2. Scope of work

2.1 Project overview

It is understood that PII will provide the following ILI services

PII Sec	Nominal ∅	Length (KM)	From - To	Service
				MFL inspection
56A	1400/56	6.5	TU01 Ruská - KS01 Veľké Kapušany	✓
56B	1400/56	64	KS01 Veľké Kapušany - TU11 Belža	✓
56C	1400/56	68.5	TU19 Nižná Kaloša - KS03 Veľké Zlievce	✓
56D	1400/56	42.8	KS03 Veľké Zlievce - TU28 Plášťovce	✓
56E	1400/56	33.4	KS04 Ivanka pri Nitre - TU38 Horné Zelenice	✓
56F	1400/56	112.5	KS04 Ivanka pri Nitre - HPS Lanžhot (Czech Rep.)	✓
32A	800/32	39.2	RU Plavecký Peter - HPS Lanžhot (Czech Rep.)	✓
32B	800/32	23	Balassagyarmat (Hungary) - KS03 Veľké Zlievce)	✓
28A	700/28	6.9	KS01 Veľké Kapušany - HPS Ruská	✓
28B	700/28	45.4	RU P. Peter - TU52 Vysoká p. M.	✓
28C	700/28	28.8	TU02 Brodské - PZP D. Bojanovice (Czech Rep.)	✓
28D	700/28	11.6	RU P. Peter - Jablonica	✓

2.2 Personnel

The PII proposal includes provision of the following personnel:

2.2.1 Project Manager

The inspection process will be managed by a highly experienced Project Manager who will be the client's single point of contact throughout the project, tasked with ensuring complete customer satisfaction.

PII always attempts to ensure that a customer is assigned a Project Manager who has experience of their specific requirements.

2.2.2 Field Technicians

This PII proposal includes the provision of 2 Field Technician. They have the necessary levels of skill and experience commensurate to this technology and project, and is trained to ensure that GE's very high standards regarding health & safety are maintained on the client's site.

2.2.3 Analyst

It is the analysis of quality inspection data that forms an integral part of appropriate pipeline maintenance and future integrity planning. PII Pipeline Solutions are industry leaders in training and certification of in-field technical and data analysis personnel. PII Pipeline Solutions have established a written practice in accordance with ANST ILI-PQ-2005 that defines administration and control of training, examination and certification. This document is controlled as part of our ISO 9001:2000 certification. This ensures that quality inspection data is gathered safely and efficiently and this data is analysed by data analysts of the highest quality.

2.3 Project timings

2.3.1 Tool availability

The required equipment is currently available in the requested inspection window of 2016 -2017, subject to contract agreement at least 6-8 weeks before mobilisation. Please note that the exact inspection date will have to be checked and agreed upon at contract signature.

2.3.2 Phase periods per section

Phase	Days
Infield period	
Inspection Tool	5
2 Field Technicians[1]	5
Time from receipt of data at PII Analysis Centre to provision of final report.[2]	70/60

[1] Note European PII employees are subject to the EU Working Time directive where employees can work 6 out of 7 days, with a minimum 11-hours rest between shifts in each 24 hour period.

[2]Standard PII reporting timescales are based on analysis of all features with a maximum average number of 850 features per kilometer of pipeline. In the event that the number of features exceeds this amount, additional reporting time scales and costs will be discussed with the client.

2.4 Scope of work responsibilities

The responsibilities of both PII and the client are detailed in the table below. For many of the activities, the direct involvement of both parties is required.

Phase 1: Inspection preparation	PII	Client
Complete and return PII pipeline questionnaire at least 8 weeks before mobilisation of PII equipment		✓
Assess pipeline information provided	✓	
If necessary, conduct a site visit to reconnoitre work sites and finalize the inspection program	✓	
Have project manager attend kick-off meeting at client premises	N/A	
Have project manager attend HAZOP meeting at client premises	N/A	
Create detailed project plan	✓	
Provide instructions for placing above ground tracking markers	✓	
Pipeline cleaning prior to inspection		✓
Proving the minimum bore of the pipeline with a specified gauge plate		✓
If required, modify launch and receive traps to ensure compatibility with PII tooling		✓
Fit all branch/stopple connections with a bore ≥60% of the pipeline bore with coupon or pig bars		✓
Carryout any required pipeline modifications		✓
If applicable, provide a copy of work site regulations and HSE documentation		✓
If applicable, provide a copy of the ATEX certification for the tool.	✓	
Prepare the pipeline inspection tools for mobilisation	✓	
Phase 2: In-field pipeline inspection		
Mobilisation of inspection tools, support equipment and personnel to designated site.	✓	
Attend all necessary health and safety briefings upon arrival	✓	
Provide all necessary permits and authorizations for PII personnel to work on-site		✓
If required, provide a qualified interpreter to assist with communications between PII personnel and the client.		✓
Provide secure, weatherproof workshop facilities with appropriate power supplies, heating, lighting and internet access.		✓

Provide safe and unobstructed access to heavy goods vehicles when arriving on-site		✓
Cover all accommodation and living expenses for PII personnel throughout the in-field pipeline inspection phase	✓	
Unpack equipment and set-up field base	✓	
Provide above ground tracking markers	✓	
Deploy above ground tracking markers along the length of the pipeline including surveying and recording the GPS coordinates of fixed points along the route of the pipeline in accordance with W077 instructions		✓
Provide in-field transportation from designated workshop to launch and receive sites for PII equipment and personnel		✓
Provide suitable cranes for maneuvering equipment at workshop, launch and receive sites		✓
Introduce the PII inspection tool into the launch trap	✓	✓
Provide pipeline conditions as stipulated in the "Pipeline Operating Parameters" for propelling the inspection tool through the pipeline for the duration of the inspection run		✓
Recover the PII inspection tool from the receive trap	✓	✓
Provide hot water/high pressure cleaning facilities and trained personnel to clean PII's inspection tools after the inspection run		✓
Disposal of all waste materials emanating from the pipeline		✓
Refurbish the inspection tools after inspection	✓	
Download inspection data and conduct a preliminary review to confirm its quality and quantity	✓	
Disposal of all consumables such as urethane drive cups and magnetic brushes used by PII		✓
Pack-up of equipment and demobilization from work site following inspection	✓	
Phase 3: Post-inspection data analysis		
Analysis of inspection data and compilation of pipeline inspection report in accordance with the specifications and deliverables stipulated in the Reporting Schedule	✓	

2.5 Pipeline operating parameters

In order to meet the quoted inspection performance specification, the PII inspection tool must be operated in suitable pipeline operating conditions. This section of our proposal stipulates the pipeline operating conditions that must be provided by the client during inspection.

Should the actual pipeline operating conditions deviate outside of these parameters, it is important to note that it may not be possible for PII to achieve the quoted inspection specification within the proposed pricing structure.

Table Notes:
*Should the actual product velocity vary from that program above, PII reserves the right to amend its service program and prices accordingly.

Assumed data is highlighted in RED and show the minimum parameters required for a good inspection.

Please note that the parameters stated above are for a specific PII inspection tool. Should the client have an operational requirement that falls outside of the range specified, then PII may possess the required capacity using an alternative/modified tool.

The client should make PII aware of the potential for the inspection tool to be exposed to any medium other than that specified above.

TBC = To Be Clarified

PII pipeline reference:		56A	56B
Inspection technology		**MFL**	**MFL**
Launch location		4th line TU01 Ruská	5th line KS01 Veľké Kapušany
Receive location		KS01 Veľké Kapušany	TU11 Belža
Length (km)		6.5	64
Manufacture type		*TBC*	*TBC*
Steel grade		X70	X70
Year of Construction		*TBC*	*TBC*
Design Pressure (bar)		*TBC*	*TBC*
MAOP (bar)		*TBC*	*TBC*
Wall thickness – Subject of Inspection (mm)	Min:	15.6	15.6
	Max:	25.1	25.1
	Outer Diameter:	DN1400 - 1422mm	DN1400 - 1422mm
Other Pipeline Components to be negotiated but not subject to declared inspection performance			
Minimum acceptable continuous bore (mm)		*1341*	*1341*
Maximum acceptable continuous bore (mm)		*1396*	*1396*
Minimum acceptable internal diameter in 3D bend (mm)		*1341*	*1341*
Minimum acceptable local bore/Gauge plate diameter (mm)		*1274*	*1274*
Minimum axial separation of full bore branch connections (mm)		*3551*	*3551*
Maximum acceptable Axial Void Length		*180*	*180*
Minimum bend radius		*3D*	*3D*
Inspection Medium		Natural Gas	Natural Gas
Acceptable Temperature Window (ºC)	Min:	*0*	*0*
	Max:	*40*	*40*
Acceptable Medium pressure window (bar)	Min:	*30*	*30*
	Max:	*220*	*220*
Acceptable Medium velocity window (m/s)	Min:	*0.3*	*0.3*
	Max:	*5.0*	*5.0*
Programmed pipeline medium velocity (m/s)*		*1-3*	*1-3*

TBC = To Be Clarified

PII pipeline reference:		56C	56D
Inspection technology		**MFL**	**MFL**
Launch location		5th line TU19 Nižná Kaloša	5th line KS03 Veľké Zlievce
Receive location		KS03 Veľké Zlievce	TU28 Plášťovce
Length (km)		68.5	42.8
Manufacture type		*TBC*	*TBC*
Steel grade		X70	X70
Year of Construction		*TBC*	*TBC*
Design Pressure (bar)		*TBC*	*TBC*
MAOP (bar)		*TBC*	*TBC*
Wall thickness – Subject of Inspection (mm)	Min:	15.6	15.6
	Max:	25.1	25.1
	Outer Diameter:	DN1400 - 1422mm	DN1400 - 1422mm
Other Pipeline Components to be negotiated but not subject to declared inspection performance			
Minimum acceptable continuous bore (mm)		*1341*	*1341*
Maximum acceptable continuous bore (mm)		*1396*	*1396*
Minimum acceptable internal diameter in 3D bend (mm)		*1341*	*1341*
Minimum acceptable local bore/Gauge plate diameter (mm)		*1274*	*1274*
Minimum axial separation of full bore branch connections (mm)		*3551*	*3551*
Maximum acceptable Axial Void Length		*180*	*180*
Minimum bend radius		*3D*	*3D*
Inspection Medium		Natural Gas	Natural Gas
Acceptable Temperature Window (ºC)	Min:	*0*	*0*
	Max:	*40*	*40*
Acceptable Medium pressure window (bar)	Min:	*30*	*30*
	Max:	*220*	*220*
Acceptable Medium velocity window (m/s)	Min:	*0.3*	*0.3*
	Max:	*5.0*	*5.0*
Programmed pipeline medium velocity (m/s)*		*1-3*	*1-3*

TBC = To Be Clarified

PII pipeline reference:		56E	56F
Inspection technology		**MFL**	**MFL**
Launch location		5th line KS04 Ivanka pri Nitre	4th line KS04 Ivanka pri Nitre
Receive location		TU38 Horné Zelenice	HPS Lanžhot (Czech Rep.)
Length (km)		68.5	42.8
Manufacture type		*TBC*	*TBC*
Steel grade		X70	X70
Year of Construction		*TBC*	*TBC*
Design Pressure (bar)		*TBC*	*TBC*
MAOP (bar)		*TBC*	*TBC*
Wall thickness – Subject of Inspection (mm)	Min:	15.6	15.6
	Max:	25.1	25.1
	Outer Diameter:	DN1400 - 1422mm	DN1400 - 1422mm
Other Pipeline Components to be negotiated but not subject to declared inspection performance			
Minimum acceptable continuous bore (mm)		*1341*	*1341*
Maximum acceptable continuous bore (mm)		*1396*	*1396*
Minimum acceptable internal diameter in 3D bend (mm)		*1341*	*1341*
Minimum acceptable local bore/Gauge plate diameter (mm)		*1274*	*1274*
Minimum axial separation of full bore branch connections (mm)		*3551*	*3551*
Maximum acceptable Axial Void Length		*180*	*180*
Minimum bend radius		*3D*	*3D*
Inspection Medium		Natural Gas	Natural Gas
Acceptable Temperature Window (ºC)	Min:	*0*	*0*
	Max:	*40*	*40*
Acceptable Medium pressure window (bar)	Min:	*30*	*30*
	Max:	*220*	*220*
Acceptable Medium velocity window (m/s)	Min:	*0.3*	*0.3*
	Max:	*5.0*	*5.0*
Programmed pipeline medium velocity (m/s)*		*1-3*	*1-3*

TBC = To Be Clarified

PII pipeline reference:		32A	32B
Inspection technology		**MFL**	**MFL**
Launch location		RU Plavecký Peter	Balassagyarmat (Hungary)
Receive location		HPS Lanžhot (Czech Rep.)	KS03 Veľké Zlievce
Length (km)		39.2	23
Manufacture type		*TBC*	*TBC*
Steel grade		X70	X70
Year of Construction		*TBC*	*TBC*
Design Pressure (bar)		*TBC*	*TBC*
MAOP (bar)		*TBC*	*TBC*
Wall thickness – Subject of Inspection (mm)	Min:	10.6	10.0
	Max:	14.9	16.0
	Outer Diameter:	DN800 – 812.8mm	DN800 – 812.8mm
Other Pipeline Components to be negotiated but not subject to declared inspection performance			
Minimum acceptable continuous bore (mm)		*751*	*751*
Maximum acceptable continuous bore (mm)		*801*	*801*
Minimum acceptable internal diameter in 3D bend (mm)		*757*	*757*
Minimum acceptable local bore/Gauge plate diameter (mm)		*714*	*714*
Minimum axial separation of full bore branch connections (mm)		*2093*	*2093*
Maximum acceptable Axial Void Length		*180*	*180*
Minimum bend radius		*3D*	*3D*
Inspection Medium		Natural Gas	Natural Gas
Acceptable Temperature Window (ºC)	Min:	*0*	*0*
	Max:	*40*	*40*
Acceptable Medium pressure window (bar)	Min:	*30*	*30*
	Max:	*220*	*220*
Acceptable Medium velocity window (m/s)	Min:	*0.3*	*0.3*
	Max:	*5.0*	*5.0*
Programmed pipeline medium velocity (m/s)*		*1-3*	*1-3*

TBC = To Be Clarified

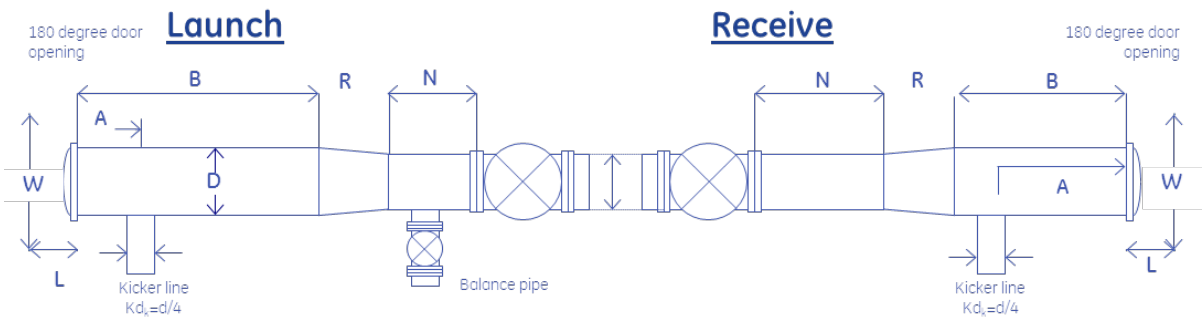
PII pipeline reference:		28A	28B
Inspection technology		**MFL**	**MFL**
Launch location		KS01 Veľké Kapušany	RU P. Peter
Receive location		HPS Ruská	TU52 Vysoká p. M.
Length (km)		6.9	45.4
Manufacture type		*TBC*	*TBC*
Steel grade		X70	X70
Year of Construction		*TBC*	*TBC*
Design Pressure (bar)		*TBC*	*TBC*
MAOP (bar)		*TBC*	*TBC*
Wall thickness – Subject of Inspection (mm)	Min:	8.2	8.2
	Max:	12.7	12.7
	Outer Diameter:	DN700 – 711.2mm	DN700 – 711.2mm
Other Pipeline Components to be negotiated but not subject to declared inspection performance			
Minimum acceptable continuous bore (mm)		*657*	*657*
Maximum acceptable continuous bore (mm)		*699*	*699*
Minimum acceptable internal diameter in 3D bend (mm)		*657*	*657*
Minimum acceptable local bore/Gauge plate diameter (mm)		*624*	*624*
Minimum axial separation of full bore branch connections (mm)		*1558*	*1558*
Maximum acceptable Axial Void Length		*160*	*160*
Minimum bend radius		*3D*	*3D*
Inspection Medium		Natural Gas	Natural Gas
Acceptable Temperature Window (ºC)	Min:	*0*	*0*
	Max:	*40*	*40*
Acceptable Medium pressure window (bar)	Min:	*30*	*30*
	Max:	*220*	*220*
Acceptable Medium velocity window (m/s)	Min:	*0.3*	*0.3*
	Max:	*5.0*	*5.0*
Programmed pipeline medium velocity (m/s)*		*1-3*	*1-3*

TBC = To Be Clarified

PII pipeline reference:		28C	28D
Inspection technology		**MFL**	**MFL**
Launch location		TU02 Brodské	RU P. Peter
Receive location		PZP D. Bojanovice (Czech Rep.)	Jablonica
Length (km)		28.8	11.6
Manufacture type		*TBC*	*TBC*
Steel grade		X70	X70
Year of Construction		*TBC*	*TBC*
Design Pressure (bar)		*TBC*	*TBC*
MAOP (bar)		*TBC*	*TBC*
Wall thickness – Subject of Inspection (mm)	Min:	8.2	6.3
	Max:	12.7	11.9
	Outer Diameter:	DN700 – 711.2mm	DN700 – 711.2mm
Other Pipeline Components to be negotiated but not subject to declared inspection performance			
Minimum acceptable continuous bore (mm)		*657*	*657*
Maximum acceptable continuous bore (mm)		*699*	*699*
Minimum acceptable internal diameter in 3D bend (mm)		*657*	*657*
Minimum acceptable local bore/Gauge plate diameter (mm)		*624*	*624*
Minimum axial separation of full bore branch connections (mm)		*1558*	*1558*
Maximum acceptable Axial Void Length		*160*	*160*
Minimum bend radius		*3D*	*3D*
Inspection Medium		Natural Gas	Natural Gas
Acceptable Temperature Window (ºC)	Min:	*0*	*0*
	Max:	*40*	*40*
Acceptable Medium pressure window (bar)	Min:	*30*	*30*
	Max:	*220*	*220*
Acceptable Medium velocity window (m/s)	Min:	*0.3*	*0.3*
	Max:	*5.0*	*5.0*
Programmed pipeline medium velocity (m/s)*		*1-3*	*1-3*

TBC = To Be Clarified

2.6 Trap requirements MFL



Launch and receive trap dimensions must be compatible with PII inspection tool requirements. If actual trap dimensions are marginally shorter than those specified, a custom review can be performed to assess compatibility. Any modifications to pig traps or access areas shall be undertaken by the Client prior to mobilization of PII's equipment and personnel.

2.7 Other operational comments

2.7.1 General PII requirements

- H2S content must be less than the National Association of Corrosion Engineers Standard - MR-01-75.
- All branch connections and line bypass connections must be isolated while PII's inspection vehicles are passing such connections unless specifically agreed to by PII.
- Coupon or pig bars must be fitted to all branch connections with a bore greater than 60% of the pipeline bore.
- Pressure equalization bridles must be fitted to launch traps.
- All valves the inspection tool traverses must be correctly aligned in the fully open position.
- The clappers in any top hinged non-return valves must be either removed or locked in the fully open position and PII's vehicles will pass through the valves in the normal direction of flow for the valve.
- Mechanical pig signallers must be retracted or removed prior to the passage of any PII equipment in the pipeline.
- The Client must advise PII of the location and details of all offtakes greater than 60% of the pipeline diameter located circumferentially between 4 o'clock and 8 o'clock.

2.8 ATEX requirements

When flammable substances in the form of gases, vapours, mists or dusts mix with air, under atmospheric conditions, a potentially explosive atmosphere occurs. EU Directive 94/9/EC provides harmonized requirements for equipment intended for use in environments that are potentially explosive.

Directive 94/9/EC is commonly referred to as ATEX ("Atmosphères Explosibles").

PII's tools are designed to fulfill all ATEX compliance requirements. However, ensuring ATEX compliance while working on-site requires the direct involvement of the client.

For pipeline inspection operations, PII defines a *potentially explosive atmosphere* (Zone 1) as existing when all of the following conditions are present at the worksite:

- The pipeline is transporting product that has potential to form gases, vapours, mists or dusts that may mix with air
- The door of the launch or receive trap is open
- Work is being conducted within a 3 meter[1] radius from the mouth of the trap

Operating the PII inspection tool at the client's site requires the following actions to be agreed and implemented:

Issue	Mitigating action
Zone 1 working conditions exist within a 3 metre radius of the open trap door.	Client to advise if site-specific conditions are different.
Static electricity generated by the launch and receive equipment during launch and receive procedures can provide a source of ignition in Zone 1 areas.	Client must ensure that bare metal earthing points that can accept crocodile clip connectors are present within Zone 1 areas.
During the inspection run, static electricity can be generated by the Inspection Tool. This can provide a source of ignition in Zone 1 areas. The inspection tool must be electrically 'dead' before the receive trap door is opened.	Following almost total depressurization of the receive trap (with no air entering the trap), a 'relaxation time' of 60 minutes must be allowed before completion of the depressurization and opening of the trap door.

[1] Institute of Petroleum (UK) – Code of Safe Practice in the Petroleum Industry Part 15, Chapter 5.4.6