

South Fork Wind Farm

Onshore Conceptual Drawings

May 13, 2019

Onshore Drawings

The following figures are included in this Appendix.

SFEC – Onshore

138 kv cross-section

Fiber-optic cable cross-section

SFEC – Onshore

Profile Duct Bank cross-sections

Cable Installation cross-sections

Manhole plan and profile

SFEC – Onshore Substation

Plan of Substation

Profile of Substation – West View

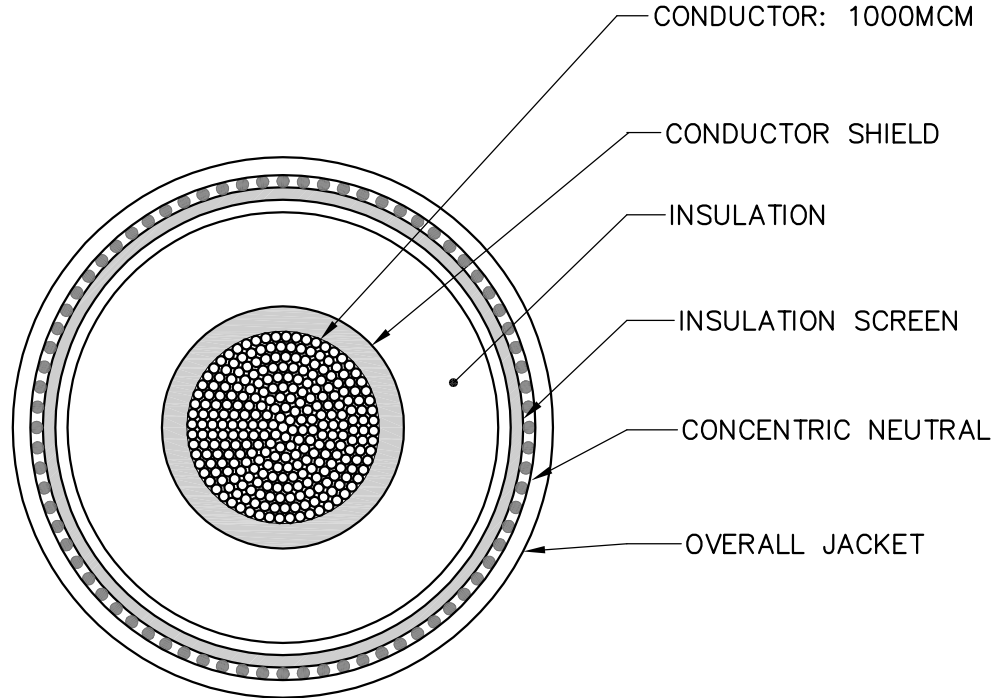
Profile of Substation – South View





69 kV cross-section

LAST SAVE: 2018/05/11 - 2:59pm
 PATH: \\sp1.snc.lavalin.com\SSL\Drawings\47DD-Drawings\47DD-0001 138 kV Cable Cross Section\Rev C\648902-0000-47DD-0001_C.dwg

Notes:

1. The inner layers dimensions will be provided by the manufacturer.
2. Overall jacket diameter range is 3.40" to 3.64" (86.4 to 92.5mm) approximately.

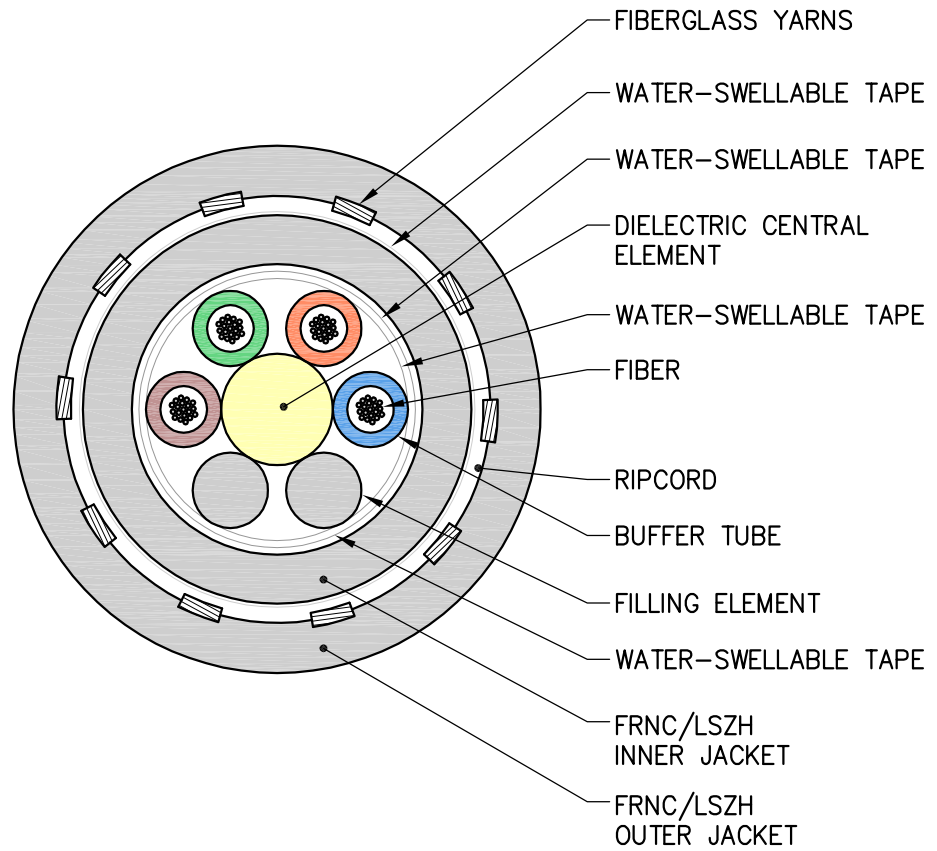


C	ISSUED FOR C.O.P. SUBMISSION	18/05/11	A.P.	C.L.	DESIGNED A.P.	PROJECT SOUTH FORK WIND FARM (SFWF)				
B	ISSUED FOR CLIENT REVIEW	17/11/24	A.P.		DRAWN T.A.	TITLE CABLE CROSS-SECTION 138 kV XLPE INSULATION (ONSHORE) 1000 MCM				
A	ISSUED FOR CLIENT REVIEW	17/10/18	A.P.		CHECKED R.A.					
No	REVISION DESCRIPTION	DATE(Y/M/D)	*	**	APPROVED	PROJECT No				
REVISION REGISTER						SUBDIVISION				
* DESIGNED						SUBJECT				
**APPROVED						SERIAL				
CLIENT						REV.				
 						DATE				
						2017-10-03				
 						SCALE				
						NTS				
648902						0000				
47DD						0001				
C										

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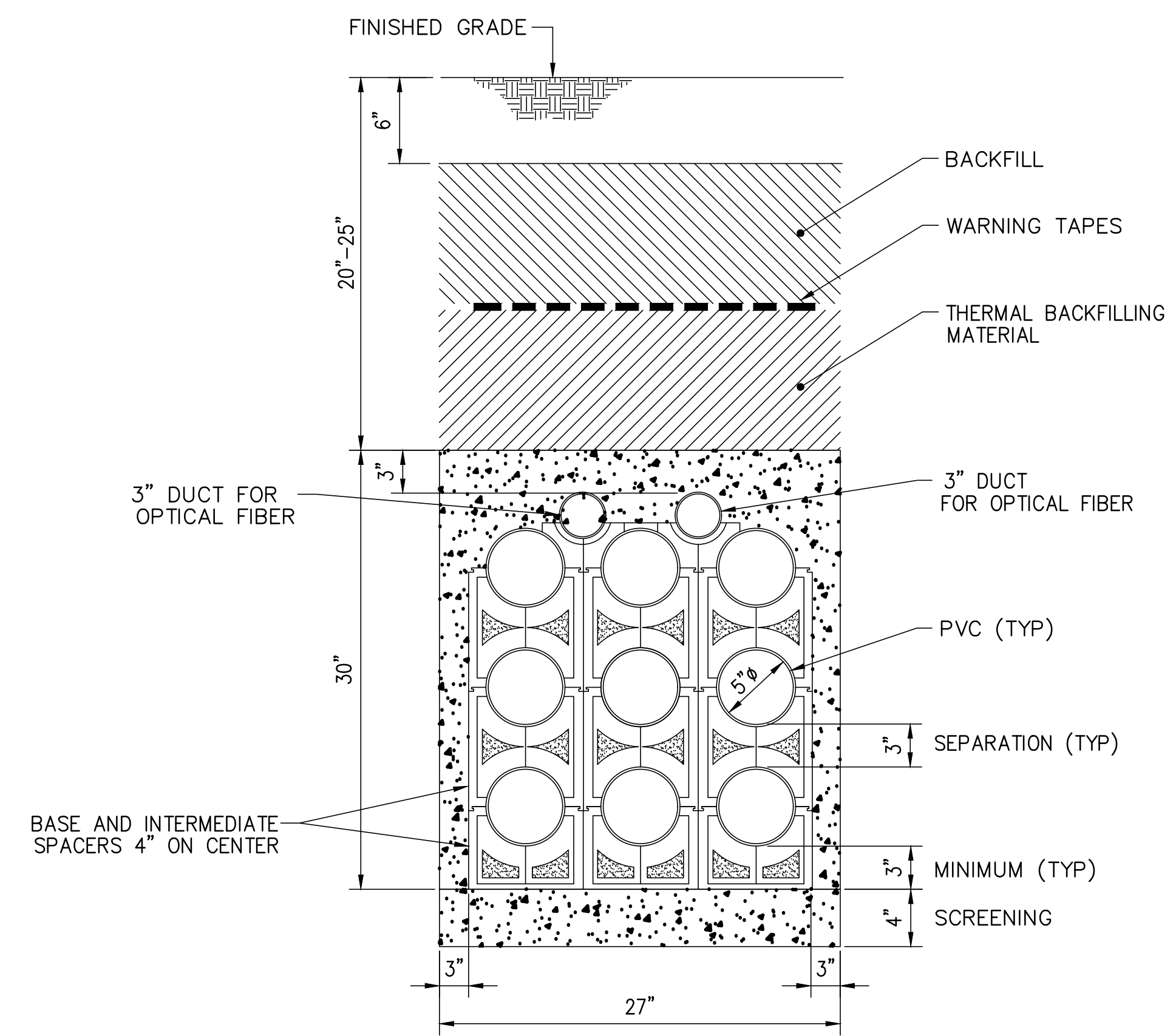
Notes:

1. The inner layers dimensions will be provided by the manufacturer.
2. The nominal outer diameter is 0.76" (19.4mm) approximately.

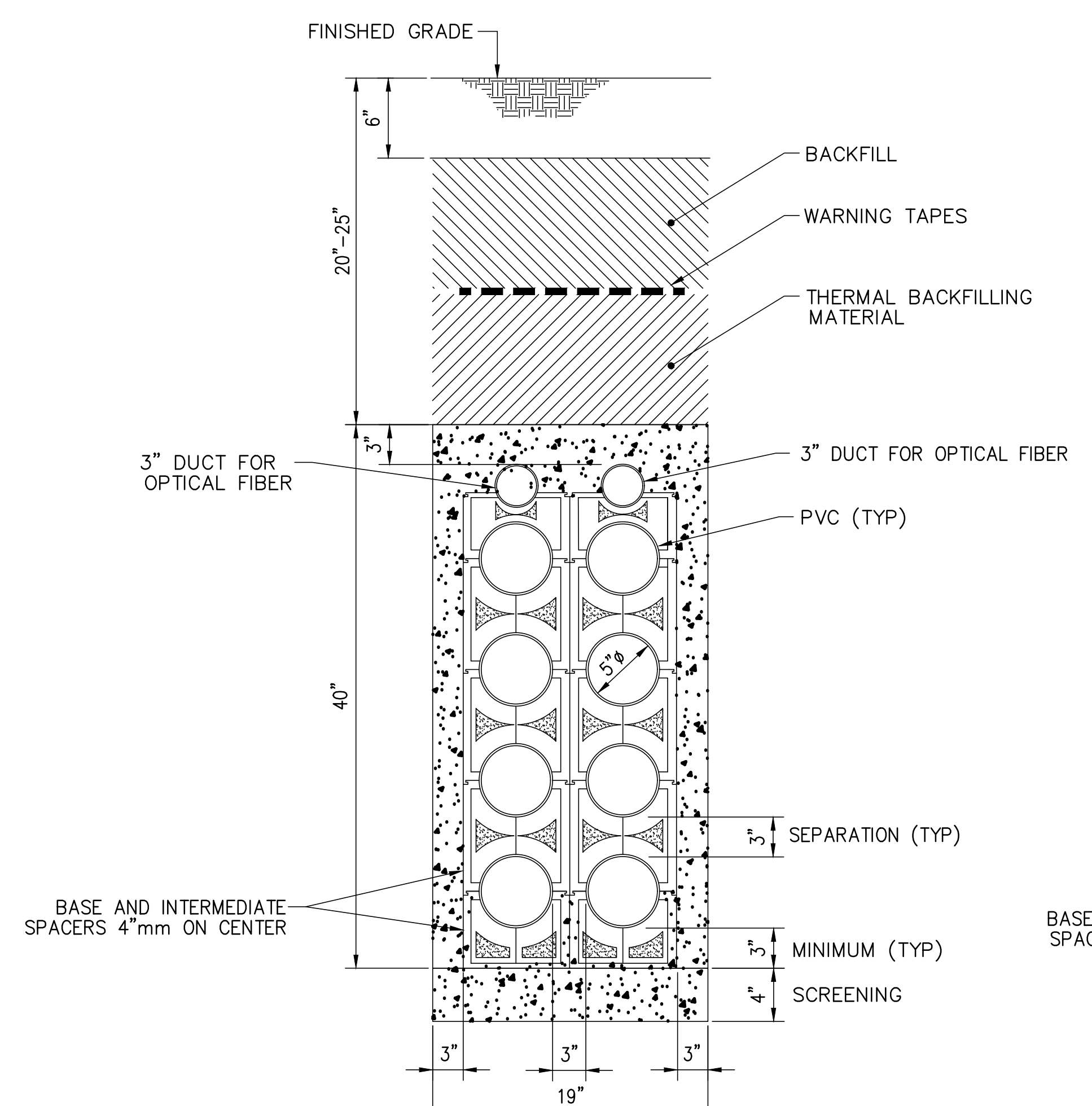


				DESIGNED O.B.	PROJECT SOUTH FORK WIND FARM (SFWF)					
				DRAWN I.M.	TITLE FIBER OPTIC CABLE CROSS-SECTION 69 kV ONSHORE SECTION 48 FIBER, SINGLE MODE (OS2)					
A ISSUED FOR CLIENT REVIEW				18/05/11						O.B.
No	REVISION DESCRIPTION	DATE(Y/M/D)	*	**	APPROVED C.L.					
REVISION REGISTER		* DESIGNED **APPROVED			DATE 2018-05-10					
CLIENT		SOUTH FORK WIND FARM			SCALE NTS	PROJECT No	SUBDIVISION	SUBJECT	SERIAL	REV.
					648902	0000	4CDD	0002	A	

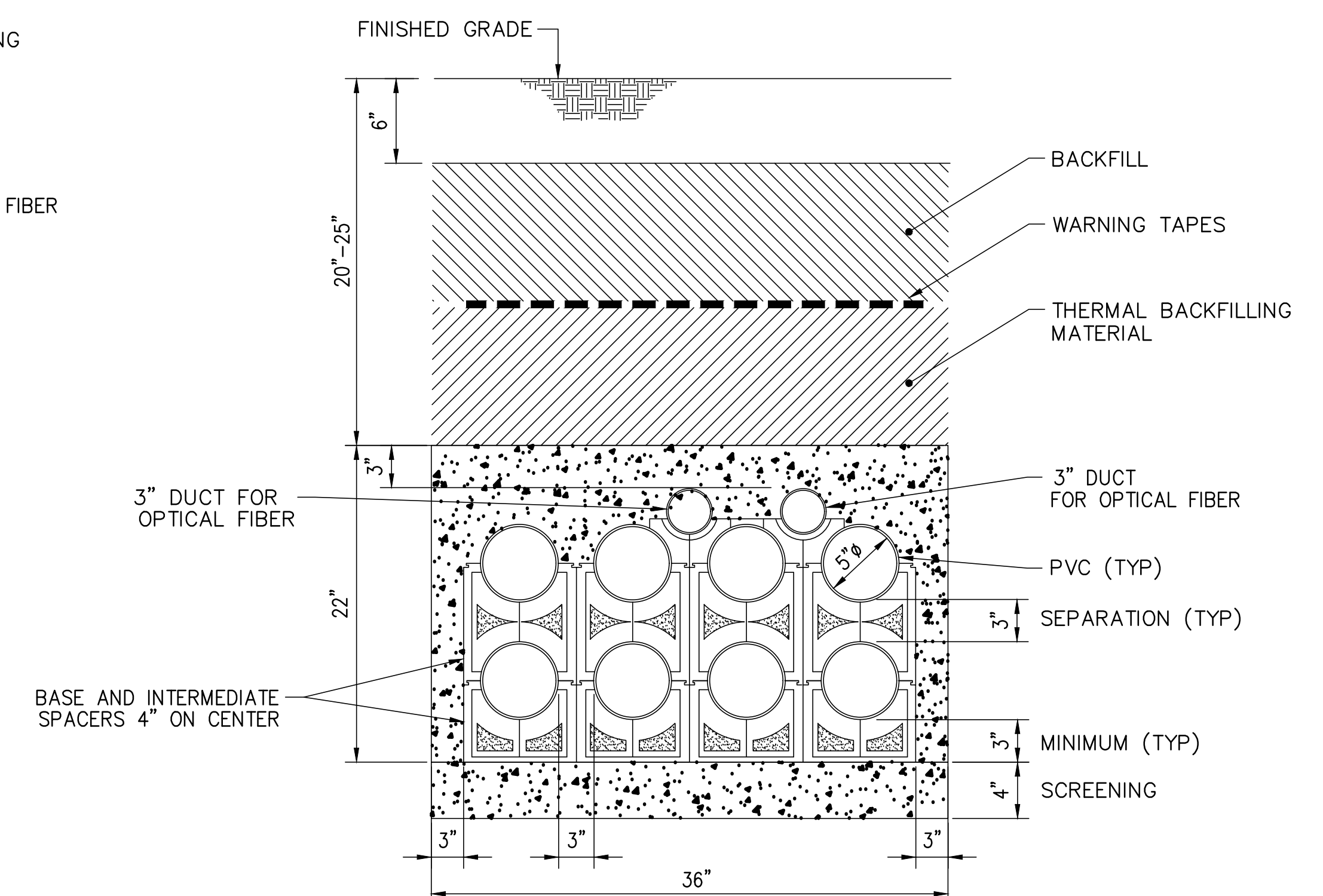
NOTES:
 1- TYPICAL 3 x 3 AND 1 x 4 DUCT BANK WILL BE USED FOR THE 69kV CABLE SECTION.



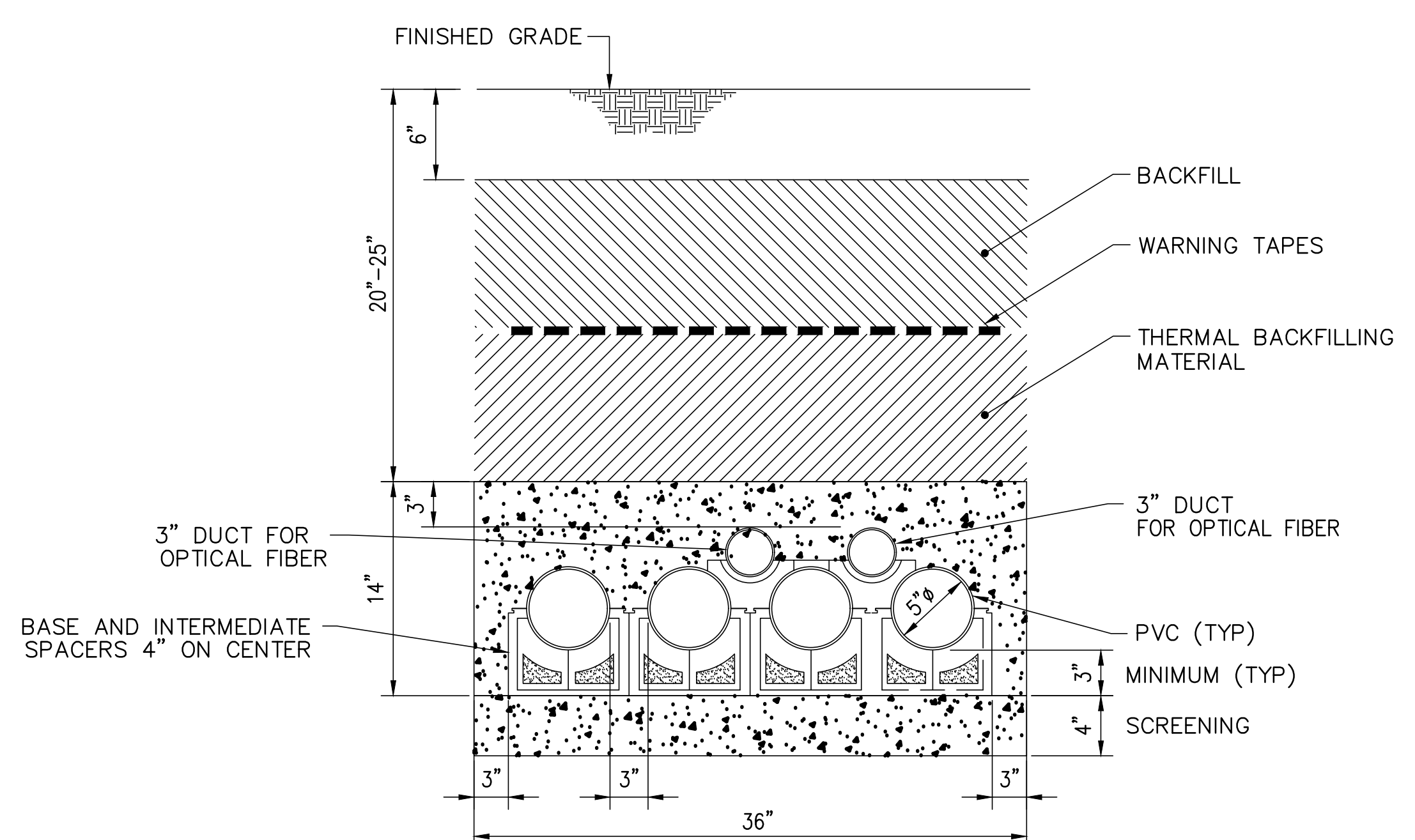
TYPICAL 3 X 3 (27"X30") WITH 5" PVC DUCTS 3" COMMUNICATION DUCTS 138 AND 69kV



TYPICAL 4 X 2 DUCT BANK (19"X40") WITH 5" PVC DUCTS, 3" COMMUNICATION DUCTS 138kV



TYPICAL 2 X 4 (DUCT BANK 36"X22") WITH 5" PVC DUCTS, 3" COMMUNICATION DUCTS 138kV



TYPICAL 1 X 4 (DUCT BANK 36"X14") WITH 5" PVC DUCTS, 3" COMMUNICATION DUCTS 69kV

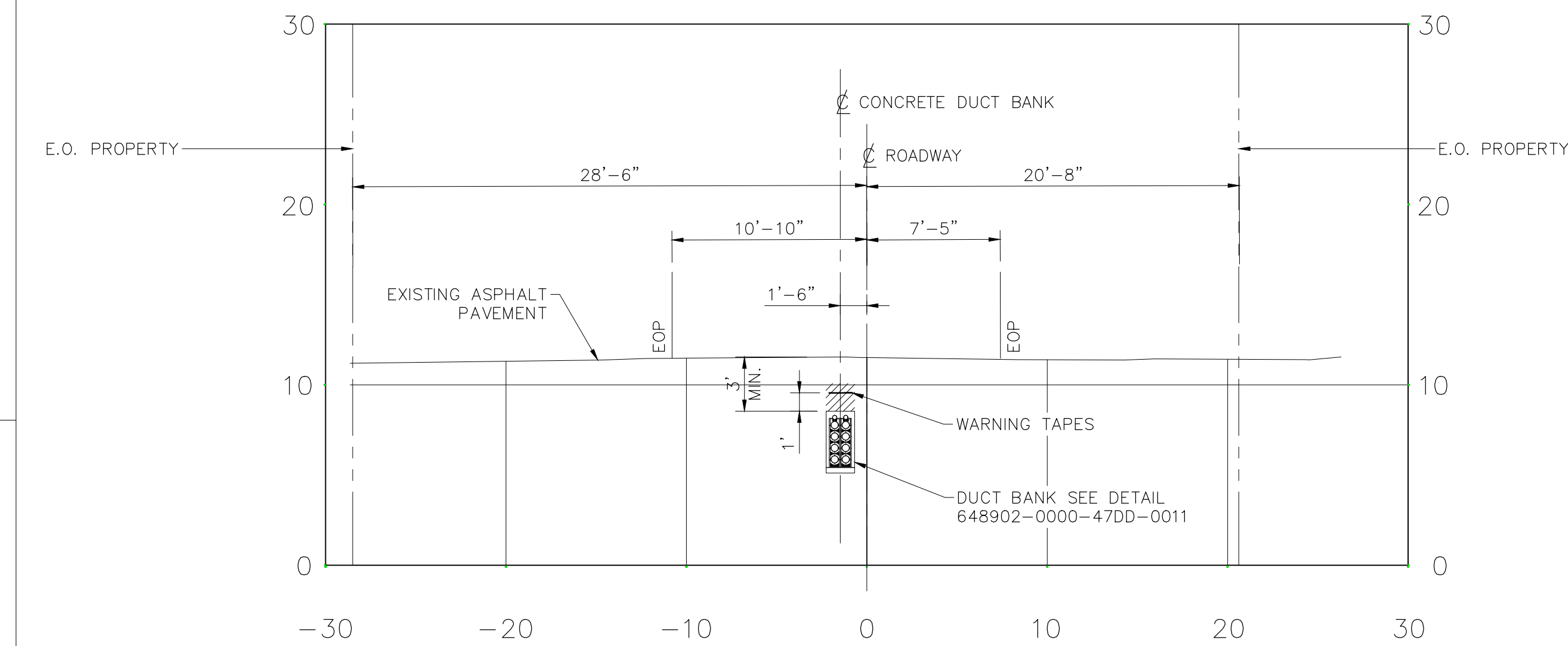
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NOT FOR CONSTRUCTION



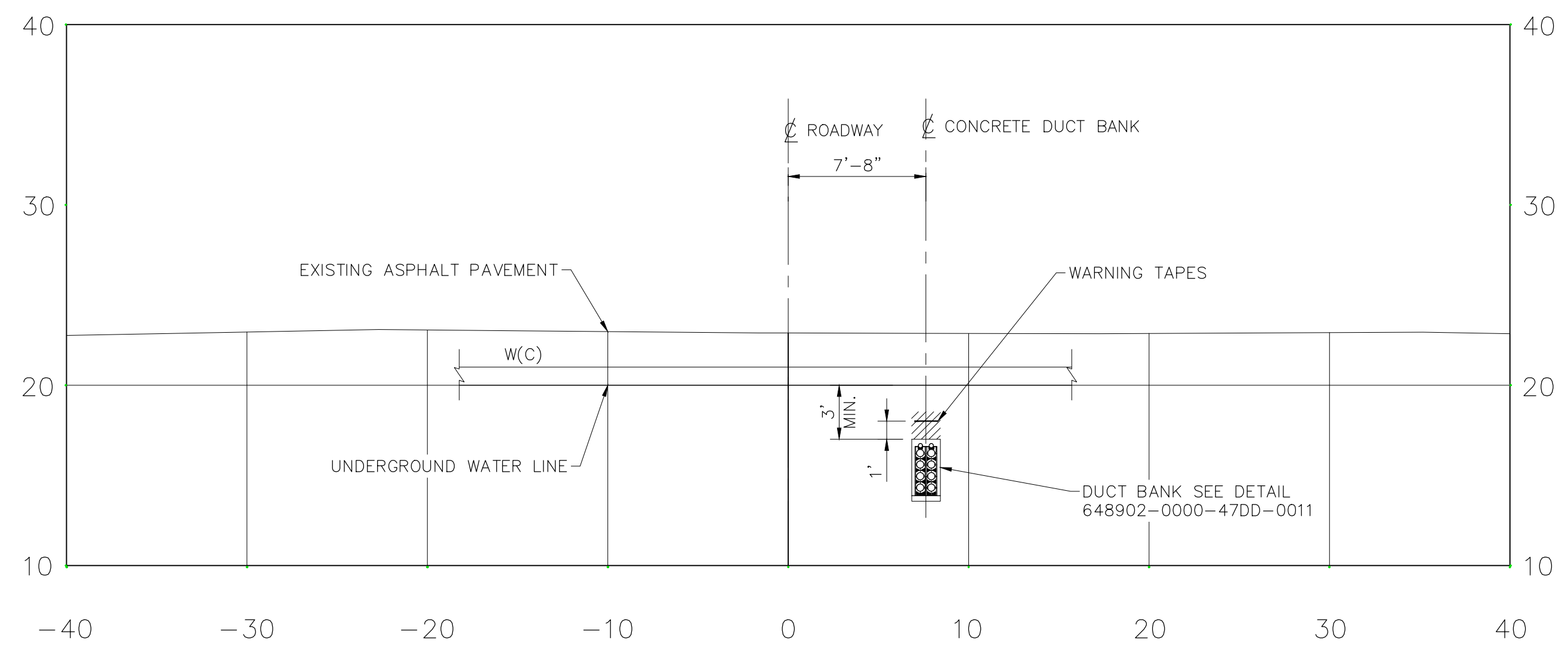
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B	ISSUED FOR CLIENT REVIEW	17/11/24	L.M.	A.P.
C	ISSUED FOR CLIENT REVIEW	18/01/10	L.M.	A.P.
D	ISSUED FOR CLIENT REVIEW	18/01/11	L.M.	A.P.
E	ISSUED FOR CLIENT REVIEW	18/03/07	T.A.	A.P.
F	ISSUED FOR CLIENT REVIEW	18/04/06	Y.T.	A.P.

	PROFESSIONAL SEAL	PREPARATION
		DESIGNED
		A.P.
		DRAWN
		L.M.
		CHECKED
	R.A.	
	DATE	2017-11-14
	SCALE	SHEET OF
	NTS	

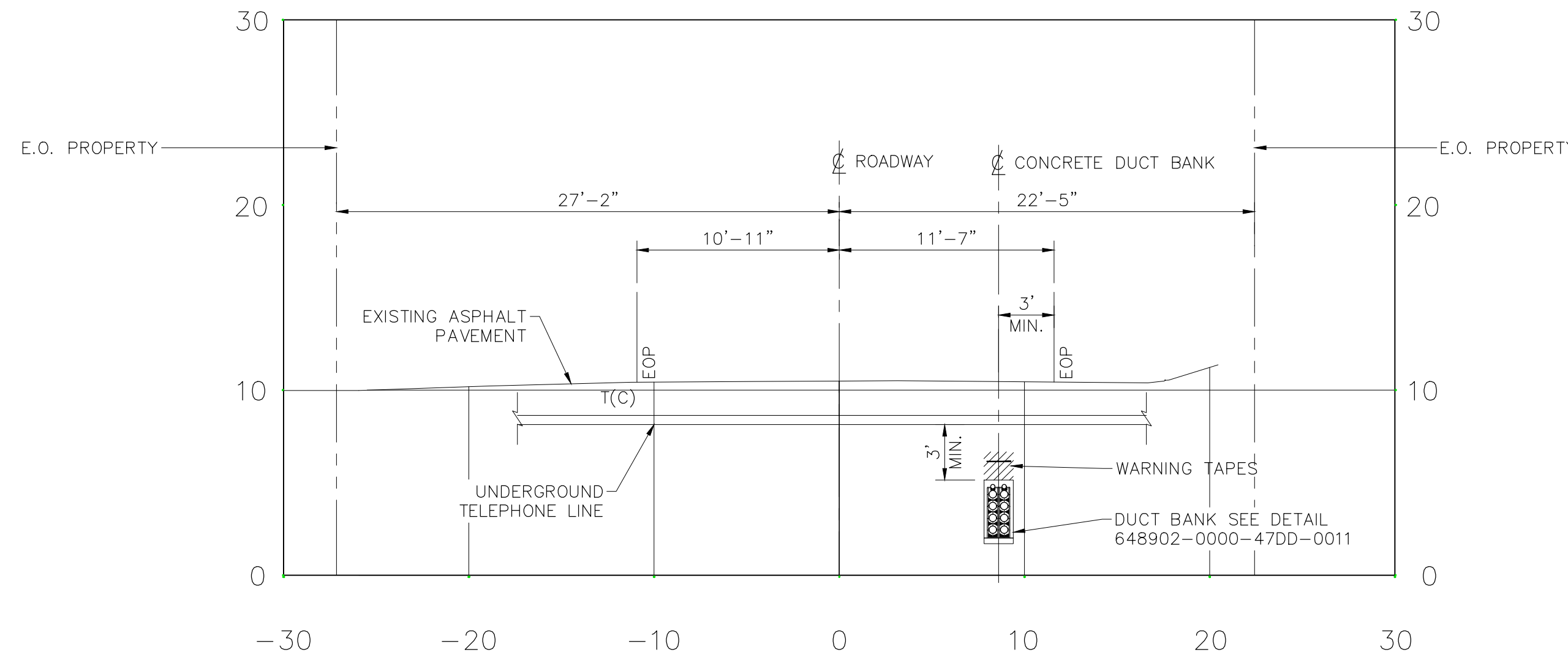
CLIENT	DEEPWATER WIND SOUTH FORK, LLC (DWSF)
PROJECT	SOUTH FORK WIND FARM (SFWF)
TITLE	SOUTH FORK EXPORT CABLE (SFEC) ONSHORE CABLE UNDERGROUND CABLE DUCT BANK CROSS-SECTION
DOCUMENT No.	648902-0000-47DD-0011
REV	F



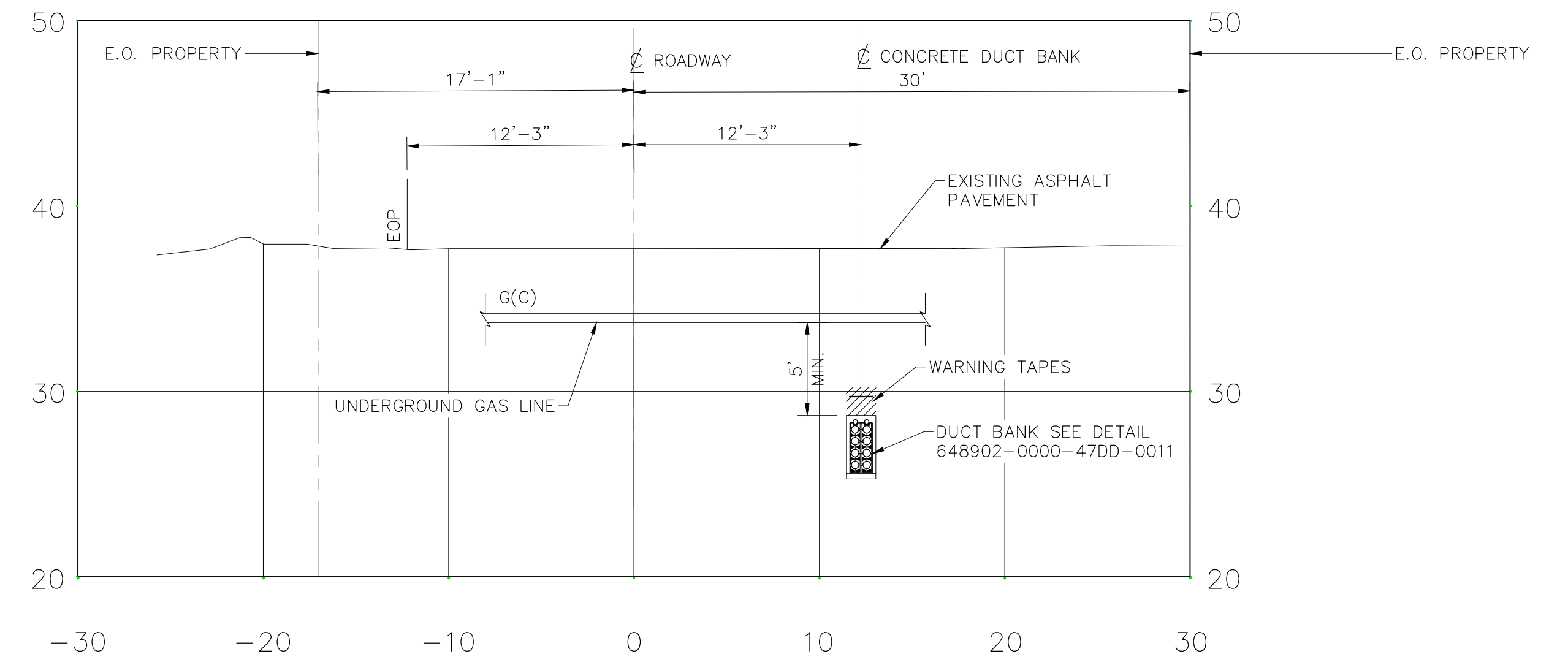
SECTION A
N.T.S. SHEET #2
(TYPICAL INSIDE ROADWAY ROW 50')



SECTION B
N.T.S. SHEET #7
(TYPICAL CONFIGURATION CROSSING WATER LINE)



SECTION B
N.T.S. SHEET #13
(TYPICAL CONFIGURATION CROSSING TELEPHONE OR CATV LINE)



SECTION D
N.T.S. SHEET #15
(TYPICAL CONFIGURATION CROSSING GAS LINE)

MINIMUM CLEARANCES OF UNDERGROUND CABLES IN DUCT BANK SYSTEM		
TYPE OF UTILITY	PARALLEL (Ft)	CROSSING (Ft)
ELECTRIC DUCT BANK	10	3
STORM SEWER	1	1
SANITARY SEWER	1	1
WATER LINE	1,5	1,5
GAS LINE (LOW-PRESSURE)	1	1
GAS LINE (HIGH-PRESSURE)	IN SEPARATE TRENCH	1
TELEPHONE DUCT BANK	1	1
STEAM LINE	10	4

NOTE:
1. ADDITIONAL RADIAL SEPARATION FOR THE TELEPHONE LINE AND UNDERGROUND WATER LINE HAS BEEN CONSIDERED TO PERMIT ACCESS TO AND MAINTENANCE OF EITHER FACILITY TO LIMIT DAMAGE TO THE OTHER NESC (RULE 320.B.1 AND RULE 353.A.2).

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No	REVISION DESCRIPTION	DATE (Y/M/D)	INITIALS	DESIGNED	APPROVED

	PROFESSIONAL SEAL	PREPARATION
		DESIGNED
		A.P.
		DRAWN
		L.M.
	CHECKED	
	R.A.	
	DATE	
	2017-11-14	
	SCALE	SHEET
	NTS	1 OF 3

SOUTH FORK WIND FARM

CLIENT: DEEPWATER WIND SOUTH FORK, LLC (DWSF)

PROJECT: SOUTH FORK WIND FARM (SFWF)

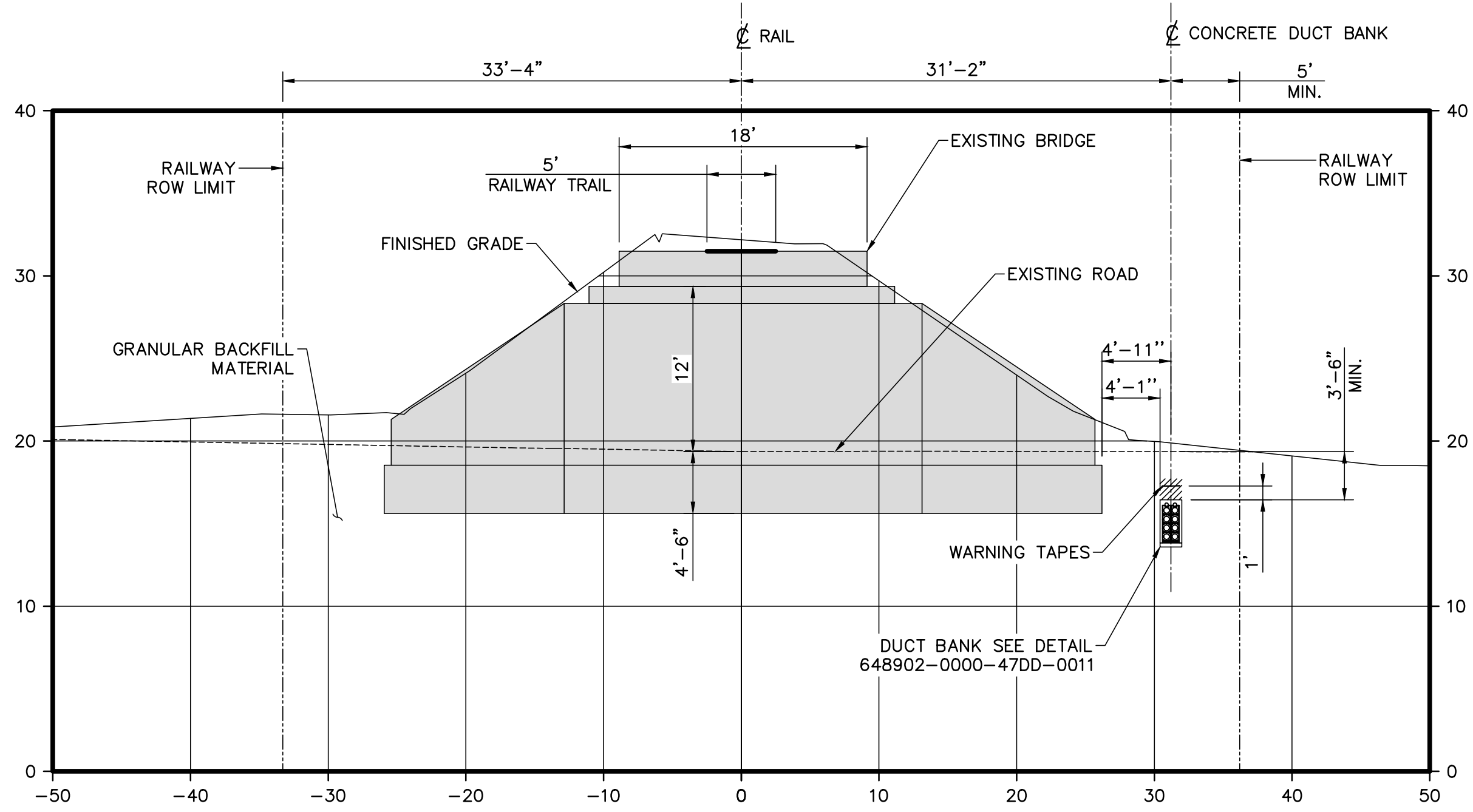
TITLE: SOUTH FORK EXPORT CABLE (SFC) 138 kV CABLE INSTALLATION CROSS-SECTION

DOCUMENT No. 648902-0000-47DD-0012-001

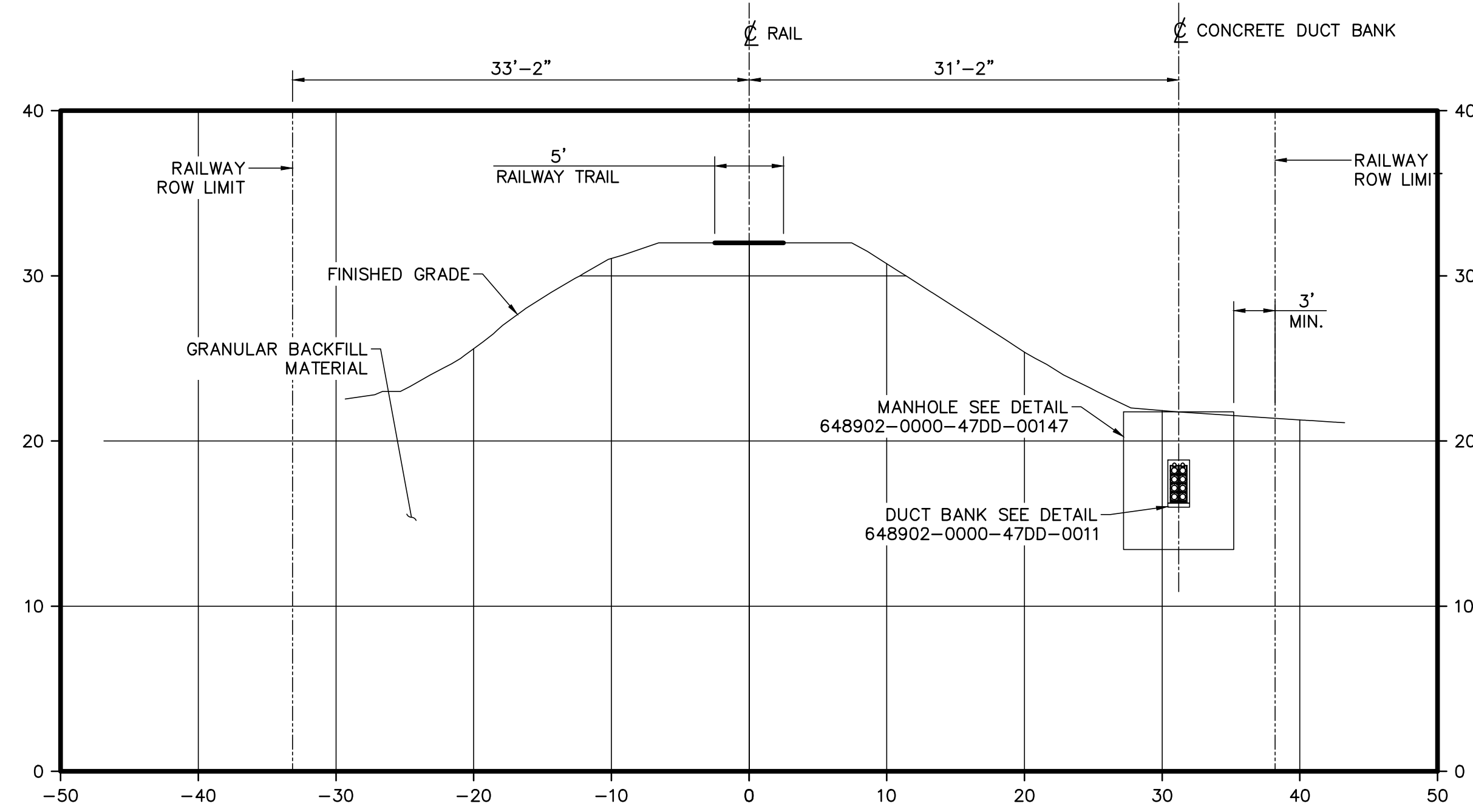
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REV: E

FRAME D HORIZONTAL

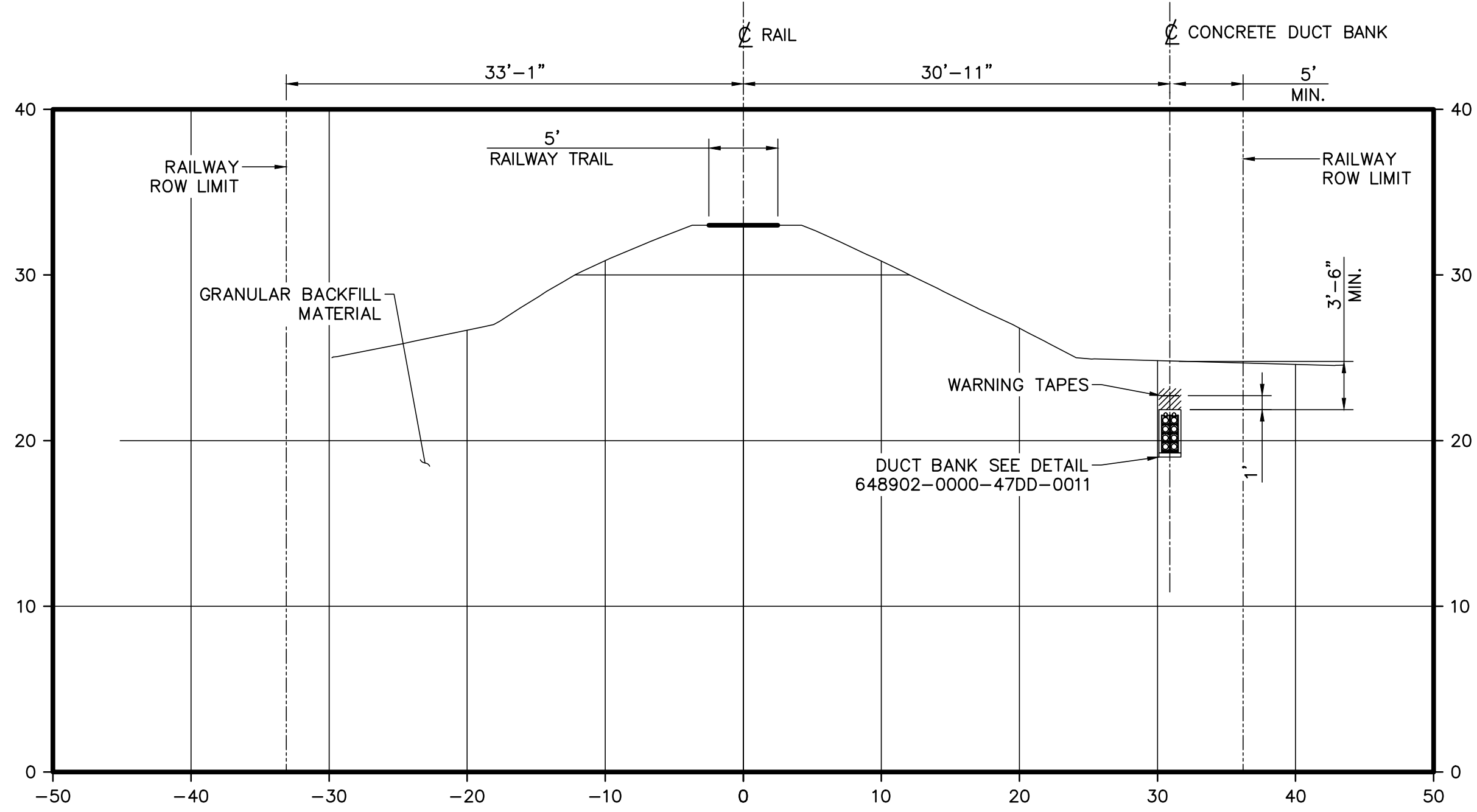


SECTION E
N.T.S. SHEET #21

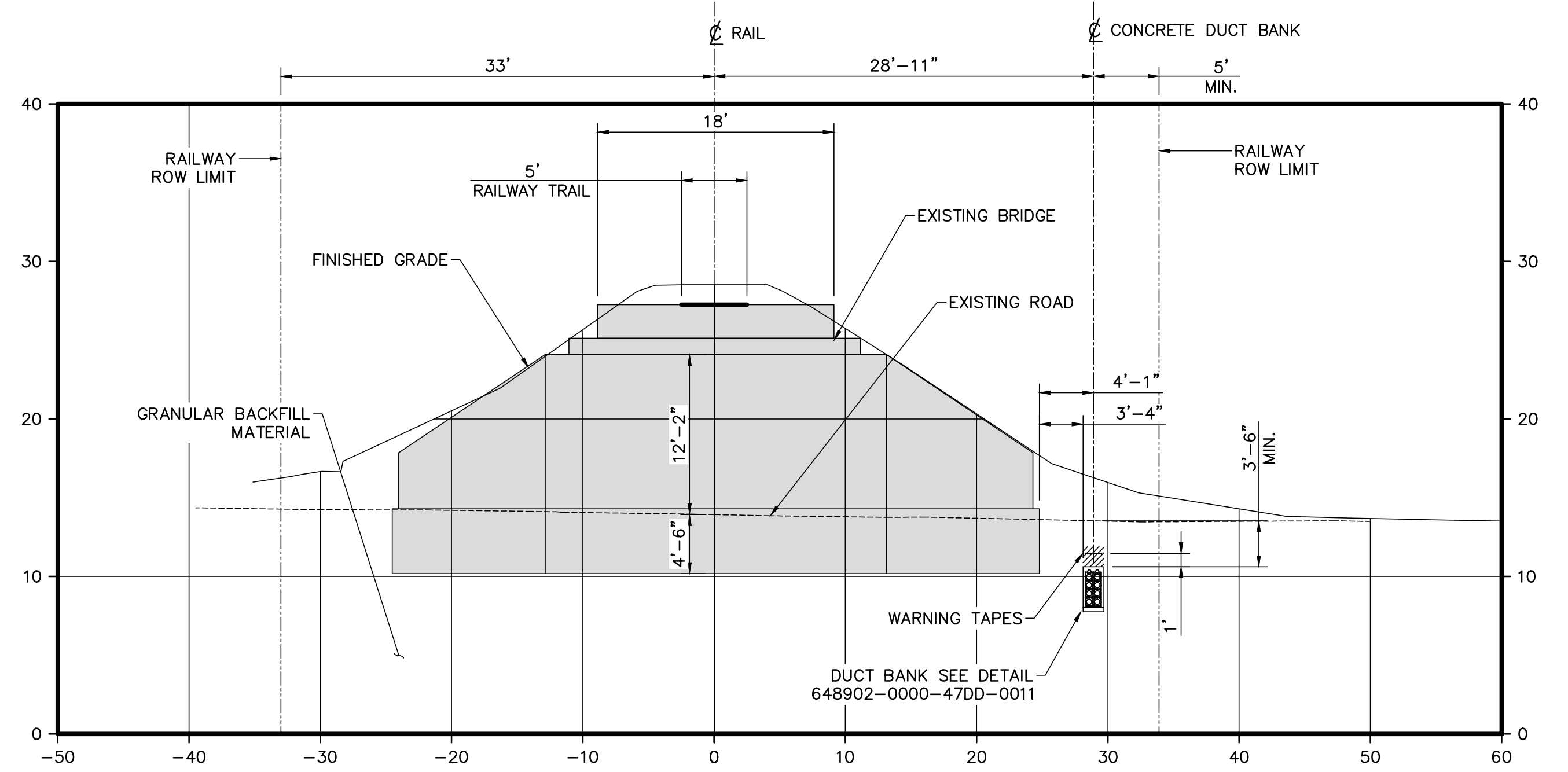


SECTION F
N.T.S. SHEET #21

(TYPICAL CONFIGURATION INSIDE RAILWAY ROW SECTION AT MANHOLE LOCATION)



SECTION G
N.T.S. SHEET #21
(TYPICAL CONFIGURATION INSIDE RAILWAY ROW)



SECTION H
N.T.S. SHEET #27

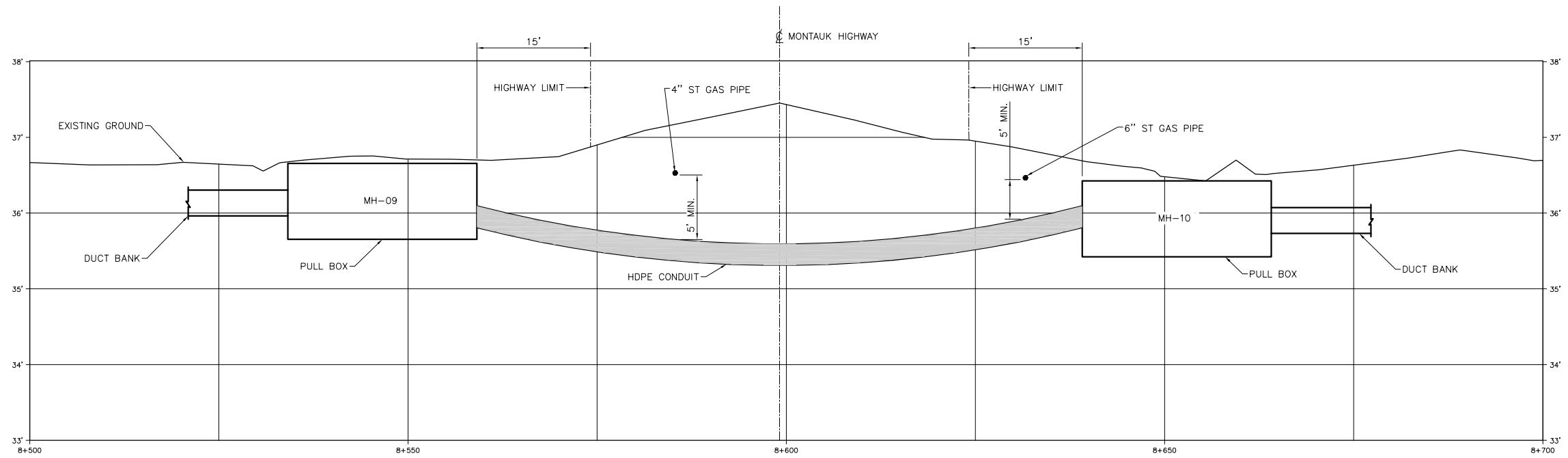


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NOT FOR CONSTRUCTION

A	ISSUED FOR CLIENT REVIEW	18/02/16	A.P. L.C.
B	ISSUED FOR CLIENT REVIEW	18/04/06	Y.T. A.P.
REVISION REGISTER			
No	REVISION DESCRIPTION	DATE (Y/M/D)	**
INITIALS: * DESIGNED ** APPROVED			

 PROFESSIONAL SEAL	PREPARATION
	DESIGNED A.P.
	DRAWN Y.T.
	CHECKED L.C.
	DATE 2018-02-16
SCALE NTS	SHEET 2 OF 3

CLIENT DEEPWATER WIND SOUTH FORK, LLC (DWSF)
PROJECT SOUTH FORK WIND FARM (SFWF)
TITLE SOUTH FORK EXPORT CABLE (SFEC) 138 kV CABLE INSTALLATION CROSS-SECTION
DOCUMENT No. 648902-0000-47DD-0012-002
SIZE D
REV B



SECTION J
 N.T.S. SHEET #14
 (TYPICAL CONFIGURATION OF MONTAUK HIGHWAY HDD CROSSING)

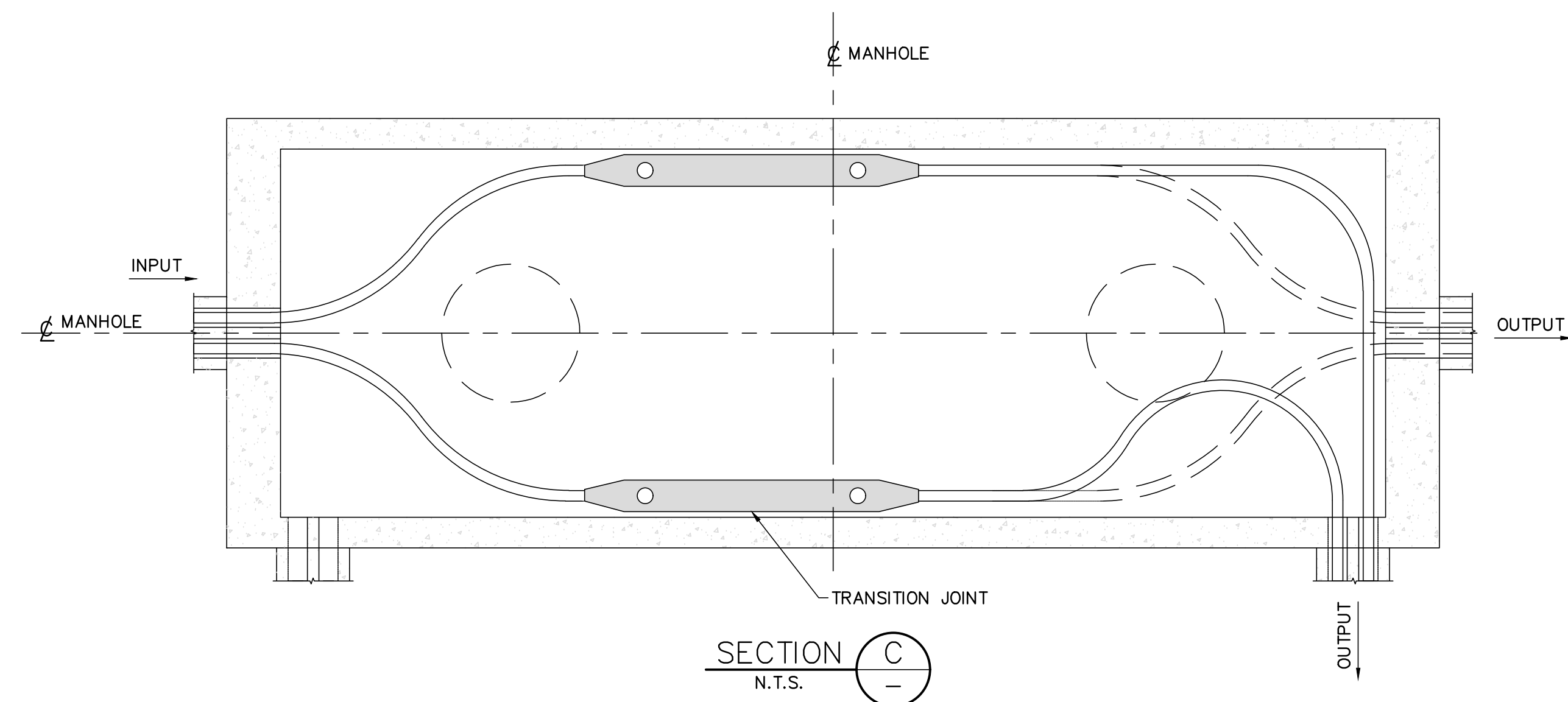
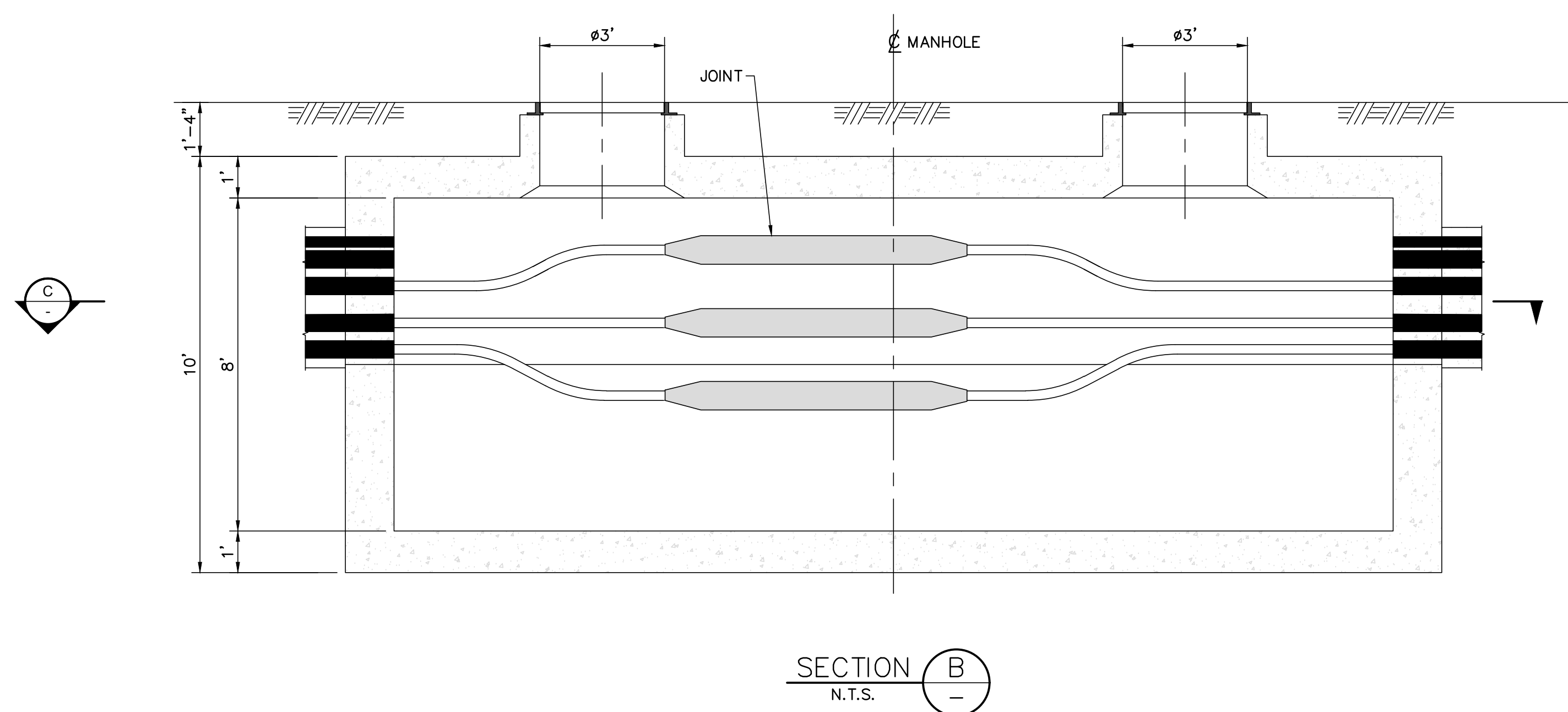
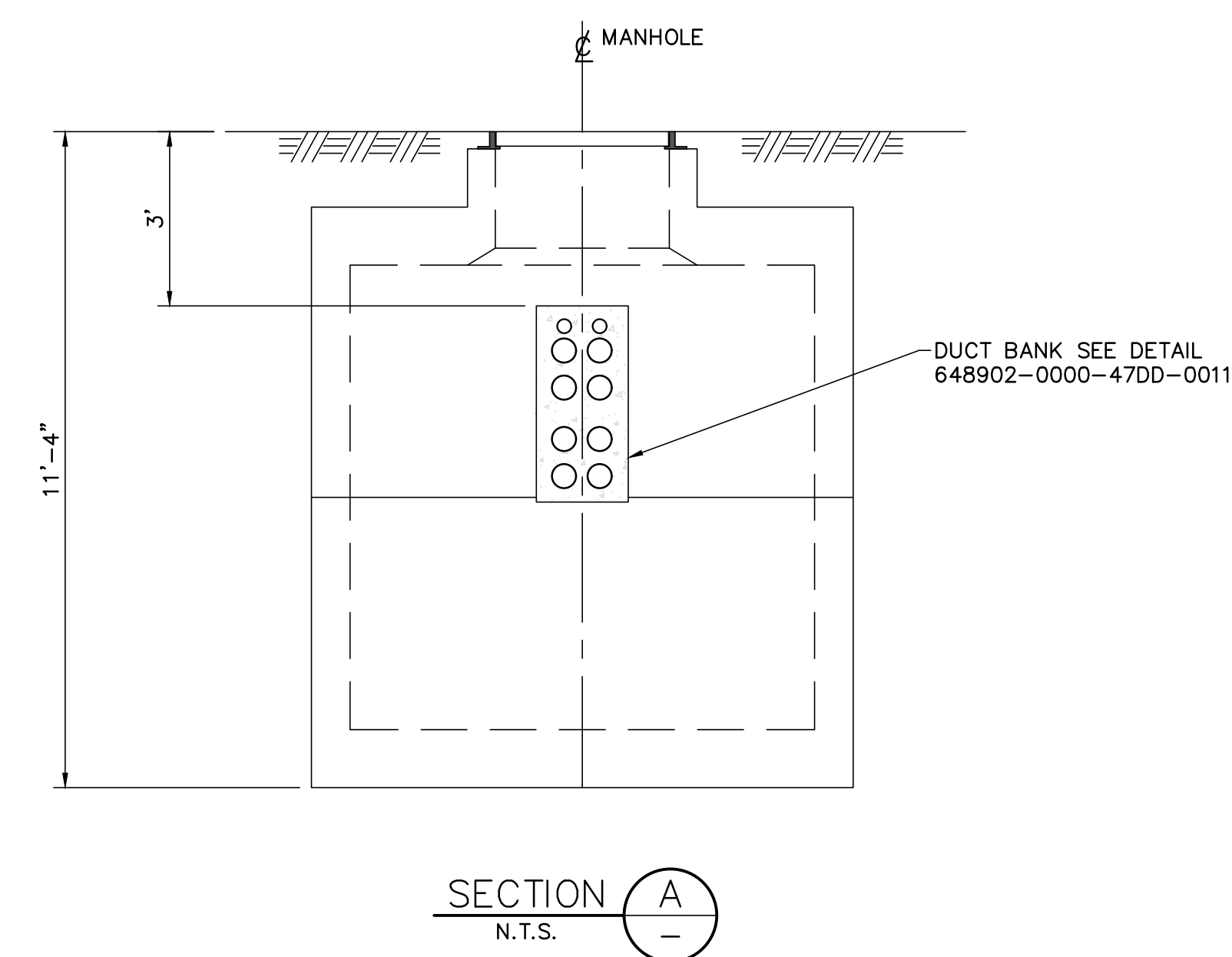
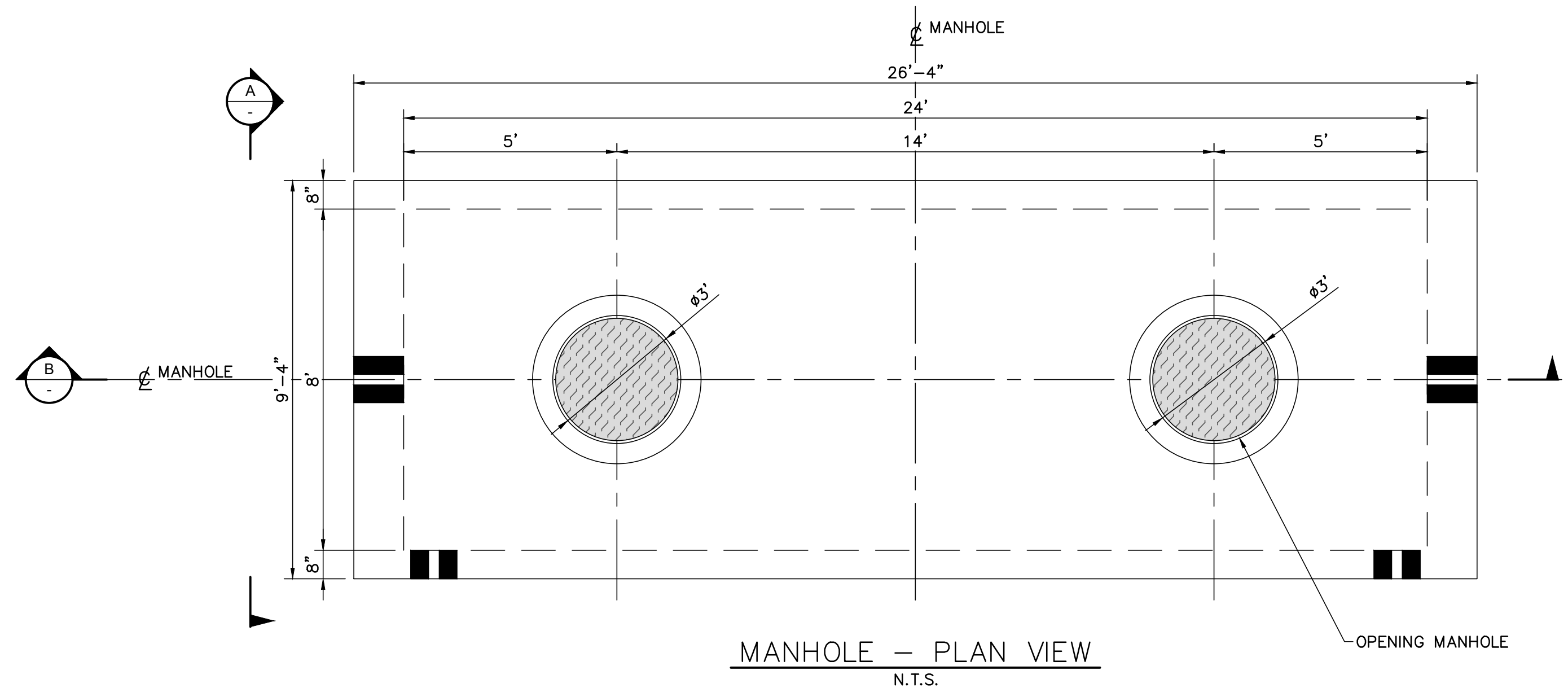
NOTE:
 1. DIMENSIONS ON THIS DRAWING ARE IN FEET UNLESS NOTED OTHERWISE.



No	REVISION DESCRIPTION	DATE (Y/M/D)	*	**
A	ISSUED FOR CLIENT REVIEW	18/04/06	Y.T.	A.P.
B	ISSUED FOR C.O.P. SUBMISSION	18/05/11	Y.T.	A.P.
C	RE-ISSUED FOR C.O.P. SUBMISSION	18/05/23	Y.T.	A.P.
INITIALS: * DESIGNED ** APPROVED				
REVISION REGISTER				

	PROFESSIONAL SEAL	
	PREPARATION	
	DESIGNED	A.P.
	DRAWN	Y.T.
	CHECKED	L.C.
DATE	2018-02-16	
SCALE	SHEET	3 OF 3
NTS		

CLIENT	DEEPWATER WIND SOUTH FORK, LLC (DWSF)
PROJECT	SOUTH FORK WIND FARM (SFWF)
TITLE	SOUTH FORK EXPORT CABLE (SFEC) 138 kV CABLE INSTALLATION CROSS-SECTION
DOCUMENT No.	648902-0000-47DD-0012-003
SIZE	D
REV	C



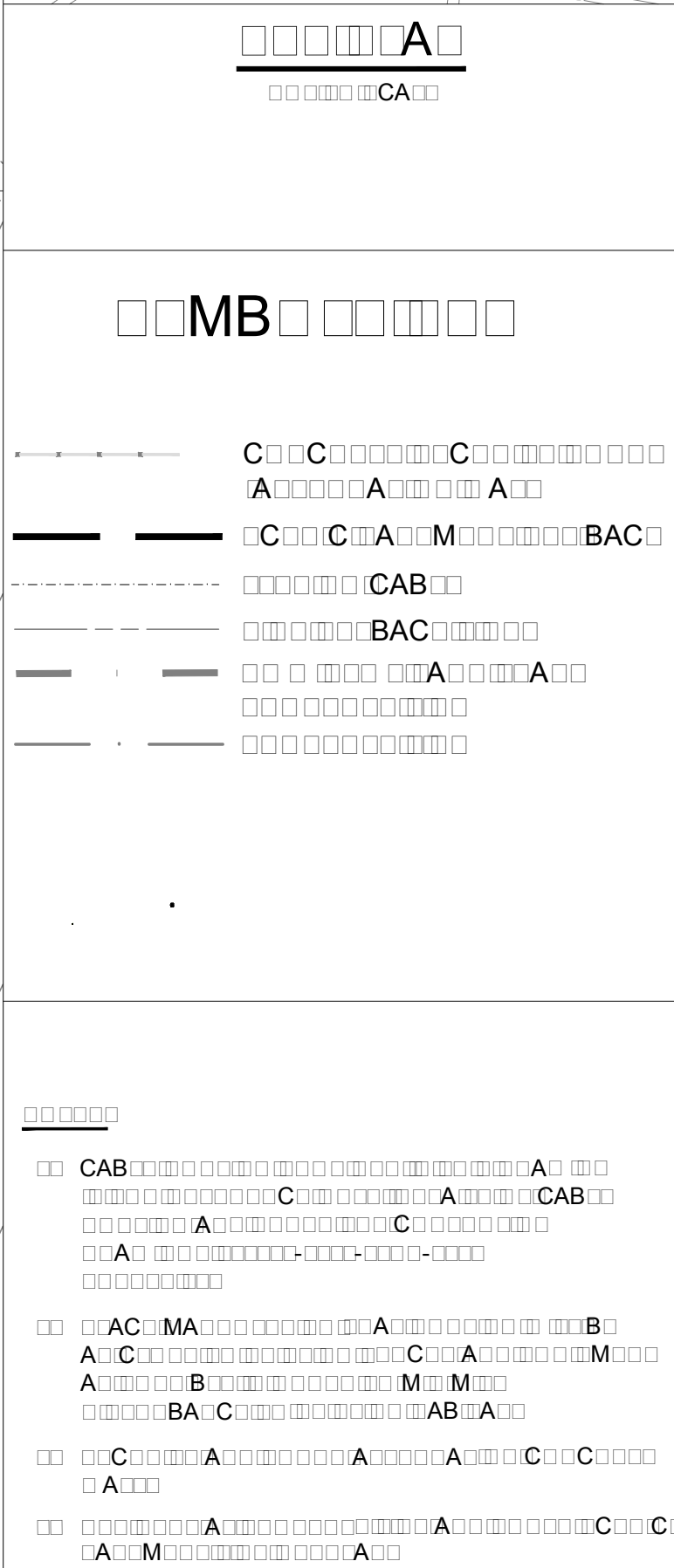
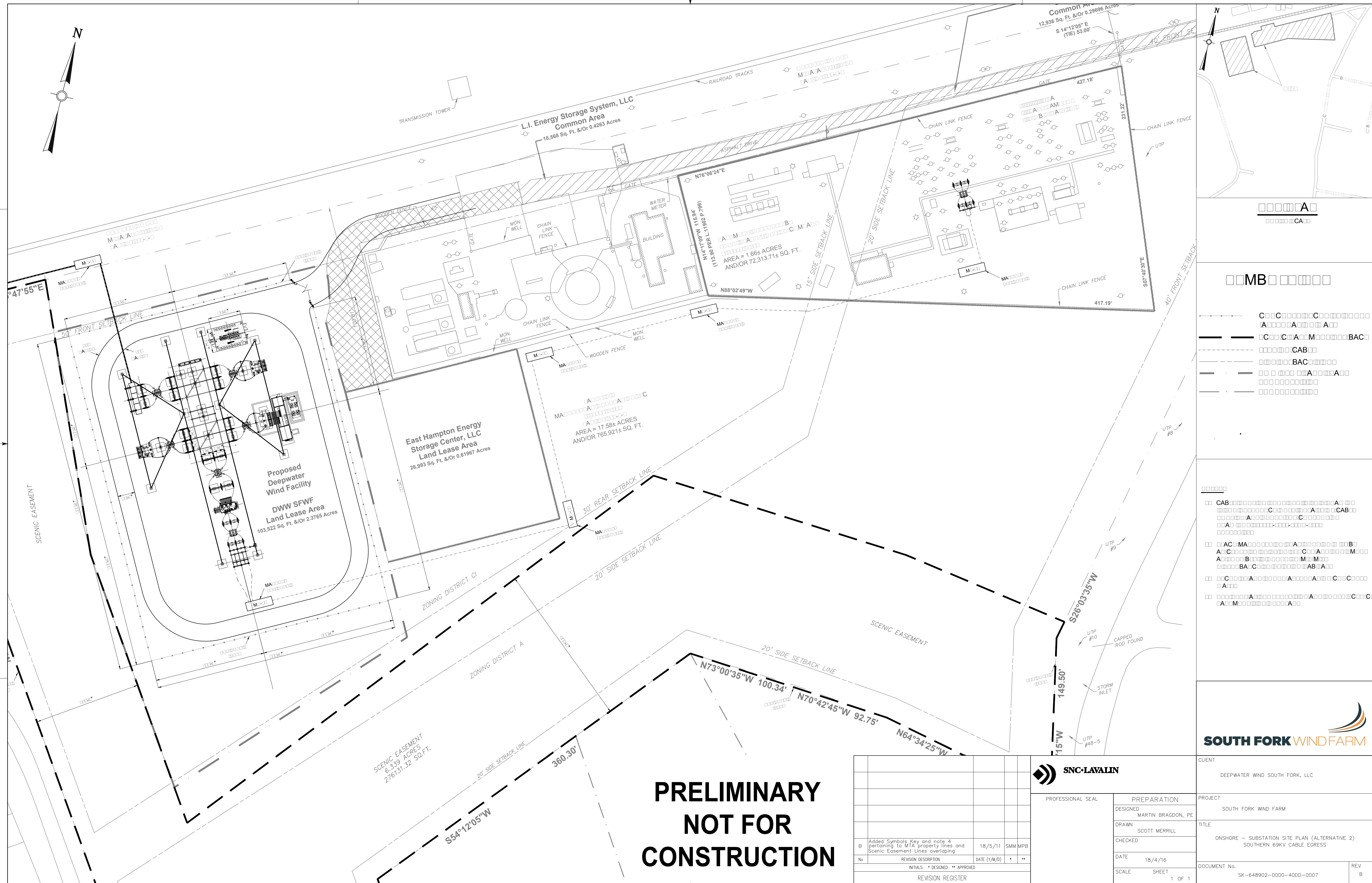
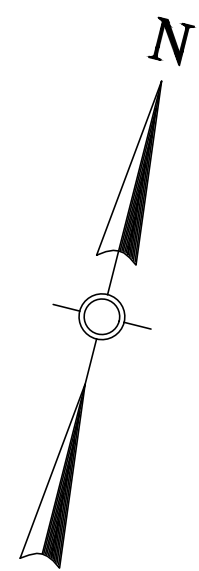
PRELIMINARY
NOT FOR CONSTRUCTION



No	REVISION DESCRIPTION	DATE (Y/M/D)	INITIALS	DESIGNED	APPROVED
A	ISSUED FOR CLIENT REVIEW	18/02/16	A.P.	L.C.	
B	ISSUED FOR CLIENT REVIEW	18/04/06	Y.T.	A.P.	

	PROFESSIONAL SEAL	PREPARATION
		DESIGNED
		DRAWN
		CHECKED
		L.C.
	DATE	2018-02-20
	SCALE	SHEET 1 OF 1
		NTS

CLIENT	DEEPWATER WIND SOUTH FORK, LLC (DWSF)
PROJECT	SOUTH FORK WIND FARM (SFWF)
TITLE	SOUTH FORK EXPORT CABLE (SFEC) MANHOLE 138 kV UNDERGROUND CABLE
DOCUMENT No.	648902-0000-47DD-0014
SIZE	D
REV	B



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NOT FOR
CONSTRUCTION**

No.	REVISION DESCRIPTION	DATE (Y/M/D)	BY	APP.
B	Added Symbols Key and note 4 pertaining to MTA property lines and Scenic Easement Lines overlapping	18/5/11	SMM	MPB

REVISION REGISTER	INITIALS: * DESIGNED ** APPROVED
PROFESSIONAL SEAL	PREPARATION
	DESIGNED: MARTIN BRAGDON, PE
	DRAWN: SCOTT MERRILL
	CHECKED:
	DATE: 18/4/16
	SCALE: SHEET 1 OF 1



CLIENT	DEEPWATER WIND SOUTH FORK, LLC
PROJECT	SOUTH FORK WIND FARM
TITLE	ONSHORE – SUBSTATION SITE PLAN (ALTERNATIVE 2) SOUTHERN 69KV CABLE EGRESS
DOCUMENT No.	SK-648902-0000-40DD-0007
REV	B

SUBSTATION WEST VIEW WITH WALL NOT SHOWN

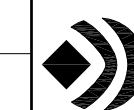
SUBSTATION WEST VIEW WITH WALL

**PRELIMINARY
NOT FOR
CONSTRUCTION**

NOTE:

- SOUND MITIGATION WALL WILL BE MADE OF CONCRETE AND STEEL, EXTERNAL WALL: NATURAL FINISH.

No	REVISION DESCRIPTION	DATE (Y/M/D)	INITIALS	DESIGNED	APPROVED
F	INCREASED SIZE OF TEXT	18/5/23			
E	ADDED NOTE 1 FOR SOUND MITIGATION WALL	18/4/16			
D	ADDED PERIMETER SECURITY AND SOUND BARRIER WALL WITH 42.5' LIGHTNING MASTS	18/3/9			
C	ADDED 35 MVAR REACTORS	17/11/15			
B	PROVIDED WEST VIEW OF SUBSTATION	17/10/20			



SNC-LAVALIN

PROFESSIONAL SEAL

PREPARATION

DESIGNED: MARTIN BRAGDON, PE

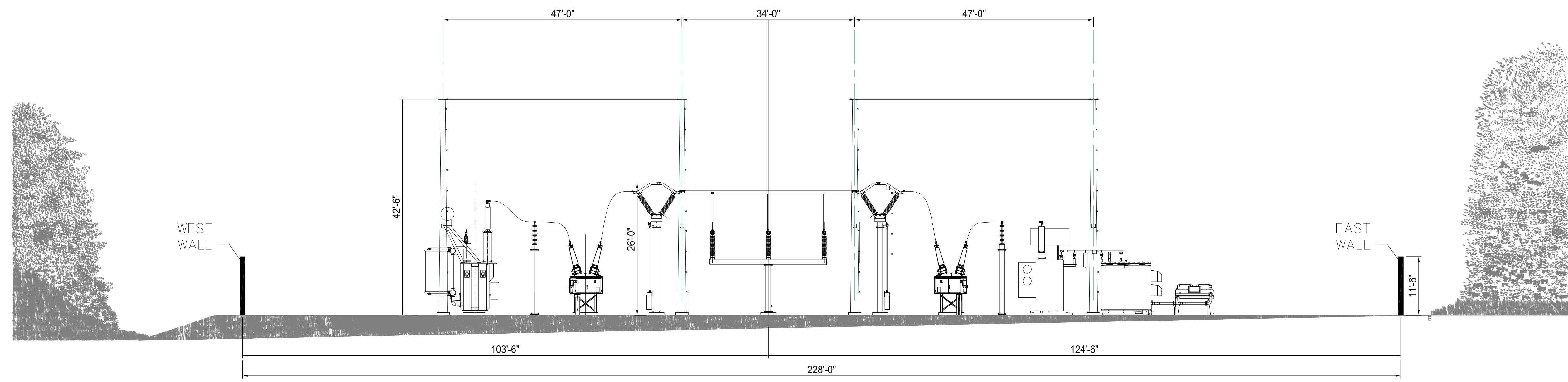
DRAWN: SCOTT MERRILL

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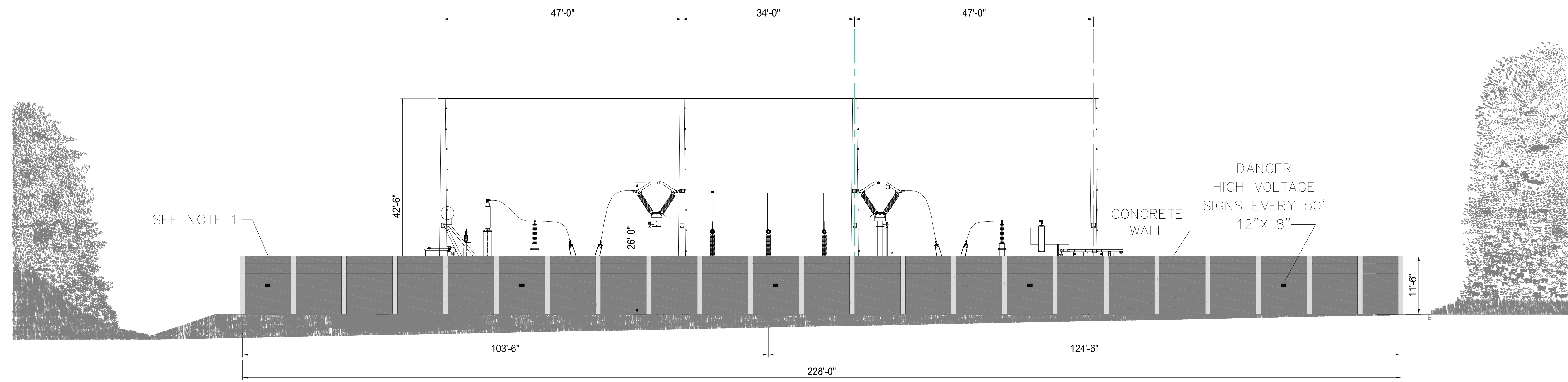
DATE: 17/10/20

SCALE: SHEET 1 OF 1

CLIENT	DEEPWATER WIND SOUTH FORK, LLC
PROJECT	SOUTH FORK WIND FARM
TITLE	ONSHORE SUBSTATION - WEST ELEVATION
DOCUMENT No.	648902-0000-4700-0007
REV	F



SUBSTATION SOUTH VIEW WITH WALL NOT SHOWN



SUBSTATION SOUTH VIEW WITH WALL

NOTE:
1. SOUND MITIGATION WALL WILL BE MADE OF CONCRETE AND STEEL, EXTERNAL WALL: NATURAL FINISH.

**PRELIMINARY
NOT FOR
CONSTRUCTION**

No	REVISION DESCRIPTION	DATE (Y/M/D)	INITIALS	DESIGNED	APPROVED
F	PERMITTING				
F	INCREASED SIZE OF TEXT	18/5/23			
E	ADDED NOTE 1 FOR SOUND MITIGATION WALL	18/4/16			
D	ADDED PERIMETER SECURITY AND SOUND BARRIER WALL WITH 42.5' LIGHTNING MASTS	18/3/9			
C	ADDED 35 MVAR REACTORS	17/11/15			
B	PROVIDED SOUTH VIEW OF SUBSTATION	17/10/20			

SNC-LAVALIN

PROFESSIONAL SEAL

PREPARATION

DESIGNED: MARTIN BRAGDON, PE

DRAWN: SCOTT MERRILL

CHECKED:

DATE: 17/10/20

SCALE: SHEET 1 OF 1

SOUTH FORK WIND FARM

CLIENT: DEEPWATER WIND SOUTH FORK, LLC

PROJECT: SOUTH FORK WIND FARM

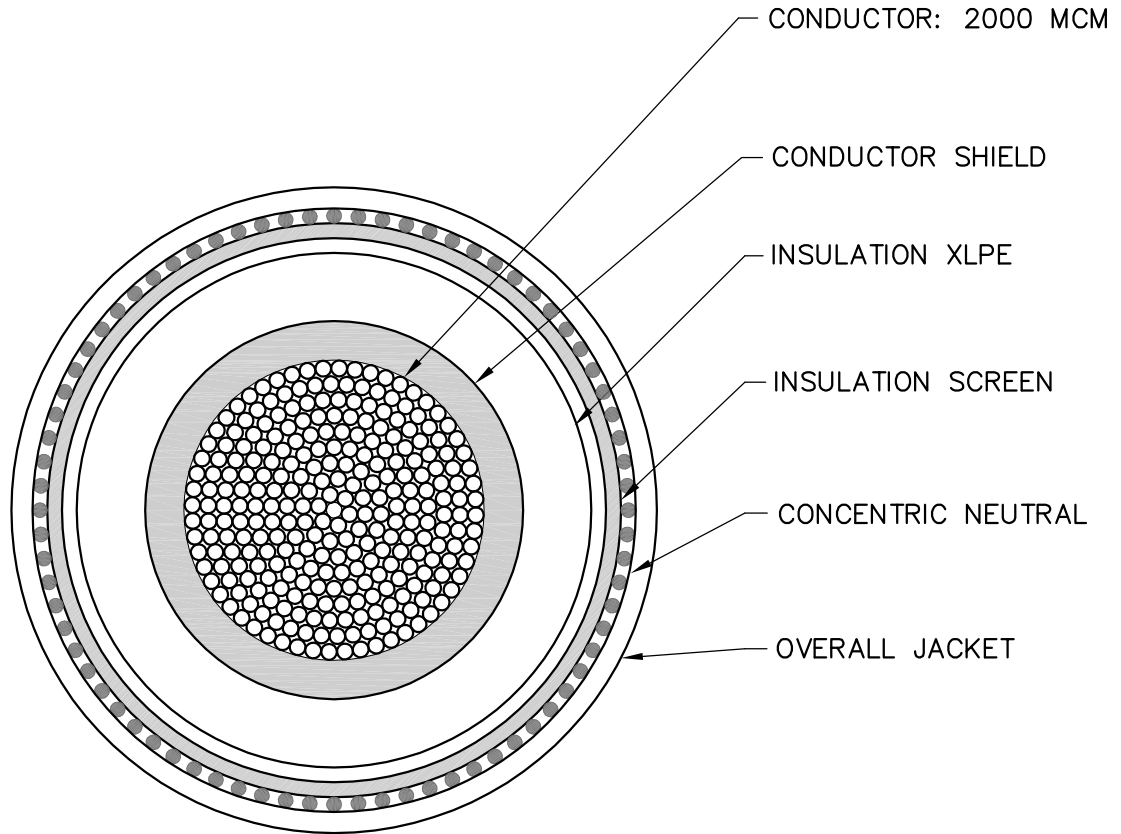
TITLE: ONSHORE SUBSTATION - SOUTH ELEVATION

DOCUMENT No. 648902-0000-47DD-0008



REV: F

Notes:

1. The inner layers dimensions will be provided by the manufacturer.
2. Overall jacket diameter range is 3.27" to 3.71" (83 to 93mm) approximately.



LAST SAVE: 2018/05/11 - 2:58pm
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C	ISSUED FOR C.O.P. SUBMISSION	18/05/11	A.P.	C.L.	DESIGNED A.P.	PROJECT SOUTH FORK WIND FARM (SFWF)				
B	ISSUED FOR CLIENT REVIEW	17/11/24	A.P.		DRAWN T.A.	TITLE CABLE CROSS-SECTION 69 kV XLPE INSULATION (ONSHORE) 2000 MCM				
A	ISSUED FOR CLIENT REVIEW	17/10/18	A.P.		CHECKED R.A.					
No	REVISION DESCRIPTION	DATE(Y/M/D)	*	**	APPROVED	PROJECT No	SUBDIVISION	SUBJECT	SERIAL	REV.
REVISION REGISTER * DESIGNED ** APPROVED					DATE 2017-10-18	648902	0000	47DD	0002	C
 CLIENT 					SCALE NTS					