

**CONDUIT ENTRANCE INTO MANHOLE/HANDHOLE**  
APPLICABLE TO SWITCHGEAR AND TRANSFORMER VAULTS

**GENERAL**  
CONDUIT ENTRANCES INTO MANHOLES/HANDHOLES SHALL NORMALLY BE MADE WITH PLASTIC ENTRANCE BELLS PER FIGURE 1 OR 2. THE ENTRANCE CONDUIT SHALL BE PLASTIC OR STEEL ENCASED IN CONCRETE AS PER FIGURE 1 AND 2 BELOW, SPECIFIED BY THE ENGINEER ON THE CONSTRUCTION DRAWINGS.

**POCKETS**  
DUCT POCKETS SHALL BE PROVIDED IN WALLS WHERE SPECIFIED ON CONSTRUCTION DRAWINGS. POCKET NOT REQUIRED ON NEWER STYLE MANHOLE DESIGNS (FIGURE 2). TYPICAL POCKET DIMENSIONS ARE INDICATED BELOW ON FIGURE 1.

**CONDUIT SPACING**  
CONDUIT SHALL NORMALLY BE SUPPORTED BY VERTICAL AND HORIZONTALLY INTERLOCKED PLASTIC SPACERS TO PROVIDE ALIGNMENT WITH PLASTIC ENTRANCE BELL UNITS AT 8 1/4 IN. SPACING.

**ENTRANCE BELL UNITS**

PLASTIC 6 INCH ENTRANCE BELLS, DPU-E# 285-103-00100 SHALL BE USED ON CONDUIT ENTRANCES TO MANHOLES.

**ENTRANCE PIPES**

GALVANIZED STEEL CONDUIT, M30-1550, SHALL BE USED FOR ALL BENDS. PIPES INTENDED FOR CABLES ON INITIAL INSTALLATION SHALL BE CAPPED WITH PLUGS (DPU-E# 285-103-00090) TO PREVENT CONTAMINATION FROM ENTERING THE PIPES.

**INSTALLATION METHODS**

EVERY EFFORT SHALL BE MADE TO INSURE A WATERIGHT INSTALLATION OF ENTRANCE PIPES. WHERE PIPES ARE INSTALLED THROUGH AN OPENING LEFT IN A MANHOLE, OR BROKEN OUT OF AN EXISTING MANHOLE WALL, SURFACES SHALL BE CLEANED, WETTED AND COVERED WITH A COATING OF 3 TO 1 SAND AND CEMENT MORTAR. IF BRICKWORK IS EXISTING ON THE INNER FACE OF WALL, IT SHALL ALSO BE COATED WITH A SAND AND CEMENT MORTAR. AN ALTERNATE PROCEDURE IS TO DRILL HOLES IN THE WALL AND GROUT THE PIPES IN PLACE WITH A SAND AND CEMENT MORTAR. THE INSIDE SURFACE OF THE HOLES SHALL BE ROUGHENED TO OBTAIN A STRONG AND WATERIGHT BOND.

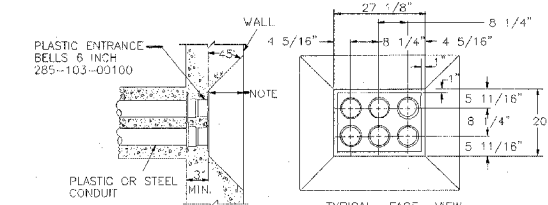


FIG. 1 MANHOLE ENTRANCE WITH PLASTIC TERMINATORS (OLDER STYLE) FOR PLASTIC OR STEEL CONDUIT (POCKET TYPE)

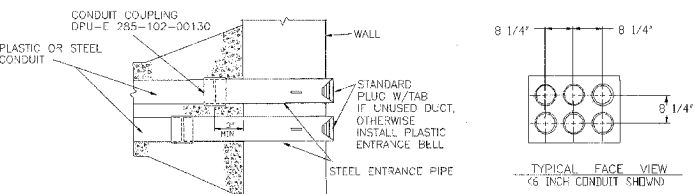
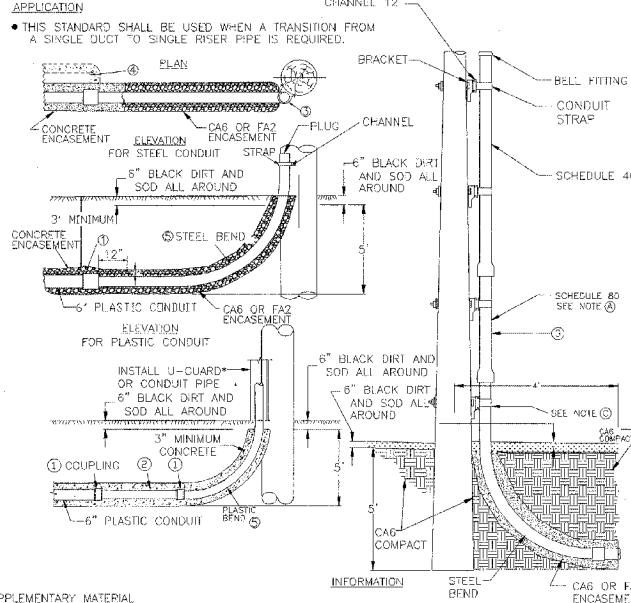


FIG. 2 ENTRANCE IN MANHOLE/HANDHOLE (NEWER STYLE)

NAPERVILLE PUBLIC UTILITIES DEPARTMENT ELECTRIC STANDARDS	DUCTBANK CONSTRUCTION SPECIFICATION	DATE: 08-22-06 PAGE 8 OF 11 C30-1900
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**CONDUIT TO RISER AT POLE**

DUCTBANK CONDUIT TO RISER AT POLE FOR PLASTIC OR STEEL CONDUIT



**SUPPLEMENTARY MATERIAL**

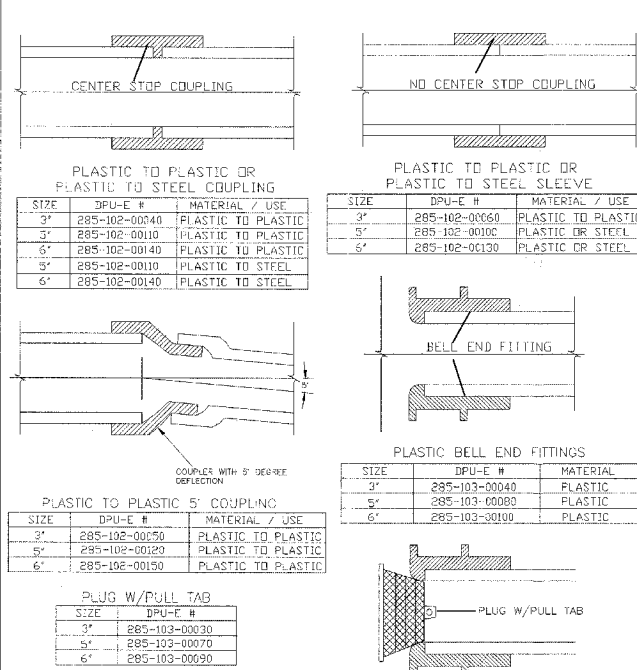
- IF BELLED END OF PLASTIC CONDUIT CAN BE CONNECTED TO STEEL BEND OMIT COUPLING.
- CUT OUT SO THAT A GOOD CONNECTING FIT CAN BE MADE BETWEEN THE CONDUITS AND BENDS.
- LOCATE THE BEND ON A QUADRANT OF THE POLE WHERE IT IS THE LEAST SUSCEPTIBLE TO DAMAGE BY VEHICLES.
- IF SPARE DUCT IS INSTALLED, PLUG AT BOTH ENDS AND ENCASE IN CONCRETE WHEN NECESSARY (SPARE DUCT REQUIRED).
- SCHEDULE 80 PVC DOES NOT REQUIRE CONCRETE ENCASEMENT.
- CONDUIT TO A U-GUARD RISER FOLLOWS C20-5222, FOR USE AS MAINTENANCE ONLY.
- ALL MATERIALS SUPPLIED BY THE CITY.

**NOTES:**

- FIRST SECTION ABOVE ELBOW MUST BE SCHEDULE 80.
- FOR LARGER POLES (>50"), ADDITIONAL CONDUIT AND HARDWARE MAY BE REQUIRED.
- STEEL BEND AND POLE BRACKET EXISTING FROM PREVIOUS DUCT BANK INSTALLATION.

NAPERVILLE PUBLIC UTILITIES DEPARTMENT ELECTRIC STANDARDS	DUCTBANK CONSTRUCTION SPECIFICATION	DATE: 08-22-06 PAGE 9 OF 11 C30-1900
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**PLASTIC CONDUIT COUPLINGS FOR CONCRETE ENCASED PLASTIC CONDUIT**

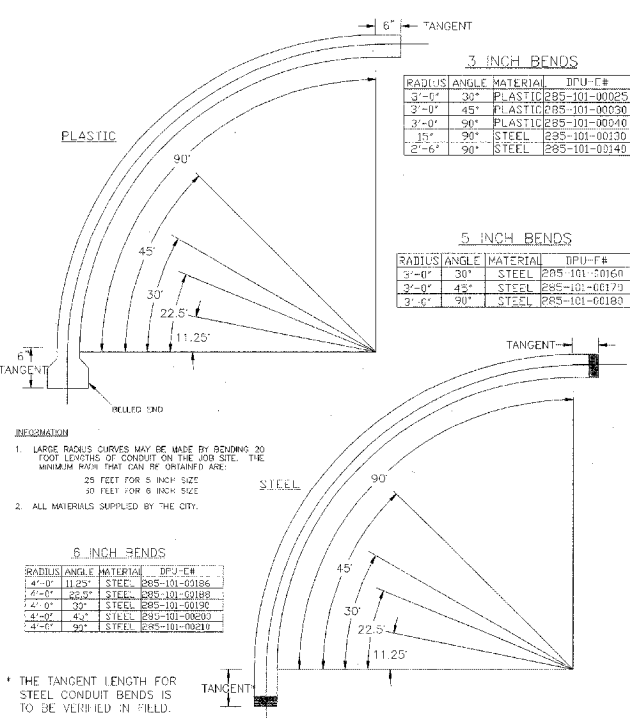


**APPLICATION**  
THIS STANDARD SHALL BE USED FOR THE INSTALLATION OF CONDUIT COUPLINGS ON CONCRETE ENCASED PLASTIC CONDUIT DUCTBANK.  
THE 6" EXPANDING PLUG W/EYE NUT DPU-E# 285-103-00150

NAPERVILLE PUBLIC UTILITIES DEPARTMENT ELECTRIC STANDARDS	DUCTBANK CONSTRUCTION SPECIFICATION	DATE: 08-22-06 PAGE 10 OF 11 C30-1900
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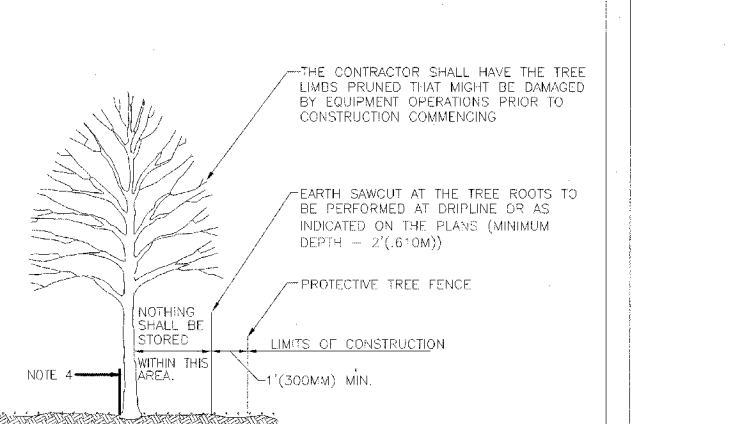
**PLASTIC & STEEL CONDUIT BENDS FOR VARIOUS CONDUIT**

BENDS UP TO 90 DEGREE ANGLES



NAPERVILLE PUBLIC UTILITIES DEPARTMENT ELECTRIC STANDARDS	DUCTBANK CONSTRUCTION SPECIFICATION	DATE: 08-22-06 PAGE 11 OF 11 C30-1900
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**TREE PROTECTION DETAIL**

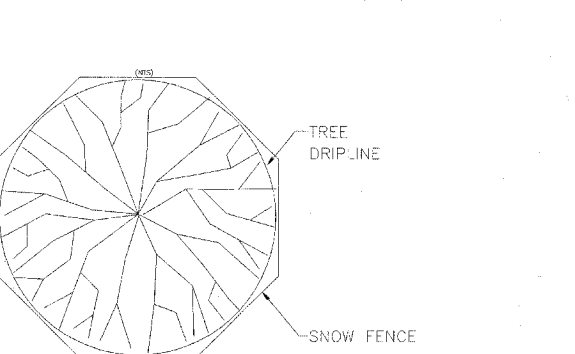


**NOTE:**

- IF A UTILITY MUST BE WITHIN 15 FEET OF A TREE TRUNK, IT IS RECOMMENDED THAT IT BE AUGERED.
- ALL TREES PROTECTED SHALL BE DEEP ROOT FERTILIZED.
- ALL TREES SHALL BE WATERED.
- PROTECT TREES WITH PLANKS FOR 10' ABOVE GROUND AND COMPLETELY AROUND TREE.
- ALL MATERIALS SUPPLIED BY CONTRACTOR.

NAPERVILLE PUBLIC UTILITIES DEPARTMENT ELECTRIC STANDARDS	TREE PROTECTION DETAIL	DATE: 05-01-05 PAGE 1 OF 1 58199-101
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**RECOMMENDED PRACTICES FOR TREES TO BE SAVED**



- SNOW FENCE SHALL EXTEND TO THE DRIPLINE OF THE TREE. THE SNOW FENCE SHALL BE HIGH ENOUGH SO AS TO BE VISIBLE TO ALL CONSTRUCTION PERSONNEL.
- GRADE CHANGES, UTILITY TRENCHES, STORAGE OF CONSTRUCTION MATERIAL, DUMPING OF WASTE OR STORAGE OF CONSTRUCTION EQUIPMENT SHALL NOT BE ALLOWED WITHIN SNOW FENCING.
- IF A UTILITY MUST BE WITHIN 15'(4.57M) OF A TREE TRUNK, IT IS RECOMMENDED THAT IT BE AUGERED.
- ALL TREES TO BE SAVED WHICH HAVE BEEN SUBJECTED TO CONSTRUCTION ACTIVITY WITHIN THE DRIPLINE SHOULD BE SELECTIVELY THINNED 10% BY AN ARBORIST SKILLED AT THE SELECTIVE THINNING PROCEDURE. NONE OF THE TREES SHALL BE TOPPED, HEADED BACK, SKINNED (REMOVAL OF THE INTERIOR BRANCHES), OR CLIMBED WITH SPIKES. ALL DEAD WOOD SHOULD BE REMOVED TO AVOID HAZARD.
- IT IS RECOMMENDED THAT FOLLOWING CONSTRUCTION, TREES BE MAINTAINED IN THEIR NATIVE CONDITION. NO LAWN SHOULD BE PLACED AROUND THE TREES. IT IS RECOMMENDED THAT THE AREA BE MULCHED WITH 2"(50MM) OF DECOMPOSED LEAVES AND 2"(50MM) OF WOOD CHIPS OR BARK.
- ALL TREES PROTECTED SHALL BE DEEP ROOT FERTILIZED.
- ALL TREES SHALL BE WATERED.
- ALL MATERIALS SUPPLIED BY CONTRACTOR.

NAPERVILLE PUBLIC UTILITIES DEPARTMENT ELECTRIC STANDARDS	RECOMMENDED PRACTICES FOR TREES TO BE SAVED	DATE: 05-01-05 PAGE 1 OF 1 58199-102
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F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO
1545	00-00115-00-BR	DUPAGE	17	82
STA. 1+31.77	TO STA. 5+50.00			
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

**MATERIAL SUPPLIED BY THE CITY OF NAPERVILLE  
BAILEY RD. BRIDGE DUCT BANK (W.F. #58199)**

ITEM DESCRIPTION	PART NO.	HTE CODE	QTY.	UNIT
VAULT, SWITCHGEAR, 74"x76" FIBERCRETE	284-101-00010	DEVA	4	EACH
CONDUIT 3" DIA SCHEDULE 40 PVC PIPE	285-100-00040	D3C	1080	FEET
CONDUIT 6" DIA SCHEDULE 40 PVC PIPE	285-100-00070	D6C	9420	FEET
CONDUIT 5" DIA SCHEDULE 40 PVC PIPE	285-100-00060	D5C	1720	FEET
ELBOW 6" STEEL 48" RADIUS, 90°	285-101-00210	D6B90S	4	EACH
ELBOW 6" STEEL 48" RADIUS, 45°	285-101-00200	D6B45S	14	EACH
ELBOW 6" STEEL 48" RADIUS, 22°	285-101-00188	D6B22S	24	EACH
ELBOW 6" STEEL 48" RADIUS, 11°	285-101-00186	D6B11S	24	EACH
ELBOW 5" STEEL 36" RADIUS, 90°	285-101-00100	D5B90S	12	EACH
ELBOW 5" STEEL 36" RADIUS, 30°	285-101-00080	D5B30S	2	EACH
ELBOW 3" SCH. 40 PVC 36" RADIUS, 90°	285-100-00040	D3B90P	6	EACH
COUPLING SLEEVE 6" PVC LONG LINE	285-102-00130	D6V	32	EACH
COUPLING 6" LONG LINE SCHEDULE 40 PVC	285-102-00140	D6L	32	EACH
COUPLING 6" SCHEDULE 40 PVC 5'	285-102-00150	D6L5	40	EACH
COUPLING SLEEVE 5" PVC LONG LINE	285-102-00070	D5V	10	EACH
COUPLING 5" LONG LINE SCHEDULE 40 PVC	285-102-00080	D5L	10	EACH
COUPLING 5" SCHEDULE 40 PVC 5'	285-102-00120	D5L5	20	EACH
COUPLING SLEEVE 3" PVC LONG LINE	285-102-00030	D3V	8	EACH
COUPLING 3" LONG LINE SCHEDULE 40 PVC	285-102-00065	D3L	8	EACH
COUPLING 3" SCHEDULE 40 PVC 5'	285-102-00040	D3L5	16	EACH
BELL FITTING PVC 6" SCHEDULE 40	285-103-00040	D6F	32	EACH
BELL FITTING PVC 5" SCHEDULE 40	285-103-00080	D5F	12	EACH
BELL FITTING PVC 3" SCHEDULE 40	285-103-00040	D3F	8	EACH
PLUG, PVC 6" WITH PULL TAB	285-103-00030	D6P	46	EACH
PLUG, PVC 5" WITH PULL TAB	285-103-00070	D5P	10	EACH
PLUG, PVC 3" WITH PULL TAB	285-103-00030	D3P	10	EACH
CEMENT PVC QUARTS WITH BRUSH 24HR DRY (SUMMER)	285-199-00090	DMG	5	EACH
SPACER, BASE PVC, 6"	285-199-00170	D6R	36	EACH
SPACER, INTERMEDIATE PVC 6"	285-199-00180	D6R1	100	EACH
DETECTABLE MULE TAPE, 1250 LB, 3,000' REEL	450-024-00010	D0DT	3	REEL
BLOW LINE, 6,500' IN PAILS/ 200# BREAK STRENGTH	450-024-00006	D0M	1	EACH
HANDHOLE 4'X8' (FIBERCRETE)	284-104-00030	DEH8	4	EACH
HANDHOLE 4'X6' (FIBERCRETE)	284-104-00020	DEH6	3	EACH
HANDHOLE 3'X5' (FIBERCRETE)	284-104-00010	DEH5	2	EACH
STUD DRIVING FOR END ROD	283 156 00050	UGDRS	8	EACH
STRAP 6" CONDUIT (RISER)	285 199 00050	DRC6	12	EACH
CONDUIT, SCH 80 PVC 6"	285 100 00075	DRC6	20	EACH
BRACKET, POLE 3"	285 199 00005	DRC6	6	EACH
CHANNEL 12"	285 199 00070	DRC6	6	EACH
CONDUIT, SCH 40 PVC 6"	285 100 00070	DRC6	40	EACH
BELL FITTING, PVC 6"	285 103 00100	DRC6	2	EACH

**NOTES:**

- ALL MATERIALS NOT SHOWN BUT REQUIRED ARE SUPPLIED NEW BY THE CONTRACTOR FOR A COMPLETE JOB.
- MATERIALS SUPPLIED BY THE CONTRACTOR ARE AS FOLLOWS:
  - ALL BRIDGE MATERIALS PURCHASE FROM CONDUX.
  - LIDS FOR VAULTS (SWITCH GEAR - 6 REQUIRED).
  - 6" RIGID GALVANIZED STRAIGHT 10 FEET LENGTH OF CONDUIT, STEEL PIPE, THREADED BOTH ENDS WITH COUPLING ( 36 PIECES REQUIRED).
  - ALL LANDSCAPING MATERIALS, BLACK DIRT, TREES, WATER, SOD, SEED, TREE PROTECTION, BUSHES, ROCK, STONE, MULCH ETC.
  - MISCELLANEOUS TRUCK STOCK.

CITY OF NAPERVILLE/DEPARTMENT OF PUBLIC UTILITIES - ELECTRIC			
CALL J.U.L.I.E. 48 HRS. PRIOR TO CONSTRUCTION			
PROJECT TITLE BAILEY RD. BRIDGE DUCTBANK INSTALLATION	MAP NO. -	CAD FILE/JOB 0058199001C16.DWG	
PROJECT DESCRIPTION COORDINATED WITH BRIDGE IMPROVEMENT	DRAWN BY JK	PROJECT NO. EU12-06-04	
DATE 05-16-07	WORK REQUEST NO. 58199	DATE 05-01-05	
DESIGNED RPS	APPROVED NTS	DATE 05-01-05	
ENGINEER	SCALE	SHEET	16 OF 23