Kuwait National Petroleum Company (K.S.C)
Clean Fuels Project (CFP)
KNPC Contract No. CFP/EPC/0054-MAB1
PSCJ Job No. JI-2025

MATERIAL APPROVAL REQUEST (MAR)

Sub-Contractor : Consolidated Contractors Co. (Kuwait) W.L.L
Subcontract No. : JI-2025
Item Description: Supply of Concrete Cable Protection Tile
Discipline:Electrical
MAR No: MAB1-CCCM-MAR-EL-0365 | Rev No: 01 | Date: 16-Apr-2016

Material Description :	Supply of Concrete Cable Protection Tile
Reference Specification/ Drawing :	P6000CFP-000-64-1-F003-002 33.64.10.10-P6000CFP-000-PV
Location Where to be Used/ Unit Area:	Field, Building and Substation

KNPC CFP Project MAB1 Package | DSN: 37102
REVIEW CODE: 1 | BY: MT | DISCIPLINE: Const | DATE: 5-6-16
REVIEW CODE:
1-Approved\No Comments; 2-Minor Comments; 3-Comments as Noted;
4-Rejected;

Material proposed by Sub Contractor :

Proposed Material :	Supply of Concrete Cable Protection Tiles Size: 300 X 300 X 50mm
Supplier/ Manufacturer Name :	Manufacturer/Supplier : Middle East Combined Gen Trading Co (Kuwait)
Sample:	YES
Attachments:	Project Drawing, Company Profile and Test Certificate for Compressive Strength
Comments:	For Approval

Prepared By: Nehme Nehmi — Designation: Procurement Manager — Sign
Reviewed By: Sobhi Khoury — Designation: Project Control — Sign
Approve By: Abdullah Akkad — Designation: Project Director — Sign

Contractor's Approval / Comments

☑ Approved ☐ Approved Subject to ☐ Not Accepted

Comments

Contractor's Rep. Name: Tsekeme Abawel Designation: Electrical superintendent
Signature : Date 22-05-2016

Company's Approval/ Comments

☑ Approved ☐ Approved Subject to ☐ Not Accepted

Comments:

Company's Rep.Name: Edward R. Salazar Designation: QC Engineer E&I
Signature : Date May 29, 2016

الشرق الأوسط المشتركة للتجارة العامة
MIDDLE EAST COMBINED GEN. TRADING CO.

MIDDLE EAST COMBINED CO

Email: mecckw@gmail.com mecc@warqa.com
P.O. Box 7569, 64006-Ahmadi, Kuwait. Tel :(00965) 66552016 Fax : (00965) 23261234

Company Profile

MECC was established in the year 2001 to serve the Oil, Power and Water industries with a capability to supply materials to Electrical, Civil, Mechanical & Instrumentation works

MECC has its separate division for engraving services equipped with CNC & Laser machines Our main production lines are Concrete Cable Protection Tiles, Cable Route Markers, Earth pits, Stainless Steel Cable tags, Lead tags etc. We are also able to supply Warning Tapes for underground cables as per the specification

MECC has its associated office in USA, UK, Japan, UAE and India to provide our customers in Kuwait with direct access to American, European & Asian markets for sourcing their requirement. These offices operate and cater to the local Kuwait market independently of their association with MECC.

Our office for the Oil & Gas division is located in Shuaiba Industrial area Block 5, close to the major clients. For the past few years the company has established itself as a supplier for various projects.

MECC had been able to source and supply from USA and Europe, Industrial Electrical items, Ex-proof fittings, Cables, Cable tray, Unistrut channels, various metal alloys and fittings other than our normal product ranges, and also MECC had been very successful with the various popular brands of welding machines and electrodes, capital equipments such as shearing machine, press brakes lathes, radial drilling machines & other workshop equipments from reputed American and European manufacturers.

Contact Person :Shiva Shanker
Middle East Combined Co.
Mobile 66552016

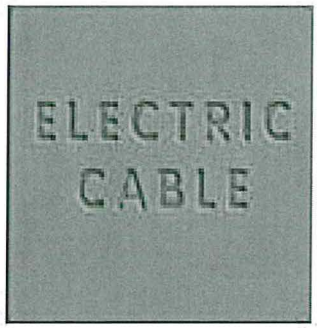
الشرق الأوسط المشتركة للتجارة العامة
MIDDLE EAST COMBINED GEN. TRADING CO.

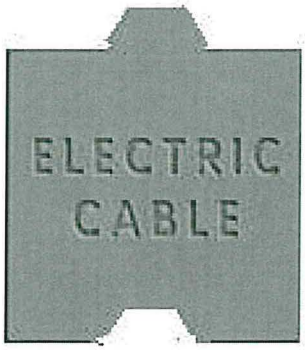
Email: mecckw@gmail.com mecc@warqa.com

P.O. Box 7569, 64006-Ahmadi, Kuwait. Tel :(00965) 23261234 Fax : (00965) 23261234

CABLE TILES

The Standard Non-Reinforced Cable protection Tiles are manufactured using SRC and 3/8" aggregate . The compressive strength of these tiles are above 150 kg/cm after 28 days of curing. . These tiles are produced in different sizes and with different markings in English or Arabic to identify the cable laid underground. 33KV Danger Electricity – LV Cable Danger – FO Cable are few to name. The following sizes are commonly manufactured.





Following are the standard sizes

40x20x5cm

30x30x5cm

30x25x5cm

24x27x6.5cm

Any other sizes with different strength can be manufactured as per the customer's drawings and specification.

TEST RESULT OF COMPRESSIVE STRENGTH FOR CABLE TILES

ample No.	Measured Dimension (cm) L	W	H	Net Area (cm^2)	Max. Load (KN)	Compressive Strength Kg/cm^2	N/mm^2
1	5.00	5.00	5.00	25.0	38.1	**155.4**	**15.2**
					AVERAGE	**155.4**	**15.2**

Notes:- *In preparation of this report, INCO-LAB states that the results of the laboratory testing provided herein is subject to the precision and bias provided by the standard used in performing this test.Uncertainty calculations and values can be provided upon client request

*The results of this test represent only the samples submitted by the client.

*N.A. = Not available

Date Tested : 15.03.2015

Job Order : 15-2652-1

INCO - LABS مختبرات انكو TRUST الثقة

Senior Lab. Technician: _____ **Material Engineer:** _____

Contractor	NBTC / MECC	TEST RESULT FOR COMPRESSIVE STRENGTH FOR CABLE TILES

INCO - LABS

For Testing: Materials, Soil, Surveying, Calibration, Structural Evaluation & Environmental Testing
P.O.Box: 21073, Safat 13071, Kuwait. Tel (965) 24710780. Fax (965) 24716526

Kuwait National Petroleum Company (K.S.C)
Project Department
Construction Group -B

SAMSUNG C&T

NBTC

REQUEST FOR APPROVAL OF MATERIAL(Civil/Arch/Elct/Inst)

Contract No: CFP-B/EPC/0047	REF NO. : NBTC/CIV/RAM - 042 Rev:A
Contractor's Name: SAMSUNG C&T	DATE: 06.08.2014

CONTRACT TITLE : PREPARATORY WORKS FOR CFP AT MAA & MAB REFINERIES

1 Area : CFP AT MAB REFINERY

2 Relevant Section & Page of Contract Document : Drawg No: P6002MAB-166-19-1-C533

3 Item of Work : For Cable Protection

4 Material Item to be approved : Concrete Cable Protection Tile (40x20x5cm)

5 Brand & Model Name propose for approved : Cable tile , Grey colour of 40x20x5cm
Manfacturer : MIDDLE EAST COMBINED CO

6 Deviation to Specification : NO

Attachment 1:	Manufacturers Data sheet	☑
Attachment 2:	Material Specification	☑
Attachment 3:	Sample	☒
Attachment 3:	Test Certificate	☑
Attachment 3:	Manufacturer Catalogue	☑

SAMSUNG C&T CORPORATION
CLEAN FUEL PROJECT QA/QC DEPARTMENT

1	REJECTED
2	COMMENTS AS NOTED
3	APPROVED EXCEPT AS NOTED
4	APPROVED
5	NO COMMENTS

NAME SIGNATURE DATE 6/Aug/14

Compliance with Specification

Yes ☑ No ☐

Supplier VEC Approved

Yes ☒ No ☑ Not categorized in VEC List ☒

VEC Product Code :

Vendor code :

QA/QC DEPARTMENT QA/QC MANAGER

Prepared by: S.HARI PRASAD

Date: 06.08.2014

Contractor Representative:

Date: 6th Aug. 2014

KNPC ACTION

Approved ☐ Rejected ☐

By:

Date:

Distribution

KNPC | CONTRACTOR | OTHERS

Power cables rated 6.6 kV or less and control cables, as well as instrument and fiber optic cables, shall be installed a minimum of 500mm below grade. High voltage 300 kV, 132 kV, and 11kV cables shall be buried a minimum of 1 meter below grade. All cables shall exit the ground perpendicular to grade (at a 90°angle to grade). Cables shall be provided with a cable protective sleeve in outdoor locations where cables exit the ground (except in protected areas, such as under substations).

For roadway intersections within the Contractor's battery limits, spare PVC sleeves shall be installed in duct banks for future installation of cables. The spare PVC sleeves shall be installed under the road, extend from one side of the road to the other, and extend a minimum of 1 meter from the edge of the road on each side. The spare sleeves shall be as follows, for (4) 100mm schedule 80 PVC sleeves shall be installed on each side of the road intersection and shall be installed within 3 meters of the road intersection. This results in a maximum of 12 spare sleeves for a T intersection, and 16 sleeves for and X intersection. The quantities could be less for any side that already has a cable crossing. These sleeves are reserved for the installation of electrical, instrumentation, and EICS system cables. The final locations for these road crossing sleeves will be coordinated during detailed design. Installation shall be per Project Variation to Shell Standard Drawing S19.002, S19.002-P6000CFP-000-PV. Sleeves shall extend a minimum of 1 meter beyond the edge of the roadway shoulder and shall be adequately capped and protected.

5.3.3.2 Laying pattern

Under ground cables shall be installed in accordance with CFP standard drawing P6000CFP-000-64-1-F003-002. Ampacity of load carrying cables shall be de-rated in accordance with Sect. 5.3.2.4. A minimum separation of 600mm shall be maintained between LV and HV cables, except at the motor or skid termination points.

NOTE: Load-carrying cables are those power cables which may be expected to carry a continuous load during operation. Load carrying cables do not include control or instrument cables, which shall be considered non-load carrying cables. Cables to spare drives shall also be regarded as load-carrying. Non-load carrying cables are, as example, MOV power supply cables (feeders) and welding socket outlet feeder cables. Cables from generators or generator supplies shall be considered load-carrying cables.

5.3.3.3 Cable trenches

Cables shall be buried directly in the ground, whenever possible, i.e., not in preformed trenches or pipes.

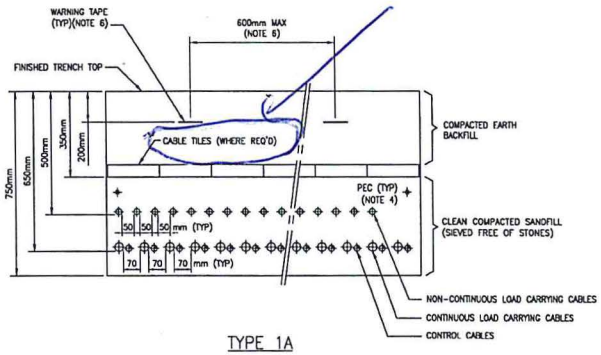
Cable trenches in unpaved, brick-paved or tiled areas ~~and crossing roads~~ shall be in accordance with Standard Drawing S 19.002.

The cables shall be laid on and covered by a clean sandfill, free from stones, duly compacted and protected by concrete protection tiles. Purpose-made PVC cable protection tiles with caution warning may also be used. The top finish over the protection tiles shall be level with, and similar to the surrounding area.

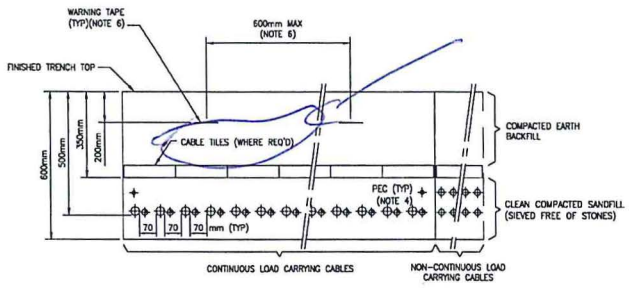
Cable trenches in concrete paved areas shall be in accordance with Standard Drawing S 19.001. Cable trenches wider than 1 m shall be permanently covered by heavy-duty or light-duty paving compatible with the surrounding pavement, but colored red.

NOTE: Trenches for instrumentation cables have a green colored paving.

If permanently covered cable trenches are used in concrete paved areas, sandfilled dummy trenches normally 600 mm, but maximum 1 m, wide shall be provided in parallel to main cable trenches for future cabling. These shall be covered with a red-colored concrete top. Dummy cable trenches are only required to be provided for main cable trenches, and are not required to be installed for smaller cable trenches which are laterals off the main cable trenches. This is because the purpose of the dummy cable trench is to provide a method to install cables in the future, without having to cut concrete and excavate. It is prudent to



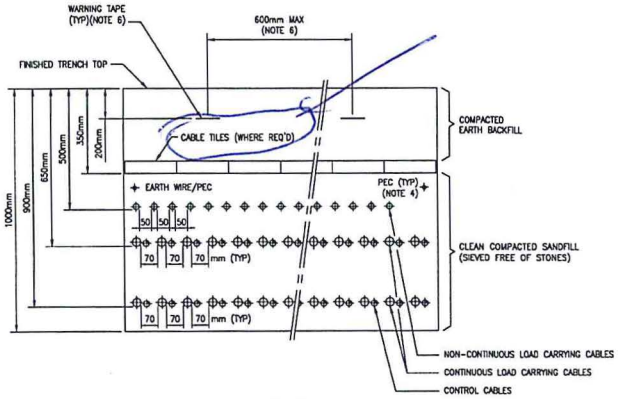
TYPE 1A



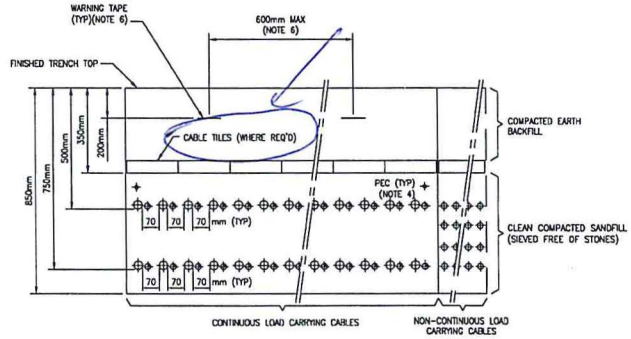
TYPE 1B

TYPE 1

ONE LAYER CABLE ARRANGEMENT



TYPE 2A



TYPE 2B

TYPE 2

TWO LAYER CABLE ARRANGEMENT
SEE NOTE 8

NOTES:

1. * – DENOTES DRAWING NUMBERS PREFIXED BY P6000CFP-000-64-1 UNLESS OTHERWISE NOTED. (eg, P6000CFP-000-64-1-H000)
2. WHERE DISCREPANCIES OCCUR BETWEEN THESE CFP STANDARD DRAWINGS AND SHELL STANDARD DRAWINGS, THESE CFP STANDARD DRAWINGS SHALL TAKE PRECEDENCE.
3. THIS DRAWING ONLY APPLIES TO NEW UNITS. WORK IN EXISTING UNITS SHALL BE TO EXISTING PLANT STANDARDS.
4. IF TRENCH >1m IN WIDTH, A PEC SHALL BE LOCATED AT EACH SIDE OF TRENCH, PLUS ONE ADDITIONAL PEC FOR EACH 1m OF TRENCH WIDTH.
5. CONTINUOUS LOAD CARRYING CABLES ARE THOSE CABLES WHICH MAY BE EXPECTED TO CARRY A CONTINUOUS LOAD DURING OPERATION. CABLES TO SPARE DRIVES ARE ALSO REGARDED AS CONTINUOUS LOAD CARRYING. NON-CONTINUOUS LOAD CARRYING CABLES ARE, AS EXAMPLES, LIGHTING CABLES, MOV POWER SUPPLY CABLES (FEEDERS) AND WELDING SOCKET OUTLET FEEDER CABLES. CABLES FROM GENERATORS OR GENERATOR SUPPLIES SHALL BE CONSIDERED CONTINUOUS LOAD CARRYING.
6. WARNING TAPE SHALL BE INSTALLED ALONG LENGTH OF TRENCH ABOVE CABLE TILES (WHERE APPLICABLE) BEFORE COMPLETING BACKFILLING. A WARNING TAPE SHALL BE PLACED OVER CABLE TRENCH FOR EVERY 600mm OF TRENCH WIDTH (I.E. WARNING TAPES SHALL BE LOCATED EVERY 600mm (MAX) ACROSS CABLE TRENCH WIDTH). WARNING TAPES ARE TO BE INSTALLED OVER DIRECT BURIED ELECTRICAL OR INSTRUMENT CABLES AND OVER PIPE SLEEVES AND CONDUITS FOR ELECTRICAL OR INSTRUMENT CABLES.
7. AT ROAD CROSSINGS (SEE SHELL STANDARD DRAWING S19.002) PIPE/CONDUIT SLEEVES ARE TO EXTEND A MINIMUM OF 1 METER BEYOND EDGE OF ROADWAY. SLEEVES FOR FUTURE CABLES ARE TO BE PERMANENTLY CAPPED TO PREVENT THE INGRESS OF SOIL OR MOISTURE.
8. CABLES SHALL BE LAID IN SINGLE LAYER. CABLES MAY BE LAID IN DOUBLE LAYERS ONLY WHERE SPACE LIMITATION WILL NOT ALLOW SINGLE LAYER, AND ONLY WITH OWNER'S APPROVAL. WHEN LAID IN DOUBLE LAYER, THE BOTTOM LAYER SHALL BE ACCESSIBLE AND ALL CABLES MUST BE DERATED IN ACCORDANCE WITH 33.64.10.10-P6000CFP-000-PV, SECTION 5.3.2.4. CABLE DERATING SOFTWARE MUST BE USED AND APPROVED BY OWNER.

LEGEND:

- ⊕ MULTI-CORE OR THREE SINGLE CORE CABLES (IN TREFOIL FORMATION) LOAD CARRYING CABLE (NOTE 5)
- ⊕ NON-CONTINUOUS LOAD CARRYING CABLE (NOTE 5)
- ⊕ CONTROL CABLES
- PEC PARALLEL EARTHING CONDUCTOR

REFERENCE DRAWING:

*-F001-001 THRU 004	DRAFTING SYMBOLS AND LEGEND
*-F002-001 THRU 003	STANDARD INSTALLATION ASSEMBLIES EARTHING
*-F003-001, 002	STANDARD INSTALLATION ASSEMBLIES UNDERGROUND
*-F004-001	STANDARD INSTALLATION ASSEMBLIES MOTOR CONNECTION
*-F006-001	STANDARD INSTALLATION ASSEMBLIES MOTOR CONNECTION
*-F006-001 THRU 007	STANDARD INSTALLATION ASSEMBLIES LIGHTING
*-F007-001 THRU 004	STANDARD INSTALLATION ASSEMBLIES CABLE LADDERRACK AND TRAY
*-F008-001, 002	STANDARD INSTALLATION ASSEMBLIES SUPPORT

U05

TYPICAL ARRANGEMENTS OF CABLE TRENCHES

REV	DATE	REVISION DESCRIPTION	DRAWN CHECK	APP.	SQUAD CHECK: STRUCT.	PIPING	PROCESS	ELEC.	CONT SYST	DWG. NO.	REFERENCE DRAWING
A	20-FEB-2007	APPROVED FOR DESIGN	JD	SB				MP			
B	22-MAR-2007	APPROVED FOR DESIGN	JD	SB				MP			
C	6-JUNE-2007	APPROVED FOR DESIGN	MM	[illegible]				[illegible]			

MICROFILM NO.

شركة البترول الوطنية الكويتية (ق.م.ع)
KNPC

CLEAN FUELS PROJECT 2020

FLUOR

DRAWN BY	J. DYESS
CHECKED BY	M. PONCIO
SUPERVISOR	M. PONCIO
RELEASE DATE	20FEB2007
SUPERVISOR ENGR.	S. BURR
INITIALS	SB
PROJECT ENGR.	ACW
APP. DATE	20FEB2007
CLIENT	
APP. DATE	

ELECTRICAL STANDARD INSTALLATION ASSEMBLIES UNDERGROUND

SCALE	DRAWING NUMBER	REVISION
NONE	P6000CFP-000-64-1-F003-002	C