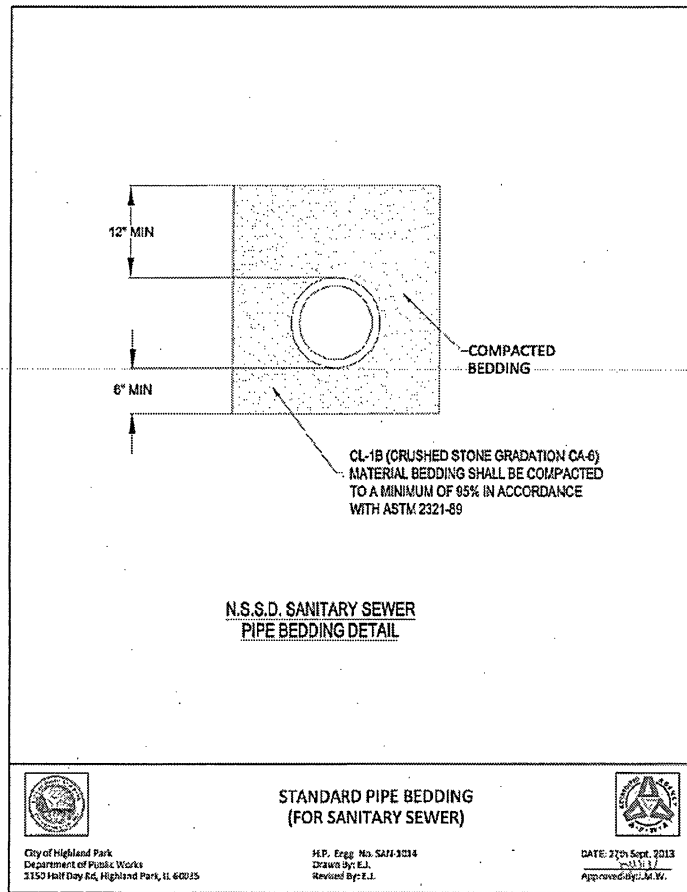
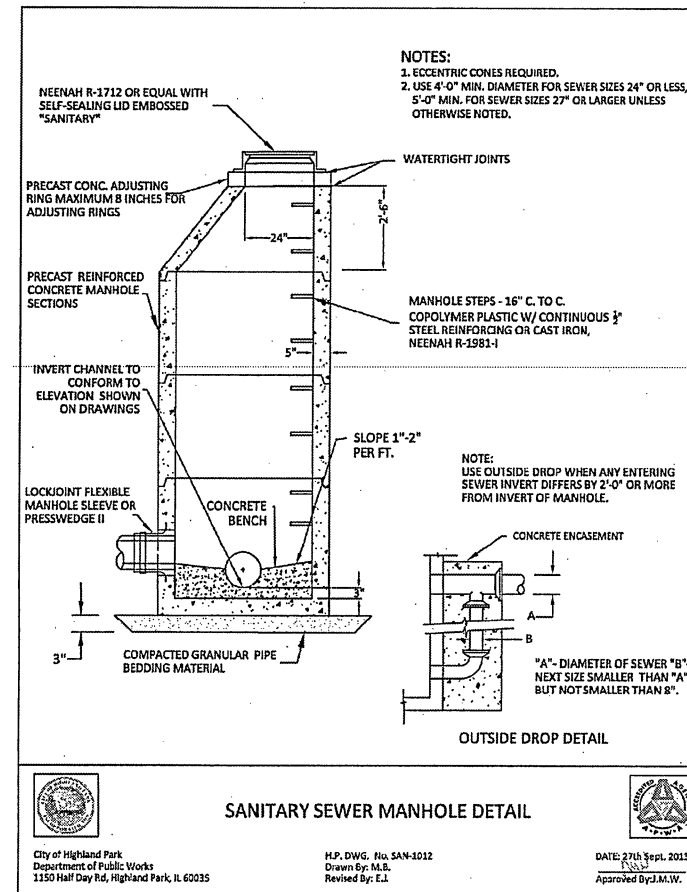


FIRE HYDRANT INSTALLATION DETAIL
 City of Highland Park
 Department of Public Works
 1150 Half Day Rd, Highland Park, IL 60035
 H.P. DWG. No. WD-1006
 Drawn By: M.B.
 Revised By: E.J.
 DATE: 27th Sept. 2013
 Approved By: J.M.W.



N.S.S.D. SANITARY SEWER PIPE BEDDING DETAIL
 City of Highland Park
 Department of Public Works
 1150 Half Day Rd, Highland Park, IL 60035
 H.P. DWG. No. SAN-1014
 Drawn By: E.J.
 Revised By: E.J.
 DATE: 27th Sept. 2013
 Approved By: J.M.W.

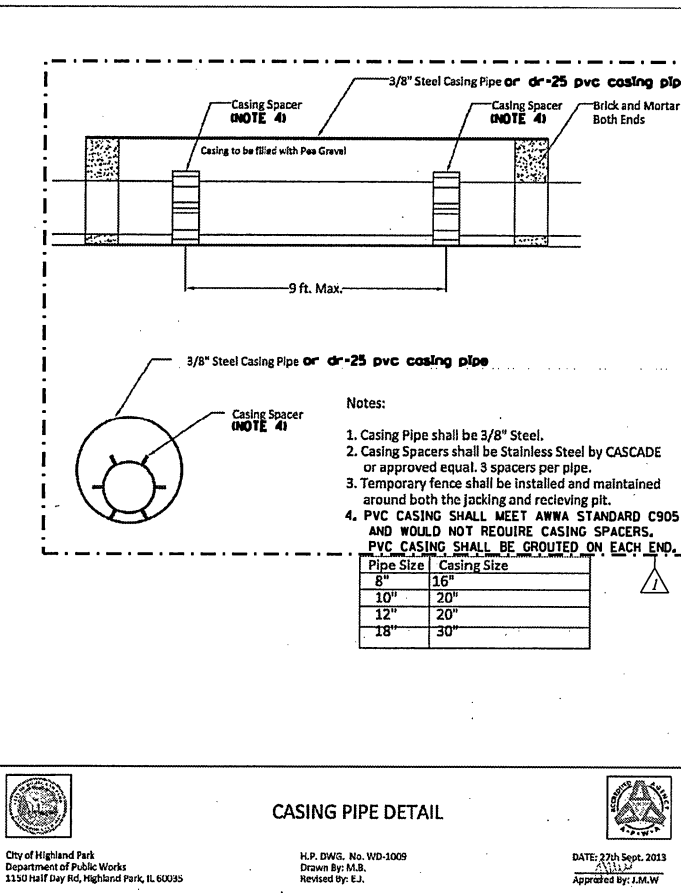


SANITARY SEWER MANHOLE DETAIL
 City of Highland Park
 Department of Public Works
 1150 Half Day Rd, Highland Park, IL 60035
 H.P. DWG. No. SAN-1012
 Drawn By: M.B.
 Revised By: E.J.
 DATE: 27th Sept. 2013
 Approved By: J.M.W.

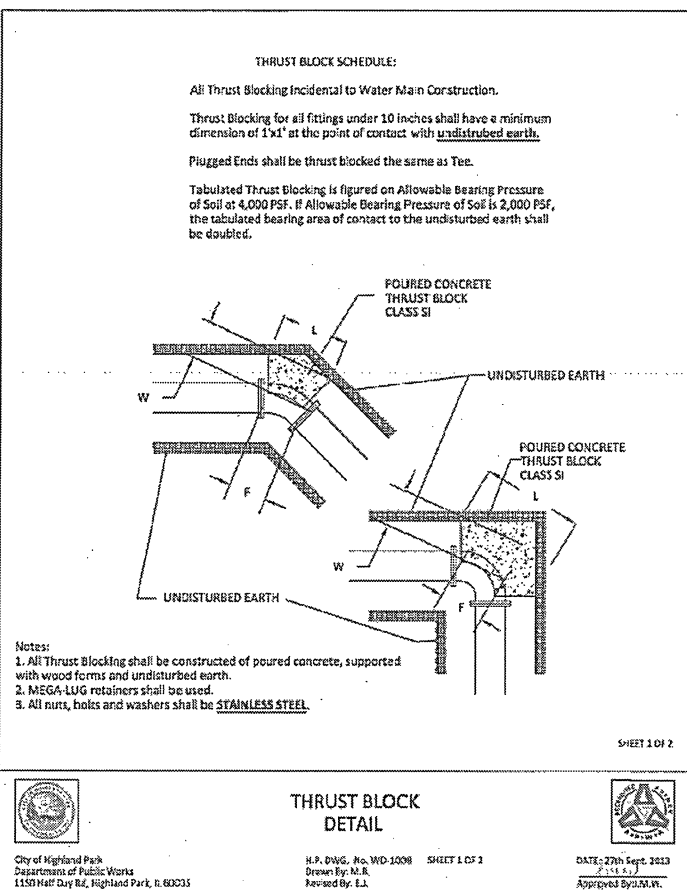
TYPE	18"
Horizontal Bend, 11.25°	4
Horizontal Bend, 22.5°	7
Horizontal Bend, 45°	14
Horizontal Bend, 90°	34
Vertical Up Bend, 11.25°	3
Vertical Up Bend, 22.5°	6
Vertical Up Bend, 45°	12
Vertical Down Bend, 11.25°	13
Vertical Down Bend, 22.5°	25
Vertical Down Bend, 45°	52
Valve / Dead End	126

Notes:
 1. Lengths in feet per DIPRA thrust restraint design (Soil = Clay 1, Lay Condition = 4, Test Pressure = 150 psi, SF = 1.5).
 2. Bend lengths required on both sides of fitting.
 3. Tee lengths required on tee branch.
 4. Reducer lengths required on larger pipe.

THRUST RESTRAINT TABLE



CASING PIPE DETAIL
 City of Highland Park
 Department of Public Works
 1150 Half Day Rd, Highland Park, IL 60035
 H.P. DWG. No. WD-1009
 Drawn By: M.B.
 Revised By: E.J.
 DATE: 27th Sept. 2013
 Approved By: J.M.W.



THRUST BLOCK DETAIL
 City of Highland Park
 Department of Public Works
 1150 Half Day Rd, Highland Park, IL 60035
 H.P. DWG. No. WD-1008 SHEET 1 OF 2
 Drawn By: M.B.
 Revised By: E.J.
 DATE: 27th Sept. 2013
 Approved By: J.M.W.

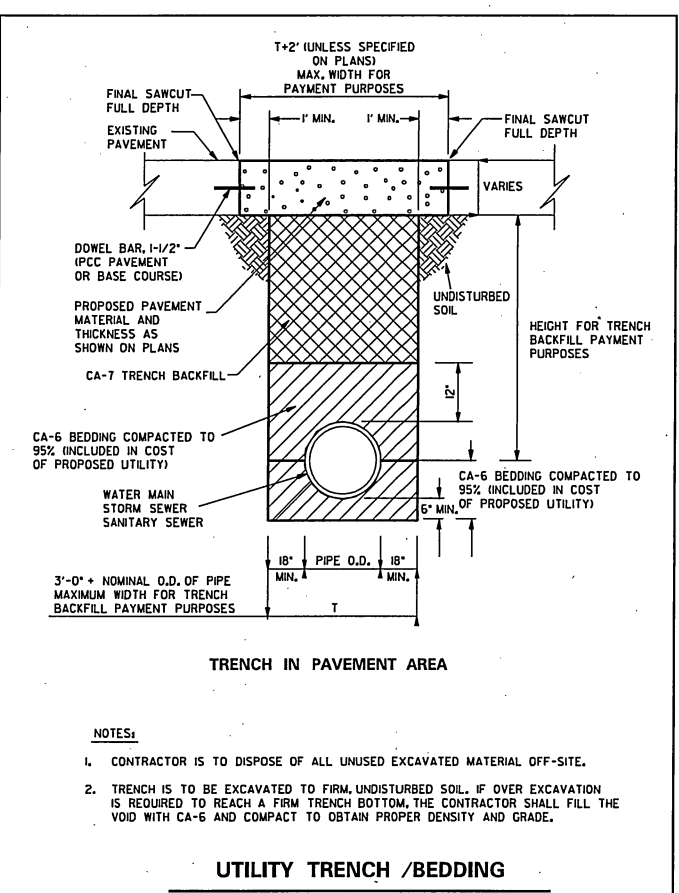
THRUST BLOCK SCHEDULE:

FITTINGS	DIMENSIONS (FT.)			
	H	L	W	F
TEE: 18" X 18" X 18"	6.0'	7.0'	2.0'	2.0'
18" - 90°	5.0'	6.0'	2.0'	2.0'
18" - 45°	4.0'	4.0'	2.0'	2.0'
18" - 22 1/2°	3.0'	3.0'	2.0'	2.0'
18" - 11 1/4°	2.0'	2.0'	2.0'	2.0'
TEE: 16" X 16" X 16"	2.5'	3.0'	2.0'	2.0'
16" - 90°	3.0'	3.5'	2.0'	2.0'
16" - 45°	3.0'	2.0'	2.0'	2.0'
16" - 22 1/2°	2.0'	2.0'	1.5'	1.0'
TEE: 14" X 14" X 10"	2.0'	2.5'	1.5'	2.0'
14" - 90°	2.5'	3.0'	1.5'	2.0'
14" - 45°	2.0'	2.5'	1.5'	1.5'
TEE: 12" X 12" X 12"	2.0'	2.5'	1.5'	2.0'
TEE: 12" X 12" X 8"	1.5'	2.0'	1.5'	1.5'
TEE: 12" X 12" X 6"	1.0'	1.5'	1.5'	1.0'
12" - 90°	2.0'	3.0'	1.5'	2.0'
12" - 45°	1.5'	2.0'	1.5'	1.0'
12" - 22 1/2°	1.0'	1.5'	1.5'	1.0'
TEE: 10" X 10" X 10"	1.5'	2.0'	1.5'	1.5'
10" - 90°	2.0'	3.0'	1.5'	1.5'
10" - 45°	1.5'	1.5'	1.5'	1.0'

THRUST BLOCK LEGEND:
 H THICKNESS
 L LENGTH FROM UNEXCAVATED SOIL
 W SPACE BETWEEN FITTINGS AND SOIL
 F WIDTH AT FITTINGS

*VILLAGE DETAIL MODIFIED BY CIORBA GROUP FOR THE FOREST AVE PROJECT.

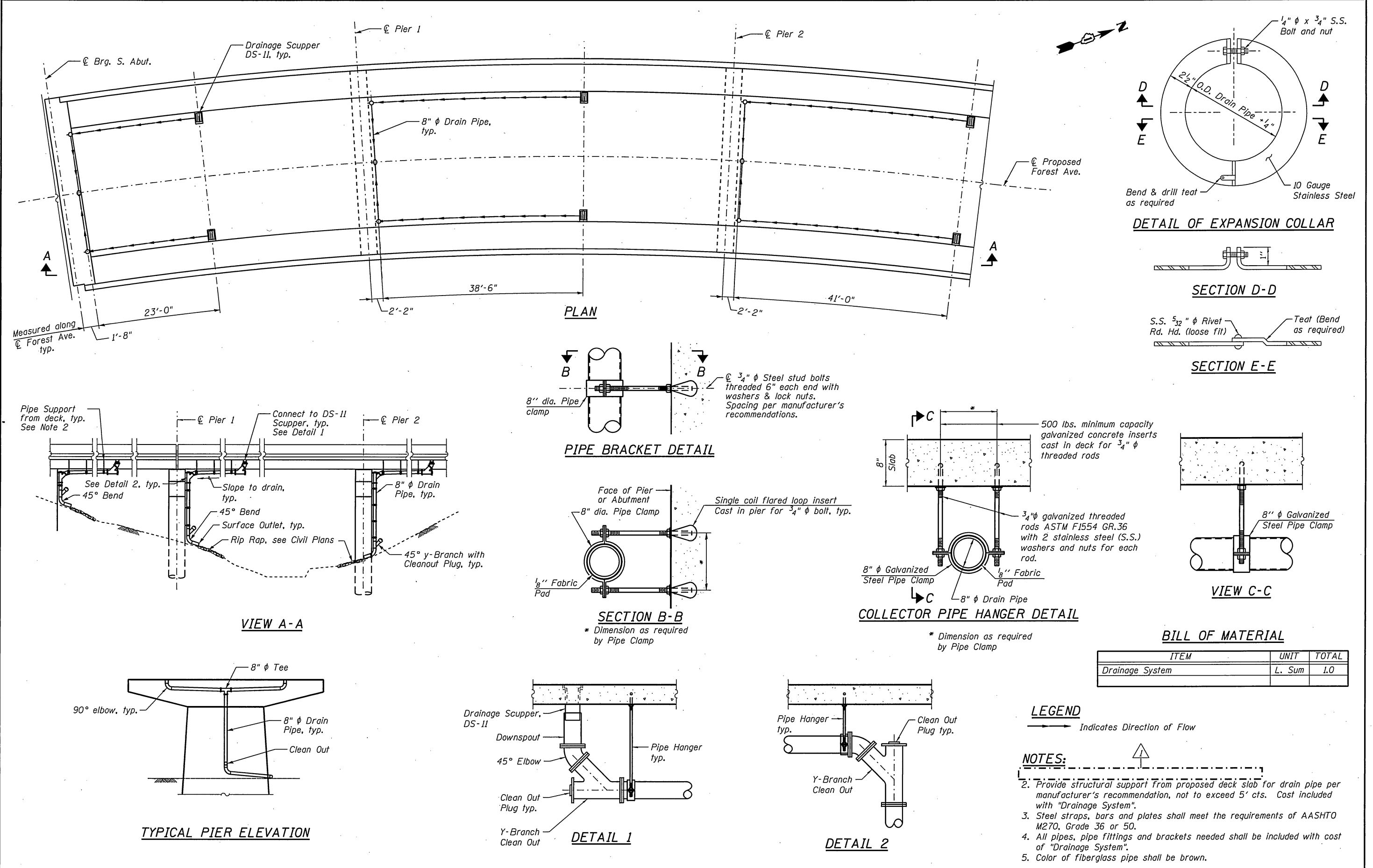
THRUST BLOCK DETAIL
 City of Highland Park
 Department of Public Works
 1150 Half Day Rd, Highland Park, IL 60035
 H.P. DWG. No. WD-1008 SHEET 2 OF 2
 Drawn By: M.B.
 Revised By: E.J.
 DATE: 27th Sept. 2013
 Approved By: J.M.W.



TRENCH IN PAVEMENT AREA
 NOTES:
 1. CONTRACTOR IS TO DISPOSE OF ALL UNUSED EXCAVATED MATERIAL OFF-SITE.
 2. TRENCH IS TO BE EXCAVATED TO FIRM, UNDISTURBED SOIL. IF OVER EXCAVATION IS REQUIRED TO REACH A FIRM TRENCH BOTTOM, THE CONTRACTOR SHALL FILL THE VOID WITH CA-6 AND COMPACT TO OBTAIN PROPER DENSITY AND GRADE.

UTILITY TRENCH /BEDDING

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