

Thames Barrier Flood Defence Closure Details



FD Closure Number	001	Date of Closure	01-Feb-83	Closure Purpose	Tidal
Total Closure Number	6	PHW Southend		Controller	M.J Taylor
Astro HWL Southend	2.95	mAOD		Teddington Flow	250 cumec / 5000mgd
Forecast HWL Southend	3.91	mAOD		Barking Closed	<input type="checkbox"/>
Observed HWL Southend	3.75	mAOD		Barking D/S Level	mAOD
Southend Surge	0.80	mAOD		Barking U/S Level	mAOD
Forecast Error	0.16	mAOD		Barking Head	mAOD
Observed HWL Sheerness		mAOD		River Roding Flow	cumec
Observed HWL Charlton		mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown		mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier		mAOD		Forecast HWL Tedd Tail	mAOD
Forecast HWL Richmond		mAOD			

Notes:

FD Closure Number	002	Date of Closure	26-Dec-85	Closure Purpose	Combined Tidal/Fluvial
Total Closure Number	43	PHW Southend		Controller	
Astro HWL Southend	2.5	mAOD		Teddington Flow	350 cumec / 7000mgd
Forecast HWL Southend		mAOD		Barking Closed	<input type="checkbox"/>
Observed HWL Southend	3.05	mAOD		Barking D/S Level	mAOD
Southend Surge	0.55	mAOD		Barking U/S Level	mAOD
Forecast Error		mAOD		Barking Head	mAOD
Observed HWL Sheerness		mAOD		River Roding Flow	cumec
Observed HWL Charlton		mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown		mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier		mAOD		Forecast HWL Tedd Tail	mAOD
Forecast HWL Richmond		mAOD			

Notes:

FD Closure Number	003	Date of Closure	29-Mar-87	Closure Purpose	Tidal
Total Closure Number	58	PHW Southend	13:30	Controller	G.C. Burnan
Astro HWL Southend	3.1	mAOD		Teddington Flow	200 cumec / 4000mgd
Forecast HWL Southend	3.52	mAOD		Barking Closed	<input type="checkbox"/>
Observed HWL Southend	3.6	mAOD		Barking D/S Level	mAOD
Southend Surge	0.50	mAOD		Barking U/S Level	mAOD
Forecast Error	-0.08	mAOD		Barking Head	mAOD
Observed HWL Sheerness		mAOD		River Roding Flow	cumec
Observed HWL Charlton	2.27	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	4.35	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier		mAOD		Forecast HWL Tedd Tail	mAOD
Forecast HWL Richmond		mAOD			

Notes:

FD Closure Number	004	Date of Closure	24-Dec-88	Closure Purpose	Tidal
Total Closure Number	78	PHW Southend	13:15	Controller	
Astro HWL Southend	2.8	mAOD		Teddington Flow	50 cumec / 1000 mgd
Forecast HWL Southend	3.49	mAOD		Barking Closed	<input type="checkbox"/>
Observed HWL Southend	3.85	mAOD		Barking D/S Level	mAOD
Southend Surge	1.05	mAOD		Barking U/S Level	mAOD
Forecast Error	-0.36	mAOD		Barking Head	mAOD
Observed HWL Sheerness		mAOD		River Roding Flow	0.57 cumec
Observed HWL Charlton		mAOD		Beckton STW Flow	6.3 cumec
Observed HWL at Silvertown		mAOD		Total Barking Flow	6.87 cumec
Max Head at Thames Barrier		mAOD		Forecast HWL Tedd Tail	mAOD
Forecast HWL Richmond		mAOD			

Notes:

FD Closure Number	005	Date of Closure	12-Feb-90	Closure Purpose	Combined Tidal/Fluvial
Total Closure Number	93	PHW Southend	13:10	Controller	G.C. Burnan
Astro HWL Southend	2.96	mAOD		Teddington Flow	350 cumec / 7000 mgd
Forecast HWL Southend	3.53	mAOD		Barking Closed	<input type="checkbox"/>
Observed HWL Southend	3.66	mAOD		Barking D/S Level	mAOD
Southend Surge	0.70	mAOD		Barking U/S Level	mAOD
Forecast Error	-0.13	mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.42	mAOD		River Roding Flow	cumec
Observed HWL Charlton	3.48	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	4.57	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier		mAOD		Forecast HWL Tedd Tail	mAOD
Forecast HWL Richmond		mAOD			

Notes:

FD Closure Number	006	Date of Closure	27-Feb-90	Closure Purpose	Combined Tidal/Fluvial
Total Closure Number	95	PHW Southend	14:00	Controller	G. Hawes
Astro HWL Southend	2.99	mAOD		Teddington Flow	200 cumec / 4000 mgd
Forecast HWL Southend	3.48	mAOD		Barking Closed	<input type="checkbox"/>
Observed HWL Southend	3.39	mAOD		Barking D/S Level	mAOD
Southend Surge	0.40	mAOD		Barking U/S Level	mAOD
Forecast Error	0.09	mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.64	mAOD		River Roding Flow	4.5 cumec
Observed HWL Charlton		mAOD		Beckton STW Flow	12.1 cumec
Observed HWL at Silvertown	4.4	mAOD		Total Barking Flow	16.60 cumec
Max Head at Thames Barrier		mAOD		Forecast HWL Tedd Tail	mAOD
Forecast HWL Richmond		mAOD			

Notes:

FD Closure Number	007	Date of Closure	28-Feb-90	Closure Purpose	Tidal
Total Closure Number	96	PHW Southend	02:00	Controller	G. Hawes
Astro HWL Southend	3.04	mAOD		Teddington Flow	150 cumec / 3000 mgd
Forecast HWL Southend	3.75	mAOD		Barking Closed	<input type="checkbox"/>
Observed HWL Southend	3.59	mAOD		Barking D/S Level	mAOD
Southend Surge	0.55	mAOD		Barking U/S Level	mAOD
Forecast Error	0.16	mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.64	mAOD		River Roding Flow	3.6 cumec
Observed HWL Charlton	2.83	mAOD		Beckton STW Flow	14.52 cumec
Observed HWL at Silvertown	4.66	mAOD		Total Barking Flow	18.12 cumec
Max Head at Thames Barrier		mAOD		Forecast HWL Tedd Tail	mAOD
Forecast HWL Richmond		mAOD			

Notes:

FD Closure Number	008	Date of Closure	02-Mar-90	Closure Purpose	Combined Tidal/Fluvial
Total Closure Number	97	PHW Southend		Controller	J.F. Hounslow
Astro HWL Southend	2.86	mAOD		Teddington Flow	150 cumec / 3000 mgd
Forecast HWL Southend	3.77	mAOD		Barking Closed	<input type="checkbox"/>
Observed HWL Southend	3.64	mAOD		Barking D/S Level	mAOD
Southend Surge	0.78	mAOD		Barking U/S Level	mAOD
Forecast Error	0.13	mAOD		Barking Head	mAOD
Observed HWL Sheerness		mAOD		River Roding Flow	2.5 cumec
Observed HWL Charlton		mAOD		Beckton STW Flow	15 cumec
Observed HWL at Silvertown	4.68	mAOD		Total Barking Flow	17.50 cumec
Max Head at Thames Barrier		mAOD		Forecast HWL Tedd Tail	mAOD
Forecast HWL Richmond		mAOD			

Notes:

FD Closure Number	009	Date of Closure	19-Sep-90	Closure Purpose	Tidal
Total Closure Number	100	PHW Southend	02:00	Controller	G.C. Burnan
Astro HWL Southend	3	mAOD		Teddington Flow	50 cumec / 1000 mgd
Forecast HWL Southend	3.66	mAOD		Barking Closed	<input type="checkbox"/>
Observed HWL Southend	3.65	mAOD		Barking D/S Level	mAOD
Southend Surge	0.65	mAOD		Barking U/S Level	mAOD
Forecast Error	0.01	mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.63	mAOD		River Roding Flow	cumec
Observed HWL Charlton	2.24	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	4.52	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier		mAOD		Forecast HWL Tedd Tail	mAOD
Forecast HWL Richmond		mAOD			

Notes:

FD Closure Number	010	Date of Closure	07-Oct-90	Closure Purpose	Tidal
Total Closure Number	101	PHW Southend	14:06	Controller	G.C. Burnan
Astro HWL Southend	3.2	mAOD		Teddington Flow	50 cumec / 1000 mgd
Forecast HWL Southend	3.72	mAOD		Barking Closed	<input type="checkbox"/>
Observed HWL Southend	3.73	mAOD		Barking D/S Level	mAOD
Southend Surge	0.53	mAOD		Barking U/S Level	mAOD
Forecast Error	-0.01	mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.76	mAOD		River Roding Flow	0.3 cumec
Observed HWL Charlton	1	mAOD		Beckton STW Flow	7.25 cumec
Observed HWL at Silvertown	4.43	mAOD		Total Barking Flow	7.55 cumec
Max Head at Thames Barrier		mAOD		Forecast HWL Tedd Tail	mAOD
Forecast HWL Richmond		mAOD			

Notes:

FD Closure Number	011	Date of Closure	25-Oct-92	Closure Purpose	Tidal
Total Closure Number	126	PHW Southend	00:10	Controller	J.F. Hounslow
Astro HWL Southend	3.09	mAOD		Teddington Flow	100 cumec / 2000 mgd
Forecast HWL Southend	3.73	mAOD		Barking Closed	<input type="checkbox"/>
Observed HWL Southend	3.59	mAOD		Barking D/S Level	mAOD
Southend Surge	0.50	mAOD		Barking U/S Level	mAOD
Forecast Error	0.14	mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.59	mAOD		River Roding Flow	7 cumec
Observed HWL Charlton	3.81	mAOD		Beckton STW Flow	25.77 cumec
Observed HWL at Silvertown	4.91	mAOD		Total Barking Flow	32.77 cumec
Max Head at Thames Barrier		mAOD		Forecast HWL Tedd Tail	mAOD
Forecast HWL Richmond		mAOD			

Notes:

FD Closure Number	012	Date of Closure	11-Jan-93	Closure Purpose	Tidal
Total Closure Number	129	PHW Southend	12:45	Controller	M.J Taylor
Astro HWL Southend	3.23	mAOD		Teddington Flow	300 cumec / 6000 mgd
Forecast HWL Southend	3.56	mAOD		Barking Closed	<input type="checkbox"/>
Observed HWL Southend	3.83	mAOD		Barking D/S Level	mAOD
Southend Surge	0.60	mAOD		Barking U/S Level	mAOD
Forecast Error	-0.27	mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.79	mAOD		River Roding Flow	17 cumec
Observed HWL Charlton	3.93	mAOD		Beckton STW Flow	20.5 cumec
Observed HWL at Silvertown	4.01	mAOD		Total Barking Flow	37.50 cumec
Max Head at Thames Barrier		mAOD		Forecast HWL Tedd Tail	mAOD
Forecast HWL Richmond		mAOD			

Notes:

FD Closure Number	013	Date of Closure	25-Jan-93	Closure Purpose	Tidal
Total Closure Number	130	PHW Southend	14:13	Controller	J.F. Hounslow
Astro HWL Southend	2.7	mAOD		Teddington Flow	200 cumec / 4000mgd
Forecast HWL Southend	3.64	mAOD		Barking Closed	<input type="checkbox"/>
Observed HWL Southend	3.84	mAOD		Barking D/S Level	mAOD
Southend Surge	1.14	mAOD		Barking U/S Level	mAOD
Forecast Error	-0.20	mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.87	mAOD		River Roding Flow	4 cumec
Observed HWL Charlton	3.98	mAOD		Beckton STW Flow	8.15 cumec
Observed HWL at Silvertown	4.97	mAOD		Total Barking Flow	12.15 cumec
Max Head at Thames Barrier		mAOD		Forecast HWL Tedd Tail	mAOD
Forecast HWL Richmond		mAOD			

Notes:

FD Closure Number	014	Date of Closure	21-Feb-93	Closure Purpose	Tidal
Total Closure Number	131	PHW Southend	12:45	Controller	
Astro HWL Southend	2.52	mAOD		Teddington Flow	100 cumec / 2000mgd
Forecast HWL Southend	3.56	mAOD		Barking Closed	<input type="checkbox"/>
Observed HWL Southend	3.72	mAOD		Barking D/S Level	mAOD
Southend Surge	1.20	mAOD		Barking U/S Level	mAOD
Forecast Error	-0.16	mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.72	mAOD		River Roding Flow	3 cumec
Observed HWL Charlton	3.85	mAOD		Beckton STW Flow	10 cumec
Observed HWL at Silvertown	4.01	mAOD		Total Barking Flow	13.00 cumec
Max Head at Thames Barrier		mAOD		Forecast HWL Tedd Tail	mAOD
Forecast HWL Richmond		mAOD			

Notes:

FD Closure Number	015	Date of Closure	13-Oct-93	Closure Purpose	Combined Tidal/Fluvial
Total Closure Number	139	PHW Southend	23:45	Controller	G. Hawes
Astro HWL Southend	2.9	mAOD		Teddington Flow	300 cumec / 6000mgd
Forecast HWL Southend		mAOD		Barking Closed	<input type="checkbox"/>
Observed HWL Southend	3.41	mAOD		Barking D/S Level	mAOD
Southend Surge	0.51	mAOD		Barking U/S Level	mAOD
Forecast Error		mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.44	mAOD		River Roding Flow	35 cumec
Observed HWL Charlton	3.27	mAOD		Beckton STW Flow	13 cumec
Observed HWL at Silvertown	4.68	mAOD		Total Barking Flow	48.00 cumec
Max Head at Thames Barrier		mAOD		Forecast HWL Tedd Tail	mAOD
Forecast HWL Richmond		mAOD			

Notes: Up river flood response

FD Closure Number	016	Date of Closure	14-Oct-93	Closure Purpose	Combined Tidal/Fluvial
Total Closure Number	140	PHW Southend	12:04	Controller	G. Hawes
Astro HWL Southend	2.95	mAOD		Teddington Flow	250 cumec / 5000mgd
Forecast HWL Southend	3.49	mAOD		Barking Closed	<input type="checkbox"/>
Observed HWL Southend	3.41	mAOD		Barking D/S Level	mAOD
Southend Surge	0.46	mAOD		Barking U/S Level	mAOD
Forecast Error	0.08	mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.38	mAOD		River Roding Flow	36 cumec
Observed HWL Charlton	3.13	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	4.35	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier		mAOD		Forecast HWL Tedd Tail	mAOD
Forecast HWL Richmond		mAOD			

Notes: Up river flood response

FD Closure Number	017	Date of Closure	15-Oct-93	Closure Purpose	Combined Tidal/Fluvial
Total Closure Number	141	PHW Southend		Controller	
Astro HWL Southend	3.1	mAOD		Teddington Flow	300 cumec / 6000mgd
Forecast HWL Southend		mAOD		Barking Closed	<input type="checkbox"/>
Observed HWL Southend	3.38	mAOD		Barking D/S Level	mAOD
Southend Surge	0.28	mAOD		Barking U/S Level	mAOD
Forecast Error		mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.4	mAOD		River Roding Flow	cumec
Observed HWL Charlton	4.27	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	4.75	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier		mAOD		Forecast HWL Tedd Tail	mAOD
Forecast HWL Richmond		mAOD			

Notes: Up river flood response

FD Closure Number	018	Date of Closure	16-Oct-93	Closure Purpose	Combined Tidal/Fluvial
Total Closure Number	142	PHW Southend	13:39	Controller	
Astro HWL Southend	3.3	mAOD		Teddington Flow	250 cumec / 5000mgd
Forecast HWL Southend	3.42	mAOD		Barking Closed	<input checked="" type="checkbox"/>
Observed HWL Southend	3.42	mAOD		Barking D/S Level	mAOD
Southend Surge	0.12	mAOD		Barking U/S Level	mAOD
Forecast Error	0.00	mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.4	mAOD		River Roding Flow	8 cumec
Observed HWL Charlton	3.33	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	4.73	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier		mAOD		Forecast HWL Tedd Tail	mAOD
Forecast HWL Richmond		mAOD			

Notes:

FD Closure Number	019	Date of Closure	14-Nov-93	Closure Purpose	Tidal
Total Closure Number	144	PHW Southend	00:45	Controller	
Astro HWL Southend	3.01	mAOD		Teddington Flow	150 cumec / 3000mgd
Forecast HWL Southend	3.84	mAOD		Barking Closed	<input checked="" type="checkbox"/>
Observed HWL Southend	3.88	mAOD		Barking D/S Level	mAOD
Southend Surge	0.87	mAOD		Barking U/S Level	mAOD
Forecast Error	-0.04	mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.81	mAOD		River Roding Flow	cumec
Observed HWL Charlton	2.9	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	4.6	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier	1.9	mAOD		Forecast HWL Tedd Tail	mAOD
Forecast HWL Richmond		mAOD			

Notes:

FD Closure Number	020	Date of Closure	13-Dec-93	Closure Purpose	Tidal
Total Closure Number	146	PHW Southend	00:29	Controller	M.J Taylor
Astro HWL Southend	2.9	mAOD		Teddington Flow	150 cumec / 3000mgd
Forecast HWL Southend	3.55	mAOD		Barking Closed	<input checked="" type="checkbox"/>
Observed HWL Southend	3.9	mAOD		Barking D/S Level	mAOD
Southend Surge	1.00	mAOD		Barking U/S Level	mAOD
Forecast Error	-0.35	mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.81	mAOD		River Roding Flow	12 cumec
Observed HWL Charlton	3.72	mAOD		Beckton STW Flow	17.5 cumec
Observed HWL at Silvertown	5	mAOD		Total Barking Flow	29.50 cumec
Max Head at Thames Barrier		mAOD		Forecast HWL Tedd Tail	mAOD
Forecast HWL Richmond		mAOD			

Notes:

FD Closure Number	021	Date of Closure	28-Jan-94	Closure Purpose	Tidal
Total Closure Number	148	PHW Southend	13:10	Controller	G. Hawes
Astro HWL Southend	2.8	mAOD		Teddington Flow	150 cumec / 3000mgd
Forecast HWL Southend	3.67	mAOD		Barking Closed	<input checked="" type="checkbox"/>
Observed HWL Southend	3.83	mAOD		Barking D/S Level	mAOD
Southend Surge	1.03	mAOD		Barking U/S Level	mAOD
Forecast Error	-0.16	mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.71	mAOD		River Roding Flow	12.5 cumec
Observed HWL Charlton	2.87	mAOD		Beckton STW Flow	12.5 cumec
Observed HWL at Silvertown	5.02	mAOD		Total Barking Flow	25.00 cumec
Max Head at Thames Barrier	2.13	mAOD		Forecast HWL Tedd Tail	mAOD
Forecast HWL Richmond		mAOD			

Notes:

FD Closure Number	022	Date of Closure	01-Jan-95	Closure Purpose	Tidal
Total Closure Number	161	PHW Southend	00:30	Controller	P. Hull
Astro HWL Southend	2.79	mAOD		Teddington Flow	200 cumec / 4000mgd
Forecast HWL Southend	3.89	mAOD		Barking Closed	<input checked="" type="checkbox"/>
Observed HWL Southend	3.6	mAOD		Barking D/S Level	mAOD
Southend Surge	0.81	mAOD		Barking U/S Level	mAOD
Forecast Error	0.29	mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.69	mAOD		River Roding Flow	12 cumec
Observed HWL Charlton		mAOD		Beckton STW Flow	13 cumec
Observed HWL at Silvertown	3.77	mAOD		Total Barking Flow	25.00 cumec
Max Head at Thames Barrier	3.07	mAOD		Forecast HWL Tedd Tail	mAOD
Forecast HWL Richmond		mAOD			

Notes:

FD Closure Number	023	Date of Closure	01-Feb-95	Closure Purpose	Tidal
Total Closure Number	163	PHW Southend	13:15	Controller	P. Hull
Astro HWL Southend	3.1	mAOD		Teddington Flow	350 cumec / 7000mgd
Forecast HWL Southend	3.16	mAOD		Barking Closed	<input type="checkbox"/>
Observed HWL Southend	3.61	mAOD		Barking D/S Level	mAOD
Southend Surge	0.51	mAOD		Barking U/S Level	mAOD
Forecast Error	-0.45	mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.6	mAOD		River Roding Flow	cumec
Observed HWL Charlton	3.56	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	3.9	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier		mAOD		Forecast HWL Tedd Tail	mAOD
Forecast HWL Richmond		mAOD			

Notes: Barking Barrier not closed, overtopping of defences at river road, leakage of river wall

FD Closure Number	024	Date of Closure	01-Feb-95	Closure Purpose	Combined Tidal/Fluvial
Total Closure Number	164	PHW Southend	01:45	Controller	P. Hull
Astro HWL Southend	3	mAOD		Teddington Flow	350 cumec / 7000mgd
Forecast HWL Southend	3.3	mAOD		Barking Closed	<input checked="" type="checkbox"/>
Observed HWL Southend	3.49	mAOD		Barking D/S Level	4.22 mAOD
Southend Surge	0.49	mAOD		Barking U/S Level	mAOD
Forecast Error	-0.19	mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.5	mAOD		River Roding Flow	17 cumec
Observed HWL Charlton	3.37	mAOD		Beckton STW Flow	13 cumec
Observed HWL at Silvertown	4.9	mAOD		Total Barking Flow	30.00 cumec
Max Head at Thames Barrier		mAOD		Forecast HWL Tedd Tail	mAOD
Forecast HWL Richmond		mAOD			

Notes:

FD Closure Number	025	Date of Closure	02-Feb-95	Closure Purpose	Combined Tidal/Fluvial
Total Closure Number	165	PHW Southend	14:15	Controller	M.J Taylor
Astro HWL Southend	3.1	mAOD		Teddington Flow	400 cumec / 8000mgd
Forecast HWL Southend		mAOD		Barking Closed	<input type="checkbox"/>
Observed HWL Southend	3.2	mAOD		Barking D/S Level	mAOD
Southend Surge	0.10	mAOD		Barking U/S Level	mAOD
Forecast Error		mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.18	mAOD		River Roding Flow	19 cumec
Observed HWL Charlton	2.88	mAOD		Beckton STW Flow	16 cumec
Observed HWL at Silvertown	4.37	mAOD		Total Barking Flow	35.00 cumec
Max Head at Thames Barrier	1.85	mAOD		Forecast HWL Tedd Tail	mAOD
Forecast HWL Richmond		mAOD			

Notes:

FD Closure Number	026	Date of Closure	23-Dec-95	Closure Purpose	Tidal
Total Closure Number	177	PHW Southend	13:17	Controller	P. Hull
Astro HWL Southend	3.1	mAOD		Teddington Flow	250 cumec / 5000mgd
Forecast HWL Southend	3.72	mAOD		Barking Closed	<input checked="" type="checkbox"/>
Observed HWL Southend	3.79	mAOD		Barking D/S Level	mAOD
Southend Surge	0.69	mAOD		Barking U/S Level	mAOD
Forecast Error	-0.07	mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.7	mAOD		River Roding Flow	7.5 cumec
Observed HWL Charlton	1.02	mAOD		Beckton STW Flow	19.46 cumec
Observed HWL at Silvertown	4.31	mAOD		Total Barking Flow	26.96 cumec
Max Head at Thames Barrier		mAOD		Forecast HWL Tedd Tail	mAOD
Forecast HWL Richmond		mAOD			

Notes:

FD Closure Number	027	Date of Closure	19-Feb-96	Closure Purpose	Tidal
Total Closure Number	180	PHW Southend	12:46	Controller	P. Hull
Astro HWL Southend	3.2	mAOD		Teddington Flow	100 cumec / 2000mgd
Forecast HWL Southend	3.79	mAOD		Barking Closed	<input checked="" type="checkbox"/>
Observed HWL Southend	3.71	mAOD		Barking D/S Level	mAOD
Southend Surge	0.51	mAOD		Barking U/S Level	mAOD
Forecast Error	0.08	mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.65	mAOD		River Roding Flow	12.5 cumec
Observed HWL Charlton	1.39	mAOD		Beckton STW Flow	13.68 cumec
Observed HWL at Silvertown	4.64	mAOD		Total Barking Flow	26.18 cumec
Max Head at Thames Barrier		mAOD		Forecast HWL Tedd Tail	mAOD
Forecast HWL Richmond		mAOD			

Notes:

FD Closure Number	028	Date of Closure	19-Feb-96	Closure Purpose	Tidal
Total Closure Number	181	PHW Southend	01:34	Controller	G. Hawes
Astro HWL Southend	3.28	mAOD		Teddington Flow	100 cumec / 2000 mgd
Forecast HWL Southend	3.79	mAOD		Barking Closed	<input checked="" type="checkbox"/>
Observed HWL Southend	3.96	mAOD		Barking D/S Level	mAOD
Southend Surge	0.68	mAOD		Barking U/S Level	mAOD
Forecast Error	-0.17	mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.89	mAOD		River Roding Flow	3 cumec
Observed HWL Charlton	1.81	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	4.09	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier		mAOD		Forecast HWL Tedd Tail	mAOD
Forecast HWL Richmond		mAOD			

Notes:

FD Closure Number	029	Date of Closure	20-Feb-96	Closure Purpose	Tidal
Total Closure Number	182	PHW Southend	13:30	Controller	P. Hull
Astro HWL Southend	3.3	mAOD		Teddington Flow	100 cumec / 2000 mgd
Forecast HWL Southend	3.71	mAOD		Barking Closed	<input checked="" type="checkbox"/>
Observed HWL Southend	3.52	mAOD		Barking D/S Level	mAOD
Southend Surge	0.22	mAOD		Barking U/S Level	mAOD
Forecast Error	0.19	mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.4	mAOD		River Roding Flow	3 cumec
Observed HWL Charlton		mAOD		Beckton STW Flow	11.9 cumec
Observed HWL at Silvertown	4.52	mAOD		Total Barking Flow	14.90 cumec
Max Head at Thames Barrier		mAOD		Forecast HWL Tedd Tail	mAOD
Forecast HWL Richmond		mAOD			

Notes:

FD Closure Number	030	Date of Closure	29-Oct-96	Closure Purpose	Tidal
Total Closure Number	191	PHW Southend	14:00	Controller	P. Hull
Astro HWL Southend	2.9	mAOD		Teddington Flow	50 cumec / 1000 mgd
Forecast HWL Southend	3.98	mAOD		Barking Closed	<input checked="" type="checkbox"/>
Observed HWL Southend	3.98	mAOD		Barking D/S Level	mAOD
Southend Surge	1.08	mAOD		Barking U/S Level	mAOD
Forecast Error	0.00	mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.94	mAOD		River Roding Flow	1.5 cumec
Observed HWL Charlton	1.84	mAOD		Beckton STW Flow	12.9 cumec
Observed HWL at Silvertown	4.68	mAOD		Total Barking Flow	14.40 cumec
Max Head at Thames Barrier		mAOD		Forecast HWL Tedd Tail	mAOD
Forecast HWL Richmond		mAOD			

Notes:

FD Closure Number	031	Date of Closure	28-Feb-98	Closure Purpose	Tidal
Total Closure Number	208	PHW Southend	13:30	Controller	A. Batchelor
Astro HWL Southend	3.34	mAOD		Teddington Flow	50 cumec / 1000 mgd
Forecast HWL Southend	3.64	mAOD		Barking Closed	<input checked="" type="checkbox"/>
Observed HWL Southend	3.84	mAOD		Barking D/S Level	mAOD
Southend Surge	0.50	mAOD		Barking U/S Level	mAOD
Forecast Error	-0.20	mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.78	mAOD		River Roding Flow	1 cumec
Observed HWL Charlton	0.79	mAOD		Beckton STW Flow	12.62 cumec
Observed HWL at Silvertown	4.77	mAOD		Total Barking Flow	13.62 cumec
Max Head at Thames Barrier		mAOD		Forecast HWL Tedd Tail	mAOD
Forecast HWL Richmond		mAOD			

Notes:

FD Closure Number	032	Date of Closure	08-Oct-98	Closure Purpose	Tidal
Total Closure Number	216	PHW Southend	14:56	Controller	A. Batchelor
Astro HWL Southend	3.4	mAOD		Teddington Flow	52 cumec / 1000 mgd
Forecast HWL Southend	3.73	mAOD		Barking Closed	<input checked="" type="checkbox"/>
Observed HWL Southend	3.75	mAOD		Barking D/S Level	mAOD
Southend Surge	0.35	mAOD		Barking U/S Level	mAOD
Forecast Error	-0.02	mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.54	mAOD		River Roding Flow	5 cumec
Observed HWL Charlton	1.93	mAOD		Beckton STW Flow	13.15 cumec
Observed HWL at Silvertown	4.51	mAOD		Total Barking Flow	18.15 cumec
Max Head at Thames Barrier		mAOD		Forecast HWL Tedd Tail	mAOD
Forecast HWL Richmond		mAOD			

Notes:

FD Closure Number	033	Date of Closure	06-Nov-98	Closure Purpose	Tidal
Total Closure Number	218	PHW Southend	13:38	Controller	S. Lavery
Astro HWL Southend	3.41	mAOD		Teddington Flow	210 cumec / 4000mgd
Forecast HWL Southend	3.65	mAOD		Barking Closed	<input type="checkbox"/>
Observed HWL Southend	3.65	mAOD		Barking D/S Level	mAOD
Southend Surge	0.24	mAOD		Barking U/S Level	mAOD
Forecast Error	0.00	mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.35	mAOD		River Roding Flow	cumec
Observed HWL Charlton	1.71	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	4.29	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier		mAOD		Forecast HWL Tedd Tail	mAOD
Forecast HWL Richmond		mAOD			

Notes:

FD Closure Number	034	Date of Closure	03-Dec-99	Closure Purpose	Tidal
Total Closure Number	232	PHW Southend		Controller	
Astro HWL Southend	2.47	mAOD		Teddington Flow	52 cumec / 1000 mgd
Forecast HWL Southend		mAOD		Barking Closed	<input type="checkbox"/>
Observed HWL Southend	3.43	mAOD		Barking D/S Level	mAOD
Southend Surge	0.96	mAOD		Barking U/S Level	mAOD
Forecast Error		mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.51	mAOD		River Roding Flow	cumec
Observed HWL Charlton	3.08	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	4.63	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier	1	mAOD		Forecast HWL Tedd Tail	mAOD
Forecast HWL Richmond		mAOD			

Notes: Charlton Tide Gauge out of service. Barrier head approx. 1.00 from difference Silvertown/Tower Pier.

FD Closure Number	035	Date of Closure	25-Dec-99	Closure Purpose	Tidal
Total Closure Number	234	PHW Southend	14:00	Controller	
Astro HWL Southend	3.25	mAOD		Teddington Flow	300 cumec / 6000 mgd
Forecast HWL Southend	3.65	mAOD		Barking Closed	<input checked="" type="checkbox"/>
Observed HWL Southend	3.51	mAOD		Barking D/S Level	4.88 mAOD
Southend Surge	0.26	mAOD		Barking U/S Level	1.68 mAOD
Forecast Error	0.14	mAOD		Barking Head	4.15 mAOD
Observed HWL Sheerness	3.46	mAOD		River Roding Flow	cumec
Observed HWL Charlton	1.61	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	4.73	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier	4	mAOD		Forecast HWL Tedd Tail	mAOD
Forecast HWL Richmond	5.18	mAOD			

Notes:

FD Closure Number	036	Date of Closure	26-Dec-99	Closure Purpose	Combined Tidal/Fluvial
Total Closure Number	235	PHW Southend	02:30	Controller	
Astro HWL Southend	2.97	mAOD		Teddington Flow	300 cumec / 6000 mgd
Forecast HWL Southend	3.41	mAOD		Barking Closed	<input checked="" type="checkbox"/>
Observed HWL Southend	3.43	mAOD		Barking D/S Level	4.59 mAOD
Southend Surge	0.46	mAOD		Barking U/S Level	2.88 mAOD
Forecast Error	-0.02	mAOD		Barking Head	2.28 mAOD
Observed HWL Sheerness	3.5	mAOD		River Roding Flow	cumec
Observed HWL Charlton	2.21	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	4.42	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier	2.98	mAOD		Forecast HWL Tedd Tail	mAOD
Forecast HWL Richmond	5.18	mAOD			

Notes:

FD Closure Number	037	Date of Closure	26-Dec-99	Closure Purpose	Tidal
Total Closure Number	236	PHW Southend	15:00	Controller	
Astro HWL Southend	3.14	mAOD		Teddington Flow	300 cumec / 6000mgd
Forecast HWL Southend	3.45	mAOD		Barking Closed	<input checked="" type="checkbox"/>
Observed HWL Southend	3.5	mAOD		Barking D/S Level	4.77 mAOD
Southend Surge	0.36	mAOD		Barking U/S Level	3.06 mAOD
Forecast Error	-0.05	mAOD		Barking Head	2.25 mAOD
Observed HWL Sheerness	3.23	mAOD		River Roding Flow	cumec
Observed HWL Charlton	2.84	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	4.57	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier	2.43	mAOD		Forecast HWL Tedd Tail	mAOD
Forecast HWL Richmond	5.24	mAOD			

Notes:

FD Closure Number	038	Date of Closure	27-Dec-99	Closure Purpose	Combined Tidal/Fluvial
Total Closure Number	237	PHW Southend	03:25	Controller	
Astro HWL Southend	2.83	mAOD		Teddington Flow	370 cumec / 7000mgd
Forecast HWL Southend	3.28	mAOD		Barking Closed	<input checked="" type="checkbox"/>
Observed HWL Southend	3.23	mAOD		Barking D/S Level	4.23 mAOD
Southend Surge	0.40	mAOD		Barking U/S Level	3.3 mAOD
Forecast Error	0.05	mAOD		Barking Head	1.22 mAOD
Observed HWL Sheerness	3.25	mAOD		River Roding Flow	cumec
Observed HWL Charlton	2.72	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	4.07	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier	1.88	mAOD		Forecast HWL Tedd Tail	mAOD
Forecast HWL Richmond	4.95	mAOD			

Notes:

FD Closure Number	039	Date of Closure	27-Dec-99	Closure Purpose	Combined Tidal/Fluvial
Total Closure Number	238	PHW Southend	15:54	Controller	
Astro HWL Southend	2.95	mAOD		Teddington Flow	370 cumec / 7000mgd
Forecast HWL Southend	3.28	mAOD		Barking Closed	<input checked="" type="checkbox"/>
Observed HWL Southend	3.25	mAOD		Barking D/S Level	4.45 mAOD
Southend Surge	0.30	mAOD		Barking U/S Level	2.81 mAOD
Forecast Error	0.03	mAOD		Barking Head	1.97 mAOD
Observed HWL Sheerness	3.26	mAOD		River Roding Flow	cumec
Observed HWL Charlton	2.48	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	4.29	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier	2.37	mAOD		Forecast HWL Tedd Tail	mAOD
Forecast HWL Richmond	5.05	mAOD			

Notes:

FD Closure Number	040	Date of Closure	13-Nov-00	Closure Purpose	Combined Tidal/Fluvial
Total Closure Number	249	PHW Southend	01:34	Controller	A. Batchelor
Astro HWL Southend	3.02	mAOD		Teddington Flow	300 cumec / 6000mgd
Forecast HWL Southend	3.07	mAOD		Barking Closed	<input type="checkbox"/>
Observed HWL Southend	3.27	mAOD		Barking D/S Level	mAOD
Southend Surge	0.25	mAOD		Barking U/S Level	mAOD
Forecast Error	-0.20	mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.46	mAOD		River Roding Flow	cumec
Observed HWL Charlton	2.61	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	4.58	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier	2.51	mAOD		Forecast HWL Tedd Tail	mAOD
Forecast HWL Richmond	4.98	mAOD			

Notes: Barking levels out of service.

FD Closure Number	041	Date of Closure	11-Dec-00	Closure Purpose	Tidal
Total Closure Number	250	PHW Southend	00:34	Controller	E. Forde
Astro HWL Southend	2.98	mAOD		Teddington Flow	390 cumec / 7800mgd
Forecast HWL Southend	2.84	mAOD		Barking Closed	<input type="checkbox"/>
Observed HWL Southend	3.46	mAOD		Barking D/S Level	mAOD
Southend Surge	0.48	mAOD		Barking U/S Level	mAOD
Forecast Error	-0.62	mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.33	mAOD		River Roding Flow	15 cumec
Observed HWL Charlton	1.71	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	4.33	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier	3.55	mAOD		Forecast HWL Tedd Tail	mAOD
Forecast HWL Richmond	4.84	mAOD			

Notes:

FD Closure Number	042	Date of Closure	12-Dec-00	Closure Purpose	Tidal
Total Closure Number	251	PHW Southend	12:50	Controller	E. Forde
Astro HWL Southend	3.1	mAOD		Teddington Flow	400 cumec / 7900mgd
Forecast HWL Southend	2.8	mAOD		Barking Closed	<input type="checkbox"/>
Observed HWL Southend	3.37	mAOD		Barking D/S Level	mAOD
Southend Surge	0.27	mAOD		Barking U/S Level	mAOD
Forecast Error	-0.57	mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.39	mAOD		River Roding Flow	14 cumec
Observed HWL Charlton	1.69	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	4.26	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier	3.49	mAOD		Forecast HWL Tedd Tail	mAOD
Forecast HWL Richmond	4.55	mAOD			

Notes:

FD Closure Number	043	Date of Closure	13-Dec-00	Closure Purpose	Combined Tidal/Fluvial
Total Closure Number	252	PHW Southend	13:30	Controller	S. Lavery
Astro HWL Southend	3.17	mAOD		Teddington Flow	360 cumec / 7200mgd
Forecast HWL Southend	2.89	mAOD		Barking Closed	<input type="checkbox"/>
Observed HWL Southend	3.39	mAOD		Barking D/S Level	mAOD
Southend Surge	0.22	mAOD		Barking U/S Level	mAOD
Forecast Error	-0.50	mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.52	mAOD		River Roding Flow	14 cumec
Observed HWL Charlton	1.66	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	4.56	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier	3.68	mAOD		Forecast HWL Tedd Tail	mAOD
Forecast HWL Richmond	5.07	mAOD			

Notes:

FD Closure Number	044	Date of Closure	14-Dec-00	Closure Purpose	Tidal
Total Closure Number	253	PHW Southend	02:04	Controller	E. Forde
Astro HWL Southend	2.94	mAOD		Teddington Flow	400 cumec / 8000mgd
Forecast HWL Southend	2.96	mAOD		Barking Closed	<input type="checkbox"/>
Observed HWL Southend	3.5	mAOD		Barking D/S Level	mAOD
Southend Surge	0.56	mAOD		Barking U/S Level	mAOD
Forecast Error	-0.54	mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.38	mAOD		River Roding Flow	14 cumec
Observed HWL Charlton	2.21	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	4.34	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier	3.05	mAOD		Forecast HWL Tedd Tail	mAOD
Forecast HWL Richmond	4.94	mAOD			

Notes:

FD Closure Number	045	Date of Closure	14-Dec-00	Closure Purpose	Tidal
Total Closure Number	254	PHW Southend	14:27	Controller	A. Batchelor
Astro HWL Southend	3.15	mAOD		Teddington Flow	425 cumec / 8500mgd
Forecast HWL Southend	3.13	mAOD		Barking Closed	<input checked="" type="checkbox"/>
Observed HWL Southend	3.52	mAOD		Barking D/S Level	4.63 mAOD
Southend Surge	0.37	mAOD		Barking U/S Level	2.94 mAOD
Forecast Error	-0.39	mAOD		Barking Head	2.4 mAOD
Observed HWL Sheerness	3.57	mAOD		River Roding Flow	15 cumec
Observed HWL Charlton	2.32	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	4.4	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier	2.85	mAOD		Forecast HWL Tedd Tail	mAOD
Forecast HWL Richmond	5.16	mAOD			

Notes:

FD Closure Number	046	Date of Closure	15-Dec-00	Closure Purpose	Tidal
Total Closure Number	255	PHW Southend	02:51	Controller	E. Forde
Astro HWL Southend	2.83	mAOD		Teddington Flow	429 cumec / 8280mgd
Forecast HWL Southend	3.06	mAOD		Barking Closed	<input checked="" type="checkbox"/>
Observed HWL Southend	3.4	mAOD		Barking D/S Level	4.15 mAOD
Southend Surge	0.57	mAOD		Barking U/S Level	3.22 mAOD
Forecast Error	-0.34	mAOD		Barking Head	1.47 mAOD
Observed HWL Sheerness	3.06	mAOD		River Roding Flow	22 cumec
Observed HWL Charlton	2.34	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	3.98	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier	2.15	mAOD		Forecast HWL Tedd Tail	mAOD
Forecast HWL Richmond	4.68	mAOD			

Notes:

FD Closure Number	047	Date of Closure	15-Dec-00	Closure Purpose	Tidal
Total Closure Number	256	PHW Southend	15:18	Controller	S. Lavery
Astro HWL Southend	3.03	mAOD		Teddington Flow	429 cumec / 8249mgd
Forecast HWL Southend	3.34	mAOD		Barking Closed	<input checked="" type="checkbox"/>
Observed HWL Southend	3.6	mAOD		Barking D/S Level	4.47 mAOD
Southend Surge	0.57	mAOD		Barking U/S Level	3.23 mAOD
Forecast Error	-0.26	mAOD		Barking Head	1.81 mAOD
Observed HWL Sheerness	3.11	mAOD		River Roding Flow	cumec
Observed HWL Charlton	2.38	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	4.26	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier	2.44	mAOD		Forecast HWL Tedd Tail	mAOD
Forecast HWL Richmond	5.25	mAOD			

Notes:

FD Closure Number	048	Date of Closure	16-Dec-00	Closure Purpose	Combined Tidal/Fluvial
Total Closure Number	257	PHW Southend	03:39	Controller	E. Forde
Astro HWL Southend	2.69	mAOD		Teddington Flow	380 cumec / 7665mgd
Forecast HWL Southend	2.94	mAOD		Barking Closed	<input checked="" type="checkbox"/>
Observed HWL Southend	3.08	mAOD		Barking D/S Level	3.6 mAOD
Southend Surge	0.39	mAOD		Barking U/S Level	2.55 mAOD
Forecast Error	-0.14	mAOD		Barking Head	1.51 mAOD
Observed HWL Sheerness	2.76	mAOD		River Roding Flow	7 cumec
Observed HWL Charlton	2.16	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	3.64	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier	1.83	mAOD		Forecast HWL Tedd Tail	mAOD
Forecast HWL Richmond	4.47	mAOD			

Notes:

FD Closure Number	049	Date of Closure	16-Dec-00	Closure Purpose	Combined Tidal/Fluvial
Total Closure Number	258	PHW Southend	16:11	Controller	A. Batchelor
Astro HWL Southend	2.84	mAOD		Teddington Flow	360 cumec / 7335 mgd
Forecast HWL Southend	2.88	mAOD		Barking Closed	<input checked="" type="checkbox"/>
Observed HWL Southend	3.15	mAOD		Barking D/S Level	4.19 mAOD
Southend Surge	0.31	mAOD		Barking U/S Level	2.24 mAOD
Forecast Error	-0.27	mAOD		Barking Head	2.61 mAOD
Observed HWL Sheerness	3.43	mAOD		River Roding Flow	16 cumec
Observed HWL Charlton	1.73	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	4.01	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier	3.01	mAOD		Forecast HWL Tedd Tail	mAOD
Forecast HWL Richmond	4.55	mAOD			

Notes:

FD Closure Number	050	Date of Closure	10-Jan-01	Closure Purpose	Combined Tidal/Fluvial
Total Closure Number	259	PHW Southend	01:08	Controller	S. Lavery
Astro HWL Southend	2.96	mAOD		Teddington Flow	205 cumec / 3900 mgd
Forecast HWL Southend	3.08	mAOD		Barking Closed	<input type="checkbox"/>
Observed HWL Southend	3.46	mAOD		Barking D/S Level	4.31 mAOD
Southend Surge	0.50	mAOD		Barking U/S Level	mAOD
Forecast Error	-0.38	mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.63	mAOD		River Roding Flow	cumec
Observed HWL Charlton	2.12	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	4.31	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier	2.67	mAOD		Forecast HWL Tedd Tail	4.85 mAOD
Forecast HWL Richmond	4.5	mAOD			

Notes:

FD Closure Number	051	Date of Closure	11-Jan-01	Closure Purpose	Tidal
Total Closure Number	260	PHW Southend	13:32	Controller	E. Forde
Astro HWL Southend	3.19	mAOD		Teddington Flow	211 cumec / 4000 mgd
Forecast HWL Southend	3.2	mAOD		Barking Closed	<input type="checkbox"/>
Observed HWL Southend	3.63	mAOD		Barking D/S Level	4.49 mAOD
Southend Surge	0.44	mAOD		Barking U/S Level	mAOD
Forecast Error	-0.43	mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.8	mAOD		River Roding Flow	cumec
Observed HWL Charlton	2.11	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	4.49	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier	2.93	mAOD		Forecast HWL Tedd Tail	5.01 mAOD
Forecast HWL Richmond	4.66	mAOD			

Notes: No Thames model forecast in file. No minute readings in file. Actual Readings from half hourly archive. See Thames model run for previous closure.

FD Closure Number	052	Date of Closure	08-Feb-01	Closure Purpose	Tidal
Total Closure Number	261	PHW Southend	12:33	Controller	A. Batchelor
Astro HWL Southend	3.05	mAOD		Teddington Flow	381 cumec / 7200mgd
Forecast HWL Southend	3.38	mAOD		Barking Closed	<input checked="" type="checkbox"/>
Observed HWL Southend	3.8	mAOD		Barking D/S Level	4.75 mAOD
Southend Surge	0.75	mAOD		Barking U/S Level	3.88 mAOD
Forecast Error	-0.42	mAOD		Barking Head	1.74 mAOD
Observed HWL Sheerness	3.32	mAOD		River Roding Flow	cumec
Observed HWL Charlton		mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	4.75	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier	3.28	mAOD		Forecast HWL Tedd Tail	mAOD
Forecast HWL Richmond	4.98	mAOD			

Notes: Charlton Tide Gauge out of service. Barrier head from Silvertown less Tower Pier. STFS Alert confirmed received at 3.60m.

FD Closure Number	053	Date of Closure	08-Feb-01	Closure Purpose	Tidal
Total Closure Number	262	PHW Southend	00:57	Controller	E. Forde
Astro HWL Southend	2.97	mAOD		Teddington Flow	403 cumec / 7700mgd
Forecast HWL Southend	3.1	mAOD		Barking Closed	<input type="checkbox"/>
Observed HWL Southend	3.32	mAOD		Barking D/S Level	mAOD
Southend Surge	0.35	mAOD		Barking U/S Level	mAOD
Forecast Error	-0.22	mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.31	mAOD		River Roding Flow	cumec
Observed HWL Charlton		mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	4.4	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier	2.52	mAOD		Forecast HWL Tedd Tail	mAOD
Forecast HWL Richmond		mAOD			

Notes: Charlton Tide Gauge out of service. Barrier head derived from Silvertown and Tower Pier. No Thames model forecast in file. Incomplete minute readings in file.

FD Closure Number	054	Date of Closure	09-Feb-01	Closure Purpose	Tidal
Total Closure Number	263	PHW Southend	13:22	Controller	A. Batchelor
Astro HWL Southend	3.25	mAOD		Teddington Flow	404 cumec / 7700mgd
Forecast HWL Southend	3.15	mAOD		Barking Closed	<input type="checkbox"/>
Observed HWL Southend	3.32	mAOD		Barking D/S Level	4.04 mAOD
Southend Surge	0.07	mAOD		Barking U/S Level	mAOD
Forecast Error	-0.17	mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.07	mAOD		River Roding Flow	cumec
Observed HWL Charlton	1.08	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	4.26	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier	2.5	mAOD		Forecast HWL Tedd Tail	mAOD
Forecast HWL Richmond	5.17	mAOD			

Notes:

FD Closure Number	055	Date of Closure	09-Feb-01	Closure Purpose	Combined Tidal/Fluvial
Total Closure Number	264	PHW Southend	01:42	Controller	E. Forde
Astro HWL Southend	3.09	mAOD		Teddington Flow	400 cumec / 8000mgd
Forecast HWL Southend	2.84	mAOD		Barking Closed	<input checked="" type="checkbox"/>
Observed HWL Southend	3.08	mAOD		Barking D/S Level	4.18 mAOD
Southend Surge	-0.01	mAOD		Barking U/S Level	2.24 mAOD
Forecast Error	-0.24	mAOD		Barking Head	2.53 mAOD
Observed HWL Sheerness	3.04	mAOD		River Roding Flow	cumec
Observed HWL Charlton	1.79	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	4.02	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier		mAOD		Forecast HWL Tedd Tail	mAOD
Forecast HWL Richmond	4.62	mAOD			

Notes: No minute readings available in file.

FD Closure Number	056	Date of Closure	10-Feb-01	Closure Purpose	Combined Tidal/Fluvial
Total Closure Number	265	PHW Southend	14:09	Controller	A. Batchelor
Astro HWL Southend	3.32	mAOD		Teddington Flow	355 cumec / 6800mgd
Forecast HWL Southend	3.04	mAOD		Barking Closed	<input checked="" type="checkbox"/>
Observed HWL Southend	3.1	mAOD		Barking D/S Level	4.33 mAOD
Southend Surge	-0.22	mAOD		Barking U/S Level	2.09 mAOD
Forecast Error	-0.06	mAOD		Barking Head	3.21 mAOD
Observed HWL Sheerness	3.08	mAOD		River Roding Flow	17.54 cumec
Observed HWL Charlton	1.26	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	4.19	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier	3.75	mAOD		Forecast HWL Tedd Tail	5.45 mAOD
Forecast HWL Richmond	4.94	mAOD			

Notes:

FD Closure Number	057	Date of Closure	11-Feb-01	Closure Purpose	Combined Tidal/Fluvial
Total Closure Number	266	PHW Southend	14:54	Controller	E. Forde
Astro HWL Southend	3.25	mAOD		Teddington Flow	315 cumec / 6300mgd
Forecast HWL Southend	2.7	mAOD		Barking Closed	<input type="checkbox"/>
Observed HWL Southend	3.09	mAOD		Barking D/S Level	4.25 mAOD
Southend Surge	-0.16	mAOD		Barking U/S Level	mAOD
Forecast Error	-0.39	mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.73	mAOD		River Roding Flow	0 cumec
Observed HWL Charlton	1.29	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	4.25	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier	3.67	mAOD		Forecast HWL Tedd Tail	5.16 mAOD
Forecast HWL Richmond	4.56	mAOD			

Notes: Barking & KGV not closed.

FD Closure Number	058	Date of Closure	12-Feb-01	Closure Purpose	Tidal
Total Closure Number	267	PHW Southend	15:37	Controller	S. Lavery
Astro HWL Southend	3.07	mAOD		Teddington Flow	255 cumec / 5100 mgd
Forecast HWL Southend	3.56	mAOD		Barking Closed	<input type="checkbox"/>
Observed HWL Southend	3.78	mAOD		Barking D/S Level	mAOD
Southend Surge	0.71	mAOD		Barking U/S Level	mAOD
Forecast Error	-0.22	mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.61	mAOD		River Roding Flow	0 cumec
Observed HWL Charlton	2.41	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	4.99	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier	3.27	mAOD		Forecast HWL Tedd Tail	5.59 mAOD
Forecast HWL Richmond	5.21	mAOD			

Notes: Unreliable readouts on Barking Levels & Roding flow not working.

FD Closure Number	059	Date of Closure	10-Mar-01	Closure Purpose	Tidal
Total Closure Number	268	PHW Southend	13:50	Controller	S. Lavery
Astro HWL Southend	3.28	mAOD		Teddington Flow	146 cumec / 2800 mgd
Forecast HWL Southend	3.33	mAOD		Barking Closed	<input checked="" type="checkbox"/>
Observed HWL Southend	3.65	mAOD		Barking D/S Level	5.13 mAOD
Southend Surge	0.37	mAOD		Barking U/S Level	2.69 mAOD
Forecast Error	-0.32	mAOD		Barking Head	3.23 mAOD
Observed HWL Sheerness	3.68	mAOD		River Roding Flow	6 cumec
Observed HWL Charlton	2.17	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	4.92	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier	3.35	mAOD		Forecast HWL Tedd Tail	mAOD
Forecast HWL Richmond	4.91	mAOD			

Notes: Isis run however no printout in file. No Teddington Head Forecast.

FD Closure Number	060	Date of Closure	11-Mar-01	Closure Purpose	Tidal
Total Closure Number	269	PHW Southend	14:54	Controller	A. Batchelor
Astro HWL Southend	3.25	mAOD		Teddington Flow	148 cumec / 2800 mgd
Forecast HWL Southend	3.33	mAOD		Barking Closed	<input type="checkbox"/>
Observed HWL Southend	3.71	mAOD		Barking D/S Level	mAOD
Southend Surge	0.46	mAOD		Barking U/S Level	mAOD
Forecast Error	-0.38	mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.48	mAOD		River Roding Flow	7 cumec
Observed HWL Charlton	2.14	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	4.98	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier	3.61	mAOD		Forecast HWL Tedd Tail	5.42 mAOD
Forecast HWL Richmond	4.87	mAOD			

Notes: Barking telemetry out of service. Isis Model run using actual Southend High Water gave Richmond 5.26m and Teddington 5.42m.

FD Closure Number	061	Date of Closure	12-Mar-01	Closure Purpose	Tidal
Total Closure Number	270	PHW Southend	14:31	Controller	S. Lavery
Astro HWL Southend	3.23	mAOD		Teddington Flow	177 cumec / 3362 mgd
Forecast HWL Southend	3.28	mAOD		Barking Closed	<input checked="" type="checkbox"/>
Observed HWL Southend	3.51	mAOD		Barking D/S Level	4.99 mAOD
Southend Surge	0.28	mAOD		Barking U/S Level	3.25 mAOD
Forecast Error	-0.23	mAOD		Barking Head	2.78 mAOD
Observed HWL Sheerness	3.55	mAOD		River Roding Flow	14 cumec
Observed HWL Charlton	2.35	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	4.8	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier	3.13	mAOD		Forecast HWL Tedd Tail	mAOD
Forecast HWL Richmond	4.8	mAOD			

Notes:

FD Closure Number	062	Date of Closure	13-Mar-01	Closure Purpose	Tidal
Total Closure Number	271	PHW Southend	15:11	Controller	E. Forde
Astro HWL Southend	3.03	mAOD		Teddington Flow	174 cumec / 3300 mgd
Forecast HWL Southend	3.45	mAOD		Barking Closed	<input checked="" type="checkbox"/>
Observed HWL Southend	3.59	mAOD		Barking D/S Level	5.01 mAOD
Southend Surge	0.56	mAOD		Barking U/S Level	3.93 mAOD
Forecast Error	-0.14	mAOD		Barking Head	1.54 mAOD
Observed HWL Sheerness	3.35	mAOD		River Roding Flow	13 cumec
Observed HWL Charlton	2.65	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	4.78	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier	2.77	mAOD		Forecast HWL Tedd Tail	mAOD
Forecast HWL Richmond	4.99	mAOD			

Notes: STFS Alert & Alert Confirmed received for 3.64m/3.65m at Sheerness.

FD Closure Number	063	Date of Closure	10-Apr-01	Closure Purpose	Tidal
Total Closure Number	272	PHW Southend	15:06	Controller	S. Lavery
Astro HWL Southend	3.12	mAOD		Teddington Flow	279 cumec / 5300 mgd
Forecast HWL Southend	3.27	mAOD		Barking Closed	<input type="checkbox"/>
Observed HWL Southend	3.38	mAOD		Barking D/S Level	mAOD
Southend Surge	0.26	mAOD		Barking U/S Level	mAOD
Forecast Error	-0.11	mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.74	mAOD		River Roding Flow	10.4 cumec
Observed HWL Charlton	2.35	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	4.62	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier	2.78	mAOD		Forecast HWL Tedd Tail	5.5 mAOD
Forecast HWL Richmond	5.15	mAOD			

Notes: STFS Div 5 (Tilbury only) Alert issued for 3.33m. Error on previous tide 0.24m. Tide therefore assessed $3.27 + 0.24 = 3.51$ against closure of 3.5. Previous tides in this spring cycle have caused problems at Richmond therefore decided to close.

FD Closure Number	064	Date of Closure	17-Sep-01	Closure Purpose	Tidal
Total Closure Number	278	PHW Southend	00:43	Controller	E. Forde
Astro HWL Southend	3.34	mAOD		Teddington Flow	16 cumec / 320 mgd
Forecast HWL Southend	3.76	mAOD		Barking Closed	<input checked="" type="checkbox"/>
Observed HWL Southend	3.77	mAOD		Barking D/S Level	4.83 mAOD
Southend Surge	0.43	mAOD		Barking U/S Level	2.29 mAOD
Forecast Error	-0.01	mAOD		Barking Head	3.72 mAOD
Observed HWL Sheerness	3.43	mAOD		River Roding Flow	13 cumec
Observed HWL Charlton	1.64	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	4.74	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier	3.65	mAOD		Forecast HWL Tedd Tail	mAOD
Forecast HWL Richmond		mAOD			

Notes: No minute readings or ISIS model forecast in file. Two previous tides at Richmond made 4.52 & 4.50m. Following tide made 4.60m.

FD Closure Number	065	Date of Closure	31-Jan-02	Closure Purpose	Combined Tidal/Fluvial
Total Closure Number	283	PHW Southend	14:24	Controller	E. Forde
Astro HWL Southend	3.2	mAOD		Teddington Flow	50 cumec / 4000 mgd
Forecast HWL Southend	3.16	mAOD		Barking Closed	<input checked="" type="checkbox"/>
Observed HWL Southend	3.47	mAOD		Barking D/S Level	4.7 mAOD
Southend Surge	0.27	mAOD		Barking U/S Level	2.47 mAOD
Forecast Error	-0.31	mAOD		Barking Head	2.88 mAOD
Observed HWL Sheerness	3.64	mAOD		River Roding Flow	5 cumec
Observed HWL Charlton	2.07	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	4.51	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier	3.08	mAOD		Forecast HWL Tedd Tail	5.13 mAOD
Forecast HWL Richmond	4.91	mAOD			

Notes: Evacuation of Barrier took place for short period (Police had found possible bomb on foreshore adjacent to Sergeants - proved to be oxyacetylene cylinder) at 0815, returned at 0845 to Level 7. STS gave Alert Level for Sheerness as 3.63m.

FD Closure Number	066	Date of Closure	01-Mar-02	Closure Purpose	Tidal
Total Closure Number	285	PHW Southend	14:07	Controller	E. Forde
Astro HWL Southend	3.33	mAOD		Teddington Flow	210 cumec / 4020 mgd
Forecast HWL Southend	3.42	mAOD		Barking Closed	<input type="checkbox"/>
Observed HWL Southend	3.62	mAOD		Barking D/S Level	5.01 mAOD
Southend Surge	0.29	mAOD		Barking U/S Level	mAOD
Forecast Error	-0.20	mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.51	mAOD		River Roding Flow	3.42 cumec
Observed HWL Charlton	2.3	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	4.9	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier	3.24	mAOD		Forecast HWL Tedd Tail	5.42 mAOD
Forecast HWL Richmond	5.21	mAOD			

Notes: Barking u/s readings erratic therefore not used.

FD Closure Number	067	Date of Closure	27-Apr-02	Closure Purpose	Tidal
Total Closure Number	288	PHW Southend	13:39	Controller	E. Forde
Astro HWL Southend	3.22	mAOD		Teddington Flow	33 cumec / 625 mgd
Forecast HWL Southend	3.43	mAOD		Barking Closed	<input type="checkbox"/>
Observed HWL Southend	3.51	mAOD		Barking D/S Level	4.95 mAOD
Southend Surge	0.29	mAOD		Barking U/S Level	mAOD
Forecast Error	-0.08	mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.43	mAOD		River Roding Flow	cumec
Observed HWL Charlton	2.72	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	4.83	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier	2.25	mAOD		Forecast HWL Tedd Tail	4.92 mAOD
Forecast HWL Richmond	4.92	mAOD			

Notes: Late closure as result of poor model performance. Surge much higher than forecast, Southend Tide forecast at approx. 4.00m. STFS Alert/Alert Conf. received at 3.51m. Despite low fluvial flow, uncertainty gave rise to closure.

FD Closure Number	068	Date of Closure	07-Nov-02	Closure Purpose	Combined Tidal/Fluvial
Total Closure Number	295	PHW Southend	13:50	Controller	E. Forde
Astro HWL Southend	3.3	mAOD		Teddington Flow	120 cumec / 2278 mgd
Forecast HWL Southend	3.37	mAOD		Barking Closed	<input checked="" type="checkbox"/>
Observed HWL Southend	3.43	mAOD		Barking D/S Level	4.58 mAOD
Southend Surge	0.13	mAOD		Barking U/S Level	2.35 mAOD
Forecast Error	-0.06	mAOD		Barking Head	2.15 mAOD
Observed HWL Sheerness	3.36	mAOD		River Roding Flow	6 cumec
Observed HWL Charlton	2.34	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	4.4	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier	2.44	mAOD		Forecast HWL Tedd Tail	4.96 mAOD
Forecast HWL Richmond	5.01	mAOD			

Notes: Closure came on the back of previous tide which made 3.60m at Southend which was 0.36m above forecast. STFS issued an Alert at 3.63m and then an Alert Confirmed at 3.60m for this tide.

FD Closure Number	069	Date of Closure	01-Jan-03	Closure Purpose	Tidal
Total Closure Number	298	PHW Southend	23:31	Controller	E. Forde
Astro HWL Southend	2.67	mAOD		Teddington Flow	425 cumec / 8071 mgd
Forecast HWL Southend	2.79	mAOD		Barking Closed	<input type="checkbox"/>
Observed HWL Southend	3.36	mAOD		Barking D/S Level	4.62 mAOD
Southend Surge	0.69	mAOD		Barking U/S Level	4.63 mAOD
Forecast Error	-0.57	mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.38	mAOD		River Roding Flow	25.17 cumec
Observed HWL Charlton	2.7	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	4.36	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier	2.27	mAOD		Forecast HWL Tedd Tail	5.43 mAOD
Forecast HWL Richmond	4.78	mAOD			

Notes: Closure because of critical situation upstream. Barking not closed. This proved to be the first of a series of 14 closures on consecutive tides.

FD Closure Number	070	Date of Closure	02-Jan-03	Closure Purpose	Tidal
Total Closure Number	299	PHW Southend	11:52	Controller	S. Lavery
Astro HWL Southend	2.77	mAOD		Teddington Flow	441 cumec / 8376 mgd
Forecast HWL Southend	2.92	mAOD		Barking Closed	<input checked="" type="checkbox"/>
Observed HWL Southend	3.4	mAOD		Barking D/S Level	4.58 mAOD
Southend Surge	0.63	mAOD		Barking U/S Level	4.19 mAOD
Forecast Error	-0.48	mAOD		Barking Head	1.16 mAOD
Observed HWL Sheerness	3.39	mAOD		River Roding Flow	33.17 cumec
Observed HWL Charlton	2.92	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	4.34	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier	2.02	mAOD		Forecast HWL Tedd Tail	5.55 mAOD
Forecast HWL Richmond	4.82	mAOD			

Notes: STFS Div 5 (Tilbury only) issued for 3.32, confidence in model, Low.

FD Closure Number	071	Date of Closure	03-Jan-03	Closure Purpose	Tidal
Total Closure Number	300	PHW Southend	00:19	Controller	E. Forde
Astro HWL Southend	2.76	mAOD		Teddington Flow	471 cumec / 8946 mgd
Forecast HWL Southend	3.14	mAOD		Barking Closed	<input type="checkbox"/>
Observed HWL Southend	3.44	mAOD		Barking D/S Level	4.57 mAOD
Southend Surge	0.68	mAOD		Barking U/S Level	4.6 mAOD
Forecast Error	-0.30	mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.44	mAOD		River Roding Flow	35.14 cumec
Observed HWL Charlton	2.35	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	4.38	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier	2.65	mAOD		Forecast HWL Tedd Tail	5.91 mAOD
Forecast HWL Richmond	5.14	mAOD			

Notes: Barking Barrier closed but promptly reopened as level upstream higher than downstream. Feared that it would be impossible to reopen if closure continued.

FD Closure Number	072	Date of Closure	03-Jan-03	Closure Purpose	Tidal
Total Closure Number	301	PHW Southend	12:41	Controller	S. Lavery
Astro HWL Southend	2.89	mAOD		Teddington Flow	466 cumec / 8845 mgd
Forecast HWL Southend	3.1	mAOD		Barking Closed	<input type="checkbox"/>
Observed HWL Southend	3.46	mAOD		Barking D/S Level	4.66 mAOD
Southend Surge	0.57	mAOD		Barking U/S Level	4.67 mAOD
Forecast Error	-0.36	mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.32	mAOD		River Roding Flow	28.38 cumec
Observed HWL Charlton	2.41	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	4.46	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier	2.7	mAOD		Forecast HWL Tedd Tail	5.9 mAOD
Forecast HWL Richmond	5.02	mAOD			

Notes: STFS issue Div 5 (Tilbury only) Alert for 3.24 m, Model Confidence; Moderate.

FD Closure Number	073	Date of Closure	04-Jan-03	Closure Purpose	Tidal
Total Closure Number	302	PHW Southend	01:04	Controller	E. Forde
Astro HWL Southend	2.78	mAOD		Teddington Flow	451 cumec / 8561 mgd
Forecast HWL Southend	2.89	mAOD		Barking Closed	<input type="checkbox"/>
Observed HWL Southend	3.32	mAOD		Barking D/S Level	4.31 mAOD
Southend Surge	0.54	mAOD		Barking U/S Level	4.32 mAOD
Forecast Error	-0.43	mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.36	mAOD		River Roding Flow	cumec
Observed HWL Charlton	2.29	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	4.14	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier	2.35	mAOD		Forecast HWL Tedd Tail	mAOD
Forecast HWL Richmond		mAOD			

Notes: No Forecast Model in file.

FD Closure Number	074	Date of Closure	04-Jan-03	Closure Purpose	Tidal
Total Closure Number	303	PHW Southend	13:29	Controller	S. Lavery
Astro HWL Southend	2.93	mAOD		Teddington Flow	449 cumec / 8521 mgd
Forecast HWL Southend	2.91	mAOD		Barking Closed	<input type="checkbox"/>
Observed HWL Southend	3.37	mAOD		Barking D/S Level	4.56 mAOD
Southend Surge	0.44	mAOD		Barking U/S Level	4.56 mAOD
Forecast Error	-0.46	mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.01	mAOD		River Roding Flow	19.5 cumec
Observed HWL Charlton	2.41	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	4.35	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier	2.47	mAOD		Forecast HWL Tedd Tail	5.17 mAOD
Forecast HWL Richmond	3.74	mAOD			

Notes: Forecast Model run with Barrier Closed. STFS issued Division 5 (Tilbury only) Alert Confirmed for 3.11 m at Sheerness.

FD Closure Number	075	Date of Closure	05-Jan-03	Closure Purpose	Combined Tidal/Fluvial
Total Closure Number	304	PHW Southend	01:46	Controller	E. Forde
Astro HWL Southend	2.74	mAOD		Teddington Flow	440 cumec / 8352 mgd
Forecast HWL Southend	2.61	mAOD		Barking Closed	<input type="checkbox"/>
Observed HWL Southend	3.01	mAOD		Barking D/S Level	3.96 mAOD
Southend Surge	0.27	mAOD		Barking U/S Level	3.97 mAOD
Forecast Error	-0.40	mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.24	mAOD		River Roding Flow	17.22 cumec
Observed HWL Charlton	2.17	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	3.79	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier	2.04	mAOD		Forecast HWL Tedd Tail	5.05 mAOD
Forecast HWL Richmond	3.45	mAOD			

Notes: Forecast Model run with Barrier Closed. No minute readings in file.

FD Closure Number	076	Date of Closure	05-Jan-03	Closure Purpose	Tidal
Total Closure Number	305	PHW Southend	14:14	Controller	S. Lavery
Astro HWL Southend	2.89	mAOD		Teddington Flow	425 cumec / 8069 mgd
Forecast HWL Southend	2.8	mAOD		Barking Closed	<input type="checkbox"/>
Observed HWL Southend	3.24	mAOD		Barking D/S Level	4.4 mAOD
Southend Surge	0.35	mAOD		Barking U/S Level	4.45 mAOD
Forecast Error	-0.44	mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.13	mAOD		River Roding Flow	11.06 cumec
Observed HWL Charlton	2.24	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	4.26	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier	2.52	mAOD		Forecast HWL Tedd Tail	5.03 mAOD
Forecast HWL Richmond	3.39	mAOD			

Notes: Forecast Model run with Barrier Closed.

FD Closure Number	077	Date of Closure	06-Jan-03	Closure Purpose	Combined Tidal/Fluvial
Total Closure Number	306	PHW Southend	02:27	Controller	E. Forde
Astro HWL Southend	2.64	mAOD		Teddington Flow	421 cumec / 7989 mgd
Forecast HWL Southend	2.68	mAOD		Barking Closed	<input type="checkbox"/>
Observed HWL Southend	3.13	mAOD		Barking D/S Level	3.97 mAOD
Southend Surge	0.49	mAOD		Barking U/S Level	4 mAOD
Forecast Error	-0.45	mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.25	mAOD		River Roding Flow	7.63 cumec
Observed HWL Charlton	2.16	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	3.8	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier	2.09	mAOD		Forecast HWL Tedd Tail	5 mAOD
Forecast HWL Richmond	3.4	mAOD			

Notes: Forecast Model run with Barrier Closed. Minute readings do not cover Richmond High Water.

FD Closure Number	078	Date of Closure	06-Jan-03	Closure Purpose	Tidal
Total Closure Number	307	PHW Southend	14:56	Controller	A. Batchelor
Astro HWL Southend	2.76	mAOD		Teddington Flow	420 cumec / 7977 mgd
Forecast HWL Southend	2.76	mAOD		Barking Closed	<input type="checkbox"/>
Observed HWL Southend	3.25	mAOD		Barking D/S Level	4.43 mAOD
Southend Surge	0.49	mAOD		Barking U/S Level	4.43 mAOD
Forecast Error	-0.49	mAOD		Barking Head	mAOD
Observed HWL Sheerness	2.95	mAOD		River Roding Flow	5.86 cumec
Observed HWL Charlton	2.32	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	4.25	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier	2.39	mAOD		Forecast HWL Tedd Tail	4.93 mAOD
Forecast HWL Richmond	3.31	mAOD			

Notes: Forecast Model run with Barrier Closed. ** Minute readings in file do not cover Richmond High Water. Level taken from half hour readings.

FD Closure Number	079	Date of Closure	07-Jan-03	Closure Purpose	Combined Tidal/Fluvial
Total Closure Number	308	PHW Southend	03:06	Controller	S. Anderson
Astro HWL Southend	2.52	mAOD		Teddington Flow	420 cumec / 7973 mgd
Forecast HWL Southend	2.42	mAOD		Barking Closed	<input type="checkbox"/>
Observed HWL Southend	2.95	mAOD		Barking D/S Level	3.75 mAOD
Southend Surge	0.43	mAOD		Barking U/S Level	3.75 mAOD
Forecast Error	-0.53	mAOD		Barking Head	mAOD
Observed HWL Sheerness	2.83	mAOD		River Roding Flow	4.63 cumec
Observed HWL Charlton	2.44	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	3.57	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier	1.46	mAOD		Forecast HWL Tedd Tail	4.95 mAOD
Forecast HWL Richmond	3.31	mAOD			

Notes: Forecast Model run with Barrier Closed. ** Actual Teddington Head Level a reported by Tony Davis on site.

FD Closure Number	080	Date of Closure	07-Jan-03	Closure Purpose	Combined Tidal/Fluvial
Total Closure Number	309	PHW Southend	15:39	Controller	A. Batchelor
Astro HWL Southend	2.58	mAOD		Teddington Flow	411 cumec / 7802 mgd
Forecast HWL Southend	2.4	mAOD		Barking Closed	<input type="checkbox"/>
Observed HWL Southend	2.86	mAOD		Barking D/S Level	4.1 mAOD
Southend Surge	0.28	mAOD		Barking U/S Level	4.09 mAOD
Forecast Error	-0.46	mAOD		Barking Head	mAOD
Observed HWL Sheerness	2.78	mAOD		River Roding Flow	4.63 cumec
Observed HWL Charlton	2.73	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	3.92	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier	1.5	mAOD		Forecast HWL Tedd Tail	5.22 mAOD
Forecast HWL Richmond	4.28	mAOD			

Notes:

FD Closure Number	081	Date of Closure	08-Jan-03	Closure Purpose	Combined Tidal/Fluvial
Total Closure Number	310	PHW Southend	03:44	Controller	S. Anderson
Astro HWL Southend	2.38	mAOD		Teddington Flow	402 cumec / 7631 mgd
Forecast HWL Southend	2.3	mAOD		Barking Closed	<input type="checkbox"/>
Observed HWL Southend	2.79	mAOD		Barking D/S Level	3.66 mAOD
Southend Surge	0.41	mAOD		Barking U/S Level	3.68 mAOD
Forecast Error	-0.49	mAOD		Barking Head	mAOD
Observed HWL Sheerness	2.81	mAOD		River Roding Flow	3.7 cumec
Observed HWL Charlton	2.92	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	3.52	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier	0.77	mAOD		Forecast HWL Tedd Tail	5.03 mAOD
Forecast HWL Richmond	3.82	mAOD			

Notes:

FD Closure Number	082	Date of Closure	08-Jan-03	Closure Purpose	Combined Tidal/Fluvial
Total Closure Number	311	PHW Southend	16:21	Controller	A. Batchelor
Astro HWL Southend	2.37	mAOD		Teddington Flow	383 cumec / 7270mgd
Forecast HWL Southend	2.31	mAOD		Barking Closed	<input type="checkbox"/>
Observed HWL Southend	2.81	mAOD		Barking D/S Level	4.07 mAOD
Southend Surge	0.44	mAOD		Barking U/S Level	4.07 mAOD
Forecast Error	-0.50	mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.16	mAOD		River Roding Flow	3.25 cumec
Observed HWL Charlton	2.78	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	3.9	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier	1.41	mAOD		Forecast HWL Tedd Tail	4.92 mAOD
Forecast HWL Richmond	3.71	mAOD			

Notes: Last of series of 14 closures on consecutive tides.

FD Closure Number	083	Date of Closure	21-Jan-03	Closure Purpose	Combined Tidal/Fluvial
Total Closure Number	312	PHW Southend	14:38	Controller	A. Batchelor
Astro HWL Southend	2.92	mAOD		Teddington Flow	311 cumec / 5900mgd
Forecast HWL Southend	2.8	mAOD		Barking Closed	<input type="checkbox"/>
Observed HWL Southend	3.16	mAOD		Barking D/S Level	4.24 mAOD
Southend Surge	0.24	mAOD		Barking U/S Level	4.21 mAOD
Forecast Error	-0.36	mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.13	mAOD		River Roding Flow	11.66 cumec
Observed HWL Charlton	2.79	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	4.47	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier	2.22	mAOD		Forecast HWL Tedd Tail	5.17 mAOD
Forecast HWL Richmond	4.75	mAOD			

Notes: First of series of Closures in respect of high flows.

FD Closure Number	084	Date of Closure	22-Jan-03	Closure Purpose	Combined Tidal/Fluvial
Total Closure Number	313	PHW Southend	02:52	Controller	S. Anderson
Astro HWL Southend	2.76	mAOD		Teddington Flow	320 cumec / 6068mgd
Forecast HWL Southend	2.77	mAOD		Barking Closed	<input type="checkbox"/>
Observed HWL Southend	3.17	mAOD		Barking D/S Level	4.6 mAOD
Southend Surge	0.41	mAOD		Barking U/S Level	4.6 mAOD
Forecast Error	-0.40	mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.06	mAOD		River Roding Flow	13.52 cumec
Observed HWL Charlton	2.94	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	4.36	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier	1.78	mAOD		Forecast HWL Tedd Tail	5.09 mAOD
Forecast HWL Richmond	4.6	mAOD			

Notes:

FD Closure Number	085	Date of Closure	22-Jan-03	Closure Purpose	Combined Tidal/Fluvial
Total Closure Number	314	PHW Southend	15:20	Controller	A. Batchelor
Astro HWL Southend	2.87	mAOD		Teddington Flow	363 cumec / 6879 mgd
Forecast HWL Southend	2.82	mAOD		Barking Closed	<input type="checkbox"/>
Observed HWL Southend	3.11	mAOD		Barking D/S Level	4.54 mAOD
Southend Surge	0.24	mAOD		Barking U/S Level	4.55 mAOD
Forecast Error	-0.29	mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.11	mAOD		River Roding Flow	18.03 cumec
Observed HWL Charlton	2.84	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	4.35	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier	1.96	mAOD		Forecast HWL Tedd Tail	5.4 mAOD
Forecast HWL Richmond	4.84	mAOD			

Notes:

FD Closure Number	086	Date of Closure	23-Jan-03	Closure Purpose	Combined Tidal/Fluvial
Total Closure Number	315	PHW Southend	03:32	Controller	S. Anderson
Astro HWL Southend	2.71	mAOD		Teddington Flow	364 cumec / 6904 mgd
Forecast HWL Southend	2.82	mAOD		Barking Closed	<input type="checkbox"/>
Observed HWL Southend	3.11	mAOD		Barking D/S Level	4.25 mAOD
Southend Surge	0.40	mAOD		Barking U/S Level	4.26 mAOD
Forecast Error	-0.29	mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.06	mAOD		River Roding Flow	18.17 cumec
Observed HWL Charlton	2.78	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	4.03	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier	1.53	mAOD		Forecast HWL Tedd Tail	5.21 mAOD
Forecast HWL Richmond	4.52	mAOD			

Notes:

FD Closure Number	087	Date of Closure	23-Jan-03	Closure Purpose	Combined Tidal/Fluvial
Total Closure Number	316	PHW Southend	16:05	Controller	A. Batchelor
Astro HWL Southend	2.73	mAOD		Teddington Flow	371 cumec / 7047 mgd
Forecast HWL Southend	2.87	mAOD		Barking Closed	<input type="checkbox"/>
Observed HWL Southend	3.06	mAOD		Barking D/S Level	4.45 mAOD
Southend Surge	0.33	mAOD		Barking U/S Level	4.46 mAOD
Forecast Error	-0.19	mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.86	mAOD		River Roding Flow	21.33 cumec
Observed HWL Charlton	2.73	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	4.23	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier	1.93	mAOD		Forecast HWL Tedd Tail	5.34 mAOD
Forecast HWL Richmond	4.76	mAOD			

Notes:

FD Closure Number	088	Date of Closure	22-Feb-04	Closure Purpose	Tidal
Total Closure Number	330	PHW Southend	14:06	Controller	E. Forde
Astro HWL Southend	3.03	mAOD		Teddington Flow	59 cumec / 1127 mgd
Forecast HWL Southend	3.65	mAOD		Barking Closed	<input checked="" type="checkbox"/>
Observed HWL Southend	3.94	mAOD		Barking D/S Level	5.27 mAOD
Southend Surge	0.91	mAOD		Barking U/S Level	2.48 mAOD
Forecast Error	-0.29	mAOD		Barking Head	2.8 mAOD
Observed HWL Sheerness		mAOD		River Roding Flow	1.03 cumec
Observed HWL Charlton	2.79	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	5.02	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier	2.69	mAOD		Forecast HWL Tedd Tail	5.01 mAOD
Forecast HWL Richmond	5.12	mAOD			

Notes:

FD Closure Number	089	Date of Closure	12-Nov-04	Closure Purpose	Tidal
Total Closure Number	339	PHW Southend	00:19	Controller	M. Moore
Astro HWL Southend	2.96	mAOD		Teddington Flow	48 cumec / 911 mgd
Forecast HWL Southend	3.54	mAOD		Barking Closed	<input checked="" type="checkbox"/>
Observed HWL Southend	3.88	mAOD		Barking D/S Level	4.6 mAOD
Southend Surge	0.92	mAOD		Barking U/S Level	3.11 mAOD
Forecast Error	-0.34	mAOD		Barking Head	2.32 mAOD
Observed HWL Sheerness	3.75	mAOD		River Roding Flow	0.71 cumec
Observed HWL Charlton	2.74	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	4.6	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier	2.44	mAOD		Forecast HWL Tedd Tail	4.84 mAOD
Forecast HWL Richmond	4.81	mAOD			

Notes: Sheerness forecast 3.65m. Controller decided to take top off tide as some uncertainty as to forecast. STFS subsequent forecast was 3.71m. Actual Southend 3.94 m. The level at TB, 5.02m, was highest ever recorded at TB in operation.

FD Closure Number	090	Date of Closure	13-Feb-05	Closure Purpose	Tidal
Total Closure Number	344	PHW Southend	15:49	Controller	E. Forde
Astro HWL Southend	2.85	mAOD		Teddington Flow	47 cumec / 882 mgd
Forecast HWL Southend	3.47	mAOD		Barking Closed	<input checked="" type="checkbox"/>
Observed HWL Southend	3.53	mAOD		Barking D/S Level	4.45 mAOD
Southend Surge	0.68	mAOD		Barking U/S Level	3.82 mAOD
Forecast Error	-0.06	mAOD		Barking Head	0.94 mAOD
Observed HWL Sheerness	3.43	mAOD		River Roding Flow	1.23 cumec
Observed HWL Charlton	2.3	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	4.45	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier	2.6	mAOD		Forecast HWL Tedd Tail	4.8 mAOD
Forecast HWL Richmond	4.8	mAOD			

Notes: Closure proceeded as Sheerness forecast plus error, 3.47m + 0.11m gave 3.58m, i.e., above Barrier Action Level however large surge > 1.00m forecast before high water. Clearly timing of surge falling away crucial therefore considered prudent to close.

FD Closure Number	091	Date of Closure	14-Feb-05	Closure Purpose	Tidal
Total Closure Number	345	PHW Southend	03:56	Controller	M. Moore
Astro HWL Southend	2.81	mAOD		Teddington Flow	46 cumec / 876 mgd
Forecast HWL Southend	3.08	mAOD		Barking Closed	<input checked="" type="checkbox"/>
Observed HWL Southend	3.06	mAOD		Barking D/S Level	3.35 mAOD
Southend Surge	0.25	mAOD		Barking U/S Level	3.53 mAOD
Forecast Error	0.02	mAOD		Barking Head	0.27 mAOD
Observed HWL Sheerness	2.95	mAOD		River Roding Flow	1.93 cumec
Observed HWL Charlton	2	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	3.35	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier	1.4	mAOD		Forecast HWL Tedd Tail	4.69 mAOD
Forecast HWL Richmond	4.04	mAOD			

Notes: Closure proceeded as very high surge, 1.60 m, forecast before high water. Clearly timing of surge falling away crucial therefore considered prudent to close.

FD Closure Number	092	Date of Closure	08-Apr-05	Closure Purpose	Tidal
Total Closure Number	347	PHW Southend	13:22	Controller	M. Moore
Astro HWL Southend	3.08	mAOD		Teddington Flow	49 cumec / 900 mgd
Forecast HWL Southend	3.57	mAOD		Barking Closed	<input checked="" type="checkbox"/>
Observed HWL Southend	3.61	mAOD		Barking D/S Level	4.51 mAOD
Southend Surge	0.53	mAOD		Barking U/S Level	2.96 mAOD
Forecast Error	-0.04	mAOD		Barking Head	2.25 mAOD
Observed HWL Sheerness	3.53	mAOD		River Roding Flow	12 cumec
Observed HWL Charlton	2.19	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	4.51	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier	2.9	mAOD		Forecast HWL Tedd Tail	mAOD
Forecast HWL Richmond	5.03	mAOD			

Notes: Closure proceeded as forecast above Barrier Action Level and STFS Div 5 Alert Confirmed received for 3.61 m. Allowing margin for error, closure proceeded.

FD Closure Number	093	Date of Closure	16-Dec-05	Closure Purpose	Tidal
Total Closure Number	357	PHW Southend	01:04	Controller	A. Batchelor
Astro HWL Southend	2.63	mAOD		Teddington Flow	11 cumec / 211 mgd
Forecast HWL Southend	3.06	mAOD		Barking Closed	<input type="checkbox"/>
Observed HWL Southend	3.34	mAOD		Barking D/S Level	mAOD
Southend Surge	0.71	mAOD		Barking U/S Level	mAOD
Forecast Error	-0.28	mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.18	mAOD		River Roding Flow	0.4 cumec
Observed HWL Charlton	2.08	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	3.71	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier	1.88	mAOD		Forecast HWL Tedd Tail	4.5 mAOD
Forecast HWL Richmond	3.86	mAOD			

Notes: With surge conditions and uncertainty over forecasting continuing following an under forecast of 320 mm on the previous tide (giving 3.87m tide at Sheerness) it was decided Thames Barrier should be closed.

FD Closure Number	094	Date of Closure	17-Dec-05	Closure Purpose	Tidal
Total Closure Number	358	PHW Southend	13:25	Controller	M. Moore
Astro HWL Southend	2.69	mAOD		Teddington Flow	19 cumec / 355 mgd
Forecast HWL Southend	3.35	mAOD		Barking Closed	<input type="checkbox"/>
Observed HWL Southend	3.24	mAOD		Barking D/S Level	mAOD
Southend Surge	0.55	mAOD		Barking U/S Level	mAOD
Forecast Error	0.11	mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.17	mAOD		River Roding Flow	0.4 cumec
Observed HWL Charlton	2.69	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	3.58	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier	1.35	mAOD		Forecast HWL Tedd Tail	4.55 mAOD
Forecast HWL Richmond	4.39	mAOD			

Notes: As with previous tide, uncertainty persisted with forecasting. With surge conditions continuing, Thames Barrier closed.

FD Closure Number	095	Date of Closure	28-Feb-06	Closure Purpose	Tidal
Total Closure Number	361	PHW Southend	12:54	Controller	A. Batchelor
Astro HWL Southend	3.17	mAOD		Teddington Flow	32 cumec / 609 mgd
Forecast HWL Southend	3.47	mAOD		Barking Closed	<input type="checkbox"/>
Observed HWL Southend	3.62	mAOD		Barking D/S Level	mAOD
Southend Surge	0.45	mAOD		Barking U/S Level	mAOD
Forecast Error	-0.15	mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.52	mAOD		River Roding Flow	0.8 cumec
Observed HWL Charlton	2.33	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	4.84	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier	2.83	mAOD		Forecast HWL Tedd Tail	4.84 mAOD
Forecast HWL Richmond	4.91	mAOD			

Notes: The Sheerness forecast tide was just below Barrier Action Level however an increase in surge above forecast was observed on the rising tide. Consideration of all the data indicated that it would be prudent to proceed with closure.

FD Closure Number	096	Date of Closure	18-Jan-07	Closure Purpose	Tidal
Total Closure Number	372	PHW Southend	00:16	Controller	M. Moore
Astro HWL Southend	2.51	mAOD		Teddington Flow	269 cumec / 5100 mgd
Forecast HWL Southend	3.52	mAOD		Barking Closed	<input type="checkbox"/>
Observed HWL Southend	3.76	mAOD		Barking D/S Level	mAOD
Southend Surge	1.25	mAOD		Barking U/S Level	mAOD
Forecast Error	-0.24	mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.54	mAOD		River Roding Flow	11.03 cumec
Observed HWL Charlton	2.07	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	4.36	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier	3.34	mAOD		Forecast HWL Tedd Tail	5.19 mAOD
Forecast HWL Richmond	4.89	mAOD			

Notes: Tide above Barrier Action Level and with uncertainty over surge forecast, closure proceeded.

FD Closure Number	097	Date of Closure	21-Jan-07	Closure Purpose	Tidal
Total Closure Number	373	PHW Southend	14:09	Controller	M. Moore
Astro HWL Southend	2.99	mAOD		Teddington Flow	264 cumec / 5000mgd
Forecast HWL Southend	3.53	mAOD		Barking Closed	<input type="checkbox"/>
Observed HWL Southend	3.72	mAOD		Barking D/S Level	mAOD
Southend Surge	0.73	mAOD		Barking U/S Level	mAOD
Forecast Error	-0.19	mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.47	mAOD		River Roding Flow	7.06 cumec
Observed HWL Charlton	2	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	4.55	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier	3.02	mAOD		Forecast HWL Tedd Tail	4.94 mAOD
Forecast HWL Richmond	5.03	mAOD			

Notes: Tide above Barrier Action Level and with uncertainty over surge forecast, closure proceeded.

FD Closure Number	098	Date of Closure	22-Jan-07	Closure Purpose	Tidal
Total Closure Number	374	PHW Southend	14:52	Controller	E. Forde
Astro HWL Southend	3.01	mAOD		Teddington Flow	237 cumec / 4500mgd
Forecast HWL Southend	3.67	mAOD		Barking Closed	<input type="checkbox"/>
Observed HWL Southend	4.04	mAOD		Barking D/S Level	mAOD
Southend Surge	1.03	mAOD		Barking U/S Level	mAOD
Forecast Error	-0.37	mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.75	mAOD		River Roding Flow	6.24 cumec
Observed HWL Charlton	2.39	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	5.06	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier	3.24	mAOD		Forecast HWL Tedd Tail	5.1 mAOD
Forecast HWL Richmond	4.86	mAOD			

Notes: Tide above Barrier Action Level and with uncertainty over surge forecast, closure proceeded.

FD Closure Number	099	Date of Closure	03-Mar-07	Closure Purpose	Tidal
Total Closure Number	376	PHW Southend	12:36	Controller	M. Moore
Astro HWL Southend	2.69	mAOD		Teddington Flow	240 cumec / 4500mgd
Forecast HWL Southend	3.25	mAOD		Barking Closed	<input type="checkbox"/>
Observed HWL Southend	3.21	mAOD		Barking D/S Level	mAOD
Southend Surge	0.52	mAOD		Barking U/S Level	mAOD
Forecast Error	0.04	mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.21	mAOD		River Roding Flow	3.9 cumec
Observed HWL Charlton	2.23	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	4.38	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier	2.76	mAOD		Forecast HWL Tedd Tail	5.02 mAOD
Forecast HWL Richmond	4.89	mAOD			

Notes: A depression tracked across Kent from the south West giving a "back door" type surge, ie. a surge coming up the English Channel. The predicted tide was modest, the upstream flow was high.

FD Closure Number	100	Date of Closure	18-Mar-07	Closure Purpose	Tidal
Total Closure Number	377	PHW Southend	12:04	Controller	A. Batchelor
Astro HWL Southend	2.94	mAOD		Teddington Flow	120 cumec / 2300 mgd
Forecast HWL Southend	3.41	mAOD		Barking Closed	<input type="checkbox"/>
Observed HWL Southend	3.75	mAOD		Barking D/S Level	mAOD
Southend Surge	0.81	mAOD		Barking U/S Level	mAOD
Forecast Error	-0.34	mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.75	mAOD		River Roding Flow	2 cumec
Observed HWL Charlton	1.98	mAOD		Beckton STW Flow	10 cumec
Observed HWL at Silvertown	4.9	mAOD		Total Barking Flow	12.00 cumec
Max Head at Thames Barrier	3.51	mAOD		Forecast HWL Tedd Tail	4.8 mAOD
Forecast HWL Richmond	4.6	mAOD			

Notes: Deep depression located over North Sea giving strong N winds over the S North Sea. STFS issued a Div 5, Tilbury only Alert for 3.53m, above BAL. With low confidence in forecast and with tide reaching Putney at lunchtime on a Sunday, Barrier was closed.

FD Closure Number	101	Date of Closure	18-Mar-07	Closure Purpose	Tidal
Total Closure Number	378	PHW Southend	00:15	Controller	E. Forde
Astro HWL Southend	2.86	mAOD		Teddington Flow	110 cumec / 2100 mgd
Forecast HWL Southend	3.51	mAOD		Barking Closed	<input type="checkbox"/>
Observed HWL Southend	3.5	mAOD		Barking D/S Level	mAOD
Southend Surge	0.64	mAOD		Barking U/S Level	mAOD
Forecast Error	0.01	mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.51	mAOD		River Roding Flow	2 cumec
Observed HWL Charlton	2.81	mAOD		Beckton STW Flow	13 cumec
Observed HWL at Silvertown	4	mAOD		Total Barking Flow	15.00 cumec
Max Head at Thames Barrier	1.6	mAOD		Forecast HWL Tedd Tail	4.5 mAOD
Forecast HWL Richmond	4.34	mAOD			

Notes: The tide at Sheerness/Southend was forecast to be higher than the previous tide. Taking note of the previous tide under forecast of 0.34m, it was decided to close.

FD Closure Number	102	Date of Closure	19-Mar-07	Closure Purpose	Tidal
Total Closure Number	379	PHW Southend	12:47	Controller	A. Batchelor
Astro HWL Southend	3.15	mAOD		Teddington Flow	111 cumec / 2100 mgd
Forecast HWL Southend	3.57	mAOD		Barking Closed	<input type="checkbox"/>
Observed HWL Southend	3.55	mAOD		Barking D/S Level	mAOD
Southend Surge	0.40	mAOD		Barking U/S Level	mAOD
Forecast Error	0.02	mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.55	mAOD		River Roding Flow	1 cumec
Observed HWL Charlton	2.59	mAOD		Beckton STW Flow	11 cumec
Observed HWL at Silvertown	4.62	mAOD		Total Barking Flow	12.00 cumec
Max Head at Thames Barrier	2.73	mAOD		Forecast HWL Tedd Tail	5.06 mAOD
Forecast HWL Richmond	4.91	mAOD			

Notes: The tide at Sheerness/Southend was forecast to be higher than the previous tide and well above Barrier Action Level. Taking note of the under forecast on the tide for Closure 100, it was decided to close.

FD Closure Number	103	Date of Closure	20-Mar-07	Closure Purpose	Tidal
Total Closure Number	380	PHW Southend	13:28	Controller	A. Batchelor
Astro HWL Southend	3.23	mAOD		Teddington Flow	120 cumec / 2300 mgd
Forecast HWL Southend	3.87	mAOD		Barking Closed	<input type="checkbox"/>
Observed HWL Southend	3.77	mAOD		Barking D/S Level	mAOD
Southend Surge	0.54	mAOD		Barking U/S Level	mAOD
Forecast Error	0.10	mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.78	mAOD		River Roding Flow	1 cumec
Observed HWL Charlton	2.55	mAOD		Beckton STW Flow	8 cumec
Observed HWL at Silvertown	4.7	mAOD		Total Barking Flow	9.00 cumec
Max Head at Thames Barrier	2.79	mAOD		Forecast HWL Tedd Tail	5.43 mAOD
Forecast HWL Richmond	5.21	mAOD			

Notes: Tide at Southend/Sheerness forecast above Barrier Closure level.

FD Closure Number	104	Date of Closure	08-Nov-07	Closure Purpose	Tidal
Total Closure Number	388	PHW Southend	23:51	Controller	M. Moore
Astro HWL Southend	2.63	mAOD		Teddington Flow	32 cumec / 600 mgd
Forecast HWL Southend	3.65	mAOD		Barking Closed	<input checked="" type="checkbox"/>
Observed HWL Southend	3.67	mAOD		Barking D/S Level	4.6 mAOD
Southend Surge	1.04	mAOD		Barking U/S Level	3.11 mAOD
Forecast Error	-0.02	mAOD		Barking Head	1.7 mAOD
Observed HWL Sheerness	3.73	mAOD		River Roding Flow	0.29 cumec
Observed HWL Charlton	2.5	mAOD		Beckton STW Flow	19.7 cumec
Observed HWL at Silvertown	4.75	mAOD		Total Barking Flow	19.99 cumec
Max Head at Thames Barrier	2.73	mAOD		Forecast HWL Tedd Tail	4.88 mAOD
Forecast HWL Richmond	4.85	mAOD			

Notes: Tide at Southend forecast above BAL. Surge at HW was forecast at 1.00m however the forecast also showed the surge continuing to rise to 3.03m at 08:00 the following morning. With high surge following high water, it was considered prudent to close the TB.

FD Closure Number	105	Date of Closure	09-Nov-07	Closure Purpose	Tidal
Total Closure Number	389	PHW Southend	12:01	Controller	E. Forde
Astro HWL Southend	2.66	mAOD		Teddington Flow	32 cumec / 600 mgd
Forecast HWL Southend	3.72	mAOD		Barking Closed	<input checked="" type="checkbox"/>
Observed HWL Southend	3.47	mAOD		Barking D/S Level	3.65 mAOD
Southend Surge	0.81	mAOD		Barking U/S Level	3.51 mAOD
Forecast Error	0.25	mAOD		Barking Head	0.2 mAOD
Observed HWL Sheerness	3.58	mAOD		River Roding Flow	0.38 cumec
Observed HWL Charlton	3	mAOD		Beckton STW Flow	10.5 cumec
Observed HWL at Silvertown	3.91	mAOD		Total Barking Flow	10.88 cumec
Max Head at Thames Barrier	1.78	mAOD		Forecast HWL Tedd Tail	4.42 mAOD
Forecast HWL Richmond	4.35	mAOD			

Notes: Southend forecast above BAL, TB was closed. The Tide at Southend gave a double peaked tide at Silvertown resulting in levels u/s of Barking being higher than d/s with the possibility of tide lock. Barking partially opened to prevent tide lock.

FD Closure Number	106	Date of Closure	25-Nov-07	Closure Purpose	Tidal
Total Closure Number	390	PHW Southend	12:25	Controller	A. Batchelor
Astro HWL Southend	3.15	mAOD		Teddington Flow	132 cumec / 2500mgd
Forecast HWL Southend	3.73	mAOD		Barking Closed	<input checked="" type="checkbox"/>
Observed HWL Southend	3.84	mAOD		Barking D/S Level	4.52 mAOD
Southend Surge	0.69	mAOD		Barking U/S Level	3.76 mAOD
Forecast Error	-0.11	mAOD		Barking Head	1.14 mAOD
Observed HWL Sheerness	3.89	mAOD		River Roding Flow	1.5 cumec
Observed HWL Charlton	3	mAOD		Beckton STW Flow	12.4 cumec
Observed HWL at Silvertown	4.67	mAOD		Total Barking Flow	13.90 cumec
Max Head at Thames Barrier	4	mAOD		Forecast HWL Tedd Tail	4.78 mAOD
Forecast HWL Richmond	4.74	mAOD			

Notes: Tide at Southend/Sheerness forecast above Barrier Action level and very close to closure level. Noting under forecast on previous tide, closure proceeded. Actual tide exceeded closure level.

FD Closure Number	107	Date of Closure	24-Jan-08	Closure Purpose	Tidal
Total Closure Number	393	PHW Southend	14:45	Controller	E. Forde
Astro HWL Southend	2.44	mAOD		Teddington Flow	250 cumec / 4800mgd
Forecast HWL Southend	2.96	mAOD		Barking Closed	<input type="checkbox"/>
Observed HWL Southend	3.29	mAOD		Barking D/S Level	mAOD
Southend Surge	0.85	mAOD		Barking U/S Level	mAOD
Forecast Error	-0.33	mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.34	mAOD		River Roding Flow	4.13 cumec
Observed HWL Charlton	3.7	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	4.54	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier	1.12	mAOD		Forecast HWL Tedd Tail	mAOD
Forecast HWL Richmond		mAOD			

Notes: High flows and uncertainty over the forecast, TB was closed late to control the tidal effect upstream of Teddington Weir at Trowlock Island. The actual tide was higher than forecast and it was apparent that closure also prevented high levels at Richmond.

FD Closure Number	108	Date of Closure	21-Mar-08	Closure Purpose	Tidal
Total Closure Number	396	PHW Southend	12:34	Controller	A. Batchelor
Astro HWL Southend	2.87	mAOD		Teddington Flow	214 cumec / 4100 mgd
Forecast HWL Southend	3.69	mAOD		Barking Closed	<input checked="" type="checkbox"/>
Observed HWL Southend	3.59	mAOD		Barking D/S Level	4.5 mAOD
Southend Surge	0.72	mAOD		Barking U/S Level	3.26 mAOD
Forecast Error	0.10	mAOD		Barking Head	1.87 mAOD
Observed HWL Sheerness	3.64	mAOD		River Roding Flow	2.24 cumec
Observed HWL Charlton	2.76	mAOD		Beckton STW Flow	15.24 cumec
Observed HWL at Silvertown	4.61	mAOD		Total Barking Flow	17.48 cumec
Max Head at Thames Barrier	2.44	mAOD		Forecast HWL Tedd Tail	4.67 mAOD
Forecast HWL Richmond	5.28	mAOD			

Notes: Tide at Southend/Sheerness forecast above Barrier Action level and very close to closure level. Noting under forecast on previous tides, closure proceeded. Actual tide just below Barrier Closure level.

FD Closure Number	109	Date of Closure	22-Mar-08	Closure Purpose	Tidal
Total Closure Number	397	PHW Southend	13:08	Controller	A. Batchelor
Astro HWL Southend	2.86	mAOD		Teddington Flow	200 cumec / 3600mgd
Forecast HWL Southend	3.47	mAOD		Barking Closed	<input checked="" type="checkbox"/>
Observed HWL Southend	3.64	mAOD		Barking D/S Level	4.54 mAOD
Southend Surge	0.78	mAOD		Barking U/S Level	3.41 mAOD
Forecast Error	-0.17	mAOD		Barking Head	1.63 mAOD
Observed HWL Sheerness	3.7	mAOD		River Roding Flow	2.4 cumec
Observed HWL Charlton	2.77	mAOD		Beckton STW Flow	13 cumec
Observed HWL at Silvertown	4.71	mAOD		Total Barking Flow	15.40 cumec
Max Head at Thames Barrier	2.23	mAOD		Forecast HWL Tedd Tail	5.18 mAOD
Forecast HWL Richmond	5.03	mAOD			

Notes: Tide at Southend/Sheerness forecast above Barrier Action level and very close to closure level. Noting under forecast on previous tides, closure proceeded. Actual tide just below Barrier Closure level.

FD Closure Number	110	Date of Closure	10-Feb-09	Closure Purpose	Tidal
Total Closure Number	408	PHW Southend	13:07	Controller	E. Forde
Astro HWL Southend	3.15	mAOD		Teddington Flow	350 cumec / 7000mgd
Forecast HWL Southend	3.81	mAOD		Barking Closed	<input checked="" type="checkbox"/>
Observed HWL Southend	3.76	mAOD		Barking D/S Level	4.92 mAOD
Southend Surge	0.61	mAOD		Barking U/S Level	4.22 mAOD
Forecast Error	0.05	mAOD		Barking Head	0.7 mAOD
Observed HWL Sheerness	3.84	mAOD		River Roding Flow	19 cumec
Observed HWL Charlton	2.67	mAOD		Beckton STW Flow	19 cumec
Observed HWL at Silvertown	4.99	mAOD		Total Barking Flow	38.00 cumec
Max Head at Thames Barrier	2.96	mAOD		Forecast HWL Tedd Tail	5.82 mAOD
Forecast HWL Richmond	5.62	mAOD			

Notes: Tide at Southend/Sheerness forecast above Barrier Closure Level. Flows very high in both Thames and Roding. Levels at Barking Barrier closely monitored to ensure no possibility of "tide lock" on the River Roding (Barking Creek).

FD Closure Number	111	Date of Closure	11-Feb-09	Closure Purpose	Combined Tidal/Fluvial
Total Closure Number	409	PHW Southend	13:51	Controller	E. Forde
Astro HWL Southend	3.2	mAOD		Teddington Flow	400 cumec / 7600mgd
Forecast HWL Southend	3.22	mAOD		Barking Closed	<input type="checkbox"/>
Observed HWL Southend	3.18	mAOD		Barking D/S Level	4.51 mAOD
Southend Surge	-0.02	mAOD		Barking U/S Level	4.51 mAOD
Forecast Error	0.04	mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.27	mAOD		River Roding Flow	cumec
Observed HWL Charlton	2.67	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	4.56	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier	2.49	mAOD		Forecast HWL Tedd Tail	5.47 mAOD
Forecast HWL Richmond	5.16	mAOD			

Notes: Closure because high upstream flow and spring tide indicated critical level would be exceeded upstream. Barking Barrier and Associated downstream gates not closed.

FD Closure Number	112	Date of Closure	11-Feb-09	Closure Purpose	Combined Tidal/Fluvial
Total Closure Number	410	PHW Southend	02:03	Controller	A. Batchelor
Astro HWL Southend	3.07	mAOD		Teddington Flow	350 cumec / 7000mgd
Forecast HWL Southend	3.21	mAOD		Barking Closed	<input type="checkbox"/>
Observed HWL Southend	3.19	mAOD		Barking D/S Level	4.22 mAOD
Southend Surge	0.12	mAOD		Barking U/S Level	4.22 mAOD
Forecast Error	0.02	mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.28	mAOD		River Roding Flow	cumec
Observed HWL Charlton	2.91	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	4.27	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier	1.66	mAOD		Forecast HWL Tedd Tail	5.23 mAOD
Forecast HWL Richmond	4.94	mAOD			

Notes: Closure because high upstream flow and spring tide indicated critical level would be exceeded upstream. Barking Barrier and Associated downstream gates not closed.

FD Closure Number	113	Date of Closure	12-Feb-09	Closure Purpose	Combined Tidal/Fluvial
Total Closure Number	411	PHW Southend	14:32	Controller	E. Forde
Astro HWL Southend	3.13	mAOD		Teddington Flow	350 cumec / 7000mgd
Forecast HWL Southend	3.14	mAOD		Barking Closed	<input type="checkbox"/>
Observed HWL Southend	3.07	mAOD		Barking D/S Level	mAOD
Southend Surge	-0.06	mAOD		Barking U/S Level	mAOD
Forecast Error	0.07	mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.19	mAOD		River Roding Flow	cumec
Observed HWL Charlton	2.55	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	4.36	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier	2.31	mAOD		Forecast HWL Tedd Tail	5.29 mAOD
Forecast HWL Richmond	5	mAOD			

Notes: Closure because high upstream flow and spring tide indicated critical level would be exceeded upstream. Barking Barrier and Associated downstream gates not closed.

FD Closure Number	114	Date of Closure	13-Feb-09	Closure Purpose	Combined Tidal/Fluvial
Total Closure Number	412	PHW Southend	15:11	Controller	E. Forde
Astro HWL Southend	2.96	mAOD		Teddington Flow	304 cumec / 6000mgd
Forecast HWL Southend	3.08	mAOD		Barking Closed	<input type="checkbox"/>
Observed HWL Southend	3	mAOD		Barking D/S Level	4.34 mAOD
Southend Surge	0.04	mAOD		Barking U/S Level	4.34 mAOD
Forecast Error	0.08	mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.09	mAOD		River Roding Flow	cumec
Observed HWL Charlton	2.65	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	4.39	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier	2.2	mAOD		Forecast HWL Tedd Tail	5.27 mAOD
Forecast HWL Richmond	4.95	mAOD			

Notes: Closure because high upstream flow and spring tide indicated critical level would be exceeded upstream. Barking Barrier and Associated downstream gates not closed.

FD Closure Number	115	Date of Closure	28-Feb-10	Closure Purpose	Tidal
Total Closure Number	425	PHW Southend	12:17	Controller	M. Moore
Astro HWL Southend	3.08	mAOD		Teddington Flow	192 cumec / 3663 mgd
Forecast HWL Southend	3.58	mAOD		Barking Closed	<input checked="" type="checkbox"/>
Observed HWL Southend	3.44	mAOD		Barking D/S Level	4.6 mAOD
Southend Surge	0.36	mAOD		Barking U/S Level	mAOD
Forecast Error	0.14	mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.43	mAOD		River Roding Flow	10 cumec
Observed HWL Charlton	2.2	mAOD		Beckton STW Flow	17 cumec
Observed HWL at Silvertown	4.63	mAOD		Total Barking Flow	27.00 cumec
Max Head at Thames Barrier	2.97	mAOD		Forecast HWL Tedd Tail	5.44 mAOD
Forecast HWL Richmond	5.24	mAOD			

Notes: Closure because of high upstream flows and a forecast on a spring tide, with some additional surge, of just under Barrier Closure level. Barking Barrier and associated gates were closed.

FD Closure Number	116	Date of Closure	28-Feb-10	Closure Purpose	Combined Tidal/Fluvial
Total Closure Number	426	PHW Southend	00:33	Controller	A. Batchelor
Astro HWL Southend	3.01	mAOD		Teddington Flow	260 cumec / 5000 mgd
Forecast HWL Southend	3.31	mAOD		Barking Closed	<input checked="" type="checkbox"/>
Observed HWL Southend	3.23	mAOD		Barking D/S Level	4.25 mAOD
Southend Surge	0.22	mAOD		Barking U/S Level	mAOD
Forecast Error	0.08	mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.25	mAOD		River Roding Flow	16.3 cumec
Observed HWL Charlton	2.97	mAOD		Beckton STW Flow	18.7 cumec
Observed HWL at Silvertown	4.26	mAOD		Total Barking Flow	35.00 cumec
Max Head at Thames Barrier	1.64	mAOD		Forecast HWL Tedd Tail	5.26 mAOD
Forecast HWL Richmond	5.01	mAOD			

Notes: Closure because of a combination of spring tides and very high upstream flows indicated critical levels upstream would be exceeded. The River Crane tidal gates were inoperable due to very high river flow. Barking Barrier and associated gates were closed.

FD Closure Number	117	Date of Closure	01-Mar-10	Closure Purpose	Tidal
Total Closure Number	427	PHW Southend	13:02	Controller	M. Moore
Astro HWL Southend	3.26	mAOD		Teddington Flow	283 cumec / 5400 mgd
Forecast HWL Southend	3.47	mAOD		Barking Closed	<input checked="" type="checkbox"/>
Observed HWL Southend	3.52	mAOD		Barking D/S Level	4.77 mAOD
Southend Surge	0.26	mAOD		Barking U/S Level	mAOD
Forecast Error	-0.05	mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.52	mAOD		River Roding Flow	cumec
Observed HWL Charlton	2.23	mAOD		Beckton STW Flow	cumec
Observed HWL at Silvertown	4.79	mAOD		Total Barking Flow	cumec
Max Head at Thames Barrier	3.23	mAOD		Forecast HWL Tedd Tail	5.5 mAOD
Forecast HWL Richmond	5.27	mAOD			

Notes: Closure because of a high upstream flows and a forecast on a spring tide, with some additional surge, of just under Barrier Closure level. Barking Barrier and associated gates were closed.

FD Closure Number	118	Date of Closure	01-Mar-10	Closure Purpose	Combined Tidal/Fluvial
Total Closure Number	428	PHW Southend	01:15	Controller	A. Batchelor
Astro HWL Southend	3.19	mAOD		Teddington Flow	305 cumec / 5700 mgd
Forecast HWL Southend	3.34	mAOD		Barking Closed	<input checked="" type="checkbox"/>
Observed HWL Southend	3.22	mAOD		Barking D/S Level	4.41 mAOD
Southend Surge	0.03	mAOD		Barking U/S Level	mAOD
Forecast Error	0.12	mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.21	mAOD		River Roding Flow	18.75 cumec
Observed HWL Charlton	2.86	mAOD		Beckton STW Flow	17.7 cumec
Observed HWL at Silvertown	4.44	mAOD		Total Barking Flow	36.45 cumec
Max Head at Thames Barrier	1.92	mAOD		Forecast HWL Tedd Tail	5.37 mAOD
Forecast HWL Richmond	5.12	mAOD			

Notes: Closure because of a combination of spring tides and very high upstream flows indicated critical levels upstream would be exceeded. The River Crane tidal gates were inoperable due to very high river flow. Barking Barrier and associated gates were closed.

FD Closure Number	119	Date of Closure	02-Mar-10	Closure Purpose	Combined Tidal/Fluvial
Total Closure Number	429	PHW Southend	13:45	Controller	E. Forde
Astro HWL Southend	3.3	mAOD		Teddington Flow	309 cumec / 5900 mgd
Forecast HWL Southend	3.38	mAOD		Barking Closed	<input checked="" type="checkbox"/>
Observed HWL Southend	3.45	mAOD		Barking D/S Level	4.71 mAOD
Southend Surge	0.15	mAOD		Barking U/S Level	mAOD
Forecast Error	-0.07	mAOD		Barking Head	mAOD
Observed HWL Sheerness	3.43	mAOD		River Roding Flow	16 cumec
Observed HWL Charlton	2.58	mAOD		Beckton STW Flow	15 cumec
Observed HWL at Silvertown	4.84	mAOD		Total Barking Flow	31.00 cumec
Max Head at Thames Barrier	2.76	mAOD		Forecast HWL Tedd Tail	5.48 mAOD
Forecast HWL Richmond	5.23	mAOD			

Notes: Closure because of a combination of spring tides and very high upstream flows indicated critical levels upstream would be exceeded. The River Crane tidal gates were inoperable due to very high river flow. Barking Barrier and associated gates were closed.

mAOD = metres above Ordnance Data Newlyn - the mean tide level in metres, against which tides are measured
FD = Flood Defence
HWL = High water level
cumec = cubic metres per second
mgd = million gallons per day

As of February 2012, the Thames Barrier has now been closed 451 times, 119 of which have been to protect London from flooding since the barrier became operational in 1982. 78 of the closures were for tidal surge conditions and 41 to prevent rainfall / fluvial flooding. In addition to these one closure was initiated to assist with salvage work on the Marchioness and one for repair works following the Sand Kite incident. The other occasions were monthly closures, for experiments and tests.