भारतीय राष्ट्रीय राजमार्ग प्राधिकरण
(सड़क परिवहन और राजमार्ग मंत्रालय)
National Highways Authority of India
(Ministry of Road Transport & Highways)
कार्यालय क्षेत्रीय अधिकारी, आंध्रप्रदेश क्षेत्र
Office of the Regional Officer, Andhra Pradesh Region
प्लॉट.क.२१, टीचर्स कॉलोनी, गुरुनानक नगर मार्ग, विजयवाड़ा-५२० ००८. आंध्रप्रदेश
Plot No. 21, Teachers' Colony, Gurunanak Nagar Road, Vijayawda-520 008. A.P.

दूरभाष / Tele : 0866-2483910
ई-मेल / E-mail : rovijayawada@nhai.org
nhairovja@gmail.com

भारतमाला
प्रगति के पथ पर अग्रसर
BHARATMALA
ROAD TO PROSPERITY

Lr.No. NHAI/RO-VJA/12033-23/2021-22/ २/५५

Dt.06.09.2021

INVITATION OF PUBLIC COMMENTS

Sub: **RO - Vijayawada** - Permission for laying of 6", API 5L Gr.X-52, 6.4mm Thick, 3LPE Coated Carbon Steel Pipeline for service of Natural Gas along NH-216A from Km.962.600 to Km.970.500 for a length of 7,900 meters towards Vijayawada in West Godavari District of Andhra Pradesh - **Public Comments** - Reg.

The Project Director, PIU - Rajamahendravaram submitted a proposal of M/s. Godavari Gas Private Limited for laying of 6", API 5L Gr.X-52, 6.4mm Thick, 3LPE Coated Carbon Steel Pipeline for service of Natural Gas along NH-216A from Km.962.600 to Km.970.500 for a length of 7,900 meters towards Vijayawada in West Godavari District of Andhra Pradesh in Sidhantam - Gundugolanu Section of NH-216A.

As per MORTH guidelines vide letter No. RW/NH-33044/29/2015/S&R® dated 22nd November 2016, the Highway Administration will put out the application in the Ministry's website for 30 days seeking claims and objections (on grounds of public inconvenience, safety and general public interest).

In view of the above, the comments of public, if any, on the above mentioned proposal is invited on below mentioned address.

Regional Officer - Vijayawada,
National Highways Authority of India,
Plot No.21, Teachers' Colony, Gurunanak Nagar Road,
Vijayawada, Andhra Pradesh. Pin: 520 008.
Email: rovijayawada@nhai.org

(R.K. Singh)
Regional Officer,
RO - Vijayawada.

भारतीय राष्ट्रीय राजमार्ग प्राधिकरण
(सड़क परिवहन और राजमार्ग मंत्रालय)
National Highways Authority of India
(Ministry of Road Transport & Highways)
परियोजना कार्यान्वयन इकाई - PROJECT IMPLEMENTATION UNIT
टोयोटा षोरूम के बाजु, राजमार्ग 216ए, दिवान चेरुवु,
राजमहेन्द्रवरम - 533 102. आं.प्र
Adjacent to Toyota Showroom, NH-216A, Diwancheruvu,
Rajamahendravaram, Andhra Pradesh 533102.

भा रा रा प्रा NHAI
భారతీ జాతీయ రహదారుల ప్రాధికార సంస్థ
రాజమహేంద్రవరము

भारतमाला
प्रगति के पथ पर अग्रसर
BHARATMALA
ROAD TO PROSPERITY

दूर भाष / Phone : 0883 - 2431170
ई-मेइल / e-mail : raj@nhai.org
piurajahmundry@gmail.com

No: NHAI/PIU-RJY/GGPL-GPL/7900m-LHS/2021/ 27264 — 14th August, 2021

To:

The Regional Officer,
National Highways Authority of India,
Regional Office, 21, Teachers' Colony,
Gurunanak Nagar Road,
Vijayawada-520 008.

17 AUG 2021
5422

Sub: NHAI, PIU, Rajamahendravaram - Permission for Laying of 6", API 5L Gr.X-52, PSL2, 6.4mm Thick, 3LPE Coated Carbon Steel Pipeline for service of Natural Gas along NH-216A (Old NH-16) from Km. 962.600 to Km. 970.500 (LHS) for a total length of 7900 meters towards Vijayawada in East Godavari District of Andhra Pradesh - Observations - Compliance Report - Submitted - Reg.

Ref:
1. This office letter No. NHAI/PIU-RJY/GGPL-GPL/7900m/2020/25738 Dt. 23.06.2020.
2. RO, NHAI, Vijayawada Letter No. NHAI/RO-VJA/12033-23/2020-21/1344 Dt. 29.10.2020.
3. Letter No. GGPL/RJY/CSPL/PERMISSION/NHAI/2020/03 Dt. 17.11.2020 of M/s. Godavari Gas Pvt., Ltd., Rajamahendravaram.
4. Mail Dt. 28.05.2021 of IE, M/s. Aarvee Associates.
5. Letter No. GGPL/RJY/CSPL/PERMISSION/NHAI/2020/04 Dt. 29.07.2021of M/s. Godavari Gas Pvt., Ltd., Rajamahendravaram.

18/8/21

Sir,

1. In the reference 2nd cited, certain observations were made on the proposal submitted for Laying of 6", API 5L Gr.X-52, PSL2, 6.4mm Thick, 3LPE Coated Carbon Steel Pipeline for service of Natural Gas along NH-216A (Old NH-16) from Km. 962.600 to Km. 970.500 (LHS) for a total length of 7900 meters towards Vijayawada in East Godavari District of Andhra Pradesh.

2. In this regard, the Agency, M/s. Godavari Gas Pvt., Ltd., vide reference 3rd cited submitted the modified proposal by incorporating the observations.

3. As such, the point-wise reply to the observations made, are given below.

Sr. No.	Observation	Reply
1	The proposal has been signed by Shri G. Ankaiah, Dy. General Manager (CGM), Godavari Gas Private Limited. However, Power of Attorney in favour of Shri. G. Ankaiah, DGM(CGM), GGPL for signing the proposal has not been submitted.	Copy of Power of Attorney given by Sri. G. Varatharajan, Managing Director, M/s. GGPL in the name of Sri. G. Ankaiah Dt. 16.11.2020 is enclosed.
2	Methodology for laying pipeline along National Highway has not been submitted.	Copy of Methodology for laying of Pipeline along NH is enclosed.

DY 14/08/2021

Sr. No.	Observation	Reply
3	PD shall confirm whether the proposal has complied the observations raised by the IE, M/s. Aarvee Associates vide Letter No. AA/TL/TOT/NHAI/19-20/259 Dt. 30.01.2020. **The observations made by the IE:** (i) It is observed that the Irrigation Canal 2 Nos., are crossing at Km. 969+1001 & at Km. 971+840 and one Railway Crossing at Km. 969+610. (ii) The HDD Depth at the above locations is not shown separately as per the site requirement. (iii) NOC from the respective departments is not enclosed. (iv) The Pipeline laying shall be done at the edge of ROW in the urban section from Km. 967+000 to Km. 970+500 by clearings obstructions at your own cost and risk. (v) The ROW on LHS from Km. 970+500 to Km. 972+000 is around 15mtrs – 17mtrs, due to non-availability of utility corridor in the said length, you are hereby directed to lay the pipeline beyond the canal.	Yes. The Agency has complied the observations made by IE and submitted the Compliance report vie Letter No. GGPL/RJY/CSPL/PERMISSION/NHAI/2020/01 Dt. 03.06.2020 (copy enclosed). **In this regard, the reply furnished by the Agency, M/s. GGPL is furnished as below:** (i) Applications with relevant drawings / details / documents to irrigation Department and Railway Department are submitted for grant of permission, awaited permission. (ii) HDD profile drawings for two canal crossings and one Railway Crossing are enclosed. Depth shall be maintained at 7.5 meters for canal crossing and at 7 meters for Railway Crossing or as suggested by Authorities. (iii) Applications to irrigation Department and Railway Department for grant of permission are submitted and awaiting permission. (iv) It is to inform that GGPL shall bear the costs incurred in clearing the obstructions involved during laying of the pipeline. (v) As suggested, pipeline from Km. 970+500 to Km. 972+000 shall be laid beyond the canal due to non-availability of utility corridor, with the permission taken from the concerned authorities. Accordingly, the Agency, M/s. GGPL has submitted the Revised Proposal for laying of Pipeline from Km. 962.600 to Km. 970.500 for a total length of 7900m duly deleting the pipeline between Km. 970+500 to Km. 972+000 and the same was recommended to RO, NHAI, Vijayawada for approval of the Competent Authority.
4	As per guidelines, no utility services shall be laid over existing culverts and bridges except through utility ducts where such provision exits. However it is seen that the proposed pipeline is crossing many bridges. Therefore, the methodology needs to be furnished as to how the proposed pipeline is proposed for crossing bridges / culverts.	Crossing of Bridges / Culverts is proposed below Ground Level by HDD Methodology. Copy of Methodology enclosed.

DO 14/08/2021

Sr. No.	Observation	Reply
5	PD also to confirm whether the proposed Service Road as per CA & COS proposals in-principally sanctioned at Black spot locations have been taken into consideration for fixing ROW for laying of Pipeline or not.	It is observed that Five (5) MORTH Registered Black Spots viz., (i) Tanuku Women's College (AP-414), (ii) Tanuku Old Toll Plaza (AP-253), (iii) Undrajavaram (AP-78), (iv) Tetali (AP-41) & (v) Sharmista Centre (AP-254) are falling in the proposed Pipeline proposal. In this regard, the IE, M/s. Aarvee Associates vide reference 4th cited informed that laying of pipeline at proposed Service Road as per CA & COS at Black Spot locations has been taken into consideration and pipeline laying shall be done at the edge of ROW. As such, it is confirmed that the proposed Pipeline will be laid beyond the Service Roads in these Black Spot locations.
6	Though strip plan / route map has been provided, reasons for mentioning "Not Applicable" against Point No. 2.3 of Checklist.	Revised Check List duly complying the observation is attached.
7	As observed from proposal, the said pipeline will cross 2 Nos., Irrigation canal at Km.969+100 & Km.971+840 and one railway crossing at Km.969+610. However, methodology for laying pipeline across these bridges / culverts has not been submitted.	Due to non-availability of Utility Corridor, the Agency has proposed the Laying of Pipeline from Km. 962.600 to Km. 970.500. The laying of Pipeline across the irrigation Canal at Km. 969+100 and Railway Crossing at Km. 969+610 is proposed by HDD method and the methodology is enclosed.

4. In view of the above, approval of the Competent Authority may be accorded to the proposal of M/s. Godavari Gas Private Limited, Rajamahendravaram for Laying of 6", API 5L Gr.X-52, PSL2, 6.4mm Thick, 3LPE Coated Carbon Steel Pipeline for service of Natural Gas along NH-216A (Old NH-16) from Km. 962.600 to Km. 970.500 (LHS) for a total length of 7900 meters towards Vijayawada in East Godavari District of Andhra Pradesh.

Thanking you,

Yours faithfully,

14/08/2024

(D. Surendra Nath)
Project Director

Encl: Copies of Reference Letter 3rd to 5th cited.

GODAVARI GAS PRIVATE LIMITED

Ref.: GGPL/RJY/CSPL/PERMISSION/NHAI/2021/04 Date: 29.07.2021

To
The Project Director,
NHAI - Rajahmundry,
Rajahmundry.

Sub: Permission for laying of 6", API 5L Gr.X-52, 6.4mm Thick, 3LPE Coated Carbon Steel Pipeline for service of Natural Gas along NH-216A (Old NH-16) from CH 962.60 KM to CH 970.5 KM for a total length of 7900 mtrs towards Vijayawada in West Godavari (D), AP.

Ref: 1) GGPL Letter vide No. GGPL/RJY/CSPL/PERMISSION/NHAI/2019/3 dated 13.12.2019.
2) Your Letter vide No NHAI/PIU-RJY/Permission/GGPL/2019-20/25010 dated 05.02.2020.
3) GGPL Letter vide No. GGPL/RJY/CSPL/PERMISSION/NHAI/2020/1 dated 03.06.2020.
4) GGPL Letter vide No. GGPL/RJY/CSPL/PERMISSION/NHAI/2020/2 dated 16.06.2020.
5) Your Letter vide No NHAI/PIU-RJY/Permission/GGPL/2020-21/26167 dated 10.11.2020.
6) GGPL Letter vide No. GGPL/RJY/CSPL/PERMISSION/NHAI/2020/03 dated 17.11.2020.

Dear Sir,

This has reference to the comments received from your office on the subject proposal, it is to inform that Pipeline laying shall be carried out by HDD/Trenchless technology method including crossing of Irrigation canals, Railway Track, Roads, as desired. Revised checklist is enclosed herewith for your consideration.

We therefore request you to please grant the permission for laying the subject pipeline.

Thanking you,

INWARD
No: 60174
Date: 29/07/2021
Time: 5.00 P
PIN | | M(T) |
PA | | PS |
HOU | | SE | I/II
NHAI, PIU,
RAJAMAHENDRAVARAM

29/7/21

Yours Sincerely

29/07/2021

G.Ankaiah,
General Manager (CGM),
Mobile: 7896617650,
Email Id: g.ankaiah@gail.co.in.

GODAVARI GAS PRIVATE LIMITED

RECEIVED
No: 54423
Date: 18/11/2020
Time: 11:00
JAO | | PS | ✓
PA | | YP |
FA | | | |
NHAI, PIU, RAJAMAHENDRAVARAM

16/11/2020

Ref no: GGPL/RJY/CSPL/PERMISSION/NHAI/2020/03 Dt: 17.11.2020

To
The Project Director,
NHAI - Rajahmundry,
Rajahmundry.

Sub: Permission for laying of 6", API 5L Gr. X-52, 6.4MM Thick, 3LPE Coated Carbon Steel Pipeline for service of natural gas along NH-216A (Old NH-16) from Ch. 962.600 Km to Ch. 970.500 Km for a total length of 7900 meters towards Vijayawada in West Godavari District of Andhra Pradesh.

Ref: 1) GGPL Letter vide No GGPL/RJY/CSPL/PERMISSION/NHAI/2019/3 dated 13/12/2019.
2) Your Letter vide No NHAI/PIU-RJY/Permission/GGPL/2019-20/25010 dated 05/02/2020.
3) GGPL Letter vide No GGPL/RJY/CSPL/PERMISSION/NHAI/2020/1 dated 03/06/2020.
4) GGPL Letter vide No GGPL/RJY/CSPL/PERMISSION/NHAI/2020/2 dated 16/06/2020.
5) Your Letter vide No NHAI/PIU-RJY/Permission/GGPL/2020-21/26167 dated 10/11/2020.

Dear Sir,

This has reference to the letter received from your office vide number NHAI/PIU-RJY/Permission/GGPL/2020-21/26167 dated 10/11/2020 seeking clarifications for the observations made on the subject matter.

We wish to submit that replies/clarifications to point wise observations mentioned in the above referred letter are as follows

(i) Copy of Power of Attorney is attached for your ready reference.
(ii) Copy of Methodology for laying pipeline along National Highway is attached for your ready reference.
(iii) Crossing of bridges/culverts shall be done by HDD methodology. Copy of Methodology is enclosed herewith.
(iv) Revised checklist as per your observations is attached for your ready reference.
(v) Proposed pipeline will cross irrigation canals at Ch. 969.100Km and Ch. 970.500Km and railway track at Ch. 969.610Km. Copy of methodology for laying pipeline across the irrigation canals and railway crossing is enclosed herewith for your ready reference.

We therefore request you to please grant permission for laying the subject gas pipeline.

Thanking You

Yours Sincerely,

GODAVARI GAS PRIVATE LIMITED
(A Joint Venture Company of APGDC & HPCL)

K. Ankaiah, 17/11/2020
DGM(CGM).

ఆంధ్రప్రదేశ్ आन्ध्र प्रदेश ANDHRA PRADESH CR 039525

3847 m 29/10/2014 Godavari Gas Pvt. Ltd. Rajamahendravaram D. SUJANA STAMP VENDER Innespeta, Rajahmundry-533103 Licence No 04-28-20-2014

From Deputy Gen. Mg. G. Ankaiah. S/o Prasad Rao.

GENERAL POWER OF ATTORNEY

KNOW ALL MEN By These presents that we, Godavari Gas Private Limited, a company having its Registered Office at 85-06-23/2, 2nd Floor, Morampudi Junction, Near Indian Oil Petrol Bunk, Rajahmundry East Godavari AP 533107, hereinafter referred to as the 'the Company' represented by Shri G Varatharajan, Managing Director.

WHEREAS we are engaged in the business of to carry on all or any of the businesses of storage, supply, sale, establishing infrastructure, development, distribution, marketing and supply of Natural Gas and its derivatives.

WHEREAS the company intends to submit the application to National Highway Authority of India (hereinafter referred to as the '**Authority**') for laying of 6", API 5L Gr.X-52, PSL2, 6.4mm Thick, 3LPE Coated Carbon Steel Pipeline for service of Natural Gas along NH-216A at Peravali, West Godavari (D), AP.

WHEREAS the Company intends to appoint a Senior Executive Shri G Ankaiah, Dy. General Manager to sign and submit the application with all other necessary documents in the name of company to the Authority and to do all necessary and incidental acts.

Godavari Gas Private Limited RJY.

Now, therefore, known all men that we, Godavari Gas Private Limited, do hereby nominate, authorise, empower, Shri G Ankaiah S/o Shri G Prasad Rao, aged about 47 years, presently working as Dy.General Manager to be our lawful attorney and agent for the following purposes, viz

1 In our name and on our behalf to sign and submit Application seeking permission for laying of 6", API 5L Gr.X-52, PSL2, 6.4mm Thick, 3LPE Coated Carbon Steel Pipeline for service of natural Gas along NH-216A at Peravali, West Godavari (D), AP to National Highway Authority of India.

2 In our name and on our behalf generally to make, do, execute and perform all and every other acts, deeds and things whatsoever in any way be necessary or expedient to be done of every nature or kind relating to matters referred to above as fully and effectually for looking after our interest in any manner.

AND we the above named Godavari Gas Private Limited do hereby agree to ratify all such acts, deeds and things to be lawfully done by our attorney Shri G Ankaiah, Dy. General Manager as if the same were done by us in person.

IN WITNESS WHEREOF, we, named Godavari Gas Private Limited , through Shri G Varatharajan, Managing Director have hereunto set our hands to this General Power of Attorney on this the 16th day of Nov, 2020, in the presence of the following witnesses, at Rajahmundry.

Witness:

1. (Srikanth.P)

2. G.Siva Prasad.

For Godavari Gas Private Limited

G.

Executant

Accepted:.....

ATTORNEY

ATTESTED BY

G.

EXECUTANT

Godavari Gas Private Limited

PROCEDURES FOR INSTALLATION OF PIPELINES BY HORIZONTAL DIRECTIONAL DRILLING METHOD

ABSTRACT:

Utilization of Horizontal Directional Drilling for the trenchless installation of buried utilities continues to grow. This process presents designers and contractors with significant advantages in installing pipelines beneath a wide range of surface obstacles. In order for these advantages to be realized, creative engineering efforts must be properly applied in advance and during construction. Topics covered include site investigation requirements, drilled path design, construction activity impact, pipe specification, and contractual conditions.

INTRODUCTION:

The statement describes the HDD methodology to be adopted for installation of the MS pipeline. The purpose of this document is to ensure that a dedicated team undertakes works in the safest manner. The HDD work shall be carried out by an agency approved by M/s GODAVARI GAS PRIVATE LIMITED.

SITE INVESTIGATION:

The first in accomplishing a HDD installation is to investigate the site at which the work will be undertaken. An appropriate site investigation will consist of both surface and subsurface surveys. Although each survey may be performed by different specialized engineering consultants, it is important that the results be integrated onto a single plan and profile drawing which will form the basis of any contract and be used to price, plan and execute the crossing. Since this drawing will also be used to make the working profile which will be the basis for the down hole navigation, accurate measurements are essential.

SURFACE SURVEY:

A topographic survey should be conducted to accurately describe the working areas where construction activities will take place. Both horizontal and vertical control must be established for use in referencing hydrographic and geotechnical data. A typical survey should include APPROXIMATELY 7.5KMTRS Across the National Highway from the entry point to the length of the prefabricated section(s) to the exit point. Survey ties should also be made to topographic features in the vicinity of the crossing.

GENERAL PROCESS DESCRIPTION:

Installation of a pipeline by HDD is a two-stage process. The first stage consists of drilling a small diameter pilot hole along a designed directional path. The second stage involves enlarging this pilot hole to a diameter which will accommodate the pipeline and pulling the pipeline back into the enlarged hole.

DRILLED PATH DESIGN:

To maximize the advantages offered by HDD, primary design consideration should be given to defining the obstacle to be crossed. It should always be remembered that flexibility in locating a pipeline to be installed by HDD exists not only in the horizontal plane but in the vertical plane as well.

G. ANKAIAH
Deputy General Manager (CGM)
Godavari Gas Private Limited

For the majority of drilled installations, there are six parameters which define the location and configuration of the drilled path. These are listed below:

Entry Point

Exit Point

Entry Angle

Exit Angle

Elevation

Radius of Curvature.

ENTRY AND EXIT ANGLES:

Entry angles should be held to between 6 degrees and 12 degrees with horizontal. These boundaries are due chiefly to equipment limitations. Exit angles should be designed to allow easy break over support. That is, the exit angle should not be so steep that the pull section must be severely elevated in order to guide it into the drilled hole. This will generally be less than 10 degrees for larger diameter lines.

P.I. ELEVATION:

The P.I. elevation simply defines the depth of cover the installation will have. Typically, a minimum depth of cover of 1.5M in the middle of drain should be maintained in designing drilled profiles. This provides a margin of safety against existing pipelines and down hole "blowout." A "blowout" can cause the drill string to seek the ground surface and force re drilling of the pilot hole.

RADIUS OF CURVATURE:

The radius of curvature for bends used in HDD installations is determined by the following formula: R = Radius of curvature of circular sag bends in feet ND = Nominal diameter of the pipe in inches. This relationship has been developed over a period of years in the horizontal drilling industry and is based on experience with constructability as opposed to any theoretical analysis.

GUIDANCE

Walkover type system is used. The guidance with AEC is able to locate to the depth of 22 meters from the ground level. The walkover system consists of three main components.

1. Transmitter (Sonde)
2. Receiver (The walkover Unit)
3. Remote (Drillers Remote)

TRANSMITTER:

There are different types of transmitters depending on the drilling needs. The transmitters are placed inside the Drill head assembly ahead of the lead piece or the first drill pipe with a bent sub. The best thing about these transmitters is that these are battery operated: there is no need to attach wire to power it up. These work on remote signal principal which is picked up by the tracker carrying

G. ANKAIAH
Deputy General Manager (CGM)
Godavari Gas Private Limited

the receiver over the drill head position. Normal life of battery is 30 hours of continuous drilling or 400 hours of sleep time, which is sufficient in most cases of utility boring.

RECEUVER:

This is the walkover unit picks up signals from the drill head boring under canal or road. The holding the receiver is called tracker, thus tracking the movement of the drill pipe in real time and marking on the ground. The signal get continuously picked every two seconds, indicating the depth, the pitch (angle of drill head) and the roll (direction it is headed)

REMOTE:

Driller's remote stays on with the driller, which helps him in guiding the drill path. Remote gives the same information to the driller, as it does to the tracker. Driller's remote is however a passive unit, unlike the receiver which actually locates the drill head under the earth. The tracker shall continuously monitor the progress of the drilled hole by following the drill path and locating the drill head assembly in real time. He shall note the depth readings every 6.0 meters and guide the driller if there is any deviation to the proposed drill path. For tracking in the canal, if the water level is more than 4 feet a boat will be used which shall be pulled along the drill path with the help of a rope tied on tied on either side of the bank.

PILOT HOLE:

The heading is established on the crossing alignment, the drilling rig is set precisely on line. Pilot hole directional capability is accomplished by using a non rotating drill string with an asymmetrical leading edge. A steering bias is created by the asymmetry of the leading edge. Drilling progress is normally achieved by hydraulic cutting action with a jet nozzle. Mechanical cutting action, when required, is provided by a down hole positive displacement mud motor. The actual path of the pilot is monitored during drilling by taking periodic readings of the inclination and azimuth of the edge. These readings, in conjunction with measurements of the distance drilled since the survey, are used to calculate the horizontal and vertical coordinates along the pilot hole relative the initial entry point on the surface. This serves to prevent sticking of the non/rotating string and allows its drilling bias to be freely oriented. It also maintains the pilot hole if it becomes necessary to withdraw the steerable string. When the steerable string penetrates the surface at the exit point opposite the horizontal drill rig, the pilot hole is complete.

REAMING:

Enlarging the pilot hole is accomplished using either pre-reaming passes prior to pull back or simultaneously during pull back. Pre reaming tools are typically attached to the drill pipe at the exit point. The reamers are then 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 cases reamers fitted into the drill string at the rig are rotated and thrust away from it. Reaming tools typically consist of a circular array of cutters and drilling fluid jets. Drilling fluid is pumped through the reamers to aid in cutting, support the reamed hole, and lubricate the trailing pipe

Once the bit has exited out (punch out) the lead piece is unscrewed and hole opener or reamer is then attached to the leading pipe to start ream operation. For smaller diameter lines in soft soils,

G. ANKAIAH
Deputy General Manager (CGM)
Godavari Gas Private Limited
(A Joint Venture of APGDC & HPCL)
RAJAMAHENDRAVARAM.

reaming passes may be omitted and the final installation pass is undertaken upon completion pilot hole.

In this case, the pre fabricated pipeline pull section or sections, is attached behind the reaming assembly instead of more drill pipe and follows the reamers to the drill rig. A swivel is utilized to connect the pull section to the leading reamers to minimize torsion transmitted to the pipeline.

Once the lead pieces are taken off a 2.5D" FLY CUTTER and 8" BARREL REAMER reaming will be attached to the trailing end of the drill string at the exit location. Depending upon the hole condition the reamer will then be rotated by the rig and advanced into the borehole in the direction of the Rig location

A bull nose or push sub will be attached and the pipe needled through the reamed hole to the exit pit. Once the reamer is on pipe side the next reamer will again be attached to the trailing end of the pipe at the exit side and process will be repeated.

SWAB PASS:

While pulling the reamer back to the rig side if the driller feels that the hole is not conditioned or if where is a collapse of the holes, additional swab passes shall be made. It is critical that the string is welded, tested and on the rollers/ floatation ditch and is ready for pull. Once the string is in on the over bend stands or roll cradles, AEC will reverse the direction of the reamer, swabbing conditioning the borehole, drawing the reamer back through the open bore hole to the entry location. High yield Bentonite with quick jelling characteristics shall be used to preserve the integrity of the borehole during the swab pass.

PRODUCT PIPE ATTACHMENT:

A pull head swivel assembly shall be provided and shall be pre-welded to the product pipe string, which will be on the trench or supported by pipe handling equipment. The pilot swivel shall then be removed from the attached trailing end of drill string, and the drill string shall be attached to the pullback assembly to the leading end of the products pipe.

PIPE PULLBACK AND INSTALLATION:

Once the reaming and swab passes are completed the drill pipe be picked up and placed on the client provided roll cradles on the side boom tractors. The pipeline shall be positioned perfectly in line with the bore hole. An exit angle of approx. eight to ten degrees will have been established allowing the product pipe to gently free stress into the borehole at the exit location. Once aligned product pipe will be fed gently into the bored hole. The pulling rate of 2-5 minutes approx. per joint shall be maintained. Pullback with continue until the leading ends of the product pipe reaches the pit on the entry side. As the pipe string is being pulled into the open borehole, drilling fluid is pumped through the rotating jet swivel. This aids in the further suspension o f the drilled solids that may be in the hole. These solids are removed by the viscosity of the fluid coming out when the pipe displaces the drilling fluids in the open hole.

PIPE SPECIFICATION:

The specification of the pipe to be installed by HDD will generally be governed by its service and applicable regulations and codes. However, stresses or loads imposes by the installation method should be reviewed and, where prudent, analyzed in combination with the operating stresses to insure

G. ANKAIAH
Deputy General Manager (CGM)
Godavari Gas Private Limited
(A Joint Venture of APGDC & HPCL)
RAJAMAHENDRAVARAM.

that acceptable limits are not exceeded. A discussion of operating and construction loads typical to a liquid petroleum products pipeline river crossing is presented in the following paragraphs. The definitions of the general symbols used in the relationships shown are as follows:

P= Internal pressure in pounds per square inch

D= Pipe outside diameter in inches

T= Pipe wall thickness in inches

S= Stress in pounds per square inch

SMYS = Specified Minimum Yield Strength for pipe steel in pounds per square inch

E= Modulus of elasticity for steel

R= Radius of curvature for circular elastic bends in feet

K= Linear coefficient of thermal expansion, inches per inch per degree F

T1= Installation temperature, degrees F

T2= Operating temperature, degrees F

N= Poisson's ratio

Wm = Mud density in pounds per gallon

Ww = Water density in pounds per gallon

Hm = Depth of mud column in feet

Hm = Depth of water column in feet

OPERATING LOADS:

The operating loads imposed on a horizontally drilled pipeline river crossing and the corresponding stress relationships are listed below.

INTERNAL PRESSURE:

A pipeline river crossing is subjected to internal pressure from the fluid flowing in it. This results in a circumferential

BENDING:

A drilled river crossing will contain elastic bends. These bends are approximate circular curves and induce a flexural stress in the pipe. This stress is defined as follows: S = ED/2R(12)

CONSTRUCTION LOADS:

During installation, a horizontally drilled pipeline will be subjected to tension, torsion, bending and external pressure.

G.ANKAIAH
Deputy General Manager (CG)
Godavari Gas Private Limited
(A Joint Venture of APGDC & [illegible])
RAJAMAHENDRAVARAM

TENSION:

The pipeline pull section is placed in tension as it is pulled back through the drilled hole. Theoretically, the pull section is surrounded by an annulus of drilling mud which reduces soil friction and allows it to move freely. This is the basis on which a pull section can be pulled in along drilled hole. The tensile forces developed by a horizontal drilling rig during pull back will generally be around 100,000 to 200,000 pounds. A significant portion of this force is applied to the cutting face of the reaming assembly which precedes the pull section into the hole. It is very difficult to determine what magnitude of the rig tension is transmitted to the pipeline pull section. Nevertheless, overstressing the pipe due to tension is unlikely under normal circumstances.

TORSION:

A swivel is typically used to separate the rotating reaming assembly from the pipeline pull section. Therefore, the pull section should not be subjected to torsion. Swivels are not one hundred percent efficient, however, and some torsion will be transmitted to the pull section. Nonetheless, this torsion is not significant and does not merit any special analysis.

BENDING:

As it is guided into the drilled hole, the pull section will be subjected to bending in a similar manner to a pipeline being lowered into a ditch or pulled into a dredged crossing.

Control of this operation generally falls under the responsibility of the contractor and need only be subject to field inspection unless special circumstances warrant an engineering analysis. A hole can be a special circumstance. In this case, an analysis of the bending stresses imposed on the line due to the geometry of construction bends should be conducted.

EXTERNAL PLRESURE:

External pressure on a pipe during installation by HDD results from following loads.

- Hydrostatic pressure produced by the weight of the drilling mud column extending from the surface to the location being analyze. This pressure is defined as follows;
  $P = WmHm/19.25$
- Hydrokinetic pressure required to produce drilling mud flow from the reaming assembly through the reamed annulus surrounding the pipe to the surface. An indication of this pressure can be calculated using annular flow pressure loss formulae borrowed from the oil will drilling industry. These results are dependent on detailed mud properties, flow rates and hole configuration. For simplicity, the relative formulae are not reproduced here.
- Hydrokinetic pressure produced by surge or plunger action involved with pulling the pipe into the reamed hole. This load cannot be calculated reliably. The maximum value should be indicated by soil properties.
- Bearing pressure of the pipe against the hole wall forces the pipe to conform to the drilled path. As with surge or plunger pressure, it cannot be calculated reliably. Once again, its maximum value should be indicated by soil properties.

G. ANKAIAH
Deputy General Manager (CGM)
Godavari Gas Private Limited
(A Joint Venture of GAIL, ONGC & HPCL)
RAJAMAHENDRAVARAM.

PIPE EXTERNAL PRESSURE CAPACITY:

The external pressure at which a circular steel pipe is subject to elastic collapse is defined as follows:

P = (2Et3)/D3. However, this capacity is subject to reduction for a steel pipe being installed by HDD. The cross section of the pipe will tend to become elliptical as a result of the bending stresses induced by the drilled path. Sound engineering judgments should be employed to insure an adequate factor of safety exists.

DRILLING FLUID (BENTONITE0 DISPOSAL:

As the primary component of drilling fluid is fresh water found at the location. In most cases it is necessary to add bentonite powder to the water to increase its viscosity, stabilize the drilled hole and provide lubricity during pipe installation. Bentonite is not a hazardous material as defined by the U.S. Environmental Protection Agency characteristics of ignitability, corrosives, reactivity or commercial chemicals. It is also used to seal earth structures such as ponds dams and it can be buried under ground.

COATING INTERIGITY:

The coating should be inspected with a holiday detector immediately prior to entering the drilled hole. Additionally, field joints should be closely inspected. Damage to a yard applied pipe coating imposed by drilled installation in most soils will be negligible if the hole has been properly drilled and reamed.

G.ANKAIAH
Deputy General Manager (CGM)
Godavari Gas Private Limited
(A Joint Venture of APGDC & HPCL)
RAJAMAHENDRAVARAM.

GGPL

GODAVARI GAS PRIVATE LIMITED

RECEIVED
No: 50922
Dt: 08/06/2020
Time:

Ref.: GGPL/RJY/CSPL/PERMISSION/NHAI/2020/01 Date: 03.06.2020

To
The Project Director,
NHAI - Rajahmundry,
Rajahmundry.

Sub: Permission for laying of 6", API 5L Gr.X-52, PSL2, 6.4mm Thick, 3LPE Coated Carbon Steel Pipeline for service of Natural Gas along NH-16 from Peravali to Tetali, West Godavari (D), AP.

Ref: 1) GGPL Letter vide No GGPL/RJY/CSPL/PERMISSION/NHAI/2019/3 dated 13/12/2019.
2) Your Letter vide No NHAI/PIU-RJY/Permission/GGPL/2019-20/25010 dated 05/02/2020.

Dear Sir,

With reference to your letter dated 05-02-2020 referred above, revised chainage details/drawing for pipeline from CH 962/600 to 970/500 after incorporating suggested modification is enclosed herewith for your kind consideration and granting permission for laying the said pipeline.

Replies to the observations made by NHAI are as below.

S.No	Observations made by NHAI	Replies from GGPL
1	It is observed that the Irrigation Canal 2 Nos., are crossing at Km. 969+100 & at Km. 971+840 and one Railway Crossing at Km. 969+610.	Applications with relevant drawings / details / documents to Irrigation Department and Railway Department are submitted for grant of permission, awaited permission. (Refer **Annexure - 1**)
2	The HDD Depth at the above locations is not shown separately as per the site requirement.	HDD Profile drawings for two canal crossings and one railway crossing are enclosed. Depth shall be maintained at 7.5 Mtrs for canal crossing and at 7 Mtrs for railway crossing or as suggested by authorities. (Refer **Annexure - 2**)
3	NOC from the respective departments is not enclosed.	Applications to Irrigation Department and Railway Department for grant of permission are submitted and awaiting permission.
4	The Pipeline laying shall be done at the edge of ROW in the urban section from Km. 967+000 to Km. 970+500 by clearing obstructions at your own cost and risk.	It is to inform that GGPL shall bear the costs incurred in clearing the obstructions involved during laying of the pipeline.
5	The ROW on LHS from Km. 970+500 to Km. 972+000 is around 15 Mtrs – 17 Mtrs, due to non – availability of utility corridor in the said length, you are hereby directed to lay the pipeline beyond the canal.	As suggested, pipeline from Km. 970+500 to Km. 972+000 shall be laid beyond the canal due to non-availability of utility corridor, with the permission taken from the concerned authorities. (Refer **Annexure - 3**)

We solicit your kind cooperation for implementation of CGD project by granting the permission to lay CS pipeline along the said NHAI road.

Thanking you,

Yours Sincerely

Godavari Gas Private Limited RJY.

05/06/2020

G.Ankaiah
Dy. General Manager (CGM)

Encl: As above

Gmail PIU - RAJAMAHENDRAVARAM NHAI <piurajahmundry@gmail.com>

NHAI - PIU - RJMVM - Laying of OFC Cable by M/s. GGPL from Km. 962.600 to Km. 970.500 - Certain observations - Call for a Report - Reg.

TOT2247rajahmundry 2247 TOT <tot2247rajahmundry@aarvee.net> Fri, May 28, 2021 at 11:36 AM
To: piurajahmundry <piurajahmundry@gmail.com>
Cc: namasubbarao <namasubbarao@yahoo.co.in>

Dear Sir,

Please refer to trailing mail, wherein we were requested to confirm whether the proposed service road as per CA & COS in principally sanctioned at black spots locations have been taken into consideration for fixing of ROW for lying of pipe line or not by return mail for taking further action.

In this regard, it is to inform that the laying of pipe line at Proposed service road as per CA & COS black spot locations has been taken into consideration and pipeline laying shall be done at the edge of ROW. Crossing of bridges/ culverts shall be done by HDD Methodology.

This is for your kind information please

With Regards,

TL Office
Rajamahendravaram

From: "piurajahmundry" <piurajahmundry@gmail.com>
To: "TOT2247rajahmundry 2247 TOT" <tot2247rajahmundry@aarvee.net>
Sent: Tuesday, 6 April, 2021 20:19:27
Subject: NHAI - PIU - RJMVM - Laying of OFC Cable by M/s. GGPL from Km. 962.600 to Km. 970.500 - Certain observations - Call for a Report - Reg.

[Quoted text hidden]

CHECK LIST

(National Highway - 216A)

Guidelines for processing the proposal for laying Utility/Gas Line in the land along National Highway vested with NHAI/PWD/BRO

No.	Item	Information/ status Crossing - 1	Remarks
1	General Information		
1.1	Name and Address of the Applicant/Agency	M/s Godavari Gas Private Limited, 85-6-23/2, Morampudi Junction, RTC complex road, Rajahmundry	G. Ankaiah, General Manager (CGM) Office No. 08832476111
1.2	National Highway Number	216A	Chennai - Kolkatta Highway
1.3	State	Andhra Pradesh	
1.4	Location	Peravali to Tetali West Godavari, AP	
1.5	(Chainage in km)	CH 962.60 KM to CH 970.50 KM	Towards Vijayawada
1.6	Length in Meters	7,900 Mtrs	
1.7	Width of available ROW		
	(a) Left side from center line towards increasing chainage/ km direction.	Detailed drawing indicating width of ROW along applied chainage is attached as Annexure.	
	(b) Right side from center line towards increasing chainage/ km direction.	Not Applicable	
1.8	Proposal to lay underground electrical cable.	Not Applicable	
	(a) Left side from center line towards increasing chainage/ km direction.	Not Applicable	
	(b) Right side from center line towards increasing chainage/ km direction.	Not Applicable	
1.9	Proposal to acquire land	Not Applicable	
	(a) Left side from center line	Not Applicable	
	(b) Right side from center line	Not Applicable	
1.10	Whether proposal is in the same side where land is not to be acquired.	Not Applicable	
	If not then where to lay the cable.	Not Applicable	
1.11	Details of already laid services, if any, along the proposed route.	Nill	
1.12	Number of existing lanes (2 / 4 / 6 / 8 lanes)	4	
1.13	Proposed Number of lanes (2 lane with paved shoulders 4/6 / 6/8 lanes)	Not Applicable	
1.14	Service road existing or not	No	
	If yes then which side		
	(a) Left side from center line	No	
	(b) Right side from center line	No	
1.15	Proposed Service road	No	
	(a) Left side from center line	No	
	(b) Right side from center line	No	
1.16	Whether proposal to lay Gas Pipe line is after the service road or between the service road and main carriageway.	After the proposed Service Road ~~does not exist~~	
1.17	Wheather carrying of sewage/gas pipeline has been proposed on highway Bridges. If Yes, then mention the methodology proposed for the same.	No	

Project Director
NHAI-PIU
RAJAMAHENDRAVARAM

G. ANKAIAH
General Manager (CGM)
Godavari Gas Private Limited
(A Joint Venture of APGDC & HPCL)
RAJAMAHENDRAVARAM.

1.18	Wheather carrying of sewage/gas pipeline has been proposed on the parapet/ any part of bridges. If Yes, then mention the methodology proposed for the same.	No	
1.19	**If crossings of the road involved** If Yes, it shall be either encased in pipes or through structure or conduits specially built for that purpose at the expenses of the agency owning the line.	No	
	(a) Whether existing drainage structures are allowed to carry the utility pipelines.	Not Applicable	
	(b) Is it on a line normal to NH	Not Applicable	
	(c) What is the distance of crossing the utility pipelines from the existing structures. Crossings shall not be too near the existing structures on the National Highway, the minimum distance being 15 meter.	Not Applicable	
	(d) The casing pipe (or conduit pipe in the case of electric cable) carrying the utility line shall be of steel, cast iron, or reinforced cement concrete and have adequate strength and be large enough to permit ready withdrawal of the carrier pipe/cable. Mention type of casing.	Not Applicable	
	(e) Ends of the casing/conduit pipe shall be sealed from the outside, so that it does not act as a drainage path.	Not Applicable	
	(f) The casing/conduit pipe should, as minimum extend from drain to drain in cuts and toe of slope toe of slope in the fills.	Not Applicable	
	(g) The top of the casing/conduit pipe should be at least 1.2 meter below the surface of the road subject to being at least 0.3 m below the drain inverts. Mention the proposed details.	Not Applicable	
	(h) Mention the methodology proposed for crossing of road for proposed Sewage/Gas Pipeline. Crossing shall be by boring method (HDD) (Trench Less Technology) specially where the existing road pavement is of cement concrete or dense bituminous concrete type.	Not Applicable	
	(i) The casing/conduit pipe shall be installed with an even bearing throughout its length and in such a manner as to prevent the formation of a waterway along it.	Not Applicable	

Project Director
NHAI-PIU
RAJAMAHENDRAVARAM

G. ANKAIAH
General Manager (CGM)
Godavari Gas Private Limited
(A Joint Venture of APGDC & HPCL)
RAJAMAHENDRAVARAM.

2	Document / Drawings enclosed with the proposal		
2.1	Cross section showing the size of trench for open trenching method (Is it normal size of 1.2m deepX 0.3m wide) (i) Should not be greater than 60 Cm wider than the outer diameter of the pipe. (ii) Located as close to the extreme edge of the right-of-way as possible but not less than 15 meter from the centre-lines of the nearest carriageway. (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. (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.	Enclosed	
2.2	Cross section showing the size of pit and location of cable for HDD method.	Enclosed	
2.3	Strip plan/ Route Plan showing Gas pipe line, Chainage, width of ROW. Distance of proposed, cable from the edge of ROW, important mile stone, intersections, cross drainage works etc.	Detailed drawing indicating width of ROW along applied chainage is attached as Annexure.	
2.4	Methodology for laying of Sewage/Natural gas pipe line.	HDD Method	Methology Enclosed ~~(If NHAI Permits, laying will be through Open cut)~~
2.4.1	Open trenching method. (May be allowed in utility corridor only where pavement is neither cement concrete nor dense bituminous concrete type. If yes, Methodology of refilling of	NA	
	(a) The 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 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 yield a firm surface without sudden change in the bearing value. Unsuitable soil and rock edged should be excavated and replaced by selected material.	NA	
	(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.	NA	

Project Director
NHAI-PIU
RAJAMAHENDRAVARAM

G. ANKAIAH
General Manager (CGM)
Godavari Gas Private Limited
(A Joint Venture of APGDC & HPCL)
RAJAMAHENDRAVARAM.

	d) The sidefill shall consist of granular material laid in 15 cm layers each consolidated by mechanical tampering and controlled addition of moisture to 95% of the Proctor's Density. Overflll shall be compacted to the same density as the material that had been removed. Consolidation by saturation or ponding will not be permitted.	NA	
	(e) The road crust shall be built to the same strength as the existing crust on either side of the trench. Care shall be taken to avoid the formation of a dip at the trench.	NA	
	(f) The excavation shall be protected by flagman. Signs and barricades. and red lights during night hours.	NA	
	(g) If required, a diversion shall be constructed at the expenses of agency owning the utilit line	NA	
2.4.2	Horizontal Directional Drilling (HDD) Method.	Yes	Methology Enclosed
2.4.3	Methodology for laying of Pipeline through CD works and method of laying. Incase where the carrying of gas pipe line on the bridge becomes inescapable.	HDD Method	Methology Enclosed
3	Draft License Agreement signed by two witnesses.	Enclosed	
3.1	The licensee fee estimate as per Ministry's guidelines issues vide circular No. RW/NH-33044/29/2015/S&R(R) dated 22.11.2016.	GGPL agrees for the same as per requirement of NHAI	
4	Whether Performance Bank Guarantee as per Ministry's Circular no. RW/NH-33044/29/2015/ S&(R) dated 22.11.2016 is obtained.	GGPL agrees for the same as per requirement of NHAI	
	Confirmation of BG has been obtained or not as per MoRTH/NHAI guidelines	GGPL agrees for the same as per requirement of NHAI	
5	Affidavit / Undertaking from the applicant for the following is to be furnished:		
5.1	Undertaking for Not to Damage any other utility, if damaged then to pay the losses either to NHAI or to the concerned agency.	Yes. Enclosed	
5.2	Undertaking for Renewal of Bank Guarantee as and when asked by MORTH/NHAI.	Yes	
5.3	Undetaking for Confirmination all standard condition of Ministry Circulars & NHAI's guideline	Yes	
5.4	Underataking for indeminity against all damages and claims.	Yes	
5.5	Underataking for management of traffic movement during laying of utility line without hampering the traffic.	Yes	

Project Director
NHAI-PIU
RAJAMAHENDRAVARAM

G. ANKAIAH
General Manager (CGM)
Godavari Gas Private Limited
(A Joint Venture of APGDC & HPCL)
RAJAMAHENDRAVARAM.

5.6	Undertaking if any claim is raised by the concessionaire/ contractor then the same has to be paid by the applicant	Yes	
5.7	Undertaking that prior approval of the NHAI shall be obtained before undertaking any work of installation, shifting or repairs or alterations to the utility located in the National Highway right-of-ways.	Yes	
5.8	Undertaking that expenditure, if any, incurred by NHAI for repairing any dammage caused to the National Highway by the laying. Maintenance or shifting of the utility line will be borne by the applicant agency owing the line.	Yes	
5.9	Undertaking that text of the text of the license deed is as per verbatim of MoRTH format (issued vide Ministry's Circular no. RW/NH-33044/29/2015/S&R(R) dated 22.11.2016	Yes	
5.10	Undertaking that the applicant has obtained various safety cleareances from the respective authorities such as Directorate of Electricity, Chief controller of Explosives, Petroleum and Explosive Safety Orginization, Oil Industry Safety Directorate, State/Central Pollution Control Board and any other statutory clearances applicable. befor applying to Highway Adminstration.	Yes	Authorization From Petroleum & Natural Gas Regulatory Board for development of CGD & Natural Gas Network in West Godavari District geographical area obtained. Copy Enclosed.
5.11	If the MoRTH/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	Certificate from the applicant in the following format (i) Laying of Gas pipe line will not have any deleterious effects on any of the bridge components and roadway safety for traffic. (ii) "We do undertake that I/we will relocate service road/approach road/utilities at my own cost not with standing the permission granted within such time as will be stipulated by NHAI for future six- lanning or an other development.	Yes	Enclosed
6	Who will sign the agreement on behalf of Gas pipe line agency	General Manager(CGM), GGPL	
	Power of attorney to sign the aggrement on behalf of Gas pipe line agency.	General Manager(CGM), GGPL	

Project Director
NHAI-PIU
RAJAMAHENDRAVARAM

G. ANKAIAH
General Manager (CGM)
Godavari Gas Private Limited
(A Joint Venture of APGDC & HPCL)
RAJAMAHENDRAVARAM.

7	Certificate from the project Director		
7.1	Certificate that the proposal is confirming to all standards conditions issued vide Ministry's Circular No: RW/NH-33044/29/2015/S&(R) Dated 22.11.2016.	Yes	Enclosed
7.2	Certificate from PD in the following format (Yes/No) (i) "It is certified that any other location of the Pipe Line would be extremely difficult and unreasonable costly and the installation of Gas pipe line within ROW will not adversely affect the design, stability & traffic safety of the highway nor the likely future imrovement such as widening of the carriageway, easing of curve etc". (ii) for 6 -lanning (a) Where feasibility is available "I do certify that there will be no hindrance to proposed six-laning based on the feasibility report considering proposed structures at the said location". (b) In case feasibility report is not available "I do certify that sufficient ROW is available at site for accommodating proposed six-laning".	Yes	Enclosed
8	If NH section proposed to be taken up by NHAI on BOT basis - a clause is to be inserted in the agreement. "The permitted Highway on which Licensee has been granted the right to lay Pipeline has also been granted as a right of way to the concessionaire under the concession agreement for up-gradation of [**Siddhantam to Gundugolanu section from Km 955.420 to Km 1022.494 of NH No.216A on TOT Basis**] and therefore, the licensee shall honour the same."	Required Clause included	
9	Who will supervise the work of laying of gas supply pipe line.		
	(a) On Behalf of Applicant	General Manager(CGM), GGPL	
	(b) On Behalf of MoRTH/NHAI	Project Director - NHAI	
10	Who will ensure that the defects in road portion after laying of gas Supply pipe line are corrected and if not corrected then what action will be taken.		
	(a) On Behalf of Applicant	General Manager(CGM), GGPL	
	(b) On Behalf of MoRTH/NHAI	Project Director - NHAI	
11	Who will pay the claims for damages done/disruption in working of Concessionaire if asked by the Concessionaire.	M/s Godavari Gas Private Limited	

Project Director
NHAI-PIU
RAJAMAHENDRAVARAM

G. ANKAIAH
General Manager (CGM)
Godavari Gas Private Limited
(A Joint Venture of APGDC & HPCL)
RAJAMAHENDRAVARAM

12	A certificate from PD that he will enter the proposed permission in the register of records of the permissions in the prescribed proforma (copy enclosed).	Enclosed	M/s GGPL will agree for the same as per requirement of NHAI
13	If any previous approval is accorded for laying of underground Gas Supply Pipe line then Photocopy of register of records of permissions accorded (as maintained by PD) then copy be enclosed.	Enclosed	M/s GGPL will agree for the same as per requirement of NHAI

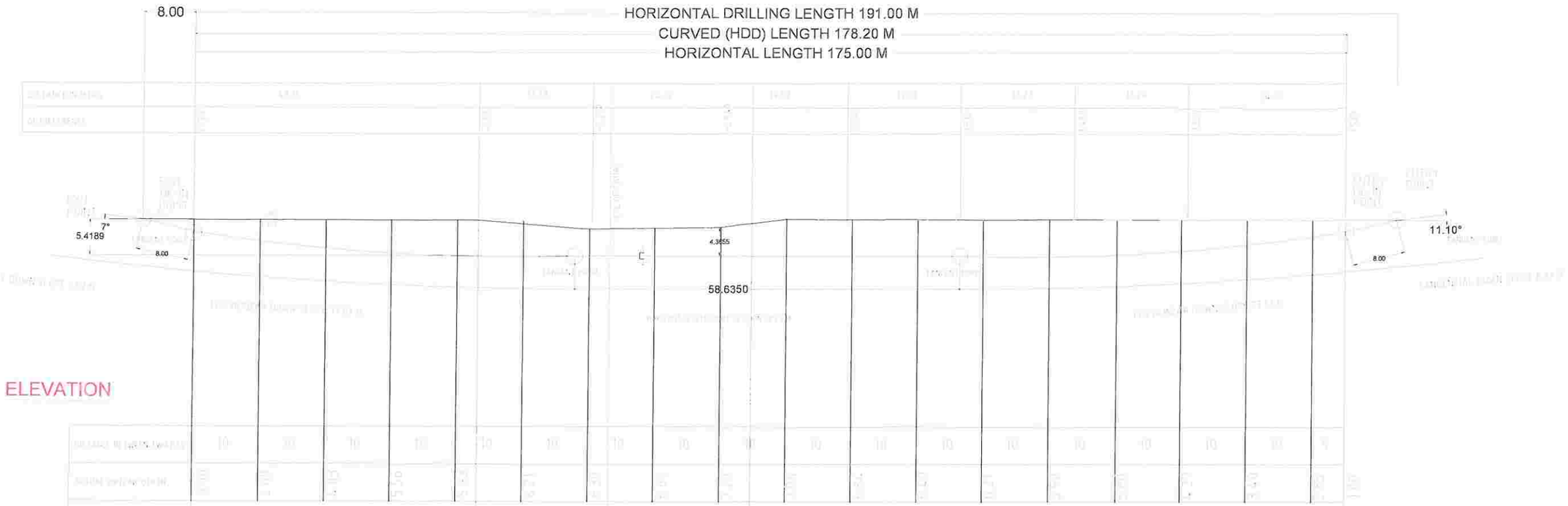
G. ANKAIAH
General Manager (CGM)
Godavari Gas Private Limited
(A Joint Venture of APGDC & HPCL)
RAJAMAHENDRAVARAM.

Project Director
NHAI-PIU
RAJAMAHENDRAVARAM

TETALI

PERAVALI

PROPOSED PROFILE FOR CONSTRUCTION ACROSS MANDAPAKA-ATTILI CANAL AT IRRIGATION CH:23 KM & NH CH:969.100 KM



ELEVATION

PLAN

Project Director
NHAI-PIU
RAJAMAHENDRAVARAM

VIJAYA CONSTRUCTIONS PVT LTD
New Delhi

RECON LIMITED
RAJAHMUNDRY-533 103

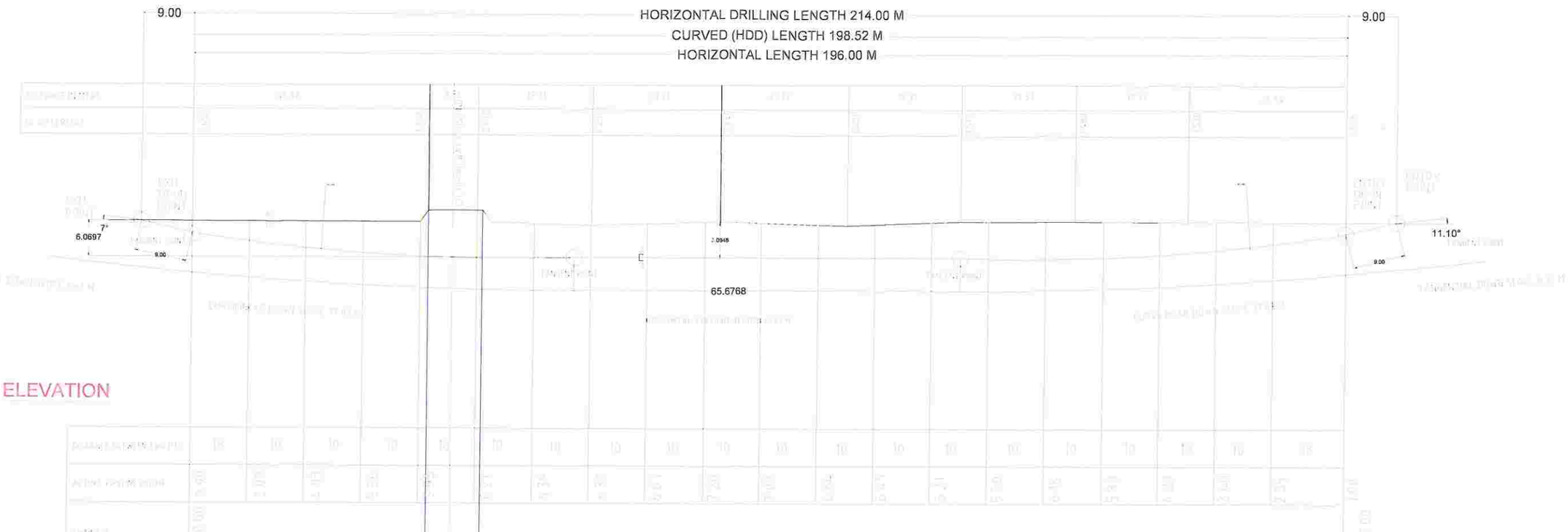
PROFILE DATA

TADEPALLIGUDEM

PROPOSED HDD PROFILE FOR CONSTRUCTION ACROSS RAILWAY CROSSING AT TANUKU AT NH CH:969.610 KM

PERAVALI

ELEVATION



PLAN

Project Director
NHAI-PIU
RAJAMAHENDRAVARAM

MECON LIMITED
RAJAHMUNDRY-533 103
GGM, C&D

PROFILE DATA

ALL DIMENSIONS ARE IN METER