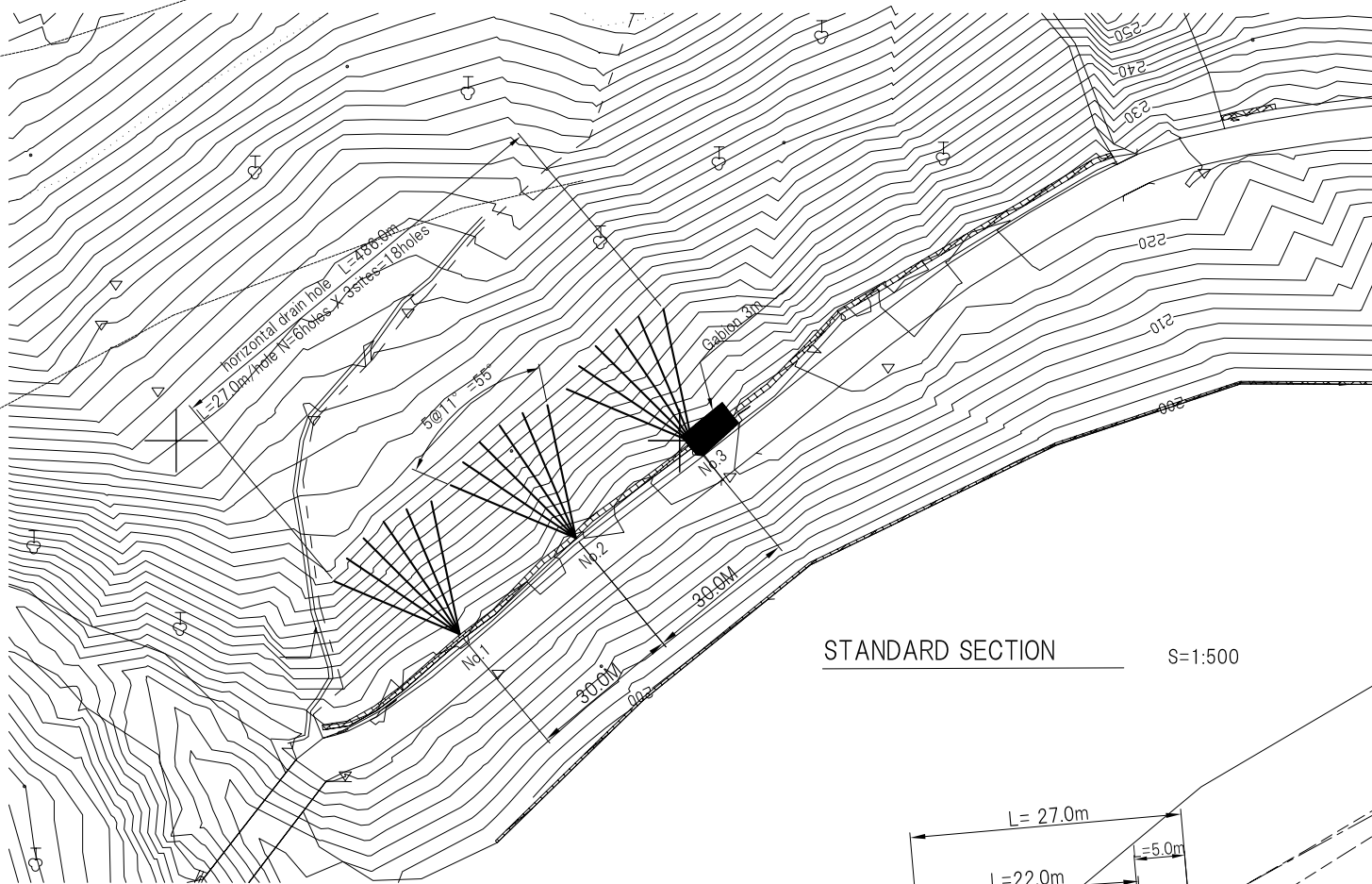


# HORIZONTAL DRAIN HOLES WORK IN 21KM.+610(LS-1)

PLAN

S=1:1000



Co-ordinate of Horizontal Drain Holes

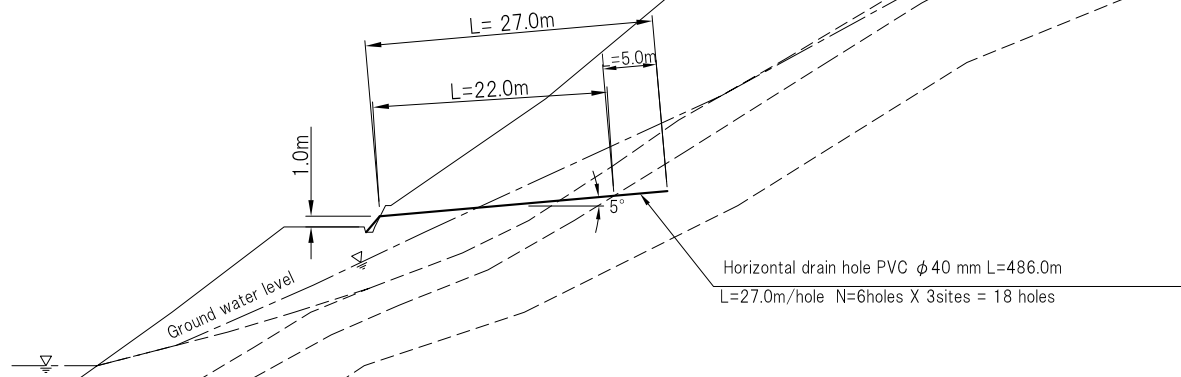
No.	X	Y
No.1	546908.98	3076327.62
No.2	546932.04	3076346.71
No.3	546955.10	3076365.80

NOTE:

- 1) Location of Horizontal Drain Holes may be changed but within 5.0m
- 2) Minimum gradient of Drain Holes shall be more 5%

STANDARD SECTION

S=1:500



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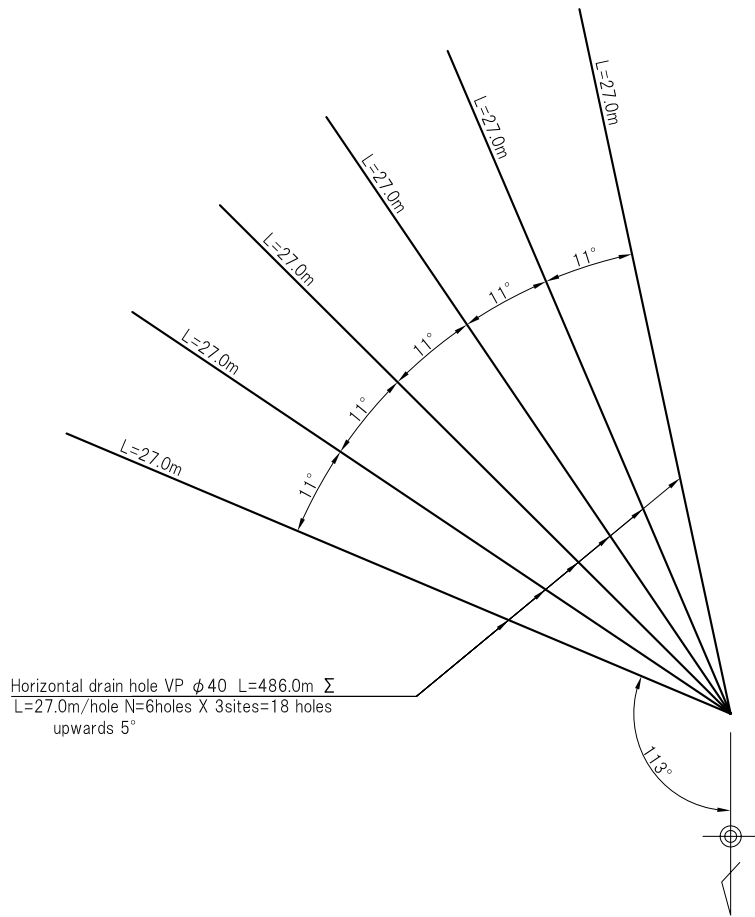
DWG. NO.  
SO4-01

SCALE

# GROUNDWATER DRAINAGE WORKS IN 21KM.+610(LS-1)

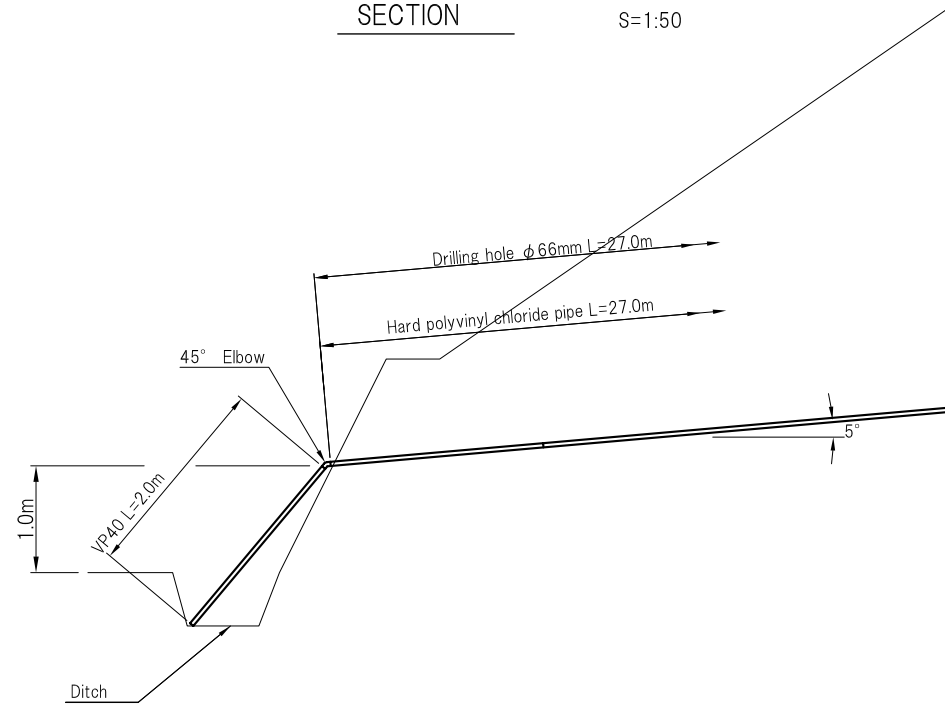
LAYOUT OF HORIZONTAL DRAIN HOLES

S=1:200



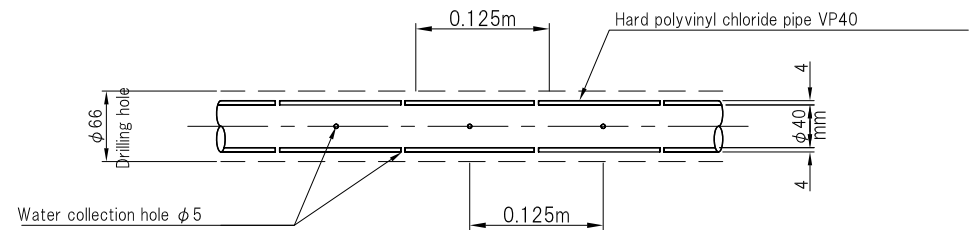
SECTION

S=1:50



DETAIL OF PERFORATED PIPE  $\phi$  40mm

S=1:5



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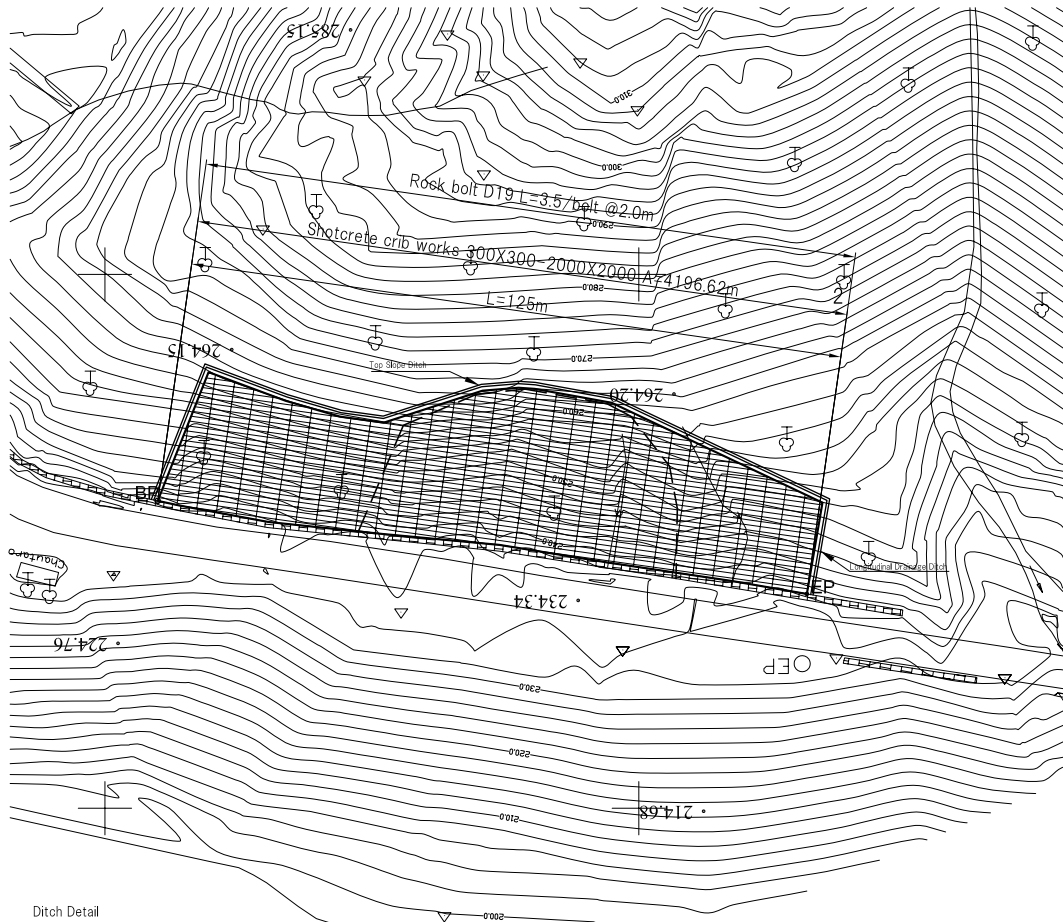
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SCALE	
DATE	DWG. NO.
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# SHOTCRETE CRIB WORK WITH ROCK BOLT 23KM.+510(LS-2)SITE

PALN

S=1:1000



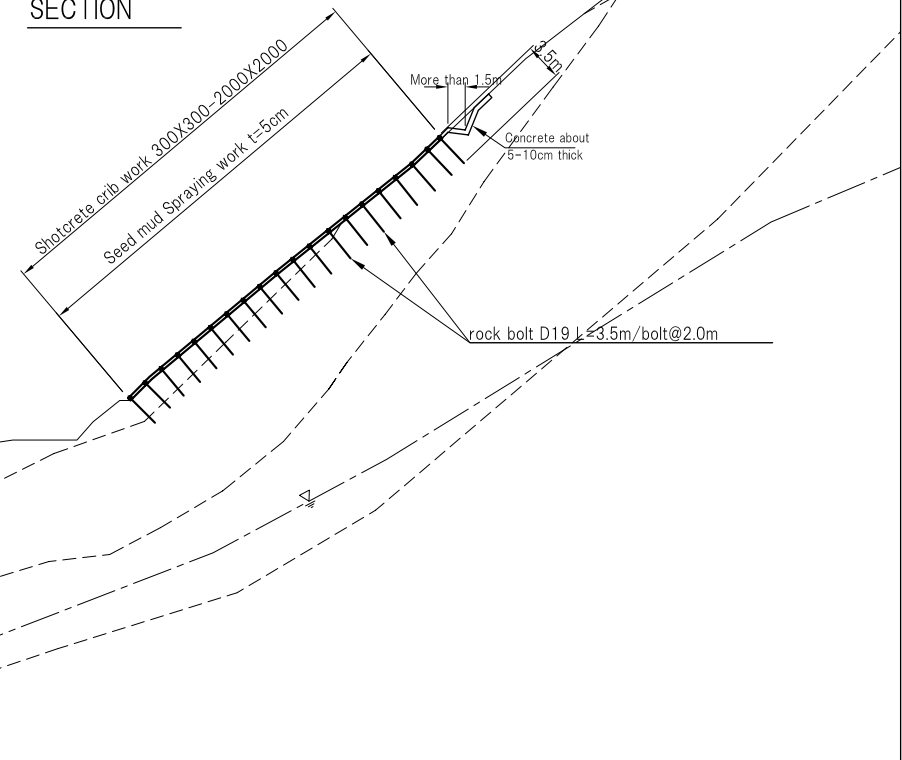
## NOTE

- 1) Unstable Rock Blocks shall be removed before the construction of crib work.
- 2) Minimum thickness of 30cm shall be kept for shotcrete crib.
- 3) Sub-anchor are required for fixing cribs between Rock bolts but not shown.
- 4) The beginning and ending points of shotcrete crib work are shown in the following table.

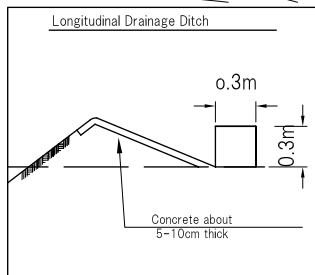
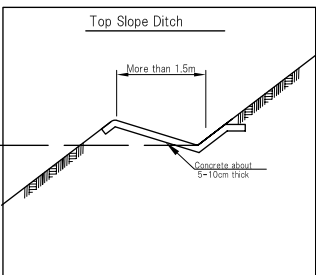
	X	Y
Shotcrete crib work Beginning Point (BP)	547039.98	3077556.70
Ending Point (EP)	547161.56	3077539.26

## SECTION

S=1:500



Ditch Detail



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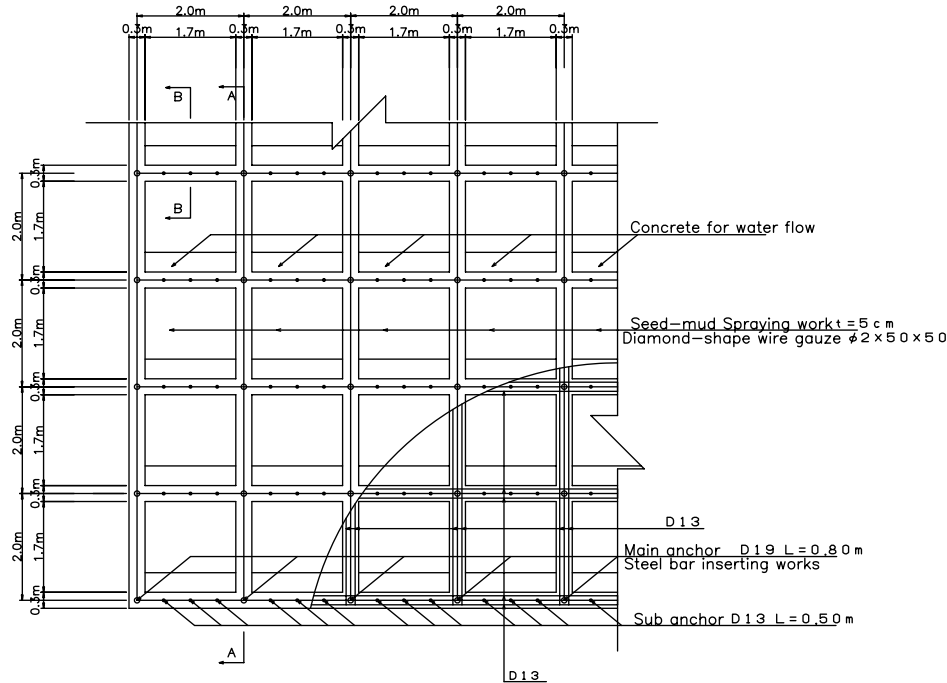
DWG. NO.  
S05-01

# DETAIL OF SHOTCRETE CRIB WORK

300×300×2000×2000)

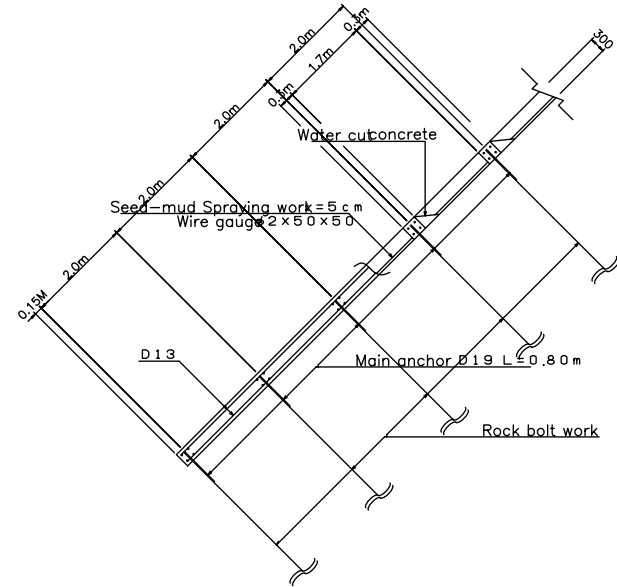
## DETAIL OF SHOTCRETE CRIB WORK

S = 1 : 100



## SECTION (A - A)

S = 1 : 100



## SPECIFICATION OF SHOTCRETE CRIB WORK

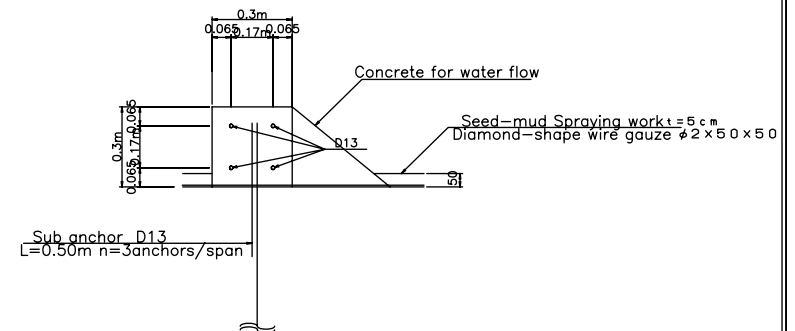
Table of materials

	standard size
Frame interval of crib	2000×2000
Size of frame section	300×300
Spray concrete standard strength	$\sigma_{ck} = 18 \text{ N/m}^2$
Steel bar	D13
Main anchor	D19 L=800mm
Sub anchor	D13 L=500mm
Diamond-shaped wire gauze	$\phi 2 \times 50 \times 50$
Inside crib	Seed-mud Spraying work $t = 5 \text{ cm}$

Legend
• Sub anchor
○ Main anchor

## SECTION OF CRIB

S = 1 : 20



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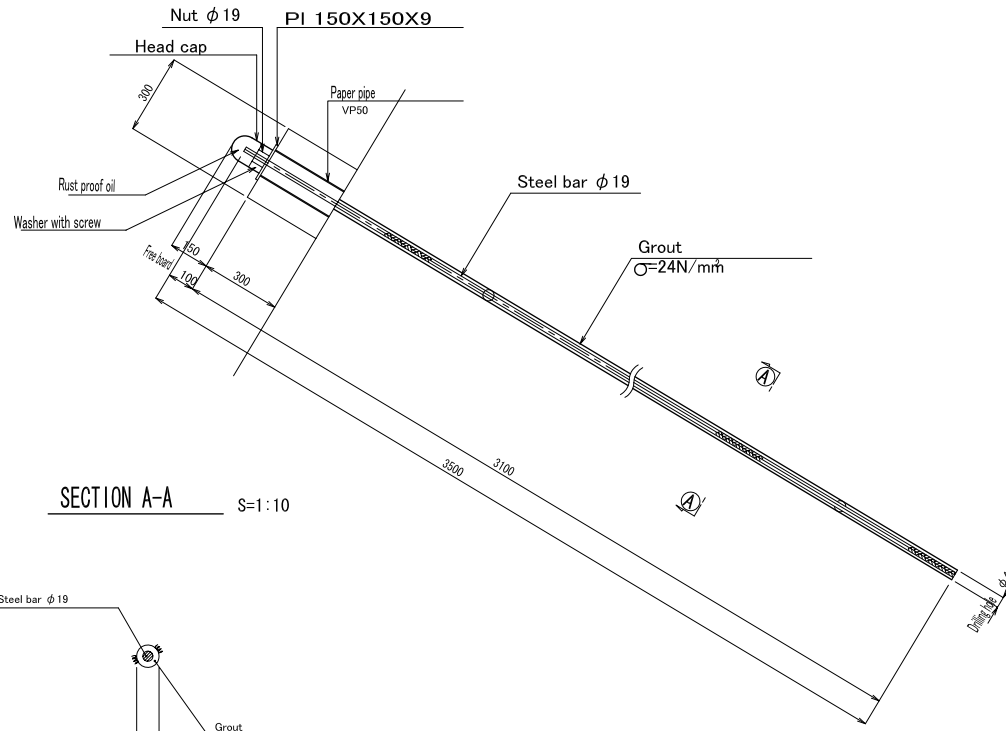
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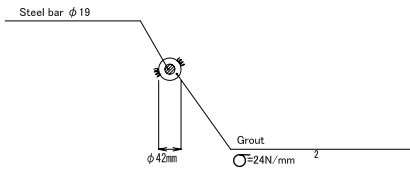
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S05-02

SCALE

# DETAIL OF ROCK BOLT WORK



SECTION A-A S=1:10



PARTS S=1:8

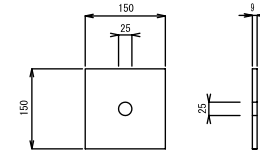
Head cap

Spacer

Steel bar D19

PRESSURE BEARING PLATE

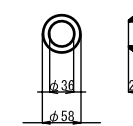
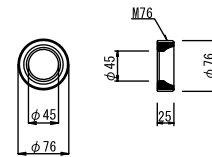
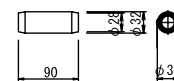
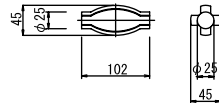
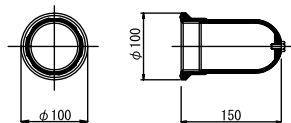
S=1:10



Washer with screw

Ring washer

Nut D19



Tables of Materials (per 1m)			
Item	Dimension	Units	L=3.5m
Steel Bar	D19(SD345)	m	3.50
	3.50m/bolt	No.	1
Drilling Hole	φ42	m	3.10
Grout	Cement milk σ=24N/mm <sup>2</sup>	m	0.006
Grouting pipe	φ17	m	4.50
Sp	D19	No.	1
Nut	D19	No.	1
Bearing plate	PL-150X150X9	No.	1

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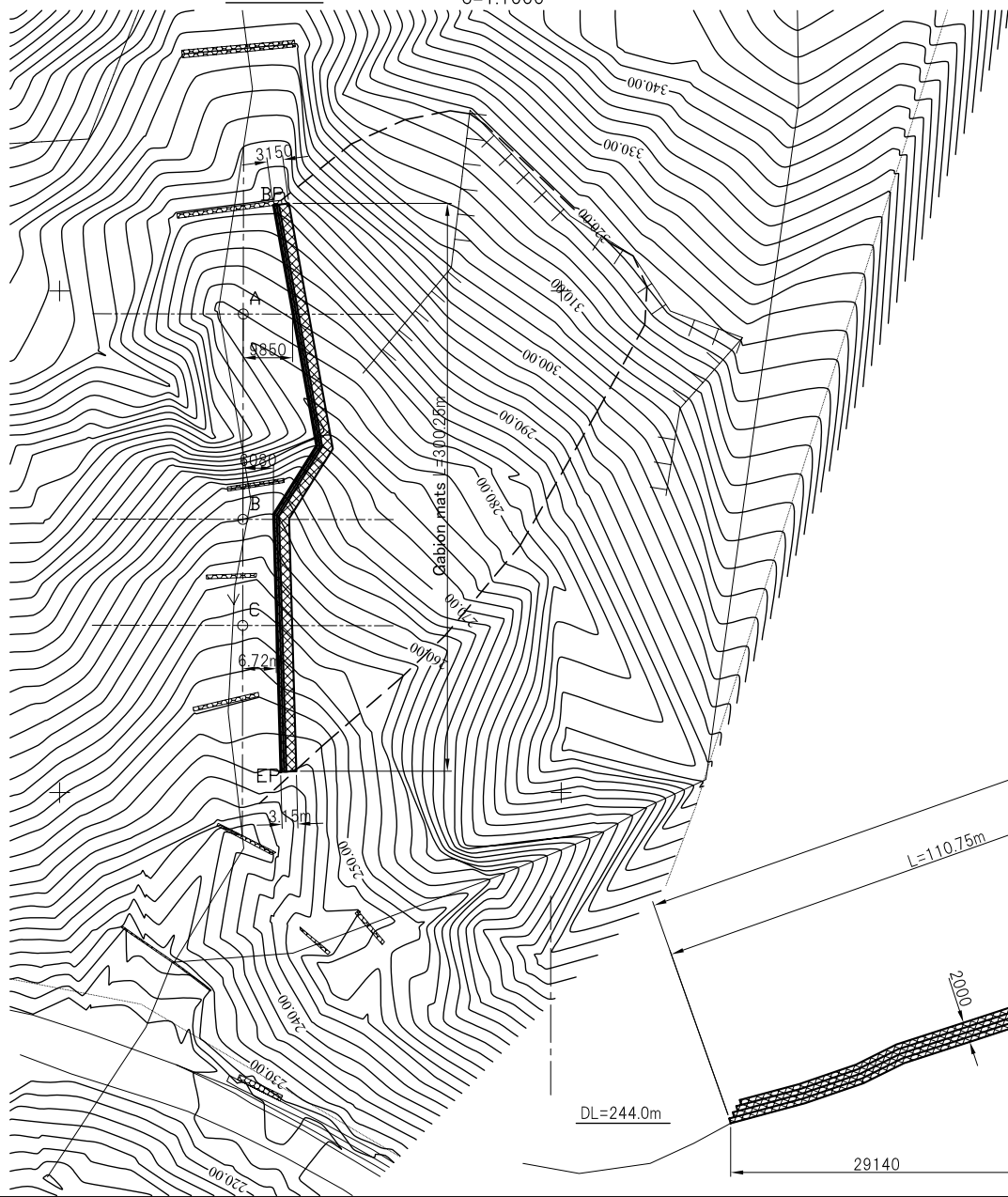
SCALE

# GABION MAT WORK IN 23KM.+930 SITE

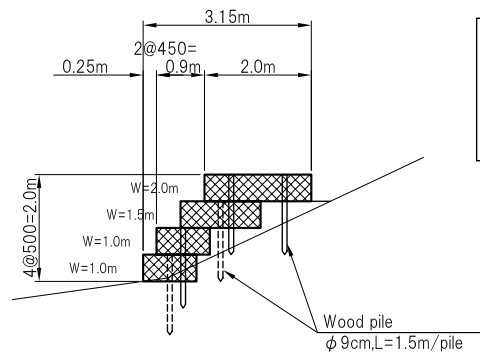
S=1:100

PLAN

S=1:1000



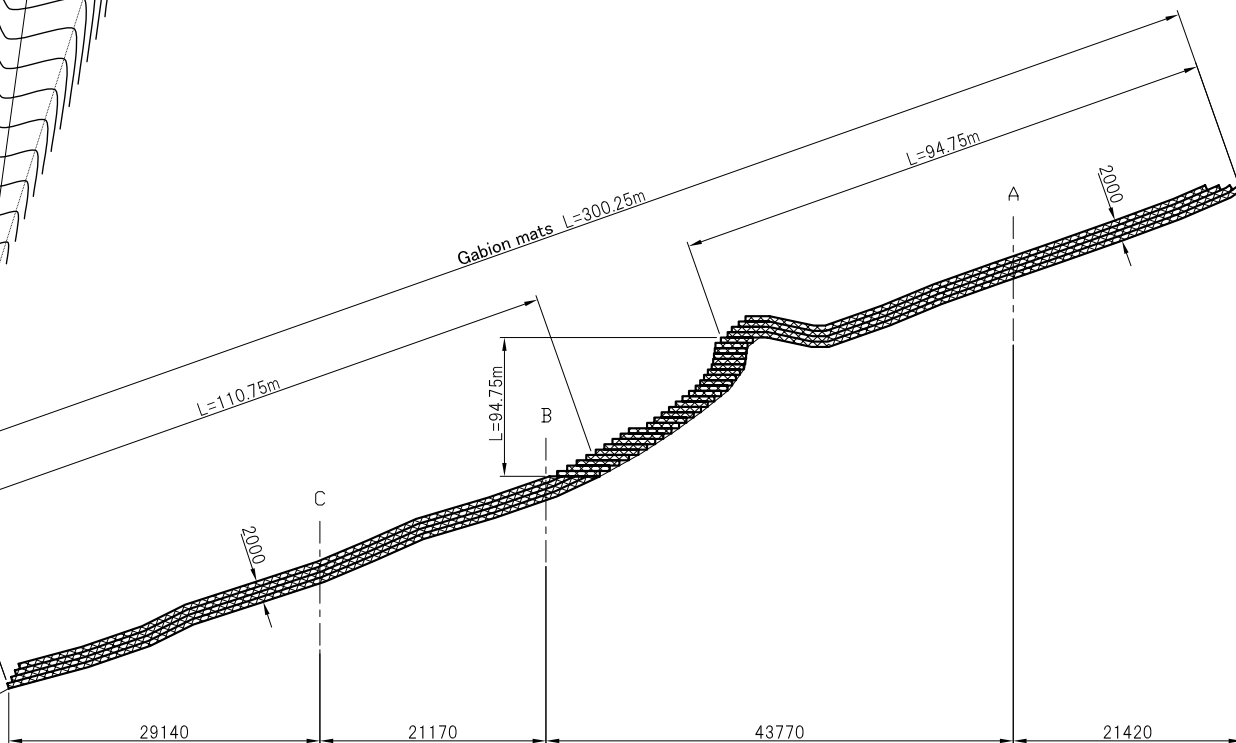
STANDARD SECTION



		X	Y
Gabion mat	Beginning Point (BP)	546842.59	3076830.96
	Ending Point (EP)	546844.05	3076718.08

LONGITUDINAL CROSS SECTION

S=1:500



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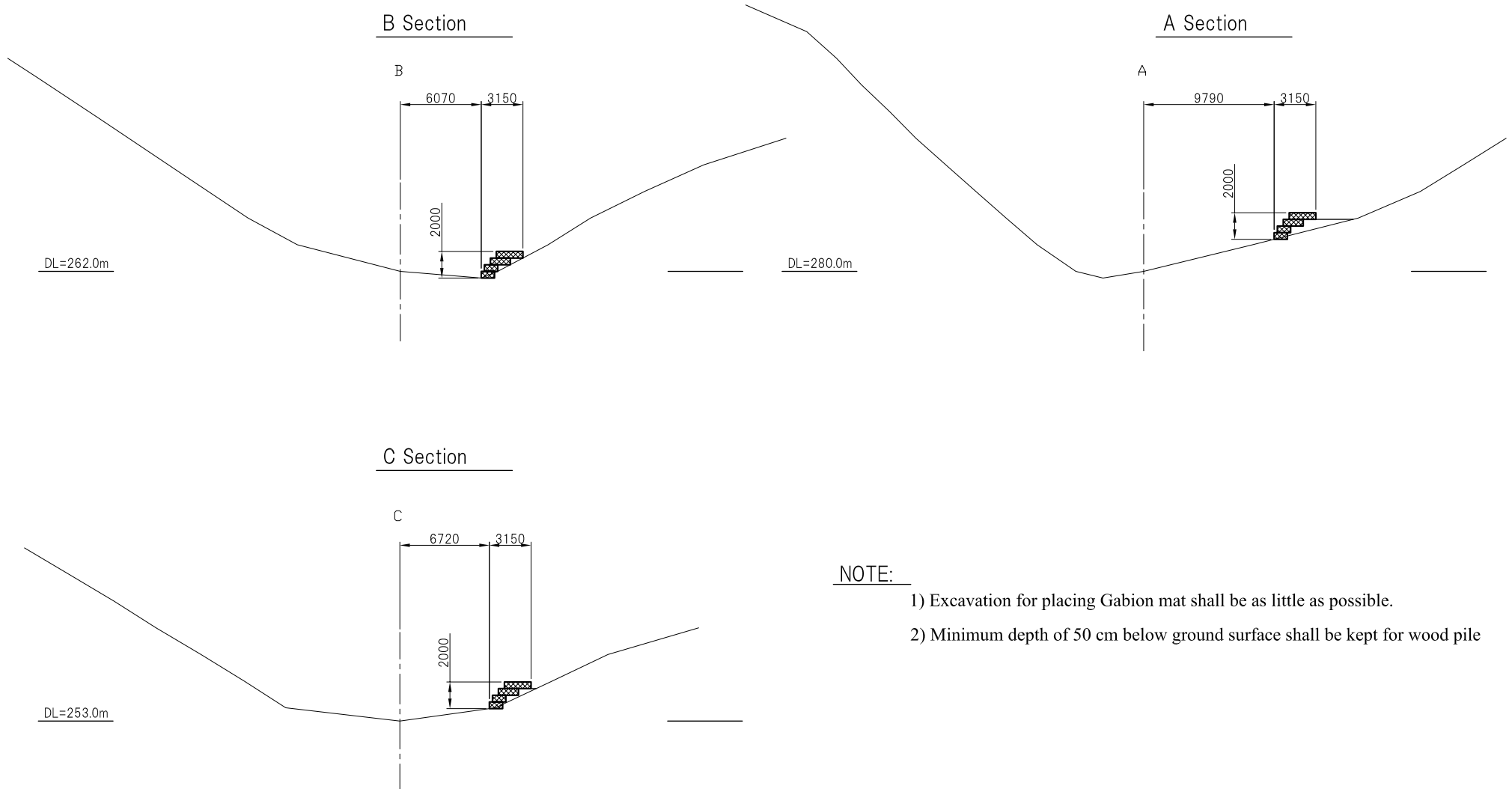
SCALE

DATE  
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# STANDARD SECTION

S=1:300



NOTE:

- 1) Excavation for placing Gabion mat shall be as little as possible.
- 2) Minimum depth of 50 cm below ground surface shall be kept for wood pile

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		SCALE
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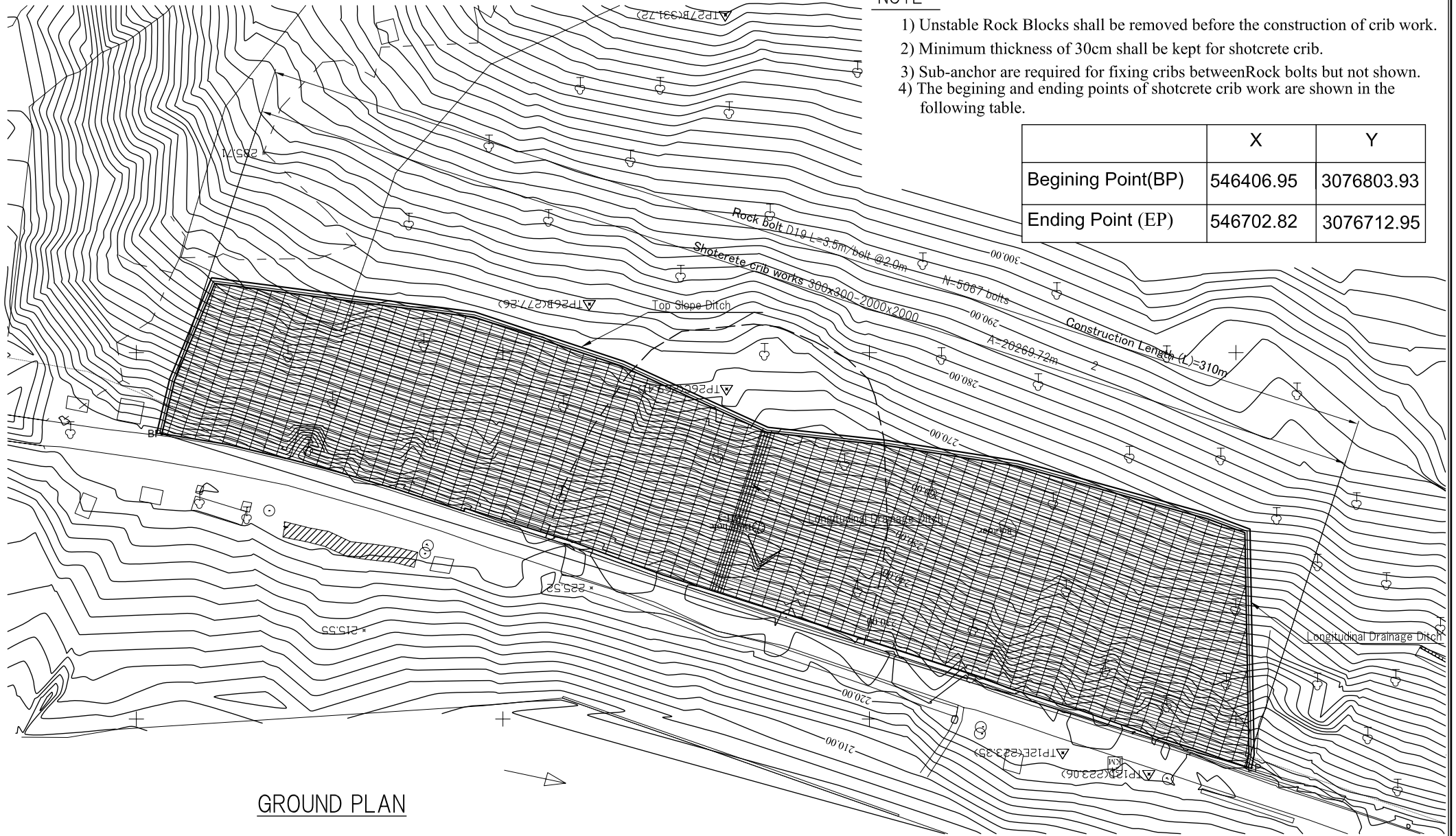
# SHOTCRETE CRIB WORK WITH ROCK BOLT IN 23KM.+960(LS-3)

S=1:1000

## NOTE

- 1) Unstable Rock Blocks shall be removed before the construction of crib work.
- 2) Minimum thickness of 30cm shall be kept for shotcrete crib.
- 3) Sub-anchor are required for fixing cribs between Rock bolts but not shown.
- 4) The beginning and ending points of shotcrete crib work are shown in the following table.

	X	Y
Beginning Point(BP)	546406.95	3076803.93
Ending Point (EP)	546702.82	3076712.95



GROUND PLAN

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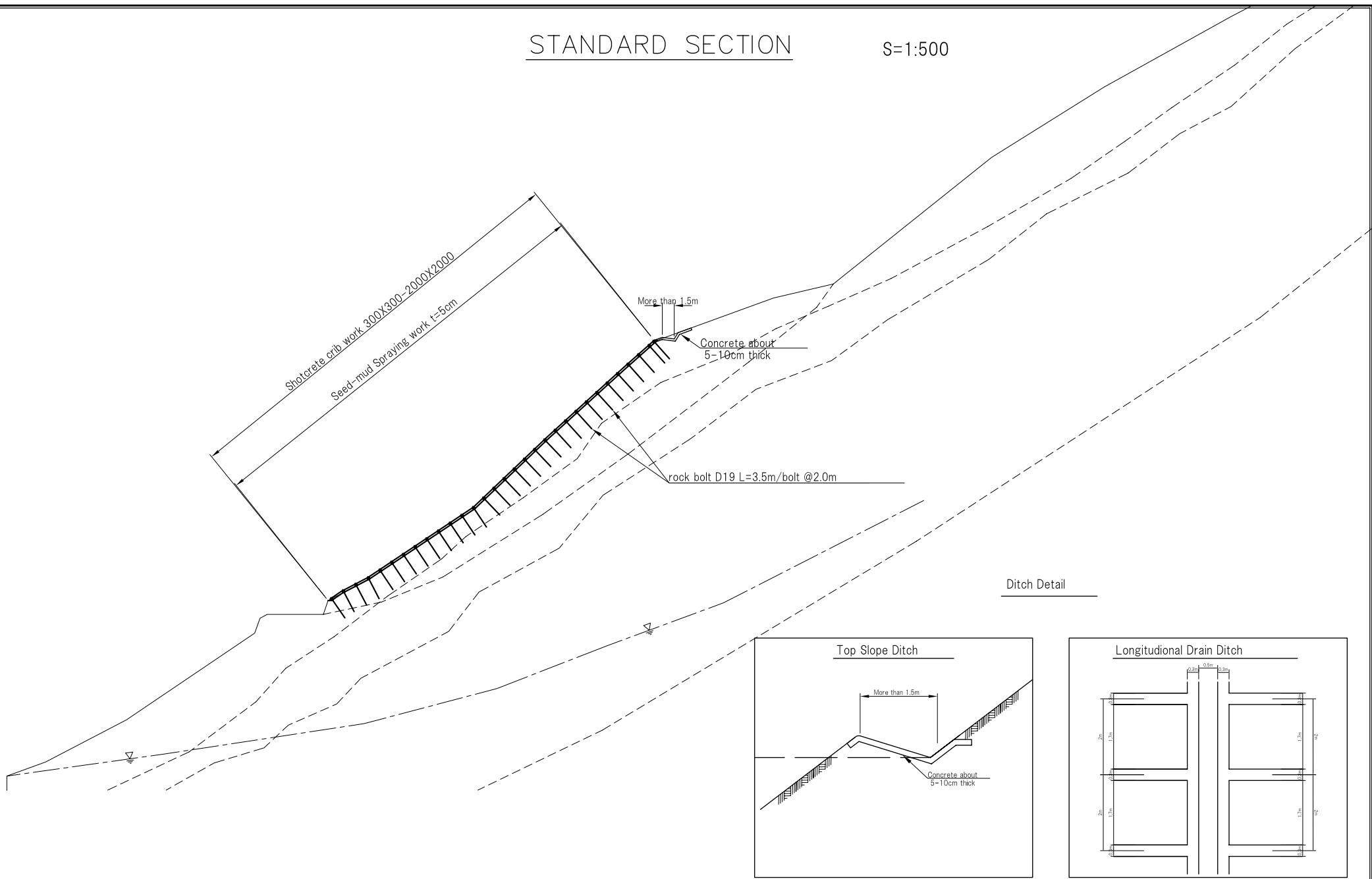
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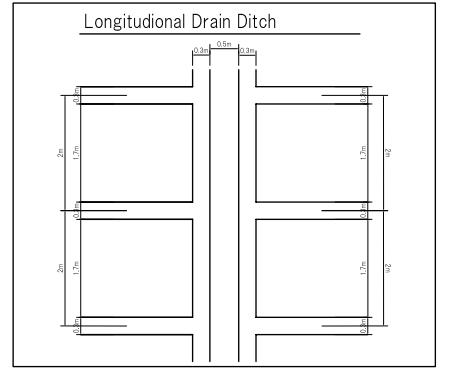
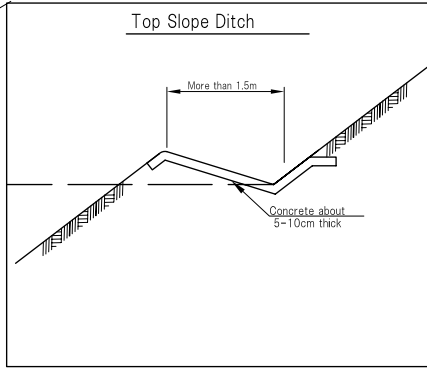


# STANDARD SECTION

S=1:500



Ditch Detail



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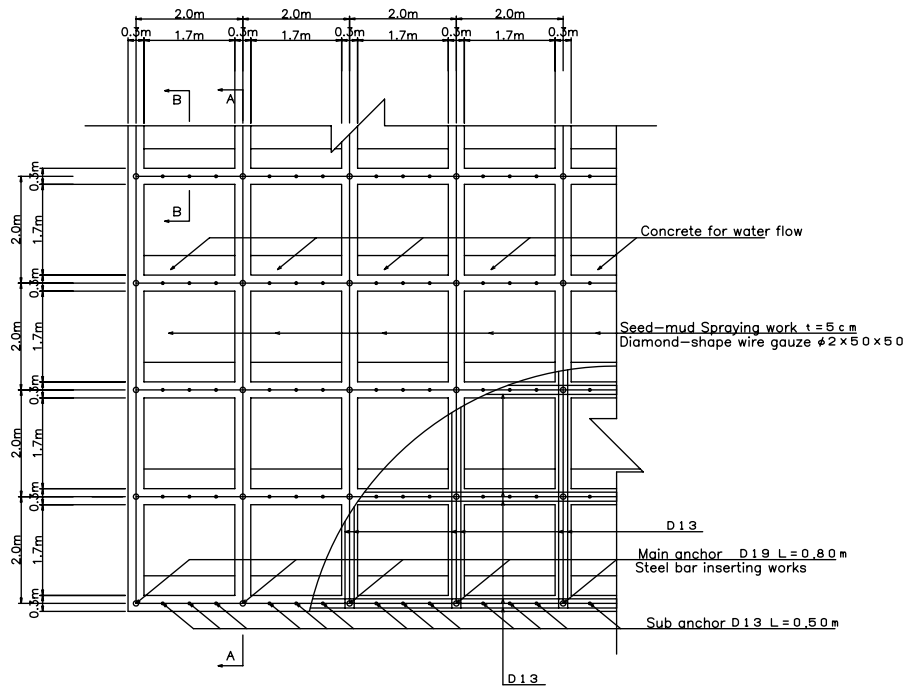
DATE	DWG. NO.	SCALE
FEBRUARY 2008	S07-02	

# DETAIL OF SHOTCRETE CRIB WORK

300×300×2000×2000

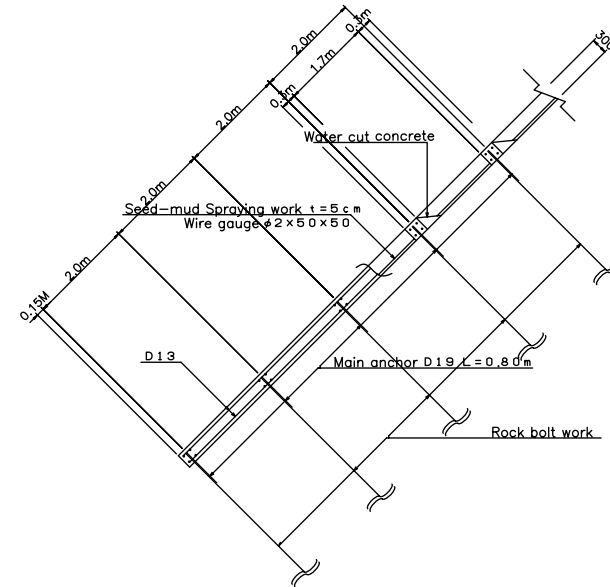
## DETAIL OF SHOTCRETE CRIB

S=1:100



## SECTION (A-A)

S=1:100



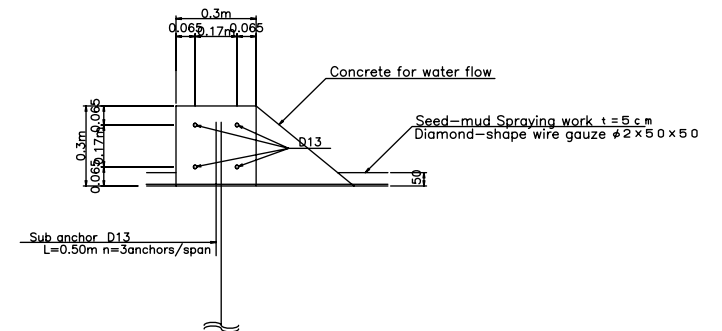
## SPECIFICATION OF SHOTCRETE CRIB WORK

	standard size
Frame interval of crib	2000×2000
Size of frame section	300×300
Spray concrete standard strength	$\sigma_{ck} = 18 \text{ N/m}^2$
Steel bar	D13
Main anchor	D19 L=800mm
Sub anchor	D13 L=500mm
Diamond-shaped wire gauze	φ2×50×50
Inside crib	Seed-mud Spraying work t=5cm

Legend	
•	Sub anchor
○	Main anchor

## SECTION OF CRIB

S=1:20



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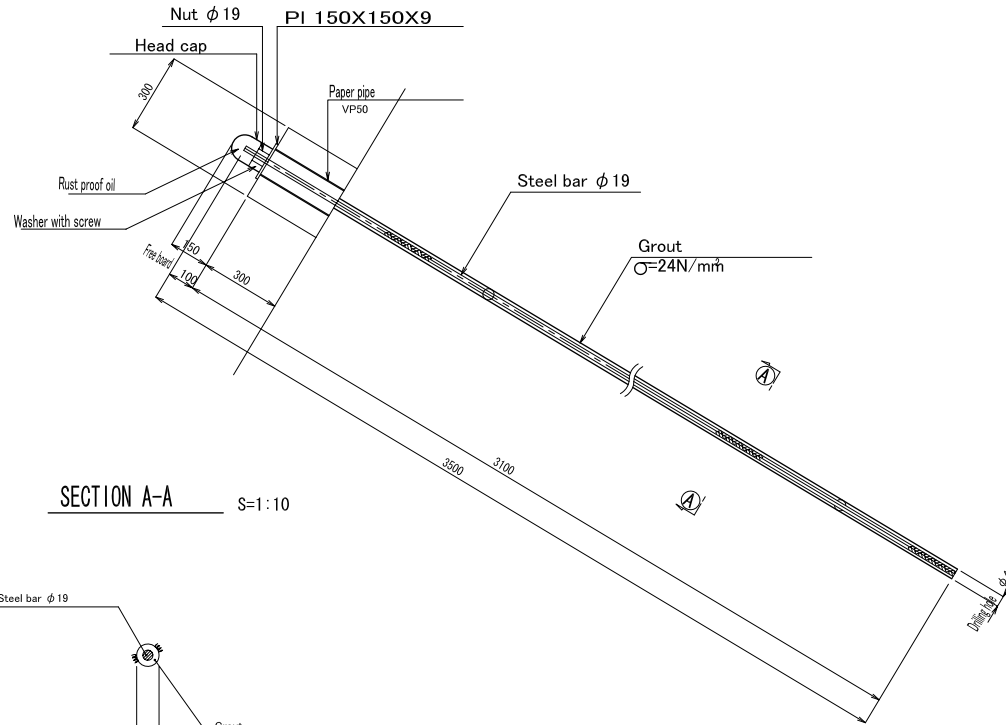
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SCALE

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S07-03

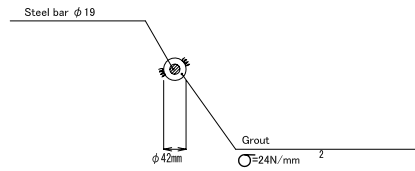
# DETAIL OF ROCK BOLT WORK



Tables of Materials (per 1m)

Item	Dimension	Units	L=3.5m
Steel Bar	D19(SD345)	m	3.50
	3.50m/bolt	No.	1
Drilling Hole	φ 42	m	3.10
Grout	Cement milk $\sigma = 24\text{N/mm}^2$	m	0.006
Grouting pipe	φ 17	m	4.50
Sp	D19	No.	1
Nut	D19	No.	1
Bearing plate	PL-150X150X9	No.	1

SECTION A-A S=1:10



PARTS S=1:8

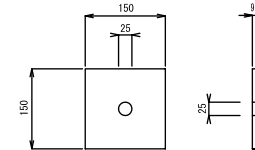
Head cap

Spacer

Steel bar D19

PRESSURE BEARING PLATE

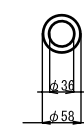
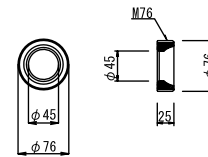
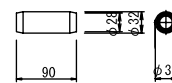
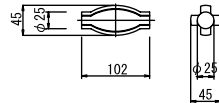
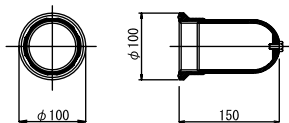
S=1:10



Washer with screw

Ring washer

Nut D19



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