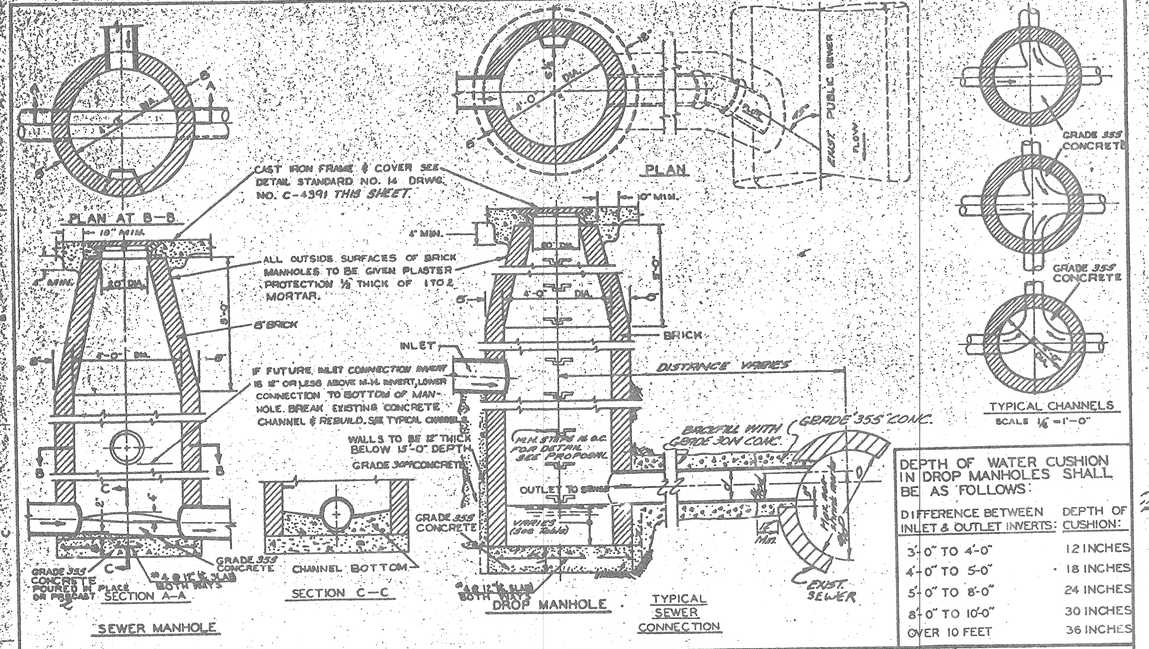


DEPTH OF WATER CUSHION IN DROP MANHOLES SHALL BE AS FOLLOWS:	
DIFFERENCE BETWEEN INLET & OUTLET INVERTS:	DEPTH OF CUSHION:
3'-0" TO 4'-0"	12 INCHES
4'-0" TO 5'-0"	18 INCHES
5'-0" TO 8'-0"	24 INCHES
8'-0" TO 10'-0"	30 INCHES
OVER 10 FEET	36 INCHES

DESIGNED BY	APPROVED BY	CITY OF DETROIT
DRAWN BY J. Chaudhuri	Edw. Erickson ENGINEER OF STREETS	DEPARTMENT OF PUBLIC WORKS
TRACED BY	N. A. Hicks ASSTT. CITY ENGINEER	CITY ENGINEER'S OFFICE
CHECKED BY N. Kaloudis	Alfred Bonaventura CITY ENGINEER	BUREAU OF DESIGN

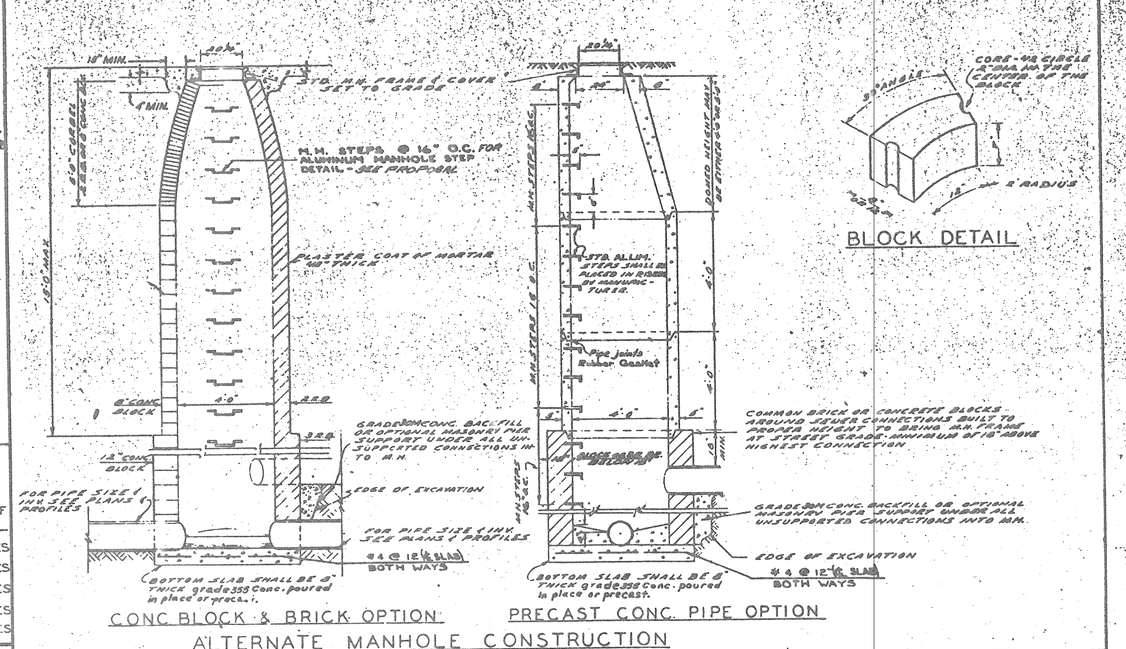
DETAILS OF STANDARD
SEWER & DROP MANHOLES

BOOK NO. ___ PG. ___ SCALE 3/8" = 1'-0" DATE: 8-27-86

DETAIL STANDARD NO. 10 DWG. NO. C-4387

1971 | 1970 | 1969 | 1968 | 1967

REVISIONS
DESCRIPTION | DRWG. | CHKD. | APVD. | DATE
Revised M.H. Steps T.Block Det. E1 | J.C.C.B. | N.M. | 11-1-85
Grade Beam Detail | J.C.C.B. | N.M. | 1-30-86



DESIGNED BY	APPROVED J. Erickson	CITY OF DETROIT
DRAWN BY T.A.HIRIANI	ENGINEER OF STREETS N. A. Hicks	DEPARTMENT OF PUBLIC WORKS
TRACED BY	ASSTT. CITY ENGINEER Alfred Bonaventura	BUREAU OF DESIGN
CHECKED BY K. Kaloudis	CITY ENGINEER	DETAIL STANDARD NO. 12

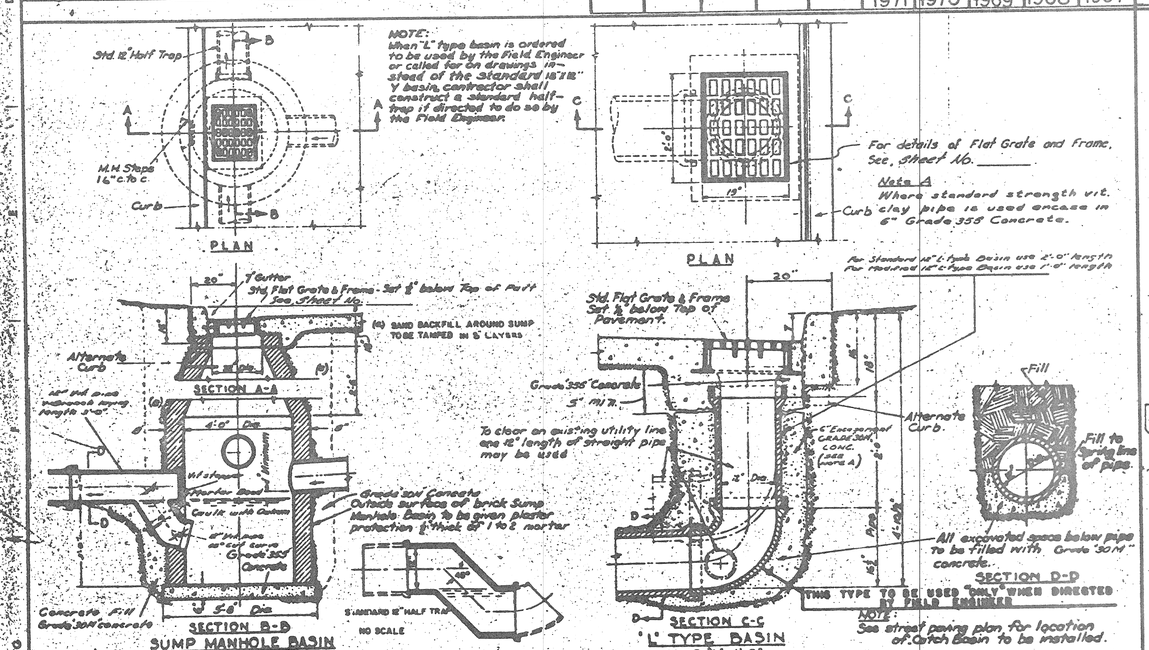
STD. SEWER MANHOLES CONSTRUCTION ALTERNATES

BOOK NO. ___ SCALE NONE

PAGE NO. ___ DATE 5-12-83

DWG. NO. C-4395-A

REVISIONS
DESCRIPTION | DRWG. | CHKD. | APVD. | DATE
Substitute Section | J.C.C.B. | N.M. | 1-30-86
Grade Beam Detail | J.C.C.B. | N.M. | 1-30-86



DESIGNED BY	APPROVED J. Erickson	CITY OF DETROIT
DRAWN BY J. Chaudhuri	ENGINEER OF STREETS N. A. Hicks	DEPARTMENT OF PUBLIC WORKS
TRACED BY	ASSTT. CITY ENGINEER Alfred Bonaventura	CITY ENGINEER'S OFFICE
CHECKED BY Kaloudis	CITY ENGINEER	BUREAU OF DESIGN

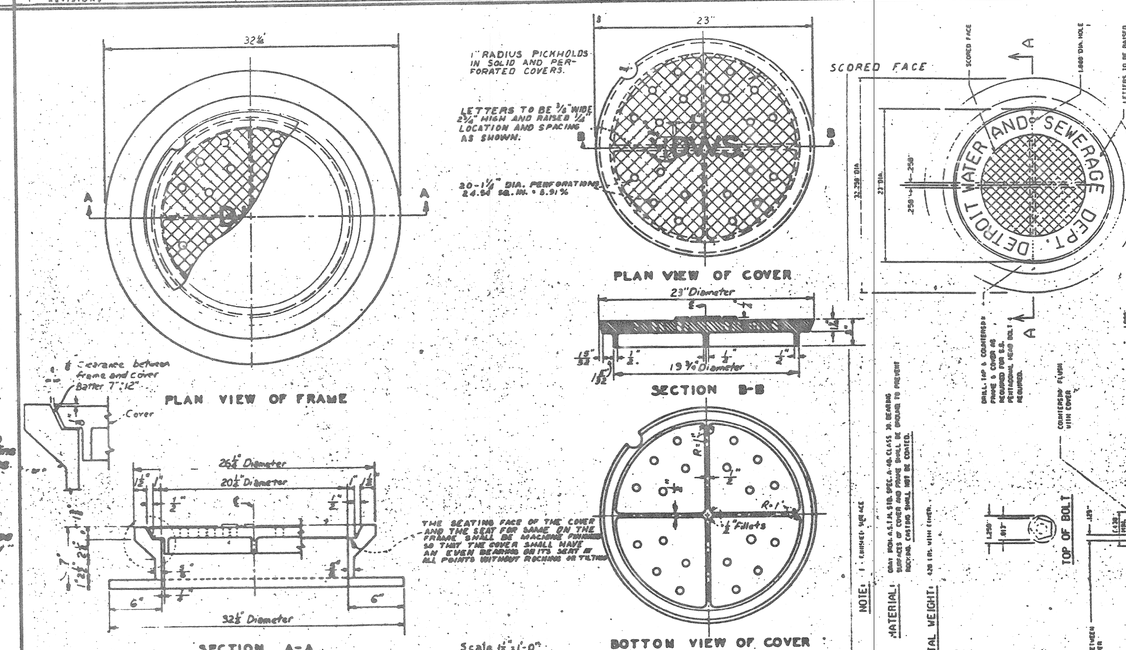
TYPICAL SUMP MANHOLE & 'L' TYPE CATCH BASINS

BOOK NO. ___ PG. ___ SCALE AS SHOWN DATE: MARCH 5, 1986

DETAIL STANDARD NO. 15 DWG. NO. C-4388

1971 | 1970 | 1969 | 1968 | 1967 | 1966 | 1965 | 1964 | 1963 | 1962 | 1961 | 1960

REVISIONS
DESCRIPTION | DRWG. | CHKD. | APVD. | DATE
Revised M.H. Steps I.C. | J.C.C.B. | N.M. | 1-30-86
Revised Detail from Concrete | J.C.C.B. | N.M. | 1-30-86



DESIGNED BY	APPROVED	CITY OF DETROIT
DRAWN BY E. Erickson	ENGINEER OF STREETS N. A. Hicks	DEPARTMENT OF PUBLIC WORKS
TRACED BY	ASSTT. CITY ENGINEER Alfred Bonaventura	CITY ENGINEER'S OFFICE
CHECKED BY N. Kaloudis	CITY ENGINEER	BUREAU OF DESIGN

DETAILS OF STANDARD - MANHOLE FRAME AND COVER -

BOOK NO. - SCALE: AS SHOWN DATE: OCTOBER 4, 1986

DETAIL STANDARD NO. 13 DWG. NO. C-43

1971	1970	1969	1968	1967	1966	1965	1964	1963	1962	1961	1960	

REVISIONS
DESCRIPTION | DRWG. | CHKD. | APVD. | DATE
Revised Detail from Concrete | J.C.C.B. | N.M. | 1-30-86

CITY OF DETROIT
CITY ENGINEERING DIVISION - D.P.W.
BUREAUS OF STREETS AND HIGHWAYS
FOR

WIDENING OF JOHN R. FROM HANCOCK TO WARREN, RESURFACING OF JOHN R. FROM CANFIELD TO WARREN, RECONSTRUCTION OF MEDIAN ON EAST WARREN AND MISC. CONSTRUCTION

SPECIAL DETAILS

SHEET 12 OF 14 SHEETS
CONTRACT NO.
ASSIGNMENT NO.
DATE

RD-2
A120-234

REVISIONS LOCATED BY COORDINATES ON SHEET.
NO. | DESCRIPTION | DRWG. | CHKD. | APVD. | DATE

DESIGNED BY
DRAWN BY
TRACED BY
CHECKED BY
APPROVED
CITY ENGINEER

REFERENCE DRAWINGS

ORIGINAL SIZE 11" x 17"

COLOR	SYMBOL	DESCRIPTION
BLACK		PROPERTY AND LOT LINES
"		PROPOSED CURB LINES AND HEADERS AT RETURNS
"		EXISTING CURB LINES OR EDGE OF PAVEMENT.
"		PROPOSED CURB OR PAVING ON INTERSECTING STREET
"		PROPOSED SEWER TO CATCH BASINS
"	12"CB INV ELEV 15"CB	EXISTING LATERAL SEWERS
"	6"SEWER 10"SEWER	EXISTING PUBLIC SEWERS
"		EXISTING GAS LINES
"		EXISTING WATER LINES
BLACK	CURB LINE CURB LINE	ELEV OF SEWER INVERT PROPOSED C.B. M.H. & INLET SEWER
"	ELEV	EXISTING C.B., M.H. & INLET SEWERS
"		PROPOSED C.B. M.H. & INLET SEWERS ON INTERSECTING STREETS

SYMBOL	DESCRIPTION
	GUARD RAIL
	FENCE
	SEWER MANHOLE
	P.L.C. MANHOLE
	WATER MANHOLE OR GRATE
	GAS MANHOLE OR GRATE
	WESTERN UNION MANHOLE
	MICHIGAN BELL MANHOLE
	EDISON STEAM MANHOLE
	EDISON ELECTRIC MANHOLE
	FIRE DEPT MANHOLE
	POLICE DEPT MANHOLE
D S R	D S R MANHOLE
	FIRE DEPT STANDARD HYDRANT
	FIRE DEPT HIGH PRESSURE HYDRANT
	FIRE DEPT CALL BOX
	FIRE DEPT HIGH PRESSURE MANHOLE
	POLICE DEPT CALL BOX
	P.L.C. LIGHT POLE
	P.L.C. POLE
	TELEPHONE POLE
	EDISON POLE
	TREE PLANTER

SYMBOL	DESCRIPTION
	SIGN POST
	PARKING METER
#	STREET SIGN POST
	CATCH BASIN
(W)	WATER METER
(-)	WATER SHUT OFF
(+)	GAS SHUT OFF
	GAS DRIP
	DRAIN OR VENT
	GUY POLE
MB	MAIL BOX
	AREAWAY OR COAL CHUTE
	FLAG POLE
	SPRINKLER BOX
	DEAD MANHOLE
	TREE
	P.L.C. & F.D. MANHOLE FILLED WITH SAND
	TRACK DRAIN
	TRAFFIC SIGN POST.
(2)	TRAFFIC SIGNAL LIGHT
	TRAFFIC SIGNAL CONTROL BOX
	D S R DANGER PLATE.
TC	TRASH CONTAINER

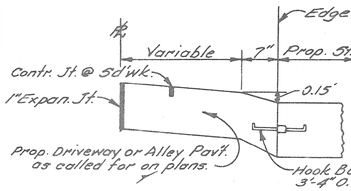
SYMBOL	DESCRIPTION
	DETROIT EDISON ELECTRIC CONDUIT
	DETROIT EDISON STEAM CONDUIT
	WESTERN UNION DUCTS
	MICHIGAN BELL TELEPHONE DUCTS
	P.L.C. CONDUITS
	DETROIT FIRE OR POLICE DEPT CONDUITS (P.L.C. COMMUNICATIONS)

REVISIONS	DESCRIPTION	DESIGNED BY	DRAWN BY T. RANSOM	TRACED BY T.H.	CHECKED BY M. Knowles
A "A" DIMENSIONS MODIFIED	W.M.K. 4-30				
B R.R. SYMBOL & SLOPE	W.M.K. 4-30				
C CHANGE RADIUS STORM	A.S.C. 4-30				

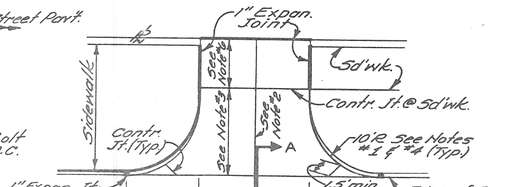
CITY OF DETROIT
DEPARTMENT OF PUBLIC WORKS
CITY ENGINEER'S OFFICE
BUREAU OF DESIGN
PAVING
DETAIL NO. 25

STANDARD SYMBOLS FOR UTILITIES

SCALE NO SCALE
DATE
DWG NO. C-902-A



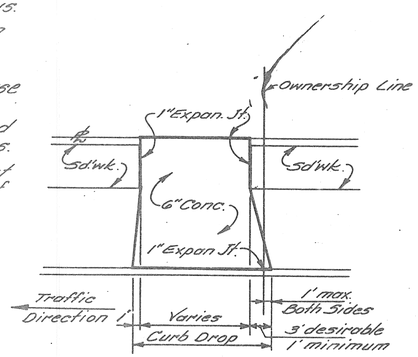
SECTION A-A
SCALE 1"=1'



COMMERCIAL DRIVEWAY OR ALLEY DETAIL
SCALE 1"=10'

GENERAL NOTES
COMMERCIAL DRIVEWAYS & ALLEYS

1. Transition edge of driveway or alley from curb at the street to no curb at the end of the driveway or alley radius.
2. Where driveway or alley exceeds 15' in width a contraction joint shall be placed longitudinally along ℄.
3. When distance exceeds 15', a transverse contraction joint will be required.
4. Radius 10' unless otherwise directed by the Engineer, or as shown on plans.
5. All work & materials reqd to construct the driveway or alley between the end of returns will be paid for as "Concrete Pavement" of the specified thickness.
6. Minimum & Maximum Slopes of 1/4"/ft. & 3/4"/ft. shall be used in the sidewalk area.



RESIDENTIAL DRIVEWAY DETAIL
SCALE 1"=10'

REVISIONS	DESCRIPTION	DESIGNED BY	DRAWN BY	TRACED BY	CHECKED BY
REVISIONS LOCATED BY COORDINATES ON SHEET			J.R.D.		K.B.H.

APPROVED: Allen E. Pruss
ENGINEER OF EXPRESSWAYS

CITY OF DETROIT
CITY ENGINEERING DIVISION - D.P.W.
BUREAUS OF STREETS AND HIGHWAYS
FOR

WIDENING OF JOHN R. FROM HANCOCK TO WARREN, RESURFACING OF JOHN R. FROM CANFIELD TO WARREN, RECONSTRUCTION OF MEDIAN ON EAST WARREN AND MISC. CONSTRUCTION

SPECIAL DETAILS

SHEET 13 OF 14 SHEETS
CONTRACT NO.
ASSIGNMENT NO.
DATE

QUANTITY SHEET

ITEMS	AS PER PLANS									AS CONSTRUCTED	
	SHEET NO'S.		3	4	5	6	7	8	9	SHEET NO'S.	
	TOTALS	UNITS	TYPICAL CROSS SECTION	REMOVALS & UTILITIES	PLANS			PAVEMENT MARKINGS		TOTALS	UNITS
				JOHN R. FROM HANCOCK TO WARREN & WARREN FROM JOHN R. TO BRUSH	JOHN R. STA. 00+00 TO STA. 13+00. 79	JOHN R. STA. 13+00. 79 TO WARREN	WARREN FROM JOHN R. TO BRUSH	JOHN R. FROM CANFIELD TO HANCOCK	JOHN R. FROM HANCOCK TO WARREN & WARREN FROM JOHN R. TO BRUSH		
REMOVING TREES (8" - 18")	4	EACH		4							
REMOVING PAVEMENT	513	SYDS		496	17						
REMOVING CURB	790	LFT.		330	460						
REMOVING CURB AND GUTTER	340	LFT.		340							
REMOVING SIDEWALK	427	SYDS	10	356	61						
REMOVING MASONRY AND CONCRETE STRUCTURE	67	CYDS	50	17							
REMOVING FENCE	330	LFT.		330							
ABONDONING DRAINAGE STRUCTURES	2	EACH		2							
EARTH EXCAVATION	500	CYDS				400	100				
SUBGRADE UNDER CUTTING, TYPE II	10	CYDS	10								
GRANULAR MATERIAL CLASS II	130	CYDS				90	40				
AGGREGATE BASE UNDER BITUMINOUS (L.M.)	10	CYDS				10					
AGGREGATE BASE UNDER CONCRETE (L.M.)	135	CYDS				85	50				
REMOVING BITUMINOUS SURFACE	190	SYDS			130	60					
COLDMILLING BITUMINOUS SURFACE	8000	SYDS			6500	1500					
BITOMINOUS PRIME COAT	1580	GAL.			1280	300					
CHIPPING CONCRETE PAVEMENT FOR JOINTS	22	SYDS				22					
HAND PATCHING	6	TON			4	2					
BITUMINOUS MIXTURE - 3C	915	TON			745	170					
BITUMINOUS MIXTURE - 4C	860	TON			700	160					
BITUMINOUS APPROACH	10	TON			6	4					
BITUMINOUS SHOULDER	14	TON			14						
CONDITIONING EXISTING PAVEMENT	25	TON			20	5					
CONCRETE PAVEMENT - NONREINFORCED - 8"	127	SYDS	20		17	90					
CONCRETE PAVEMENT WITH INTEGRAL CURB - REINFORCED 9"	560	SYDS				100	460				
CEMENT	1	TON	1								
PLANE - OF - WEAKNESS JOINT D1	1550	LFT.			1250	300					
EXPANSION ANCHORED LANE - TIES	112	EACH	100		12						
REMOVING PAVEMENT (REPAIR)	45	SYDS	20		10	15					
CONCRETE PAVEMENT REPAIR NONREINFORCED, 10"	45	SYDS	20		10	15					
CLASS C - 76 - III SEWER, 12", TRENCH DETAIL B	25	LFT.				25					
SEWER TAP, 12"	2	EACH				2					
SEWER TRAP, 12"	2	EACH				2					
SEWER CLEANOUT	30	LFT.	30								
DRAINAGE STRUCTURE COVER	500	LBS.			300	200					
CLEANING DRAINAGE STRUCTURE	1	EACH			1						
ADJUSTING WATER SHUTOFF	7	EACH		3	4						
ADJUSTING DRAINAGE STRUCTURE COVER, CASE 1	64	EACH		4	56	3	1				
ADJUSTING DRAINAGE STRUCTURE COVER, CASE 2	2	EACH			1	1					
RECONSTRUTING DRAINAGE STRUCTURE, CASE 1	6	EACH	4			1	1				
CATCH BASIN "B"	2	EACH				2					
CONCRETE CURB DETAIL CD	650	LFT.	20		460	170					
CONCRETE SIDEWALK, 4"	4420	SFT.	90		450	3000	880				
CONCRETE SIDEWALK, 6"	1100	SFT.			100	1000					
SIDEWALK RAMPS - MODIFIED	560	SFT.			240	320					
CHAIN LINK FENCE, 72"	170	LFT.				170					
MOBILIZATION	1	L.SUM	1								
FAST-DRY PAVEMENT MARKING, 4", WHITE	275	LFT.							275		
INLAY COLD PLASTIC PAVEMENT MARKING, 4", WHITE	1768	LFT.						1398	370		
INLAY COLD PLASTIC PAVEMENT MARKING, 4", YELLOW	2976	LFT.						2396	580		
INLAY COLD PLASTIC PAVEMENT MARKING, 6", WHITE	200	LFT.							200		
INLAY COLD PLASTIC PAVEMENT MARKING, 6", YELLOW	230	LFT.						230			
INLAY COLD PLASTIC PAVEMENT MARKING, 18", STOP BAR	620	LFT.						450	170		
INLAY COLD PLASTIC PAVEMENT MARKING, 6", CROSSWALK	2200	LFT.						1560	640		
INLAY COLD PLASTIC PAVEMENT MARKING, ONLY	15	EACH						6	9		
INLAY COLD PLASTIC PAVEMENT MARKING, NO LEFT TURN	1	EACH						1			
INLAY COLD PLASTIC PAVEMENT MARKING, LEFT TURN ARROW SYMBOL	14	EACH						7	7		
INLAY COLD PLASTIC PAVEMENT MARKING, RIGHT TURN ARROW SYMBOL	2	EACH							2		
LIGHTED ARROW, TYPE A - FURNISHED	4	EACH	4								
LIGHTED ARROW, TYPE A - OPERATED	4	EACH	4								
BARRICADE, TYPE II, LIGHTED - FURNISHED	170	EACH	170								
BARRICADE, TYPE II, LIGHTED, OPERATED	115	EACH	115								
MINOR TRAFFIC DEVICES	1	L.SUM	1								
SIGN, TYPY B TEMPORARY - FURNISHED	400	SFT.	400								
CLASS A SODDING	484	SYDS				290	194				
WATER	1	UNIT					1				
TOP SOIL SURFACE (L.M.)	64	CYDS				40	24				
REMOVE HYDRANT	2	EACH		2							
RELOCATE HYDRANT	2	EACH		2							
4" PVC IRRIGATION SLEEVE	1	L.SUM					1				

PLAN ESTIMATE BY: A.A. & H.E. DATE 11/1994 CHECKED BY: M.K. & J.J. DATE 12/1994 DATA COMPLETED

PROJ. ENG. DATE

HISTORY CHECKED ENTERED ON PLANS BY DATE

WIDENING OF JOHN R. FROM HANCOCK TO WARREN, RESURFACING OF JOHN R. FROM CANFIELD TO WARREN, RECONSTRUCTION OF MEDIAN ON EAST WARREN AND MISC. CONSTRUCTION