

PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	N/A	1980	356	634

ESTIMATED QUANTITIES
(NOT GUARANTEED)

ITEM	QUANTITY	UNIT
MUCK EXCAVATION	760	C.Y.
BRIDGE EXCAVATION	6,900	C.Y.
CLASS B ROCK EXCAVATION	70	C.Y.
DRAINAGE STRUCTURE REMOVED	1	L.S.
GRAVEL BORROW	980	C.Y.
GRAVEL BORROW FOR BRIDGE FOUNDATION	10	C.Y.
FINE AGGREGATE FOR BRIDGE FOUNDATION	700	C.Y.
FINE AGGREGATE FOR FILTER	450	C.Y.
CRUSHED STONE FOR BRIDGE FOUNDATION	830	TON
CRUSHED STONE FOR FILTER	510	TON
DRAIN CONNECTIONS	4	EACH
CONCRETE FOR CUT-OFF WALLS	85	C.Y.
CONTROL OF WATER, CULVERT NO. Q-1-55	1	L.S.
CULVERT STRUCTURE, CULVERT NO. Q-1-55	1	L.S.
HANDLING FLOWS AT CENTRE STREET INLET ON STRUCTURE		L.S.

GENERAL NOTES

DESIGN:

"IN ACCORDANCE WITH THE 1977 SPECIFICATIONS OF THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS WITH CURRENT INTERIM SPECIFICATIONS THROUGH 1979, FOR HS20-44 LOADING."

GEOMETRY:

ALL DIMENSIONS SHOWN ON THE PLAN ARE HORIZONTAL AND ARE FOR THE STRUCTURE AT 68°F, UNLESS OTHERWISE SHOWN ON THE PLANS.

BENCH MARK:

B.M. #11 TOP OF HYDRANT SPINDLE IN FRONT OF RAYTHEON GUARD HOUSE ON WEST SIDE OF CENTRE STREET (SEE LOCUS PLAN FOR LOCATION)
ELEVATION = 35.62

"ELEVATION IS BASED ON THE U.S.C. AND G.S. MEAN SEA LEVEL DATUM OF 1929."

SURVEY NOTE BOOK NUMBERS:

MASSACHUSETTS DEPARTMENT OF PUBLIC WORKS FIELD SURVEY BOOK NUMBERS 40263 AND 26284.

SCALES:

"SCALES NOTED ON THE PLANS ARE NOT APPLICABLE TO REDUCED SIZE PRINTS. DIVIDE SCALES BY 2 FOR 1/4 SIZE PRINTS (11" x 18")."

FOUNDATIONS:

"FOUNDATIONS MAY BE ALTERED, IF NECESSARY, TO SUIT CONDITIONS ENCOUNTERED DURING CONSTRUCTION, WITH THE APPROVAL OF THE ENGINEER."

UNSUITABLE MATERIAL:

"ALL UNSUITABLE MATERIAL SHALL BE REMOVED WITHIN THE LIMITS OF THE FOUNDATIONS OF THE STRUCTURE, AS DIRECTED BY THE ENGINEER."

REINFORCEMENT:

"REINFORCING STEEL SHALL CONFORM TO THE REQUIREMENTS OF ASTM DESIGNATION A615 GRADE 60. ALL #4 BARS SHALL BE LAPPED 20" AND ALL #5 BARS SHALL BE LAPPED 26". FOR HORIZONTAL BARS WITH 12" OR MORE OF CONCRETE BELOW THE BAR, THE LAP LENGTHS SHALL BE 29" FOR #4 BARS AND 36" FOR #5 BARS.

IF THE ABOVE BARS ARE SPACED 6" OR MORE ON CENTER, THE LAP LENGTH SHALL BE 80% OF THE LAP LENGTH GIVEN ABOVE. ALL OTHER BARS SHALL BE LAPPED 40 BAR DIAMETERS."

REINFORCEMENT (CONT.):

UNLESS OTHERWISE SHOWN ON THE PLANS, REINFORCEMENT IS TO BE PLACED A CLEAR DISTANCE FROM THE FACE OF CONCRETE AS FOLLOWS:

TOP AND BOTTOM OF FOOTINGS	3 INCHES
ALL OTHER LOCATIONS	2 INCHES

DESIGN CRITERIA FOR PRECAST CONCRETE BOX CULVERTS IS SHOWN IN THE CONTRACT SPECIFICATIONS.

HYDRAULIC DATA:

DRAINAGE AREA: (a)	2.91 (TOTAL)	SQUARE MILES
DESIGN DISCHARGE:	750	c.f.s.
DESIGN FREQUENCY:	50	YEAR
DESIGN VELOCITY:	8.9	f.p.s.
DESIGN HIGH WATER:	30.1 (b)	ELEV. FT.

(a) INCLUDES 1.56 SQ. MI. OF UPPER WATERSHED CONTROLLED BY THE OLD QUINCY RESERVOIR.

(b) BASED ON HYDRAULIC GRADE LINE IN FUTURE CULVERT EXTENSION.

BASIC FLOOD DATA:

FOR OUTLET CONDITIONS AT CENTRE STREET

Q ₅₀	ELEVATION FOR PRESENT CONDITION	= 34.3
Q ₅₀	ELEVATION FOR INTERIM CONDITION	= 34.3
Q ₅₀	ELEVATION FOR FUTURE CONDITION	= 30.1
Q ₁₀₀	ELEVATION FOR FUTURE CONDITION	= 31.0

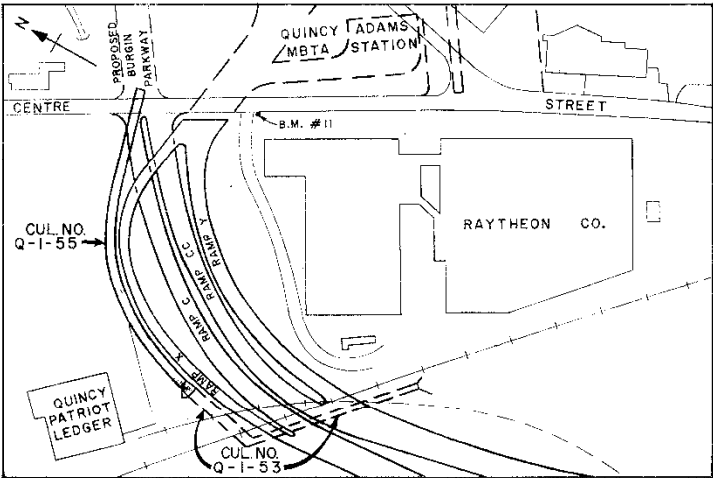
*INTERIM CONDITION BASED ON COMPLETION OF THIS CONTRACT.

LOWER GRADIENTS ARE EXPECTED UPON COMPLETION OF THE PROPOSED BURGIN PARKWAY DRAINAGE CULVERTS AND THE TUNNEL DOWNSTREAM OF SCHOOL STREET.

TRAFFIC:

"AT CENTRE STREET, ONE LANE OF ALTERNATING TRAFFIC MUST BE KEPT OPEN AT ALL TIMES DURING THE DEMOLITION AND CONSTRUCTION PHASES."

FOR KEY PLAN, SEE SHEET 3 OF 7.



LOCUS PLAN

SCALE: 1" = 200 FEET

OCT. 11, 1980	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

SHEET 1 OF 7 SHEETS-CULVERT No. Q-1-55

COMMONWEALTH OF MASSACHUSETTS
METROPOLITAN DISTRICT COMMISSION
ENGINEERING DIVISION

TOWN BROOK
FLOOD CONTROL PROJECT
CENTRE STREET CULVERT

DESIGNED: PRL CHECKED: PRL	GENERAL NOTES		DRAWING NO. 1 7
DRAWN: PRL CHECKED: PRL	REF.	CONT.	SCALE: NONE
	ACC.	64770	DATE: JUNE, 1980



Robert H. Lubker
METCALF & EDDY, INC. ENGINEERS
REG. PROF. ENGR. MASS. NO. 6849

6-25-80

M&E METCALF & EDDY, INC./ENGINEERS
BOSTON/NEW YORK/PALO ALTO/CHICAGO



Francis T. Bergin
CHIEF CONSTRUCTION ENGINEER,
METROPOLITAN DISTRICT COMMISSION
ENGINEERING DIVISION
6-26-80
DATE

DB-408

DB-407

DB-406

DB-409

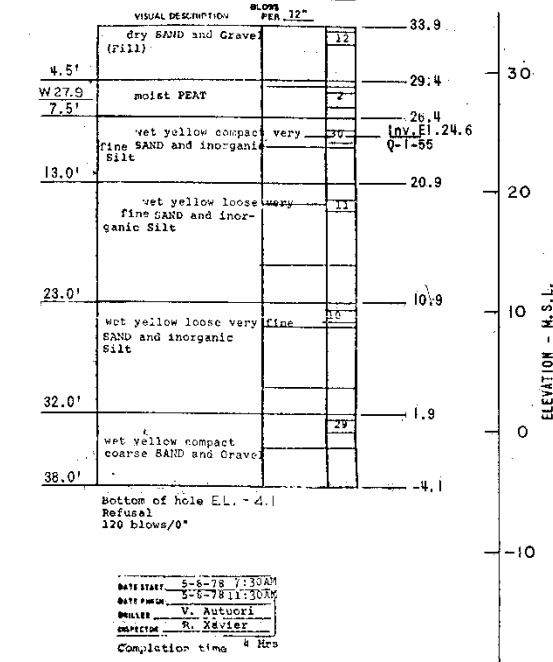
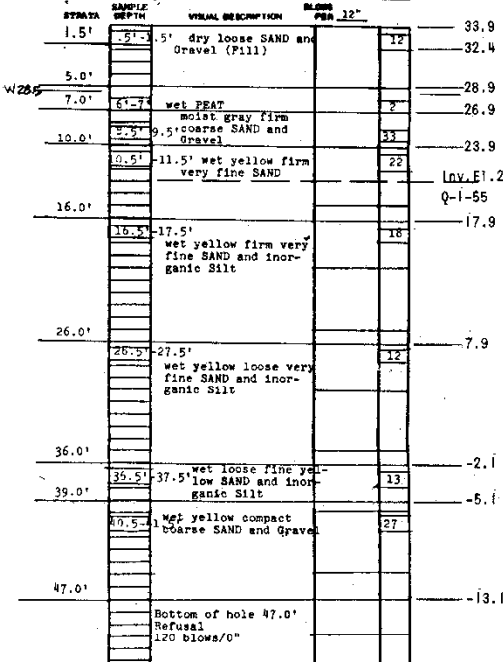
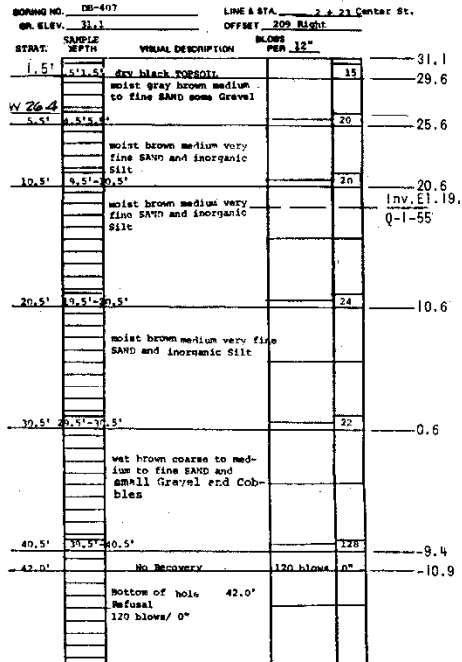
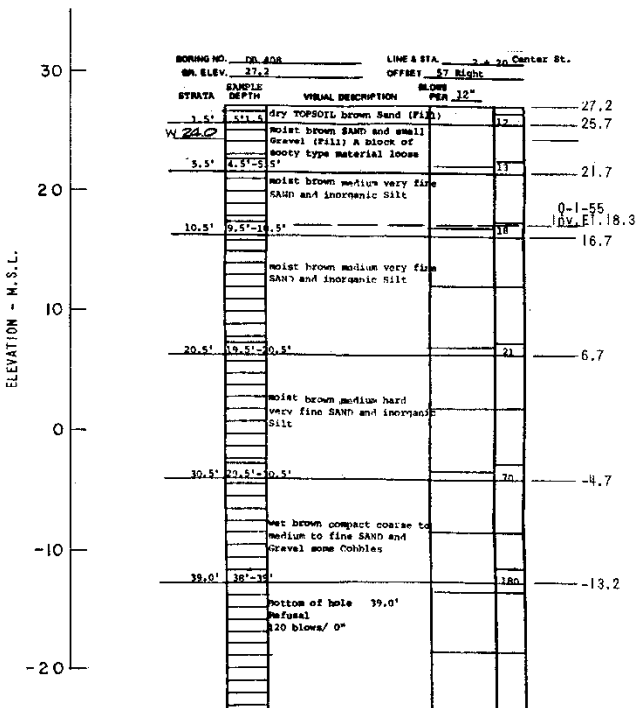
PUB. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	N/A	1980	357	634

BORING NOTES

- LOCATION OF BORINGS SHOWN ON THE PLAN THUS: DB-406
- BORINGS ARE TAKEN FOR PURPOSE OF DESIGN AND SHOW CONDITIONS AT BORING POINTS ONLY, BUT DO NOT NECESSARILY SHOW THE NATURE OF THE MATERIALS TO BE ENCOUNTERED DURING CONSTRUCTION.
- WATER LEVELS SHOWN ON THE BORING LOGS WERE OBSERVED AT THE TIME OF TAKING BORINGS AND DO NOT NECESSARILY SHOW THE TRUE GROUNDWATER LEVEL.
- FIGURES IN COLUMNS INDICATE NUMBER OF BLOWS REQUIRED TO DRIVE A 2" O.D. SPLIT SPOON SAMPLER 12" WITH A 140 POUND WEIGHT FALLING 30 INCHES.
- BORING SAMPLES MAY BE SEEN AT THE RESEARCH AND MATERIALS DIVISION, 99 WORCESTER STREET, WELLESLEY HILLS, MA. (INTERSECTION OF ROUTES 9 AND 128).
- BORING NOS. DB-406, 407, 408 AND 409 WERE TAKEN IN MAY OF 1978 BY BRIGGS ENGINEERING & TESTING CO., INC., 64 WASHINGTON STREET, NORWELL, MA., 02061.
- BORING NOS. 406A AND 408A WERE TAKEN IN APRIL OF 1979 BY THE MASS. D.P.W. RESEARCH AND MATERIALS SECTION, SOILS AND FOUNDATION UNIT, R&M 522.
- MEAN SEA LEVEL DATUM (1929) IS USED THROUGHOUT.
- THE DEPTHS AS SHOWN ON THE ORIGINAL BORING LOGS HAVE BEEN CONVERTED TO ELEVATIONS BY THE ENGINEER.
- SIEVE ANALYSES HAVE BEEN MADE ON SAMPLES FROM BORING NOS. 406A AND 408A AND GRADATION CURVES PREPARED. THESE CURVES ARE AVAILABLE FOR REVIEW AT THE WELLESLEY D.P.W. OFFICE. (SEE NOTE 5 ABOVE.)

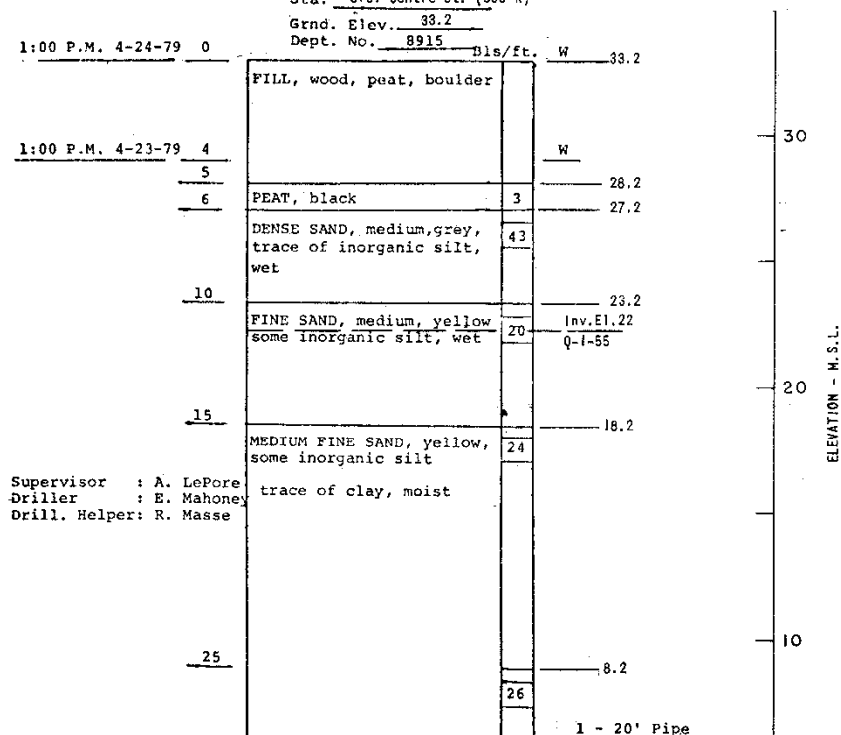
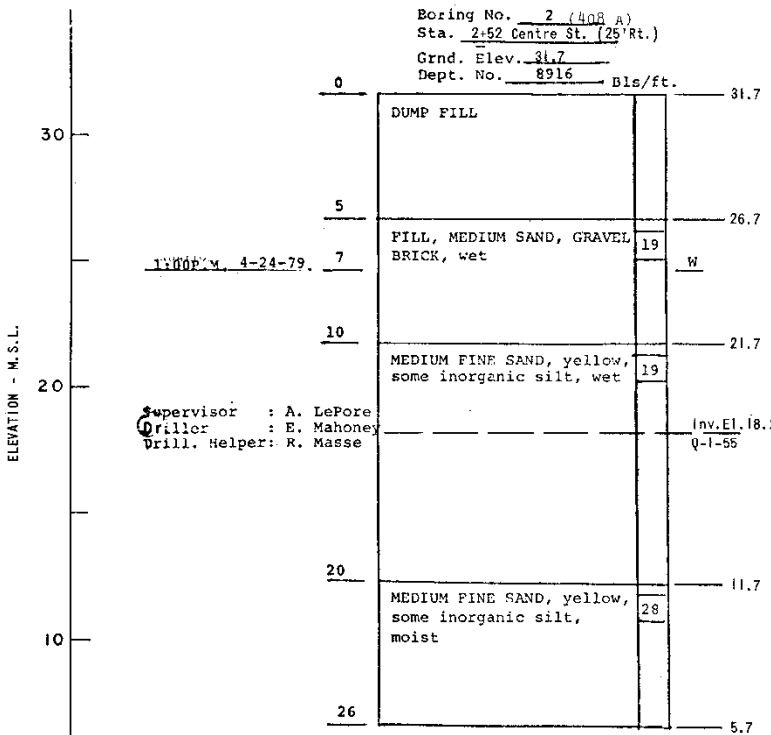
GROUNDWATER OBSERVATION WELL READINGS (1979)

BORING NO.	GROUND SURFACE ELEVATION	GROUNDWATER ELEVATIONS			
		DATE OBSERVED	4/27	5/4	5/17 7/16
406A	33.2		31.9	32.9	33.2 30.9
408A	31.7		30.0	30.1	31.3 30.5



408A

406A

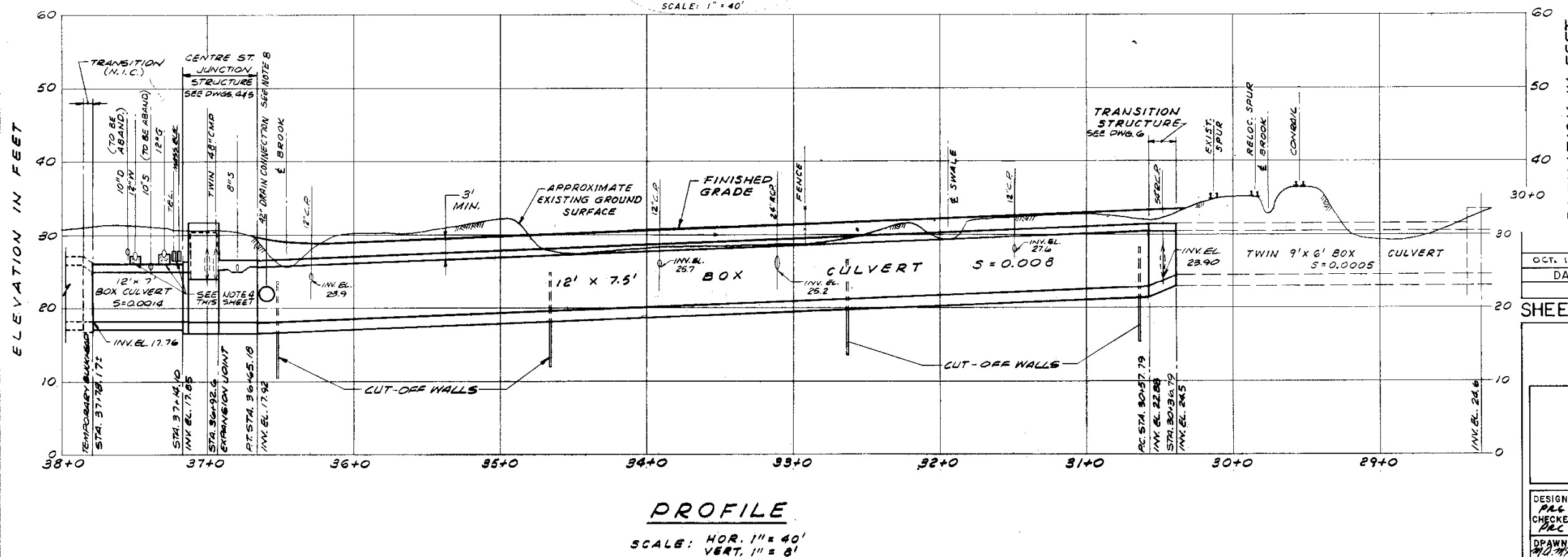
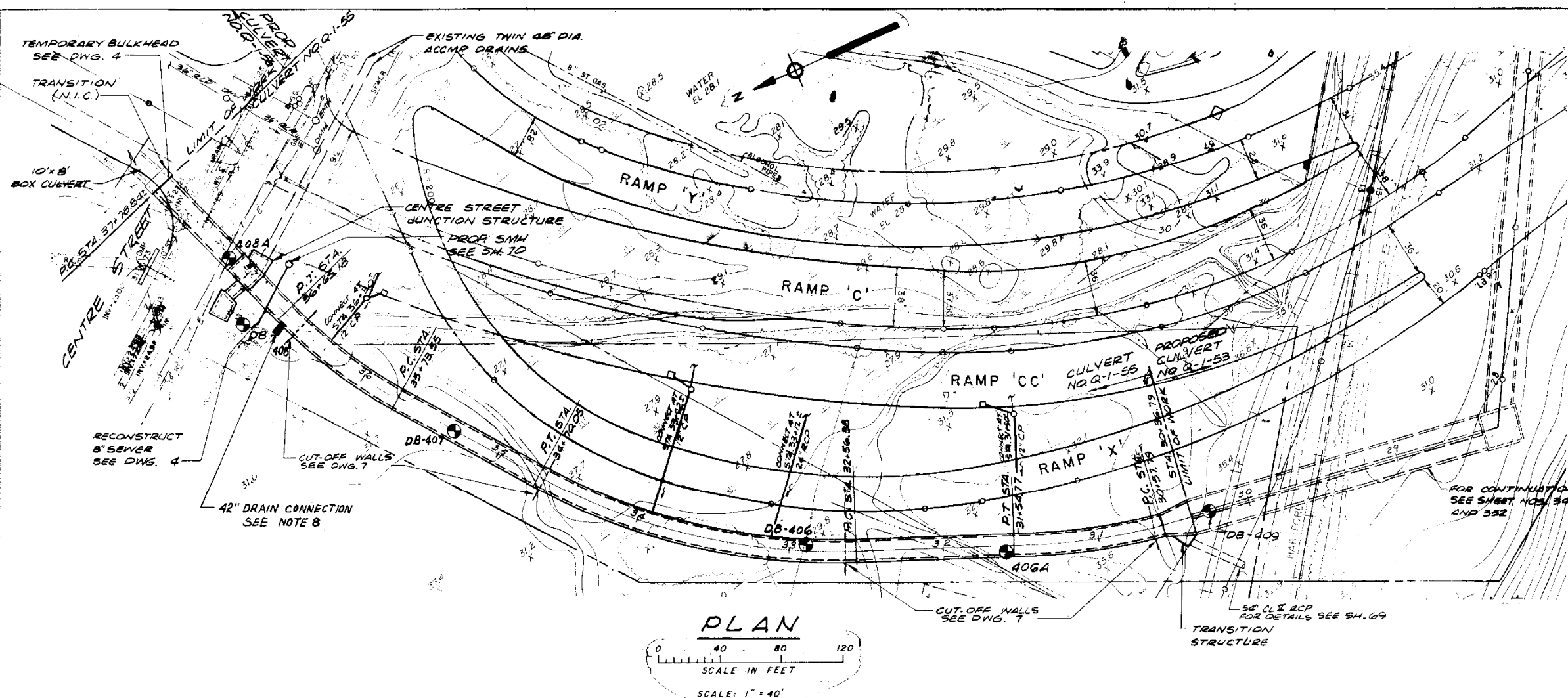


OCT 16 1980		ISSUED FOR CONSTRUCTION	
DATE		DESCRIPTION	
USE ONLY PRINTS OF LATEST DATE			
SHEET 2 OF 7 SHEETS-CULVERT No. Q-I-55			
COMMONWEALTH OF MASSACHUSETTS			
METROPOLITAN DISTRICT COMMISSION			
ENGINEERING DIVISION			
TOWN BROOK			
FLOOD CONTROL PROJECT			
CENTRE STREET CULVERT			
DESIGNED: MAM CHECKED: PLC	BORING LOGS		DRAWING NO. 27
DRAWN: M.G. M. M. M. CHECKED: PLC	REF.	CONT.	SCALE: AS SHOWN
ACC.	64771	DATE: JUNE, 1980	OF: 7

PUB. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	N/A	1980	358	634

NOTES:

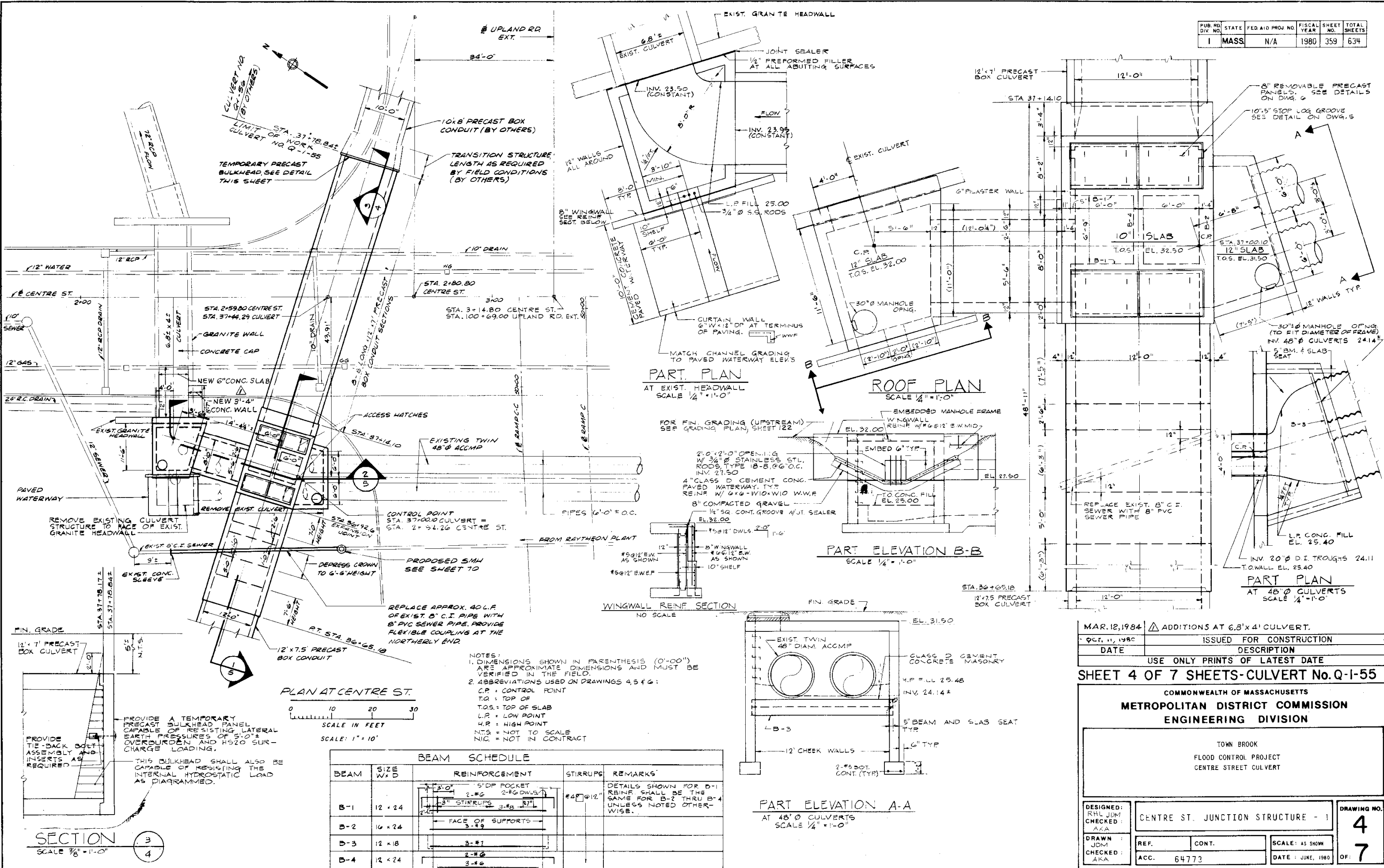
1. FOR BORING LOGS SEE DWG. 2
2. LOCATION OF PROPOSED CUT-OFF WALLS ARE APPROXIMATE ONLY AND MAY BE MOVED TO AVOID CONFLICT WITH CULVERT JOINTS, INLETHOLES, DRAIN CONNECTIONS, ETC.
3. FOR PROPOSED FINISHED GRADING, SEE GRADING PLAN, SHEET NOS. 122 & 123
4. PROVIDE COMPACTED SAND CUSHION BETWEEN EXISTING 12" WATER AND 12" GAS AND THE TOP OF THE 12' X 7' CULVERT IN CENTRE STREET.
5. FOR DETAIL OF PROPOSED DRAIN CONNECTIONS, SEE DWG. 7
6. FOR GEOMETRICAL LAYOUT OF BOX CULVERTS, SEE SH. NOS. 109 & 110
7. FOR ABBREVIATIONS SEE DWG. 4
8. 42" DRAIN CONNECTION @ CENTRE STREET CULVERT STATION 36+62 MDC VOTE # 43878 ON OCTOBER 4-1984 PERMIT # 15334



OCT. 11, 1980
 DATE
 ISSUED FOR CONSTRUCTION
 DESCRIPTION
 USE ONLY PRINTS OF LATEST DATE
 SHEET 3 OF 7 SHEETS-CULVERT No. Q-1-55

COMMONWEALTH OF MASSACHUSETTS
 METROPOLITAN DISTRICT COMMISSION
 ENGINEERING DIVISION
 TOWN BROOK
 FLOOD CONTROL PROJECT
 CENTRE STREET CULVERT

DESIGNED: PRC
 CHECKED: PRC
 DRAWN: M.D. Smith
 CHECKED: PRC
 PLAN AND PROFILE
 STA. 37+78 TO STA. 30+37
 REF. CONT.
 ACC. 64772
 SCALE: H=1"=40' V=1"=8'
 DATE: JUNE, 1980
 DRAWING NO. 37
 OF: 7



MAR. 12, 1984
OCT. 11, 1980

ISSUED FOR CONSTRUCTION
DESCRIPTION
DATE
USE ONLY PRINTS OF LATEST DATE

SHEET 4 OF 7 SHEETS-CULVERT No. Q-1-55

COMMONWEALTH OF MASSACHUSETTS
METROPOLITAN DISTRICT COMMISSION
ENGINEERING DIVISION

TOWN BROOK
FLOOD CONTROL PROJECT
CENTRE STREET CULVERT

DESIGNED: RHL JDM
CHECKED: AKA

DRAWN: JDM
CHECKED: AKA

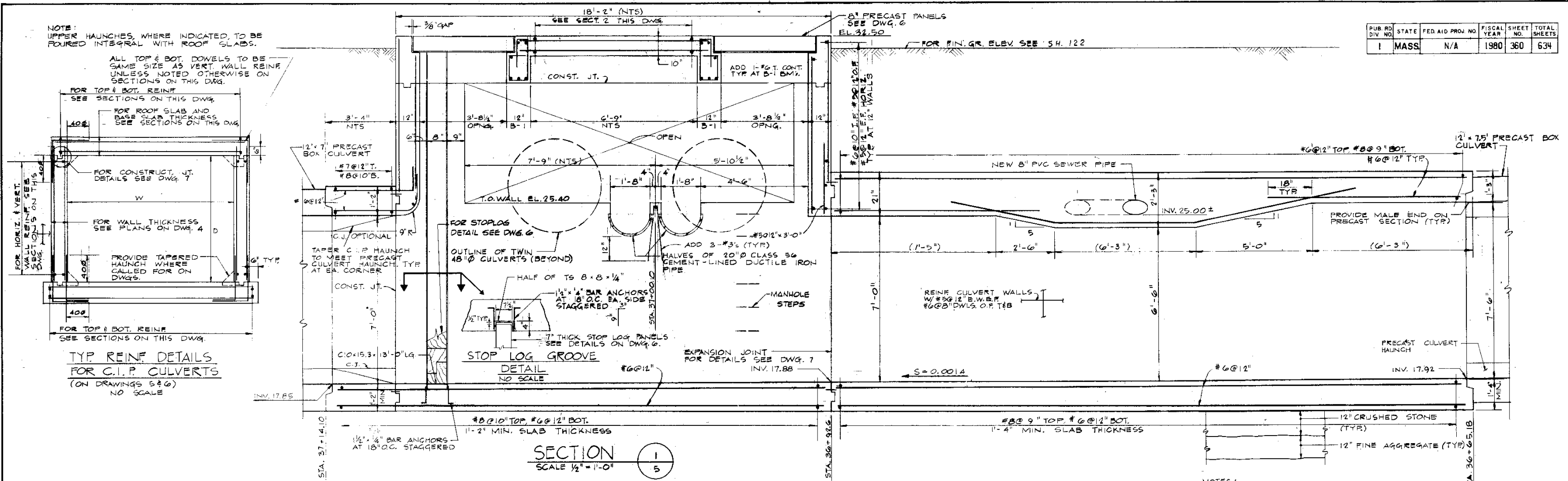
REF. CONT.
ACC. 64773

SCALE: AS SHOWN
DATE: JUNE, 1980

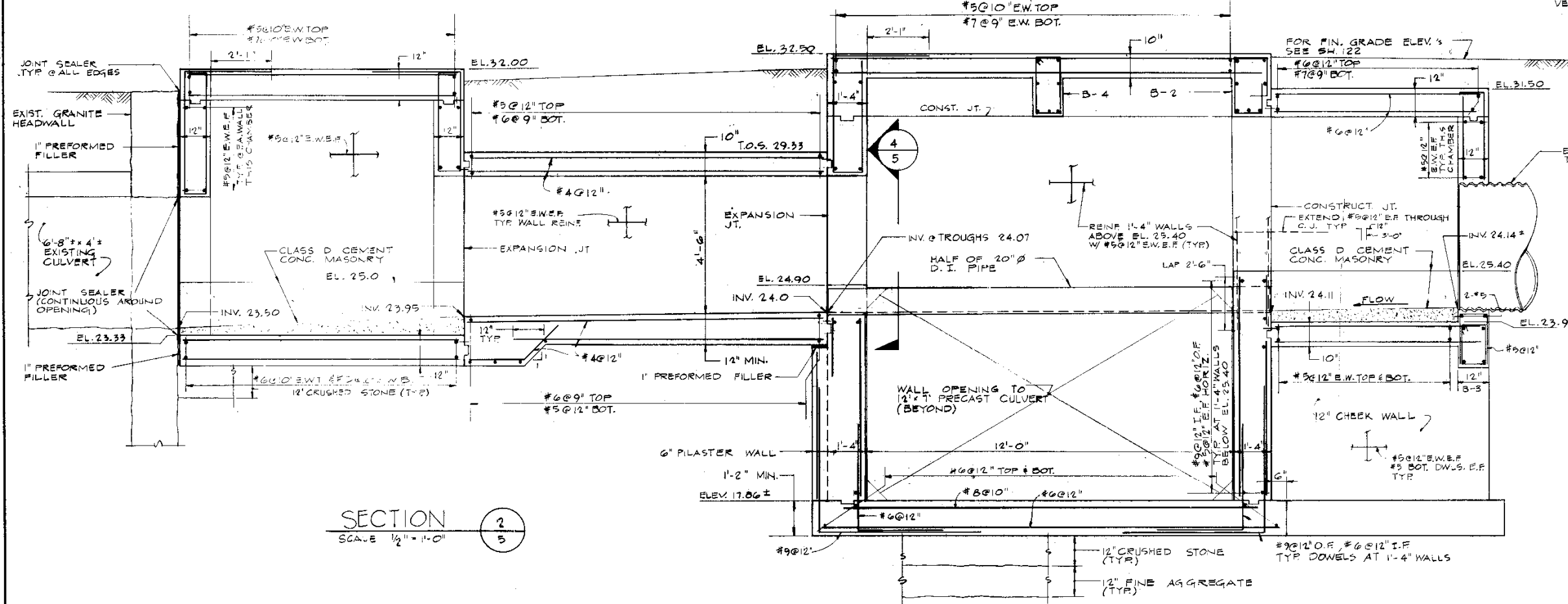
DRAWING NO.
4
7

NOTE:
UPPER HAUNCHES, WHERE INDICATED, TO BE
POURED INTEGRAL WITH ROOF SLABS.

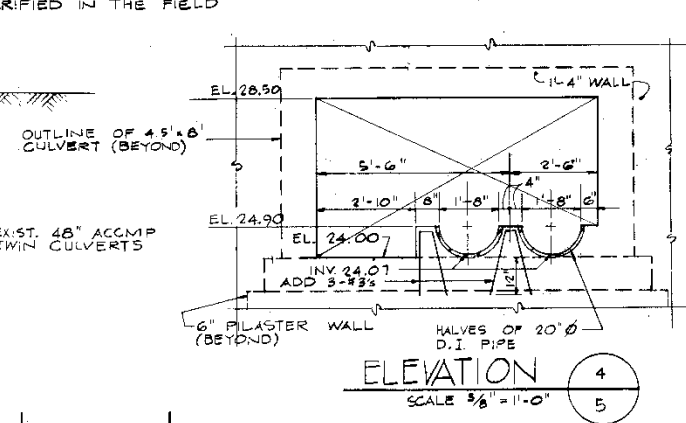
PUB. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	N/A	1980	360	634



SECTION 1
SCALE 1/2" = 1'-0"



SECTION 2
SCALE 1/2" = 1'-0"

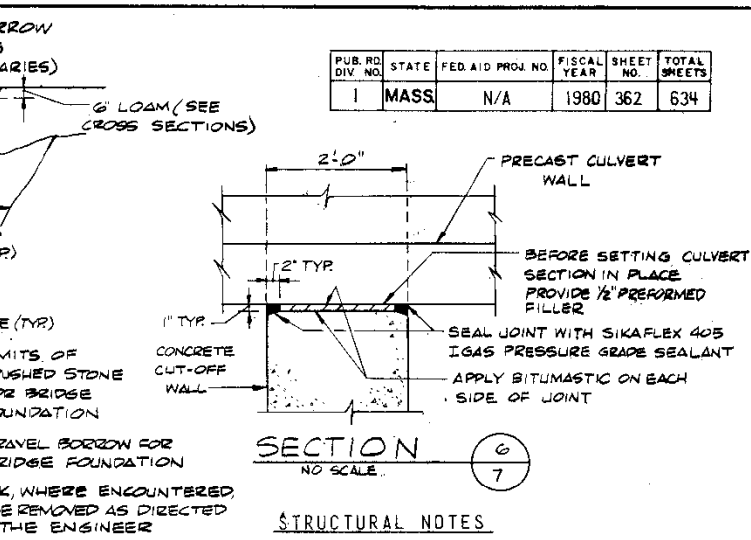
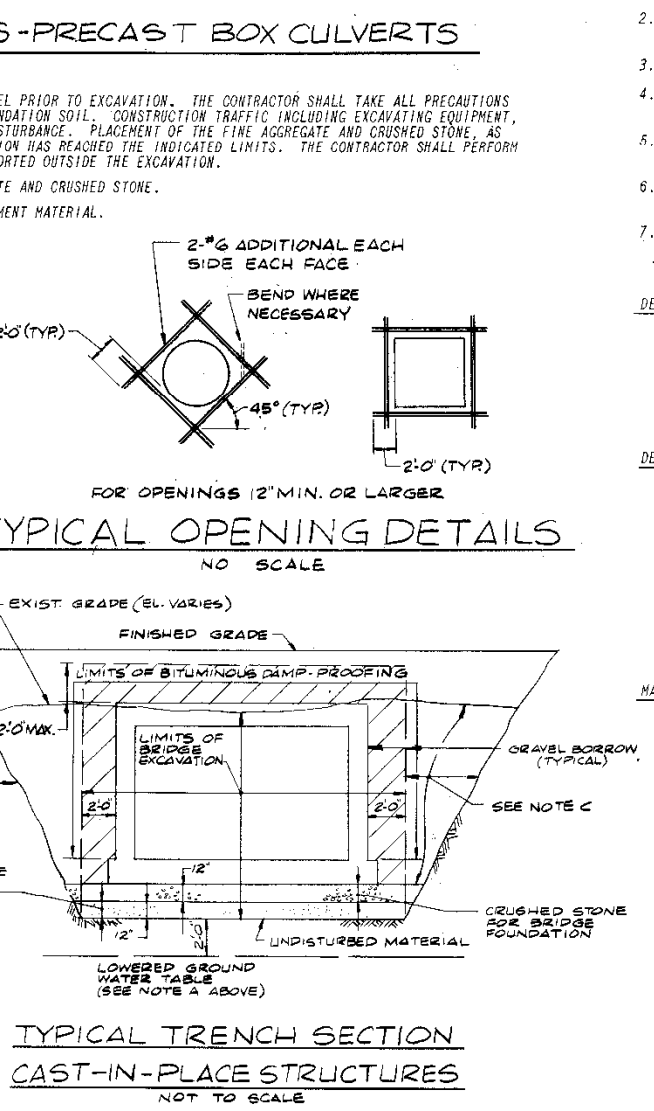
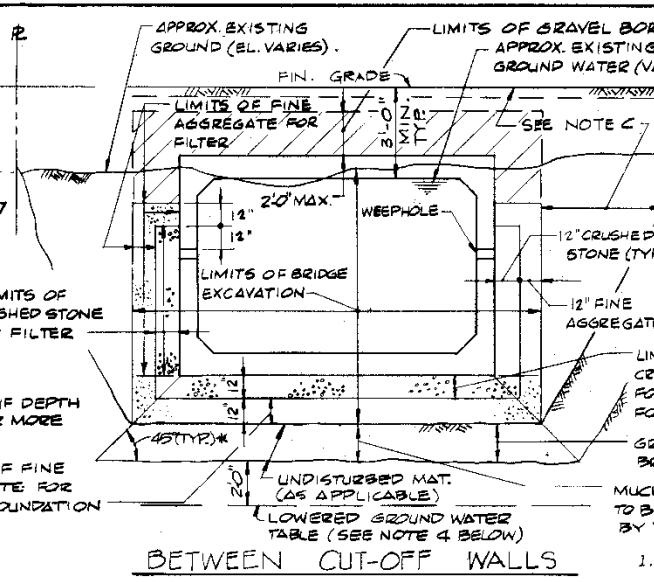
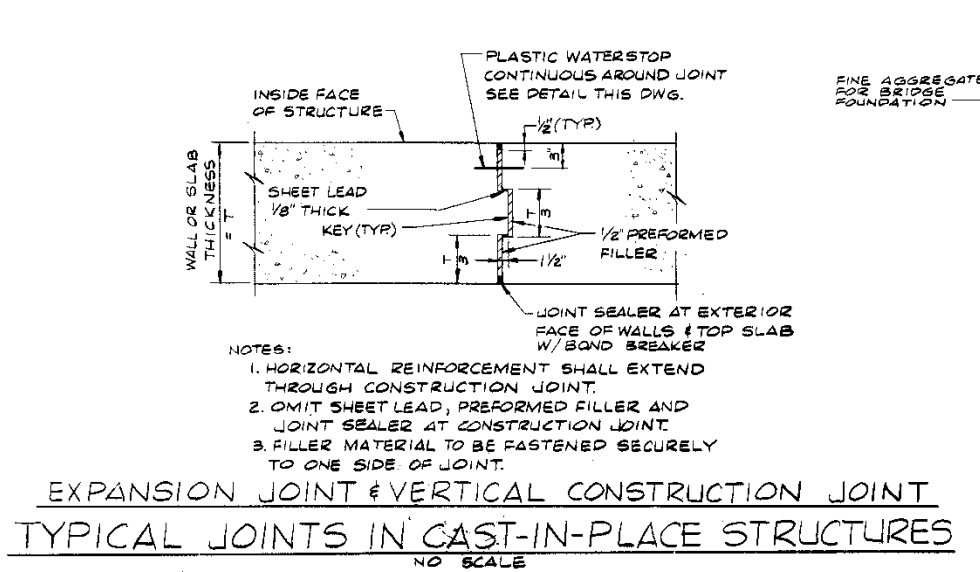
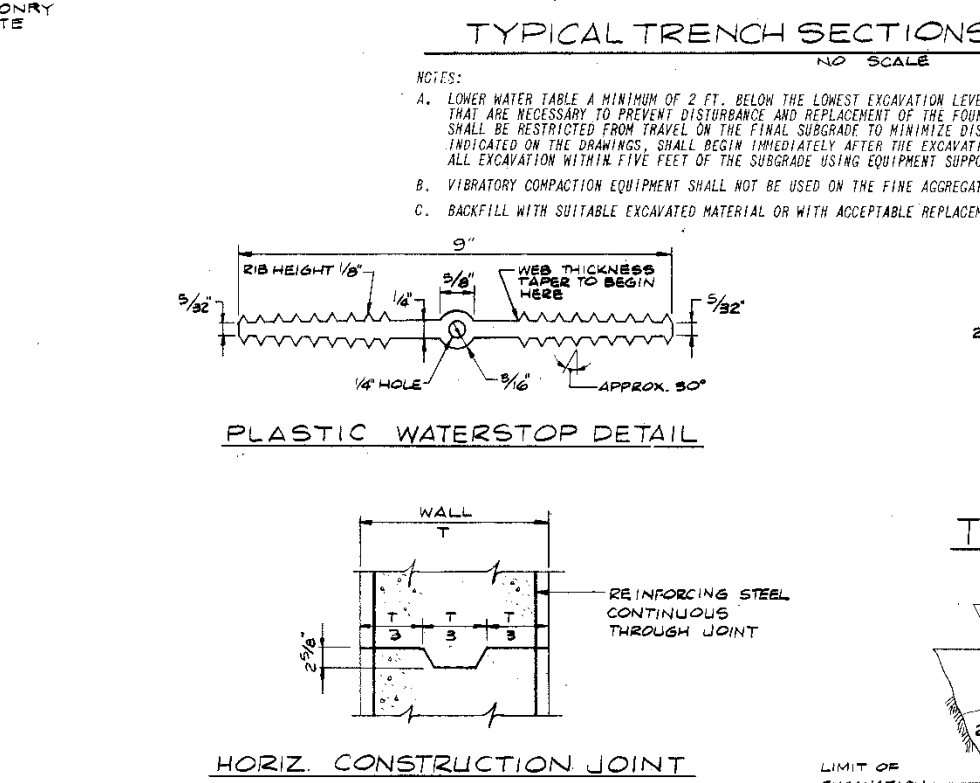
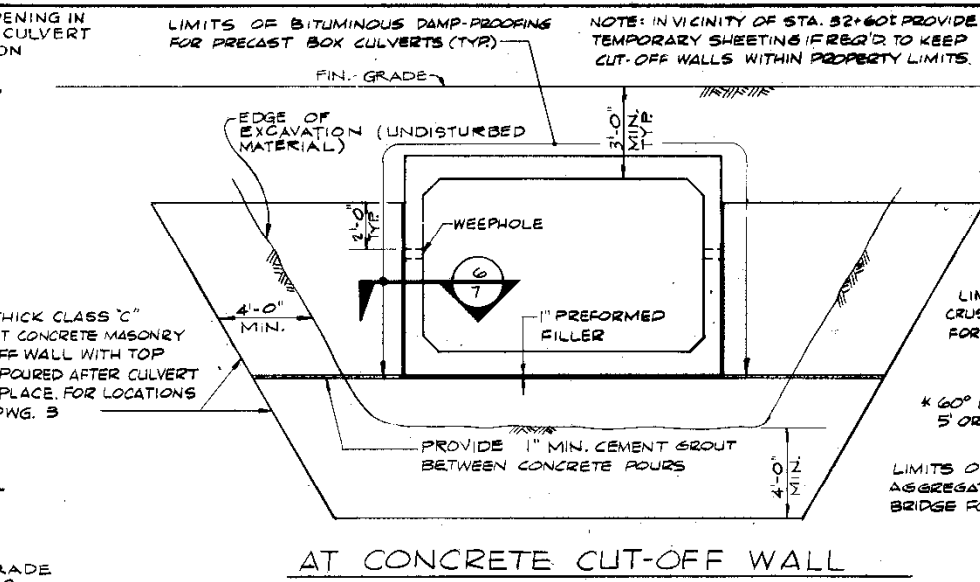
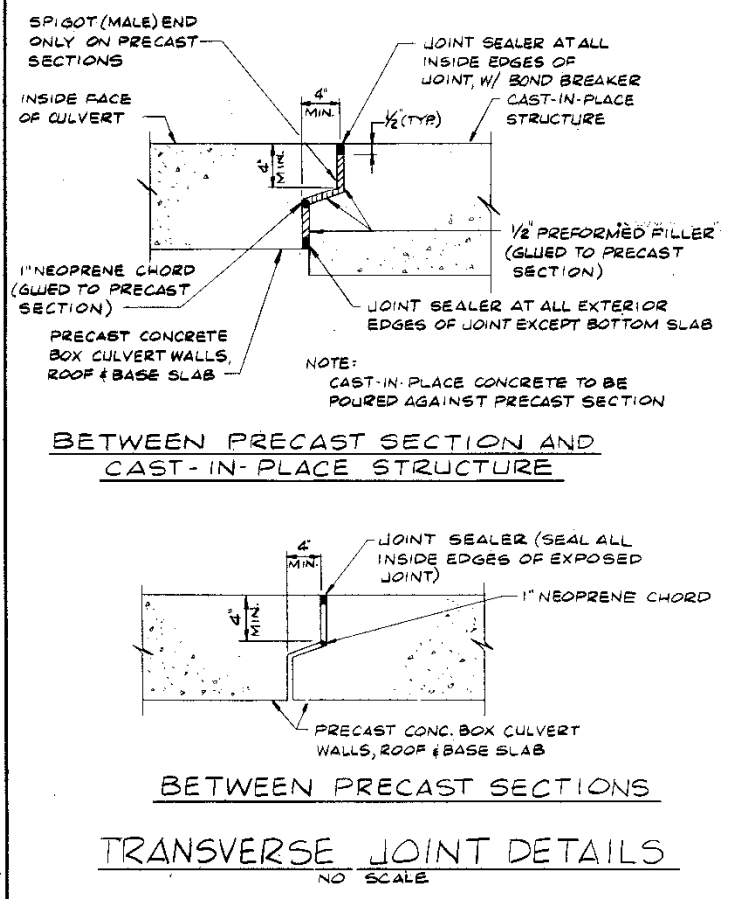
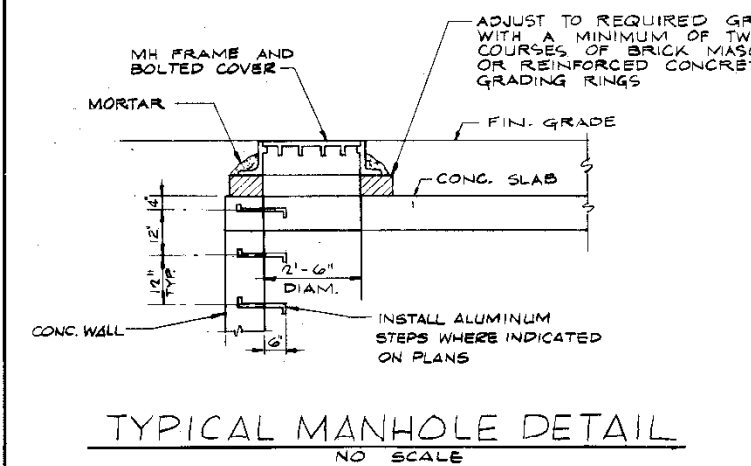
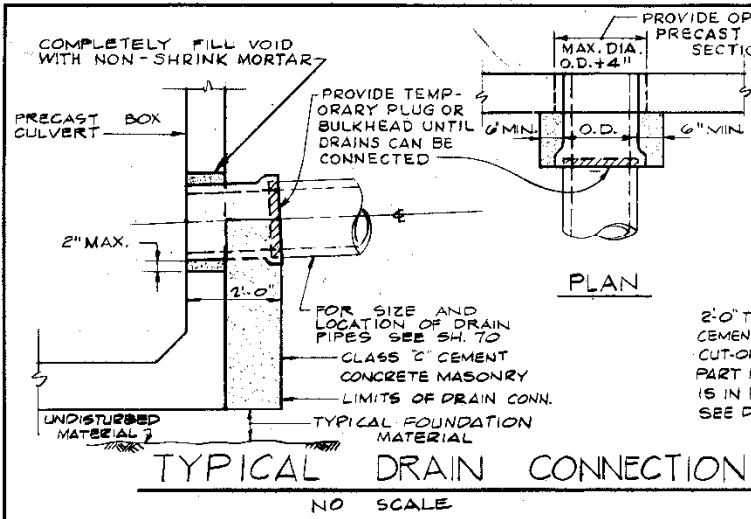


ELEVATION 4
SCALE 3/8" = 1'-0"

OCT. 11, 1980
DATE
ISSUED FOR CONSTRUCTION
DESCRIPTION
USE ONLY PRINTS OF LATEST DATE
SHEET 5 OF 7 SHEETS-CULVERT No. Q-1-55

COMMONWEALTH OF MASSACHUSETTS
METROPOLITAN DISTRICT COMMISSION
ENGINEERING DIVISION
TOWN BROOK
FLOOD CONTROL PROJECT
CENTRE STREET CULVERT

DESIGNED: RHL JDM
CHECKED: AKA
DRAWN: JDM
CHECKED: AKA
CENTRE ST. JUNCTION STRUCTURE - 2
REF. CONT.
ACC. 64774
SCALE: 1/2" = 1'-0"
DATE: JUNE, 1980
DRAWING NO. 57



- STRUCTURAL NOTES**
1. ALL CAST-IN-PLACE CONCRETE SHALL BE CLASS A CEMENT CONCRETE MASONRY UNLESS NOTED OTHERWISE ON THE DRAWINGS.
 2. ALL CONCRETE CONSTRUCTION AND REINFORCING BAR DETAILS SHALL CONFORM TO THE 1977 AASHTO SPECIFICATIONS WITH CURRENT INTERIMS THROUGH 1979.
 3. EXPOSED CONCRETE EDGES SHALL HAVE A 3/4" CHAMFER.
 4. AT LEAST TWO HOURS SHALL ELAPSE AFTER DEPOSITING CONCRETE IN WALL BEFORE DEPOSITING IN SLABS SUPPORTED THEREON.
 5. THE USE OF CONSTRUCTION JOINTS AT LOCATIONS NOT INDICATED SHALL BE AS APPROVED BY THE ENGINEER.
 6. THE CONTRACTOR SHALL BE RESPONSIBLE TO PROTECT AGAINST FLOTATION OR UPLIFT DURING CONSTRUCTION.
 7. ALL JOINT SEALANTS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

DESIGN LOADS:

UNIT WEIGHT OF SOIL = 130 P.C.F.

SOIL LATERAL LOADS:
(EQUIVALENT FLUID PRESSURES) MAXIMUM = 100 P.C.F., SATURATED
= 65 P.C.F., DRY
MINIMUM = 30 P.C.F.

HS20 VEHICULAR LOADS

DESIGN CRITERIA:

AASHTO 1977 DESIGN SPECIFICATIONS
WORKING STRESS DESIGN METHOD
ALL STRUCTURES SHALL BE DESIGNED FOR VARIOUS MINIMUM AND MAXIMUM LOAD COMBINATIONS TO PRODUCE MAXIMUM SHEARS AND BENDING MOMENTS.

PRECAST CONCRETE: $f'_c = 2000$ psi $K = 926$
 $j = 0.876$ $u_c = 67$ psi
 $f_s = 24,000$ psi

CAST-IN-PLACE CONCRETE: $f'_c = 1200$ psi $K = 169$
 $j = 0.895$ $u_c = 52$ psi
 $f_s = 24,000$ psi

MATERIALS:

STEEL REINFORCEMENT: ASTM A615-78 GRADE 60
PRECAST CONCRETE: $f'_{ci} = 5000$ psi @ 28 DAYS
CAST-IN-PLACE CONCRETE: $f'_{ci} = 3000$ psi @ 28 DAYS
REINF. SUPPORT CHAIRS: TYPE 304 STAINLESS STEEL (PRECAST SECTIONS)

OCT. 11, 1980	ISSUED FOR CONSTRUCTION	
DATE	DESCRIPTION	
USE ONLY PRINTS OF LATEST DATE		
SHEET 7 OF 7 SHEETS CULVERT No. Q-1-55		
COMMONWEALTH OF MASSACHUSETTS		
METROPOLITAN DISTRICT COMMISSION		
ENGINEERING DIVISION		
TOWN BROOK		
FLOOD CONTROL PROJECT		
CENTRE STREET CULVERT		
DESIGNED: PLC	MISCELLANEOUS DETAILS	
CHECKED: PLC	STRUCTURAL NOTES	
DRAWN: PLC	REF.	CONT.
CHECKED: PLC	ACC. 64776	DATE: JUNE, 1980
DRAWING NO. 7		OF: 7