

LAND USE REGULATIONS

35 Attachment 4

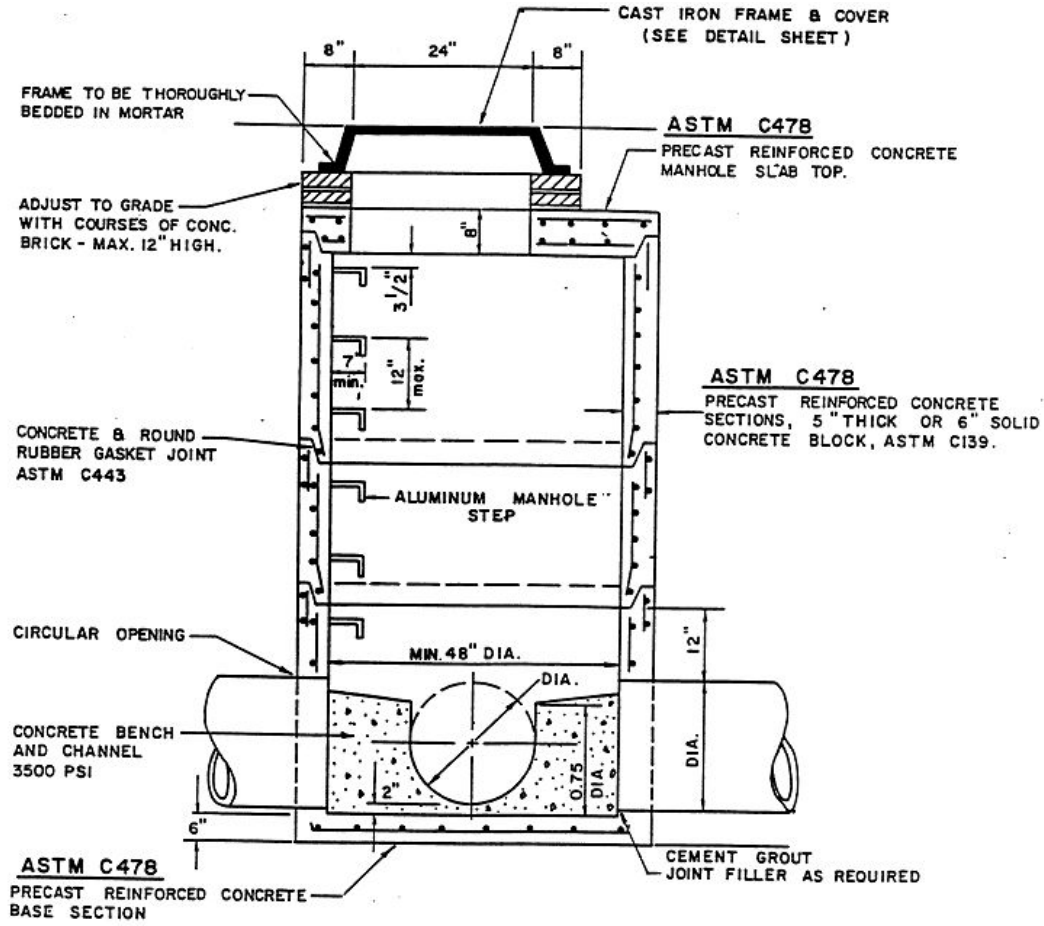
Township of Upper Freehold

APPENDIX TO SECTION 35-500

SCHEDULE IV: STORM DRAINAGE

PRECAST DRAINAGE MANHOLE
DRAINAGE MANHOLE FRAME & COVER
DRAINAGE INLET STRUCTURE
CATCH BASIN STRUCTURE
TYPICAL SUMP FOR DRAINAGE STRUCTURES
TYPE "A" FRAME & GRATE
TYPE "B" FRAME & GRATE - STREAM FLOW
TYPE "B" FRAME & GRATE - BICYCLE GRATE
TYPE "E" FRAME & GRATE
TYPE "F" FRAME & GRATE - STREAM FLOW
TYPE "F" FRAME & GRATE - BICYCLE GRATE
UNDERDRAINAGE
FLARED END SECTION
CONCRETE HEADWALL & APRON

UPPER FREEHOLD CODE

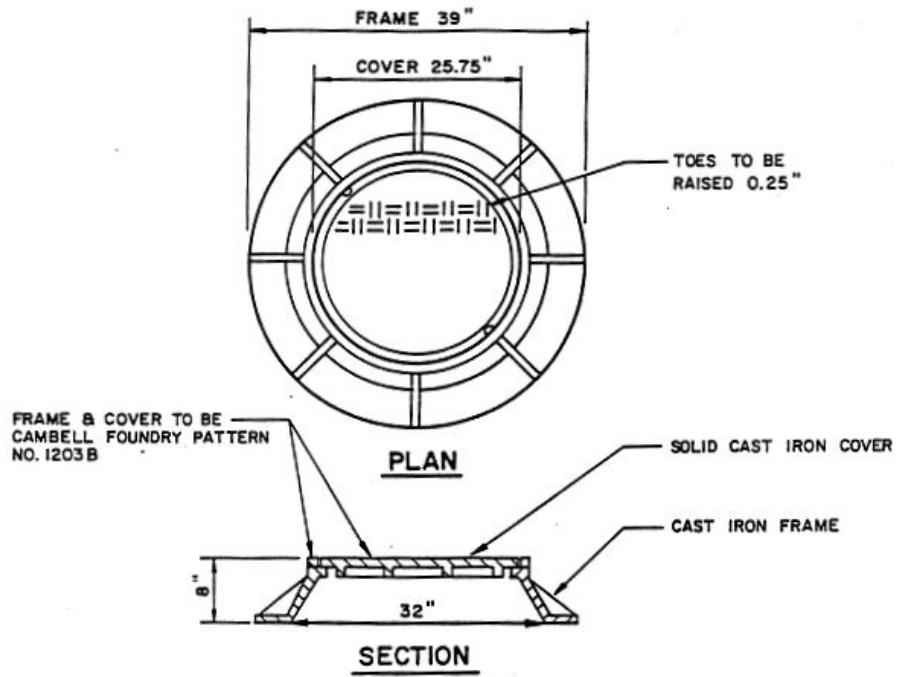


DETAIL:
PRECAST DRAINAGE MANHOLE

REF. : NJDOT 603

STANDARD ENGINEERING DETAIL
PRECAST DRAINAGE MANHOLE

LAND USE REGULATIONS

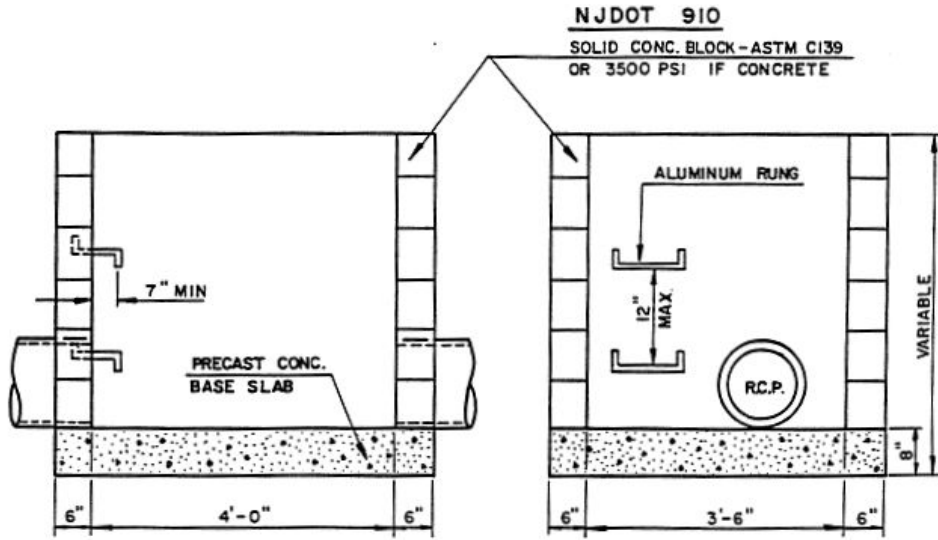


DETAIL:
DRAINAGE MANHOLE FRAME & COVER

N.T.S.

STANDARD ENGINEERING DETAIL
DRAINAGE MANHOLE FRAME & COVER

UPPER FREEHOLD CODE

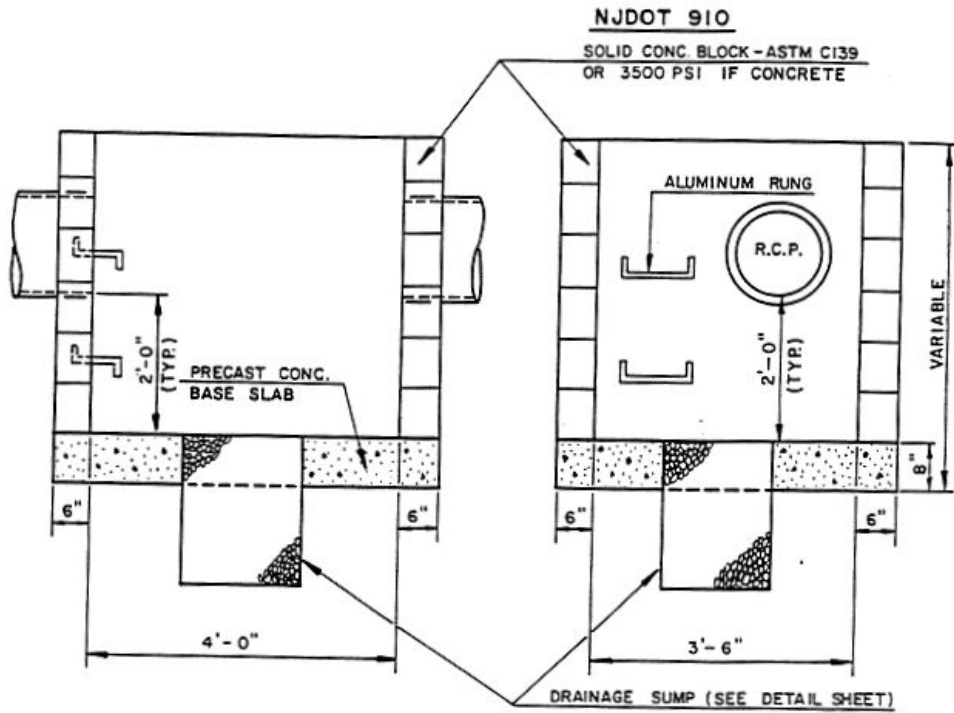


DETAIL:
DRAINAGE INLET STRUCTURE

REF.: NJDOT 603

STANDARD ENGINEERING DETAIL
DRAINAGE INLET STRUCTURE

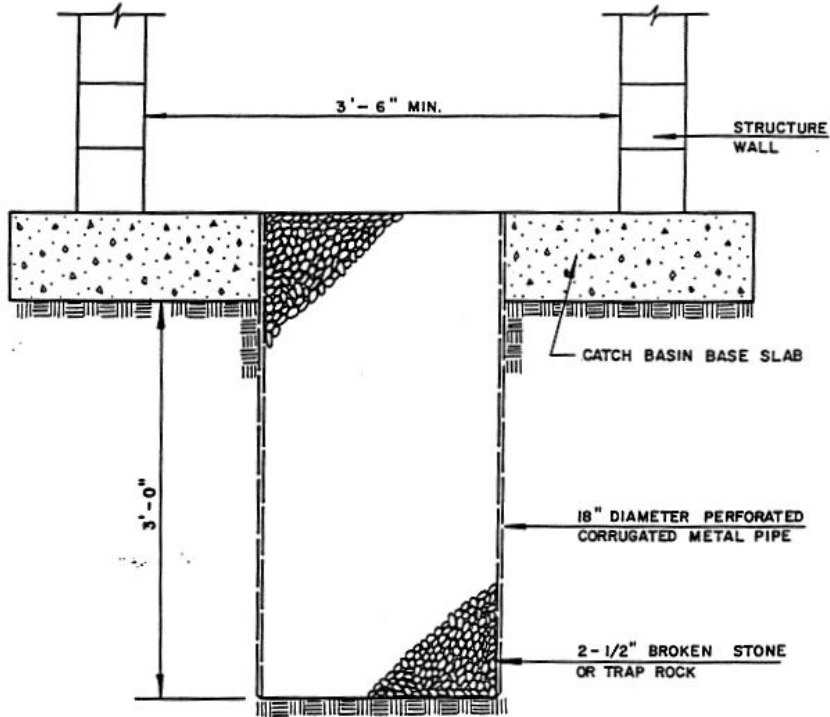
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DETAIL :
CATCH BASIN STRUCTURE
REF. : NJDOT 603

STANDARD ENGINEERING DETAIL
CATCH BASIN STRUCTURE

UPPER FREEHOLD CODE



NOTES:

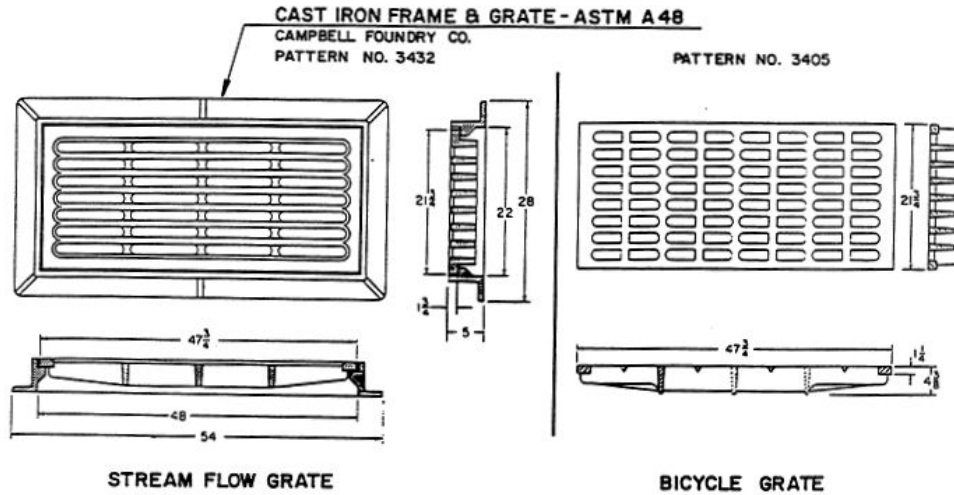
1. MINIMUM DISTANCE FROM INVERT OF OUTFALL PIPE TO BOTTOM OF STRUCTURE EQUALS 2'-0".

DETAIL:
TYPICAL SUMP FOR DRAINAGE STRUCTURES

N.T.S.

STANDARD ENGINEERING DETAIL
TYPICAL SUMP FOR DRAINAGE STRUCTURES

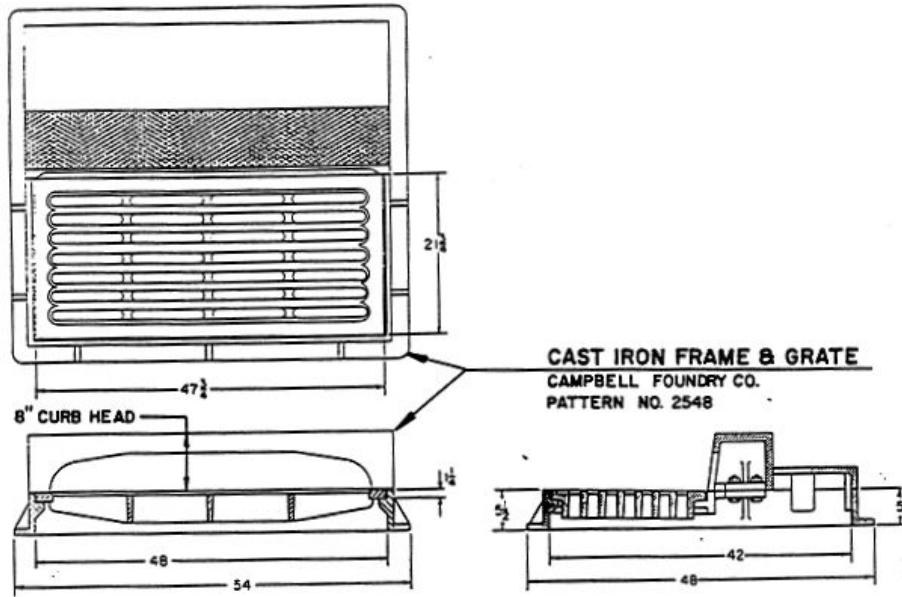
LAND USE REGULATIONS



DETAIL:
TYPE 'A' FRAME AND GRATE
REF: N.J.D.O.T. 603

STANDARD ENGINEERING DETAIL
TYPE 'A' FRAME AND GRATE

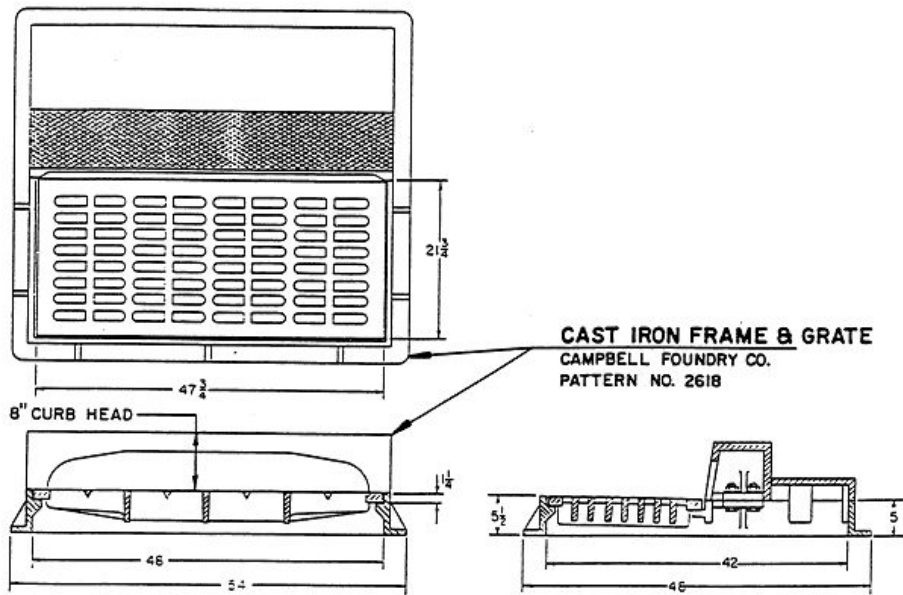
UPPER FREEHOLD CODE



DETAIL:
TYPE 'B' FRAME AND GRATE
STREAM FLOW GRATE
REF: N.J.D.O.T. 603

STANDARD ENGINEERING DETAIL
TYPE 'B' FRAME AND GRATE
(STREAM FLOW GRATE)

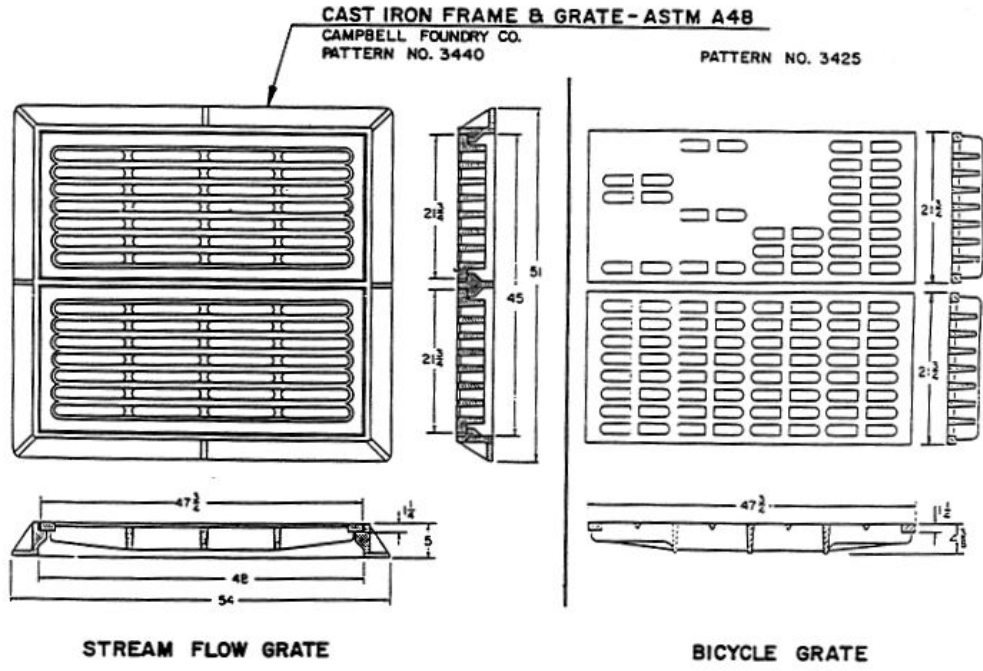
LAND USE REGULATIONS



DETAIL:
TYPE 'B' FRAME AND GRATE
BICYCLE GRATE
REF: N.J.D.O.T. 603

STANDARD ENGINEERING DETAIL
TYPE 'B' FRAME AND GRATE
(BICYCLE GRATE)

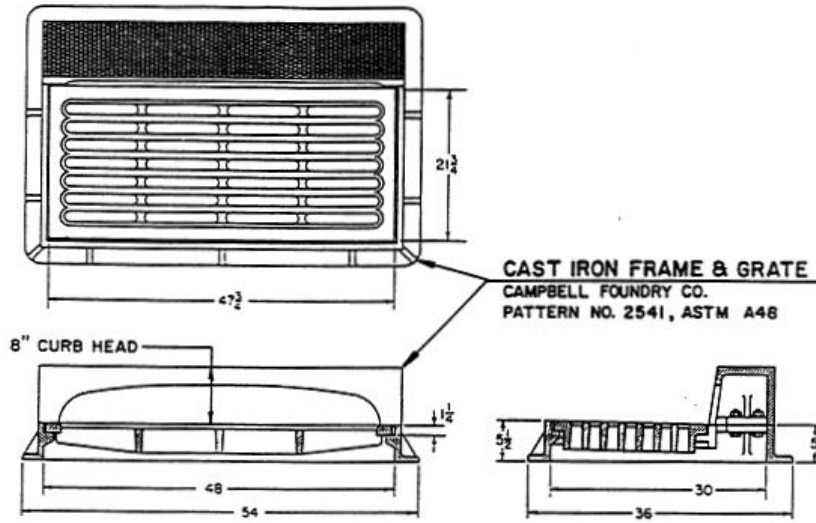
UPPER FREEHOLD CODE



DETAIL :
TYPE 'E' FRAME AND GRATE
N.T.S.

STANDARD ENGINEERING DETAIL
TYPE 'E' FRAME AND GRATE

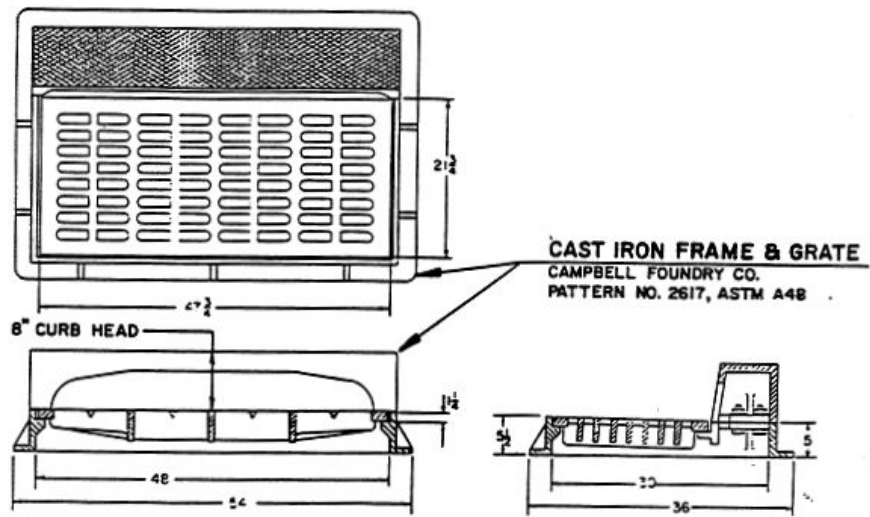
LAND USE REGULATIONS



DETAIL:
TYPE 'F' FRAME AND GRATE
STREAM FLOW GRATE
N.T.S.

STANDARD ENGINEERING DETAIL
TYPE 'F' FRAME AND GRATE
(STREAM FLOW GRATE)

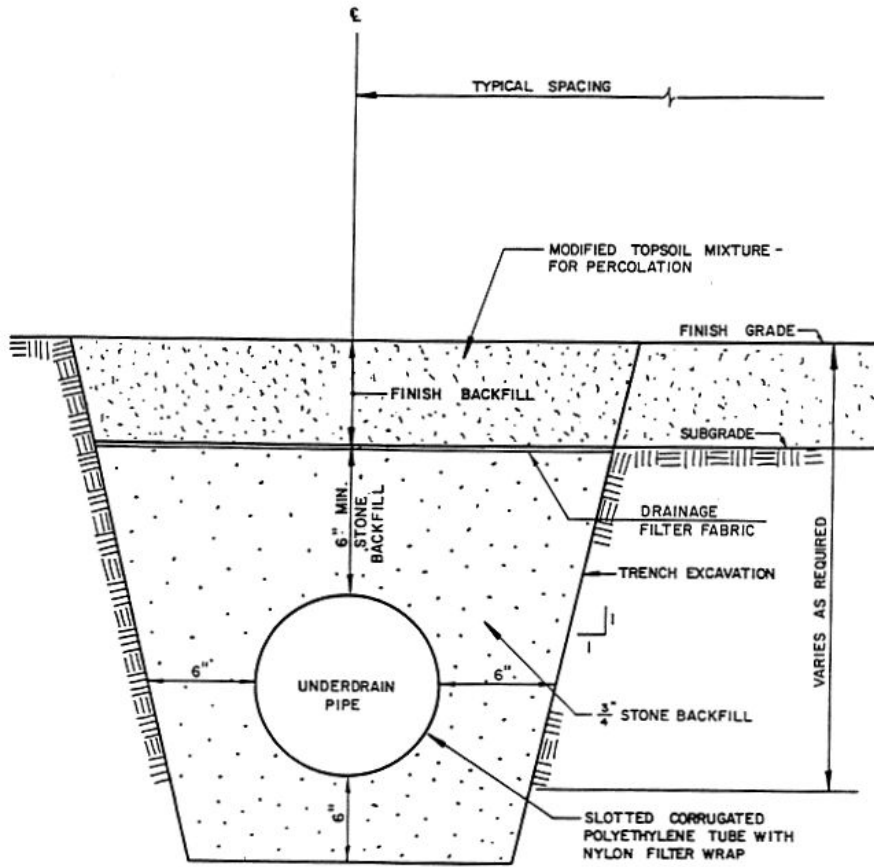
UPPER FREEHOLD CODE



DETAIL:
TYPE 'F' FRAME AND GRATE
BICYCLE GRATE

STANDARD ENGINEERING DETAIL
TYPE 'F' FRAME AND GRATE
(BICYCLE GRATE)

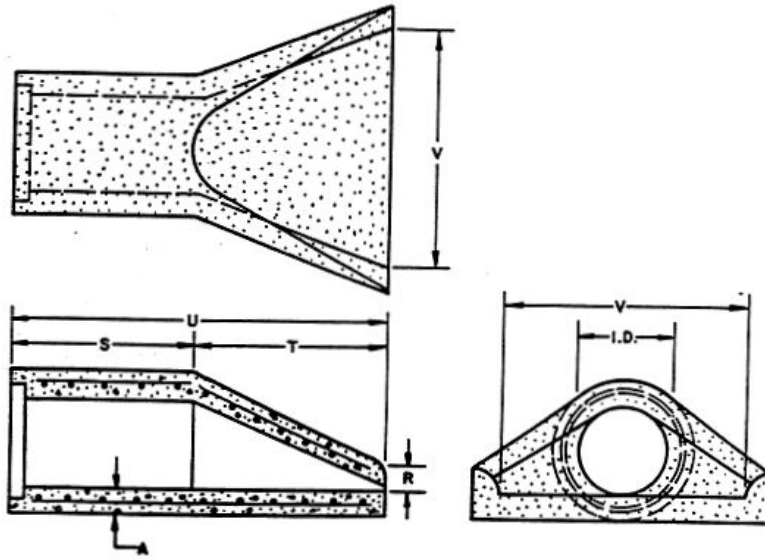
LAND USE REGULATIONS



DETAIL:
UNDERDRAINAGE
N.T.S.

STANDARD ENGINEERING DETAIL
UNDERDRAINAGE

UPPER FREEHOLD CODE



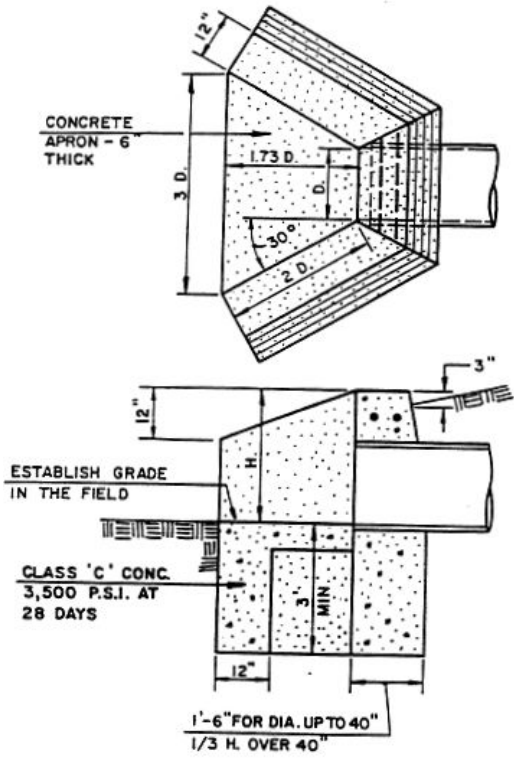
I.D.	A	R	S	T	U (FEET)	V	WT. (POUNDS)
12"	2	5	24	24	4	24	360
15"	2.25	7.5	24	24	4	28	480
18"	2.5	9	24	24	4	34	640
21"	2.75	9	24	24	4	40	860
24"	3	10	24	24	4	48	920
27"	3.25	10	24	24	4	54	1200
30"	3.5	14	26	30	4-8"	60	1540
36"	4	14	26	36	5-2"	72	2100
42"	4.5	21	36	60	8	78	5500
48"	5	24	30	66	8	84	6500
54"	5.5	27	36	60	8	90	8200
60"	6	31	36	60	8	96	9300

NOTE: ALL NUMBERS REPRESENT INCHES UNLESS NOTED.

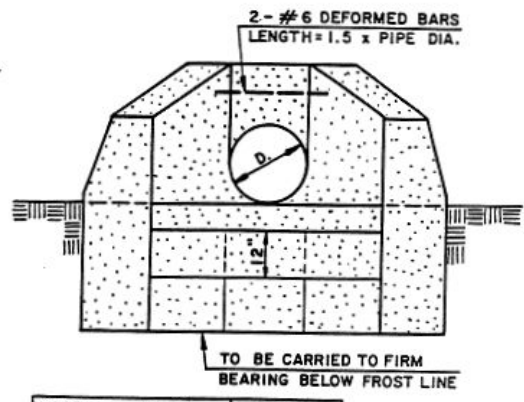
DETAIL:
FLARED END SECTION
REF: ASTM C76

STANDARD ENGINEERING DETAIL
FLARED END SECTION

LAND USE REGULATIONS



- NOTES:
1. ALL EDGES TO BE CHAMFERED 1".
 2. EXPOSED PORTIONS OF WALL TO BE RUBBED & FLOATED.
 3. FOR ARCH PIPE, THE SPAN SHALL BE SUBSTITUTED FOR D.



PIPE SIZE	HEADWALL IN C.Y. REIN. CONC.	APRONS IN C.Y.
12"	1.4 C.Y.	0.2 C.Y.
15"	1.7	0.2
18"	2.1	0.3
21"	2.5	0.4
24"	2.9	0.5
27"	3.4	0.6
30"	3.8	0.7
36"	4.8	0.9
42"	6.3	1.2
48"	8.4	1.5
54"	10.7	1.8
60"	13.4	2.1
66"	16.4	2.5
72"	19.9	3.0

DETAIL:
CONCRETE HEADWALL & APRON
REF: N.J.D.O.T. 610

STANDARD ENGINEERING DETAIL
CONCRETE HEADWALL & APRON