Site Information & Scope of Work

Site Information

Site Name : KAFCO
Site Code : 20-FAU-102

Site Address : To be provided later.

Coordinates : N 22° 13' 51.0 " : E 91° 49' 37.2 "
** Coordinates are surveyed by handy type GPS and might be inaccurate.*

Site Type

☐	Control Center	☐	Master Telemetry Station
☐	Gas Field	☐	Operating Company Terminal (OCT)
☐	CGS (City Gas Station)	☑	Power station/Fertilizer Factory
☐	Compressor Station	☐	TBS (Town Bordering Station)
☐	Pig Station	☐	DRS (District Regulating Station)
☐	MS (Metering Station)	☐	GMS (Gas Manifold Station)
☐	VS (Valve Station)		

Site Status
☑ Originally covered by The Existing System and shall be covered by The New System.
☐ Currently not covered by The Existing System but shall be covered by The New System.
☐ Upcoming site which will be covered by The New System after the completion of the Project.

Operating Company : BGSL

Remarks : _____

Scope of Work

Works checked off hereinafter shall be carried out for the Project

1. SCADA System

■ : RTU

☑ RTU without display monitor
Design, supply and install a self-standing IP65 enclosure equipped with following items:
- RTU
- Instrumentation and communication equipment
- Backup battery system with charger for 24 hours
- Lighting
- Anti-condensation heater
- Earthing and lightning protection
- All internal wiring
- Other equipment to satisfy the functional requirements

☐ RTU with display monitor
Design, supply and install a self-standing IP65 enclosure equipped with following items:
- RTU
- Display monitor
- Instrumentation and communication equipment
- Backup battery system with charger for 24 hours
- Lighting
- Anti-condensation heater
- Earthing and lightning protection
- All internal wiring
- Other equipment to satisfy the functional requirements

☐ RTU (design & supply only)
Design and supply self-standing IP65 enclosure equipped with following items:
- RTU
- Instrumentation and communication equipment
- Backup battery system with charger for 24 hours
- Lighting
- Anti-condensation heater
- Earthing and lightning protection
- All internal wiring
- Other equipment to satisfy the functional requirements

☐ Interface with flow computer
Make provision for:
- Installation of the flow computer which shall be prepared by GTCL in the enclosure
- Interface between RTU and the said flow computer

☐ Interface with receiver for turbine meter
Install the existing receiver for turbine meter(s) in the RTU enclosure and interface it (them) via communication (MODBUS) cable.

☐ Interface with other system
Provide the interface between RTU and other system such as PLC or PC operated by the operating company including all communication cables between RTU and other system.

☐ Cable between RTU and Master Telemetry Station
Design, supply and install the cable between RTU and Master Telemetry Station in case RTU and Master Telemetry Station are located in the same site.

■ : Instruments

☑ Existing instruments
Re-use the existing instruments and cables.

Note:
Existing instruments and cables shall be serviced by the Employer.

☐ New Instruments
Design, supply and install the following instruments.
Output signals from instruments are to be cabled via field junction box to the RTU.

■ : Pressure transmitters Q'ty

☐ Design, supply and intall:
- Pressure transmitter on the existing spare tapping point
- Tubing between tapping point and transmitter

☐ Prepare the tapping point for the pressure transmitter, and design, supply and install:
- Pressure transmitter on the prepared tapping point
- Tubing between tapping point and transmitter

■ : Differential pressure transmitters Q'ty

☐ Design, supply and install:
- Differential pressure transmitter on the existing spare tapping point
- Tubing between tapping point and transmitter

☐ Prepare the tapping point for the differential pressure transmitter, and design, supply and install:
- Differential pressure transmitter on the tapping point
- Tubing between tapping point and transmitter

■ : Temprature transmitters Q'ty

☐ Design, supply and install:
- Thermowell in the spare boss on the pipe
- Resistance temperature detector complete with a head mounted transmitter into the thermowell

■ : Limit switch Q'ty

☐ Design, supply and install the limit switch on the existing shutdown valve for valve position monitoring.

☐ Pick up Signal from the Existing Turbine Meter Q'ty
Supply and install a dual pulse output pickup head in place of the single pulse output pickup in the existing turbine flowmeter sensor head. The output signal from the existing turbine flowmeter to be cabled via junction box to RTU.

☐ Local Field Instrument Junction Box Q'ty
Design, supply and install an Intrinsic safety junction box. The junction box to be suitable for glanding appropriate cables.

☐ Instrument Cables
Design, supply, install the instrument cables from the field instruments to RTU via junction box including each cable termination with gland.

2. Communication System

■ : Slave Telemetry System

☑ Removal of existing slave telemetry equipment
Remove and dispose the existing slave telemetry system including antenna and cable.

☑ Slave Telemetry Equipment
Design, supply and install new slave telemetry equipment in the RTU enclosure, including cables and antenna.

☐ Slave Telemetry Equipment (design & supply only)
Design and supply new slave telemetry equipment in the RTU enclosure, including cables and antenna.

☑ Existing monopole
Re-use existing monople to mount new antenna.

☐ New monopole
Design, supply and install new monopole with foundation to mount new antenna.

☐ New monopole (design & supply only)
Design and supply new monopole to mount new antenna.

3. Electrical Works

■ : Power Supply to RTU

☑ Electrical power shall be supplied to RTU from existing PDB, and existing power cable shall be re-used.

☐ Design, supply and install MCB box for the power supply to RTU including all cables from existing PDB to MCB box and from MCB box to RTU.

☐ Design, supply and intall power controller and power cable to RTU at remote site where electrical power is supplied from existing solar panel.

☐ Design, supply and install new solar panel, power controller and power cable to RTU.

4. Civil Works

■ : Foundation & Sunshade for RTU

☑ Re-use existing foundation & sunshade for RTU
Examine the condition of existing foundation and sunshade for RTU and repair the defects, if any.

☐ Provide new foundation & sunshade for RTU
Design and construct the foundation and sunshade for new RTU at suitable location. The foundation and sunshade should be designed to suitably accommodate new RTU.

■ : Instrument Stand with Foundation & Sunshade

☑ Re-use existing Instrument stand(s) with foundation & sunshade
Examine the condition of existing Instrument stand(s) with foundation & sunshade and repair the defects, if any.

☐ Provide new Instrument stand(s) with foundation & sunshade
Design and construct the Instrument stand(s) with foundation & sunshade at suitable location. It should be designed to suitably accommodate the required number of instruments and explosion proof instrument field junction box.

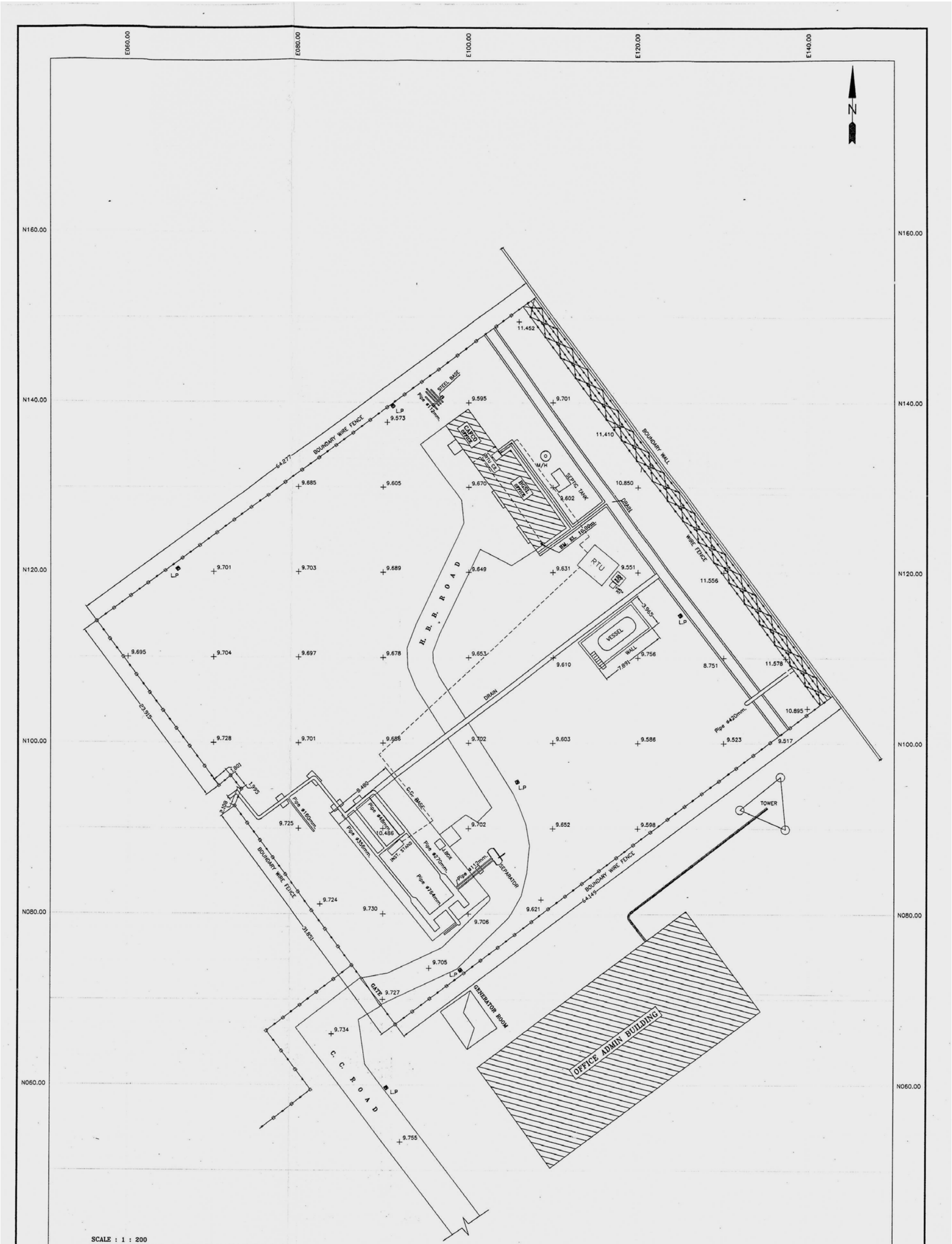
5. Site Photo

Existing RTU

Existing Instrument Stand

6. Site Layout

See attached Layout Plan.



SCALE : 1 : 200

NOTE:

BM. MARKED ON THE PLINTH LEVEL SOUTH-WEST CORNER OF OFFICE BUILDING AS SHOWN ON THE DRAWING.
EL=10.00m (Assumed)
THIS AREA IS ABOVE H.F.L.(Local information)
LATITUDE 22°-13.85' LONGITUDE 91°-49.62'

Parsons Brinckerhoff Limited (PBL)
AS BUILT
Employer's Representative :
Date : 05-12-2004

ISSUE	Revision	Date	D.O. Ref
A	ISSUED FOR DESIGN APPROVAL		-
B	ISSUED FOR DESIGN APPROVAL	25-09-04	-

Contractor: SERCK CONTROLS Ltd
CONTRACT DRAWING APPROVAL
Drawing Status: DESIGN APPROVAL
REDLINED CHANGES | APPROVED NO CHANGES
PRINT NAME:
SIGNED: DATE:

Sub Contractor: SURVEY CORPORATION
S.O. No.
Employer: GAS TRANSMISSION COMPANY Ltd (GTCL)
Drawing Title: SITE CODE : 123 SITE NAME : CUFCO
THE BANGLADESH GAS INFRASTRUCTURE DEVELOPMENT PROJECT. SUPERVISORY CONTROL, DATA ACQUISITION AND TELECOMMUNICATIONS SYSTEMS.
Drawing No. 123-60-72 | Rev | Sheet | Drig. Size A1

	Drawn	Checked	Approved
BY	HASHEM	M. A. HAYAT	M. A. HADAYET
Date	17-03-99	20-03-99	20-03-99

Consultant: PB Technologies Ltd.
Employer Contract No: GTCL/RL-1109/C2

Site Information & Scope of Work

Site Information

Site Name : Sikalbaha PS
Site Code : 20-FAU-103

Site Address : To be provided later.

Coordinates : N 22° 19' 26.8 " : E 91° 51' 59.1 "
** Coordinates are surveyed by handy type GPS and might be inaccurate.*

Site Type

☐	Control Center	☐	Master Telemetry Station
☐	Gas Field	☐	Operating Company Terminal (OCT)
☐	CGS (City Gas Station)	☑	Power station/Fertilizer Factory
☐	Compressor Station	☐	TBS (Town Bordering Station)
☐	Pig Station	☐	DRS (District Regulating Station)
☐	MS (Metering Station)	☐	GMS (Gas Manifold Station)
☐	VS (Valve Station)		

Site Status
☑ Originally covered by The Existing System and shall be covered by The New System.
☐ Currently not covered by The Existing System but shall be covered by The New System.
☐ Upcoming site which will be covered by The New System after the completion of the Project.

Operating Company : BGSL

Remarks :

Scope of Work

Works checked off hereinafter shall be carried out for the Project

1. SCADA System

■ : RTU

☑ RTU without display monitor
Design, supply and install a self-standing IP65 enclosure equipped with following items:
- RTU
- Instrumentation and communication equipment
- Backup battery system with charger for 24 hours
- Lighting
- Anti-condensation heater
- Earthing and lightning protection
- All internal wiring
- Other equipment to satisfy the functional requirements

☐ RTU with display monitor
Design, supply and install a self-standing IP65 enclosure equipped with following items:
- RTU
- Display monitor
- Instrumentation and communication equipment
- Backup battery system with charger for 24 hours
- Lighting
- Anti-condensation heater
- Earthing and lightning protection
- All internal wiring
- Other equipment to satisfy the functional requirements

☐ RTU (design & supply only)
Design and supply self-standing IP65 enclosure equipped with following items:
- RTU
- Instrumentation and communication equipment
- Backup battery system with charger for 24 hours
- Lighting
- Anti-condensation heater
- Earthing and lightning protection
- All internal wiring
- Other equipment to satisfy the functional requirements

☐ Interface with flow computer
Make provision for:
- Installation of the flow computer which shall be prepared by GTCL in the enclosure
- Interface between RTU and the said flow computer

☐ Interface with receiver for turbine meter
Install the existing receiver for turbine meter(s) in the RTU enclosure and interface it (them) via communication (MODBUS) cable.

☐ Interface with other system
Provide the interface between RTU and other system such as PLC or PC operated by the operating company including all communication cables between RTU and other system.

☐ Cable between RTU and Master Telemetry Station
Design, supply and install the cable between RTU and Master Telemetry Station in case RTU and Master Telemetry Station are located in the same site.

■ : Instruments

☑ Existing instruments
Re-use the existing instruments and cables.

Note:
Existing instruments and cables shall be serviced by the Employer.

☐ New Instruments
Design, supply and install the following instruments.
Output signals from instruments are to be cabled via field junction box to the RTU.

■ : Pressure transmitters Q'ty

☐ Design, supply and intall:
- Pressure transmitter on the existing spare tapping point
- Tubing between tapping point and transmitter

☐ Prepare the tapping point for the pressure transmitter, and design, supply and install:
- Pressure transmitter on the prepared tapping point
- Tubing between tapping point and transmitter

■ : Differential pressure transmitters Q'ty

☐ Design, supply and install:
- Differential pressure transmitter on the existing spare tapping point
- Tubing between tapping point and transmitter

☐ Prepare the tapping point for the differential pressure transmitter, and design, supply and install:
- Differential pressure transmitter on the tapping point
- Tubing between tapping point and transmitter

■ : Temprature transmitters Q'ty

☐ Design, supply and install:
- Thermowell in the spare boss on the pipe
- Resistance temperature detector complete with a head mounted transmitter into the thermowell

■ : Limit switch Q'ty

☐ Design, supply and install the limit switch on the existing shutdown valve for valve position monitoring.

☐ Pick up Signal from the Existing Turbine Meter Q'ty
Supply and install a dual pulse output pickup head in place of the single pulse output pickup in the existing turbine flowmeter sensor head. The output signal from the existing turbine flowmeter to be cabled via junction box to RTU.

☐ Local Field Instrument Junction Box Q'ty
Design, supply and install an Intrinsic safety junction box. The junction box to be suitable for glanding appropriate cables.

☐ Instrument Cables
Design, supply, install the instrument cables from the field instruments to RTU via junction box including each cable termination with gland.

2. Communication System

■ : Slave Telemetry System

☑ Removal of existing slave telemetry equipment
Remove and dispose the existing slave telemetry system including antenna and cable.

☑ Slave Telemetry Equipment
Design, supply and install new slave telemetry equipment in the RTU enclosure, including cables and antenna.

☐ Slave Telemetry Equipment (design & supply only)
Design and supply new slave telemetry equipment in the RTU enclosure, including cables and antenna.

☑ Existing monopole
Re-use existing monople to mount new antenna.

☐ New monopole
Design, supply and install new monopole with foundation to mount new antenna.

☐ New monopole (design & supply only)
Design and supply new monopole to mount new antenna.

3. Electrical Works

■ : Power Supply to RTU

☑ Electrical power shall be supplied to RTU from existing PDB, and existing power cable shall be re-used.

☐ Design, supply and install MCB box for the power supply to RTU including all cables from existing PDB to MCB box and from MCB box to RTU.

☐ Design, supply and intall power controller and power cable to RTU at remote site where electrical power is supplied from existing solar panel.

☐ Design, supply and install new solar panel, power controller and power cable to RTU.

4. Civil Works

■ : Foundation & Sunshade for RTU

☑ Re-use existing foundation & sunshade for RTU
Examine the condition of existing foundation and sunshade for RTU and repair the defects, if any.

☐ Provide new foundation & sunshade for RTU
Design and construct the foundation and sunshade for new RTU at suitable location. The foundation and sunshade should be designed to suitably accommodate new RTU.

■ : Instrument Stand with Foundation & Sunshade

☑ Re-use existing Instrument stand(s) with foundation & sunshade
Examine the condition of existing Instrument stand(s) with foundation & sunshade and repair the defects, if any.

☐ Provide new Instrument stand(s) with foundation & sunshade
Design and construct the Instrument stand(s) with foundation & sunshade at suitable location. It should be designed to suitably accommodate the required number of instruments and explosion proof instrument field junction box.

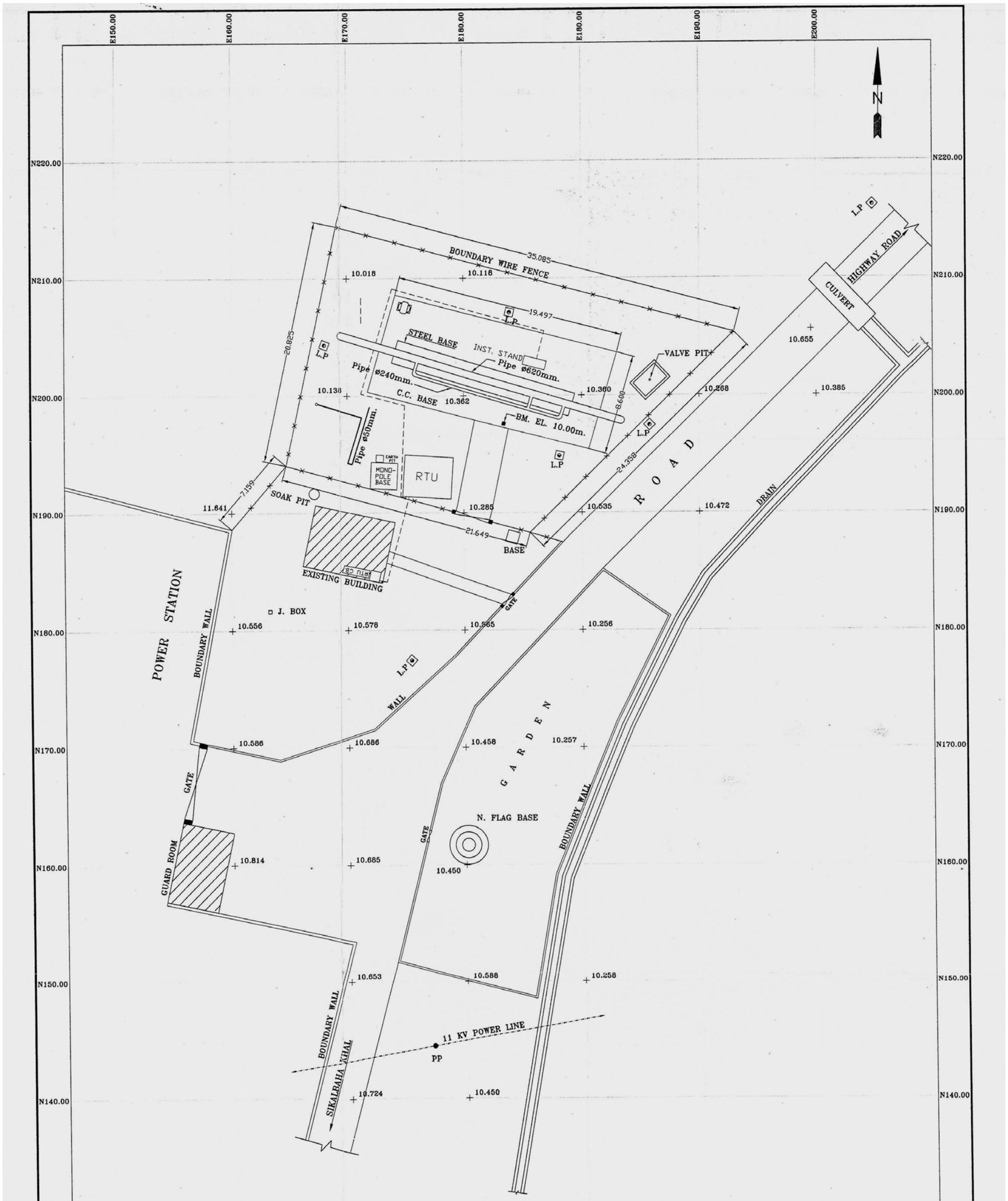
5. Site Photo

Site view

Existing Instrument Stand

6. Site Layout

See attached Layout Plan.



SCALE : 1 : 150

NOTE:
BM. MARKED ON THE C.C. BASE NEAR THE INNER ROAD AS SHOWN ON THE DRAWING.
EL=10.00m (Assumed).
THIS AREA IS ABOVE H.F.L.(Local information).
DISTANCE FROM SITE TO HIGHWAY IS 6 Km.
LATITUDE 22°–19.44' LONGITUDE 91°–51.96'

Persons Brinckerhoff Limited (PBL)
AS BUILT
Employer's Representative :
Date : 2/12/2004

ISSUE	Revision	Date	D.O. Ref
A	ISSUED FOR DESIGN APPROVAL		-
B	ISSUED FOR DESIGN APPROVAL	25-09-04	-

Contractor: CONTROLS Ltd
CONTRACT DRAWING APPROVAL
Drawing Status: DESIGN APPROVAL
REDLINED CHANGES | APPROVED NO CHANGES
PRINT NAME: SIGNED: DATE:

Sub Contractor: SURVEY CORPORATION
S.O. No.

Drawing Title
SITE CODE : 124
SITE NAME : SIKALBAHA POWER STATION

Drawing No.	Rev	Sheet	Orig. Size
124-60-72	B		A1

	Drawn	Checked	Approved
BY	HASHEM	M. A. HAYAT	M. A. HADAYET
Date	17-03-99	20-03-99	20-03-99

Employer: GAS TRANSMISSION COMPANY Ltd (GTCL)

THE BANGLADESH GAS INFRASTRUCTURE DEVELOPMENT PROJECT. SUPERVISORY CONTROL, DATA ACQUISITION AND TELECOMMUNICATIONS SYSTEMS.

Consultant: PB Technologies Ltd.
Employer Contract No: GTCL/RL-1109/C2

Site Information & Scope of Work

Site Information

Site Name : Raujan PS
Site Code : 20-FAU-104

Site Address : To be provided later.

Coordinates : N 22° 27' 32.0 " : E 91° 58' 32.4 "
** Coordinates are surveyed by handy type GPS and might be inaccurate.*

Site Type

☐	Control Center	☐	Master Telemetry Station
☐	Gas Field	☐	Operating Company Terminal (OCT)
☐	CGS (City Gas Station)	☑	Power station/Fertilizer Factory
☐	Compressor Station	☐	TBS (Town Bordering Station)
☐	Pig Station	☐	DRS (District Regulating Station)
☐	MS (Metering Station)	☐	GMS (Gas Manifold Station)
☐	VS (Valve Station)		

Site Status
☑ Originally covered by The Existing System and shall be covered by The New System.
☐ Currently not covered by The Existing System but shall be covered by The New System.
☐ Upcoming site which will be covered by The New System after the completion of the Project.

Operating Company : BGSL

Remarks :

Scope of Work

Works checked off hereinafter shall be carried out for the Project

1. SCADA System

■ : RTU

☑ RTU without display monitor
Design, supply and install a self-standing IP65 enclosure equipped with following items:
- RTU
- Instrumentation and communication equipment
- Backup battery system with charger for 24 hours
- Lighting
- Anti-condensation heater
- Earthing and lightning protection
- All internal wiring
- Other equipment to satisfy the functional requirements

☐ RTU with display monitor
Design, supply and install a self-standing IP65 enclosure equipped with following items:
- RTU
- Display monitor
- Instrumentation and communication equipment
- Backup battery system with charger for 24 hours
- Lighting
- Anti-condensation heater
- Earthing and lightning protection
- All internal wiring
- Other equipment to satisfy the functional requirements

☐ RTU (design & supply only)
Design and supply self-standing IP65 enclosure equipped with following items:
- RTU
- Instrumentation and communication equipment
- Backup battery system with charger for 24 hours
- Lighting
- Anti-condensation heater
- Earthing and lightning protection
- All internal wiring
- Other equipment to satisfy the functional requirements

☐ Interface with flow computer
Make provision for:
- Installation of the flow computer which shall be prepared by GTCL in the enclosure
- Interface between RTU and the said flow computer

☐ Interface with receiver for turbine meter
Install the existing receiver for turbine meter(s) in the RTU enclosure and interface it (them) via communication (MODBUS) cable.

☐ Interface with other system
Provide the interface between RTU and other system such as PLC or PC operated by the operating company including all communication cables between RTU and other system.

☐ Cable between RTU and Master Telemetry Station
Design, supply and install the cable between RTU and Master Telemetry Station in case RTU and Master Telemetry Station are located in the same site.

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Re-use the existing instruments and cables.

Note:
Existing instruments and cables shall be serviced by the Employer.

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Design, supply and install the following instruments.
Output signals from instruments are to be cabled via field junction box to the RTU.

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- Pressure transmitter on the existing spare tapping point
- Tubing between tapping point and transmitter

☐ Prepare the tapping point for the pressure transmitter, and design, supply and install:
- Pressure transmitter on the prepared tapping point
- Tubing between tapping point and transmitter

■ : Differential pressure transmitters Q'ty

☐ Design, supply and install:
- Differential pressure transmitter on the existing spare tapping point
- Tubing between tapping point and transmitter

☐ Prepare the tapping point for the differential pressure transmitter, and design, supply and install:
- Differential pressure transmitter on the tapping point
- Tubing between tapping point and transmitter

■ : Temprature transmitters Q'ty

☐ Design, supply and install:
- Thermowell in the spare boss on the pipe
- Resistance temperature detector complete with a head mounted transmitter into the thermowell

■ : Limit switch Q'ty

☐ Design, supply and install the limit switch on the existing shutdown valve for valve position monitoring.

☐ Pick up Signal from the Existing Turbine Meter Q'ty
Supply and install a dual pulse output pickup head in place of the single pulse output pickup in the existing turbine flowmeter sensor head. The output signal from the existing turbine flowmeter to be cabled via junction box to RTU.

☐ Local Field Instrument Junction Box Q'ty
Design, supply and install an Intrinsic safety junction box. The junction box to be suitable for glanding appropriate cables.

☐ Instrument Cables
Design, supply, install the instrument cables from the field instruments to RTU via junction box including each cable termination with gland.

2. Communication System

■ : Slave Telemetry System

☑ Removal of existing slave telemetry equipment
Remove and dispose the existing slave telemetry system including antenna and cable.

☑ Slave Telemetry Equipment
Design, supply and install new slave telemetry equipment in the RTU enclosure, including cables and antenna.

☐ Slave Telemetry Equipment (design & supply only)
Design and supply new slave telemetry equipment in the RTU enclosure, including cables and antenna.

☑ Existing monopole
Re-use existing monople to mount new antenna.

☐ New monopole
Design, supply and install new monopole with foundation to mount new antenna.

☐ New monopole (design & supply only)
Design and supply new monopole to mount new antenna.

3. Electrical Works

■ : Power Supply to RTU

☑ Electrical power shall be supplied to RTU from existing PDB, and existing power cable shall be re-used.

☐ Design, supply and install MCB box for the power supply to RTU including all cables from existing PDB to MCB box and from MCB box to RTU.

☐ Design, supply and intall power controller and power cable to RTU at remote site where electrical power is supplied from existing solar panel.

☐ Design, supply and install new solar panel, power controller and power cable to RTU.

4. Civil Works

■ : Foundation & Sunshade for RTU

☑ Re-use existing foundation & sunshade for RTU
Examine the condition of existing foundation and sunshade for RTU and repair the defects, if any.

☐ Provide new foundation & sunshade for RTU
Design and construct the foundation and sunshade for new RTU at suitable location. The foundation and sunshade should be designed to suitably accommodate new RTU.

■ : Instrument Stand with Foundation & Sunshade

☑ Re-use existing Instrument stand(s) with foundation & sunshade
Examine the condition of existing Instrument stand(s) with foundation & sunshade and repair the defects, if any.

☐ Provide new Instrument stand(s) with foundation & sunshade
Design and construct the Instrument stand(s) with foundation & sunshade at suitable location. It should be designed to suitably accommodate the required number of instruments and explosion proof instrument field junction box.

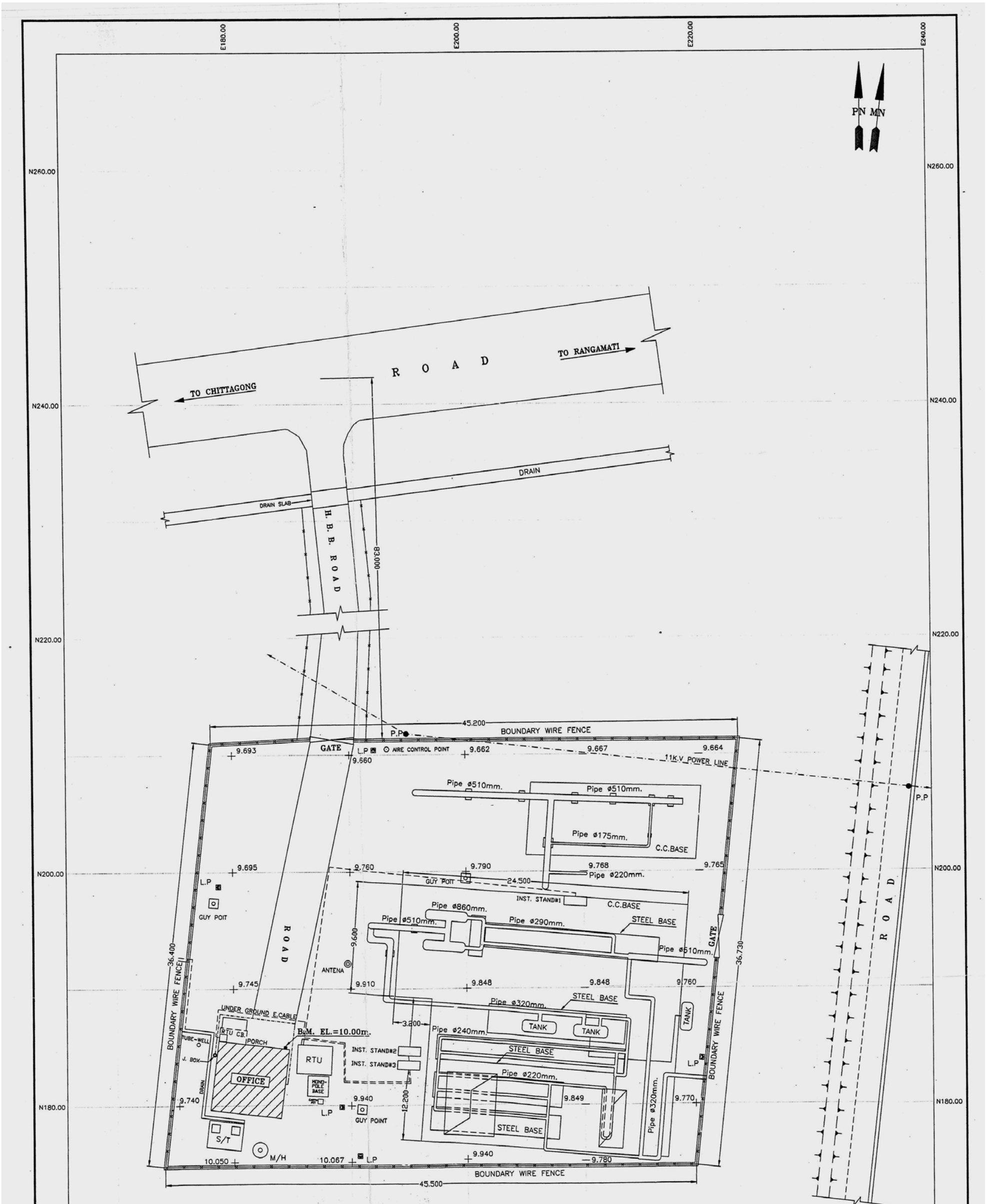
5. Site Photo

Site view

Existing Instrument Stand

6. Site Layout

See attached Layout Plan.



Parsons Brinckerhoff Limited (PBL)
AS BUILT
Employer's Representative
Date: 02/12/2004

NOTE:

B.M MARKED ON THE PLINTH LEVEL NORTH-EAST CORNER OF OFFICE BUILDING AS SHOWN ON THE DRAWING.
EL=10.00m (Assumed)
THIS AREA IS ABOVE H.F.L.(Local information)
LATITUDE 22°-27.57' LONGITUDE 91°-58.54'

ISSUE	Revision	Date	D.O. Ref
A	ISSUED FOR DESIGN APPROVAL		-
B	ISSUED FOR DESIGN APPROVAL	25-09-04	-

Contractor: SEROJ CONTROLS Ltd
Sub Contractor: SURVEY CORPORATION
S.O. No.
Employer: GAS TRANSMISSION COMPANY Ltd (GTCL)

CONTRACT DRAWING APPROVAL
Drawing Status: DESIGN APPROVAL
REDLINED CHANGES | APPROVED NO CHANGES
PRINT NAME:
SIGNED: DATE:

Drawing Title: SITE CODE : 125
SITE NAME : RAUJAN P/S

THE BANGLADESH GAS INFRASTRUCTURE DEVELOPMENT PROJECT. SUPERVISORY CONTROL, DATA ACQUISITION AND TELECOMMUNICATIONS SYSTEMS.

Drawing No.	Rev	Sheet	Orig. Size
125-60-72			A1

	Drawn	Checked	Approved
BY			
Date			

Consultant: PB Technologies Ltd.
Employer Contract No: GTCL/RL-1109/C2

Site Information & Scope of Work

Site Information

Site Name : Sanghu Onshore Process Plant
Site Code : 20-FAU-701/701T

Site Address : To be provided later.

Coordinates : N 22° 23' 44.8 " : E 91° 45' 10.1 "
** Coordinates are surveyed by handy type GPS and might be inaccurate.*

Site Type

☐	Control Center	☐	Master Telemetry Station
☑	Gas Field	☑	Operating Company Terminal (OCT)
☐	CGS (City Gas Station)	☐	Power station/Fertilizer Factory
☐	Compressor Station	☐	TBS (Town Bordering Station)
☐	Pig Station	☐	DRS (District Regulating Station)
☐	MS (Metering Station)	☐	GMS (Gas Manifold Station)
☐	VS (Valve Station)		

Site Status
- ☑ Originally covered by The Existing System and shall be covered by The New System.
- ☐ Currently not covered by The Existing System but shall be covered by The New System.
- ☐ Upcoming site which will be covered by The New System after the completion of the Project.

Operating Company : Cairn

Remarks : Process data is being collected from operator's server.

Scope of Work

Works checked off hereinafter shall be carried out for the Project

1. SCADA System

■ : OCT (Operating Company Terminal)

☑ Design, supply and install a HMI, a color printer and UPS as minimum configuration to monitor the operating condition of GTCL pipeline.

■ : RTU

☑ RTU without display monitor
Design, supply and install a self-standing IP65 enclosure equipped with following items:
- RTU
- Instrumentation and communication equipment
- Backup battery system with charger for 24 hours
- Lighting
- Anti-condensation heater
- Earthing and lightning protection
- All internal wiring
- Other equipment to satisfy the functional requirements

☐ RTU with display monitor
Design, supply and install a self-standing IP65 enclosure equipped with following items:
- RTU
- Display monitor
- Instrumentation and communication equipment
- Backup battery system with charger for 24 hours
- Lighting
- Anti-condensation heater
- Earthing and lightning protection
- All internal wiring
- Other equipment to satisfy the functional requirements

☐ RTU (design & supply only)
Design and supply self-standing IP65 enclosure equipped with following items:
- RTU
- Instrumentation and communication equipment
- Backup battery system with charger for 24 hours
- Lighting
- Anti-condensation heater
- Earthing and lightning protection
- All internal wiring
- Other equipment to satisfy the functional requirements

☐ Interface with flow computer
Make provision for:
- Installation of the flow computer which shall be prepared by GTCL in the enclosure
- Interface between RTU and the said flow computer

☐ Interface with receiver for turbine meter
Install the existing receiver for turbine meter(s) in the RTU enclosure and interface it (them) via communication (MODBUS) cable.

☑ Interface with other system
Provide the interface between RTU and other system such as PLC or PC operated by the operating company including all communication cables between RTU and other system.

☐ Cable between RTU and Master Telemetry Station
Design, supply and install the cable between RTU and Master Telemetry Station in case RTU and Master Telemetry Station are located in the same site.

2. Communication System

■ : Operating Company Terminal (OCT)

☐ Radio equipment to connect OCT with Master Telemetry Station
Design, supply and install IP radio equipment at the building where OCT shall be installed to connect this OCT with Master Telemetry Station, including all necessary cables, accessories and the antenna with monopole.

■ : Slave Telemetry System

☑ Removal of existing slave telemetry equipment
Remove and dispose the existing slave telemetry system including antenna and cable.

☑ Slave Telemetry Equipment
Design, supply and install new slave telemetry equipment in the RTU enclosure, including cables and antenna.

☐ Slave Telemetry Equipment (design & supply only)
Design and supply new slave telemetry equipment in the RTU enclosure, including cables and antenna.

☑ Existing monopole
Re-use existing monople to mount new antenna.

☐ New monopole
Design, supply and install new monopole with foundation to mount new antenna.

☐ New monopole (design & supply only)
Design and supply new monopole to mount new antenna.

3. Electrical Works

■ : Power Supply to RTU

☑ Electrical power shall be supplied to RTU from existing PDB, and existing power cable shall be re-used.

☐ Design, supply and install MCB box for the power supply to RTU including all cables from existing PDB to MCB box and from MCB box to RTU.

☐ Design, supply and intall power controller and power cable to RTU at remote site where electrical power is supplied from existing solar panel.

☐ Design, supply and install new solar panel, power controller and power cable to RTU.

4. Civil Works

■ : Foundation & Sunshade for RTU

☑ Re-use existing foundation & sunshade for RTU
Examine the condition of existing foundation and sunshade for RTU and repair the defects, if any.

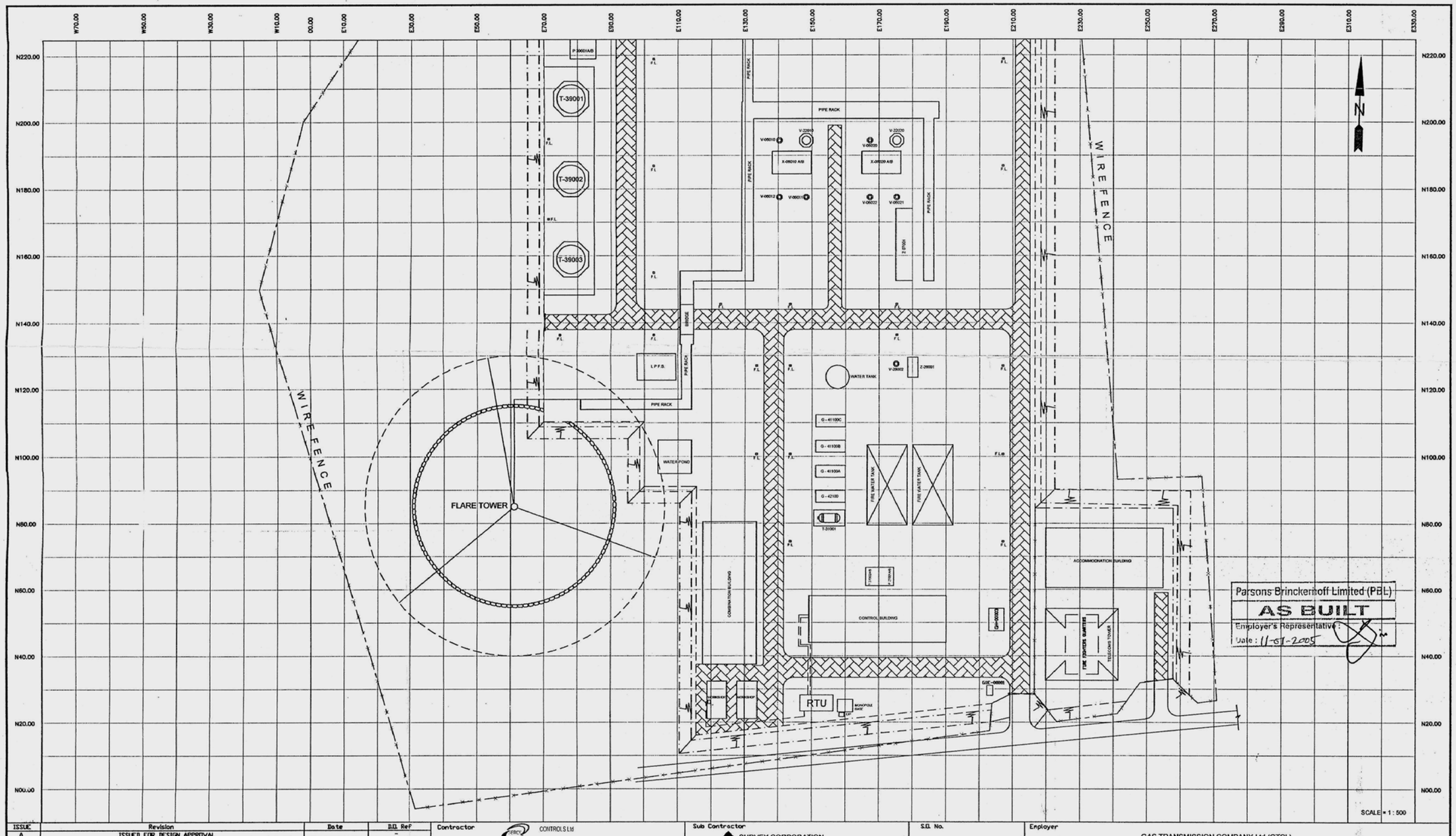
☐ Provide new foundation & sunshade for RTU
Design and construct the foundation and sunshade for new RTU at suitable location. The foundation and sunshade should be designed to suitably accommodate new RTU.

5. Site Photo

Site view

6. Site Layout

See attached Layout Plan.



Parsons Brinckerhoff Limited (PBL)
AS BUILT
Employer's Representative :
Date : 11-01-2005

ISSUE	Revision	Date	P.C. Ref
A	ISSUED FOR DESIGN APPROVAL		-
B	ISSUED FOR DESIGN APPROVAL	08.12.04	-

Contractor: CONTROLS Ltd

CONTRACT DRAWING APPROVAL
Drawing Status: DESIGN APPROVAL
REDLINED CHANGES | APPROVED NO CHANGES
PRINT NAME:
SIGNED: DATE:

Sub Contractor: SURVEY CORPORATION
S.C. No.

Drawing Title
SITE CODE : 706
SITE NAME : SANGU ONSHORE PROCESS PLANT

Drawing No.	Rev	Sheet	Orig. Size
706-60-72			A1

	Drawn	Checked	Approved
BY	NAZMUL KAVIR	M. A. HADAYET	M. A. HAYAT
Date	09-04-1999.	10-04-1999.	10-04-1999.

Employer: GAS TRANSMISSION COMPANY Ltd (GTCL)

THE BANGLADESH GAS INFRASTRUCTURE DEVELOPMENT PROJECT, SUPERVISORY CONTROL, DATA ACQUISITION AND TELECOMMUNICATIONS SYSTEMS.

Consultant: PB Technologies Ltd.
Employer Contract No: GTCL/RL-1109/C2

Site Information & Scope of Work

Site Information

Site Name : KGDCL Head Office
Site Code : 20-FAU-702T

Site Address : To be provided later.

Coordinates : N 00° 00' 00.0 " : E 00° 00' 00.0 "
** Coordinates are not available but this office is located in Chittagong City.*

Site Type

☐ Control Center	☐ Master Telemetry Station
☐ Gas Field	☑ Operating Company Terminal (OCT)
☐ CGS (City Gas Station)	☐ Power station/Fertilizer Factory
☐ Compressor Station	☐ TBS (Town Bordering Station)
☐ Pig Station	☐ DRS (District Regulating Station)
☐ MS (Metering Station)	☐ GMS (Gas Manifold Station)
☐ VS (Valve Station)	

Site Status
- ☐ Originally covered by The Existing System and shall be covered by The New System.
- ☑ Currently not covered by The Existing System but shall be covered by The New System.
- ☐ Upcoming site which will be covered by The New System after the completion of the Project.

Operating Company : KGDCL

Remarks :

Scope of Work

Works checked off hereinafter shall be carried out for the Project

1. SCADA System

■ : OCT (Operating Company Terminal)

☑ Design, supply and install a HMI, a color printer and UPS as minimum configuration to monitor the operating condition of GTCL pipeline.

2. Communication System

■ : IP PBX System

☐ IP PBX main unit
Design, supply and install IP PBX main unit with necessary accessories and spare parts.

☑ Extension telephone set Q'ty
Design, supply and install extension telephone set(s) with required cables. [1]

■ : Operating Company Terminal (OCT)

☑ Radio equipment to connect OCT with Master Telemetry Station
Design, supply and install IP radio equipment at the building where OCT shall be installed to connect this OCT with Master Telemetry Station, including all necessary cables, accessories and the antenna with monopole.

3. Electrical Works

■ : No electrical works at this site.

4. Civil Works

■ : No civil works at this site.

5. Site Photo

Not available.

6. Site Layout

Site Layout Plan is not available.