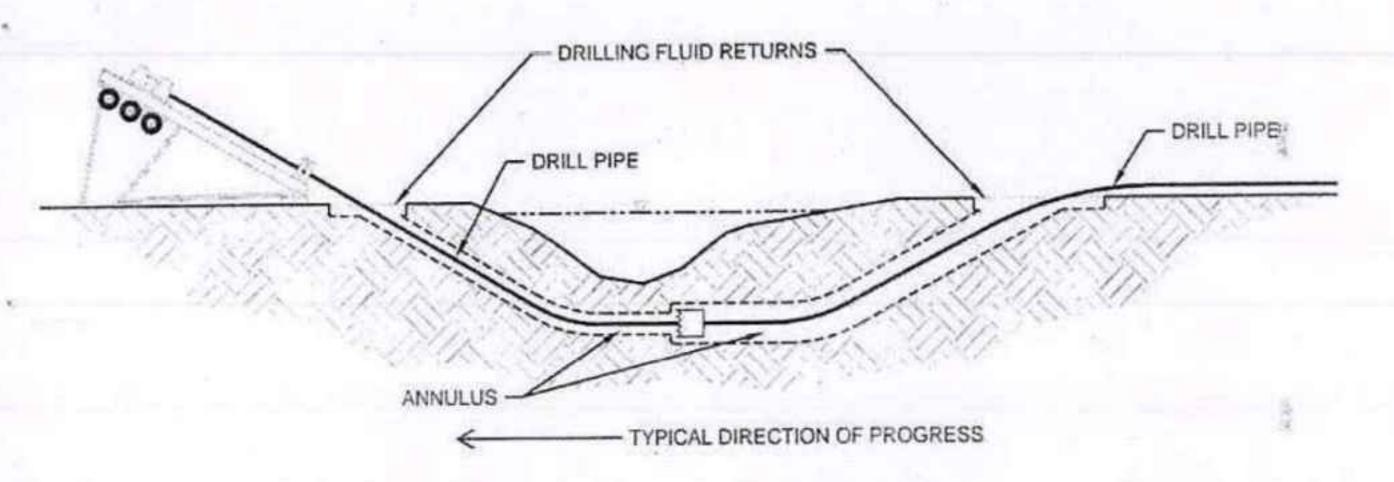
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PILOT HOLE

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PREREAMING



PULLBACK

File No. HOUDIV-14012/59/2025-PIU Bhopal (Computer No. 289026)

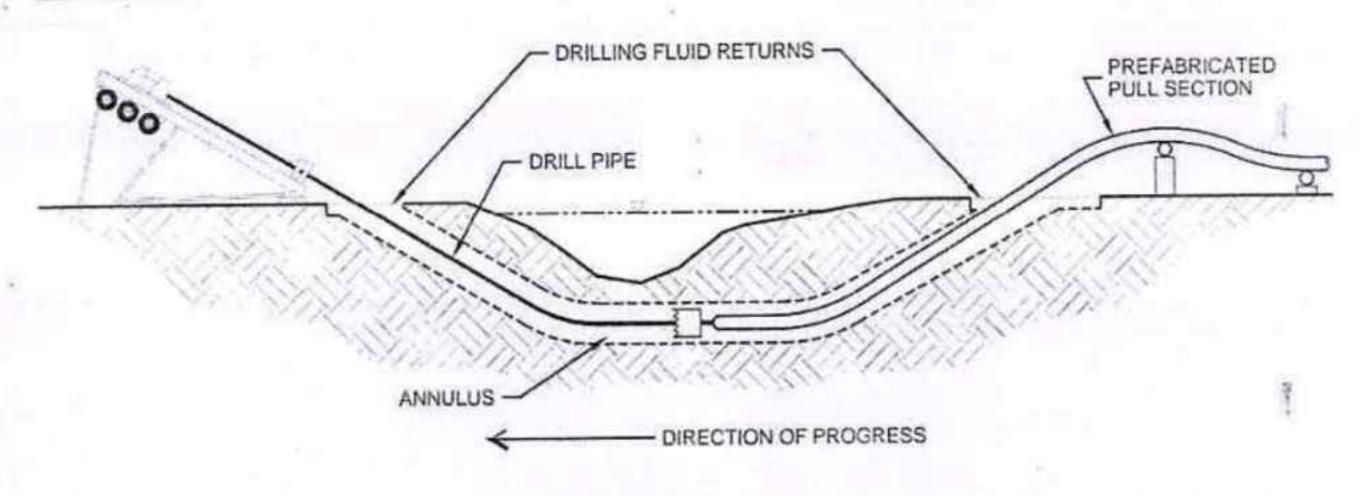


Figure 1 The HDD Process



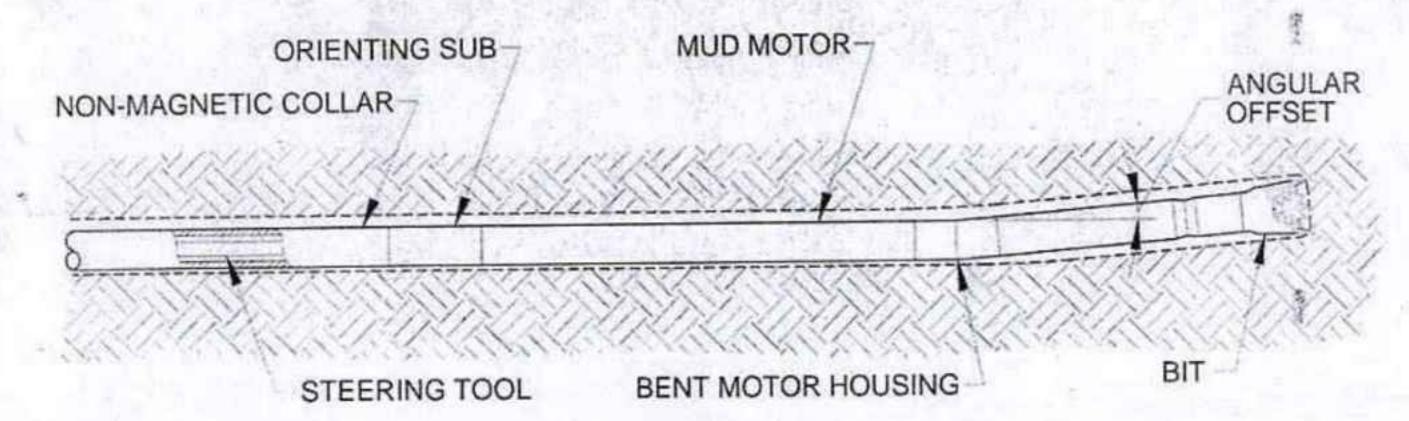


Figure 2 Bottom Hole Assembly

Downhole Motors

Downhole mechanical cutting action required for harder soils is provided by downhole hydraulic motors. Downhole hydraulic motors, commonly referred to as mud motors, convert hydraulic energy from drilling mud pumped from the surface to mechanical energy at the bit. This allows for bit rotation without drill string rotation. There are two basic types of mud motors; positive displacement and turbine. Positive displacement motors are typically used in HDD applications. Basically, a positive displacement mud motor consists of a spiral-shaped stator containing a sinusoidal shaped rotor. Mud flow through the stator imparts rotation to the rotor which is in turn connected through a linkage to the bit.

In some cases, a larger diameter wash pipe may be rotated concentrically over the non-rotating steerable drill string. This serves to prevent sticking of the steerable string and allows its tool face to be freely oriented. It also maintains the pilot hole if it becomes necessary to withdraw the steerable string.

Downhole Surveying

The actual path of the pilot hole is monitored during drilling by taking periodic readings of the inclination and azimuth of the leading edge. Readings are taken with an instrument, commonly referred to as a probe, inserted in a drill collar as close as possible to the drill bit. Transmission of downhole probe survey readings to the surface is generally accomplished through a wire running inside the drill string. These readings, in conjunction with measurements of the distance drilled since the last survey, are used to calculate the horizontal and vertical coordinates along the pilot, hole relative to the initial entry point on the surface.

Azimuth readings are taken from the earth's magnetic field and are subject to interference from downhole tools, drill pipe, and magnetic fields created by adjacent structures. Therefore, the probe must be inserted in a non magnetic collar and positioned in the string so that it is adequately isolated from downhole tools and drill pipe. The combination of bit, mud motor (if used), subs, survey probe, and non magnetic collars is referred to as the Bottom Hole Assembly or BHA. A typical bottom hole assembly is shown as Figure 2.

Surface Monitoring

The pilot hole path may also be tracked using a surface monitoring system. Surface monitoring systems determine the location of the probe downhole by taking measurements from a grid or point on the surface. An example of this is the TruTracker System. This system uses a surface coil of known location to induce a magnetic field. The probe senses its location relative to this

DGM

MPNRVV COLTD

Raghegarh

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induced magnetic field and communicates this information to the surface. This is shown schematically in Figure 3.

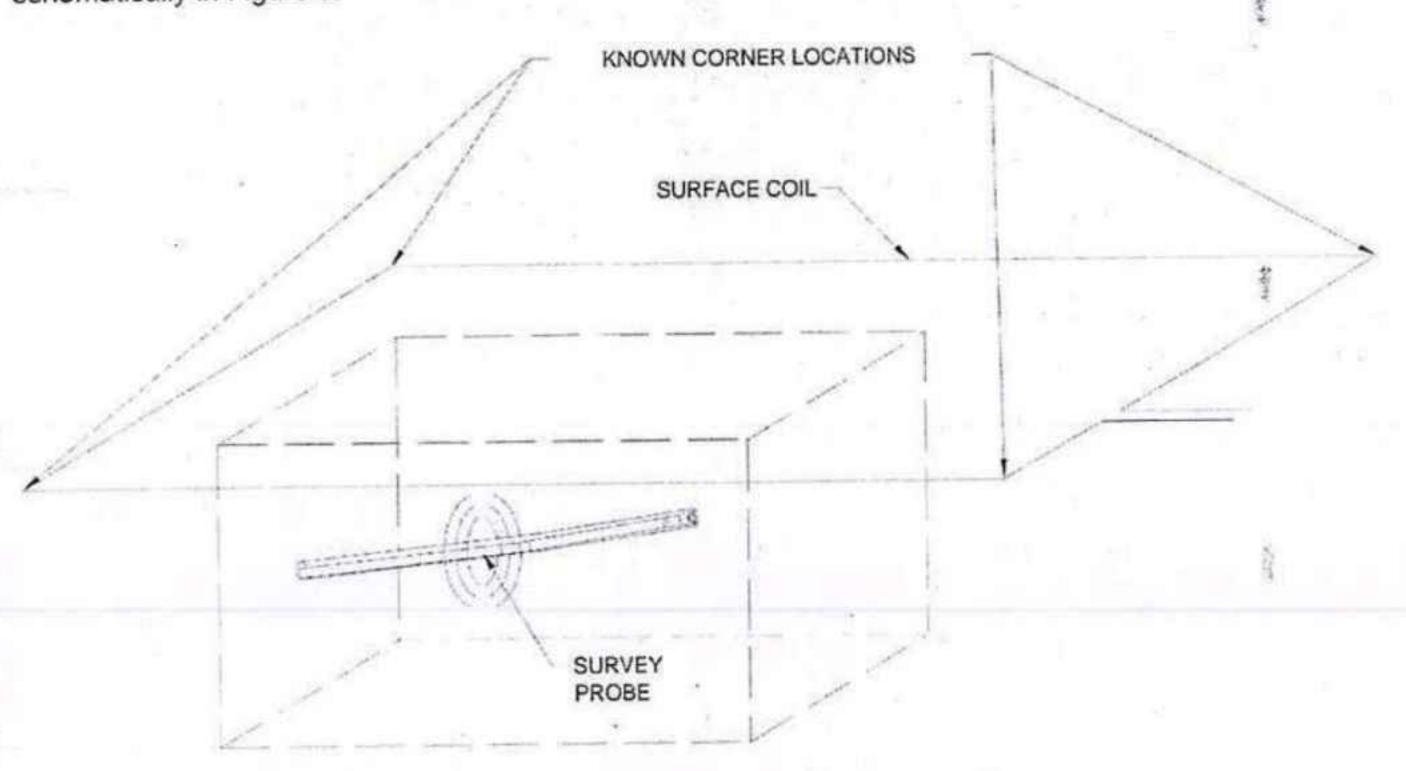


Figure 3
TruTracker Surface Monitoring System

Reaming & Pullback

Enlarging the pilot hole is accomplished using either prereaming passes prior to pipe installation or simultaneously during pipe installation. Reaming tools typically consist of a circular array of cutters and drilling fluid jets and are often custom made by contractors for a particular hole size or type of soil.

Prereaming

Most contractors will opt to preream a pilot hole before attempting to install pipe. For a prereaming pass, reamers attached to the drill string at the exit point are rotated and drawn to the drilling rig thus enlarging the pilot hole. Drill pipe is added behind the reamers as they progress toward the drill rig. This insures that a string of pipe is always maintained in the drilled hole. It is also possible to ream away from the drill rig. In this case, reamers fitted into the drill string at the rig are rotated and thrust away from it.

Pullback

Pipe installation is accomplished by attaching the prefabricated pipeline pull section behind a reaming assembly at the exit point and pulling the reaming assembly and pull section back to the drilling rig. This is undertaken after completion of prereaming or, for smaller diameter lines in soft soils, directly after completion of the pilot hole. A swivel is utilized to connect the pull section to the leading reaming assembly to minimize torsion transmitted to the pipe. The pull section is supported using some combination of roller stands, pipe handling equipment, or a flotation ditch to minimize tension and prevent damage to the pipe.

DGM MPMRVV COLTD Raghogarh

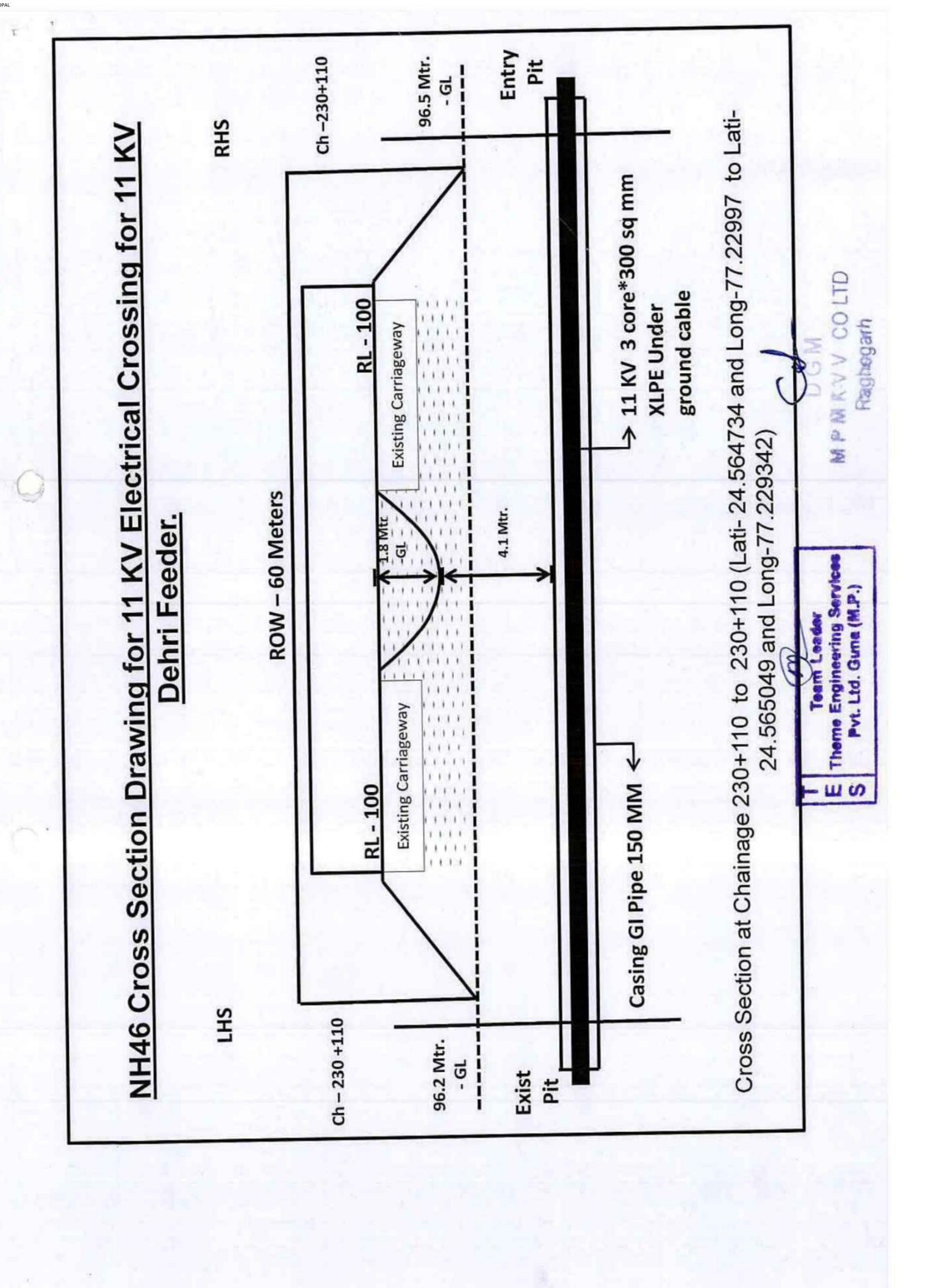
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Buoyancy Control

Uplift forces resulting from the buoyancy of larger diameter lines can be very substantial. High pulling forces may be required to overcome drag resulting from buoyancy uplift. Therefore, contractors will often implement measures to control the buoyancy of pipe 30 inches or over in diameter. The most common method of controlling buoyancy is to fill the pipe with water as it enters the hole. This requires an internal fill line to discharge water at the leading edge of the pull section (after the breakover point). An air line may also be required to break the vacuum which may form at the leading edge as the pull section is pulled up to the rig. The amount of water placed in the pipe is controlled to provide the most advantageous distribution of buoyant forces. Some contractors may choose to establish a constant buoyancy. This can be accomplished by inserting a smaller diameter line into the pull section and filling the smaller line with water. The smaller line is sized to hold the volume of water required per lineal foot to offset the uplift forces.

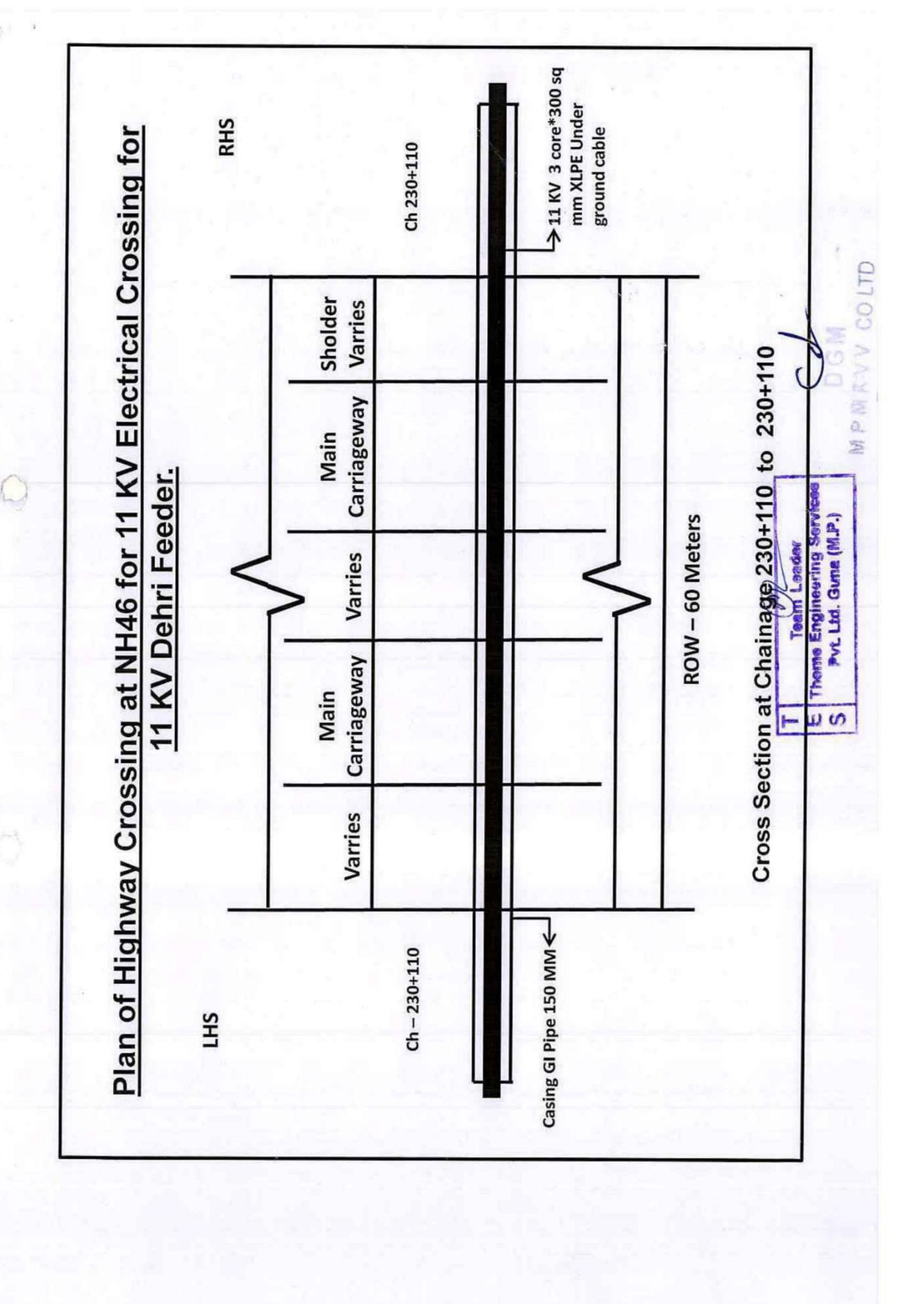
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Raghogath

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File No. HOUDIV-14012/59/2025-PIU Bhopal (Computer No. 289026)



File No. HOUDIV-14012/59/2025-PIU Bhopal (Computer No. 289026)

Application I	Details [20241124/1/5/33029/12641]	
Highway	NH46 [NH46]	
Name of Highway Authority	NHAI Dwarka New delhi	
Highway Administration Address	Regional Office- Jabalpur Regional Office- Jabalpur	
Whether the Fuel Station is part of Rest- area complex	No	
Name of Applicant/Oil Company	Madhya Pradesh Madhya Kshetra Vidyut Vitaran Company Limited Address: NEAR OF NAGAR PALIKA RAGHOGARH GUNA MADHYA PRADESH, GUNA (MADHYA PRADESH), PIN: 473226 Phn: 9406913711 Email: ANISHRAJPUT.CZ@MP.GOV.IN	
Application Category	Public Utility	
Utility	Pipes	
State	MADHYA PRADESH	
Туре	New	
Remarks	11 KV AWAN FEEDER HIGHWAY CROSSING UNDER GROUND	
Submitted On	17 Jun 2025 19:10:23	

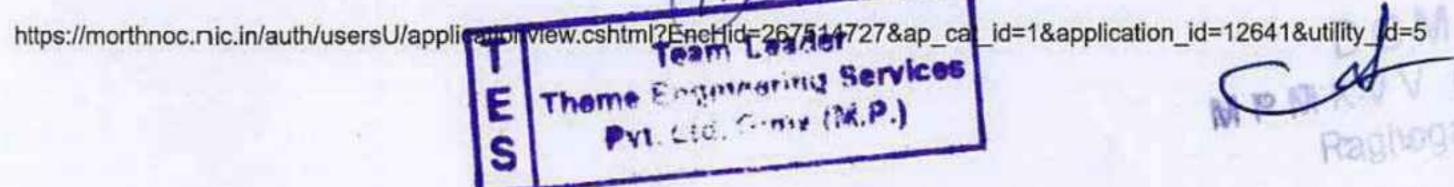




Details		
1. Length in Meters *	60	
. Width of available ROW		
I. Left side from center line towards increasing chainage OR km direction *	249.790	
II. Right side from center line towards increasing chainage OR km direction *	249.790	
3. Proposal to lay the utility		
I. Left side from center line towards increasing chainage OR km direction *	0	
II. Right side from center line towards increasing chainage OR km direction *	0	
4. Proposal to acquire the land		
I. Left side from center line *	0	
II. Right side from center line	0	
5. Whether proposal is in the same side where land is not to be acquired *	No	
If not then where to lay the cable *	NA HDD CROSSING	
6. Details of already laid services if any along the proposed route *	0	
7. Number of Existing lanes *	4 Lane	
8. Proposed number of lanes	4 Lane	

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2/12

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20/06/2025, 10:37

MoRTH Utility Portal

9. Service road Exists* 10. Proposed Service road Left side from center line Right side from center line 0 11. Whether proposal to lay cable is after the service road or between the service road and main carriageway* 12. Whether carrying OFC Cable has been proposed on highway /bridges, if yes then mention the methodology proposed for the same * 13. Is crossing of the road involved? If Yes, is shall be either encased in pipes or through structure of conduits specially built for the purpose at the expense of the agency owing the line * I. Whether the existing drainage structures are allowed to carry utility pipeline.* II. Is it on a line normal to NH? * III. What is the distance of crossing the utility pipelines from the existing structure? Crossings shall not be too near the existing structure? Crossings shall not be too near the existing structures on the National Highway, the minimum distance being 15 mtrs. *	700/2025, 10.57	1000	
Left side from center line Right side from center line 11. Whether proposal to lay cable is after the service road or between the service road and main carriageway* 12. Whether carrying OFC Cable has been proposed on highway /bridges, if yes then mention the methodology proposed for the same* 13. Is crossing of the road involved? If Yes, is shall be either encased in pipes or through structure of conduits specially built for the purpose at the expense of the agency owing the line* I. Whether the existing drainage structures are allowed to carry utility pipeline.* II. Is it on a line normal to NH?* III. Is it on a line normal to the existing structure? Crossing the utility pipelines from the existing structure? Crossings shall not be too near the existing structures on the National Highway, the minimum distance being 15	9. Service road Exists *		No
Right side from center line 11. Whether proposal to lay cable is after the service road or between the service road and main carriageway* 12. Whether carrying OFC Cable has been proposed on highway /bridges, if yes then mention the methodology proposed for the same* 13. Is crossing of the road involved? If Yes, is shall be either encased in pipes or through structure of conduits specially built for the purpose at the expense of the agency owing the line* I. Whether the existing drainage structures are allowed to carry utility pipeline.* II. Is it on a line normal to NH?* III. What is the distance of crossing the utility pipelines from the existing structure? Crossings shall not be too near the existing structures on the National Highway, the minimum distance being 15	10. Proposed Service road		
11. Whether proposal to lay cable is after the service road or between the service road and main carriageway* 12. Whether carrying OFC Cable has been proposed on highway /bridges, if yes then mention the methodology proposed for the same* 13. Is crossing of the road involved? If Yes, is shall be either encased in pipes or through structure of conduits specially built for the purpose at the expense of the agency owing the line* I. Whether the existing drainage structures are allowed to carry utility pipeline.* II. Is it on a line normal to NH?* III. What is the distance of crossing the utility pipelines from the existing structure? Crossings shall not be too near the existing structures on the National Highway, the minimum distance being 15	Left side from center line		0
cable is after the service road or between the service road and main carriageway* 12. Whether carrying OFC Cable has been proposed on highway /bridges, If yes then mention the methodology proposed for the same * 13. Is crossing of the road involved? If Yes, is shall be either encased in pipes or through structure of conduits specially built for the purpose at the expense of the agency owing the line * I. Whether the existing drainage structures are allowed to carry utility pipeline. * II. Is it on a line normal to NH? * III. What is the distance of crossing the utility pipelines from the existing structure? Crossings shall not be too near the existing structures on the National Highway, the minimum distance being 15	Right side from center line		0
Cable has been proposed on highway /bridges, If yes then mention the methodology proposed for the same * 13. Is crossing of the road involved? If Yes, is shall be either encased in pipes or through structure of conduits specially built for the purpose at the expense of the agency owing the line * I. Whether the existing drainage structures are allowed to carry utility pipeline. * II. Is it on a line normal to NH? * III. What is the distance of crossing the utility pipelines from the existing structure? Crossings shall not be too near the existing structures on the National Highway, the minimum distance being 15	cable is after the service road or between the service road		N/A
involved? If Yes, is shall be either encased in pipes or through structure of conduits specially built for the purpose at the expense of the agency owing the line * I. Whether the existing drainage structures are allowed to carry utility pipeline. * II. Is it on a line normal to NH? * III. What is the distance of crossing the utility pipelines from the existing structure? Crossings shall not be too near the existing structures on the National Highway, the minimum distance being 15	Cable has been proposed on highway /bridges, If yes then mention the methodology		N/A
drainage structures are allowed to carry utility pipeline. * II. Is it on a line normal to NO NH? * III. What is the distance of crossing the utility pipelines from the existing structure? Crossings shall not be too near the existing structures on the National Highway, the minimum distance being 15	involved? If Yes, is shall be either encased in pipes or through structure of conduits specially built for the purpose at the expense of the		Yes, Enclosed in pipes
NH?* III. What is the distance of crossing the utility pipelines from the existing structure? Crossings shall not be too near the existing structures on the National Highway, the minimum distance being 15	drainage structures are allowed to carry utility		N/A
crossing the utility pipelines from the existing structure? Crossings shall not be too near the existing structures on the National Highway, the minimum distance being 15			No
near the existing structures on the National Highway, the minimum distance being 15	crossing the utility pipelines from the existing structure?		
	near the existing structures on the National Highway, the minimum distance being 15		0.00

06/2025, 10:37	Worktin Other
IV. The casing pipe (or conduit pipe in the case of electric cable) line carrying the utility line shall be of steel, cast iron or reinforced concrete and have adequate strength and be large enough to permit ready withdrawal of carrier pipe/cable Mention type of casting. *	Yes, GI PIPE
V. Ends of the casing/conduit pipe shall be sealed from outside, so that is does not act as a drainage path *	Yes
VI. The casing/conduit pipe should be as minimum extend from drain in cuts toe of slope in fills. *	Yes
VII. The installation of Casing pipe shall be as per attachment-1 of Ministry's Guidelines dated 22.11.2016 *	Yes
VIII. Mention the methodology proposed for crossing of road for the proposed sewerage / gas pipeline crossing shall be boring method (HDD) (Trenchless Technology) specially where the existing road pavement is of cement concrete of dense	YES (HDD Method)
bituminous concrete type. *	
14 Whether the proposal satisfies the following	ng:

14. Whether the proposal satisfies the following:

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0/06/2025, 10:37	MoRTH Utility Portal
I. Where the ROW is more than 45 M then the duct cable shall be laid at the edge of right of way within the utility corridor of 2 M width, duly keeping in view the future widening. *	N/A
II. Where land is yet to be acquired for 4 laning and the position of new carriageway has been decided then the cable shall be laid at the edge of right of way within the utility corridor of 2 M width, on that side of existing carriageway where extra land is not proposed to be acquired for 4 laning. *	N/A
III. Where the widening plan for 4 laning is not yet decided and available ROW is around 30 M or less, a judicious decision would need to be taken for permitting the laying of cable/duct. This could be within 1.5 M to 2m of utility corridor at the edge of existing ROW, duly keeping in view the possible widening plans. *	N/A





	IV. Where ROW is restricted and adequate only to accommodate the carriageway, central verge, shoulders and drains (e.g. Highways in cutting through hilly/rolling terrain), the cable shall be laid clear of the drain. *	N/A
3)	V. Where land strip for utility corridor can't be conveniently earmarked (available ROW restricted to the toe of the embankment) for laying of cable/ducts, the permission may be refused. *	N/A
	15. Document/Drawings enclosed with the proposal *	Yes
	I. Cross section showing the size of trench for open trenching method (is it normal size of 1.2m (min.) deep x 0.3 wide) *	N/A
	II. Cross section showing the size of pit and location of cable for HDD method *	YES
	III. Strip plan/ Route plan showing the OFC, Chainage width of ROW, distance of proposed, cable from the edge of ROW, important mile stone, intersections, cross drainage works etc. *	Incorporated in the Drawing
	IV. Methodology of laying of the Utility Pipeline/OFC *	Yes, Enclosed.

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Team Leader

There See Leader Pvt. Ltd. Guna (M.P.)

6/12

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/06/2025, 10:37	MoRTH Utility Portal	
V. Open trenching method (may be allowed in utility corridor only where pavement is neither cement concrete nor dense bituminous concrete type) If yes what is the Methodology of refilling of trench *	N/A	
(a) The trench width should be at least 30 cms but not more than 60 cms wider than the outer diameter of the pipe	N/A	
(b) For filling of the trench, bedding shall be to a depth of not less than 30 cms. It shall consist of granular material, free of lumps, clods, cobbles and graded to yiled firm surface without sudden change in the bearing value, unsuitable soil and rock edges should be excavated and replaced by selected material *	N/A	
(c) The backfill shall be completed in two stages, i) Side fill to the level of the top of the pipe and ii) Overfill to the bottom of the road crust *	N/A	





N/A
N/A
N/A
N/A
YES
N/A
Yes

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Yes

e) Undertaking for

the traffic *

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management of traffic

movement during laying of

utility line without hampering

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MoRTH Utility Portal
Yes

k) Certificate from the applicant in the following format

I) We do undertake that I/we will relocate service road/approach road/utilities at my/our own cost not withstanding the permission granted within such time us will be stipulated by NHAI for future six laning or/any other development

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19. Who will sign the agreement on behalf of Applicant agency? Power of Attorney to sign the agreement is available or not.	DGM MPMKVVCL Raghogarh Guna
20. The Power of Attorney is in favour of authorized signatory? *	Yes

			Locat	tions		
Sno	State	District	Highway /Stretch	Start Point	End Point	View
1	MADHYA PRADESH	GUNA	NH46 [NH46] (145.000- 445.000) From Km: 249.79 To Km: 249.79	Chainage Point: 249.79 Lat: 24.414 Lng: 77.146	Chainage Point: 249.79 Lat: 24.415 Lng: 77.146	View





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		Documents		
Sno	Stage	Document	Mandatory	Action
1	Under Submission	Layout and Drawings	Yes	View
2	Under Submission	Any Other Supporting Document	No	
3	Under Submission	Any Document to indicate commercial activities are allowed on the land.	No	-
4	Under Submission	Safety Clearance from Directorate of Electricity	No	
5	Under Submission	Safety Clearance from Chief Controller of Explosives	No	
6	Under Submission	Safety Clearance from Petroleum and Explosives Safety No Organisation		
7	Under Submission	Safety Clearance from Oil Industry Safety Directorate	No	-
8	Under Submission	Safety Clearance from State/Central Pollution Control No Board		
9	Under	Any Other Statutory Clearance as applicable	No	

Applicable Fee Details					
Sno	Fee Head	Stage	Fee	Amount	Status
1	Utility Fees	Technical Approval	License Fees	0	





Check List

S.No	Items	Information/Status	Remaks
1	General Information		
1.1		DGM MPMKVVCL,	
543.514.	Name and Address of the Applicant / Agency	RAGHOGARH GUNA	
1.2	National Highyway Number	NH-46	
1.3	State	MADHYA PRADESH	
1.4	Location	11 KV AWAN FEEDER	
1.5	(Chainage in KM)	249+790 LHS , 249+790 RHS	
1.6	Length in Meters	60 m Acoss the Highway	
1.7	Width of avalible ROW	60m	
	a) Width Left side from center line	30m	
	b) Width Right side from center line	30m	
1.8	Proposal to lay undergrond Eletrical cable	Across the national highyway	
	a) Left side from the center line towards increasing chainage/ KM direction		
	b) Right side from the center line towards increasing chainage/ KM direction		
1.9	Proposal to aquire land	NA	
	a) Left side from center line	NA	
	b) Right side from center line	NA	
1.11	Whether proposal is in the same side where land is not to be acquired	no acquistion of land required	
	If not then where to lay the pipelines	Across the national highyway	
1.12	Details of aready laid services, if any, along the proposed route	NA	
1.13	No of lanes (2/4/6/8 lanes)	4 lanes	
1.14	Services road existing or not	No services road exist	
	if yes then which side	No services road exist	
	a) Left side from center line	NA	
	b) Right side from center line	NA	
1.15	Proposed service line		
	a) Left side from center line		
	b) Right side from center line		
1.16	Where proposed to lay eletrical pipeline is after the service road or between the service road and main carriageway		
1.17	Considered for approval / rejection based on the Ministry Circular mentioned as above		

Manager (Tech.)
NHAI, PIU-Bhopal

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Team Leader

Team Leader

Theme Engineering Services

S Pvt. Ltd. Guna (M.P.)

DO LTD DO LTD Raghagarh

	a) Carring of eletrical pipeline on Highway bridges shall not be permitted as eletrical pipes can accelerate the process of corrosion thus being much more injurious	NA	
	b) Carrying of Eletrical pipelines on bridges shall also discouraged however if the Eletrical supply authorities seem to have no other viable alternative and approach the highway authority well in time before the design of the bridge in finalized they may be permitted to carrry the pipeline on independent super structure supported on extended portion of piers and abutments in such a manner that in the final arangement enough free spade around the super structure of the bridge remains available for inspection and repairs.	NA	
	c) Cost of required extension of the substructure as well as that of the supporting super structure shall be borne by the agency-in-charge of the utilities	NA	
	d) Services are not being allowed indiscriminately on the parapet/any of the bridges, safety of the bridge has to be kept in view while permitting various services along bridge. Appeavals to be accorded in this regard with the concurrence of the Ministries Project Cief Engineers only.	NA	
1.18	Whether crossing of the involved	Yes	
	If yes, it shall be either enclosed in pipes or through structure or conduits specially built for that purpose at the expensed of the agency owning the line.	Yes, Enclosed in pipes	
	a) Exiting drainage structure shall not be allowed to carry the lines	Yes	
	b) Is it on a line normal to NH	Yes	
	c)Crossing shall not to be too near the exixting structure on the national highway the minimum distance bring 15 meter	Yes more than 15 mtrs	

Manager (Tech.)

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M P M Raghogarh

	d) The casing pipes carriying the utility lines shall be of steel, case, iron or reinforced cement concrete and have adequate strength and be large enough to permit ready with drawl of the carrier pipe/ cable.	Yes	
	e) Ends of the casing/conduit pipes shall be sealed from the outside so that it does not act as a drainage path.	Yes	
	f) The casing/ conduit pipe should as minimum extend from drain to drain in cutsand toe of the slope in the fills	Yes	
	g) The top of the caing/ conduit pipe should be at least 1.20 meter below the surface of the road.	Yes	
0	h) The casinf/conduit pipe shall be done by boring (HDD) or digging a trench. Installation by boring method shall be preferred.	Yes (HDD Method)	
2	Document/Drawing enclosed with proposal	Yes	
2.1	Cross section showing the size of trench for open trencing method (is it normal size of 1.2m x 0.3 wide)	NA	
	i) Should be greater that 60 cm wider than outer diameter of the pipe	NA	
	ii) Located as close to the extreme edge of the right 15 meter from the centre lines of the nearest carriageway.	NA	
	iii) Shall not be permitted to run along the national highways when the road formation is situated in double cutting. Nor shall these be laid over the existing culverts and bridges.	NA	
	iv) These should be so laid that their top is at least 0.6 meter below the ground level so as not to obstruct drainage of the road land.	NA	
2.2	Cross section showing the sixe pit and location of cable for HDD method	Yes	
2.3	Strip plan/ route plan showing Eletrical pipeline chairnage, width of ROW, distance of proposed cable from the edge of ROW important mile stone, cross section etc.	Incorparated in the drawing	
2.4			

Manager (Tech.)
NHAI, Fill-Bhopal

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2.4.1	Open trenching method (may be allowed in utility corriod only where pave ment is neither cement concrete nor dense bituminous concrete type If yes, methodology of refilling of trench	NA	
	a)Trench width should be at least 30 cm but not more than 60 cm wider than the outer diameter of the pipe.	NA	
	b) For thefilling of the trench bedding shall be to a depth of not less than 30 cm. it shall consist of granular material free of lumps, clods and cobbles and graded to yeild a firm surfacewithout sudden change in the bearing value unsuitable soi and rock edged should be excavated and replaced by selected material.	NA	
	C) The side fill shall consist of granular material laid in 15 cm layers each consolidated by mechnival tampering and controlled addition of moisture of 95% of Proctor's Density. Over fill shall of compacted to the same density as the material that had been removed. Consolidation by saturation or pendingwill not be permitted.	NA	
	d) The road crust shall be built to the same strength as the existing crust on the either side of the trench care shall be taken to avoid the formation of a dip at the trench.	NA	
	e) The excavation shall be protected by flagman signs and barricades and red light during night hours.	NA	
	f) if Required a diversion shall be constructed at the expends of agency owing the utilityline.	NA	
2.4.2	Horizontal directional drilling (HDD) METHOD	yes	
3	Draft License Agreement signed by two witness	yes	

NHAI, PIU-Bhopal

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Team Leader
Team Leader
Engineering Services
Theme Engineering (M.P.)
S Pyt Ltd. Guma (M.P.)

M P M KAV V CO LTD

4	Performance bank guarantee in favor of NHAI has to be obtained @Rs 200/- per running meter (parallel to NH) and Rs100000/- per crossing of NH for a period of one year initially (extendable if required till satisfactory completion of work) as a security for ensuring /making good the excavated trench for laying the cables/ducts by proper filling and compaction clearing Debris/loose earth produced due to execution of trenching at least 50 m away from the edge of the right of way. No payment shall be payable by the NHAI to the license for clearing debris/loose, earth.	
4.1	Performance BG as per above is to be obtained	YES
1.2	Confirmation of BG has been obtained as per NHAI guidelines	YES
5	Affidavit/undertaking from the application	YES
5.1	Not to damage to other utility If damaged than pay the losses either to NHAI or to the concerned agency	YES
5.2	Renewal of Bank Guarantee	YES
5.3	Confirming all standard condition of NHAI'S guideline	YES
5.4	Shifting of Electrical supply pipe line as and when required by NHAI at their own cost	YES
5.5	Shifting due to 6 lanning/wedding of NII	YES
5.6	Indemnity against all damages and alarms clause (xxiv)	YES
5.7	Traffic movement during laying of Electrical supply pipe line to be managed by the applicant	YES
5.8	If any claim is raised by the concessionaire then the same has to be paid by the applicant A	YES
5.9	Prior approval of the NHAI shall be obtained before undertaking any work if installation shifting or repairs or alteration to the showing Electrical supply pipe line located in the National Highway rights or ways	YES

Manager (Tech.)
NHAI, PIU-Bhopal

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Team Leader
Team Leader
Engineering Services
S Pvt. Ltd. Guna (M.P.)

DGM DGM DGM COLTD PMKYV COLTD Raghegarh

5.10.	Expenditure if any incurred by NHAI for repairing any damage caused to the National Highway by the laying maintenance or shifting of the Electrical supply pipe line will be borne by the agency owing the line.	YES	
5.11	If the NHAI considers it necessary in future to move the utility line for any work of improvement or repairs to the road it will be carried out as desired by the NHAI at the cost of the agency owning the utility line within a reasonable time not exceeding 60 days) of the intimation given	YES	
5.12	Certified from the application in the following format	YES	
	i) laying of Electrical supply pipe line will not have any deleterious effects on any of the bridge components and roadway safety for traffic	YES	
	ii) for 6-lanning we do undertake that will relocate service road/ utility at my own cost notwithstanding the permission granted with such time as will be stipulated by NHAI for future six lanning or any other development.	YES	
6	Who will sign the agreement on behalf of Electrical supply pipe line agency?	DGM MPMKVVCL, RAGHOGARH GUNA	
7	Certified from the Project Director		
7.1	Certified for confirming of all standard condition issued vide ministry circular no. F.NO. RW/NH-33044/29/2015/S&R 22/11/2016 Dated	YES	

Theme Engineering Services

Pyt. Ltd. Guns (M.P.)

MP MRAVY COLTO

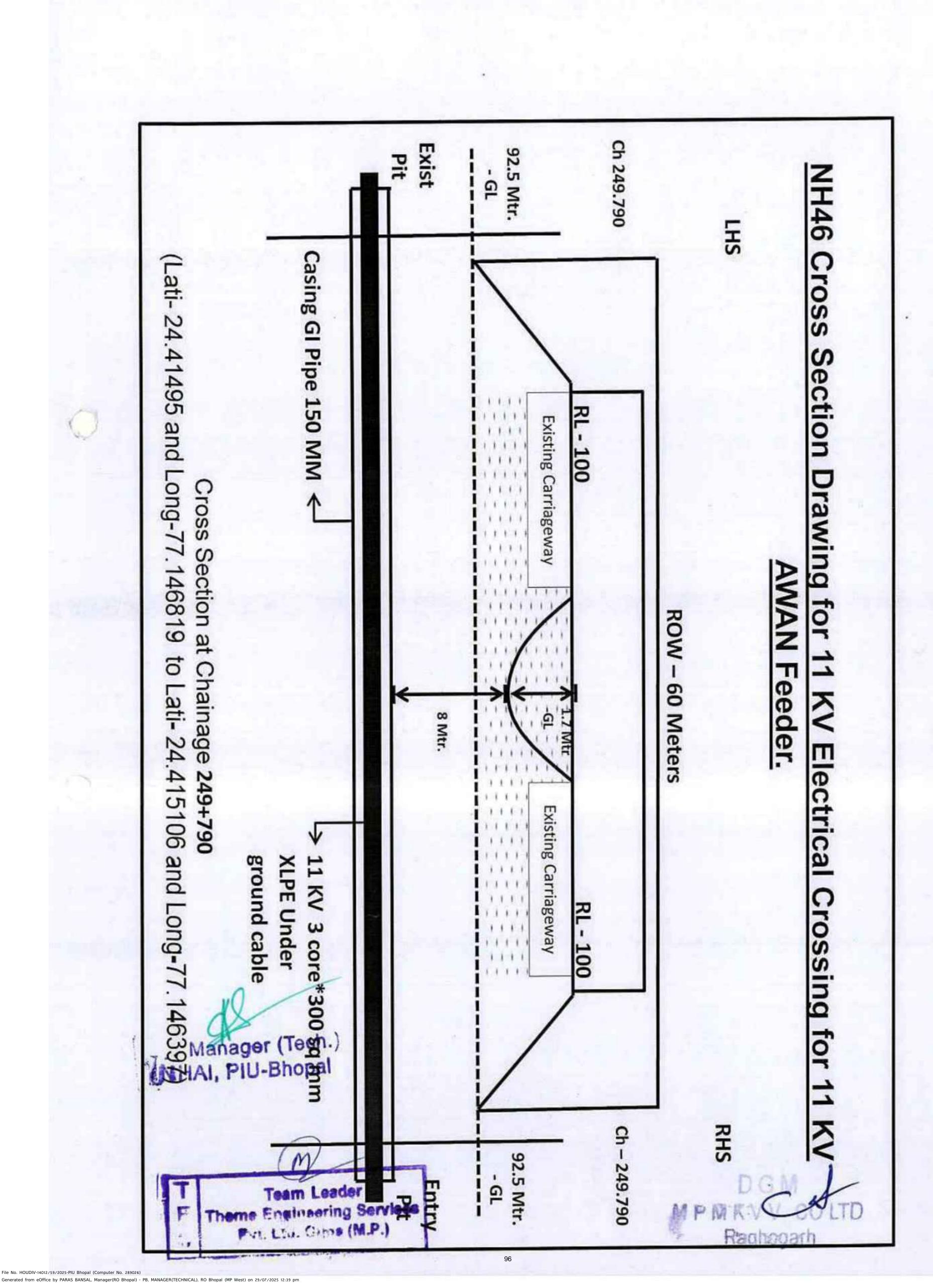
Manager (Tech.)
NHAI, PIU-Bhopal

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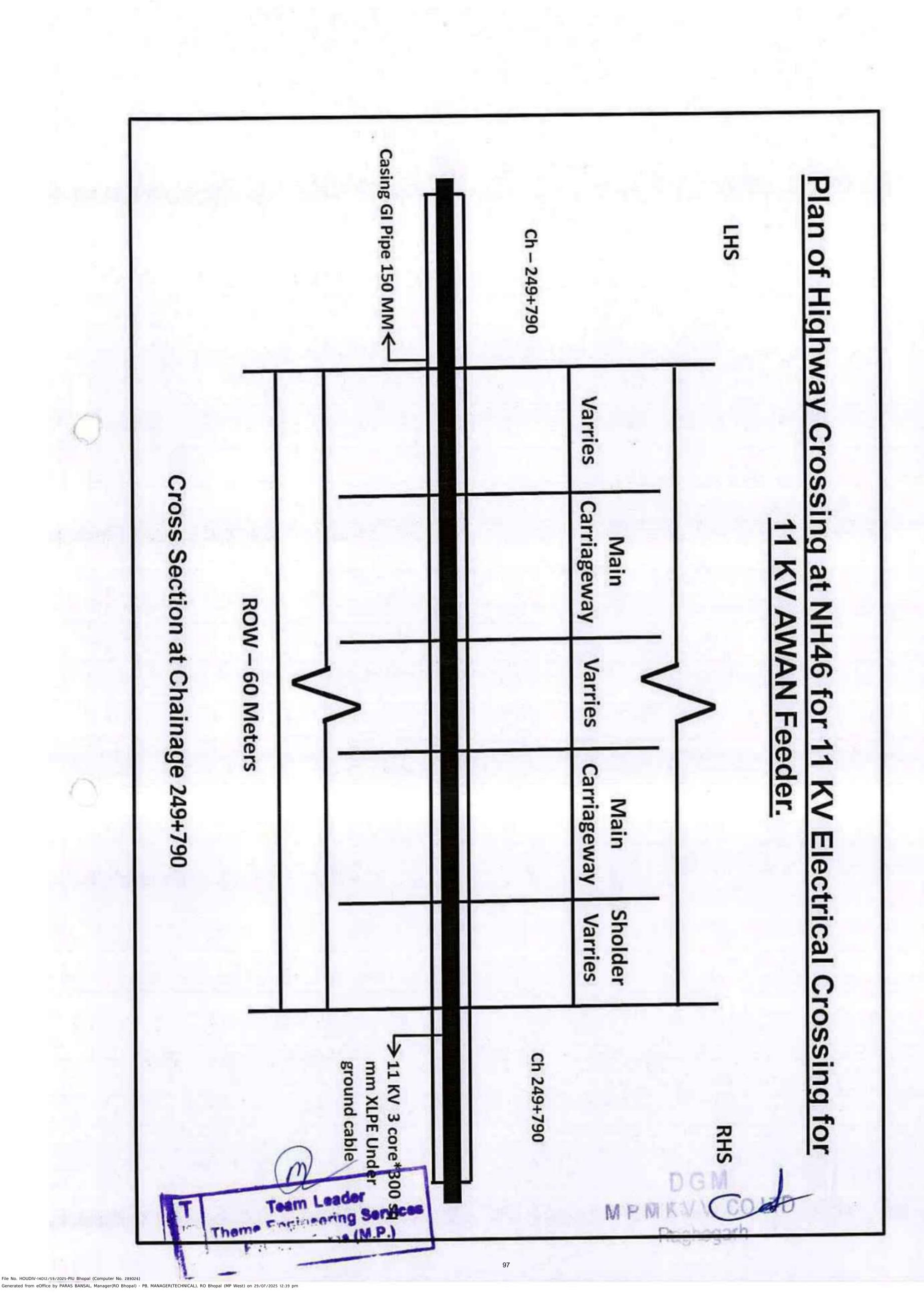
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Project Director मरारा.पा परि.क्रिया इकाई भोपाल NHAI PIU-Bhoosi (M.P.)



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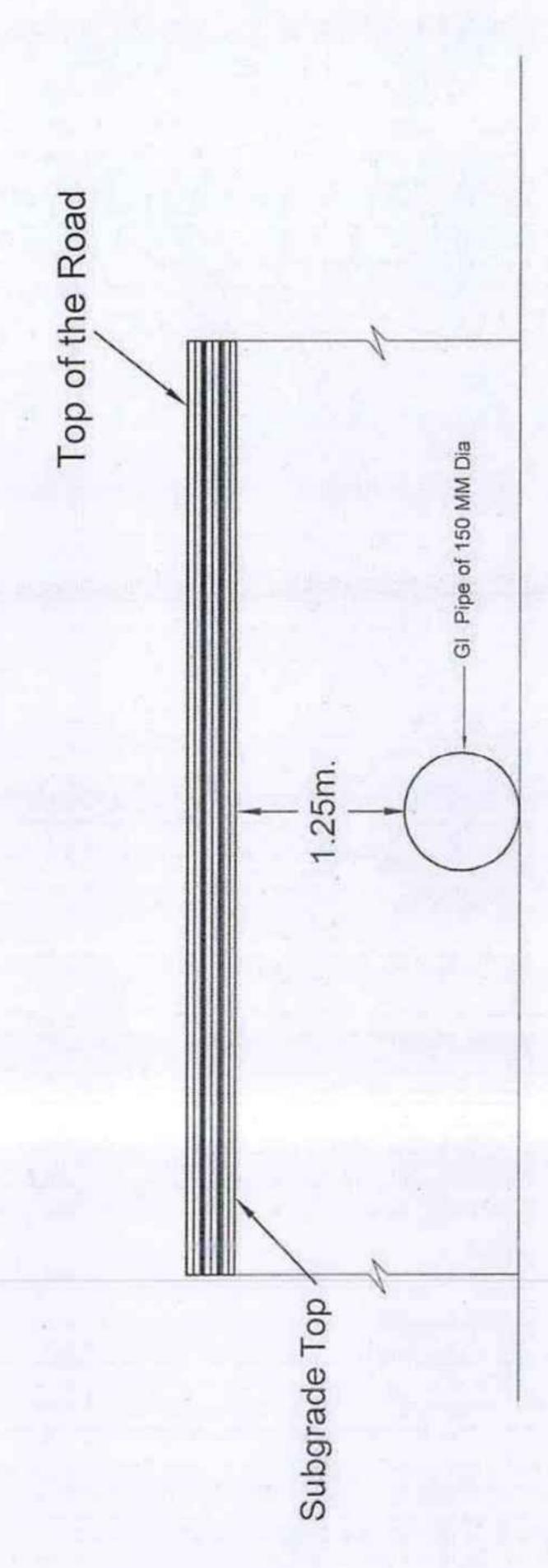
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METHOD OF INSTALLATION OF CASING PIPE FOR CROSSING OF HIGHWAY

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Cross section of HDD Crossing Pipe



The Horizontal Directional Drilling Process

The tools and techniques used in the horizontal directional drilling (HDD) process are an outgrowth of the oil well drilling industry. The components of a horizontal drilling rig used for pipeline construction are similar to those of an oil well drilling rig with the major exception being that a horizontal drilling rig is equipped with an inclined ramp as opposed to a vertical mast. HDD pilot hole operations are not unlike those involved in drilling a directional oil well. Drill pipe and downhole tools are generally interchangeable and drilling fluid is used throughout the operation to transport drilled spoil, reduce friction, stabilize the hole, etc. Because of these similarities, the process is generally referred to as drilling as opposed to boring.

Installation of a pipeline by HDD is generally accomplished in three stages as illustrated in Figure 1. The first stage consists of directionally drilling a small diameter pilot hole along a designed directional path. The second stage involves enlarging this pilot hole to a diameter suitable for installation of the pipeline. The third stage consists of pulling the pipeline back into the enlarged hole.

Pilot Hole Directional Drilling

Pilot hole directional control is achieved by using a non-rotating drill string with an asymmetrical leading edge. The asymmetry of the leading edge creates a steering bias while the non-rotating aspect of the drill string allows the steering bias to be held in a specific position while drilling. If a change in direction is required, the drill string is rolled so that the direction of bias is the same as the desired change in direction. The direction of bias is referred to as the tool face. Straight progress may be achieved by drilling with a series of offsetting tool face positions. The drill string may also be continually rotated where directional control is not required. Leading edge asymmetry can be accomplished by several methods. Typically, the leading edge will have an angular offset created by a bent sub or bent motor housing. This is illustrated schematically in Figure 2.

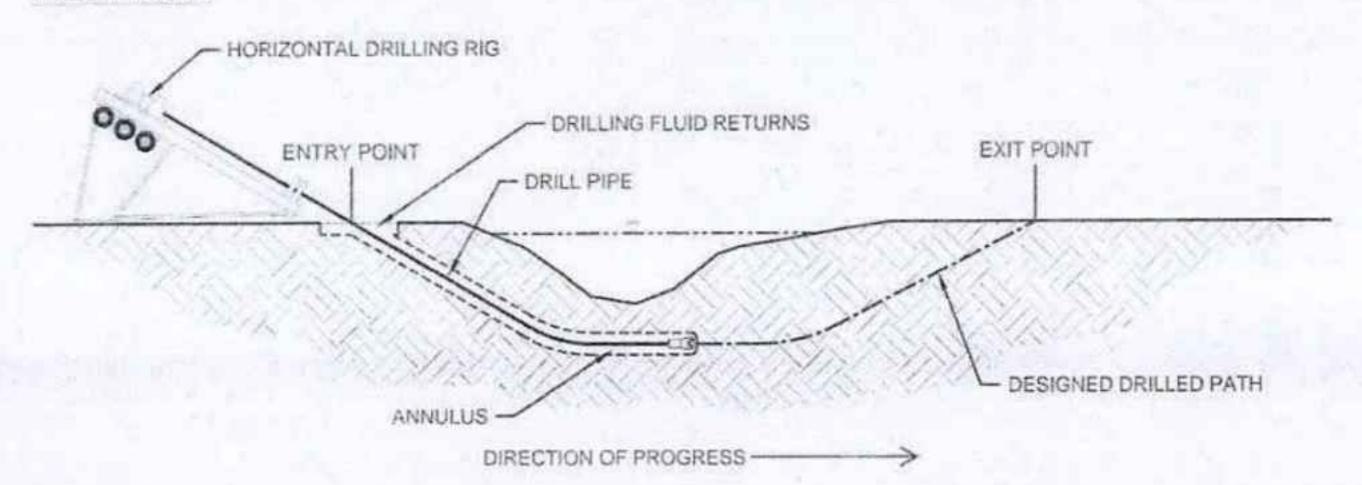
It is common in soft soils to achieve drilling progress by hydraulic cutting with a jet nozzle. In this case, the direction of flow from the nozzle can be offset from the central axis of the drill string thereby creating a steering bias. This may be accomplished by blocking selected nozzles on a standard roller cone bit or by custom fabricating a jet deflection bit. If hard spots are encountered, the drill string may be rotated to drill without directional control until the hard spot has been penetrated.



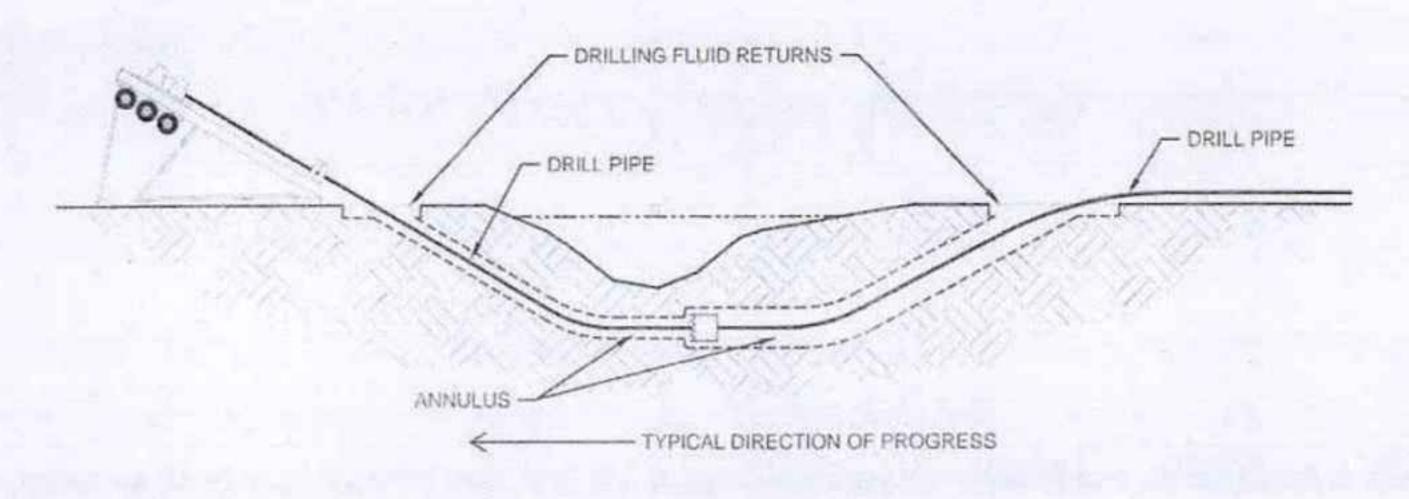
File No. HOUDIV-14012/59/2025-PIU Bhopal (Computer No. 289026)

PILOT HOLE

1339528/2025/PIU- BHOPAL



PREREAMING



PULLBACK

File No. HOUDIV-14012/59/2025-PIU Bhopal (Computer No. 289026)

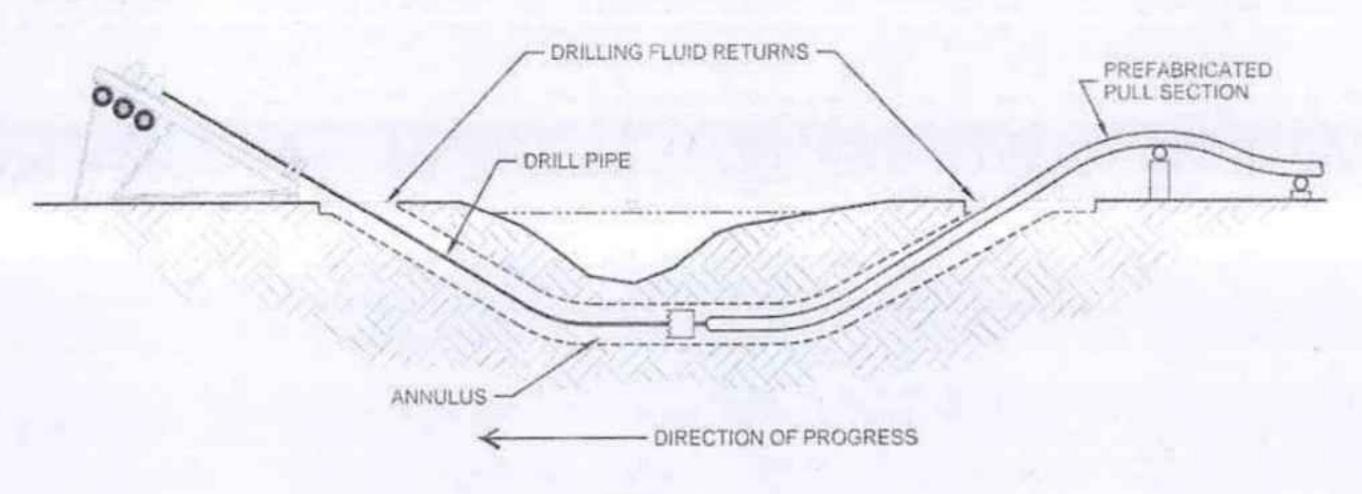


Figure 1 The HDD Process



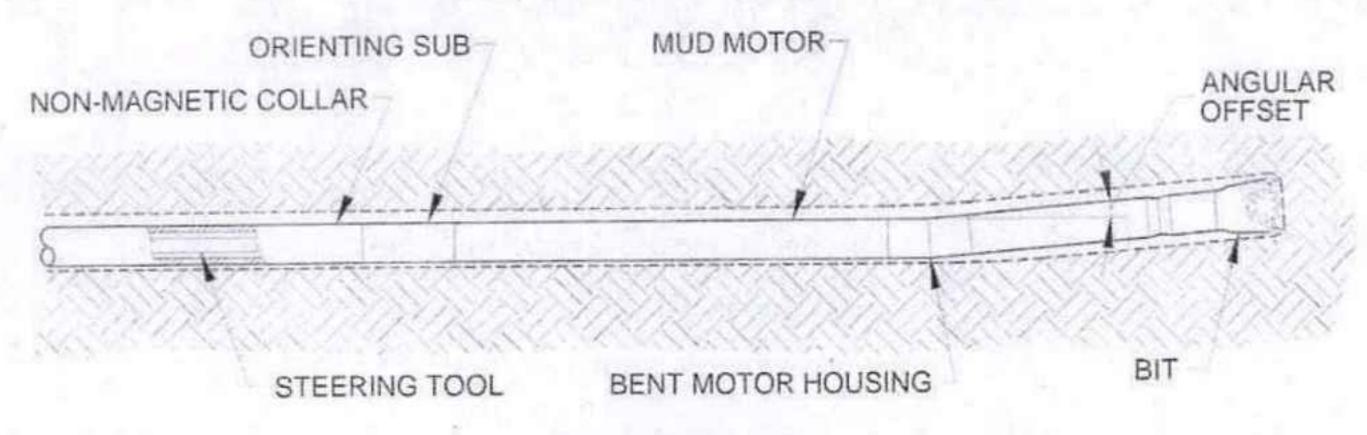


Figure 2 Bottom Hole Assembly

Downhole Motors

Downhole mechanical cutting action required for harder soils is provided by downhole hydraulic motors. Downhole hydraulic motors, commonly referred to as mud motors, convert hydraulic energy from drilling mud pumped from the surface to mechanical energy at the bit. This allows for bit rotation without drill string rotation. There are two basic types of mud motors; positive displacement and turbine. Positive displacement motors are typically used in HDD applications. Basically, a positive displacement mud motor consists of a spiral-shaped stator containing a sinusoidal shaped rotor. Mud flow through the stator imparts rotation to the rotor which is in turn connected through a linkage to the bit.

In some cases, a larger diameter wash pipe may be rotated concentrically over the non-rotating steerable drill string. This serves to prevent sticking of the steerable string and allows its tool face to be freely oriented. It also maintains the pilot hole if it becomes necessary to withdraw the steerable string.

Downhole Surveying

The actual path of the pilot hole is monitored during drilling by taking periodic readings of the inclination and azimuth of the leading edge. Readings are taken with an instrument, commonly referred to as a probe, inserted in a drill collar as close as possible to the drill bit. Transmission of downhole probe survey readings to the surface is generally accomplished through a wire running inside the drill string. These readings, in conjunction with measurements of the distance drilled since the last survey, are used to calculate the horizontal and vertical coordinates along the pilot hole relative to the initial entry point on the surface.

Azimuth readings are taken from the earth's magnetic field and are subject to interference from downhole tools, drill pipe, and magnetic fields created by adjacent structures. Therefore, the probe must be inserted in a non magnetic collar and positioned in the string so that it is adequately isolated from downhole tools and drill pipe. The combination of bit, mud motor (if used), subs, survey probe, and non magnetic collars is referred to as the Bottom Hole Assembly or BHA. A typical bottom hole assembly is shown as Figure 2.

Surface Monitoring

The pilot hole path may also be tracked using a surface monitoring system. Surface monitoring systems determine the location of the probe downhole by taking measurements from a grid or point on the surface. An example of this is the TruTracker System. This system uses a surface coil of known location to induce a magnetic field. The probe senses its location relative to this

M P Maghogarh

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induced magnetic field and communicates this information to the surface. This is shown schematically in Figure 3.

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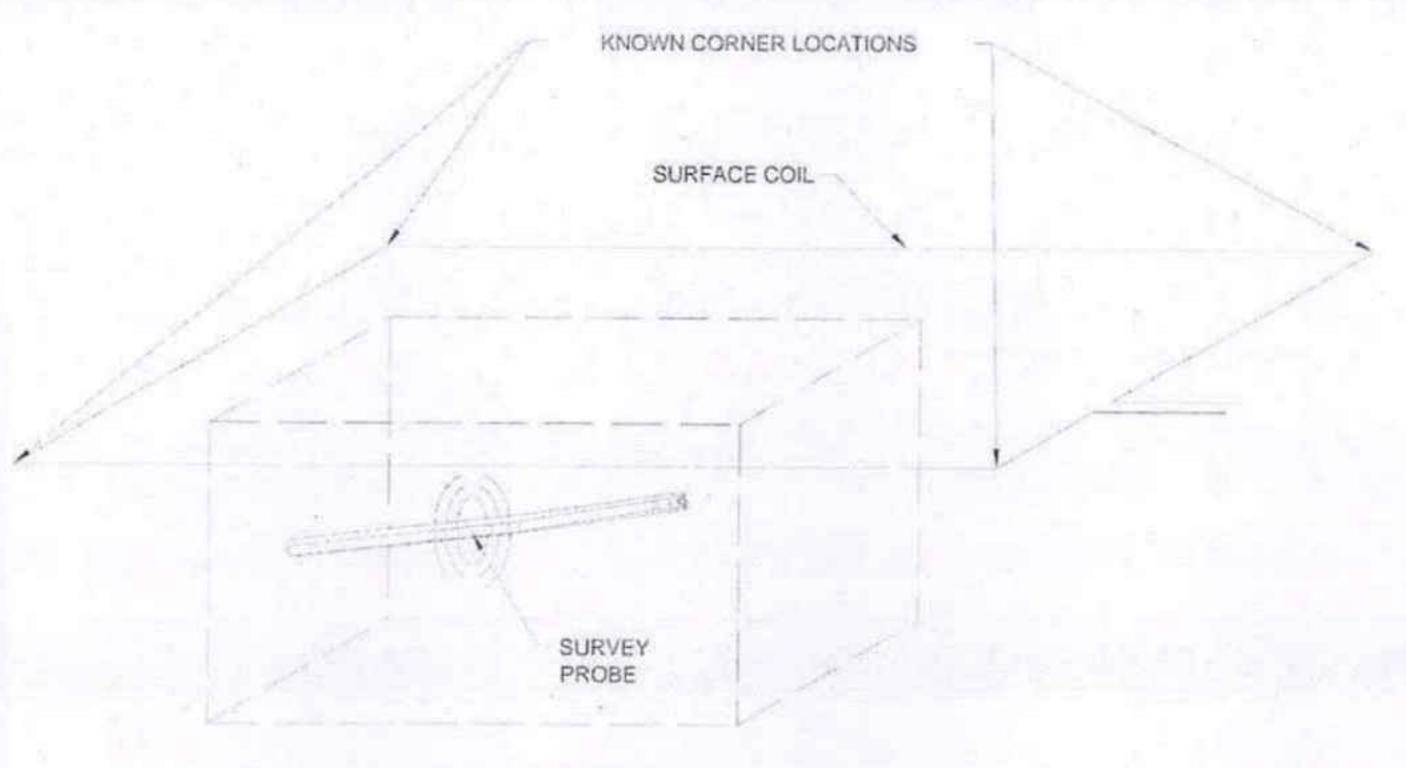


Figure 3
TruTracker Surface Monitoring System

Reaming & Pullback

Enlarging the pilot hole is accomplished using either prereaming passes prior to pipe installation or simultaneously during pipe installation. Reaming tools typically consist of a circular array of cutters and drilling fluid jets and are often custom made by contractors for a particular hole size or type of soil.

Prereaming

Most contractors will opt to preream a pilot hole before attempting to install pipe. For a prereaming pass, reamers attached to the drill string at the exit point are rotated and drawn to the drilling rig thus enlarging the pilot hole. Drill pipe is added behind the reamers as they progress toward the drill rig. This insures that a string of pipe is always maintained in the drilled hole. It is also possible to ream away from the drill rig. In this case, reamers fitted into the drill string at the rig are rotated and thrust away from it.

Pullback

Pipe installation is accomplished by attaching the prefabricated pipeline pull section behind a reaming assembly at the exit point and pulling the reaming assembly and pull section back to the drilling rig. This is undertaken after completion of prereaming or, for smaller diameter lines in soft soils, directly after completion of the pilot hole. A swivel is utilized to connect the pull section to the leading reaming assembly to minimize torsion transmitted to the pipe. The pull section is supported using some combination of roller stands, pipe handling equipment, or a flotation ditch to minimize tension and prevent damage to the pipe.

M P IN Raghogarh

Buoyancy Control

Uplift forces resulting from the buoyancy of larger diameter lines can be very substantial. High pulling forces may be required to overcome drag resulting from buoyancy uplift. Therefore, contractors will often implement measures to control the buoyancy of pipe 30 inches or over in diameter. The most common method of controlling buoyancy is to fill the pipe with water as it enters the hole. This requires an internal fill line to discharge water at the leading edge of the pull section (after the breakover point). An air line may also be required to break the vacuum which may form at the leading edge as the pull section is pulled up to the rig. The amount of water placed in the pipe is controlled to provide the most advantageous distribution of buoyant forces. Some contractors may choose to establish a constant buoyancy. This can be accomplished by inserting a smaller diameter line into the pull section and filling the smaller line with water. The smaller line is sized to hold the volume of water required per lineal foot to offset the uplift forces.

File No. HOUDIV-14012/59/2025-PIU Bhopal (Computer No. 289026)

Applicat	ion Details [20241119/1/5/33029/12585]
Highway	NH46 [NH46]
Name of Highway Authority	NHAI Dwarks New do hi
Highway Administration Address	Regional Office-Jabalpur Regional Office-Jabalpur
Whether the Fuel Station is part of Rest-area complex	Na
Name of Applicant/Oil Company	Madhya Prodosh Medhya Kahetra Vidyut Vitaran Company Limited Addrese: NEAR OF NAGAR PALIKA RAGHOGARH QUNA MADHYA FRADESH, QUNA (MADHYA PRADESH), PIN: 473226 Phn: 9406913711 Emeli: ANISHRAJPUT,GZIGMP,GOV,IN
Application Category	Public Utility
Utility	Pipes
Stata	MAOHYA PRADESH
Туре	New
Remarks	11KV Dehri Feeder II Underground Highway Crossing Work
Submitted On	17 Jun 2025 17:55:38





	Detaile
1. Length in Meters *	60m
2. Width of available ROW	
L Left side from center line towards Increasing chainage OR km direction*	234+240
II. Right side from center line towards increasing chainage OR km direction *	234+240
3. Proposal to lay the utility	
I. Left side from center line towards increasing chainage OR km direction *	
IL Right side from center line towards Increasing chainage OR km direction *	
4. Proposal to acquire the land	
I. Left side from center line *	
IL Right eide from center line *	
5. Whether proposal is in the same side where land is not to be acquired.*	Yest P. IV
If not then where to lay the cable *	HOD Crassing
6. Details of already laid services if any along the proposed route *	
7. Number of Existing lanes *	4 home
8. Proposed number of lanes *	4 Lone
9. Service road Exists *	2.50
10. Proposed Service road	
Left side from center line	
Right side from center line	
11. Whether proposal to lay cable is after the service road or between the service road and main carriageway *	
12. Whether carrying OFC Cable has been proposed on highway /bridges, if yes then mention the methodology proposed for the same *	
13. Is crossing of the road involved? If Yes, is shall be either encased in pipes or through structure of conduits specially built for the purpose at the expense of the agency owing the line *	Ves Excused in Pipe
Whether the existing drainage structures are allowed to carry utility pipeline.*	
I, Is it on a line normal to NH? *	You O

Team Leader

122

MPMRTVV COLTD

2/7

18/25, 11/5BAM	MoRTH Utility Portal
III. What is the distance of crossing the utility pipelines from the existing structure? Crossings shall not be too near the existing structures on the National Highway, the minimum distance being 15 mtrs. *	
IV. The casing pipe (or conduit pipe in the case of electric cable) line carrying the utility line shall be of steel, east iron or reinforced concrete and have adequate strength and be large enough to pennit ready withdrawal of carrier pipe/cable Mention type of casting. *	Yes Cos pipe
V. Ends of the casing/conduit pipe shell be sealed from outside, so that is does not act as a drainage path *	yes
VI. The casing/conduit pipe should be as minimum extend from drain in cuts too of slope in fills. *	yus
VII. The installation of Casing pipe shall be as per attachment-1 of Ministry's Guidelines dated 22,11,2016 *	
VIII. Mention the methodology proposed for crossing of road for the proposed sewerage / gas pipeline crossing shall be boring method (HDD) (Trenchless Technology) specially where the existing road pavement is of cement concrete of dense bituminous concrete type. *	Yes (noo mathod)
14. Whether the proposal satisfies the following:	
I. Where the ROW is more than 45 M then the direct cable shall be laid at the edge of right of way within the utility corridor of 2 M width, duly keeping in view the future widening. *	
II. Where land is yet to be acquired for 4 laning and the position of new carriageway has been decided then the cable shall be laid at the edge of right of way within the utility contider of 2 M width, on that side of existing carriageway where extra land is not proposed to be acquired for 4 laning.	





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III. Where the widening plan for 4 laning is not yet decided and available ROW is around 30 M or less, a judicious decision would need to be taken for permitting the laying of cable/duct. This could be within 1.5 M to 2m of utility corridor at the edge of existing ROW, duty keeping in view the possible widening plans.	
IV. Where ROW is restricted and adequate only to accommodate the carriageway, central verge, shoulders and drains (e.g. Highways in outting through hillyfrolling terrain), the cable shall be laid clear of the drain. *	
V. Where land strip for utility corridor can't be conveniently carmerked (available ROW restricted to the toe of the embankment) for laying of cablefducts, the permission may be refered. *	
15. Document/Drawings enclosed with the proposal *	Yes
L Cross section showing the size of trench for open trenching method (is it normal size of 1.2m (min.) deep x 0.3 wide) *	
II. Cross section showing the size of pit and location of cable for HDD method *	
III. Strip plan/ Route plan showing the OFC, Chainage width of ROW, distance of proposed, cable from the edge of ROW, important mile stone, intersections, cross drainage works etc.	
IV. Methodology of laying of the Utility Fipeline/OFC	Yes Enclosed
V. Open trenching method (may be allowed in utility corridor only where pavement is neither cement concrete nor dense bituminous concrete type) If yes what is the Methodology of refilling of trench.*	
(a) The trench width should be at least 30 cms but not more than 60 cms wider than the outer diameter of the pipe *	



M P M K:V V CO LTD Raghogarh

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(b) For filling of the trench, bedding shall be to a depth of not less than 30 cms. It shall consist of granular material, free of lumps, clods, cobbles and graded to yiled firm surface without sudden change in the bearing value, unsuitable soil and rock edges should be excavated and replaced by selected material.*	
(c) The backfill shall be completed in two stages, i) Side fill to the level of the top of the pipe and ii) Overfill to the bottom of the road crust *	
(d) The side fill shall consist of granular material laid in 15 cms, layers each consolidated by mechanical tampering and controlled addition of moisture to 95% of the practor density. Overfill shall be compacted to the same density as the material that has been removed.	
(e) The road crust shall be built to the same strength as existing crust on either side of the trench. Care shall be taken to avoid the formation of a dip at the french.	
(f) The excavation shall be protected by flagman, signs and barricades and red lights during eight hours.*	
(g) If required, a diversion shall be constructed at the expense of agency owing the utility line, *	
VI. Horizontal Directional Drilling (HDD) Method *	Yes
VII. Laying OFC through CD Works and Mothod of laying (Whether to be hung outside parapet).	
16. Draft license Agreement signed by two witnesses.*	Yes
I. The license fee estimate as per Ministry's guidelines issued vide circular no. RWNH/33044/29/2015/S&R dated 22.11,2016.	Yes
17. Whether Performance Bank Guarantee is as per Ministry's guidelines issued vide circular no. RW/NH/33044/29/2015/S&R, dated 22.11.2016.	You

b) Undertaking Renswal of Bank Guarantee as and when asked by MoRTH. * c) Undertaking Confirming all standard condition of Ministry's guidelines. * d) Undertaking for indemnity against all damages and claims * e) Undertaking for management of traffic movement during laying of utility	Yes Yes
condition of Ministry's guidelines.* d) Undertaking for indemnity against all damages and claims * e) Undertaking for management of	Yes
damages and claims * e) Undertaking for management of	
	Yes
line without hampering the traffic *	Yas
f) Undertaking that if any claim is reised by the concessionaire/ contractor then the same has to be paid by the applicant, *	You
gl Undertaking that prior approval of the NHAI shall be obtained before undertaking any work of installation, shifting or repairs, or alteration to the utility located in the National Highway Right of Weys. *	Yes
h) Undertaking that expenditure is any incurred by NHAI for repairing any damage cause to the NH by laying, maintenance of shifting of the utility line will be borne by the applicant agency owing the line.*	Yes
i) Undertaiking that text of the license deal is as per verbatim of format issued by MoRTH vide circular no. RWNH/33444/29/2015/S&R dated 22.11.2016 *	Yes
j) Undertaking for shifting of utility as and when asked by McRTH/ NHAL.*	Yes
k) Certificate from the applicant in the following format	
() We do undertake that I'we will relocate service read/approach read/utilities at my/s within such time us will be atipulated by NHAI for future six laning or/any other deve	
19. Who will sign the agreement on behalf of Applicant agreement is Attorney to sign the agreement is available on not. *	
20. The Power of Attorney is in favour of authorized signatory? *	Yes

Toam Leader

MPHRVY COLTD Rognagath.

			Lo	cations		
Sno	State	District	Highway /Stretch	Start Point	End Point	View
1	MADHYA PRADESH	GUNA	NH46 [NH46] (145.000-445.000) From Km: 234.24 To Km: 234.24	Chainage Point: 234,24 Lat: 24,541 Lng: 77,198	Chainage Point: 234.24 Lat: 24,542 Lng: 77,198	View

	Documents				
300	Stage	Document	Mandatory	Action	
1	Under Submission	Layout and Drawings	Yes	View	
2	Under Submission	Any Other Supporting Document	Na	+	
3	Under Submission	Any Document to indicate commercial activities are allowed on the land.	No	-	
4	Under Submission	Safety Clearance from Directorate of Electricity	No	-	
5	Under Submission	Safety Clearance from Chief Controller of Explosives	No	-	
B	Under Submission	Safety Clearance from Petroleum and Explosives Safety Organisation	No	+	
7	Under Submission	Safety Clearance from Oil Industry Safety Directorate	No	_	
3	Under Submission	Sefety Clearance from State/Central Pollution Control Sound	No	-	
9	Under Submission	Any Other Statutory Clearance as applicable	No	2	

Applicable Fee Details					
Sno	Fee Head	Stage	Fee	Amount	Status
1	Utility Fees	Technical Approval	License Fees	792.00	





Check List

5.No	Items	Information/Status	Remaks
1	General Information		
1.1	Name and Address of the Applicant / Agency	DGM MPMKVVCL, RAGHOGARH GUNA	
1.2	National Highyway Number	NH-46	
1.3	State	MADHYA PRADESH	
1.4	Location	11 KV DEHRI-2 FEEDER	
1.5	(Chainage in KM)	234+24 LHS , 234+24 RHS	
1.5	Length in Meters	60 m Acoss the Highway	
1.7	Width of availble ROW	60m	
	a) Width Left side from center line	30m	
	b) Width Right side from center line	30m	
1.8	Proposal to lay undergrond Eletrical cable	Across the national highyway	
	a) Left side from the center line towards increasing chainage/ KM direction		
	b) Right side from the center line towards increasing chainage/ KM direction	•	
1.9	Proposal to aquire land	NA	
	a) Left side from center line	NA	
	b) Right side from center line	NA NA	
1.11	Whether proposal is in the same side where land is not to be acquired	no acquistion of land required	
	If not then where to lay the pipelines	Across the national highyway	
1.12	Details of aready laid services, if any, along the proposed route	NA .	
1.13	No of lanes (2/4/6/8 lanes)	4 lanes	
1.14	Services road existing or not	No services road exist	
	if yes then which side	No services road exist	
	a) Left side from center line	NA NA	
	b) Right side from center line	NA	
1.15	Proposed service line		
	a) Left side from center line		
	b) Right side from center line		
1.16	Where proposed to lay eletrical pipeline is after the service road or between the service road and main carriageway		
1.17	Considered for approval / rejection based on the Ministry Circular mentioned as above		
	a) Carring of eletrical pipeline on Highway bridges shall not be permitted as eletrical pipes can accelerate the process of corrosion thus being much more injurious	NA	

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	b) Carrying of Eletrical pipelines on bridges shall also discouraged however if the Eletrical supply authorities seem to have no other viable alternative and approach the highway authority well in time before the design of the bridge in finalized they may be permitted to carrry the pipeline on independent super structure supported on extended portion of piers and abutments in such a manner that in the final arangement enough free spade around the super structure of the bridge remains available for inspection and repairs.	NA	
	c) Cost of required extension of the substructure as well as that of the supporting super structure shall be borne by the agency-in- charge of the utilities	NA	
)	d) Services are not being allowed indiscriminately on the parapet/any of the bridges, safety of the bridge has to be kept in view while permitting various services along bridge. Appeavals to be accorded in this regard with the concurrence of the Ministries Project Cief Engineers only.	NA	
1.18	Whether crossing of the involved	Yes	
	If yes, it shall be either enclosed in pipes or through structure or conduits specially built for that purpose at the expensed of the agency owning the line.	Yes, Enclosed In pipes	
	a) Exiting drainage structure shall not be allowed to carry the lines	Yes	
	b) Is it on a line normal to NH	Yes	
	c)Crossing shall not to be too near the exixting structure on the national highway the minimum distance bring 15 meter	Yes more than 15 mtrs	
	d) The casing pipes carriying the utility lines shall be of steel, case, iron or reinforced cement concrete and have adequate strength and be large enough to permit ready with drawl of the carrier pipe/ cable.	Yes	
	e) Ends of the casing/conduit pipes shall be sealed from the outside so that it does not act as a drainage path.	Yes	
	f) The casing/ conduit pipe should as minimum extend from drain to drain in cutsand toe of the slope in the fills	Yes	
	g) The top of the raing/ condult pipe should be at least 1.20 meter below the surface of the road.	Yes	1

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	 h) The casinf/conduit pipe shall be done by boring (HDD) or digging a trench. Installation by boring method shall be preferred. 	Yes (HDD Method)	
2	Document/Drawing enclosed with proposal	Yes	
2.1	Cross section showing the size of trench for open trencing method (is it normal size of 1.2m x 0.3 wide)	NA	
	 i) Should be greater that 60 cm wider than outer diameter of the pipe 	NA	
	 Located as close to the extreme edge of the right 15 meter from the centre lines of the nearest carriageway. 	NA	
	iii) Shall not be permitted to run along the national highways when the road formation is situated in double cutting. Nor shall these be laid over the existing culverts and bridges.	NA	
)	iv) These should be so laid that their top is at least 0.6 meter below the ground level so as not to obstruct drainage of the road land.	NA	
2.2	Cross section showing the sixe pit and location of cable for HDD method	Yes	
2.3	Strip plan/ route plan showing Eletrical pipeline chainage, width of ROW, distance of proposed cable from the edge of ROW important mile stone, cross section etc.	Incorparated in the drawing	
2.4			
2.4.1	Open trenching method (may be allowed in utility corriod only where pave ment is neither cement concrete nor dense bituminous concrete type If yes, methodology of refilling of trench	NA	
	a]Trench width should be at least 30 cm but not more than 60 cm wider than the outer diameter of the pipe.	NA NA	
	b) For thefilling of the trench bedding shall be to a depth of not less than 30 cm. it shall consist of granular material free of lumps, clods and cobbles and graded to yeild a firm surfacewithout sudden change in the bearing value unsuitable soi and rock edged should be excavated and replaced by selected material.	NA	
	C) The side fill shall consist of granular material laid in 15 cm layers each consolidated by mechnival tampering and controlled addition of moisture of 95% of Proctor's Density. Over fill shall of compacted to the same density as the material that had been removed. Consolidation by saturation or pendingwill not be permitted.	NA	

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	d) The road crust shall be built to the same strength as the existing crust on the either side of the trench care shall be taken to avoid the formation of a dip at the trench.	NA	
	The excavation shall be protected by flagmen signs and barricades and red light during night hours.	NA	
	 if Required a diversion shall be constructed at the expends of agency owing the utilityline. 	NA	
2.4.2	Horizontal directional drilling (HDD) METHOD	yes	
3	Draft License Agreement signed by two witness	yes	
4	Performance bank guarantee in favor of NHAI has to be obtained @Rs 200/- per running meter (parallel to NH) and Rs 100000/- per crossing of NH for a period of one year initially (extendable if required till satisfactory completion of work) as a security for ensuring /making good the excavated trench for laying the cables/ducts by proper filling and compaction clearing Debris/loose earth produced due to execution of trenching at least 50 m away from the edge of the right of way. No payment shall be payable by the NHAI to the license for clearing debris/loose, earth.		
4.1	Performance BG as per above is to be obtained	YES	
4.2	Confirmation of BG has been obtained as per NHAI guidelines	YES	
5	Affidavit/undertaking from the application	YES	
5.1	Not to damage to other utility If damaged than pay the losses either to NHAI or to the concerned agency	YES	
5.2	Renewal of Bank Guarantee	YES	
5.3	Confirming all standard condition of NHAI'S guideline	YES	
5.4	Shifting of Electrical supply pipe line as and when required by NHAI at their own cost	YES	
5.5	Shifting due to 6 lanning/wedding of NII	YES	
5.6	Indemnity against all damages and alarms clause (xxiv)	YES	
5.7	Traffic movement during laying of Electrical supply pipe line to be managed by the applicant	YES	
5.8	If any claim is raised by the concessionaire then the same has to be paid by the applicant A	YES	
5.9	Prior approval of the NHAI shall be obtained before undertaking any work if installation shifting or repairs or alteration to the showing Electrical supply pipe line located in the National Highway rights or ways	YES	

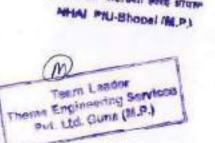
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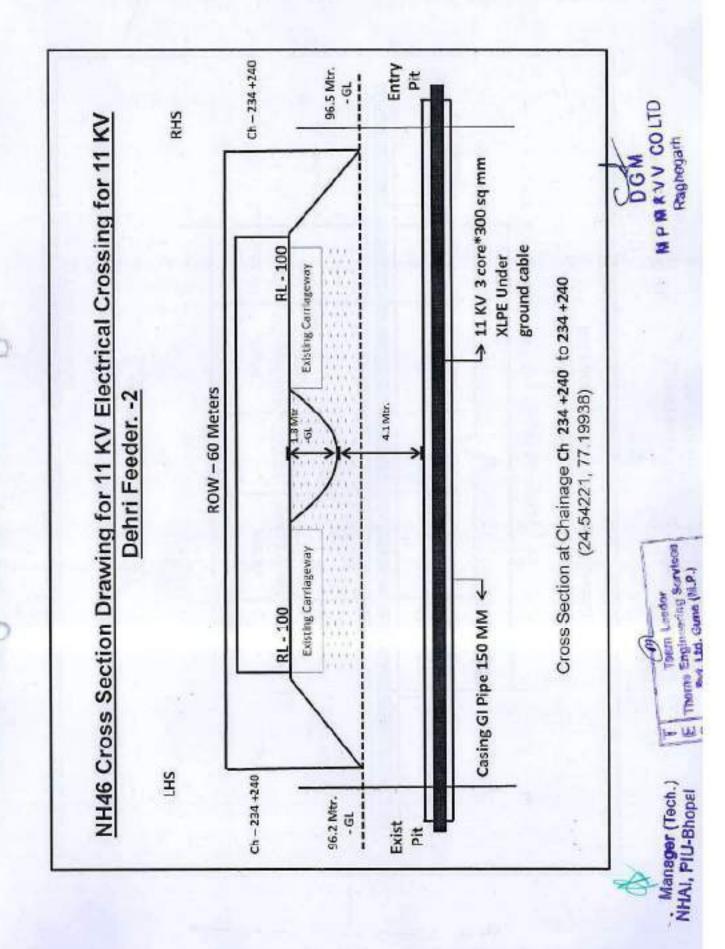
5.10.	Expenditure if any incurred by NHAI for repairing any damage caused to the National Highway by the laying maintenance or shifting of the Electrical supply pipe line will be borne by the agency owing the line.	YES	
5.11	If the NHAI considers it necessary in future to move the utility line for any work of improvement or repairs to the road it will be carried out as desired by the NHAI at the cost of the agency owning the utility line within a reasonable time not exceeding 60 days) of the intimation given	YES	
5.12	Certified from the application in the following format	YES	
	i) laying of Electrical supply pipe line will not have any deleterious effects on any of the bridge components and roadway safety for traffic	YES	
2	ii) for 6-lanning we do undertake that will relocate service road/ utility at my own cost notwithstanding the permission granted with such time as will be stipulated by NHAI for future six lanning or any other development.	YES	
6	Who will sign the agreement on behalf of Electrical supply pipe line agency?	DGM MPMKVVCL, RAGHOGARH GUNA	
7	Certified from the Project Director		
7.1	Certified for confirming of all standard condition issued vide ministry circular no. F.NO. RW/NH- 33044/29/2015/S&R 22/11/2016 Dated	YES	

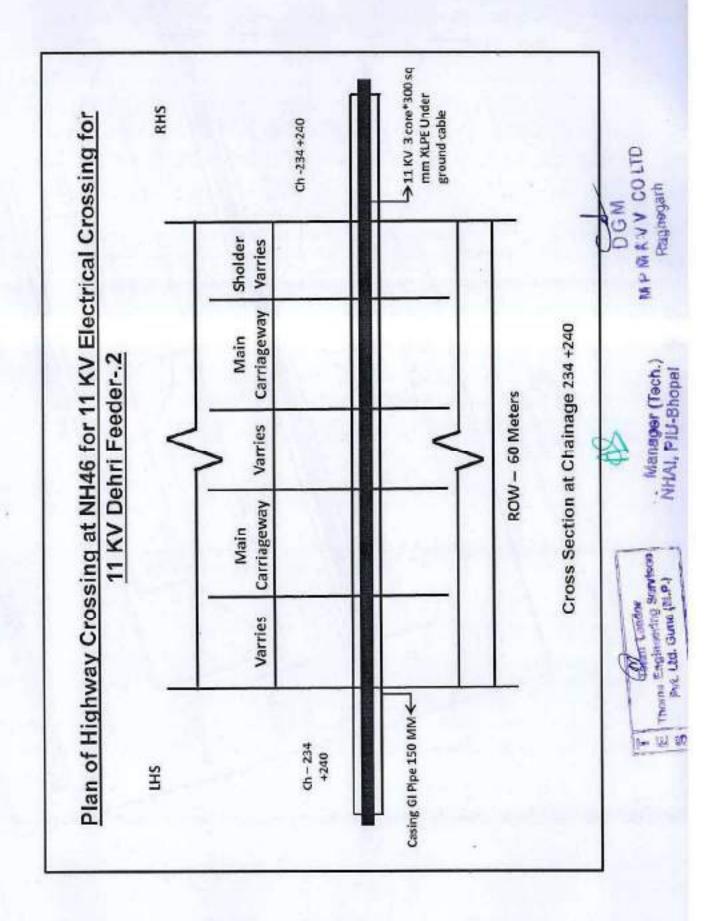
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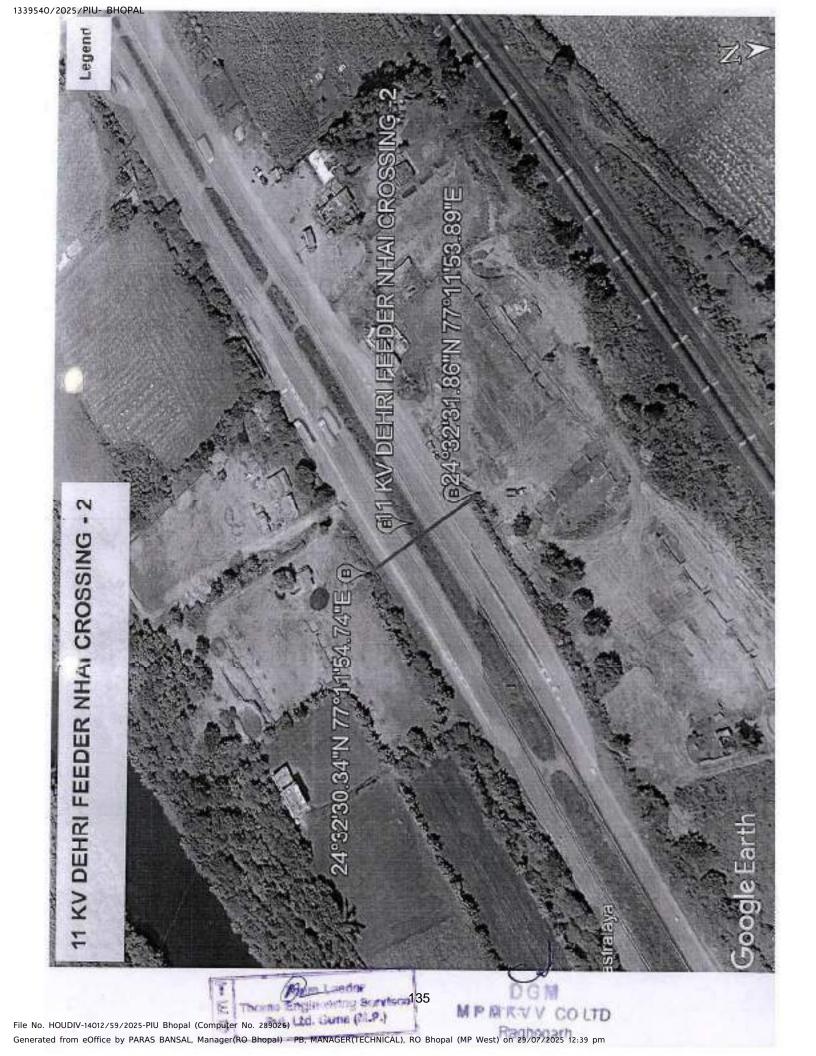
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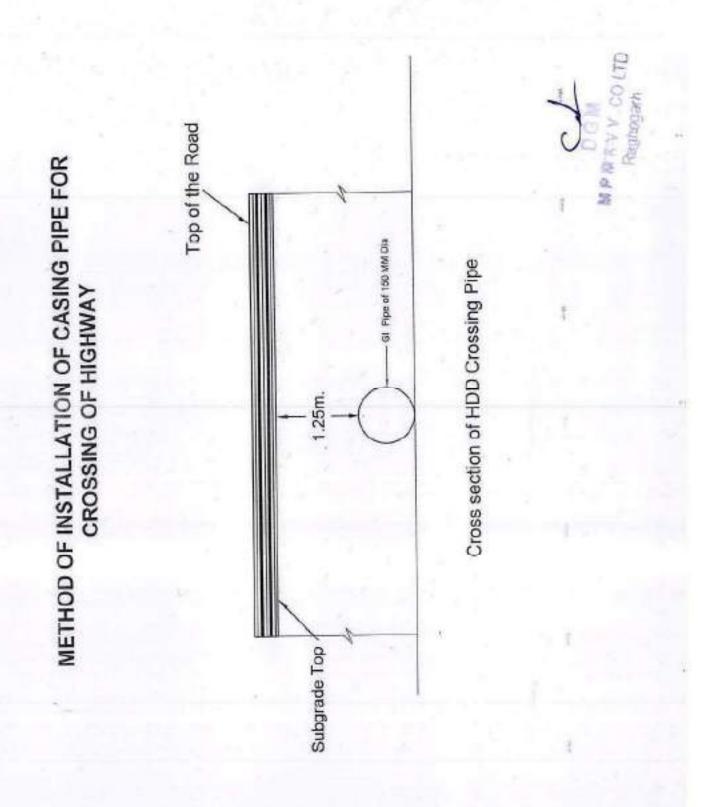
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The Horizontal Directional Drilling Process

The tools and techniques used in the horizontal directional drilling (HDD) process are an outgrowth of the oil well drilling industry. The components of a horizontal drilling rig used for pipeline construction are similar to those of an oil well drilling rig with the major exception being that a horizontal drilling rig is equipped with an inclined ramp as opposed to a vertical mast. HDD pilot hole operations are not unlike those involved in drilling a directional oil well. Drill pipe and downhole tools are generally interchangeable and drilling fluid is used throughout the operation to transport drilled spoil, reduce friction, stabilize the hole, etc. Because of these similarities, the process is generally referred to as drilling as opposed to boring.

Installation of a pipeline by HDD is generally accomplished in three stages as illustrated in Figure 1. The first stage consists of directionally drilling a small diameter pilot hole along a designed directional path. The second stage involves enlarging this pilot hole to a diameter suitable for installation of the pipeline. The third stage consists of pulling the pipeline back into the enlarged hole.

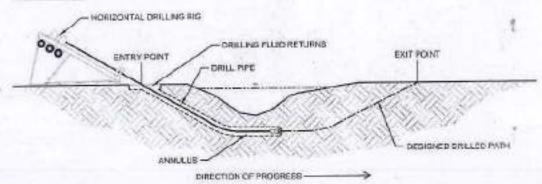
Pilot Hole Directional Drilling

Pilot hole directional control is achieved by using a non-rotating drill string with an asymmetrical leading edge. The asymmetry of the leading edge creates a steering bias while the non-rotating aspect of the drill string allows the steering bias to be held in a specific position while drilling. If a change in direction is required, the drill string is rolled so that the direction of bias is the same as the desired change in direction. The direction of bias is referred to as the tool face. Straight progress may be achieved by drilling with a series of offsetting tool face positions. The drill string may also be continually rotated where directional control is not required. Leading edge asymmetry can be accomplished by several methods. Typically, the leading edge will have an angular offset created by a berit sub or bent motor housing. This is illustrated achiematically in Figure 2.

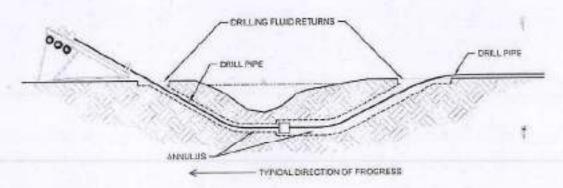
It is common in soft soils to achieve drilling progress by hydraulic cutting with a jet nozzle. In this case, the direction of flow from the nozzle can be offset from the central axis of the drill string thereby creating a steering bias. This may be accomplished by blocking selected nozzles on a standard roller cone bit or by custom tabricating a jet deflection bit. If hard spots are encountered, the drill string may be rotated to drill without directional control until the hard spot has been ponetrated.

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PILOT HOLE



PREREAMING



PULLBACK

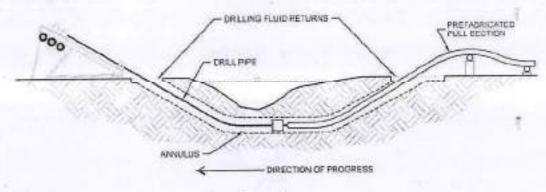


Figure 1 The HDD Process



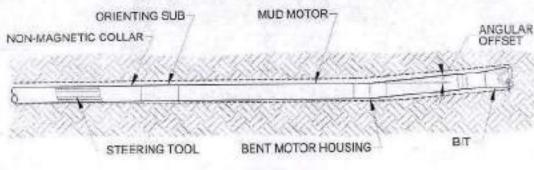


Figure 2 Bottom Hole Assembly

Downhole Motora

Downhole mechanical cutting action required for harder soils is provided by downhole hydraulic motors. Downhole hydraulic motors, commonly referred to as mud motors, convert hydraulic energy from drilling mud pumped from the surface to mechanical energy at the bit. This allows for bit rotation without drill string rotation. There are two basic types of mud motors, positive displacement and turbine. Positive displacement motors are typically used in HDD applications.
Basically, a positive displacement mud motor consists of a spiral-shaped stator containing a sinusoidal shaped rotor. Mud flow through the stator imparts rotation to the rotor which is in turn connected through a linkage to the bit.

In some cases, a larger diameter wash pipe may be rotated concentrically over the non-rotating steerable drill string. This serves to prevent sticking of the steerable string and allows its tool face to be freely oriented. It also maintains the pilot hole if it becomes necessary to withdraw the steerable string.

Downhole Surveying

The actual path of the pilot hole is monitored during drilling by taking periodic readings of the inclination and azimuth of the leading edge. Readings are taken with an instrument, commonly referred to as a probe, inserted in a drill collar as close as possible to the drill bit. Transmission of downhole probe survey readings to the surface is generally accomplished through a wire running inside the drill string. These readings, in conjunction with measurements of the distance drilled since the last survey, are used to calculate the horizontal and vertical coordinates along the pilot hole relative to the Initial entry point on the surface.

Azimuth readings are taken from the earth's magnetic field and are subject to interference from downhole tools, drill pipe, and magnetic fields created by adjacent structures. Therefore, the probe must be inserted in a non magnetic collar and positioned in the string so that it is adequately isolated from downhole tools and drill pipe. The combination of bit, mud motor [if used], subs, survey probe, and non magnetic collars is referred to as the Bottom Hole Assembly or BHA. A typical bottom hole assembly is shown as Figure 2.

Surface Monitoring

The pilot hole path may also be tracked using a surface monitoring system. Surface monitoring systems determine the location of the probe downhole by taking measurements from a grid or point on the surface. An example of this is the TruTracker System. This system uses a surface coll of known location to induce a magnetic field. The probe senses its location relative to this

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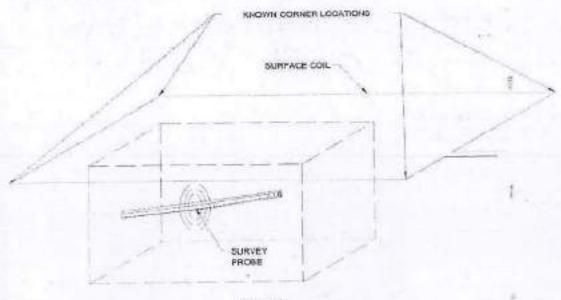


Figure 3 TruTracker Surface Monitoring System

Reaming & Pullback

Enlarging the pilot hole is accomplished using either prereaming passes prior to pipe installation or simultaneously during pipe installation. Reaming tools typically consist of a circular array of cutters and drilling fluid jets and are often custom made by contractors for a particular hole size or type of soil.

Prereaming

Most contractors will opt to preream a pilot hole before attempting to install pipe. For a prereaming pass, resmers attached to the drill string at the exit point are rotated and drawn to the drilling rio thus enlarging the pilot hole. Drill pipe is added behind the reamers as they progress toward the drill rig. This insures that a string of pipe is always maintained in the drilled hole. It is also possible to ream away from the drill rig. In this case, reamers fitted into the drill string at the rig are rotated and thrust away from it.

Pullback

Pipe installation is accomplished by attaching the prefabricated pipeline pull section behind a rearning assembly at the exit point and pulling the rearning assembly and pull section back to the drilling rig. This is undertaken after completion of prerearning or, for smaller diameter lines in soft soils, directly after completion of the pilot hole. A swivel is utilized to connect the pull section to the leading rearning assembly to minimize torsion transmitted to the pipe. The pull section is supported using some combination of roller stands, pipe handling equipment, or a flotarish ditch to minimize tension and prevent damage to the pipe.

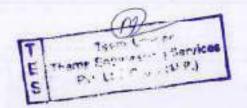
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Bucyancy Control

Uplift forces resulting from the buoyancy of larger diameter lines can be very substantial. High pulling forces may be required to overcome drag resulting from buoyancy uplift. Therefore, contractors will often implement measures to control the buoyancy of pipe 30 inches or over in diameter. The most common method of controlling buoyancy is to fill the pipe with water as it enters the hole. This requires an internal fill line to discharge water at the leading edge of the pull section (after the breakover point). An air line may also be required to break the vacuum which may form at the leading edge as the pull section is pulled up to the rig. The amount of water placed in the pipe is controlled to provide the most advantageous distribution of buoyant forces. Some contractors may choose to establish a constant buoyancy. This can be accomplished by inserting a smaller diameter line into the pull section and filling the smaller line with water. The smaller line is sized to hold the volume of water required per lineal foot to offset the uplift forces.



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	Application	Details [20241124/1/5/33029/12643]
Highway Name of Highway Authority Highway Administration Address	Highway	NH46 [NH46]
	Name of Highway Authority	NHAI Dwarka New delhi
	Highway Administration Address	Regional Office- Jabalpur Regional Office- Jabalpur
	Whether the Fuel Station is part of Rest- area complex	No
	Name of Applicant/Oil Company	Madhya Pradesh Madhya Kshetra Vidyut Vitaran Company Limited Address: NEAR OF NAGAR PALIKA RAGHOGARH GUNA MADHYA PRADESH, GUNA (MADHYA PRADESH), PIN: 473226 Phn: 9406913711 Email: ANISHRAJPUT.CZ@MP.GOV.IN
	Application Category	Public Utility
	Utility	Pipes
	State	MADHYA PRADESH
	Туре	New
	Remarks	11 KV RAMDI FEEDER UNDER GROUND HIGHWAY CROSSING
	Submitted On	18 Jun 2025 11:26:23





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	Details
1. Length in Meters *	60
2. Width of available ROW	
I. Left side from center line towards increasing chainage OR km direction *	269.980
II. Right side from center line towards increasing chainage OR km direction *	269.980
3. Proposal to lay the utility	
I. Left side from center line towards increasing chainage OR km direction *	0
II. Right side from center line towards Increasing chainage OR km direction *	0
4. Proposal to acquire the land	
I. Left side from center line *	0
II. Right side from center line	0
5. Whether proposal is in the same side where land is not to be acquired *	No
If not then where to lay the cable *	HDD Crossing
6. Details of already laid services if any along the proposed route *	N/A
7. Number of Existing lanes *	4 Lane
8. Proposed number of lanes	4 Lane

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9. Service road Exists *	No
10. Proposed Service road	
Left side from center line	0
Right side from center line	0
11. Whether proposal to lay cable is after the service road or between the service road and main carriageway *	N/A
12, Whether carrying OFC Cable has been proposed on highway /bridges, If yes then mention the methodology proposed for the same *	N/A
13. Is crossing of the road involved? If Yes, is shall be either encased in pipes or through structure of conduits specially built for the purpose at the expense of the agency owing the line *	Yes, Enclosed in pipes
I. Whether the existing drainage structures are allowed to carry utility pipeline. *	N/A
II. Is it on a line normal to NH? *	No
III. What is the distance of crossing the utility pipelines from the existing structure?	
Crossings shall not be too near the existing structures on the National Highway, the minimum distance being 15	0.00
mtrs.*	

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IV. The casing pipe (or conduit pipe in the case of electric cable) line carrying the utility line shall be of steel, cast iron or reinforced concrete and have adequate strength and be large enough to permit ready withdrawal of carrier pipe/cable Mention type of casting.	Yes, GI PIPE
V. Ends of the casing/conduit pipe shall be sealed from outside, so that is does not act as a drainage path *	Yes
VI. The casing/conduit pipe should be as minimum extend from drain in cuts toe of slope in fills. *	Yes
VII. The installation of Casing pipe shall be as per attachment-1 of Ministry's Guidelines dated 22.11.2016 *	YES
VIII. Mention the methodology proposed for crossing of road for the proposed sewerage / gas pipeline crossing shall be boring method (HDD) (Trenchless Technology) specially where the existing road pavement is of cement concrete of dense bituminous concrete type. *	Yes, (HDD method)

14. Whether the proposal satisfies the following:

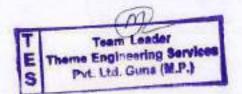
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I. Where the ROW is more than 45 M then the duct cable shall be laid at the edge of right of way within the utility corridor of 2 M width, duly keeping in view the future widening. *	. NA
II. Where land is yet to be acquired for 4 laning and the position of new carriageway has been decided then the cable shall be laid at the edge of right of way within the utility corridor of 2 M width, on that side of existing carriageway where extra land is not proposed to be acquired for 4 laning.*	N/A
III. Where the widening plan for 4 laning is not yet decided and available ROW is around 30 M or less, a judicious decision would need to be taken for permitting the laying of cable/duct. This could be within 1.5 M to 2m of utility corridor at the edge of existing ROW, duly keeping in view the possible	N/A





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widening plans. *

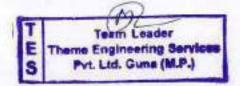
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IV. Where ROW is restricted and adequate only to accommodate the carriageway, central verge, shoulders and drains (e.g. Highways in cutting through hilly/rolling terrain), the cable shall be laid clear of the drain. *	N/A
V. Where land strip for utility corridor can't be conveniently earmarked (available ROW restricted to the toe of the embankment) for laying of cable/ducts, the permission may be refused. *	N/A
15. Document/Drawings enclosed with the proposal *	Yes
I. Cross section showing the size of trench for open trenching method (is it normal size of 1.2m (min.) deep x 0.3 wide) *	N/A
II. Cross section showing the size of pit and location of cable for HDD method *	YES
III. Strip plan/ Route plan showing the OFC, Chainage width of ROW, distance of proposed, cable from the edge of ROW, important mile stone. Intersections, cross drainage works etc. *	Incorporated in the Drawing
IV. Methodology of laying of the Utility Pipeline/OFC *	Yes, Enclosed.

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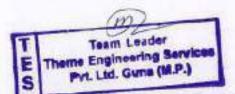
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V. Open trenching method (may be allowed in utility corridor only where pavement is neither cement concrete nor dense bituminous concrete type) If yes what is the Methodology of refilling of trench *	N/A
(a) The trench width should be at least 30 cms but not more than 60 cms wider than the outer diameter of the pipe	N/A
(b) For filling of the trench, bedding shall be to a depth of not less than 30 cms. It shall consist of granular material, free of lumps, clods, cobbles and graded to yiled firm surface without sudden change in the bearing value, unsuitable soil and rook edges should be excavated and replaced by selected material *	N/A
(c) The backfill shall be completed in two stages, i) Side fill to the level of the top of the pipe and ii) Overfill to the bottom of the road crust *	N/A





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(d) The side fill shall consist of granular material laid in 15 cms, layers each consolidated by mechanical tampering and controlled addition of moisture to 95% of the proctor density. Overfill shall be compacted to the same density as the material that has been removed. *	N/A
(e) The road crust shall be built to the same strength as existing crust on either side of the trench. Care shall be taken to avoid the formation of a dip at the trench. *	NJA
(f) The excavation shall be protected by flagman, signs and barricades and red lights during night hours. *	N/A
(g) If required, a diversion shall be constructed at the expense of agency owing the utility line.*	N/A
VI. Horizontal Directional Drilling (HDD) Method *	YES
VII. Laying OFC through CD Works and Method of laying (Whether to be hung outside parapet).	N/A
16. Draft license Agreement signed by two witnesses. *	Yes



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the traffic *

e) Undertaking for management of traffic

movement during laying of utility line without hampering



Yes

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f) Undertaking that if any claim is raised by the concessionaire/ contractor then the same has to be paid by the applicant. *	Yes
g) Undertaking that prior approval of the NHAI shall be obtained before undertaking any work of installation, shifting or repairs, or alteration to the utility located in the National Highway Right of Ways. *	Yes
h) Undertaking that expenditure is any incurred by NHAI for repairing any damage cause to the NH by laying, maintenance of shifting of the utility line will be borne by the applicant agency owing the line. *	Yes
i) Undertaking that text of the license deal is as per verbation of format issued by MoRTH vide circular no. RW/NH/33044/29/2015/S&R dated 22.11.2016 *	Yes
j) Undertaking for shifting of utility as and when asked by MoRTHJ NHAL.*	Yes

k) Certificate from the applicant in the following format

I) We do undertake that I/we will relocate service road/approach road/utilities at my/our own cost not withstanding the permission granted within such time us will be stipulated by NHAI for future six laning or/any other development

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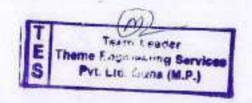
Raghogarhi

10/1

Team Leader

VALUE	
19. Who will sign the agreement on behalf of Applicant agency? Power of Attorney to sign the agreement is available or not.	DGM MPMKVVCL Raghogarh Guna
20. The Power of Attorney is in favour of authorized signatory? *	Yes

			Locat	ions		
Sno	State	District	Highway /Stretch	Start Point	End Point	View
1	MADHYA PRADESH	GUNA	NH46 [NH46] (145,000- 445,000) From Km: 269,98 To Km: 289,98	Chainage Point: 269.98 Lat: 24.254 Lng: 77.060	Chainage Point: 269.96 Lat: 24.254 Lng: 77.060	View

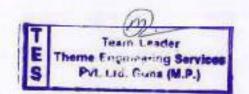




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		Documents		
ino	Stage	Document	Mandatory	Action
	Under Submission	Layout and Drawings	Yes	View
2	Under Submission	Any Other Supporting Document	No	-
3	Under Submission	Any Document to indicate commercial activities are allowed on the land.	No	
4	Under Submission	Safety Clearance from Directorate of Electricity	No	==
5	Under Submission	Safety Clearance from Chief Controller of Explosives	No	-
6	Under Submission	Safety Clearance from Petroleum and Explosives Safety Organisation	No	1.77
7	Under Submission	Safety Clearance from O1 Industry Safety Directorate	No	-
8	Under Submission	Safety Clearance from State/Central Pollution Control Board	No	7
9	Under	Any Other Statutory Clearance as applicable	No	-

	Applicable Fee Details					
Sno	Fee Head	Stage	Fee	Amount	Status	
1	Utility Fees	Technical Approval	License Fees	0		

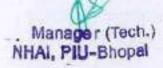




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Check List

S.No	Items	Information/Status	Remaks
1	General Information		nemans
1.1	Name and Address of the Annual Control	DGM MPMKVVCL,	
1.2	Name and Address of the Applicant / Agency National Highyway Number	RAGHOGARH GUNA	
1.3	State	NH-46	
1.4	Location	MADHYA PRADESH	
7117		11 KV RAMDI FEEDER	
1.5	(Chainage in KM)	269+980 LHS , 269+980 RHS	
1.6	Length in Meters	60 m Acoss the Highway	
1.7	Width of available ROW	50m	
	a) Width Left side from center line	30m	
	b) Width Right side from center line	30m	
1.8	Proposal to lay undergrond Eletrical cable	Acress the national highyway	
8	a) Left side from the center line towards increasing chainage/ KM direction		
2007	 b) Right side from the center line towards increasing chainage/ KM direction 		IEW DODAY
1.9	Proposal to aquire land	NA NA	
	a) Left side from center line	NA NA	
	b) Right side from center line	NA NA	
1.11	Whether proposal is in the same side where land is not to be acquired	no acquistion of land required	
	If not then where to lay the pipelines	Across the national highyway	
1.12	Details of aready laid services, if any, along the proposed route	NA	
1.13	No of lanes (2/4/6/8 lanes)	4 lanes	
1.14	Services road existing or not	No services road exist	
	if yes then which side		
	a) Left side from center line	No services road exist	
	b) Right side from center line	NA NA	
5-15-16-1	Propose d service line	NA NA	
	a) Left side from center line		
	b) Right side from center line		
	Where proposed to lay eletrical pipeline is after the		
1.16	service road or between the service road and main carriageway		
1	Considered for approval / rejection based on the Ministry Circular mentioned as above		CIT I
2	a) Carring of eletrical pipeline on Highway bridges shall not be permitted as eletrical pipes can accelerate the process of corrosion thus being much more injurious	NA .	





M P M K-V V CO LTD Raghegarh

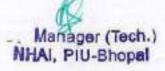
	b) Carrying of Eletrical pipelines on bridges shall also discouraged however if the Eletrical supply authorities seem to have no other viable alternative and approach the highway authority well in time before the design of the bridge in finalized they may be permitted to carrry the pipeline on independent super structure supported on extended portion of piers and abutments in such a manner that in the final arangement enough free spade around the super structure of the bridge remains available for inspection and repairs.	NA	
	c) Cost of required extension of the substructure as well as that of the supporting super structure shall be borne by the agency-in-charge of the utilities	NA	
0	d) Services are not being allowed indiscriminately on the parapet/any of the bridges, safety of the bridge has to be kept in view while permitting various services along bridge. Appeavals to be accorded in this regard with the concurrence of the Ministries Project Cief Engineers only.	NA .	
1.18	Whether crossing of the involved	Yes	
	If yes, it shall be either enclosed in pipes or through structure or conduits specially built for that purpose at the expensed of the agency owning the line.	Yes, Enclosed in pipes	
	a) Exiting drainage structure shall not be allowed to carry the lines	Yes	
	b) Is it on a line normal to NH	Yes	
	c)Crossing shall not to be too near the exixting structure on the national highway the minimum distance bring 15 meter	Yes more than 15 mtrs	V-52-1
	d) The casing pipes carriying the utility lines shall be of steel, case, iron or reinforced cement concrete and have adequate strength and be large enough to permit ready with drawl of the carrier pipe/ cable.	Yes	
	 e) Ends of the casing/conduit pipes shall be sealed from the outside so that it does not act as a drainage path. 	Yes	
- 1	f) The casing/ conduit pipe should as minimum extend from drain to drain in cutsand toe of the slope in the fills	Yes	in HEL

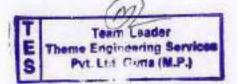
Man ager (Tech.) NHAI, PIU-Bhopal





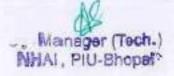
	g) The top of the caing/ conduit pipe should be at least 1,20 meter below the surface of the road.	Yes	
	h) The casinf/conduit pipe shall be done by boring (HDD) or digging a trench. Installation by boring method shall be preferred.	Yes (HDD Method)	
2	Document/Drawing enclosed with proposal	Yes	
2.1	Cross section showing the size of trench for open trencing method (is it normal size of 1.2m x 0.3 wide)	NA -	
	i) Should be greater that 60 cm wider than outer diameter of the pipe	NA	
	Located as close to the extreme edge of the right meter from the centre lines of the nearest carriageway.	NA	
0	iii) Shall not be permitted to run along the national highways when the road formation is situated in double cutting. Nor shall these be laid over the existing culverts and bridges.	NA	
	iv) These should be so laid that their top is at least 0.6 meter below the ground level so as not to obstruct drainage of the road land.	NA	
2.2	Cross section showing the sixe pit and location of cable for HDD method	Yes	
2.3	Strip plan/ route plan showing Eletrical pipeline chainage, width of ROW, distance of proposed cable from the edge of ROW important mile stone, cross section etc.	Incorparated in the drawing	COLOR DE MIN
2.4			
2.4.1	Open trenching method (may be allowed in utility corriod only where pave ment is neither cement concrete nor dense bituminous concrete type If yes, methodology of refilling of trench	NA	L SVIDT
	a)Trench width should be at least 30 cm but not more than 60 cm wider than the outer diameter of the pipe.	NA.	
	b) For thefilling of the trench bedding shall be to a depth of not less than 30 cm. it shall consist of granular material free of lumps, clods and cobbles and graded to yelld a firm surfacewithout sudden change in the bearing value unsuitable soi and rock edged should be excavated and replaced by selected material.	NA	

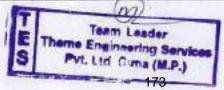






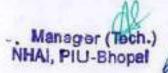
	C) The side fill shall consist of granular material laid in 15 cm layers each consolidated by mechnival tampering and controlled addition of moisture of 95% of Proctor's Density. Over fill shall of compacted to the same density as the material that had been removed. Consolidation by saturation or pendingwill not be permitted.	NA
	d) The road crust shall be built to the same strength as the existing crust on the either side of the trench care shall be taken to avoid the formation of a dip at the trench.	NA
	e) The excavation shall be protected by flagman signs and barricades and red light during night hours.	NA
	f) if Required a diversion shall be constructed at the expends of agency owing the utilityline.	NA
1.2	Horizontal directional drilling (HDD) METHOD	yes
3	Draft License Agreement signed by two witness	yes
4	Performance bank guarantee in favor of NHAI has to be obtained @Rs 200/- per running meter (parallel to NH) and Rs100000/- per crossing of NH for a period of one year initially (extendable if required till satisfactory completion of work) as a security for ensuring /making good the excavated trench for laying the cables/ducts by proper filling and compaction clearing Debris/loose earth produced due to execution of trenching at least 50 m away from the edge of the right of way. No payment shall be payable by the NHAI to the license for clearing debris/loose, earth.	
4.1	Performance BG as per above is to be obtained	YES
4.2	Confirmation of BG has been obtained as per NHAI guidelines	YES
5	Afficiavit/undertaking from the application	YES
5.1	Not to damage to other utility If damaged than pay the losses either to NHAI or to the concerned agency	YES
5.2	Renewal of Bank Guarantee	YES
5.3	Confirming all standard condition of NHAI'S guideline	YES
5.4	Shifting of Electrical supply pipe line as and when required by NHAI at their own cost	YES

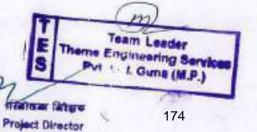




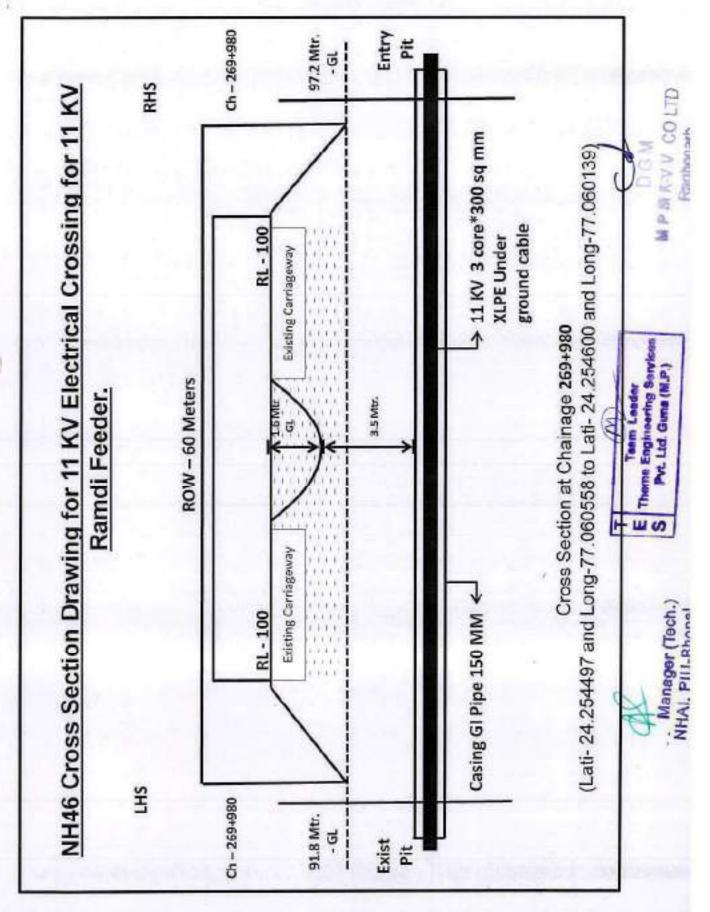


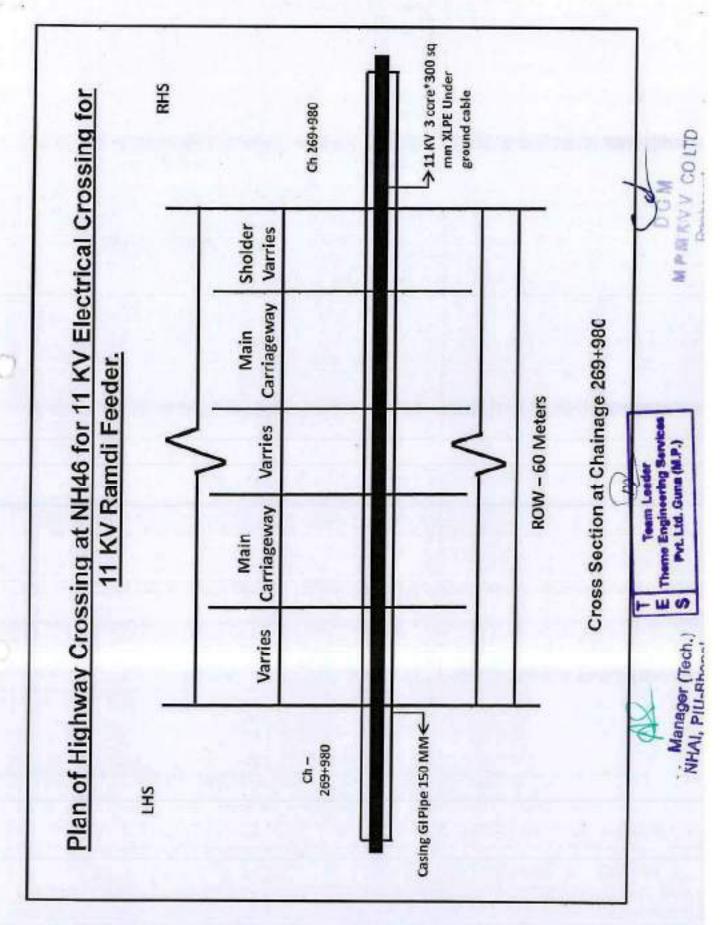
5.5	Shifting due to 6 lanning/wedding of NII	YES	
5.6	Indemnity against all damages and alarms clause [xxiv]	YES	
5.7	Traffic movement during laying of Electrical supply pipe line to be managed by the applicant	YES	
5.8	If any claim is raised by the concessionaire then the same has to be paid by the applicant A	YES	Section 1
5.9	Prior approval of the NHAI shall be obtained before undertaking any work if installation shifting or repairs or alteration to the showing Electrical supply pipe line located in the National Highway rights or ways	YES	
5.10.	Expenditure if any incurred by NHAI for repairing any damage caused to the National Highway by the laying maintenance or shifting of the Electrical supply pipe line will be borne by the agency owing the line.	YES	
5.11	If the NHAI considers it necessary in future to move the utility line for any work of improvement or repairs to the road it will be carried out as desired by the NHAI at the cost of the agency owning the utility line within a reasonable time not exceeding 60 days) of the intimation given	YES	
5.12	Certified from the application in the following format	YES	
	i) laying of Electrical supply pipe line will not have any deleterious effects on any of the bridge components and roadway safety for traffic	YES	
	ii) for 6-lanning we do undertake that will relocate service road/ utility at my own cost notwithstanding the permission granted with such time as will be stipulated by NHAI for future six lanning or any other development.	YES	
6	Who will sign the agreement on behalf of Electrical supply pipe line agency?	DGM MPMKVVCL, RAGHOGARH GUNA	
7	Certified from the Project Director		
7.1	Certified for confirming of all standard condition issued vide ministry circular no. F.NO. RW/NH- 33044/29/2015/5&R 22/11/2016 Dated	YES	

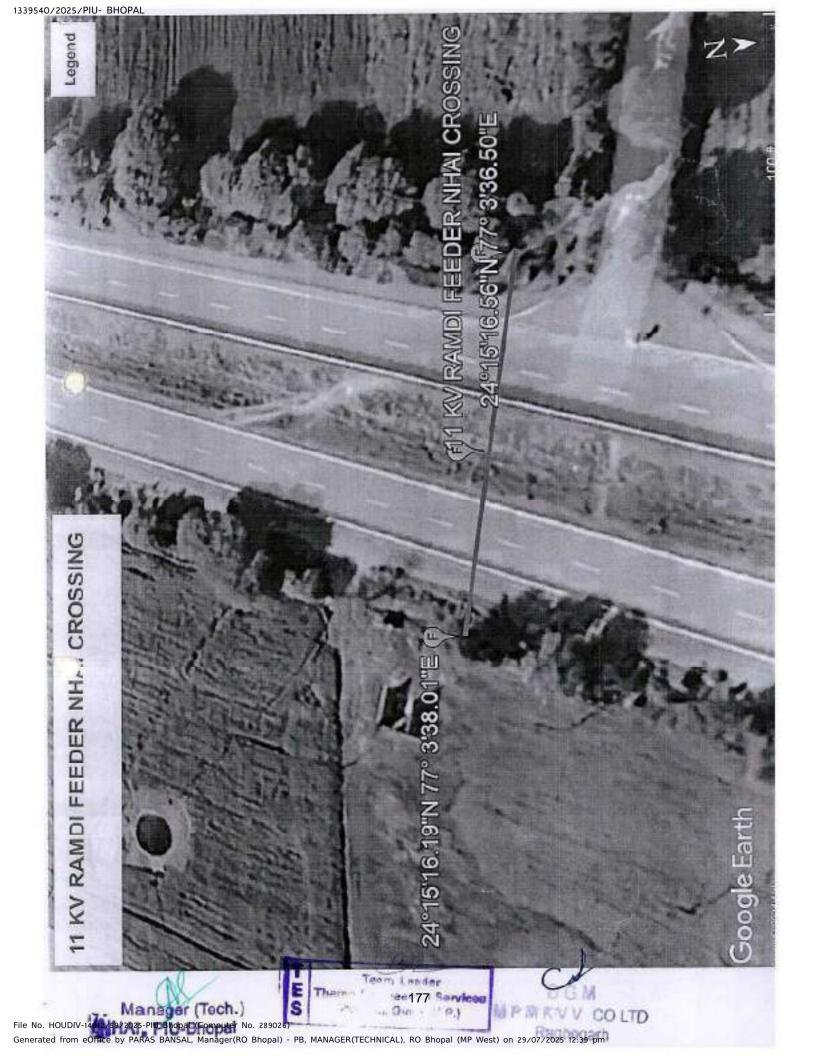












Top of the Road METHOD OF INSTALLATION OF CASING PIPE FOR CROSSING OF HIGHWAY Gt Pipe of 150 MM Dia Subgrade Top

M P. M. R. V. V. D. Brothand

Cross section of HDD Crossing Pipe

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The Horizontal Directional Drilling Process

The tools and techniques used in the horizontal directional drilling (HDD) process are an outgrowth of the oil well drilling industry. The components of a horizontal drilling rig used for cipeline construction are similar to those of an oil well drilling rig with the major exception being that a horizontal drilling rig is equipped with an inclined ramp as opposed to a ventical mast. HDD pilot hole operations are not unlike those involved in drilling a directional oil well. Drill pipe and downhole tools are generally interchangeable and drilling fluid is used throughout the operation to transport drilled spoil, raduce friction, stabilize the hole, etc. Because of these smilarities, the process is generally referred to as drilling as opposed to boring.

Installation of a pipeline by HDD is generally accomplished in three stages as illustrated in Figure 1. The first stage consists of directionally drilling a small diameter pilot hole along a designed directional path. The second stage involves enlarging this pilot hole to a diameter suitable for installation of the pipeline. The third stage consists of pulling the pipeline back into the enlarged hole.

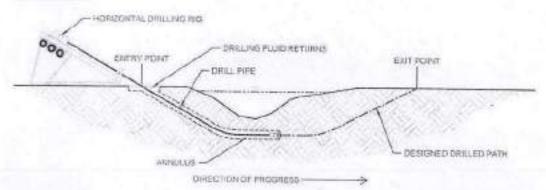
Pilot Hole Directional Drilling

Pilot hole directional control is achieved by using a non-rorating drill string with an asymmetrical leading edge. The asymmetry of the leading edge creates a steering bias while the non-rotating aspect of the drill string allows the steering bias to be held in a specific position while drilling. If a change in direction is required, the drill string is rolled so that the direction of bias is the same as the desired change in cirection. The direction of bias is referred to as the tool face. Straight progress may be achieved by drilling with a series of offsetting tool face positions. The drill string may also be continually rotated where directional control is not required. Leading edge asymmetry can be accomplished by several methods. Typically, the leading edge will have an angular offset created by a bent sub-or-bent motor bousing. This is illustrated schematically in Figure 2.

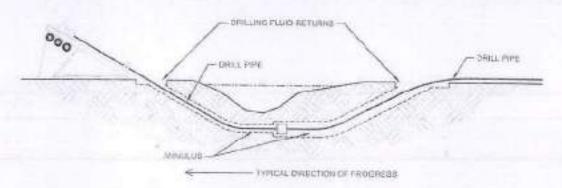
It is common in soft soils to achieve drilling progress by hydraulic cutting with a jet nozzle. In this case, the direction of flow from the nozzle can be offset from the central axis of the drill string thereby creating a steering bias. This may be accomplished by blocking selected nozzles on a standard roller cone bit or by custom fabricating a jet deflection bit. If hard spots are encountered, the drill string may be rotated to drill without directional control until the hard spot has been ponetrated.

DGM MFRAVV COLTD Raghagarh

PILOT HOLE



PREREAMING



PULLBACK

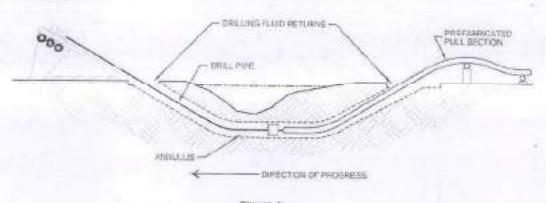


Figure 1 The HDO Process



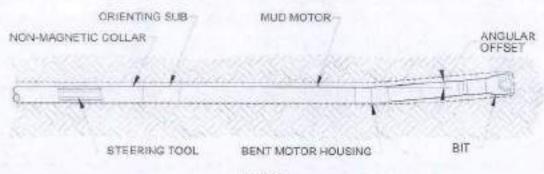


Figure 2 Bottom Hole Assembly

Downhole Motors

Downhole mechanical cutting action required for harder soils is provided by downhole hydrautic motors. Downhole hydrautic motors, commonly referred to as mud motors, convert hydrautic energy from drilling mud pumped from the surface to inschanical energy at the bit. This allows for bit rotation without drill string rotation. There are two basic types of mud motors, positive displacement and turbine. Positive displacement motors are typically used in HDD applications. Basically, a positive displacement mud motor consists of a spiral-shaped stator containing a sinusoidal shaped rotor. Mud flow through the stator imparts rotation to the inter which is in turn connected through a linkage to the bit.

In some cases, a larger diameter wash pipe may be rotated concentrically over the non-rotating steerable drift string. This serves to prevent sticking of the steerable string and allows its tool face to be feetly oriented. It also maintains the pilot hole if it becomes necessary to withdraw the steerable string.

Downhole Surveying

The actual path of the pilot hole is monitored during drilling by taking periodic readings of the inclination and azimuth of the leading edge. Readings are taken with an instrument, commonly referred to as a probe, inserted in a drill collar as close as possible to the drill bit. Transmission of downhole probe survey readings to the surface is generally accomplished through a wine running inside the drill string. These readings, in conjunction with measurements of the distance drilled since the last survey, are used to calculate the horizontal and vertical coordinates along the pilot hole relative to the initial entry point on the surface.

Azimuth readings are taken from the earth's magnetic field and are subject to interference from downhole tools, drill pipe, and magnetic fields created by adjacent structures. Therefore, the probe must be inserted in a non-magnetic coller and positioned in the string so that it is adequately isolated from downhole tools and drill pipe. The combination of bit, mud motor (if used), subs. survey probe, and non-magnetic collers is referred to as the Bottom Hole Assembly or BHA. A typical bottom hole assembly is shown as Figure 2.

Surface Monitoring

The pilot hole path may also be tracked using a surface monitoring system. Surface monitoring systems determine the location of the probe downhole by taking measurements from a grid or proint on the surface. An example of this is the TruTracker System. This system uses a surface coil of known location to induce a magnetic field. The probe senses its location relative to this



induced magnetic field and communicates this information to the surface. This is shown schematically in Figure 3.

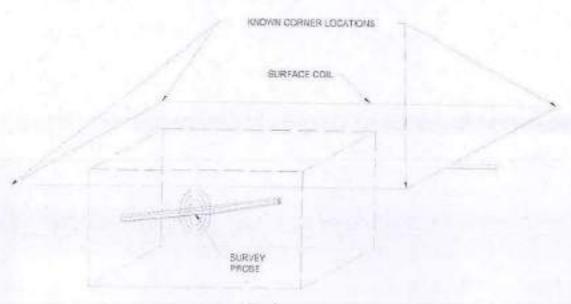


Figure 3
TruTracker Surface Monitoring System

Reaming & Pullback

Enlarging the pilot hole is accomplished using either prereaming passes prior to pipe installation or simultaneously during pipe installation. Reaming tools typically consist of a circular erray of cutters and drilling fluid jets and are often custom made by contractors for a particular hole size or type of soil.

Prereaming

Most contractors will opt to preream a pilot hole before attempting to install pipe. For a prereaming pass, reamers attached to the drill string at the exit point are rotated and drawn to the drilling rig thus enlarging the pilot hole. Only pipe is added behind the reamers as they progress toward the drill rig. This insures that a string of pipe is always maintained in the drilled hole. It is also possible to ream away from the drilling. In this case, reamers fitted into the drill string at the rig are rotated and thrust away from it.

Pullback

Pipe Installation is accomplished by attaching the prefabricated pipeline pull section behind a rearning assembly at the exit point and pulling the rearning assembly and pull section back to the drilling rig. This is undertaken after completion of prerearning or, for smaller diameter lines in soft soils, directly after completion of the pilot hole. A swivet is utilized to connect the pull section to the leading rearning assembly to minimize torsion transmitted to the pipe. The pull section is supported using some combination of roller stands, pipe handling equipment, or a floration directly minimize tension and prevent damage to the pipe.



Buoyancy Control

Uplift forces resulting from the budyancy of larger diameter lines can be very substantial. High pulling forces may be required to overcome drag resulting from budyancy uplift. Therefore, contractors will often implement measures to control the budyancy of pipe 30 inches or over in diameter. The most common method of controlling budyancy is to fill the pipe with water as it enters the hole. This requires an internal fill line to discharge water at the leading edge of the pull section (after the breakover point). An air line may also be required to break the vacuum which may form at the leading edge as the pull section is pulled up to the rig. The amount of water placed in the pipe is controlled to provide the most advantageous distribution of budyant forces. Some contractors may choose to establish a constant budyancy. This can be accomplished by inserting a smaller diameter line into the pull section and filling the smaller line with water. The smaller line is sized to hold the volume of water required per lineal foot to offset the uplift lorces.



2020, 10.04	1 F (40 W 2 1 V 200 C 48 C - 0 V 20 C)	
Application I	Details [20241124/1/5/33029/12642]	
Highway	NH46 [NH46]	
Name of Highway Authority	NHAI Dwarka New delhi	
Highway Administration Address	Regional Office- Jabalpur Regional Office- Jabalpur	
Whether the Fuel Station is part of Rest- area complex	of Rest- No	
Name of Applicant/Oil Company	Madhya Pradesh Madhya Kshetra Vidyut Vitaran Company Limited Address: NEAR OF NAGAR PALIKA RAGHOGARH GUNA MADHYA PRADESH, GUNA (MADHYA PRADESH), PIN: 473226 Phn: 9406913711 Email: ANISHRAJPUT.CZ@MP.GOV.IN	
Application Category	Public Utility	
Utility	Pipes	
State	MADHYA PRADESH	
Туре	New	
Remarks	11 KV PATONDI FEEDER UNDER GROUND HIGHWAY CROSSING	
Submitted On	18 Jun 2025 11:12:10	





	Details
1. Length in Meters *	60
2. Width of available ROW	
I. Left side from center line towards increasing chainage OR km direction *	273.120
II. Right side from center line towards increasing chainage OR km direction *	273.120
3. Proposal to lay the utility	
I. Left side from center line towards increasing chainage OR km direction *	0
II. Right side from center line towards Increasing chainage OR km direction *	0
4. Proposal to acquire the land	
I. Left side from center line *	0
II. Right side from center line	0
5. Whether proposal is in the same side where land is not to be acquired *	No
If not then where to lay the cable *	NA HDD CROSSING
6. Details of already laid services if any along the proposed route *	N/A
7. Number of Existing lanes *	4 Lane
8. Proposed number of lanes	4 Lane

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MPNIKVY COLTD

Panhagarh

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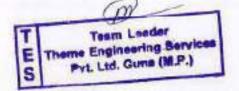
MoRTH Utility Portel
Yes, GI PIPE
Yes
Yes
YES
Yes (HDD Method)

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MPRIKVY COLTD Raghogarh

6/2025, 16:04	MoRTH Littley Portal
I. Where the ROW is more than 45 M then the duct cable shall be laid at the edge of right of way within the utility corridor of 2 M width, duly keeping in view the future widening. *	NA
II. Where land is yet to be acquired for 4 laning and the position of new carriageway has been decided then the cable shall be laid at the edge of right of way within the utility corridor of 2 M width, on that side of existing carriageway where extra land is not proposed to be acquired for 4 laning. *	N/A
III. Where the widening plan for 4 laning is not yet decided and available ROW is around 30 M or less, a judicious decision would need to be taken for permitting the laying of cable/duct. This could be within 1.5 M to 2m of utility corridor at the edge of existing ROW, duly keeping in view the possible widening plans. *	N/A





2020, 10:104	
IV. Where ROW is restricted and adequate only to accommodate the carriageway, central verge, shoulders and drains (e.g. Highways in cutting through hilly/rolling terrain), the cable shall be laid clear of the drain. *	N/A
V. Where land strip for utility corridor can't be conveniently earmarked (available ROW restricted to the toe of the embankment) for laying of cable/ducts, the permission may be refused. *	N/A
15. Document/Drawings enclosed with the proposal *	Yes
I. Cross section showing the size of trench for open trenching method (is it normal size of 1.2m (min.) deep x 0.3 wide) *	N/A
II. Cross section showing the size of pit and location of cable for HDD method *	YES
III. Strip plan/ Route plan showing the OFC, Chainage width of ROW, distance of proposed, cable from the edge of ROW, important mile stone, intersections, cross drainage works etc. *	Incorporated in the Drawing
IV. Methodology of laying of the Utility Pipeline/OFC *	Yes, Enclosed.

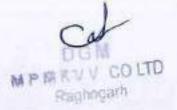
https://morthnoc.nic.in/auth/usersU/application/PMorhtm?EncHid=16579528666_cstt_id=18application_id=126428_utility_d=5 Theme Engineering Services
Pvt. Ltd. Gi262 M.P.) ES

MPMRVV COLTD Raghogath

/PIU- BHOPAL 18/2025, 16:04	McRTH Utility Portal
V. Open trenching method (may be allowed in utility corridor only where pavement is neither cement concrete nor dense bituminous concrete type) If yes what is the Methodology of refilling of trench *	N/A
(a) The trench width should be at least 30 cms but not more than 60 cms wider than the outer diameter of the pipe	N/A
(b) For filling of the trench, bedding shall be to a depth of not less than 30 cms. It shall consist of granular material, free of lumps, clods, cobbles and graded to yiled firm surface without sudden change in the bearing value, unsuitable soil and rock edges should be excavated and replaced by selected material.*	N/A
(c) The backfill shall be completed in two stages, i) Side fill to the level of the top of the pipe and ii) Overfill to	N/A



the bottom of the road crust "



8/2025, 16:04	MUCIN CHILY CHILL
(d) The side fill shall consist of granular material laid in 15 cms, layers each consolidated by mechanical tampering and controlled addition of moisture to 95% of the proctor density. Overfill shall be compacted to the same density as the material that has been removed.*	N/A
(e) The road crust shall be built to the same strength as existing crust on either side of the trench. Care shall be taken to avoid the formation of a dip at the trench. *	N/A
(f) The excavation shall be protected by flagman, signs and barricades and red lights during night hours. *	N/A
(g) If required, a diversion shall be constructed at the expense of agency owing the utility line.*	N/A
VI. Horizontal Directional Drilling (HDD) Method *	YES
VII. Laying OFC through CD Works and Method of laying (Whether to be hung outside parapet). *	N/A
16. Draft license Agreement signed by two witnesses. *	Yes

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MPMRVV COLTD Raginagarh

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I. The license fee estimate as per Ministry's guidelines issued vide circular no. RW/NH/33044/29/2015/S&R dated 22.11.2016. *	Yes
17. Whether Performance Bank Guarantee Is as per Ministry's guidelines issued vide circular no. RW/NH/33044/29/2015/S&R, dated 22.11.2016. *	Yes
I. Confirmation of BG has been obtained as per MoRTH guidelines *	Yes
18. Affidavit/Undertaking from the Applicant for	or following is to be furnished
a) Undertaking not to Damage to other utility, if damage then to pay the losses either to NHAI or the concerned agency. *	Yes
b) Undertaking Renewal of Bank Guarantee as and when asked by MoRTH. *	Yes
e) Undertaking Confirming all standard condition of Ministry's guidelines. *	Yes
d) Undertaking for indemnity against all damages and claims *	Yes
e) Undertaking for management of traffic movement during laying of utility line without hampering	Yes
the traffic *	

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E Thome Engineering Services Put. Ltd. C. 205 P.)

MPMRVV COLTD Ragingarh

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06/2025, 16:04	MaRTH Unity Ponal
f) Undertaking that if any claim is raised by the concessionaire/ contractor then the same has to be paid by the applicant. *	Yes
g) Undertaking that prior approval of the NHAI shall be obtained before undertaking any work of installation, shifting or repairs, or alteration to the utility located in the National Highway Right of Ways.*	Yes
h) Undertaking that expenditure is any incurred by NHAI for repairing any damage cause to the NH by laying, maintenance of shifting of the utility line will be borne by the applicant agency owing the line. *	Yes
i) Undertaking that text of the license deal is as per verbatim of format issued by MoRTH vide circular no. RW/NH/33044/29/2015/S&R dated 22.11.2016 *	Yes
j) Undertaking for shifting of utility as and when asked by MoRTH/ NHAI. *	Yes

k) Certificate from the applicant in the following format

i) We do undertake that I/we will relocate service road/approach road/utilities at my/our own cost not withstanding the permission granted within such time us will be stipulated by NHAI for future six laning or/any other development

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Team Leader
Therms Engineering Services
Pvt Ltd. Guns (M.P.)

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19. Who will sign the agreement on behalf of Applicant agency? Power of Attorney to sign the agreement is available or not.	DGM MPMKVVCL Raghogarh Guna
28. The Power of Attorney Is in favour of authorized signatory? *	Yes

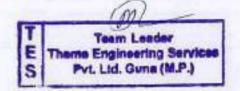
			Locat	ions		
Sno	State	District	Highway /Stretch	Start Point	End Point	View
1	MADHYA PRADESH	GUNA	NH46 [NH46] (145.000- 445.000) From Km: 273.12 To Km: 273.12	Chainage Point: 273.12 Lat: 24.228 Lng: 77.049	Chainage Point: 273.12 Lat: 24.228 Lng: 77.049	View





		Documents		
Sno	Stage	Document	Mandatory	Action
1	Under Submission	Layout and Drawings	Yes	View
2	Under Submission	Any Other Supporting Document	No	-
3	Under Submission	Any Document to indicate commercial activities are allowed on the land.	No	-
4	Under Submission	Safety Clearance from Directorate of Electricity	No	77
5	Under Submission	Safety Clearance from Chief Controller of Explosives	No	2
6	Under Submission	Safety Clearance from Petroleum and Explosives Safety Organisation	No	*
7	Under Submission	Safety Clearance from Oil Industry Safety Directorate	No	1 2
8	Under Submission	Safety Clearance from State/Central Pollution Control Board	No	4
9	Under Submission	Any Other Statutory Clearance as applicable	No	-

			Applicable	Fee Details	
Sno	Fee Head	Stage	Fee	Amount	Status
1	Utility Fees	Technical Approval	License Fees	792.00	

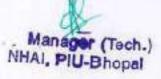




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Check List

No	Items	Information/Status	Remaks
1	General Information		
ac.	TOTAL CONTRACTOR PRODUCTION	DGM MPMKVVCL,	
.1	Name and Address of the Applicant / Agency	RAGHOGARH GUNA	
.2	National Highyway Number	NH-46	
.3	State	MADHYA PRADESH	
.4	Location	11 KV PATAUDI FEEDER	
.5	(Chainage in KM)	273+120 LHS , 273+120 RHS	
.6	Length in Meters	60 m Acoss the Highway	
.7	Width of availble ROW	60m	
-	a) Width Left side from center line	30m	
	b) Width Right side from center line	30m	
		Across the national	
1.3	Proposal to lay undergrond Eletrical cable	highyway	
	a) Left side from the center line towards increasing chainage/ KM direction		
	b) Right side from the center line towards increasing chainage/ KM direction		
	Proposal to aquire land	NA NA	
1.9	a) Left side from center line	NA NA	
	b) Right side from center line	NA NA	
-	Whether proposal is in the same side where land is not	no acquistion of land	
.11	to be acquired	required	
	If not then where to lay the pipelines	Across the national highyway	
.12	Details of aready laid services, if any, along the proposed route	NA NA	
1.13	No of lanes (2/4/6/8 lanes)	4 lanes	
.14	Services road existing or not	No services road exist	- 4
Lie	if yes then which side	No services road exist	
_	a) Left side from center line	NA NA	
	b) Right side from center line	NA	
	Proposed service line		
1.15	a) Left side from center line		
_	b) Right side from center line	-	
	Where proposed to lay eletrical pipeline is after the		
· ·	service road or between the service road and main	-	
1.16			
	carriageway Considered for approval / rejection based on the		
1.17	Considered for approval / rejection based on the		
	Ministry Circular mentioned as above		
	 a) Carring of eletrical pipeline on Highway bridges shall not be permitted as eletrical pipes can accelerate the process of corrosion thus being much more injurious 	NA	





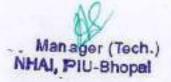


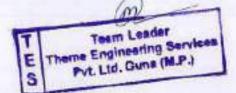
	b) Carrying of Eletrical pipelines on bridges shall also discouraged however if the Eletrical supply authorities seem to have no other viable alternative and approach the highway authority well in time before the dasign of the bridge in finalized they may be permitted to carrry the pipeline on independent super structure supported on extended portion of plers and abutments in such a manner that in the final arangement enough free spade around the super structure of the bridge remains available for inspection and repairs.	NA	
	c) Cost of required extension of the substructure as well as that of the supporting super structure shall be borne by the agency-in- charge of the utilities	NA.	
2	d) Services are not being allowed indiscriminately on the parapet/any of the bridges, safety of the bridge has to be kept in view while permitting various services along bridge. Appeavals to be accorded in this regard with the concurrence of the Ministries Project Clef Engineers only.	NA	
1.18	Whether crossing of the involved	Yes	
	If yes, it shall be either enclosed in pipes or through structure or conduits specially built for that purpose at the expensed of the agency owning the line.	Yes, Enclosed in pipes	
	a) Exiting drainage structure shall not be allowed to carry the lines	Yes	
	b) is it on a line normal to NH	Yes	
	c)Crossing shall not to be too near the exixting structure on the national highway the minimum distance bring 15 meter	Yes more than 15 mtrs	
	d) The casing pipes carriying the utility lines shall be of steel, case, iron or reinforced cement concrete and have adequate strength and be large enough to permit ready with drawl of the carrier pipe/ cable.	Yes	
	e) Ends of the casing/conduit pipes shall be sealed from the outside so that it does not act as a drainage path.	Yes	
	The casing/ conduit pipe should as minimum extend from drain to drain in cutsand toe of the slope in the fills	Yes	

, Manager (Tech.) NHAI, PIU-Bhopal Team Leader
Therne Engineering Services
Pri. Ltd. Guns (M.P.)

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	g) The top of the caing/ conduit pipe should be at least 1.20 meter below the surface of the road.	Yes	
	h) The casinf/conduit pipe shall be done by boring (HDD) or digging a trench. Installation by boring method shall be preferred.	Yes (HDD Method)	
2	Document/Drawing enclosed with proposal	Yes	
2.1	Cross section showing the size of trench for open trencing method (is it normal size of 1.2m x 0.3 wide)	NA	- Jeoglas
	i) Should be greater that 60 cm wider than outer diameter of the pipe	NA	
	ii) Located as close to the extreme edge of the right 15 meter from the centre lines of the nearest carriageway.	NA NA	
	iii) Shall not be permitted to run along the national highways when the road formation is situated in double cutting. Nor shall these be laid over the existing culverts and bridges.	NA	
	iv) These should be so laid that their top is at least 0.6 meter below the ground level so as not to obstruct drainage of the road land.	NA	
2.2	Cross section showing the sixe pit and location of cable for HDD method	Yes	E-Ville
2.3	Strip plan/ route plan showing Eletrical pipeline chainage, width of ROW, distance of proposed cable from the edge of ROW important mile stone, cross section etc.	Incorparated in the drawing	
2.4			
2.4.1	Open trenching method (may be allowed in utility corriod only where pave ment is neither coment concrete nor dense bituminous concrete type If yes, methodology of refilling of trench	NA	
	a)Trench width should be at least 30 cm but not more than 60 cm wider than the outer diameter of the pipe.	NA	
	b) For thefilling of the trench bedding shall be to a depth of not less than 30 cm, it shall consist of granular material free of lumps, clods and cobbles and graded to yell d a firm surfacewithout sudden change in the bearing value unsuitable soi and rock edged should be excavated and replaced by selected material.	NA	







	C) The side fill shall consist of granular material laid in 15 cm layers each consolidated by mechnival tampering and controlled addition of moisture of 95% of Proctor's Density. Over fill shall of compacted to the same density as the material that had been removed. Consolidation by saturation or pendingwill not be permitted.	NA	
	d) The road crust shall be built to the same strength as the existing crust on the either side of the trench care shall be taken to avoid the formation of a dip at the trench.	NA	
	e) The excavation shall be protected by flagman signs and barricades and red light during night hours.	NA	
	f) if Required a diversion shall be constructed at the expends of agency owing the utilityline.	NA	
2.4.2	Horizontal directional drilling (HDD) METHOD	yes	
3	Draft License Agreement signed by two witness	yes	
4	completion of work) as a security for ensuring /making good the excavated trench for laying the cables/ducts by proper filling and compaction clearing Debris/loose earth produced due to execution of trenching at least 50 m away from the edge of the right of way. No payment shall be payable by the NHAI to the license for clearing debris/loose, earth.		
4.1	Performance BG as per above is to be obtained	YES	
4.2	Confirmation of BG has been obtained as per NHAI guidelines	YES	
5	Affidavit/undertaking from the application	YES	
5.1	Not to damage to other utility If damaged than pay the losses either to NHAI or to the concerned agency	YES	
5.2	Renewal of Bank Guarantee	YES	
5.3	Confirming all standard condition of NHAI'S guideline	YES	
5.4	Shifting of Electrical supply pipe line as and when required by NHAI at their own cost	YES	
5.5	Shifting due to 6 lanning/wedding of NII	YES	
5.6	Indemnity against all damages and alarms clause (xxiv)	YES	

Manager (Tech.)
NHAI, PIU-Bhopal

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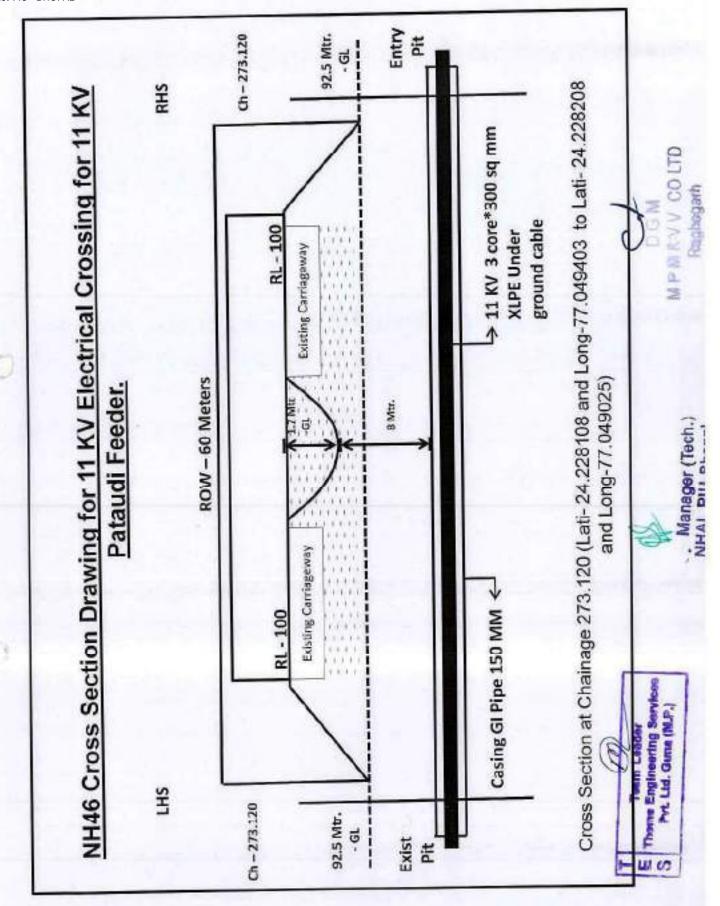
5.7	Traffic movement during laying of Electrical supply pipe line to be managed by the applicant	YES	
5.8	If any claim is raised by the concessionaire then the same has to be paid by the applicant A	YES	
5.9	Prior approval of the NHAI shall be obtained before undertaking any work if installation shifting or repairs or alteration to the showing Electrical supply pipe line located in the National Highway rights or ways	YES	
5.10.	Expenditure if any incurred by NHAI for repairing any damage caused to the National Highway by the laying maintenance or shifting of the Electrical supply pipe line will be borne by the agency owing the line.	YES	
11	If the NHAI considers it necessary in future to move the utility line for any work of improvement or repairs to the road it will be carried out as desired by the NHAI at the cost of the agency owning the utility line within a reasonable time not exceeding 60 days) of the intimation given	YES	
5.12	Certified from the application in the following format	YES	
	laying of Electrical supply pipe line will not have any deleterious effects on any of the bridge components and roadway safety for traffic	YES	
	ii) for 6-lanning we do undertake that will relocate service road/ utility at my own cost notwithstanding the permission granted with such time as will be stipulated by NHAI for future six lanning or any other development.	****** YES	
6	Who will sign the agreement on behalf of Electrical supply pipe line agency?	DGM MPMKVVCL, RAGHOGARH GUNA	
7	Certified from the Project Director		
7.1	Certified for confirming of all standard condition issued vide ministry circular no. F.NO. RW/NH-33044/29/2015/S&R 22/11/2016 Dated	YES	

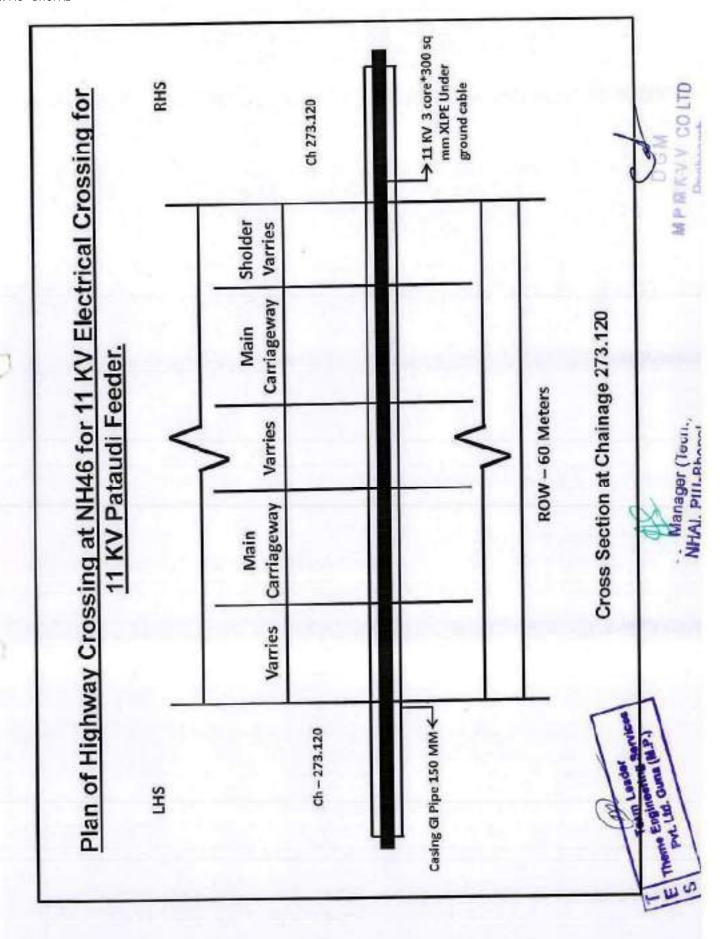
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Team Leader
Theme Engineering Services
S Pvt. Ltd. Guns (M.P.)

Manager (Tech.)
NHAI, PIU-Bhopal

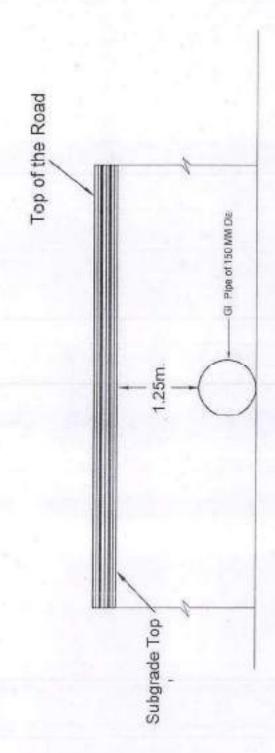
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METHOD OF INSTALLATION OF CASING PIPE FOR CROSSING OF HIGHWAY



Cross section of HDD Crossing Pipe



The Horizontal Directional Drilling Process

The tools and techniques used in the horizontal directional drilling (HDD) process are an outgrowth of the oil well drilling industry. The components of a horizontal drilling rig used for pipeline construction are similar to those of an oil well drilling rig with the major exception being that a horizontal drilling rig is equipped with an inclined ramp as opposed to a vertical mast. HDD pilot hole operations are not unlike those involved in drilling a directional oil well. Drill pipe and cownhole tools are generally interchangeable and drilling fluid is used throughout the operation to transport drilled spoil, reduce friction, stabilize the hole, etc. Because of these similarities, the process is generally referred to as drilling as opposed to boring.

Installation of a pipeline by HDD is generally accomplished in three stages as illustrated in Figure 1. The first stage consists of directionally drilling a small diameter pilot hole along a designed directional path. The second stage involves entarging this pilot hole to a diameter suitable for installation of the pipeline. The third stage consists of pulling the pipeline back into the enlarged hole.

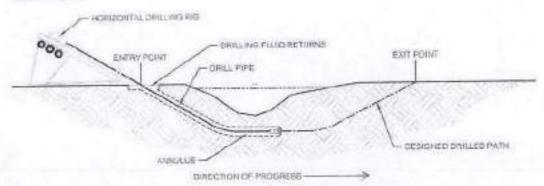
Pilot Hole Directional Drilling

Pilot hole directional control is achieved by using a non-rotating drill string with an asymmetrical leading edge. The asymmetry of the leading edge creates a steering bias while the non-rotating aspect of the drill string allows the steering bias to be held in a specific position while drilling. If a change in direction is required, the drill string is rolled so that the direction of bias is the same as the desired change in direction. The direction of bias is referred to as the tool face. Straight progress may be achieved by drilling with a series of offsetting tool face positions. The drill string may also be continually rotated where directional control is not required. Leading edge asymmetry can be accomplished by several methods. Typically, the leading edge will have an angular offset created by a bent sub or bent motor housing. This is illustrated achiematically in Figure 2.

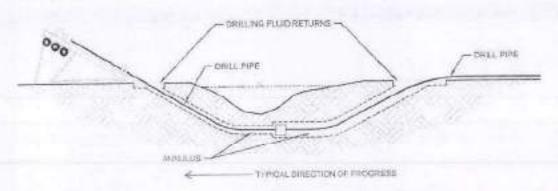
it is common in soft scale to achieve drilling progress by hydraulic cutting with a jet nozzle. In this case, the direction of tow from the nozzle can be offset from the central axis of the drill string thereby creating a steering bias. This may be accomplished by blocking selected nozzles on a standard roller cone bit or by custom fabricating a jet deflection bit. If hard spots are encountered, the drill string may be rotated to drill without directional control until the hard spot has been penetrated.



PILOT HOLE



PREREAMING



PULLBACK

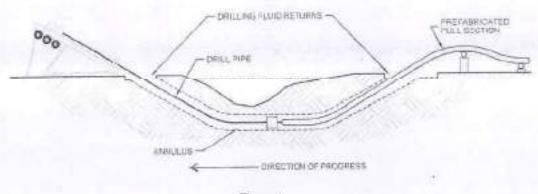


Figure 1 The HDD Process



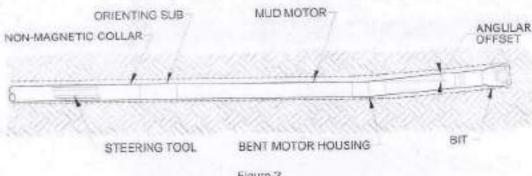


Figure 2 Bottom Hole Assembly

Downhole Motore

Downhole mechanical cutting action required for harder soils is provided by downhole hydraulic motors. Downhole hydraulic motors, commonly reterred to as mud motors, convert hydraulic energy from drilling mud pumped from the surface to mechanical energy at the bit. This allows for bit rotation without drill string rotation. There are two basic types of mud motors; positive displacement and turbine. Positive displacement motors are typically used in HDD applications. Basically, a positive displacement mud motor consists of a spiral-shaped stator containing a safusoidal shaped rotor. Mud flow through the stator imparts rotation to the rotor which is in turn connected through a linkage to the bit.

In some cases, a larger diameter wash pipe may be rotated concentrically over the non-rotating algerable drill string. This serves to prevent sticking of the steerable string and allows its tool face to be freely prented. It also maintains the pilot hole if it becomes necessary to withdraw the steerable string.

Downhole Surveying

The actual path of the pilot hold is monitored during drilling by taking periodic readings of the inclination and azimuth of the leading edge. Readings are taken with an instrument, commonly referred to as a probe, inserted in a drill collar as close as possible to the drill bit. Transmission of downhold probe survey readings to the surface is generally accomplished through a wire running inside the drill string. These readings, in conjunction with measurements of the distance drilled since the last survey, are used to calculate the horizontal and vertical coordinates along the pilot note relative to the initial entry point on the surface.

Azimuth readings are taken from the earth's magnetic field and are subject to interference from downhole tools, drill pipe, and magnetic fields created by adjacent structures. Therefore, the probe must be inserted in a non-magnetic collar and positioned in the string so that it is adequately isolated from downhole tools and drill pipe. The combination of bit, mud motor (if used), subs. survey probe, and non-magnetic collurs is referred to as the Bottom Hole Assembly or BHA. A typical bottom hole assembly is shown as Figure 2.

Surface Monitoring

The pilot hole path may also be tracked using a surface monitoring system. Surface monitoring systems determine the location of the probe downfrule by taking measurements from a grid or point on the surface. An example of this is the TruTracker System. This system uses a surface coil of known location to induce a magnetic field. The probe senses its location relative to this

induced magnetic field and communicates this information to the surface. This is shown schematically in Figure 3.

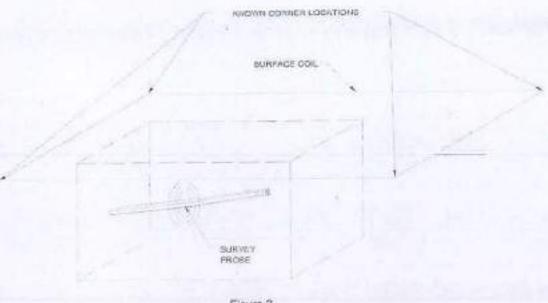


Figure 3 TruTracker Surface Monitoring System

Reaming & Pullback

Enlarging the pilot hole is accomplished using either prereaming passes prior to pipe installation or simultaneously during pipe installation. Reaming tools typically consist of a circular array of outers and drilling fluid jets and are often custom made by contractors for a particular hole size or type of sell.

Prereaming

Most contractors will opt to preream a pilot hole before attempting to install pipe. For a prereaming pass, reamers attached to the drill string at the exit point are rotated and drawn to the drilling rig thus enlarging the pilot hole. Drill pipe is added behind the reamers as they progress toward the drill rig. This insures that a string of pipe is always maintained in the drilled hole. It is also possible to ream away from the drill rig. In this case, reamers fitted into the drill string at the rig are rotated and thrust away from it.

Pullback

Pipe installation is accomplished by attaching the prefabricated pipeline pull section behind a rearning assembly at the exit point and pulling the rearning assembly and pull section back to the driting rig. This is uncertaken after completion of prereaming or, for smaller diameter lines in soft soits, directly after completion of the pilot hole. A swivel is utilized to connect the pull section to the leading rearning assembly to minimize torsion transmitted to the pipe. The pull section is supported using some combination of roller stands, pipe handling equipment, or a flotation ditch to minimize tension and prevent damage to the pipe.

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Buoyancy Control

Uplift forces resulting from the tudyancy of larger diameter lines can be very substantial. High pulling forces may be required to overcome drag resulting from budyancy uplift. Therefore, contractors will often implement measures to control the budyancy of pipe 30 inches or over in diameter. The most common method of controlling budyancy is to fill the pipe with water as it enters the hole. This requires an internal fill line to discharge water at the leading edge of the pull section (after the breakover point). An air line may also be required to break the vacuum which may form at the leading edge as the pull section is pulled up to the rig. The amount of water placed in the pipe is controlled to provide the most advantageous distribution of budyant forces. Some contractors may choose to establish a constant budyancy. This can be accomplished by inserting a smaller diameter line into the pull section and filling the smaller line with water. The smaller line is sized to hold the volume of water required per lineal foot to offset the uplift forces.



Application	Details [20241124/1/5/33029/12640]
Highway	NH46 [NH46], NH46 [NH46]
Name of Highway Authority	NHAI Dwarka New delhi
Highway Administration Address	Regional Office- Jabalpur Regional Office- Jabalpur
Whether the Fuel Station is part of Rest- area complex	No
Name of Applicant/Oil Company	Madhya Pradesh Madhya Kshetra Vidyut Vitaran Company Limited Address: NEAR OF NAGAR PALIKA RAGHOGARH GUNA MADHYA PRADESH, GUNA (MADHYA PRADESH), PIN: 473226 Phri: 9406913711 Email: ANISHRAJPUT.CZ@MP.GOV.IN
Application Category	Public Utility
Utility	Pipes
State	MADHYA PRADESH
Туре	New
Remarks	11 KV AHIRKHEDI FEEDER UNDER GROUND HIGHWAY CROSSING
Submitted On	17 Jun 2025 18:41:12





	Details
1. Length in Meters *	60
2. Width of available ROW	
I. Left side from center line towards increasing chainage OR km direction *	248,390
I. Right side from center line lowards increasing chainage DR km direction *	248.390
3. Proposal to lay the utility	
I. Left side from center line towards increasing chainage OR km direction *	0
II. Right side from center line towards increasing chalnage OR km direction *	0
4. Proposal to acquire the land	
I. Left side from center line *	0
II. Right side from center line	0
5. Whether proposal is in the same side where land is not to be acquired *	No
If not then where to lay the cable *	NA HDD CROSSIN
6. Details of already laid services if any along the proposed route*	N/A
7. Number of Existing lanes *	4 Lane
8. Proposed number of lanes	4 Lane RPM KV V CO LTD Rasgnegath

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9, Service road Exists *		No
10. Proposed Service road		
Left side from center line		0
Right side from center line		0
11. Whether proposal to lay cable is after the service road or between the service road and main carriageway *		N/A
12. Whether carrying OFC Cable has been proposed on highway /bridges, if yes then mention the methodology proposed for the same *		N/A
13. Is crossing of the road involved? If Yes, is shall be either encased in pipes or through structure of conduits specially built for the purpose at the expense of the		YES Encased IN PIPES
I. Whether the existing drainage structures are allowed to carry utility pipeline. *		N/A
II. Is it on a line normal to NH? *		No
III. What is the distance of crossing the utility pipelines from the existing structure?		
Crossings shall not be too near the existing structures on the National Highway, the minimum distance being 15 mtrs. *	Team Lander Thems Engineering Correlated	DGM DGM DGM COLTD Raginogath

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MORTH Utility Portal
YES GI PIPE
YES
YES
YES
YES (HDD METHOD)
C.J.

14. Whether the proposal satisfies the following:

MP W ROV V CO LTI

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Teaming Service to the service 18 application

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6/2025, 16:26	MoRTH Utility Portal	
I. Where the ROW is more than 45 M then the duct cable shall be laid at the edge of right of way within the utility corridor of 2 M width, duly keeping in view the future widening.*	N/A	
II. Where land is yet to be acquired for 4 laning and the position of new carriageway has been decided then the cable shall be laid at the edge of right of way within the utility corridor of 2 M width, on that side of existing carriageway where extra land is not proposed to be acquired for 4 laning. *	N/A	
III. Where the widening plan for 4 laning is not yet decided and available ROW is around 30 M or less, a judicious decision would need to be taken for permitting the laying of cable/duct. This could be within 1.5 M to 2m of utility corridor at the edge of existing ROW, duly keeping in view the possible	N/A	





widening plans. *

anneares.	10.20		9. \$1. (1 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.
and according show High hilly	where ROW is restricted adequate only to ommodate the lageway, central verge, ulders and drains (e.g. iways in cutting through frolling terrain), the cable it be laid clear of the in.		N/A
corr com (ava the t	there land strip for utility idor can't be veniently earmarked illable ROW restricted to toe of the embankment) aying of cable/ducts, the		N/A
	Document/Drawings losed with the proposal *		Yes
size tren nom	oss section showing the of trench for open ching method (is it mal size of 1.2m (mln.) p x 0.3 wide) *		N/A
size	ross section showing the of pit and location of le for HDD method *		YES
sho widt proj	Strip plan/ Route plan wing the OFC, Chainage th of ROW, distance of posed, cable from the e of ROW, important mile		INCORPORATED IN THE DRAWING
	ne, intersections, cross inage works etc. *		
	Methodology of laying of Utility Pipeline/OFC *	Toem Leader	YES ENCLOSED DGM COLTO

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6/12

8/2025, 16:26	MoRTH Utility Portal
V. Open trenching method (may be allowed in utility corridor only where pavement is neither cement concrete nor dense bituminous concrete type) If yes what is the Methodology of refilling of trench *	N/A
(a) The trench width should be at least 30 cms but not more than 60 cms wider than the outer diameter of the pipe	N/A
(b) For filling of the trench, bedding shall be to a depth of not less than 30 cms. It shall consist of granular material, free of lumps, clods, cobbles and graded to yiled firm surface without sudden change in the bearing value,	N/A
unsuitable soil and rock edges should be excavated and replaced by selected material *	
(c) The backfill shall be completed in two stages, i) Side fill to the level of the top of the pipe and ii) Overfill to the bottom of the road crust *	N/A





90/2025, 16:26	MORTH Juliy Portal
(d) The side fill shall consist of granular material laid in 15 cms, layers each consolidated by mechanical tampering and controlled addition of moisture to 95% of the proctor density. Overfill shall be compacted to the same density as the material that has been removed.*	N/A
(e) The road crust shall be built to the same strength as existing crust on either side of the trench. Care shall be taken to avoid the formation of a dip at the trench.	N/A
(f) The excavation shall be protected by flagman, signs and barricades and red lights during night hours. *	N/A
(g) If required, a diversion shall be constructed at the expense of agency owing the utility line.	N/A
VI. Horizontal Directional Drilling (HDD) Method *	YES
VII. Laying OFC through CD Works and Method of laying (Whether to be hung outside parapet). *	N/A
16. Draft license Agreement signed by two witnesses. *	YES

Them Engineering Services

Them Engineering (SEP.)

DGM COLTD

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PARAMENT TOTAL	THE STATE OF THE S	TT Osiny T VIOL
I. The license fee estimate as per Ministry's guidelines issued vide circular no. RW/NH/33044/29/2015/S&R dated 22.11.2016. *		YES
17. Whether Performance Bank Guarantee is as per Ministry's guidelines issued vide circular no. RW/NH/33044/29/2015/S&R, dated 22.11.2016.*		Yes
L Confirmation of BG has been obtained as per MoRTH guidelines *		Yes
18. Affidavit/Undertaking from	the Applicant for following i	s to be furnished
a) Undertaking not to Damage to other utility, if damage then to pay the losses either to NHAI or the concerned agency.*		Yes
b) Undertaking Renewal of Bank Guarantee as and when asked by MoRTH. *		Yes
c) Undertaking Confirming all standard condition of Ministry's guidelines. *		Yes
d) Undertaking for indemnity against all damages and claims *		Yes
e) Undertaking for management of traffic movement during laying of utility line without hompering the traffic *	02	Yes DGM DGM COLTD

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06(2025, 16:26	MORTH Utility Portal
f) Undertaking that if any claim is raised by the concessionaire/ contractor then the same has to be paid by the applicant.*	Yes
g) Undertaking that prior approval of the NHAI shall be obtained before undertaking any work of installation, shifting or repairs, or alteration to the utility located in the National Highway Right of Ways.*	Yes
h) Undertaking that expenditure is any incurred by NHAI for repairing any damage cause to the NH by laying, maintenance of shifting of the utility line will be borne by the applicant agency owing the line. *	Yes
i) Undertaking that text of the license deal is as per verbatim of format issued by MoRTH vide circular no. RW/NH/33044/29/2015/S&R dated 22.11.2016 *	Yes
j) Undertaking for shifting of utility as and when asked by MoRTH/ NHAL.*	Yes DGM COLTD owing format MP R RADINGATH
k) Certificate from the applicant in the follo	owing format MP FR 130 mg arth

I) We do undertake that I/we will relocate service road/approach road/utilities at my/our own cost not withstanding the permission granted within such time us will be stipulated by NHAI for future six laning or/any other development

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10/12

19. Who will sign the agreement on behalf of Applicant agency? Power of Attorney to sign the agreement is available or not.	DGM MPMKVVCL RAGHOGARH GUNA
20. The Power of Attorney is in favour of authorized signatory? *	Yes

Locations							
Sno	State	District	Highway /Stretch	Start Point	End Point	View	
t	MADHYA PRADESH	GUNA	NH46 [NH46] (145.000- 445.000) From Km: 248.39 To Km: 248.39	Chainage Point: 248.39 Lat: 24.426 Lng: 77.152	Chainage Point: 248.39 Lat: 24.426 Lng: 771152.00	View	
2	MADHYA PRADESH	GUNA	NH46 [NH46] (145.000- 445.000) From Km: 248.39 To Km: 248.39	Chainage Point: 248.39 Lat: 24.426 Lng: 77.152	Chainage Point: 248.39 Lat: 24.426 Lng: 77.152	Vlew	





Documents					
Sno	Stage	Document	Mandatory	Action	
1	Under Submission	Layout and Drawings	Yes	View	
2	Under Submission	Any Other Supporting Document	No	-	
3	Under Submission	Any Document to indicate commercial activities are allowed on the land.	No	-	
4	Under Submission	Safety Clearance from Directorate of Electricity	No	75	
5	Under Submission	Safety Clearance from Chief Controller of Explosives	No	-	
6	Under Submission	Safety Clearance from Petroleum and Explosives Safety Organisation	No	-	
7	Under Submission	Safety Clearance from Oil Industry Safety Directorate	No	-	
8	Under Submission	Safety Clearance from State/Central Pollution Control Board	No	-	
9	Under Submission	Any Other Statutory Clearance as applicable	No	-	

	Applicable Fee Details						
Sno	Fee Head	Stage	Fee	Amount	Status		
1	Utility Fees	Technical Approval	License Fees	0			





Check List

S.No	Items	Information/Status	Remaks
1	General Information		
230		DGM MPMKVVCL,	
1.1	Name and Address of the Applicant / Agency	RAGHOGARH GUNA	
1.2	National Highyway Number	NH-46	
1.3	State	MADHYA PRADESH	
1.4	Location	11 KV AHIRKHEDI FEEDER	
1.5	(Chainage in KM)	248+390 LH5 , 248+390 RHS	
1.6	Length in Meters	60 m Acoss the Highway	
1.7	Width of availble ROW	60m	
211	a) Width Left side from center line	30m	
	b) Width Right side from center line	30m	
1.8	Proposal to lay undergrond Eletrical cable	Across the national highyway	
	a) Left side from the center line towards increasing chainage/ KM direction	1 1 1 1 1 1 1 1	
	 b) Right side from the center line towards increasing chainage/ KM direction 	*	
1.9	Proposal to squire land	NA NA	
	a) Left side from center line	NA	
	b) Right side from center line	NA	
1.11	Whether proposal is in the same side where land is not to be acquired	no acquistion of land required	
	If not then where to lay the pipelines	Across the national highyway	
1.12	Details of aready laid services, if any, along the proposed route	NA NA	
1.13	No of lanes (2/4/6/8 lanes)	4 lanes	
1.14	Services road existing or not	No services road exist	
Jan. 10.	if yes then which side	No services road exist	
	a) Left side from center line	NA	
	b) Right side from center line	NA .	
1.15	Proposed service line		
4140	a) Left side from center line		
-	b) Right side from center line		
1.16	Where proposed to lay eletrical pipeline is after the service road or between the service road and main carriageway	-	
1.17	Considered for approval / rejection based on the Ministry Circular mentioned as above		
	a) Carring of eletrical pipeline on Highway bridges shall not be permitted as eletrical pipes can accelerate the process of corrosion thus being much more injurious	NA	1

. Manager (Tech.) NHAI, PIU-Bhopal Toam Leader Services

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DGM DGM Raghagath

	b) Carrying of Eletrical pipelines on bridges shall also discouraged however if the Eletrical supply authorities seem to have no other viable alternative and approach the highway authority well in time before the design of the bridge in finalized they may be permitted to carrry the pipeline on independent super structure supported on extended portion of piers and abutments in such a manner that in the final arangement enough free spade around the super structure of the bridge remains available for inspection and repairs.	NA	
	c) Cost of required extension of the substructure as well as that of the supporting super structure shall be borne by the agency in charge of the utilities	NA	
	d) Services are not being allowed indiscriminately on the parapet/any of the bridges, safety of the bridge has to be kept in view while permitting various services along bridge. Appeavals to be accorded in this regard with the concurrence of the Ministries Project Cief Engineers only.	NA	
1.13	Whether crossing of the involved	Yes	
1,10	If yes, it shall be either enclosed in pipes or through structure or conduits specially built for that purpose at the expensed of the agency owning the line.	Yes, Enclosed in pipes	
	a) Exiting drainage structure shall not be allowed to carry the lines	Yes	
_	b) Is it on a line normal to NH	Yes	
	c)Crossing shall not to be too near the exixting structure on the national highway the minimum distance bring 15 meter	Yes more than 15 mtrs	
	d) The casing pipes carriving the utility lines shall be of steel, case, iron or reinforced cement concrete and have adequate strength and be large enough to permit ready with drawl of the carrier	Yes	
	pipe/ cable. e) Ends of the casing/conduit pipes shall be sealed from the outside so that it does not act as a drainage path.	Yes	
	f) The casing/ conduit pipe should as minimum extend from drain to drain in cutsand toe of the slope in the fills	Yes	
	g) The top of the caing/ conduit pipe should be at least 1.20 meter below the surface of the road.	Yes	
	h) The casinf/conduit pipe shall be done by boring (HDD) or digging a trench. Installation by boring method shall be preferred.	Yes (HDD Method)	1

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Theme Engineering Services
Services
Put. Ltd. Gur2494.P.)

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2	Document/Drawing enclosed with proposal	Yes	
2.1	Cross section showing the size of trench for open trencing method (is it normal size of 1.2m x 0.3 wide)	NA	
	i) Should be greater that 60 cm wider than outer diameter of the pipe	NA	
	ii) Located as close to the extreme edge of the right 15 meter from the centre lines of the nearest carriageway.	NA	
	iii) Shall not be permitted to run along the national highways when the road formation is situated in double cutting. Nor shall these be laid over the existing culverts and bridges.	NA	
	iv) These should be so laid that their top is at least 0.6 meter below the ground level so as not to obstruct drainage of the road land.	NA	
2.2	Cross section showing the sixe pit and location of cable for HDD method	Yes	
2.3	Strip plan/ route plan showing Eletrical pipeline chainage, width of ROW, distance of proposed cable from the edge of ROW important mile stone, cross section etc.	Incorparated in the drawing	
2.4			
2.4.1	Open trenching method (may be allowed in utility corried only where pave ment is neither cement concrete nor dense bituminous concrete type If yes, methodology of refilling of trench	NA	
	a)Trench width should be at least 30 cm but not more than 60 cm wider than the outer diameter of the pipe.	NA	
	b) For the filling of the trench bedding shall be to a depth of not less than 30 cm. It shall consist of granular material free of lumps, clods and cobbles and graded to yeild a firm surfacewithout sudden change in the boaring value unsuitable soi and rock edged should be excavated and replaced by selected material.	NA	
	C) The side fill shall consist of granular material laid in 15 cm layers each consolidated by mechnival tampering and controlled addition of moisture of 95% of Proctor's Density. Over fill shall of compacted to the same density as the material that had been removed. Consolidation by saturation or pendingwill not be permitted.	NA	

Manager (Tech.)

Team Leader
Theme Engineering Services
Pvt. Ltd. Gums (M.P.)
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DGM MPMKVV COLTD Raphogath

	d) The road crust shall be built to the same strength as the existing crust on the either side of the trench care shall be taken to avoid the formation of a dip at the trench.	NA	
	e) The excavation shall be protected by flagman signs and barricades and red light during night hours.	NA	
	 If Required a diversion shall be constructed at the expends of agency owing the utilityline. 	NA	
2.4.2	Horizontal directional drilling (HDD) METHOD	yes	1
3	Draft License Agreement signed by two witness	yes	
4	Performance bank guarantee in favor of NHAI has to be obtained @Rs 200/- per running meter (parallel to NHI and Rs 100000/- per crossing of NH for a period of one year initially (extendable if required till satisfactory completion of work) as a security for ensuring /making good the excavated trench for laying the cables/ducts by proper filling and compaction clearing Debris/loose earth produced due to execution of trenching at least 50 m away from the edge of the right of way. No payment shall be payable by the NHAI to the license for clearing debris/loose, earth.	MEE	
4.1	Performance BG as per above is to be obtained	YES	
4.2	Confirmation of BG has been obtained as per NHAI guidelines	YES	
5	Affidavit/undertaking from the application	YES	
5.1	Not to damage to other utility If damaged than pay the losses either to NHAI or to the concerned agency	YES	
5.2	Renewal of Bank Guarantee	YES	1

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5.3	Confirming all standard condition of NHAI'S guideline	YES	
5.4	Shifting of Electrical supply pipe line as and when required by NHAI at their own cost	YES	
5.5	Shifting due to 6 lanning/wedding of NII	YES	
5.6	Indemnity against all damages and alarms clause (xxiv)	YES	
5.7	Traffic movement during laying of Electrical supply pipe line to be managed by the applicant	YES	
5.8	If any claim is raised by the concessionaire then the same has to be paid by the applicant A	YES	
5.9	Prior approval of the NHAI shall be obtained before undertaking any work if installation shifting or repairs or alteration to the showing Electrical supply pipe line located in the National Highway rights or ways	YES	
5.10.	Expenditure if any incurred by NHAI for repairing any damage caused to the National Highway by the laying maintenance or shifting of the Electrical supply pipe line will be borne by the agency owing the line.	YES	
5.11	If the NHAI considers it necessary in future to move the utility line for any work of improvement or repairs to the road it will be carried out as desired by the NHAI at the cost of the agency owning the utility line within a reasonable time not exceeding 50 days) of the intimation given	YES	
5.12	Certified from the application in the following format	YES	
	laying of Electrical supply pipe line will not have any deleterious effects on any of the bridge components and roadway safety for traffic.	YES	
	ii) for 6-lanning we do undertake that will relocate service road/ utility at my own cost notwithstanding the permission granted with such time as will be stipulated by NHAI for future six lanning or any other development.	YES	
6	Who will sign the agreement on behalf of Electrical supply pipe line agency?	DGM MPMKVVCL, RAGHOGARH GUNA	
7	Certified from the Project Director	The state of the s	
7.1	Certified for confirming of all standard condition Issued vide ministry circular no. F.NO. RW/NH- 33044/29/2015/S&R 22/11/2016 Dated	YES	1

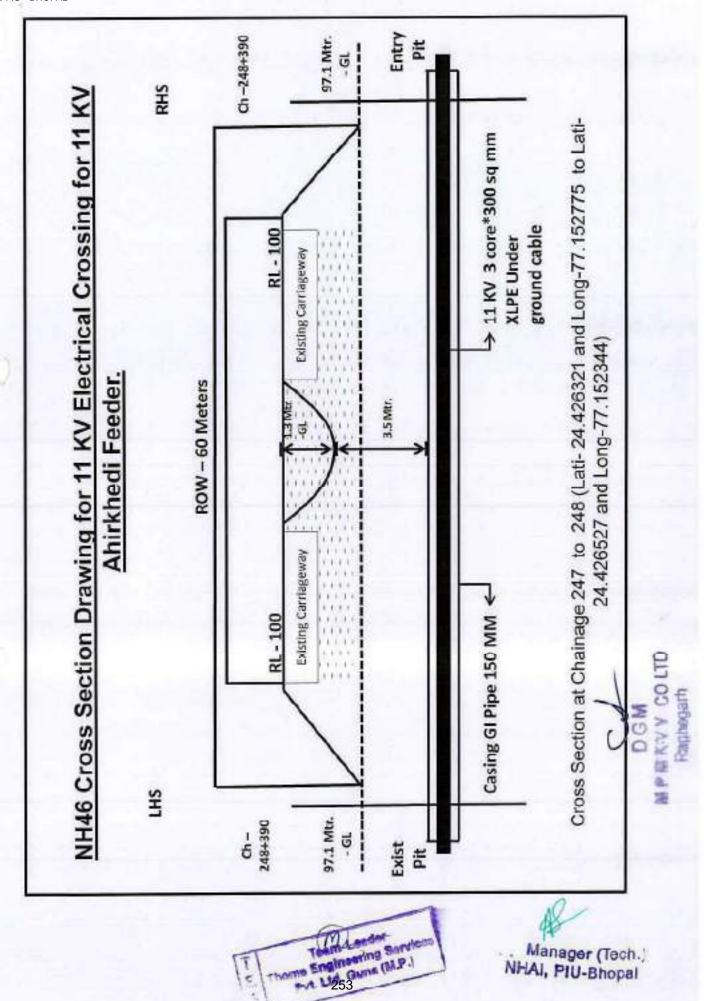
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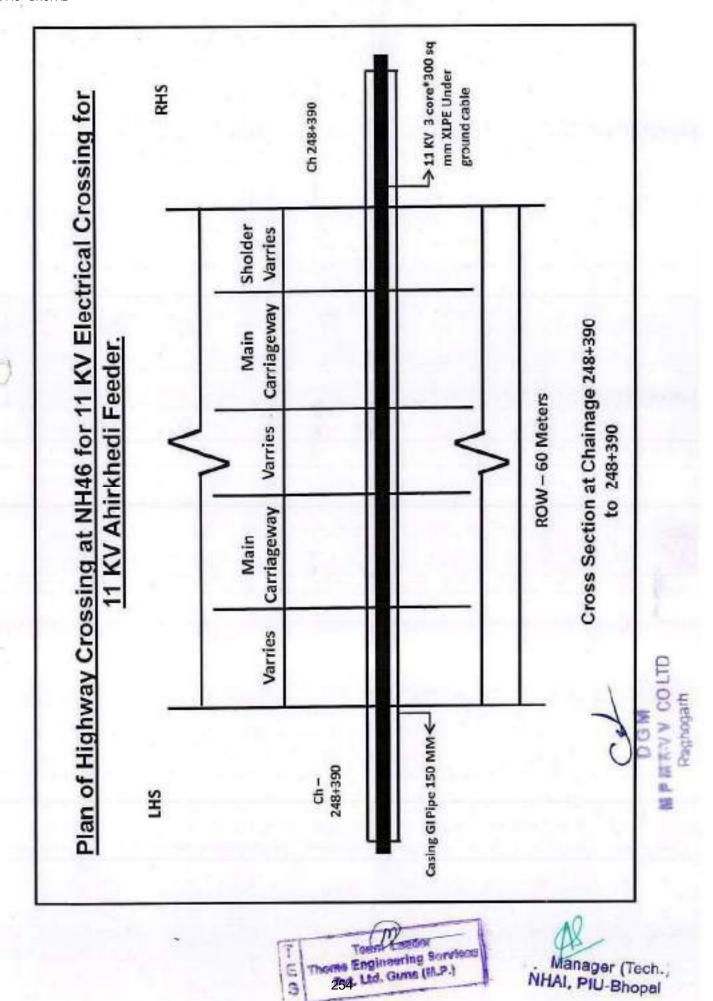
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Project Director

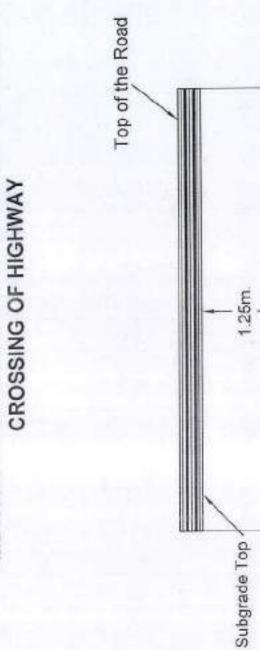
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METHOD OF INSTALLATION OF CASING PIPE FOR CROSSING OF HIGHWAY



Cross section of HDD Crossing Pipe

GL Pipe of 150 MMDs



The Horizontal Directional Drilling Process

The tools and techniques used in the horzontal directional drilling (HDD) process are an outgrowth of the oil well drilling industry. The components of a hortzonial drilling rig used for pipeline construction are similar to those of an oil well drilling rig with the major exception being that a horizontal drilling rig is equipped with an inclined ramp as opposed to a vertical mast. HDD pilot hole operations are not unlike those involved in drilling a directional oil well. Drill pips and downhole tools are generally interchangeable and drilling fluid is used throughout the operation to transport drilled spoil, reduce friction, stabilize the hole, etc. Because of these similarities, the process is generally referred to as drilling as opposed to boring.

Installation of a pipeline by HDD is generally accomplished in three stages as illustrated in Figure 1. The first stage consists of directionally drilling a small diameter pilot hote along a designed directional path. The second stage involves enlarging this pilot hote to a diameter suitable for installation of the pipeline. The third stage consists of pulling the pipeline back into the enlarged hote.

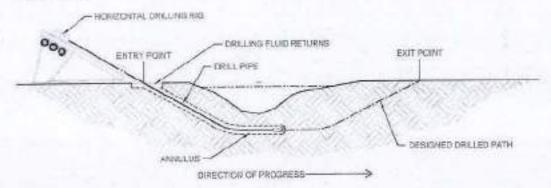
Pilot Hole Directional Drilling

Pior hole directional control is achieved by using a non-retating drill string with an asymmetrical leading edge. The asymmetry of the leading edge creates a steering bias while the non-rotating aspect of the drill string allows the steering bias to be held in a specific position while drilling. If a change in direction is required, the drill string is rolled so that the direction of bias is the same as the desired change in direction. The direction of bias is referred to as the tool face. Straight progress may be achieved by drilling with a series of offsetting tool face positions. The crill string may also be continually rotated where directional control is not required. Leading edge asymmetry can be accomplished by several methods. Typically, the leading edge will have an annually crised created by a bent sub or bent motor housing. This is illustrated schematically in Figure 2.

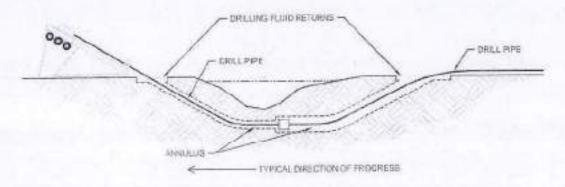
It is common in soft soils to achieve drilling progress by hydraulic cutting with a jet nozzle. In this case, the direction of flow from the nozzle can be offset from the central axis of the drill string thereby creating a steering bias. This may be accomplished by blocking selected nozzles on a standard roller cone bit or by custom labricating a jet defection bit. If hard spois are encountered, the drill string may be rotated to drill without directional control until the hard spot has been penetrated.



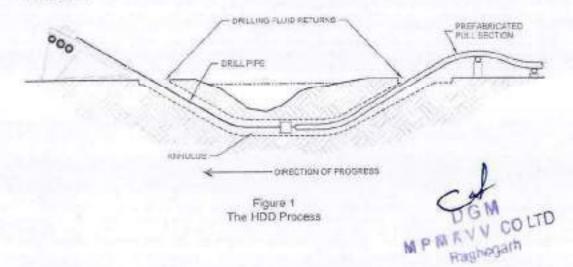
PILOT HOLE



PREREAMING



PULLBACK



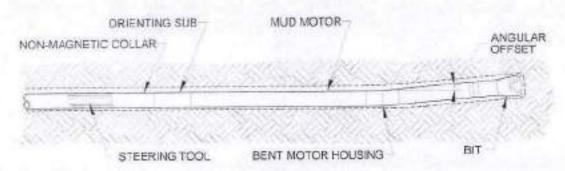


Figure 2 Bottom Hole Assembly

Downhole Motors

Downhole mechanical cutting action required for harder soils is provided by downhole hydraulic motors. Downhole hydraulic motors, community referred to as mud motors, convert hydraulic energy from drilling mud pumped from the surface to mechanical energy at the bit. This allows for bit rotation without drill string rotation. There are two basic types of mud motors; positive displacement and turbine. Positive displacement motors are typically used in HDD applications. Sasically, a positive displacement mud motor consists of a spiral-shaped stator containing a sinusoidal shaped rotor. Mud flow through the stator imparts rotation to the rotor which is in turn connected through a linkage to the bit.

In some cases, a larger diameter wash pipe may be rotated concentrically over the non-rotating standable drill string. This serves to prevent sticking of the steerable string and allows its tool face to be treety oriented. It also maintains the pilot hole if it becomes necessary to withdraw the steerable string.

Downhole Surveying

The actual path of the pilot hole is monitored during drilling by taking periodic readings of the inclination and azimuth of the leading edge. Readings are taken with an instrument, commonly referred to as a probe, inserted in a drill collar as close as possible to the drill bit. Transmission of downhole probe survey readings to the surface is generally accomplished through a wire running inside the drill string. These readings, in conjunction with measurements of the distance drilled since the last survey, are used to calculate the horizontal and vertical coordinates along the pilot hole relative to the initial entry point on the surface.

Azimuth readings are taken from the earth's magnetic field and are subject to interference from downhole tools, drill pipe, and magnetic fields created by adjacent structures. Therefore, the probe must be inserted in a non-magnetic collar and positioned in the string so that it is adequately isolated from downhole tools and drill pipe. The combination of bit, mud motor (if used), subs. survey probe, and non-magnetic collars is referred to as the Bottom Hole Assembly or BHA. A typical bottom hole assembly is shown as Figure 2.

Surface Monitoring

The pilot hole path may also be tracked using a surface monitoring system. Surface monitoring systems determine the location of the probe downhole by taking measurements from a grid or point on the surface. An example of this is the TruTracker System. This system uses a surface coil of known location to induce a magnetic field. The probe senses its focation relative to this

induced magnetic field and communicates this information to the surface. This is shown schemetically in Figure 3.

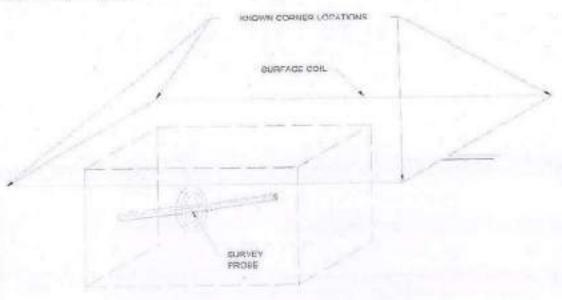


Figure 3 TruTracker Surface Monitoring System

Reaming & Pullback

Entarging the pilot hole is accomplished using either prereaming passes prior to pipe installation or simultaneously during pipe installation. Reaming tools typically consist of a circular array of cutters and drilling fluid jets and are often custom made by contractors for a particular hole size or type of soil.

Prereaming

Most contractors will apt to preream a pilot hole before attempting to install pipe. For a prereaming pass, reamers attached to the drill string at the exit point are rotated and drawn to the drilling rig thus enlarging the pilot hole. Drill pipe is added behind the reamers as they progress toward the drill rig. This insures that a string of pipe is always maintained in the drilled hole. It is also possible to ream away from the drill rig. In this case, reamers fitted into the drill string at the rig are rotated and thrust away from it.

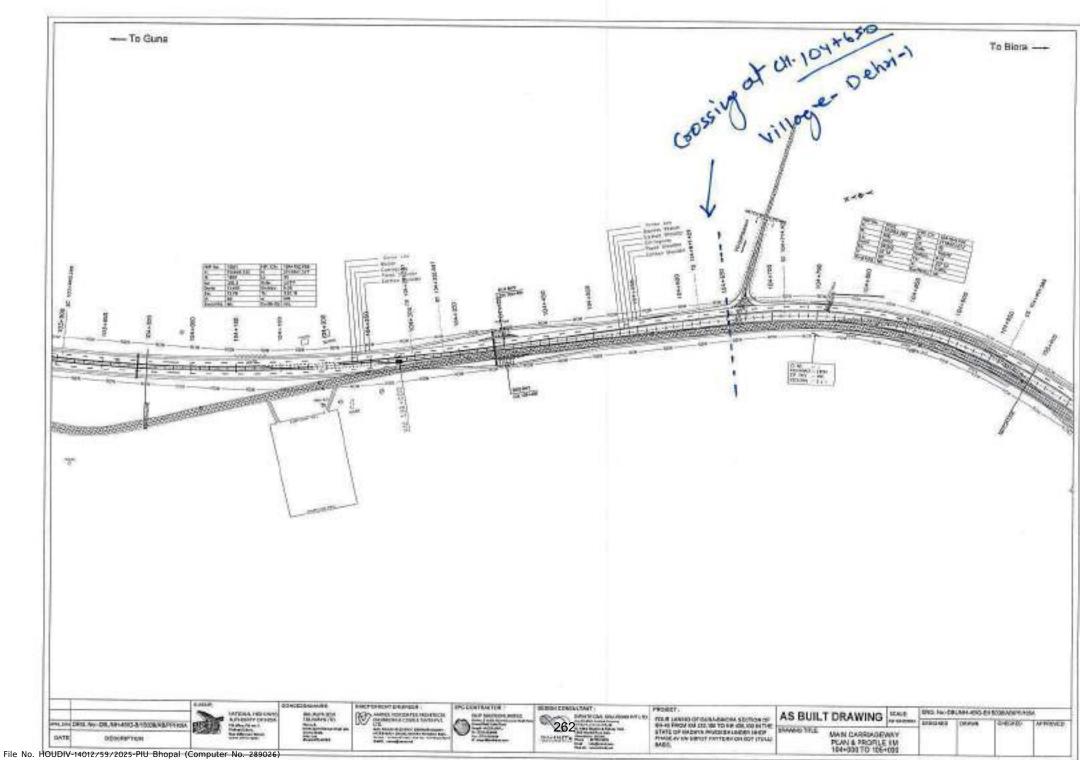
Pullback

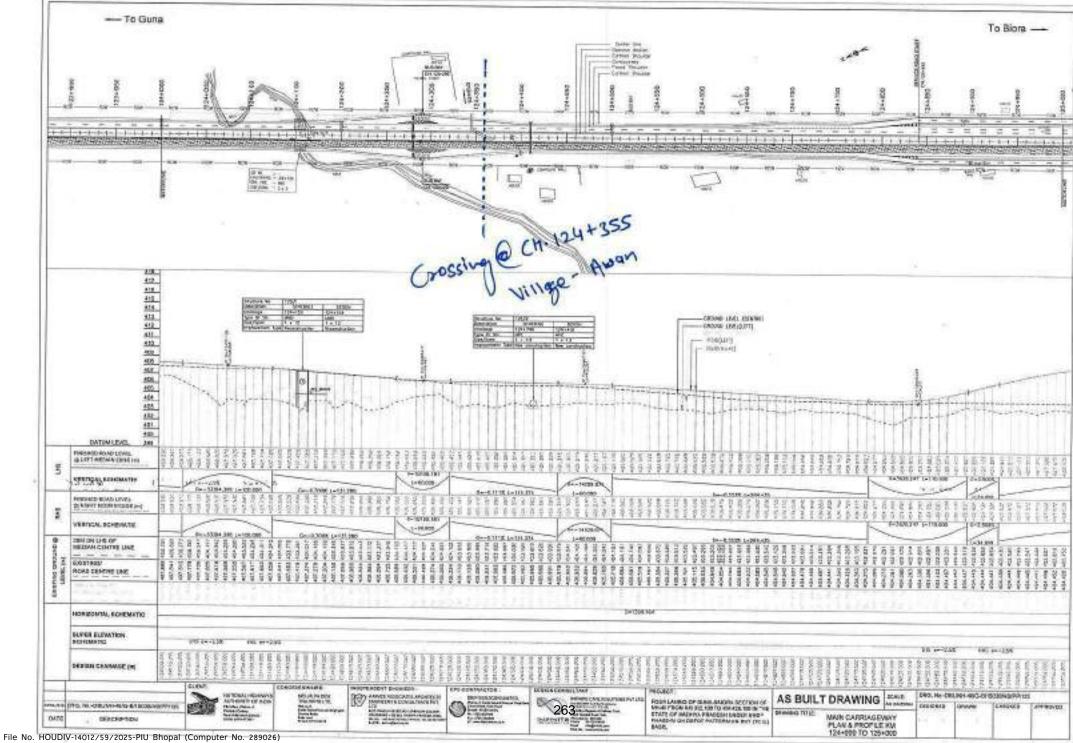
Pipe installation is accomplished by attaching the prefabricated pipeline pull section behind a reaming assembly at the exit point and pulling the reaming assembly and pull section back to the drilling rig. This is undertaken after completion of prereaming or, for smaller diameter lines in soft soils, directly after completion of the pilot hole. A swivel is utilized to connect the pull section to the leading reaming assembly to minimize torsion transmitted to the pipe. The pull section is supported using some combination of roller stands, pipe handling equipment, or a flotation disch to minimize tension and prevent damage to the pipe.

Buoyancy Control

Uplift forces resulting from the budyancy of larger diameter lines can be very substantial. High pulling forces may be required to overcome drag resulting from budyancy uplift. Therefore, contractors will often implement measures to control the budyancy of pipe 30 inches or over in diameter. The most common method of controlling budyancy is to fill the pipe with water as it enters the hole. This requires an internal fill line to discharge water at the leading edge of the pull section (after the breakover point). An air line may also be required to break the vacuum which may form at the leading edge as the pull section is pulled up to the rig. The amount of water placed in the pipe is controlled to provide the most advantageous distribution of budyant forces. Some contractors may choose to establish a constant budyancy. This can be accomplished by inserting a smaller dismeter line into the pull section and filling the smaller line with water. The smaller line is sized to hold the volume of water required per lineal foot to offset the uplift forces.







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