[●insert name of contractor●]
[●insert address of contractor●]

Date: [●]
Co. Registration No.: [●]
Your Ref: [●]
Our Ref: [●]

Dear Sir

REQUIREMENTS FOR EARTHWORKS AT [●insert location●]

1. We refer to your Notice for Commencement of Earthworks (“NCE”) at the above-mentioned location ("Worksite") dated [●] and note that you will commence earthworks (as defined in Section 2 of the Gas Act (Cap. 116A) (the “Act”)) ("Earthworks") from [●]to [●].

2. Pursuant to Section 32(3)(a) of the Act, you are required to comply with the following requirements when carrying out the Earthworks:

2.1. **Trial Holes**

2.1.1. As the gas plan obtained from SP PowerGrid Limited (“SPPG”) (which shows the necessary information on the location of the gas plant (as defined in Section 2 of the Act) ("Gas Plant") and gas pipes (conveying gas in a gas pipeline network as defined in Section 2 of the Act) ("Gas Pipes")) ("SPPG Gas Plans") only indicate the approximate location of Gas Pipes, you shall dig an adequate number of appropriate trial holes by manual means to determine the exact location of medium pressure (“MP”) Gas Pipes and low pressure (“LP”) Gas Pipes prior to the carrying out of any Earthworks.

2.1.2. When working in the vicinity of a MP Gas Pipe or a LP Gas Pipe you shall only use powered mechanical equipment for the initial breaking of the surface layer of hard-core/premix. You shall not use powered mechanical equipment below the surface layer of hard-core/premix and shall only use manual excavation with hand tools.

2.1.3. You shall contact Distribution Pipelines Operations and Maintenance section, SPPG (“DPOM”) if you are unable to locate the MP Gas Pipe and/or the LP Gas Pipe by digging the trial holes.

2.1.4. You shall not dig any trial holes in the vicinity of gas transmission pipeline (as defined in Section 2 of the Act) (“GTP”) without the written consent from Transmission Pipelines Operations and Maintenance section, SPPG (“TPOM”). You shall comply with any additional requirements that may be imposed by SPPG.

BCA Academy

2.1.5. After the trial holes have been dug, you shall ensure that photographs of the trial holes are taken showing the dimensions of trial holes and their location. You shall make these photographs available to SPPG upon request.

2.2. **Marking of Gas Pipes, Engagement of Surveyor and Purchase of Surveyed Drawings**

2.2.1. Prior to the carrying out of any Earthworks when working in the vicinity of a GTP, you are required to schedule a meeting with TPOM officers to present the details of the Earthworks to be carried out and to purchase the as-surveyed drawing from the Mapping & Earthworks Administration section, SPPG ("MEA").

2.2.2. After purchasing the as-surveyed drawing, you shall engage a registered land surveyor to peg out the Gas Pipe positions for GTP and provide adequate and prominent markings to show the Gas Pipe positions. You shall ensure that all Gas Pipe markings are durable and prominent and are not disturbed, removed or tampered with. You shall also ensure that the Gas Pipe markings are reapplied from time to time to ensure that they remain conspicuous.

2.3. **Risk Management (For MP & GTP)**

2.3.1. You shall assess the impact of carrying out the intended Earthworks on any Gas Plant or Gas Pipe and prepare a report detailing such assessment.

2.3.2. If there are changes to the schedule for the carrying out of the Earthworks or changes in Earthworks work methods, you shall study the implications, review the earlier assessment that had been carried out and promptly notify SPPG in writing if there are any changes to the earlier assessment.

2.3.3. The report of such assessment shall be made available to SPPG on request. Such report shall also be made known to all personnel of all working levels in the team handling the project in which the Earthworks are or are to be carried out ("Project"), including sub-contractors and any third party who are involved in any way with any part of the intended Earthworks.

2.4. **Worksite Management**

2.4.1. You shall provide a full-time site supervisor to monitor the site operations for the entire duration of any Earthworks. You shall ensure that the site supervisor is familiar with these requirements.

2.4.2. You shall ensure that daily site briefings with site workers are conducted (in languages that are understood by all workers) to remind them about the location of the Gas Pipes and the measures to be taken to prevent damage to the Gas Pipes. You

BCA Academy

shall keep records of such daily briefings (which shall include but are not limited to date and time, venue and person conducting the briefings, contents of briefings and the list of site workers who have attended such briefings). You shall also disallow any site worker who has not attended such briefings from being involved with any part of the intended Earthworks. New staff must be briefed before they start work.

2.4.3. You shall inform Earthworks Surveillance & Patrolling section, SPPG ("ESP") officers of the identity of the site management / Registered Excavator Operator ("REO"), the proposed methods of carrying out of the Earthworks and/or location of the proposed Earthworks. You shall also inform the ESP officers if there are any changes to the above.

2.4.4. You shall ensure that information on the presence of Gas Pipes in the vicinity of the Worksite and all mitigating measures that can be taken to prevent damage to such Gas Pipes, have been communicated and adhered to by all personnel of all working levels in the Project team, including sub-contractors and any third party who are in any way involved with any part of the intended Earthworks.

2.4.5. SPPG may, from time to time and at its sole discretion, deploy its officers to the Worksite to inspect and monitor the status of your works. Notwithstanding the deployment of SPPG's officers at the worksite, you shall continue to be responsible for discharging your obligations under this Letter of Requirements ("LRe") and for the performance of your works. SPPG shall not assume any liability for any non-compliance by you of any such obligation or non-performance of your works.

2.5. **Seek Consultation with SPPG: Gas Operations (DPOM and TPOM sections)**

2.5.1. You shall contact and consult TPOM and/or DPOM section(s) when the proposed Earthworks are within 5 metres of any GTP and/or 3 metres of any MP Gas Pipes respectively. You shall only carry out any Earthworks within the vicinity of Gas Pipes after seeking advice and obtaining approval from SPPG.

2.5.2. You shall contact DPOM or our 24-hour Customer Service Centre if you find any live or abandoned Gas Pipes in the course of carrying out any Earthworks at the Worksite which have not been shown in the SPPG Gas Plan.

2.5.3. You shall also contact and consult with SPPG in the following circumstances:

2.5.3.1. If it is reasonable to expect that the Earthworks could cause ground vibrations or ground movements; and/or

BCA Academy

2.5.3.2. If there is a need for Earthworks to be carried out below Gas Pipe slabs.

2.6. **Protection of Gas Pipe and Gas Pipe Diversion**

2.6.1. You shall take all steps to ascertain the presence of any Gas Pipe within the boundary and/or the vicinity of the Worksite prior to the carrying out of any Earthworks. You shall take all necessary measures and due care to prevent damage to the Gas Pipes.

2.6.2. You shall relocate your intended Earthworks away from any gas pipeline or submit an official request to SPPG to divert out of the Worksite any Gas Pipe that will be affected by the intended Earthworks and bear any and all costs incurred from such diversion.

2.6.3. If the proposed Earthworks involve overcrossing, undercrossing, exposing of, or diversion of Gas Pipes, you shall, prior to the carrying out of any Earthworks:

2.6.3.1. Contact and consult SPPG;

2.6.3.2. Provide SPPG with a detailed work method statement and proposed measures to protect the Gas Pipes;

2.6.3.3. Assess the risk of damage to the Gas Pipes and submit the report of such assessment to SPPG; and

2.6.3.4. Comply with any further and additional requirements that may be imposed by SPPG.

2.6.4. You shall not construct any structure (temporary, permanent, or otherwise) over any Gas Pipe.

2.6.5. You shall not place any heavy equipment or stock pile above any Gas Pipe.

2.6.6. You shall not allow any heavy machinery or vehicular movement above any Gas Pipe.

2.6.7. You shall backfill with quarry dust during reinstatement and do not dump any debris / concrete trash / sharp objects or place any heavy object on top of the Gas Pipe corridor.

2.6.8. You shall ensure proper and adequate shoring and shuttering to prevent soil movement and/or soil subsidence which may affect any Gas Pipe.

2.6.9. You shall carefully select positions for the sinking and driving of earth rod, sheet piling, bore piling, diaphragm walling, installing of reinforced concrete/steel piles by

BCA Academy

percussion or jack-in method, bore piling casing, installing of ground anchors, pressure grouting, installing of tubes, installing of poles, hand augering, pipe jacking, shoring, soil investigating, bore drilling and horizontal directional drilling, in order to avoid damage to any Gas Pipes. You shall do this by, amongst other things:

2.6.9.1. Referring to the SPPG Gas Plan and digging appropriate trial holes by manual means, to confirm the presence or absence of any Gas Pipe prior to the carrying out of any Earthworks. For trial hole to be dug in the vicinity of GTP, you shall obtain written consent from TPOM.

2.6.9.2. For pipe jacking and horizontal directional drilling, you shall consider additional factors such as loading from the construction plants, ground conditions, bore diameter, possible deviation of the drilling. You shall ensure that there is a minimum clearance of 2m between the path of drilling/boring device and any Gas Pipe that is in the vicinity of the Earthworks.

2.6.10. You shall provide adequate protection to unexposed or reinstated Gas Pipes that are within the work area when carrying out of any Earthworks.

2.6.11. You shall ensure that all surface boxes are accessible at all times and are not covered by tarmac, earth, landscape, equipment, stock pile or any other material.

2.6.12. You shall ensure that no static loads (i.e. loads that do not change in magnitude or position with time) are placed above the surface boxes.

2.6.13. You shall exercise due care and diligence when removing any rock, boulder, wood, metal rod, sharp object or other obstacles which are in the vicinity of Gas Pipes.

2.6.14. You shall ensure that gas free tests are carried out by a competent person along the Gas Pipe route at regular intervals throughout the duration of the Project. You shall not carry out any processes that may be a source of ignition in the vicinity of any Gas Pipes. You shall also take all other necessary mitigating measures to prevent ignition of escaped gas, if any.

2.6.15. You shall ensure that a clearance of at least 5 metres is maintained between the external wall of LP Gas Pipe and any piles and/or diaphragm wall and a clearance of at least 0.3 metres is maintained between the external wall of LP Gas Pipe and other services when working in the vicinity of LP Gas Pipe. You shall also ensure that no services are laid directly on top and parallel to any existing Gas Pipes.

2.6.16. You shall not expose, suspend and/or otherwise interfere with any Gas Pipes, without the written consent of SPPG.

BCA Academy

2.6.17. You shall stop all Earthworks and call SPPG for advice whenever in doubt.

2.6.18. You shall stop work immediately and report to the 24-hour Customer Service Centre upon any damage or suspected damage to any Gas Pipe (including surface damage without gas escaping) or the discovery of any gas leak. You and/or your workers shall not attempt to repair or modify damaged Gas Pipes.

2.6.19. Damaging a Gas Plant or a Gas Pipe(s) may cause a delay in the completion of the Project as SPPG will need time to investigate and carry out repair work as necessary. Any repair costs may have to be borne by you.

2.6.20. SPPG shall be entitled to ask you to stop work with immediate effect in the event of non-compliance to this LRe. SPPG shall not be liable to you in any way for any losses, claims or damages arising from or in connection with such stop work requests.

2.6.21. You shall comply with any requirements as reasonably prescribed by SPPG in SPPG's review and endorsement of the relevant method statement and any other documents submitted by you in relation thereto for the Earthworks.

2.7. **NCE Submission by Sub-Contractor(s), NCE Extension and Site Meeting**

2.7.1. You and/or your representatives shall attend meetings with SPPG officers as and when required.

2.7.2. When working in the vicinity of a GTP or MP Gas Pipe, you shall carry out a site visit jointly with SPPG officers before carrying out any Earthworks specified under the submitted NCE.

2.7.3. In the event that you engage a sub-contractor to carry out any Earthworks within the vicinity of any Gas Pipes, you shall ensure that such sub-contractor submits the appropriate NCE prior to the carrying out of any Earthworks in the vicinity of any Gas Pipes.

2.7.4. If, at any stage of your Project, there is a likelihood that the Earthworks may continue beyond the anticipated completion date and/or beyond the work boundary as declared in the NCE which you have submitted to SPPG, you shall notify SPPG in writing of the new date of completion and/or the new work boundary (as applicable) by submitting a new NCE.

2.7.5. You shall obtain a new SPPG Gas Plan from SPPG prior to submitting the new NCE. Prior to carrying out any Earthworks, you shall consult SPPG to ascertain if there are

BCA Academy

changes to the gas plans that you possess. In the event there are changes to the gas plans, you shall purchase fresh gas plans from SPPG.

2.8. **Powered Mechanical Excavation**

2.8.1. You shall engage only a REO to operate a powered mechanical excavator.

2.8.2. You shall ensure that powered mechanical excavation is only used, under the close standing supervision of a full time site supervisor, for the surface layer of hard-core/premix when working near or above any Gas Pipe.

2.8.3. You shall not use a powered mechanical excavator, whether for mechanical excavation or otherwise (irrespective of soil condition), below the surface layer of hard-core/premix when working near or above any Gas Pipe. You shall only use manual excavation with hand tools below the surface layer of hard-core/premix.

2.8.4. You shall not excavate deeper than the PVC warning tape or the top of any Gas Pipe if there is no PVC warning tape. You shall immediately cease all further Earthworks and consult the DPOM for advice on working with the Gas Pipes when exposed Gas Pipes are encountered in the course of carrying out any Earthworks.

2.9. **Pressure Grouting Works**

2.9.1. You shall ascertain the alignment of Gas Pipes within the grouting influence zone prior to the carrying out of any Earthworks.

2.9.2. You shall use the necessary ground instrumentations to monitor the effect of the grouting works and ensure that adequate protective measures are provided to protect any Gas Pipes within the grouting influence zone.

2.10. **Permit-to-Work ("PTW") and Records**

2.10.1. You shall implement a PTW system to monitor and ensure that all Earthworks are properly tracked and controlled if such Earthworks are to be carried out in the vicinity of GTP and MP Gas Pipes. Under the PTW system, such Earthworks shall be approved by the manager of the Project or his authorised deputy. You shall periodically audit the PTW system for its effectiveness.

2.10.2. You shall display prominently and make available the most up to date NCE, SPPG Gas Plans and these requirements at the Worksite where the proposed Earthworks are to be carried out.

BCA Academy

2.10.3. You shall keep progressive records (Photographs / Movement Chart) of the Earthworks that have been carried out including, but not limited to, work schedules and location of trial holes.

3. **Notes**:

3.1. These requirements are applicable to all persons who carry out any Earthworks and strict compliance is required, unless otherwise permitted in writing by SPPG. Please consult the relevant SPPG section, if necessary.

3.2. The approximate locations of the Gas Pipes are shown in the SPPG Gas Plan. The respective operating pressure regime of the Gas Pipes is indicated against the Gas Pipelines as shown in the SPPG Gas Plan. The default pressure regime (when there is no indication of pressure regime) is low pressure. Other LP Gas Pipes are indicated as "LPA" and "LPB" in the SPPG Gas Plan.

3.3. In the low pressure distribution network, there are valves, syphons and standpipes which are indicated as "V", "SY" and "SP" respectively.

3.4. You shall take note of the presence of standpipes and/or valve stems that are encased in a PVC pipe and accessible from surface boxes installed at ground level and not damage such fittings or cover.

3.5. The requirements stated above are not exhaustive. Additional requirements may be issued from time to time by SPPG. These additional requirements, together with the requirements in this letter, shall form the full list of requirements that must be complied with at all times. You are advised to carry out all necessary assessments and take all necessary precautions to prevent damage to any existing Gas Plant and/or Gas Pipe.

3.6. Pursuant to Section 32(3)(a) of the Act, it shall be the duty of the person who commences or carries out, or causes or permits the commencement or carrying out of, any Earthworks to comply with the reasonable requirements of SPPG for the prevention of damage to a Gas Plant or Gas Pipe. Pursuant to Section 32(7) of the Act, any person who contravenes Section 32(3)(a) shall be guilty of an offence and shall be liable on conviction to a fine not exceeding $100,000 or to imprisonment for a term not exceeding 5 years or both. Further, Section 32A(1) of the Act provides that any person who, removes, destroys or damages any Gas Plant or Gas Pipe which is part of a Gas Pipeline Network owned by, or under the management or control of, SPPG, shall be guilty of an offence and shall be liable on conviction to a fine not exceeding $1 million or to imprisonment for a term not exceeding 5 years or to both.

3.7. Damaging a Gas Plant or a Gas Pipe may also cause fatalities or severe injuries to personnel as well as damage to property.

BCA Academy

3.8. Should you require any further clarification, please contact Follow up officer at [●] and/or the respective sections of SPPG as listed in the table below:

SPPG Section	**Telephone**	**Email**
TPOM	6916 6136/ 6916 6124	gasenquiry@spgroup.com.sg
DPOM	6916 5947/ 6916 5908	gasenquiry@spgroup.com.sg
ESP	6916 5119	espsection@spgroup.com.sg
MEA	6916 5022	mea@spgroup.com.sg
24-hour Customer Service Centre	1800 752 1800	-

Yours faithfully,

[●]
for HEAD OF SECTION
EARTHWORKS SURVEILLANCE & PATROLLING SECTION
As agent for and on behalf of POWERGAS LTD.

BCA Academy