

GOVERNMENT OF THE PUNJAB

IRRIGATION DEPARTMENT



FLOOD FIGHTING PLAN 2024.

**EXECUTIVE ENGINEER
DRAINAGE DIVISION
MANDI BHAUDDIN.**

**SARGODHA IRRIGATION ZONE
SARGODHA**



FLOOD FIGHTING PLAN 2024
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CHAPTER-1

SALIENT FEATURES OF DRAINAGE DIVISION MANDI BHAUDDIN.

1.1 LOCATION

The jurisdiction of the Division is enclosed by Lower Jhelum Canal, River Jhelum in North, Upper Jhelum Canal & Pubby hills in East, Northern / Southern branches of L.J.C in west & River Chenab in south.

During the Flood season, the Drainage System is affected by heavy rains in pubby hills range and the catchments area of other main drains. The runoff due to these heavy rains results in spillover of the Drainage System and adjoining abadies are also effected High flood in River Jhelum & River Chenab also contributes to this by back flow and spill over in outfall reaches. The objective to formulate this plan is to reduce the effects of flooding up to the extent possible with in available resources.

The Division was created during 1976 covering five Districts namely Gujrat, Mandi Bahauddin, Jhelum, Sargodha & Mirpur (Azad Kashmir). This Division consists of three Sub Division with the Head Quarter at Mandi Bahauddin detail of which is given below:

Sr. No .	Name of Drainage Sub Divisions	District	Tehsil	Drains Length (In Miles)
1	Bahauddin Drainage Sub Division	Mandi Bahauddin/ Sargodha	Mandi Bahauddin, Malakwal, Bhalwal	259.96
2	Phalia Drainage Sub Division	Mandi Bahauddin/ Gujrat	Phalia, Gujrat	206.65
3	Rasul Drainage Sub Division	Mandi Bahauddin, Gujrat, Jhelum & Mirpur	Mandi Bahauddin, Kharian, Sarai Alamgir, Mirpur	176.19
Total=				642.80

1.2 GENERAL DESCRIPTION

The Drainage Net work consisting of Main Drains, Branch Drains and Tributary Drains having length of 642.80 Miles exist in the Division. There are 11 No's major Drainage Systems existing in the Division which are capable to cater for a total discharge of about 7609 Cs: resulting from seepage and surface run-off from their catchments areas, out failing into River Chenab and River Jhelum. The details are as follows: -

CHENAB BASIN.

Sr. No.	Drainage System.	Discharge.
1	Miana Gondal Drainage System.	560 Cs
2	Bhekho Drainage System	830 Cs
3	Bhudhi Nallah Drainage System including P.R.K. Drainage System.	4200 Cs
4	Halki Nallah Drainage System.	100 Cs
5	D-1, D-2 & D-3 Drainage System	70 Cs
6	Dhunni Drain, Majra , Chakrian and Mojianwal Drain (independent Drainage System)	307 Cs
Total		6067 Cs

JHELUM BASIN.

Sr.No.	Drainage System.	Discharge.
1	Mona Bhera Drainage system	750 Cs
2	Haria Drainage System	400 Cs
3	Bahauddin Kot Baloach Drainage System.	350 Cs
4	Malakwal Drainage System (UJC) parallel Drainage System U/S and D/S Khokhra Heaed Works.	42 Cs
5	Parallel Drains along UJC	N/A
Total		1542Cs
Grand Total		7609 Cs

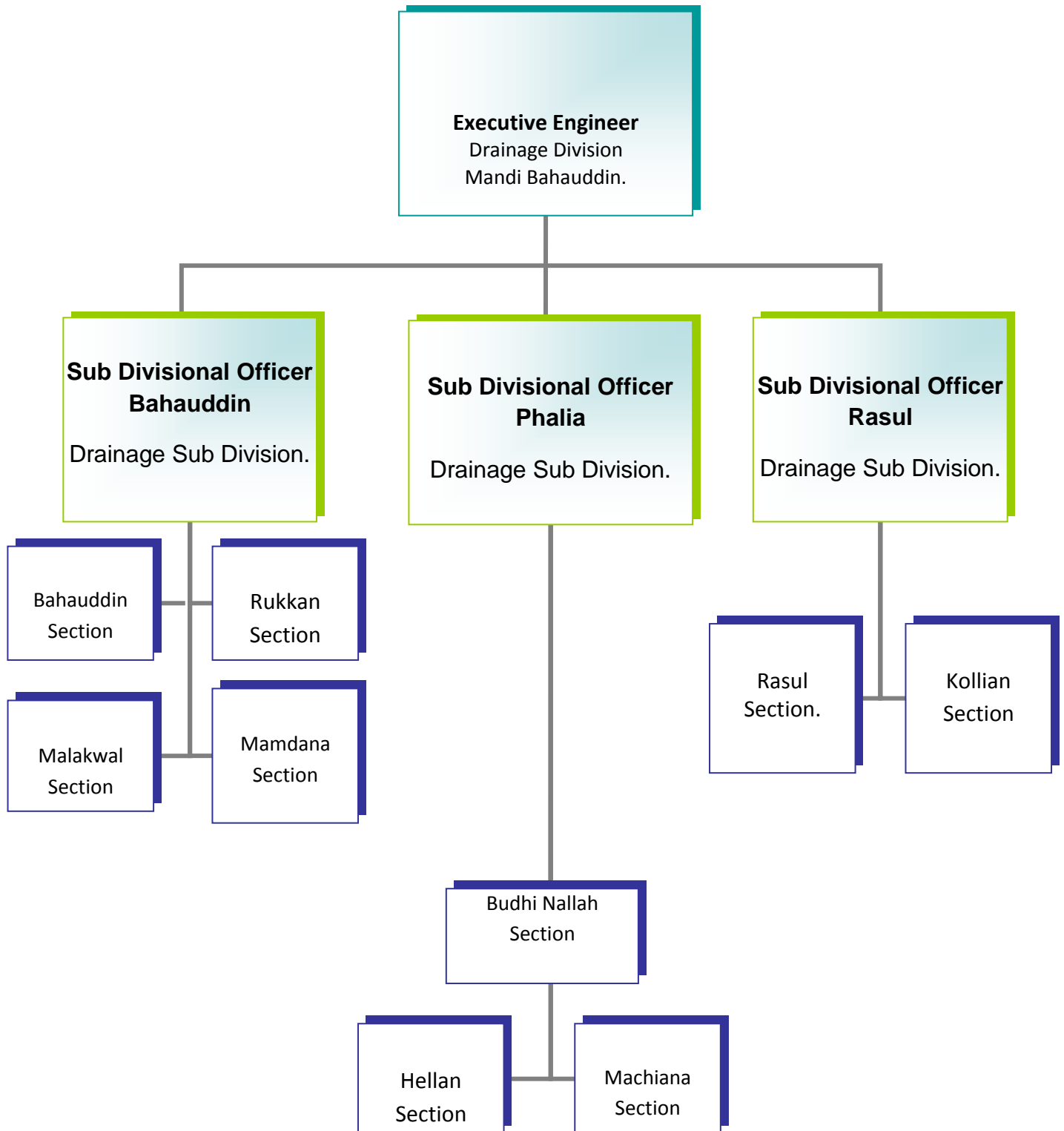
Presently there are 11 Nos. Drainage System in Drainage Division Mandi Bahauddin:-

Sr.No.	Name of System.	Length (In Miles)	Capacity (In Cs).
1	Bhudhi Nallah Drainage System including P.R.K. Drainage System.	264.73	4200
2	Bhekho Drainage System	98.48	830
3	Mona Bhera Drainage system	68.69	750
4	Miana Gondal Drainage System	40.56	560
5	Malakwal Drainage System	6.40	42
6	Bahauddin Kot Baloach Drainage System.	22.11	350
7	Haria Drainage System.	22.92	400
8	Halki Nallah Drainage System.	9.86	100
9	D-1, D-2 & D-3 Drainage System	5.28	70
10	Independent Drains.	27.91	307
11	Parallel Drains along UJC	60.00	NA

1.3 ADMINISTRATIVE SETUP.

Sr.No.	Name of Drainage Sub Divisions	District	Tehsil	Drains Length (In Miles)
1	Bahauddin Drainage Sub Division	Mandi Bahauddin/ Sargodha	Mandi Bahauddin, Malakwal, Bhalwal	259.96
2	Phalia Drainage Sub Division	Mandi Bahauddin/ Gujrat	Phalia, Gujrat	206.65
3	Rasul Drainage Sub Division	Mandi Bahauddin, Gujrat, Jhelum & Mirpur	Mandi Bahauddin, Kharian, Sarai Alamgir, Mirpur	176.19
			Total=	642.80

ORGANIZATION CHART
DRAINAGE DIVISION MANDI BHAUDDIN.





CHAPTER-2

FLOOD PROTECTION AND RIVER TRAINING WORKS

2.1 DESIGN PARAMETERS OF RIVER TRAINING WORKS

Apart from Maintenance of Drainage System this Division is responsible for maintenance of 3 flood bunds with detail as under:

Sr. No	Name of Bund	Length of Bund	Top width	Side slopes	Free Board from H.F.L	Remarks
1	Flood Embankment along Mona Bhera Drain.	35000 ft	20 ft	2:1 on Either side	5 ft	–
2	Malakwal Flood Bund.	3500 ft	12 ft	2:1 on Either side	5 ft	–
3	Flood Bund along Budhi Nallah Drain RD.0-18500.	18500 ft	25 ft	2:1 on Either side	5 ft	–

2.2 LOCATION MAP

LOCATION MAP





CHAPTER-3

BREIF HISTORY OF PAST FLOOD EVENTS

The brief description of each major system affected by the flood is under: -

a. P.R.K DRAINAGE SYSTEM.

The P.R.K Drainage system comprises of 16 No. Tributary Drains along with P.R.K Main drain. The P.R.K main drain starts from pubby hills and has discharge at outfall as 2750 Cs and Bed width 100 feet. In addition to its out fall structure, there is an intake structure on R.Q.Link with intake capacity of 16000 Cs to meet with flood situations. During almost every flood season, P.R.K has to accommodate 4 to 5 times more than its designed discharge which results into over topping of said drain at RD. 62-63, 40-41 & 88-89. The Sub Divisional Officer Rasul Drainage Sub Division manages Gangs to fight emergencies like removal of obstructions under neath the bridges causing hindrance to flow. Exceptionally high flood almost each year spill over which is beyond control. The spilled over water inundates the adjoining abadies of P.R.K Drainage System. Fall cum V.R. Bridge, RD.50495, 40388, Bridge RD 7100 were damaged in past flood. Also heavy discharge at Syphon of R.Q.Link results in the stagnation of water due to low capacity of system. The heading up here inundates lot of area in the upper reach.

b. MONA BHERA DRAINAGE SYSTEM.

Mona Bhera Drainage system consists of 8 No. tributary drains along with left Bund Mona Bhera main drain with discharge capacity of 750 Cs at out fall. Bed width is 28 feet at out fall and 4.00 feet at source. RD. 0-19000, in addition to carrying storm water also acts as flood protection bund to protect Bhera Town. For this purpose N.H.A constructed flood bund during construction of Motorway. At that time, they constructed the Bridge section along River Jhelum, which resulted the heading up of water in the above mentioned reach. Moreover Flood Bund was raised up to 18 feet but existing structures were not raised accordingly, resulting into breaches at various sections i.e. RD. 6295, RD.7227, RD.8653, RD.10125, RD.12314, and RD.19071. To cope with above mentioned situations flood fighting material and labour is arranged every year. During previous Moon Soon season an over flow at RD. 36000 - 75000 was experienced. The drain water caused huge loss to standing crops / villages / structures on the said drain. To control the havoc situation during flood, it is proposed to strengthen and raise the both banks of said drain up to H.F.L with 5.00 feet free board.

c. **MALAKWAL DRAIN.**

Left Bank of Malakwal drain in reach RD. 0-3500 is maintained as flood

Embankment to save Malakwal Town. The length of flood embankment is 3500 feet having top width 12 feet with side slop 2:1 on either sides. This flood Bund experienced exceptionally high floods especially during flood 1992, resulting in breaches at various sections and standing of flood water in Malakwal Town to a depth of 7-8 feet. Committee comprising of Superintending Engineer Maisi and Executive Engineer Faisalabad inspected the site during 1996-97 and recommended to extend the existing flood bund from RD. 3500 to 19500 to tie up the said bund with Victoria Bridge Chak Nizam District Sargodha. PC-I has already been submitted to concerned quarter for model study. An amount of Rs. 300000/- has already been deposited to Nandi Pur Irrigation Research center.

d. **BUDHI NALLAH DRAINAGE SYSTEM.**

Budhi Nallah Drainage system was remodeled by WAPDA during 1977. It covers a lot of catchment area right from U.J.C up to Qadirabad Town, being outfall for P.R.K Drainage System at RD. 99000 of R.Q.Link through a Syphon. As independent system it consist of 19 No. drains in addition to main drain with discharge capacity of 4200 Cs and Bed Width of 130, at outfall. This drain consist of heavy structures and protects huge area against flood during Monsoon. The back water flow of River Chenab causes damages in various reaches in the shape of bank erosion especially at RD. 0-65000 of Budhi Nallah and RD. 0-18500 of Budhi Nallah outfall drain. During flood 1995 two breaches occurred and Budhi Nallah Flood Bund Damaged between RD. 3+000-4+000, 6+000-7+000 & 13+000-18+500 during Flood Season 2014.



CHAPTER-4

DESIGN DATA HISTORIC PEAK FLOOD DATA AND PREVIOUS 5 YEARS FLOOD DATA OF HEAD WORKS/ BARRAGES AND OR OTHER CONTROL POINTS.

4.1 FLOOD LIMITS FIXED BY FLOOD COMMISSION .

FLOOD LIMITS	RIVER JHELUM	RIVER CHENAB
	Discharge Ranges (Cusecs)	
Low Flood	75,000-1,10,000	1,10,000-1,50,000
Medium Flood	1,10,000-1,50,000	1,50,000-2,25,000
High Flood	1,50,000-2,25,000	2,25,000-3,00,000
Very High Flood	2,25,000-3,00,000	4,00,000-6,00,000
Exceptionally High Flood	Above 3,00,000	Above 6,00,000

4.2 TIME LAGS OF FLOODS

The flood from Mangla to Railway Bridge Jhelum reaches in a seven hours after traversing a distance of 20 miles whereas from Railway Bridge to Rasul Barrage is also seven hours.

4.3 HIGHEST FLOODS (River Jhelum at Rasul)

Date	Discharges (Cs)	Pond Level (ft.)
02-07-1959	8,70,000	719.00
11-07-1960	8,60,000	721.80
10-09-1992	9,52,170	721.70
27-08-1997	5,49,598	716.00
06-09-2014	5,16,387	720.40

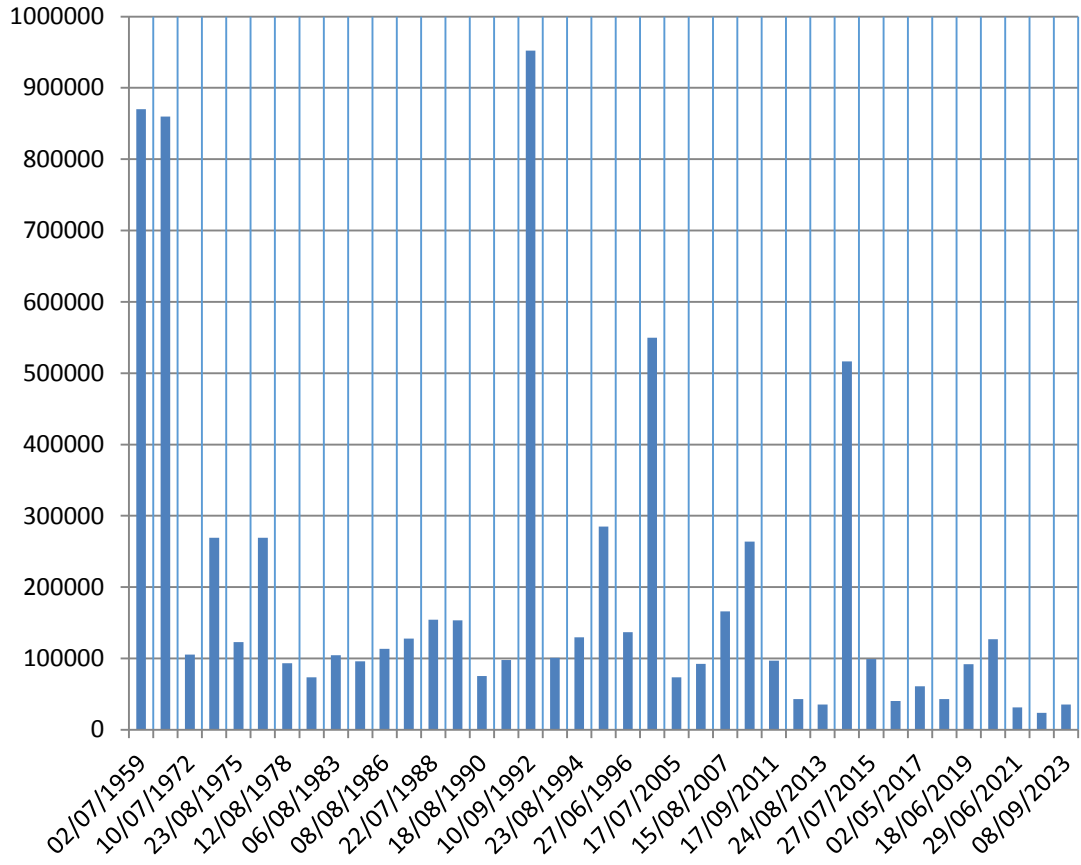
4.4 PEAK DISCHARGES

Date	Discharges (Cs)	Pond Level (ft.)
11-07-1960	8,60,000	721.80
10-07-1972	1,05,150	716.00
09-08-1973	2,69,330	716.80
23-08-1975	1,23,034	715.00
04-08-1976	2,69,330	715.00
12-08-1978	93,382	719.00
19-08-1980	73,583	719.00
26-07-1981	1,04,424	716.00

06-08-1983	97,251	719.00
15-08-1984	95,905	719.00
08-08-1986	1,13,528	717.00
12-06-1987	1,27,950	717.00
22-07-1988	1,54,389	718.00
01-08-1989	1,53,174	718.00
18-08-1990	75,259	719.00
11-06-1991	97,704	719.00
10-09-1992	9,52,170	721.70
14-07-1993	1,00,998	718.00
23-08-1995	1,29,392	717.00
28-7-1994	2,85,071	715.00
27-06-1996	1,36,712	716.00
27-08-1997	5,49,598	716.00
18-05-1998	73,597	719.00
17-07-2005	92,246	719.00
13-07-2006	1,65,947	720.85
15-08-2007	23,608	719.00
03-05-2008	27,515	719.00
16-08-2009	69,952	719.10
30-07-2010	2,63,795	718.00
17-09-2011	96,864	718.00
05-08-2012	43,135	719.00
24-08-2013	35,325	719.00
06-09-2014	5,16,387	720.40
27-07-2015	99,103	718.20
30-08-2016	40,425	718.10
02-05-2017	60,723	719.20
02-10-2018	43,135	719.20
18.06.2019	91,904	719.20
26.03.2020	91,904	720.40
02.06.2021	31,420	716.00
16.06.2022	23610	719.10
08-09-2023	35325	719.00

HISTORICAL PEAK FLOOD DISCHARGES AT RASUL BARRAGE

Discharge in Cusecs





CHAPTER-5

FLOOD FIGHTING STRATEGY

a. P.R.K Drain.

Upper reach of this drain falls in the control of two Sub Engineer i.e. Rasul and Kolian section of Rasul Drainage Sub Division, while lower reach in Hellan section of Phalia Drainage Sub Division.

The structure of P.R.K in Kolian Drainage Section at RD.31 (U/S) particularly suffered damage, due to rain/flood during the year 2011-12. This reach will be watched particularly during high flood. The existing establishment will watch the structure of P.R.K Drain Extra requirement for men and material is explained in the next chapter.

b. MONA BHERA DRAINAGE SYSTEM.

Flood camps will be set up at RD.6-8 and RD.19 Mona Bhera Drain during coming flood season to control any emergent situation. Sub Engineer Malakwal section whose Headquarter is at Malakwal embankment will control the situation also with the help of his sectional establishment and work charge establishment (in case of emergency) in coming flood season

c. MALAKWAL DRAIN.

Flood camps will be set up at RD. 3500 Malakwal Drain during coming flood season to control any emergent situation. Malakwal drain will be looked after by Sub Engineer Malakwal section, whose Headquarter is at Malakwal and he will also supervise embankment along drain with the help of his sectional establishment and work charge establishment (in case of emergency) in coming flood season.

d. BUDHI NALLAH DRAIN.

In view of last experience, it is essential that watching be carried out in case there is spill of River Chenab. Flood camp will be set up at RD-0 of Budhi Nallah and the Sub Engineer Budhi Nallah Section will supervise the operation during high flood, with the help of regular / work charge establishment.

e. BHEKHO OUTFALL LOWER DRAIN.

As experienced during the previous years, the bank of Bhekho outfall lower drain in reach RD. 0-10000 remain under the direct hit of spill of the River Chenab. This will also be required to be kept under constant watch and Sub Engineer Mamdana will take care of the activities pertaining to flood in case of emergency (Very High Flood).

CHAPTER-6

FLOOD DAMAGES RESTORATION WORKS

Flood flows passed during different years in both the rivers have affected the following systems. These systems were repeatedly damaged / over topped since the year 1976. The damages occurred to system were restored under M&R grant and also flood damages restoration project. No major flood restoration work has been executed during last year at any Flood Bund in Drainage Division Mandi Bahauddin.

- i) P.R.K Drainage System.
- ii) Mona Bhera Drainage System.
- iii) Budhi Nallah Drainage System.
- iv) Bhekho Drainage System.
- v) Malakwal Drainage System.

The details regarding damages & flood restoration project since 1992 summarized as under: -

FLOOD OF 1992.

- i) **MONA BHERA DRAIN.**
Extra ordinary high flood of 1992 effected banks from RD. 0-48 with Pacca structure i.e. V.R. Bridge RD. 6214, 8658 & 5 no. Inlets were damaged which were repaired under flood restoration project 1992.
- ii) **MALAKWAL DRAIN / FLOOD BUND.**
This Bund was affected from RD.0-3500 due to exceptionally high flood 1992, which was repaired under Flood Restoration Project.
- iii) **BAHAUDDIN KOT BALOACH DRAINAGE SYSTEM.**
Bahauddin Outfall Drain RD. 0-8300 and Kot Baloach Drain RD. 0-60000 were seriously damaged and were repaired under flood restoration damages project 1992.
- iv) **BHEIKHO DRAINAGE SYSTEM**
Extra ordinary flood from River Chenab during 1992 damaged the banks of Bhekho outfall Drain RD. 0-25. Beside this, stone pitching at outfall part was also damaged, which was under taken in flood restoration works.
- v) **BUDHI NALLAH DRAIN.**
The bank of Budhi Nallah outfall drain RD. 0-18500 was damaged. The reach RD. 0-10 was also affected, which was restored under flood restoration 1992.
- vi) **P.R.K DRAIN.**
The extra ordinary rains in the catchments and the back water of R.Q.Link damaged the bank from RD. 110-111 & also V.R. Bridge RD 63-72 along with some inlets. These works were taken under the flood restoration 1992.

FLOOD 1995.

- i) **MONA BHERA DRAIN.**
There was extra ordinary rain water and back water in River Jhelum. Caused breach at RD. 7-8 left Mona Bhera Drain, which effected the Bhera Town and also adjoining abadies bank at RD. 0-19. This work was taken under Para 2.89 P.W.D code and was completed accordingly.
- ii) **BHIKHO DRAINAGE SYSTEM.**
Due to supper flood in River Chenab the Bank of Bhekho outfall lower drain RD. 0-10 was damaged besides the sloping spur. Mole head & pitching were also damaged. Some huge cuts in flood embankment were also occurred at the outfall drain, which were restored under Para 2.89 P.W.D code accordingly.

FLOOD SEASONS 2018.

No flood damages restoration work was carried out during the year 2018. Only 43135Cs water has been passed Down Stream of Rasul Barrage during Flood season. However, normal repair works such as rain cuts and gharas have been carried out partially.

FLOOD SEASONS 2019.

No flood damages restoration work was carried out during the year 2019. Only 91904Cs water has been passed Down Stream of Rasul Barrage during Flood season.

FLOOD SEASONS 2020.

No flood damages restoration work was carried out during the year 2020. Only 91904Cs water has been passed Down Stream of Rasul Barrage during Flood season.

FLOOD SEASONS 2021.

No flood damages restoration work was carried out during the year 2021. Only 31420 Cs water has been passed Down Stream of Rasul Barrage during Flood season.

FLOOD SEASONS 2022.

No flood damages restoration work was carried out during the year 2022. Only 23610 Cs water has been passed Down Stream of Rasul Barrage during Flood season 2022.

FLOOD SEASONS 2023.

No flood damages restoration work was carried out during the year 2023. Only 35325 Cs water has been passed Down Stream of Rasul Barrage during Flood season 2023.



CHAPTER-7

FLOOD FIGHTING WATCHING ARRANGEMENT

7.1 PRE FLOOD ARRANGEMENT

The necessary repairs of the flood bund works will be carried out before start of flood season. Moreover, arrangements to establish flood camps will be ensured and deficient quantity of flood fighting material and equipment will be procured before time for watching during flood season.

The flood fighting material will be kept in stores which are located in the premises of Canal Colony at Mandi Bahauddin under the control/ custody of the Sub Engineers concerned.

7.2 WATCHING ESTABLISHMENT

Following watching establishment will be engaged during the flood season for watching and general maintenance of flood works on monthly basis. However, in case of very high flood or in real emergency, the strength of watching establishment will be increased with the express permission of Executive Engineer, Drainage Division Mandi Bahauddin.

Site	LENGTH	Flood Limits											
		Normal Flood Stage		Low Flood Stage		Medium Flood Stage		High Flood Stage		Very High Flood Stage		Exceptionally High Flood Stage	
		1 Man per mile per shift		2 Man per mile per shift		3 Men per mile per shift		4 Men per mile per shift		6 Men per mile per shift		9 Men per mile per shift	
		Man	Shift	Man	Shift	Man	Shift	Man	Shift	Man	Shift	Man	Shift
Mona Bhera Flood Bund.	6.628 (Mile)	No Extra Labour will be employed		The Flood water flows within River bank No extra labour will be employed		21	3 Shift	28	3 Shift	42	3 Shift	63	3 Shift
Malakwal Flood Bund.	0.662 (Mile)					3	3 Shift	4	3 Shift	6	3 Shift	9	3 Shift
Budhi Nallah Flood Bund.	3.503 (Mile)					12	3 Shift	16	3 Shift	24	3 Shift	36	3 Shift
Total=						36		48		72		108	

Sr. #.	Name of drain.	Reach Likely to spill.	Name of village likely to be effected.	Drainage Sub Division	Civil Sub Division.	Battle Station.
1.	Mona Bhrea drain.	RD.0-19/L & R.& 38-48/L & R	Bhera Town, Hajka, Pindi Hattar& Rakh Bher pur.	Bahauddin Drainage Sub Division.	Bhalwal & Mandi Bahauddin.	RD.5-6
2	Malakwal drain.	RD.0-35 /L & R	Malakwal	Bahauddin Drainage Sub Division	Malakwal.	RD.-1
3	Budhi Nallah Drainage System.	RD.0-65000	Qadirabad, Saida & Jaggo	Phalia Drainage Sub Division	Phalia	RD.18500
4	Main Phalia Drain.	RD.16000-17500/L & R.	Phalia Town	-do-	-do-	RD.16500
5	Bheikho Drainage System	RD.0-25000	Miana Hazara & Takhat Hazar etc.	-do-	-do-	RD.0
6	P.R.K drain	RD.0-10 & RD.40-60 & RD.78-88	Addosarwani, Sheikh pur, Haslanwala, Chak Lashkari, Wariachanwala.	Rasul & Phalia Drainage Sub Division	i.Phalia & Kharian.	RD.88

7.3 ARRANGEMENT AT SENSATIVE SITE

Necessary flood fighting material will be kept ready at vulnerable site as per item 7.4.

7.4 WATCHING MATERIAL.

Sr. No.	Item	Required Qty	Available Qty.	Balance	Remarks
1	Gunny bags / F.C.Bags	1000 No.	400 No.	600 No.	
2	Sutli	10 Kg	03 Kg	07 Kg	
3	Axes with Handles	30 No.	10 No.	20 No.	
4	Sewing needles	50 No.	----	50 No.	
5	Kassies with Handles	75 No.	20 No.	55 No.	
6	Killas	100 No.	30 No.	70 No.	
7	LED Torches	10 No.	02 No.	08 No.	
8	Umbrella	20 No.	6 No.	14 No.	
9	Polythene Bags (50Kg)	2000 No.	200	1800	
10	Ballies 10 ft long	100 No.	----	100 No.	
11	Baskets	150 No.	25 No.	125 No.	
12	Manila rope	200 lft	-----	200 lft	
13	G.I Wire	150 kg	50 kg	100 kg	
14	Wooden Mallets	10 No	02 No.	08 No.	
15	Rubber Gum Shoes	30Pairs	--	30Pairs	
16	Rain Coats	30 No.	6 No.	24 No.	
17	Mosquito Nests	20 No.	--	20 No.	
18	Bamboo	100 No.	20 No.	80 No.	
19	Life belts / Jackets	20No.	05 No.	15 No.	
20	Water Glasses	50 No.	10 No.	40 No.	
21	Water Cooler Large)	05 No.	1 No	04 No.	
22	Tea Sets	3 No.	--	3 No.	
23	Search Lights (100 W)	03 No.	--	03 No.	
24	Portable generators	2 No.	---	02 No.	
25	Plastic Chair with Table	03 Set		03 Set	
26	Tents	3 No.	1 No.	2 No.	
27	Super Petrol for running Generator	200 Litre	--	200 Litre	
28	Polythene Bags (500Kg)	200 No.	--	200 No.	
29	Polythene Bags (1000Kg)	150 No.	--	150 No.	
30	Black Polythene Sheet	15000 Sft	--	15000 Sft	
31	Lanterns	10 No.	02 No.	08 No.	
32	Kerosene oil	20 ltre	---	20 ltre	
33	Match Boxes	05 Dozen	01 Dozen	01 Dozen	
34	Patha Ban	50 kg		50 kg	

7.5 ARRANGEMENT FOR SOUNDING AND PROBING

This item relates to barrage / Head works & Canal Divisions.

7.6 LIGHTING ARRANGEMENT

Sufficient number of emergency lights, lanterns and patromaz lamps has already been provided. Petrol Generators has been arranged and made available for lighting arrangements.

7.7 RATION ARRANGEMENT

It is the responsibility of District Administrator Department to provide the ration arrangements.

7.8 POL ARRANGEMENT FOR VEHICLE

Respective Deputy District Office (Revenue) will be requested by the Sub Divisional Officer incharge to provide help for reserve at the nearest Petrol Pumps to keep the vehicles on. Any obstruction found there, will be pointed out by the Sub Divisional Officer.

7.9 TRANSPORTATION

Already allocated vehicles to the Division will be used during flood season. In case of exceptionally high flood in River Jhelum, District Coordination Officer, will be requested to supply additional vehicles for the Supervisory staff and for transportation of labour as well as flood fighting material to the sites of work.

7.10 LAW AND ORDER

There is no likelihood of any interruption by any one except cutting of banks of channels to reduce heading up. In case of necessity, District Coordination Officer Mandi Bahauddin will be contacted by the Executive Engineer Drainage Division Mandi Bahauddin to take decision at site and Sub Divisional Officer Bahauddin / Phalia will seek the help of Deputy District Officer, Revenue / Assistant Commissioner Mandi Bahauddin in case of emergency.

7.11 MEDICAL ARRANGEMENT FOR LABOUR

It will be responsibility of Health Department to provide Medical Facilities in flood areas.

7.12 LIAISON WITH OTHER DEPARTMENTS

Executive Engineer Drainage Division Mandi Bahauddin will keep liaison with the Civil and Army Authorities and will keep the Superintending Engineer L.J.C Jhelum fully apprised of the flood situation in Drainage Division.

7.13 ROLE OF ARMY

Liaison with the Army Authorities will be maintained during floods and if required necessary help will be sought at appropriate level.

7.14 DUTIES OF TELEPHONE ATTENDANT

Permanent telephone attendants are already available in the office of the Executive Engineer Drainage Division Mandi Bahauddin for communication of urgent messages.

Sr. No	Name of Telephone Attending Official	Contact No.	During	
			From	To
1	Anwar ul Haq	0546-506302	9:00 Am	3:00 Pm
2	Abdul Rehman	0546-506302	3:00 Pm	08:00 Pm
3	Iftikhar Ahmed	0546-506302	8:00 Pm	10:00 Pm
4	Naveed Aslam	0546-506302	10:00 Pm	6:00 Am
5	Farooq Ahmad	0546-506302	6:00 Am	9:00 Am

Permanent telephone attendants are already available in the office of the Executive Engineer Drainage Division Mandi Bahauddin for communication of urgent messages.

7.15 WIRELESS ARRANGEMENT

Wireless system will be installed w.e.f. 01.06.2024 in the vehicle of Executive Engineer Drainage Division Mandi Bahauddin No.SGQ-780, Sub Divisional Officer Phalia Drainage Sub Division Suzuki MIA-7362 & Sub Divisional Officer Bahauddin Drainage Sub Division Jeep No.GTB-7195.



CHAPTER-8

DETAIL OF ENCROACHMENT

There is no encroachment on flood bunds of Drainage Division Mandi Bahauddin.

Total Encroachments	Removed Encroachments	Balance Encroachments
NIL	N/A	NIL



CHAPTER-9

DUTY ROSTER OF FLOOD/ FLOOD FIGHTING PROGRAM.

Key Personal	Battle Stations	Drains & Flood Embankments	Name of Drainage Sub Division.
Sub Engineer Hellan	RD-0	P.R.K drain	Phalia Drainage Sub Division.
Sub Engineer Kolian	RD.88	P.R.K Drain	Rasul Drainage Sub Division
Sub Engineer Malakwal	RD.5-6	Mona Bhera Flood Embankment	Bahauddin Drainage Sub Division
Sub Engineer Malkwal	RD.19	Mona Bhera Flood Embankment	Bahauddin Drainage Sub Division.
Sub Engineer Mamdana	RD.0	Bheikho Outfall Lower drain.	Bahauddin Drainage Sub Division
Sub Engineer Budhi Nallah.	RD.18500	Bheikho Outfall Upper drain.	Phalia Drainage Sub Division
Sub Engineer Budhi Nallah	RD-0.	Bheikho Outfall Upper drain	Phalia Drainage Sub Division
Sub Engineer Budhi Nallah	RD.16500	Main Phalia Drain.	Phalia Drainage Sub Division

 **CHAPTER-10**
EMERGENCY TELEPHONE NUMBERS.

Sr. No.	Designation	Office	Residence / Mobile
1.	Minister Irrigation.	042-99212809-10	042-99212809-10
2.	Secretary, Irrigation.	042-99212117 042-99212118	042-99201053
3.	Additional Secretary (Tech :)	042-99212128	042-99212128
4.	Additional Secretary (OP)	042-99212123	042-99212123
5.	Deputy Secretary (Admn)	042-99212224	042-99212224
6.	Deputy Secretary (OP)	042-99212127	042-99212127
7.	Deputy Secretary (Dev)	042-99212129	042-99212129
8.	Section Officer Flood	042-99212134	042-99212134

SARGODHA IRRIGATION ZONE

1.	Chief Engineer, Irrigation Sargodha	048-9230445	048-9230451 0322-4486727
2.	Executive Engineer (OP), Sargodha	048-9230446	048-3740050 0302-9079639
3.	Superintending Engineer, Drainage Circle Sargodha	048-9230450	0300-7743313
4.	Executive Engineer, Drainage Divn: M.B.Din.	0546-506302	0333-4915939
5.	Executive Engineer, Rasul LJC Divn: Rasul.	0546-553211	0340-7159459
6.	Sub Divisional Officer Phalia Drainage Sub Division M.B.Din	0546-506302	0308-6289786
7.	Sub Divisional Officer, Bahauddin Drg: Sub Divn:	0546-506302	0308-6289786

DISTRICT ADMINISTRATION M.B.DIN

1.	Deputy Commissioner M.B Din	0546-504220	0546-504200
2.	District Police Office M.B Din	0546-502324	0546-502324
3.	District Officer Revenue M.B Din	0546-506488	0546-506488
4.	District Flood Control Officer M.B Din	0546-504220	0546-504220
5.	Assistant Commissioner Mandi Bahauddin.	0546-503850	0546-503850
6.	Assistant Commissioner Malikwal	0546-591276	0546-591276
7.	Assistant Commissioner Phalia	0546-596460	0546-596460
8.	Rescue 1122 Mandi Bahauddin	1122	1122

FLOOD CONTROL CENTRE PUNJAB, LAHORE

1.	Flood Warning Centre 46- Jail Road Lahore	042-7572091-93	042-7572092
2.	Flood Cell I & P Secretariat Lahore	042-9212147	Fax:9212116
3.	Flood Emergency Board of Revenue	042-9204408	042-9210555
4.	Chief Engineer D & F Lahore	042-99233551 042-35291304	042-99233551
5.	Director Flood D & F Zone Lahore	042-99231614	042-99231614

MILITARY ENGINEER'S TELEPHONE NUMBERS

1.	Headquarter Engineer 30-Corps Gujranwala Cantt.	0553-269/2353
2.	11-Engineer Battalion Sialkot Cantt.	052-571/5186
3.	Headquarter Engineer 1-Corps Kharian Cantt	053-59/2364



CHAPTER-11

STANDARD OPERATING PROCEDURE (SOP) FOR BREACHING SECTION.

11.1 HISTORY OF BREACHING SECTION

There is no breaching section in this Division.

11.2 LOCATION, DESIGN, QUALITY AND VARIETY OF THE EXPLOSIVE REQUIRED FOR DETONATION

Not applicable.

11.3 ARRANGEMENT OF EXPLOSIVE AND SECURITY OF EXPLOSIVE STORES

Not applicable.

11.4 LIST OF THE SECURITY STAFF ALONGWITH DETAIL OF THEIR TRAINING ETC.

Not applicable.

11.5 DETAIL OF MACHENICAL MEANS AS A STANDBY ARRANGEMENT IN CASE OF DETONATION FAILURE.

Not applicable.

11.6 DUTY ROSTER IN CASE OF CRITICAL SITUATION

Not applicable.

11.7 BREACHING COMMITTEE WITH THEIR ACTION PLAN

Not applicable

11.8 **LIST OF THE VILLAGES LIKELY TO BE INUNDATED IN CASE OF BREACH**

Not applicable.

11.9 **ANNOUNCEMENT AND DETAIL OF EVACUATION ARRANGEMENT**

Not applicable.

11.10 **DETAIL OF COORDINATION WITH CIVIL / ARMY AUTHORITIES.**

Not applicable.

11.11 **PARALLEL COMMUNICATION ARRANGEMENTS.**

Not applicable.

11.12 **INDEX PLAN.**

Copy attached.....

Sub Divisional Officer
Bahauddin Drainage Sub Division
Mandi Bahauddin.

Sub Divisional Officer
Phalia Drainage Sub Division:
Mandi Bahauddin.

Executive Engineer
Drainage Division
Mandi Bahauddin

Superintending Engineer
Sargodha Drainage Circle
Sargodha.

Chief Engineer
Irrigation Sargodha Zone
Sargodha.

PART-B

CHAPTER-12

VULNERABLE SITES ON FLOOD BUNDS/ STRUCTURES

12.1 APPREHENDED BREACH SITES IN FLOOD BUNDS/ STRUCTURES

There are following critical sites of flood bund where there is apprehension of any mishap due to flood in River Jhelum / Chenab.

1. Mona Bhera Flood Bund between RD.5-8.
2. Malakwal Flood Bund RD.0-3+500.
3. Budhi Nallah Flood Bund between RD.3-4, 6-7 & 13-18+500.

12.2 OPERATION OF BREACHING SECTIONS

There are no breaching sections in drainage division Mandi Bahauddin.

12.3 BREACHES DUE TO RISE OF WATER, DETERIORATION OF FLOOD BUNDS

No such occurrence.

EMERGENCY CONTINGENCY PLAN FOR VULNERABLE SITES LISTED ABOVE.

EMERGENCY CONTINGENCY PLAN FOR SITE

NO.1 (MONA BHERA FLOOD BUND RD.5-8).

13.1 PLAN SHOWING ROUTE OF FLOOD WATER COMING OUT OF THE BREACH SUPPORTED WITH LEVELS.

Plan Showing route of Flood water coming out of the breach for site No.01 i.e RD.5+000 to 8+000 plan attached at page 35.

Annexure-A.

MONA BHERA FLOOD BUND.

13.2 DETAIL OF VILLAGES ABADIES LIKELY TO BE AFFECTED (TO BE SHOWN ON THE MAPS), THE EXTENT AND DEPTH OF ANTICIPATED INUNDATIONS, EMERGENCY PROTECTION MEASURES AND EVACUATION PLAN.

The tentative area inundated by the flood water will be 40 square KM as shown on attached plan at Annex – “A- Villages/Abadies are as under:-

Hjka, Ali Pur Syedan, Bhera, Fateh Ghar, Islam Pur Lokri, Gaga, Chant, Thai, Warah, Khrhn, Kot Ahmed Khan Qauehat, Gund Pur, Miani, Khurd Kot & Hazur Pur.

13.3 STRATEGY AND ACTION TAKEN BE EXPLAINED IN DETAIL.THIS MAY INCLUDE

Mona Bhera Flood Bund fall in Malakwal section constructed by NHA for the protection of Bhera City along left bank of River Jhelum, which are safe against high Flood in river Jhelum.

Due to high flood in River Jhelum backwater effect / flooded water spread in the adjoining areas along Mona Bhera Flood embankment.

In case of High / exceptionally high flood in River Jhelum, mishap may occur at Mona Bhera flood embankment RD.5+000-8+000 and Flood water may enter and damage Bhera Town, Fateh Ghar, Ali Pur Syedan, Hajka Sharif, Alampur, villages and inhabitants of these villages will have to face problematic situation. Therefore special attention should be paid for protection of Bund / Structures.

13.3.1 ARRANGEMENTS.

In view of the experience of the past flood history day & night watching will required to control the flood situation during rainy season.

Constant vigilance and caution will be required at all levels particularly on the spots for relief and flood fighting on drains, flood embankments.

13.3.2. ESTABLISHMENT OF FLOOD FIGHTING CAMPS.

A tent would be at site and all the resources of manpower and material required for controlling the situation would be immediately shifted from the shelter huts to this tent which would then become the emergency camp for carrying out all the flood fighting operations the Sub Engineer nominated by the Executive Engineer.

MONA BHERA FLOOD BUND.

Sr. #.	Key Personal	Name of drain.	Battle Station	Name of village likely to be effected.	Drainage Sub Division	Civil Sub Division.
1.	Sub Engineer Malakwal	Mona Bhrea drain.	RD.5-6	Bhera Town, Hajka, Pindi Hattar& Rakh Bher pur.	Bahauddin Drainage Sub Division.	Bhalwal & Mandi Bahauddin.

WATCHING ESTABLISHMENT.

Following watching establishment shall be engaged during the flood season for watching and general maintenance of flood works on monthly basis. However, in case of very high flood or in real emergency, the strength of watching establishment will be increased with the express permission of Executive Engineer, Drainage Division Mandi Bahauddin.

Sr. #	Name of The Structure	For maintenance & Petrol during flood season.			In case of very high flood.		
		Beldar	Mate	Gauge Reader	Beldar	Mate	Gauge Reader
1.	Mona Bhera Flood Bund.	8	1	-	8	1	-

13.3.3. **DUTIES OF OFFICERS/ OFFICIALS AND THEIR CAMP SITES.**

1. Executive Engineer Drainage Division Mandi Bahauddin.

The Flood activities in the jurisdiction of Mandi Bahauddin Drainage Division have been divided in to one sub set sectors i.e. Sub Sector No.01. The incharge of Sub Sector is Sub Divisional Officers of Bahauddin Drainage Sub Division Mandi Bahauddin as per following details.

DETAIL OF CAMP SITES.

Sr.No.	Name of Flood Bund.	Name of Officer	Name of Official	Camp RD.
1	Mona Bhera Flood Bund RD.0-35000.	Tahir Mehmood S.D.O Bahauddin (Site Incharge)	Gulraiz Haider Sub Engineer Malakwal Section.	5+400.
2	Malakwal Flood Bund RD.0-3500.	Tahir Mehmood S.D.O Bahauddin (Site Incharge)	Gulraiz Haider Sub Engineer Bahauddin Section.	1+000
3	Budhi Nallah Flood Bund RD.0-18500.	Tahir Mehmood S.D.O Phalia	Mansha Khan Sub Engineer Budhi Nallah Section.	9+200

DETAIL OF CAMPS ON FLOOD BUNDS OF DRAINAGE DIVISION M.B.DIN.

1. CAMP OF MONA BHERA FLOOD BUND RD.0+35000 / CAMP AT RD.5+400.

Sr.No	Name of Official	Designation	Contact No.
1	Tahir Mehmood	Sub Divisional Officer	0308-6289786
2	Ghulraiz Ahmed	Sub Engineer	0316-1776059
3	Muhammad Asghar	Mistary	0302-8520252
4	Zafar Iqbal	Mate	0349-2619628
5	Ghulam Mustafa	Beldar	0344-6274158
6	Muhammad Bashir	Beldar	0308-8853855
7	Mulazam Hussain	Beldar	0345-8632511
8	Nazeer	Beldar	0344-7683879

2. CAMP OF MALAKWAL FLOOD BUND RD.0+3500 / CAMP AT RD.1+000.

Sr.No	Name of Official	Designation	Contact No.
1	Tahir Mehmood	Sub Divisional Officer	0302-6796071
2	Gulraiz Haider	Sub Engineer	0316-1776059
3	Muhammad Yousaf	Mate	0304-3482219
4	Muhammad Ameer	Beldar	0342-8198478
5	Sana ullah	Beldar	0345-2032954
6	Hassnain Ahmed	Beldar	0346-8726670
7	Shafqat Iqbal	Beldar	0343-4789212
8	Nazar Shah	Beldar	0347-6172451

3. CAMP OF BUDHI NALLAH FLOOD BUND RD.0+18500 / CAMP AT RD.9+200.

Sr.No	Name of Official	Designation	Contact No.
1	Tahir Mehmood	Sub Divisional Officer	0308-6289786
2	Manshah Khan	Sub Engineer	0300-7741766
3	Muhammad Akram	Mistary	0346-6483066
4	Muhammad Arif	Mate	0334-4917014
5	Muhammad Anwar	Beldar	0346-6483066
6	Nizam Din	Beldar	0343-4684799
7	Bashir	Beldar	0345-5766054
8	Zaheer Ahmed	Beldar	042-5948594

2. **SUB DIVISIONAL OFFICER BAHAUDDIN DRAINAGE SUB DIVISION.**

Incharge Sub Sector No.01 will monitor the Flood Fighting /watching activities in the part area of Mona Bhera Flood Bund Tehsil Bhalwal and Malakwal Flood Bund on the left side of River Jhelum. The flowing Drainage System are directly effected by the River Chenab spill the Drainage function as Flood embankments and protection of Bhekho Outfall lower& Upper drain & Budhi Nallah Flood Bund.

Sr. No.	Name of Bund.	Length of Bund	Top width	Side slope	Free Board from H.F.L
1.	Flood Embankment along Mona Bhera drain.	35000	20 feet	2.1 on either side.	5 feet

Keeping in view of vulnerable location of drains & Flood Plan, it is essential to take up flood preparedness activities like strengthening weak and Ghats sides clearance of Jungle, shrub from banks and slope and making them fit to face the ensuing floods. Therefore, a gang of one man per mile employee from 15 June to 15 September in additional to existing establishment of one Beldar in six mile length of drain. The terminology of different kinds of floods i.e. low Medium, High and exceptionally high and they will be taken as such in the light of any wireless message received respective warning centers.

Key Personal	Battle Stations	Drains & Flood Embankments	Name of Drainage Sub Division.
Sub Engineer Malikwal	RD.19	Mona Bhera Flood Embankment	Bahauddin Drainage Sub Division.

13.3.4. **DEPARTMENTAL MACHINERY AVAILABLE.**

Department has no machinery of any kind. However, in emergency, machinery will be arranged by the Municipal Committee, District Government and Agricultural Engineering Department.

13.3.5. **MACHINERY AVAILABLE FROM PRIVATE SOURCE.**

Suitable arrangement with Agricultural Engineering Department in time of emergency of closing leakage or breaches on flood bunds. Moreover excavator and tractor trolleys are available with local inhabitants of Mona Bhera Flood Bund, which will be deployed for necessary flood fighting emergency.

13.3.6.

**FLOOD FIGHTING MATERIAL REQUIRED FOR
MONA BHERA FLOOD BUND.**

S.No.	ITEM	Unit	Required Quantity
1	Kassies with Handles	No.	5
2	Ballies	No.	10
3	Generator set.	No.	1
4	Petrol	Liter	50
5	M. Oil	Liter	2.5
6	Life Jacket	No.	1
7	Plastic Bags	No.	125
8	Electric Service Cable	Coils.	1
9	Umbrella	No	3
10	Gunny Bags with Sutli	No.	10
11	Patha Baan	KG	10
12	Shouldari	No	1
13	G. Wire	KG	50
14	Rechargeable Torch	No	2
15	Wooden Karies	No	50
16	Plastic Chair with Table	Set	1
17	Rain Coat	No.	2
18	LED Bulb with Accessories	No.	30
19	Basket	No	5
20	Tent Medium size	No	1

13.3.7

FLOOD FIGHTING METERIAL AVAILABLE SITE NO.1

Sr. No.	ITEM	Required	Available	Balance
1	Kassies with Handles	5	5	--
2	Ballies	10	10	--
3	Generator set.	1	1	--
4	Petrol	50	50	--
5	M. Oil	2.5	2.5	--
6	Life Jacket	1	1	--
7	Plastic Bags	125	125	--
8	Electric Service Cable	1	1	--
9	Umbrella	3	3	--
10	Gunny Bags with Sutli	10	10	--
11	Patha Baan	10	10	--
12	Shouldari	1	1	--
13	G. Wire	50	50	--
14	Rechargeable Torch	2	2	--
15	Wooden Karies	50	50	--
16	Plastic Chair with Table	1	1	--
17	Rain Coat	2	2	--
18	LED Bulb with Accessories	30	30	--
19	Basket	5	5	--
20	Tent Medium size	1	1	--

13.4 DETAIL OF OTHER INFRASTRUCTURE LIKE ELECTRIC, SUI GAS, TELEPHONE INSTALLATIONS, ROAD NETWORK, OTHER BUILDINGS, CANALS AND DRAINAGE NETWORK.

There area where it is likely hood of mishap is a remote area, there is no such huge infrastructure like Grid Station, Sui Gas Station exists in this area. However towns, villages, roads and Electric Lines canals and drainage network will suffer due to spill out water of the River Jhelum.

A. MONA BHERA FLOOD BUND.

Due to back water effected / flooded water spread in the adjoining areas along Mona Bhera flood embankment. In case of breach / damages in Mona Bhera flood bund, flooded water directly entered and hit Bhera Town and adjoining abadies Bhera Town, Fateh Gargh, Ali Pur Syddan, Hajka & Motor Way M-2.

EMERGENCY CONTINGENCY PALN FOR SITE NO.2
(MALAKWAL FLOOD BUND AT RD.0-3+500).

13.1 PLAN SHOWING ROUTE OF FLOOD WATER COMING OUT OF THE BREACH SUPPORTED WITH LEVELS.

Plan showing route of Flood water coming out of the breach for site No.02 i.e RD.0+000 to 3+500 plan attached at page 36.

Annexure-B.

MALAKWAL FLOOD BUND.

13.2 DETAIL OF VILLAGES ABADIES LIKELY TO BE AFFECTED (TO BE SHOWN ON THE MAPS), THE EXTENT AND DEPTH OF ANTICIPATED INUNDATIONS, EMERGENCY PROTECTION MEASURES AND EVACUATION PLAN.

The tentative area inundated by the flood water will be 40 square KM as shown on attached plan at Annex – “B” Villages / Abadies are as under: -
Klas Sharif, Raipur, Bolabala, Chak Saida Zarin, Chak Saida Bala, Chak Nizan, Midh Pragna, Islam Pura & Malakwal.

13.3 STRATEGY AND ACTION TAKEN BE EXPLAINED IN DETAIL.THIS MAY INCLUDE

Malakwal Flood Bund falls in Malakwal Section and is constructed along left bank of River Jhelum, which is safe against normal flood in River Jhelum.

In case of exceptionally high flood in River Jhelum, Malakwal flood bund is insufficient to protect Malakwal City. Malakwal flood bund should be extended upto Victoria Bridge, which has already been recommended by a Committee comprising of Superintending Engineer Malsi and Executive Engineer Faisalabad.

13.3.1 ARRANGEMENTS.

In view the experience of the past flood history day & night watching will be required to control the flood situation during rainy season.

Constant vigilance and caution will be required at all levels particularly on the spots for relief and flood fighting on drains, flood embankments.

13.3.2. ESTABLISHMENT OF FLOOD FIGHTING CAMPS.

A tent would be at site and all the resources manpower and material required for controlling the situation would be immediately shifted from the shelter huts to this tent which would then become the emergency camp for carrying out all the flood fighting operations the Sub Engineer nominated by the Executive Engineer.

B. MALAKWAL FLOOD BUND.

Sr . #.	Key Personal	Name of drain.	Battle Station	Name of village likely to be effected.	Drainage Sub Division	Civil Sub Division.
1	Sub Engineer Malakwal	Malakwal drain.	RD.1-2	Malakwal	Bahauddin Drainage Sub Division	Malakwal.

WATCHING ESTABLISHMENT.

Following watching establishment shall be engaged during the flood season for watching and general maintenance of flood works on monthly basis. However, in case of very high flood or in real emergency, the strength of watching establishment may be increased with the express permission of Executive Engineer, Drainage Division Mandi Bahauddin.

Name of The Structure	For maintenance & Petrol during flood season.			In case of very high flood.		
	Beldar	Mate	Gauge Reader	Beldar	Mate	Gauge Reader
Malakwal Flood Bund.	4	-	-	4	-	-

13.3.3. DUTIES OF OFFICERS/ OFFICIALS AND THEIR CAMP SITES

Executive Engineer Drainage Division Mandi Bahauddin.

The Flood activities in the jurisdiction of Mandi Bahauddin Drainage Division have been divided in to one sub set sectors i.e. Sub Sector No.01. The incharge of Sub Sector are Sub Divisional Officers of Bahauddin Drainage Sub Division Mandi Bahauddin as per following details.

DETAIL OF CAMP SITES.

Sr.No.	Name of Flood Bund.	Name of Officer	Name of Official	Camp RD.
1	Mona Bhera Flood Bund RD.0-35000.	Tahir Mehmood S.D.O Bahauddin (Site Incharge)	Manshah Khan Sub Engineer Malakwal Section.	5+400.
2	Malakwal Flood Bund RD.0-3500.	Tahir Mehmood S.D.O Bahauddin (Site Incharge)	Gulraiz Haider Sub Engineer Sub Engineer Bahauddin Section.	1+000
3	Budhi Nallah Flood Bund RD.0-18500.	Tahir Mehmood S.D.O Phalia	Mansha Khan Sub Engineer Budhi Nallah Section.	9+200

2. SUB DIVISIONAL OFFICER BAHAUDDIN DRAINAGE SUB DIVISION.

In-charge Sub Sector No.01 will monitor the Flood Fighting / watching activities in the part area of Mona Bhera Flood Bund Tehsil Bhalwal and Malakwal Flood Bund on the left side of River Jhelum. The flowing Drainage System are directly effected by the River Chenab spill the Drainage function as Flood embankments and protection of Bhekho Outfall lower& Upper drain & Budhi Nallah Flood Bund.

Sr.No.	Name of Bund.	Length of Bund	Top width	Side slope	Free Board from H.F.L
1.	Malakwal Flood Bund	3500 feet	12 feet	Side slope	5 feet

Keeping in view of vulnerable location of drains & Flood Plan, it is essential to take up flood preparedness activities like strengthening weak and Ghats sides clearance of Jungle, shurb from banks and slope and making them fit to face the ensuing floods. Therefore, a gang of one man per mile employee from 15 June to 15 September in additional to existing establishment of one Beldar in six mile length of drain. The terminology of different kinds of floods i.e. low Medium, High and exceptionally high and they will be taken as such in the light of any wireless message received respective warning centers.

Key Personal	Battle Stations	Drains & Flood Embankments	Name of Drainage Sub Division.
Sub Engineer Malakwal	RD.1-2	Malakwal Flood Embankment	Bahauddin Drainage Sub Division

13.3.4. DEPARTMENTAL MACHINERY AVAILABLE.

Department has no machinery of any kind. However, in emergency, machinery will be arranged by the Municipal Committee, District Government and Agricultural Engineering Department.

13.3.5. MACHINERY AVAILABLE FROM PRIVATE SOURCE.

Suitable arrangement with Agricultural Engineering Department in time of emergency of closing leakage or breaches on flood bunds. Moreover excavator and tractor trolleys are available with local inhabitants of Malakwal Flood Bund, which can be deployed for necessary flood fighting in emergency.

FLOOD FIGHTING MATERIAL REQUIRED**MALAKWAL FLOOD BUND SITE NO.2**

S.No.	ITEM	Required Quantity
1.	Life Jacket	01 No.
2.	Umbrella	5 No.
3.	Chimneys for Lanterns	1 No.
4.	Gunny Bags with Sulti and sewing needles	25 No.
5.	Axes / with handle	15 No.
6.	Kassies / with Handles	20 No.
7.	Ballies	15 No.
8.	Baskets	30 No.
9.	LED Bulb with Accessories	5 No.
10.	Patha Baan	20 Kg
11.	Shouldari	01 No.
12.	G.I.Wire	50 Kg
13.	Generator set.	01 No.
14.	Service Cable	01 Coils
15.	Rain Coat	03 No.
16.	Rechargeable Torch	2 No.
17.	Plastic Chair with Table	01 Set
18.	Tent medium Size	01 No.
19.	M. Oil	2 Liter
20.	Plastic Pages	1000 No.

13.3.7. **FLOOD FIGHTING METERIAL AVAILABLE**

S.No.	ITEM	Required Quantity	Available	Balance
1.	Life Jacket	01 No.	01 No.	--
2.	Umbrella	5 No.	5 No.	--
3.	Chimneys for Lanterns	1 No.	1 No.	--
4.	Gunny Bags with Sulti and sewing needles	25 No.	25 No.	--
5.	Axes / with handle	15 No.	15 No.	--
6.	Kassies / with Handles	20 No.	20 No.	--
7.	Ballies	15 No.	15 No.	--
8.	Baskets	30 No.	30 No.	--
9.	LED Bulb with Accessories	5 No.	5 No.	--
10.	Patha Baan	20 Kg	20 Kg	--
11.	Shouldari	01 No.	01 No.	--
12.	G.I.Wire	50 Kg	50 Kg	--

13.	Generator set.	01 No.	01 No.	--
14.	Service Cable	01 Coils	01 Coils	--
15.	Rain Coat	03 No.	03 No.	--
16.	Rechargeable Torch	2 No.	2 No.	--
17.	Plastic Chair with Table	01 Set	01 Set	--
18.	Tent medium Size	01 No.	01 No.	--
19.	M. Oil	2 Liter	2 Liter	--
20.	Plastic Pages	1000 No.	500 No.	500

13.4 DETAIL OF OTHER INFRASTRUCTURE LIKE ELECTRIC, SUI GAS, TELEPHONE INSTALLATIONS, ROAD NETWORK, OTHER BUILDINGS, CANALS AND DRAINAGE NETWORK.

There area where it is likely hood of mishap is a remote area, there is no such huge infrastructure like Grid Station, Sui Gas Station exists in this area. However towns, villages, roads and Electric Lines canals and drainage network will suffer due to spill out water of the River Jhelum.

B. MALAKWAL FLOOD BUND.

Flooded water directly entered and hit to Malakwal Town and adjoining abadies Mid Pragna, Chak Nizam, Raib Pur, Mohallah Islam Pura and Chak Syddan. Therefore extension of Malakwal Flood Bund is very much essential up to Victoria Bridge for the safety of Malakwal City and other Villages

EMERGENCY CONTINGENCY PLAN FOR SITE NO.3

C. (BUDHI NALLAH FLOOD BUND AT RD.9+200.)

13.1 PLAN SHOWING ROUTE OF FLOOD WATER COMING OUT OF THE BREACH SUPPORTED WITH LEVELS.

Plan showing route of Flood water coming out of the breach for site No.03 i.e RD. 9+200 plan attached at page 37.

Annexure-C.

C. BUDHI NALLAH FLOOD BUND.

13.2 DETAIL OF VILLAGES ABADIES LIKELY TO BE AFFECTED (TO BE SHOWN ON THE MAPS), THE EXTENT AND DEPTH OF ANTICIPATED INUNDATIONS, EMERGENCY PROTECTION MEASURES AND EVACUATION PLAN.

The tentative area inundated by the flood water will be 40 square KM as shown on attached plan at Annex – “C” Detail of Villages/ Abadies are as under: -
Channi Mughalla, Qadirabad, Farakh Pur, Alahan, Dharam Kot, Jaggo & Syada

13.3 STRATEGY AND ACTION TAKEN BE EXPLAINED IN DETAIL.THIS MAY INCLUDE

BUDHI NALLAH FLOOD BUND.

There was high flood in River Chenab during recent flood season in the jurisdiction of Phalia Drainage Sub Division Mandi Bahauddin. Budhi Nallah drain is meant for disposal of flood water and seepage water of Drainage Systems failing in District Gujrat & Mandi Bahauddin. 2 No another creek locally known as Halki creek exists. These creeks become active during heavy rains/high flood. During High Flood water of these creeks River Chenab causes exceptionally high Flood in Budhi Nallah outfall drain. Resultantly, pressure built up on right bank, which breached at various spots, during August 2010, heavy rains and high flood having magnitude of 3.60 Lac Cs (D/S Qadirabad) caused havoc, heavy loss of standing crops infrastructures and abadies.

The length of Budhi Nallah Flood Bund is 18000 feet, due to requirement of site condition Budhi Nallah Flood protection Bund is proposed be extended /constructed up to 8000 feet along Bheikho outfall Upper drain for the safety of the adjoining abadies and agriculture land.

13.3.1. ARRANGEMENTS.

In view the experience of the past flood history day & night watching required to control the flood situation during rainy season.

Constant vigilance and caution will be required at all levels particularly on the spots for relief and flood fighting on drains, flood embankments.

13.3.2. ESTABLISHMENT OF FLOOD FIGHTING CAMPS.

A tent would be at site and all the resources manpower and material required for controlling the situation would be immediately shifted from the shelter huts to this tent which would then become the emergency camp for carrying out all the flood fighting operations the Sub Engineer nominated by the Executive Engineer.

BUDHI NALLAH FLOOD BUND.

Sr . #.	Key Personal	Name of drain.	Battle Station	Name of village likely to be effected.	Drainage Sub Division	Civil Sub Division.
1	Sub Engineer Budhi Nallah	Budhi Nallah Drainage System.	RD.18500	Qadirabad, Saida & Jagger	Phalia Drainage Sub Division	Phalia

WATCHING ESTABLISHMENT.

Following watching establishment shall be engaged during the flood season for watching and general maintenance of flood works on monthly basis. However, in case of very high flood or in real emergency, the strength of watching establishment may be increased with the express permission of Executive Engineer, Drainage Division Mandi Bahauddin.

Name of The Structure	For maintenance & Petrol during flood season.			In case of very high flood.		
	Beldar	Mate	Gauge Reader	Beldar	Mate	Gauge Reader
Budhi Nallah Flood Bund.	6	1	1	10	1	-

13.3.3. DUTIES OF OFFICERS/ OFFICIALS AND THEIR CAMP SITES

1. Executive Engineer Drainage Division Mandi Bahauddin.

The Flood activities in the jurisdiction of Mandi Bahauddin Drainage Division have been divided in to one sub set sectors i.e. Sub Sector No.01. The incharge of Sub Sector are Sub Divisional Officers of Bahauddin Drainage Sub Division Mandi Bahauddin as per following details.

DETAIL OF CAMP SITES.

Sr.No.	Name of Flood Bund.	Name of Officer	Name of Official	Camp RD.
1	Mona Bhera Flood Bund RD.0-35000.	Tahir Mehmood S.D.O Bahauddin (Site Incharge)	Gulraiz Haider Sub Engineer Malakwal Section.	5+400.
2	Malakwal Flood Bund RD.0-3500.	Tahir Mehmood S.D.O Bahauddin (Site Incharge)	Gulraiz Haider Sub Engineer Bahauddin Section.	1+000
3	Budhi Nallah Flood Bund RD.0-18500.	Tahir Mehmood S.D.O Phalia	Mansha Khan Sub Engineer Budhi Nallah Section.	9+200

2. SUB DIVISIONAL OFFICER BHAUDDIN DRAINAGE SUB DIVISION.

Incharge Sub Sector No.01 will monitor the Flood Fighting /watching activities in the part area of Mona Bhera Flood Bund Tehsil Bhalwal and Malakwal Flood Bund on the left side of River Jhelum. The flowing Drainage System are directly effected by the River Chenab spill the Drainage function as Flood embankments and protection of Bhekho Outfall lower& Upper drain & Budhi Nallah Flood Bund.

Sr.No.	Name of Bund.	Length of Bund	Top width	Side slope	Free Board from 11.F.I
1.	Flood Bund along Budhi Nallah RD.0-18500.	18500	25 feet	2:1 on either side.	5 feet.

Keeping in view of vulnerable location of drains & Flood Plan, it is essential to take up flood preparedness activities like strengthening weak and Ghats sides clearance of Jungle, shurb from banks and slope and making them fit to face the ensuing floods. Therefore, a gang of one man per mile employee from 15 June to 15 September in additional to existing establishment of one Beldar in six mile length of drain. The terminology of different kinds of floods i.e. low Medium, High and exceptionally high and they will be taken as such in the light of any wireless message received respective warning centers.

Key Personal	Battle Stations	Drains & Flood Embankments	Name of Drainage Sub Division.
Sub Engineer Budhi Nallah.	RD.18500	Bheikho Outfall Upper drain.	Phalia Drainage Sub Division
Sub Engineer Budhi Nallah	RD-0.	Bheikho Outfall Upper drain	Phalia Drainage Sub Division
Sub Engineer Budhi Nallah	RD.16500	Main Phalia Drain.	Phalia Drainage Sub Division

13.3.4. **DEPARTMENTAL MACHINERY AVAILABLE**

Department has no machinery of any kind. However, in emergency, machinery will be arranged by the Municipal Committee, District Government and Agricultural Engineering Department.

13.3.5. **MACHINERY AVAILABLE FROM PRIVATE SOURCE.**

Suitable arrangement with Agricultural Engineering Department in time of emergency of closing leakage or breaches on flood bunds. Moreover excavator and tractor trolleys are available with local inhabitants of Budhi Nallah Flood Bund, which can be deployed for necessary flood fighting in emergency.

FLOOD FIGHTING MATERIAL REQUIRED**BUDHI NALLAH FLOOD BUND SITE NO.3.**

S.No.	ITEM	Required Quantity
1.	Gunny Bags with Sulti and sewing needles	300 No.
2	Life Jacket	5 No.
3.	Axes with handles	30 No.
4.	Ballies	100 No.
5.	Handles for Kassies	20 No.
6.	Patha Baan	50 Kg
7.	Shouldari	1 No.
8.	G.I.Wire	100 Kg
9.	Generator set.	1 No.
10.	Service Cable	1 Coils
11.	LED Bulb with accessories	20 No.
12	Emergency light	10 No.
13	Wooden Mallet	10 No.
14	Petrol	200 Liter
15	Plastic Bags.	1000 No.
16	Bamboos. (15'-20')	500 No.
17	Wooden Baskets	100 No.
18	Kassi with handle	20 No.
19.	Lylon Rope	200 Feet
20.	Chair plastic with Table	2 Set
21.	Umbrella	10 No.
22.	Rain Coats	5 No.
23.	M. Oil	5 Liter
24.	Measurement Tape	5 No.

13.3.7 FLOOD FIGHTING MATERIAL AVAILABLE SITE NO.3

S.No.	ITEM	Required Quantity	Available	Balance
1.	Gunny Bags with Sulti and sewing needles	300 No.	300 No.	-
2	Life Jacket	5 No.	5 No.	-
3.	Axes with handles	30 No.	30 No.	-
4.	Ballies	100 No.	100 No.	-
5.	Handles for Kassies	20 No.	20 No.	-
6.	Patha Baan	50 Kg	50 Kg	-
7.	Shouldari	1 No.	1 No.	-
8.	G.I.Wire	100 Kg	100 Kg	-
9.	Generator set.	1 No.	1 No.	-
10.	Service Cable	1 Coils	1 Coils	-
11.	LED Bulb with accessories	20 No.	20 No.	-
12	Emergency light	10 No.	10 No.	-
13	Wooden Mallet	10 No.	10 No.	-
14	Petrol	200 Liter	200 Liter	-
15.	Generator	1 No.	1 No.	--
15	Plastic Bags.	1000 No.	1000 No.	-
16	Bamboos. (15'-20')	500 No.	500 No.	-
17	Wooden Baskets	100 No.	100 No.	--
18	Kassi with handle	20 No.	20 No.	--
19.	Lylon Rope	200 Feet	200 Feet	--
20.	Chair plastic with Table	2 Set	2 Set	--
21.	Umbrella	10 No.	10 No.	--
22.	Rain Coats	5 No.	5 No.	--
23.	M. Oil	5 Liter	5 Liter	--
24.	Measurement Tape	5 No.	5 No.	--

13.4 DETAIL OF OTHER INFRASTRUCTURE LIKE ELECTRIC, SUI GAS, TELEPHONE INSTALLATIONS, ROAD NETWORK, OTHER BUILDINGS, CANALS AND DRAINAGE NETWORK.

There area where it is likely hood of mishap is remote area, there is no such huge infrastructure like Grid Station, Sui Gas Station exists in this area. However town, villages, roads and Electric lines Canals and drainage network will suffer due to spill out water of the River Chenab.

C.

BUDHI NALLAH FLOOD BUND.

Flooded water directly entered and hit to Qadirabad Town, Jaggo, Bheikho, Thatti Shah Muhammad, Farakh Pur. Therefore existing flood embankment should be protected with stone pitching and raising of flood embankment.

Executive Engineer
Drainage Division
Mandi Bahauddin

Superintending Engineer
Sargodha Drainage Circle
Sargodha.

Chief Engineer
Irrigation Sargodha Zone
Sargodha.



CHAPTER-14

Action Plan

14.1 Re-shuffling/ Recouping plan of reserve stone departmentally

There is no reserve stock of stone in this division.

14.2 Detail od inlet/ outlet crossing along with closing methodology

There is no Inlet/Outlet crossing exist in Budhi Nallah flood bund.

14.3 Deployment of Machinery (Medium to high flood)

Sr. No.	Name of Structure	Length in Mile	Vulnerable Reach	Camp Location	Site Incharge by Name & Cell No.	Machinery Deployed					Availability of Stone Cft
						Excavator	Dozer	Trolleys/Dumpers	Tractor with front blade	Labour/Beldar+Mate	
1	2	3	4	5	6	7	8	9	10	11	12
1	Mona Bhera Flood Bund RD.0-35000.	7.00	RD.5-8	RD.5+400	Sub Engineer Malakwal Section Gulraiz Haider (0316-1776059)	1	-	5	1	8+1	Nil
2	Malakwal Flood Bund RD.0-3500.	0.70	RD.0-3500	RD.1+000	Sub Engineer Bahauddin Section Gulraiz Haider (0316-1776059)	1	-	3	1	4+1	Nil
3	Budhi Nallah Flood Bund RD.0-18500.	3.70	RD.3-4, 6-7 & 13-18+500	RD.9+200	Sub Engineer Budhi Nallah Mansha Khan (0300-7741766)	1	-	6	2	10+1	Nil
Total						3	-	14	4	22+3	Nil

Payment for Machinery & Works Charge employees subject to verification by TPM / Consultants

14.4 Deployment of Machinery (High to very high flood)

Sr.No	Name of Structure	Length in Mile	Vulnerable Reach	Camp Location	Site Incharge by Name & Cell No.	Machinery Deployed					Availability of Stone Cft
						Excavator	Dozer	Trolleys/Dumpers	Tractor with front blade	Labor/Beldar+Mate	
1	2	3	4	5	6	7	8	9	10	11	12
1	Mona Bhera Flood Bund RD.0-35000.	7.00	RD.5-8	RD.5+400	Sub Engineer Malakwal Section Gulraiz Haider (0316-1776059)	1	-	7	2	10+1	Nil
2	Malakwal Flood Bund RD.0-3500.	0.70	RD.0-3500	RD.1+000	Sub Engineer Bahauddin Section Gulraiz Haider (0316-1776059)	1	-	4	2	6+1	Nil
3	Budhi Nallah Flood Bund RD.0-18500.	3.70	RD.3-4, 6-7 & 13-18+500	RD.9+200	Sub Engineer Budhi Nallah Mansha Khan (0300-7741766)	1	-	8	2	12+1	Nil
Total=						3	-	19	6	28+3	

Payment for Machinery & Works Charge employees subject to verification by TPM / Consultants

14.5 Deployment of Machinery (Very high to exceptionally high flood)

Sr. No	Name of Structure	Length in Mile	Vulnerable Reach	Camp Location	Site Incharge by Name & Cell No.	Machinery Deployed					Availability of Stone Cft
						Excavator	Dozer	Trolleys/Dumpers	Tractor with front blade	Labour /Beldar +Mate	
1	2	3	4	5	6	7	8	9	10	11	12
1	Mona Bhera Flood Bund RD.0-35000.	7.00	RD.5-8	RD.5+400	Sub Engineer Malakwal Gulraiz Haider (0316-1776059)	2	-	7	4	12+2	Nil
2	Malakwal Flood Bund RD.0-3500.	0.70	RD.0-3500	RD.1+000	Sub Engineer Bahauddin Section Gulraiz Haider (0316-1776059)	2	-	4	3	10+2	Nil
3	Budhi Nallah Flood Bund RD.0-18500.	3.70	RD.3-4, 6-7 & 13-18+500	RD.9+200	Sub Engineer Budhi Nallah Mansha Khan (0300-7741766)	2	1	8	4	15+2	Nil
Total=						6	1	19	11	37+6	Nil

Payment for Machinery & Works Charge employees subject to verification by TPM / Consultants

14.6 Police Deployment Plan

District administration of Mandi Bahauddin will be contacted by the Executive Engineer to provide police officers for security purposes in case of emergency.

Sr. No.	Vulnerable sites used for illegal cuts during floods	Concerned Canal Division	Concerned Police Station and District	Police Persons Deployed		Remarks (if any)
				Inspector / Sub Inspector / A.S.I	Constable	
1	Budhi Nallah Flood Bund RD 3-4, 6-7 & 13-18+500	Drainage Division Mandi Bahauddin	Mandi Bahauddin	A.S.I-1	4	
2	Malakwal Flood Bund RD 0-3+500			ASI-1	2	
3	Mona Bhera Flood Bund RD 5-8			ASI-1	2	

14.7 Details of synthetic bags with capacity of 500 kg and 1000.kg

S.No.	Items	Required Quantity	Available Quantity
1	Synthetic Bags (500Kg Capacity)	200 No.	--
2	Synthetic Bags (1000Kg Capacity)	150 No.	--

14.8 Details of polythene sheet of black colour to protect upstream slope against wave action and to control seepage through embankments.

S.No.	Items	Required Quantity	Available Quantity
1	Black Polythene Sheet	15,000 Sft	--

CHAPTER-15

BACK UP DIVISIONS IN CASE OF BREACH

Gujrat Canal Division UJC Gujrat and Rasul Canal Division L.J.C Rasul will be worked as back up Division in case of emergency/Breach.

Sub Divisional Officer
Bahauddin Drainage Sub Division
Mandi Bahauddin

Sub Divisional Officer
Phalia Drainage Sub Division
Mandi Bahauddin.

Executive Engineer
Drainage Division
Mandi Bahauddin.