

INDEX SHEET

| SHEET No. | DESCRIPTION | ID No. | D00 | D01 | D02 | D03 | D04 |
|--------------|--|-----------|--------------|----------|--------------|----------|--------------|
| 01 | COVER SHEET | - | \checkmark | ✓ | ✓ | \ | \checkmark |
| 02 | INDEX SHEET | - | \checkmark | ✓ | \checkmark | \ | \checkmark |
| 03 | GROUNDING ROD | E.S.1 | ✓ | √ | | | |
| 04 | BRANCH WIRE CONNECTION | E.S.2 | ✓ | ✓ | | | |
| 05 | MOTOR (HORIZONTAL) | E.S.3 | ✓ | ✓ | | | |
| 06 | MOTOR (VERTICAL) | E.S.4 | \checkmark | √ | | | |
| 07 | MULTIPLE CONTROL STATION | E.S.5 | \checkmark | √ | | | |
| 08 | VERTICAL DRUM, TOWER, TANK | E.S.6 | \checkmark | √ | | | |
| 09 | EARTHING OF STAIRS | E.S.7 | √ | √ | | | |
| 10 | GATE, FENCE | E.S.8 | √ | √ | | | |
| 11 | PIPE RACK | E.S.9 | √ | √ | | | |
| 12 | LIGHTING POLE | E.S.10 | √ | √ | | | |
| 13 | LOADING FACILITIES | E.S.11 | √ | √ | | | |
| 14 | EARTH LUG | E.S.12 | √ | √ | | | |
| 15 | STUB-UP CONDUIT PIPE | E.S.13 | √ | √ | | | |
| 16 | CONDUIT SUPPORT | E.S.14 | √ | √ | | | |
| 17 | AROUND TRANSFORMER | E.S.15 | <i>\</i> | <u>,</u> | √ | √ | |
| 18 | TRANSFORMER NGR EARTH CONNECTION | E.S.16 | √ | √ | √ | √ | |
| 19 | EARTHING OF DIESEL GENERATOR | E.S.17 | √ | <u></u> | 1 | √ | |
| 20 | EARTHING OF MCC/SWITCHGEAR | E.S.18 | √ | <u></u> | 1 | , | |
| 21 | EARTH BAR ASSEMBLY (WALL MOUNTED) | E.S.19 | √ | <u></u> | , | | |
| 22 | EARTH BAR MOUNTING DETAIL | E.S.20 | √ | · | | | |
| 23 | EARTHING OF CABLE TRAY/LADDERS | E.S.21 | √ | 1 | | | |
| 24 | EARTHING OF SOCKET OUTLET | E.S.22 | 1 | 1 | | | |
| 25 | SELECTION CHART | _ | 1 | <u>'</u> | | | |
| 26 | GENERAL NOTES | _ | <i>'</i> | <i>'</i> | | | |
| 27 | CODING SYSTEM FOR EARTHING AND LIGHTNING PROTECTION CONDUCTORS | E.S.23 | <i>'</i> | <i>'</i> | | | |
| 28 | LIGHTNING PROTECTION PRINCIPLE | E.S.24 | <i>'</i> | <i>'</i> | | | |
| 29 | LIGHTNING PROTECTION INSTALLATION (SECTION VIEWS) | E.S.25 | √ | <i>\</i> | | | |
| 30 | LIGHTNING PROTECTION OF BUILDINGS | E.S.26 | √ | <i>'</i> | | | |
| 31 | LIGHTNING PROTECTION OF VESSELS & TANKS | E.S.27 | √ | ' | | | |
| 32 | METAL ROOF LIGHTNING PROTECTION | E.S.28 | <u>,</u> | √ | | | |
| 33 | LIGHTNING PROTECTION LIGHTNING PROTECTION FOR BUILDING | E.S.29 | ▼ | / | | | |
| 34 | BUILDING LIGHTNING PROTECTION SECTION | E.S.30 | <u>,</u> | <u></u> | | | |
| 35 | BUILDING PROTECTION | E.S.31 | √ | / | | | |
| | Salama (Notation) | L.3.31 | y | ✓ | | | |

| SHEET No. | DESCRIPTION | ID No. | D00 | D01 | D02 | D03 | D04 |
|--------------|--|-----------|--------------|--------------|----------|----------|----------|
| 36 | LIGHTNING PROTECTION FOR CONCRETE STACK | E.S.32 | √ | \checkmark | √ | √ | √ |
| 37 | AIR TERMINAL & FIXING | E.S.33 | √ | \checkmark | √ | √ | √ |
| 38 | AIR TERMINAL 1 | E.S.34 | √ | √ | | | |
| 39 | AIR TERMINAL 2 | E.S.35 | \checkmark | ✓ | | | |
| 40 | JUNCTION CLAMP | E.S.36 | \checkmark | ✓ | | | |
| 41 | LIGHTNING AIR TERMINAL | E.S.37 | √ | ✓ | | | |
| 42 | LIGHTNING AIR TERMINAL ASSEMBLY | E.S.38 | \checkmark | ✓ | | | |
| 43 | LIGHTNING AIR TERMINAL INSTALLATION (POLE MOUNTED) (SUPPLEMENTARY DETAILS) | E.S.39 | √ | √ | | | |
| 44 | EARTHING OF INDOOR LIGHTNING PANEL SUPPORT | E.S.40 | √ | √ | | | |
| 45 | TYPICAL GROUNDING INSTALLATION EARTHING OF OUTDOOR PANEL SUPPORT | E.S.41 | √ | √ | | | |
| 46 | LIGHTNING POLE | E.S.42 | √ | √ | | | |
| 47 | LIGHTNING PROTECTION MOUNTING DETAILS | E.S.43 | √ | √ | | | |
| 48 | LIGHTNING PROTECTION CONDUCTORS TYPICAL CONNECTIONS | E.S.44 | √ | √ | | | |
| 49 | LIGHTNING CONDUCTOR INSTALLATION ACCESSORIES | E.S.45 | √ | ✓ | | | |
| 50 | EARTHING CABLE CONNECTION | E.S.46 | √ | ✓ | | | |
| 51 | EARTHING CONDUCTOR HOLDING CLAMP ON STEEL STRUCTURES | E.S.47 | √ | ✓ | | | |
| 52 | ABOVEGROUND CONNECTION SPLIT BOLT TYPE | E.S.48 | √ | √ | | | |
| 53 | EARTHING CONNECTIONS DETAIL (SUPPLEMENTARY DETAILS) | E.S.49 | √ | ✓ | | | |
| 54 | THERMOWELD EARTHING CONNECTION FOR STEEL STRUCTURES | E.S.50 | √ | ✓ | | | |
| 55 | COMPRESSION EARTHING CONNECTOR (SUPPLEMENTARY DETAILS) | E.S.51 | 1 | √ | | | |
| 56 | SHIELD WIRE CONNECTION TO TOWER STRUCTURE (SUPPLEMENTARY DETAILS) | E.S.52 | √ | √ | | | |

LEGEND REFERENCE DRAWING DRG. No. KBY PLAN

NOTES

| D04 | 3202/1/20 | PI | HAHANBA | W.Pakharian | W.WEHRSHAD | | | | | | | | |
|---------------------|-----------|---------|----------------|-------------|-------------|------|--|------------------------------|---------------|---------------|------------------|---------|--|
| D08 | 1909.700 | IPI | HAHANBA | W.PAKHARIAN | N.VEHRSHAD | | | | | | | | |
| D05 | 1302,TD0 | IPI | HAHANBA | W.Fakharian | N.VEHRSHAD | | *** | ********* | 1,1 | **** | ** | *** | |
| D01 | 00T.2021 | IPI | HAHANBA | W.Fakharian | SH.CHÁLIKÁR | | REV. | DRSCRIPTION | BY | DATE | BY | DATE | |
| D00 | VAG'5051 | IPI | M.ASICHARKEIAD | W.Fakharian | SH.dhalikar | | REV. | DESCRIPTION | CHECKED | | REV. | APPR. | |
| REV. | DATE | P.O.I.Ø | PREP. | CHK. | APP. | AUT. | نف | على مثاطق نقت خيز جتوب ميباث | متعلق به شرکت | ه و حق الكياس | گلیه تسخ این تقد | اصل و آ | |
| PROJECT | NAME: | BINAF | OILFIELD O | | NT | | THE ORIGINAL AND ALL COPIES OF THIS DRAWING TOGETHER WIT | | | | | | |
| PROJECT NO.: 971020 | | | | | | | 4/ | P | N.I.S.O.C | ./ FIELD | s s | | |
| | | | | | | | | | | | | | |

PROJECT NO.: EPC CONTRACTOR: HIRGAN ENÈRGY - DESIGN & INSPECTION COMPANIES

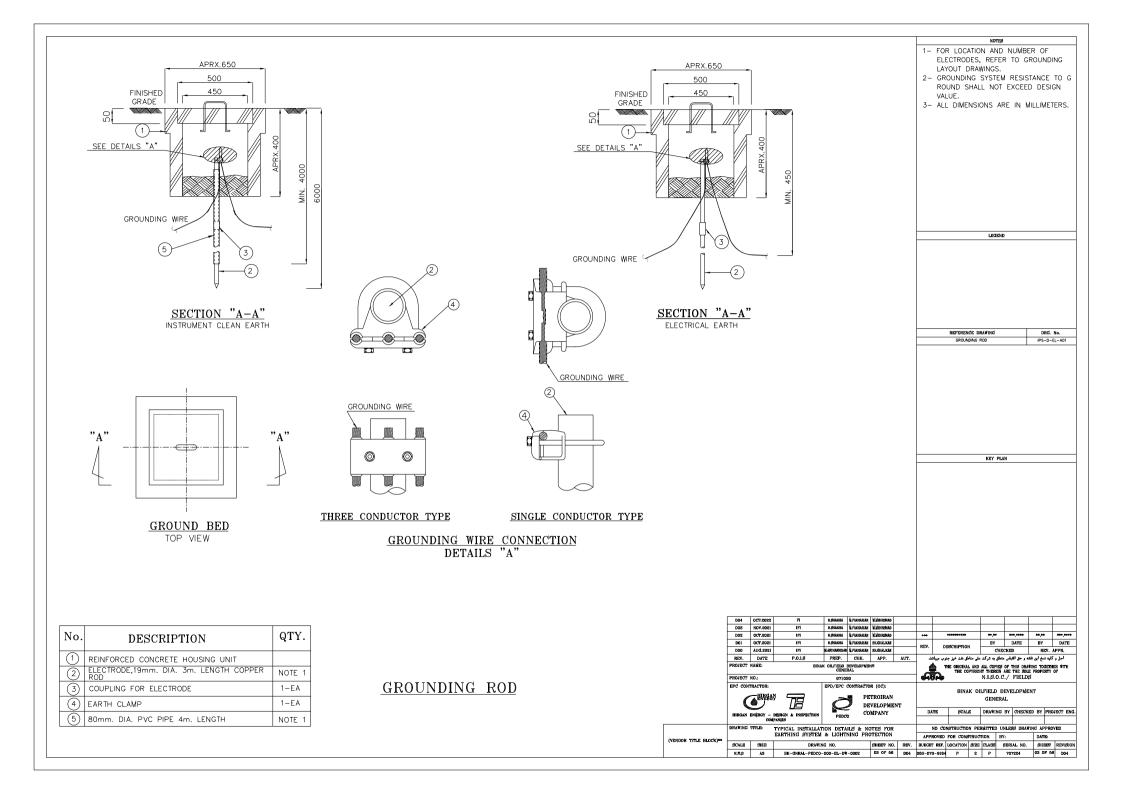
EPD/EPC CONTRACTOR (GC): PETROIRAN
DEVELOPMENT
COMPANY

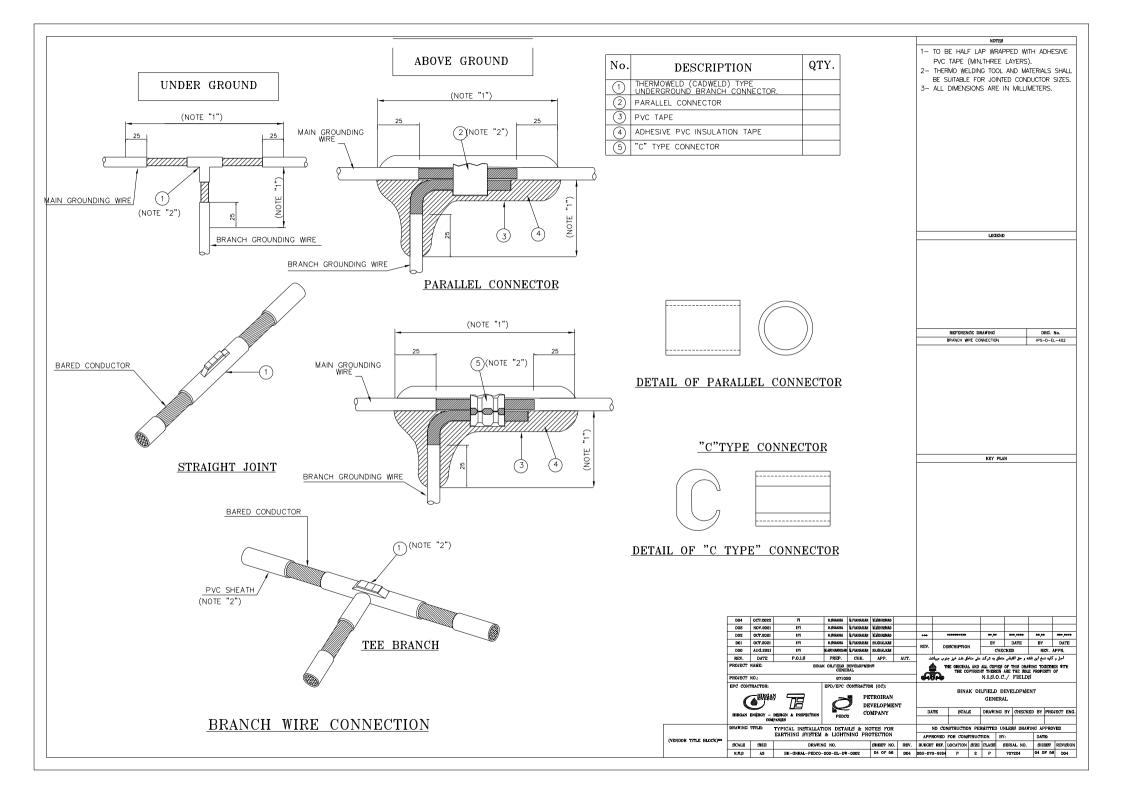
BINAK OILFIELD DEVELOPMENT

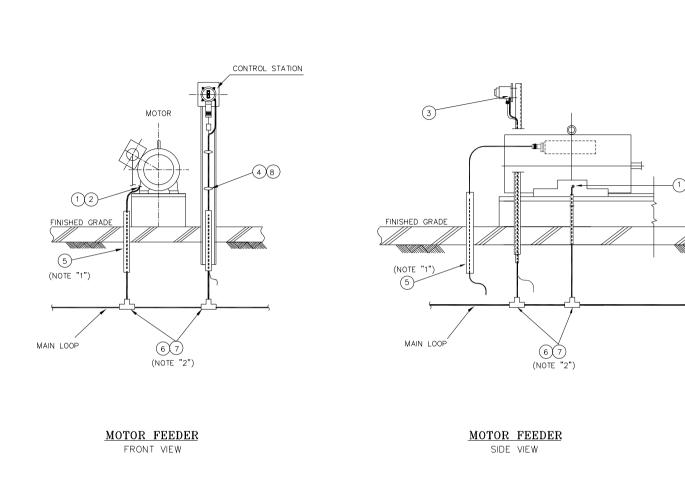
DATE SCALE DRAWING BY CHECKED BY PROJECT ENG. NO CONSTRUCTION PERMITTED UNLESS DRAWING APPROVED

(VENDOR TITLE BLOCK)**

DRAWING TITLE: TYPICAL INSTALLATION DETAILS & NOTES FOR EARTHING SYSTEM & LIGHTNING PROTECTION







| 1- FOR ST | UB-UP | OF | RIGID | STEEL | CONDUIT | ΑT |
|-----------|-------|----|-------|-------|---------|----|
| GRADE, | REFER | TO | SHT. | 14. | | |

- 2- FOR BRANCH CONNECTOR, REFER TO SHT. 04. 3- FOR No. OF GROUNDING POINTS AND WIRE SIZE REFER TO THE GROUNDING LAYOUT DRAWINGS.
- 4- GROUNDING WIRE MAY BE INSTALLED TOGETHER
 WITH A CABLE IN THE SAME CONDUIT.

LEGEND

REFERENCE DRAWING MOTOR (HORIZONTAL) DRG. No. IPS-D-EL-403

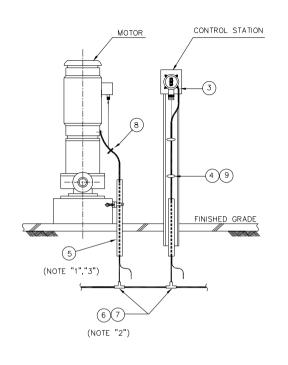
KEY PLAN

| | No. | DESCRIPTION | QTY. |
|---|-----|--|---------|
| ſ | 1 | CRIMP TYPE TERMINAL LUG FOR MOTOR | 1-EA |
| ſ | 2 | BOLT WITH 1—SPRING, 1—FLAT WASHER FOR MOTOR | 1-SET |
| ſ | 3 | CRIMP TYPE TERMINAL LUG, 16sqmm. FOR CONTROL STATION | 1-EA |
| | 4 | BOLT & NUT WITH 1-SPRING,2-FLAT WASHERS FOR CONTROL STATION | 1-SET |
| | (5) | RIGID STEEL CONDUIT | AS REQ. |
| | 6 | BRANCH CONNECTOR (THERMO WELD TYPE) | AS REQ. |
| | 7 | ADHESIVE TAPE | AS REQ. |
| | 8 | WIRE CLIP | AS REQ. |

MOTOR (HORIZONTAL)

| D04 | 001/2055 | PI | H,\$HAKIBA | W.PAKHARIAN | W.VBHRSHAD | | | | | | | | | | | | | |
|---|--|---------------------|----------------|--------------------|--------------|------------------------|--------------------------------------|-------------|----------------|--------------|-----------------|-----------------|---------------|-----------|----|------|----|------|
| D08 | NOV.2021 | 1FI | HEHANBA | W.PAKHARIAN | N.VEHRSHAD | | | | | | | | | | | | | |
| D05 | 1909,750 | IPI | HAHAKIBA | W.PAKHARIAN | N.VEHRSHAD | | *** ******** | | - | ,=- | **** | **,** | ***,**** | | | | | |
| D01 | 1202,750 | IPI | HAHAKIBA | W.PAKHARIAN | SH, CHÁLIKAR | | REV. | DESCRIPTION | | | | | | | SY | DATE | BY | DATE |
| D00 | VAQ'5051 | IPI | M.ASCHARKEIAD | W.PAKHARIAN | SH, OHALIKAR | | REV. | י ו | ESCRIPTION | PHON | | ŒD | REV. | APPR. | | | | |
| REV. | DATE | P.O.I.S | PREP. | CHK. | APP. | AUT. | نذہ | وپ میباد | اطق نقت خيز جا | شرکت ملی مثا | ن متعلق په | نقه و حق القبام | به تسخ این تا | اصل و کلم | | | | |
| PROJECT | name: | BINA | | 4 | ■_ | HE ORIGINAL THE COP | YRICHT TH | erein ar | E THE SOLE | PROPERT | THER WITH | | | | | | | |
| PROJECT | NO.: | | 9710 | 50 | | | 4 4₹ | 7 | | N.I. | 3.0.C./ | / FIELDS | | | | | | |
| EPC CONT | EPC CONTRACTOR: EPD/EPC CONTRACTOR (cd.): PETROIRAN DEVELOPMENT | | | | | | | | BINAF | | LD DEV NERAL | VELOPMEN | ۱T | | | | | |
| HIRGAN | ENÈRGY - | DESIGN & INSPECTION | | - de | MPANY | | DATE SCALE DRAWING BY CHECKED BY PRO | | | | | | ROJECT ENG. | | | | | |
| HINGAN | | PANJES | PEDC | 0 | | | | | | | | | | | | | | |
| DRAWING TWILE: TYPICAL INSTALLATION DETAILS & NOTES FOR | | | | | | | | NO CO | NSTRUCTION | PERMIT | ED UNL | ess drawi | NG APPE | OVED | | | | |
| | | NING PR | ING PROTECTION | | | ROVED | FOR CONST | RUCTION | BY: | | DATE: | | | | | | | |
| | | | | | | | | | | | | | | | | | | |

SCALE SEZE DRAWING NO. SHEET NO. REV. BUDGET REF. LOCATION SIZE CLASS SERIAL NO. SHEET REVISION N.W.S A3 BK-GNRAL-PEDCO-000-EL-DW-0002 05 0F 56 D04 063-078-9184 F 2 P 707224

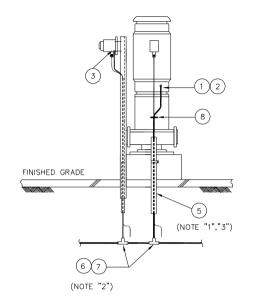




QTY.

AS REQ.

AS REQ.



MOTOR FEEDER AND CONTROL FRONT VIEW

| 1 | CRIMP TYPE TERMINAL LUG FOR MOTOR | 1-EA |
|------------------|--|---------|
| 2 | BOLT WITH 1—SPRING, 1—FLAT WASHER FOR MOTOR | 1-SET |
| 3 | CRIMP TYPE TERMINAL LUG, 16sqmm. FOR CONTROL STATION | 1-EA |
| 4 | BOLT & NUT WITH 1-SPRING,2-FLAT WASHERS FOR CONTROL STATION | 1-SET |
| (5) | RIGID STEEL CONDUIT | AS REQ. |
| 6 | BRANCH CONNECTOR (CADWELD TYPE) | AS REQ. |
| $\overline{(7)}$ | ADHESIVE TAPE | AS REQ. |

DESCRIPTION

(8) CABLE FIXING TIE (BLACK COLOR NYLON)

WIRE CLIP

No.

MOTOR (VERTICAL)

| D04 | 001/5055 | PI | HEHANBA | W.FAKHARIAN | M.VBHRSHAD | | | | | | | | | |
|--|---|-------------------------------|---------------|--------------------|-------------|--------------------------------|---|------------------|----------------------|-----------------|---------------|------------|----------|----------|
| D08 | NOV.2021 | 1FI | HÆHÁKIBÁ | V.PAKHARIAN | W.VEHRSHUD | | | | | | | | | |
| D05 | 1902,700 | 1FI | HAHANBA | W.PAKHARIAN | N.VEHRSHAD | | *** | *** | | | **** | • ** | 1 | *** |
| D01 | 1202,T00 | 1FI | HAHANBA | W.PAKHARIAN | SH.CHÁLIKÁR | | REV. | REV. DRSCRIPTION | | | DATE | В | ķ | DATE |
| D00 | VAQ'5051 | IFI | M.ASCHARKEJAD | W.PAKHARIAN | SH.dhalikar | | MEV. | " | BERTHON | CHECKED | | | REV. | APPR. |
| REV. | DATE | P.O.I.Ø | PREP. | CHK. | APP. | AUT. | | نوپ میباد | ىلى مناطق نقت خيز جا | طق په شرکت ، | حق الكياس مك | این تقله و | لليه ئىخ | اصل و |
| PROJECT | NAME: | BINA | | | =_ | HE ORIGINAL AND THE COPYRIC | HT THEREIN | ARE THE | SOLE PRO | rodeth Perty | er with Op | | | |
| PROJECT | NO.: | | 9710 | 50 | | | 44 | 7 | | N.I.S.O. | C./ FIE | LDS | | |
| EPC CON | EPC CONTRACTOR: EPD/EPC CONTRACTOR (cd): PETROIRAN DEVELOPMENT | | | | | | | | BINAK O | LFIELD GENER | | MENT | | |
| HIRGAN | | DESIGN & INSPECTION PANJES | PEDC | o do | MPANY | | DA | TE | SCALE | DRAWING | BY CHE | CKED B | Y PRO | VECT ENG |
| DRAWING | TOTUE: | TYPICAL INSTALLAT | | | | | | NO CO | NSTRUCTION PE | RMITTED I | unlegg d | RAWING . | APPRO | VED |
| EARTHING SYSTEM & LIGHTNING PROTECTION | | | | | | | APP | ROVED | FOR CONSTRUC | TION I | BY: | D. | ATE: | |
| SCALE | Share | DRAWIN | id NO. | | SHEET NO | REV. | IEV. BUDGET REF. LOCATION SIZE CLASS SERIAL NO. SHEET | | | | | | | REVISION |

- FOR STUB-UP OF RIGID STEEL CONDUIT AT

LEGEND

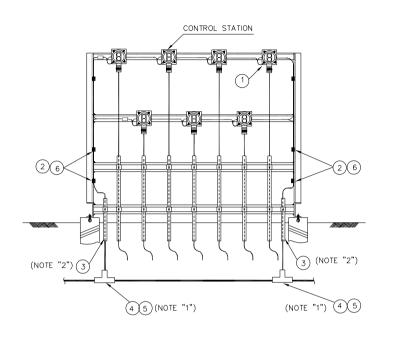
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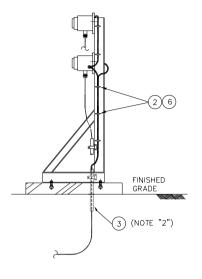
DRG. No. IPS-D-EL-404

REFERENCE DRAWING

GRADE, REFER TO SHT. 14. 2- FOR BRANCH CONNECTOR, REFER TO SHT. 04. 3- GROUNDING WIRE MAY BE INSTALLED TOGETHER WITH A CABLE IN THE SAME CONDUIT.

(VENDOR TITLE BLOCK)** N.T.S A3 BK-CHRAL-PEDCO-000-BL-DW-0002 08 0F 68 D04 063-078-9184 F 2 P 707224 06 0F 66 D04





MULTIPLE CONTROL STATION SIDE VIEW

MULTIPLE CONTROL STATION FRONT VIEW

MULTIPLE CONTROL STATION

| No. | DESCRIPTION | QTY. |
|-----|---|---------|
| 1 | CRIMP TYPE TERMINAL LUG, 16sqmm. | AS REQ. |
| 2 | BOLT & NUT WITH 1-SPRING,2-FLAT WASHERS | AS REQ. |
| 3 | RIGID STEEL CONDUIT | AS REQ. |
| 4 | BRANCH CONNECTOR (THERMO WELD TYPE) | AS REQ. |
| 5 | ADHESIVE TAPE | AS REQ. |
| 6 | WIRE CLIP | AS REQ. |
| | | |

| D04 | 001/5055 | PI | H,\$HAKIBA | V.Pakharian | W.VBHRSHUD | | | | | | | | | | | |
|---|--|-------------------------------|---------------|--------------------|-------------|-------|---------|-------------------------------------|----------------|----------|-----------|-----------|--------------|------------|--------------|-------|
| D08 | NOV.2021 | 1PI | HAHANBA | W.PAKHARIAN | N.VEHRSHAD | | | | | | | | | | | |
| D05 | 1909,750 | 191 | HAHANBA | W.Pakharian | N.VEHRSHAD | | *** | ******** | | | , | • | ***** | **,** | *** | * |
| D01 | 1909,750 | 191 | HAHAKIBA | W.Pakharian | SH.OHÁLIKAR | | REV. | EV. DESCRIPTION | | BY | | DATE | BY | D/ | TE | |
| D00 | 1202.DUA | 191 | M.ASCHARKEJAD | W.Pakharian | SH.dhalikar | | KEV. | . DESCRIPTION | | | CHECKED | | | REV. APPR. | | |
| REV. | DATE | P.O.I.Ø | PREP. | CHK. | APP. | AUT. | 4 | نوپ میباد | لمق نقت خيز جا | ملی مثاه | , به شرکت | باس متعلق | ققه و حق الك | نے این | اصل و کلیه ا | |
| ROJECT NAME: BINAK OILFIELD DEVELOPMENT deneral THE ORICINAL AND ALL COPIES OF THIS DRAWING TOCETHE THE COPYRIGHT THEREIN, ARE THE SOLE PROPERTY OF | | | | | | | | | | | | ETHER WI | TH | | | |
| ROJECT | IECT NO.: 971020 N.I.S.O.C./ FIELDS | | | | | | | | | | | | | | | |
| PC CONTRACTOR: EPD/EPC CONTRACTOR (CC): PETROIRAN DEVELOPMENT | | | | | | | | | BINA | к оп | LFIELD | | ELOPMEN | Т | | |
| HIRGAN | | DESIGN & INSPECTION PANJES | PEDC | do | MPANY | • | DA | TE | SCAL | E | DRAWIN | (G BY | CHECKE | BY | PROJECT | ENG. |
| RAWING | TITLE: | | | NO CO | NSTRUCTIO | N PER | RMITTED | UNLE | gg drawi | IG AP | PROVED | | | | | |
| | EARTHING SYSTEM & LIGHTNING PROTECTION | | | | | | | APPROVED FOR CONSTRUCTION BY: DATE: | | | | | | | | |
| SCALE SIZE DRAWING NO. SHEET NO. | | | | | | REV. | nunda | non I | LOCATION | denn | Ot 1 000 | ann | IAL NO. | SHE | nom Inmi | ISION |

1- FOR BRANCH CONNECTOR, REFER TO SHT. 04. 2- FOR STUB-UP OF RIGID STEEL CONDUIT AT GRADE, REFER TO SHT. 14. 3- GROUNDING WIRE MAY BE INSTALLED TOGETHER WITH A CABLE IN THE SAME CONDUIT. 4- FOR No. OF GROUNDING POINTS AND WIRE SIZE, REFER TO THE GROUNDING LAYOUT DRAWINGS.

5- ALL DIMENSIONS ARE IN MILLIMETERS.

LEGEND

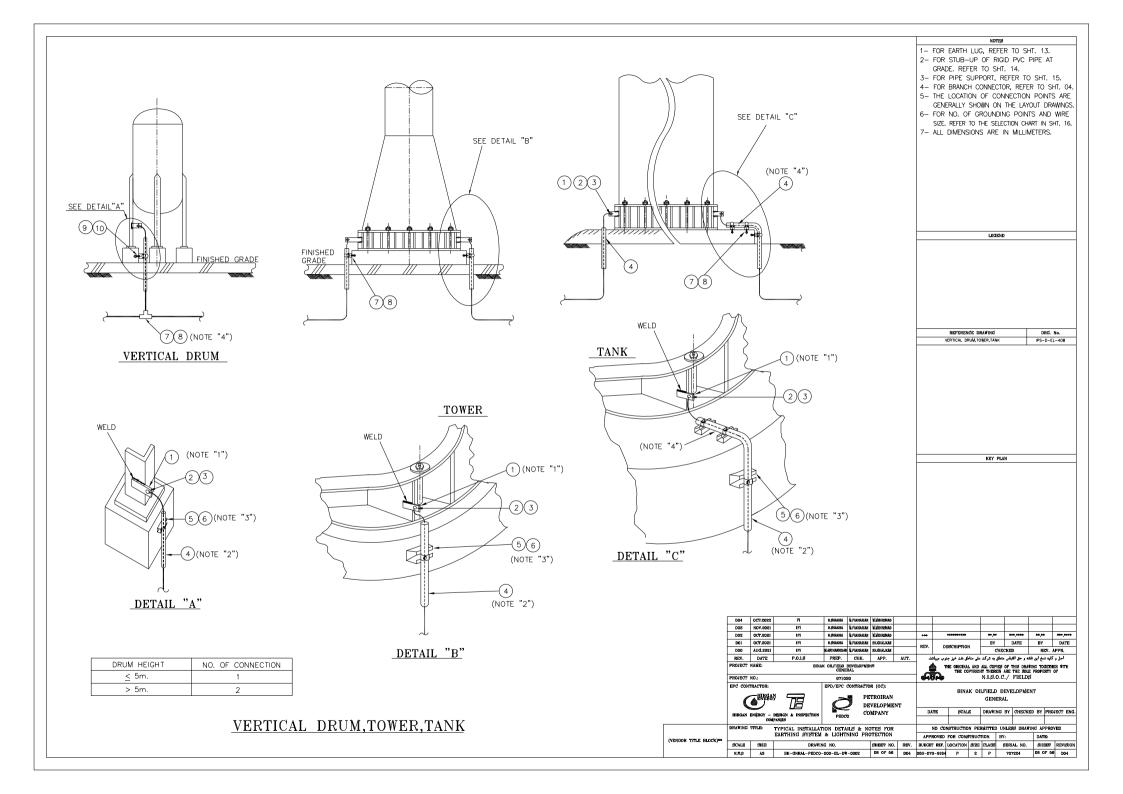
KEY PLAN

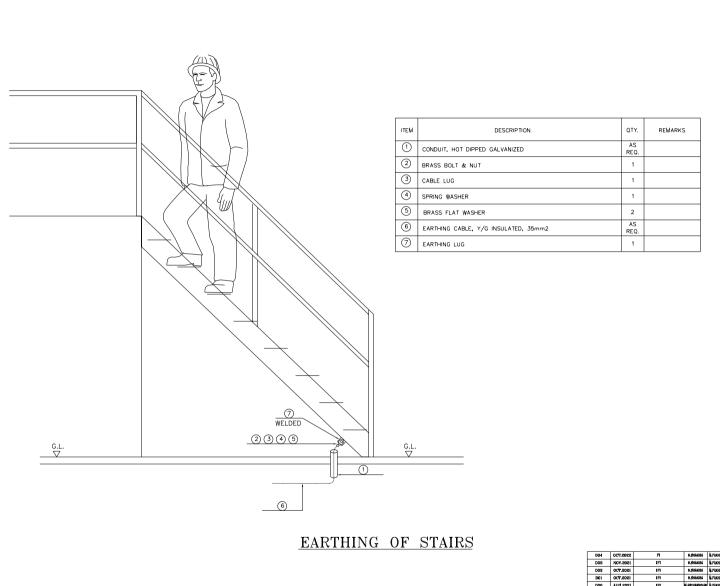
DRG. No.

IPS-D-EL-407

REFERENCE DRAWING
MULTIPLE CONTROL STATION

N.T.S AS BK-GNRAL-PEDCO-000-EL-DW-0002 07 0F 56 D04 053-073-9184 F 2 P 707224 07 0F 56 D04





1- FOR EARTH LUG, REFER TO SHT. 13.

- 2- FOR STUB-UP OF RIGID PVC PIPE AT GRADE. REFER TO SHT. 14.
- 3- FOR PIPE SUPPORT, REFER TO SHT. 15.
- 4- THE LOCATION OF CONNECTION POINTS ARE GENERALLY SHOWN ON THE LAYOUT DRAWING.
- 5- FOR NO. OF GROUNDING POINTS AND WIRE SIZE. REFER TO THE SELECTION CHART IN SHT. 16. AND GROUNDING LAYOUT DRAWING.

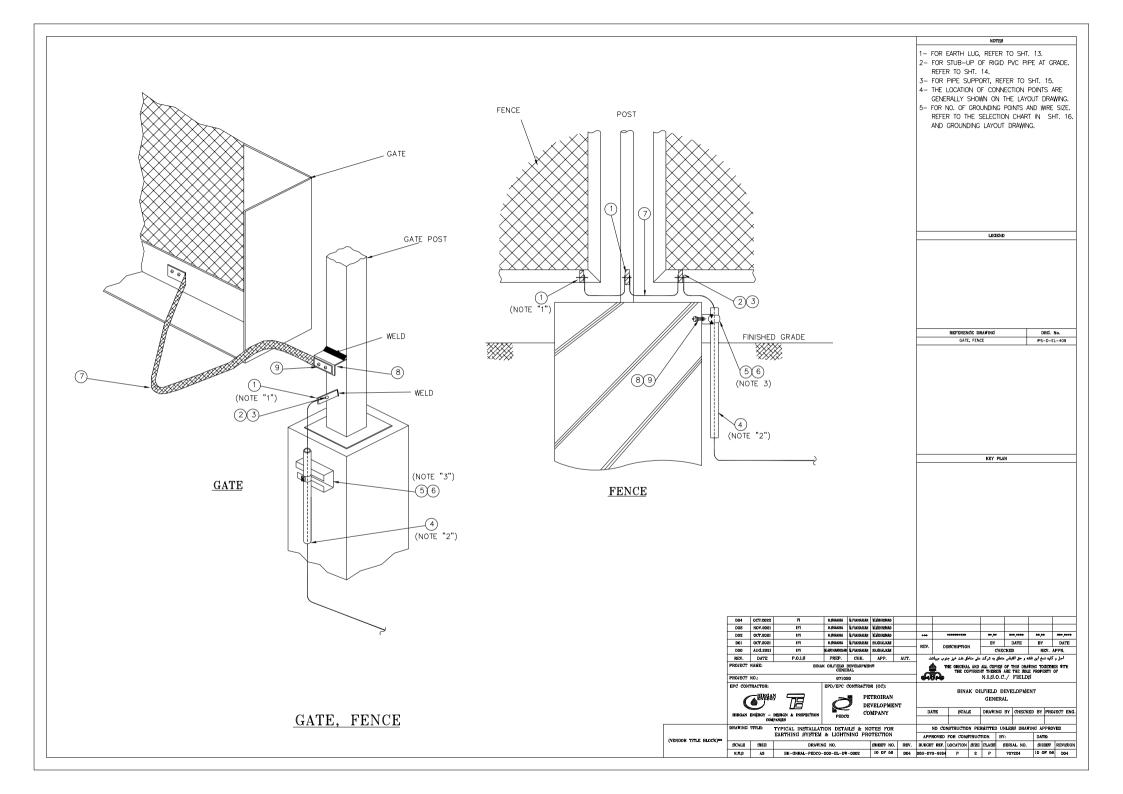
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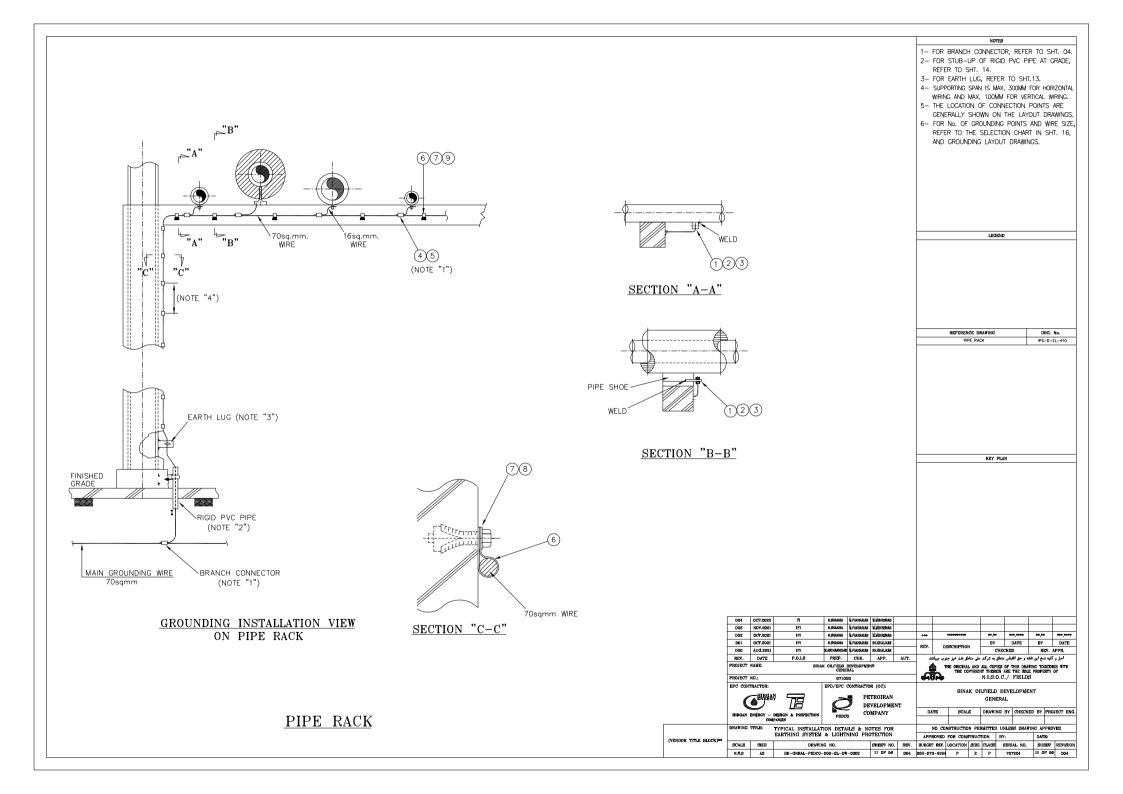
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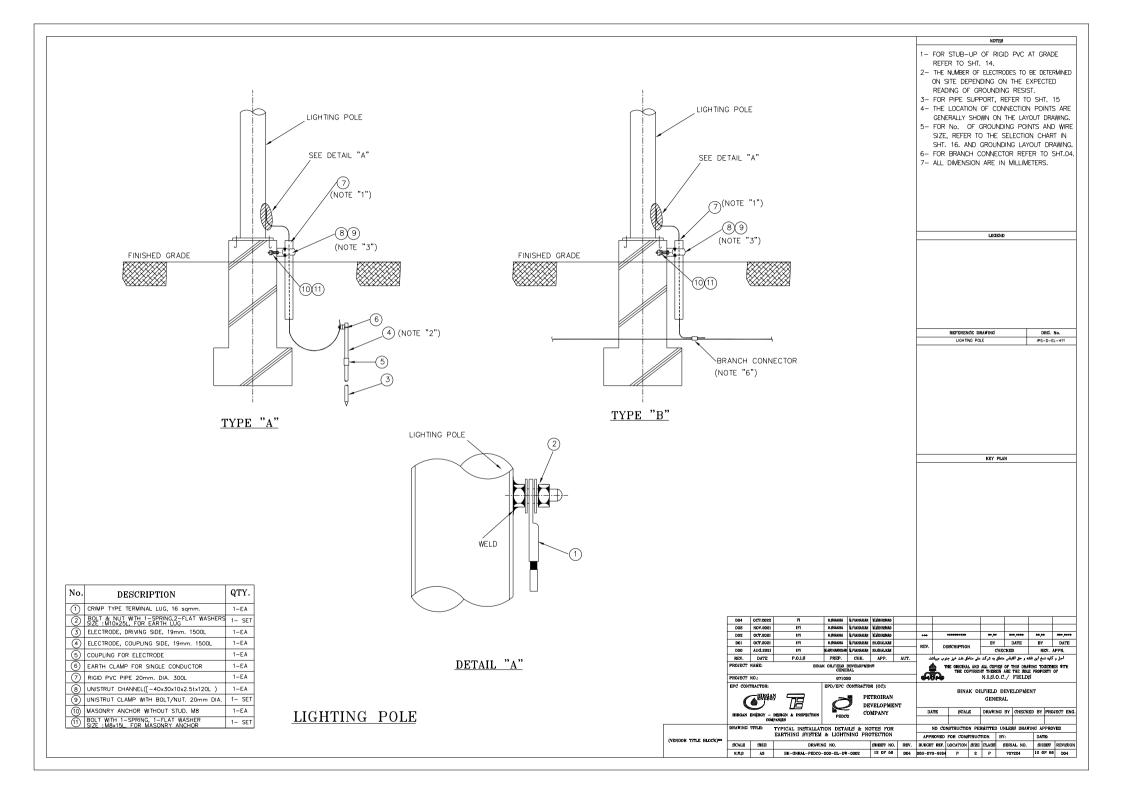
KEY PLAN

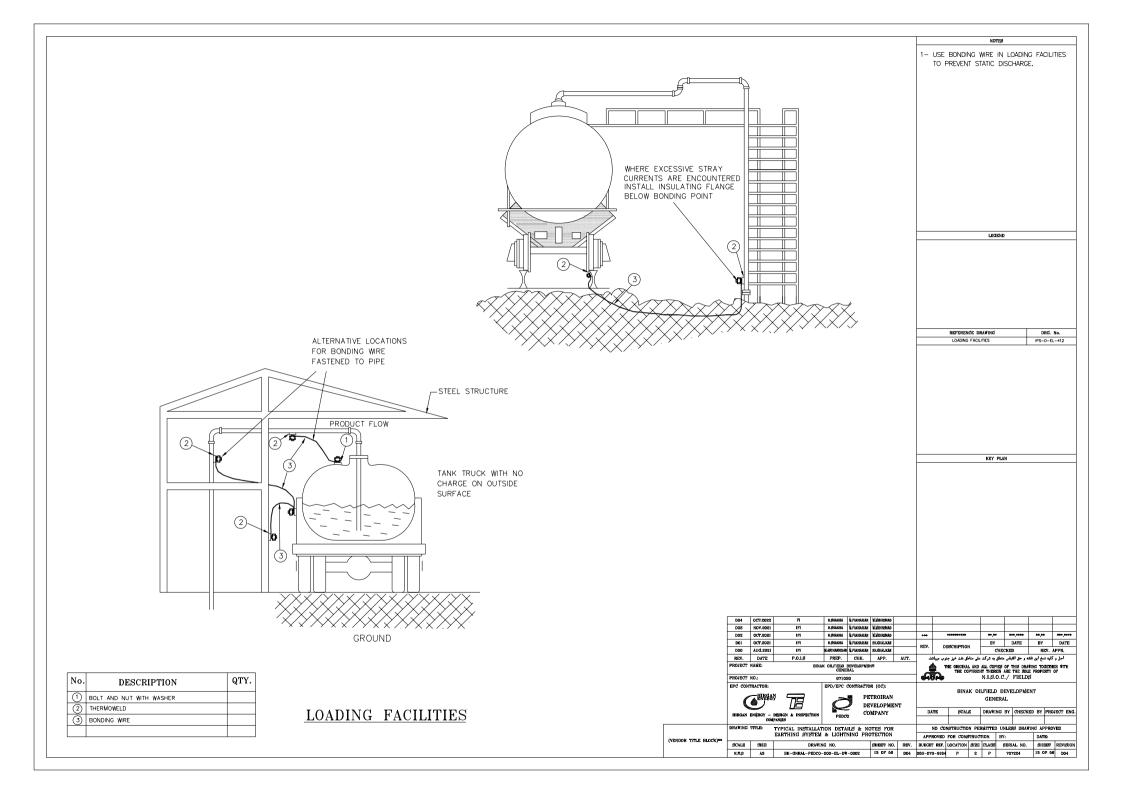
| D04 | 2202.170 | PI | HANANBA | V.Pakharian | M.VBHRSHUD | | | | | | | | | | |
|---|--|----------------------------|---------------|--------------------|--------------------|--------|--|------------------|------------|----------------|-----------|--------|-----------|---------|-----------|
| D08 | NOV.2021 | 1PI | HAHAUBA | W.PAKHARIAN | N.VEHRSHAD | | | | | | | | | | |
| D05 | 1909,750 | IPI | HAHAUBA | W.PAKHARIAN | N.VEHRSHAD | | *** | | ********** | | , | | ***** | **,** | ***,**** |
| D01 | 1909,750 | IPI | HAHAUBA | V.PAKHARIAN | SH.OHALIKAR | | REV. | DTT! DESCRIPTION | | | BY | | DATE | BY | DATE |
| D00 | VAQ'5051 | IPI | M.ASCHARKEJAD | V.PAKHARIAN | SH.dhaukar | | REV. | , D | ESCRIPTIO | ١. | (| неске | D | REV. | APPR. |
| REV. | DATE | P.O.I.Ø | PREP. | CHK. | APP. | AUT. | اصل و کلیه نستم این نقشه و حتی اقتباس متعلق به شرکت ملی مناطق نفت خیز چنوب میباشد. | | | | | | | اصل و ک | |
| PROJECT | GENERAL THE COPYRIGHT THEREIN ARE THE SOLE PROPERTY OF | | | | | | | | | IER WITH OF | | | | | |
| PROJECT | NO.: | | 9710 | 50 | | | N.I.S.O.C./ FIELDS | | | | | | | | |
| EPC CON | TRACTOR: | × — | EPD/EPC | | R (GC): TROIRAN | | BINAK OILFIELD DEVELOPMENT | | | | | | | | |
| (| A ENERG | ' <u> </u> | _ | | VELOPME | | GENERAL | | | | | | | | |
| • | _ | ╙ | | | | NT | DA | 70 | SCAL | | DDAWI | NO DV | dupdyp | n pv pp | JECT ENG. |
| HIRGAN | | DESIGN & INSPECTION PANIES | PEDC | o ^{CO} | MPANY | | - DF | 16 | PURE | - | DIGHT | IIO DI | CHECKE | D DI PI | ALC: LIG. |
| | | | | | | | _ | _ | | | | | | | |
| DRAWING TUTLE: TYPICAL INSTALLATION DETAILS & NOTES FOR | | | | | | | | NO CO | NSTRUCTIO | N PE | RMITTEL | UNLE | 88 DRAWII | NG APPR | OVED |
| | | EARTHING SYSTEM | & LIGHT | NING PRO | TECTION | | APPI | ROVED | FOR CONE | TRUC | CTION BY: | | | DATE: | |
| SCALE | SIZE | DRAWIN | IG NO. | | SHEET NO | . REV. | BUDGE | REF. | LOCATION | SIZE | CLASS | SER | IAL NO. | SHEET | REVISION |
| NES | 49 | DV-CND41 - DEDCO | 000-PI-D# | -0009 | 09 OF 56 | DO4 | DOJ 059_079_0184 R 9 P 207994 09 OF 56 | | | | | B DO4 | | | |

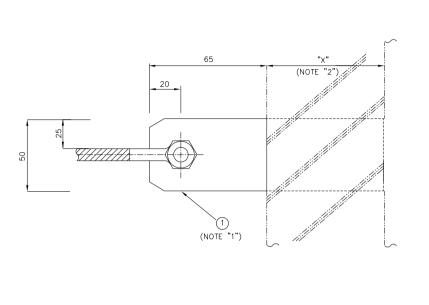
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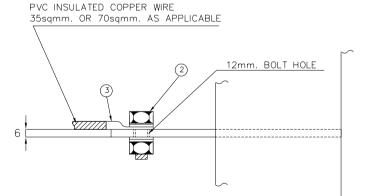












| No. | DESCRIPTION | QTY. |
|-----|--|-------|
| 0 | EARTH LUG | 1-EA |
| 2 | BOLT & NUT WITH 1-SPRING,2-FLAT WASHERS SIZE : M10×25L, FOR EARTH LUG | 1-SET |
| 3 | CRIMP TYPE TERMINAL | 1-EA |
| | | |

EARTHING LUG

1- EARTH LUG SHALL BE HOT DIP GALVANIZED STEEL.

2- "X" IS THICKNESS OF THE FIREPROOFING OR INSULATION.

3- ALL DIMENSIONS ARE IN MILLIMETERS.

| REFERENCE DRAWING | DRG. No. |
|-------------------|--------------|
| EADTWING LUC | IDC D 51 417 |

KEY PLAN

| D04 | 001/5055 | PI | H.EHAKIBA | W.PAKHARIAN | W.WEHRSHAD | | | | | | | | |
|------|----------|---------|---------------|-------------|--------------|------|--|-------------|-------------|------|------------|---------|------|
| D08 | NOV.2021 | 171 | HÆHÁKIBÁ | W.PAKHARIAN | W.WEHRSHAD | | | | | | | | |
| D05 | 1909,750 | 191 | HÆHÁKIBÁ | W.PAKHARIAN | W.WEHRSHAD | | *** | ******** | , | **** | **,** | *** | |
| D01 | 1202,700 | 191 | H.SHAKIBA | W.PAKHARIAN | SH,GHÁLIKAR | | D771 | REV. | DRSCRIPTION | BY | DATE | BY | DATE |
| D00 | VAC 5051 | 191 | M.ASCHARKEIAD | W.PAKHARIAN | SH, CHALIKAR | | MET. | DESCRIPTION | CHECKED | | REV. APPR. | | |
| REV. | DATE | P.O.I.Ø | PREP. | CHK. | APP. | AUT. | اصل و کلیه تسخ این نقته و حق اقتباس متعلق به شرکت علی مناطق نفت خیز جنوب میباشد. | | | | | امل و ک | |

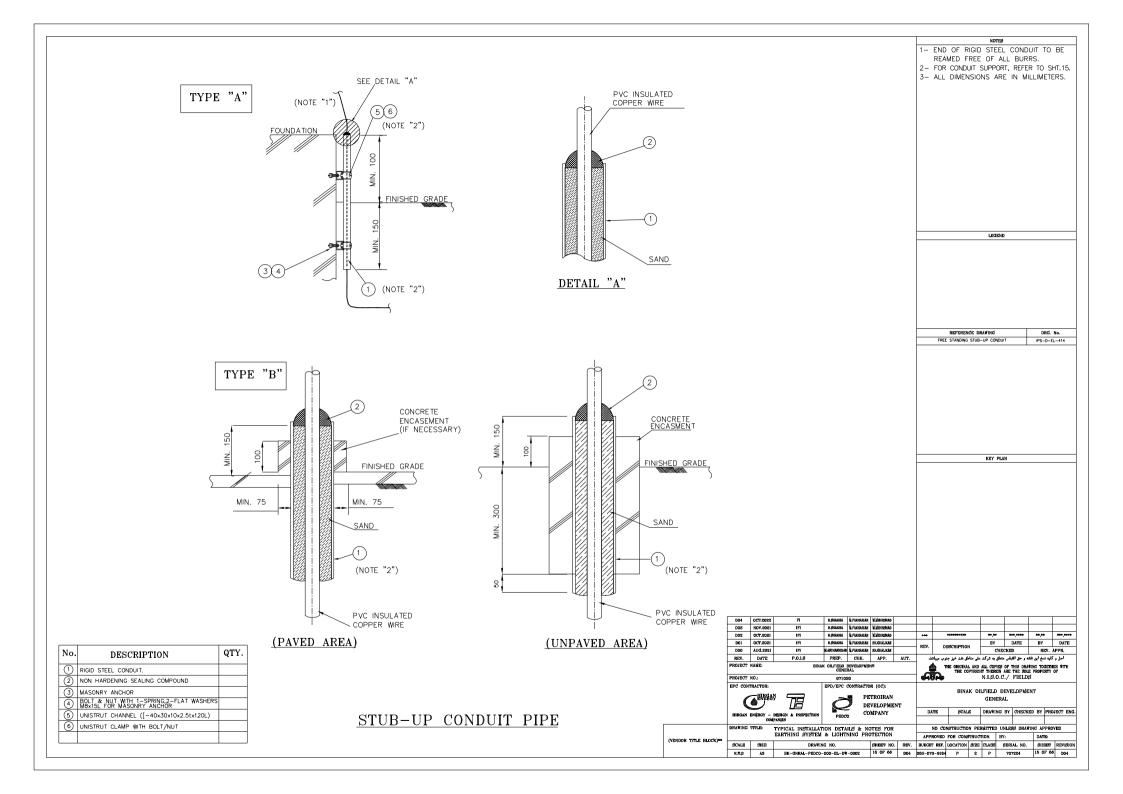
PROJECT NAME: 971020

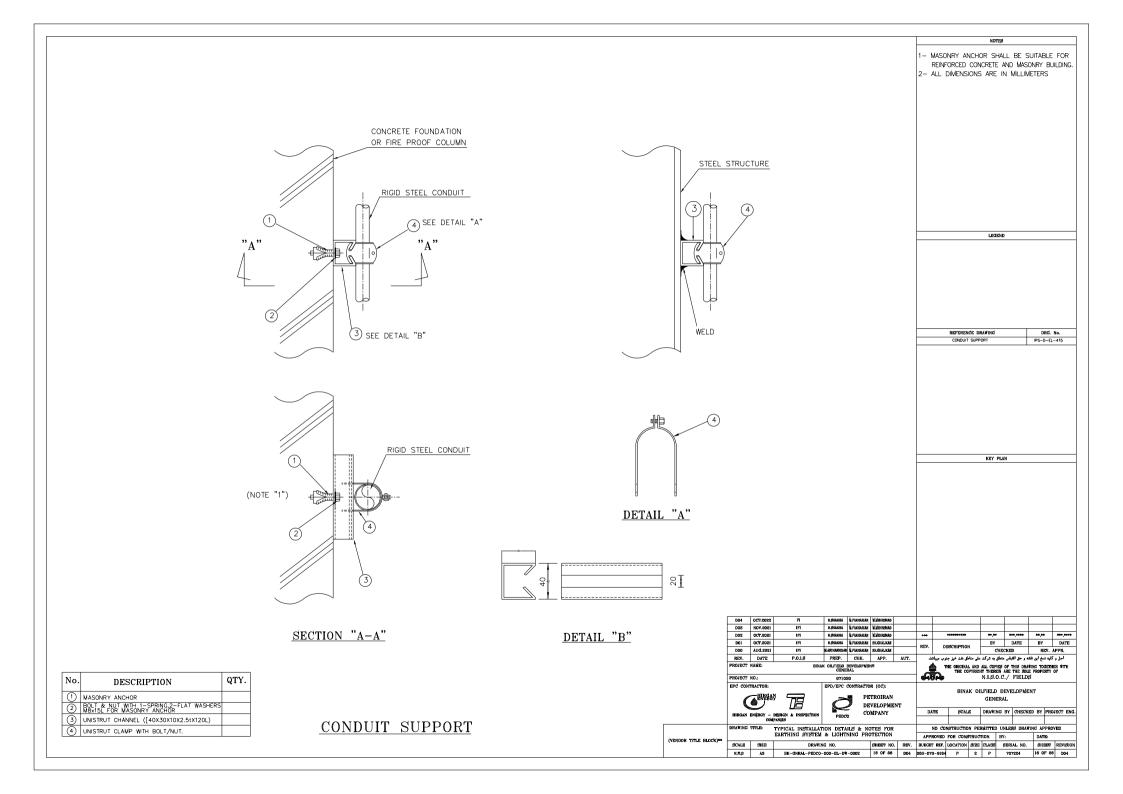
PETROIRAN DEVELOPMENT BINAK OILFIELD DEVELOPMENT

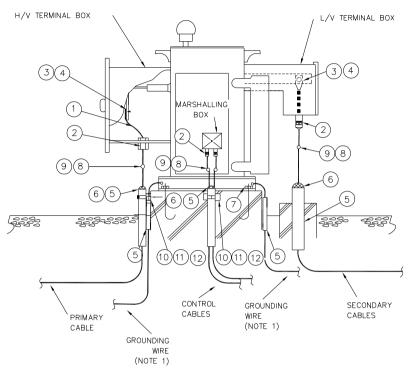
SCALE DRAWING BY CHECKED BY PROJECT ENG. COMPANY TYPICAL INSTALLATION DETAILS & NOTES FOR EARTHING SYSTEM & LIGHTNING PROTECTION APPROVED FOR CONSTRUCTION BY:

 BOALB
 SIRES
 DRAWING NO.
 SHEET NO.
 REV.
 BUDGET REV.
 LOCATION
 SIZE CLASS
 SERIAL NO.
 SHEET REVISION

 N.W.S
 A.S
 BK-ONRML-PEDCO-000-BL-DM-0002
 14 0P 60
 D04
 D03-078-918
 P
 2
 P
 707224
 14 0P 60
 D04
 SHEET NO. REV. BUDGET REF. LOCATION SIZE CLASS SERIAL NO. SHEET REVISION







AROUND TRANSFORMER

| No. | DESCRIPTION | QTY. | | | | |
|------|--------------------------------|---------|--|--|--|--|
| 1 | TERMINATION KIT | AS REQ. | | | | |
| 2 | CABLE GLAND | | | | | |
| 3 | TERMINAL LUG | | | | | |
| 4 | BOLT, NUT & WASHER | | | | | |
| (5) | RIGID STEEL CONDUIT PIPE | | | | | |
| 6 | NON-HARDENING SEALING COMPOUND | AS REQ. | | | | |
| 7 | ANCHOR BOLT | AS REQ. | | | | |
| 8 | CABLE ID NUMBER TAG PLATE | AS REQ. | | | | |
| 9 | FIXING TIE | AS REQ. | | | | |
| 10 | UNISTRUT CLAMP | | | | | |
| 11 | UNISTRUT CHANNEL | | | | | |
| (12) | MASONRY ANCHOR (M8) | AS REQ. | | | | |

NOTES

- TRANSFORMER SHALL BE GROUNDED AT 2 POINTS IN DIAGONAL FORMAT .
- 2- TRANSFORMER TYPE AND SIZE ARE:

11/0.42KV 250 KVA

33/0.42KV 250 KVA 11/3.3KV 800 KVA 11/0.42KV 1000 KVA

- 3- NEUTRAL POINT OF LV TRANSFORMER SHALL BE DIRECTLY EARTHED.
- 4- NEUTRAL POINT OF MV TRANSFORMER SHALL BE EARTHED, BY NGR,

LEGEND

REFERENCE DRAWING DRG. No.

NATIONAL IRANAN OIL ENGINEERING AND CONSTRUCTION COMPANY NOEC-SD-6250-1/2-A3

KBY PLAN

| D04 | 001/2055 | PI | HEHAUBA | W.PAKHARIAN | W.WEHRSHAD | | | | | | | |
|---------|----------|---------|---------------|-------------|-------------|------|---|------------------|------------|------------|------------|----------|
| D08 | NOV.2021 | 171 | HEHAUBA | W.PAKHARIAN | N.VEHRSHAD | | | | | | | |
| D05 | 1909,750 | 191 | HÆHÁKIBÁ | W.PAKHARIAN | N.VEHRSHAD | | *** | ******** | , | **** | **,** | *** |
| D01 | 1909,750 | 191 | H.#HAKIBA | W.PAKHARIAN | SH.CHÁLIKÁR | | REV. | DRSCRIPTION | BY | DATE | BY | DATE |
| D00 | 1202.DUA | 191 | M.ASCHARKEJAD | W.FAKHARIAN | SH.dhalikar | | KEV. | DESCRIPTION | CHECKED | | REV. APPR. | |
| REV. | DATE | P.O.I.Ø | PREP. | CHK. | APP. | AUT. | اصل و کلیه تسخ این تققه و حتی اقتباس متعلق به شرکت ملی مناطق نفت خیز جنوب میباشد. | | | | اصل و ک | |
| PROJECT | NAME: | RINAL | COLFIELD | DRVELOPMRI | N/F | | l 4 | THE ORIGINAL AND | ALL CODIES | OF THIS DO | NINC TODAY | IPD WITH |

 PROJECT NAME:
 BINAX OIL/TELD DEPENDENTIANY

 PROJECT NO.:
 971060

 EPC CONTRACTOR:
 EPD/EPC CONTRACTOR (cd):

HIRGAN ENERGY - DESIGN & INSPECTION COMPANIES

PEDCO PE

PETROIRAN DEVELOPMENT COMPANY N.I.S.O.C./ FIELDS

BINAK OILFIELD DEVELOPMENT

GENERAL

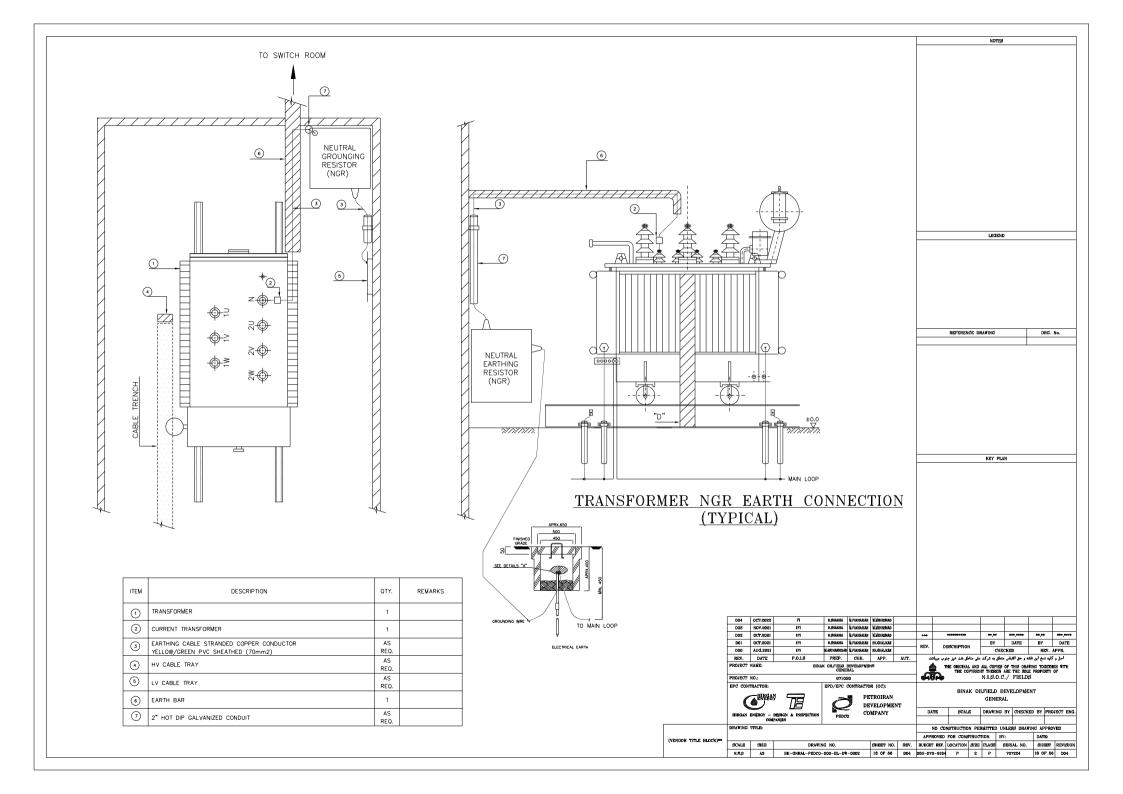
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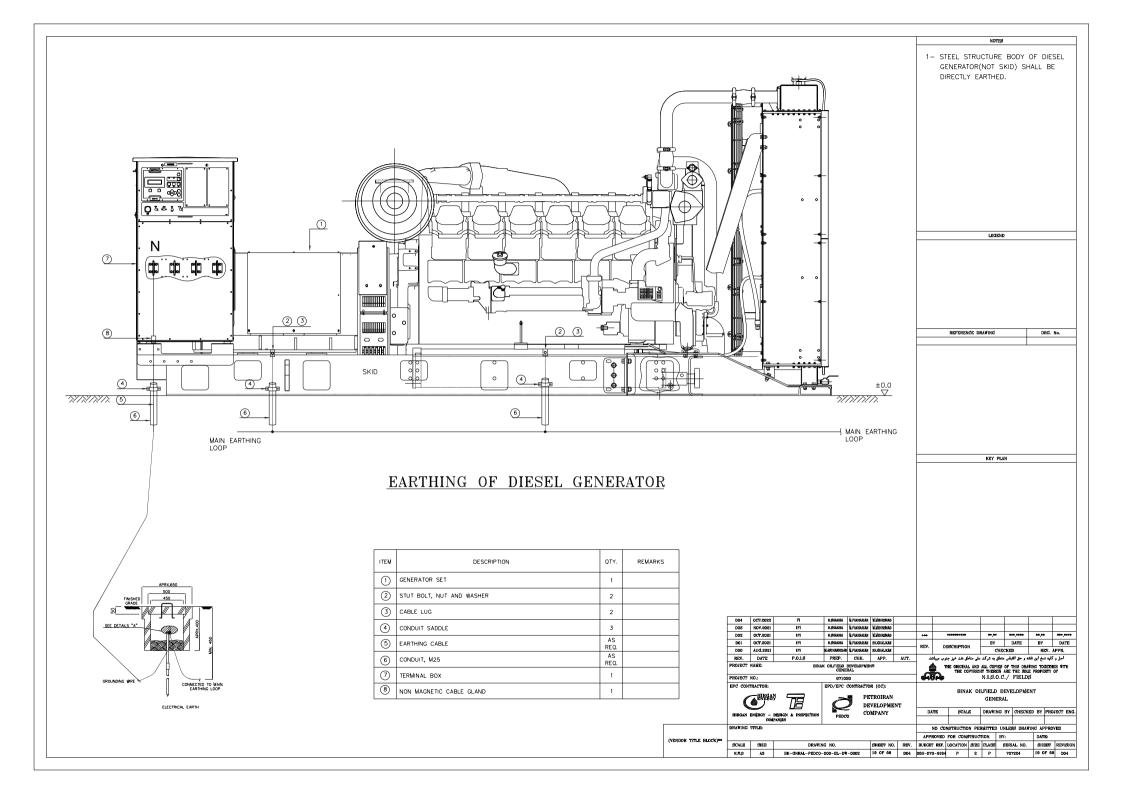
NO CONSTRUCTION PERMITTED UNLESS DRAWING APPROVED

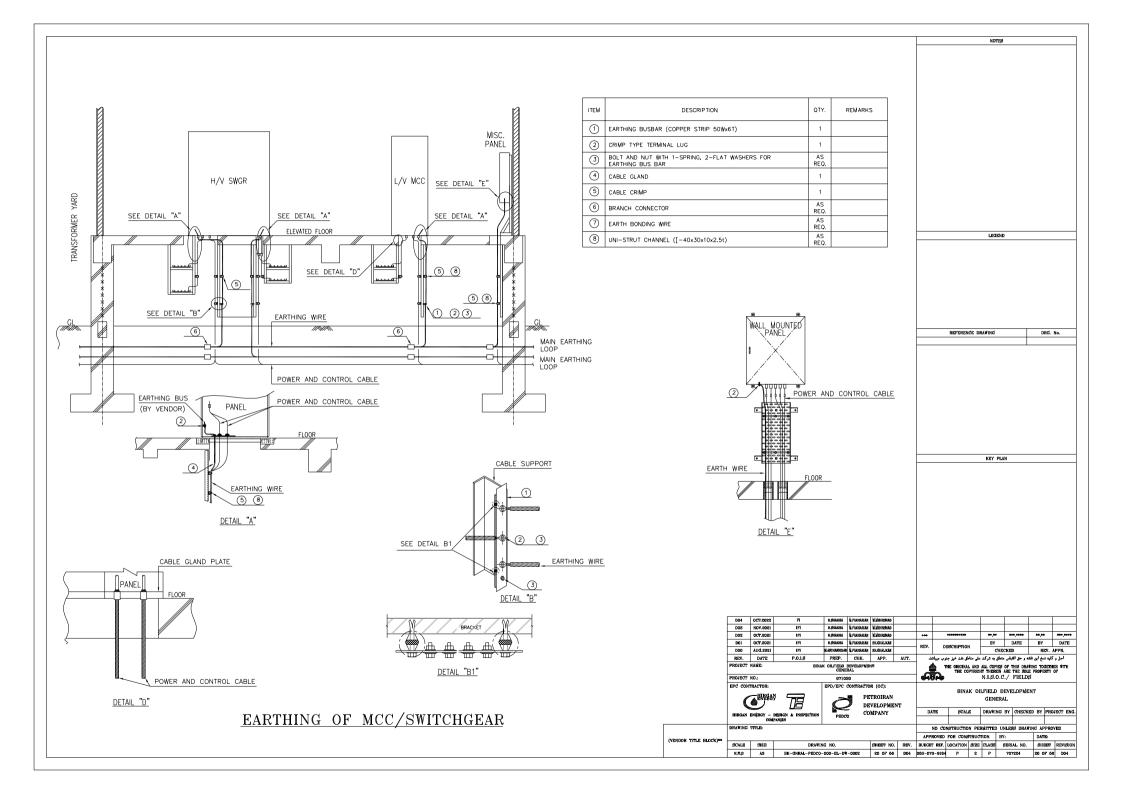
APPROVED DOG CONSTRUCTION BY.

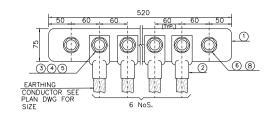
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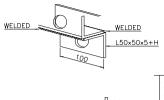
| APPROVED FOR CONSTRUCTION | BY: DATE: | SCALB | SIZE | DRAWING NO. SHEET NO. REV. BUDGET REV. LOCATION SIZE | CLASS | SERIAL NO. SHEET | REVISION | N.T.S | AS | BK-GNRAL-PEDCO-000-BL-DW-00000 | 17 OF 68 | D04 | D03-078-918 | P | 2 | P | 707224 | 17 OF 66 | D04 |

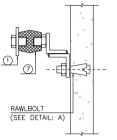


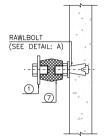












2345 68 6 NoS

TYPE: 1 (WITH ANGLE) INSTALLATION ON WALL

TYPE: 2 (DIRECT) INSTALLATION ON WALL

| | ANCHOR | 7 |
|----------|---------|-----------|
| WALL | ∞ | 50 |
| <u>D</u> | ETAIL " | <u>A"</u> |

SEE DETAIL "A"

| ITEM | DESCRIPTION | QTY. | REMARKS |
|------|---|------|---------|
| 1 | SOLID COPPER EARTHING BAR (520x75x6)mm | 1 | |
| 2 | CRIMP TYPE COPPER CABLE LUG (FOR SIZE, SEE PLAN DWG) | 6 | |
| 3 | PHOSPHOR-BRONZE HEXAGON HEAD BOLT 10mm DIA AND 35mm LONG | 6 | |
| 4 | PHOSPHOR-BRONZE HEXAGON NUT FOR 10mm DIA BOLT | 6 | |
| (5) | PHOSPHOR-BRONZE FLAT ROUND WASHER FOR 10mm DIA BOLT | 12 | |
| 6 | PHOSPHOR-BRONZE ROUND SPRING WASHER FOR 10mm DIA BOLT | 2 | |
| 7 | EARTH BAR INSULATOR | 2 | |
| 8 | BOLT PROJECTING RAWLBOLT, SIZE M10 | 2 | |

EARTH BAR ASSEMBLY (WALL MOUNTED)

| D04 | 001/5055 | PI | HAHANBA | W.Pakharian | W.VBHRSHUD | | | | | | | | |
|---------|---|---------|----------------|-------------|--------------|------|--|------------------------------|---------------|---------------|------------------|------------|--|
| D08 | NOV.2021 | IPI | HAHANBA | W.PAKHARIAN | W.VEHRSHAD | | | | | | | | |
| D05 | 1905,700 | IPI | HAHANBA | W.Fakharian | W.WEHRSHAD | | *** | ******** | **,** | **** | **,** | *** | |
| D01 | 1202,700 | IPI | HAHANBA | W.Fakharian | SH, CHÁLIKAR | | REV. | DESCRIPTION | BY | DATE | BY | DATE | |
| D00 | VAC'5051 | IPI | M.ASICHARKEIAD | W.Fakharian | SH,dhaukar | | REV. | REV. DESCRIPTION | | CHECKED | | REV. APPR. | |
| REV. | DATE | P.O.I.Ø | PREP. | CHK. | APP. | AUT. | نف | ملى مناطق نقت خيز جنوب ميباة | متعلق به شرکت | ه و حق اللباس | لليه تسخ أين تقد | اصل و آ | |
| PROJECT | PROJECT NAME: BINAK OILFIELD DEVELOPMENT GENERAL | | | | | | THE ORIGINAL AND ALL COPIES OF THIS DRAWING TOGETHER WITH THE COPYRIGHT THEREIN ARE THE SOLE PROPERTY OF | | | | | | |
| PROJECT | NO.: | | 9710 | 20 | | | N.I.S.O.C./ FIELDS | | | \$ | | | |

COMPANY

BINAK OILFIELD DEVELOPMENT PETROIRAN DEVELOPMENT

SCALE DRAWING BY CHECKED BY PROJECT ENG.

LEGEND

KEY PLAN

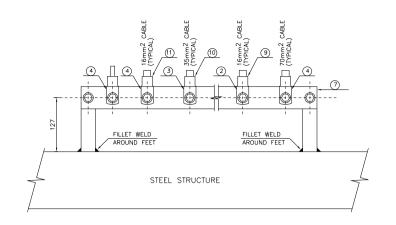
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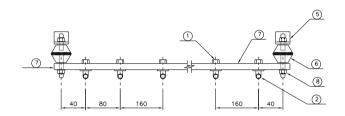
DRG. No.

(VENDOR TITLE BLOCK)**

APPROVED FOR CONSTRUCTION BY:
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 DRAWING NO.
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 REV.
 BUDGET REF.
 LOCATION SIZE CLASS
 SERIAL NO.
 SHBERD REVISION

 N.R.S
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 21 0F 68
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 DO4
 SHEET NO. REV. BUDGET REF. LOCATION SIZE CLASS SERIAL NO. SHEET REVISION





| ITEM | DESCRIPTION | QTY. | REMARKS |
|------|---|-----------|---------|
| 1 | M10x35mm2 HEX HEAD BOLT C/W NUT AND WASHERS | AS REQ | |
| 2 | M10 CABLE LUG SUITABLE TO HOLD 16mm2 STRANDED CABLE | AS REQ | |
| 3 | M10 CABLE LUG SUITABLE TO HOLD 35mm2 STRANDED CABLE | AS REQ | |
| 4 | M10 CABLE LUG SUITABLE TO HOLD 70mm2 STRANDED CABLE | AS REQ | |
| (5) | ANGLE IRON | 2 | |
| 6 | EARTH BAR INSULATOR | 2 | |
| 7 | 50x5mm STAINLESS STEEL OR COPPER EARTH BAR (LENGTH AS REQ) | 1 | |
| 8 | EARTH STUD C/W BRASS NUTS AND WASHERS | AS REQ | |
| 9 | HEATSHRINK SLEEVES SUITABLE FOR 16mm2 CABLE | AS REQ | |
| 10 | HEATSHRINK SLEEVES SUITABLE FOR 35mm2 CABLE | AS REQ | |
| 11) | HEATSHRINK SLEEVES SUITABLE FOR 70mm2 CABLE | AS REQ | |

(VENDOR TITLE BLOCK)**

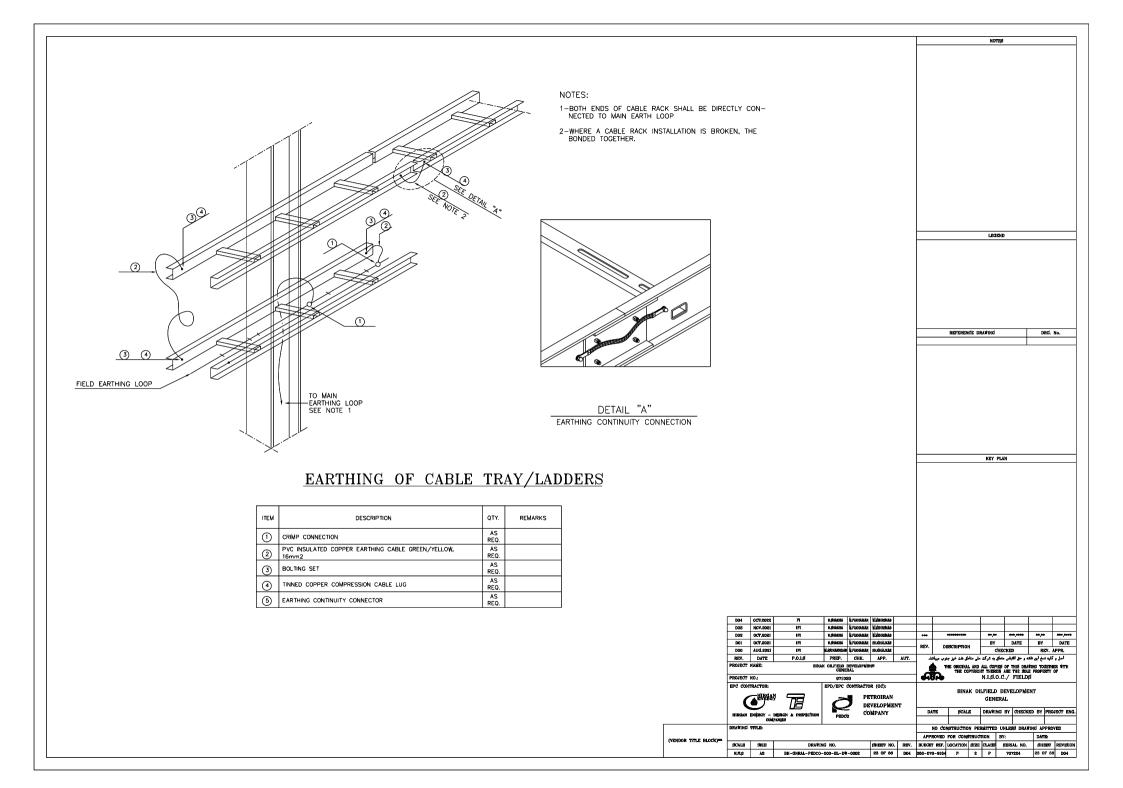
EARTH BAR MOUNTING DETAIL

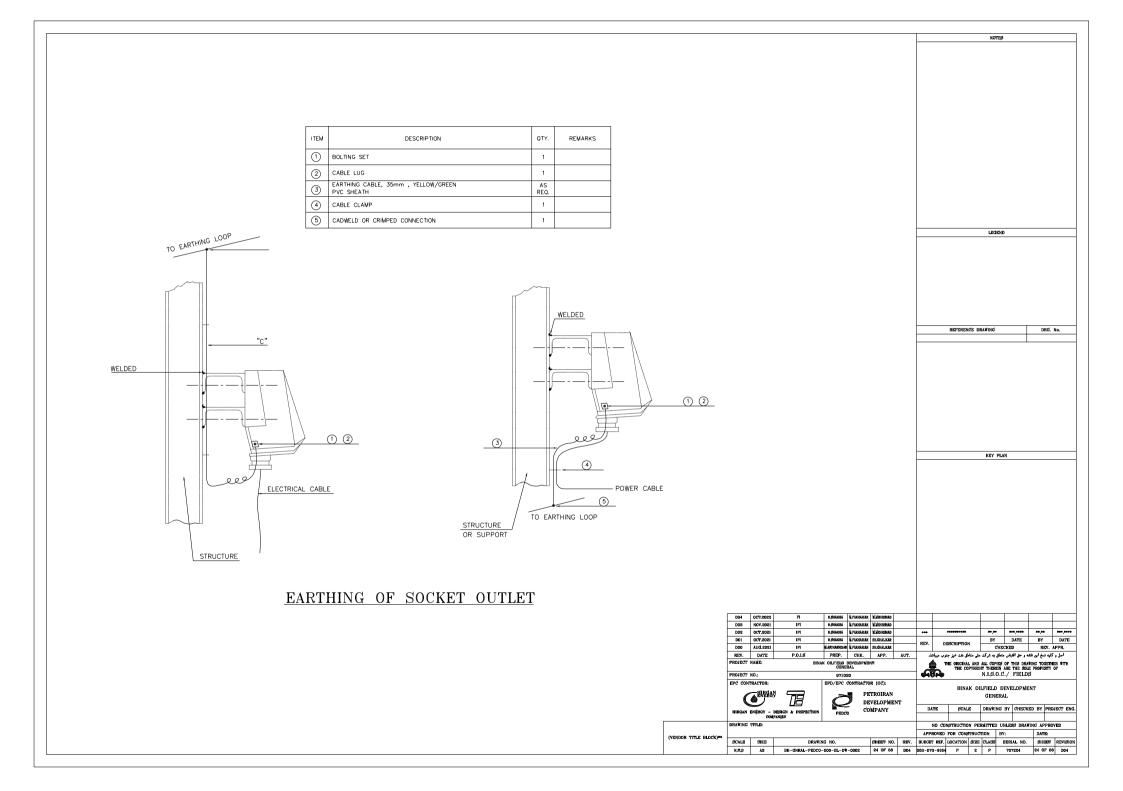
| D04 | 001/2055 | PI | H,\$HAKIBA | V.Pakharian | W.VBHRSHUD | | | | | | | | | | |
|---|----------|---------------------|-----------------|--------------------|-------------|--------|-------------|----------|---------------|-----------|-------------------------|----------------------|----------------|--------------|-----------|
| D08 | NOV.2021 | IFI | HAHANBA | W.PAKHARIAN | N.VEHRSHAD | | | | | | | | | | |
| D05 | 1909,750 | 191 | HAHAUBA | V.PAKHARIAN | N.VEHRSHAD | | *** | | *********** | | , | . . | **.*** | **,** | *** |
| D01 | 1909,750 | 171 | H,\$HAKIBA | V.PAKHARIAN | SH.OHALIKAR | | REV. | | BSCR1PT10 | | BY | | DATE | BY | DATE |
| D00 | VAQ'5051 | 171 | M. ASICHARKEJAD | V.PAKHARIAN | SH.dhaukar | | REV. | , D | ESCRIPIO | ا " | CHECKED | | D 0 | REV. / | APPR. |
| REV. | DATE | P.O.I.S | PREP. | CHK. | APP. | AUT. | نذہ | وپ میباد | ئى ئقت خيز چة | ملی مثاما | په شرکت | باس متعلق | تققه و حق اللب | کلیه تنخ این | اصل و |
| PROJECT NAME: BINAK OILFIELD DEVELOPMENT GENERAL | | | | | | 1 | THE ORIGINA | | | | THIS DRAWII THE SOLE | O TODETH PROPERTY | er with Op | | |
| PROJECT NO.: 971020 | | | | | | 44 | æ | | | N.I.S. | 0.C./ | FIELDS | | | |
| EPC CONTRACTOR: EPD/EPC CONTRACTOR (CC): PETROIRAN DEVELOPMENT | | | | | | BINA | K OII | | DEVI ERAL | ELOPMEN | Т | | | | |
| HIRGAN | ENÈRGY - | DESIGN & INSPECTION | PEDC | _ do | MPANY | | DA | TE | SCAL | E | DRAWI | NG BY | CHECKEE | BY PRO | JECT ENG. |
| | | PANJES | PEDC | b | | | | | | | | | | | |
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| | | | | | | | APPI | ROVED | FOR CON | TRUC | MON | BY: | | DATE: | |
| SCALE | SIZE | DRAWIN | (G NO. | | SHEET NO | . REV. | BUDGET | REF. | LOCATION | SIZE | CLASS | SER | JAL NO. | SHEET | REVISION |
| N.T.S | AS | BK-GNRAL-PEDCO- | -000-EL-D# | -0002 | 22 OF 56 | D04 | 053-070 | 3-9184 | P | 2 | Р | 70 | 7224 | 22 OF 56 | D04 |
| | | | | | | | | | | | | | | | |

REFERENCE DRAWING

KBY PLAN

DRG. No.





GROUNDING CONDUCTOR SIZE FOR PROCESS EQUIPMENT

| EQU | EQUIPMENT | | | | |
|--------------------|-------------------------|------------|----------|--|--|
| TANK OR STORAGE | UP TO 10M IN DIA. | 2 | 35 | | |
| TAIN OR STORAGE | MORE THAN 10M IN DIA. | (NOTE "2") | 35 | | |
| TOWER | LESS THAN 20M IN HEIGHT | 1 | 35 | | |
| TOWER | 20M AND HIGHER | 2 | 35 | | |
| DRUM | | 1 | 35 | | |
| HEAT EXCHANGER | | 1 | 16 | | |
| STEEL STRUCTURE | | 2 | 70 OR 35 | | |
| PIPE RACK | | EVERY 30M | 70 | | |
| PIPE | | (NOTE "1") | 16 | | |
| LADDER & STAIRWAYS | | (NOTE "1") | 35 | | |

GROUNDING CONDUCTOR SIZE FOR ELECTRICAL EQUIPMENT

| EQU | EQUIPMENT | | | | |
|-------------------------------|--------------------|------------|-----|--|--|
| TRANSFORMER | BODY | 2 | 70 | | |
| MEDIUM VOLTAGE & HIGH VOLTAGE | SWITCHGEAR | 2 | 120 | | |
| SWITCHGEAR | LIGHTNING ARRESTER | 1 | 70 | | |
| L/V SWGR, MCC OR PANELS | | (NOTE "1") | 70 | | |
| LOCAL CONTROL STATION | | 1 | 16 | | |
| LOCAL LIGHTING PANEL BOARD | | 1 | 35 | | |
| WELDING OUTLET | | 1 | 35 | | |
| | UP TO 22KW | 1 | 16 | | |
| MOTOR | 23KW TO 55KW | 1 | 35 | | |
| | MORE THAN 56KW | 1 | 70 | | |
| MAIN LOOP | | (NOTE "1") | 70 | | |
| SUBSTATION LOOP | | (NOTE "1") | 120 | | |

- THE No.OF GROUNDING POINTS SHALL BE IN ACCORDANCE WITH THE GROUNDING LAYOUT DRAWING.
- 2- THE INTERVAL BETWEEN GROUNDING POINTS ALONG TANK CIRCUMFERENCE SHALL NOT EXCEED 30 METERS.
- 3- GROUNDING CONDUCTOR SHALL BE PVC INSULATED STRANDED COPPER WIRE.

| | PND |
|--|-----|
| | |

| REFERENCE DRAWING | DRG. No. |
|-------------------|--------------|
| SELECTION CHART | IDS_D_EL_417 |

KEY PLAN

SELECTION CHART

| D04 | 001/5055 | PI | H.EHAKIBA | V.PAKHARIAN | W.WEHRSHAD | | | | | | | | |
|------|----------|---------|---------------|-------------|--------------|------|--|-------------|-------|------|-------|-------|--|
| D08 | NOA'5051 | 171 | HÆHÁKIBÁ | V.PAKHARIAN | W.WEHRSHAD | | | | | | | | |
| D05 | 1905°100 | 191 | HÆHÁKIBÁ | V.PAKHARIAN | W.WEHRSHAD | | *** | ******** | **,** | **** | **,** | *** | |
| D01 | 1905°100 | 191 | H.SHAKIBA | V.PAKHARIAN | SH,GHÁLIKAR | | REV. | DRSCRIPTION | BY | DATE | BY | DATE | |
| D00 | VAC'5051 | 191 | M.ASCHARKEIAD | V.PAKHARIAN | SH, CHALIKAR | | MET. | DESCRIPTION | CHE | CKED | REV. | APPR. | |
| REV. | DATE | P.O.I.Ø | PREP. | CHK. | APP. | AUT. | اصل و کلیه تسخ این نقشه و حق اقتباس متعلق به شرکت ملی مناطق نفت خیز جنوب میباشد. | | | | | | |

PROJECT NAME: PROJECT NO.: 971020

PETROIRAN DEVELOPMENT COMPANY

N.I.S.O.C./ FIELDS BINAK OILFIELD DEVELOPMENT

DATE SCALE DRAWING BY CHECKED BY PROJECT ENG.

TYPICAL INSTALLATION DETAILS & NOTES FOR EARTHING SYSTEM & LIGHTNING PROTECTION APPROVED FOR CONSTRUCTION BY: SHEET NO. REV. BUDGET REF. LOCATION SIZE CLASS SERIAL NO. SHEET REVISION SCALE SIZE DRAWING NO. N.T.S A3 BK-GNRAL-PEDCO-000-BL-DW-0002 25 0F 56 D04 053-073-9184 F 2 P 707224 25 0F 56 D04

GENERAL NOTES

- 1) ALL DIMENSIONS ARE IN MILLIMETERS, UNLESS OTHERWISE NOTED.
- ALL LIGHTNING PROTECTION CONDUCTORS SHALL BE 50mm² BARE, STRANDED COPPER, UNLESS OTHERWISE NOTED.
- 3) IN CASE OF FLAT BAR COPPER CONDUCTOR USAGE FOR LIGHTNING PROTECTION, CONDUCTOR SHALL BE TINED WITH SIZE 25mm X 3 mm.
- 4) ALL LIGHTNING PROTECTION SYSTEM DOWN CONDUCTORS SHALL BE FIXED BY A CLAMP EVERY ONE METER INTERVAL.
- 5) THE PATH TO GROUND FROM CIRCUITS, EQUIPMENT, AND CONDUCTOR ENCLOSURES SHALL:
 - (1) BE PERMANENT AND CONTINUOUS.
- (2) HAVE CAPACITY TO CONDUCT SAFELY ANY FAULT CURRENT LIKELY TO BE
 - IMPOSED ON IT; AND
 - (3) HAVE SUFFICIENTLY LOW IMPEDANCE TO LIMIT THE VOLTAGE
 TO GROUND AND
 TO FACILITATE THE OPERATION OF
 THE CIRCUIT PROTECTIVE DEVICES IN THE CIRCUIT.
- 6) EARTHING AND LIGHTNING PROTECTION CONDUCTORS IN THE GROUND SHALL BE LAID AT A DEPTH OF AT LEAST 750MM FROM FINISHED GROUND LEVEL (FGL) UNLESS OTHERWISE NOTED.
- UNDERGROUND JOINTS OF LIGHTNING PROTECTION SYSTEM CONDUCTORS SHALL BE MADE BY THERMO-WELD TYPE CONNECTIONS. FOR ABOVE GROUND CONNECTIONS, CRIMP TYPE JOINTS CAN BE USED.
- 8) UNDERGROUND CONDUCTORS AT CROSSINGS OF ROADS, RAILWAYS AND WALKWAYS SHALL BE INSTALLED IN HEAVY GAUGE GALVANIZED STEEL CONDUITS AS INDICATED ON THE RELEVANT PLAN/DETAIL DRAWINGS.
- 9) ALL UNDERGROUND CONNECTIONS SHALL BE WRAPPED AND COMPLETELY SEALED WITH WATERPROOF PETROLEUM TAPE.
- 10) WHERE POSSIBLE WELDED CONNECTIONS SHALL BE "ALL ROUND" TO PREVENT INGRESS OF MOISTURE BETWEEN STEEL SURFACES.
- 11) THE ELECTRICAL INSTALLATION SHALL BE SUCH SO AS TO PREVENT INJURY TO PERSONNEL.
- 12) EARTH ROD SHALL BE 316L STAINLESS STEEL.
- 13) THE No.OF GROUNDING POINTS SHALL BE IN ACCORDANCE WITH THE GROUNDING LAYOUT
 - 2- THE INTERVAL BETWEEN GROUNDING POINTS ALONG TANK CIRCUMFERENCE SHALL NOT EXCEED 30 METERS.
 - 3- GROUNDING CONDUCTOR SHALL BE PVC INSULATED STRANDED COPPER WIRE.

- 14) THE MATERIALS OF WHICH PROTECTION SYSTEMS ARE MADE SHALL BE RESISTANT TO CORROSION OR SHALL BE ACCEPTABLY PROTECTED AGAINST CORROSION.
- 15) NO COMBINATION OF MATERIALS SHALL BE USED THAT FORMS AN ELECTROLYTIC CELL OF SUCH NATURE THAT IN THE PRESENCE OF MOISTURE CORROSION IS ACCELERATED.
- 16) ANY PART OF A LIGHTNING PROTECTION SYSTEM THAT IS SUBJECT TO MECHANICAL DAMAGE OR DISPLACEMENT SHALL BE PROTECTED WITH A PROTECTIVE MOLDING OR COVERING, IF METAL PIPE OR TUBING IS USED AROUND THE CONDUCTOR, THE CONDUCTOR SHALL BE ELECTRICALLY CONNECTED TO THE PIPE OR TUBING AT BOTH ENDS.
- 17) AIR TERMINALS SHALL BE PROVIDED FOR ALL PARTS OF A STRUCTURE THAT ARE LIKELY TO BE DAMAGED BY DIRECT LIGHTNING FLASHES. METAL PARTS OF A STRUCTURE THAT ARE EXPOSED TO DIRECT LIGHTNING FLASHES AND THOSE HAVE A METAL THICKNESS OF 4.8mm OR GREATER ONLY REQUIRE CONNECTION TO THE LIGHTNING PROTECTION SYSTEM. SUCH CONNECTIONS SHALL PROVIDE A TWO—WAY PATH TO GROUND AS IS REQUIRED FOR AIR TERMINALS.
- 18) AIR TERMINALS SHALL NOT BE REQUIRED FOR THOSE PART OF STRUCTURE LOCATED WITHIN A ZONE OF PROTECTION.
- 19) NO BENDS OF A CONDUCTOR SHALL FORM AN INCLUDED ANGLE OF LESS THAN 90 DEGREE, NOR SHALL IT HAVE A RADIUS OF BEND LESS THAN 203mm(8").
- 20) AT LEAST TWO DOWN CONDUCTORS SHALL BE PROVIDED ON ANY KIND OF STRUCTURE, INCLUDING STACKS, STRUCTURES EXCEEDING 76m IN PERIMETER SHALL HAVE A DOWN CONDUCTOR FOR EVERY 30m OF PERIMETER OR FRACTION THERE OF
- 21) EACH DOWN CONDUCTOR SHALL TERMINATE AT A GROUND TERMINAL.GROUND RODS SHALL BE NOT LESS THAN 12.7mm(1/2") IN DIAMETER AND 2.4m(8") LONG.
- 22) GROUNDING CONDUCTORS AND BONDING JUMPERS SHALL BE CONNECTED BY EXOTHERMIC WELDING, PRESSURE CONNECTORS, CLAMPS, OR OTHER SUITABLE MEANS.CONNECTION DEVICES OF FITTINGS THAT DEPEND SOLELY ON SOLDER SHALL NOT BE USED.
- 23) GROUNDING IMPEDANCE FOR LIGHTNING PROTECTION SYSTEM SHALL BE FIVE OHM OR SMALLER.
- 24) IF THE EARTH RESISTANCE EXCEED THE DETERMINED LIMIT,
 MORE EARTH POLES
 SHALL BE DRIVEN IN GROUND AND CONNECTED TO THE
 CIRCUIT.

LEGEND REFERENCE DRAWING DRG. No. KEY PLAN

NOTES

| D04 | 00,17055 | PI | H,\$HAKIBA | W.PAKHARIAN | W.WEHRSHAD | | | | | | | |
|---------|----------|---------|--------------------|-------------|-------------|------|------|------------------------------|-----------------|-----------------|-----------------|---------|
| D08 | NOV.2021 | IFI | HARMANBA | W.PAKHARIAN | W.WEHRSHAD | | | | | | | |
| D05 | 1902,700 | IFI | HARMANBA | W.PAKHARIAN | W.WEHRSHAD | | *** | ******** | , | **** | **,** | *** |
| D01 | 1202,TD0 | IFI | HAHAKIBA | W.PAKHARIAN | SH,GHÁLIKAR | | REV. | DESCRIPTION | BY | DATE | BY | DATE |
| D00 | AUG.2021 | IFI | M.ASCHARKEJAD | W.PAKHARIAN | SH,dhalikar | | KEV. | DESCRIPTION | CHE | CKED | REV. | APPR. |
| REV. | DATE | P.O.I.s | PREP. | CHK. | APP. | AUT. | 4 | ملى مفاطق نقت خيز جنوب ميباث | ىتىلق پە شركت ، | ه و حق القياس ، | ليه تسخ أين تقد | اصل و ک |
| PROJECT | NAME: | BINA | K OILFIELD CENE | | NIF | | | THE ORIGINAL AND THE COPYRIC | HT THEREIN | | E PROPERTY | |

PROJECT NAME: BINAK OILFIELD DEVELOPMENT
ORNERAL
PROJECT NO.: 971020

EPC CONTRACTOR: EPD/EPC CONTRACTOR (GC):

HIRGAN ENERGY - DESIGN & INSPECTION COMPANIES

PETROI DEVELO COMPAN

PETROIRAN DEVELOPMENT COMPANY

BINAK OILFIELD DEVELOPMENT
GENERAL

DATE SCALE DRAWING BY CHECKED BY PROJECT ENG.

N.I.S.O.C./ FIELDS

CODING SYSTEM FOR EARTHING AND LIGHTNING PROTECTION CONDUCTORS

| SYMBOL | SIZE & TYPE OF THE CONDUCTOR | SYMBOL | SIZE & TYPE OF THE CONDUCTOR |
|--------|--|--------|--|
| 1 | 10mm2, BARE ROUND STRANDED COPPER | (15) | 120mm2, BARE ROUND STRANDED COPPER |
| 2 | 10mm2, INSULATED ROUND STRANDED COPPER | 16) | 120mm2, INSULATED ROUND STRANDED COPPER |
| 3 | 16mm2, BARE ROUND STRANDED COPPER | 17) | 150mm2, BARE ROUND STRANDED COPPER |
| 4) | 16mm2, INSULATED ROUND STRANDED COPPER | (18) | 150mm2, INSULATED ROUND STRANDED COPPER |
| 5 | 25mm2, BARE ROUND STRANDED COPPER | (19) | 185mm2, BARE ROUND STRANDED COPPER |
| 6 | 25mm2, INSULATED ROUND STRANDED COPPER | 20 | 185mm2, INSULATED ROUND STRANDED COPPER |
| 7 | 35mm2, BARE ROUND STRANDED COPPER | 21) | 185mm2, SINGLE CORE 6KV CABLE, ROUND STRANDED COPPER, XLPE CABLE |
| 8 | 35mm2, INSULATED ROUND STRANDED COPPER | 22 | 240mm2, SINGLE CORE 1KV CABLE, ROUND STRANDED COPPER, PVC CABLE |
| 9 | 50mm2, BARE ROUND STRANDED COPPER | 23) | 240mm2, BARE ROUND STRANDED COPPER |
| 10 | 50mm2, INSULATED ROUND STRANDED COPPER | 24) | 240mm2, INSULATED ROUND STRANDED COPPER |
| (1) | 70mm2, BARE ROUND STRANDED COPPER | | |
| 12 | 70mm2, INSULATED ROUND STRANDED COPPER | | |
| (13) | 95mm2, BARE ROUND STRANDED COPPER | | |
| (14) | 95mm2, INSULATED ROUND STRANDED COPPER | | |

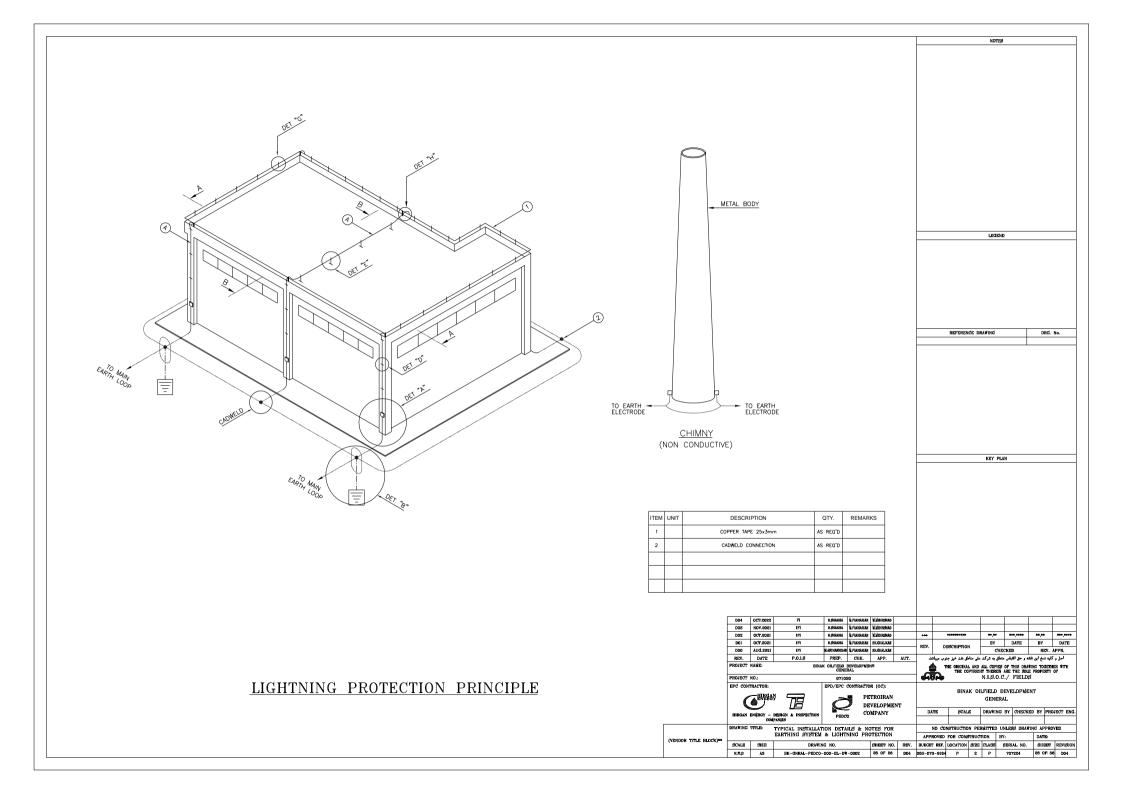
| D04 | 001/5055 | PI | H,\$HAUBA | V.Pakharian | W.WEHRSHAD | | | | | | | | | | Т | |
|---|--|---|---------------------------------------|---------------------------------|---|-------------|---------|-------|-------------|-------|--------|--------------|------------|-----------------|------|-------------|
| D08 | NOV.2021 | 1PI | HEHAUBA | W.PAKHARIAN | W.WEHRSHAD | | | | | | | | | | Т | |
| D05 | 1909,750 | 191 | HEHAUBA | W.Pakharian | W.WEHRSHAD | | *** | | ********* | | -,- | * | ***** | **,** | | *** |
| D01 | 1909,750 | 191 | HEHAUBA | W.Pakharian | SH.CHALIKAR | | REV. | | RSCRIPTIO | , | BY | - | DATE | BY | | DATE |
| D00 | 1202.DUA | 191 | MÁSICHARKRIAD M.PAKHARIAN SH.GHALIKAR | | KEV. | DESCRIPTION | | | CHECKED | | | RE | V. AI | PR. | | |
| REV. | DATE | P.O.I.Ø | APP. | AUT. | اصل و کلیه نسخ این نقشه و حق اقتباس متطق به شرکت ملی مناطق نفت خیز جنوب میباشد. | | | | | | | | | | | |
| REV. DATE P.O.LS PREP ROJECT NAME: BINAK OILFIEI GE | | | | DILFIELD DEVELOPMENT GENERAL | | | | | THE ORIGINA | | | | THE SOLE I | C TOO PROPER | TY O | R WITH P |
| | | | 9710 | | | | 970 | _ | | | н.н.р. | 0.0./ | Гівпр | | | |
| PC CON | TRACTOR: | · 72 | EPD/EPC | PE | R (GC): TROIRAN VELOPME | NT | | | BINA | K OII | | DEVE ERAL | LOPMEN | г | | |
| DIDG*N | endado - | DESIGN & INSPECTION | | _ do | MPANY | | DAT | ΤE | SCAL | E | DRAWI | NG BY | CHECKED | BY I | PROJ | ECT ENG. |
| HINGAN . | | PANJES | PEDC | 0 | | | | | | | | | | | | |
| RAWING | TITLE: | TYPICAL INSTALLAT | | | | | N | o do | NSTRUCTIO | N PER | RMITTE | UNLES | S DRAWIN | d APF | ROV | ED |
| | EARTHING SYSTEM & LIGHTNING PROTECTION | | | | | | APPR | OVED | FOR CONE | TRUC | MOM | BY: | | DATE | t | |
| SCALE | SIZE | DRAWIN | IC NO. | | SHEET NO. | REV. | BUDGET | REF. | LOCATION | SIZE | CLASS | SERI | AL NO. | SHE | em | REVISION |
| N.T.S | AS | BK-GNRAL-PEDCO- | -000-EL-DW | -0002 | 27 OF 56 | D04 | 053-078 | -9184 | P | 2 | P | 707 | 7224 | 27 OF | 56 | D04 |
| | | AS BK-GNRAL-PEDCO-000-EL-DW-0002 27 OF 56 | | | | | | | | | | | | | | |

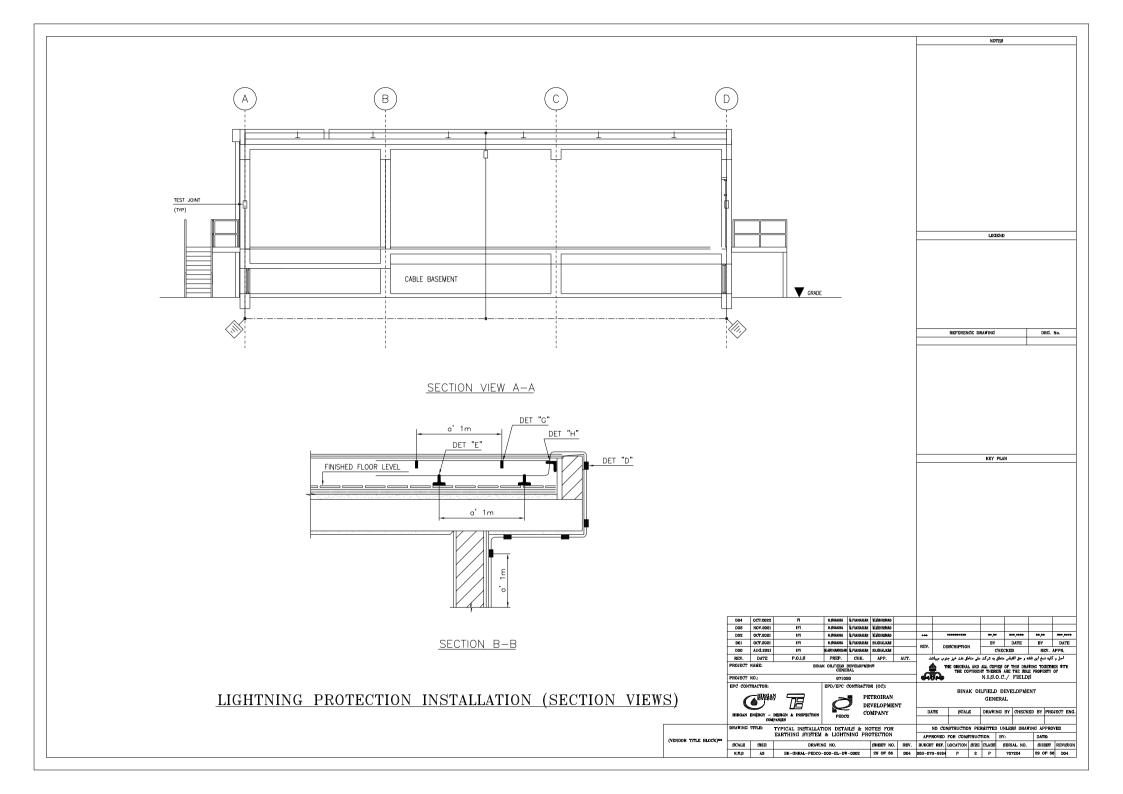
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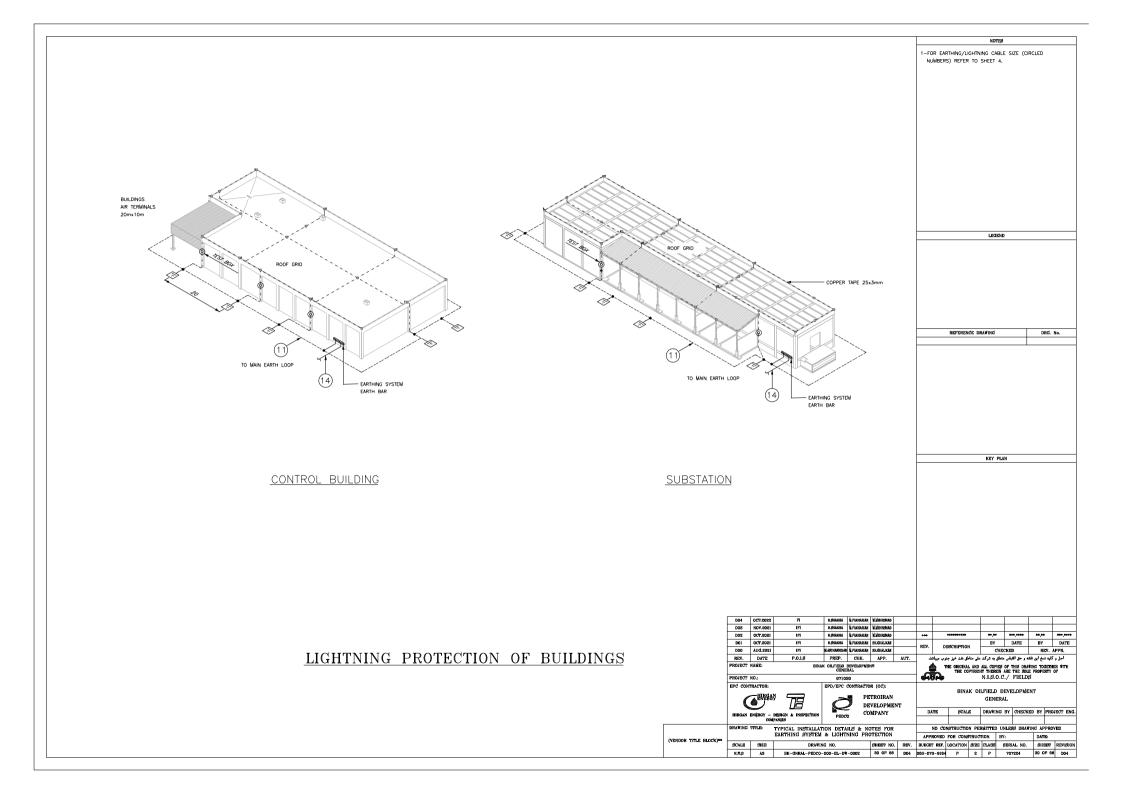
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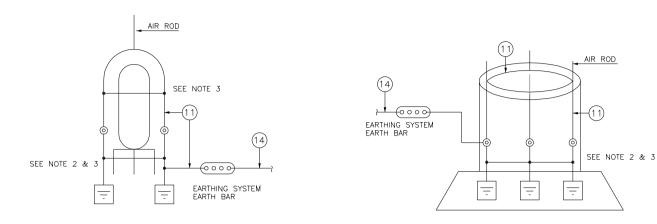
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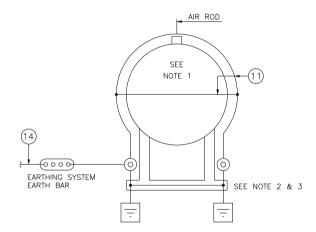




<u>VERTICAL VESSELS</u>

METALLIC STORAGE TANKS
FLAMMABLE MATERIALS

(VENDOR TITLE BLOCK)**



SPHERICAL TANK

LIGHTNING PROTECTION OF VESSELS & TANKS

| D04 | 00,1'5055 | PI | HÆHÁUBÁ | W.PAKHARIAN | W.WEHRSHAD | | | | | | | _ | | | |
|--|--|----------------------------|---------------|--------------------|-------------------------------|----------|-------------|------------|---------------|----------|------------|--------------|---------------|-------------|----------------|
| D08 | NOV.2021 | IPI | H,#HAKIBA | W.PAKHARIAN | N.VEHRSHUD | | | | | | | | | | |
| D05 | 1909,750 | IPI | HAHAUBA | V.PAKHARIAN | N.VEHRSHAD | | *** | | ********* | | -,- | | ***** | **,** | *** |
| D01 | 1909,750 | IPI | HAHAKIBA | V.PAKHARIAN | SH,OHALIKAR | | REV. | _ | RSCRIPTIO | . 1 | BY | | DATE | BY | DATE |
| D00 | VAC'5051 | IPI | M.ASCHARKEIAD | V.PAKHARIAN | SH, OHALIKAR | | REV. | D | ESCRIPTIO | ۱ ۱ | (| неске | D | REV. | APPR. |
| REV. | REV. DATE P.O.I.S PREP. CHK. APP. AU | | | | | | | | لق نقت خيز جة | ملی مثاه | په شرکت | باس متعلق | تقده و حق الد | ليه تسخ اين | امل و ک |
| PROJECT NAME: BINAK OILFIELD DEVELOPMENT GENERAL | | | | | | | | _ | THE ORIGINA | PYRICE | IT THER | EIN ARE | THE SOLE | C TODET | HER WITH OF |
| PROJECT | NO.: | | 9710 | S0 | | | - 68 | P | | | N.I.S. | 0.C./ | FIELDS | | |
| EPC CON | TRACTOR: | · 72 | EPD/EPC | | R (CC): TROIRAN VELOPME | NT | | | BINA | к оп | | DEVE ERAL | CLOPMEN | т | |
| - | | | | do | MPANY | | DATE | DATE SCALE | | E | DRAWING BY | | CHECKEI | BY PR | DJECT ENG. |
| HIRGAN | ENERGY - COM | DESIGN & INSPECTION PANJES | PEDC | 0 | | | | | | | | | | | |
| DRAWING | TOTLE: | TYPICAL INSTALLAT | | | | | NO | (O | NSTRUCTIO | N PER | RMITTEI | UNLE | S DRAWIN | IG APPR | OVED |
| | EARTHING SYSTEM & LIGHTNING PROTECTION | | | | | | APPRO | VED | FOR CONE | TRUC | MON | BY: | | DATE: | |
| SCALE | SCALE SIZE DRAWING NO. SH | | | SHEET NO | . REV. | BUDGET I | REF. | LOCATION | SIZE | CLASS | SER | AL NO. | SHEET | REVISION | |
| N.T.S | A3 | BK-GNRAL-PEDCO- | -000-EL-D# | -0002 | 31 OF 58 | D04 | 053-078- | 9184 | P | 2 | P | 70 | 7224 | 31 OF 6 | 6 D04 |

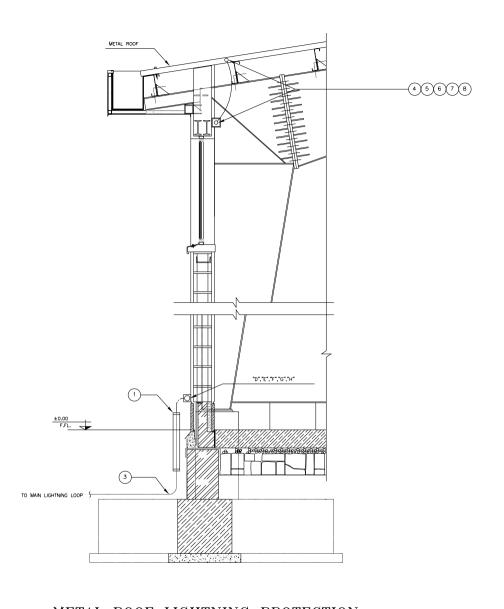
ICTOR IS HEED FOR

- 1-THIS BONDING CONDUCTOR IS USED FOR SPHERICAL TANK WITH DIAMETER MORE THAN 20m.
- 2-IF REINFORCED CONCRETE OF FOUNDATION IS USED AS EARTH TERMINAL, THIS BONDING CONDUCTOR IS NOT NECCESARY.
- 3-THIS BONDING CONDUCTOR IS NECCESARY IN EACH 20m IN VERTICAL ROUTES. WHERE THE WETAL PLATE OF VESSEL/TANK IS CONTITUTED A UNDUC CONDUCTIVE BODY AND THE THICKNESS OF IT IS GREATER THAN 4.8 mm (REF. IEEE STD 665-1995) THEN THE STRUCTURE WILL PERFORM AS DOWN CONDUCTOR AND THERE IS NO NEED FOR NONDUCTOR ADD ONLY CONDUCTORS.
- 4-FOR EARTHING CABLE SIZE (CIRCLED NUMBERS)
 REFER TO SHEET 4.

LEGEND

REFERENCE DRAWING DRG. No.

KEY PLAN



| ITEM | UNIT | DESCRIPTION | QTY. | REMARKS |
|------|------|--|----------|---------|
| 1 | | RIGID HEAVY DUTY GALVANIZED STEEL CONDUIT, 50mm DIA, L=700mm | 1 | |
| 2 | | DELETED | - | |
| 3 | | PVC INSULATED COPPER EARTHING CABLE YELLOW/GREEN 50mm2 | AS REQ'D | |
| 4 | | CRIMP TYPE COPPER CABLE LUG (FOR SIZE, SEE PLAN DRAWING) | 1 | |
| 5 | | PHOSPHOR-BRONZE HEXAGON HEAD BOLT 10mm DIA AND 50mm LONG | 1 | |
| 6 | | PHOSPHOR-BRONZE HEXAGON NUT FOR 10mm DIA BOLT | 1 | |
| 7 | | PHOSPHOR-BRONZE HEXAGON FLAT ROUND WASHER FOR 10mm DIA BOLT | 1 | |
| 8 | | PHOSPHOR-BRONZE HEXAGON ROUND SPRING WASHER FOR 10mm DIA BOLT | 1 | |

| D04 | 001/5055 | PI | H.EHAKIBA | W.Pakharian | W.VBHRSHUD | | | | | | | |
|-----|-----------|------|---------------|-------------|-------------|-----|------|---------------------------|-------------|------|---------------|-------|
| D08 | NOV.2021 | 171 | HÆHÁKIBÁ | W.PAKHARIAN | W.VEHRSHAD | | | | | | | |
| D05 | 1909,750 | 191 | HÆHÁKIBÁ | W.Fakharian | W.WEHRSHAD | | *** | ******** | **,** | **** | **,** | *** |
| D01 | 1202,700 | 191 | H.SHAKIBA | W.Fakharian | SH.OHÁLIKAR | | REV. | DRSCRIPTION | BY | DATE | BY | DATE |
| D00 | VAC 15051 | 191 | M.ASCHARKEIAD | W.Fakharian | SH,dhaukar | | MET. | DESCRIPTION | CHE | CKED | REV. | APPR. |
| RPV | DATE | POLS | PREP. | CHK | APP. | AUT | | والمطاع والمراجع والمراجع | -5 . a. the | 4.41 | لمدنية أبريقد | 11. |

HIRGAN ENERGY - DESIGN & INSPECTION

PEDCO COL

PETROIRAN DEVELOPMENT COMPANY BINAK OILFIELD DEVELOPMENT

GENERAL

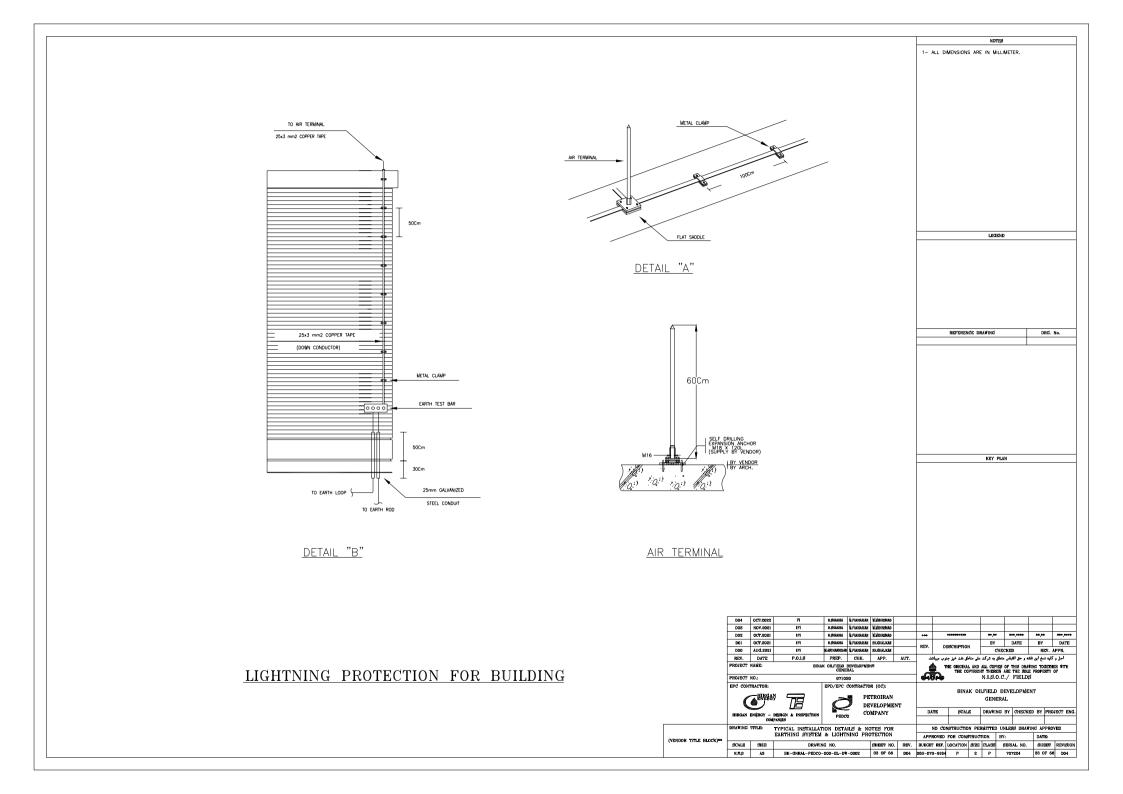
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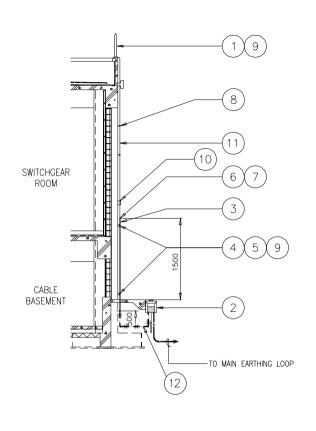
REFERENCE DRAWING

KEY PLAN

DRG. No.

METAL ROOF LIGHTNING PROTECTION





| ITEM | UNIT | DESCRIPTION | QTY. | REMARKS |
|------|------|---|----------|---------|
| 1 | SET | AIR TERMINAL ROD WITH BASE | 1 | |
| 2 | SET | INSPECTION PIT WITH EARTH ROD | 1 | |
| 3 | M | STEEL CONDUIT, H.D. GALV. | 1.8 | |
| 4 | M | STRUT CHANNEL, STL, H.D. GALV. 50\(\psi\)x40Hx2.5 | 0.4 | |
| 5 | EA | PIPE CLAMP (#20 OR 3/4") | 2 | |
| 6 | EA | IRON BUSHING, ELECT, GALV. | 2 | |
| 7 | - | SEALING COMPOUND | - | |
| 8 | SET | CLAMP FOR CONNECTOR TAPE | 10 | |
| 9 | SET | CHEMICAL ANCHOR BOLT WITH NUT, M6 | 8 | |
| 10 | SET | TEST CLAMP, COPPER TAPE TO EARTHING WIRE | 1 | |
| 11 | M | COPPER FLAT BAR | AS REQ'D | |
| 12 | М | EARTHING CABLE WITH PVC INSULATION, Y/G | AS REQ'D | |

| ITEM | UNIT | DESCRIPTION | QTY. | REMARKS |
|------|------|--|----------|---------|
| 1 | SET | AIR TERMINAL ROD WITH BASE | 1 | |
| 2 | SET | INSPECTION PIT WITH EARTH ROD | 1 | |
| 3 | М | STEEL CONDUIT, H.D. GALV. | 1.8 | |
| 4 | М | STRUT CHANNEL, STL, H.D. GALV. 50\(\psi\x40\text{H}\timex2.5\) | 0.4 | |
| 5 | EA | PIPE CLAMP (#20 OR 3/4") | 2 | |
| 6 | EA | IRON BUSHING, ELECT, GALV. | 2 | |
| 7 | - | SEALING COMPOUND | - | |
| 8 | SET | CLAMP FOR CONNECTOR TAPE | 10 | |
| 9 | SET | CHEMICAL ANCHOR BOLT WITH NUT, M6 | 8 | |
| 10 | SET | TEST CLAMP, COPPER TAPE TO EARTHING WIRE | 1 | |
| 11 | М | COPPER FLAT BAR | AS REQ'D | |
| | | | | |

BUILDING LIGHTNING PROTECTION SECTION

| D04 | 001/5055 | PI | H,\$HAUBA | V.PAKHARIAN | W.VBHRSHUD | | | | | | | | | |
|---------------------|---|---------|---------------|-------------|--------------|------|------|---|---------------|-----------------|------------------|---------|--|--|
| D08 | NOV.2021 | IPI | HEHAUBA | V.PAKHARIAN | W.VEHRSHAD | | | | | | | | | |
| D05 | 1908.TD0 | 191 | HEHAUBA | V.PAKHARIAN | W.WEHRSHAD | | *** | ********* | **,** | **** | **,** | *** | | |
| D01 | 0CT.2021 | 191 | HEHAUBA | V.PAKHARIAN | SH, CHÁLIKAR | | REV. | DRSCRIPTION | BY | DATE | BY | DATE | | |
| D00 | VAC'5051 | 191 | M.ASCHARKEIAD | V.PAKHARIAN | SH,dhaukar | | MET. | DESCRIPTION | CHE | CKED | REV. | APPR. | | |
| REV. | DATE | P.O.I.Ø | PREP. | CHK. | APP. | AUT. | 4 | على مثاطق نقت خيز جتوب ميباث | متعلق به شرکت | ه و حق اللباس ، | لليه تسخ أين تقد | اصل و آ | | |
| PROJECT | PROJECT NAME: BINAK OILFIELD DEVELOPMENT GENERAL | | | | | | | THE ORIGINAL AND ALL COPIES OF THIS DRAWING TOGETHER WITH | | | | | | |
| PROJECT NO.: 971020 | | | | | | | 44 | 7 | N.I.S.O.C | ./ FIELD | ß. | | | |

971020



PETROIRAN DEVELOPMENT COMPANY

BINAK OILFIELD DEVELOPMENT

LEGEND

KEY PLAN

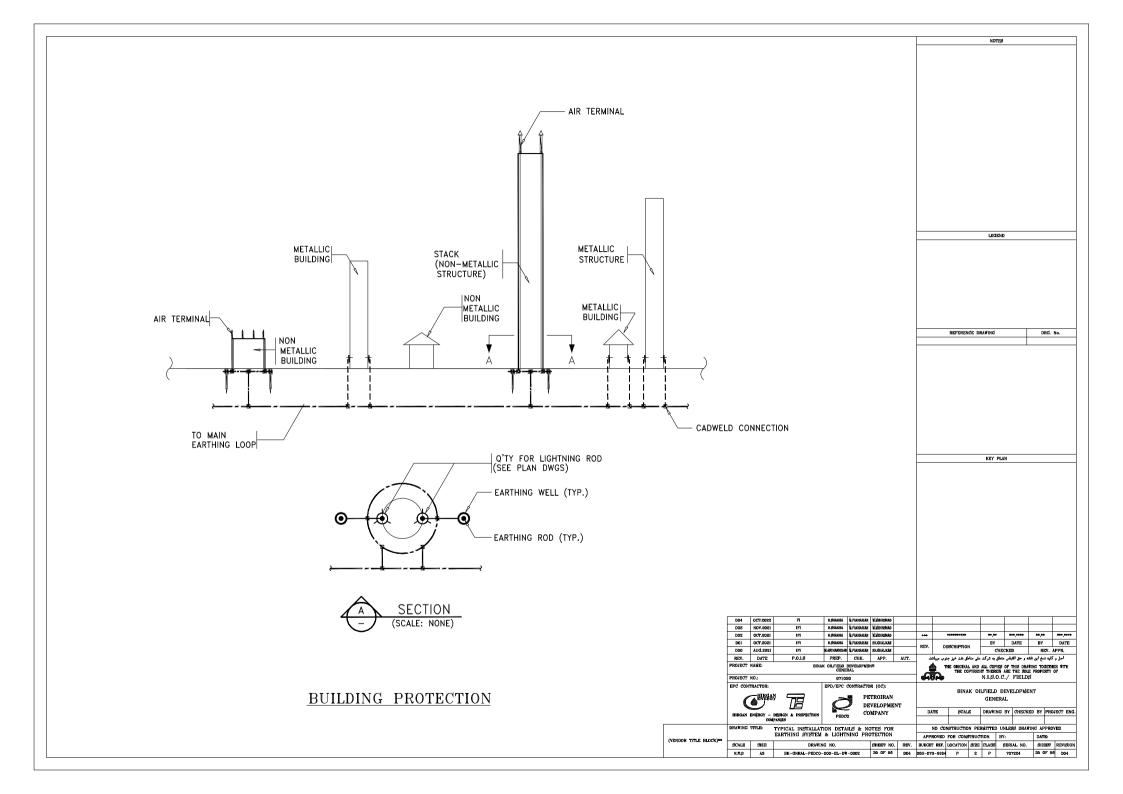
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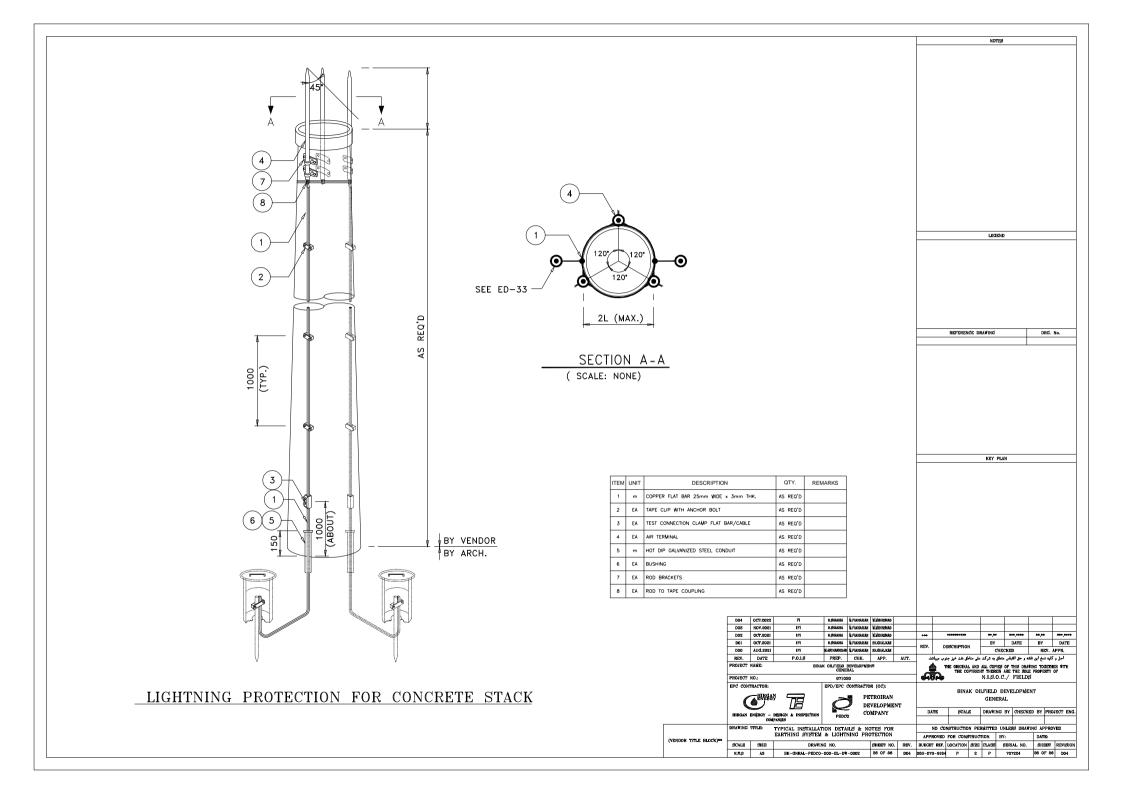
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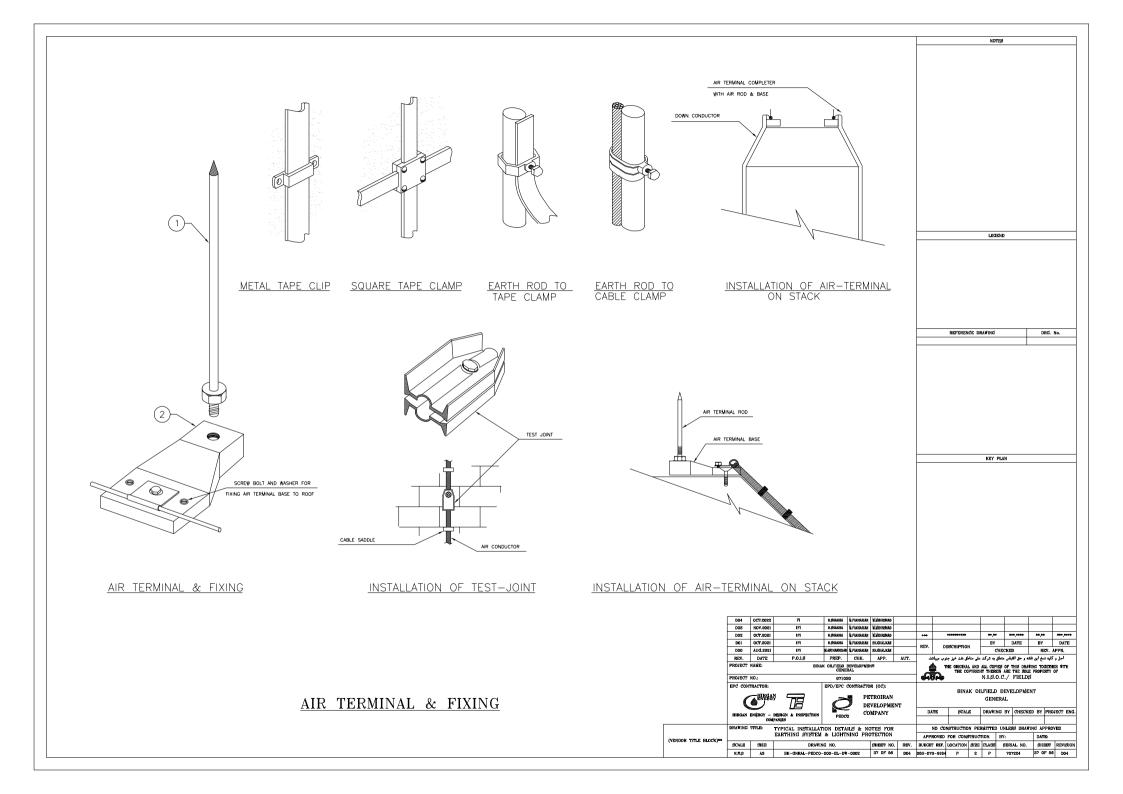
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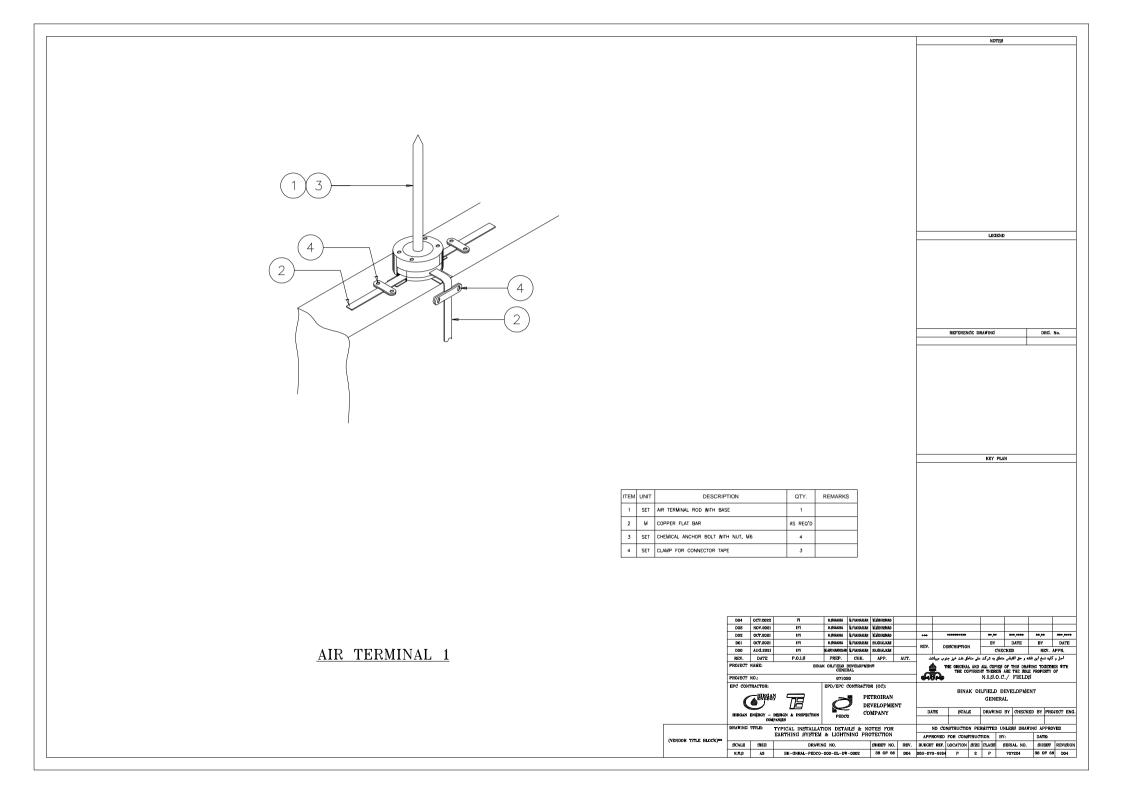
TYPICAL INSTALLATION DETAILS & NOTES FOR EARTHING SYSTEM & LIGHTNING PROTECTION APPROVED FOR CONSTRUCTION BY:
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 DRAWING NO.
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 REV.
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 LOCATION
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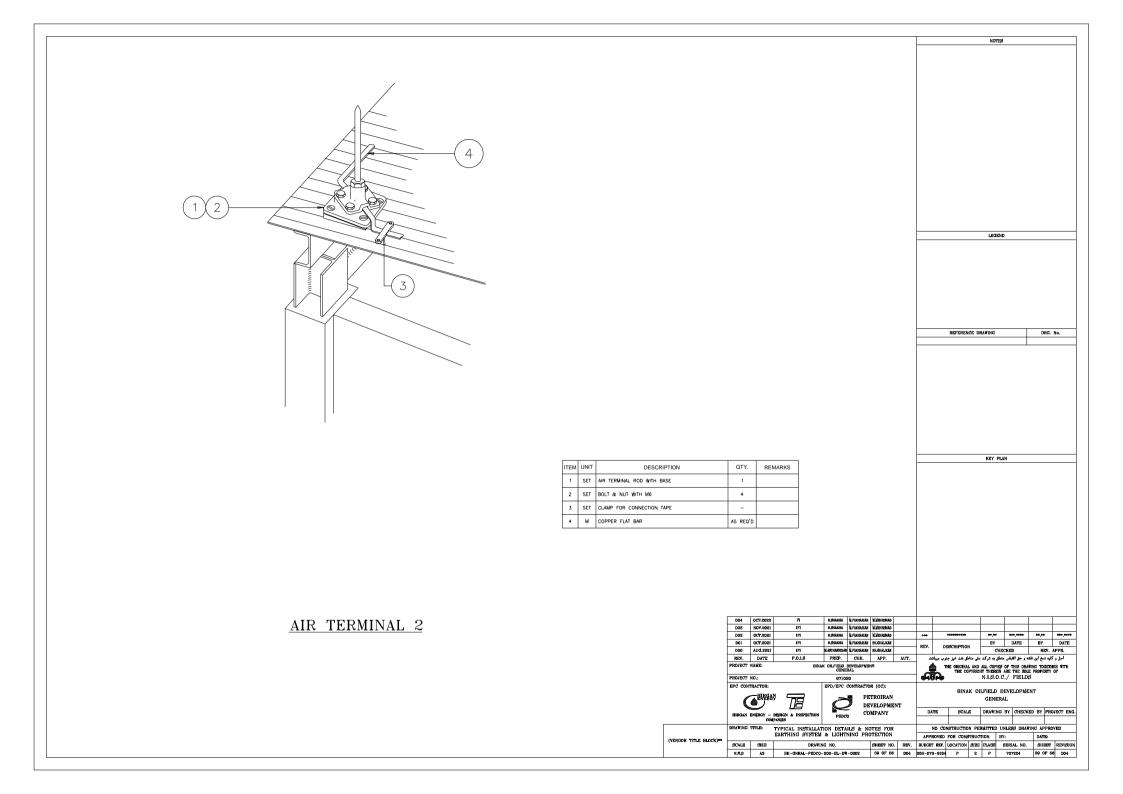
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 SHEET NO. REV. BUDGET REF. LOCATION SIZE CLASS SERIAL NO. SHEET REVISION

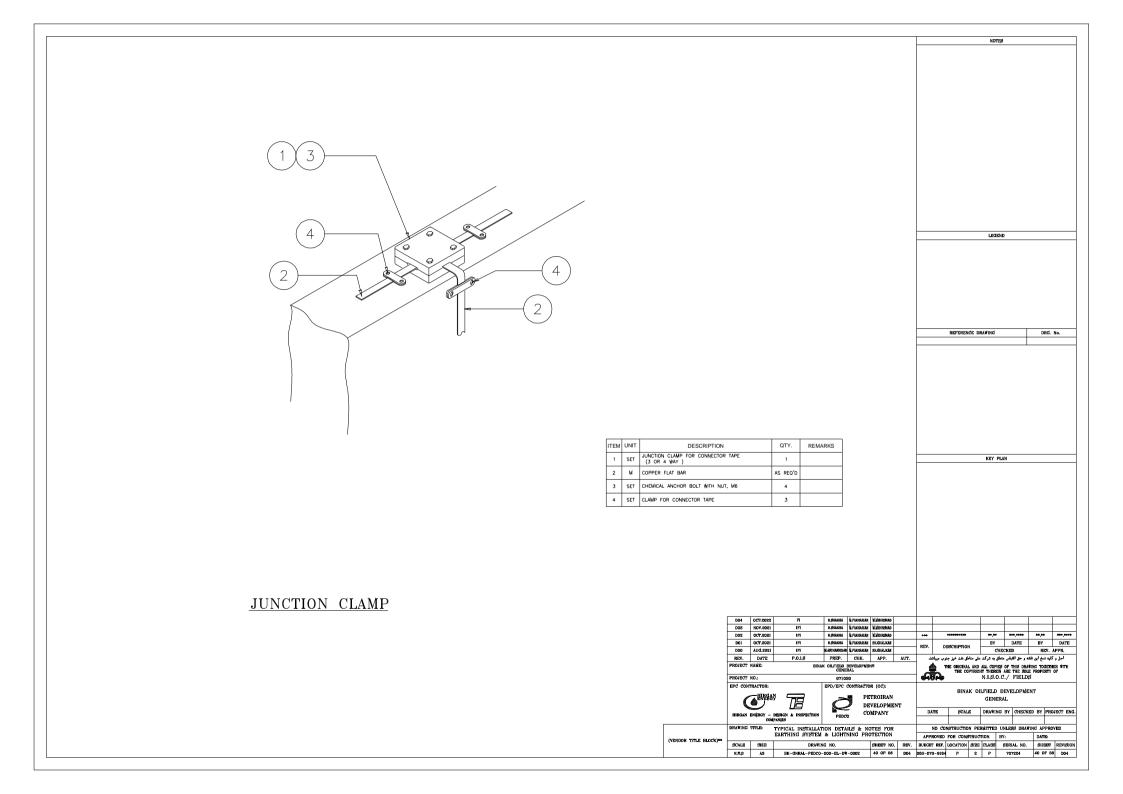


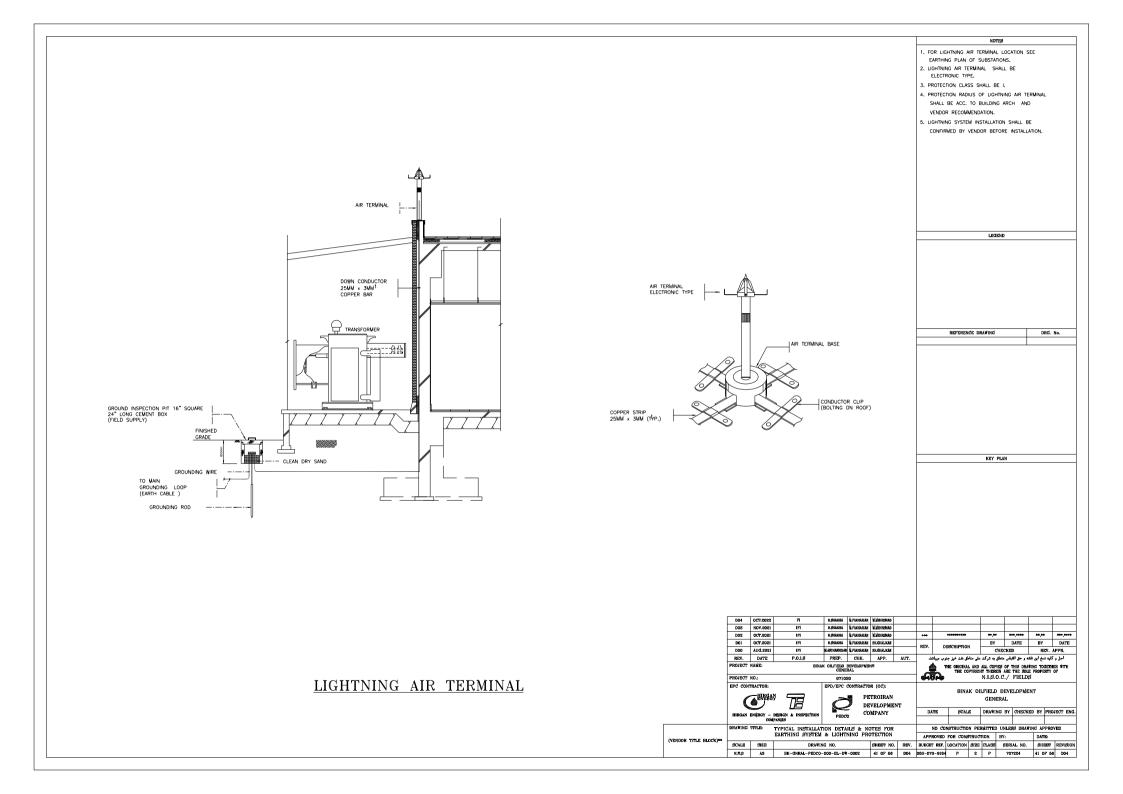


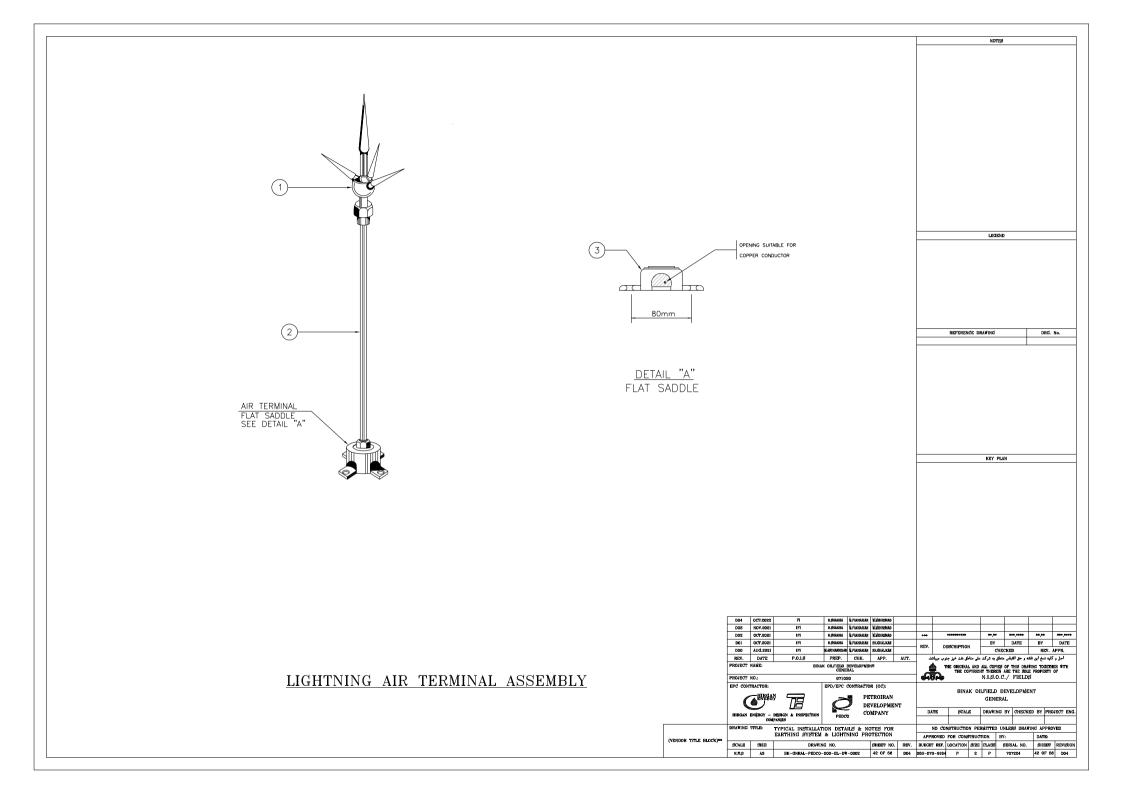


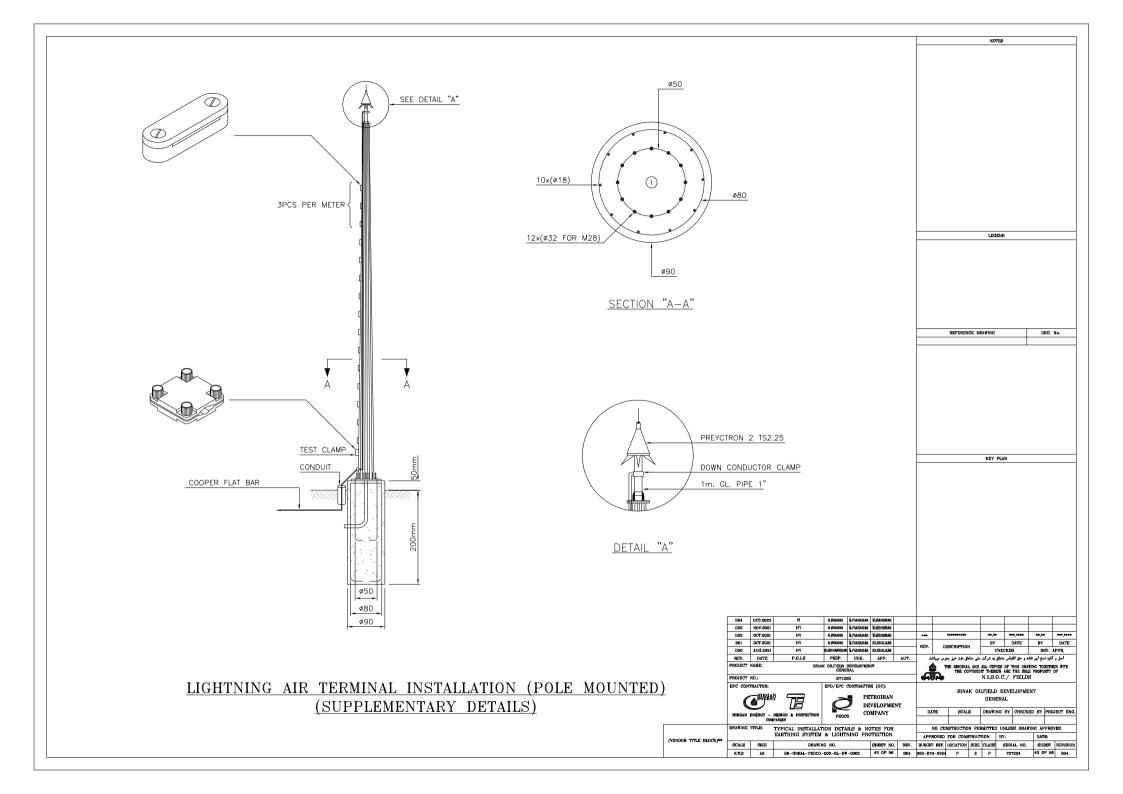


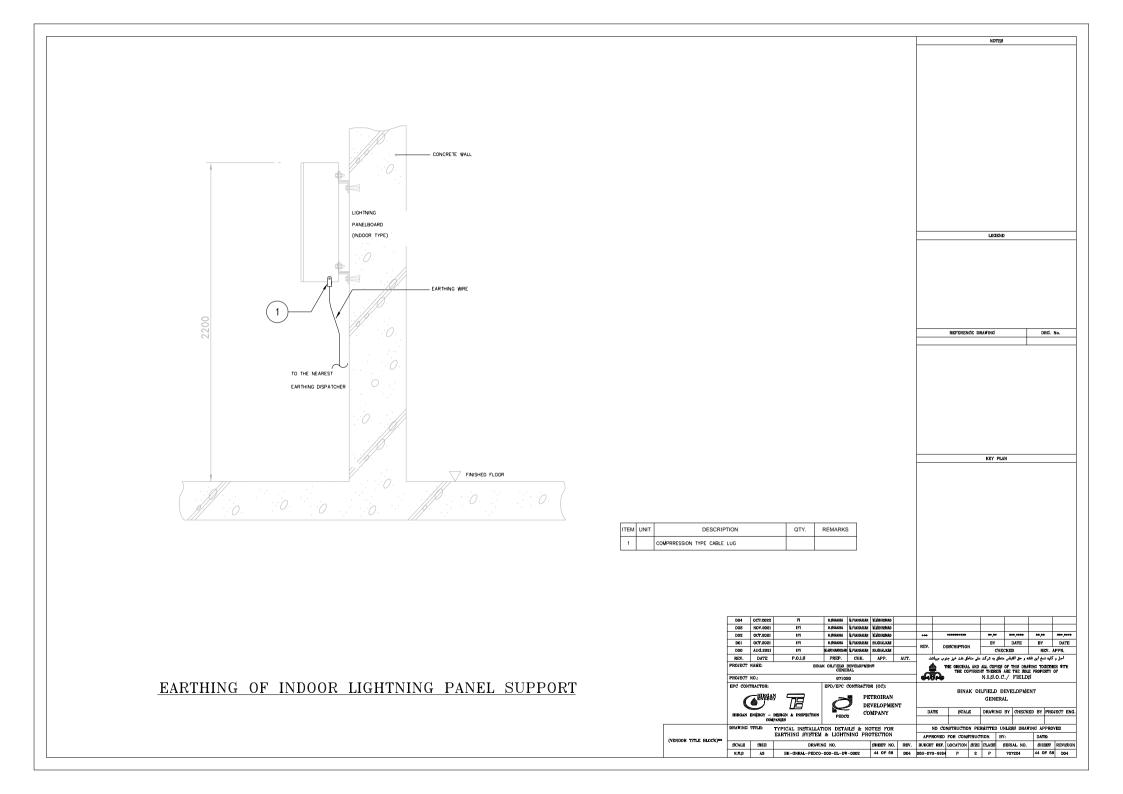


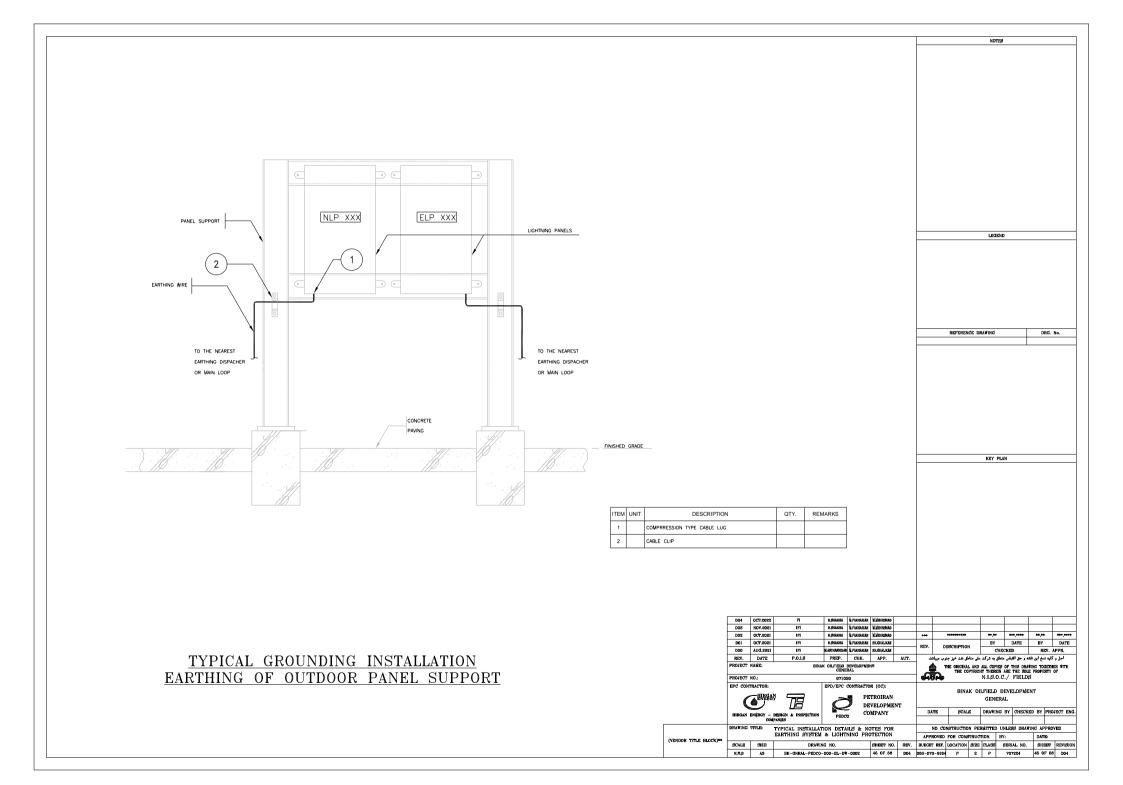


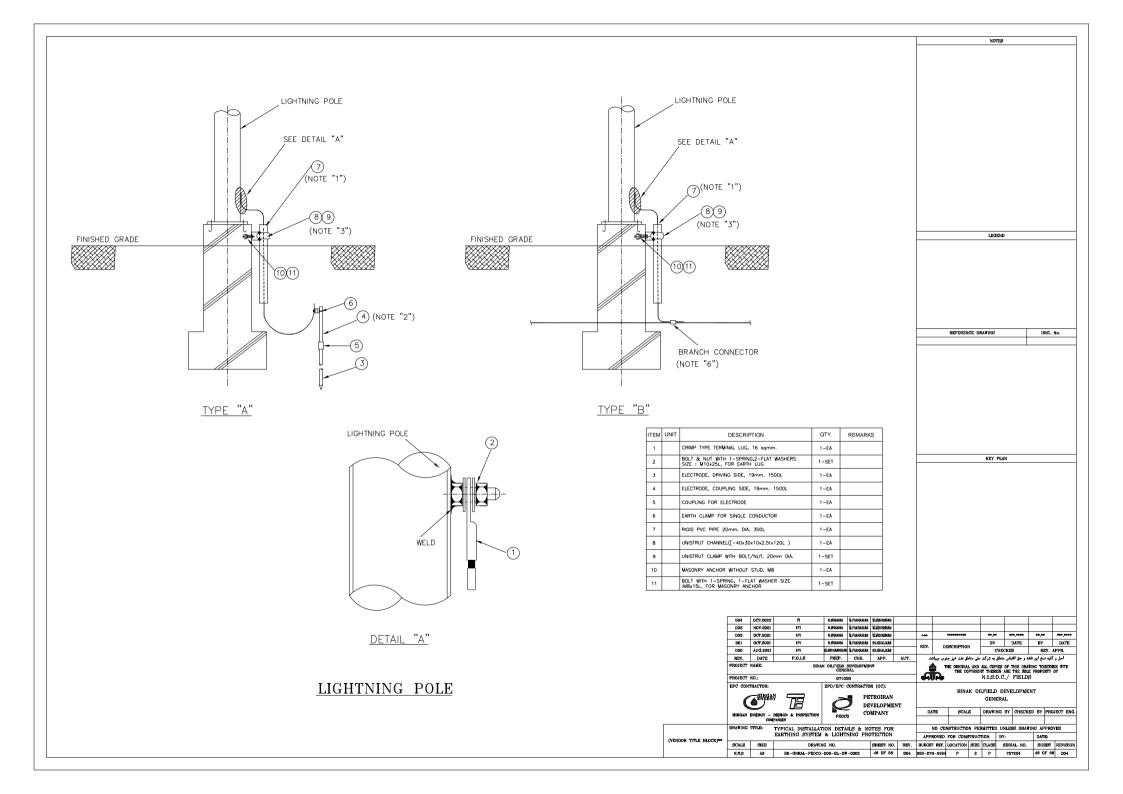


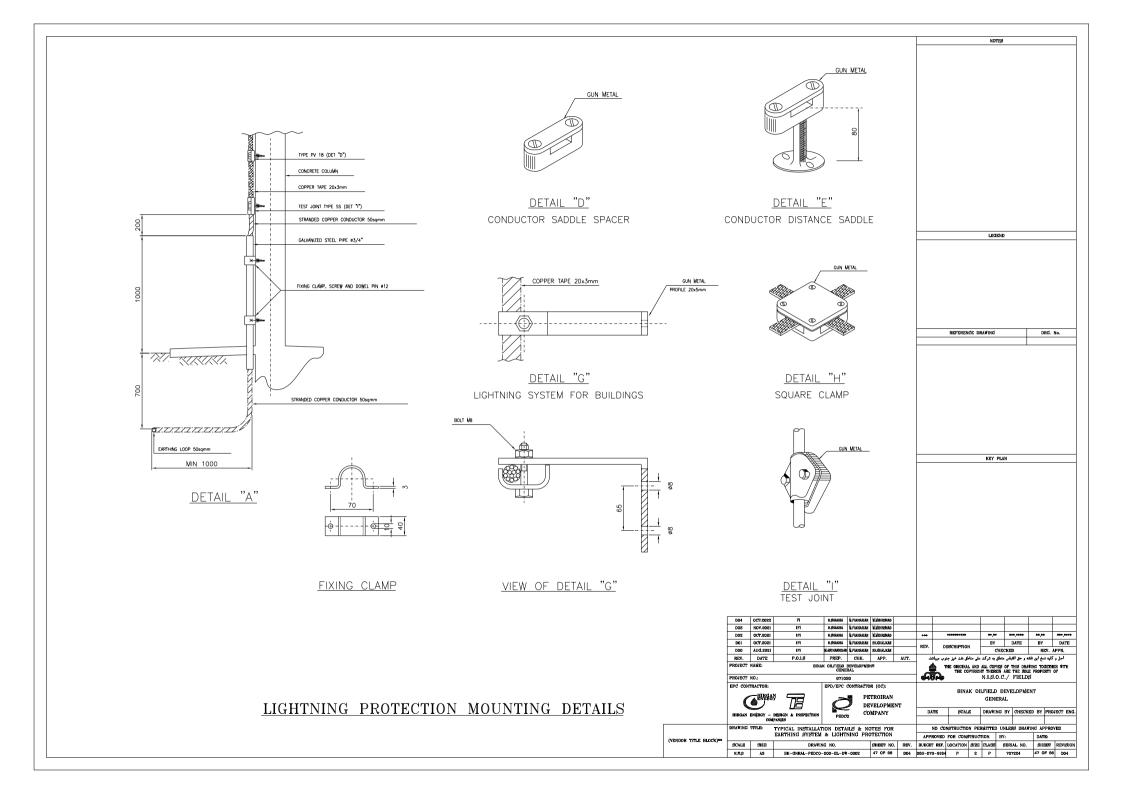


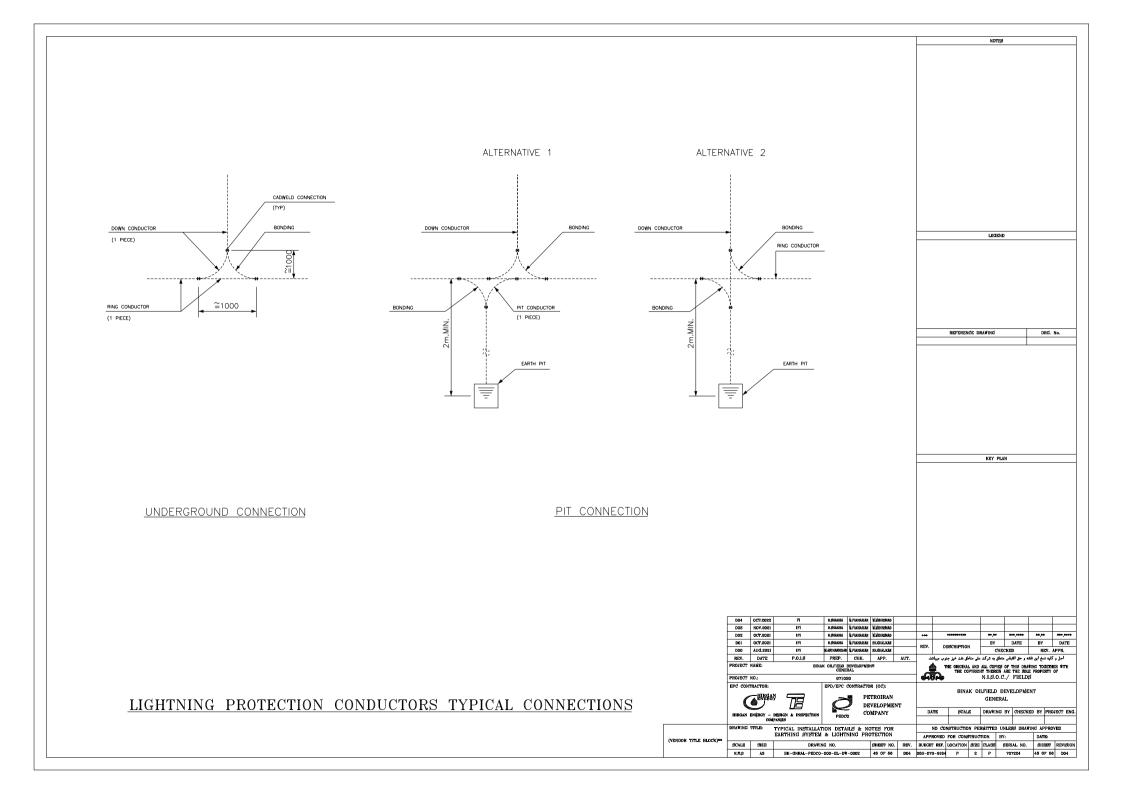


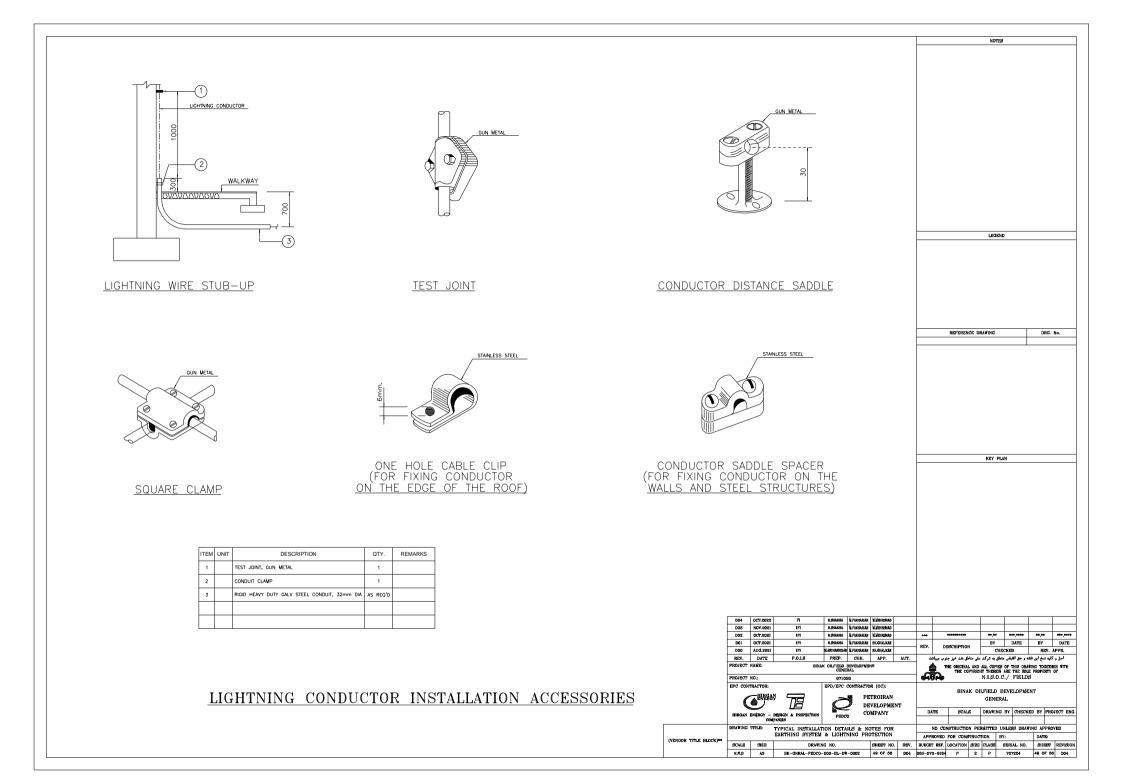


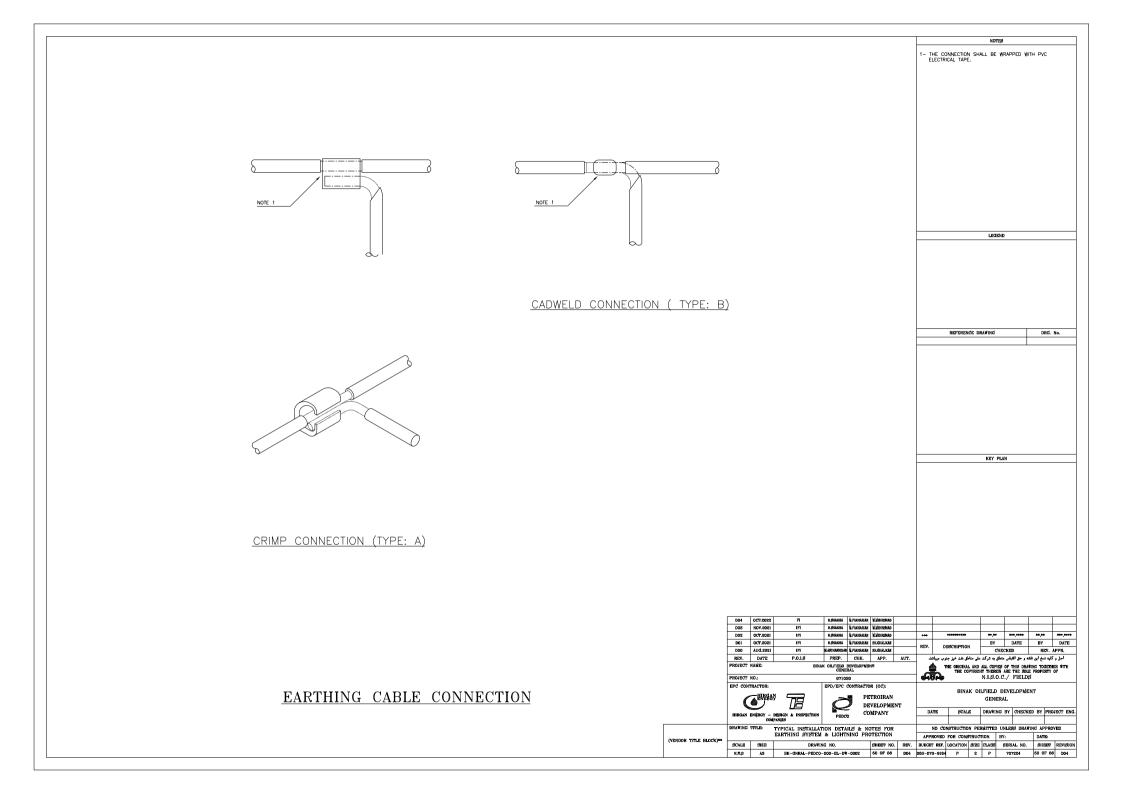


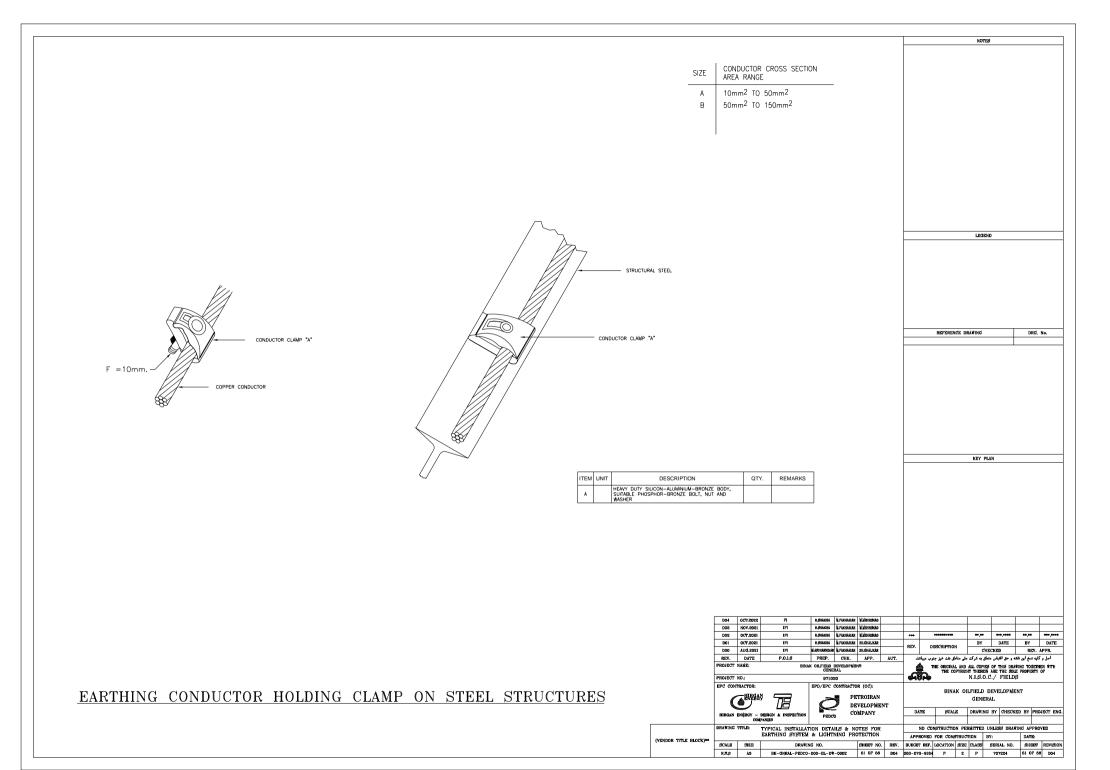


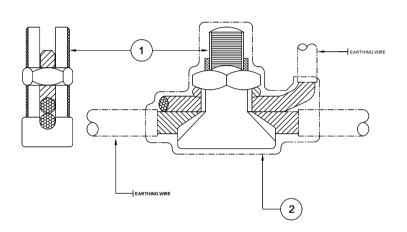












| ITEM | UNIT | DESCRIPTION | QTY. | REMARKS |
|------|------|--|------|---------|
| 1 | | EARTHING CONNECTOR, FOR CABLE TO CABLE CONNECTION, CU ALLOY, SPLIT BOLT TYPE | 1-EA | |
| 2 | | VINYL PLASTIC TAPE | 2-M | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| • | | | | |

D08 NOV.2022 HEHAUBA Ü.PAKHARIAN Ü.VEHRSHAD H.SHAKIBA W.PAKHARIAN W.WEHRSHAD DOS OCT.2021
DO1 OCT.2021
DO0 AUG.2021 BY DATE BY DATE CHECKED REV. APPR. REV. DATE PREP. CHK. APP. AUT. اصل و کلیه تسخ این تقله و حق اقتباس متطلق به شرکت علی مناطق نفت خیز جنوب میباشد.

PROJECT NAME: BINAK OILFIELD DEVELOPMENT GENERAL PROJECT NO.: 971020 EPD/EPC CONTRACTOR (GC):





PETROIRAN DEVELOPMENT COMPANY

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REFERENCE DRAWING

KBY PLAN

DRG. No.

| (VENDOR TITLE BLOCK | | DRAWING | | TYPICAL INSTALLATION DETAILS & NOTES FOR EARTHING SYSTEM & LIGHTNING PROTECTION | | NO CONSTRUCTION PERMITTED UNLESS DRAWING APPROVED | | | | | | | | |
|---------------------|----------------------|---------|------|--|-----------|---|--------------|----------|------|-----------|------------|----------|----------|--|
| | (VENDOR TITLE BLOCK) | | | | | APPROVED FOR CONSTRUCTION | | | NOI | BY: DATE: | | | | |
| | (VERDOR TITLE BLOCK) | SCALE | SIZE | DRAWING NO. | SHEET NO. | REV. | BUDGET REF. | LOCATION | SIZE | CLASS | SERIAL NO. | SHEET | REVISION | |
| | | N.W.S | AS | BK-GNRAL-PEDCO-000-EL-DW-0002 | 62 OF 66 | D04 | 053-073-9184 | P | 2 | Р | 707224 | 62 OF 68 | D04 | |

ABOVEGROUND CONNECTION SPLIT BOLT TYPE

