

Temporary impacts to Waters of the U.S.
 Flotation Channel- top width 60-100 ft., -15,800 LF, -37 acres, construction optional
 Temporary Stockpile of Dredged Material- bottom width 50-100 ft., -15,800 LF, -37 acres

Permanent impacts to Waters of the U.S.
 Rock Breakwater- bottom width 21-34 ft., 7,550 LF, 5.9 acres

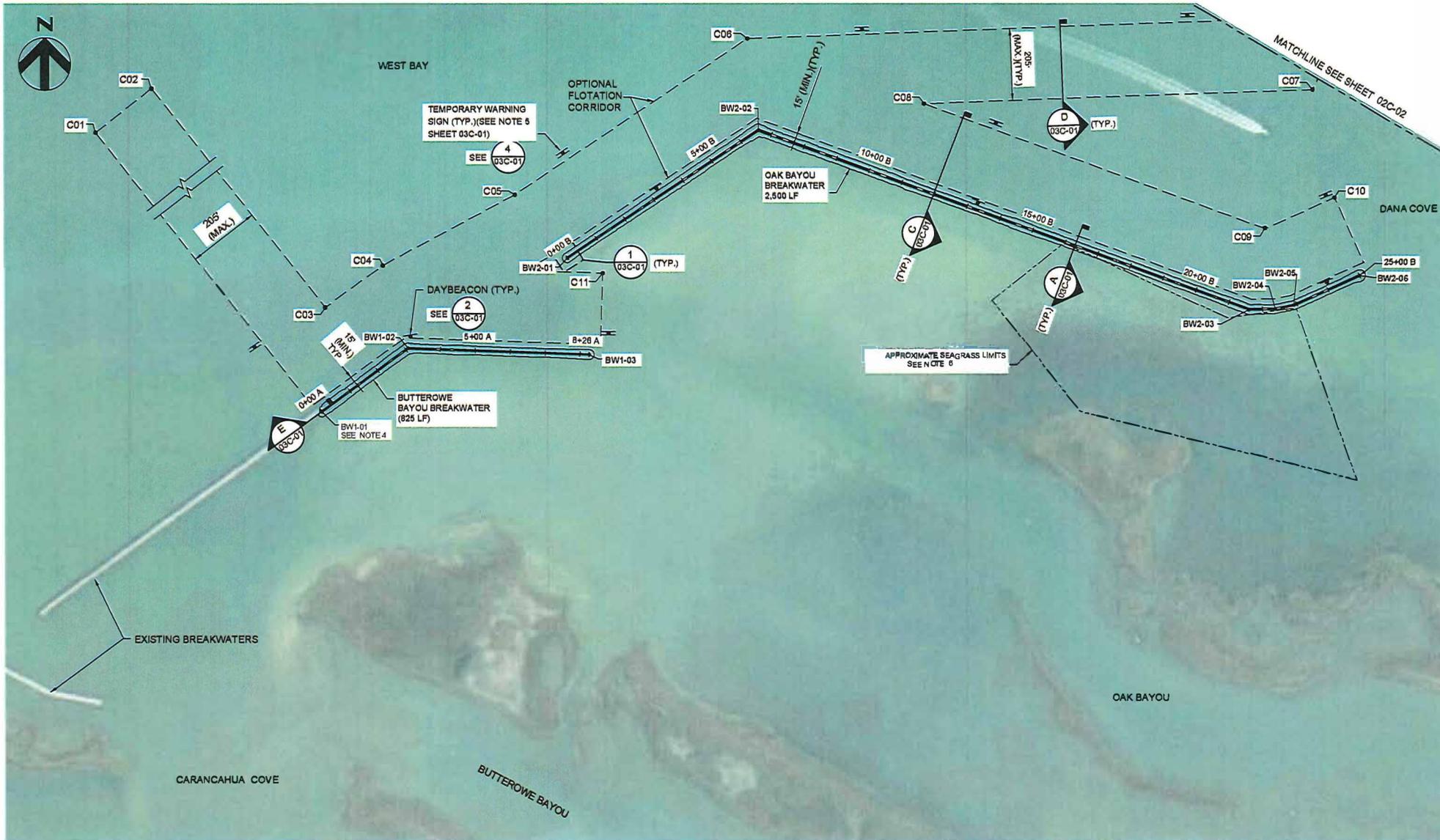




Figure 1. Adjacent Landowners within the Pirates Cove Subdivision

**PROJECT LAYOUT 01- SHEET 02C-01
NOTES AND ALIGNMENT POINTS**

NOTES:

2. CONTRACTOR RESPONSIBLE FOR DETERMINING LOCATIONS OF ANY OBSTRUCTIONS AND/OR UTILITIES WITHIN OPTIONAL FLOTATION CORRIDOR.
3. TURBIDITY CONTROL BARRIER SHALL BE PLACED DURING EXCAVATION/BACKFILLING OF FLOTATION CHANNEL AND CONSTRUCTION OF BREAKWATER. TURBIDITY CONTROL BARRIER SHALL BE PLACED WITHIN 5' OF THE SOUTHERN TOE OF BREAKWATER. AT A MINIMUM TURBIDITY CONTROL BARRIER SHALL BE MAINTAINED WITHIN 250' IN BOTH DIRECTIONS OF ACTIVE GRR PLACEMENT, CHANNEL EXCAVATION, AND CHANNEL BACKFILLING ALONG THE ENTIRE LENGTH OF BREAKWATER. TURBIDITY CONTROL BARRIER SHALL BE REMOVED UPON COMPLETION OF CONSTRUCTION. REFER TO SHEET 03C-01 FOR ADDITIONAL TURBIDITY CONTROL BARRIER REQUIREMENTS.
4. STATIONING FOR BUTTEROWE BAYOU BREAKWATER FOLLOWS BREAKWATER ALIGNMENT POINTS AND STARTS AT POINT BW1-01. POINT BW1-01 SHALL BE STAKED FOR REVIEW BY ENGINEER PRIOR TO CONSTRUCTION.
5. STATIONING FOR OAK BAYOU BREAKWATER FOLLOWS BREAKWATER ALIGNMENT POINTS AND STARTS AT POINT BW2-01.
6. PROJECT IS WITHIN AND ADJACENT TO ENVIRONMENTALLY SENSITIVE AREAS INCLUDING MARSH VEGETATION, SEAGRASS, AND OYSTER REEFS. OUTSIDE OF THE DIRECT WORK AREAS AND FLOTATION CORRIDORS SPECIFIED ON THESE DRAWINGS, CONTRACTOR SHALL AVOID IMPACTS TO ENVIRONMENTALLY SENSITIVE AREAS DURING THE COURSE OF WORK. ANY DAMAGE CAUSED BY CONTRACTOR'S ACTIVITIES SHALL BE RESTORED AT NO ADDITIONAL COST TO OWNER, AND TO THE SATISFACTION OF OWNER AND RESOURCE AGENCIES.

BUTTEROWE BAYOU BREAKWATER ALIGNMENT POINTS			
NAME	STATION	NORTHING	EASTING
BW1-01	0+00 A	13,646,776	3,252,424
BW1-02	3+08 A	13,646,953	3,252,677
BW1-03	8+26 A	13,646,935	3,253,194

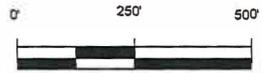
OAK BAYOU BREAKWATER ALIGNMENT POINTS			
NAME	STATION	NORTHING	EASTING
BW2-01	0+00 B	13,647,213	3,253,133
BW2-02	6+61 B	13,647,581	3,253,682
BW2-03	21+62 B	13,647,064	3,255,091
BW2-04	22+37 B	13,647,065	3,255,166
BW2-05	22+91 B	13,647,076	3,255,219
BW2-06	25+00 B	13,647,162	3,255,410

FLOTATION CORRIDOR ALIGNMENT POINTS		
POINT	NORTHING	EASTING
C01	13,651,207	3,248,929
C02	13,651,334	3,249,090
C03	13,646,943	3,252,277
C04	13,647,070	3,252,438
C05	13,647,190	3,252,604
C06	13,647,394	3,252,983
C07	13,647,843	3,253,650
C08	13,647,697	3,255,275
C09	13,647,656	3,254,158
C10	13,647,300	3,255,135
C11	13,647,387	3,255,337

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PROJECT LAYOUT 02 SHEET 02C-02



**PROJECT LAYOUT 02- SHEET 02C-02
NOTES AND ALIGNMENT POINTS**

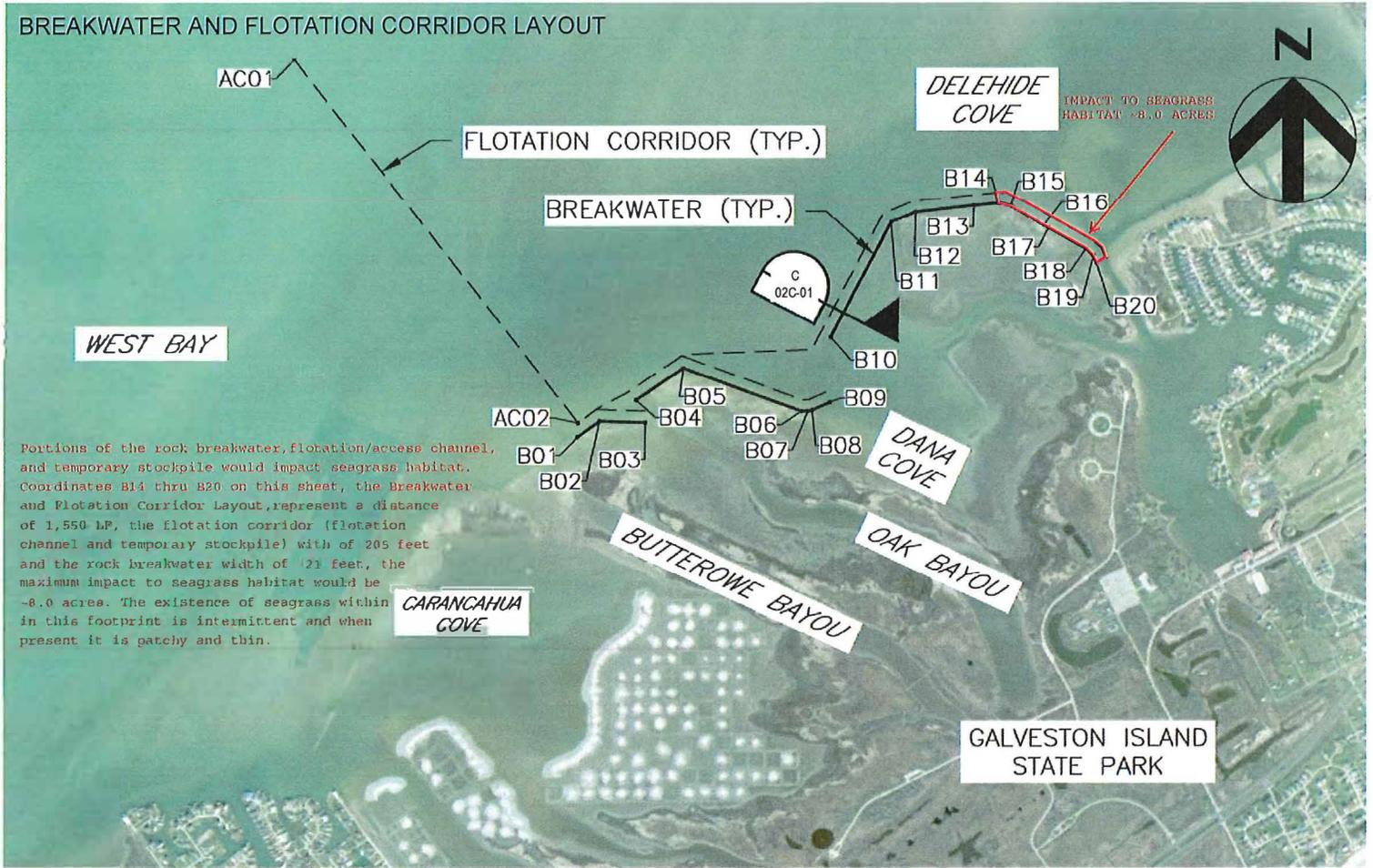
NOTES:

1. REFER TO NOTES ON SHEET 02C-01.
2. IF CONTRACTOR OPTS TO CONSTRUCT OPTIONAL FLOTATION CHANNEL, CONTRACTOR SHALL ENSURE THAT MATERIAL FROM TEMPORARY STOCKPILES OF DREDGED MATERIAL DOES NOT MIGRATE INTO PIRATES COVE CHANNEL AND SHOALING IN PIRATES COVE CHANNEL THAT OCCURS AS A RESULT OF CONTRACTOR'S ACTIVITIES SHALL BE REMOVED AT CONTRACTOR'S COST.
3. STATIONING FOR DANA COVE BREAKWATER FOLLOWS BREAKWATER ALIGNMENT POINTS AND STARTS AT POINT BW3-01.
4. PROJECT IS WITHIN AND ADJACENT TO ENVIRONMENTALLY SENSITIVE AREAS INCLUDING MARSH VEGETATION, SEAGRASS, AND OYSTER REEFS. OUTSIDE OF THE DIRECT WORK AREAS AND FLOTATION CORRIDORS SPECIFIED ON THESE DRAWINGS, CONTRACTOR SHALL AVOID IMPACTS TO ENVIRONMENTALLY SENSITIVE AREAS DURING THE COURSE OF WORK. ANY DAMAGE CAUSED BY CONTRACTOR'S ACTIVITIES SHALL BE RESTORED AT NO ADDITIONAL COST TO OWNER, AND TO THE SATISFACTION OF OWNER AND RESOURCE AGENCIES.

DANA COVE BREAKWATER ALIGNMENT POINTS			
NAME	STATION	NORTHING	EASTING
BW3-01	0+00 C	13,647,973	3,255,454
BW3-02	15+27 C	13,649,325	3,256,164
BW3-03	18+48 C	13,649,447	3,256,461
BW3-04	28+57 C	13,649,554	3,257,465
BW3-05	29+96 C	13,649,526	3,257,600
BW3-06	34+54 C	13,649,290	3,257,993
BW3-07	35+21 C	13,649,257	3,258,052
BW3-08	40+30 C	13,649,009	3,258,496
BW3-09	41+54 C	13,648,925	3,258,586
BW3-10	42+25 C	13,648,860	3,258,614

FLOTATION CORRIDOR ALIGNMENT POINTS		
POINT	NORTHING	EASTING
C12	13,647,898	3,255,148
C13	13,649,509	3,255,996
C14	13,649,677	3,256,402
C15	13,649,791	3,257,479
C16	13,649,748	3,257,687
C17	13,649,493	3,258,111
C18	13,649,387	3,258,301

BREAKWATER AND FLOTATION CORRIDOR LAYOUT



Portions of the rock breakwater, flotation/access channel, and temporary stockpile would impact seagrass habitat. Coordinates B14 thru B20 on this sheet, the Breakwater and Flotation Corridor Layout, represent a distance of 1,550 LF, the flotation corridor (flotation channel and temporary stockpile) with of 205 feet and the rock breakwater width of 21 feet, the maximum impact to seagrass habitat would be ~8.0 acres. The existence of seagrass within in this footprint is intermittent and when present it is patchy and thin.

BREAKWATER AND FLOTATION CORRIDOR LAYOUT



LEGEND:

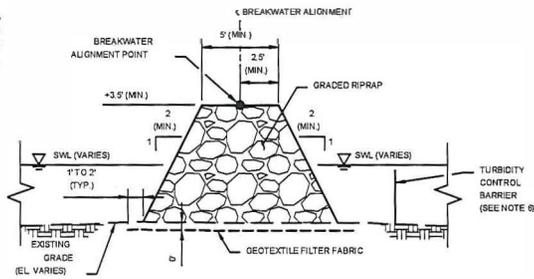
- FLOTATION CORRIDOR - Flotation Channel, top width 60-100 ft., ~15,800 LF, ~37 acres, construction optional, temporary impact to waters U.S.
- Temporary Stockpile of Dredged Material, Bottom width 50-100 ft., ~15,800 LF, temporary impact to waters U.S.
- ===== BREAKWATER - Rock Breakwater, bottom width 21-34 ft., 7,500 LF, 5.9 acres, permanent impact to waters of the U.S.

APPROXIMATE BREAKWATER COORDINATES			APPROXIMATE BREAKWATER COORDINATES			APPROXIMATE FLOTATION CORRIDOR COORDINATES		
DESIGNATION	NORTHING	EASTING	DESIGNATION	NORTHING	EASTING	DESIGNATION	NORTHING	EASTING
B01	13,646,759	3,252,410	B11	13,649,325	3,256,164	AC01	13,651,271	3,249,009
B02	13,646,953	3,252,677	B12	13,649,447	3,256,461	AC02	13,646,929	3,252,418
B03	13,646,934	3,253,227	B13	13,649,527	3,257,158			
B04	13,647,199	3,253,114	B14	13,649,554	3,257,465			
B05	13,647,581	3,253,682	B15	13,649,526	3,257,600			
B06	13,647,064	3,255,091	B16	13,649,290	3,257,993			
B07	13,647,065	3,255,166	B17	13,649,257	3,258,052			
B08	13,647,076	3,255,219	B18	13,649,009	3,258,496			
B09	13,647,172	3,255,434	B19	13,648,925	3,258,586			
B10	13,647,952	3,255,442	B20	13,648,841	3,258,622			

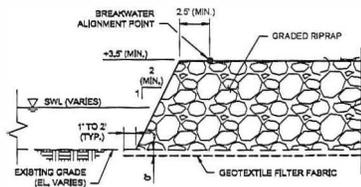
NOTES:

1. COORDINATES SHOWN ARE IN U.S. FEET AND ARE REFERENCED TO STATE PLANE, TEXAS SOUTH CENTRAL ZONE, NAD '83.
2. ALL MATERIAL DREDGED FROM FLOTATION CHANNELS WILL BE SIDECAST TO TEMPORARY STOCKPILES.

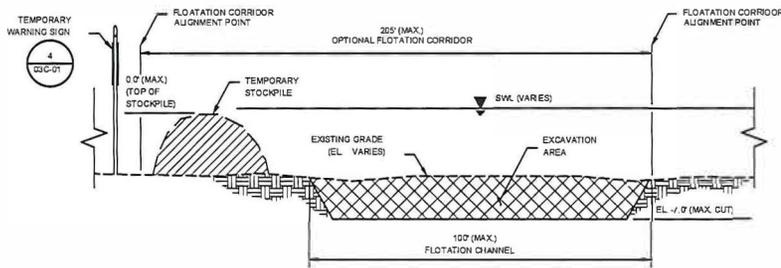
JUN 05 2019



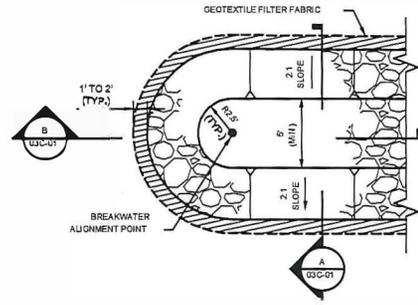
TYPICAL SECTION - GRR BREAKWATER
02C-01 NOT TO SCALE



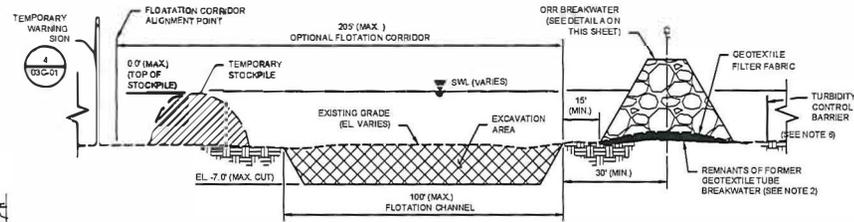
TYPICAL SECTION - GRR BREAKWATER TERMINAL
02C-02 NOT TO SCALE



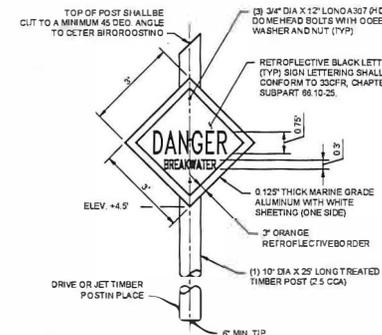
TYPICAL SECTION - OPTIONAL FLOTATION CORRIDOR FOR SITE ACCESS
02C-03 NOT TO SCALE



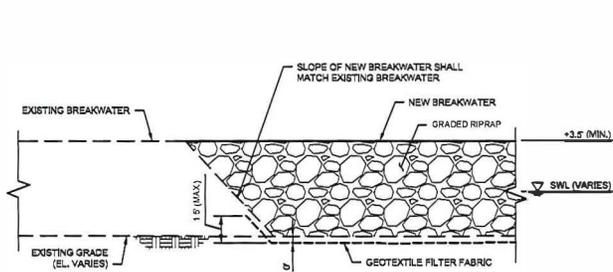
TYPICAL DETAIL - GRR BREAKWATER TERMINAL
02C-04 NOT TO SCALE



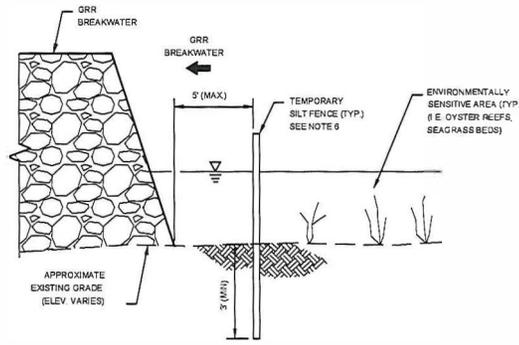
TYPICAL SECTION - OPTIONAL FLOTATION CORRIDOR FOR BREAKWATER
02C-05 NOT TO SCALE



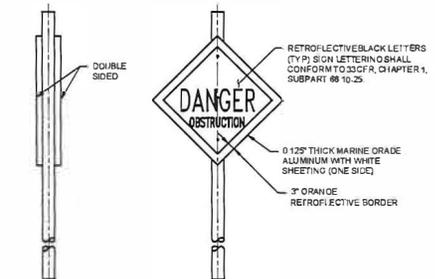
TYPICAL DETAIL - DAYBEACON
02C-06 NOT TO SCALE



TYPICAL SECTION - GRR BREAKWATER TERMINAL TIE-IN
02C-07 NOT TO SCALE



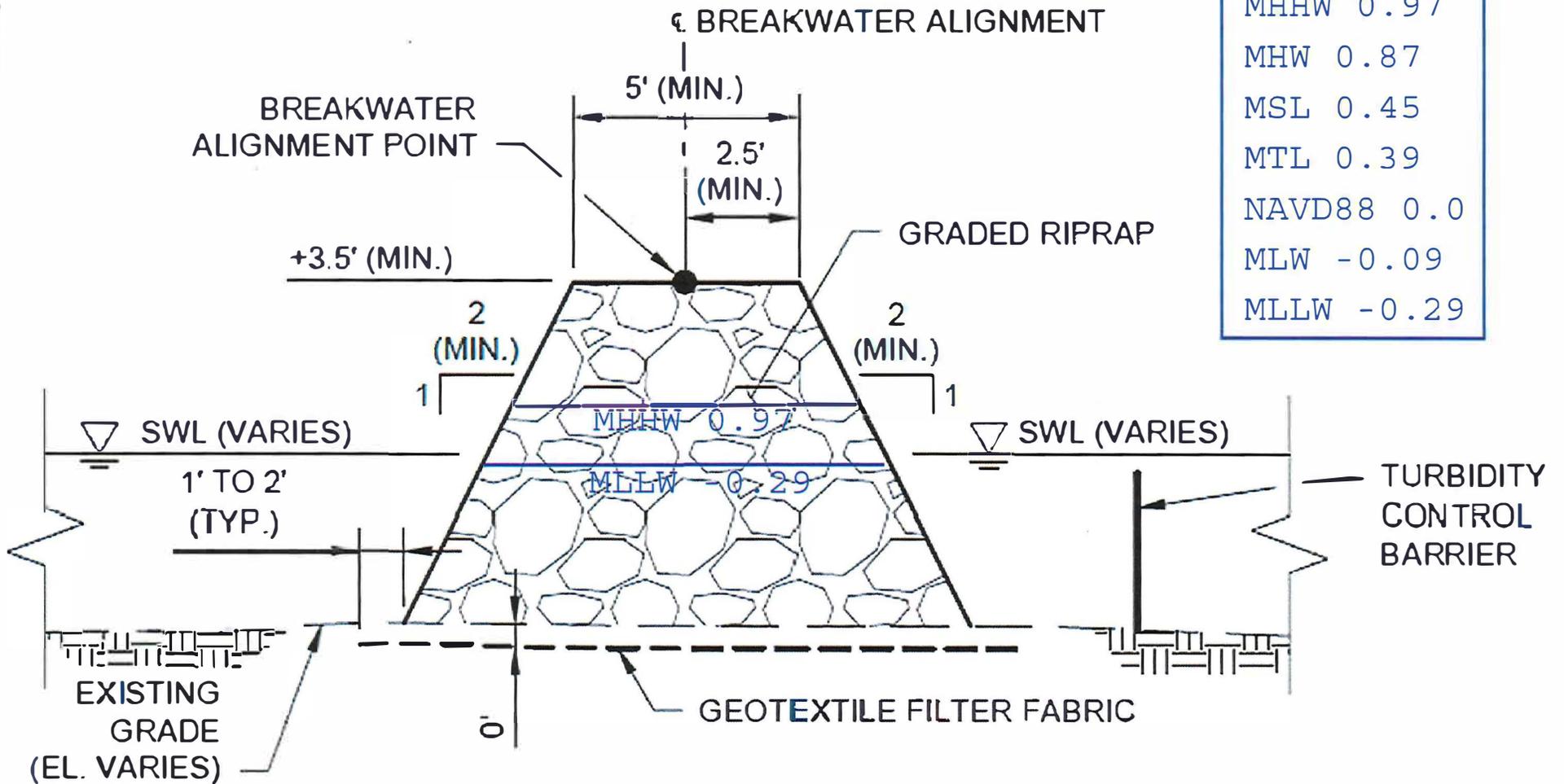
TYPICAL DETAIL - SILT FENCE
02C-08 NOT TO SCALE



TYPICAL DETAIL - DOUBLE SIDED TEMPORARY WARNING SIGN
02C-09 NOT TO SCALE

NOTES

- ALL SLOPES SHOWN ARE STEEPEST ALLOWED. ACTUAL SLOPES MAY BE LESS (I.E. "FLATTER").
- REMNANTS OF FORMER GEOTEXTILE TUBE BREAKWATER MAY EXIST ALONG PORTIONS OF SPECIFIED GRR BREAKWATER ALIGNMENT. IT IS THE DESIGN INTENT FOR THE PROPOSED GRR BREAKWATER TO ENCASE THE RELIC GEOTEXTILE TUBE AS MUCH AS IS PRACTICABLE. CONTRACTOR SHALL COORDINATE WITH ENGINEER ON ANY ALIGNMENT ADJUSTMENTS THAT MAY BE REQUIRED TO ENCASE RELIC GEOTEXTILE TUBE.
- SURVEY AND CONSTRUCTION SEQUENCING SHALL BE DONE IN ACCORDANCE WITH SPECIFICATION 35 00 01, "CONSTRUCTION SURVEYING."
- DAYBEACONS SHALL BE LOCATED APPROXIMATELY 10 FEET FROM SEAWARD EDGE OF BREAKWATER. ALL DAYBEACON LOCATIONS SHALL BE COORDINATED WITH ENGINEER.
- TEMPORARY WARNING SIGNS SHALL BE PROVIDED TO MARK TEMPORARY STOCKPILES ALONG OPTIONAL FLOTATION CORRIDORS. WARNING SIGN SPACING SHALL NOT EXCEED 1,000 FT. CONTRACTOR SHALL MAINTAIN TEMPORARY WARNING SIGNS WHILE STOCKPILES ARE IN PLACE.
- SILT CURTAIN OR SILT FENCE SHALL BE PLACED AS TEMPORARY TURBIDITY CONTROL BARRIER ON LANDWARD SIDE OF BREAKWATER. IF SILT FENCE IS PLACED, SILT FENCE SHALL BE CONSTRUCTED WITH 2" X 2" TIMBER POSTS SPACED ON 6' CENTERS. FILTER FABRIC SHALL BE BURLAP, NYLON, POLYPROPYLENE OR ENGINEER APPROVED EQUAL AND REINFORCED WITH POLYESTER NETTING OR WELDED WIRE MESH. SILT FENCE SHALL BE REMOVED BY CONTRACTOR UPON COMPLETION OF ACTIVE WORK AREA. UPON REMOVAL, POSTS SHALL BE COMPLETELY EXTRACTED OR CUT SQUARE AT MUDLINE, NOT BROKEN OFF. AT CONTRACTOR'S OPTION, SILT CURTAIN MAY BE PLACED INSTEAD OF FENCE. TYPE OF SILT CURTAIN AND INSTALLATION METHOD SHALL BE SUBMITTED TO ENGINEER FOR REVIEW PRIOR TO INSTALLATION.

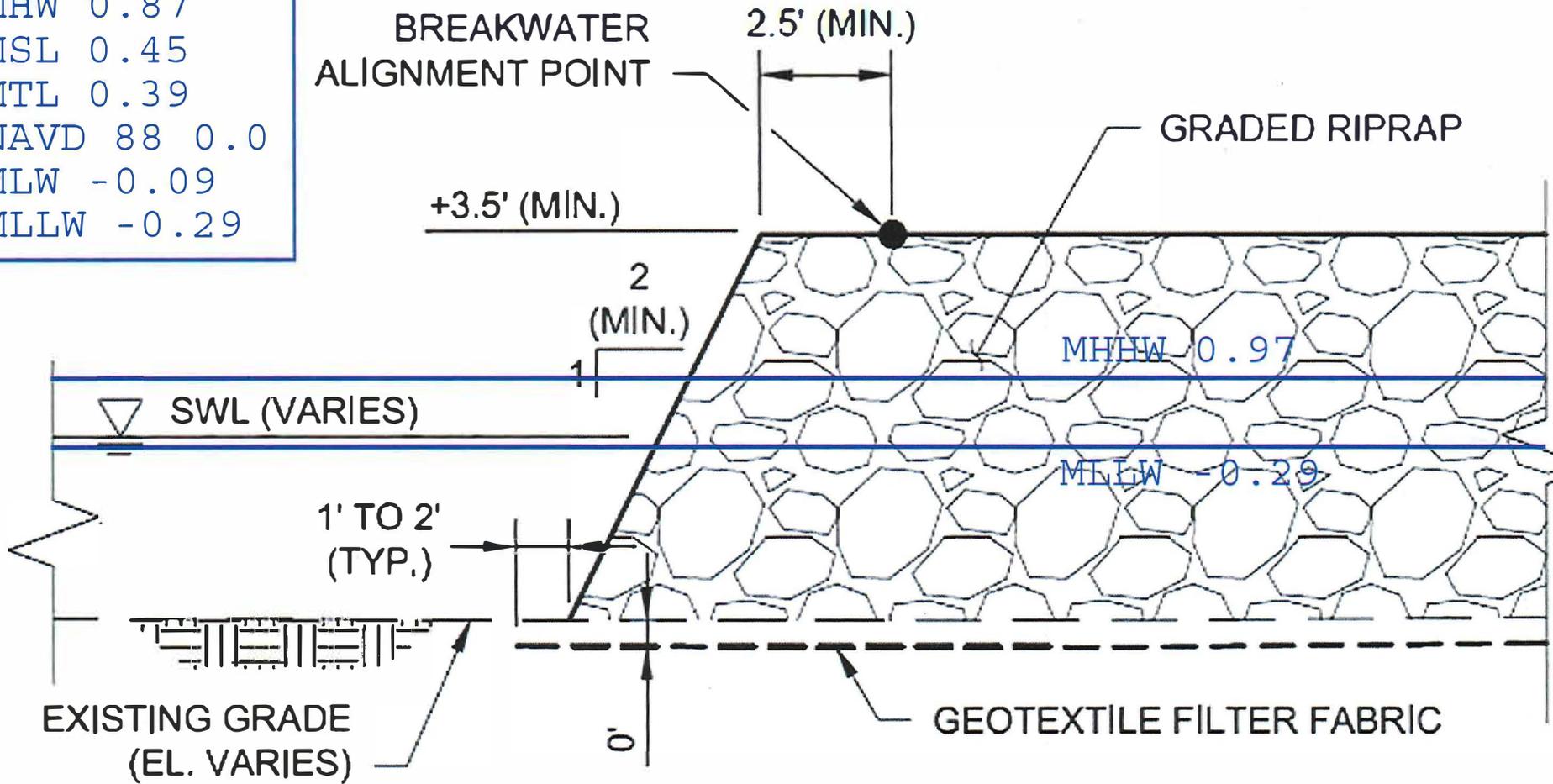


A
02C-01

TYPICAL SECTION - GRR BREAKWATER

NOT TO SCALE

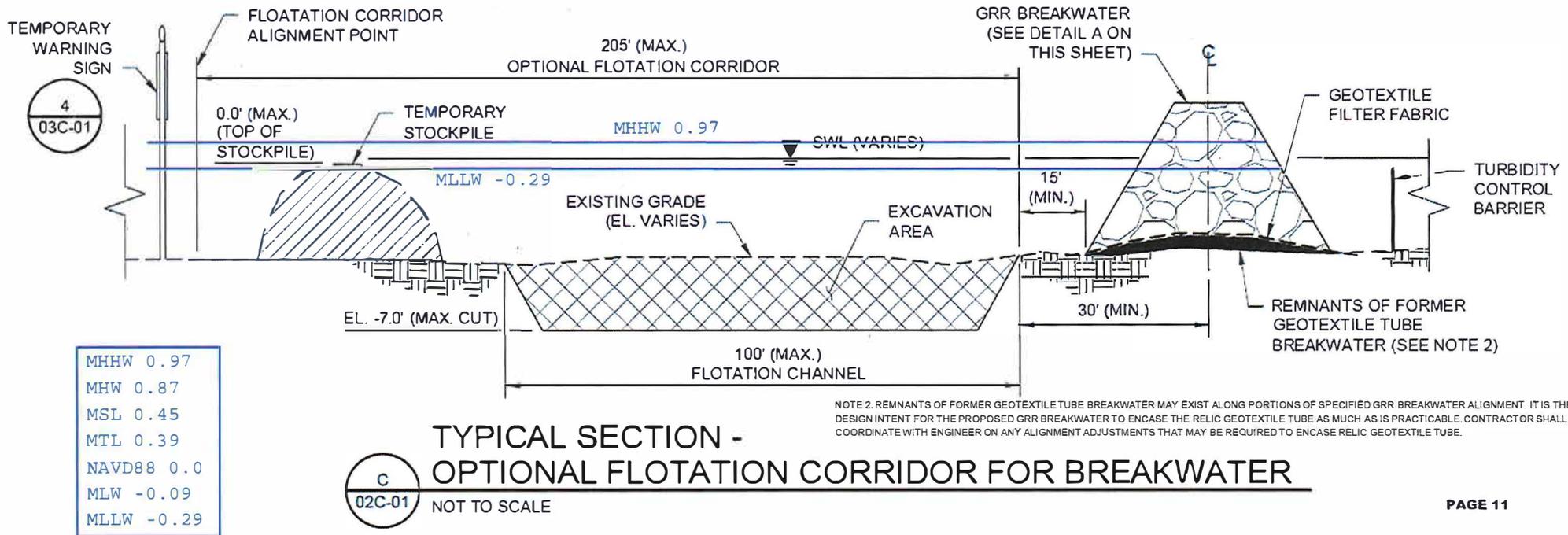
MHHW	0.97
MHW	0.87
MSL	0.45
MTL	0.39
NAVD 88	0.0
MLW	-0.09
MLLW	-0.29

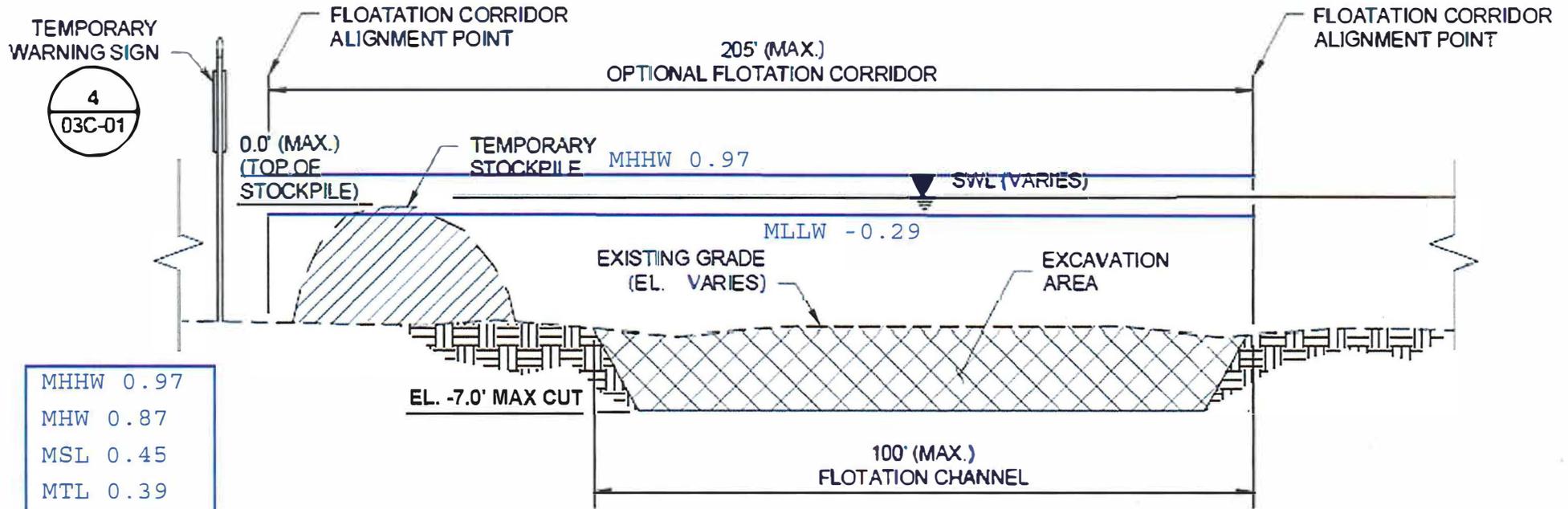


TYPICAL SECTION - GRR BREAKWATER TERMINAL

B
03C-01

NOT TO SCALE



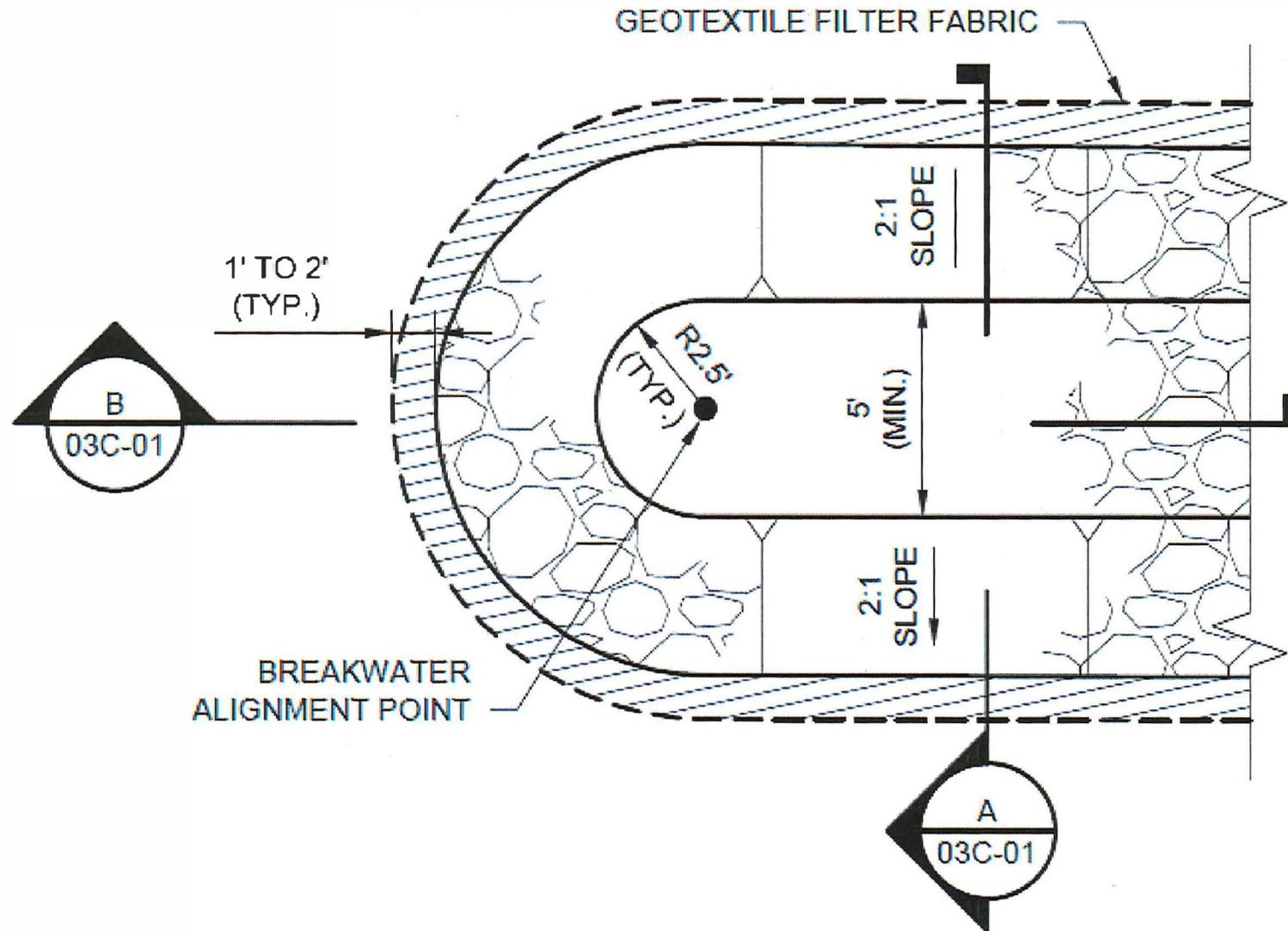


MHHW	0.97
MHW	0.87
MSL	0.45
MTL	0.39
NAVD88	0.0
MLW	-0.09
MLLW	-0.29

D
02C-01

**TYPICAL SECTION -
OPTIONAL FLOTATION CORRIDOR FOR SITE ACCESS**

NOT TO SCALE



TYPICAL DETAIL - GRR BREAKWATER TERMINAL

1
02C-01

NOT TO SCALE

Eight (8) daybeacons will be located approximately 10 feet from seaward edge of breakwater. All daybeacon locations will be coordinated with engineer.

TOP OF POST SHALL BE CUT TO A MINIMUM 45 DEG. ANGLE TO DETER BIRD ROOSTING

(3) 3/4" DIA X 12" LONG A307 (HDG) DOME HEAD BOLTS WITH OGEE WASHER AND NUT (TYP)

RETROFLECTIVE BLACK LETTERS (TYP) SIGN LETTERING SHALL CONFORM TO 33CFR, CHAPTER 1, SUBPART 66.10-25.

ELEV. +4.5'

0.125" THICK MARINE GRADE ALUMINUM WITH WHITE SHEETING (ONE SIDE)

3" ORANGE RETROFLECTIVE BORDER

(1) 10" DIA X 25' LONG TREATED TIMBER POST (2.5 CCA)

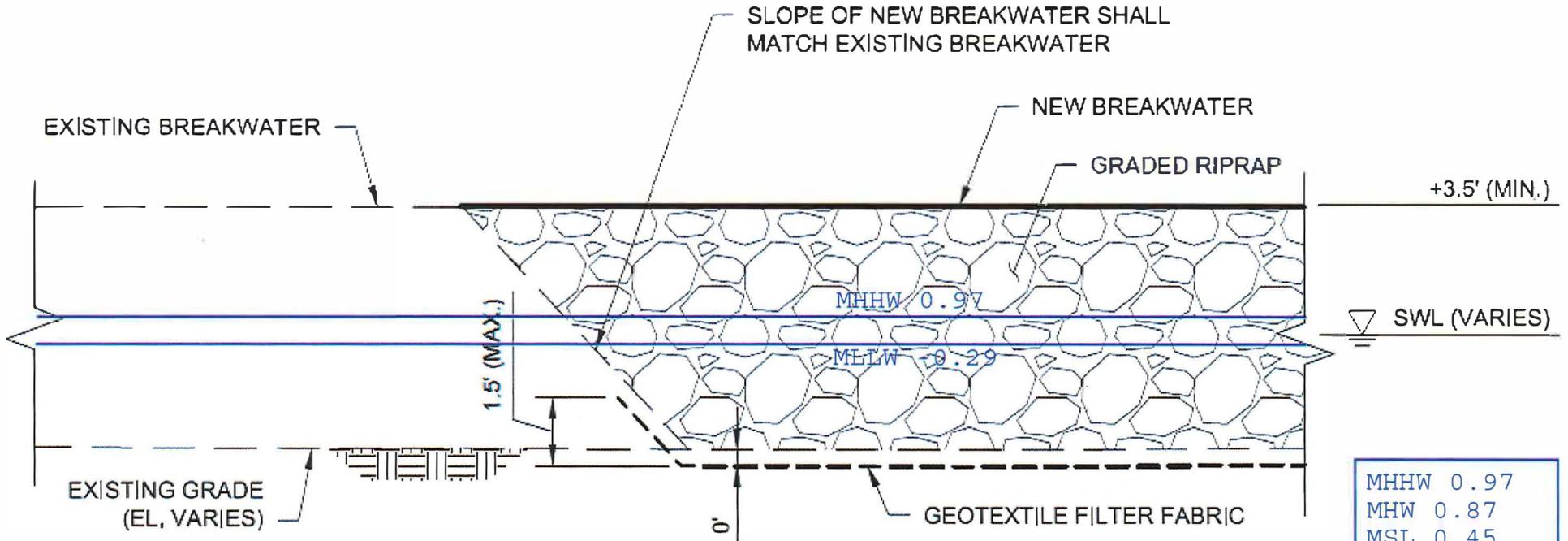
DRIVE OR JET TIMBER POST IN PLACE

6" MIN. TIP

TYPICAL DETAIL - DAYBEACON

2
02C-01

NOT TO SCALE

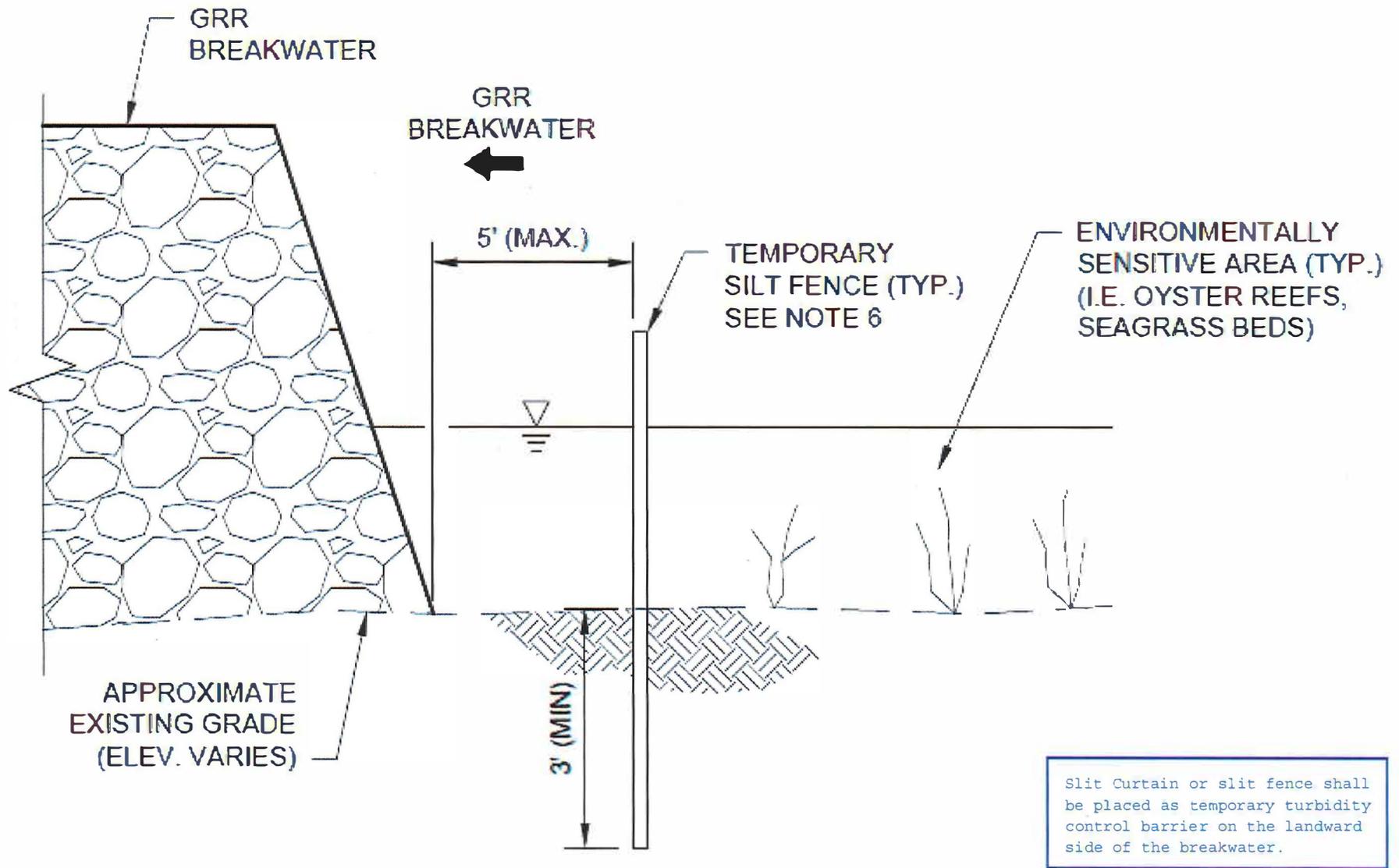


MHHW	0.97
MHW	0.87
MSL	0.45
MTL	0.39
NAVD88	0.0
MLW	-0.09
MLLW	-0.29

**TYPICAL SECTION -
GRR BREAKWATER TERMINAL TIE-IN**

E
02C-01

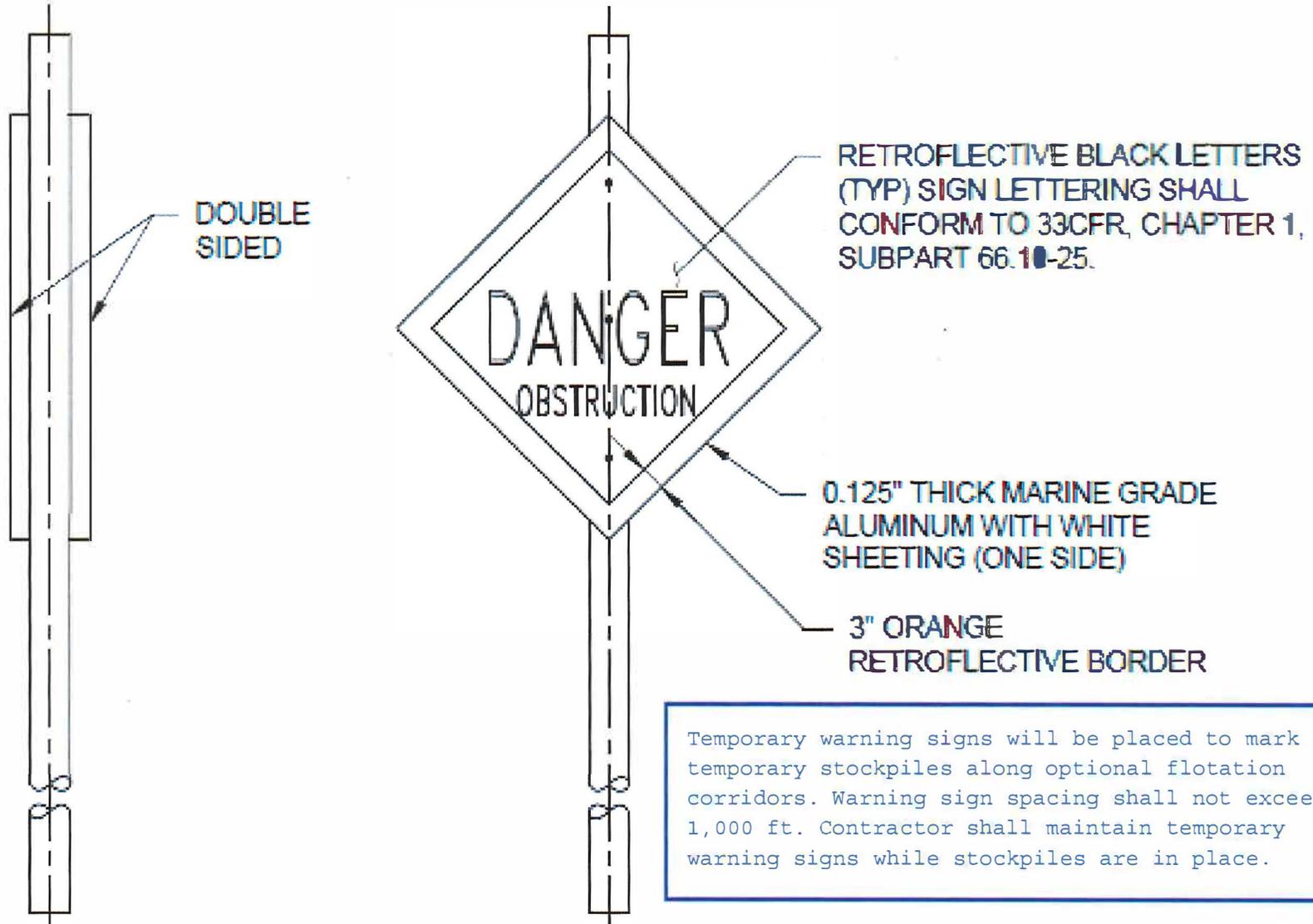
NOT TO SCALE



3

TYPICAL DETAIL - SILT FENCE

NOT TO SCALE



TYPICAL DETAIL - DOUBLE SIDED
 TEMPORARY WARNING SIGN

4
 02C-01

NOT TO SCALE