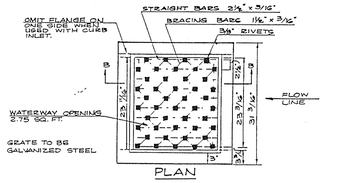
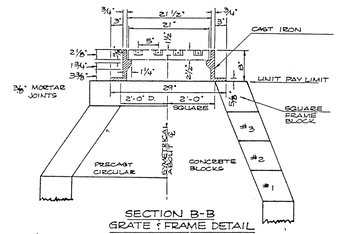
GENERAL NOTES FOR MH's & CB's

1. REINF STEEL SHALL CONFORM TO THE LATEST ASTM A185 SPEC
   4"DIA SECS – 0.12 SQ-IN/LF
   5"DIA SECS – 0.15 SQ-IN/LF
   6"DIA SECS – 0.18 SQ-IN/LF
   8"DIA SECS – 0.24 SQ-IN/LF
2. CONCRETE SHALL HAVE A COMPRESSIVE STRENGTH OF 4000 PSI MINIMUM
3. DESIGN SPECIFICATIONS SHALL CONFORM TO ASTM C-478 LATEST EDITION
4. BASE SECTIONS SHALL BE POURED MONOLITHICALLY
5. PIPE JOINTS SHALL BE:
   LOCK JOINT, FLEXIBLE SLEEVE
   KOR-N-SEAL FLEXIBLE SLEEVE
   A-LOK RUBBER GASKET
6. A FLEXIBLE JOINT SHALL BE PROVIDED WITHIN THE FOLLOWING DISTANCES
   RCP & CI PIPE – ALL SIZES – 48"
   AC & VC PIPE – UP THROUGH 12"DIA – 18"
   AC & VC PIPE – LARGER THAN 12"DIA – 36"
   DI PIPE – NONE REQUIRED
   PVC (ASTM 3034) – UP THROUGH 15"DIA – NONE REQUIRED
   PVC (ASTM F 679) – LARGER THAN 15"DIA – 48"–60"
   PVC (ASTM F 789) – ALL SIZES – 48"–60"
   ABS (ASTM D 2680 – ALL SIZES – SAME AS VC ABOVE

UNDER SEVERE CONDITIONS WHEN DIFFERENTIAL SETTING CAN NOT BE CONTROLLED WITHIN NORMAL LIMITS, VARIATIONS IN THE STUB LENGTH MAY BE NECESSARY. OTHER PLASTIC PIPES SHALL BE REVIEWED ON A CASE BY CASE BASIS.

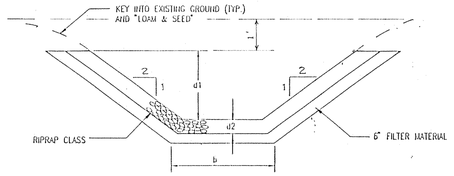




NOTE: USE WHERE BICYCLE AND/OR VEHICLE TRAFFIC CROSSES GRATE

CATCH BASIN - DROP INLET

NOT TO SCALE



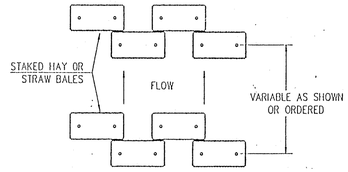
RIPRAP DITCH

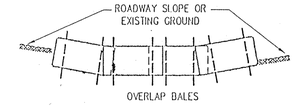
NOT TO SCALE

LOCATION	d1(ft.)	d2(ft.)	b(ft.)	RIPRAP CLASS

RIPRAP GRADATION SCHEDULE

% SMALLER	CL I WT. SIZE	CL II WT. SIZE	CL III WT. SIZE	CL IV WT. SIZE
100	500 LB. 22"	2300 LB. 36"	3000 LB. 40".	100 LB. 12"
80	430 LB. 20"	1850 LB. 32"	2500 LB. 35"	55 LB. 10"
50	180 LB. 15"	700 LB. 24"	1000 LB. 27"	40 LB. 8"





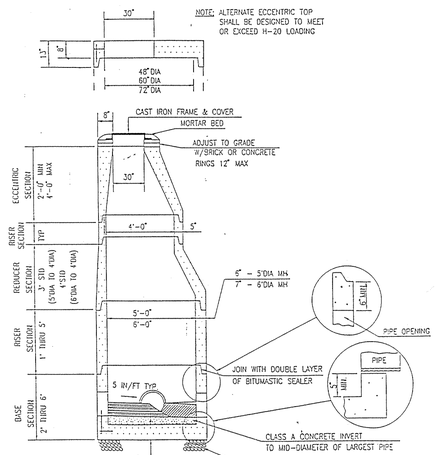
EROSION PROTECTION TYPE "D"

NORMAL USE IN WIDE DITCH SECTION

NOT TO SCALE

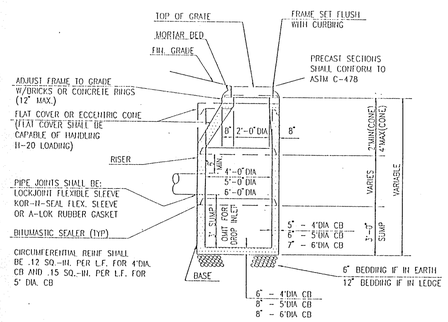
CONSTRUCTION SEQUENCE:

1. CUT AND CLEAR TREES IN CONSTRUCTION AREAS ONLY.
2. CONSTRUCT TEMPORARY AND PERMANENT SEDIMENT EROSION AND DETENTION CONTROL FACILITIES AS PER THE NOTES ON THIS DRAWING. EROSION, SEDIMENT, AND DETENTION MEASURES SHALL BE INSTALLED PRIOR TO ANY EARTH MOVING OPERATION.
3. FINISH CLEARING AND GRUBBING.
4. CONSTRUCT TEMPORARY CULVERTS AS REQUIRED.
5. CONSTRUCT ROADWAYS FOR ACCESS TO DESIRED CONSTRUCTION AREAS. ALL ROADS SHALL BE STABILIZED IMMEDIATELY AFTER GRADING.
6. INSTALL DRAIN LINES.
7. INSTALL RELATED HAY BALES AND EROSION CONTROL MEASURES.
8. BEGIN PERMANENT AND TEMPORARY INSTALLATION OF SEED, MULCH, AND RIPRAP. ALL CUT AND FILL SLOPES SHALL BE STABILIZED IMMEDIATELY AFTER CONSTRUCTION.
9. CONSTRUCT TEMPORARY DIVERSION CHANNELS, AS REQUIRED.
10. BEGIN BUILDING CONSTRUCTION.
11. DAILY, OR AS REQUIRED, CONSTRUCT TEMPORARY BERMS, DRAINS DITCHES, SILT FENCES, SEDIMENT TRAPS, ETC. MULCH AND SEED AS REQUIRED.
12. PAVE ALL ROADWAYS AND DRIVEWAYS.
13. INSPECT AND MAINTAIN ALL EROSION AND SEDIMENT CONTROL MEASURES DURING CONSTRUCTION.
14. COMPLETE PERMANENT SEEDING AND LANDSCAPING.
15. REMOVE TEMPORARY EROSION CONTROL MEASURES AFTER SEEDED AREAS HAVE ESTABLISHED THEMSELVES AND SITE IMPROVEMENTS ARE COMPLETE.



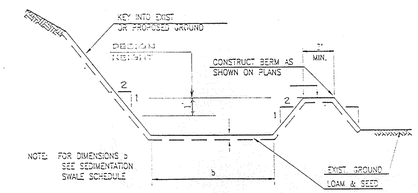
STANDARD DRAINAGE MANHOLES

NOT TO SCALE



PRE-CAST REINFORCED CATCH BASIN

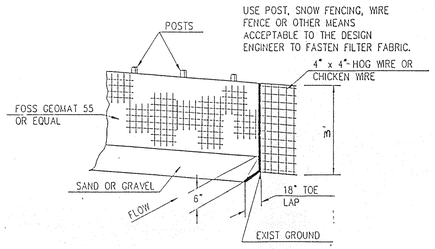
NOT TO SCALE



SEDIMENTATION SWALE DETAIL

NOT TO SCALE

LOCATION	b(ft.)	S(ft.)	L(ft.)

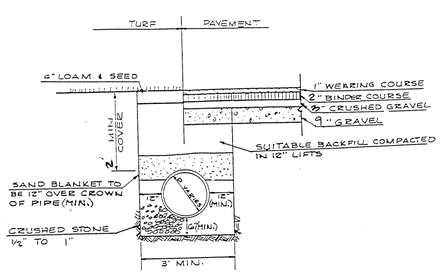


SILTATION FENCE DETAIL

NOT TO SCALE

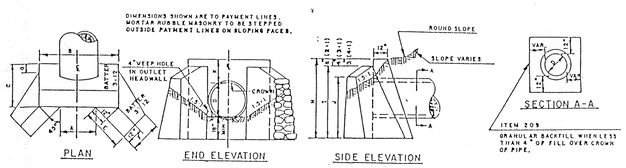
TEMPORARY EROSION CONTROL NOTES:

1. BALED HAY AND STRAW WILL BE TYPICALLY PLACED AT 3" ± BELOW EXISTING GROUND OR FINISHED GRADE.
2. SEDIMENT DEPOSITS UPSTREAM OF THE BALES SHALL BE REMOVED ON A REGULAR BASIS.
3. HAY BALES SHALL BE STAKED WITH 2" X 2" POSTS OR EQUIVALENT STAKING AND SHALL EXTEND ONE FOOT MINIMUM INTO THE GROUND.
4. PROVIDE TYPE "C" EROSION CONTROL IN SMALL NARROW SWALES BESIDE ROADS AND DRIVES.
5. PROVIDE TYPE "F" EROSION CONTROL AROUND ALL CATCH BASINS UNTIL VEGETATION IS ESTABLISHED OR UNTIL PAVING IS IN PLACE.
6. PROVIDE TYPE "D" EROSION CONTROL IN ALL WIDE SWALES BEHIND BUILDINGS AS SHOWN ON THE EROSION PROTECTION PLAN.
7. PROVIDE TYPE "B" EROSION CONTROL AT THE TOE OF ALL FILL SLOPES WHICH MAY AFFECT THE WETLANDS AREAS.



TYPICAL DRAIN TRENCH DETAIL

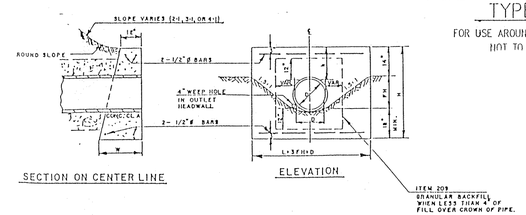
N.T.S.

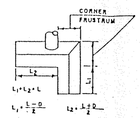


Diam. D in.	Area of Pipe (SF)	QUANTITIES IN CU. YD. Per Headwall R.S.M.	Exc. for Pipe D.D.	Pipe Exc. for Pipe L.L.	Item 209 for Pipe L.L.	DIMENSIONS A	B	C	E	F	G	H	I	J	K
2:1 SLOPE															
24	3.14	2.43	1.89	.148	0.41	2'-4"	5'-4"	2'-3"	2'-11"	1'-11"	0'-6"	5'-0"	6'-6"	1'-10"	1'-6"
30	4.91	3.19	2.28	.185	0.56	3'-1"	5'-11"	2'-5"	3'-6"	2'-0"	0'-5"	5'-6"	5'-0"	4'-1"	1'-6"
36	7.07	4.03	2.57	.222	0.72	3'-8"	6'-6"	2'-6"	4'-1"	2'-1"	0'-4"	6'-0"	5'-6"	4'-4"	1'-6"
42	9.62	5.10	3.09	.259	0.90	4'-3"	7'-1"	2'-8"	5'-0"	2'-2"	0'-4"	6'-6"	6'-0"	4'-10"	1'-6"
48	12.57	6.68	3.53	.296	1.10	4'-10"	7'-8"	2'-10"	5'-8"	2'-3"	0'-2"	7'-3"	6'-0"	5'-1"	1'-6"
54	15.90	7.92	3.95	.333	1.32	5'-5"	8'-3"	2'-11"	6'-3"	2'-4"	0'-2"	7'-9"	7'-3"	5'-4"	1'-9"
60	19.63	9.39	4.16	.370	1.55	6'-0"	8'-10"	3'-1"	6'-11"	2'-5"	0'-2"	8'-3"	7'-9"	5'-8"	1'-9"
66	23.76	10.90	4.81	.407	1.79	6'-7"	9'-5"	3'-2"	7'-5"	2'-6"	0'-0"	8'-9"	8'-3"	5'-11"	1'-9"
72	28.27	12.64	5.22	.445	2.05	7'-2"	10'-0"	3'-4"	8'-1"	2'-7"	0'-1"	9'-3"	8'-9"	6'-3"	1'-9"
3:1 SLOPE															
24	3.14	2.83	2.09	.148	0.41	2'-4"	5'-4"	2'-3"	3'-6"	2'-0"	0'-6"	5'-0"	6'-6"	1'-10"	1'-6"
30	4.91	3.73	2.51	.185	0.56	3'-1"	5'-11"	2'-5"	4'-3"	2'-1"	0'-6"	5'-6"	5'-2"	4'-1"	1'-6"
36	7.07	4.69	2.90	.222	0.72	3'-8"	6'-6"	2'-6"	4'-11"	2'-2"	0'-4"	6'-0"	5'-8"	4'-4"	1'-6"
42	9.62	6.47	3.46	.259	0.90	4'-3"	7'-1"	2'-8"	6'-0"	2'-4"	0'-3"	6'-9"	6'-3"	5'-3"	1'-9"
48	12.57	7.85	3.93	.296	1.10	4'-10"	7'-8"	2'-10"	6'-8"	2'-5"	0'-3"	7'-3"	6'-9"	5'-11"	1'-9"
54	15.90	9.37	4.37	.333	1.32	5'-5"	8'-3"	2'-11"	7'-5"	2'-6"	0'-2"	7'-9"	7'-5"	5'-11"	1'-9"
60	19.63	11.10	4.81	.370	1.55	6'-0"	8'-10"	3'-1"	8'-1"	2'-7"	0'-2"	8'-3"	7'-11"	6'-3"	1'-9"
66	23.76	12.95	5.36	.407	1.79	6'-7"	9'-5"	3'-2"	8'-10"	2'-8"	0'-0"	8'-9"	8'-5"	6'-7"	1'-9"
72	28.27	15.03	5.86	.445	2.05	7'-2"	10'-0"	3'-4"	9'-4"	2'-9"	0'-0"	9'-3"	8'-11"	6'-11"	1'-9"
4:1 SLOPE															
24	3.14	3.05	2.21	.148	0.41	2'-4"	5'-4"	2'-3"	3'-10"	2'-1"	0'-6"	5'-0"	6'-9"	1'-3"	1'-6"
30	4.91	4.02	2.64	.185	0.56	3'-1"	5'-11"	2'-5"	4'-7"	2'-2"	0'-5"	5'-6"	5'-3"	1'-7"	1'-6"
36	7.07	5.10	3.03	.222	0.72	3'-8"	6'-6"	2'-6"	5'-4"	2'-3"	0'-4"	6'-0"	5'-9"	1'-0"	1'-6"
42	9.62	6.71	3.65	.259	0.90	4'-3"	7'-1"	2'-8"	6'-4"	2'-5"	0'-3"	6'-9"	6'-6"	1'-6"	1'-9"
48	12.57	8.60	4.16	.296	1.10	4'-10"	7'-8"	2'-10"	7'-1"	2'-6"	0'-2"	7'-3"	7'-0"	1'-11"	1'-9"
54	15.90	10.28	4.62	.333	1.32	5'-5"	8'-3"	2'-11"	8'-1"	2'-7"	0'-2"	7'-9"	7'-6"	2'-3"	1'-9"
60	19.63	12.18	5.16	.370	1.55	6'-0"	8'-10"	3'-1"	8'-10"	2'-8"	0'-1"	8'-3"	8'-0"	2'-7"	1'-9"
66	23.76	14.24	5.67	.407	1.79	6'-7"	9'-5"	3'-2"	9'-7"	2'-9"	0'-0"	8'-9"	8'-6"	2'-10"	1'-9"
72	28.27	16.54	6.21	.445	2.05	7'-2"	10'-0"	3'-4"	10'-3"	2'-10"	0'-0"	9'-3"	8'-11"	2'-4"	1'-9"

TYPICAL HEADWALL (with 45° Wingwalls)

NOT TO SCALE





DIAM. D INCHES	AREA OF PIPE SQ.FT.	MAX. PER FT. OF WALL CU.YD.	MAX. PER HOLE CU.YD.	MAX.PER STD. HOR. CU.YD.	STEEL PER HOR. LBS.	L LENGTH OF BARS	PIPE EXC. 1' DEPTH 1'LENGTH CU.YD.	HOR.EXC. PER HOR. 1' DEPTH CU.YD.	ITEM 209 PER LIN.FT.	HOR. LENGTH L	HOR. HEIGHT H	FILL HEIGHT FH	h	WIDTH AT BOTTOM OF HOR. W	L HEADWALL MAX.IN CORNER FRUSTRUM CU.YD.	HOR. EXC. PER HOR. 1' DEPTH CU.YD.
12	0.79	0.204	2.00	0.80	11	1'-10"	0.111	0.911	0.28	4'-3"	3'-0"	1'-9"	1'-5"	1'-11-1/4"	0.31	1.195
15	1.23	0.240	3.18	1.32	16	5'-8"	0.120	1.206	0.31	6'-0"	4'-3"	1'-7"	1'-6"	2'-0-3/4"	0.32	1.588
18	1.77	0.269	4.53	1.66	18	5'-8"	0.130	1.375	0.35	7'-0"	4'-6"	1'-10"	1'-6"	2'-1-1/2"	0.42	1.700
24	3.14	0.301	7.98	2.41	25	6'-8"	0.148	1.723	0.41	9'-0"	5'-0"	2'-4"	1'-6"	2'-3"	0.51	2.086
30	4.91	0.344	12.60	3.32	29	10'-8"	0.185	2.106	0.56	11'-0"	5'-6"	2'-10"	1'-6"	2'-4-1/2"	0.61	2.497
36	7.07	0.389	18.44	4.43	35	12'-8"	0.222	2.580	0.72	13'-0"	6'-0"	3'-4"	1'-6"	2'-6"	0.72	2.937
42	9.62	0.461	26.60	6.26	42	15'-2"	0.259	3.082	0.90	15'-0"	6'-6"	4'-0"	1'-9"	2'-8-1/4"	0.94	3.549
48	12.57	0.512	35.55	7.77	47	17'-2"	0.296	3.520	1.10	17'-0"	7'-3"	4'-7"	1'-9"	2'-9-3/4"	1.05	4.019
54	15.90	0.563	46.09	9.44	52	19'-2"	0.333	3.977	1.22	19'-0"	7'-9"	5'-2"	1'-9"	2'-11-1/4"	1.20	4.522
60	19.63	0.621	56.25	11.42	58	21'-2"	0.370	4.451	1.35	21'-0"	8'-3"	5'-7"	1'-9"	3'-0-3/4"	1.37	5.024
66	23.76	0.689	72.34	13.68	63	23'-2"	0.407	4.947	1.79	23'-0"	8'-9"	6'-1"	1'-9"	3'-2-1/4"	1.55	5.559
72	28.27	0.760	88.22	15.79	69	25'-2"	0.445	5.460	2.05	25'-0"	9'-3"	6'-7"	1'-9"	3'-3-3/4"	1.75	6.108

TYPICAL HEADWALL (No Wingwalls)

NOT TO SCALE

STAKED HAY BALE (BALE SIZE APPROX. 36"x 18"x 24" STAKE SIZE APPROX. 2"x 2"x 3')

CATCH BASIN

EROSION PROTECTION TYPE "F"

FOR USE AROUND CATCH BASINS

NOT TO SCALE

NOTE:

ALL WORK SHALL CONFORM TO THE TOWN OF MARION DEPT. OF HIGHWAYS STANDARD SPECIFICATIONS.

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ROBERT J. BASKERVILLE
CIVIL
NO. 34805
10/9/92

SK PROPERTIES
NEW IPSWICH, N.H.

DRAINAGE DETAILS

SCALE: NOTED	DATE: DEC. 18, 1992	SHEET D-2	REV. C
DESIGN GAC	DRAWN	CHECKED RJB	FB PG 92-004-17

Bedford Design Consultants
ENGINEERS AND SURVEYORS
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Telephone (603) 622-5533 Fax (603) 622-4740

DATE	DESCRIPTION	REV.

MAR 8 8 1990