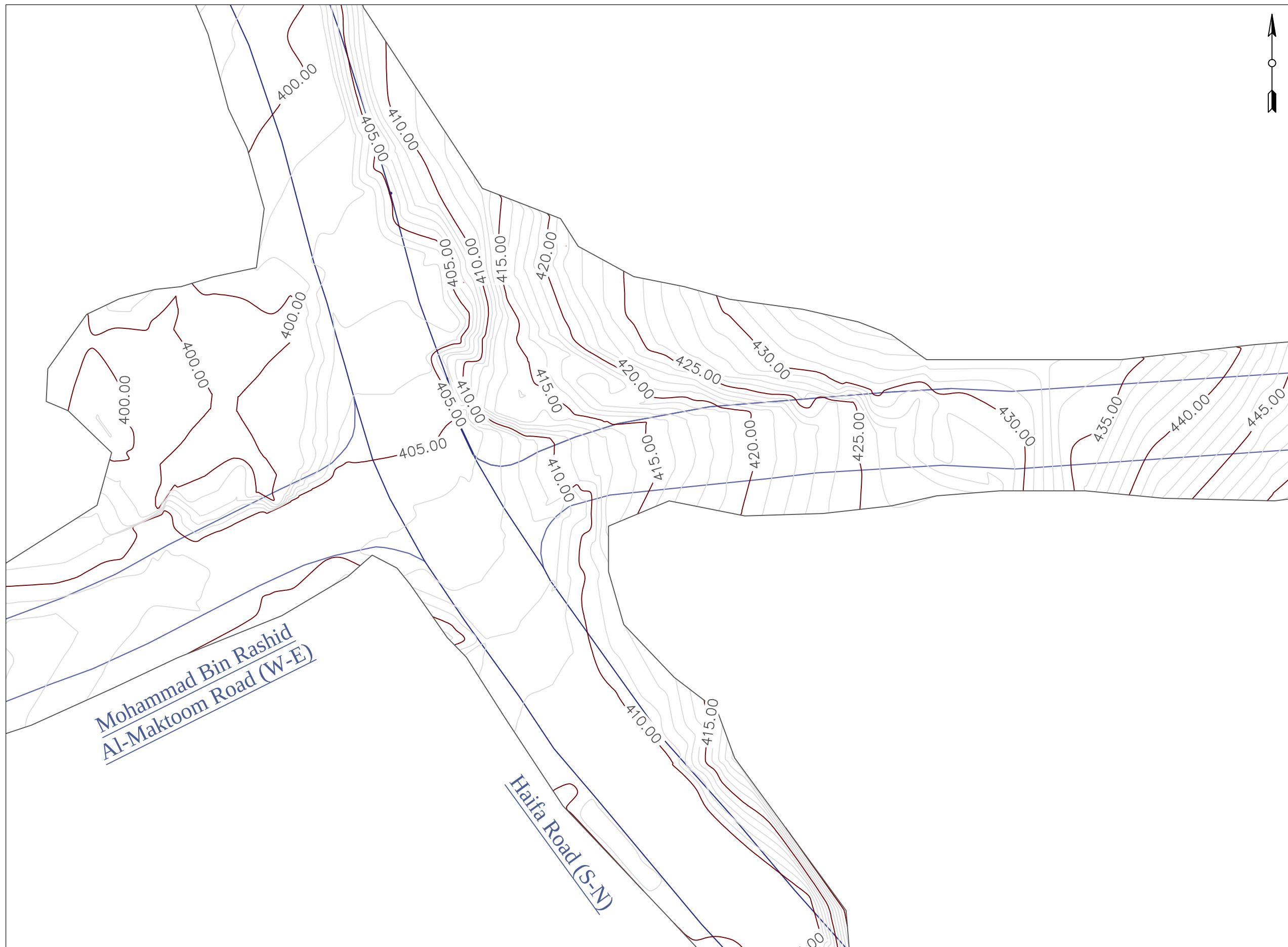


Appendix B

Contours Map Sheet#1



An-Najah National University
Faculty of Engineering and IT
Civil Engineering Department

Graduation Project II
"Design of the Interchange at the
Intersection of Haifa Road and
Mohammad Bin Rashid
Al-Maktoom Road"

Legend:

— Current ROW

Note:

All dimension in meter

Drawing Name:

Contour Map

Designed By:

Amin Salam A. Abu Saa
Mohammad Kamal M. Irshaid

Supervised by:

Prof. Sameer Abu-Eisheh

Scale:

1/1250

Date:

2014

Sheet #:

1

Appendix C

Geometric Design, Cross-Sections, and Signage
and Marking

Geometric Design

- Available ROW Sheet# (1)
- Alternatives Sheet# (2-4)
- Key Plan Sheet# (5-6)
- Turning Movement Sheet# (7)
- Additional Area Required Sheet# (8)
- Plans and Profiles Sheet# (9-20)



An-Najah National University
Faculty of Engineering and IT
Civil Engineering Department

Graduation Project II
"Design of the Interchange at the
Intersection of Haifa Road and
Mohammad Bin Rashid
Al-Maktoom Road"

Legend:

- Current ROW
- Additional land that can be owned by the municipality

Note:

- Haifa Road 30m ROW
- Ring Road 25m ROW
- Area A = 5000 m²
- Area B = 5030 m²
- Area C = 1930 m²

Drawing Name:

Right of Way

Designed By:

Amin Salam A. Abu Saa
Mohammad Kamal M. Irshaid

Supervised by:

Prof. Sameer Abu-Eisheh

Scale:

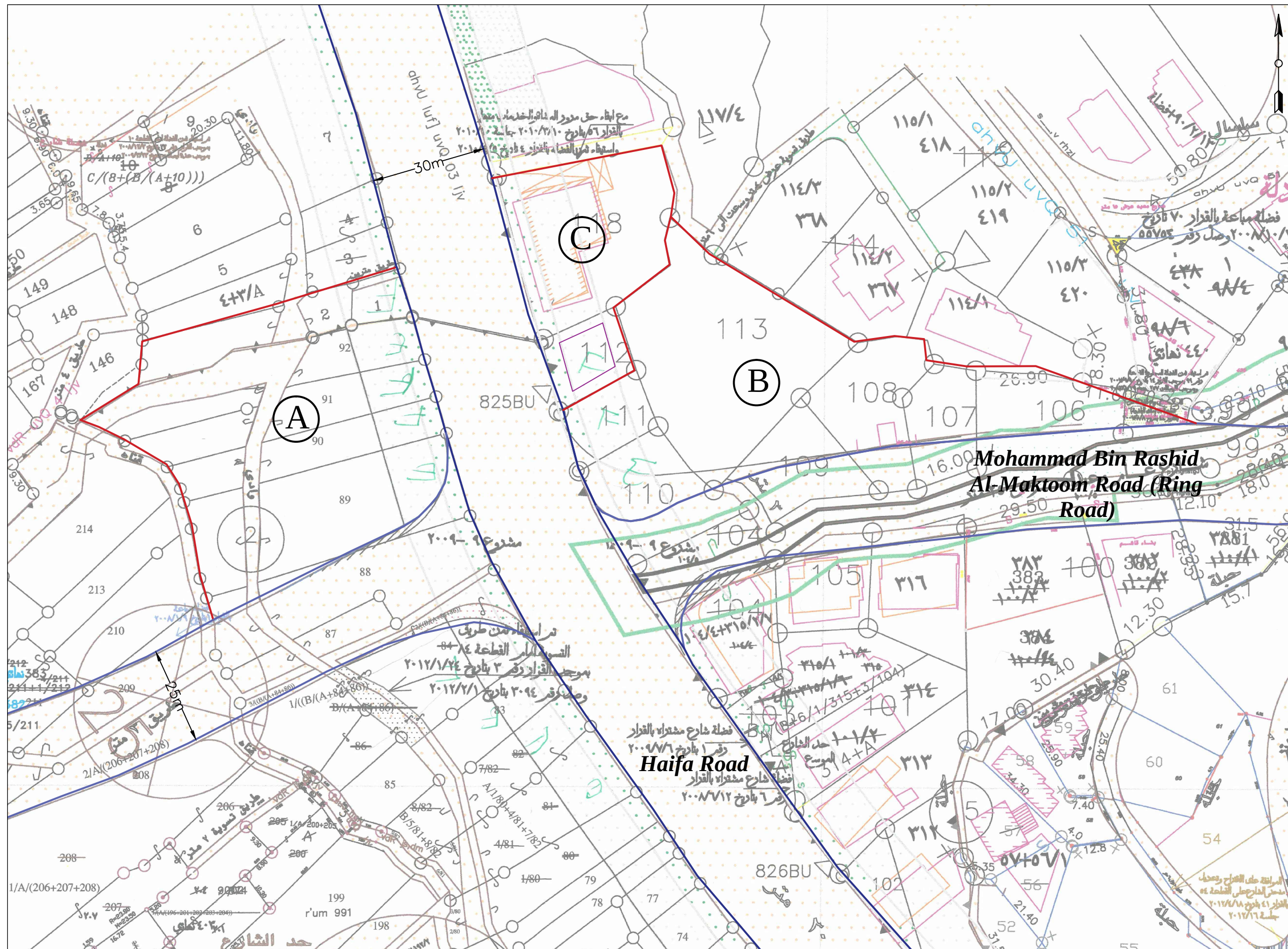
1/1000

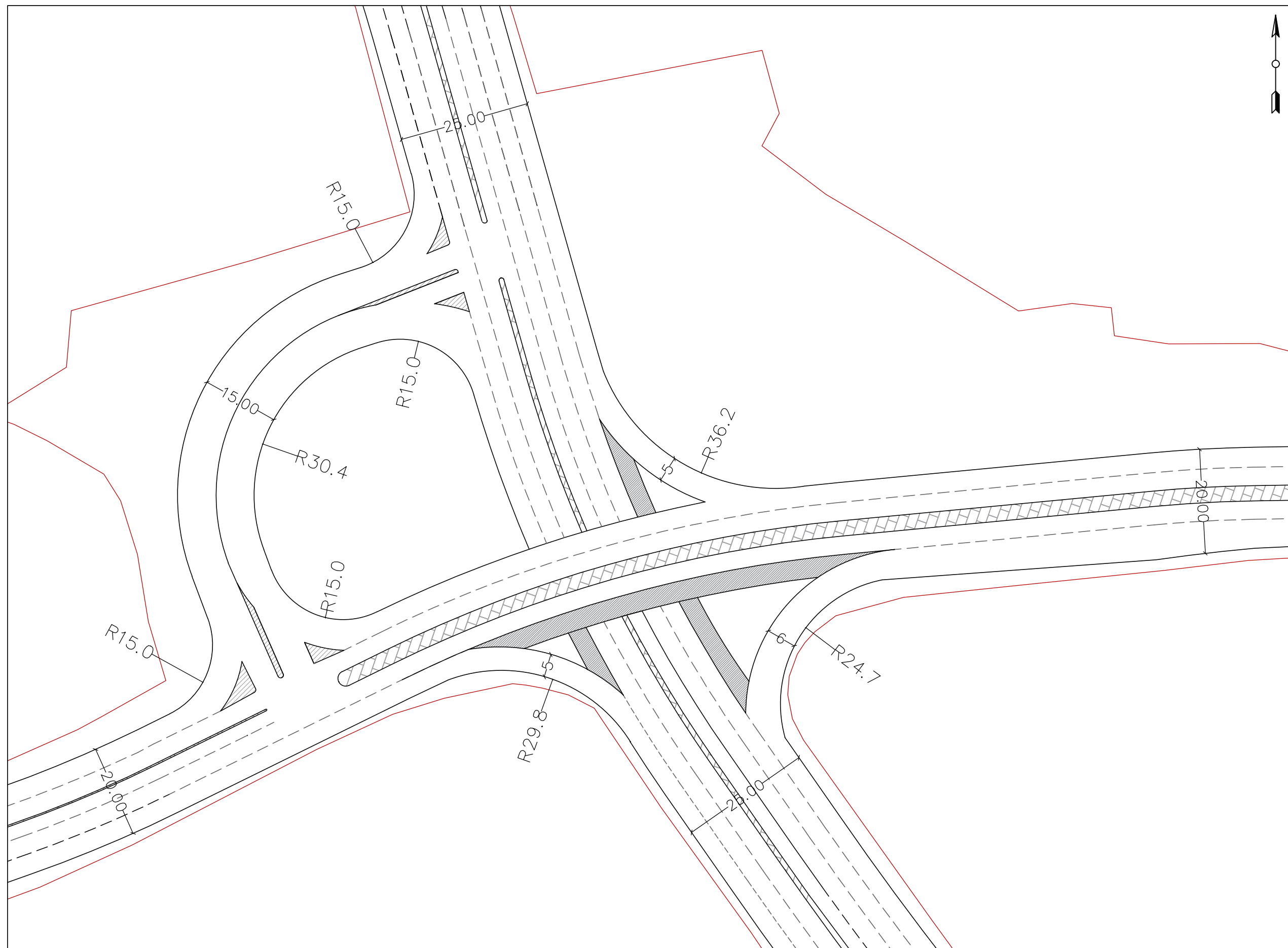
Date:

2014

Sheet #:

1





An-Najah National University
Faculty of Engineering and IT
Civil Engineering Department

Graduation Project II
"Design of the Interchange at the
Intersection of Haifa Road and
Mohammad Bin Rashid
Al-Maktoom Road"

Legend:

— ROW

Note:

- Alternative#1 Configuration
- One Quadrant/Preliminary Design
- Additional area needed to be owned = 3450 m²
- All dimensions in meter

Drawing Name:

Plan for One Quadrant
Alternative

Designed By:

Amin Salam A. Abu Saa
Mohammad Kamal M. Irshaid

Supervised by:

Prof. Sameer Abu-Eisheh

Scale:

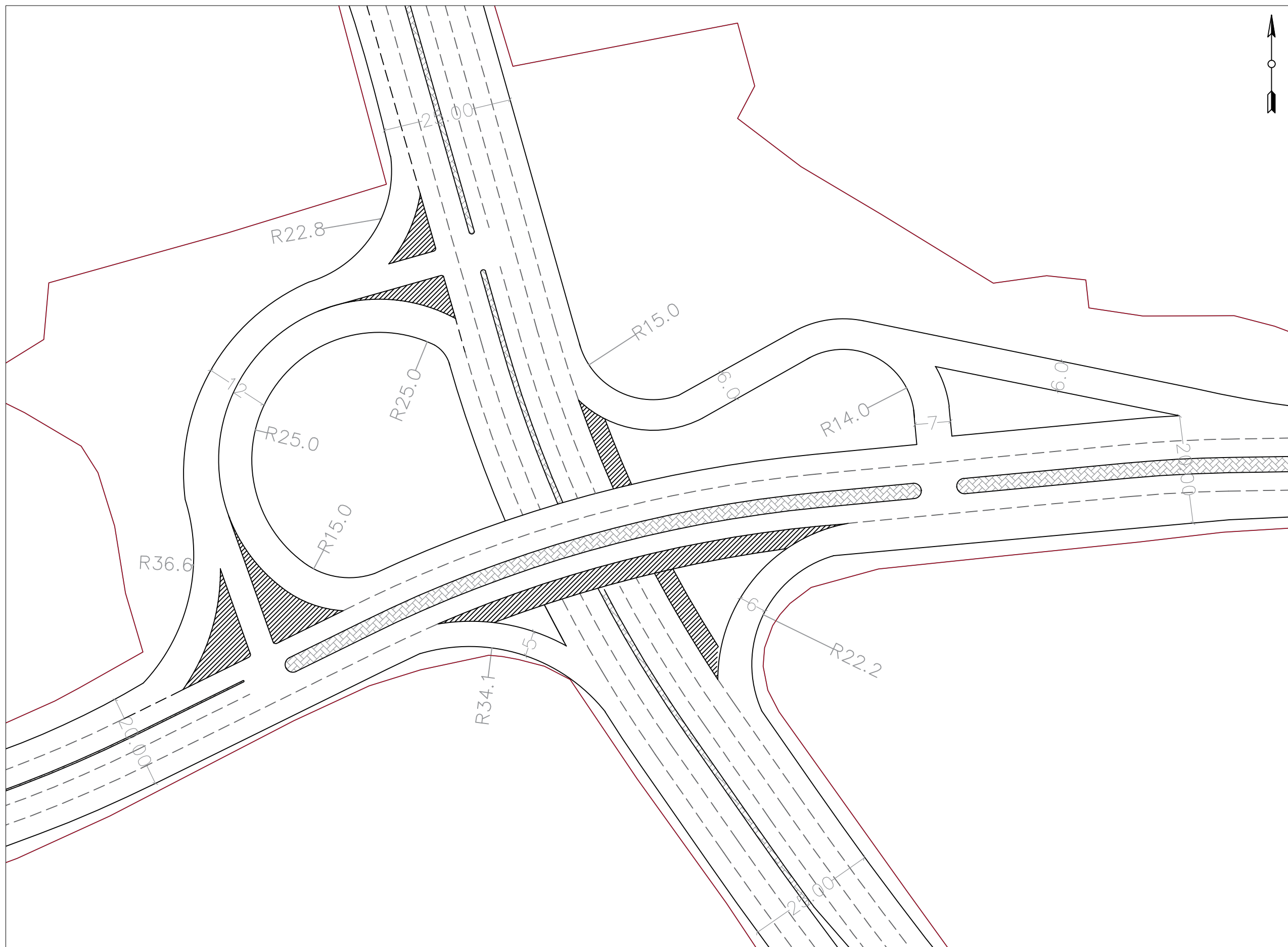
1/750

Date:

2014

Sheet #:

2



An-Najah National University
Faculty of Engineering and IT
Civil Engineering Department

Graduation Project II
"Design of the Interchange at the
Intersection of Haifa Road and
Mohammad Bin Rashid
Al-Maktoom Road"

Legend:

— ROW

- Note:
- Alternative#2 Configuration
 - Partial Cloverleaf (One Loop)/Preliminary Design
 - Additional area needed to be owned = 5390 m²
 - All dimensions in meter

Drawing Name:
Plan for Partial
Cloverleaf (Option I)

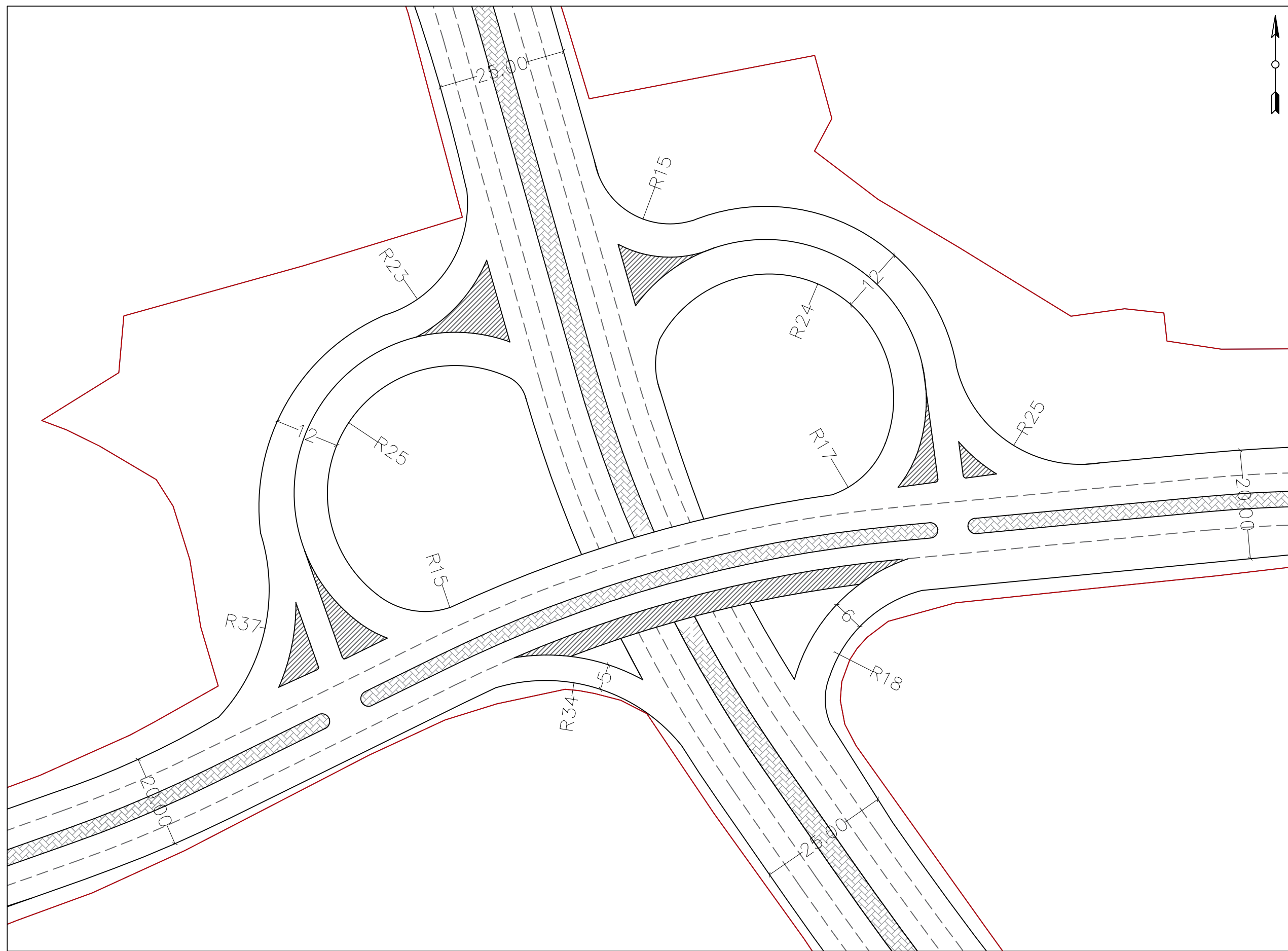
Designed By:
Amin Salam A. Abu Saa
Mohammad Kamal M. Irshaid

Supervised by:
Prof. Sameer Abu-Eisheh

Scale:
1/750

Date:
2014

Sheet #:
3



An-Najah National University
Faculty of Engineering and IT
Civil Engineering Department

Graduation Project II
"Design of the Interchange at the
Intersection of Haifa Road and
Mohammad Bin Rashid
Al-Maktoom Road"

Legend:

— ROW

Note:

- Alternative#3 Configuration
- Partial Cloverleaf (Two Loop)/Preliminary Design
- Additional area needed to be owned = 5545 m²
- All dimensions in meter

Drawing Name:

Plan for Partial
Cloverleaf (Option II)

Designed By:

Amin Salam A. Abu Saa
Mohammad Kamal M. Irshaid

Supervised by:

Prof. Sameer Abu-Eisheh

Scale:

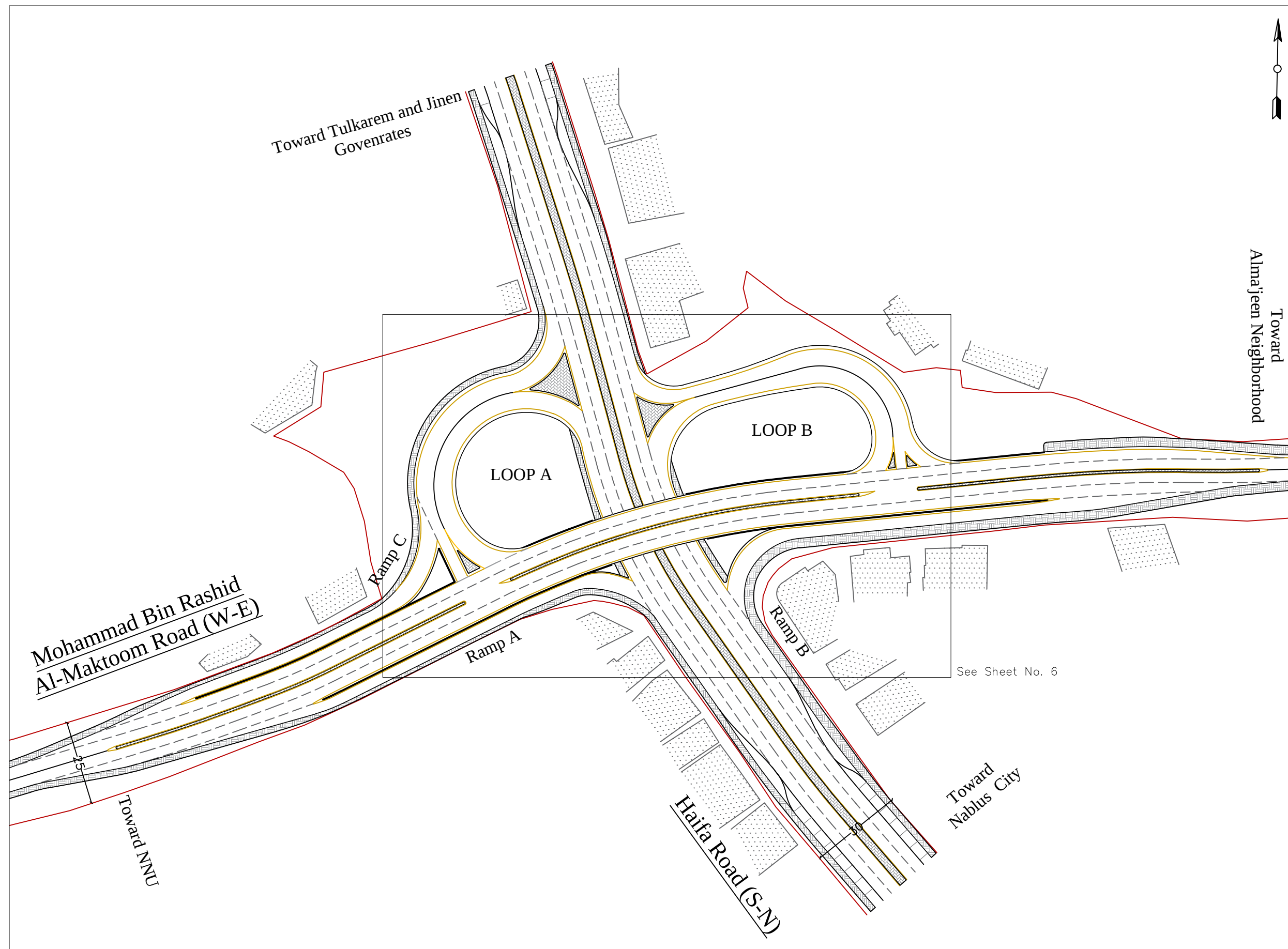
1/750

Date:

2014

Sheet #:

4



An-Najah National University
Faculty of Engineering and IT
Civil Engineering Department

Graduation Project II
"Design of the Interchange at the
Intersection of Haifa Road and
Mohammad Bin Rashid
Al-Maktoom Road"

Legend:

- ROW
- - - Lane Divide
- Edge of Travel Way
- Edge of Wall/Dike
- ▤ Sidewalk
- ▨ Median
- ▩ Existing Building

Drawing Name:
General Layout Plan for
Selected Modified
Alternative

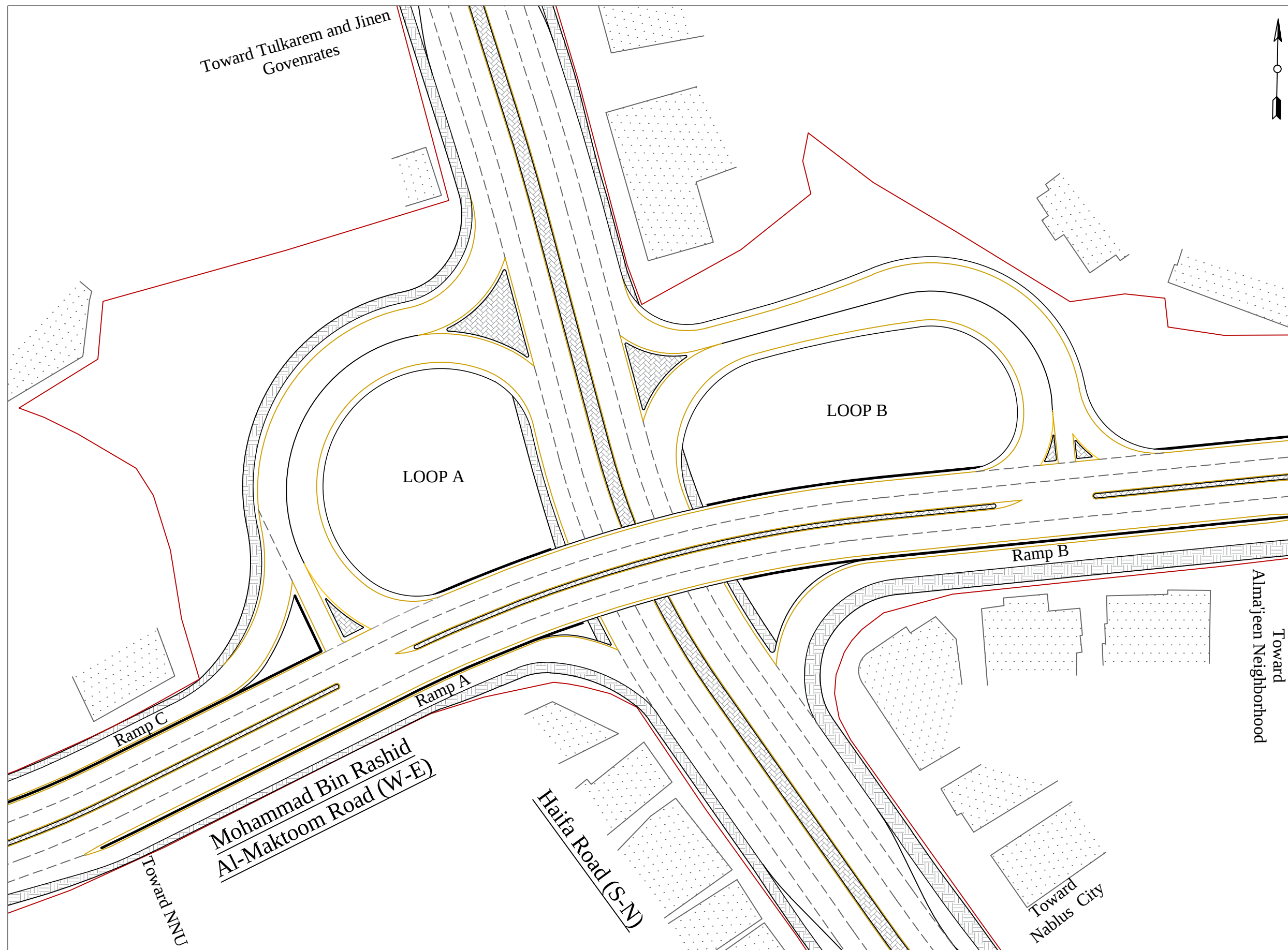
Designed By:
Amin Salam A. Abu Saa
Mohammad Kamal M. Irshaid

Supervised by:
Prof. Sameer Abu-Eisheh

Scale:
1/1250

Date:
2014

Sheet #:
5



An-Najah National University
Faculty of Engineering and IT
Civil Engineering Department

Graduation Project II
"Design of the Interchange at the
Intersection of Haifa Road and
Mohammad Bin Rashid
Al-Maktoom Road"

Legend:

- ROW
- Lane Divide
- Edge of Travel Way
- Edge of Wall/Dike
- Sidewalk
- Median
- Existing Building

Drawing Name:
**General Layout Plan
(Enlarged)**

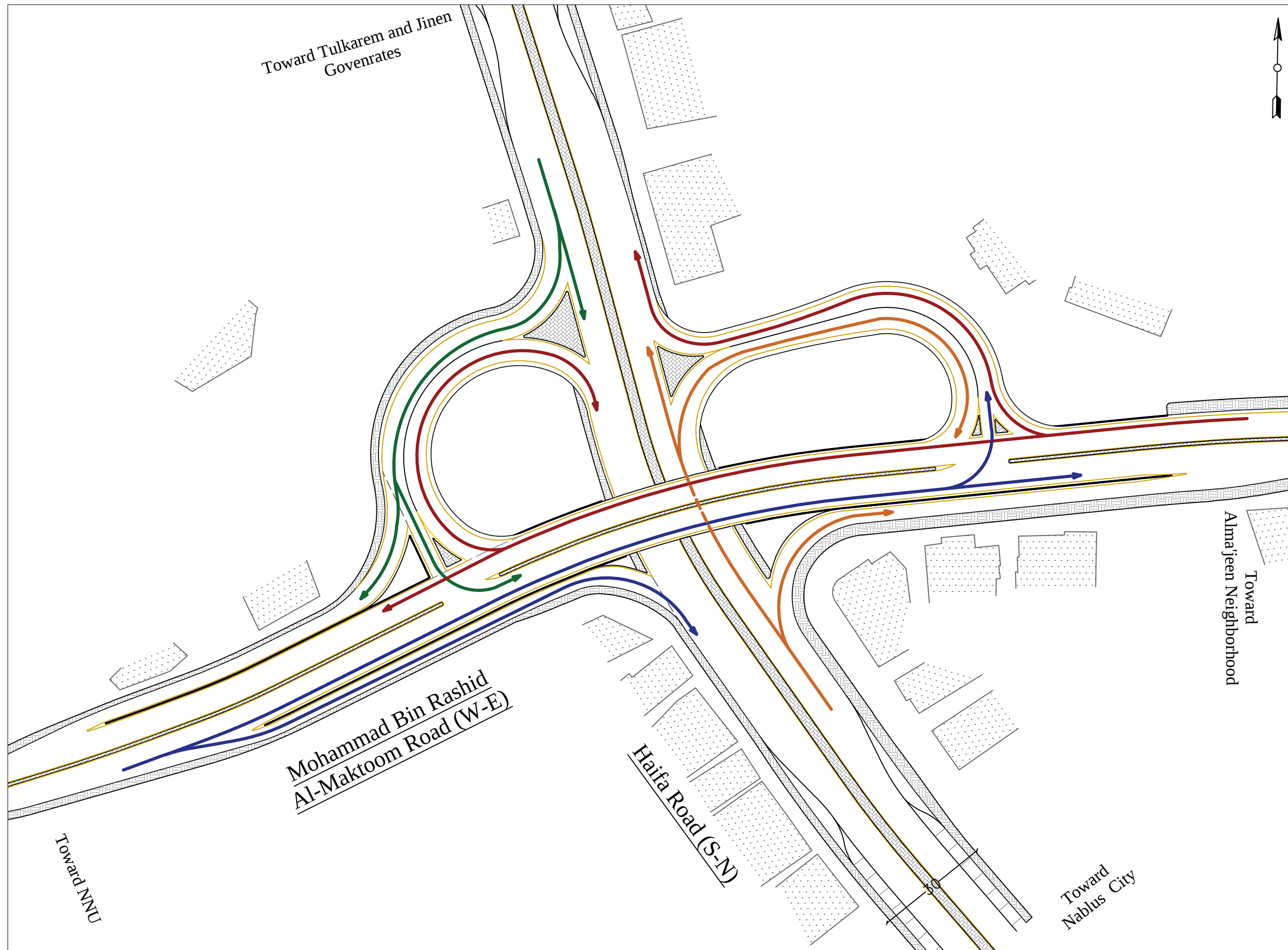
Designed By:
Amin Salam A. Abu Saa
Mohammad Kamal M. Irshaid

Supervised by:
Prof. Sameer Abu-Eisheh

Scale:
1/750

Date:
2014

Sheet #:
6



An-Najah National University
Faculty of Engineering and IT
Civil Engineering Department

Graduation Project II
"Design of the Interchange at the
Intersection of Haifa Road and
Mohammad Bin Rashid
Al-Maktoom Road"

Legend:

- ROW
- - - Lane Divide
- Edge of Travel Way
- Edge of Wall/Dike
- [Pattern] Sidewalk
- [Pattern] Median
- [Pattern] Existing Building

Drawing Name:
**General Plan
Movement Configuration**

Designed By:
Amin Salam A. Abu Saa
Mohammad Kamal M. Irshaid

Supervised by:
Prof. Sameer Abu-Eisheh

Scale:
1/1000

Date:
2014

Sheet #:
7



An-Najah National University
Faculty of Engineering and IT
Civil Engineering Department

Graduation Project II
"Design of the Interchange at the
Intersection of Haifa Road and
Mohammad Bin Rashid
Al-Maktoom Road"

Legend:

- Current ROW
- Additional land needed to be owned by the municipality

Note:

- Haifa Road 30m ROW
- Ring Road 25m ROW
- Area A = 3328 m²
- Area B = 3357 m²
- Total = 6685 m²

Drawing Name:

Right of Way
(Additional Required Area)

Designed By:

Amin Salam A. Abu Saa
Mohammad Kamal M. Irshaid

Supervised by:

Prof. Sameer Abu-Eisheh

Scale:

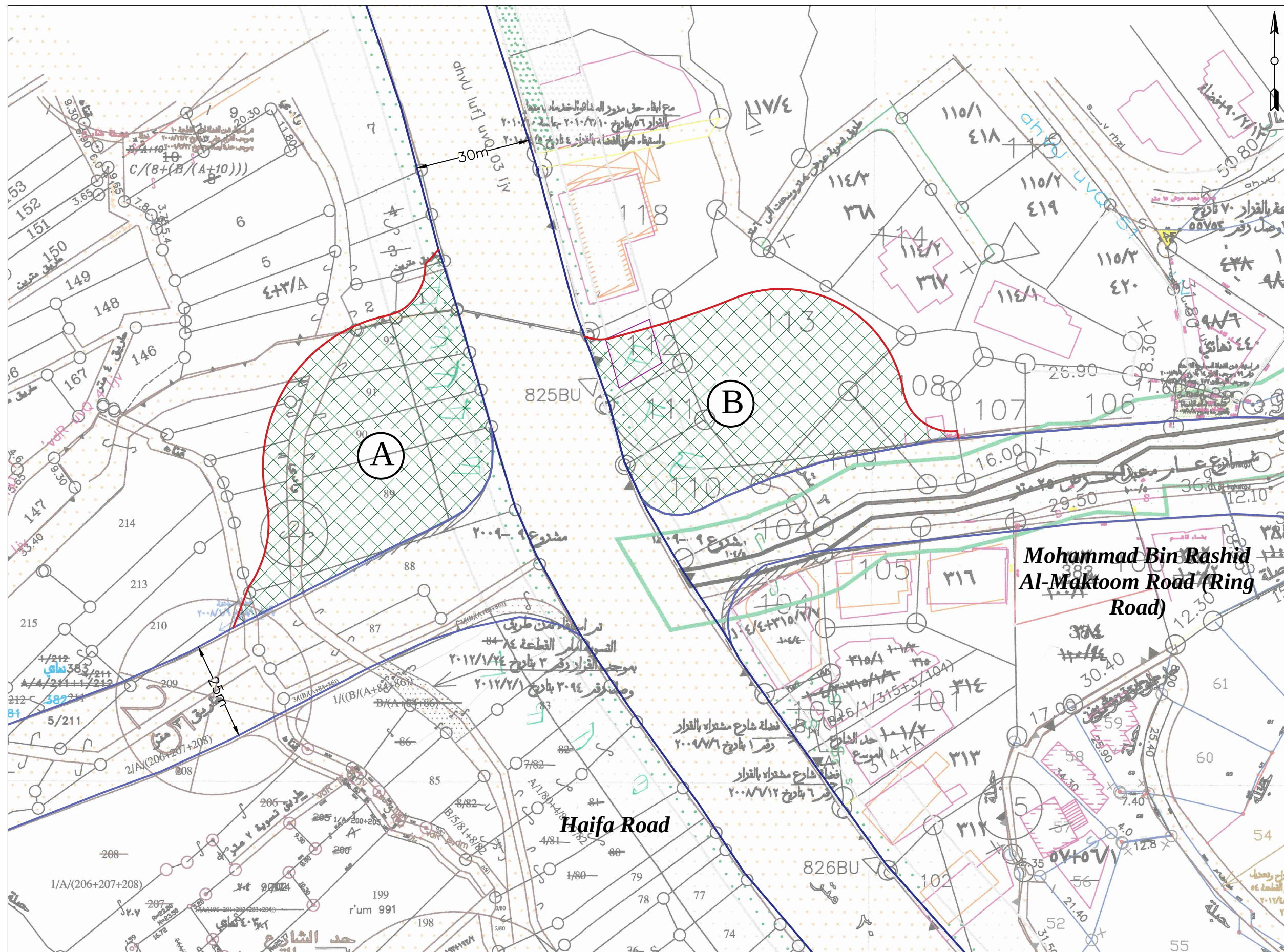
1/1000

Date:

2014

Sheet #:

8





An-Najah National University
Faculty of Engineering and IT
Civil Engineering Department

Graduation Project II
"Design of the Interchange at the
Intersection of Haifa Road and
Mohammad Bin Rashid
Al-Maktoom Road"

Legend:

- ROW
- - - Lane Divide
- Edge of Travel Way
- Edge of Wall/Dike
- ▤ Sidewalk
- ▨ Median

Note:

- Haifa Road Plan and Profile
- Part I (0+00.0 to 0+150.0)
- All Dimensions in Meter

Drawing Name:
Haifa Road Plan & Profile
0+00.00 to 0+150.00

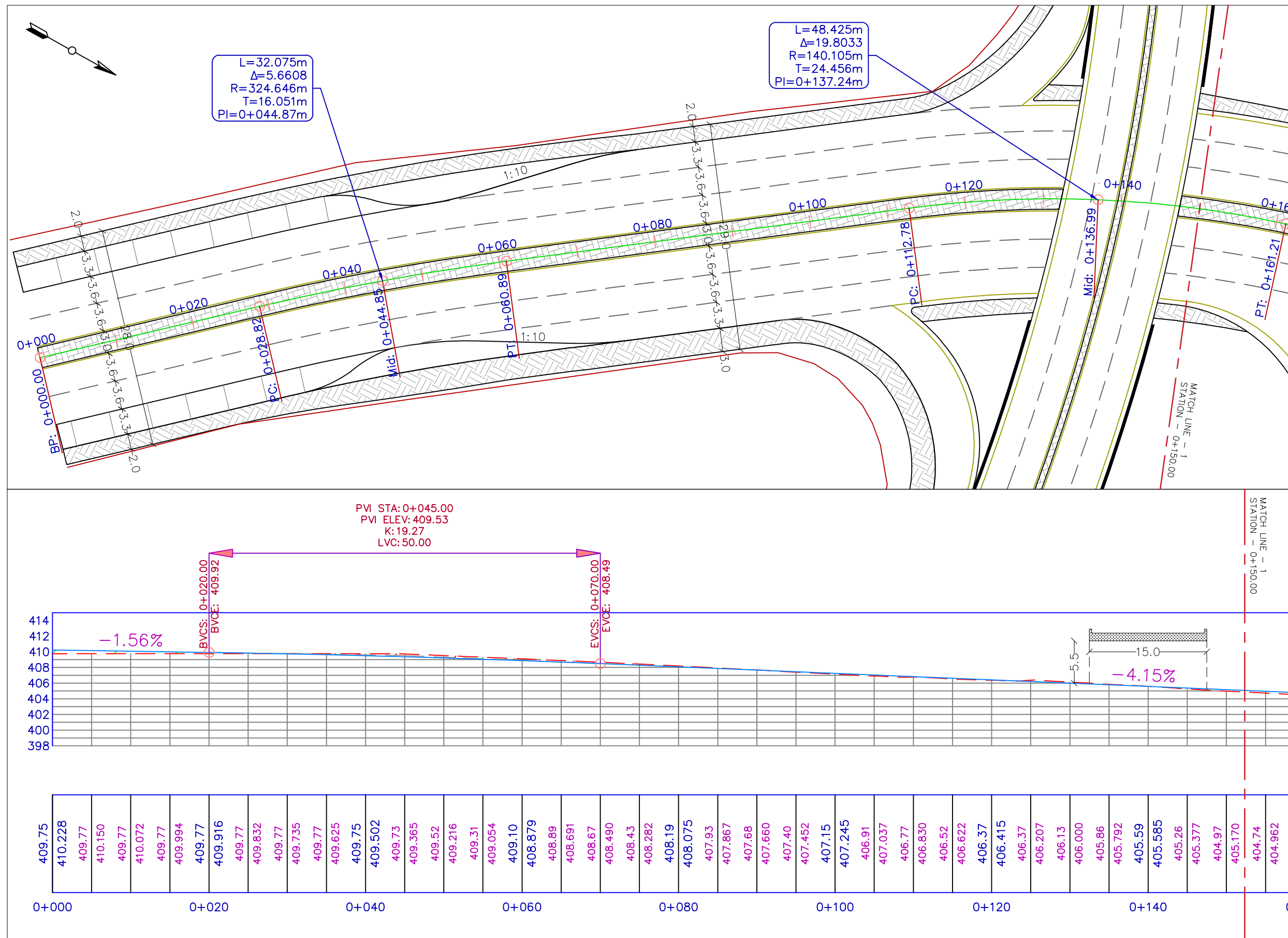
Designed By:
Amin Salam A. Abu Saa
Mohammad Kamal M. Irshaid

Supervised by:
Prof. Sameer Abu-Eisheh

Scale: Profile Ver.: 1/500
Plan :1/500 Profile Hor.: 1/500

Date:
2014

Sheet #:
9





An-Najah National University
Faculty of Engineering and IT
Civil Engineering Department

Graduation Project II
"Design of the Interchange at the
Intersection of Haifa Road and
Mohammad Bin Rashid
Al-Maktoom Road"

Legend:

- ROW
- - - Lane Divide
- Edge of Travel Way
- Edge of Wall/Dike
- ▤ Sidewalk
- ▨ Median

Note:

- Haifa Road Plan and Profile
- Part II (0+150 to 0+192)
- All Dimensions in Meter

Drawing Name:
Haifa Road Plan & Profile
0+150.00 to 0+192.00

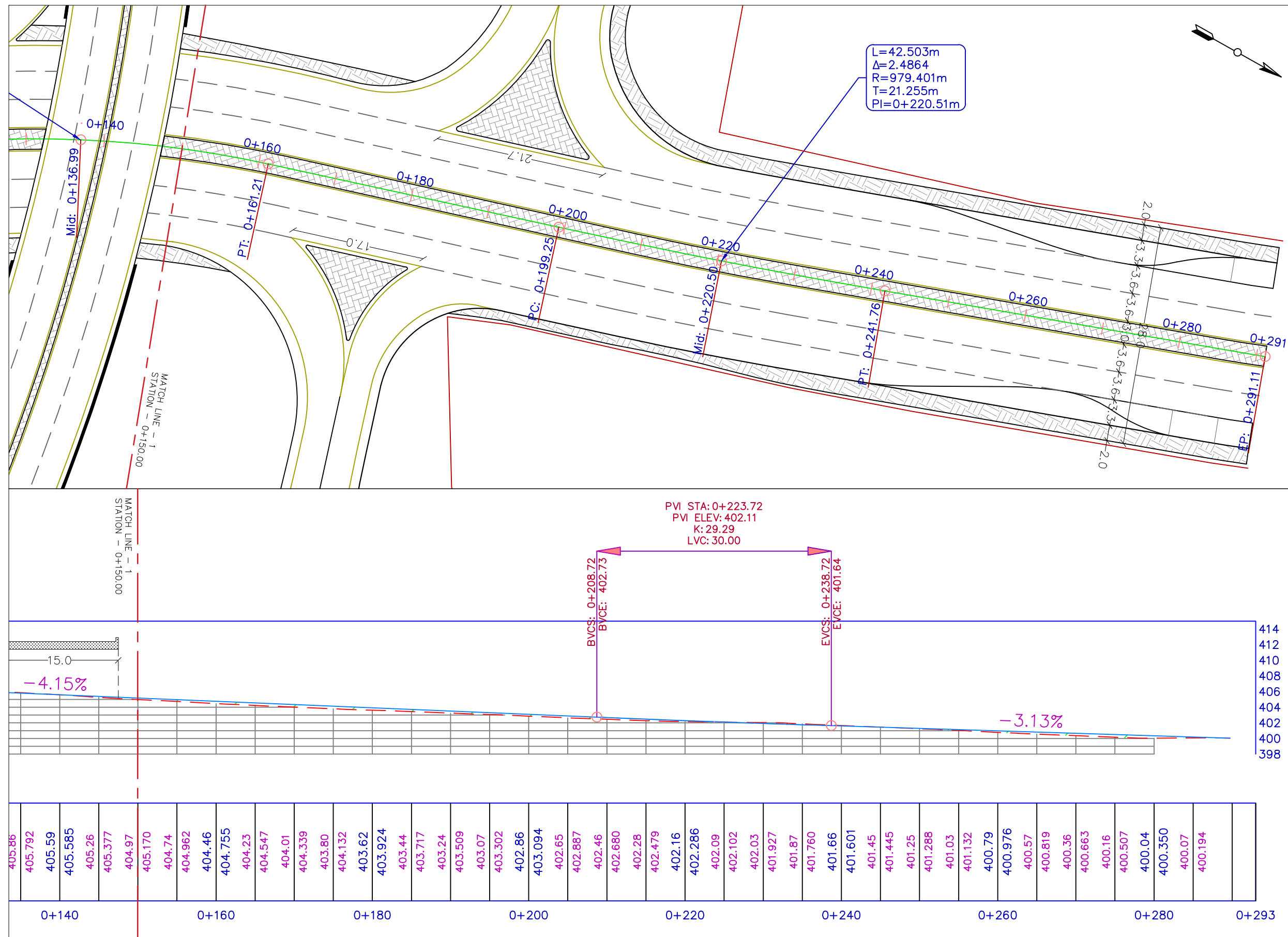
Designed By:
Amin Salam A. Abu Saa
Mohammad Kamal M. Irshaid

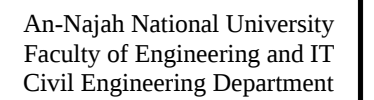
Supervised by:
Prof. Sameer Abu-Eisheh

Scale: Profile Ver.: 1/500
Plan :1/500 Profile Hor.: 1/500

Date:
2014

Sheet #:
10





Legend:

- Note:

- Drawing Name:

Designed By:

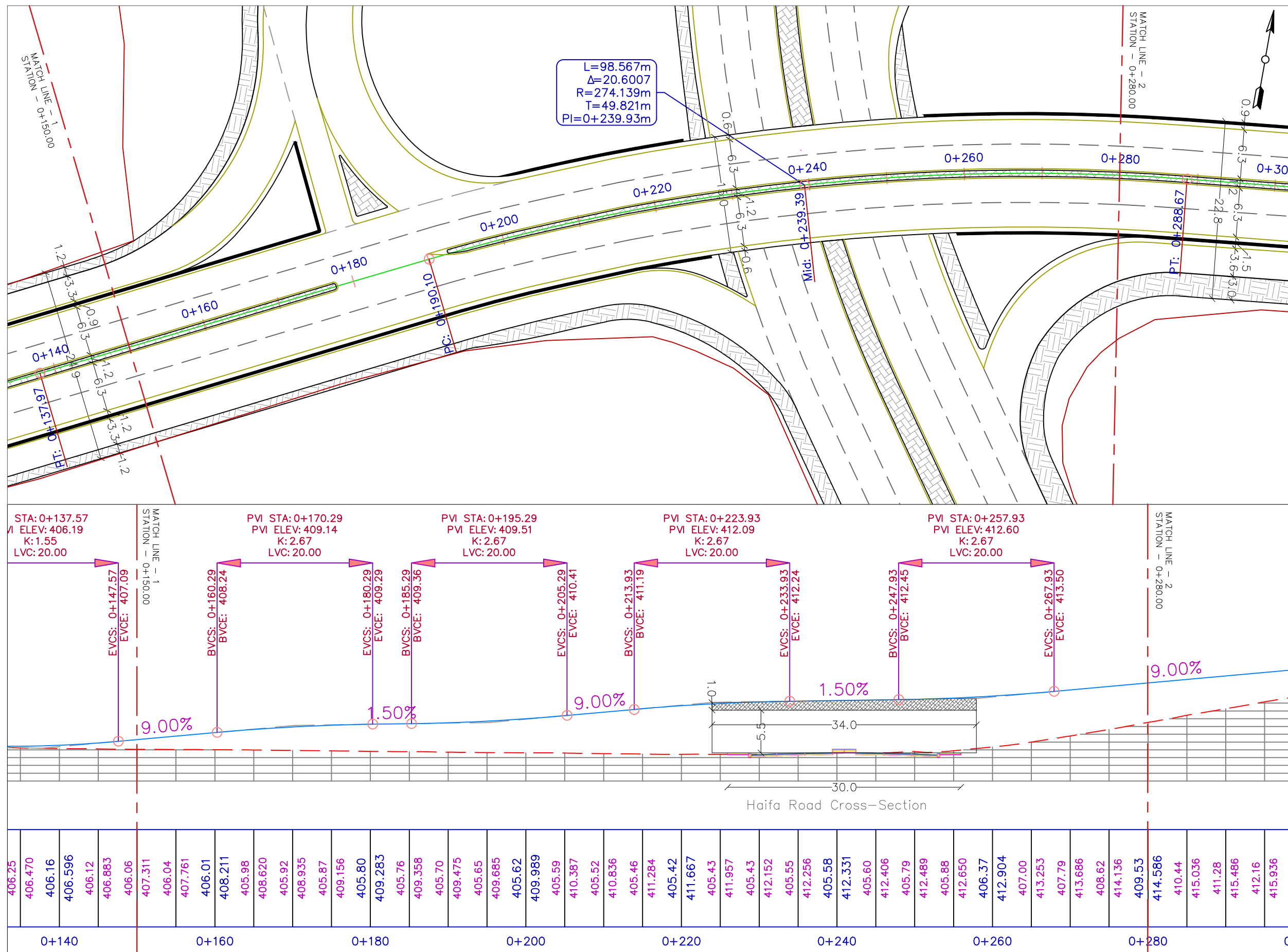
Amin Salam A. Abu Saa
Mohammad Kamal M. Irshaid

Supervised by:
Prof. Sameer Abu-Eisheh

Scale:	Profile Ver.: 1/500
Plan :1/500	Profile Hor.: 1/500

Date: 2014

Sheet #: 12





An-Najah National University
Faculty of Engineering and IT
Civil Engineering Department

Graduation Project II
"Design of the Interchange at the
Intersection of Haifa Road and
Mohammad Bin Rashid
Al-Maktuum Road"

Legend:

- ROW
- - - Lane Divide
- Edge of Travel Way
- Edge of Wall/Dike
- ▨ Sidewalk
- ▨ Median

Note:

- Ring Road Plan and Profile
- Part III (0+280 to 0+400)
- All Dimensions in Meter

Drawing Name:

Ring Road Plan & Profile
0+280.00 to 0+400.00

Designed By:

Amin Salam A. Abu Saa
Mohammad Kamal M. Irshaid

Supervised by:

Prof. Sameer Abu-Eisheh

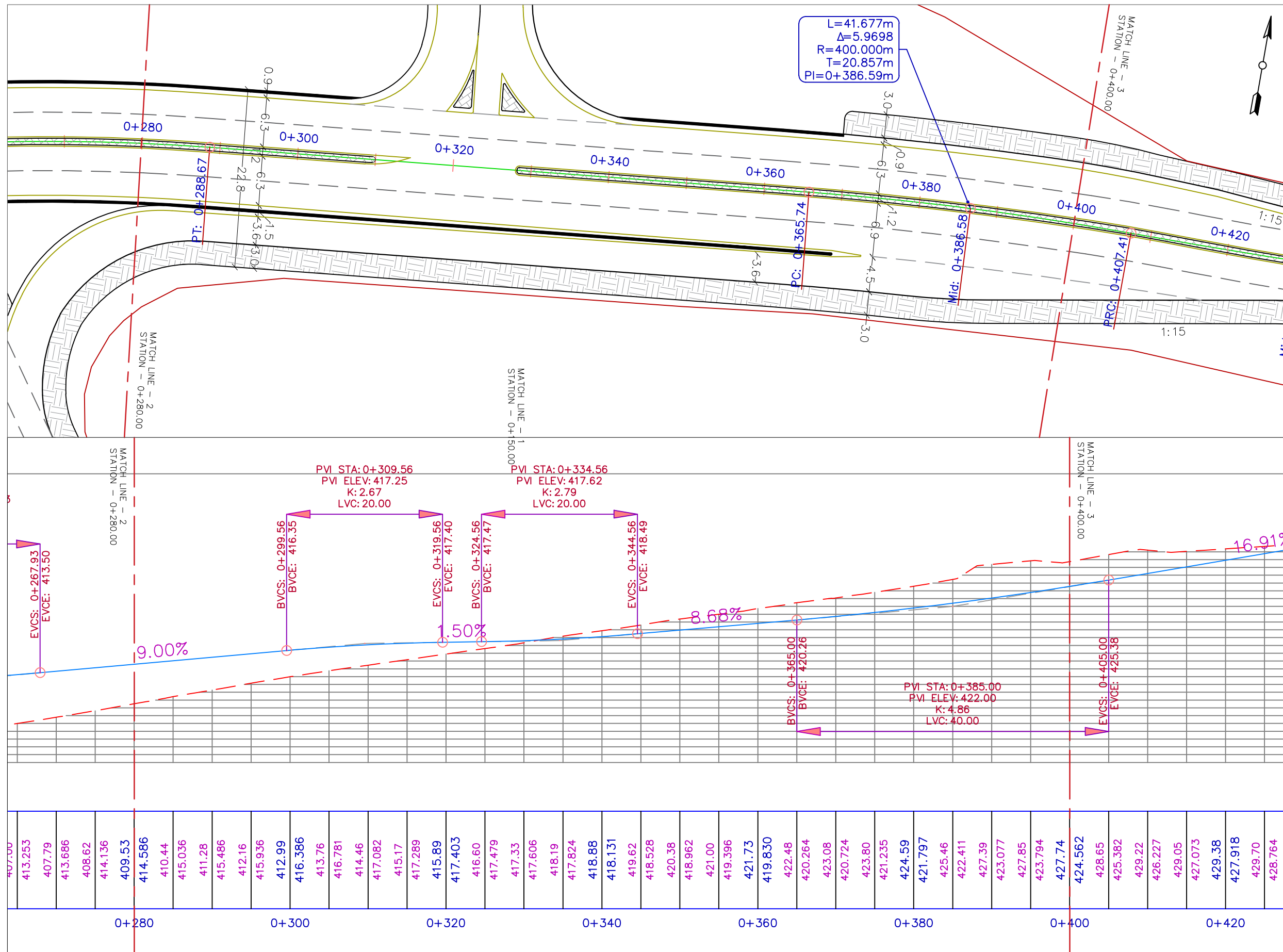
Scale: Profile Ver.: 1/500
Plan :1/500 Profile Hor.: 1/500

Date:

2014

Sheet #:

13





An-Najah National University
Faculty of Engineering and IT
Civil Engineering Department

Graduation Project II
"Design of the Interchange at the
Intersection of Haifa Road and
Mohammad Bin Rashid
Al-Maktuum Road"

Legend:

- ROW
- - - Lane Divide
- Edge of Travel Way
- Edge of Wall/Dike
- ▨ Sidewalk
- ▨ Median

Note:

- Ring Road Plan and Profile
- Part IV (0+400 to End)
- All Dimensions in Meter

Drawing Name:

Ring Road Plan & Profile
0+400.00 to End

Designed By:

Amin Salam A. Abu Saa
Mohammad Kamal M. Irshaid

Supervised by:

Prof. Sameer Abu-Eisheh

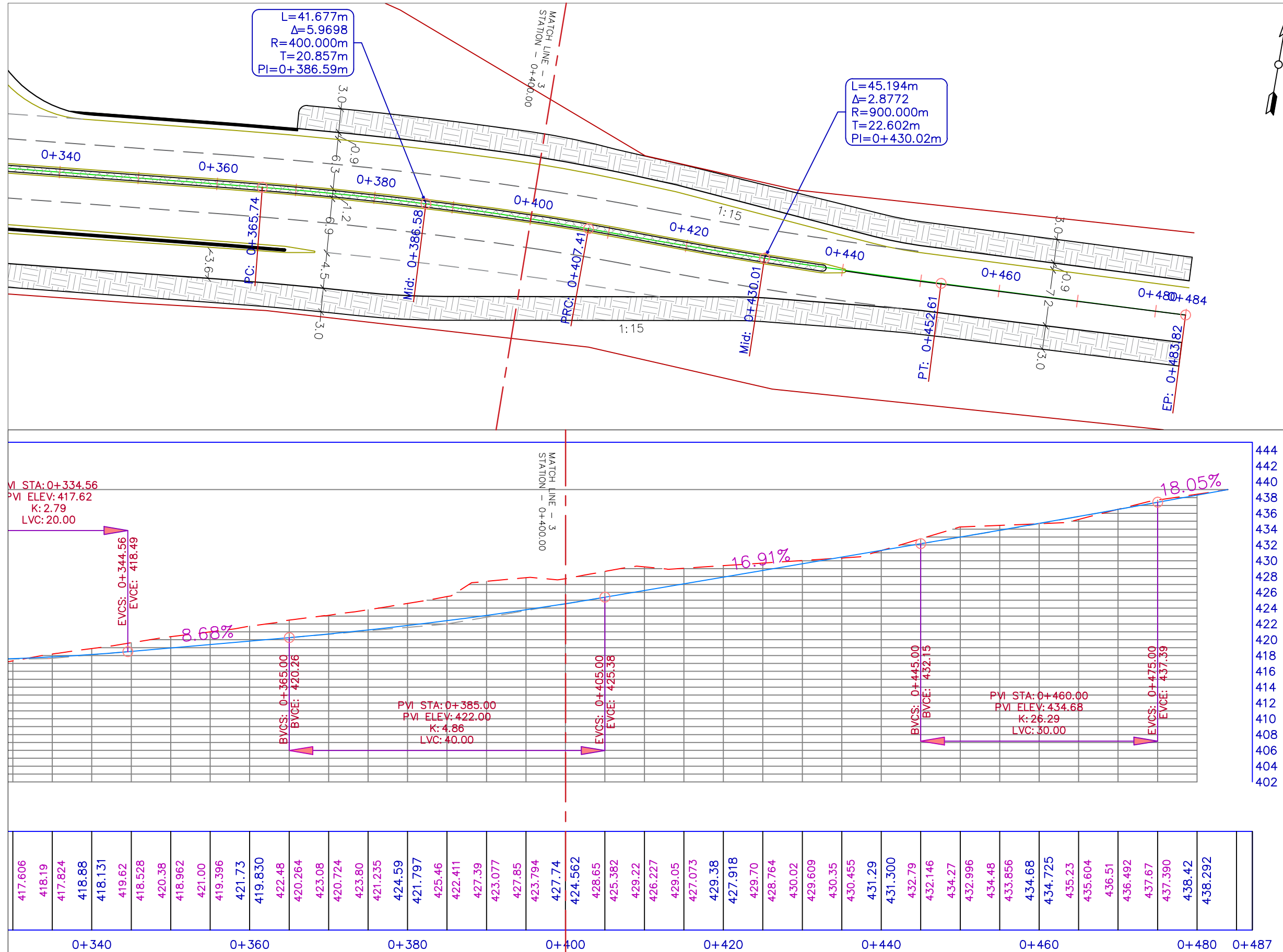
Scale: Profile Ver.: 1/500
Plan :1/500 Profile Hor.: 1/500

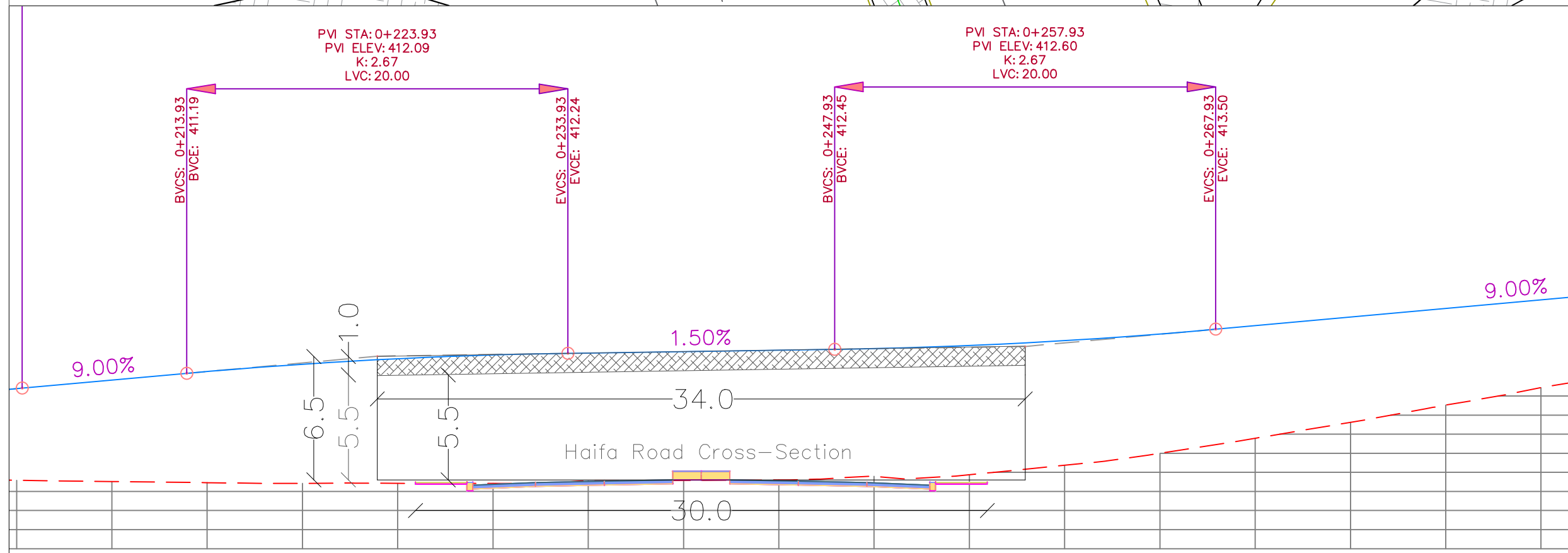
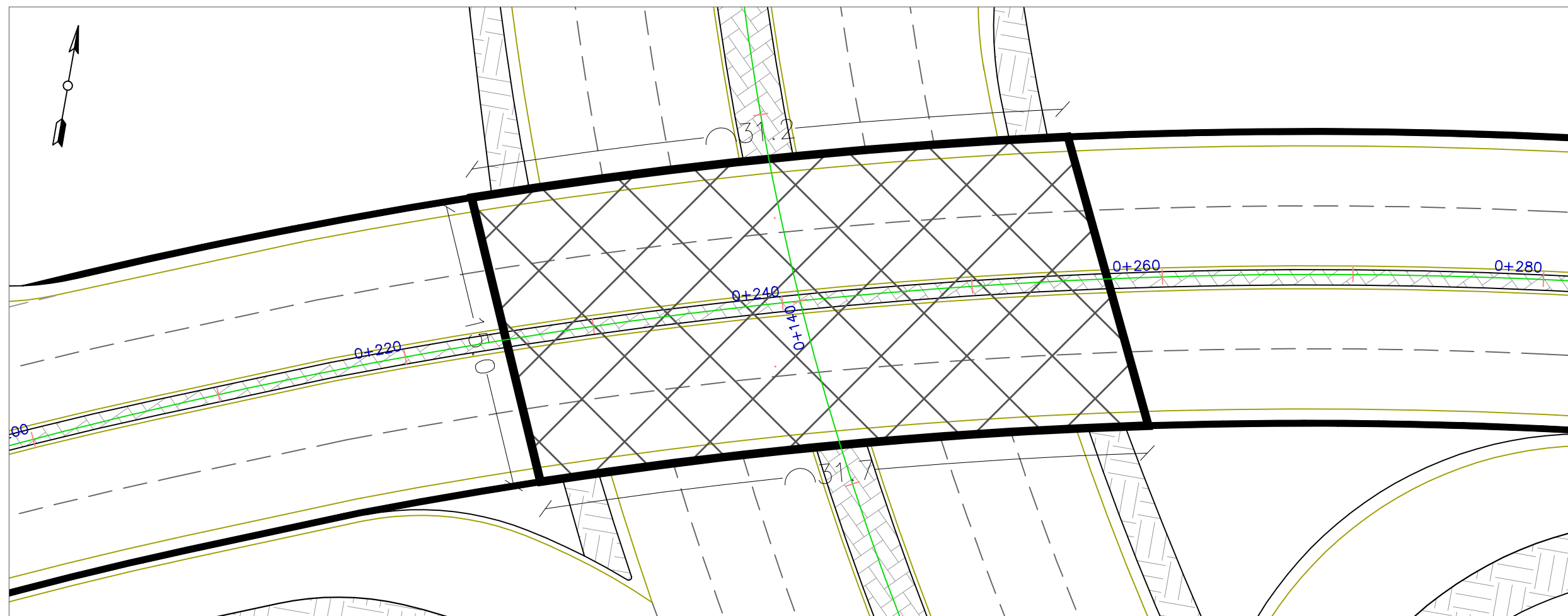
Date:

2014

Sheet #:

14





An-Najah National University
Faculty of Engineering and IT
Civil Engineering Department

Graduation Project II
"Design of the Interchange at the
Intersection of Haifa Road and
Mohammad Bin Rashid
Al-Maktoom Road"

Legend:

- ROW
- Lane Divide
- Edge of Travel Way
- Edge of Wall/Dike
- Sidewalk
- Median

Note:

- The Bridge Plan and Profile
- All Dimensions in Meter

Drawing Name:

The Proposed Bridge

Designed By:

Amin Salam A. Abu Saa
Mohammad Kamal M. Irshaid

Supervised by:

Prof. Sameer Abu-Eisheh

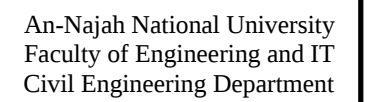
Scale: Profile Ver.: 1/250
Plan :1/250 Profile Hor.: 1/250

Date:

2014

Sheet #:

15



Graduation Project II
"Design of the Interchange at the
Intersection of Haifa Road and
Mohammad Bin Rashid
Al-Maktoom Road"

Legend:

-  ROW
 Lane Divide
 Edge of Travel Way
 Edge of Wall/Dike
 Sidewalk
 Median

Note:

- LOOP A Plan and Profile
- All Dimensions in Meter

Drawing Name:

LOOP A Plan & Profile

Designed By:

Amin Salam A. Abu Saa
Mohammad Kamal M. Irshaid

Supervised by:

Prof. Sameer Abu-Eisheh

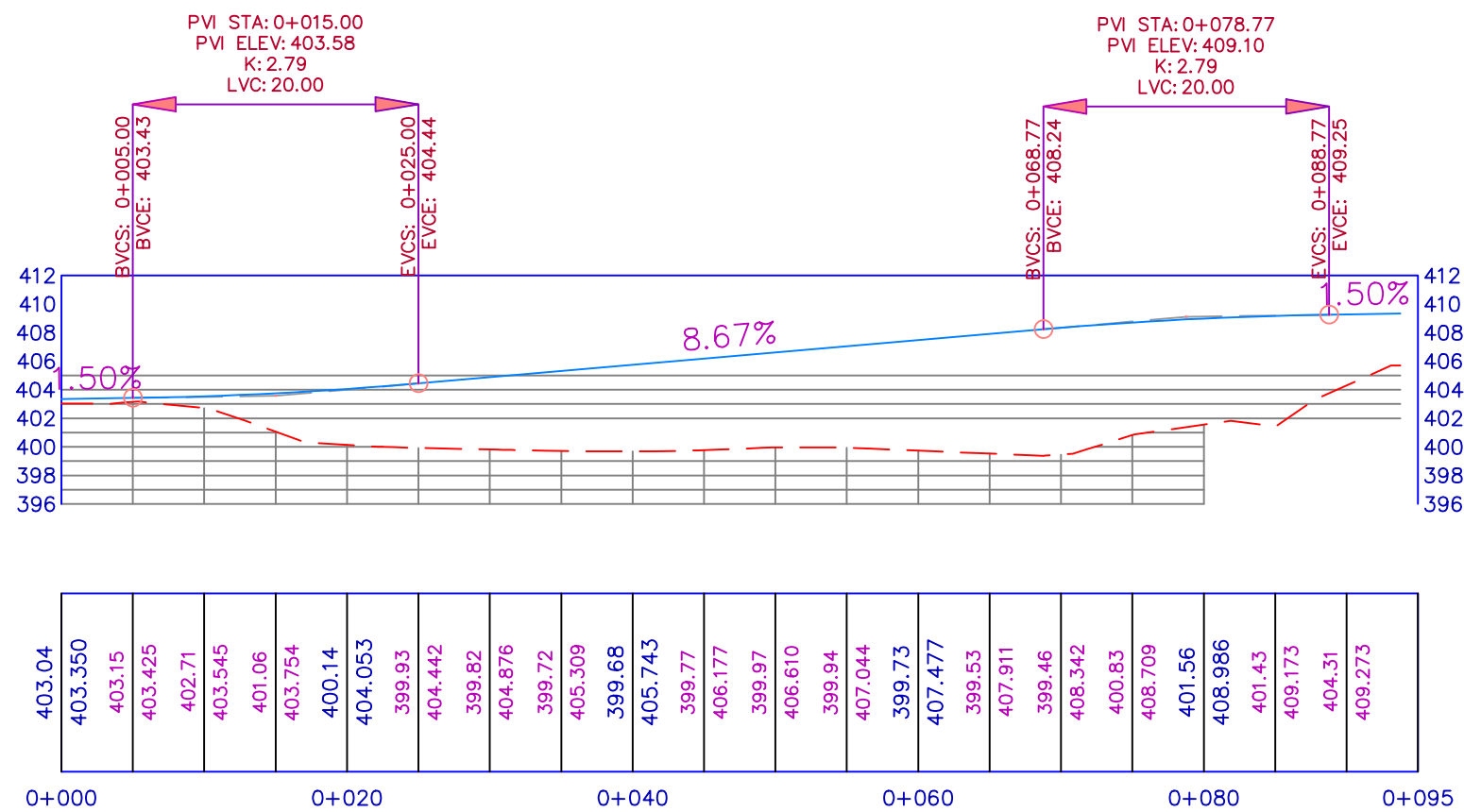
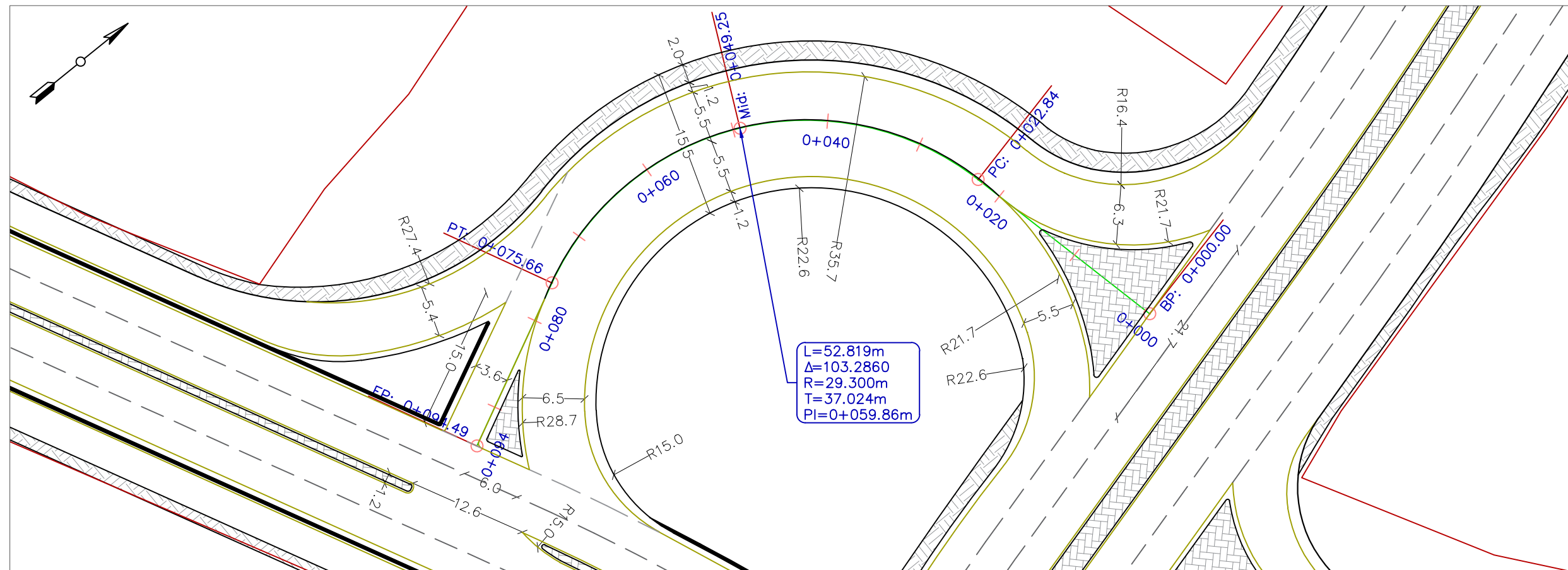
Scale:	Profile Ver.: 1/500
Plan :1/500	Profile Hor.: 1/500

Date:

2014

Sheet #:

16



0+000	403.04
	403.350
	403.15
	403.425
	402.71
	403.545
	401.06
0+020	403.754
	400.14
	404.053
	399.93
	404.442
	399.82
	404.876
	399.72
0+040	405.309
	399.68
	405.743
	399.77
	406.177
	399.97
	406.610
	399.94
0+060	407.044
	399.73
	407.477
	399.53
	407.911
	399.46
	408.342
	400.83
0+080	408.709
	401.56
	408.986
	401.43
	409.173
	404.31
0+095	409.273



An-Najah National University
Faculty of Engineering and IT
Civil Engineering Department

Graduation Project II
"Design of the Interchange at the
Intersection of Haifa Road and
Mohammad Bin Rashid
Al-Maktoom Road"

Legend:

- ROW
- - - Lane Divide
- Edge of Travel Way
- Edge of Wall/Dike
- ▨ Sidewalk
- ▨ Median

Note:

- LOOP B Plan and Profile
- All Dimensions in Meter

Drawing Name:

LOOP B Plan & Profile

Designed By:

Amin Salam A. Abu Saa
Mohammad Kamal M. Irshaid

Supervised by:

Prof. Sameer Abu-Eisheh

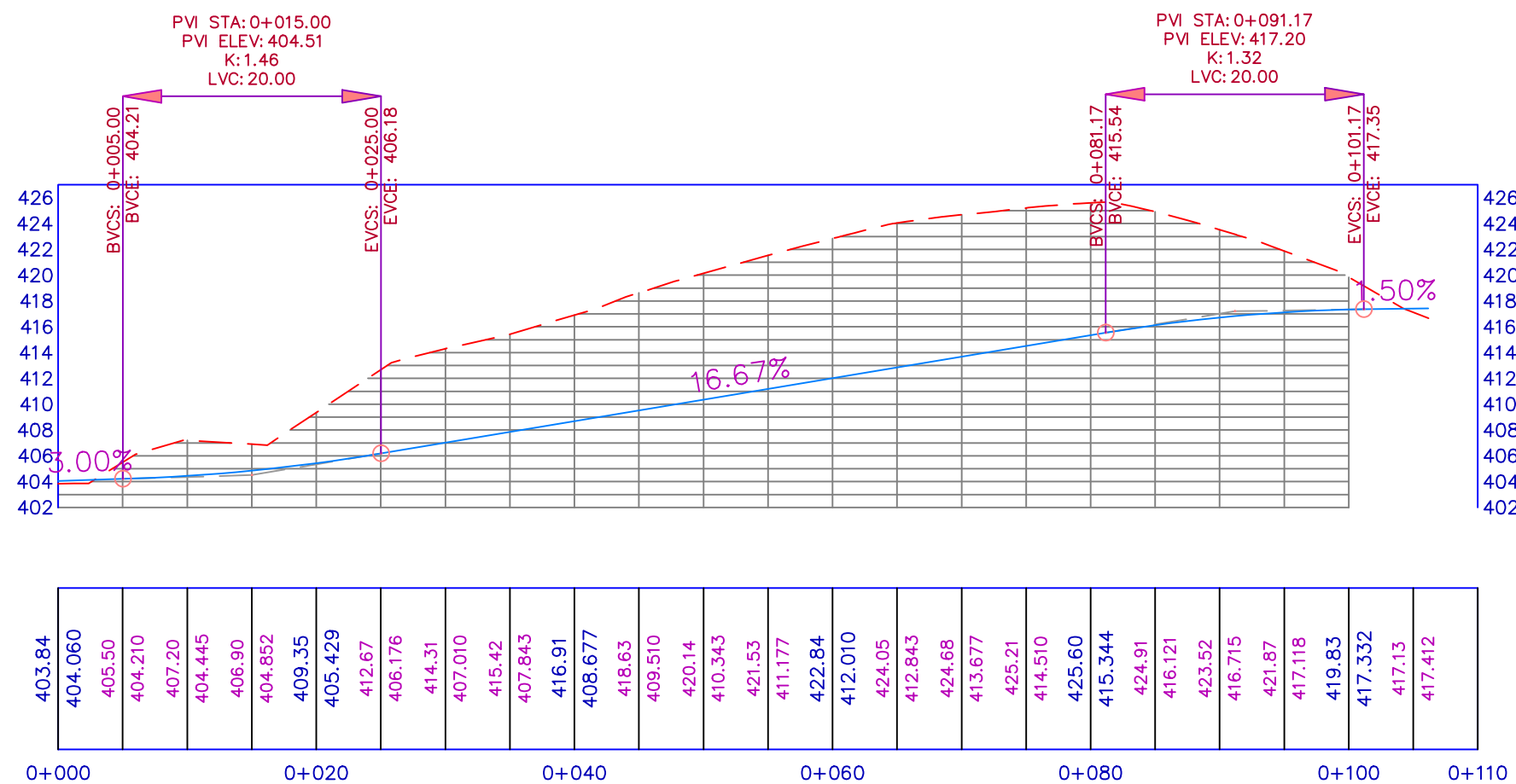
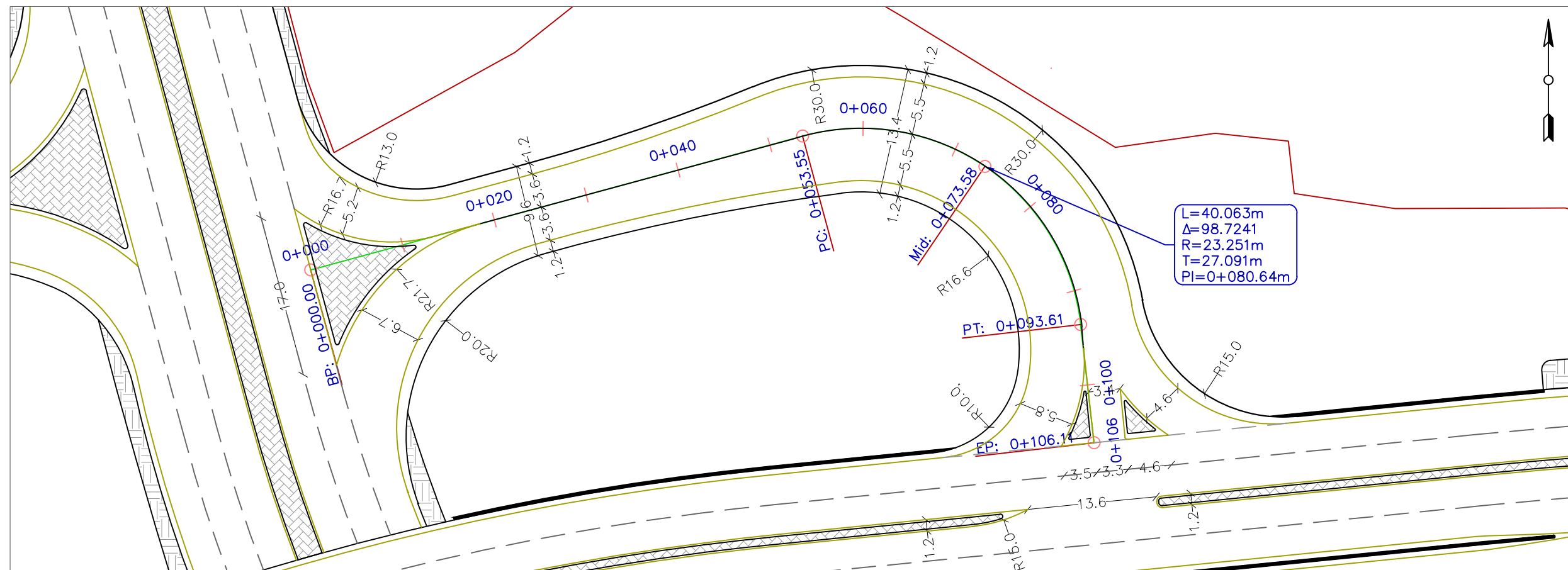
Scale: Profile Ver.: 1/500
Plan :1/500 Profile Hor.: 1/500

Date:

2014

Sheet #:

17





An-Najah National University
Faculty of Engineering and IT
Civil Engineering Department

Graduation Project II
"Design of the Interchange at the
Intersection of Haifa Road and
Mohammad Bin Rashid
Al-Maktoom Road"

Legend:

- ROW
- - - Lane Divide
- Edge of Travel Way
- Edge of Wall/Dike
- ▤ Sidewalk
- ▤ Median

Note:

- Ramp A Plan and Profile
- All Dimensions in Meter

Drawing Name:

Ramp A Plan & Profile

Designed By:

Amin Salam A. Abu Saa
Mohammad Kamal M. Irshaid

Supervised by:

Prof. Sameer Abu-Eisheh

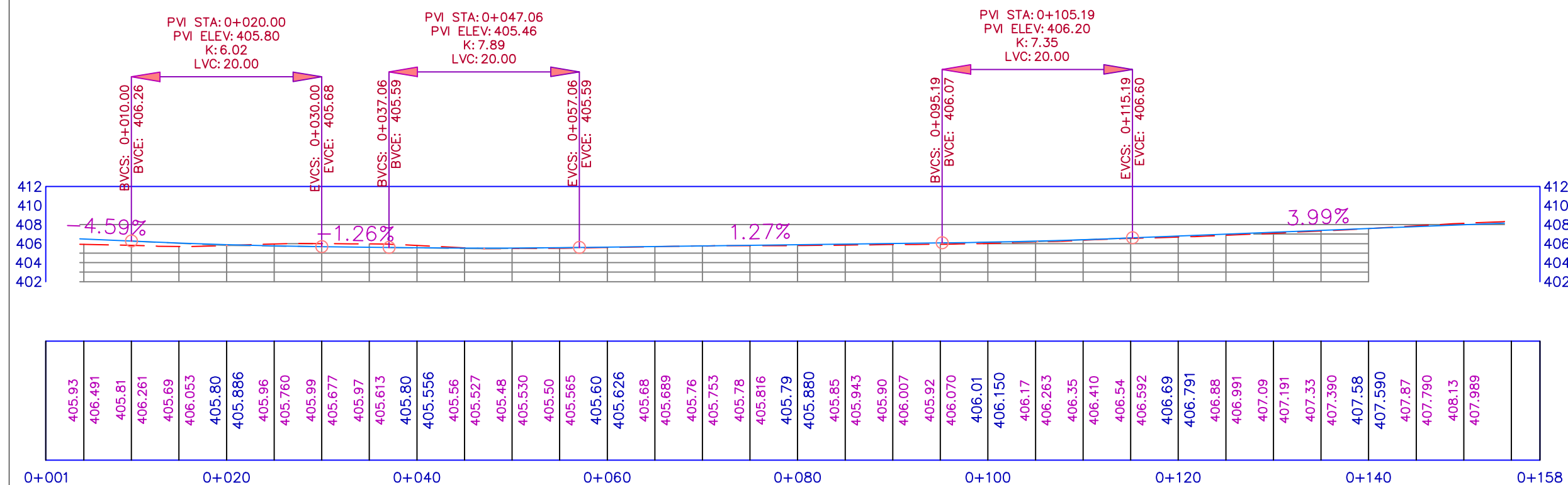
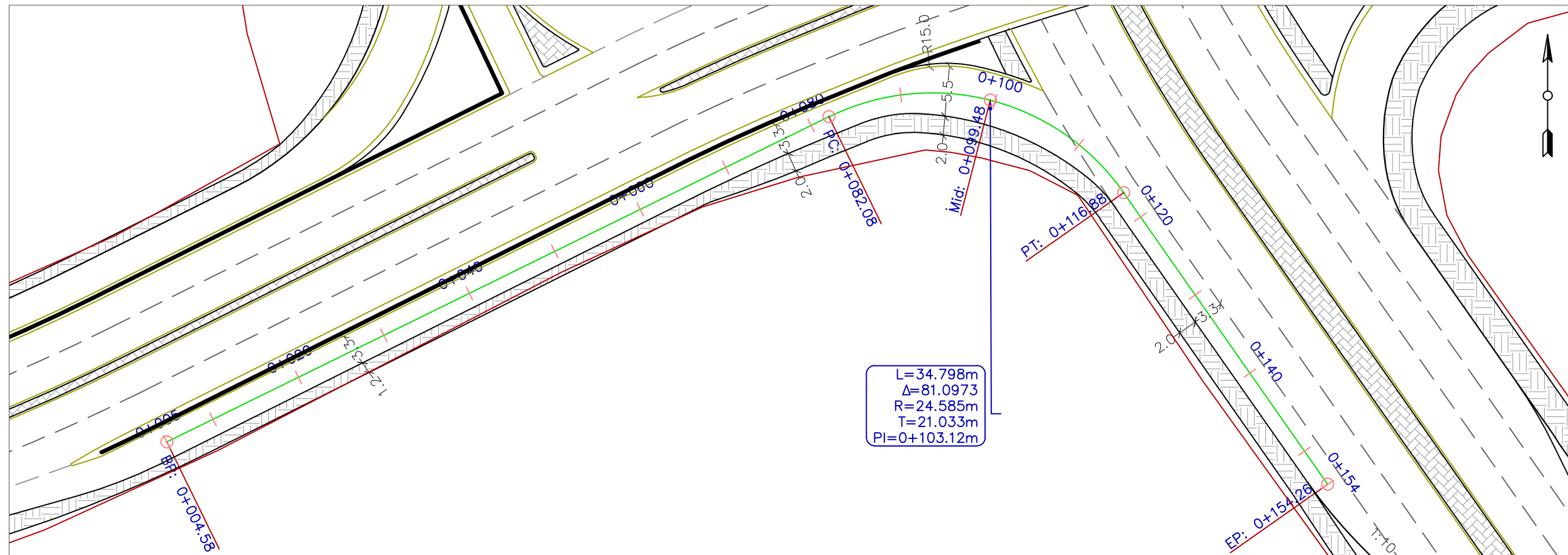
Scale: Profile Ver.: 1/500
Plan :1/500 Profile Hor.: 1/500

Date:

2014

Sheet #:

18





An-Najah National University
Faculty of Engineering and IT
Civil Engineering Department

Graduation Project II
"Design of the Interchange at the
Intersection of Haifa Road and
Mohammad Bin Rashid
Al-Maktoom Road"

Legend:

- ROW
- - - Lane Divide
- Edge of Travel Way
- Edge of Wall/Dike
- ▨ Sidewalk
- ▨ Median

Note:

- Ramp B Plan and Profile
- All Dimensions in Meter

Drawing Name:

Ramp B Plan & Profile

Designed By:

Amin Salam A. Abu Saa
Mohammad Kamal M. Irshaid

Supervised by:

Prof. Sameer Abu-Eisheh

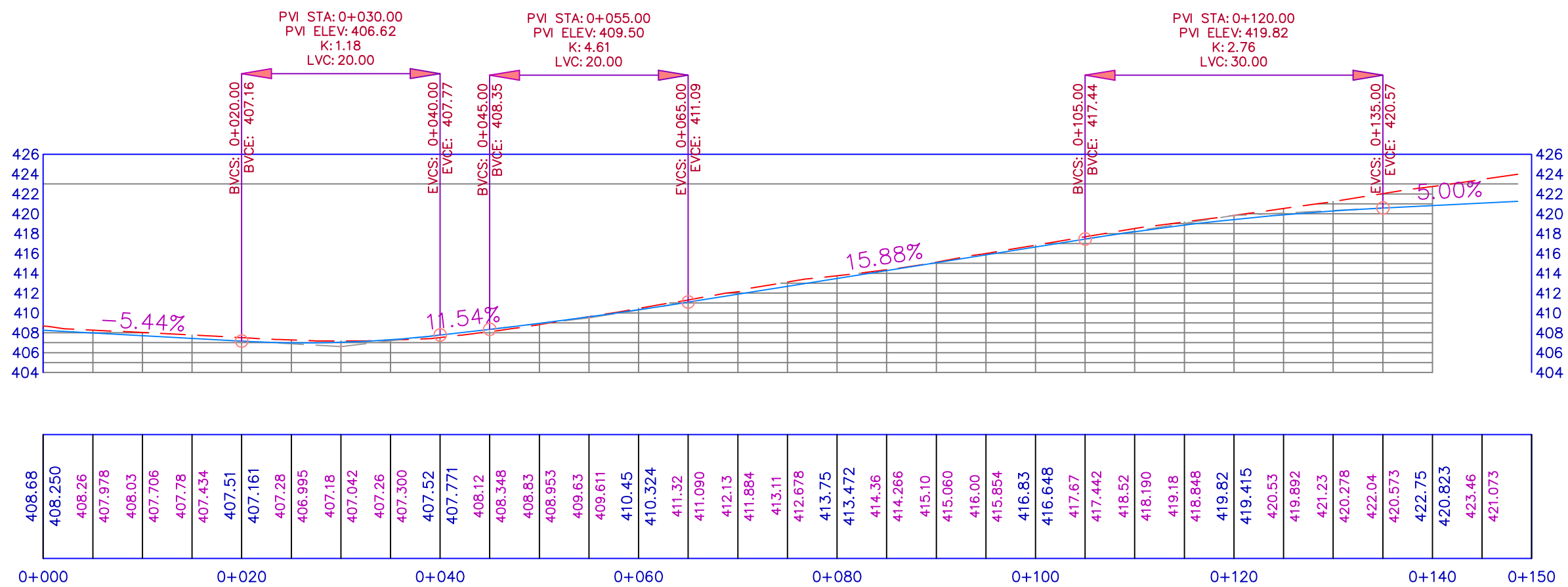
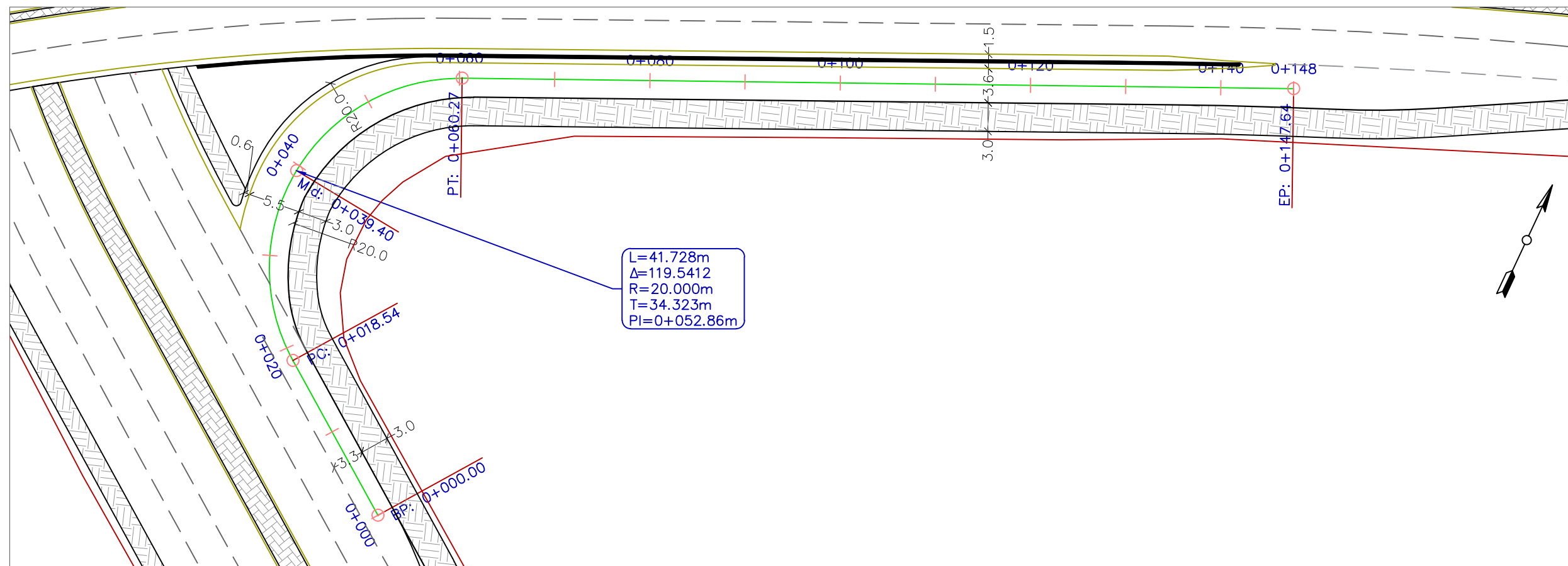
Scale: Profile Ver.: 1/500
Plan :1/500 Profile Hor.: 1/500

Date:

2014

Sheet #:

19





An-Najah National University
Faculty of Engineering and IT
Civil Engineering Department

Graduation Project II
"Design of the Interchange at the
Intersection of Haifa Road and
Mohammad Bin Rashid
Al-Maktoom Road"

Legend:

- ROW
- Lane Divide
- Edge of Travel Way
- Edge of Wall/Dike
- Sidewalk
- Median

Note:

- Ramp C Plan and Profile
- All Dimensions in Meter

Drawing Name:

Ramp C Plan & Profile

Designed By:

Amin Salam A. Abu Saa
Mohammad Kamal M. Irshaid

Supervised by:

Prof. Sameer Abu-Eisheh

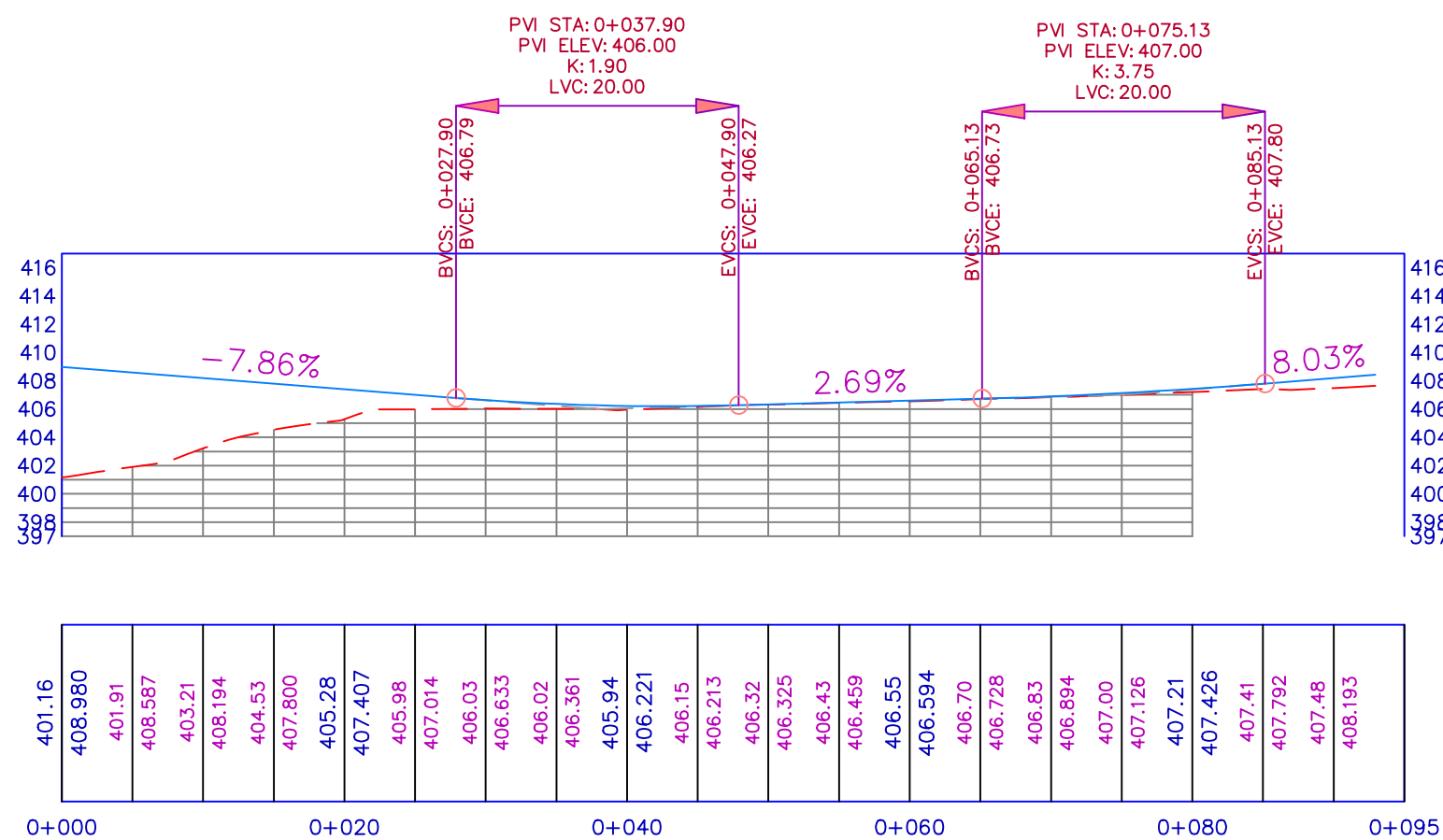
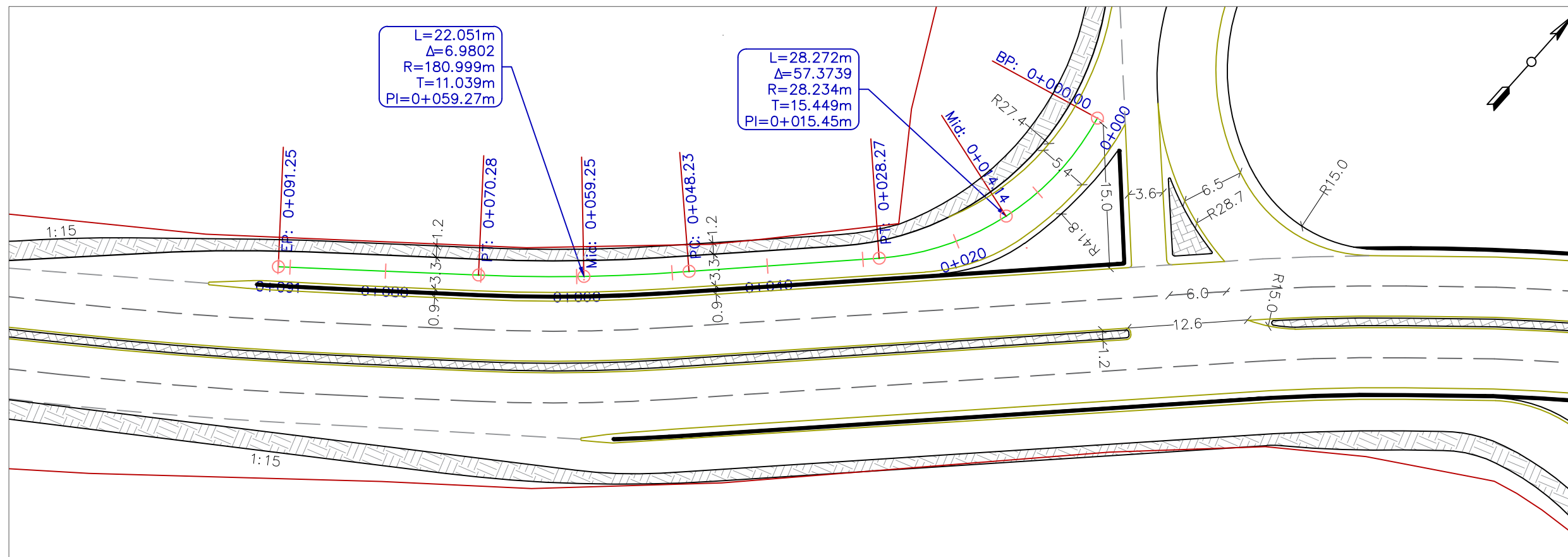
Scale: Profile Ver.: 1/500
Plan :1/500 Profile Hor.: 1/500

Date:

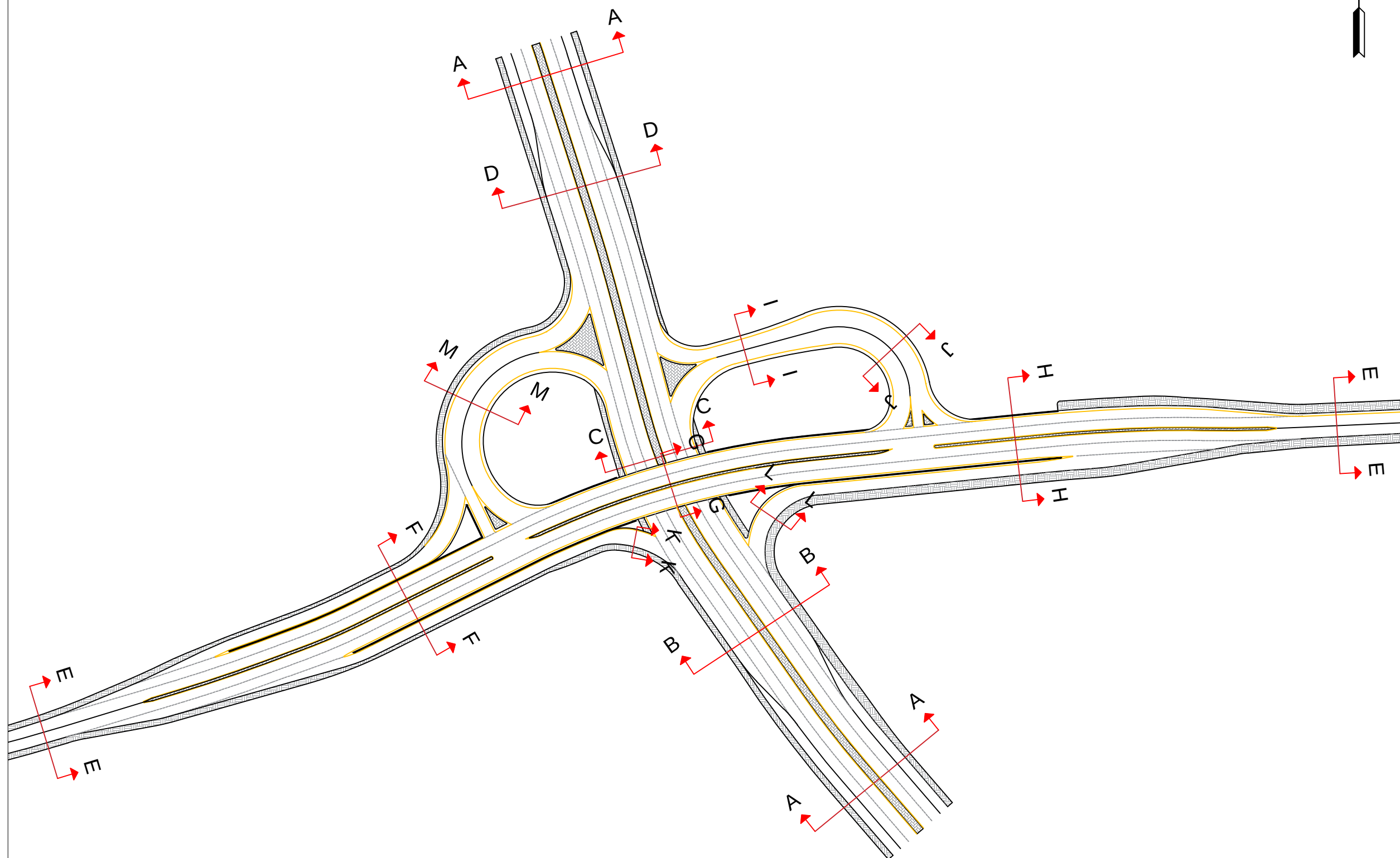
2014

Sheet #:

20



Cross-Sections



An-Najah National University
Faculty of Engineering and IT
Civil Engineering Department

Graduation Project II
"Design of the Interchange at the
Intersection of Haifa Road and
Mohammad Bin Rashid
Al-Maktoom Road"

Legend:

Note:

Drawing Name:
**Key Plan for Cross
Sections**

Designed By:
Amin Salam A. Abu Saa
Mohammad Kamal M. Irshaid

Supervised by:
Prof. Sameer Abu-Eisheh

Scale:
NTS

Date:
2014

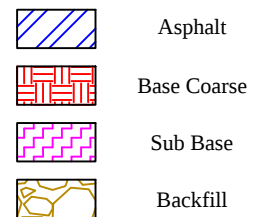
Cross-Section Sheet #: 1



An-Najah National University
Faculty of Engineering and IT
Civil Engineering Department

Graduation Project II
"Design of the Interchange at the
Intersection of Haifa Road and
Mohammad Bin Rashid
Al-Maktoom Road"

Legend:



Note:

- As-Built Drawing

Drawing Name:

Section A-A & B-B

Designed By:

Amin Salam A. Abu Saa
Mohammad Kamal M. Irshaid

Supervised by:

Prof. Sameer Abu-Eisheh

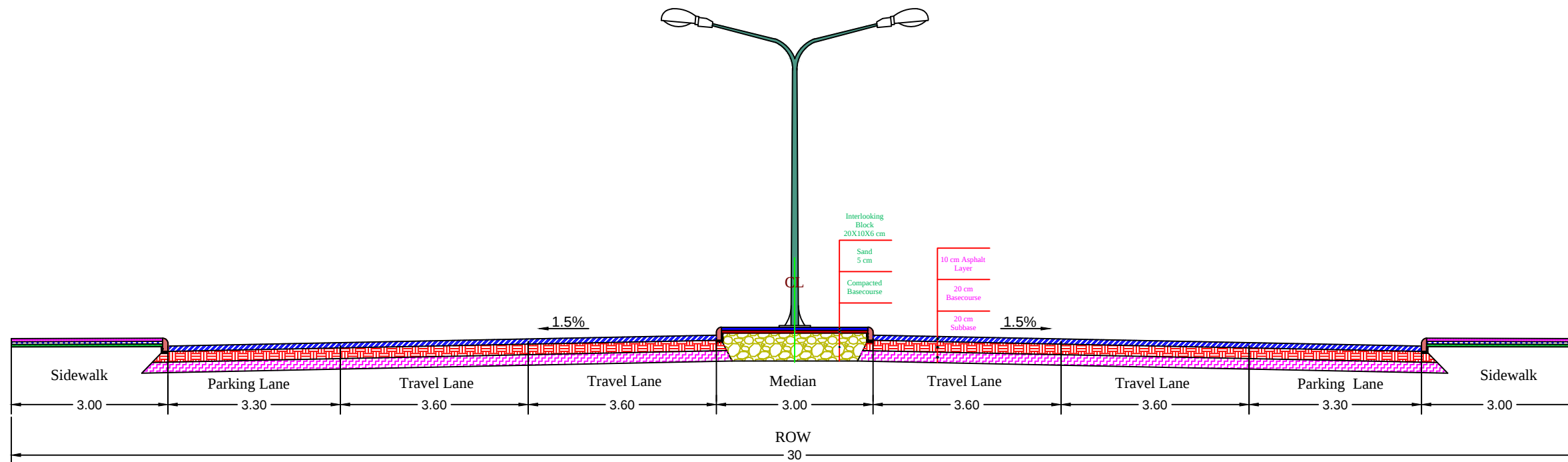
Scale:

NTS

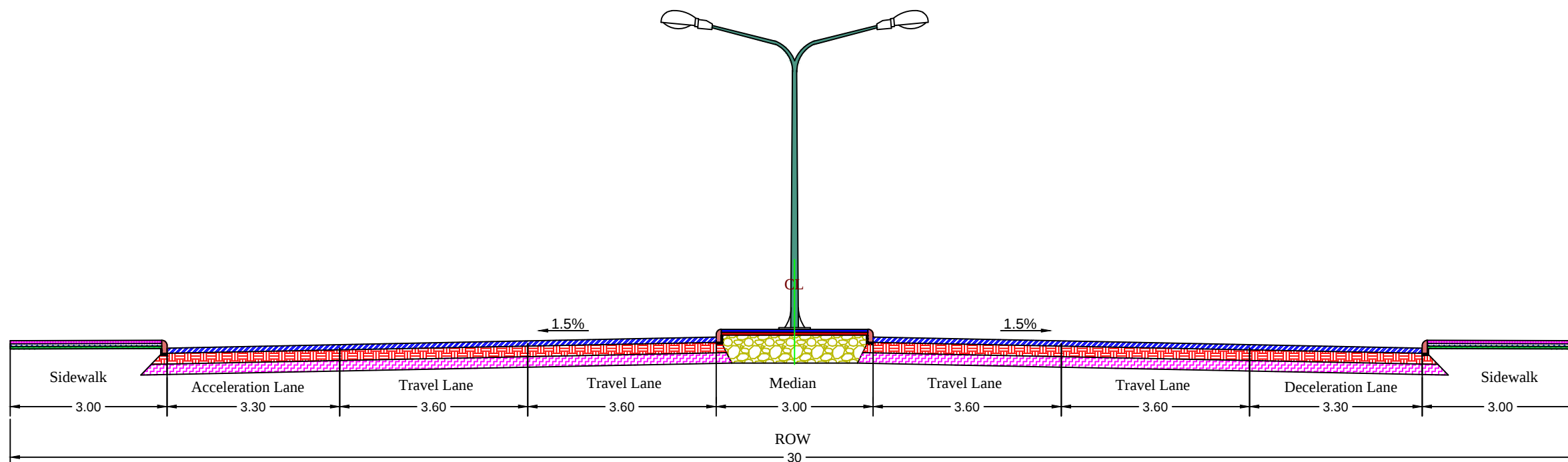
Date:

2014

Cross-Section Sheet #: 2



Section A-A



Section B-B



An-Najah National University
Faculty of Engineering and IT
Civil Engineering Department

Graduation Project II
"Design of the Interchange at the
Intersection of Haifa Road and
Mohammad Bin Rashid
Al-Maktoom Road"

Legend:

	Asphalt
	Base Coarse
	Sub Base
	Backfill

Note:
- Proposed Drawing
- Detailing of Median and
Pavement Structure is
illustrated in Drawing
"Section A-A"

Drawing Name:
Section C-C & D-D

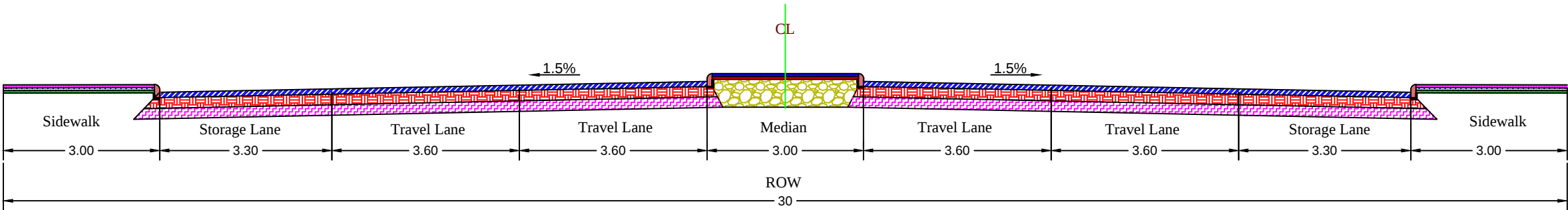
Designed By:
Amin Salam A. Abu Saa
Mohammad Kamal M. Irshaid

Supervised by:
Prof. Sameer Abu-Eisheh

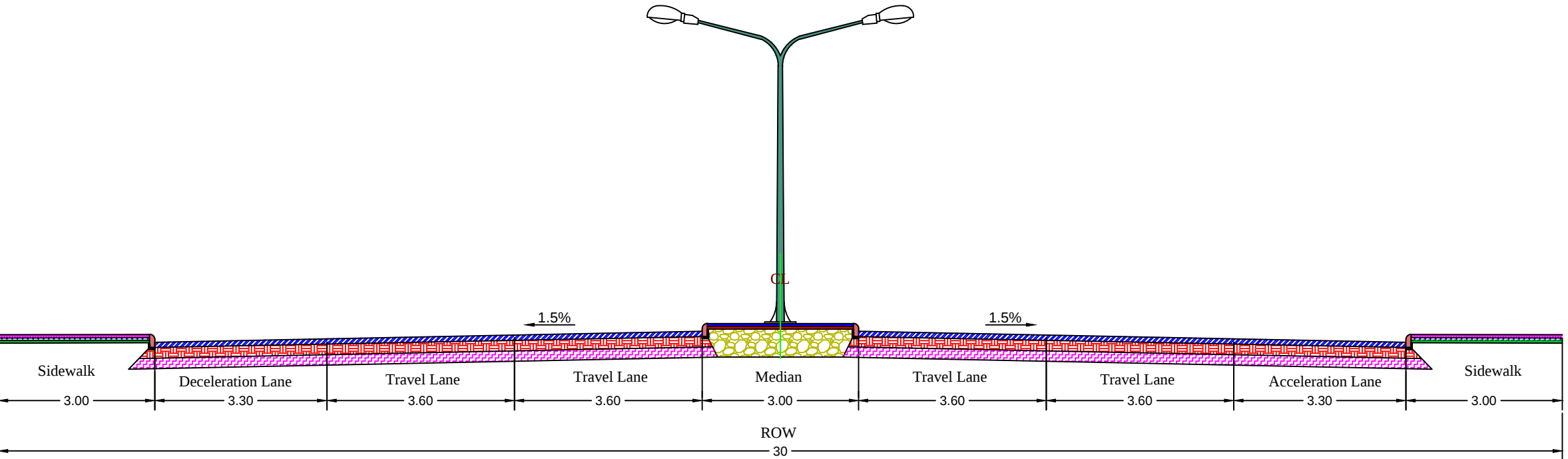
Scale:
NTS

Date:
2014

Cross-Section Sheet #: 3



Section C-C



Section D-D



An-Najah National University
Faculty of Engineering and IT
Civil Engineering Department

Graduation Project II
"Design of the Interchange at the
Intersection of Haifa Road and
Mohammad Bin Rashid
Al-Maktoom Road"

Legend:

	Asphalt
	Base Coarse
	Sub Base
	Backfill

Note:

- Proposed Drawing
- Detailing of Median and
Pavement Structure is
illustrated in Drawing
"Section A-A"

Drawing Name:

Section E-E & F-F

Designed By:

Amin Salam A. Abu Saa
Mohammad Kamal M. Irshaid

Supervised by:

Prof. Sameer Abu-Eisheh

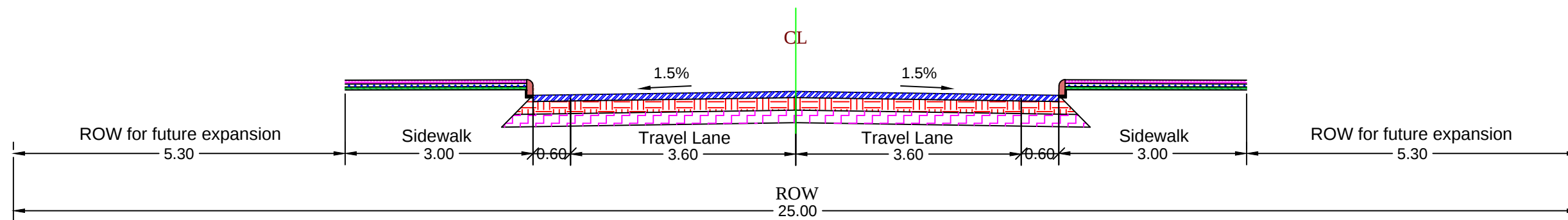
Scale:

NTS

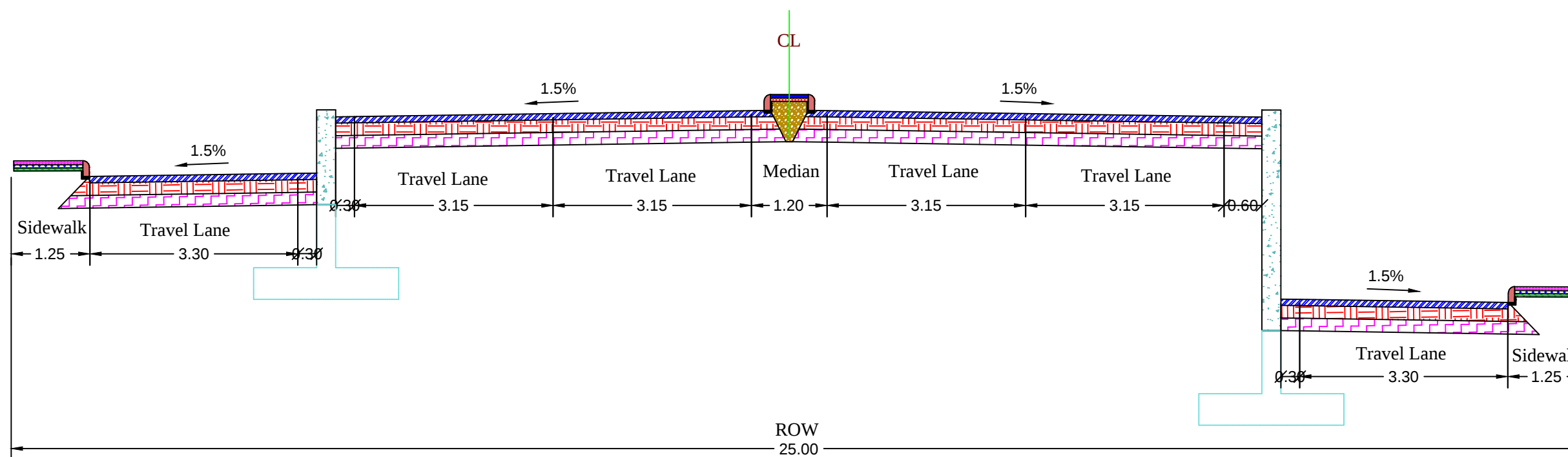
Date:

2014

Cross-Section Sheet #: 4



Section E-E



Section F-F



An-Najah National University
Faculty of Engineering and IT
Civil Engineering Department

Graduation Project II
"Design of the Interchange at the
Intersection of Haifa Road and
Mohammad Bin Rashid
Al-Maktoom Road"

Legend:

	Asphalt
	Base Coarse
	Sub Base
	Backfill

Note:

- Proposed Drawing
- Detailing of Median
Structure is illustrated in
Drawing "Section A-A"

Drawing Name:

Section G-G & H-H

Designed By:

Amin Salam A. Abu Saa
Mohammad Kamal M. Irshaid

Supervised by:

Prof. Sameer Abu-Eisheh

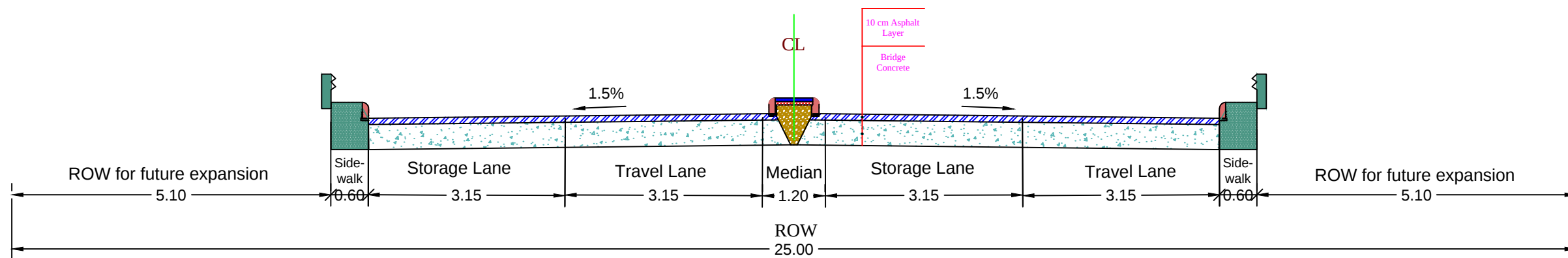
Scale:

NTS

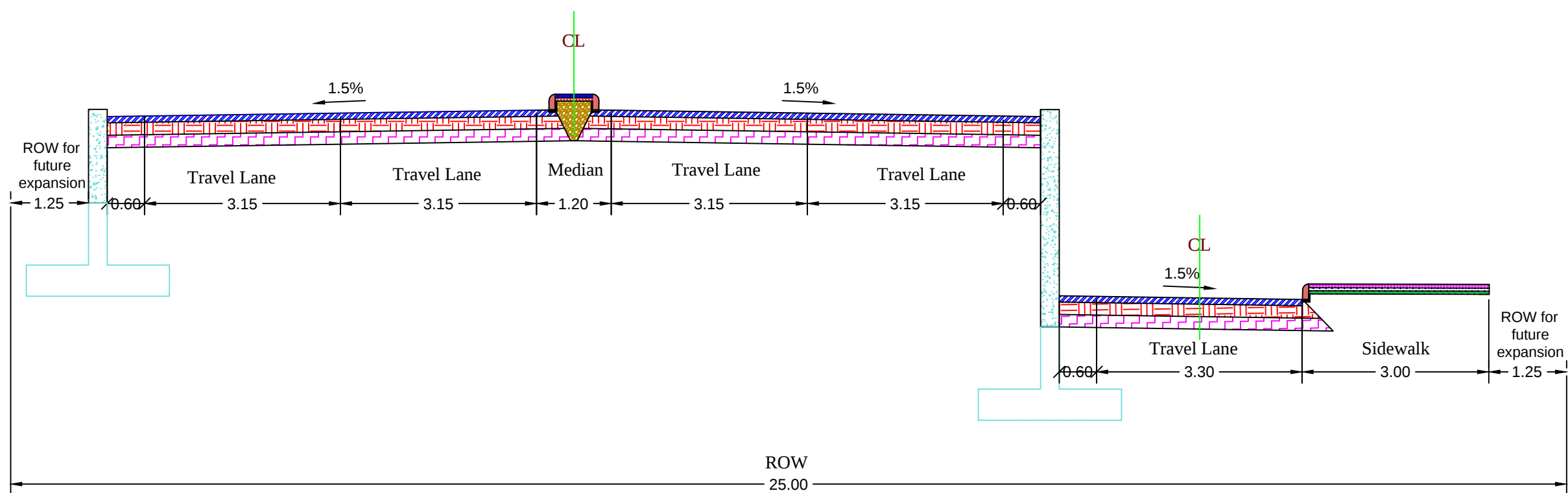
Date:

2014

Cross-Section Sheet #: 5



Section G-G



Section H-H



An-Najah National University
Faculty of Engineering and IT
Civil Engineering Department

Graduation Project II
"Design of the Interchange at the
Intersection of Haifa Road and
Mohammad Bin Rashid
Al-Maktoom Road"

Legend:

	Asphalt
	Base Coarse
	Sub Base
	Backfill

Note:

- Proposed Drawing
- Detailing of Median and
Pavement Structure is
illustrated in Drawing
"Section A-A"

Drawing Name:
Section I-I & J-J & K-K

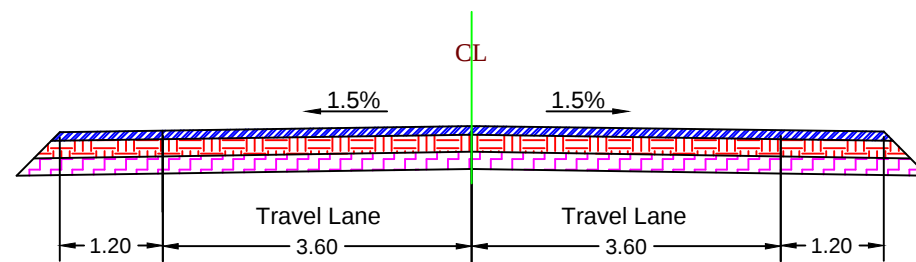
Designed By:
Amin Salam A. Abu Saa
Mohammad Kamal M. Irshaid

Supervised by:
Prof. Sameer Abu-Eisheh

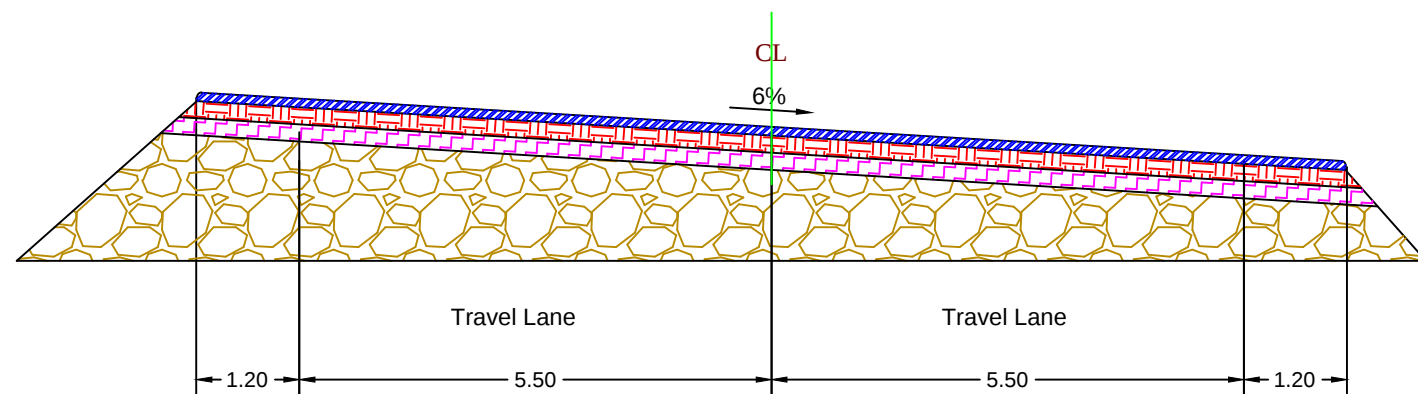
Scale:
NTS

Date:
2014

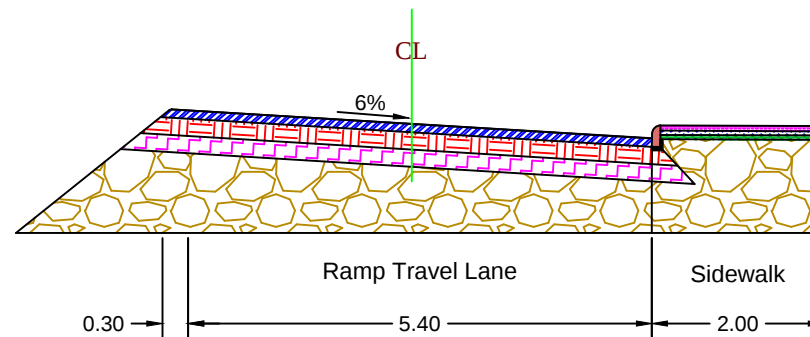
Cross-Section Sheet #: 6



Section I-I



Section J-J



Section K-K



An-Najah National University
Faculty of Engineering and IT
Civil Engineering Department

Graduation Project II
"Design of the Interchange at the
Intersection of Haifa Road and
Mohammad Bin Rashid
Al-Maktoom Road"

Legend:

	Asphalt
	Base Coarse
	Sub Base
	Backfill

Note:

- Proposed Drawing
- Detailing of Median and
Pavement Structure is
illustrated in Drawing
"Section A-A"

Drawing Name:

Section L-L & M-M

Designed By:

Amin Salam A. Abu Saa
Mohammad Kamal M. Irshaid

Supervised by:

Prof. Sameer Abu-Eisheh

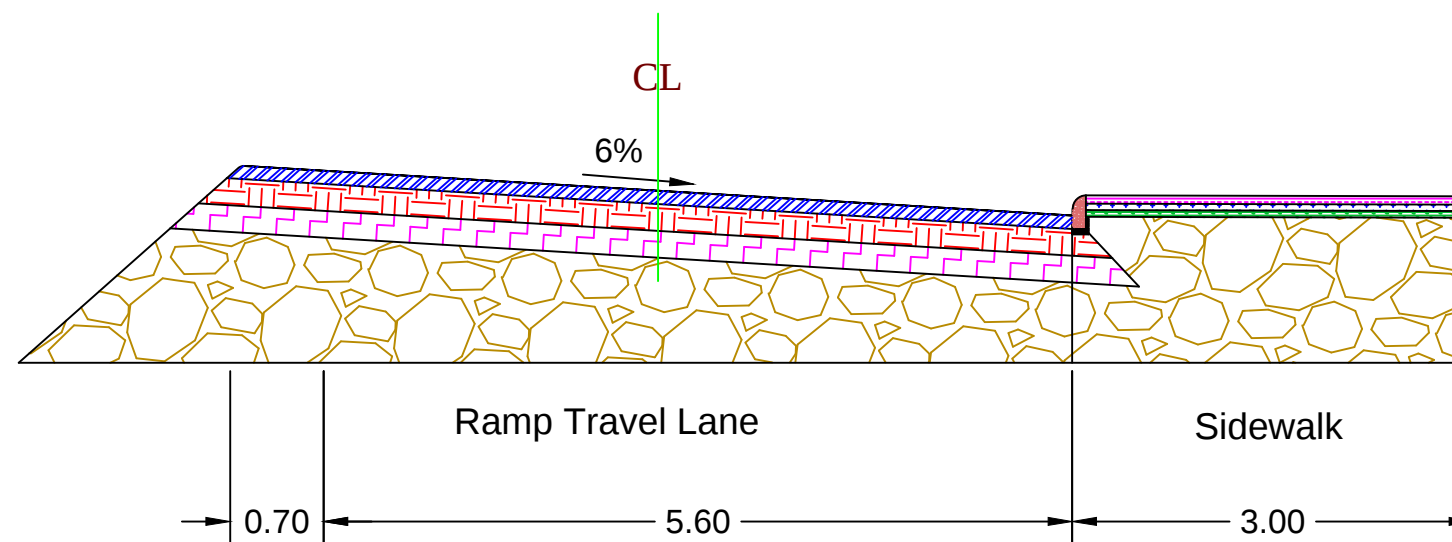
Scale:

NTS

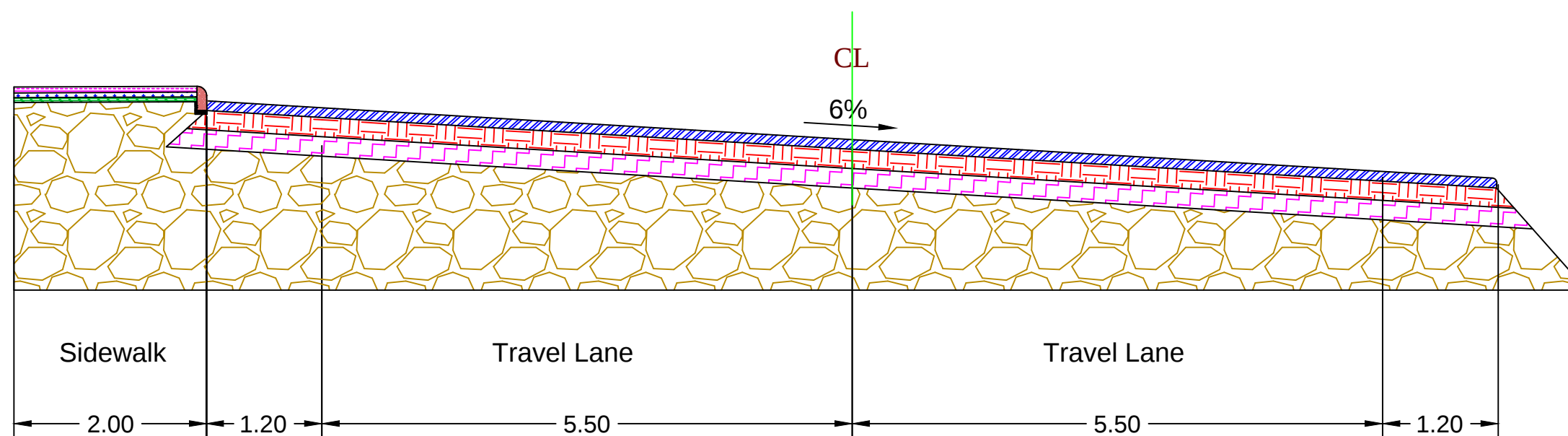
Date:

2014

Cross-Section Sheet #: 7



Section L-L



Section M-M

Signage and Marking



An-Najah National University
Faculty of Engineering and IT
Civil Engineering Department

Graduation Project II
"Design of the Interchange at the
Intersection of Haifa Road and
Mohammad Bin Rashid
Al-Maktoom Road"

Legend:

Note:

Drawing Name:
Signage and Marking
Part 1

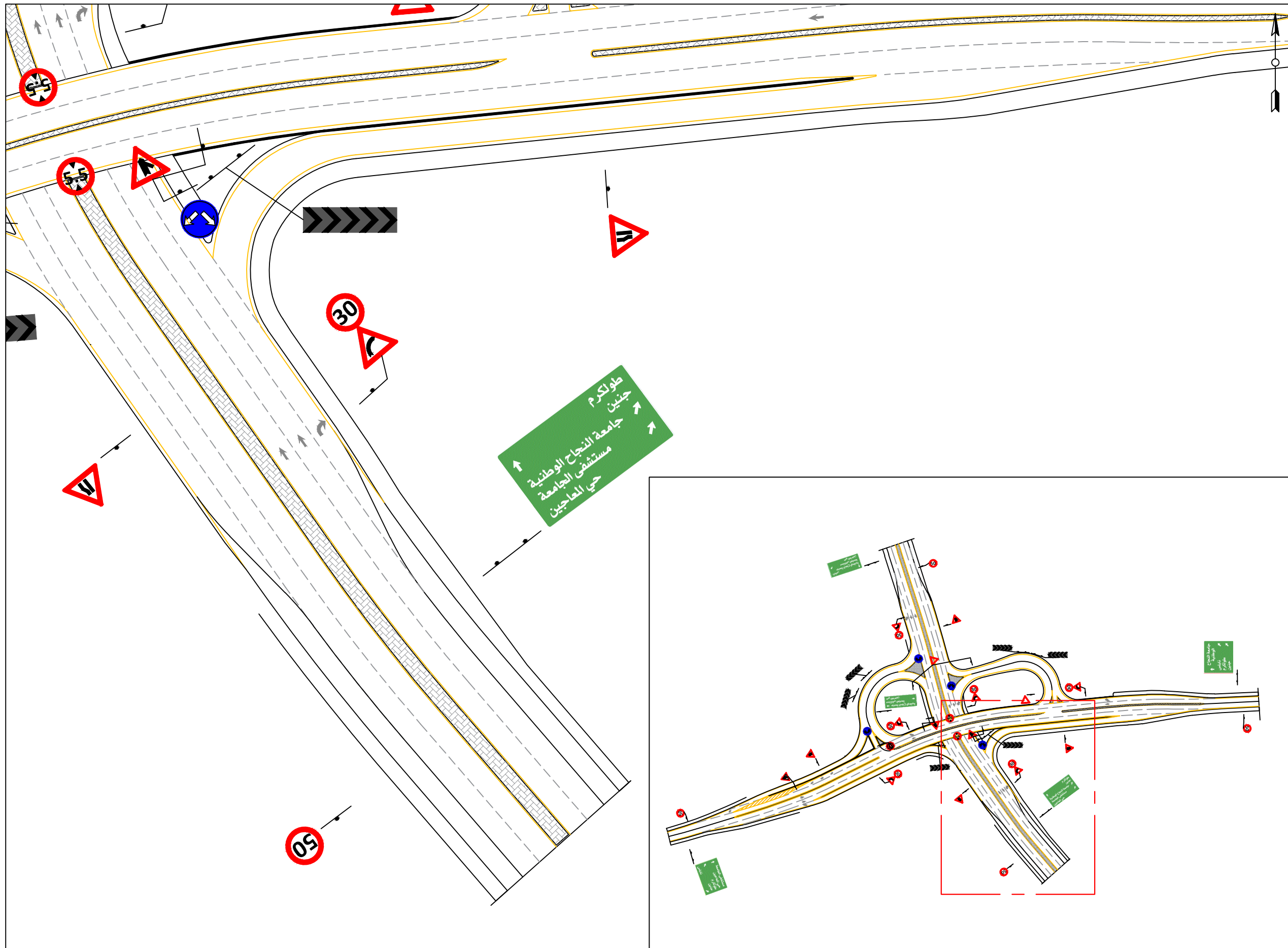
Designed By:
Amin Salam A. Abu Saa
Mohammad Kamal M. Irshaid

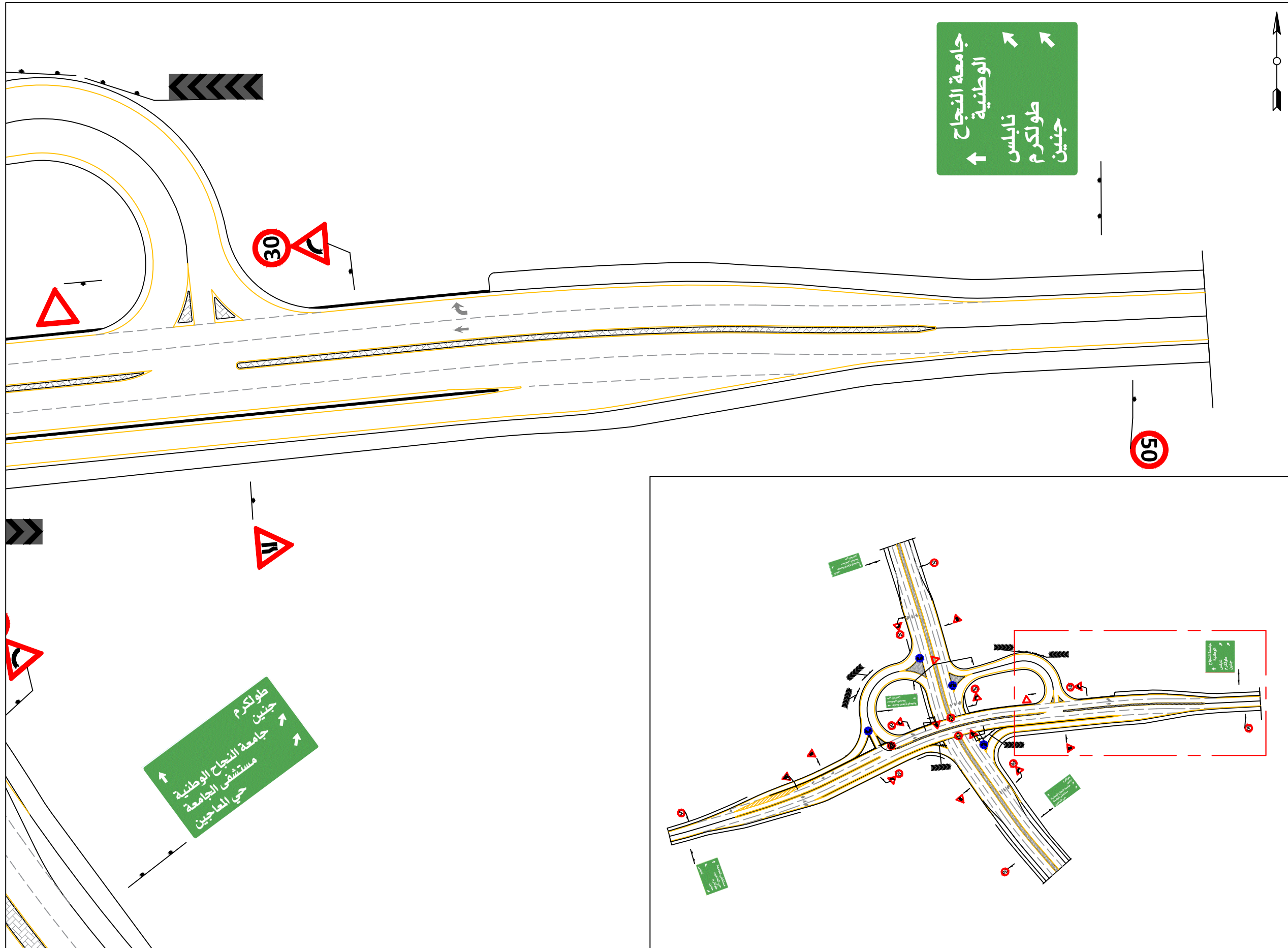
Supervised by:
Prof. Sameer Abu-Eisheh

Scale:
NTS

Date:
2014

Signage and Marking Sheet #: 1





An-Najah National University
Faculty of Engineering and IT
Civil Engineering Department

Graduation Project II
"Design of the Interchange at the
Intersection of Haifa Road and
Mohammad Bin Rashid
Al-Maktoom Road"

Legend:

Note:

Drawing Name:
**Signage and Marking
Part 2**

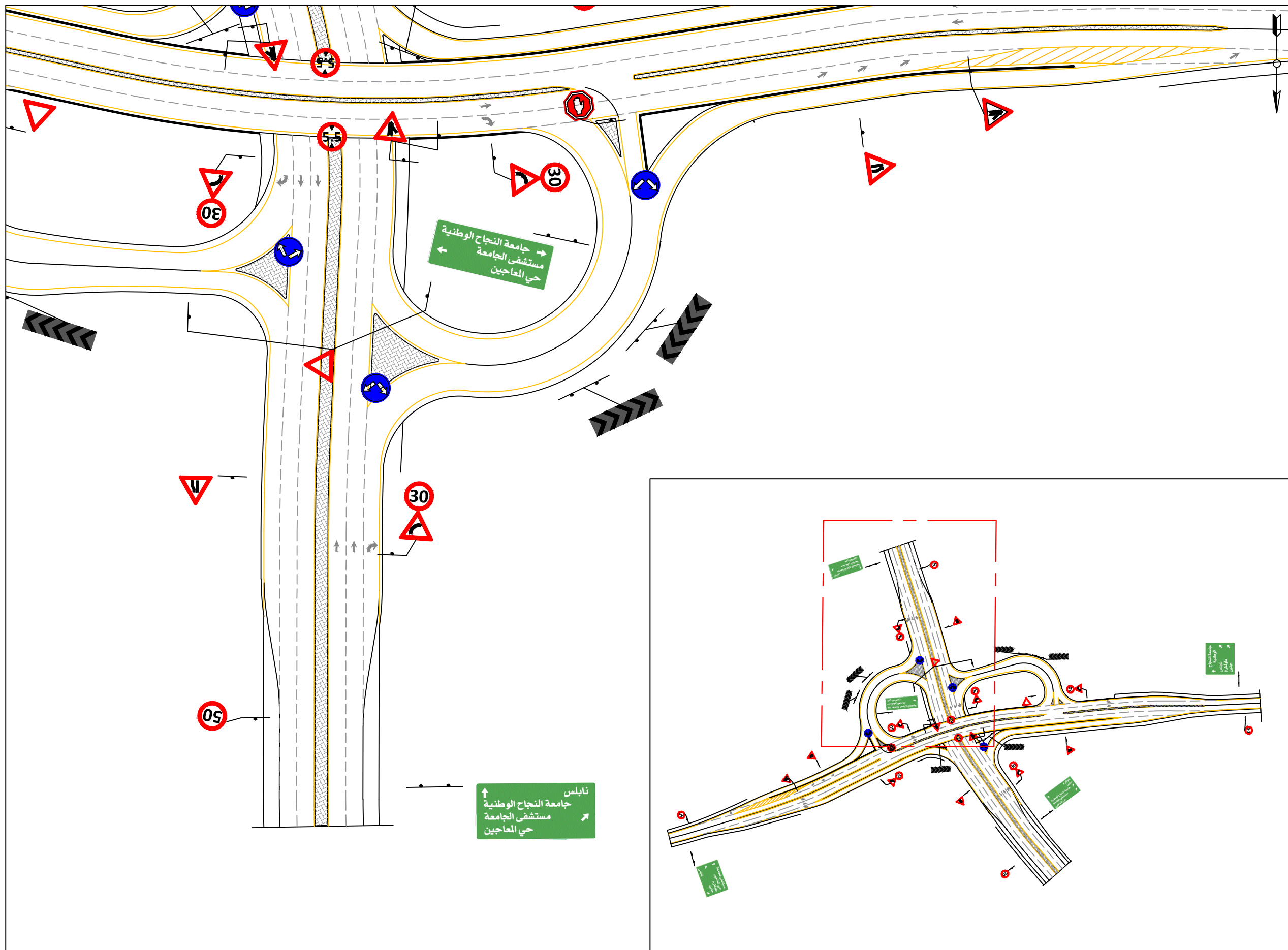
Designed By:
Amin Salam A. Abu Saa
Mohammad Kamal M. Irshaid

Supervised by:
Prof. Sameer Abu-Eisheh

Scale:
NTS

Date:
2014

Signage and Marking Sheet #: 2



An-Najah National University
Faculty of Engineering and IT
Civil Engineering Department

Graduation Project II
"Design of the Interchange at the
Intersection of Haifa Road and
Mohammad Bin Rashid
Al-Maktoom Road"

Legend:

Note:

Drawing Name:
Signage and Marking
Part 3

Designed By:
Amin Salam A. Abu Saa
Mohammad Kamal M. Irshaid

Supervised by:
Prof. Sameer Abu-Eisheh

Scale:
NTS

Date:
2014

Signage and Marking Sheet #: 3



An-Najah National University
Faculty of Engineering and IT
Civil Engineering Department

Graduation Project II
"Design of the Interchange at the
Intersection of Haifa Road and
Mohammad Bin Rashid
Al-Maktoom Road"

Legend:

Note:

Drawing Name:
Signage and Marking
Part 4

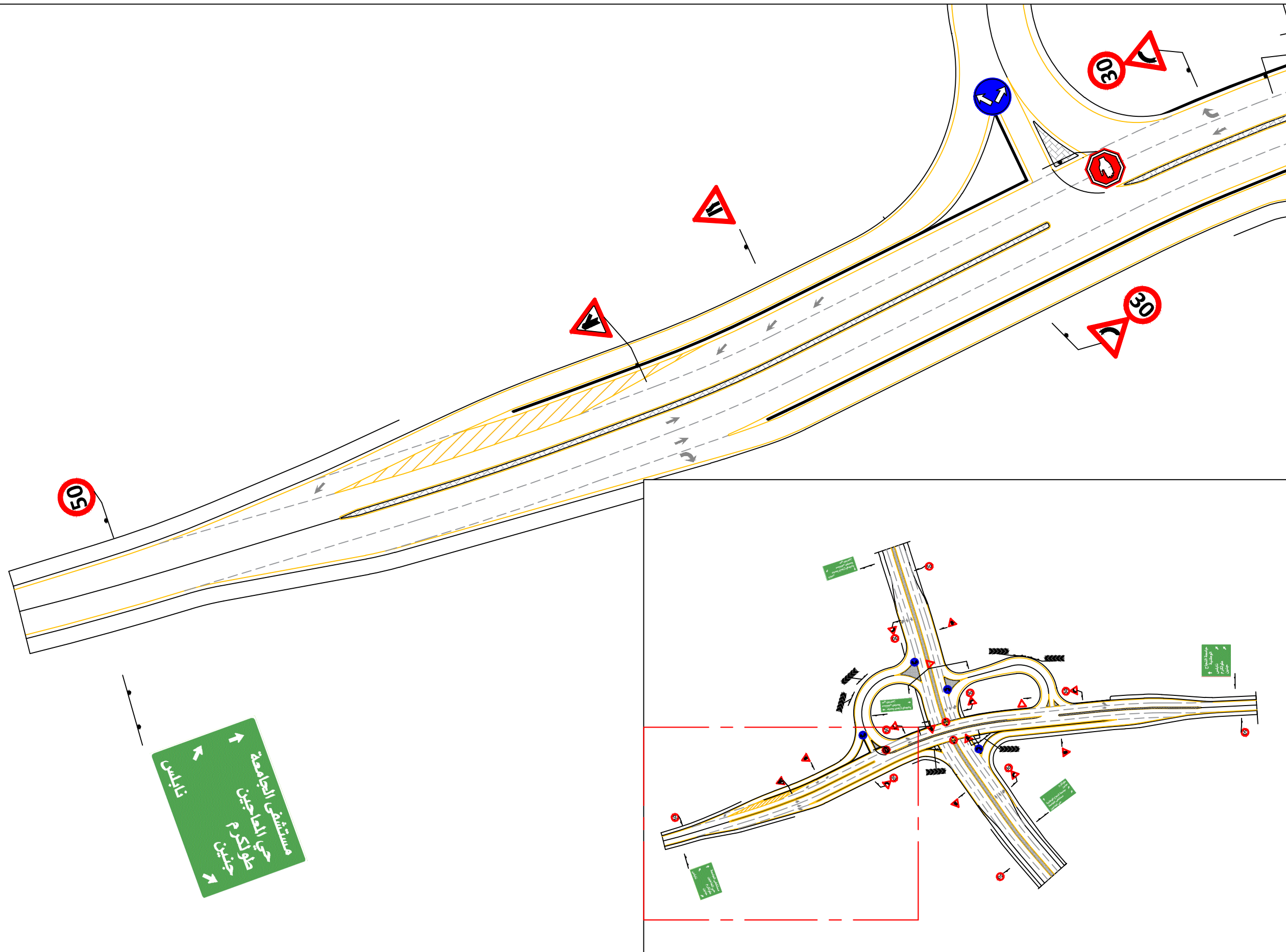
Designed By:
Amin Salam A. Abu Saa
Mohammad Kamal M. Irshaid

Supervised by:
Prof. Sameer Abu-Eisheh

Scale:
NTS

Date:
2014

Signage and Marking Sheet #: 4





An-Najah National University
Faculty of Engineering and IT
Civil Engineering Department

Graduation Project II

"Design of the Interchange at the
Intersection of Haifa Road and
Mohammad Bin Rashid
Al-Maktoom Road"

Legend:

Note:

Drawing Name:

Signage Detailing

Designed By:

Amin Salam A. Abu Saa
Mohammad Kamal M. Irshaid

Supervised by:

Prof. Sameer Abu-Eisheh

Scale:

NTS

Date:

2014

Signage and Marking Sheet #: 5

