

GUIDED HORIZONTAL DRILLING SYSTEM (HDD) (CONTINUED)

PVC AND HDPE MATERIAL SPECIFICATION

**TABLE 1
RESIN PROPERTIES
(THE RESIN PROPERTIES SHALL BEET OR EXCEED THE VALUES LISTED BELOW FOR HDPE.)**

SDR 13.5-ASTM D3035/F2160/NEMA TC-7

ASTM TEST	DESCRIPTION	VALUES HDPE
D-1505	DENSITY g/CM ³	.941-.951
D-1238	MELT INDEX, g/10 MIN CONDITION E	.05-.50
D-790	FLEXURAL MODULUS, MPa (PSI)	80,000 MIN
D-638	TENSILE STRENGTH AT YIELD (PSI)	3000 MIN
D-1693	ENVIRONMENTAL STRESS CRACK RESISTANCE CONDITION B,F ₁₀	96 HR.MIN.
D-746	BRITTLINESS TEMPERATURE	-75°C

**TABLE 2
HDPE SPECIFICATION
STANDARD LENGTH AND SIZE - REELS AND COILS FOR HDPE**

NOM. SIZE	NOM. ID	NOM.OD OD	MIN.WALL OD	WEIGHT 100 FT.	PULL TENSILE SAFE LBS.	COLOR	TYPE	WALL	REEL SIZE	REEL LENGTH (FT.) NOTE 5	FULL WT./EA. (LBS.) REEL
3"	2.982	3.500	0.259	113.120	2945	BLACK	S/S	SDR 13.5	96X45X68	1000	1364
									102X54X64	1500	1945
									114X45X85	1500	2100
5"	4.738	5.562	0.412	285.394	7444	BLACK	S/S	SDR 13.5	114X45X85	480	1842
									120X45X78	550/750	2067/2637
6"	5.643	6.625	0.491	405.869	10566	BLACK	S/S	SDR 13.5	120X45X85	450/500	2296/2525

**TABLE 3
SCHEDULE 40 PVC SPECIFICATION**

NOM. SIZE	NOM. ID	NOM.OD OD	MIN.WALL WALL	WEIGHT 100 FT.	PULL TENSILE SAFE LBS.
3"	3.068	3.500	0.216	95.591	2488
5"	5.046	5.562	0.258	184.410	4801
6"	6.065	6.625	0.280	239.415	6233

NOTES:

- 1) HDPE DUCT IS SMOOTH WALL TYPE. SMOOTH INTERIOR AND SMOOTH EXTERIOR.
- 2) ALL REELS AND NON-RETURNABLE STEEL REELS
- 3) ASTM F 2160 - SOLID WALL HIGH DENSITY POLYETHYLENE (HDPE) CONDUIT BASED ON CONTROLLED OUTSIDE DIAMETER (OD).
ASTM D 2239 - POLYETHYLENE (PE) PLASTIC PIPE (SIDR) BASED ON CONTROLLED INSIDE DIAMETER.
ASTM D 3035 - POLYETHYLENE (PE) PLASTIC PIPE (SDR) BASED ON CONTROLLED OUTSIDE DIAMETER.
NEMA TC-7 - SMOOTH WALL COILABLE POLYETHYLENE ELECTRICAL PLASTIC CONDUIT.
- 4) S/S - SMOOTH INSIDE SURFACE AND SMOOTH OUTSIDE SURFACE.
- 5) LENGTHS ARE ±10%.

PULL TENSILE SAFE-BASED ON PLASTIC PIPE INSTITUTE TENSILE CALCULATIONS AND MAXI MAXIMUM TENSILE STRESS RECOMMENDATION OF 1/3 YIELD TENSILE FOR PULLS OF 30 TO 60 MINUTES APPLICATIONS AND PULLING.

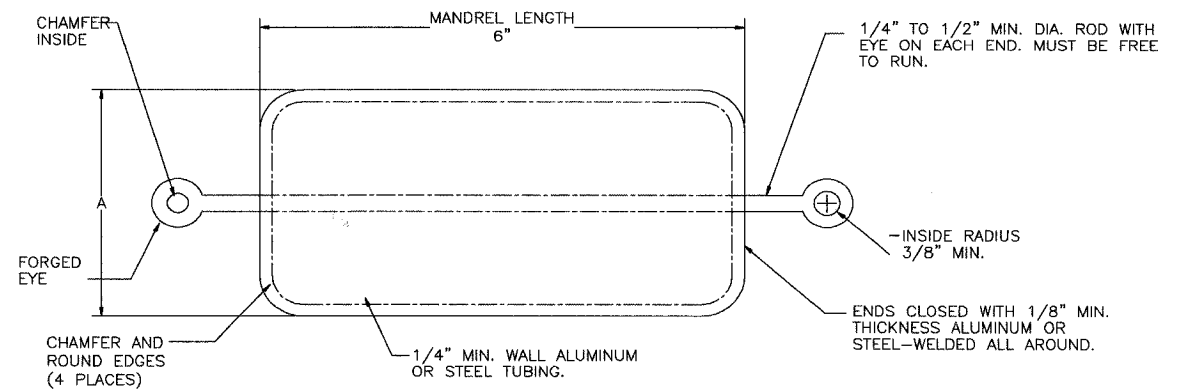
NAPERVILLE PUBLIC UTILITIES DEPARTMENT ELECTRIC STANDARDS	SPECIFICATION FOR THE INSTALLATION OF HDPE CONDUIT BY THE HORIZONTAL DRILLING SYSTEM (HDD)	DATE: 02-19-08 PAGE: 23 OF 25 C30-1950
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F.A. RTE. 2552	SECTION 00-0014-00-PV	COUNTY DUPAGE	TOTAL SHEETS 563	SHEET NO. 305
STA. _____		TO STA. _____		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

CONTRACT 63024

GUIDED HORIZONTAL DRILLING SYSTEM (HDD) (CONTINUED)

MANDREL
CONTRACTOR TO PROVIDE THE FOLLOWING MANDREL.
CONTRACTOR TO FABRICATE OR PURCHASE MANDREL PER THIS DRAWING



CONDUIT MANDREL DATA

NOM. CONDUIT SIZE	DIMENSION "A" (MANDREL LENGTH)		WEIGHT (LBS)
	TYPE I	TYPE II	
3"	2-3/4"	2.375"	2
5"	4-3/4"	4.400"	3
6"	5-3/4"	5.263"	4

- 1) TYPE I MANDRELS ARE USED IN SCHEDULE 40 PLASTIC CONDUITS.
- 2) TYPE II MANDRELS ARE ONLY TO BE USED IN SCHEDULE 80 AND HDPE PLASTIC CONDUITS.
- 3) CONTRACTOR TO FURNISH 3", 5" OR 6" MANDRELS IN THE QUANTITY REQUIRED TO COMPLETE THE PROJECT.

AVAILABLE FROM:
INWESCO, INC.
746 N. CONEY AV.
AZUSA, CA 91702
PHONE: (626) 334-9304
FAX: (626) 969-3404
CONTACT: DON SWEETAPPLE

NAPERVILLE PUBLIC UTILITIES DEPARTMENT ELECTRIC STANDARDS	SPECIFICATION FOR THE INSTALLATION OF HDPE CONDUIT BY THE HORIZONTAL DRILLING SYSTEM (HDD)	DATE: 02-19-08 PAGE: 24 OF 25 C30-1950
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WF# INFORMATION		CITY OF NAPERVILLE/DEPARTMENT OF PUBLIC UTILITIES - ELECTRIC			
WF# 59481 WASHINGTON ST. 75TH TO OLYMPUS DR. EAST SIDE	JOB 1 EU-73	CALL J.U.L.I.E. 48 HRS. PRIOR TO CONSTRUCTION			
WF# 59482 75TH WASHINGTON ST. TO OLYMPUS DR. NORTH SIDE	JOB 2 EU-73	PROJECT TITLE 75TH ST. AND WASHINGTON ST. ROAD IMPROVEMENTS	MAP NO.:	CAD FILE: 0056270001D64.DWG	
WF# 59484 75TH WASHINGTON ST. TO CLYDE DR. SOUTH SIDE	JOB 3 EU-73	PROJECT DESCRIPTION TRENCH SECTION DETAILS	DRWN BY: JK, PM	PROJECT NO.:	EU12-08-03 EU73
WF# 59485 WASHINGTON ST. 75TH TO BAILEY RD. EAST SIDE	JOB 4 EU-73	DATE 4-01-08	ISSUED	WORK REQUEST NO. 56270	CHRD:
		ENGINEER RPS	APPR:	SCALE: NTS	COMPLETED BY:
		REVISION			SHEET 64 OF 73