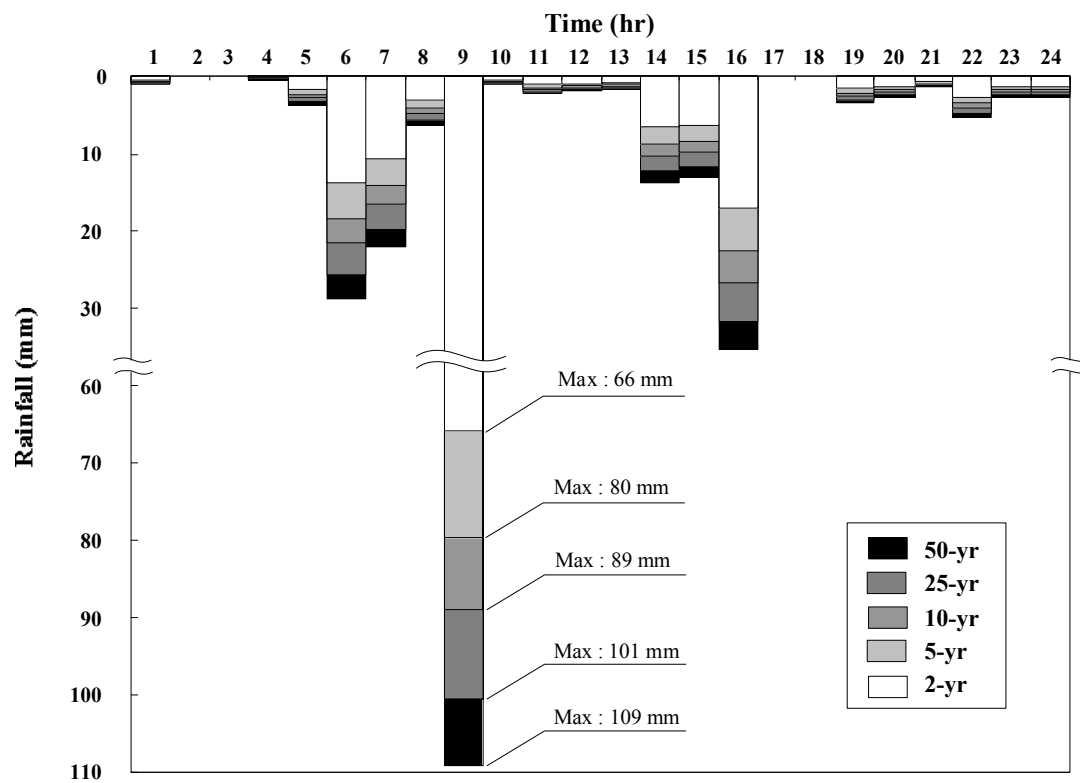


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Figure 2.3.1
**Results of Extreme Value Analysis on Annual
Maximum Basin Average Rainfall**

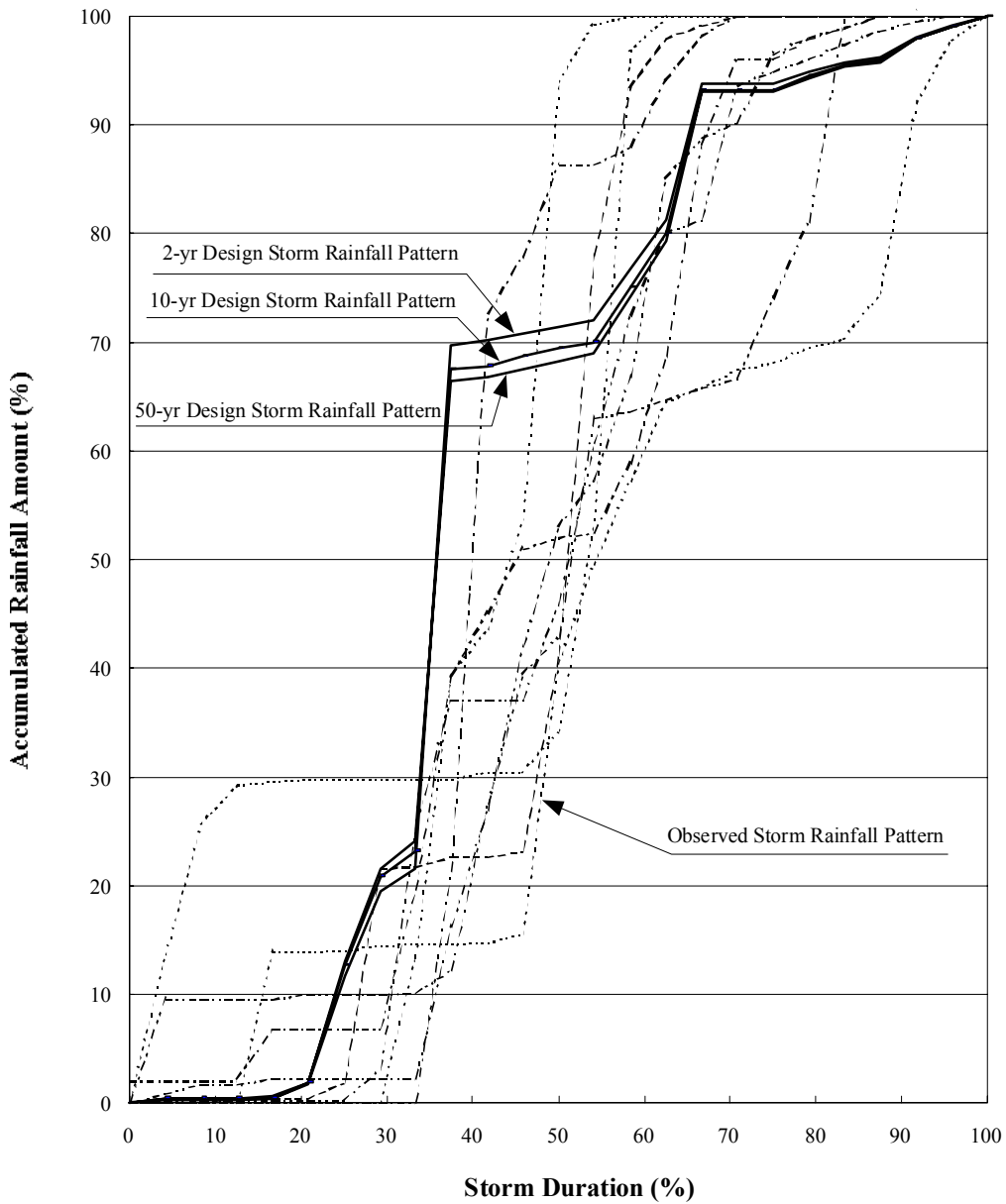


Time (hour)	Rainfall (mm)				
	2-yr	5-yr	10-yr	25-yr	50-yr
1	0	1	1	1	1
2	0	0	0	0	0
3	0	0	0	0	0
4	0	0	0	0	0
5	2	2	3	3	4
6	14	18	22	26	29
7	11	14	17	20	22
8	3	4	5	6	6
9	66	80	89	101	109
10	0	1	1	1	1
11	1	1	2	2	2
12	1	1	1	2	2
13	1	1	1	1	2
14	7	9	10	12	14
15	6	8	10	12	13
16	17	23	27	32	35
17	0	0	0	0	0
18	0	0	0	0	0
19	2	2	3	3	3
20	1	2	2	2	3
21	1	1	1	1	1
22	3	3	4	5	5
23	1	2	2	2	3
24	1	2	2	2	3
Total	137	175	201	234	258

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Figure 2.3.2
Design Storm Rainfall Pattern for Weras
Ganga Basin



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Figure 2.3.3
Cumulative Rainfall Curves of Recorded and
Design Hyetographs

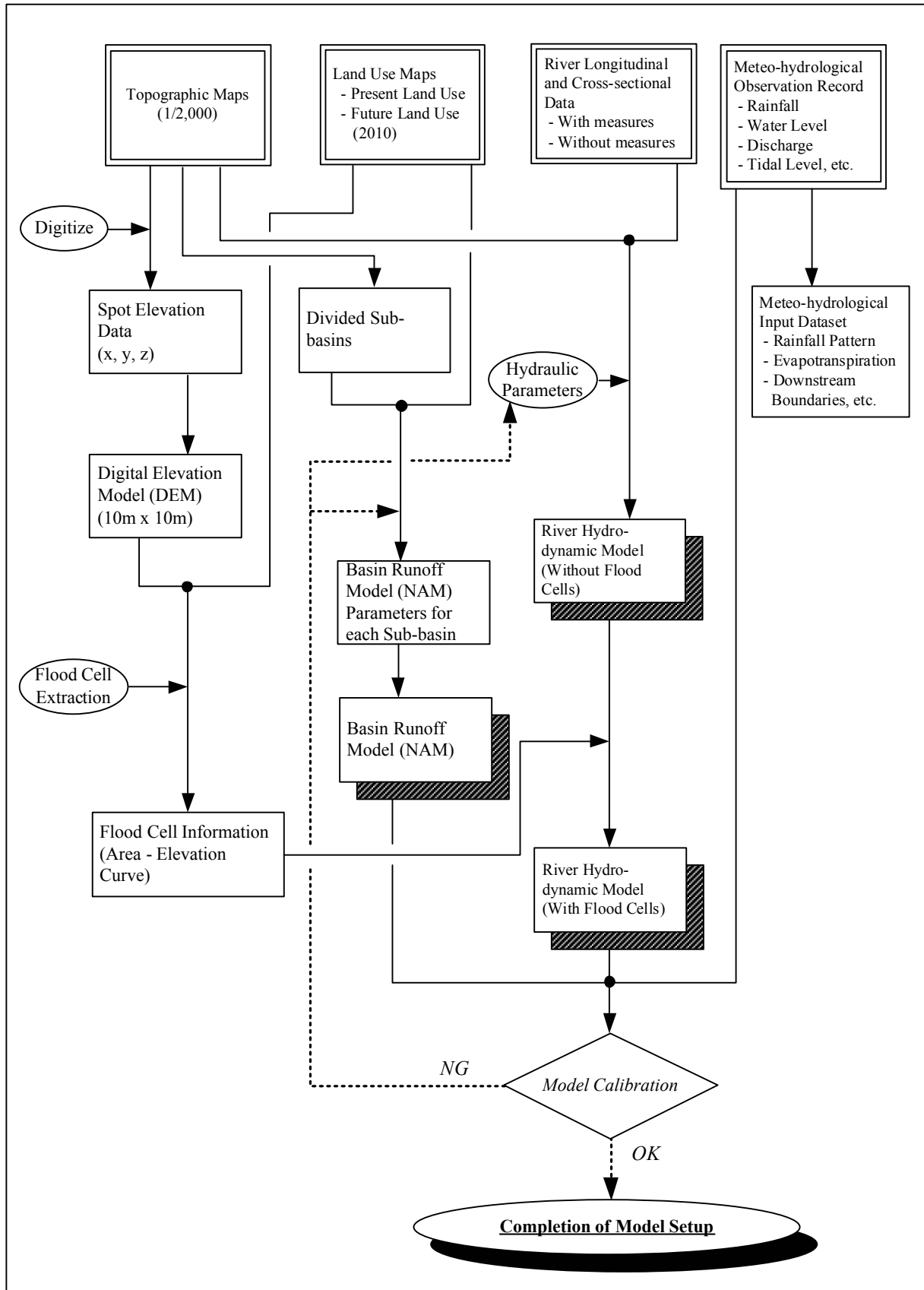


Figure 3.1.1
General Workflow of Flood Runoff and
Inundation Model Setup

Figure 3.1.2
Generated DEM for the Weras Ganga Basin

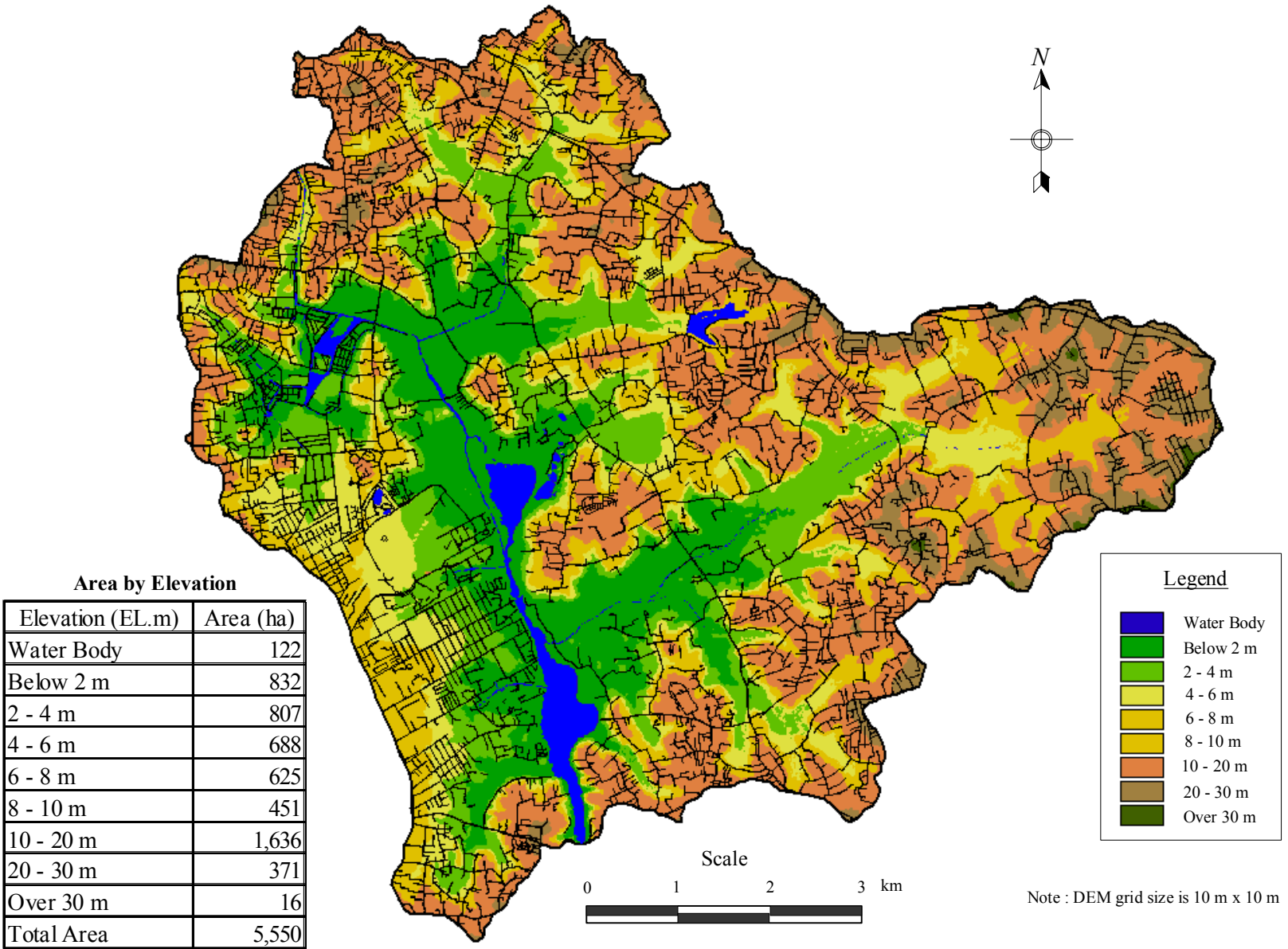
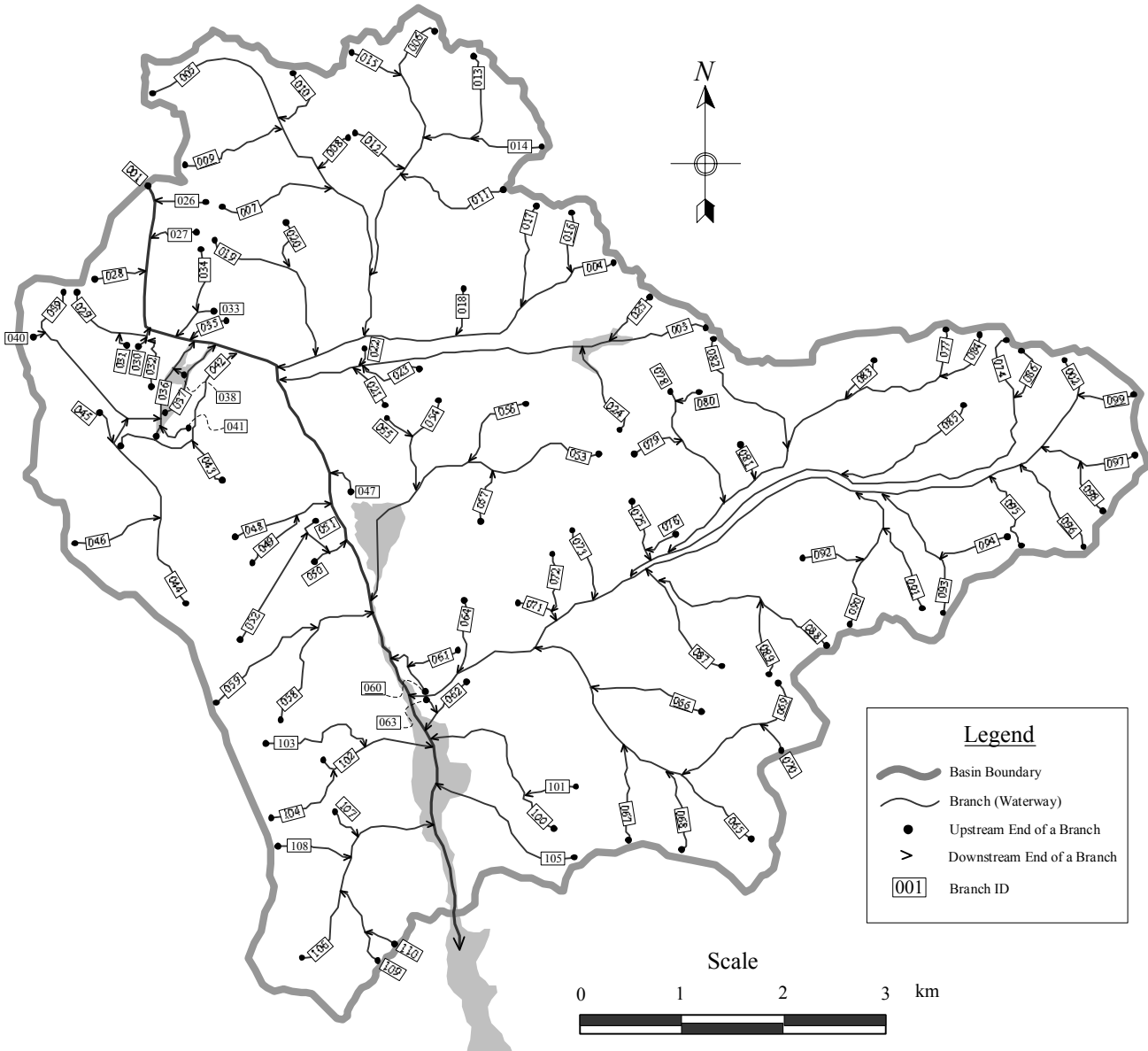
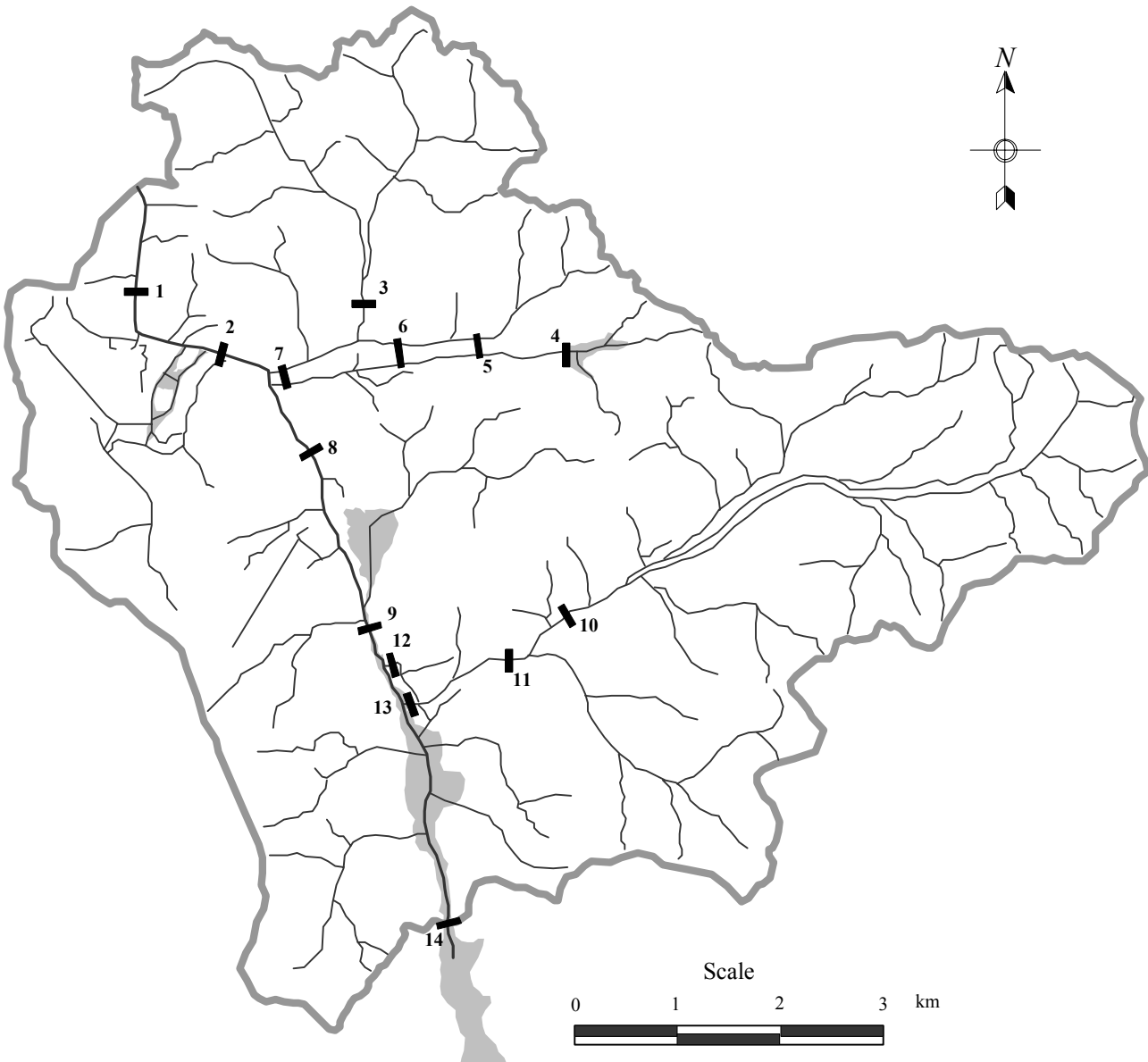


Figure 3.2.1
Branch Network in the Werara Ganga Basin
(Present Condition)



Length of Branches




ID	Length (m)	ID	Length (m)
001	8,890	056	880
002	8,060	057	480
003	4,230	058	1,660
004	3,660	059	1,270
005	4,200	060	570
006	2,790	061	520
007	1,210	062	640
008	410	063	120
009	1,090	064	670
010	680	065	3,000
011	1,190	066	1,140
012	610	067	960
013	1,280	068	750
014	690	069	1,520
015	540	070	310
016	560	071	390
017	1,010	072	560
018	420	073	680
019	1,760	074	5,390
020	490	075	580
021	470	076	290
022	190	077	3,940
023	620	078	1,280
024	950	079	480
025	590	080	210
026	460	081	350
027	470	082	1,580
028	480	083	470
029	870	084	640
030	130	085	1,410
031	110	086	550
032	570	087	1,240
033	470	088	1,980
034	600	089	790
035	380	090	1,470
036	1,020	091	920
037	860	092	550
038	90	093	1,390
039	2,010	094	690
040	30	095	840
041	360	096	1,070
042	1,850	097	1,000
043	490	098	540
044	2,090	099	550
045	370	100	1,850
046	890	101	440
047	300	102	1,200
048	970	103	1,190
049	640	104	890
050	370	105	1,560
051	410	106	2,150
052	1,210	107	300
053	3,380	108	730
054	990	109	830
055	270	110	290

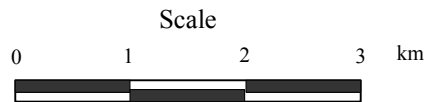


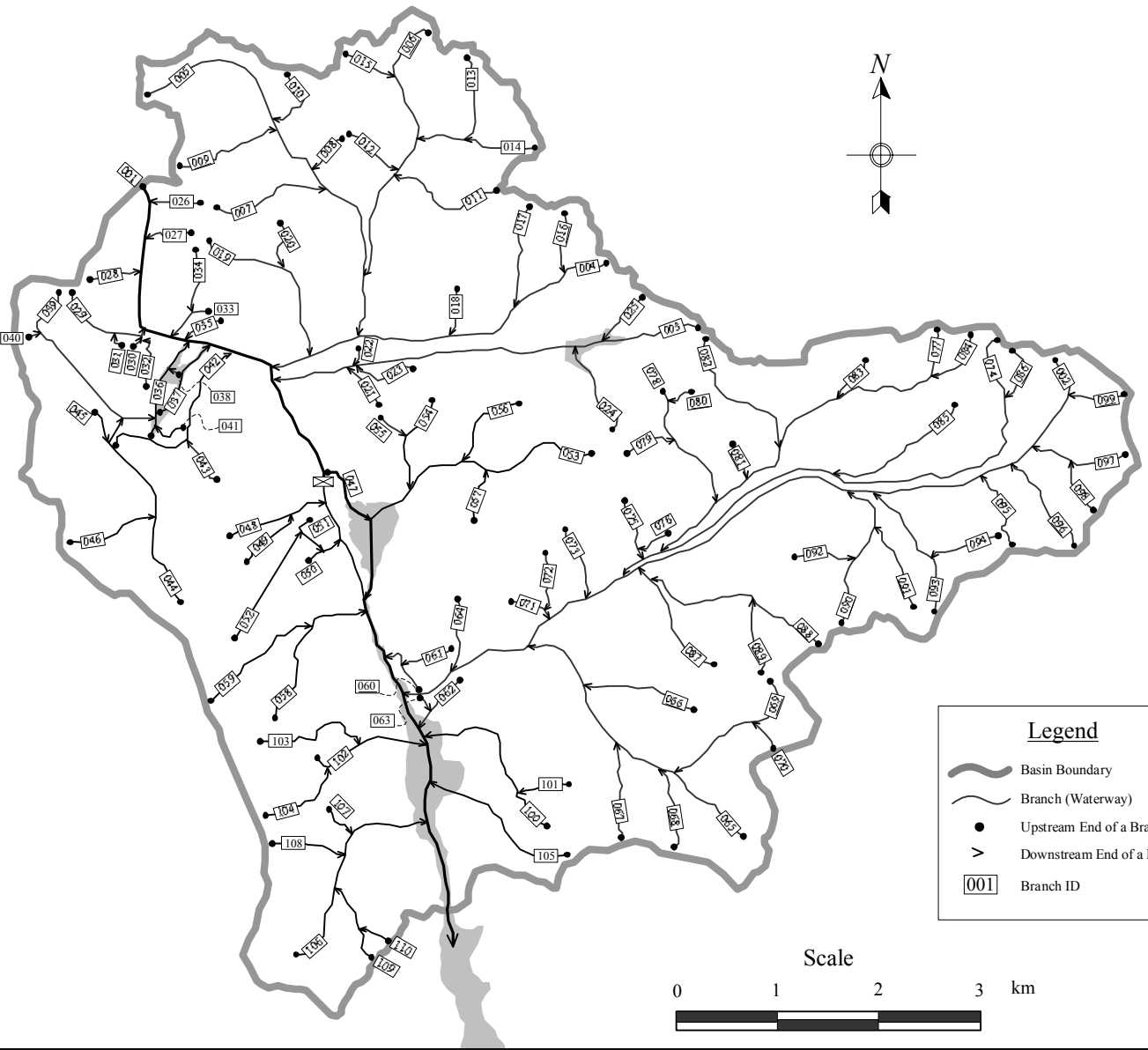
Kind of Structures

No	Kind
1	Bridge
2	Bridge
3	Culvert
4	Weir
5	Culvert
6	Culvert
7	Culvert
8	Gate (Bridge)
9	Bridge
10	Bridge
11	Culvert
12	Gate
13	Gate
14	Bridge

Legend

-  Basin Boundary
-  Branch (Waterway)
-  Structure





Legend

- Basin Boundary
- Branch (Waterway)
- Upstream End of a Branch
- Downstream End of a Branch
- Branch ID

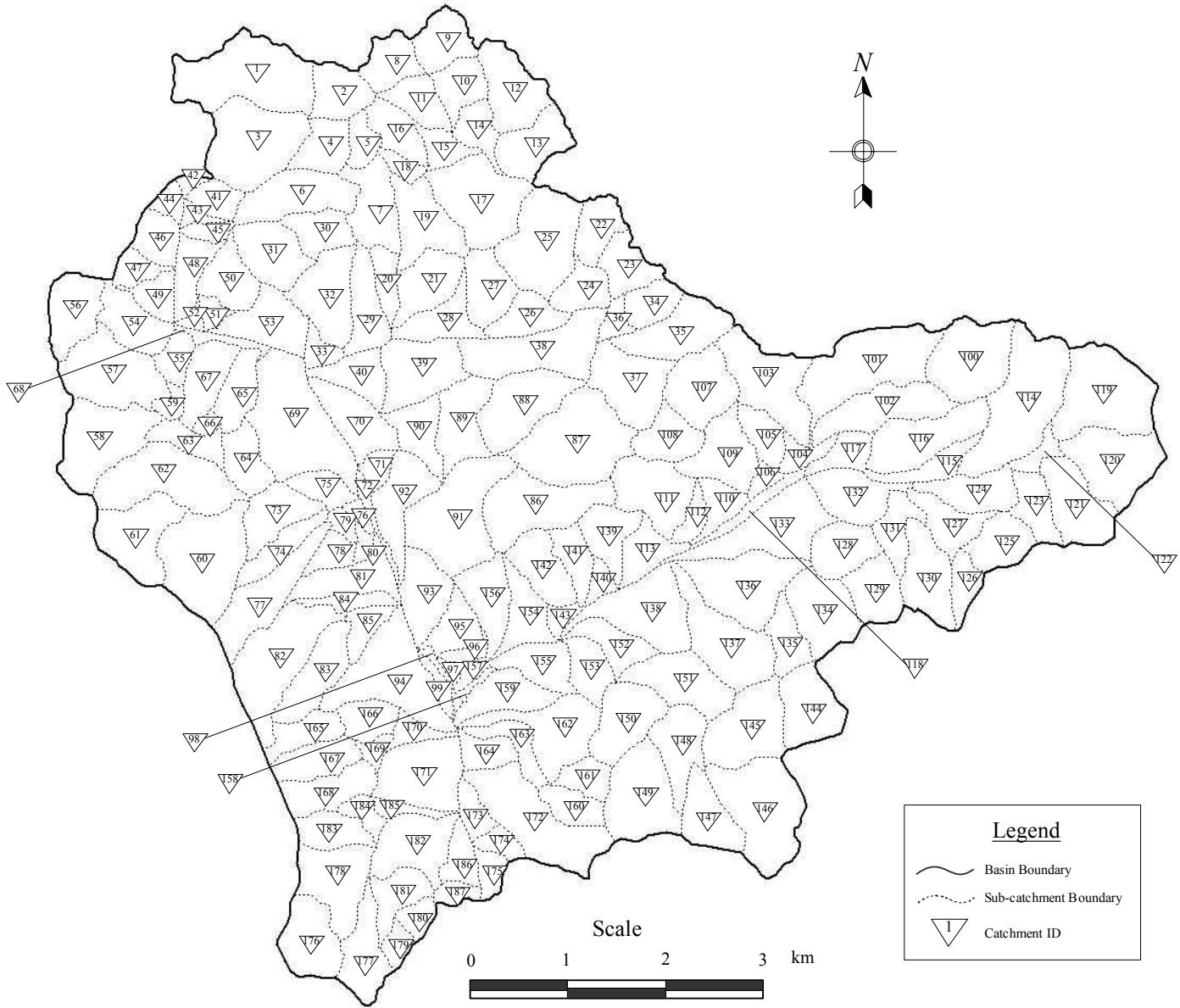
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Figure 3.2.3
Branch Network in the Weras Ganga Basin
(Future Condition Estimated)

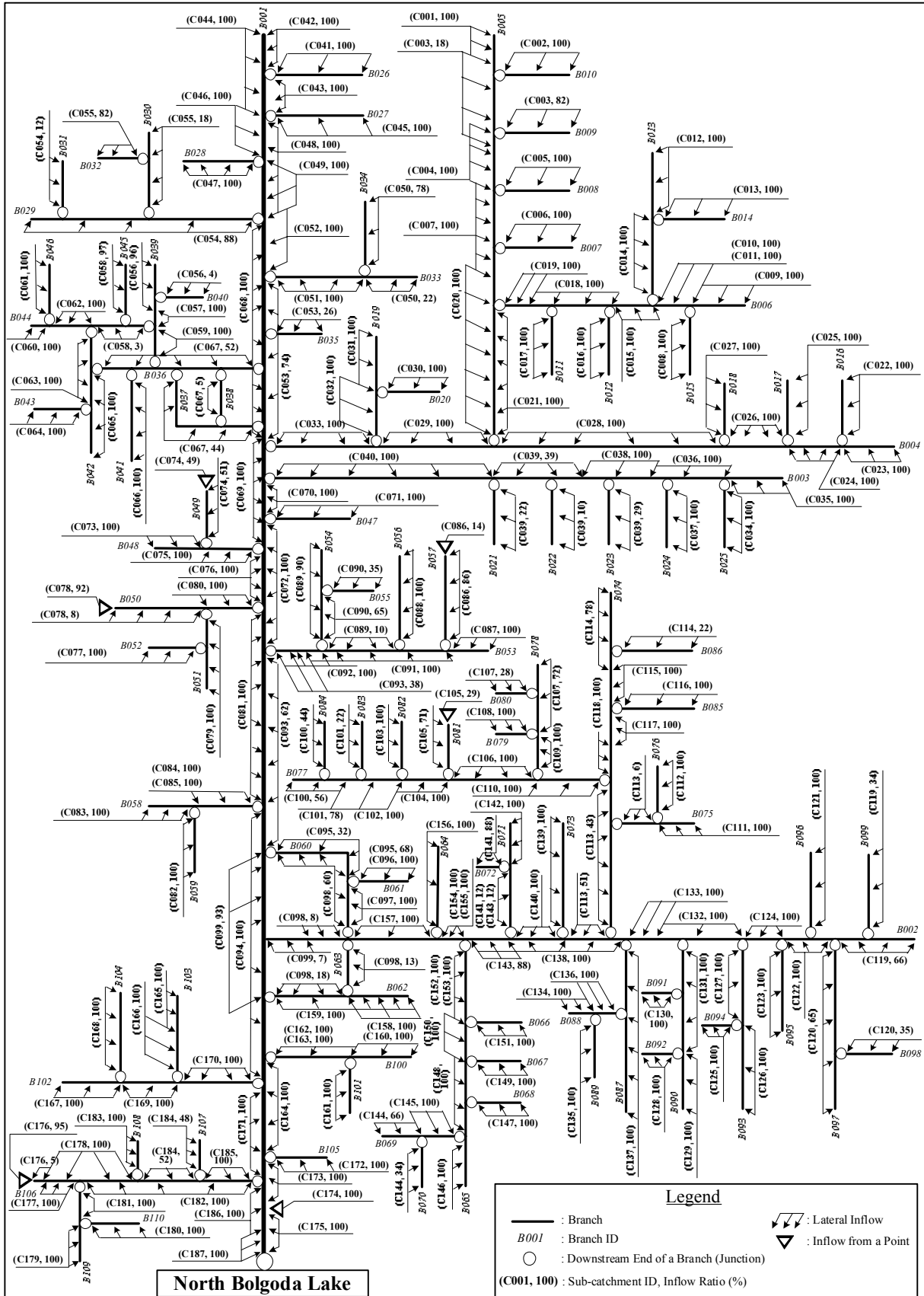
Area of Sub-catchments
(Total : 55.5 km²)

No	Area (km ²)	No	Area (km ²)	No	Area (km ²)
1	0.801	64	0.241	127	0.251
2	0.274	65	0.242	128	0.299
3	0.661	66	0.044	129	0.298
4	0.242	67	0.290	130	0.388
5	0.132	68	0.073	131	0.215
6	0.448	69	0.852	132	0.345
7	0.369	70	0.333	133	0.580
8	0.242	71	0.092	134	0.425
9	0.268	72	0.060	135	0.213
10	0.226	73	0.308	136	0.579
11	0.219	74	0.205	137	0.545
12	0.412	75	0.163	138	0.537
13	0.333	76	0.049	139	0.268
14	0.178	77	0.460	140	0.080
15	0.146	78	0.123	141	0.192
16	0.232	79	0.067	142	0.306
17	0.608	80	0.049	143	0.063
18	0.079	81	0.312	144	0.393
19	0.401	82	0.692	145	0.514
20	0.141	83	0.367	146	0.711
21	0.325	84	0.109	147	0.317
22	0.235	85	0.141	148	0.343
23	0.245	86	0.580	149	0.550
24	0.210	87	0.773	150	0.398
25	0.613	88	0.491	151	0.431
26	0.228	89	0.368	152	0.222
27	0.297	90	0.255	153	0.219
28	0.262	91	0.725	154	0.263
29	0.299	92	0.360	155	0.262
30	0.226	93	0.321	156	0.315
31	0.364	94	0.687	157	0.060
32	0.437	95	0.216	158	0.026
33	0.102	96	0.063	159	0.304
34	0.198	97	0.029	160	0.178
35	0.432	98	0.040	161	0.165
36	0.090	99	0.068	162	0.466
37	0.460	100	0.544	163	0.185
38	0.600	101	0.749	164	0.156
39	0.459	102	0.446	165	0.215
40	0.246	103	0.560	166	0.200
41	0.153	104	0.113	167	0.267
42	0.040	105	0.183	168	0.306
43	0.047	106	0.065	169	0.066
44	0.090	107	0.418	170	0.107
45	0.082	108	0.264	171	0.512
46	0.198	109	0.369	172	0.701
47	0.131	110	0.172	173	0.124
48	0.216	111	0.437	174	0.102
49	0.155	112	0.104	175	0.106
50	0.272	113	0.223	176	0.382
51	0.072	114	0.836	177	0.328
52	0.037	115	0.179	178	0.449
53	0.361	116	0.485	179	0.092
54	0.306	117	0.161	180	0.107
55	0.143	118	0.118	181	0.232
56	0.346	119	0.706	182	0.408
57	0.583	120	0.521	183	0.225
58	0.566	121	0.418	184	0.105
59	0.075	122	0.092	185	0.073
60	0.738	123	0.224	186	0.160
61	0.485	124	0.300	187	0.084
62	0.661	125	0.271		
63	0.184	126	0.151		



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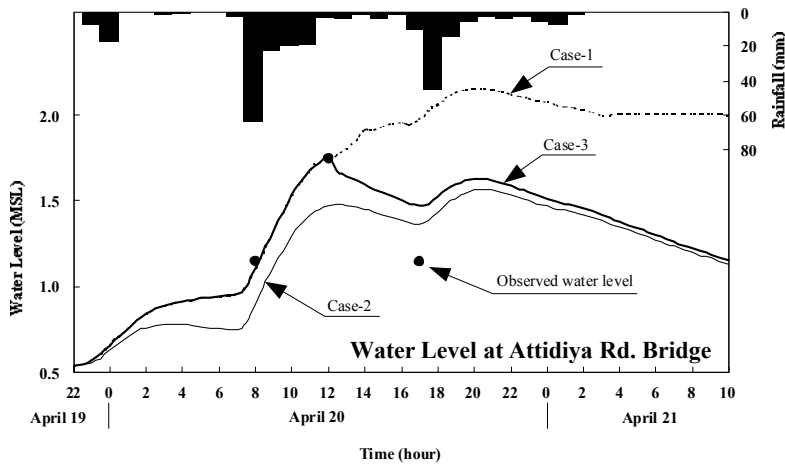
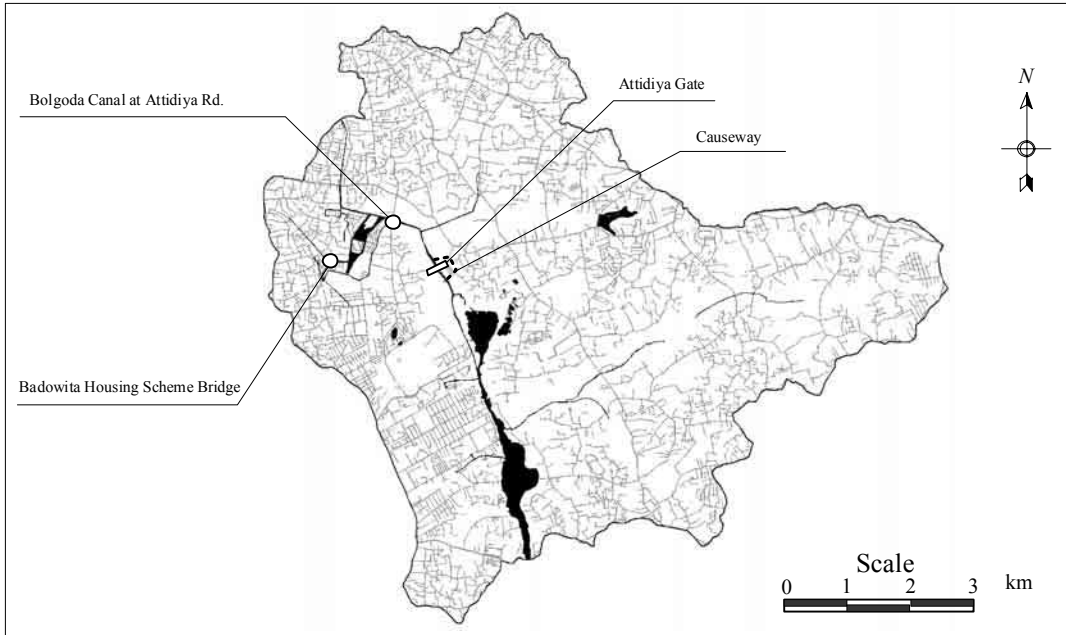
Figure 3.3.1
Basin Division in the Weras Ganga Basin



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Figure 3.3.2
Diagram of Branch and Sub-catchment
Connection in the Model



Notes :

Case-1

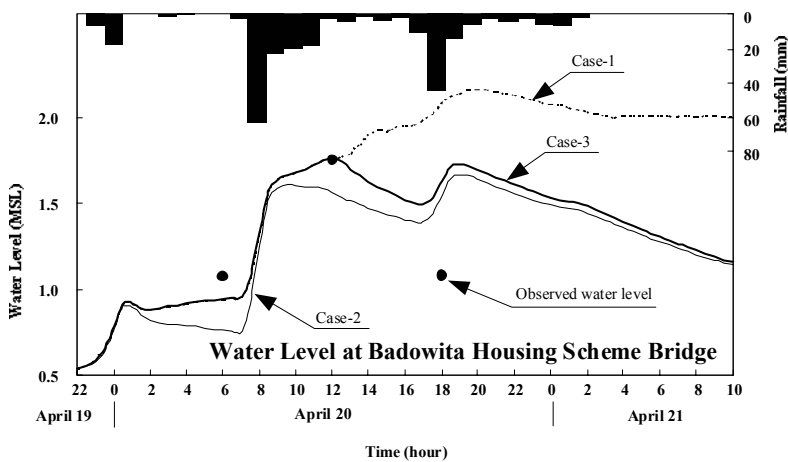
The gate is assumed to close during the period (flood flows only from the causeway).

Case-2

The gate is assumed to open during the period (flood flows both from the gate and causeway).

Case-3

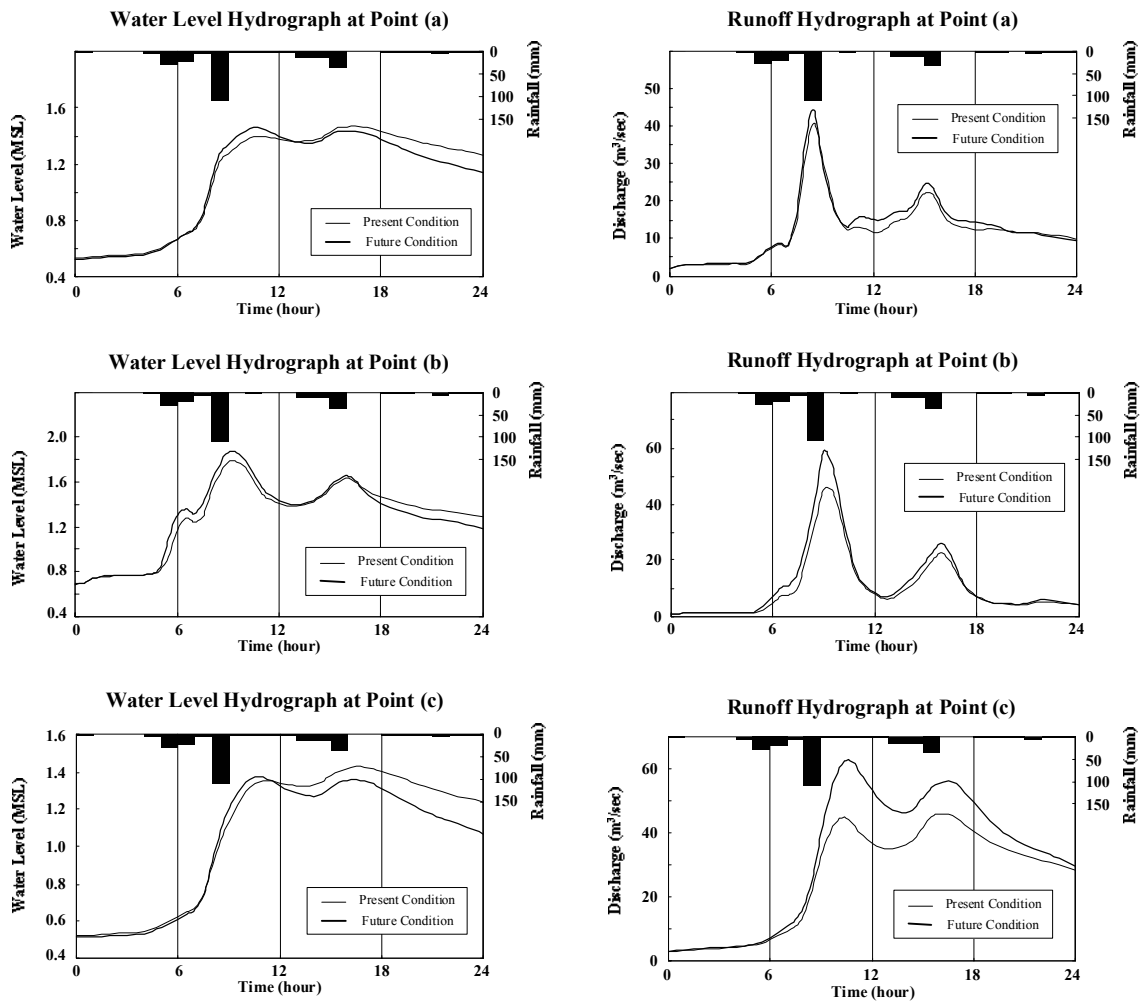
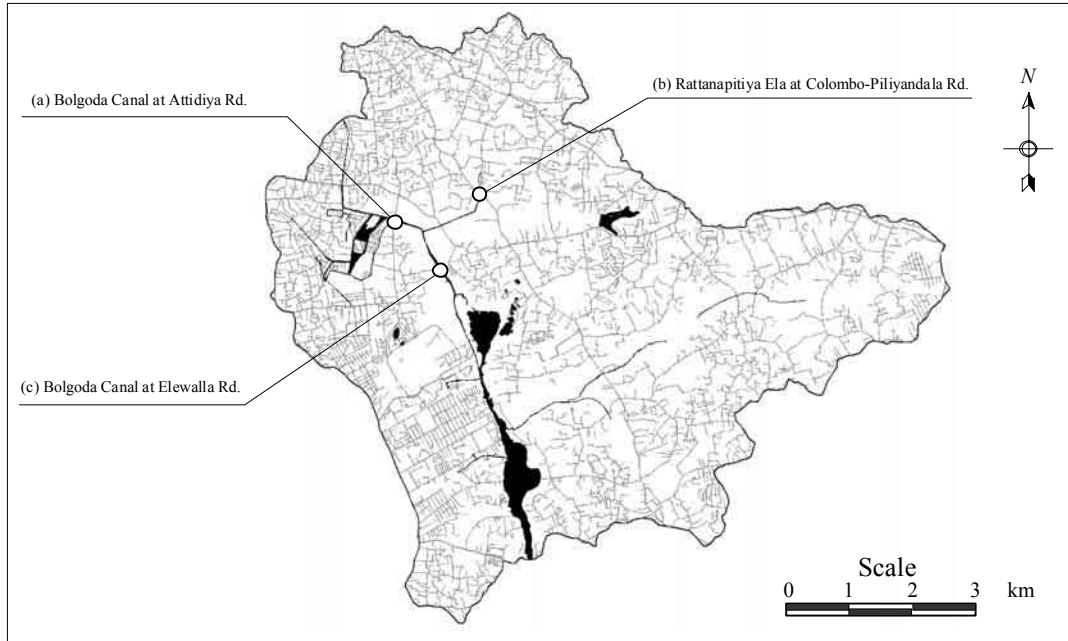
The gate is assumed to close until 12:00 of April 20.



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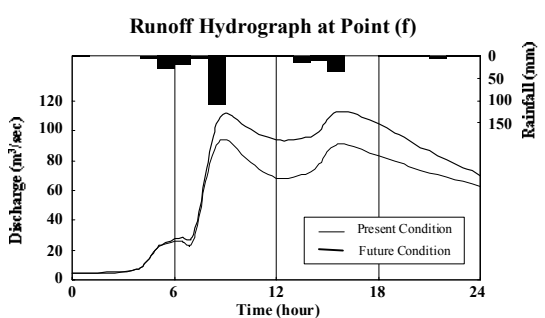
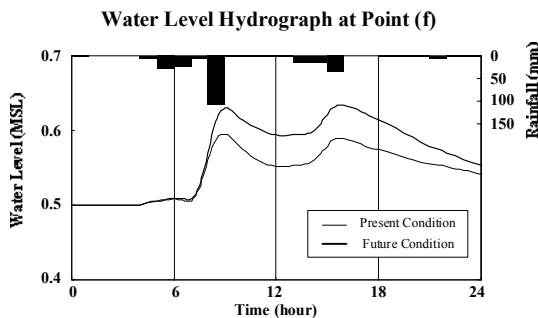
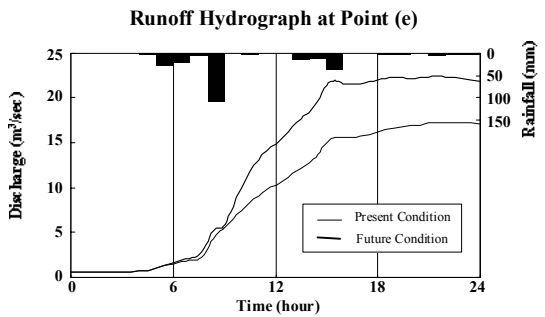
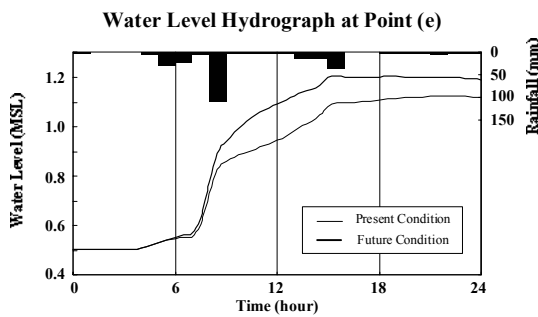
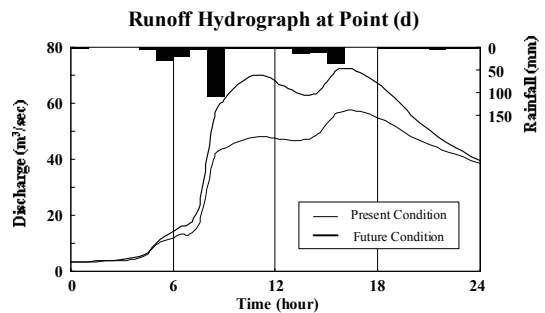
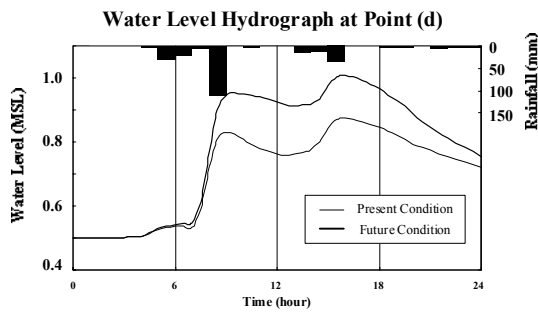
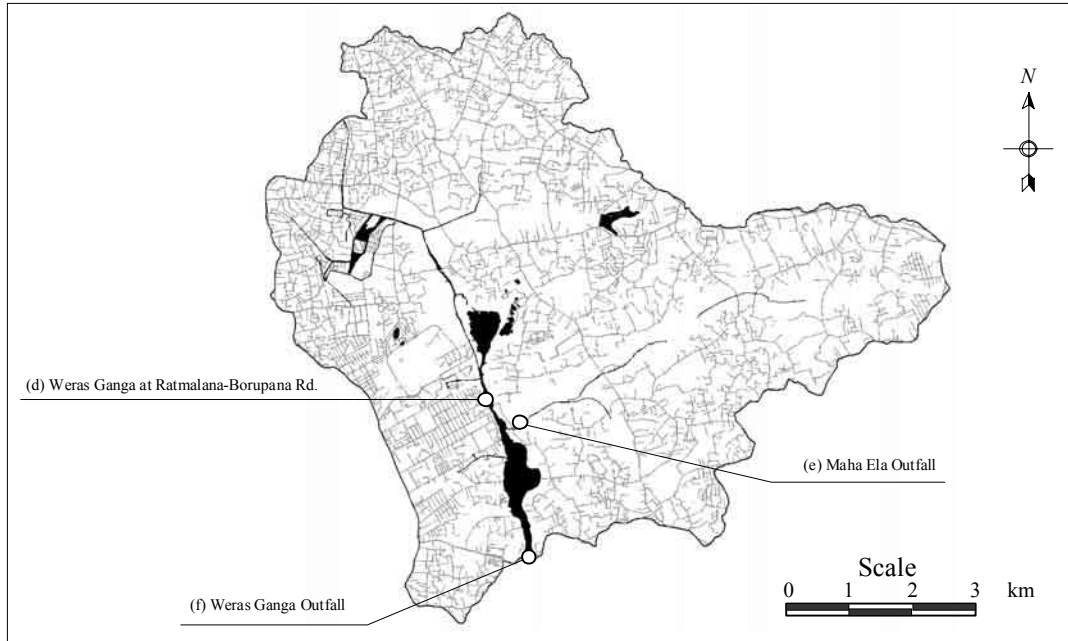
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Figure 3.4.1
Comparison between Observed and Simulated
Water Levels of April 1999 Flood



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Figure 3.5.1
50-yr Probable Flood Water Level and Runoff
Hydrographs (1/2)



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Figure 3.5.1
50-yr Probable Flood Water Level and Runoff
Hydrographs (2/2)

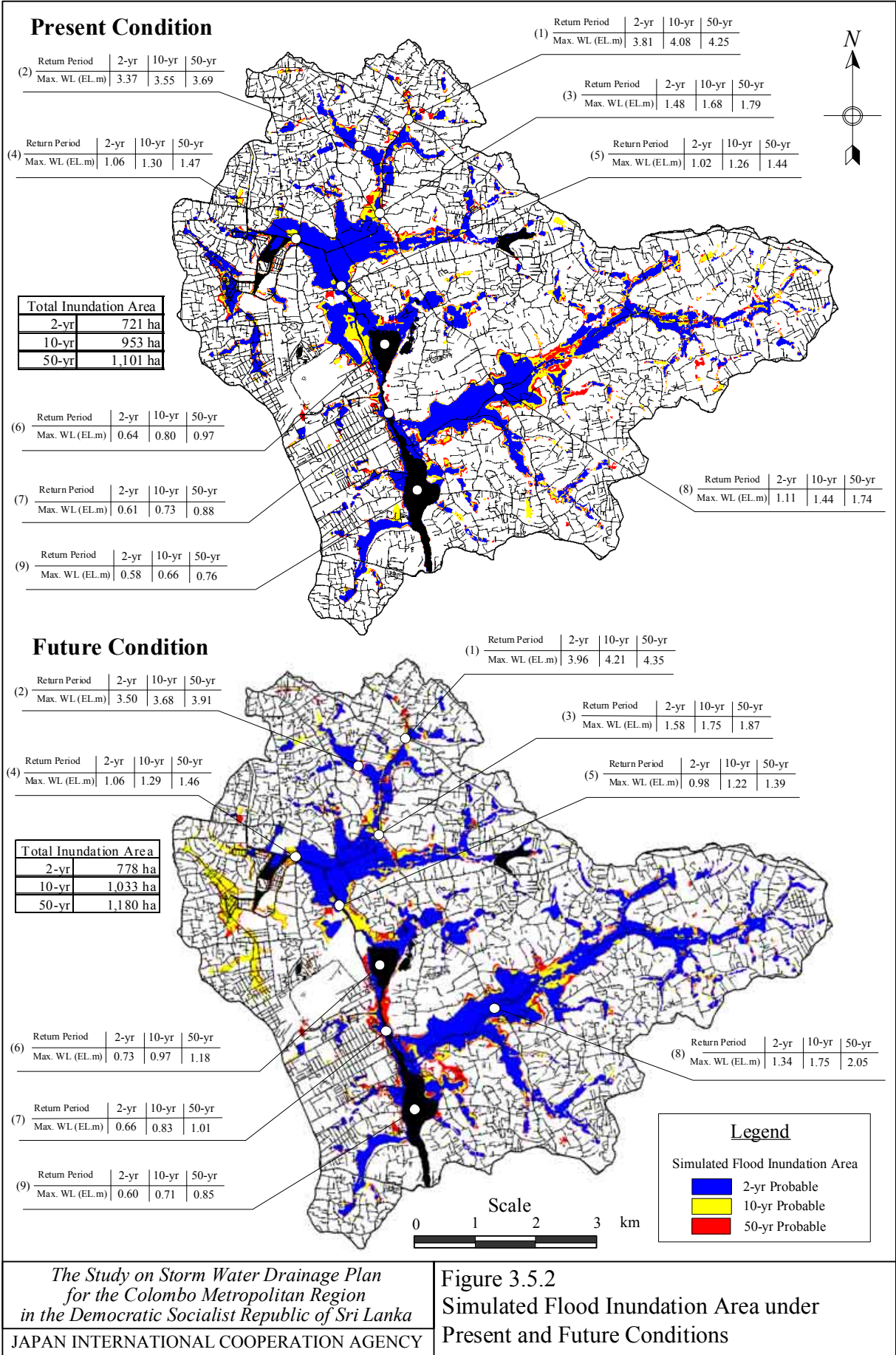
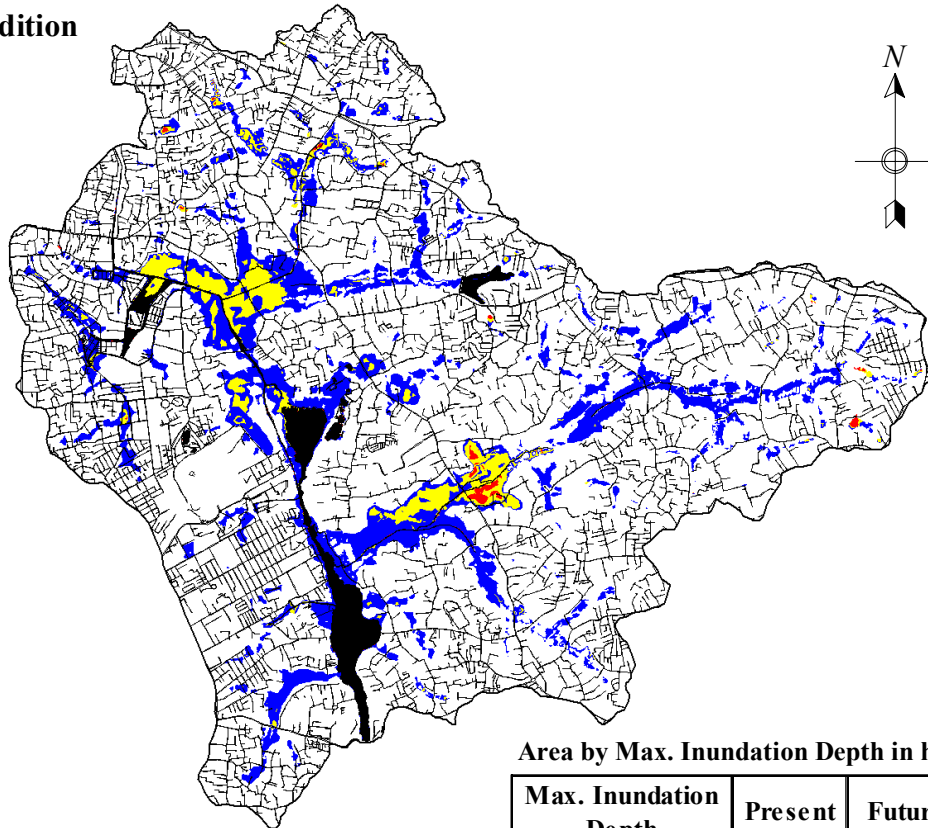


Figure 3.5.2
Simulated Flood Inundation Area under Present and Future Conditions

Present Condition

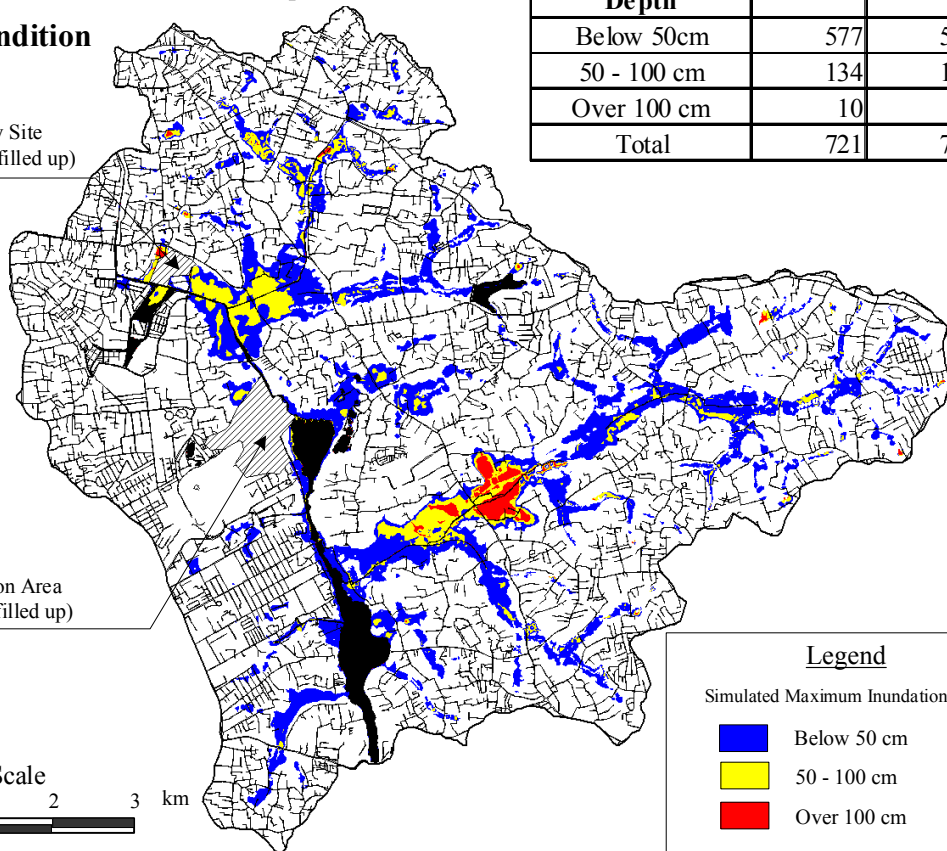


Area by Max. Inundation Depth in ha

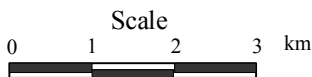
Max. Inundation Depth	Present	Future
Below 50cm	577	596
50 - 100 cm	134	149
Over 100 cm	10	33
Total	721	778

Future Condition

Police Academy Site
(assumed to be filled up)



Airport Extension Area
(assumed to be filled up)

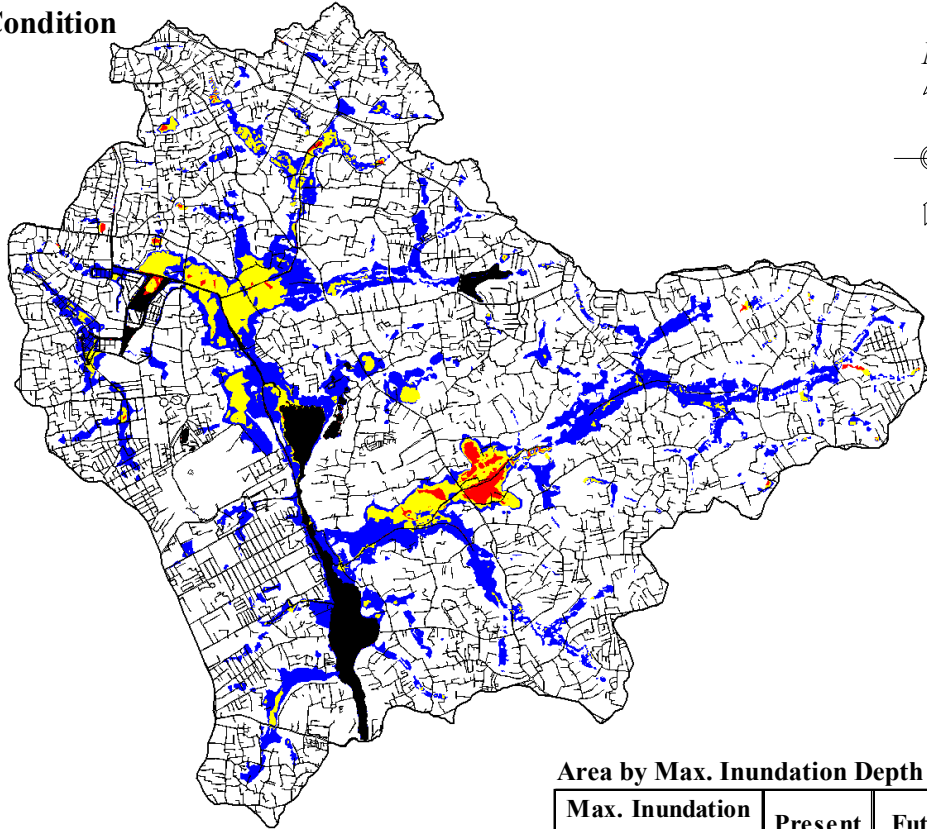


Legend

Simulated Maximum Inundation Depth

- Below 50 cm
- 50 - 100 cm
- Over 100 cm

Present Condition

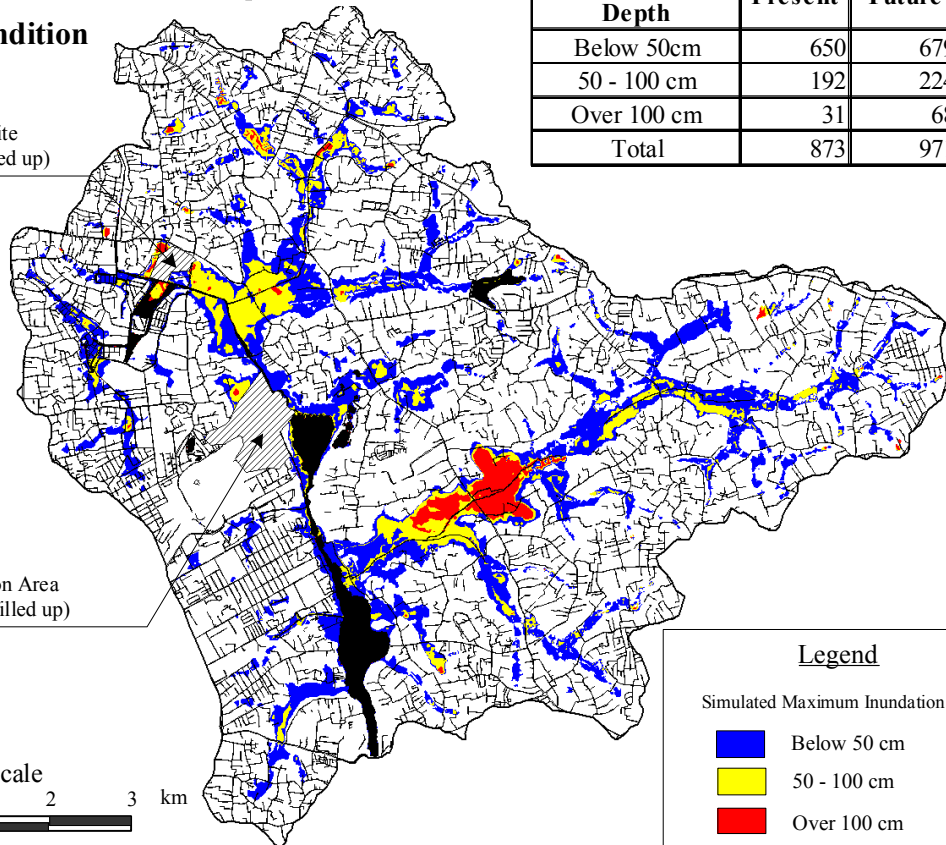


Area by Max. Inundation Depth in ha

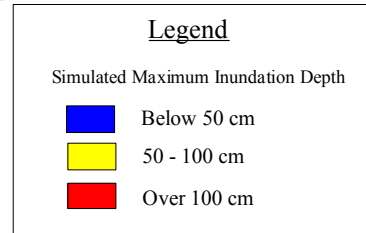
Max. Inundation Depth	Present	Future
Below 50cm	650	679
50 - 100 cm	192	224
Over 100 cm	31	68
Total	873	971

Future Condition

Police Academy Site
(assumed to be filled up)



Airport Extension Area
(assumed to be filled up)

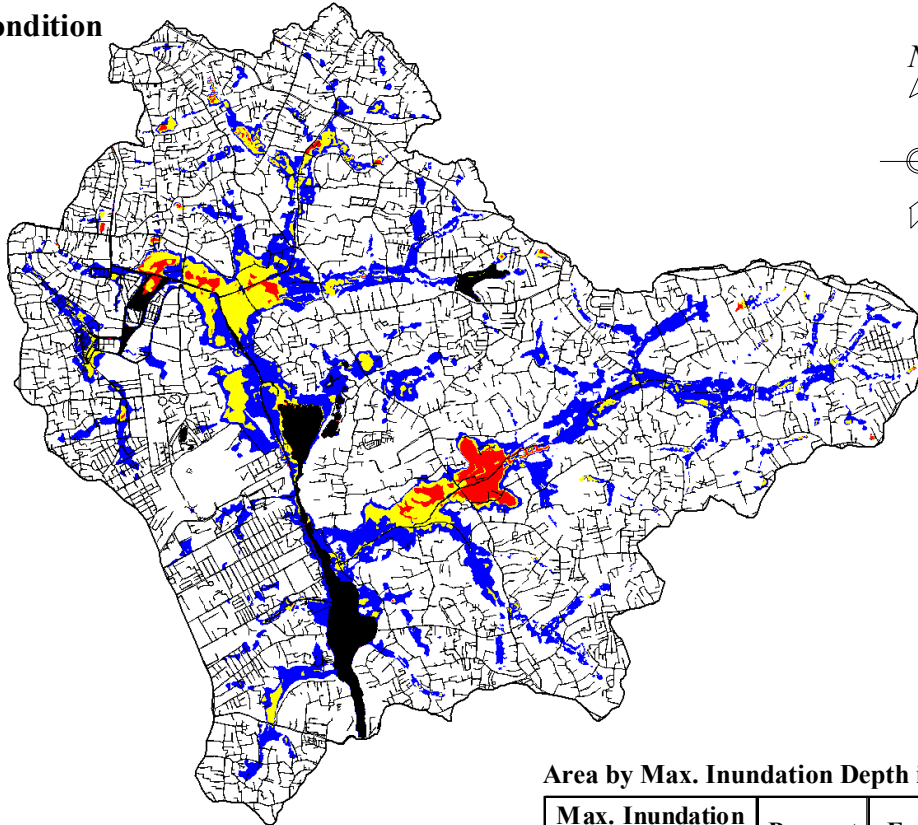


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Figure 3.5.4
Simulated 5-yr Probable Flood Inundation
Maps under Present and Future Conditions

Present Condition

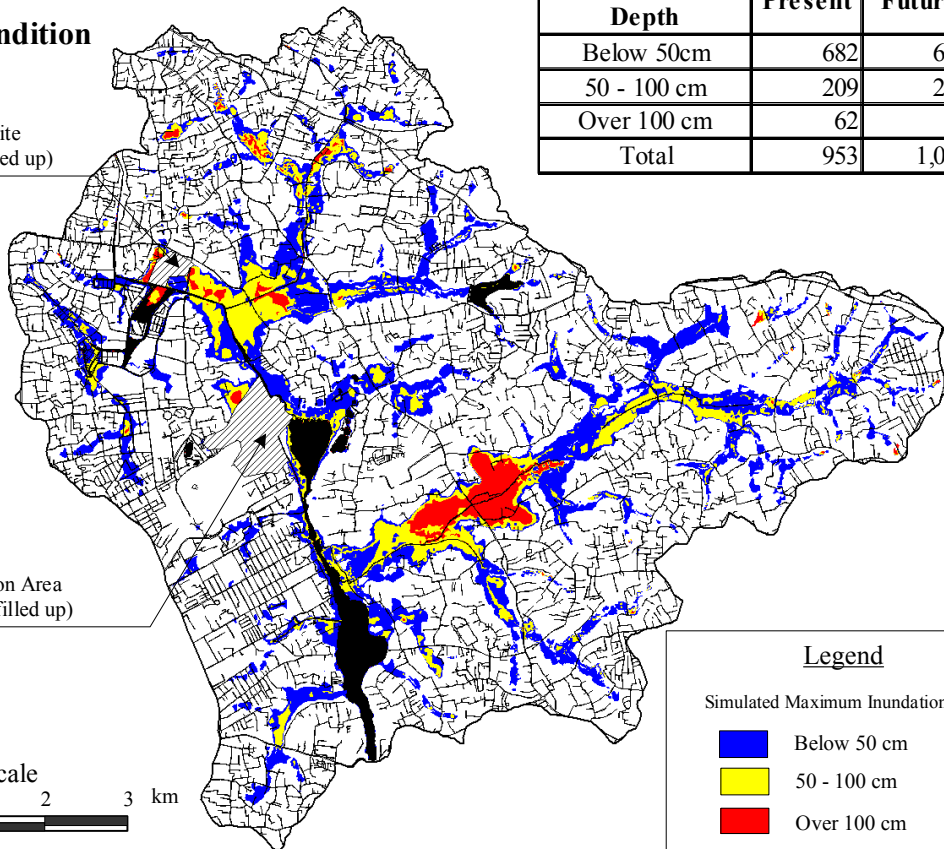


Area by Max. Inundation Depth in ha

Max. Inundation Depth	Present	Future
Below 50cm	682	672
50 - 100 cm	209	271
Over 100 cm	62	90
Total	953	1,033

Future Condition

Police Academy Site
(assumed to be filled up)



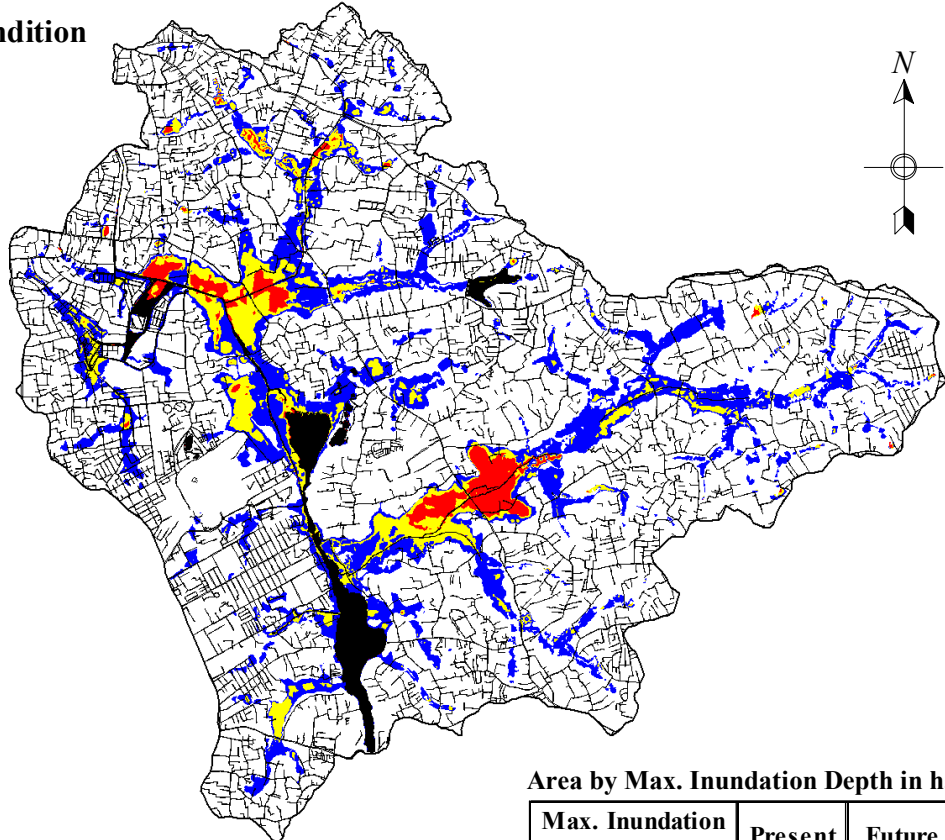
Airport Extension Area
(assumed to be filled up)

Legend

Simulated Maximum Inundation Depth

- Below 50 cm
- 50 - 100 cm
- Over 100 cm

Present Condition

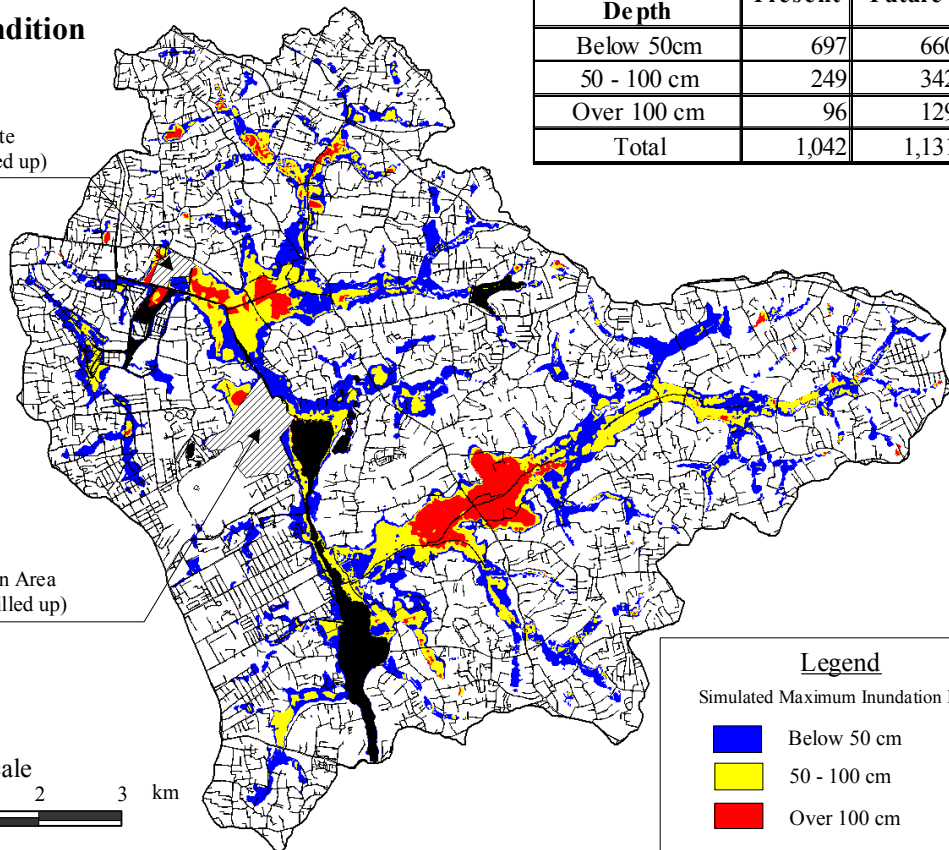


Area by Max. Inundation Depth in ha

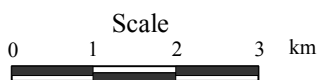
Max. Inundation Depth	Present	Future
Below 50cm	697	660
50 - 100 cm	249	342
Over 100 cm	96	129
Total	1,042	1,131

Future Condition

Police Academy Site
(assumed to be filled up)



Airport Extension Area
(assumed to be filled up)

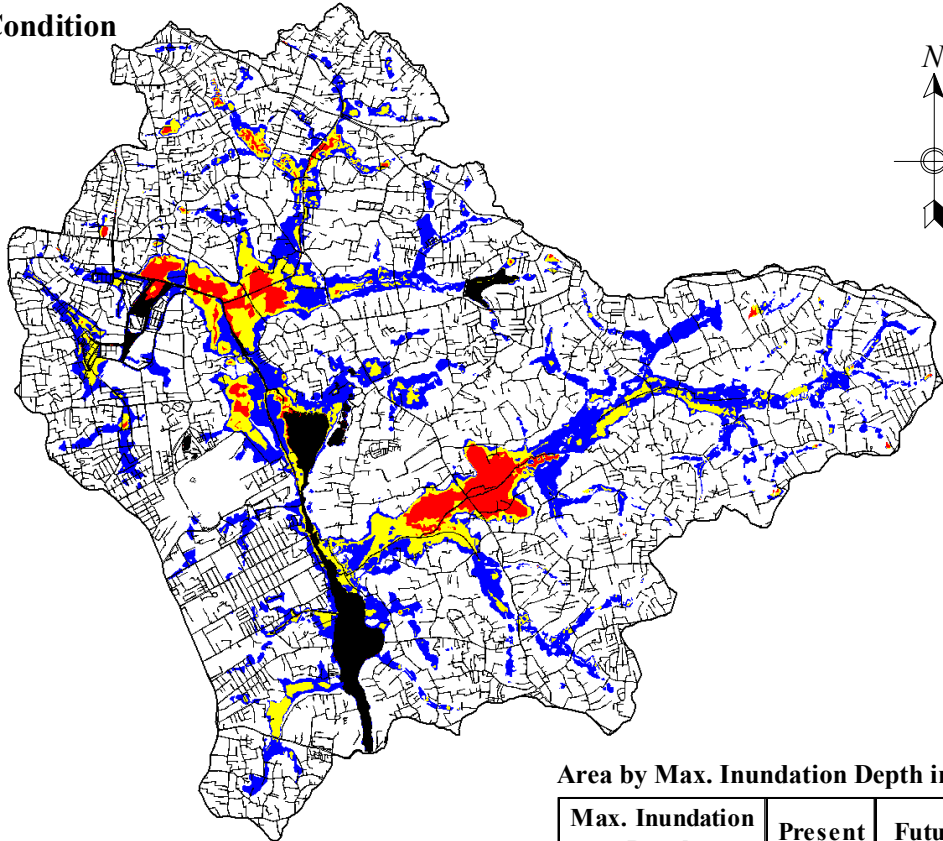


Legend

Simulated Maximum Inundation Depth

- Below 50 cm
- 50 - 100 cm
- Over 100 cm

Present Condition

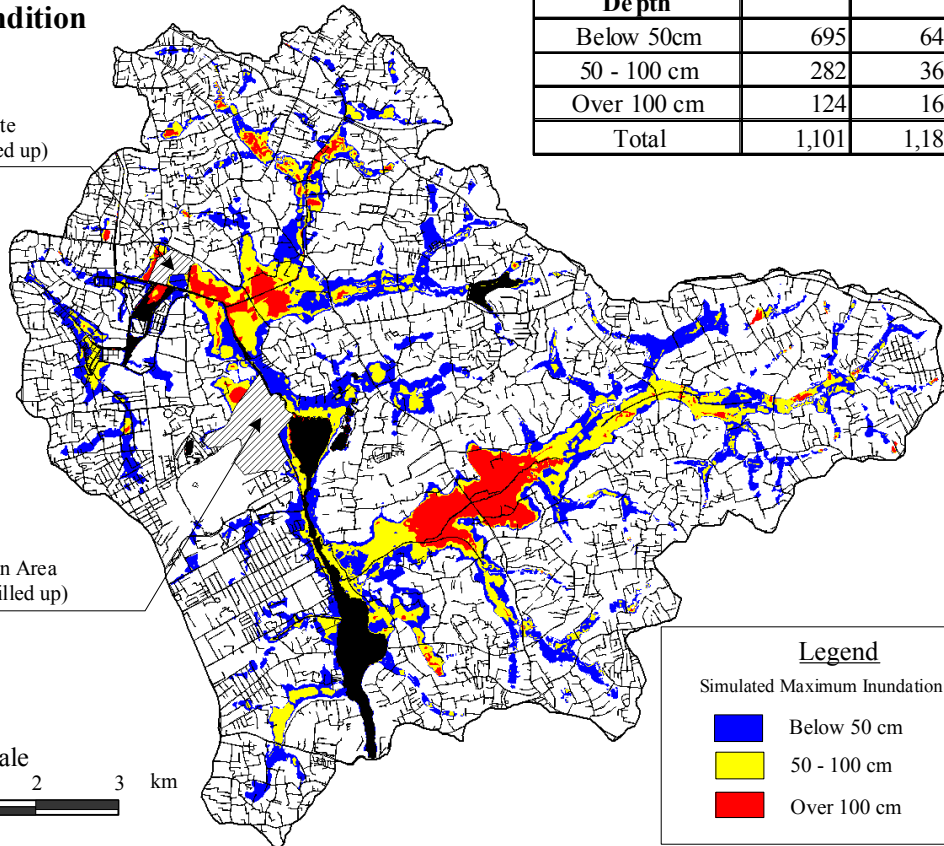


Area by Max. Inundation Depth in ha

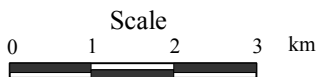
Max. Inundation Depth	Present	Future
Below 50cm	695	649
50 - 100 cm	282	368
Over 100 cm	124	163
Total	1,101	1,180

Future Condition

Police Academy Site
(assumed to be filled up)



Airport Extension Area
(assumed to be filled up)



Legend

Simulated Maximum Inundation Depth

■	Below 50 cm
■	50 - 100 cm
■	Over 100 cm