APPENDIX N

PROJECT CONSTRUCTION

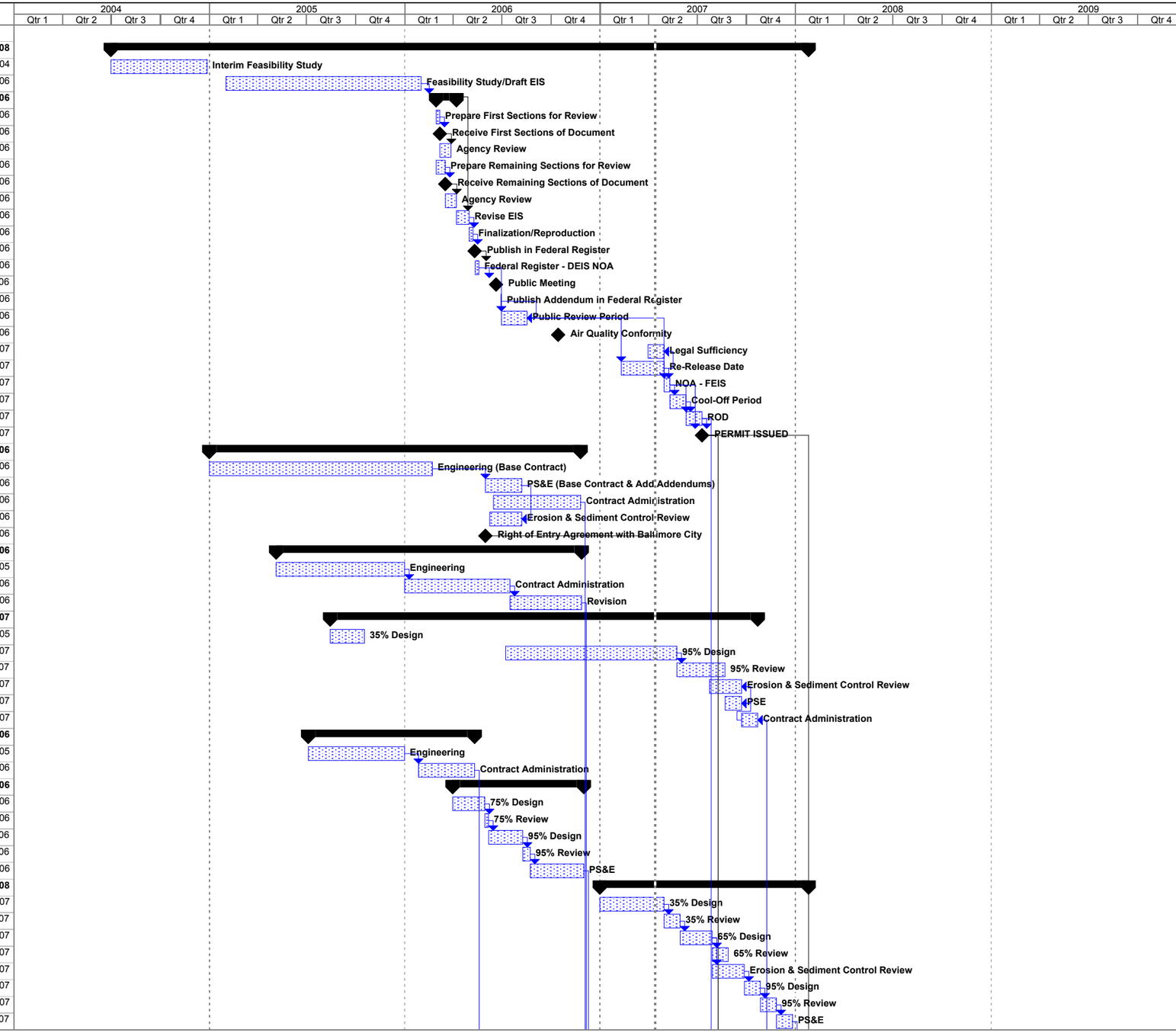
THIS PAGE INTENTIONALLY LEFT BLANK

CONSTRUCTION SCHEDULE

THIS PAGE INTENTIONALLY LEFT BLANK

MASONVILLE DMCF
APRIL 2007 - DRAFT SCHEDULE UPDATE

ID	Task Name	Duration	Start	Finish
1				
2	**ENGINEERING**	**1304 days?**	**Thu 7/1/04**	**Fri 1/25/08**
3	Interim Feasibility Study	180 days	Thu 7/1/04	Mon 12/27/04
4	Feasibility Study/Draft EIS	365 days	Tue 2/1/05	Tue 1/31/06
5	**Cooperating Agencies**	**38 days**	**Wed 3/1/06**	**Fri 4/7/06**
6	Prepare First Sections for Review	7 days	Wed 3/1/06	Tue 3/7/06
7	Receive First Sections of Document	0 days	Tue 3/7/06	Tue 3/7/06
8	Agency Review	21 days	Wed 3/8/06	Tue 3/28/06
9	Prepare Remaining Sections for Review	17 days	Wed 3/1/06	Fri 3/17/06
10	Receive Remaining Sections of Document	0 days	Fri 3/17/06	Fri 3/17/06
11	Agency Review	21 days	Sat 3/18/06	Fri 4/7/06
12	Revise EIS	24 days	Sat 4/8/06	Mon 5/1/06
13	Finalization/Reproduction	7 days	Tue 5/2/06	Mon 5/8/06
14	Publish in Federal Register	1 day	Fri 5/12/06	Fri 5/12/06
15	Federal Register - DEIS NOA	7 days	Sat 5/13/06	Fri 5/19/06
16	Public Meeting	0 days	Wed 6/21/06	Wed 6/21/06
17	Publish Addendum in Federal Register	1 day?	Fri 6/30/06	Fri 6/30/06
18	Public Review Period	48 days	Sat 7/1/06	Thu 8/17/06
19	Air Quality Conformity	1 day?	Sun 10/15/06	Sun 10/15/06
20	Legal Sufficiency	30 days	Sun 4/1/07	Mon 4/30/07
21	Re-Release Date	80 days?	Sat 2/10/07	Mon 4/30/07
22	NOA - FEIS	11 days	Tue 5/1/07	Fri 5/11/07
23	Cool-Off Period	30 days	Sat 5/12/07	Sun 6/10/07
24	ROD	30 days	Mon 6/11/07	Tue 7/10/07
25	PERMIT ISSUED	30 days	Wed 7/11/07	Thu 8/9/07
26	**Storm Drain Relocation Phase 1 & 48" Watermain Tie-ins**	**694 days?**	**Sat 1/1/05**	**Sat 11/25/06**
27	Engineering (Base Contract)	417 days?	Sat 1/1/05	Tue 2/21/06
28	PS&E (Base Contract & Add Addendums)	68 days	Thu 6/1/06	Mon 8/7/06
29	Contract Administration	163 days	Fri 6/16/06	Sat 11/25/06
30	Erosion & Sediment Control Review	60 days	Fri 6/9/06	Mon 8/7/06
31	Right of Entry Agreement with Baltimore City	85 days	Thu 6/1/06	Thu 8/24/06
32	**Derelict Vessel Remediation**	**571 days**	**Fri 5/6/05**	**Mon 11/27/06**
33	Engineering	240 days	Fri 5/6/05	Sat 12/31/05
34	Contract Administration	197 days	Sun 1/1/06	Sun 7/16/06
35	Revision	134 days	Mon 7/17/06	Mon 11/27/06
36	**Storm Drain Reclocation Phase 2**	**799 days?**	**Mon 8/15/05**	**Mon 10/22/07**
37	35% Design	64 days?	Mon 8/15/05	Mon 10/17/05
38	95% Design	320 days?	Sun 7/9/06	Thu 5/24/07
39	95% Review	90 days?	Fri 5/25/07	Wed 8/22/07
40	Erosion & Sediment Control Review	60 days	Wed 7/25/07	Sun 9/23/07
41	PSE	31 days	Thu 8/23/07	Sun 9/23/07
42	Contract Administration	30 days	Sun 9/23/07	Mon 10/22/07
43	**Demolish Pier 3 & Pier 1 Deck**	**311 days?**	**Tue 7/5/05**	**Thu 5/11/06**
44	Engineering	180 days?	Tue 7/5/05	Sat 12/31/05
45	Contract Administration	105 days	Fri 1/27/06	Thu 5/11/06
46	**Predredging**	**245 days**	**Sat 4/1/06**	**Fri 12/1/06**
47	75% Design	60 days	Sat 4/1/06	Tue 5/30/06
48	75% Review	7 days	Wed 5/31/06	Tue 6/6/06
49	95% Design	64 days	Wed 6/7/06	Wed 8/9/06
50	95% Review	14 days	Thu 8/10/06	Wed 8/23/06
51	PS&E	100 days	Thu 8/24/06	Fri 12/1/06
52	**DMCF Dike & Spillways**	**390 days**	**Mon 1/1/07**	**Fri 1/25/08**
53	35% Design	120 days	Mon 1/1/07	Mon 4/30/07
54	35% Review	30 days	Tue 5/1/07	Wed 5/30/07
55	65% Design	60 days	Thu 5/31/07	Sun 7/29/07
56	65% Review	30 days	Mon 7/30/07	Tue 8/28/07
57	Erosion & Sediment Control Review	60 days	Mon 7/30/07	Thu 9/27/07
58	95% Design	30 days	Fri 9/28/07	Sat 10/27/07
59	95% Review	30 days	Sun 10/28/07	Mon 11/26/07
60	PS&E	30 days	Tue 11/27/07	Wed 12/26/07

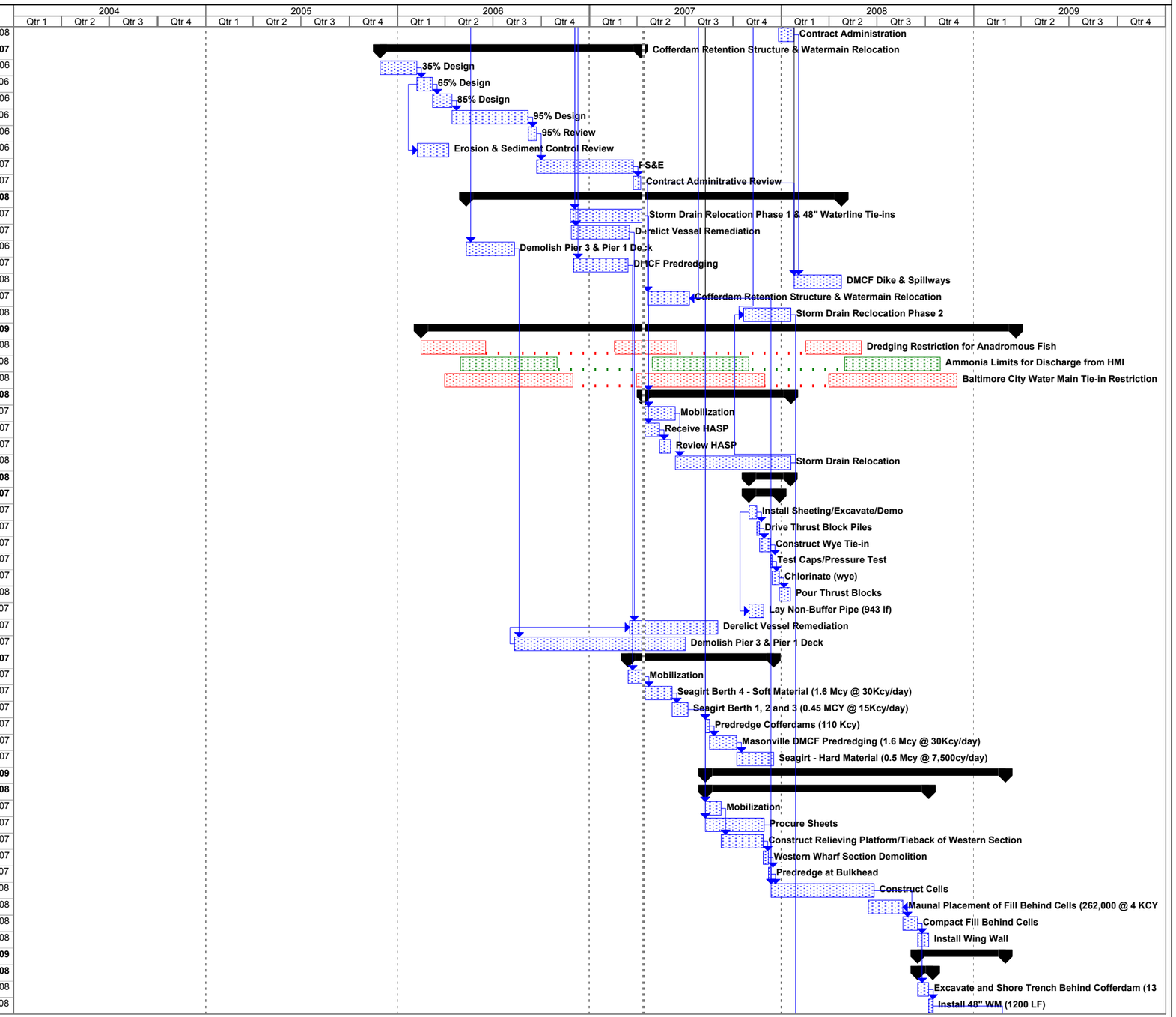


mville 04-12-07 - masonville draft.mpp
Date: Fri 4/13/07

Task | Progress | Summary | External Tasks | Deadline
Split | Milestone | Project Summary | External Milestone

MASONVILLE DMCF
APRIL 2007 - DRAFT SCHEDULE UPDATE

ID	Task Name	Duration	Start	Finish
61	Contract Administration	30 days	Thu 12/27/07	Fri 1/25/08
62	**Cofferdam Retention Structure & Watermain Relocation**	**496 days**	**Tue 11/29/05**	**Sun 4/8/07**
63	35% Design	70 days	Tue 11/29/05	Mon 2/6/06
64	65% Design	30 days	Tue 2/7/06	Wed 3/8/06
65	85% Design	37 days	Thu 3/9/06	Fri 4/14/06
66	95% Design	145 days	Sat 4/15/06	Wed 9/6/06
67	95% Review	16 days	Thu 9/7/06	Fri 9/22/06
68	Erosion & Sediment Control Review	60 days	Wed 2/8/06	Sat 4/8/06
69	PS&E	184 days	Sat 9/23/06	Sun 3/25/07
70	Contract Adminitrative Review	14 days	Mon 3/26/07	Sun 4/8/07
71	**PROCUREMENT**	**714 days**	**Fri 5/12/06**	**Thu 4/24/08**
72	Storm Drain Relocation Phase 1 & 48" Waterline Tie-ins	140 days	Sun 11/26/06	Sat 4/14/07
73	Derelict Vessel Remediation	111 days	Tue 11/28/06	Sun 3/18/07
74	Demolish Pier 3 & Pier 1 Deck	92 days	Fri 5/12/06	Fri 8/11/06
75	DMCF Predredging	104 days	Sat 12/2/06	Thu 3/15/07
76	DMCF Dike & Spillways	90 days	Sat 1/26/08	Thu 4/24/08
77	Cofferdam Retention Structure & Watermain Relocation	80 days	Sun 4/22/07	Tue 7/10/07
78	Storm Drain Reclocation Phase 2	90 days	Mon 10/22/07	Sat 1/19/08
79	**CONSTRUCTION**	**1132 days**	**Wed 2/15/06**	**Sun 3/22/09**
80	Dredging Restriction for Anadromous Fish	348 days	Wed 2/15/06	Sun 6/1/08
81	Ammonia Limits for Discharge from HMI	550 days	Mon 5/1/06	Wed 10/29/08
82	Baltimore City Water Main Tie-in Restriction	732 days	Sat 4/1/06	Sun 11/30/08
83	**Storm Drain Relocation Phase 1 & 48" Waterline Tie-ins**	**280 days**	**Sun 4/15/07**	**Sat 1/19/08**
84	Mobilization	60 days	Sun 4/15/07	Wed 6/13/07
85	Receive HASP	30 days	Sun 4/15/07	Mon 5/14/07
86	Review HASP	21 days	Tue 5/15/07	Mon 6/4/07
87	Storm Drain Relocation	220 days	Thu 6/14/07	Sat 1/19/08
88	**Landside Tie-in**	**79 days**	**Thu 11/1/07**	**Fri 1/18/08**
89	**Shutdown Work (concurrent w/ waterside shutdown)**	**58 days**	**Thu 11/1/07**	**Fri 12/28/07**
90	Install Sheeting/Excavate/Demo	15 days	Thu 11/1/07	Thu 11/15/07
91	Drive Thrust Block Piles	5 days	Fri 11/16/07	Tue 11/20/07
92	Construct Wye Tie-in	21 days	Wed 11/21/07	Tue 12/11/07
93	Test Caps/Pressure Test	3 days	Wed 12/12/07	Fri 12/14/07
94	Chlorinate (wye)	14 days	Sat 12/15/07	Fri 12/28/07
95	Pour Thrust Blocks	21 days	Sat 12/29/07	Fri 1/18/08
96	Lay Non-Buffer Pipe (943 lf)	28 days	Thu 11/1/07	Wed 11/28/07
97	Derelict Vessel Remediation	168 days	Mon 3/19/07	Sun 9/2/07
98	Demolish Pier 3 & Pier 1 Deck	325 days	Sat 8/12/06	Mon 7/2/07
99	**DMCF Predredging & Seagirt Dredging**	**277 days**	**Fri 3/16/07**	**Mon 12/17/07**
100	Mobilization	31 days	Fri 3/16/07	Sun 4/15/07
101	Seagirt Berth 4 - Soft Material (1.6 Mcy @ 30Kcy/day)	53 days	Mon 4/16/07	Thu 6/7/07
102	Seagirt Berth 1, 2 and 3 (0.45 MCY @ 15Kcy/day)	30 days	Fri 6/8/07	Sat 7/7/07
103	Predredge Cofferdams (110 Kcy)	8 days	Fri 8/10/07	Fri 8/17/07
104	Masonville DMCF Predredging (1.6 Mcy @ 30Kcy/day)	52 days	Sat 8/18/07	Mon 10/8/07
105	Seagirt - Hard Material (0.5 Mcy @ 7,500cy/day)	70 days	Tue 10/9/07	Mon 12/17/07
106	**Cofferdam Retention Structure & Water Main Relocation**	**571 days**	**Fri 8/10/07**	**Mon 3/2/09**
107	**Cofferdam Retention Structure**	**425 days**	**Fri 8/10/07**	**Tue 10/7/08**
108	Mobilization	30 days	Fri 8/10/07	Sat 9/8/07
109	Procure Sheets	112 days	Fri 8/10/07	Thu 11/29/07
110	Construct Relieving Platform/Tieback of Western Section	80 days	Sun 9/9/07	Tue 11/27/07
111	Western Wharf Section Demolition	10 days	Wed 11/28/07	Fri 12/7/07
112	Predredge at Bulkhead	5 days	Sat 12/8/07	Wed 12/12/07
113	Construct Cells	196 days	Thu 12/13/07	Wed 6/25/08
114	Maunal Placement of Fill Behind Cells (262,000 @ 4 KCY/Day)	66 days	Sun 6/15/08	Tue 8/19/08
115	Compact Fill Behind Cells	28 days	Wed 8/20/08	Tue 9/16/08
116	Install Wing Wall	21 days	Wed 9/17/08	Tue 10/7/08
117	**48" WATERLINE**	**167 days**	**Wed 9/17/08**	**Mon 3/2/09**
118	**Behind Cells**	**29 days**	**Wed 9/17/08**	**Wed 10/15/08**
119	Excavate and Shore Trench Behind Cofferdam (1300 lf)	21 days	Wed 9/17/08	Tue 10/7/08
120	Install 48" WM (1200 LF)	8 days	Wed 10/8/08	Wed 10/15/08

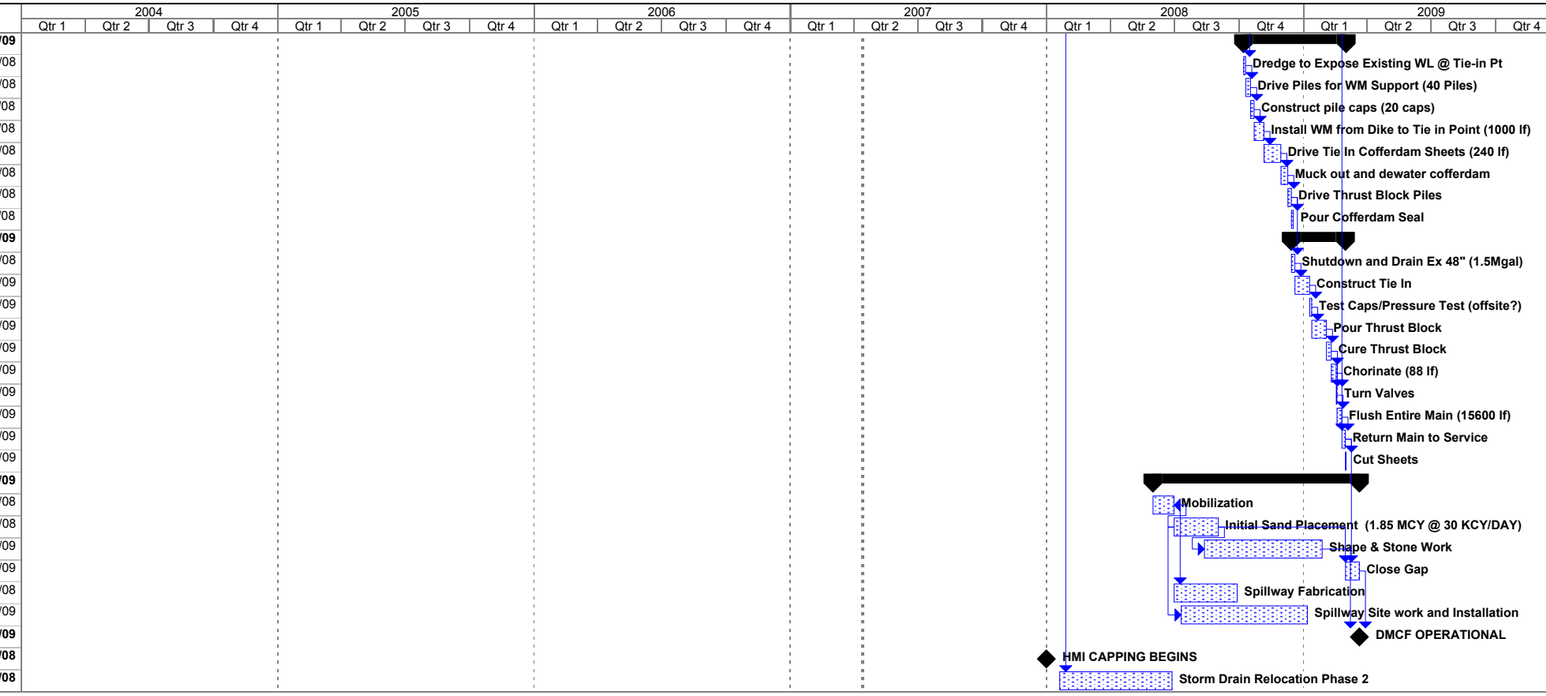


mville 04-12-07 - masonville draft.mpp
Date: Fri 4/13/07

Task | Split | Progress | Milestone | Summary | Project Summary | External Tasks | External Milestone | Deadline

MASONVILLE DMCF
APRIL 2007 - DRAFT SCHEDULE UPDATE

ID	Task Name	Duration	Start	Finish
121	**Outside Dike**	**146 days**	**Wed 10/8/08**	**Mon 3/2/09**
122	Dredge to Expose Existing WL @ Tie-in Pt	3 days	Wed 10/8/08	Fri 10/10/08
123	Drive Piles for WM Support (40 Piles)	7 days	Sat 10/11/08	Fri 10/17/08
124	Construct pile caps (20 caps)	5 days	Sat 10/18/08	Wed 10/22/08
125	Install WM from Dike to Tie in Point (1000 lf)	14 days	Thu 10/23/08	Wed 11/5/08
126	Drive Tie In Cofferdam Sheets (240 lf)	24 days	Thu 11/6/08	Sat 11/29/08
127	Muck out and dewater cofferdam	10 days	Sun 11/30/08	Tue 12/9/08
128	Drive Thrust Block Piles	5 days	Wed 12/10/08	Sun 12/14/08
129	Pour Cofferdam Seal	3 days	Mon 12/15/08	Wed 12/17/08
130	**Ex 48" Shutdown Work**	**77 days**	**Mon 12/15/08**	**Sun 3/1/09**
131	Shutdown and Drain Ex 48" (1.5Mgal)	5 days	Mon 12/15/08	Fri 12/19/08
132	Construct Tie In	21 days	Sat 12/20/08	Fri 1/9/09
133	Test Caps/Pressure Test (offsite?)	3 days	Sat 1/10/09	Mon 1/12/09
134	Pour Thrust Block	21 days	Tue 1/13/09	Mon 2/2/09
135	Cure Thrust Block	7 days	Tue 2/3/09	Mon 2/9/09
136	Chorinate (88 lf)	7 days	Tue 2/10/09	Mon 2/16/09
137	Turn Valves	1 day	Tue 2/17/09	Tue 2/17/09
138	Flush Entire Main (15600 lf)	7 days	Wed 2/18/09	Tue 2/24/09
139	Return Main to Service	5 days	Wed 2/25/09	Sun 3/1/09
140	Cut Sheets	1 day	Mon 3/2/09	Mon 3/2/09
141	**DMCF Dike and Spillways**	**294 days**	**Sun 6/1/08**	**Sat 3/21/09**
142	Mobilization	30 days	Sun 6/1/08	Tue 7/1/08
143	Initial Sand Placement (1.85 MCY @ 30 KCY/DAY)	63 days	Tue 7/1/08	Mon 9/1/08
144	Shape & Stone Work	168 days	Wed 8/13/08	Tue 1/27/09
145	Close Gap	20 days	Mon 3/2/09	Sat 3/21/09
146	Spillway Fabrication	90 days	Tue 7/1/08	Sun 9/28/08
147	Spillway Site work and Installation	180 days	Fri 7/11/08	Tue 1/6/09
148	**DMCF OPERATIONAL**	**1 day**	**Sun 3/22/09**	**Sun 3/22/09**
149	**HMI CAPPING BEGINS**	**1 day**	**Tue 1/1/08**	**Tue 1/1/08**
150	**Storm Drain Relocation Phase 2**	**160 days**	**Sun 1/20/08**	**Fri 6/27/08**



mville 04-12-07 - masonville draft.mpp
Date: Fri 4/13/07

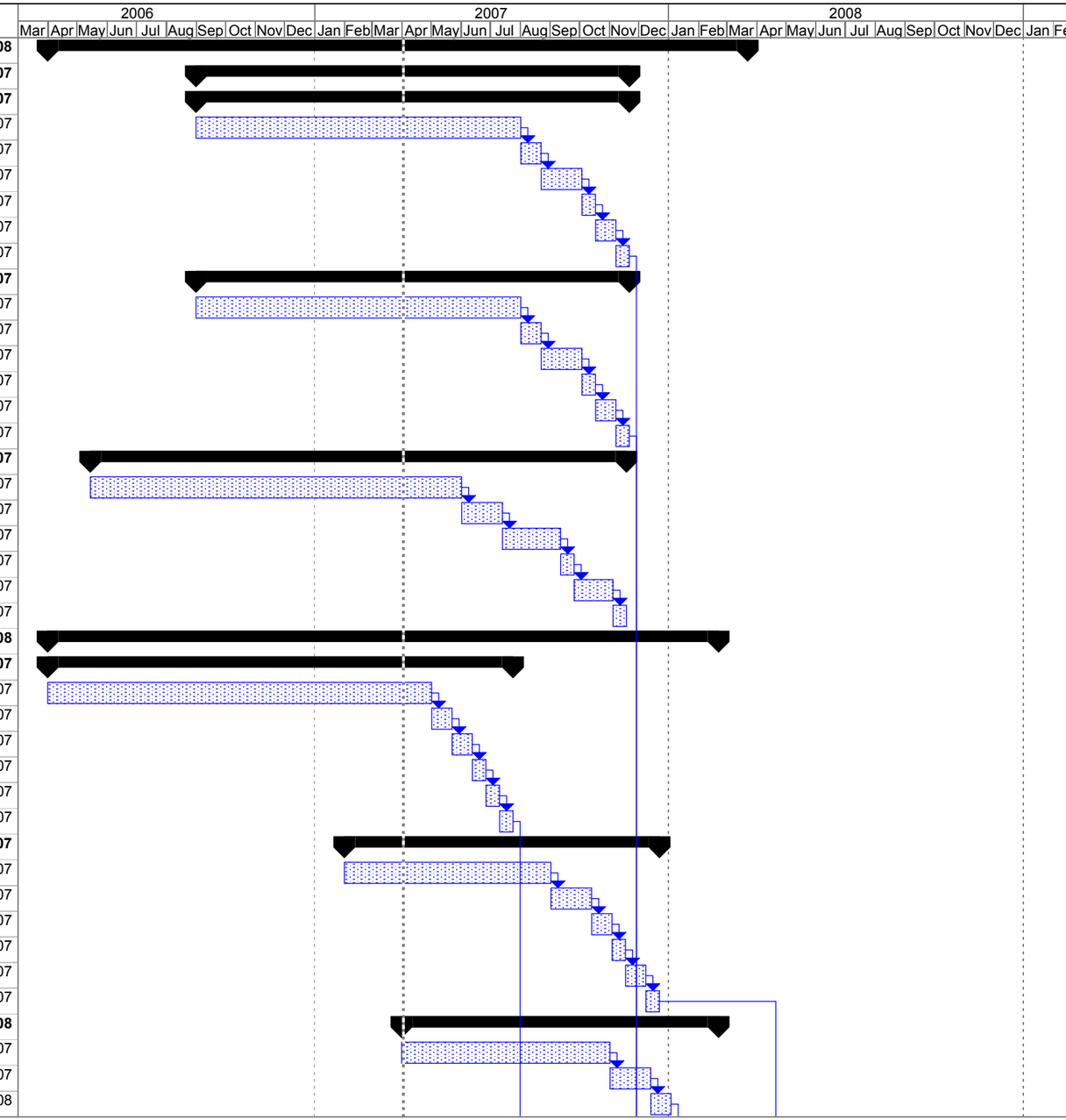
Task | Progress | Summary | External Tasks | Deadline
Split | Milestone | Project Summary | External Milestone

MITIGATION SCHEDULE

THIS PAGE INTENTIONALLY LEFT BLANK

MASONVILLE MITIGATION AND COMMUNITY ENHANCMENT PROJECT SCHEDULE
ENVIRONMENTAL IMPACT STATEMENT - FINAL

ID	Task Name	Duration	Start	Finish
1	**Design**	**722 days**	**Sat 4/1/06**	**Sat 3/22/08**
2	**Wetland Creation and Enhancement**	**447 days**	**Fri 9/1/06**	**Wed 11/21/07**
3	**Tidal Wetland Creation/Enhancement**	**447 days**	**Fri 9/1/06**	**Wed 11/21/07**
4	35% Design	335 days	Fri 9/1/06	Wed 8/1/07
5	35% Design Review	21 days	Thu 8/2/07	Wed 8/22/07
6	85% Design	42 days	Thu 8/23/07	Wed 10/3/07
7	85% Design Review	14 days	Thu 10/4/07	Wed 10/17/07
8	PSE	21 days	Thu 10/18/07	Wed 11/7/07
9	PSE Review	14 days	Thu 11/8/07	Wed 11/21/07
10	**Non-Tidal Wetland Creation**	**447 days**	**Fri 9/1/06**	**Wed 11/21/07**
11	35% Design	335 days	Fri 9/1/06	Wed 8/1/07
12	35% Design Review	21 days	Thu 8/2/07	Wed 8/22/07
13	85% Design	42 days	Thu 8/23/07	Wed 10/3/07
14	85% Design Review	14 days	Thu 10/4/07	Wed 10/17/07
15	PSE	21 days	Thu 10/18/07	Wed 11/7/07
16	PSE Review	14 days	Thu 11/8/07	Wed 11/21/07
17	**Reef Creation/Substrate Enhancement**	**553 days**	**Mon 5/15/06**	**Sun 11/18/07**
18	35% Design	383 days	Mon 5/15/06	Fri 6/1/07
19	35% Design Review	42 days	Sat 6/2/07	Fri 7/13/07
20	85% Design	60 days	Sat 7/14/07	Tue 9/11/07
21	85% Design Review	14 days	Wed 9/12/07	Tue 9/25/07
22	PSE	40 days	Wed 9/26/07	Sun 11/4/07
23	PSE Review	14 days	Mon 11/5/07	Sun 11/18/07
24	**Clean up**	**692 days**	**Sat 4/1/06**	**Thu 2/21/08**
25	**Landside Cleanup - Phase I - Nature Center/ Trail Area**	**480 days**	**Sat 4/1/06**	**Tue 7/24/07**
26	35% Design	396 days	Sat 4/1/06	Tue 5/1/07
27	35% Design Review	21 days	Wed 5/2/07	Tue 5/22/07
28	85% Design	21 days	Wed 5/23/07	Tue 6/12/07
29	85% Design Review	14 days	Wed 6/13/07	Tue 6/26/07
30	PSE	14 days	Wed 6/27/07	Tue 7/10/07
31	PSE Review	14 days	Wed 7/11/07	Tue 7/24/07
32	**Landside Cleanup - Phase 2 - Timbers Along West Phase II**	**325 days**	**Thu 2/1/07**	**Sat 12/22/07**
33	35% Design	213 days	Thu 2/1/07	Sat 9/1/07
34	35% Design Review	42 days	Sun 9/2/07	Sat 10/13/07
35	85% Design	21 days	Sun 10/14/07	Sat 11/3/07
36	85% Design Review	14 days	Sun 11/4/07	Sat 11/17/07
37	PSE	21 days	Sun 11/18/07	Sat 12/8/07
38	PSE Review	14 days	Sun 12/9/07	Sat 12/22/07
39	**Landside Cleanup - Phase 3 - Bird Sanctuary**	**327 days**	**Sun 4/1/07**	**Thu 2/21/08**
40	35% Design	215 days	Sun 4/1/07	Thu 11/1/07
41	35% Design Review	42 days	Fri 11/2/07	Thu 12/13/07
42	85% Design	21 days	Fri 12/14/07	Thu 1/3/08

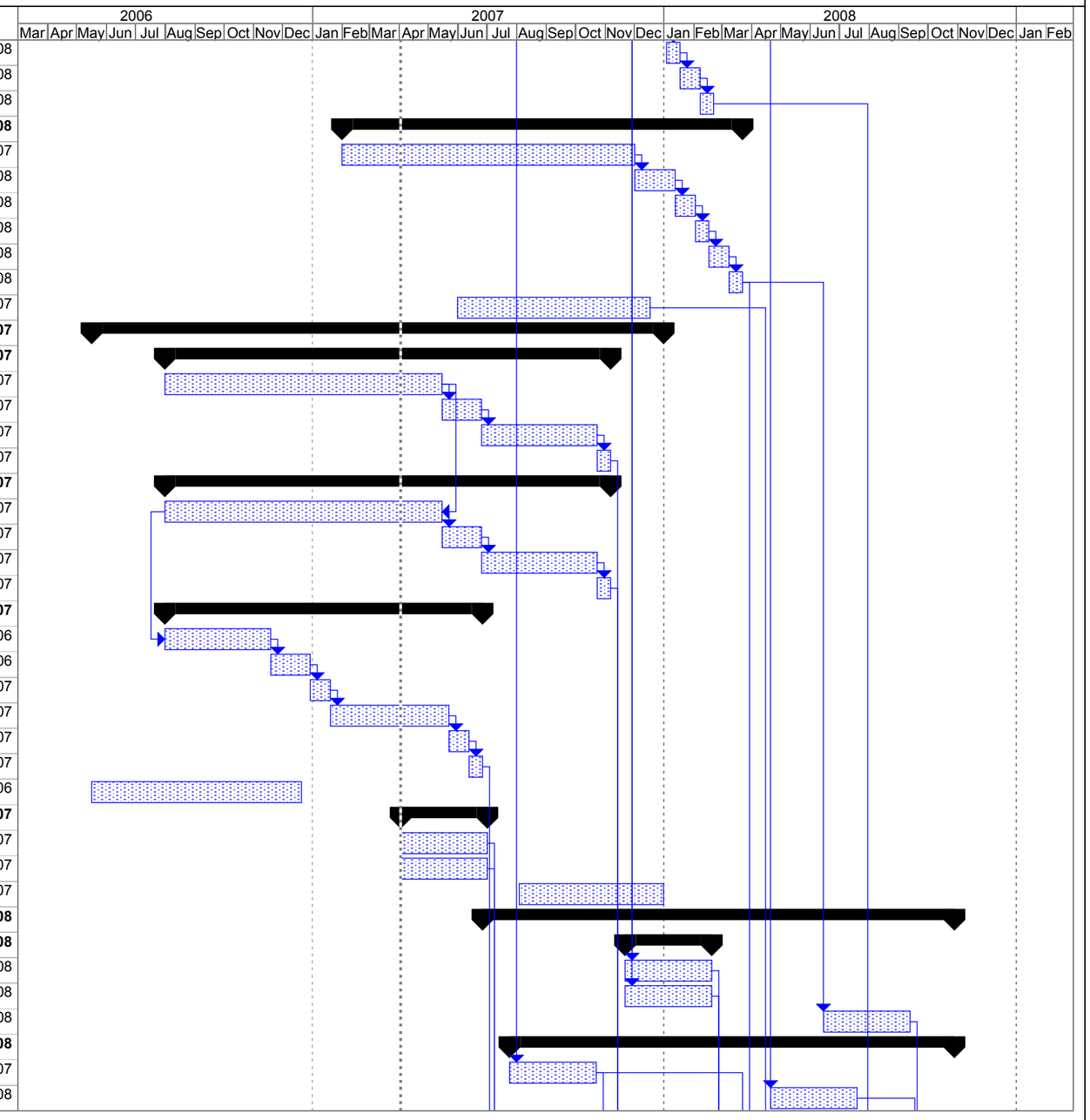


Project: mitigation schedule 04-02-07
Date: Mon 4/2/07

Task | Progress | Summary | External Tasks | Deadline
Split | Milestone | Project Summary | External Milestone

MASONVILLE MITIGATION AND COMMUNITY ENHANCMENT PROJECT SCHEDULE
ENVIRONMENTAL IMPACT STATEMENT - FINAL

ID	Task Name	Duration	Start	Finish
43	85% Design Review	14 days	Fri 1/4/08	Thu 1/17/08
44	PSE	21 days	Fri 1/18/08	Thu 2/7/08
45	PSE Review	14 days	Fri 2/8/08	Thu 2/21/08
46	**Terrestrial Habitat Enhancement and Diversification**	**416 days**	**Thu 2/1/07**	**Sat 3/22/08**
47	35% Design	304 days	Thu 2/1/07	Sat 12/1/07
48	35% Design Review	42 days	Sun 12/2/07	Sat 1/12/08
49	85% Design	21 days	Sun 1/13/08	Sat 2/2/08
50	85% Design Review	14 days	Sun 2/3/08	Sat 2/16/08
51	PSE	21 days	Sun 2/17/08	Sat 3/8/08
52	PSE Review	14 days	Sun 3/9/08	Sat 3/22/08
53	Fringe Wetland Along Dike	200 days	Fri 6/1/07	Mon 12/17/07
54	**Education Center**	**594 days**	**Wed 5/17/06**	**Mon 12/31/07**
55	**Education Center Site Work**	**463 days**	**Tue 8/1/06**	**Tue 11/6/07**
56	35% Design Build Package	288 days	Tue 8/1/06	Tue 5/15/07
57	35% Design Review	41 days	Wed 5/16/07	Mon 6/25/07
58	PSE	120 days	Tue 6/26/07	Tue 10/23/07
59	PSE Review	14 days	Wed 10/24/07	Tue 11/6/07
60	**Education Center Building**	**463 days**	**Tue 8/1/06**	**Tue 11/6/07**
61	35% Design Build Package	288 days	Tue 8/1/06	Tue 5/15/07
62	35% Design Review	41 days	Wed 5/16/07	Mon 6/25/07
63	PSE	120 days	Tue 6/26/07	Tue 10/23/07
64	PSE Review	14 days	Wed 10/24/07	Tue 11/6/07
65	**Trails & Pier**	**330 days**	**Tue 8/1/06**	**Tue 6/26/07**
66	35% Design	110 days	Tue 8/1/06	Sat 11/18/06
67	35% Design Review	41 days	Sun 11/19/06	Fri 12/29/06
68	85% Design	21 days	Sat 12/30/06	Fri 1/19/07
69	85% Design Review	123 days	Sat 1/20/07	Tue 5/22/07
70	PSE	21 days	Wed 5/23/07	Tue 6/12/07
71	PSE Review	14 days	Wed 6/13/07	Tue 6/26/07
72	Conservation Easement	218 days	Wed 5/17/06	Wed 12/20/06
73	**Fish Passage/Stocking**	**90 days**	**Tue 4/3/07**	**Sun 7/1/07**
74	Eel Passage (Bloede/Simpkins Dam, Daniels Dam, Sawmill Creek, Deep Run)	90 days	Tue 4/3/07	Sun 7/1/07
75	Shad and Herring Restoration	90 days	Tue 4/3/07	Sun 7/1/07
76	Trash Interceptors	150 days	Sat 8/4/07	Mon 12/31/07
77	**Procurement**	**490 days**	**Wed 6/27/07**	**Tue 10/28/08**
78	**Wetland Creation and Enhancement**	**90 days**	**Thu 11/22/07**	**Tue 2/19/08**
79	Tidal Wetland Creation/Enhancement & Beach Creation	90 days	Thu 11/22/07	Tue 2/19/08
80	Non-Tidal Wetland Creation	90 days	Thu 11/22/07	Tue 2/19/08
81	Reef Creation/Substrate Enhancement	90 days	Sun 6/15/08	Fri 9/12/08
82	**Clean up**	**462 days**	**Wed 7/25/07**	**Tue 10/28/08**
83	Landside Cleanup - Phase I	90 days	Wed 7/25/07	Mon 10/22/07
84	Landside Cleanup - Phase 2	90 days	Mon 4/21/08	Sat 7/19/08

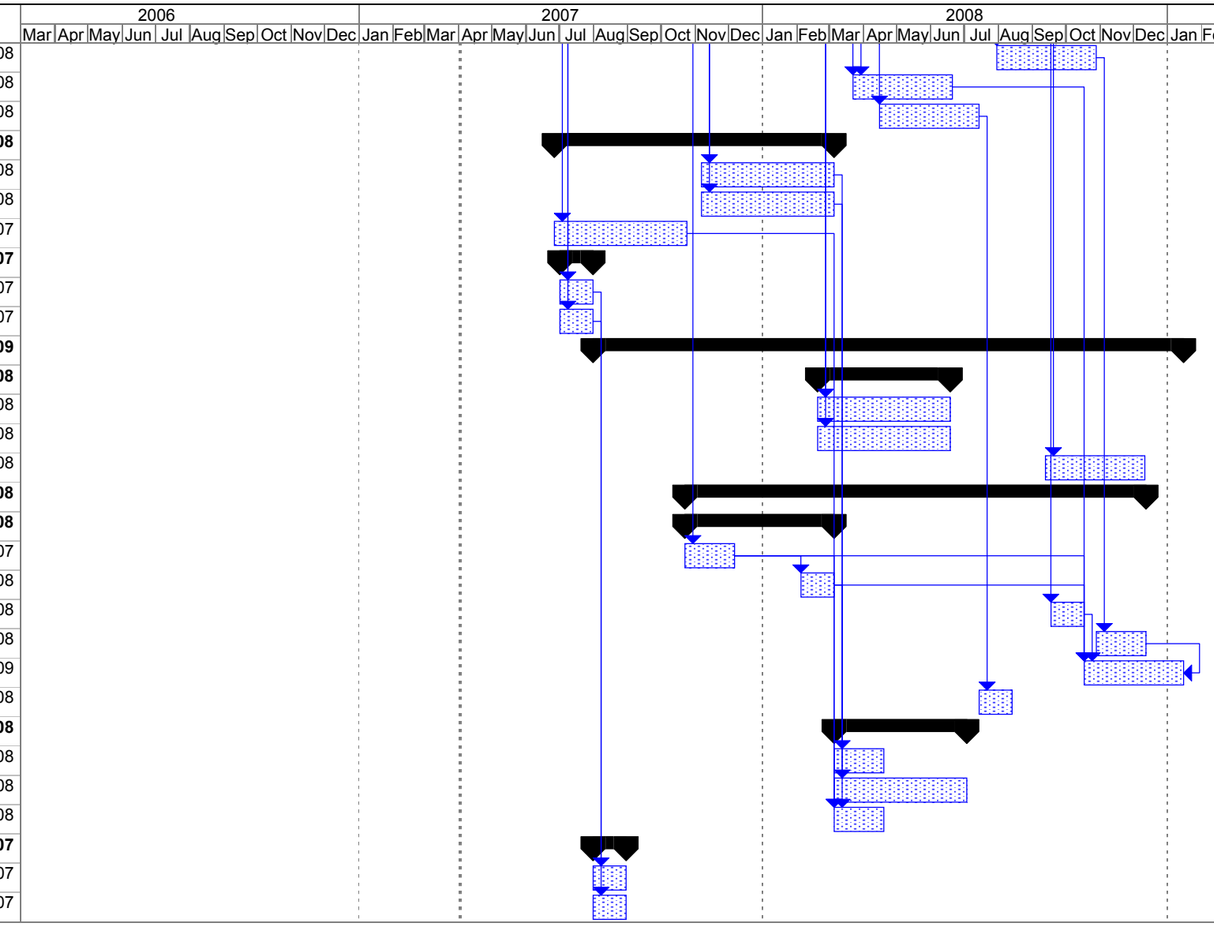


Project: mitigation schedule 04-02-07
Date: Mon 4/2/07

Task | Progress | Summary | External Tasks | Deadline
Split | Milestone | Project Summary | External Milestone

MASONVILLE MITIGATION AND COMMUNITY ENHANCMENT PROJECT SCHEDULE
ENVIRONMENTAL IMPACT STATEMENT - FINAL

ID	Task Name	Duration	Start	Finish
85	Landside Cleanup - Phase 3	90 days	Thu 7/31/08	Tue 10/28/08
86	Terrestrial Habitat Enhancement and Diversification	90 days	Sun 3/23/08	Fri 6/20/08
87	Fringe Wetland Creation Along Dike	90 days	Wed 4/16/08	Mon 7/14/08
88	**Education Center**	**253 days**	**Wed 6/27/07**	**Wed 3/5/08**
89	Education Center Site Work	120 days	Wed 11/7/07	Wed 3/5/08
90	Education Center Buildling	120 days	Wed 11/7/07	Wed 3/5/08
91	Trails & Pier	120 days	Wed 6/27/07	Wed 10/24/07
92	**Fish Passage/Stocking**	**30 days**	**Mon 7/2/07**	**Tue 7/31/07**
93	Eel Passage (Bloede/Simpkins Dam, Daniels Dam, Sawmill Creek, Deep Run)	30 days	Mon 7/2/07	Tue 7/31/07
94	Shad and Herring Restoration	30 days	Mon 7/2/07	Tue 7/31/07
95	**Construction**	**534 days**	**Wed 8/1/07**	**Thu 1/15/09**
96	**Wetland Creation and Enhancement**	**120 days**	**Wed 2/20/08**	**Wed 6/18/08**
97	Tidal Wetland Creation/Enhancement & Beach Creation	120 days	Wed 2/20/08	Wed 6/18/08
98	Non-Tidal Wetland Creation	120 days	Wed 2/20/08	Wed 6/18/08
99	Reef Creation/Substrate Enhancement	90 days	Sat 9/13/08	Thu 12/11/08
100	**Clean up**	**417 days**	**Tue 10/23/07**	**Fri 12/12/08**
101	**Landside Cleanup - Phase I**	**135 days**	**Tue 10/23/07**	**Wed 3/5/08**
102	Large Debris Removal	45 days	Tue 10/23/07	Thu 12/6/07
103	Small Debris Removal/Community Cleanup	30 days	Tue 2/5/08	Wed 3/5/08
104	Landside Cleanup - Phase 2	30 days	Thu 9/18/08	Fri 10/17/08
105	Landside Cleanup - Phase 3	45 days	Wed 10/29/08	Fri 12/12/08
106	Terrestrial Habitat Enhancement and Diversification	90 days	Sat 10/18/08	Thu 1/15/09
107	Fringe Wetland Creation Along Dike	30 days	Tue 7/15/08	Wed 8/13/08
108	**Education Center**	**120 days**	**Thu 3/6/08**	**Thu 7/3/08**
109	Education Center Site Work	45 days	Thu 3/6/08	Sat 4/19/08
110	Education Center Center	120 days	Thu 3/6/08	Thu 7/3/08
111	Trails & Pier	45 days	Thu 3/6/08	Sat 4/19/08
112	**Fish Passage/Stocking**	**30 days**	**Wed 8/1/07**	**Thu 8/30/07**
113	Eel Passage (Bloede/Simpkins Dam, Daniels Dam, Sawmill Creek, Deep Run)	30 days	Wed 8/1/07	Thu 8/30/07
114	Shad and Herring Restoration	30 days	Wed 8/1/07	Thu 8/30/07

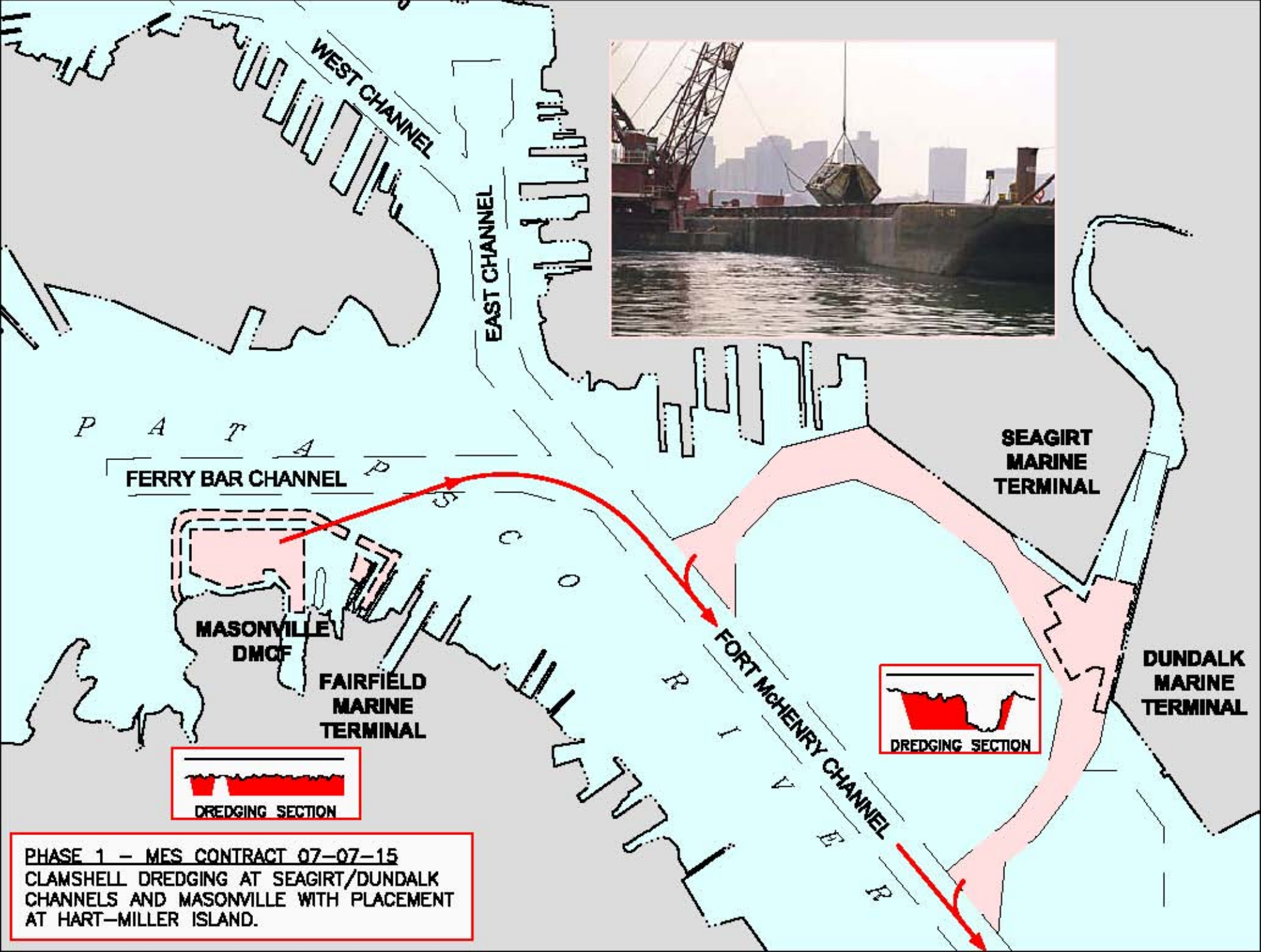


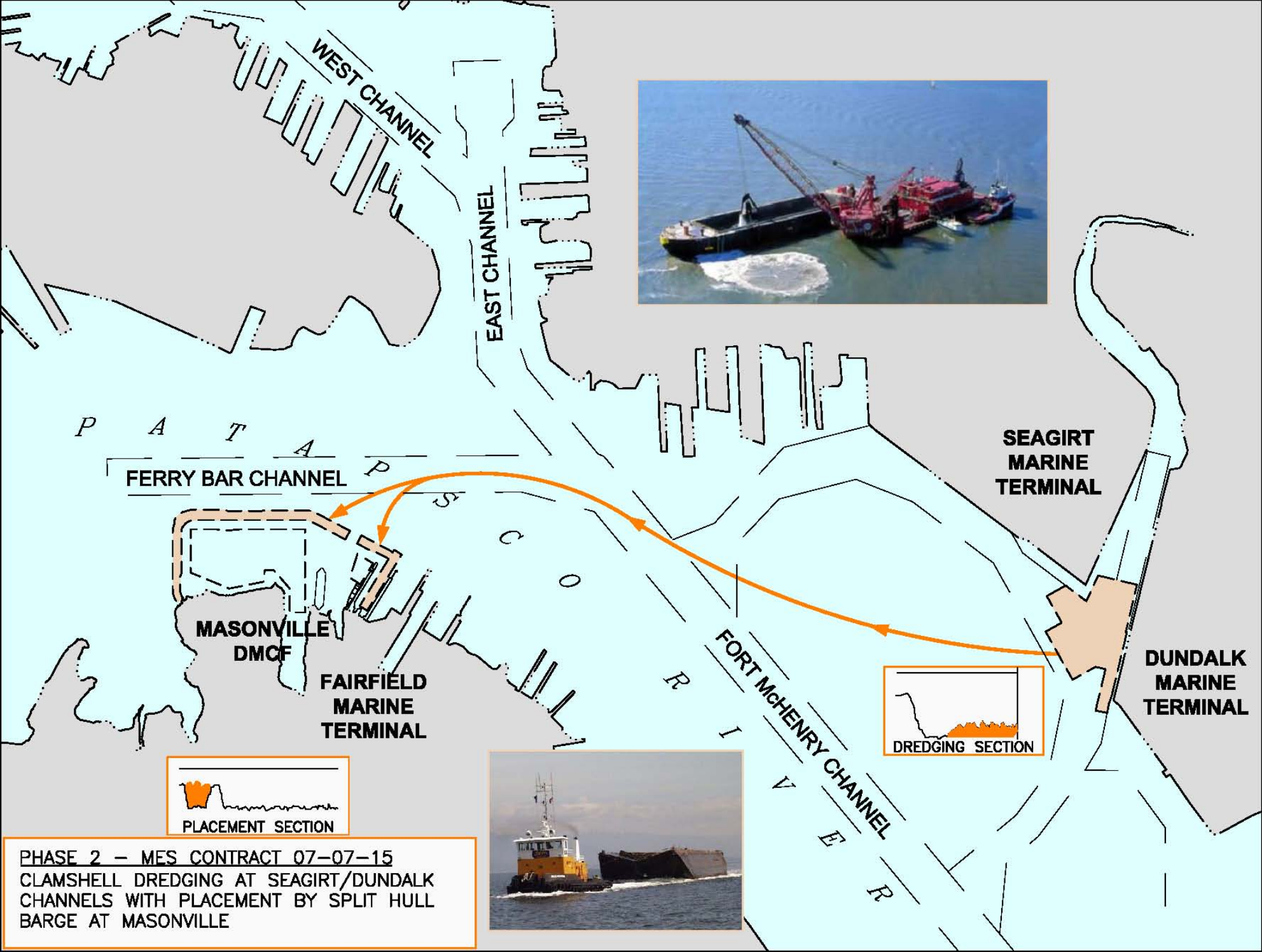
Project: mitigation schedule 04-02-07
Date: Mon 4/2/07

Task | Progress | Summary | External Tasks | Deadline
Split | Milestone | Project Summary | External Milestone

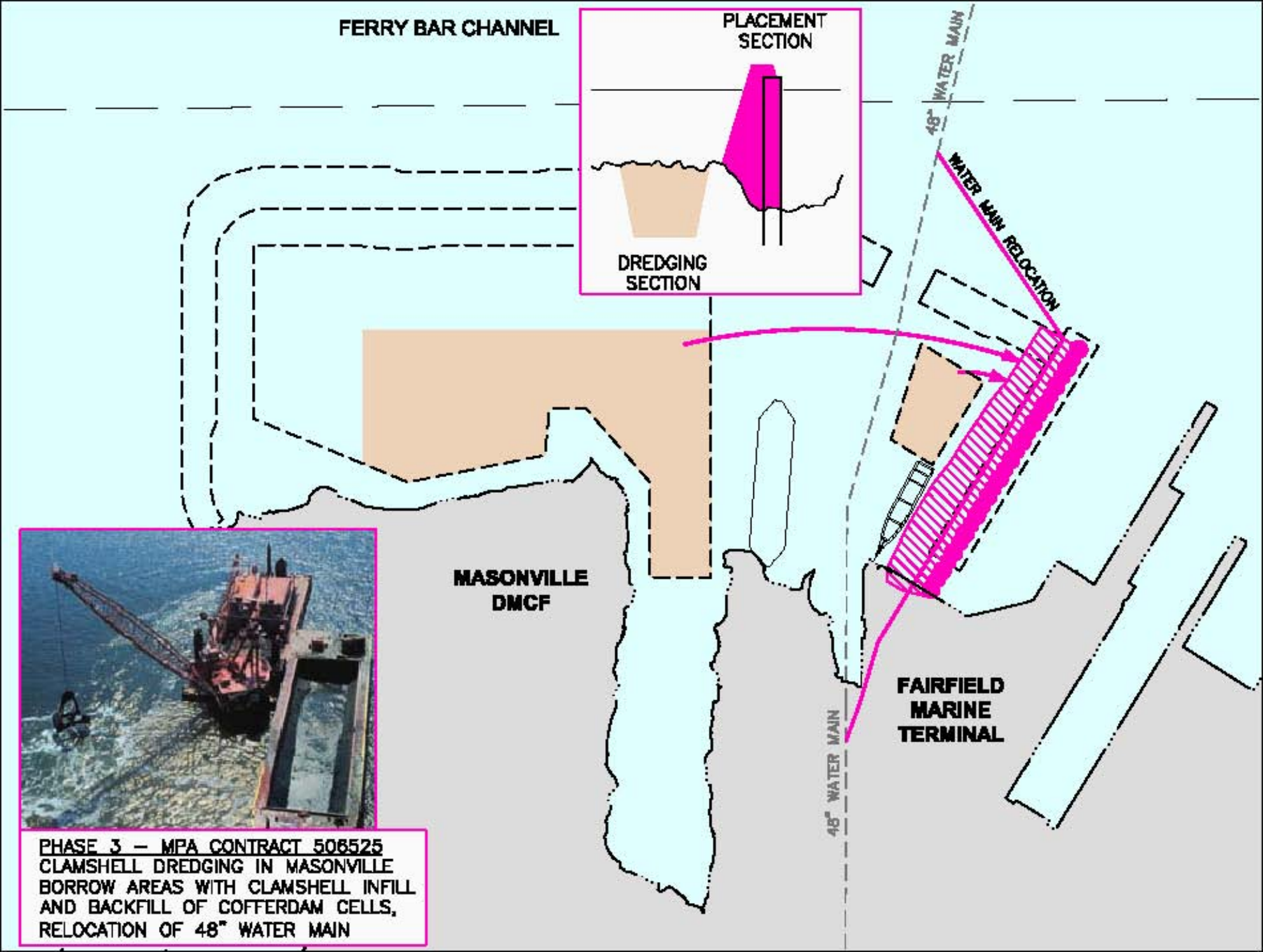
CONSTRUCTION PHASE DIAGRAMS

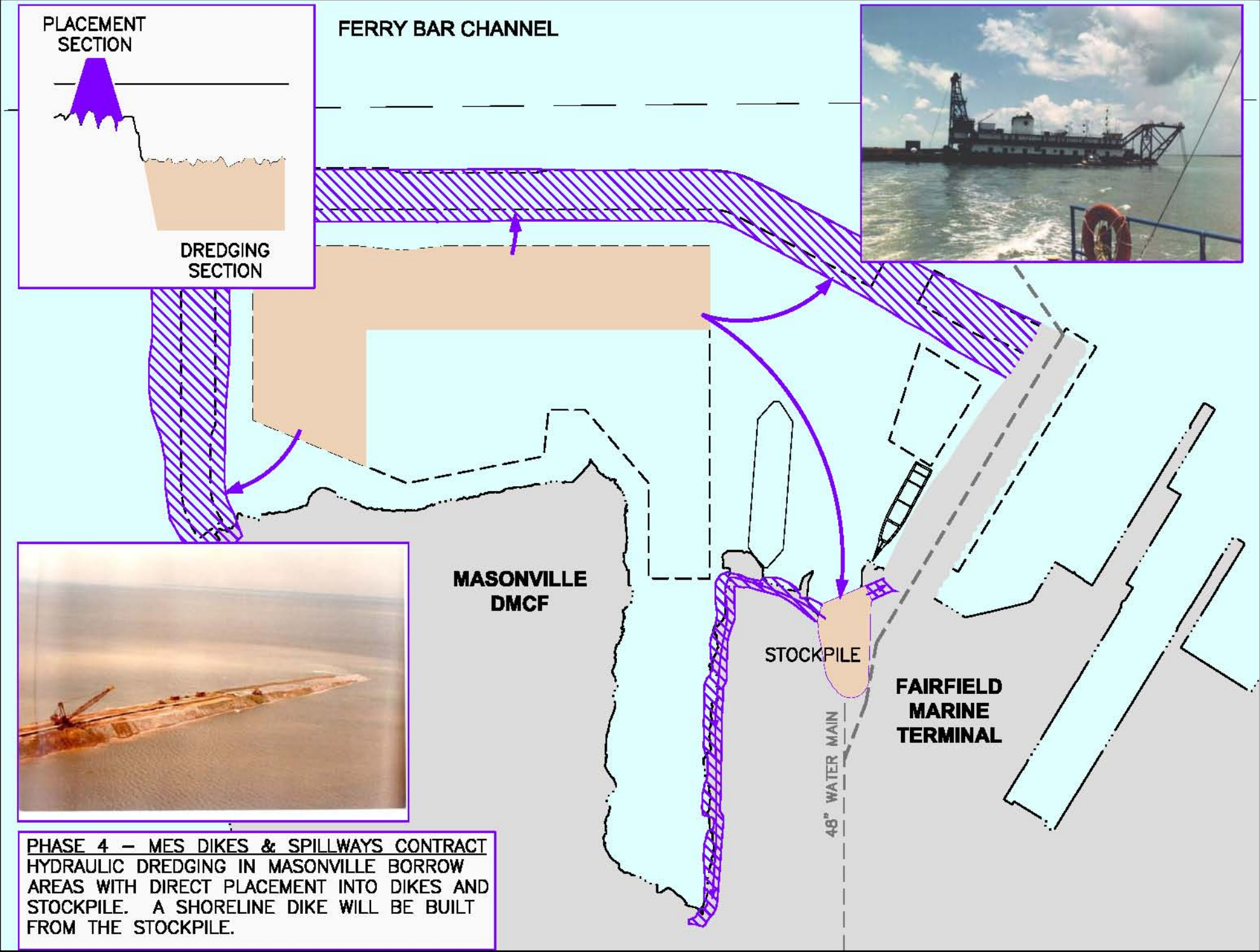
THIS PAGE INTENTIONALLY LEFT BLANK


WEST CHANNEL
EAST CHANNEL
P A T A P S C O R I V E R
FERRY BAR CHANNEL
MASONVILLE DMCF
FAIRFIELD MARINE TERMINAL
DREDGING SECTION
FORT McHENRY CHANNEL
SEAGIRT MARINE TERMINAL
DUNDALK MARINE TERMINAL
DREDGING SECTION
PHASE 1 – MES CONTRACT 07-07-15
CLAMSHELL DREDGING AT SEAGIRT/DUNDALK CHANNELS AND MASONVILLE WITH PLACEMENT AT HART-MILLER ISLAND.



PHASE 2 – MES CONTRACT 07-07-15
CLAMSHELL DREDGING AT SEAGIRT/DUNDALK CHANNELS WITH PLACEMENT BY SPLIT HULL BARGE AT MASONVILLE


FERRY BAR CHANNEL
PLACEMENT SECTION
DREDGING SECTION
48" WATER MAIN
WATER MAIN RELOCATION
MASONVILLE DMCF
FAIRFIELD MARINE TERMINAL
48" WATER MAIN
PHASE 3 – MPA CONTRACT 506525
CLAMSHELL DREDGING IN MASONVILLE BORROW AREAS WITH CLAMSHELL INFILL AND BACKFILL OF COFFERDAM CELLS, RELOCATION OF 48" WATER MAIN



PHASE 4 – MES DIKES & SPILLWAYS CONTRACT
HYDRAULIC DREDGING IN MASONVILLE BORROW AREAS WITH DIRECT PLACEMENT INTO DIKES AND STOCKPILE. A SHORELINE DIKE WILL BE BUILT FROM THE STOCKPILE.

STAGE STORAGE CURVE

THIS PAGE INTENTIONALLY LEFT BLANK

Masonville DMCF
Stage Storage Curve (-68 ft MLLW - 0 ft MLLW)

Elev. (ft)	Elev. (ft)	Air Space Volume (cy)	Cumulative Air Space Volume (cy)	Cumulative Air Space Volume (mcy)	Cumulative Capacity Volume (mcy)
-68	-67	7.2	7	0.00	0.00
-67	-66	12.1	19	0.00	0.00
-66	-65	18.2	38	0.00	0.00
-65	-64	25.60	63	0.00	0.00
-64	-63	37.60	101	0.00	0.00
-63	-62	74.10	175	0.00	0.00
-62	-61	143.10	318	0.00	0.00
-61	-60	298.70	617	0.00	0.00
-60	-59	1,314.10	1,931	0.00	0.00
-59	-58	1,767.90	3,699	0.00	0.01
-58	-57	2,336.30	6,035	0.01	0.01
-57	-56	3,022.60	9,058	0.01	0.01
-56	-55	3,833.40	12,891	0.01	0.02
-55	-54	4,810.20	17,701	0.02	0.03
-54	-53	5,998.10	23,699	0.02	0.04
-53	-52	7,307.30	31,007	0.03	0.05
-52	-51	8,852.30	39,859	0.04	0.06
-51	-50	10,709.40	50,568	0.05	0.08
-50	-49	13,071.30	63,640	0.06	0.10
-49	-48	17,378.60	81,018	0.08	0.13
-48	-47	24,654.80	105,673	0.11	0.17
-47	-46	30,604.40	136,277	0.14	0.22
-46	-45	35,515.50	171,793	0.17	0.27
-45	-44	39,893.30	211,686	0.21	0.34
-44	-43	43,366.70	255,053	0.26	0.41
-43	-42	46,009.90	301,063	0.30	0.48
-42	-41	48,388.90	349,452	0.35	0.56
-41	-40	50,567.40	400,019	0.40	0.64
-40	-39	52,515.00	452,534	0.45	0.72
-39	-38	54,306.40	506,840	0.51	0.81
-38	-37	56,004.20	562,845	0.56	0.89
-37	-36	57,495.10	620,340	0.62	0.99
-36	-35	58,336.20	678,676	0.68	1.08
-35	-34	59,027.80	737,704	0.74	1.17
-34	-33	59,651.50	797,355	0.80	1.27
-33	-32	60,209.60	857,565	0.86	1.36
-32	-31	60,761.80	918,327	0.92	1.46
-31	-30	61,316.60	979,643	0.98	1.56
-30	-29	61,873.90	1,041,517	1.04	1.66
-29	-28	62,431.20	1,103,948	1.10	1.75
-28	-27	62,986.60	1,166,935	1.17	1.86
-27	-26	63,539.60	1,230,475	1.23	1.96
-26	-25	64,091.30	1,294,566	1.29	2.06
-25	-24	64,641.30	1,359,207	1.36	2.16
-24	-23	65,191.50	1,424,399	1.42	2.26
-23	-22	65,875.50	1,490,274	1.49	2.37
-22	-21	67,050.20	1,557,324	1.56	2.48
-21	-20	68,808.90	1,626,133	1.63	2.59
-20	-19	71,068.30	1,697,202	1.70	2.70
-19	-18	73,041.00	1,770,243	1.77	2.81
-18	-17	74,616.40	1,844,859	1.84	2.93
-17	-16	77,165.50	1,922,024	1.92	3.06
-16	-15	79,038.60	2,001,063	2.00	3.18
-15	-14	80,539.60	2,081,603	2.08	3.31
-14	-13	84,377.80	2,165,980	2.17	3.44
-13	-12	98,060.10	2,264,041	2.26	3.60
-12	-11	113,276.00	2,377,317	2.38	3.78
-11	-10	119,727.40	2,497,044	2.50	3.97
-10	-9	123,912.50	2,620,956	2.62	4.17
-9	-8	130,061.90	2,751,018	2.75	4.37
-8	-7	134,504.50	2,885,523	2.89	4.59
-7	-6	140,043.50	3,025,566	3.03	4.81
-6	-5	145,403.30	3,170,970	3.17	5.04
-5	-4	149,035.30	3,320,005	3.32	5.28
-4	-3	152,098.10	3,472,103	3.47	5.52
-3	-2	154,334.40	3,626,437	3.63	5.77
-2	-1	156,095.70	3,782,533	3.78	6.01
-1	0	157,553.20	3,940,086	3.94	6.26

Masonville DMCF
Stage Storage Curve (0 ft MLLW - 42 ft MLLW)

Elev. (ft)	Elev. (ft)	Air Space Volume (cy)	Cumulative Air Space Volume (cy)	Cumulative Air Space Volume (mcy)	Cumulative Capacity Volume (mcy)
0	1	159,030.90	4,099,117	4.10	6.52
1	2	160,203.10	4,259,320	4.26	6.77
2	3	161,186.50	4,420,507	4.42	7.03
3	4	162,203.60	4,582,710	4.58	7.29
4	5	163,318.70	4,746,029	4.75	7.54
5	6	164,744.90	4,910,774	4.91	7.81
6	7	166,116.80	5,076,891	5.08	8.07
7	8	167,345.90	5,244,237	5.24	8.34
8	9	168,421.00	5,412,658	5.41	8.60
9	10	169,161.20	5,581,819	5.58	8.87
10*	11	160,916.46	5,742,735	5.74	9.13
11	12	160,916.46	5,903,652	5.90	9.39
12	13	160,916.46	6,064,568	6.06	9.64
13	14	160,916.46	6,225,485	6.23	9.90
14	15	160,916.46	6,386,401	6.39	10.15
15	16	160,916.46	6,547,318	6.55	10.41
16	17	160,916.46	6,708,234	6.71	10.66
17	18	160,916.46	6,869,151	6.87	10.92
18	19	160,916.46	7,030,067	7.03	11.18
19	20	160,916.46	7,190,983	7.19	11.43
20	21	160,916.46	7,351,900	7.35	11.69
21	22	160,916.46	7,512,816	7.51	11.94
22	23	160,916.46	7,673,733	7.67	12.20
23	24	160,916.46	7,834,649	7.83	12.46
24	25	160,916.46	7,995,566	8.00	12.71
25	26	160,916.46	8,156,482	8.16	12.97
26	27	160,916.46	8,317,399	8.32	13.22
27	28	160,916.46	8,478,315	8.48	13.48
28	29	153,530.93	8,631,846	8.63	13.72
29	30	153,530.93	8,785,377	8.79	13.97
30	31	153,530.93	8,938,908	8.94	14.21
31	32	153,530.93	9,092,439	9.09	14.45
32	33	153,530.93	9,245,970	9.25	14.70
33	34	153,530.93	9,399,501	9.40	14.94
34	35	153,530.93	9,553,032	9.55	15.19
35	36	153,530.93	9,706,563	9.71	15.43
36	37	153,530.93	9,860,093	9.86	15.68
37	38	153,530.93	10,013,624	10.01	15.92
38	39	153,530.93	10,167,155	10.17	16.16
39	40	153,530.93	10,320,686	10.32	16.41
40	41	153,530.93	10,474,217	10.47	16.65
41	42	153,530.93	10,627,748	10.63	16.90

*-Values prior to here from Terramodel TIN. Values from here on up to 42 ft are developed based on average area's.

MUNITIONS AT SEA BROCHURE

THIS PAGE INTENTIONALLY LEFT BLANK

Munitions At Sea

A Guide for Commercial Maritime Industries

A Munition Caught in a Net

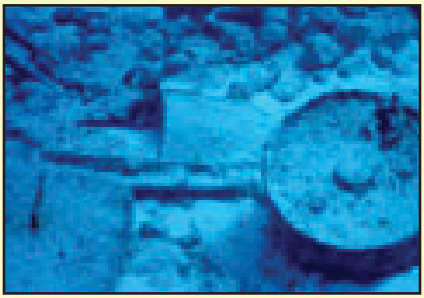
Recognize
Retreat
Report

During commercial fishing, clamming, or dredging operations, nets, bottom-tending gear, and dredges may catch or dredge up munitions from the ocean. These munitions should be considered as presenting a serious danger to a vessel and its crew.

Many vessel crews tell sea stories about catching suspicious items in their nets or dredging gear.

Bombs on the Seabed

The lucky crews live to spin their own tales, while others become the subject of tragic sea stories.



Depth Charge on the Seabed[1]

In July 1965, such a tragedy took place aboard the fishing vessel *Snoopy*. The *Snoopy* was trawling for scallops off the coast of North Carolina when it caught a large cylinder-shaped item in its net. A witness said he could clearly see a long round object swaying in the net amidships over the *Snoopy*.

Recovered WWII Depth Charge[1]

What happened next is unclear; but an explosion occurred that caused the loss of the *Snoopy* and eight members of the crew.

What went wrong? Was it preventable? Could something have been done to save the crew? While all these questions were asked, no one but the crew aboard the *Snoopy* knows what actually happened that day. However, the tale of the *Snoopy* is meaningful if others learn from this tragedy.

(Note: Divers, both commercial and sport, should also be aware of the hazards munitions present).

Here are some tips on how to respond if you suspect you have encountered munitions at sea. Remember the three Rs (Recognize, Retreat, Report).

Recognize

The military has conducted training and combat operations at sea for centuries. Prior to 1970, the military also sea disposed of excess, obsolete or unserviceable munitions en route to port or as part of planned disposals. In the 1970s, our military stopped sea disposal of munitions and now only allows it in an emergency. Mariners are cautioned they could encounter munitions anywhere during commercial operations, such as fishing or dredging. Using common sense and basic knowledge, you can spin your own story rather than becoming a character in a tragic sea tale.

Various Projectiles Recovered from the Water

Munitions can be encountered anywhere, not just in charted hazard areas, at sea. Munitions that crews may encounter include mines, torpedoes, depth charges, artillery shells, bombs and missiles. These munitions can contain high explosives or chemical agents that present a serious danger to a vessel and its crew.

- Munitions, to include those that have been lying dormant in sea or fresh water for many years, are extremely **DANGEROUS.** In some cases, munitions that have been in water for long periods may be more sensitive. It is best to avoid handling any suspected or actual munitions recovered from the sea.
- Often, munitions that are discovered on land or recovered from the sea are referred to as "duds" or "UXO" (unexploded ordnance), and such munitions can explode when handled.
- Munitions submerged in sea or fresh water for any length of time may be:
  - o Like new and easy to identify;
  - o Heavily encrusted with sea growth and difficult to identify.

MUNITIONS ARE DESIGNED TO BE DANGEROUS

Munitions are designed to injure, maim, or kill people, or to destroy a vessel or other equipment. The best protection from the hazards associated with munitions is to heed the warnings on nautical charts, avoid known disposal areas and learn the three Rs (Recognize, Retreat, Report).

Aerial Bomb on Seabed

This guide includes drawings representative of various munitions that may be encountered. Drawings may help people recognize suspect munitions.

CHEMICAL MUNITIONS AND CHEMICAL AGENTS

Beginning in World War I, the Department of Defense (then, the Department of War) designed chemical agents to kill, seriously injure, or incapacitate an enemy. In the past, the United States and other countries sea-dumped both munitions with chemical agent fills and chemical agents in bulk, such as 55-gallon drums filled with chemical agents. As a result, some munitions or drums recovered from the sea may contain chemical agents.

Recovered Chemical Projectile

CHEMICAL AGENTS PRESENT A SERIOUS DANGER TO A VESSEL AND ITS CREW

Vessel crews should be alert for abnormal conditions that may indicate the presence of chemical agents:

- Unusual smells to tackle or fish;
- A stinging sensation in the eyes or burning, irritated skin;
- Corroded containers or suspicious clay-like lumps.

If chemical agents are suspected, immediate action is necessary to protect the crew and vessel.

- Close all doors and hatches;
- Shut down all ventilation systems;
- Steam into the wind to carry contaminants away from the crew;
- Move all crewmembers up wind;
- Contact the US Coast Guard for assistance.

In case of contact with chemical agents, immediately rinse with large amounts of water (if possible, warm soapy water), even if no effects are felt. Crewmembers should not work in a contaminated area and every effort should be made to prevent the spreading of contaminants.

Chemical Filled Projectile Recovered from Clam Beds

Fishing vessels that have come into contact with chemical agents must not bring their catch ashore until it has been checked and released by the appropriate state's Department of Environmental Health. Sea life contaminated by chemical agents is unsuitable for human or animal consumption.

A clean torpedo (top) and a recovered torpedo (bottom)

Retreat

The specific action required will depend on the circumstances. However, if possible, crews should avoid bringing munitions (or suspect munitions) onboard. If a munition is found, a decision must be made whether to retreat by carefully jettisoning the munition, cutting away the gear, if necessary or, as a last resort, securing the munition onboard and moving the crew away. Great care should be taken to avoid bumping the munition; each action carries risk.

NEVER BRING ACTUAL OR SUSPECT MUNITIONS INTO A PORT

MUNITIONS NOT ONBOARD

If an actual or suspect munition is recovered:

- Immediately stop all operations;
- Do not bring the munition or gear containing it onboard, if possible;
- Do not allow the munition to come or remain along side the vessel where wave action may cause contact with the hull;
- If a munition is in the gear and has not been brought onboard, try to safely lower it back into the water and, as indicated below, note the position and report it to the U.S. Coast Guard.
- If in shallow water (less than 130 feet), lower the munition to the bottom, buoy off the net or dredge recovery lines (remain in the immediate area).
- If in deep water, stream the munition as far aft as possible and maintain steerageway as necessary. Remain in the area while awaiting assistance.

A clean Aerial Bomb (top), a recovered Aerial Bomb (bottom)

MUNITIONS ONBOARD

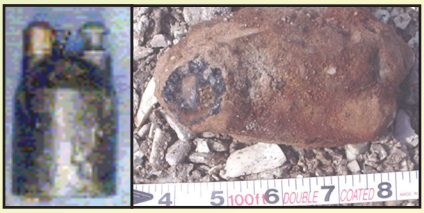
If an actual or suspected munition in the gear is brought over the deck, but remains suspended and can continue to be safely suspended in place or nearby, immediately:

- Secure the munition with guy lines to prevent further movement;
- Keep the crew away from that area.

If a suspect munition is brought onboard:

- Keep unneeded crew members as far away as possible.
- Decide whether to do one of the following:
  - o Carefully jettison it, or
  - o Retain it onboard.
- If jettisoned, note position and report it.

- If retained onboard:
  - o Limit handling and avoid hitting or bending any part of the munition;
  - o Stow the munition on deck as far away as possible from heat sources, vibration and the crew, but limit handling;
  - o Firmly chock and lash the munition to prevent movement;
  - o Cover and/or wet to minimize the potential for:
    - ▪ Deterioration of metal parts and release of any fill;
    - ▪ Explosives to dry out and become sensitive to shock.
  - o Keep crew away from item.
  - o Request assistance. (Channel 16--156. 800 MHz)



French Rifle Grenade in good condition (left) and a recovered grenade (right)

If within 2 or 3 hours of land, the safest measure is to notify the US Coast Guard and move to a rendezvous area offshore.

Report

*C*areful observation is necessary prior to reporting, so that proper instructions and assistance can be provided. The information you provide may also be combined with other reports to produce new warnings to mariners and update nautical charts.

When actual or suspect munitions are encountered at sea, the vessel's captain should ensure the US Coast Guard is notified and provided the below information, as soon as possible. (Note: If a munition is encountered while in port [e.g., during off loading or processing] call 911.)

- The vessel's position (use World Geodetic System 1984 [WGS-84] for reporting).
- If the exact position is unknown, give approximate coordinates, or a range and bearing from a charted feature.
- The activity being conducted when the munition was encountered (e.g., fishing, dredging).
- A general description of the munition's key features (size, shape, fins, props, markings) and condition (Never attempt to clean the munition for identification purposes, open it, or tamper with it in any way).
- The action taken (e.g. stowed or jettisoned).
- If jettisoned, also provide:
  - o The position of the release, water depth, and buoys or markings used;
  - o A description of any entanglement (e.g. net, dredge) or other details.
- Any unusual odors, if noticed.
- Whether the munition was jettisoned:
  - o In or near a charted munitions dump;
  - o Near (within 1,000 yards of) any surface or sub-surface structures.

Recovered Hand Grenades

Recovered 60mm Mortars

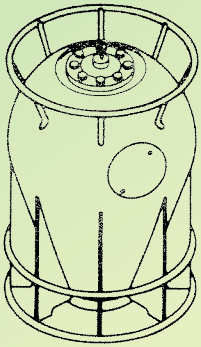
Recovered Fragmentation Bomb [1]

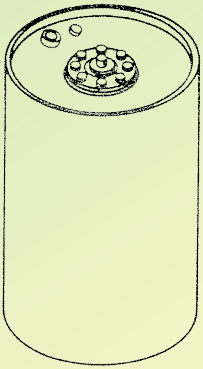
THE US COAST GUARD WILL NOTIFY THE APPROPRIATE MILITARY EXPLOSIVE ORDNANCE DISPOSAL UNIT TO ARRANGE FOR REQUIRED SUPPORT

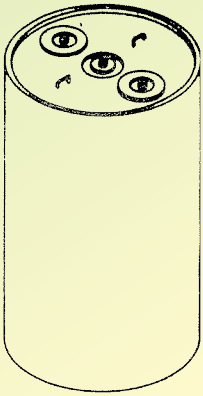
A clean 5-inch 38 Caliber Projectile (Left) and recovered 5-inch 38 Caliber Projectiles (Right)

[1] Photographs Courtesy of AMPRO Consultants.

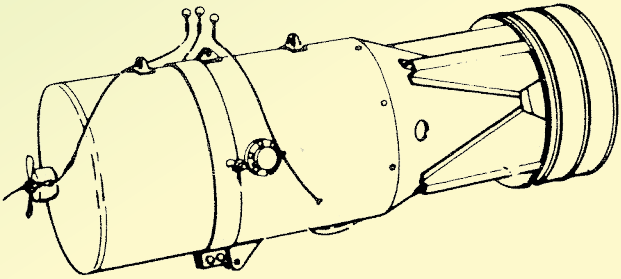
[2] *A Fisherman's Guide to Explosive Ordnance,* UNC Sea Grant College Publication UNC-SG-81-05, May 1981.



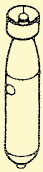


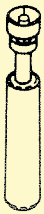


Depth Charges
Length 28"
Diameter 18" to 25"



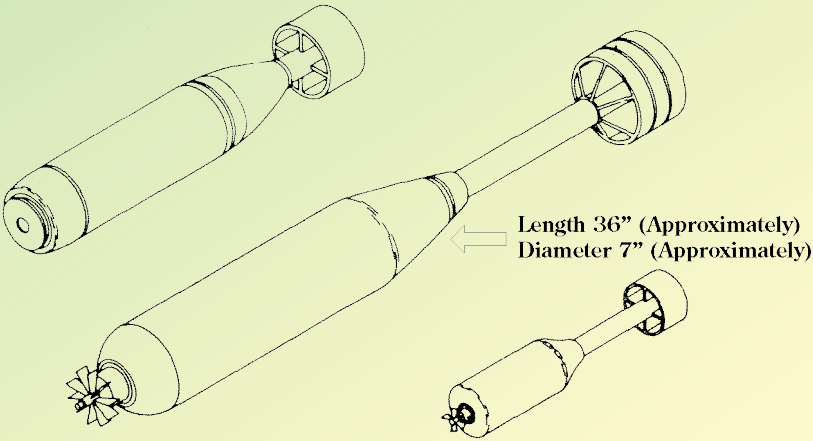
Depth Bomb
Length 50"to 59"
Diameter 15" to 18"



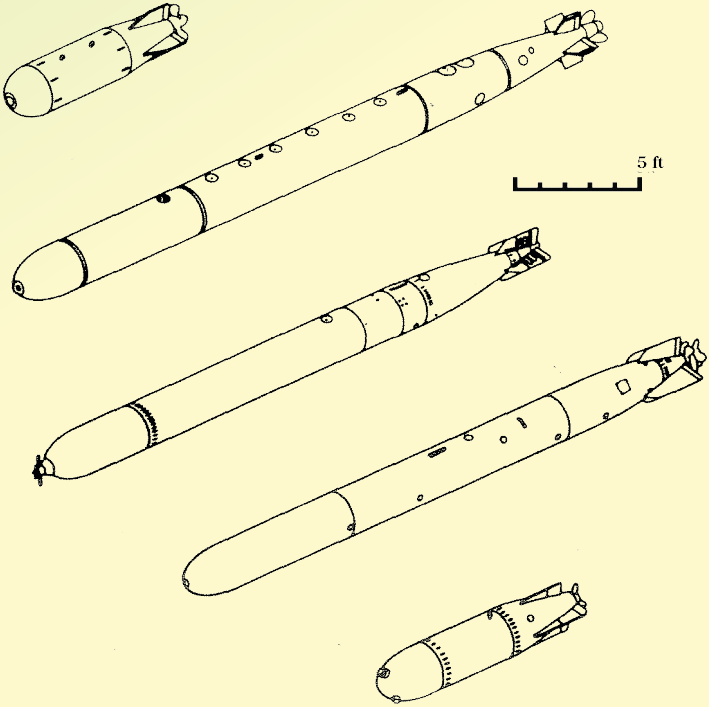


Practice Depth Charges

Diagrams from UNC Sea Grant College Publication UNC-SG-81-05, May1981[2]

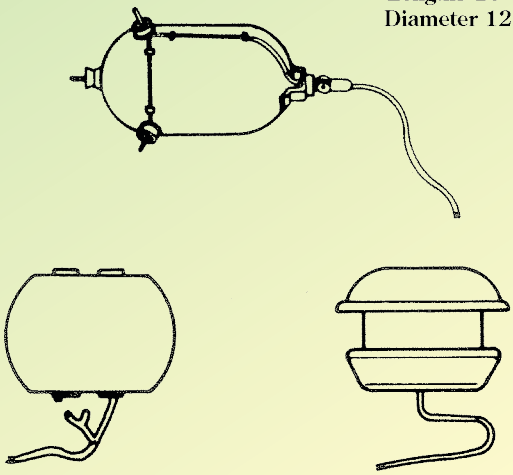


Projected Anti-Submarine-Warfare Weapons



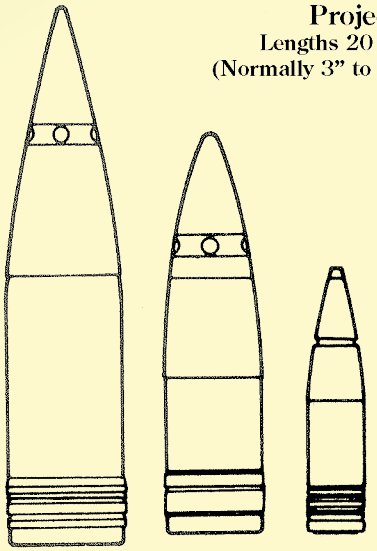
Representative Torpedoes

Miscellaneous Mine Floats
Lengths 10" to 24"
Diameter 12"to 18"

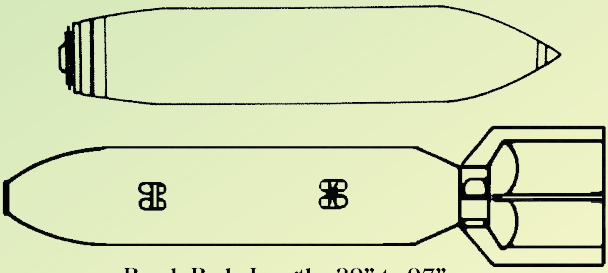


Miscellaneous Mine Floats

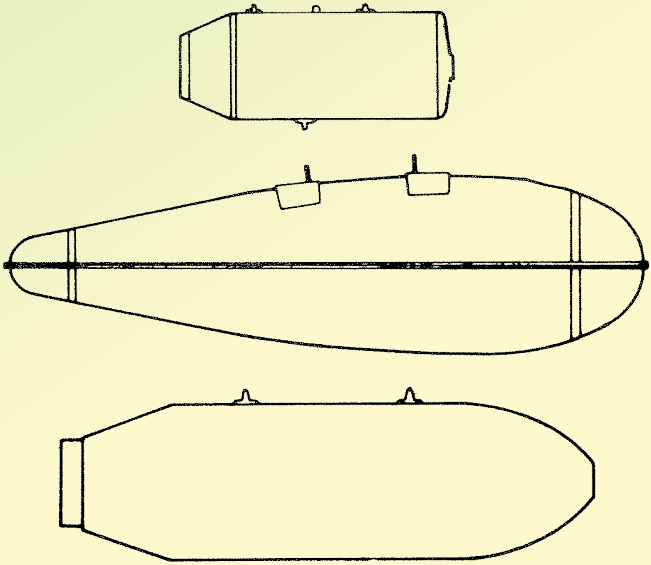
Projectiles
Lengths 20 mm to 16"
(Normally 3" to 5" in Diameter)



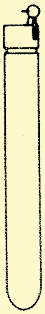
Projectiles



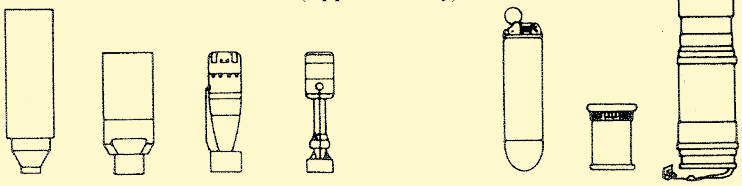
Bomb Body Lengths 39” to 97”
Diameter 7” to 19”



Aerial Bombs



Markers and Signals
Lengths 10” to 18” (Approximately)
Diameter 2” to 5” (Approximately)



Markers and Signals

Don't Forget

Munitions are dangerous, and may not be easily recognizable!

Avoid known explosives disposal areas!

Do not bring munitions on-board!

Avoid physical contact, if possible, but minimize handling to that needed to protect the vessel and crew!

Never bring a munition into port, unless directed to do so by USCG!

Remember the Three Rs

Recognize: Recognize when you may have encountered a munition.

Retreat: If you know or suspect you have encountered a munition, jettison it or secure it and keep the crew out of the immediate area.

Report: Immediately notify the US Coast Guard of the vessel's or munition's location and provide a description of the munition. Emergency contacts:

- In Port: Call 911
- At sea: Use Channel 16 (156.800 MHz)

For additional information on this and related issues see the US Army's UXO Safety Education Website www.denix.osd.mil/UXOSafety

Prepared by the Defense Ammunition Center
U.S. Army Technical Center for Explosives Safety (USATCES)
(918) 420-8919