

לודן הנדסה ישראל בע"מ,דרום-ת.ד.695 ב"ש ט:086258300  
צפון- ת.ד 508 יקנעם טל:049599888

date: 04/03/2021

## Bill of Quantities

SHAFDAN SOREK 2 - GAS PIPELINE Rev. P11

Israel Natural Gas Lines LTD (INGL)

Rev. P9

Bill of Quantities  
 SHAFDAN SOREK 2 - GAS PIPELINE Rev. P11 page no.: 002

structure 01 8" Pipeline  
 section 00 Remarks

<i>item</i>	<i>description</i>	<i>unit</i>	<i>quantity</i>	<i>price</i>	<i>total</i>
	<p><b><u>section 00 Remarks</u></b></p> <p><b><u>part 00.01 Remarks</u></b></p> <p>The prices and rates given in the bill of quantities are expressed in New Israeli Shekels (NIS)</p> <p>Measurments of quantities for payments purpose are according to Document INE-CSE-SPC-0014 (10)</p>				
	<b>total 00.01 Remarks(send to summary)</b>				
	<b>total 00 Remarks(send to summary)</b>				

Israel Natural Gas Lines LTD (INGL)

Rev. P9

04/03/2021

SHAFDAN SOREK 2 - GAS PIPELINE Rev. P11 page no.: 003

structure 01 8" Pipeline  
section 01 Pipeline and Mechanical Works

item	description	unit	quantity	price	total
	<b><u>section 01 Pipeline and Mechanical Works</u></b>				
	<b><u>Strip Right Of Way (ROW) 01.01 part</u></b>				
	<b><u>Preparation of</u></b>				
	Preparation of working strip (ROW) According to ENG-CSE-SPC-0013 and ENG-CSE-SPC-023				
	Measurement of quantities according to clause 4.1.1 in ENG-CSE-SPC-0014				
	Terms for ROW execution: Treatment of vegetation, invasive animal ,species nesting sites and more natural and landscape values according to enviroment survey (chapter 6.3, 6.4 , 6.5, 6.6).				
01.01.01.001	R.O.W. in the pipeline & stations including soil stripping in non-agricultural areas as per design objective statement (D.O.S.), preservation and reinstatement of the topsoil, storage, erosion/weed control, spreading as per D.O.S. instructions. the unit price includes also supply & installation of safety accessories as detailed in the specifications (such as preventing rock falling etc.).	comp	1.00		
01.01.01.002	Detecting and surveying the existing 18" gas pipeline and marking each weld of it by a wooden peg.	m	1,900.00		
01.01.01.003	Exploration works of the existing 18" gas pipeline (Shafdan - IPP)	unit	25.00		
	<b>total 01.01 Preparation of Strip Right Of Way (ROW)(send to summary)</b>				

Israel Natural Gas Lines LTD (INGL)

Rev. P9

04/03/2021

SHAFDAN SOREK 2 - GAS PIPELINE Rev. P11 page no.: 004

structure 01 8" Pipeline  
 section 01 Pipeline and Mechanical Works

item	description	unit	quantity	price	total
	<p><b><u>part 01.02 Trench excavation for pipeline laying</u></b></p> <p>Measurement of quantities according to clause 4.1.2 in ENG-CSE-SPC-0014</p> <p>All the items in this sub-chapter includes all the necessary earth work due to the depth and including all the required precautions</p> <p>Depth of excavation will be measured from ROW ground level (after stripping of top soil) to actual bottom of trench. Any deviation from this depth according to "for construction plans" should be approved by the client</p> <p><b>Non-agricultural areas</b> - Specification for trench excavation for pipeline laying (EEN-CSE-SPC-010, EEN-CSE-SPC-014)</p> <p><b>Agricultural areas</b> - backfilling to be executed according to chapter 6.1 of the environment survey, document 2038-LUD-GEN-REP-0003.</p> <p>Crossing will be carried out in accordance to chapter 6.2 of environmental survey, document 2038-LUD-GEN-REP-0003.</p>				
01.01.02.001	Trench excavation for 8" up to 3 m depth for agricultural areas (approx. 850m) & non-agricultural areas.	m	1,480.00		
01.01.02.002	manual or fine tools excavations for uncovering existing gas pipes including all the required precautions in the crossing areas and at the entrance to the station .	m3	100.00		
<b>transfer ahead part 01.01.02</b>					

Israel Natural Gas Lines LTD (INGL)

Rev. P9

04/03/2021

SHAFDAN SOREK 2 - GAS PIPELINE Rev. P11 page no.: 005

structure 01 8" Pipeline  
section 01 Pipeline and Mechanical Works

item	description	unit	quantity	price	total
	<b>transferred from above</b>				
01.01.02.003	additional payment to the contract items 01.01.02.001 and 01.01.01.002 for working near existing and operating 18" gas pipeline in a net distance less than 3 meters between the pipelines, the unit price includes among other things detecting and marking of the existing pipeline and using of trench and soil collapsed supports and protection as required to enable stability of existing pipeline. The Contractor shall be responsible for repairing any damage caused to the existing pipeline.	m	1,450.00		
<b>total 01.02 Trench excavation for pipeline laying(send to summary)</b>					
	<b><u>part 01.03 Installation of casing in excavated trenches</u></b>  Measurment of quantities according to clause 4.1.3 in ENG-CSE-SPC-0014  installation of casing in excavated trenches (EEN-CSE-SPC-017).  All pipes that will be used as sleeves, both in an open excavation and in installation by auger boring, must be peeled off the outer polyethylene cover up to the metal, and only after obtaining the approval of the inspector, they can be used as sleeves				
01.01.03.001	Installation of 24" casing in excavated trenches, up to 4.0m depth.	m	40.00		
<b>total 01.03 Installation of casing in excavated trenches(send to summary)</b>					
	<b><u>part 01.04 Installation of casing by Auger boring</u></b>  Measurment of quantities according to clause 4.1.4 in ENG-CSE-SPC-0014				
<b>transfer ahead part 01.01.04</b>					

Israel Natural Gas Lines LTD (INGL)

Rev. P9

04/03/2021

SHAFDAN SOREK 2 - GAS PIPELINE Rev. P11 page no.: 006

structure 01 8" Pipeline  
section 01 Pipeline and Mechanical Works

item	description	unit	quantity	price	total
	<b>transferred from above</b>				
	The depth to be measured for the mobilization is according to the casing I.L in the entry point				
	All the items in this sub-chapter includes all the necessary earth work due to the depth and including all the required precautions				
	installation of casing by auger boring (EEN-CSE-SPC-017).				
	All pipes that will be used as sleeves, both in an open excavation and in installation by auger boring, must be peeled off the outer polyethylene cover up to the metal, and only after obtaining the approval of the inspector, they can be used as sleeves				
01.01.04.001	installation of 24" casings.	m	60.00		
01.01.04.002	mobilization for 24" casing - up to 4 m depth.	comp	1.00		
01.01.04.003	installation of 24" casing by Auger Boring	m	60.00		
	<b>total 01.04 Installation of casing by Auger boring(send to summary)</b>				
	<b><u>part 01.06 Insertion of pipelines in casings</u></b>				
	Measurment of quantities according to clause 4.1.8 in ENG-CSE-SPC-0014				
	insertion of pipelines in casings (EEN-CSE-SPC-017).				
01.01.06.001	insertion of 8" pipelines in casings.	m	100.00		
	<b>total 01.06 Insertion of pipelines in casings(send to summary)</b>				

Israel Natural Gas Lines LTD (INGL)

Rev. P9

04/03/2021

SHAFDAN SOREK 2 - GAS PIPELINE Rev. P11 page no.: 007

structure 01 8" Pipeline  
section 01 Pipeline and Mechanical Works

item	description	unit	quantity	price	total
	<b><u>part 01.07 Installation of pipeline by H.D.D.</u></b>				
	Instalation of pipeline by horizontal directional drilling (H.D.D) including mobilization (EEN-CSE-SPC-016)				
	Measurment of quantities according to clause 4.1.6 in ENG-CSE-SPC-0014				
01.01.07.001	mobilization & demobilization for the 8" H.D.D. machine and the equipment for the first location	unit	3.00		
01.01.07.002	Relocation and setup of H.D.D. machine and all facilities for the second and more locations	unit	2.00		
01.01.07.003	coating of H.D.D pipeline (pipes supplied by INGL) string by FiberRock (flexible, pre-preg polyester mat that consists of resins, fiberglass and special fillers) or equivalent, including a certified expert instructions for the execution of the coating and supervision and approval of the implementation. The work should be done according to the specifications and producer instructions	m	360.00		
01.01.07.004	Installation of 8" pipeline (pipes supplied by INGL) by H.D.D. including coating and coating of welds by DENSOLEN H.D.D. and addition of cement to the bentonite according to geotechnic report and specification, and insertion of 4" FOCA conduits of HDPE SDR11 attached to the string, according to drawings 2038-LUD-EPI-DDT-0001/0002/0003	m	360.00		
	<b>total 01.07 Installation of pipeline by H.D.D.(send to summary)</b>				

Israel Natural Gas Lines LTD (INGL)

Rev. P9

04/03/2021

SHAFDAN SOREK 2 - GAS PIPELINE Rev. P11 page no.: 008

structure 01 8" Pipeline  
 section 01 Pipeline and Mechanical Works

item	description	unit	quantity	price	total
	<p><b><u>part 01.08 Installation of pipeline by Auger Boring</u></b></p> <p>installation of pipeline by auger boring (IEN-CSE-SPC-0021).</p> <p>the depth to be measured for the mobilization is according to the pipe I.L. in the entry point.</p> <p>measurement of quantities according to clause 4.1.4a in IEN-CSE-SPC-0014.</p> <p>all the items in this sub-chapter including all the necessary earth work due to the depth and including all the required precautions.</p>				
01.01.08.002	installation of 8" pipeline by auger boring.	m	60.00		
01.01.08.003	mobilization for 8" pipeline - up to 6 m depth.	unit	1.00		
	<b>total 01.08 Installation of pipeline by Auger Boring(send to summary)</b>				
	<p><b><u>part 01.09 Laying of pipelines in excavated trenches incl. field bends</u></b></p> <p>Handling &amp; laying of pipelines in excavated trenches including all field bends (EEN-CSE-SPC-005, 006, 008, 009, 010, 011, 014).</p> <p>Measurement of quantities according to clause 4.1.7 in IEN-CSE-SPC-0014.</p>				
01.01.09.001	handling & laying of 8" pipelines in excavated trenches including all field bends.	m	1,500.00		
	<b>total 01.09 Laying of pipelines in excavated trenches incl. field bends(send to summary)</b>				



Israel Natural Gas Lines LTD (INGL)

Rev. P9

04/03/2021

SHAFDAN SOREK 2 - GAS PIPELINE Rev. P11 page no.: 009

structure 01 8" Pipeline  
 section 01 Pipeline and Mechanical Works

<i>item</i>	<i>description</i>	<i>unit</i>	<i>quantity</i>	<i>price</i>	<i>total</i>
	<b><u>part 01.10 Hot bends installation</u></b>				
	Measurment of quantities according to clause 4.1.10 in ENG-CSE-SPC-0014				
	hot bend installation (EEN-CSE-SPC-011).				
01.01.10.002	8" hot bends installation according to drawings "For construction" and according to the project specification relevant standart or as per drawings and including connection to the pipe in both sides according to the project specification EEN-SCE-SPC-011, ENG-CSE-SPC-0014	unit	15.00		
	<b>total 01.10 Hot bends installation(send to summary)</b>				
	<b><u>part 01.12 Pipe field welds including welding inspection and NDT</u></b>				
	Measurment of quantities according to clause 4.1.12 in ENG-CSE-SPC-0014				
	The Pipe field welds unit price (01.01.12.001) includes all necessary actions means and measures taken in order to complete the work in best industry practices, whether the welding activity is performed under Natural Gas presence or in a Natural Gas "free" environment and whether the weld undergo a pressure test or not. i.a.: preparation of a risk survey, crew preparatory day, preparation of special work procedures.				
	measurment of quantities according to clause 4.1.12 in IEN-CSE-SPC-0014				
<b>transfer ahead part 01.01.12</b>					

Israel Natural Gas Lines LTD (INGL)

Rev. P9

04/03/2021

SHAFDAN SOREK 2 - GAS PIPELINE Rev. P11 page no.: 010

structure 01 8" Pipeline  
section 01 Pipeline and Mechanical Works

item	description	unit	quantity	price	total
	<b>transferred from above</b>				
01.01.12.001	Pipe field weld all grades and all wall thickness including welding inspection and NDT (EEN-CSE-SPC-001, EEN-CSE-SPC-002, EEN-CSE-SPC-007)	in/d	1,440.00		
	<b>total 01.12 Pipe field welds including welding inspection and NDT(send to summary)</b>				
	<b><u>part 01.14 Pipelines protection</u></b>				
	Concrete floating shells according to the drawings and typical details.				
	Measurement of quantities according to clause 4.1.14 in IEN-CSE-SPC-0014.				
01.01.14.001	concrete slabs, 100X50cm thk of 15cm, for pipeline protection under infrastructure facilities, according to typical drawing 1010-INGL-EPI-DDT-1020. Locations according to drawings.	unit	150.00		
01.01.14.002	Supporting the pipeline in steep slopes by sand bags mixed with cement, all according to the drawings and typical details.	unit	1.00		
	<b>total 01.14 Pipelines protection(send to summary)</b>				
	<b><u>part 01.15 Field Coating</u></b>				
	measurement of quantities according to clause 4.1.15 in IEN-CSE-SPC-0014.				
	field coating (EEN-ECP-SPC-007).				
01.01.15.001	8" field coating.	unit	168.00		
01.01.15.002	coating of bare pipes/ hot bends by P.E. tape or Epoxy system.	i/d/m	820.00		
	<b>total 01.15 Field Coating(send to summary)</b>				

Israel Natural Gas Lines LTD (INGL)

Rev. P9

04/03/2021

SHAFDAN SOREK 2 - GAS PIPELINE Rev. P11 page no.: 011

structure 01 8" Pipeline  
section 01 Pipeline and Mechanical Works

item	description	unit	quantity	price	total
	<b><u>part 01.17 Pressure testing and air drying</u></b>				
	Measurement of quantities according to clause 4.1.17 in IEN-CSE-SPC-0014. pressure testing and air drying (EEN-CSE-SPC-012, 015).				
01.01.17.001	pressure testing and air drying.	comp	1.00		
	<b>total 01.17 Pressure testing and air drying(send to summary)</b>				
	<b><u>part 01.18 Cutting of asphalt areas and reinstatement</u></b>				
	Measurement of quantities according to clause 4.1.18 in IEN-CSE-SPC-0014.				
01.01.18.001	cutting of asphalt areas including disposal to authorized dump area.	m2	15.00		
01.01.18.002	supply and dispersal of asphalt including connecting and carrying layers, including prime and patching coating up to 10 cm.	m2	15.00		
	<b>total 01.18 Cutting of asphalt areas and reinstatement(send to summary)</b>				
	<b><u>part 01.19 Marking post</u></b>				
	measurement of quantities according to clause 4.1.19 in IEN-CSE-SPC-0014. marking posts (THL-ESC-SPC-002, 1010-INGL-EPI-DDT-1034).				
01.01.19.001	supply and installation of marking post.	unit	30.00		
01.01.19.002	dismantling, restoring and installing of existing marking post	unit	15.00		
01.01.19.003	installation of marking post for third party utilities company.	unit	5.00		
	<b>total 01.19 Marking post(send to summary)</b>				

Israel Natural Gas Lines LTD (INGL)

Rev. P9

04/03/2021

SHAFDAN SOREK 2 - GAS PIPELINE Rev. P11 page no.: 012

structure 01 8" Pipeline  
section 01 Pipeline and Mechanical Works

item	description	unit	quantity	price	total
	<b><u>part 01.20 Warning tape</u></b>				
	Measurement of quantities according to clause 4.1.20 in IEN-CSE-SPC-0014. warning tape (THL-ESC-SPC-003).				
01.01.20.001	warning tape	m	1,650.00		
	<b>total 01.20 Warning tape(send to summary)</b>				
	<b><u>part 01.24 Wadi Crossing</u></b>				
	Wadi crossings according to the drawings and typical details. Measurement of quantities according to clause 4.1.24 in IEN-CSE-SPC-0014.				
01.01.24.001	Wadi crossing. The unit price includes among other the earthworks, including excavation, filling, subgrade compaction, approved by the supervisor, concrete floating shells	comp	2.00		
	<b>total 01.24 Wadi Crossing(send to summary)</b>				
	<b><u>part 01.27 Filling unforeseen cavities</u></b>				
	Measurement of quantities according to clause 4.1.27 in IEN-CSE-SPC-0014.				
01.01.27.001	filling of unforeseen cavities by concrete grade B-30.	m3	10.00		
01.01.27.002	supply and casting of C.L.S.M.	m3	50.00		
	<b>total 01.27 Filling unforeseen cavities(send to summary)</b>				
	<b><u>part 01.31 As-built documents</u></b>				
	Measurement of quantities according to clause 4.1.31 in IEN-CSE-SPC-0014. As-built documents (ENG-CSE-SPC-011).				
<b>transfer ahead part 01.01.31</b>					

Israel Natural Gas Lines LTD (INGL)

Rev. P9

04/03/2021

SHAFDAN SOREK 2 - GAS PIPELINE Rev. P11 page no.: 013

structure 01 8" Pipeline  
section 01 Pipeline and Mechanical Works

item	description	unit	quantity	price	total
	<b>transferred from above</b>				
01.01.31.002	as-built documents including submission the drawings in GIS format (including all the aspects of the work).	comp	1.00		
	<b>total 01.31 As-built documents(send to summary)</b>				
	<b><u>part 01.33 Excavation Works and Miscellaneous works</u></b>				
01.01.33.001	Excavation including rock excavation in all kind of soil for the purpose of expansion of the working strip. (for landscaping see chapter 01.12). the unit price including evacuation of the excavated materials according to the requirements of the relevant authorities.	m3	10.00		
	<b>total 01.33 Excavation Works and Miscellaneous works(send to summary)</b>				
	<b><u>part 01.34 Working in narrow strip</u></b>				
01.01.34.001	additional payment for working in a narrow strip (a narrow strip will be considered as a strip in a width up to 18 m). The unit price includes all the consequences arising from a narrow strip.	m	100.00		
	<b>total 01.34 Working in narrow strip(send to summary)</b>				
	<b>total 01 Pipeline and Mechanical Works(send to summary)</b>				

Israel Natural Gas Lines LTD (INGL)

Rev. P9

04/03/2021

SHAFDAN SOREK 2 - GAS PIPELINE Rev. P11 page no.: 014

structure 01 8" Pipeline  
section 03 Cathodic Protection Engineering Works

item	description	unit	quantity	price	total
	<b><u>section 03 Cathodic Protection Engineering Works</u></b>				
	<b><u>part 03.01 Cathodic protection</u></b>				
	The unit price for the cathodic protection includes supply, installation, excavation works & backfilling.				
	All Cathodic Protection items and quantities for the Pipeline structure can be used for Stations Structures as well				
01.03.01.001	Submission of As-Made Plans	unit	1.00		
01.03.01.002	TCP (Temporary Cathodic Protection) testing every month until connection to permanent CP system including full report.	month	18.00		
01.03.01.003	Drainage test for design pipeline, HDD and casing	unit	8.00		
01.03.01.004	Test post including concrete base (1010-INGL-ECP-DDT-1208, 1213, 1216, 1217, 1227), including cable instalation.	unit	5.00		
01.03.01.005	Ex-proof 600*300*200 (1010-INGL-ECP-DDT-1209, 1213, 1215, 1216, 1217, 1219), including signs, cable tagging and wiring.	unit	2.00		
01.03.01.006	Test box 400*300*200 including concrete base (1010-INGL-ECP-DDT-1209, 1213, 1215, 1216, 1217, 1219), including signs, cable tagging and wiring.	unit	2.00		
01.03.01.007	permanent reference cell Cu/CuSo4, including installation and cable supply, installation and connection (1010-INGL-ECP-DDT-1210).	unit	4.00		
01.03.01.008	Cable N2XY 10 sq.mm	m	760.00		
<b>transfer ahead part 01.03.01</b>					

Israel Natural Gas Lines LTD (INGL)

Rev. P9

04/03/2021

SHAFDAN SOREK 2 - GAS PIPELINE Rev. P11 page no.: 015

structure 01 8" Pipeline  
section 03 Cathodic Protection Engineering Works

item	description	unit	quantity	price	total
	<b>transferred from above</b>				
01.03.01.009	corrugated PE plastic pipe diameter 50mm or Cobra conduit pipe diameter 2" for cables	m	760.00		
01.03.01.010	Temporary Cathodic Protection by 17 lbs. MG anode (1010-INGL-ECP-DDT-1211) including watering , covering , cable instalation in channels and connecting to test stations	unit	8.00		
01.03.01.011	Drilling for TCP anodes in any soil type up to 8m deep, diameter no more than 40cm	m	32.00		
01.03.01.012	trench excavation 1.2 m deep and 0.4 m wide for cable installation and backfilling.	m	80.00		
01.03.01.013	connection of cables to the planned operating gas pipe or other third party utility companies by pin brazing including insulation of junction and epoxy handicap sheets, including supply of pin brazing kit (1010-INGL-ECP-DDT-1220).	unit	20.00		
01.03.01.014	manual excavation for connection to third party pipelines.	m3	5.00		
01.03.01.015	HDPE sheet 2 mm thick including installation	m2	10.00		
01.03.01.016	ExFS spark gap in coaxial connection box including installation and cable connection to underground insulating joint	unit	2.00		
	<b>total 03.01 Cathodic protection(send to summary)</b>				
	<b>part 03.02 Insulating Joints</b>				
01.03.02.001	8" insulating joint	unit	1.00		
	<b>total 03.02 Insulating Joints(send to summary)</b>				
	<b>total 03 Cathodic Protection Engineering Works(send to summary)</b>				

Israel Natural Gas Lines LTD (INGL)

Rev. P9

04/03/2021

SHAFDAN SOREK 2 - GAS PIPELINE Rev. P11 page no.: 016

structure 01 8" Pipeline  
section 04 Electrical, Telecom and Instrumentation Works

<i>item</i>	<i>description</i>	<i>unit</i>	<i>quantity</i>	<i>price</i>	<i>total</i>
<b><u>section 04 Electrical, Telecom and Instrumentation Works</u></b>					
<b><u>part 04.01 Conduit for Fiber Optic</u></b>					
	Conduit for fiber optics (EEN-CSE-SPC-003).				
01.04.01.001	supply & installation of conduits for fiber optics. material: H.D.P.E . diameter: 50 mm.	m	1,550.00		
01.04.01.002	supply & installation of plastic pits including covers. material: H.D.P.E. pit diameter: 1020 mm. wt: manufacturer's standard. cover diameter: 650 mm.	unit	10.00		
01.04.01.003	Supply & installation by blowing of fiber optics cables, material: fiber optic ironbound SM 48*2, loose tube 1,550 nm, 0.23/0.20 db/km.	m	1,900.00		
01.04.01.004	Supply & installation of cable splice boxes (closures) including cable splicing.	unit	5.00		
01.04.01.005	Termination of 96 fibers of the FOCA.	unit	4.00		
01.04.01.006	Optical distribution frame.	unit	4.00		
<b>total 04.01 Conduit for Fiber Optic(send to summary)</b>					
<b>total 04 Electrical, Telecom and Instrumentation Works(send to summary)</b>					



Israel Natural Gas Lines LTD (INGL)

Rev. P9

04/03/2021

SHAFDAN SOREK 2 - GAS PIPELINE Rev. P11 page no.: 017

structure 01 8" Pipeline  
section 12 Landscaping

<i>item</i>	<i>description</i>	<i>unit</i>	<i>quantity</i>	<i>price</i>	<i>total</i>
	<b><u>section 12 Landscaping</u></b>				
	<b><u>part 12.02 Relocation of trees</u></b>				
	The thermal treatment for the "acacia celigna" will be done according to the Landscaping guidelines				
01.12.02.001	Thermal treatment for removal of acacia saligna after the reinstatement works.	m	200.00		
	<b>total 12.02 Relocation of trees(send to summary)</b>				
	<b>total 12 Landscaping(send to summary)</b>				

Israel Natural Gas Lines LTD (INGL)

Rev. P9

04/03/2021

SHAFDAN SOREK 2 - GAS PIPELINE Rev. P11 page no.: 018

structure 01 8" Pipeline  
 section 20 Site Works and Earthworks

<i>item</i>	<i>description</i>	<i>unit</i>	<i>quantity</i>	<i>price</i>	<i>total</i>
<b><u>section 20 Site Works and Earthworks</u></b>					
<b><u>part 20.01 Site works and earthworks</u></b>					
01.20.01.001	Excavation in all kinds of soil including rock excavation and including removal of the surplus. the unit price includes removal to an authorized dump area or use to spread and compact in layers in filling areas.	m3	10.00		
01.20.01.002	Supply, spread and compact backfill from local and/or imported material.	m3	10.00		
01.20.01.003	Supply, spread and compact imported sub-base grade A materials in layers of 20 cm to 98% mod. AASHO.	m3	10.00		
01.20.01.004	Supply, spread and compact sand.	m3	5.00		
01.20.01.005	Dismantling and reinstatement of grazing fences up to 1.5 m height.	m	10.00		
01.20.01.006	Supply and installation of grazing fences up to 1.5 m height.	m	10.00		
01.20.01.007	Building of scaffold at all height.	m3	10.00		
<b>total 20.01 Site works and earthworks(send to summary)</b>					
<b>total 20 Site Works and Earthworks(send to summary)</b>					

Israel Natural Gas Lines LTD (INGL)

Rev. P9

04/03/2021

SHAFDAN SOREK 2 - GAS PIPELINE Rev. P11 page no.: 019

structure 01 8" Pipeline  
 section 21 Work on Hourly Basis

<i>item</i>	<i>description</i>	<i>unit</i>	<i>quantity</i>	<i>price</i>	<i>total</i>
	<b><u>section 21 Work on Hourly Basis</u></b>				
	<b><u>part 21.00 notes</u></b>  Works on hourly basis will be done only upon client demand.  the unit prices for the use of equipment includes operator/s and haulage				
	<b>total 21.00 notes(send to summary)</b>				
	<b><u>part 21.01 Manpower</u></b>				
01.21.01.001	welder with all required equipment including welding machine.	hour	70.00		
01.21.01.002	sounding crew for third party utilities including surveying team and including all the required equipment (only according to the client demand).	day	7.00		
	<b>total 21.01 Manpower(send to summary)</b>				
	<b><u>part 21.03 Earth moving equipment</u></b>				
01.21.03.001	backhoe JCB-3 with operator.	hour	50.00		
	<b>total 21.03 Earth moving equipment(send to summary)</b>				
	<b><u>part 21.05 Jumping cost</u></b>  jumping costs to include: loading, transportation and unloading of the relevant equipment, tools etc', all transportation vehicles and special arrangements.  transportation of two equipments or more on one carrier will be calculated as 1 unit.  jump will not be considered for transport construction equipment on his own.  the jumpings items are only for engineering mechanical equipment.				
	<b>transfer ahead part 01.21.05</b>				

Israel Natural Gas Lines LTD (INGL)

Rev. P9

04/03/2021

SHAFDAN SOREK 2 - GAS PIPELINE Rev. P11 page no.: 020

structure 01 8" Pipeline  
 section 21 Work on Hourly Basis

<i>item</i>	<i>description</i>	<i>unit</i>	<i>quantity</i>	<i>price</i>	<i>total</i>
	<b>transferred from above</b>				
01.21.05.004	welding equipment.	unit	20.00		
<b>total 21.05 Jumping cost(send to summary)</b>					
<b>total 21 Work on Hourly Basis(send to summary)</b>					
<b>total 8" Pipeline(send to summary)</b>					

Israel Natural Gas Lines LTD (INGL)

Rev. P9

04/03/2021

SHAFDAN SOREK 2 - GAS PIPELINE Rev. P11 page no.: 021

structure 02 Shafdan Station

section 01 PIPELINE AND MECHANICAL ENGINEERING WORKS

item	description	unit	quantity	price	total
	<p><b><u>section 01 PIPELINE AND MECHANICAL ENGINEERING WORKS</u></b></p> <p><b><u>part 01.00 Note</u></b></p> <p>Shafdan Station is an active pressurized natural gas area. Any activity/work will be executed according to the INGL is safety &amp; operation department, instructions.</p>				
	<b>total 01.00 Note(send to summary)</b>				
02.01.01.001	<p><b><u>part 01.01 general</u></b></p> <p>Supply and installation of a temporary areas separation fence, for the purpose of the separation the construction site and the operating station. The fence will include a corrugated metal sheet panels 0.6mm thick, for cladding type "Iscurit" or equiv., which will be installed on "Delta Block" concrete elements, including 2 pedestrian gates and required supports. The general height of the fence will be 3.0 m. The work also includes dismantling and evacuating the fence upon completion of the works at the station and installation of anti-combustion sheets in areas required by the field inspection</p>	m	150.00		
	<b>total 01.01 general(send to summary)</b>				
	<p><b><u>part 01.02 Trench excavation for pipeline laying</u></b></p> <p>trench excavation for pipeline laying (EEN-CSE-SPC-010, 014).</p> <p>All the items in this sub-chapter includes all the necessary earth work due to the depth and including all the required precautions</p>				
<b>transfer ahead part 02.01.02</b>					

Israel Natural Gas Lines LTD (INGL)

Rev. P9

04/03/2021

SHAFDAN SOREK 2 - GAS PIPELINE Rev. P11 page no.: 022

structure 02 Shafdan Station

section 01 PIPELINE AND MECHANICAL ENGINEERING WORKS

item	description	unit	quantity	price	total
	<b>transferred from above</b>				
02.01.02.001	general excavation for pipes up to 3.0 m depth bottom of trench	m3	250.00		
02.01.02.002	manual or fine tools excavations for pipes	m3	15.00		
	<b>total 01.02 Trench excavation for pipeline laying(send to summary)</b>				
	<b><u>part 01.03 Fabrication, installation and laying of pipes</u></b>				
	fabrication, installation and laying of pipes on concrete foundations or in excavated surface (including backfilling with CP approved sand 30cm around the pipe). fittings up to 10" are included, also including drilling of 1" & 2" hole and lamination test (IEN-CSE-SPC-0013, EEN-CSE-SPC-005, 006, 008, 009, 010, 014)				
02.01.03.001	1" piping.	m	3.00		
02.01.03.002	2" piping.	m	10.00		
02.01.03.003	6" piping.	m	30.00		
02.01.03.005	8" piping.	m	40.00		
02.01.03.006	12" piping	m	5.00		
	<b>total 01.03 Fabrication, installation and laying of pipes(send to summary)</b>				
	<b><u>part 01.04 Installation of valves</u></b>				
	installation of valves on concrete foundations should be done according INGL specification and Measurement of quantities according to clause 4.1.9 in IEN-CSE-SPC-0014				
02.01.04.001	installation of 8" valves.	unit	1.00		
02.01.04.002	installation of 6" valves.	unit	1.00		
	<b>transfer ahead part 02.01.04</b>				

Israel Natural Gas Lines LTD (INGL)

Rev. P9

04/03/2021

SHAFDAN SOREK 2 - GAS PIPELINE Rev. P11 page no.: 023

structure 02 Shafdan Station

section 01 PIPELINE AND MECHANICAL ENGINEERING WORKS

item	description	unit	quantity	price	total
	<b>transferred from above</b>				
02.01.04.003	installation of 1" valves below or above ground.	unit	6.00		
02.01.04.004	installation of 2" valves below or above ground.	unit	10.00		
	<b>total 01.04 Installation of valves(send to summary)</b>				
	<b><u>part 01.05 Pipe field welds all sizes and all wall thickness</u></b>				
	pipe field welds including welding inspection and NDT (EEN-CSE-SPC-001, 002).				
	measurement of quantities according to clause 4.1.12 in IEN-CSE-SPC-0014 rev.10				
	The Pipe field welds unit price includes all necessary actions means and measures taken in order to complete the work in best industry practices, whether the welding activity is performed under Natural Gas presence or in a Natural Gas "free" environment and whether the weld undergo a pressure test or not. i.a.: preparation of a risk survey, crew preparatory day, preparation of special work procedures.				
02.01.05.001	Field welds for pipes, valves, fittings, flanges, appurtenances etc. all sizes, grades and all wall thickness including welding inspection and NDT. (EEN-CSE-SPC-001, 002, EEN-CSE-SPC-007).	in/d	550.00		
02.01.05.002	additional price for item 02.01.05.001 to TIG root pass (only for pipe to valves weld).	in/d	200.00		
	<b>total 01.05 Pipe field welds all sizes and all wall thickness(send to summary)</b>				

Israel Natural Gas Lines LTD (INGL)

Rev. P9

04/03/2021

SHAFDAN SOREK 2 - GAS PIPELINE Rev. P11 page no.: 024

structure 02 Shafdan Station  
 section 01 PIPELINE AND MECHANICAL ENGINEERING WORKS

item	description	unit	quantity	price	total
	<b><u>part 01.07 Installation and tightening pair of flanges</u></b>				
02.01.07.001	Installation and tightening of pair of 1" flanges including gasket , nuts and bolts	unit	8.00		
02.01.07.002	Installation and tightening of pair of 2" flanges including gasket , nuts and bolts	unit	4.00		
	<b>total 01.07 Installation and tightening pair of flanges(send to summary)</b>				
	<b><u>part 01.08 Installation of fittings</u></b>				
	Installation of fittings (fittings up to 10" are included in sub-chapter 02.01.03), including adjustment of the bevel by grinding or machining, removal of unsuitable coating material from fittings.				
	<b>total 01.08 Installation of fittings(send to summary)</b>				
	<b><u>part 01.09 Field coating or painting</u></b>				
	field coating (EEN-ECP-SPC-007). items 02.01.09.001 - 02.01.09.005: field coating of welds (P.E. tape or Epoxy system).				
02.01.09.001	field coating 1" welds.	unit	18.00		
02.01.09.002	field coating 2" welds.	unit	54.00		
02.01.09.003	field coating 6" welds.	unit	21.00		
02.01.09.004	field coating 8" welds.	unit	30.00		
02.01.09.006	field coating 8" welds.	unit	2.00		
02.01.09.007	painting of above grounds piping and fittings including removal of exist coating, according to specification EEN-EPI-SPC-003.	i/d/m	96.00		
	items 02.01.09.012-02.01.09.015: coating all kind of fittings by P.E. tape or Epoxy system				
<b>transfer ahead part 02.01.09</b>					



Israel Natural Gas Lines LTD (INGL)

Rev. P9

04/03/2021

SHAFDAN SOREK 2 - GAS PIPELINE Rev. P11 page no.: 025

structure 02 Shafdan Station

section 01 PIPELINE AND MECHANICAL ENGINEERING WORKS

item	description	unit	quantity	price	total
	<b>transferred from above</b>				
02.01.09.013	coating of 1" fitting	unit	4.00		
02.01.09.014	Coating of 2" fittings	unit	5.00		
02.01.09.015	Coating of 6" fittings	unit	8.00		
	<b>total 01.09 Field coating or painting(send to summary)</b>				
	<b><u>part 01.10 Pipe support</u></b>				
	pipe support including installation of sliding foil, isolation plate, bearing steel plate, grouting, anchor bolts and coating or painting.				
	the measurement is only for the pipe support. the unit price includes all mentioned in the above remark.				
02.01.10.001	Structural steel elements for pipe support for vents according to drawing details	kg	150.00		
	<b>total 01.10 Pipe support(send to summary)</b>				
	<b><u>part 01.14 Pipelines Protection</u></b>				
	Measurement of quantities according to clause 4.1.14 in IEN-CSE-SPC-0014.				
02.01.14.001	concrete protection plates, 100X50cm thk of 10cm, for pipeline protection under infrastructure facilities, according to typical drawing 1010-INGL-EPI-DDT-1020. Locations according to drawings.	unit	50.00		
	<b>total 01.14 Pipelines Protection(send to summary)</b>				
	<b><u>part 01.16 Pressure testing</u></b>				
02.01.16.001	pressure testing and air drying according to specifications (EEN-CSE-SPC-012, EEN-CSE-SPC-015).	comp	1.00		
	<b>total 01.16 Pressure testing(send to summary)</b>				

Israel Natural Gas Lines LTD (INGL)

Rev. P9

04/03/2021

SHAFDAN SOREK 2 - GAS PIPELINE Rev. P11 page no.: 026

structure 02 Shafdan Station  
 section 01 PIPELINE AND MECHANICAL ENGINEERING WORKS

item	description	unit	quantity	price	total
	<b><u>part 01.18 Warning tape</u></b>				
02.01.18.001	warning tape (THL-ESC-SPC-003). warning tape.	m	85.00		
	<b>total 01.18 Warning tape(send to summary)</b>				
	<b><u>part 01.20 As-built documents</u></b>				
02.01.20.001	as-built documents including submitting the drawings in GIS format (specification ENG-CSE-SPC-011).	comp	1.00		
	<b>total 01.20 As-built documents(send to summary)</b>				
	<b>total 01 PIPELINE AND MECHANICAL ENGINEERING WORKS(send to summary)</b>				

Israel Natural Gas Lines LTD (INGL)

Rev. P9

04/03/2021

SHAFDAN SOREK 2 - GAS PIPELINE Rev. P11 page no.: 027

structure 02 Shafdan Station  
section 02 CIVIL ENGINEERING WORKS

item	description	unit	quantity	price	total
	<b><u>section 02 CIVIL ENGINEERING WORKS</u></b>				
	<b><u>part 02.01 Site works and earthworks</u></b>				
02.02.01.001	Dismantling of curb stones and re-installing them	m	30.00		
02.02.01.002	Excavation and removal of existing layers of Tuff and Gravel	m3	20.00		
02.02.01.003	cutting of asphalt areas including disposal to an authorized dump area	m2	200.00		
02.02.01.004	supply and disperrsal of asphalt includind connecting and carrying layers, prime and patching coating	m2	200.00		
02.02.01.005	manual or fine tools excavations for uncovering existing gas pipes including all the required precautions.	m3	10.00		
02.02.01.006	General excavation for slab, trench and pipe laying and concrete elements in all kind of soil. the unit price includes rock excavation and evacuation of the surplus to an authorized dump area.	m3	85.00		
02.02.01.009	Compacting of excavation-base to 98% modified A.A.S.H.O.	m2	85.00		
02.02.01.011	supply, spread and compact of approved granular fill material to 100% modified A.A.S.H.O.	m3	60.00		
02.02.01.012	Supply and spreading of gravel in layer of 10 cm, including laying of Geotextile layer 400 gr/sq.m (Palrig or equal) under gravel, Includes spraying with anti-germination material	m2	25.00		
02.02.01.013	Supply and spreading of "bazelet" black-gravel in layer of 10 cm including "Palrig" sheet	m2	25.00		
<b>transfer ahead part 02.02.01</b>					

Israel Natural Gas Lines LTD (INGL)

Rev. P9

04/03/2021

SHAFDAN SOREK 2 - GAS PIPELINE Rev. P11 page no.: 028

structure 02 Shafdan Station  
section 02 CIVIL ENGINEERING WORKS

item	description	unit	quantity	price	total
	<b>transferred from above</b>				
02.02.01.014	Supply and installation of curb stones 17/25 cm including concrete backing.	m	15.00		
02.02.01.015	160 mm perforated drainage pipe wrap with gravel and geotextile 400 gr/sq.m, includes connecting to the existing pipe, according to the drawings.	m	30.00		
	<b>total 02.01 Site works and earthworks(send to summary)</b>				
	<b><u>part 02.02 Concrete Works</u></b>				
02.02.02.001	concrete for valves, piping, foundations, all sizes-B-30	m3	4.00		
02.02.02.002	lean concrete grade B-10, 5 cm layer.	m2	20.00		
02.02.02.003	Polyethylene sheets 0.3mm under ground slabs.	m2	43.00		
02.02.02.004	Reinforced concrete B-30 for slab on grade, 20cm thick	m2	43.00		
02.02.02.005	Reinforced concrete B-30 for thickenings below slab on grade edges	m3	2.00		
02.02.02.006	Reinforced concrete B-30 for stairs, various sizes. Price includes sloping slab, horizontal slab and triangular sections for stairs	m3	2.00		
02.02.02.007	Extra over concrete in floor slabs for power float finish ("Helikopter")	m2	43.00		
02.02.02.008	control joint including saw cutting of concrete and sealing, according to details in drawing 2038-LUD-ESC-DDT-0003	m	5.00		
02.02.02.009	Separation joint (between concrete floor and pit), including sealing with "Carmoflex" sealant and polyethylene support profile, according to details in drawing 2038-LUD-ESC-DDT-0003	m	8.00		
	<b>transfer ahead part 02.02.02</b>				

Israel Natural Gas Lines LTD (INGL)

Rev. P9

04/03/2021

SHAFDAN SOREK 2 - GAS PIPELINE Rev. P11 page no.: 029

structure 02 Shafdan Station  
section 02 CIVIL ENGINEERING WORKS

item	description	unit	quantity	price	total
	<b>transferred from above</b>				
02.02.02.010	Separation joint (between concrete stairs and prefab. Control room), including sealing with "Carmoflex" sealant and polyethylene support profiles, according to details in drawing 2038-LUD-ESC-DDT-0003	m	4.00		
02.02.02.011	supply and install CLSM with low and controlled strength including all preparation works required	m3	2.00		
02.02.02.012	steel bar reinforcement.	ton	1.20		
02.02.02.013	Embedded steel plates, before puring of concrete	ton	0.22		
02.02.02.014	Extruction and relocation of bollard to new location directed by the supevision	unit	2.00		
02.02.02.015	Concrete Protective bollard supply and casting as shown on drawings including: excavation, all fixtures, the bollards , including steel bar reinforcement	unit	4.00		
02.02.02.016	Supply, delivery and erection of hot dip galvanized hand railing - Horizontal and sloping	m	6.00		
02.02.02.017	Supply and Install Prefabricated concrete pit type MB-150X150, 200cm depth, manufactured by "wolfman Industries" or equivalent, including cover, steps and embedding sleeves for conduits. Work includes sealing the openings with conectorrs "CS910" manufactured and produced by "Wolfman Industries" or equivalent, all according to the details in drawing 2038-LUD-ESC-DDT-0002	comp	1.00		
<b>transfer ahead part 02.02.02</b>					

Israel Natural Gas Lines LTD (INGL)

Rev. P9

04/03/2021

SHAFDAN SOREK 2 - GAS PIPELINE Rev. P11 page no.: 030

structure 02 Shafdan Station  
section 02 CIVIL ENGINEERING WORKS

<i>item</i>	<i>description</i>	<i>unit</i>	<i>quantity</i>	<i>price</i>	<i>total</i>
	<b>transferred from above</b>				
02.02.02.018	Supply and Erection of Prefabricated building for Control room 720X420cm, including structure frame, doors, finishing elements, false floor, etc. produced by "ARUSSI MIVNIM Co." or equivalent. Walls and roofing prefabricated combined isolated 80mm thick panels of "Sandwich" type with thermal insulation, according to drawing 2038-LUD-ESC-DDT-0004.	comp	1.00		
02.02.02.019	Supply delivery and erection of Shutters for cladding walls of the control room, includes all the accessories needed for a perfect installation and the approval of the inspection	m2	95.00		
<b>total 02.02 Concrete Works(send to summary)</b>					
<b>total 02 CIVIL ENGINEERING WORKS(send to summary)</b>					

Israel Natural Gas Lines LTD (INGL)

Rev. P9

04/03/2021

SHAFDAN SOREK 2 - GAS PIPELINE Rev. P11 page no.: 031

structure 02 Shafdan Station

section 04 ELECTRICAL, TELECOM AND INSTRUMENTATION WORKS

item	description	unit	quantity	price	total
	<b><u>section 04 ELECTRICAL, TELECOM AND INSTRUMENTATION WORKS</u></b>				
	<b><u>part 04.01 Low voltage board</u></b>				
	Conduit for electrical cables (EEN-CSE-SPC-003).  the price comprises supply, installation, full wiring, labeling, handling, mounting, testing, transportation, setting to work etc.  The board and all components within shall comply with STD IEC 61439 ,IEC 60947,1419  All equipment installed in board shall be manufactured by ABB ,EATON or Schneider electric				
02.04.01.001	electrical Panel Made of two separated cubicles, 80x50x200 cm & 40x50x200 cm (WxDxH) for indoor installation, including busbars, ducts, rail mounted terminals, and all the materials, auxiliary materials and works required for 3X100A CB 15 KA ,Rittal & schneider Cabinet	unit	1.00		
02.04.01.002	minibreaker up to 3x16A, 10kA.	unit	8.00		
02.04.01.003	minibreaker up to 1x16A, 10kA.	unit	12.00		
02.04.01.004	selector switch, 1-0-2.	unit	1.00		
02.04.01.005	minibreaker up to 3x20A, 10kA.	unit	1.00		
02.04.01.006	circuit breaker 4X100A ,XT1-C ABB	unit	1.00		
02.04.01.007	circuit breaker 3X80A XT2N-ABB-LSI	unit	1.00		
02.04.01.008	circuit breaker 3X63A XT1-C	unit	1.00		
02.04.01.009	circuit breaker UP TO 3X40A XT1-C	unit	3.00		
<b>transfer ahead part 02.04.01</b>					

Israel Natural Gas Lines LTD (INGL)

Rev. P9

04/03/2021

SHAFDAN SOREK 2 - GAS PIPELINE Rev. P11 page no.: 032

structure 02 Shafdan Station

section 04 ELECTRICAL, TELECOM AND INSTRUMENTATION WORKS

<i>item</i>	<i>description</i>	<i>unit</i>	<i>quantity</i>	<i>price</i>	<i>total</i>
	<b>transferred from above</b>				
02.04.01.010	lightning protection up to 100KA including fuses.	unit	4.00		
02.04.01.011	no contact for modular circuit breaker.	unit	8.00		
02.04.01.012	no contact for minibreaker.	unit	1.00		
02.04.01.013	trip coil	unit	2.00		
02.04.01.014	indication lamp	unit	3.00		
02.04.01.015	transformer 24V/220V size 50VA.	unit	3.00		
02.04.01.016	current transformer - 100/5A.	unit	1.00		
02.04.01.017	RF ISO-556B-2	unit	1.00		
02.04.01.018	ex shut down breaker 3*25A.	unit	1.00		
02.04.01.019	NV relay.	unit	1.00		
02.04.01.020	supply & installation of multimeter such as "SATEC" or equivalent.	unit	1.00		
02.04.01.021	3P push button ( for ESD)	unit	1.00		
02.04.01.022	motor protection switch MS116 or equal	unit	8.00		
02.04.01.023	RCCB 4X40A ,0.03mA	unit	2.00		
	<b>total 04.01 Low voltage board(send to summary)</b>				
	<b><u>part 04.02 Excavation of trench for electrical conduit installation</u></b>  the price comprises supply, transportation, excavation, installation, marking, testing, etc.				
<b>transfer ahead part 02.04.02</b>					



Israel Natural Gas Lines LTD (INGL)

Rev. P9

04/03/2021

SHAFDAN SOREK 2 - GAS PIPELINE Rev. P11 page no.: 033

structure 02 Shafdan Station

section 04 ELECTRICAL, TELECOM AND INSTRUMENTATION WORKS

<i>item</i>	<i>description</i>	<i>unit</i>	<i>quantity</i>	<i>price</i>	<i>total</i>
	<b>transferred from above</b>				
	The excavation work will be carried out after exploratory excavations and testing of all existing underground infrastructure. It is the contractor's responsibility to ensure that the excavation route is clean and clear throughout.				
02.04.02.001	excavation of trench by machine such as backhoe loader or by hands.	m3	140.00		
02.04.02.002	manhole 127X57 cm 180 cm depth, type "BEZEQ 1A" or equivalent, with cover for earthing electrodes, including excavation and backfilling.	unit	3.00		
02.04.02.003	4" dia. flexible electrical pipe type cobra with pulling wire including Pipe connectors and suitable adapters as required	m	300.00		
02.04.02.004	as above for 3" dia.	m	300.00		
02.04.02.005	cutting and resolder/reconnection of exist fiber optics cable 24 wire	m	50.00		
02.04.02.006	2" HDPE pipe for fiber optic cable by std IEC 1531	m	150.00		
02.04.02.007	sealing of 4" sleeve at one end with fireproof polyurethane foam.	unit	12.00		
02.04.02.008	sealing of 3" sleeve at one end with fireproof polyuretjane foam.	unit	12.00		
02.04.02.009	sealing of 4" sleeve at one end with "STOPAQ" type FN2100 or equivalent.	unit	8.00		
02.04.02.010	sealing of 3" sleeve at one end with "STOPAQ" type FN2100 or equivalent.	unit	8.00		
02.04.02.011	electrical galvanized steel cable tray up to 30x10 cm (WxH)	m	100.00		
<b>transfer ahead part 02.04.02</b>					

Israel Natural Gas Lines LTD (INGL)

Rev. P9

04/03/2021

SHAFDAN SOREK 2 - GAS PIPELINE Rev. P11 page no.: 034

structure 02 Shafdan Station

section 04 ELECTRICAL, TELECOM AND INSTRUMENTATION WORKS

item	description	unit	quantity	price	total
	<b>transferred from above</b>				
02.04.02.012	"Meriron" PVC conduit 3/4".	m	50.00		
02.04.02.013	electrical cable tray galvanized mesh type up to 10X10 cm.	m	60.00		
	<b>total 04.02 Excavation of trench for electrical conduit installation(send to summary)</b>				
	<b><u>part 04.03 Power and control cable installation</u></b>				
	the price comprises supply, transportation, laying or pulling, marking, connencting at both ends, testing, seting to work etc.				
02.04.03.001	N2XY 4x70 +35 sq.mm 0.6/1KV N2XY low voltage power cable - new Control room main feeder	m	50.00		
02.04.03.002	N2XY 5x16 sq.mm 0.6/1KV N2XYlow voltage power cable.	m	100.00		
02.04.03.003	N2XY 4x4 sq.mm 0.6/1KV N2XYlow voltage power cable for MOV feeder	m	200.00		
02.04.03.004	flexible ,N2XY 4x4 sq.mm 0.6/1KV N2XYlow voltage power cable for MOV feeder	m	200.00		
02.04.03.005	N2XY 3x2.5 sq.mm 0.6/1KV N2XYlow voltage power cable.	m	50.00		
02.04.03.006	N2XY 5x2.5 sq.mm low voltage power cable.(sockets)	m	200.00		
02.04.03.007	5x4 H07RN-F - (FEEDER FROM UPS)	m	100.00		
02.04.03.008	copper wire 16 sq.mm without P.V.C.	m	100.00		
02.04.03.009	copper wire 35 sq.mm without P.V.C. (for MOV Groundind)	m	500.00		
02.04.03.010	copper wire 95 sq.mm without P.V.C.	m	500.00		
	<b>transfer ahead part 02.04.03</b>				

Israel Natural Gas Lines LTD (INGL)

Rev. P9

04/03/2021

SHAFDAN SOREK 2 - GAS PIPELINE Rev. P11 page no.: 035

structure 02 Shafdan Station

section 04 ELECTRICAL, TELECOM AND INSTRUMENTATION WORKS

item	description	unit	quantity	price	total
	<b>transferred from above</b>				
02.04.03.011	Control cable F-CY-OZ flexible Cu screened type 12x1.5 sq mm ,UV protect	m	200.00		
02.04.03.012	Control cable H05WH6 Shielded type 2X2X16# ,UV protect	m	200.00		
02.04.03.013	MOV wiring including cable wiring to the Safety Switch & from S.switch to the Motor valve , control cable wiring, & Grounding wiring And All required work for complete MOV installation	unit	2.00		
02.04.03.014	NHXH E90/FE180 5x1.5 sq.mm low voltage power cable.(ESD)	m	100.00		
<b>total 04.03 Power and control cable installation(send to summary)</b>					
	<b><u>part 04.04 Earthing system</u></b>				
	the price comprises supply, transportation, excavation, backfilling, cover, installation, labeling, mounting, carrying out of measurements of earthing resistance, seting to work etc.				
02.04.04.001	earthing rod electrode, 20 mm dia., 6 m long, steel galvanized, including all materials and auxiliary parts.	unit	3.00		
02.04.04.002	hot galvanized flat steel bar 40x5 mm laid underground, including connection between different segments of the strip, all auxiliary materials and works etc. complete for foundation Grounding according to the design	m	200.00		
02.04.04.003	bus bar up to 10*100*1000 mm For installation in an electrical room on insulators	unit	2.00		
02.04.04.004	earthing point $\Phi$ 16 mm <sup>2</sup> wire.	unit	20.00		
<b>transfer ahead part 02.04.04</b>					

Israel Natural Gas Lines LTD (INGL)

Rev. P9

04/03/2021

SHAFDAN SOREK 2 - GAS PIPELINE Rev. P11 page no.: 036

structure 02 Shafdan Station

section 04 ELECTRICAL, TELECOM AND INSTRUMENTATION WORKS

item	description	unit	quantity	price	total
	<b>transferred from above</b>				
02.04.04.005	external earthing point with a grounding box.	unit	4.00		
02.04.04.006	manhole 60 cm with cover for earthing electrodes.	unit	3.00		
02.04.04.007	supply and installation of spark plug on isolation coupling on flanges such as OBO-Betterman type 480 or equivalent.	unit	10.00		
02.04.04.008	earthing bridge/conection to exist grounding system .	unit	4.00		
	<b>total 04.04 Earthing system(send to summary)</b>				
	<b><u>part 04.05 Lighting and small power installation</u></b>				
	the price comprises supply, transportation, installation, labeling, mounting, testing, positional adjustment of the lighting fixtures, seting to work etc.				
02.04.05.001	junction box IP55 50*100*100 mm.	unit	5.00		
02.04.05.002	supply and installation of emergency evacuation lighting, external/internal ceiling installation, with 60 min back-p&charger, 180 lm, IP44 ,elentec 3w type XYUXLED4A or EQ	unit	5.00		
02.04.05.003	supply and installation of illuminated "exit" emergency sign, with 60 min back-up & charger, II class,IP44	unit	1.00		
02.04.05.004	supply and installation linear ceiling lighting (1118x86) external installation, for emergency illumination,IP44 (LED type) GAASH type OPEL LED or EQ	unit	3.00		
	<b>transfer ahead part 02.04.05</b>				

Israel Natural Gas Lines LTD (INGL)

Rev. P9

04/03/2021

SHAFDAN SOREK 2 - GAS PIPELINE Rev. P11 page no.: 037

structure 02 Shafdan Station

section 04 ELECTRICAL, TELECOM AND INSTRUMENTATION WORKS

item	description	unit	quantity	price	total
	<b>transferred from above</b>				
02.04.05.005	supply and installation linear ceiling lighting (1118x86) external installation, for emergency illumination, IP44 ( LED TYPE), GAASH type OPEL LED or EQ	unit	1.00		
02.04.05.006	light switch button position including meriron conduit.	unit	2.00		
02.04.05.007	air condition 3 phase Safety switch ( 20A)	unit	2.00		
02.04.05.008	Double socket - single input	unit	3.00		
02.04.05.009	Integrated socket - electricity 2xregular, 2x UPS(blue) and 2x communication -Ada Plast Box -D17 or EQ .	unit	1.00		
02.04.05.010	EX safety switch ( zone 1) ,3-phase 20A,with support stand and base ,type 26262301 GHG CEAG or EQ	unit	4.00		
02.04.05.011	ESD -push button with 2 level mechanical protection ,zone 1 ,by kashtan or EQ .	unit	4.00		
02.04.05.012	Supply and installation of switch, single-pole/single-throw, 230 V, 10 A, suitable for inductive load, with cable type N2XY, 3x1.5 mm <sup>2</sup> cable, 600/1000 V, from first controlled lighting point on the circuit to the switch, including all materials and all work required, suitable for indoor non-hazardous location, complete	unit	4.00		
<b>transfer ahead part 02.04.05</b>					

Israel Natural Gas Lines LTD (INGL)

Rev. P9

04/03/2021

SHAFDAN SOREK 2 - GAS PIPELINE Rev. P11 page no.: 038

structure 02 Shafdan Station

section 04 ELECTRICAL, TELECOM AND INSTRUMENTATION WORKS

item	description	unit	quantity	price	total
	<b>transferred from above</b>				
02.04.05.013	Supply and installation of switch, single-pole/single-throw, 230 V, 10 A, suitable for inductive load, with cable type N2XY, 3x1.5 mm <sup>2</sup> cable, 600/1000 V, from first controlled lighting point on the circuit to the switch, including all materials and all work required, suitable for indoor non-hazardous location, for emergency lighting , complete	unit	6.00		
<b>total 04.05 Lighting and small power installation(send to summary)</b>					
	<b><u>part 04.06 General</u></b>				
02.04.06.001	Inspection and approval of the facility by aauthrited & certified electrical checker	comp	1.00		
<b>total 04.06 General(send to summary)</b>					
	<b><u>part 04.07 instrumentation</u></b>				
02.04.07.001	installation of a PIT on the Riser Manifold according to ATEX standard (the instrument itself will by supplied by INGL), including supply & installation of supports, IS cables (blue), adaptors and all other accessory required for the installation	unit	1.00		
02.04.07.002	Supply and Installation of an AWG 1x2x16 blue shielded cable (fitted for IS installation), made by Telodr, or equal, from the PIT to the SCADA, including the connection at both sides.	m	200.00		
02.04.07.003	Installation of a Temperature sensor on the pipeline including connection to the TIT ( Instrumentation supply by client)	unit	1.00		
<b>transfer ahead part 02.04.07</b>					

Israel Natural Gas Lines LTD (INGL)

Rev. P9

04/03/2021

SHAFDAN SOREK 2 - GAS PIPELINE Rev. P11 page no.: 039

structure 02 Shafdan Station

section 04 ELECTRICAL, TELECOM AND INSTRUMENTATION WORKS

item	description	unit	quantity	price	total
	<b>transferred from above</b>				
02.04.07.004	installation of a TIT on the Riser Manifold according to ATEX standard (the instrument itself will be supplied by INGL), including supply & installation of supports, IS cables (blue), adaptors and all other accessory required for the installation	unit	1.00		
02.04.07.005	Installation of an AWG 1x2x16 blue shielded cable (fitted for IS installation), made by Telodr, or equal, from the TIT to the SCADA, including the connection at both sides.	m	200.00		
02.04.07.006	supply and Installation of fiber optic cable 24 wire including OTDR examination after work is completed	m	100.00		
02.04.07.007	Detection of connection cutting and soldering of existing optical fiber 24 wire including OTDR examination after work is completed	m	50.00		
02.04.07.008	communication Socket for CAT 7 , installation & wiring, Including protection pipe	unit	2.00		
	<b>total 04.07 instrumentation(send to summary)</b>				
	<b><u>part 04.09 Smoke Detection</u></b>				
02.04.09.001	INDDOR Smoke detector	unit	3.00		
02.04.09.002	Smoke detection secondary panel to be connected to main panel	unit	1.00		
	<b>total 04.09 Smoke Detection(send to summary)</b>				
	<b><u>part 04.10 Electrical Generator Panel</u></b>				
02.04.10.001	Generator cabinet relocate to the existing control room wall including all necessary work and cable extensions	unit	1.00		
	<b>total 04.10 Electrical Generator Panel(send to summary)</b>				





Israel Natural Gas Lines LTD (INGL)

Rev. P9

04/03/2021

SHAFDAN SOREK 2 - GAS PIPELINE Rev. P11 page no.: 041

structure 02 Shafdan Station

section 05 AIR CONDITION IN CONTROL ROOM

item	description	unit	quantity	price	total
	<b><u>section 05 AIR CONDITION IN CONTROL ROOM</u></b>				
	<b><u>part 05.01 Air Condition in control Room</u></b>				
	The unit prices include supply, delivery and installation as well as perfect execution of the work.				
02.05.01.001	supply and installation of a Mini central air conditioner of the Inverter kind such as "Mitsubishi" model PEAD + PUAZ-RF125 for a BTU/H 42,500 cooling capacity, including anticorrosive protective coating for a sea atmosphere, activation panel, a stand and a grille for the condensing unit galvanized with hot zinc, hanged lock for the grille with a master key, connection to gas piping, connection to drainage including syphon and a connection to the electrical and command system. The price of the unit includes supply and installation of temperature sensitivity with a digital display including wiring to the system. Alarm/warning	unit	2.00		
02.05.01.002	"Supply and installation of gas and electrical package of a mini central air conditioner including a suction tube and a cold fluid tube, insulation, power and command cord and pipe cover outside the unit with a ""Silepas"" bandage (the pipe diameter and thickness will be according to manufacturer's instructions in accordance to the location of the units and alone the piping)"	m	40.00		
02.05.01.003	Supply and installation of a drain tray made of galvanized tin in the dimensions of the evaporator, including hanging and connection to the drainage pipes	unit	2.00		
<b>transfer ahead part 02.05.01</b>					

Israel Natural Gas Lines LTD (INGL)

Rev. P9

04/03/2021

SHAFDAN SOREK 2 - GAS PIPELINE Rev. P11 page no.: 042

structure 02 Shafdan Station  
 section 05 AIR CONDITION IN CONTROL ROOM

<i>item</i>	<i>description</i>	<i>unit</i>	<i>quantity</i>	<i>price</i>	<i>total</i>
	<b>transferred from above</b>				
02.05.01.004	"Grandpa cane" for moving pipes through the roof of the building, including a galvanized bent pipe, hole drilling and sealing processing	unit	2.00		
02.05.01.005	Supply and installation of aluminum wall-mounted air diffuser pulled type "יעד" or equivalent dimensions 155*20	unit	2.00		
02.05.01.006	Balance, regulation, signage, system operation, operating and maintenance instructions, one year warranty and service	comp	1.00		
<b>total 05.01 Air Condition in control Room(send to summary)</b>					
<b>total 05 AIR CONDITION IN CONTROL ROOM(send to summary)</b>					

Israel Natural Gas Lines LTD (INGL)

Rev. P9

04/03/2021

SHAFDAN SOREK 2 - GAS PIPELINE Rev. P11 page no.: 043

structure 02 Shafdan Station  
 section 06 WORK ON HOURLY BASIS

<i>item</i>	<i>description</i>	<i>unit</i>	<i>quantity</i>	<i>price</i>	<i>total</i>
	<b><u>section 06 WORK ON HOURLY BASIS</u></b>				
	<b><u>part 06.00 Notes</u></b>				
	the unit prices for the use of equipment includes operator/s and haulage				
	Works on hourly basis will be done only upon client demand.				
	<b>total 06.00 Notes(send to summary)</b>				
	<b><u>part 06.01 Manpower</u></b>				
02.06.01.003	welder with all required equipment including welding machine	hour	10.00		
	<b>total 06.01 Manpower(send to summary)</b>				
	<b><u>part 06.03 Earth moving equipment</u></b>				
02.06.03.002	backhoe JCB-3 with operator	hour	5.00		
	<b>total 06.03 Earth moving equipment(send to summary)</b>				
	<b>total 06 WORK ON HOURLY BASIS(send to summary)</b>				
	<b>total Shafdan Station(send to summary)</b>				

Israel Natural Gas Lines LTD (INGL)

Rev. P9

Bill of Quantities (summary)

04/03/2021

SHAFDAN SOREK 2 - GAS PIPELINE Rev. P11 page no.: 044

	<i>part amount</i>	<i>section amount</i>	<i>structure amount</i>
structure 01 8" Pipeline			
section 00 Remarks			
part 00.01 Remarks			
total 00 Remarks			
section 01 Pipeline and Mechanical Works			
part 01.01 Preparation of Strip Right Of Way (ROW)			
part 01.02 Trench excavation for pipeline laying			
part 01.03 Installation of casing in excavated trenches			
part 01.04 Installation of casing by Auger boring			
part 01.06 Insertion of pipelines in casings			
part 01.07 Installation of pipeline by H.D.D.			
part 01.08 Installation of pipeline by Auger Boring			
part 01.09 Laying of pipelines in excavated trenches incl. field bends			
part 01.10 Hot bends installation			
part 01.12 Pipe field welds including welding inspection and NDT			
part 01.14 Pipelines protection			
part 01.15 Field Coating			
part 01.17 Pressure testing and air drying			
part 01.18 Cutting of asphalt areas and reinstatement			
part 01.19 Marking post			
part 01.20 Warning tape			

Israel Natural Gas Lines LTD (INGL)

Rev. P9

04/03/2021

SHAFDAN SOREK 2 - GAS PIPELINE Rev. P11 page no.: 045

	<i>part amount</i>	<i>section amount</i>	<i>structure amount</i>
part 01.24 Wadi Crossing			
part 01.27 Filling unforeseen cavities			
part 01.31 As-built documents			
part 01.33 Excavation Works and Miscellaneous works			
part 01.34 Working in narrow strip			
total 01 Pipeline and Mechanical Works			
section 03 Cathodic Protection Engineering Works			
part 03.01 Cathodic protection			
part 03.02 Insulating Joints			
total 03 Cathodic Protection Engineering Works			
section 04 Electrical, Telecom and Instrumentation Works			
part 04.01 Conduit for Fiber Optic			
total 04 Electrical, Telecom and Instrumentation Works			
section 12 Landscaping			
part 12.02 Relocation of trees			
total 12 Landscaping			
section 20 Site Works and Earthworks			
part 20.01 Site works and earthworks			
total 20 Site Works and Earthworks			

	<i>part amount</i>	<i>section amount</i>	<i>structure amount</i>
section 21 Work on Hourly Basis			
part 21.00 notes			
part 21.01 Manpower			
part 21.03 Earth moving equipment			
part 21.05 Jumping cost			
total 21 Work on Hourly Basis			
total 01 8" Pipeline			
structure 02 Shafdan Station			
section 01 PIPELINE AND MECHANICAL ENGINEERING WORKS			
part 01.00 Note			
part 01.01 general			
part 01.02 Trench excavation for pipeline laying			
part 01.03 Fabrication, installation and laying of pipes			
part 01.04 Installation of valves			
part 01.05 Pipe field welds all sizes and all wall thickness			
part 01.07 Installation and tightening pair of flanges			
part 01.08 Installation of fittings			
part 01.09 Field coating or painting			
part 01.10 Pipe support			
part 01.14 Pipelines Protection			
part 01.16 Pressure testing			
part 01.18 Warning tape			

	<i>part amount</i>	<i>section amount</i>	<i>structure amount</i>
part 01.20 As-built documents			
total 01 PIPELINE AND MECHANICAL ENGINEERING WORKS			
section 02 CIVIL ENGINEERING WORKS			
part 02.01 Site works and earthworks			
part 02.02 Concrete Works			
total 02 CIVIL ENGINEERING WORKS			
section 04 ELECTRICAL, TELECOM AND INSTRUMENTATION WORKS			
part 04.01 Low voltage board			
part 04.02 Excavation of trench for electrical conduit installation			
part 04.03 Power and control cable installation			
part 04.04 Earthing system			
part 04.05 Lighting and small power installation			
part 04.06 General			
part 04.07 instrumentation			
part 04.09 Smoke Detection			
part 04.10 Electrical Generator Panel			
part 04.11 Earth moving equipment			
total 04 ELECTRICAL, TELECOM AND INSTRUMENTATION WORKS			

	<i>part amount</i>	<i>section amount</i>	<i>structure amount</i>
section 05 AIR CONDITION IN CONTROL ROOM			
part 05.01 Air Condition in control Room			
total 05 AIR CONDITION IN CONTROL ROOM			
section 06 WORK ON HOURLY BASIS			
part 06.00 Notes			
part 06.01 Manpower			
part 06.03 Earth moving equipment			
total 06 WORK ON HOURLY BASIS			
total 02 Shafdan Station			

	<i>total</i>
<b>grand total</b>	
<b>VAT 17%</b>	
<b>total inc. vat</b>	

\_\_\_\_\_ date

\_\_\_\_\_ name, signature and stamp of contractor