

# 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

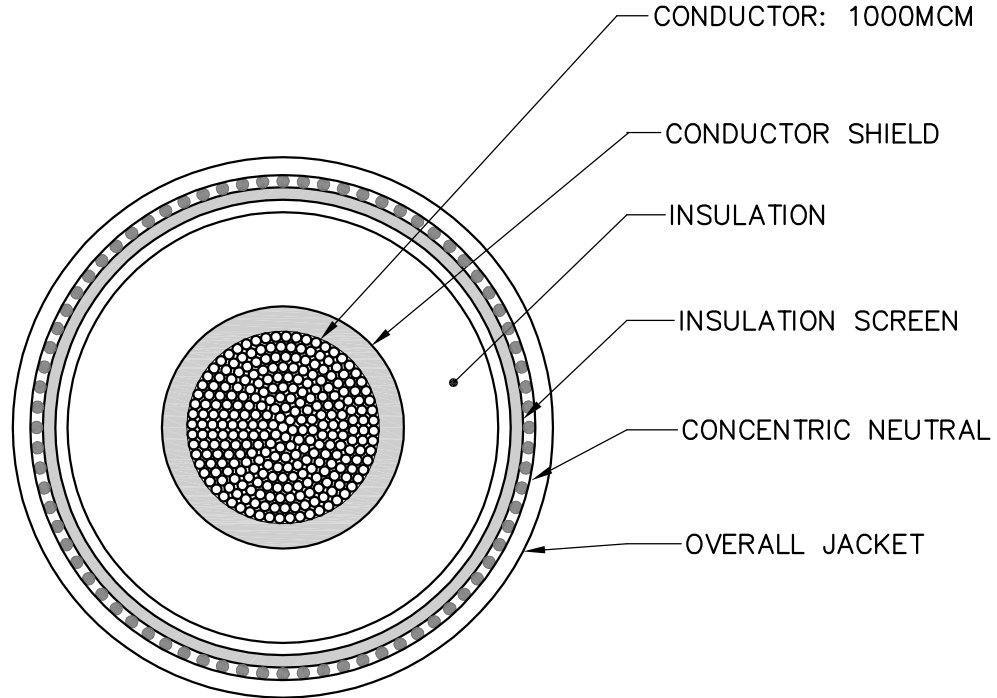
Profile of Substation – South View

69 kV cross-section

LAST SAVE: 2018/05/11 - 2:59pm  
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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.

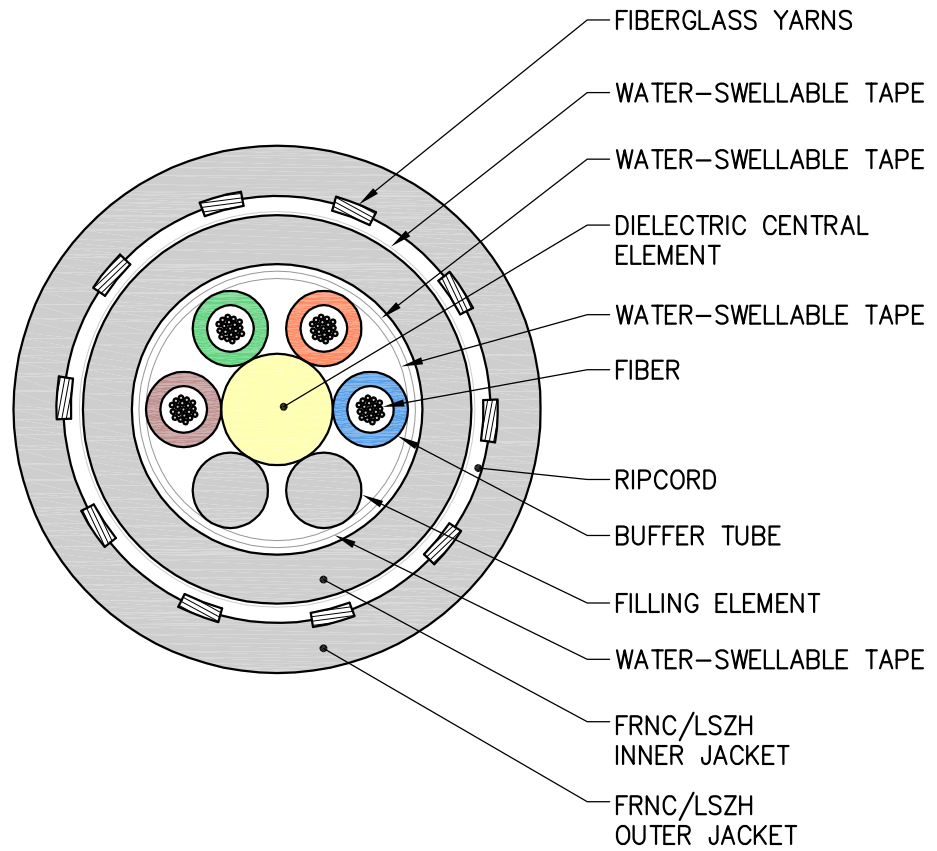


C	ISSUED FOR C.O.P. SUBMISSION	18/05/11	A.P.	C.L.	DESIGNED A.P.	PROJECT SOUTH FORK WIND FARM (SFWF)					
B	ISSUED FOR CLIENT REVIEW	17/11/24	A.P.		DRAWN T.A.	TITLE CABLE CROSS-SECTION 138 kV XLPE INSULATION (ONSHORE) 1000 MCM					
A	ISSUED FOR CLIENT REVIEW	17/10/18	A.P.		CHECKED R.A.						
No	REVISION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

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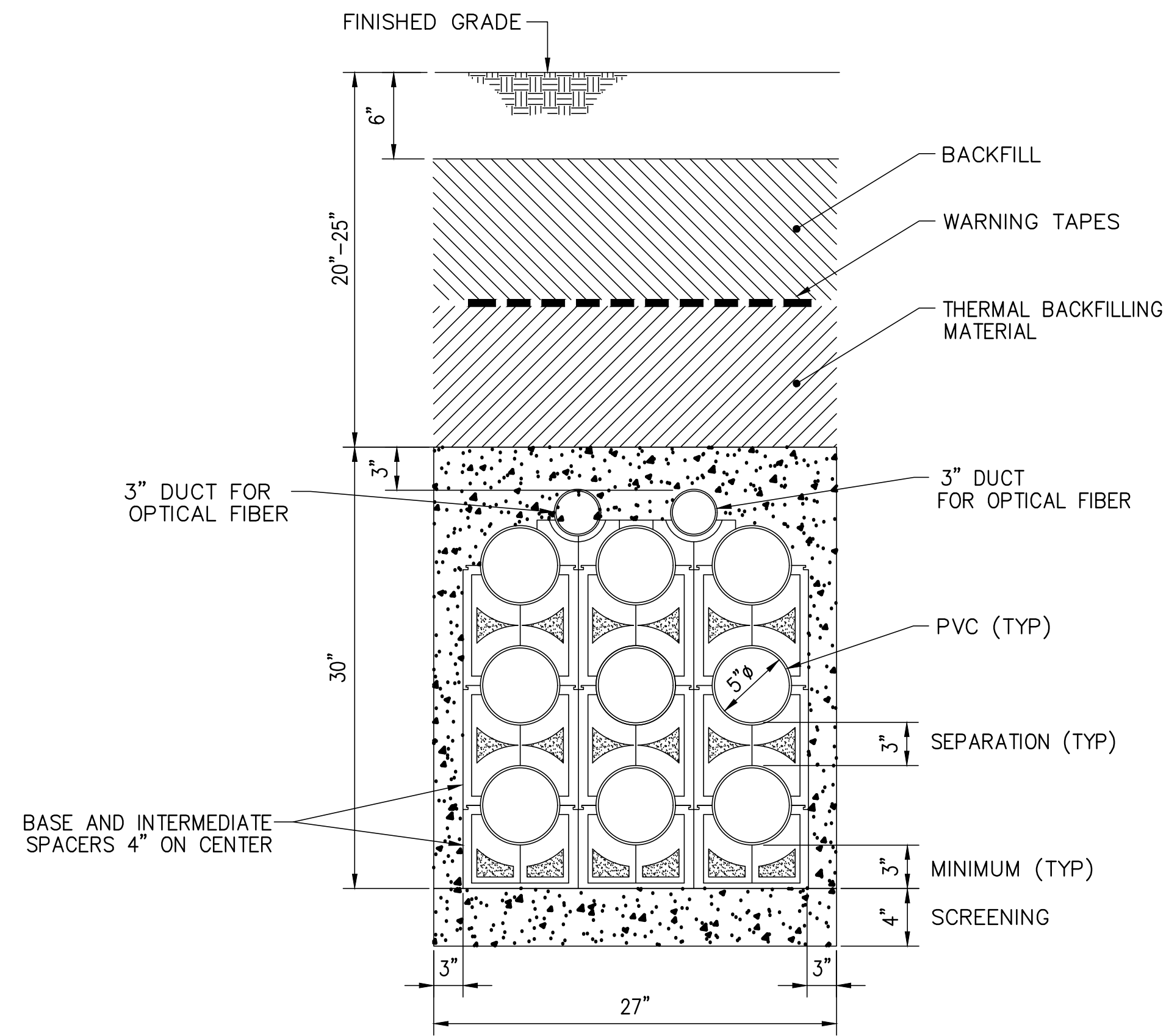
Notes:

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

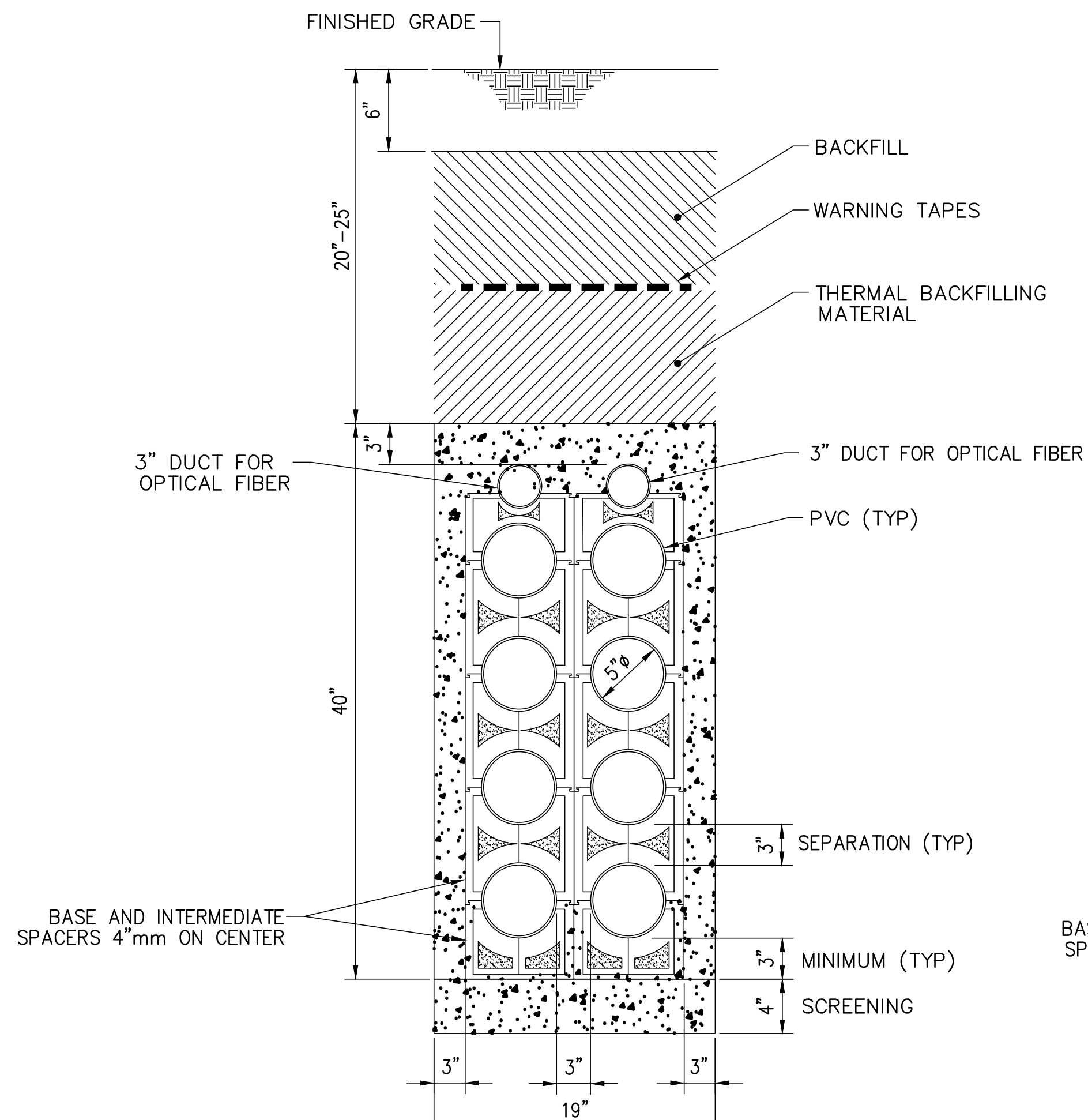


				DESIGNED O.B.	PROJECT SOUTH FORK WIND FARM (SFWF)					
				DRAWN I.M.	TITLE FIBER OPTIC CABLE CROSS-SECTION 69 kV ONSHORE SECTION 48 FIBER, SINGLE MODE (OS2)					
A ISSUED FOR CLIENT REVIEW				18/05/11						O.B.
No	REVISION DESCRIPTION	DATE(Y/M/D)	*	**	APPROVED C.L.					
REVISION REGISTER		* DESIGNED **APPROVED			DATE 2018-05-10					
		CLIENT			SCALE NTS	PROJECT No	SUBDIVISION	SUBJECT	SERIAL	REV.
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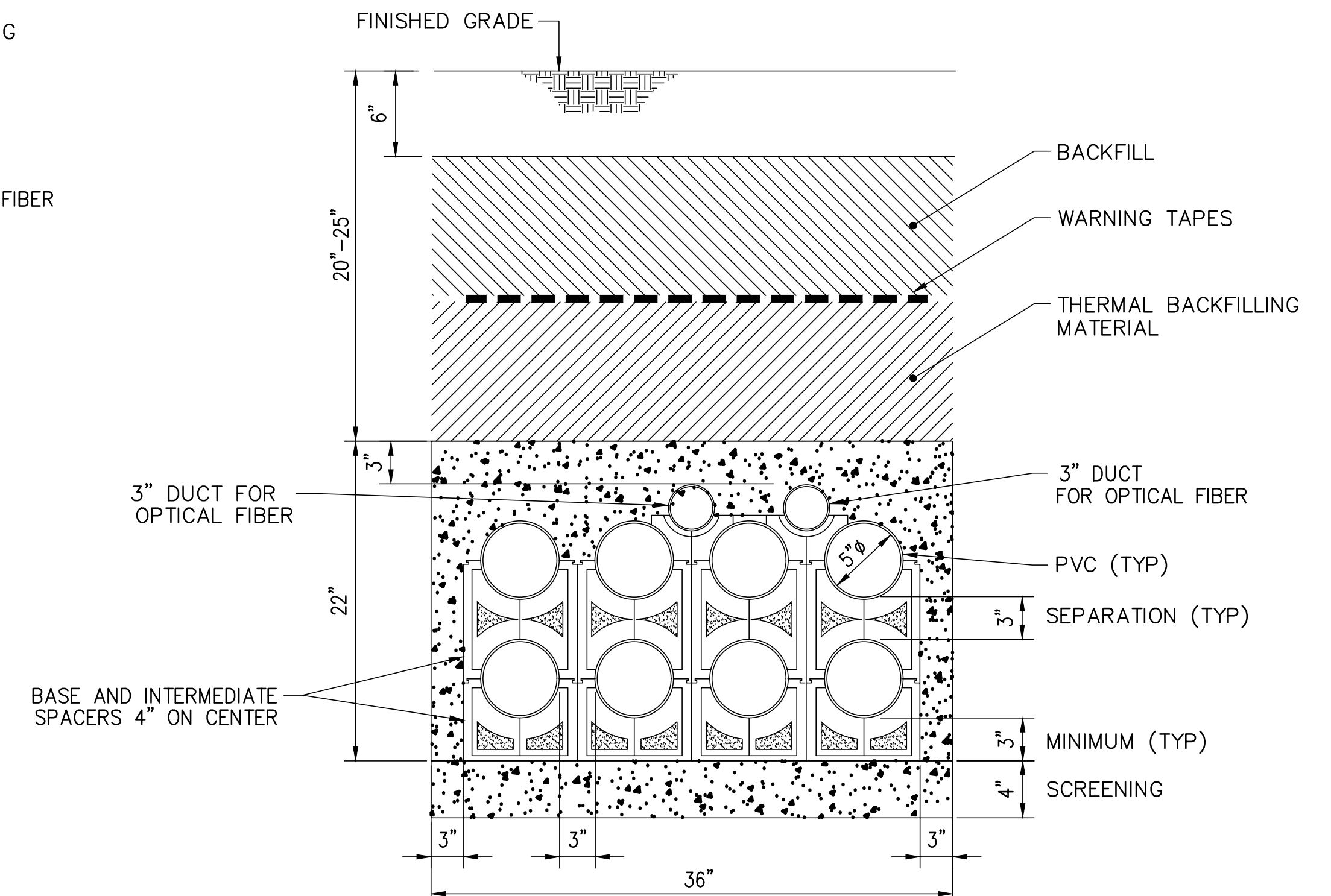
NOTES:  
 1- TYPICAL 3 x 3 AND 1 x 4 DUCT BANK WILL BE USED FOR THE 69kV CABLE SECTION.



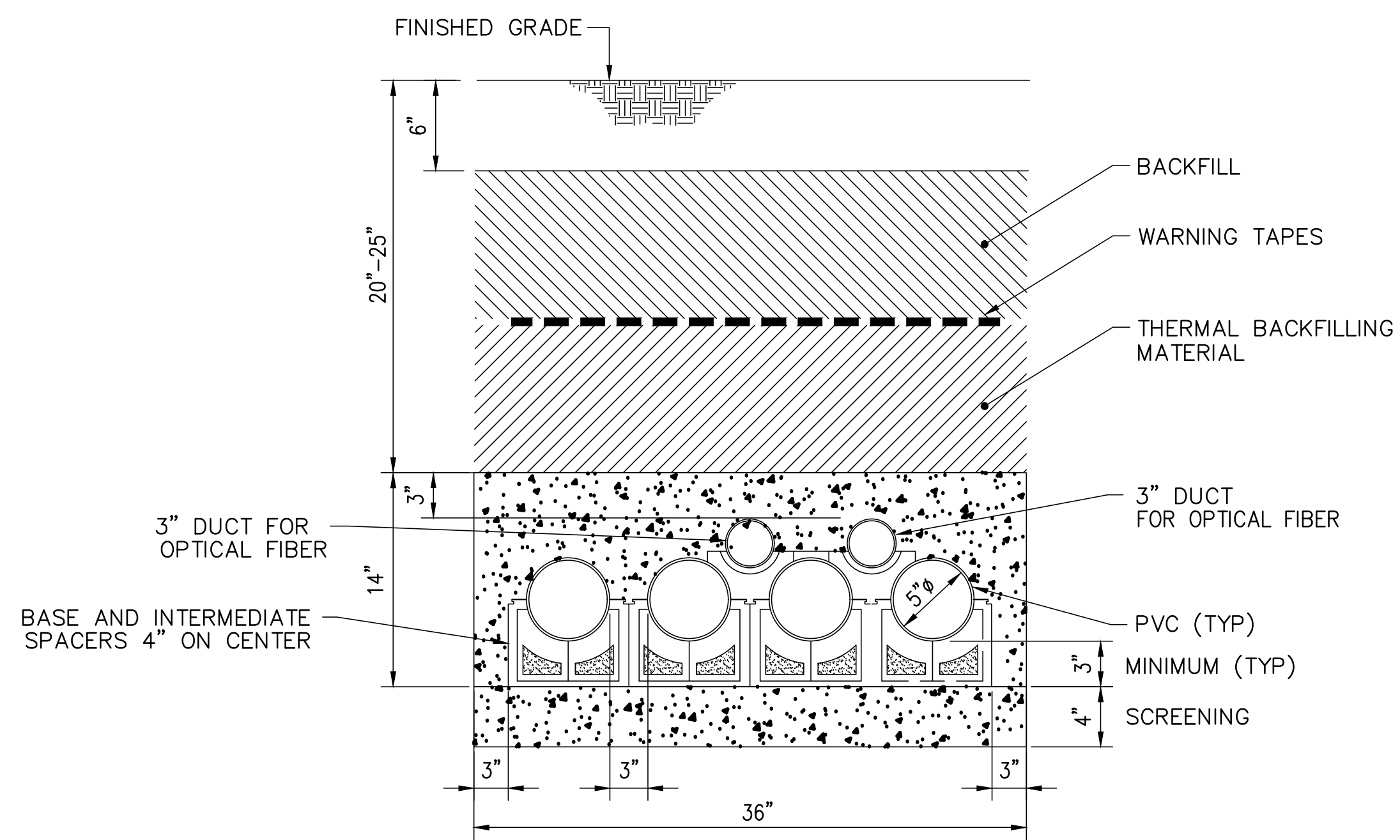
TYPICAL 3 X 3 (27"x30")  
 WITH 5" PVC DUCTS  
 3" COMMUNICATION DUCTS  
 138 AND 69kV



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

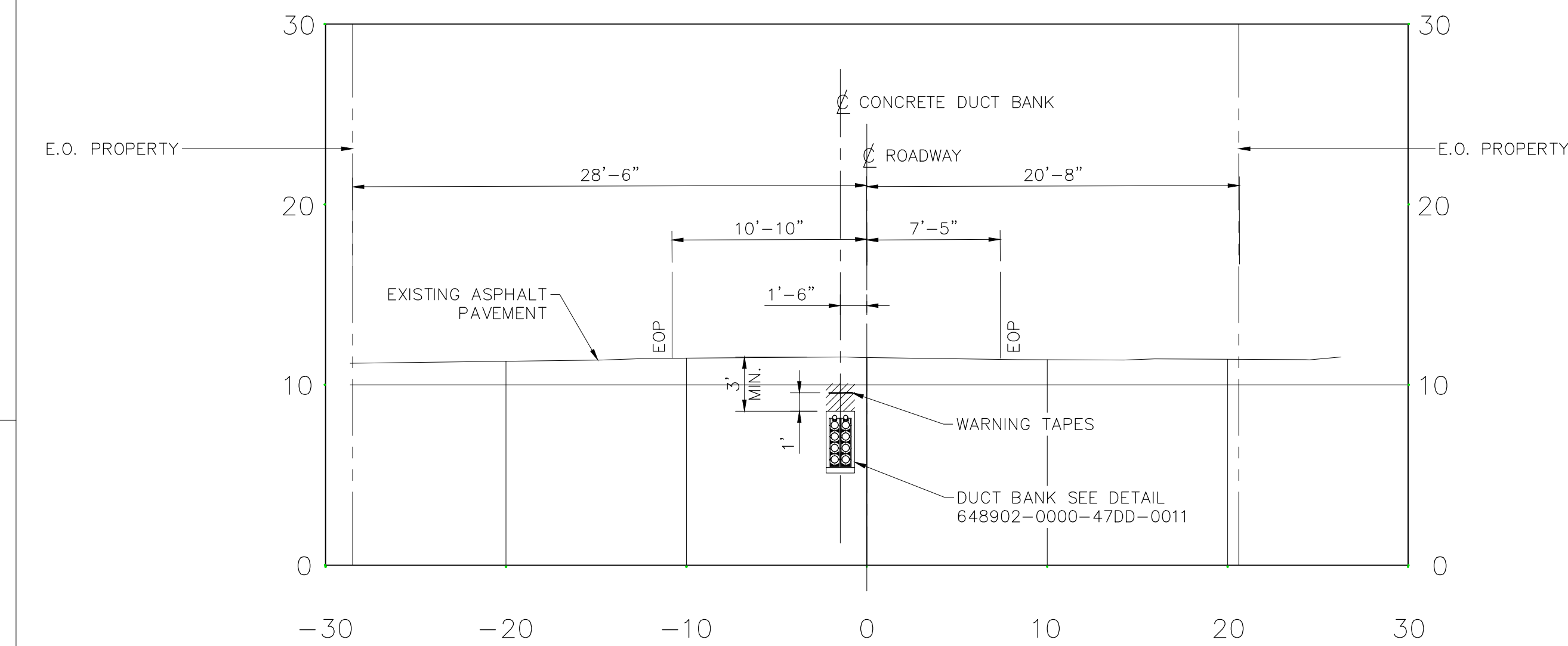
PRELIMINARY  
 NOT FOR CONSTRUCTION



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A	ISSUED FOR CLIENT REVIEW	17/11/14	L.M.	A.P.
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.

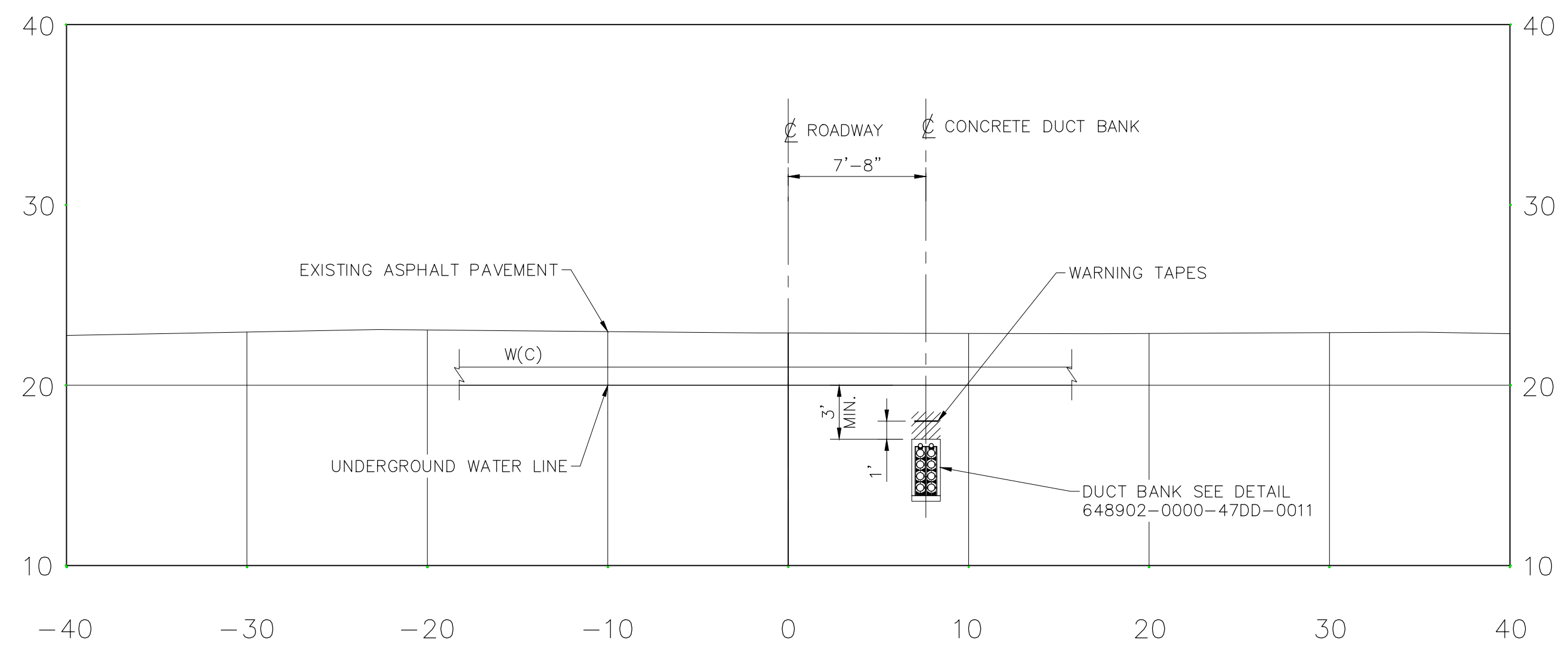
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		DESIGNED
		A.P.
		DRAWN
		L.M.
		CHECKED
	R.A.	
	DATE	2017-11-14
	SCALE	SHEET OF
	NTS	

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



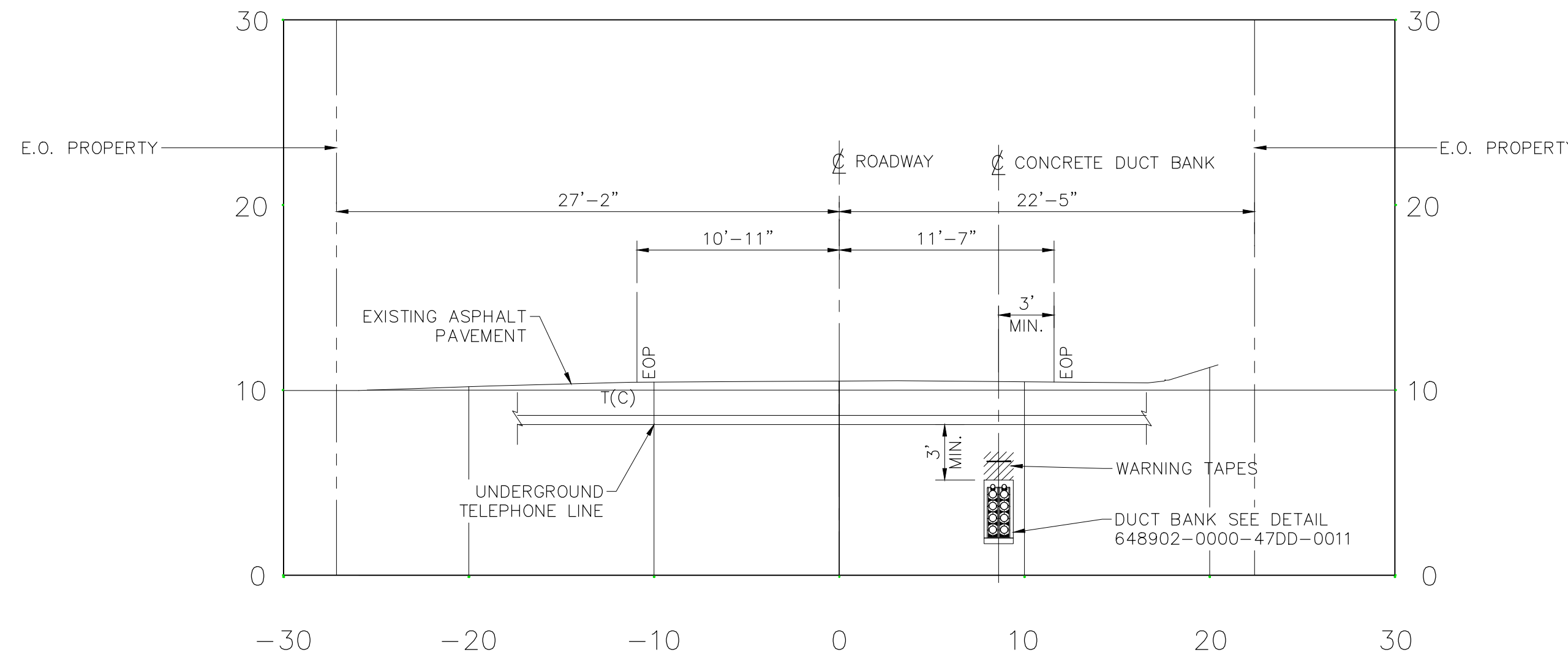
SECTION A  
N.T.S. SHEET #2  
0006

(TYPICAL INSIDE ROADWAY ROW 50')



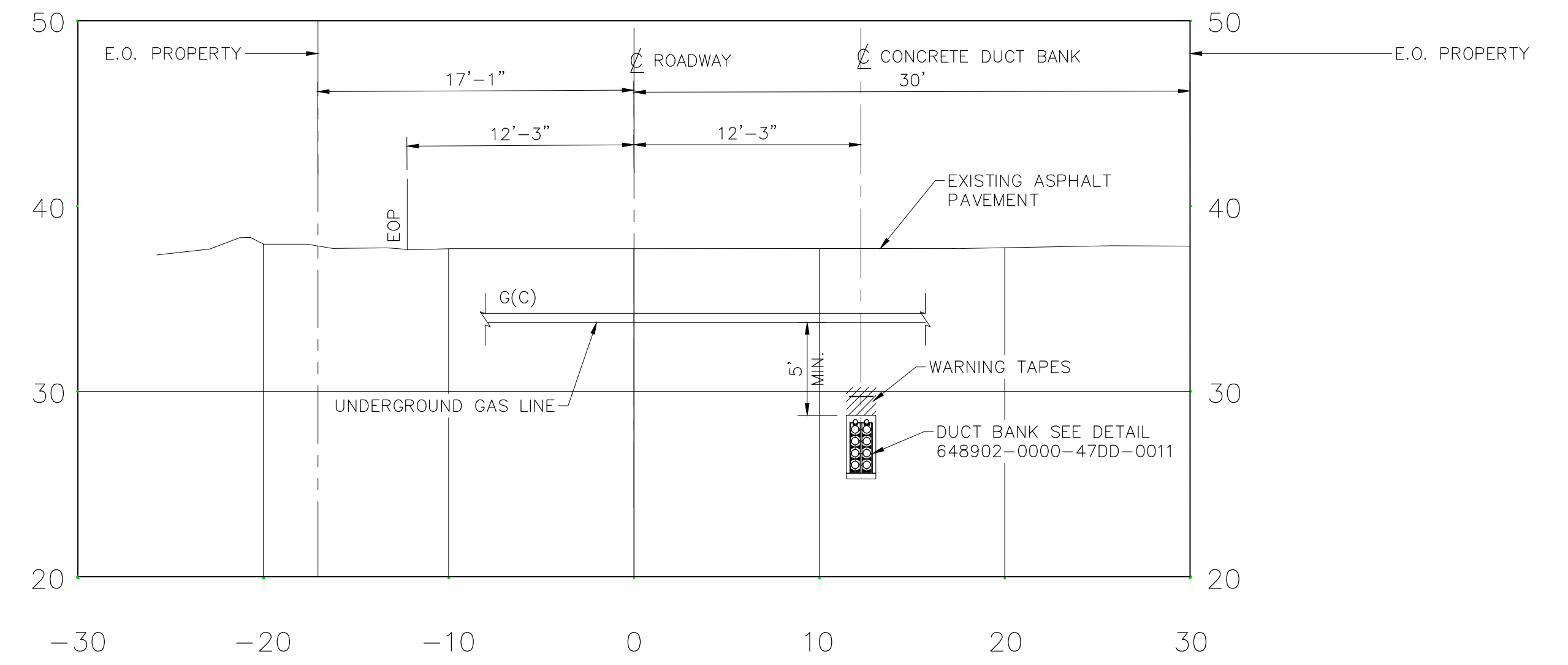
SECTION B  
N.T.S. SHEET #7  
0006

(TYPICAL CONFIGURATION CROSSING WATER LINE)



SECTION B  
N.T.S. SHEET #13  
0006

(TYPICAL CONFIGURATION CROSSING TELEPHONE OR CATV LINE)



SECTION D  
N.T.S. SHEET #15  
0006

(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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NOT FOR CONSTRUCTION

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	
	NTS	
	SHEET	
	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 (SFEC) 138 kV CABLE INSTALLATION CROSS-SECTION

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

SCALE: NTS

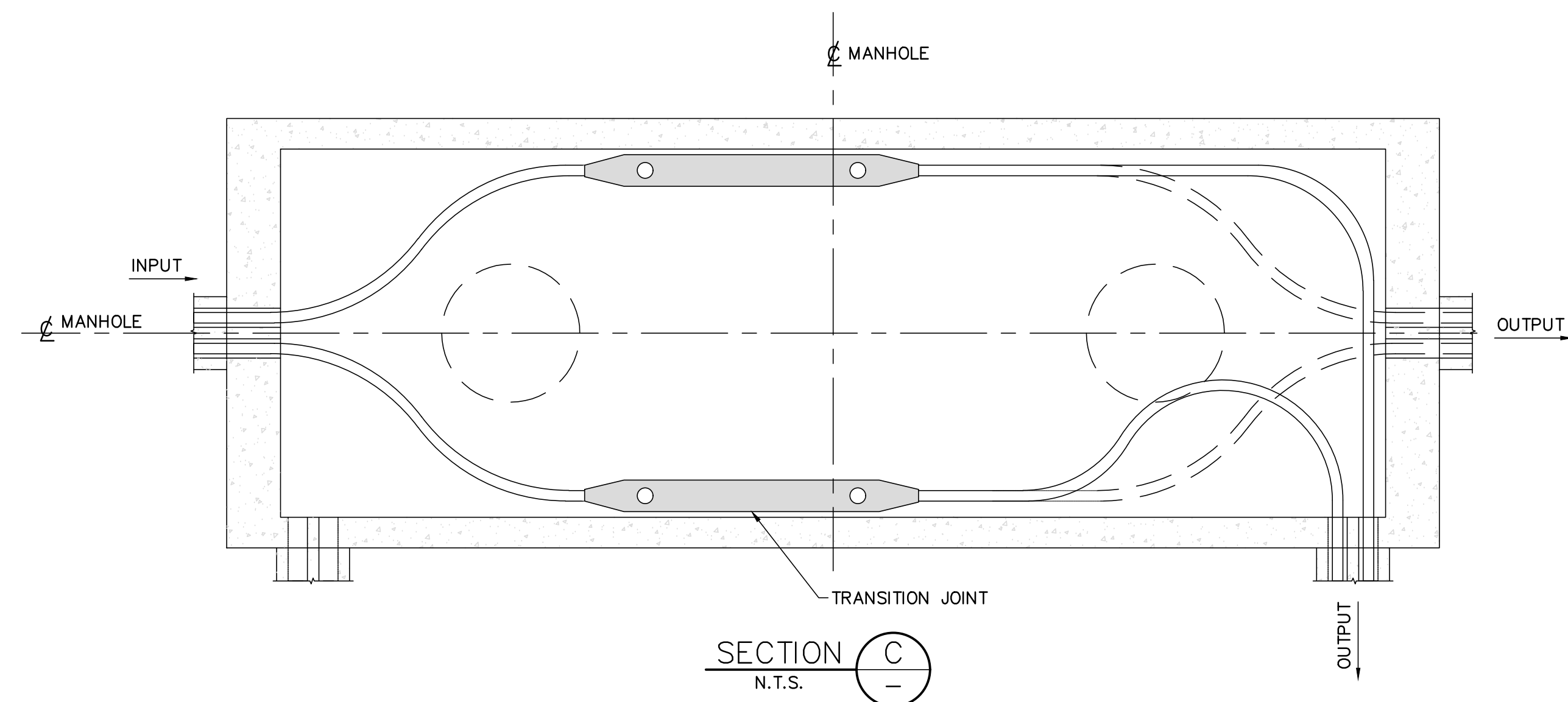
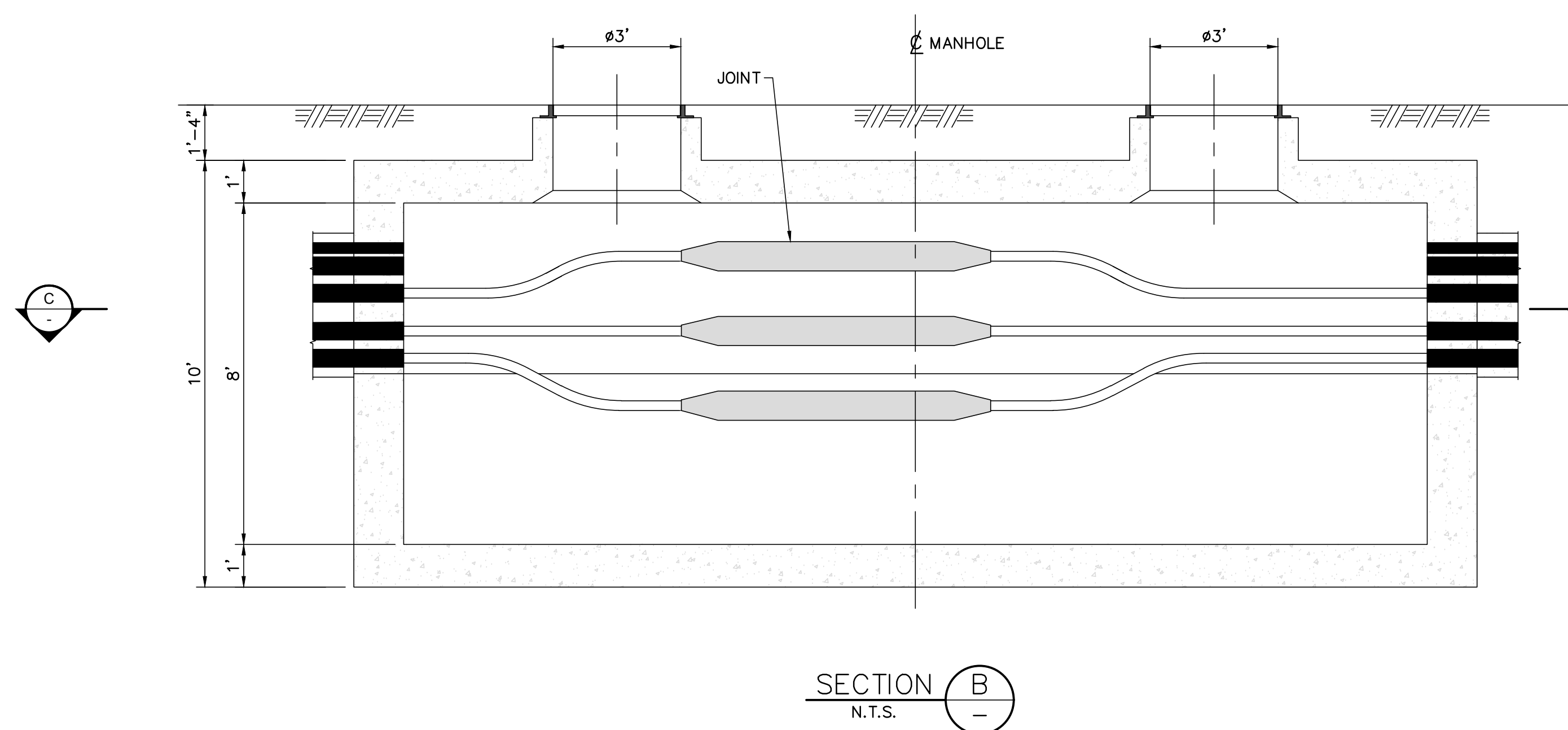
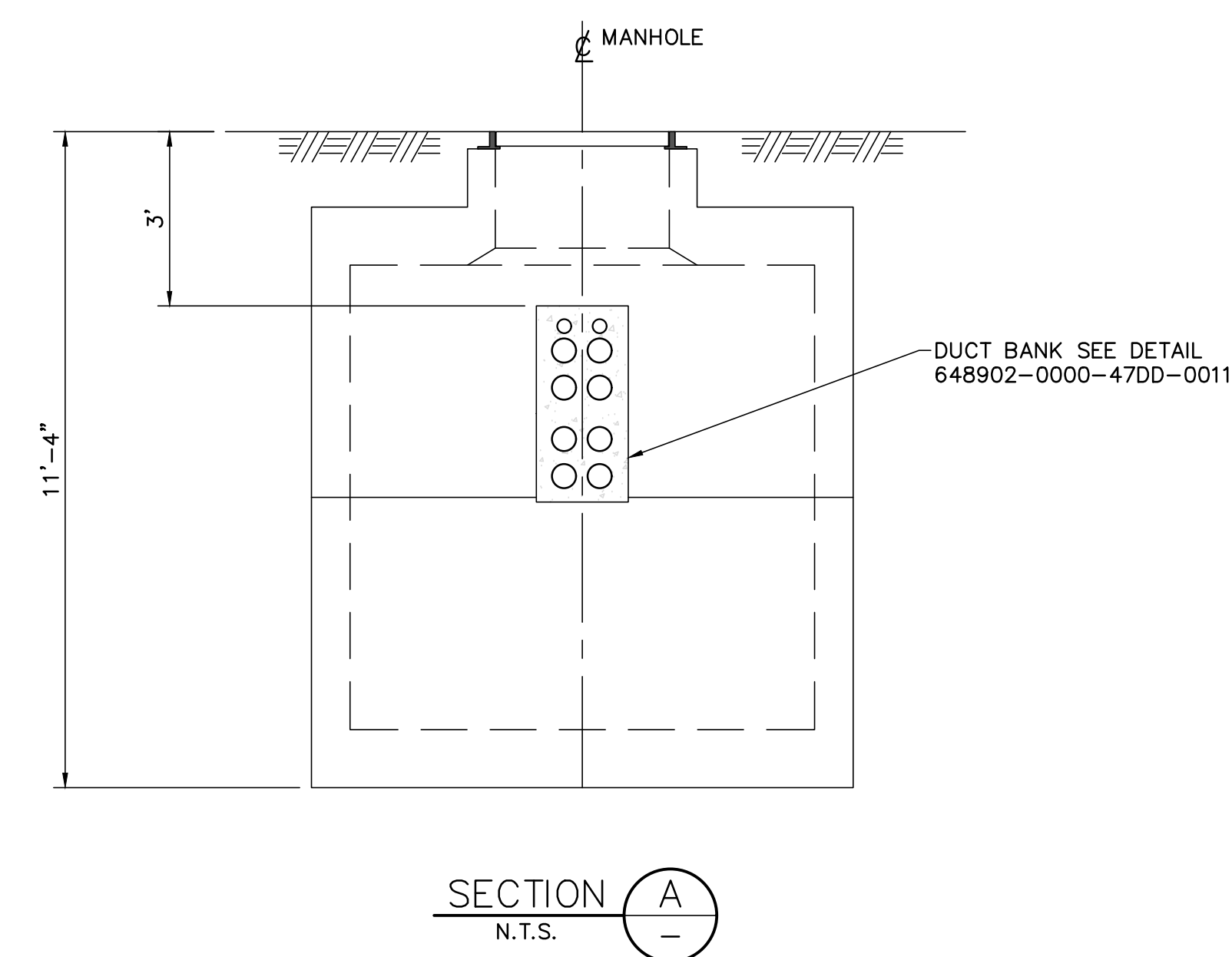
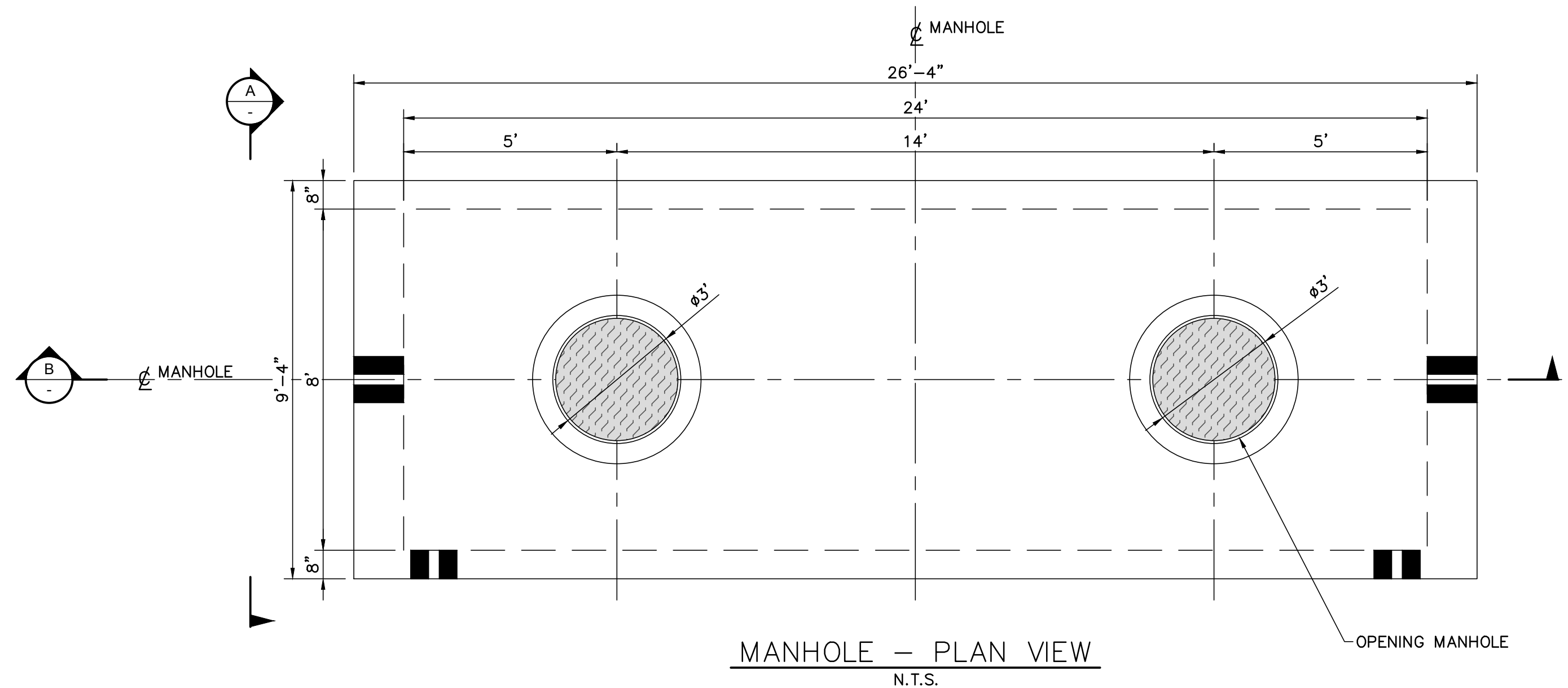
SIZE: D

REV: E









PRELIMINARY  
NOT FOR CONSTRUCTION



No	REVISION DESCRIPTION	DATE (Y/M/D)	DESIGNED	CHECKED
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	CLIENT
	DESIGNED A.P.	DEEPWATER WIND SOUTH FORK, LLC (DWSF)
	DRAWN Y.T.	PROJECT
	CHECKED L.C.	SOUTH FORK WIND FARM (SFWF)
	DATE 2018-02-20	TITLE
SCALE NTS	SHEET 1 OF 1	SOUTH FORK EXPORT CABLE (SFEC) MANHOLE 138 kV UNDERGROUND CABLE
REVISION REGISTER		DOCUMENT No. 648902-0000-47DD-0014
		SIZE D
		REV B

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



**SUBSTATION WEST VIEW WITH WALL NOT SHOWN**

**SUBSTATION WEST VIEW WITH WALL**

**PRELIMINARY  
NOT FOR  
CONSTRUCTION**

**NOTE:**

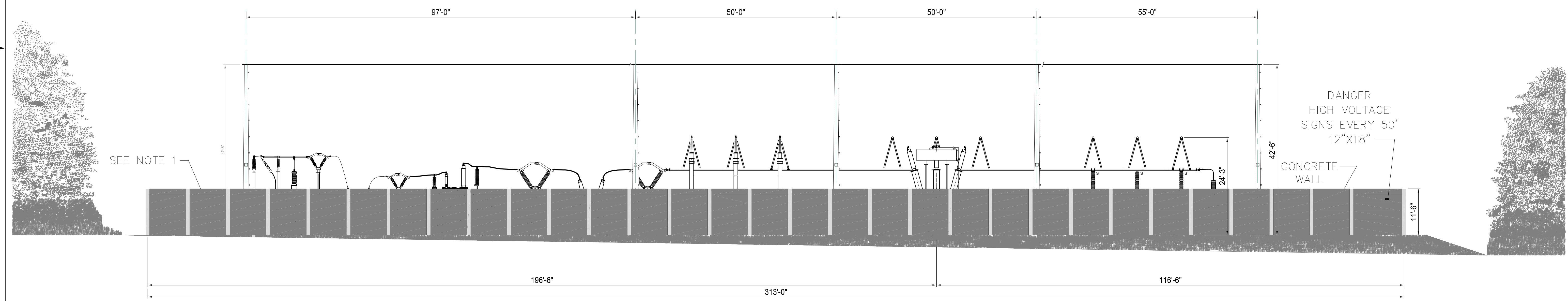
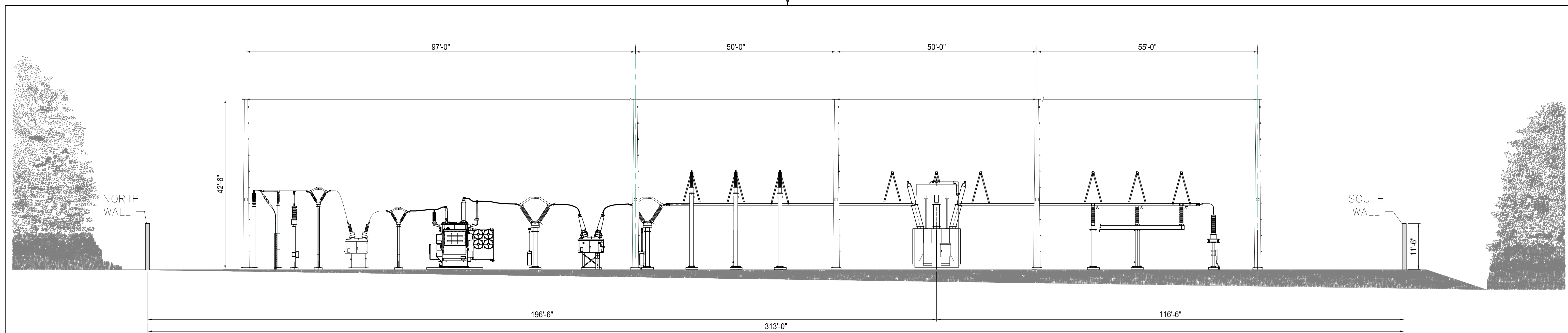
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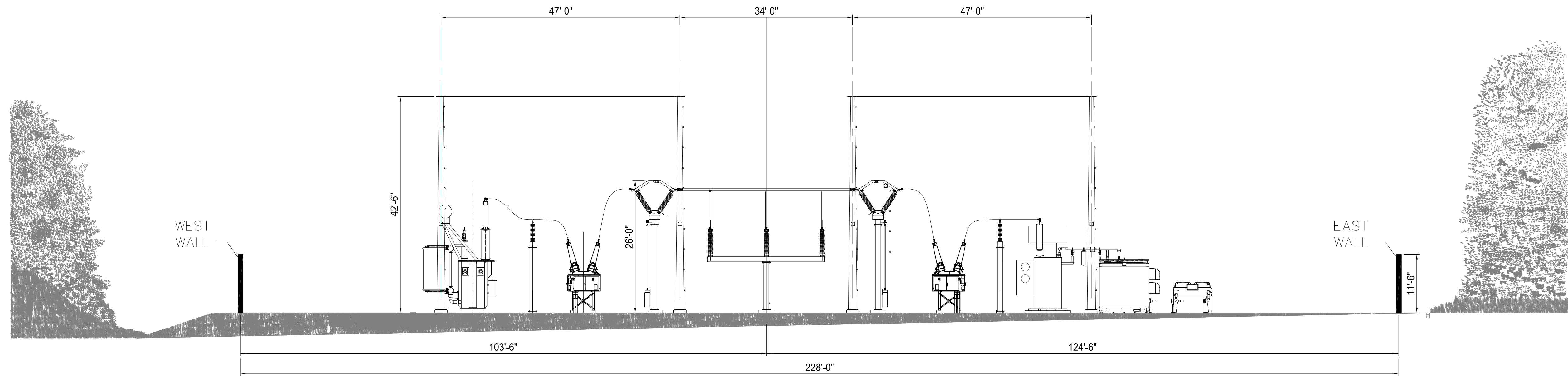
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F	INCREASED SIZE OF TEXT	18/5/23			
E	ADDED NOTE 1 FOR SOUND MITIGATION WALL	18/4/16			
D	ADDED PERIMETER SECURITY AND SOUND BARRIER WALL WITH 42.5' LIGHTNING MASTS	18/3/9			
C	ADDED 35 MVAR REACTORS	17/11/15			
B	PROVIDED WEST VIEW OF SUBSTATION	17/10/20			



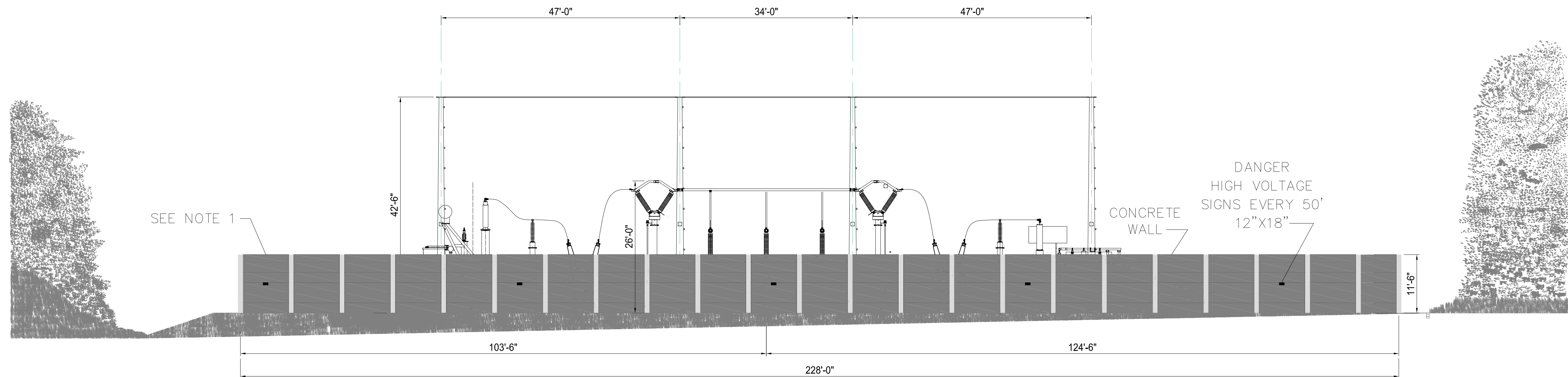
PROFESSIONAL SEAL	PREPARATION
	DESIGNED: MARTIN BRAGDON, PE
	DRAWN: SCOTT MERRILL
	CHECKED:
	DATE: 17/10/20
	SCALE: SHEET
	1 OF 1

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**



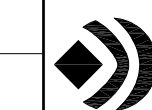
**SUBSTATION SOUTH VIEW WITH WALL**

**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

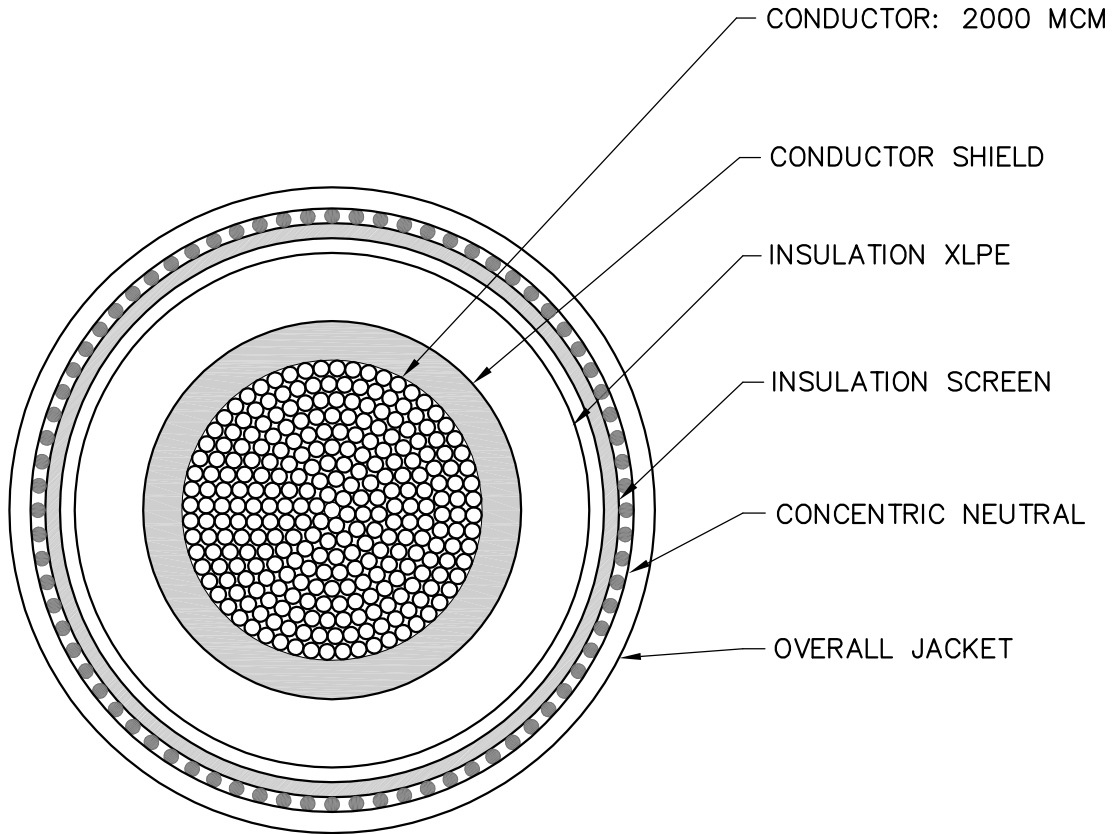
1 OF 1

		CLIENT
DEEPWATER WIND SOUTH FORK, LLC		PROJECT
SOUTH FORK WIND FARM		TITLE
ONSHORE SUBSTATION - SOUTH ELEVATION		DOCUMENT No.
648902-0000-4700-0008		REV
F		

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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.



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.	
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		CLIENT					SCALE NTS				