MATCH LINE C-2103

MATCH LINE C-2105

MATCH LINE C-2101

MATCH

ASPHALT PAVEMENT

EDGE OF PAVEMENT

EX. EDGE OF VEGETATION

EX. STORM DITCH

EX. EDGE OF VEGETATION

STOCKPILE (TYP.)

EX.ELEV. (TYP.)

EX. DIRT ROAD

JUNE 2015 WETLANDS DELINEATION

NEW EDGE OF PAVEMENT

0.8 %

VDOT STD. MH-1 RIM 10.5, INV 7.50 (24"), 8.8 (8")

22 LF 24" RCP

VDOT STD. MH-1 RIM 10.5, INV 7.40 (24"), 8.8 (8")

46 LF 24" RCP

STACK #28

VDOT STD. MH-1 RIM 10.5, INV 7.25 (24"), 7.9 (8")

47 LF 24" RCP

VDOT STD. MH-1 RIM 10.5, INV 7.00 (24"), 8.8 (8")

47 LF 24" RCP

STACK #27

VDOT STD. MH-1 RIM 10.5, INV 6.75 (24"), 7.9 (8")

46 LF 24" RCP

VDOT STD. MH-1 RIM 10.5, INV 6.50 (24"), 8.8 (8")

46 LF 24" RCP

STACK #26

VDOT STD. MH-1 RIM 10.5, INV 6.25 (24"), 7.9 (8")

47 LF 24" RCP

VDOT STD. MH-1 RIM 10.5, INV 6.00 (24"), 8.8 (8")

47 LF 24" RCP

STACK #25

VDOT STD. MH-1 RIM 10.5, INV 5.75 (24"), 7.9 (8")

65 LF 24" RCP

VDOT STD. MH-1 RIM 10.5, INV 7.50 (24"), 8.8 (8")

46 LF 24" RCP

UNDERDRAIN ACCESS CLEANOUT RIM.=10.5' INV.=8.8'

UNDERDRAIN ACCESS CLEANOUT RIM.=10.5' INV.=7.9'

UNDERDRAIN ACCESS CLEANOUT, RIM =10.5' INV.=8.8' (TYP.)

8" PERFORATED HDPE UNDERDRAIN INV.=7.9'

8" PERFORATED HDPE UNDERDRAIN INV.=8.8'

8" PERFORATED HDPE UNDERDRAIN (TYP.) INV.=8.8'

MATCH TRENCH DRAIN GRATE ELEV. (TYP.)

EX. TRENCH DRAIN

EX. 24" CLASS III RCP

REMOVE ES-1 AND CONNECT 24" RCP TO EXISTING PIPE AT EX. INV 5.50'

EX. CONTOUR

EX. EDGE OF VEGETATION

EX. DIRT ROAD

1.0 %

0.5 %

A C-2112

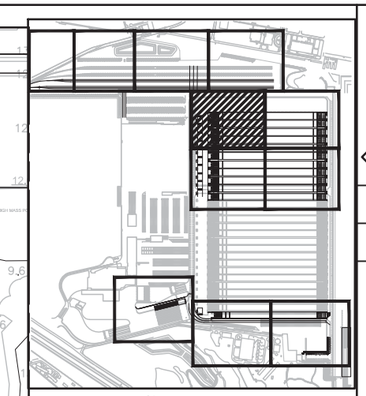
B C-2112

A C-5008

B C-5010

H C-2114

G C-2114



KEY PLAN

NOTE:

1. ALL RCP SHALL BE CLASS III UNLESS OTHERWISE INDICATED.

0 40 80 120

1"=40'

NOT FOR CONSTRUCTION

NO.	DATE	DSGN	DR	CHK	APVD	REVISION	BY	APVD
C	12/21/15	L. BATZ	T. LUEHRS	M. HOLMQUIST		INTERMEDIATE DESIGN - NOT FOR CONSTRUCTION	LB	MH
B	12/11/15					95% REVIEW SUBMITTAL - NOT FOR CONSTRUCTION	LB	MH
A	09/29/15					50% REVIEW SUBMITTAL - NOT FOR CONSTRUCTION	SK	MH

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VPA - VIG PHASE II SUPPORT
PROJECT MAGNUM
VIRGINIA PORT AUTHORITY
PORTSMOUTH, VIRGINIA

ch2m:

CIVIL

GRADING & DRAINAGE PLAN SHEET 4 OF 11

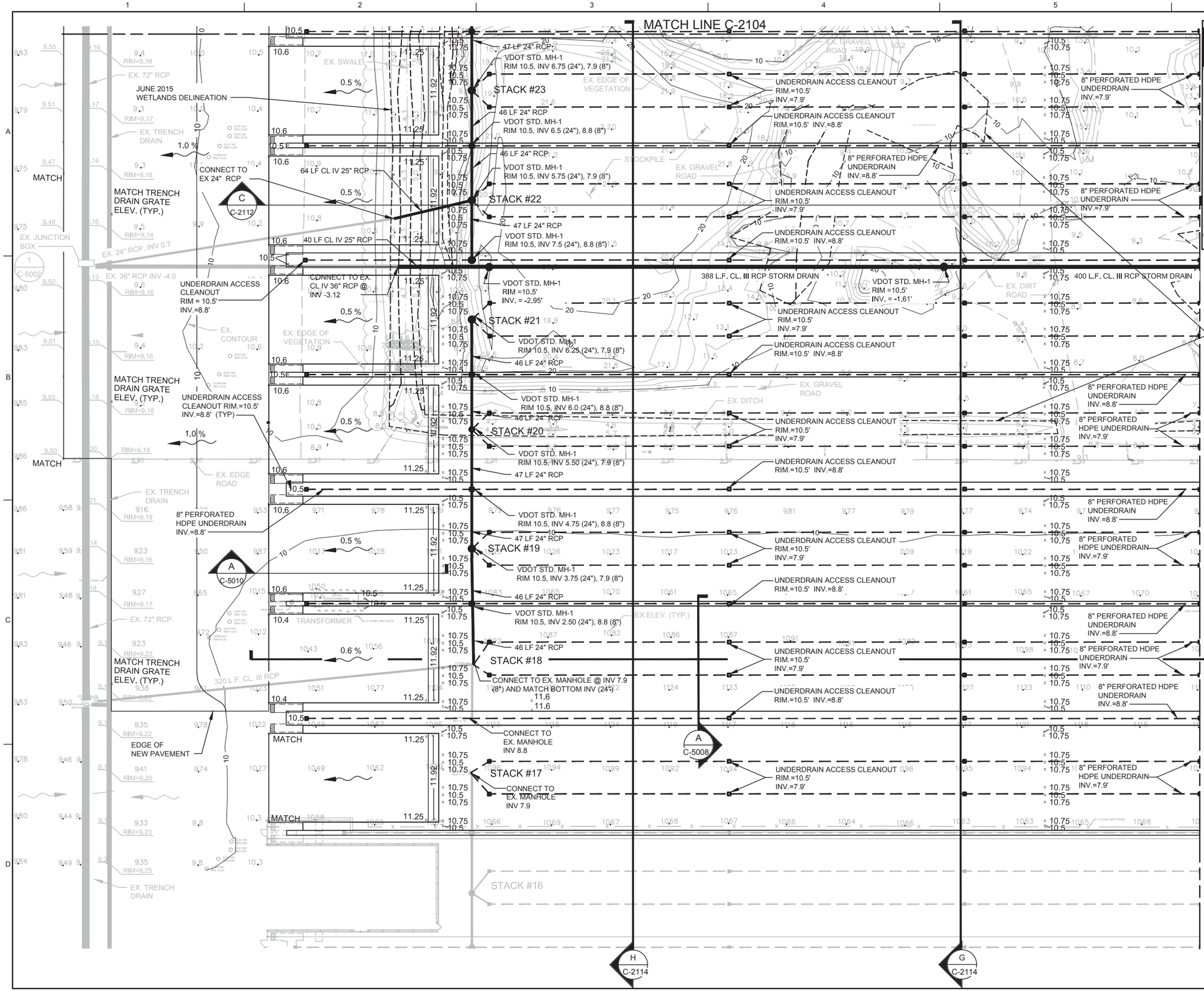
VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	2015/09/29
PROJ	664218
DWG	C-2104
SHEET	X of X

INTERMEDIATE DESIGN

PWPATH FILENAME: PLOT DATE: $PLOTDATE PLOT TIME: $PLOTTIME



NOT FOR CONSTRUCTION

NO.	DATE	DSGN	DR	CHK	REVISION	APVD
C	12/21/15	L. BATZ	T. LUEHRS	M. HOLMQUIST	INTERMEDIATE DESIGN - NOT FOR CONSTRUCTION	MH
B	12/11/15				95% REVIEW SUBMITTAL - NOT FOR CONSTRUCTION	LB / MH
A	09/29/15				50% REVIEW SUBMITTAL - NOT FOR CONSTRUCTION	SK / MH

BY APVD

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PORTSMOUTH, VIRGINIA

ch2m

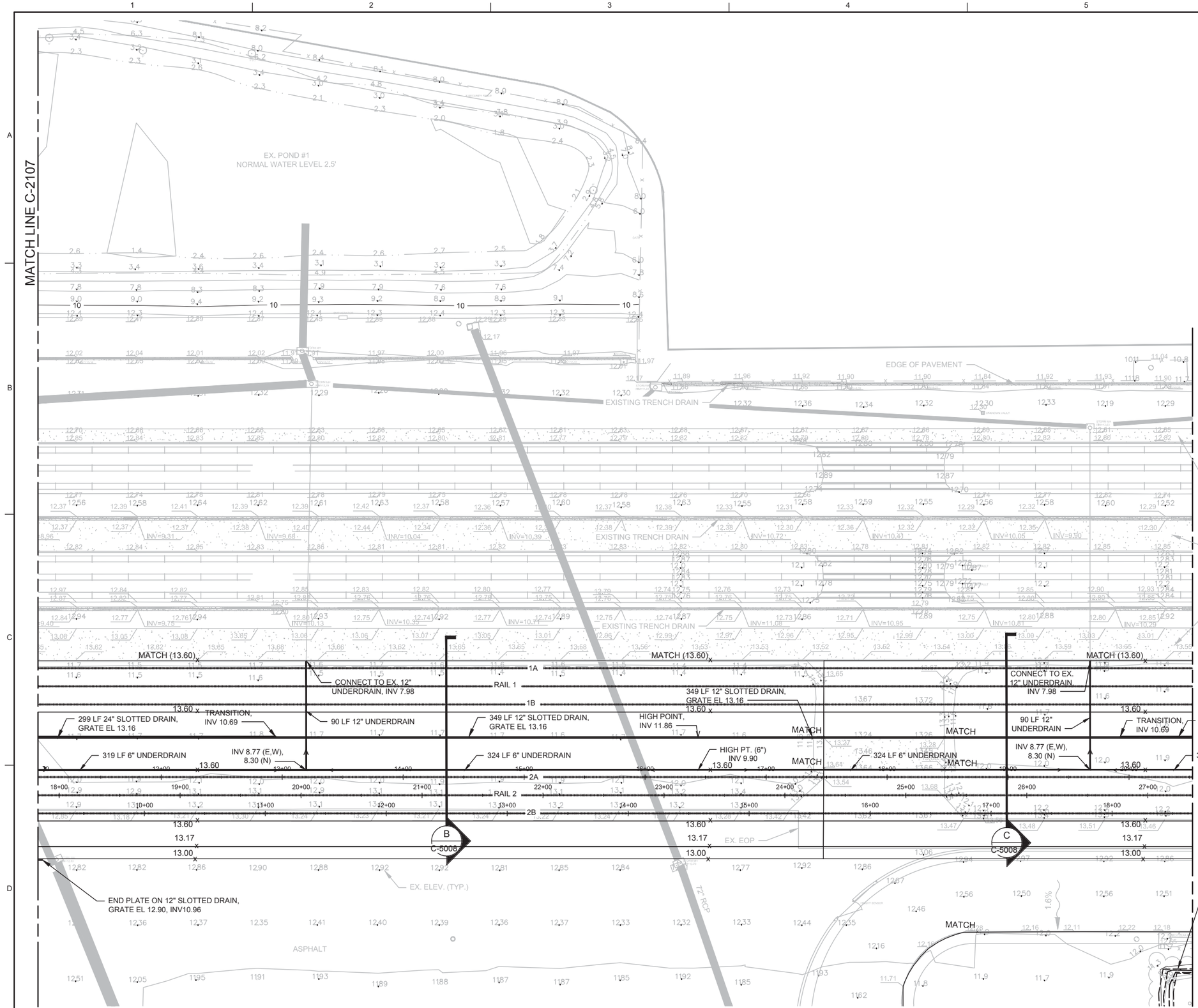
CIVIL

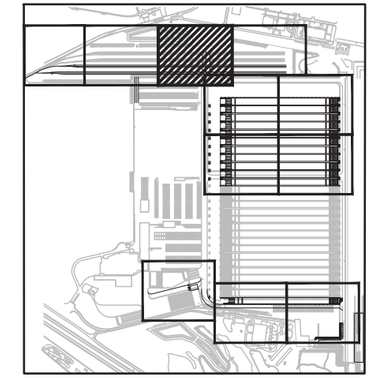
GRADING & DRAINAGE PLAN SHEET 5 OF 11

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	2015/09/29
PROJ	664218
DWG	C-2105
SHEET	X of X

INTERMEDIATE DESIGN





N

KEY PLAN

NOTE:

1. ALL RCP SHALL BE CLASS III UNLESS OTHERWISE INDICATED.

NOT FOR CONSTRUCTION

NO.	DATE	REVISION	DR	CHK	APVD
C	12/21/15	INTERMEDIATE DESIGN - NOT FOR CONSTRUCTION	LB	MH	
B	12/11/15	95% REVIEW SUBMITTAL - NOT FOR CONSTRUCTION	LB	MH	
A	09/29/15	50% REVIEW SUBMITTAL - NOT FOR CONSTRUCTION	SK	MH	

DSGN L. BATZ | DR T. LUEHRS | CHK M. HOLMQUIST | APVD

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VPA - VIG PHASE II SUPPORT
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VIRGINIA PORT AUTHORITY
PORTSMOUTH, VIRGINIA

ch2m:

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GRADING & DRAINAGE PLAN
SHEET 6 OF 11

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	2015/09/29
PROJ	664218
DWG	C-2106
SHEET	X of X

INTERMEDIATE DESIGN

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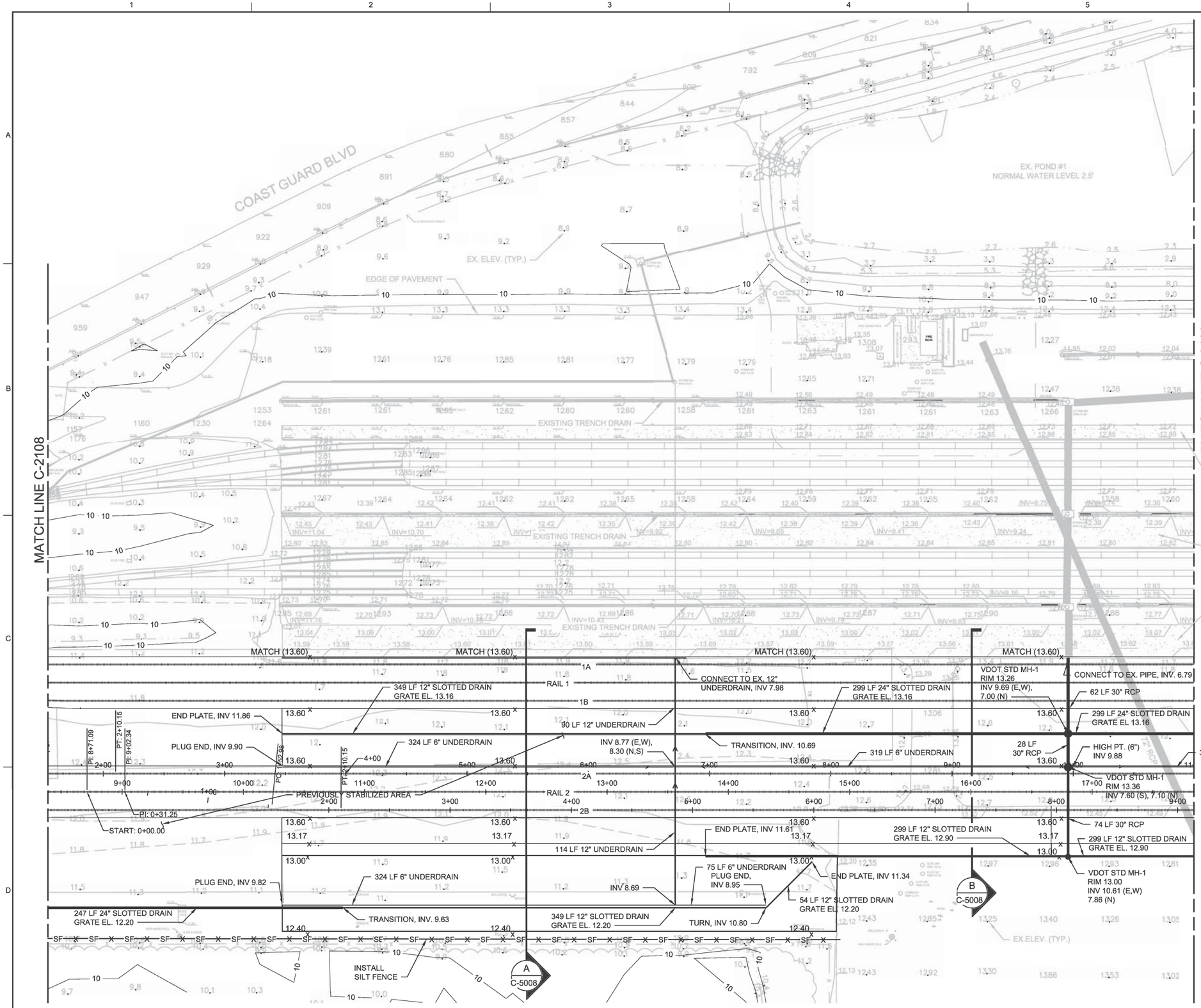

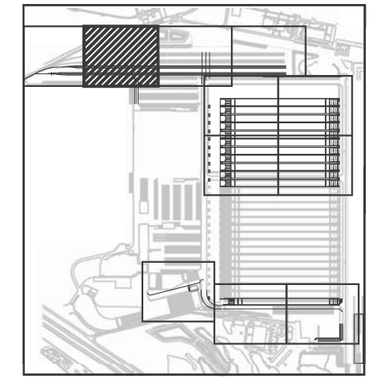

KEY PLAN

NOTE:

1. ALL RCP SHALL BE CLASS III UNLESS OTHERWISE INDICATED.

0 40 80 120

1"=40'

NOT FOR CONSTRUCTION

NO.	DATE	REVISION	BY	APVD
C	12/21/15	INTERMEDIATE DESIGN - NOT FOR CONSTRUCTION	LB	MH
B	12/11/15	95% REVIEW SUBMITTAL - NOT FOR CONSTRUCTION	LB	MH
A	09/29/15	50% REVIEW SUBMITTAL - NOT FOR CONSTRUCTION	SK	MH

DSGN L. BATZ | DR T. LUEHRS | CHK M. HOLMQUIST | APVD

VPA - VIG PHASE II SUPPORT
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PORTSMOUTH, VIRGINIA

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GRADING & DRAINAGE PLAN
SHEET 7 OF 11

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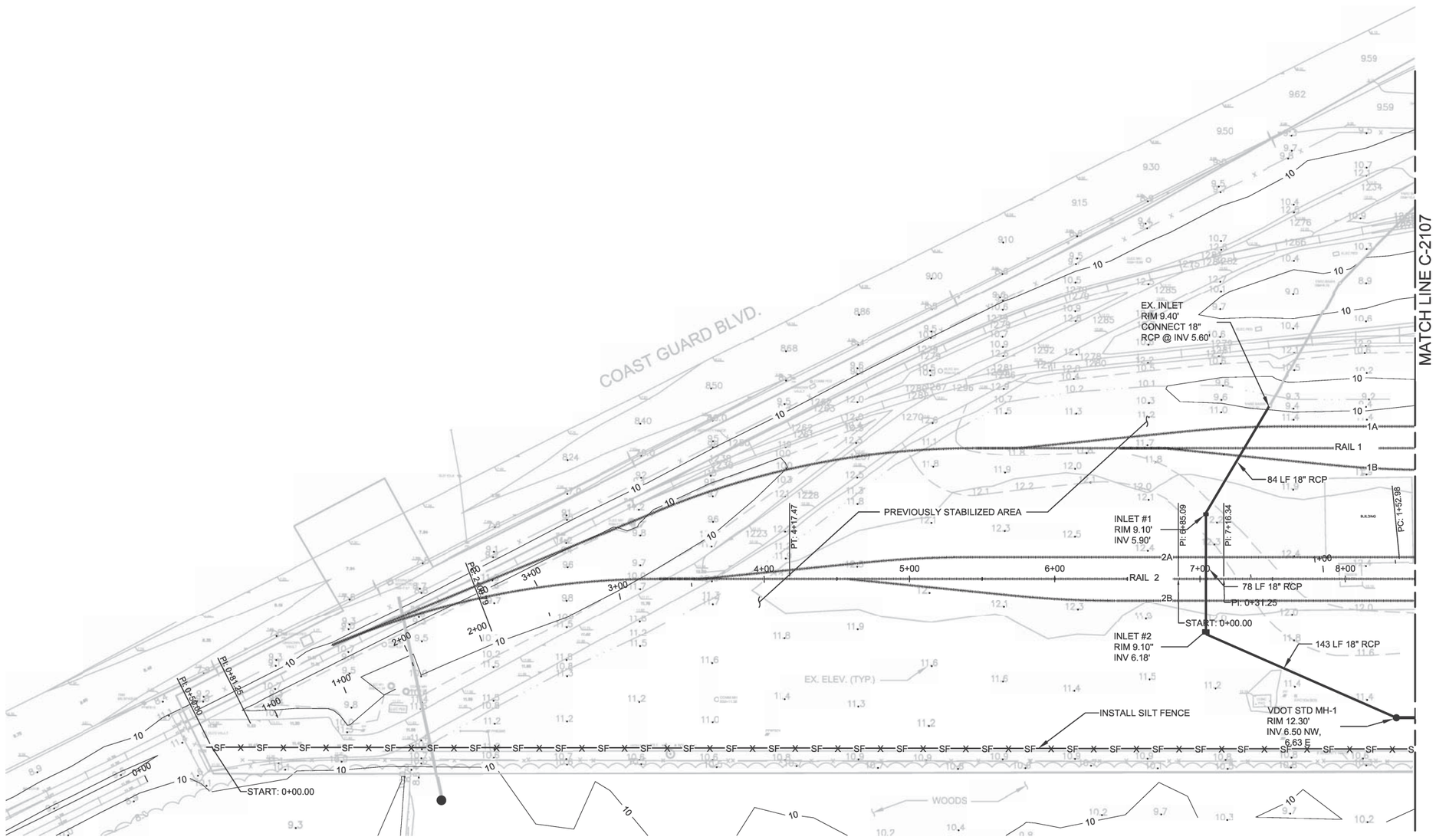
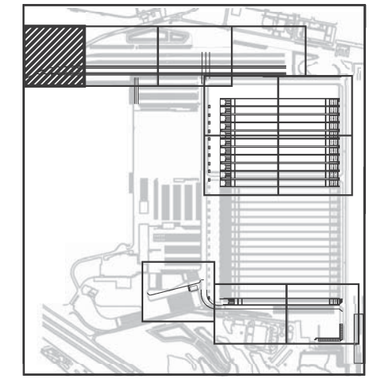
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	2015/09/29
PROJ	664218
DWG	C-2107
SHEET	X of X

INTERMEDIATE DESIGN





N

KEY PLAN

NOTE:

1. ALL RCP SHALL BE CLASS III UNLESS OTHERWISE INDICATED.
2. VERIFY INVERT OF EXISTING INLET. IF ELEVATION IS HIGHER THAN NEW TIE-IN INVERT, REPORT DISCREPANCY TO ENGINEER.

N

0 40 80 120

1"=40'

NOT FOR CONSTRUCTION

NO.	DATE	REVISION	BY	APVD
C	12/21/15	INTERMEDIATE DESIGN - NOT FOR CONSTRUCTION	LB	MH
B	12/11/15	95% REVIEW SUBMITTAL - NOT FOR CONSTRUCTION	LB	MH
A	09/29/15	50% REVIEW SUBMITTAL - NOT FOR CONSTRUCTION	SK	MH

DSGN L. BATZ | DR T. LUEHRS | CHK M. HOLMQUIST | APVD

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PORTSMOUTH, VIRGINIA

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GRADING & DRAINAGE PLAN
SHEET 8 OF 11

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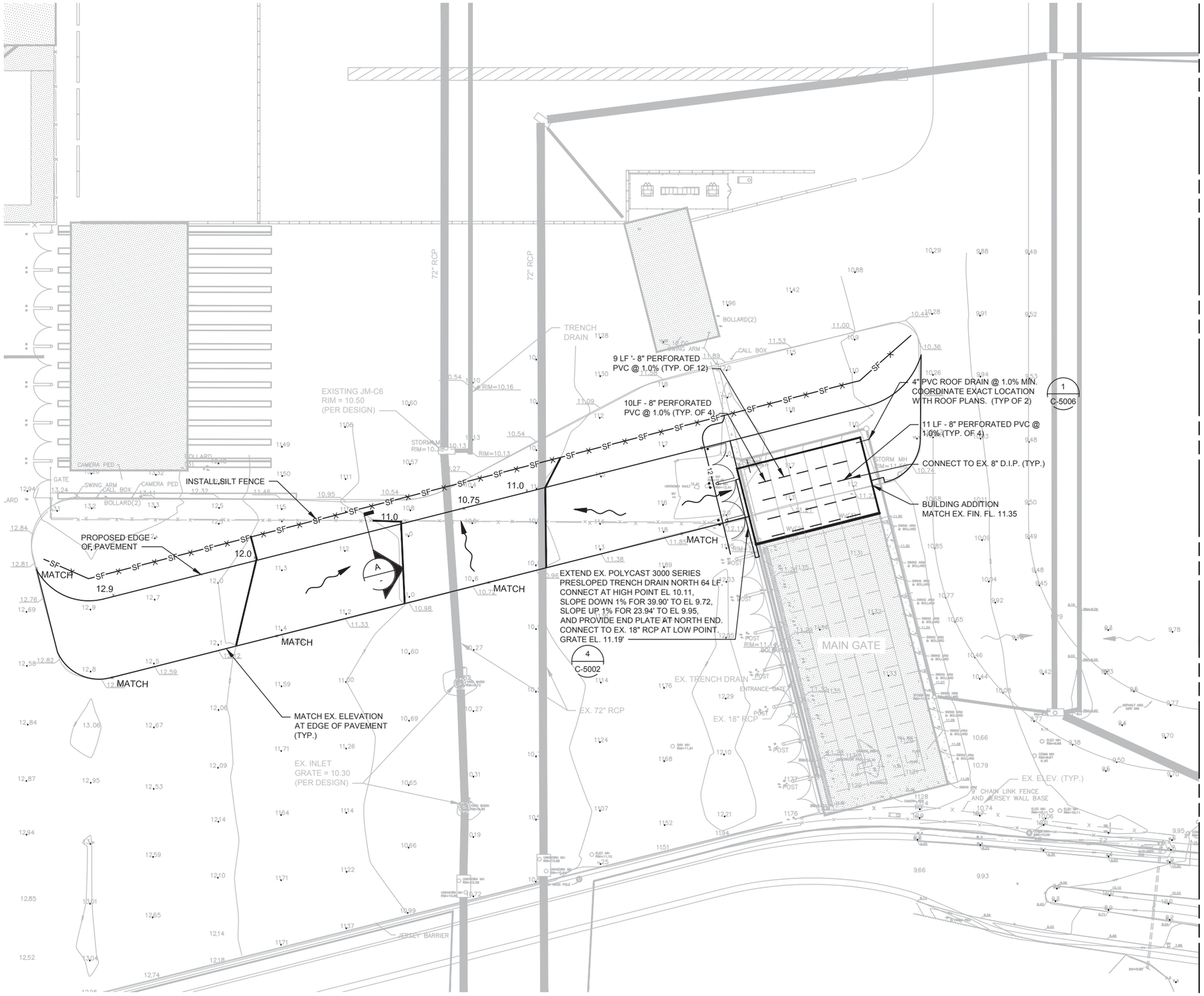
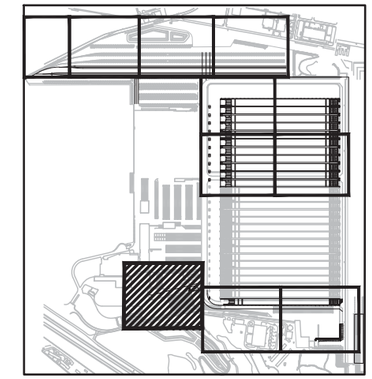
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

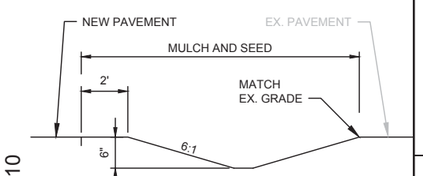
DATE	2015/09/29
PROJ	664218
DWG	C-2108
SHEET	X of X

INTERMEDIATE DESIGN





KEY PLAN



A DETAIL
NTS

NOTE:
1. ALL RCP SHALL BE CLASS III UNLESS OTHERWISE INDICATED.

0 40 80 120
1"=40'

NOT FOR CONSTRUCTION

NO.	DATE	DSGN	DR	CHK	APVD	REVISION
C	12/21/15	L. BATZ	T. LUEHRS	M. HOLMQUIST		INTERMEDIATE DESIGN - NOT FOR CONSTRUCTION
B	12/11/15				LB	95% REVIEW SUBMITTAL - NOT FOR CONSTRUCTION
A	09/29/15				LB	50% REVIEW SUBMITTAL - NOT FOR CONSTRUCTION
					SK	
					MH	
					BY	APVD

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PROJECT MAGNUM
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PORTSMOUTH, VIRGINIA

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GRADING & DRAINAGE PLAN
SHEET 11 OF 11

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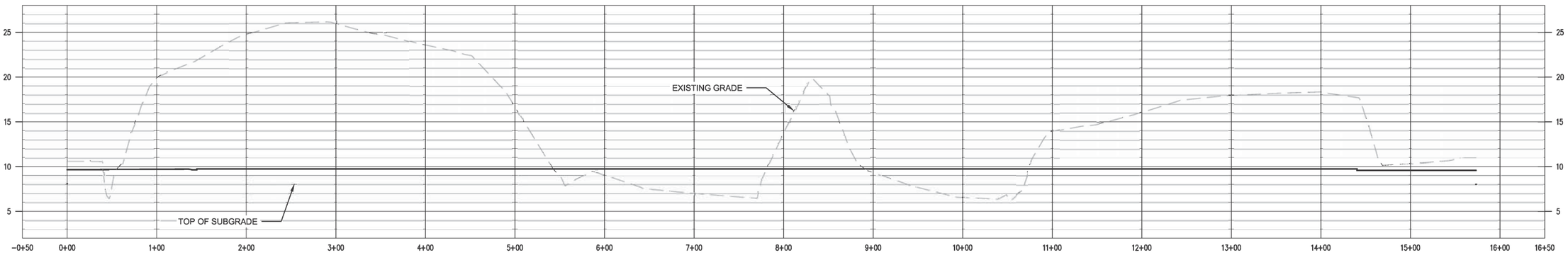
INTERMEDIATE DESIGN

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

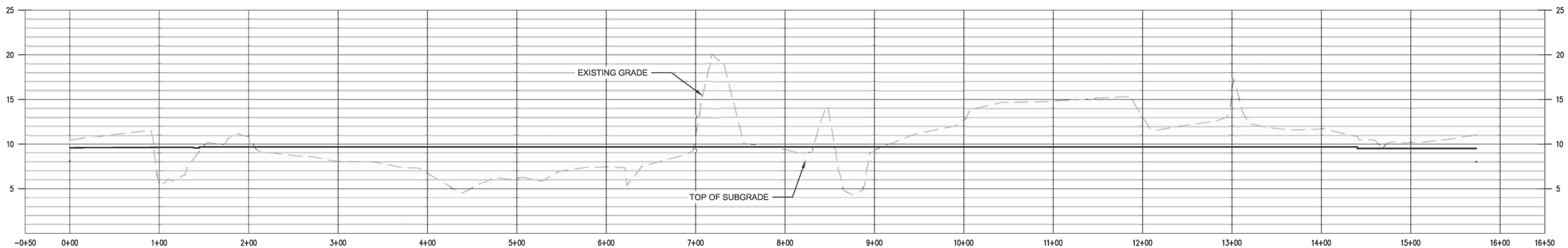
DATE	2015/09/29
PROJ	664218
DWG	C-2111
SHEET	X of X



A PROFILE AT CENTER STACK 28

SCALE: 1"=60' HORIZ 1"=6' VERTICAL

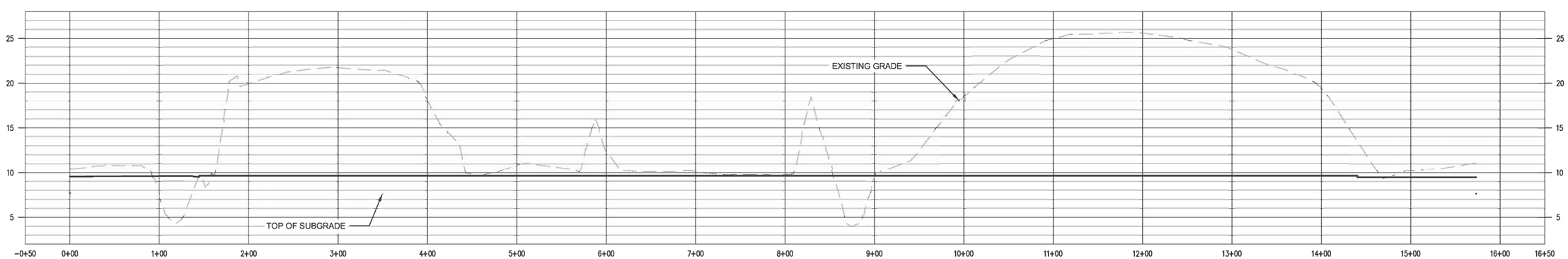
C-2100
C-2101
C-2104



B PROFILE AT CENTER STACK 25

SCALE: 1"=60' HORIZ 1"=6' VERTICAL

C-2100
C-2101
C-2104



C PROFILE AT CENTER STACK 22

SCALE: 1"=60' HORIZ 1"=6' VERTICAL

C-2100
C-2102
C-2105

NOT FOR CONSTRUCTION

NOT FOR CONSTRUCTION

NO.	DATE	DSGN	DR	CHK	APVD
B	12/11/15	L BATZ	T LUEHRS	L BATZ	

REVISION

NO.	DATE	BY	APVD
B	12/11/15	LB	MH

INTERMEDIATE SUBMITTAL - NOT FOR CONSTRUCTION

VPA - VIG PHASE II SUPPORT
PROJECT MAGNUM
VIRGINIA PORT AUTHORITY
PORTSMOUTH, VIRGINIA

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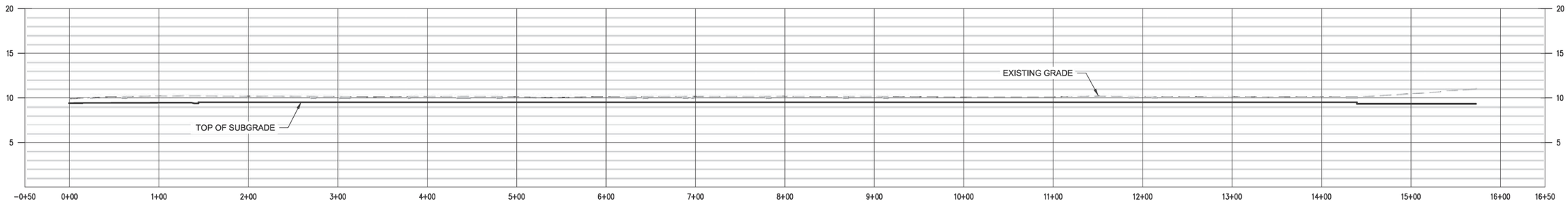
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	2015/09/29
PROJ	664218
DWG	C-2112
SHEET	X of X

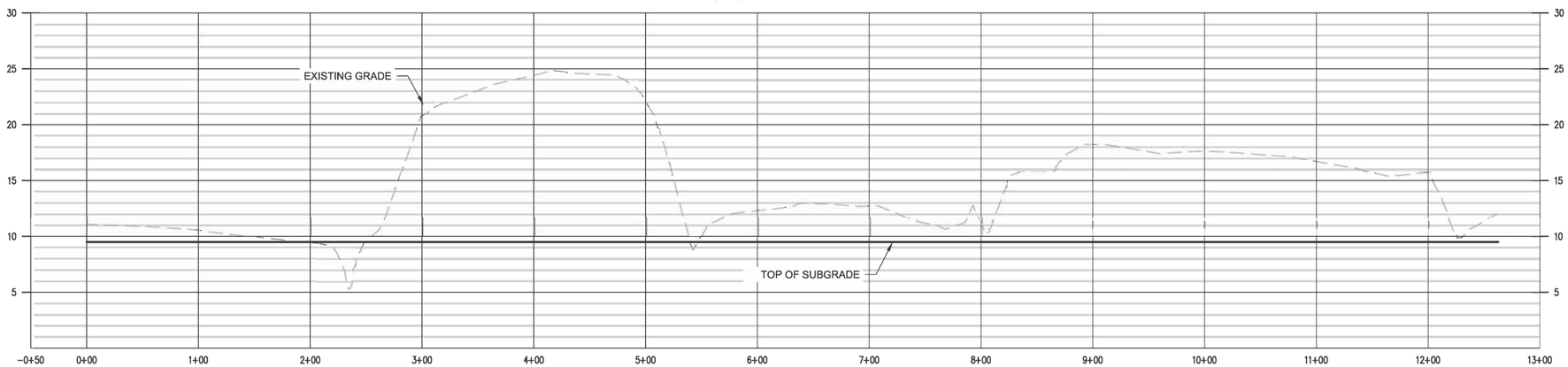
INTERMEDIATE SUBMITTAL



D PROFILE AT CENTER STACK 18

SCALE: 1"=60' HORIZ. 1"=6' VERT

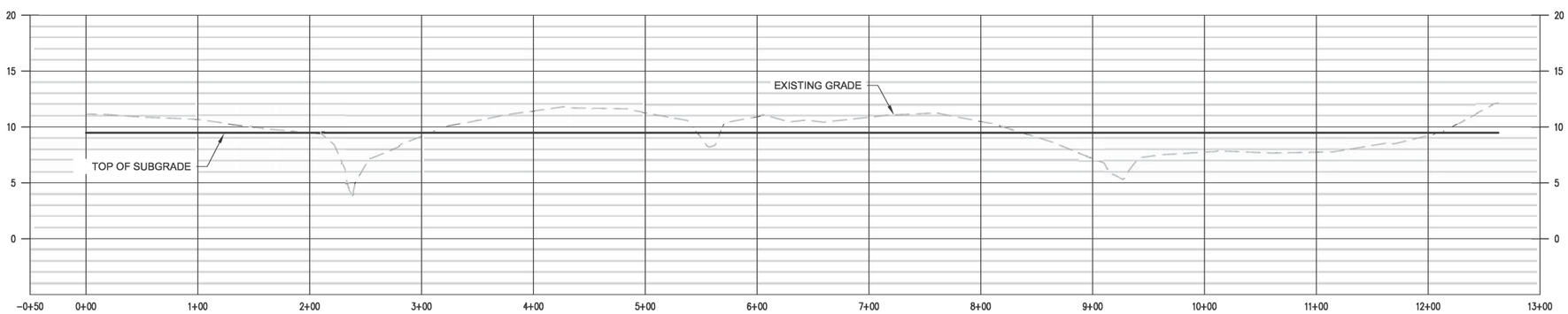
C-2100
C-2102
C-2105



E PROFILE

SCALE: 1"=60' HORIZ. 1"=6' VERT

C-2100
C-2101
C-2102



F PROFILE

SCALE: 1"=60' HORIZ. 1"=6' VERT

C-2100
C-2101
C-2102

NOT FOR CONSTRUCTION

NOT FOR CONSTRUCTION

NO.	DATE	REVISION	BY	APVD
B	12/01/15	INTERMEDIATE SUBMITTAL - NOT FOR CONSTRUCTION	LB	

DSGN L BATZ | DR T LUEHRS | CHK M HOLMQUIST | APVD

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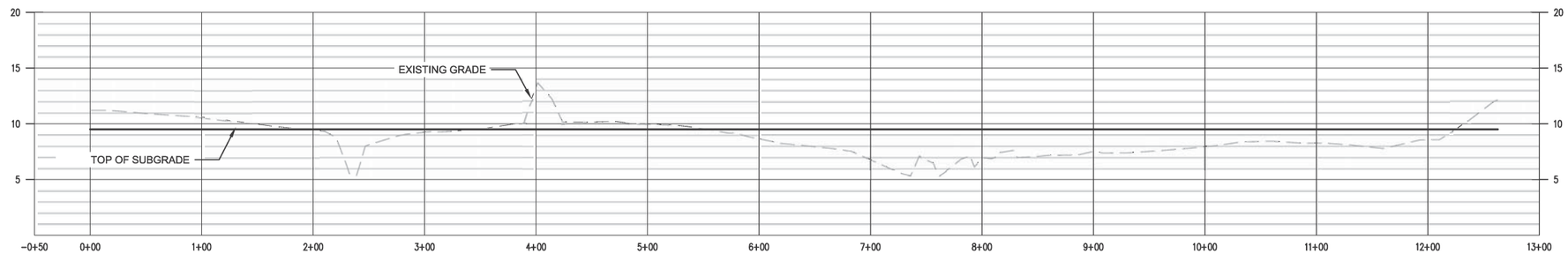
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

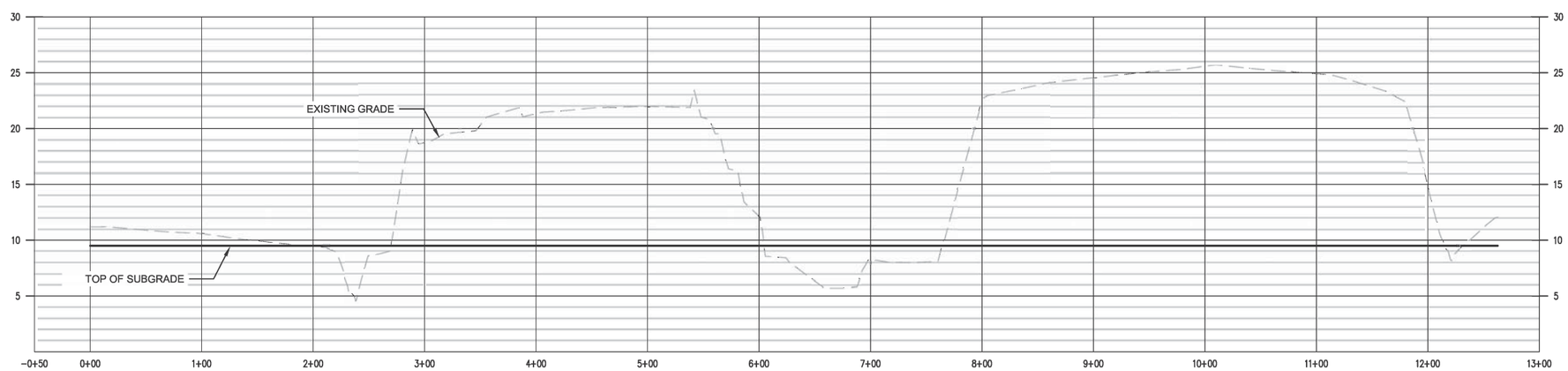
DATE	2015/12/01
PROJ	664218
DWG	C-2113
SHEET	of



G PROFILE

SCALE: 1"=60' HORIZ 1"=6' VERT

C-2110
C-2104
C-2105



H PROFILE

SCALE: 1"=60' HORIZ 1"=6' VERT

C-2110
C-2104
C-2105

NOT FOR CONSTRUCTION

NO.	DATE	DSGN	DR	CHK	APVD	BY	APVD
B	12/01/15	L BATZ	T LUEHRS	M HOLMQUIST			

INTERMEDIATE SUBMITTAL - NOT FOR CONSTRUCTION

REVISION

VPA - VIG PHASE II SUPPORT
PROJECT MAGNUM
VIRGINIA PORT AUTHORITY
PORTSMOUTH, VIRGINIA

CIVIL
CONTAINER YARD PROFILES
G AND H

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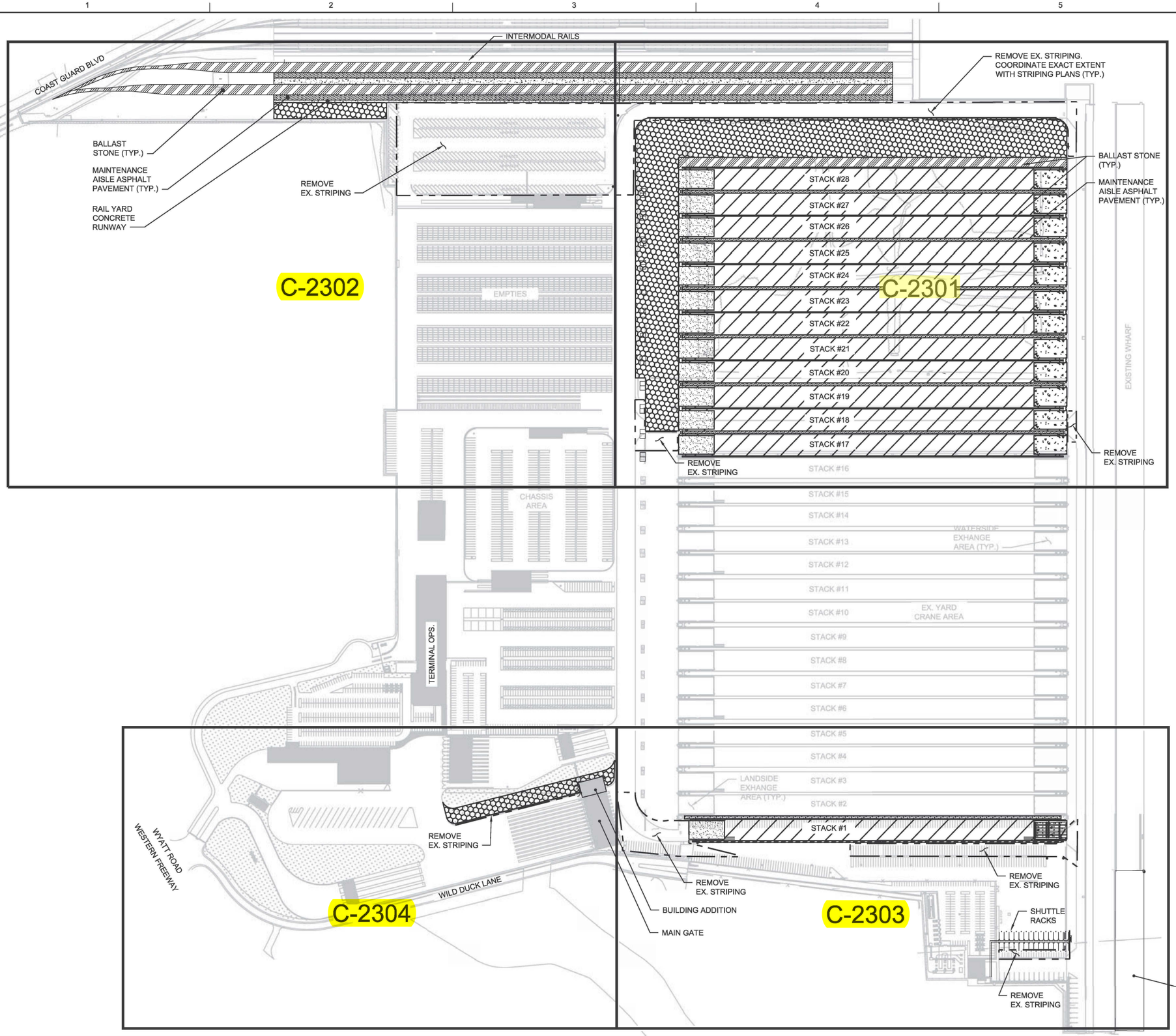
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	2015/12/01
PROJ	664218
DWG	C-2114
SHEET	of

NOT FOR CONSTRUCTION



NOTES:

1. HEAVY CONCRETE PAVING ON THE WATER-SIDE: PROVIDE JOINTS PER DETAIL ON SHEET C-5011.

2. LIGHT CONCRETE PAVING ON THE LAND-SIDE: JOINTS ARE NOT REQUIRED. THE CONTRACTOR MAY PROPOSE CONSTRUCTION JOINTS FOR CONVENIENCE.

3. CURBS IN EXCHANGE AREAS ARE NOT SHOWN FOR CLARITY.

LEGEND

1 C-5007	HEAVY CONCRETE PAVEMENT
2 C-5007	LIGHT CONCRETE PAVEMENT
3 C-5007	ASPHALT PAVEMENT
4 C-5007	GRAVEL / ZEBRA PAVEMENT
5 C-5007	BALLAST STONE MAINTENANCE AISLE ASPHALT PAVEMENT
6 C-5007	RAIL YARD CONCRETE RUNWAY
	EX. BUILDINGS/CANOPIES, UNLESS OTHERWISE INDICATED
	LIMITS OF EXISTING STRIPING REMOVAL

NOT FOR CONSTRUCTION

NO.	DATE	REVISION	BY	APVD
C	12/21/15	INTERMEDIATE DESIGN - NOT FOR CONSTRUCTION	LB	MH
B	12/11/15	95% REVIEW SUBMITTAL - NOT FOR CONSTRUCTION	LB	MH
A	09/29/15	50% REVIEW SUBMITTAL - NOT FOR CONSTRUCTION	SE	MH

DSGN M HOLMQUIST | DR T. LUEHRS | CHK M. HOLMQUIST | APVD

VPA - VIG PHASE II SUPPORT
PROJECT MAGNUM
VIRGINIA PORT AUTHORITY
PORTSMOUTH, VIRGINIA

ch2m

CIVIL
PAVING KEY PLAN

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	2015/09/29
PROJ	664218
DWG	C-2300
SHEET	X of X

INTERMEDIATE DESIGN

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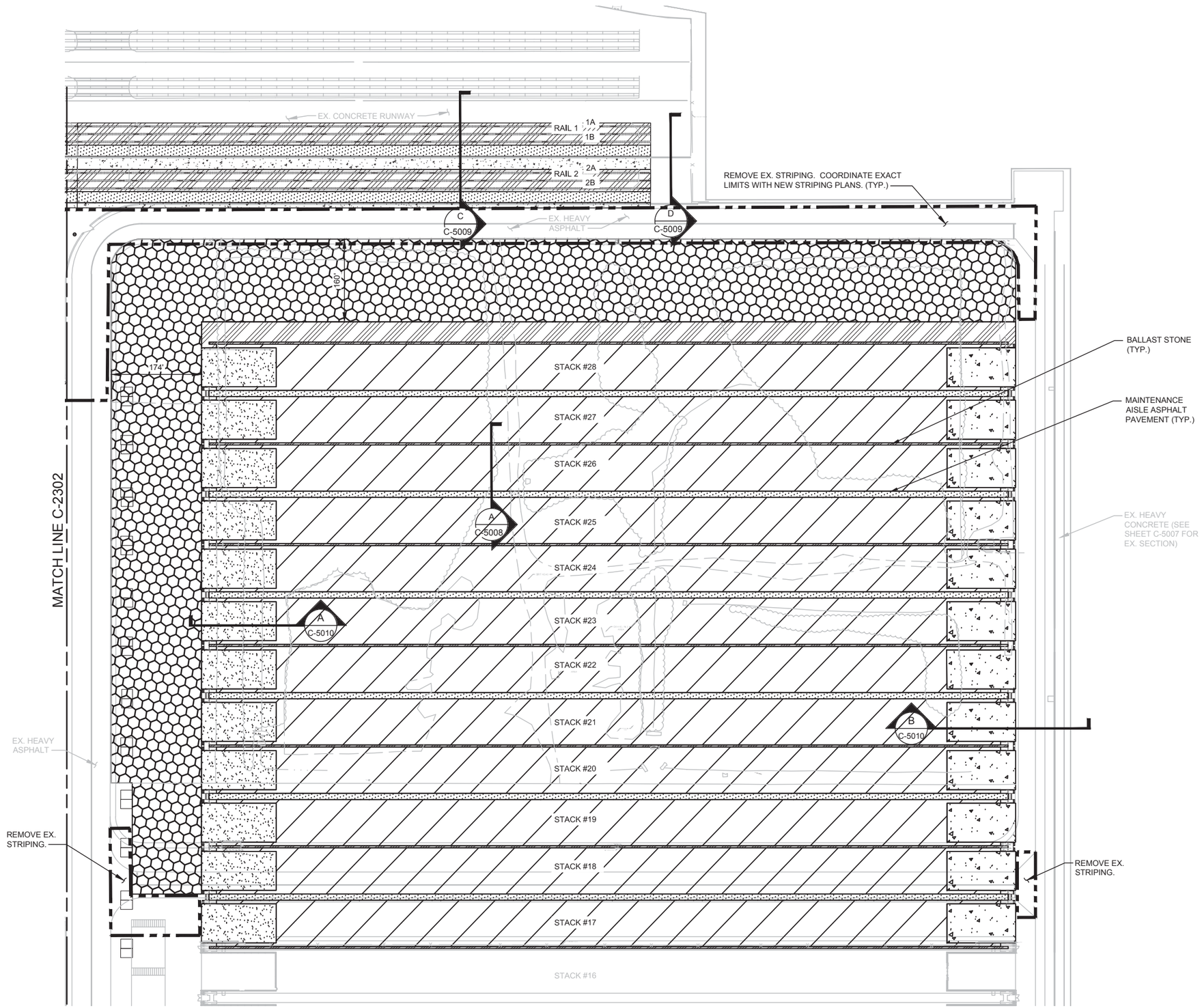

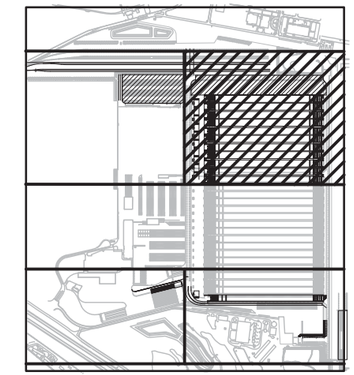

KEY PLAN

NOTES:

1. HEAVY CONCRETE PAVING ON THE WATER-SIDE: PROVIDE JOINTS PER DETAIL ON SHEET C-5011.

2. LIGHT CONCRETE PAVING ON THE LAND-SIDE: JOINTS ARE NOT REQUIRED. THE CONTRACTOR MAY PROPOSE CONSTRUCTION JOINTS FOR CONVENIENCE.

3. CURBS IN EXCHANGE AREAS ARE NOT SHOWN FOR CLARITY.

LEGEND

1 / C-5007	HEAVY CONCRETE PAVEMENT
2 / C-5007	LIGHT CONCRETE PAVEMENT
3 / C-5007	ASPHALT PAVEMENT
4 / C-5007	GRAVEL / ZEBRA PAVEMENT
	BALLAST STONE
5 / C-5007	MAINTENANCE AISLE ASPHALT PAVEMENT
6 / C-5007	RAIL YARD CONCRETE RUNWAY
	EX. BUILDINGS/CANOPIES, UNLESS OTHERWISE INDICATED
	LIMITS OF EXISTING STRIPING REMOVAL

N

0 100 200 300

1"=100'

NOT FOR CONSTRUCTION

NO.	DATE	REVISION	CHK	APVD
C	12/21/15	INTERMEDIATE DESIGN - NOT FOR CONSTRUCTION	LB	MH
B	12/11/15	95% REVIEW SUBMITTAL - NOT FOR CONSTRUCTION	LB	MH
A	09/29/15	50% REVIEW SUBMITTAL - NOT FOR CONSTRUCTION	SK	MH

DSGN M HOLMQUIST DR T. LUEHRS CHK M. HOLMQUIST APVD BY APVD

VPA - VIG PHASE II SUPPORT
PROJECT MAGNUM
VIRGINIA PORT AUTHORITY
PORTSMOUTH, VIRGINIA

CIVIL
PAVING PLAN - NORTHEAST

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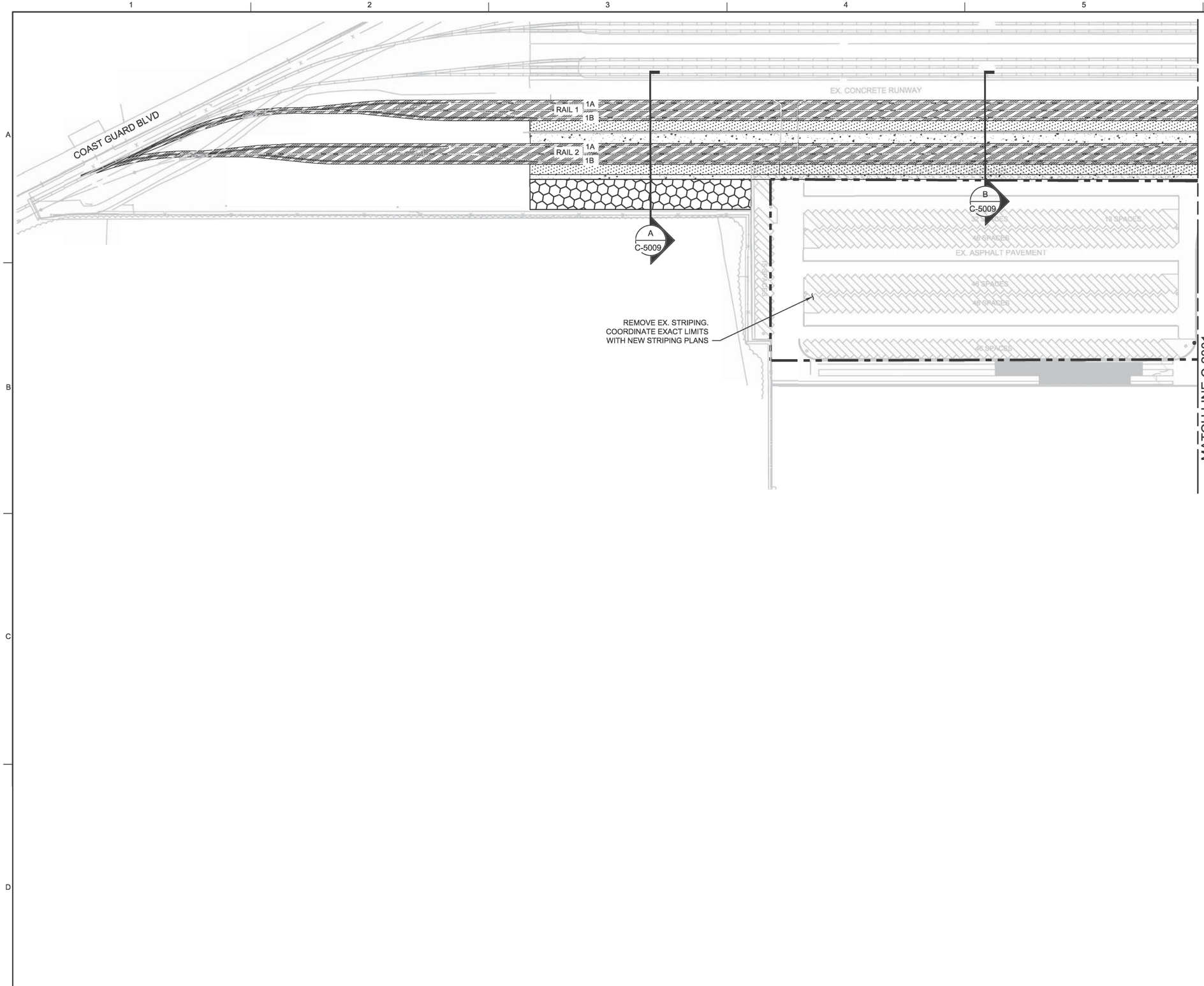
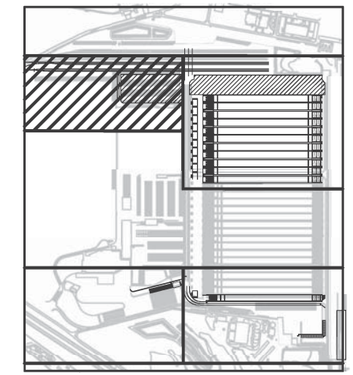
VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	2015/09/29
PROJ	664218
DWG	C-2301
SHEET	X of X

INTERMEDIATE DESIGN





KEY PLAN

LEGEND

1 C-5007	HEAVY CONCRETE PAVEMENT
2 C-5007	LIGHT CONCRETE PAVEMENT
3 C-5007	ASPHALT PAVEMENT
4 C-5007	GRAVEL / ZEBRA PAVEMENT
5 C-5007	BALLAST STONE MAINTENANCE AISLE ASPHALT PAVEMENT
6 C-5007	RAIL YARD CONCRETE RUNWAY
	EX. BUILDINGS/CANOPIES, UNLESS OTHERWISE INDICATED
	LIMITS OF EXISTING STRIPING REMOVAL

N

0 100 200 300

1"=100'

NOT FOR CONSTRUCTION

NO.	DATE	REVISION	BY	APVD
C	12/21/15	INTERMEDIATE DESIGN - NOT FOR CONSTRUCTION	LB	MH
B	12/11/15	95% REVIEW SUBMITTAL - NOT FOR CONSTRUCTION	LB	MH
A	09/29/15	50% REVIEW SUBMITTAL - NOT FOR CONSTRUCTION	SK	MH

DSGN M HOLMQUIST DR T. LUEHRS CHK M. HOLMQUIST APVD

VPA - VIG PHASE II SUPPORT
PROJECT MAGNUM
VIRGINIA PORT AUTHORITY
PORTSMOUTH, VIRGINIA

ch2m

CIVIL
PAVING PLAN - NORTHWEST

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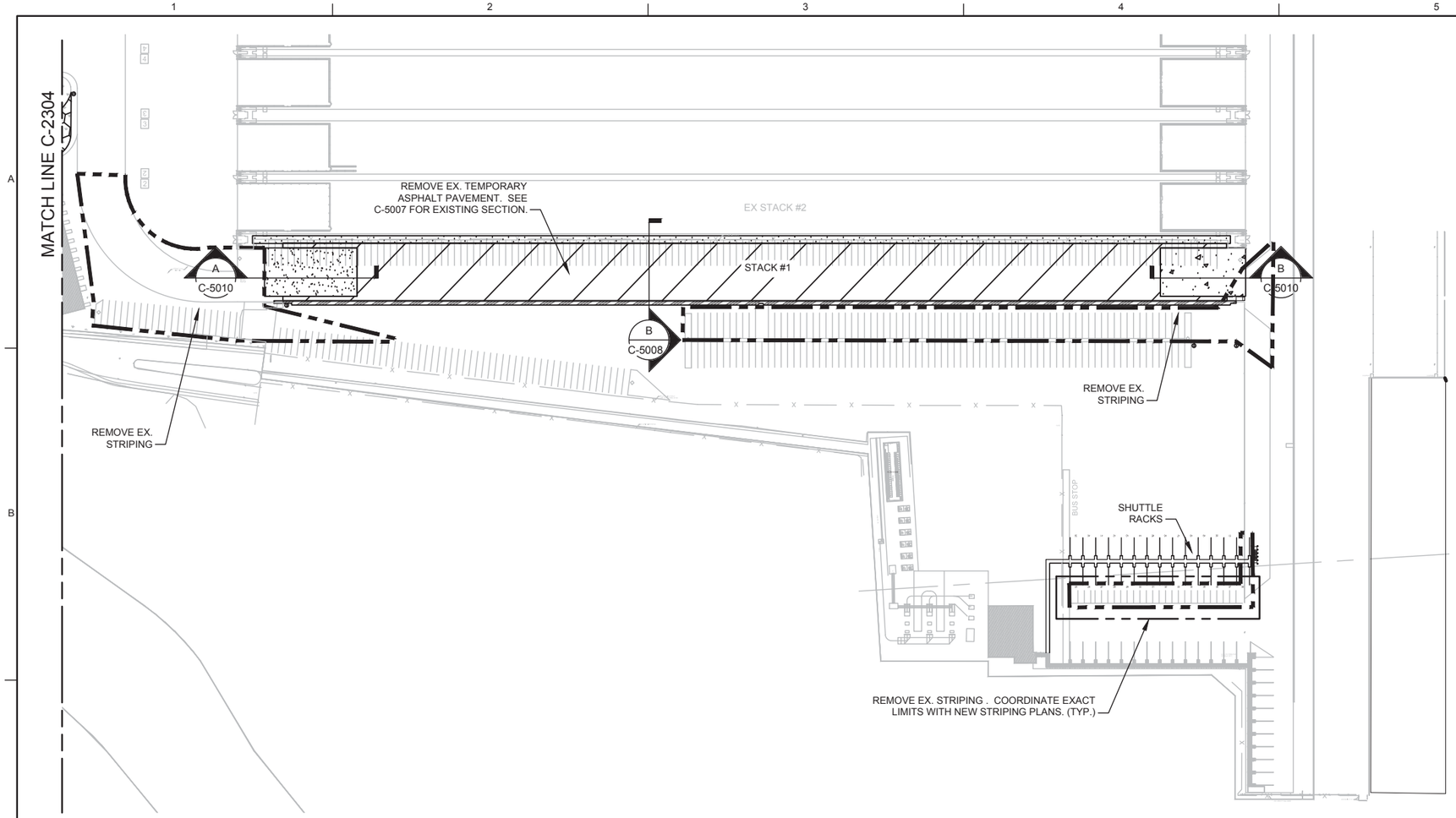
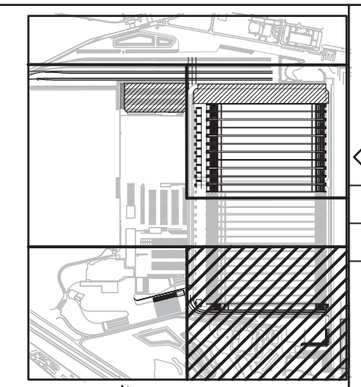
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	2015/09/29
PROJ	664218
DWG	C-2302
SHEET	X of X

INTERMEDIATE DESIGN





N

KEY PLAN

NOT FOR CONSTRUCTION

LEGEND

1 C-5007	HEAVY CONCRETE PAVEMENT
2 C-5007	LIGHT CONCRETE PAVEMENT
3 C-5007	ASPHALT PAVEMENT
4 C-5007	GRAVEL / ZEBRA PAVEMENT
5 C-5007	BALLAST STONE MAINTENANCE AISLE ASPHALT PAVEMENT
6 C-5007	RAIL YARD CONCRETE RUNWAY
	EX. BUILDINGS/CANOPIES, UNLESS OTHERWISE INDICATED
	LIMITS OF EXISTING STRIPING REMOVAL

N

0 100 200 300

1"=100'

NO.	DATE	REVISION	BY	APVD
C	12/21/15	INTERMEDIATE DESIGN - NOT FOR CONSTRUCTION	LB	MH
B	12/11/15	95 REVIEW SUBMITTAL - NOT FOR CONSTRUCTION	LB	MH
A	09/29/15	50% REVIEW SUBMITTAL - NOT FOR CONSTRUCTION	SK	MH

DSGN M HOLMQUIST DR T. LUEHRS CHK M. HOLMQUIST APVD

VPA - VIG PHASE II SUPPORT
PROJECT MAGNUM
VIRGINIA PORT AUTHORITY
PORTSMOUTH, VIRGINIA

ch2m

CIVIL
PAVING PLAN - SOUTHEAST

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	2015/09/29
PROJ	664218
DWG	C-2303
SHEET	X of X

INTERMEDIATE DESIGN

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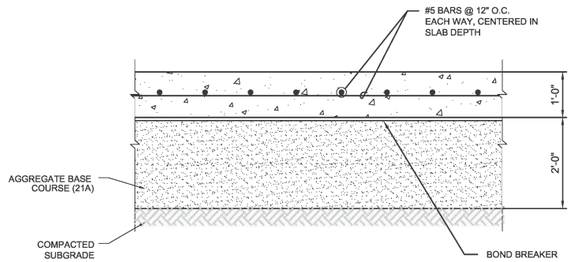
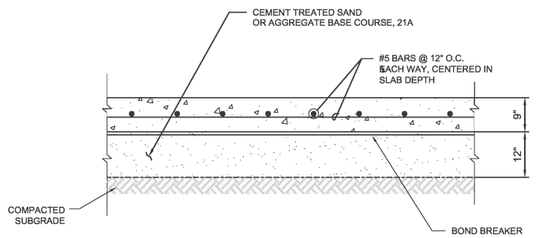


1 TYPICAL HEAVY CONCRETE SECTION

3/4" = 1'-0" (WATERSIDE EXCHANGE AREA)

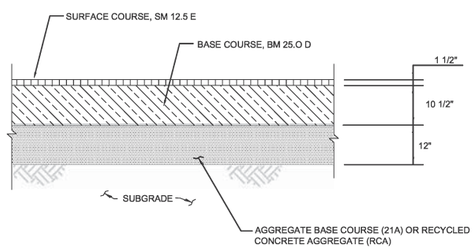
C-2300
C-2301
C-2303
C-5011



2 TYPICAL LIGHT CONCRETE SECTION

3/4" = 1'-0" (LANDSIDE EXCHANGE AREA)

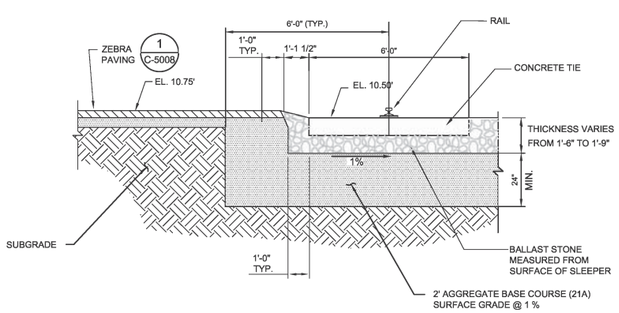
C-2300
C-2301
C-2303



3 TYPICAL ASPHALT PAVEMENT SECTION

NTS

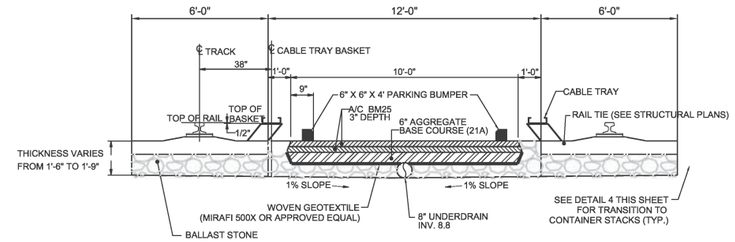
C-2300
C-2301
C-2304



4 ZEBRA PAVEMENT SECTION WITH BALLAST STONE

NTS (YARD RAIL AREAS)

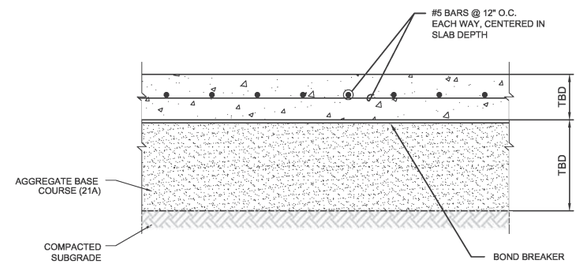
C-2300
C-2301
C-2303
C-5008



5 ZEBRA PAVEMENT SECTION 2

NTS (MAINTENANCE AISLES)

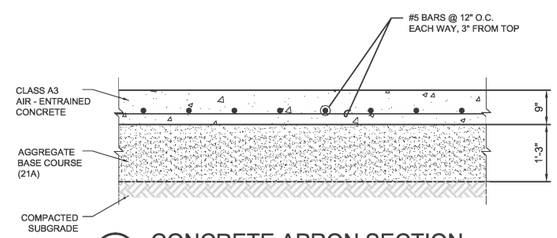
C-2300
C-2301
C-2303
C-5008



6 TYPICAL RAIL YARD CONCRETE RUNWAY

NTS

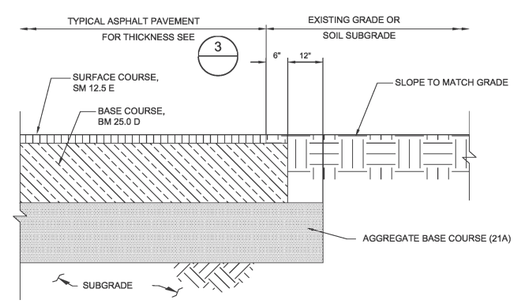
C-2300
C-2301
C-2302



7 CONCRETE APRON SECTION

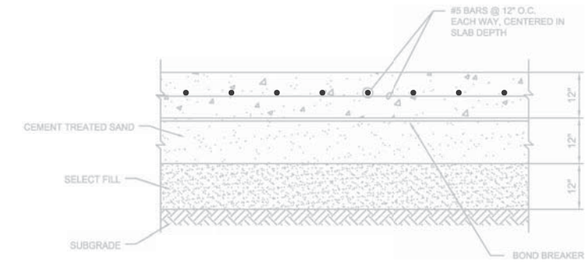
3/4" = 1'-0" (MAIN GATE)

C-2304



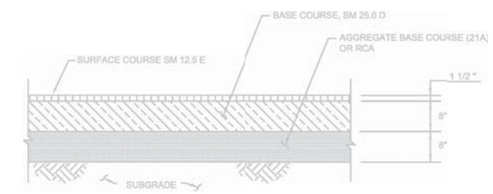
8 TYPICAL ASPHALT PAVEMENT EDGE SECTION

NTS



EXISTING WHARF CONCRETE SECTION

NTS



EXISTING TEMPORARY ASPHALT OVER SOIL SECTION

NTS

NOT FOR CONSTRUCTION

NOT FOR CONSTRUCTION

NO.	DATE	DSGN	DR	CHK	APVD	REVISION
C	12/21/15	M HOLMQUIST	S. EMEREUWA	M HOLMQUIST	M. HOLMQUIST	INTERMEDIATE DESIGN - NOT FOR CONSTRUCTION
B	12/11/15					95% REVIEW SUBMITTAL - NOT FOR CONSTRUCTION
A	09/29/15					50% REVIEW SUBMITTAL - NOT FOR CONSTRUCTION

C	LB	MH	
B	LB	MH	
A	SE	MH	
	BY	APVD	

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VPA - VIG PHASE II SUPPORT
PROJECT MAGNUM
VIRGINIA PORT AUTHORITY
PORTSMOUTH, VIRGINIA

ch2m

CIVIL
TYPICAL PAVING SECTIONS

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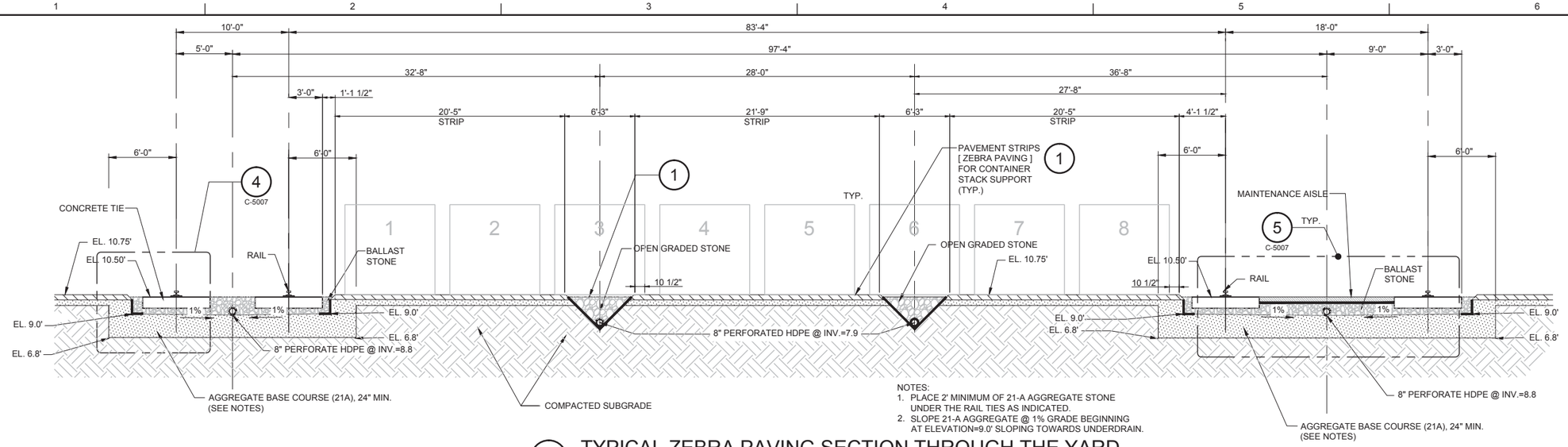
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	2015/09/29
PROJ	664218
DWG	C-5007
SHEET	of

INTERMEDIATE DESIGN

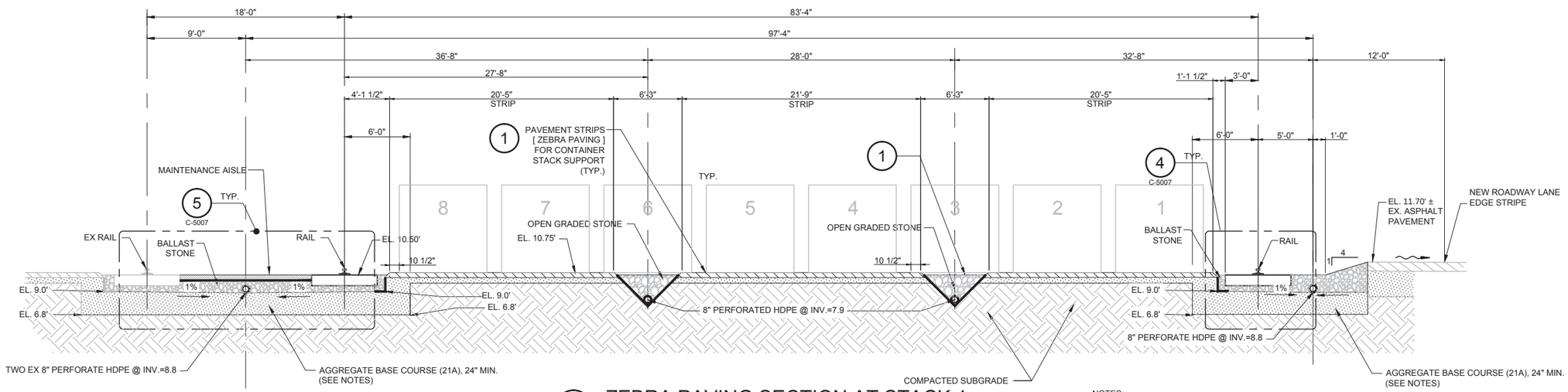


NOTES:
1. PLACE 2' MINIMUM OF 21-A AGGREGATE STONE UNDER THE RAIL TIES AS INDICATED.
2. SLOPE 21-A AGGREGATE @ 1% GRADE BEGINNING AT ELEVATION=9.0' SLOPING TOWARDS UNDERDRAIN.

A TYPICAL ZEBRA PAVING SECTION THROUGH THE YARD (8 WIDE CONTAINERS)

3/16" = 1'-0"

C-2301
C-2101
C-2102
C-2104
C-2105



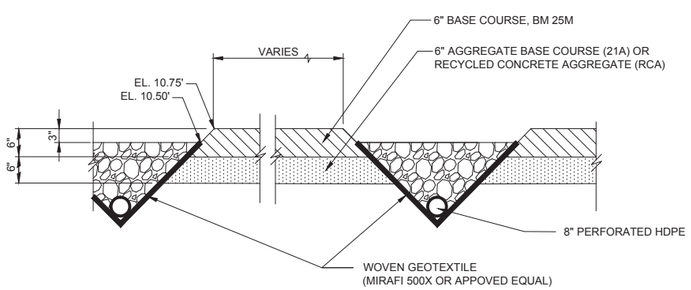
B ZEBRA PAVING SECTION AT STACK 1

3/16" = 1'-0"

C-2303
C-2109
C-2110

NOTES:

1. PLACE 2' MINIMUM OF 21-A AGGREGATE STONE UNDER THE RAIL TIES AS INDICATED.
2. SLOPE 21-A AGGREGATE @ 1% GRADE BEGINNING AT ELEVATION=9.0' SLOPING TOWARDS UNDERDRAIN.



1 ZEBRA STRIP

NTS

NOTE - CONTAINER STACKING PAVEMENT

NOT FOR CONSTRUCTION

NOT FOR CONSTRUCTION

NO.	DATE	REVISION	BY	APVD
C	12/21/15	INTERMEDIATE DESIGN - NOT FOR CONSTRUCTION	LB	MH
B	12/11/15	95% REVIEW SUBMITTAL - NOT FOR CONSTRUCTION	LB	MH
A	09/29/15	50% REVIEW SUBMITTAL - NOT FOR CONSTRUCTION	SE	MH

DSGN M HOLMQUIST | DR S. EMEREUWA | CHK M HOLMQUIST | APVD M HOLMQUIST

VPA - VIG PHASE II SUPPORT
PROJECT MAGNUM
VIRGINIA PORT AUTHORITY
PORTSMOUTH, VIRGINIA

ch2m:

CIVIL
PAVING SECTIONS
CONTAINER YARD

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	2015/09/29
PROJ	664218
DWG	C-5008
SHEET	of

INTERMEDIATE DESIGN

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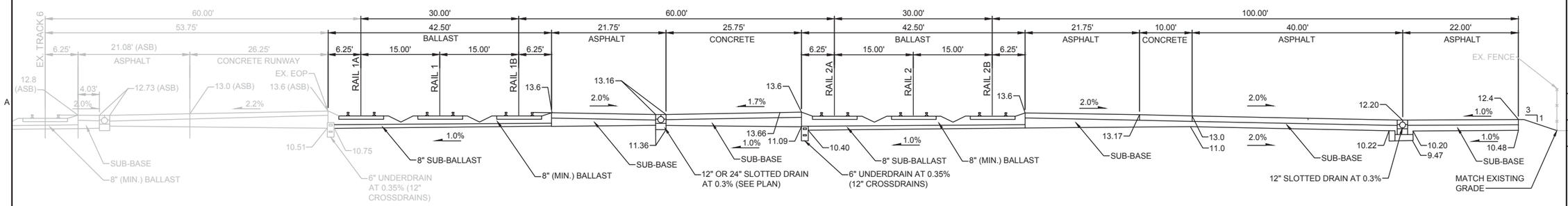
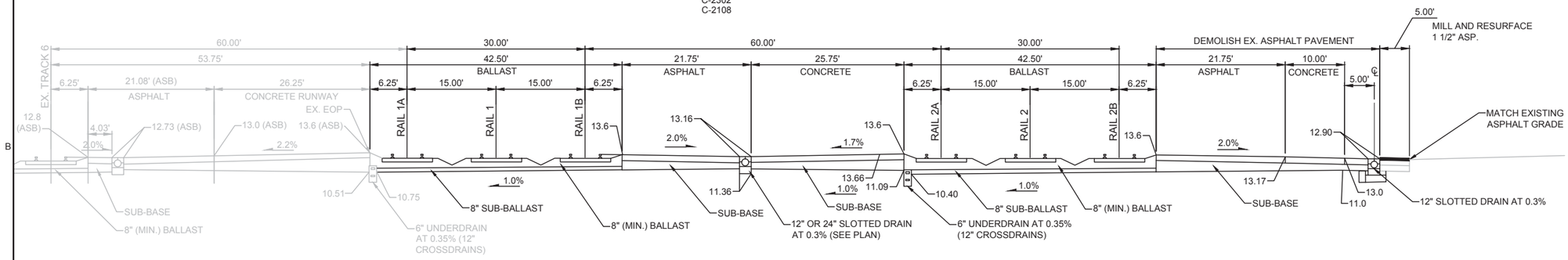
FILENAME: C-5008.dwg PLOT DATE: PLOT TIME:



A — INTERMODAL RAIL SECTION

1" = 10'-0"

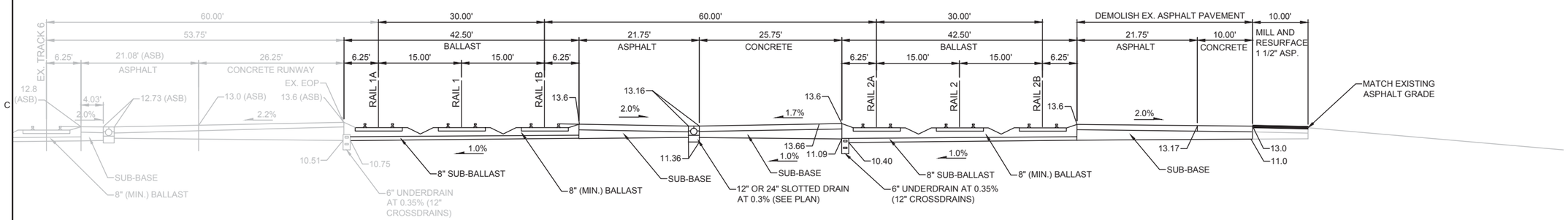
C-2302
C-2108



B — INTERMODAL RAIL SECTION

1" = 10'-0"

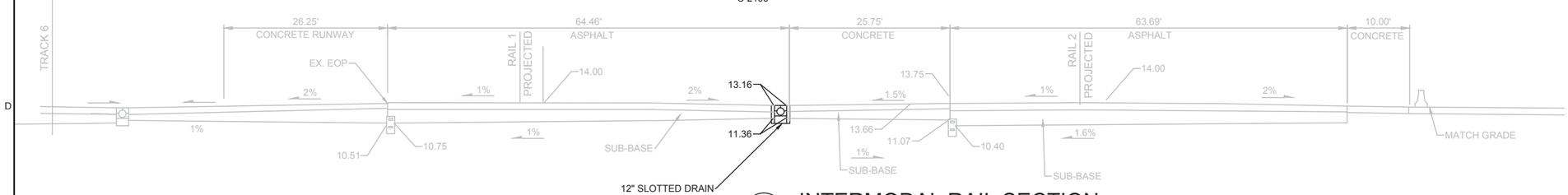
C-2302
C-2106
C-2107



C — INTERMODAL RAIL SECTION

1" = 10'-0"

C-2301
C-2103
C-2106



D — INTERMODAL RAIL SECTION

1" = 10'-0"

C-2301
C-2103

NOT FOR CONSTRUCTION

NOT FOR CONSTRUCTION

NO.	DATE	DSGN	DR	CHK	APVD
A	09/29/15	M. HOLMQUIST	S. EMEREUWA	M. HOLMQUIST	APVD
B	12/21/15				

REVISION

A	50% REVIEW SUBMITTAL - NOT FOR CONSTRUCTION	SE	MH
B	INTERMEDIATE DESIGN - NOT FOR CONSTRUCTION	SE	MH

VPA - VIG PHASE II SUPPORT
PROJECT MAGNUM
VIRGINIA PORT AUTHORITY
PORTSMOUTH, VIRGINIA

ch2m

CIVIL
PAVING SECTIONS

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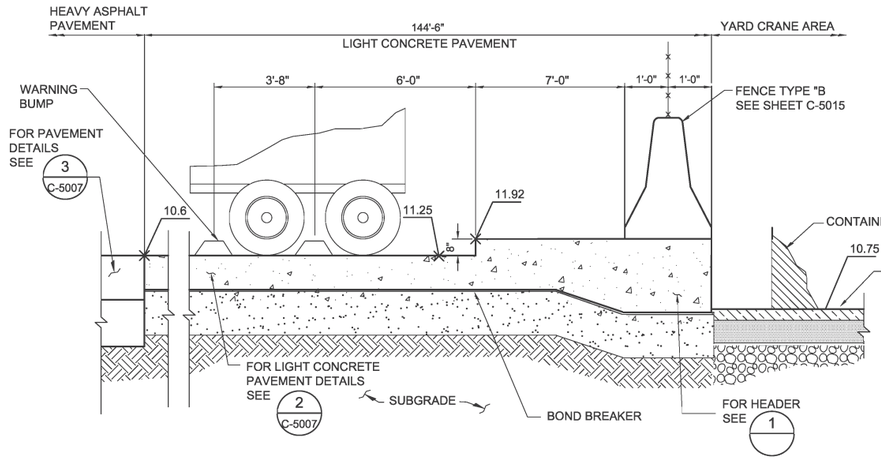
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	2015/09/29
PROJ	664218
DWG	C-5009
SHEET	of

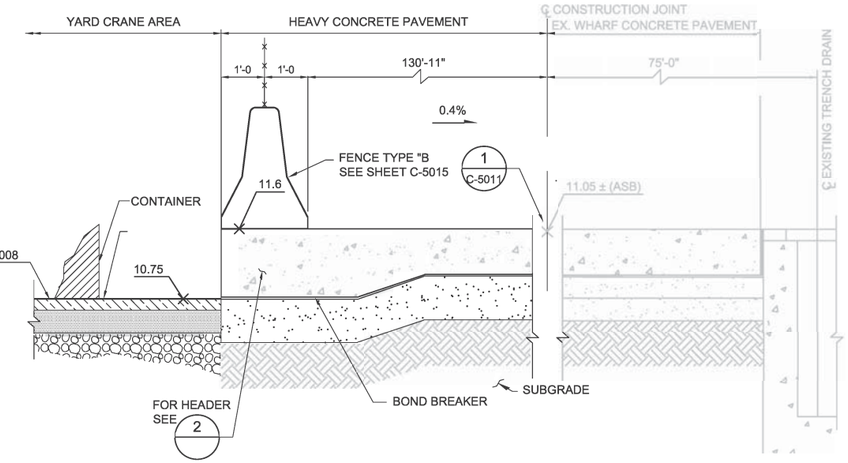
INTERMEDIATE DESIGN



A LANDSIDE EXCHANGE AREA SECTION (WEST)

NTS

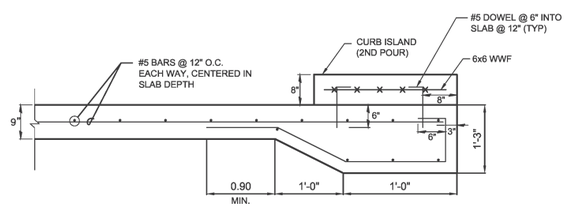
C-2301
C-2303
C-2104
C-2105



B WATERSIDE EXCHANGE AREA SECTION (EAST)

NTS

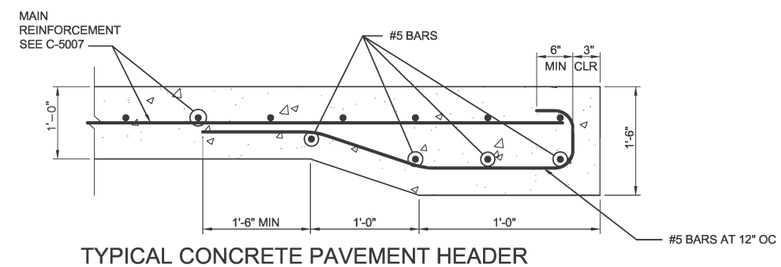
C-2101
C-2102
C-2109
C-2301
C-2303



1 TYP. CONC. HEADER AT LANDSIDE EXCHANGE AREAS

NTS

NOTE: USE THIS DETAIL FOR NORTH, SOUTH, AND EAST EDGES OF PAVEMENT AT LANDSIDE EXCHANGE AREAS.



2 TYPICAL CONCRETE PAVEMENT HEADER AT WATERSIDE EXCHANGE AREA

NTS

NOT FOR CONSTRUCTION

NOT FOR CONSTRUCTION

NO.	DATE	REVISION	DR	CHK	APVD
C	12/21/15	INTERMEDIATE DESIGN - NOT FOR CONSTRUCTION	LB	MH	
B	12/11/15	INTERMEDIATE SUBMITTAL - NOT FOR CONSTRUCTION	LB	MH	
A	09/29/15	50% REVIEW SUBMITTAL - NOT FOR CONSTRUCTION	SE	MH	

DSGN M. HOLMQUIST | DR S. EMEREUWA | CHK M. HOLMQUIST | APVD BY

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VPA - VIG PHASE II SUPPORT
PROJECT MAGNUM
VIRGINIA PORT AUTHORITY
PORTSMOUTH, VIRGINIA

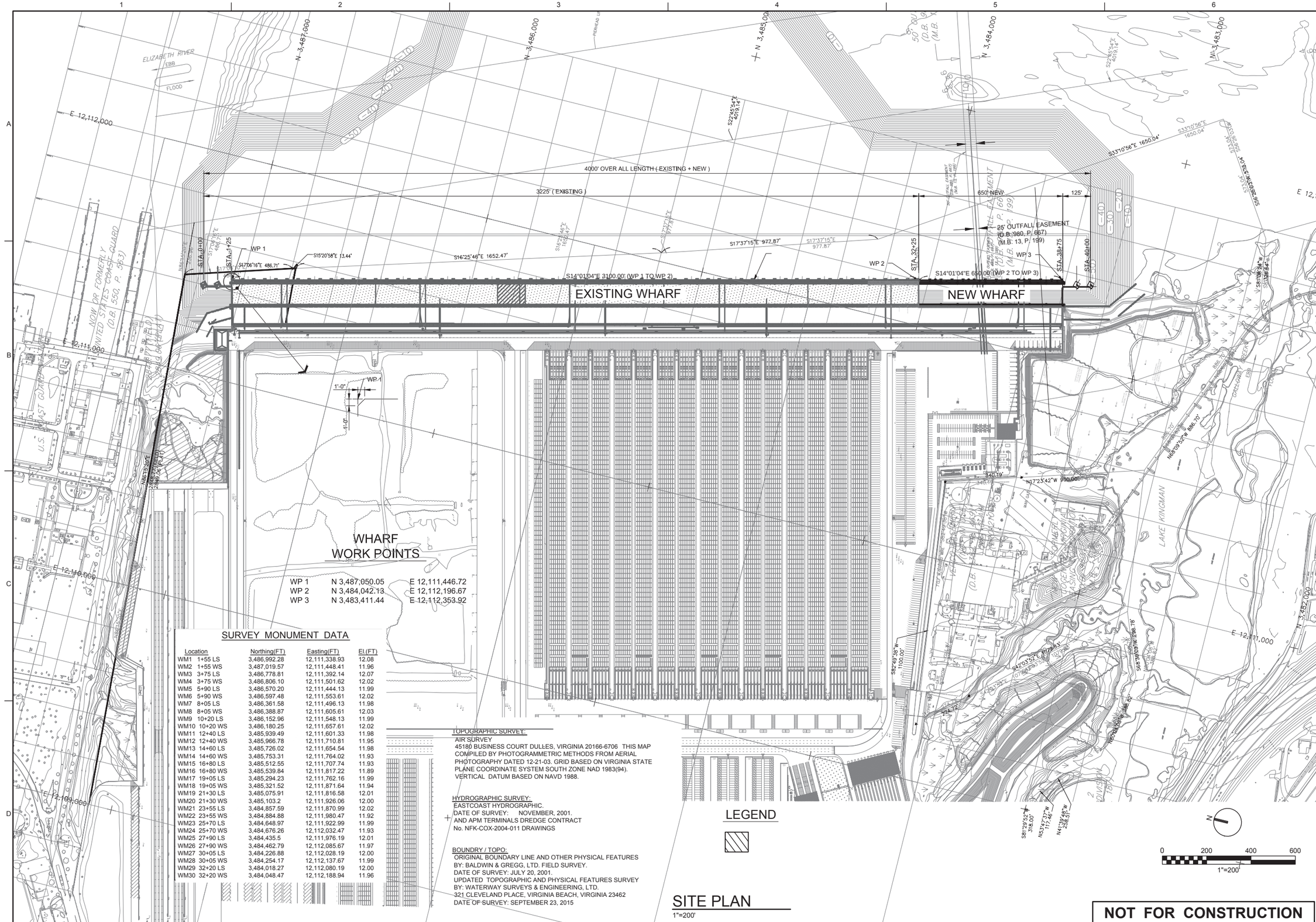
ch2m

CIVIL
CONCRETE PAVING SECTIONS AND DETAILS

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	2015/09/29
PROJ	664218
DWG	C-5010
SHEET	X of X

INTERMEDIATE DESIGN



NOT FOR CONSTRUCTION

NO.	DATE	REVISION	DR	CHK	APVD
B	12/15/15	95% REVIEW SUBMITTAL - NOT FOR CONSTRUCTION	BO	RC	
A	09/29/15	50% REVIEW SUBMITTAL / NOT FOR CONSTRUCTION	BO	RC	

DSGN R. COX | DR BO | CHK RC | APVD B. OGLE

VPA - VIG PHASE II SUPPORT
PROJECT MAGNUM
VIRGINIA PORT AUTHORITY
PORTSMOUTH, VIRGINIA

ch2m:

STRUCTURAL - WHARF EXTENSION
SITE PLAN

1"=200'
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	2015/08/03
PROJ	664218
DWG	S-2000
SHEET	of

95% REVIEW SUBMISSION

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FILENAME: S-2000.dwg PLOT DATE: 12/8/2015 PLOT TIME: 9:55:40 PM

EXISTING WHARF

650'-0" WHARF EXTENSION

125'-0"

STA. 32+25

STA. 38+75

STA. 40+00

25' OUTFALL EASEMENT
(D.B. 980, P. 667)
(M.B. 13, P. 199)

℄ CRANE RAIL

WP2

EXP. JT.

WATER METER BOX

WP3

CRANE STOP

MOORING DOLPHINS

ELECTRICAL CONDUIT

WATER LINE

EXISTING SSP RETAINING WALL "B"

B-8

EXISTING HZ BULKHEAD

B-7

℄ CRANE RAIL

EXISTING ELECTRICAL DUCTBANK

EXISTING SSP RETAINING WALL "D"

EXISTING ELECTRICAL DUCTBANK

EXISTING 30" RCP COGENTRIX OUTFALL PIPE

EXISTING CONCRETE PAVEMENT

EXISTING WATERLINE

EXISTING TRENCH DRAIN

A ENLARGED SOUTH END PLAN

S-2001

1" = 40'-0"

KEY PLAN

0 40 80 120

1"=40'

NOT FOR CONSTRUCTION

NOT FOR CONSTRUCTION

NO.	DATE	REVISION	BY	APV'D
B	12/15/15	95% REVIEW SUBMITTAL - NOT FOR CONSTRUCTION	BO	RC
A	09/29/15	50% REVIEW SUBMITTAL / NOT FOR CONSTRUCTION	BO	RC

DSGN R. COX DR B. OGLE CHK APV'D

VPA - VIG PHASE II SUPPORT
PROJECT MAGNUM
VIRGINIA PORT AUTHORITY
PORTSMOUTH, VIRGINIA

STRUCTURAL - WHARF EXTENSION
ENLARGED PLAN
SOUTH END

1"=40'

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	2015/08/03
PROJ	664218
DWG	S-2001
SHEET	of

95% REVIEW SUBMITTAL

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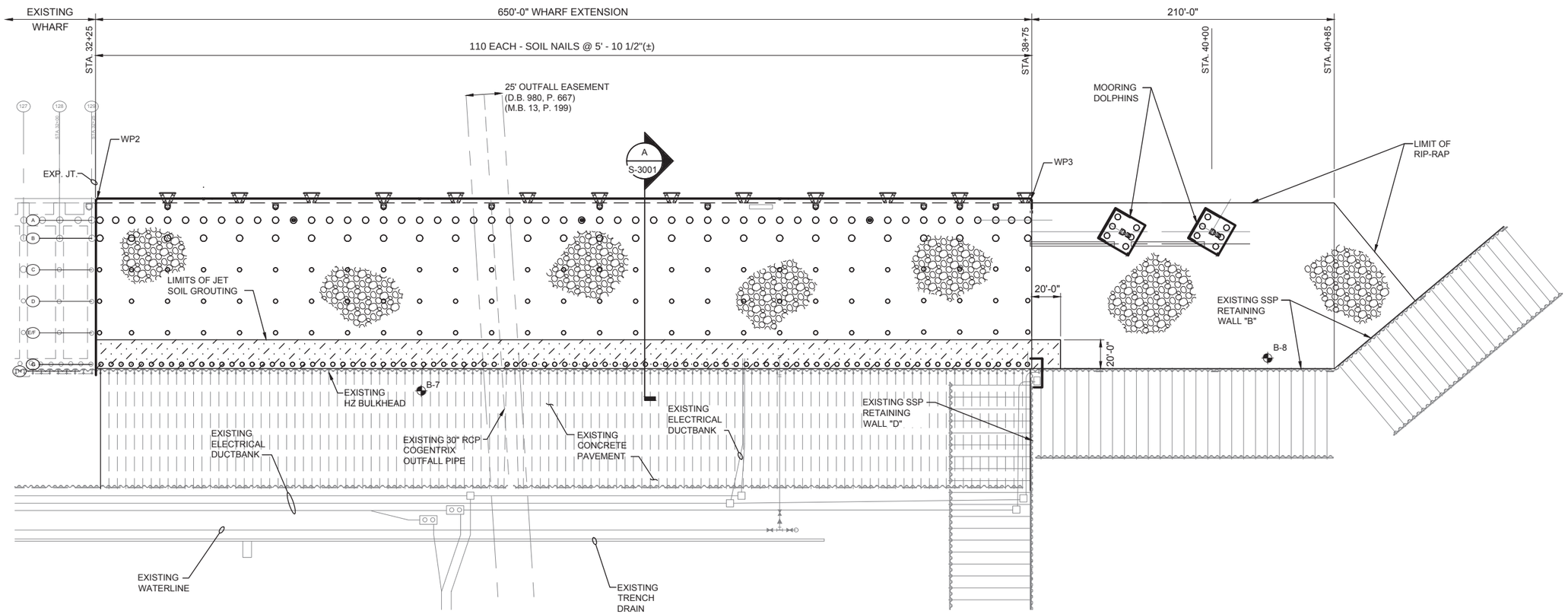


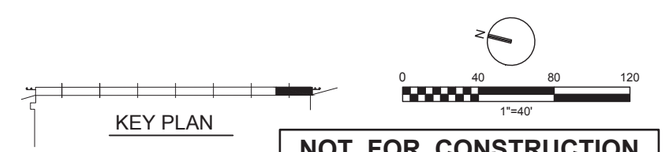
NOTES:

1. FOR RIP-RAP DETAILS, SEE S-2501
2. FOR JET GROUTING DETAILS, SEE S-2502.
3. FOR SOIN NAIL DETAILS, SEE S-2503.

A BULKHEAD IMPROVEMENTS AND RIP-RAP PLAN

1" = 40'-0"

S-2001



NOT FOR CONSTRUCTION

NOT FOR CONSTRUCTION

NO.	DATE	REVISION	BY	APVD
A	12/15/15	95% REVIEW SUBMITTAL - NOT FOR CONSTRUCTION	BO	RC

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VPA - VIG PHASE II SUPPORT
PROJECT MAGNUM
VIRGINIA PORT AUTHORITY
PORTSMOUTH, VIRGINIA

STRUCTURAL - WHARF EXTENSION
BULKHEAD IMPROVEMENT AND RIP-RAP LIMITS

1"=40'
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	2015/12/07
PROJ	664218
DWG	S-2500
SHEET	of

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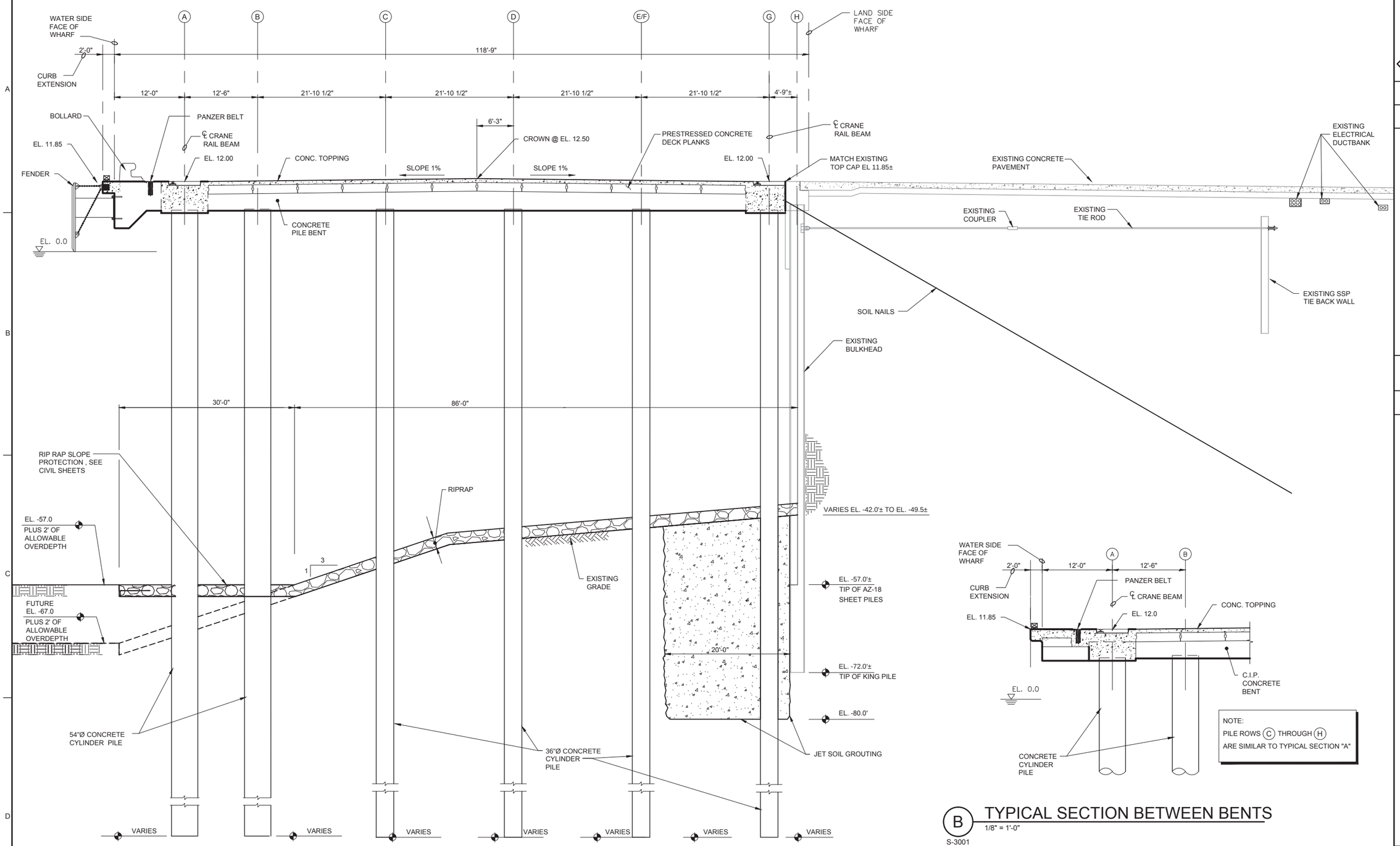

A TYPICAL SECTION
1/8" = 1'-0"
S-3001

B TYPICAL SECTION BETWEEN BENTS
1/8" = 1'-0"
S-3001

0 8 16 24
1/8"=1'-0"
GRAPHIC SCALE

NOT FOR CONSTRUCTION

NOT FOR CONSTRUCTION

NO.	DATE	REVISION	BY	APVD
B	12/21/15	95% REVIEW SUBMITTAL - NOT FOR CONSTRUCTION	BO	RC
A	09/29/15	50% REVIEW SUBMITTAL / NOT FOR CONSTRUCTION	BO	RC

DSGN R. COX | DR B. OGLE | CHK | APVD

VPA - VIG PHASE II SUPPORT
PROJECT MAGNUM
VIRGINIA PORT AUTHORITY
PORTSMOUTH, VIRGINIA

STRUCTURAL - WHARF EXTENSION
TYPICAL SECTION AT PILE BENTS

1/8"=1'-0"
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	2015/08/05
PROJ	664218
DWG	S-3001
SHEET	of

95% REVIEW SUBMISSION

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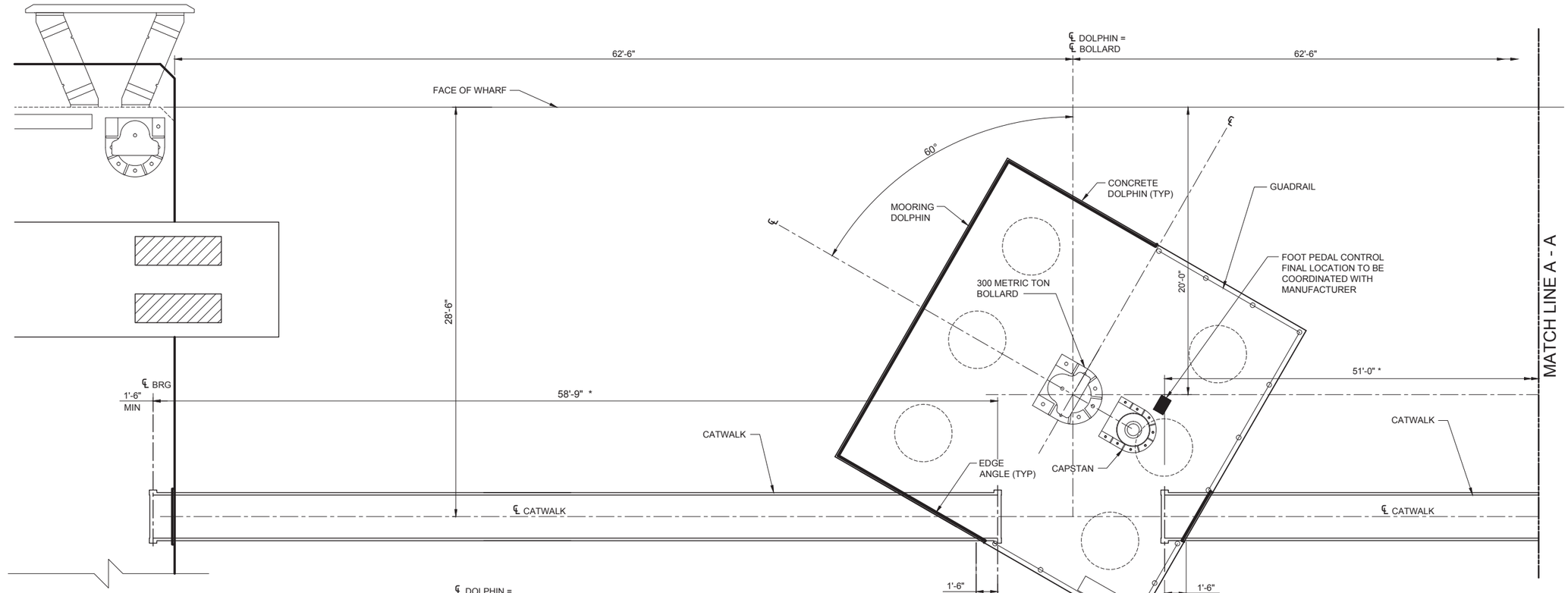

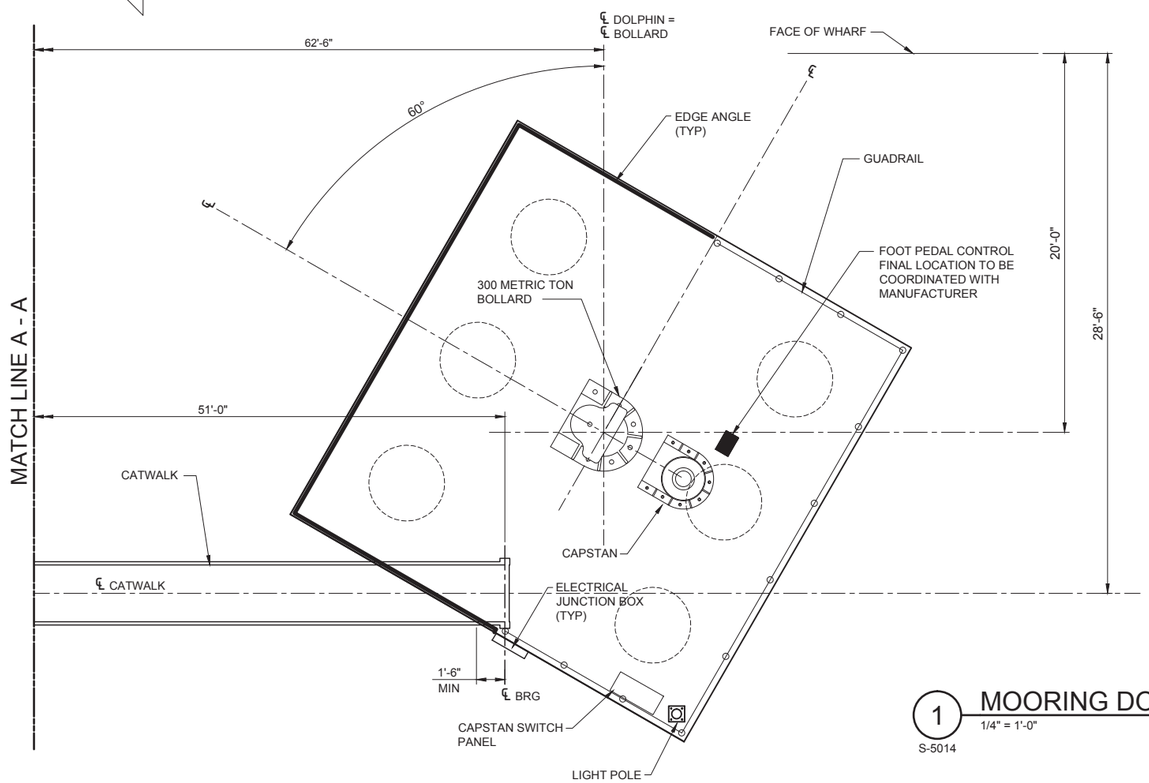

* NOTE:
CONTRACTOR SHALL FIELD VERIFY LENGTH OF CATWALK BEFORE FABRICATION

1 MOORING DOLPHIN AND CATWALK PLAN
S-5014
1/4" = 1'-0"

NOT FOR CONSTRUCTION

NOT FOR CONSTRUCTION

NO.	DATE	REVISION	BY	APVD
B	12/21/15	95% REVIEW SUBMISSION - NOT FOR CONSTRUCTION	BO	RC
A	09/29/15	50% REVIEW SUBMITTAL / NOT FOR CONSTRUCTION	BO	RC

DSGN R. COX | DR B. OGLE | CHK | APVD

VPA - VIG PHASE II SUPPORT
PROJECT MAGNUM
VIRGINIA PORT AUTHORITY
PORTSMOUTH, VIRGINIA

ch2m

STRUCTURAL - WHARF EXTENSION
MOORING DOLPHIN AND CATWALK PLAN

AS SHOWN
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	2015/08/10
PROJ	664218
DWG	S-5025
SHEET	of

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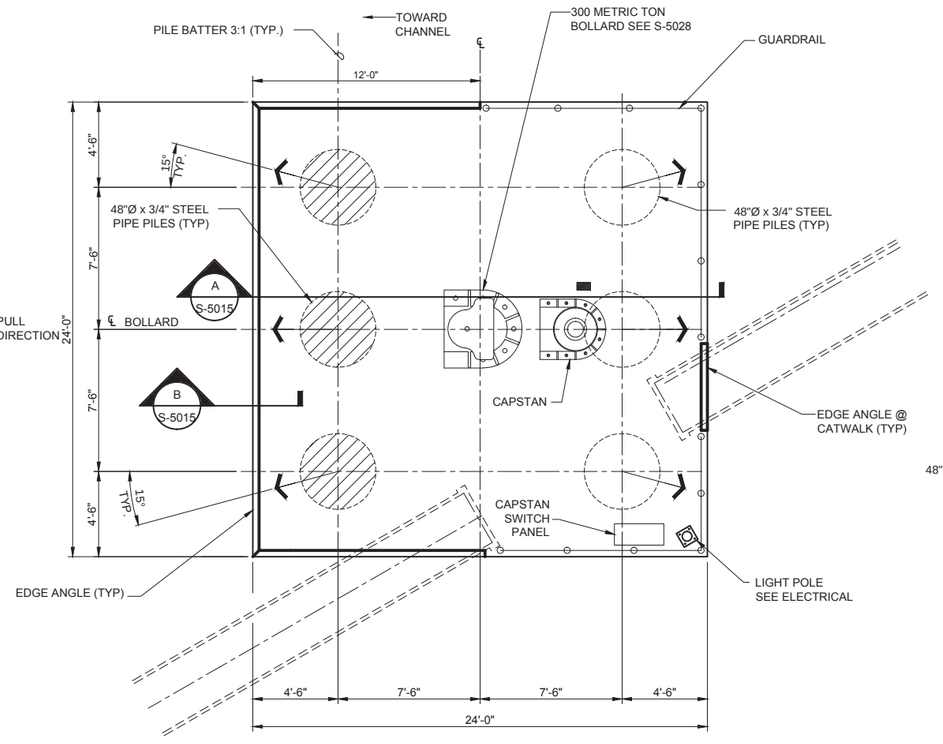
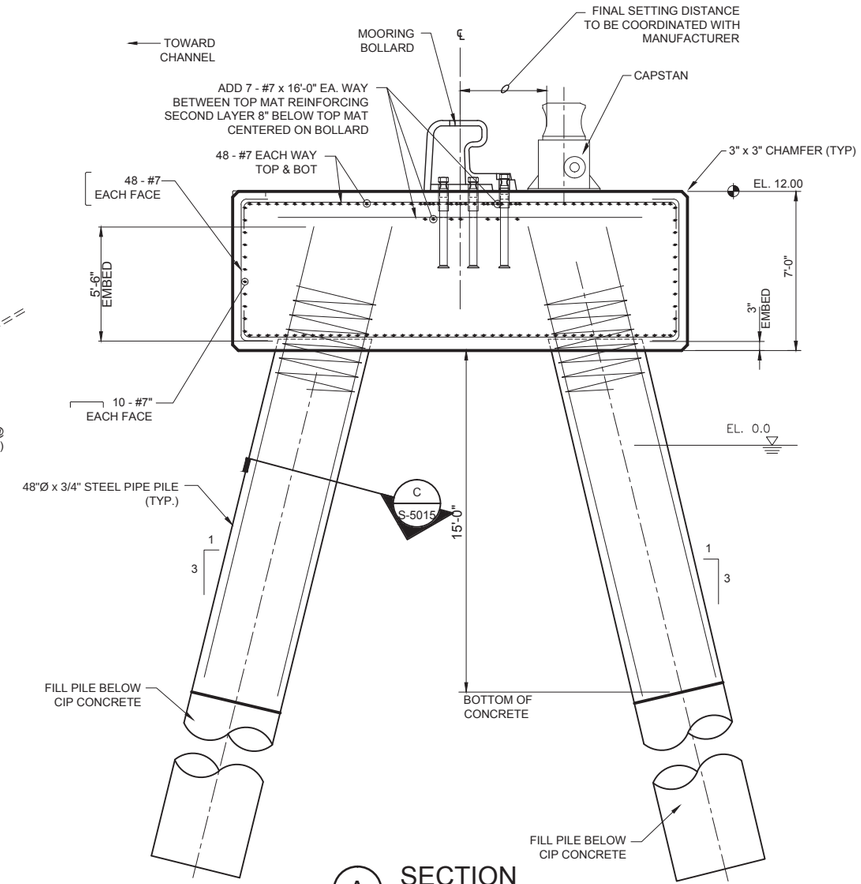


1 MOORING DOLPHIN PLAN

S-5015 1/4" = 1'-0"

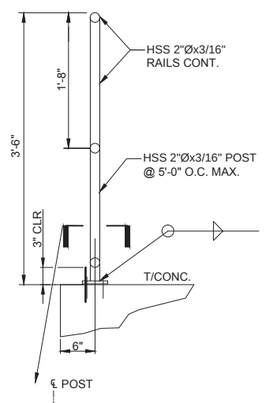


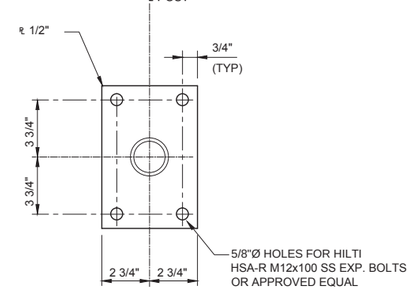
A SECTION

S-5015 1/4" = 1'-0"

CAPSTAN NOTES:

1. PROVIDE ONE ELECTRIC CAPSTAN, ABOVE THE DECK MOUNTED, FOR EACH MOORING DOLPHIN, AS PROVIDED BY SCHOELLHORN-ALBRECHT MODEL SA1817-20E, MATCHING EXISTING.
2. CAPSTAN SHALL OPERATE AT SINGLE SPEED WITH REVERSIBLE ELECTRIC DRIVE PROVIDING MINIMUM 12,000-LB RUNNING LINE PULL AT SPEED OF 44 FT PER MIN. UNIT SHALL HAVE MINIMUM 100,000-LB BOLLARD PULL. PROVIDE UNIT COMPLETE AND READY FOR INSTALLATION AS FOLLOWS:
   - 2.1. 20 HP, 480V, 3 PHASE, MARINE DUTY ELECTRIC MOTOR, 30-MIN DUTY CYCLE. MOTOR COMPLETE WITH ELECTRIC BRAKE RATED FOR 150% OF OPERATING TORQUE. BRAKE TO BE SPRING SET/ELECTRICALLY RELEASED DISC OPERATED. MOTOR TO HAVE INTEGRAL ELECTRIC HEATER.
   - 2.2. FULL VOLTAGE MOTOR STARTER IN NEMA 4X S.S. ENCLOSURE WITH 50W HEATER. NEMA 4X S.S. PUSHBUTTON CONTROL.
   - 2.3. FABRICATED STRUCTURAL STEEL FOUNDATION, ASTM A36 CONSTRUCTION FOR BOLT ATTACHMENT TO CONCRETE DECK OF DOLPHIN.
   - 2.4. CAST STEEL 18-IN DIAMETER BARREL, MINIMUM.
   - 2.5. COATING SYSTEM SHALL BE MARINE GRADE CONSISTING ONE COAT INORGANIC ZINC PRIMER AND TWO FINISH COATS OF INDUSTRIAL EPOXY. SURFACE PREPARATION SHALL BE IN ACCORDANCE WITH SSPC SP 10 PRIOR TO COATING.
   - 2.6. WEIGHT: 3,000 LBS, APPROXIMATE.
   - 2.7. CAPSTAN CONTROL SHALL BE BY FOOT PEDAL.





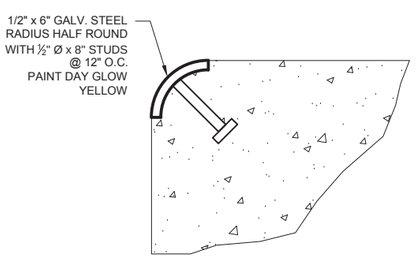
4 GUARDRAIL DETAIL

S-5015 N.T.S.

NOTE:
GUARDRAIL SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION
PAINT SAFETY YELLOW

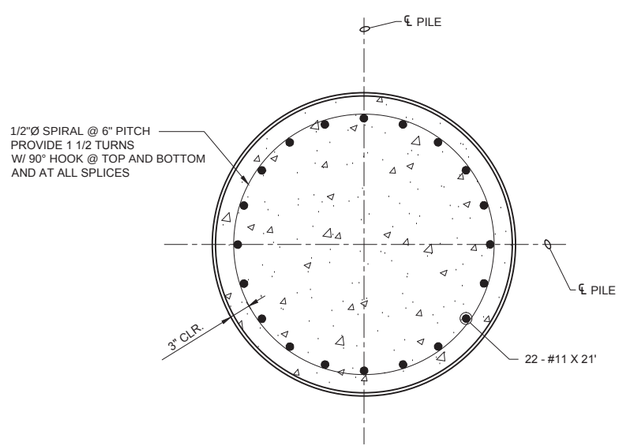
STEEL PIPE PILE NOTES:

1. STEEL PIPE PILES SHALL CONFORM TO ASTM A572, GRADE 50, FY = 50,000 PSI WELED OR SEAMLESS.
2. PILE SPICES AND SEAMS SHALL BE BY FULL PENETRATION BUTT WELDS CAPABLE OF DEVELOPING THE FULL SECTION CAPACITY IN AXIAL, TENSION, SHEAR, AND BENDING. SPLICES SHALL BE 100-PERCENT TESTED.
3. NO PILE SPLICE WILL BE ALLOWED ABOVE ELEVATION XXXX.
4. PILES SHALL BE COATED ABOVE ELEVATION -75 WITH A THREE PART COAL TAR EPOXY SYSTEM AS PROVIDED BY CARBOLINE, OR APPROVED EQUAL.
   - 4.1. SURFACE PREPARATION: AS RECOMMENDED BY MANUFACTURE, NOT LESS THAN NEAR WHITE BLAST SSPC-SP10.
   - 4.2. PRIMER COAT: AS RECOMMENDED BY MANUFACTURER
   - 4.3. INTERMEDIATE AND TOP COAT: BITUMASTIC 300M, TWO-PART EPOXY POLYAMIDE. EACH COAT SHALL BE NOT LESS THAN 8 MILS DFT. TOTAL 2-COATS 16 TO 20 MILS DFT.
   - 4.4. PROVIDE A FIELD APPLIED SYSTEM FOR BELOW WATER APPLICATION FOR REPAIR OF COATING DEFECTS AND DAMAGES.
5. FILL PILES BELOW THE UPPER CONCRETE FILLED SECTION WITH ONE OF THE FOLLOWING MATERIALS:
   - 5.1. FINE AGGREGATE (SAND) CONFORMING TO ASTM C33, FREE OF CHLORIDES.
   - 5.2. COURSE AGGREGATE, 1½" MAX, CONFORMING TO ASTM C33, FREE OF CHLORIDES.
   - 5.3. LEAN CONCRETE: f'c = 2,000 PSI OR FLOWABLE FILL.



B EDGE ANGLE DETAIL

S-5014 N.T.S.



C SECTION

S-5015 1" = 1'-0"

NOT FOR CONSTRUCTION

NOT FOR CONSTRUCTION

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A	09/29/15	50% REVIEW SUBMITTAL / NOT FOR CONSTRUCTION	BO	RC

DSGN R. COX DR B. OGLE BY APVD

VPA - VIG PHASE II SUPPORT
PROJECT MAGNUM
VIRGINIA PORT AUTHORITY
PORTSMOUTH, VIRGINIA

STRUCTURAL - WHARF EXTENSION
MOORING DOLPHIN PLAN AND SECTION

AS SHOWN
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	2015/08/10
PROJ	664218
DWG	S-5026
SHEET	of

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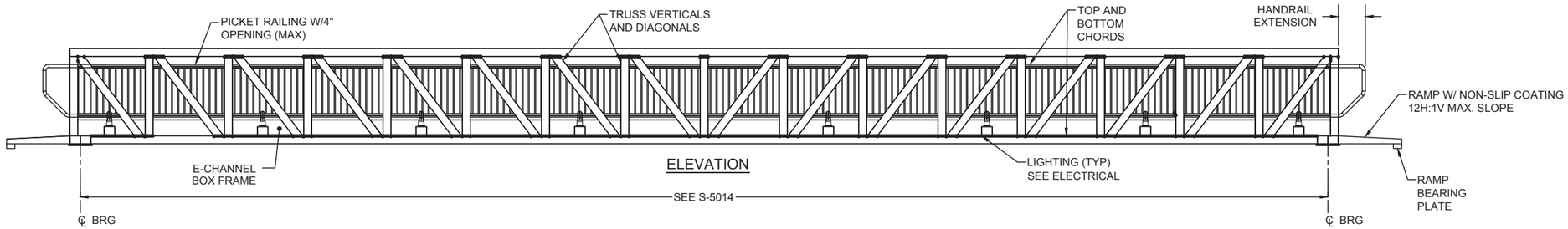
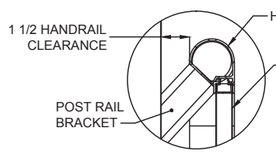


ELEVATION

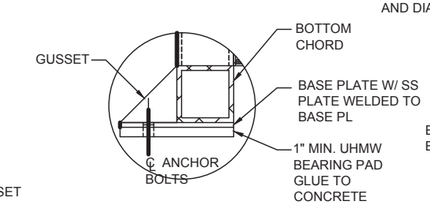
1 CATWALK ELEVATION

1/4" = 1'-0"

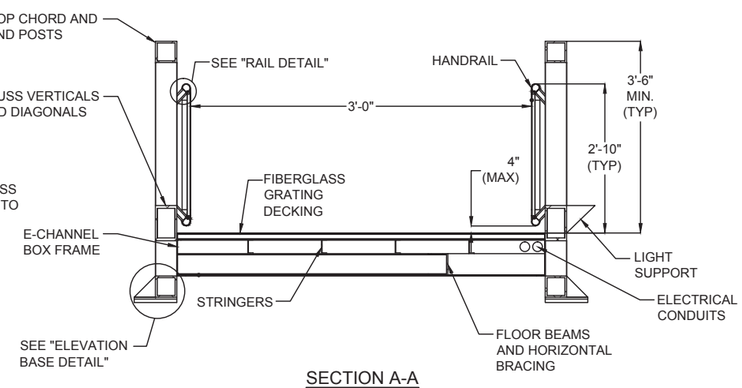
S-5016



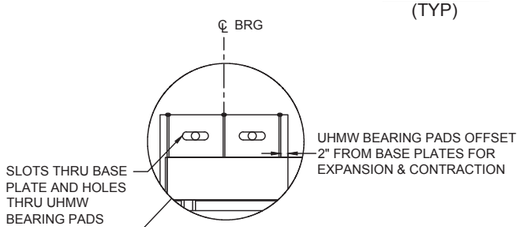
RAIL DETAIL
(TYP)



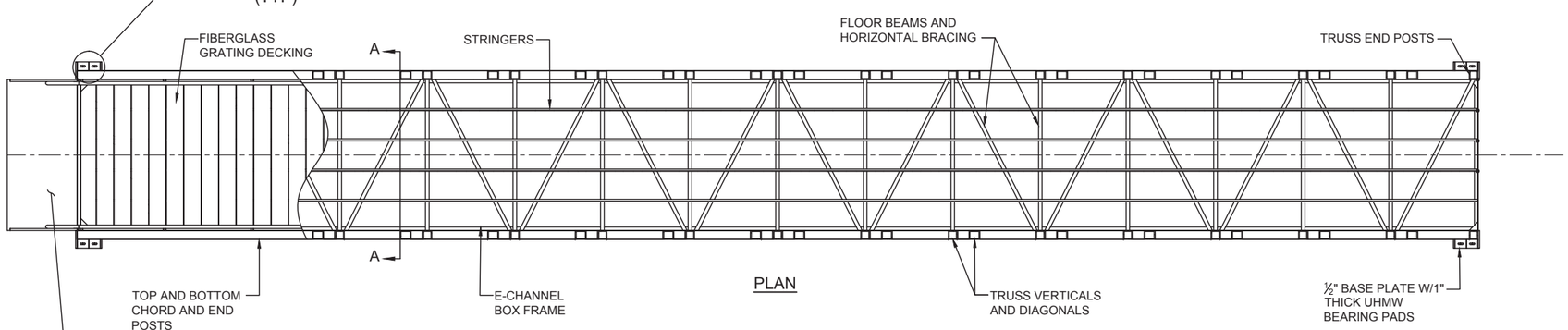
ELEVATION BASE DETAIL
(TYP)



SECTION A-A



PLAN BASE DETAIL
(TYP)



PLAN

2 CATWALK PLAN

1/4" = 1'-0"

S-5016

NOT FOR CONSTRUCTION

NOT FOR CONSTRUCTION

NO.	DATE	REVISION	BY	APVD
B	12/21/15	95% REVIEW SUBMITTAL - NOT FOR CONSTRUCTION	BO	RC
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VPA - VIG PHASE II SUPPORT
PROJECT MAGNUM
VIRGINIA PORT AUTHORITY
PORTSMOUTH, VIRGINIA

STRUCTURAL - WHARF EXTENSION
MOORING DOLPHIN / CATWALK DETAILS

AS SHOWN
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	2015/08/10
PROJ	664218
DWG	S-5027
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