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INDRAPRASTHA
GAS LIMITED

Project Name	For laying of 12" Carbon Steel Gas Pipeline & 50 mm Duct in same trench (LHS) from NH Ch. Km-34.000 (Infront of Shree Bankey Bihari Dental Collage) to NH Ch. Km-49.800 (Hapur Bypass cut on NH-24) along National Highway No-24 (New NH-9) and Crossing of NH at 3 locations in the state of Uttar Pradesh.
Client	M/s. INDRAPRASTHA GAS LTD

Job Procedure for
TRENCHING

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1.0 PURPOSE

The purpose of this work instruction is to establish guidelines and requirements to control the trenching activity to be used for for laying of 12" Carbon Steel Gas Pipeline & 50 mm Duct in same trench (LHS) from NH Ch. Km-34.000 (Infront of Shree Bankey Bihari Dental Collage) to NH Ch. Km-49.800 (Hapur Bypass cut on NH-24) along National Highway No-24 (New NH-9) in the state of Uttar Pradesh.

2.0 SCOPE

This scope covers the Trenching in all type of soil or in rock for pipeline for Construction. It also covers the blasting of trench and removal of scattered rock and debris from ROW.

3.0 EQUIPMENTS & MAN POWER

JCB : As Per Requirement
Civil Labour : As Per Requirement
Supervisor : 01 Nos.

4.0 METHODOLOGY

As a sequence operation trenching is to start with a reference line marked as the centerline of the trench. Trail Pits shall be prepared wherever required to locate the OFC, Power Cable, existing pipeline crossing or any other obstacles.

If deemed necessary by IGL or concerned authorities where numerous utilities may be encountered, IGL should carry out the excavation normally. The areas identified for existing utilities shall be marked with temporary painted post and uncovering/exposing of same shall be done manually. Use of excavator bucket is not permitted. In case of damage of any existing utilities IGL and concerned authority should be informed immediately without any delay. Rectification for same shall be done by the contractor at his own cost.

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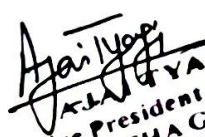
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For normal soil trench shall be prepared as per detail TYPE 1 (typical trench detail in normal soil) as stipulated in standard drawing, TEIND-STD-G-M-2002 (released for construction). For rocky and seismic fault zone trench will be prepared as per specification/ drawings (as applicable). Excavation to additional depth may be done if pipeline approaches or crosses other pipelines, sewer, drain pipes, telephone conduits, permission from concerned authority shall be obtained by the contractor removing, shifting of existing utilities like cables, pipelines, poles or pylons etc during excavation. The pipeline is laid at a minimum clearance unless otherwise stated in particular crossing drawing (This clearance shall be at least 0.3m when the pipeline crosses the existing line and 3.0m when they are parallel). Or as per statutory requirement whichever is more stringent shall be followed.

Ditches, sewers, drains and other natural waterways shall be maintained open & functional. Where ever in the execution, work shall be maintained if not possible facility would be provided using temporary pipeline crossings. The trench excavated should have a minimum width as indicated in the job drawing / specifications. The depth of the cover should be measured from the top of the pipe. Corrosion coating to the top of undisturbed surface of the soil or top of rail or top of road whichever is lower. The depth should be sufficient provided maximum coverage is mentioned below.

The trench shall be dug in such a way that is symmetrical in relation to the axis of the channel actually marked out.

Directional changes on the trench floor should tally with the draft longitudinal profile perfectly – both horizontally and vertically – and with changes in pipe direction so that welded pipe sections lie in a continuous and uniform manner along the trench floor.


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The depth of the trench will be such as to provide minimum cover from the generatrix of pipe and top of the surface as stipulated below for reference:

- | | | |
|---|---|-------------------------------|
| i) Normal surface i.e. Road & Residential Area | - | 1.20 meter |
| ii) Minor Water Crossings/Canal (Open cut / boring) | - | 1.50 meter |
| iii) Drainage ditches at Road | - | 1.50 meter |
| iv) Rocky Areas | - | 1.00 meter |
| v) Cased/ Uncased road crossing | - | 1.50 meter |
| vi) Railway Crossing | - | 3.5 meter |
| vii) Other areas | - | 1.20 meter |
| Viii) Major Water crossing/ Canals | - | 5 meter (below scour depth) |
| ix) HDD/ Micro -tunneling | - | 2.5 meter (below scour depth) |

Prior approval shall be taken for trench profile at special crossings stated above.

In rocky soil, the trench must be excavated with a mechanical trencher fitted with suitable teeth which assured maximum fragmentation of the excavated material. Any Explosive material should not be used. If blasting is required at some hard rocky area, the work will be done as per approved procedure & with prior permission of concerned authority.

If the use of mechanical trencher is unfeasible for technical reasons, excavation is to be carried out with excavator equipped with a bucket/breaker.

Wherever required Dewatering from trench should be carried out with dewatering pumps and drain water should be discharge to nearest Nala /river /canal or in proper location so it should avoid difficulties in local area.


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The Trench walls/bottom must be free of hard and protruding points to avoid damaging of the pipeline coating when it is being lowered in.

Pipeline must be laid in the trench without any interruption i.e. the completed section at the time and the activity may be carried out to avoid any accidents.

5.0 HEALTH, SAFETY & ENVIRONMENT

- Machine operator involved shall be an experienced person.
- PPE shall be used in this activity.
- Only trained operators to be deployed for this activity.
- Personnel around the machine (if any) should be cautious about overhead falling objects.
- During the movement of earth moving equipment the operator should blow horn to caution the people around.
- All Measuring & Test Equipment used shall be well maintained.
- Excavated Area should be barricaded.
- Provide ladders wherever possible for better approach to the working area if Depth is > 1Mtr.
- Shoring all around the pit shall be checked prior to start of excavation and if required adequate amount of shoring to be done.
- Minimum persons should go in to the pit.
- Only certified and validated tools & tackles to be used.
- Underground pipe to be located by pipe locators prior to start of Trenching.
- First aid box to be maintained at site.
- Emergency contact number to be installed on site.

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