



**2. SP-LHT/FCP/013**

NO.	DESIGN DETAILS	MPA	MPS
1	PIPELINE SYSTEM	ASME B 31.8	N/A
2	DESIGN CODE	2483 MPag	N/A
3	DESIGN PRESSURE/MOP	1034 - 2483 MPag	N/A
4	OPERATING PRESSURE RANGE	3724 MPag	N/A
5	MIN. SPECIFIED TEST PRESSURE	3724 MPag	N/A
6	MATERIAL	STEEL	N/A
7	CLASS LOCATION	4	N/A
8	DESIGN TEMPERATURE	15°C - 55°C	N/A

**LEGENDS:-**


**MATERIALS SPECIFICATION**

DIAM. OF PIPE	TYPE OF PIPE	MIN. WALL THICKNESS
NPS 16	API 5L X 42	7.9mm

**HEAT NO AND MANUFACTURE**

NO.	HEAT NO	MANUFACTURER
1	17005970,17005971,17005972,17005973,17005974,17005975,17005976,17005977,17005978,17005979,17005980,17005981,17005982,17005983,17005984,17005985,17005986,17005987,17005988,17005989,17005990,17005991,17005992,17005993,17005994,17005995,17005996,17005997,17005998,17005999,17006000	HULLUDA, CHINA

**BILL OF MATERIALS**

NO.	DESCRIPTION	QUANTITY
1	PIPELINE CONCRETE MARKER TYPE 'X'	4
2	PIPELINE WARNING SIGNBOARD	3
3	CATHODIC PROTECTION POST	1
4	ELBOW 90	1
5	EQUAL TEE	1
6	ELBOW 11.25	1
7	PIPELINE WARNING MARKER (FLUSH)	4

**REFERENCE DRAWING :**

NO.	DRAWING TITLE	DRAWING NO.
1	LOCATION PLAN & PIPELINE ROUTE MAP	GMS/AS/KINTAVALLEYFLS13_18/0010_ZS
2	SCHEMATIC DIAGRAM AND VALVE DESIGNATION	GMS/AS/KINTAVALLEYFLS13_18/0020_ZS
3	CERTIFIED PLAN	

**REVISION :**

NO.	DATE	DESCRIPTION	DESIGN	DRAWN	CHK.	APPR.
00	00 JAN 2021	AS-BUILT DRAWING	SMSB	SOSC	WE	TAMK
01	FEB 2021	AS-BUILT DRAWING	SMSB	SOSC	WE	TAMK

**OWNER:**  
**GAS MALAYSIA BERHAD.**  
 NO.5, JALAN SERENDAH 26/17,  
 SEKSYEN 26,  
 40732 SHAH ALAM,  
 SELANGOR DARUL EHSAN.  
 TEL NO : 03 - 5192 3000  
 FAX NO : 03 - 5192-8766

**CONTRACTOR:**  
**SYUKRAN MAJU SDN BHD**  
 NO.10-01, JALAN BM7/19 (810236-0)  
 SEKSYEN 7, BANDAR BUKIT MAHKOTA  
 43000 KANGAR  
 SELANGOR DARUL EHSAN  
 Tel: 03-89126379 Fax: 03-89126658  
 Email : syukranmaju@yahoo.com

**COMPETENT PERSON ENDORSEMENT**  
 NAME :  
 REG. NO :  
 DATE :

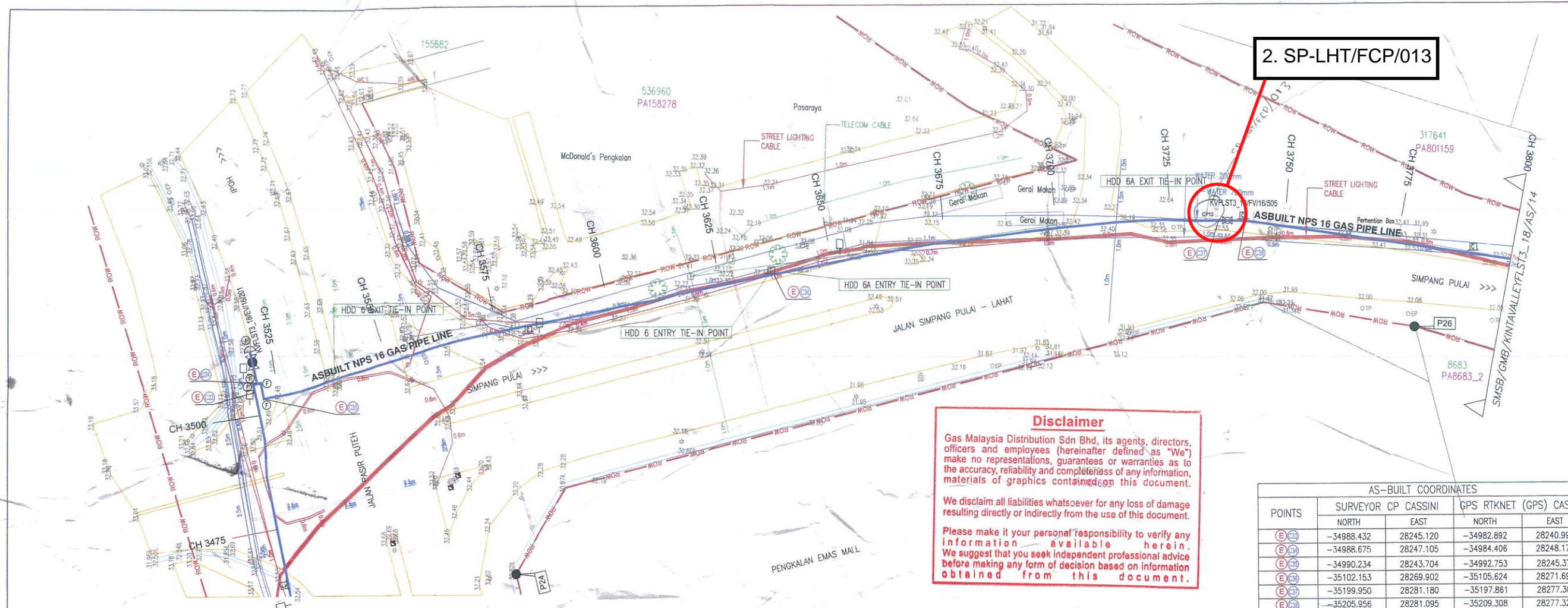
**UTILITIES & UNDERGROUND MAPPING CONTRACTOR:**  
**STAVE CONSULTANTS**  
 S.O SURVEY CONSULTANTS

**LICENSED LAND SURVEYOR :-**  
  
 SYED OMAR SYED HAMID  
 AOLS (UTM), MSL(M), MAL(M)  
 Land Survey Council Under Act. 438 (1966/2011)

**PROJECT TITLE:**  
 EPCC OF NATURAL GAS DISTRIBUTION SYSTEM TO  
 KINTA VALLEY FL STAGE 3/18  
 LAHAT - SIMPANG PULAI  
 IPOH, PERAK

**DRAWING TITLE:**  
 AS-BUILT DRAWING  
 CH 3500.00 - CH 3800.00

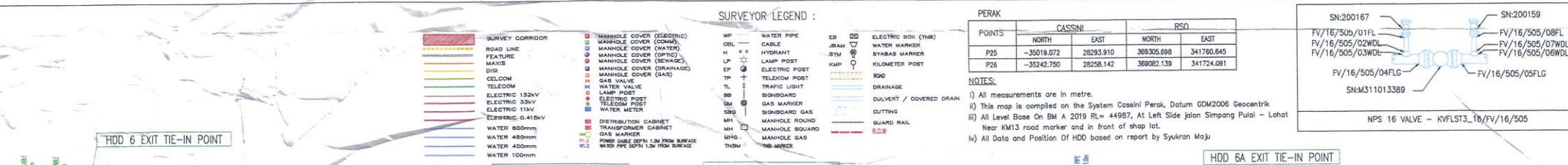
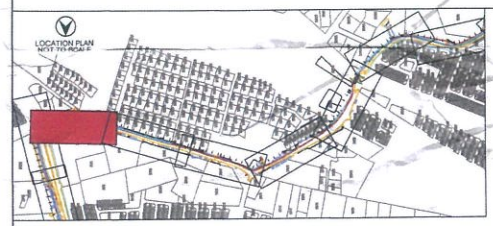
DRAWING NO.	DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED BY	DATE	SCALE
SMSB/GMS/KINTAVALLEYFLS13_18/AS/13	SMSB	SOSC	WE	TAMK	FEB 2021	AS SHOWN



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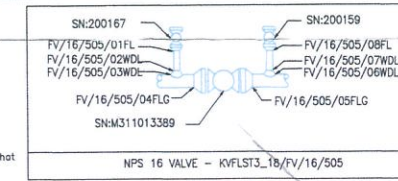
**AS-BUILT COORDINATES**

POINTS	SURVEYOR CP CASSINI		GPS RTKNET (GPS) CASSINI	
	NORTH	EAST	NORTH	EAST
(E-23)	-34988.432	28245.120	-34982.892	28240.992
(E-24)	-34988.675	28247.105	-34984.406	28248.178
(E-25)	-34990.234	28243.704	-34992.753	28245.371
(E-26)	-35102.153	28269.902	-35105.624	28271.694
(E-27)	-35199.950	28281.180	-35197.861	28277.301
(E-28)	-35205.956	28281.095	-35209.308	28277.323

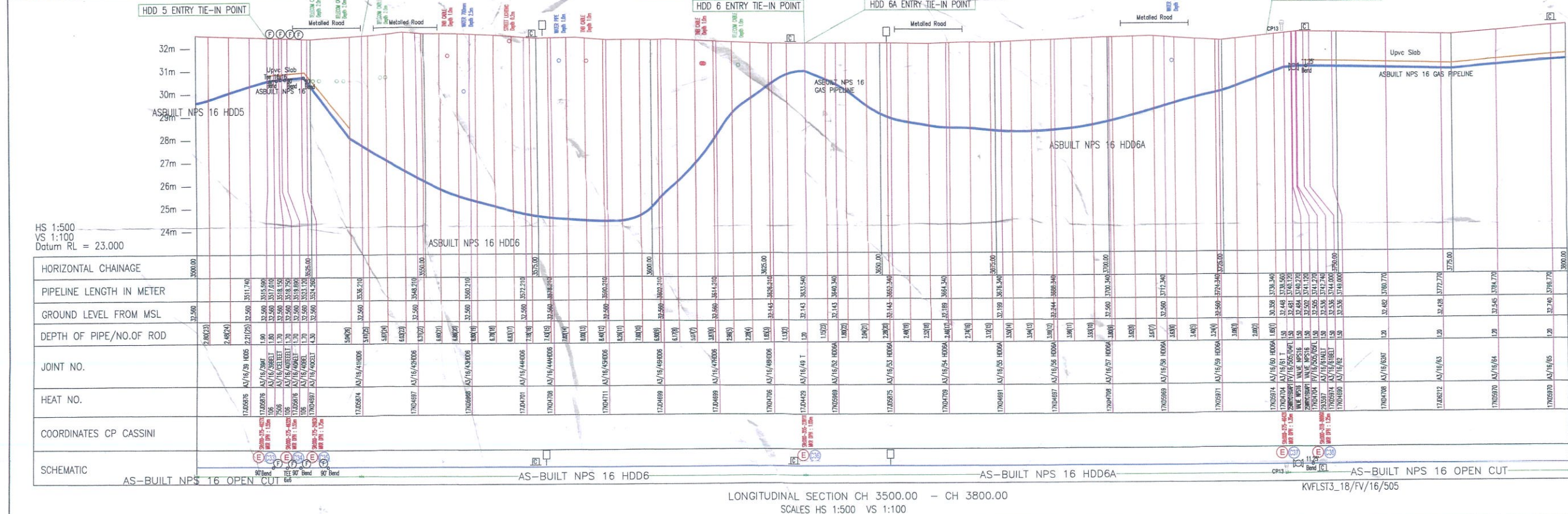


**PERAK**

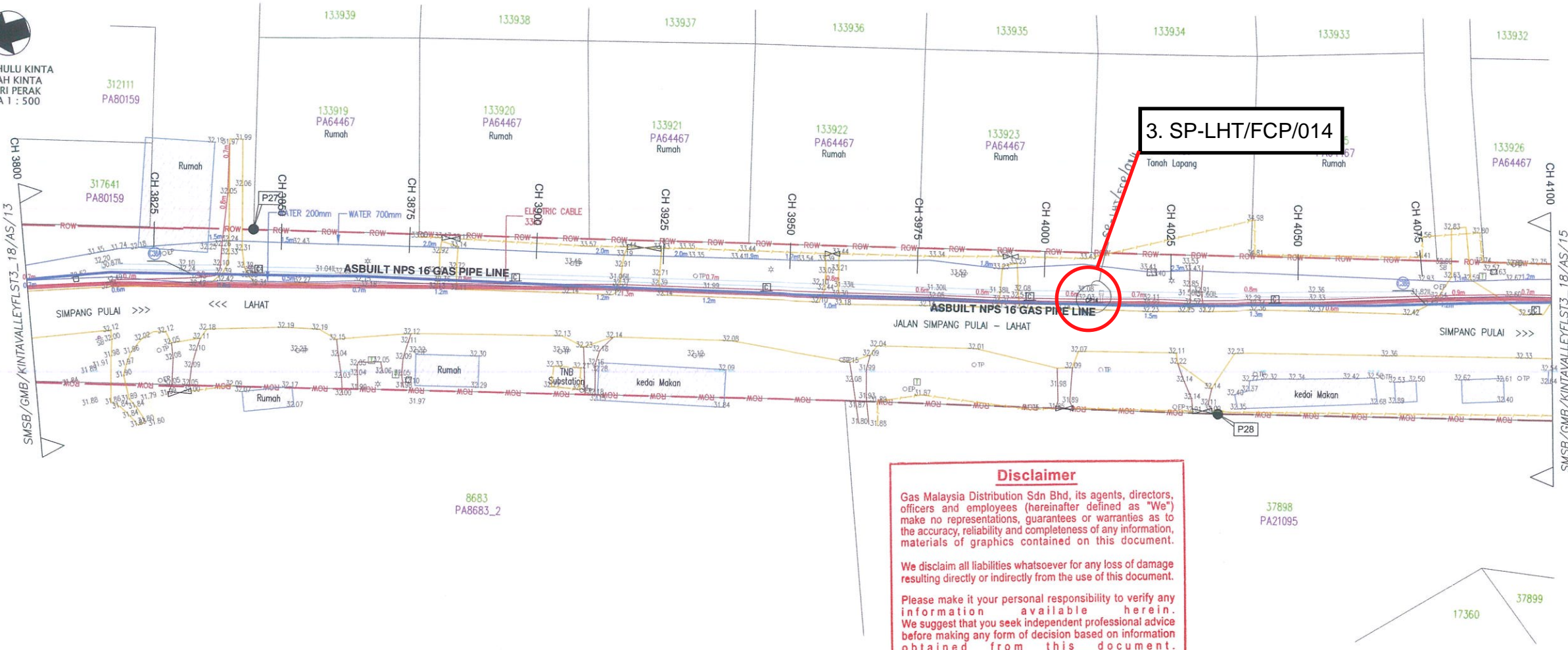
POINTS	CASSINI		RSD	
	NORTH	EAST	NORTH	EAST
P25	-35019.072	28293.910	369305.698	341700.645
P26	-35242.750	28258.142	369082.139	341724.091



**NOTES:**  
 1) All measurements are in metre.  
 2) This map is compiled on the System Cassini Perak, Datum GOM2006 Geocentric.  
 3) All Level Base On BM A 2019 RL = 44987, At Left Side Jalan Simpang Pulai - Lahat Near KM13 road marker and in front of shop lot.  
 4) All Date and Position Of HDD based on report by Syukran Maju.



LONGITUDINAL SECTION CH 3500.00 - CH 3800.00  
 SCALES HS 1:500 VS 1:100



3. SP-LHT/FCP/014

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DESIGN DETAILS

1 PIPELINE SYSTEM	MPA	MPB
2 DESIGN CODE	ASME B 31.8	N/A
3 DESIGN PRESSURE/AMOP	2483 kPag	N/A
4 OPERATING PRESSURE RANGE	1034 ~ 2483 kPag	N/A
5 MIN. SPECIFIED TEST PRESSURE	3724 kPag	N/A
6 MATERIAL	STEEL	N/A
7 CLASS LOCATION	4	N/A
8 DESIGN TEMPERATURE	15°C-55°C	N/A

LEGENDS:-

- ASBUILT NPS 16 SERVICE LINE (MPA)
- PIPELINE CONCRETE MARKER TYPE 'A'
- CATHODIC PROTECTION POST
- PIPELINE WARNING SIGNBOARD
- CATHODIC PROTECTION (FLUSH MOUNTED TEST CHAMBER)
- ELECTRONIC MARKER
- ASBUILT RISER
- OPEN VALVE
- CLOSE VALVE
- TAKE-OFF POINT
- END CAP
- PIPELINE WARNING MARKER (FLUSH)
- ASBUILT COORDINATES

MATERIALS SPECIFICATION

DIA. OF PIPE	TYPE OF PIPE	MIN. WALL THICKNESS
NPS 16	API SL X 42	7.9mm

HEAT NO AND MANUFACTURE

NO	HEAT NO	MANUFACTURER
1	17K05970,17K05967,17K05966,17K05965,17K05964,17K05963,17K05962,17K05961,17K05960,17K05959,17K05958,17K05957,17K05956,17K05955,17K05954,17K05953,17K05952,17K05951,17K05950,17K05949,17K05948,17K05947,17K05946,17K05945,17K05944,17K05943,17K05942,17K05941,17K05940,17K05939,17K05938,17K05937,17K05936,17K05935,17K05934,17K05933,17K05932,17K05931,17K05930,17K05929,17K05928,17K05927,17K05926,17K05925,17K05924,17K05923,17K05922,17K05921,17K05920,17K05919,17K05918,17K05917,17K05916,17K05915,17K05914,17K05913,17K05912,17K05911,17K05910,17K05909,17K05908,17K05907,17K05906,17K05905,17K05904,17K05903,17K05902,17K05901,17K05900,17K05899,17K05898,17K05897,17K05896,17K05895,17K05894,17K05893,17K05892,17K05891,17K05890,17K05889,17K05888,17K05887,17K05886,17K05885,17K05884,17K05883,17K05882,17K05881,17K05880,17K05879,17K05878,17K05877,17K05876,17K05875,17K05874,17K05873,17K05872,17K05871,17K05870,17K05869,17K05868,17K05867,17K05866,17K05865,17K05864,17K05863,17K05862,17K05861,17K05860,17K05859,17K05858,17K05857,17K05856,17K05855,17K05854,17K05853,17K05852,17K05851,17K05850,17K05849,17K05848,17K05847,17K05846,17K05845,17K05844,17K05843,17K05842,17K05841,17K05840,17K05839,17K05838,17K05837,17K05836,17K05835,17K05834,17K05833,17K05832,17K05831,17K05830,17K05829,17K05828,17K05827,17K05826,17K05825,17K05824,17K05823,17K05822,17K05821,17K05820,17K05819,17K05818,17K05817,17K05816,17K05815,17K05814,17K05813,17K05812,17K05811,17K05810,17K05809,17K05808,17K05807,17K05806,17K05805,17K05804,17K05803,17K05802,17K05801,17K05800,17K05799,17K05798,17K05797,17K05796,17K05795,17K05794,17K05793,17K05792,17K05791,17K05790,17K05789,17K05788,17K05787,17K05786,17K05785,17K05784,17K05783,17K05782,17K05781,17K05780,17K05779,17K05778,17K05777,17K05776,17K05775,17K05774,17K05773,17K05772,17K05771,17K05770,17K05769,17K05768,17K05767,17K05766,17K05765,17K05764,17K05763,17K05762,17K05761,17K05760,17K05759,17K05758,17K05757,17K05756,17K05755,17K05754,17K05753,17K05752,17K05751,17K05750,17K05749,17K05748,17K05747,17K05746,17K05745,17K05744,17K05743,17K05742,17K05741,17K05740,17K05739,17K05738,17K05737,17K05736,17K05735,17K05734,17K05733,17K05732,17K05731,17K05730,17K05729,17K05728,17K05727,17K05726,17K05725,17K05724,17K05723,17K05722,17K05721,17K05720,17K05719,17K05718,17K05717,17K05716,17K05715,17K05714,17K05713,17K05712,17K05711,17K05710,17K05709,17K05708,17K05707,17K05706,17K05705,17K05704,17K05703,17K05702,17K05701,17K05700,17K05699,17K05698,17K05697,17K05696,17K05695,17K05694,17K05693,17K05692,17K05691,17K05690,17K05689,17K05688,17K05687,17K05686,17K05685,17K05684,17K05683,17K05682,17K05681,17K05680,17K05679,17K05678,17K05677,17K05676,17K05675,17K05674,17K05673,17K05672,17K05671,17K05670,17K05669,17K05668,17K05667,17K05666,17K05665,17K05664,17K05663,17K05662,17K05661,17K05660,17K05659,17K05658,17K05657,17K05656,17K05655,17K05654,17K05653,17K05652,17K05651,17K05650,17K05649,17K05648,17K05647,17K05646,17K05645,17K05644,17K05643,17K05642,17K05641,17K05640,17K05639,17K05638,17K05637,17K05636,17K05635,17K05634,17K05633,17K05632,17K05631,17K05630,17K05629,17K05628,17K05627,17K05626,17K05625,17K05624,17K05623,17K05622,17K05621,17K05620,17K05619,17K05618,17K05617,17K05616,17K05615,17K05614,17K05613,17K05612,17K05611,17K05610,17K05609,17K05608,17K05607,17K05606,17K05605,17K05604,17K05603,17K05602,17K05601,17K05600,17K05599,17K05598,17K05597,17K05596,17K05595,17K05594,17K05593,17K05592,17K05591,17K05590,17K05589,17K05588,17K05587,17K05586,17K05585,17K05584,17K05583,17K05582,17K05581,17K05580,17K05579,17K05578,17K05577,17K05576,17K05575,17K05574,17K05573,17K05572,17K05571,17K05570,17K05569,17K05568,17K05567,17K05566,17K05565,17K05564,17K05563,17K05562,17K05561,17K05560,17K05559,17K05558,17K05557,17K05556,17K05555,17K05554,17K05553,17K05552,17K05551,17K05550,17K05549,17K05548,17K05547,17K05546,17K05545,17K05544,17K05543,17K05542,17K05541,17K05540,17K05539,17K05538,17K05537,17K05536,17K05535,17K05534,17K05533,17K05532,17K05531,17K05530,17K05529,17K05528,17K05527,17K05526,17K05525,17K05524,17K05523,17K05522,17K05521,17K05520,17K05519,17K05518,17K05517,17K05516,17K05515,17K05514,17K05513,17K05512,17K05511,17K05510,17K05509,17K05508,17K05507,17K05506,17K05505,17K05504,17K05503,17K05502,17K05501,17K05500,17K05499,17K05498,17K05497,17K05496,17K05495,17K05494,17K05493,17K05492,17K05491,17K05490,17K05489,17K05488,17K05487,17K05486,17K05485,17K05484,17K05483,17K05482,17K05481,17K05480,17K05479,17K05478,17K05477,17K05476,17K05475,17K05474,17K05473,17K05472,17K05471,17K05470,17K05469,17K05468,17K05467,17K05466,17K05465,17K05464,17K05463,17K05462,17K05461,17K05460,17K05459,17K05458,17K05457,17K05456,17K05455,17K05454,17K05453,17K05452,17K05451,17K05450,17K05449,17K05448,17K05447,17K05446,17K05445,17K05444,17K05443,17K05442,17K05441,17K05440,17K05439,17K05438,17K05437,17K05436,17K05435,17K05434,17K05433,17K05432,17K05431,17K05430,17K05429,17K05428,17K05427,17K05426,17K05425,17K05424,17K05423,17K05422,17K05421,17K05420,17K05419,17K05418,17K05417,17K05416,17K05415,17K05414,17K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**SURUHANJAYA TENAGA**  
 JABATAN GAS  
 NO 12, JLN TUN HUSSEN ONN,  
 PRECINCT 2,  
 62100 PUTRAJAYA,  
 WILAYAH PERSEKUTUAN.

DESIGN DETAILS		
1 PIPELINE SYSTEM	MPA	MPB
2 DESIGN CODE	ASME B 31.8	N/A
3 DESIGN PRESSURE/WMP	2483 kPa/g	N/A
4 OPERATING PRESSURE RANGE	1034 - 2483 kPa/g	N/A
5 MIN. SPECIFIED TEST PRESSURE	3724 kPa/g	N/A
6 MATERIAL	STEEL	N/A
7 CLASS LOCATION	4	N/A
8 DESIGN TEMPERATURE	15C-55C	N/A

**LEGENDS:-**

AS-BUILT NPS 16 SERVICE LINE (MPA)	AS-BUILT RISER
PIPELINE CONCRETE MARKER TYPE 'X'	OPEN VALVE
PIPELINE CONCRETE MARKER TYPE 'Y'	CLOSE VALVE
CATHODIC PROTECTION POST	TAKE-OFF POINT
PIPELINE WARNING SIGNBOARD	END CAP
CATHODIC PROTECTION (FLUSH MOUNTED TEST CHAMBER)	PIPELINE WARNING MARKER (FLUSH)
ELECTRONIC MARKER	AS-BUILT COORDINATES

**MATERIALS SPECIFICATION**

DIA. OF PIPE	TYPE	MIN. WALL THICKNESS
NPS 16	API 5L X 42	7.9mm

**HEAT NO AND MANUFACTURE**

NO	HEAT NO	MANUFACTURER
1	17.06204,17.05964,17.05975	HULLDIA, CHINA
2	17.05988,17.05976,17.05965,17.05971,17.05968,17.05968	HULLDIA, CHINA
3	17.05973,17.06120,17.05968,17.05969,17.05969,17.05969	HULLDIA, CHINA
4	25.81701934P,25.81701934P	DOMESTIC VALVE
5	MP/SL/2581701934P,17.04491	MP/SL/2581701934P,17.04491
6	17.05963,17.05971,17.05968,17.05971,17.05971	HULLDIA, CHINA
7	21524277,17.05971,21524277,17.05971,17.05974	HULLDIA, CHINA
8	17.06118,17.06118,17.05968,17.05965,17.06119	HULLDIA, CHINA

**BILL OF MATERIALS**

NO	DESCRIPTION	QUANTITY
1	PIPELINE CONCRETE MARKER TYPE 'X'	5
2	CATHODIC PROTECTION POST	2
3	PIPELINE WARNING SIGNBOARD	1
4	3M MARKER	2
5	ELBOW 22.5	2

**REFERENCE DRAWING :**

NO	DRAWING TITLE	DRAWING NO.
1	LOCATION PLAN & PIPELINE ROUTE MAP	GM/MS/KINTAVALLEYFLST3_18/0010_25
2	SCHEMATIC DIAGRAM AND VALVE DESIGNATION	GM/MS/KINTAVALLEYFLST3_18/0010_25
3	CERTIFIED PLAN	

**REVISION :**

NO.	DATE	DESCRIPTION	DESIGN	DRAWN	CHK.	APPR.
00	JAN 2021	AS-BUILT DRAWING	SMSB	SOSC	MB	TAMR
01	FEB 2021	AS-BUILT DRAWING	SMSB	SOSC	MB	TAMR

**OWNER:**  
**GAS MALAYSIA BERHAD.**  
 NO.5, JALAN SERENDAH 26/17,  
 SEKSYEN 26,  
 40732 SHAW ALAM,  
 SELANGOR DARUL EHSAN.  
 TEL NO : 03 - 5192-3000  
 FAX NO : 03 - 5192-6766

**CONTRACTOR:**  
**SYUKRAN MAJU SDN BHD**  
 NO.10-01, JALAN BM7/19 (810236-U)  
 SEKSYEN 19, BANDAR BUKIT MAHKOTA  
 43000 SEREMBANG  
 SELANGOR DARUL EHSAN  
 Tel: 03-89126379 Fax: 03-89129658  
 Email : syukranmaju@yahoo.com

**COMPETENT PERSON ENDORSEMENT**  
 NAME :  
 REG. NO :  
 DATE :

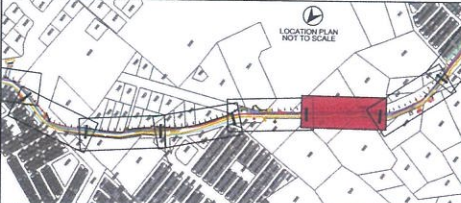
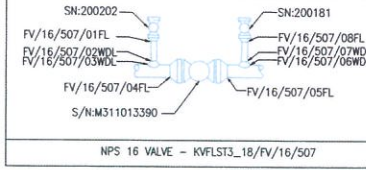
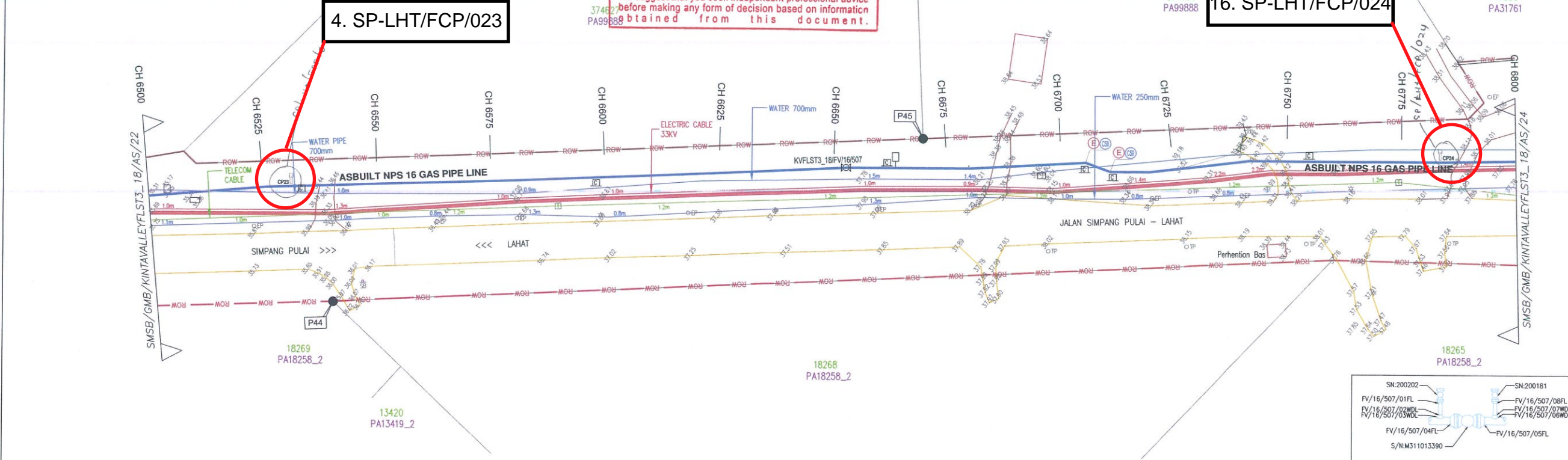
**UTILITIES & UNDERGROUND MAPPING CONTRACTOR:**  
**SURVEY CONSULTANTS**  
 302A, Lorong Perak  
 Melawati Square  
 Taman Melawati  
 62100 Kuala Lumpur  
 Tel: 03-41050988  
 Fax: 03-41061788

**LICENSED LAND SURVEYOR :-**  
 SYED OMAR SYED HAMID  
 (ADS, LUTM), (MISU), (MALSU)  
 Land Survey Licensed Under Act 438 (Revised 2017)

**PROJECT TITLE:**  
 EPCC OF NATURAL GAS DISTRIBUTION SYSTEM TO  
 KINTA VALLEY FL STAGE 3/18  
 LAHAT - SIMPANG PULAI  
 IPOH, PERAK

**DRAWING TITLE:**  
 AS-BUILT DRAWING  
 CH 6500.00 - CH 6800.00

DRAWING NO.	DESIGNED BY	CHECKED BY	APPROVED BY	DATE	SCALE
SMSB/GMB/KINTAVALLEYFLST3_18/AS/23	SMSB	SOSC	TAMR	FEB 2021	AS SHOWN



**AS-BUILT COORDINATES**

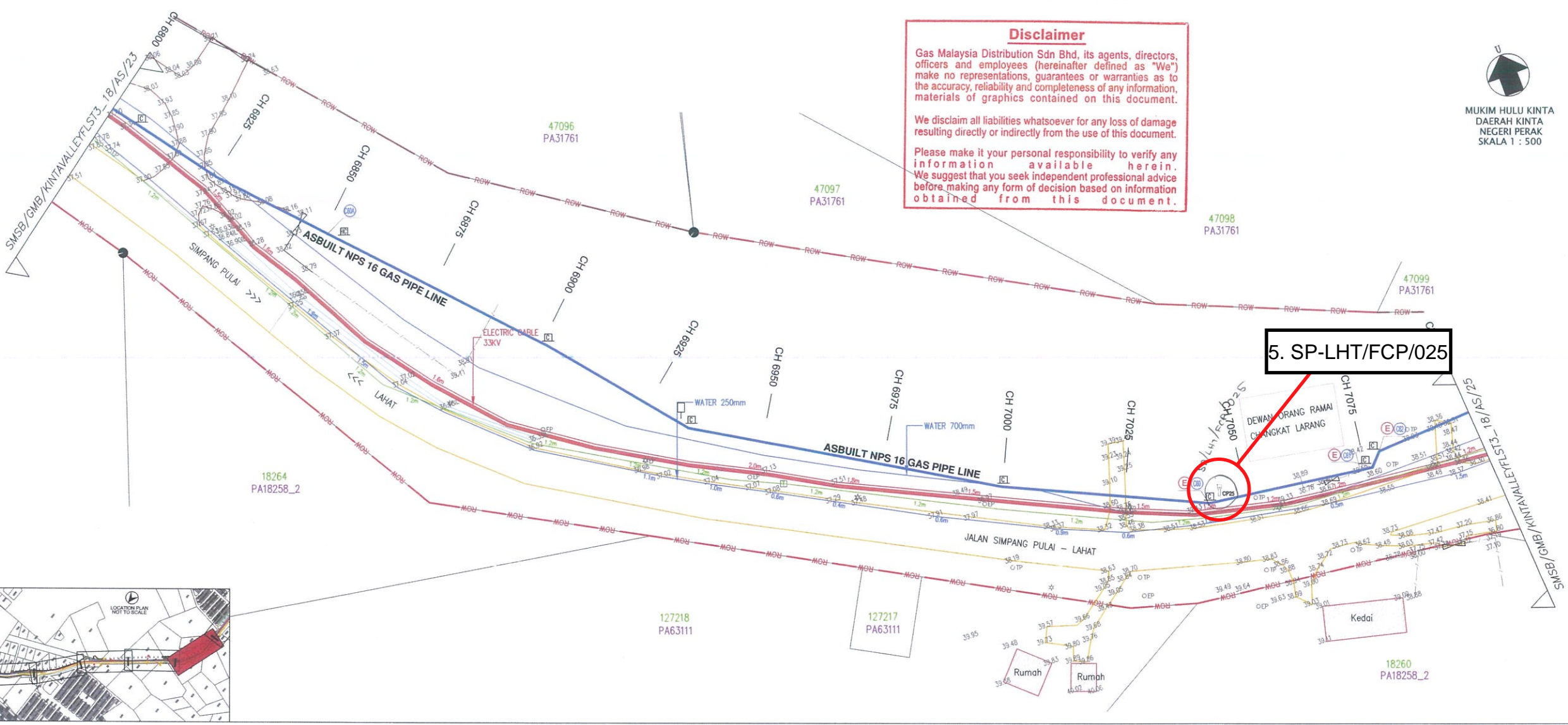
POINTS	SURVEYOR CP CASSINI		GPS RTKNET (GPS) CASSINI	
	NORTH	EAST	NORTH	EAST
E(2)	-37564.666	29356.501	-37568.290	29355.086
E(5)	-37570.102	29358.110	-37574.870	29359.447

**SURVEYOR LEGEND :**

MP	MANHOLE COVER (ELECTRIC)	WP	WATER PIPE	ES	ELECTRIC BOX (MBS)
MO	MANHOLE COVER (WATER)	WC	WATER CONDUIT	EM	WATER METER
MT	MANHOLE COVER (TELECOM)	WP	WATER POST	SM	STANDING MARKER
MP	MANHOLE COVER (DRAINAGE)	EP	ELECTRIC POST	RM	RELEASER MARKER
MO	MANHOLE COVER (ELECTRIC)	TP	TELECOM POST	TR	TRUCK MARKER
MT	MANHOLE COVER (WATER)	TL	TELECOM LINE	TR	TRUCK MARKER
MP	MANHOLE COVER (DRAINAGE)	TS	TELECOM SIGNBOARD	SG	SHOULDER
MO	MANHOLE COVER (ELECTRIC)	TS	TELECOM SIGNBOARD	SG	SHOULDER
MT	MANHOLE COVER (WATER)	TS	TELECOM SIGNBOARD	SG	SHOULDER
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MP	MANHOLE COVER (DRAINAGE)	TS	TELECOM SIGNBOARD	SG	SHO



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**5. SP-LHT/FCP/025**

DESIGN DETAILS		
1 PIPELINE SYSTEM	MPA	MPB
2 DESIGN CODE	ASME B 31.8	N/A
3 DESIGN PRESSURE/MAOP	2483 MPa/g	N/A
4 OPERATING PRESSURE RANGE	1634 - 2483 MPa/g	N/A
5 MIN SPECIFIED TEST PRESSURE	3724 MPa/g	N/A
6 MATERIAL	STEEL	N/A
7 CLASS LOCATION	4	N/A
8 DESIGN TEMPERATURE	15°C-50°C	N/A

**LEGENDS:-**

AS-BUILT NPS 16 SERVICE LINE (MPA)	AS-BUILT RISER
PIPELINE CONCRETE MARKER TYPE 'A'	OPEN VALVE
PIPELINE CONCRETE MARKER TYPE 'B'	CLOSE VALVE
CATHODIC PROTECTION POST	TAKE-OFF POINT
PIPELINE WARNING SIGNBOARD	END CAP
CATHODIC PROTECTION (FLUSH MOUNTED TEST CHAMBER)	PIPELINE WARNING MARKER
ELECTRONIC MARKER	AS-BUILT COORDINATES

**MATERIALS SPECIFICATION**

DIA. OF PIPE	TYPE OF PIPE	MIN. WALL THICKNESS
NPS 16	API 5L X 42	7.9mm

**HEAT NO AND MANUFACTURE**

NO	HEAT NO	MANUFACTURER
1	17.05088.17025965.17.04130.17025973	HUALIDA, CHINA
1	17.05088.17.05076.17.04701.17.05087.17.05088	
1	17.05084.17.05064.17.05087.17.05087.17.05089	
1	17.05076.17.05064.17.05087.17.05087.17.05089	
1	17.05074.17.05071.215124277.17.04099.17.05064	
1	17.05069.215124277.17.04099.215124277.17.05073	

**BILL OF MATERIALS**

NO	DESCRIPTION	QUANTITY
1	PIPELINE CONCRETE MARKER TYPE 'A'	7
1	PIPELINE CONCRETE MARKER TYPE 'B'	1
1	PIPELINE WARNING SIGNBOARD	1
1	CATHODIC PROTECTION POST	1
1	3M MARKER	3
1	ELBOW 11.25	1

**REFERENCE DRAWING :**

NO	DRAWING TITLE	DRAWING NO:
1	LOCATION PLAN & PIPELINE ROUTE MAP	GMB/AS/KINTAVALLEY/ST3_18/000_25
2	SCHEMATIC DIAGRAM AND VALVE DESIGNATION	GMB/AS/KINTAVALLEY/ST3_18/000_25
3	CERTIFIED PLAN	

**REVISION :**

NO	DATE	DESCRIPTION	DESIGN	DRAWN	CHK	APPR
00	JAN 2021	AS-BUILT DRAWING	SMSB	SOSC	MB	TAKH
01	JAN 2021	AS-BUILT DRAWING	SMSB	SOSC	MB	TAKH

**OWNER:**  
**GAS MALAYSIA BERHAD.**  
 NO.5, JALAN SERENDAH 26/17,  
 SEKSYEN 26,  
 40732 SHAH ALAM,  
 SELANGOR DARUL EHSAN  
 TEL NO : 03 - 5192-3000  
 FAX NO : 03 - 5192-6766

**CONTRACTOR:**  
**SYUKRAN MAJU SDN BHD**  
 NO.10-01, JALAN BM7/19 (810236-U)  
 SEKSYEN 7, BANDAR BUKIT MAHKOTA,  
 43000 KAJANG  
 SELANGOR DARUL EHSAN  
 Email : syukranmaju@yahoo.com

**COMPETENT PERSON ENDORSEMENT**  
 NAME :  
 REG. NO :  
 DATE :

**UTILITIES & UNDERGROUND MAPPING CONTRACTOR:**  
**SURE CONSULTANTS**  
 302A, Lorong Perak  
 Medan Rempai  
 Teluk Anson, Teluk Anson  
 13100 Kuala Lumpur  
 Tel: 03-41050900  
 Fax: 03-41061768

**LICENSED LAND SURVEYOR :-**  
  
 SYED OMAR SYED HAMID  
 ADUS (UTM), MISC(W), MALAYSIA  
 Land Survey License Under Act 43 (Revised 2017)

**PROJECT TITLE:**  
 EPCC OF NATURAL GAS DISTRIBUTION SYSTEM TO  
 KINTA VALLEY FL STAGE 3/18  
 LAHAT - SIMPANG PULAI  
 IPOH, PERAK

**DRAWING TITLE:**  
 AS-BUILT DRAWING  
 CH 6800.00 - CH 7100.00

DRAWING NO:	SMSB/GMB/KINTAVALLEY/ST3_18/AS/24	REV	01
DESIGNED BY	SMSB	OWNER APPROVAL:	
DRAWN BY	SOSC		
CHECKED BY	WB		
APPROVED BY	TAKH		
DATE	FEB 2021		
SCALE	AS SHOWN	PLAN NO:	S0/2018/P11/3/AS-24

**AS-BUILT COORDINATES**

POINTS	SURVEYOR CP CASSINI		GPS RTKNET (GPS) CASSINI	
	NORTH	EAST	NORTH	EAST
(E) (20)	-37677.832	29446.860	-37683.318	29446.110
(E) (20)	-37754.004	29747.927	-37788.990	29599.007
(E) (20)	-37757.890	29781.231	-37792.876	29632.311
(E) (20)	-37754.991	29783.938	-37789.977	29635.018

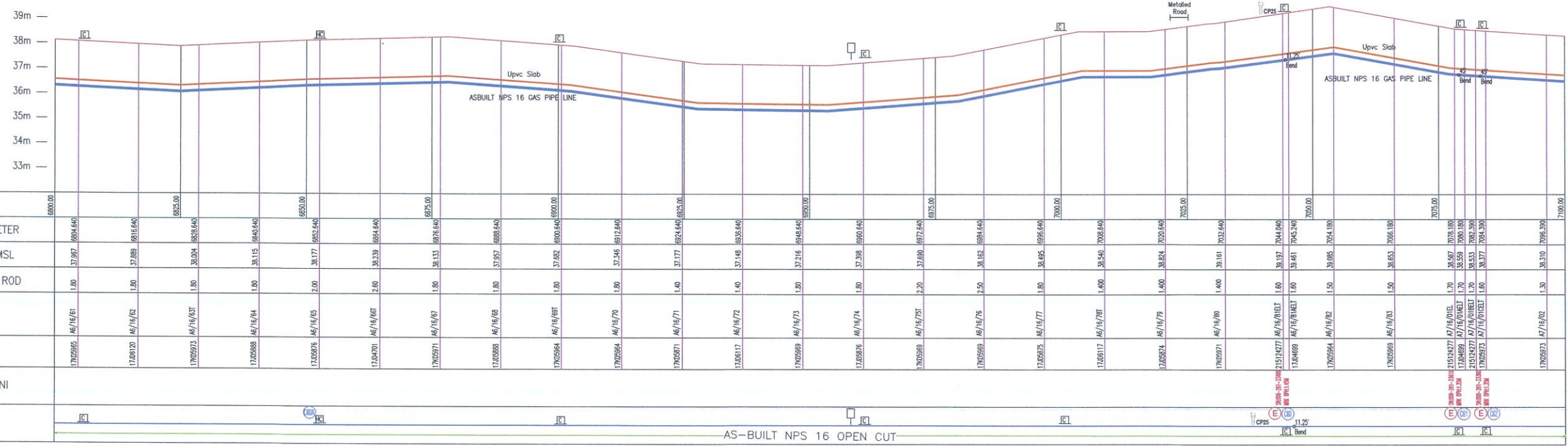
**SURVEYOR LEGEND :**

ROAD LINE	ROAD LINE	MANHOLE COVER (ELECTRIC)	WP	WATER PIPE	EB	ELECTRIC BOX (TNS)
FEATURE	FEATURE	MANHOLE COVER (WATER)	CP	CABLE	WM	WATER MARKER
HAZIS	HAZIS	MANHOLE COVER (GAS)	LP	LAMP POST	SYM	SYMBAS MARKER
DIG	DIG	MANHOLE COVER (DRAINAGE)	EP	ELECTRIC POST	KMP	KILOMETER POST
CELOM	CELOM	MANHOLE COVER (GAS)	TP	TELECOM POST		
TELECOM	TELECOM	WATER VALVE	TL	TRAFFIC LIGHT		
ELECTRIC 132V	ELECTRIC 132V	GAS VALVE	SB	SIGNALBOX		
ELECTRIC 33kV	ELECTRIC 33kV	WATER METER	SM	SIGNBOARD		
ELECTRIC 11kV	ELECTRIC 11kV	TRANSFORMER CABINET	GM	GAS MARKER		
ELECTRIC 0.415kV	ELECTRIC 0.415kV	DISTRIBUTION CABINET	SBG	SIGNALBOARD GAS		
WATER 600mm	WATER 600mm	MANHOLE SQUARE	MH	MANHOLE ROUND		
WATER 400mm	WATER 400mm	GAS MARKER	MH	MANHOLE SQUARE		
WATER 100mm	WATER 100mm	WATER PIPE DEPTH 1.2M FROM SURFACE	MHG	MANHOLE GAS		

**PERAK**

POINTS	CASSINI		RSO	
	NORTH	EAST	NORTH	EAST
P47	-37702.022	29517.789	366618.388	342975.220
P48	-37820.267	29688.848	366499.542	343145.878

**NOTES:**  
 1) All measurements are in metre.  
 2) This map is compiled on the System Cassini Perak, Datum GDM2006 Geocentric.  
 3) All Level Base On BM A 2019 RL= 44987, At Left Side jalan Simpang Pulai - Lahat Near KM13 road marker and in front of shop lot.  
 4) All Data and Position Of HDD based on report by Syukran Maja



HS 1:500  
 VS 1:100  
 Datum RL = 32.000

AS-BUILT NPS 16 OPEN CUT  
 LONGITUDINAL SECTION CH 6800.00 - CH 7100.00  
 SCALES HS 1:500 VS 1:100

MUKIM HULU KINTA  
DAERAH KINTA  
NEGERI PERAK  
SKALA 1 : 500

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Please make it your personal responsibility to verify any information available herein. We suggest that you seek independent professional advice before making any form of decision based on information obtained from this document.

**SURUHANJAYA TENAGA**  
JABATAN GAS  
NO 12, JUN TUN HUSSEIN ONN,  
PRECINCT 2,  
62100 PUTRAJAYA,  
WILAYAH PERSEKUTUAN.

NO.	DESIGN DETAILS	MPA	MPB
1	PIPELINE SYSTEM	ASME B 31.8	N/A
2	DESIGN CODE	2483 MPag	N/A
3	DESIGN PRESSURE/WOP	1034 - 2483 MPag	N/A
4	OPERATING PRESSURE RANGE	3724 MPag	N/A
5	MIN. SPECIFIED TEST PRESSURE	4	N/A
6	MATERIAL	STEEL	N/A
7	CLASS LOCATION	15°C - 52°C	N/A
8	DESIGN TEMPERATURE		
9			

**LEGENDS:-**

- ASBUILT NPS 16 SERVICE LINE (MPA)
- PIPELINE CONCRETE MARKER TYPE 'A'
- PIPELINE CONCRETE MARKER TYPE 'B'
- CATHODIC PROTECTION POST
- PIPELINE WARNING SIGNBOARD
- CATHODIC PROTECTION (FLUSH MOUNTED TEST CHAMBER)
- ELECTRONIC MARKER
- ASBUILT RISER
- OPEN VALVE
- CLOSE VALVE
- TAKE-OFF POINT
- PIPELINE WARNING MARKER (FLUSH)
- ASBUILT COORDINATES

**MATERIALS SPECIFICATION**

DIA. OF PIPE	TYPE OF PIPE	MIN. WALL THICKNESS
NPS 16	API 5L X 42	7.9mm

**HEAT NO AND MANUFACTURE**

NO	HEAT NO	MANUFACTURER
1	17004711,1700575,1700597,1700499,1700471	HULLUDA, CHINA
2	1700499,1700471,1700471,1700471,1700471,1700499	
3	1700471,1700471,1700597,1700597,1700597	
4	1700575,1700597,1700596,1700597,1700575	
5	1700575,1700497,1700595,1700587,1700597	

**BILL OF MATERIALS**

NO	DESCRIPTION	QUANTITY
1	PIPELINE CONCRETE MARKER TYPE 'A'	6
2	CATHODIC PROTECTION POST	1
3	PIPELINE WARNING SIGNBOARD	1
4		
5		
6		

**REFERENCE DRAWING :**

NO	DRAWING TITLE	DRAWING NO.
1	LOCATION PLAN & PIPELINE ROUTE MAP	GMB/AS/KINTAVALLEY/ST3_18/000_2S
2	SCHEMATIC DIAGRAM AND VALVE DESIGNATION	GMB/AS/KINTAVALLEY/ST3_18/000_2S
3	CERTIFIED PLAN	

**REVISION :**

NO.	DATE	DESCRIPTION	DESIGN	DRAWN	CHK.	APPR.
00	JAN 2021	ASBUILT DRAWING	SMSB	SSSC	WB	TAKK
01	FEB 2021	ASBUILT DRAWING	SMSB	SSSC	WB	TAKK

**OWNER:**  
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SEKSYEN 25,  
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SELANGOR DARUL EHSAN  
TEL NO : 03 - 5192-3000  
FAX NO : 03 - 5192-6766

**CONTRACTOR:**  
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NO.10-01, JALAN BM7/19 (810236-U)  
SEKSYEN 7, BANDAR BUKIT MAHKOTA  
43000 KAJANG  
SELANGOR DARUL EHSAN  
Tel: 03-89126379 Fax: 03-89129658  
Email: syukranmajud@yahoo.com

**COMPETENT PERSON ENDORSEMENT**  
NAME :  
REG. NO :  
DATE :

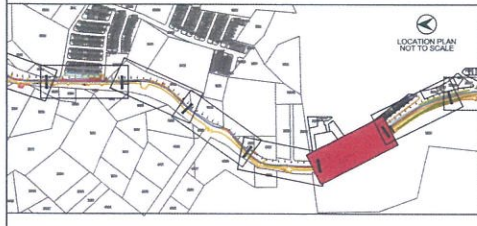
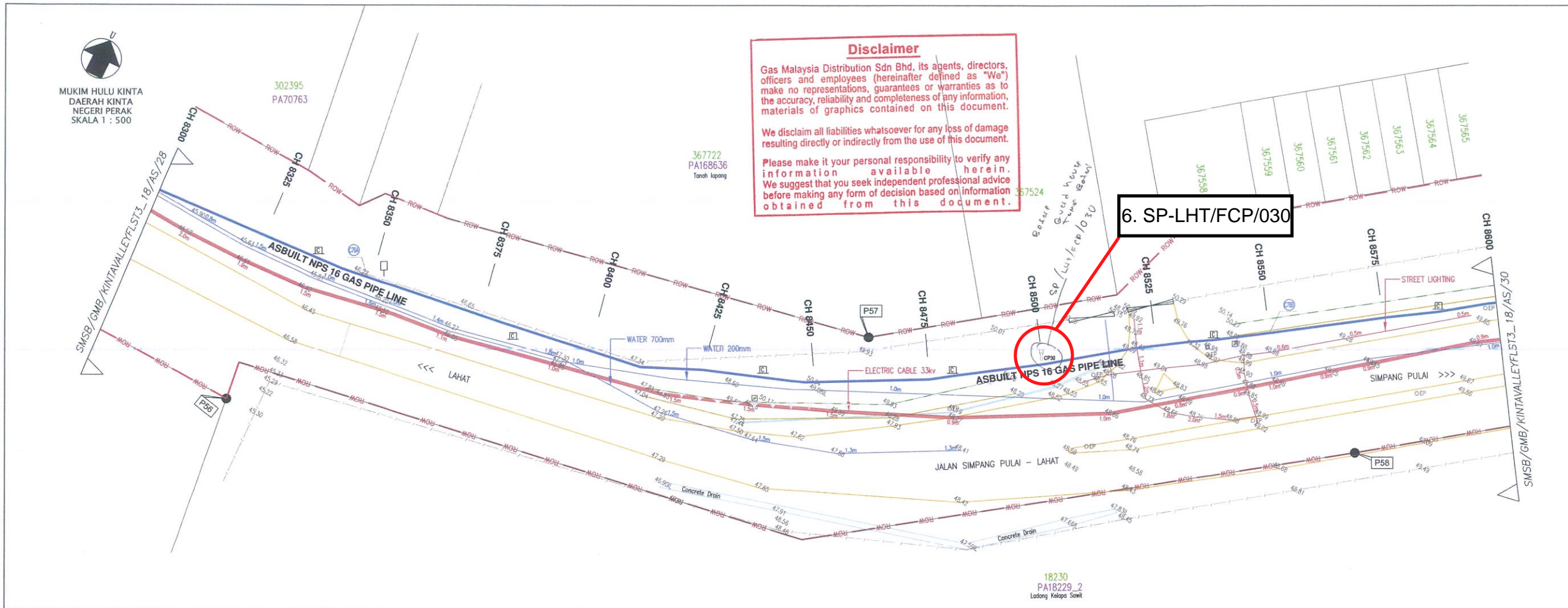
**UTILITIES & UNDERGROUND MAPPING CONTRACTOR:**  
**SURVEY CONSULTANTS**  
302A, Lorong Perak  
Melawati Square  
Taman Melawati  
55100 Kuala Lumpur  
Tel: 03-41056999  
Fax: 03-41061768

**LICENSED LAND SURVEYOR :-**  
**SYED OMAR SYED HAMID**  
ADLS (LTM), MS(M), MAL(SM)  
Land Survey (General Under Act 438 (Revised 2017))

**PROJECT TITLE:**  
EPCC OF NATURAL GAS DISTRIBUTION SYSTEM TO  
KINTA VALLEY FL STAGE 3/18  
LAHAT - SIMPANG PULAI  
IPOH, PERAK

**DRAWING TITLE:**  
ASBUILT DRAWING  
CH 8300.00 - CH 8600.00

DRAWING NO.	DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED BY	DATE	SCALE
SMSB/GMB/KINTAVALLEY/ST3_18/AS/29	SMSB	SSSC	WB	TAKK	FEB 2021	AS SHOWN



**AS-BUILT COORDINATES**

POINTS	SURVEYOR CP CASSINI		GPS RTKNET (GPS) CASSINI	
	NORTH	EAST	NORTH	EAST
P57	-38133.323	30792.735	-38135.481	30796.966
P58	-38053.329	30973.232	-38049.643	30976.008

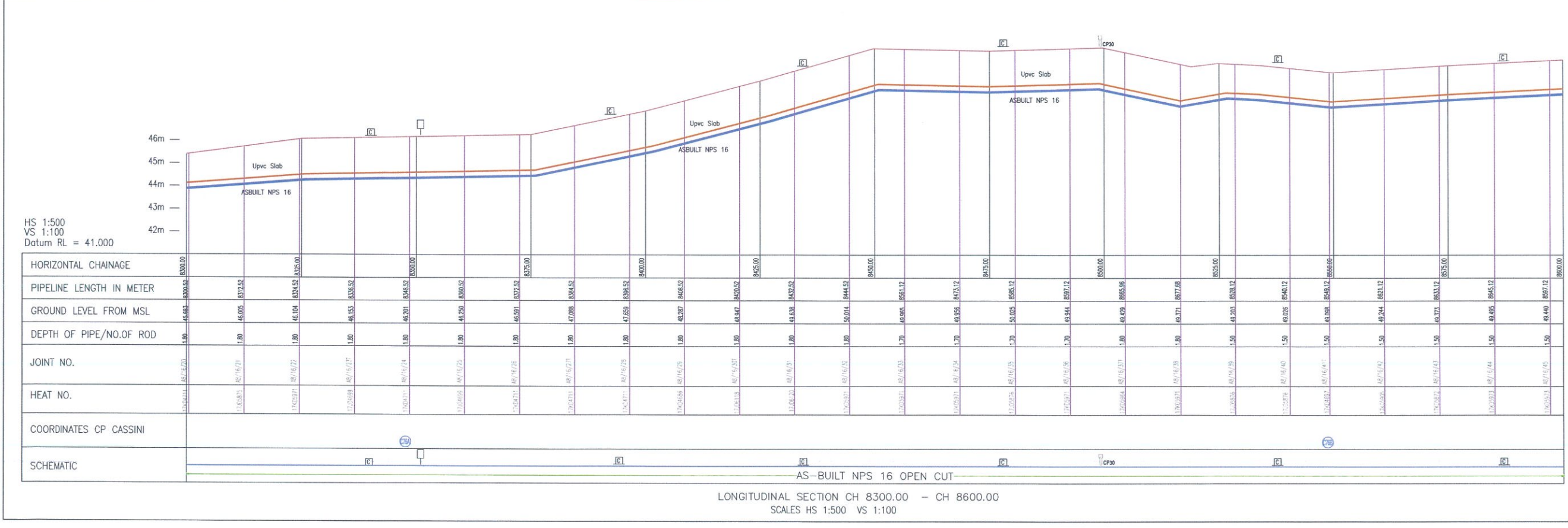
**SURVEYOR LEGEND :**

WP	WATER PIPE	EB	ELECTRIC BOX (2ND)
CB	CABLE	WM	WATER MARKER
H	HYDRANT	SM	SPRINKLER MARKER
LP	LAMP POST	HP	HELMET POST
EP	ELECTRIC POST	TM	TELEPHONE POST
TP	TRAFFIC LIGHT	TL	TRAP LIGHT
SB	SIGNBOARD	GM	GAS MARKER
SG	SIGNBOARD GAS	MB	MANHOLE ROUND
MS	MANHOLE SQUARE	MH	MANHOLE GAS
MG	MANHOLE GAS		

**PERAK**

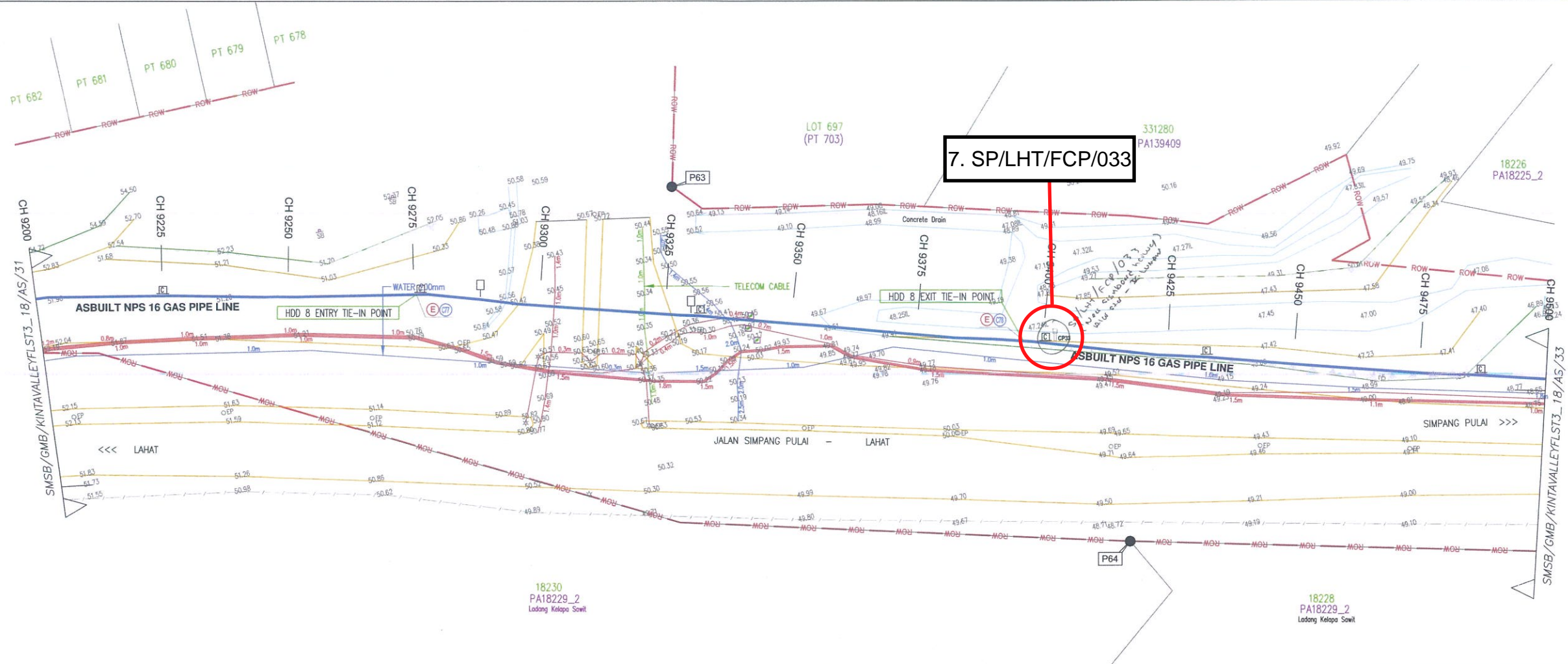
POINTS	CASSINI		RSO	
	NORTH	EAST	NORTH	EAST
P57	-38094.401	30895.844	368221.184	344352.001
P58	-38056.177	31001.705	368247.038	344457.961

**NOTES:**  
i) All measurements are in metre.  
ii) This map is compiled on the System Cassini Perak Datum GDM2006 Geocentric  
iii) All Level Base On BM A 2019 RL= 44987, At Left Side jalan Simpang Pulai - Lahat  
Near KM13 road marker and in front of shop lot.  
iv) All Data and Position Of HDD based on report by Syukran Maju



LONGITUDINAL SECTION CH 8300.00 - CH 8600.00  
SCALES HS 1:500 VS 1:100

MUKIM HULU KINTA  
DAERAH KINTA  
NEGERI PERAK  
SKALA 1 : 500



**SURUHANJAYA TENAGA**  
JABATAN GAS  
NO 12, JLN TUN HUSSEIN ONN,  
PRECINCT 2,  
62100 PUTRAJAYA,  
WILAYAH PERSEKUTUAN.

DESIGN DETAILS

NO.	DESCRIPTION	UNIT	VALUE
1	PIPELINE SYSTEM	MPA	MPB
2	DESIGN CODE	ASME B 31.8	N/A
3	DESIGN PRESSURE/MAOP	2483 MPaG	N/A
4	OPERATING PRESSURE RANGE	1034 ~ 2483 MPaG	N/A
5	MIN. SPECIFIED TEST PRESSURE	3724 MPaG	N/A
6	MATERIAL	STEEL	N/A
7	CLASS LOCATION	4	N/A
8	DESIGN TEMPERATURE	15°C-55°C	N/A
9			

MATERIALS SPECIFICATION

DIA. OF PIPE	TYPE OF PIPE	MIN. WALL THICKNESS
NPS 16	API 5L X 42	7.9mm

HEAT NO AND MANUFACTURE

NO.	HEAT NO	MANUFACTURER
1	17AD5872,17AD4897,17AD5976,17AD5967,17AD5874,17AD5864	HULLDIA, CHINA
2	17AD5965,17AD6118,17AD6119,17AD6118,17AD6118,17AD6206	
3	17AD4700,17AD5871,17AD5871,17AD4706,17AD4706	
4	17AD6121,17AD4704,17AD6122,17AD4706,17AD6121	
5	17AD4706,17AD4701,17AD4897,17AD6121,17AD4704	

BILL OF MATERIALS

NO.	DESCRIPTION	QUANTITY
1	PIPELINE CONCRETE MARKER TYPE 'A'	6
2	PIPELINE WARNING SIGNBOARD	2
3	CATHODIC PROTECTION POST	1
4	3M MARKER	2
5		
6		

REFERENCE DRAWING :

NO.	DRAWING TITLE	DRAWING NO.
1	LOCATION PLAN & PIPELINE ROUTE MAP	QMS/MS/KINTAVALLEY/FLST3_18/0010_ZS
2	SCHEMATIC DIAGRAM AND VALVE DESIGNATION	QMS/MS/KINTAVALLEY/FLST3_18/0020_ZS
3	CERTIFIED PLAN	

REVISION :

NO.	DATE	DESCRIPTION	DESIGN	DRAWN	CHK.	APPR.
00	JAN 2021	ASBUILT DRAWING	SMSB	SOSC	WB	TAHK
01	FEB 2021	ASBUILT DRAWING	SMSB	SOSC	WB	TAHK

OWNER: **GAS MALAYSIA BERHAD.**  
NO.5, JALAN SERENDAH 26/7,  
SEKSYEN 26,  
40132 SHAH ALAM,  
SELANGOR DARUL EHSAN.  
TEL NO : 03 - 5192-3000  
FAX NO : 03 - 5192-6766

CONTRACTOR: **SYUKRAN MAJU SDN BHD**  
NO.10-01, JALAN BM7/19 (B10236-U)  
SEKSYEN 7, BANDAR BUKIT MAHKOTA  
43000 KAJANG  
SELANGOR DARUL EHSAN  
Tel: 03-89126379 Fax: 03-89129658  
Email: syukranmajud@yahoo.com

COMPETENT PERSON ENDORSEMENT  
NAME:   
REG. NO.:   
DATE:

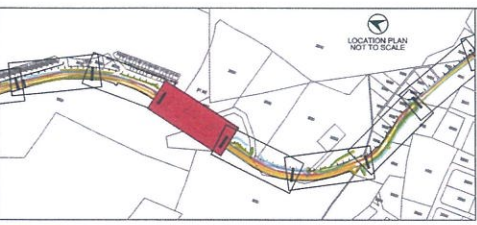
UTILITIES & UNDERGROUND MAPPING CONTRACTOR:  
**SURVEY CONSULTANTS**  
S.O SURVEY CONSULTANTS

LICENSED LAND SURVEYOR :-  
  
SYED OMAR SYED HAMID  
A015 (UTM), MS(M), MALAYSIA  
Last Survey License Issue Act: 4/2 (1987/2010)

PROJECT TITLE:  
EPCC OF NATURAL GAS DISTRIBUTION SYSTEM TO  
KINTA VALLEY FL STAGE 3/18  
LAHAT - SIMPANG PULAI  
IPOH, PERAK

DRAWING TITLE:  
ASBUILT DRAWING  
CH 9200.00 - CH 9500.00

DRAWING NO.	SMSB/GMB/KINTAVALLEY/FLST3_18/AS/32	REV	01
DESIGNED BY	SMSB	OWNED APPROVAL	
DRAWN BY	SOSC		
CHECKED BY	WB		
APPROVED BY	TAHK		
DATE	FEB 2021		
SCALE	AS SHOWN	PLAN NO:	50/2018/P11/3/AS-32



AS-BUILT COORDINATES

POINTS	SURVEYOR CP CASSINI		GPS RTKNET (GPS) CASSINI	
	NORTH	EAST	NORTH	EAST
(E) CP1	-37843.516	31634.018	-37854.757	31637.939
(E) CP2	-37878.707	31749.303	-37883.906	31753.644

- SURVEY CORRIDOR
- ROAD LINE
  - FEATURE MAXIS
  - DMS
  - GELCOM
  - TELECOM
  - ELECTRIC 132kV
  - ELECTRIC 33kV
  - ELECTRIC 11kV
  - ELECTRIC 0.4kV
  - WATER 600mm
  - WATER 450mm
  - WATER 100mm

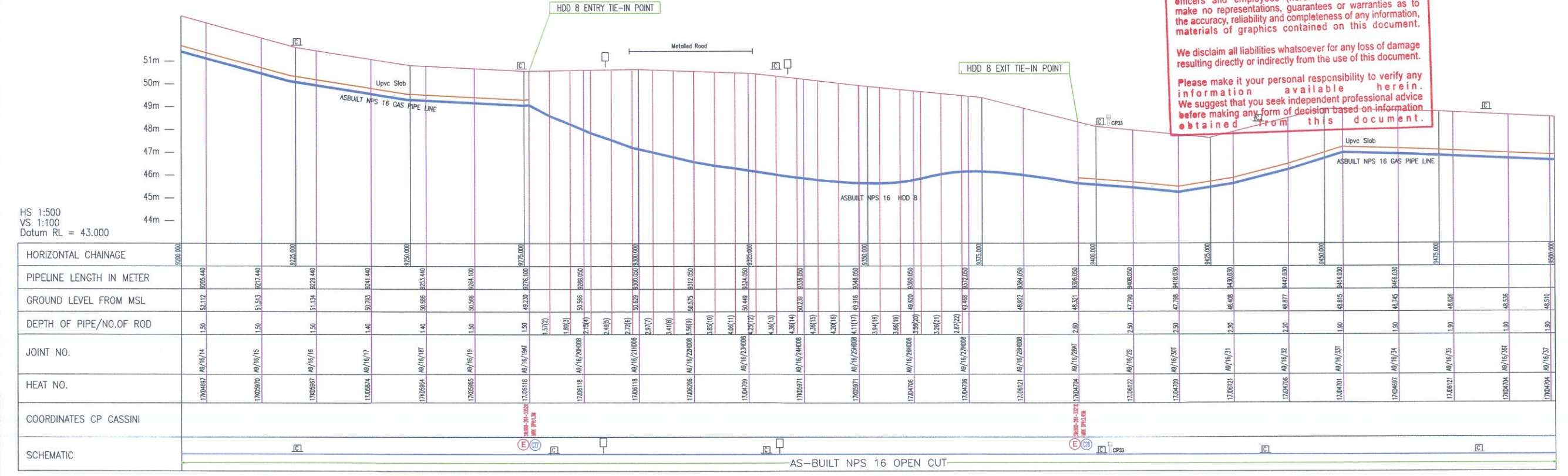
- SURVEYOR LEGEND :
- MANHOLE COVER (ELECTRIC)
  - MANHOLE COVER (WATER)
  - MANHOLE COVER (SEWAGE)
  - MANHOLE COVER (DRAINAGE)
  - MANHOLE COVER (GAS)
  - GAS VALVE
  - WATER VALVE
  - LAMP POST
  - ELECTRIC POST
  - TELECOM POST
  - DISTRIBUTION CABINET
  - TRANSFORMER CABINET
  - GAS MARKER
  - POWER CABLE WITH 1.5M FROM SURFACE
  - WATER PIPE DEPTH 1.5M FROM SURFACE

PERAK

POINTS	CASSINI		RSO	
	NORTH	EAST	NORTH	EAST
P63	-37833.815	31688.168	366479.010	345145.290
P64	-37922.367	31761.077	366390.201	345217.895

NOTES:  
i) All measurements are in metre.  
ii) This map is compiled on the System Cassini Perak, Datum GDM2006 Geocentric  
iii) All Level Base On BM A 2019 RL= 44987, At Left Side jalan Simpang Pulai - Lahat Near KM13 road marker and in front of shop lot.  
iv) All Data and Position Of HDD based on report by Syukran Maju

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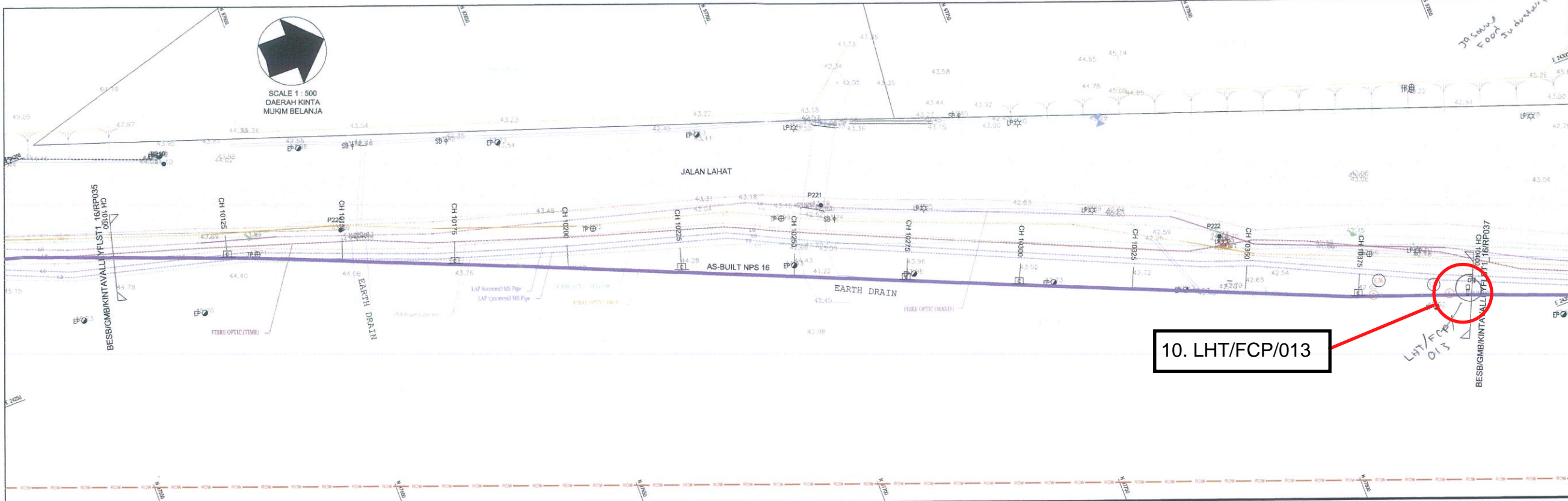


HORIZONTAL CHAINAGE	9200.000	9225.000	9250.000	9275.000	9300.000	9325.000	9350.000	9375.000	9400.000	9425.000	9450.000	9475.000	9500.000
PIPELINE LENGTH IN METER	205.440	207.440	209.440	211.440	213.440	215.440	217.440	219.440	221.440	223.440	225.440	227.440	229.440
GROUND LEVEL FROM MSL	50.12	50.15	50.18	50.21	50.24	50.27	50.30	50.33	50.36	50.39	50.42	50.45	50.48
DEPTH OF PIPE/NO.OF ROD	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
JOINT NO.	1700587	1700587	1700587	1700587	1700587	1700587	1700587	1700587	1700587	1700587	1700587	1700587	1700587
HEAT NO.	1700587	1700587	1700587	1700587	1700587	1700587	1700587	1700587	1700587	1700587	1700587	1700587	1700587
COORDINATES CP CASSINI													
SCHEMATIC													

AS-BUILT NPS 16 OPEN CUT  
LONGITUDINAL SECTION CH 9200.00 - CH 9500.00  
SCALES HS 1:500 VS 1:100







DESIGN DETAILS	
1. DESIGN CODE	ASME B 31.8
2. DESIGN PRESSURE/M.A.O.P	2483 kPag
3. NORMAL OPERATING PRESSURE RANGE	1034 ~ 2483 kPag
4. MIN. SPECIFIED TEST PRESSURE	3724 kPag
5. MATERIAL	STEEL
6. CLASS LOCATION	4
7. DESIGN TEMPERATURE	15~55°C
8. FLOWRATE	

MATERIAL SPECIFICATION		
PIPE SPECIFICATION	DIAMETER	WALL THICKNESS (mm)
API 5 L X 42	NPS 16	4.8mm
API 5 L X 42	NPS 8	4.8mm

LEGENDS:	
	FUTURE STEEL FEEDER LINE (MPA)
	AS-BUILT NPS 16 FEEDER LINE (MPA)
	OPEN VALVE
	CLOSE VALVE
	PIPELINE WARNING MARKER (CONCRETE-TYPE 'A')
	PIPELINE WARNING MARKER (CONCRETE-TYPE 'B')
	CATHODIC PROTECTION POST
	PIPELINE WARNING MARKER (FLUSH)
	CATHODIC PROTECTION (STREAM AND ROAD CROSSING)
	ELECTRONIC MARKER
	MONITORING CHAMBER
	TAKE-OFF POINT
	END CAP
	PIPELINE WARNING MARKER (FLUSH-MOUNTED TEST CHAMBER)
	SURVEY COORDINATES
	CATHODIC PROTECTION (FLUSH MOUNTED TEST CHAMBER)
	THRUST BLOCK

NO.	HEAT NO.	MANUFACTURER
01		HULU DAO CITY STEEL PIPE INDUSTRIAL COMPANY LIMITED, CHINA

REFERENCE DRAWING		
NO.	DRAWING TITLE	DRAWING NO.
1	AS-BUILT GAS PIPELINE ROUTE	BESB/CMB/KINTAVALLEYFLST_16_0000
2	SCHEMATIC DIAGRAM & VALVE DESIGNATION	BESB/CMB/AS/NINTAVALLEYFLST_16_0000
3	CERTIFIED PLAN	

REVISION							
NO.	DATE	DESCRIPTION	ISSUED FOR APPROVAL	DESIGN	DRAWN	CHKD	APPR.
0	17/01/2017	ISSUED FOR APPROVAL	BESB	MS	MZG	MKH	

**OWNER:** **GAS MALAYSIA BERHAD**  
 NO.5, JALAN SERENDAH 26/17, SEKSYEN 26, 40732 SHAH ALAM, SELANGOR DARUL EHSAN.

**CONTRACTOR:** **Broadgate ENGINEERING (M) SDN.BHD.**  
 No 18-2, Jalan Anggerik Vanilla R31/R, Kota Kemuning, 40460 Shah Alam, Selangor Darul Ehsan. Tel: 03-5122 2805 Fax: 03-5122 2801

**CERTIFIED BY COMPETENT PERSON:**

NAME: **M. MOHD KHAIROL ANWAR**  
 REG. NO.: 028  
 DATE: 17/01/2017

**UTILITIES & UNDERGROUND MAPPING CONTRACTOR:**

**MSI global NETWORK**  
 No. 8A Jalan Alor 1, Bandar Tun Razak, 56000 Cheras, Kuala Lumpur. Tel: 019-204 3395 Fax: 03-9171 5461

**LICENSE SURVEYOR:**

**SERI AMAN**  
 Survey Consultant  
 NO. 1-53 Jalan Kajang Impian 1/11, Taman Kajang Impian, 43650 Bandar Baru Bangi, Selangor Darul Ehsan. Tel: 603-9174 0000 Fax: 603-9174 0000 E-Mail: ms@seriaman.com.my

**PROJECT TITLE:**  
 EPOC OF NATURAL GAS DISTRIBUTION SYSTEM TO KINTA VALLEY FL STAGE 1/16 (BEMBAN - LAHAT)  
 PERAK DARUL RIDZUAN

**DRAWING TITLE:**  
 AS-BUILT ROUTE & PROFILE CH. 8000.00 TO CH. 10100.00 (NPS 16) (JALAN LAHAT)

**DRAWING NO.:** BESB/CMB/KINTAVALLEYFLST\_16/RP036 **REV. 0**

DESIGNED: BESB  
 DRAWN: MS  
 CHECKED: MZG  
 APPROVED: MKH  
 DATE: 17/01/2017  
 SCALE: AS-SHOWN

**OWNER APPROVAL:**

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 Please make it your personal responsibility to verify any information available herein. We suggest that you seek independent professional advice before making any form of decision based on information obtained from this document.

AS-BUILT COORDINATES					
POINTS	SURVEYOR CP CASSINI		GPS RTKNET (GPS) CASSINI		3M MARKER
	NORTH	EAST	NORTH	EAST	
E1	N97816.707	E24333.516	N97818.372	E24330.815	000-226-1258X
E2	N97832.511	E24338.117	N97829.428	E24335.951	000-226-1172X

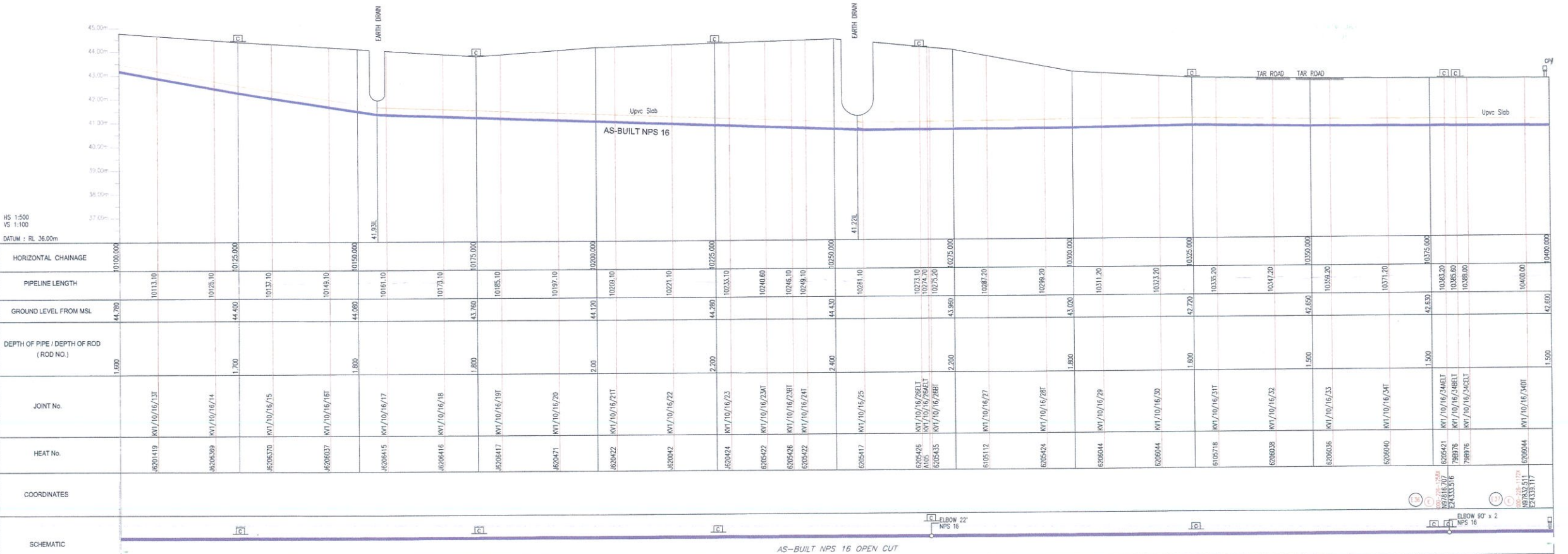
**SURVEYOR LEGEND:**

- WP WATER PIPE
- CEL CABLE
- TRNSM TRANSMITTER
- LAMP POST
- EP ELECTRIC POST
- TL TELECOM POST
- TL TRAFFIC LIGHT
- SB SIGNBOARD
- CM GAS MARKER
- SBG SIGNBOARD GAS
- MH MANHOLE ROUND
- MSH MANHOLE SQUARE
- MWG MANHOLE GAS
- THW THE WAREHOUSE
- EPB ELECTRIC BOX (TYPE)
- JBM WATER METER
- KMP KILN METER POST
- ROAD
- DRAINAGE
- CLUTTER / COVERED DRAIN
- CUTTING
- CLUTTER RAIL
- R.O.P.

**PERAK**

POINTS	CASSINI		RSO	
	NORTH	EAST	NORTH	EAST
P219	97576.806	24212.118	501911.156	338164.464
P220	97608.362	24239.350	501942.605	338191.854
P221	97709.720	24271.594	502043.629	338224.443
P222	97789.824	24309.188	502123.781	338262.339

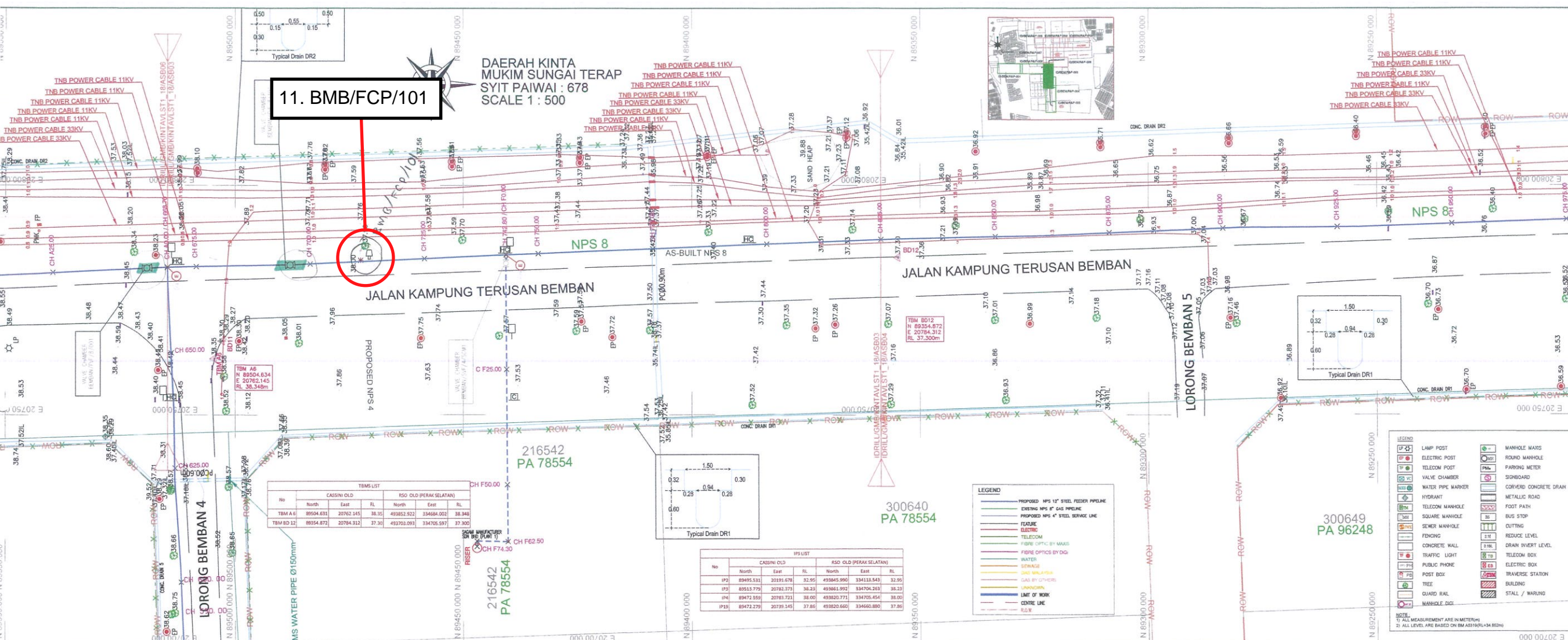
Note: ALL LEVEL ARE BASE ON BM 5318 (RL: 47.405m) AT LEFT HAND SIDE OF JALAN PUSING - TRENCH NEAREST SIGNBOARD BATU GAJAH.



**LONG SECTION CH. 10100.00 - CH. 10400.00 (NPS 16)**  
 SCALES HOR 1 : 500 VER 1 : 100

**11. BMB/FCP/101**

DAERAH KINTA  
 MUKIM SUNGAI TERAP  
 SYIT PAIWAJ : 678  
 SCALE 1 : 500



**DESIGN DETAILS**

NO.	PIPELINE SYSTEM	MPA	MPB
1	PIPELINE SYSTEM	MPA	MPB
2	DESIGN CODE	ASME B 31.8	N/A
3	DESIGN PRESSURE/MAOP	2700 kPa/g	N/A
4	OPERATING PRESSURE RANGE	1534 ~ 2700 kPa/g	N/A
5	MIN. SPECIFIED TEST PRESSURE	4050 kPa/g	N/A
6	MATERIAL	STEEL	N/A
7	CLASS LOCATION		N/A
8	DESIGN TEMPERATURE	15 ~ 55°C	N/A
9	WINDLOAD		N/A

**LEGENDS:-**

- EXISTING STEEL FEEDER LINE (NPS 8)
- AS-BUILT STEEL FEEDER LINE (NPS 8)
- AS-BUILT STEEL SERVICE LINE (NPS 4)

**LEGENDS:-**

- SERVICE STATION (MPA)
- PIPELINE CONCRETE MARKER TYPE 'A'
- PIPELINE CONCRETE MARKER TYPE 'B'
- CATHODIC PROTECTION POST
- PIPELINE WARNING SIGNBOARD
- CATHODIC PROTECTION (FLUSH MOUNTED TEST CHAMBER)
- ELECTRONIC MARKER
- OPEN VALVE
- CLOSE VALVE
- TAKE-OFF POINT
- END CAP
- PIPELINE MARKER (FLUSH TYPE)
- SURVEY COORDINATES

**MATERIALS SPECIFICATION**

PIPE SPECIFICATION	DIAMETER	WALL THICKNESS (mm)
API 5L X42	NPS 8	5.6
API 5L X42	NPS 4	4.8

**HEAT NO AND MANUFACTURER**

HEAT NO.	MANUFACTURER

**BILL OF MATERIALS**

DESCRIPTION	QUANTITY
Cathodic Protection (CP)	1 NO
Signboard	1 NO
Stone Marker Type B	5 NOS
Warning Signboard	3 NOS
Electronic Marker (EM)	2 NOS
Valve 8" 3000	1 NO
Valve 4" 3000	1 NO

**REFERENCE DRAWING :**

NO.	DRAWING TITLE:	DRAWING NO.:
1	LOCATION PLAN AND PIPELINE ROUTE MAP	GMB/NES/KINTAVLSTI_18/001C_25
2	SCHEMATIC DRAWING AND VALVE DESIGNATION	GMB/NES/KINTAVLSTI_18/002C_25
3	CERTIFIED PLAN	PA78554, PA96248

**REVISION :**

NO.	DATE	DESCRIPTION	DESIGN	DRAWN	CHK.	APPR.
00		FOR APPROVAL		BSSC		

**OWNER:**  
**GAS MALAYSIA BERHAD.**  
 NO.5, JALAN SERENDAH 26/17,  
 SEKSYEN 26,  
 40732 SHAH ALAM,  
 SELANGOR DARUL EHSAN,  
 TEL NO : 03 - 5192-3000  
 FAX NO : 03 - 5192-6766

**CONTRACTOR:**  
**I DRILL PIPELINES CONSTRUCTORS SDN BHD**  
 No 17-3, Jalan USJ 2/11, UEP Subang Jaya,  
 47600, Selangor Darul Ehsan  
 Tel: 03-8021 5254 Fax: 03-8081 5251

**COMPETENT PERSON ENDORSEMENT**  
 NAME :  
 REG. NO :  
 DATE : 2/10/2018

**UTILITIES MAPPING CONTRACTOR & LICENSED SURVEYOR:**  
**BUMI SOLUTIONS SURVEY CONSULTANT**  
 C2-1A, JALAN PRIMA SAUJANA 2/B,  
 SEKSYEN 2, TAMAN PRIMA SAUJANA  
 43000 KAJANG, SELANGOR DARUL EHSAN  
 Tel: 012-3258203 019-7553960

**PROJECT TITLE:**  
 EPCC OF NATURAL GAS DISTRIBUTION SYSTEM TO  
 KINTA VALLEY FL STAGE 1 (18,  
 BEMBAN INDUSTRIAL AREA)  
 PERAK DARUL RIDZUAN

**DRAWING TITLE:**  
 AS-BUILT ROUTE & PROFILE DRAWING  
 NPS 8" STEEL FEEDER LINE  
 CH 590.00 TO CH 825.00  
 NPS 4" STEEL SERVICE LINE  
 CH F0.00 TO CH F74.20

**DRAWING NO:** IDRILL/GMB/KINTAVLSTI\_18/ASB03  
**DESIGNED BY:** IDRILL  
**DRAWN BY:** BSSC  
**CHECKED BY:** IDRILL  
**APPROVED BY:** GMB  
**DATE:** OCT 2018  
**SCALE:** As Shown  
**REV:** 00  
**PLAN NO:** ID/BEMBAN/R&P\_001

**TIMES LIST**

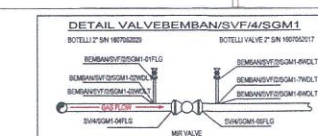
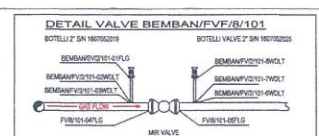
NO.	CASSINI OLD	RSO OLD (PERAK SELATAN)				
1	North East RL	North East RL				
TBM A 6	89564.831	20762.145	38.35	493852.822	334684.002	38.344
TBM B 12	89554.872	20784.312	37.30	493703.093	334705.597	37.300

**IPS LIST**

NO.	CASSINI OLD	RSO OLD (PERAK SELATAN)				
1	North East RL	North East RL				
IP1	89495.331	20309.678	32.99	493845.990	334132.543	32.995
IP2	89513.779	20782.373	38.23	493861.992	334704.263	38.233
IP3	89472.859	20783.731	38.00	493820.771	334705.454	38.000
IP19	89472.279	20789.145	37.85	493820.660	334660.880	37.860

**AS-BUILT COORDINATES**

POINTS	SURVEYOR CP CASSINI	GPS RTKNET (GPS) CASSINI		
	NORTH EAST	NORTH EAST		
IP 3	89515.091	20761.896	493867.567	334509.472
IP 4	89440.354	20784.954	493792.825	334512.243



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**SCALE HS 1 : 500**  
**SCALE VS 1 : 100**

Datum RL : 22.00m

PIPELINE CHAINAGE	PIPELINE LENGTH IN METRE	GROUND LEVEL FROM H.S.	DEPTH OF PIPE / DEPTH OF SIGNAL BEACON (MCD NO.)	JOINT NO.	HEAT NO.	COORDINATES	METHOD OF CONSTRUCTION	SCHEMATIC
17462300	06/0/43	1.42	18.72	001				
17462300	06/0/44	1.46	18.72	002				
17462300	06/0/45	1.46	18.72	003				
17462300	06/0/46	1.46	18.72	004				
17462300	06/0/47	1.46	18.72	005				
17462300	06/0/48	1.46	18.72	006				
17462300	06/0/49	1.46	18.72	007				
17462300	06/0/50	1.46	18.72	008				
17462300	06/0/51	1.46	18.72	009				
17462300	06/0/52	1.46	18.72	010				
17462300	06/0/53	1.46	18.72	011				
17462300	06/0/54	1.46	18.72	012				
17462300	06/0/55	1.46	18.72	013				
17462300	06/0/56	1.46	18.72	014				
17462300	06/0/57	1.46	18.72	015				
17462300	06/0/58	1.46	18.72	016				
17462300	06/0/59	1.46	18.72	017				
17462300	06/0/60	1.46	18.72	018				
17462300	06/0/61	1.46	18.72	019				
17462300	06/0/62	1.46	18.72	020				
17462300	06/0/63	1.46	18.72	021				
17462300	06/0/64	1.46	18.72	022				
17462300	06/0/65	1.46	18.72	023				
17462300	06/0/66	1.46	18.72	024				
17462300	06/0/67	1.46	18.72	025				
17462300	06/0/68	1.46	18.72	026				
17462300	06/0/69	1.46	18.72	027				
17462300	06/0/70	1.46	18.72	028				
17462300	06/0/71	1.46	18.72	029				
17462300	06/0/72	1.46	18.72	030				
17462300	06/0/73	1.46	18.72	031				
17462300	06/0/74	1.46	18.72	032				
17462300	06/0/75	1.46	18.72	033				
17462300	06/0/76	1.46	18.72	034				
17462300	06/0/77	1.46	18.72	035				
17462300	06/0/78	1.46	18.72	036				
17462300	06/0/79	1.46	18.72	037				
17462300	06/0/80	1.46	18.72	038				
17462300	06/0/81	1.46	18.72	039				
17462300	06/0/82	1.46	18.72	040				
17462300	06/0/83	1.46	18.72	041				
17462300	06/0/84	1.46	18.72	042				
17462300	06/0/85	1.46	18.72	043				
17462300	06/0/86	1.46	18.72	044				
17462300	06/0/87	1.46	18.72	045				
17462300	06/0/88	1.46	18.72	046				
17462300	06/0/89	1.46	18.72	047				
17462300	06/0/90	1.46	18.72	048				
17462300	06/0/91	1.46	18.72	049				
17462300	06/0/92	1.46	18.72	050				
17462300	06/0/93	1.46	18.72	051				
17462300	06/0/94	1.46	18.72	052				
17462300	06/0/95	1.46	18.72	053				
17462300	06/0/96	1.46	18.72	054				
17462300	06/0/97	1.46	18.72	055				
17462300	06/0/98	1.46	18.72	056				
17462300	06/0/99	1.46	18.72	057				
17462300	06/0/100	1.46	18.72	058				
17462300	06/0/101	1.46	18.72	059				
17462300	06/0/102	1.46	18.72	060				
17462300	06/0/103	1.46	18.72	061				
17462300	06/0/104	1.46	18.72	062				
17462300	06/0/105	1.46	18.72	063				
17462300	06/0/106	1.46	18.72	064				
17462300	06/0/107	1.46	18.72	065				
17462300	06/0/108	1.46	18.72	066				
17462300	06/0/109	1.46	18.72	067				
17462300	06/0/110	1.46	18.72	068				
17462300	06/0/111	1.46	18.72	069				
17462300	06/0/112	1.46	18.72	070				
17462300	06/0/113	1.46	18.72	071				
17462300	06/0/114	1.46	18.72	072				
17462300	06/0/115	1.46	18.72	073				
17462300	06/0/116	1.46	18.72	074				
17462300	06/0/117	1.46	18.72	075				
17462300	06/0/118	1.46	18.72	076				
17462300	06/0/119	1.46	18.72	077				
17462300	06/0/120	1.46	18.72	078				
17462300	06/0/121	1.46	18.72	079				
17462300	06/0/122	1.46	18.72	080				
17462300	06/0/123	1.46	18.72	081				
17462300	06/0/124	1.46	18.72	082				
17462300	06/0/125	1.46	18.72	083				
17462300	06/0/126	1.46	18.72	084				
17462300	06/0/127	1.46	18.72	085				
17462300	06/0/128	1.46	18.72	086				
17462300	06/0/129	1.46	18.72	087				
17462300	06/0/130	1.46	18.72	088				
17462300	06/0/131	1.46	18.72	089				
17462300	06/0/132	1.46	18.72	090				
17462300	06/0/133	1.46	18.72	091				
17462300	06/0/134	1.46	18.72	092				
17462300	06/0/135	1.46	18.72	093				
17462300	06/0/136	1.46	18.72	094				
17462300	06/0/137	1.46	18.72	095				
17462300	06/0/138	1.46	18.72	096				
17462300	06/0/139	1.46	18.72	097				
17462300	06/0/140	1.46	18.72	098				
17462300	06/0/141	1.46	18.72	099				
17462300	06/0/142	1.46	18.72	100				
17462300	06/0/143	1.46	18.72	101				
17462300	06/0/144	1.46	18.72	102				
17462300	06/0/145	1.46	18.72	103				
17462300	06/0/146	1.46	18.72	104				
17462300	06/0/147	1.46	18.72	105				
17462300	06/0/148	1.46	18.72	106				
17462300	06/0/149	1.46	18.72	107				
17462300	06/0/150	1.46	18.72	108				
17462300	06/0/151	1.46	18.72	109				

SAGAMI MANUFACTURER SDN BND (PLANT 2)

216540 PA 96247 IAC ELECTRICALS

SURUHANJAYA TENAGA  
JABATAN GAS  
NO 12, JLN TUN HUSSEIN ONN,  
PRECINCT 2,  
62100 PUTRAJAYA,  
WILAYAH PERSEKUTUAN.

DESIGN DETAILS		
1	PIPELINE SYSTEM	MPA
2	DESIGN CODE	AGME B 31.8
3	DESIGN PRESSURE/MAOP	2700 kPa
4	OPERATING PRESSURE RANGE	1034 ~ 2700 kPa
5	MIN. SPECIFIED TEST PRESSURE	4200 kPa
6	MATERIAL	STEEL
7	CLASS LOCATION	4
8	DESIGN TEMPERATURE	15 ~ 50°C
9	FLOWRATE	N/A

LEGENDS:-

	EXISTING STEEL FEEDER LINE (NPS 8)		AS-BUILT STEEL FEEDER LINE (NPS 8)
	AS-BUILT STEEL SERVICE LINE (NPS 8)		AS-BUILT STEEL SERVICE LINE (NPS 4)

● SERVICE STATION (MPA)  
 PIPELINE CONCRETE MARKER TYPE 'A'  
 PIPELINE CONCRETE MARKER TYPE 'B'  
 CATHODIC PROTECTION POST  
 PIPELINE WARNING SIGNBOARD  
 CATHODIC PROTECTION (FLUSH MOUNTED TEST CHAMBER)  
 ELECTRONIC MARKER

MATERIALS SPECIFICATION

PIPE SPECIFICATION	DIAMETER	WALL THICKNESS (mm)
API 5L X42	NPS 8	5.6
API 5L X42	NPS 4	4.8

HEAT NO AND MANUFACTURER

HEAT NO.	MANUFACTURER

BILL OF MATERIALS

DESCRIPTION	QUANTITY
Cathodic Protection (CP)	1 NO
Slope Marker Type B	7 NOS
Warning Signboard	1 NO
Electronic Marker (EM)	3 NOS
Valve 8" 300	2 NOS

REFERENCE DRAWING :

NO	DRAWING TITLE	DRAWING NO.
1	LOCATION PLAN AND PIPELINE ROUTE MAP	GMB/NDS/KINTAVLST1_18/001C_ZS
2	SCHEMATIC DIAGRAM AND VALVE DESIGNATION	GMB/NDS/KINTAVLST1_18/002C_ZS
3	CERTIFIED PLAN	PA96247

REVISION :

NO.	DATE	DESCRIPTION	DESIGN	DRAWN	CHK.	APPR.
00		FOR APPROVAL		BSSC		

OWNER:  
**GAS MALAYSIA BERHAD.**  
 NO.5, JALAN SERENDAH 26/17,  
 SEKSYEN 26,  
 40732 SHAH ALAM,  
 SELANGOR DARUL EHSAN,  
 TEL. NO : 03 - 5182-3000  
 FAX NO : 03 - 5182-6766

CONTRACTOR:  
  
**I DRILL PIPELINES CONSTRUCTION SDN. BHD.**  
 No 17-A, Jalan USJ 21/1, LEP Subang Jaya,  
 47600, Selangor Darul Ehsan  
 Tel: 03-8021 5254 Fax: 03-8081 5251

COMPETENT PERSON ENDORSEMENT  
 NAME :  
 REG. NO :  
 DATE : 2/10/2018

UTILITIES MAPPING CONTRACTOR & LICENSED SURVEYOR:  
  
**BUMI SOLUTIONS SURVEY CONSULTANT**  
 C2-1A, JALAN PRIMA SAJAJANA2B,  
 SEKSYEN 2, TAMAN PRIMA SAJAJANA  
 43000 KAJANG, SELANGOR DARUL EHSAN  
 Tel: 012-3258203 019-7553960

PROJECT TITLE:  
 EPCC OF NATURAL GAS DISTRIBUTION SYSTEM TO  
 KINTA VALLEY FL STAGE 1/1B,  
 (BEBAN INDUSTRIAL AREA)  
 PERAK DARUL RIDZUAN

DRAWING TITLE:  
 AS-BUILT ROUTE & PROFILE DRAWING  
 NPS 8" STEEL FEEDER LINE  
 CH A0.00 TO CH A125.00  
 AND NPS 8" CH E0.00 TO CH E145.30

DESIGNED BY	IDRILL	OWNER APPROVAL	
DRAWN BY	BSSC		
CHECKED BY	IDRILL		
APPROVED BY	GMB		
DATE	OCT 2018		

12. BMB/FCP/201

AS-BUILT COORDINATES

POINTS	SURVEYOR CP CASSINI		GPS RTKNET (GPS) CASSINI	
	NORTH	EAST	NORTH	EAST
89609.333	20778.980	489961.811	334506.913	
89613.091	20916.074	489965.048	334644.011	
89613.312	20921.808	489965.247	334648.745	

IPS LIST

No	CASSINI OLD			RSO OLD (PERAK SELATAN)		
	North	East	RL	North	East	RL
IP2	89495.531	20191.678	32.80	493461.990	334131.543	32.86
IP3	89513.779	20782.373	38.23	493861.892	334704.263	38.23
IP7	89611.733	20779.169	39.02	493959.949	334701.431	39.02
IP17	89634.076	20901.684	38.12	493961.829	334823.947	38.12
IP18	89622.356	20901.666	39.34	493970.126	334823.962	39.34

TRIMS LIST

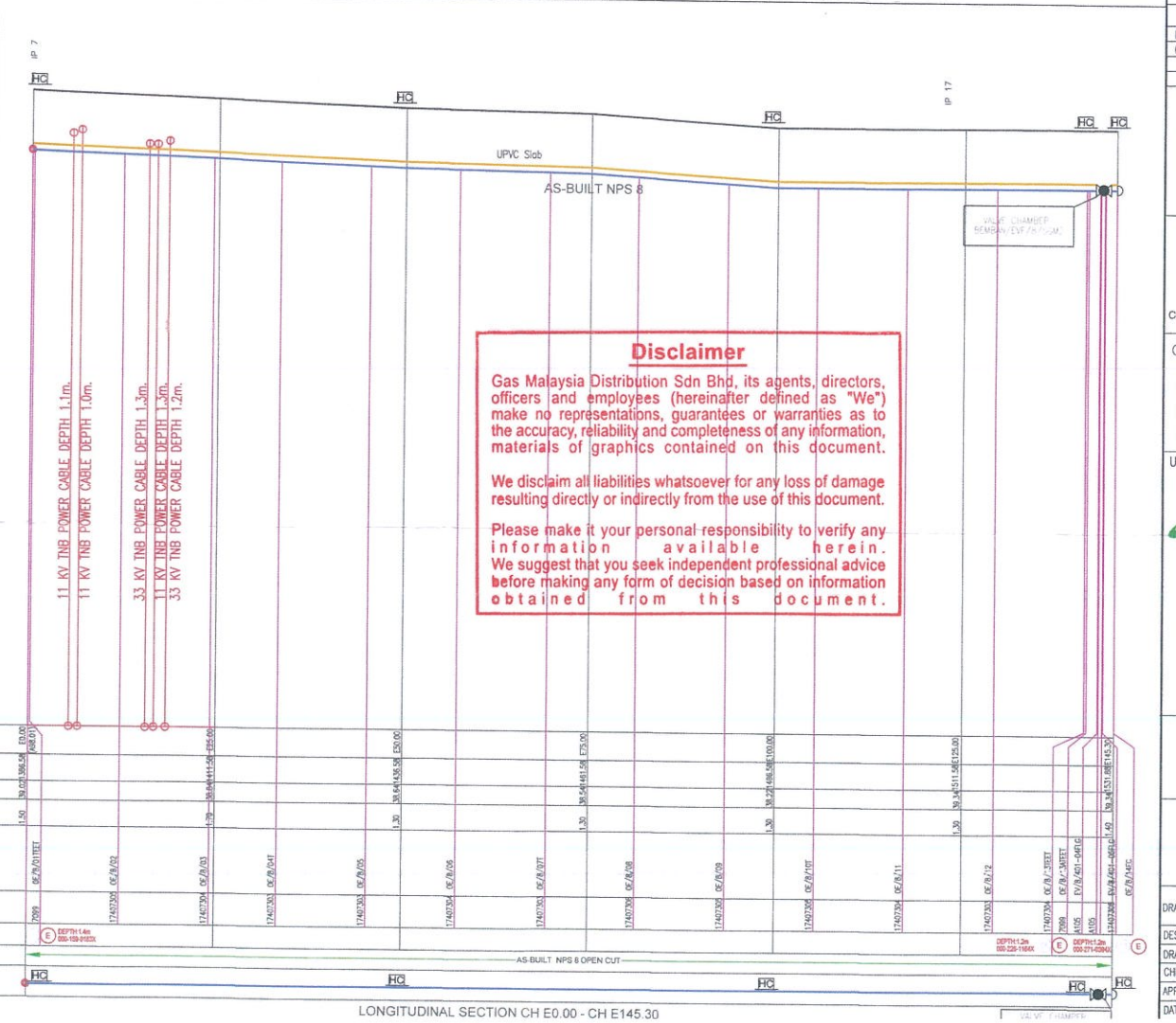
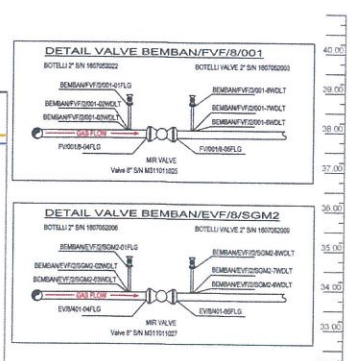
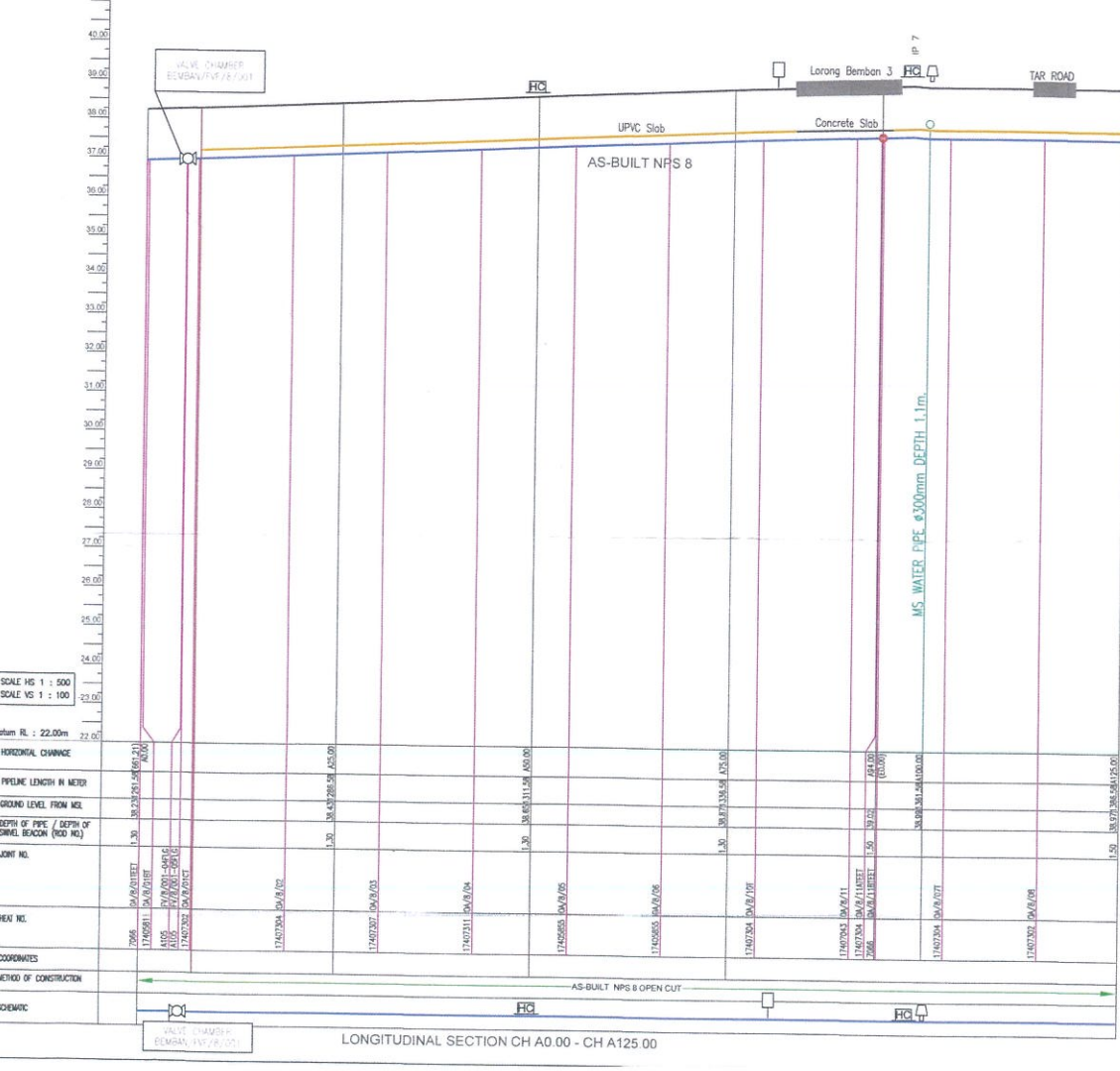
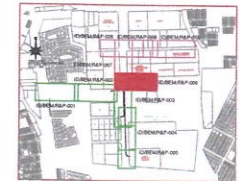
No	CASSINI OLD			RSO OLD (PERAK SELATAN)		
	North	East	RL	North	East	RL
TRM 80 13	89136.600	20791.437	36.27	493464.814	334711.891	36.274
TRM 80 14	89887.466	20900.253	35.75	493925.660	334720.139	35.790



DAERAH KINTA  
 MUKIM SUNGAI TERAP  
 SYIT PAWAI : 678  
 SCALE 1 : 500

LEGEND

	PROPOSED NPS 12" STEEL FEEDER PIPELINE		EXISTING NPS 8" GAS PIPELINE
	PROPOSED NPS 4" STEEL SERVICE LINE		FEEDER
	ELECTRIC		TELECOM MANHOLE
	FIBRE OPTIC BY MANHOLE		WATER
	SEWERAGE		GAS BY OTHERS
	UNKNOWN		LIMIT OF WORK
	CENTRE LINE		R.S.K.



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SCALE HS 1 : 500  
 SCALE VS 1 : 100

Horizontal CHANCE

PIPELINE LENGTH IN METER	GROUND LEVEL FROM MSL	DEPTH OF PIPE / DEPTH OF SMOKE BEACON (RSD NO)	JOINT NO.

HEAT NO.

COORDINATES

METHOD OF CONSTRUCTION

SCHEMATIC

SCALE HS 1 : 500  
 SCALE VS 1 : 100

Horizontal CHANCE

PIPELINE LENGTH IN METER	GROUND LEVEL FROM MSL	DEPTH OF PIPE / DEPTH OF SMOKE BEACON (RSD NO)	JOINT NO.

HEAT NO.

COORDINATES

METHOD OF CONSTRUCTION

SCHEMATIC



MUKIM HULU KINTA  
DAERAH KINTA  
NEGERI PERAK  
SKALA 1 : 500

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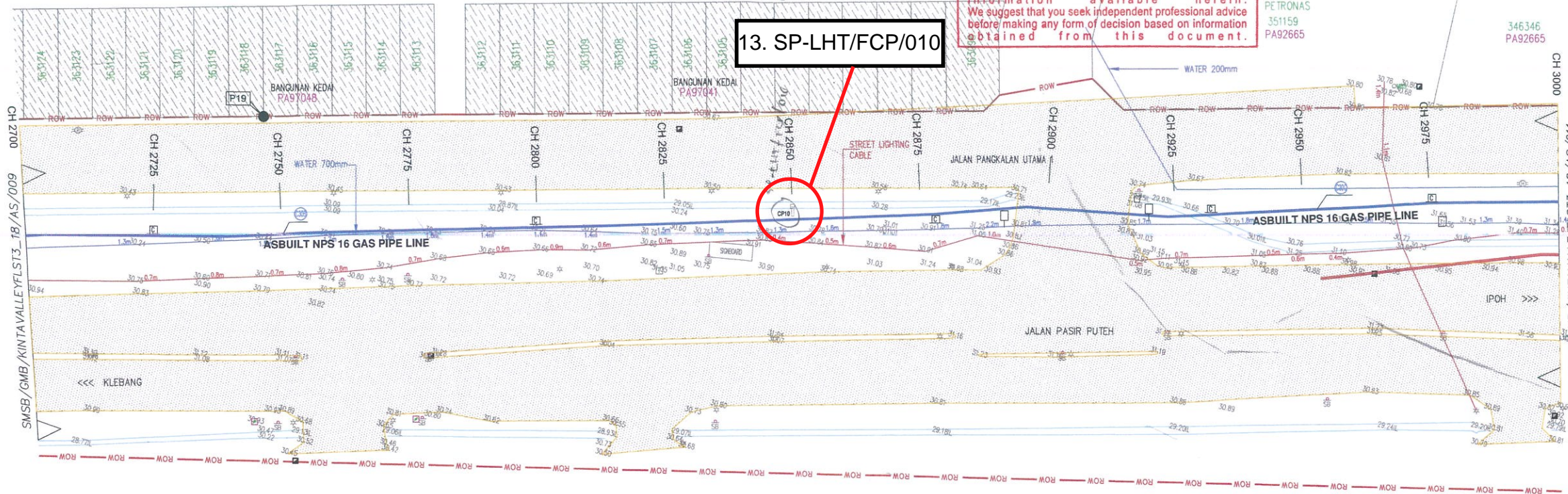
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PETRONAS  
351159  
PA92665

346346  
PA92665

13. SP-LHT/FCP/010



**SURUHANJAYA TENAGA**  
JABATAN GAS  
NO 12, JLN TUN HUSSEIN ONN,  
PRECINCT 2,  
62100 PUTRAJAYA,  
WILAYAH PERSEKUTUAN.

NO.	DESIGN DETAILS	MPB	MPB
1	PIPELINE SYSTEM	ADME B 31.8	MPB
2	DESIGN CODE	2483 MPkg	N/A
3	DESIGN PRESSURE/WOP	1034 - 2483 MPkg	N/A
4	OPERATING PRESSURE RANGE	3724 MPkg	N/A
5	MIN. SPECIFIED TEST PRESSURE		N/A
6	MATERIAL	STEEL	N/A
7	CLASS LOCATION	4	N/A
8	DESIGN TEMPERATURE	15°C-30°C	N/A

**LEGENDS:**

ASBUILT NPS 16 SERVICE LINE (NPS)	ASBUILT RISER
PIPELINE CONCRETE MARKER TYPE 'X'	OPEN VALVE
PIPELINE CONCRETE MARKER TYPE 'Y'	CLOSE VALVE
CATHODIC PROTECTION POST	TAKE-OFF POINT
PIPELINE WARNING SIGNBOARD	END CAP
CATHODIC PROTECTION (FLUSH MOUNTED TEST CHAMBER)	PIPELINE WARNING MARKER (FLUSH)
ELECTRONIC MARKER	ASBUILT COORDINATES

**MATERIALS SPECIFICATION**

NO.	DESCRIPTION	TYPE	MIN. WALL THICKNESS
1	ASBUILT NPS 16	API 5L X 42	7.9mm

**HEAT NO AND MANUFACTURE**

NO.	HEAT NO	MANUFACTURE
1	17K5971,17K5967,17K5965,17K5966,17K5967,17K5968,17K5969,17K5970,17K5971,17K5972,17K5973,17K5974,17K5975,17K5976,17K5977,17K5978,17K5979,17K5980,17K5981,17K5982,17K5983,17K5984,17K5985,17K5986,17K5987,17K5988,17K5989,17K5990,17K5991,17K5992,17K5993,17K5994,17K5995,17K5996,17K5997,17K5998,17K5999,17K6000	HULLOCO, CHINA

**BILL OF MATERIALS**

NO.	DESCRIPTION	QUANTITY
1	PIPELINE CONCRETE MARKER TYPE 'X'	5
2	CATHODIC PROTECTION POST	1
3	PIPELINE WARNING SIGNBOARD	2
4		
5		
6		

**REFERENCE DRAWING :**

NO.	DRAWING TITLE	DRAWING NO.
1	LOCATION PLAN & PIPELINE ROUTE MAP	GMS/AS/KINTAVALLEYFLS13_18/0000_25
2	SCHEMATIC DIAGRAM AND VALVE DESIGNATION	GMS/AS/KINTAVALLEYFLS13_18/0000_25
3	CERTIFIED PLAN	

**REVISION :**

NO.	DATE	DESCRIPTION	DESIGN	DRAWN	CHK.	APPR.
00	JAN 2021	ASBUILT DRAWING	SMSB	SOSC	WB	TAHK
01	FEB 2021	ASBUILT DRAWING	SMSB	SOSC	WB	TAHK

**OWNER:**  
**GAS MALAYSIA BERHAD.**  
NO.5, JALAN SENDAH 26/17,  
SEKSYEN 26,  
40732 SHAH ALAM,  
SELANGOR DARUL EHSAN  
TEL NO : 03 - 5192-3000  
FAX NO : 03 - 5192-6766

**CONTRACTOR:**  
**SYUKRAN MAJU SDN BHD**  
NO.10-01, JALAN BMT/19 (810236-1)  
SEKSYEN 7, BANDAR BUKIT MAHKOTA  
43000 KAJANG  
SELANGOR DARUL EHSAN  
Tel: 03-89126379 Fax: 03-89129658  
Email : syukranmajusdn@yahoo.com

**COMPETENT PERSON ENDORSEMENT**  
NAME :  
REG. NO :  
DATE :

**UTILITIES & UNDERGROUND MAPPING CONTRACTOR:**  
**SURAB CONSULTANTS**  
302A, Lorong Perak  
Melawati Square  
Taman Melawati  
53100 Kuala Selangor  
Tel: 03-41005696  
Fax: 03-41005798

**LICENSED LAND SURVEYOR :**  
SYED OMAR SYED HAMID  
AUS (UTM), MRO(M), MAL(SM)  
Lis. Survei (Jumlah Under Act. 48 (Revised 2017))

**PROJECT TITLE:**  
EPPC OF NATURAL GAS DISTRIBUTION SYSTEM TO  
KINTA VALLEY FL STAGE 3/18  
LAHAT SIMPANG PULAI  
IPOH, PERAK

**DRAWING TITLE:**  
ASBUILT DRAWING  
CH 2700.00 - CH 3000.00

DRAWING NO.	SMSB/GMS/KINTAVALLEYFLS13_18/AS/10	REV	01
DESIGNED BY	SMSB	OWNER APPROVAL:	
DRAWN BY	SOSC		
CHECKED BY	WB		
APPROVED BY	TAHK		
DATE	FEB 2021		
SCALE	AS SHOWN	PLAN NO:	SO/2016/P11/3/AS-10

**AS-BUILT COORDINATES**

POINTS	SURVEYOR CP CASSINI		GPS RTKNET (GPS) CASSINI	
	NORTH	EAST	NORTH	EAST
P19	-35172.252	27503.914	-35174.084	27509.383
P20	-35122.138	27699.653	-35123.836	27704.420

**SURVEYOR LEGEND :**

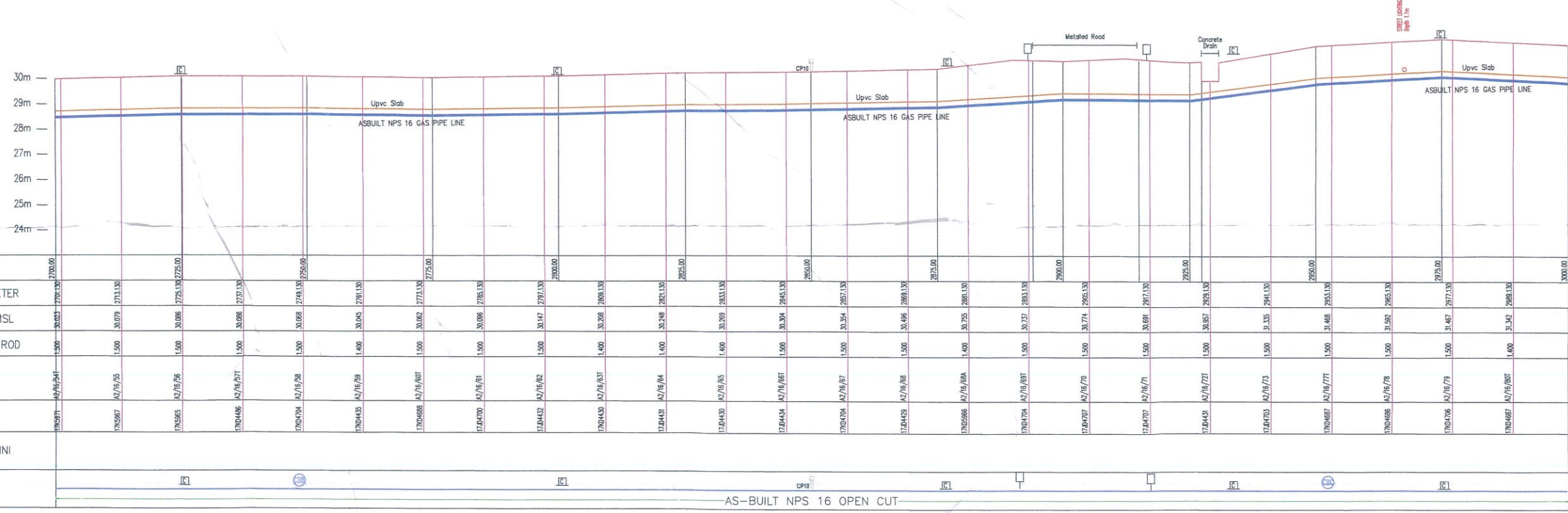
MANHOLE COVER (ELECTRIC)	MANHOLE COVER (WATER)	MANHOLE COVER (SEWAGE)	MANHOLE COVER (DRAINAGE)	MANHOLE COVER (GAS)	MANHOLE COVER (UNKNOWN)	WATER VALVE	GAS VALVE	ELECTRIC POST	TELECOM POST	DISTRIBUTION CABINET	TRANSFORMER CABINET	GAS MANHOLE	MANHOLE SIGN	MANHOLE GAS	TWO MANHOLE
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**PERAK**

POINTS	CASSINI		RSO	
	NORTH	EAST	NORTH	EAST
P19	-35150.997	27494.960	36976.569	34096.176
P20	-35157.57	27789.363	36968.964	34125.574

**NOTES:**

- All measurements are in metre.
- This map is compiled on the System Cassini Perak, Datum GDM2006 Geocentric.
- All Level Base On BM A 2019 RL= 44987, At Left Side jalan Simpang Pulai - Lahat Near KM13 road marker and in front of shop lot.
- All Date and Position Of HDD based on report by Syukran Maju.



HS 1:500  
VS 1:100  
Datum RL = 23.000

	2700.00	2725.00	2750.00	2775.00	2800.00	2825.00	2850.00	2875.00	2900.00	2925.00	2950.00	2975.00	3000.00
HORIZONTAL CHAINAGE	2700.00	2725.00	2750.00	2775.00	2800.00	2825.00	2850.00	2875.00	2900.00	2925.00	2950.00	2975.00	3000.00
PIPELINE LENGTH IN METER	0.00	27.13	54.26	81.39	108.52	135.65	162.78	189.91	217.04	244.17	271.30	298.43	325.56
GROUND LEVEL FROM MSL	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00
DEPTH OF PIPE/NO.OF ROD	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
JOINT NO.		52	56	60	64	68	72	76	80	84	88	92	96
HEAT NO.		17K5967	17K5968	17K5969	17K5970	17K5971	17K5972	17K5973	17K5974	17K5975	17K5976	17K5977	17K5978
COORDINATES CP CASSINI													
SCHEMATIC													

AS-BUILT NPS 16 OPEN CUT  
LONGITUDINAL SECTION CH 2700.00 - CH 3000.00  
SCALES HS 1:500 VS 1:100



NO.	PIPELINE SYSTEM	DESIGN CODE	DESIGN PRESSURE/MAOP	OPERATING PRESSURE RANGE	MIN. SPECIFIED TEST PRESSURE	MATERIAL	CLASS LOCATION	DESIGN TEMPERATURE				
1	ASBUILT NPS 16 SERVICE LINE (MFA)	MFA	2483 kPa	1724 - 2483 kPa	2724 kPa	STEEL	4	15°C - 50°C				
2	PIPELINE CONCRETE MARKER TYPE 'A'	ASME B 31.8	N/A	N/A	N/A	N/A	N/A	N/A				
3	PIPELINE CONCRETE MARKER TYPE 'B'	N/A	N/A	N/A	N/A	N/A	N/A	N/A				
4	CATHODIC PROTECTION POST	N/A	N/A <tr <td>5</td> <td>PIPELINE WARNING SIGNBOARD</td> <td>N/A</td> <td>N/A</td> <td>N/A</td> <td>N/A</td> <td>N/A</td> <td>N/A</td> <td>N/A</td>	5	PIPELINE WARNING SIGNBOARD	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6	CATHODIC PROTECTION (FLUSH MOUNTED TEST CHAMBER)	N/A	N/A	N/A	N/A	N/A	N/A	N/A				
7	ELECTRONIC MARKER	N/A	N/A	N/A	N/A	N/A	N/A	N/A				

**LEGENDS:-**

ASBUILT NPS 16 SERVICE LINE (MFA)	ASBUILT RISER
PIPELINE CONCRETE MARKER TYPE 'A'	OPEN VALVE
PIPELINE CONCRETE MARKER TYPE 'B'	CLOSE VALVE
CATHODIC PROTECTION POST	TAKE-OFF POINT
PIPELINE WARNING SIGNBOARD	END CAP
CATHODIC PROTECTION (FLUSH MOUNTED TEST CHAMBER)	PIPELINE WARNING MARKER (FLUSH)
ELECTRONIC MARKER	ASBUILT COORDINATES

**MATERIALS SPECIFICATION**

DIA. OF PIPE	TYPE OF PIPE	MIN. WALL THICKNESS
NPS 16	API SL X 42	7.9mm

**HEAT NO AND MANUFACTURE**

NO.	HEAT NO.	MANUFACTURER
1	17.05975,17.06008,17.06039,17.06118	HULLCOA, CHINA
2	17.06120,17.06117,17.06204,17.06288,17.06367	HULLCOA, CHINA
3	17.06367,17.06368,17.06369,17.06370,17.06371,17.06372	HULLCOA, CHINA
4	17.06373,17.06374,17.06375,17.06376,17.06377	HULLCOA, CHINA
5	17.06378,17.06379,17.06380,17.06381,17.06382	HULLCOA, CHINA
6	17.06383,17.06384,17.06385,17.06386,17.06387	HULLCOA, CHINA
7	17.06388,17.06389,17.06390,17.06391,17.06392	HULLCOA, CHINA
8	17.06393,17.06394,17.06395,17.06396,17.06397	HULLCOA, CHINA
9	17.06398,17.06399,17.06400,17.06401,17.06402	HULLCOA, CHINA
10	17.06403,17.06404,17.06405,17.06406,17.06407	HULLCOA, CHINA

**BILL OF MATERIALS**

NO.	DESCRIPTION	QUANTITY
1	PIPELINE CONCRETE MARKER TYPE 'A'	4
2	PIPELINE WARNING SIGNBOARD	2
3	3M MARKER	1
4	CATHODIC PROTECTION POST	1
5	EQUAL Tee	1
6		

**REFERENCE DRAWING :**

NO.	DRAWING TITLE	DRAWING NO.
1	LOCATION PLAN & PIPELINE ROUTE MAP	QMS/AGS/KINTAVALLEYFLST3_18/0200_25
2	SCHEMATIC DIAGRAM AND VALVE DESIGNATION	QMS/AGS/KINTAVALLEYFLST3_18/0200_25
3	CERTIFIED PLAN	

**REVISION :**

NO.	DATE	DESCRIPTION	DESIGN	DRAWN	CHK.	APPR.
00	JAN 2021	ASBUILT DRAWING	SMSB	SOUC	WB	TAHK
01	FEB 2021	ASBUILT DRAWING	SMSB	SOUC	WB	TAHK

**OWNER:**  
**GAS MALAYSIA BERHAD.**  
 NO.5, JALAN SERENDAH 26/17,  
 SEKSYEN 26,  
 40732 SHAH ALAM,  
 SELANGOR DARUL EHSAN.  
 TEL NO : 03 - 5192 - 3000  
 FAX NO : 03 - 5192 - 6766

**CONTRACTOR:**  
**SYUKRAN MAJU SDN BHD**  
 NO.10-01, JALAN BM7/19 (810236-01)  
 SEKSYEN 7, BANDAR BUKIT MAHKOTA  
 43000 KAJANG  
 SELANGOR DARUL EHSAN  
 Tel: 03-89126379 Fax: 03-89129658  
 Email : syukranmajubyahoo.com

**COMPETENT PERSON ENDORSEMENT**  
 NAME :  
 REG. NO :  
 DATE :

**UTILITIES & UNDERGROUND MAPPING CONTRACTOR:**  
**SYREY CONSULTANTS**  
 902A, Lorong Perak  
 Melawati Square  
 Tropicana Mallpark  
 53100 Kuala Lumpur  
 Tel: 03 - 41056999  
 Fax: 03 - 41061788  
 S.O SURVEY CONSULTANTS

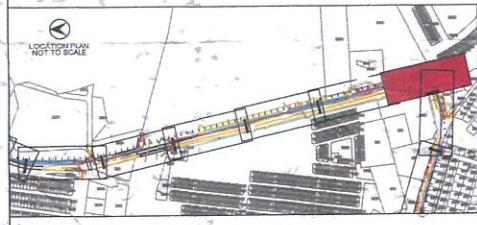
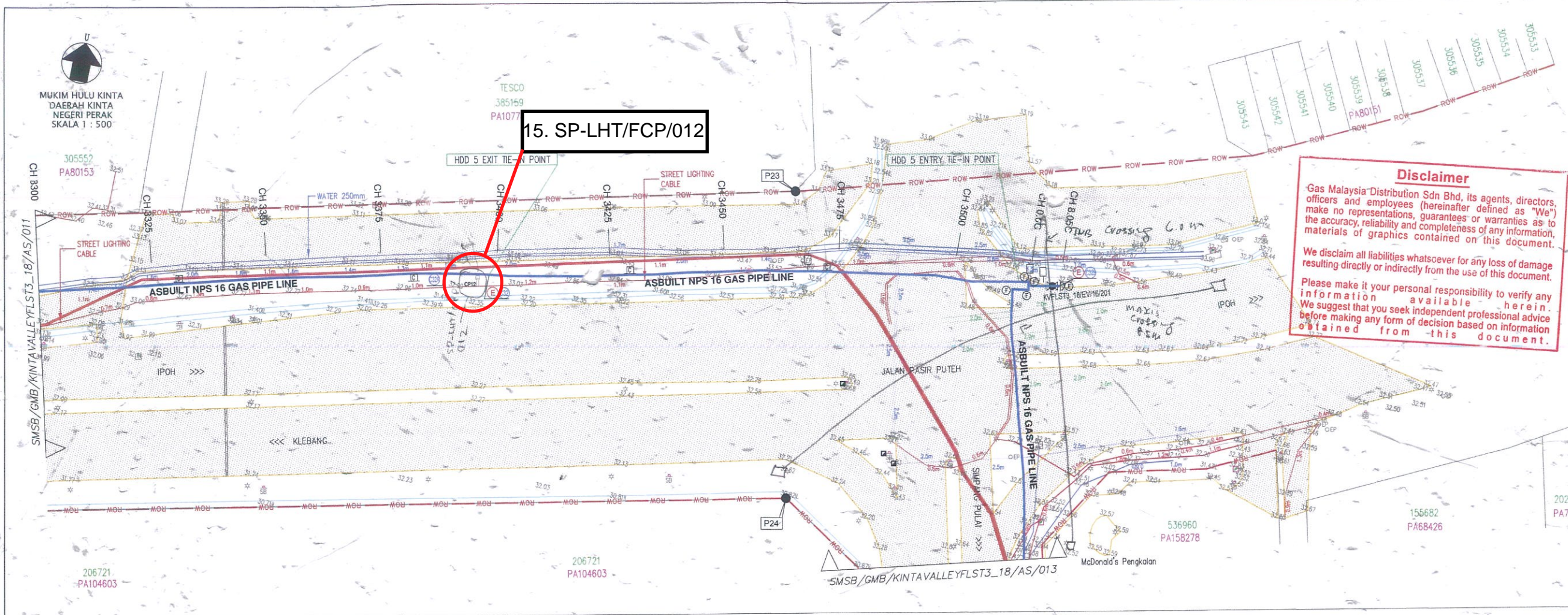
**LICENSED LAND SURVEYOR :-**  
 SYED OMAR SYED HAMID  
 (AUS), (MIS), (MALAYSIA)  
 Lead Survey Licensed Under Act. 68 (Amended 2017)

**PROJECT TITLE:**  
 EPGC OF NATURAL GAS DISTRIBUTION SYSTEM TO  
 KINTA VALLEY FL STAGE 3/18 -  
 LAHAT - SIMPANG PULAI  
 IPOH, PERAK

**DRAWING TITLE:**  
 ASBUILT DRAWING  
 CH 3300.00 - CH 3500.00  
 CH 0.00 B - CH 8.05 B

**DRAWING NO:** SMSB/GMB/KINTAVALLEYFLST3\_18/AS/12  
**DESIGNED BY:** SMSB  
**DRAWN BY:** ZAH  
**CHECKED BY:** WB  
**APPROVED BY:** TAHK  
**DATE:** FEB 2021  
**SCALE:** AS SHOWN

**OWNER APPROVAL:**  
 PLAN NO: SO/2018/P11/3/AS-12



**AS-BUILT COORDINATES**

POINTS	SURVEYOR GP CASSINI		GPS RTKNET (GPS) CASSINI	
	NORTH	EAST	NORTH	EAST
P23	-35013.377	28122.314	-35016.817	28125.136
P24	-34976.421	28284.742	-35011.409	28135.822
P25	-34987.208	28253.949	-34984.387	28259.217

**SURVEYOR LEGEND :**

WP	WATER PIPE	EB	ELECTRIC BOX (TNB)
CB	CABLE	WM	WATER MARKER
H	HYDRANT	FM	FRAMING MARKER
LP	LAMP POST	HP	HYDROMETER POST
EP	ELECTRIC POST	TL	TRAFFIC LIGHT
TP	TELECOM POST	SB	SIGNBOARD
TL	TRAFFIC LIGHT	GM	GAS MARKER
SB	SIGNBOARD	SG	SIGNBOARD GAS
GM	GAS MARKER	MH	MANHOLE ROUND
SG	SIGNBOARD GAS	MS	MANHOLE SQUARE
MH	MANHOLE ROUND	MHS	MANHOLE GAS
MS	MANHOLE SQUARE	TMB	TMB MARKER
MHS	MANHOLE GAS		
TMB	TMB MARKER		

**PERAK**

POINTS	CASSINI		RSO	
	NORTH	EAST	NORTH	EAST
P23	-34979.745	28193.079	35035.380	341656.945
P24	-35045.215	28205.691	34979.864	341672.328

