1 子项名称：沥青贮存及沥青熔化

SUBITEM NAME: PITCH UNLOADING & PITCH STORAGE & MELTING FACILITY

2 设计范围：沥青贮存及沥青熔化车间厂房钢结构的制作、运输、安装以及使用阶段的维护。

SCOPE OF DESIGN: FABRICATION, TRANSPORTATION, ERECTION AND MAINTENANCE OF STEEL STRUCTURES OF PITCH UNLOADING & PITCH STORAGE & MELTING FACILITY.

3 结构形式：沥青贮存及沥青熔化车间为钢框架结构体系，梁柱均采用热轧H型钢，柱脚为刚性柱脚，梁柱节点为高强螺栓。

STRUCTURAL FORM: THE PITCH UNLOADING & PITCH STORAGE & MELTING FACILITY IS OF THE STEEL FRAME STRUCTURE SYSTEM; BOTH BEAMS AND COLUMNS ADOPT HOT ROLLED H STEEL, WITH RIGID COLUMN BASES; BEAM-COLUMN JOINTS ADOPT HIGH STRENGTH BOLTS;

4 地震作用 SEISMIC EFFECT

结构重要性系数 STRUCTURE IMPORTANCE COEFFICIENT：I=1.0；

结构性能系数 STRUCTURE PERFORMANCE COEFFICIENT：R=5.0；

5 吊车荷载 （CRANE LOAD）

沥青贮存及沥青熔化车间设置两台5吨电动单梁，吊车平面布置见平面图DG0505BE-DR-6011ST-1201，吊车技术参数见表5.1。

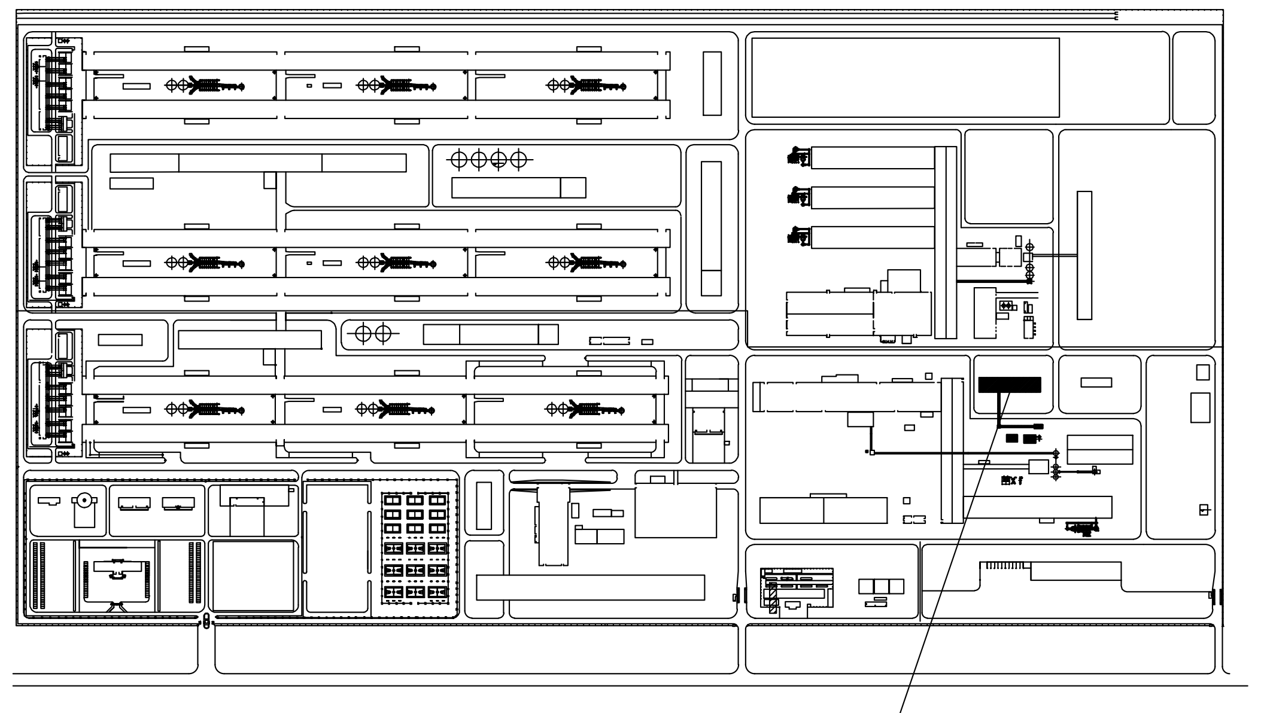
THERE ARE TWO BRIDGE CRANES WITH HOISTING CAPACITY OF 5T IN PITCH UNLOADING & PITCH STORAGE & MELTING FACILITY. REFER TO DRAWING DG0505BE-DR-7101ST-1001 FOR CRANE LAYOUT AND TABLE 5.1 FOR TECHNICAL PARAMETERS.

表5.1 （TABLE 5.1）

序号 NO.	吊车型号 CRANE MODEL	工作级别 SERV. CLASS	跨度 SPAN （M）	起重机总重 TOTAL WT.	小车重 TROLLEY WT.	吊重 RATED CAPACITY	数量 QTY.
1	电动单梁起重机 ELECTRIC SINGLE-GIRDER CRANE	A5	22.5	20.647 t	2.101t	5 t	2

参考图纸/文献 Ref. Drawing/Documents

图纸/文献号 Drawing/Document No.	名称 Title
DG0505DE-DR-0000ST-0102~0104	GENERAL NOTES OF CONCRETE AND MASONRY STRUCTURES
DG0505DE-DR-0000ST-0105~0108	GENERAL NOTES OF STEEL STRUCTURES



PITCH UNLOADING & PITCH STORAGE & MELTING FACILITY

平面示意（KEY PLAN）

轴侧图（一）

ISOMETRIC DRAWING（I） 1:200

版号 Rev.	日期 Date	说明 Description	制图 Drawn	校对 Checked	批准 Approved
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D1	10/07-20	AS BUILT	孙晓明	陈英	马翼鹏

业主（Owner）：
伊朗南方铝业公司
Iran South Aluminum Corporation

总承包商（EPC Contractor）
中国有色金属建设股份有限公司
China Nonferrous Metal Industry's Foreign Engineering And Construction Co., Ltd.

设计单位（Engineering Institute）：
東北大學 设计研究院(有限公司)
N.E.U Engineering & Research Institute Co., Ltd.

审核/审定 Approved			
	马翼鹏 MA YIPENG	马翼鹏	09/07-20
校对 Checked	陈英 CHEN YING	陈英	08/07-20
制图 Drawn	孙晓明 SUN XIAOMING	孙晓明	07/07-20

沥青贮存及沥青熔化
PITCH UNLOADING & PITCH STORAGE & MELTING FACILITY

轴侧图（一）
ISOMETRIC DRAWING（I）

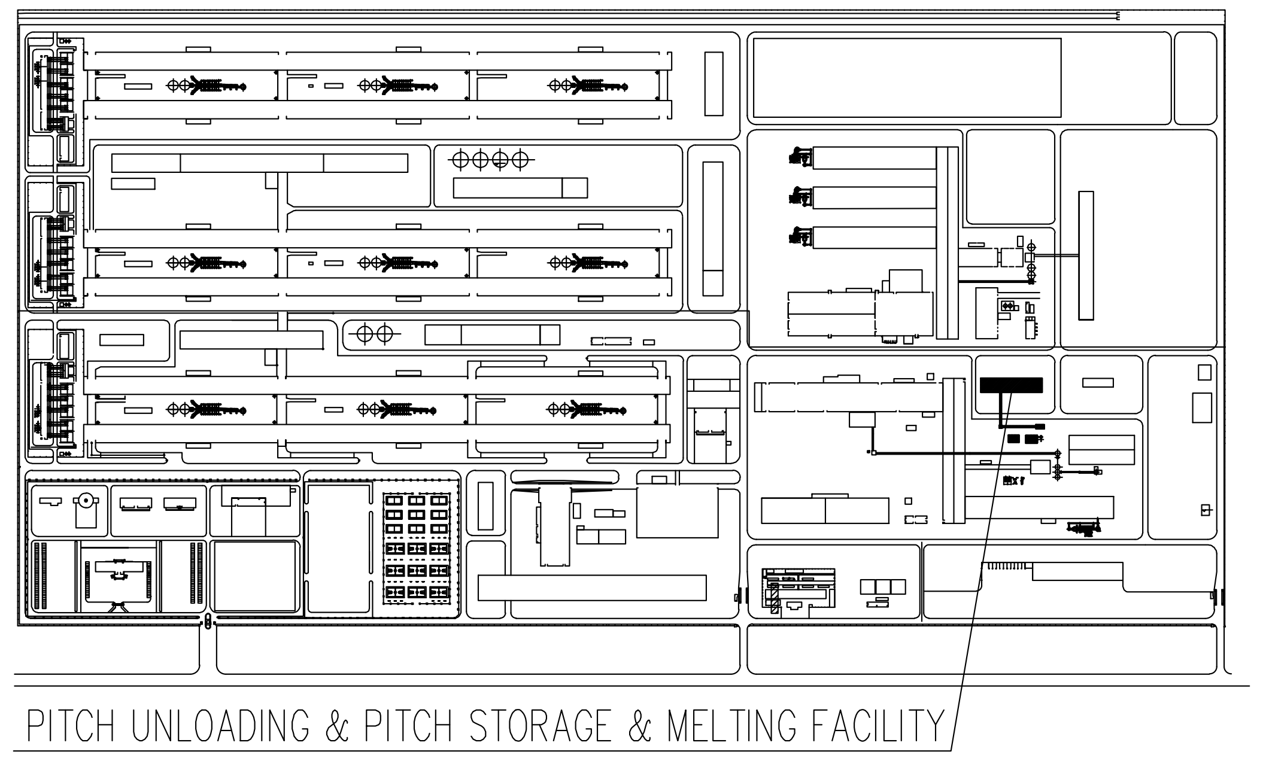
工程编号 Proj. No.	DG0505
设计阶段 Phase	竣工图 AD
专业 Specialty	结构 ST
图纸规格 Size	A1

图号 Dwg. No. DG0505AD-DR-6011ST-0102 Rev. D1

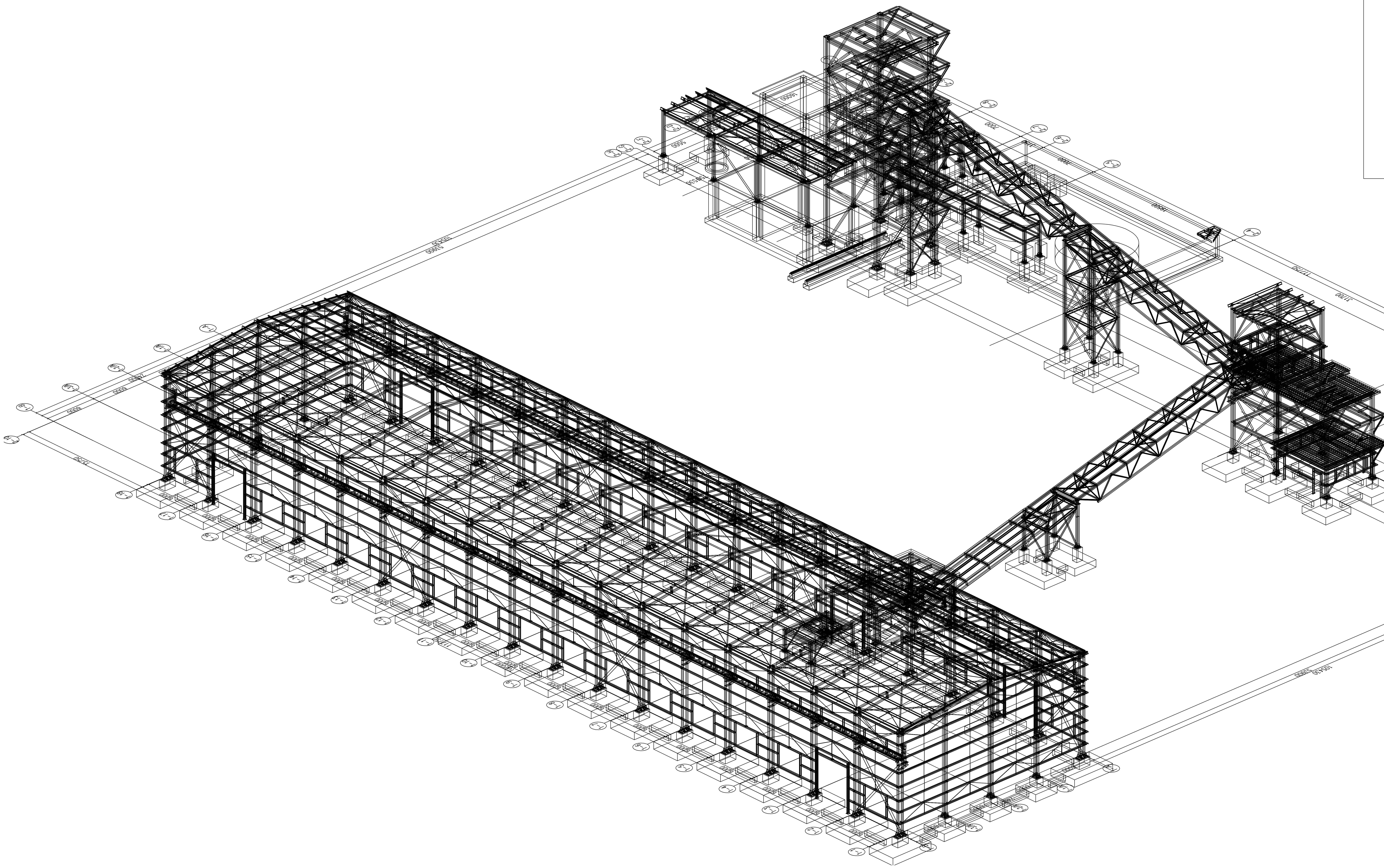
共 01 页 第 01 页
Page 01 of 01

参考图纸/文献
Ref. Drawing/Documents

图纸/文献号 Drawing/Document No.	名称 Title
DG0505DE-DR-0000ST-0102~0104	GENERAL NOTES OF CONCRETE AND MASONRY STRUCTURES
DG0505DE-DR-0000ST-0105~0108	GENERAL NOTES OF STEEL STRUCTURES



平面示意（KEY PLAN）



轴侧图（二）
ISOMETRIC DRAWING（Ⅱ） 1:200

版号 Rev.	日期 Date	说明 Description	制图 Drawn	校对 Checked	批准 Approved
△					
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D1	10/07-20	AS BUILT	孙晓明	陈英	马翼鹏

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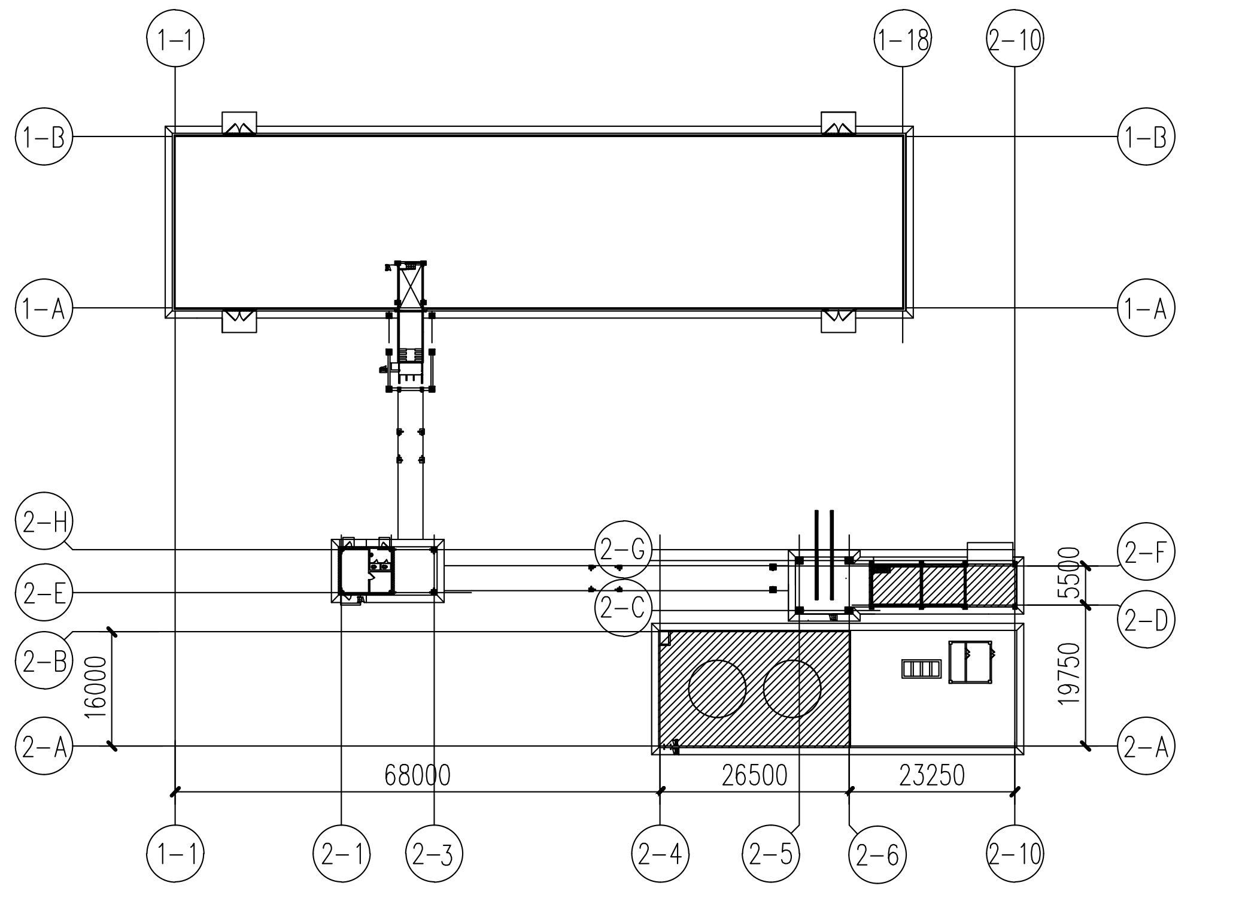
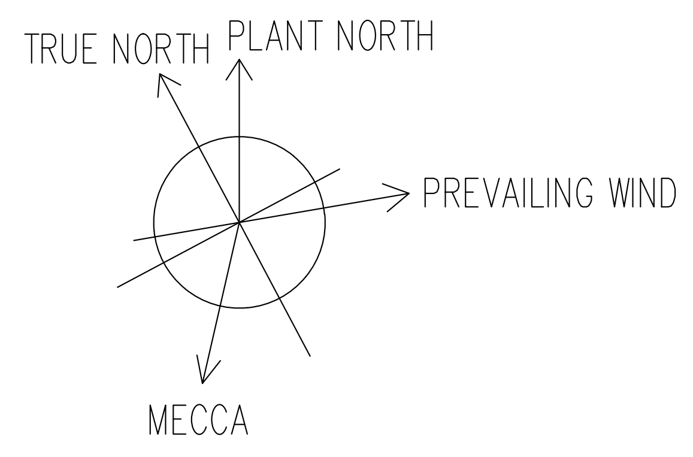
设计单位（Engineering Institute）:
東北大學 设计研究院(有限公司)
N.E.U Engineering & Research Institute Co., Ltd.

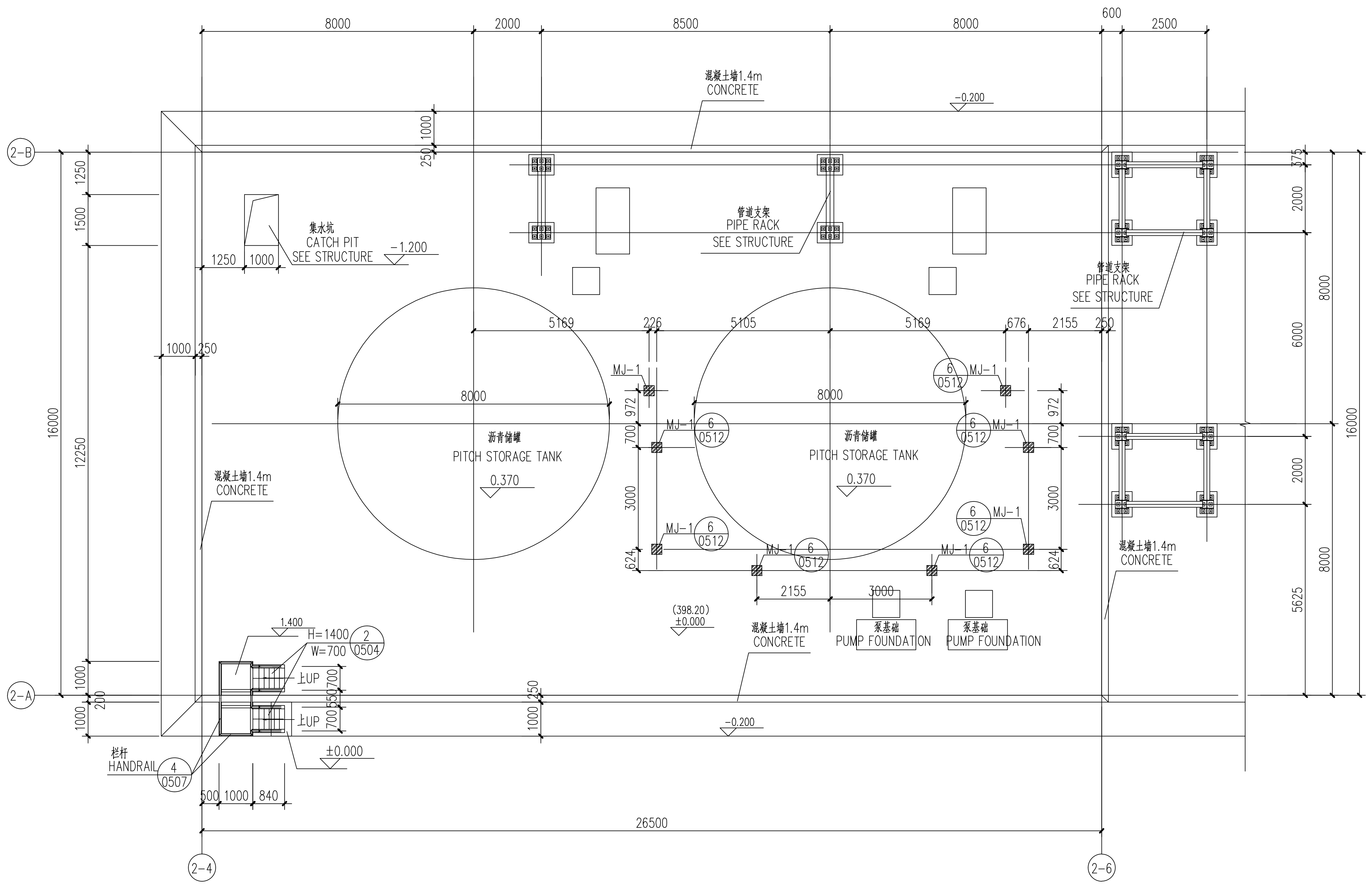
审核/审定 Approved				沥青贮存及沥青熔化 PITCH UNLOADING & PITCH STORAGE & MELTING FACILITY	工程编号 Proj. No.	DG0505
					设计阶段 Phase	竣工图 AD
	马翼鹏 MA YIPENG	马翼鹏	09/07-20	轴侧图（二） ISOMETRIC DRAWING（Ⅱ）	专业 Specialty	结构 ST
校对 Checked	陈英 CHEN YING	陈英	08/07-20		图纸规格 Size	A1
制图 Drawn	孙晓明 SUN XIAOMING	孙晓明	07/07-20	图号 Dwg. No. DG0505AD-DR-6011ST-0103 D1 Rev.	共 01 页 第 01 页 Page 01 of 01	

参考图纸/文献 Ref. Drawing/Documents	
图纸/文献号 Drawing/Document No.	名称 Title

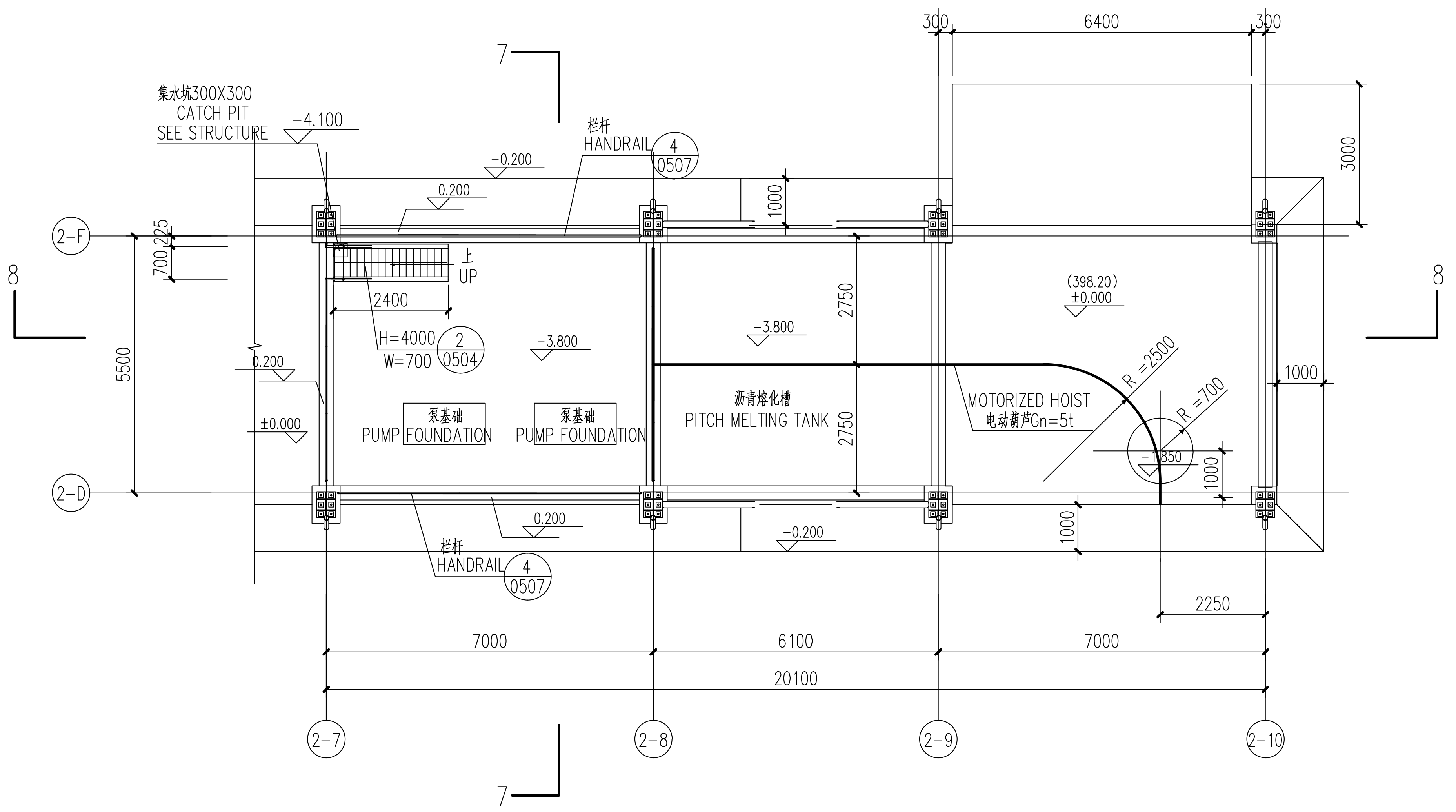


平面示意（KEY PLAN）





▽±0.000平面图
▽±0.000 PLAN
PITCH STORAGE TANK 1:100



▽±0.000平面图
▽±0.000 PLAN
PITCH MELTING TANK 1:100

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D1	10/07-20	竣工图 AS BUILT	李野	李晓黎	邹健
版号 Rev.	日期 Date	说明 Description	制图 Drawn	校对 Checked	批准 Approved

业主（Owner）：
伊朗南方铝业公司
Iran South Aluminum Corporation

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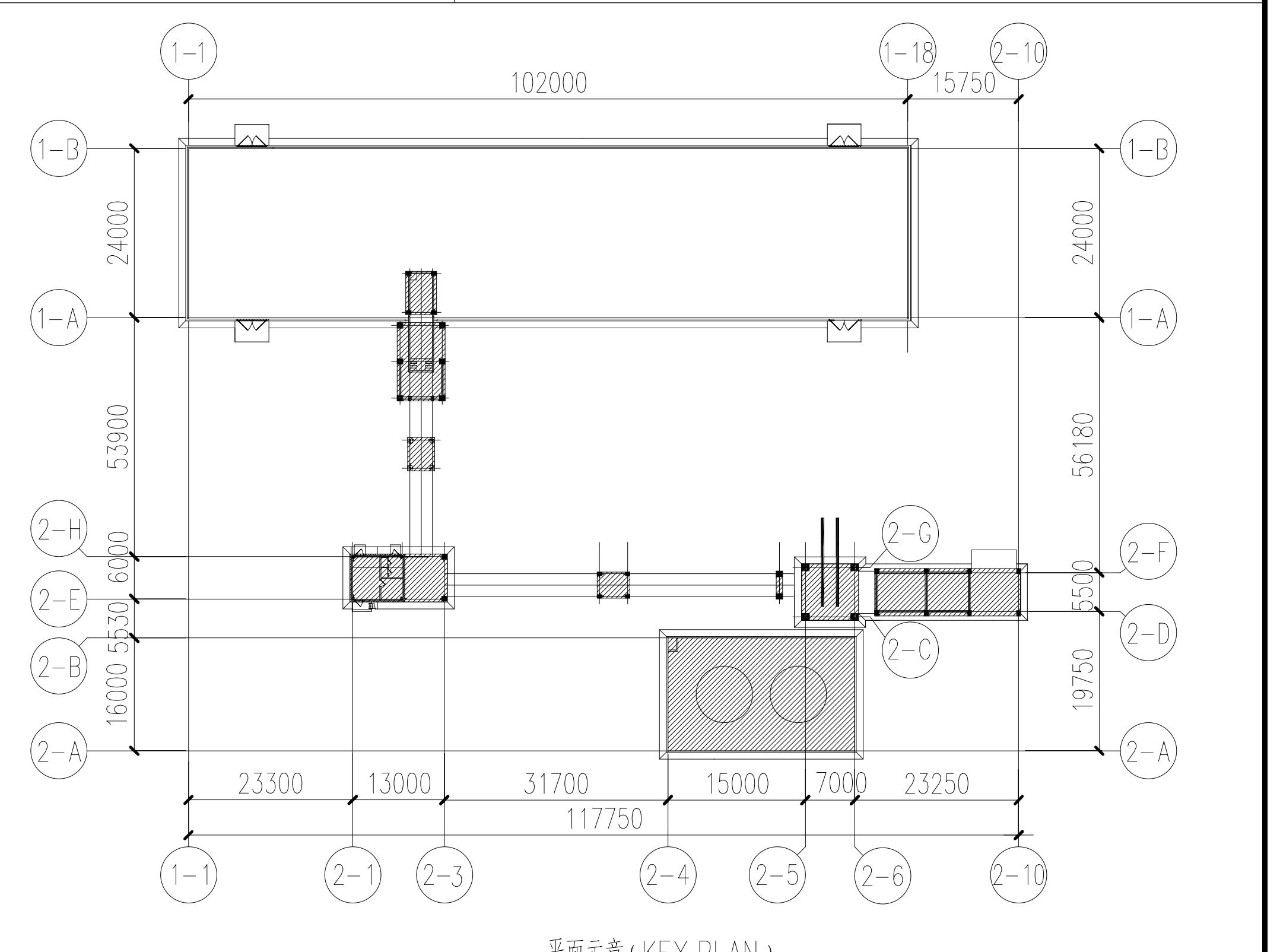
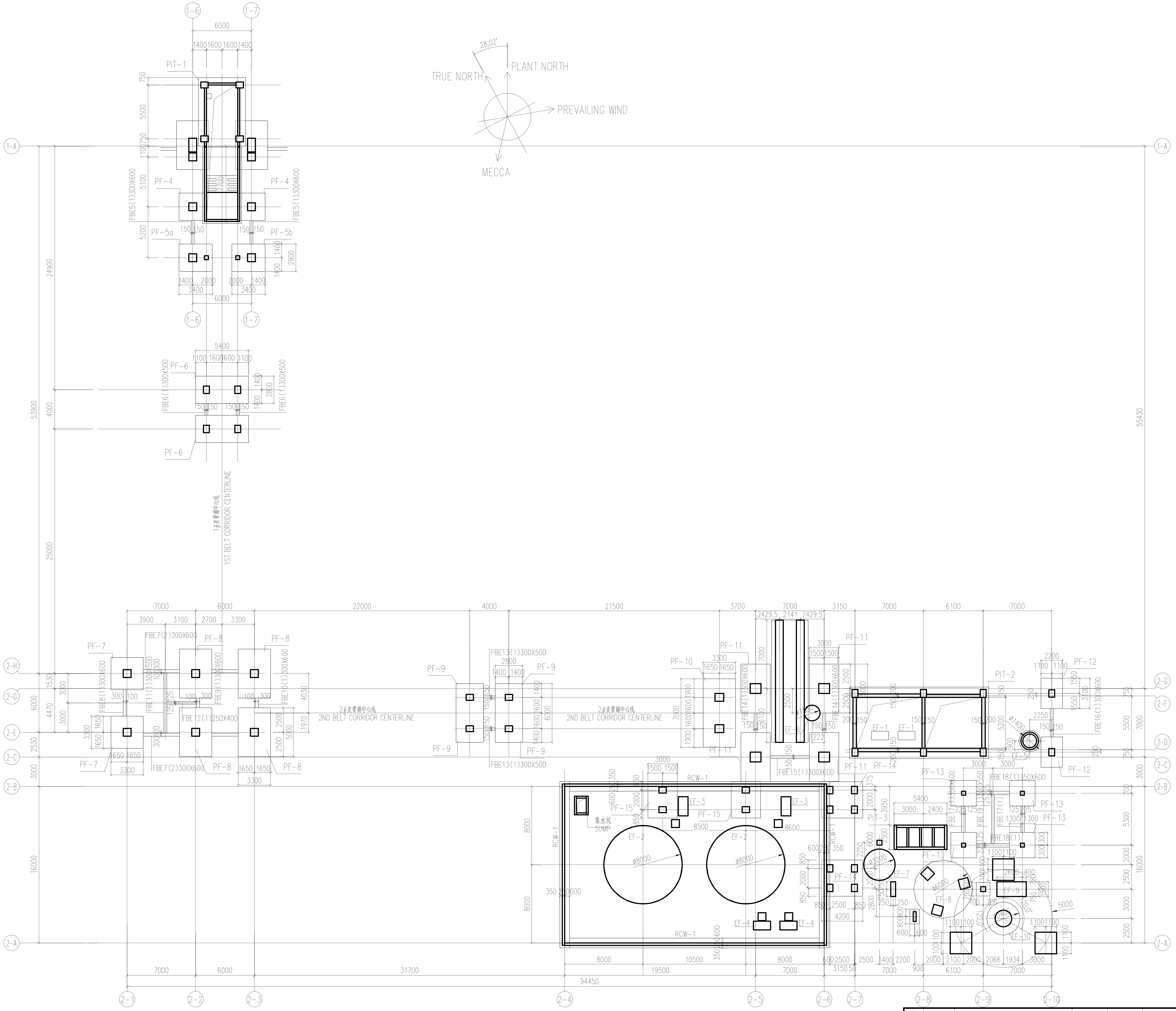
N.E.U Engineering & Research Institute Co., Ltd.

				沥青贮存及沥青熔化 PITCH UNLOADING&PITCH STORAGE%MELTING FACILITY	工程编号 Proj. No.	DG0505
审核/审定 Approved					设计阶段 Phase	竣工图 AD
	邹 健 ZOU JIAN	邹健	09/07-20	平面图（五） PLAN (V)	专 业 Specialty	建 筑 AR
校 对 Checked	李晓黎 LI XIAOLI	李晓黎	08/07-20		图纸比例 Scale	1: 100
制 图 Drawn	李 野 LI YE	李野	07/07-20	图 号 Dwg. No. DG0505AD-DR-6011AR-0205 D1 Rev.	图纸规格 Size	A1

参考图纸/文献 Ref. Drawing/Documents	
图纸/文献号 Drawing/Document No.	名称 Title
DG0505AD-DR-0000ST-0102~0104	GENERAL NOTES OF CONCRETE AND MASONRY STRUCTURES



平面示意（KEY PLAN）



基础平面布置图（二）

FOUNDATION LAYOUT（Ⅱ）1:200

版号 Rev.	日期 Date	说明 Description	制图 Drawn	校对 Checked	批准 Approved
△					
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D1	10/07-20	AS BUILT	孙晓明	王涛	马翼鹏

业主（Owner）：

伊朗南方铝业公司
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N.E.U Engineering & Research Institute Co., Ltd.

审核/审定 Approved				沥青贮存及沥青熔化 PITCH UNLOADING & PITCH STORAGE & MELTING FACILITY	工程编号 Proj. No.	DG0505
					设计阶段 Phase	竣工图 AD
	马翼鹏 MA YIPENG	马翼鹏	09/07-20	基础平面布置图（二） FOUNDATION LAYOUT（Ⅱ）	专 业 Specialty	结构 ST
校 对 Checked	王 涛 WANG TAO	王涛	08/07-20		图纸规格 Size	A1
制 图 Drawn	孙晓明 SUN XIAOMING	孙晓明	07/07-20	图 号 Dwg. No. DG0505AD-DR-6011ST-0202	D1 Rev.	共 01 页 第 01 页 Page 01 of 01

素混凝土桩设计说明
GENERAL NOTES OF PLAIN CONCRETE PILES

1. 本子项室内地面设计标高±0.000相当于绝对标高398.20
INDOOR FLOOR DESIGN ELEVATION ±0.000 IS EQUIVALENT TO THE ABSOLUTE ELEVATION 398.20m.

2. 本子项地基采用素混凝土桩法进行处理，处理后复合地基承载力特征值fspk不小于186KPa（桩间距2.3X2.3m），194KPa（桩间距2.0X2.0m），单桩竖向承载力特征值均不小于600kN，应通过静载试验确定。
IN THIS SUB-ITEM, PLAIN CONCRETE PILE METHOD SHALL BE USED FOR GROUND IMPROVEMENT. THE CHARACTERISTIC VALUE OF BEARING CAPACITY FOR COMPOSITE FOUNDATION fspk SHALL NOT BE LESS THAN 186kPa FOR 2.3x2.3M,194kPa FOR 2.0x2.0M ARRANGMENTS. FOR ALL THE PILES, THE CHARACTERISTIC VALUE OF THE VERTICAL BEARING CAPACITY FOR SINGLE PILE SHALL NOT BE LESS THAN 600kN, THE VALUE SHALL BE DETERMINED BY STATIC LOAD TEST.

3. 素混凝土桩主要技术规格见下表
FOR THE MAIN SPECIFICATION OF PLAIN CONCRETE PILES, SEE TABLE BELLOW

序号 NO.	项目名称 ITEM	项目规格 SPECIFICATION		
1	图例 LEGEND	○ PILE-1	◐ PILE-2	◔ PILE-3
2	素混凝土桩直径 DIAMETER OF PLAIN CONCRETE PLIE	Ø=500mm	Ø=500mm	Ø=500mm
3	有效桩长 EFFECTIVE PILE LENGTH	L=14.0m	L=14.0m	L=14.0m
4	桩身混凝土强度等级及抗渗等级 PILE SHAFT CONCRETE STRENGTH GRADE AND IMPERMEABLITY GRADE	C25，S8	C25，S8	C25，S8
5	桩端持力层 BEARING STRATUM AT THE PILE TIP	STRATUM ③	STRATUM ③	STRATUM ③
6	桩端进入持力层深度 THE DEPTH FOR PILE TIP ENTERED INTO THE BEARING STRATUM	d ⩾ 1000 mm	d ⩾ 1000 mm	d ⩾ 1000 mm
7	桩顶标高 ELEVATION OF TOP OF PILE	▽ -2.350m (T.O.P)	▽ -2.850m (T.O.P)	▽ -2.650m (T.O.P)

4. 桩身水泥采用抗硫酸盐水泥（TYPE V型），骨料采用火成岩骨料，最大水灰比0.45。
CEMENT FOR PLAIN CONCRETE PILE SHAFT SHALL BE SULFATE RESISTANT CEMENT (TYPE V), AGGREGATE SHALL BE IGNEOUS ROCK AGGREGATE, THE MAX. W/C RATIO SHALL BE 0.45.

5. 复合地基承载力应以现场复合地基载荷试验确定。
COMPOSITE FOUNDATION BEARING CAPACITY SHALL BE DETERMINED BY IN-SITU COMPOSITE FOUNDATION LOAD TESTS.

6. 桩身施工前应按照设计要求由实验室进行配合比实验，施工时按配合比配制混合料并按相关规定预留试块及时送检。
BEFORE PILE CONSTRUCTION, A MIX PROPORTION TEST MUST BE DONE IN A LABORATORY ACCORDING TO DESIGN REQUIREMENTS. DURING CONSTRUCTION, A MIXTURE SHALL BE PREPARED ACCORDING TO DESIGN MIX PROPORTION AND TEST CUBES SHALL BE RESERVED AND SUBMITTD FOR TEST IN TIME ACCORDING TO RELEVANT REQUIREMENTS.

7. 现场试验应测定以下各项指标并评价其是否满足设计要求：
INDICATORS LISTED BELOW SHALL BE INSPECTED BY IN-SITU TESTS TO CONFIRM IF IT CAN MEET THE DESIGN REQUIREMENTS.

(1). 复合地基承载力特征值;	CHARACTERISTIC VALUE OF COMPOSITE FOUNDATION BEARING CAPACITY;
(2). 单桩竖向承载力特征值;	CHARACTERISTIC VALUE OF VERTICAL BEARING CAPACITY OF SINGLE PILE;
(3). 桩身完整性;	PILE INTEGRITY;

8. 基础垫层至桩顶间铺300mm厚褥垫层，褥垫层材料宜用级配砂石（级配表见右），最大粒径不宜大于30mm，夯填度（夯后厚度与虚铺厚度之比）不大于0.90。桩顶进入褥垫层50mm。褥垫层边缘距柱下独立基础边或桩边（以最外侧者为准）300mm，褥垫层应放坡。
A 300mm THICK GRADED GRAVEL LAYER SHALL BE LAID BELLOW THE FOOTING LEAN CONCRETE LAYER. GRADING TABLE ARE PRESENTED RIGHT. THE GRADED GRAVEL SHALL HAVE A MAXIMUM PARTICLE SIZE BETTER NOT GREATER THAN 30mm AND THE COMPACTION DEGREE (THE RATIO OF COMPACTED CUSION THICKNESS TO FILLING THICKNESS) SHALL NOT BE GREATERTHAN 0.9. THE TOP OF THE PILE SHALL ENTER THE GRADED GRAVEL LAYER BY 50mm. THE BOUNDARY SHALL BE 300mm WIDER THAN THE BOUNDARY OF COLUMN FOOTINGS OR PILES (WHICHEVER IS OUTER).

9. 褥垫层铺设宜使用静力压实法，当基础底面下桩间土含水量较小时，也可采用动力夯实法。
DURING THE LAYING OF THE GRADED GRAVEL LAYER, STATIC COMPACTION METHOD SHOULD BE APPLIED. IF THE WATER CONTENT OF THE SOIL BETWEEN FOOTING AND PILE IS LOW, DYNAMIC COMPACTION METHOD CAN ALSO BE APPLIED.

10. 长螺旋钻孔管内泵压混合料灌注成桩施工除应执行国家现行有关规定外，尚应符合下列要求：
CONSTRUCTION OF CAST-IN-PLACE PILES THROUGH THE MEANS OF LONG AUGER BORING AND PUMPING MIXTURE SHALL NOT ONLY COMPLY WITH RELEVANT CURRENT NATIONAL STIPULATIONS, BUT ALSO THE REQUIREMENTS AS FOLLOWS:

(1). 施工前应按设计要求由实验室进行配合比试验，施工时按配合比配置混合料。长螺旋钻孔管内泵压混合料成桩施工的坍落度宜为160~200mm；
A MIX PROPORTION TEST SHALL BE CONDUCTED IN A LABORATORY AS PER DESIGN REQUIREMENTS PRIOR TO CONSTRUCTION. MIXTURE SHALL BE PREPARED IN COMPLIANCE WITH MIX PROPORTION DURING CONSTRUCTION. THE SLUMP OF THE CAST-IN-PLACE PILES THROUGH THE MEANS OF LONG AUGER BORING AND PUMPING MIXTURE SHALL BE LIMITED TO 160~200MM;

(2). 长螺旋钻孔管内泵压混合料成桩施工在钻至设计深度后，应准确掌握提拔钻杆时间，混合料泵送量应与拔管速度相配合，遇到饱和砂土或饱和粉土层，不得停泵待料。
DURING CONSTRUCTION OF THE CAST-IN-PLACE PILES THROUGH THE MEANS OF LONG AUGER BORING AND PUMPING MIXTURE, THE TIME OF DRILL ROD EXTRACTION SHALL BE ACCURATELY CONTROLLED AFTER DRILLING TO THE DESIGN DEPTH AND A GOOD COORDINATION BETWEEN MIXTURE PUMPING VOLUME AND DRILL ROD EXTRACTION SPEED IS REQUIRED. PUMPING INTERRUPTION IS PROHIBITED IN THE EVENT OF SATURATED SAND SOIL OR SATURATED SILTY SOIL LAYER.

(3). 成桩过程中，抽样做混合料试块，每台机械一天应做一组（3块）试块（边长为150mm的立方体），标准养护，测定其立方体抗压强度。
DURING PILE FORMING PROCESS, SPOT MIXTURE SPECIMENS SHALL BE PREPARED, WITH ONE SET (CONSISTING OF 3 SPECIMENS OF CUBES HAVING A SIDE LENGTH OF 150MM) PER MACHINE PER DAY. THE SPECIMENS SHALL BE CURED BY STANDARD METHODS AND CUBIC COMPRESSIVE STRENGTH SHALL BE TESTED.

11. 冬期施工时混合料入孔温度不得低于5℃。对桩头和桩间土应采取保温措施。
DURING CONSTRUCTION IN WINTER, THE INLET TEMPERATURE OF THE MIXTURE SHALL NOT BE LOWER THAN 5℃. THERMAL INSULATION SHALL BE PROVIDED FOR PILE TIPS AND PILE SOIL.

12. 清土和截桩时，不得造成桩顶标高以下桩身断裂和扰动桩间土。
DURING SOIL REMOVAL AND PILE CUTTING, BREAKAGE OF PILE SHAFTS BELOW PILE TOP ELEVATION OR DISTURBANCE OF PILE SOIL IS PROHIBITED.

13. 施工垂直度偏差不应大于1%。
CONSTRUCTION VERTICALITY DEVIATION SHALL NOT BE GREATER THAN 1%.

14. 施工质量检验主要应检查施工记录，混合料坍落度、桩数、桩位偏差、褥垫层厚度、夯填度及桩体试块抗压强度等。
CONSTRUCTION QUALITY INSPECTION SHALL INCLUDE MAINLY CONSTRUCTION LOGS, MIXTURE SLUMP, NUMBER OF PILES, PILE LOCATION DEVIATION, CUSHION THICKNESS,COMPACTION DEGREE, PILE SPECIMEN COMPRESSIVE STRENGTH, ETC.

15. 素混凝土桩复合地基承载力检验宜在施工结束后28d后进行，其桩身强度应满足试验荷载条件。复合地基静载荷试验的数量不应小于总桩数的0.5%，单桩静载试验的数量不应小于总桩数的0.5%，且每个单体工程的复合地基静载荷试验数量不应少于3点。
THE BEARING CAPACITY OF PLAIN CONCRETE COMPOSITE FOUNDATIONS SHALL BE INSPECTED 28D AFTER CONSTRUCTION IS COMPLETED, WITH PILE SHAFT STRENGTH SATISFYING TEST LOAD REQUIREMENTS. THE NUMBER OF COMPOSITE FOUNDATION STATIC LOAD TESTS SHALL NOT BE LESS THAN 0.5% OF THE TOTAL NUMBER OF PILES, SINGLE PILE STATIC LOAD TESTS SHALL NOT BE LESS THAN 0.5% OF THE TOTAL NUMBER OF PILES, AND THE NUMBER OF COMPOSITE FOUNDATION STATIC LOAD TESTS OF EACH CONSTRUCTION ITEM SHALL NOT BE LESS THAN 3.

16. 采用低应变动力试验检测桩身完整性，检查数量不低于总桩数的10%。
PILES OF NOT LESS THAN 10% OF THE TOTAL SHALL BE RANDOMLY SELECTED FOR LOW STRAIN DYNAMIC TESTS TO TEST THEIR INTEGRITY.

17. 桩身施工中所使用的材料及施工过程均应严格遵循各有关规范或规定。
BOTH THE MATERIALS USED FOR PILE SHAFT CONSTRUCTION AND THE CONSTRUCTION PROCESS SHALL BE IN STRICT COMPLIANCE WITH RELEVANT CODES OR STIPULATIONS.

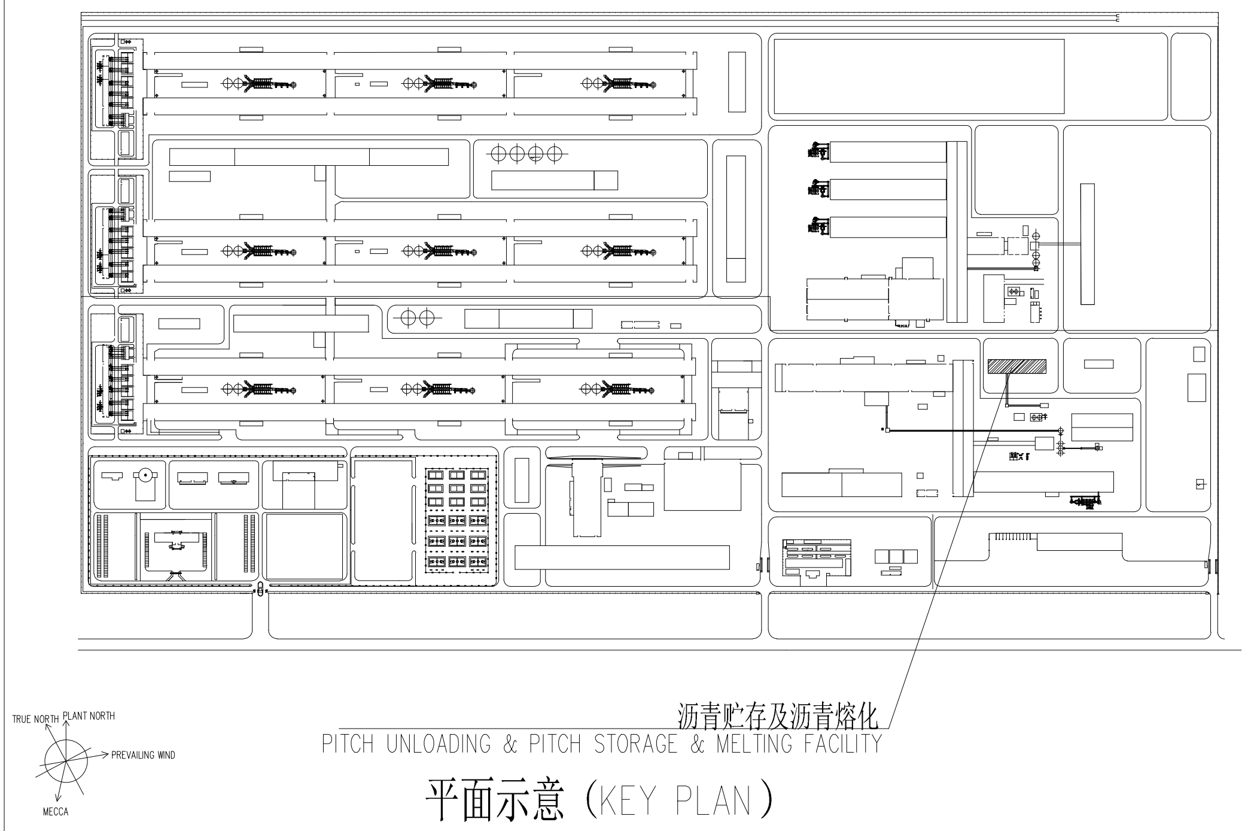
18. 桩身施工除执行本设计说明中的条款外，尚应根据所采取的施工工艺的要求，严格遵循《建筑地基处理技术规范》<JGJ79-2012>中的规定。
IN ADDITION TO THE CLAUSES STIPULATED IN THIS GENERAL NOTES, PILE SHAFT CONSTRUCTION SHALL ALSO BE IN STRICT COMPLIANCE WITH STIPULATIONS OF "TECHNICAL CODE FOR GROUND TREATMENT OF BUILDINGS" (JGJ79-2012) ON THE BASIS OF THE CONSTRUCTION PROCESS EMPLOYED.

19. 基槽开挖后应组织验槽，发现异常情况，应会同有关单位协商解决后方可继续施工。
TRENCH INSPECTION SHALL BE CONDUCTED AFTER FOUNDATION TRENCH EXCAVATION. ABNORMAL SITUATIONS (IF ANY) SHALL BE RESOLVED THROUGH CONSULTATION WITH RELEVANT PARTIES PRIOR TO PROCEEDING WITH CONSTRUCTION.

GRADING TABLE GRAVEL SOIL LAYER			
METERIAL	GRAVEL		COARSE SAND
GRAIN SIZE	16~30mm	10~15mm	–
PERCENTAGE	30%	40%	30%

参考图纸/文献
Ref. Drawing/Documents

图纸/文献号 Drawing/Document No.	名称 Title
DG0505AD-DR-0000ST-0102~0104	GENERAL NOTES OF CONCRETE AND MASONRY STRUCTURES



平面示意（KEY PLAN）

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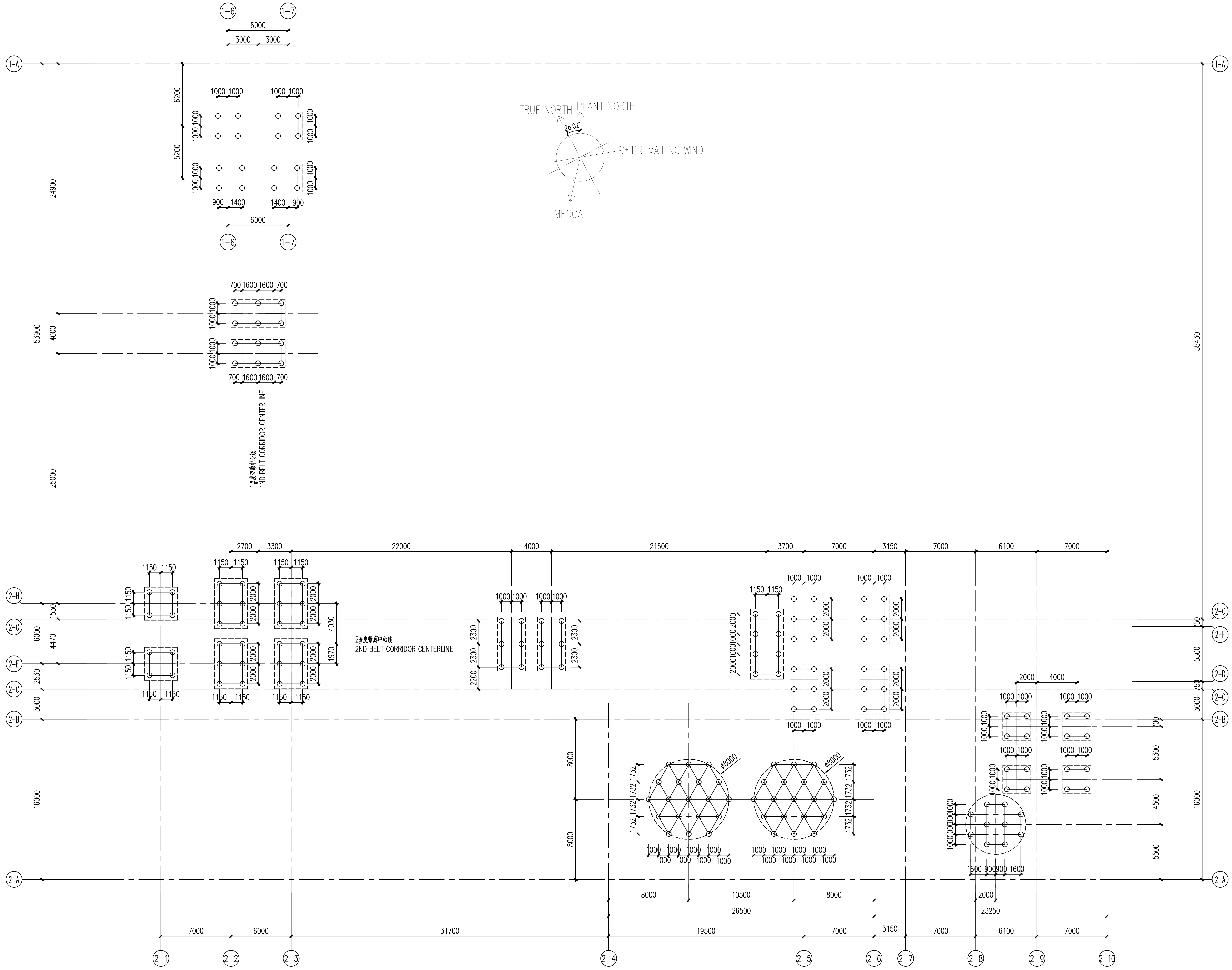
D1	10/07-20	AS BUILT	孙晓明	王涛	马翼鹏
版号 Rev.	日期 Date	说明 Description	制图 Drawn	校对 Checked	批准 Approved

业主（Owner）：
伊朗南方铝业公司
Iran South Aluminum Corporation

总承包商（EPC Contractor）
中国有色金属建设股份有限公司
China Nonferrous Metal Industry's Foreign Engineering And Construction Co., Ltd.

设计单位（Engineering Institute）：
東北大學 设计研究院(有限公司)
N.E.U Engineering & Research Institute Co., Ltd.

审核/审定 Approved				沥青贮存及沥青熔化 PITCH UNLOADING & PITCH STORAGE & MELTING FACILITY	工程编号 Proj. No.	DG0505
					设计阶段 Phase	竣工图 AD
	马翼鹏 MA YIPENG	马翼鹏	09/07-20	素混凝土桩设计说明 GENERAL NOTES OF PLAIN CONCRETE PILES	专　业 Specialty	结构 ST
校　对 Checked	王　涛 WANG TAO	王涛	08/07-20		图纸规格 Size	A1
制　图 Drawn	孙晓明 SUN XIAOMING	孙晓明	07/07-20	图　号 Dwg. No. DG0505AD-DR-6011ST-0203 D1 Rev.		共 01 页　第 01 页 Page 01 of 01



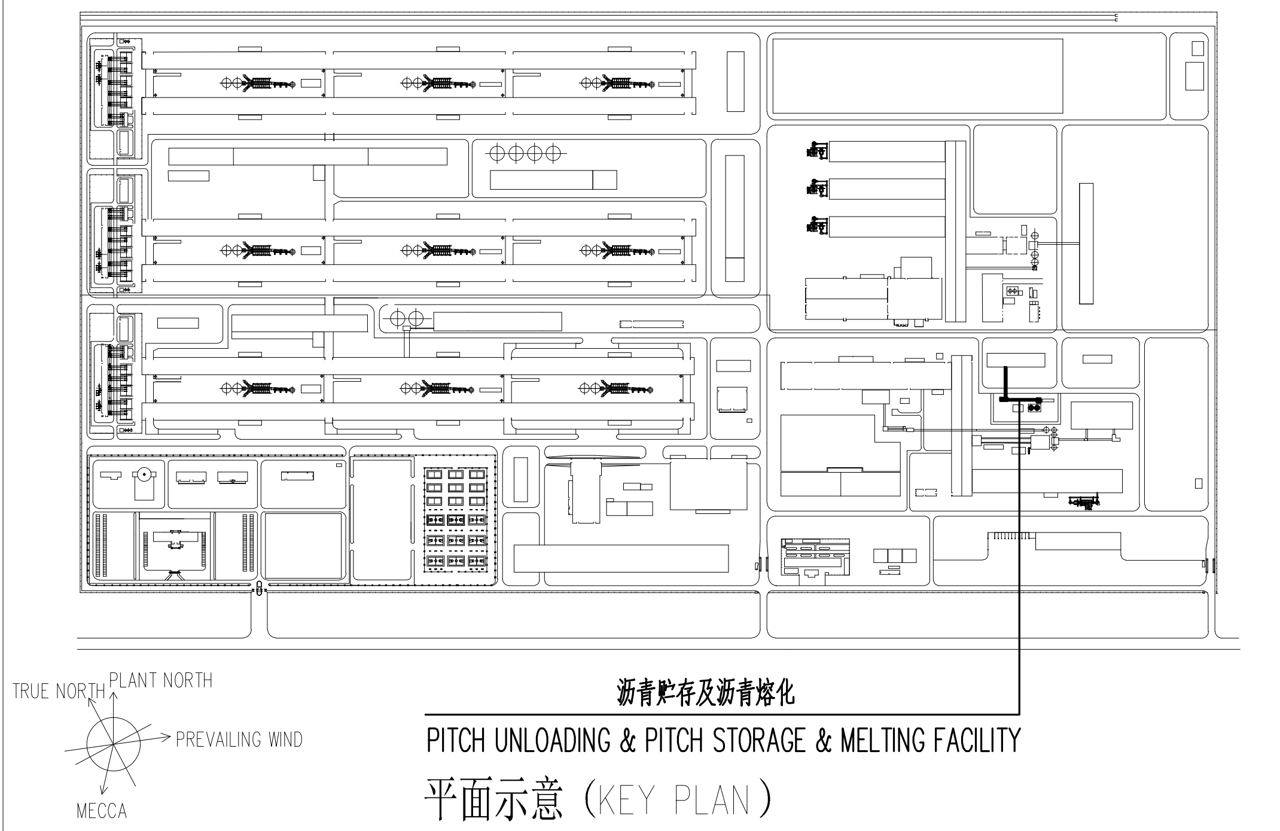
素混凝土桩平面布置图(二)

PLAIN CONCRETE PILE LAYOUT PLAN(Ⅱ) 1:200

○ PILE 1

参考图纸/文献
Ref. Drawing/Documents

图纸/文献号 Drawing/Document No.	名称 Title
DG0505DE-DR-0000ST-0105~0108	GENERAL NOTES OF STEEL STRUCTURES
DG0505AD-DR-6011ST-0203	GENERAL NOTES OF PLAIN CONCRETE PILES



沥青贮存及沥青熔化
PITCH UNLOADING & PITCH STORAGE & MELTING FACILITY
平面示意（KEY PLAN）

版号 Rev.	日期 Date	说明 Description	制图 Drawn	校对 Checked	批准 Approved
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△					
△					
△					
△					
D1	10/07-20	AS BUILT	孙晓明	王涛	马翼鹏

业主 (Owner) :
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N.E.U Engineering & Research Institute Co., Ltd.

沥青贮存及沥青熔化
PITCH UNLOADING & PITCH STORAGE & MELTING FACILITY

素混凝土桩平面布置图(二)
PLAIN CONCRETE PILE LAYOUT PLAN(Ⅱ)

审核/审定 Approved	马翼鹏 MA YIPENG	马翼鹏	09/07-20
校对 Checked	王涛 WANG TAO	王涛	08/07-20
制图 Drawn	孙晓明 SUN XIAOMING	孙晓明	07/07-20
批准 Approved	马翼鹏		

工程编号 Proj. No.	DG0505
设计阶段 Phase	竣工图 AD
专业 Specialty	结构 ST
图纸规格 Size	A1
图号 Dwg. No.	DG0505AD-DR-6011ST-0207
Rev.	D1

共 01 页 第 01 页
Page 01 of 01

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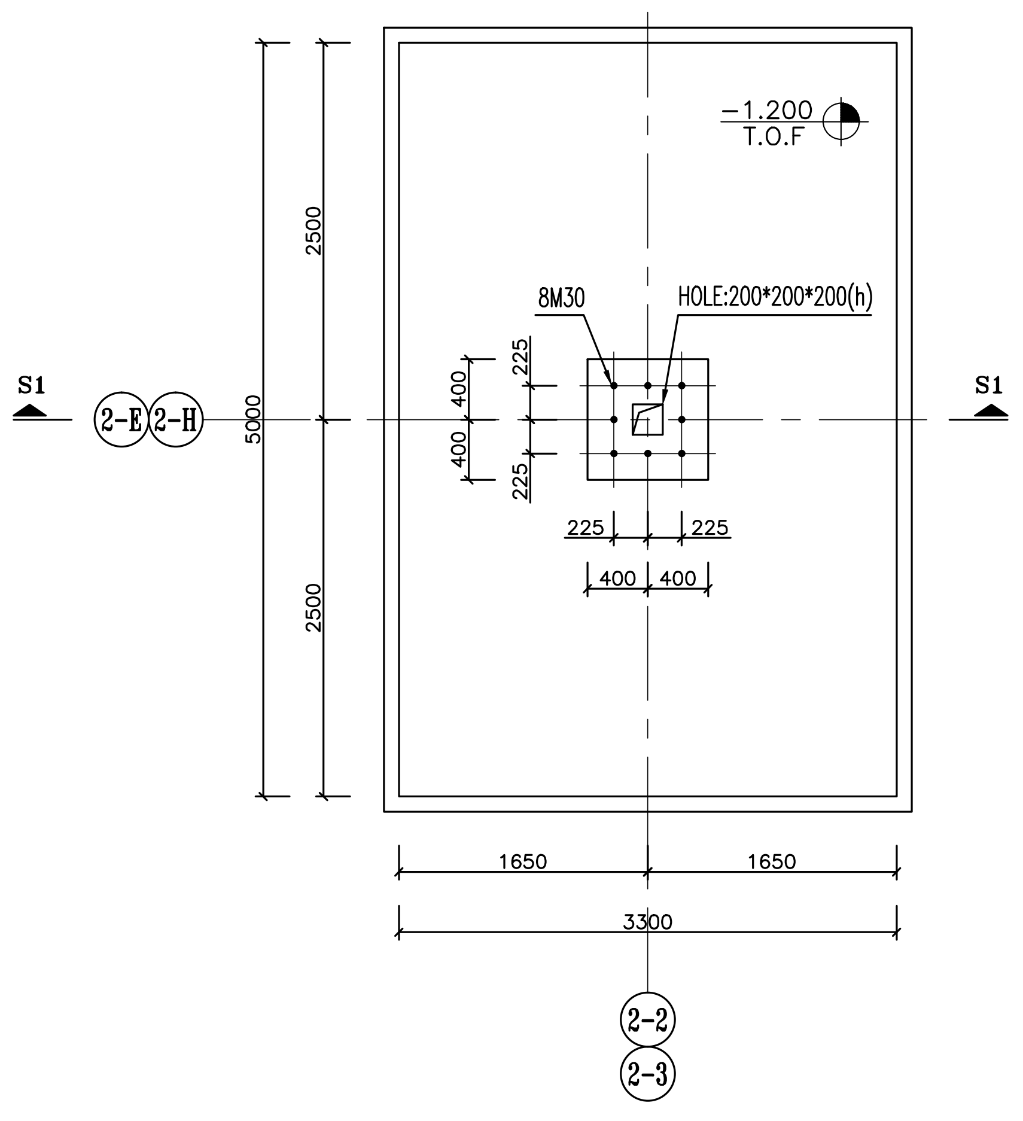
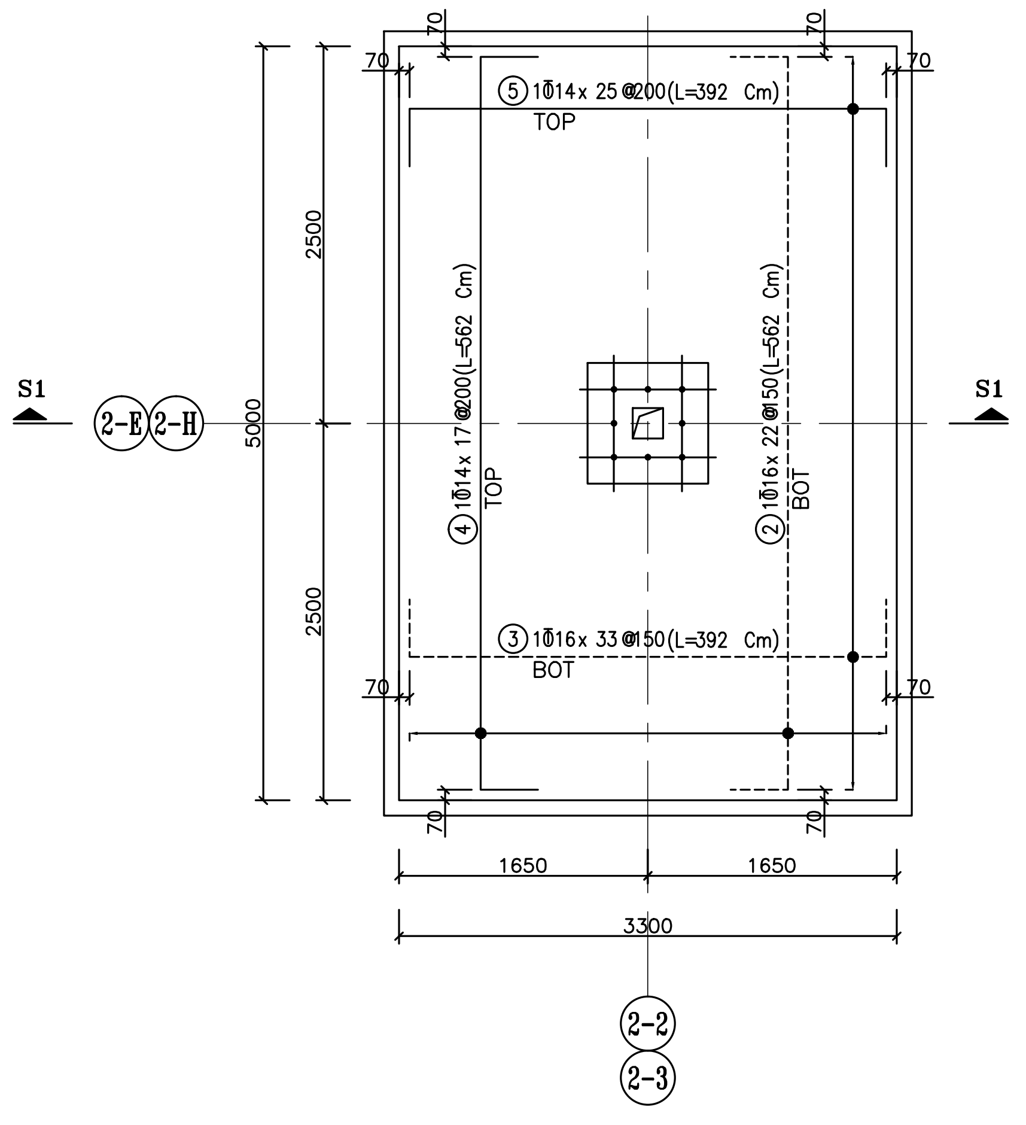
图纸/文献号 Drawing/Document No.	名称 Title



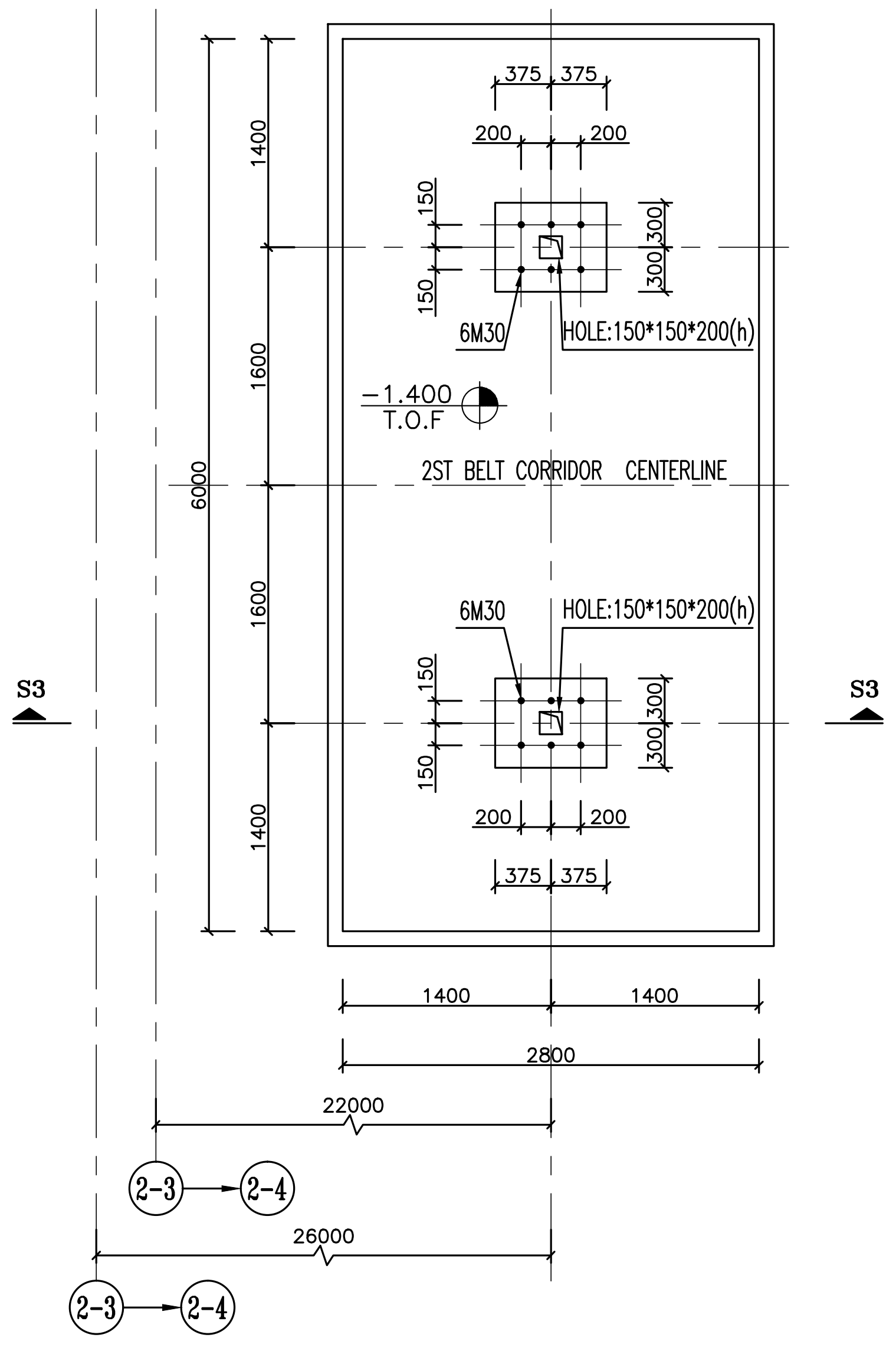
FORMWORK PF-8

Scale : 1/50 FOUNDATION FORMWORK



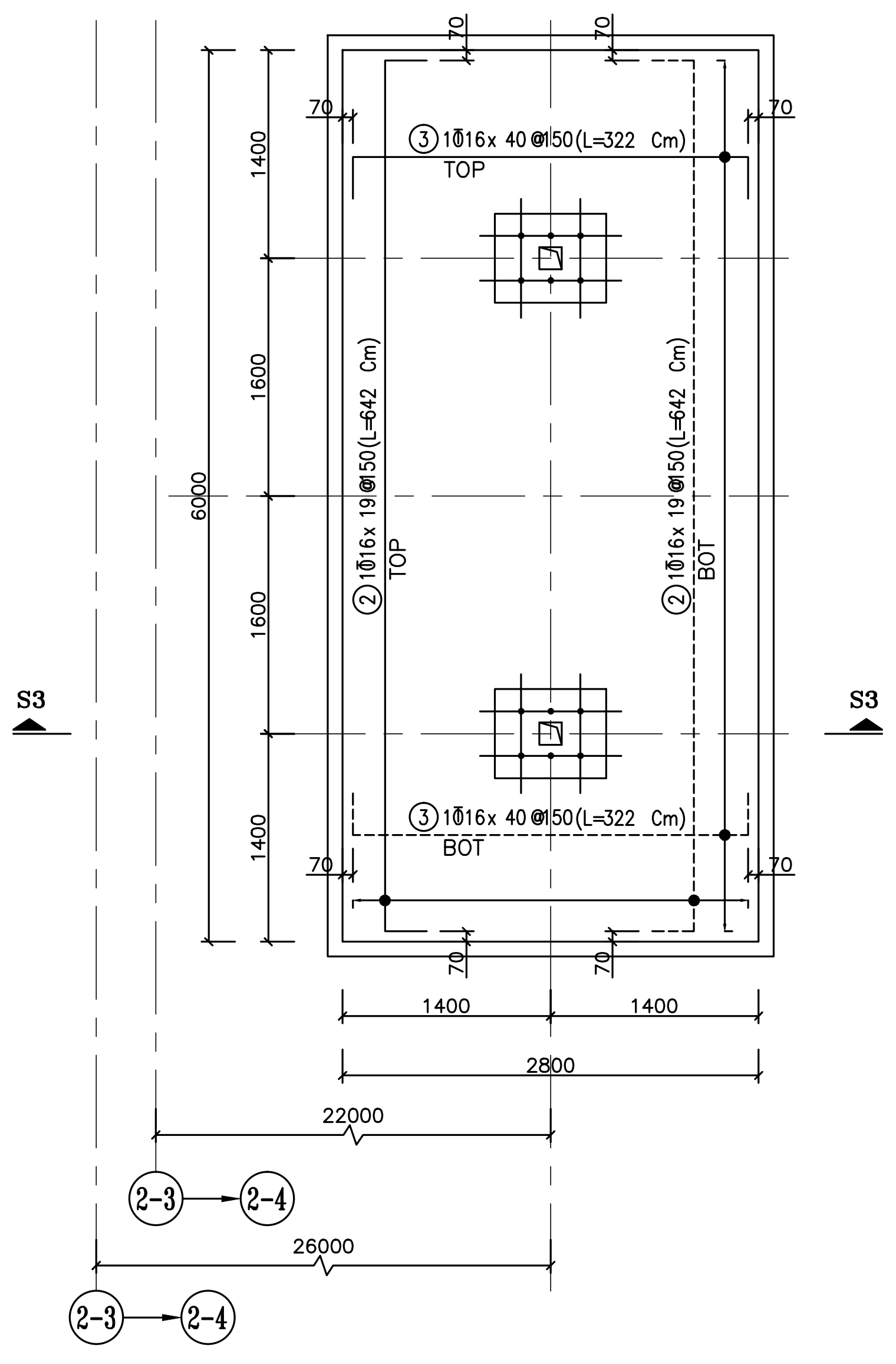
REINFORCEMENT PF-8

Scale : 1/50 FOUNDATION TOP&BOTTOM BAR



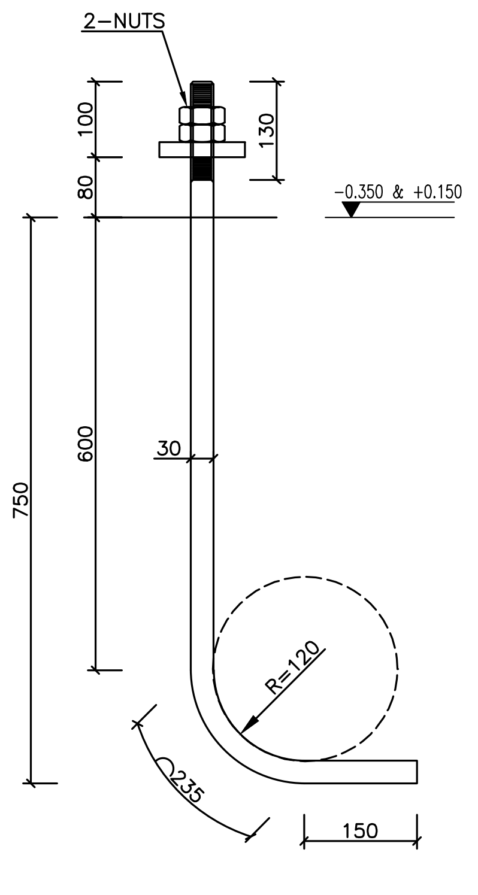
FORMWORK PF-9

Scale : 1/50 FOUNDATION FORMWORK



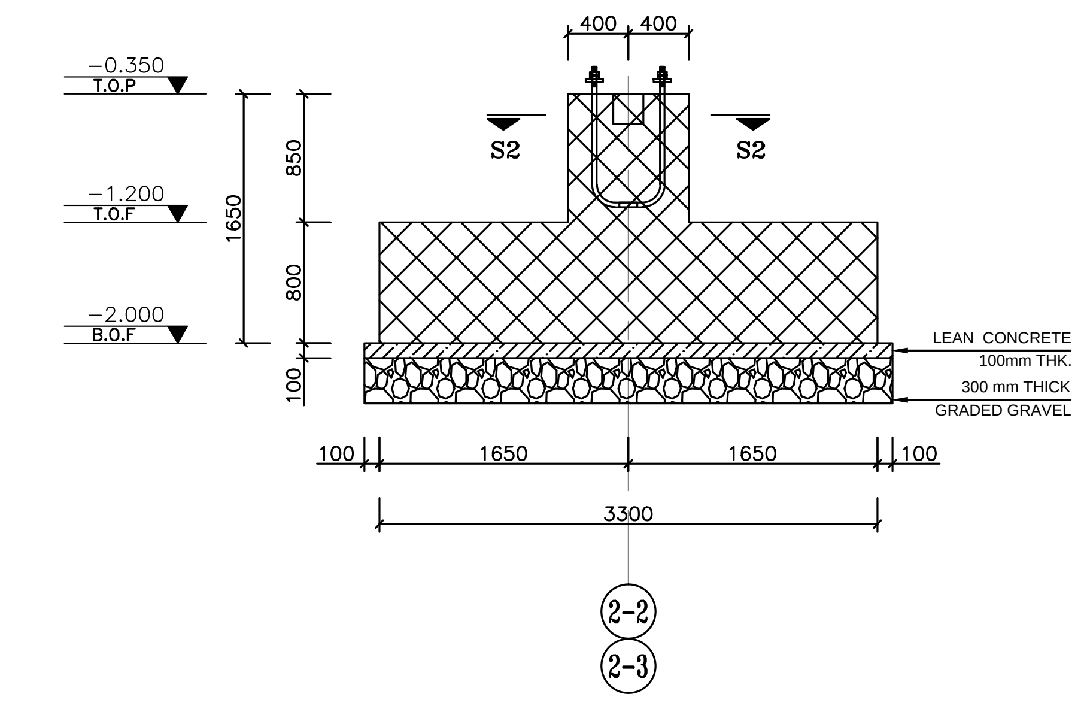
REINFORCEMENT PF-9

Scale : 1/50 FOUNDATION TOP&BOTTOM BAR



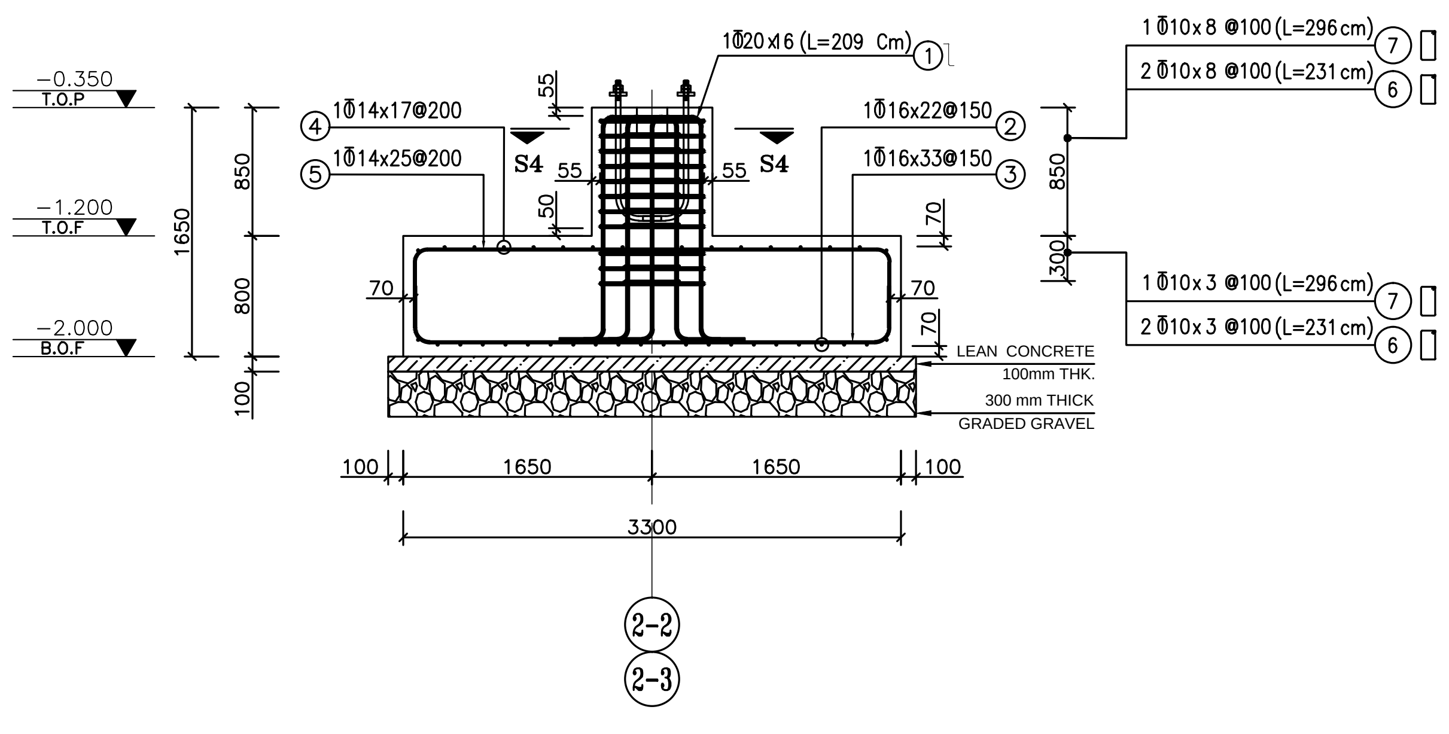
M30(Q345B)

SC:1/10 (FASTENED WITH TWO NUTS)



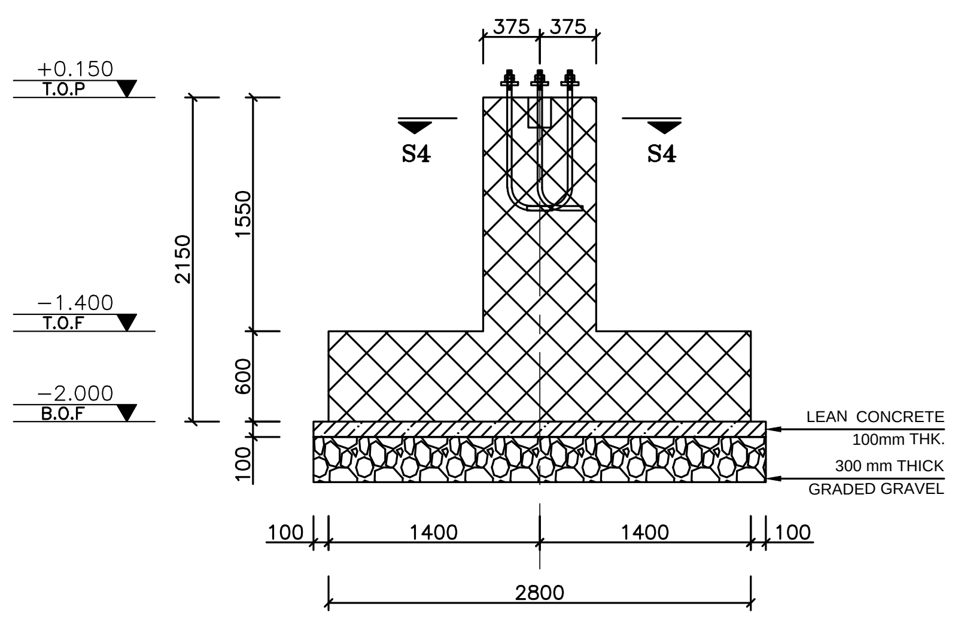
SECTION S1-S1

Scale : 1/50 FORMWORK



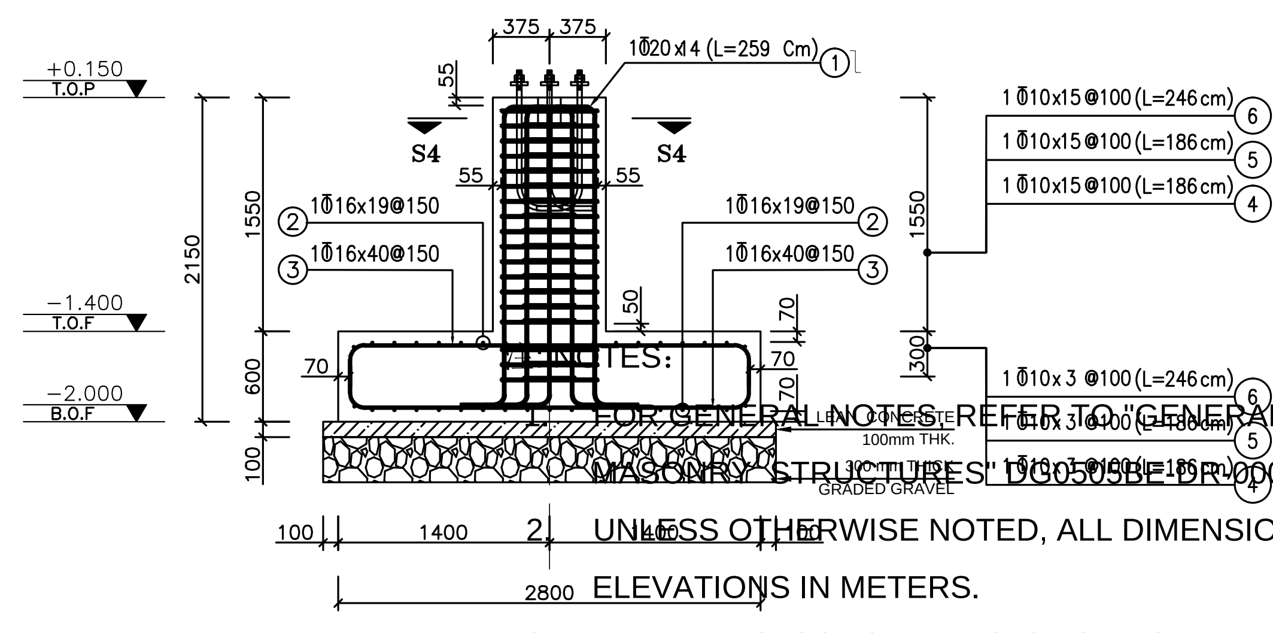
SECTION S1-S1

Scale : 1/50 REINFORCEMENT



SECTION S3-S3

Scale : 1/50 FORMWORK

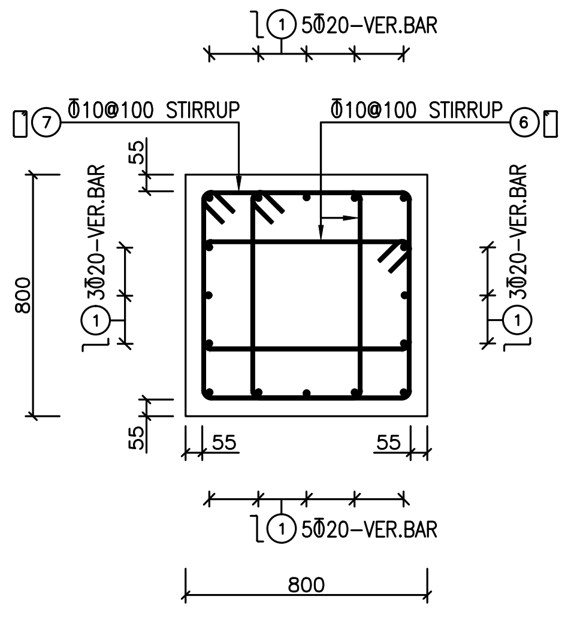


SECTION S3-S3

Scale : 1/50 REINFORCEMENT

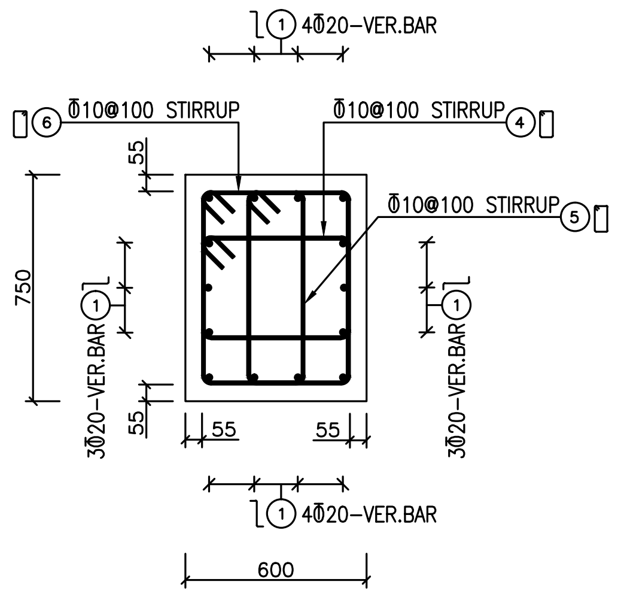
NOTES:

1. FOR GENERAL NOTES, REFER TO "GENERAL NOTES OF CONCRETE AND MASONRY STRUCTURES" DG0505BE-DR-0000ST-0102~0104.
2. UNLESS OTHERWISE NOTED, ALL DIMENSIONS ARE IN MILLIMETERS & ELEVATIONS IN METERS.
3. MATERIALS. CONCRETE: C40 FOR FOUNDATION, f'c=35MPa. C20 FOR LEAN CONCRETE, f'c=16MPa. REBARS: S400(A-Ⅲ), fyk=400MPa.
   THE GRADE OF STEEL BAR：ΦHRB400 ; EAP - Q345B.
4. FOUNDATION CONCRETE COVER : 70mm.
   PEDESTAL CONCRETE COVER : 55 mm.
5. METHODS OF ANTI-CORROSION CONSTRUCTION FOR SURFACES OF FOUNDATIONS, BELOW THE ELEVATION OF ±0.0: EPOXY ASPHALT OR POLYURETHANE ASPHALT COATINGS,WITH THE THICKNESS OF ≥500μm.
6. METHODS OF ANTI-CORROSION CONSTRUCTION FOR FOUNDATION CUSHIONS:C20 CONCRETE MIXED WITH HIGH EFFICIENCY PRESERVATIVE; PARAMETER DETAILS ARE SUBJECT TO ACTUAL PREPARATION ON SITE.
7. STEEL PLATE GRADE IS ST-37(fy=240Mpa & fu=370Mpa) IN ACCORDANCE WITH DIN 17100
8. NUT SHALL CONFORM TO ASTM A563 GRADE DH
9. WASHER MATERIAL SHALL CONFORM TO ASTM F436 TYPE "1" IN CASE BOLT DIAMETER IS LONGER THAN 38mm.WASHER MATERIAL SHALL CONFORM HEAVY HEX WASHER.
10. Q345B IS EQUIVALENT BY("CK45" FY=> 355 mpa,ELONGATION => 18%)
11. Q235B IS EQUIVALENT BY A II (ASTM A325)



SECTION S2-S2

Scale : 1/25



SECTION S4-S4

Scale : 1/25

业主 (Owner) :
伊朗南方铝业公司
Iran South Aluminum Corporation

总承包商 (EPC Contractor)
中国有色金属建设股份有限公司
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N.E.U Engineering & Research Institute Co., Ltd.

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D1	10/07-20	AS BUILT	张影	陈英	马翼鹏

审核/审定 Approved				沥青贮存及沥青熔化	工程编号 Proj. No.	DG0505
				PITCH UNLOADING & PITCH STORAGE & MELTING FACILITY	设计阶段 Phase	竣工图 AD
	马翼鹏 MA YIPENG	马翼鹏	09/07-20	基础详图（四）	专业 Specialty	结构 ST
校对 Checked	陈英 CHEN YING	陈英	08/07-20	DETAIL OF FOUNDATIONS(Ⅳ)	图纸规格 Size	A1
制图 Drawn	张影 ZHANG YING	张影	07/07-20	图号 Dwg. No. DG0505AD-DR-6011ST-0210	D1 Rev.	共 02 页 第 01 页 Page 01 of 02

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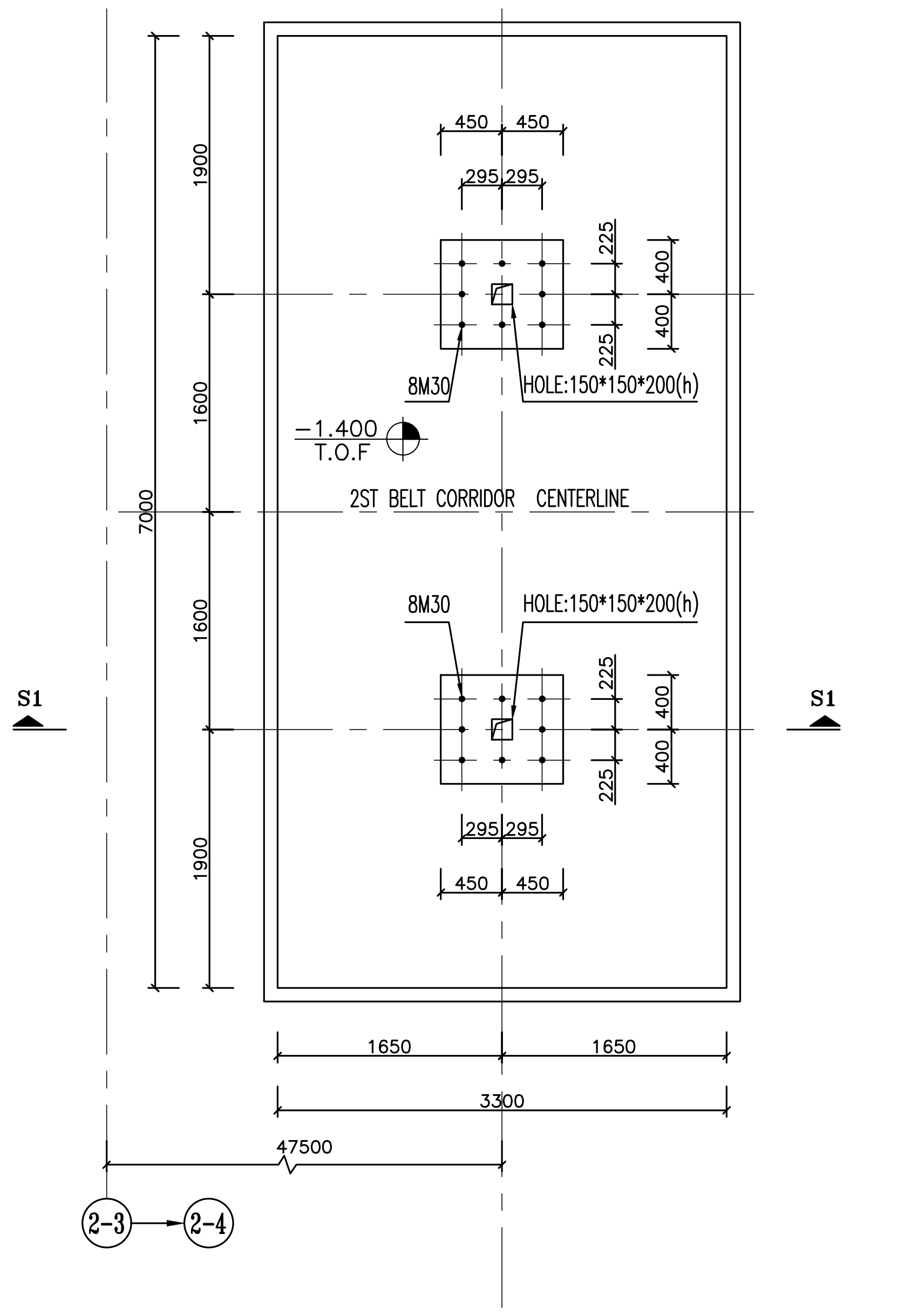
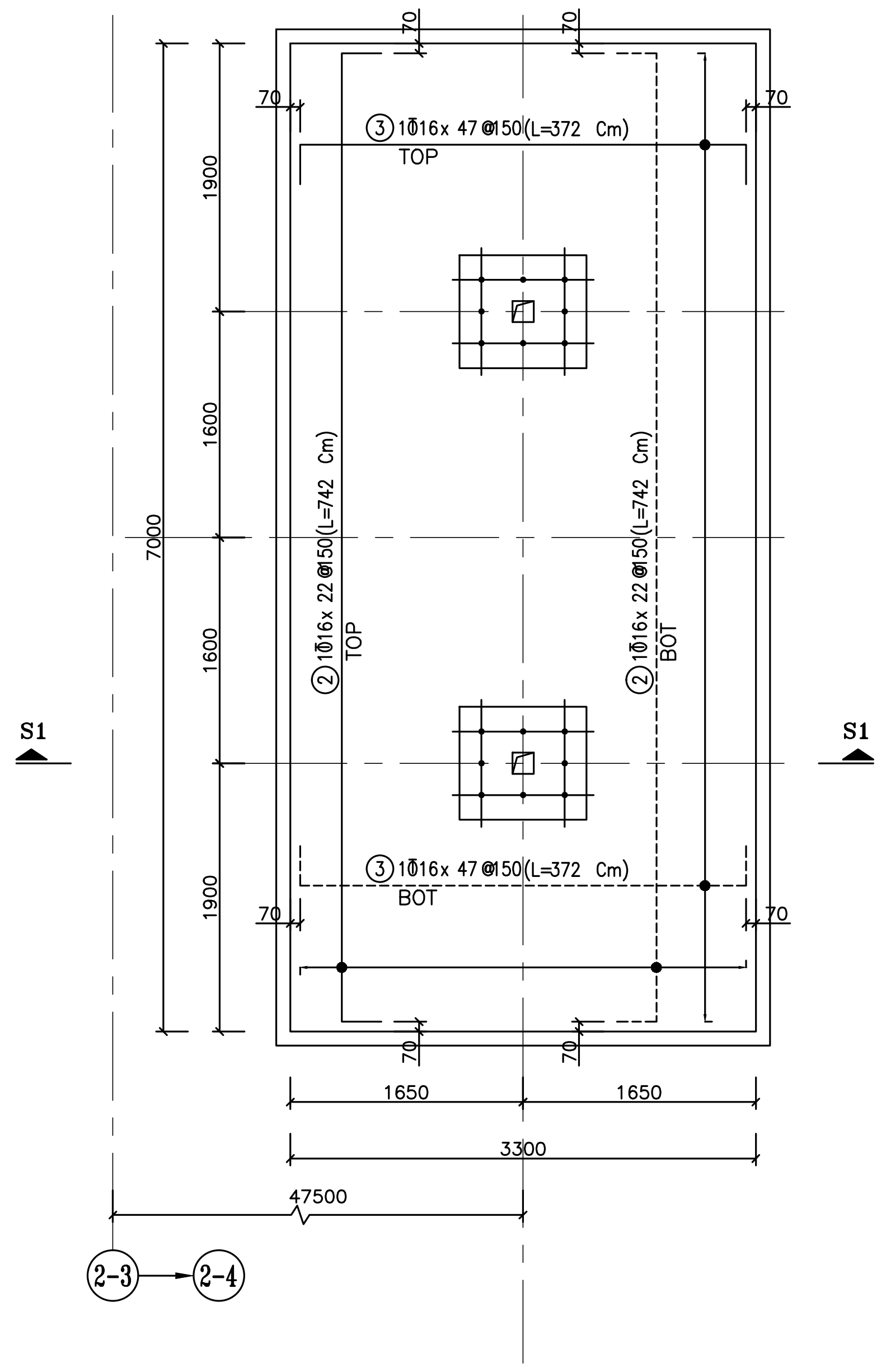
图纸/文献号 Drawing/Document No.	名称 Title



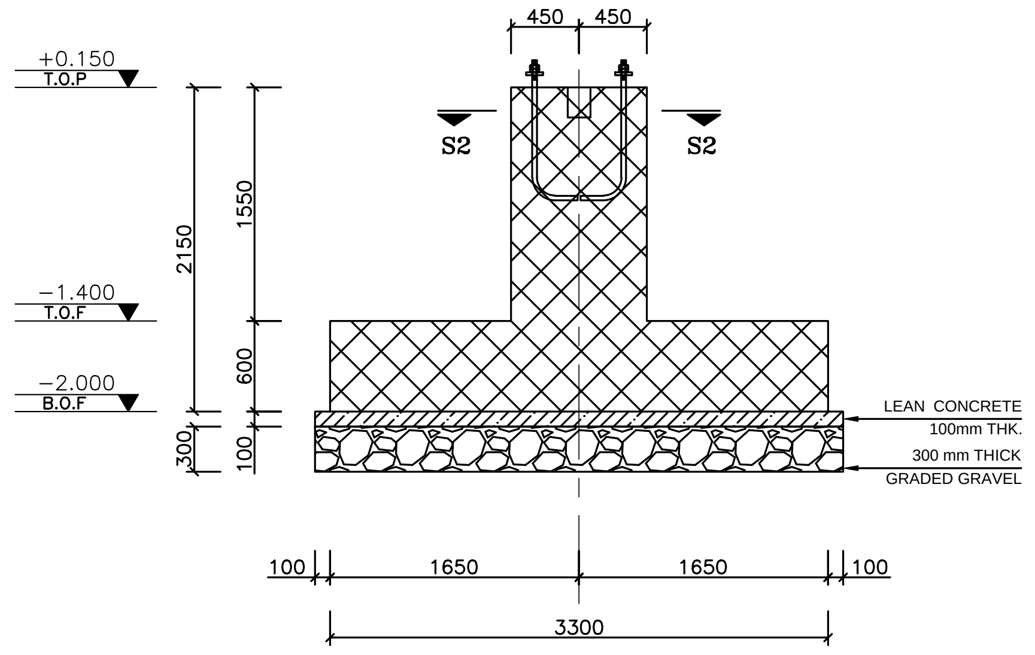
FORMWORK PF-10

Scale : 1/50 FOUNDATION FORMWORK


70
70
70
70
③ 1Φ16x 47 @150(L=372 Cm)
TOP
② 1Φ16x 22 @150(L=742 Cm)
TOP
② 1Φ16x 22 @150(L=742 Cm)
BOT
③ 1Φ16x 47 @150(L=372 Cm)
BOT
1900
1600
1600
1900
7000
S1
S1
1650
1650
3300
47500
2-3
2-4

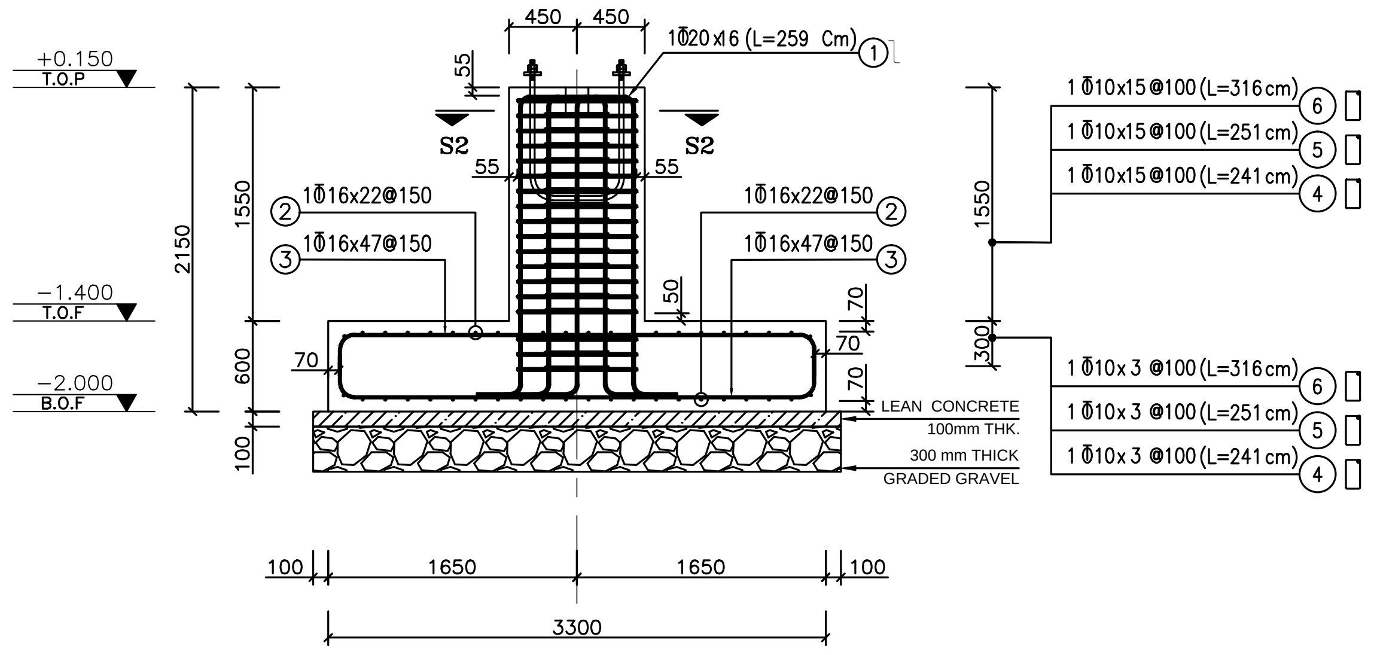
REINFORCEMENT PF-10

Scale : 1/50 FOUNDATION TOP&BOTTOM BAR



SECTION S1-S1

Scale : 1/50 FORMWORK

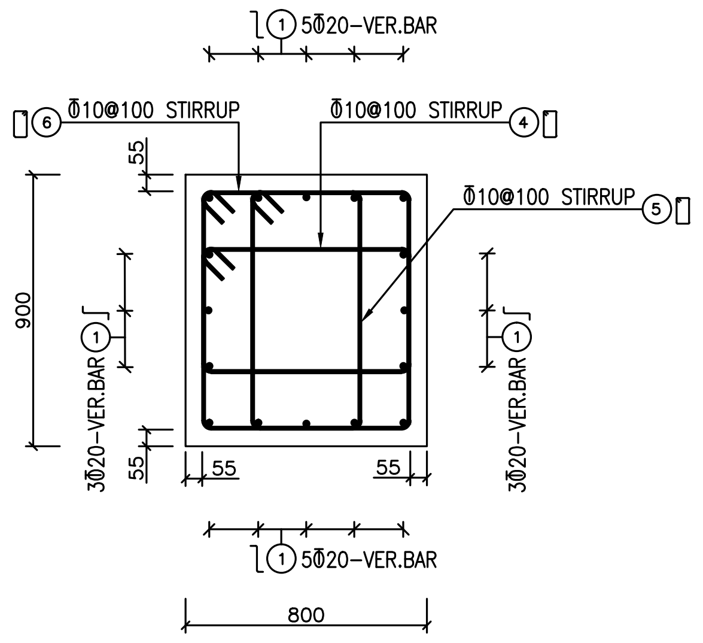


SECTION S1-S1

Scale : 1/50 REINFORCEMENT

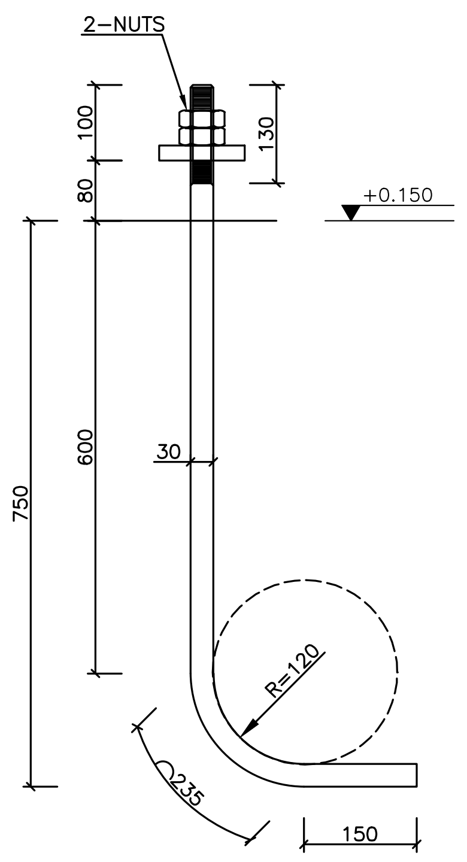
注: NOTES：

1. FOR GENERAL NOTES, REFER TO "GENERAL NOTES OF CONCRETE AND MASONRY STRUCTURES" DG0505BE-DR-0000ST-0102~0104.
2. UNLESS OTHERWISE NOTED, ALL DIMENSIONS ARE IN MILLIMETERS & ELEVATIONS IN METERS.
3. MATERIALS. CONCRETE: C40 FOR FOUNDATION, f'c=35MPa. C20 FOR LEAN CONCRETE, f'c=16MPa. REBARS: S400(A-Ⅲ), fyk=400MPa.
   THE GRADE OF STEEL BAR：ΦHRB400 ; EAP - Q345B.
4. FOUNDATION CONCRETE COVER : 70mm.
   PEDESTAL CONCRETE COVER : 55 mm.
5. METHODS OF ANTI-CORROSION CONSTRUCTION FOR SURFACES OF FOUNDATIONS, BELOW THE ELEVATION OF ±0.0: EPOXY ASPHALT OR POLYURETHANE ASPHALT COATINGS,WITH THE THICKNESS OF ≥500μm.
6. METHODS OF ANTI-CORROSION CONSTRUCTION FOR FOUNDATION CUSHIONS:C20 CONCRETE MIXED WITH HIGH EFFICIENCY PRESERVATIVE; PARAMETER DETAILS ARE SUBJECT TO ACTUAL PREPARATION ON SITE.
7. STEEL PLATE GRADE IS ST-37(fy=240Mpa & fu=370Mpa) IN ACCORDANCE WITH DIN 17100
8. NUT SHALL CONFORM TO ASTM A563 GRADE DH
9. WASHER MATERIAL SHALL CONFORM TO ASTM F436 TYPE "1" IN CASE BOLT DIAMETER IS LONGER THAN 38mm.WASHER MATERIAL SHALL CONFORM HEAVY HEX WASHER.
10. Q345B IS EQUIVALENT BY("CK45" FY=> 355 mpa,ELONGATION => 18%)
11. Q235B IS EQUIVALENT BY A II (ASTM A325)



SECTION S2-S2

Scale : 1/25



M30(Q345B)

SC:1/10 (FASTENED WITH TWO NUTS)

版号 Rev.	日期 Date	说明 Description	制图 Drawn	校对 Checked	批准 Approved
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D1	10/07-20	AS BUILT	张影	陈英	马翼鹏

业主 (Owner) :
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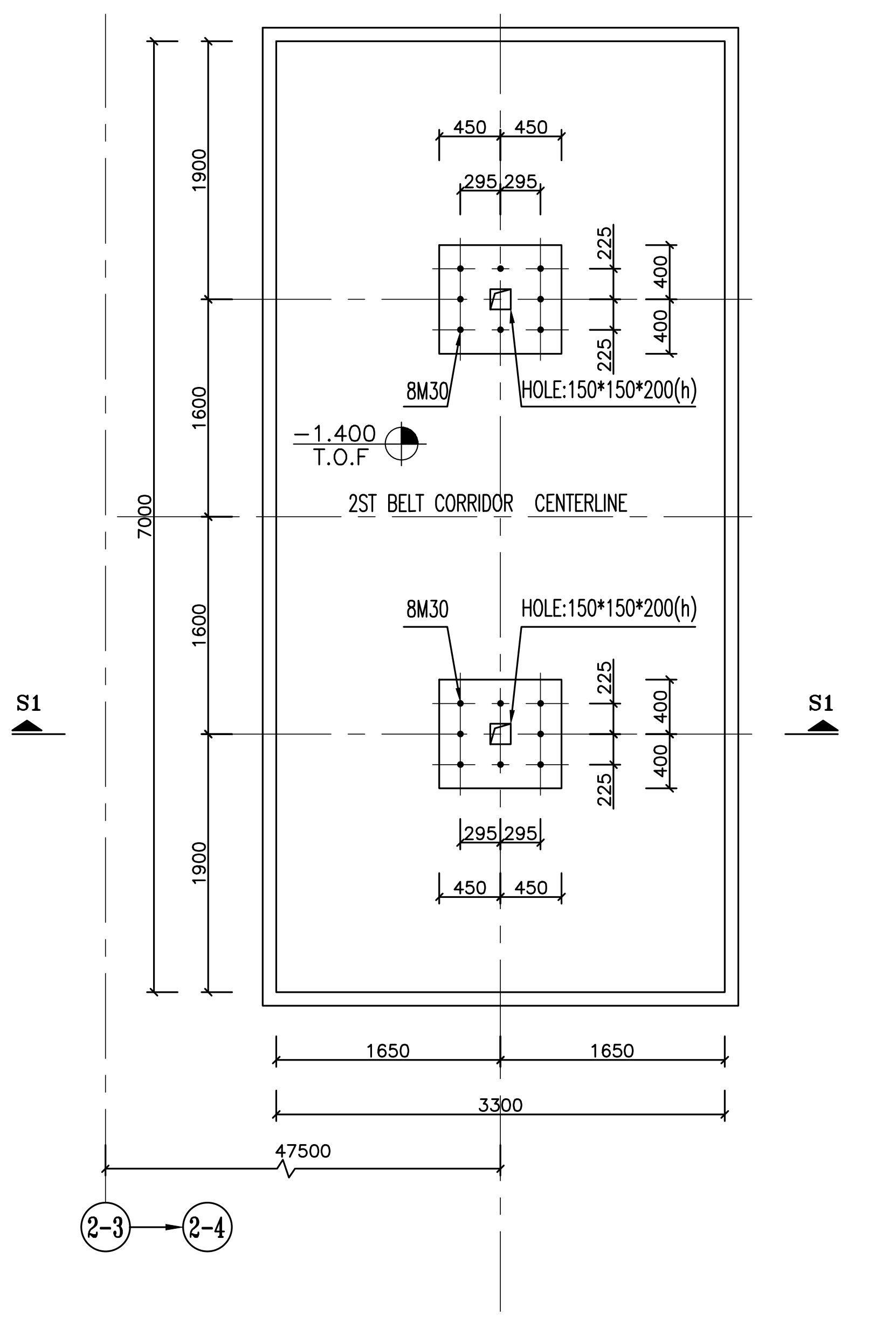
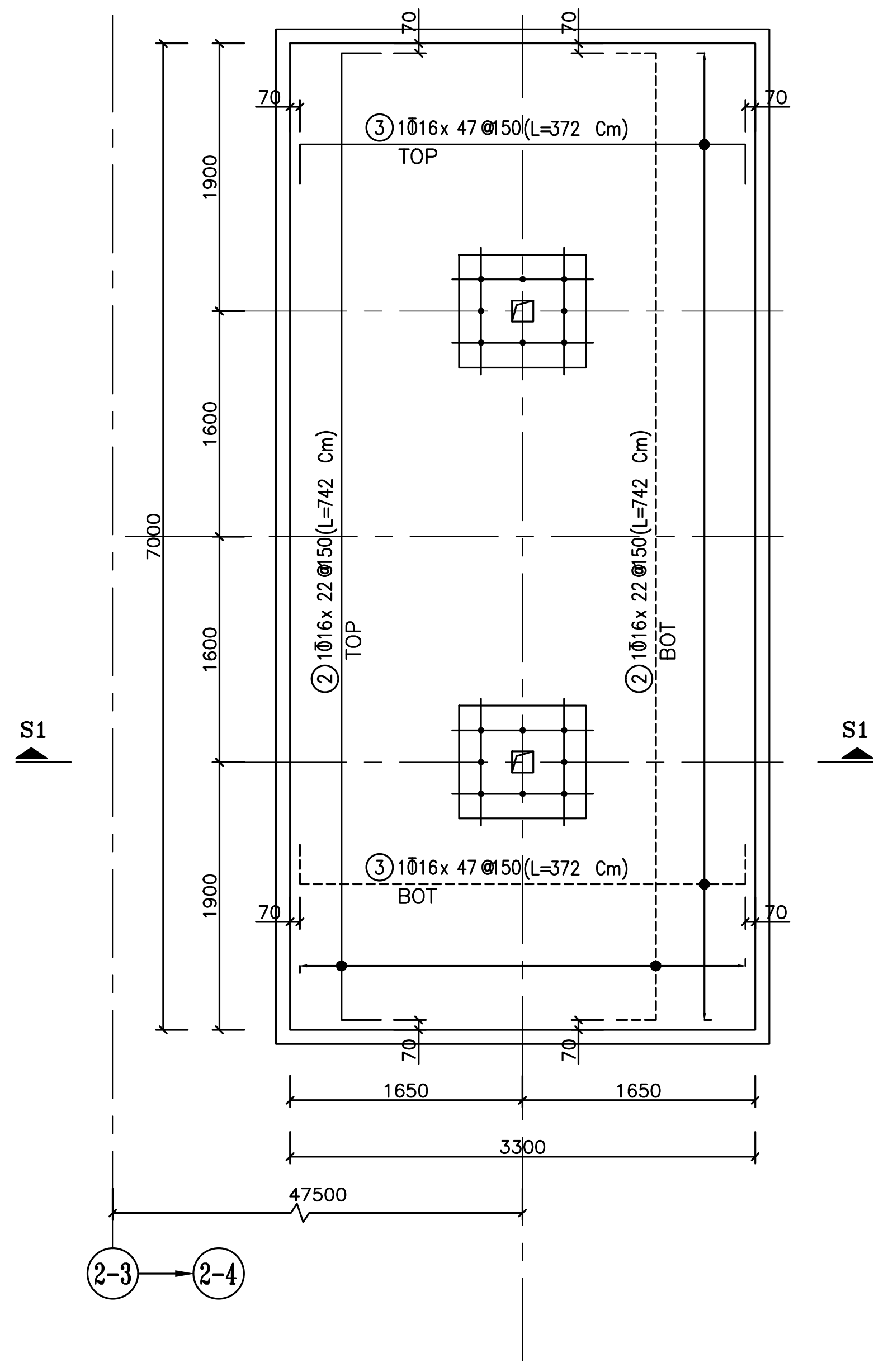
审核/审定 Approved				沥青贮存及沥青熔化	工程编号 Proj. No.	DG0505
				PITCH UNLOADING & PITCH STORAGE & MELTING FACILITY	设计阶段 Phase	竣工图 AD
	马翼鹏 MA YIPENG	马翼鹏	09/07-20	基础详图(四)	专业 Specialty	结构 ST
校对 Checked	陈英 CHEN YING	陈英	08/07-20	DETAIL OF FOUNDATIONS(Ⅳ)	图纸规格 Size	A1
制图 Drawn	张影 ZHANG YING	张影	07/07-20	图号 Dwg. No. DG0505AD-DR-6011ST-0210 D1 Rev.	共 02 页 第 02 页 Page 02 of 02	

参考图纸/文献 Ref. Drawing/Documents	
图纸/文献号 Drawing/Document No.	名称 Title



FORMWORK PF-10

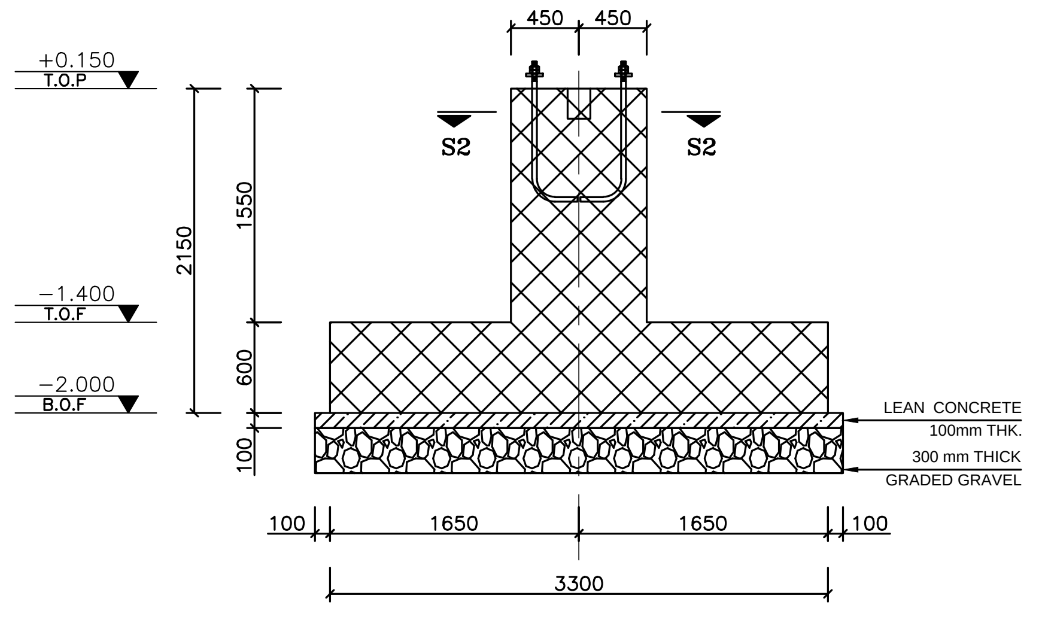
Scale : 1/50 FOUNDATION FORMWORK



70
70
70
70
③ 1Φ16x 47 @150(L=372 Cm)
TOP
② 1Φ16x 22 @150(L=742 Cm)
TOP
② 1Φ16x 22 @150(L=742 Cm)
BOT
③ 1Φ16x 47 @150(L=372 Cm)
BOT
70
70
70
70
1900
1600
1600
1900
7000
S1
S1
1650
1650
3300
47500
2-3
2-4

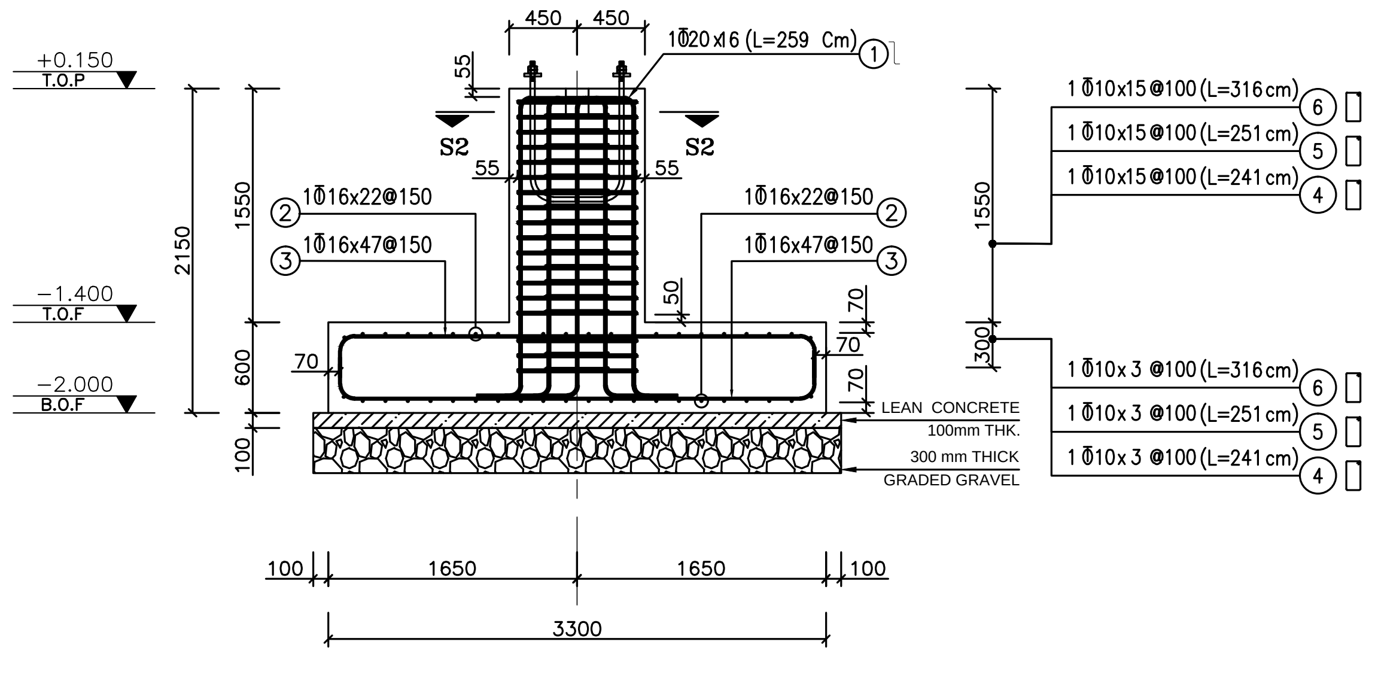
REINFORCEMENT PF-10

Scale : 1/50 FOUNDATION TOP&BOTTOM BAR



SECTION S1-S1

Scale : 1/50 FORMWORK



SECTION S1-S1

Scale : 1/50 REINFORCEMENT

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1. FOR GENERAL NOTES, REFER TO "GENERAL NOTES OF CONCRETE AND MASONRY STRUCTURES" DG0505BE-DR-0000ST-0102~0104.
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   THE GRADE OF STEEL BAR：ΦHRB400 ; EAP - Q345B.
4. FOUNDATION CONCRETE COVER : 70mm.
   PEDESTAL CONCRETE COVER : 55 mm.
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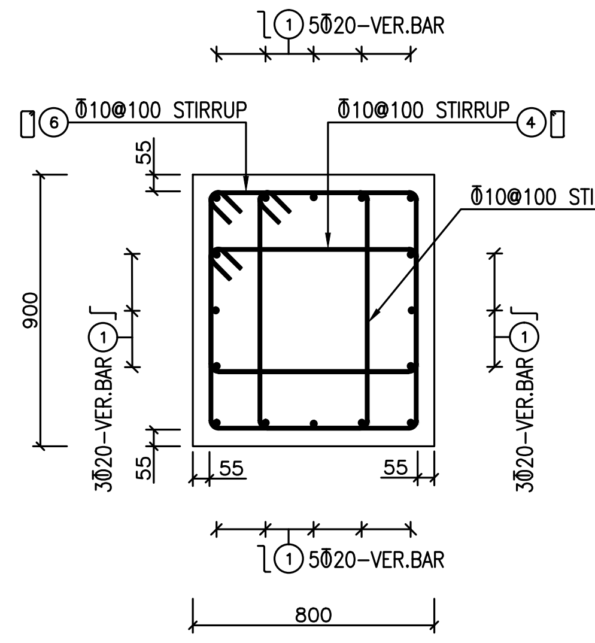
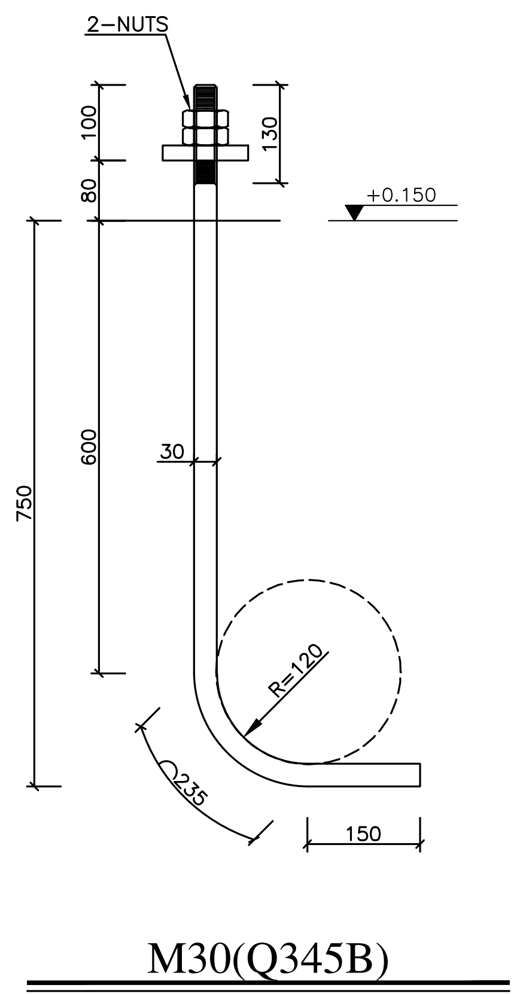
6. METHODS OF ANTI-CORROSION CONSTRUCTION FOR FOUNDATION CUSHIONS:C20 CONCRETE MIXED WITH HIGH EFFICIENCY PRESERVATIVE; PARAMETER DETAILS ARE SUBJECT TO ACTUAL PREPARATION ON SITE.
7. STEEL PLATE GRADE IS ST-37(fy=240Mpa & fu=370Mpa) IN ACCORDANCE WITH DIN 17100
8. NUT SHALL CONFORM TO ASTM A563 GRADE DH
9. WASHER MATERIAL SHALL CONFORM TO ASTM F436 TYPE "1" IN CASE BOLT DIAMETER IS LONGER THAN 38mm.WASHER MATERIAL SHALL CONFORM HEAVY HEX WASHER.
10. Q345B IS EQUIVALENT BY("CK45" FY=> 355 mpa,ELONGATION => 18%)
11. Q235B IS EQUIVALENT BY A II (ASTM A325)
12. ELEVATION: +398.20m A.S.L.



SECTION S2-S2

Scale : 1/25



M30(Q345B)

SC:1/10 (FASTENED WITH TWO NUTS)

版号 Rev.	日期 Date	说明 Description	制图 Drawn	校对 Checked	批准 Approved
△					
△					
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△					
D1	10/07-20	AS BUILT	张影	陈英	马翼鹏

业主 (Owner) :

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China Nonferrous Metal Industry's Foreign Engineering And Construction Co., Ltd.

设计单位 (Engineering Institute) :

東北大學 设计研究院(有限公司)
N.E.U Engineering & Research Institute Co., Ltd.

审核/审定 Approved				沥青贮存及沥青熔化	工程编号 Proj. No.	DG0505
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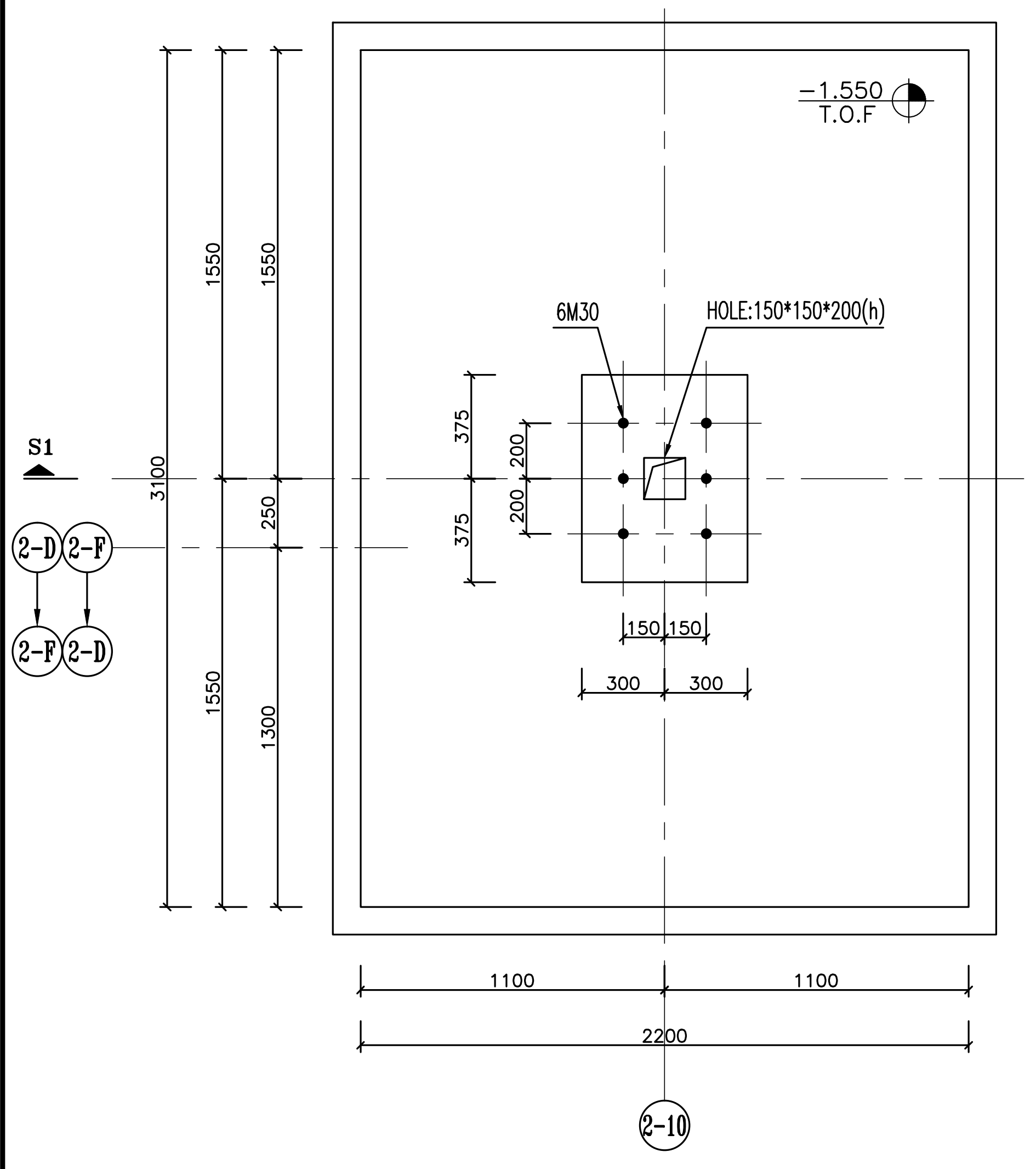
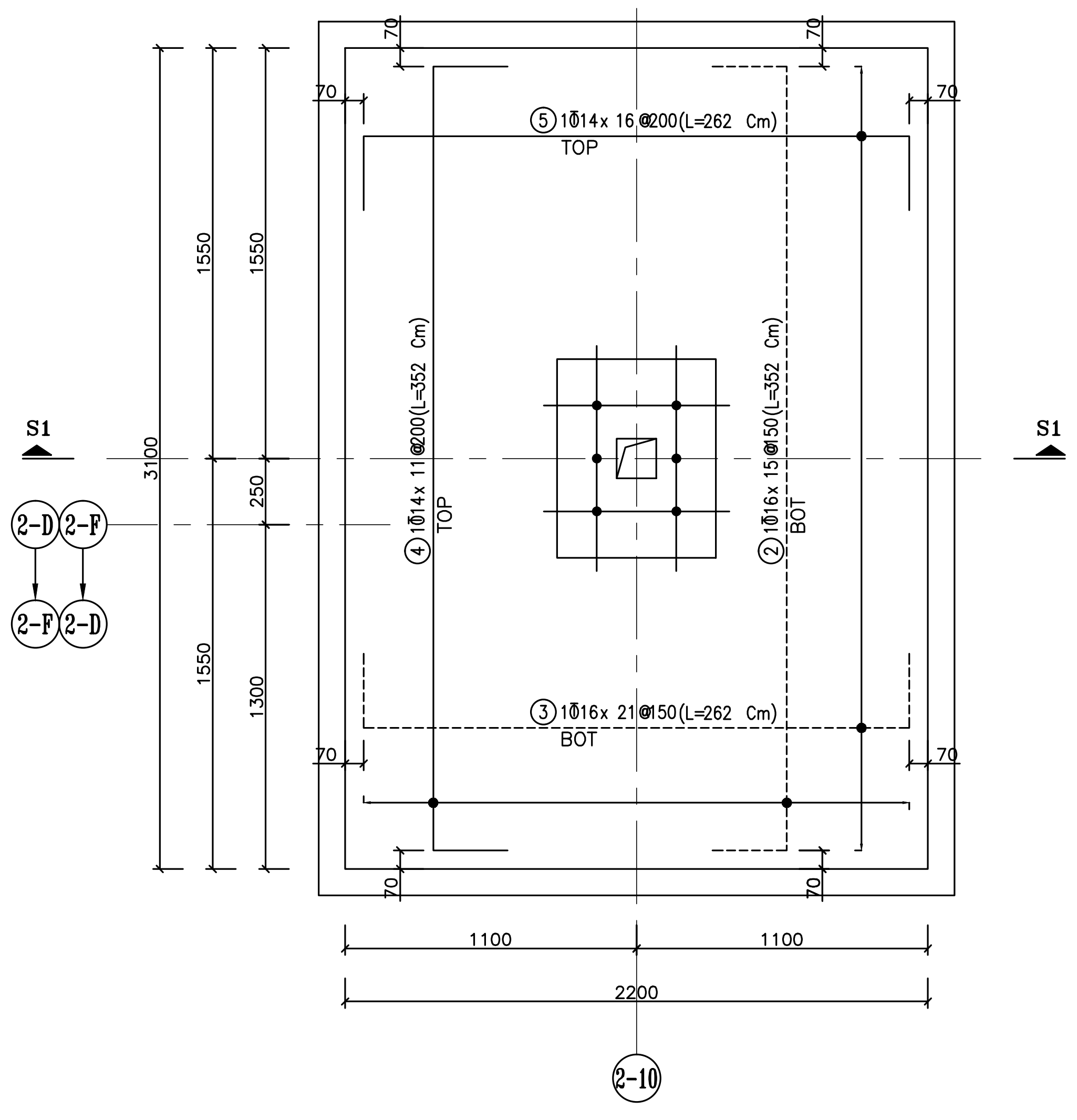
	马翼鹏 MA YIPENG	马翼鹏	09/07-20	基础详图(五)	专 业 Specialty	结构 ST
校 对 Checked	陈 英 CHEN YING	陈英	08/07-20	DETAIL OF FOUNDATIONS(Ⅴ)	图纸规格 Size	A1
制 图 Drawn	张 影 ZHANG YING	张影	07/07-20	图 号 Dwg. No. DG0505AD-DR-6011ST-0211 D1 Rev.	共 02 页 第 01 页 Page 01 of 02	

批准
Approved
马翼鹏

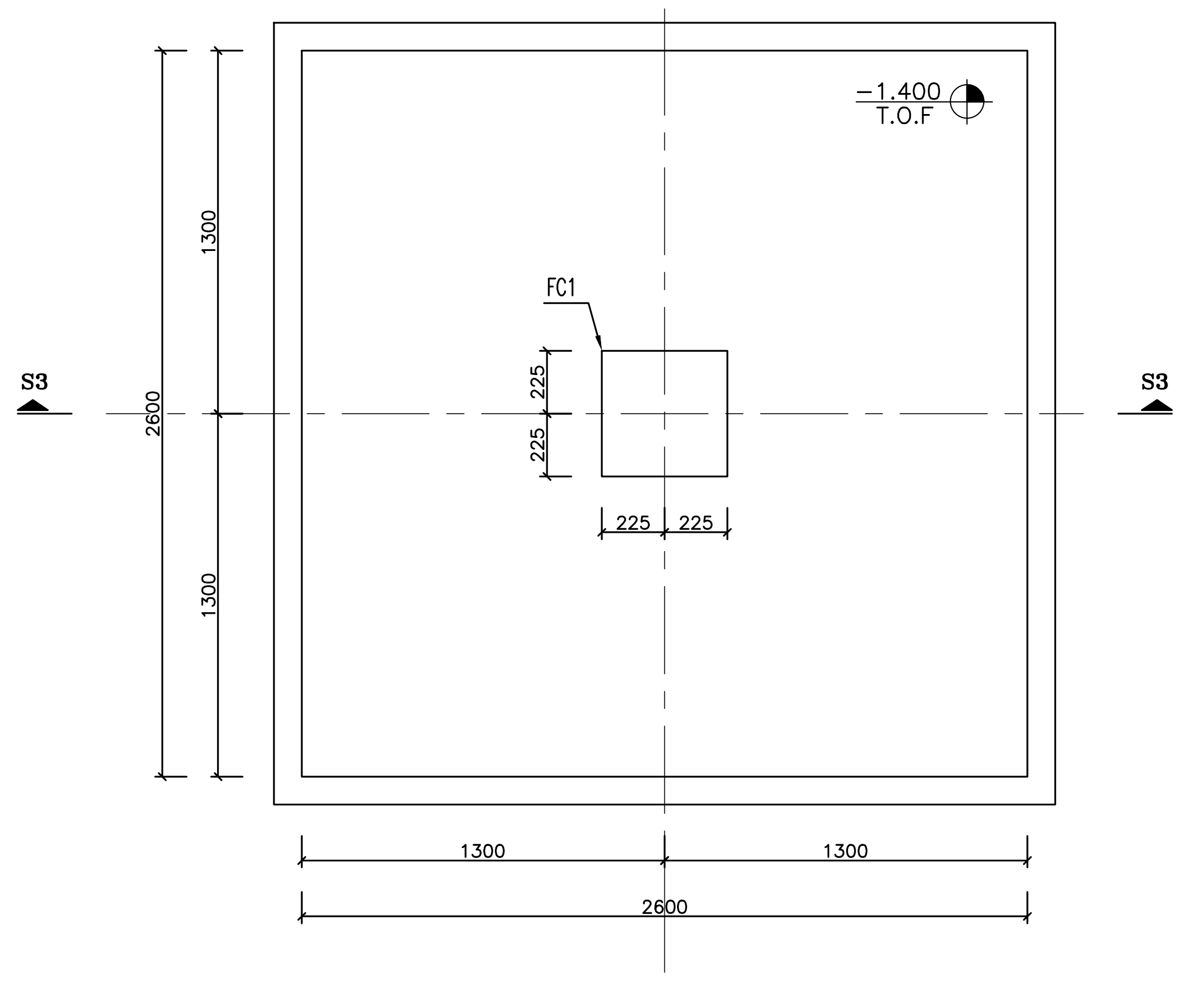
参考图纸/文献 Ref. Drawing/Documents	
图纸/文献号 Drawing/Document No.	名称 Title



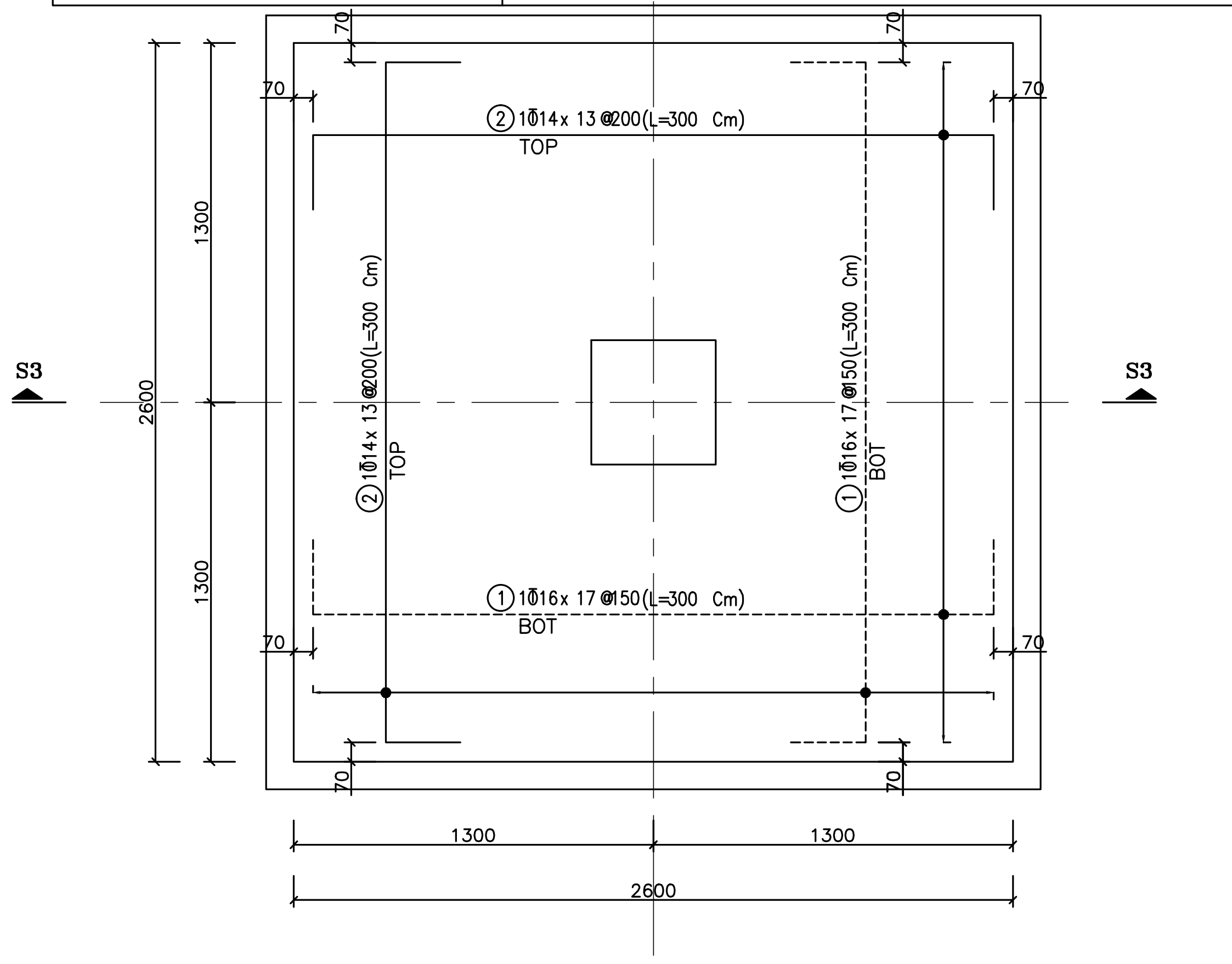
FORMWORK PF-12
Scale : 1/25 FOUNDATION FORMWORK



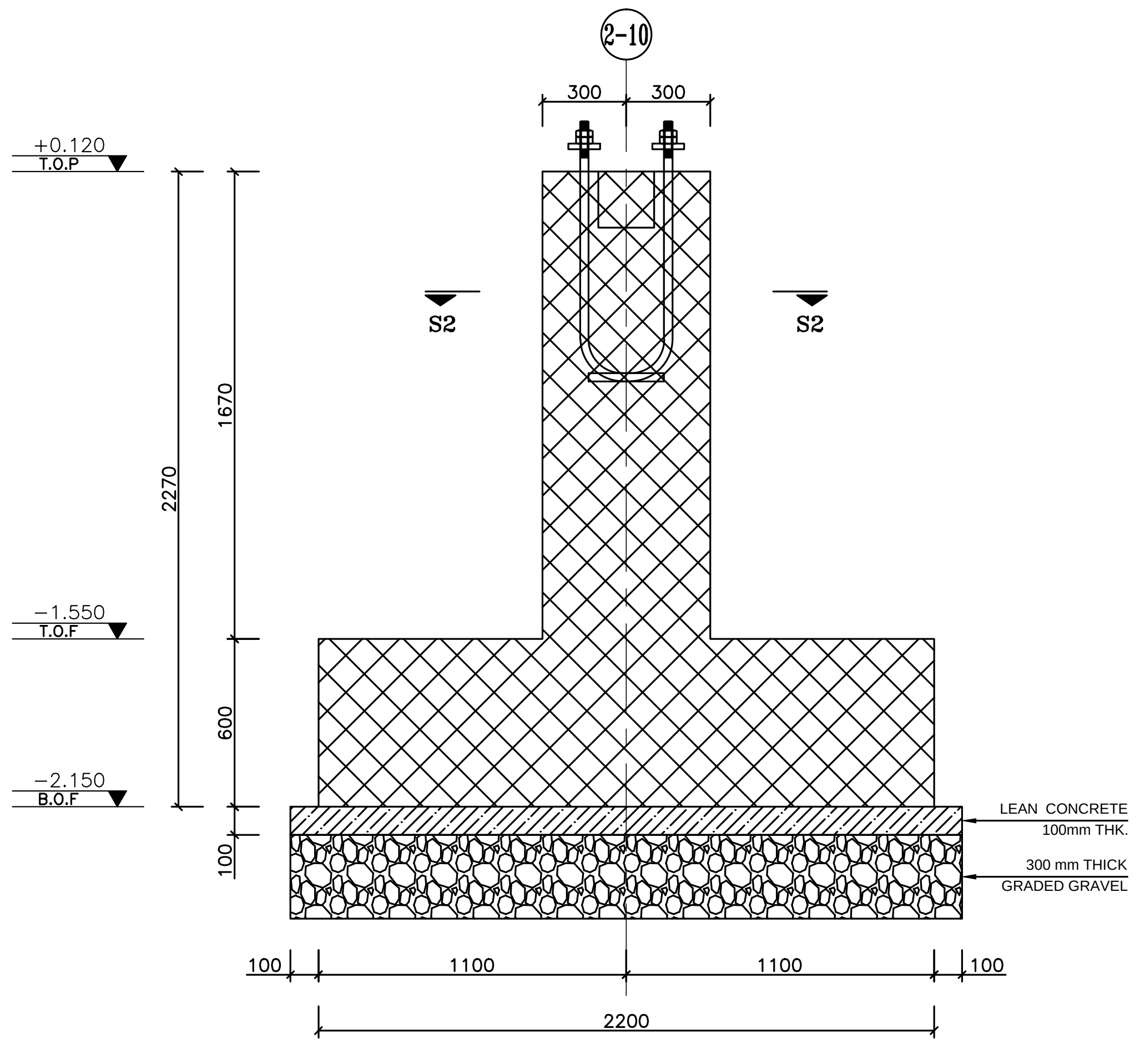
REINFORCEMENT PF-12
Scale : 1/25 FOUNDATION TOP&BOTTOM BAR



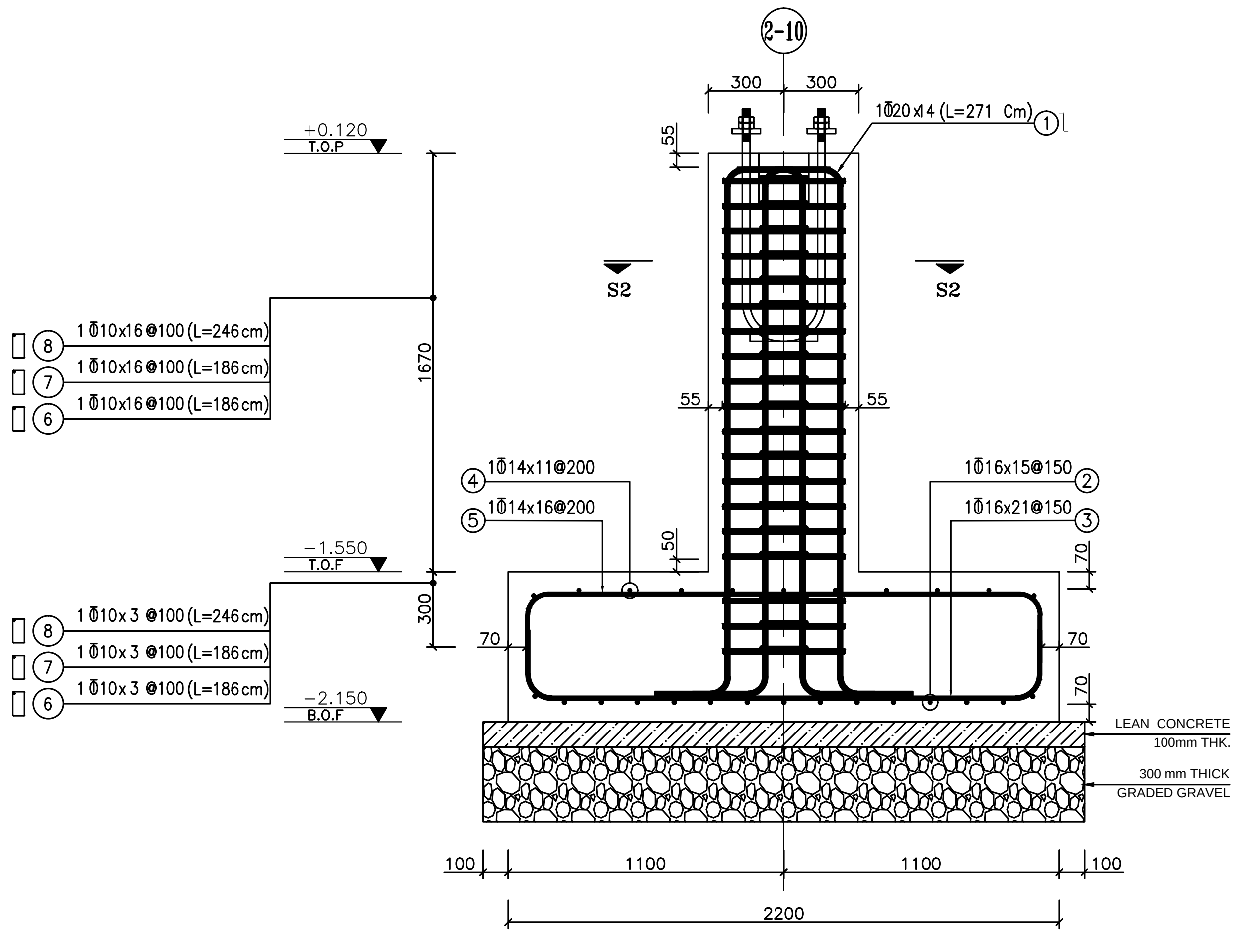
FORMWORK PF-13
Scale : 1/25 FOUNDATION FORMWORK



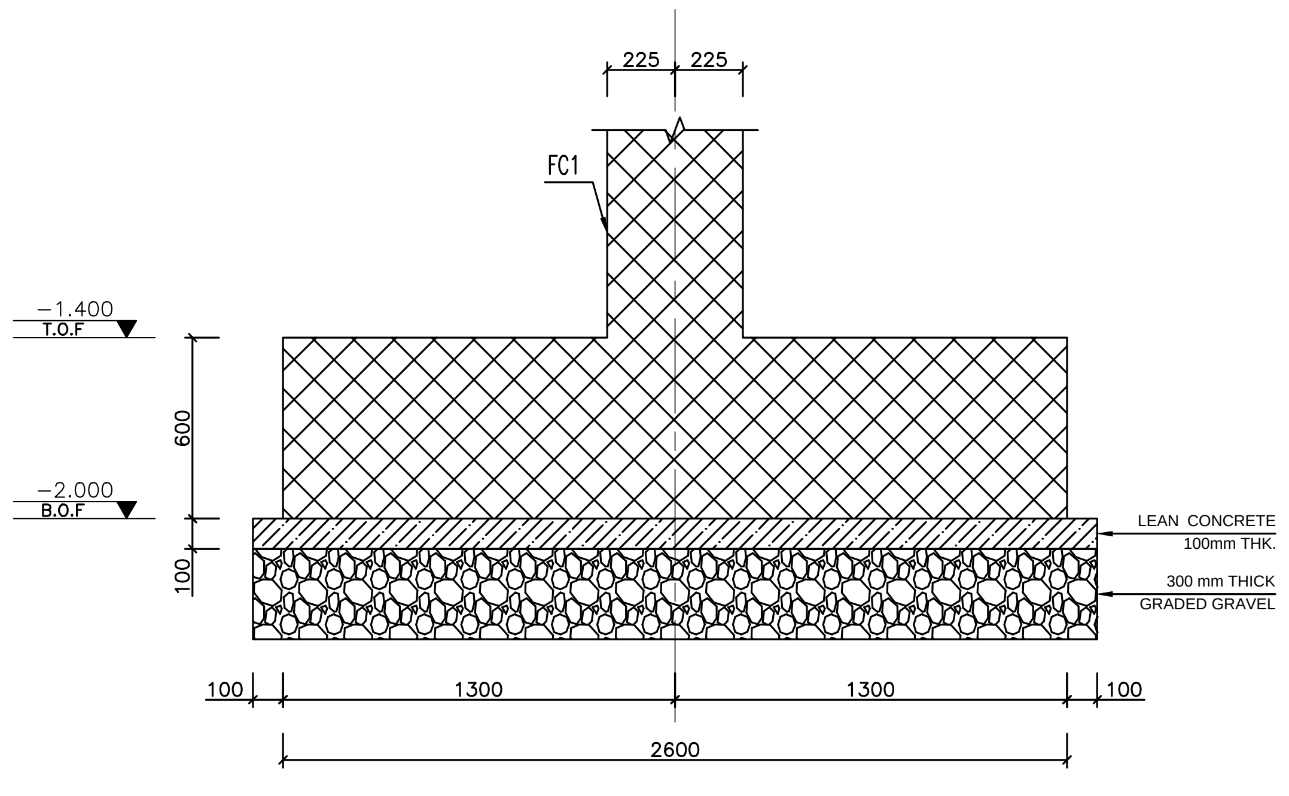
REINFORCEMENT PF-13
Scale : 1/25 FOUNDATION TOP&BOTTOM BAR



SECTION S1-S1
Scale : 1/25 FORMWORK



SECTION S1-S1
Scale : 1/25 REINFORCEMENT



SECTION S3-S3
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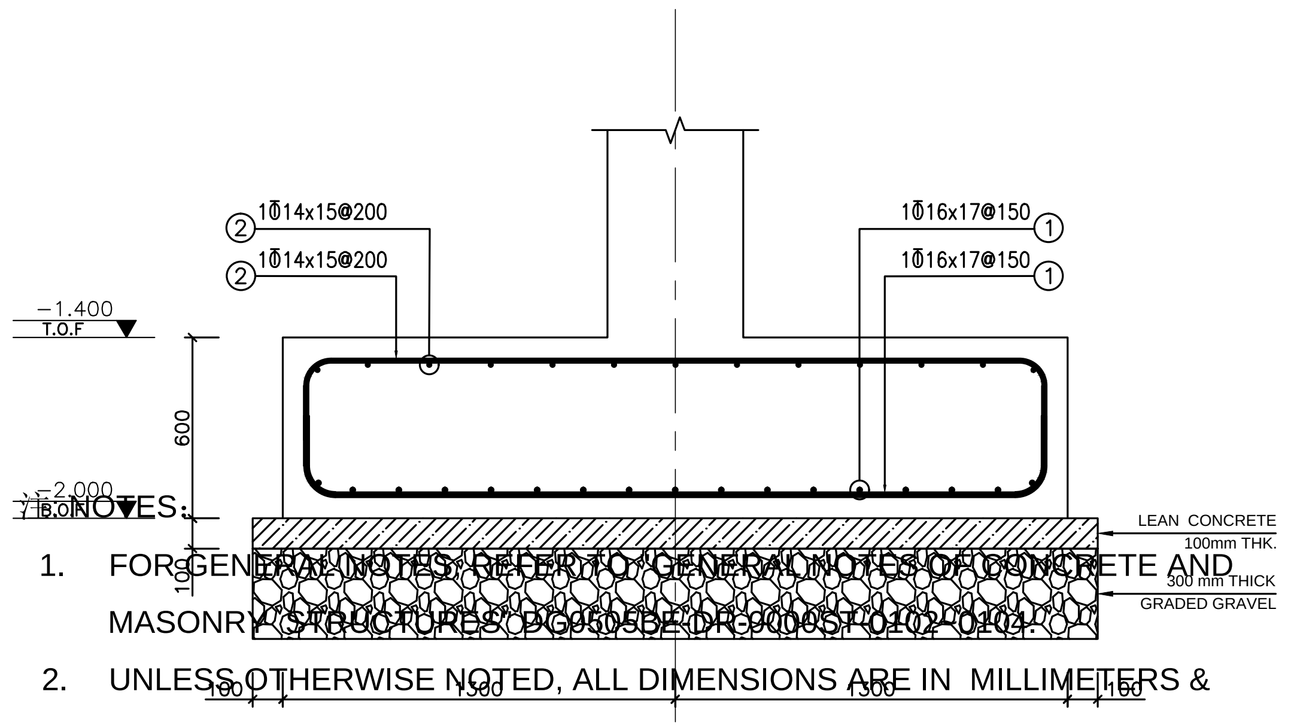

SECTION S3-S3
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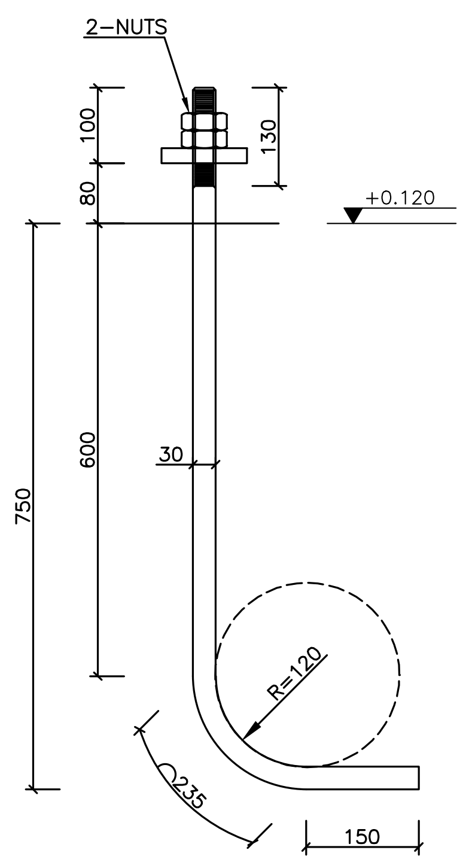
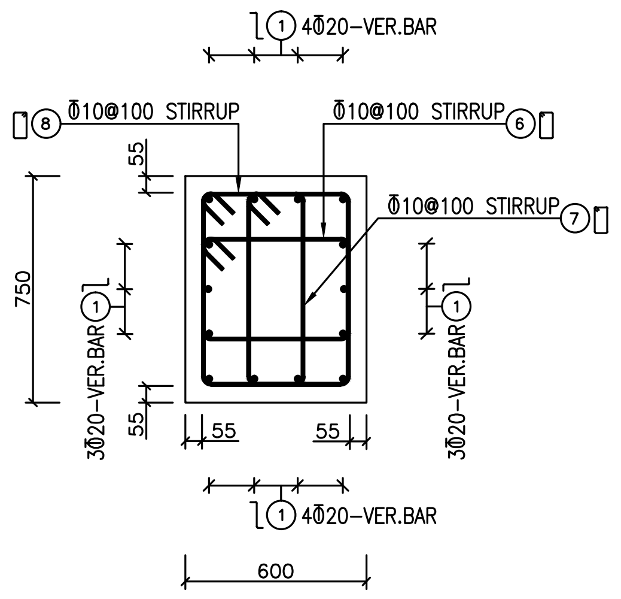


M30(Q345B)
SC:1/10 (FASTENED WITH TWO NUTS)



SECTION S2-S2
Scale : 1/25

注 NOTES:

1. FOR GENERAL NOTES, REFER TO "GENERAL NOTES OF CONCRETE AND MASONRY STRUCTURES" DG0505BE-DR-9006ST-0102~0104.
2. UNLESS OTHERWISE NOTED, ALL DIMENSIONS ARE IN MILLIMETERS & ELEVATIONS IN METERS.
3. MATERIALS. CONCRETE: C40 FOR FOUNDATION, f'c=35MPa. C20 FOR LEAN CONCRETE, f'c=16MPa. REBARS: S400(A-III), fyk=400MPa.
   THE GRADE OF STEEL BAR：ΦHRB400 ; EAP - Q345B.
4. FOUNDATION CONCRETE COVER : 70mm.
   PEDESTAL CONCRETE COVER : 55 mm.
5. METHODS OF ANTI-CORROSION CONSTRUCTION FOR SURFACES OF FOUNDATIONS, BELOW THE ELEVATION OF ±0.0: EPOXY ASPHALT OR POLYURETHANE ASPHALT COATINGS,WITH THE THICKNESS OF ≥500μm.
6. METHODS OF ANTI-CORROSION CONSTRUCTION FOR FOUNDATION CUSHIONS:C20 CONCRETE MIXED WITH HIGH EFFICIENCY PRESERVATIVE; PARAMETER DETAILS ARE SUBJECT TO ACTUAL PREPARATION ON SITE.
7. STEEL PLATE GRADE IS ST-37(fy=240Mpa & fu=370Mpa) IN ACCORDANCE WITH DIN 17100
8. NUT SHALL CONFORM TO ASTM A563 GRADE DH
9. WASHER MATERIAL SHALL CONFORM TO ASTM F436 TYPE "1" IN CASE BOLT DIAMETER IS LONGER THAN 38mm.WASHER MATERIAL SHALL CONFORM HEAVY HEX WASHER.
10. Q345B IS EQUIVALENT BY("CK45" FY=> 355 mpa,ELONGATION => 18%)
11. Q235B IS EQUIVALENT BY A II (ASTM A325)
12. ELEVATION: +398.20m A.S.L.

版号 Rev.	日期 Date	说明 Description	制图 Drawn	校对 Checked	批准 Approved
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△					
△					
△					
△					
D1	10/07-20	AS BUILT	张影	陈英	马翼鹏

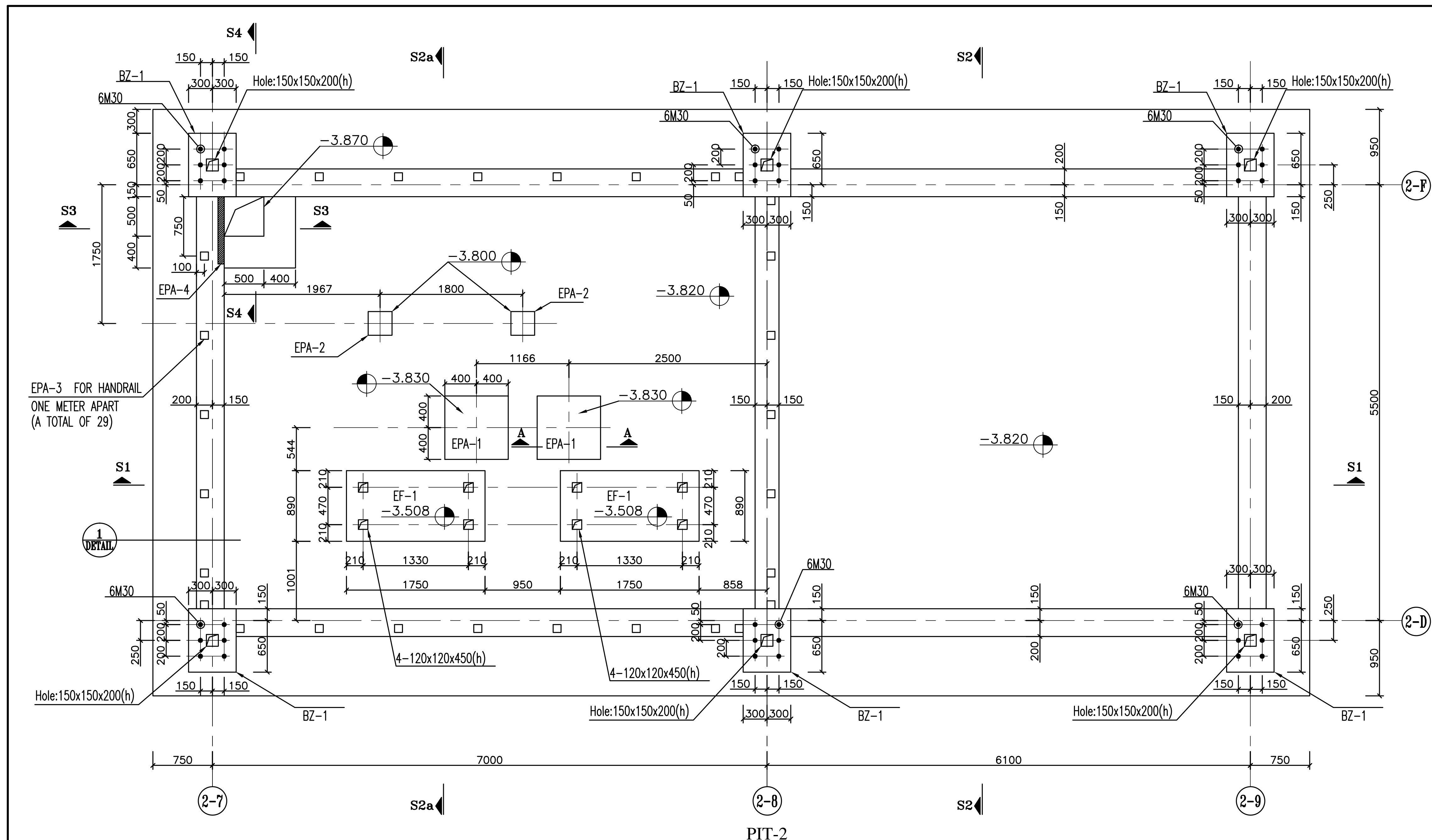
业主 (Owner) :
伊朗南方铝业公司
Iran South Aluminum Corporation

总承包商 (EPC Contractor)
中国有色金属建设股份有限公司
China Nonferrous Metal Industry's Foreign Engineering And Construction Co., Ltd.

设计单位 (Engineering Institute) :
東北大學 设计研究院(有限公司)
N.E.U Engineering & Research Institute Co., Ltd.

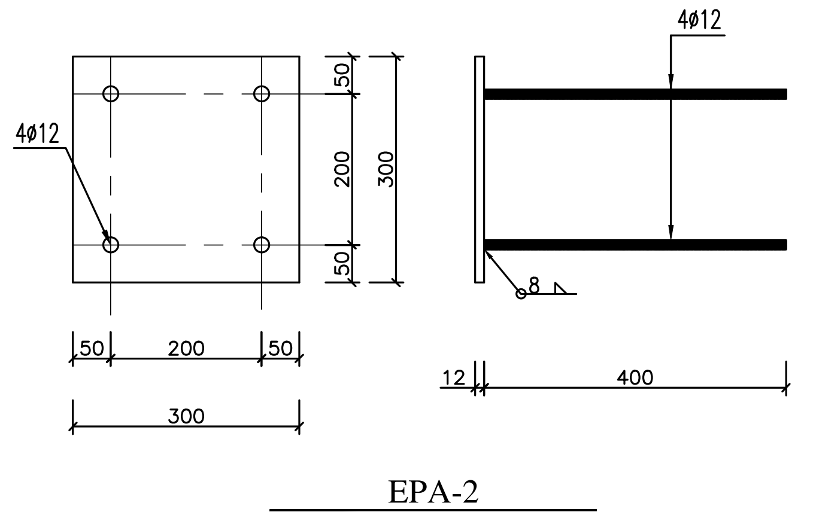
审核/审定 Approved				沥青贮存及沥青熔化	工程编号 Proj. No.	DG0505
				PITCH UNLOADING & PITCH STORAGE & MELTING FACILITY	设计阶段 Phase	竣工图 AD
	马翼鹏 MA YIPENG	马翼鹏	09/07-20	基础详图(五)	专 业 Specialty	结构 ST
校 对 Checked	陈 英 CHEN YING	陈英	08/07-20	DETAIL OF FOUNDATIONS(Ⅴ)	图纸规格 Size	A1
制 图 Drawn	张 影 ZHANG YING	张影	07/07-20	图 号 Dwg. No. DG0505AD-DR-6011ST-0211 D1 Rev.	共 02 页 第 02 页 Page 02 of 02	

参考图纸/文献 Ref. Drawing/Document	
图纸/文献号 Drawing/Document No.	名称 Title



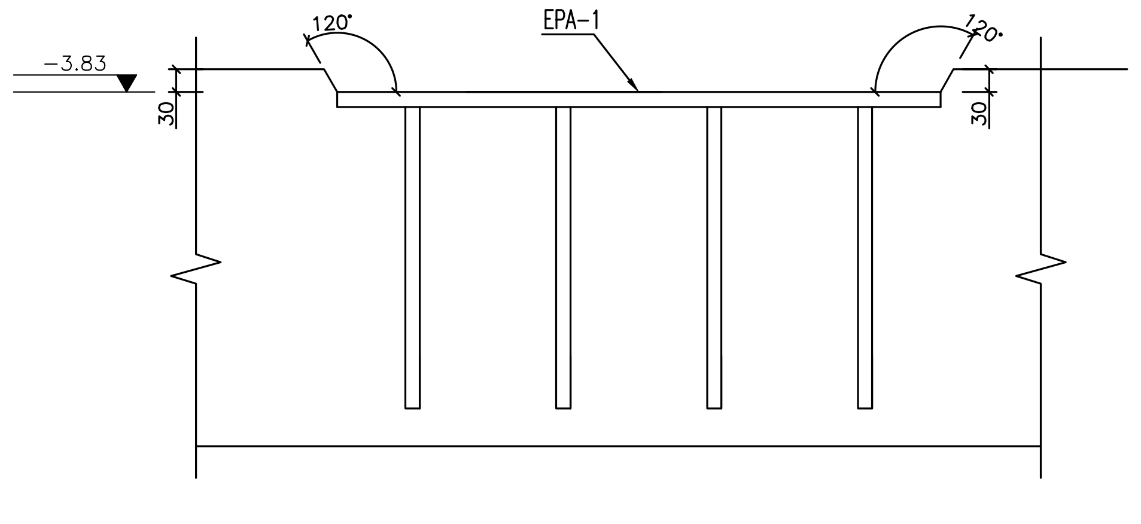
PIT-2

Scale : 1/50 FOUNDATION FORMWORK



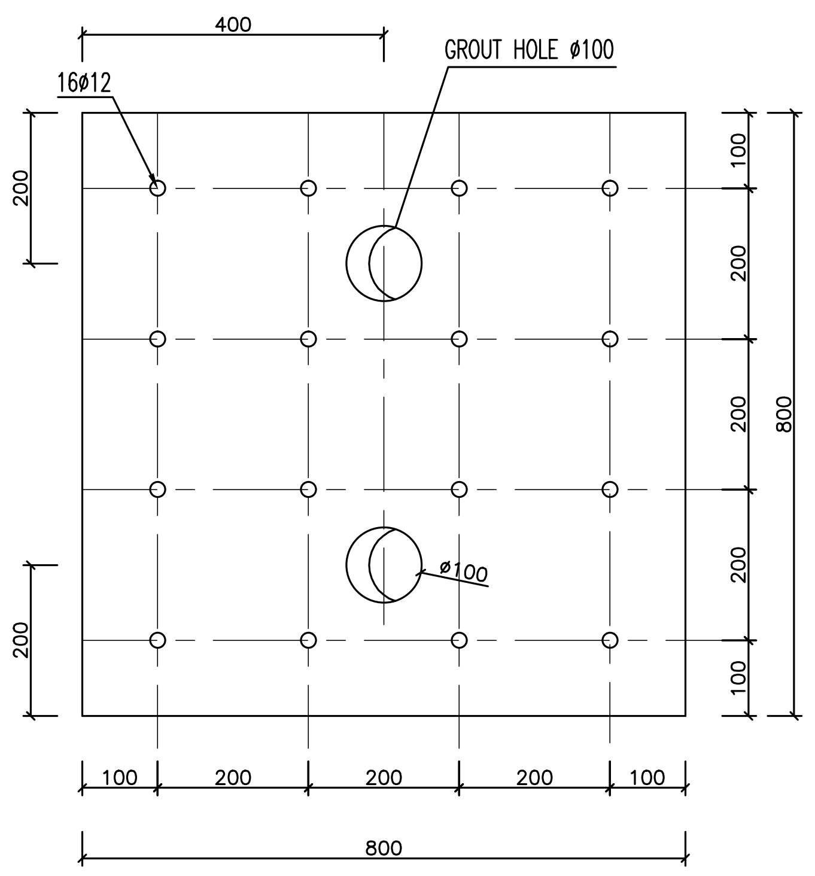
EPA-2

Scale : 1/10



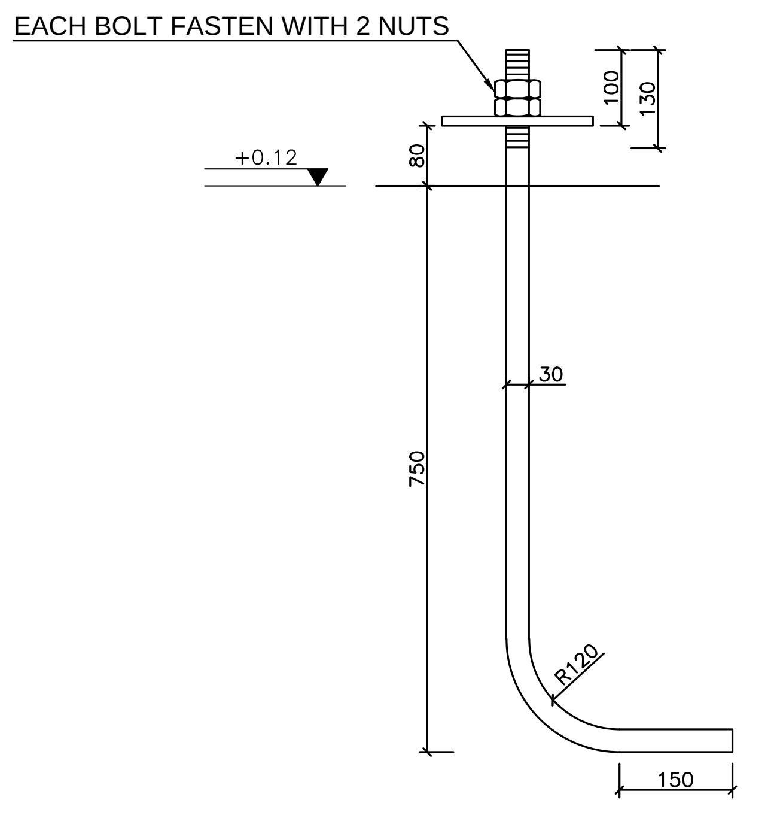
SECTION A-A

Scale : 1/25



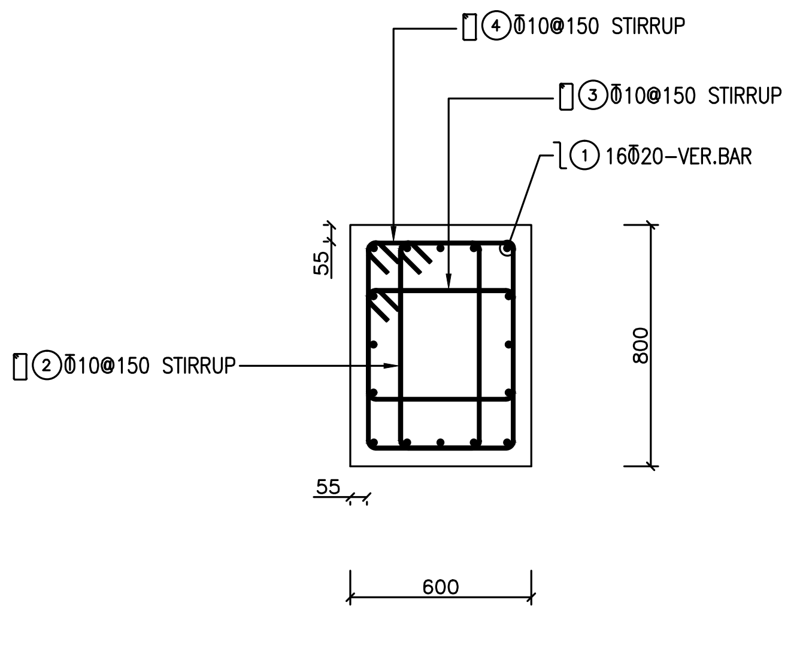
EPA-1

Scale : 1/10



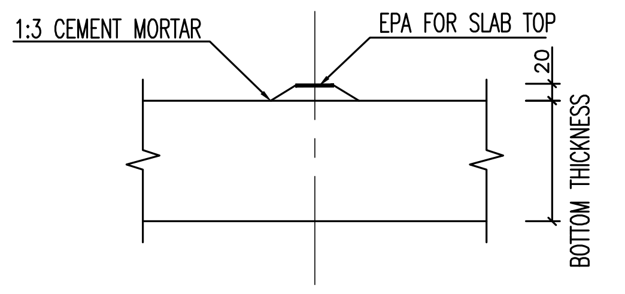
M30 ANCHOR BOLT DETAILS(Q345B)

Scale : 1/10

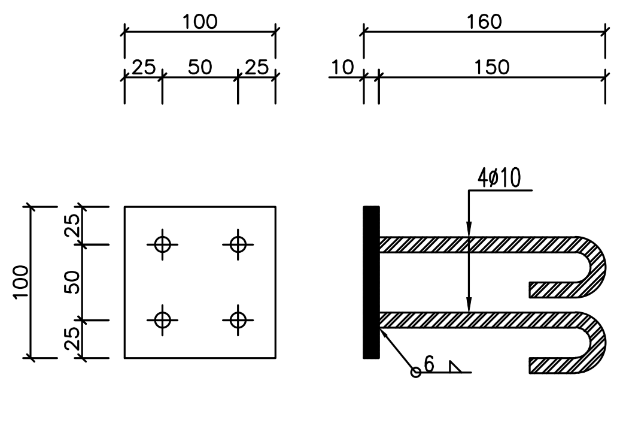


SECTION B-B

Scale : 1/25

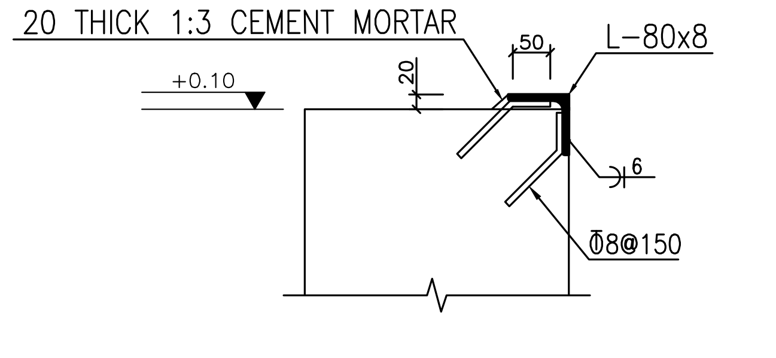


METHOD OF EPA FOR SLAB TOP



EPA-3

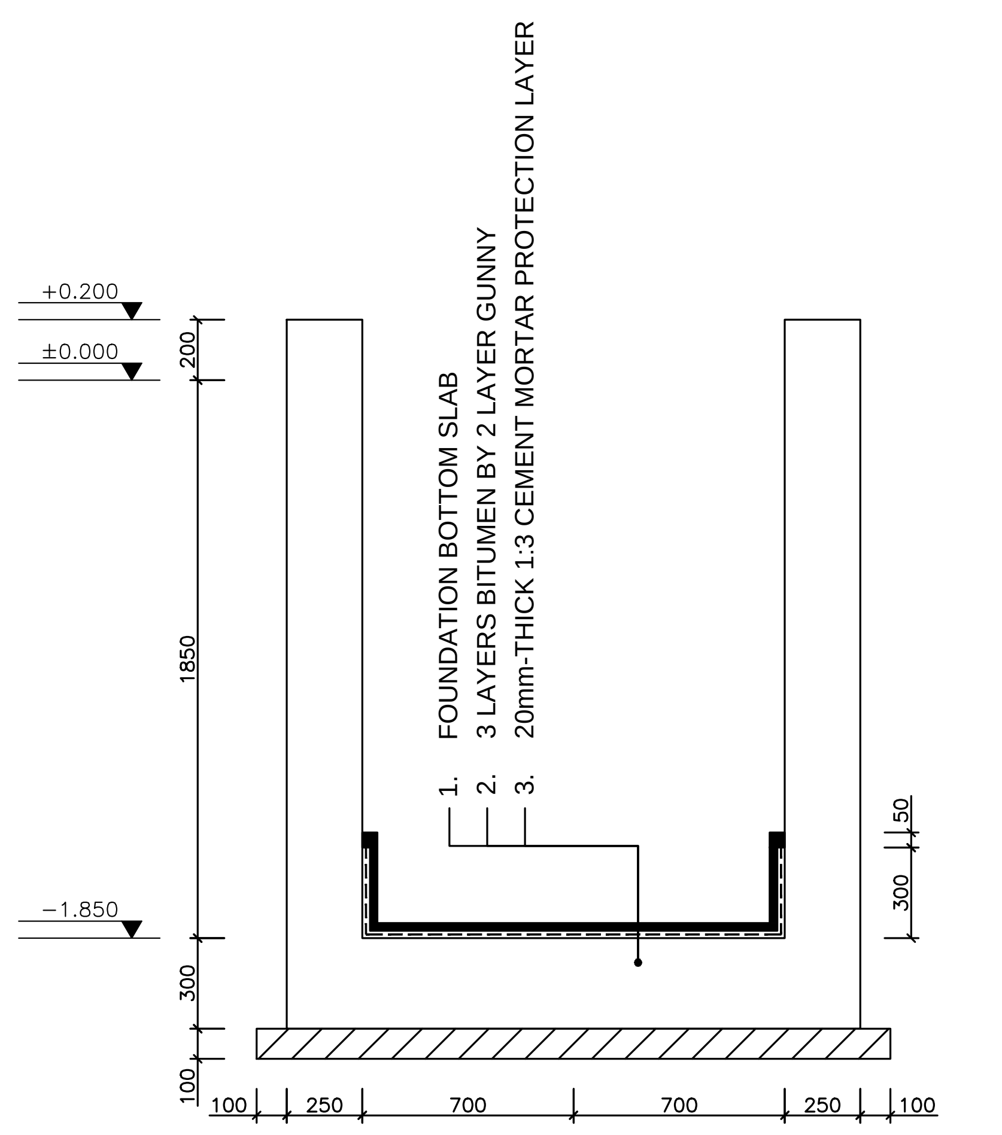
Scale : 1/5



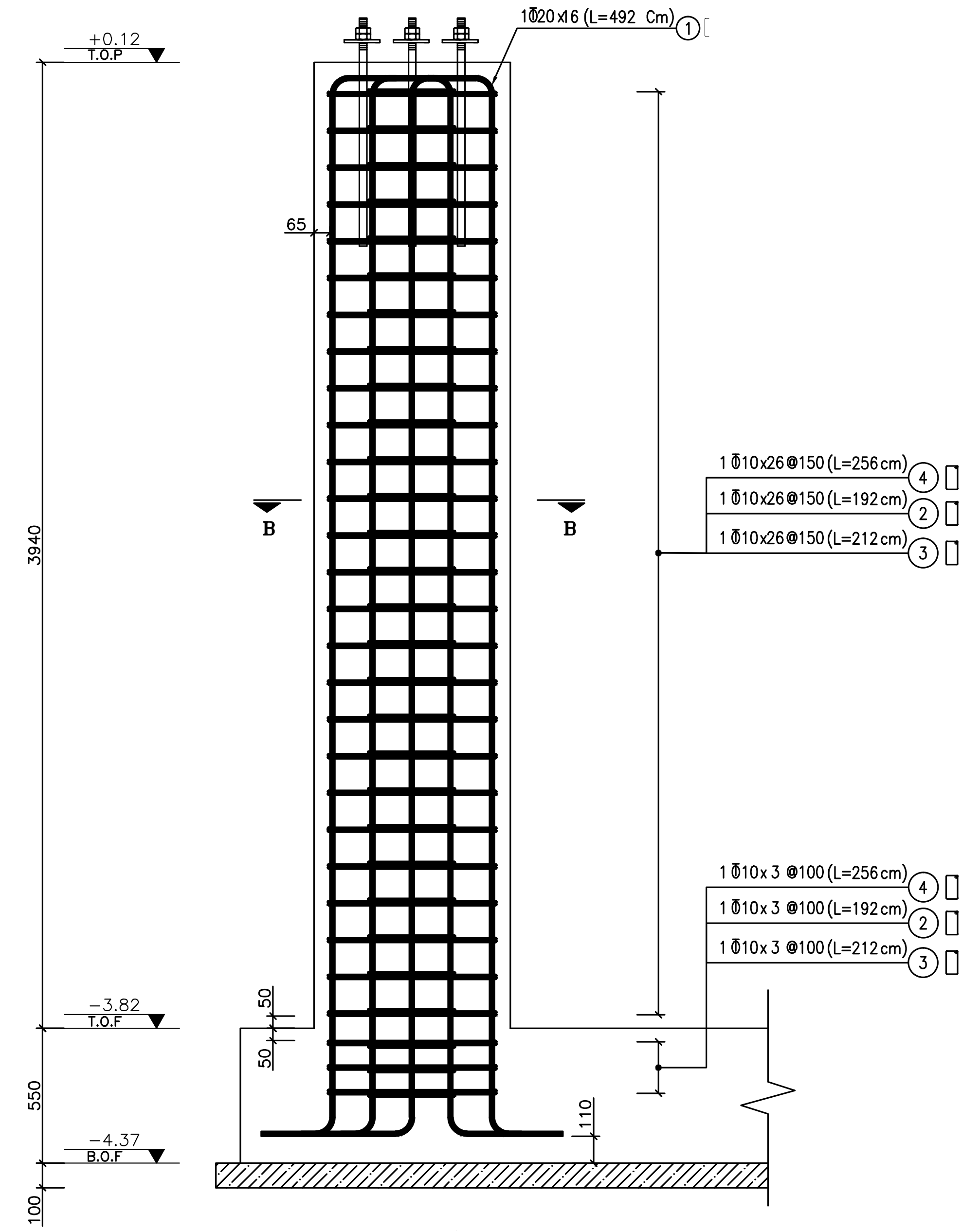
EPA-4

Scale : 1/5

ACCORDING TO TQ-SF-491:THE WATERPROOF ROLL LAYER SHOULD BE SET FROM BOTTOM OF THE FOUNDATION TO ELEV0.00

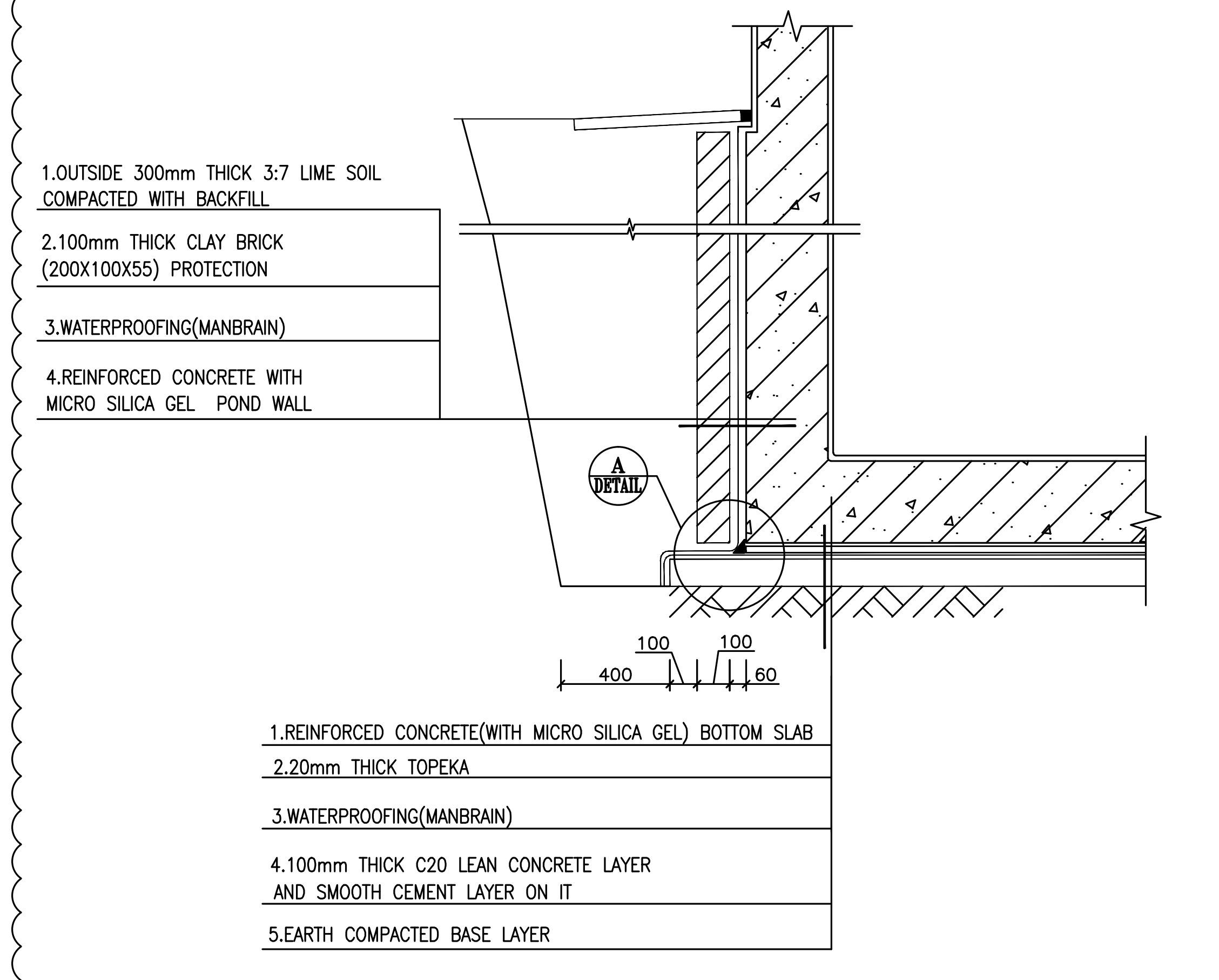


+0.200
±0.000
−1.850
1. FOUNDATION BOTTOM SLAB
2. 3 LAYERS BITUMEN BY 2 LAYER GUNNY
3. 20mm-THICK 1:3 CEMENT MORTAR PROTECTION LAYER
200
1850
300
100
150
300
100 250 700 700 250 100



BZ-1

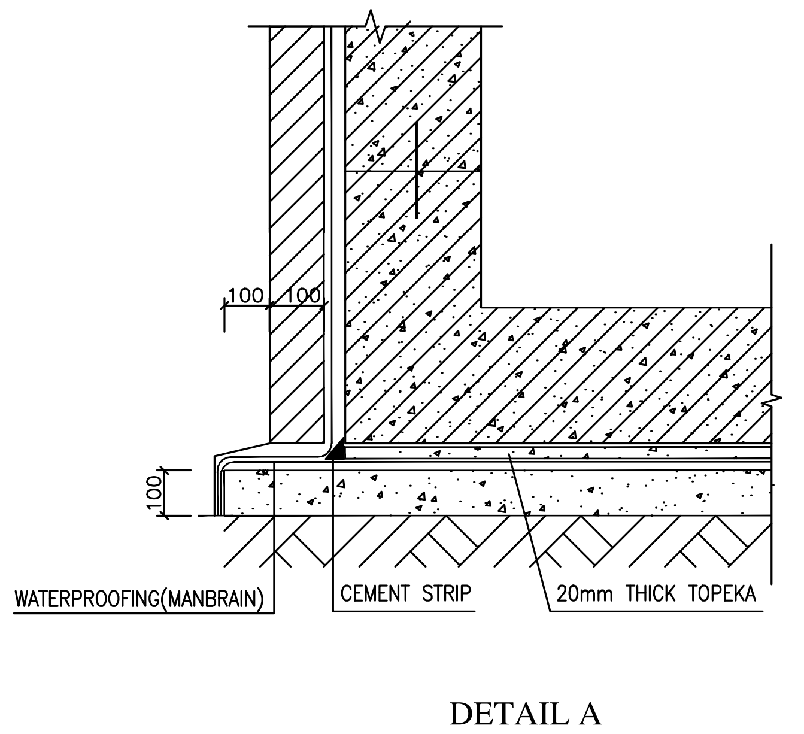
Scale : 1/25



1.OUTSIDE 300mm THICK 3:7 LIME SOIL COMPACTED WITH BACKFILL
2.100mm THICK CLAY BRICK (200X100X55) PROTECTION
3.WATERPROOFING(MANBRAIN)
4.REINFORCED CONCRETE WITH MICRO SILICA GEL POND WALL
A DETAIL
100
100
400
60
1.REINFORCED CONCRETE(WITH MICRO SILICA GEL) BOTTOM SLAB
2.20mm THICK TOPEKA
3.WATERPROOFING(MANBRAIN)
4.100mm THICK C20 LEAN CONCRETE LAYER AND SMOOTH CEMENT LAYER ON IT
5.EARTH COMPACTED BASE LAYER

DETAIL 1

Scale : 1/25 (WATER-PROOF ROLL CONSTRUCTION PRACTICE)



DETAIL A

Scale : 1/25

注¢: NOTES：º

1. FOR GENERAL NOTES, REFER TO "GENERAL NOTES OF CONCRETE AND MASONRY STRUCTURES" DG0505BE-DR-0000ST-0102~0104.
2. UNLESS OTHERWISE NOTED, ALL DIMENSIONS ARE IN MILLIMETERS & ELEVATIONS IN METERS.
3. MATERIALS. CONCRETE: C40 FOR FOUNDATION, f'c=35MPa. THE CONCRETE STRENGTH GRADE OF PIT IS C40 IMPERMEABILITY GRADE P6 . C20 FOR LEAN CONCRETE, f'c=16MPa. REBARS: S400(A-Ⅲó), fyk=400MPa. .
4. THICKNESS OF PROTECTION LAYER: THE BOTTOM OF THE PIT FLOOR IS THE STEEL BAR - 70mm, THE TOP BAR - 40mm, THE PIT WALL - 40mm,PILASTER COLUMN FOUNDATION- 55mm,SLAB-30mm.
   PEDESTAL CONCRETE COVER : 55 mm.
5. A 600mm THICK GRADED GRAVEL LAYER SHALL BE LAID BELLOW THE LEAN CONCRETE LAYER OF PIT-1 FOUNDATION. GRADING TABLE SEE: DG0505BE-DR-6011ST-0203. THE GRADED GRAVEL SHALL HAVE A MAXIMUM PARTICLE SIZE BETTER NOT GREATER THAN 30mm AND THE COMPACTION DEGREE (THE RATIO OF COMPACTED CUSHION THICKNESS TO FILLING THICKNESS) SHALL NOT BE GREATER THAN 0.9. THE BOUNDARY SHALL BE 500mm WIDER THAN THE BOUNDARY OF EQUIPMENT FOUNDATION.
6. METHODS OF ANTI-CORROSION CONSTRUCTION FOR SURFACES OF FOUNDATION:BELOW THE ELEVATION OF ±}0.0: EPOXY ASPHALT OR POLYURETHANE ASPHALT COATINGS,WITH THE THICKNESS OF ≥500μÊm.
7. METHODS OF ANTI-CORROSION CONSTRUCTION FOR FOUNDATION CUSHIONS:C20 CONCRETE MIXED WITH HIGH EFFICIENCY PRESERVATIVE; PARAMETER DETAILS ARE SUBJECT TO ACTUAL PREPARATION ON SITE.
8. STEEL PLATE IS Q345B EQUIVALENT BY ST-52 (fy=3400 fu=520).
9. NUT SHALL CONFORM TO ASTM A563 GRADE DH
10. WASHER MATERIAL SHALL CONFORM TO ASTM F436 TYPE "1" IN CASE BOLT DIAMETER IS LONGER THAN 38mm.WASHER MATERIAL SHALL CONFORM HEAVY HEX WASHER.
11. FOR ANCHOR BOLT Q345B IS EQUIVALENT BY("CK45" FY=> 355 mpa,ELONGATION => 18%)
12. FOR ANCHOR BOLT Q235B IS EQUIVALENT BY A II (ASTM A325)
13. ELEVATION ±}0.00 IS EQUIVALENT TO THE ABSOLUTE ELEVATION 398.2+ .A.S.L

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△					
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△					
D1	10/07-20	AS BUILT	张影	陈英	马翼鹏

业主 (Owner) :
伊朗南方铝业公司
Iran South Aluminum Corporation

总承包商 (EPC Contractor) :
中国有色金属建设股份有限公司
China Nonferrous Metal Industry's Foreign Engineering And Construction Co., Ltd.

设计单位 (Engineering Institute) :
東北大學 设计研究院(有限公司)
N.E.U Engineering & Research Institute Co., Ltd.

审核/审定 Approved				沥青贮存及沥青熔化 PITCH UNLOADING & PITCH STORAGE & MELTING FACILITY	工程编号 Proj. No.	DG0505
					设计阶段 Phase	竣工图 AD
	马翼鹏 MA YIPENG	马翼鹏	09/07-20	设备基础详图(三)	专 业 Specialty	结构 ST
校 对 Checked	陈 英 CHEN YING	陈英	08/07-20	DETAIL(Ⅲ) OF EQUIPMENT FOUNDATIONS	图纸规格 Size	A1
制 图 Drawn	张 影 ZHANG YING	张影	07/07-20	图 号 Dwg. No. DG0505AD-DR-6011ST-0403 D1 Rev.	共 01 页 第 01 页 Page 01 of 01	

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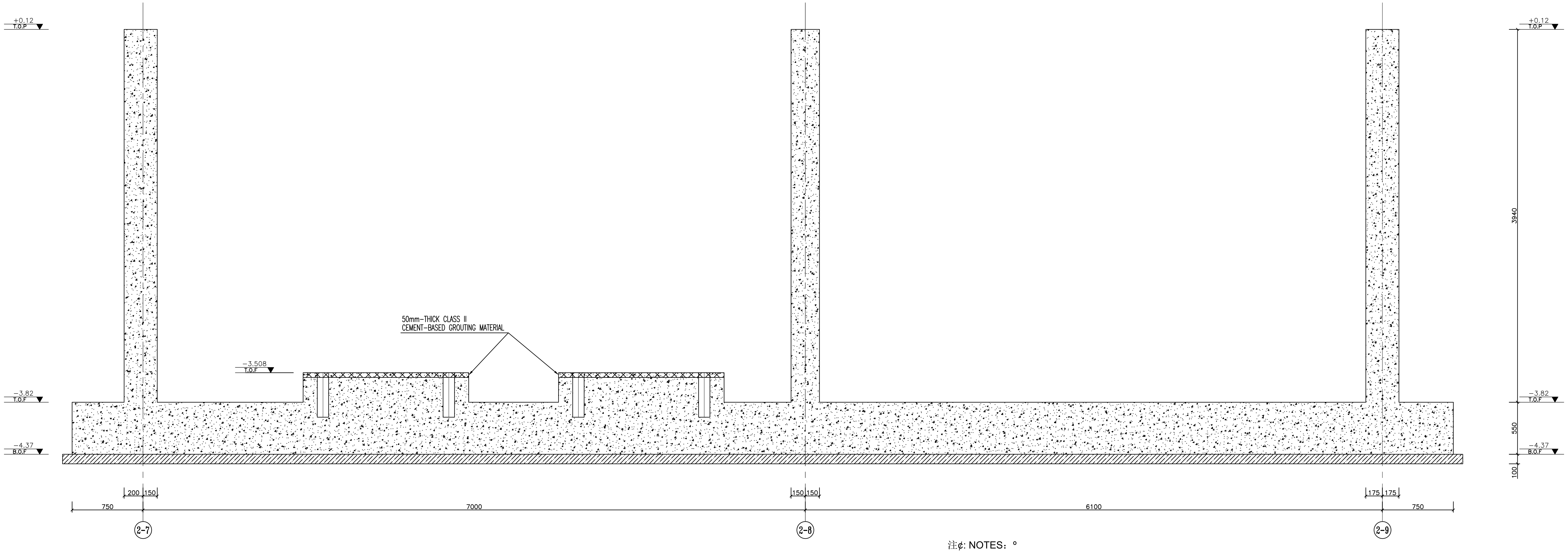
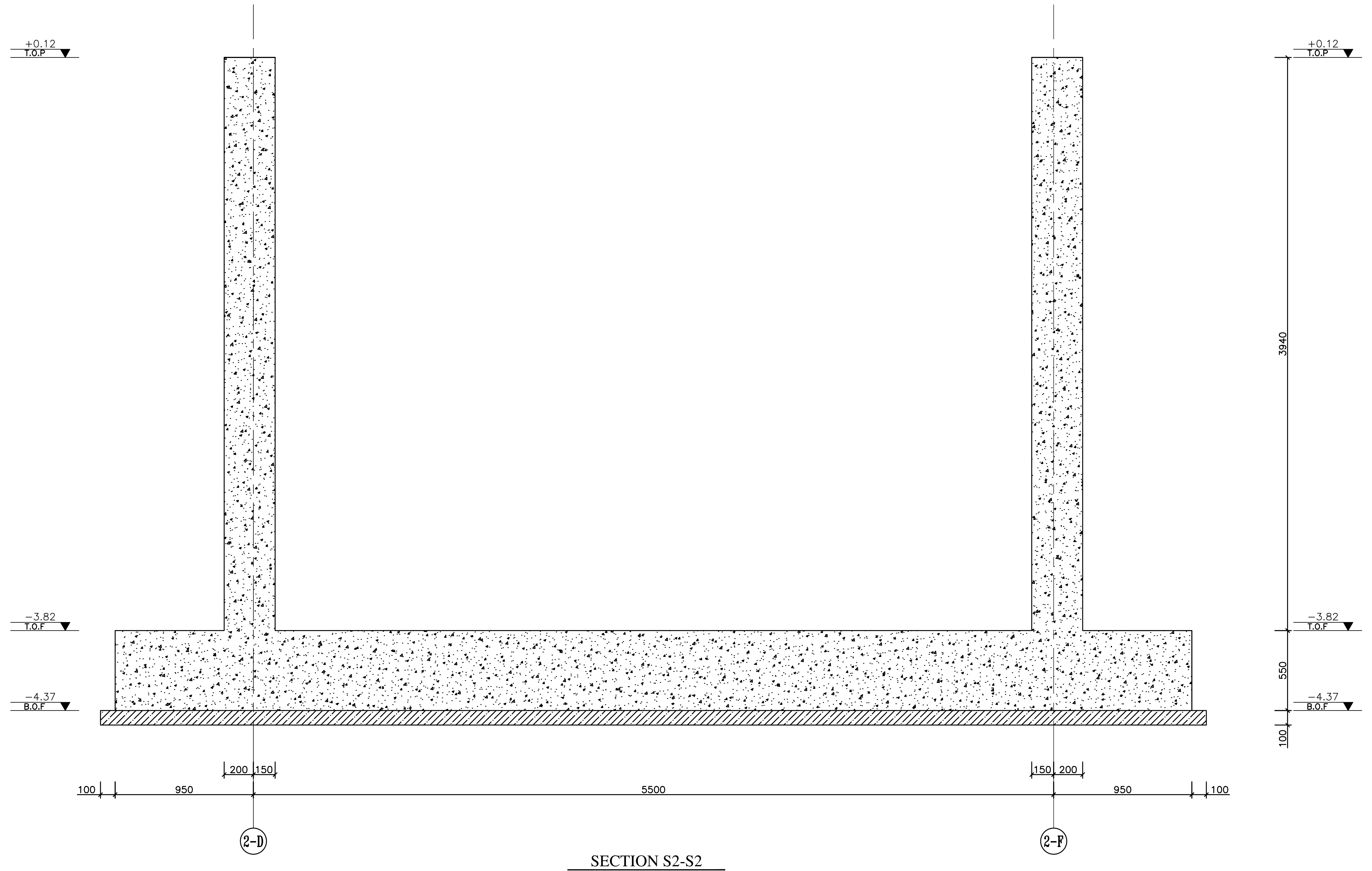
图纸/文献号 Drawing/Document No.	名称 Title



SECTION S1-S1

Scale : 1/25 FORMWORK



SECTION S2-S2

Scale : 1/25 FORMWORK

注¢: NOTES：º

1. FOR GENERAL NOTES, REFER TO "GENERAL NOTES OF CONCRETE AND MASONRY STRUCTURES" DG0505BE-DR-0000ST-0102~0104.
2. UNLESS OTHERWISE NOTED, ALL DIMENSIONS ARE IN MILLIMETERS & ELEVATIONS IN METERS.
3. MATERIALS. CONCRETE: C40 FOR FOUNDATION, f'c=35MPa. THE CONCRETE STRENGTH GRADE OF PIT IS C40 IMPERMEABILITY GRADE P6 . C20 FOR LEAN CONCRETE, f'c=16MPa. REBARS: S400(A-Ⅲó), fyk=400MPa. .
4. THICKNESS OF PROTECTION LAYER: THE BOTTOM OF THE PIT FLOOR IS THE STEEL BAR - 70mm, THE TOP BAR - 40mm, THE PIT WALL - 40mm,PILASTER COLUMN FOUNDATION- 55mm,SLAB-30mm.
   PEDESTAL CONCRETE COVER : 55 mm.
5. A 600mm THICK GRADED GRAVEL LAYER SHALL BE LAID BELLOW THE LEAN CONCRETE LAYER OF PIT-1 FOUNDATION. GRADING TABLE SEE: DG0505BE-DR-6011ST-0203. THE GRADED GRAVEL SHALL HAVE A MAXIMUM PARTICLE SIZE BETTER NOT GREATER THAN 30mm AND THE COMPACTION DEGREE (THE RATIO OF COMPACTED CUSHION THICKNESS TO FILLING THICKNESS) SHALL NOT BE GREATER THAN 0.9. THE BOUNDARY SHALL BE 500mm WIDER THAN THE BOUNDARY OF EQUIPMENT FOUNDATION.
6. METHODS OF ANTI-CORROSION CONSTRUCTION FOR SURFACES OF FOUNDATION:BELOW THE ELEVATION OF ±}0.0: EPOXY ASPHALT OR POLYURETHANE ASPHALT COATINGS,WITH THE THICKNESS OF ≥500μÊm.
7. METHODS OF ANTI-CORROSION CONSTRUCTION FOR FOUNDATION CUSHIONS:C20 CONCRETE MIXED WITH HIGH EFFICIENCY PRESERVATIVE; PARAMETER DETAILS ARE SUBJECT TO ACTUAL PREPARATION ON SITE.
8. STEEL PLATE IS Q345B EQUIVALENT BY ST-52 (fy=3400 fu=520).
9. NUT SHALL CONFORM TO ASTM A563 GRADE DH
10. WASHER MATERIAL SHALL CONFORM TO ASTM F436 TYPE "1" IN CASE BOLT DIAMETER IS LONGER THAN 38mm.WASHER MATERIAL SHALL CONFORM HEAVY HEX WASHER.
11. FOR ANCHOR BOLT Q345B IS EQUIVALENT BY("CK45" FY=> 355 mpa,ELONGATION => 18%)
12. FOR ANCHOR BOLT Q235B IS EQUIVALENT BY A II (ASTM A325)
13. ELEVATION ±}0.00 IS EQUIVALENT TO THE ABSOLUTE ELEVATION 398.2+ .A.S.L

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△D1	10/07-20	AS BUILT	张影	陈英	马翼鹏
版号 Rev.	日期 Date	说明 Description	制图 Drawn	校对 Checked	批准 Approved

业主 (Owner) :
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Iran South Aluminum Corporation

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China Nonferrous Metal Industry's Foreign Engineering And Construction Co., Ltd.

设计单位 (Engineering Institute) :
東北大學 设计研究院(有限公司)
N.E.U Engineering & Research Institute Co., Ltd.

审核/审定 Approved				沥青贮存及沥青熔化	工程编号 Proj. No.	DG0505
				PITCH UNLOADING & PITCH STORAGE & MELTING FACILITY	设计阶段 Phase	竣工图 AD
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校　对 Checked	陈　英 CHEN YING	陈英	08/07-20	DETAIL(Ⅳ) OF EQUIPMENT FOUNDATIONS	图纸规格 Size	A1
制　图 Drawn	张　影 ZHANG YING	张影	07/07-20	图　号 Dwg. No. DG0505AD-DR-6011ST-0404 △D1 Rev.	共 05 页 第 01 页 Page 01 of 05	

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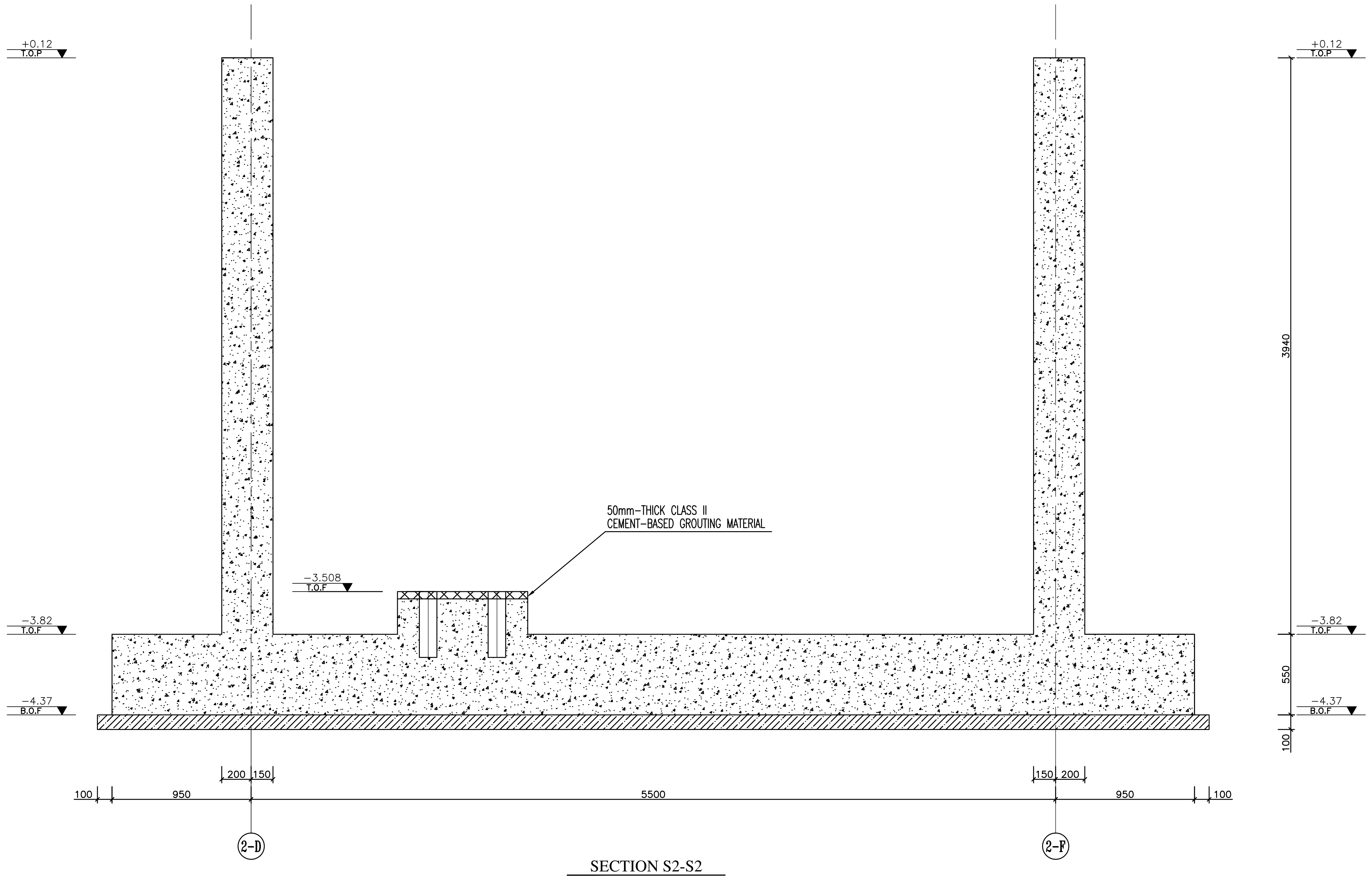
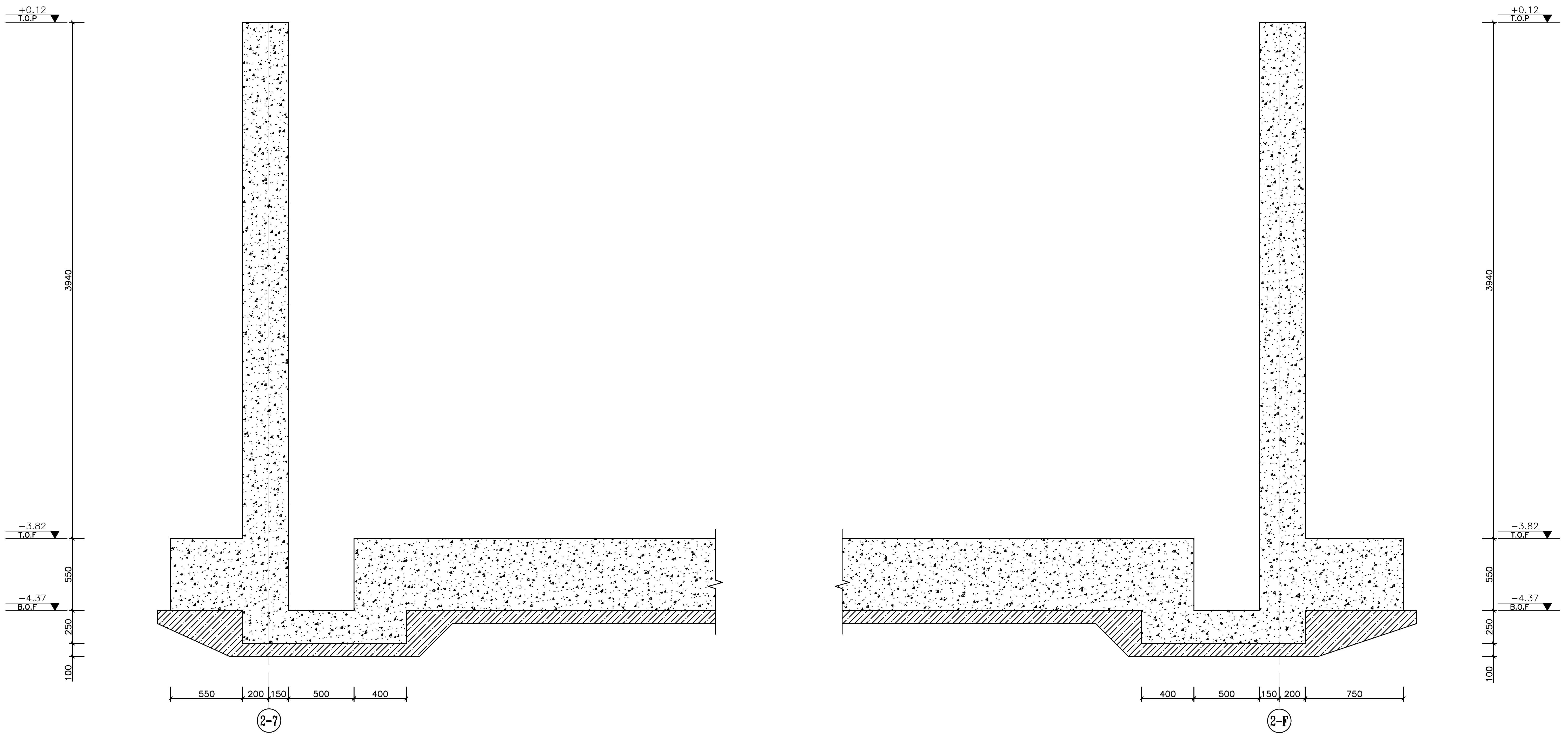
图纸/文献号 Drawing/Document No.	名称 Title



SECTION S2-S2

Scale : 1/25 FORMWORK



注¢: NOTES：º

1. FOR GENERAL NOTES, REFER TO "GENERAL NOTES OF CONCRETE AND MASONRY STRUCTURES" DG0505BE-DR-0000ST-0102~0104.
2. UNLESS OTHERWISE NOTED, ALL DIMENSIONS ARE IN MILLIMETERS & ELEVATIONS IN METERS.
3. MATERIALS. CONCRETE: C40 FOR FOUNDATION, f'c=35MPa. THE CONCRETE STRENGTH GRADE OF PIT IS C40 IMPERMEABILITY GRADE P6 . C20 FOR LEAN CONCRETE, f'c=16MPa. REBARS: S400(A-IIIó), fyk=400MPa. .
4. THICKNESS OF PROTECTION LAYER: THE BOTTOM OF THE PIT FLOOR IS THE STEEL BAR - 70mm, THE TOP BAR - 40mm, THE PIT WALL - 40mm,PILASTER COLUMN FOUNDATION- 55mm,SLAB-30mm.
   PEDESTAL CONCRETE COVER : 55 mm.
5. A 600mm THICK GRADED GRAVEL LAYER SHALL BE LAID BELLOW THE LEAN CONCRETE LAYER OF PIT-1 FOUNDATION. GRADING TABLE SEE: DG0505BE-DR-6011ST-0203. THE GRADED GRAVEL SHALL HAVE A MAXIMUM PARTICLE SIZE BETTER NOT GREATER THAN 30mm AND THE COMPACTION DEGREE (THE RATIO OF COMPACTED CUSHION THICKNESS TO FILLING THICKNESS) SHALL NOT BE GREATER THAN 0.9. THE BOUNDARY SHALL BE 500mm WIDER THAN THE BOUNDARY OF EQUIPMENT FOUNDATION.
6. METHODS OF ANTI-CORROSION CONSTRUCTION FOR SURFACES OF FOUNDATION:BELOW THE ELEVATION OF ±}0.0: EPOXY ASPHALT OR POLYURETHANE ASPHALT COATINGS,WITH THE THICKNESS OF ≥500μÊm.
7. METHODS OF ANTI-CORROSION CONSTRUCTION FOR FOUNDATION CUSHIONS:C20 CONCRETE MIXED WITH HIGH EFFICIENCY PRESERVATIVE; PARAMETER DETAILS ARE SUBJECT TO ACTUAL PREPARATION ON SITE.
8. STEEL PLATE IS Q345B EQUIVALENT BY ST-52 (fy=3400 fu=520).
9. NUT SHALL CONFORM TO ASTM A563 GRADE DH
10. WASHER MATERIAL SHALL CONFORM TO ASTM F436 TYPE "1" IN CASE BOLT DIAMETER IS LONGER THAN 38mm.WASHER MATERIAL SHALL CONFORM HEAVY HEX WASHER.
11. FOR ANCHOR BOLT Q345B IS EQUIVALENT BY("CK45" FY=> 355 mpa,ELONGATION => 18%)
12. FOR ANCHOR BOLT Q235B IS EQUIVALENT BY A II (ASTM A325)
13. ELEVATION ±}0.00 IS EQUIVALENT TO THE ABSOLUTE ELEVATION 398.2+ .A.S.L

业主 (Owner) :
伊朗南方铝业公司
Iran South Aluminum Corporation

总承包商 (EPC Contractor)
中国有色金属建设股份有限公司
China Nonferrous Metal Industry's Foreign Engineering And Construction Co., Ltd.

设计单位 (Engineering Institute) :
东北大学 设计研究院(有限公司)
N.E.U Engineering & Research Institute Co., Ltd.

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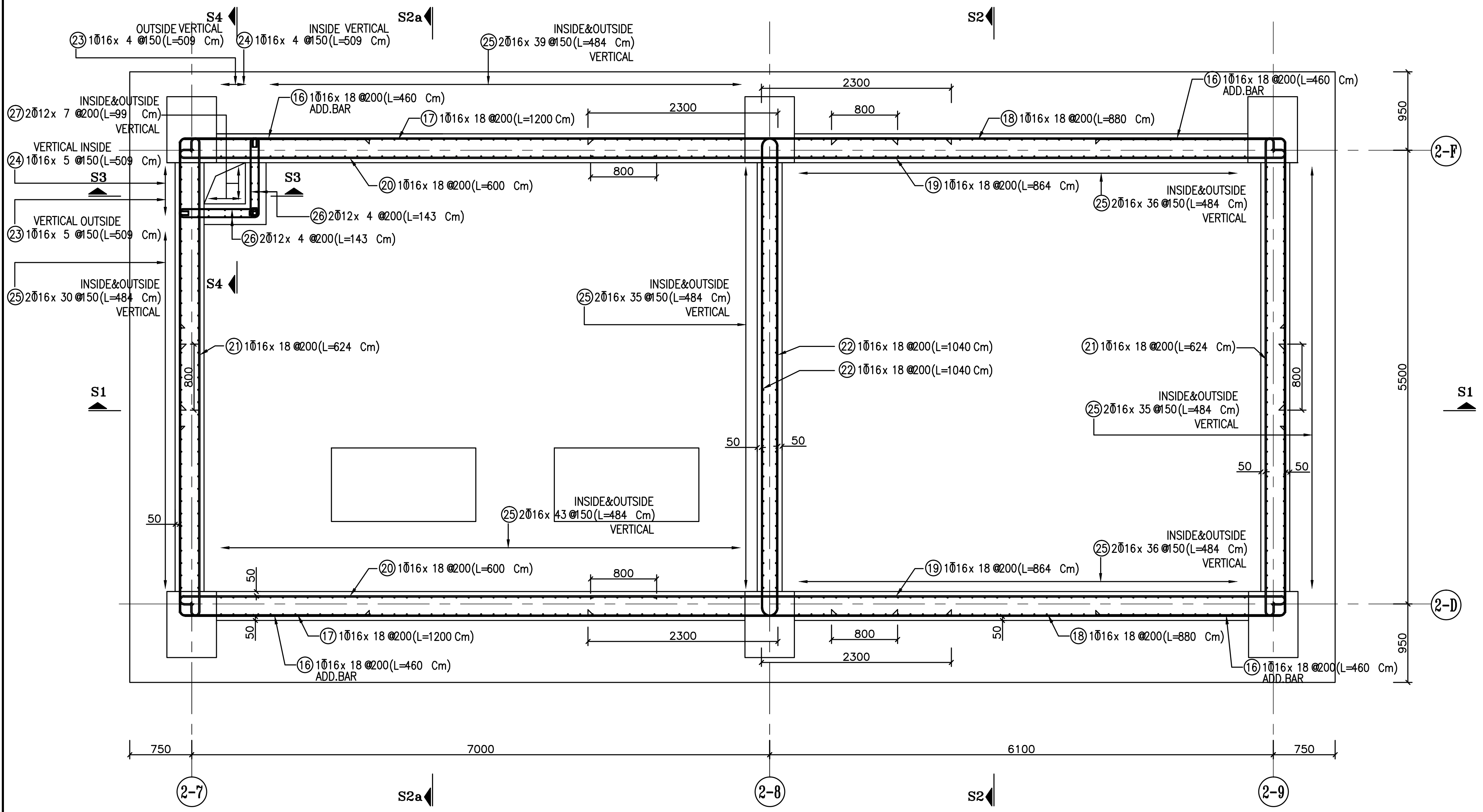
D1	10/07-20	AS BUILT	张影	陈英	马翼鹏
版号 Rev.	日期 Date	说明 Description	制图 Drawn	校对 Checked	批准 Approved

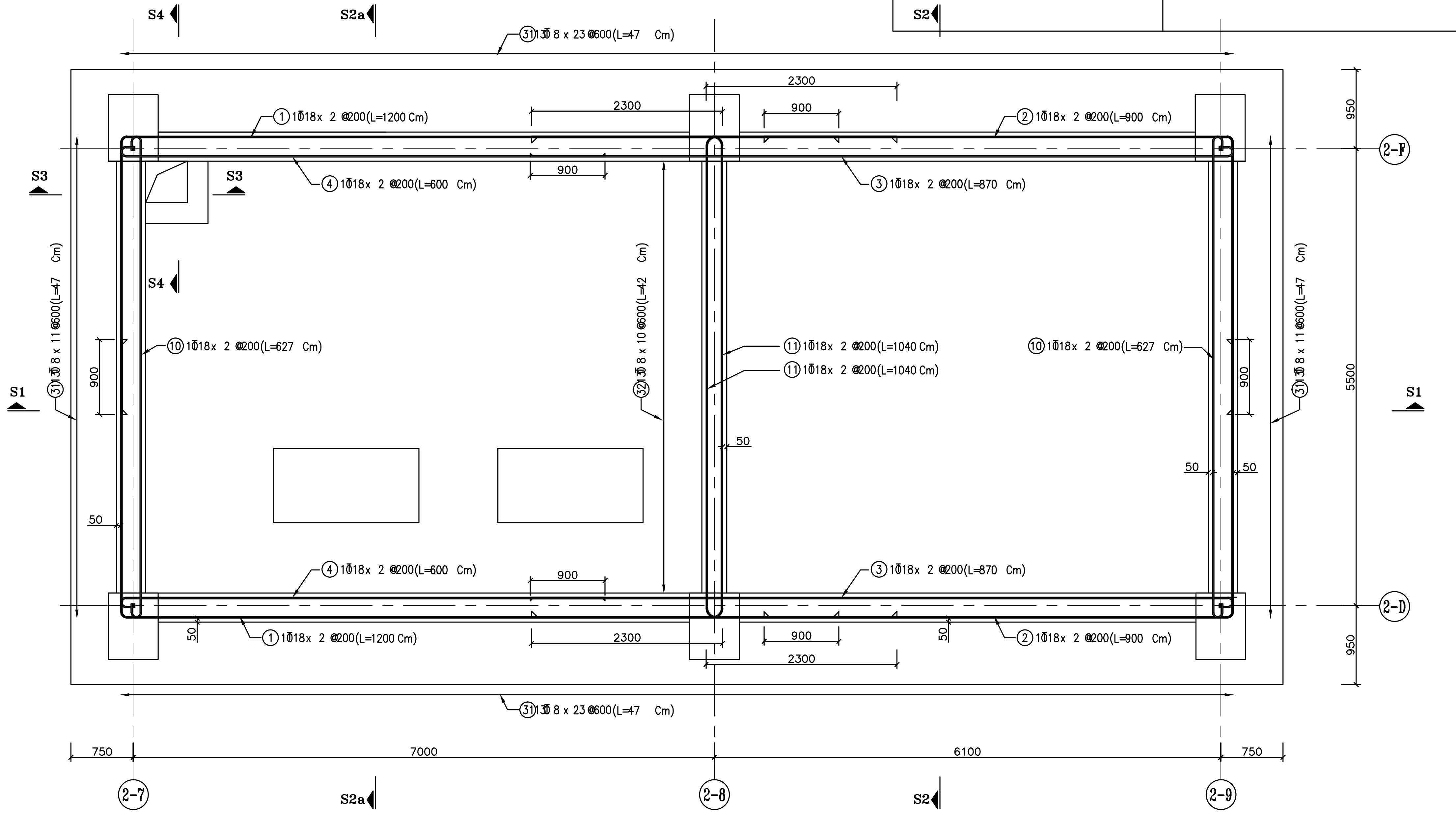
审核/审定 Approved	马翼鹏 MA YIPENG	马翼鹏	09/07-20	沥青贮存及沥青熔化 PITCH UNLOADING & PITCH STORAGE & MELTING FACILITY	工程编号 Proj. No.	DG0505
					设计阶段 Phase	竣工图 AD
				设备基础详图(四)	专 业 Specialty	结构 ST
校 对 Checked	陈 英 CHEN YING	陈英	08/07-20	DETAIL(Ⅳ) OF EQUIPMENT FOUNDATIONS	图纸规格 Size	A1
制 图 Drawn	张 影 ZHANG YING	张影	07/07-20	图 号 Dwg. No. DG0505AD-DR-6011ST-0404 D1 Rev.	共 05 页 第 02 页 Page 02 of 05	

参考图纸/文献 Ref. Drawing/Document	
图纸/文献号 Drawing/Document No.	名称 Title


S4
S2a
S2
OUTSIDE VERTICAL
(23) 1Φ16x 4 @150(L=509 Cm)
INSIDE VERTICAL
(24) 1Φ16x 4 @150(L=509 Cm)
INSIDE&OUTSIDE
(25) 2Φ16x 39 @150(L=484 Cm)
VERTICAL
INSIDE&OUTSIDE
(27) 2Φ12x 7 @200(L=99 Cm)
VERTICAL
VERTICAL INSIDE
(24) 1Φ16x 5 @150(L=509 Cm)
VERTICAL OUTSIDE
(23) 1Φ16x 5 @150(L=509 Cm)
INSIDE&OUTSIDE
(25) 2Φ16x 30 @150(L=484 Cm)
VERTICAL
(16) 1Φ16x 18 @200(L=460 Cm)
ADD.BAR
(17) 1Φ16x 18 @200(L=1200 Cm)
(18) 1Φ16x 18 @200(L=880 Cm)
(19) 1Φ16x 18 @200(L=864 Cm)
(20) 1Φ16x 18 @200(L=600 Cm)
(21) 1Φ16x 18 @200(L=624 Cm)
(22) 1Φ16x 18 @200(L=1040 Cm)
(22) 1Φ16x 18 @200(L=1040 Cm)
(26) 2Φ12x 4 @200(L=143 Cm)
(26) 2Φ12x 4 @200(L=143 Cm)
INSIDE&OUTSIDE
(25) 2Φ16x 35 @150(L=484 Cm)
VERTICAL
INSIDE&OUTSIDE
(25) 2Φ16x 36 @150(L=484 Cm)
VERTICAL
INSIDE&OUTSIDE
(25) 2Φ16x 43 @150(L=484 Cm)
VERTICAL
S3
S1
2300
800
50
950
5500
2-F
2-D
750
7000
6100
2-7
2-8
2-9

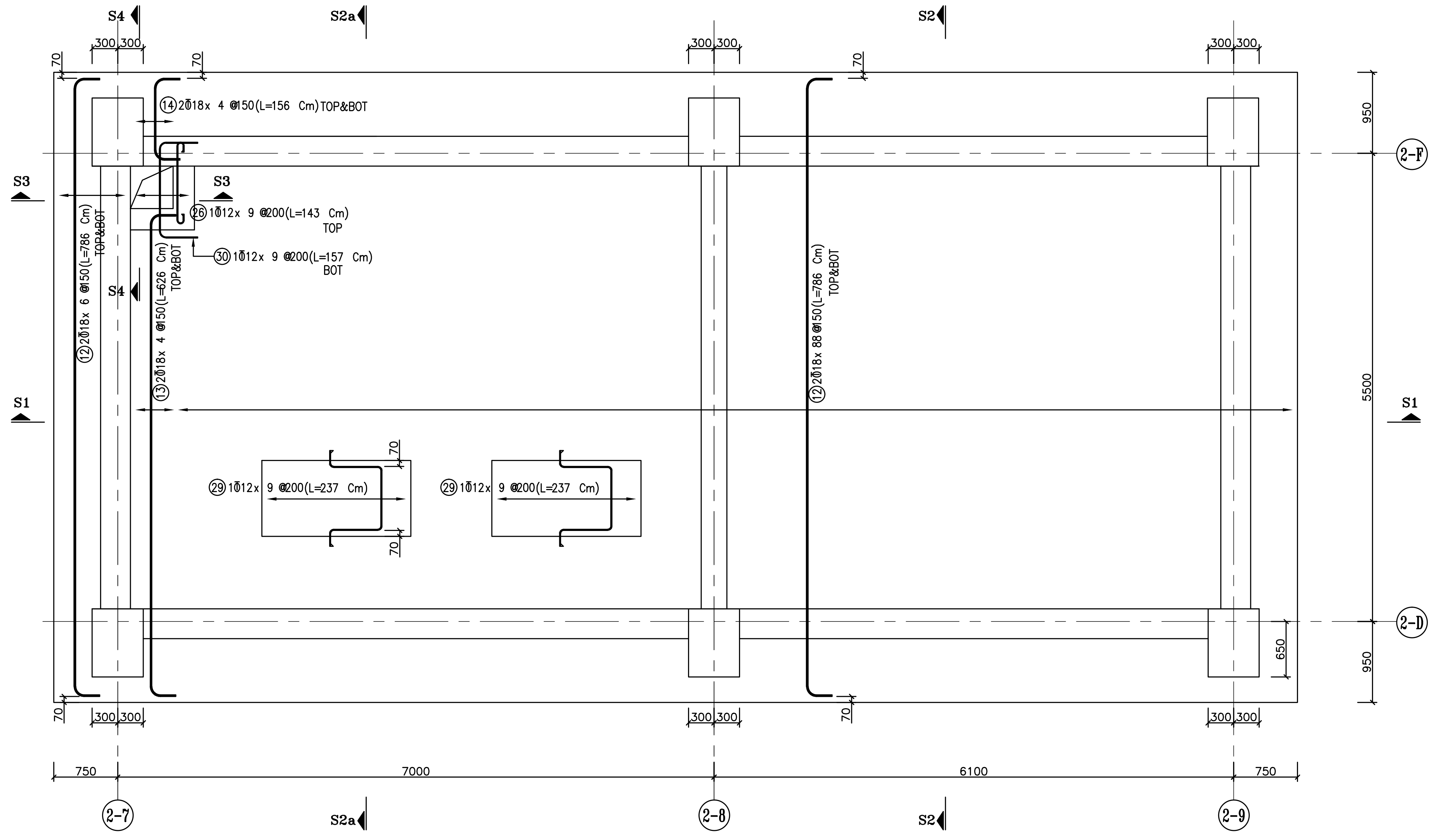
PIT-2 WALL

Scale : 1/50 REINFORCEMENT


S4
S2a
S2
(31) 1Φ8 x 23 @600(L=47 Cm)
(1) 1Φ18x 2 @200(L=1200 Cm)
(2) 1Φ18x 2 @200(L=900 Cm)
(3) 1Φ18x 2 @200(L=870 Cm)
(4) 1Φ18x 2 @200(L=600 Cm)
(10) 1Φ18x 2 @200(L=627 Cm)
(11) 1Φ18x 2 @200(L=1040 Cm)
(11) 1Φ18x 2 @200(L=1040 Cm)
(31) 1Φ8 x 11 @600(L=47 Cm)
(32) 1Φ8 x 10 @600(L=42 Cm)
S3
S1
2300
900
50
950
5500
2-F
2-D
750
7000
6100
2-7
2-8
2-9

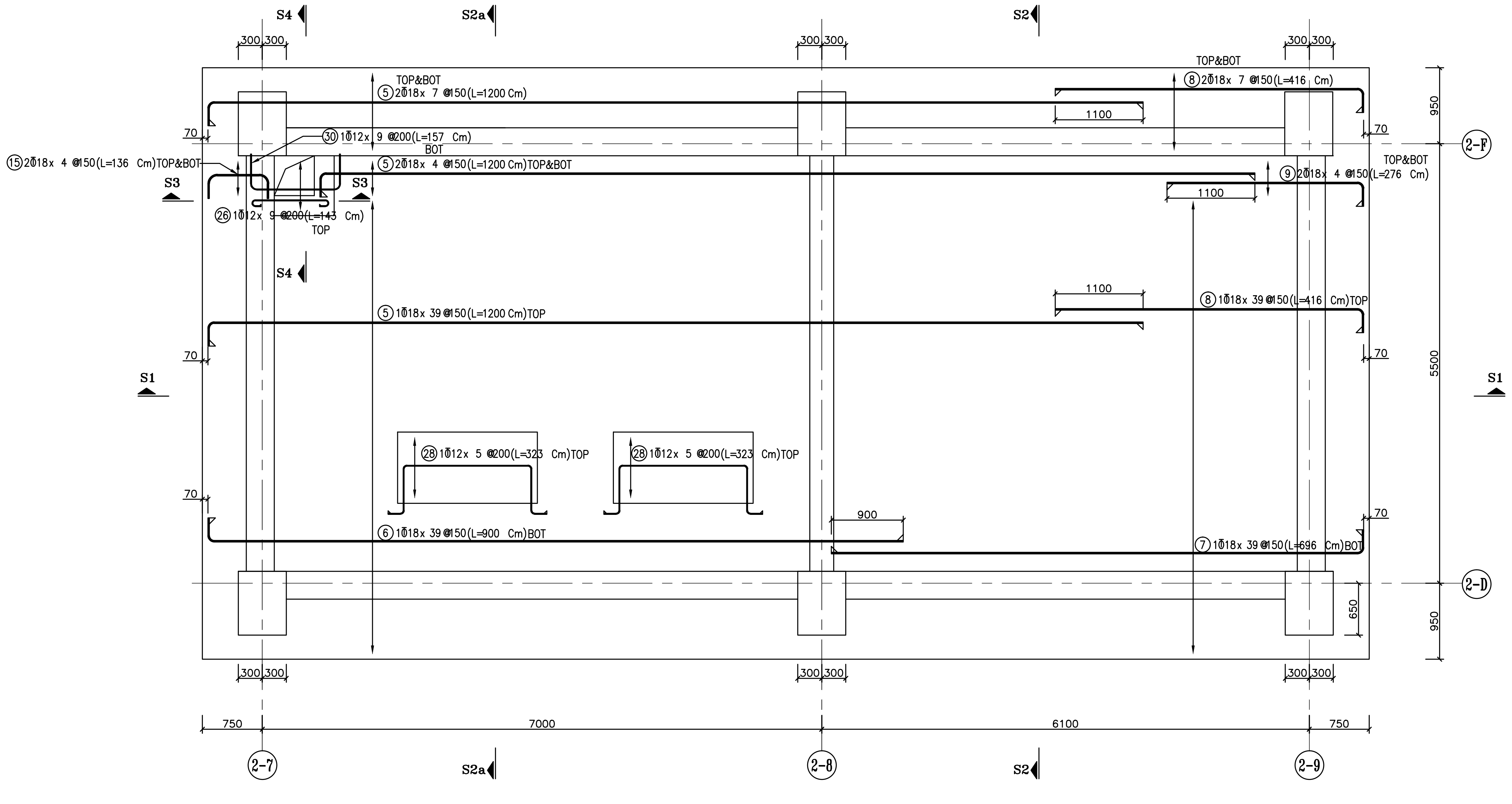
PIT-2 WALL

Scale : 1/50 REINFORCEMENT


S4
S2a
S2
300 300
70
(14) 2Φ18x 4 @150(L=156 Cm)TOP&BOT
(26) 1Φ12x 9 @200(L=143 Cm)
TOP
(30) 1Φ12x 9 @200(L=157 Cm)
BOT
(12) 2Φ18x 6 @150(L=786 Cm)
TOP&BOT
(13) 2Φ18x 4 @150(L=626 Cm)
TOP&BOT
(12) 2Φ18x 88 @150(L=786 Cm)
TOP&BOT
(29) 1Φ12x 9 @200(L=237 Cm)
(29) 1Φ12x 9 @200(L=237 Cm)
S3
S1
950
5500
650
2-F
2-D
750
7000
6100
2-7
2-8
2-9

PIT-2 FOUNDATION

Scale : 1/50 REINFORCEMENT


S4
S2a
S2
300 300
TOP&BOT
(5) 2Φ18x 7 @150(L=1200 Cm)
TOP&BOT
(8) 2Φ18x 7 @150(L=416 Cm)
1100
70
(30) 1Φ12x 9 @200(L=157 Cm)
BOT
(15) 2Φ18x 4 @150(L=136 Cm)TOP&BOT
(5) 2Φ18x 4 @150(L=1200 Cm)TOP&BOT
TOP&BOT
(9) 2Φ18x 4 @150(L=276 Cm)
(26) 1Φ12x 9 @200(L=143 Cm)
TOP
(5) 1Φ18x 39 @150(L=1200 Cm)TOP
(8) 1Φ18x 39 @150(L=416 Cm)TOP
(28) 1Φ12x 5 @200(L=323 Cm)TOP
(28) 1Φ12x 5 @200(L=323 Cm)TOP
900
(6) 1Φ18x 39 @150(L=900 Cm)BOT
(7) 1Φ18x 39 @150(L=696 Cm)BOT
S3
S1
950
5500
650
2-F
2-D
750
7000
6100
2-7
2-8
2-9

PIT-2 FOUNDATION

Scale : 1/50 REINFORCEMENT

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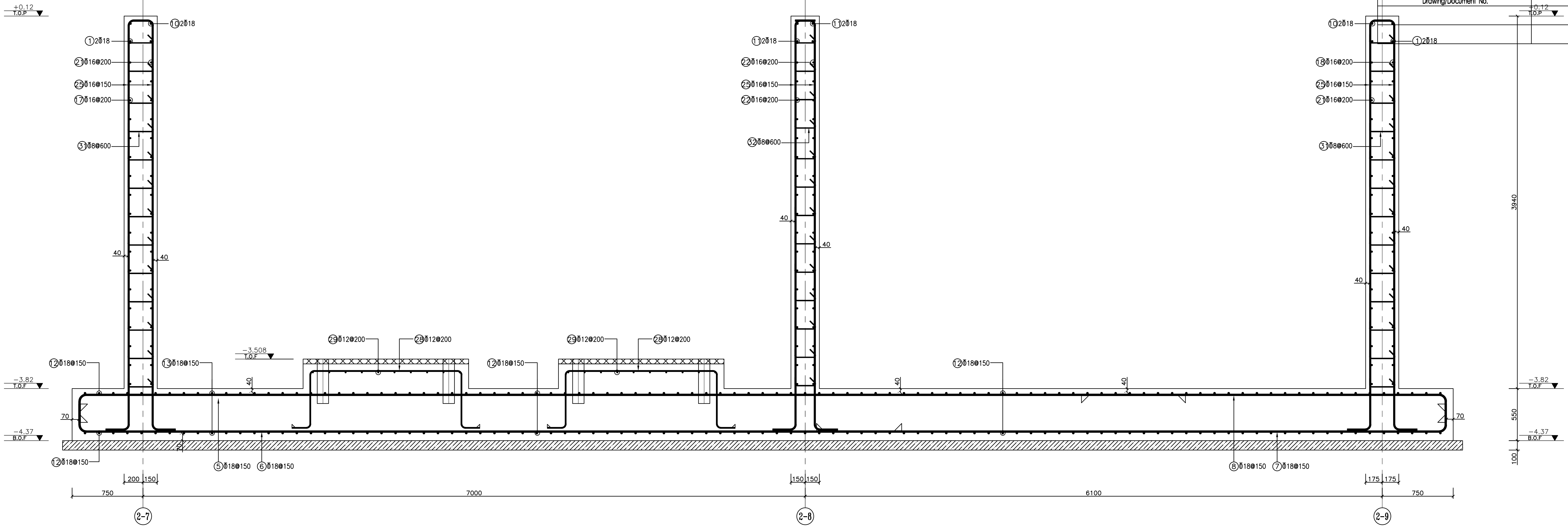
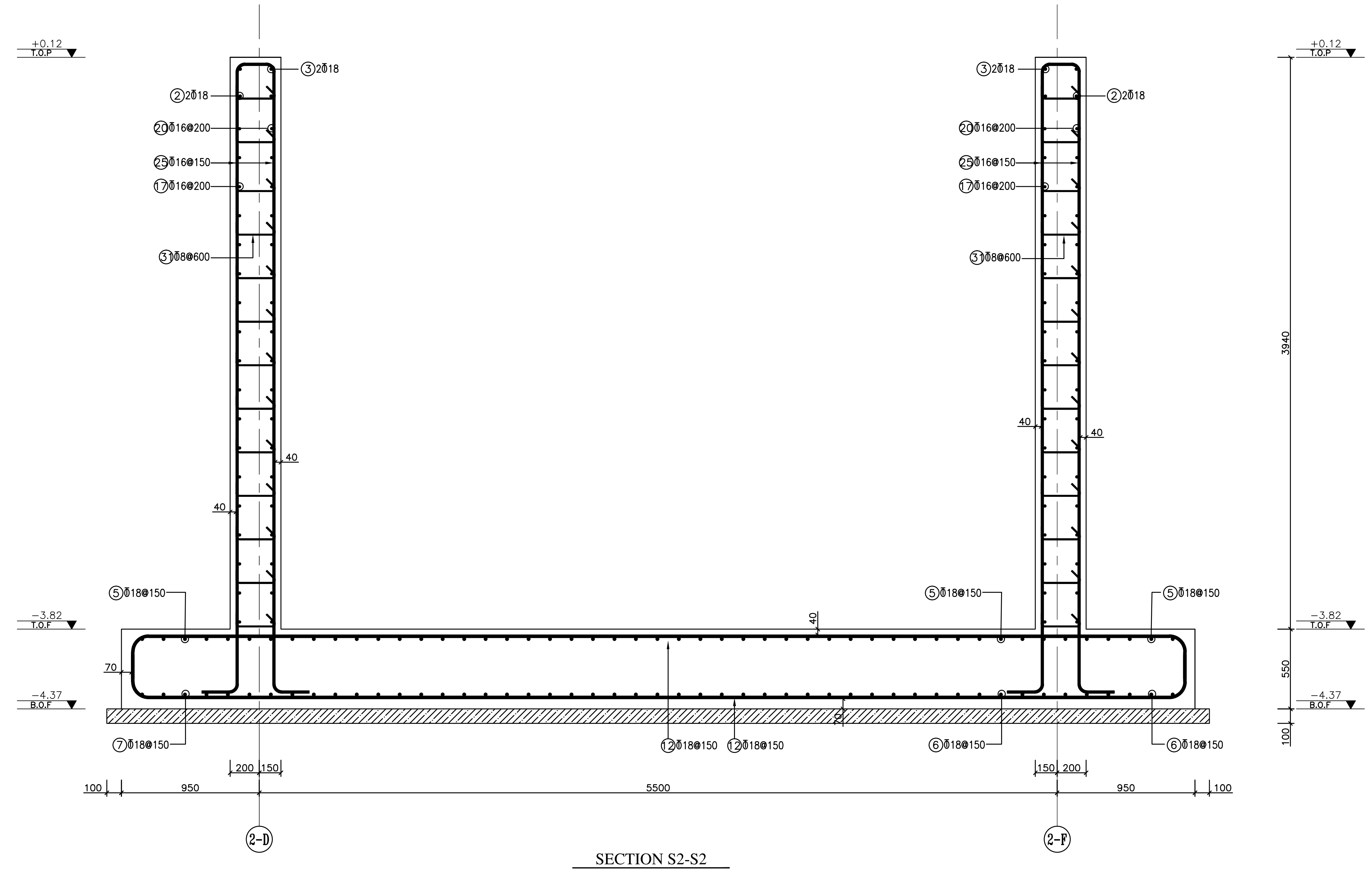
					设计阶段 Phase	竣工图 AD
	马翼鹏 MA YIPENG	马翼鹏	09/07-20	设备基础详图(四)	专 业 Specialty	结构 ST
校 对 Checked	陈 英 CHEN YING	陈英	08/07-20	DETAIL(Ⅳ) OF EQUIPMENT FOUNDATIONS	图纸规格 Size	A1
制 图 Drawn	张 影 ZHANG YING	张影	07/07-20	图 号 Dwg. No. DG0505AD-DR-6011ST-0404 D1 Rev.	共 05 页 第 03 页 Page 03 of 05	

参考图纸/文献 Ref. Drawing/Document	
图纸/文献号 Drawing/Document No.	名称 Title



SECTION S1-S1

Scale : 1/25 REINFORCEMENT



SECTION S2-S2

Scale : 1/25 REINFORCEMENT

注¢: NOTES：º

1. FOR GENERAL NOTES, REFER TO "GENERAL NOTES OF CONCRETE AND MASONRY STRUCTURES" DG0505BE-DR-0000ST-0102~0104.
2. UNLESS OTHERWISE NOTED, ALL DIMENSIONS ARE IN MILLIMETERS & ELEVATIONS IN METERS.
3. MATERIALS. CONCRETE: C40 FOR FOUNDATION, f'c=35MPa. THE CONCRETE STRENGTH GRADE OF PIT IS C40 IMPERMEABILITY GRADE P6 . C20 FOR LEAN CONCRETE, f'c=16MPa. REBARS: S400(A-Ⅲó), fyk=400MPa. .
4. THICKNESS OF PROTECTION LAYER: THE BOTTOM OF THE PIT FLOOR IS THE STEEL BAR - 70mm, THE TOP BAR - 40mm, THE PIT WALL - 40mm,PILASTER COLUMN FOUNDATION- 55mm,SLAB-30mm.
   PEDESTAL CONCRETE COVER : 55 mm.
5. A 600mm THICK GRADED GRAVEL LAYER SHALL BE LAID BELLOW THE LEAN CONCRETE LAYER OF PIT-1 FOUNDATION. GRADING TABLE SEE: DG0505BE-DR-6011ST-0203. THE GRADED GRAVEL SHALL HAVE A MAXIMUM PARTICLE SIZE BETTER NOT GREATER THAN 30mm AND THE COMPACTION DEGREE (THE RATIO OF COMPACTED CUSHION THICKNESS TO FILLING THICKNESS) SHALL NOT BE GREATER THAN 0.9. THE BOUNDARY SHALL BE 500mm WIDER THAN THE BOUNDARY OF EQUIPMENT FOUNDATION.
6. METHODS OF ANTI-CORROSION CONSTRUCTION FOR SURFACES OF FOUNDATION:BELOW THE ELEVATION OF ±}0.0: EPOXY ASPHALT OR POLYURETHANE ASPHALT COATINGS,WITH THE THICKNESS OF ≥500µÊm.
7. METHODS OF ANTI-CORROSION CONSTRUCTION FOR FOUNDATION CUSHIONS:C20 CONCRETE MIXED WITH HIGH EFFICIENCY PRESERVATIVE; PARAMETER DETAILS ARE SUBJECT TO ACTUAL PREPARATION ON SITE.
8. STEEL PLATE IS Q345B EQUIVALENT BY ST-52 (fy=3400 fu=520).
9. NUT SHALL CONFORM TO ASTM A563 GRADE DH
10. WASHER MATERIAL SHALL CONFORM TO ASTM F436 TYPE "1" IN CASE BOLT DIAMETER IS LONGER THAN 38mm.WASHER MATERIAL SHALL CONFORM HEAVY HEX WASHER.
11. FOR ANCHOR BOLT Q345B IS EQUIVALENT BY("CK45" FY=> 355 mpa,ELONGATION => 18%)
12. FOR ANCHOR BOLT Q235B IS EQUIVALENT BY A II (ASTM A325)
13. ELEVATION ±}0.00 IS EQUIVALENT TO THE ABSOLUTE ELEVATION 398.2+ .A.S.L

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审核/审定 Approved				沥青贮存及沥青熔化	工程编号 Proj. No.	DG0505
				PITCH UNLOADING & PITCH STORAGE & MELTING FACILITY	设计阶段 Phase	竣工图 AD
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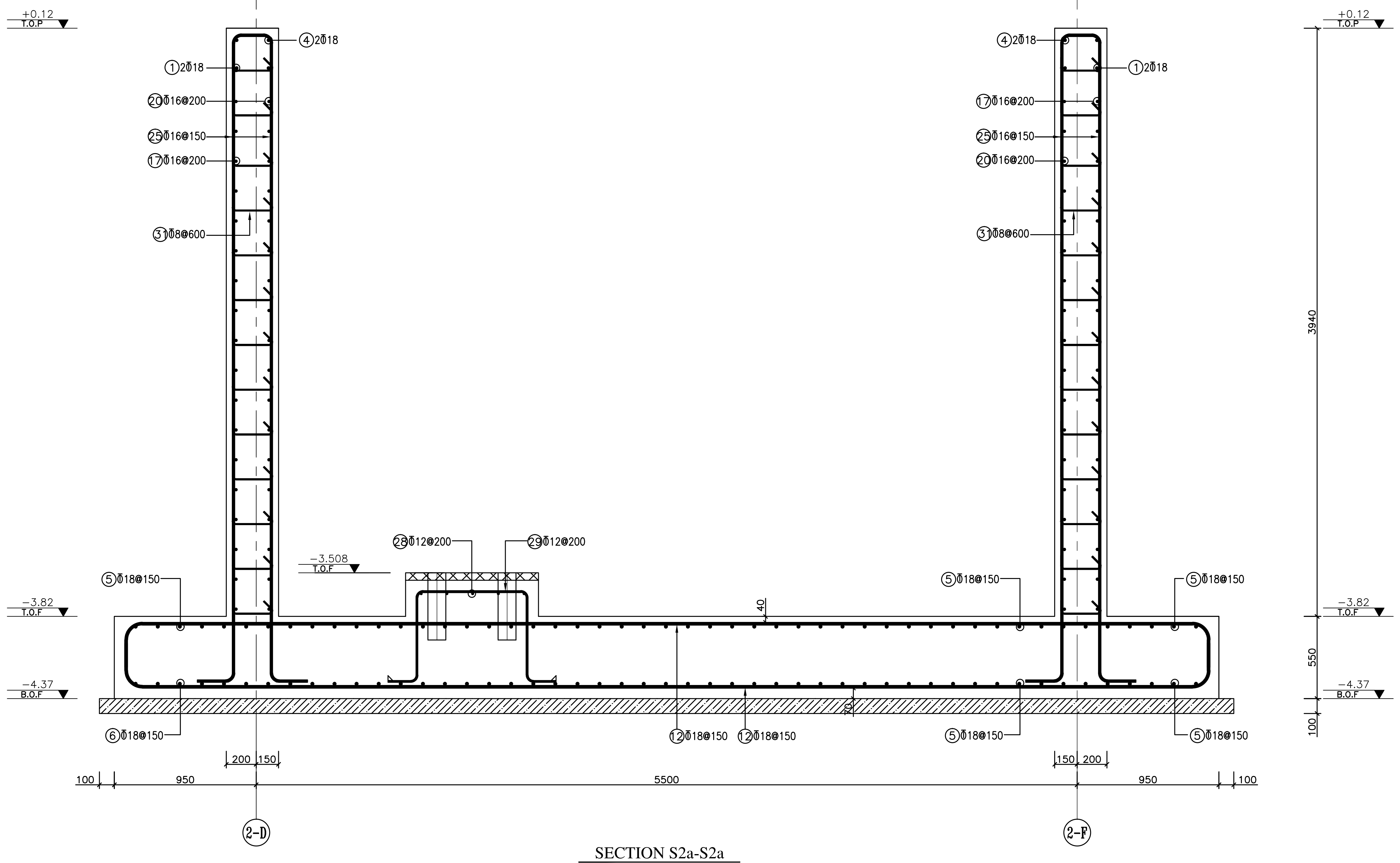
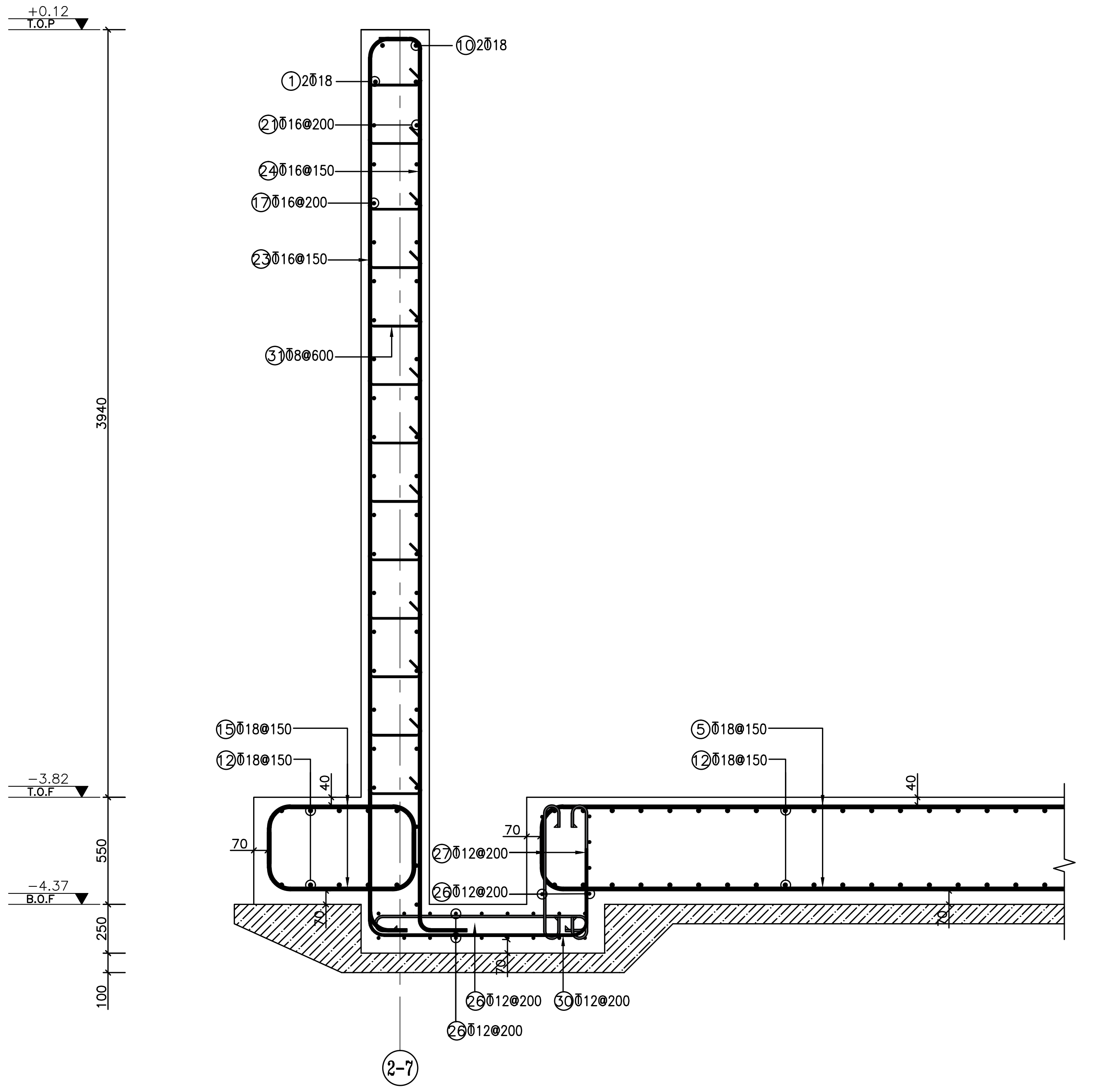
制　图 Drawn	张　影 ZHANG YING	张影	07/07-20	图　号 Dwg. No.　DG0505AD-DR-6011ST-0404 D1 Rev.	共 05 页 第 04 页 Page 04 of 05	



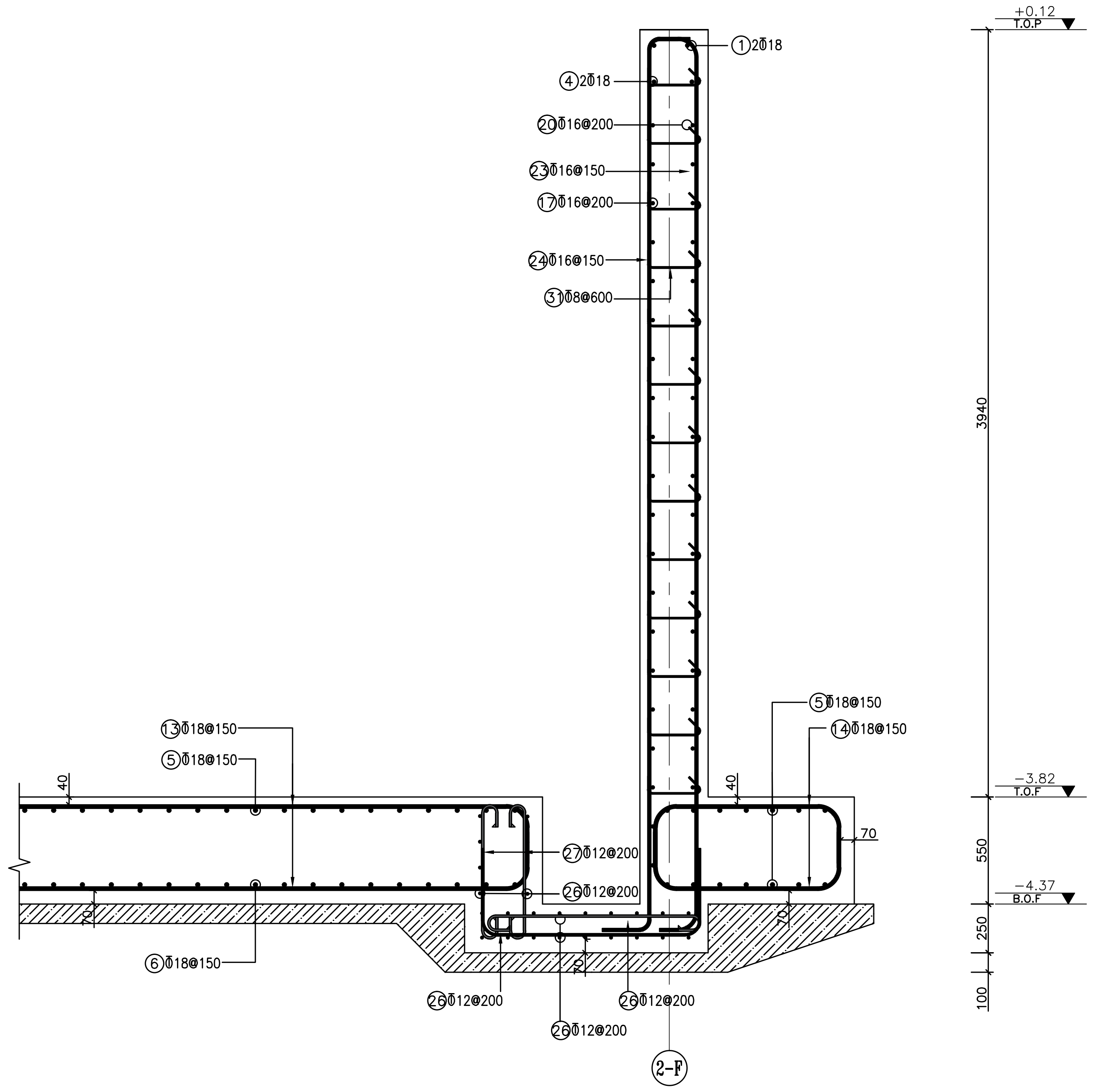
SECTION S2a-S2a

Scale : 1/25 REINFORCEMENT



SECTION S3-S3

Scale : 1/25 REINFORCEMENT



SECTION S4-S4

Scale : 1/25 REINFORCEMENT

POS.	Φ (mm)	SHAPE (mm)	LEN. (m)	NO.	SUBTOTAL (m)	Φ8	Φ10	Φ12	Φ14	Φ16	Φ18	Φ20	Φ22	Φ25	Φ28	Φ32	Φ36
						SUBTOTAL (m)											
1	18	8650 3350	12.00	4	48.00						48.00						
2	18	5650 3350	9.00	4	36.00						36.00						
3	18	100 8400 200	8.70	4	34.80						34.80						
4	18	100 5700 200	6.00	4	24.00						24.00						
5	18	11700 300	12.00	61	732.00						732.00						
6	18	8700 300	9.00	39	351.00						351.00						
7	18	6660 300	6.96	39	271.44						271.44						
8	18	3860 300	4.16	53	220.48						220.48						
9	18	2460 300	2.76	8	22.08						22.08						
10	18	100 5670 200	6.27	4	25.08						25.08						
11	18	5800 2300	10.40	4	41.60						41.60						
12	18	7260 300	7.86	188	1477.68						1477.68						
13	18	5660 300	6.26	8	50.08						50.08						
14	18	960 300	1.56	8	12.48						12.48						
15	18	760 300	1.36	8	10.88						10.88						
16	16	2300 2300	4.60	72	331.20					331.20							
17	16	8700 3300	12.00	36	432.00					432.00							
18	16	5500 3300	8.80	36	316.80					316.80							
19	16	100 8365 175	8.64	36	311.04					311.04							
20	16	100 5725 175	6.00	36	216.00					216.00							
21	16	100 5690 175	6.24	36	224.64					224.64							
22	16	5800 2300	10.40	36	374.40					374.40							
23	16	4590 250	5.09	9	45.81					45.81							
24	16	250 4590 250	5.09	9	45.81					45.81							
25	16	250 4340 250	4.84	508	2458.72					2458.72							
26	12	60 1040 135	1.43	34	48.62			48.62									
27	12	60 600 135	0.99	14	13.86			13.86									
28	12	610 1610 200	3.23	10	32.30			32.30									
29	12	610 750 200	2.37	18	42.66			42.66									
30	12	670 450	1.57	18	28.26			28.26									
31	8	100 270 100	0.47	884	415.48	415.48											
32	8	100 220 100	0.42	130	54.60	54.60											

	SUBTOTAL (m)											
	Φ8	Φ10	Φ12	Φ14	Φ16	Φ18	Φ20	Φ22	Φ25	Φ28	Φ32	Φ36
LENGTH ACCORDING TO DIAMETER (m)	470.08	0.00	165.70	0.00	4756.42	3357.60	0.00	0.00	0.00	0.00	0.00	0.00
WEIGHT OF BAR PER LENGTH (kg/m)	0.395	0.617	0.888	1.210	1.580	2.000	2.470	2.980	3.850	4.830	6.310	7.990
SUBTOTAL BY DIAMETER (kg)	185.68	0.00	147.14	0.00	7515.14	6715.20	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL (kg)	14563.17											

参考图纸/文献 Ref. Drawing/Document	
图纸/文献号 Drawing/Document No. PIT 2	名称 Title

版号 Rev.	日期 Date	说明 Description	制图 Drawn	校对 Checked	批准 Approved
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业主（Owner）：
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Iran South Aluminum Corporation

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设计单位（Engineering Institute）：
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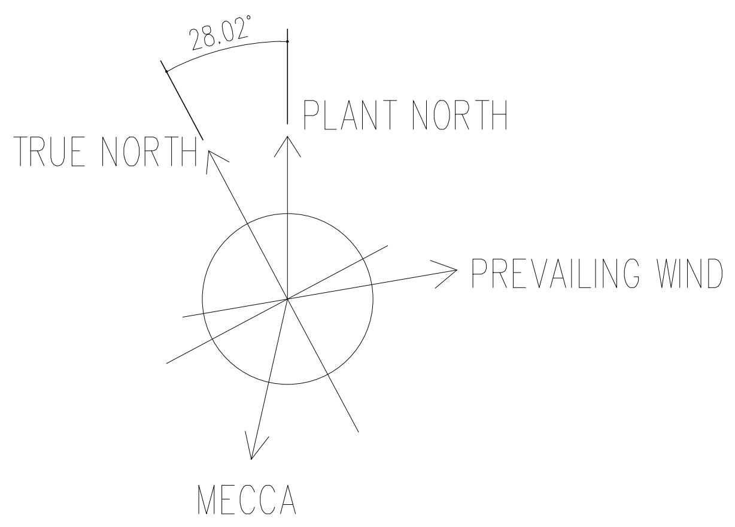
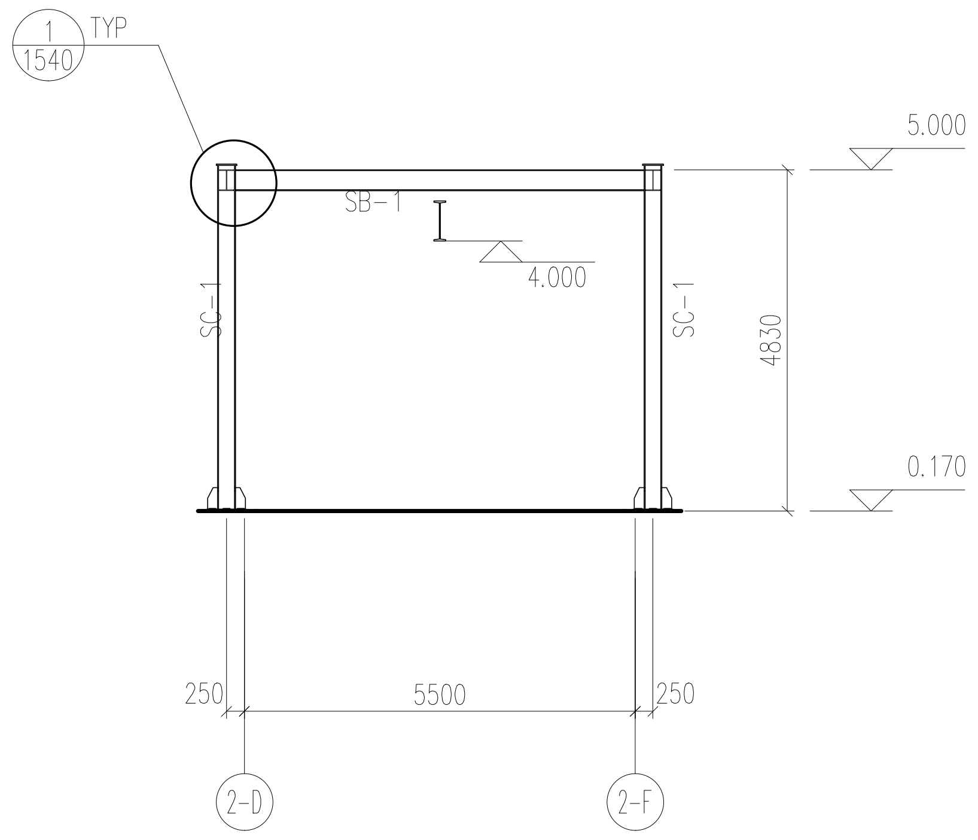
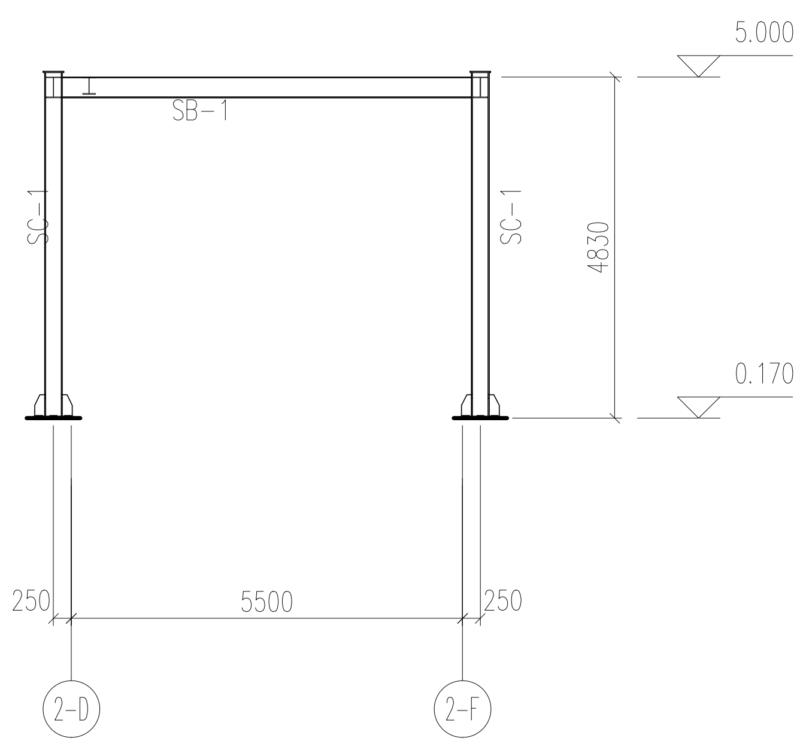
校对 Checked	陈英 CHEN YING	陈英	08/07-20	DETAIL(Ⅳ) OF EQUIPMENT FOUNDATIONS	图纸规格 Size	A1
制图 Drawn	张影 ZHANG YING	张影	07/07-20	图号 Dwg. No. DG0505AD-DR-6011ST-0404 D1 Rev.	共 05 页 第 05 页 Page 05 of 05	

批准
Approved
马翼鹏

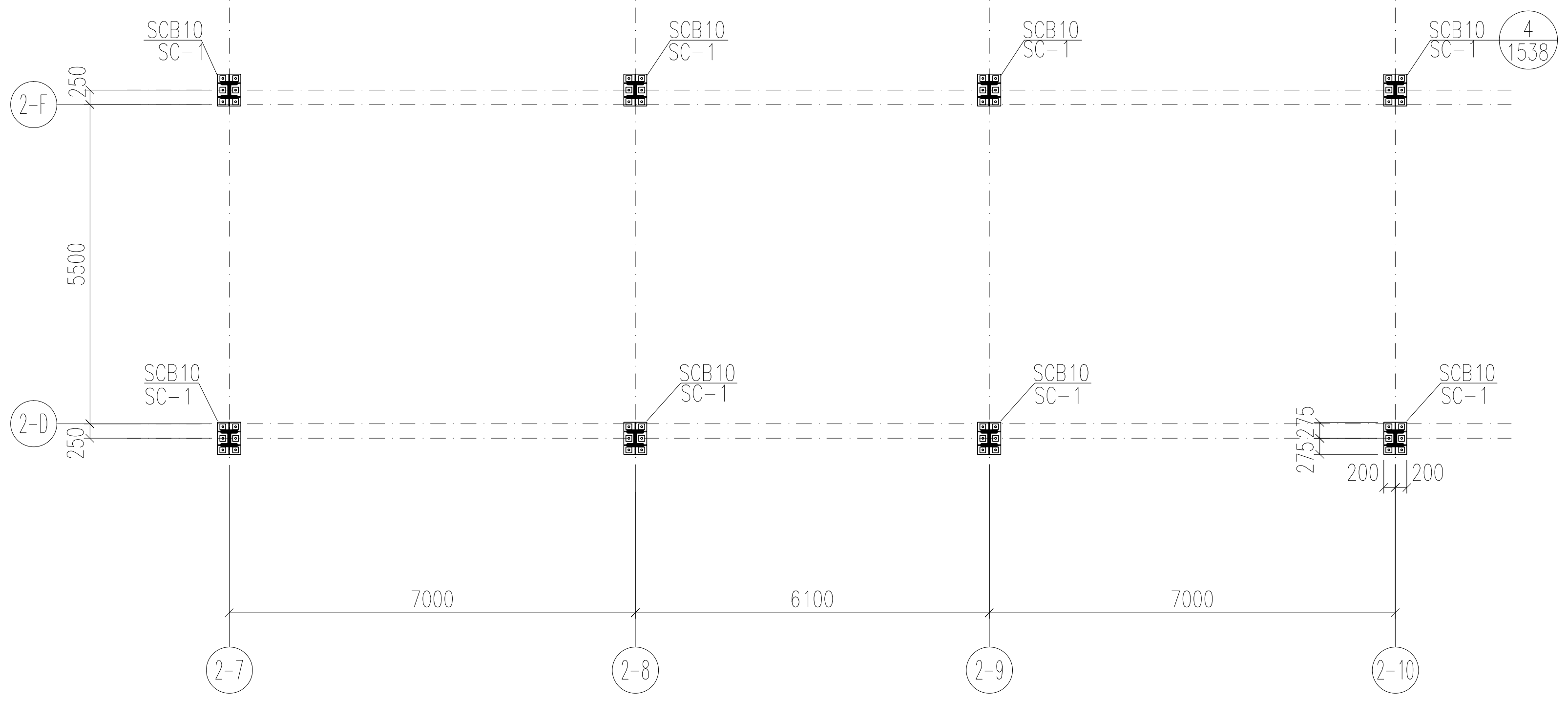




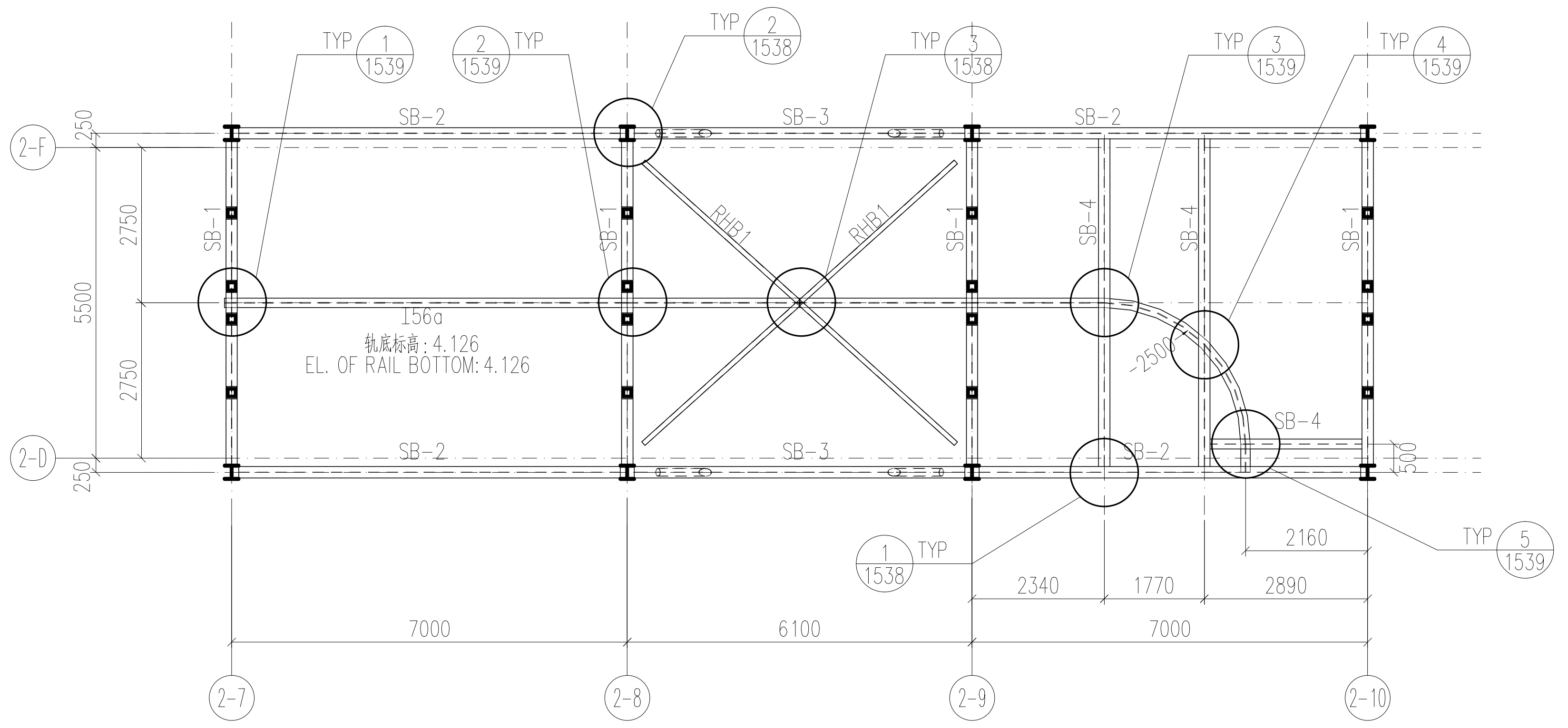
2-7.2-8.2-9 轴构件立面布置图
ELEVATION ON GRID 2-7/2-8/2-9 1:100



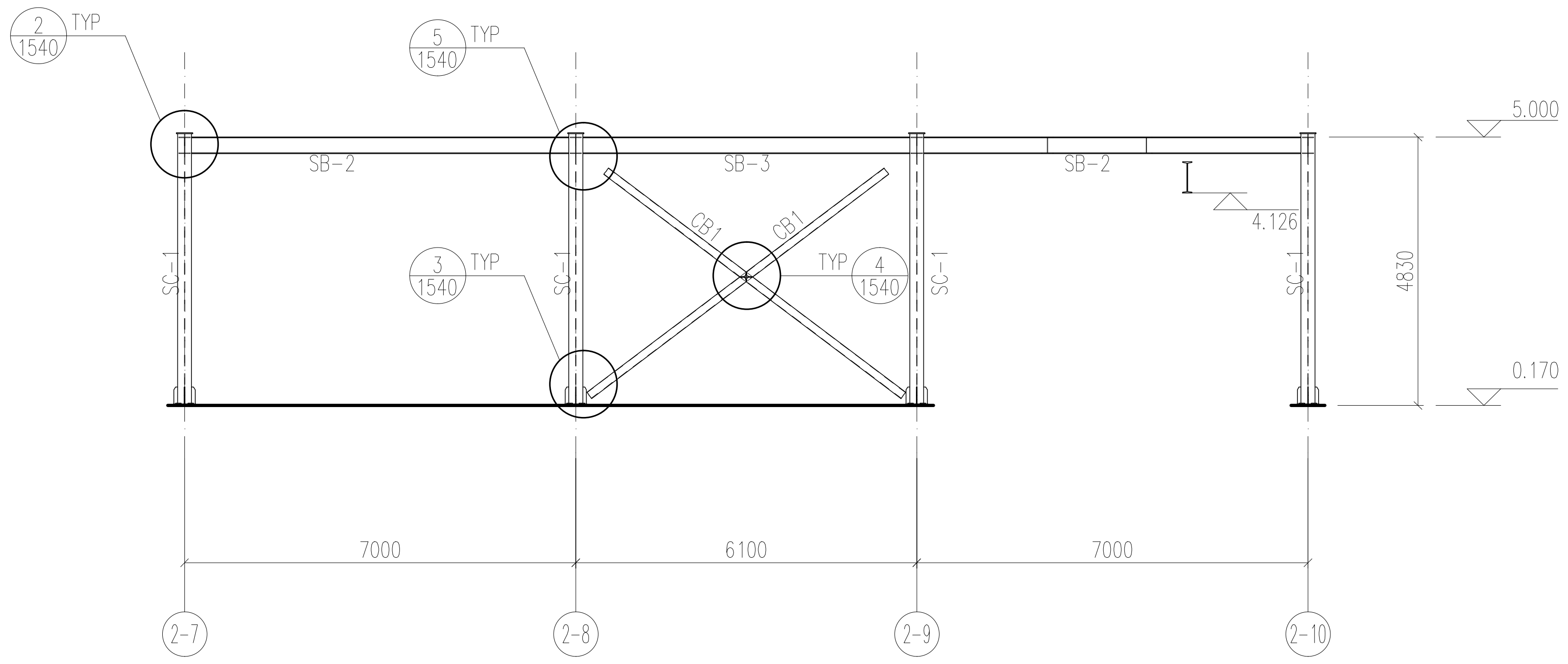
2-10 轴构件立面布置图
ELEVATION ON GRID 2-10 1:100



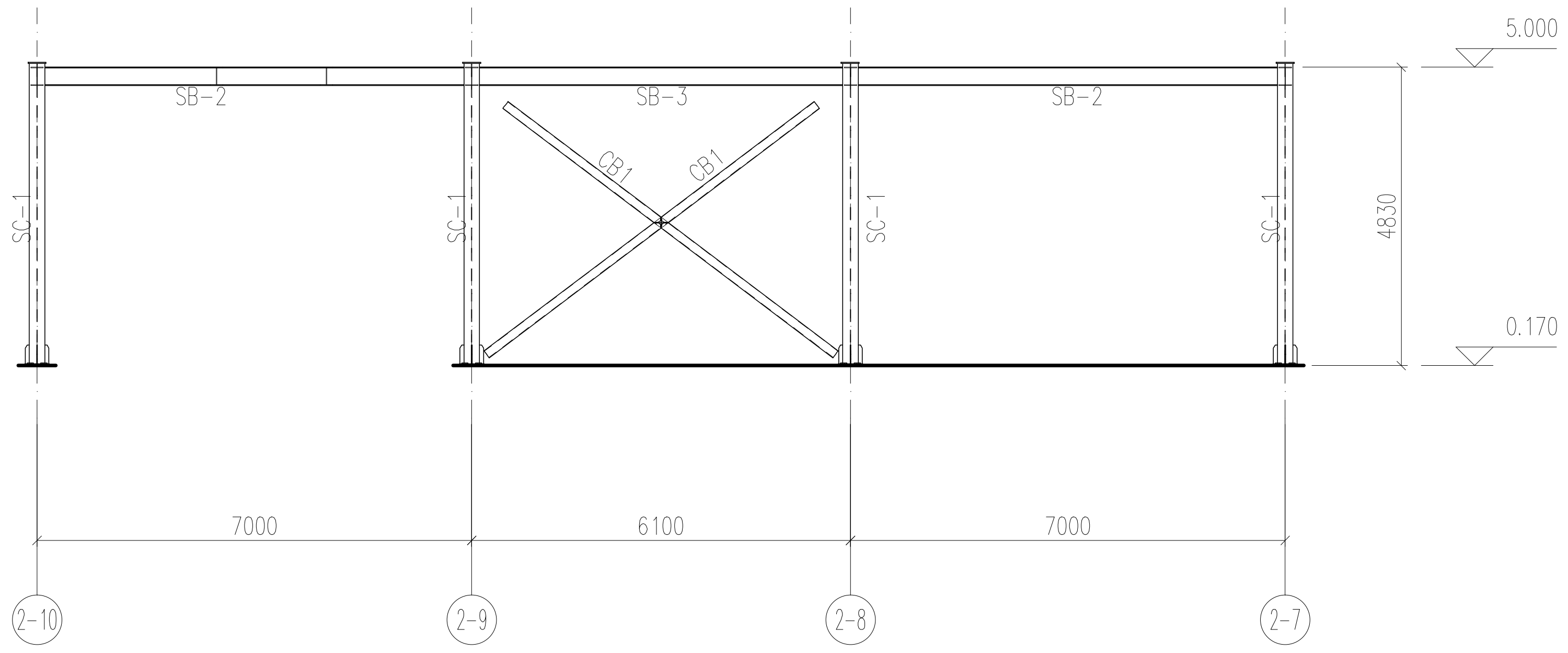
钢雨棚支架柱脚平面布置图
STEEL COLUMN BASE OF STEEL SHED SUPPORT 1:100



钢雨棚支架平面布置图
STEEL SHED SUPPORT LAYOUT 1:100



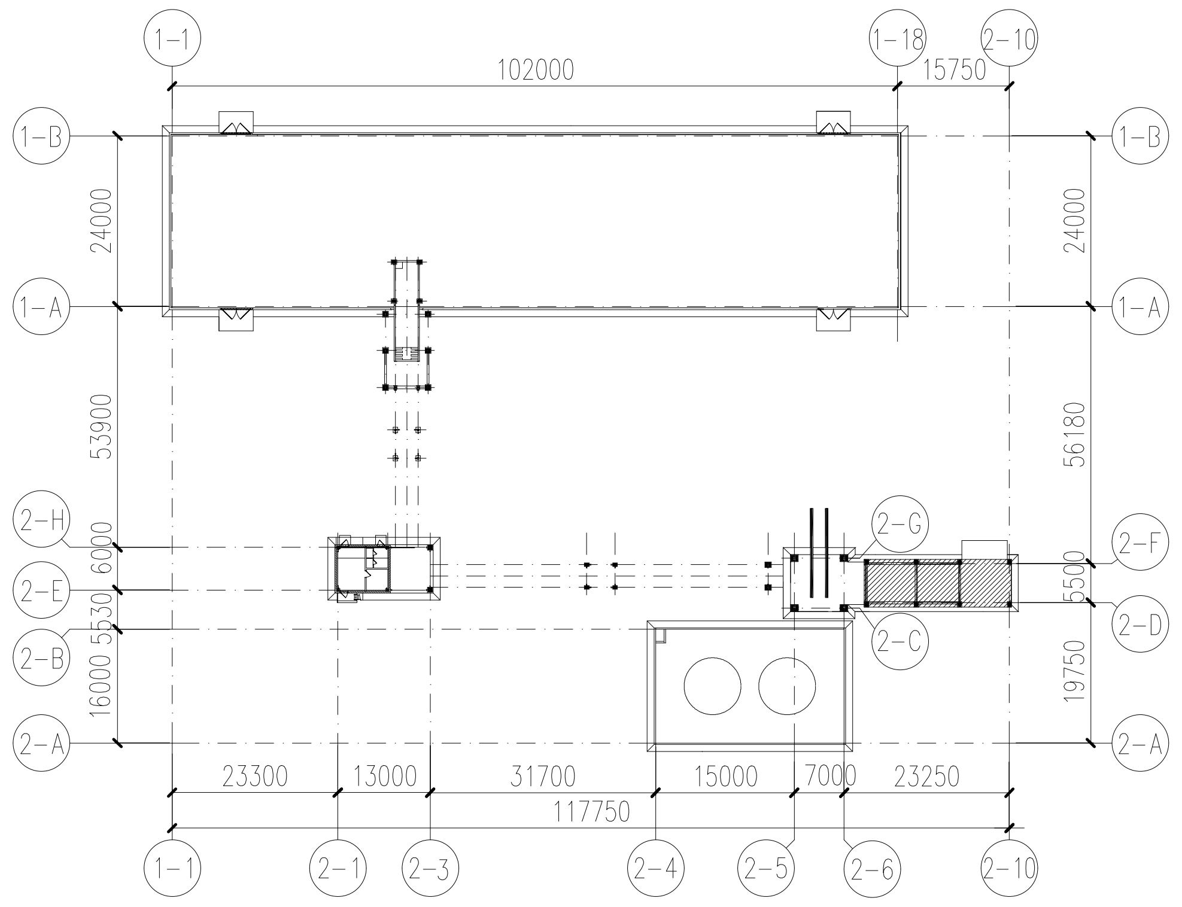
2-D 轴构件立面布置图
ELEVATION ON GRID 2-D 1:100



2-F 轴构件立面布置图
ELEVATION ON GRID 2-F 1:100

参考图纸/文献
Ref. Drawing/Documents

图纸/文献号 Drawing/Document No.	名称 Title
DG0505AD-DR-0000ST-0105~0108	GENERAL NOTES OF STEEL STRUCTURES



平面示意(KEY PLAN)

构件表
MEMBER LIST

序号 NO.	构件编号 MEMBER NO.	名称 MEMBER DESCRIPTION	规格及型号 SPECIFICATION	材料 GRADE	备注 REMARKS
1	SB-1	钢梁 STEEL BEAM	HM294X200X8X12	Q345B	
2	SB-2	钢梁 STEEL BEAM	HM294X200X8X12	Q345B	
3	SB-3	钢梁 STEEL BEAM	HM294X200X8X12	Q345B	
4	SB-4	钢梁 STEEL BEAM	HM294X200X8X12	Q345B	
5	SB-5	钢梁 STEEL BEAM	HM294X200X8X12	Q345B	
6	RAIL	轨道 RAIL	I56a	Q235B	
7	RHB1	屋盖水平支撑 ROOF HORIZONTAL BRACING	ø89X3.5	Q235B	电焊管 WELDED PIPE
8	SC-1	钢柱 STEEL COLUMN	HW250X250X9X14	Q345B	
9	CB1	柱间支撑 COLUMN BRACING	ø140X6.0	Q235B	电焊管 WELDED PIPE

版号 Rev.	日期 Date	说明 Description	制图 Drawn	校对 Checked	批准 Approved
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D1	10/07-20	AS BUILT			

业主(Owner):
伊朗南方铝业公司
Iran South Aluminum Corporation

总承包商 (EPC Contractor)
中国有色金属建设股份有限公司
China Nonferrous Metal Industry's Foreign Engineering And Construction Co., Ltd.

设计单位 (Engineering Institute):
東北大學 设计研究院(有限公司)
N.E.U Engineering & Research Institute Co., Ltd.

审核/审定 Approved			沥青贮存及沥青熔化 PITCH UNLOADING & PITCH STORAGE & MELTING FACILITY	工程编号 Proj. No.	DG0505
				设计阶段 Phase	竣工图 AD
	马翼鹏 MA YIPENG	09/07-20	钢雨棚支架布置图 STEEL SHED SUPPORT LAYOUT	专业 Specialty	结构 ST
校对 Checked	王涛 WANG TAO	08/07-20		图纸规格 Size	A1
制图 Drawn	孙晓明 SUN XIAOMING	07/07-20	图号 Dwg. No. DG0505AD-DR-6011ST-1421	D1 Rev.	共 01 页 第 01 页 Page 01 of 01

参考图纸/文献 Ref. Drawing/Document	
图纸/文献号 Drawing/Document No.	名称 Title

混凝土及砌体结构总说明(一)
GENERAL NOTES OF CONCRETE AND MASONRY STRUCTURES (Ⅰ)

1.概况 (GENERAL)

1.1 工程名称：伊朗南方铝厂电解铝项目

PROJECT NAME: ALUMINUM SMELTER PROJECT OF IRAN SOUTH ALUMINUM CORPORATION

1.2 建设地点：伊朗法尔斯省LAMARD郡北部

LOCATION: NORTH OF LAMARD, FARS PROVINCE, IRAN

1.3 图中±0.000为室内地面相对标高，其相应的绝对标高见总图。

THE ±0.000 IN THE DRAWING IS THE RELATIVE ELEVATION OF THE INDOOR FLOOR. REFER TO THE GENERAL LAYOUT FOR CORRESPONDING ABSOLUTE ELEVATION.

1.4 未注尺寸单位均为mm，标高为m。

UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS IN THE DRAWING ARE IN MILLIMETERS (mm), ELEVATIONS IN METERS (m).

2 主要设计依据 (MAIN DESIGN BASIS)

2.1 主体结构设计使用年限为50年。

THE DESIGN SERVICE LIFE OF MAIN STRUCTURES IS 50 YEARS.

2.2 自然条件

NATURAL CONDITIONS

2.2.1 基本雪压 (REFERENCE SNOW LOAD): 0.25kN/m²

2.2.2 地震作用 (SEISMIC EFFECT)

设计基本地震加速度 (DESIGN BASIC SEISMIC ACCELERATION)：0.31g；

场地土壤剖面类别 (SOIL PROFILE CATEGORY)： Ⅲ 。

2.2.3 年平均气温 (ANNUAL AVERAGE TEMPERATURE)：27.6℃;

最高温度 (MAX. TEMPERATURE)：49.8℃；

最低温度 (MIN. TEMPERATURE)：-2.8℃；

日最大降雨量 (MAX. DAILY RAINFALL)：87.6mm；

年最大降雨量 (MAX. ANNUAL RAINFALL)：309.3mm；

历年平均相对湿度 (AVERAGE ANNUAL RELATIVE HUMIDITY)：39.4%；

主导风向 (PREVAILING WIND)：西北风 (NORTHWEST WIND);

最大风速 (MAX. WIND SPEED)： V=37.5m/s；

年平均风速 (ANNUAL AVERAGE WIND SPEED)：V=4.45m/s；

2.3 主要荷载取值

MAIN LOAD DATAS

2.3.1 楼、屋面主要房间的恒荷载标准值如表2.3.1所示

CHARACTERISTIC VALUES OF MAIN FLOOR AND ROOF DEAD LOADS ARE SHOWN IN TABLE 2.3.1.

表2.3.1 (TABLE 2.3.1)

序号 NO.	房间及功能 ROOMS AND FUNCTION	标准值(kN/m²) CHARACTERISTIC VALUE(kN/m²)
1	不上人屋面(混凝土结构) UNMANNED ROOF(CONCRETE STRUCTURE)	4.0

注 (NOTES): 1)标准值含吊挂、吊顶、底板抹灰、板面装修等荷载，不含楼板自重；

1) THE CHARACTERISTIC VALUES INCLUDE THE LOADS OF HANGING, CEILING, SLAB PLASTERING, FLOOR FINISHING, ETC., EXCLUDING FLOOR DEAD WEIGHT.

2)结构构件自重由程序自动加载。

2) THE DEAD WEIGHT OF STRUCTURAL MEMBERS IS AUTOMATICALLY LOADED BY THE PROGRAM.

2.3.2 楼、屋面活荷载标准值如表2.3.2所示

CHARACTERISTIC VALUES OF FLOOR AND ROOF LIVE LOADS ARE SHOWN IN TABLE 2.3.2.

表2.3.2 (TABLE 2.3.2)

序号 NO.	房间及功能 ROOMS AND FUNCTION	标准值(kN/m²) CHARACTERISTIC VALUE(kN/m²)
1	不上人屋面(混凝土结构) UNMANNED ROOF(CONCRETE STRUCTURE)	0.96

注 (NOTES): 1) 楼梯、阳台和上人屋面等栏杆顶部水平荷载1.0kN/m

HORIZONTAL LOADS AT THE TOP OF RAILINGS FOR STAIRCASE, BALCONY, MANNED ROOF, ETC.: 1.0 kN/m

2.3.3 活荷载折减按ASCE7-05中第4.8条，4.9条执行。

LIVE LOAD REDUCTION SHALL BE IN COMPLIANCE WITH CLAUSES 4.8 AND 4.9 OF ASCE7-05.

2.3.4 填充墙荷载标准值如表2.3.3所示

CHARACTERISTIC VALUES OF FILLER WALL LOADS ARE SHOWN IN TABLE 2.3.3.

表2.3.4 (TABLE 2.3.4)

序号 NO.	砌体类别 MASONRY CATEGORY	墙厚 THK.	标准值 (kN/m²) CHARACTERISTIC VALUE (kN/m²)
1	烧结粘土砖 FIRED SOLID BRICK	250mm	6.00
		350mm	7.00
2	烧结空心砖 FIRED CORED BRICK	250mm	3.20
		350mm	4.08

注 (NOTES): 1)填充墙按双面粉刷20mm混合砂浆计算.

THE FILLER WALL CALCULATION IS BASED ON MIXED MORTAR PAINTING ON BOTH SIDES WITH THICKNESS OF 20mm .

2.4 工程地质及水文地质条件

ENGINEERING GEOLOGICAL AND HYDROGEOLOGICAL CONDITIONS

2.4.1 根据伊朗SES公司提供的岩土工程勘察报告(1347-EE-PEP-GEO-001-A、1347-EE-PEP-GEO-002)。

THE GEOTECHNICAL INVESTIGATION REPORT (1347-EE-PEP-GEO-001-A, 1347-EE-PEP-GEO-002)PROVIDED BY IRAN SOIL ENGINEERING SERVICES (SES).

表2.4.1 (TABLE 2.4.1)

起源 ORIGIN	土层名称 UNIT NAME	土层深度 DEPTH (m)	γ (kN/m³)	e_0	E (MPa)	OCR (-)
新冲击土 RECENT ALLUVIUM	第一层 UNIT Ⅰ	0 TO -5	20	-	45	2.5
	第二层 UNIT Ⅱ	-5 TO -15	20	0.680	28	1.5
	第三层 UNIT Ⅲ	-15 TO -25	20	0.677	40	1.0
	第四层 UNIT Ⅳ	-25 TO -50	20	0.685	60	1.0

表2.4.1续 (TABLE 2.4.1 CONTINUOUS)

土层名称 UNIT NAME	强度参数 STRENGTH PARAMETERS			压缩参数 COMPRESSION PARAMETERS		渗透性 PERMEABILITY
	φ DEGS	C' (kPa)	S_u (kPa)	$C_{c\varepsilon}$ (-)	$C_{s\varepsilon}$ (-)	K_y (cm/s)
第一层 UNIT Ⅰ	-	-	40	0.08	0.014	10^{-6}
第二层 UNIT Ⅱ	-	-	40	0.08	0.014	$4X10^{-7}$
第三层 UNIT Ⅲ	-	-	50	0.09	0.016	10^{-6}
第四层 UNIT Ⅳ	-	-	75	0.09	0.016	$5X10^{-7}$

第一层：(CL,CL/ML,CL/CH) 黏土；硬塑-坚硬，干，超固结，10到15厘米含有机物(例如：腐烂的植物和树木根系)。

第二层：(CL,CL/ML,CL/CH) 黏土；浅棕色，潮湿，可塑-硬塑，局部坚硬，超固结，局部轻微超固结，

第三层：(CL,CL/ML,CL/CH) 黏土；浅棕色，潮湿，可塑-硬塑，局部坚硬，低塑性。

第四层：(CL,CL/ML,CL/CH) 黏土；浅棕色，潮湿，硬塑-坚硬，局部可塑，低塑性。

UNIT Ⅰ：(CL,CL/ML,CL/CH) LEAN CLAY; VERY STIFF TO HARD CONSISTENCY, DRY, OVERCONSOLIDATED, ORGANICS (E.G. DECOMPOSED PLANTS AND TREE ROOTS) FOR 10 TO 15cm.

UNIT Ⅱ：(CL,CL/ML,CL/CH) LEAN CLAY; OCCASIONALLY ML MEDIUM STIFF TO STIFF TO VERY STIFF CONSISTENCY , LIGHT BROWN , MOIST , LOW PLASTICITY , OVERCONSOLIDATED TO SLIGHTLY OVERCONSOLIDATED.

UNIT Ⅲ：(CL,CL/ML,CL/CH) LEAN CLAY; OCCASIONALLY ML STIFF , VERY STIFF TO HARD , CONSISTENCY . LIGHT BROWN , MOIST , LOW PLASTICITY.

UNIT Ⅳ：(CL,CL/ML,CL/CH) LEAN CLAY; OCCASIONALLY ML HARD CONSISTENCY . LIGHT BROWN , MOIST , LOW PLASTICITY.

2.4.2 标准冻深 (STANDARD FROST PENETRATION)： 0m

2.4.3 场地内地下水稳定水位埋深为3m

THE STABLE GROUNDWATER LEVEL ON THE SITE IS 3m BELOW GROUND

2.4.4 土壤腐蚀性 (SOIL CORROSIVITY)

电阻率测试的结果(附件)得出：地下约6米深度的电阻率大概不到100 Ohm-m，属于相对腐蚀的范围。

地下低于6米深度电阻率约为 200-500 Ohm-m，属于弱腐蚀性。

RESULTS OF ELECTRICAL RESISTIVITY TESTS (ENCLOSURE M) CAN BE CONCLUDED THAT:

RESISTIVITY OF GROUND TO ABOUT 6m DEPTH IS ROUGHLY LESS THAN 100 OHM-M, WHICH IS IN THE RANGE OF RELATIVELY CORROSIVE.

RESISTIVITY BELOW 6m DEPTH IS ABOUT 200-500 OHM-M ON AVERAGE WHICH IS LESS CORROSIVE.

2.5 政府有关主管部门对初步设计的审查批复文件

THE APPROVAL DOCUMENTS FOR THE PRELIMINARY DESIGN FROM RELEVANT GOVERNMENT AUTHORITIES.

2.6 设计参考标准、规范如表2.6所示

THE STANDARDS OR CODES FOR THE DESIGN ARE SHOWN IN TABLE 2.6.

表2.6 (TABLE 2.6)

序号 NO.	名称 CODE NAME	标准号 CODE NO.
1	《伊朗建筑抗震设计规范》 "IRAN CODE FOR SEISMIC DESIGN OF BUILDING"	NO. 2800-IV
2	《伊朗建筑结构荷载规范》 "LOAD CODE FOR THE DESIGN OF BUILDING STRUCTURES OF IRAN"	INBC CHAPTER 6
3	《国际建筑规范》 "INTERNATIONAL BUILDING CODE"	IBC 2009
4	《美国钢结构建筑技术规范》 "SPECIFICATION FOR STRUCTURAL STEEL BUILDING"	AISC 360-05
5	《建筑工程抗震设防分类标准》 "STANDARD FOR CLASSIFICATION OF SEISMIC PROTECTION OF BUILDING CONSTRUCTION"	GB 50223-2008
6	《钢结构建筑抗震规定》 "SEISMIC PROVISIONS FOR STRUCTURAL STEEL BUILDINGS"	ANSI/AISC-341-05
7	《美国建筑荷载规范》 "MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES"	ASCE 7-05
8	《美国混凝土结构建筑规范和注释》 "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE AND COMMENTARY"	ACI 318-05
9	《伊朗砌体结构设计及施工规范》 "DESIGN & CONSTRUCTION OF MASONRY BUILDINGS"	INBC, CHAPTER 8
10	《地下工程防水技术规程》 "TECHNICAL CODE FOR WATERPROOFING OF UNDERGROUND WORKS"	GB 50108-2008
11	《建筑地基处理技术规范》 "TECHNICAL CODE FOR GROUND TREATMENT OF BUILDINGS"	JGJ 79-2012
12	《有色金属设计防火规范》(仅用于中国施工队) "CODE FOR DESIGN ON FIRE PREVENTION OF NONFERROUS METALS ENGINEERING" (ONLY FOR CHINESE CONTRACTOR)	GB 50630-2010
13	《伊朗防火规范》(仅用于伊朗施工队) "FIRE PROTECTION OF BUILDING"(ONLY FOR IRANIAN CONTRACTOR)	INBC, CHAPTER 3
14	《岩土工程勘察设计规范》 "CODE FOR INVESTIGATION OF GEOTECHNICAL ENGINEERING"	GB 50021-2001
15	《工业建筑防腐蚀设计规范》 "CODE FOR ANTICORROSION DESIGN OF INDUSTRIAL CONSTRUCTION"	GB 50046-2008
16	《结构用混凝土规格》 "SPECIFICATION FOR STRUCTURAL CONCRETE"	ACI 301M-99
17	《混凝土测量、混合、运输和浇灌指南》 "GUIDE FOR MEASURING, MIXING, TRANSPORTING, AND PLACING CONCRETE"	ACI 304R-00
18	《混凝土结构裂缝控制》 "CONTRAL OF CRACKING IN CONCRETE STRUCTURES"	ACI 224R-01

3 建筑结构分类等级 (CLASSIFICATION OF BUILDING STRUCTURES)

3.1 建筑分类等级如表3.1所示

THE CLASSIFICATION OF BUILDINGS IS SHOWN IN TABLE 3.1.

表3.1 (TABLE 3.1)

序号 NO.	名称 NAME	等级 GRADE	执行的国家标准规范 CODES AND STANDARDS
1	建筑结构安全等级 SAFETY GRADE OF BUILDING STRUCTURE	二 级 GRADE II	《建筑结构可靠度设计统一标准》GB 50068 UNIFIED STANDARD FOR RELIABILITY DESIGN OF BUILDING STRUCTURES (GB 50068)
2	地基基础设计等级 DESIGN GRADE OF BUILDING FOUNDATION	丙 级 GRADE C	《美国混凝土结构建筑规范和注释》(ACI 318-05) BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE AND COMMENTARY (ACI 318-05)
3	建筑抗震设防类别 SEISMIC FORTIFICATION OF BUILDING	中等重要建筑(第三类) MEDIUM IMPORTANT BUILDING (CATEGORY 3)	《伊朗建筑抗震设计规范》NO. 2800-IV CODE FOR SEISMIC DESIGN OF BUILDINGS OF IRAN NO. 2800-IV
4	混凝土构件的环境类别 ENVIRONMENTAL CATEGORY OF CONCRETE MEMBERS	室内环境：一般 INDOOR ENVIRONMENT: AVERAGE/Ⅰ	INBC CHAPTER 9
		卫生间：强 INTENSE/Ⅱ	
		室外裸露环境：强 OUTDOOR EXPOSED ENVIRONMENT: INTENSE/Ⅱ	
		地下环境：极强 UNDERGROUND ENVIRONMENT: EXTREMELY INTENSE	

4 设计计算软件 (DESIGN AND ANALYSIS SOFTWARE)

4.1 结构计算：《CSI SAP2000》(VER. 16.1.0)；

STRUCTURAL CALCULATION: CSI SAP2000 (VER. 16.1.0)

5 主要结构材料选型及技术要求

SELECTION OF MAIN STRUCTURAL MATERIALS AND TECHNICAL SPECIFICATION

5.1 混凝土强度等级基本要求如表5.1所示

BASIC REQUIREMENTS ON CONCRETE STRENGTH GRADE ARE SHOWN IN TABLE 5.1.

表5.1 (TABLE 5.1)

序号 NO.	结构部位 STRUCTURAL MEMBER	混凝土强度等级 CONCRETE STRENGTH GRADE	f_{cu} (MPa)	f'_c (MPa)
1	基础底板垫层 CUSHION OF FOUNDATION,BOTTOM SLAB	C20	20	16
2	基础，地基梁，地面以下柱 FOUNDATION, FOUNDATION BEAM, COLUMN UNDER THE GROUND	C40	40	35
3	地面以上柱 COLUMN ABOVE THE GROUND	C30 (C35)	30 (35)	25 (30)
4	框架梁、次梁、楼板 FRAME BEAM , SECONDARY BEAM , SLAB	C30 (C35)	30 (35)	25 (30)
5	构造柱、圈梁 STRUCTURAL COLUMN, RING BEAM	C30	30	25

注 (NOTES):

1) f_{cu}--混凝土立方体抗压强度标准值；CHARACTERISTIC VALUE OF COMPRESSIVE STRENGTH OF 150mm SIDE LENGTH CONCRETE CUBE;

2) f'_c--混凝土圆柱体抗压强度标准值；SPECIFIED COMPRESSIVE STRENGTH OF CYLINDER CONCRETE (ø150X300mm)

3) 括号中数值仅用于电解车间子项； FIGURES IN BRACKETS ONLY FOR POTROOM.

业主 (Owner)：
伊朗南方铝业公司
Iran South Aluminum Corporation

总承包商 (EPC Contractor)：
中国有色金属建设股份有限公司
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设计单位 (Engineering Institute)：
東北大學 设计研究院(有限公司)
N.E.U Engineering & Research Institute Co., Ltd.

版号 Rev.	日期 Date	说明 Description	制图 Drawn	校对 Checked	批准 Approved
B4	2016.10.20	第四次提交，用于批准 ISSUED FOR APPROVAL	赵金阳 ZHAO JINYANG	穆春龙 MU CHUNLONG	马翼鹏 MA YIPENG
B3	2016.09.28	第三次提交，用于批准 ISSUED FOR APPROVAL	赵金阳 ZHAO JINYANG	穆春龙 MU CHUNLONG	马翼鹏 MA YIPENG
B2	2016.09.03	第二次提交，用于批准 ISSUED FOR APPROVAL	赵金阳 ZHAO JINYANG	穆春龙 MU CHUNLONG	马翼鹏 MA YIPENG
B1	2016.07.22	第一次提交，用于批准 ISSUED FOR APPROVAL	赵金阳 ZHAO JINYANG	穆春龙 MU CHUNLONG	马翼鹏 MA YIPENG

审核/审定 Approved	马翼鹏 MA YIPENG
校对 Checked	穆春龙 MU CHUNLONG
制图 Drawn	赵金阳 ZHAO JINYANG

结构设计总说明 GENERAL NOTES OF STRUCTURES		工程编号 Proj. No.	DG0505
		设计阶段 Phase	基本设计 BE
混凝土及砌体结构设计总说明(一) GENERAL NOTES OF CONCRETE AND MASONRY STRUCTURES (Ⅰ)		专业 Specialty	结构 ST
		图纸比例 Scale	
图号 Dwg. No.	DG0505BE-DR-0000ST-0102 B4 Rev.	图纸规格 Size	A1

参考图纸/文献 Ref. Drawing/Document	
图纸/文献号 Drawing/Document No.	名称 Title

混凝土及砌体结构总说明(二)

GENERAL NOTES OF CONCRETE AND MASONRY STRUCTURES (Ⅱ)

混凝土抗压强度标准值保证率≥95%。

THE GUARANTEE RATE OF CONCRETE COMPRESSIVE STRENGTH CHARACTERISTIC VALUE SHALL NOT BE LESS THAN 95%.

5.2 混凝土耐久性 (CONCRETE DURABILITY)

5.2.1 结构混凝土耐久性的基本要求如表5.2.1所示

THE BASIC REQUIREMENTS FOR STRUCTURE CONCRETE DURABILITY ARE SHOWN IN TABLE 5.2.1.

表5.2.1 (TABLE 5.2.1)

序号 NO.	环境类别 ENVIRONMENTAL CATEGORY	最大水胶比 MAX. W/CM RATIO	最大氯离子含量 MAX. CHLORION CONTENT (%)	最大含碱量 MAX. ALKALI CONTENT (kg/m^3)
1	一般 AVERAGE/Ⅰ	0.40	0.30	--
2	强 INTENSE/Ⅱ	0.40	0.20	3.0
3	强 INTENSE/Ⅱ	0.40	0.15	3.0
4	极强 EXTREMELY INTENSE	0.40	0.10	3.0

注 (NOTES):

1）氯离子含量指其占胶凝材料总量的百分比；

CHLORINE ION CONTENT REFERS TO ITS PERCENTAGE IN TOTAL CEMENTING AMOUNT;

2）当使用非碱活性骨料时，对混凝土中的碱含量可不作限制。

WHEN NON-ALKALI REACTIVE AGGREGATES ARE APPLIED, THERE CAN BE NO LIMITATION FOR THE ALKALI CONTENT IN THE CONCRETE.

5.2.2 基础垫层防腐蚀做法：C20混凝土内掺高效防腐剂、具体参量应以现场实际配制为准。

METHODS OF ANTI-CORROSION CONSTRUCTION FOR FOUNDATION CUSHIONS: C20 CONCRETE MIXED WITH HIGH EFFICIENCY PRESERVATIVE; PARAMETER DETAILS ARE SUBJECT TO ACTUAL PREPARATION ON SITE.

5.2.3 基础及地坑、水池标高±0.0以下部分表面防腐蚀做法：环氧沥青或聚氨酯沥青涂层，厚度≥500μm

METHODS OF ANTI-CORROSION CONSTRUCTION FOR SURFACES OF FOUNDATIONS, PITS AND WATER PONDS BELOW THE ELEVATION OF ±0.0: EPOXY ASPHALT OR POLYURETHANE ASPHALT COATINGS, WITH THE THICKNESS OF ⩾500μm.

5.2.4 基础梁表面防腐蚀做法：环氧沥青或聚氨酯沥青贴玻璃布，厚度≥1mm

METHODS OF ANTI-CORROSION CONSTRUCTION FOR SURFACES OF FOUNDATION BEAMS: EPOXY ASPHALT OR POLYURETHANE ASPHALT GLASS FIBRE CLOTH, WITH THE THICKNESS OF ⩾1mm.

5.3 砌体、砂浆、砌体结构施工质量控制等级

MASONRY, MORTAR AND CONSTRUCTION QUALITY CONTROL GRADE OF MASONRY STRUCTURES.

5.3.1砌体材料：非承重墙厂房标高+0.000~1.200、钢筋砼框架结构填充墙标高+0.000以上采用MU5烧结空心砖，砖容重为8.8kN/m³，M7.5混合砂浆砌筑。所有墙体标高+0.000以下采用MU15粘土砖，M10水泥砂浆砌筑。

MASONRY MATERIAL: MU5 FIRED HOLLOW BRICKS AND M7.5 COMPOSITE MORTAR ARE USED FOR CONSTRUCTION OF NON-BEARING WALLS OF WORKSHOP BUILDINGS AT THE ELEVATION FROM +0.000 TO 1.200, AND FILLER WALLS OF REINFORCED CONCRETE FRAME STRUCTURES OVER EL.+0.000. BRICK BULK DENSITY IS 8.8KN/M³. MU15 CLAY BRICKS AND M10 CEMENT MORTAR ARE USED FOR CONSTRUCTION OF ALL WALLS UNDER EL. +0.000.

5.3.2 砌体及砂浆强度等级见表5.3.2-1和5.3.2-2

THE STRENGTH GRADES OF MASONRY AND MORTAR ARE SHOWN IN TABLES 5.3.3-1 AND 5.3.3-2.

表5.3.2-1: 砌块强度等级

TABLE 5.3.2-1: STRENGTH GRADE OF MASONRY

序号 NO.	砌块强度等级 STRENGTH GRADE OF MASONRY	抗压强度平均值 $\bar{f}$ (MPa) AVERAGE VALUE OF COMPRESSIVE STRENGTH	抗压强度标准值 f_k (MPa) CHARACTERISTIC VALUE OF COMPRESSIVE STRENGTH
1	MU15	15	10
2	MU5	5.0	3.5

表5.3.2-2: 砂浆强度等级

TABLE 5.3.2-2: STRENGTH GRADE OF MORTAR

序号 NO.	砂浆强度等级 STRENGTH GRADE OF MORTAR	立方体抗压强度 f_{cu} (MPa) CUBE COMPRESSIVE STRENGTH	备 注 REMARKS
1	M10	10	立方体尺寸：70.7mmx70.7mmx70.7mm 标准养护龄期28天 CUBE SIZE: 70.7mmx70.7mmx70.7mm CURED FOR A PERIOD OF 28 DAYS UNDER STANDARD CONDITIONS
2	M7.5	7.5	

5.3.3 砌体结构施工质量控制等级为B级。

CONSTRUCTION QUALITY CONTROL GRADE OF MASONRY STRUCTURES IS CLASS B.

5.4 钢筋 (REINFORCEMENT)

5.4.1 所有钢筋混凝土用钢应符合或高于 INBC 的要求，其主要性能指标如表5.4.1所示

ALL REINFORCEMENT FOR REINFORCED CONCRETE SHALL MEET OR EXCEED THE REQUIREMENTS OF "INBC" ITS MAIN PERFORMANCE INDICES ARE SHOWN IN TABLE 5.4.1.

表5.4.1 (TABLE 5.4.1)

序号 NO.	种类 TYPE	符号 SYMBOL	f_{yk} (N/mm?)	最小撕裂强度 MIN. TEARING RESISTANCE(MPa)	撕裂时相对伸长率 RELATIVE ELONGATION WHILE TEARING(%)
1	S220(A-Ⅰ)	Φ	220	340	22
1	S300(A-Ⅱ)	Φ	300	500	19
2	S400(A-Ⅲ)	Φ	400	600 B3	14

注 (NOTES):

1）f_{yk} ——普通钢筋屈服强度标准值

CHARACTERISTIC VALUE OF YIELD STRENGTH OF ORDINARY REINFORCEMENT

2）如无特殊说明，本工程所有钢筋均为S400级钢筋。

UNLESS OTHERWISE SPECIFIED,ALL THE REINFORCEMENT OF THIS PROJECT ARE S400。

5.4.2 吊钩、吊环采用S400(A-Ⅲ)级钢筋，不得采用冷加工钢筋。

HOOKS AND RINGS SHALL BE MADE OF S400(A-Ⅲ) REINFORCING BARS, AND SHALL NOT BE MADE OF COLD WORKING REINFORCING BARS.

5.4.3 钢筋的强度标准值保证率≥95%。

THE GUARANTEE RATE FOR THE CHARACTERISTIC VALUE OF REINFORCEMENT STRENGTH SHALL NOT BE LESS THAN 95%.

6 基础及地下室工程 (FOUNDATION AND BASEMENT ENGINEERING)

6.1 开挖基槽时，不应扰动土的原状结构，如经扰动，应挖除扰动部分，换填砂石材料（比例为6:4），并分层夯实，压实系数≥0.97。

THE ORIGINAL SOIL STRUCTURE SHALL NOT BE DISTURBED DURING THE EXCAVATION OF FOUNDATION TRENCH. IF DISTURBED, THE DISTURBED PART SHALL BE REMOVED, BACKFILLED WITH GRAVEL (RATIO OF 6:4), AND COMPACTED IN LAYERS, WITH THE COMPACTION COEFFICIENT NOT LESS THAN 0.97.

6.2 机械挖土时应按有关规范要求进行，坑底应保留200mm厚的土层用人工开挖。

MECHANIZED EXCAVATION SHALL BE IN COMPLIANCE WITH RELEVANT CODES AND THE 200mm THICK SOIL AT THE PIT BOTTOM SHALL BE MANUALLY EXCAVATED.

6.3 开挖基坑时应注意边坡稳定，定期观测其对周围道路市政设施和建筑物的不利影响，非自然放坡开挖时，基坑护壁应做专门设计。基坑土方开挖应严格按照设计要求进行，不得超挖，基坑周边堆载不得超过基坑支护设计规定，土方开挖完成后应立即施工垫层，对基坑进行封闭，防止水浸和暴露，并应及时进行地下结构施工。

DURING EXCAVATION OF THE FOUNDATION PIT, ATTENTION SHALL BE PAID TO SIDE SLOPE STABILITY AND REGULAR OBSERVATION SHALL BE PERFORMED SO AS TO CHECK THE ADVERSE EFFECT ON SURROUNDING MUNICIPAL FACILITIES AND EXISTING BUILDINGS. SPECIAL DESIGN SHALL BE PROVIDED FOR PROTECTION WALL OF FOUNDATION PIT IF UNNATURAL SLOPE IS EXCAVATED. THE EARTH EXCAVATION OF FOUNDATION PIT SHOULD BE CARRIED OUT IN STRICT ACCORDANCE WITH THE REQUIREMENTS OF DESIGN. OVER-EXCAVATION IS PROHIBITED. THE SURCHARGE LOAD AROUND THE FOUNDATION PIT SHALL NOT EXCEED THE REQUIREMENT OF THE FOUNDATION PIT SUPPORT. WHEN THE EARTH EXCAVATION IS COMPLETED, THE CUSHION SHALL BE LAID IMMEDIATELY AND THE FOUNDATION PIT SHALL BE ENCLOSED TO PREVENT FROM WATER LOGGING AND EXPOSURE. MEANWHILE, THE CONSTRUCTION OF UNDERGROUND STRUCTURES SHALL BE CARRIED OUT WITHOUT DELAY.

B3 6.4 基础施工完成后，应进行回填。基坑回填土及底面、散水、踏步等基础之下的回填土，须进行分层夯实，每层厚度≤150mm，压实系数≥0.94。

WHEN THE FOUNDATION CONSTRUCTION IS COMPLETED, BACKFILLING WORK SHALL BE PERFORMED. THE FOUNDATION PIT BACKFILL AND OTHER BACKFILL UNDER THE FOUNDATION OF BOTTOM SURFACE, APRON, STEP, ETC. SHALL BE COMPACTED IN LAYERS, WITH THE THICKNESS OF EACH LAYER NOT GREATER THAN 150mm, B3 AND WITH THE COMPACTION FACTOR NOT LESS THAN 0.94.

6.5 基础大体积混凝土施工应合理选择混凝土配合比，选择水化热低的水泥、掺入适当的粉煤灰和外加剂、控制水泥用量，并做好养护和测温工作。混凝土中心与外表温度的差值≤25℃，表面与大气温度的差值≤20℃，温度陡降（升）不应超过10℃，养护时间≥14D。

DURING MASS FOUNDATION CONCRETE CONSTRUCTION, CONCRETE MIX PROPORTION SHOULD BE REASONABLY CHOSEN. LOW HYDRATION HEAT CEMENT SHALL BE USED,MIXED WITH PROPER AMOUNT OF FLY ASH AND ADMIXTURE, WITH CEMENT AMOUNT REASONABLY CONTROLLED AND CURING AND TEMPERATURE MEASUREMENT PROVIDED.THE TEMPERATURE DIFFERENCE BETWEEN THE CENTER AND EXTERIOR SURFACE OF THE CONCRETE SHALL NOT BE GREATER THAN 25℃. THE TEMPERATURE DIFFERENCE BETWEEN THE EXTERIOR SURFACE OF THE CONCRETE AND THE ATMOSPHERE SHALLNOT BE GREATER THAN 20℃. BESIDES, ABRUPT TEMPERATURE DROP (RISE) SHALL NOT EXCEED 10℃;CURING TIME SHALL BE NOT LESS THAN 14 DAYS.

7 构造要求 (STRUCTURAL REQUIREMENT)

7.1 混凝土构件的环境类别和最外层钢筋的保护层最小厚度如表7.1所示

THE ENVIRONMENTAL CATEGORIES AND MINIMUM THICKNESS OF REINFORCEMENT COVER OF CONCRETE MEMBERS ARE SHOWN IN TABLE 7.1.

表7.1 (TABLE 7.1)

混凝土类别 CONCRETE TYPE	环境条件 CLIMATIC CONDITION			
	一般/Ⅰ AVERAGE	强/Ⅱ INTENSE	非常强 VERY INTENSE	极强 EXTREMELY INTENSE
柱及梁 COLUMNS AND BEAMS	45	50	75	75
板及节点 SLABS AND JOISTS	30	30	60	60
墙及壳 WALLS AND SHELLS	25	30	55	55
基础 FOUNDATIONS	50	60	90	90

如有表面保护，混凝土保护层厚度可减少20mm。如果混凝土强度高于最小等级5MPa，混凝土保护层厚度可减少5mm，但平均气候条件下保护层的最终厚度不得小于25mm，强气候条件下不得小于35mm，极端气候条件下不得小于50mm。钢筋直径超过35mm时，混凝土保护层厚度需增加10mm。使用外加剂时，混凝土等级可减小5MPa。

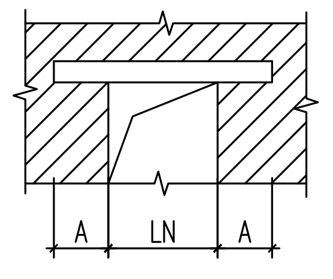
IN CASE OF SURFACE PROTECTION , THE CONCRETE COVER CAN BE DECREASED BY 20mm IF THE CONCRETE GRADE IS 5MPa ABOVE THE MINIMUM GRADE,THE COVER CAN BE DECREASED BY 5mm , PROVIDED THAT THE FINAL THICKNESS OF THE COVER WOULD NOT BE LESS THAT 25mm IN AVERAGE CLIMATIC CONDITIONS , 35mm IN INTENSE , 50mm IN EXTREMELY INTENSE CONDITIONS, FOR REBARS WITH DIAMETERS OF OVER 35mm,THE COVER SHALL BE INCREASED BY 10mm. IN CASE OF USING AIR-ENTERTAINING ADMIXTURES ,THE GRADE OF THE CONCRETE CAN BE DECREASED BY 5MPa.

7.7.4砌体墙上门窗洞口过梁要求：

REQUIREMENTS ON LINTELS ABOVE THE WINDOW AND DOOR HOLES ON MASONRY WALL:

1）砌体墙上门窗洞口应设置钢筋混凝土过梁如表7.7.4所示；当洞口上方有承重梁平行通过，且该梁底标高与门窗洞顶很近，放不下过梁时，可直接在梁下挂板见图7.7.4;

REINFORCED CONCRETE LINTELS SHALL BE SET FOR THE WINDOW AND DOOR HOLES ABOVE THE MASONRY WALL. SEE TABLE 7.7.4. WHEN LOAD-BEARING BEAMS PASS IN PARALLEL ABOVE THE HOLES AND RELATIVE ELEVATION OF BEAM BOTTOM IS CLOSE TO THAT OF THE TOP OF WINDOW AND DOOR HOLES, WHICH LEADS TO UNSUFFICIENT SPACE FOR THE LINTEL, A SLAB CAN DIRECTLY EXTEND FROM THE BOTTOM OF THE BEAM, AS SHOWN IN FIGURE 7.7.4.



现浇钢筋混凝土过梁

CAST-IN-SITU REINFORCED CONCRETE LINTEL

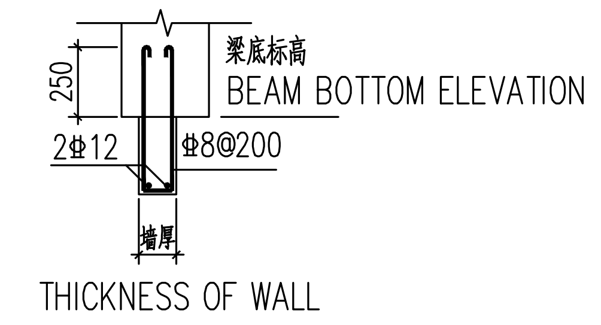


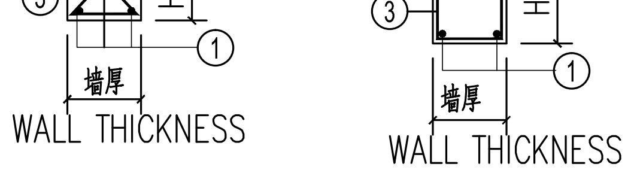
图 7.7.4

FIG.7.7.4

表7.7.4: 钢筋混凝土过梁表

TAB.7.7.4: REINFORCED CONCRETE LINTEL

NO.	洞口宽 LN WIDTH OF HOLE	截面形式 SECTION TYPE	H	搁置长度 A LENGTH	Ⓐ	Ⓐ	Ⓐ
1	⩽1000	A	120	240	3Φ10		Φ8@150
2	1000<L ⩽1500	A	120	240	3Φ10		Φ8@150
3	1500<L⩽1800	B	150	240	2Φ12	2Φ8	Φ8@150
4	1800<L⩽2400	B	180	240	3Φ12	2Φ8	Φ8@150
5	2400<L⩽3000	B	240	350	3Φ14	2Φ10	Φ8@150



截面A型 (TYPE A)　截面B型 (TYPE B)

备注(NOTES)：1 当过梁上有设备支架等其他荷载时，应通知设计人员做复核。

WHEN THERE ARE EQUIPMENT SUPPORTS OR OTHER LOADS ON THE LINTELS, DESIGNERS SHOULD BE INFORMED OF RECHECKED.

2）当门洞宽≥2100mm时，要求设钢筋混凝土抱框，抱框柱根部预留插筋。抱框混凝土强度等级为C20，除施工图已注明外，按图7.7.4-2施工。

WHEN WIDTH OF DOOR HOLES IS ⩾2100mm, REINFORCED CONCRETE JAMBS ARE REQUIRED TO BE SET, WITH STARTER BARS RESERVED AT THE ROOT OF THE JAMB. THE JAMB SHALL HAVE A CONCRETE GRADE OF C20. UNLESS OTHERWISE SPEFICIED ON DETAIL DESIGN DRAWINGS, REFER TO FIGURE 7.7.4.2 FOR THE CONSTRUCTION OF JAMBS.

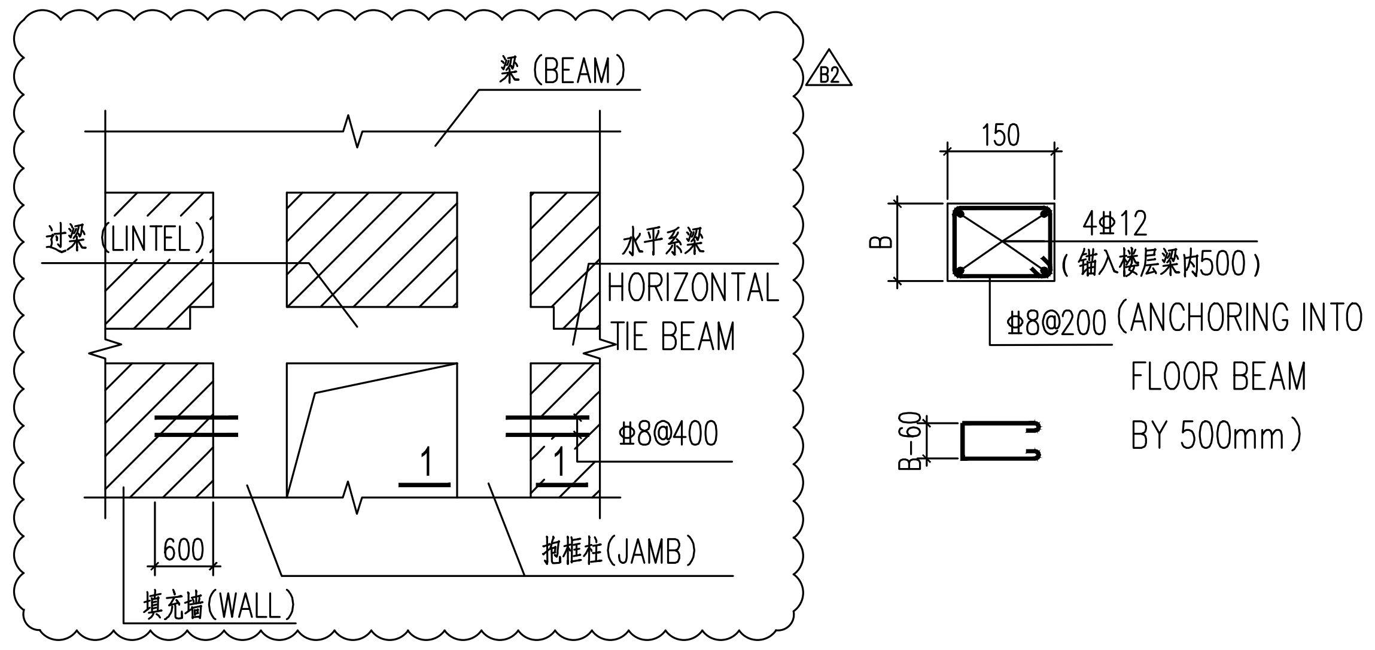


图 7.7.4-2 钢筋混凝土抱框构造

FIG.7.7.4-2 CONSTRUCTIONAL DETAIL OF REINFORCED CONCRETE JAMB

(B为墙厚)

(B IS THICKNESS OF WALL)

7.8 预留孔洞、预埋件：

RESERVED HOLES AND EMBEDDED PARTS :

7.8.1 混凝土结构施工前应对预留孔、预埋件、楼梯栏杆和阳台栏杆的位置与各专业图纸进行校对，并与设备及各工种密切配合施工。

THE CONSTRUCTION OF CONCRETE STRUCTURES CAN NOT BE STARTED UNTIL THE POSITIONS OF RESERVED HOLES, EMBEDED PARTS, STAIR RAILS AND BALCONY RAILS ARE CHECKED WITH DRAWINGS OF OTHER DISCIPLINES. THE CONSTRUCTION SHALL BE CARRIED OUT IN CLOSE COORDINATION WITH EQUIPMENT DISCIPLINE AND OTHER CRAFTS.

7.8.2 对于电气专业（详见电施相关图纸）有避雷或接地要求的混凝土柱内应有两根钢筋做为避雷引下线。做为避雷引下线的纵向钢筋，必须从上到下焊成通路，焊接长度不小于100mm，且其下端须就近与基础内底部钢筋焊接，焊接长度不小于100mm，其上端须露出柱顶或混凝土墙顶150mm，与屋顶避雷带连接。基础钢筋应与楼板、梁、柱、墙钢筋连成通路，做为避雷使用，做法需配合电气图纸施工，电气接地钢板做法见7.8.2图。

FOR CONCRETE COLUMNS WHERE ELECTRICAL DISCIPLINE REQUIRES LIGHTNING PROTECTION OR GROUNDING (REFER TO THE DETAIL DESIGN DRAWINGS OF THE ELECTRICAL DISCIPLINE FOR DETAILS), THERE SHOULD BE TWO PIECES OF REINFORCEMENT INSIDE THE COLUMN TO BE USED AS THE DOWNLEADS FOR LIGHTNING PROTECTION. THE LONGITUDINAL REINFORCEMENT WHICH IS USED AS THE LIGHTNING PROTECTION DOWNLEAD MUST BE WELDED THROUGH FROM

业主 (Owner)：伊朗南方铝业公司 Iran South Aluminum Corporation

总承包商 (EPC Contractor)：中国有色金属建设股份有限公司 China Nonferrous Metal Industry's Foreign Engineering And Construction Co., Ltd.

设计单位 (Engineering Institute)：东北大学 设计研究院(有限公司) N.E.U Engineering & Research Institute Co., Ltd.

版号 Rev.	日期 Date	说明 Description	制图 Drawn	校对 Checked	批准 Approved
B3	2016.09.28	第三次提交，用于批准 ISSUED FOR APPROVAL	赵金阳 ZHAO JINYANG	穆春龙 MU CHUNLONG	马翼鹏 MA YIPENG
B2	2016.09.03	第二次提交，用于批准 ISSUED FOR APPROVAL	赵金阳 ZHAO JINYANG	穆春龙 MU CHUNLONG	马翼鹏 MA YIPENG
B1	2016.07.22	第一次提交，用于批准 ISSUED FOR APPROVAL	赵金阳 ZHAO JINYANG	穆春龙 MU CHUNLONG	马翼鹏 MA YIPENG

审核/审定 Approved	马翼鹏 MA YIPENG
校对 Checked	穆春龙 MU CHUNLONG
制图 Drawn	赵金阳 ZHAO JINYANG

结构设计总说明
GENERAL NOTES OF STRUCTURES

混凝土及砌体结构设计总说明（二）
GENERAL NOTES OF CONCRETE AND MASONRY STRUCTURES (Ⅱ)

工程编号 Proj. No.	DG0505
设计阶段 Phase	基本设计 BE
专业 Specialty	结构 ST
图纸比例 Scale	
图纸规格 Size	A1
图号 Dwg. No.	DG0505BE-DR-0000ST-0103
Rev.	B3

参考图纸/文献 Ref. Drawing/Document	
图纸/文献号 Drawing/Document No.	名称 Title

混凝土及砌体结构总说明(三)

GENERAL NOTES OF CONCRETE AND MASONRY STRUCTURES (Ⅲ)

THE TOP TO THE BOTTOM, AND THE WELDING LENGTH SHALL NOT BE LESS THAN 100mm. THE LOWER END OF THE REINFORCEMENT SHALL BE WELDED WITH THE REINFORCEMENT ON THE BOTTOM OF FOUNDATION NEARBY, WITH THE WELDING LENGTH NOT LESS THAN 100mm, AND THE UPPER END OF REINFORCEMENT SHALL EXPOSE OUT OF THE TOP OF THE COLUMN OR CONCRETE WALL BY 150mm, CONNECTED WITH ROOF LIGHTNING STRIP. THE FOUNDATION REINFORCEMENT SHOULD BE CONNECTED WITH REINFORCEMENT OF SLABS, BEAMS, COLUMNS FOR LIGHTNING PROTECTION. THE CONSTRUCTION METHODS SHALL REFER TO DETAIL DESIGN DRAWINGS OF ELECTRICAL DISCIPLINE. THE CONSTRUCTION METHOD FOR GROUNDING PLATES OF ELECTRICAL EQUIPMENT IS SHOWN IN FIGURE 7.8.2.

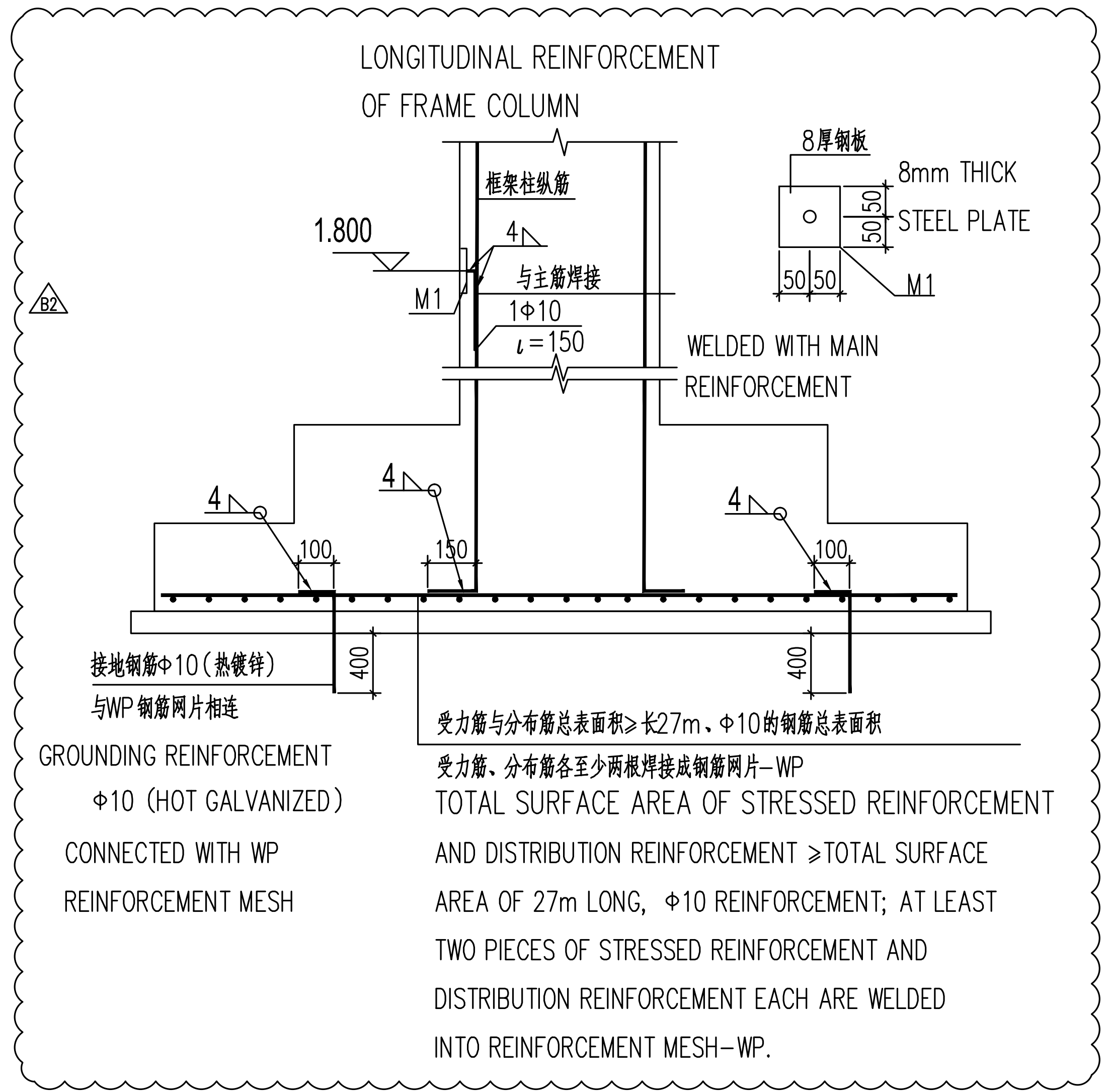

LONGITUDINAL REINFORCEMENT
OF FRAME COLUMN
框架柱纵筋
1.800
4
M1
与主筋焊接
1Φ10
ι=150
WELDED WITH MAIN
REINFORCEMENT
8厚钢板
8mm THICK
STEEL PLATE
50
50
50 50
M1
B2
4
4
4
100
150
100
400
400
接地钢筋Φ10(热镀锌)
与WP钢筋网片相连
GROUNDING REINFORCEMENT
Φ10 (HOT GALVANIZED)
CONNECTED WITH WP
REINFORCEMENT MESH
受力筋与分布筋总表面积≥长27m、Φ10的钢筋总表面积
受力筋、分布筋各至少两根焊接成钢筋网片-WP
TOTAL SURFACE AREA OF STRESSED REINFORCEMENT
AND DISTRIBUTION REINFORCEMENT ≥TOTAL SURFACE
AREA OF 27m LONG, Φ10 REINFORCEMENT; AT LEAST
TWO PIECES OF STRESSED REINFORCEMENT AND
DISTRIBUTION REINFORCEMENT EACH ARE WELDED
INTO REINFORCEMENT MESH-WP.

图7.8.2 电气接地钢板做法

FIG.7.8.2 CONSTRUCTION METHOD FOR GROUNDING PLATE OF ELECTRICAL EQUIPMENT

(M1位置详见电气图，所有避雷金属件均镀锌)

(REFER TO ELECTRICAL DRAWINGS FOR THE POSITION OF M1. ALL METALLIC PARTS FOR LIGHTNING PROTECTION ARE GALVANIZED.)

8 其他事项 (OTHERS)

8.1 基坑开挖前，应由有相应资质的单位进行基坑支护设计，确保支护结构安全和相邻原有建筑的安全。

BEFORE FOUNDATION PIT EXCAVATION, FOUNDATION PIT RETAINING AND PROTECTION DESIGN SHOULD BE COMPLETED BY THE INSTITUTE THAT HAS CORRESPONDING QUALIFICATIONS TO ENSURE THE SAFETY OF RETAINING AND PROTECTION STRUCTURES AND EXISTING ADJACENT BUILDINGS.

8.2 地下室施工期间，应对地下水位变化和降水对周边环境的影响进行监测，确保地下室不发生上浮质量问题。

DURING THE CONSTRUCTION OF BASEMENT, THE EFFECT OF GROUNDWATER LEVEL CHANGE AND RAINFALL ON SURROUNDING ENVIRONMENT SHALL BE MONITORED TO ENSURE THAT THE PROBLEM OF FLOATING DOES NOT OCCUR TO THE BASEMENT .

8.3 设备基础必须待设备到货后，经校对尺寸无误后方可施工，大型设备吊装就位应与结构施工密切配合。

THE CONSTRUCTION OF EQUIPMENT FOUNDATION SHALL NOT BE STARTED UNTIL THE EQUIPMENT HAS ARRIVED THE SITE AND THE DIMENSIONS HAVE BEEN CHECKED TO BE CORRECT. THE LIFTING AND POSITIONING OF HEAVY DUTY EQUIPMENT SHALL BE IN CLOSE COORDINATION WITH THE STRUCTURE CONSTRUCTION.

8.4 施工期间不得超负荷堆放建材和施工垃圾，特别注意梁板上集中负荷时对结构受力和变形的不利影响。

BUILDING MATERIALS AND CONSTRUCTION WASTES SHALL NOT BE STACKED EXCESSIVELY DURING CONSTRUCTION. SPECIAL ATTENTIONS SHALL BE PAID TO THE ADVERSE EFFECT OF STRUCTURE STRESS AND DEFORMATION CAUSED BY CONCENTRATED LOAD ON THE BEAM AND SLAB.

8.5 结构总说明与单项设计不一致时以单项设计规定为准。

WHEN THE GENERAL SPECIFICATION OF STRUCTURAL DESIGN IS INCONSISTENT FROM THE DESIGN OF INDIVIDUAL ITEM, THE DESIGN SHALL BE BASED ON DESIGN SPECIFICATION OF INDIVIDUAL ITEMS.

8.6 未经结构工程师允许不得改变使用环境及原设计的使用功能。

UNLESS APPROVED BY THE STRUCTURAL ENGINEER, THE APPLICATION ENVIRONMENT AND FUNCTION ARE NOT ALLOWED TO BE CHANGED.

8.7 施工单位的"加工详图"及"施工组织设计"应在施工前报设计单位校准或审批。

"DETAIL FABRICATION DRAWING" AND "CONSTRUCTION ORGANIZATION PLAN" OF THE CONSTRUCTION COMPANY SHALL BE CHECKED OR APPROVED BY THE DESIGN INSTITUTE BEFORE CONSTRUCTION.

8.8 定期沉降观测 (REGULAR SETTLEMENT OBSERVATION)

1) 应进行沉降观测，沉降观测应按相应的规范标准执行。沉降观测应由有相应资质的单位承担，施工阶段应专人定期观测，每施工一层做一次沉降观测，施工完毕后一年内每隔三至六个月观测一次，以后每隔六至十二个月观测一次，直至沉降稳定为止，沉降观测点的埋设如图9.7.1-1所示；

SETTLEMENT OBSERVATION SHOULD BE CARRIED OUT ACCORDING TO CORRESPONDING CODES AND STANDARDS. SETTLEMENT OBSERVATION SHALL BE COMPLETED BY THE ORGANIZATION WITH CORRESPONDING QUALIFICATIONS. SPECIALLY-ASSIGNED PERSON SHALL BE ARRANGED TO OBSERVE REGULARLY DURING CONSTRUCTION. UPON THE COMPLETION OF EACH FLOOR ONE SETTLEMENT OBSERVATION SHALL BE ONE SETTLEMENT OBSERVATION SHALL BE CARRIED OUT. WITHIN ONE YEAR AFTER THE COMPLETION OF CONSTRUCTION, THE OBSERVATION SHALL BE CARRIED OUT ONCE EVERY THREE TO SIX MONTHS. AFTER THAT, THE OBSERVATION SHALL BE CARRIED OUT ONCE EVERY SIX TO TWELVE MONTHS TILL THE SETTLING BECOMES STABLE. THE OBSERVATION POINTS ARE SET AS SHOWN IN FIGURE 9.8.1-1;

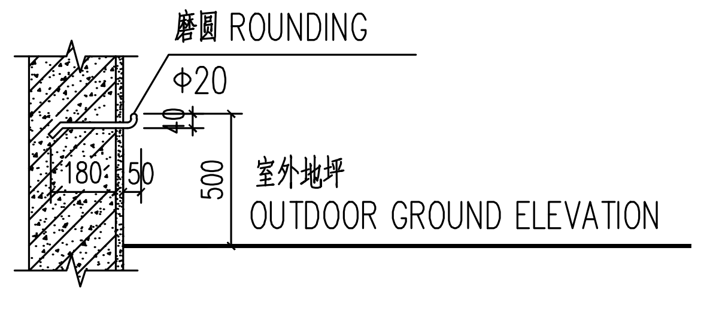


图9.7.1-1 沉降观测点

FIG.9.7.1-1 SETTLEMENT OBSERVATION POINT

8.9 主体结构运行要求 (OPERATION REQUIREMENTS OF MAIN STRUCTURES)

1) 不得利用主体结构搭建附属建筑物,不得在建筑物周围挖坑取土和其他影响建筑物寿命安全的行为；

MAIN STRUCTURES ARE NOT ALLOWED TO BE USED TO CONSTRUCT AUXILIARY BUILDINGS. SOIL EXCAVATION AROUND THE BUILDING OR ANY OTHER ACTIONS THAT MAY AFFECT THE BUILDING'S SERVICE LIFE AND SAFETY ARE NOT ALLOWED.

2) 未经设计单位同意，不得擅自凿墙、开洞及改变既有建筑使用功能；

WITHOUT APPROVAL OF THE DESIGN INSTITUTE, CHISELING ON WALLS AND HOLE MAKING OR ANY OTHER ACTION THAT MAY CHANGE THE USAGE FUNCTION OF EXISTING BUILDINGS ARE PROHIBITED.

3) 严禁利用厂房建筑物的屋架梁柱、支撑等构件悬挂沉重物品、安装动力设备，不得在顶棚内或屋面上堆放杂物。

IT IS STRICTLY FORBIDDEN TO USE ROOF TRUSS BEAMS, COLUMNS,BRACES AND OTHER MEMBERS OF THE WORKSHOP BUILDING FOR HANGING HEAVY OBJECTS AND INSTALLING POWER EQUIPMENT. ANY STACKING IN THE CEILING OR ON THE ROOF IS PROHIBITED.

8.10 墙体维护 (WALL MAINTENANCE)

1) 墙体及部件使用年限少于主体结构，应制定更换、维护方案及实施细则；

WHEN SERVICE LIFE OF WALLS AND MEMBERS IS LESS THAN THE SERVICE LIFE OF THE MAIN STRUCTURE, REPLACEMENT PLAN, MAINTENANCE PLAN AND IMPLEMENTATION RULES SHALL BE MADE.

2) 应定期检查建筑物周边及室内的排水设施。

WATER DRAINAGE FACILITIES AROUND BUILDINGS AND INSIDE THE ROOMS SHALL BE INSPECTED PERIODICALLY.

9. 构件代号及图例 (MEMBER CODE AND LEGEND)

9.1 构件简化代号见表9.1。

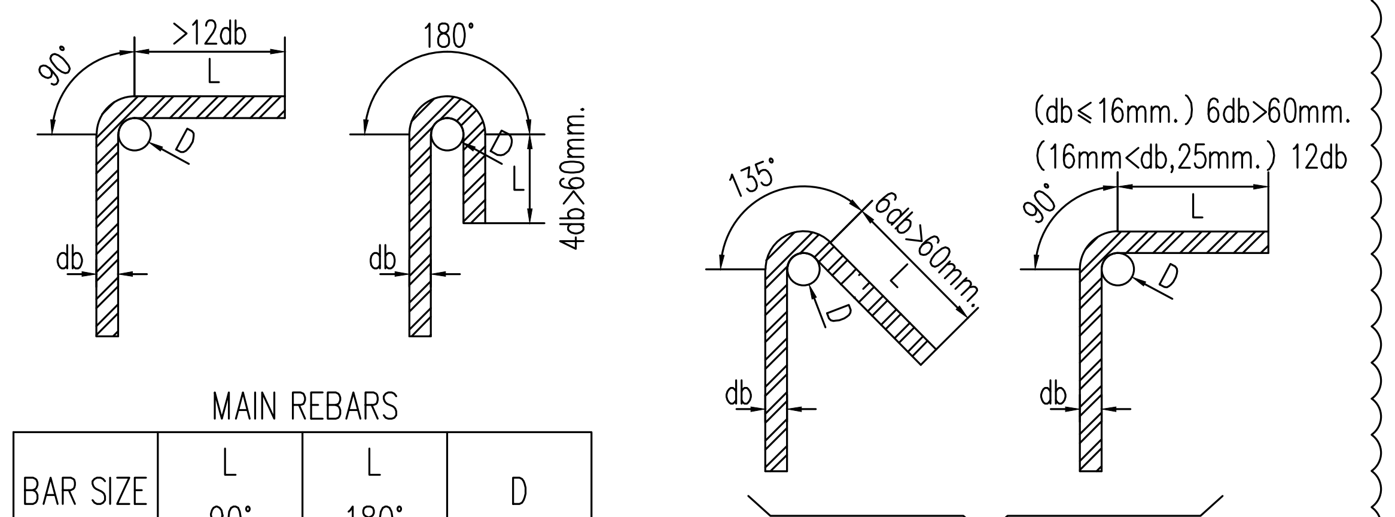
SIMPLIFIED CODES OF MEMBERS ARE LISTED IN TABLE 9.1.

表9.1 (TABLE 8.1)

序号 NO.	构件名称 MEMBER NAME	代号 CODE	序号 NO.	构件名称 MEMBER NAME	代号 CODE
1	框 架 FRAME	FRAME	26	吊车安全走道板 WALKWAY OF CRANE BEAM	WCB
2	柱 COLUMN	COLUMN	27	墙 板 WALL PANEL	WP
3	框架柱 FRAME COLUMN	FC	28	天沟板 ROOF GUTTER	RG
4	构造柱 CONSTRUCTIONAL COLUMN	COC	29	承 台 PILE CAP	PC
5	梁 BEAM	BEAM	30	设备基础 EQUIPMENT FOUNDATION	EF
6	屋面梁 ROOF BEAM	RB	31	钢筋混凝土独立基础 PAD FOUNDATION	PF
7	框架梁 ROOF FRAME BEAM	FB	32	钻孔灌注桩 AUGER CAST IN PLACE PILE	ACIP PILE
8	屋面框架梁 ROOF FRAME BEAM	RFB	33	地 坑 PIT	PIT
9	悬挑梁 CANTILEVER BEAM	CBE	34	地 沟 TRENCH	TRENCH
10	井字梁 GRILLAGE BEAM	GBE	35	钢筋混凝土墙 REINFORCED CONCRETE WALL	RCW
11	连系梁 TIE BEAM	TBE	36	楼梯 STAIRS	STAIRS
12	基础梁 FOOTING BEAM	FBE	37	暗 柱 EMBEDDED COLUMN	EC
13	承台梁 PILE CAPPING BEAM	PCB	38	雨 篷 CANOPY	CANOPY
14	圈 梁 RING BEAM	RIB	39	阳 台 BALCONY	BALCONY
15	过 梁 LINTEL	LINTEL	40	梁 垫 CONCRETE PADSTONE	CPA
16	楼梯梁 STAIR BEAM	SBE	41	预埋件 EMBEDDED PARTS	EPA
17	板 SLAB	SLAB	42	钢筋网 BAR-MAT REINFORCEMENT	BMR
18	屋面板 ROOF SLAB	RS	43	钢筋骨架 REINFORCEMENT CAGE	RCA
19	密肋板 RIBBED SLAB	RIS	44	挡土墙 RETAINING WALL	RW
20	空心板 HOLLOW SLAB	HS	45	支 架 SUPPORT	SUPPORT
21	槽型板 TROUGH PLATE	TP	46	吊车梁 CRANE BEAM	CRB
22	折板 FOLDED PLATE	FP	47	单轨吊车梁 MONORAIL HOIST BEAM	MHB
23	楼梯板 FLIGHT SLAB	FS	48	轨道连接 RAIL JOINT	RJ
24	盖 板 COVER PLATE	CP	49	车 挡 BUMPER POST	BP
25	挡雨板或檐口板 EAVES PLATE	EP			

OVERLAP LENGTH

BAR SIZE	BEAM AND FOUNDATION		COLUMN AND WALL
	BOTTOM BAR	TOP BAR	
Φ8	400mm.	500 mm.	400mm.
Φ10	500 mm.	600 mm.	500 mm.
Φ12	600 mm.	800 mm.	600 mm.
Φ14	700 mm.	900 mm.	700 mm.
Φ16	800 mm.	1000 mm.	800 mm.
Φ18	900 mm.	1100 mm.	900 mm.
Φ20	1000 mm.	1200 mm.	1000 mm.
Φ22	1300 mm.	1700 mm.	1300 mm.
Φ25	1500 mm.	1900 mm.	1500 mm.



MAIN REBARS

BAR SIZE	L 90°	L 180°	D
Φ8	10.0cm	6.0cm	4.8cm
Φ10	15.0cm	6.0cm	6.0cm
Φ12	15.0cm	6.0cm	7.2cm
Φ14	20.0cm	6.0cm	8.4cm
Φ16	20.0cm	10.0cm	9.6cm
Φ18	25.0cm	10.0cm	10.8cm
Φ20	25.0cm	10.0cm	12.0cm
Φ22	30.0cm	10.0cm	13.2cm
Φ25	30.0cm	10.0cm	15.0cm
Φ28	35.0cm	15.0cm	22.4cm
Φ32	40.0cm	15.0cm	25.6cm

STIRRUPS AND TIES

BAR SIZE	L 90°	L 180°	D
Φ6		6.0cm	2.4cm
Φ8	6.0cm	6.0cm	3.2cm
Φ10	6.0cm	6.0cm	4.0cm
Φ12	10.0cm	10.0cm	4.8cm
Φ14	10.0cm	10.0cm	5.6cm
Φ16	10.0cm	10.0cm	6.4cm

B3

MINIMUM BEND FOR REBARS END HOOKS

版号 Rev.	日期 Date	说明 Description	制图 Drawn	校对 Checked	批准 Approved
△					
△					
△					
B3	2016.09.28	第三次提交，用于批准 ISSUED FOR APPROVAL	赵金阳 ZHAO JINYANG	穆春龙 MU CHUNLONG	马翼鹏 MA YIPENG
B2	2016.09.03	第二次提交，用于批准 ISSUED FOR APPROVAL	赵金阳 ZHAO JINYANG	穆春龙 MU CHUNLONG	马翼鹏 MA YIPENG
B1	2016.07.22	第一次提交，用于批准 ISSUED FOR APPROVAL	赵金阳 ZHAO JINYANG	穆春龙 MU CHUNLONG	马翼鹏 MA YIPENG

业主 (Owner)：
伊朗南方铝业公司
Iran South Aluminum Corporation

总承包商 (EPC Contractor)：
中国有色金属建设股份有限公司
China Nonferrous Metal Industry's Foreign Engineering And Construction Co., Ltd.

设计单位 (Engineering Institute)：
東北大學 设计研究院(有限公司)
N.E.U Engineering & Research Institute Co., Ltd.

审核/审定 Approved	马翼鹏 MA YIPENG
校 对 Checked	穆春龙 MU CHUNLONG
制 图 Drawn	赵金阳 ZHAO JINYANG

结构设计总说明
GENERAL NOTES OF STRUCTURES

混凝土及砌体结构设计总说明（三）
GENERAL NOTES OF CONCRETE AND MASONRY STRUCTURES (Ⅲ)

工程编号 Proj. No.	DG0505
设计阶段 Phase	基本设计 BE
专 业 Specialty	结 构 ST
图纸比例 Scale	
图 号 Dwg. No.	DG0505BE-DR-0000ST-0104
Rev.	B3
图纸规格 Size	A1

参考图纸/文献 Ref. Drawing/Document	
图纸/文献号 Drawing/Document No.	名称 Title

钢结构总说明(一)

GENERAL NOTES OF STEEL STRUCTURES (I)

1.概况 (GENERAL)

1.1 工程名称：伊朗南方铝厂电解铝项目

PROJECT NAME: ALUMINUM SMELTER PROJECT OF IRAN SOUTH ALUMINUM CORPORATION

1.2 建设地点：伊朗法尔斯省LAMARD郡北部

LOCATION: NORTH OF LAMARD, FARS PROVINCE, IRAN

1.3 图中±0.000为室内地面相对标高，其相应的绝对标高见总图。

THE ±0.000 IN THE DRAWING IS THE RELATIVE ELEVATION OF THE INDOOR FLOOR. REFER TO THE GENERAL LAYOUT FOR CORRESPONDING ABSOLUTE ELEVATION.

1.4 未注尺寸单位均为mm，标高为m。

UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS IN THE DRAWING ARE IN MILLIMETERS (mm), ELEVATIONS IN METERS (m).

2.设计依据 (DESIGN BASIS)

2.1 主体结构设计使用年限: 50年。

DESIGN SERVICE LIFE OF THE MAIN STRUCTURE: 50 YEARS.

2.2 自然条件

NATURAL CONDITIONS

2.2.1 年平均气温 (ANNUAL AVERAGE TEMPERATURE)：27.6℃;

最高温度 (MAX. TEMPERATURE)：49.8℃；

最低温度 (MIN. TEMPERATURE)：-2.8℃；

日最大降水量 (MAX. DAILY RAINFALL)：87.6mm；

最大年降雨量 (MAX. ANNUAL RAINFALL)：309.3mm；

历年平均相对湿度 (AVERAGE ANNUAL RELATIVE HUMIDITY)：39.4%；

主导风向 (PREVAILING WIND)：西北风 (NORTHWEST WIND)；

最大风速 (MAX. WIND SPEED)： V=37.5m/s；

年平均风速 (ANNUAL AVERAGE WIND SPEED)：V=4.45m/s；

2.3 工程地质勘察报告: 本工程依据伊朗SES公司提供的岩土工程勘察报告(编号：1347-EE-REP-GEO-001-A、1347-EE-REP-GEO-002)

ENGINEERING GEOTECHNICAL INVESTIGATION REPORT: GROUND IMPROVEMENT DESIGN AND FOUNDATION DESIGN ARE BASED ON ENGINEERING GEOTECHNICAL INVESTIGATION REPORTS (NO. 1347-EE-REP-GEO-001-A, 1347-EE-REP-GEO-002) PROVIDED BY IRAN SOIL ENGINEERING SERVICES (SES).

2.4 主要设计参考标准及规范如下:

MAIN STANDARDS OR CODES REFERENCED IN DESIGN ARE AS FOLLOWS:

序号 NO.	标准、规范名称 TITLE OF STANDARDS OR NORMS	标准、规范号 CODE NO.
1	《伊朗建筑抗震设计规范》 "IRANIAN CODE OF PRACTICE FOR SEISMIC RESISTANT DESIGN OF BUILDINGS"	NO. 2800-IV
2	《伊朗建筑结构荷载规范》 "LOAD CODE FOR THE DESIGN OF BUILDING STRUCTURES OF IRAN"	INBC CHAPT 6
3	《中国钢结构设计规范》(仅用于施工) "CHINESE CODE FOR DESIGN OF STEEL STRUCTURES" (ONLY FOR CONSTRUCTION)	GB 50017-2003
4	《国际建筑规范》 "INTERNATIONAL BUILDING CODE"	IBC 2009
5	《美国建筑结构荷载规范》 "ASCE-MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES"	ASCE 7-05
6	《美国钢结构建筑技术规范》 "ANSI/AISC-SPECIFICATION FOR STRUCTURAL BUILDINGS"	AISC 360-05
7	《钢结构建筑抗震规定》 "SEISMIC PROVISIONS FOR STRUCTURAL STEEL BUILDINGS"	ANSI/AISC-341-05

2.5 设计荷载 (DESIGN LOAD DATA)

2.5.1 活荷载 (LIVE LOAD) LIVE LOADS IN TABLE SHALL BE READ IN CONJUNCTION WITH ASCE 7-05, CHAPTER 4

序号 NO.	房间及功能 OCCUPANCY AND USE	均布荷载 UNIFORM LOAD	集中荷载 CONCENTRATED LOAD
1	有一般设备的楼板 FLOOR WITH ORDINARY EQUIPMENT	见相应工艺条件图 SEE RELATED PROCESS CONDITIONS	按相应工艺要求 AS PER PROCESS REQUIREMENT
2	无设备的楼板 FLOOR WITHOUT EQUIPMENT	2.5kN/m^2	8.9kN
3	不上人的平、坡及弧形屋面 UNMANNED FLAT, SLOPED AND CURVED ROOFS	0.96kN/m^2	
4	上人屋面 MANNED ROOF	2.87kN/m^2	
5	楼梯 STAIRS	4.79kN/m^2	1.33kN
6	走廊 CORRIDORS	4.79kN/m^2	8.9kN
7	贮藏室(轻) STORAGE WAREHOUSE (LIGHT)	6.00kN/m^2	8.9kN
8	贮藏室(重) STORAGE AREAS (HEAVY)	11.97kN/m^2	13.4kN

2.5.2 活荷载折减按ASCE 7-05中第4.8条，4.9条执行。

LIVE LOAD REDUCTION SHALL BE IN COMPLIANCE WITH CLAUSES 4.8 AND 4.9 OF ASCE 7-05.

2.5.3 地震作用 (SEISMIC EFFECT)

设计基本地震加速度 (DESIGN BASIC SEISMIC ACCELERATION)：0.31g；

场地土壤剖面类别 (SOIL PROFILE CATEGORY): Ⅲ。

2.6 结构设计控制参数 CONTROL PARAMETERS OF STRUCTURAL DESIGN

2.6.1 构件的容许挠度值见表2.6.1。

REFER TO TABLE 2.6.1 FOR ALLOWABLE DEFLECTIONS OF MEMBERS.

表2.6.1 (TABLE2.6.1)

序号 NO.	构件名称 MEMBER NAME	挠度容许值 ALLOWABLE DEFLECTION	
		$[v_t]$	$[v_Q]$
1	屋盖檩条 ROOF PURLIN	L / 120	N / A
2	抗风柱 WIND COLUMN	N / A	L / 200
3	楼面梁 FLOOR BEAM	L/240	L / 360
4	屋面梁 ROOF BEAM	L/180	L / 240
5	吊车梁 CRANE BEAM	FOR CRANE CMAA CLASS A-C L / 800 FOR CRANE CMAA CLASS D L / 1000 FOR CRANE CMAA CLASS E&F L / 1000	
6	支承设备钢梁除设备制造商特殊要求外 BEAMS SUPPORTING EQUIPMENT UNLESS SPECIFIED OTHERWISE BY EQUIPMENT MANUFACTURER	L / 400	N / A
7	屋面斜梁 RAFTER	L/180	L/240

L ---- 构件跨度 MEMBER SPAN;

$[v_t]$ ---- 全部荷载标准值产生的挠度容许值；
ALLOWABLE DEFLECTION CAUSED BY THE CHARACTERISTIC VALUE OF ALL LOADS;

$[v_Q]$ ---- 可变荷载标准值产生的挠度容许值；
ALLOWABLE DEFLECTION CAUSED BY THE CHARACTERISTIC VALUE VARIABLE LOADS;

2.6.2 刚架柱顶的水平位移容许值见表2.6.2。

REFER TO TABLE 2.6.2 FOR ALLOWABLE DRIFT OF RIGID FRAME COLUMN TOP.

表2.6.2 (TABLE2.6.2)

荷载工况 LOAD CASE	在风荷载标准值作用下 STANDARD WIND LOAD	在水平地震标准值作用下 STANDARD HORIZONTAL SEISMIC
变形限值 DEFORMATION LIMITS	H / 200	ACCORING TO IRANIAN STANDARD No. 2800

H ---- 基础顶面至柱顶的总高度
TOTAL HEIGHT FROM FOUNDATION TOP SURFACE TO COLUMN TOP.

h ---- 结构层高
FLOOR HEIGHT

2.6.3 刚架构件的容许长细比见表2.6.3。

REFER TO TABLE 2.6.3 FOR ALLOWABLE SLENDERNESS RATIOS OF RIGID FRAME MEMBERS.

表2.6.3 (TABLE2.6.3)

序号 NO.	受压杆件 MEMBERS IN COMPRESSION	[λ]	序号 NO.	受拉杆件 MEMBERS IN TENSION	[λ]
1	柱 COLUMNS	150	4	交叉支撑的斜杆 CROSS-BRACED DIAGONAL RODS	300
2	下柱支撑 LOWER COLUMN BRACINGS	150	5	支撑系杆 TIE RODS	300
3	支撑系杆和斜杆 BRACING TIE RODS AND DIAGONAL RODS	200	ACCORING TO AISC 341-05 ITEM 13.2a		

2.7 结构计算软件：采用集成化的通用有限元结构分析与设计软件CSI SAP2000(版本: 16.1.0)进行设计.

STRUCTURAL CALCULATION SOFTWARE: INTEGRATED UNIVERSAL FINITE ELEMENT STRUCTURAL ANALYSIS AND DESIGN SOFTWARE CSI SAP2000 (VERSION: 16.1.0) IS UTILIZED IN DESIGN.

3.材料 (MATERIALS)

3.1 所有材料及加工构件均应与批准的建设图纸一致。

ALL MATERIALS AND FABRICATED MEMBERS SHALL ACCORD WITH APPROVED DETAIL DESIGN DRAWINGS.

3.2 所有材料及加工构件均应附合中国相关规范或是获得批准的与之相当的规范要求。

ALL MATERIALS AND FABRICATED MEMBERS SHALL COMPLY WITH RELEVANT CHINESE CODES OR APPROVED ACCEPTABLE EQUIVALENTS.

3.3 所有需要运至现场的材料上，均应专门标注标签，标签标注应与生产、检测合格证明一致，并包含如下内容：

ALL MATERIALS TO BE DELIVERED TO THE SITE SHALL BE SPECIALLY LABELED IN A MANNER CONSISTENT WITH FABRICATION AND INSPECTION CERTIFICATES, INDICATING INFORMATION AS FOLLOWS:

● 材料描述	MATERIAL DESCRIPTION
● 生产及检测日期	DATE OF MANUFACTURE AND TEST
● 材料的化学成份	MATERIAL CHEMICAL COMPOSITION
● 检测结果	TEST RESULTS

3.4 材料性能 (MATERIAL PROPERTIES)

3.4.1 结构用钢 (STRUCTURAL STEEL)

3.4.1.1 如无特殊说明，所有结构用钢应具有良好的可焊性，并符合《GB/T 700-2006》和《GB/T 1591-2008》规范的要求，或与之相当的规范要求。

UNLESS OTHERWISE SPECIFIED, ALL STRUCTURAL STEEL SHALL HAVE GOOD WELDABILITY AND COMPLY WITH THE REQUIREMENT OF "GB/T 700-2006" AND "GB/T 1591-2008" ACCEPTABLE EQUIVALENTS.

3.4.1.2 未注刚架柱、梁钢材等级为 Q345B；柱间及屋面支撑、加劲肋、连接板件钢材等级为 Q235B。

UNLESS OTHERWISE NOTED, RIGID FRAME COLUMNS AND BEAMS SHALL BE MADE OF GRADE Q345B STEEL; COLUMN AND ROOF BRACES, STIFFENERS AND CONNECTION PLATES SHALL BE MADE OF Q235B STEEL.

3.4.1.3 未注吊车梁钢材等级为 Q345B；吊车梁支座板及制动梁、辅助桁架、下翼缘水平支撑钢材等级为 Q235B。

UNLESS OTHERWISE NOTED, CRANE RUNWAY BEAMS SHALL BE MADE OF Q345B STEEL; SUPPORT PLATES, BRAKE BEAMS, AUXILIARY TRUSSES AND BOTTOM FLANGE HORIZONTAL SUPPORTS FOR CRANE RUNWAY BEAMS SHALL BE MADE OF Q235B STEEL.

3.4.1.4 未注明之屋面、墙面檩条均采用镀锌 Q345B 冷弯薄壁型钢，镀锌量不小于275g/m^2(双面)。

UNLESS OTHERWISE NOTED, BOTH ROOF AND WALL PURLINS SHALL ADOPT GALVANIZED Q345B COLD-FORMED THIN-WALL STEEL SECTIONS, WITH ZINC CONTENT OF AT LEAST 275g/m^2 (DOUBLE-SIDED).

3.4.1.5 Q235B 及 Q345B 级钢材的力学性能见表3.4.1.5-1，与之相对应的 GRADE 36 和 GRADE 50 钢材的力学性能见表3.4.1.5-2：

REFER TO TABLE 3.4.1.5-1 FOR MECHANICAL PROPERTIES OF Q235B AND Q345B STEEL.

REFER TO TABLE 3.4.1.5-2 FOR MECHANICAL PROPERTIES OF GRADE 36 AND GRADE 50 STEEL.

表3.4.1.5-1 (TABLE 3.4.1.5-1)

力学性能 MECHANICAL PROPERTY	GB/T 700 Q235B	GB/T 1591 Q345B
屈服强度 (YIELD STRENGTH) f_y, MPa (ksi)	235 (34)	345 (50)
抗张强度 (TENSILE STRENGTH) f_u, MPa (ksi)	375 (54)	470 (68)

表3.4.1.5-2 (TABLE 3.4.1.5-2)

力学性能 MECHANICAL PROPERTY	ASTM A 36/A 36M GRADE 36	ASTM A 572/A 572M GRADE 50
屈服强度 (YIELD STRENGTH) f_y, MPa (ksi)	250 (36)	345 (50)
抗拉强度 (TENSILE STRENGTH) f_u, MPa (ksi)	400 (52)	450 (65)

3.4.1.6 当钢板厚度不小于40mm时，钢板必须具备厚度方向性能。其厚度方向性能须满足规范《厚度方向性能钢板》GB/T 5313-2010 中 Z15 性能级别的相关要求。

WHEN THE THICKNESS IS NOT LESS THAN 40 mm, STEEL PLATES MUST HAVE THICKNESS DIRECTION PERFORMANCE. ITS THICKNESS DIRECTION PERFORMANCE MUST MEET THE RELEVANT REQUIREMENTS OF GRADE Z15 IN THE SPECIFICATION "THICKNESS DIRECTION PERFORMANCE STEEL PLATES", GB/T 5313-2010.

3.4.1.7 由于抗震需要，结构用钢材尚应满足下列要求：

FOR ANTI-SEISMIC PURPOSE, STRUCTURAL STEEL SHALL ALSO SATISFY THE FOLLOWING REQUIREMENTS:

● 钢材的屈服强度实测值与抗拉强度实测值的比值应不应大于0.85；

THE MEASURED VALUE RATIO OF YIELD STRENGTH TO TENSILE STRENGTH SHALL NOT EXCEED 0.85;

● 钢材应有明显的屈服台阶，且伸长率不应小于20%；

THE STEEL SHALL HAVE OBVIOUS YIELD STEP, WITH ELONGATION NOT LESS THAN 20%;

● 钢材应具有20℃冲击韧性的合格保证。

IT SHALL BE GUARANTEED THAT THE STEEL SATISFY THE REQUIREMENTS OF 20℃ IMPACT TOUGHNESS.

3.4.2 焊接材料 (WELDING MATERIALS)

3.4.2.1 所有焊条均应符合《GB/T 5117》或与之相当规范的规定，并应具有表3.4.2.1所列的性能或更高的性能保证。与之相对应的《AWS A 5.1》、《AWS A 5.5》中的 E60、E70 焊条，其性能见表3.4.2.2。

ALL ELECTRODES SHALL COMPLY WITH "GB/T 5117" OR ACCEPTABLE EQUIVALENTS AND HAVE PROPERTIES EQUIVALENT TO OR BETTER THAN THOSE LISTED IN TABLE 3.4.2.1.

WITH THE CORRESPONDING, REFER TO TABLE 3.4.2.2 FOR MECHANICAL PROPERTIES E60 AND E70 WELDING ELECTRODES IN "AWS A 5.1" & "AWS A 5.5".

表3.4.2.1.1 仅用于中国施工单位 (TABLE 3.4.2.1.1) ONLY FOR CHINESE CONSTRUCTION CONTRACTOR

焊条等级 ELECTRODE GRADE	极限抗拉强度 ULTIMATE TENSILE STRENGTH (N/mm)	最小屈服强度 MINIMUM YIELD STRENGTH (N/mm)
E43	≥430	≥330
E50	≥490	≥400

表3.4.2.1.2 仅用于伊朗施工单位 (TABLE 3.4.2.1.2) ONLY FOR IRANIAN CONSTRUCTION CONTRACTOR

焊条等级 ELECTRODE GRADE	极限抗拉强度 ULTIMATE TENSILE STRENGTH (N/mm)	最小屈服强度 MINIMUM YIELD STRENGTH (N/mm)
E60	≥414	≥331
E70	≥490	≥400

3.4.2.2 自动焊或半自动焊时，Q345B采用H08A、H08MNA焊丝并配以相应的焊剂。Q235B采用H08A焊丝并配以相应的焊剂。焊丝性能须符合《熔化焊用钢丝》GB/T 14957-1994或与之相当的规范规定，焊剂须符合GB/T5293-1999或与之相当的规范规定。

WHEN AUTOMATIC OR SEMI-AUTOMATIC WELDING PROCESSES ARE ADOPTED, H08A AND H08MNA WELDING WIRES AND THEIR CORRESPONDING FLUX SHALL BE UTILIZED FOR GRADE Q345B STEEL, WHILE H08A WELDING WIRES AND THEIR CORRESPONDING FLUX SHALL BE UTILIZED FOR GRADE Q235B STEEL. WELDING WIRES SHALL COMPLY WITH THE PROPERTY REQUIREMENTS OF CHINESE CODE "STEEL WIRES FOR MELT WELDING" GB/T 14957-1994 OR ACCEPTABLE EQUIVALENTS AND FLUX SHALL COMPLY WITH THE STIPULATIONS OF CHINESE CODE GB/T 5293-1999 OR ACCEPTABLE EQUIVALENTS.

业主 (Owner)：
伊朗南方铝业公司
Iran South Aluminum Corporation

总承包商 (EPC Contractor)：
中国有色金属建设股份有限公司
China Nonferrous Metal Industry's Foreign Engineering And Construction Co., Ltd.

设计单位 (Engineering Institute)：
东北大学设计研究院(有限公司)
N.E.U Engineering & Research Institute Co., Ltd.

版号 Rev.	日期 Date	说明 Description	制图 Drawn	校对 Checked	批准 Approved
△					
△					
△					
B3	2016.10.20	第三次提交，用于批准 ISSUED FOR APPROVAL	赵金阳 ZHAO JINYANG	穆春龙 MU CHUNLONG	马翼鹏 MA YIPENG
B2	2016.09.28	第二次提交，用于批准 ISSUED FOR APPROVAL	赵金阳 ZHAO JINYANG	穆春龙 MU CHUNLONG	马翼鹏 MA YIPENG
B1	2016.07.22	第一次提交，用于批准 ISSUED FOR APPROVAL	赵金阳 ZHAO JINYANG	穆春龙 MU CHUNLONG	马翼鹏 MA YIPENG

审核/审定 Approved			
	马翼鹏 MA YIPENG		
校对 Checked	穆春龙 MU CHUNLONG		
制图 Drawn	赵金阳 ZHAO JINYANG		

结构设计总说明 GENERAL NOTES OF STRUCTURES		工程编号 Proj. No.	DG0505
		设计阶段 Phase	基本设计 BE
钢结构总说明(一) GENERAL NOTES OF STEEL STRUCTURES (I)		专业 Specialty	结构 ST
		图纸比例 Scale	
图号 Dwg. No.	DG0505BE-DR-0000ST-0105 B3 Rev.	图纸规格 Size	A1

参考图纸/文献 Ref. Drawing/Document	
图纸/文献号 Drawing/Document No.	名称 Title

钢结构总说明（二）
GENERAL NOTES OF STEEL STRUCTURES（Ⅱ）

3.4.3 螺栓 （BOLTS）

3.4.3.1 高强螺栓：所有8.8级、10.9级高强螺栓均为摩擦型高强螺栓，螺栓、螺母和垫圈所用钢材应符合或高于《GB/T1231-2006》的规定，其主要性能指标见表3.4.3.1。

与之相对应的《ASTM A 325M》,《ASTM A 490M》中的 8.8，10.9级摩擦型高强螺栓，其性能见表 3.4.3.2。

HIGH STRENGTH BOLTS: ALL GRADE 8.8, GRADE 10.9 HIGH STRENGTH BOLTS SHALL BE FRICTION-TYPE HIGH STRENGTH BOLTS. THE BOLTS, NUTS AND WASHERS SHALL BE MADE OF STEEL THAT SHOULD COMPLY WITH OR EXCEED THE REQUIRED LEVEL OF CHINESE CODE "GB/T1231-2006". REFER TO TABLE 3.4.3.1 FOR MAIN PROPERTY PARAMETERS.

WITH THE CORRESPONDING, REFER TO TABLE 3.4.3.2 FOR MECHANICAL PROPERTIES GRADE 8.8 & 10.9 FRICTION-TYPE HIGH STRENGTH BOLTS IN "ASTM A 325M" & "ASTM A 490M".

表3.4.3.1.1 （TABLE 3.4.3.1.1）

螺栓的直径 BOLT DIA.	牌号 GRADE	极限抗拉强度(N/mm) ULT. TENSILE STRENGTH	最小屈服强度 (N/mm) MIN. YIELD STRENGTH
M12~M30	8.8	830	660
M12~M30	10.9	1040	940

表3.4.3.1.2 （TABLE 3.4.3.1.2）

螺栓的直径 BOLT DIA.	牌号 GRADE	极限抗拉强度(N/mm) ULT. TENSILE STRENGTH	最小屈服强度 (N/mm) MIN. YIELD STRENGTH
M12~M36	8.8	830	660
M12~M36	10.9	1040	940

3.4.3.2 普通螺栓：所有普通螺栓应符合《GB/T 3098.1-2010》或与之相当的规范要求。螺栓母材性能应符合或高于表3.4.3.3中性能要求。

与之相对应的《ASTM A 307M》中的普通螺栓，其性能见表 3.4.3.3。

ORDINARY BOLTS : ALL ORDINARY BOLTS SHALL MEET THE REQUIREMENTS OF THE "GB/T 3098.1-2010" OR ACCEPTABLE EQUIVALENTS. THE BOLTS SHALL BE MADE OF STEEL THAT SHALL COMPLY OR EXCEED THE PROPERTY REQUIREMENTS IN TABLE 3.4.3.3

WITH THE CORRESPONDING, REFER TO TABLE 3.4.3.4 FOR MECHANICAL PROPERTIES ORDINARY BOLTS IN "ASTM A 307M".

表3.4.3.3 （TABLE 3.4.3.2.1）

螺栓的直径 BOLT DIA.	牌号 GRADE	极限抗拉强度(N/mm) ULT. TENSILE STRENGTH	最小屈服强度 (N/mm) MIN. YIELD STRENGTH
M12~M30	4.6	400	240

表3.4.3.4 （TABLE 3.4.3.2.2）

螺栓的直径 BOLT DIA.	牌号 GRADE	极限抗拉强度(N/mm) ULT. TENSILE STRENGTH	最小屈服强度 (N/mm) MIN. YIELD STRENGTH
M12~M36	4.6	400	250

3.4.3.3 锚栓：锚栓采用 Q235B 或 Q345B 钢材制作。

ANCHOR BOLTS: ANCHOR BOLTS SHALL BE MADE OF GRADE Q235B OR Q345B STEEL.

4.钢结构的制作、安装与运输（FABRICATION, ERECTION AND TRANSPORTATION）

4.1 制作 （FABRICATION）

4.1.1 所有构件件的加工均应符合中国规范《GB50205-2001》的要求，或是获得批准的与之相当的规范要求。

ALL MEMBERS SHALL BE FABRICATED IN COMPLIANCE WITH THE REQUIREMENTS OF CHINESE CODE GB50205-2001 OR APPROVED EQUIVALENTS.

4.1.2 制造商应该认真核对图纸，任何图纸问题都应在加工前通知设计人员。

THE MANUFACTURER SHALL CHECK DRAWINGS CAREFULLY AND NOTIFY THE DESIGNER OF ANY DRAWING PROBLEMATIC ISSUES PRIOR TO FABRICATION.

4.1.3 制造商应在制作加工前应依据设计图纸及相关标准编制钢结构施工详图，并报设计院核准。

THE MANUFACTURER SHALL PREPARE AND SUBMIT TO THE DESIGN INSTITUTE STEEL STRUCTURE DETAIL DRAWINGS ACCORDING TO DESIGN DRAWINGS AND RELEVANT STANDARDS PRIOR TO FABRICATION.

4.1.4 所有钢构件制作以前，需足尺放样，并制作出样板和样杆，核对无误后方可下料制作。

PRIOR TO FABRICATION, FULL SCALE SETTING-OUT SHALL BE CARRIED OUT FOR ALL STEEL MEMBERS, WITH TEMPLATE PLATES AND RODS FABRICATED. BLANKING CANNOT BE STARTED UNTIL VERIFICATION IS PASSED.

4.1.5 钢梁、钢柱预留孔洞，按照设计图纸所示尺寸，位置，在工厂制孔，并按设计要求进行补强，在工地安装时，未经设计允许，不得以任何方式制孔。

RESERVED HOLES IN STEEL BEAMS AND COLUMNS SHALL BE MADE IN THE FACTORY ACCORDING TO THE DIMENSIONS AND LOCATIONS ON DESIGN DRAWINGS AND REINFORCED AS PER DESIGN REQUIREMENTS. DURING SITE ERECTION, NO HOLES SHALL BE MADE IN ANY WAY WITHOUT PERMISSION OF THE DESIGN UNIT.

4.1.6 对于跨度较大的厂房屋面梁或桁架等构件，应按设计要求或相关规定起拱。对于起拱的构件，应在其顶部表示清楚，以免安装时出错。

SUCH MEMBERS AS WORKSHOP BUILDING ROOF BEAMS, TRUSSES, ETC. THAT HAVE A LARGE SPAN SHALL BE ARCHED AS PER DESIGN REQUIREMENTS OR RELEVANT STIPULATIONS. THE ARCHED MEMBERS SHALL BE INDICATED CLEARLY ON THEIR TOP TO AVOID MISTAKES DURING ERECTION.

4.1.7 结构图中未表示的墙定位、楼板开洞、楼梯详图、管道、通风口、输料管、水管以及其它详图见建筑、工艺、电气图纸或其它相关专业的图纸。

REFER TO ARCHITECTURAL, PROCESS, ELECTRICAL DRAWINGS OR DRAWINGS OF OTHER RELATED DISCIPLINES FOR WALL POSITIONS, FLOOR OPENINGS, STAIR DETAILS, PIPES, VENTS, MATERIAL PIPES, WATER PIPES AND OTHER DETAILS NOT INDICATED IN THE STRUCTURAL DRAWINGS.

4.2 焊缝连接 （WELDING CONNECTION）

4.2.1 所有钢结构焊接及检验均应遵循国标GB50661-2011的规定。

ALL STEEL STRUCTURES SHALL BE WELDED AND INSPECTED IN COMPLIANCE WITH THE STIPULATIONS OF CHINESE CODE GB50661-2011.

4.2.2 制作单位应在钢结构构件制作及安装之前进行焊接工艺评定，并出具焊接工艺评定报告。

PRIOR TO STEEL STRUCTURE FABRICATION AND ERECTION, WELDING PROCEDURE QUALIFICATIONS (WPQS) SHALL BE COMPLETED AND PROCEDURE QUALIFICATION RECORDS (PQRS) SHALL BE PROVIDED BY THE MANUFACTURER.

4.2.3 焊接钢柱及钢梁等钢构件均应在工厂焊接成型。其焊缝质量应符合国标 GB/T1246 中二级焊缝质量标准。

STEEL MEMBERS, SUCH AS WELDED STEEL COLUMNS, WELDED STEEL BEAMS, ETC., SHALL BE WELDED IN THE FACTORY, WITH THEIR WELD QUALITY COMPLYING WITH THE GRADE II WELD QUALITY REQUIREMENTS OF CHINESE CODE GB/T1246.

4.2.4 组合H型钢的腹板与翼缘的焊接应采用自动焊,且四道连接焊缝均应双面连续焊,不得单面焊接。

THE WEB PLATES AND FLANGES OF COMBINED H-SECTION STEEL SHALL BE WELDED BY AUTOMATIC WELDING PROCESS AND ALL THE FOUR CONNECTION WELDS SHALL BE MADE IN A CONTINUOUS MANNER ON BOTH SIDES INSTEAD OF SINGLE SIDE.

4.2.5 钢梁及柱的上下翼缘和腹板的拼接缝不得在同一截面，应至少错开200mm，且不应与加劲肋重合，亦应错开至少200mm，接头位置设在距支座约1/3~1/4梁跨的范围内。上、下翼缘板及腹板的拼接，应采用加引弧板（其厚度和剖口与主材相同）的对接焊缝，并保证焊透，对接焊缝应符合《GB50205-2001》规范要求。

THE TOP AND BOTTOM FLANGES AND WEB PLATES OF STEEL BEAMS AND COLUMNS SHALL NOT BE SPLICED AT THE SAME CROSS SECTION AND SHALL BE STAGGERED BY AT LEAST 200mm. THE SPLICE JOINTS SHALL NOT MEET STIFFENERS AND A STAGGERING OF AT LEAST 200mm SHALL ALSO BE MADE. JOINTS SHALL BE LOCATED AT A DISTANCE OF 1/3 ~1/4 BEAM SPAN FROM THE SUPPORTS. THE TOP AND BOTTOM FLANGES AND WEB PLATES SHALL BE SPLICED BY BUTT WELDS WITH RUN-ON TABS (THEIR THICKNESS AND GROOVES SHALL BE THE SAME WITH THE BASE MATERIAL) AND FULL PENETRATION WELDS SHALL BE MADE, WITH THE BUTT WELDS COMPLYING WITH THE REQUIREMENTS OF CHINESE CODE GB50205-2001.

4.2.6 所有钢梁横向加劲肋与上翼缘板连接处，加劲板上端要求刨平顶紧后施焊。

THE TOP OF STIFFENERS SHALL BE PLANED AND TIGHTLY FITTED PRIOR TO WELDING AT THE JOINTS BETWEEN THE HORIZONTAL STIFFENERS AND THE TOP FLANGES OF ALL STEEL BEAMS.

4.2.7 对接焊缝的剖口形式应根据板厚和施工条件按《GB/T 985-1988》和《GB/T 986-1988》的要求选用。

GROOVES FOR BUTT WELDS SHALL BE SELECTED BASED ON PLATE THICKNESS AND CONSTRUCTION CONDITIONS AND ACCORDING TO CHINESE CODES GB/T 985-1988 AND GB/T 986-1988.

4.2.8 直角角焊缝的焊缝厚度除图中注明者外，不小于6mm，焊缝为连续焊缝。

UNLESS OTHERWISE NOTED IN THE DRAWING, THE THROAT THICKNESS OF RIGHT-ANGLED FILLET WELDS SHALL NOT BE LESS THAN 6mm AND THE FILLETS WELDS SHALL BE CONTINUOUS WELDS.

4.2.9 因焊接产生的变形应以机械或火焰矫正调直,具体做法应符合GB50205-2001的相关规定。

ANY DEFORMATION CAUSED BY WELDING SHALL BE CORRECTED AND STRAIGHTENED BY MECHANICAL MEANS OR FLAME. CORRECTION DETAILS SHALL COMPLY WITH THE RELEVANT STIPULATIONS OF CHINESE CODE GB50205-2001.

4.2.10 焊接施工单位在施工过程中，必须做好焊接记录，施工结束时，应准备一切必要的资料以备检查。

THE WELDING COMPANY SHALL MAINTAIN DETAILED WELDING RECORDS DURING CONSTRUCTION. ALL NECESSARY INFORMATION SHALL BE AVAILABLE FOR INSPECTION AT THE END OF CONSTRUCTION.

4.2.11 焊缝质量检验应按照国标《GB50661-2011》要求进行，各类焊缝无损检测的比例见表4.2.11。

WELD QUALITY INSPECTION SHALL BE IN ACCORDANCE WITH CHINESE STANDARD "GB50661-2011", AND THE NONDESTRUCTIVE INSPECTION RATIO OF ALL KINDS OF WELDS ARE LISTED IN TABLE 4.2.11.

表4.2.11 （TABLE 4.2.11）

序号 NO.	检测类别 TYPE OF INSPECTION	焊缝类型 TYPE OF WELD	检测部位 INSPECTION AREA	检测比例 RATIO OF INSPECTION
1	外观检验 VISUAL INSPECTION	所有焊缝 ALL WELDS	全长 FULL LENGTH	100%
2	超声波和磁粉探伤 UT AND MPI	质量等级为一级的全熔透的焊缝 FULL PENETRATION WELDS OF QUALITY GRADE I	全长 FULL LENGTH	100%
		质量等级为二级的全熔透的焊缝 FULL PENETRATION WELDS OF QUALITY GRADE II	焊缝两端各1000mm 1000mm AWAY FROM BOTH ENDS OF WELD	100%
		二级角焊缝 FILLET WELDS OF QUALITY GRADE II	两端螺栓孔部位并延长500mm TWO ENDS OF BOLT HOLE, AND 500mm AWAY FROM THESE ENDS 主梁及纵横梁跨中加探1000mm 1000mm AWAY FROM THESE WELDS IN THE MIDSPAN OF THE MAIN BEAM AND THE LONGITUDINAL BEAM OR THE CROSS BEAM	100%
		三级角焊缝 FILLET WELDS OF QUALITY GRADE III	N/A	

4.3 螺栓连接（BOLT CONNECTION）

4.3.1 高强螺栓的连接要求： 所有构件连接接触面，经喷砂（丸）处理后，其摩擦面的抗滑移系数：Q235B 级钢为 0.45，Q354B 级钢为 0.50；在施工前应作抗滑移系数试验。

REQUIREMENT ON HIGH-STRENGTH BOLT CONNECTION: AFTER CONTACT SURFACES OF ALL MEMBERS ARE TREATED BY SHOT-BLASTING,ANTI-SLIP COEFFICIENT OF THE FRICTION SURFACE: 0.45 FOR Q235B STEEL, 0.5 FOR Q345B STEEL. BEFORE CONSTRUCTION, ANTI-SLIP COEFFICIENT TESTS MUST BE CARRIED OUT.

4.3.2 构件的加工，运输，存放需保证摩擦面喷砂效果符合设计要求，贴面上严禁有焊渣、气割飞溅物、毛刺、飞边、尘土及油漆等不洁物质。安装前须检查合格后，方能进行高强螺栓组装。

THE SHOT-BLASTING EFFECT OF FRICTION SURFACES OF MEMBERS MUST BE GUARANTEED TO COMPLY WITH DESIGN REQUIREMENTS DURING FABRICATION, TRANSPORTATION AND STORAGE. THERE SHOULD BE NO SUCH UNCLEAN SUBSTANCES AS WELDING SLAG, GAS CUTTING SPATTERS, BURS, FINS, DUST OR PAINT, ETC. ON THE CONTACT SURFACE. HIGH STRENGTH BOLTS CAN NOT BE ASSEMBLED UNTIL BEING CHECKED QUALIFIED.

4.3.3 钢构件加工时，在钢构件高强螺栓结合部位表面除锈、喷砂后立即贴上胶带密封，待钢构件吊装拼接时用铲刀将胶带铲除干净。

DURING FABRICATION OF STEEL MEMBERS, JOINT SURFACES OF THE HIGH STRENGTH BOLTS AND STEEL MEMBERS SHALL BE IMMEDIATELY STICKED WITH SEALING TAPE AFTER SURFACE DERUSTING AND SHOT-BLASTING PRACTICE. AND THESE TAPES SHALL BE REMOVED COMPLETELY WITH BLADES BEFORE LIFTING AND ASSEMBLING OF STEEL MEMBERS.

4.3.4 对于在现场发现的因加工误差而无法进行施工的构件螺栓孔，不得采用锤击螺栓强行穿入或用气割扩孔，应与设计单位及相关部门协商处理;

IF THE CONSTRUCTION OF ANY BOLT HOLE ON A MEMBER CANNOT PROCEED DUE TO FABRICATION ERRORS, FORCED PENETRATION WITH HAMMER OR HOLE ENLARGING BY GAS CUTTING IS PROHIBITED. SUCH PROBLEMS SHALL BE SOLVED THROUGH NEGOTIATION WITH THE DESIGN UNIT AND RELEVANT DEPARTMENTS.

4.3.5 施工时拧紧螺母使每个高强螺栓的预拉力P达到设计规范规定值（见表4.3.5）。高强螺栓拧紧顺序应由中间向两端逐步交错成Z字型拧紧，拧紧完成后，应检查尾长是否符合要求。螺栓尾部伸出螺母的长度，至少为两扣，以5~8mm为宜。

DURING CONSTRUCTION, THE PRETENSION VALUE P OF EACH HIGH STRENGTH BOLT SHALL SATISFY THE REQUIRED VALUE STIPULATED IN TABLE 4.3.5.

THE HIGH STRENGTH BOLTS SHALL BE STAGGERED TIGHTENED IN A SEQUENCE FROM THE MIDDLE TO BOTH ENDS IN Z-SHAPE.AFTER BOLT TIGHTENING,CHECK WHETHER THE THREAD RUNOUT LENGTH IS QUALIFIED. THE BOLT END THREAD SHALL EXTEND OUT OF THE NUT BY AT LEAST TWO THREADS, 5~8mm PREFERRED.

表4.3.5 （TABLE 4.3.5）

螺栓直径 BOLT DIAMETER	高强螺栓的预拉力 PRETENSION OF HIGH STRENGTH BOLTS						
	M12	M16	M20	M22	M24	M27	M30
GRADE 8.8	45kN	80kN	125kN	150kN	175kN	230kN	280kN
GRADE 10.9	55kN	100kN	155kN	190kN	225kN	290kN	355kN

4.3.6 吊车梁的螺栓连接除了要满足上述要求外，还应满足下列要求：

BESIDES ABOVE MENTIONED REQUIREMENTS, THE BOLT CONNECTION OF CRANE RUNWAY BEAMS SHALL ALSO MEET THE FOLLOWING REQUIREMENTS:

4.3.6.1 吊车梁上翼缘板与制动板的安装连接，采用高强度螺栓摩擦型连接，螺栓直径M20，吊车梁上翼缘板与制动板的贴合摩擦面（宽度为120mm）内不得涂刷底漆，安装时应用钢丝刷清理浮锈，并应保证轧制表面干净。

HIGH STRENGTH BOLT FRICTION TYPE CONNECTION SHALL BE USED FOR CONNECTION OF CRANE RUNWAY BEAM TOP FLANGES AND BRAKE PLATES, WITH BOLT DIAMETER OF M20.THE FRICTION SURFACE (WIDTH IS 120mm) OF CRANE RUNWAY BEAM TOP FLANGES AND BRAKE PLATES ARE PROHIBITED TO BE COATED WITH PRIMERS.BEFORE INSTALLATION, THE SURFACE RUST SHALL BE REMOVED BY WIRE BRUSHES TO KEEP A CLEAN ROLLING SURFACE.

4.3.6.2 下翼缘水平桁架的安装连接，采用普通螺栓，于构件调正固定后，应采用双螺母或其他防止螺母松动的有效措施。

THE HORIZONTAL TRUSS OF BOTTOM FLANGES SHALL BE CONNECTED BY COMMON BOLTS. AFTER HORIZONTAL TRUSSES ARE ALIGNED AND FIXED, DOUBLE NUTS OR OTHER EFFECTIVE MEASURES FOR PREVENTING BOLT LOOSENING SHALL BE TAKEN.

4.3.6.3 两吊车梁的端部支承加劲肋之间，插入设计厚度为10mm的钢板，当吊车梁长度有制造误差或在柱间距有误差时，安装中应在有误差的每一柱处，随时调整插入钢板的厚度，不应将误差累积在一根柱子上，再行处理；连接两吊车梁的螺栓必须拧紧，并应采用双螺母或其他能防止螺母松动的有效措施。

THE STEEL PLATE WITH A DESIGN THICKNESS OF 10mm SHALL BE INSERTED BETWEEN STIFFENERS OF END SUPPORTS OF TWO CRANE RUNWAY BEAMS.WHEN THERE IS A LENGTH ERROR OF THE CRANE RUNWAY BEAM DUE TO FABRICATION OR ERROR OF COLUMN SPACING, DURING INSTALLATION, THE THICKNESS OF INSERTED STEEL PLATE SHOULD BE ADJUSTED AT ANY TIME AT THE ERROR PLACE OF EACH COLUMN, IT IS NOT ALLOWED TO ACCUMULATE
RUNWAY BEAMS MUST BE TIGHTENED, AND DOUBLE NUTS OR OTHER EFFECTIVE MEASURES
ERRORS IN ONE COLUMN AND THEN CORRECT. THE BOLTS USED FOR CONNECTING TWO CRANE
FOR PREVENTING BOLT LOOSENING SHALL BE TAKEN.

4.3.7 对于直接承受动力荷载的普通螺栓受拉连接应采用双螺帽或其它能防止螺帽松动的有效措施。

DOUBLE NUTS OR OTHER EFFECTIVE MEASURES FOR PREVENTING BOLT LOOSENING SHALL BE TAKEN FOR THE TENSILE CONNECTION OF COMMON BOLTS WHICH ARE DIRECTLY UNDER

4.4 运输与安装 （TRANSPORTATION AND ERECTION）

4.4.1 本图中厂房柱与梁按分段出厂设计，分段运输，在工地拼装。

IN THIS DRAWING, STEEL COLUMNS AND BEAMS OF EACH SHOP BUILDING ARE FABRICATED IN THE MANUFACTURER'S FACTORY, TRANSPORTED IN SECTIONS AND ASSEMBLED ON SITE.
DYNAMIC LOADS.

4.4.2 典型构件应在工厂进行预拼装，确认满足安装要求后方可运至现场。

TYPICAL MEMBERS SHOULD BE PRE-ASSEMBLED IN FACTORY, AND CAN'T BE DELIVERED TO THE SITE UNTIL ALL ERECTION REQUIREMENTS ARE SATISFIED.

业主（Owner）:
伊朗南方铝业公司
Iran South Aluminum Corporation

总承包商（EPC Contractor）:
中国有色金属建设股份有限公司
China Nonferrous Metal Industry's Foreign Engineering And Construction Co., Ltd.

设计单位（Engineering Institute）:
東北大學 设计研究院(有限公司)
N.E.U Engineering & Research Institute Co., Ltd.

版号 Rev.	日期 Date	说明 Description	制图 Drawn	校对 Checked	批准 Approved
△					
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△					
B1	2016.07.22	第一次提交，用于批准 ISSUED FOR APPROVAL			

审核/审定 Approved			
	马翼鹏 MA YIPENG		
校 对 Checked	穆春龙 MU CHUNLONG		
制 图 Drawn	赵金阳 ZHAO JINYANG		

结构设计总说明 GENERAL NOTES OF STRUCTURES		工程编号 Proj. No.	DG0505
		设计阶段 Phase	基本设计 BE
钢结构总说明(二) GENERAL NOTES OF STEEL STRUCTURES (Ⅱ)		专 业 Specialty	结 构 ST
		图纸比例 Scale	
图 号 Dwg. No.	DG0505BE-DR-0000ST-0106 B1 Rev.	图纸规格 Size	A1

钢结构总说明（三）

GENERAL NOTES OF STEEL STRUCTURES (Ⅲ)

安装中应在有误差的每一柱处，随时调整插入钢板的厚度，不应将误差累积在一根柱子上，再行处理；连接两吊车梁的螺栓必须拧紧，并应采用双螺母或其他能防止螺母松动的有效措施。

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4.4 运输与安装 (TRANSPORTATION AND ERECTION)

4.4.1 本图中厂房柱与梁按分段出厂设计，分段运输，在工地拼装。

IN THIS DRAWING, STEEL COLUMNS AND BEAMS OF EACH SHOP BUILDING ARE FABRICATED IN THE MANUFACTURER'S FACTORY, TRANSPORTED IN SECTIONS AND ASSEMBLED ON SITE. DYNAMIC LOADS.

4.4.2 典型构件应在工厂进行预拼装，确认满足安装要求后方可运至现场。

TYPICAL MEMBERS SHOULD BE PRE-ASSEMBLED IN FACTORY, AND CAN'T BE DELIVERED TO THE SITE UNTIL ALL ERECTION REQUIREMENTS ARE SATISFIED.

4.4.3 钢构件在运输吊装过程中应采取措施以防止过量变形和失稳。

DURING TRANSPORTATION AND HANDLING OF STEEL MEMBERS, EFFECTIVE MEASURES SHALL BE TAKEN TO PREVENT MEMBERS FROM EXCESSIVE DEFORMATION AND INSTABILITY.

4.4.4 钢结构安装时，宜设置可靠的支护体系，保证结构在各种荷载作用之下结构的稳定性和安全性。

DURING ERECTION, STEEL STRUCTURES SHALL BE PROVIDED WITH RELIABLE SUPPORTING SYSTEMS TO GUARANTEE THEIR STABILITY AND SAFETY UNDER VARIOUS LOADS.

4.4.5 刚架安装顺序：应先安装靠近山墙的有柱间支撑的两榀刚架，而后安装其他刚架。

INSTALLATION SEQUENCE OF RIGID FRAMES: THE TWO RIGID FRAMES WITH COLUMN BRACINGS NEAR THE GABLE SHALL BE ERECTED FIRST, AND THEN OTHER RIGID FRAMES WILL BE ERECTED.

4.4.6 头两榀刚架安装完毕后，应在两榀刚架间将水平系杆，檩条及柱间支撑，屋面水平支撑，隅撑全部装好。安装完成后应利用柱间支撑及屋面水平支撑调整构件的垂直度及水平度；待调整后方可锁定支撑。而后安装其他刚架。

THE HORIZONTAL TIE RODS, PURLINS, COLUMN BRACINGS, ROOF HORIZONTAL BRACINGS, AND KNEE BRACINGS SHALL BE ERECTED AFTER THE ERECTION OF THE FIRST TWO RIGID FRAMES IS COMPLETED.THEN, VERTICALITY AND LEVELNESS OF MEMBERS SHALL BE ADJUSTED WITH THE COLUMN BRACINGS AND ROOF HORIZONTAL BRACINGS. AFTER ADJUSTMENT OF MEMBERS, THE BRACINGS WILL BE FIXED TIGHT, AND THEN OTHER RIGID FRAMES WILL BE ERECTED.

4.4.7 除头两榀刚架外，其余榀的檩条、墙梁、隅撑的螺栓均应校准后再行拧紧。

BESIDES THE FIRST TWO RIGID FRAMES AT THE END, BOLTS OF PURLINS, GIRTS AND KNEE BRACINGS FOR ALL OTHER RIGID FRAMES SHALL BE TIGHTENED AFTER ALIGNING.

4.4.8 钢柱吊装：钢柱吊至基础短柱顶面后，安装屋面梁后，采用经纬仪进行校正。

LIFTING OF STEEL COLUMNS: STEEL COLUMNS SHALL BE LIFTED TO THE TOP SURFACE OF FOUNDATION SHORT COLUMN; AFTER THE ROOF BEAMS ARE ERECTED, USE THEODOLITE FOR ALIGNMENT.

4.4.9 檩条的安装应待刚架主结构调整定位后进行，檩条安装后应用拉杆调整平直度。

THE PURLINS SHALL BE ERECTED AFTER MAIN STRUCTURE OF THE RIGID FRAME IS POSITIONED, AND THEN THE STRAIGHTNESS OF ERECTED PURLINS SHALL BE ADJUSTED THROUGH TIE BARS.

4.4.10 结构安装完成后，应详细检查运输，安装过程中涂层的擦伤，并补刷油漆，对所有的连接螺栓应逐一检查，以防漏拧或松动。

UPON COMPLETION OF STRUCTURE ERECTION, ALL PAINT SCRATCH THAT APPEARED DUE TO COLLISION DURING TRANSPORTATION AND INSTALLATION SHALL BE INSPECTED AND REPAINTED WHERE NECESSARY.ALL CONNECTING BOLTS SHALL BE CHECKED TO PREVENT ANY UNTIGHTENED OR LOOSENED BOLTS.

4.4.11 不得利用已安装就位的构件起吊其他重物，不得在构件上加焊非设计要求的其他物件。

THE ASSEMBLED AND POSITIONED MEMBERS ARE NOT ALLOWED TO BE USED FOR LIFTING OTHER HEAVY THINGS. ANY COMPONENTS NOT REQUIRED IN DESIGN ARE NOT ALLOWED TO BE WELDED ON THE MEMBERS.

4.4.12 结构图纸仅针对建筑结构设计规范提出了要求，在运输与安装过程中，分包商应采取有效措施，以应对潜在的安全问题。

THESE STRUCTURAL DRAWINGS ONLY PROVIDE THE REQUIREMENTS AS PER RELEVANT DESIGN CODES. SUB CONTRACTORS SHALL TAKE EFFECTIVE MEASURES FOR POTENTIAL SAFETY PROBLEMS DURING TRANSPORTATION AND ERECTION.

5.允许偏差 (ALLOWABLE TOLERANCES)

5.1 钢结构的加工及安装允许偏差，应满足国家标准《GB50205-2001》中附录A~E（或与之相当规范）的要求。

ALLOWABLE TOLERANCES FOR FABRICATION AND ERECTION OF STEEL MEMBERS SHALL COMPLY WITH ANNEX A~E OF CHINESE STANDARD GB50205-2001 (OR ACCEPTABLE EQUIVALENTS).

5.2 当图中给出的允许偏差与国家标准不一致时，应按严格的要求执行。

IN CASE THE ALLOWABLE TOLERANCES GIVEN IN THE DRAWING ARE INCONSISTENT WITH THE REQUIRED VALUES STIPULATED IN THE CHINESE STANDARD, THE STRICTER ONE SHALL PREVAIL.

6.防腐要求 (ANTICORROSION REQUIREMENTS)

6.1 所有构件或材料涂漆前均应严格进行金属表面喷砂（丸）防锈处理，除锈等级要求达到国家标准《GB9823-88》中的Sa2$\frac{1}{2}$等级.

ALL MEMBERS OR MATERIALS SHALL BE SUBJECTED TO SHOT-BLASTING DERUSTING TREATMENT ON METAL SURFACE BEFORE PAINTING,WITH DERUSTING GRADE COMPLYING WITH ~~GRADE Sa2$\frac{1}{2}$ IN CHINESE STANDARD GB9823-88.~~

6.2 所有钢构件需在除锈处理后6个小时以内喷环氧富锌底漆两遍，根据环氧富锌底漆体系选用匹配的中间漆和面漆，漆膜总厚度200μm，并严格按照GB50205-2001中4.9条执行验收。

ALL STEEL MEMBERS SHALL BE SPRAYED WITH EPOXY ZINC RICH PRIMER TWICE WITHIN 6 HOURS AFTER DERUSTING AND FOLLOWED BY MATCHING INTERMEDIATE AND FINISH PAINT, WITH THE TOTAL PAINT FILM OF 200μm. INSPECTION AND ACCEPTANCE SHALL BE CARRIED OUT STRICTLY FOLLOWING ITEM 4.9 OF GB50205-2001. B2

6.3 构件出厂前，钢结构表面除了6.8条规定的免涂油漆的部位外，均按设计要求涂防锈底漆。

BEFORE STEELMEMBERS ARE DELIVERED OUT OF THE FACTORY, EXECPT THE PARTS MENTIONED IN PROVISION 6.8, ALL SURFACES OF STEEL MEMBERS SHALL BE COATED WITH ANTI-CORROSION PRIMERS ACCORDING TO THE DESIGN REQUIREMENTS.

6.4 主要钢构件面漆颜色为XX色，或由业主与总包商协商确定。

THE COLOR OF FINISH PAINT OF MAIN STEEL MEMBERS IS XX OR AS OTHERWISE NEGOTIATED BY THE OWNER AND EPC CONTRACTOR.

6.5 涂漆后的漆膜外观应均匀，平整，丰满而有光泽，不允许有咬底，裂纹，剥落，针孔等缺陷。涂层厚度用磁性测厚仪测定，总厚度应达到设计要求。

AFTER PAINTING, THE PAINT FILM SHALL BE UNIFORM, SMOOTH, FULL AND GLOSSY. SUCH DEFECTS AS LIFTING, CRACKS, PEELING AND PINHOLES, ETC. ARE PROHIBITED TO EXIST. THE THICKNESS OF COATS SHALL BE MEASURED BY THE MAGNETIC THICKNESS TESTER, AND THE TOTAL THICKNESS MUST MEET THE DESIGN REQUIREMENTS.

6.6 构件安装完毕后，应将预留的未涂底漆部分或运输安装过程中碰坏的涂漆部分以及安装螺栓拆除部分，补刷底漆，再涂刷中间漆及面漆。

AFTER MEMBER ERECTION, THE UNPAITED PART, THE PAINT FALLING-OFF PARTS DUE TO COLLISION ON TRANSPORTATION, AND THE DISMOUNTED PARTS FOR ERECTION BOLTS SHALL BE COATED WITH THE PRIMERS, INTERMEDIATE PAINT AND FINISH PAINT SHALL BE APPLIED IN A PROPER ORDER.

6.7 在高强度螺栓周围和制动梁与吊车梁的板缝处，补刷防锈漆封闭其缝隙以防锈蚀。

THE SURROUNDING AREAS OF HIGH STRENGTH BOLTS, AND THE JOINTS BETWEEN THE BRAKE BEAMS AND CRANE RUNWAY BEAMS SHALL BE CLOSED WITH ANTI-RUST PAINT AND GAPS FILLED WITH ANTI-RUST PAINT TO PREVENT RUSTING.

6.8 下列部位不得涂油漆 (THE FOLLOWING PARTS ARE PROHIBITED TO BE PAINTED:)

- ● 插入杯口段钢柱 (STEEL COLUMN SECTION THAT IS INSERTED INTO THE CUP;);
- ● 高强度螺栓节点摩擦面 (THE FRICTION SURFACES OF HIGH-STRENGTH BOLTED CONNECTION;);
- ● 工地焊接部位两侧各50mm范围 (50mm WITHIN BOTH SIDES OF FIELD WELDING PART;);
- ● 地脚螺栓和底板 (ANCHOR BOLTS AND BASE PLATES;);

7.使用与维护 (SERVICE AND MAINTENANCE)

7.1 未经许可，不得改变结构的用途和使用环境。

THE USE AND SERVICE ENVIRONMENT OF STRUCTURES ARE PROHIBITED TO BE CHANGED WITHOUT APPROVAL.

7.2 应定期对钢结构进行检查和维护。

STEEL STRUCTURES SHALL BE PROVIDED WITH REGULAR INSPECTION AND MAINTENANCE.

7.3 为便于沉降观测，应按国标《JGJ 8-2007》或与之相当的标准要求，在建筑物附近设置一个高程基准点。

FOR THE CONVENIENCE OF SETTLEMENT OBSERVATION, ONE ELEVATION DATUM POINT SHALL BE SET NEAR BUILDINGS ACCORDING TO THE REQUIREMENTS OF CHINESE STANDARD JGJ 8-2007 OR ACCEPTABLE EQUIVALENTS.

7.4 沉降观测应按国标《JGJ 8-2007》进行，观测时间及次数如下：

THE SETTLEMENT OBSERVATION WORK SHOULD COMPLY WITH CHINESE STANDARD JGJ 8-2007, AND THE OBSERVATION TIME AND FREQUENCY ARE AS FOLLOWS:

● 施工阶段的观测：钢结构安装完工后观测1次；

OBSERVATIONS DURING CONSTRUCTION STAGE: ONE OBSERVATION UPON THE COMPLETION OF STEEL STRUCTURE ERECTION.

● 使用阶段的观测：第一年观测3~4次；第二年观测2~3次；第二年后每年观测一次；直至沉降稳定为止。

OBSERVATIONS DURING SERVICE STAGE: IN THE FIRST YEAR, OBSERVATIONS SHALL BE CONDUCTED 3~4 TIMES; IN THE SECOND YEAR,OBSERVATIONS SHALL BE CONDUCTED 2~3 TIMES; AFTERWARDS, OBSERVATIONS SHALL BE CONDUCTED ONCE A YEAR UNTIL A STABLE SETTLEMENT IS ACHIEVED.

● 若基础附近地面荷载突然增减、基础四周积水或长时间连续降雨等情况发生时，应及时增加观测次数。

WHEN THE GROUND LOAD NEAR THE FOUNDATION IS UNEXPECTEDLY INCREASED OR REDUCED, OR THERE IS WATER ACCUMULATION AROUND THE FOUNDATIONS,OR THERE IS CONTINUOUS LONG-LASTING RAINFALL PERIOD, THE OBSERVATION FREQUENCY SHOULD BE TIMELY INCREASED.

7.5 如发现沉降出现异常，应进行逐日或2~3D一次的连续观测，并及时与工程师联系。

IN CASE ANY ABNORMAL SETTLEMENT IS FOUND, OBSERVATIONS SHOULD BE CONDUCTED ONCE EVERY DAY OR ONCE PRT 2~3 DAYS, AND THE ENGINEER SHOULD BE NOTIFIED OF IT IMMEDIATELY.

8. 构件代号及图例 (MEMBER CODE AND LEGEND)

8.1 构件简化代号见表8.1。

SIMPLIFIED CODES OF MEMBERS ARE LISTED IN TABLE 8.1.

8.2 构件图例见表8.2。

THE MEMBER LEGENDS ARE LISTED IN TABLE 8.2.

表8.2 (TABLE 8.2)

序号 NO.	构件名称 MEMBER NAME	图例 LEGEND
1	高强螺栓 HIGH STRENGTH BOLT	◆
2	永久螺栓 PERMANENT BOLT	◇
3	安装螺栓 ERECTION BOLT	◈

9.其它 (OTHERS)

9.1 如图中中英文对照出现表达或理解不一致的地方，应及时与工程师联系。

IN CASE OF ANY INCONSISTENCIES BETWEEN THE CHINESE AND THE ENGLISH EXPRESSION OR UNDERSTANDING IN THE DRAWINGS, TIMELY CONTACT THE ENGINEER.

参考图纸/文献 Ref. Drawing/Document	
图纸/文献号 Drawing/Document No.	名称 Title

表8.1 (TABLE 8.1)

序号 NO.	构件名称 MEMBER NAME	代号 CODE	序号 NO.	构件名称 MEMBER NAME	代号 CODE
1	刚架 RIGID FRAME	RF	17	牛腿 BRACKET	BK
2	钢柱 STEEL COLUMN	SC	18	抗风柱 WIND COLUMN	WC
3	钢梁 STEEL BEAM	SB	19	角柱 CORNER COLUMN	CC
4	柱间支撑 COLUMN BRACING	CB	20	轨道 RAIL	RL
5	屋盖水平支撑 ROOF HORZ. BRACING	RHB	21	轨道压板 RAIL CLAMP	RC
6	屋盖垂直支撑 ROOF VERT. BRACING	RVB	22	吊车梁 CRANE RUNWAY BEAM	CRB
7	钢托架 STEEL SUPPORTING TRUSS	SST	23	车挡 BUMPER	BP
8	檩条 PURLIN	P	24	制动梁 BRAKE BEAM	BB
9	墙梁 GIRT	G	25	制动桁架 BRAKE TRUSS	BT
10	撑杆 BRACE ROD	BR	26	钢支架 STEEL BRACKET	SBR
11	拉条 TIE ROD	TR	27	门柱 DOOR COLUMN	DC
12	斜拉条 DIAGONAL TIE ROD	DTR	28	门梁 DOOR BEAM	DB
13	隅撑 KNEE BRACING	KB	29	普通螺栓 COMMON BOLT	B
14	系杆 TIE BAR	TB	30	高强螺栓 HIGH STRENGTH BOLT	HSB
15	钢桁架 STEEL TRUSS	ST	31	钢梯 STEEL STAIR	STR
16	钢屋架 STEEL ROOF TRUSS	SRT			

版号 Rev.	日期 Date	说明 Description	制图 Drawn	校对 Checked	批准 Approved
△					
△					
△					
△					
B2	2016.09.28	第二次提交，用于批准 ISSUED FOR APPROVAL	赵金阳 ZHAO JINYANG	穆春龙 MU CHUNLONG	马翼鹏 MA YIPENG
B1	2016.07.22	第一次提交，用于批准 ISSUED FOR APPROVAL	赵金阳 ZHAO JINYANG	穆春龙 MU CHUNLONG	马翼鹏 MA YIPENG

业主 (Owner)：
伊朗南方铝业公司
Iran South Aluminum Corporation

总承包商 (EPC Contractor)：
中国有色金属建设股份有限公司
China Nonferrous Metal Industry's Foreign Engineering And Construction Co., Ltd.

设计单位 (Engineering Institute)：
東北大學 设计研究院(有限公司)
N.E.U Engineering & Research Institute Co., Ltd.

审核/审定 Approved	马翼鹏 MA YIPENG
校对 Checked	穆春龙 MU CHUNLONG
制图 Drawn	赵金阳 ZHAO JINYANG

结构设计总说明
GENERAL NOTES OF STRUCTURES

钢结构总说明（三）
GENERAL NOTES OF STEEL STRUCTURES (Ⅲ)

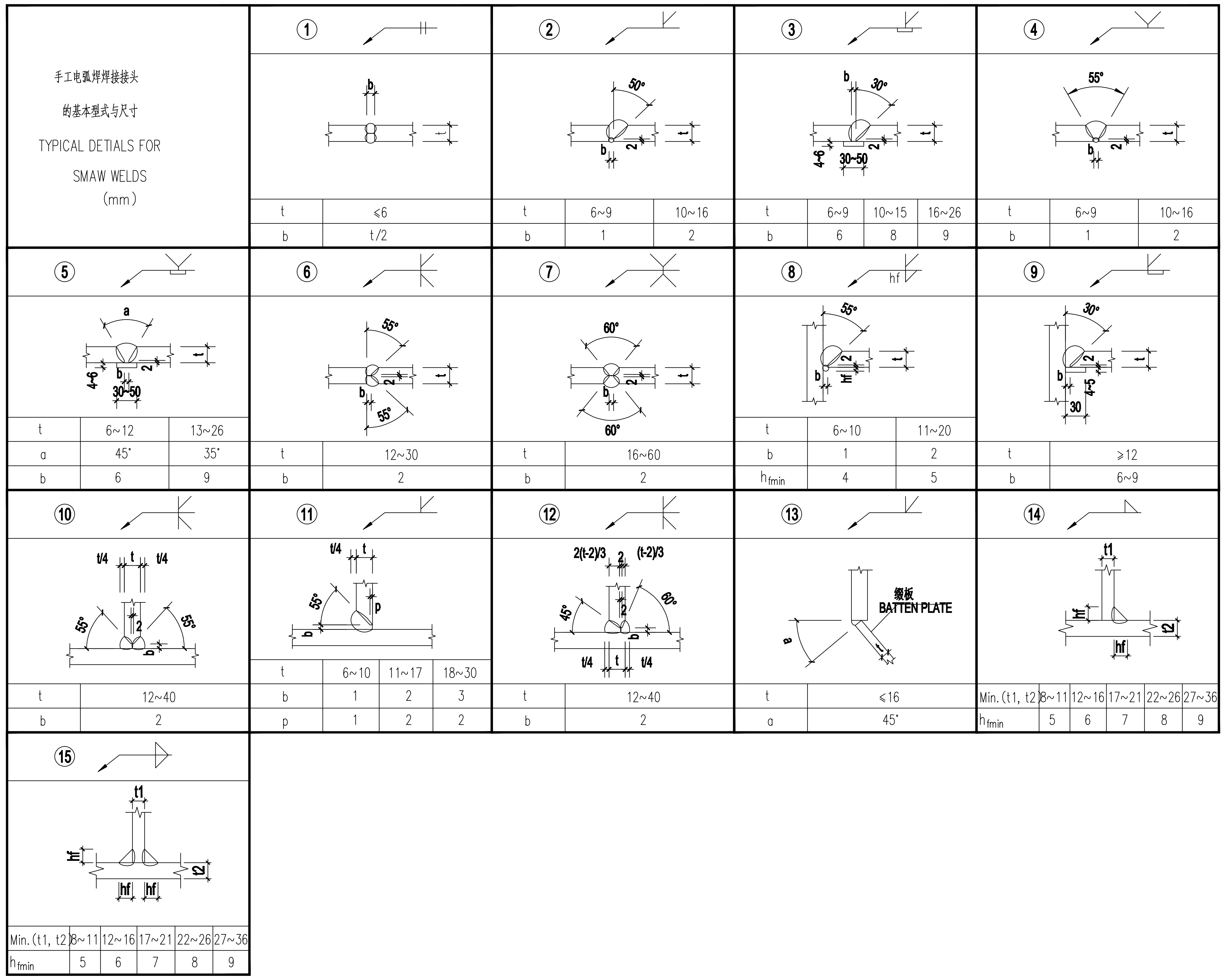
工程编号 Proj. No.	DG0505
设计阶段 Phase	基本设计 BE
专业 Specialty	结构 ST
图纸比例 Scale	
图号 Dwg. No.	DG0505BE-DR-0000ST-0107
Rev.	B2
图纸规格 Size	A1

钢结构总说明（四）

GENERAL NOTES OF STEEL STRUCTURES（Ⅳ）

参考图纸/文献 Ref. Drawing/Document	
图纸/文献号 Drawing/Document No.	名称 Title

10. 标准焊接大样图及说明（STANDARD WELDING DETAIL AND ILLUSTRATION）



手工电弧焊焊接接头的基本型式与尺寸 TYPICAL DETIALS FOR SMAW WELDS (mm)

①

t	≤6
b	t/2

②

t	6~9	10~16
b	1	2

③

t	6~9	10~15	16~26
b	6	8	9

④

t	6~9	10~16
b	1	2

⑤

t	6~12	13~26
a	45°	35°
b	6	9

⑥

t	12~30
b	2

⑦

t	16~60
b	2

⑧

t	6~10	11~20
b	1	2
h_{fmin}	4	5

⑨

t	≥12
b	6~9

⑩

t	12~40
b	2

⑪

t	6~10	11~17	18~30
b	1	2	3
p	1	2	2

⑫

t	12~40
b	2

⑬

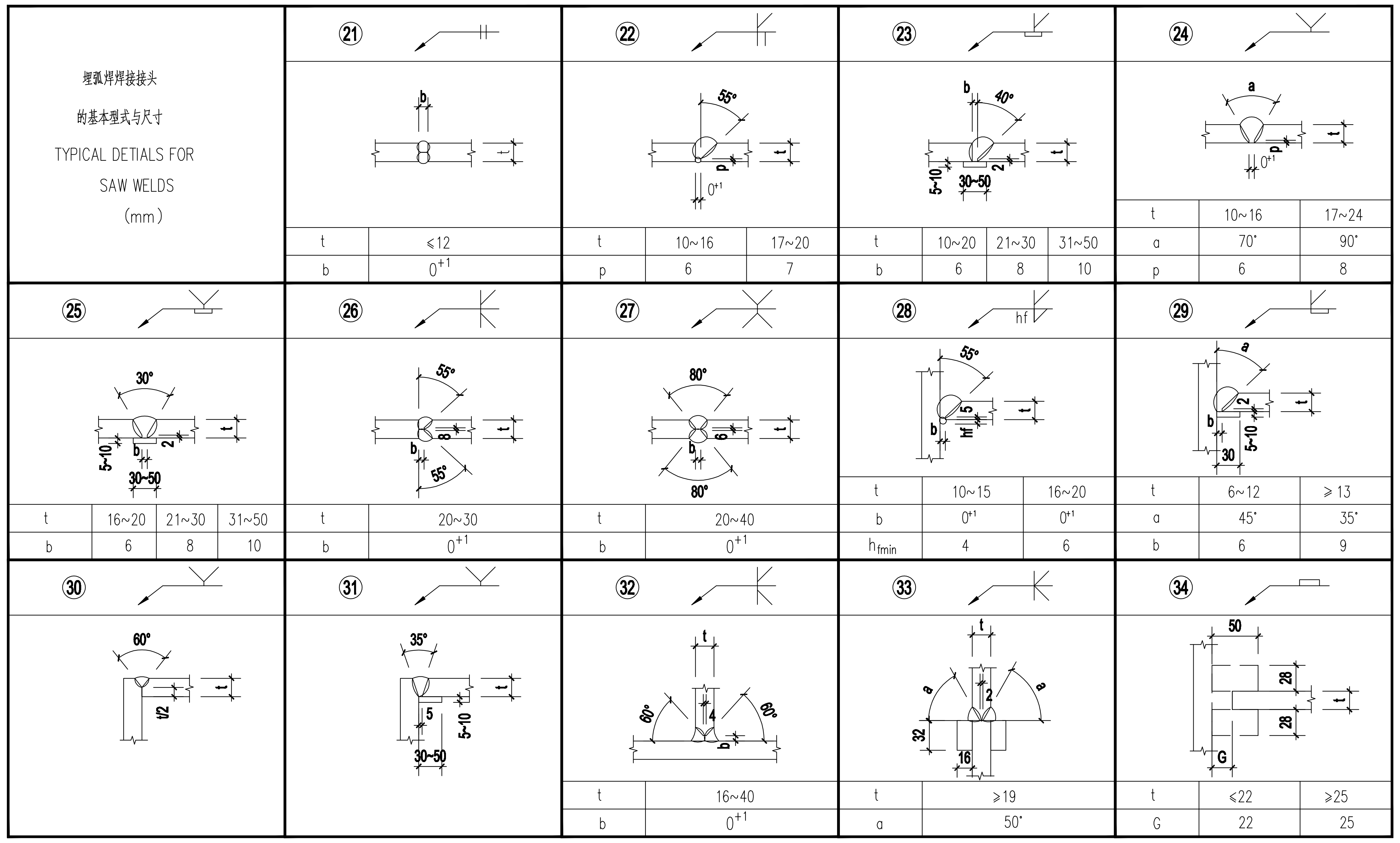
t	≤16
a	45°

⑭

Min.(t1, t2)	8~11	12~16	17~21	22~26	27~36
h_{fmin}	5	6	7	8	9

⑮

Min.(t1, t2)	8~11	12~16	17~21	22~26	27~36
h_{fmin}	5	6	7	8	9



埋弧焊焊接接头的基本型式与尺寸 TYPICAL DETIALS FOR SAW WELDS (mm)

㉑

t	≤12
b	0^{+1}

㉒

t	10~16	17~20
p	6	7

㉓

t	10~20	21~30	31~50
b	6	8	10

㉔

t	10~16	17~24
a	70°	90°
p	6	8

㉕

t	16~20	21~30	31~50
b	6	8	10

㉖

t	20~30
b	0^{+1}

㉗

t	20~40
b	0^{+1}

㉘

t	10~15	16~20
b	0^{+1}	0^{+1}
h_{fmin}	4	6

㉙

t	6~12	≥13
a	45°	35°
b	6	9

㉚

㉛

㉜

t	16~40
b	0^{+1}

㉝

t	≥19
a	50°

㉞

t	≤22	≥25
G	22	25

版号 Rev.	日期 Date	说明 Description	制图 Drawn	校对 Checked	批准 Approved
B1	2016.07.22	第一次提交，用于批准 ISSUED FOR APPROVAL			

业主 (Owner)：
伊朗南方铝业公司
Iran South Aluminum Corporation

总承包商 (EPC Contractor)：
中国有色金属建设股份有限公司
China Nonferrous Metal Industry's Foreign Engineering And Construction Co., Ltd.

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结构设计总说明
GENERAL NOTES OF STRUCTURES

钢结构总说明（四）
GENERAL NOTES OF STEEL STRUCTURES（Ⅳ）

工程编号 Proj. No.：DG0505
设计阶段 Phase：基本设计 BE
专业 Specialty：结构 ST
图纸比例 Scale：
图号 Dwg. No.：DG0505BE-DR-7091ST-0108
Rev.：B1
图纸规格 Size：A1