Code	e no.	Ν	3	5	_	3										
Regio	on Office				Ab	bot	ttak	bad								
Main	tenance Unit				Ab	bot	ttak	bad								
[C																
[Cau: item		cto	r						С	ate	eg	or	y		Chec	k
Ľ	areas that river bed is 15° or more in watershed area steepest slope of river bed							50k	m ²	0	r n	nc	ore		1	
rive)km	2		
∕ of	area												km ²			
ert)							40	°or	m	ore	Э					
rop	steepest slop	e o	of ri	ve	r be	ed										
Δ.								s t	ha	n 3	30°				1	
	area that slope gradient is 30° or more in watershed_area						0.2	20k	m²	0	r n	nc	ore		~	
							0.08km ⁻ - 0.20km ⁻									
							less than 0.08km ²						2			
be		area that meadow and shrub						0.20km ² or more					~			
Property of slope	(less than 10m		-				0.02km ² - 20km ²									
∕ of	occupy in wate	ersr	iea	are	ea		les	s t	ha	n ().(2	km ²	2		
ert)	artificial works		at c	aus	se		се	rtai	in						 	
rop	negative effect	ts					no	ne							1	
ሲ	new crack ar			lop	e		се	rtai	in						 	
failure in stre			1				no	ne							1	
	traces of larg			e			certain									
	failure in stre	am	1				none								1	
[Cou	ntermeasure]															
Τv	pe of counterme	eas	ure		С	he	ck				[]	Ha	aza	rd]		

Check dam (by rocks)

Effect of existing

countermesure

none·low

moderate

high enough

Evaluation sheet (debris flow)

Coordinates	La	titu	Ide		N 34°46' 11.6"									
Coordinates	Longitude				E 72°56'56"									
Road Name	Ν	3	5		Km	1	8	4	+	4	0	0		

[Road structure] structure category of score Check 10m or more < River 5m - 10m width 3m - 5m less than 3m less than 1m or 1 No bridge / box culvert Beam 1m - 2m height 2m - 3m 3m - 5m 5m or more

[Potencial of	disaster mode]	Check
Damage of	bridge/culvert	
Outflow of e	embankment	
Debris floor	ding on the road	1

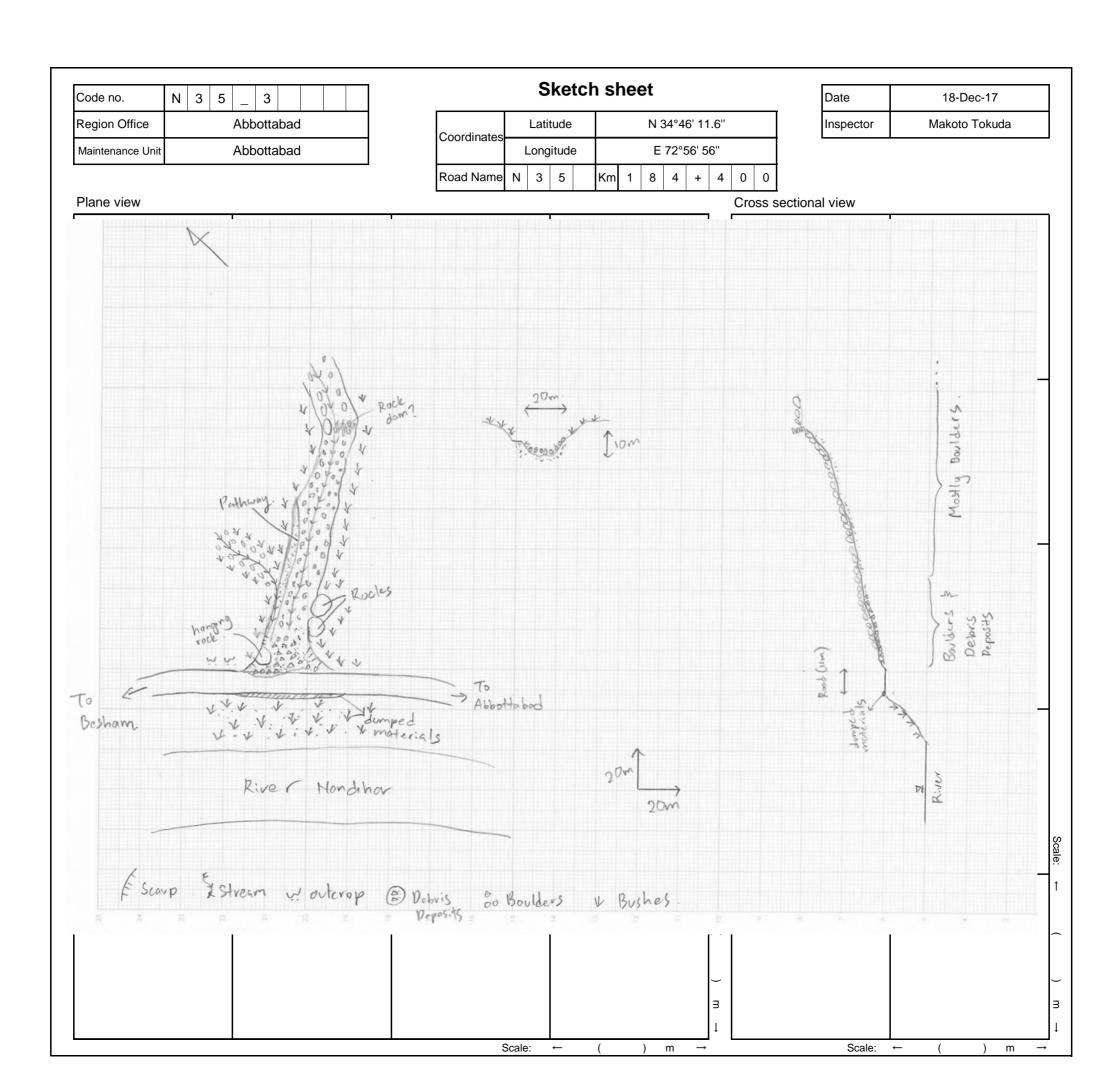
neck	[Hazard]		
		A: the possibility of debris flow is high	
~	Hazard rank:	B: the possibility of debris flow is moderate	
		C: the possibility of debris flow is low/none	~

	Dato	10	Bee II				
Inspector Makoto Tokuda							
'Histor	a						
HISTOL		re	Check				
were ob	History] category of score here is a history about debris flow that ere obstacles to the road traffic after onstruction of recent measures. here is a history about debris flow hough there is no obstacle to						
			1				

[Expected size of disaster] (width, length, depth, etc.)
50m(l)*5m(w)*1m(d)=250m ³

[Description/comments]

The site was use as a blasting site for the CPEC to collect the materials for the road construction. Therefore, most of the debris was likely caused by the this event. There is one big rock hanging just aside the road that has a risk of blocking the road in future. Optical fibre cable is buried 1m at the mountain side of the road.



Code no.	Ν	3	5		3				
Region Office	Abbottabad								
Maintenance Unit	Abbottabad								

heet

Coording	Coordinates		Lati	tude		N 34°46' 11.6"									
COOLUIN	Coordinates		Longitude				E 72°56' 56"								
Road Na	ame	Ν	3	5		Km	1	8	4	+	4	0	0		

Date	18-Dec-17
Inspector	Makoto Tokuda



Mountain side: The debris from the mountain side is flooding near to road side. The site was used as a blasting site for the CPEC to collect the rock material for the construction.



Valley side: Surface of the valley side is filled with the exavated materials from the other site.

Road condition: Debris from the mountain side is covering the shouder the causeway. Waterflow was also observed flowing to the valley side.



Existing anomalies: The stream is filled with debris and boulders.





Existing countermeasures / anomalies: Big rock is overhanging just aside of the road. Removal of this rock is recomendable.

Existing countermeasures: Remains of check dam built by rocks was confirmed at the 120m from the road.

Code	e no.	N 3 5 _ 4		
Regio	on Office	Abbo	ttabad	
Main	tenance Unit	Pa	ttan	
[Cau	ses]			
item	fa	ctor	category	Check
Property of river	areas that riv or more in wa	ver bed is 15° atershed	0.50km ² or more 0.15km ² - 0.50km ²	
y of	area	less than 0.15km ²	1	
ert			40°or more	
rop	steepest slop	be of river bed	30° - 40°	
ш			less than 30°	1
	area that slope	e gradient is 30°	0.20km ² or more	
	or more in wat	0	0.08km ² - 0.20km ²	
			less than 0.08km ²	1
be	area that mean	dow and shrub	0.20km ² or more	
slo	(less than 10m	0,	0.02km ² - 20km ²	
Property of slope	occupy in wate	ershed area	less than 0.02km ²	1
ert)	artificial works		certain	
ō	negative effect	ts	none	1
Δ.	new crack ar failure in stre		certain none	✓
	traces of larg		certain	
	failure in stre	am	none	✓

Evaluation sheet (debris flow)

Coordinates	La	titu	Ide		N 34°48' 18.6"								
Coordinates	Lo	ngi	ituc	le	E 72°56' 12.5''								
Road Name	Ν	3	5		Km	1	9	0					

[Road structure] structure category of score Check 10m or more < 5m - 10m River width 3m - 5m less than 3m less than 1m or No bridge / box culvert Beam 1m - 2m 1 height 2m - 3m 3m - 5m 5m or more

[Potencial disaster mode]	Check
Damage of bridge/culvert	>
Outflow of embankment	
Debris flooding on the road	

[Hazard] A: the possibility of debris flow is high B: the possibility of debris flow is moderate Hazard rank: C: the possibility of debris flow is low/none 1

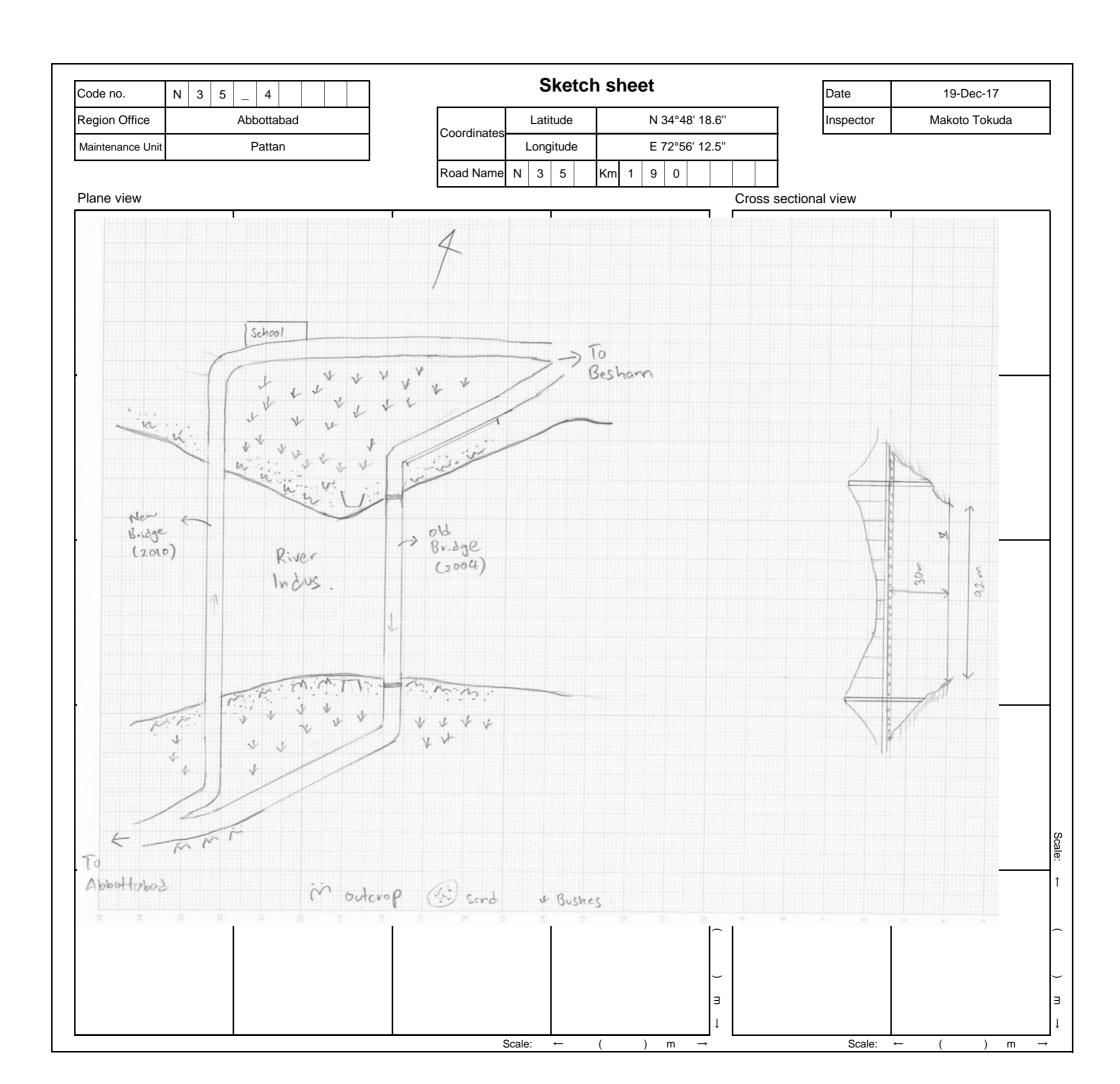
	Date	19-	-Dec-17	
	Inspector	Makoto Tokuda		a
[Histor				
	category of sco	ore	Check	
were ob	s a history about deb ostacles to the road ction of recent meas	traffic after		
	is a history about there is no obsta			
There	is no history of de	bris flow	1	
[Expec	ted size of disaster] (width, leng	th, depth,	etc.)
No det	oris flow is expecte	ed.		

[Description/comments]

The erosion of the bank was suspected during the satellite interpretation causing the bridge to be replaced with the new one. However, the new bridge was constructed on 2010 (by China) to replace the old suspension bridge which was small for the big vehicles. Currently, both bridges are still in use (oneway). The base of the bridge is built on the stable rock and no further erosion can be expected.

[Countermeasure]

Type of counterm	neasure	Check
None		
	none·lov	N 🗸
Effect of existing	moderat	е
countermesure	high	
	enough	



Code no.	Ν	3	5	_	4			
Region Office		Abbottabad						
Maintenance Unit				P	Patta	n		

	Photo	sheet
Coordinates	Latitude	N 34°48' 18.6"
Coordinates	Longitude	E 72°56' 12.5"

Km 1

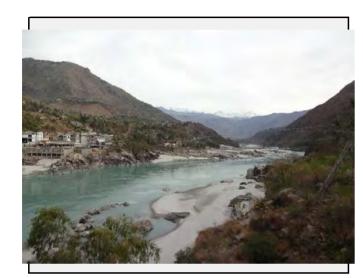
3 5

N

Road Name

9 0

Date	19-Dec-17
Inspector	Makoto Tokuda



Upstream: The gradient of the river bed is very gentle on the upstream.

Downstream: The gradient of the river bed is very gentle on the downstream.

Road condition (old bridge): Some cracks on the boundary of each portion of the suspension bridge.







Road condition (new bridge): No anomalies were found on the road of the new bridge.

Existing countermeasures: The height of the both bridges is 30m from the water level surface.

Others: The base of the old bridge is built on a stable foundation.

Code	no.	Ν	3	5	_	5							
Regio	on Office		Abbottabad										
Main	tenance Unit					Pat	tan						
											L		
[Cau	-												
item		cto							ate	-			Check
ē	areas that riv	ver	be	d is	s 1								<u> </u>
ri <	or more in watershed						0.15	km²	- ().5(0km²		
/ of	area						less than 0.15km ²						
^o roperty of river	steepest slope of river bed					40°o	r m	ore	;			1	
do					ed	30° -	40	0					
Ē					ľ	less	tha	n 3	0°				
							0.20	km²	or	m	ore		1
	area that slope gradient is 30° or more in watershed area				30°	0.08	km²	- ().2(0km²			
	or more in watershed area						less	tha	n 0	.08	km ²		
e	area that mea	dow	/ an	d s	hru	b	0.20	km²	or	m	ore		1
slop	(less than 10m	n he	igh	t)		~ .	0.02	km²	- 2	20k	m²		
Property of slope	occupy in wate	ersh	ed	are	ea		less						
л Ул	artificial works	tha	t c	aus	se		certa	ain					
ope	negative effect	ts				ľ	none)					✓
P	new crack ar	nd/c	or s	lop	e		certa						
	failure in stre	am				ľ	none						✓
	traces of larg	e s	lop	e			certa	ain					
	failura in atraans					ľ	none	<i>.</i>					1

Evaluation sheet (debris flow)

Coordinates	La	titu	Ide		N 34°51'7"							
Coordinates		ngi	ituc	le	E 72°57'36"							
Road Name	Ν	3	5		Km	1	9	9	+	2	0	0

[Road structure] structure category of score Check 10m or more < 5m - 10m River width 3m - 5m less than 3m less than 1m or 1 No bridge / box culvert Beam 1m - 2m height 2m - 3m 3m - 5m 5m or more

[Potencial disaster mode]	Check
Damage of bridge/culvert	
Outflow of embankment	
Debris flooding on the road	1

[Hazard] A: the possibility of debris flow is high B: the possibility of debris flow is moderate Hazard rank: C: the possibility of debris flow is low/none ~

In	spector	Mako	to Tokud	а
[History]			Ohaala	
	category of sco		Check	
were obsta	history about deb acles to the road t on of recent meas	raffic after		
There is a though th traffic.				
There is r	no history of del	oris flow	1	

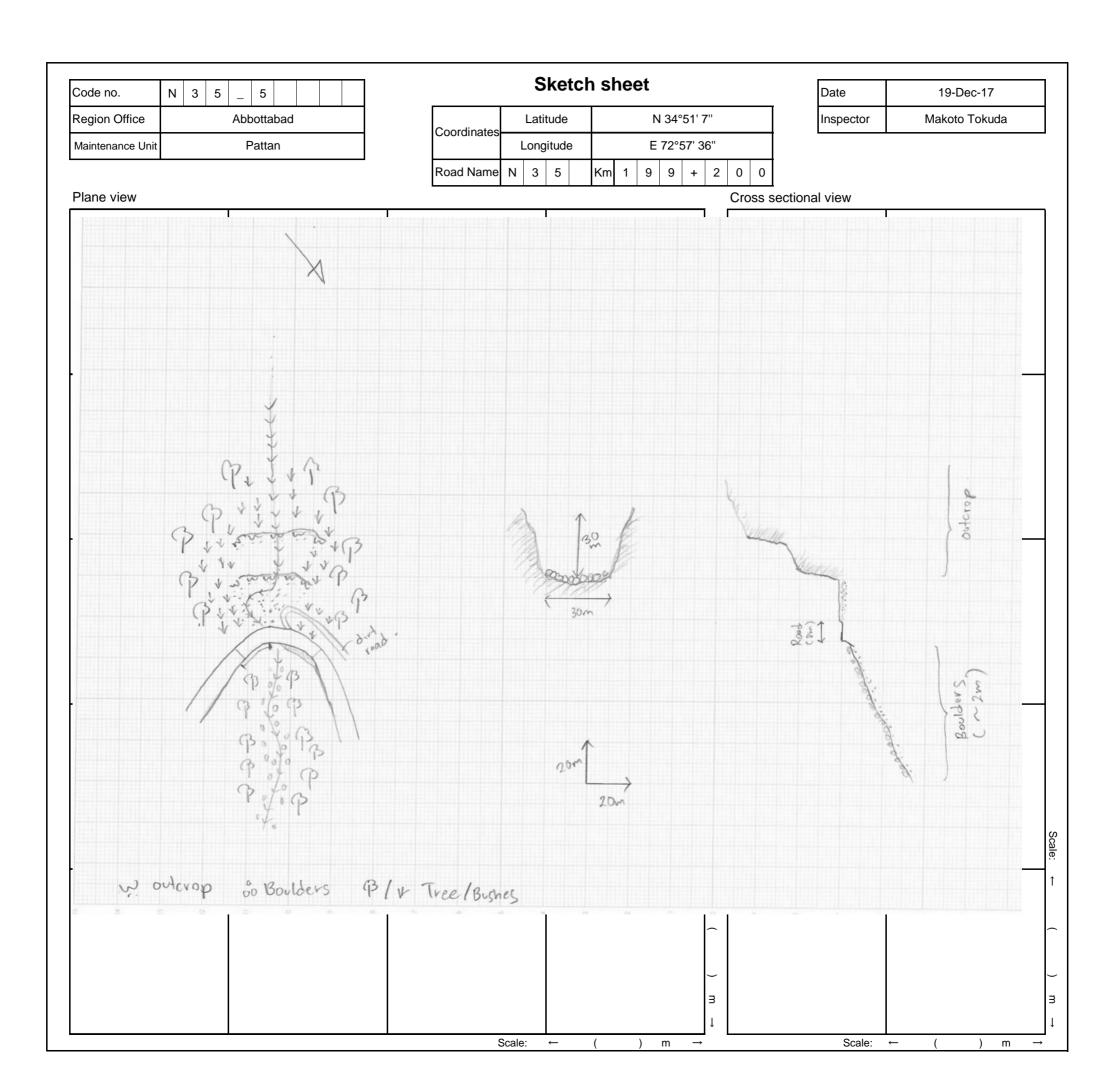
[Description/comments]

Long straight stream passing the road. The stream is a waterfall spot during the rainy season. No disaster have occurred in this area. Optical fibre cable is buried 1m at the mountain side of the road. Big debris flow deposits can't be seen in the stream near the road. The road doesn't seem to have suffered damage and a disaster might not have happened in 5 years given the condition of the vegetation in the surroundings.

[Countermeasure] Ŧ

Type of countern	neasure	Check
None		
Effect of existing countermesure	none lov moderat high enough	

 	. (
L atituda	N 34°	51' 7"



Code no.	Ν	3	5	_	5						
Region Office		Abbottabad									
Maintenance Unit	Pattan										

Photo sheet

Coordinate		Latitude Longitude				N 34°51' 7"								
Coordinate						E 72°57' 36"								
Road Name	e N	N 3 5				1	9	9	+	2	0	0		

Date	19-Dec-17
Inspector	Makoto Tokuda



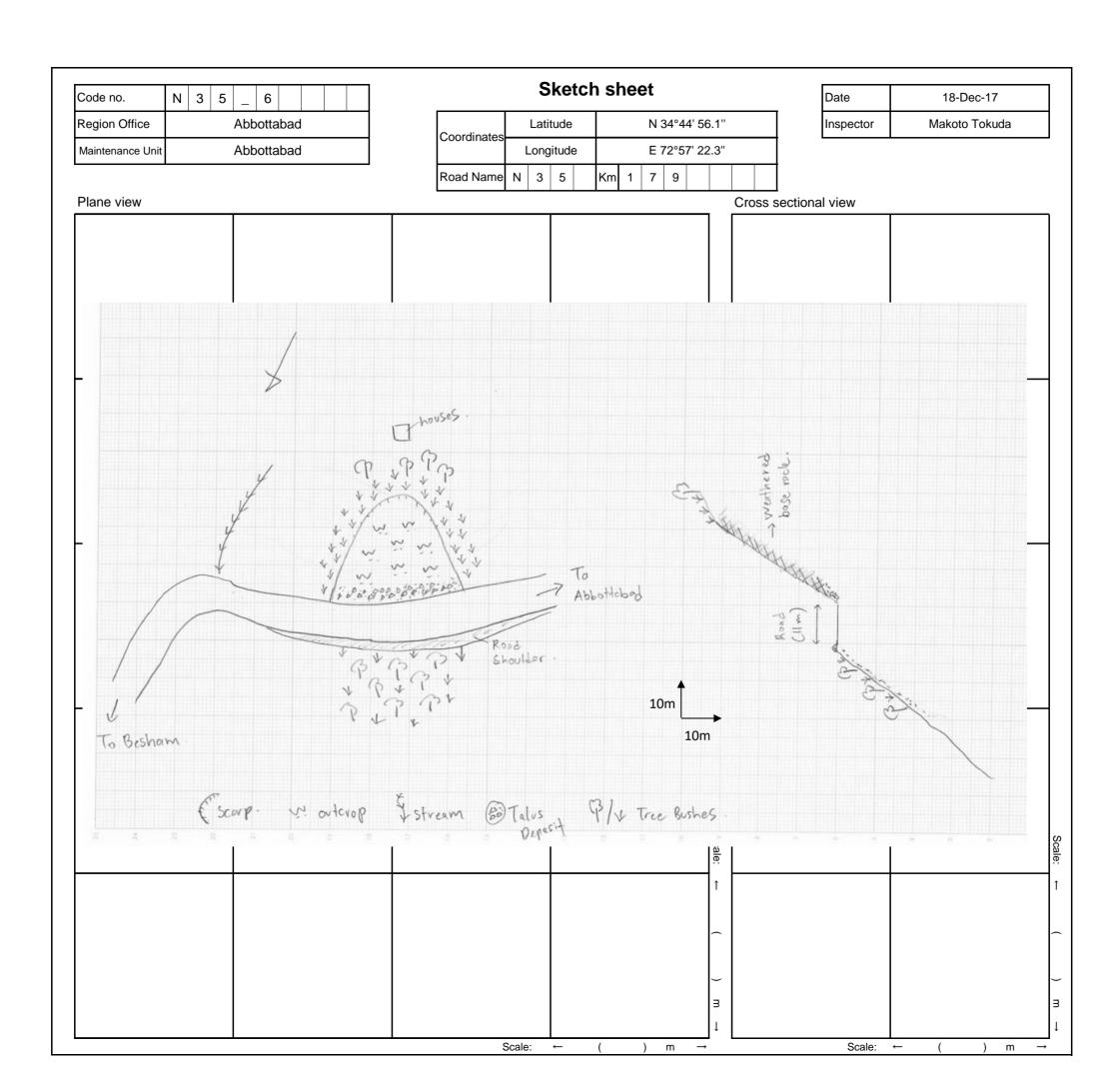
Mountain side: The stepped slope on the mountain side. There are dirt road at passing the stream to the village nearby.

Valley side: Boulders are deposited on the valley side of the road

Road condition: No anomalies was observed in the causeway

	Photo	Photo
Existing countermeasures / anomalies: Approximately 22m of the flat surface between the road and the stepped slope.	Existing countermeasures / anomalies:	Existing countermeasures / anomalies:

Instability Instability Level of disaster history Check Topsoil, detached rock and unsteady rock a little unstable ✓ a little unstable ✓ stability Instability Instability notable spring waster Instable ✓ seepage Instability Instability Instability none ✓ There is a history about large fallen rocks and slope failures that gets to the road traffic. Inter is a history about large fallen rocks and slope failures that did not get to the road. 50m(w)*30m(h)*0.4 Surface condition bare land with minor vagetation intermediate (bare-grass-tree) mainly structure, mainly tree ✓ No disaster records No disaster records	18-Dec-17	-17
Maintenance Unit Abbottabad Longitude E 72° 57 22.3° Road name N 3 S Km I 7 9 1 Causes Consequences Conse Conse Consequences C	Makoto Tokuda	okuda
Causes Image: status and status		
Item factor category of score Cheat Image: Signed of the of slope, clear convexdorment slope overhang, water catchment slope catchment slope slope catchment slope catchment slo		
Image: separate difference of the separate difference on the sec of the separate difference on the		
Image: solution of the set of slope, overhang, water catchment slope 2 correspondences Image: solution overhang, water catchment slope Image: solution overhang, water catchment slope None Image: solution overhang, water catchment slope marked Image: solution overhang, water catchment slope Image: sol		
Image: subscriptible to erosion less strength with water marked it lite marked it marked it marked it marked it water Image: subscriptible to erosion it is generated. Slope failure / (Main check object) Effectiveness of existing countermeasures. Vertice of generated. high density of cracks and a weak layers, soceptible to erosion, fast weathering marked it marked it marked it corresponds. It lite marked it corresponds. Potential slope failure are partly prevented, or it is considerably prevented, or it		
Image: subscriptible to erosion less strength with water marked it lite marked it marked it marked it marked it water Image: subscriptible to erosion it is generated. Slope failure / (Main check object) Effectiveness of existing countermeasures. Vertice of generated. high density of cracks and a weak layers, soceptible to erosion, fast weathering marked it marked it marked it corresponds. It lite marked it corresponds. Potential slope failure are partly prevented, or it is considerably prevented, or it		
Image: source pible to erosion less strength with water a little marked Image: source pible to erosion less strength with water none Image: source pible to erosion less strength with water Potential slope failure are prevented enough, or, it is defended engenerated. Image: source pible to erosion less strength with water none Image: source pible to erosion little marked Image: source pible to erosion little marked Potential slope failure are prevented enough, or, it is defended engenerated. Image: source pible to erosion less strength with water marked Image: source pible to erosion less strength with water Potential slope failure are prevented enough, or, it is considerably prevented, or it is considerably mervented, or it is partly defende generated. Image: source pible to erosion less strength with water marked It corresponds. Potential slope failure are partly prevented, or it is considerably mervented, or it is considerably mervented, or it is considerably mervented. Image: source pible to erosion less strength with water marked It is marked Potential slope failure are prevented enough, or, it is defended enderee Image: source pible to erosion, fast weathering marked It corresponds. Potential slope failure are partly prevented, or it is considered enderee. Image: source pible to erosion, fast weathering marked It corresponds. <td< td=""><td></td><td></td></td<>		
Image: Segment with water a little marked Image: Segment with water a little marked Image: Segment with water Image: Segment with water<	Check	Check
Induction Marked Image: Construction of the c	Jh when it is	
Image: Second point of the	v defended	
Image: Second point of the	,	
Image: Second point of the	en it is	
Image: Second point of the		
weak. None Image: None Ima	neasures 🗸	1
Instability Level of disaster history Check Topsoil, detached rock and unsteady rock a little unstable stability ✓ Image: stability Image: stability ✓	I	 _
Topsoil, detached rock and unsteady rock a little unstable Image: Construction of recent measures. I	(width, length, depth, et	depth, etc.)
stability stability obstacles to the road traffic after construction of recent measures. Spring water notable spring waster seepage seepage none none ✓ Surface condition bare land with minor vagetation intermediate (bare grass tree) mainly structure, mainly tree ✓ No disaster records No disaster records ✓		
Surface condition intermediate (bare • grass • tree) mainly structure, mainly tree No disaster records		
Surface condition intermediate (bare • grass • tree) mainly structure, mainly tree No disaster records		
Surface condition intermediate (bare • grass • tree) mainly structure, mainly tree No disaster records)=750m3	
Surface condition intermediate (bare • grass • tree) mainly structure, mainly tree No disaster records		
mainly structure, mainly tree		
H≧50m [Description] Ξ 30≦H<50m	who ro the talus day	lua dance:
5 15 < H < 30m covered half of the road. Since that		
I≡I IA. LIE DOSSIDIIIV OI COIIdDSE/Idii I ICCC// though there is no obstacle to	•	
i≧70° Is high slope is slope		
ਉ 45°≦i<70° ✓ Hazard B: the possibility of collapse/fall cable is buried 1m at the mountain	of the road.	
a condition of the vegetation but the condition of the vegetation		
piping hole, subsidence, heaving, bending of tree root, certain • unclarity fallen tree, crack, open crack, anomaly of		
countermeasure is low/none		



Code no.	Ν	3	5	_	6					
Region Office		Abbottabad								
Maintenance Unit		Abbottabad								

Photo sheet

	Coordinates	Latitude					N 34°44' 56.1"								
	Joordinates	Longitude					E7	72°5	7' 22	.3"					
R	Road Name	Ν	3	5		Km	1	7	9						

Date	18-Dec-17
Inspector	Makoto Tokuda



Mountain side: Surface failure was confirmed on the mountain side

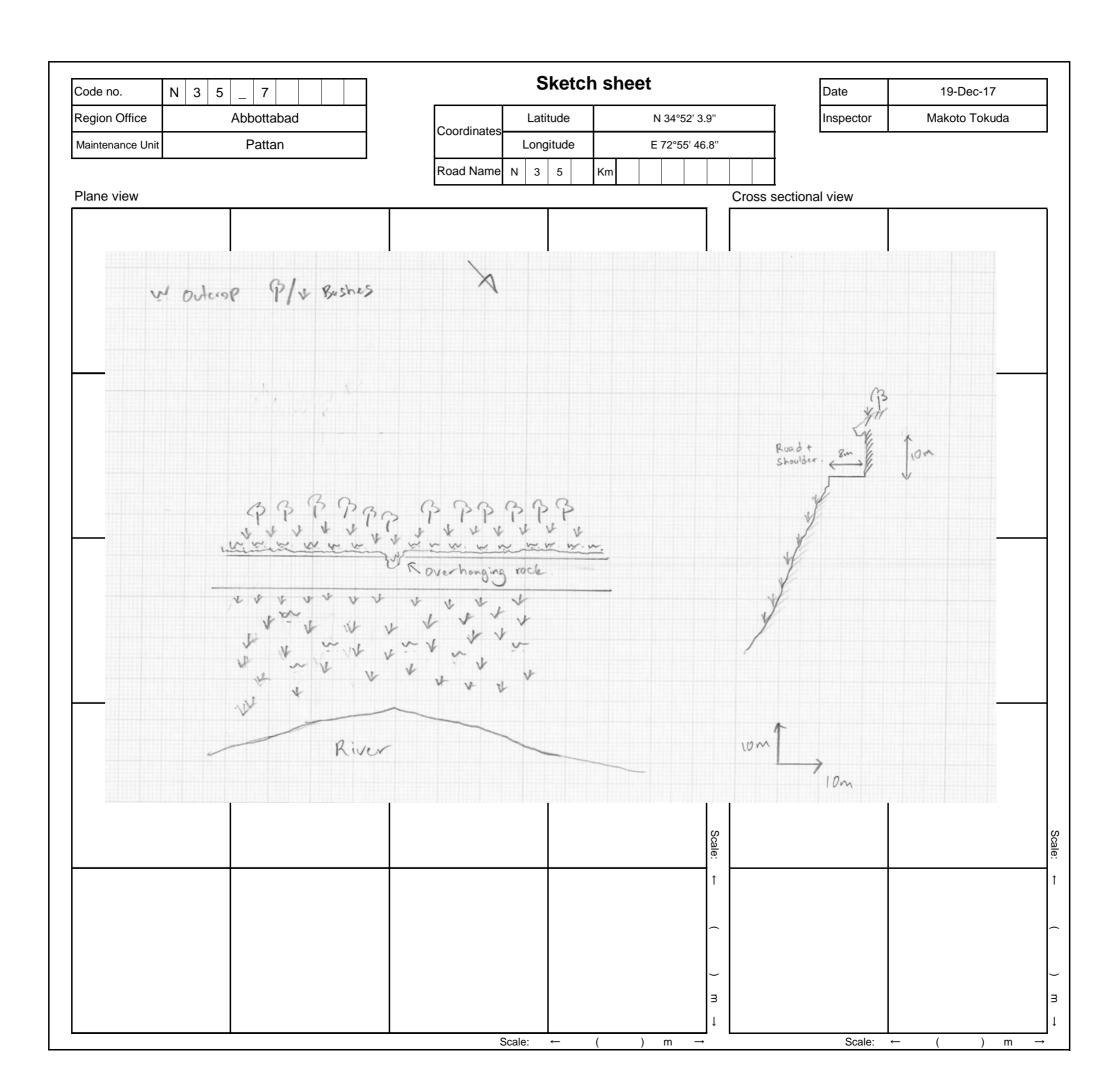


Valley side: The valley side is filled with vegetation and no trace of failure

Road condition: No anomalies was confirmed on the road though there are small amount of talus deposited on the shoulder of the road.



C	Code no.	N 3 5 _ 7		Εv	aluatior	n shee	et (S	lope	fail	lure/	Roc	kfall)		[Date	19-Dec	c-17
Re	gion Office	Abbottabad					tude	N :	34°5	52' 3.9"	'		-		li li	nspector	Makoto T	okuda
Main	tenance Unit	Pattan			Coordinat		jitude	E 7	'2°5	5' 46.8					L_	Į		
L			1		Road nar	me N 3		Km										
[Cau	sesl				- roud hai		U											
Iten		factor	category of score	Check					[Cou	unterme	easure]						
کر م	talus slop	e,	3 or more correspondences										Т	ype of co	ounterm	easures		
topography Collapsed	j clear conv	vex break of slope,	2 correspondences		[Disa	aster type]											
pog	eroded to	e of slope ,	1 correspondences	\checkmark	R	ock fall			None	Э								
0 Q	overnang	, water catchment slope	no correspondence				v											
	= susceptib	le to erosion	marked		Slop	pe failure									-	ermeasures		Check
Č		gth with water	a little marked		-		Ļ				pe failu	ure are p	reven	ted enoug	gh, or, it	t is defended	enough when it i	s
suc			None	\checkmark	[Maii	n check o	bject]		U	erated.								
Geological conditions		ity of cracks and a weak layers,	marked		Cu	ut slope	1			ntial sloj n it is ge			onside	rably pre	vented,	or it is consid	lerably defended	
S C	fast weath	le to erosion, nerina	a little marked None							•								
ical			It corresponds.	\checkmark	Natu	ural slope										partly defende ning factors.	ed when it is	
olog	ω dip slope	of bedding plane	None	~					-					-			Intermeasures	
Geol	dobrio on	importanti ity bodrock	marked							not perfo		measure	5, 01 11		il enecu		internieasures	1
	the upper	impermeability bedrock, part is a hard /the toe of slope is	a little marked															
	weak.		None	\checkmark	[History]										[Expe	ected size of dis	saster](width, length	n. depth. etc.)
			instability	\checkmark	[Level	of disast	er his	story			С	heck			1(), 3	,,
	Topsoil, d	etached rock and unsteady rock	a little unstable		There is a h					-	failures	s that we	ere					
u			stability		obstacles to													
Surface codition			notable spring waster		There is a h	nistory abou	ut large	fallen ro	cks ar	nd slope	e failure	s that ge	ets	/		()+=0 (1)+		•
e S		Spring water	seepage		to the road t	though the	re is no	obstacle	to tra	ffic.				~		() ()	2m(d)=30,000m =3m*2m*2m=12n	
rfac			none	\checkmark	There is a h	nistory abou	ut smal	l fallen ro	cks ar	nd slope	e failure	es that di	id		11001			10
Su			bare land with minor vagetation	\checkmark	not get to th	ne road.												
		Surface condition	intermediate (bare · grass · tree)		No disaster	records												
			mainly structure, mainly tree			1000140												
			H≧50m											scription				
			בן שַ 30≦H<50m 15≦H<30m		[Hazard]	1					1						ng on top of the near future. The	
file						A: the p	oossib	ility of c	ollap	ose/fall							of the mountai	
Prof		Height (H), dip (i)	H<15m i≧70°	\checkmark		is high		-	•								. Optical fibre o	
				\checkmark		_											e of the road.	
			<u>⊖</u> ਚ 45°≦i<70° i<45°		Hazard	B: the p	oossib	ility of c	ollap	ose/fall		~					e and relatively	∕ high
\vdash			2 or more correspondences · clarity	$\left - \right $	rank	is mode	erate		-			~	frac	tures ca	an be o	bserved		
		e, small fallen rock, gully, erosion, sidence, heaving, bending of tree root,	certain • unclarity	\checkmark														
	len tree. Crack	sidence, neaving, bending of tree root, k, open crack, anomaly of	none	~		C: the p		ility of c	ollap	ose/fal								
	untermeasure					is low/r	one											



Code no.	Ν	3	5	_	7					
Region Office		Abbottabad								
Maintenance Unit		Pattan								

Photo	sheet
-------	-------

Coordinates	Latitude Longitude					N 34°52' 3.9"							
Coordinates							Е	72°5	5' 46.	.8"			
Road Name	Ν	3	5		Km								

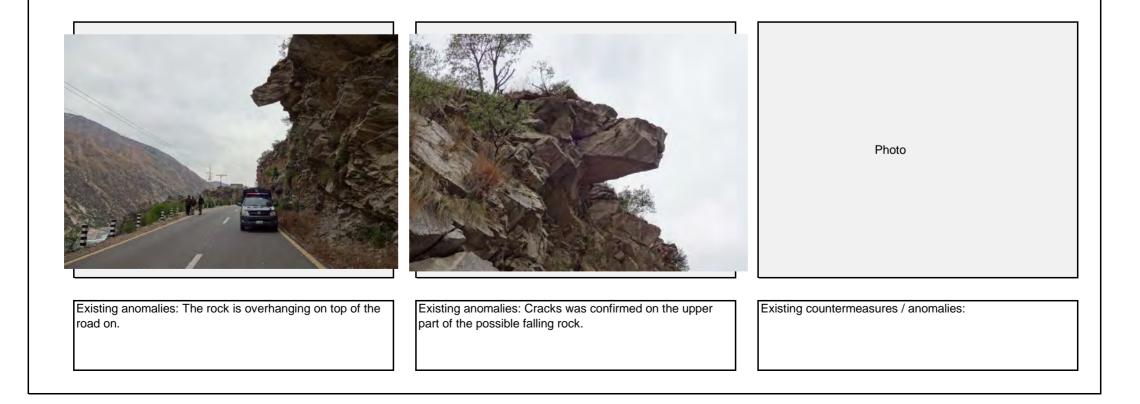
Date	19-Dec-17
Inspector	Makoto Tokuda



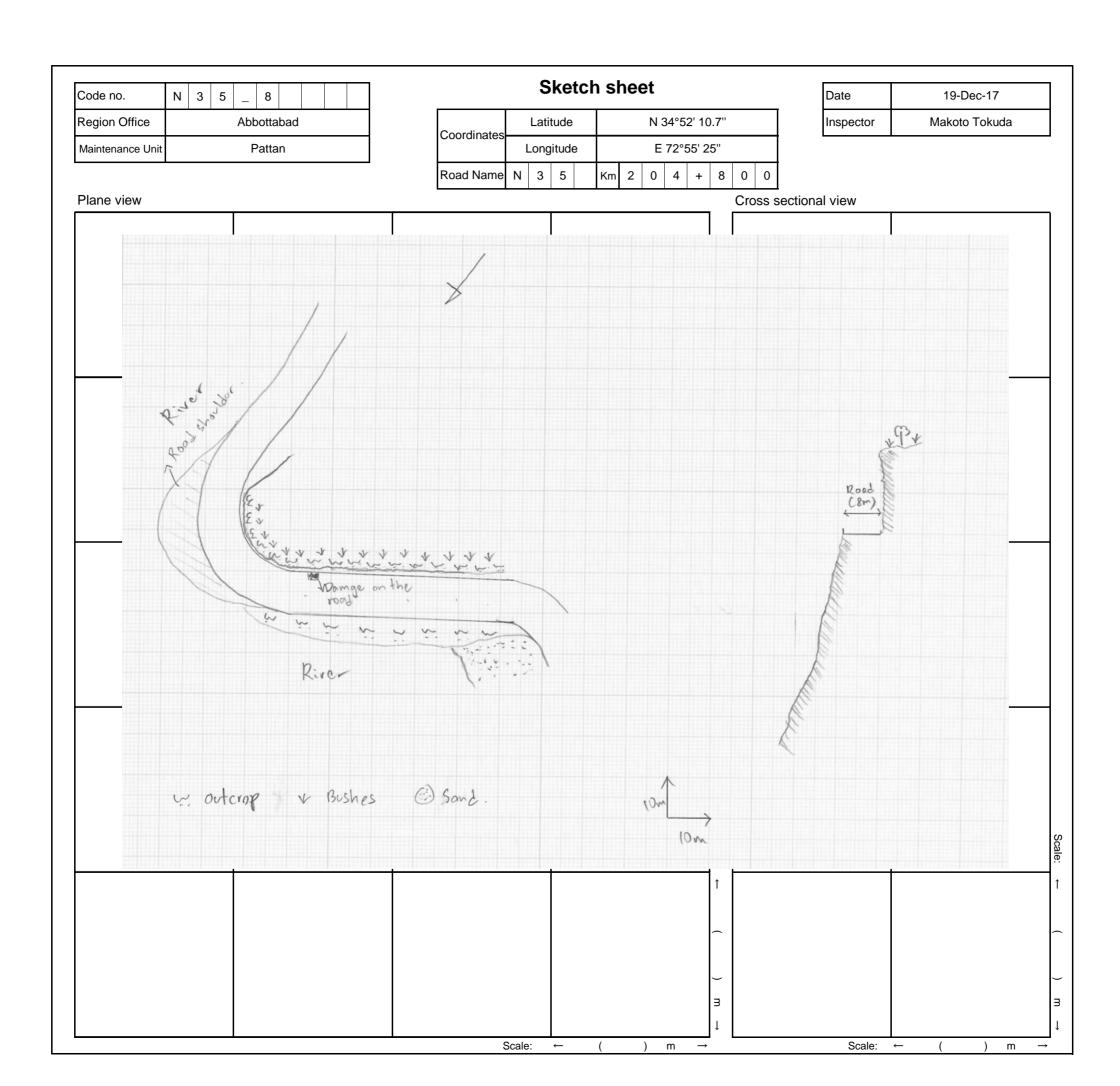
Mountain side: Vertical cut slope along the road is prone to rockfall.

Valley side: Steep cliff on the valley side of the road

Road condition: No damage on the road was confirmed at the site



	Cod	e no. N 3 5 _ 8		E٧	aluation	shee	et (S	lope	failure/Ro	ockfall)	Date	19-Dec	-17
F	Regior	n Office Abbottabad			Coordinate	Latit	ude	N :	34°52'10.7"			Inspec	ctor Makoto To	okuda
M	aintena	ance Unit Pattan			Coordinate	es Long	itude	E	72°55'25"					
L			4		Road nam	ne N 3	5	Km 2	0 4 + 8 0	0				
[Ca	auses]												
ŀ	tem	factor	category of score	Check					[Countermeasu	ire]				
phy	L ed	talus slope,	3 or more correspondences								Type of	countermeasur	res	
ogra	llaps acto	clear convex break of slope, eroded toe of slope ,	2 correspondences 1 correspondences	\checkmark	[Disa:	ster type]			None					
topography	CO	overbang, water catchment slope	no correspondence	~	Ro	ock fall	✓		None					
			marked		Slop	o foiluro				Effective	ness of exist	ting countermea	asures	Check
		susceptible to erosion less strength with water	a little marked	\checkmark	Siop	e failure			Potential slope fa	ailure are p	revented end	ough, or, it is de	fended enough when it is	5
su			None		[Main	o check ol	bject]		generated.					
Geological conditions	Rock	high density of cracks and a weak layers, susceptible to erosion,	marked a little marked	~	Cut	t slope	✓		Potential slope fa when it is genera		onsiderably p	prevented, or it is	s considerably defended	
cal c	Ľ	fast weathering	None		Natu	ral slope							defended when it is	
ologia	ø	dip slope of bedding plane	It corresponds. None	\checkmark					generated. Howe			· · · ·	actors. en if countermeasures	
Ģ	Structure	debris on impermeability bedrock,	marked	v					are not performed					 Image: A start of the start of
	Stru	the upper part is a hard /the toe of slope is	a little marked						L.					
		weak.	None	\checkmark	[History]							[Expected s	size of disaster](width, length,	, depth, etc.)
			instability	\checkmark					ter history		Check			
ion		Topsoil, detached rock and unsteady rock	a little unstable stability						cks and slope failu truction of recent m		re 🗸			
Surface codition			notable spring waster						ocks and slope failu	ires that ge	ets	400m(w)*	50m(h)*2m(d)=40,000m3	3
ace (Spring water	seepage	\checkmark	to the road th	•						```	ax size=3m*2m*1m=6m3	
Surfa			none bare land with minor vagetation	\checkmark	not get to the		it sma	ll fallen ro	ocks and slope fail	ures that di	d			
•,		Surface condition	intermediate (bare grass tree)	Ň	0									
			mainly structure, mainly tree		No disaster r	records								
			H≧50m								[Descripti	on]		
			<u>דן</u> 30≦H<50m פן 15≦H<30m		[Hazard]					I			er (sized 6 $m^3 \sim 72m^3$	
file				<i>✓</i>		A: the p	ossib	ility of a	collapse/fall				eks. It may continue u	-
Prof		Height (H), dip (i)	H<15m i≧70°	\checkmark		is high				•			emoval of the unstable e montain side road is	
			<u>ਿ</u> ਉ 45°≦i<70°	· ·									al fibre cable is buried	
			i<45°					oility of a	collapse/fall			side of the roa		
~	Surfac	ce collapse, sma ll fa llen rock, gully, erosion,	2 or more correspondences clarity	\checkmark	rank	is mode	rate					e is big and ov rocks can be	erhands, dip slope, hig observed	yniy
nomal	piping fallen t		certain•unclarity none			C: the p is low/n		oility of o	collapse/fall		naolaroa			
	Jound													

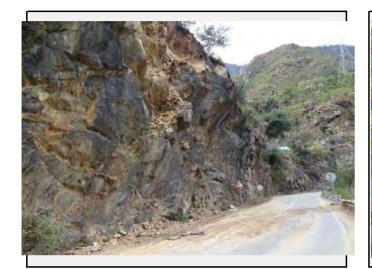


Code no.	Ν	3	5	_	8				
Region Office	Abbottabad								
Maintenance Unit	Pattan								

Photo she	eet
-----------	-----

Coordinates		Lati	tude				NS	34°5	2' 10	.7"		
Coordinates		_ong	jitude	9			E	72°;	55' 2	5"		
Road Name	Ν	3	5		Km	2	0	4	+	8	0	0

Date	19-Dec-17
Inspector	Makoto Tokuda



Mountain side: The height of the portion of the fallen rock is 15m ~ 20m

Overhangs can be observed in some spots



Road condition: The fallen rock has been cleared on the next day of the disaster.



Existing anomalies: The fallen rock has damaged the road surface.



Existing anomalies: Portion of the fallen rock (from bottom)

Existing anomalies: Portion of the fallen rock (from side)

Regio	o					1								alu
	n Office			Ab	bot	taba	d							
Mainte	enance Unit			I	Pat	tan							Coo	rdina
													Roa	d Na
	_													
[Caus item	-	ctor					са	ateo	ory		Che	ck		[R
	areas that riv	/er be	ei be	s 1!	5°	0.50								str
Ψ	or more in wa			5 10	Ŭ.	0.15	km ²	- 0.	50kr	n ²				
of	area				ľ	less	than	0.1	l5km				F	
erty						40°o	r mo	ore			1			v
rop	steepest slop	e of r	ive	r be	əd	30° -	· 40°				1			
₽.						less								
	area that along	aradi	o. n.ł	in C	200	0.20	4 km²	or r	nore		1	<i>.</i>		
	area that slope or more in wate					0.08	km∠	- 0.	20kr	n ⁻				B
						less								h
be	area that mead	low ar	nd s	hru	~ .	0.20					-	, 		
	(less than 10m					0.02								
/ of	occupy in wate	rsneu	are	ea		less	than	0.0)2km	2				
ert.	artificial works		aus	se		certa	ain							[P
rop	negative effect					none)				~			Da
	new crack an		slop	e		certa	ain							
-	failure in stre					none					~			0
	traces of larg failure in stre		be		ł	certa					ļ			
		am				none	;				1			De

Evaluation sheet (debris flow)

Coordinates	Latitude				N 34°54' 18.8"							
Coordinates	Longitude		E 72°51'41.6"									
Road Name	Ν	3	5		Km	2	1	6	+	9	5	0

[Road st	tructure]	
structure	category of score	Check
River	10m or more 5m - 10m	~
width	3m - 5m	
	less than 3m	
	less than 1m or	
	No bridge / box culvert	v
Beam	1m - 2m	
height	2m - 3m	
	3m - 5m	
	5m or more	

[Potencial disaster mode]	Check
Damage of bridge/culvert	
Outflow of embankment	
Debris flooding on the road	1

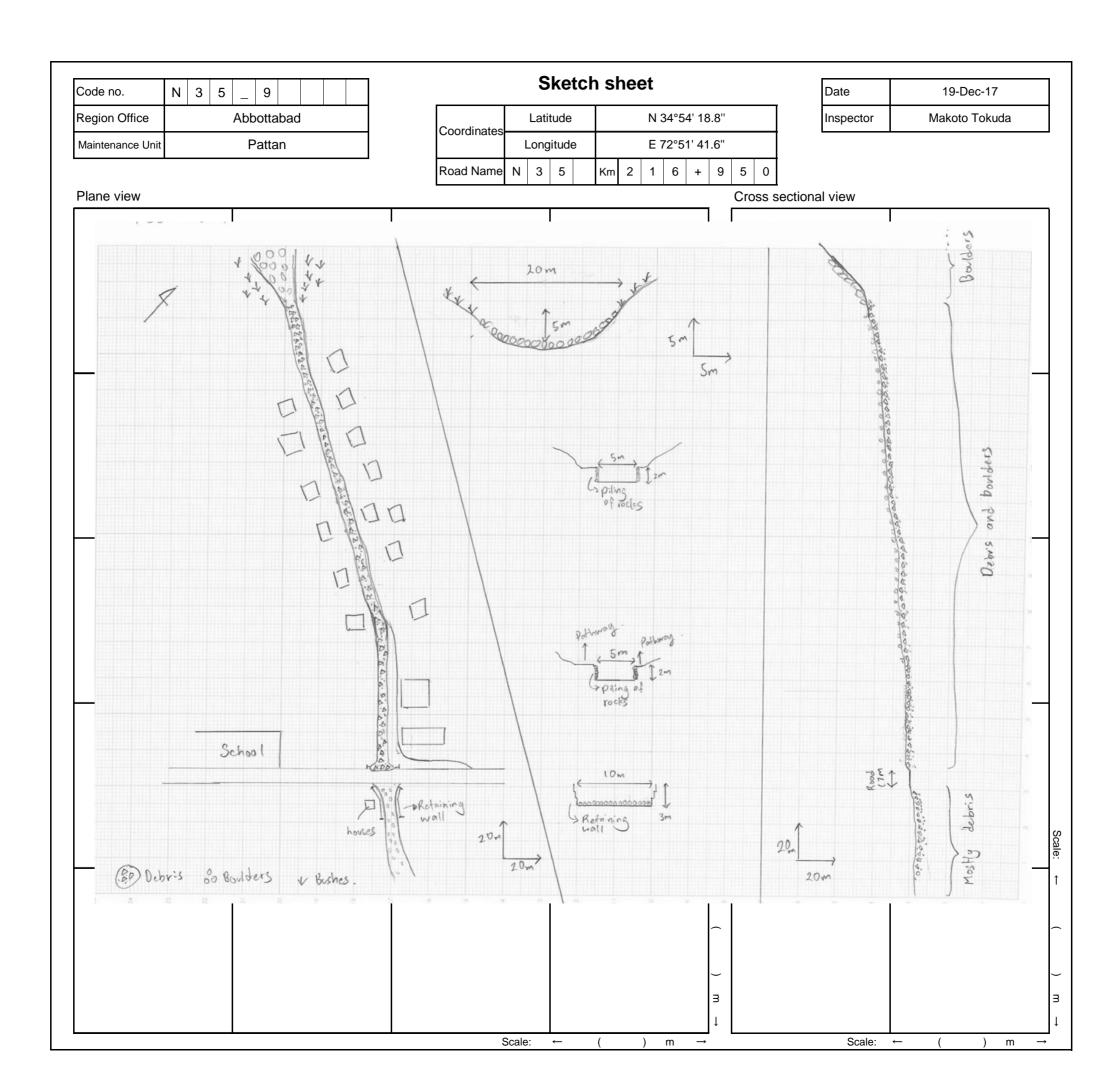
[Hazard]		
	A: the possibility of debris flow is high	1
Hazard rank:	B: the possibility of debris flow is moderate	
	C: the possibility of debris flow is low/none	

Date 19-Dec-17 Inspector Makoto Tokuda [History] category of score Check There is a history about debris flow that were obstacles to the road traffic after 1 construction of recent measures. There is a history about debris flow though there is no obstacle to traffic. There is no history of debris flow [Expected size of disaster] (width, length, depth, etc.)

300m(l)*2m(w)*1m(d)=600m3

Type of counterm	neasure	Check
Retaining wall (at th Retaining wall by bo		
Effect of existing	none•lov moderat	
countermesure	high	

	[Description/comments]
	Each year, the debris is flooding the road and causing
	causing the road closure for a few days. The retaining
	wall mad by boulders is constructed along the housing
	area where the angle of the stream bed is less than 15
	degrees. The large amount of debris is supplied from the
	erosion of the stream bed. Optical fibre cable is buried 1m
	at the mountain side of the road.
	Each time there is heavy rain, debris flow deposits have
i	to be removed from the road



Code no.	Ν	3	5	_	9				
Region Office	Abbottabad								
Maintenance Unit		Pattan							

Photo	sheet
-------	-------

Coordinates	Latitude				N 34°54' 18.8"							
Coordinates	Longitude				E 72°51' 41.6"							
Road Name	Ν	3	5		Km	2	1	6	+	9	5	0

Date	19-Dec-17
Inspector	Makoto Tokuda



Mountain side: The exit of stream to the road is filled with the debris





Valley side: Construction of the retaining wall by the inhabitants on the valley side is in progress to protect their

Road condition: Causeway is build on the to allow the stream to flow to the valley side. The red line shows the height of the previous debris flow.





houses.

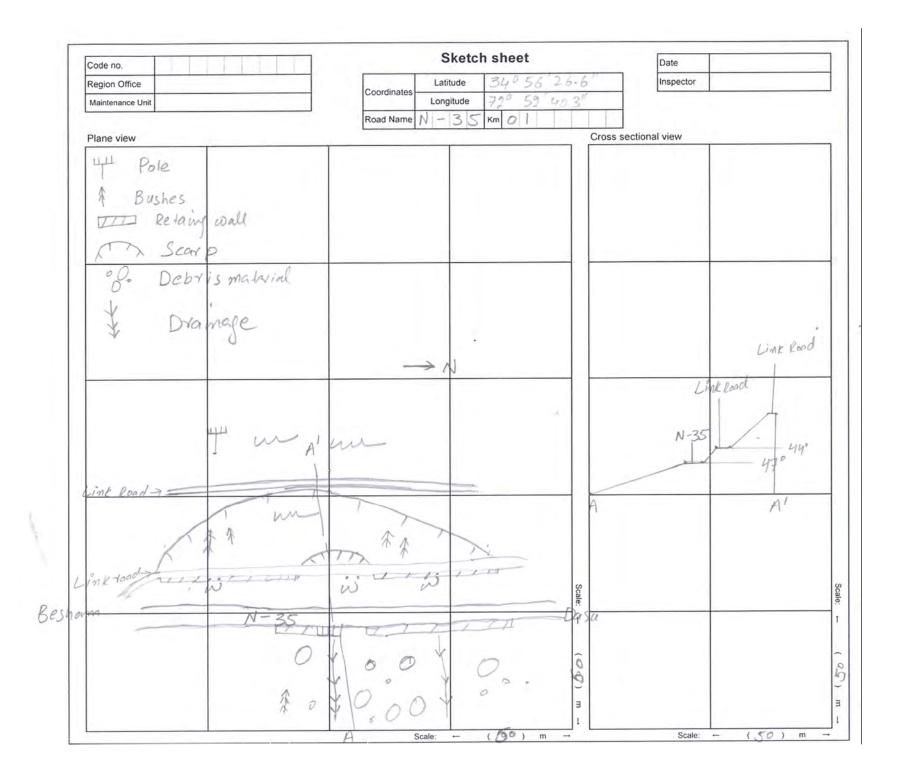


Existing countermeasures / anomalies: Damage of the retaining wall at the exit of the stream

Existing countermeasures / anomalies: The retaining wall by boulders is minimizing the erosion of the bank. However, the stream bed is susceptible to the erosion.

Others: Big sized boulders can be observed at the starting point of the mountain where the angle of the stream bed is changing.

		Sat_	_									
	Cod	le no. N 3 5 _ 0 1		E١	valuation she	et (S	lope f	ailure	/Rockfa	all)	Date 14/12/2	017
F	Regio	n Office				titude	34º	56'26.6	6"		Inspector Yasir, Sajid, Shafiq	ue, Basharat
м	ainten	ance Unit	-		Coordinates	gitude	720	52'40.3	3"			
			1		Road name		Km					
IC	auses	1					NIII					
<u>ب</u>	tem	factor	category of score	Check			[Counterm	easurel			
Ž	77	talus slope,	3 or more correspondences	V			Ľ			Type of co	untermeasures	
topography	Collapsed factor		2 correspondences		[Disaster type	9]						
boc	ollapse factor		1 correspondences	1	Rock fall							
top	Ũ	overhang, water catchment slope	no correspondence		ROCK TAIL							
		augeentikle te eregien	marked		Slope failure				Effec	ctiveness of existing	countermeasures	Check
	Soil	susceptible to erosion less strength with water	a little marked	V		v	F	Potential sl	lope failure ar	re prevented enough	n, or, it is defended enough when it is	
su			None		[Main check of	object]	g	enerated.				
Geological conditions	×	high density of cracks and a weak layers,	marked	\square	Cut slope					e considerably preve	ented, or it is considerably defended	
sone	Rock	susceptible to erosion,	a little marked	V		`		vhen it is g				
cal o		fast weathering	None		Natural slope						or it is partly defended when it is	v
ogi		dip slope of bedding plane	It corresponds.				5		-	s not enough for the	5	
Geo	Structure		None	V						sure, or there is not	effective even if countermeasures are	
	truc	debris on impermeability bedrock,	marked	√			n	ot perform	eu.			
	S	the upper part is a hard /the toe of slope is weak.	a little marked		[] listow (]						[Expected size of disaster](width, length,	1
			instability	V	[History]		of disaster	r history		Check	Expected size of disaster (width, length,	depin, etc.)
		Topsoil, detached rock and unsteady rock	a little unstable		There is a history abo				foiluros that			
L L			stability	<u>+</u>	obstacles to the road							
codition			notable spring waster		There is a history abo					t gets to		
Õ		Spring water	seepage	ł	the road though there					√ V	L= 73.6 m, W= 145 m, D	1 m
face		1 5	none	V	There is a history abo	ut small	l fallen rock	s and slop	e failures tha	t did		
Surface			bare land with minor vagetation	V	not get to the road.							
		Surface condition	intermediate (bare • grass • tree)		Nie die enten ne eende							
			mainly structure, mainly tree	1	No disaster records							
			H≧50m		[Evaluation Rank]					[Description]		
			ਸੂ 30≦H<50m	V	Scale of disaster	Big	м	edium	Small		ure is actually cut slope due to the exc	
e			<u>₽</u> 15≦H<30m	ļ	Risk	Dig		oulum	oman		ad above the scarp. Metasedimentry s ement group is exposed along the cut	
Profile		Height (H), dip (i)	H<15m		Great risk	1		2	3		ly jointed and cracked. Three gullies h	
Ľ			i≧70°							towards	the valley side. Erosion along these g	ullies is
			ਿਊ 45°≦i<70°	_ √	Medium risk	1	(2	3	endangerir	ng the stability of N35. Retaining wall is	s partially
			i<45°					\leq +			damaged.	
aly	Surfa	ce collapse, small fallen rock, gully, erosion,	2 or more correspondences clarity certain unclarity	V	Low risk	2		3	4			
Anomaly	piping fallen	hole, subsidence, heaving, bending of tree root, tree, crack, open crack, anomaly of	none	<u> </u>	Organization respons	ible for a	ountermoo		according	Influence on the t	raffice when notential	
A		ermeasure		<u> </u>	to the scale of the dis		ountermea	SULE WOLKS	according	disaster	raffice when potential	
					-Big: Grant aid						closed for 2 days or more	
					-Medium: Major contr	actor in F	Pakistan				d closed for 1 day or less	
					-Small: Local contract					-Low risk: no road	•	

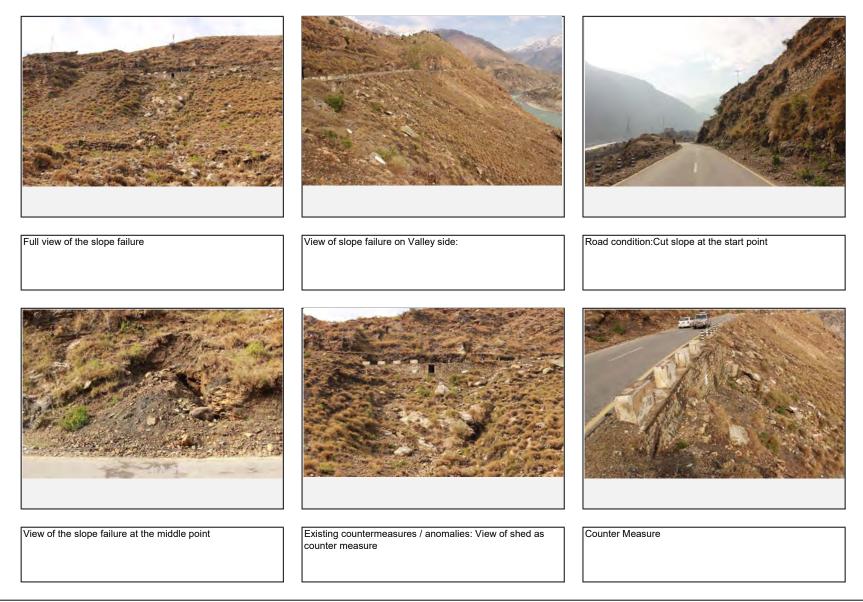


5	Sat_						
Code no.	Ν	3	5	_	0	1	
Region Office							
Maintenance Unit							

Photo sheet

Coordinates	Latitude	34°56'26.6"								
	Longituc	le	72 ^o 52'40.3"							
Road na	ame					Km				

Date	14/12/2017
Inspector	′asir, Sajid, Shafique, Bashara



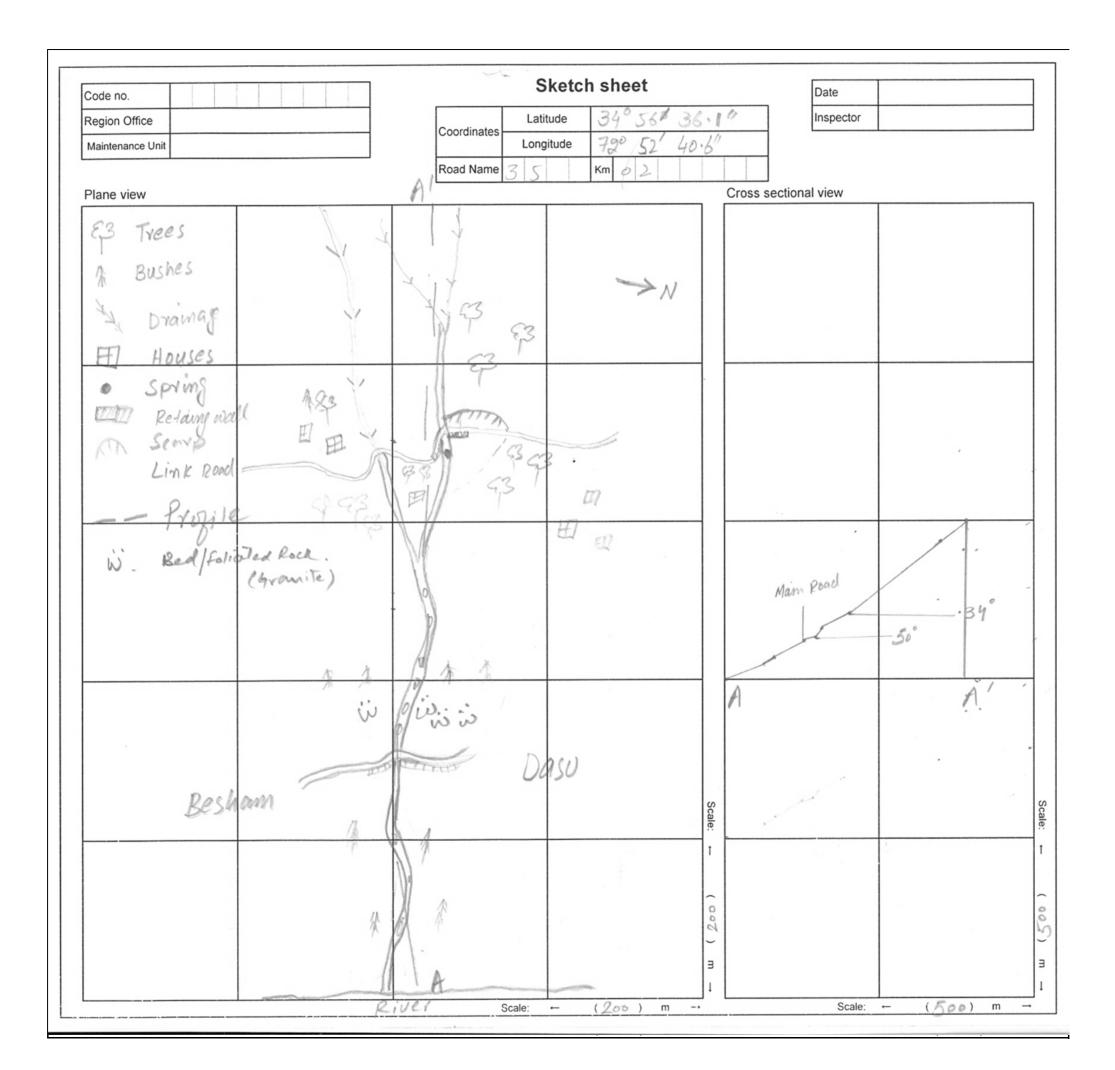
Code	eno. Sa	t _ N	3 5 _ 2			Eva	luatio	on she	et (c	lebi	ris '	tlov	v)			
Regi	on Office							Latitude		34°	56'	36.1	"			
Main	tenance Unit					Coord	linates	Longitud	е	72°	52'	40.6)"			
<u></u>						Road	Name	N 3 5	Km							
[Cau						1										
item				egory	Check	-	[Road st	-	togon	of oo	oro		Check	Г		
ver	areas that river be		0.50km^2 or				structure		ategory	OI SC	Jie			-		
of riv	or more in watersh area	eu	0.15km ² - 0		- 1	u .	. .	10m or n					V			
Property of river	alea		less than C		V		-	5m - 10n	Π							
per			40°or more	9	V	-	width	3m - 5m	_							
Do lo	steepest slope of ri	iver bed						less than						4		
			less than 3	-		1		less than					V	_		
	area that slope gradie	ont is 30°	0.20km ² oi					No bridg	e / box	culve	rt					
	or more in watershed		0.08km ² - (1m - 2m								
			less than C		V		height	2m - 3m								
e	area that meadow an	nd shrub	0.20km ² oi	r more				3m - 5m								
slope	(less than 10m heigh		0.02km ² - 2	20km ²				5m or m	ore							
oť	occupy in watershed	area	less than C).02km ²	V		-							-		
Ę	artificial works that c	ause	certain		V	1	[Potenci	al disaste	r mode]	Cł	heck				
Property of	negative effects		none				Domogo	ofbridge) outvor	-						
5	new crack and/or s	lope	certain		V	1	Damage	e of bridge	Cuiver	ι						
	failure in stream	-	none				0.11	<i>(</i>)								
	traces of large slop	e	certain			1	Outflow	of emban	kment							
	failure in stream		none		V		Dobrio f		a tha ra	ad						
						-	Debris fi	looding oi	n the ro	ad		٧				
[Cou	ntermeasure]															
Ту	pe of countermeasure	Che	ck										sponsible		~ to	
		 		[Evaluation	Rank]								e works a disaster	.ccorainę	3 10	
	aining walls has been or protect the road. Box C				Scale of					-Big:	Grar	nt aid				
	been made for the out			Risk	lisaster	Big	Mediur	n Sm	all	-			contract	or in Pa ⁱ	kistan	
	is but the inlet has blo											-	ontractor			
	debris			Great ri	sk	1	2	3	5				traffice	when		
	none	•low					\square					disaste				
Fffe	ect of existing mode		V	Medium	risk	1	2) 3	3	-Gre	at risl	k: roac	d closed	for 2 day	/s or n	nor
	untermesure high			├ ───			<u> </u>						ad close			
	enou	ah		Low ris	sk	2	3	4	ŀ				ad closu			
L	enou	9''		L			1			LOW	, 113R.	10100	au olosul	0		

	Date	201	17/12/8	3					
	Inspector		Sajid, Sha asharat	afiq,					
[History	/]								
	category of sco	re	Check						
There is a history about debris flow that were obstacles to the road traffic after construction of recent measures.									
	s a history about there is no obsta		٧						
There i	s no history of del	bris flow							
[Expected size of disaster] (width, length, depth, etc.)									
•									
L= 1000 m, W=15 m, D= 2 m									

Type of counterm	Che	ck					
Retaining walls has to protect the road also been made for debris but the inlet l deb	. Box Culv the out flo nas blocke	ert ha: w of th	s he				
	none·lov	N					
Effect of existing	moderat	e ·	V				
countermesure high							
	enough						

[Description/comments]

	A seasonal stream crosses the highway at this
akistan	location. Small catachment area with debris fall/rock
	fall material are present on the upstream. Small
	landslide was also observed along the stream
	which contribute in the debris volume. Granite is
	exposed along the stream. Various boulders of
ays or mor	granite size more than 1 m ³ has also been
day or les	observed. The culvert has been blocked due to
	debris material along this channel.



ode no. S a t _ N 3 5 _ 2	Photo sheet	Date	2017/12/8
egion Office	Latitude 34° 56' 36.1"	Inspector	Yasir, Sajid, Shafiq, Basharat
aintenance Unit	Coordinates Longitude 72° 52' 40.6"		Dasharat
	Road Name N - 3 5 Km 0 2		
Mountain side view of the debris flow	Valley side view of the debris flow	Front view of the debris flow	
The patch work on the road has been observed	Existing countermeasures / anomalies: Inlet of the culvert is chocked by the debris.		sures / anomalies: Culvert outle the toe of the debris flow

Code	e no.	Sat _ N	3 5 _ 1 0		Eva	luatio	on she	et (
Regi	on Office					r	Latitude	
Main	itenance Unit				Coord	linates	Longitude	;
					Road	Name	N 3 5	к
[Cau	ses]				_			
item	fa	ctor	category	Check		[Road st	ructure]	
эr	areas that ri	ver bed is 15	 0.50km² or more 			structure	ca	tego
Property of river	or more in wa	atershed	0.15km ² - 0.50km ²	V			10m or m	ore
∕ of	area		less than 0.15km ²			River	5m - 10m	
ert)			40°or more	٧		width	3m - 5m	
б	steepest slop	be of river be	d 30° - 40°				less than	3m
٩			less than 30°				less than	1m (
			0.20km ² or more				No bridge	e / bo
	area that slope or more in wat	e gradient is 30	^{0°} 0.08km ² - 0.20km ²	V		Beam	1m - 2m	
	or more in wat	lersned area	less than 0.08km ²			height	2m - 3m	
Ф	area that mea	dow and shrub	0.0012				height 2m - 3m 3m - 5m	
dola	(less than 10m		0.02km ² - 20km ²				5m or mo	re
of	occupy in wate	ershed area	less than 0.02km ²	V				
Property of slope	artificial works	that cause	certain	V		[Potenci	al disaster	· mo
ope	negative effect		none			<u> </u>		
Ę	new crack ar	nd/or slope	certain			Damage	of bridge,	/culv
	failure in stre		none	V		0.11		
	traces of larg	ae slope	certain			Outflow	of embanl	kmer
	failure in stre		none	V		Debris fl	ooding on	the
[C ou	ntermeasure]						g	
•		Ch	l					
Ty	pe of counterm	easure Ch	eck					
			[Evaluation			1		
Reta	aining walls has	been construc	ted	Scale of disaster	Big	Mediun	n Sma	all
	to protect		Risk		-			
			Grea	ıt risk	1	2	3	
F#	act of oviation	none · low moderate	√ Mediu	ım risk	1	2	3)
EITE	ect of existing	mouerate						

Low risk

2

3

countermesure

high

enough

(debris flow)

Coordinates	Latitude	34º 58' 53.2"						
Coordinates	Longitude	72º 54' 11.3"						
Road Name	N 3 5	Km						

Check ry of score ٧ or ox culvert v

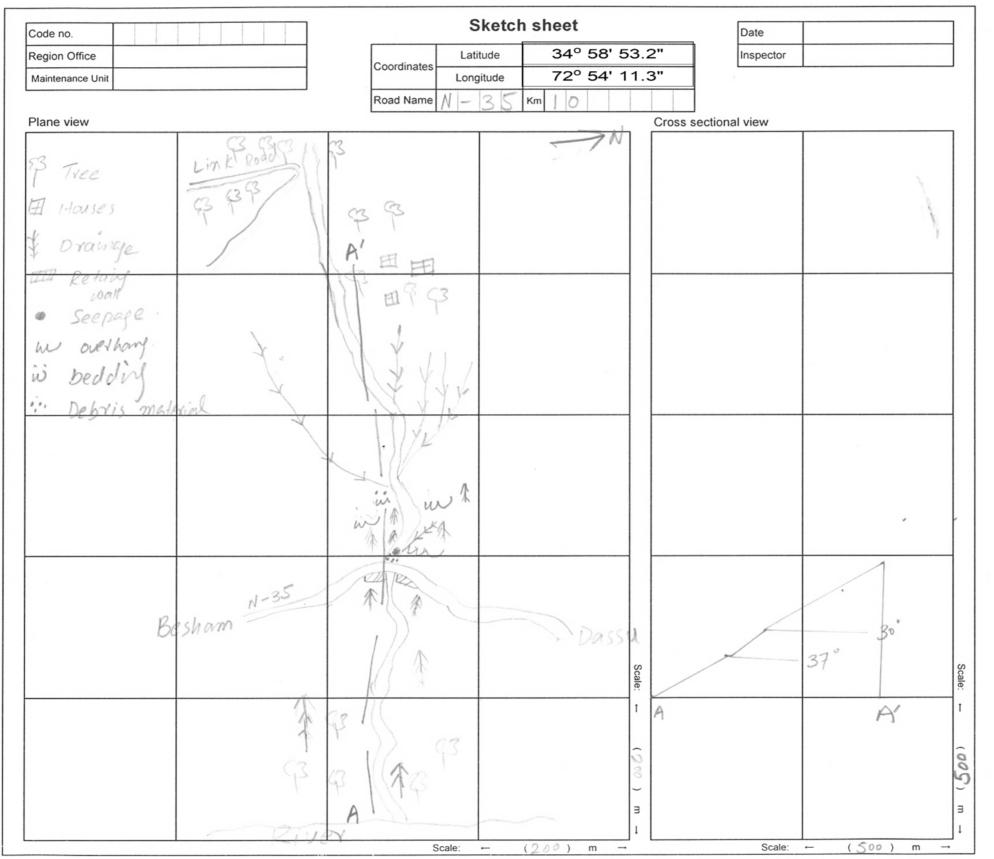
[Potencial disaster mode]	Check
Damage of bridge/culvert	
Outflow of embankment	
Debris flooding on the road	٧

4

lebri	is flov	v)		Date	201	7/12/9	
34° 5	8' 53.2	2"		Inspector	Yasir, Sajid, Sh	nafique,	Basharat
72° 5	64' 11.3	8"					
				[History]			
of sco	re	Check		category	of score	Check	
		V		There is a history at were obstacles to th construction of rece		٧	
culvert				There is a history though there is no traffic.	about debris flow obstacle to		
				There is no histor	y of debris flow		
]	Check	<u> </u>		[Expected size of c	lisaster] (width, leng	gth, depth	, etc.)
t ad	v			L= 100	0 m, W=24 m, D=	1-2 m	
count the sc -Big: (-Medi	ermeasure ale of the Grant aid um: Major	contractor		with continuous flowing w through could lead to pot	d on N35. It is a historicall vater. The water seeps be tential disaster and signific	eneath the ro	ad and s to the
	I: Local conce on the	ontractor e traffice wh	en	shrubs and bushes with	the DF is void of any veg steep gradient of 30-40 de and silt was present at the	egrees. Deta	ched

the road. During the rainy season it become active and often leads to

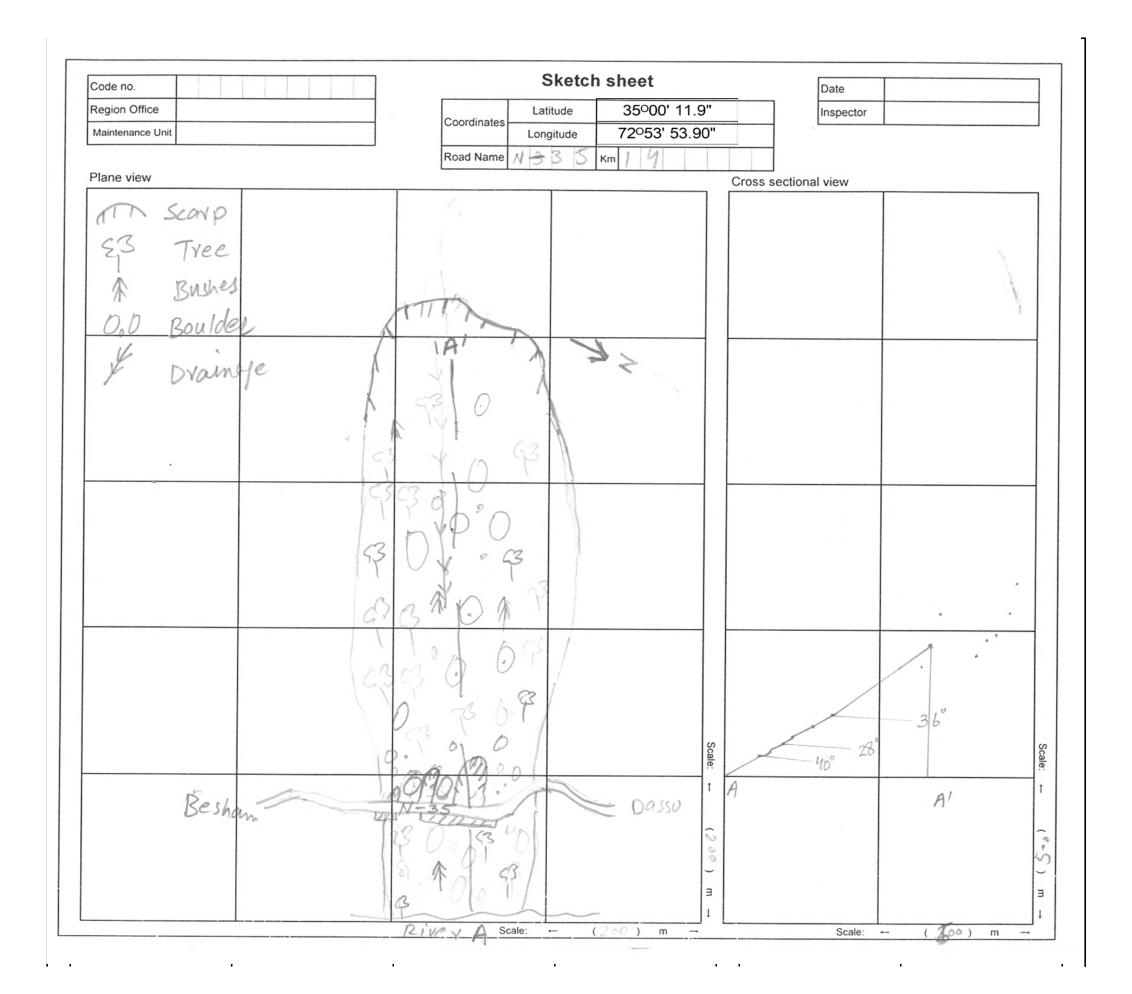
potential disaster damages to road and disruption of the traffic. Part of the DF is also -Great risk: road closed for 2 days or mor prone to rock fall and slope failure. The source of the DF is a V shaped valley. No mitigation measures is constructed to protect the road from -Medium risk: road closed for 1 day or les the flowing debris. Bedrock of the DF is granitic. Cracks were present on -Low risk: no road closure the road and therefore need effective mitigation measures to protect the road from damages.



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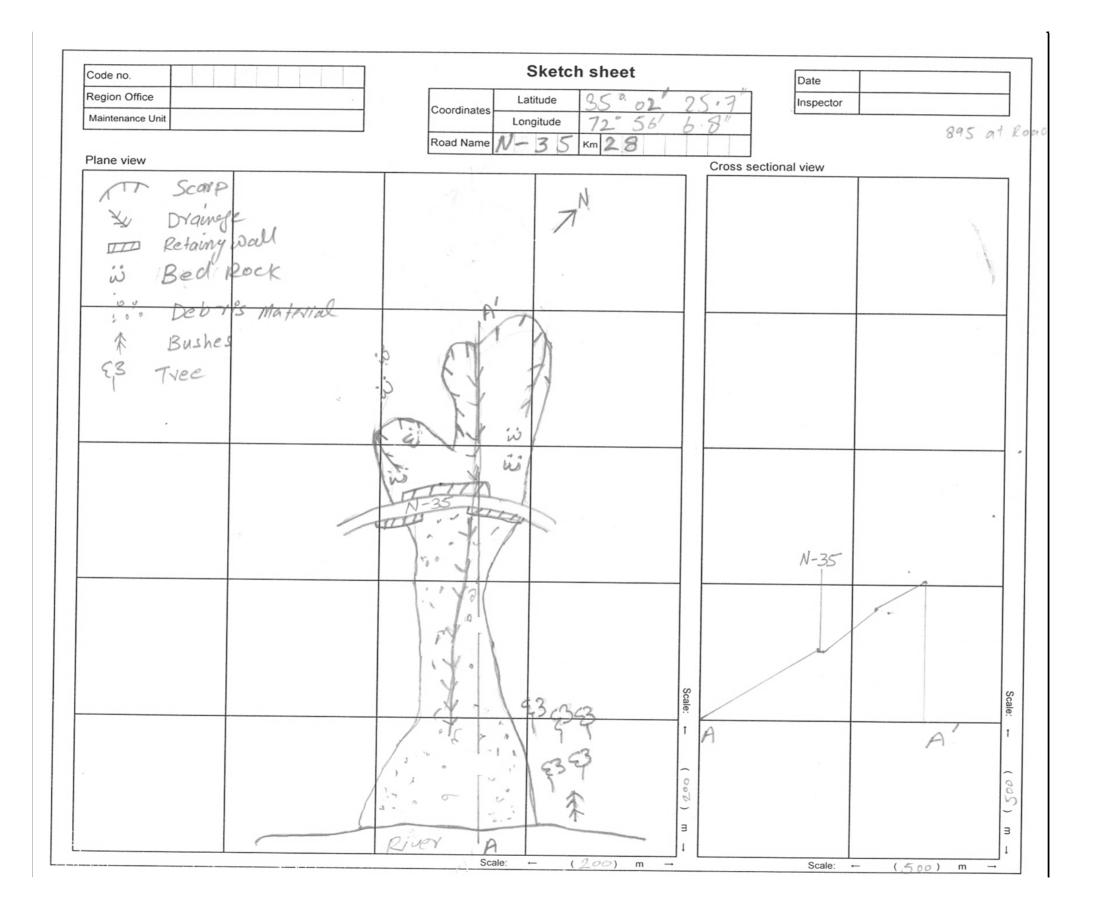
Region Office Image: contrasts Latitude 340 58' 53.2" Image: contrasts Image: contra		2017/12/9	Date	sheet	Photo	N 3 5 _ 1 0	no. Sa
Image: single			Inspector	34 ^o 58' 53.2"	Latitude		
Mountain side view of the debris flow Valley side view of the debris flow Front view of the debris flow Front view of the debris flow Valley side view of the debris flow Front view of the debris flow		1		72 ^o 54' 11.3"	Coordinates Longitude		nance Unit
				Km	Road Name N 3 5		
The crack on road bas been observed Read condition	_	oris flow	ont view of the deb	flow	Valley side view of the debris	if the debris flow	lountain side vie
The crack on road has been observed Road condition Existing countermeasures / anomalies: Retainin							
been constructed at the toe of the slope failure	ning wall ha 'e	sures / anomalies: Retair the toe of the slope failur	isting countermeas en constructed at t		Road condition	as been observed	he crack on road

	Cod	le no. Sat _ N 3 5 _ 1 4]	Ev	aluation s	sheet	t (S	lope	failure	e/Roc	kfall)		Date	2017/12/2	10
R	egio	n Office			Coordinates	Latitu	ude	350	200' 11	.9"			Inspector	Yasir, Sajid, Shafique	e, Basharat
Ма	ainten	ance Unit			Coordinates	Longit	tude	72 ⁰	53' 53.9	90"					
			4		Road name	N 3 5	5	Km							
	uses			<u>.</u>											
- T	em	factor	category of score 3 or more correspondences	Check √				Г	[Counter	measure		Type o	f countermeas	liree	
topography	sed or	talus slope, clear convex break of slope,	2 correspondences	v	[Disaste	ar typel						Type 0	Countenneas	ules	
ogra	ollap facto	eroded toe of slope , overhang,	1 correspondences		_	Ĩ			R	etaining w	all for N-35	5 has bee	en built for road	d support towards valley sid	le
top	0 -	water catchment slope	no correspondence		Rock	fall				0					
			marked	٧	Clanaf					E	Effectivene	ss of exis	sting counterm	easures	Check
	Soil	susceptible to erosion less strength with water	a little marked		Slope fa	allure	N		Potential :	slope failu	re are prev	ented er	ough, or, it is o	defended enough when it is	
SL			None		[Main cł	heck ob	ject]		generated	•					
conditions	×	high density of cracks and a weak layers,	marked	V	Cut sl	lope				•		iderably	prevented, or i	t is considerably defended	
conc	Rock	susceptible to erosion,	a little marked			iopo		-	when it is	•					
		fast weathering	None		Natural	slope							ted, or it is part r the remaining	ly defended when it is	V
Geological	a)	dip slope of bedding plane	It corresponds.			-		-	0		-	0			
Geo	Structure		None marked	√ √					are not pe		neasure, o	r there is	not effective e	even if countermeasures	
	Strue	debris on impermeability bedrock, the upper part is a hard /the toe of slope is	a little marked	v				L		ilonnou.					
	0)	weak.	None		[History]								Expected	d size of disaster](width, length	depth. etc.)
			instability	V		L	evel	of disaste	er history			Check	[
		Topsoil, detached rock and unsteady rock	a little unstable		There is a histo					be failures	that were	1			
uo			stability		obstacles to the	e road tra	affic af	ter constr	uction of re	ecent mea	sures.	N			
oditi			notable spring waster		There is a histo	ory about	large	fallen roc	ks and slo	pe failure	s that gets				
Se C		Spring water	seepage		to the road thou	ugh there	e is no	obstacle	to traffic.					L= 850 m, W= 300 m, D =	10 m
Surface codition			none	V	There is a histo	•	smal	fallen roo	cks and slo	pe failure	s that did				
ເວັ			bare land with minor vagetation		not get to the ro	bad.									
		Surface condition	intermediate (bare · grass · tree)	V	No disaster rec	ords									
_			mainly structure, mainly tree		(Evaluation Day	-1-1									
			H≧50m エ30≦H<50m		[Evaluation Rar	<u> </u>		<u> </u>	I		— –	Descript		N35. It is historically active slope	failure The
			דן 30≦H<50m פן 15≦H<30m	V		aster	Big	Ν	/ledium	Small	sl	ide was ma	ainly triggered dur	ing the 2005 earthquake and also	reactivated
ofile		Height (H), dip (i)	H<15m						\frown					nged monsoonal rains of 2010. Ti y seasons. The scarp and upper j	
Pro			i≧70°		Great risk		1		2	3	sl	ope is part	ially stable with th	ick vegetation. However, the por	tion of the
			<u>਼</u> ਊ 45°≦i<70°		Ma dia a sial				0	0				till active and prone to frequent s ts to the road. Many detached bo	
			i<45°	V	Medium risk	C .	1		2	3	gr	ravels are l	hanging on the slo	ppe posing threat to the road and	traffic. No
\geq	Surfa	ce collapse, small fallen rock, gully, erosion,	2 or more correspondences clarity	V	Low risk		2		3	4				ructed to protect the road from th fractured and weathered granitic	
nal	piping	hole, subsidence, heaving, bending of tree root,	certain•unclarity		Low Hak		2		5	-	er	rosion lead	ls to development	of gullies on the slide.	
~		tree, crack, open crack, anomaly of	none		Organization re				easure wor	ks			the traffice whe	en	
	count				according to the	e scale o	t the c	lisaster			•	ntial disa		- ·	
				-Big: Grant aid						-Great risk: road closed for 2 days or more					
					-Medium: Major			-akistan						or 1 day or less	
					-Small: Local co	Unitactor					-LOW	nsk: no	road closure		



ode no. Sat_ N 3 5 _ 1 4	Photo shee	t	Date	2017/12/10
pad name N 3 5 Km	Coordinates	5º 00' 11.9"	Inspector	Yasir, Sajid, Shafique, Basharat
	Longitude 72	2 ^o 53' 53.9"	·	
Full view of the slope failure	View of slope failure on Valley side:	Road	l condition:Cut slo	ope at the start point
View of the slope failure at the middle point	Existing countermeasures / anomalies: been constructed	Retaining wall has View	of fallen blocks o	on road

	Code r	o. Sat _ N 3 5 _ 2 8		Eva	aluation s	heet (Slop	e failur	e/Rock	fall)	Date	2017/12	/11
Re	egion C	ffice			Occuritoreter	Latitude	3	5 ⁰ 02' 25	5.7"		Inspecto	r Yasir, Sajid, Shafic	lue, Basha
Mai	ntenanc	e Unit			Coordinates	Longitude		72 ^o 56' 6	.8"				
		I			Road name	N 3 5	Km						
Cau	uses]												
lte	m	factor	category of score	Check				[Counter	measure]				
ì	g tal	us slope,	3 or more correspondences	V						Тур	e of countermea	sures	
(unparendo)		ar convex break of slope,	2 correspondences		[Disaste	r type]	-		_				
	ov en	oded toe of slope , erhang, water catchment slope	1 correspondences		Rock	fall			Ret	aning wall for s	slope failures to	vards mountain side	
			no correspondence marked	7			-		Eff	activanass of	existing counterr	mageurae	Check
	0	sceptible to erosion	a little marked	V	Slope fa	ailure $$		Detential					
	ທັ les	s strength with water	None		[Main ch	neck object	1	generated		are prevented	a enougn, or, it is	defended enough when it is	5
┢	bi	h density of cracks and a weak layers,	marked	V	-		1	Potential	slope failure	are consideral	oly prevented or	it is considerably defended	
		sceptible to erosion,	a little marked	-	Cut sl	ope √			generated.				
	œ fas	tweathering	None		Network			Potential :	slope failure	are partly prev	vented, or it is pa	rtly defended when it is	,
, 	مانه	alone of hadding plane	It corresponds.		Natural	siope					n for the remainir		V
	ar ar	slope of bedding plane	None	V			-	There is n	o counterme	asure, or there	e is not effective	even if countermeasures	
	Structure of the	bris on impermeability bedrock,	marked	V				are not pe	erformed.				
		e upper part is a hard /the toe of slope is	a little marked										
	we	ak.	None		[History]							ed size of disaster](width, length	, depth, etc.)
	т.		instability	V				aster history		Che	eck		
	10	psoil, detached rock and unsteady rock	a little unstable		There is a histor obstacles to the						1		
			stability notable spring waster								-		
		Spring water	seepage		There is a histor to the road thou				pe failures t	nat gets		L= 800 m, W= 200m, D, 4	100m
			none	V	There is a histor	•			ne failures f	hat did	-	L= 000 m, W= 200m, D,	
-			bare land with minor vagetation	V	not get to the ro	•							
		Surface condition	intermediate (bare · grass · tree)										
			mainly structure, mainly tree		No disaster reco	oras							
			H≧50m	V	[Evaluation Ran	k]					ription]		
			15≦H<30m 15≦H<30m		Scal disa		a	Medium	Small		,	ure and rock fall. The failure has dge shape failure is found on the	,
					Risk		3		0			aye snape failure is found on the avels are hanging on the slide ti	
		Height (H), dip (i)	H<15m		Great risk	1		(2)	3	with the	sand and silt lead	s to debris flow during the rainy	season.
			i≧70°					\smile				l and jointed pyroxinite. Drainag athering and erosion leads to de	
			<u>ප</u> i<45°≦i<70° i<45°		Medium risk	1		2	3	gullies o	on the slide. Retain	ing wall is constructed to stabili	ze the slide,
			2 or more correspondences · clarity	√ √						howeve	er, the right side of i	the retaining wall is already dam	aged.
S	urface o	ollapse, small fallen rock, gully, erosi <mark>p</mark> n, le, subsid <mark>ence, ne</mark> aving, bending of tree root,	certain • unclarity	v	Low risk	2		3	4				
fa	allen tre	crack, open crack, anomaly of	none		Organization res	sponsible fo	r counte	rmeasure wo	ks		on the traffice wh	hen	
С	ounterm	easure			according to the					potential d			
					-Big: Grant aid					-Great risk	c: road closed fo	r 2 days or more	
					-Medium: Major	contractor i	n Pakista	an		-Medium r	isk: road closed	for 1 day or less	
					-Small: Local co	ntractor				-Low risk:	no road closure		



Code no.	Sa	at_	Ν	3	5	_	2	8		
Road name	Ν	3	5					Km	2	8

A CARA			
	13		
How Con	Till part how	1976	units of

Photo sheet

Latitude

Longitude

View of slope failure on Valley side:

Coordinates

35^o 02' 25.7"

72^o 56' 6.8"



Road condition:Cut slope at the start point

Date

Inspector

2017/12/11

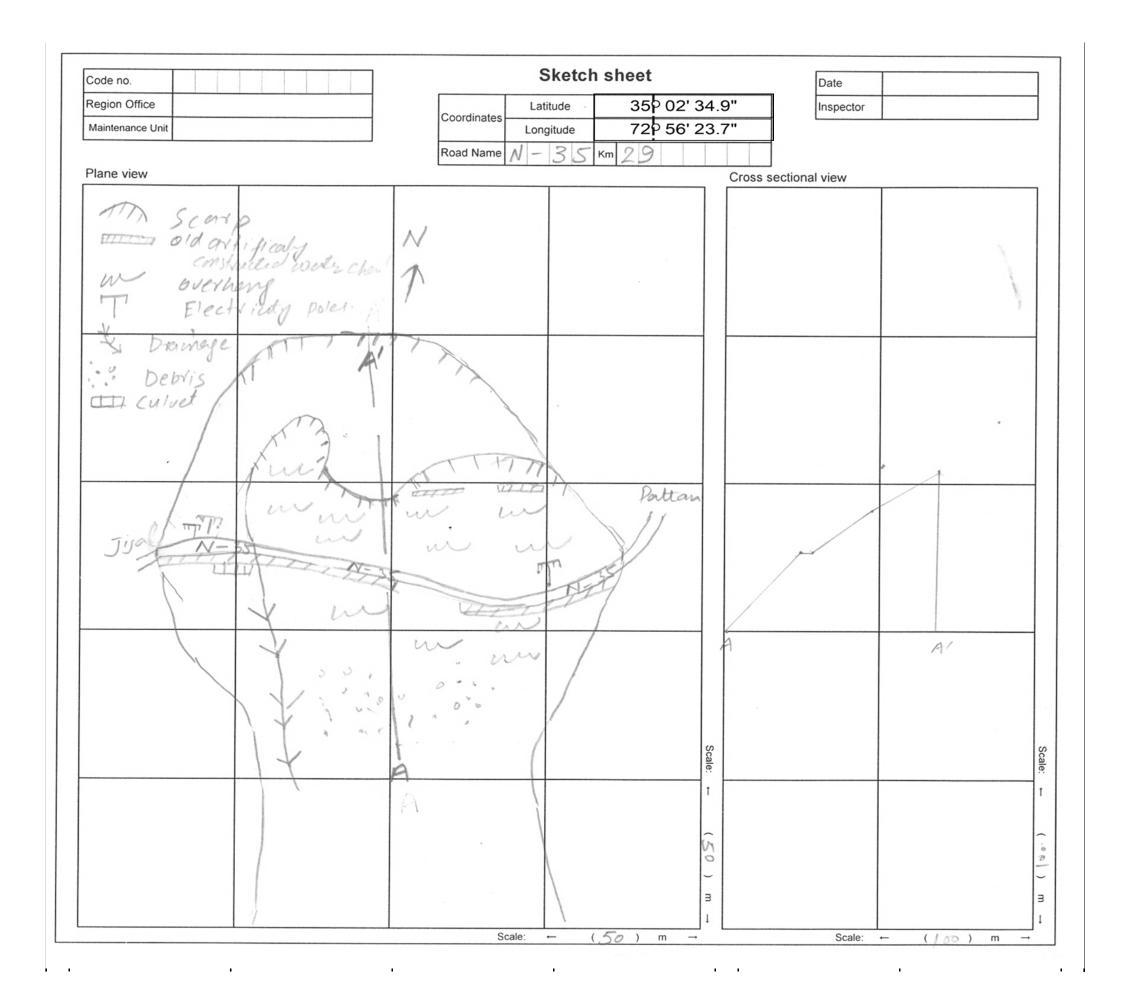
Yasir, Sajid, Shafique, Basharat

Full view of the slope failure

Existing countermeasures / anomalies:Retaining wall has been damaged due to slope failure

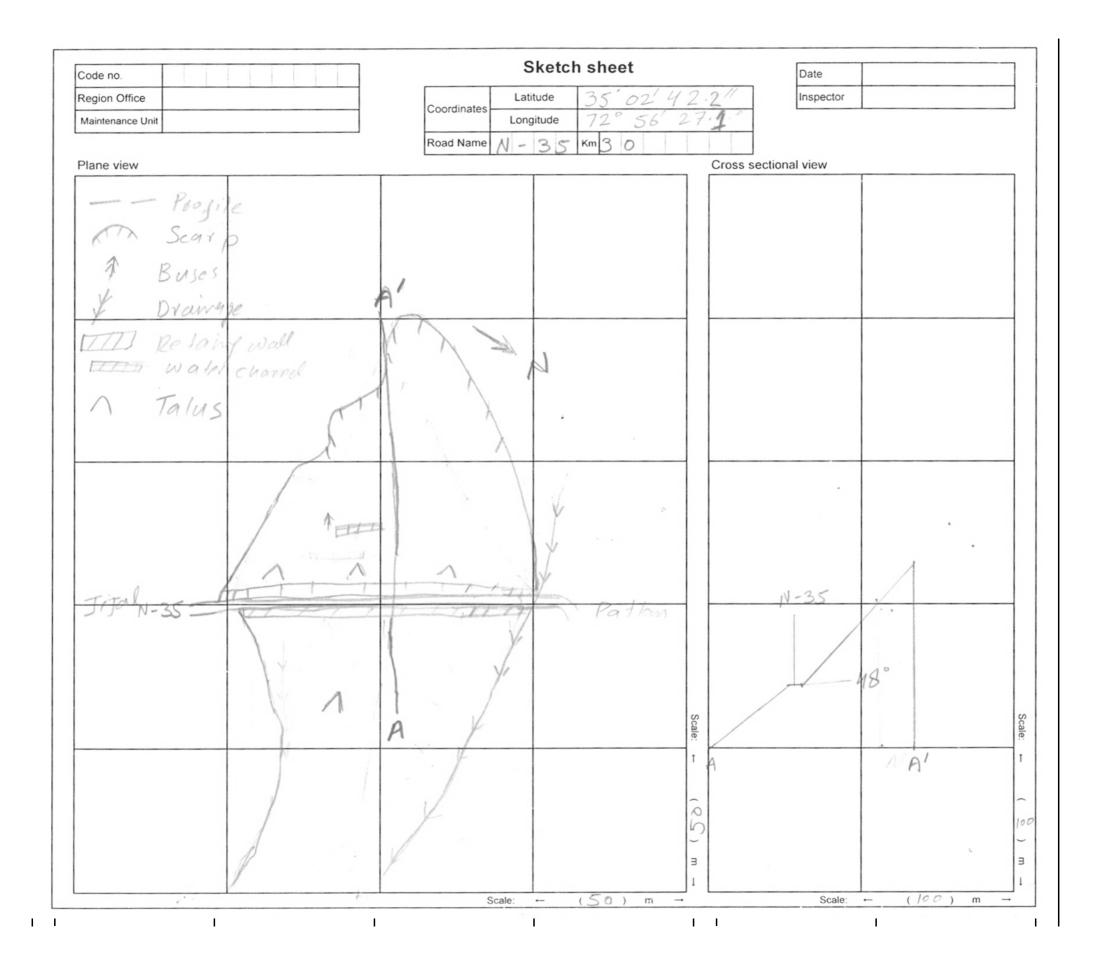
Retaining wall has been constructed to protect the road from the slope failure

	Code	e no. Sat _ N 3 5 _ 2 9]	Eva	aluation s	sheet	t (S	lope	failure	e/Roc	kfall)		Date	2017/12/1	12
Re	egion	Office			Coordinates	Latitu	ude	350	^o 02' 34	.9"			Inspector	Yasir, Sajid, Shafique	e, Basharat
Mai	ntena	ince Unit			Coordinates	Longit	tude	720	⁵ 56' 23	.7"					
		I.	Į		Road name	N 3 5	5	Km							
[Ca	uses]														
lte	m	factor	category of score	Check					[Counter	measure]					
hy 2	p .	talus slope,	3 or more correspondences	V		_						Type of	f countermeas	sures	
topography	actor	clear convex break of slope. eroded toe of slope ,	2 correspondences 1 correspondences		[Disaste	er type]	.			Potoining	well has her	on oonat	ructed to prot	ant road towards valley side	
topo	5	overhang, water catchment slope	no correspondence		Rock	fall				Retaining	wall has bee	en const		ect road towards valley side	;
			marked	V		- 11				E	Effectivenes	s of exis	ting counterm	easures	Check
	0	susceptible to erosion less strength with water	a little marked		Slope fa	allure					re are preve	ented en	ough, or, it is	defended enough when it is	
su			None		[Main cł	neck ob	ject]		generated	l					
conditions	Rock	high density of cracks and a weak layers,	marked	V	Cut sl	ope			Potential s when it is			derably p	prevented, or	it is considerably defended	
con	Ro	susceptible to erosion, fast weathering	a little marked None							-		provont	od or it is par	tly defended when it is	
gica			It corresponds.		Natural	slope							the remaining		V
Geologi	ar	dip slope of bedding plane	None	V		B			There is n	o counterr	neasure, or	there is	not effective e	even if countermeasures	
G	Structure	debris on impermeability bedrock.	marked						are not pe	rformed.					
		the upper part is a hand the toe of slope is weak.	a little marked	V									_		
			None instability	V	[History]	1	مريما	of disast	er history			Check	[Expecte	d size of disaster](width, length,	depth, etc.)
		Topsoil, detached rock and unsteady rock	a little unstable	v	There is a histo					pe failures	that were				
uo			stability		obstacles to the							\checkmark			
coditior			notable spring waster		There is a histo					pe failures	s that gets				
cec		Spring water	seepage		to the road thou	-								L= 150 m, W= 90 m, D =	1 m
Surface			none	√ √	There is a histo not get to the ro		sma	l fallen ro	cks and slo	ope failure	s that did				
0		Surface condition	bare land with minor vagetation intermediate (bare grass tree)	v	not get to the fo	au.									
			mainly structure, mainly tree		No disaster rec	ords									
			H≧50m		[Evaluation Rar	nk]						escripti	-		
			ਸ਼ੂ 30≦H<50m ਭੂ 15≦H<30m	٧	Sca		Big	ſ	Medium	Small				ck fall. The exposed bedroc yroxnitic rocks. The bedrocl	
file					Risk		9							proxnitic rocks. The bedroci ension cracks were visible c	
Proj		Height (H), dip (i)	H<15m i≧70°		Great risk		1		2	3	Bo	oulders a	and gravels we	ere detached and hanging o	on the slide
			<u>ਿ</u> ਉ 45°≦i<70°	V	••••				\bigcirc	_				eats to the road and traffic. leads to development of gu	
			i<45°		Medium risk		1		(2)	3	sli	ide. Inter	secting joints	leads to wedge failure. Talu	is is visible at
<u>></u> S	Surfac	e collapse, small fallen rock, gully, erosion,	2 or more correspondences clarity	V	Low risk		2		3	4				on measures is adopted to y wall is constructed to prote	
nal d	iping	hole, subsidence, heaving, bending of tree root,	I								fro	om slidin	g.		
		ree, crack, open crack, anomaly of rmeasure	none		Organization re according to the				easure wor	ks		nce on tl tial disas	he traffice whe	en	
	-				-Big: Grant aid									2 days or more	
					-Medium: Major	· contract	tor in	Pakistan						or 1 day or less	
					-Small: Local co								road closure		



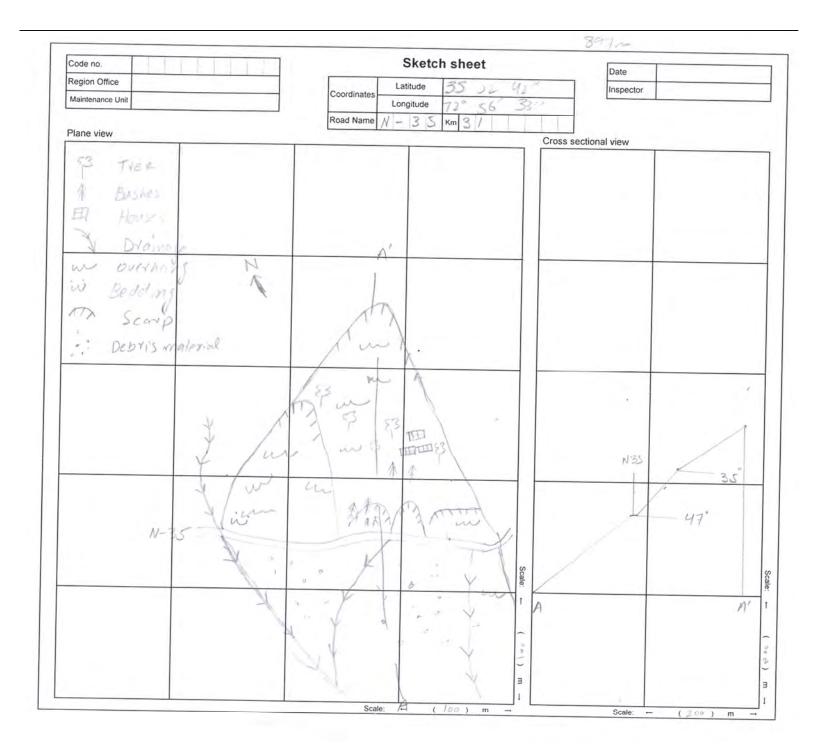
ode no. Sat _ N 3 5 _ 2 9	Photo sheet	Date 2017/12/12
oad name N 3 5 Km	Latitude 35° 02' 34.9"	Inspector Yasir, Sajid, Shafique, Basharat
	Coordinates Longitude 72° 56' 23.7"	
Full view of therockfall	View of rockfall on Valley side:	Road condition:Cut slope at the start point
Road condition:Cut slope at the end point	View of the slope failure at the middle point	Retaining wall has been constructed to protect the road

	Cod	e no. Sat _ N 3 5 _ 3 0]	Eva	aluation s	sheet	(S	ope	failure	e/Roc	kfall)		Date		2017/12/1	3
R	egior	n Office]		Coordinates	Latitud	de	350	^{>} 02' 42	.2"			Inspe	ector	Yasir, Sajid, Shafique	, Basharat
Ma	aintena	ance Unit			Coordinates	Longitu	ıde	720	^{>} 56' 27	.1"				-		
		-	4		Road name	N 3 5		Km								
	auses em] factor	category of score	Check					[Counter	measure]					
hy	þ	talus slope,	3 or more correspondences	٧					_		-	Туре	of counter	measur	res	
topography	Collapse factor	clear convex break of slope, eroded toe of slope , overhang, water catchment slope	2 correspondences 1 correspondences no correspondence		[Disaste Rock	Ī	\checkmark		R	etaining v	all about	7 feet hig	jh has bee	en cons	structed for slope protectio	n
-			marked	V							Effectiven	ess of ex	sting cour	ntermea	asures	Check
	Soil	susceptible to erosion less strength with water	a little marked		Slope fa	ailure			Potential				-		efended enough when it is	
su			None		[Main ch	neck obje	ect]		generated				_			
conditions	Rock	high density of cracks and a weak layers, susceptible to erosion,	marked a little marked	V	Cut sl	lope	\checkmark		Potential s when it is			siderably	prevented	d, or it i	is considerably defended	
<u>a</u>		fast weathering	None		Natural	slope			Potential s generated						defended when it is	V
Geologi	Ð	dip slope of bedding plane	It corresponds. None	V					-			-			en if countermeasures	
Ğ	Structure	debris on impermeability bedrock.	marked	V					are not pe		measure,		s not enec	live ev		
	Stru	the upper part is a hard /the toe of slope is	a little marked						<u></u>							<u> </u>
		weak.	None		[History]								[Ex	pected s	size of disaster](width, length,	depth, etc.)
			instability	V		Le	evel c	of disast	er history			Check				
ion		Topsoil, detached rock and unsteady rock	a little unstable stability		There is a histo obstacles to the		•					∛ √				
coditior		Spring water	notable spring waster seepage		There is a histo to the road thou					pe failure	s that gets	5		L	L= 200 m, W= 106 m, D =	1 m
Surface			none	V	There is a histo	•	small	fallen ro	cks and slo	ope failure	s that did					
Su		Surface condition	bare land with minor vagetation intermediate (bare grass tree)	V	not get to the ro											
			mainly structure, mainly tree		NO disaster reco	orus										
			H≧50m	V	[Evaluation Rar							[Descrip	-			
ile			<u>גר 30≦H<50m</u> 15≦H<30m		Sca disa Risk	aster	Big	1	Medium	Small		slide. Talu	s deposits v	vere not	/slope failure. Gullies were ob ted at the end of the develope the slide. Detached and hang	d gullies.
Prof		Height (H), dip (i)	H<15m i≧70°		Great risk		1		2	3		season or	moving cati	tle and p	n the slide that are prone to fa posing threat to road and traffi	ic. Many
			ਉ <u>45°≦</u> i<70° i<45°	V	Medium risk		1		2	3		measures falling rock	is adopted i s. A retainii	to stabili ng wall i	ged due to fallen rocks. No m ize the slide or protect the roa is constructed to support the r	d/traffic from oad. The
na	piping	e collapse, small fallen rock, gully, erosion, hole, subsidence, heaving, bending of tree root,	2 or more correspondences clarity certain unclarity	V	Low risk		2		3	4		pyroxinitic	bedrock is e	exposed	l and therefore void of any ve	getation.
-		tree, crack open crack, anomaly of ermeasure	none		Organization reaccording to the				easure wor	ks		uence on ential disa	the traffice aster	e when	1	
			-		-Big: Grant aid						-Gr	eat risk: r	oad close	d for 2	days or more	
					-Medium: Major		or in F	Pakistan			-Me	edium risk	: road clo	sed for	1 day or less	
					-Small: Local co	ontractor					-Lo	w risk: no	road clos	sure		



Road name N 3 5 Km Inspector Yes Coordinates Latitude 350 02' 42.2" Inspector Yes Image: Coordinates Latitude 350 02' 42.2" Image: Coordinates	2017/12/13
	isir, Sajid, Shafique, Basharat
Image: state of the rockfallImage: state of the rockfallImage: state of the rockfallImage: state of the rockfallImage: state of the rockfall on values side:Image: state of the rockfall on values side:Image: state of the rockfallImage: state of the rockfall on values side:Image: state of the rockfall on values side:Image: state of the rockfallImage: state of the rockfall on values side:Image: state of the rockfall on values side:Imag	
Full view of the rockfall View of rockfall on Valley side: Road condition:Cut slope at the cut slope at th	
	the start point
Road condition:Cut slope at the end point Retaining wall has been constructed as a counter measure to protect the road from the slope failure Retaining wall has been constructed as a counter measure to protect the road from the slope failure	nstructed to protect the road

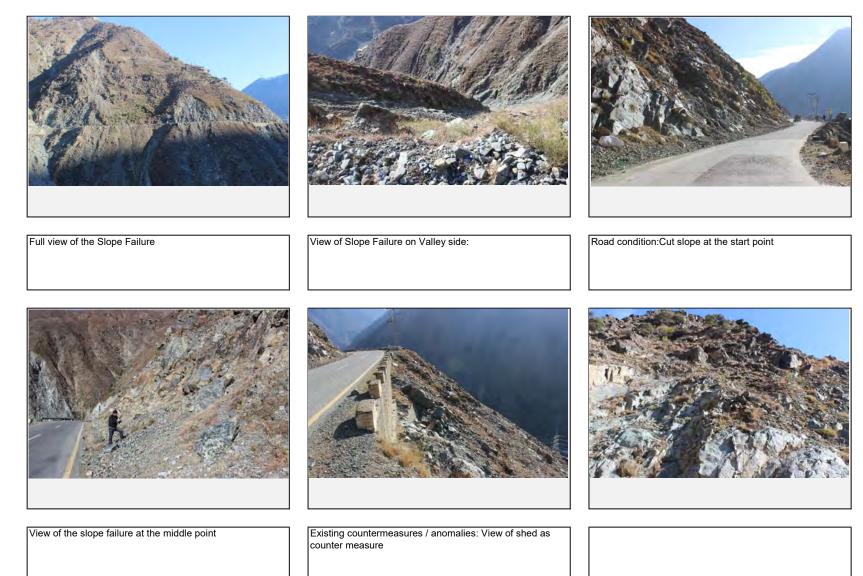
_		Sat_	-											
	Coc	de no. N 3 5 _ 3 1		E٧	valuation shee	et (S	lope t	failure/Ro	ckfall)			Date	16-Dec-	2017
F	Regio	n Office			Lat	itude	35 ⁰	^o 02' 42.2"				Inspector	Yasir, Sajid, Shafi	que, Basharat
M	ainten	ance Unit	1		Coordinates Long	gitude	72	° 56' 33"	1					
			1		Road name		Km		-					
[C	auses	6]												
Ĺ	tem	factor	category of score	Check				[Countermeasu	re]					
λ	p	talus slope,	3 or more correspondences	V			[Туре	of counte	ermeasures		
topography	Collapsed factor	clear convex break of slope,	2 correspondences		[Disaster type]								
lőd	Colli fa	eroded toe of slope ,overhan <mark>g</mark> , water catchment slope	1 correspondences		Rock fall					No	countern	neasures		
<u>-</u>	-		no correspondence	1					Effectivene	ss of ex	visting co	untermeasures		Check
	Soil	susceptible to erosion	a little marked	V	Slope failure			Potential clone fr			•		d enough when it is	Check
ر ۵	õ	less strength with water	None		[Main check o	biect1		generated.	allule ale piev	enteu e	nougn, o			
Geological conditions		high density of cracks and a weak layers,	marked	V	Ľ.	$\int \int$		0	ilure are consi	iderablv	prevente	ed, or it is cons	iderably defended	
pudi	Rock	susceptible to erosion,	a little marked		Cut slope	N		when it is genera				,	,	
a C	Ŕ	fast weathering	None		Natural slope			Potential slope fa						
gic		dip slope of bedding plane	It corresponds.					generated. Howe	ver, it is not er	nough fo	or the rem	naining factors		
eolo	ure		None	V					ermeasur <mark>e, o</mark> i	r there is	s not effe	ctive even if co	ountermeasures are	v
0	Structure	debris on impermeability bedrock,	marked	V				not performed.						
	St	the upper part is a hard /the toe of slope is weak.	a little marked											
		weak.	None		[History]	Laval						Expected size of	disaster](width, length	, depth, etc.)
		Tanaali data ahad wale and unata ahu wale	instability	√				er history		Check				
		Topsoil, detached rock and unsteady rock	a little unstable stability		There is a history about obstacles to the road t	•		•		\checkmark				
Surface codition			notable spring waster		There is a history about									
Ö		Spring water	seepage		the road though there				res that gets t			L= 380	0 m, W= 208 m, D =	2 m
face		1 3	none	V	There is a history about	ut small	fallen roc	ks and slope failu	res that did				- , ,	
Sur			bare land with minor vagetation	V	not get to the road.									
		Surface condition	intermediate (bare • grass • tree)		No disaster records						1			
			mainly structure, mainly tree											
			H≧50m	V	[Evaluation Rank]				^	Descrip	-			
			14 30≦H<50m		Scale of disaster	Big	Ν	Medium Sma					le. The main body of the slide e which is close to the road is	
file			15≦H<30m		Risk	-							sent posing threats to the road nent of gullies. Bedrock of the	
Profile		Height (H), dip (i)	H<15m i≧70°		Great risk	1		2 3		The slide is	frequently af	fecting the road, howe	ever, no mitigation measures a	re built to stabilize
			<u>a</u> <u>45°≦i<70°</u>	V									ing are made by the local peo d dip angle is 40-50 degress.	
			i<45°	-	Medium risk	1		2 3				thick ve	egetation.	
naly	Surfa	ce collapse, small fallen rock, gully, erosi <mark>o</mark> n, Jhole, subsidence, heaving, bending of tree root,	2 or more correspondences clarity certain unclarity	V	Low risk	2		3 4						
Anomaly	fallen	tree, crack, open crack, anomaly of ermeasure	none		Organization responsition to the scale of the disa		ounterme	asure works acco	rding Influe disas		i the traffi	ce when poten	itial	
L	L		1		-Big: Grant aid				-Gre	at risk: ı	road clos	ed for 2 days c	or more	
					-Medium: Major contra	actor in F	Pakistan					osed for 1 day		
					-Small: Local contracto	or			-Low	risk: no	o road clo	osure		



	Sat_	_					
Code no.	Ν	3	5	-	3	1	
Region Office							
Maintenance Unit							

Coordinates	Latitude			3	5° 02' -	42.:	2"	
Coordinates	Longitud	de		7	72º 56'	33	"	
Road na	ame				Km			

Date	14/12/2017
Inspector	′asir, Sajid, Shafique, Bashara



Code	no. Sat N 3	5 _ 3 9	
Regio	on Office		
Main	tenance Unit		
[Cau	-		
item	factor	category	Check
ē	areas that river bed is 15°		V
rič	or more in watershed	0.15km ² - 0.50km ²	
/ of	area	less than 0.15km ²	
^o roperty of river		40°or more	V
rop	steepest slope of river bed	30° - 40°	
ሲ		less than 30°	
		0.20km ² or more	٧
	area that slope gradient is 30° or more in watershed area	0.08km ² - 0.20km ²	
		less than 0.08km ²	
e	area that meadow and shrub	0.20km ² or more	
slop	(less than 10m height)	0.02km ² - 20km ²	
oť	occupy in watershed area	less than 0.02km ²	V
Ę	artificial works that cause	certain	
Property of slope	negative effects	none	V
P.	new crack and/or slope	certain	V
	failure in stream	none	
	traces of large slope	certain	v
	failure in stream	none	

Evaluation sheet (debris flow)

Coordinates	La	titu	Ide			35	50	04	.' 1	3"	I	
Coordinates	Lo	ngi	ituc	le	7	'2'	[,] 5	7'	19	9.6)"	
Road Name	Ν	3	5		Km							

[Road structure] Check structure category of score 10m or more ٧ River 5m - 10m width 3m - 5m less than 3m less than 1m or No bridge / box culvert ٧ Beam 1m - 2m height 2m - 3m 3m - 5m 5m or more

[Potencial disaster mode]	Check
Damage of bridge/culvert	
Outflow of embankment	
Debris flooding on the road	٧

[History] category of score	Check
There is a history about debris flow that were obstacles to the road traffic after construction of recent measures.	٧
There is a history about debris flow though there is no obstacle to traffic.	
There is no history of debris flow	

2017/12/14

Yasir, Sajid, Shafique, Basharat

[Expected size of disaster] (width, length, depth, etc.)

L= 1500 m, W=13 m, D= 1-2 m

[Countermeasure]

Type of counterm	С	heck	
Stepped and inclin has been construct the valley side of ro- feet high and 15 fe wall has been constru- of the right bank	ed to prote ad (N-35). et long pro ructed at th	ect a Als otec ne n	llong o a 2 tion nouth
Effect of existing countermesure	none · lov moderat high		V
	enough		

[Evaluation Rank]										
Scale o disaster Risk		Medium	Small							
Great risk	1	2	3							
Medium risk	1	2	3							
Low risk	2	3	4							

Organization responsible for countermeasure works according to the scale of the disaster
-Big: Grant aid
-Medium: Major contractor in Pakistan
-Small: Local contractor
Influence on the traffice when potential disaster
-Great risk: road closed for 2 days or m

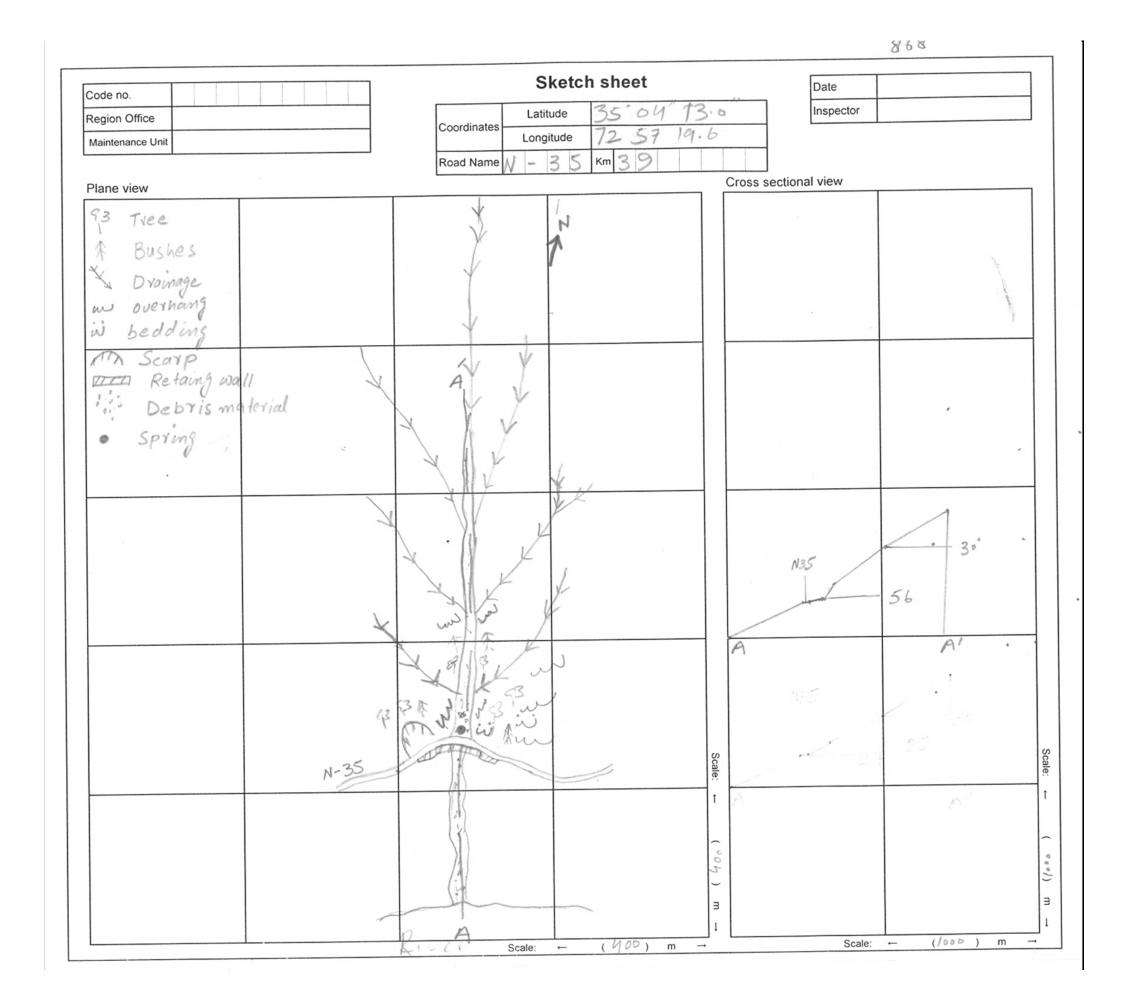
mor -Low risk: no road closure

[Description/comments]

Date

Inspector

The lying debris of the DF are consists of boulders, gravels, sand and silt. The accumulated poorly sorted debris in the erosion channels are already failed and still prone to slope failure. The DF has continuous flowing water however, the water seeps beneath the road and appears again on the valley side of the road and therefore the road is prone to a disaster. No trees are present in the source area of the DF, however, shrubs and bushes are sparsely present. Boulders are mainly of Dunite and Amphibolite. The DF is frequently affecting the road, mainly during the rainy season. A retaining wall is constructed on the valley side of the road which is also partly damaged. Part of the source area of the DF is also prone to rock fall with detached and -Medium risk: road closed for 1 day or les fragmented boulders that could also reach to the road and therefore also posing threat to road and traffic.



Code no.	Sat_	Ν	3	5	_	3	9	
Region Office								
Maintenance Unit								

Coordinates		Lati	tude	35 ^o 04' 13"									
Coordinates	Longitude						720	⁰ 57	7' 19	9.6"	I		
Road Name	Ν	_	3	5	Km								

Date	2017/12/14
Inspector	Yasir, Sajid, Shafique, Basharat



Mountain side view of the debris flow

Valley side view of the debris flow



Front view of the debris flow



Existing countermeasures / anomalies: Sloped Retaining wall has been constructed for outflow of debris material

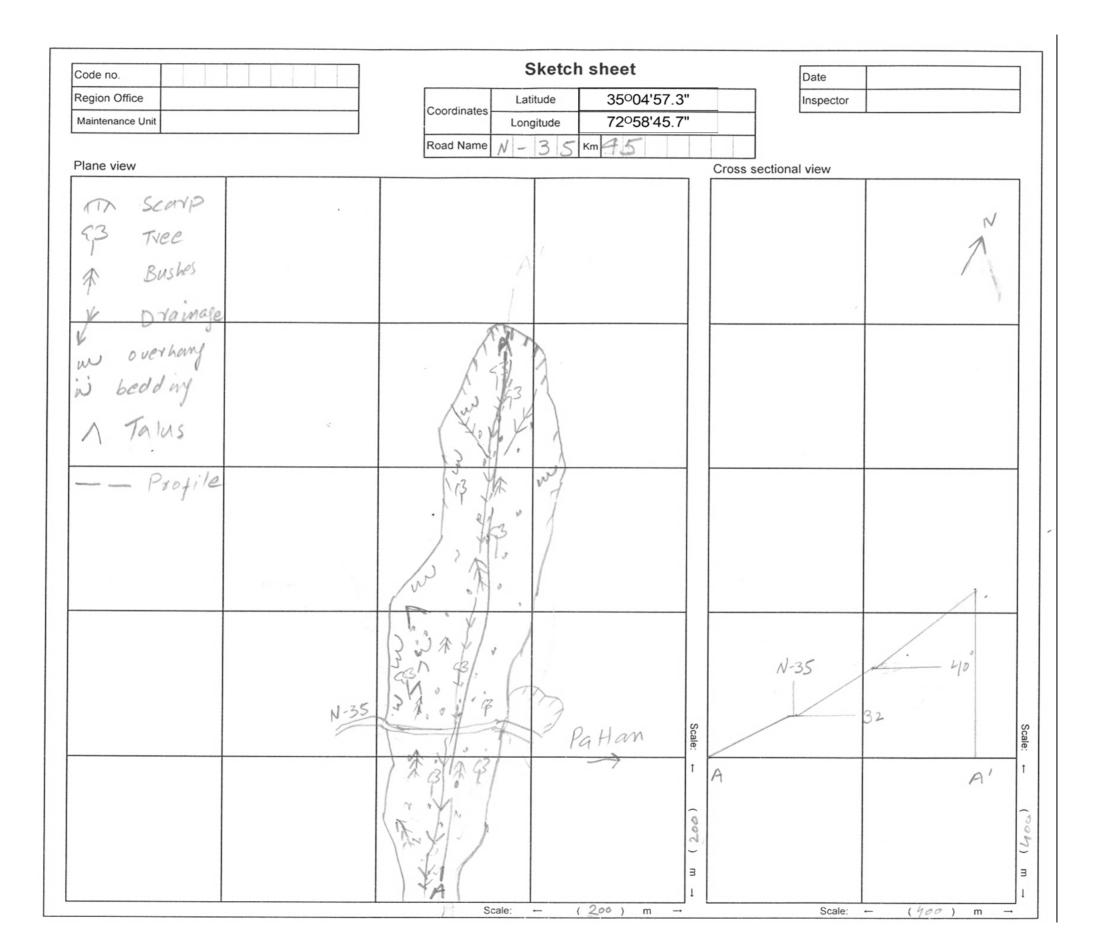




Road condition at start point

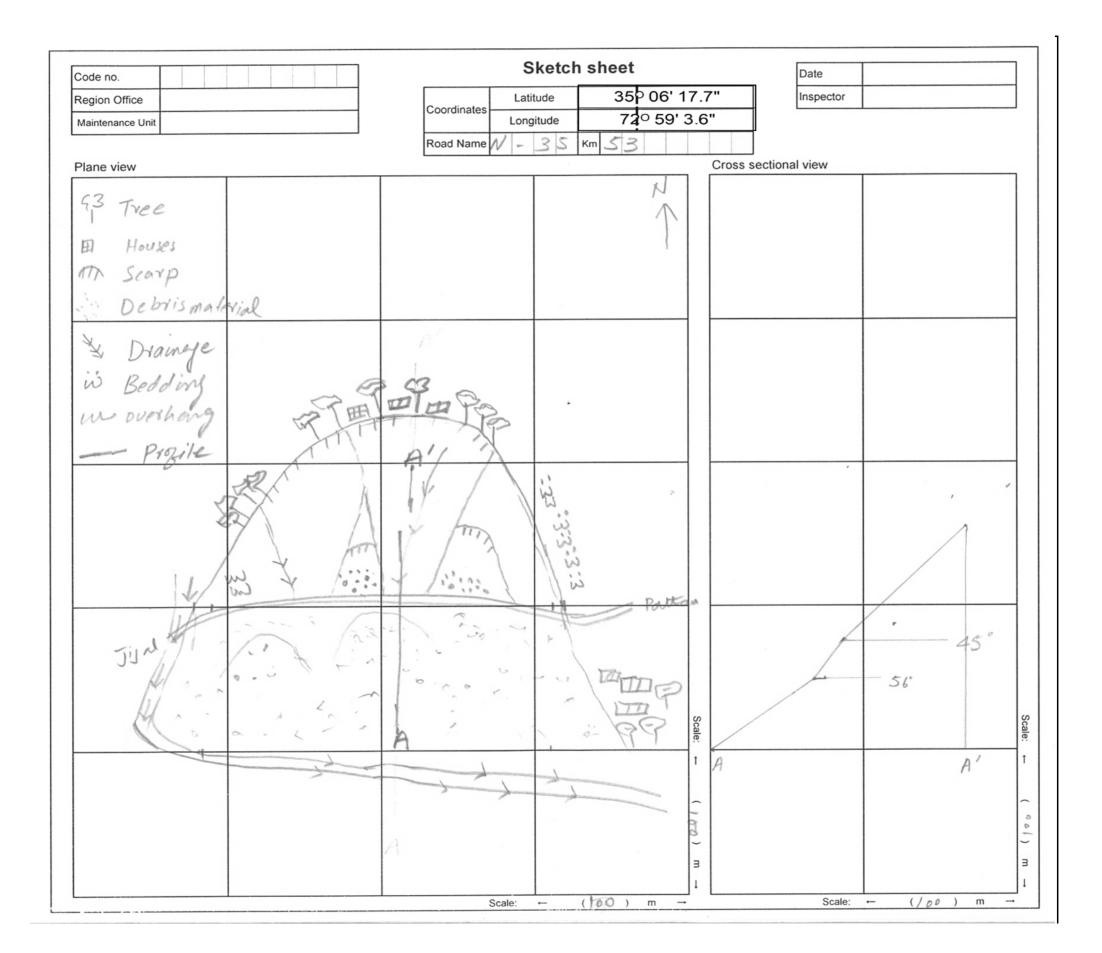
Existing countermeasures / anomalies: Retaining wall has been constructed to protect the road

	Cod	e no. Sat _ N 3 5 _ 4 5		Ev	aluation s	sheet	t (S	lope	failure	e/Rock	fall)		Date		2017/12/1	15
F	Regior	n Office			Coordinat	Latitu	ude	35	⁶⁰ 04'57.	3"			Inspe	ector	Yasir, Sajid, Shafique	e, Basharat
Μ	aintena	ance Unit			Coordinates	Longit	tude	72	^o 58'45.	7"			.	<u>.</u>		
L		Ļ	I		Road name	N 3 5	5	Km								
r -	auses tem] factor	category of score	Check					[Counter	measurel						
		talus slope.	3 or more correspondences	V					loogunten	incasarej		Туре с	of counter	measu	res]
raph	ω	clear convex break of slope,	2 correspondences		[Disaste	er type]										
bod	fac	eroded toe of slope ,	1 correspondences		Rock	fall						There is	s no coun	termeas	sure	
đ	0	overhang, water catchment slope	no correspondence		NUCK	Iali										
	_	susceptible to erosion	marked	V	Slope f	ailure				Ef	fectivenes	ss of exi	sting cou	ntermea	asures	Check
	0	less strength with water	a little marked				'				e are prev	ented er	nough, or	, it is de	efended enough when it is	;
ns		5	None		[Main cl	heck ob	ject]		generated	-						
ditio	×	high density of cracks and a weak layers,	marked	V	Cut sl	lope					are consi	derably	prevente	d, or it i	s considerably defended	
Geological conditions	\sim	susceptible to erosion, fast weathering	a little marked			·			when it is	0						
ical		Tast weathening	None		Natural	slope	\checkmark			slope failure . However, i					defended when it is	
polog	۵.	dip slope of bedding plane	It corresponds. None	v					-			-		-		
Geo	Structure		marked	V V					are not pe		easure, or	r there is	s not effec	ctive ev	en if countermeasures	V
	Stru	debris on impermeability bedrock, the upper part is a hard /the toe of slope is	a little marked	· · · ·												
	0,	weak.	None		[History]								(E)	voected s	size of disaster](width, length,	depth etc.)
			instability	V		L	evel o	of disast	ter history			Check				
		Topsoil, detached rock and unsteady rock	a little unstable		There is a histo					pe failures t	hat were	1				
ч			stability		obstacles to the		0				3/					
Surface codition			notable spring waster		There is a history about large fallen rocks and slope failures that gets											
e co		Spring water	seepage		to the road though there is no obstacle to traffic. ✓ There is a history about small fallen rocks and slope failures that not get to the road.						L= 800 m, W= 190 m, D = 3 m					: 3 m
rfac			none	V												
Su			bare land with minor vagetation	V												
		Surface condition	intermediate (bare · grass · tree)		No disaster rec	ords										
			mainly structure, mainly tree													
			H≧50m	V	[Evaluation Rar							Descrip	-	iluna -f i	an dahuin nameri-ing af baut t	ana) (alal
			15≦H<50m 15≦H<30m		disa	ale of aster	Big		Medium	Small	an	nd silt. The	, scarp of the	e slope fai	se debris comprising of boulders, ilure is clearly visible and still pror	ne to rock failure
file					Risk		-								thered and jointed rocks. Shrubs oulders are present on the loose	
Prof		Height (H), dip (i)	H<15m ;>zo∘		Great risk		1		2	3	re	ach to the	road and the	erefore po	osing threat to the road and traffic	. The landslide is
			i≧70° .⊖ 45°≦i<70°												nly during the rainy season, however ze the slope or protect the road fro	
			<u>ਉ</u> 45°≦i<70° i<45°	V	Medium risk	(1		2	3	falling debr		debris. Bed rock is composed of fragmented and jointed Dunite. Loose talus its are present on above and below the road.			nite. Loose talus
	0. (2 or more correspondences clarity	V					-			,- 00.10 U/U		un		
		e collapse, small fallen rock, gully, erosion, hole, subsidence, heaving, bending of the root,	certain • unclarity		Low risk		2		3	4						
0	fallen	tree_crack, open clack, anomaly of	none		Organization re	sponsibl	e for c	ounterm	easure wor	ks	ے Influe	ence on	the traffic	e when	1	
Ā	courte	sure			according to the	•				-	Influence on the traffice when potential disaster					
					-Big: Grant aid					- -Great risk: road closed for 2 days or more						
				-Medium: Major contractor in Pakistan					-Med	-Medium risk: road closed for 1 day or less						
					-Small: Local co	ontractor					-Low	risk: no	road clos	sure		



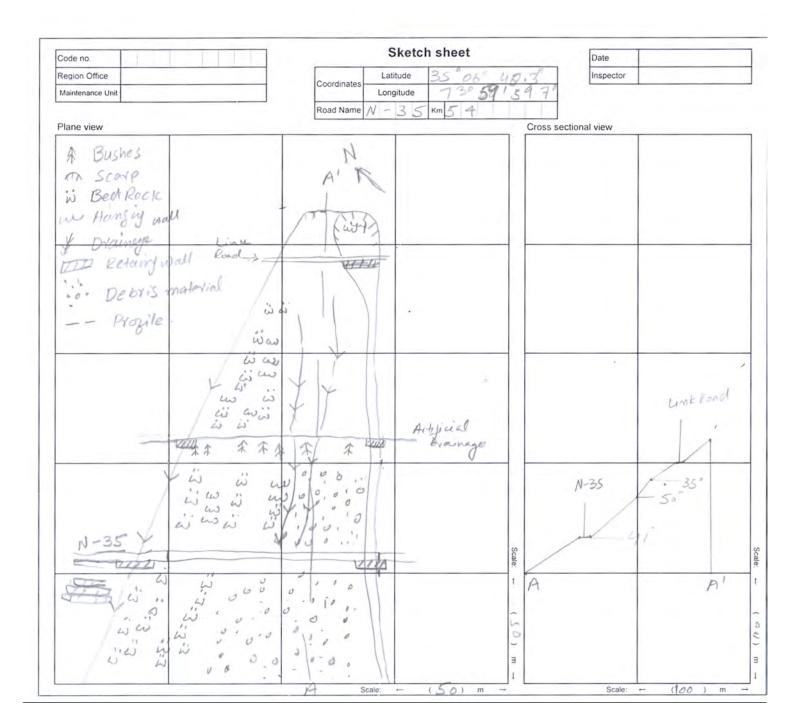
ode no. Sat _ N 3 5 _ 4 5	Photo sheet	Date 2017/12/15
ad name N 3 5 Km	Coordinates	Inspector Yasir, Sajid, Shafique, Bashara
	Longitude 72° 58' 45.7"	
Full view of the slope failure	View of slope failure on Valley side:	Road condition:Cut slope at the start point
<image/>		
Road condition:Cut slope at the end point	Existing countermeasures / anomalies: No counter measures	View of fallen blocks along the road

	Cod	de no. Sat _ N 3 5 _ 5 3]	Ev	aluation s	heet (Slope	failure	/Rock	fall)		Date	e	2017/12/1	16		
R	egior	on Office	7		On an line t	Latitude	35	06' 17.	7"			Insp	pector	Yasir, Sajid, Shafique	e, Basharat		
Ма	ainten	nance Unit	1		Coordinates	Longitude	e 72	2 ⁰ 59' 3.6	6"								
L					Road name	N 3 5	Km										
[Ca	auses	s]															
—	em	factor	category of score	Check				[Counterm	neasure]		-	,			n		
hy	sed	talus slope, clear convex break of slope,	3 or more correspondences 2 correspondences	V	Disasta	r type1					Туре о	ot counte	ermeasu	res			
topography	Collap: facto	eroded toe of slope , overhang, water catchment slope	1 correspondences		[Disaste Rock		7		Retaini	ing wall h	as beer	n constru	ucted for	N-35 on valley side.			
ţ	0	overhang, water catchment slope	no correspondence				_		F #						Charle		
	0	susceptible to erosion	marked a little marked	V	Slope fa	ailure $$		Potential of		ectivenes		-		asures efended enough when it is	Check		
s	S	less strength with water	None		[Main ch	neck object]	generated.	ope iallule	are preve	sneu e	nough, c	, it is de	nended enough when it is			
condition		high density of cracks and a weak layers, susceptible to erosion,	marked a little marked	V	Cut sl		<u> </u>	Potential slo when it is go		are consi	derably	prevent	ed, or it i	s considerably defended			
	Å	fast weathering	None It corresponds.		Natural	slope √		Potential slo generated.						defended when it is	V		
Geological	е	dip slope of bedding plane	None	V		I	4	-						en if countermeasures			
Ğ	Structure	debris on impermeability bedrock,	marked	V				are not perf									
		the upper part is a hard /the toe of slope is	a little marked			_											
\square		weak.	None		[History]	Lava	l of diaca	tor history			Chool	[E	Expected	size of disaster](width, length,	depth, etc.)		
		Topsoil, detached rock and unsteady rock	instability a little unstable	V	There is a histo			ter history	e failures th	nat were	Check						
uo			stability		There is a history about large fallen rocks and slope failures that obstacles to the road traffic after construction of recent measure						\checkmark						
codition			notable spring waster		There is a history about large fallen rocks and slope failures that to the road though there is no obstacle to traffic. There is a history about small fallen rocks and slope failures that not get to the road.						L= 220m, W= 265 m, D =						
cec		Spring water	seepage														
Surface			none bare land with minor vagetation	√ √													
0)		Surface condition	intermediate (bare grass • tree)	v	not get to the road.												
			mainly structure, mainly tree		No disaster reco	ords											
Π			H≧50m	V	[Evaluation Rar	-				-	Descrip						
e			ਸ਼ੂ <u>30≦</u> H<50m ਦ 15≦H<30m		Sca disa Risk		g	Medium	Small	coi Ian	nsolidated Idslide is a	d with prese activated n	ence of gra nainly due t	ations landslide. The main body o sses, however, the left and right f o the road cutting. The debris of t	lanks of the he slide is mainly		
Profil		Height (H), dip (i)	H<15m i≧70°		Great risk	1		2	3	to	developm	ent of well-	-developed	and sand. Active erosion on the gullies. Hanging boulder are also d and traffic. The slide is mainly a	present in the		
			¦⊖ 45°≦i<70° i<45°	V	Medium risk	1		2	2 3 adebris that pose threats to the road and traffic. The slide is mainly act the rainy season and the loose debris can also leads to debris flow. wall is constructed to protect the road, however, it is also buried by the debris. Talus is present on the upper and lower side of the road.						A retaining		
nal	Surface collapse, small fallen rock, gully, erosion, 2 or more correspondences clarity $$ piping hole, subsidence, heaving, bending of tree root, certain unclarity					Low risk 2 3 4											
		tree, crack, open crack, anomaly of termeasure	none		Organization responsible for countermeasure works according to the scale of the disaster					Influence on the traffice when potential disaster							
			-	I	-Big: Grant aid					-Great risk: road closed for 2 days or more							
					-Medium: Major contractor in Pakistan					-Medium risk: road closed for 1 day or less							
					-Small: Local co	ontractor				-Low	risk: no	road clo	osure				



Code no. Sat _ N 3 5 _ 5 3	Photo sheet	Date 2017/12/16
Road name N 3 5 Km	Coordinates	Inspector Yasir, Sajid, Shafique, Basharat
	Longitude 72° 59' 3.6"	
Full view of the slope failure	View of slope failure on Valley side:	Road condition:Cut slope at the start point
View of the slope failure at the middle point	Existing countermeasures / anomalies: View of Retaining wall as counter measure for N-35	View of fallen blocks

Evaluation sheet (Slope failure/Rockfail) Date 16-Dec-2017 Image: Continue Latitude 35° 0 6° 48.3° Maintenace Unit Coordinates Latitude 35° 0 5° 59.7° Read name Km Image: Content of the state of the s			Sat_											
Maintenance Unit Coordinates Coordinates<		Coc	de no. N 3 5 _ 5 4		E٧	valuation she	et (Slo	ope failure	<u>e/Roc</u> kf	fall)		Date	16-Dec-2	2017
Maintenance Unit Longitude 72° 59 ' 59.7" Causes Countermeasures Countermeasures Image: Strength with water 3 correspondences V 1 correspondences V 2 correspondences V 1 correspondences V None V 1 correspondence V None None 1 correspondence </td <td></td> <td>Regio</td> <td>n Office</td> <td></td> <td></td> <td></td> <td>titude</td> <td>35º 06' 48</td> <td>8.3"</td> <td></td> <td></td> <td>Inspector Y</td> <td>Yasir, Sajid, Shafiq</td> <td>ue, Basharat</td>		Regio	n Office				titude	35º 06' 48	8.3"			Inspector Y	Yasir, Sajid, Shafiq	ue, Basharat
[Causes] Item factor category of score C/text Item factor category of score C/text Item Countermeasures Type of countermeasures Item in factor Sore spondences Item in marked V Item in marked V Item in factor Sore spondences V Item in marked V Item in marked V Item in factor Sore spondences V Item in marked V Item in marked V Item in factor Sore spondences V Item in marked V Item in marked V Item is all cope in the ensiting Item marked V Item marked V Item is an isope failure V Item is all cope failure are prevented enough, or, it is defined enough when it is generated. V Item is all cope in the ensities on part is a harphate totol clope in the marked mar	N	lainten	ance Unit				gitude	72 ^o 59 ' 59	9.7"					
[Causes] Item factor category of score Check Item factor category of score Check Colspan="2">Consepondences Icorrespondences Icorespondences Icorrespondences <td></td> <td></td> <td></td> <td>4</td> <td></td> <td>Road name</td> <td>к</td> <td>۲m</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>				4		Road name	к	۲m						
alus slope, blear convex break of slope, overhang, water catchment slope 3 or more correspondences V 1 2 correspondences 1 1 Correspondences 1 1 correspondences 1 Correspondences 1 Correspondences 1 1 correspondences 1 Correspondences 1 Correspondences 1 1 correspondences 1 Correspondences 1 Correspondences 1 1 correspondences 1 None 1 Rock fall Slope failure 1 1 susceptible to erosion, fast weathering a little marked V Italities and a weak layers, a little marked a little marked V 1 dip slope of bedding plane Itome None None V Natural slope Natural slope V 1 Topsoil, detached rock and unsteady rock a little marked V None V None V 1 Topsoil, detached rock and unsteady rock a little marked V None None V 1 notable spring water notable spring water	ſC	auses	6]											
India Subjet, ender convex break of slope, eroded toe or slope, eroded toe of slope	Ĺ	ltem	factor	category of score	Check			[Counter	measure]					
Image: susceptible to erosion less strength with water marked marked value Slope failure value Effectiveness of existing countermeasures Check value high density of cracks and a weak layers, susceptible to erosion, fast weathering marked value Value Main check object Value None IMain check object Value Potential slope failure are prevented enough, or, it is defended enough when it is generated. Potential slope failure are considerably prevented, or it is considerably defended when it is generated. generated. None None None Value lastope V	Ą	þ	talus slope,	3 or more correspondences	V						Type of co	ountermeasures		
Image: susceptible to erosion less strength with water marked marked V a little marked None b less strength with water marked marked V b less strength with water marked V b less strength wat	grap	apse				[Disaster type	<u>)</u>							
Image: susceptible to erosion less strength with water marked marked V a little marked None b less strength with water marked marked V b less strength with water marked V b less strength wat	lő	fac				Rock fall								
Image: susceptible to erosion less strength with water a little marked Image: strength with water Image: strength water Ima	Ę	<u> </u>	overhang, water catchment slope	•										
0 less strength with water a little marked None marked a little marked vector marked vector vector vector <td></td> <td>-=</td> <td>susceptible to erosion</td> <td></td> <td>V</td> <td>Slope failure</td> <td></td> <td></td> <td>Effe</td> <td>ectiveness</td> <td>of existing</td> <td>g countermeasures</td> <td></td> <td>Check</td>		-=	susceptible to erosion		V	Slope failure			Effe	ectiveness	of existing	g countermeasures		Check
Index Marked V vortice a little marked value ast weathering None dip slope of bedding plane It corresponds. None None None None debrie on impermeability bedrogk, the upper part is a hang the too of slope is weak. marked Topsoil, detached rock and unsteady rock a little unstable stability notable spring water Spring water notable spring waster seepage value Surface condition bare land with minor vagetation Surface condition bare land with minor vagetation		So							•	are preven	ited enoug	gh, or, it is defended e	enough when it is	
Bit Description Commence of slope is white upper part is a harp thre too of slope is weak. Initial marked Init	suc					[Main check of	object]	Ŭ						
Bit Description Commence of slope is white upper part is a harp thre too of slope is weak. Initial marked Init	ditio	×			V	Cut slope			•	are conside	erably prev	vented, or it is conside	erably defended	
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Bit Description Commence of slope is white upper part is a harp thre too of slope is weak. Initial marked Init	ca					Natural slope				1 21	,		ed when it is	V
Bit Description Commence of slope is white upper part is a harp thre too of slope is weak. Initial marked Init	logi	a)	dip slope of bedding plane					Ŭ	,		0	8		
Bit Description Commence of slope is white upper part is a harp thre too of slope is weak. Initial marked Init	0e0	sture								asure, or th	here is not	effective even if cour	ntermeasures are	
weak. None [History] [Expected size of disaster](width, length, depth, etc.) Topsoil, detached rock and unsteady rock instability v a little unstable motable spring waster There is a history about large fallen rocks and slope failures that were obstacles to the road traffic after construction of recent measures. v Spring water notable spring waster none There is a history about large fallen rocks and slope failures that gets to the road traffic. the road though there is no obstacle to traffic. Surface condition bare land with minor vagetation v v No disaster records No disaster records	ľ	truc	debris on impermeability bedrock,		v			not perior	ineu.					
Instability V Level of disaster history Check Topsoil, detached rock and unsteady rock instability V a little unstable There is a history about large fallen rocks and slope failures that were obstacles to the road traffic after construction of recent measures. V No reprint water none There is a history about large fallen rocks and slope failures that gets to the road though there is no obstacle to traffic. There is a history about small fallen rocks and slope failures that did not get to the road. Surface condition bare land with minor vagetation V No disaster records No disaster records		05				[History]						Exported size of dis	easter](width longth	dopth ata)
Topsoil, detached rock and unsteady rock a little unstable stability There is a history about large fallen rocks and slope failures that were obstacles to the road traffic after construction of recent measures. \lambda Spring water notable spring waster seepage v None There is a history about large fallen rocks and slope failures that gets to the road though there is no obstacle to traffic. there is a history about large fallen rocks and slope failures that gets to the road though there is no obstacle to traffic. Surface condition bare land with minor vagetation v intermediate (bare•grass•tree) v No disaster records No disaster records	-				7		l evel of	disaster history			Check		sasterj(widtii, ierigtii,	deptil, etc.)
stability obstacles to the road traffic after construction of recent measures. V Spring water notable spring waster obstacles to the road traffic after construction of recent measures. V Spring water none There is a history about large fallen rocks and slope failures that gets to the road though there is no obstacle to traffic. There is a history about small fallen rocks and slope failures that did not get to the road. Surface condition intermediate (bare•grass•tree) No disaster records			Topsoil detached rock and unsteady rock	·····	·····	There is a history abo					oncon			
Description Description Description Description There is a history about large failen rocks and slope failures that gets to the road though there is no obstacle to traffic. L= 184 m, W= 90 m, D = 3 m Surface condition bare land with minor vagetation intermediate (bare•grass•tree) V No disaster records No disaster records	Ę		ropson, actualica rook and anatoday rook			,	0							
Surface condition intermediate (bare•grass•tree)	ditio			,		There is a history abo	ut large fa	llen rocks and slo	ne failures tha	at dets to				
Surface condition intermediate (bare•grass•tree)	Ö		Spring water	······	V		-			at goto to		L= 184	m, W= 90 m, D = 3	3 m
Surface condition intermediate (bare•grass•tree)	face					There is a history abo	ut small fa	allen rocks and slo	pe failures the	at did				
In the second seco	Sur			bare land with minor vagetation	V									
mainly structure, mainly tree INO disaster records			Surface condition	intermediate (bare • grass • tree)										
				mainly structure, mainly tree		no disaster records								
H≧50m V [Evaluation Rank] [Description]				H≧50m	V	[Evaluation Rank]				[De	escription]		
$\frac{1}{2} \frac{1}{2} \frac{30 \leq H < 50m}{15 \leq H < 30m}$ $\frac{1}{Risk}$ $\frac{1}{Ri$				ਸਿੱਊ 30≦H<50m			Big	Medium	Small					
\underline{o} $15 \leq H < 30m$ $Risk$	<u>e</u>			15≦H<30m		Risk	Dig	Weddin	Oniai	ra	iny season. The	e exposed bed rock on the left fl	lank of the slide has detached	ed, fractured and
$\frac{c}{b} = \frac{10 = 11 < 0.011}{H < 15m}$ $\frac{c}{b} = \frac{10 = 11 < 0.011}{H < 15m}$ $\frac{10 = 11 < 0.011}{Great risk}$ $\frac{1}{2} = \frac{2}{3}$ $\frac{10 = 11 < 0.011}{10 = 10}$ $\frac{10 = 10 < 0.011}{10$	rofi		Height (H), dip (i)			Great risk	1	2	3					
I = I0 are constructed to stabilize the slide. A retaining wall is constructed on the valley side of all the	ľ						•	-	Ĵ	are	constructed to	stabilize the slide. A retaining w	wall is constructed on the va	alley side of all the
$\frac{a}{b} = \frac{45^{\circ} \le i < 70^{\circ}}{i < 45^{\circ}} \sqrt{\text{Medium risk}} 1 2 3$ $\frac{a}{2} 3$ $\frac{a}{b} = \frac{1}{2} \sqrt{\frac{1}{2}} \sqrt{\frac{1}{$					V	Medium risk	1	2	3	thre	ee roads. Tensio	· ·		egetation. Talus is
Surface collapse, small fallen rock, gully, erosion, 2 or more correspondences clarity √ Low risk 2 3 4	_	Surfa	ce collapse, small fallen rock, gully, erosi <mark>o</mark> n,	2 or more correspondences · clarity	V	Low risk	2	3	4					
Image: Second	ame	piping falle	, hole, subsidence, heaving, bending of tree root,											
2 falle-tree, srack/open crack, anomaly of countermeasure none Organization responsible for countermeasure works according to the scale of the disaster Influence on the traffice when potential disaster	And	count	ermeasure			•		Intermeasure work	ks according			traffice when potentia	al	
-Big: Grant aid -Great risk: road closed for 2 days or more						-Big: Grant aid				-Great	risk: road	closed for 2 days or r	more	
-Medium: Major contractor in Pakistan -Medium risk: road closed for 1 day or less					-Medium: Major contractor in Pakistan -Medium risk: road closed for 1 day or le					rless				
-Small: Local contractor -Low risk: no road closure						-Small: Local contract	tor			-Low ri	sk: no roa	d closure		



Ś	Sat_	_					
Code no.	Ν	3	5	_	5	4	
Region Office							
Maintenance Unit							

	Pho	oto sheet
Coordinates	Latitude	35 ^o 06' 48.3"
	Longitude	72 ^o 59 ' 59.7"

Km

Date	16/12/2017
Inspector	′asir, Sajid, Shafique, Bashara







Road condition:Cut slope at the start point

Full view of the Slope Failure

View of Slope Failure on Valley side:

Road name



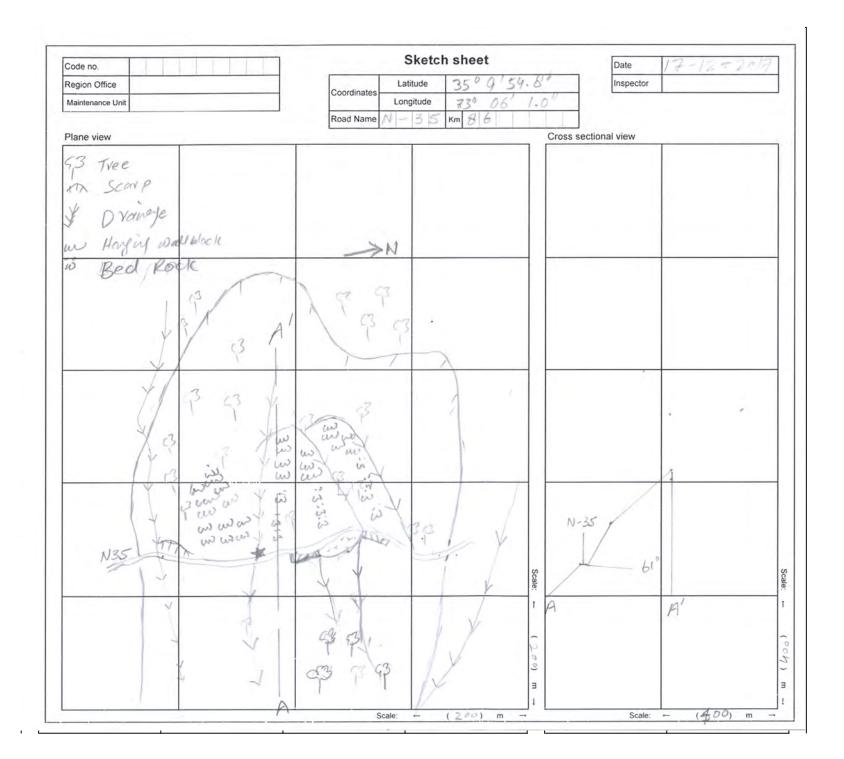




View of the slope failure at the middle point

Existing countermeasures / anomalies: View of shed as counter measure

	Coc	Sat de no. N 3 5 8 6]	Ev	aluation she	et (S	-		<u>oc</u> kfall))	Date	17-Dec-2	2017
I	Regio	n Office			Coordinates Lat	itude	350	9 09' 54.8 "			Inspector	Yasir, Sajid, Shafiq	ue, Basharat
N	lainten	nance Unit				gitude	73	^o 06' 1.0"					
			-		Road name		Km						
[C	auses	5]											
	ltem	factor	category of score	Check				[Countermea	sure]				
Ę	b	talus slope.	3 or more correspondences	V						Туре с	of countermeasures		
topography	Collapsed factor	clear convex break of slope,	2 correspondences		[Disaster type]							
lőd	Colls	eroded toe of slope , overhang, water catchment slope	1 correspondences		Rock fall					No c	countermeasures		
<u><u> </u></u>	<u> </u>	overhang, water eaterment slope	no correspondence						Effe etime				Chask
	Ē	susceptible to erosion	marked a little marked		Slope failure			Detential along			sting countermeasure		Check
	Soil	less strength with water	None	V	[Main check o	bio ot1		generated.	failure are pi	revented en	ough, or, it is defende	ed enougn when it is	
ions		high density of cracks and a weak layers,	marked	V	-			•	failure are co	nsiderably	prevented, or it is con	siderably defended	
ndit	Rock	susceptible to erosion,	a little marked		Cut slope	$^{\vee}$		when it is gene			prevented, or it is con-	siderably defended	
8	Ř	fast weathering	None					Potential slope	failure are pa	rtlv prevent	ted, or it is partly defer	nded when it is	
Geological conditions		dip slope of bedding plar <mark>e (Joint Plane</mark> s)	It corresponds.	V	Natural slope			generated. How	vever, it is not	t enough for	r the remaining factors	S.	
900	ar	dip slope of bedding plarte (Joint Planes)	None						ntermeasure	, or there is	not effective even if c	countermeasures are	v
Ō	Structure	debris on impermeability bedrock,	marked					not performed.					v
	Str	the upper part is a hard /the toe of slope is	a little marked										
		weak.	None	V	[History]						[Expected size of	f disaster](width, length,	depth, etc.)
			instability	V				er history		Check			
		Topsoil, detached rock and unsteady rocl	a little unstable		There is a history about obstacles to the road to					re √			
Surface codition			stability										
0 S		Spring water	notable spring waster seepage		There is a history about the road though there				lures that get	IS TO	1=	-780m, W=470m, D='	2
ace			none	V	There is a history abo				ilures that dic	1	L-	-700m, w=470m, D=	:
Surf			bare land with minor vagetation	v	not get to the road.		i lanen rot						
		Surface condition	intermediate (bare · grass · tree)										
			mainly structure, mainly tree		No disaster records								
			H≧50m	V	[Evaluation Rank]					[Descript			
			15≦H<30 15≦H<30m		Scale of disaster	Big		Vedium S	mall		ost vertical rock cliff		
e					Risk	3					comprised on amph er rock are prone to		
Profile		Height (H), dip (i)	H<15m		Great risk	1		2	3		hit the road or traffic	•	
			i≧70° ⊕ 45°≦i<70°	V						-	ntinuous threats. Inte	•	-
			i<45°		Medium risk	1		2	3		Rock joints are dippi	•	•
\vdash	Curfe	ce collapse, small fallen rock, gully, erosi <mark>o</mark> n, , hole, subsidence, heaving, bending of tr ee root,	2 or more correspondences clarity	V						ihi	iah risk no mitiaation	n measures are ador	oted.
Jaly	Suria	g hole, subsidence, heaving, bending of tree root,	certain • unclarity		Low risk	2		3	4				
Anor	fallen	tree, crack, open crack, anomaly of	none		Organization responsi	ble for o	counterme	asure works ac	cording In	fluence on t	the traffice when pote	ntial	
◄	court	ermeasure			to the scale of the disa	aster			•	saster	·		
					-Big: Grant aid				-0	Great risk: ro	oad closed for 2 days	or more	
					-Medium: Major contra		Pakistan				: road closed for 1 day	y or less	
					-Small: Local contract	or			-L	ow risk: no	road closure		



	Sat						
Code no.	Ν	3	5	_	8	6	
Region Office							
Maintenance Unit							

	Pho	oto sheet
tes	Latitude	35 ^o 09' 54.8'
105		



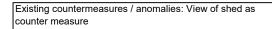
Date

17/12/2017



View of the slope failure at the middle point

Full view of the Slope Failure

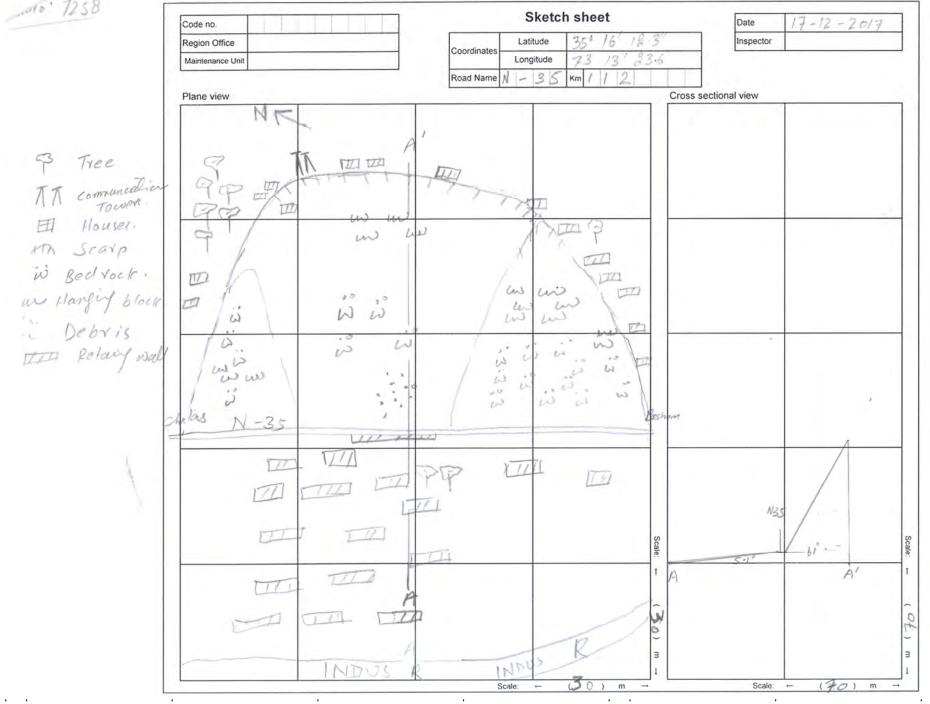




View of overhang blocks on road

		Sat_	_											
	Coc	de no. N 3 5 _ 1 1 2		Εv	aluation she	et (S	lope	failure	e/Rockfa	all)			Date 17-Dec-2	017
	Regio	n Office				atitude	350	^{>} 16' 12	2.3"				Inspector Yasir, Sajid, Shafiqu	ie, Basharat
r	/lainten	ance Unit			Coordinates	ngitude	730	⁾ 13' 23	3.6"					
			1		Road name	-	Km							
[0	auses	6]												
Ĺ	ltem	factor	category of score	Check				[Counter	measure]					
2	, be	talus slope,	3 or more correspondences								Туре о	of counte	ermeasures	
orap	ollapse factor	clear convex break of slope,	2 correspondences	V	[Disaster typ	e]								
topographv	Collapsed factor	eroded toe of slope , overhang, water catchment slope	1 correspondences		Rock fall						NO C	counterm	neasures	
F			marked						Effe	ctivenes	s of exis	stina cou	untermeasures	Check
	Soil	susceptible to erosion	a little marked		Slope failur	e		Potential					r, it is defended enough when it is	
ي ا		less strength with water	None	V	[Main check	object]		generated	•			5,	, 3	
Geological conditions	×	high density of cracks and a weak layers,	marked		Cut slope				•	re consid	erably p	orevente	ed, or it is considerably defended	
	Rock	susceptible to erosion, fast weathering	a little marked			v			generated.					
		fast weathering	None	V	Natural slop	e							is partly defended when it is naining factors.	
loai	o O	dip slope of bedding plane	It corresponds. None	V				0	,		•		ctive even if countermeasures are	
Geo	Structure	debris on impermeability bedrock,	marked	V				not perfori		sure, or t	nere is	not elle	cuve even il countermeasures are	V
	Stru	the upper part is a hard /the toe of slope is	a little marked	V										
		weak.	None		[History]							(E	Expected size of disaster](width, length, c	lepth, etc.)
			instability			Level	of disast	er history			Check			
		Topsoil, detached rock and unsteady rock	a little unstable	V	There is a history ab									
Surface codition			stability		obstacles to the road						,			
codi		O urie sussets a	notable spring waster		There is a history ab the road though ther				pe failures that	it gets to				
ace		Spring water	seepage none	V	There is a history ab				na failuraa tha	at did			W= 182m, L= 38.5m, D=1	?
Surfa			bare land with minor vagetation	V	not get to the road.	out sma	r lalleri roc	sks and sid	pe failures tria					
		Surface condition	intermediate (bare grass tree)	·····										
			mainly structure, mainly tree		No disaster records									
			H≧50m	V	[Evaluation Rank]						escript			
			Image: H<50m Image: H<50m		Scale of disaster	Big		Medium	Small				nowever no signs of fresh rock fall. A	
e			←		Risk	5					-		ured and detached boulders. Interse Cracks are open. Bed rock is amph	•••
Profile		Height (H), dip (i)	H<15m i≧70°		Great risk	1		2	3	mi	itigation	measur	res are adopted. Houses are located	l on the top
			<u>a</u> <u>45°≦i<70°</u>	V					\frown				ospital is located at the valley side c eds quick attention from the concern	
			i<45°		Medium risk	1		2	(3)	an	u inerer	ore nee	as quick allendon nom the concern	autionities.
VIAI	Surfa	ce collapse, small fallen rock, gully, erosi <mark>o</mark> n, Jhole, subsidence, heaving, bending of tree root,	2 or more correspondences · clarity certain · unclarity	V	Low risk	2		3	4					
Anomalv	fallen court	tree, crack, open crack, anomaly of ormoasure	none		Organization respon to the scale of the di		counterme	asure work	ks according	Influer disaste		he traffi	ce when potential	
L			1		-Big: Grant aid					-Great	t risk: ro	ad close	ed for 2 days or more	
				-					osed for 1 day or less					
					-Small: Local contra	ctor				-Low r	isk: no	road clo	osure	

1010' 7258

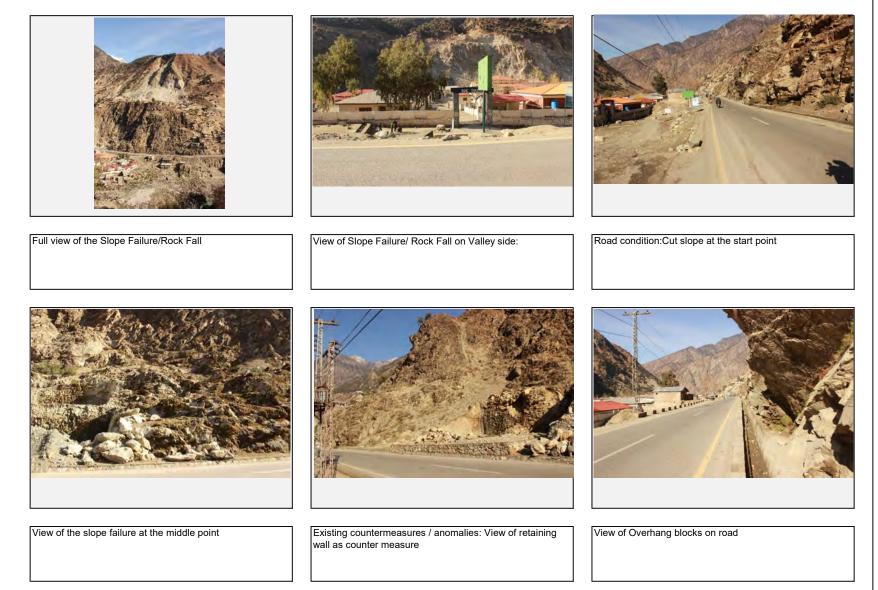


5	Sat_							
Code no.	Ν	3	5	I	1	1	2	
Region Office								
Maintenance Unit								

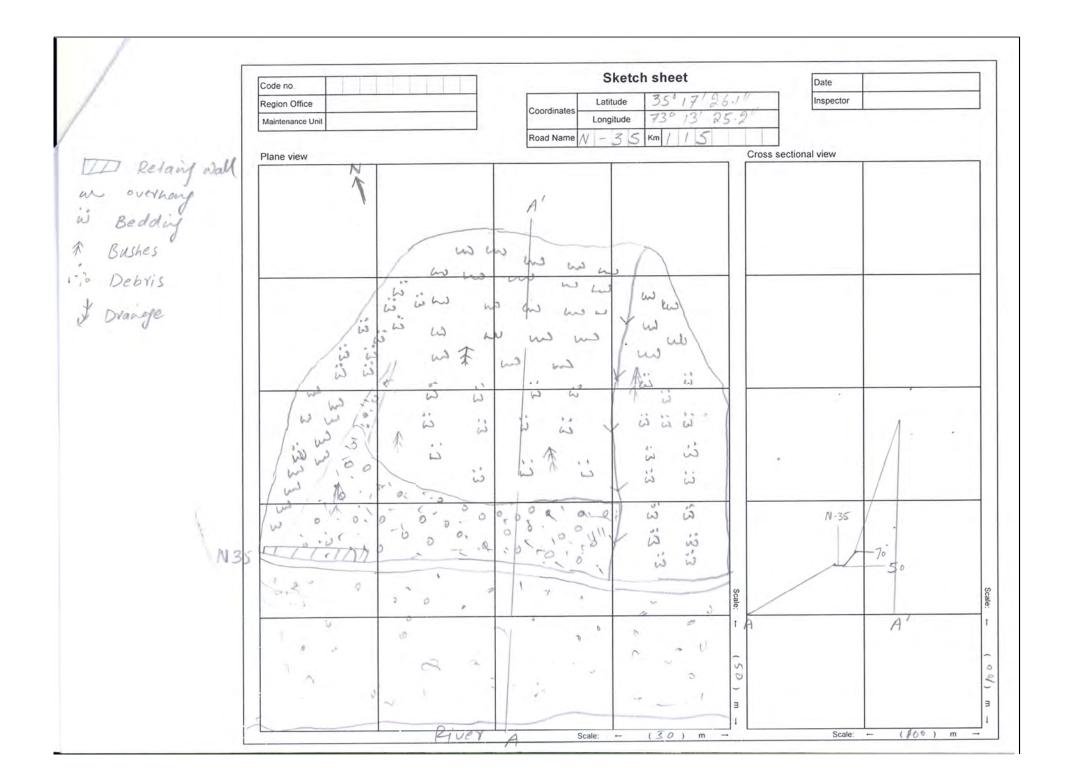
Photo sheet

Coordinates	Latitude									
Coordinates	Longitud	le	73 ^o 13' 23.6"							
Road na	ame					Km				

Date	17/12/2017
Inspector	′asir, Sajid, Shafique, Bashara



	Cod	Sat_ e no. N 3 5 _ 1 1 5	1	E١	aluation shee	et (S	lope	failure	e/Rockf	fall)		Date 17-Dec-2	2017
F	Regio	n Office				itude		⁻ 13' 26		,		Inspector Yasir, Sajid, Shafiq	ue, Bashara
м	ainten	ance Unit			Coordinates	gitude	730	⁻ 13' 25	2"				
]			gitudo	-	10 20					
[Ca	auses	1			Road name		Km						
	tem	factor	category of score	Check				[Counter	measure]				
λ	g	talus slope,	3 or more correspondences	V						Ту	pe of coun	termeasures	
topography	Collapsed factor	clear convex break of slope,	2 correspondences		[Disaster type]							
bod	Solla	eroded toe of slope,	1 correspondences		Rock fall						No counter	measures	
to	0	overhang, water catchment slope	no correspondence			`							
		susceptible to erosion	marked	V	Slope failure				Effe	ectiveness o	f existing co	ountermeasures	Check
	Soil	less strength with water	a little marked			'			•	are prevente	d enough, o	or, it is defended enough when it is	
suc			None		[Main check o	bject]	I	generated					
Geological conditions	쏭	high density of cracks and a weak layers,	marked	V	Cut slope				•	are considera	ably prevent	ted, or it is considerably defended	
con	Rock	susceptible to erosion, fast weathering	a little marked						generated.				
cal			None		Natural slope						,	t is partly defended when it is maining factors.	V
logi	đ	dip slope of bedding plane	It corresponds. None	V								5	
Geo	Structure		marked	V				not perforr		asure, or the	re is not em	ective even if countermeasures are	
	struc	debris on impermeability bedrock, the upper part is a hard /the toe of slope is	a little marked	v				not perion	neu.				
	0)	weak.	None		[History]							[Expected size of disaster](width, length,	depth etc.)
			instability	v		Level	of disast	er history		Cr	neck		deptil, etc.)
		Topsoil, detached rock and unsteady rock	a little unstable	·····	There is a history about				oe failures tha		,		
Ľ		· · · · · · · · · · · · · · · · · · ·	stability		obstacles to the road t						√		
Surface codition			notable spring waster		There is a history about	ut large	fallen ro	cks and slo	pe failures that	at gets to	-		
0 C		Spring water	seepage		the road though there					5		L=230m, W=200m, D=1-	2m
face			none	V	There is a history about	ut smal	l fallen ro	cks and slo	pe failures th	at did			
Sur			bare land with minor vagetation	V	not get to the road.				-				
		Surface condition	intermediate (bare • grass • tree)		No disaster records								
			mainly structure, mainly tree		No disaster records								
			H≧50m	V	[Evaluation Rank]					<u> </u>	cription]		
			15≦H<30		Scale of disaster	Big		Medium	Small			ure and rock fall. Originally a rock fall, ho ed at the rock fall toe that is prone to slop	
e					Risk	2.9		liouiuii				and erosion on this talus deposits leads t	
Profile		Height (H), dip (i)	H<15m		Great risk	1		2	3			he rockfall cliff there are many jointed and	
1			i≧70°		-				-			threats to road and traffic. Wedge cuttin comes active during the rains and affecting	
			ੇ ਹ 45°≦i<70° i<45°	V	Medium risk	1		2	3	Howe	ver, no mitiga	ation measures are constructed. A retain the slide, however, it is also not enough t	ing wall is built
	0f		2 or more correspondences · clarity	V				-		aiille		and shad, nowever, it is also not enough t	o stabilize tile
laly	Surfac	ce collapse, small fallen rock, gully, erosion, the root, subsidence, heaving, bending of the root,	certain • unclarity	· · · · ·	Low risk	2		3	4				
non	fallen	tree, crack, open crack, anomaly of	none		Organization responsi	ble for a	counterme	easure work	ks according	Influence	on the traf	fice when potential	
◄	cour	ermelasure			to the scale of the disa	aster				disaster			
					-Big: Grant aid					-Great ris	sk: road clo	sed for 2 days or more	
					-Medium: Major contra	actor in	Pakistan			-Medium	risk: road o	closed for 1 day or less	
					-Small: Local contracto	or				-Low risk	: no road cl	osure	

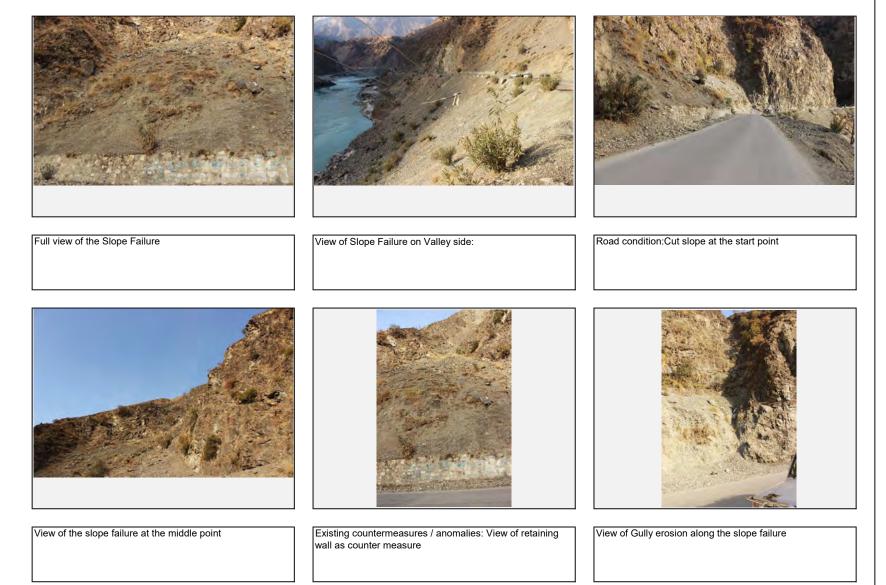


	Sat	_						
Code no.	Ν	3	5	-	1	1	5	
Region Office								
Maintenance Unit								

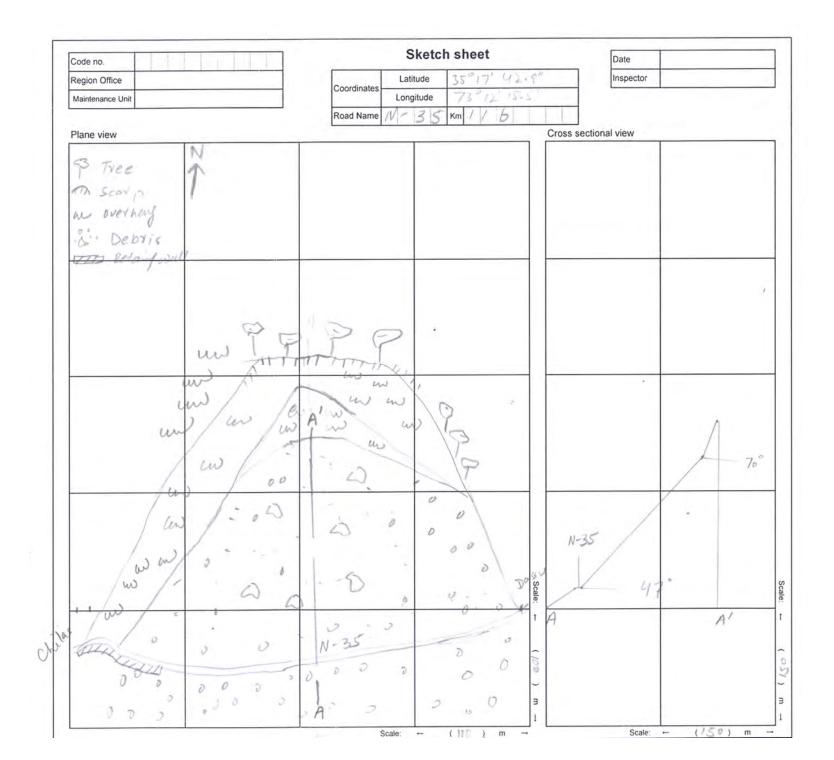
Photo sheet

Coordinates	Latitude			3	5º 13'	26.	1"	
	Longitud	le		7	3 ^o 13'	25.	2"	
Road na	ame				Km			

Date	17/12/2017
Inspector	′asir, Sajid, Shafique, Bashara



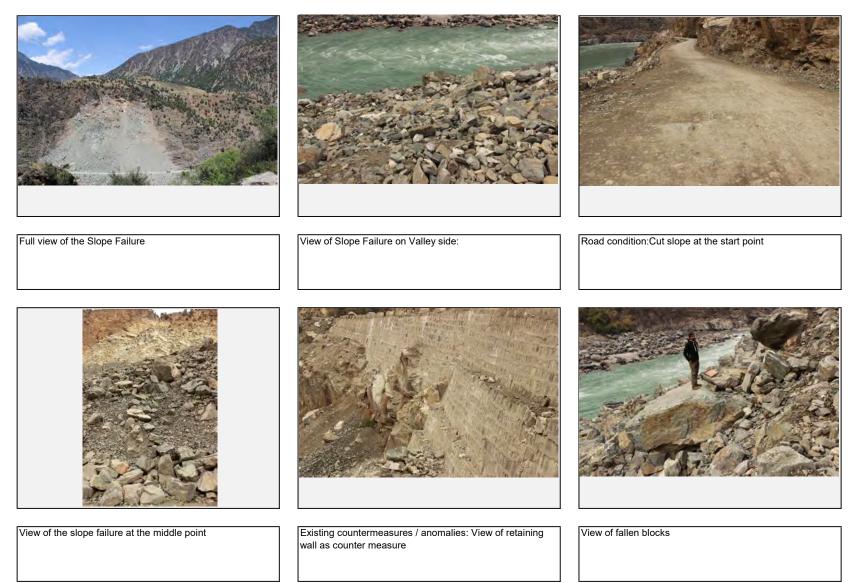
_		Sat_	-												
	Cod	te no. N 3 5 _ 1 1 6		E١	aluation she	et (S	lope f	ailure	/Rockfa	all)	Date 18-Dec-2	2017			
	Regio	n Office	1			titude	350	17' 42.	.9"	-	Inspector Yasir, Sajid, Shafiq	ue, Bashara			
N	ainten	ance Unit	-		Coordinates	gitude	730	12' 15.	5"						
	anton]			gitudo		12 13.	.5						
					Road name		Km								
_ <u>`</u>	auses Item	factor	category of score	Check				Countarm							
			3 or more correspondences	V			ſ	[Counterm	leasurej	Type of co	untermeasures				
hde	Collapsed factor	talus slope, clear convex break of slope,	2 correspondences	·····	[Disaster type	-1	F								
ogra	ollapse factor	eroded toe of slope ,	1 correspondences	······	· · · · ·					Retaining	y wall for N-35				
top	° °	overhang, water catchment slope	no correspondence	······	Rock fall					rotaining					
			marked	V		,	ŀ		Effe	ctiveness of existing	countermeasures	Check			
	Soil	susceptible to erosion	a little marked	⊢ - ⊣	Slope failure	√	- F	Potential s		,	h, or, it is defended enough when it is				
6	S	less strength with water	None	••••••	[Main check of			generated.	lopo lanaro a	ie proventoù eneug					
Geological conditions		high density of cracks and a weak layers	marked	V		$\vec{1}$	ĥ	Potential sl	ope failure ar	e considerably prev	ented, or it is considerably defended				
ndi	Rock	susceptible to erosion,	a little marked		Cut slope	\vee		when it is g	•	· · · · · · · · · · · · · · · · · · ·	,				
0	R	fast weathering	None	••••••				Potential sl	ope failure ar	e partly prevented,	or it is partly defended when it is	,			
gice			It corresponds.		Natural slope					s not enough for the		V			
00	le	dip slope of bedding plane	None	V			-	There is no	countermeas	sure, or there is not	effective even if countermeasures are				
ď	Structure	debris on impermeability bedrock,	marked	V			i	not perform	ned.						
	Str	the upper part is a hard /the toe of slope is	a little marked				-								
		weak.	None		[History]						[Expected size of disaster](width, length,	depth, etc.)			
		•	instability	V		Level	of disaste	er history		Check					
		Topsoil, detached rock and unsteady rock	a little unstable		There is a history abo										
ion			stability		obstacles to the road	traffic aft	er constru	ction of rec	cent measure	s. ^v					
Surface codition			notable spring waster		There is a history abo				e failures tha	t gets to					
e e		Spring water	seepage		the road though there	is no ob	stacle to ti	raffic.			W=370, L= 307m, D= 7r	m			
Infac			none	V	There is a history abo	out small	fallen roc	ks and slop	pe failures that	at did					
ß			bare land with minor vagetation	V	not get to the road.										
		Surface condition	intermediate (bare • grass • tree)	ļ	No disaster records										
			mainly structure, mainly tree												
			H≧50m	V	[Evaluation Rank]					[Description]					
			15≦H<30m 15≦H<30m		Scale of disaster	Big	N	ledium	Small		Chochang) has a history of road blo biotorical landalida, which is reactive				
file		Linischt (LI) die (i)			Risk						historical landslide, which is reactiv ally it was rockfall but now it is slop	-			
Profile		Height (H), dip (i)	H<15m i≧70°	$\left \right $	Great risk	1		2	3		deposit. Deposit comprises of som				
				V							of size >6 m3.				
			ਉਂ 45°≦i<70° i<45°		Medium risk	1		2	3	Geology	of the site is characterized by pres	ence of			
			2 or more correspondences · clarity	V						Kamila Ja	al Shear zone on backside, which r	esults in			
aly	Surfac	ce collapse, small fallen rock, gully, erosion,	certain • unclarity	+ [*]	Low risk	2		3	4	intens	e fragmentation of Kamila Amphib	olite			
l mo	fallen	free, crack open or ack, anomaly of the root,	none	<u></u> +	Organization respons	ible for o			e according	Influence on the t	raffice when potential				
Surface collapse, small fallen rock, guily, erosipri, piping hole, subsidence, heaving, bending of tree root, fallen tree, crack epen of ack, anomaly of countermeasure					to the scale of the dis		canternee		saccoruny	g Influence on the traffice when potential disaster					
L			<u> </u>		-Big: Grant aid						closed for 2 days or more				
					-Medium: Major contra	actor in F	Pakistan				d closed for 1 day or less				
					-Small: Local contract					-Low risk: no road	,				



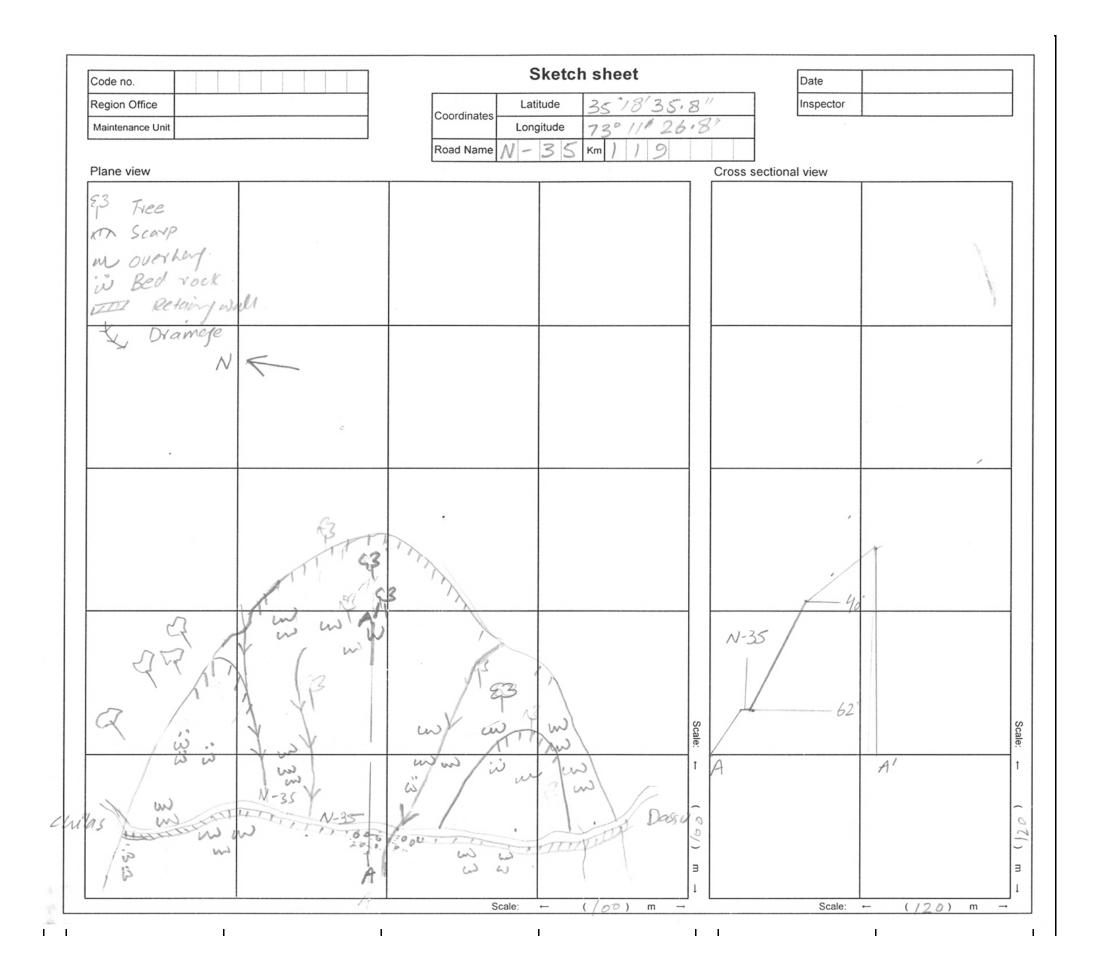
	Sat							
Code no.	N	3	5	_	1	1	6	
Region Office								
Maintenance Unit								

Coordinates	Latitude			3	5° 17' -	42.	9"	
	Longitud	le		7	3 ^o 12'	15.	5"	
Road na	ame				Km			

Date	18/12/2017
Inspector	′asir, Sajid, Shafique, Bashara

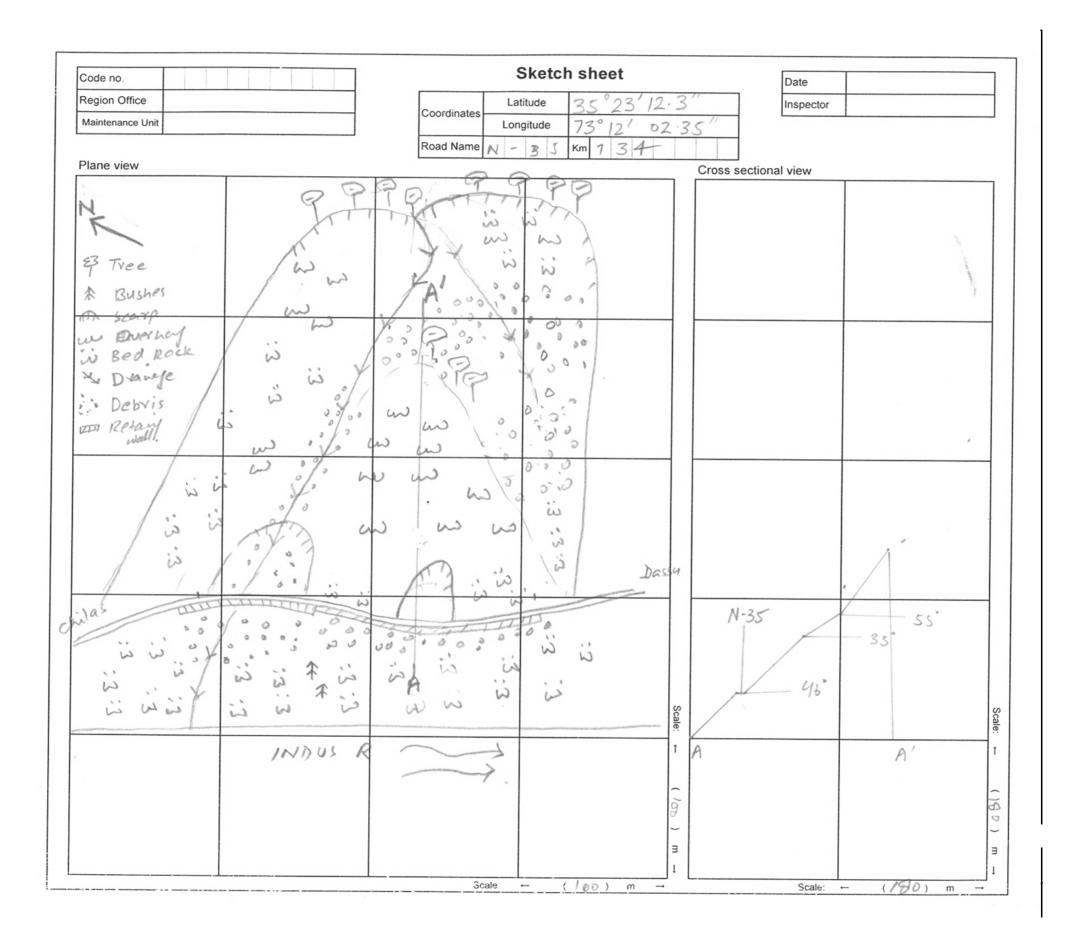


	Cod	e no. Sat _ N 3 5 _ 1 1 9		Eva	aluation	shee	et (S	lope	failure	e/Rock	kfall)	Γ	Date	2017/12/17	
F	Regio	n Office				Latit	ude	350	^{>} 18' 35	.8"			Inspector	Yasir, Sajid, Shafique, B	asharat
M	ainten	ance Unit			Coordinate	es Long	itude	730	^{>} 11' 26	.8"		L		-	
			I		Road nam	ne N3	5	Km							
[Ca	auses]													
-	tem	factor	category of score	Check					[Counter	measure]		T	6		
aphy	sed	talus slope, clear convex break of slope,	3 or more correspondences 2 correspondences	V	Disa	ster type]						туре о	fcounterme	easures	
topography	Collap fact	eroded toe of slope , overhang, water catchment slope	1 correspondences no correspondence			ock fall	\checkmark					No c	ountermeas	sures	
	_	susceptible to erosion	marked		Slope	e failure				E	ffectivene	ss of exis	ting counte	ermeasures	Check
	Soil	less strength with water	a little marked	V					Potential generated	•	e are prev	ented en	ough, or, it	is defended enough when it is	
suo			None marked	V	[Main	n check ol	bject]		0			idorobly	rovented	ar it is considerably defended	
nditi	Rock	high density of cracks and a weak layers, susceptible to erosion,	a little marked	v	Cut	t slope	\checkmark			generated.	are cons		Sievenieu,	or it is considerably defended	
Geological conditions	R	fast weathering	None		Natur	ral slope								partly defended when it is	v
logic		dip slope of bedding plane	It corresponds.		Natur				-			-		ning factors.	V
Geo	Structure		None marked	٧					There is n are not pe		ieasure, o	r there is	not effectiv	ve even if countermeasures	
	Stru	debris on impermeability bedrock, the upper part is a hard /the toe of slope is	a little marked	V											11
		weak.	None		[History]								[Expe	ected size of disaster](width, length,	depth, etc.)
			instability	V					ter history			Check			
ion		Topsoil, detached rock and unsteady rock	a little unstable stability		There is a his obstacles to t							\checkmark			
Surface codition		Spring water	notable spring waster seepage		There is a his to the road th					pe failures	that gets			W= 350m, L= 240m, D= 7	1m
irfac			none	V	There is a his		it smal	l fallen ro	cks and slo	ope failures	that did				
S			bare land with minor vagetation	V	not get to the	e road.									
		Surface condition	intermediate (bare · grass · tree) mainly structure, mainly tree		No disaster r	records									
			H≧50m	V	[Evaluation R	-						Descript			
file			ען 15≦H<30m			Scale of disaster	Big		Medium	Small	а	mphibolit	te, which is	l rockfall. Lithology at this site is highly jointed and sheared due acontrolled blasting for road exc	e to
Prof		Height (H), dip (i)	H<15m i≧70°		Great ris	sk	1		2	3	tr O	iggered t f the road	his site. In a d resulting i	addition to it, river is eroding the	e valley side towards
			<mark>ਉਂ 45°≦i<70°</mark> i<45°	V	Medium r	risk	1		2	3	p		. No counte	retaining wall towards valley sig armeasures for rockfall has bee	
na	piping	e collapse, small fallen rock, gully, erosipn, hole, subsidence, heaving, bending of tree root,	2 or more correspondences clarity certain unclarity	V	Low risł	k	2		3	4		UNSTRUCTE	iu.		
Dor	fallen	tree. crack, open crack, anomaly of ermeasure	none		Organization according to				easure wor	ks		ence on t ntial disa	he traffice v ster	when	
					-Big: Grant ai	id					-Gre	at risk: ro	ad closed f	for 2 days or more	
					-Medium: Ma			Pakistan						d for 1 day or less	
					-Small: Local	I contracto	or				-Low	risk: no	road closur	e	



ode no. Sat _ N 3 5 _ 1 1 9	Photo sheet	Date 2017/12/17
oad name N 3 5 Km	Coordinates	Inspector Yasir, Sajid, Shafique, Basharat
	Longitude 73° 11' 26.8"	
Full view of theslope failure	View of the slope failure on Valley side:	Road condition:Cut slope at the start point
Road condition:Cut slope at the end point	Existing countermeasures / anomalies: Construction of retaining wall to protect the road	View of fallen blocks

Γ	Cod	e no. Sat _ N 3 5 _ 1 3 4		Eva	aluation s	sheet	(Slo	ope f	failure	/Rock	fall)		Date		2017/12/1	8
F	Regio	n Office				Latituo	le	35 ⁰	23' 12	.3"			Inspe	ctor	Yasir, Sajid, Shafique	, Basharat
Μ	ainten	ance Unit			Coordinates	Longitu	de	730	^{>} 12' 2.3	3"			<u> </u>			
L		1	l		Road name	N 3 5	k	۲m								
[C	auses]														
	tem	factor	category of score	Check					[Countern	neasure]						
hy	eq	talus slope,	3 or more correspondences	V		_		-				Туре	of counter	neasur	es	
topography		clear convex break of slope, eroded toe of slope ,	2 correspondences		[Disaste	er type]						No	o o un to rmo			
topc	Col	overhang, water catchment slope	1 correspondences no correspondence		Rock	fall	\checkmark					INU	counterme	asules		
			marked	V			1	-		Ef	fectivene	ss of ex	isting cour	termea	sures	Check
	Soil	susceptible to erosion less strength with water	a little marked		Slope fa	ailure	N		Potential s	lope failure	are prev	ented e	nough, or,	it is def	fended enough when it is	
su			None		[Main ch	neck obje	ect]	(generated.							
Geological conditions	×	high density of cracks and a weak layers,	marked	V	Cut sl	ope	\checkmark				are cons	iderably	prevented	l, or it is	s considerably defended	
con	Rock	susceptible to erosion, fast weathering	a little marked					-	when it is g	•						
gical			None It corresponds.		Natural	slope				lope failure However, i					defended when it is actors.	V
solog	ē	dip slope of bedding plane	None	V				Ē	0			•		0	en if countermeasures	
Ğ	Structure	debris on impermeability bedrock,	marked	V					are not per		,					
	Str	the upper part is a hard /the toe of slope is	a little marked					Ŀ								
		weak.	None		[History]							-	[Ex	pected s	ize of disaster](width, length,	depth, etc.)
			instability	V					er history			Check				
L L		Topsoil, detached rock and unsteady rock	a little unstable stability		There is a histo obstacles to the							\checkmark				
Surface codition			notable spring waster		There is a histo	ry about I	arge fa	allen roc	ks and slo	pe failures t	hat gets					
e cc		Spring water	seepage		to the road thou						0			V	V= 264m, L= 360m, D= 1-	-2m
urfac			none	٧	There is a histo		small f	allen roc	ks and slo	pe failures	that did					
ທັ			bare land with minor vagetation	V	not get to the ro	ad.										
		Surface condition	intermediate (bare · grass · tree) mainly structure, mainly tree		No disaster reco	ords										
			H≧50m	V	Evaluation Rar	nk]					11	Descrip	tion1			
					Sca	le of	Die		An alivus:	0-m - "				ting fo	or road excavation trigg	ered this
ie			עניים 30≦H<50m 15≦H<30m		Risk	ster	Big	N	ledium	Small					ulite, which is highly si	
Profil		Height (H), dip (i)	H<15m		Great risk		1		2	3					ass. Slope is collecting rge catchment area, fu	
			i≧70°						9	0			into gully		•	linei
			<u>ਉ</u> 45°≦i<70° i<45°	V	Medium risk		1		2	3		, a a g	inte geny	0.00.0		
naly	piping	ce collapse, small fallen rock, gully, erosion, hole, subsidence, heaving, bending of tree root,	2 or more correspondences clarity certain unclarity	V	Low risk		2		3	4						
		tree, crack, <u>open cra</u> ck, anomaly of erme a sure	none		Organization reaccording to the				asure work	s		ence on ntial disa	the traffice aster	e when		
					-Big: Grant aid										days or more	
					-Medium: Major		r in Pa	akistan							1 day or less	
					-Small: Local co	ontractor					-Low	risk: no	road clos	ure		



Code no. Sat _ N 3 5 _ 1 3 4	Photo sheet	Date 2017/12/18
Road name N 3 5 Km	Coordinates	Inspector Yasir, Sajid, Shafique, Basharat
	Longitude 73 ^o 12' 2.3"	
Full view of the slope failure	View of slope failure on Valley side:	Road condition:Cut slope at the start point
View of the slope failure at the middle point	Existing countermeasures / anomalies: View of retaining wall as counter measure	View of fallen blocks