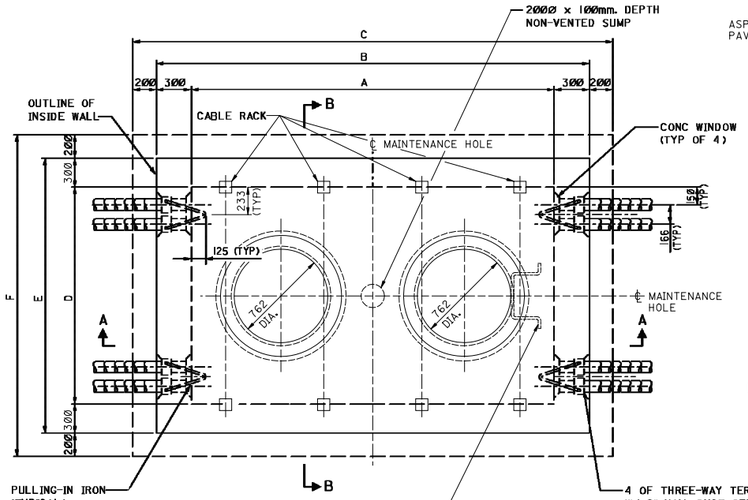
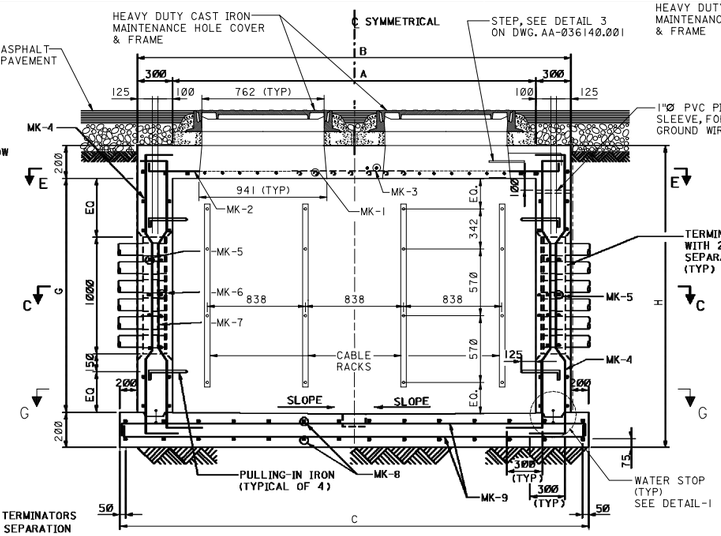
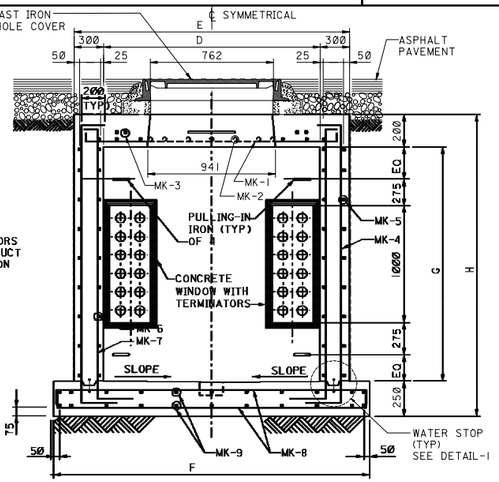


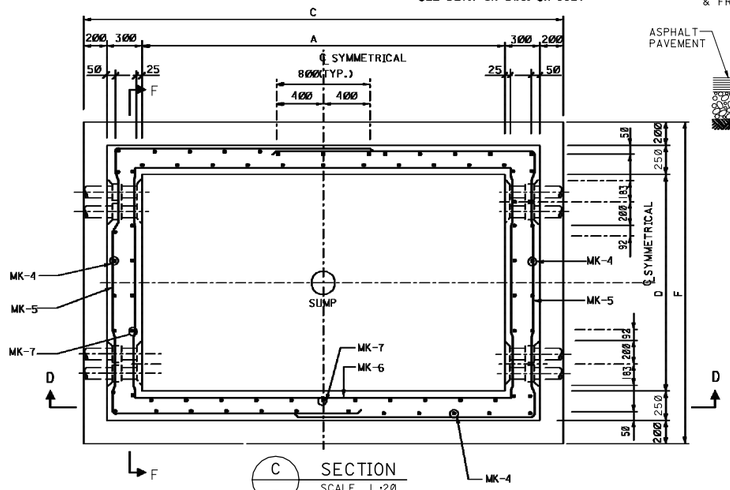
PLAN
SCALE 1 :20



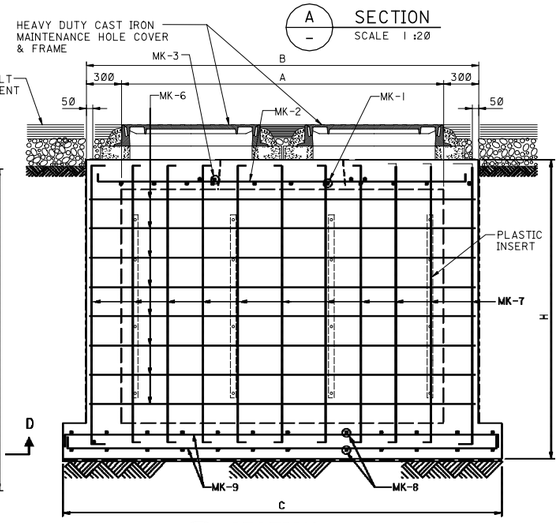
A SECTION
SCALE 1 :20



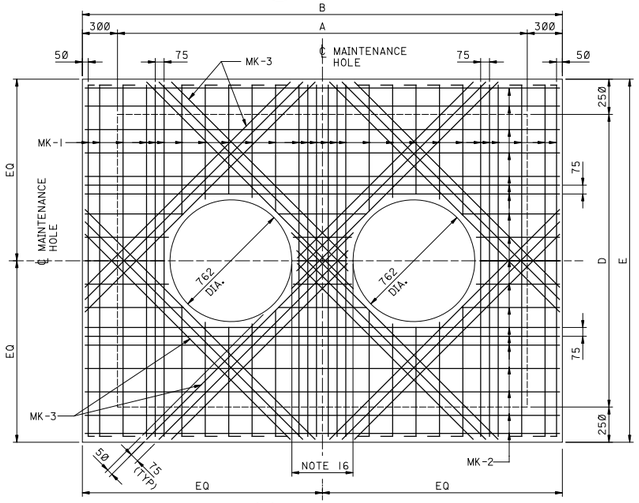
B SECTION
SCALE 1 :20



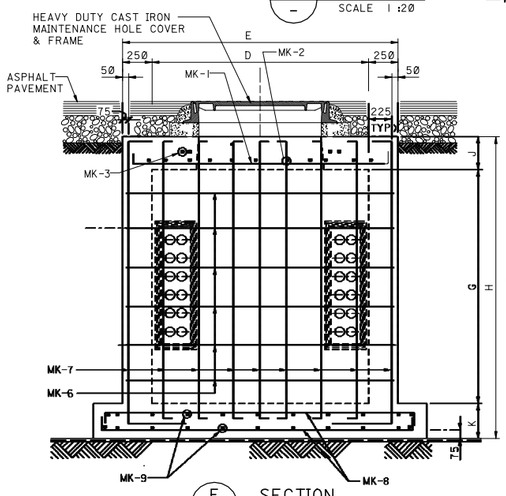
C SECTION
SCALE 1 :20



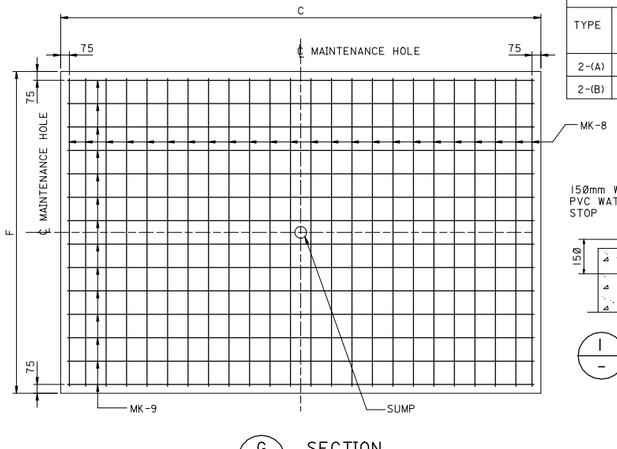
D SECTION
SCALE 1 :20



E SECTION
SCALE 1 :20



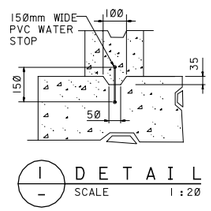
F SECTION
SCALE 1 :20



G SECTION
SCALE 1 :20

TABLE : TYPE-2 MAINTENANCE HOLE DETAILS

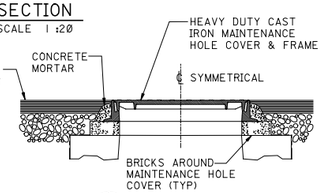
TYPE	SIZE L x W x D (METERS)	DIMENSIONS (mm.)							
		A	B	C	D	E	F	G	H
2-(A)	3.50x2.50x2.00	3500	4100	4500	2500	3100	3500	2000	2900
2-(B)	3.90x2.50x2.30	3900	4500	4900	2500	3100	3500	2300	3200



I DETAIL
SCALE 1 :20

REINFORCING BARS

BAR MARK	MAINTENANCE HOLE TYPE	
	2(A)	2(B)
MK-1	20Ø @ 300 O.C.	20Ø @ 300 O.C.
MK-2	20Ø @ 300 O.C.	20Ø @ 300 O.C.
MK-3	2-20Ø	2-20Ø
MK-4	16Ø @ 300 O.C.	16Ø @ 300 O.C.
MK-5	12Ø @ 250 O.C.	12Ø @ 250 O.C.
MK-6	12Ø @ 250 O.C.	12Ø @ 250 O.C.
MK-7	16Ø @ 300 O.C.	16Ø @ 300 O.C.
MK-8	16Ø @ 300 O.C.	16Ø @ 300 O.C.
MK-9	16Ø @ 300 O.C.	16Ø @ 300 O.C.



2 DETAIL
SCALE 1 :20

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
2. DESIGN, FABRICATION, AND CONSTRUCTION SHALL COMPLY WITH SAES-Q-001. PRECAST CONCRETE SHALL ALSO COMPLY WITH SAES-Q-012.
3. EXCAVATION AND BACKFILL SHALL COMPLY WITH SAES-A-114.
4. ORIGINAL DESIGN LOADING WAS CALCULATED USING A CLASS H-20-40 TRUCK WITH MAXIMUM AXLE LOAD OF 85 KN (19.07 KIPS).
5. REVISED DESIGN LOADING WAS CALCULATED USING A CLASS HS-20 TRUCK WITH MAXIMUM WEIGHT OF 40 TONS & AXLE LOAD OF 170.06 KN (38.14 KIPS).
6. 10mmØ ROUND STEEL BAR STEPS SHALL BE SET SO THAT LEGS EXTEND THROUGH BRICKWORK OR GRADE RINGS.
7. TYPE V PORTLAND CEMENT SHALL BE USED.
8. REINFORCING STEEL SHALL CONFORM TO ASTM-615 GRADE 50 WITH A MINIMUM YIELD STRENGTH, Fy=345 MPa (50,000 PSI). BARS SHALL BE EPOXY COATED IN ACCORDANCE WITH 09-SAMSS-106. ALL REINFORCING BARS SHALL COMPLY WITH SASQ SSA2/ 1979.
9. FABRICATION AND INSTALLATION OF FBE COATED REBAR SHALL BE IN ACCORDANCE WITH SAES-Q-001 AND 09-SASS-106.
10. REBAR SPACING MAYBE ADJUSTED SLIGTHLY IN THE FIELD TO AVOID CUTTING THE REBARS DUE TO PLACEMENT OF TERMINATOR BANKS.
11. REBAR SHALL BE CUT ONLY BY BAR CROPPER OR HACKSAW.

LEGEND

CLR	CLEAR
EQ	EQUAL
OC	ON CENTER
TYP	TYPICAL

REFERENCE DRAWINGS

BAR BENDING SCHEDULE	AA-036794.004

NOTES: (CONTINUATION)

12. SAND OR SELECT MARL HAVING NO ROCKS EXCEEDING 5mmØ SHALL BE USED FOR BACKFILL.
13. CONCRETE SHALL NOT BE PLACED UNTIL THE FORMS REINFORCING STEEL, BRAID, PLASTIC INSERT CHANNELS, DUCT TERMINATORS, PULLING-IRONS, STEP FOR HOOKED LADDER ETC. HAVE BEEN INSPECTED BY THE ARAMCO COMMUNICATION INSPECTOR.
14. TWO LAYERS OF BITUMINOUS COATING SHALL BE APPLIED TO ALL SURFACES, IN DIRECT CONTACT WITH SOIL OF REINFORCED CONCRETE ELEMENTS BELOW GRADE AFTER 14 DAYS (MIN) CURING.
15. 6ML (0.15mm) THK POLYETHYLENE SHEET VAPOR BARRIER SHALL BE PLACED UNDER THE SLABS IN DIRECT CONTACT WITH SOIL.
16. THE MINIMUM DISTANCE BETWEEN OPENINGS IN THE ROOF SHOULD BE ½ THE WIDTH OF MANHOLE. OTHERWISE STEEL BEAM MAY BE REQUIRED IN THE ROOF.

SCALE: _____

REVISION VALIDATION

THIS REVISION NO. 04 IS COVERED, FOR ALL APPROVAL AND CERTIFICATION REQUIREMENTS, PER SAEP-334, UNDER DRAWING COMPLETION CERTIFICATE NO: 00-00000-0000-000

DESIGN CERTIFICATION (DESIGN AGENCY)		REVIEW FOR KEY DRAWINGS ☐ REQUIRED (SAUDI ARAMCO)			OTHER
ENGG./DATE	CERTIFIED BY/DATE	CONST. AGENCY/DATE	OPERATIONS/DATE	BY/DATE	
REV.NO. 04	DATE	REVISION DESCRIPTION			

JOB ORDER/EWO NO. 00-00000-0000 — THIS REVISION IS NOT TO BE USED FOR CONSTRUCTION UNTIL CERTIFIED AND DATED

SAUDI ARABIAN OIL COMPANY

STD COMMS MAINTENANCE HOLE — DRAWING TYPE: EQA

MAINTENANCE HOLE TYPE 2 (20 TONS)

PLAN AND SECTION

STD. DWG. — SAUDI ARABIA

PLANT NO.	INDEX	DRAWING NUMBER	SHT. NO.	REV. NO.
990	T	AA-036794	003	04

Saudi Aramco 2615 ENG.(05/05)

RESTRICTED | HYBRID | CADD-01

THIS DRAWING AND THE INFORMATION CONTAINED HEREIN ARE THE SOLE PROPERTY OF SAUDI ARAMCO. NO REPRODUCTION IN FULL, OR IN PART, SHALL BE OBTAINED FROM THIS DRAWING WITHOUT THE WRITTEN CONSENT OF SAUDI ARAMCO.