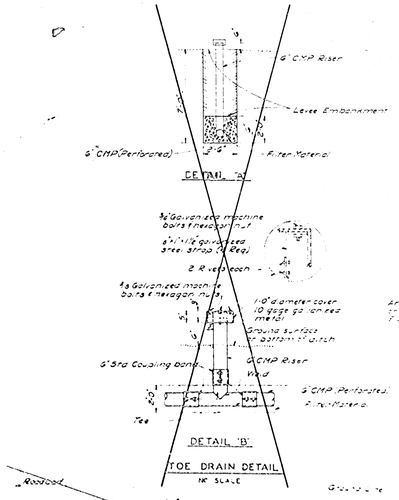
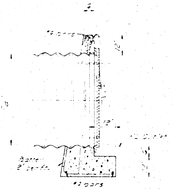
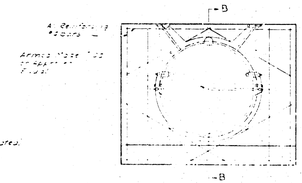
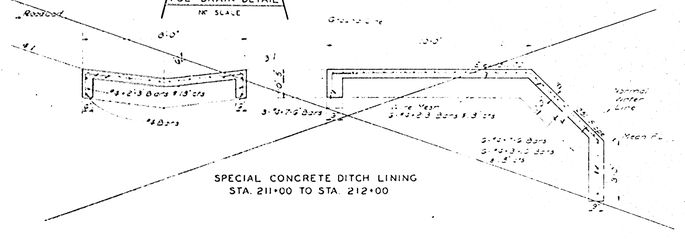
BILL OF MATERIAL			
d=20"		d=36"	
Bar No.*	Length	Bar No.*	Length
4	6'-4"	4	7'-7"
3	5'-9"	3	8'-9"
2	4'-3"	2	4'-8"
2	4'-11"	2	5'-5"
Class A Conc. 1.1 Cu.yd.		Class A Conc. 1.6 Cu.yd.	
Reinf. Steel 41 Lbs.		Reinf. Steel 47 Lbs.	

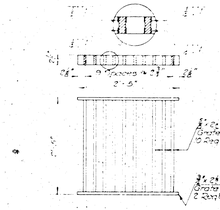
*All bars are size #6

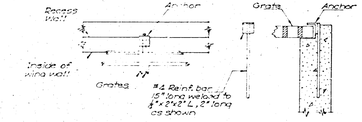




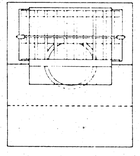


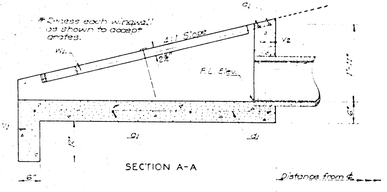






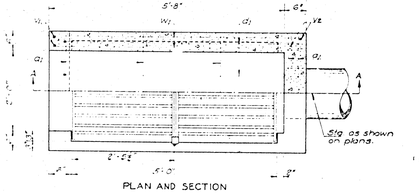
Note:- Use Class 'A' concrete throughout. Bevel all exposed edges with a 3/4" triangular moulding. No deductions in concrete quantities shall be made for pipe openings.





BILL OF MATERIAL		
d=36"		
Bar No.		Length
G1	8	8'-4"
G2	8	8'-4"
W1	4	11'-0"
W2	4	11'-0"
W3	4	8'-0"
Class A Conc.	0.8 Cu.yd.	
Reinf. Steel	55 Lbs.	
Struct. Steel	37.6 Lbs.	
Total Weight	92.6 Lbs.	

Note:- All reinforcing bars are size #5



* Construct recess in wingwall and install grate where called for on the plans.

Note:- Construct pipe rise to be consistent with "B" of 32-13 KMAC

NO.	DATE	REVISIONS	BY	APP'D
	11-55	Add grate anchor	WB	RJR

STATE HIGHWAY COMMISSION OF KANSAS

CONCRETE HEADWALL STRUCTURAL STEEL GRATE

TYPE III (INLET)

STD. NO. 303

DESIGNED RJR	DETAILED WB	CHECKED WB	TRACED WB	
DESIGN CK	DETAIL CK	CHECK CK	TRACE CK	