Chapter No.1

SALIENT FEATURES OF JAMPUR CONSTRUCTION DIVISION, RAJANPUR

1.1 Location

Rajanpur District is located in the extreme southwest part of Punjab, Pakistan (29:06 N, 70:19 E) with a geographical span of 12,319 km 2. It is pertinent to mentioned here that District Rajanpur is one of the main district of Southern Punjab located at right side ofthe River Indus which is directly suffered by hill torrents flood and River Indus flood. The land of the District Rajanpur is sandwiched between River Indus and Suleman Mountains Range. According to the National Census Report 2017, it had a population of 1,996,000 and under the local administrative break up, whole the District is divided into three Tehsils, Jampur (19 Union Councils), Rajanpur (14 Union Councils), Rojhan Mazari (08 Union Councils) and a vast belt of Provincially Administered Tribal Area (PATA).

The Headquarter of Jampur Construction Division; Rajanpur is situated at Rajanpur, which comprises of 1 Camp Office D.G. Khan and three Sub Divisions namely (i) Mechanical Sub Division at Jampur, (ii) Hill Torrent-I Sub Division at Jampur & (iii) Hill Torrent No. II Sub Division at Rajanpur, (iii) Camp office D.G. Khan.

Jurisdiction of Sub Divisions is as under:-

- Mechanical Sub Divisionat Jampur.
  Flood Bunds with their systems & right side of River Indus from Jakhar Imam Shah to Kot Mithan.
- Hill Torrent-I Sub Division at Jampur.
  Drains with their systems from Dajal Branch to River Indus.
- Hill Torrent-II Sub Division, Rajanpur.
  Management and distribution of Hill Torrent Flood water and flood bunds along right edge of River Indus from Kot Mithan to Kashmoor.

1.2. General Description

Jampur Construction Division, Rajanpur is responsible for maintenance and development of allied training works along right side of River Indus & flood embankments, drains / flood carrying channels, as described following briefly:-

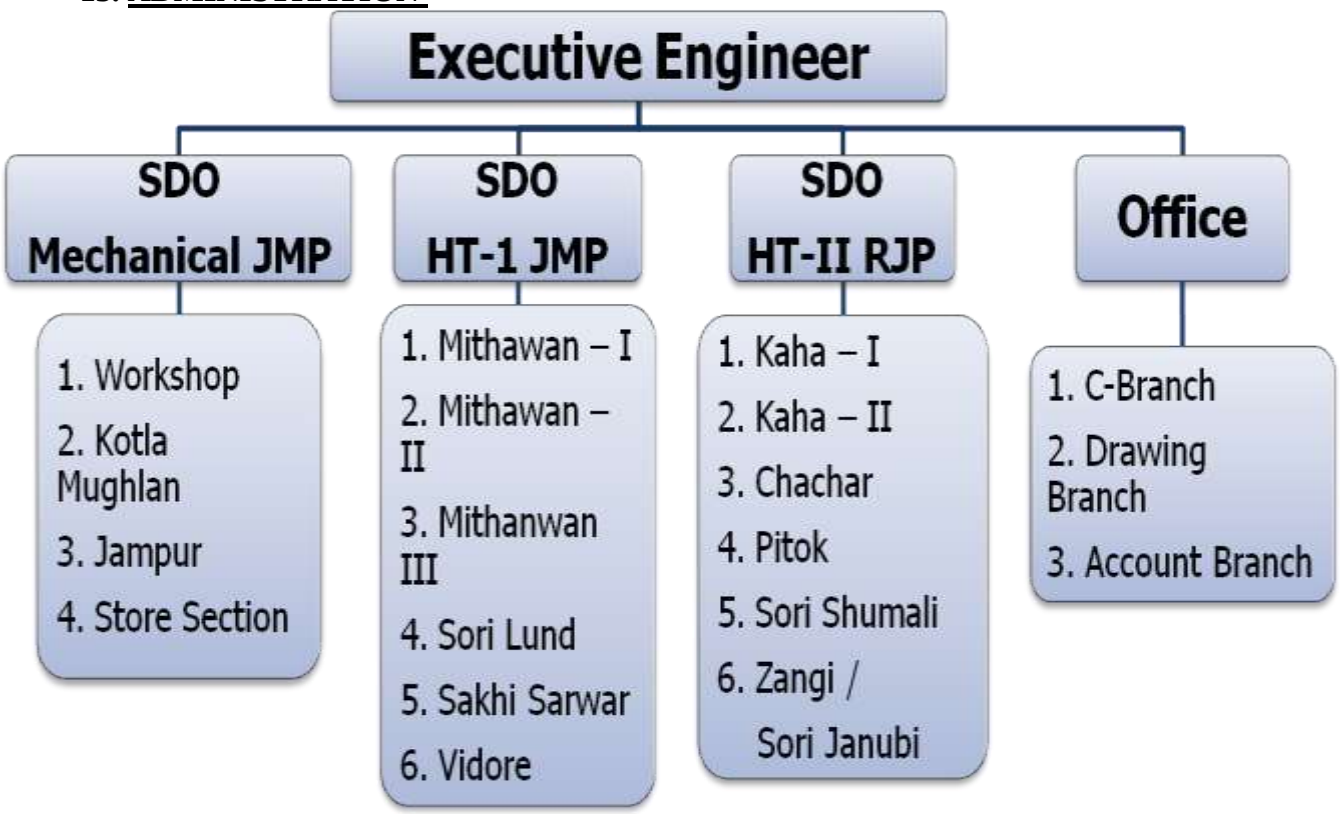
- **River Indus**

Right side of river Indus falls within the jurisdiction of Rajanpur District up-to Guddu Barrage in Sind Province and part of pond area of Guddu barrage is in the jurisdiction of District Rajanpur. The part of Jampur Flood Bund from RD. 0+000 – 26+000, Ganda Jakhar Imam Shah, J-Head Spur at RD: 10+000 Banuhan Disty, J-Head Spur upstream Basti Rindan, J-Head Spur Jakhar Imam Shah & 3 No. Studs are in the jurisdiction of D.G. Khan District.

- **Hill Torrents**

Similarly on the western side, we have to confront with hill torrent flood of major hill torrents Kaha, Chachar, Pitok, Sori Shumali, Zangi & Sori Janubi originating from Suleman Range. The watersheds of these torrents lie in Balochistan Province and the flood water from Balochistan to Punjab passes through the Pachad Area (western area) of Rajanpur District. A network of storm water and seepage drains in District Rajanpur is also maintained by Jampur Construction Division, Rajanpur.

13. ADMINISTRATION



Executive Engineer		
C-Branch	Account Branch	Drawing Branch

Sr. No.	Officer Name	Designation	PhoneNo.
1	Muhammad Munawar Iqbal	Executive Engineer	0333-6296609
2	Muhammad Abdul Mueed (Additional)	SDO-HT-I	0335-0502269
3	Qazi Faiz ul Hassan	SDO-HT-II	0334-6431973
4	Muhammad Abdul Mueed	SDO-Mechanical	0335-0502269

Mechanical sub division, Jampur

Sr. No.	Name	Section	Phone No.
1	Muhammad Tariq	Workshop	03347917075
2	Sabir Hussain	Kotla Mughlan	0300-3282020
3	Vacant (SabirHussainAdd.)	Jampur	0300-3282020
4	Muhammad Waleed	Store	03176784638

HillTorrent No.I, Sub Division, Jampur.

Sr. No.	Name	Section	PhoneNo.
1	Fiaz Ahmad Baddar	Mithanwan	0336-7069700
2	Muhammad RashidAli	Mithawan–I	0334-6684599
3	Muhammad Azam	Mithawan–II	0344-5493305

4	Muhammad Orangzaib	SoriLund	0333-5093694
5	Vacant	Sakhi Sarwar	
6	Muhammad Waseem	Vidore	0344 4064116

Hill Torrent No.II, Sub Division, Rajanpur.

Sr. No.	Name	Section	PhoneNo.
1	Azhar Manzoor	Kaha–I	0333-5093694
2	Muhammad Adnan Saleem	Kaha–II	0334-1737777
3	Muhammad Kaleem	Chachar	0333-7245367
4	Muhammad Kashif	Pitok	0336-6163964
5	Muhammad Adeeb	Sori Shumali / Zangi	0334-6940819
6	Muhammad Younis Sharif	Sori Janubi	0333-7739413

Leave Reserve.

Sr.#	Name	Section	Phone No.
1	Vacant	Drawing Branch	

Chapter No.2

FLOOD PROTECTION & RIVER TRAINING WORKS

General Abstract of Structures

Sr. No.	Type of Structure	No.	Lengthin Mile
1	Flood Bunds	19	149.04
2	Gandha	1	0.58
3	Studs	7	0.67
4	Groynes	8	12.07
5	J-Head Spurs	7	5.61
6	Inverted Hockey Spur	1	0.70
7	Drains	7	131.55
8	Flood Carrying Channels	8	114.5
9	Wetting Channel	1	2.80

2.1 i- Design Parameter of River Training Works

Sr No	Description	Length (Ft)		In Mile	Top Width (ft)	Side Slopes	Design Top level	Apron Top Level	H.F.L 2010
		Total	Shank						
1	**Gandha Jakhar Imam**	2900	2900	0.58	25’	3:1/2:1	377.00	377.00	372.00
i-	J-Head RD: 10 Banuhan Disty.	2875	1200	0.57	30’	3:1/2:1	383.50	369.50	377.50
ii-	J-Head Spur U/S Basti Rindan	5485	3810	1.10	30’	3:1/2:1	381.00	367.00	375.00
iii-	J-Head Spur Jakhar Imam Shah	4425	2650	0.88	30’	3:1/2:1	378.00	364.00	372.00
iv-	Stud No.1	250	250	0.05	25’	2:1/2:1	386.50	375.00	380.50
v-	Stud No.2	250	250	0.05	15’	2:1/2:1	382.00	375.00	376.00
vi-	Stud No.3	200	200	0.04	25’	2:1/2:1	380.50	374.50	374.50
2	**Hairo Flood Bund**	29600	26600	5.92	12’	3:1/2:1	365.56		354.36
i	Inverted Hockey Spur at RD 16+000 tied with the existing with the Zimidara FloodBund.	3500	3450	0.70	25’&30	3:1/2:1	--	349.00	353.00
ii	Stud at RD 20+250 of Hairo Flood Bund.	1012	882	0.20	20’	3:1/2:1	360.30	-	358.56
iii	J-Head Spur at RD 23+000 tied with New Hairo Flood Bund	4070	2189	0.81	30’	3:1/2:1	360.00	347.00	353
iv	Stud-1 at RD25+00 of Hairo Flood Bund.	615	300	0.13	20’	2:1/2:1	360.30	-	354.30
v	Stud-2 at RD 26+000 of Hairo Flood Bund.	670	500	0.14	20’	2:1/2:1	360.30	-	354.30
vi	Stud-3 at RD 27+000 of Hairo Flood Bund.	270	90	0.05	20’	2:1/2:1	360.30	-	354.30
v	Hairo Flood Bund RD 27+000 -29+600 Pitching With Apron					2:1/2:1	360.00	349.00	
Vii	S-4 Tie Bund	3200		0.64	25’	2:1/2:1	360.00	347.00	353.00

Sr. No.	Description	RD	In Ft	In Mile	Top Width(ft)	Side Slopes	Design Top level	H.F.L 2010
1-	Jampur Flood Bund.	0-18000	18000	3.60	16’	3:1/2:1	370.00	368.40
		18000-71600	53600	10.72	20’			
		71600-103650	32050	6.41	20’			
		103650-170720	67070	13.41	15’			
	(Wetting Channel)	38000-52000	14000	2.80	--	--	--	--
i-	Qallandar Shah Groyne	0-4260	4260	0.85	20’	3:1/2:1	370.60	366.10
ii-	Shah Jamal Groyne	0-6000	6000	1.20	20’	3:1/2:1	365.00	361.85
2-	Chandia Flood bund.	0-7750	7750	1.55	12’	3:1/2:1	374.00	369.00
3-	Gaddan Wala Bund	0-19100	19100	3.82	15’	3:1/2:1	365.00	360.00
i-	Ghafoor Groyne	0-14000	14000	2.80	20’	3:1/2:1	362.00	360.00
4-	Laskani Flood Bund	0-26365	26365	5.27	15’	3:1/2:1	374.40	370.40
5-	Sheru Flood Bund	0-3116	3116	0.62	20’	2:1/2:1	71.45	65.45
i-	Old Qalandar Shah Groyne	0-18500	18500	3.70	16’	3:1/2:1	368.18	364.30
ii-	Musa Groyne	0-7000	7000	1.40	10’	3:1/2:1	358.49	354.49
iii-	Kotla Mughlan Groyne	0-1500	1500	0.30	12’	3:1/2:1	356.93	352.93
iv-	L-Groyne	0-3100	3100	0.62	12’	3:1/2:1	354.57	352.57
v-	Boly Wala Groyne	0-6000	6000	1.20	12’	3:1/2:1	346.57	344.57
6-	W.X.Bund.	0-7000	7000	1.40	12’	3:1/2:1	351.20	346.20
7-	New Harrow Flood bund.	0-7000	7000	1.40	25’	2:1/2:1	360.00	353.00
8-	Raikh Bagh Wala to Bait Waghwar Flood Bund	0 - 139+500	139500	27.90	25’	3:1/2:1	347.98	340.98
9-	Zamidara Flood Bund (Tie Bund for Inverted Hockey Spur)	0-2+000	2000	0.40	-	-	-	-
10-	Musharaf Flood Bund	0-61500	61500	12.30	30’	3:1/2:1	299.00	294.00
11-	Left Bank of Musharaf Flood Bund	61500-102300	40800	8.16	25’	3:1/2:1	292.20	287.20
12-	Right Marginal Bund (RMB)	0 - 77+500	77500	15.50	30’	3:1/2:1	334.16	327.16
13-	Fakhar Flood Bund	10-25300	15300	3.06	20’	3:1/2:1	306.35	301.35
14-	Rojhan Flood Bund	0-61250	61250	12.25	20’	3:1/2:1	282.80	275.40
i-	J-Head Spur Rojhan	0-4660	4660	0.93	30’	3:1/2:1	281.71	276.71
ii-	J-head SpurR-64	0-6280	6280	1.25	30’	3:1/2:1	288.19	283.19
15-	Umer Kot Flood Bund	0-45000	45000	9.00	25’	3:1/2:1	300.00	293.00
i-	J-Head Spur R-63	0-250	250	0.05	30’	3:1/2:1	289.95	284.95
16	Bhagsar Flood Bund	0-12500	12500	2.50	30’	3:1/2:1	300.00	395.00

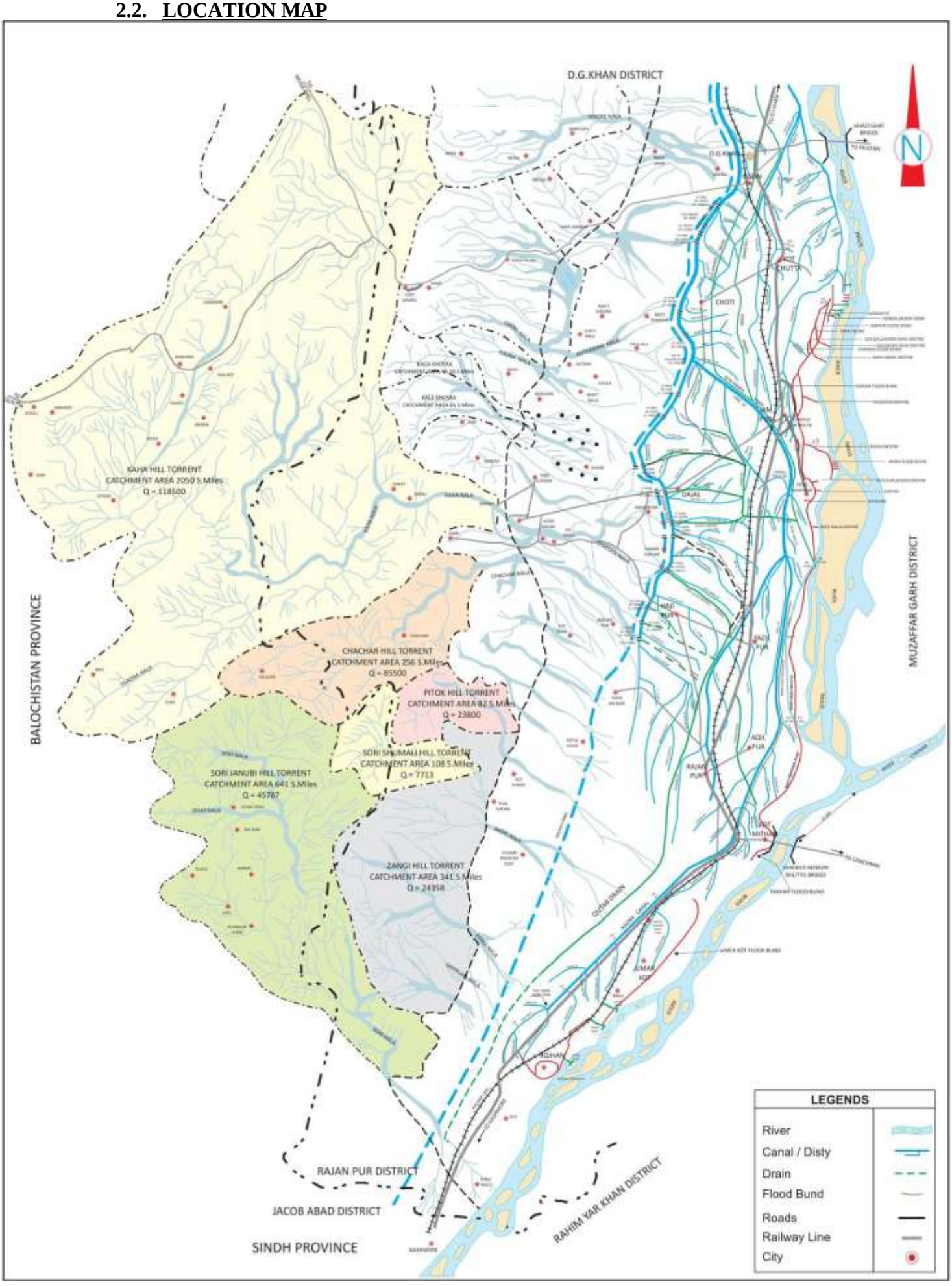
ii- Design Parameter of Drains / Flood Carrying Channels

Sr. No	Name of Structure	Length (Ft)	Stone pitching (Lac Cft)	Stone Spawl (Lac Cft)	Stone Apron (Lac Cft)	Stone in Wire Crate
1	Sad Alif (Earthen)	4000	0	0	0	5
2	Muhammad Wah	3000	0.75	0.75	2.61	2.67
3	Hazoori Wah	5000	0.80	0.80	1.78	2.41
4	Khan Wah	2000	1.35	1.35	3.05	1.74
5	Upper Noor Wah	8000	2.60	2.60	5.50	1.75
6	Garmail wah	25000	3	3	10.71	3.78
7	Link Channel Wah	18000	1.08	1.08	6.50	2.70
8	Chatool X- Structure	8000	2.50	2.50	7	2.50
9	Soma wah	6000	2	2	6.03	2.27
10	Lashari wah	7000	1.93	1.93	7.33	2.75
11	Old Jindra wah	1000	0.50	1.30	0.75	0.80
12	New Jindra wah	10000	1.93	1.93	3.23	3
13	Bund Hamza Sultan	28000	0	0	0	0
14	Ganda Lashari	5100	0	0	0	0
15	Hajoo wah	15000	1.20	1.20	3.70	1.55
16	Dhora wah	4000	1.07	1.07	3	0
17	Noor Khona Wah	4000	1.60	1.60	4	0.40
18	But Pahore wah	3000	0.80	0.50	1	0
19	Butwah & Gaman Wah	2000				
20	Kala Khosra H/T	12000	2.19	2.19	3.63	2.09
21	Bagga Khosra H/T	10000	5.74	5.74	4.59	9.46
22	Gandha Rakhi	1350.20	0.20	0.11	0.10	0
23	Gandha Gaman	1000	0.18	0.10	0.10	0
24	Gandha Khooni	1000	0.18	0.10	0.10	0
25	GandhaThul Harrow	800	1.79	1.79	3.20	0
26	Leghari Gandha Wah	3000	1	0.70	1.30	0
27	Chachar wah H/T	1000	1.69	0.91	1.92	2.23
28	Sori Shumali H/T	1200	0.36	0.19	0.08	0
29	Zangi H/T	2000	0.40	0.21	0.10	0
30	Soori Janubi H/T	2000	0.60	0.32	0.12	0
31	Muhammad pur Flood Bund	16000				

Sr. No	Name of Drain	Length		Outfall Capacity Cft.	Bed Width (Feet)		F.C. Depth (Feet)		Catchment Area (Sq. Mile)
		RD	Miles		At Out Fall	At Source	Out Fall	Source	
1	New Manka Drain	126060	25.21	RD:37 Out fall 2000	36	23.50	7.15	6.45	290.5
2	Tayyab Drain Fcc-79	131000	26.20	2000	80	80	8	8	700

3	Drain / FCC 95	47000	9.40	1000	50	50	7	7	500
4	Drain / FCC 109	63000	12.60	1000	50	50	7	7	500
5	Darkhast Drain	42700	8.54	135	20	8	5	3.5	67.5
6	Bukhari Drain	7+000 -89000	16.40	1050	50	50	8	8	525
7	FCC-145	91500	18.30	6000	200	150	9.95	6.8	Flood water of Kaha H.T.
8	FCC-166	24500	4.90	1000	35	35	5.95	5.95	-do-
9	FCC-177	64000	12.80	2000	80	35	7.81	5.95	-do-
10	FCC-186	55000	11.00	5000	110	110	9.80	9.80	Flood water of Chachar H.T.
11	Qutab Drain	58000-290000	46.40	9000	200	200	12.70	12.70	Flood water received from FCC-123,145,166, 177&186.
12	Azmat Drain	18500	3.70	75	13.5	6.5	4.5	4.5	Seepage Drain
13	Kaloi Drain	18500	3.70	120	15	6	4.5	4.5	Seepage Drain
14	Feeding Channel of Bukhari Drain	8100	1.62	1500	75	75	8.25	8.25	Flood water of Kaha & Chachar HT
15	FCC-123	99000	19.80	2500	120	100	8	6.50	Flood water of Kaha HillTorrent

2.2. LOCATION MAP



Chapter- 3.

BRIEF HISTORY OF PAST FLOOD EVENTS

The jurisdiction of Jampur Construction Division Rajanpur badly effects from floods originating from Suleman Range Hill torrents in West and from River Indus in East. Torrential and wide spread monsoon rains in the catchment area of Suleman Range and Indus basin generates unprecedented surface flows and plays havoc in the upper catchment areas.

Hill Torrent

During the Month July & August 2022, very high flood was received in all 07 major hill torrents in Jampur Construction Division and unprecedented floods were also received in sub hill torrents besides many "Churs" (minor torrents) which caused severe damages. The H/T-Source Chacher and Kaha flow a maximum discharge (75900 Cs, 108941 Cs) and caused a high flood discharge at Tayyab Drain, Bukhari Drain, Qutab Drain and its system i-e FCC-123, FCC-145, FCC-166, FCC-177 and FCC-186 while the flood carrying channels have the capacity of 50 % discharge against the capacity of full capacity of Hill Torrent Crossings. The torrential flash floods 2022 have severely damaged the banks of subject hill *torrents* at different places for which the area of Tehsil Jampur, Rajanpur, Rojhan and many others populated areas were endangered to disaster.

During flood season 2023, a discharge of 35968 Cs received from Kaha Hill Torrent on 30.07.2023 and more than 3500 Cs entered into flood carrying channel (FCC) at RD: 145+000 of Dajal Branch. As a result the channel was breached at RD: 41-42/R and the water inundated the nearby lands of Chak Ahmadani.Moreover, a discharge of 15000 Cs received from Chachar Hill Torrent on 29.07.2023 and more than 4500 Cs entered into flood carrying channel (FCC) at RD: 186+000 of Dajal Branch. As a result, the channel was breached at RD: 32-33/R & RD: 28000/R. The flood water after passing through nearby lands of Mouza Soon Wah and Chak Shaheed reached at RD: 23-24/R of FCC-186 and was headed up. To provide relief to adjoining abadies and fertile area, a relief cut was made at RD: 23-24/R and all the flood water was drained out from the relief cut.

Keeping in view the critical / alarming site situation, the restoration of both works were taken and completed through resourceful contractors under clause 59 d(iii) of PPRA Rules to avoid further public loss.During flood season 2024, heavy rains occurred in District Rajanpur and eastern Baluchistan during the month of August twice i.e. on 05.08.2024 and then 17.08.2024 to 21.08.2024. In District Rajanpur, the hill torrents received flood water due to these rains, which caused flood situation very high to exceptionally high range in past few days. The accumulated flood waters formed extensive ponds, particularly along the right embankments of Kadra Canal and Mushraf Flood Bund, with average water depths reaching 10 feet. These conditions led to severe damage to the flood bunds and associated infrastructure due to wave action, seepage, and sloughing of embankments.

The Mushraf Flood Bund, located in Tehsil Rojhan, spans a length of 61,000 feet, playsa critical role in protecting several settle ments (Mouza Dilber, Mouza Safdar abad, Chak Mats #1 and #2, Mouza Gianmal, Basti Jatt) and vital infrastructure (Tariq Minor, Mawah Disty, Ghous Bux Minor, Machka Minor, Indus Highway, and Rojhan City). Despite its importance, the flood bund has suffered significant damage during floods 2024, particularly from RD 30+000 to 58+000.

On 19.08.2024, Head Noshera at tail of Link No. III received more than 4000 discharge against 1365 CS authorized discharge. During such critical conditions, right bank of Link III over topped and severe leakage was observed at various places, hence making Fazilpur City at risk of flooding. Similarly all the FCCs namely FCC 123+000, FCC

145+000, FCC 165+000, FCC 177+000 and FCC 186+000 (of Dajal Branch Canal) besides Tayyab drain also over topped due to capacity constraints, hence inundating the surrounding lands and abadies.

On July 12, 2025, an intense cloud burst coupled with a severe thunderstorm struck the regions of Dera Bugti and Barkhan, triggering a high-intensity flood event of exceptional magnitude. The resulting surge reached the Darrah of Chachar Hill Torrent at 3:40 AM and rapidly advanced to RD 186+000 of the Dajal Branch by 5:35 AM, demonstrating the extreme velocity and force of the inflow. The torrent attained a peak discharge of 48, 901 cusecs at 6:20 AM, with its full impact reaching the Syphon Structure at RD 186 by 8:00 AM.

Despite the unprecedented load, the Syphon Structure managed to discharge 8,000 cusecs into Flood Carrying Channel (FCC-186), significantly exceeding its designed capacity of 5,000 cusecs. While the system initially absorbed the shock, the excessive hydraulic pressure exposed critical structural vulnerabilities. A major breach, extending approximately 600 to 700 feet, developed at RD 34+000, while the bank at RD 32+000 was nearly overtopped and washed out. The escaping flood waters, however, were partially mitigated by re-entry into FCC-186 at RD 26+000 through an emergency excavation initially 150 feet wide and later expanded to 250 feet by the Irrigation Department.

At RD 37+000, near Mouza Soonwah, a pronounced 90-degree bend proved highly susceptible under extreme flow conditions, resulting in the erosion and loss of approximately 2,000 feet of the left bank. Concurrently, additional high-magnitude discharges from Kaha and Kala Bagga Khosra Hill Torrents compounded the situation. At FCC-145, a total discharge of 4,800 cusecs—including 500 cusecs diverted through the Katchi Canal escape channel — exceeded the design capacity of 4,000 cusecs, causing severe erosion at sharp bends and structural leakages. The inherent weakness of the channel material, predominantly silty sand and sandy silt, further accelerated degradation under high-velocity flow.

Similarly, Kala Bagga Hill Torrent delivered 2,800 cusecs into the FCC-79 syphon against a design capacity of 2,000 cusecs. This was further intensified by an additional 1,000 cusecs contributed from New Manka Drains and surface run off via Darkhast, Azmat, and Kaloi Drains. The cumulative effect led to significant damage at critical points, particularly at sharp bends within FCC-79 and Tayyab Drain.

Sr. No.	Hill Torrent	Historical Discharges	Peak Discharge 2025	
1	Kaha	108941/2022	18.08.2025	46235
2	Kala, Bagga Khosra	27640/2024	14.07.2025	17994
3	Chachar	75900/2022	12.07.2025	48901
4	Pitok	14600/2024	12.07.2025	11309
5	Sori Shumali	13000/2010	18.07.2025	11539
6	Zangi	33600/2024	12.07.2025	10739
7	Sori Janobi	22300/2012	19.08.2025	3240

All contributing flows ultimately converged into Qutab Drain, where a peak discharge of 10,190 cusecs was recorded against a design capacity of 9,000 cusecs. This over loading resulted in multiple breaches, notably at RD 270+000/L and between RD 228+000 to 230+000/R, highlighting systemic over stressing beyond engineered limits.

The situation further escalated as the combined torrential flows discharged into Asni Lake and subsequently into the under-designed Musharraf Drain. Characterized by multiple sharp 90-degree turns, the drain proved highly vulnerable, leading to wide spread damage across the flood conveyance network. Overall, the event underscored a critical mismatch between existing infrastructure capacity and extreme hydrological events, exacerbated by geometric in efficiencies such as sharp bends and weak soil composition, thereby posing a persistent and escalating risk to the entire flood management system.

Consequently, upon the approval of Chief Engineer, D.G.Khan, machinery

was deployed under clause 59d (III) of PPRA Rules 2014 at following points given below:

Sr. No.	FCC/Drain/Flood Bund	Location
1	FCC-145	Fazilpur-Hajipur Road Xing RD:23+000, RD: 48+000/R, RD: 54+000/L and RD: 31+000/L
2	FCC-186	Chak Shaheed-Hajipur Xing RD:22+500, RD: 32+000/R, 30+000/L, RD: 10+700/R
3	FCC-186	Soon wah RD:37+000/L
4	FCC-177&166	Near Hajipur City at RD:59
5	Qutab Drain	Pull Pathan
6	Tayyab Drain	Dajal Road to Dhandla Road (Yakkay Wala)
7	Musharraf Flood Bund	Ozman Road RD: 61+500
8	Lundi Saidan Flood Bund	Lal Garh & Lundi Saidan
9	Rojhan Flood Bund	Rojhan MainCity
10	Qutab Drain Muhammad	Muhammad Pur Gam Wala Road Xing at RD:228+000 Fateh Pur Road Xing at RD: 243+000 Basti Lakha at RD: 258+000
11	Musharraf Flood Bund	RD:0+000, RD:15+000&RD: 81+000

These emergent works and deployment of machinery were checked and works executed under Resident supervision of M/S NESPAK Consultants (M&R) who after closure of flood seasons And closure of breaches and damages, verified the works on work done basis.

Indus River

After subsiding of flood 2022, it was observed that the river changed its morphology in the front of Hairo flood bund. The creek in front of bund RD.25+000 to 29+600 widened its width about 2500 ft which was 1200 to 1500 ft before start of flood season. A new creek developed from upstream in front of RD.20+000 after making rightward loop between RD.20+000 to 25+000 and advancing toward the bund rapidly even at low discharge. Daily advancement of creek erosion was 10-15 ft. As per recommendation of DEC, an estimate for construction of 02 No. Studs was framed and after competitive bidding process work was awarded to M/S Abdul Aziz Govt. Contractor. The work for construction of 02 No Studs started on 02/05/2023. Both Studs were completed up to shank lengths along with apron and pitching. Construction of Solid portion of both studs was in progress that Indus River suddenly started drifting right ward and towards the flood bund due to oblique flow at angle of 60 degree. The river edge rapidly started ecreasing between RD 20+250 and RD 23+500 due tohuge distance of 3250 ft between both studs. Moreover, an aggressive swirl action with high velocity was observed on downstream shank of stud Rd 23+500 near solid portion. Meanwhile soundings of both studs continuously increased as checked jointly with NESPAK Consultants. The severe swirl action with high velocity was very aggressive which targeted earthenshank of stud Rd 23+500 on D/s side.Utmost efforts were made to control

The action by constructing mini prongs, placing Munj Patha Tarangars, tree launching, bamboo bushing and constructing rip rap but no fruitful results achieved. Similarly distance between river edge and the flood bund started decreasing rapidly on up stream of the stud RD: 23+500.

During night of 06-07/08/2023, River started straight hitting on up stream side of stud 23+500 up to 22+900. All possible efforts were made to protect the flood bund but affected length was increased up to 900 ft and action was very severe and aggressive that flood bund bisected and newly constructed studs also washed away. A severe swirl action in combination with boiling action was also observed on up stream of stud RD: 25+000 which targeted the stud both on upstream and downstream sides. As per departmental policy, Zonal Technical Committee also inspected the site on 08.08.2023.

On the recommendations of Zonal Technical Committee work for holding both ends of the flood bund was immediately started under para 2.89 of PWD Code and

under 59d(iii) of PPRA Rules 2014. Administrative Department was requested to constitute expert members to visit the site and propose remedial measures to control the aggressive behavior of the river. Expert members comprising Chief Engineer D.G.Khan, Superintending Engineer Rahimyar Khan Circle, Superintending Engineer, Project Circle (Irrigation), D.G. Khan, Principal Research Officer (H), IRI Lahore and Resident Engineer M/S NESPAK Consultants D.G.Khan inspected the site of Hairo flood bund on 11.08.2023 and decided to hold the existing structures at their position by flood fighting and the matter must be referred to Departmental Expert Committee for further guidance.

After subsiding flood season-2023, necessary river survey was carried out by the field formation & working paper there of was prepared & submitted to Departmental Expert Committee with proposal of 04 No. Hockey Spurs in between RD. 20+000 to 25+000 for placing in the meeting held on 27.10.2023 but the said proposal was not considered by the members & it was suggested that model study may be carried out prior to proceeding a head. In response, fresh river survey plan was framed & submitted to PRO on 06.11.2023 for the needful. Moreover, necessary charges amounting to Rs. 4.20 Million were deposited to the Executive Engineer, Irrigation Research Institute, Lahore vide Ordinary Cheque No. G295950/G02960, dated 23.12.2023 for carrying out the model study. The process of model study remained stuck off due to unavoidable reasons. Furtherance, the said working paper were again submitted to DEC on short term solution basis on 19.02.2024 wherein it was recommended that 02 No. Sloping Studs may be constructed where as the Stud at RD.25+000 may be converted into Inverted Hockey Spur after furnishing of design parameters by the PRO.

For the needful, Chief Engineer, Irrigation D.G.Khan Zone, D.G.Khan vide letter No.Woks/2024/3058-63/178/94, dated 06.03.2024 requested the Chief Engineer, Irrigation Research Zone, Lahore to direct the Principle Research Officer to visit the vulnerable site & finalize the design parameters & in response the Principle Research Officer along with Resident Engineer, NESPAK Consultants visited the site on 09.03.2024 & after due consultation with worthy Chief Engineer, Irrigation D.G.Khan Zone, D.G.Khan the requisite geometry and location was finalized.

The issue of Hairo flood bund was aggravated during flood 2023 as main creek of river drifted towards the bund and its training works. As discussed above, the matter was taken to Departmental Expert Committee forum various times but proposal was not implemented due to non-availability of funds and rapid change of river course. Lately, working paper to DEC was submitted which was discussed on 24.06.2024 due to direct River action on nose of stud RD. 25+000 and passing of flow with extremely high velocity in a narrow creek in front of stud RD. 25+000.

The issue was again aggravated on 25.06.2024 and matter was reported to high ups to take remedial measures against erosive action of Indus River on damaged part of stud RD.25+000.The Zonal Technical Committee was constituted who inspected the site on 27.06.2024 and recommended initiation of work on emergent basis to save the damaged Spur RD. 25+000. Similarly, in pursuance to Administrative Department, Lahore canal wire No. 304, dated 03.07.2024, the team of experts inspected the critical site of Hairo Flood Bund on 04.07.2024. After visiting the problematic / vulnerable site, the team of experts recommended that existing part of damaged stud at RD. 25+000 of Hairo flood bund should be hold to its present position expeditiously as per recommendation of DEC dated 24.06.2024 to avoid any untoward situation.

In light of the decision of Zonal Technical Committee as well as member of experts, tentative cost of work was worked out to be Rs.175.00 Million which could vary due to river dynamic condition. Keeping in view the sensitivity of matter, the case was initiated under Para 2.89 of PWD Code & Clause 59 (d) (iii) of PPRA Rules because no funds were available with the Division to take up the work. The Administrative Department accorded formal approval of emergent work up to maximum Rs.175.00 Million vide No.SO(FLOODS) VI-11/2008(DGK) Dated:18.07.2024. The work was awarded to M/s Sparco Construction Company after negotiated tendering under clause 59 (d) (iii) of PPRA Rules 2014 vide Executive Engineer, Jampur Construction Division, Rajanpur letter No. 535-38 / AB dated:

19.07.2024. The contractor mobilized at site and the work was started on 15.07.2024. The work remained continued upto 10.09.2024 under the resident supervision of M/s NESP AK Consultants (M&R) D.G.Khan.

Due to fluctuation in River Indus Discharge during month of May and June 2024, the sever swirl action started on U/S of stud RD.20+250 in between line 600-982 resultantly the apron started launching rapidly & situation was reported vide Canal Wire No. 680, dated 25.06.2024. The Superintending Engineer Project Circle visited the site & confirmed the situation to high ups for taking remedial measures for the safety of structure. However, the morphology of the river was rapidly changed, resultantly Chief Engineer, Irrigation D.G.Khan Zone, D.G.Khan constituted a Zonal Technical Committee vide No. Works/2024/9443-50/SA/1098/PC dated: 26.06.2024. The committee visited the site on 27.06.2024 and suggested that launched apron of stud at RD.20+250 should be immediately restored. The team of experts also visited the site on 04.07.2024 and suggested that in case of any action at stud RD.20+-250, necessary steps may be taken in light of recommendation of DEC as per necessity / requirement against the site prevailing conditions. The site condition was again aggravated and the next meeting of ZTC was called on 12.07.2024, wherein it was recommended by committee that the remedial measures regarding damaged apron of stud RD.20+250 should be immediately taken up under Clause 59 (d) (iii) of PPRA Rules to prevent further damage to the structure. Estimate of the work was immediately framed and got sanctioned vide Chief Engineer, Irrigation D.G.Khan letter No. Works/2024/10400-04/407/16-JMP dated: 18.07.2024 after clearance from M/s NESPAK Consultants vide Resident Engineer, NESPAK (M&R) D.G.Khan letter No.4688/13/MAB/02/438 dated: 15.07.2024. The work was awarded to M/s Rana Traders vide this office Letter No 539-42/ AB dated:- 19.07.2024 after negotiated tendering under clause 59 (d) (iii) 2014. The contractor started the work and completed on 30.07.2024.

After completion of the work, the River Indus again suddenly changed morphology and washed the upstream apron of stud RD. 20+250 from Line No.400 to 982. The critical situation was intimated to high up vide Executive Engineer, Jampur Construction Division, Rajanpur vide C.W. No. 318 dated: 25.08.2024. After inspection the site, Superintending Engineer, Project Circle (Irrigation) D.G.Khan and Chief Engineer, Irrigation D.G.Khan Zone, D.G.Khan directed to immediately restore the launched apron vide their C.W. No. 2500 dated: 25.08.2024 and C.W. No.2503 dated: 25.08.2024 respectively. As per direction, Resident Engineer, NESPAK (M&R) D.G.Khan was requested to immediately observe the baseline data vide C.W.No. 320 dated: 25.08.2024. After observing the base line data jointly with NESPAK, the work was started and with hectic efforts, the structure was saved.

During 2025, all the river training Infrastructure within the jurisdiction of Jampur Construction Division Rajanpur has designed as per old highest flood levels, which needs to be updated as per flood levels observed during the flood 2010 in River Indus and during year 2013 as well as 2022 & 2024 from Hill Torrents. It is also pertinent to mention here that the damages of Kachhi Canal have not yet been restored as per original design by WAPDA since 2022. Resultantly, the ponded water is accumulated in the area / abadies such as Nizam Abad, Kanwala, Mouza Gianmal, Safdarabad, Arbi Tibba, Basti Jatt and many other scattered populations of Tehsil Rajanpur and Rojhan.

The River Indus has meandering characteristics and changes its course every year. Similarly, during the current flood season of 2025, River Indus attained high flood discharge downstream of Taunsa Head works. As the discharge started receding, the river altered its flow pattern and behavior, shifting its course towards the Stud located at RD 26+000 of Hairo Flood Bund. A sand island (bella) has developed in the river in front of this location, causing a reduction in the river’s water way width. This narrowing has significantly increased pressure on the structure. Consequently, severe scouring has been observed at this point. As the pressure built up, the river initiated severe erosive and boiling actions, resulting in structural damage. The apron on the upstream side launched first, followed by launching at the front nose (circular) portion. Subsequently, the downstream earthen shank portion was damaged, leaving only a 10 ft top width.

This situation escalated during the night of 2nd and 3rd September 2025. On the morning of 3rd September 2025, the field formation reported the incident to the undersigned, who immediately visited the site and assessed the critical condition of the structure. Subsequently, the matter was escalated to the Worthy Superintending Engineer, Project Circle, D.G. Khan. Vide Canal Wire No. 105 dated 03.09.2025, the case was submitted, and considering the emergency, approval was granted vide Canal Wire No. 106 dated 03.09.2025 for the deployment of a resourceful contractor under Clause 59(d)(iii) of PPRA Rules, 2014.

On 21.07.2025, the Executive Engineer, Jampur Construction Division, Rajanpur, inspected the site and found the structure intact. However, due to rising pressure, he instructed field staff for round-the-clock monitoring. Since then, daily underwater and structural inspections have been carried out. It was observed that severe scouring had developed, with bed depths ranging from 12 to 45 feet along the spur. Between 26th and 27th July 2025, continuous erosive action caused apron launching between Line No. 2250 to 2337 (195 ft), over a length of 130–150 ft, thereby reducing the apron width to nil in that section. The matter was immediately reported to higher authorities. The Worthy Superintending Engineer, Project Circle (Irrigation), D.G. Khan, visited the site on 27-07-2025 and confirmed that although the apron had launched, the pitching remained intact and protected the shank of the spur. He directed field staff to maintain 24/7 monitoring.

Monitoring continued until 05.08.2025. On 06.08.2025, fresh observations revealed further apron launching from Line No. 2582 to 2692 (170 ft). Partial apron launching was also noted between Line No. 2422 to 2522 (140 ft) and Line No. 2722 to 2840 (130 ft). At this stage, apron in the curved portion (Line B–C) and adjoining straight portion was almost fully launched. With parallel river flow along the apron, maximum scour depth reached 45 ft, placing the structure under severe threat.

Considering this critical position, the Worthy Chief Engineer, D.G. Khan Irrigation Zone, along with the Superintending Engineer, Project Circle (Irrigation), D.G. Khan, visited the site on 07.08.2025 and directed field staff to protect this vital structure. Subsequently, the Superintending Engineer, Project Circle (Irrigation), D.G. Khan, accorded approval vide Canal Wire No. 763 dated 08.08.2025 under Clause 59(d)(iii) of PPRA Rules, 2014 for dumping stone from reserved stock. Accordingly, contractor deployment was arranged and emergency protective remedial measures were initiated through stone dumping from the available reserved stock at site. As a result of these timely measures, the structure was successfully held and protected from further damage.

After the flood season of 2025, the river shifted its course further towards the right side due to the development of a sandy bella in front of RD 27+000 to RD 29+600. As a result, the river began attacking the bund at an angle of approximately 60 degrees along this reach. This shift caused parallel flow, increased erosive velocity, and launching of the apron at several locations, creating a severe threat to the stability of the Hairo Flood Bund, particularly at Stud RD 27+000 and the reach between RD 27+000 and RD 29+600.

In this context, a Zonal Technical Committee was constituted by the Chief Engineer, Irrigation Zone D.G. Khan, vide Canal Wire No. 2413 dated 24.11.2025, comprising:

1. Chief Engineer, Irrigation D.G. Khan Zone, D.G. Khan (Convener)
2. Superintending Engineer, Derajat Canal Circle, D.G. Khan (Member)
3. Executive Engineer, D.G. Khan Construction Division, D.G. Khan (Member)

The Zonal Technical Committee visited the Hairo Flood Bund from RD 27+000 to RD 29+600 on 26.11.2025, in accordance with the TORs and as per the SOPs notified by the Punjab Irrigation Department.

During the visit, the committee observed that the River Indus has continuously drifted towards the Hairo Flood Bund since 2017–18. After the 2025 flood season, the river has further shifted its course towards the right side and is presently flowing parallel to the bund between RD 27+000 and RD 29+600 with increased erosive velocity. This intensified flow has caused:

1. Partial launching of the apron in the reaches RD 27+000 to RD 27+300 and RD

27+700 to RD 29+600,

2. Reduction of apron width from the designed 20 feet to as low as 2–4 feet,
3. Slippage of stone pitching at multiple locations, posing a critical threat to the structural stability of the bund.

Due to the seriousness of the situation, the Superintending Engineer, Project Circle, permitted the use of available reserve stock of stone to meet immediate requirements. However, the reserve stock has now been exhausted, and the critical condition of the bund persists. Immediate restoration is required, as recommended by the Zonal Technical Committee, strictly in accordance with approved design parameters to ensure the safety of the Hairo Flood Bund.

The Right Marginal Bund (RMB) & Raikh Bagh Wala Flood Bund, located upstream of the Benazir Bhutto Shaheed Bridge on the River Indus, was originally constructed to regulate the afflux created by the bridge and to protect the surrounding areas from river-induced inundation. Its primary role is to safeguard local populations, agricultural fields, and essential infrastructure by preventing flood waters from escaping the designated river course. The location is of strategic hydraulic significance, as the confluence of the River Chenab and the River Indus occurs in this reach, intensifying flow conditions.

During the 2025 flood event, departmental advisories indicated that all major rivers were carrying exceptionally high discharges simultaneously, moving downstream toward this critical reach. This convergence of flows created a grave threat of over flow into populated and cultivated lands, as the confluence point of the Indus and Chenab lies directly in front of this area.

To address the emerging risk, the matter was escalated to the Worthy Superintending Engineer, Project Circle, D.G. Khan, vide Canal Wire No. 246 dated 28.08.2025. The communication highlighted that in view of the exceptionally high discharges anticipated at Head Panjnad and their likely convergence at the confluence point (River Indus) near RD 83+000 of the Raikh Bagh Wala Flood Bund, both Raikh Bagh Wala Bund and RMB were expected to come under immense pressure. At that time, both embankments were in a deteriorated and incomplete state:

- RMB had only a partially completed sandy dowel stretch of 9,500 ft.
- Raikh Bagh Wala Bund had missing links extending up to 10,000 ft, left incomplete by various machinery divisions in the past.

The inundation risk through these missing links was already communicated to the District Administration for evacuation and rescue operations via this office letter No. 546/41-E dated 18.08.2025. Given their weakened condition, the existing bunds were structurally inadequate to withstand the approaching high flood wave.

In view of the above, an urgent request was submitted under Emergency Clause 59(d)(iii) of PPRA Rules, 2014 and Para 2.89 of PWD Code for the deployment of resourceful contractors to manage the situation at critical points. Considering the emergency, approval was accorded vide Canal Wire No. 249 dated 28.08.2025 for the immediate deployment of contractors under Emergency Clause 59(d)(iii) of PPRA Rules.

Accordingly, a contractor was mobilized and assigned the reach of the Right Marginal Bund from RD 0+000 to RD 30+000, where emergency plugging and protective temporary remedial measures were carried out. Heavy machinery was deployed at vulnerable locations, and operations included tracing, puddling, refilling, and strengthening of all major rain cuts, filling of rat and porcupine holes, and raising as well as strengthening of depressed reaches up to high flood levels. Execution activities continued until the flood subsided, thereby ensuring the stability and safety of the bund against potential flood threats.

Formal approval from worthy Chief Engineer D.G. Khan Irrigation Zone Vide No Works/2025/12530/407/16-JMP dated D.G.Khan the 15.11.2025 regarding additional deployment of machineryat critical infrastructures during flood season 2025 to regularize the matter.

The detail of floods damages occurred due to River Indus and Hill Torrents flood water during the year 2025 is explained in Chapter No. 6.

CHAPTER-4.

Design Data, Historic Peak Data & Previous Five Year Flood Data of Head Works / Barrages & or Other Control Points.

4.1. FLOOD LIMITS.

River Indus

FLOOD POSITION.	DISCHARGERANGE.
Normal Floods	Below 2.5 Lac Cs:
Low Floods	2.50Lac Cs: to 3.75 Lac Cs:
Medium Floods	3.75 Lac Cs:to5.00 Lac Cs:
High Floods	5.00 Lac Cs: to 6.50 Lac Cs:
Very High Floods	6.50 Lac Cs: to 8.00 Lac Cs:
Exceptionally High Floods	Above 8.00 Lac Cs:

FCC / Drains

FCC/Drains	Flood Position					
	Normal	Low	Medium	High	Very High	Exceptionally High Floods
	Discharge Ranges					
FCC-79	0 ≤ 500	100	1500	2000	2500	≥ 3000
FCC-95	0 ≤ 300	500	800	1000	1300	≥ 1300
FCC-123	0 ≤ 420	840	1260	1680	2100	≥ 2500
FCC-145	0 ≤ 1000	1000	2500	4000	5000	≥ 5000
FCC-166	0 ≤ 300	500	800	1000	1300	≥ 1300
FCC-177	0 ≤ 500	1000	1500	2000	2500	≥ 2500
FCC-186	0 ≤ 1200	2500	3800	5000	6200	≥ 6000
Qutab Drain	0 ≤ 2000	3000	6000	9000	10000	≥ 10000
Bukhari Drain	0 ≤ 400	800	1200	1500	2000	≥ 2000
Musharraf Drain	0 ≤ 400	800	1200	1500	2000	≥ 2000

4.2. TIMELAGOF FLOODS:-

Sr. No.	Reach	Distancein Km:	Timein hours.
1	Attock–Kala Bagh	169	24
2	Kala Bagh–Chashma	58	12
3	Chashma– Taunsa	237	72
4	Taunsa–Ghazi Ghat	52	13
5	Ghazi Ghat–Jakhar Imam	31	8
6	Jakhar Imam – Kot Mithan	108	27
7	Kotmithan – Rojhan	51	13
8	Rojhan – Guddu Barrage	38	10
	Total	744	179

4.3. HIGHEST RIVER FLOODS:-

Sr. No.	Year	Peak Discharge(Cs)	Date	Day	Flood Position
1	1992	654579	14.09.1992	1	Very High Flood
2	2006	612269	09.08.2001	1	High Flood
3	2010	959991	02.08.2010	1	Exceptionally High Flood
4	2013	516017	17.08.2013	1	High Flood
5	2015	597730	05.08.2015	1	High Flood
6	2022	624159	31.08.2022	1	High Flood
7	2023	419895	28.07.2023	1	Medium Flood
8	2024	440296	08.08.2024	1	Medium Flood
9	2025	509477	19.08.2025	1	High Floods

4.4. Peak Discharges.

i) At Darras

Name of Hill Torrent	1		2	3	4	5	6
	i Kaha	ii (Kala+ Bagga Khosra)	Chachar	Pitok	Sori Shumali	Zangi	Sori Janobi
ReturnPeriod (25years)	118500		85500	23900	13000	33600	41600
Year	Peak Discharges (InCusecs)						
2013	96000		65000	3400	3280	2950	7800
2014	21158		3200	--	--	--	3350
2015	46855		30800	700	1300	600	3000
2016	40905		24300	2560	2900	4750	3300
2017	31032		5250	0	0	2400	5000
2018	31032		3250	0	0	5850	2170
2019	84100		14500	1150	1800	2800	4047
2020	41193		21158	0	2500	3500	9200
2021	21158		3250	0	0	0	7000
2022	**108941**	**18500**	**75900**	5000	7000	9000	**17000**
2023	35968	5500	15000	1200	1000	3500	3500
2024	105276	27640	27640	**14600**	5845	33600	16560
2025	46235	17994	48901	11309	**11539**	**10739**	3240

ii) At Syphon Structure Crossings:

Name of Hill Torrent	1		2
	i Kaha	ii (Kala+Bagga Khosra)	Chachar
	Peak Capacity /Design Capacity (Cs)	Peak Capacity /Design Capacity (Cs)	Peak Capacity /Design Capacity (Cs)
2025	4800 / 4000	2800 /2000	8000 / 5000

iii)- At River

Year	Date	Discharge at Taunsa Barrage (Cusecs)
2009	21st August	320292
2010	**02nd August**	**959991**
2011	01st September	227698
2012	10th September	235389
2013	17th August	516017
2014	18th July	247412
2015	05th August	597730
2016	08th July	343024
2017	07th August	418388
2018	28th August	252725
2019	15th August	378194
2020	06th September	479860
2021	04th August	304121
2022	31st August	624159
2023	28th July	419895
2024	08th August	440296
2025	**19 August**	**509477**

Chapter No. 5.

FLOOD FIGHTING STRATEGY.

a) Flood Fighting Strategy along River Indus

The Executive Engineer, Jampur Construction Division, Rajanpur will be over all in-charge and will stay at Jampur Canal Rest House during flood days in River Indus. He will take appropriate action according to the emergency.

By 1st of June, the strength of the existing establishment will be doubled by employing work charge establishment to clear the jungle on slopes and toe of the embankments shanks etc of the spurs. The extra establishment will be deployed for the detection and removal of holes of burrowing animals. These holes will be removed before15th June-2026.

In emergency, the flood information is received from upper region. The Sub Divisional Officer and Sub Engineer in-charge will shift their headquarters at site. The establishment will be deployed according to the flood stage and as prescribed, round theclock vigilant watching will be arranged along the entire embankment to take care of eventualities. The staff will be equipped with chargeable torches, cell torches, gunny bags, kassies and any other relevant material to control seepage / leakage in the flood bund / embankment. The information is passed on quickly to the concerned quarter andsimultaneous action will be taken to close the same. In the event of exceptionally high flood stage the heavy earth moving machinery (Bull Dozers) private and Agricultural Engineering Department / Machinery Circle will also be kept ready and placed on alert at vulnerable sites of Jampur Flood Bund RD. 24+000, 54+000 and Rojhan Flood Bund RD. 12+000 – 14+000 and RD. 12+000 of Fakhar Flood Bund for the safety of the public private e infrastructures, land and abadies of District Rajanpur. In emergency, relief cuts will be made in 2nd defence bunds or whenever required according to the site situation.

1.1 Watching Establishment Criteria.

STAGE-I

i. Normal Floods (Below 2.5 LacCs)

When river discharge ranges between these limits, flood water remains within the lips of River, it does not touches any flood bund or embankment, watching establishment shall be deployed at the rate of one man 2mile/per shift for one shift in a day. Sub Engineers concerned will supervise the entire watching operation along Spurs, studs and Flood Bunds from Jampur to Rojhan. Sub Divisional Officer concerned will act as the officer in-charge of watching operation.

STAGE-II

ii- Low Floods (2.50 Lac Cs:to3.75 Lac Cs)

When the discharge ranges between the selimits, flood water remains within the lips of River, it does not touches any flood bund or embankment, watching establishment shall be deployed at the rate of one man per mile/per shift for one shifts ina day. Supervisory staff shall be the same as in stage-I.

STAGE-III

iii- Medium Floods (3.75 Lac Cs: to 5.00 Lac Cs)

At this stage flood water starts touching the flood bunds / embankments. Watching establishment shall be deployed at the rate of two men per mile/per shift for two shifts in a day. Supervisory staff shall be the same as in stage-II.

iv- High Floods (5.00 Lac Cs: to 6.50 LacCs)

At this stage flood water starts touching the flood bunds / embankments. Watching establishment shall be deployed at the rate of two men per mile/per shift for two shifts in a day. Supervisory staff shall be the same as in stage 1, their headquarters will be shifted at most critical points.

STAGE-IV

v- Very High Floods (6.50LacCs:to8.00 Lac Cs)

Watching establishment shall be deployed at the rate of five men per mile/per shift for three shifts in a day. Supervisory staff shall be the same as in stage 1, their headquarters will be shifted at most critical points.

vi- Exceptionally High Floods (Above8.00Lac Cs)

At this stage, establishment at rate of five men per mile/per shift for three shifts in a day alongwith volunteer labours brought by Civil Administration and Army will help the watching operation. Police Guards will be deputed on vulnerable points to guard against any mishap/sabotage. Overall supervision of all operations will be done by the Executive Engineer.

- Beldar should be provided with hand tools (1 Kassie, 1 Axeand 1 Rechargeable Torch for night shift in case of flood above low flood limit).
- The activities of staff during normal flood season should be included but notlimited to:
  - Removing Jungle and bushes from slopes and toe of embankment
  - Filling of raincuts / Gharas
  - Dressing of slopes
  - Filling porcup in eand rat holes
  - Keeping the track motorable
- Mate:-1 No. for every gang of 12 Beldars at all flood range.

1.2 ESTABLISHMENT OF CAMP CRITERIA

- Normal Flood Season: 15miles/Vulnerable points
- Low Flood: 15 miles
- Medium Flood / High flood 7 miles
- Very High /Exceptionally High 5 miles

Note:- The Superintending Engineer will noti fy all vulnerable points as per recommendation of Executive Engineer and if the vulnerable site falls within 15 miles of embankment, then camp will be established at vulnerable site.

WATCHING HUTS LOCATIONS

Temporary watching huts are proposed at vulnerable sites. Detail of the field supervisory staff deployed for the purpose at the start of flood season is as under:-

Sr.No.	Description.	No.
1	J-Head Spurat Stud No. 4 at RD: 10 Banuhan Dy.	1 No.
2	J-Head Spur U/S Basti Rindan	1 No.
3	J-Head Spur Jakhar Imam Shah	1 No.
4	Jampur Flood Bund RD. 24+000	3 No.
5	Hairo Flood Bund	4 No.
6	Bukhari Drain	3 No.
7	New Manka Drain.	2 No.
8	Tayyab Drain.	3 No.
9	FCC-123 at RD: 80+000 (Patt Wali Flood Bund)	3 No.
10	FCC-145	2 No.

11	FCC-166	1 No.
12	FCC-177	2 No.
13	FCC-186	3 No.
14	Qutab Drain at RD: 282+000 (Pull Pathan)	1 No.
15	Qutab Drain at RD: 258+000 (Basti Lakha)	1 No
16	Qutab Drain at RD: 243+000 (Fateh Pur Road Xing)	1 No.
17	Qutab Drain at RD: 228+000 (Muhammad Pur Gam Wala)	1 No.
18	Bukhari Drain Feeding Channel Syphon 95 DKC	1 No.
19	Bukhari Drain Aqil Pur Road Crossing, Shikar pur, Indus Highway.	3 No.
20	Fakhar Flood BundRD. 14+000.	1 No.
21	At nose of J-Headspur R– 63.	1 No.
22	At nose of J-Headspur R– 64.	1 No.
23	At nose of J-headspur R-65 near Rojhan.	1 No.
24	At X-ing of district council bund Miranpur road.	1 No.
25	Near Rojhan town RD: 6+000 Rojhan flood bund.	1 No.
26	At RD.18+000 Rojhan flood bund.	1 No.
27-i	At RD:4+000 Umer Kot Flood Bund	1 No.
ii-	At RD: 22+000 Umer Kot Flood Bund	1 No.
iii-	At RD: 42+000 Umer Kot Flood Bund	1 No.
iv-	At RD:5+000 Baghsar Flood Bund	1 No.
28	J-Head Spur at RD 23+000 Hairo Flood Bund	1 No.
29	Inverted Hockey Spur at RD16+000 Hairo Flood Bund	1 No.
30	Studat RD 20+250 of Hairo Flood Bund.	1 No.
31	Raikh Bagh Wala to Bait Waghwar Flood Bund	9 No.
32	Right Marginal Bund (RMB) at RD: 0+000, 32+000, 50+000, 77+500	5 No.
33-i	Musharaf Flood Bund	1 No.
ii-	At RD: 0+000 Musharaf Flood Bund	1 No.
iii-	At RD: 15+000 Musharaf Flood Bund	1 No.
iv-	At RD:37+000 Musharaf Flood Bund	1 No.
v-	At RD:61+500 Musharaf Flood Bund	1 No.
34-i	At RD:71+000 Left Bank of Musharaf Drain	1 No.
ii-	At RD:82+000 Left Bank of Musharaf Drain	1 No.
23	At nose of J-headspur R-65 near Rojhan.	1 No.
24	Qalandar Shah Groyne	1 No.

Chapter-6

FLOOD DAMAGES /RESTORATION WORKS
(DAMAGES DURING FLOOD 2025)

District Rajanpur is affected by two major categories of floods: hill torrent floods and riverine floods.

Hill torrent floods originate from seven major hill torrents: Kaha, Chachar, Kala Bagga, Pitok, Zangi, Suri Shumali, and Suri Janobi. Torrential flows emerging from the Darrahs enter the Flood Carrying Channels (FCCs) after crossing the syphon structures constructed over the Dajjal Branch and Katchi Canal. These floodwaters then move towards the Tayyab and Qutab Drainage System, ultimately draining into the Indus River through the Musharraf Drain.

Riverine floods develop from the combined flows of the Indus and Chenab rivers, further joined by the Satluj and Ravi rivers. After converging at Panjnad Headworks, these flows enter the Indus River at Fazilpur (Bait Sontra), cross the Benazir Bhutto Shaheed Bridge, and move towards Tehsil Rojhan and Rahim Yar Khan.

Flood Behavior – 2025

The flood season of 2025 presented a complex hydrological scenario within the jurisdiction of Jampur Construction Division, characterized by the simultaneous occurrence of torrential flows from hill torrents and high-magnitude riverine floods in the Indus River system. The intensity, timing, and hydraulic behavior of these flood events tested the resilience of existing flood management infrastructure and necessitated extensive flood-fighting operations.

Torrential Floods

During the monsoon period, severe torrential floods were generated from the major hill torrents traversing the division. The recorded peak discharges were exceptionally high, with Kaha Torrent reaching 46,235 cusecs on 18.08.2025, Chachar Torrent peaking at 48,901 cusecs on 12.07.2025, and Kala Bagga Torrent recording 17,994 cusecs on 14.07.2025. These flows entered the Flood Carrying Channels (FCCs), which are hydraulically constrained as they are designed at approximately half the capacity of the corresponding syphon structures.

The situation was further aggravated by suboptimal alignment of the FCCs and associated drainage systems, particularly the Musharraf Drain. The presence of multiple sharp bends, including several 90-degree turns, significantly reduced flow efficiency and created localized turbulence and pressure points. Additionally, the soil composition of these channels, predominantly sandy silt, increased vulnerability to erosion, scouring, and natural infilling. These factors collectively elevated the risk of overtopping and breaches, especially under high-velocity torrential flows.

Riverine Floods

In addition to torrential activity, the division experienced substantial riverine flooding. The Indus River attained high flood levels at Taunsa Barrage, with a peak discharge of 503,000 cusecs, crossing District Rajanpur on 21.08.2025. Furthermore, at Panjnad Headworks, the combined flows from the Chenab, Satluj, and Ravi rivers culminated in an extraordinary discharge of 800,000 cusecs, which safely passed under the Benazir Bhutto

Shaheed Bridge on 14.09.2025.

Despite the magnitude of these flows, effective coordination among the Irrigation Department, District Administration, and law enforcement agencies ensured that the flood waters were managed without any major breaches or catastrophic structural failures. However, the high-energy flows and fluctuating discharge regimes caused considerable damage to river training works and flood protection bunds, highlighting under lying structural vulnerabilities.

Critical Reaches & Flood-Fighting Operations

Flood Carrying Channels (FCCs)

The FCCs remained the most critical components of the flood management system during the 2025 flood season. The combination of sharp angular alignments, under-designed hydraulic capacity, and erosion-prone soil conditions rendered these channels highly susceptible to damage. The natural tendency for sediment deposition further reduced their effective carrying capacity. To counter these challenges, extensive flood-fighting operations were undertaken. These included the strategic placement of sand-filled jute bags to reinforce vulnerable sections, bamboo bushing to minimize erosion, and the deployment of heavy machinery for emergency strengthening works. Continuous monitoring of critical reaches was maintained to ensure timely intervention in case of distress.

River Training Works

Significant damage was observed in river training structures due to abrupt fluctuations in river discharge and high flow velocities. Notable damages included the deterioration of studs located at RD: 20+250, RD: 25+000, RD: 26+000, and RD: 27+000 along the Hairo Flood Bund. Additionally, pitching and apron sections between RD 27+000 to RD 29+000 suffered extensive erosion. Other affected structures included the J-head Spur at RD 10+000 of Banuhan Distributary and J-head Spur No. 03 of Jhakhar Imam Shah. Critical geographical locations experiencing heightened risk included Hairo Flood Bund, Right Marginal Bund, Raikh Bagh Wala, Umer Kot, Rojhan, Jampur, and Bhagsar Flood Bund. Temporary protective measures were implemented promptly, primarily involving the dumping of loose stone at vulnerable and eroded sections, along with the use of heavy machinery to stabilize weakened reaches. These emergency responses played a vital role in preventing further deterioration during peak flood periods.

Impact of Critical Flood Works Undertaken in Fiscal Year 2024–25

In response to the severe flooding experienced in 2024, a series of targeted flood protection interventions were executed during the fiscal year 2024–25 (October 2024 to 20 June 2025). These measures were aimed at strengthening existing infrastructure and mitigating future flood risks through proactive planning. Key interventions included the strengthening and raising of Musharraf Flood Bund and improvements to the Musharraf Drain system to enhance its discharge capacity. Comprehensive desilting operations were carried out across all major flood-carrying channels associated with the seven hill torrents to ensure unobstructed flow paths. Furthermore, critical restoration works were undertaken on Indus River bunds along the right bank, including Umer Kot, Rojhan, and Bhagsar, to reinforce their structural integrity.

Results during 2025 Flood Season

The impact of these pre-emptive measures was clearly evident during the 2025 flood season. Both torrential and riverine floods were largely conveyed safely through the

system without major breaches, demonstrating the effectiveness of the interventions. However, localized breaches occurred at FCC-186 and Qutab Drain, and damage was observed at sharp bends of several flood-carrying channels. These vulnerable points were significantly affected by excessive torrential flows and require permanent protection measures, such as stone pitching, to enhance their resilience. Overall, the timely execution of flood protection works resulted in a substantial reduction in disaster-related impacts. Communities, agricultural lands, and critical infrastructure were safeguarded from large-scale damage. The experience of 2025 underscores the importance of incorporating lessons learned from previous flood events into planning and execution.

The proactive and coordinated approach adopted following the 2024 floods proved instrumental in mitigating risks during 2025. These short-term yet strategic interventions not only prevented major losses but also demonstrated the critical value of preparedness, adaptive management, and continuous improvement in flood control systems.

A. Hill Torrents:

During the Flood Season 2026, a peak discharge of 48,901 cusecs was recorded in the hill torrent catchment area, which was substantially higher than the channel's design capacity of 5,000 cusecs. Owing to the excessive flow and high velocity, the channel failed to withstand the hydraulic pressure, resulting in multiple breaches at different locations and widespread inundation of adjoining areas.

The channel sustained breaches within the reach RD: 19–39 at the following locations: RD 19–20/1, RD 23–24 (Right), RD 28–30 (Right), RD 32–33 (Right & Left), and RD 38–39/1. Consequently, floodwater inundated key infrastructure and settlements, including Fazilpur–Hajipur Road Crossing (RD: 23+000), Chak Shaheed–Hajipur Crossing (RD: 22+500), Soonwah (RD: 37+000), areas near Hajipur City (RD: 59), Pull Pathan, Dajjal Road to Dhandla Road (Yakkay Wala), Ozman Road (RD: 61+500), Lal Garh, Lundi Saidan, and Rojhan Main City.

The situation was promptly reported by the SDO Hill Torrent upon which the XEN, Construction Division Jampur, Rajanpur, requested the Superintending Engineer, Project Circle D.G. Khan vide C.W. No. 201 dated 08.07.2025 to execute emergent works under Clause 59(d)(iii) of PPRA Rules 2014. In response, the Superintending Engineer accorded approval vide C.W. No. 938 dated 09.07.2025, directing immediate initiation of works under the emergent clause. Subsequently, formal approval for regularization was granted by the worthy Chief Engineer, D.G. Khan Irrigation Zone vide No. Works/2025/12449/407/16-JMP dated 13.11.2025, including additional deployment of machinery at critical infrastructure during the flood season 2025. In view of the critical and alarming situation at site, emergent works were immediately undertaken through a resourceful contractor under Clause 59(d)(iii) of PPRA Rules 2014 to prevent further loss of life and property, protect vital infrastructure, and restore the channel to its functional capacity.

Sr. No.	Name of Work	Estimated Cost (M)	Remarks
1	Deployment of Machinery for Emergent flood management works at Rajanpur-Lal Garh and Lundi Saidan Flood Bund	2.467	The work got completed Physically 100% in Thesupervision of NESPAK (M&R) Consultants.
Machinery			
2	Deployment of Machinery at emergent flood management works at Rajanpur-Pull Pathan of Qutab Drain	4.806	

3	Deployment of Machinery for emergent flood Managemen tworks at Rajanpur- Musharaf Flood Bund RD:61+500	3.044	

During dated 02-12 July 2025, flash flooding with heavy to very heavy rains was occur in hill torrents of D.G.Khanand Rajanpur Districts. Considering the alert machinery were deployed, after attaining the proposal approval from the competent authority.

On July 12, 2025, a cloud burst accompanied by a severe thunder storm occurred over the regions of Dera Bugti and Barkhan. The resulting flood waters reached the Darrah of Chachar Hill Torrent at 3:40 AM and progressed to RD 186+000 of the Dajal Branch by 5:35 AM. The torrent peaked at a discharge of 48,901 cusecs at 6:20AM, and its impact reached the syphon structure at RD 186 by 8:00 AM.

This discharge is being conveyed into Qutub Drain from both FCC-186 and FCC-145. However, the drain has a designed capacity of only 9,000 cusecs, which has been exceeded, there by putting significant pressure on the Mushraf Flood Bund at RD 0+000, 15+000, and 81+000.

All efforts are being undertaken to secure its safe conveyance without structural or operational failure, Xen Jampur Construction Division, Rajanpur requested to Superintending Engineer, Project Circle, D.G.Khan vide C.W. No. 1228 dated 12.07.2025 to execute the work under Para 59 d(iii) of PPRA Rules 2014. In response, Superintending Engineer, Project Circle, D.G.Khan directed to immediately take up the work by invoking emergent clause of PPRA Rules vide C.W No.1231 dated 12.07.2025. Formal approval from worthy Chief Engineer D.G. Khan Irrigation Zone Vide No Works/2025/12437/407/16-JMP dated D.G.Khan the 13.11.2025 regarding additional deployment of machinery at critical infrastructures during flood season 2025 to regularize the matter.

Keeping in view the critical and alarming sitesituation, emergent nature works were immediately undertaken through a resourceful contractor under Clause 59(d)(iii) of PPRA Rules to prevent further public loss, safeguard infrastructure, and restore the channelto its functional capacity.

Sr. No.	Name of Work (Machinery)	Estimated Cost (M)	Remarks
1	Deployment of Machinery for emergent flood Management works at Rajanpur-Muhammad pur Gum Wala Road X-ing at RD.228+000 of Qutab Drain.	4.195	The work got completed physically 100% in the supervision of NESPAK (M&R) Consultants.
2	Deployment of Machinery for emergent flood Management works at Rajanpur-RD:0+000 Musharaf Flood Bund	3.048	
3	Deployment of Machinery for emergent flood Management works at Rajanpur-RD:15+000 Musharaf Flood Bund	2.761	
4	Deployment of Machinery for emergent flood Management works at Rajanpur RD: 81+000 Musharaf Flood Bund	2.715	

B-Drainage.

Based on the above-mentioned situation, in order to avoid breaching of flood embankments and failure of the drainage system due to exposure of hydraulic grade line and over topping, the following works are proposed after formal approval from worthy Chief Engineer D.G. Khan Irrigation Zone Vide No Works/2025/12530/407/16-JMP dated D.G.Khan the 15.11.2025 regarding additional deployment of machinery at critical infrastructures during flood season 2025 to regularize the matter.

Sr.#	Name of Work(Contractorwork)	Estimated Cost (M)	Remarks
1	Deployment of Machinery for emergent flood Management works at Rajanpur Soon wah RD: 37+000 of FCC-186.	8.771	The work got completed physically 100% in the supervision of NESPAK (M&R) Consultants.

Sr. No.	Name of Work (Machinery)	Estimated Cost (M)	Remarks
1	Deployment of Machinery for emergent flood Management works at Rajanpur-Fazilpur to Hajipur Road X-ing RD.23+000 of FCC-145.	2.807	The work got completed physically 100% in the supervision of NESPAK (M&R) Consultants.
2	Deployment of Machinery for Emergent Flood Management works at Rajanpur-Chak Shaheed to Hajipur Road X-ing RD: 22+500 of FCC-186.	2.866	
3	Deployment of Machinery for emergent flood management works at Rajanpur-Near Hajipur City at RD: 59+000 of FCC- 177 & FCC-166.	2.811	
4	Deployment of Machinery for emergent flood management works at Rajanpur-Dajal Road to Dhandla Road (Yakkay Wala) of Tayyab Drain.	2.011	
5	Deployment of machinery for emergent flood management works at Rajanpur-Rojhan city of Rojhan flood bund.	8.388	

Sr. No.	Name of Work (Machinery)	Estimated Cost (M)	Remarks
1	Deployment of Machinery for Emergent Flood Management works at Rajanpur-Fatehpur Road at RD: 243+000 of Qutab Drain.	2.923	The work got completed 100% in the supervision of NESPAK (M&R) Consultants.
2	Deployment of Machinery for Emergent Flood Management works at Rajanpur-Basti Lakha at RD:258+000 of Qutab Drain	2.733	
3	Closing Breach on Left Side of Qutab Drain at RD: 229+000 (Package B)	2.105	

Sr. No.	Name of Work (Contractor work)	Estimated Cost (M)	Remarks
1	Closing Breach on Right Side of Qutab Drain at RD: 270+000.	4.94	The work got completed physically 100% in the supervision of NESPAK (M&R) Consultants.
2	Closing Breachand Bank Strengthening of FCC-186 Damaged by Torrential Water of Chachar Hill Torrent.	14.488	
3	Protective Measures and Strengthening of Banks against Leakage on Qutab Drain RD:282+000 ABD Feeding Channel Bukhari Drain	4.719	
4	Closing Breach on Left Side of Qutab Drain at RD: 229+000 (Package A)	4.621	

C-Indus River.

On 19.08.2025, the River Indus developed a direct and aggressive attack on the following structures.

In accordance with departmental policy, the Zonal Technical Committee inspected the site by Executivers on 10.02.2026 by Superintending Engineer / Chief Engineer and, considering the urgency of the situation, recommended that the aforementioned works be initiated immediately under Clause 59(d)(iii) of the PPRA Rules, 2014.

Subsequently, the Administrative Department was requested to constitute an expert panel to assess the site and propose remedial measures to control the aggressive river behavior. The expert team, comprising the Chief Engineer D.G. Khan, Superintending Engineer Muzaffar Gharh Circle, Superintending Engineer, Project Circle D.G. Khan, Principal Research Officer (H), Irrigation Research Institute Lahore, and Resident Engineer, NESPAK Consultant D.G. Khan, inspected the site on 31.03.2026. The team recommended that the existing structures be protected and maintained in their current position through immediate flood-fighting measures, and further advised that the matter be referred to the Departmental Expert Committee fordetailed guidance.

Accordingly, the emergent nature works during the year 2025–26 were undertaken under Clause 59(d)(iii) of the PPRA Rules, 2014. Formal approval for regularization was subsequently accorded by the worthy Chief Engineer, D.G. Khan Irrigation Zone vide No. Works/2025/12449/407/16-JMP dated 13.11.2025, regarding the deployment of machinery at vulnerable sites by invoking Clause 59(d)(iii) and 59(E)(i)(a) of PPRA Rules, 2014 during the flood season 2025.

Sr. No	Name of Work (Contractor)	Estimated Cost (M)	Remarks
1	Remedial measures for protection of Stud No.2 at RD:26+000 of Hairo Flood Bund from erosive actionof River Indus during Flood 2025	15.580	The work got completed physically100% in the supervision of NESPAK (M&R) Consultants.

Sr. No	Name of Work (Contractor)	Estimated Cost (M)	Remarks
2	Deployment of machinery for emergent flood management works at Rajanpur protection of Hairo Flood Bund in flood emergency 2025.	3.390	The work got completed physically 100% in the supervision of NESPAK (M&R) Consultants.

Sr. No	Name of Work (Contractor)	Estimated Cost (M)	Remarks
3	Deployment of machinery for emergent flood management works at Rajanpur-Right Marginal Bund (RMB) of Benazir Shaheed Bridge.	3.325	The work got completed physically 100% in the supervision of NESPAK (M&R) Consultants.

Sr. No	Name of Work (Contractor)	Estimated Cost (M)	Remarks
4	Taking remedial measures by deployment of machinery at RMB from RD: 0+000 to 30+000 during flood emergency 2025.	8.054	The work got completed physically100% in the supervision of NESPAK (M&R) Consultants.

Sr. No	Name of Work (Contractor)	Estimated Cost (M)	Remarks
7	Taking remedial measures to protect J-Head Spur RD. 10+000 of Banuhan Disty.	10.123	The work got completed physically100% in the supervision of NESPAK (M&R) Consultants.
8	Deployment of machinery for emergent flood management works at Rajanpur Jampur Flood Bund in flood emergency 2025.	0.836	

Sr. No	Name of Work (Contractor)	Estimated Cost (M)	Remarks
5	Taking remedial measures by deployment of machinery at RMB from RD: 30+000 to 60+000 during flood emergency 2025.	3.685	The work got completed physically100% in the supervision of NESPAK (M&R) Consultants.

Sr. No	Name of Work (Contractor)	Estimated Cost (M)	Remarks
6	Taking remedial measures by deployment of machinery at RMB from RD: 60+000 to 77+500 and Raikh Bagh Wala flood bund from RD: 83+000 to 139+000 during flood emergency 2025.	12.778	The work got completed physically 100% in the supervision of NESPAK (M&R) Consultants.

FLOOD DAMAGES / RESTORATION WORKS.
(RESTORATION WORKS)

Sr. No.	Name of Work	Head of Account	Estimated /T.S Cost	Remarks
1	Structural work at FCC-79 Tayyab Drain damaged during flood 2025.	A-13501 Main Embankment	78.85	Contractor mobilized at site
2	Restoration of Hairo Flood bund from RD.27+000 to 29+600 (Mole Head) damaged during flood 2025.	A-13501 Main Embankment	113.612	Work in Progress
3	Restoration of J-Head Spur RD10+000 of Banuhan Disty damaged during flood 2025.	A-13501 Main Embankment	12.809	Contractor mobilized at site
4	Restoration of J-Head Spur Jhakar Imam Shah damaged during flood 2025.	A-13501 Main Embankment	4.966	Contractor mobilized at site
5	Restoration of Qalander Shah Groyne damaged during flood 2025.	A-13501 Main Embankment	7.628	Work in Progress
6	Maintaining slopes by providing protection along Rojhan Flood bund damaged during flood 2025.	A-13501 Main Embankment	28.223	Contractor mobilized at site
7	Adopting safety measures along left bank of Mushraf Drain damaged during flood 2025.	A-13501 Main Embankment	97.967	Work in Progress
8	Providing protection work along Mushraf Flood Bund damaged during flood 2025.	A-13501 Main Embankment	52.263	Work in Progress
9	Restoration of Muhammad & Hazoori wah X-Structure / weir damaged during flood 2025 on Kaha Hill Torrent.	A-13501 Main Embankment	89.089	Contractor mobilized at site
10	Restoration of R/s flood bund from Garmail X-Structure to Chatool X-Structure to protect Village Bambli and allied abadies damaged during flood 2025.	A-13501 Main Embankment	99.813	Work in Progress
11	Raising and Strengthening of Hairo flood bund from RD 0+000 To 20+000.	A-13501 Main Embankment	94.716	Work in Progress
12	Restoration of Stud No.2 at RD 26+000 of Hairo flood bund damaged during flood 2025.	A-13501 Main Embankment	82.391	Work in Progress
13	Restoration of stud RD 20+250 of Hairo flood Bund Damage during flood 2025.	A-13501 Main Embankment	21.426	Contractor mobilized at site
14	Restoration of Stud at RD 25+000 of Hairo Flood Bund damaged during flood 2024 and 2025.	A-13501 Main Embankment	91.552	Work in Progress
15	Providing stone pitching along Lundi Saidan Flood Bund from RD: 8+000 to 11+000.	A-13501 Main Embankment	35.451	Tender Called on 21.04.2026
16	Closing Breached & Strengthening left bank Link Channel & Jhoke Channel	A-13501 Main Embankment	31.043	Work in Progress
17	Providing stone pitching along left bank of Garmail X-Structure on Kaha Hill Torrent.	A-13501 Main Embankment	24.243	Tender Called on 21.04.2026
18	Constructing Inlet Structure for taking surface flow and excess supply of Abe-Hayat Disty at RD. 32+000 of FCC-145.	A13503 Drainage	22.522	Work in Progress
19	Repairing V.R. Bridges of New Manka Drain at RD 117+500 & RD. 120+500.	A13503 Drainage	32.026	Work in Progress
20	Constructing VR bridge at RD 35+000 of FCC-109 (Tayyab Drain) damaged during Flood 2025.	A13503 Drainage	32.307	Work in Progress
21	Providing stone pitching to protect sharp turns of FCC-186 damaged during flood 2025 at RD. 37+200	A13503 Drainage	53.942	Work in Progress
22	Re-sectioning of Feeding Channel of Bukhari Drain damaged during flood 2025.	A13503 Drainage	17.223	Work in Progress
23	Inlet Structure at FCC-79 RD 85+000 for taking the excess supply of tail cluster of Lower Manka Disty.	A13503 Drainage	23.999	Tender Called on 21.04.2026
24	Restoration of water course X-ing of FCC-186	A13503 Drainage	12.000	Estimate amounting to Rs. 12 (M) with NESPAK for clearance.
25	Protecting stone pitching to protect turns of FCC-186 damaged during flood 2025 RD 32+000 to RD 33+000	A13503 Drainage	69.667	Estimate amounting to RS 12.0 (M) with NESPAK for clearance.

Chapter-7.

FLOOD FIGHTING/ WATCHING ARRANGEMENT

7.1 Pre-Flood Arrangement

All flood protection works have been inspected and found to be in satisfactory condition. Campsites have been identified for emergency use. Flood-fighting materials have been checked, and Request for funds to replenishing the flood fighting material as well as procurement of reserve stock stone (detailed below) has been placed to the Administrative Department.

Structure Wise Detail of Reserve Stock Stone

Sr. #	Description	Sanctioned Quantity (LacCft)	Minimum Req: 80 % (L.Cft)	Available (LacCft)	Balance Quantity Required (LacCft)	Cost of Stone (Rs.M)	Remarks
1	J-Head Spur Jakhar Imam Shah	2.50	2.00	1.66	0.34	3.38	Revised Reserve Stock Limit is sanctioned by Chief Engineer, Irrigation D.G.Khan Zone, D.G.Khan vide letter No.2025/1490/48/93 dated: 29.12.2025. Procurement of balance reserve stock is in progress and will be completed upto 15.06.2026. Funds are available. No more funds are required.
2	J-Head Spur U/S Basti Rindan	2.50	2.00	2.00	0.00	0.00	
3	J-Head Spur at Stud No. 4 at RD: 10 Banuhan Dy.	1.50	1.20	0.23	0.97	9.25	
4	Qalandar Shah Groyne.	0.50	0.40	0.17	0.23	2.49	
5	J-Head Spur R-63	1.00	0.80	0.80	0.00	0.00	
6	J-Head Spur R-64	1.00	0.80	0.80	0.00	0.00	
7	J-Head Spur Rojhan	1.45	1.16	1.16	0.00	0.00	
8	3 No. Studs Banuhan	0.60	0.48	0.08	0.40	3.81	
9	Shah Jamal Groyne	0.50	0.40	0.00	0.40	4.52	
10	Fakhar Flood bund	1.50	1.20	1.20	0.00	0.00	
11	Stud No.1,2&3 of Harrow Flood bund	1.50	1.20	0.00	1.20	13.20	
12	Sloping Stud at RD 20+250 of Hairo Flood Bund.	0.50	0.40	0.00	0.40	4.37	
13	Inverted Hockey Spur at RD 16+000 of Hairo Flood Bund.	1.00	0.80	0.00	0.80	8.77	
14	J-Head Spur at RD 23+000 of Hairo Flood Bund.	1.50	1.20	0.00	1.20	13.16	
	Total	**17.55**	**14.04**	**8.10**	**5.94**	**62.94**	

a. **Flood Warning:** It is important that as soon as the Officer In-charge of Taunsa Barrage knows about any probable rise in the River, he will initiate the necessary watch over embankment and regulate the canal according to the rules sanctioned for each head works.

b. During High Flood, when the River over flows the banks, expensive area along the River banks is liable to be inundated. It is therefore, necessary to warn civil officer to be on the alert and to be ready to evacuate villages likely to be inundated.

c. For the reasons stated in paragraph above, flood warning are to be sent by higher officer to the Civil Administration & other Irrigation officers. Flood warning will be issuedby telegraph office to concerned officers.

d. Between the dated October 01 and March 31 warning should be issued immediately when a River rises to “Low” flood level. The Executive Engineer Muzaffargarh Canal Division and Executive Engineer Dera Ghazi Khan will be intimated whenever the gauge at Attock is 10’ ft or above.

e. For the period April 01 to September 30 warning should be issued only when a river reaches the "Medium" stage. No warning is issued for low flood during flood season.

SPECIAL FLOOD WARNING TO THE CHIEF ENGINEER

In addition to issue of warning as described above, when the river rises to the high flood stage, warnings by postal / wireless will also be issued to Chief Engineer from Tarbella Dam, Chashma Barrage, Kala Bagh, Mangla, Marala, Trimmu and Taunsa Barrage.

7.2. WATCHING ESTABLISHMENT

1- River Training Works

During different stages of flood limits, sufficient strength of labour shall remain throughout the period of flood in vulnerable reaches on the following basis:

Sr. No	Structure Name	Length (Miles)	Flood Limits							
			Normal Flood Season		Low Flood		Medium/High Flood		Very High/ Exp. High Flood	
			Men	Shift	Men	Shift	Men	Shift	Men	Shift
			1 Person/ 2 mile/Shift (1 Shift)		1 Person/ mile/Shift (1 Shift)		2 Person/ mile/Shift (2 Shift)		5 Person / mile/ Shift (3 Shift)	
1	Gandha Jakhar Imam	0.58	0	1	1	1	1	2	2	3
2	Harrow Flood Bund	5.92	3		6		12		30	
3	Jampur Flood Bund	34.14	17		34		68		170	
4	Chandia Flood bund.	1.55	1		1		2		5	
5	Gaddan Wala Bund	3.82	2		4		8		19	
6	Laskani Flood Bund	5.27	3		5		10		25	
7	Sheru Flood Bund	0.62	0		1		1		2	
8	W.X. Bund.	1.40	1		1		2		5	
9	New Hairo Flood Bund	1.40	1		1		3		7	
10	Raikh Bagh Wala to Bait Waghwar Flood	27.90	14		28		56		140	
11	Zamidara Flood Bund	0.40	0		0		1		2	
12	Right Marginal Bund (RMB)	15.50	8		16		30		75	
13	Fakhar Flood Bund	3.06	2		3		6		15	
14	Rojhan Flood Bund	12.25	6		12		24		60	
15	Umer Kot Flood Bund	9.00	5		9		18		45	
16	S-4 Tie Bund	0.64	0		1		1		2	
17	Bhagsar Flood Bund	2.50	1		2		4		12	
18	Qallandar Shah Groyne	0.85	0		1		2		4	
19	Shah Jamal Groyne	1.20	0		1		2		5	
20	Ghafoor Groyne	2.80	1		3		6		14	
21	Old Qalandar Shah Groyne	3.70	2		4		7		19	
22	Musa Groyne	1.40	0		1		2		5	
23	Kotla Mughlan Groyne	0.30	0		0		1		1	
24	L-Groyne	0.62	0		1		1		2	
25	Boly Wala Groyne	1.20	1		1		2		5	
TOTAL Per Shift :-			**68**	**--**	**137**	**--**	**270**		**671**	**--**
Total			**68**	**--**	**137**		**540**		**2013**	**--**
No. of Mates			**6**	**--**	**11**	**--**	**45**		**168**	**--**

Note:- 01 No. Mate is for every 12 No. Beldars.

Note:-Payment for work charge establishmentwill be subject to verification by the TPM /Consultants.

2- Hill Torrents

Sr. No	Structure Name	Length (Miles)	Flood Limits							
			Normal Flood Season		Low Flood		Medium/High Flood		Very High/ Exp. High Flood	
			Men	Shift	Men	Shift	Men	Shift	Men	Shift
			1 Person/ 2 mile/Shift (1 Shift)		1 Person/ mile/Shift (1 Shift)		2 Person/ mile/Shift (2 Shift)		5 Person / mile/ Shift (3 Shift)	
1	Sad Alif (Earthen)	0.80	0		1		2		2	
2	Muhammad Wah	0.60	0		1		1		2	
3	Hazoori Wah	1.00	0		1		2		3	
4	Khan Wah	0.40	0		0		1		2	
5	Upper Noor Wah	1.60	0		1		2		5	
6	Garmail wah	5.00	2		5		10		15	
7	Link Channel Wah	3.60	2		4		6		12	
8	Chatool X- Structure	1.60	1		2		2		5	
9	Soma wah	1.20	1		1		2		5	
10	Lashari wah	1.40	1		1		2		3	
11	Old Jindra wah	0.20	0		0		0		0	
12	New Jindra wah	2.00	1		2		3		5	
13	Bund Hamza Sultan	5.60	2		5		10		20	
14	Ganda Lashari	1.02	0		1		2		5	
15	Hajoo wah	3.00	1		2		3		10	
16	Dhora wah	0.80	0		1		2		3	
17	Noor Khona Wah	0.80	0	1	1	1	2	2	3	3
18	But Pahore wah	0.60	0		1		1		2	
19	But wah & Gaman Wah	0.40	0		0		1		1	
20	Kala Khosra H/T	2.40	1		2		3		7	
21	Bagga Khosra H/T	2.00	1		2		3		7	
22	Gandha Rakhi	0.27	0		0		0		1	
23	Gandha Gaman	0.20	0		0		0		1	
24	Gandha Khooni	0.20	0		0		0		1	
25	Gandha Thul Harrow	0.16	0		0		0		1	
26	Leghari Gandha Wah	0.60	0		0		1		2	
27	Chachar wah H/T	0.20	0		0		0		1	
28	Sori Shumali H/T	0.24	0		0		0		1	
29	Zangi H/T	0.40	0		0		1		2	
30	Soori Janubi H/T	0.40	0		0		1		2	
31	Muhammad pur Flood Bund	3.20	1		3		5		10	
TOTAL Per Shift :-			**14**	**--**	**37**	**--**	**68**	**--**	**139**	**--**
Total			**14**	**--**	**37**	**--**	**136**	**--**	**417**	**--**
No. of Mates			**1**	**--**	**3**	**--**	**11**	**--**	**35**	**--**

Note: - 01 No. Mate is for every 12 No. Beldars

Note:-Payment for work charge establishmentwill be subject to verification by the TPM /Consultants.

3. FCCs / Drains

Sr. No	Structure Name	Length (Miles)	Flood Limits							
			Normal Flood Season		Low Flood		Medium/High Flood		Very High/ Exp. High Flood	
			Men	Shift	Men	Shift	Men	Shift	Men	Shift
			1 Person/ 2 mile/Shift (1 Shift)		1 Person/ mile/Shift (1 Shift)		2 Person/ mile/Shift (2 Shift)		5 Person / mile/ Shift (3 Shift)	
1	New Manka Drain	25.21	6	1	13	1	25	2	50	3
2	Tayyab Drain	26.20	13		25		40		75	
3	Darkhast Drain	8.54	1		3		5		8	
4	Bukhari Drain	16.40	6		12		20		35	
5	Qutab Drain	46.40	20		35		50		70	
6	Azmat Drain	3.70	1		3		6		8	
7	Drain / FCC 95	9.40	4		8		15		25	
8	Drain / FCC 109	12.60	4		8		15		25	
9	FCC-145	18.30	9		20		30		45	
10	FCC-166	4.90	3		8		10		15	
11	FCC-177	12.80	7		13		20		35	
12	FCC-186	11.00	10		15		20		35	
13	Feeding Channel of Bukhari Drain (FCC)	1.62	1		3		6		8	
14	FCC-123	19.80	10		20		35		50	
15	Musharaf Flood Bund	12.20	8		16		30		45	
16	Left Bank of Musharaf Flood Drain	9.0	4		9		15		30	
TOTAL Per Shift :-			**107**	**--**	**211**	**--**	**342**	**--**	**559**	**--**
Total :-			**107**	**--**	**211**	**--**	**684**	**--**	**1677**	**--**
No. of Mates :-			**9**	**--**	**20**	**--**	**57**	**--**	**140**	**--**

Note:- 01 No. Mate is for every 12 No. Beldars

Note:-Payment for work charge establishmentwill be subject to verification by the TPM /Consultants.

For reaches other than vulnerable reaches, the watching establishment shall be employed as under to maintain and up keep the banks to become motorable.

- During normal flood stage, one man two mile / shift for one shifts in a day.
- During low flood stage, the scale of establishment is one men / mile /shift for one shifts in a day.
- In medium/ high floods the scale will be two men / mile/ shift for two shifts in a day.
- During very high/ Exceptionally high flood stage of 6.5 Lac Cs; discharge is above 8.00 Lac the scale fixed for above will be doubled, the strength shall be as below:-
  - For 1'–2'depth of water along bunds /spurs three men/mile/shift in threeshift of 8 hours each.
  - For 2'–3'depth of water along bunds /spurs four men/mile/shift in three shift of 8 hours each.
  - For 3'–4'depth of water along bunds /spurs five men/mile/shift in three shift of 8 hours each.
  - For 4'–5'depth of water along bunds /spurs seven men/mile per shift in three shift of 8 hours each.
  - For 6'–7'depth of water along bunds /spurs eight men/mile/shift in threes hift of 8 hours each.

- For 7'–8'depth of water along bunds /spurs ten men/mile/shift in three shift of 8 hours each.
- For 8'–9'depth of water along bunds /spurs twelve men/mile/shift in three shift of 8 hours each.
- For 9'–10'depth of water along bunds /spurs fifteen men/mile/shift in three shift of 8hours each.

Note:-

After every three miles there willbea Mate and for every five miles there will be a Mistry in addition to Mate to supervise the work of Beldars.

EMERGENCY GANGS

At important or vulnerable sites, emergency gangs in strength of 20 Beldars with one or two Mates will be maintained when the River rises above the prescribed gaugetill it finally drops below that gauge. This gang shall be usefully employed on bund and will shift to portions where leaks slip or wave-wash is givingtrouble. In addition to the above, the Executive Engineer can employ additional labour as and when required in emergency under intimation to the higher office.

7.3 Arrangementat Sensitive Sites.

- Temporary watching huts will be installed at sensitive sites during flood season. The normal strength for watching along flood bunds and site of relief cuts during floods / rains (quoted above) will be made double during high floods / rain.
- The establishment can be increased after consultation with Executive Engineer / Superintending Engineer in emergency and in accordance with the site requirements.
- The establishment employed will carry out minor repairs to bund / drains banks top, side slopes, removal of weed growth, opening / filling rat holes, rain gharas etc.
- **Normal / Low Flood Season:**
  - Camps established are exclusive of those set up at identified vulnerable points.
- **Medium / High Flood Season:**
  - Additional camps are established.
  - These camps are exclusive of:
  - Camps at vulnerable points, and
  - Camps established during the normal / low flood season.
- **Very High / Exceptionally High Flood Season:**
  - Supplementary camps are established.
  - These camps are exclusive of:
  - Camps at vulnerable points,
  - Camps established during the normal / low flood season, and
  - Camps established during the medium / high flood season.

Sr. No	Structure Name	Length (Miles)	Vulnerable sites		No. of Camps Established Except Vulnerable Points		
					Normal Flood season/Low Flood	Medium/High Flood	Very High/Exp. High Flood
			Reach	No. of Camps	15 Miles	7 Miles	5 Miles
1	Jampur Flood Bund	34.144	RD: 18+000 - 24+000 RD: 26+000-36+000	2	0	3	2
2	Harrow Flood Bund	5.92	RD: 9+000 - 11+000 RD: 20+000- 29+000	2	0	0	0

3	Fakhar Flood Bund	3.06	RD: 21+000 - 22+000	1	0	0	0
4	Rojhan Flood Bund	12.25	R.D: 0+000 -6+000 R.D: 28+000 -35+000	1	0	0	1
5	Musharaf Flood Bund	20.46	R.D: 20+000-22+000 RD 30+000- 40+000	2	0	1	1
6	Right Marginal Bund (RMB)	15.5	RD: 18000 - 19+000 RD:29+000 - 31+000 RD:53+000 –55+000 RD:68+300 – 77+000	3	0	0	0
7	Umer Kot Flood Bund	9		0	0	0	1
8	Bhagsar Flood Bund	2.5					
9	New Hairo Flood Bund.	1.4		0	0	0	0
10	Raikh Bagh Wala to Bait Waghwar Flood	27.9	RD:46+000-48+000 RD:105+000-118+000 RD:127+000-139+000	3	0	1	1
11	Qalander Sha Groyne	0.85		0	0	0	0
Total				**14**	**0**	**5**	**6**

Sr. No	**Structure Name**	**Length (Miles)**	**Vulnerable sites**		**No. of Camps Established Except Vulnerable Points**		
					Normal Flood season/Low Flood	**Medium/High Flood**	**Very High/Exp. High Flood**
			Reach	**No. of Camps**	**15 Miles**	**7 Miles**	**5 Miles**
1	New Manka Drain	13	RD: 120+000- 100+00 RD: 0+00 - 37+000	2	-	-	-
2	Tayyab Drain	13	RD: 112+000-13+000 RD: 67+000 RD: 22+000	2	-	-	-
3	Darkhast Drain	4	RD: 0+000 - 8+500	1	-	-	-
4	Bukhari Drain	8	RD: 89+000 - 85+000 RD: 73+000 - 67+000 RD: 54+000 - 48+000	2	-	-	-
5	Qutab Drain	23	RD:282+000-290+000 RD:258+000-275+000 RD:243+000 - 255+00 RD:228+000 - 240+00	4	-	-	-
6	Bank Musharaf Drain	8.16	RD: 65+000 RD: 81+000	2	-	-	-
7	Azmat Drain	2	RD: 0+000 - 6+000	-	-	-	-
8	Drain /FCC 95	5	RD: 34+00 - 38+000	1	-	-	-
9	Drain/FCC109	6	RD: 35+000-30+000	1	-	-	-

10	FCC-145	9	RD: 23+000-5+000 RD: 43+000-25+000	2	-	-	-
11	FCC-166	2	RD: 15+000-18+000	1	-	-	-
12	FCC-177	6	RD: 57+000-36+000	1	-	-	-
13	FCC-186	6	RD: 22+500+30+500 RD: 37+000-45+000 RD: 6+000-18+000	2	-	-	-
14	Feeding Channel of Bukhari Drain (FCC)	1	RD: 0+000-8+000	1	-	-	-
15	FCC-123	10	RD: 78+000-85+000 RD:8+000-16+000	2	-	-	-
			RD: 8+000		-	-	-
Total				**24**	-	-	-

Sr. No	**Structure Name**	**Length (Miles)**	**Vulnerable sites**		**No. of Camps Established Except Vulnerable Points**		
					Normal Flood season/Low Flood	**Medium/High Flood**	**Very High/Exp. High Flood**
			Reach	**No. of Camps**	**15 Miles**	**7 Miles**	**5 Miles**
1	Sad Alif (Earthen)	0.8	Lundi Saidan	1	-	-	-
2	Muhammad Wah	0.6					
3	Hazoori Wah	1					
4	Khan Wah	0.4					
5	Upper Noor Wah	1.6					
6	Garmail wah	5					
7	Kala Khosra H/T		Thul Hairo	1	-	-	-
8	Bagga Khosra H/T						
9	Tibbi Lundan F.b	0.7	Tibbi Lundan	1	-	-	-
Total				**3**	-	-	-

7.4 Watching Material.

Flood Watching Material

Following material is required in coming flood season 2026 for Jampur Construction Division, Rajanpur as per recommendations of the committee constituted by the Administrative Departmentvide No. SO (Floods) VII-22/2017dated: 26.12.2025 to standardize emergency response protocol sand optimize the department of Machinery and Human Resource across various irrigation infrastructures (river-wise) for the flood fighting plan (FFP).

"Flood fighting material should be purchased on the basis of worst-case scenario i.e. for exceptionally high flood. The minimum requirement is as follows: -

1. River Indus

2.1 Minimum requirement of Flood Fighting Material Permanent Camp (15 miles)

Flood Fighting Material Required

❖ **Material take as per approved SOPS for Camps on Each vulnerable site**

Sr. No	Items	Unit	Total Required Quantity	Available Quantity	Balance Quantity	Remarks
1	Shouldari / Tent	No.	1	0	1	
2	Chairs	No.	6	0	6	
3	Table	No.	1	0	1	
4	Generator (2-3 KVA)	No.	1	0	1	
5	Pedestal Fans	No.	1	0	1	
6	Charpais.	No.	2	0	2	
7	Symbolic Jackets	No.	50	0	50	
8	Polythene Sheet	Kg.	100	0	100	
9	Bamboos (4'' dia and 10 ft long)	No.	100	0	100	
10	Water Coller		1	0	1	
11	Portable Umbrella	No.	2	0	2	
12	Life Jackets	No.	5	0	5	
13	Utensils (10 person serving)	No.	1	0	1	
14	Jute/ Plastic bags	No.	1000	0	1000	
15	Walke Talkie Set	Sets	2	0	2	
16	Raincoats	No.	10	0	10	
17	LED Flood Lights	No.	10	0	10	
18	Extension Cable (10 ft)	No.	2	0	2	
19	Rechargeable Torches	No.	20	0	20	
20	Kassi	No.	20	0	20	
21	Axes	No.	20	0	20	
22	G.I Buckets	No.	5	0	5	
23	7/44 Cables	Feet	500	0	500	
24	Sutli	Kg	2	0	2	

25	Sewing Needles	No.	10	0	10	
26	Emergency Medical Kit	No.	1	0	1	
27	Wire Crates (3x3x3) (at only those camp near river action and reverse stock exists)	No.	100	0	100	

2.2 Minimum requirement of Flood Fighting Materials for Temporary Camp: (7 or 5 miles during medium to exceptionally high flood to be outsourced).

Sr No	Items	Unit	Total Required Quantity	Sr No	Items	Unit	Total Required Quantity
1	Shouldari /Tent	No	1	2	Walke Talkie Set	Sets	1
3	Chairs	No	6	4	Raincoats	No	10
5	Table	No	1	6	LED flood light	No	10
7	Generator (2-3KVA)	No	1	8	Extension Cable (10 ft)	No	2
9	Pedestal Fans	No	1	10	Rechargeable torches	No	20
11	Charpois	No	2	12	Kassi	No	20
13	Symbolic Jackets	No	50	14	Axes	No	20
15	Water Coller	No	1	16	G.I Buckets	No	5
17	Portable umbrella	No	2	18	7/44 cable	Feet	500
19	Utensils (10 person serving)	No	1	20	Sutli	Kg	2
21	Jute/Plastic bags	No	500	22	Sewing Needles	No	10

Note: The balance flood fighting material will be procured before 30.06.2026.

7.5. Arrangement for Soundings & Probing.

Sub Divisional Officers, Sub Engineer concerned with establishment i.e. Beldars Mates, Mistries, Boat, Boatman and leveling instruments will remain present at their own site during flood season.

7.6. Lighting arrangement.

During high / exceptional high floods lighting arrangements at vulnerable reaches will be arranged by the department, provision for lighting articles has already been included in the flood fighting material detail as above in tabulated form.

7.7. <u>Ration Arrangement.</u>

Revenue Department & District Government will arrange the ration for flood affected persons.

7.8 <u>P.O.L. Arrangement for Vehicles.</u>

Provision of POL for vehicles has already been included in the estimate of running Govt. Jeeps.

7.9. <u>Transportation.</u>

Police, Army and Civil Authorities will arrange the transportation for shifting the flood affected persons to the safe places.

7.10. <u>Law & Order.</u>

Police officials deputed will maintain lawando rder situation.

7.11. Medical arrangement for labour.

The District Administration will provide medical facilities through concerned District Health officer.

7.12. Liaison with other Department.

Executive Engineer will remain fully contacted with all the Civil / ForcesDepartments to combat anymishap occurringdue to floods and will also make liaison with IRSA authority, ministry of water and power as well as Flood Forecasting Centers Lahore for collection of flood related information.

7.13. Role of Army.

Pak Army will cooperate with the Department for protection measures against the forthcoming flood, during flood and after flood season i.e. provision and arrangement of explosive for breaching section and also help in the shifting of flood affected persons to the safe places.

7.14. Duties of Telephone Attendant

To collect the gauges / any kind of messages from field or any other sources and its proper delivery, the experienced officials will be deputed to perform their duties on telephone as telephone attendant during flood season w.e.f.01.06.2025 to 15.10.2025 respectively as tabulated below:-

Sr. No.	Nameof Official	Period	Time	
			From	To
1	Abdul Ghafoor	15.06.2026 to 15.10.2026	05:00 pm	01:00 am
2	Allah Bakhsh		01:00 am	09:00 am
3	All clerical staff of Division		09:00 am	05:00 pm

7.15. Wireless Arrangement.

During flood season, wireless sets will be fixed in all the Govt. vehicles. Allthe officers / official will have their own mobile sets at sites.

Chapter-8.

A-Detail of Encroachment

20 No. encroachments are present in Jampur Construction Division, Rajanpur on Flood Bunds. Notices have been delivered to the encroachers for removal of encroachment and also cases have been registered in the concerned Police Stations for removal of the same.

Total Encroachments	Removed	Remaining	Remarks
55	30	20	List of encroachers has been submitted to Civil Administration Department and action is awaited. The Encroachments could not be removed due to stay orders from Civil / High Courts. Now the case is under prosecution.

B-Critical Encroachments

Total Encroachments	Removed	Remaining	Remarks
There is no critical encroachment in Jampur Construction Division, Rajanpur.			

Chapter-9.

Duty Roaster/ Flood Fighting Program

All the flood gauges from upper region are received through wireless sets already installed at various Police Stations in the District as well as though cell phones. To meet thelatest flood stages and emergency very high flood, wireless sets / cell phones will be provided in the vehicles of Executive Engineer & Sub Divisional Officers besides at the following key points.

- Jampur Canal Rest House.
- Rajanpur CanalRest House.
- Canal Telegraph Office, D.G.Khan

It is further added that, the establishment i.e. Beldars, Mates & Mistries and Canal Patwaries of Rajanpur Canal Division will also coordinate with Jampur Construction Division, Rajanpur. The field establishment of Kadra Sub Division of Rajanpur Canal Division, Rajanpur will also cooperate in watching the Rojhan flood Bund, Rojhan ringBund, Spur R-63, Spur R-64 & J-Head Spur Rojhan. Similarlythe establishment of Talai Sub Division of Rajanpur Canal Division would remain present at Syphon RD: 95+000 of DKC& Bukhari Drain for day & night watching. Rajanpur Canal Division will be the backup Division of Jampur Construction Division, Rajanpur during high floods.

DUTYROASTER

<table>
<tr><td colspan="4">Hill Torrent-I SubDivision,D.G.Khan</td></tr>
<tr><td>Drains-I Section.</td><td>Drains-IISection</td><td colspan="2">Drains-III Section</td></tr>
<tr><td>New Manka RD.0-92+000 and Muhammad Pur Drain.</td><td>New Manka RD. 92000 to 126+000.
Tayyab Drain, Lashari Drain& Darkhast Drain.</td><td colspan="2">Bukhari Drain</td></tr>
<tr><td>Sub Engineer Concerned.</td><td>Sub Engineer Concerned.</td><td colspan="2">SubEngineer concerned.</td></tr>
<tr><td colspan="4">Note: Sub Divisional Officer, Hill Torrent-I will lookafter of Fakhar Flood Bund during flood current flood Season in addition to his own duties.</td></tr>
<tr><td colspan="4">HillTorrent-II SubDivision, Rajanpur</td></tr>
<tr><td>Sori Shumali Section</td><td>Sori Janubi Section</td><td>Zangi Section</td><td>Kaha-ISection</td></tr>
<tr><td>Umer Kot Flood Bund J-Head Spur R-63</td><td>Rojhan Flood Bund J-Head Spur R-64&65 Rojhan Ring Bund</td><td>Musharaf F.B Left Bank of Musharaf Drain</td><td>Muhammad Wah, Hazoori Wah, Khan Wah, Sad Alif, Upper Noor Wah, Germail Wah & Bagga Khosra Hill Torrent.</td></tr>
<tr><td>Sub Engineer concerned</td><td>Sub Engineer concerned</td><td>Sub Engineer concerned</td><td>Sub Engineer concerned</td></tr>
<tr><td colspan="4">Kaha-II Section</td></tr>
<tr><td colspan="4">Link Channel, Chatool X-Struc:,SonaWah, Leshari Wah, Old & New Jindra Wah & Bund Hamza Sultan, Hajoo Wah, Dhora Wah, Noor Kohna, Kala & Bagga Khosra HillTorrent.</td></tr>
<tr><td colspan="4">Sub Engineer concerned</td></tr>
<tr><td colspan="4">Mechanical Sub Division, D.G.Khan</td></tr>
<tr><td>Jampur Section</td><td colspan="2">Kotla Mughlan Section.</td><td></td></tr>
<tr><td>Jampur Flood Bund and system RD.0-74+000 & Gandha Jakhar Imam.</td><td colspan="2">Jampur Flood Bund and system RD. 74+000-170+720 Tailand Fakhar Flood Bund.</td><td></td></tr>
<tr><td>Sub Engineer concerned</td><td colspan="2">Sub Engineer concerned</td><td></td></tr>
</table>

Gauges of Hill Torrents sent by gauge readers appointed at Darra sites are received by the Sub Engineer Kaha & Chachar Section, who is responsible to inform well in time.

- Office the Chief Engineer, D.G. Khan Zone, D.G.Khan.
- Office of the Deputy Commissioner Office, Rajanpur.
- Office of the Assistant Commissioner Rajanpur, Jampurand Rojhan.
- Superintending Engineer, Derajat Canal Circle, D.G.Khan.
- Superintending Engineer, Project Circle (Irrigation), D.G. Khan.
- Executive Engineer, Canal Division Rajanpur.
- Executive Engineer, Jampur Construction Division, Rajanpur.
- Sub Divisional Officer, Kadra, Hajipur, Talai/Hill TorrentI, II & Mechanical Sub Division.

Chapter-10.

Emergency Telephone Numbers

Sr. No.	Name of Officers	Office	Residence/Cell No:
1	Secretary, Irrigation & Power Department, Lahore.	042 – 99212117 -18	0304-0920033
2	Chief Engineer, IrrigationZone, D.G.Khan	064 / 9260245	064 / 9260246 0313-9190684
3	Chief Engineer, Drainage & Flood Zone, Lahore	042-99733551	03099970999
4	Superintending Engineer, Project Circle, (Irrg:) D.G.Khan.	064 / 9260248	0323-4443607
5	Superintending Engineer, Derajat Circle, D.G.Khan.	064 / 9260247	0300-6920400
6	Executive Engineer, D.G.Khan Construction Division, D.G. Khan.	064 / 9260257	0333-0508781
7	Executive Engineer, Jampur Construction Division (Irrg:) Rajanpur.	0604 -689064	0300-0425111
8	Executive Engineer, Rajanpur Canal Division, Rajanpur.	0604 / 689064	0333-1871816
9	Executive Engineer, DGKhan Canal Division, No.I D.G.Khan.	064 -9260249	0300-6306140
9	Executive Engineer, DGKhan Canal Division, No. II D.G.Khan.	---	0345-7861909
10	Executive Engineer, Taunsa Barrage Division, Kot Adu.	066 / 2242796	0300-6306140
11	Director Floods, Lahore.	042 / 99231614	0334-4669308
12	Flood Emergency Cell, Lahore	042 / 7572091 -93	042-99212166
13	Executive Engineer (Operation) DGKhan Irrigation Zone, (Flood Emergency Cell, DGKhan.	064 / 9260251	0332-6206393
14	Canal Telegraph Office, D.G.Khan.	064 / 9260253	0336-6615223
15	SDO-Mechanical	--	0335-0502269
16	SDO-HT-I		0335-0502269
17	SDO-HT-II		0333-6431973
18	Signaler	0604-690690	0333-6439136 0333-6097657
19	D.C. Rajanpur	0604-920001	0304-0920093
20	ADCR Rajanpur	0604-689495	0300-5501673
21	D.P.O. Rajanpur	0604-689055	0300-9974002
22	ADCG Rajanpur	0604-689288	0333-8595003
23	A.C. RJP	0604-689904	0344-2109029
24	A.C.Jampur	0604-567509	0324-4229996
25	A.C.Rojhan	0604-610001	0300-6342620
26	C.O.Rajanpur	0604-689320	0305-7860339
27	SDPO Rajanpur H/Q	0604-689033	0300-6669798
28	Military Officer Head Quarter Engineers 2 Corps Multan Cantt.		061/5313388
29	Military Officer, Head Quarter Engineers 31-Corps Bahawalpur Cantt.		062-89132511

Chapter-11.

STANDARD OPERATING PROCEDURERES (SOP) FOR BREACHING SECTIONS

11.1. History of Breaching Section.

There is no breaching section in Jampur Construction Division, Rajanpur.

11.2. Location, design, quantity and verity of explosive required for detonation.

Not related.

11.3. Arrangement of explosive.

Not related.

11.4. Listof these curity staff along-with their training.

Not related.

11.5. Detail of Mechanical means asastand by arrangements in case of detonation Failure.

Not related.

11.6. Duty roaster in case of the critical situation.

Not related.

11.7. Breaching/ Relief Cut committee With Their Action Plan.

Not related.

11.8. Listof villages likely to be in undated in case of breach.

Not related.

11.9. Announcement and detail of evacuation arrangements.

Not related.

11.10. Detail of coordination with Civil/Army Authorities.

Not related.

11.11. Parallel Communication Arrangements.

Not related.

11.12. Index Plan.

As there is no breaching section so index plan is not required.

VULNERABLE SITES ON FLOOD BUND / STRUCTURES

LIST OF PLACES / POINTS FOR BREACHES / RELIEF CUTS IN CASE OF FLOODING

Sr. No	Name of Channel	Vulnerable Points for Breach at Sharp Turns	Location	Relief Cuts	Location
1	FCC-79 Tayyab Drain	124+000-125+000 / (R&L)	Tal Shumali	112+000 (R & L)	DhandlaRoad
		117+000/L	Basti Gudara	112+000/L	DhandlaRoad
		75+000 / R	Basti Jogiyani	66+000 /R	Ghat Stop
		52+000/L	Turkish Model Village	52+000 /L	Turkish Model Village
				42+000 / R	Basti Babbar
				17+000-18+000/R	Muhammad Pur
2	FCC-95			32+000 / L	DajalRoadD/s
				4+000 /L	BastiAhamdani
				0+000 /	GhatStop
3	FCC-123	91+000 -92+000 /L	Basti Jaskani		D/s Pull Pathan
		82+000 – 83+000 /L	Basti Patt Wali		
		79+000 / L	Patt Wali Minor		
		70+000 / L	Basti Mud Malana		
		9+000 – 10+000 / R	Horra Bridge		
4	FCC-177	60+000 – 61+000/ R	51+000 /L	7+000-8+000	
		59+000/L		1+500 /R (FCC-166)	
		54+000 /R		39+000/R	
		29+000/R		11+000 / R	
5	FCC-166	1+000 -2+000/L		RD: 36+000 /L (FCC-177)	
		15+000 / L			
		23+000 / L		18+000 /L	
6	FCC-145	59+000 / L	Basti Korai	RD: 25+000 /R (FCC-123)	Mouza Hamoo Wala
		57+000 /R	Basti Horra		
		56+000 /L	Basti Horra	RD: 17+000 /R (FCC-123)	Basti Shikani
		54+000 /R	Basti Horra		
		48+000 /R, 52+000 /R	Basti Bukhari	5+000 /R	Basti Shampur
		42+000- 43+000 / R	Basti Lashari		
		35+000 /L	Basti Bhand	RD: 0+500 /R (FCC-123) & 5+000 /R (FCC-145), 1+000 / L (FCC-177)	Fazilpur Road Crossing
		31+000 – 32+000 / R & L	Basti Qazi		
		23+000 , 27+000 – 28+000/ R		5+000/R	
		19+000 /R		8+000 /R	
7	FCC-186	38+500 /L	Basti Punjabi	14+000 /L	
		32+000 /L & R	Basti Sindhi	26+000 / R	
		6+000/R, 12+000/R	Patti Jumma Arain		
				1+000 / L	Patti Jumma Arain
8	Qutab Drain			282+000 D/S	
		270+000 /R			
		242+000/ R	Fateh Pur		
		238+000 / R			
		230+000 / L & R	Gam Wala	226+000 /R	
9	Bukhari Drain	RD: 87+000 / L		74+000 / R	
				54+000-55+000	U/s Aqil Pur Road

		RD: 57+000 – 58+000 / R		48+000 / R	
10	New Manka Drain	RD: 0+000 – 37+000 RD: 100+000 – 120+000	Basti Adhi Wal, Jampur City	RD: 114+000 – 115+000	U/S Sayphon 45 Link-III
11	Azmat Drain	RD: 0+000 – 6+000	Basti Babar Allah Yaar	RD: 0+000	Basti Alla Yaar
12	Kaloi Drain	RD: 0+000 – 8+000/L	Raqba Dhandla Til Shumlai	RD: 8+000/R	Basti Chir Faqeer
13	Bukhari Feeding Channel	RD: 0+000 – 8+100 RD: 6+000 , RD: 7+5000/L	Basti Hameed Kundhal, Bahaji Musa, Basti M. Hassan, Basti Ghulam Sarwar		
14	FCC-109	RD: 35+000 - 30+000	Mouza Jhoke Mahaar		

Detail of villages/abadies likely to be affected:

Sr. No.	Name of Hill Torrent	Area to be Inundated
1	Kaha Hill Torrent	Basti Bambli, Mouza Hajipur, Lundi Saidan, Lalgarh, Rakh Patiyat, Mouza Noorpur Manjho Wala, Mouza Kotla Rubait, Mouza Bakhar Pur, Chak Sarai, Lassa, Shampur, Kanwala, Mouza Patt Wali, Mouza Channar, Mouza Islampur, Bukhara and Ahmadpur
2	Kala Bagga Khosra Hill Torrent	Basti Billal Hutwani, Basti Ali Abad, Thull Ali Muhammad, Thull Hairo, Basti Hajana, Basti Leshari, Darkhast Jamal Khan, Basti Hanbhi.
3	Chachar Hill torrent	Basti Babra, Basti Khuda Bakhsh Jangar, Basti Drigri, Bakharpur, Mouza Fatehpur, Soonwah, Patti Jumma Arrain and Chak Jalal Pur.
4	Pitokh Hill Torrent	BPM Choki, Muhammadpur Gamwala Choki, Thull Karam.
5	Sori Shumali Hill Torrent	Mad Khan Muhammad, Basti Golathi, Basti Jatt, Arbi Air Port, BMP Choki Dilbar
6	Zangi Hill Torrent	Basti Lanjwani, Basti Ghareeb Abad, Basti Allah Bux, Basti Gulathi, BMP Choki Dilbar, Ozman, Arbi Airport, Mouza Mat
7	Sori Janubi Hill Torrent	Basti Meer Muhammad, Basti Balocha, Mouza Shahwali

Executive Engineer
JampurConstructionDivision
Jampur

Superintending Engineer
Project Circle (Irrigation)
Dera Ghazi Khan

Chief Engineer
D.G.Khan Irrigation Zone
Dera Ghazi Khan

PART-B

Chapter. No. 12.

Vulnerable sites on flood bund / structures.

12.1 Apprehended breaches in flood bunds/structures.

A. Jampur Flood Bund.

- RD: 18+000-24+000
- RD: 26+000 -36+000

B. Hairo Flood Bund

- RD: 9+000-11+000
- RD. 20+000 –29+000

C. Fakhar Flood Bund.

- RD: 21+000 -22+000

D. Rojhan Flood Bund.

- RD: 0+000 - 6+000
- RD: 28+000 – 35+000

E. Musharaf Flood Bund.

- RD: 20+000 – 22+0000
- RD: 30+000 – 40+0000
- RD: 54+000 – 58+000

F. Right Marginal Bund (RMB)

- RD: 18+000 - 19+000
- RD: 29+000 - 31+000
- RD: 53+000 - 55+000
- RD: 68+300 - 73+000

G. Raikh Bagh Wala to Bait Waghwar Flood

- RD: 46+000-48+000
- RD: 105+000-109+000
- RD: 116+000-118+000
- RD: 127+000-129+000
- RD: 136+000-139+000

12.2 Operation of Breaching Sections.

There is no breaching section exists in Jampur Construction Division, Rajanpur.

12.3 Breaches due to rising of flood water, deteriorate on of flood bund etc.

Nil

Chapter No.13.

EMERGENCY CONTINGENCY PLAN FOR VULNERABLE SITES

Vulnerable Sites

A. Jampur Flood Bund.

- RD: 18+000-24+000, RD: 26+000 -36+000

13.1. Plan showing route of flood water coming out of the breaches supported with level.

Marked index plan attached.

13.2. Detail of villages/ abadies likely to be affected and this also be shown on the plan.

i- Jampur Flood Bund RD:18+000-24+000

Village: Mouza Shero, Basti Tiba Chandia, Basti Wahid Jhaker, Basti Ditta Wali, Basti Calar Coat, Basti Qalandar Shah, Basti Ahmdani, Police Choki Sheru.

Abadi: About 191500 People

If any mishap occurs on this vulnerable reach on Jampur Flood Bund, the water will inundate partialy above village's agriculture land and adjoining abadies and other infrastructures. Flood water will satand with 2nd defence line of irrigation infra structure i.e Chanidai Flood Bund and Shero Flood Bund.

ii. Jampur Flood Bund RD: 26+000-36+000

Villages: Basti Jakhar Chowk, Basti Malana, BAsti Khosa, Basti Thathari, Basti Sheer

Abadi: About 157000 People

If any mishap occurs on this vulnerable reach on Jampur Flood Bund, the water will inundate the above village's agriculture land and adjoining abadies and other infrastructures.

13.3. Strategy and action taken be explained in detail.

By 1st of June, the strength of the existing establishment is doubled to clear the jungle on slopes and toe of the Embankments shanks etc. of the Spurs. Emphasis is laid to locate the holes of burrowing animals. These if found / detected or to be puddle to ensure the safety of the embankments.

In emergency the flood information is received from upper region, the Sub Divisional Officer and Sub Engineer Incharge shift on their head Quarter at site. The establishment is deployed according to flood stage and as prescribed, round the clock vigilant watching is arranged along the entire embankment to take care of eventualities. The staff is equipped with, torches, Gunny bags, kassies and any other relevant material to control seepage/ leakage in the embankment. The information is passed on quickly to the concerned quarter and simultaneously action is taken to close the same. In the event of exceptionally high flood stage the heavy earth moving machinery (Bull-Dozers) of agriculture engineering department / machinery circles also kept ready and placed on alert at vulnerable sites of Jampur Flood Bund RD: 18-36. For the safety of the public/ private infrastructures, land and abadies of District Rajanpur Tehsil Jampur, Kot Mithan Town and Rojhan Town & in emergency relief cuts ore made Gaddan Flood Bund; Musa Flood Bund erected which is the 2nd defence line of Jampur Flood Bund.

13.3.1. Arrangements.

The flood fighting material along-with watching establishment will be arranged at

site as warning of high flood issued from Chasma Barrage.

13.3.2. Establishment of flood fighting camps.

Flood fighting camp will be established at Jampur Flood Bund at RD: 22+000**,** RD: 32+000

13.3.3. Duties of Officers / officials and their camp at sites.

All concerned Sub Divisional Officer & their Staff is to remain in the area round the clock. As a matter of fact further flood information is to be telecasted. As such organization of this Division has to be very vigilant throughout the flood season. Staff of this Division is set on high alert during day and night from 15 June up-to 15 September. Consequently flood watching camps are installed at vulnerable points. Adequate arrangements to fight bags the flood according to its magnitude are made by all Sub Division. Any unwanted happening is to be reported by Sub Divisional officer to the Executive Engineer, Superintending Engineer, Chief Engineer, Secretary, Irrigation & Power Department. It is also duty of the Sub Divisional Officer to deliver messages well in time to the local civil authorities in addition to military personnel.

Camp No.	Location	Officer (Name / Designation / Contact No.	Official (Name / Designation / Contact No.)
1	Jampur Flood Bund RD: 22+000,32+000	Muhammad Abdul Mueed SDO Hill Mechanical Mob: 0335-0502269	Sabir Hussain, Sub Engineer Kotla Mughlan Section Mob: 0300-3282020

13.3.4. Departmental machinery available.

Departmental machinery available is not available.

13.3.5. Machinery available from private source.

Machinery will be made available from private source during the flood ememrngancy Sittutaion, deail of machinery is as under:-

Excavator, Bulldozer, Tractors will be hired by the Government Contractor.

Sr. No.	Government Contractor Name	Contact No.
1-	M/s Sparco Construction Company	0321-8437629
2-	M/s Rana Traders	0300-4000662
3-	Ehsan Bari	0333-6449205
4-	Allied Construction Company	0336-6780110
5-	Sabir Hussain	0333-6447489
6-	M/S Mian Usman Zahoor Govt. Contr	0306-7582222

13.3.6. Flood Fighting Material Required.

Required flood fighting material for Jampur as per approved SOPs:-

13.3.7. Flood Fighting Material Available.

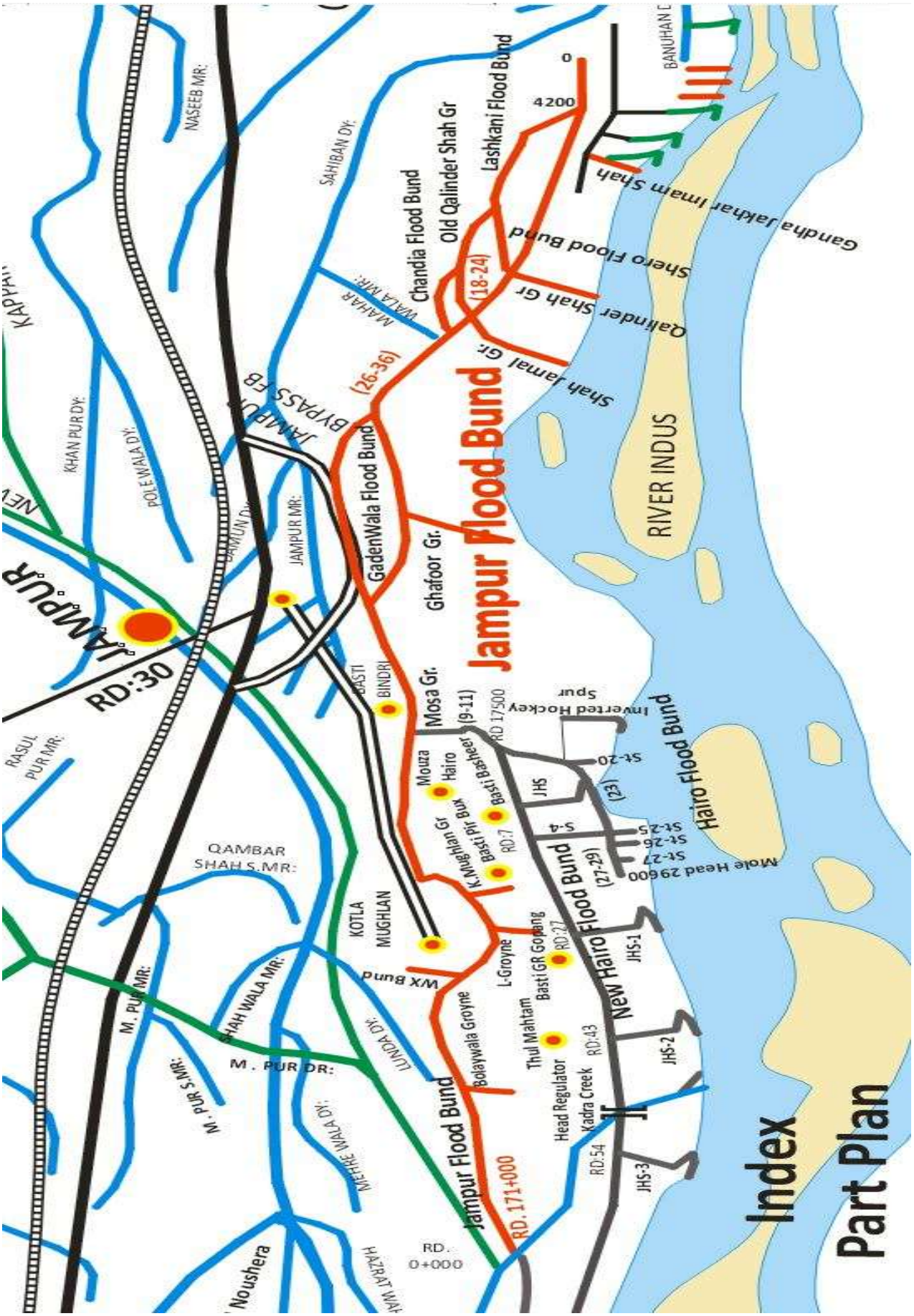
Available flood fighting material for Jampur Flood Bund is as under.

Sr. No	Items	Unit	Total Required Quantity	Available Quantity	Balance Quantity	Remarks
1	Shouldari / Tent	No.	1	0	1	
2	Chairs	No.	6	0	6	
3	Table	No.	1	0	1	
4	Generator (2-3 KVA)	No.	1	0	1	

5	Pedestal Fans	No.	1	0	1	
6	Charpais.	No.	2	0	2	
7	Symbolic Jackets	No.	50	0	50	
8	Polythene Sheet	Kg.	100	0	100	
9	Bamboos (4'' dia and 10 ft long)	No.	100	0	100	
10	Water Coller		1	0	1	
11	Portable Umbrella	No.	2	0	2	
12	Life Jackets	No.	5	0	5	
13	Utensils (10 person serving)	No.	1	0	1	
14	Jute/ Plastic bags	No.	1000	0	1000	
15	Walke Talkie Set	Sets	2	0	2	
16	Raincoats	No.	10	0	10	
17	LED Flood Lights	No.	10	0	10	
18	Extension Cable (10 ft)	No.	2	0	2	
19	Rechargeable Torches	No.	20	0	20	
20	Kassi	No.	20	0	20	
21	Axes	No.	20	0	20	
22	G.I Buckets	No.	5	0	5	
23	7/44 Cables	Feet	500	0	500	
24	Sutli	Kg	2	0	2	
25	Sewing Needles	No.	10	0	10	
26	Emergency Medical Kit	No.	1	0	1	
27	Wire Crates (3x3x3) (at only those camp near river action and reverse stock exists)	No.	100	0	100	

13.4. Detail of other infrastructure like electric, sui gas, telephones installations, road network, other buildings, canal & drainage network.

- **Canal**
  i. Dajal Canal, ii. Link No. III iii. Kadra Canal
- **Road**
  i. Indus Road (N-55)
- **Hospital**
  i. District Head Quarter Hospital, Rajanpur
- **Sui Gas**
  --
- **Telephone installation**
- Drainage Network
  i. Tayyab Drain,ii-New Manka Drain,iii-Qutab Drain, iv-Bukhari Drain
  v- Darkhast Drain, vi- FCC(s)-79, 95,123, 145, 166, 177 & 186.


Part Plan
Index
RIVER INDUS
Jampur Flood Bund
Ghafoor Gr.
GadenWala Flood Bund
Chandia Flood Bund
Old Qalinder Shah Gr
Lashkani Flood Bund
Sharo Flood Bund
Qalinder Shah Gr
Shah Jamal Gr.
Ganha Jakhar Imam Shah
Hairo Flood Bund
New Hairo Flood Bund
Jampur Flood Bund
JAMPUR
RD:30
BYPASS FB
Mosa Gr.
Mouza Hairo
K.Mughlan Gr
Basti Pir Bux
Basti Basheer
KOTLA MUGHLAN
L-Groyne
Basti GR Goreng
Bolaywala Groyne
Thul Mahtam
Head Regulator
Kadra Creek
Mole Head 29600
Inverted Hockey Spur
JHS
JHS-1
JHS-2
JHS-3
RD:7
RD:27
RD:43
RD:54
RD 17500
RD. 171+000
RD. 0+000
(26-36)
(18-24)
(9-11)
(23)
(27-29)
St-20
St-25
St-26
St-27
S-4
WX Bund
QAMBAR SHAH S.MR:
JAMPUR MR:
NASEEB MR:
SAHIBAN DY:
KHAN PUR DY:
POLE WALA DY:
JAMUN DY:
RASUL PUR MR:
M. PUR MR:
M . PUR S.MR:
M . PUR DR:
SHAH WALA MR:
LUNDA DY:
METHRE WALA DY:
Noushera
BANUHAN

Chapter No.13.

EMERGENCY CONTINGENCY PLAN FOR VULNERABLE SITES

Vulnerable Sites

B. Hairo Flood Bund

- RD: 9+000-11+000, RD 20+000-29+000

13.1. Plan showing route of flood water coming out of the breaches supported with level.

Marked index plan attached.

13.2. Detail of villages/ abadies likely to be affected and this also be shown on the plan.

Village: Mouza Hairo, Bar-khurdar, Adam gharh, Tholmatam, Basti Gopang Basti Pir Bux, Basti Basheer & Kotla Mughlan.
Abadi: About 493000 People

If any mishap occurs on this vulnerable reach on Hairo Flood Bund, the water will inundate the above village's agriculture land and adjoining abadies and other infrastructures. Flood water will satand with 2nd defence line of irrigation infrastructure i.e Jampur Flood Bund.

13.3. Strategy and action taken be explained in detail.

By 1st of June, the strength of the existing establishment is doubled to clear the jungle on slopes and toe of the Embankments shanks etc. of the Spurs. Emphasis is laid to locate the holes of burrowing animals. These if found / detected or to be puddle to ensure the safety of the embankments.

In emergency the flood information is received from upper region, the Sub Divisional Officer and Sub Engineer Incharge shift on their head Quarter at site. The establishment is deployed according to flood stage and as prescribed, round the clock vigilant watching is arranged along the entire embankment to take care of eventualities. The staff is equipped with, torches, Gunny bags, kassies and any other relevant material to control seepage/ leakage in the embankment. The information is passed on quickly to the concerned quarter and simultaneously action is taken to close the same. In the event of exceptionally high flood stage the heavy earth moving machinery (Bull-Dozers) of agriculture engineering department / machinery circles also kept ready and placed on alert at vulnerable sites of Hairo Flood Bund RD: 9+00-11+000 & RD:20+000 -29+000. For the safety of the public/ private infrastructures, land and abadies of District Rajanpur Tehsil Jampur, Kot Mithan Town and Rojhan Town & in emergency relief cuts ore made Gaddan Flood Bund; Musa Flood Bund erected which is the 2nd defence line of Jampur Flood Bund.

13.3.1. Arrangements.

The flood fighting material along-with watching establishment will be arranged at site as warning of high flood issued from Chasma Barrage.

13.3.2. Establishment of flood fighting camps.

Flood fighting camp will be established at Hairo Flood Bund RD: 10+000 **&**RD 27+00

13.3.3. Duties of Officers / officials and their camp at sites.

All concerned Sub Divisional Officer & their Staff is to remain in the area round the clock. As a matter of fact further flood information is to be telecasted. As such organization of this Division has to be very vigilant throughout the flood season. Staff of this Division is set on high alert during day and night from 15 June up-to 15 September.

Consequently flood watching camps are installed at vulnerable points. Adequate arrangements to fight bags the flood according to its magnitude are made by all Sub Division. Any unwanted happening is to be reported by Sub Divisional officer to the Executive Engineer, Superintending Engineer, Chief Engineer, Secretary, Irrigation & Power Department. It is also duty of the Sub Divisional Officer to deliver messages well in time to the local civil authorities in addition to military personnel.

Camp No.	Location	Officer (Name / Designation / Contact No.	Official (Name / Designation / Contact No.)
1	Hairo Flood Bund RD.10+000,27+000	Muhammad Abdul Mueed SDO Hill Mechanical Mob: 0335-0502269	Sabir Hussain, Sub Engineer Kotla Mughlan Section Mob: 0300-3282020

13.3.4. Departmental machinery available.

Departmental machinery available is not available.

13.3.5. Machinery available from private source.

Machinery will be made available from private source during the flood ememrngancy as per site Sittutaion, deail of machinery is as under:-

Excavator, Bulldozer, Tractors will be hired by the Government Contractor.

Sr. No.	Government Contractor Name	Contact No.
1-	M/s Sparco Construction Company	0321-8437629
2-	M/s Rana Traders	0300-4000662
3-	Ehsan Bari	0333-6449205
4-	Allied Construction Company	0336-6780110
5-	Sabir Hussain	0333-6447489
6-	M/S Mian Usman Zahoor Govt. Contr	0306-7582222

13.3.6. Flood Fighting Material Required.

Required flood fighting material for Hairo Flood Bund as per approved SOPs:-

13.3.7. Flood Fighting Material Available.

Available flood fighting material for Hairo Flood Bund is as under:-

Sr. No	Items	Unit	Total Required Quantity	Available Quantity	Balance Quantity	Remarks
1	Shouldari / Tent	No.	1	0	1	
2	Chairs	No.	6	0	6	
3	Table	No.	1	0	1	
4	Generator (2-3 KVA)	No.	1	0	1	
5	Pedestal Fans	No.	1	0	1	
6	Charpais.	No.	2	0	2	
7	Symbolic Jackets	No.	50	0	50	
8	Polythene Sheet	Kg.	100	0	100	
9	Bamboos (4'' dia and 10 ft long)	No.	100	0	100	

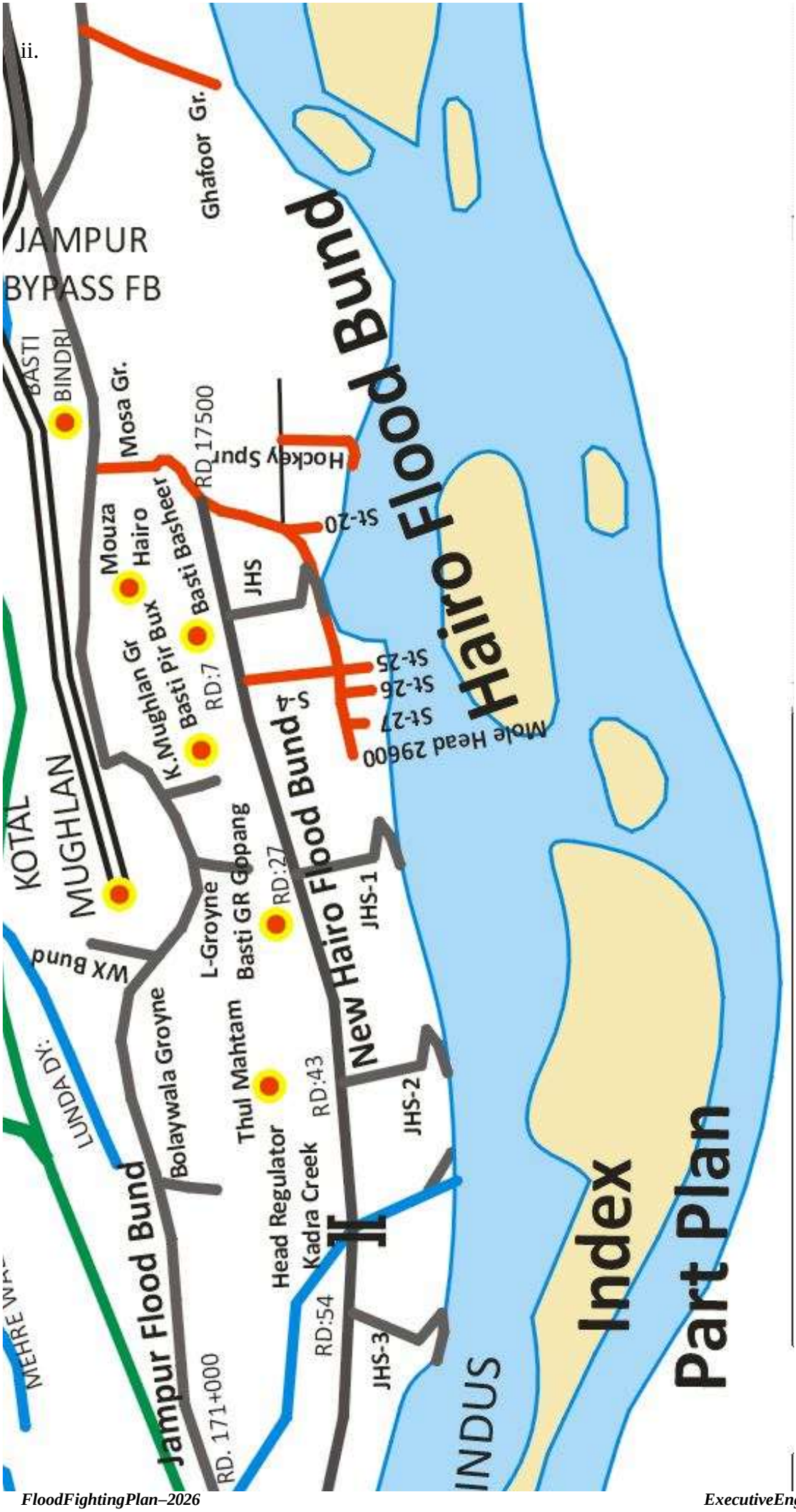
10	Water Coller		1	0	1	
11	Portable Umbrella	No.	2	0	2	
12	Life Jackets	No.	5	0	5	
13	Utensils (10 person serving)	No.	1	0	1	
14	Jute/ Plastic bags	No.	1000	0	1000	
15	Walke Talkie Set	Sets	2	0	2	
16	Raincoats	No.	10	0	10	
17	LED Flood Lights	No.	10	0	10	
18	Extension Cable (10 ft)	No.	2	0	2	
19	Rechargeable Torches	No.	20	0	20	
20	Kassi	No.	20	0	20	
21	Axes	No.	20	0	20	
22	G.I Buckets	No.	5	0	5	
23	7/44 Cables	Feet	500	0	500	
24	Sutli	Kg	2	0	2	
25	Sewing Needles	No.	10	0	10	
26	Emergency Medical Kit	No.	1	0	1	
27	Wire Crates (3x3x3) (at only those camp near river action and reverse stock exists)	No.	100	0	100	

13.4. Detail of other infrastructure like electric, sui gas, telephones installations, road network, other buildings, canal & drainage network.

- **Canal**
  i. Dajal Canal, ii. Link No. III iii. Kadra Canal
- **Road**
  i. Indus Road (N-55)
- **Hospital**
  i. District Head Quarter Hospital, Rajanpur
- **Sui Gas**
  --
- **Telephone installation**
  --
- Drainage Network

i. Tayyab Drain, ii-New Manka Drain, iii-Qutab Drain, iv- Bukhari Drain v- Darkhast Drain, vi- FCC(s)-79, 95,123, 145, 166, 177 & 186.

ii.


Index Part Plan
Hairo Flood Bund
New Hairo Flood Bund
Jampur Flood Bund
JAMPUR BYPASS FB
KOTAL MUGHLAN
Ghafoor Gr.
BASTI BINDRI
Mosa Gr.
Mouza Hairo
Basti Basheer
K.Mughlan Gr
Basti Pir Bux
RD:7
RD 17500
Hockey Spur
St-20
JHS
St-25
St-26
St-27
Mole Head 29600
L-Groyne
Basti GR Gopang
RD:27
JHS-1
W/X Bund
Bolaywala Groyne
Thul Mahtam
RD:43
Head Regulator
Kadra Creek
JHS-2
RD:54
JHS-3
RD. 171+000
LUNDA DY:
MEHRE
INDUS

Chapter No.13.

EMERGENCY CONTINGENCY PLAN FOR VULNERABLE SITES

Vulnerable Sites

C. Fakhar Flood bund.

- **RD: 21+000 -22+000**

13.1. Plan showing route of flood water coming out of the breaches supported with level.

Marked index plan attached.

13.2. Detail of villages / abadies likely to be affected and this also be shown on the plan.

Villages: Basti Miani, Basti Gopang, Basti Mulan, Basti Lashari, Basti Sikhani, Basti Kotla Hassan, Kot Mithan Town

Abadi: About 385000 People

If any mishap occurs on this vulnerable reach on Fakhar Flood Bund the water will inundate the above village's agriculture land and adjoining abadies and other infrastructures.

13.3. Strategy and action taken be explained in detail.

By 1st of June, the strength of the existing establishment is doubled to clear the jungle on slopes and toe of the Embankments shanks etc. of the Spurs. Emphas is is laid to locate the holes of burrowing animals. These if found / detected or to be puddle to ensure the safety of the embankments.

In emergency the flood information is received from upper region, the Sub Divisional Officer and Sub Engineer Incharge shift on their head Quarter at site. The establishment is deployed accordingto floodstageand as prescribed, round theclock vigilant watching is arranged along the entire embankment to take care of eventualities. The staff is equipped with, torches, Gunny bags, kassies and any other relevant material to control seepage/ leakage in the embankment. The information is passed on quickly to the concerned quarter and simultaneously action is taken to close the same. In the event of exceptionally high flood stage the heavy earth moving machinery (Bull-Dozers) of agriculture engineering department / machinery circles also kept ready and placed on alert at vulnerable sites of Fakhar Flood Bund.

13.3.1. Arrangements.

The flood fighting material along-with watching establishment will be arranged at site as warning of high flood issued from Chasma Barrage.

13.3.2. Establishment of flood fighting camps.

Flood fighting camp will be established at Fakhar Flood Bund RD: 21+500.

13.3.3. Duties of Officers /officials and their camp at sites.

All concerned Sub Divisional Officer & their Staff is to remain in the area round the clock. As a matter of fact further flood information is to be telecasted. As such organization of this Division has to be very vigilant throughout the flood season. Staff of this division is set on high alert during day and night from 15 June up-to 15 September. Consequently flood watching camps are installed at vulnerable points. Adequate arrangements to fight bags the flood according to its magnitude are made by all Sub Division.

Any unwanted happening is to be reported by Sub Divisional officer to the Executive Engineer, Superintending Engineer, Chief Engineer, Secretary, Irrigation & Power Department. It is also duty of the Sub Divisional Officer to deliver messages well in time to the local civil authorities in addition to military

personnel.

Camp No.	Location	Officer (Name/ Designation / ContactNo.	Official (Name / Designation / Contact No.)
1	Fakhar Flood Bund, RD: 21+500	Qazi Faizul Hassan SDO Hill Torrent-II Mob: 0334-6431973	Muhammad Younis Sharif Mob: 03136534638

13.3.4. Departmental machinery available.

Departmental machinery available is not available.

13.3.5. Machinery available from private source.

Machinery will be made available from private source during the flood ememrngancy Sittutaion, deail of machinery is as under:-

Excavator, Bulldozer, Tractors will be hired by the Government Contractor.

Sr. No.	Government Contractor Name	Contact No.
1-	M/s Sparco Construction Company	0321-8437629
2-	M/s Rana Traders	0300-4000662
3-	EhsanBari	0333-6449205
4-	Allied Construction Company	0336-6780110
5-	Sabir Hussain	0333-6447489
6	M/S Mian Usman Zahoor Govt. Contractor	0306-7582222
7	M/S Kamran Builders	0333-6476070

13.3.6. Flood Fighting Material Required.

Required flood fighting material for Fakhar Flood Bund as per approved SOPC:-

13.3.7. Flood Fighting Material Available.

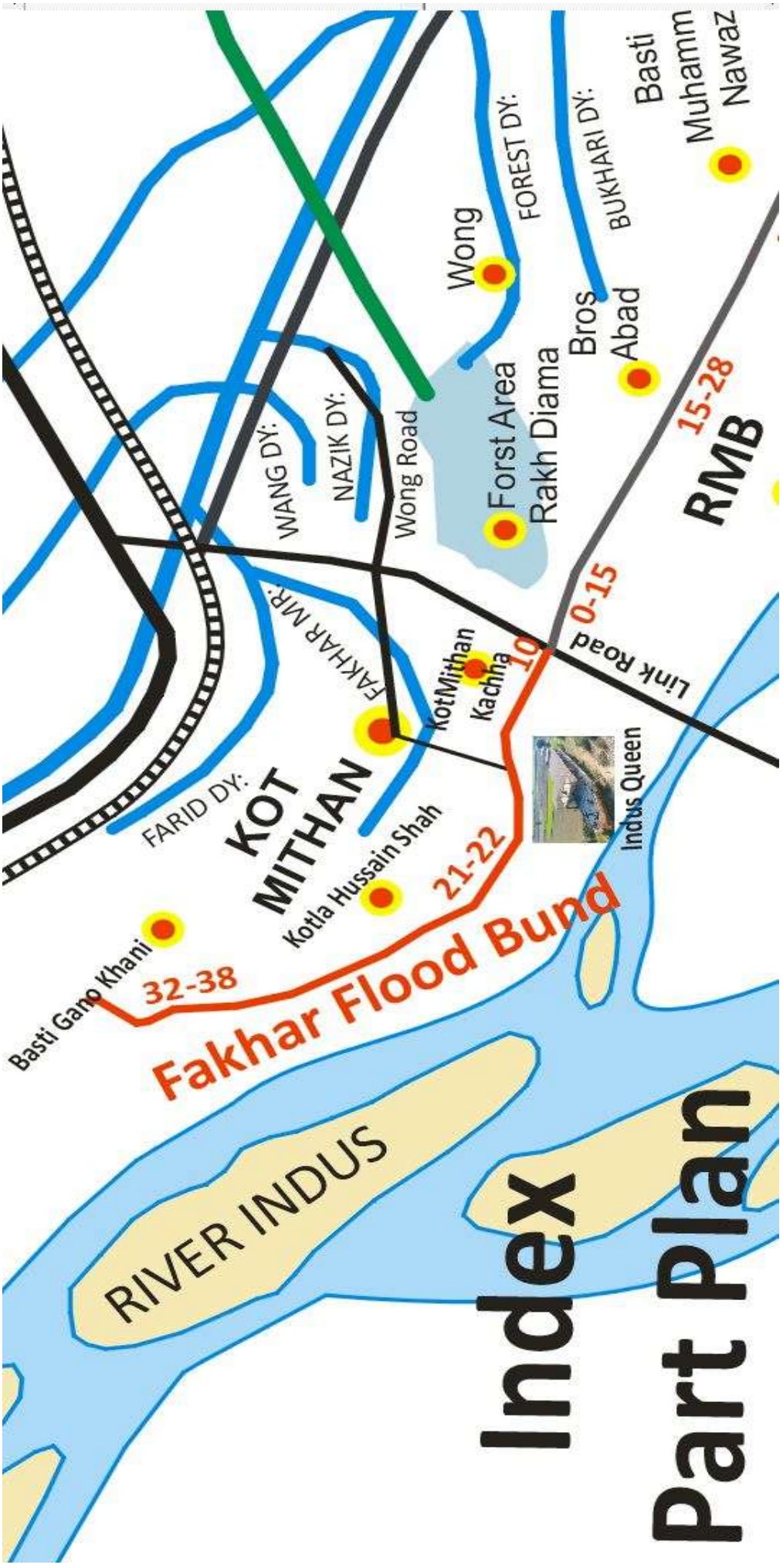
Available flood fighting material for Fakhar Flood Bund is as under:-

Sr. No	Items	Unit	Total Required Quantity	Available Quantity	Balance Quantity	Remarks
1	Shouldari / Tent	No.	1	0	1	
2	Chairs	No.	6	0	6	
3	Table	No.	1	0	1	
4	Generator (2-3 KVA)	No.	1	0	1	
5	Pedestal Fans	No.	1	0	1	
6	Charpais.	No.	2	0	2	
7	Symbolic Jackets	No.	50	0	50	
8	Polythene Sheet	Kg.	100	0	100	
9	Bamboos (4'' dia and 10 ft long)	No.	100	0	100	
10	Water Coller		1	0	1	
11	Portable Umbrella	No.	2	0	2	
12	Life Jackets	No.	5	0	5	
13	Utensils (10 person serving)	No.	1	0	1	

14	Jute/ Plastic bags	No.	1000	0	1000	
15	Walke Talkie Set	Sets	2	0	2	
16	Raincoats	No.	10	0	10	
17	LED Flood Lights	No.	10	0	10	
18	Extension Cable (10 ft)	No.	2	0	2	
19	Rechargeable Torches	No.	20	0	20	
20	Kassi	No.	20	0	20	
21	Axes	No.	20	0	20	
22	G.I Buckets	No.	5	0	5	
23	7/44 Cables	Feet	500	0	500	
24	Sutli	Kg	2	0	2	
25	Sewing Needles	No.	10	0	10	
26	Emergency Medical Kit	No.	1	0	1	
27	Wire Crates (3x3x3) (at only those camp near river action and reverse stock exists)	No.	100	0	100	

13.4. Detail of other infrastructure like electric, sui gas, telephones installations, road network, other buildings, canal & drainage network.

- **Canal**
  i. Dajal Canal, ii. Link No. III iii. Kadra Canal
- **Road**
  i. Indus Road (N-55)
- **Hospital**
  i.District Head Quarter Hospital, Rajanpur
- **Sui Gas**
  --
- **Telephone installation**
  --
- Drainage Network
  i. Tayyab Drain, ii-New Manka Drain, iii-Qutab Drain, iv- Bukhari Drain v- Darkhast Drain, vi- FCC(s)-79, 95,123, 145, 166, 177 & 186.


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FARID DY:
FAKHAR MR:
KotMithan Kachha
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0-15
Link Road
Indus Queen
Wong Road
WANG DY:
NAZIK DY:
Forst Area Rakh Diama
Wong
FOREST DY:
BUKHARI DY:
Bros Abad
Basti Muhamm Nawaz
15-28
RMB

Chapter No. 13.

EMERGENCY CONTINGENCYP LAN FOR VULNERABLE SITES

Vulnerable Sites

D. Rojhan Flood Bund.

- RD: 0+000 - 6+000, RD: 28+000 – 35+000

Watching & Deployment of Machinery through local Contractor stand by at vulnerable sites to handle any situation during the flood season.

13.1. Plan showing route of flood water coming out of the breaches supported with level.

Marked index plan attached.

13.2. Detail of villages/ abadies likely to be affected and this also be shown on the plan.

Village: Chak Mat#1, Chak Dilber, Jhandi, Chack mat 2, Basti Saheja, Rojhan City.

Abadi: About 43500 People

If any mishap occurs on this vulnerable reach on Jampur Flood Bund, the water will inundate the above village's agriculture land and adjoining abadies and other infrastructures.

13.3. Strategy and action taken be explained in detail.

In emergency the flood information is received from upper region, the Sub Divisional Officer and Sub Engineer Incharge shift on their head Quarter at site. The establishment is deployed accordingto floodstageand as prescribed, round theclock vigilant watching is arranged along the entire embankment to take care of eventualities. The staff is equipped with, torches, Gunny bags, kassies and any other relevant material to control seepage/ leakage in the embankment. The information is passed on quickly to the concerned quarter and simultaneously action is taken to close the same. In the event of exceptionally high flood stage the heavy earth moving machinery (Bull-Dozers) of agriculture engineering department / machinery circles also kept ready and placed on alert at vulnerable sites of Rojhan Flood Bund RD: 14+000

13.3.1. Arrangements.

The flood fighting material along-with watching establishment will be arranged at site as warning of high flood issued from Chasma Barrage.

13.3.2. Establishment of flood fighting camps.

Flood fighting camp will be established at Rojhan Flood Bund RD: 14+000

13.3.3. Duties of Officers / officials and their camp at sites.

All concerned Sub Divisional Officer & their Staff is to remain in the area round the clock. As a matter of fact further flood information is to be telecasted. As such organization of this Division has to be veryvigilant throughout the flood season. Staff of this division is set on high alert during day and night from 15 June up-to 15 September. Consequently flood watching camps are installed at vulnerable points. Adequate arrangements to fight bags the floodaccordingto its magnitudeare made byall Sub Division. Any unwanted happening is to be reported by Sub Divisional officer to the Executive Engineer, Superintending Engineer, Chief Engineer, Secretary, Irrigation & Power Department. It is also duty of the Sub Divisional Officer to deliver messages well in time to the local civil authorities in addition to military personnel.

Camp No.	Location	Officer (Name / Designation	Official (Name / Designation / Contact No.)

		/ Contact No.	
1	Rojhan Flood Bund RD: 14+000	Qazi Faizul Hassan SDO Hill Torrent-II Mob: 0334-6431973	Muhammad Adeeb, Sub Engineer Pitok Section Mob:0334-6940819

13.3.4. Departmental machinery available.

Departmental machinery available is not available.

13.3.5. Machinery available from private source.

Excavator, Bulldozer, Tractors will be hired by the Government Contractor.

Sr. No.	Government Contractor Name	Contact No.
1-	M/s Sparco Construction Company	0321-8437629
2-	M/s Rana Traders	0300-4000662
3-	EhsanBari	0333-6449205
4-	Allied Construction Company	0336-6780110
5-	Sabir Hussain	0333-6447489
6-	M/S Mian Usman Zahoor Govt. Contr	0306-7582222

13.3.6. Flood Fighting Material Required.

Required flood fighting material for Rojhan Flood Bund as per approved SOPS:-

13.3.7. Flood Fighting Material Available.

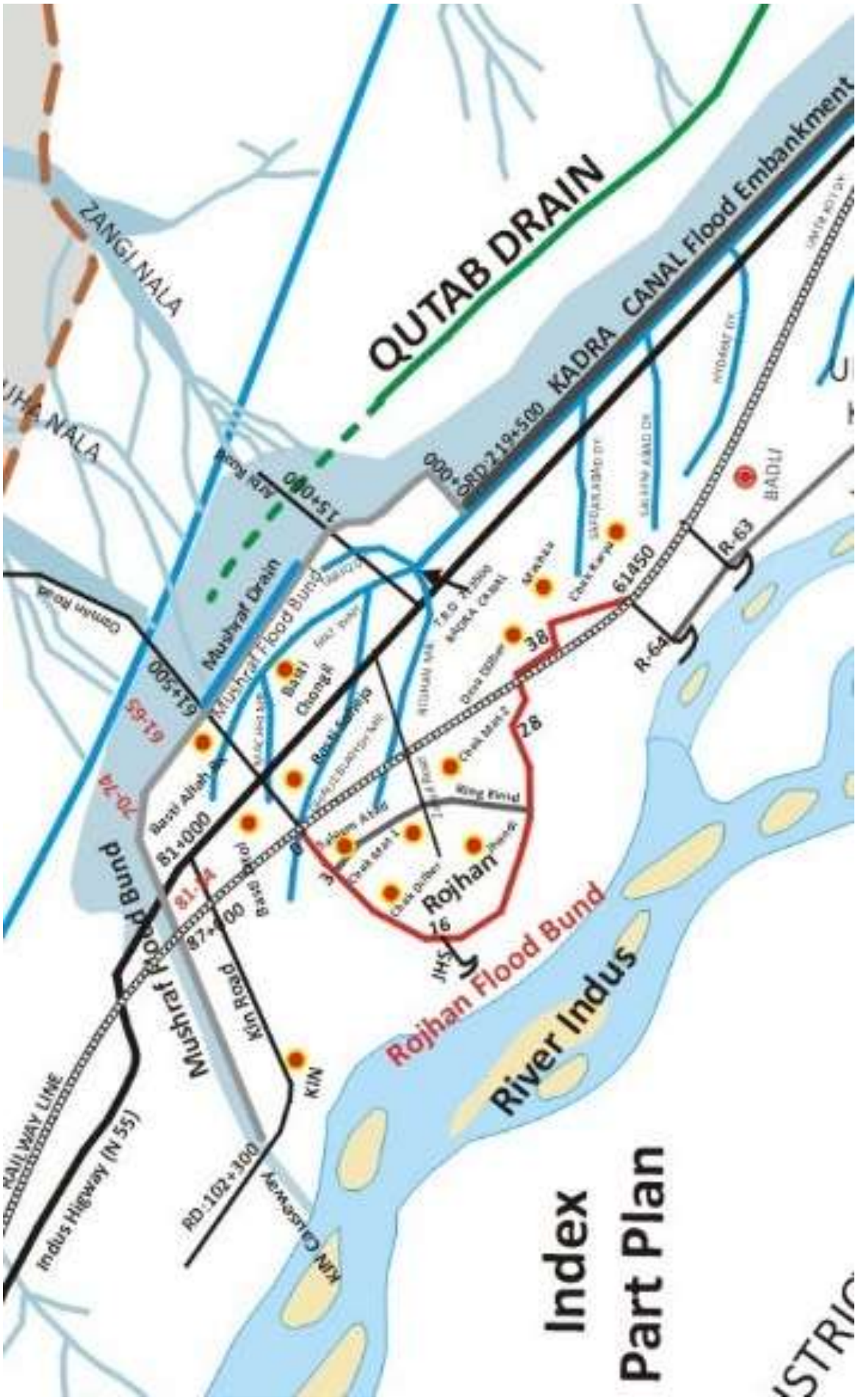
Available flood fighting material for Jampur Flood Bund is as under:-

Sr. No	Items	Unit	Total Required Quantity	Available Quantity	Balance Quantity	Remarks
1	Shouldari / Tent	No.	1	0	1	
2	Chairs	No.	6	0	6	
3	Table	No.	1	0	1	
4	Generator (2-3 KVA)	No.	1	0	1	
5	Pedestal Fans	No.	1	0	1	
6	Charpais.	No.	2	0	2	
7	Symbolic Jackets	No.	50	0	50	
8	Polythene Sheet	Kg.	100	0	100	
9	Bamboos (4'' dia and 10 ft long)	No.	100	0	100	
10	Water Coller		1	0	1	
11	Portable Umbrella	No.	2	0	2	
12	Life Jackets	No.	5	0	5	
13	Utensils (10 person serving)	No.	1	0	1	
14	Jute/ Plastic bags	No.	1000	0	1000	
15	Walke Talkie Set	Sets	2	0	2	
16	Raincoats	No.	10	0	10	
17	LED Flood Lights	No.	10	0	10	
18	Extension Cable (10 ft)	No.	2	0	2	

19	Rechargeable Torches	No.	20	0	20	
20	Kassi	No.	20	0	20	
21	Axes	No.	20	0	20	
22	G.I Buckets	No.	5	0	5	
23	7/44 Cables	Feet	500	0	500	
24	Sutli	Kg	2	0	2	
25	Sewing Needles	No.	10	0	10	
26	Emergency Medical Kit	No.	1	0	1	
27	Wire Crates (3x3x3) (at only those camp near river action and reverse stock exists)	No.	100	0	100	

13.4. Detail of other infrastructure like electric, sui gas, telephones installations, roadnetwork, other buildings, canal & drainage network

- **Canal**
  i. Dajal Canal, ii. Link No. III iii. Kadra Canal
- **Road**
  ii. Indus Road (N-55)
- **Hospital**
  iii. District Head Quarter Hospital, Rajanpur
- **Sui Gas**
  --
- **Telephone installation**
- Drainage Network
  i. Tayyab Drain,ii-New Manka Drain,iii-Qutab Drain,iv-Bukhari Drain v- Darkhast Drain, vi- FCC(s)-79, 95,123, 145, 166, 177 & 186.


QUTAB DRAIN
ZANGI NALA
KADRA CANAL Flood Embankment
Mushraf Drain
Mushraf Flood Bund
Rojhan
Rojhan Flood Bund
River Indus
Mushraf Flood Bund
Kin Road
KIN
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RAILWAY LINE
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Basti Allah Dad
Basti Chang
Basti Rojhan
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Chak Mast 2
Chak Jumma Ahad
Chak Jumma Jhanda
Chak Jumma Pulher
Ring Field
Chak Kanpa
Chak Kanpa
Mosque
Mosque
Canal Road
Kin Road
Kin Causeway
RD:102+300
87+400
81+000
61+500
15+000
000+OSD219+500

Chapter No.13.

EMERGENCY CONTINGENCY PLAN FOR VULNERABLE SITES

Vulnerable Sites

E. Musharaf Flood Bund.

❖ RD: 20+000 – 22+0000, RD: 30+000 – 40+0000, RD: 54+000 – 58+000

Watching & Deployment of Machinery through local Contractor stand by at vulnerable sites to handle any situation during the flood season.

13.1. Plan showing route of flood water coming out of the breaches supported with level.

Marked index plan attached.

13.2. Detail of villages /abadies likely to be affected and this also beshown on the plan.

Villages: Mouza Dilber, Mouza Safdarabad, Chak Mat #: 1, # 2, Mouza Gianmal and Basti Jatt

Abadi: About 65000 People

If anymishap occurs on this vulnerable reach on Musharaf Flood Bund the water will inundate the above village's agriculture land and adjoining abadies and other infrastructures.

13.3. Strategy and action taken be explained in detail.

By 1st of June, the strength of the existing establishment is doubled to clear the jungle on slopes and toe of the Embankments shanks etc. of the Spurs. Emphasis is laid to locate the holes of burrowing animals. These if found / detected or to be puddle to ensure the safety of the embankments.

In emergency the flood information is received from upper region, the Sub Divisional Officer and Sub Engineer Incharge shift on their head Quarter at site. The establishment is deployed according to flood stage and as prescribed, round the clock vigilant watching is arranged along the entire embankment to take care of eventualities. The staff is equipped with, torches, Gunny bags, kassies and any other relevant material to control seepage/ leakage in the embankment. The information is passed on quickly to the concerned quarter and simultaneously action is taken to close the same. In the event of exceptionally high flood stage the heavy earth moving machinery (Bull-Dozers) of agriculture engineering department / machinery circles also kept ready and placed on alert at vulnerable sites of Musharaf Flood Bund.

13.3.1. Arrangements.

The flood fighting material along-with watching establishment will bearranged at site as warning of high flood issued from Chasma Barrage.

13.3.2. Establishment of flood fighting camps.

Flood fighting camps will be established at Musharaf Flood Bund RD: 21+000,38+000

13.3.3. Duties of Officers /officials and their camp at sites.

All concerned Sub Divisional Officer & their Staff is to remain in the area round the clock. As a matter of fact further flood information is to be telecasted. As such organization of this Division has to be veryvigilant throughout the flood season. Staff of this division is set on high alert during day and night from 15 June up-to 15 September. Consequently flood watching camps are installed at vulnerable points. Adequate arrangements to fight bags the flood according to its magnitudeeare made by all Sub Division. Any unwanted happening is to be reported by Sub Divisional officer to the Executive Engineer, Superintending Engineer, Chief Engineer, Secretary, Irrigation & Power Department. It is also duty of the Sub Divisional Officer to deliver messages well

in time to the local civil authorities in addition to military personnel.

Camp No.	Location	Officer (Name/Designation/ Contact No.	Official (Name Designation/ Contact No.)
1	Musharaf Flood Bund RD: 21+000, 38+000	Qazi Faizul Hassan SDO Hill Torrent-II Mob:0334-6431973	Muhammad Adeeb,Sub Engineer Pitok Section Mob:0334-6940819

13.3.4. Departmental machinery available.

Departmental machinery available is not available.

Machinery available from private source.

Excavator, Bulldozer, Tractors will be hired by the Government Contractor.

Sr. No.	GovernmentContractorName	ContactNo.
1-	M/s Sparco Construction Company	0321-8437629
2-	M/s RanaTraders	0300-4000662
3-	Ehsan Bari	0333-6449205
4-	Allied Construction Company	0336-6780110
5-	Sabir Hussain	0333-6447489
6-	M/S Mian Usman Zahoor Govt. Contr	0306-7582222

13.3.5. Flood Fighting Material Required.

Required flood fighting material for Musharf Flood Bund as per approved SOPs

13.3.6. Flood Fighting Material Available.

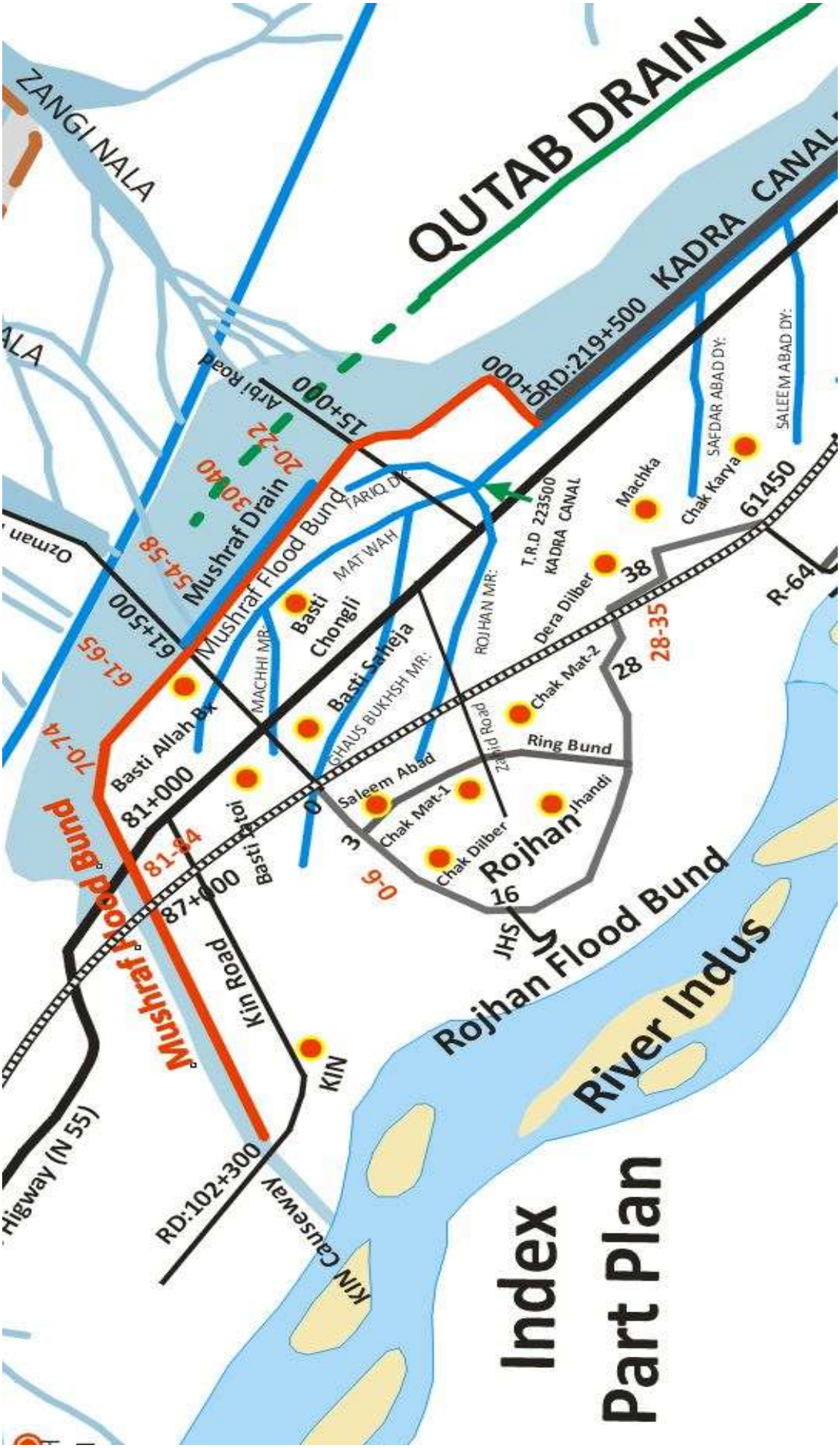
Available flood fighting material for Musharaf Flood Bundand is as under:-

Sr. No	Items	Unit	Total Required Quantity	Available Quantity	Balance Quantity	Remarks
1	Shouldari / Tent	No.	1	0	1	
2	Chairs	No.	6	0	6	
3	Table	No.	1	0	1	
4	Generator (2-3 KVA)	No.	1	0	1	
5	Pedestal Fans	No.	1	0	1	
6	Charpais.	No.	2	0	2	
7	Symbolic Jackets	No.	50	0	50	
8	Polythene Sheet	Kg.	100	0	100	
9	Bamboos (4'' dia and 10 ft long)	No.	100	0	100	
10	Water Coller		1	0	1	
11	Portable Umbrella	No.	2	0	2	
12	Life Jackets	No.	5	0	5	
13	Utensils (10 person serving)	No.	1	0	1	
14	Jute/ Plastic bags	No.	1000	0	1000	
15	Walke Talkie	Sets	2	0	2	

	Set					
16	Raincoats	No.	10	0	10	
17	LED Flood Lights	No.	10	0	10	
18	Extension Cable (10 ft)	No.	2	0	2	
19	Rechargeable Torches	No.	20	0	20	
20	Kassi	No.	20	0	20	
21	Axes	No.	20	0	20	
22	G.I Buckets	No.	5	0	5	
23	7/44 Cables	Feet	500	0	500	
24	Sutli	Kg	2	0	2	
25	Sewing Needles	No.	10	0	10	
26	Emergency Medical Kit	No.	1	0	1	
27	Wire Crates (3x3x3) (at only those camp near river action and reverse stock exists)	No.	100	0	100	

13.4 Detail of other infrastructure like electric, sui gas, telephones installations, roadnetwork, other buildings, canal & drainage network.

- **Canal**
  i. Dajal Canal, ii. Link No. III iii. Kadra Canal
- **Road**
  i. Indus Road (N-55)
- **Hospital**
  i. District Head Quarter Hospital, Rajanpur
- **Sui Gas**
  --
- Telephone
  --
- **Drainage Network**
  i. Tayyab Drain,ii- New Manka Drain, iii-Qutab Drain, iv-Bukhari Drain v-Darkhast Drain, vi- FCC(s)-79, 95,123, 145, 166, 177 & 186.


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ZANGI NALA
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000+ORD:219+500
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Mushraf Drain
Mushraf Flood Bund
TARIQ DY:
MAT WAH
T.R.D 223500
KADRA CANAL
Machka
SAFDAR ABAD DY:
Chak Karya
SALEEM ABAD DY:
61450
R-64
61+500
61-65
Basti Chongli
Basti Sarfeja
MACHHI MR:
CHAUS BUKHSH MR:
ROJHAN MR:
Dera Dilber
38
28-35
28
Chak Mat-2
Ring Bund
Zarid Road
Basti Allah Bx
81+000
70-74
Saleem Abad
Chak Mat-1
Chak Dilber
Rojhan Jhandi
Basti Toi
81-84
87+000
3
0-6
16
JHS
Rojhan Flood Bund
River Indus
Mushraf Flood Bund
Kin Road
KIN
RD:102+300
Kin Causeway
Higway (N 55)

Chapter No. 13.

EMERGENCY CONTINGENCYP LAN FOR VULNERABLE SITES

Vulnerable Sites

F. Right Marginal Bund (RMB)

- RD: 18000 - 19+000, RD: 29+000 - 31+000, RD: 53+00 - 55+000, 68+300-73+000

13.1. Plan showing route of flood water coming out of the breaches supported with level.

Marked index plan attached.

13.2. Detail of villages/ abadies likely to be affected and this also be shown on the plan.

Village: Basti Wang, Barosa Baad, Basti Wagwar, Basti Aallah Yar, Basti Khoso, Basti Lasahri , Basti Darishak Basti Haji pur, Basti Rind ,Basti Darishak, Basti Pitafi, Basti Chandia, Basti Bhayani & Basti Gishkori & Bait Suntra.

Abadi: About 35500 People

If any mishap occurs on this vulnerable reach on Jampur Flood Bund, the water will inundate the above village's agriculture land and adjoining abadies and other infrastructures.

13.3. Strategy and action taken be explained in detail.

By 1st of June, the strength of the existing establishment is doubled to clear the jungle on slopes and toe of the Embankments shanks etc. of the Spurs. Emphasis is laid to locate the holes of burrowing animals. These if found / detected or to be puddle to ensure the safety of the embankments.

In emergency the flood information is received from upper region, the Sub Divisional Officer and Sub Engineer Incharge shift on their head Quarter at site. The establishment is deployed according to flood stage and as prescribed, round the clock vigilant watching is arranged along the entire embankment to take care of eventualities. The staff is equipped with, torches, Gunny bags, kassies and any other relevant material to control seepage/ leakage in the embankment. The information is passed on quickly to the concerned quarter and simultaneously action is taken to close the same. In the event of exceptionally high flood stage the heavy earth moving machinery (Bull-Dozers) of agriculture engineering department / machinery circles also kept ready and placed on alert at vulnerable sites of Right Marginal Bund (RMB) Flood Bund.

13.3.1. Arrangements.

The flood fighting material along-with watching establishment will be arranged at site as warning of high flood issued from Chasma Barrage.

13.3.2. Establishment of flood fighting camps.

Flood fighting camp will be established at Right Marginal Bund (RMB) **RD: 19+000, RD: 54+000 & RD: 71+000**

13.3.3. Duties of Officers / officials and their camp at sites.

All concerned Sub Divisional Officer & their Staff is to remain in the area round the clock. As a matter of fact further flood information is to be telecasted. As such organization of this Division has to be very vigilant throughout the flood season. Staff of this Division is set on high alert during day and night from 15 June up-to 15 September. Consequently flood watching camps are installed at vulnerable points. Adequate arrangements to fight bags the flood according to its magnitude are made by all Sub Division. Any unwanted happening is to be reported by Sub Divisional officer to

the Executive Engineer, Superintending Engineer, Chief Engineer, Secretary, Irrigation & Power Department. It is also duty of the Sub Divisional Officer to deliver messages well in time to the local civil authorities in addition to military personnel.

Camp No.	Location	Officer (Name / Designation / Contact No.	Official (Name / Designation / Contact No.)
1	Right Marginal Bund (RMB) RD:19+000,RD:54+000 & RD:71+000	Muhammad Abdul Mueed SDO Mechanical Mob: 0335-0502269	Sabir Hussain, Sub Engineer Kotla Mughlan Section Mob: 0300-3282020

13.3.4. Departmental machinery available.

Departmental machinery available is not available.

13.3.5. Machinery available from private source.

Excavator, Bulldozer, Tractors will be hired by the Government Contractor.

Sr. No.	Government Contractor Name	Contact No.
1-	M/s Sparco Construction Company	0321-8437629
2-	M/s Rana Traders	0300-4000662
3-	Ehsan Bari	0333-6449205
4-	Allied Construction Company	0336-6780110
5-	Sabir Hussain	0333-6447489
6-	M/S Mian Usman Zahoor Govt. Contr	0306-7582222

13.3.6. Flood Fighting Material Required.

Required flood fighting material for Right Marginal Bund (RMB) as per approved SOPs:-

13.3.7. Flood Fighting Material Available.

Available flood fighting material for Right Marginal Bund (RMB) is as under:-

Sr. No	Items	Unit	Total Required Quantity	Available Quantity	Balance Quantity	Remarks
1	Shouldari / Tent	No.	1	0	1	
2	Chairs	No.	6	0	6	
3	Table	No.	1	0	1	
4	Generator (2-3 KVA)	No.	1	0	1	
5	Pedestal Fans	No.	1	0	1	
6	Charpais.	No.	2	0	2	
7	Symbolic Jackets	No.	50	0	50	
8	Polythene Sheet	Kg.	100	0	100	
9	Bamboos (4'' dia and 10 ft long)	No.	100	0	100	
10	Water Coller		1	0	1	
11	Portable Umbrella	No.	2	0	2	
12	Life Jackets	No.	5	0	5	
13	Utensils (10 person serving)	No.	1	0	1	
14	Jute/ Plastic bags	No.	1000	0	1000	
15	Walke Talkie Set	Sets	2	0	2	
16	Raincoats	No.	10	0	10	
17	LED Flood Lights	No.	10	0	10	

18	Extension Cable (10 ft)	No.	2	0	2	
19	Rechargeable Torches	No.	20	0	20	
20	Kassi	No.	20	0	20	
21	Axes	No.	20	0	20	
22	G.I Buckets	No.	5	0	5	
23	7/44 Cables	Feet	500	0	500	
24	Sutli	Kg	2	0	2	
25	Sewing Needles	No.	10	0	10	
26	Emergency Medical Kit	No.	1	0	1	
27	Wire Crates (3x3x3) (at only those camp near river action and reverse stock exists)	No.	100	0	100	

13.4. Detail of other infrastructure like electric, sui gas, telephones installations, road network, other buildings, canal & drainage network.

- **Canal**

  i. Dajal Canal, ii. Link No. III iii. Kadra Canal

- **Road**

  i. Indus Road (N-55)

- **Hospital**

  i. District Head Quarter Hospital, Rajanpur

- **Sui Gas**

  --

- **Telephone installation**
- Drainage Network

  i. Tayyab Drain, ii-New Manka Drain, iii-Qutab Drain, iv-Bukhari Drain v- Darkhast Drain, vi- FCC(s)-79, 95,123, 145, 166, 177 & 186.


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Fakhar Flood Bund
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Bukhari Drain
RIVER CHENAB
INDUS RIVER
SHAHEED BENAZIR BHUTTO BRIDGE
Inlet 212+000
219+000
227+800
Head Noushera
Lower Talai
Escape Channel
0-15
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Basti Bhayani
Basti Chandia
Basti Gishkori
Basti Jatoi
Basti Pitafi
Basti Drishak
Basti Rind
Basti Lashari
Basti Allahyar
Basti Haji Pur
Basti Khoso
Wong Road
Link Road
FOREST DY:
BUKHARI DY:
NOR PUR DY:
FAZIL DY:
NAZIK DY:
WANG DY:
FARID DY:
RAJ DY:
RIVER

Chapter No. 13.

EMERGENCY CONTINGENCYP LAN FOR VULNERABLE SITES

Vulnerable Sites

G. Raikh Bagh Wala to Bait Waghwar Flood

- **RD: 36+000-48+000, RD: 105+000-109+000,RD: 116+000-118+000,RD:127+000-129+000,RD 136+000-139+000.**

13.1. Plan showing route of flood water coming out of the breaches supported with level.
Marked index plan attached.

13.2. Detail of villages/ abadies likely to be affected and this also be shown on the plan.
Village: Basti Bosan, Bait Jhabail, Shah wala Basti Bhugti, Bait wagwar, Basti Buzdar, Basti Mazari, Basti Gopang, Basti Khosa, Sikhani and Bait Sontra

Abadi: About 231000 People

If any mishap occurs on this vulnerable reach on Jampur Flood Bund, the water will inundate the above village's agriculture land and adjoining abadies and other infrastructures.

13.3. Strategy and action taken be explained in detail.

In emergency the flood information is received from upper region, the Sub Divisional Officer and Sub Engineer Incharge shift on their head Quarter at site. The establishment is deployed according to flood stage and as prescribed, round the clock vigilant watching is arranged along the entire embankment to take care of eventualities. The staff is equipped with, torches, Gunny bags, kassies and any other relevant material to control seepage/ leakage in the embankment. The information is passed on quickly to the concerned quarter and simultaneously action is taken to close the same. In the event of exceptionally high flood stage the heavy earth moving machinery (Bull-Dozers) of agriculture engineering department / machinery circles also kept ready and placed on alert at vulnerable sites of Raikh Bagh Wala to Bait Waghwar Flood Bund.

13.3.1. Arrangements.

The flood fighting material along-with watching establishment will be arranged at site as warning of high flood issued from Chasma Barrage.

13.3.2. Establishment of flood fighting camps.

Flood fighting camp will be established at Raikh Bagh Wala to Bait Waghwar RD: 47+000 & RD: 11+000

13.3.3. Duties of Officers / officials and their camp at sites.

All concerned Sub Divisional Officer & their Staff is to remain in the area round the clock. As a matter of fact further flood information is to be telecasted. As such organization of this Division has to be very vigilant throughout the flood season. Staff of this Division is set on high alert during day and night from 15 June up-to 15 September. Consequently flood watching camps are installed at vulnerable points. Adequate arrangements to fight bags the flood according to its magnitude are made by all Sub Division. Any unwanted happening is to be reported by Sub Divisional officer to the Executive Engineer, Superintending Engineer, Chief Engineer, Secretary, Irrigation & Power Department. It is also duty of the Sub Divisional Officer to deliver messages well in time to the local civil authorities in addition to military personnel.

Camp No.	Location	Officer (Name / Designation /	Official (Name / Designation /

		Contact No.	Contact No.)
1	Raikh Bagh Wala to Bait Waghwar Flood Rd 47+000+ 111+000	Muhammad Abdul Mueed SDO Hill Torrent-I Mob: 0335-0502269	Sabir Hussain, Sub Engineer Kotla Mughlan Section Mob: 0300-3282020

13.3.4. Departmental machinery available.

Departmental machinery available is not available.

13.3.5. Machinery available from private source.

Excavator, Bulldozer, Tractors will be hired by the Government Contractor.

Sr. No.	Government Contractor Name	Contact No.
1-	M/s Sparco Construction Company	0321-8437629
2-	M/s Rana Traders	0300-4000662
3-	Ehsan Bari	0333-6449205
4-	Allied Construction Company	0336-6780110
5-	Sabir Hussain	0333-6447489
6-	M/S Mian Usman Zahoor Govt. Contr	0306-7582222

13.3.6. Flood Fighting Material Required.

Required flood fighting material for Raikh Bagh Wala to Bait Waghwar Flood as per SOPs:-

13.3.7. Flood Fighting Material Available.

Available flood fighting material for Raikh Bagh Wala to Bait Waghwar Flood is as under:-

Sr. No	Items	Unit	Total Required Quantity	Available Quantity	Balance Quantity	Remarks
1	Shouldari / Tent	No.	1	0	1	
2	Chairs	No.	6	0	6	
3	Table	No.	1	0	1	
4	Generator (2-3 KVA)	No.	1	0	1	
5	Pedestal Fans	No.	1	0	1	
6	Charpais.	No.	2	0	2	
7	Symbolic Jackets	No.	50	0	50	
8	Polythene Sheet	Kg.	100	0	100	
9	Bamboos (4'' dia and 10 ft long)	No.	100	0	100	
10	Water Coller		1	0	1	
11	Portable Umbrella	No.	2	0	2	
12	Life Jackets	No.	5	0	5	
13	Utensils (10 person serving)	No.	1	0	1	
14	Jute/ Plastic bags	No.	1000	0	1000	
15	Walke Talkie Set	Sets	2	0	2	
16	Raincoats	No.	10	0	10	
17	LED Flood Lights	No.	10	0	10	
18	Extension Cable (10 ft)	No.	2	0	2	
19	Rechargeable Torches	No.	20	0	20	

20	Kassi	No.	20	0	20	
21	Axes	No.	20	0	20	
22	G.I Buckets	No.	5	0	5	
23	7/44 Cables	Feet	500	0	500	
24	Sutli	Kg	2	0	2	
25	Sewing Needles	No.	10	0	10	
26	Emergency Medical Kit	No.	1	0	1	
27	Wire Crates (3x3x3) (at only those camp near river action and reverse stock exists)	No.	100	0	100	

13.4. Detail of other infrastructure like electric, sui gas, telephones installations, road network, other buildings, canal & drainage network.

- **Canal**

  i. Dajal Canal, ii. Link No. III iii. Kadra Canal

- **Road**

  ii. Indus Road (N-55)

- **Hospital**

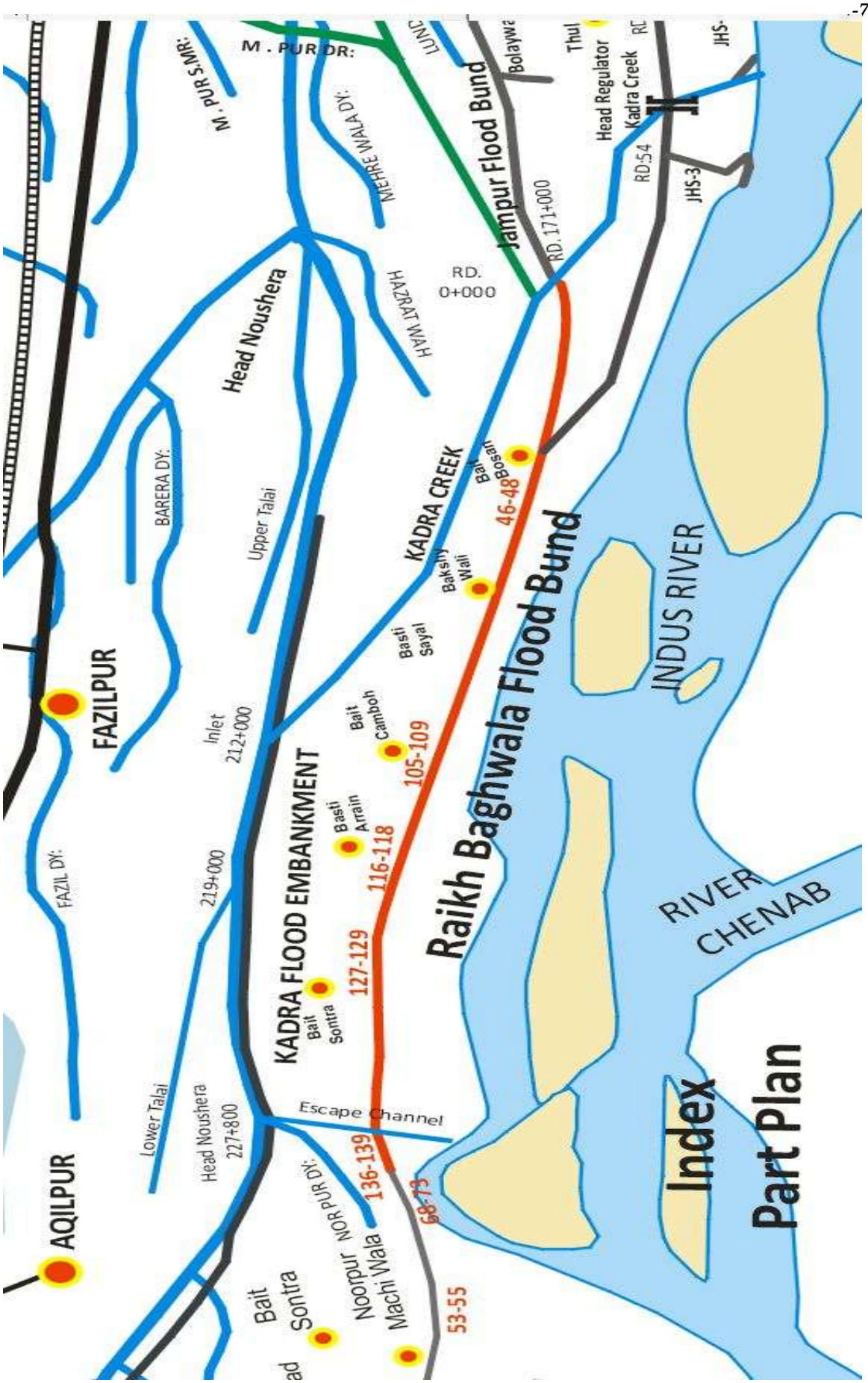
  ii. District Head Quarter Hospital, Rajanpur

- **Sui Gas**

  --

- **Telephone installation**
- Drainage Network

  i. Tayyab Drain, ii-New Manka Drain, iii-Qutab Drain,iv-Bukhari Drain v- Darkhast Drain, vi- FCC(s)-79, 95,123, 145, 166, 177 & 186.


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Head Noushera
Lower Talai
Upper Talai
Escape Channel
Inlet
Head Regulator
Kadra Creek
Bait Sontra
Noorpur Machi Wala
Bait Camboh
Basti Arrain
Basti Sayal
Baksh Wali
Bait Bosan
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M . PUR S-MR:
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Chapter-14

ACTIONPLAN

14.1 Re-shuffling/ recouping plan of reserve stone departmentally.

Limited Reserve Stock of Stone is available at site where necessary. Reshuffling / recouping of reserve stock of stone will be completed before coming flood season 2026. Demand of fund shas been submitted to Administrative Department for early arrangement of requisite funds. On receipt of funds, the balance quantity of reserve stock of stone will be procured.

14.2 Detail of inlet/ outlet crossing along with closing methodology

Inlet and outlet/water course X-ings will be plugged well in time by sand filled plastic bags by work charge establishment. The detail is as under:-

Sr. No.	Name of Channel	Water Course X-ing RD:
1	Main Qutab Drain	198+000
		200+000
		205+000
		210+000
		264+700
		268+900
		271+500
		272+000
		275+400
		278+000
		282+430
		285+300
		288+000
		289+000
2	FCC-145 Dajal Branch	41+700
		43+900
		50+200
		56+500
3	FCC-166 Dajal Branch	4+200
		10+200
4	FCC-177 Dajal Branch	5+700
		9+850
		18+650
		20+850
5	FCC-186 Dajal Branch	13+100
		15+200
		30+000
		37+700
		39+800

Sr. No.	Name of Flood Bund / Embankment	Reach RD:	No. of Water Course X-ing.
1	Rojhan Flood Bund	1+000-2+000	1
		6+000-7+000	1
		7+000-8+000	1
		8+000-9+000	2
		9+000-10+000	1
		12+000-13+000	2
		13+000-14+000	2
		15+000-16+000	2
		16+000-17+000	2
		19+000-20+000	2
		21+000-22+000	3
		22+000-23+000	1
		23+000-24+000	2
		28+000-29+000	3
		30+000-31+000	1
		31+000-32+000	1
		33+000-34+000	1
		37+000-38+000	1
		41+000-42+000	1
		42+000-43+000	2
		43+000-44+000	3
	Umer Kot Flood Bund	1+000-2+000	1
		6+000-7+000	1
		7+000-8+000	1
		8+000-9+000	2
		9+000-10+000	1
		12+000-13+000	2
		13+000-14+000	2
		15+000-16+000	2
		16+000-17+000	2
		18+000-19+000	2
		19+000-20+000	3
		21+000-22+000	1
		22+000-23+000	2
		23+000-24+000	3
		28+000-29+000	1
		30+000-31+000	1
		31+000-32+000	1
		35+000-36+000	1
		39+000-40+000	1
		40+000-41+000	2
		41+000-42+000	3

14.3 Deployment of Machinery (Normal to Low Flood)

Riverine Structure

Sr. No	Structure Name	Length (Miles)	Excavators	Trolleys	Dumpers	Tractor with Front blade (1 per 15 mile)
1	Gandha Jakhar Imam	0.58	S.E shall allow deputation of one (1) excavator & four (4) Trolleys during low flood at camps/vulnerable points & LMB / RMB		0	0
2	Harrow Flood Bund	5.92			0	0
3	Jampur Flood Bund	34.14			0	2
4	Chandia Flood bund	1.55			0	0
5	Gaddan Wala Bund	3.82			0	0
6	Laskani Flood Bund	5.27			0	0
7	Sheru Flood Bund	0.62			0	0
8	W.X. Bund.	1.40			0	0
9	New Hairo Flood Bund.	1.40			0	0
10	Raikh Bagh Wala to Bait Waghwar Flood	27.90			0	2
11	Zamidara Flood Bund	0.40			0	0
12	Right Marginal Bund (RMB)	15.50			0	1
13	Fakhar Flood Bund	3.06			0	1
14	Rojhan Flood Bund	12.25			0	
15	Umer Kot Flood Bund	9.00			0	0
16	S-4 Tie Bund	0.64			0	0
17	Bhagsar Flood Bund	2.50			0	0
18	Qallandar Shah Groyne	0.85			0	0
19	Shah Jamal Groyne	1.20			0	0
20	Ghafoor Groyne	2.80			0	0
21	Old Qalandar Shah Groyne	3.70			0	0
22	Musa Groyne	1.40			0	0
23	Kotla Mughlan Groyne	0.30			0	0
24	L-Groyne	0.62			0	0
25	Boly Wala Groyne	1.20			0	0
Total					**0**	**6**

Note:-Payment for work charge establishmentwill be subject to verification by the TPM /Consultants.

HillTorrent / FCC/ Dains Structure

Sr. No	Structure Name	Length (Miles)	Excavators	Trolleys	Dumpers	Tractor with Front blade (1 per 15 mile)
1	Tayyab Drain	26.20	2	1	0	2
2	Azmat Drain	3.70	0	0	0	0
3	Kaloi Drain	3.70	0	0	0	0
4	Feeding Channel of Bukhari Drain (FCC)	1.62	0	0	0	0
5	FCC-123	19.80	2	2	0	3
6	FCC-79	25.26	2	1	0	2
7	FCC-95	9.40	1	1	0	1
8	FCC-109	12.60	1	1	0	1
9	FCC-145	18.20	3	5	0	4
10	FCC-166	4.90	1	1	0	1
11	FCC-177	12.80	2	2	0	2
12	FCC-186	10.42	4	3	0	2
13	Qutab Drain	43.94	5	3	0	2
14	New Manka	25.21	1	4	0	4
15	Bukhari	15.53	2	3	0	2
16	Darkhast Drain	8.54	0	1	0	1
17	Musharraf Flood Bund	11.65	4	4	0	3
18	Musharraf Drain	7.43	2	3	0	3
Total			**32**	**35**	**0**	**33**

Note:-Payment for work charge establishmentwill be subject to verification by the TPM /Consultants.

14.4 Deployment of Machinery (Medium to High Flood) Riverine Structure

Sr. No.	Structure Name	Length (Miles)	Excavators	Trolleys	Dumpers	Tractor with Front blade
			1 per 7 mile	4 per 7 mile	2 per 7 mile	1 per 7 mile
1	Gandha Jakhar Imam	0.58	1	3	2	1
2	Harrow Flood Bund	5.92				
3	Jampur Flood Bund	34.14	5	20	10	5
4	Chandia Flood bund	1.55	0	0	0	0
5	Gaddan Wala Bund	3.82	1	4	2	1
6	Laskani Flood Bund	5.27				
7	Sheru Flood Bund	0.62	0	0	0	0
8	W.X. Bund.	1.40	0	0	0	0
9	New Hairo Flood Bund.	1.40	0	0	0	0

10	Raikh Bagh Wala to Bait Waghwar Flood	27.90	4	16	8	4
11	Zamidara Flood Bund	0.40	0	0	0	0
12	Right Marginal Bund (RMB)	15.50	2	8	4	2
13	Fakhar Flood Bund	3.06	2	8	4	2
14	Rojhan Flood Bund	12.25				
15	Umer Kot Flood Bund	9.00	1	4	2	1
16	S-4 Tie Bund	0.64	0	0	0	0
17	Bhagsar Flood Bund	2.50	0	0	0	0
18	Qallandar Shah Groyne	0.85	0	0	0	0
19	Shah Jamal Groyne	1.20	0	0	0	0
20	Ghafoor Groyne	2.80	0	0	0	0
21	Old Qalandar Shah Groyne	3.70	1	4	2	1
22	Musa Groyne	1.40				
23	Kotla Mughlan Groyne	0.30				
24	L-Groyne	0.62				
25	Boly Wala Groyne	1.20				
Total			**17**	**67**	**34**	**17**

Note:-Payment for work charge establishmentwill be subject to verification by the TPM /Consultants.

HillTorrent / FCC/ Dains Structure

Sr. No.	Structure Name	Length (Miles)	Excavators	Trolleys	Dumpers	Tractor with Front blade
			1 per 7 mile	4 per 7 mile	2 per 7 mile	1 per 7 mile
1	Tayyab Drain	26.20	4	6	2	3
2	Azmat Drain	3.70	1	1	0	0
3	Kaloi Drain	3.70				
4	Feeding Channel of Bukhari Drain (FCC)	1.62	1	1	0	0
5	FCC-123	19.80	3	6	2	3
6	FCC-79	25.26	3	5	2	3
7	FCC-95	9.40	1	3	0	1
8	FCC-109	12.60	1	3	0	1
9	FCC-145	18.20	5	5	2	4
10	FCC-166	4.90	1	2	1	1
11	FCC-177	12.80	3	5	2	3
12	FCC-186	10.42	5	5	2	4
13	Qutab Drain	43.94	6	6	4	6
14	New Manka	25.21	3	8	2	3

15	Bukhari	15.53	3	3	2	3
16	Darkhast Drain	8.54	1	2	0	1
17	Musharraf Flood Bund	11.65	4	6	2	4
18	Musharraf Drain	7.43	3	5	2	3
Total			**48**	**66**	**25**	**40**

Note:-Payment for work charge establishmentwill be subject to verification by the TPM /Consultants.

14.5 DeploymentMachinery (Very High to Exp. High)

Riverine Structure

Sr. No	Structure Name	Length (Miles)	Excavators		Trolleys	Dumpers	Tractor with Front blade	
			Very High Flood	Exp. High Flood	4 per 5 mile	2 per 5 mile	Very High Flood	Exp. High Flood
			1 per 5 mile	2 per 5 mile			1 per 5 mile	2 per 5 mile
1	Gandha Jakhar Imam	0.58	0	0	0	0	0	0
2	Harrow Flood Bund	5.92	1	2	4	2	1	2
3	Jampur Flood Bund	34.14	7	14	27	14	7	14
4	Chandia Flood bund	1.55	1	2	4	2	1	2
5	Gaddan Wala Bund	3.82						
6	Laskani Flood Bund	5.27	1	2	4	2	1	2
7	Sheru Flood Bund	0.62	0	0	0	0	0	0
8	W.X. Bund.	1.40	0	0	0	0	0	0
9	New Hairo Flood Bund.	1.40	0	0	0	0	0	0
10	Raikh Bagh Wala to Bait Waghwar Flood	27.90	5	10	20	10	5	10
11	Zamidara Flood Bund	0.40	0	0	0	0	0	0
12	Right Marginal Bund (RMB)	15.50	3	6	12	6	3	6
13	Fakhar Flood Bund	3.06	3	6	12	6	3	6
14	Rojhan Flood Bund	12.25						
15	Umer Kot Flood Bund	9.00	2	4	8	4	2	4
16	S-4 Tie Bund	0.64						
17	Bhagsar Flood Bund	2.50	0	0	0	0	0	0
18	Qallandar Shah Groyne	0.85	0	0	0	0	0	0
19	Shah Jamal Groyne	1.20	0	0	0	0	0	0
20	Ghafoor Groyne	2.80	1	2	4	2	1	2

21	Old Qalandar Shah Groyne	3.70						
22	Musa Groyne	1.40	0	0	0	0	0	0
23	Kotla Mughlan Groyne	0.30	0	0	0	0	0	0
24	L-Groyne	0.62	0	0	0	0	0	0
25	Boly Wala Groyne	1.20	0	0	0	0	0	0
Total			**24**	**48**	**95**	**48**	**24**	**48**

Note:-Payment for work charge establishmentwill be subject to verification by the TPM /Consultants.

HillTorrent / FCC/ Dains Structure

Sr. No	Structure Name	Length (Miles)	Excavators		Trolleys	Dumpers	Tractor with Front blade	
			Very High Flood	Exp. High Flood	4 per 5 mile	2 per 5 mile	Very High Flood	Exp. High Flood
			1 per 5 mile	2 per 5 mile			1 per 5 mile	2 per 5 mile
1	Tayyab Drain	26.20	4	8	12	6	4	8
2	Azmat Drain	3.70	1	1	3	1	1	1
3	Kaloi Drain	3.70						
4	Feeding Channel of Bukhari Drain (FCC)	1.62	1	1	1	1	1	1
5	FCC-123	19.80	4	6	10	8	4	6
6	FCC-79	25.26	4	5	10	8	4	5
7	FCC-95	9.40	2	2	6	4	2	4
8	FCC-109	12.60	2	2	6	4	2	4
9	FCC-145	18.20	6	8	12	10	6	8
10	FCC-166	4.90	1	2	4	2	1	2
11	FCC-177	12.80	3	4	6	4	3	4
12	FCC-186	10.42	6	7	8	4	6	7
13	Qutab Drain	43.94	8	12	8	8	8	12
14	New Manka	25.21	4	6	10	6	4	6
15	Bukhari	15.53	4	6	8	2	4	6
16	Darkhast Drain	8.54	2	2	3	1	2	2
17	Musharraf Flood Bund	11.65	6	8	8	5	6	8
18	Musharraf Drain	7.43	4	8	8	5	4	8
Total			**62**	**88**	**123**	**79**	**62**	**92**

Note:- Payment for Machinery and workcharge establishment will be subject to verification by the TPM /Consultants.

14.6 Police deployment plan

1. Breaching Section

Sr. No.	Site breaching section	Concerned Canal Division	Concerned Police Station &District	Police Personal to be deployed	Remarks (if Any)

				Inspector / SI /ASI	Constables	
1	No Breaching Section	-	-	-	-	-

2. **Vulnerable Sits**

Sr. No.	Vulnerable sites used for illegal cutsduring floods	Concerned Canal Division	Concerned Police Stationand District	Police Personnel to be deployed			Remarks (If any)
				Sub Inspector	A.S.I.	Constable	
1	Pull Pathan	Jampur Construction Division, Rajanpur	PS Rajanpur	1	1	5	-
2	Fakhar Flood Bund		PS Kotmithan	1	1	5	-

Note: Police help will be taken on emergent biases, when and where needed time to time.

14.7 Details of synthetic bags with capacity of 50 Kgand 100 Kg

Not required, as heavy machinery is required to operate synthetic bags with capacity of 50 Kg and 100 Kg.

14.8 Details of polythene sheets of black color to protect upstream slope against wave action and to control seepage through embankments

Not required

14.9 Recommendation for operation dunning flood.

Recommendations for Operation During Flood

i. The Superintending Engineer (SE) will notify all vulnerable points on the recommendations of Executive Engineer (XEN) and if the vulnerable site falls within 15 miles of embankment, then camp will be established at vulnerable site.

ii. Superintending Engineer shall allow deputation of one (1) excavator and four (4) Trolleys during low flood at Camps/ vulnerable points and LMB/RMB.

iii. The Superintending Engineer (SE) shall approve one additional shift during low to high flood based on necessity of site but he shall clearly mention the reach where additional shift is allowed.

iv. For emergent situation when very high flood levels are attained at lower flood discharges, additional camps may also be established with the approval of Superintending Engineer.

v. The concerned division shall procure flood fighting material as per requirement of seasonal flood fighting camps.

vi. Jackets with official emblem of the PID should be purchased by the concerned Division, to be used during the worst-case scenario, i.e., for exceptionally high flood.

vii. All others camps and supplies along with establishment i.e. Beldars and mates shall be outsourced before the flood season for operational efficiency during the flood fighting activities.

viii. The above mentioned yard stick of human resource is inclusive of 100% of regular flood establishment of the division at normal and low flood and for medium and above flood situation 50% of total regular establishment of the division and backup division in Flood Fighting Plan.

ix. The **Trigger Point** upstream of a Canal Division for commencing preparations shall be mentioned in the flood fighting plan and it shall be such point upstream with lag time of 3 days / 72 hours. The division shall initiate preparation corresponding to discharge magnitude expected to receive at their jurisdiction with respect to discharge at trigger point with 2025 flood data.

6

SE MBN

x. Superintending Engineers shall approve additional resources above the approved FFP on the recommendations of Executive Engineer based on site necessity with copy to TPM and respective Chief Engineer but must mentioned the reach and justify the reason for additional resources in approval.

xi. Executive Engineers (XEN) shall decide the location and relocation of flood camps.

xii. The machinery mentioned above should be hired to remain standby for 24/7 to fight any extreme situation. The working of deployed machinery during normal situation shall be with prior approval of Superintending Engineer.

xiii. Communication means must be arranged through the Government. It is recommended to allocate a unique frequency for irrigation department.

xiv. In the event that water levels reach the 'High Flood' threshold even if the recorded discharge remains below established benchmarks, all field preparations and personnel deployments must immediately escalate to Critical Level protocols.

(Abdul Qayyum Qadume)
Member / SE, Mailsi Canal Circle, Multan

(Zeeshan Ali)
Member/ SE, Project Circle DG Khan

(Mohib Ullah Ali)
Member / SE, Sukhrawa Canal Circle, Sahiwal

(Imtiaz Hussain)
Member / SE, Bahawalpur Canal Circle

(Sammar Iqbal)
Member / SE, LCC(West) Canal Circle, Faisalabad

(Hafiz Ijaz Ahmed)
Member / SE, Mandi Bahauddin Canal Circle

(Mudassar Rehan)
Member / SE Link Circle, Lahore

(Khurram Amin)
Convener / Chief Engineer, Drainage & Flood Zone, Lahore.

Backup Divisions (In case of breach)

Rajanpur Canal Division will be the‘Backup Division’with fully support and backup to pass the flood safely.

Executive Engineer
Jampur Construction Division
Jampur

Superintending Engineer
Project Circle (Irrigation)
Dera Ghazi Khan

Chief Engineer
D.G.Khan, Irrigation Zone
Dera Ghazi Khan

ACTIONPLAN DURING FLOOD

(EXCEPTIONALLYHIGHSTAGE)IN JAMPURCONSTRUCTIONDIVISION

Sr. No.	Nameof Site	Vulnerable Reach	Camp Location	SiteInchargeby Name& Cell No.
1	Jampur Flood Bund	RD:4-26	RD: 26	**Muhammad Abdul Mueed** **SDO Mechanical Subdivision** Mob: 0335-0502269
2	Harrow Flood Bund	RD:0-29+700	RD: 17, 25, 20	
3	Bukhari Drain	Syphon 95 DKC Indus Highway RD; 89+000 Aqilour Road RD:75-22	RD: 89, 74	**Muhammad Abdul Mueed** **SDO Hill** Torrent-I Mob: 0335-0502269
4	Main Qutab Drain	Pull Pathan 282+000 RD:275 - 270 Basti Lakha (RD:258+000) Fateh Pur Road RD: 243+000 Muhammad Pur Gam Wala Road (RD: 228+000)	RD:290, 282, 258, 243, 228	
5	FCC-123	RD: 91, 83, 79, 70, 25, 17, 09, 1	RD: 01, 80	
6	FCC-145	RD: 62, 58, 54, 52, 48, 44, 42, 37, 31,32, 23, 11, 9, 5, 1	RD:23, 48, 61	
7	FCC-166	RD: 20, 15, 8, 2, 1	2	
8	FCC-177	RD: 61,69, 51, 39, 36, 04,	61, 39, 04	
9	FCC-186	RD: 38, 37, 35, 32, 31, 30, 26, 22, 14, 12, 06, 02	RD: 37, 22, 01	
10	Tayyab Drainage System	RD: 126, 112, 66, 52, 40	130, 66, 52	
11	Fakhar Flood Bund	RD:10-20	RD:4	
12	Rojhan Flood Bund	RD:0-30	RD: 14	**Qazi Faizul Hassan** SDO Hill Torrent-II 0333-6431973
13	Umer Kot Flood Bund	RD:0-13	RD: 13	
14	Musharaf Flood Bun	RD: 0, 15, 61, 81	RD: 0, 15,61, 81	
15	Musharraf Drain			