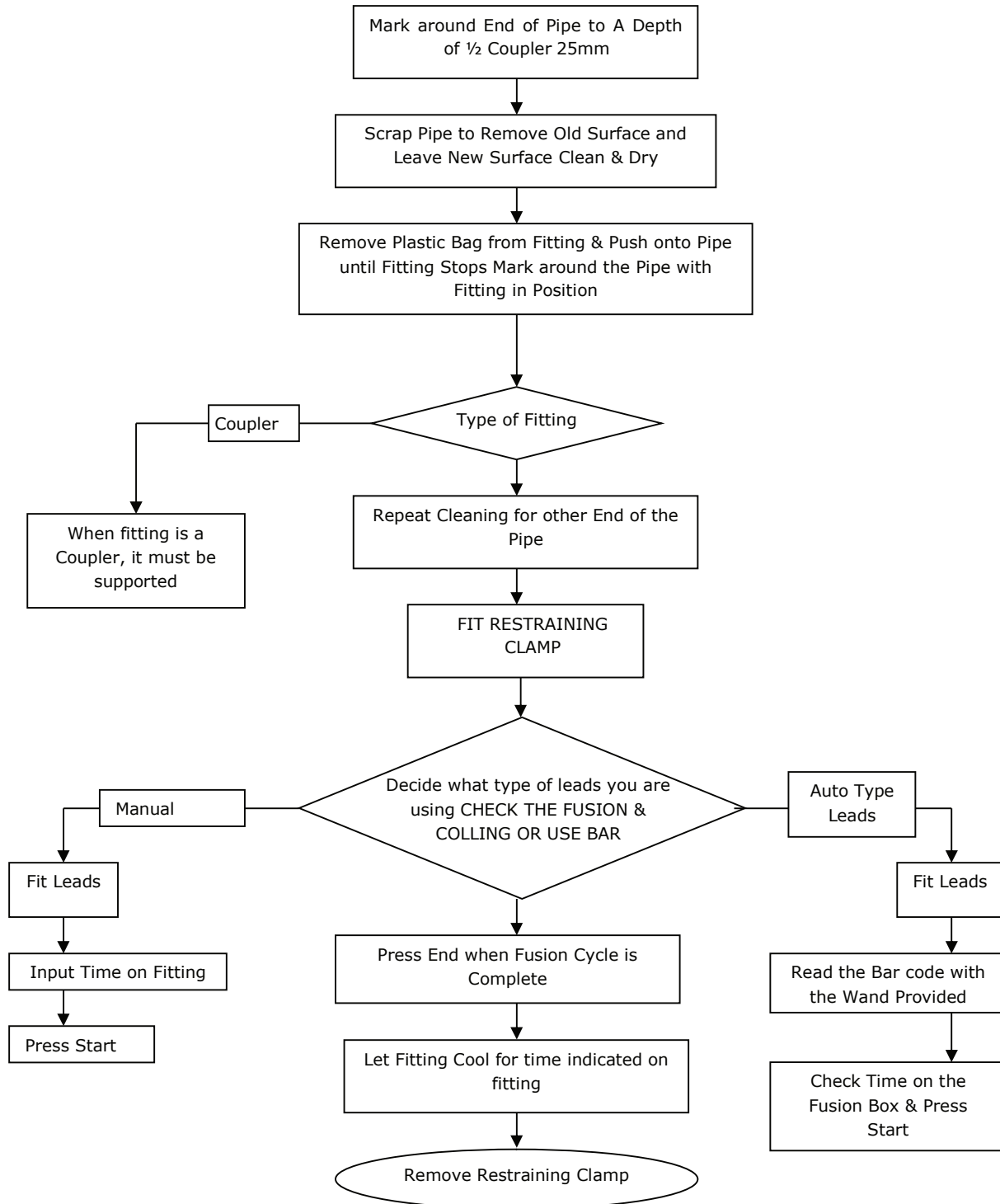


ANNEXURE # 2

FUSION COUPLERS FROM 20MM TO 180MM





ANNEXURE # 3

RESTORATION PROCEDURE/GUIDELINES FOR ROAD CUTS OF MCD AND OTHER LANDOWNING AGENCIES

PURPOSE AND OBJECTIVE

The main purpose and objective of this document is to ensure that all the work are carried out with proper specifications and standards with high quality and timely accomplishment, and the restoration of infrastructure is according to standards Aimed at achieving the original condition of the road infrastructure.

DOCUMENTS/FILES TO BE MAINTAINED:

The following documents shall be maintained during execution of the job and shall be handed over to OWNER/Consultant/TPI after completion of the job;

- Copy of permission letter obtained from MCD.
- Drawing/Sketch showing the details of stretch to be cut, highlighting the type of surfaces and its chainage/length (area)
- Stage wise Photographs of the stretch.
- Test Certificates of the Construction materials to be used.
- Routine Test Certificates for construction materials during progress of job.

31.0 RESTORATION OF TRENCHES/PITS:

After laying pipeline, backfill material without containing extraneous material or hard lumps of soil or stones shall be filled and watered in layers of 150mm. Warning mats shall be placed as per specification. Earth shall be filled watered and compacted in layers with the help of earth compactor (Jumping jack compactor where ever space is available). After backfilling, the crown of the earth shall be between 50mm and 100mm above road surface and shall be free from sharp-edge stone and boulders.

After consolidation of backfill, the surplus earth shall be removed and disposed at place directed by OWNER (at suitable locations, as per direction of MCD)

Further, depending upon the Surface types of following specification shall be adopted:



Sl. No.	Surface Types	Specification Recommended
1	Cement Concrete Surface	Top Surface - PCC 1:2:4, 100 mm Thick Compacted with Plate Vibrator shall be laid over base course. Base Course - PCC 1:5:10, 75 mm Thick laid over compacted backfilled earth.
2	Brick Soiling	Top Surface - Brick Soiling (as per original type) shall be laid over base course. Base Course - PCC 1:5:10, 75 mm Thick laid over compacted backfilled earth.
3	Interlocking CC Paver Block	Top Surface - Interlocking CC Paver Blocks (as per original type) shall be laid over compacted fine sand 50 mm Thick over base course. Base Course - PCC 1:5:10, 75 mm Thick laid over compacted backfilled earth.
4	Chequered Cement Concrete Tiles/Pre-cast CC Tiles/Kota Stone Floor/Red Stone Floor	Top Surface - Tiles/Floor (as per original type) shall be laid over Cement Sand Mortar 1:6, 20mm Thick over base course, Joints shall be pointed/finished to match colour. Base Course - PCC 1:5:10, 75 mm Thick laid over compacted backfilled earth.
5	Bituminous Surface (for Category D Roads i.e.; Roads less than 13.70 M width)	Top Surface - 40mm Thick Bituminous Concrete (as per original type) shall be laid over PCC 1:2:4, 100 mm Thick over base course. Base Course - PCC 1:5:10, 75 mm Thick laid over compacted backfilled earth.
6	Bituminous Surface (for Category C Roads i.e.; Roads less than 18 M width but greater than 13.70 M width.)	Top Surface - 40mm Thick Bituminous Concrete (as per original type) shall be laid over PCC 1:2:4, 150mm Thick over base course. Base Course - PCC 1:5:10, 150 mm Thick laid over compacted backfilled earth.

The specification mentioned above may be modified in line with relevant MCD/CPWD/IRC specifications. Contractor has to follow the changes as informed to them time and again.

NOTE:

Wherever the Bituminous portion is cut in small patches or isolated location where area of Bituminous portion is very less due to constraints like other utilities, the



surface shall be restored, same as specified for the cement concrete surface, with prior approval of EIC/TPI.

32.0 TESTING OF CONSTRUCTION MATERIALS

For the different construction materials proposed to be used the following tests are required to be carried out for approval:

Sl.No.	Material	Test	Method of Testing	Frequency of Test
1	Cement	Setting time, soundness, compressive strength and fineness	As per IS: 4031	Once for each consignment or as and when required/directed
2	Bricks	Compressive strength, water absorption and efflorescence	As per IS: 3495	Minimum five samples or as per IS: 5454
3	Coarse Aggregates	Sieve analysis, flakiness index, estimation of deleterious materials, organic impurities, moisture contents and specific gravity	As per IS: 2386	One test per source of supply and routine test regularly as directed
4	Fine Aggregates	Sieve analysis, clay silt and moisture contents and specific gravity	As per IS: 2386	One test per source of supply and routine test regularly as directed

In addition to the above construction materials such as inter locking paver blocks, chequered cement concrete tiles, Pre-cast CC tiles, Kota/Red Stones Flooring samples shall be arranged for approval before use and if required testing shall be arranged.

For Cement concrete works the minimum frequency of sampling of concrete (CC cubes) shall be as follows:



Sr. No.	Quantity of concrete in Cu. M	No. of Samples
1	1 – 5	1
2	6 – 15	2
3	16 – 30	3
4	31 – 50	4
5	51 and above	4 + 1 additional sample for each additional 50 Cu. M and part thereof.

The cement concrete cubes shall be tested for 7 & 28 days as per relevant IS code.

33.0 INSPECTION BY THIRD PARTY INSPECTION (TPI) AGENCIES NOMINATED BY LAND OWNING AGENCIES

It is the responsibility of the contractor to give inspection call, at least one week in advance to OWNER, to arrange for inspection by TPI nominated by land owning agencies along with the file containing all documents. Before inspection by TPI nominated by land owning agencies, contractor has to arrange for the inspection of the restored area by OWNER/Consultant/TPI and get the work certified. Contractor has to arrange for all necessary equipment, tools & tackles, labour for carrying out the inspection of the restored area. It is the responsibility of the contractor to obtain "No Objection Certificate" (NOC) from the TPI nominated by the land-owning agencies and further NOC from Land Owning Agencies and to get the securities/Bank Guarantees paid to them, for obtaining the permissions.



ENERGISING QUALITY

VCS QUALITY SERVICES PVT. LTD.

STANDARD SPECIFICATION - INSTALLATION OF ABOVE GROUND GI/COPPER/MLC PIPING & FITTINGS IN LOW RISE DOMESTIC CONNECTIONS

VCS – SS – PE - 0003

01	10.05.21	ISSUED AS STANDARD	RKY	RKT	HK
00	18.03.19	ISSUED AS STANDARD	BS	MVK	AD
REV	DATE	Purpose	Prepared By	Checked By	Approved By



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1.0 GENERAL INFORMATION

Indraprastha Gas Limited (OWNER) is a Joint Venture Company of Gas Authority of India Ltd (GAIL), Bharat Petroleum Corporation Limited (BPCL) and Govt. of NCT of Delhi. Owner plants to install an underground Natural Gas Distribution Network at NCT of Delhi, Uttar Pradesh, Haryana & Rajasthan GA. The objective is to supply Natural gas to both domestic and commercial consumers and to provide compressed gas as a fuel for Automobiles. Owner is seeking Contractors to assist in meeting the above objective.

The main scope of this contract comprises the installation of above ground pipes from the outlet of 'PE/GI transition fitting' up to the domestic/commercial Customers 'Appliance/stove/oven valve' as per the Distribution schedule placed in enclosed drawing No:15792-20-05-01 in New as well as in Existing Gas charged areas.

The scope includes installation & procurement of above ground GI/Cu pipes and associated fittings for commercial/domestic consumers. However, the piping may have to be carried out up to Appliance Valve, in case of some commercial/domestic customers required.

Except domestic meter, regulator, Isolation and appliance valve, Contractor shall procure each material (Powder Coated GI fittings, Powder coated GI Pipes, Cu Pipes/MLC Pipes, Cu/Brass fittings, etc.) which is required from the out of PE/GI transition fitting up to the Domestic/Commercial Customers "Appliance/stove/oven valve".

This technical specification defines the basic guidelines to develop an acceptable design and suitable construction methodology for carrying out different activities listed out in the schedule of rates of this tender.

Compliance with these specifications and/or approval of any of the Contractor's documents shall in no case relive the contractor of his contractual obligations.

2.0 DEFINITIONS

OWNER	Indraprastha Gas limited (IGL)
PMC	VCS Quality Services Pvt. Ltd. (VCSQSPL)
SS	Present <<Standard Specification>> and its entire appendix, if any
TPIA	Third Party Inspection Agency to be appointed by
IGL	
EIC	Engineer-in-charge
CUMULATIVE LENGTH	The riser length (excluding lateral tapping) shall be considered and averaged out among all the households, whereas the lateral piping shall be included only for one particular connection



REGULATOR PIECE

The GI pipe from transition fittings to Regulator

3.0 SCOPE OF WORK

Generally the following shall constitute the Contractor's scope of work but not limited to:

- Plan and prepare a schedule for execution and work implementation as per QA/QC plans to be issued by Owner/Owner's representative. Contractor has to submit the Construction/Execution procedures before commencement of work to Owner / Owner's representative for approval.
- Contractor shall submit the QCT/procedure/drawing etc. of all the material to be procured by him for approval before procuring the items. If, QCT/procedure/drawing etc. are not approved from client/consultant then owner has the authority to refuse /reject the same lot material.
- Receipt of regulators, domestic meters, Isolation and Appliance Valve as a free issue items from Owner's stores, loading, transportation, unloads at project site. Proper storing, stacking, identification, providing security and insurance during and before installation and commissioning of pipelines. Obtaining the approval for optimum route and permission for work from the concerned authority and EIC.
- Selection of route with the EIC/Consultant and marking the same on walls/floors between 'transition fitting' to 'cooking oven/stove/appliance', making openings and making provisions for fixing clamps. Making temporary but stable platforms/scaffolding /rope ladder etc., required for installation of pipes/fittings at all heights/multi storied flats and locations.
- Contractor shall procure all material except free issue items for installation at the outlet of PE/ GI transition fitting up to the Domestic customers "Appliance /stove / oven for satisfactory completion to the owner/owner's representative.
- Supply and Installation of powder coated GI pipes of 1/2", 3/4" dia. between transition fittings to customers kitchen appliances including NPT threading of GI pipes, supply of proper seal outs for threads to join fittings such as elbows, tees, connectors, regulators, meters, appliances & isolation valves etc., as per laid procedures and specifications including clamping and sealing etc. The powder coated GI pipe and Fittings shall be painted after the testing of the GI installation wherever touching is required to eliminate any coating defects during installation.
- Supply & Installation of Copper pipes including supply of lead free solder wire and flux to join fittings / MLC Pipe including supply of fittings such as elbows, tees, connectors,



meters, valves etc., complete as per procedures and specifications including clamping and sealing etc.

- Supply of clamps for fixing pipes, Meters wherever required, painting of pipes and fittings. Providing consumables grout material, repair/restoration of walls/floors changes for the pipes including the materials required for conversions and tools and tackles etc. shall be completed as per specification.
- Submit certified copies of RFC card to Projects & O&M after uploading the details in SAP/CRM/Fleet-Port/Any other software prescribed by Client.
- Cleaning, flushing, pneumatic testing and commissioning to the GI/Cu pipe/MLC Pipe & fittings, meters, valves etc. as per specification and hand over the same to Owner/Customer to the entire satisfaction of EIC/CONSULTANT.
- Dismantling of scaffolding/temporary structures and cleaning of site & restore the site as per its original condition.
- Restoration of walls, flooring and other damages while executing the above ground installation up to satisfaction of properly owner.
- Preparation and submission of above ground installation card for each house indicating the laid GI/Cu pipe/MLC Pipe including fittings, mentioned the reasons, if connecting, testing, etc. is not provided to the customers and deviation statements on completion /commissioning of work.
- Any other activities not mentioned/covered explicitly above, but otherwise required for satisfactory completion/operation/safety/statutory/maintenance of the works in new & existing gas charged areas shall also be covered under the Scope of work and has to be completed by the Contractor within specified schedule at no extra cost to Owner.
- Following activities are also in Contractor's Scope:
 - Receive Customer's request and complaints logged on IGL's portal/Offline.
 - Carry out joint technical feasibility survey for requests received.
 - Attend and resolve customer complaints within defined TAT.
 - Maintain and update the request and complaint status in IGL's portal.
 - Contractor should execute GI/Cu Installation works with following priority
 - Online Domestic connections: Gas Supply is available in the locality and pipeline is available just outside kitchen – 20 days from date of receipt of registration
 - Fresh Riser Installation in Domestic Connections: Gas available in an apartment/complex but pipeline installation pending in the concerned Tower (for