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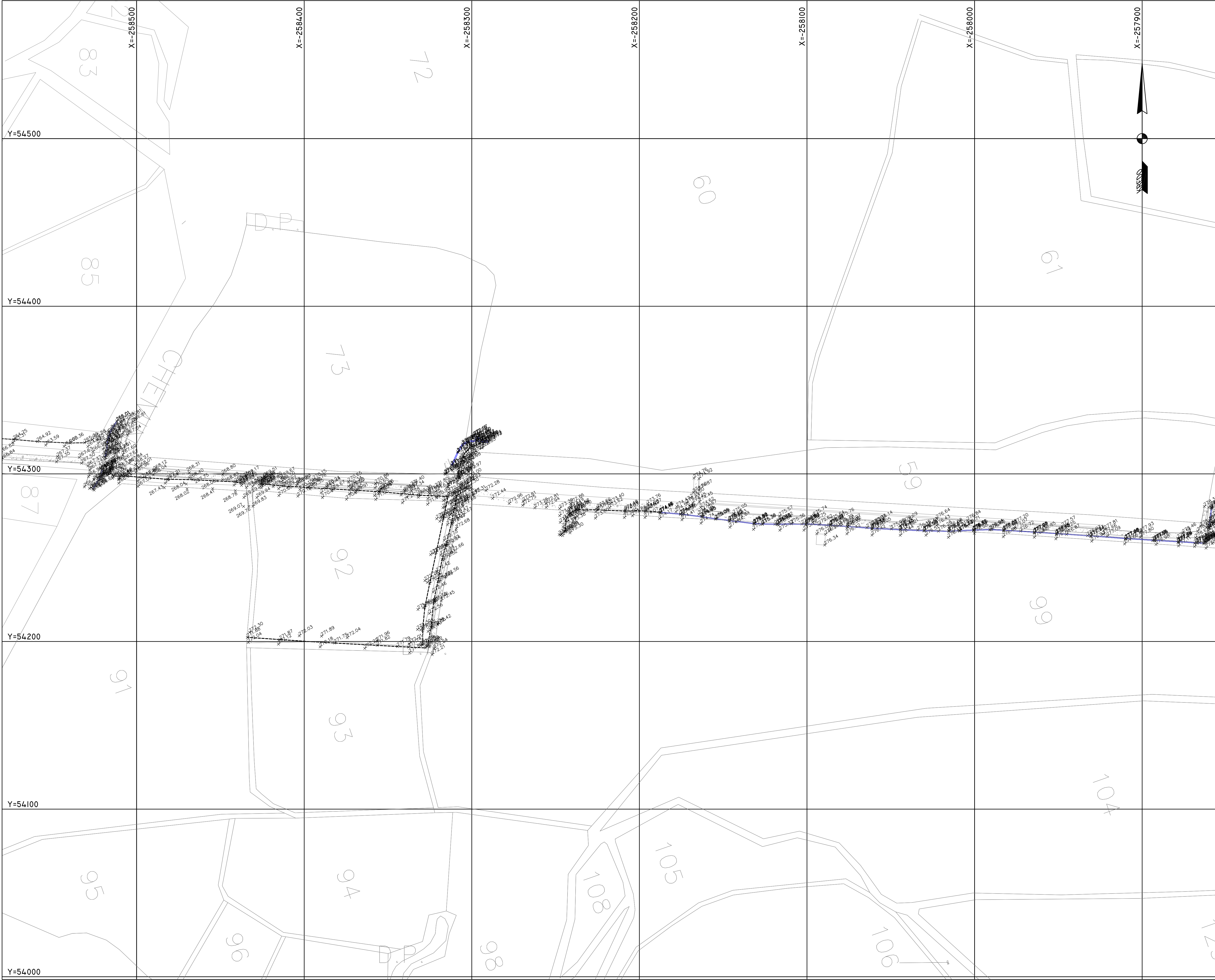
UNITED NATION DEVELOPMENT PROGRAMME
UNDP LEBANON
SOCIAL AND LOCAL DEVELOPMENT PROGRAMME



DESIGN OF IRRIGATION CHANNELS IN MASHTA HAMMOUD AKKAR MOHAFAZA

VOLUME I
DETAILED DESIGN DRAWINGS

JULY, 2017



NOTES:

- ALL DIMENSIONS ARE IN METERS, UNLESS OTHER- WISE INDICATED.
- COORDINATES AND ELEVATIONS ARE TIED TO THE NATIONAL DATUM OF LEBANON.

LEGEND:

- EXISTING CONCRETE CHANNEL
- EXISTING EARTH CHANNEL
- EXISTING ROAD
- GREEN HOUSE
- SURVEY STATION
- POINT ELEVATION

2		
1		
No.	REVISION	DATE

CLIENT:



UNITED NATION DEVELOPMENT PROGRAMME
UNDP LEBANON
SOCIAL AND LOCAL DEVELOPMENT PROGRAMME

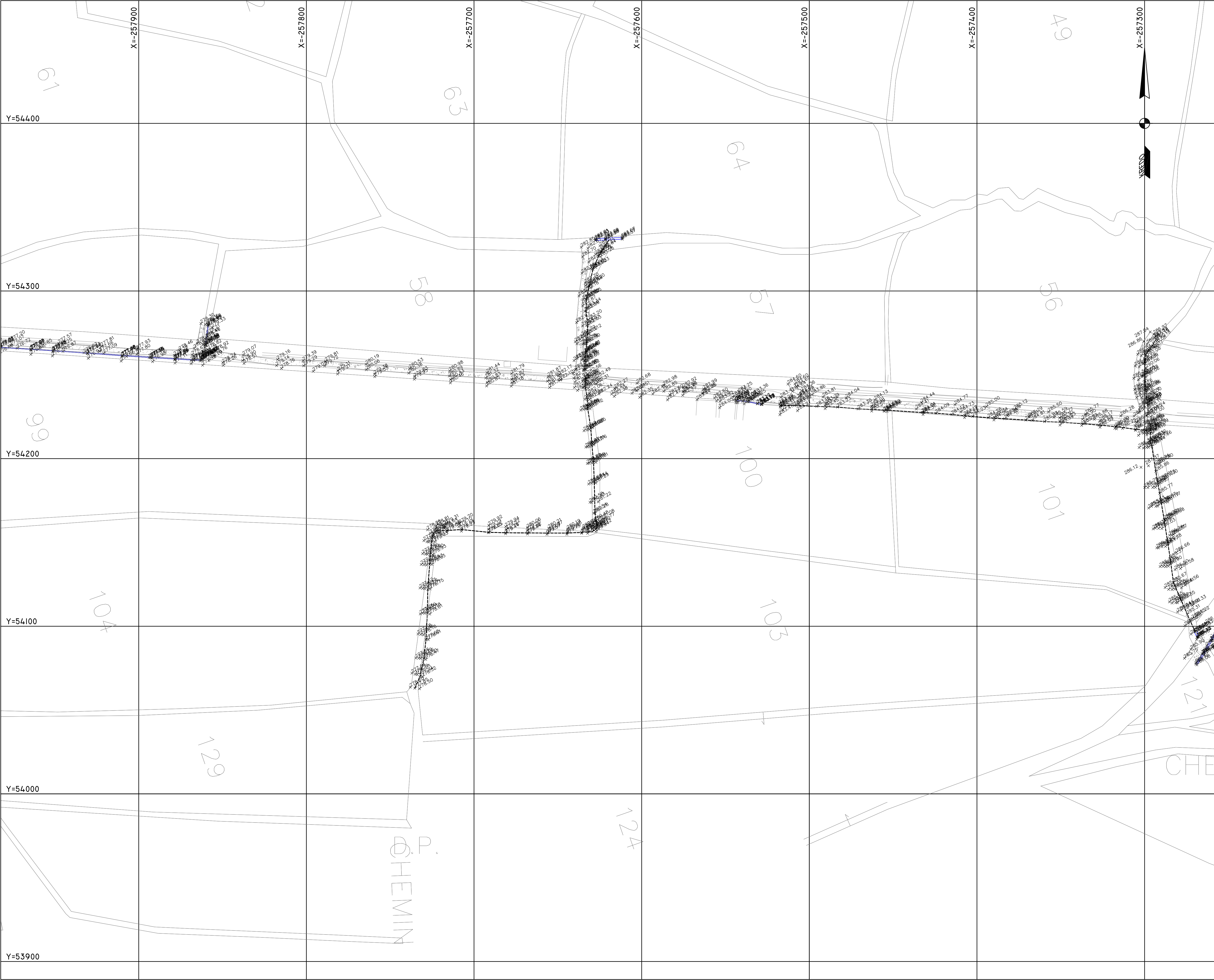
PROJECT REFERENCE: P-1712A

PROJECT NAME:
DESIGN OF IRRIGATION CHANNELS IN MASHTA HAMMOUD

DRAWING TITLE:
MASHTA HAMMOUD TOPOGRAPHICAL SURVEY PLAN
SHEET 1 OF 2

DRAWN: N.A.	DESIGNED: S.F.	CHECKED: R.S.	APPROVED: G.K.
DATE: JULY-2017	SCALE: 1/1000 @ A1		
FILE NAME:		REVISION: --	

DRAWING No.: P-1712A-TOP-101



NOTES:

- ALL DIMENSIONS ARE IN METERS, UNLESS OTHER- WISE INDICATED.
- COORDINATES AND ELEVATIONS ARE TIED TO THE NATIONAL DATUM OF LEBANON.

LEGEND:

- EXISTING CONCRETE CHANNEL
- EXISTING EARTH CHANNEL
- EXISTING ROAD
- GREEN HOUSE
- SURVEY STATION
- POINT ELEVATION

2		
1		
No.	REVISION	DATE

CLIENT:

UNITED NATION DEVELOPMENT PROGRAMME
UNDP LEBANON
SOCIAL AND LOCAL DEVELOPMENT PROGRAMME

PROJECT REFERENCE: P-1712A

PROJECT NAME:
DESIGN OF IRRIGATION CHANNELS IN MASHTA HAMMOUD

DRAWING TITLE:
MASHTA HAMMOUD TOPOGRAPHICAL SURVEY PLAN
SHEET 2 OF 2

DRAWN:	N.A.	DESIGNED:	S.F.	CHECKED:	R.S.	APPROVED:	G.K.
DATE:	JULY-2017			SCALE:	1/1000 @ A1		
FILE NAME:							
DRAWING No.:	P-1712A-TOP-102			REVISION:	—		

LIST OF DRAWINGS

DRAWING NO:	DRAWING TITLE	SCALE
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GENERAL

P-1712A-GEN-001	LIST OF DRAWNGS	N.T.S
P-1712A-GEN-002	MASHTA HAMMOUD IRRIGATION CHANNELS GENERAL LAYOUT PLAN	1/5000

TOPOGRAPHICAL SURVEY

P-1712A-TOP-101	MASHTA HAMMOUD TOPOGRAPHICAL SURVEY PLAN SHEET 1 OF 2	1/1000
P-1712A-TOP-102	MASHTA HAMMOUD TOPOGRAPHICAL SURVEY PLAN SHEET 2 OF 2	1/1000

PLANS

P-1712A-PLN-201	MASHTA HAMMOUD IRRIGATION CHANNELS LAYOUT PLAN – LINE F , LINE F-9 AND LINE G SHEET 1 OF 2	1/1000
P-1712A-PLN-202	MASHTA HAMMOUD IRRIGATION CHANNELS LAYOUT PLAN – LINE I, LINE I-11 AND LINE H SHEET 2 OF 2	1/1000

PROFILES

P-1712A-PRO-301	MASHTA HAMMOUD IRRIGATION CHANNELS PROFILES – LINES F, F-9, G AND H	V: 1/100 H: 1/1000
P-1712A-PRO-302	MASHTA HAMMOUD IRRIGATION CHANNELS PROFILES – LINES I AND I-11	V: 1/100 H: 1/1000

TYPICAL DETAILS

P-1712A-DET-401	TYPICAL DETAILS SHEET 1 OF 2	N.T.S
P-1712A-DET-402	TYPICAL DETAILS SHEET 2 OF 2	N.T.S

NOTES:

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No.	REVISION	DATE

CLIENT:



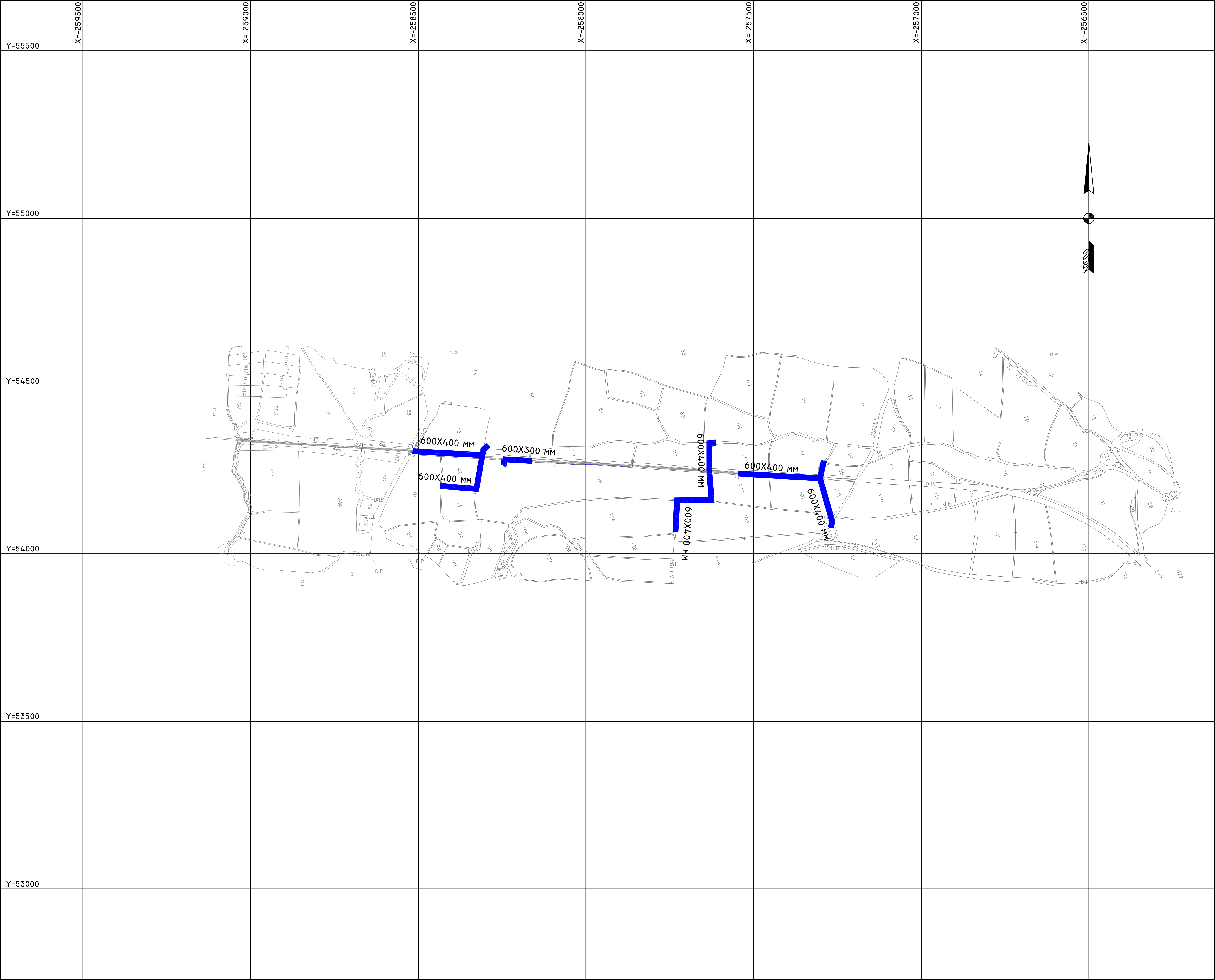
UNITED NATION DEVELOPMENT PROGRAMME
UNDP LEBANON
SOCIAL AND LOCAL DEVELOPMENT PROGRAMME

PROJECT REFERENCE: P-1712A

PROJECT NAME: :
DESIGN OF IRRIGATION CHANNELS IN MASHTA HAMMOUD

DRAWING TITLE:
LIST OF DRAWINGS

DRAWN:	N.A.	DESIGNED:	S.F.	CHECKED:	R.S.	APPROVED:	G.K.
DATE:	JULY-2017			SCALE:	N.T.S		
FILE NAME:							
DRAWING No.:	P-1712A-GEN-001				REVISION:	—	



NOTES:

1. ALL DIMENSIONS ARE IN METERS, UNLESS OTHER- WISE INDICATED.

2. COORDINATES AND ELEVATIONS ARE TIED TO THE NATIONAL DATUM OF LEBANON.

LEGEND:

PROPOSED IRRIGATION CHANNEL

2		
1		
No.	REVISION	DATE

CLIENT:

 UNITED NATION DEVELOPMENT PROGRAMME
UNDP LEBANON
SOCIAL AND LOCAL DEVELOPMENT PROGRAMME

PROJECT REFERENCE: P-1712A

PROJECT NAME:
DESIGN OF IRRIGATION CHANNELS IN MASHTA HAMMOUD AND MOHAMMARA

DRAWING TITLE:
MASHTA HAMMOUD IRRIGATION CHANNELS
GENERAL LAYOUT PLAN

DRAWN:	N.A.	DESIGNED:	S.F.	CHECKED:	R.S.	APPROVED:	G.K.
DATE:	JULY-2017			SCALE:	1/5000 @ A1		
FILE NAME:							
DRAWING No.:	P-1712A-GEN-002					REVISION:	—



NOTES:

- ALL DIMENSIONS ARE IN METERS, UNLESS OTHER- WISE INDICATED.
- COORDINATES AND ELEVATIONS ARE TIED TO THE NATIONAL DATUM OF LEBANON.

LEGEND:

- EXISTING CONCRETE CHANNEL
- PROPOSED OPEN IRRIGATION CONCRETE CHANNEL
- PROPOSED COVERED IRRIGATION CONCRETE CHANNEL
- EXISTING ROAD
- GREEN HOUSE
- PROPOSED SLUICE GATE TYPE 1
- PROPOSED SLUICE GATE TYPE 2

2		
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No.	REVISION	DATE
CLIENT:		
UNITED NATION DEVELOPMENT PROGRAMME UNDP LEBANON SOCIAL AND LOCAL DEVELOPMENT PROGRAMME		
PROJECT REFERENCE: P-1712A		
PROJECT NAME:		
DESIGN OF IRRIGATION CHANNELS IN MASHTA HAMMOUD		
DRAWING TITLE:		
MASHTA HAMMOUD IRRIGATION CHANNELS LAYOUT PLAN - LINE F , LINE F-9 AND LINE G SHEET 1 OF 2		
DRAWN:	DESIGNED:	CHECKED:
N.A.	S.F.	R.S.
DATE:	JULY-2017	SCALE:
FILE NAME:	P-1712A-PLN-201	REVISION:
DRAWING No.:	P-1712A-PLN-201	REVISION:



NOTES:

1. ALL DIMENSIONS ARE IN METERS, UNLESS OTHER- WISE INDICATED.
2. COORDINATES AND ELEVATIONS ARE TIED TO THE NATIONAL DATUM OF LEBANON.

LEGEND:

- EXISTING CONCRETE CHANNEL
- PROPOSED OPEN IRRIGATION CONCRETE CHANNEL
- PROPOSED COVERED IRRIGATION CONCRETE CHANNEL
- EXISTING ROAD
- GREEN HOUSE
- PROPOSED SLUICE GATE TYPE 1
- PROPOSED SLUICE GATE TYPE 2

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No.	REVISION	DATE

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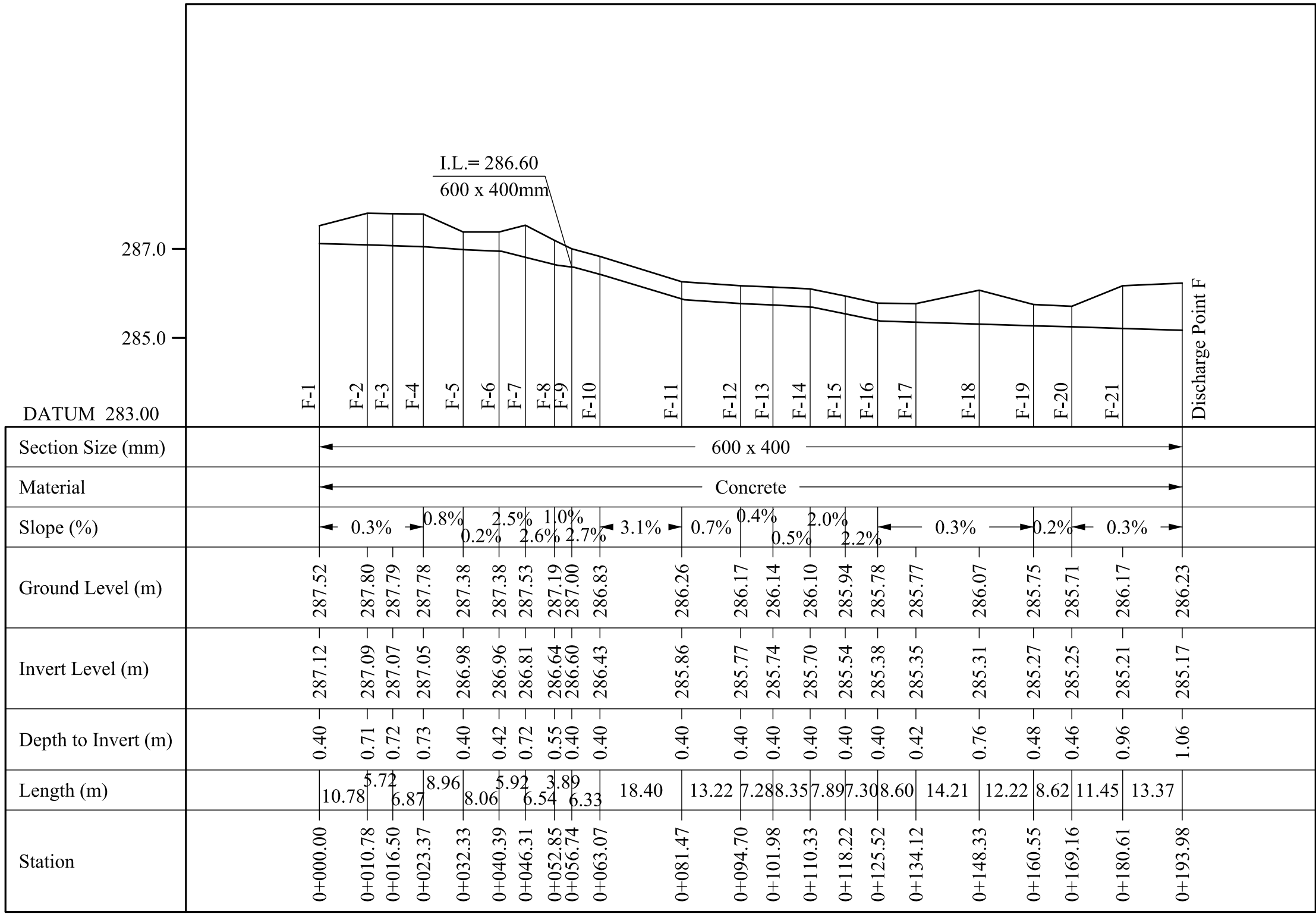
 UNITED NATION DEVELOPMENT PROGRAMME
UNDP LEBANON
SOCIAL AND LOCAL DEVELOPMENT PROGRAMME

PROJECT REFERENCE: P-1712A

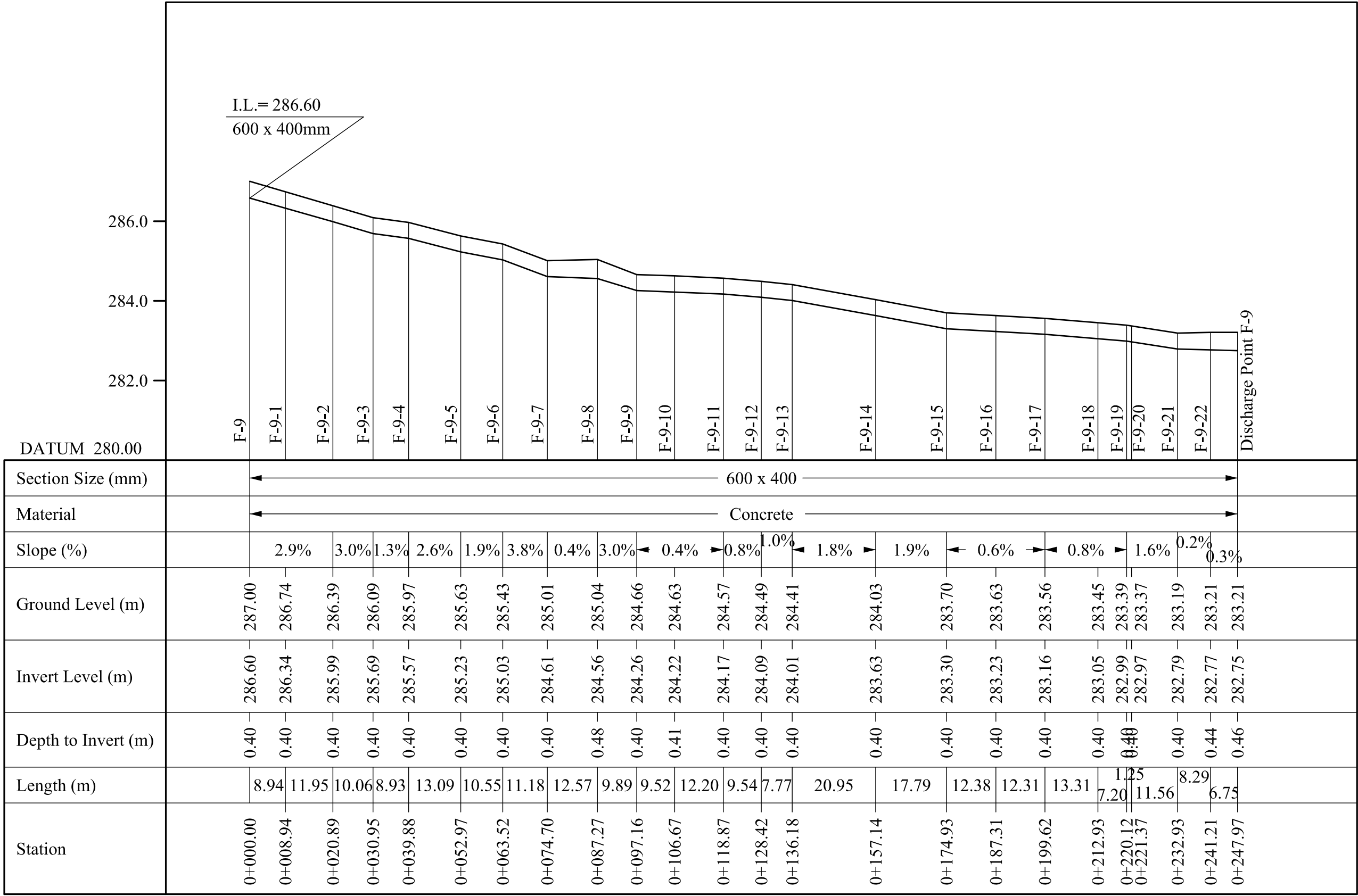
PROJECT NAME:
DESIGN OF IRRIGATION CHANNELS IN MASHTA HAMMOUD

DRAWING TITLE:
MASHTA HAMMOUD IRRIGATION CHANNELS
LAYOUT PLAN - LINE I, LINE I-II AND LINE H
SHEET 2 OF 2

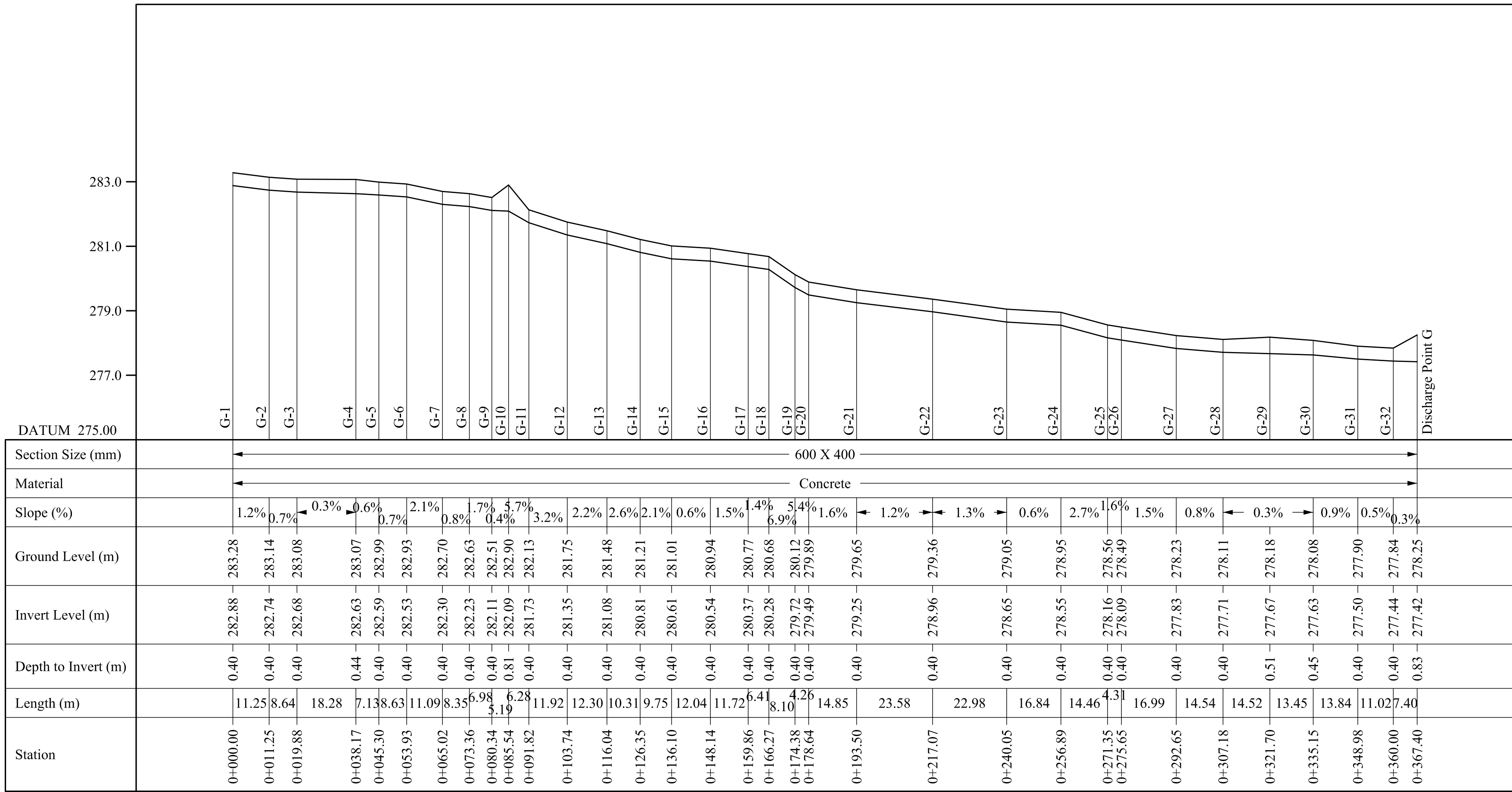
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DATE:	JULY-2017	SCALE:	1/1000 @ A1				
FILE NAME:							
DRAWING No.:	P-1712A-PLN-202	REVISION:					



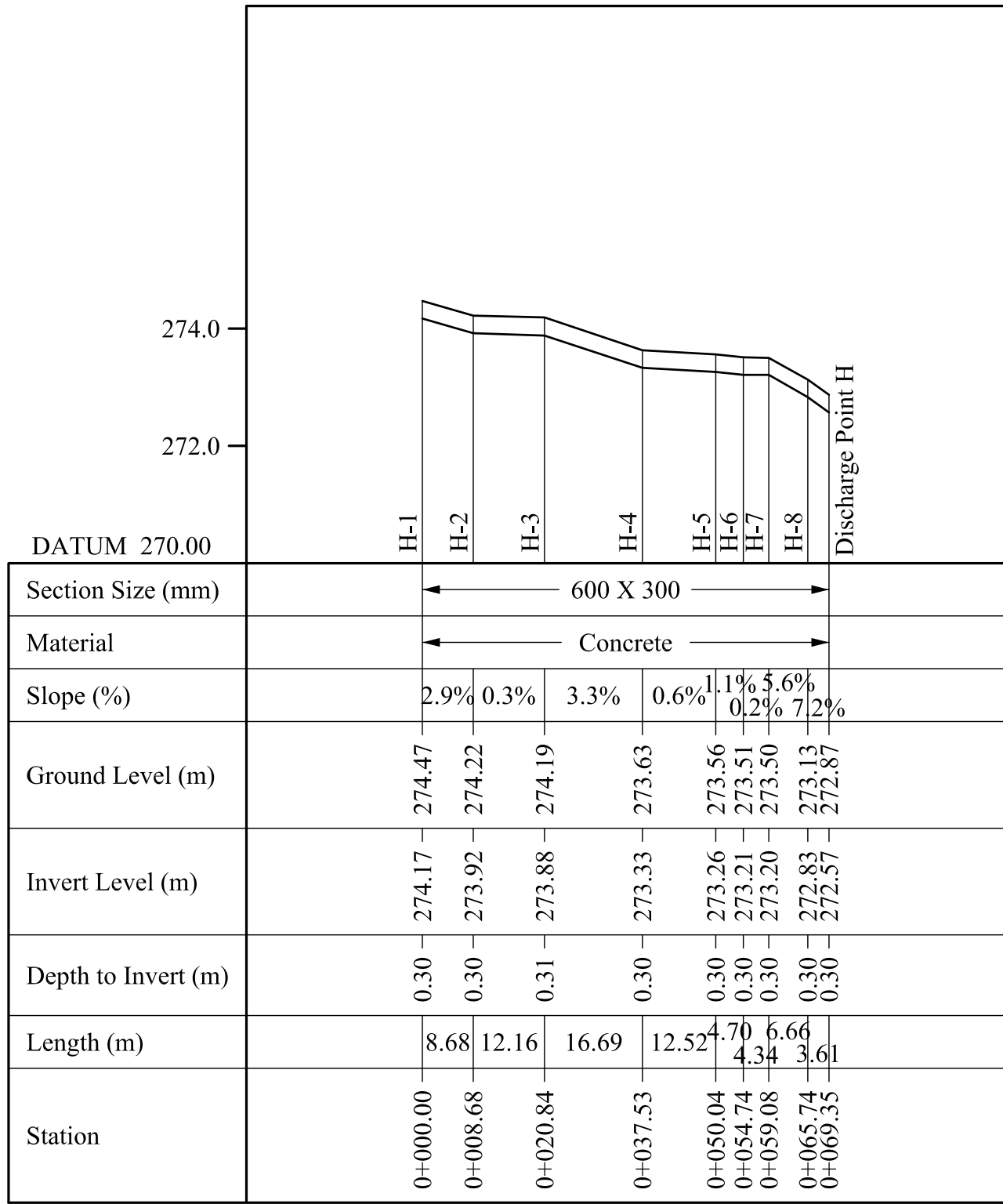
LINE F



LINE F-9



LINE G

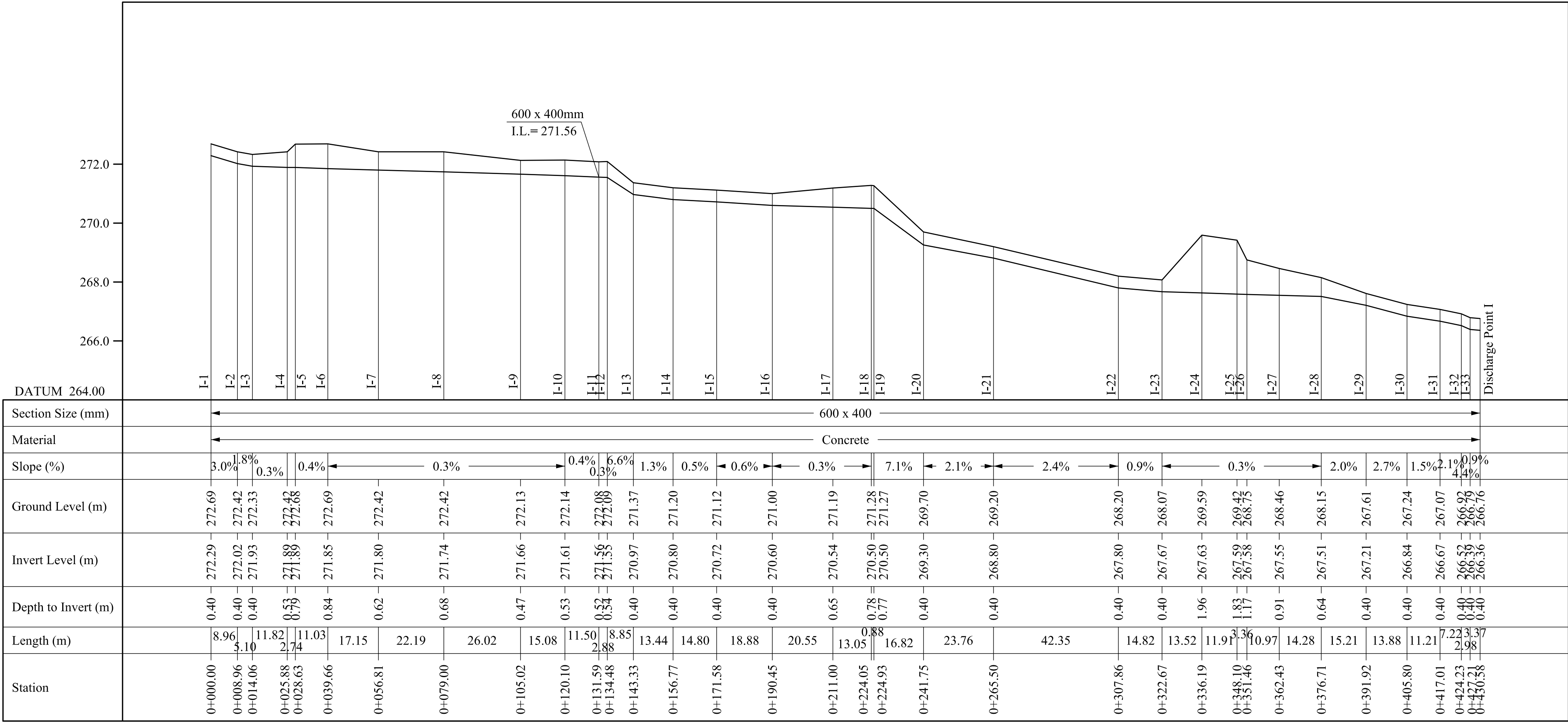


LINE H

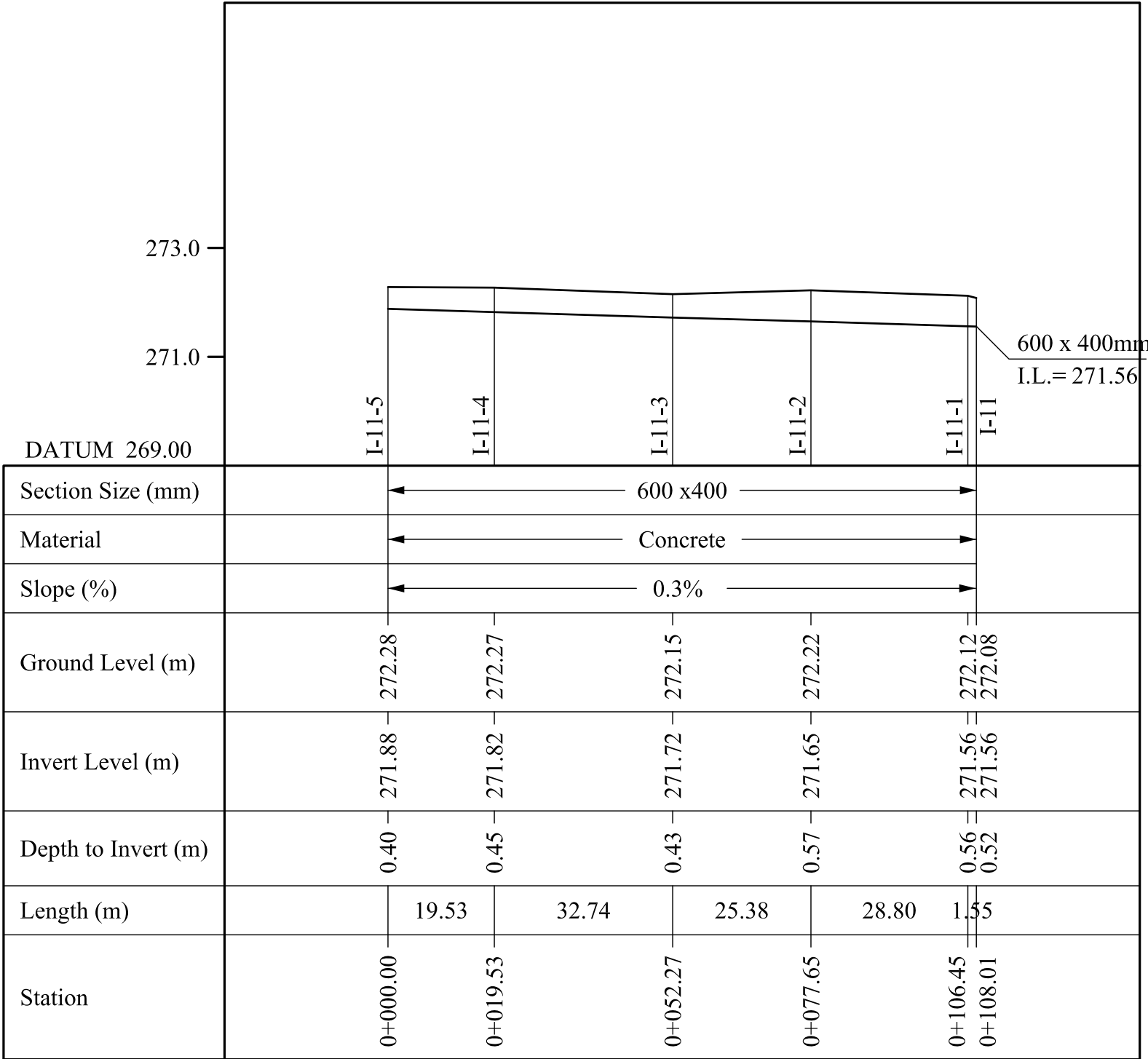
NOTES:

1. PROFILES SHOULD BE READ IN CONJUNCTION WITH LAYOUT PLANS
2. ALL SIZES ARE IN MILLIMETERS (AND ELEVATIONS IN METERS) UNLESS OTHERWISE SPECIFIED

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No.	REVISION	DATE
CLIENT:		
 UNITED NATION DEVELOPMENT PROGRAMME UNDP LEBANON SOCIAL AND LOCAL DEVELOPMENT PROGRAMME		
PROJECT REFERENCE: P-1712A		
PROJECT NAME:		
DESIGN OF IRRIGATION CHANNELS IN MASHTA HAMMOUD		
DRAWING TITLE:		
MASHTA HAMMOUD IRRIGATION CHANNELS PROFILES - LINES F, F-9, G AND H		
DRAWN:	DESIGNED:	CHECKED:
N.A.	S.F.	R.S.
DATE:	JULY-2017	SCALE:
FILE NAME:	V.1/1/00 H.1/1000 @ A1	
DRAWING No.:	P-1712A-PRO-301	
REVISION:	-	



LINE I



LINE I-11

NOTES:

1. PROFILES SHOULD BE READ IN CONJUNCTION WITH LAYOUT PLANS
2. ALL SIZES ARE IN MILLIMETERS (AND ELEVATIONS IN METERS) UNLESS OTHERWISE SPECIFIED

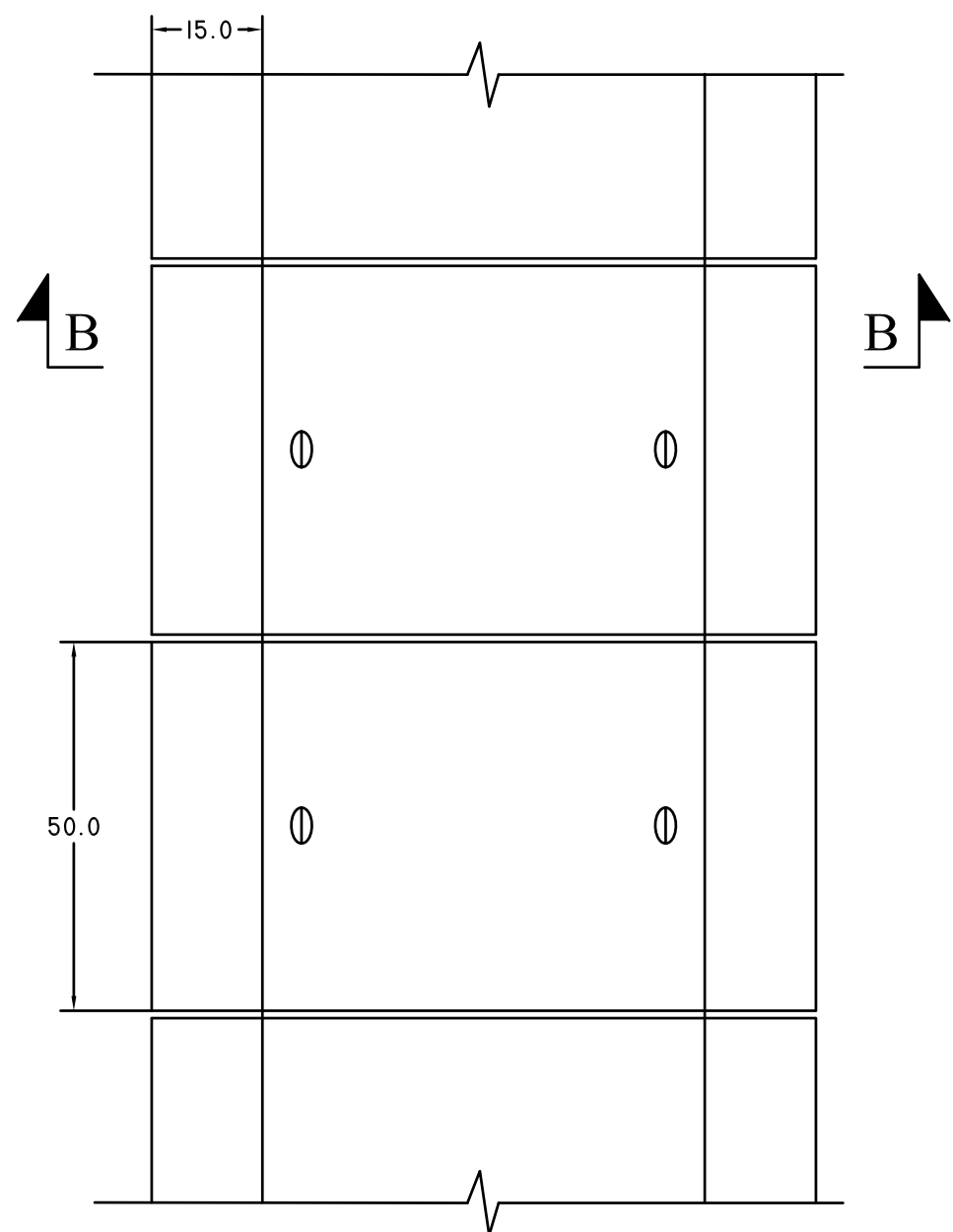
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No.	REVISION	DATE

CLIENT:
 UNITED NATION DEVELOPMENT PROGRAMME
UNDP LEBANON
SOCIAL AND LOCAL DEVELOPMENT PROGRAMME

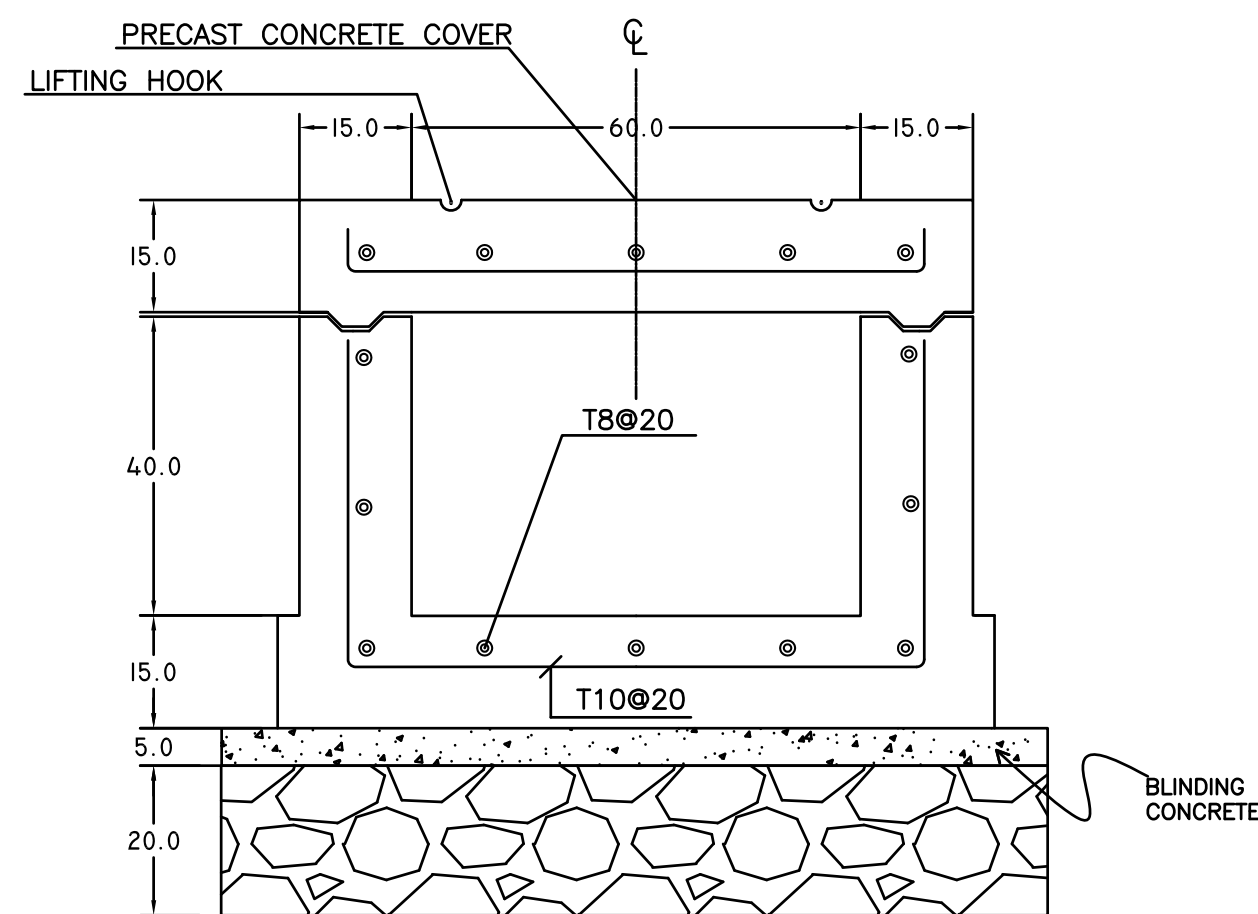
PROJECT REFERENCE: P-1712A
PROJECT NAME: :
DESIGN OF IRRIGATION CHANNELS IN MASHTA HAMMOUD

DRAWING TITLE:
MASHTA HAMMOUD IRRIGATION CHANNELS
PROFILES - LINES I AND I-II

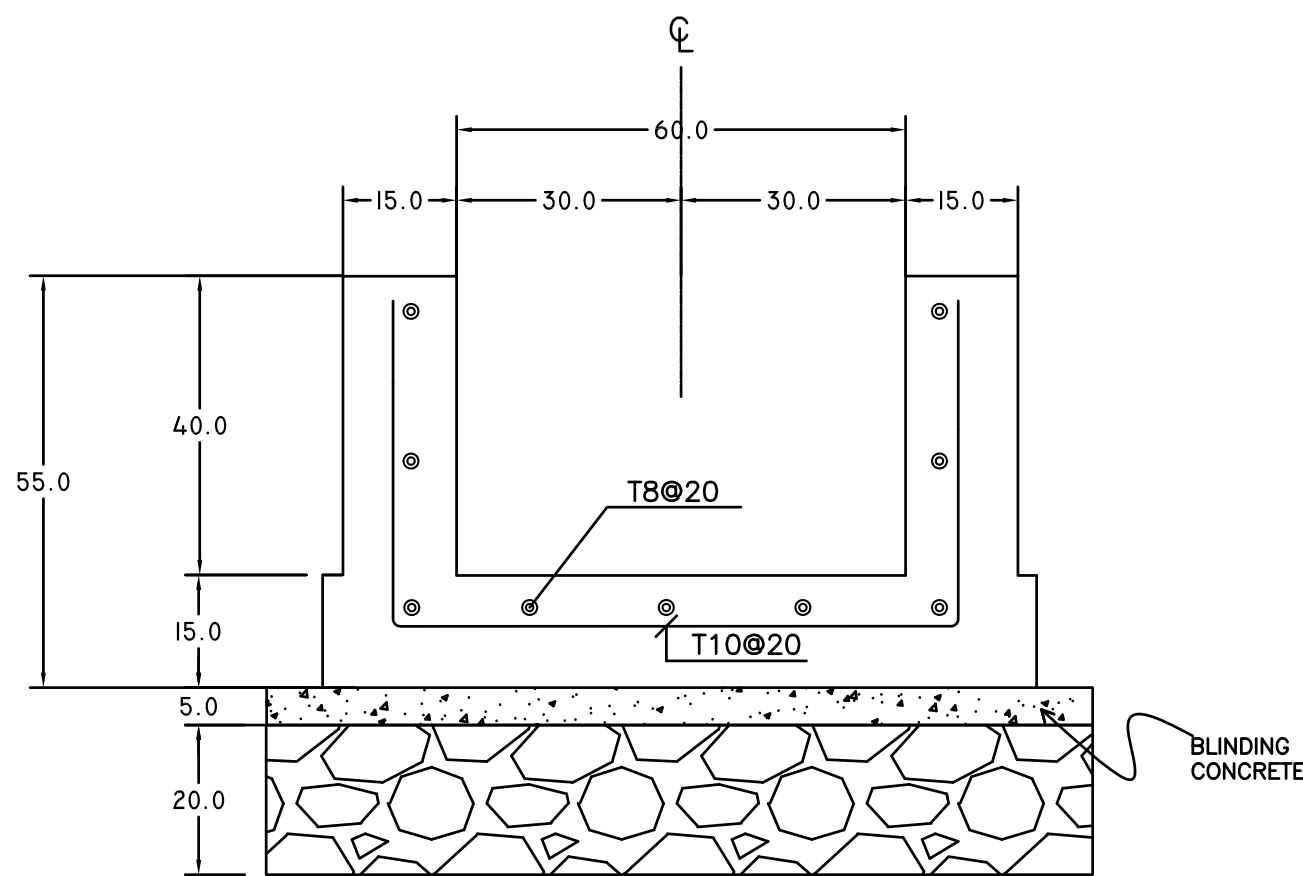
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DATE: JULY-2017	SCALE: 1:1000 H:1/1000 @ A1		
FILE NAME:			
DRAWING No.: P-1712A-PRO-302	REVISION: --		



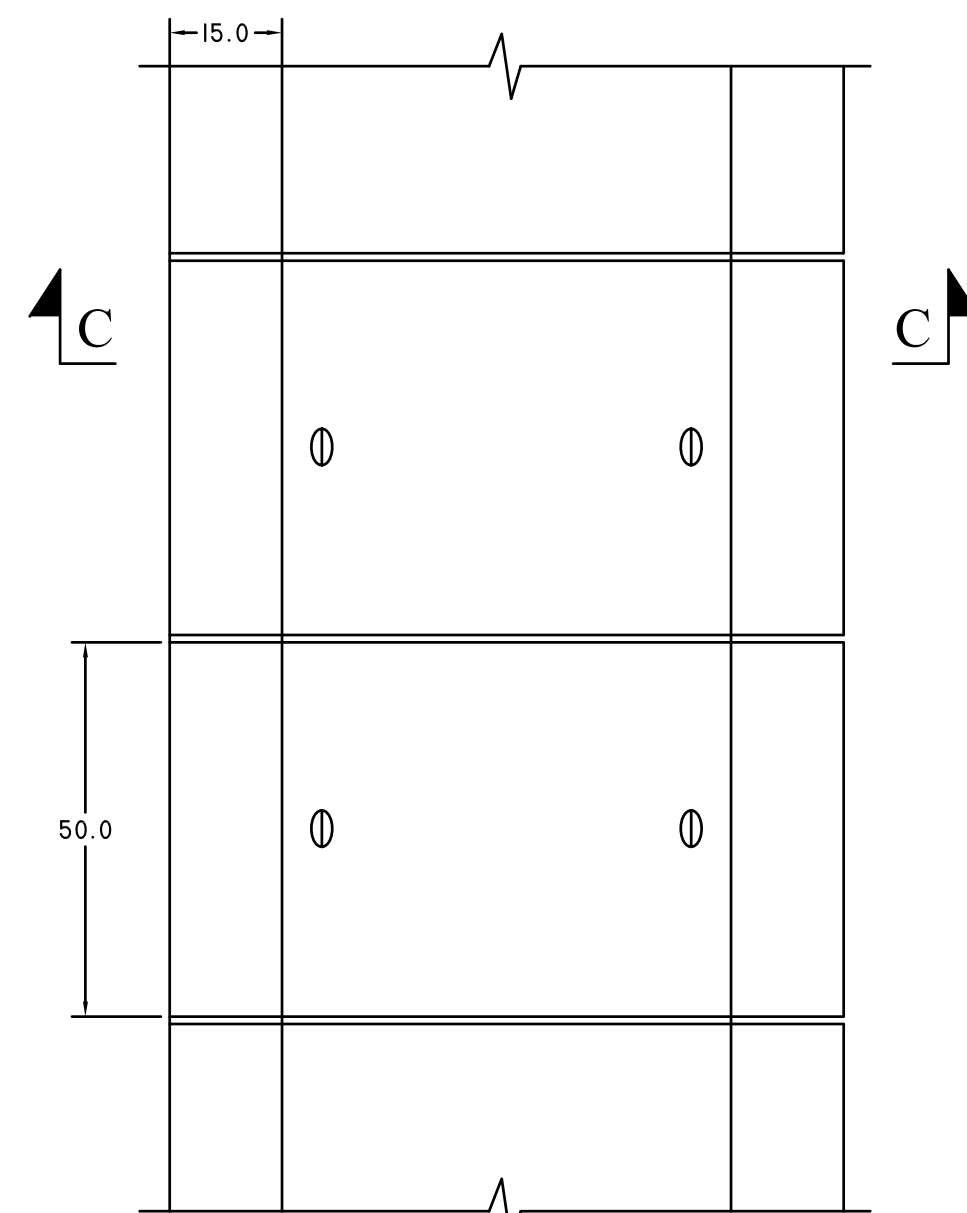
PLAN VIEW
COVERED CHANNEL



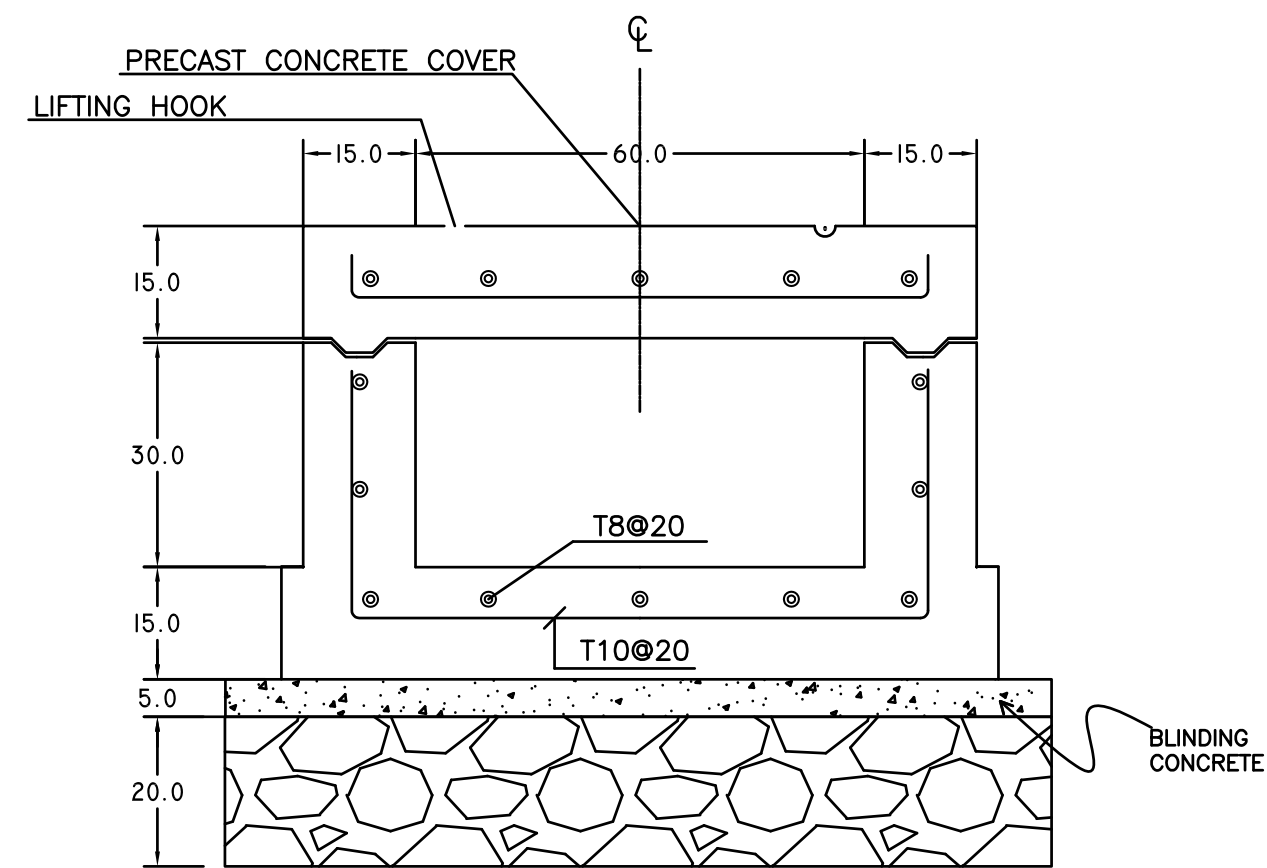
SECTION B-B
COVERED CHANNEL



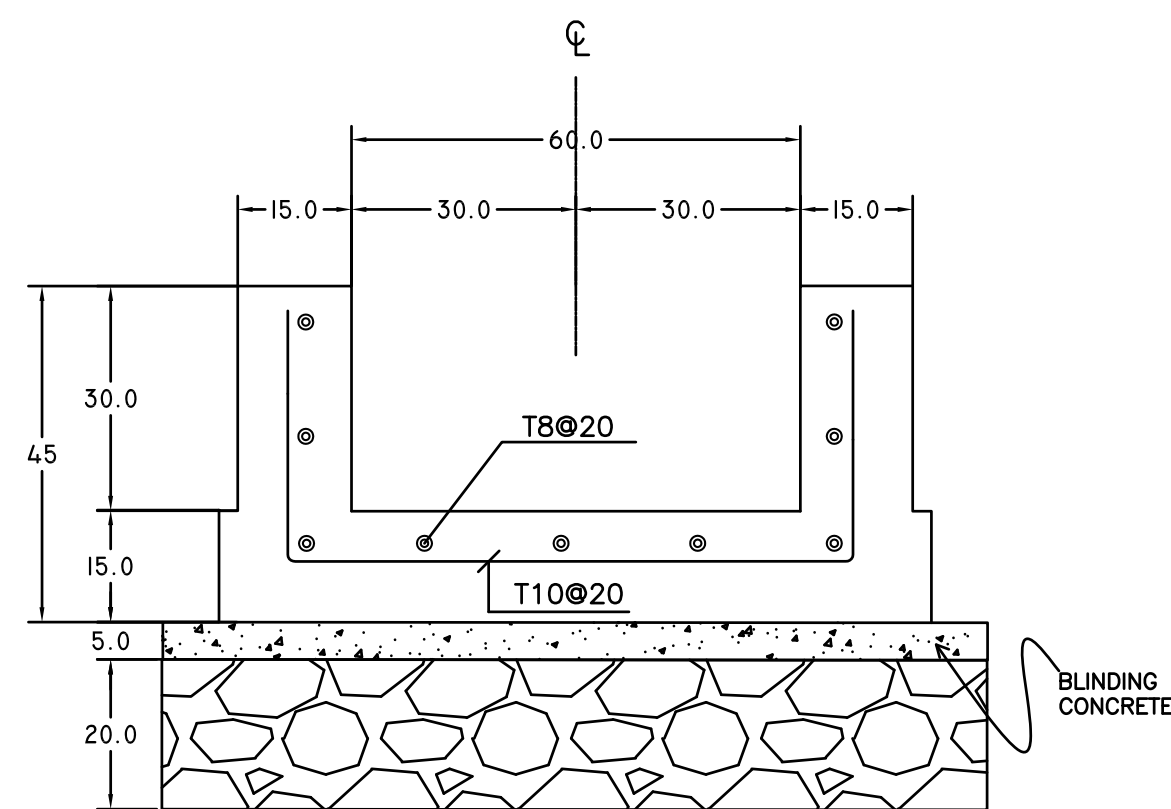
OPEN CHANNEL



PLAN VIEW
COVERED CHANNEL



SECTION C-C
COVERED CHANNEL



OPEN CHANNEL

NOTES:

- 1- ALL DIMENSIONS ARE IN CENTIMETERS UNLESS OTHERWISE SPECIFIED ON DRAWING
- 2- CONCRETE SHALL BE NORMAL PORTLAND CEMENT TYPE 5 V, THE SPECIFIED 28 DAYS CYLINDRICAL COMPRESSIVE STRENGTH OF REINFORCED CONCRETE = 280KG/CM² AND OF BLINDING AND MASS CONCRETE = 150KG/CM².
- 3- ALL REINFORCING STEEL BARS SHALL BE DEFORMED HIGH GRADE STEEL (GRADE 60) HAVING A MINIMUM YIELD STRENGTH OF 4200KG/CM², AND MILD STEEL HAVING A MINIMUM YIELD OF 2800KG/CM².

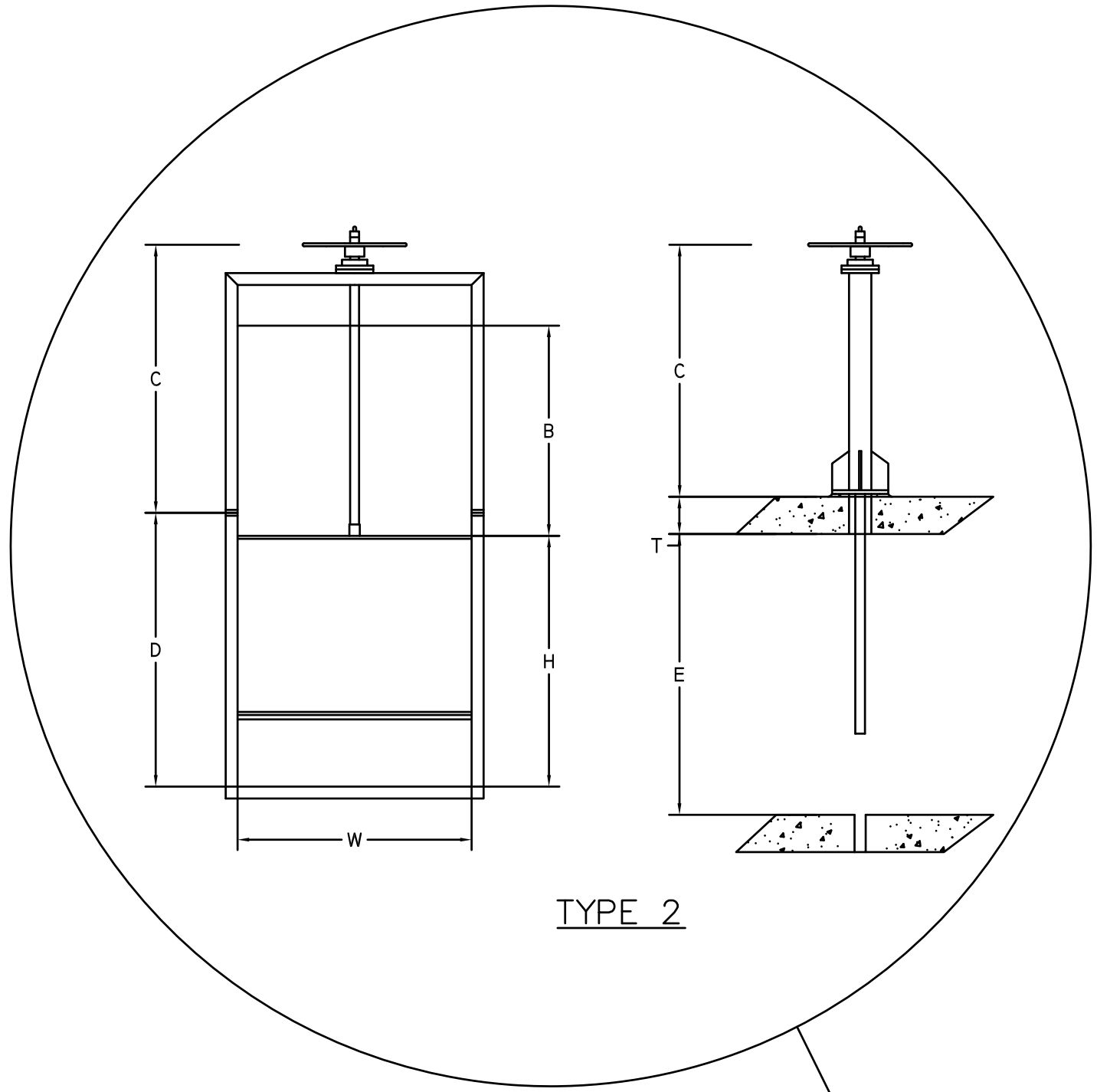
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UNDP LEBANON
SOCIAL AND LOCAL DEVELOPMENT PROGRAMME

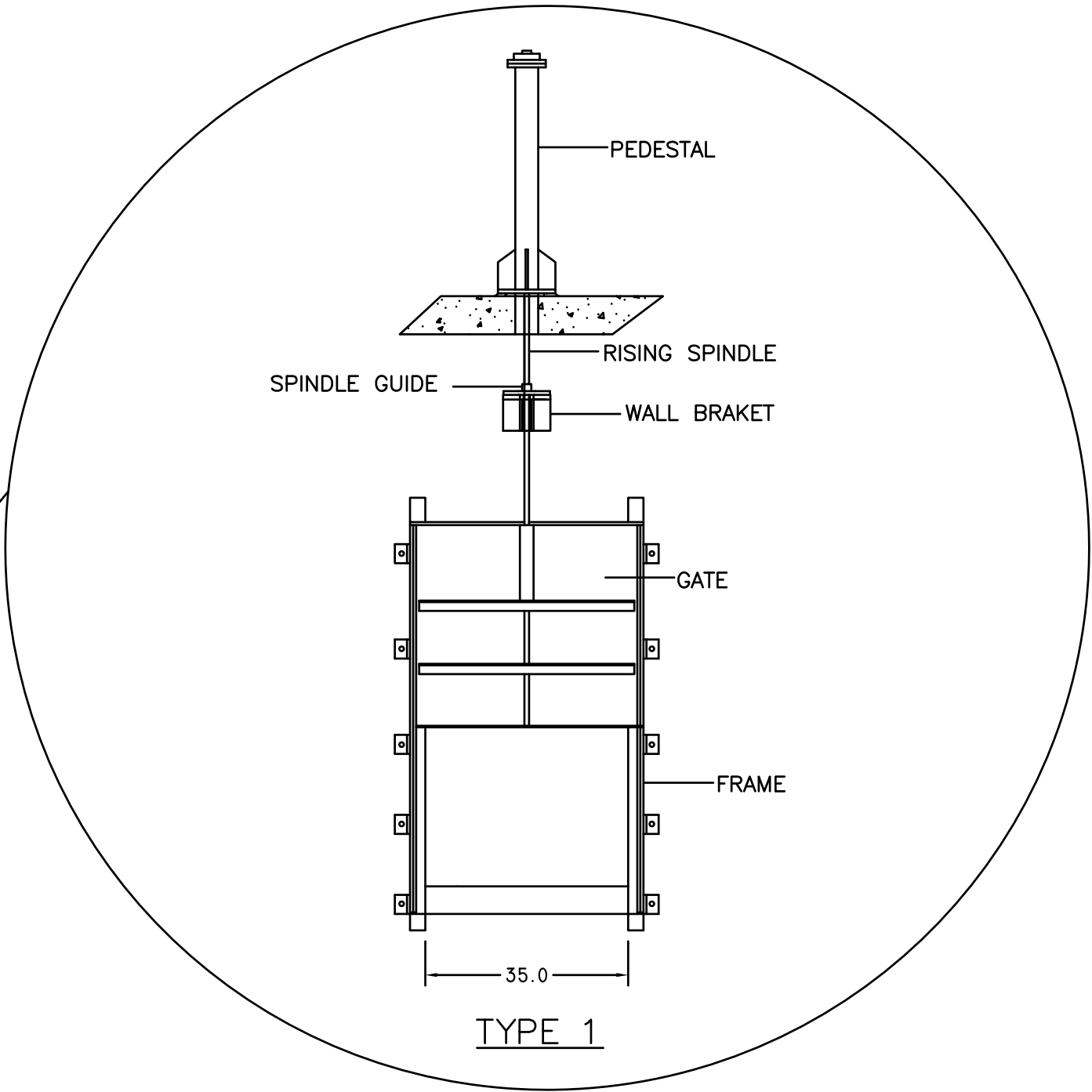
PROJECT REFERENCE: P-1712A
PROJECT NAME:
DESIGN OF IRRIGATION CHANNELS IN MASHTA HAMMOUD

DRAWING TITLE:
TYPICAL DETAILS
SHEET 1 OF 2

DRAWN: N.A.	DESIGNED: S.F.	CHECKED: R.S.	APPROVED: G.K.
DATE: JULY-2017	SCALE: N.T.S.		
FILE NAME:			
DRAWING No.: P-1712A-DET-401	REVISION: —		



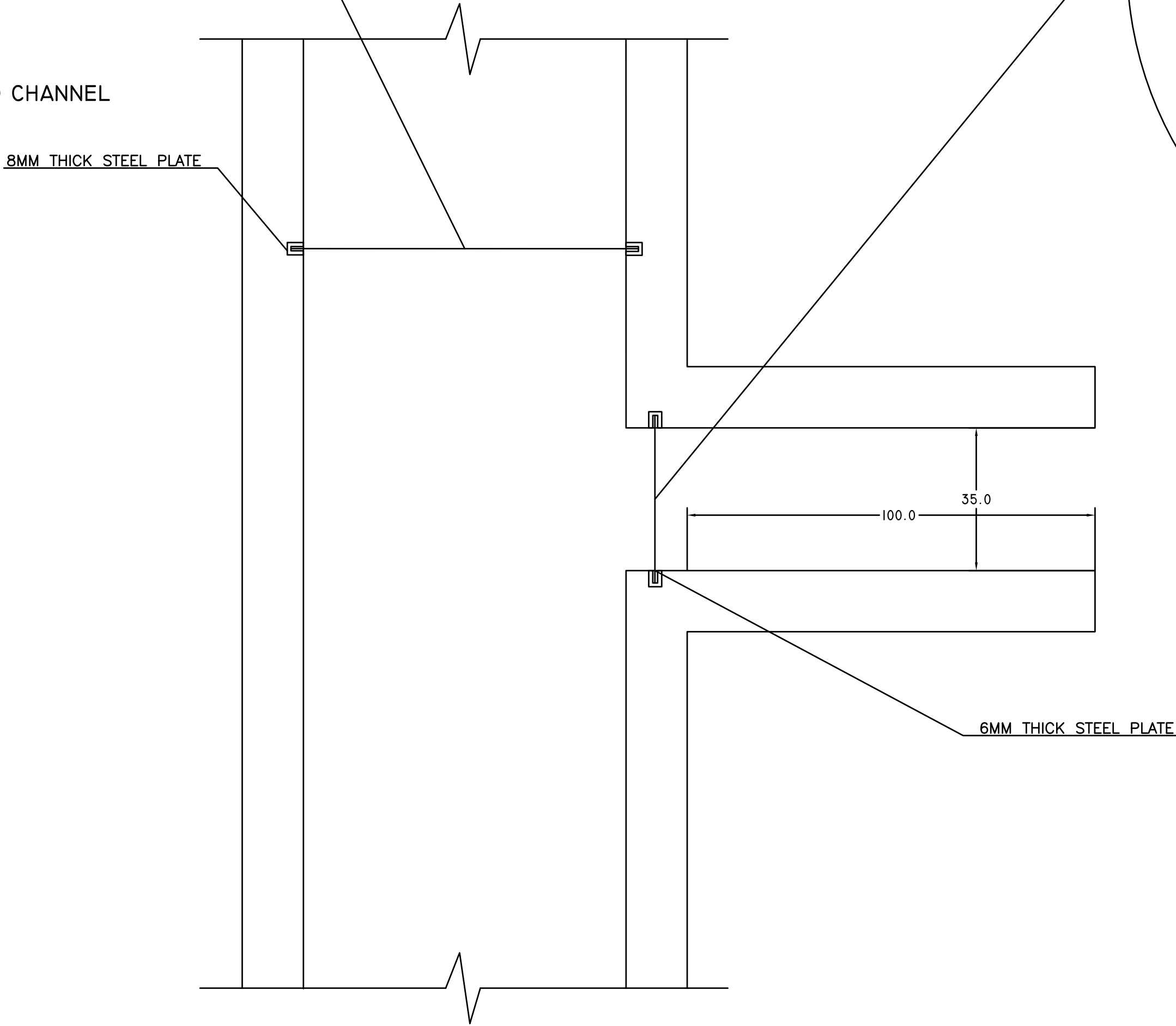
TYPE 2



TYPE 1

NOTE:

- 1- DIMENSIONS OF THE SLUICE GATE VARY ACCORDING TO THE SIZE OF THE PROPOSED CHANNEL
- 2- TYPE 1 = MANUAL STEEL SLUICE GATE - SMALL SIZE
- 3- TYPE 2 = MANUAL STEEL SLUICE GATE - WIDTH ACCORDING TO CHANNEL
600MM ≤ WIDTH ≤ 1000



PLAN VIEW

NOTES:

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- 2- CONCRETE SHALL BE NORMAL PORTLAND CEMENT TYPE 5 V, THE SPECIFIED 28 DAYS CYLINDRICAL COMPRESSIVE STRENGTH OF REINFORCED CONCRETE = 280KG/CM² AND OF BLINDING AND MASS CONCRETE = 150KG/CM².
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PROJECT REFERENCE: P-1712A

PROJECT NAME: DESIGN OF IRRIGATION CHANNELS IN MASHTA HAMMOUD

DRAWING TITLE: TYPICAL DETAILS
SHEET 2 OF 2

DRAWN: N.A.	DESIGNED: S.F.	CHECKED: R.S.	APPROVED: G.K.
DATE: JULY-2017	SCALE: N.T.S.		
FILE NAME:			
DRAWING No.: P-1712A-DET-4.02	REVISION:	—	