



**US Army Corps
of Engineers®**
New York District

Integrated Hurricane Sandy General Reevaluation Report and Environmental Impact Statement

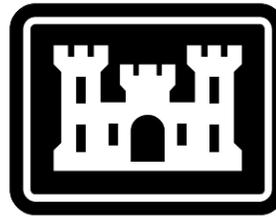
Atlantic Coast of New York

East Rockaway Inlet to Rockaway Inlet and Jamaica Bay

Sub Appendix A1-C: PLANS AND SECTIONS FOR THE RECOMMENDED PLAN FOR THE ATLANTIC OCEAN SHOREFRONT

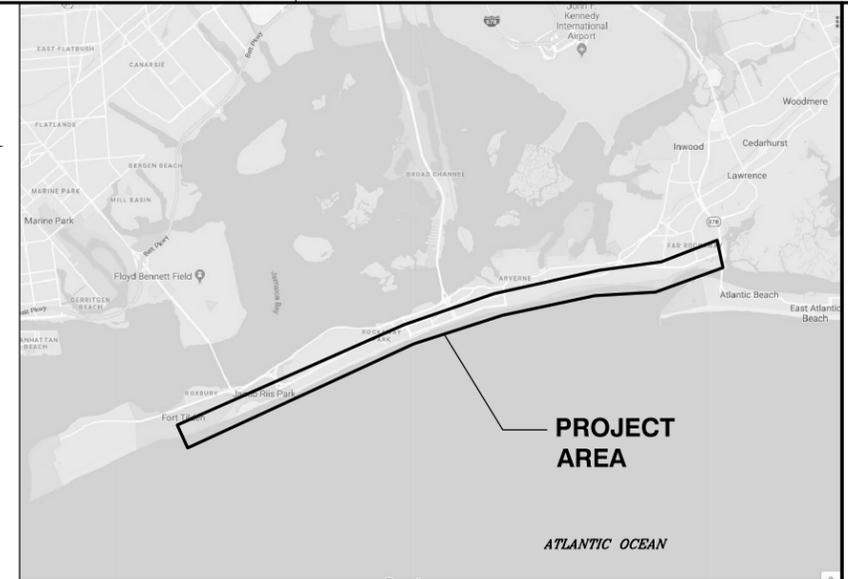
US Army Corps of Engineers





INTEGRATED HURRICANE SANDY GENERAL RE-EVALUATION REPORT AND ENVIRONMENTAL IMPACT STATEMENT

ATLANTIC COAST OF NEW YORK



EAST ROCKAWAY INLET TO ROCKAWAY INLET

INDEX TO DRAWINGS

INDEX NO.	SHEET NO.	SHEET TITLE
1	G-001	COVER SHEET
2	G-002	SHEET KEY PLAN
3	CS-101	SITE PLAN (1 OF 17)
4	CS-102	SITE PLAN (2 OF 17)
5	CS-103	SITE PLAN (3 OF 17)
6	CS-104	SITE PLAN (4 OF 17)
7	CS-105	SITE PLAN (5 OF 17)
8	CS-106	SITE PLAN (6 OF 17)
9	CS-107	SITE PLAN (7 OF 17)
10	CS-108	SITE PLAN (8 OF 17)
11	CS-109	SITE PLAN (9 OF 17)
12	CS-110	SITE PLAN (10 OF 17)
13	CS-111	SITE PLAN (11 OF 17)
14	CS-112	SITE PLAN (12 OF 17)
15	CS-113	SITE PLAN (13 OF 17)
16	CS-114	SITE PLAN (14 OF 17)
17	CS-115	SITE PLAN (15 OF 17)
18	CS-116	SITE PLAN (16 OF 17)
19	CS-117	SITE PLAN (17 OF 17)
20	CS-301	BEACH FILL TYPICAL SECTIONS
21	CS-302	COMPOSITE SEAWALL TYPICAL SECTIONS
22	CS-303	CROSS SECTIONS (SHEET 1 OF 5)
23	CS-304	CROSS SECTIONS (SHEET 2 OF 5)
24	CS-305	CROSS SECTIONS (SHEET 3 OF 5)
25	CS-306	CROSS SECTIONS (SHEET 4 OF 5)
26	CS-307	CROSS SECTIONS (SHEET 5 OF 5)
27	CS-401	TYPICAL PLAN AND PROFILE GROIN CONSTRUCTION REACH 2
28	CS-402	TYPICAL PLAN AND PROFILE GROIN CONSTRUCTION REACH 2 & 3
29	CS-403	TYPICAL PLAN AND PROFILE GROIN CONSTRUCTION REACH 3
30	CS-404	TYPICAL SECTIONS GROIN CONSTRUCTION REACH 3
31	CS-405	TYPICAL PLAN AND PROFILE GROIN CONSTRUCTION REACH 4
32	CS-406	TYPICAL SECTIONS GROIN CONSTRUCTION REACH 4
33	CS-407	TYPICAL PLAN AND PROFILE GROIN CONSTRUCTION REACH 5
34	CS-408	TYPICAL PLAN AND PROFILE GROIN CONSTRUCTION REACH 6A
35	CS-409	TYPICAL PLAN AND PROFILE GROIN CONSTRUCTION REACH 6A
36	CS-410	TYPICAL SECTIONS GROIN CONSTRUCTION REACH 6A

PRELIMINARY
NOT FOR CONSTRUCTION



US Army Corps
of Engineers®

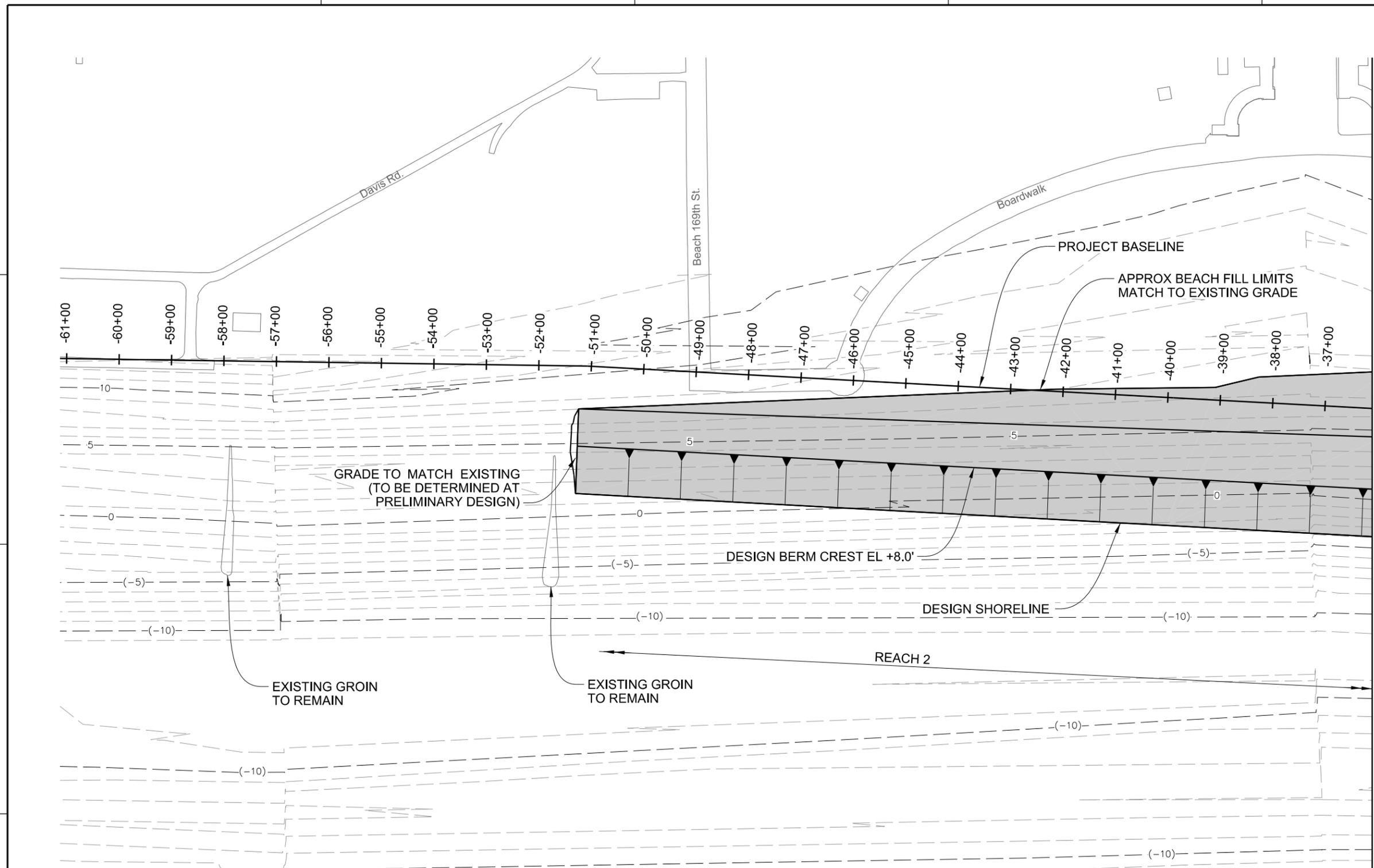
MARK	DATE	DESCRIPTION
C	08.30.18	DRAFT FINAL GRR-APPENDIX A1.C
B	08.20.18	DRAFT FINAL GRR-APPENDIX A1.C
A	07.19.18	DRAFT FINAL GRR-APPENDIX A1.B

DESIGNED BY: MKS	DATE ISSUED: 8/27/2018	DESIGNED BY: MKS	DATE ISSUED: 8/27/2018
DRAWN BY: SA	DESIGNED BY: MKS	CONTRACT NO.:	FILE NUMBER:
SUBMITTED BY: SA	DESIGNED BY: MKS	CONTRACT NO.:	FILE NUMBER:
FILE NAME: W912DS_A1_G-001.dgn	DESIGNED BY: MKS	CONTRACT NO.:	FILE NUMBER:

INTEGRATED HURRICANE SANDY GENERAL
RE-EVALUATION REPORT AND ENVIRONMENTAL
IMPACT STATEMENT

COVER SHEET

SHEET ID
G-001
SHEET 1 OF 36



MATCH LINE - SEE SHEET CS-102

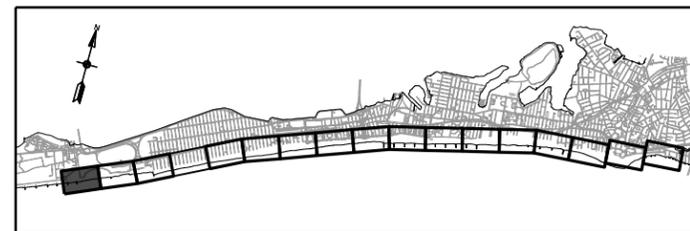
NOTES

- EXISTING CONTOURS ARE BASED ON POST-SANDY SURVEY PERFORMED BY MCKIM & CREED FROM FEBRUARY 25TH, 2013 TO MARCH 5TH, 2013.
- ALL ELEVATIONS REFERENCED TO NAVD88.
- TYPICAL SECTIONS SHOWN ON SHEETS CS-301 TO CS-302.
- SECTIONS SHOWN ON SHEETS CS-301 TO CS-307.
- GROIN PLAN PROFILES AND SECTIONS SHOWN ON SHEETS CS-401 TO CS-410.
- BEACH CONSTRUCTION TEMPLATE WILL EXTEND TO EXISTING GRADE AND IS NOT SHOWN FOR CLARITY.

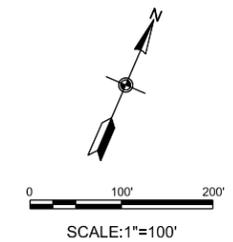
LEGEND

- BASELINE
- SHEET PILE WALL
- BURIED SEAWALL
- BEACH FILL
- SPLASH APRON
- EXISTING BAFFLE WALL
- EXISTING CONTOURS (BATHYMETRY)

**PRELIMINARY
NOT FOR CONSTRUCTION**



KEY PLAN



MARK	DESCRIPTION	DATE	APPR.
C	DRAFT FINAL GRR-APPENDIX A1.C	08.30.18	MK
B	DRAFT FINAL GRR-APPENDIX A1.C	08.20.18	MK
A	DRAFT FINAL GRR-APPENDIX A1.B	07.19.18	MK

DESIGNED BY: MK	DATE: 08/28/18	SOLICITATION NO.:
DRAWN BY: MK	CHECKED BY: MK	CONTRACT NO.:
SUBMITTED BY: SA	PLotted DATE: 8/28/2018	FILE NUMBER:
U.S. ARMY CORPS OF ENGINEERS U.S. ARMY ENGINEER DISTRICT NEW YORK http://www.nan.usace.army.mil	MOFFATT & NICHOL 529 FIFTH AVE., 14TH FLOOR NEW YORK, NY 10017 212-768-7454	FILE NAME: W912DS_A1_CS-101.dgn

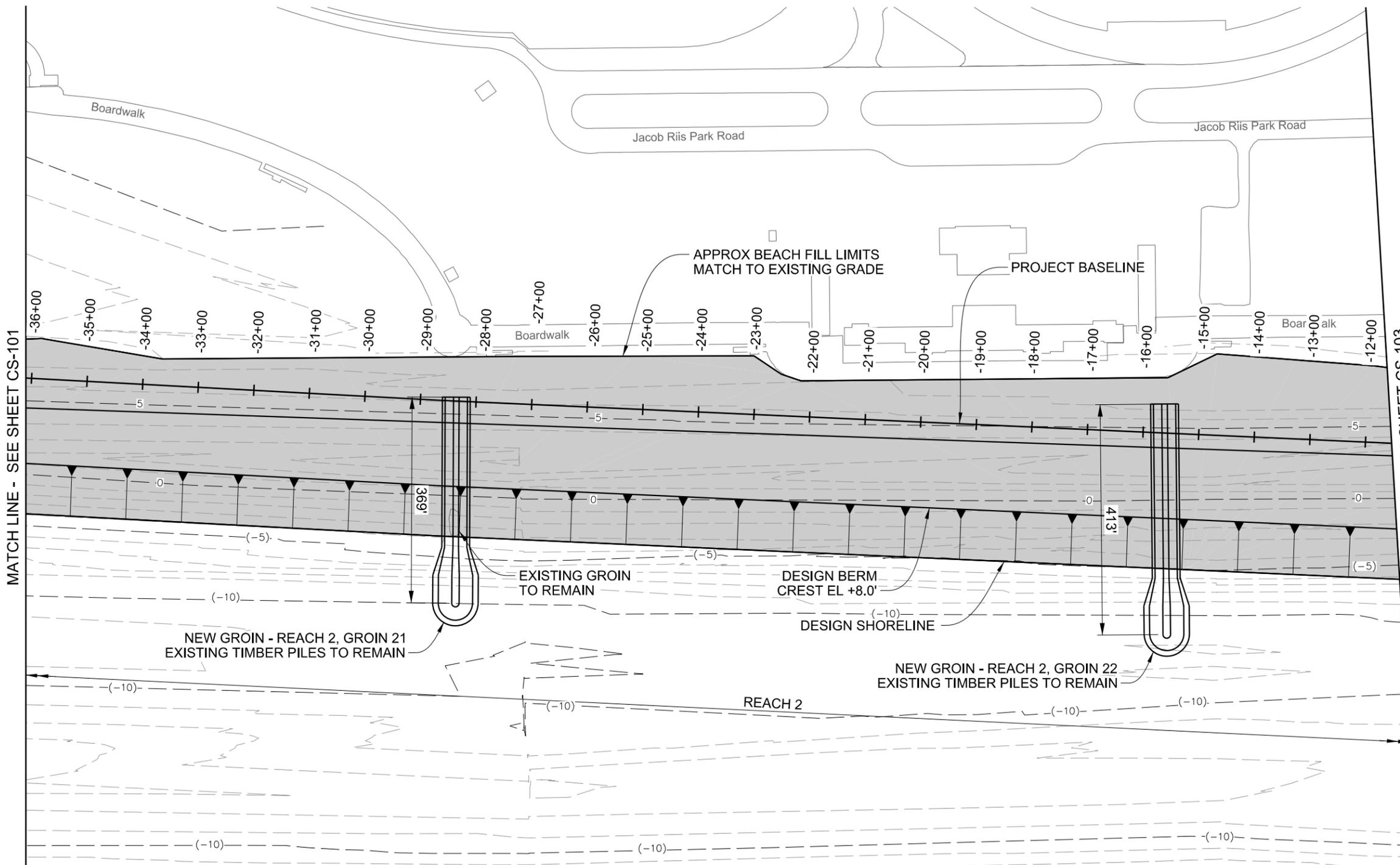
INTEGRATED HURRICANE SANDY GENERAL RE-EVALUATION REPORT AND ENVIRONMENTAL IMPACT STATEMENT

SITE PLAN (1 OF 17)

SHEET ID
CS-101
SHEET 3 OF 36

MATCH LINE - SEE SHEET CS-101

MATCH LINE - SEE SHEET CS-103



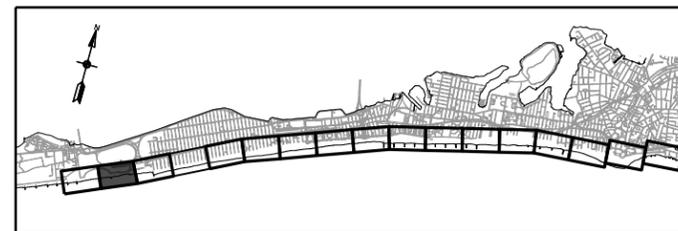
NOTES

- EXISTING CONTOURS ARE BASED ON POST-SANDY SURVEY PERFORMED BY MCKIM & CREED FROM FEBRUARY 25TH, 2013 TO MARCH 5TH, 2013.
- ALL ELEVATIONS REFERENCED TO NAVD88.
- TYPICAL SECTIONS SHOWN ON SHEETS CS-301 TO CS-302.
- SECTIONS SHOWN ON SHEETS CS-301 TO CS-307.
- GROIN PLAN PROFILES AND SECTIONS SHOWN ON SHEETS CS-401 TO CS-410.
- BEACH CONSTRUCTION TEMPLATE WILL EXTEND TO EXISTING GRADE AND IS NOT SHOWN FOR CLARITY.

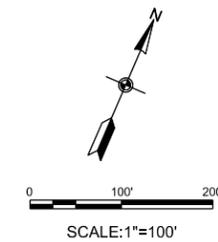
LEGEND

- BASELINE
- SHEET PILE WALL
- BURIED SEAWALL
- BEACH FILL
- SPLASH APRON
- EXISTING BAFFLE WALL
- EXISTING CONTOURS (BATHYMETRY)

**PRELIMINARY
NOT FOR CONSTRUCTION**



KEY PLAN



US Army Corps of Engineers

DATE	DESCRIPTION	MARK
08/30/18	DRAFT FINAL GRR-APPENDIX A1.C	MK
08/20/18	DRAFT FINAL GRR-APPENDIX A1.C	MK
07/19/18	DRAFT FINAL GRR-APPENDIX A1.C	MK
		APPR.

DESIGNED BY: MK	DATE: 08/28/18
DRAWN BY: MK	SUBMITTED BY: MK
CHECKED BY: MK	FILE NAME: W912DS_A1_CS-102.dgn
PROJECT NO.:	CONTRACT NO.:
FILE NUMBER:	ANSI D:
U.S. ARMY CORPS OF ENGINEERS U.S. ARMY ENGINEER DISTRICT NEW YORK http://www.nan.usace.army.mil	MOFFATT & NICHOL 529 FIFTH AVE., 14TH FLOOR NEW YORK, NY 10017 212-768-7454

INTEGRATED HURRICANE SANDY GENERAL RE-EVALUATION REPORT AND ENVIRONMENTAL IMPACT STATEMENT

SITE PLAN (2 OF 17)

SHEET ID
CS-102
SHEET 4 OF 36



US Army Corps of Engineers

MARK	DESCRIPTION	DATE	APPR.
C	DRAFT FINAL GRR-APPENDIX A1.C	08.30.18	MK
B	DRAFT FINAL GRR-APPENDIX A1.C	08.20.18	MK
A	DRAFT FINAL GRR-APPENDIX A1.B	07.19.18	MK

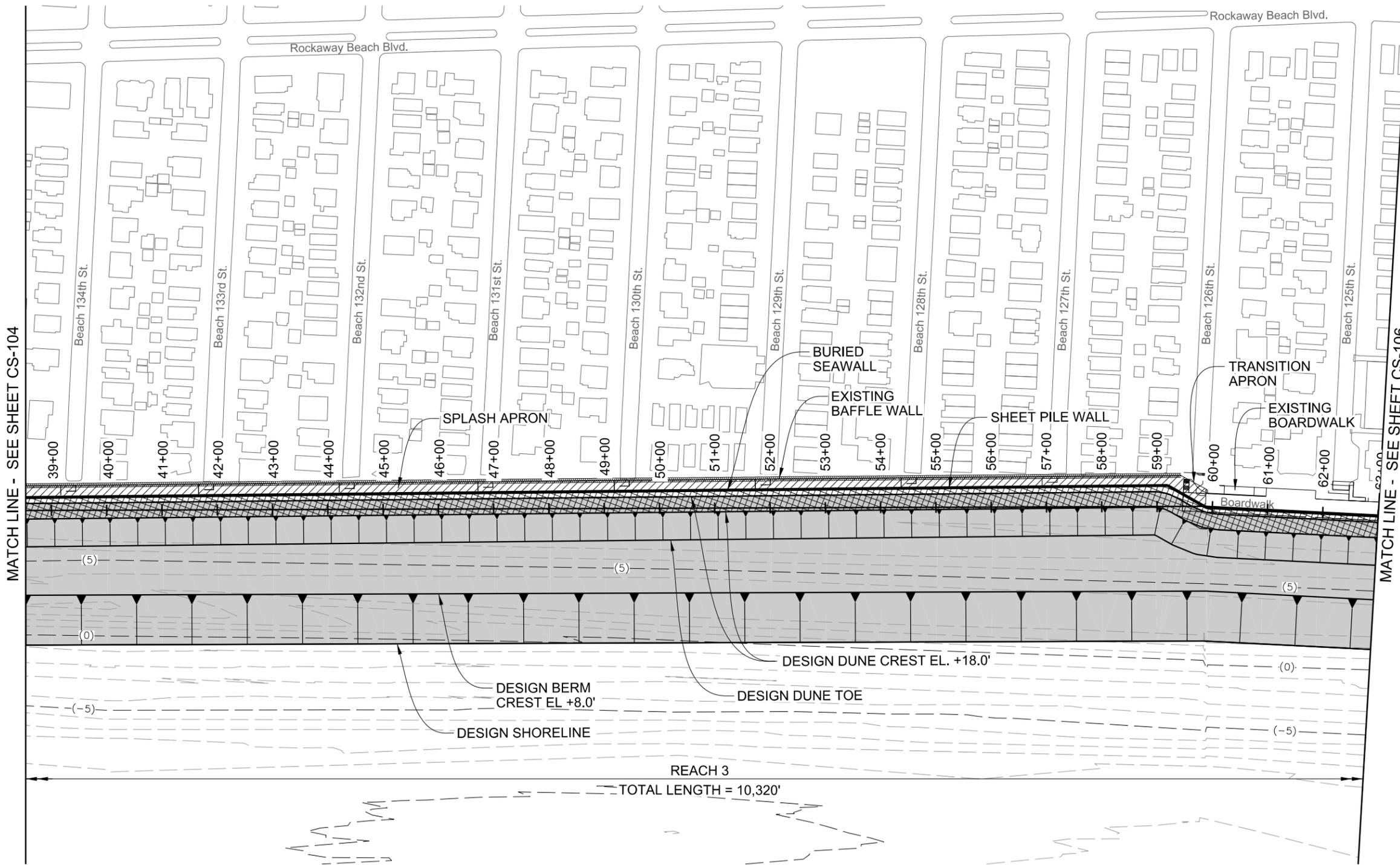
DESIGNED BY: WY SA MK	DATE: 08/28/18	SUBMITTED BY: WY SA MK	CONTRACT NO.:
DESIGNED BY: WY SA MK	DATE: 08/28/18	FILE NUMBER:	

INTEGRATED HURRICANE SANDY GENERAL RE-EVALUATION REPORT AND ENVIRONMENTAL IMPACT STATEMENT

SHEET ID
CS-105
SHEET 7 OF 36

MATCH LINE - SEE SHEET CS-104

MATCH LINE - SEE SHEET CS-106



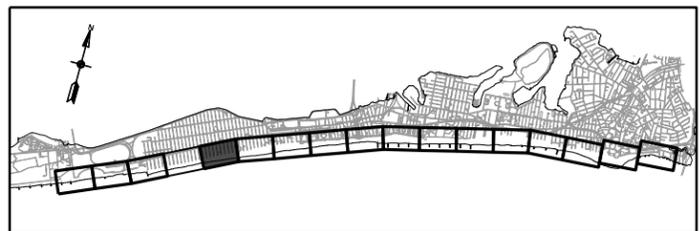
NOTES

- EXISTING CONTOURS ARE BASED ON POST-SANDY SURVEY PERFORMED BY MCKIM & CREED FROM FEBRUARY 25TH, 2013 TO MARCH 5TH, 2013.
- ALL ELEVATIONS REFERENCED TO NAVD88.
- TYPICAL SECTIONS SHOWN ON SHEETS CS-301 TO CS-302
- SECTIONS SHOWN ON SHEETS CS-301 TO CS-307.
- GROIN PLAN PROFILES AND SECTIONS SHOWN ON SHEETS CS-401 TO CS-410.
- BEACH CONSTRUCTION TEMPLATE WILL EXTEND TO EXISTING GRADE AND IS NOT SHOWN FOR CLARITY.

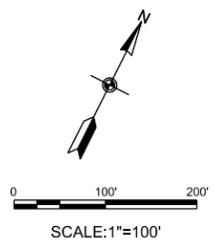
LEGEND

- BASELINE
- SHEET PILE WALL
- BURIED SEAWALL
- BEACH FILL
- SPLASH APRON
- EXISTING BAFFLE WALL
- EXISTING CONTOURS (BATHYMETRY)

**PRELIMINARY
NOT FOR CONSTRUCTION**



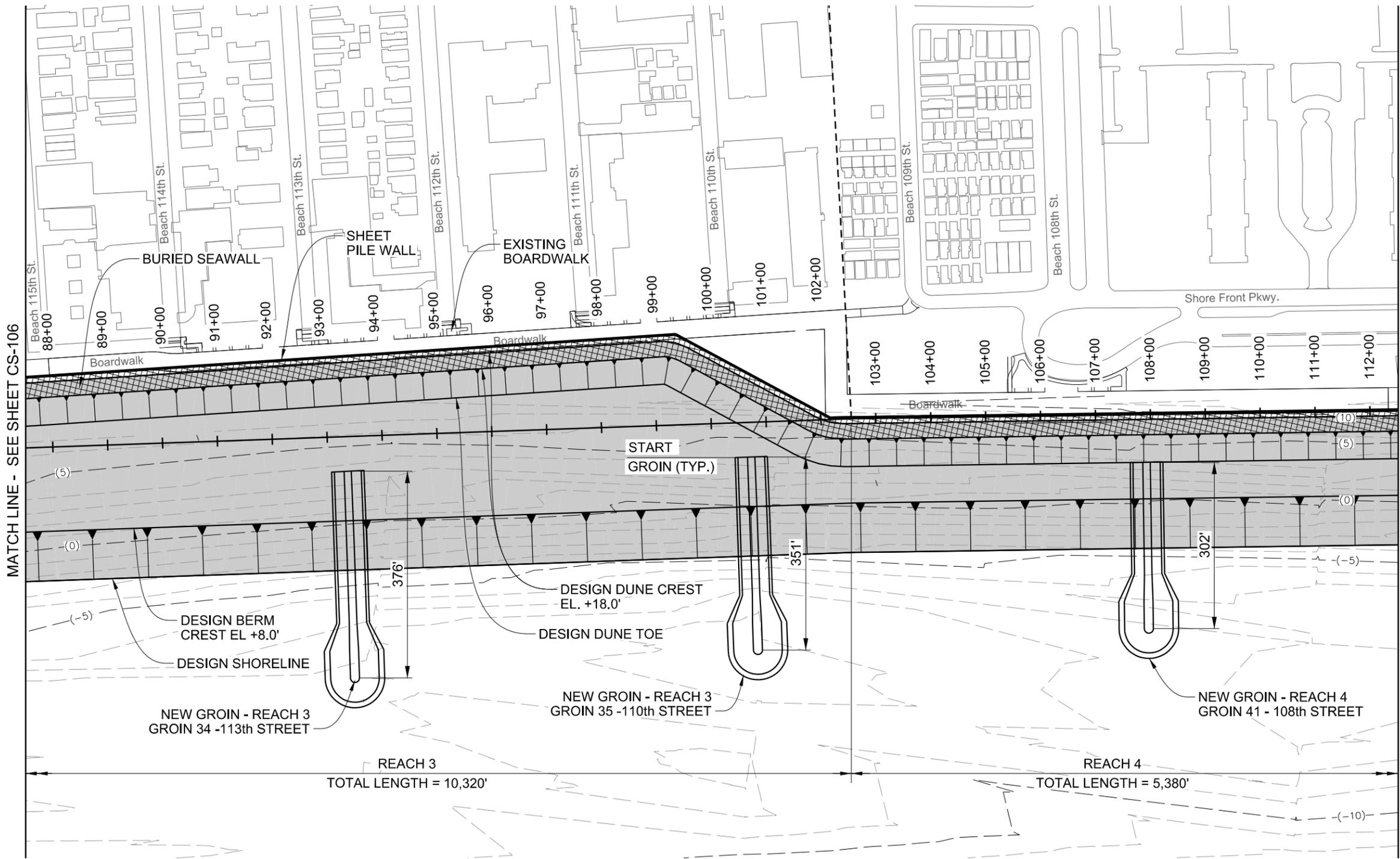
KEY PLAN



SCALE: 1"=100'

MATCH LINE - SEE SHEET CS-106

MATCH LINE - SEE SHEET CS-108



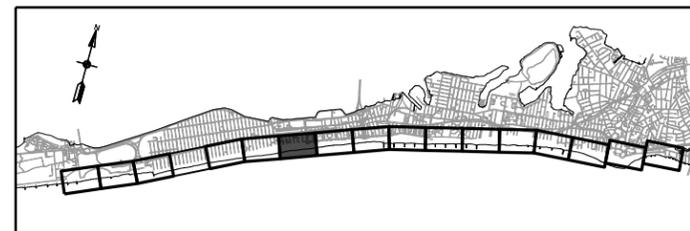
NOTES

- EXISTING CONTOURS ARE BASED ON POST-SANDY SURVEY PERFORMED BY MCKIM & CREED FROM FEBRUARY 25TH, 2013 TO MARCH 5TH, 2013.
- ALL ELEVATIONS REFERENCED TO NAVD88.
- TYPICAL SECTIONS SHOWN ON SHEETS CS-301 TO CS-302.
- SECTIONS SHOWN ON SHEETS CS-301 TO CS-307.
- GROIN PLAN PROFILES AND SECTIONS SHOWN ON SHEETS CS-401 TO CS-410.
- BEACH CONSTRUCTION TEMPLATE WILL EXTEND TO EXISTING GRADE AND IS NOT SHOWN FOR CLARITY.

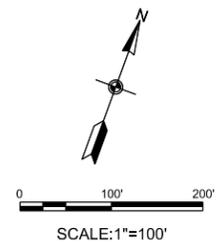
LEGEND

- BASELINE
- SHEET PILE WALL
- BURIED SEAWALL
- BEACH FILL
- SPLASH APRON
- EXISTING BAFFLE WALL
- EXISTING CONTOURS (BATHYMETRY)

**PRELIMINARY
NOT FOR CONSTRUCTION**



KEY PLAN



US Army Corps of Engineers®

DATE	DESCRIPTION	MARK
08.30.18	DRAFT FINAL GRR-APPENDIX A1.C	MK
08.20.18	DRAFT FINAL GRR-APPENDIX A1.C	MK
07.19.18	DRAFT FINAL GRR-APPENDIX A1.B	MK
		APPR.

DESIGNED BY: MKN	DATE: 08/28/18
CHECKED BY: MKN	SUBMITTAL NO.:
DESIGNED BY: MKN	CONTRACT NO.:
DESIGNED BY: MKN	FILE NUMBER:
DESIGNED BY: MKN	FILE NAME: W912DS_A1_CS-107.dgn
DESIGNED BY: MKN	ANSI D:

INTEGRATED HURRICANE SANDY GENERAL RE-EVALUATION REPORT AND ENVIRONMENTAL IMPACT STATEMENT

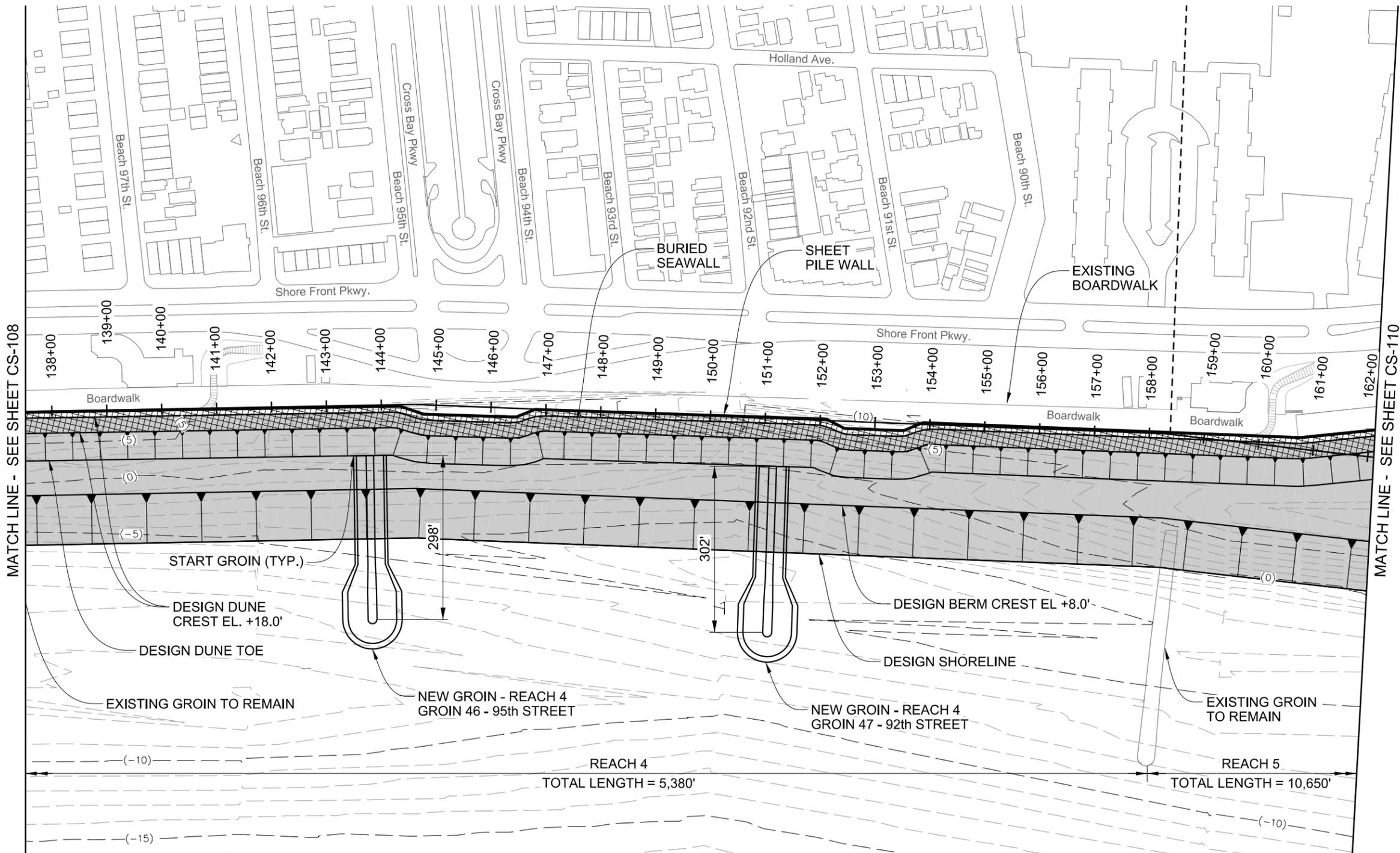
SHEET ID
CS-107

SHEET 9 OF 36

SITE PLAN (7 OF 17)

MATCH LINE - SEE SHEET CS-108

MATCH LINE - SEE SHEET CS-110



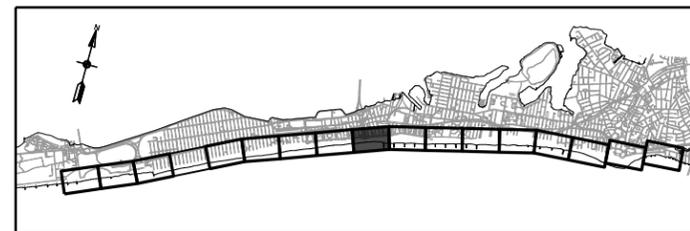
NOTES

- EXISTING CONTOURS ARE BASED ON POST-SANDY SURVEY PERFORMED BY MCKIM & CREED FROM FEBRUARY 25TH, 2013 TO MARCH 5TH, 2013.
- ALL ELEVATIONS REFERENCED TO NAVD88.
- TYPICAL SECTIONS SHOWN ON SHEETS CS-301 TO CS-302
- SECTIONS SHOWN ON SHEETS CS-301 TO CS-307.
- GROIN PLAN PROFILES AND SECTIONS SHOWN ON SHEETS CS-401 TO CS-410.
- BEACH CONSTRUCTION TEMPLATE WILL EXTEND TO EXISTING GRADE AND IS NOT SHOWN FOR CLARITY.

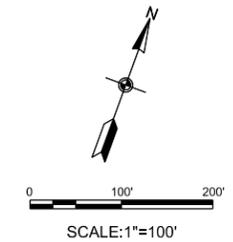
LEGEND

- BASELINE
- SHEET PILE WALL
- BURIED SEAWALL
- BEACH FILL
- SPLASH APRON
- EXISTING BAFFLE WALL
- EXISTING CONTOURS (BATHYMETRY)

**PRELIMINARY
NOT FOR CONSTRUCTION**



KEY PLAN



US Army Corps of Engineers

DATE	DESCRIPTION	MARK
08.30.18	DRAFT FINAL GRR-APPENDIX A1.C	MK
08.20.18	DRAFT FINAL GRR-APPENDIX A1.C	MK
07.19.18	DRAFT FINAL GRR-APPENDIX A1.C	MK
		APPR.

DESIGNED BY: MCKIM & CREED	DATE: 08/28/18	SUBMITTED BY: SA	CONTRACT NO.:
CHECKED BY: MK	DESIGNED BY: MK	FILE NUMBER:	
U.S. ARMY CORPS OF ENGINEERS U.S. ARMY ENGINEER DISTRICT NEW YORK	U.S. ARMY ENGINEER DISTRICT NEW YORK	529 FIFTH AVE., 14TH FLOOR NEW YORK, NY 10017	212-768-7454

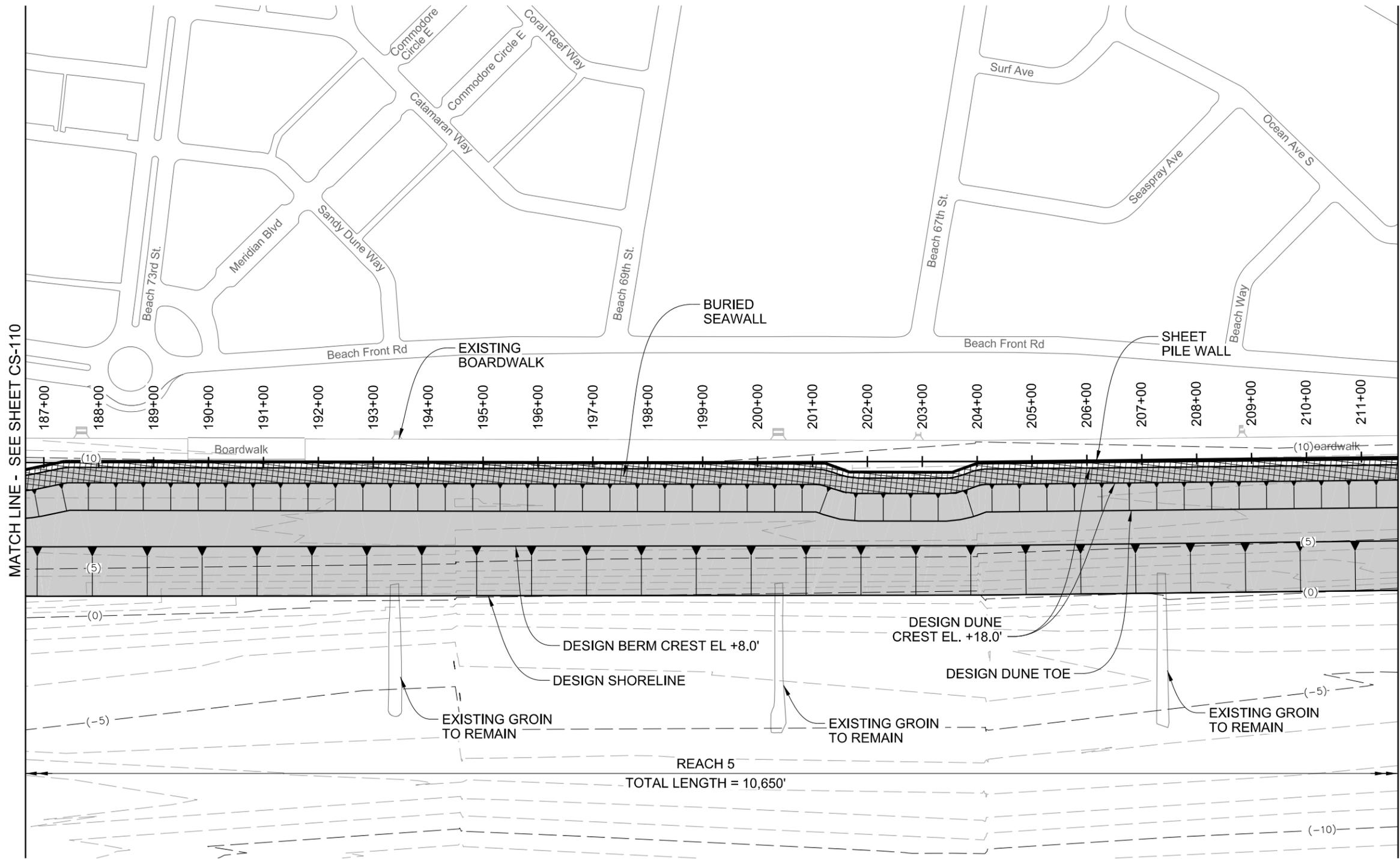
INTEGRATED HURRICANE SANDY GENERAL RE-EVALUATION REPORT AND ENVIRONMENTAL IMPACT STATEMENT

SHEET ID
CS-109
SHEET 11 OF 36

SITE PLAN (9 OF 17)

MATCH LINE - SEE SHEET CS-110

MATCH LINE - SEE SHEET CS-112



REACH 5
TOTAL LENGTH = 10,650'

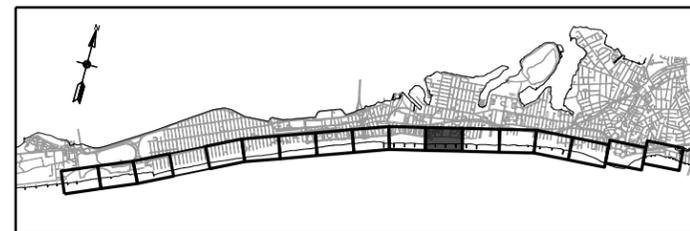
NOTES

- EXISTING CONTOURS ARE BASED ON POST-SANDY SURVEY PERFORMED BY MCKIM & CREED FROM FEBRUARY 25TH, 2013 TO MARCH 5TH, 2013.
- ALL ELEVATIONS REFERENCED TO NAVD88.
- TYPICAL SECTIONS SHOWN ON SHEETS CS-301 TO CS-302.
- SECTIONS SHOWN ON SHEETS CS-301 TO CS-307.
- GROIN PLAN PROFILES AND SECTIONS SHOWN ON SHEETS CS-401 TO CS-410.
- BEACH CONSTRUCTION TEMPLATE WILL EXTEND TO EXISTING GRADE AND IS NOT SHOWN FOR CLARITY.

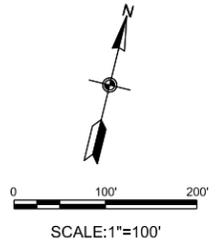
LEGEND

- BASELINE
- SHEET PILE WALL
- BURIED SEAWALL
- BEACH FILL
- SPLASH APRON
- EXISTING BAFFLE WALL
- EXISTING CONTOURS (BATHYMETRY)

**PRELIMINARY
NOT FOR CONSTRUCTION**



KEY PLAN



US Army Corps
of Engineers®

MARK	DESCRIPTION	DATE	APPR.
C	DRAFT FINAL GRR-APPENDIX A1C	08.30.18	MK
B	DRAFT FINAL GRR-APPENDIX A1B	08.20.18	MK
A	DRAFT FINAL GRR-APPENDIX A1A	07.19.18	MK

DESIGNED BY: WY SA MK	DATE: 08/28/18
DRAWN BY: MK	SUBMITTAL NO.:
CHECKED BY: SA	CONTRACT NO.:
DATE: 8/28/2018	FILE NUMBER:
SCALE: 1"=100'	FILE NAME: W912DS_A1_CS-111.dgn
ANSI D	

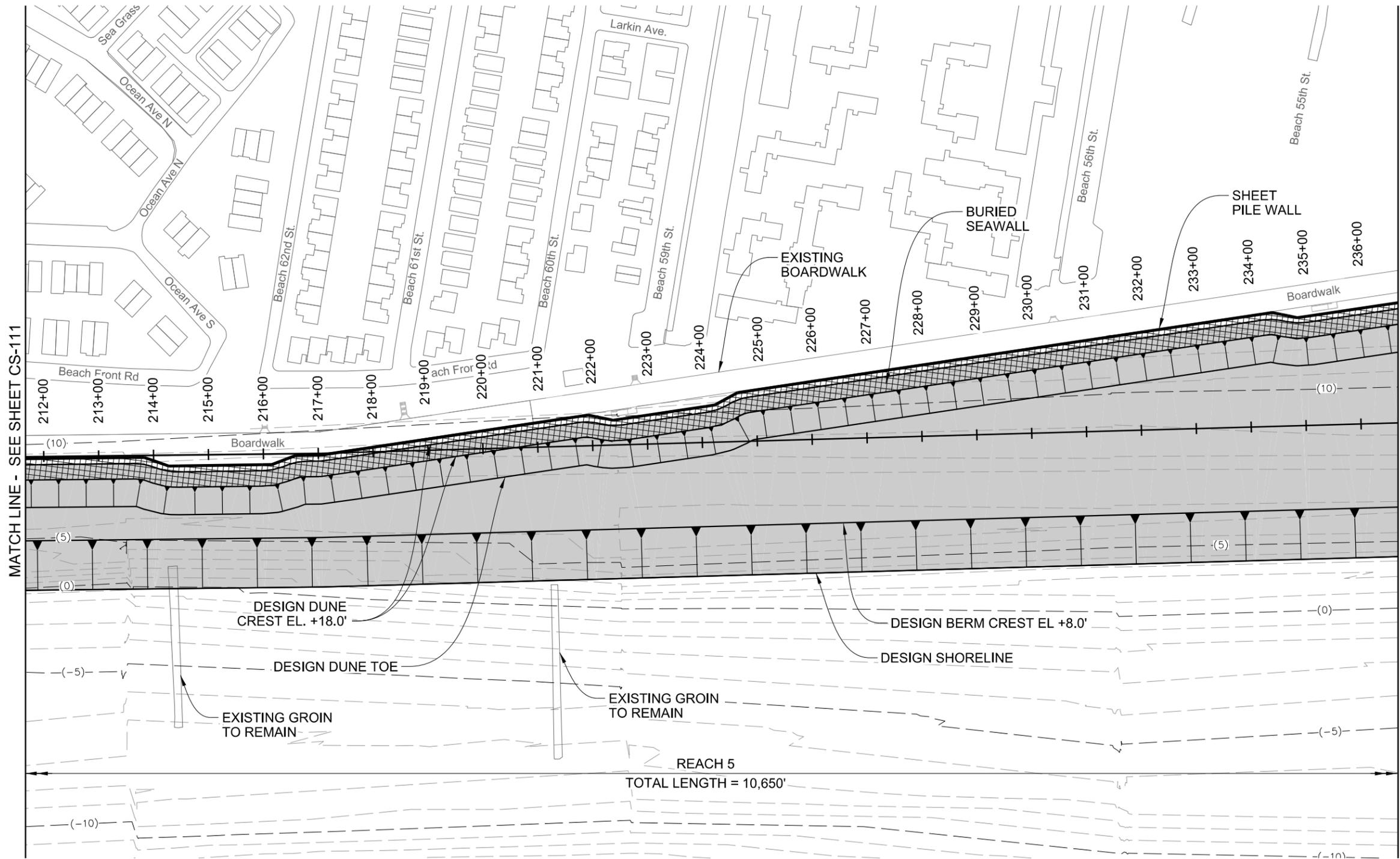
INTEGRATED HURRICANE SANDY GENERAL
RE-EVALUATION REPORT AND ENVIRONMENTAL
IMPACT STATEMENT

SITE PLAN (11 OF 17)

SHEET ID
CS-111
SHEET 13 OF 36

MATCH LINE - SEE SHEET CS-111

MATCH LINE - SEE SHEET CS-113



REACH 5
TOTAL LENGTH = 10,650'

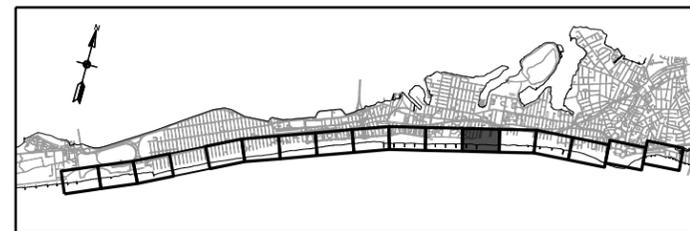
NOTES

- EXISTING CONTOURS ARE BASED ON POST-SANDY SURVEY PERFORMED BY MCKIM & CREED FROM FEBRUARY 25TH, 2013 TO MARCH 5TH, 2013.
- ALL ELEVATIONS REFERENCED TO NAVD88.
- TYPICAL SECTIONS SHOWN ON SHEETS CS-301 TO CS-302.
- SECTIONS SHOWN ON SHEETS CS-301 TO CS-307.
- GROIN PLAN PROFILES AND SECTIONS SHOWN ON SHEETS CS-401 TO CS-410.
- BEACH CONSTRUCTION TEMPLATE WILL EXTEND TO EXISTING GRADE AND IS NOT SHOWN FOR CLARITY.

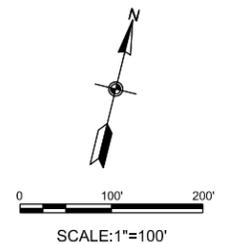
LEGEND

- BASELINE
- SHEET PILE WALL
- BURIED SEAWALL
- BEACH FILL
- SPLASH APRON
- EXISTING BAFFLE WALL
- EXISTING CONTOURS (BATHYMETRY)

**PRELIMINARY
NOT FOR CONSTRUCTION**



KEY PLAN



US Army Corps of Engineers

MARK	DATE	DESCRIPTION
A	07.19.18	DRAFT FINAL GRR-APPENDIX A.LB
B	08.20.18	DRAFT FINAL GRR-APPENDIX A.LC
C	08.30.18	DRAFT FINAL GRR-APPENDIX A.LC
APPR.		

DESIGNED BY: MKS	DATE: 08/28/18
DRAWN BY: MKS	ISSUED BY: MKS
CHECKED BY: MKS	CONTRACT NO.:
SA	FILE NUMBER:
SA	FILE NAME: W912DS_A1_CS-112.dgn
SA	ANSI D

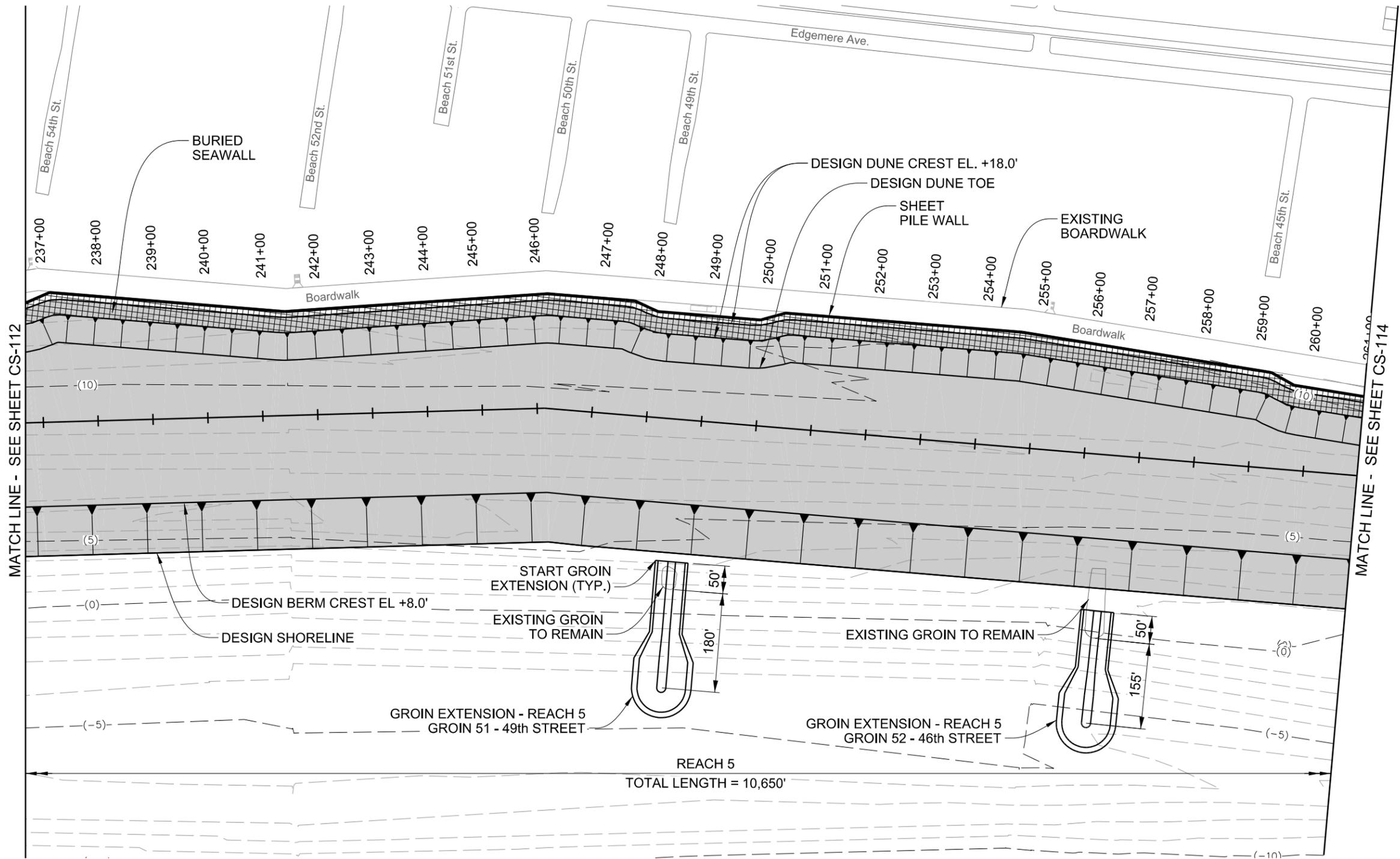
INTEGRATED HURRICANE SANDY GENERAL RE-EVALUATION REPORT AND ENVIRONMENTAL IMPACT STATEMENT

SITE PLAN (12 OF 17)

SHEET ID
CS-112
SHEET 14 OF 36

MATCH LINE - SEE SHEET CS-112

MATCH LINE - SEE SHEET CS-114



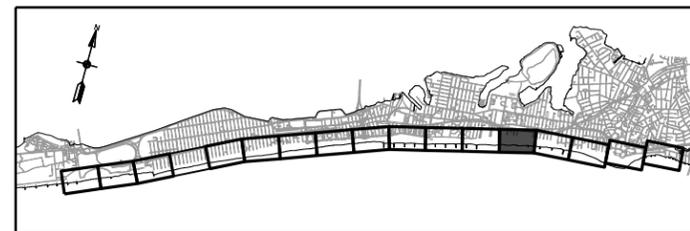
NOTES

- EXISTING CONTOURS ARE BASED ON POST-SANDY SURVEY PERFORMED BY MCKIM & CREED FROM FEBRUARY 25TH, 2013 TO MARCH 5TH, 2013.
- ALL ELEVATIONS REFERENCED TO NAVD88.
- TYPICAL SECTIONS SHOWN ON SHEETS CS-301 TO CS-302.
- SECTIONS SHOWN ON SHEETS CS-301 TO CS-307.
- GROIN PLAN PROFILES AND SECTIONS SHOWN ON SHEETS CS-401 TO CS-410.
- BEACH CONSTRUCTION TEMPLATE WILL EXTEND TO EXISTING GRADE AND IS NOT SHOWN FOR CLARITY.

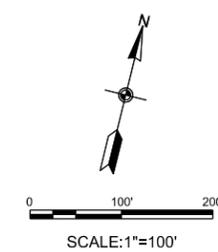
LEGEND

- BASELINE
- SHEET PILE WALL
- BURIED SEAWALL
- BEACH FILL
- SPLASH APRON
- EXISTING BAFFLE WALL
- EXISTING CONTOURS (BATHYMETRY)

**PRELIMINARY
NOT FOR CONSTRUCTION**



KEY PLAN



US Army Corps of Engineers

DATE	DESCRIPTION	MARK
08.30.18	DRAFT FINAL GRR-APPENDIX A.1.C	MK
08.20.18	DRAFT FINAL GRR-APPENDIX A.1.C	MK
07.19.18	DRAFT FINAL GRR-APPENDIX A.1.B	MK
		APPR.

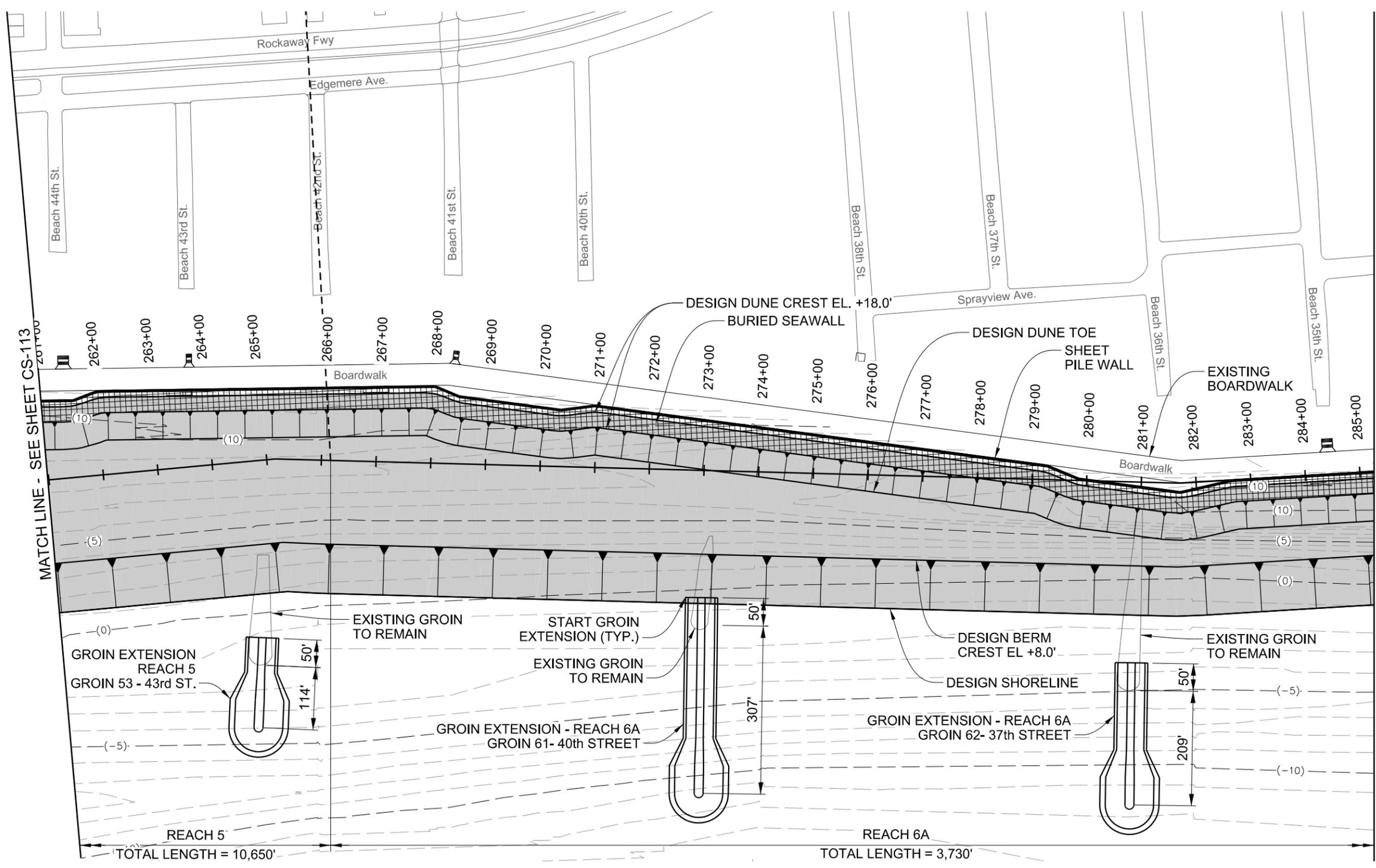
DESIGNED BY: MK	DATE: 08/28/18	SUBMITTED BY: MK	CONTRACT NO.:
CHECKED BY: MK	DESIGNED BY: MK	FILE NUMBER:	
U.S. ARMY CORPS OF ENGINEERS U.S. ARMY ENGINEER DISTRICT NEW YORK http://www.nan.usace.army.mil	MOFFATT & NICHOL 529 FIFTH AVE., 14TH FLOOR NEW YORK, NY 10017 212-768-7454	FILE NAME: W912DS_A1_CS-113.dgn	ANSI D

INTEGRATED HURRICANE SANDY GENERAL RE-EVALUATION REPORT AND ENVIRONMENTAL IMPACT STATEMENT

SITE PLAN (13 OF 17)

SHEET ID
CS-113
SHEET 15 OF 36

LAST PLOTTED BY: mestimable 1:03:14 PM 8/28/2018 FILE: W912DS_A1_CS-114.dgn PATH: Q:\NY19781-02\500_CADD\Active_GRR_Report-App A11



MATCH LINE - SEE SHEET CS-113

MATCH LINE - SEE SHEET CS-115

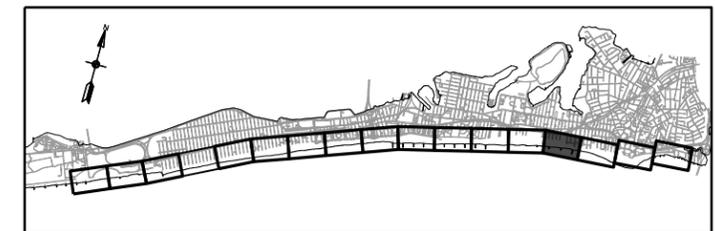
NOTES

- EXISTING CONTOURS ARE BASED ON POST-SANDY SURVEY PERFORMED BY MCKIM & CREED FROM FEBRUARY 25TH, 2013 TO MARCH 5TH, 2013.
- ALL ELEVATIONS REFERENCED TO NAVD88.
- TYPICAL SECTIONS SHOWN ON SHEETS CS-301 TO CS-302.
- SECTIONS SHOWN ON SHEETS CS-301 TO CS-307.
- GROIN PLAN PROFILES AND SECTIONS SHOWN ON SHEETS CS-401 TO CS-410.
- BEACH CONSTRUCTION TEMPLATE WILL EXTEND TO EXISTING GRADE AND IS NOT SHOWN FOR CLARITY.

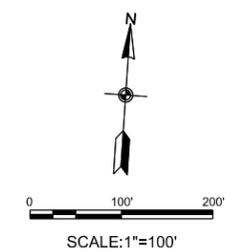
LEGEND

- BASELINE
- SHEET PILE WALL
- BURIED SEAWALL
- BEACH FILL
- SPLASH APRON
- EXISTING BAFFLE WALL
- EXISTING CONTOURS (BATHYMETRY)

**PRELIMINARY
NOT FOR CONSTRUCTION**



KEY PLAN



US Army Corps of Engineers

DATE	ISSUED BY	DESIGNED BY	DATE	DESCRIPTION
08.30.18	MK	SA	08.30.18	DRAFT FINAL GRR-APPENDIX A1.C
08.20.18	MK	SA	08.20.18	DRAFT FINAL GRR-APPENDIX A1.C
07.19.18	MK	SA	07.19.18	DRAFT FINAL GRR-APPENDIX A1.C
				APPR.

DATE	ISSUED BY	DESIGNED BY	DATE	DESCRIPTION
08.30.18	MK	SA	08.30.18	DRAFT FINAL GRR-APPENDIX A1.C
08.20.18	MK	SA	08.20.18	DRAFT FINAL GRR-APPENDIX A1.C
07.19.18	MK	SA	07.19.18	DRAFT FINAL GRR-APPENDIX A1.C
				APPR.

U.S. ARMY CORPS OF ENGINEERS	DESIGNED BY:	DATE:	08/30/18
U.S. ARMY ENGINEER DISTRICT	DESIGNED BY:	DATE:	08/30/18
NEW YORK	DESIGNED BY:	DATE:	08/30/18
http://www.nan.usace.army.mil	DESIGNED BY:	DATE:	08/30/18
MOFFATT & NICHOL	DESIGNED BY:	DATE:	08/30/18
529 FIFTH AVE., 14TH FLOOR	DESIGNED BY:	DATE:	08/30/18
NEW YORK, NY 10017	DESIGNED BY:	DATE:	08/30/18
212-768-7454	DESIGNED BY:	DATE:	08/30/18

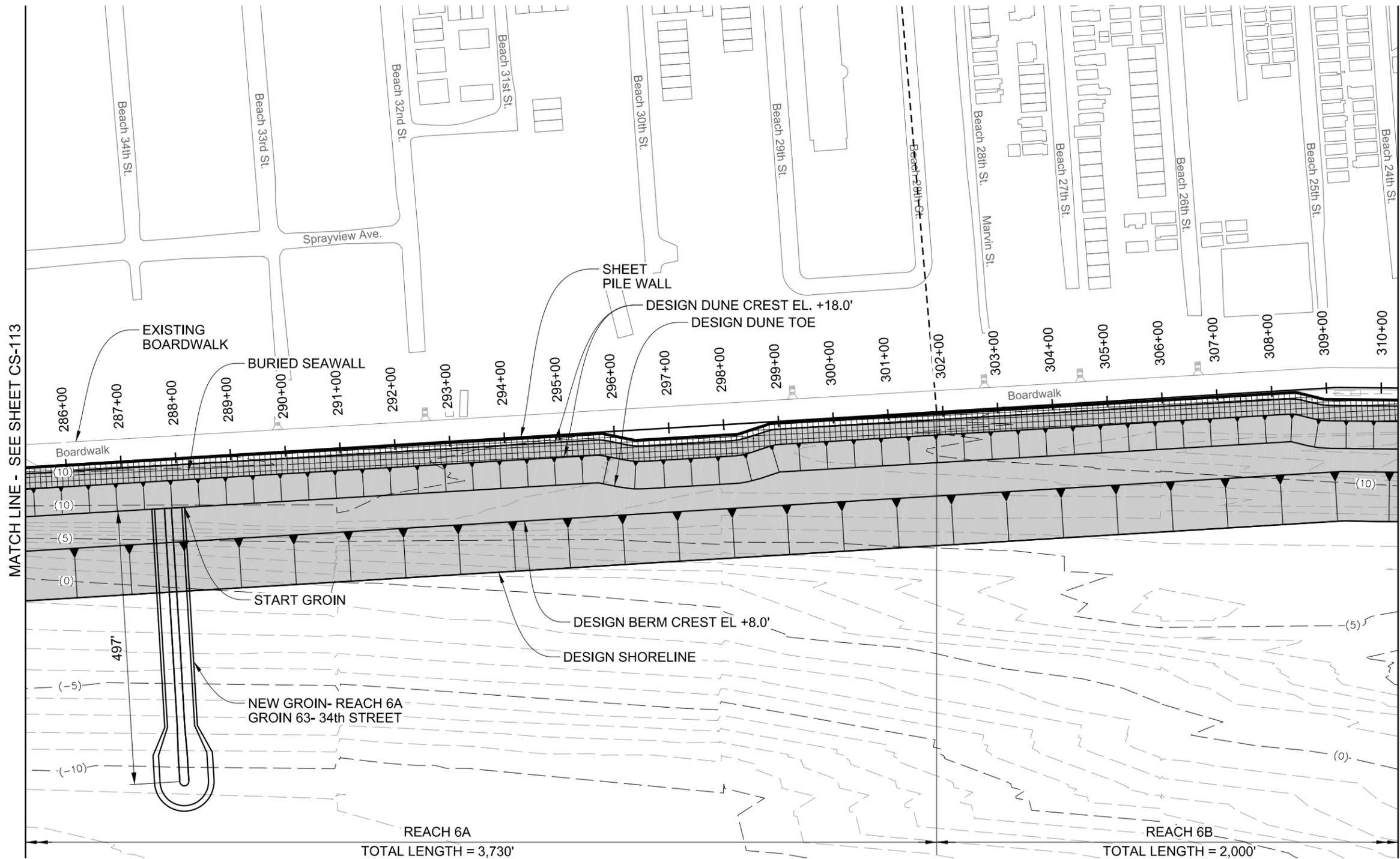
INTEGRATED HURRICANE SANDY GENERAL RE-EVALUATION REPORT AND ENVIRONMENTAL IMPACT STATEMENT

SITE PLAN (14 OF 17)

SHEET ID
CS-114
SHEET 16 OF 36

MATCH LINE - SEE SHEET CS-113

MATCH LINE - SEE SHEET CS-115



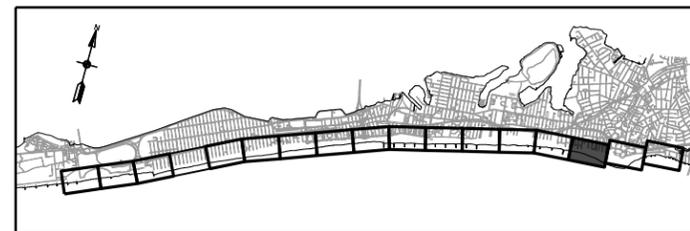
NOTES

- EXISTING CONTOURS ARE BASED ON POST-SANDY SURVEY PERFORMED BY MCKIM & CREED FROM FEBRUARY 25TH, 2013 TO MARCH 5TH, 2013.
- ALL ELEVATIONS REFERENCED TO NAVD88.
- TYPICAL SECTIONS SHOWN ON SHEETS CS-301 TO CS-302.
- SECTIONS SHOWN ON SHEETS CS-301 TO CS-307.
- GROIN PLAN PROFILES AND SECTIONS SHOWN ON SHEETS CS-401 TO CS-410.
- BEACH CONSTRUCTION TEMPLATE WILL EXTEND TO EXISTING GRADE AND IS NOT SHOWN FOR CLARITY.

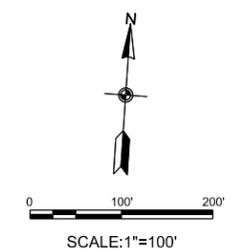
LEGEND

- BASELINE
- SHEET PILE WALL
- BURIED SEAWALL
- BEACH FILL
- SPLASH APRON
- EXISTING BAFFLE WALL
- EXISTING CONTOURS (BATHYMETRY)

**PRELIMINARY
NOT FOR CONSTRUCTION**



KEY PLAN



SCALE: 1"=100'



U.S. Army Corps of Engineers

DATE	ISSUE	DESCRIPTION	MARK	APPR.
08.30.18		DRAFT FINAL GRR-APPENDIX A.1.C	MK	
08.20.18		DRAFT FINAL GRR-APPENDIX A.1.C	MK	
07.19.18		DRAFT FINAL GRR-APPENDIX A.1.B	MK	

DESIGNED BY: SA MK	DATE: 08/28/18	SUBMITTED BY: SA MK	CONTRACT NO.:
DESIGNED BY: SA MK	DATE: 8/28/2018	FILE NUMBER:	
DESIGNED BY: SA MK	DATE: 8/28/2018	FILE NAME:	
DESIGNED BY: SA MK	DATE: 8/28/2018	FILE NAME:	

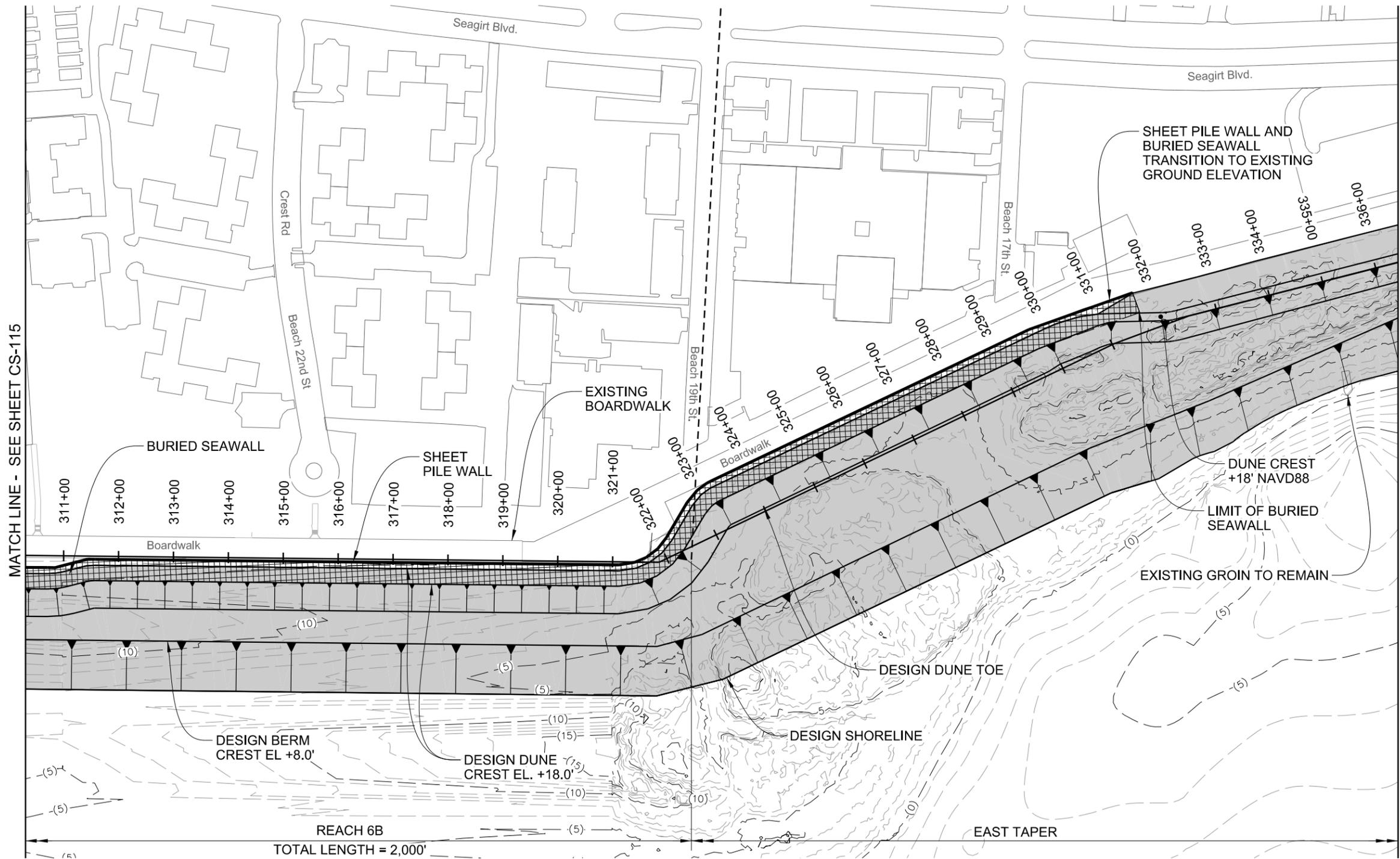
INTEGRATED HURRICANE SANDY GENERAL RE-EVALUATION REPORT AND ENVIRONMENTAL IMPACT STATEMENT

SITE PLAN (15 OF 17)

SHEET ID
CS-115
SHEET 17 OF 36

MATCH LINE - SEE SHEET CS-115

MATCH LINE - SEE SHEET CS-117



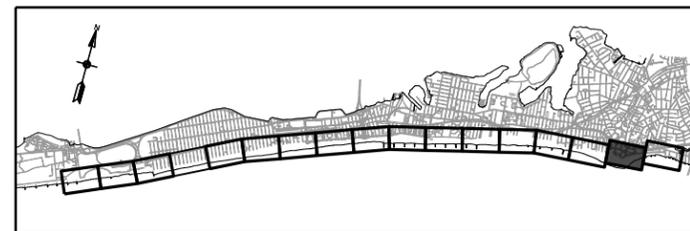
NOTES

- EXISTING CONTOURS ARE BASED ON THE FOLLOWING SOURCES:
 - GEOPHYSICAL DATA CENTER (NGDC) HURRICANE SANDY DIGITAL ELEVATION MODELS, 2014.
 - NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (NOAA) DIGITAL COAST, 2014.
 - 2013-2014 U.S. GEOLOGICAL SURVEY CMGP LIDAR: POST SANDY (NEW YORK CITY), 2018.
- ALL ELEVATIONS REFERENCED TO NAVD88.
- TYPICAL SECTIONS SHOWN ON SHEETS CS-301 TO CS-302.
- SECTIONS SHOWN ON SHEETS CS-301 TO CS-307.
- GROIN PLAN PROFILES AND SECTIONS SHOWN ON SHEETS CS-401 TO CS-410.
- BEACH CONSTRUCTION TEMPLATE WILL EXTEND TO EXISTING GRADE AND IS NOT SHOWN FOR CLARITY.

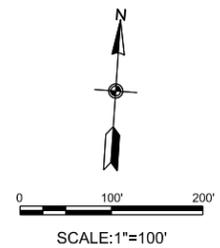
LEGEND

- +—+— BASELINE
- SHEET PILE WALL
- ▨ BURIED SEAWALL
- BEACH FILL
- ▨ SPLASH APRON
- ▨ EXISTING BAFFLE WALL
- (4)--- EXISTING CONTOURS (BATHYMETRY)

PRELIMINARY
NOT FOR CONSTRUCTION



KEY PLAN



SCALE: 1"=100'



US Army Corps of Engineers®

DATE	DESCRIPTION	MARK	DATE	APPR.
08.30.18	DRAFT FINAL GRR-APPENDIX A1C	MK	08.30.18	MK
08.20.18	DRAFT FINAL GRR-APPENDIX A1C	MK	08.20.18	MK
07.19.18	DRAFT FINAL GRR-APPENDIX A1B	MK	07.19.18	MK

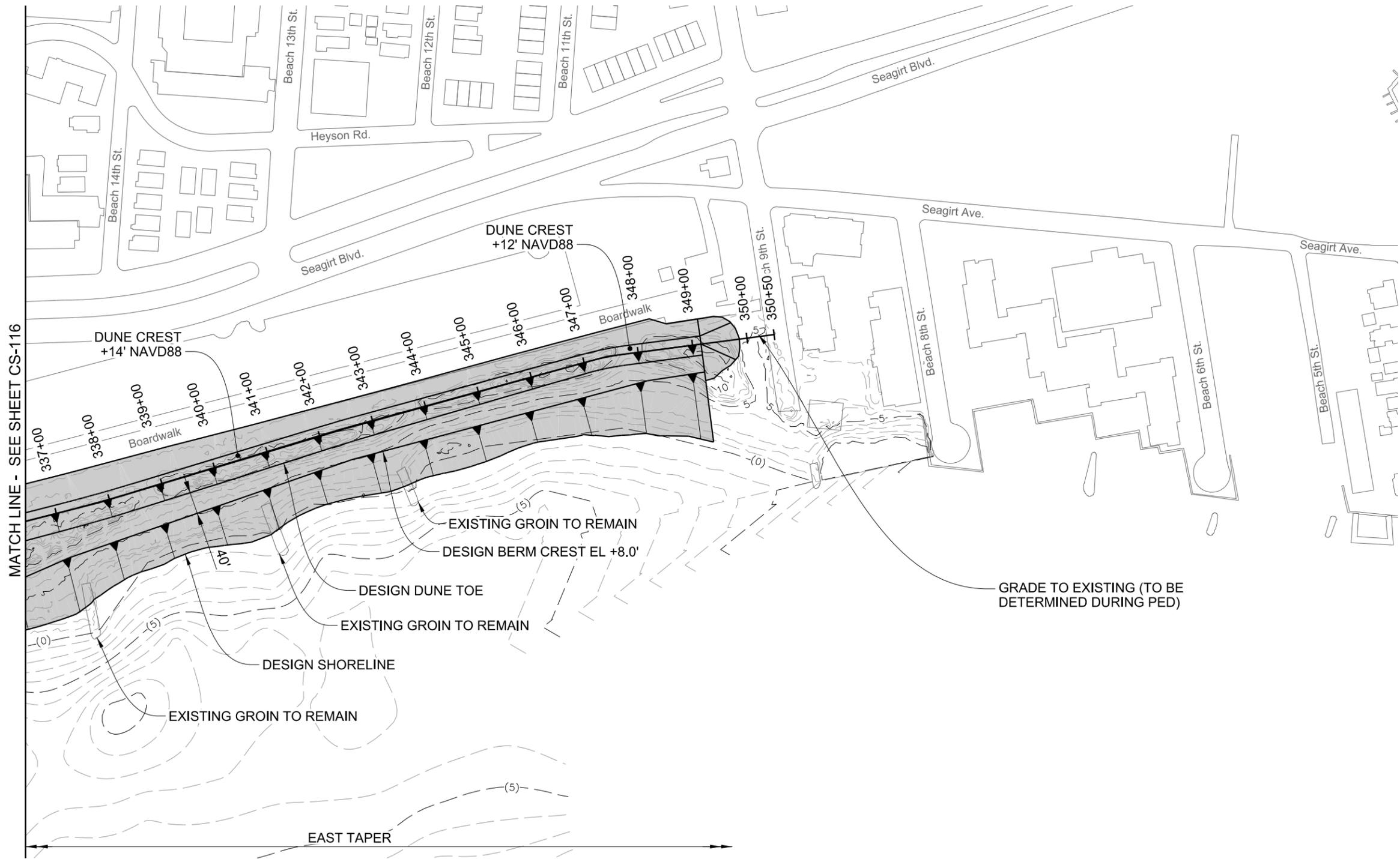
DESIGNED BY: SA	DATE: 08/28/18	SUBMITTED BY: MK	CONTRACT NO.:
DRAWN BY: MK	FILE NAME: W912DS_A1_CS-116.dgn	CHECK BY: MK	FILE NUMBER:
U.S. ARMY CORPS OF ENGINEERS U.S. ARMY ENGINEER DISTRICT NEW YORK http://www.nan.usace.army.mil	DESIGNATION NO.:	U.S. ARMY CORPS OF ENGINEERS U.S. ARMY ENGINEER DISTRICT NEW YORK http://www.nan.usace.army.mil	CONTRACT NO.:
MOFFATT & NICHOL 529 FIFTH AVE., 14TH FLOOR NEW YORK, NY 10017 212-768-7454	DESIGNATION NO.:	MOFFATT & NICHOL 529 FIFTH AVE., 14TH FLOOR NEW YORK, NY 10017 212-768-7454	CONTRACT NO.:

INTEGRATED HURRICANE SANDY GENERAL RE-EVALUATION REPORT AND ENVIRONMENTAL IMPACT STATEMENT

SHEET ID
CS-116
SHEET 18 OF 36

SITE PLAN (16 OF 17)

MATCH LINE - SEE SHEET CS-116



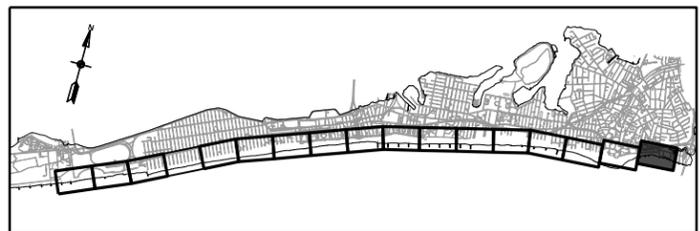
NOTES

- EXISTING CONTOURS ARE BASED ON THE FOLLOWING SOURCES:
 - GEOPHYSICAL DATA CENTER (NGDC) HURRICANE SANDY DIGITAL ELEVATION MODELS, 2014.
 - NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (NOAA) DIGITAL COAST, 2014.
 - 2013-2014 U.S. GEOLOGICAL SURVEY CMGP LIDAR: POST SANDY (NEW YORK CITY), 2018.
- ALL ELEVATIONS REFERENCED TO NAVD88.
- TYPICAL SECTIONS SHOWN ON SHEETS CS-301 TO CS-302
- SECTIONS SHOWN ON SHEETS CS-301 TO CS-307.
- GROIN PLAN PROFILES AND SECTIONS SHOWN ON SHEETS CS-401 TO CS-410.
- BEACH CONSTRUCTION TEMPLATE WILL EXTEND TO EXISTING GRADE AND IS NOT SHOWN FOR CLARITY.

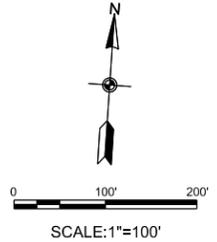
LEGEND

- +—+— BASELINE
- SHEET PILE WALL
- ▨ BURIED SEAWALL
- BEACH FILL
- ▨ SPLASH APRON
- ▨ EXISTING BAFFLE WALL
- - (4) - - EXISTING CONTOURS (BATHYMETRY)

PRELIMINARY
NOT FOR CONSTRUCTION



KEY PLAN



MARK	DESCRIPTION	DATE	APPR.
C	DRAFT FINAL GRR-APPENDIX A1.C	08.30.18	MK
B	DRAFT FINAL GRR-APPENDIX A1.B	08.20.18	MK
A	DRAFT FINAL GRR-APPENDIX A1.A	07.19.18	MK

DESIGNED BY: SA MK	DATE: 08/28/18
DRAWN BY: MK	SUBMITTED BY: SA
CHECKED BY: MK	FILE NAME: W912DS_A1_CS-117.dgn
CONTRACT NO.:	ANSI D
CONTRACT NO.:	ANSI D
FILE NUMBER:	ANSI D

INTEGRATED HURRICANE SANDY GENERAL RE-EVALUATION REPORT AND ENVIRONMENTAL IMPACT STATEMENT

SITE PLAN (17 OF 17)

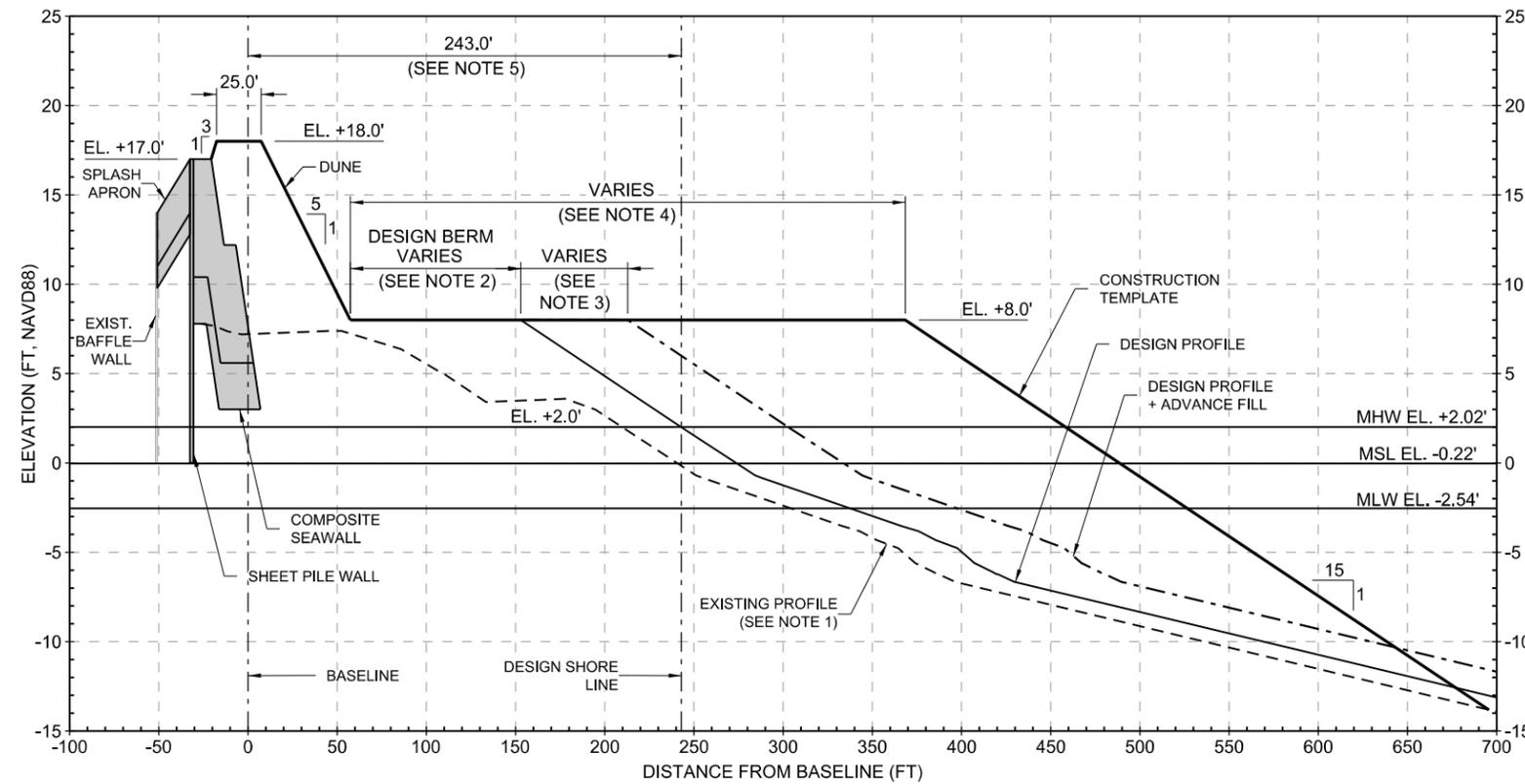
SHEET ID
CS-117
SHEET 19 OF 36

PATH: Q:\NY19781-02\500_CADD\Active_GRR_Report-App A11

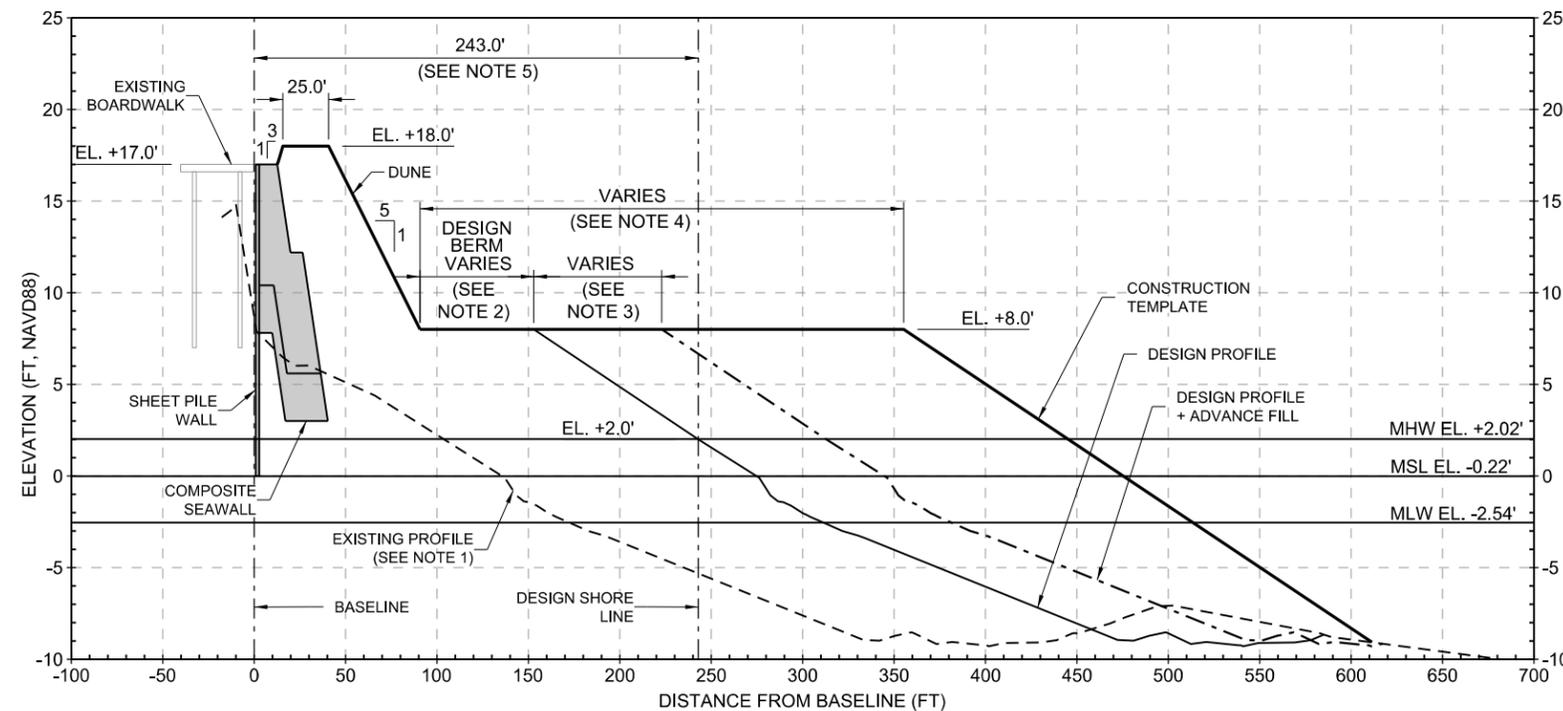
8/27/2018 4:09:25 PM FILE: W912DS_A1_CS-301.dgn

LAST PLOTTED BY: mestimable

8/27/2018 4:09:25 PM



C2 TYPICAL BEACH FILL SECTION
 BEACH 126TH ST. TO BEACH 149TH ST.
 SCALE: 1"=50'-0"



A2 TYPICAL BEACH FILL SECTION
 BEACH 19TH ST. TO BEACH 126TH ST.
 SCALE: 1"=50'-0"

BEACH FILL NOTES

- EXISTING PROFILE IS BASED ON POST-SANDY SURVEY PERFORMED BY MCKIM & CREED FROM FEBRUARY 25TH, 2013 TO MARCH 5TH, 2013.
- THE WIDTH OF THE DESIGN BERM IS GENERALLY 60 FEET OR MORE. THE SEAWARD CREST OF THE DESIGN BERM IS CONTROLLED BY THE ALIGNMENT OF THE BASELINE, WHICH DOES NOT ALWAYS FOLLOW THE BOARDWALK ALIGNMENT.
- THE ADVANCE FILL WIDTH VARIES BASED UPON THE EROSION RATE.
- THE WIDTH OF THE CONSTRUCTION TEMPLATE IS BASED UPON THE FILL VOLUME REQUIRED FOR THE DESIGN PROFILE + ADVANCE FILL AND VARIES FROM PROFILE TO PROFILE.
- THE DISTANCE FROM THE BASELINE TO THE DESIGN SHORELINE IS ALWAYS 243.0 FEET. THE DESIGN SHORELINE IS ALIGNED WITH THE NATURAL SHORELINE. THE ALIGNMENT OF THE DUNE FOLLOWS THE UNNATURAL ALIGNMENT OF THE BOARDWALK.



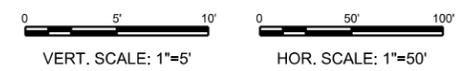
US Army Corps of Engineers

DATE	DESCRIPTION	MARK
08/30/18	DRAFT FINAL GRR-APPENDIX A1.C	MK
08/20/18	DRAFT FINAL GRR-APPENDIX A1.C	MK
07/19/18	DRAFT FINAL GRR-APPENDIX A1.B	MK
		APPR.

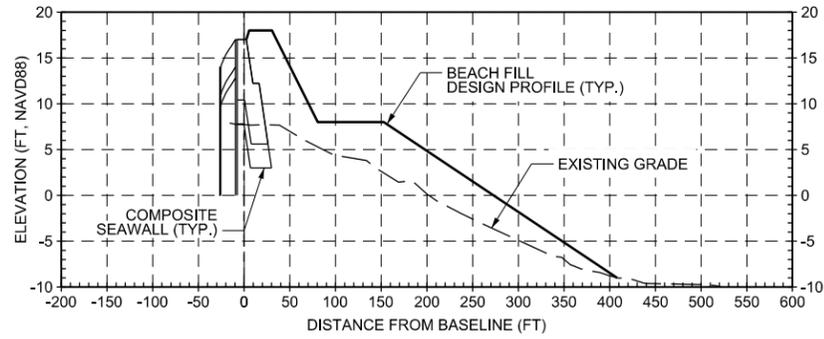
DESIGNED BY:	DATE:	8/28/18
U.S. ARMY CORPS OF ENGINEERS	DESIGNER:	SA
U.S. ARMY ENGINEER DISTRICT	BY:	MK
NEW YORK	BY:	MK
http://www.nan.usace.army.mil	BY:	SA
MOFFATT & NICHOL	DATE:	8/27/2018
529 FIFTH AVE., 14TH FLOOR	DATE:	11/16/07
NEW YORK, NY 10017	DATE:	11/16/07
212-768-7454	DATE:	11/16/07

INTEGRATED HURRICANE SANDY GENERAL RE-EVALUATION REPORT AND ENVIRONMENTAL IMPACT STATEMENT
 BEACH FILL TYPICAL SECTIONS

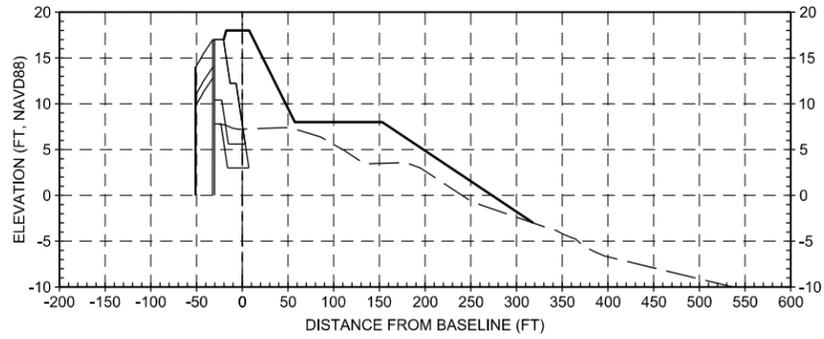
PRELIMINARY
 NOT FOR CONSTRUCTION



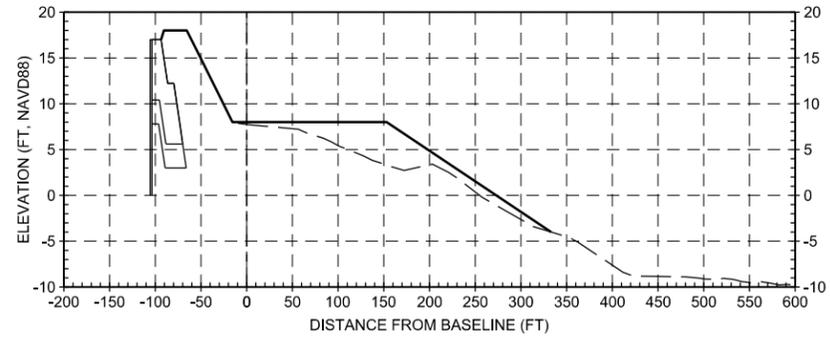
SHEET ID
 CS-301
 SHEET 20 OF 36



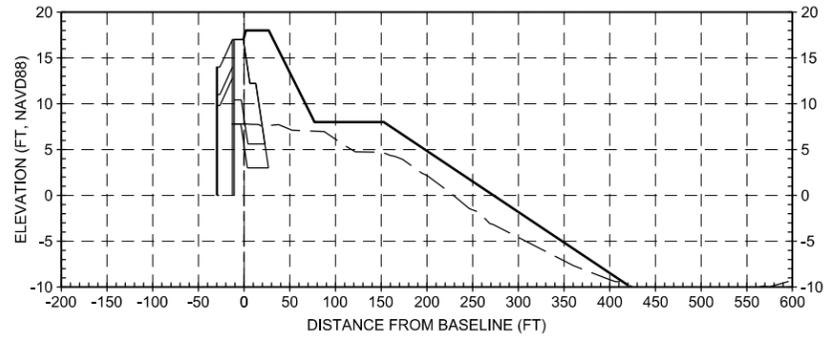
20+00



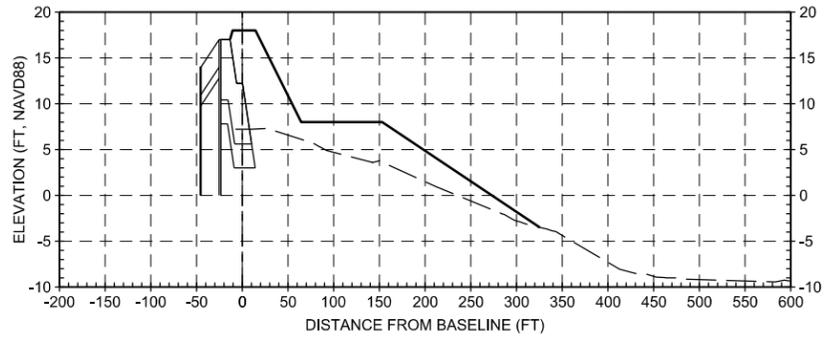
50+00



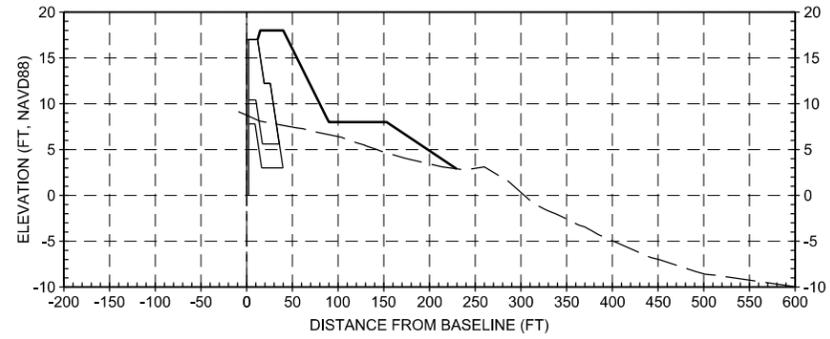
80+00



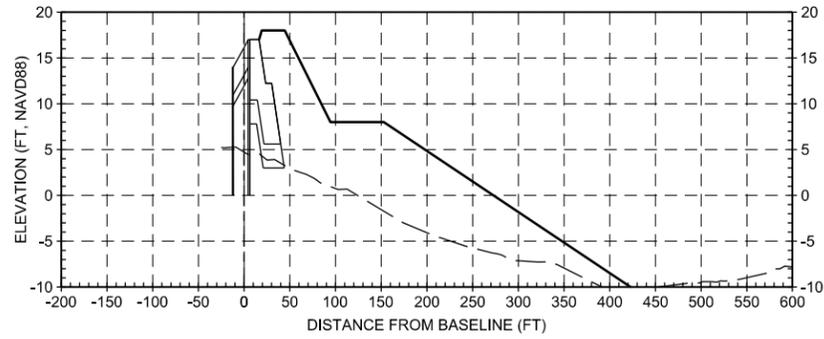
10+00



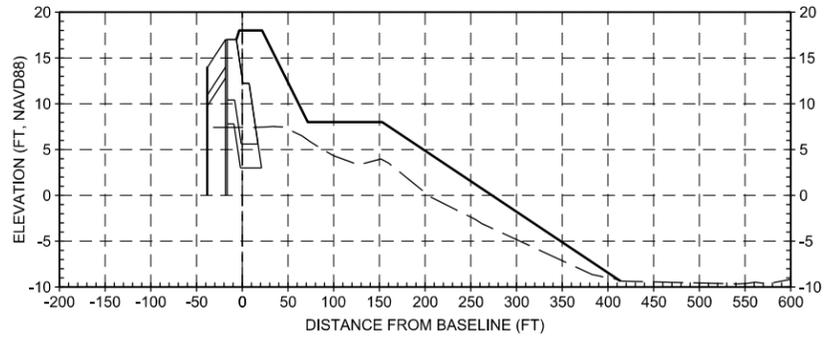
40+00



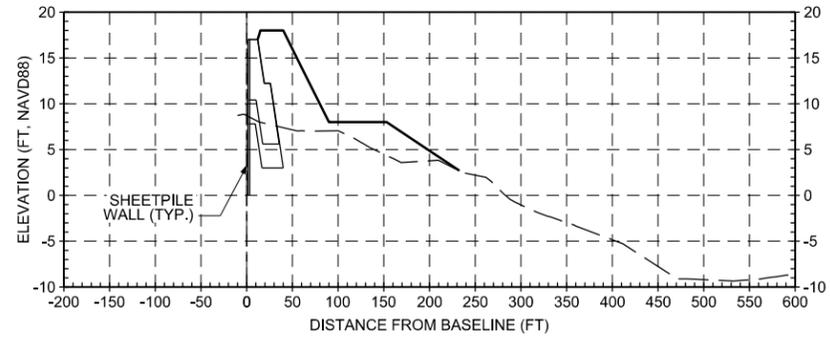
70+00



0+10



30+00



60+00

NOTES

- EXISTING PROFILE IS BASED ON POST-SANDY SURVEY PERFORMED BY MCKIM & CREED FROM FEBRUARY 25TH, 2013 TO MARCH 5TH, 2013.
- DESIGN PROFILE SHOWN IN SECTIONS.
- REFER TO SHEETS CS-301 AND CS-302 FOR TYPICAL SECTIONS.

**PRELIMINARY
NOT FOR CONSTRUCTION**



US Army Corps of Engineers®

MARK	DATE	APPR.	DESCRIPTION
C	08.30.18	MK	DRAFT FINAL GRR-APPENDIX A1.C
B	08.20.18	MK	DRAFT FINAL GRR-APPENDIX A1.B
A	07.19.18	MK	DRAFT FINAL GRR-APPENDIX A1.A

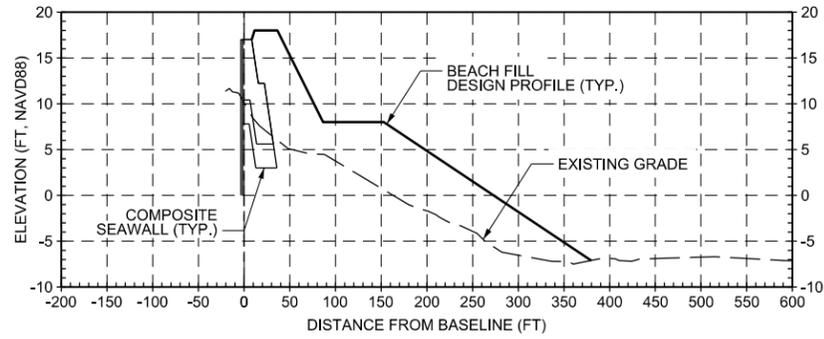
DESIGNED BY: DYN BY: MK	DATE: 08/28/18	SUBMITTED BY: SA	CONTRACT NO.:
U.S. ARMY CORPS OF ENGINEERS U.S. ARMY ENGINEER DISTRICT NEW YORK http://www.nan.usace.army.mil	DESIGNED BY: MK	U.S. ARMY CORPS OF ENGINEERS U.S. ARMY ENGINEER DISTRICT NEW YORK 529 FIFTH AVE., 14TH FLOOR NEW YORK, NY 10017 212-768-7454	FILE NUMBER: W912DS_A1_CS-304.dgn

INTEGRATED HURRICANE SANDY GENERAL RE-EVALUATION REPORT AND ENVIRONMENTAL IMPACT STATEMENT

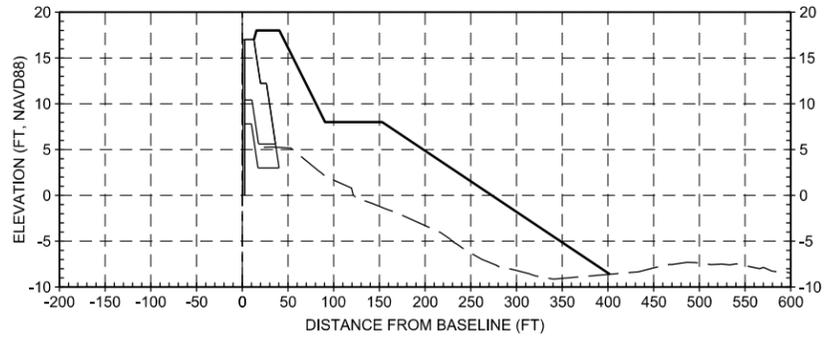
CROSS SECTIONS (SHEET 2 OF 5)

SHEET ID
CS-304
SHEET 23 OF 36

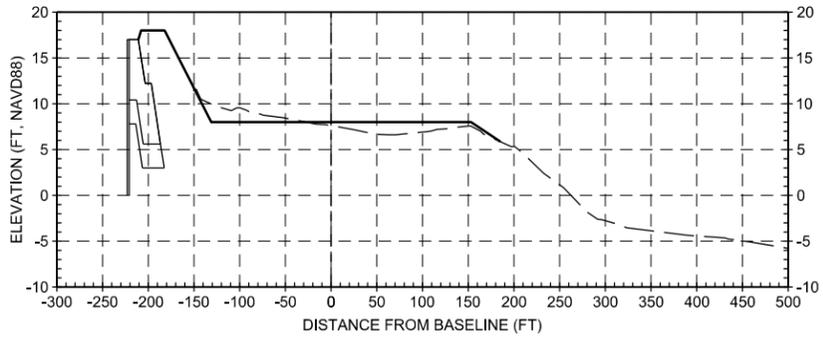
A B C D



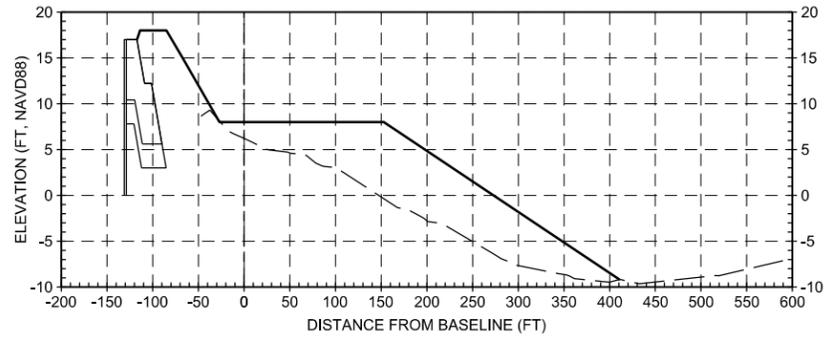
110+00



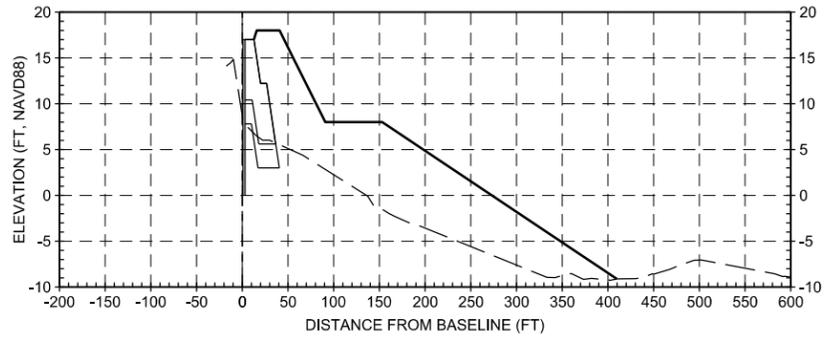
140+00



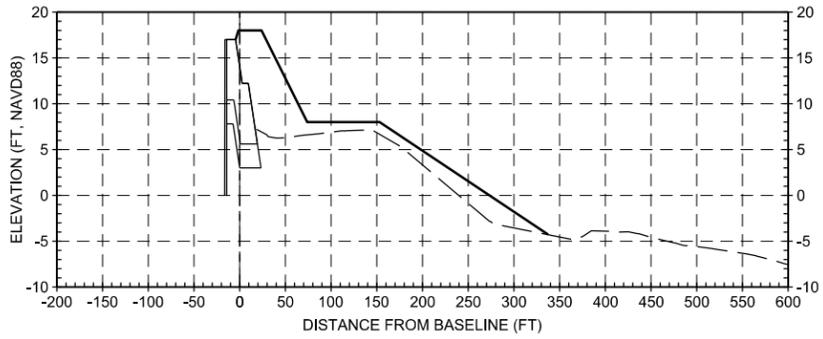
170+00



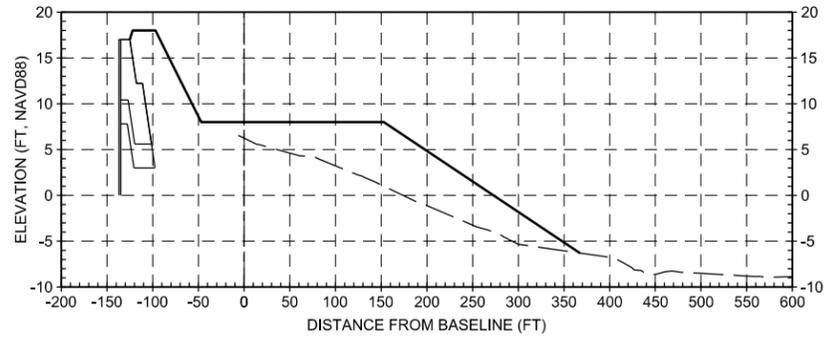
100+00



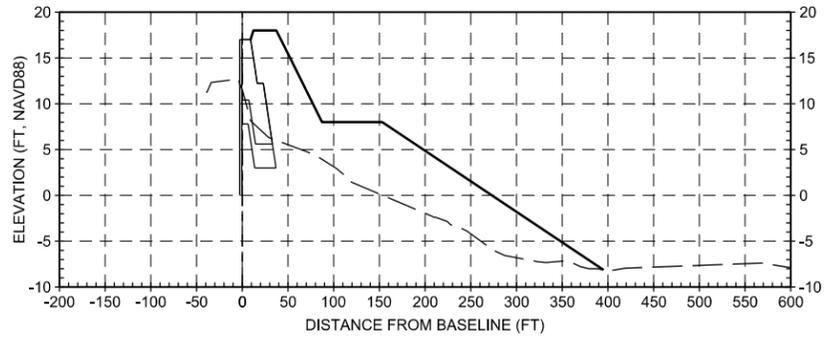
130+00



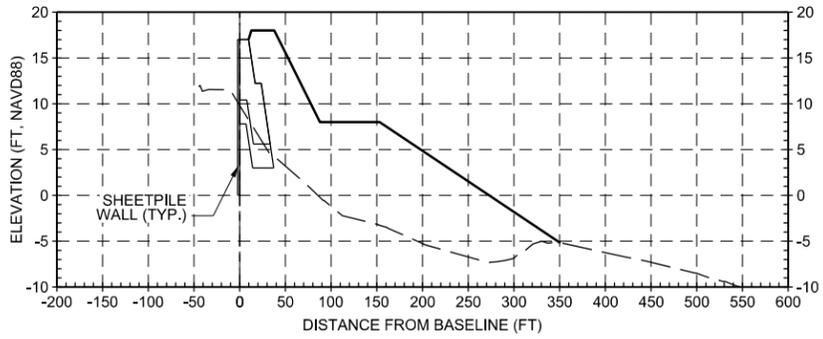
160+00



90+00



120+00



150+00

NOTES

- EXISTING PROFILE IS BASED ON POST-SANDY SURVEY PERFORMED BY MCKIM & CREED FROM FEBRUARY 25TH, 2013 TO MARCH 5TH, 2013.
- DESIGN PROFILE SHOWN IN SECTIONS.
- REFER TO SHEETS CS-301 AND CS-302 FOR TYPICAL SECTIONS.

**PRELIMINARY
NOT FOR CONSTRUCTION**



US Army Corps of Engineers

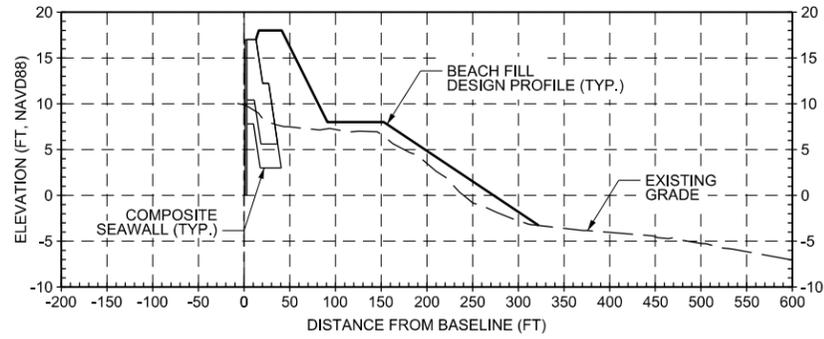
MARK	DATE	APPR.	DESCRIPTION
C	08.30.18	MK	DRAFT FINAL GRR-APPENDIX A1.C
B	08.20.18	MK	DRAFT FINAL GRR-APPENDIX A1.B
A	07.19.18	MK	DRAFT FINAL GRR-APPENDIX A1.A

DESIGNED BY: WYN BY: MK	DATE: 08.28.18	SUBMITTED BY: SA	CONTRACT NO.:
U.S. ARMY CORPS OF ENGINEERS U.S. ARMY ENGINEER DISTRICT NEW YORK http://www.nan.usace.army.mil	DESIGNED BY: MK	U.S. ARMY CORPS OF ENGINEERS U.S. ARMY ENGINEER DISTRICT NEW YORK 529 FIFTH AVE., 14TH FLOOR NEW YORK, NY 10017 212-768-7454	CONTRACT NO.:
FILE NAME: W912DS_A1_CS-305.dgn	FILE NUMBER:	ANSI D	FILE NUMBER:

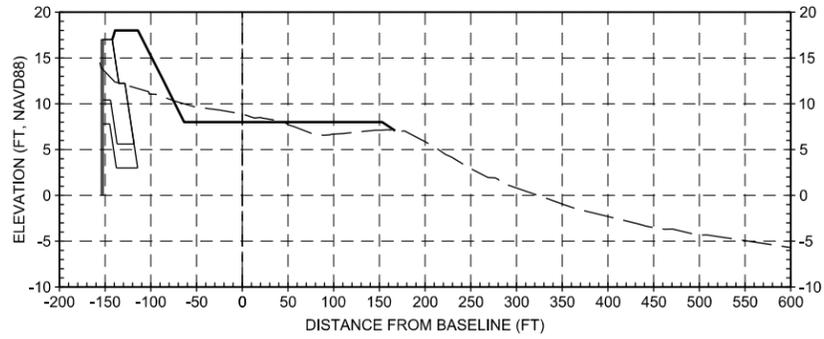
INTEGRATED HURRICANE SANDY GENERAL RE-EVALUATION REPORT AND ENVIRONMENTAL IMPACT STATEMENT

CROSS SECTIONS (SHEET 3 OF 5)

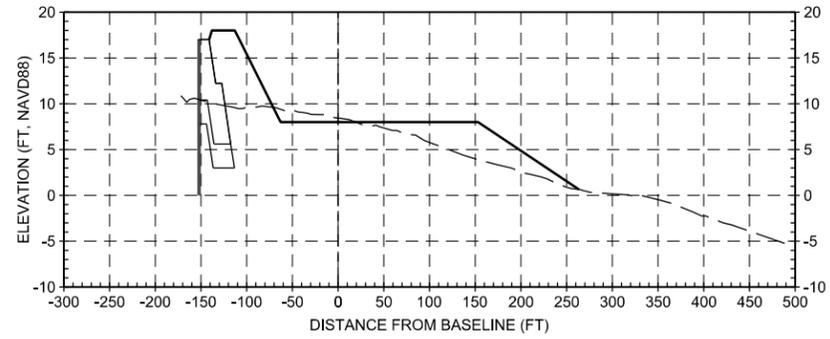
SHEET ID
CS-305
SHEET 24 OF 36



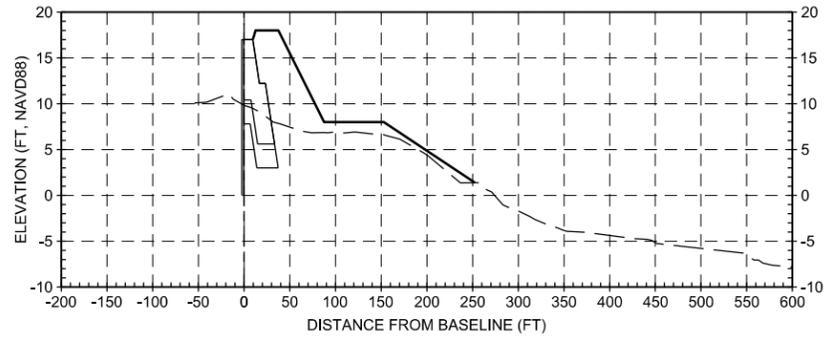
200+00



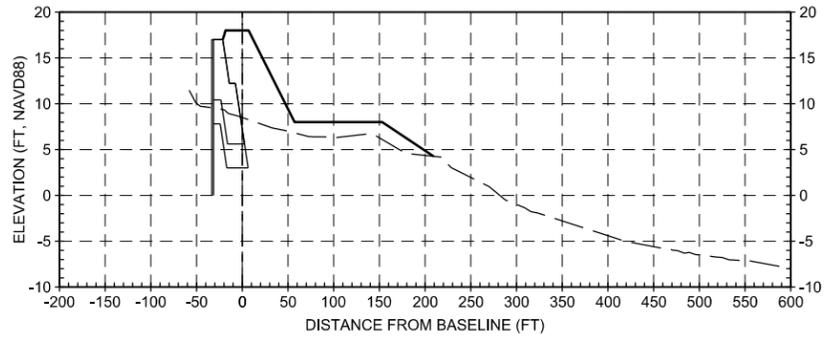
230+00



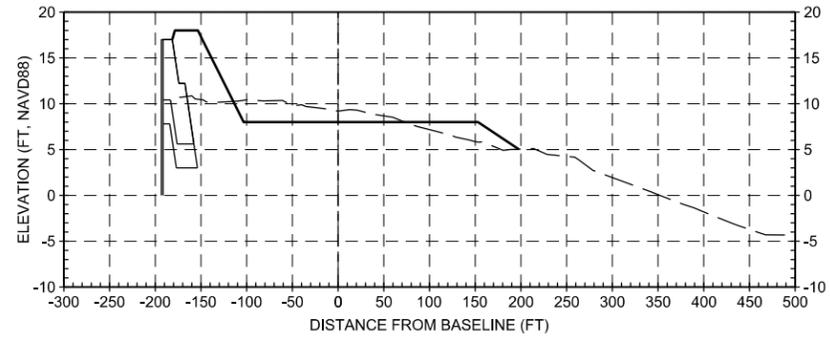
260+00



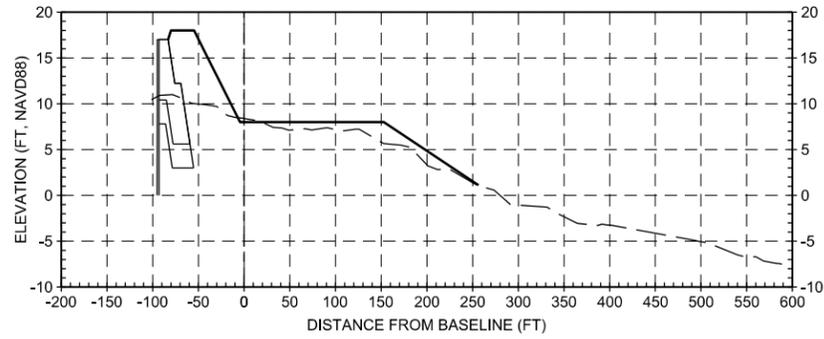
190+00



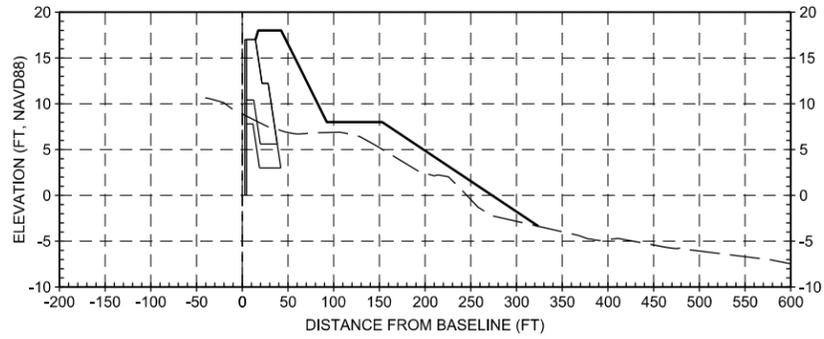
220+00



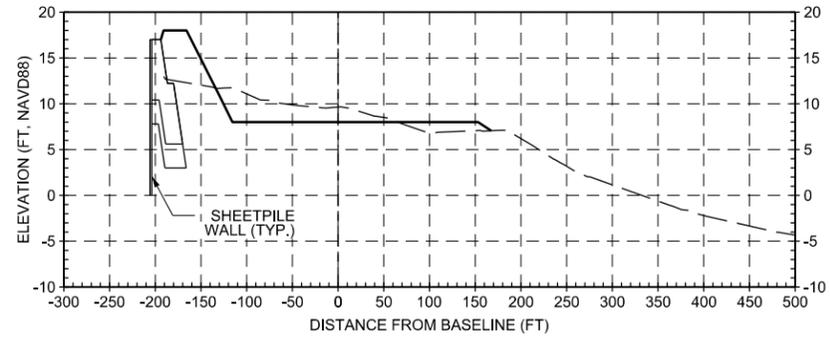
249+00



180+00



210+00



240+00

NOTES

- EXISTING PROFILE IS BASED ON POST-SANDY SURVEY PERFORMED BY MCKIM & CREED FROM FEBRUARY 25TH, 2013 TO MARCH 5TH, 2013.
- DESIGN PROFILE SHOWN IN SECTIONS.
- REFER TO SHEETS CS-301 AND CS-302 FOR TYPICAL SECTIONS.

**PRELIMINARY
NOT FOR CONSTRUCTION**



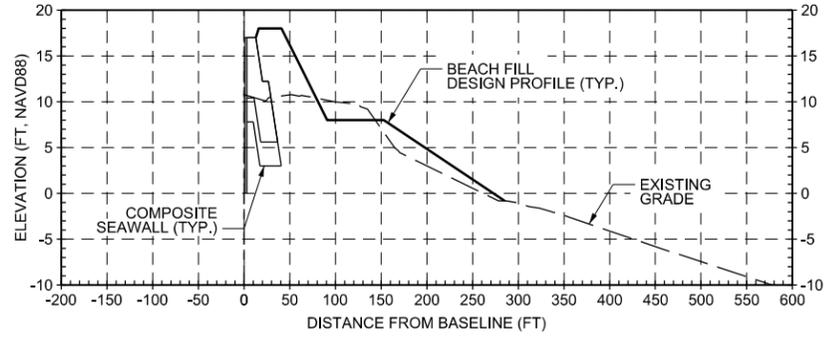
US Army Corps of Engineers®

MARK	DATE	DESCRIPTION
C	08.30.18	DRAFT FINAL GRR-APPENDIX A1.C
B	08.20.18	DRAFT FINAL GRR-APPENDIX A1.B
A	07.19.18	DRAFT FINAL GRR-APPENDIX A1.A

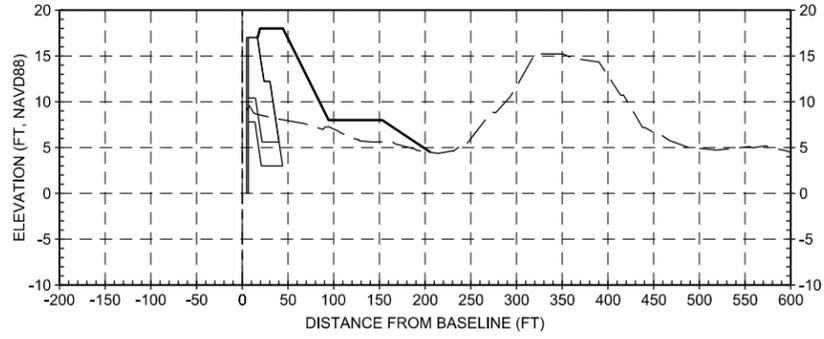
DESIGNED BY: MKS	DATE: 08/28/18	SUBMITTED BY: SA	SOLICITATION NO.:
DRAWN BY: MK	CHECK BY: MK	CONTRACT NO.:	
U.S. ARMY CORPS OF ENGINEERS U.S. ARMY ENGINEER DISTRICT NEW YORK http://www.nen.usace.army.mil	DESIGNED BY: MK	CONTRACT NO.:	
MOFFATT & NICHOL 529 FIFTH AVE., 14TH FLOOR NEW YORK, NY 10017 212-768-7454	DATE: 08/27/2018	FILE NUMBER:	

INTEGRATED HURRICANE SANDY GENERAL RE-EVALUATION REPORT AND ENVIRONMENTAL IMPACT STATEMENT
CROSS SECTIONS (SHEET 4 OF 5)

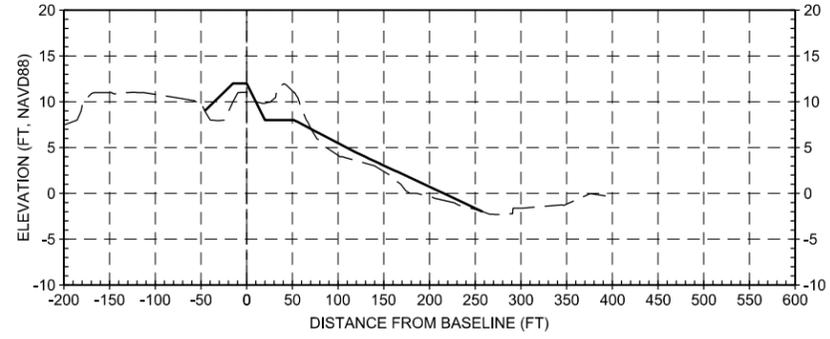
SHEET ID
CS-306
SHEET 25 OF 36



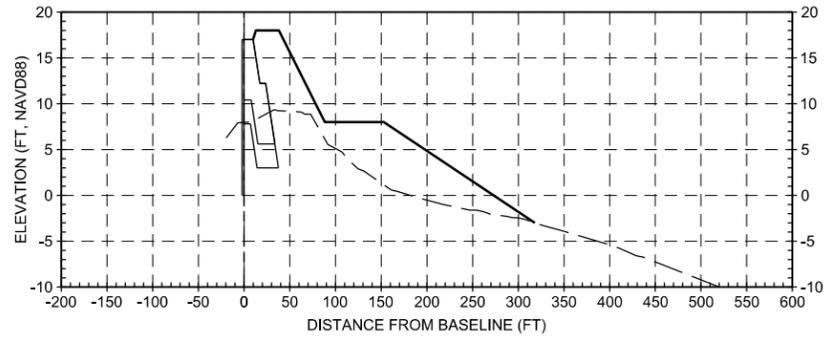
290+00



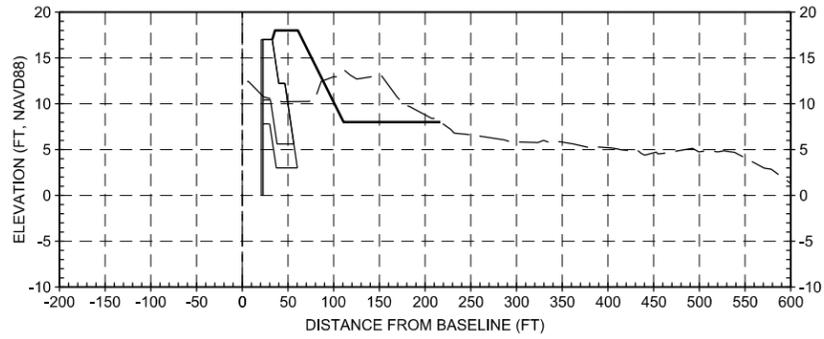
320+00



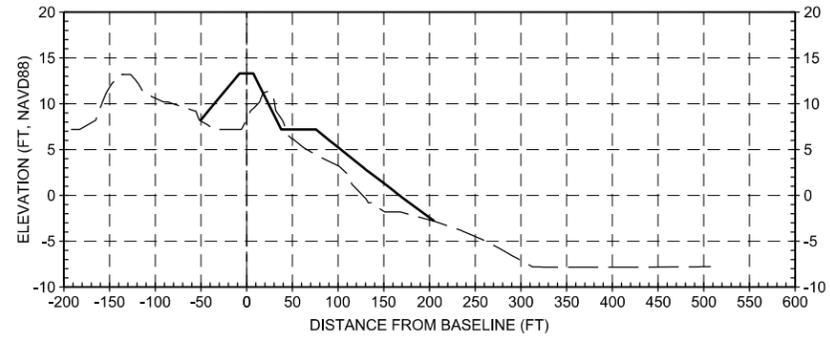
349+00



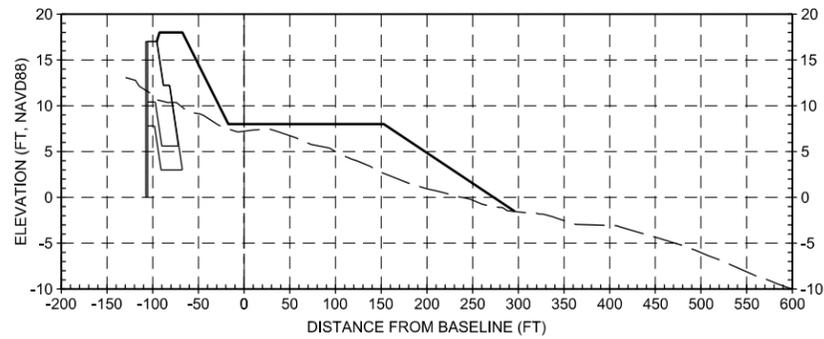
280+00



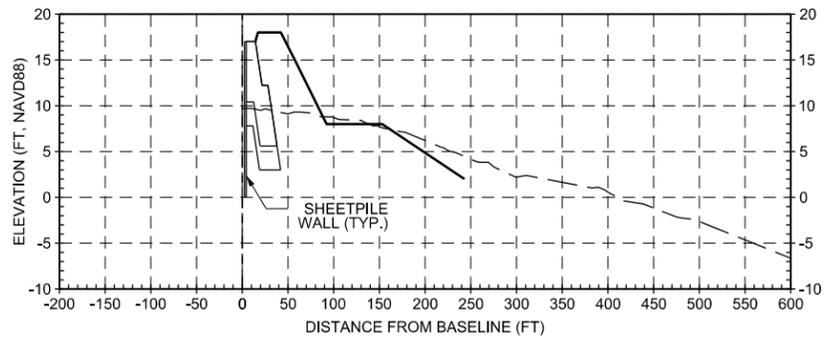
310+00



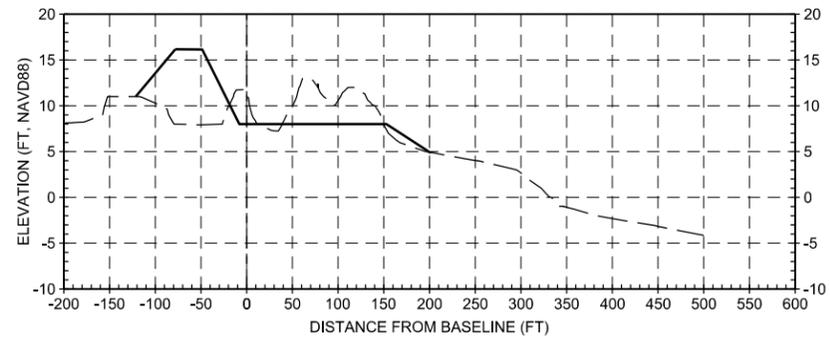
340+00



270+00



300+00



330+00

NOTES

- EXISTING PROFILE IS BASED ON POST-SANDY SURVEY PERFORMED BY MCKIM & CREED FROM FEBRUARY 25TH, 2013 TO MARCH 5TH, 2013.
- DESIGN PROFILE SHOWN IN SECTIONS.
- REFER TO SHEETS CS-301 AND CS-302 FOR TYPICAL SECTIONS.

**PRELIMINARY
NOT FOR CONSTRUCTION**



US Army Corps of Engineers

MARK	DATE	DESCRIPTION
C	08.30.18	DRAFT FINAL GRR-APPENDIX A1.C
B	08.20.18	DRAFT FINAL GRR-APPENDIX A1.B
A	07.19.18	DRAFT FINAL GRR-APPENDIX A1.A

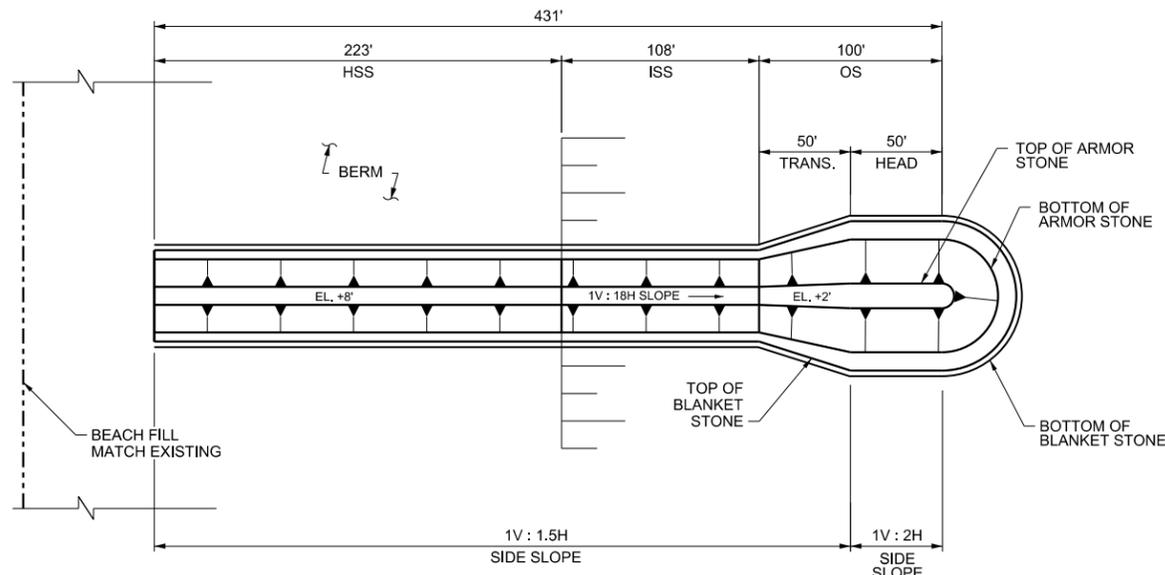
DESIGNED BY: MKN	DATE: 08/28/18	SUBMITTED BY: MKN	SOLICITATION NO.:
DRAWN BY: MKN	DESIGNED BY: MKN	CONTRACT NO.:	
CHECKED BY: MKN	DESIGNED BY: MKN	FILE NUMBER:	
SA	SA	FILE NAME:	
		ANSI D	

INTEGRATED HURRICANE SANDY GENERAL RE-EVALUATION REPORT AND ENVIRONMENTAL IMPACT STATEMENT

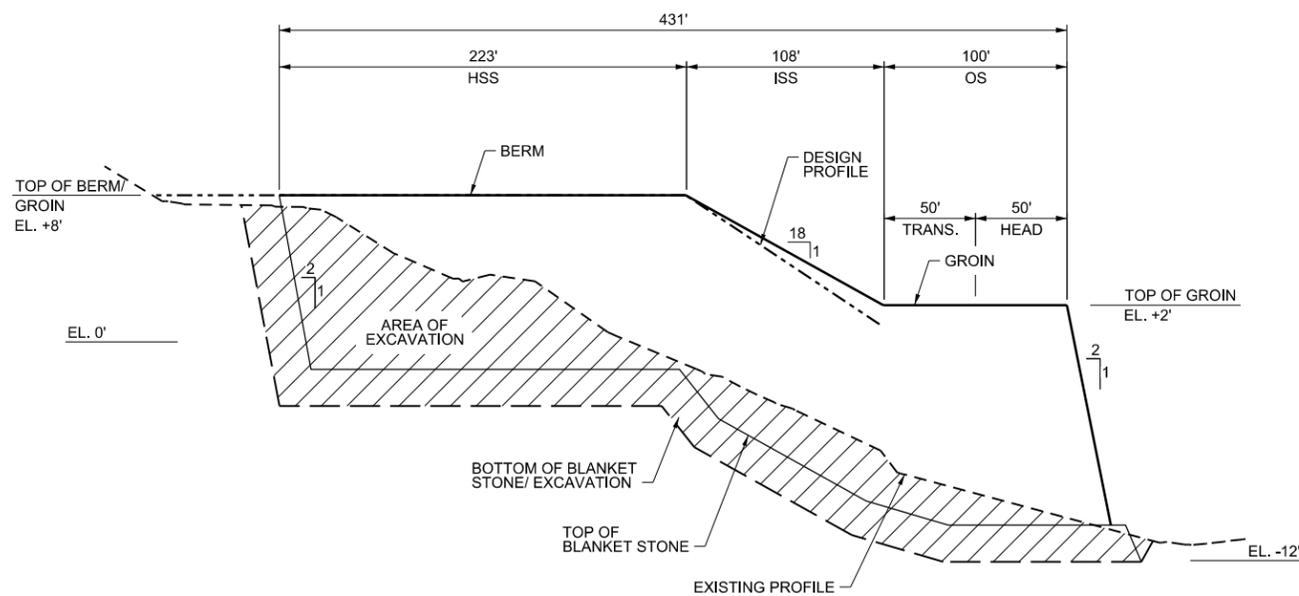
CROSS SECTIONS (SHEET 5 OF 5)

SHEET ID
CS-307
SHEET 26 OF 36

LAST PLOTTED BY: mestimable 4:12:18 PM 8/27/2018 FILE: W912DS_A1_CS-402.dgn PATH: Q:\NY19781-02\500_CADD\Active_GRR_Report-App A1



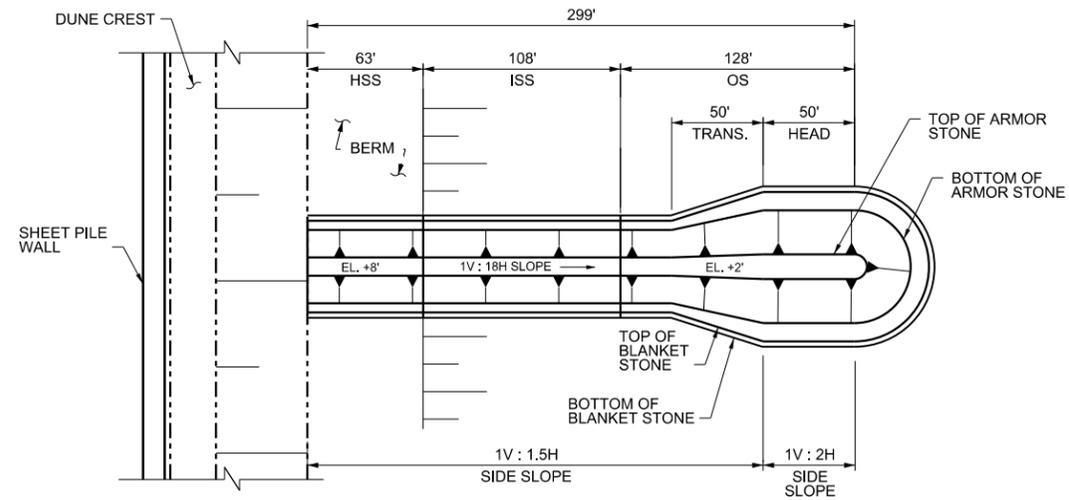
C1 PLAN - GROIN 23
CS-103 SCALE: 1"=50'



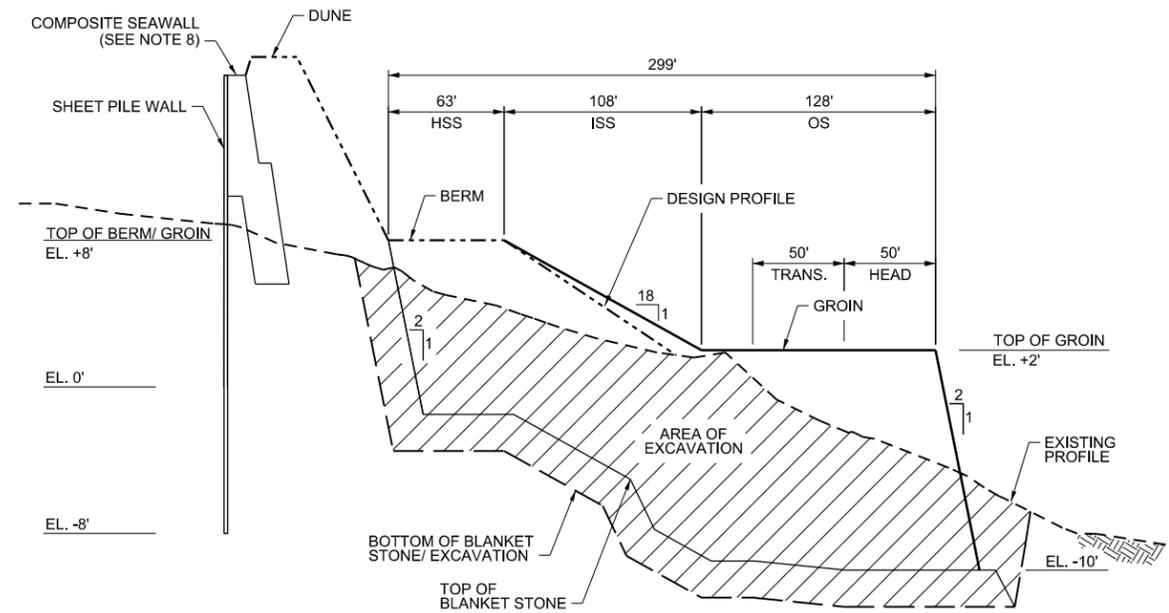
A1 PROFILE - GROIN 23
CS-402 SCALE: 1"=50'

NOTES

- EXISTING PROFILE IS BASED ON POST-SANDY SURVEY PERFORMED BY MCKIM & CREED FROM FEBRUARY 25TH, 2013 TO MARCH 5TH, 2013.
- THE WIDTH OF THE DESIGN BERM IS GENERALLY 60 FEET OR MORE. THE SEAWARD CREST OF THE DESIGN BERM IS CONTROLLED BY THE ALIGNMENT OF THE BASELINE, WHICH DOES NOT ALWAYS FOLLOW THE BOARDWALK ALIGNMENT.
- THE DISTANCE FROM THE BASELINE TO THE DESIGN SHORELINE IS ALWAYS 243.0 FEET. THE DESIGN SHORELINE IS ALIGNED WITH THE NATURAL SHORELINE. THE ALIGNMENT OF THE DUNE FOLLOWS THE UNNATURAL ALIGNMENT OF THE BOARDWALK.
- REMOVE EXISTING ARMOR STONE AND RE-WORK AS NECESSARY TO CREATE CONTINUOUS INTERLOCKING GROIN STRUCTURE.
- EXTENTS OF EXISTING GROIN ARE UNKNOWN AT THIS TIME. END OF EXPOSED GROIN HAS BEEN LOCATED FROM AERIAL IMAGERY. EXTENTS OF GROIN TO BE DETERMINED PRIOR TO PRELIMINARY DESIGN PHASE.
- MATCH ELEVATION WITH EXISTING GROIN CREST.
- EXISTING CONTOURS NOT SHOWN ON PLAN FOR CLARITY.
- SEE SHEET CS-302 FOR COMPOSITE WALL SECTIONS.



C4 PLAN - GROIN 31 (121st STREET)
CS-106 SCALE: 1"=50'

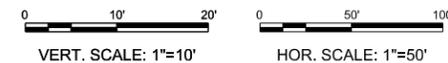


A4 PROFILE - GROIN 31 (121st STREET)
CS-402 SCALE: 1"=50'

ABBREVIATION

- EL. ELEVATION
- HSS HORIZONTAL SHORE SECTION
- ISS INTERMEDIATE SLOPING SECTION
- OS OUTER SECTION
- TRANS. TRANSITION

PRELIMINARY
NOT FOR CONSTRUCTION



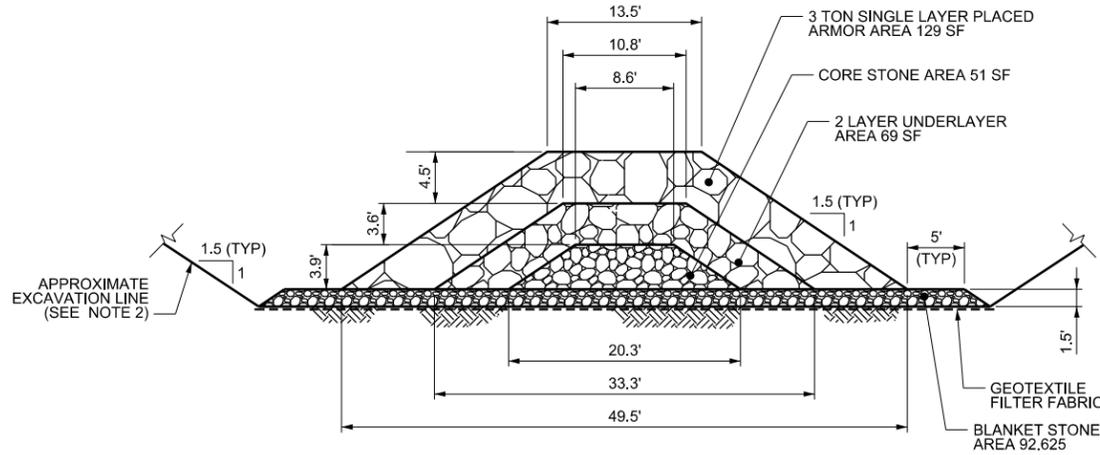
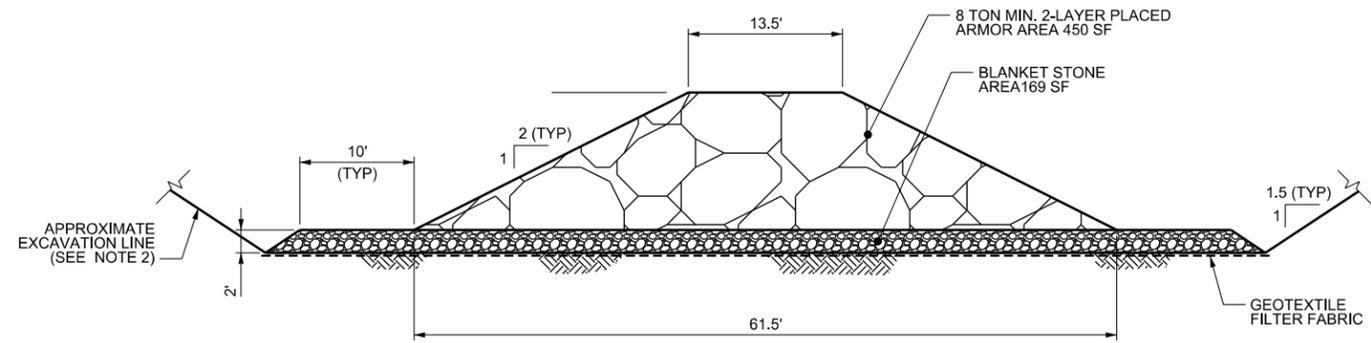
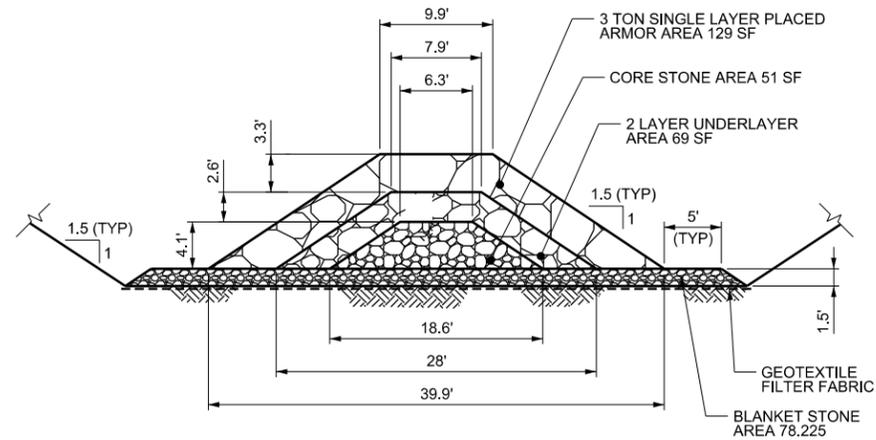
U.S. Army Corps of Engineers

DATE	BY	DESCRIPTION
08/30/18	MK	DRAFT FINAL GRR-APPENDIX A1.C
08/20/18	MK	DRAFT FINAL GRR-APPENDIX A1.C
07/19/18	MK	DRAFT FINAL GRR-APPENDIX A1.B

DESIGNED BY:	DATE:	CONTRACT NO.:
U.S. ARMY CORPS OF ENGINEERS	08/27/2018	
U.S. ARMY ENGINEER DISTRICT		
NEW YORK		
http://www.nan.usace.army.mil		
DESIGNED BY:	FILE NAME:	FILE NUMBER:
U.S. ARMY CORPS OF ENGINEERS	W912DS_A1_CS-402.dgn	
NEW YORK		
http://www.nan.usace.army.mil		
DESIGNED BY:	FILE NAME:	FILE NUMBER:
U.S. ARMY CORPS OF ENGINEERS	W912DS_A1_CS-402.dgn	
NEW YORK		
http://www.nan.usace.army.mil		

INTEGRATED HURRICANE SANDY GENERAL RE-EVALUATION REPORT AND ENVIRONMENTAL IMPACT STATEMENT
TYPICAL PLAN AND PROFILE
GROIN CONSTRUCTION REACH 2 & 3

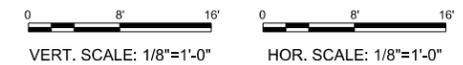
SHEET ID
CS-402
SHEET 28 OF 36



NOTES

- EXISTING GRADE NOT SHOWN FOR CLARITY.
- EXCAVATE TO EXISTING GRADE TO FACILITATE GROIN CONSTRUCTION.

PRELIMINARY
NOT FOR CONSTRUCTION



US Army Corps of Engineers

MARK	DATE	DESCRIPTION
C	08.30.18	DRAFT FINAL GRR-APPENDIX A1.C
B	08.20.18	DRAFT FINAL GRR-APPENDIX A1.C
A	07.19.18	DRAFT FINAL GRR-APPENDIX A1.B

DESIGNED BY: SA	DATE: 08/28/18	SUBMITTED BY: SA	SOLICITATION NO.:
DRAWN BY: MK	U.S. ARMY CORPS OF ENGINEERS U.S. ARMY ENGINEER DISTRICT NEW YORK	CHK BY: MK	CONTRACT NO.:
FILE NAME: W912DS_A1_CS-404.dgn	MOFFATT & NICHOL 529 FIFTH AVE., 14TH FLOOR NEW YORK, NY 10017 212-768-7454	PILOT DATE: 8/27/2018	FILE NUMBER:
ANSI D	http://www.nan.usace.army.mil	SIZE: 13x186867	

INTEGRATED HURRICANE SANDY GENERAL RE-EVALUATION REPORT AND ENVIRONMENTAL IMPACT STATEMENT
TYPICAL SECTION GROIN CONSTRUCTION REACH 3

SHEET ID
CS-404
SHEET 30 OF 36

LAST PLOTTED BY: mestimable 4:11:43 PM 8/27/2018 FILE: W912DS_A1_CS-405.dgn PATH: Q:\NY19781-02\500_CADD\Active_GRR_Report-App A1



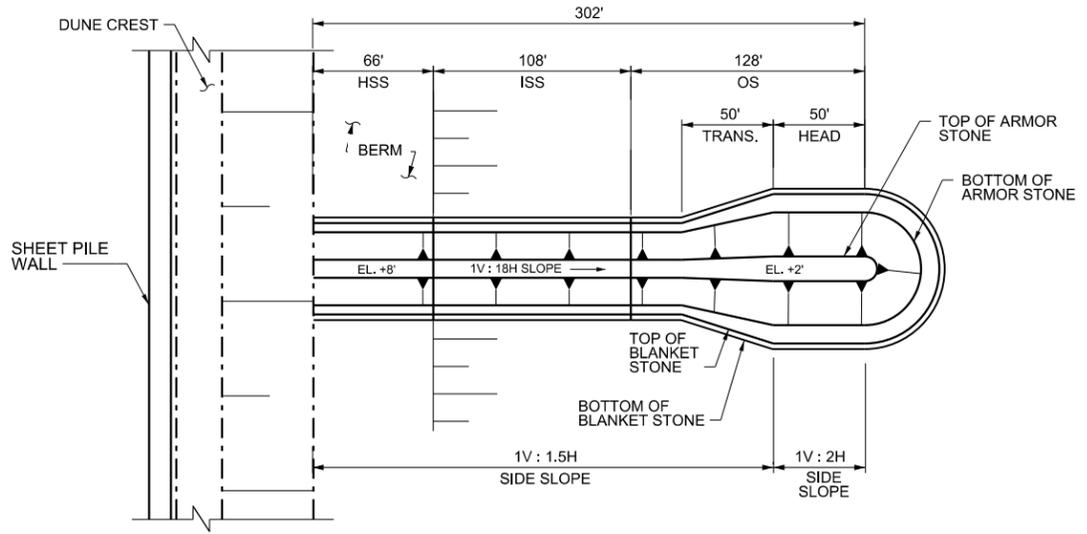
US Army Corps of Engineers

DATE	DESCRIPTION	MARK
08.30.18	DRAFT FINAL GRR-APPENDIX A1.C	MK
08.20.18	DRAFT FINAL GRR-APPENDIX A1.C	MK
07.19.18	DRAFT FINAL GRR-APPENDIX A1.B	MK
		APPR.

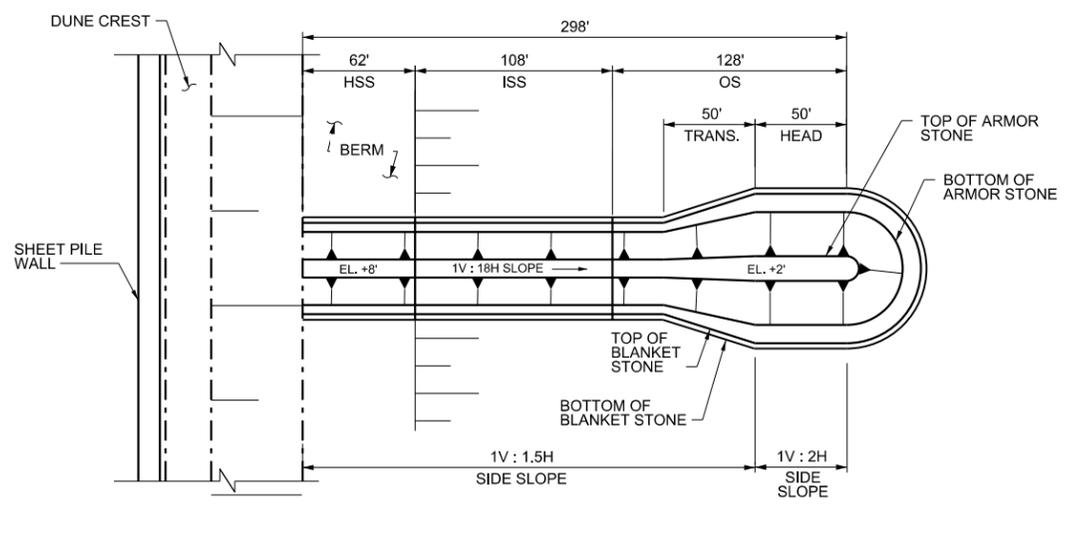
DESIGNED BY:	DATE:	CONTRACT NO.:
U.S. ARMY CORPS OF ENGINEERS	08/27/18	
U.S. ARMY ENGINEER DISTRICT		
NEW YORK		
http://www.nan.usace.army.mil		
DESIGNED BY:	DATE:	CONTRACT NO.:
U.S. ARMY CORPS OF ENGINEERS	08/27/18	
U.S. ARMY ENGINEER DISTRICT		
NEW YORK		
http://www.nan.usace.army.mil		
DESIGNED BY:	DATE:	CONTRACT NO.:
U.S. ARMY CORPS OF ENGINEERS	08/27/18	
U.S. ARMY ENGINEER DISTRICT		
NEW YORK		
http://www.nan.usace.army.mil		
DESIGNED BY:	DATE:	CONTRACT NO.:
U.S. ARMY CORPS OF ENGINEERS	08/27/18	
U.S. ARMY ENGINEER DISTRICT		
NEW YORK		
http://www.nan.usace.army.mil		
DESIGNED BY:	DATE:	CONTRACT NO.:
U.S. ARMY CORPS OF ENGINEERS	08/27/18	
U.S. ARMY ENGINEER DISTRICT		
NEW YORK		
http://www.nan.usace.army.mil		

INTEGRATED HURRICANE SANDY GENERAL RE-EVALUATION REPORT AND ENVIRONMENTAL IMPACT STATEMENT
TYPICAL PLAN AND PROFILE GROIN CONSTRUCTION REACH 4

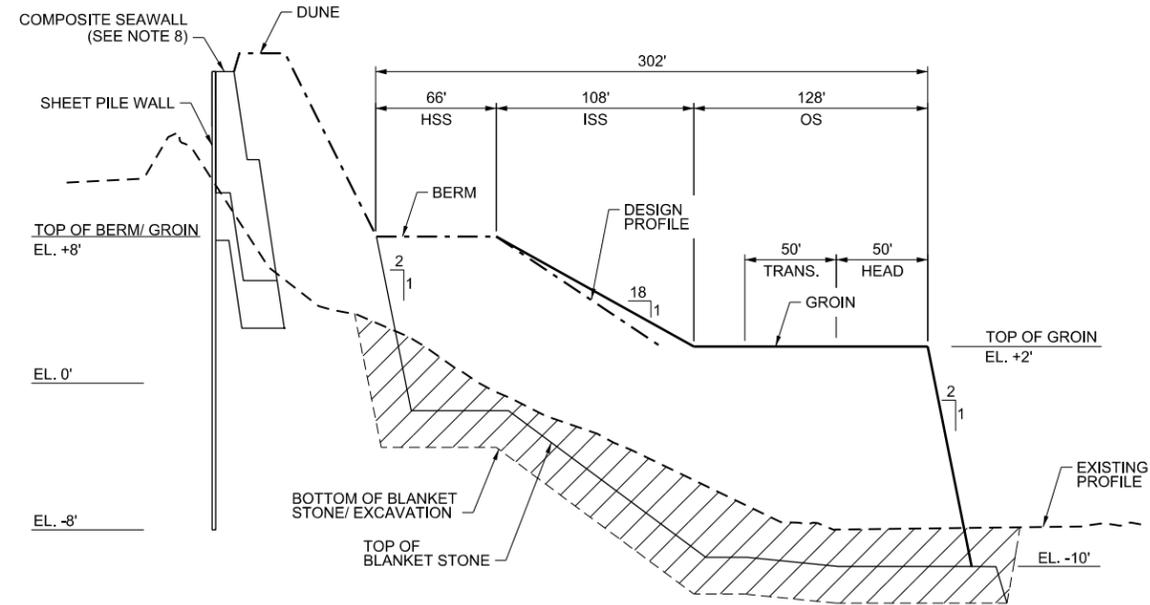
SHEET ID
CS-405
SHEET 31 OF 36



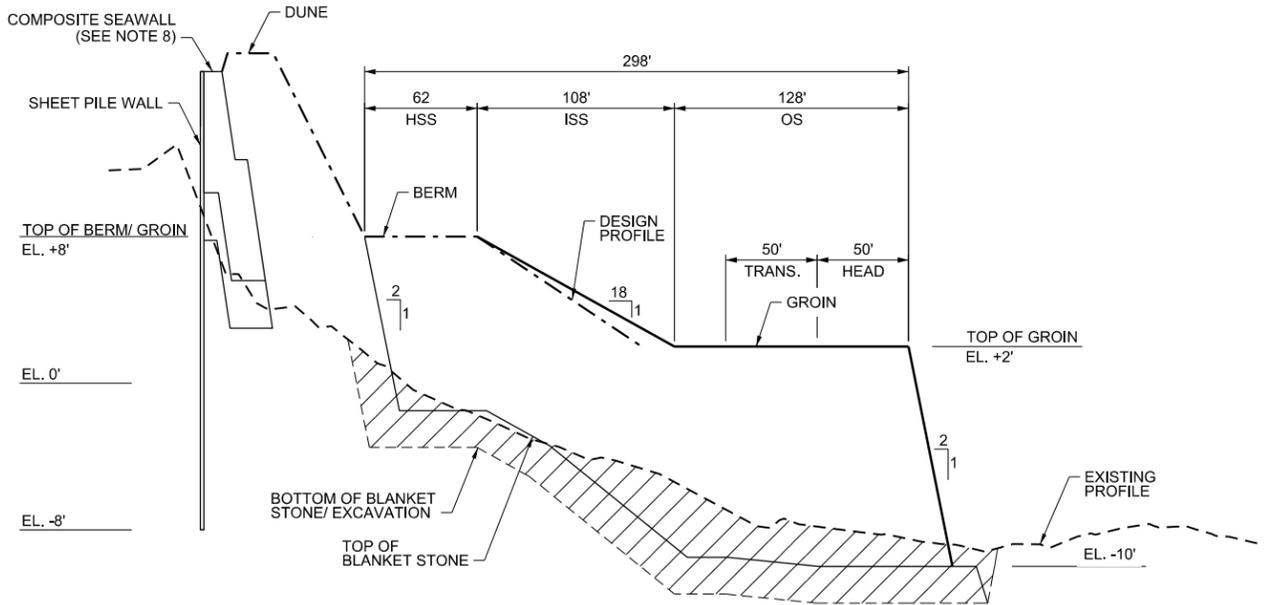
C1 PLAN - GROIN 43 (104th STREET)
CS-108 GROINS 42, 43, & 47 SIMILAR
SCALE: 1"=50'



C4 PLAN - GROIN 44 (101st STREET)
CS-109 GROINS 45, & 46 SIMILAR
SCALE: 1"=50'



A1 PROFILE - GROIN 43 (104th STREET)
CS-406 GROINS 42, 43, & 47 SIMILAR
SCALE: 1"=50'



A4 PROFILE - GROIN 44 (101st STREET)
CS-406 GROINS 45, & 46 SIMILAR
SCALE: 1"=50'

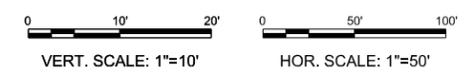
NOTES

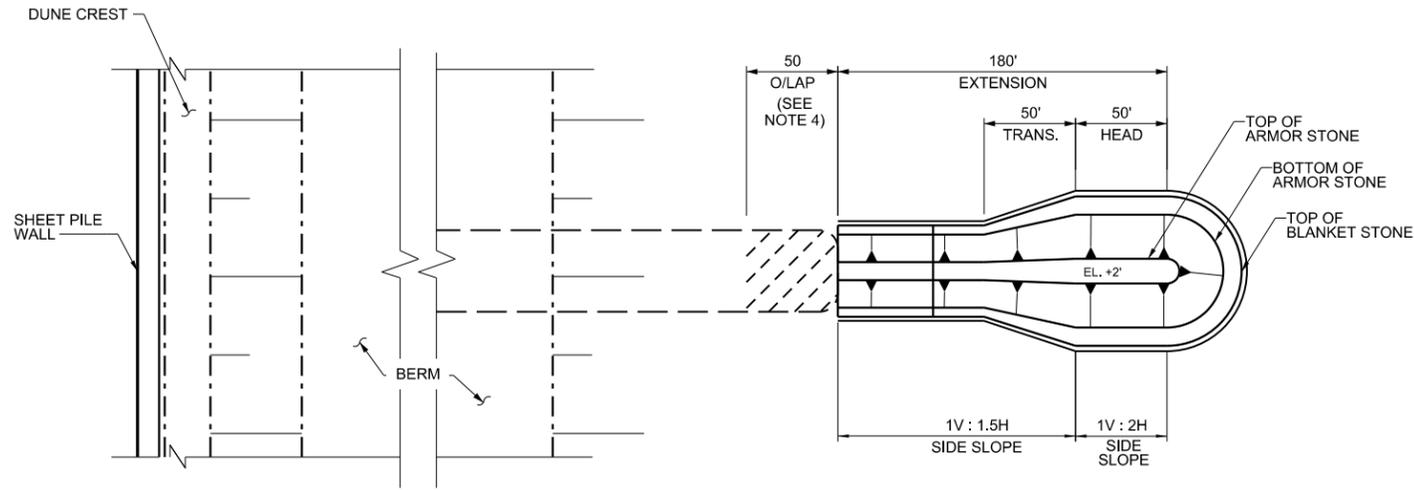
- EXISTING PROFILE IS BASED ON POST-SANDY SURVEY PERFORMED BY MCKIM & CREED FROM FEBRUARY 25TH, 2013 TO MARCH 5TH, 2013.
- THE WIDTH OF THE DESIGN BERM IS GENERALLY 60 FEET OR MORE. THE SEAWARD CREST OF THE DESIGN BERM IS CONTROLLED BY THE ALIGNMENT OF THE BASELINE, WHICH DOES NOT ALWAYS FOLLOW THE BOARDWALK ALIGNMENT.
- THE DISTANCE FROM THE BASELINE TO THE DESIGN SHORELINE IS ALWAYS 243.0 FEET. THE DESIGN SHORELINE IS ALIGNED WITH THE NATURAL SHORELINE. THE ALIGNMENT OF THE DUNE FOLLOWS THE UNNATURAL ALIGNMENT OF THE BOARDWALK.
- REMOVE EXISTING ARMOR STONE AND RE-WORK AS NECESSARY TO CREATE CONTINUOUS INTERLOCKING GROIN STRUCTURE.
- EXTENTS OF EXISTING GROIN ARE UNKNOWN AT THIS TIME. END OF EXPOSED GROIN HAS BEEN LOCATED FROM AERIAL IMAGERY. EXTENTS OF GROIN TO BE DETERMINED PRIOR TO PRELIMINARY DESIGN PHASE.
- MATCH ELEVATION WITH EXISTING GROIN CREST.
- EXISTING CONTOURS NOT SHOWN ON PLAN FOR CLARITY.
- SEE SHEET CS-302 FOR COMPOSITE WALL SECTIONS.

ABBREVIATION

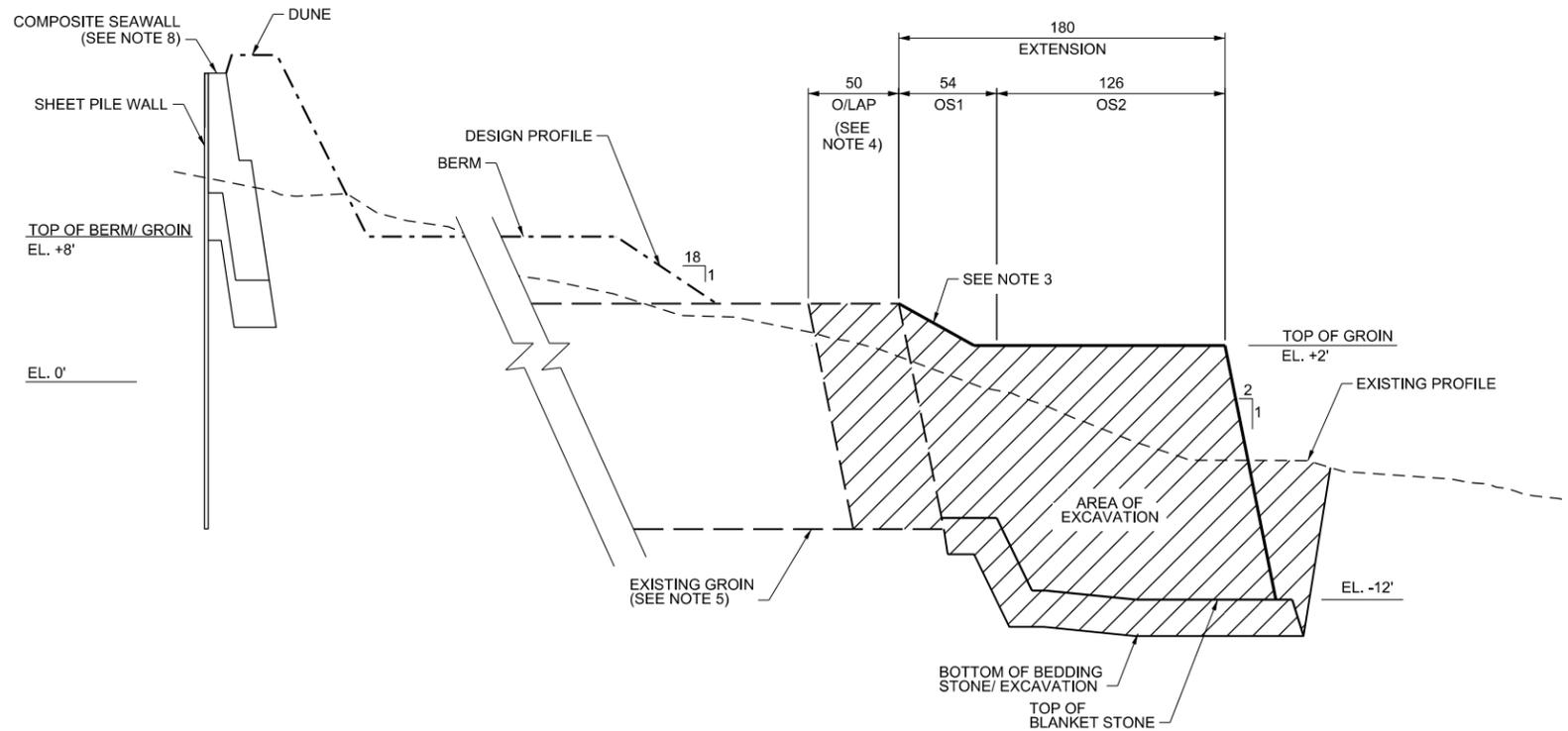
- EL. ELEVATION
HSS HORIZONTAL SHORE SECTION
ISS INTERMEDIATE SLOPING SECTION
OS OUTER SECTION
TRANS. TRANSITION

PRELIMINARY
NOT FOR CONSTRUCTION





C2 PLAN - GROIN EXTENSION 51 (49th STREET)
CS-113 SCALE: 1"=50'



A2 PLAN - GROIN EXTENSION 51 (49th STREET)
CS-407 GROINS 52 & 53 SIMILAR
SCALE: 1"=50'

NOTES

- EXISTING PROFILE IS BASED ON POST-SANDY SURVEY PERFORMED BY MCKIM & CREED FROM FEBRUARY 25TH, 2013 TO MARCH 5TH, 2013.
- THE WIDTH OF THE DESIGN BERM IS GENERALLY 60 FEET OR MORE. THE SEAWARD CREST OF THE DESIGN BERM IS CONTROLLED BY THE ALIGNMENT OF THE BASELINE, WHICH DOES NOT ALWAYS FOLLOW THE BOARDWALK ALIGNMENT.
- THE DISTANCE FROM THE BASELINE TO THE DESIGN SHORELINE IS ALWAYS 243.0 FEET. THE DESIGN SHORELINE IS ALIGNED WITH THE NATURAL SHORELINE. THE ALIGNMENT OF THE DUNE FOLLOWS THE UNNATURAL ALIGNMENT OF THE BOARDWALK.
- REMOVE EXISTING ARMOR STONE AND RE-WORK AS NECESSARY TO CREATE CONTINUOUS INTERLOCKING GROIN STRUCTURE.
- EXTENTS OF EXISTING GROIN ARE UNKNOWN AT THIS TIME. END OF EXPOSED GROIN HAS BEEN LOCATED FROM AERIAL IMAGERY. EXTENTS OF GROIN TO BE DETERMINED PRIOR TO PRELIMINARY DESIGN PHASE.
- MATCH ELEVATION WITH EXISTING GROIN CREST.
- EXISTING CONTOURS NOT SHOWN ON PLAN FOR CLARITY.
- SEE SHEET CS-302 FOR COMPOSITE WALL SECTIONS.

ABBREVIATION

- EL. ELEVATION
HSS HORIZONTAL SHORE SECTION
ISS INTERMEDIATE SLOPING SECTION
OS OUTER SECTION
TRANS. TRANSITION
O/LAP OVERLAP



US Army Corps of Engineers®

DATE	DESCRIPTION	MARK	APPR.
08/30/18	DRAFT FINAL GRR-APPENDIX A1.C	MK	
08/20/18	DRAFT FINAL GRR-APPENDIX A1.C	MK	
07/19/18	DRAFT FINAL GRR-APPENDIX A1.B	MK	

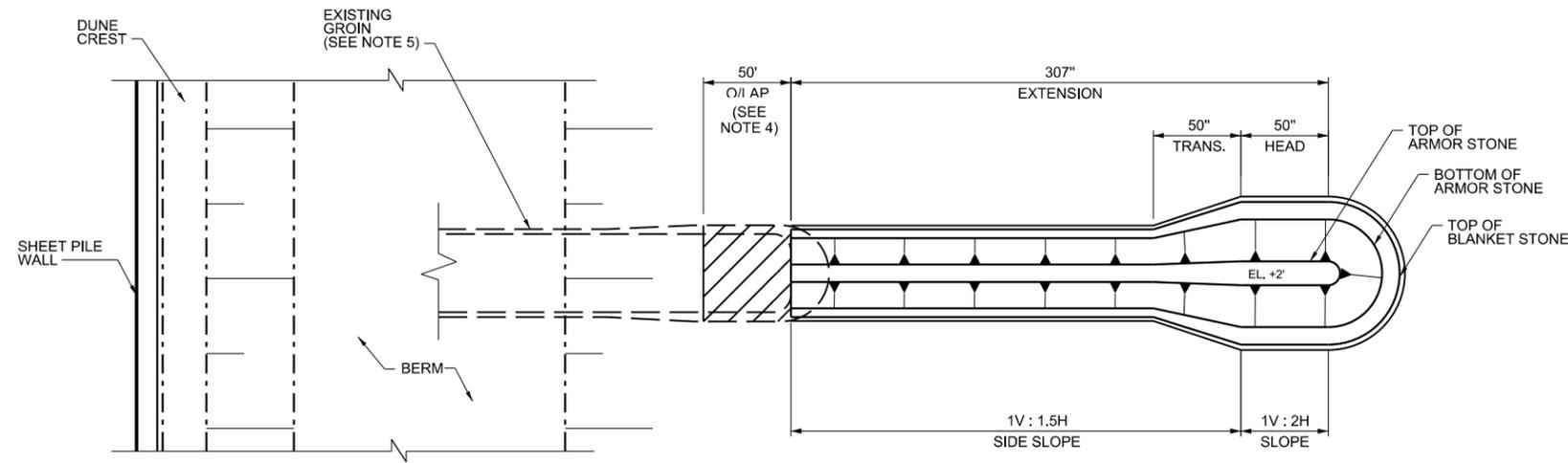
DESIGNED BY:	DATE:	DESIGNATION NO.:
U.S. ARMY CORPS OF ENGINEERS U.S. ARMY ENGINEER DISTRICT NEW YORK http://www.nan.usace.army.mil	08/27/18	
DESIGNED BY: CHK BY: SUBMITTED BY:	FILE NAME:	CONTRACT NO.:
SA MK SA	W912DS_A1_CS-407.dgn	
U.S. ARMY CORPS OF ENGINEERS U.S. ARMY ENGINEER DISTRICT NEW YORK http://www.nan.usace.army.mil	FILE NUMBER:	
MOFFATT & NICHOL 529 FIFTH AVE., 14TH FLOOR NEW YORK, NY 10017 212-768-7454		

INTEGRATED HURRICANE SANDY GENERAL RE-EVALUATION REPORT AND ENVIRONMENTAL IMPACT STATEMENT
TYPICAL PLAN AND PROFILE
GROIN CONSTRUCTION REACH 5

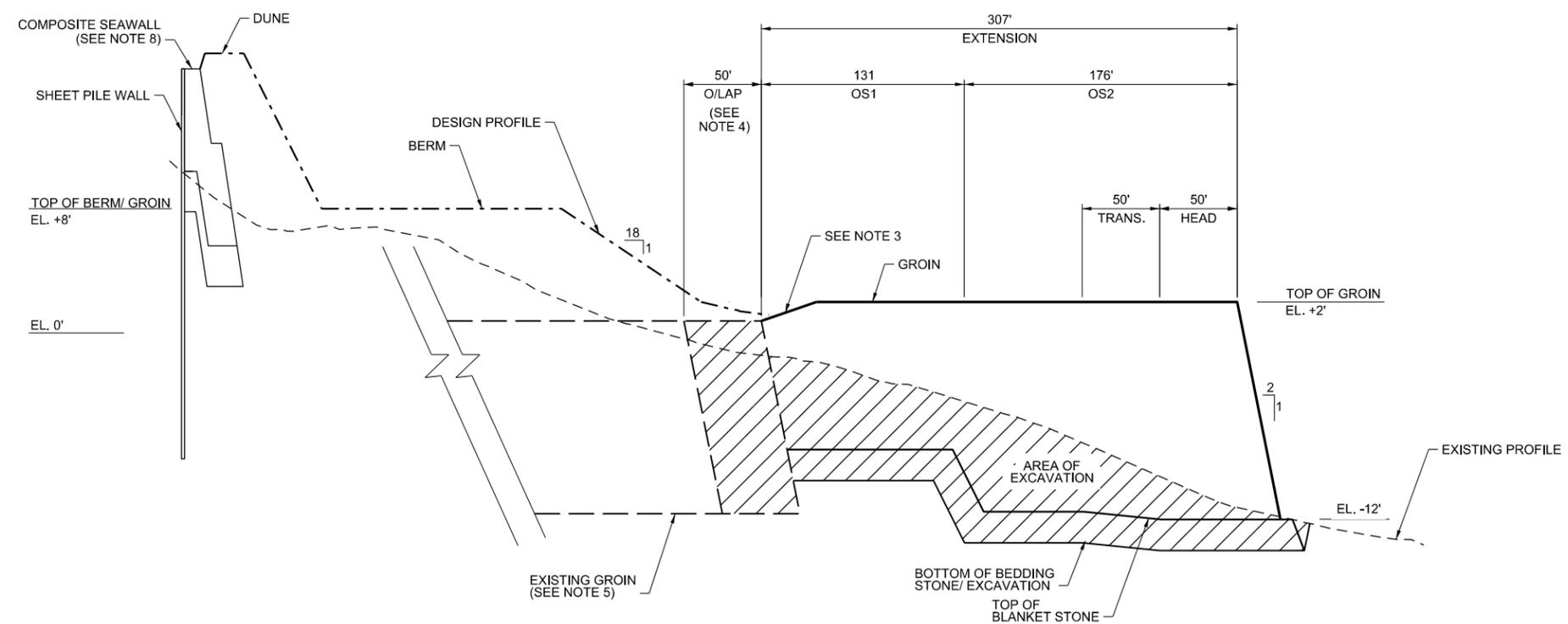
SHEET ID
CS-407
SHEET 33 OF 36

PRELIMINARY
NOT FOR CONSTRUCTION





C2 PLAN - GROIN 61 (40th STREET)
 CS-114 SCALE: 1"=50'



A2 PROFILE - GROIN 61 (40th STREET)
 CS-408 GROINS 62 SIMILAR
 SCALE: 1"=50'

NOTES

- EXISTING PROFILE IS BASED ON POST-SANDY SURVEY PERFORMED BY MCKIM & CREED FROM FEBRUARY 25TH, 2013 TO MARCH 5TH, 2013.
- THE WIDTH OF THE DESIGN BERM IS GENERALLY 60 FEET OR MORE. THE SEAWARD CREST OF THE DESIGN BERM IS CONTROLLED BY THE ALIGNMENT OF THE BASELINE, WHICH DOES NOT ALWAYS FOLLOW THE BOARDWALK ALIGNMENT.
- THE DISTANCE FROM THE BASELINE TO THE DESIGN SHORELINE IS ALWAYS 243.0 FEET. THE DESIGN SHORELINE IS ALIGNED WITH THE NATURAL SHORELINE. THE ALIGNMENT OF THE DUNE FOLLOWS THE UNNATURAL ALIGNMENT OF THE BOARDWALK.
- REMOVE EXISTING ARMOR STONE AND RE-WORK AS NECESSARY TO CREATE CONTINUOUS INTERLOCKING GROIN STRUCTURE.
- EXTENTS OF EXISTING GROIN ARE UNKNOWN AT THIS TIME. END OF EXPOSED GROIN HAS BEEN LOCATED FROM AERIAL IMAGERY. EXTENTS OF GROIN TO BE DETERMINED PRIOR TO PRELIMINARY DESIGN PHASE.
- MATCH ELEVATION WITH EXISTING GROIN CREST.
- EXISTING CONTOURS NOT SHOWN ON PLAN FOR CLARITY.
- SEE SHEET CS-302 FOR COMPOSITE WALL SECTIONS.

ABBREVIATION

- EL. ELEVATION
- HSS HORIZONTAL SHORE SECTION
- ISS INTERMEDIATE SLOPING SECTION
- OS OUTER SECTION
- TRANS. TRANSITION
- O/LAP OVERLAP



DATE	DESCRIPTION	MARK	APPR.
08/30/18	DRAFT FINAL GRR-APPENDIX A1.C	MK	
08/20/18	DRAFT FINAL GRR-APPENDIX A1.C	MK	
07/19/18	DRAFT FINAL GRR-APPENDIX A1.B	MK	

DESIGNED BY: MCKIM & CREED	DATE: 08/20/18	SUBMITTED BY: MCKIM & CREED	CONTRACT NO.:
DESIGNED BY: MCKIM & CREED	DATE: 08/27/2018	CONTRACT NO.:	FILE NUMBER:
DESIGNED BY: MCKIM & CREED	DATE: 08/27/2018	CONTRACT NO.:	FILE NUMBER:
DESIGNED BY: MCKIM & CREED	DATE: 08/27/2018	CONTRACT NO.:	FILE NUMBER:

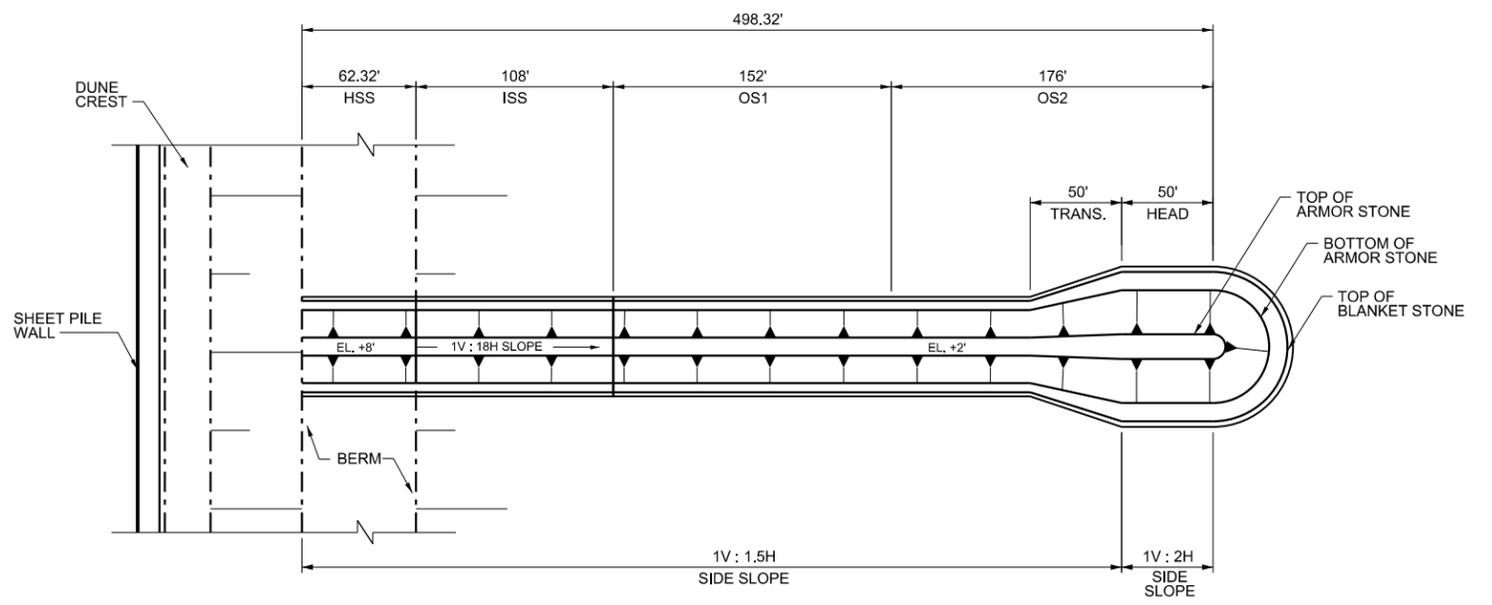
INTEGRATED HURRICANE SANDY GENERAL RE-EVALUATION REPORT AND ENVIRONMENTAL IMPACT STATEMENT
 TYPICAL PLAN AND PROFILE
 GROIN CONSTRUCTION REACH 6A

PRELIMINARY
 NOT FOR CONSTRUCTION

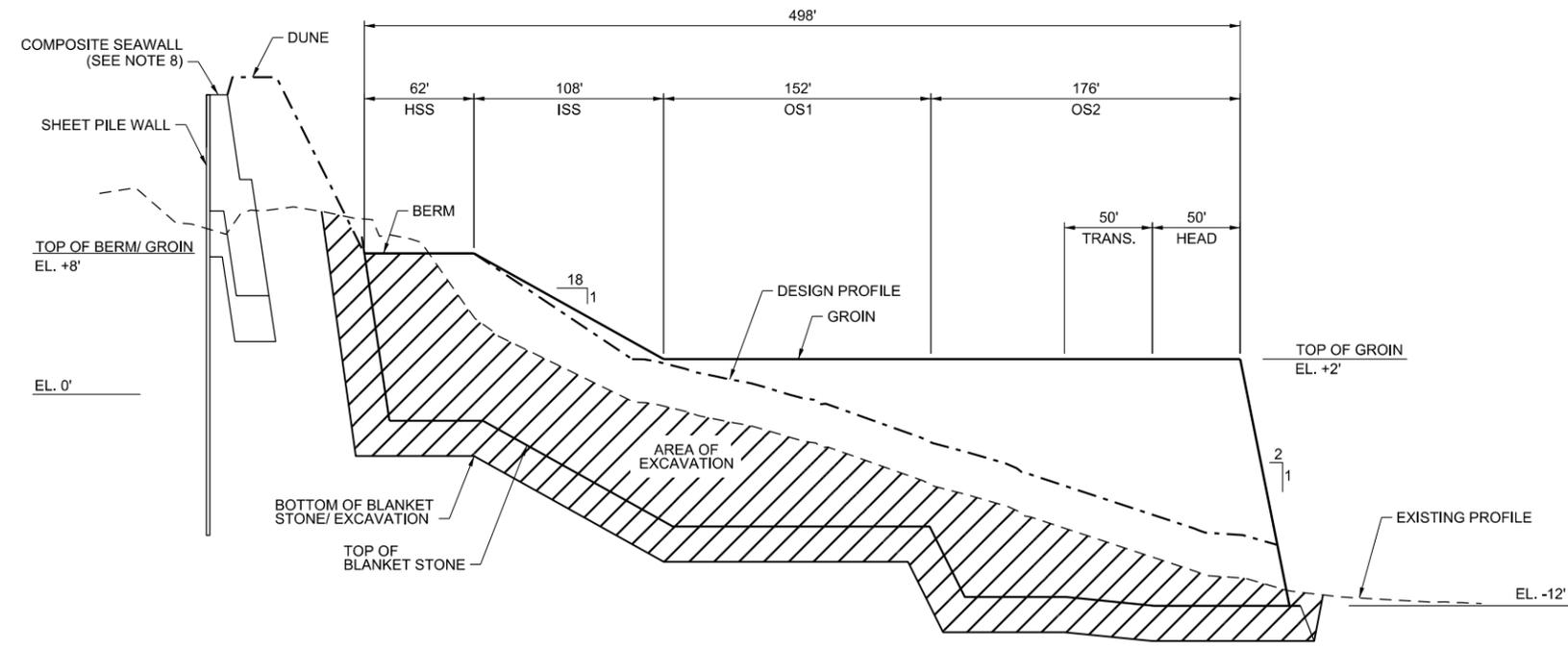


SHEET ID
 CS-408
 SHEET 34 OF 36

LAST PLOTTED BY: mestimable 4:11:00 PM 8/27/2018 FILE: W912DS_A1_CS-409.dgn PATH: Q:\NY19781-02\500_CADD\Active_GRR_Report-App A1



C2 PLAN - GROIN 63 (34th STREET)
 CS-115 SCALE: 1"=50'



A4 PROFILE - GROIN 63 (34th STREET)
 CS-409 SCALE: 1"=50'

NOTES

- EXISTING PROFILE IS BASED ON POST-SANDY SURVEY PERFORMED BY MCKIM & CREED FROM FEBRUARY 25TH, 2013 TO MARCH 5TH, 2013.
- THE WIDTH OF THE DESIGN BERM IS GENERALLY 60 FEET OR MORE. THE SEAWARD CREST OF THE DESIGN BERM IS CONTROLLED BY THE ALIGNMENT OF THE BASELINE, WHICH DOES NOT ALWAYS FOLLOW THE BOARDWALK ALIGNMENT.
- THE DISTANCE FROM THE BASELINE TO THE DESIGN SHORELINE IS ALWAYS 243.0 FEET. THE DESIGN SHORELINE IS ALIGNED WITH THE NATURAL SHORELINE. THE ALIGNMENT OF THE DUNE FOLLOWS THE UNNATURAL ALIGNMENT OF THE BOARDWALK.
- REMOVE EXISTING ARMOR STONE AND RE-WORK AS NECESSARY TO CREATE CONTINUOUS INTERLOCKING GROIN STRUCTURE.
- EXTENTS OF EXISTING GROIN ARE UNKNOWN AT THIS TIME. END OF EXPOSED GROIN HAS BEEN LOCATED FROM AERIAL IMAGERY. EXTENTS OF GROIN TO BE DETERMINED PRIOR TO PRELIMINARY DESIGN PHASE.
- MATCH ELEVATION WITH EXISTING GROIN CREST.
- EXISTING CONTOURS NOT SHOWN ON PLAN FOR CLARITY.
- SEE SHEET CS-302 FOR COMPOSITE WALL SECTIONS.

ABBREVIATION

- EL. ELEVATION
- HSS HORIZONTAL SHORE SECTION
- ISS INTERMEDIATE SLOPING SECTION
- OS OUTER SECTION
- OS1 OUTER SECTION 1
- OS2 OUTER SECTION 2
- TRANS. TRANSITION



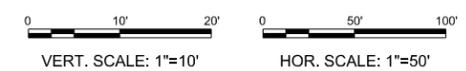
U.S. Army Corps of Engineers

DATE	DESIGNED BY	DESIGNED BY	DATE	DESCRIPTION
08/30/18	MK	MK	08/30/18	DRAFT FINAL GRR-APPENDIX A1.C
08/30/18	MK	MK	08/30/18	DRAFT FINAL GRR-APPENDIX A1.C
07/19/18	MK	MK	07/19/18	DRAFT FINAL GRR-APPENDIX A1.B
				APPR.

U.S. ARMY CORPS OF ENGINEERS U.S. ARMY ENGINEER DISTRICT NEW YORK http://www.nan.usace.army.mil	DESIGNED BY: MCKIM & CREED MK	DATE: 08/28/18	SUBMITTED BY: SA	CONTRACT NO.:
MOFFATT & NICHOL 529 FIFTH AVE., 14TH FLOOR NEW YORK, NY 10017 212-768-7454	DESIGNED BY: MCKIM & CREED MK	DATE: 08/28/18	CONTRACT NO.:	FILE NUMBER:
	DESIGNED BY: MCKIM & CREED MK	DATE: 08/28/18	CONTRACT NO.:	FILE NUMBER:

INTEGRATED HURRICANE SANDY GENERAL RE-EVALUATION REPORT AND ENVIRONMENTAL IMPACT STATEMENT
 TYPICAL PLAN AND PROFILE
 GROIN CONSTRUCTION REACH 6A

PRELIMINARY
 NOT FOR CONSTRUCTION



SHEET ID
CS-409
 SHEET 35 OF 36

