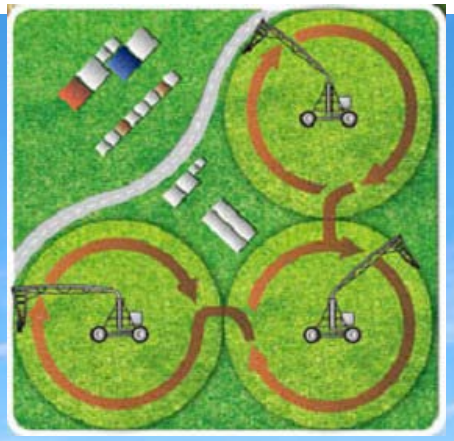

Irrigation
Solution
for Large
Farm
Operation.
Rainfine Irrigation Co.,Ltd.
大连银帆农业喷灌机制造有限公司
RAINFINE
Irrigation Solution.

Part one: irrigation machine

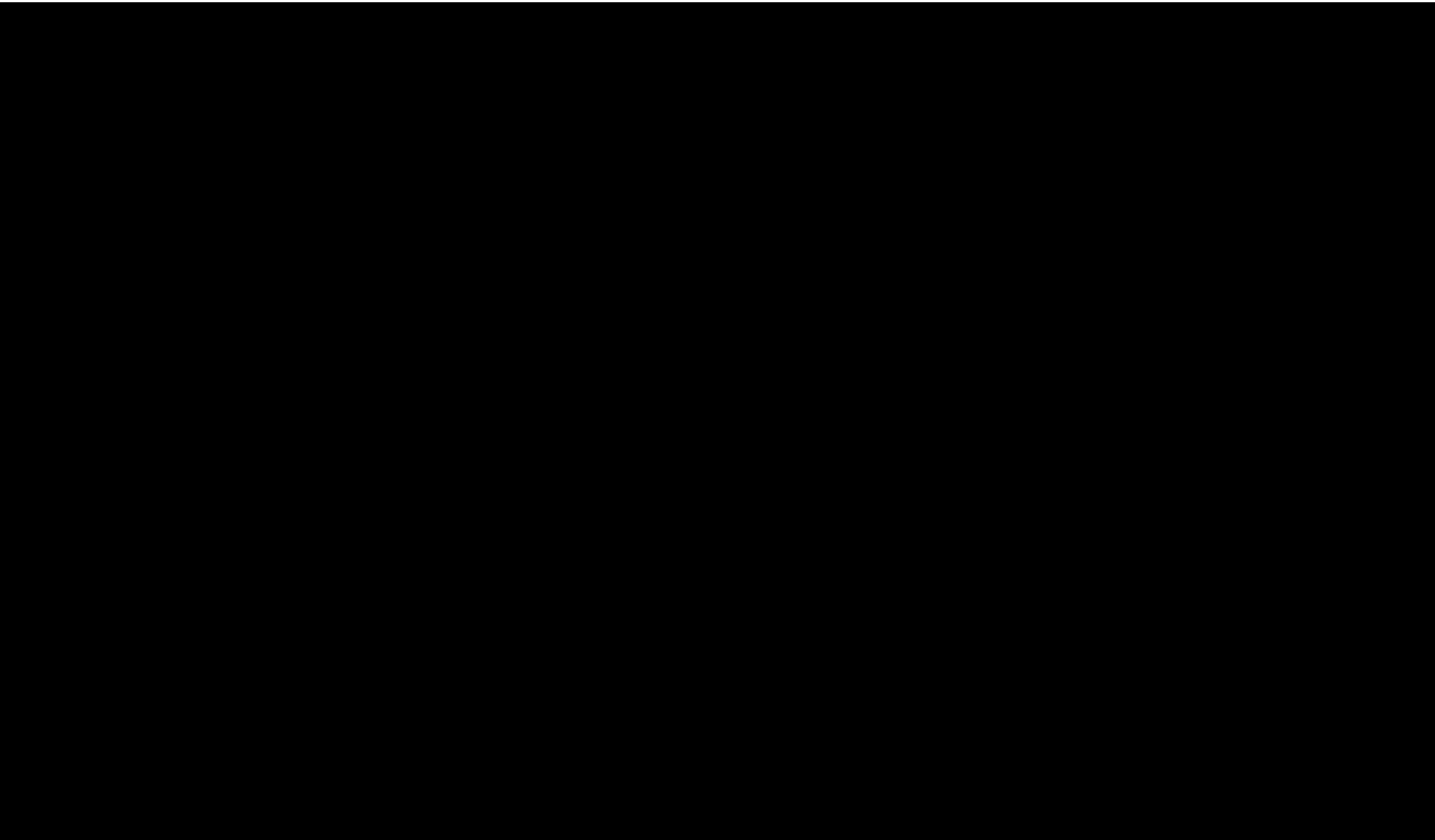
Center pivot irrigation machine

Towable pivot machine



Lateral move（linear system)

Pivot Irrigation in Sudan



Irrigation in U.S.A(1)

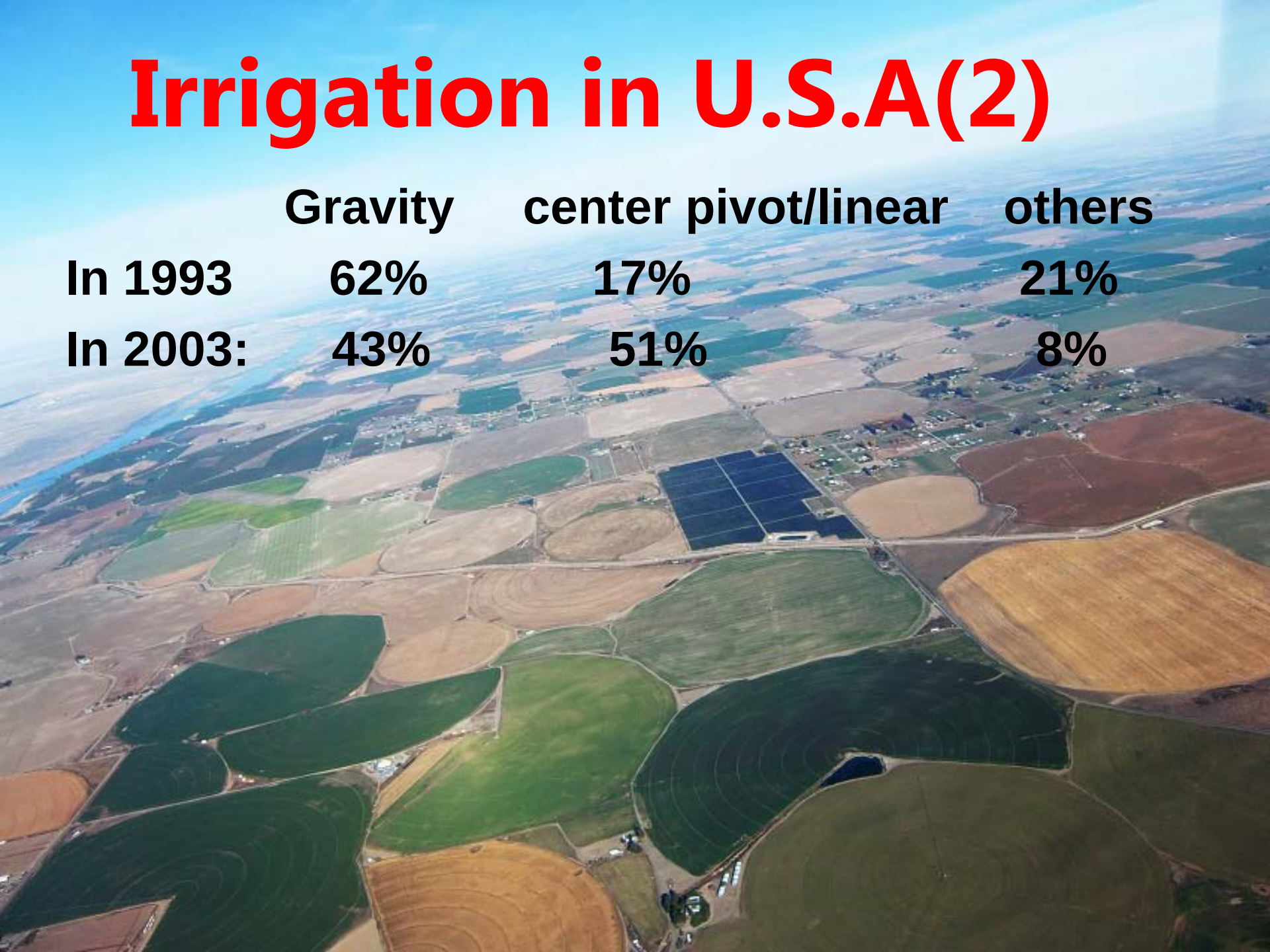
Satellite mapping chronicled the center pivot's steady climb in U.S.A

1972: 2,725

2002: 170,000

Irrigation in U.S.A(2)

	Gravity	center pivot/linear	others
In 1993	62%	17%	21%
In 2003:	43%	51%	8%



Irrigation in Nebraska U.S.A

72,000 center pivots now irrigate about 5 million of that state's 8 million-plus irrigation acres

Irrigation in Saudi

Irrigation in South Africa

15,000 center pivot system

Irrigation in Spain

8,500 pivot system in Spain

How many irrigation system in your country

Water is a big problem


River is good , but it can not use it properly

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-Let me think about it,
- Rainfine can do some help

Rainfine is an irrigation company for irrigation solution

-Rainfine is an international company in China,partnership with American company for 11 years

-Rainfine is an irrigation manufacturing company for center pivot and linear system.

-Rainfine has top leading technology from U.S.A and Europe for irrigation design

-Rainfine has competitive price as it mainly made in China

Rainfine is working for irrigation projects all over the world

- Sudan Arawabi project: 50,000 ha
- Ghana 700 ha
- Russia: two projects 1500 ha and 800ha
- Kazakhstan: 750ha
- Ethiopia Omo river 2500ha
- Australia dairy project 240ha
- Zambia project 70ha

Part two : Why Africa

We Love Africa

Africa is the most beaufiful land of the world

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Irrigation Solution.

We Love Africa

Africa is the last land in the earth without pollution

We Love Africa

Africa has plentiful water not being used

We Love Africa

Africa has very kind people

We Love Africa

Africa has lovely children

We Love Africa

Africa has most beautifull animals

Africa need irrigation technology

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Part three : Made in China

China is becoming the factory of the world

Everything is made in China(1)

There is a joke from American:

An American pastor is teaching Holy Bible to a group of young kids.

He asks a question to the children

“**who created human being**”

All the boys and girls answer:

“God”

Everything is made in China(2)

“you are right”

The pastor smile and forward another question:

“**Where did the God create human being**”

All the kids shout: “Made in China”

Everything is made in China(3)

The pastor gets angry and says:

“No, God made people in the Garden of Eden”

“But we have never seen it, what we have seen everyday is everything **is made in China**

Part four : Rainfine's works

Our works(1)

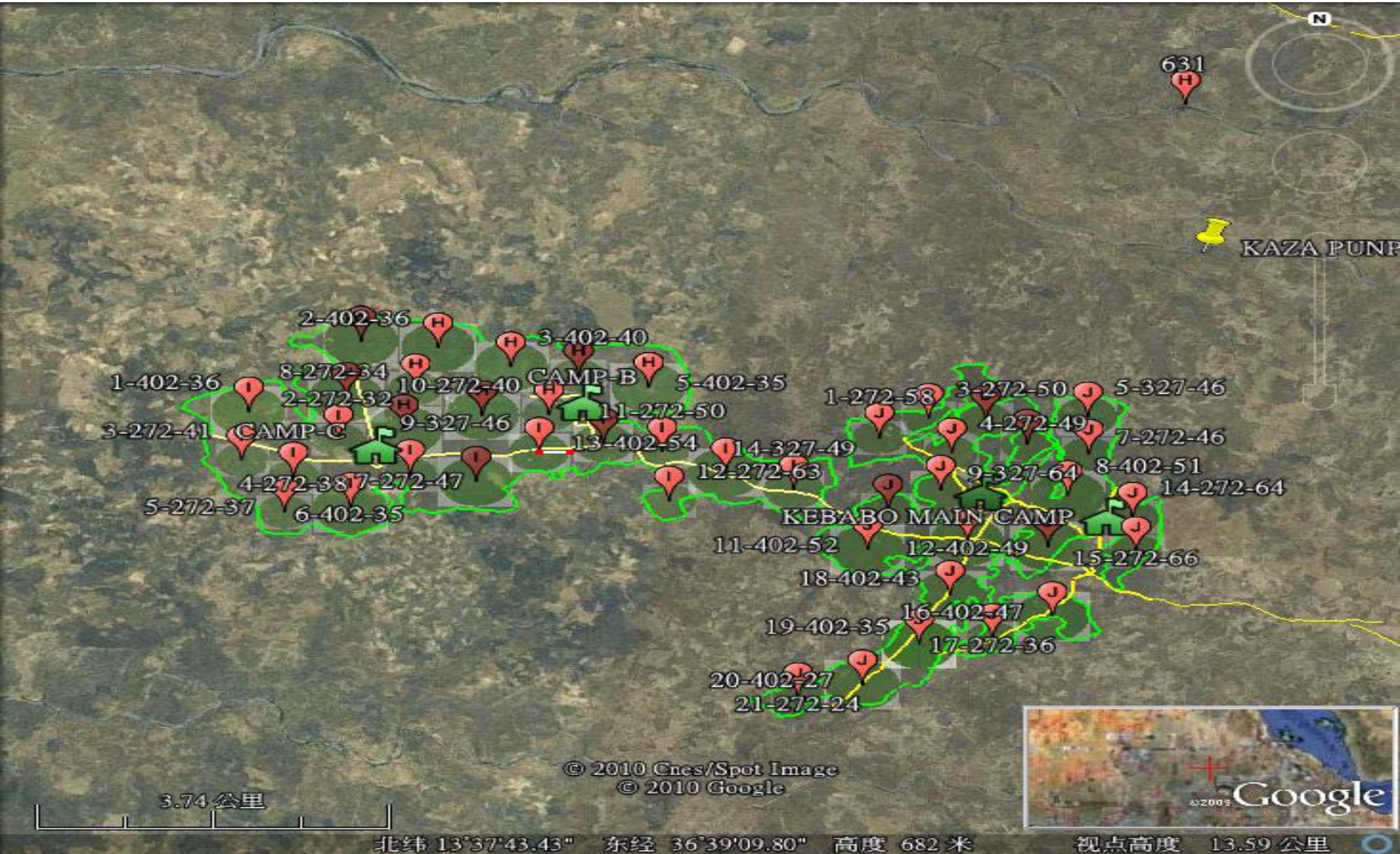
- land survey and plan
- Irrigation layout design
- Pipeline network layout calculation
- Pump station calculation and design
- Business proposal and budget plan for complete irrigation area.

Our works(2)

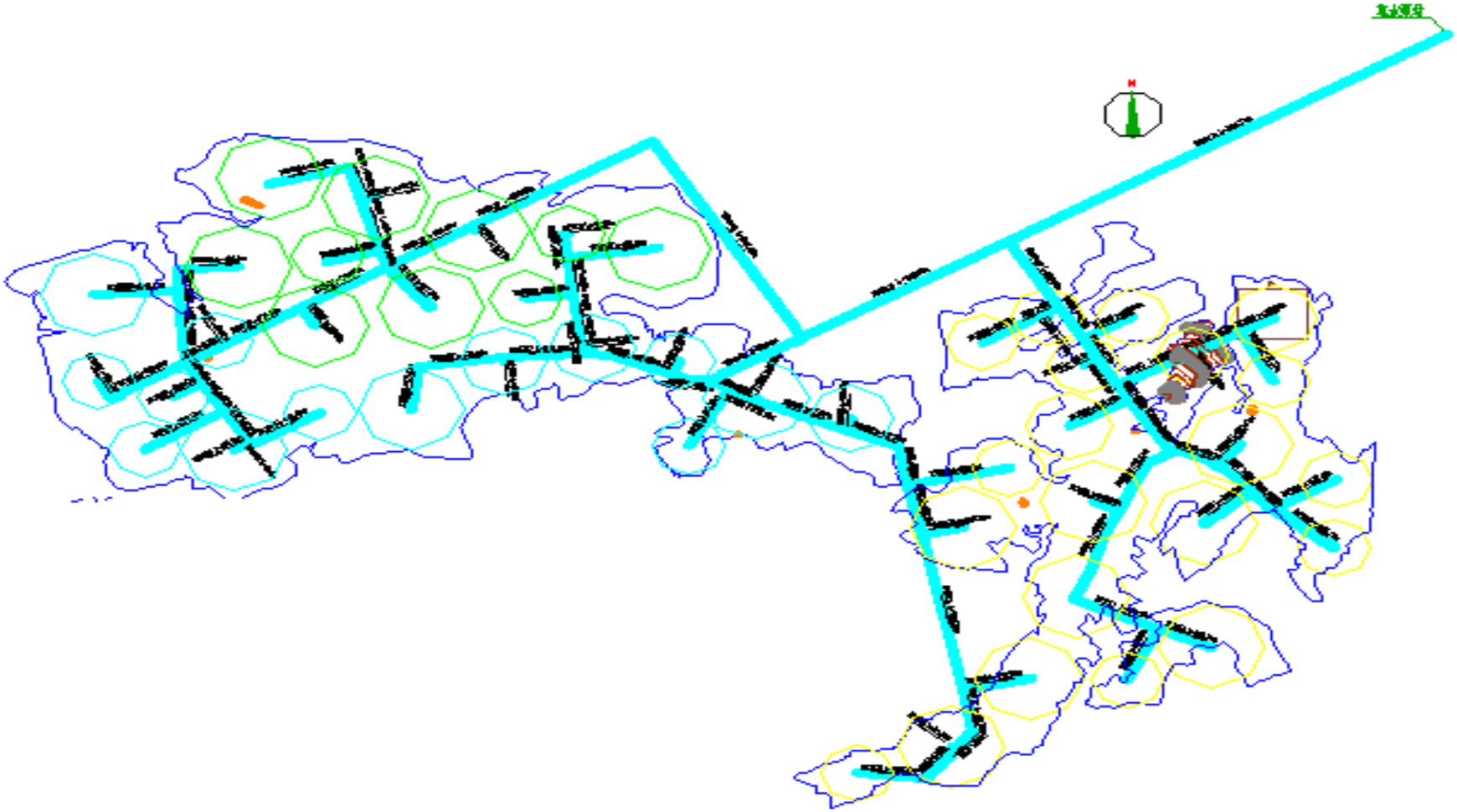
- Supply pumps, valves, irrigation machines
- Supply irrigation machine
- Installation and commissioning

Part five: sample projects

1. Ethiopia Kababo design(1)

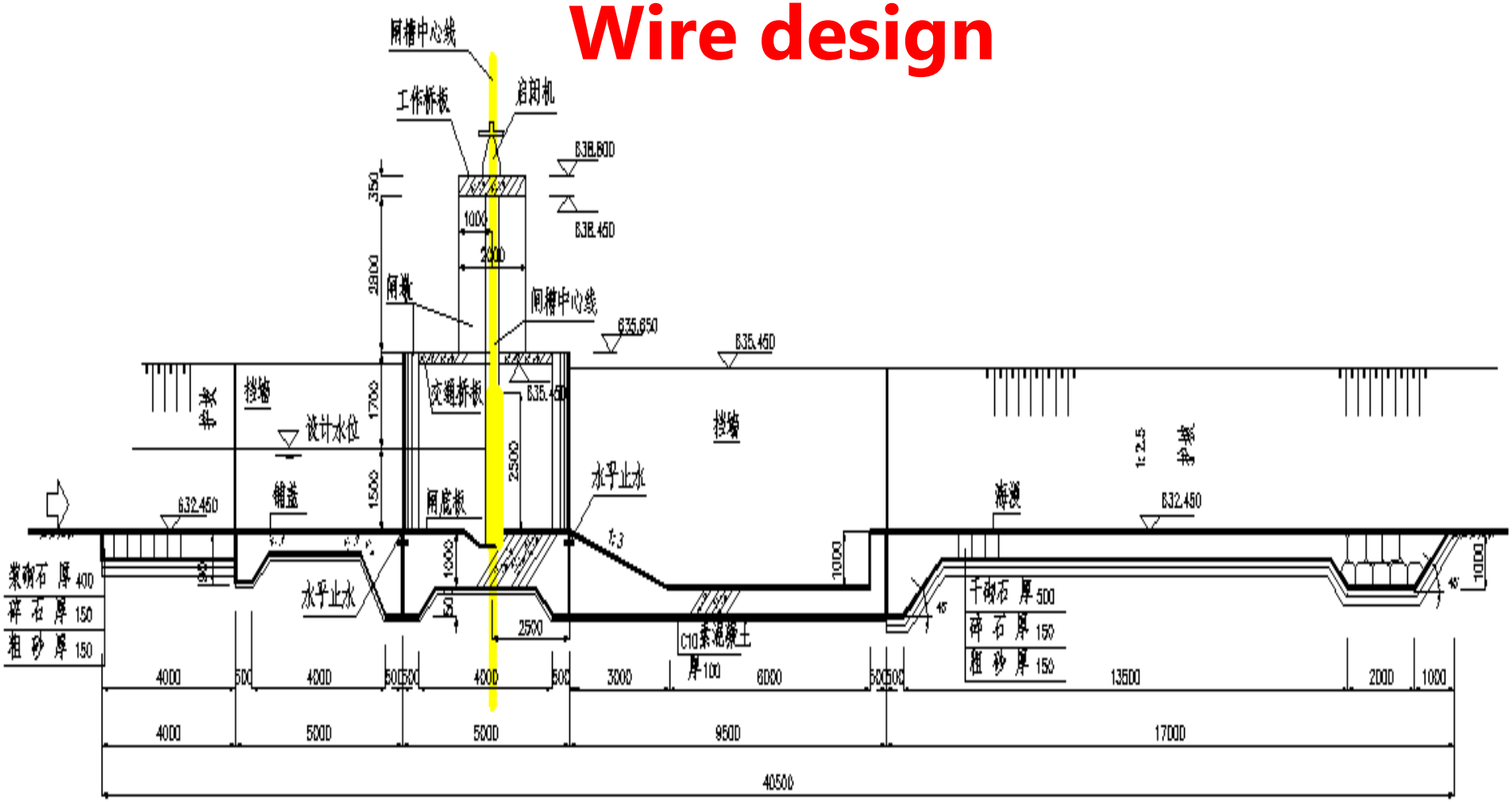


1.Ethiopia Kababo design(2)



1.Ethiopia Kababo design(3)

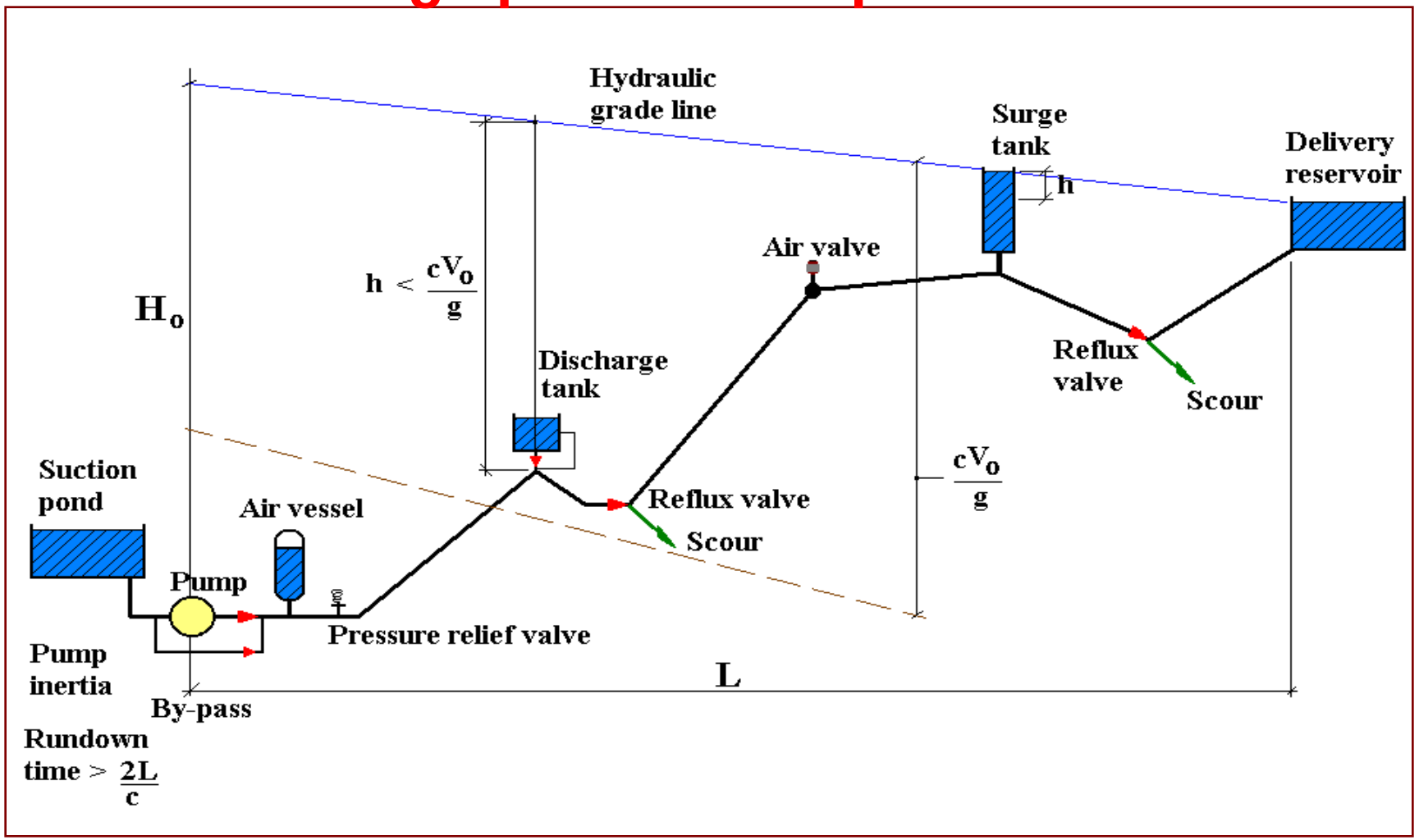
Wire design



闸室段纵断面

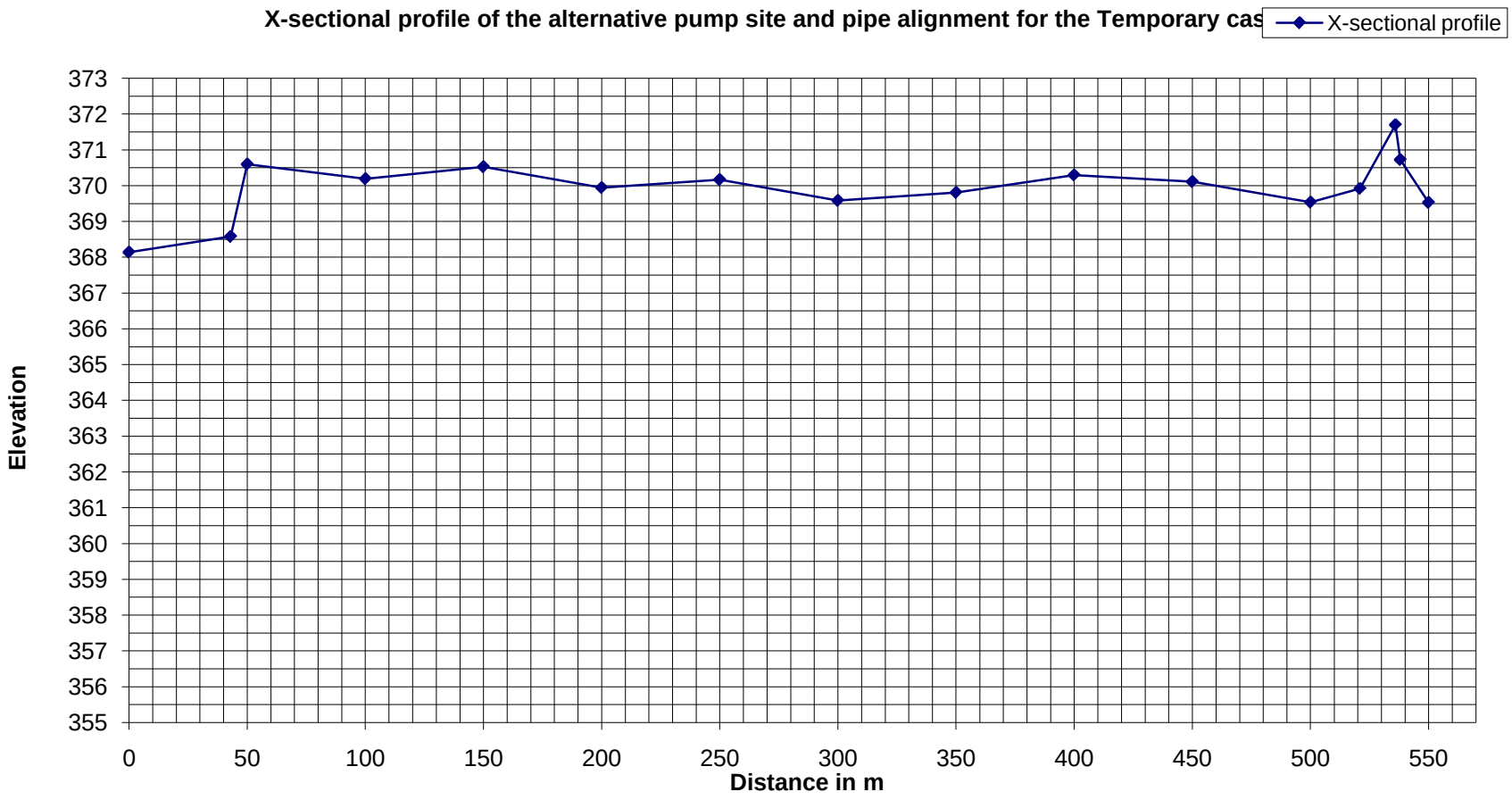
1.Ethiopia Kababo design(4)

Surge protection options



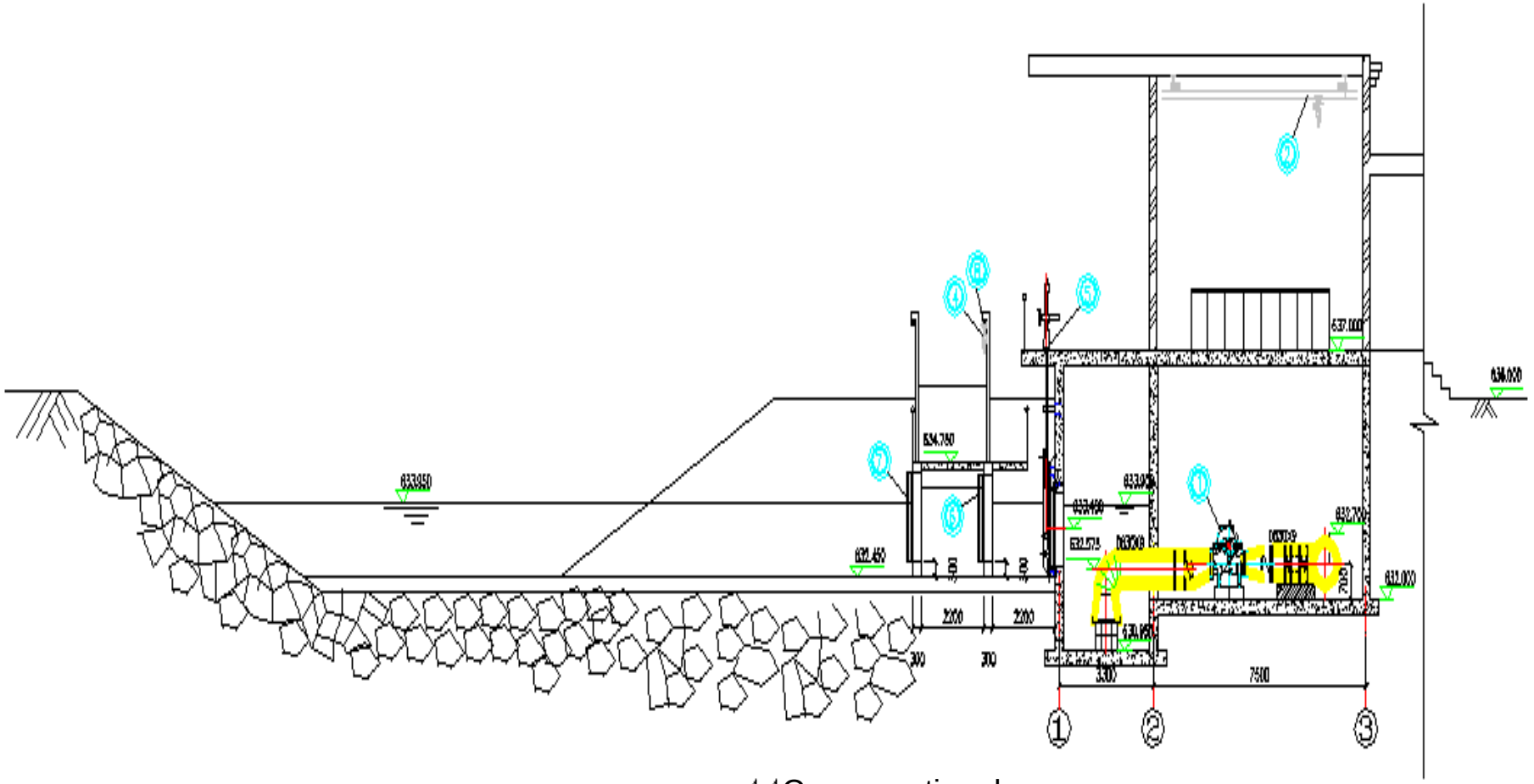
1.Ethiopia Kababo design(5)

X- section pump site and alignment



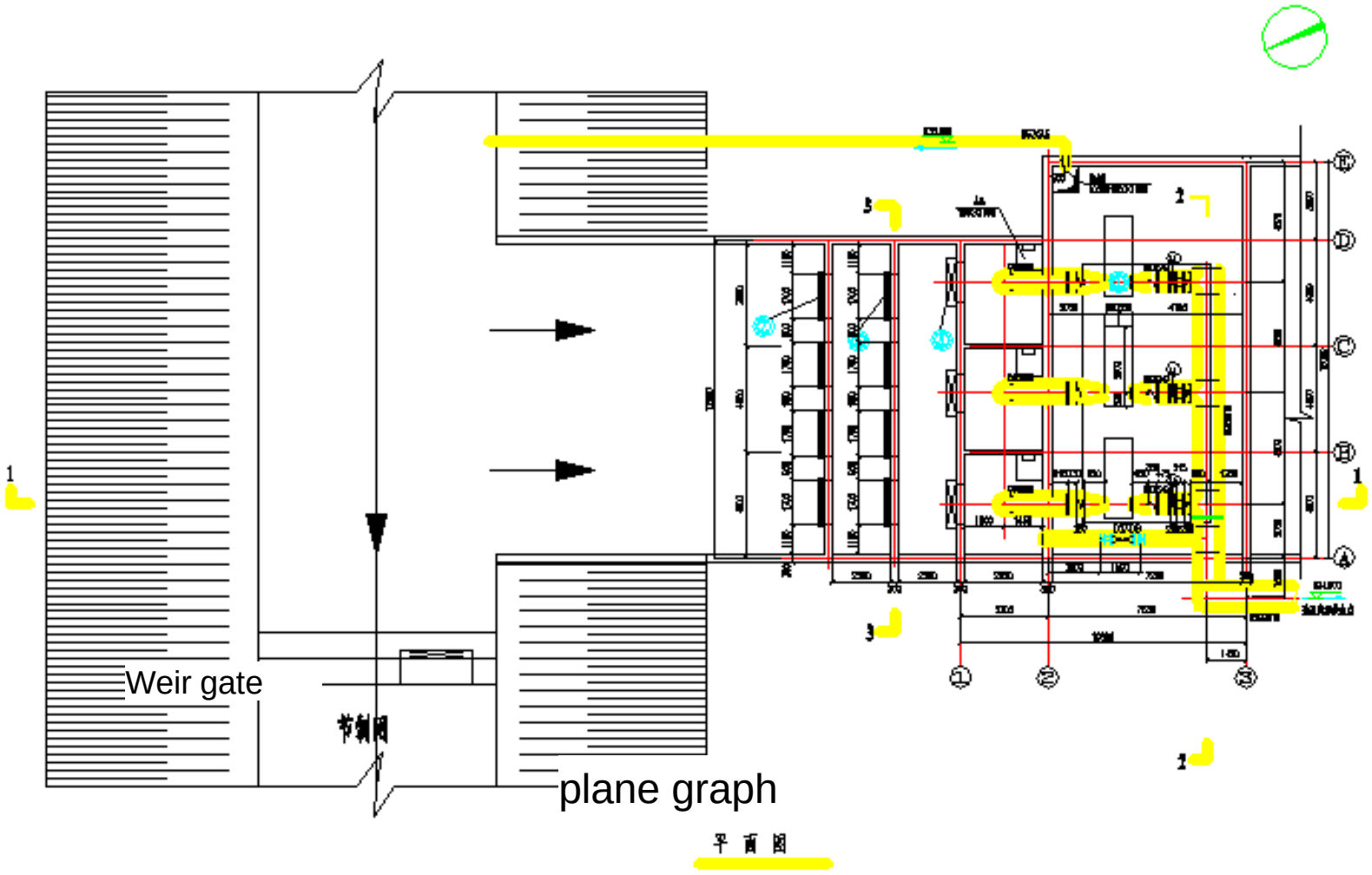
1.Ethiopia Kababo design(6)

Ethiopia Kababo design(2) Surge protection options station



1-1Cross-section drawn

1.Ethiopia Kababo design(7)



1.Ethiopia Kababo design(8)

General Survey of Equipment in Water Intake Pump Station

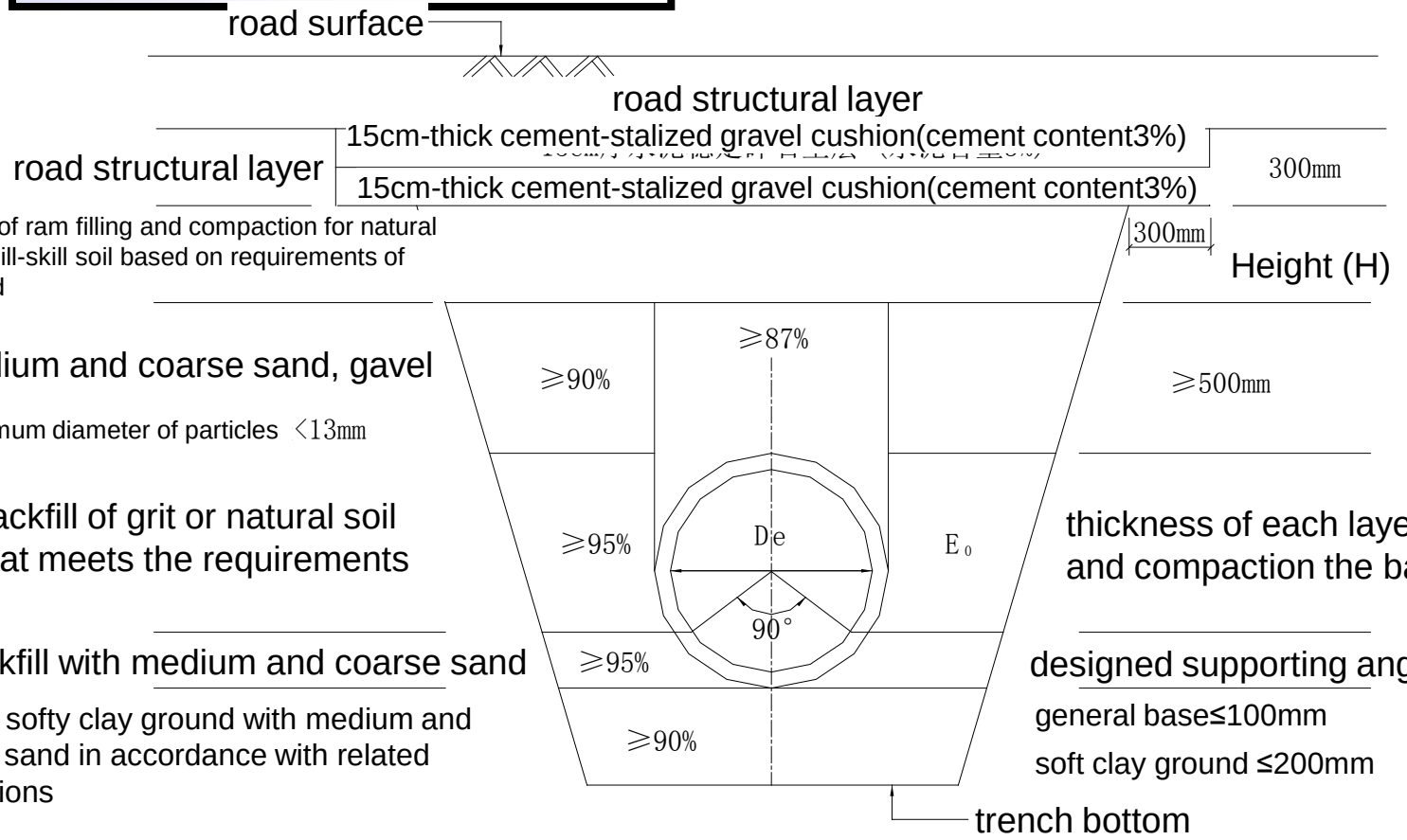
No.	Name	Specification Model	Unit	QTY	Remark
1	Horizontal Centrifugal Pump	Q=1300m^3/h H=110m N=710KW	Set	3	2 in use 1 in reserve
2	Electric Single-girder Overhead Traveling Crane	Lift Height: 10m Lk=7.5m 5t	Set	1	Outfitting Electric Hoist
3	Submersible Sewage Pump	Q=10m^3/h H=10m	Set	1	
4	Chain Blocks	1t	Set	1	
5	Square Manual Gate Valve	1500X1500	Set	3	Outfitting Hand Hoist
6	Flat Grids	BXH=1800X1800	Set	4	
7	Flat Grids	BXH=1800X1800	Set	4	
8	Manual Monorail Car	1t	Set	1	

1.Ethiopia Kababo design(9)

Pipe underground

Pipe and road

Trench Backfill



section diagram of trench backfill

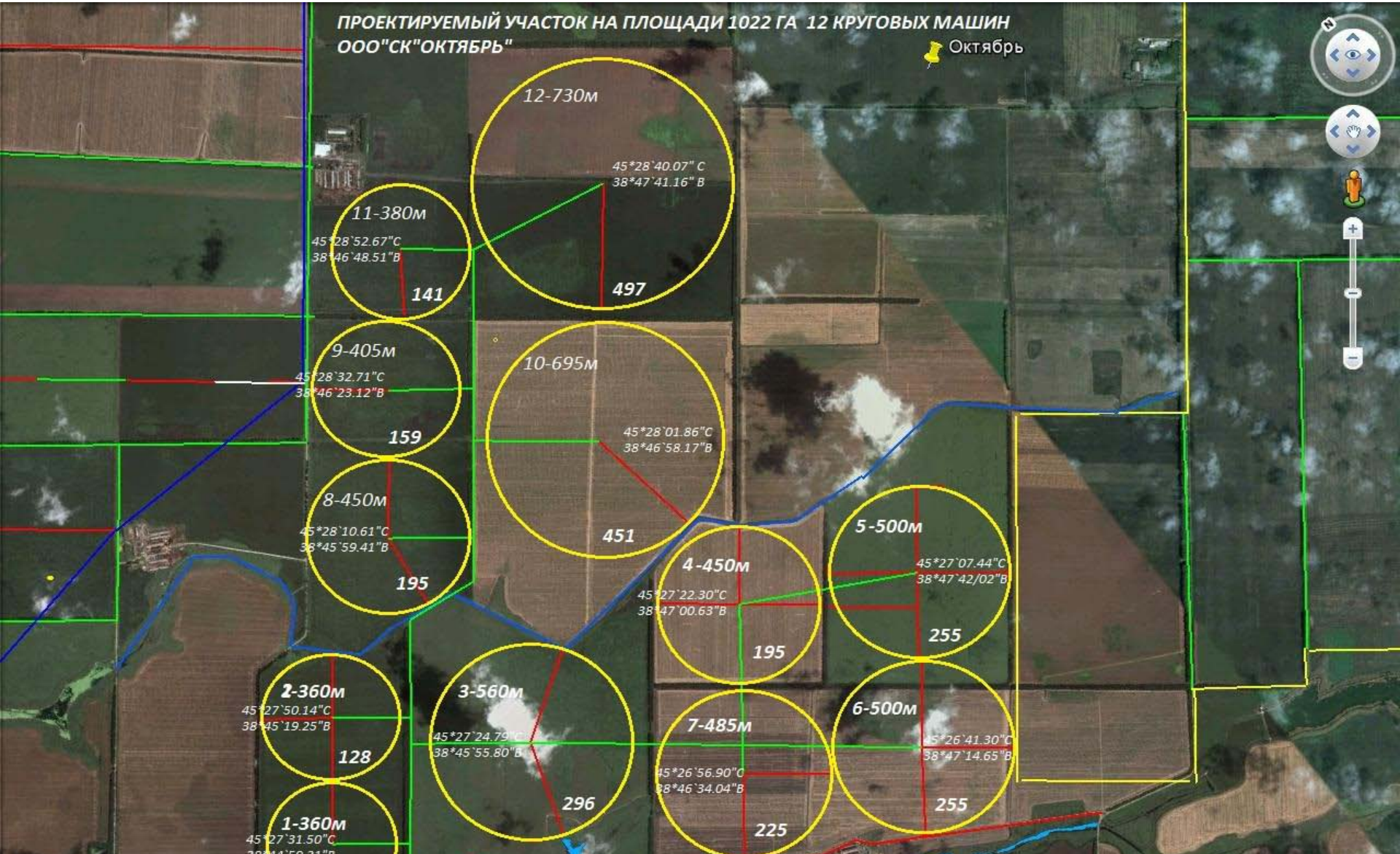
suitable under vehicular road

1.Ethiopia Kababo design(10)

Items for Electricity

No.	Item	Specification Model	Unit	QTY
Farm				
1	Power Cable	YJV22-1KV 4X50	Meter	42000
2	Times Parameter Compensation regulated Power Supply	JBW-60	Set	45
3	Diesel Generator	6CTA8.3G2 128KW	Set	4
4	Low Pressure Electricity Cabinet	GCS	Set	4
Pump Station				
1	In-Line Isolation cabinet	KYN28-12	Set	3
2	Motor Power distribution Cabinet	KYN28-12	Set	3
3	The power transformer cabinet	KYN28-12	Set	1
4	Low Voltage cabinet	GCS	Set	2
5	PLC Control panel		Set	1
6	Diesel Generator	KTA38G2A 736KW	Set	3

2.Russia project



2.Russia project

Design by Irrimaker

Pivot Irrigation System Presentation

RAINFINE Irrigation Solution.

for Wang Zhi

This system is designed to work in **1 shift**.
Each pivot will complete a **24hour, 7mm** shift every day.

Layout

2.Russia project

Pump and pipe calculate

Pump Pressure : 7.5bar

RAINFINE Irrigation Solution.

Pivot Detail

No.	Name	Description	No. Spans	Pressure In (Bars)	Pressure End	Flow (l/s)	Length (m)
1	1	1	17	3.70	2.22	147.01	760.00
2	3	3	7	2.80	2.29	36.75	380.00
3	6	6	7	2.80	2.19	36.75	380.00
4	7	7	14	3.40	2.17	133.79	725.00
5	8	8	9	3.20	2.21	51.54	450.00
6	9	9	11	3.40	2.17	58.64	480.00
7	10	10	12	3.70	2.24	71.50	530.00
8	11	11	13	3.70	2.24	71.50	530.00
9	12	12	11	3.80	2.20	67.51	515.00
10	13	13	12	3.30	2.17	88.60	590.00
11	14	14	8	2.80	2.15	38.71	390.00
12	15	15	8	2.80	2.15	38.71	390.00

Pivot Pressures

Irrigation Filame :C:\Drox\My Dropbox\Access data\Prects\Wang\Oktyabr_3.mal(MIR)

NODES Main lin- Shift 1 Total Flow 841.011/s
Date : 1/3/201 Time : 29

PUMP ELEVATION :10.21m
PUMP PRESSURE :7.50Bars

NODE	BLOCK	ELEVATION---- m	Elev.	HEAD LOSSES Bar ---- Pipes	Fittings	-- PRESSURE Bars -- Actual	Required	DISCHARGE l/s
9	V1	14.34	0.41	2.50	0.00	4.59	3.70	-147.010
8	V3	13.01	0.28	2.54	0.00	4.68	2.80	-36.750
20	V11	13.22	0.30	2.22	0.00	4.98	3.70	-71.500
18	V10	13.54	0.33	1.96	0.00	5.20	3.70	-71.500
10	V6	12.83	0.26	1.98	0.00	5.26	2.80	-36.750
14	V15	12.48	0.23	1.88	0.00	5.39	2.80	-38.710
17	V9	13.62	0.34	1.51	0.00	5.65	3.40	-58.640
5	V7	12.93	0.27	1.48	0.00	5.74	3.40	-133.790
13	V14	13.01	0.28	1.38	0.00	5.84	2.80	-38.710
11	V8	13.05	0.28	1.28	0.00	5.93	3.20	-51.540
19	V12	13.25	0.30	1.19	0.00	6.01	3.80	-67.510
2	V13	13.22	0.30	0.28	0.00	6.92	3.30	-88.600

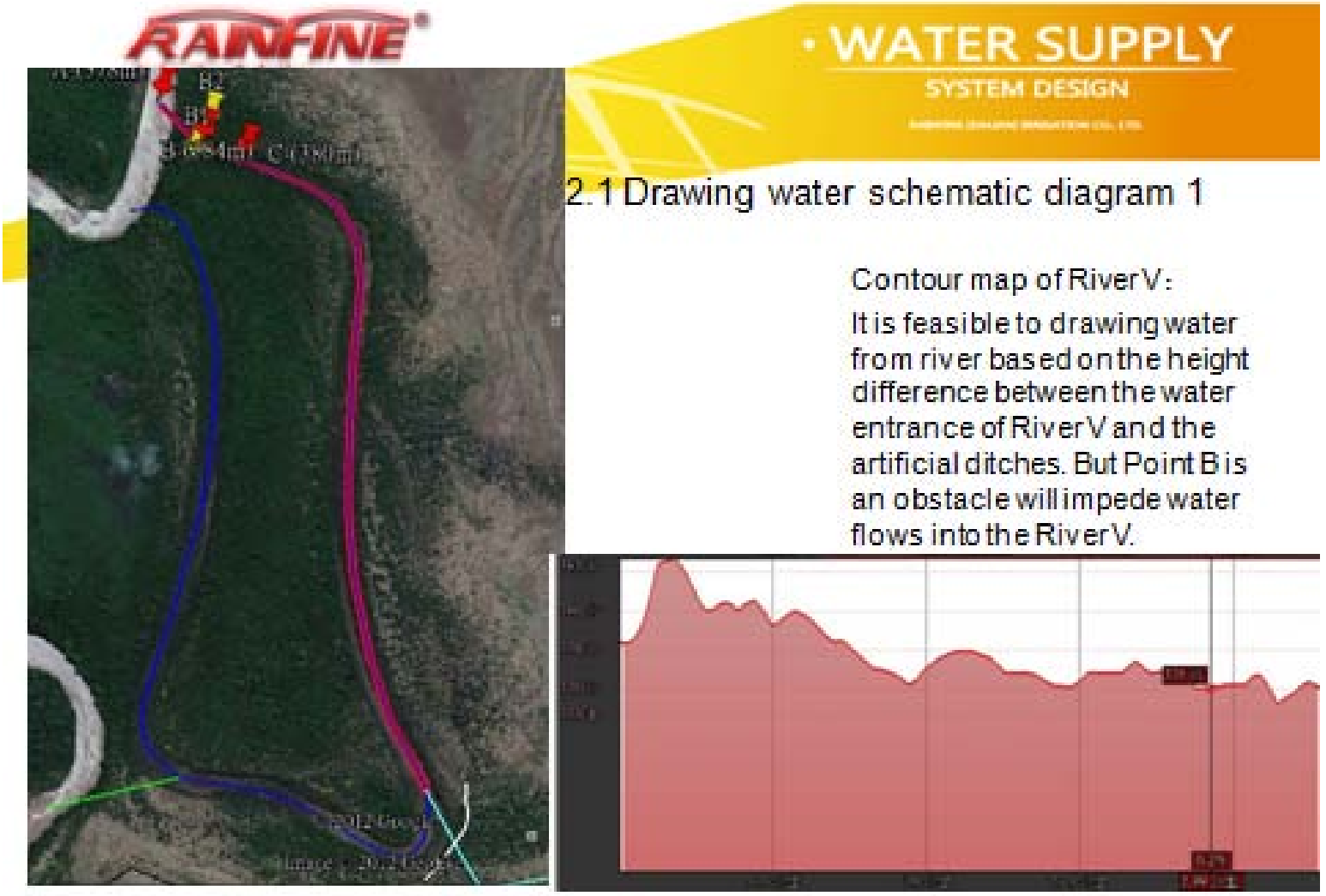
Flow Velocities

3.Ethiopia OMO river design(1)

Ethiopia Omo river 2500ha irrigation project design based on center pivot irrigation system

Rainfine Irrigation Design Institute
Dalian China

3.Ethiopia OMO river design（2）

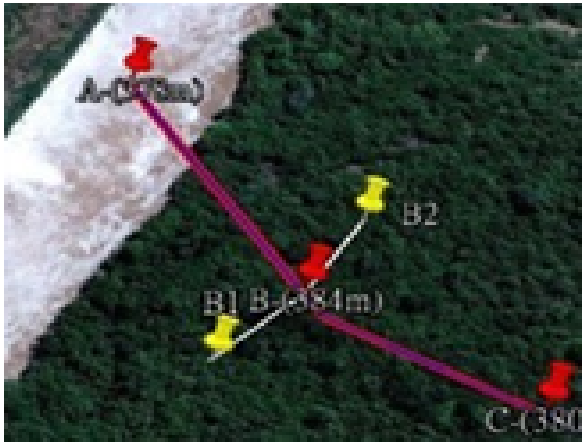


3.Ethiopia OMO river design（3）

RAINFINE Irrigation Solution

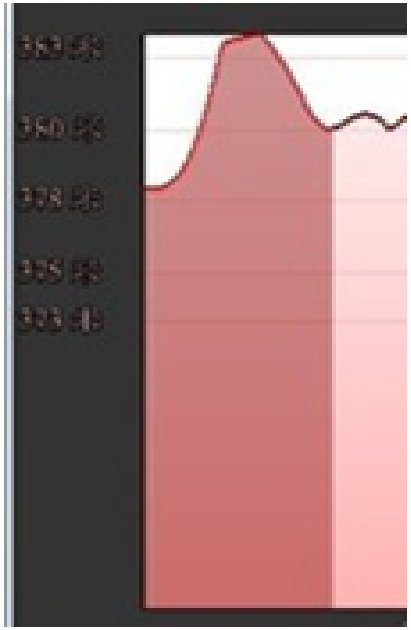
• WATER SUPPLY
SYSTEM DESIGN

2.2 Drawing water schematic diagram 2



The red selected area in right scheme is the contour map of the left map.It shows B is the highest point. (Elevation 384m)

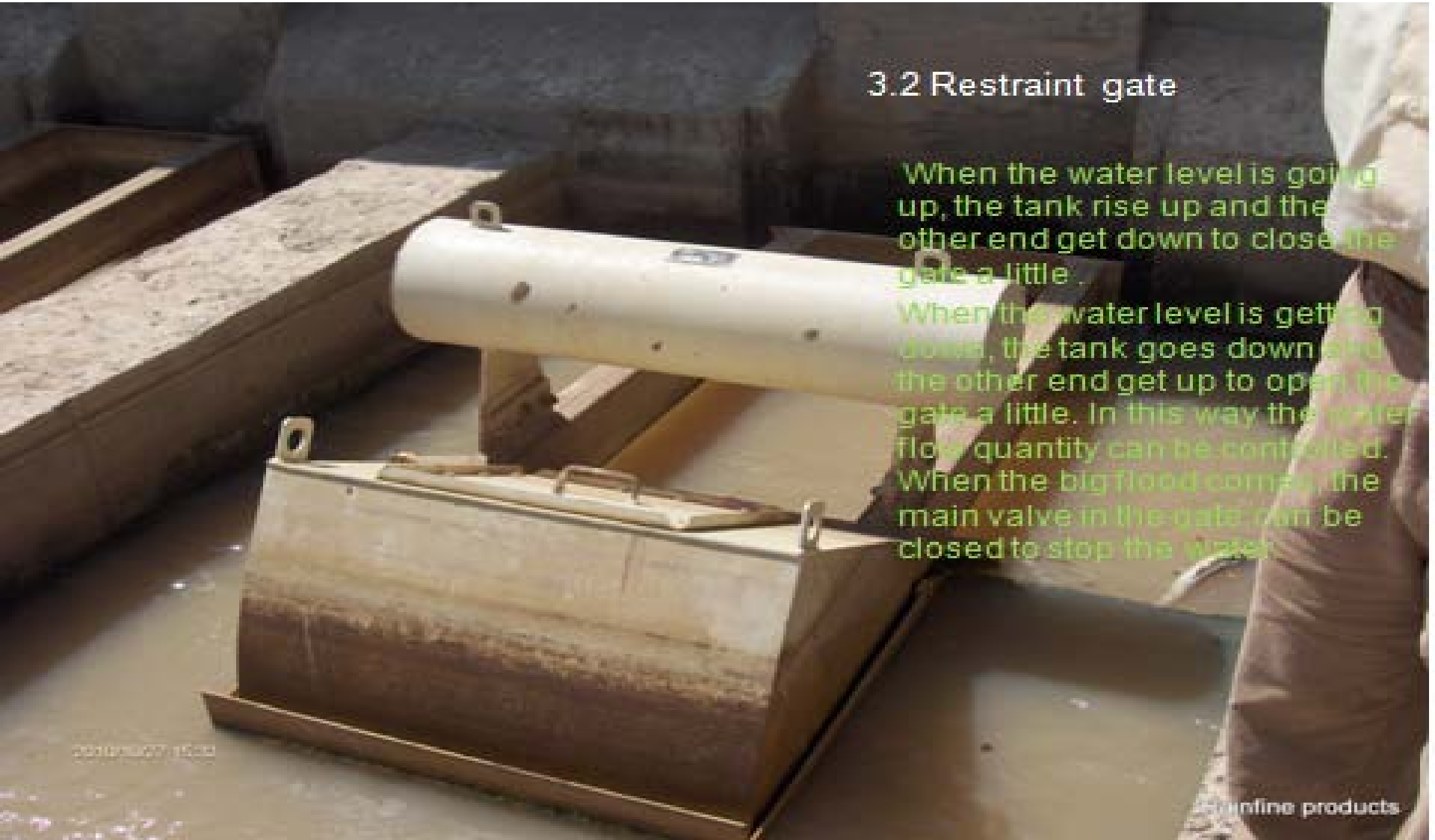
Drawing water into River V by punching through out Point B.



3.Ethiopia OMO river design（4）

3.Ethiopia OMO river design（5）

3.Ethiopia OMO river design（6）

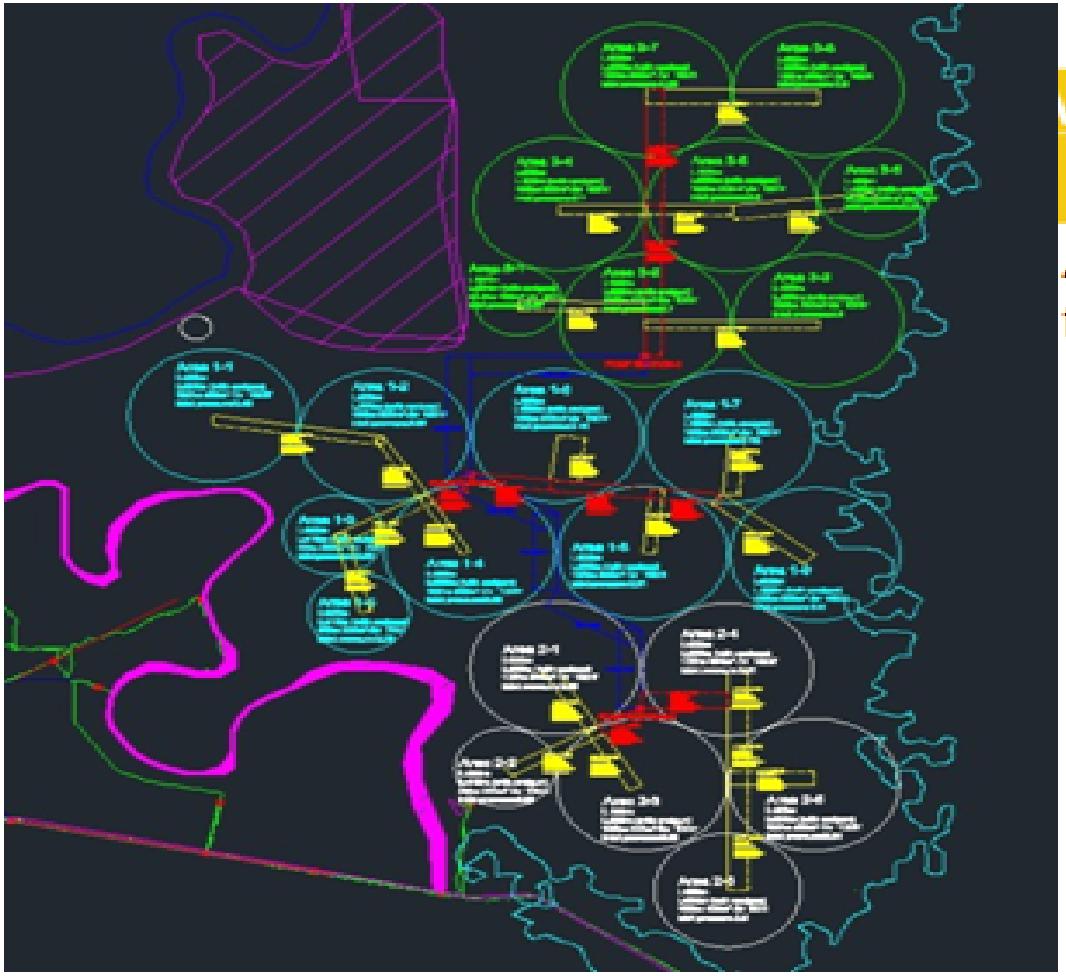


3.Ethiopia OMO river design（7）

RAINFINE Irrigation Solution.

DITCH AND GRID CHAMBER/ PUMP STATION

3.Ethiopia OMO river design（8）



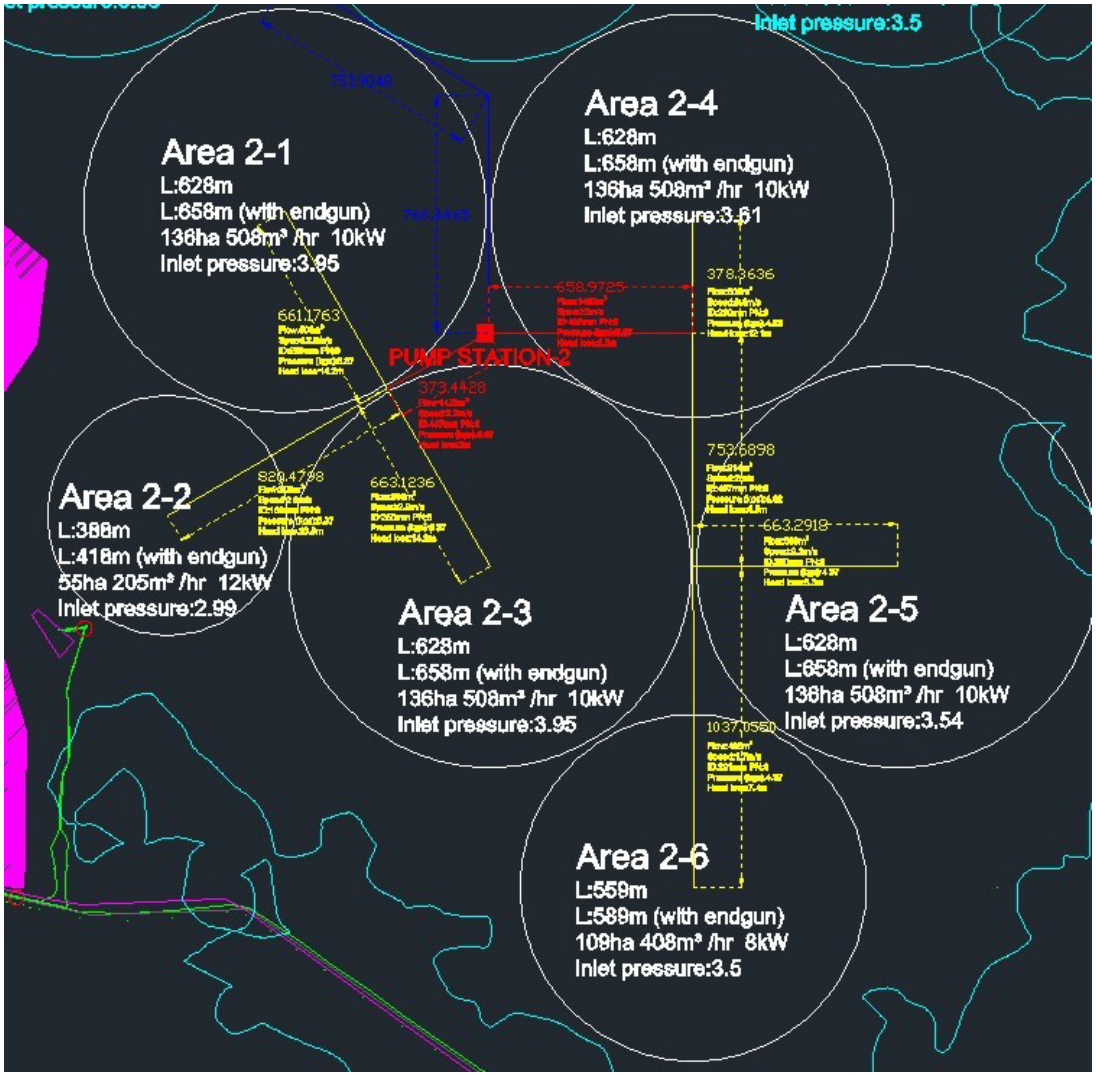
WATER SUPPLY

SYSTEM DESIGN

4. Pivot machine design for irrigation areas

The pivots works in 2 shift, This idea can reduce the diameter of the water pipes and the size of the pump station. By our calculation, the total water requirement for this area is 5228m³/hr

3.Ethiopia OMO river design（9）



4.4 No.2 irrigation area

6 pivots in all, 4 of them cover 136ha each, 1 covers 55ha, 1 covers 109ha

Total coverage: 708ha

Total water demand: 1424m³/hr

No.2 pump station is built in the center of the irrigation area.

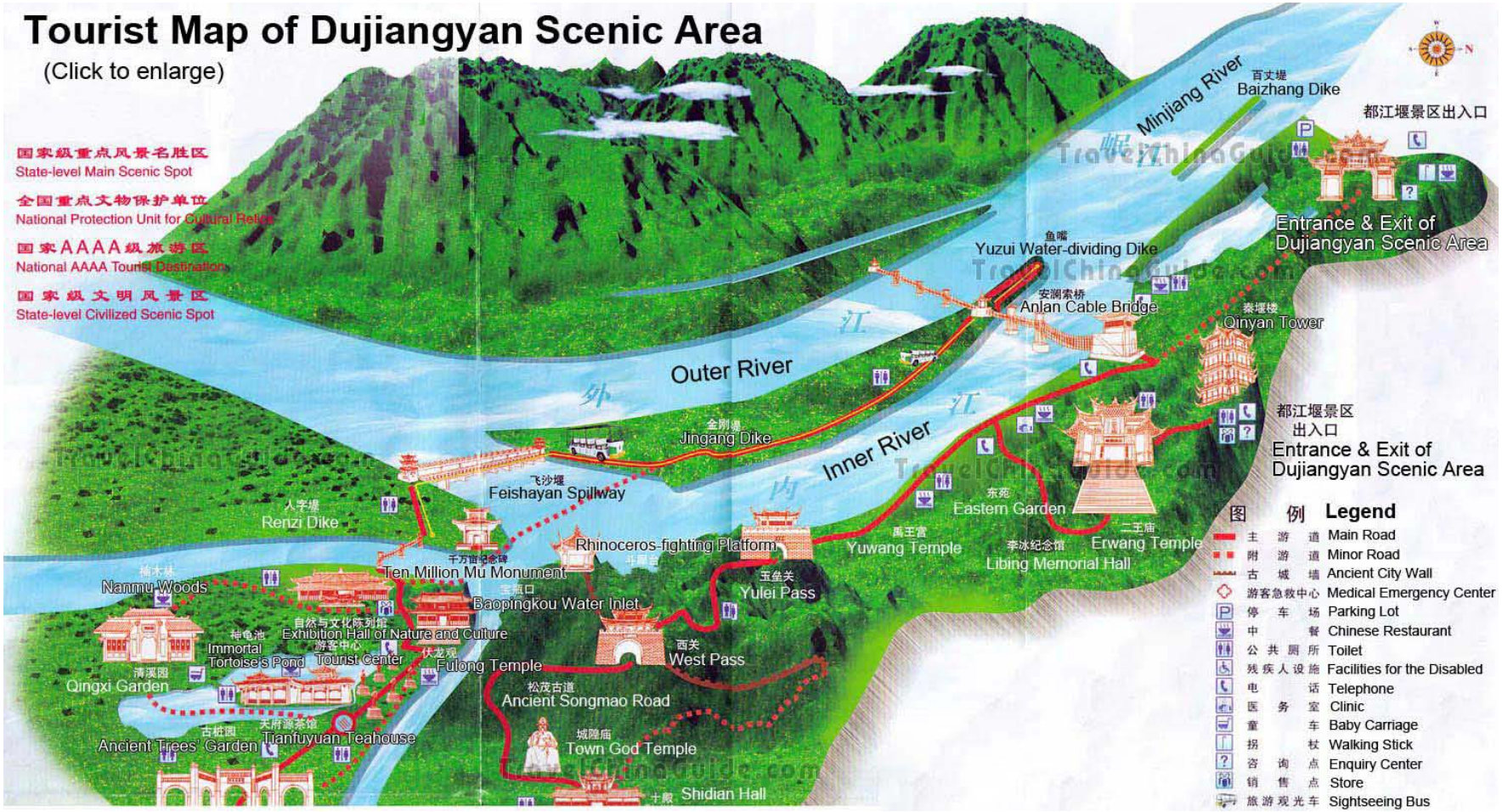
This design can reduce water supply volume and the size of the water pipes, it can also lower the pressure losses and thus reduce the pump po wer and lower energy costs.

4.Dujiangyan- the biggest irrigation system built in the year 256 BC(1)

(2,236 years ago)

4.Dujiangyan- the biggest irrigation system built in the year 256 BC (2)

4.Dujiangyan- the biggest irrigation system built in the year 256BC(3)



4.Dujiangyan- the biggest irrigation system built in the year 256BC (4)

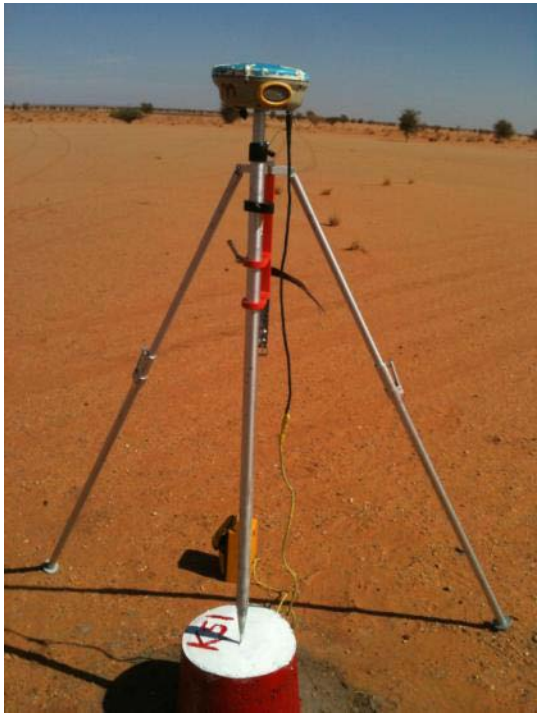
2,200 years ago, the city was threatened by the frequent floods caused by flooding of the Minjiang River (a tributary of the Yangtze River). Li Bing, a local official of Sichuan Province at that time, together with his son, decided to construct an irrigation system on the Minjiang River to prevent flooding. After a lengthy study and a lot of hard work by the local people, the great Dujiangyan Irrigation Project was completed. Since then, the Chengdu Plain has been free of flooding and the people have been living peacefully and affluently. Now, the project is honored as the 'Treasure of Sichuan', which still plays a crucial role in draining off floodwater, irrigating farms and providing water resources for more than 50 cities in the province.

4.Dujiangyan- the biggest irrigation system built in the year 256BC (5)

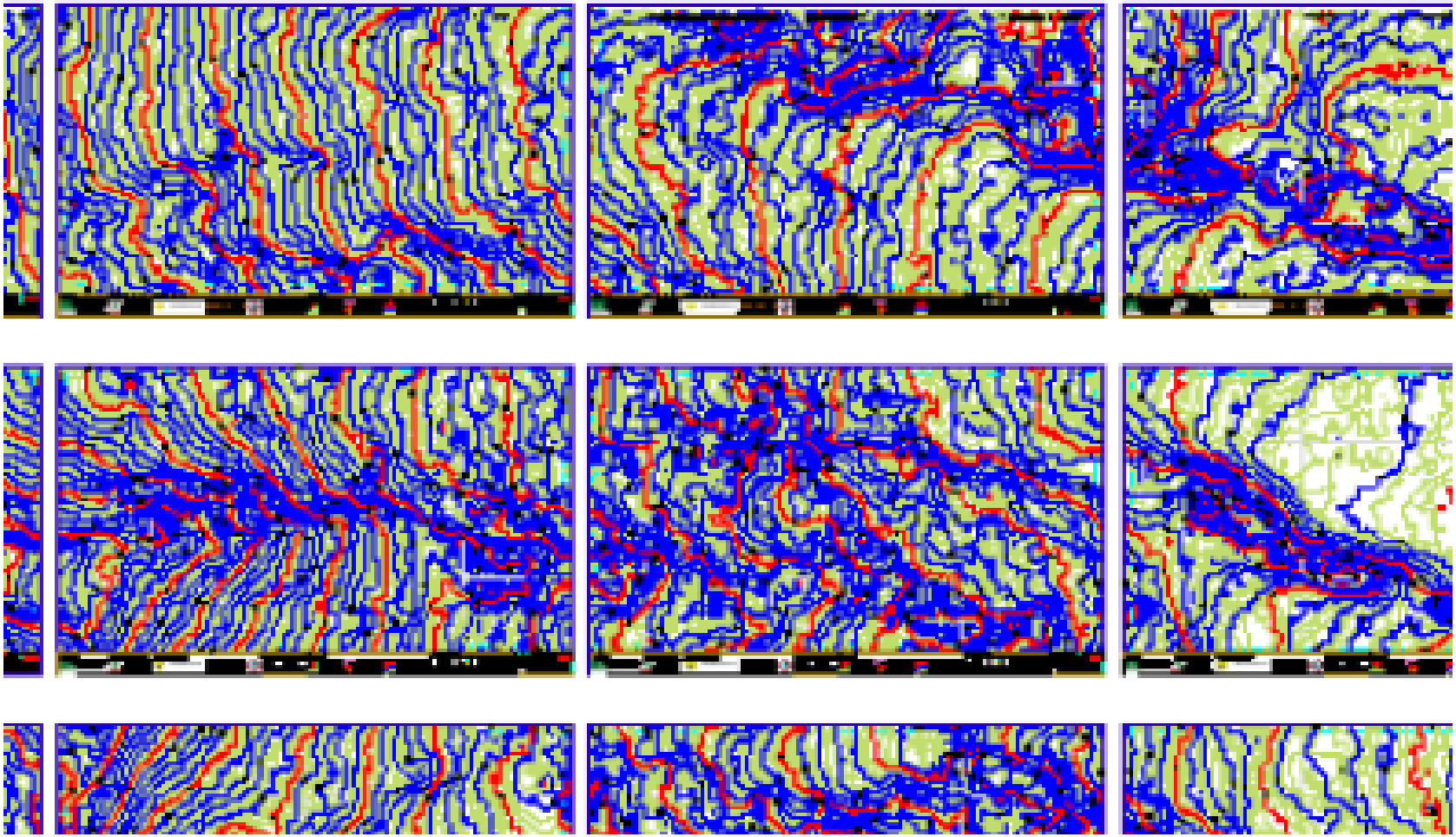
- Dujiangyan is the oldest and only surviving no-dam irrigation system in the world; and a wonder in the development of Chinese science. The project consists of three important parts, namely Yuzui, Feishayan and Baopingkou scientifically designed to automatically control the water flow of the rivers from the mountains to the plains throughout the year.

Part six: How to start a irrigation project

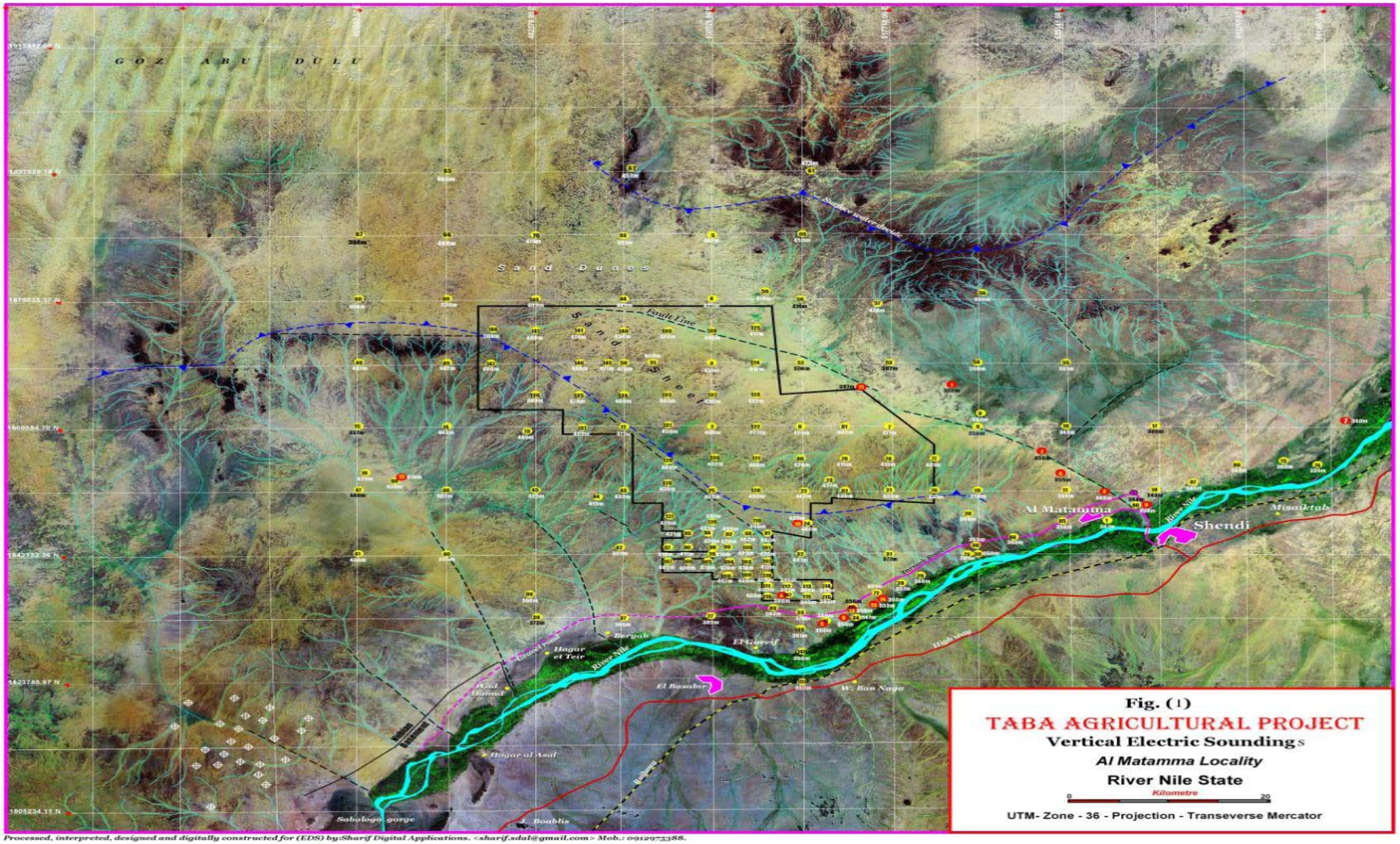
Step 1: Topographic survey



Step 2. Send us the topographic map by Auto CAD

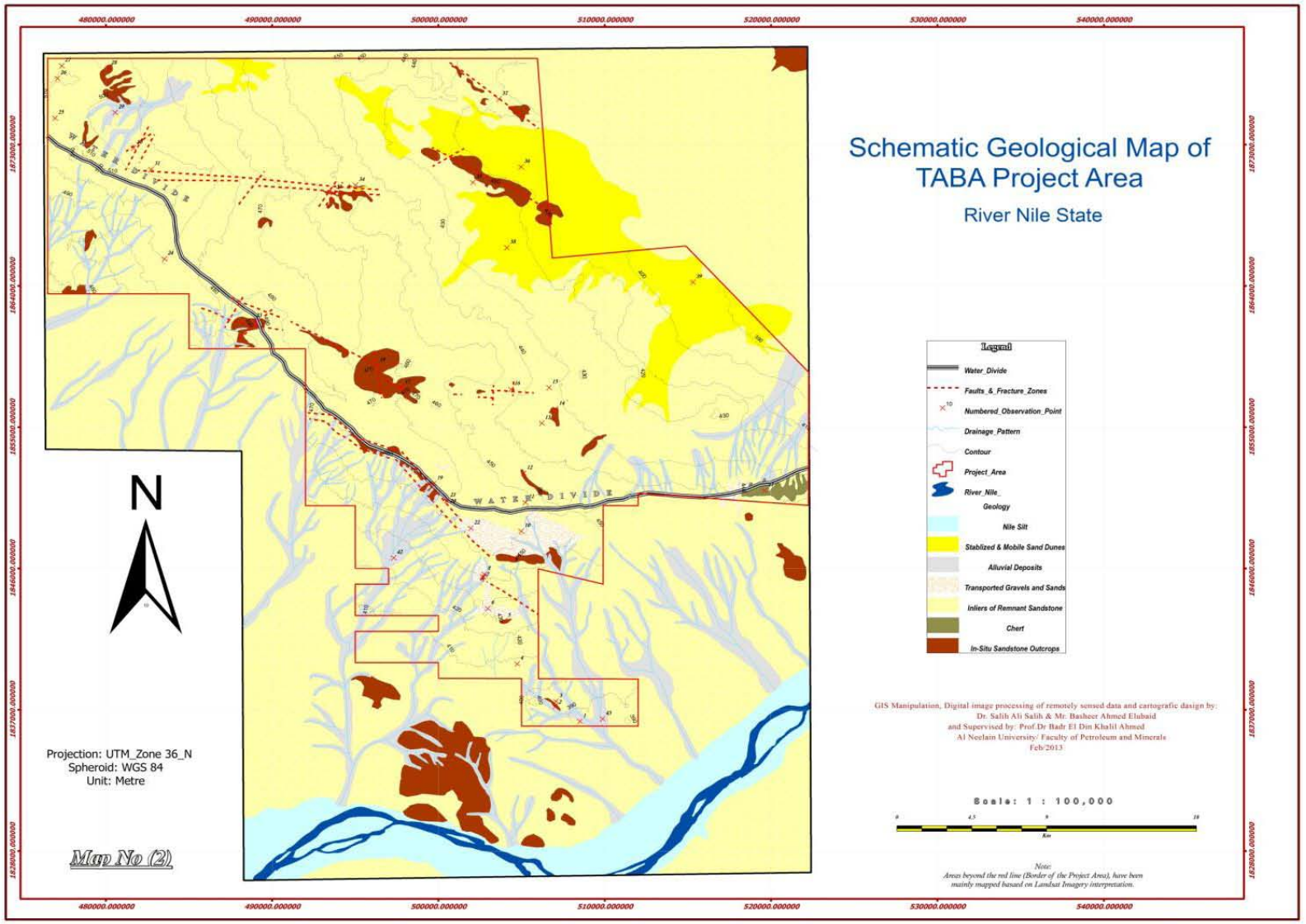


Step 3.Send us the satellate map with river position



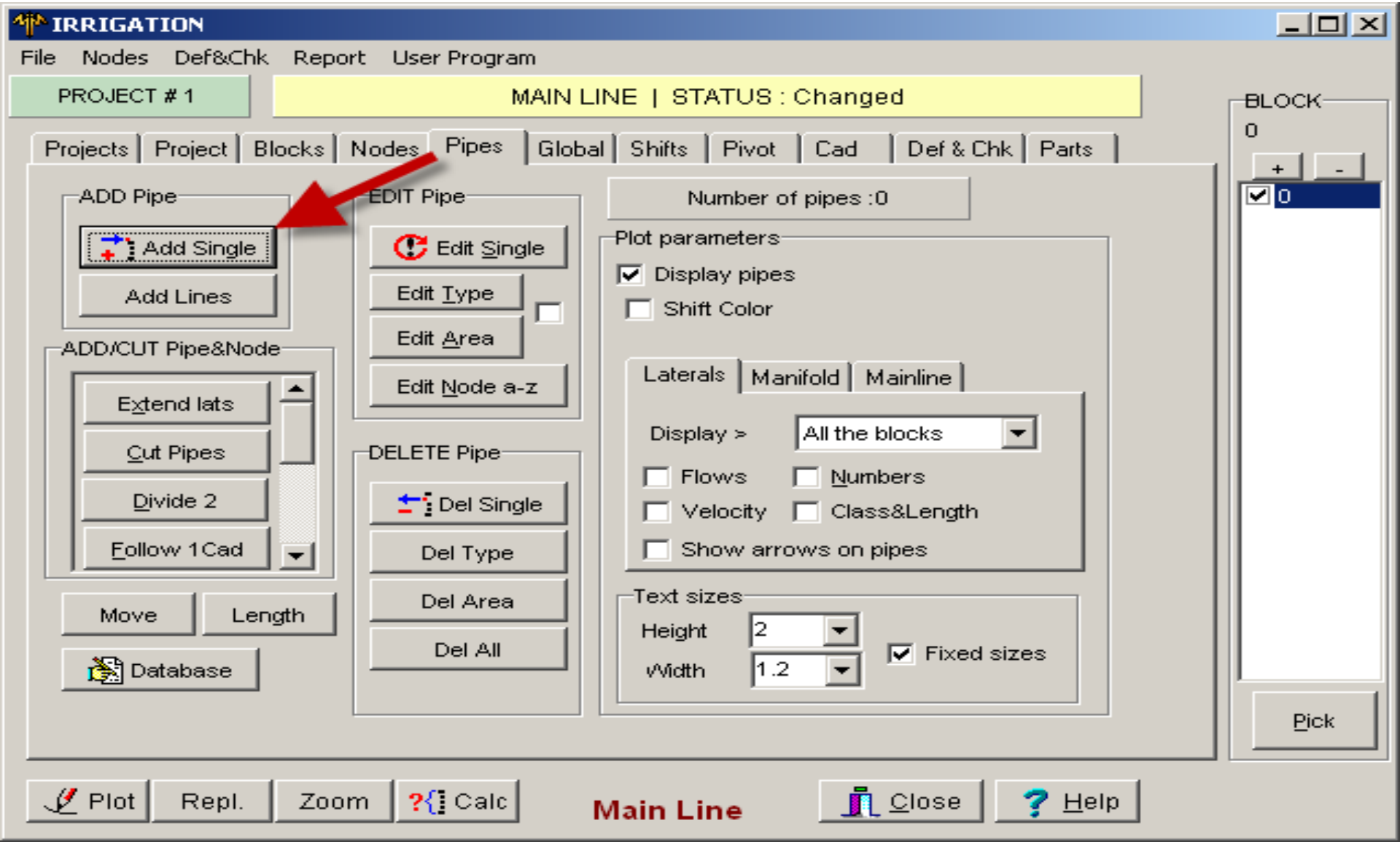
Processed, interpreted, designed and digitally constructed for (EDS) by:Sharif Digital Applications. <sharif.sdal@gmail.com> Mob.: 0912975388.

Step 4. send us the geological map of the project area



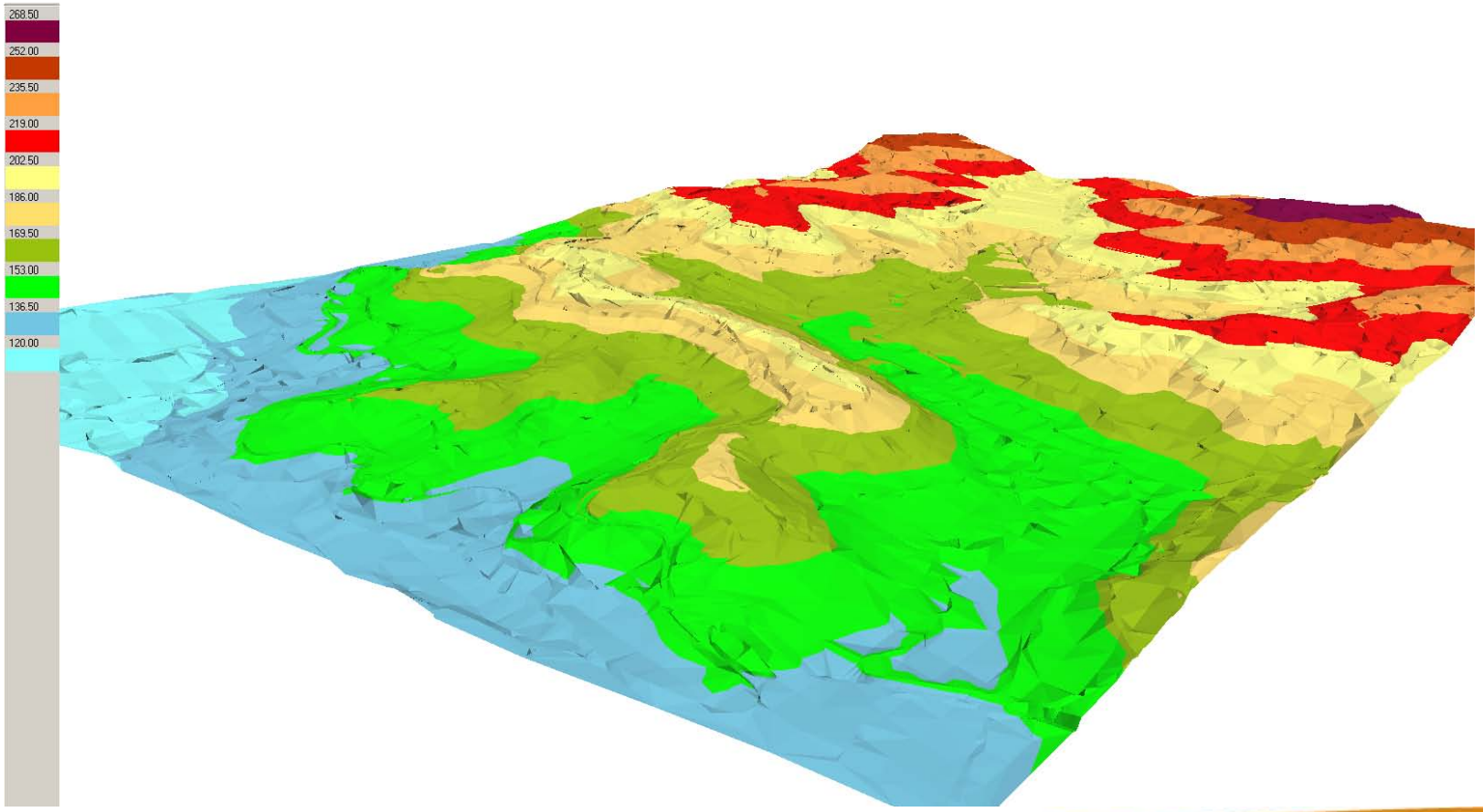
Step 5：Send us the boarder line from google earth with KMZ file

Step 6: Rainfine will start to design the irrigation area with software

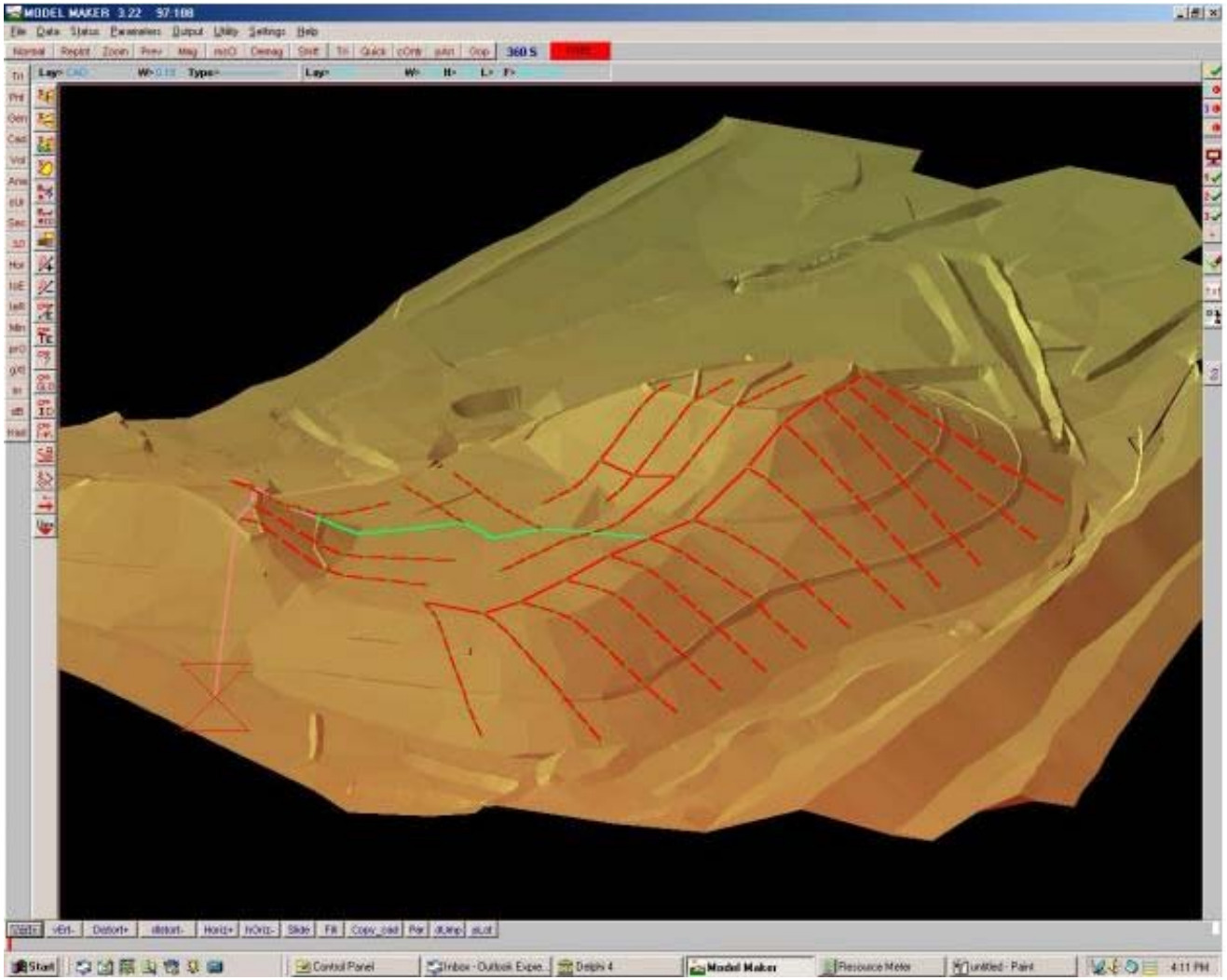


Step 7: Make the model and analysis the elevation data

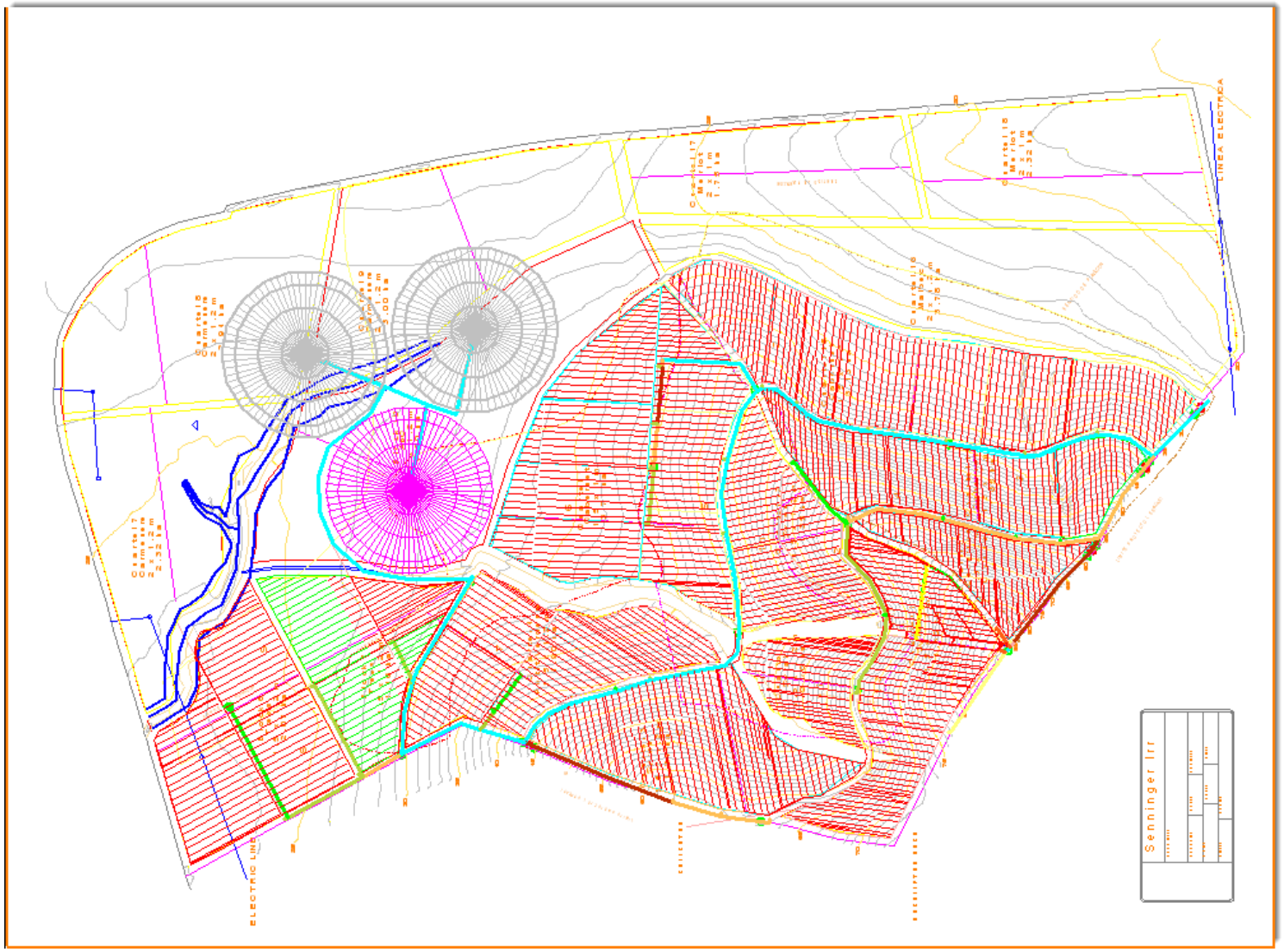
Step 8: Make the model and analysis the elevation data



Step 9: Make the model and analysis the elevation data



Step 10: Make the irrigation plan



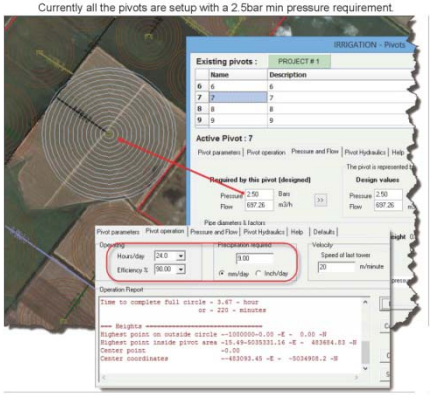
Step 11: make the reports

This systems is designed to work in 7 separate shifts.
A shift is 24hrs of 9mm precipitation.

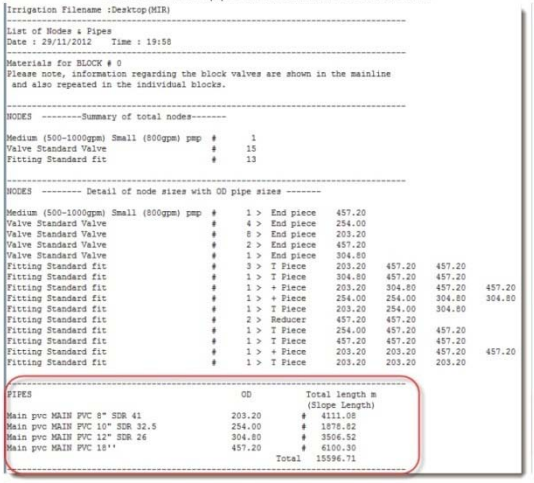
Assumptions "Each pivot will have a complete shift every 7 days".

Below are 3 examples of different shifts along with the flow required for each shift.
Pivots 5, 14, 15

Currently all the pivots are setup with a 2.5bar min pressure requirement.



List of the all the pipes needed with their dimensions.



```
Irrigation Filename :Desktop(MIR)
-------------------------------------------------------------------------------
List of Nodes & Pipes
Date : 29/11/2012    Time : 19:58
-------------------------------------------------------------------------------
Materials for BLOCK # 0
Please note, information regarding the block valves are shown in the mainline
 and also repeated in the individual blocks.
-------------------------------------------------------------------------------
NODES  --------Summary of total nodes-------

Medium (500-1000gpm) Small (800gpm) pmp  #      1
Valve Standard Valve                     #     15
Fitting Standard fit                     #     13

-------------------------------------------------------------------------------
NODES  -------- Detail of node sizes with OD pipe sizes -------

Medium (500-1000gpm) Small (800gpm) pmp  #      1 >  End piece    457.20
Valve Standard Valve                     #      4 >  End piece    254.00
Valve Standard Valve                     #      8 >  End piece    203.20
Valve Standard Valve                     #      2 >  End piece    457.20
Valve Standard Valve                     #      1 >  End piece    304.80
Fitting Standard fit                     #      3 >  T Piece      203.20    457.20    457.20
Fitting Standard fit                     #      1 >  T Piece      304.80    457.20    457.20
Fitting Standard fit                     #      1 >  + Piece      203.20    304.80    457.20    457.20
Fitting Standard fit                     #      1 >  + Piece      254.00    254.00    304.80    304.80
Fitting Standard fit                     #      1 >  T Piece      203.20    254.00    304.80
Fitting Standard fit                     #      2 >  Reducer      457.20    457.20
Fitting Standard fit                     #      1 >  T Piece      254.00    457.20    457.20
Fitting Standard fit                     #      1 >  T Piece      457.20    457.20    457.20
Fitting Standard fit                     #      1 >  + Piece      203.20    203.20    457.20    457.20
Fitting Standard fit                     #      1 >  T Piece      203.20    203.20    203.20

-------------------------------------------------------------------------------
PIPES                                        OD          Total length m
                                                         (Slope Length)
Main pvc MAIN PVC 8" SDR 41                 203.20     #   4111.08
Main pvc MAIN PVC 10" SDR 32.5              254.00     #   1878.82
Main pvc MAIN PVC 12" SDR 26                304.80     #   3506.52
Main pvc MAIN PVC 18''                      457.20     #   6100.30
                                                     Total  15596.71
-------------------------------------------------------------------------------
```

Required information:
How often should each pivot complete a 24hour shift?
What is the minimum required pressure at each pivot?

Step 12.Pivot machine design

350m Pivot

Machine

Mfg:	PIVOT
Flow:	40.00 liter/s
Pivot Pressure:	1.22 bar
Base Press	1.53 bar
End Pressure:	0.83 bar
Spacing:	Span dependent
Length:	349.83 m
m3h / Hect:	1.04 liter/s
Average Drop:	2.7 m
End Gun:	No

Pipes

C Factor: 140
Pipe 1: 349.8 m. 161.93 mm ID

Sprinklers

169 LDN UP3
(50)C24 (119)C33

Elevation

Difference above(+) piv
Difference below(-) piv
Elevation Rise included

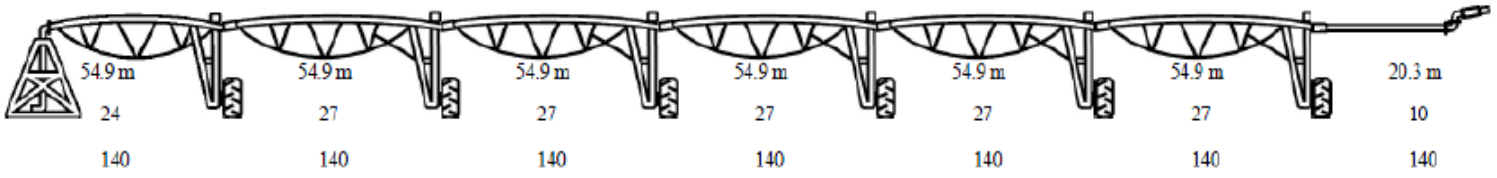
Regs

Position : Bottom
169 PSR-10

Spans # 6

1.22 bar

161.93



1.53 bar

Step 13:Rainfine will submit the offers(technical and financial)

Rainfine

Offer

for the Design, Supply, Installation and Commissioning of

Kebabo Irrigation Project (Based on Center Pivot Technology)

Project Owner: Hiwot Agricultural

Part One: Technical Offer

Rainfine

Offer

for the Design, Supply, Installation and Commissioning of

Kebaba Irrigation Project (Based on Center Pivot Technology)

Project Owner: Hiwot Agricultural

Part Two: Financial Offer

Step 14: Get approval from the investor

Part seven: Market

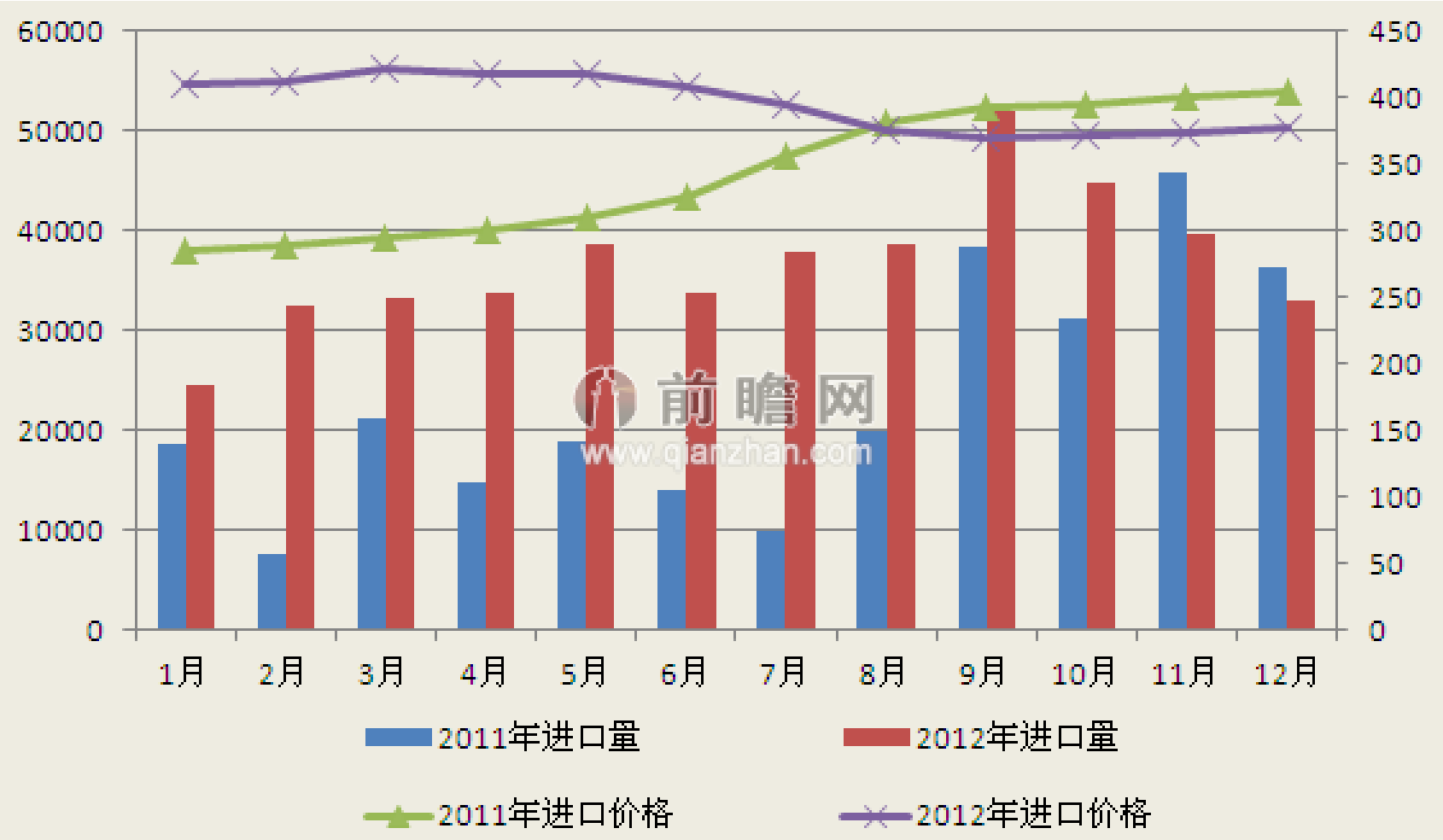
In 2050 ,the total population of people all over the world will be more than

Jan-Nov, 2012,China's total grain import is 65 million tons/US$105.8 billion which is 3 times of that in 2011

The grain price in world market increased 29% from Jan 2011 to Jan 2012

China import Alfafa hey 440,000tons/US$174 million in 2012, 60.46% increase than 2011

Blue is 2011,red is 2012.



China is the biggest market for grain

- China has 1.3 billion people
- 120 million hectare cultivated land only
- Industry development need more land
- Industry need more grain

China need Afria and Africa need China

- China need more land
- China need cheaper food
- Africa need good technology
- Africa need cheaper machines

- If we work together, it will benefit us both


RAINFINE
Irrigation Solution.
We are ready to be with you
Are you ready?

You are welcome to visit our factory

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Thank you