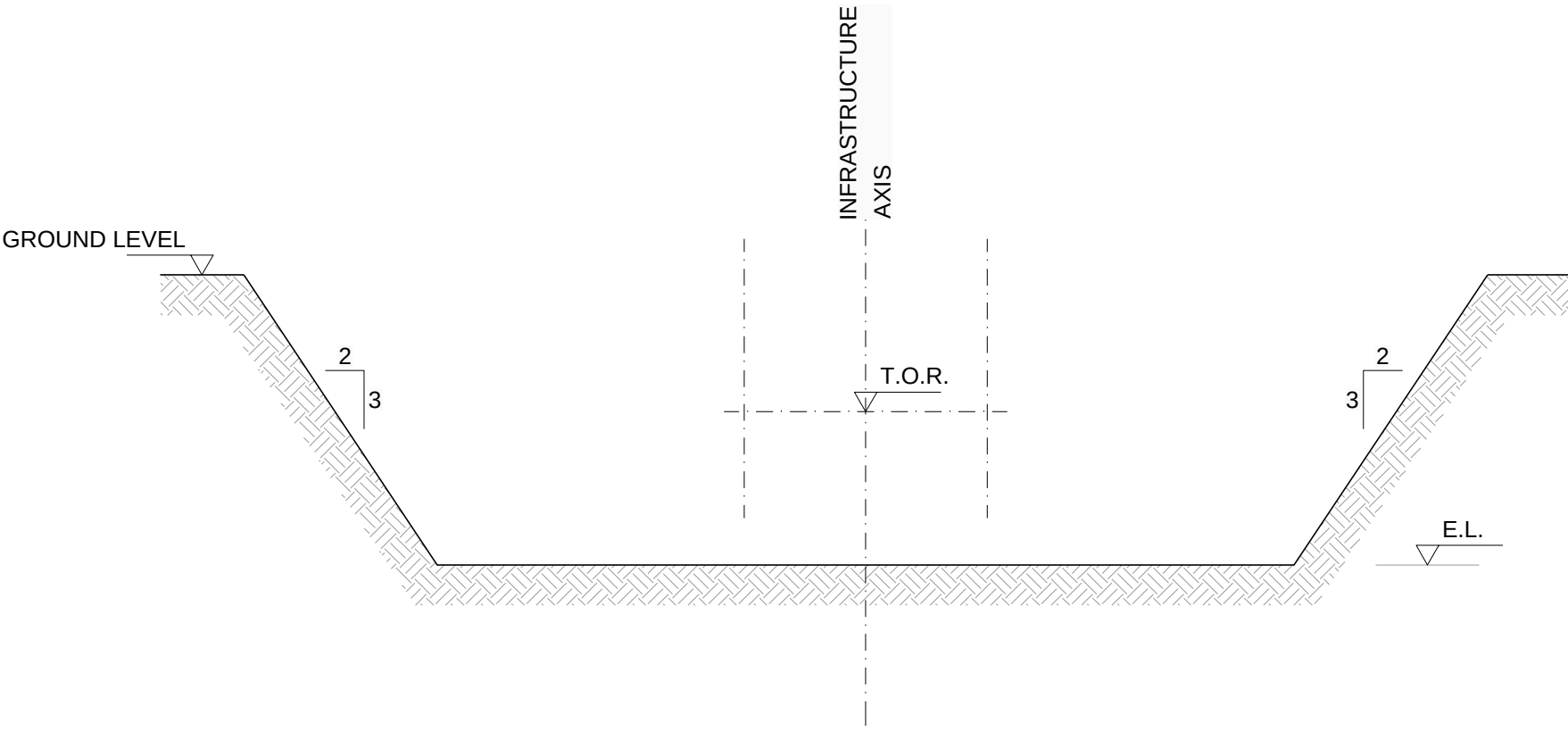


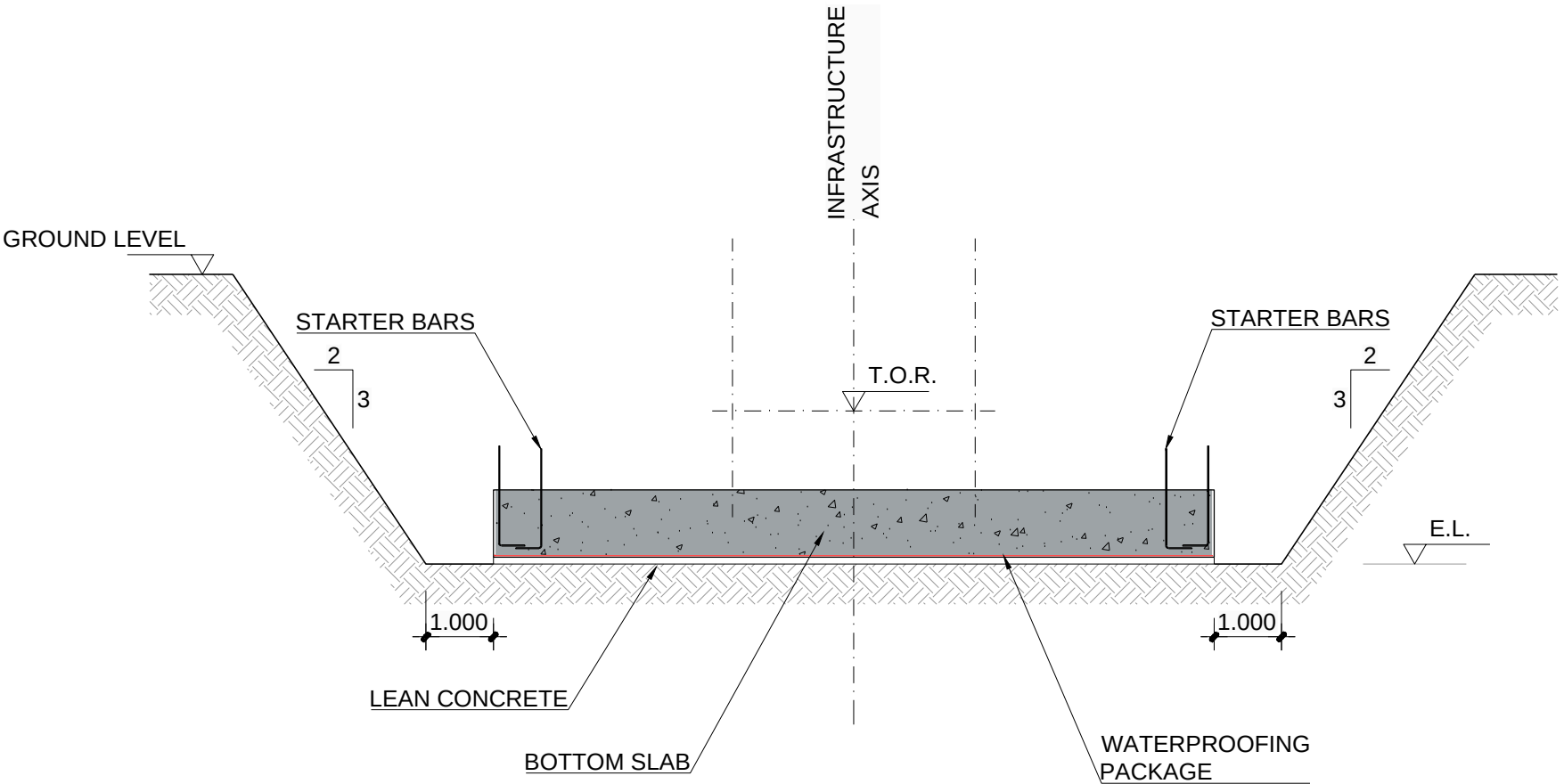
**SEGMENTS 1 ÷ 6 & 30 ÷ 36**

**PHASE I**



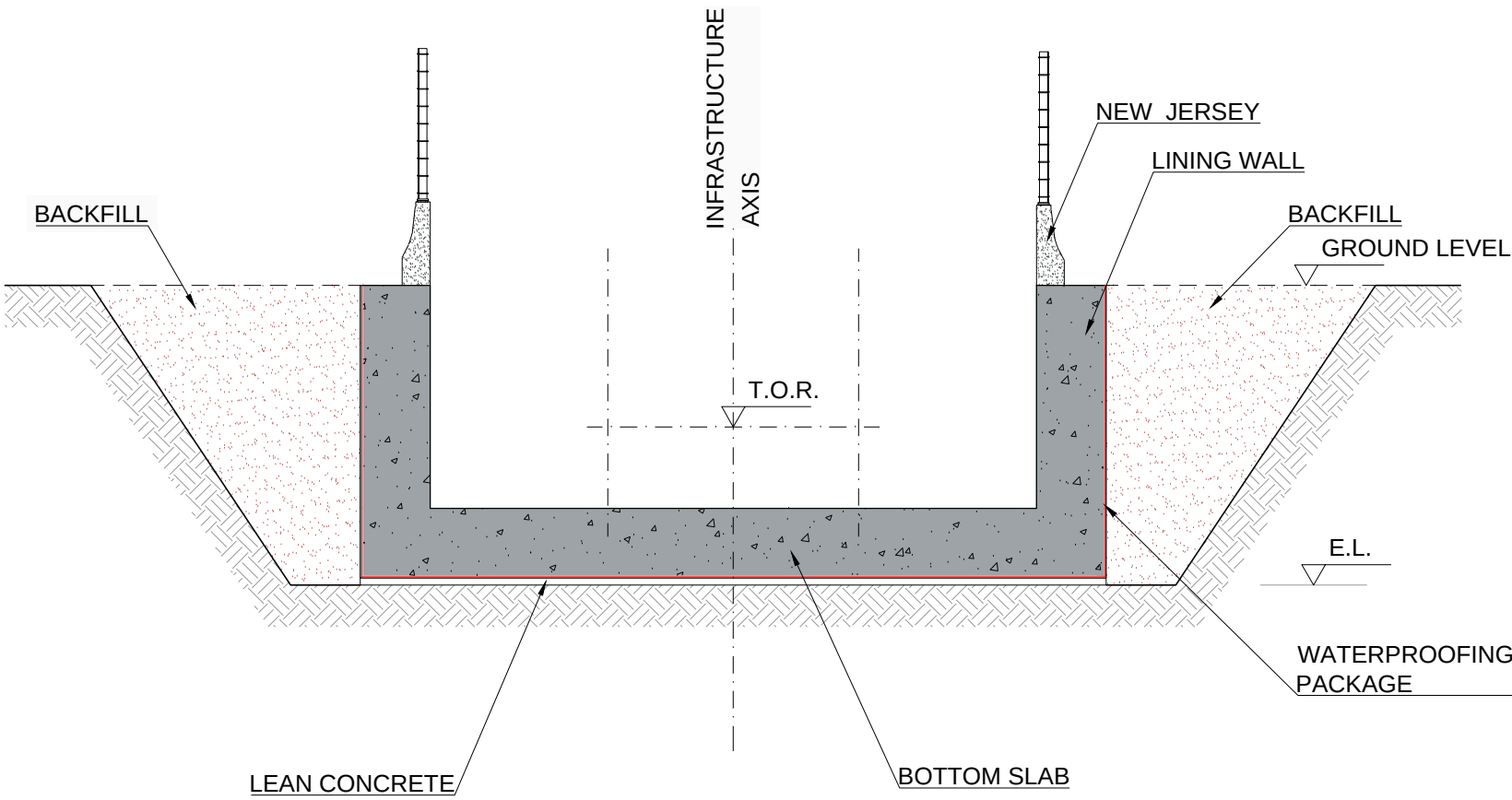
- PHASE I:**
- PREPARATION OF TRAFFIC MANAGEMENT AND WORKSITE AREA
  - PREPARATION OF THE WORKING LEVEL AT THE FORESEEN ELEVATION
  - EXCAVATION TO UNDERSIDE THE BOTTOM OF THE BASE SLAB

**PHASE II**

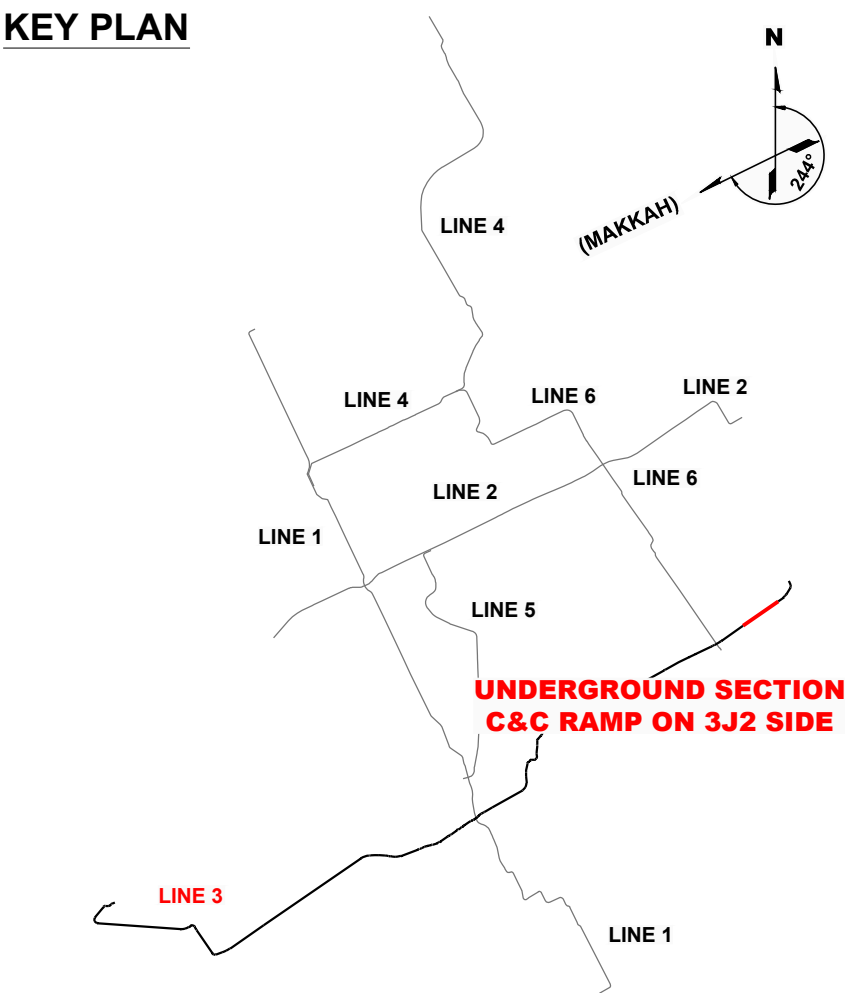


- PHASE II:**
- AT EXCAVATION LEVEL, PREPARATION OF THE SURFACE (LEAN CONCRETE)
  - POSITIONING OF THE WATERPROOFING MEMBRANE ON THE EXTERNAL FACE OF BASE SLAB
  - REINFORCING OF THE BASE SLAB, INCLUDING THE STARTER BARS OF THE LINING WALLS AND POURING OF THE BASE SLAB

**PHASE III**



- PHASE III:**
- ERECTION OF THE LINING WALLS UNTIL TOP LEVEL AND POSITIONING OF THE WATERPROOFING MEMBRANE
  - COMPLETION OF THE STRUCTURE
  - BACKFILLING



- LEGEND**
- T.O.R. TOP OF RAIL
  - E.L. EXCAVATION LEVEL

- NOTES:**
- DIMENSIONS IN METERS
  - NO CONSTRUCTION LOADS ARE ALLOWED ON THE GROUND LEVEL AT ANY TIME

|      |            |                                           |        |
|------|------------|-------------------------------------------|--------|
|      |            |                                           |        |
|      |            |                                           |        |
|      |            |                                           |        |
|      |            |                                           |        |
|      |            |                                           |        |
|      |            |                                           |        |
| P1   | 01.04.2016 | INTRA AND INTER-DISCIPLINARY CHECKS (IDC) | R.R.L. |
| REV. | DATE       | DESCRIPTION                               | APP.   |

PROJECT

**RIYADH METRO PROJECT**

**PACKAGE 2**

**LINE 3**



|            |        |                        |                  |
|------------|--------|------------------------|------------------|
| ORIGINATOR | CHECK  | REVIEW                 | APPROVAL         |
| M.G.N.     | P.P.M. | R.R.L.                 |                  |
| DATE       |        | SCALES                 | ORIGINAL SIZE A1 |
| APRIL 2016 |        | A1= 1/100<br>A3= 1/200 |                  |
|            |        | 0 2.5 5m               |                  |

DRAWING

**UNDERGROUND SECTION**

**90% DETAILED DESIGN**

**CUT AND COVER RAMP ON 3J2 SIDE**

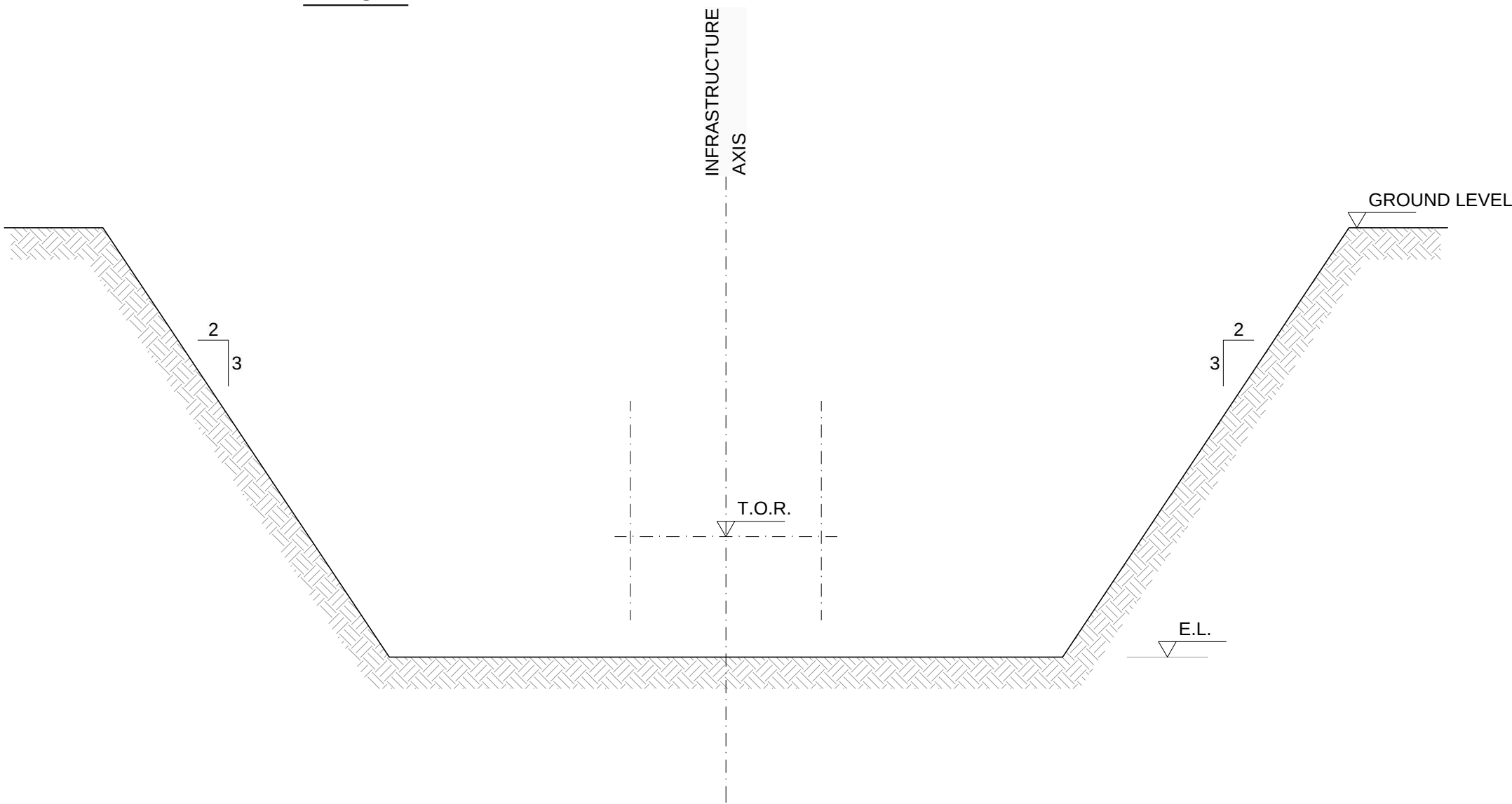
**CONSTRUCTION PROCESS OUTLINES**

|                              |          |         |
|------------------------------|----------|---------|
| ANM DRAWING NUMBER           | REVISION | SHEET   |
| M-ANM-3J1TU2-CTCC-EDR-200011 | P1       | 1 of 10 |
| ALTERNATE DOCUMENT NUMBER    | REVISION | SHEET   |
| M-ANM-3J1TU2-CTCC-EDR-200011 | P1       | 1 of 10 |



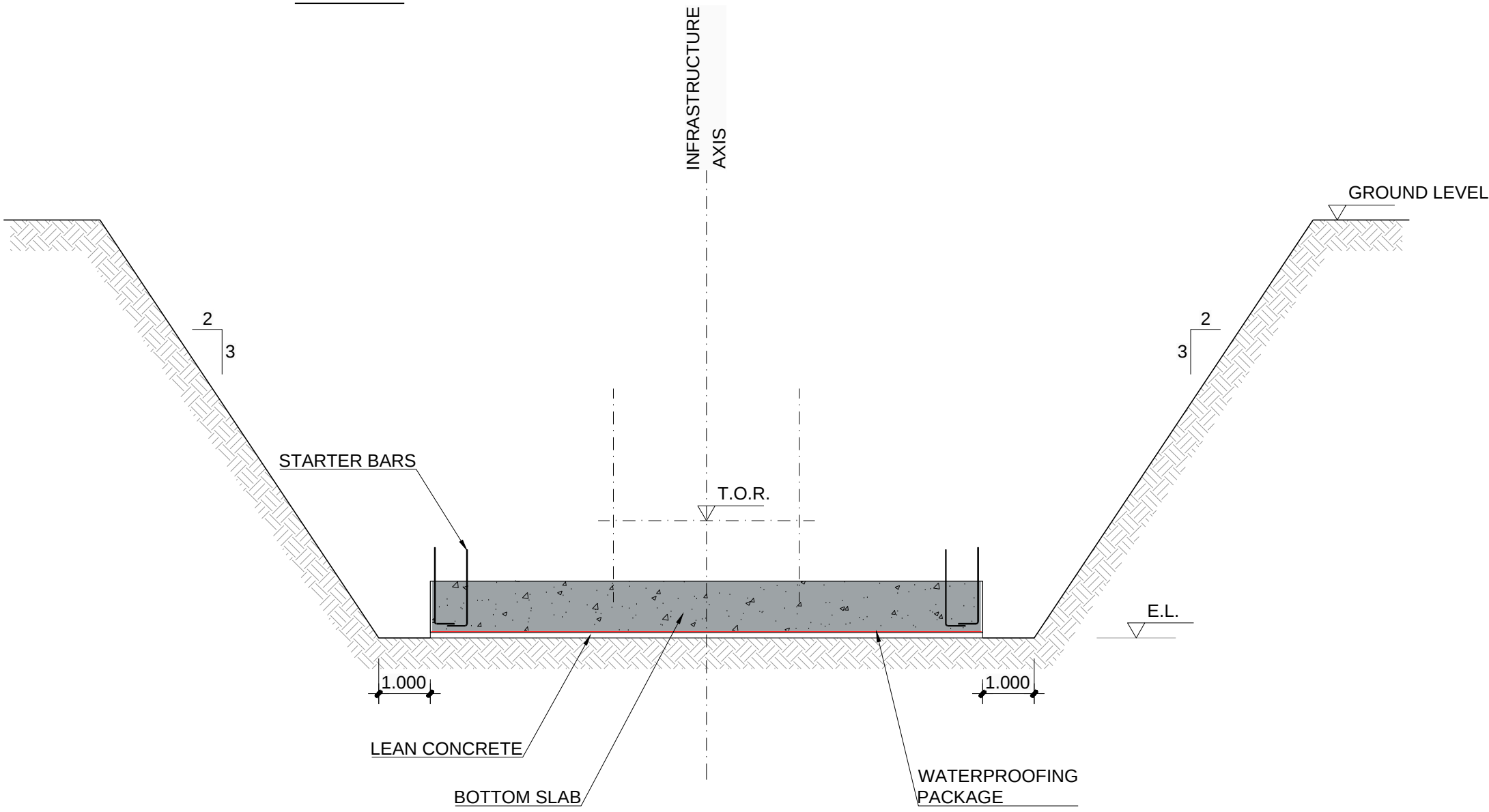
SEGMENTS 7, 28 & 29

PHASE I



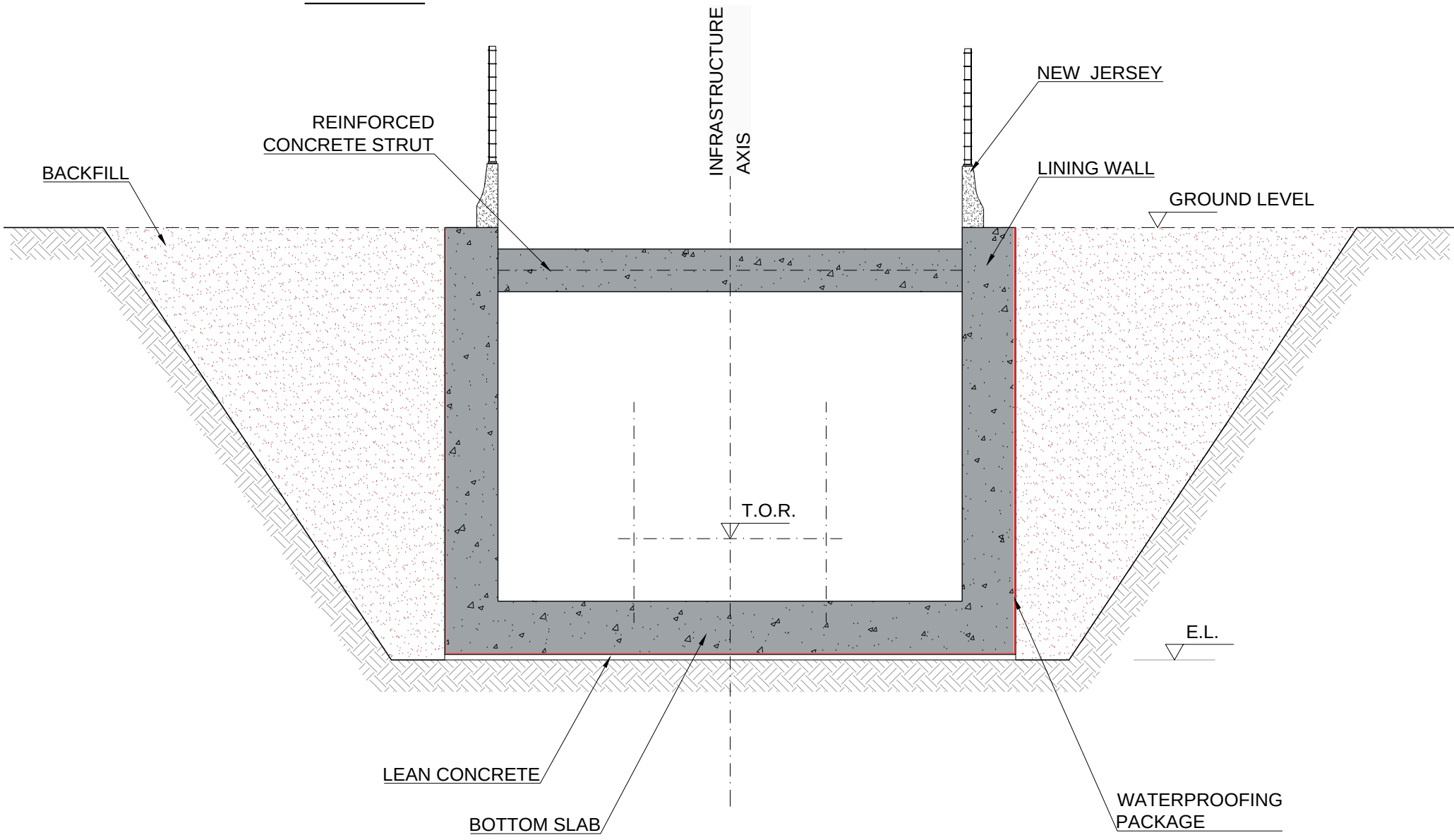
- PHASE I:**
- PREPARATION OF TRAFFIC MANAGEMENT AND WORKSITE AREA
  - PREPARATION OF THE WORKING LEVEL AT THE FORESEEN ELEVATION
  - EXCAVATION TO UNDERSIDE THE BOTTOM OF THE BASE SLAB

PHASE II



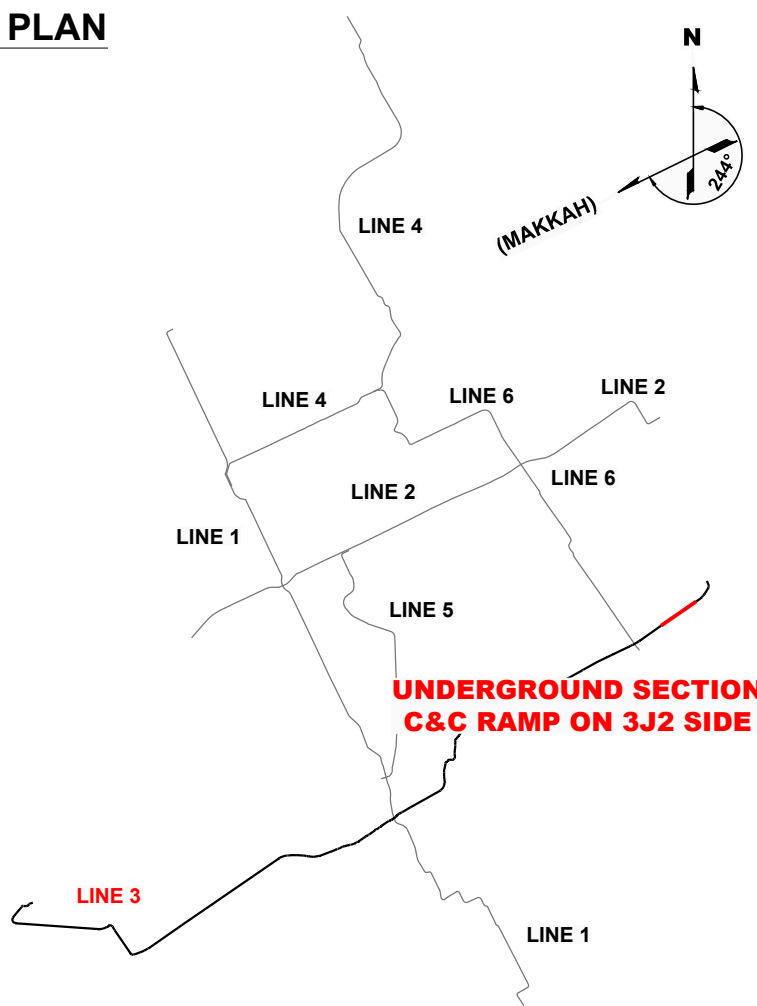
- PHASE II:**
- AT EXCAVATION LEVEL, PREPARATION OF THE SURFACE (LEAN CONCRETE)
  - POSITIONING OF THE WATERPROOFING MEMBRANE ON THE EXTERNAL FACE OF THE BASE SLAB
  - REINFORCING OF THE BASE SLAB, INCLUDING THE STARTER BARS OF THE LINING WALLS AND POURING OF THE BASE SLAB

PHASE III



- PHASE III:**
- ERECTION OF THE LINING WALLS UNTIL TOP LEVEL INCLUDING THE EXECUTION OF THE PERMANENT REINFORCED CONCRETE STRUTS
  - POSITIONING OF THE WATERPROOFING MEMBRANE
  - COMPLETION OF THE STRUCTURE
  - BACKFILLING

KEY PLAN



LEGEND

- T.O.R. TOP OF RAIL  
E.L. EXCAVATION LEVEL

NOTES:

1. DIMENSIONS IN METERS
2. NO CONSTRUCTION LOADS ARE ALLOWED ON THE GROUND LEVEL AT ANY TIME

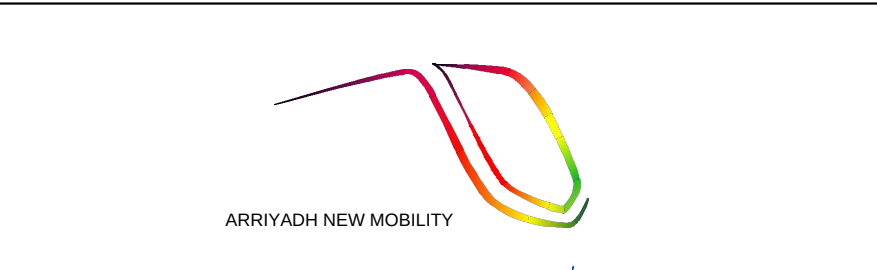
| REV. | DATE       | DESCRIPTION                               | APP.   |
|------|------------|-------------------------------------------|--------|
| P1   | 01.04.2016 | INTRA AND INTER-DISCIPLINARY CHECKS (IDC) | R.R.L. |

PROJECT

**RIYADH METRO PROJECT**

**PACKAGE 2**

**LINE 3**



| ORIGINATOR | CHECK      | REVIEW    | APPROVAL         |
|------------|------------|-----------|------------------|
| M.G.N.     | P.P.M.     | R.R.L.    |                  |
| DATE       | APRIL 2016 | SCALES    | ORIGINAL SIZE A1 |
|            |            | A1= 1/100 |                  |
|            |            | A3= 1/200 |                  |
|            |            | 0 2.5 5m  |                  |

DRAWING

**UNDERGROUND SECTION**

**90% DETAILED DESIGN**

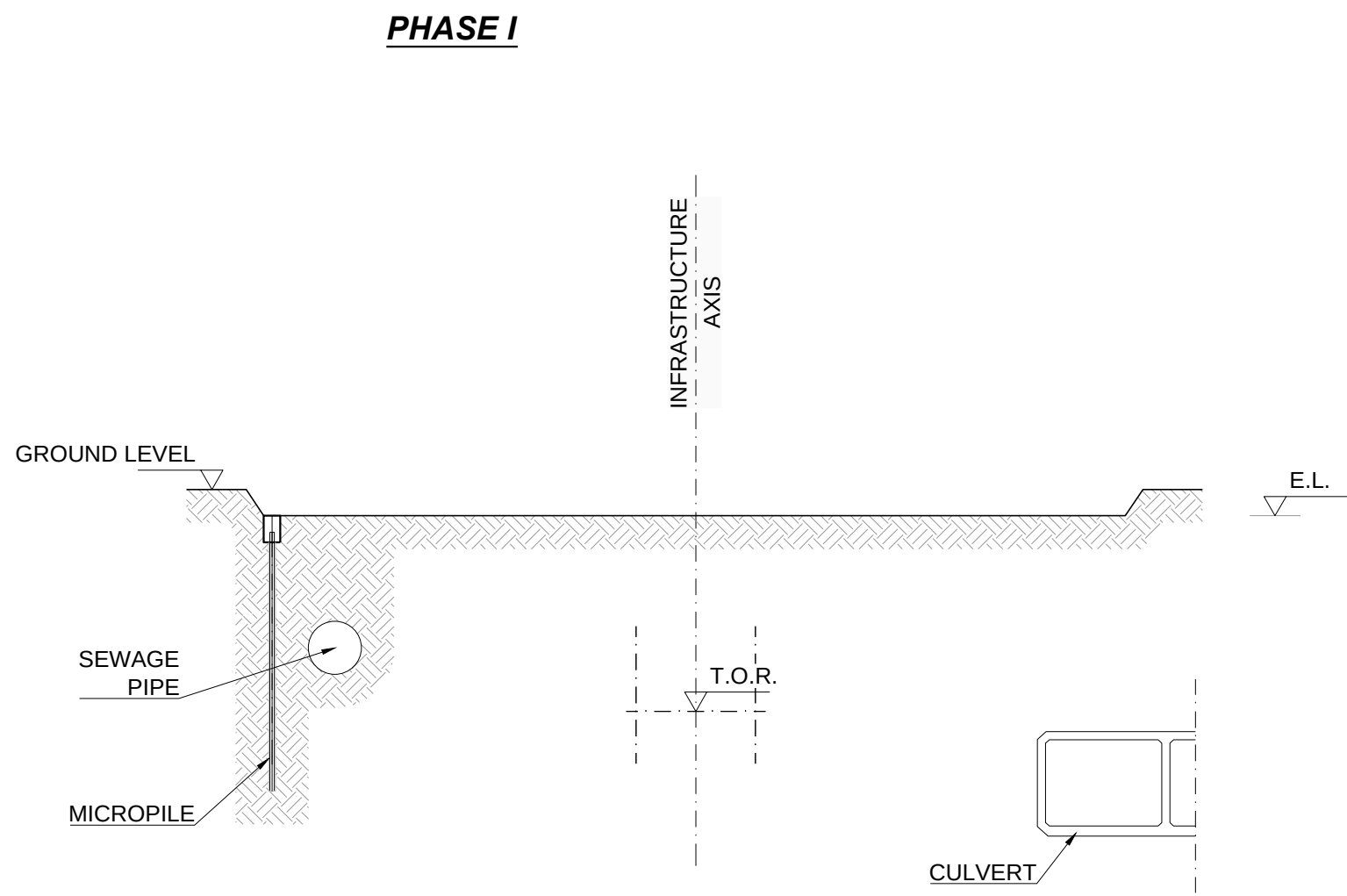
**CUT AND COVER RAMP ON 3J2 SIDE**

**CONSTRUCTION PROCESS OUTLINES**

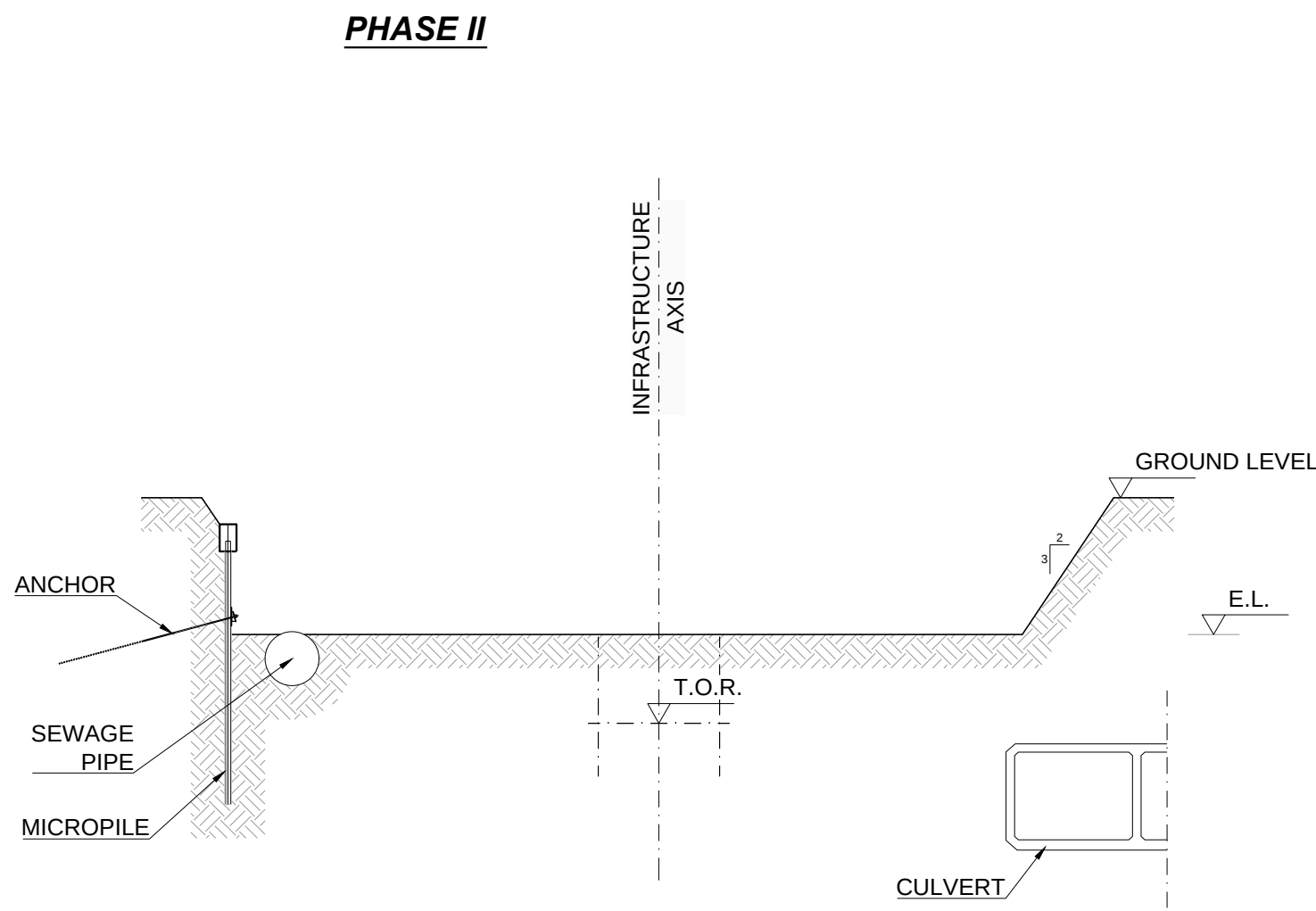
| ANM DRAWING NUMBER           | REVISION | SHEET   |
|------------------------------|----------|---------|
| M-ANM-3J1TU2-CTCC-EDR-200011 | P1       | 2 of 10 |
| ALTERNATE DOCUMENT NUMBER    | REVISION | SHEET   |
| M-ANM-3J1TU2-CTCC-EDR-200011 | P1       | 2 of 10 |



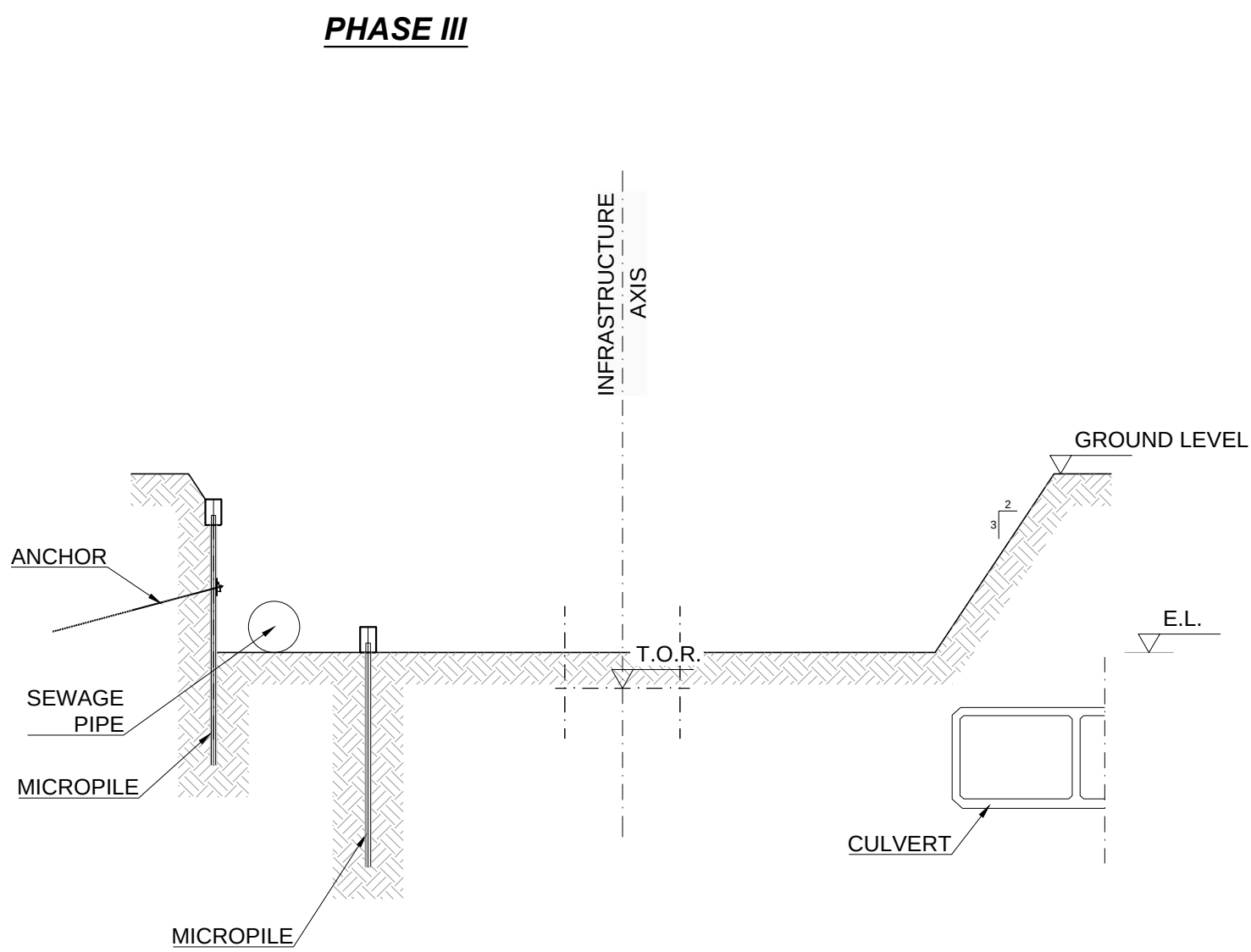
SEGMENTS 8 & 27



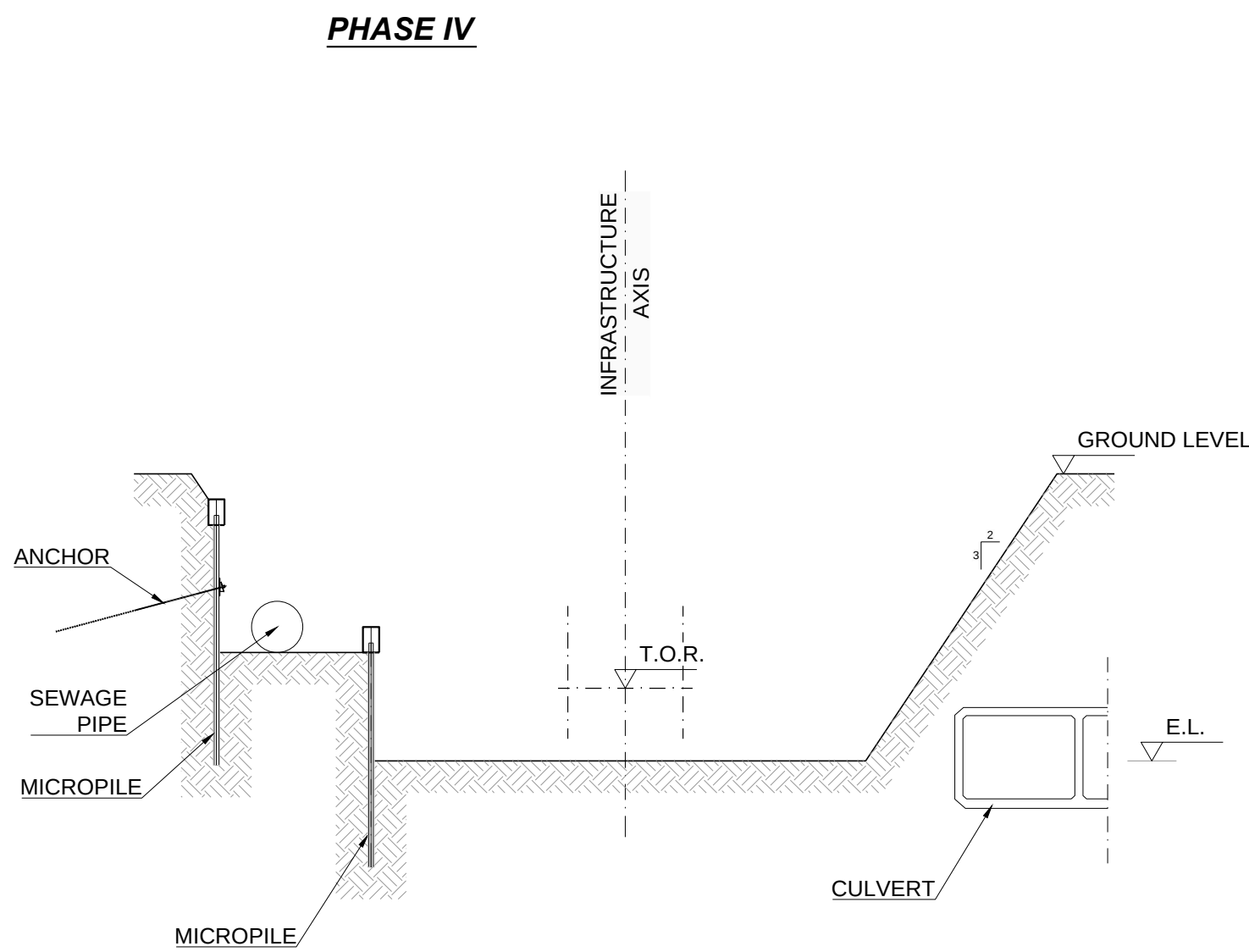
- PHASE I:**
- PREPARATION OF TRAFFIC MANAGEMENT AND WORKSITE AREA
  - PREPARATION OF THE WORKING LEVEL AT THE FORESEEN ELEVATION
  - CONSTRUCTION OF THE FIRST MICROPILE WALL



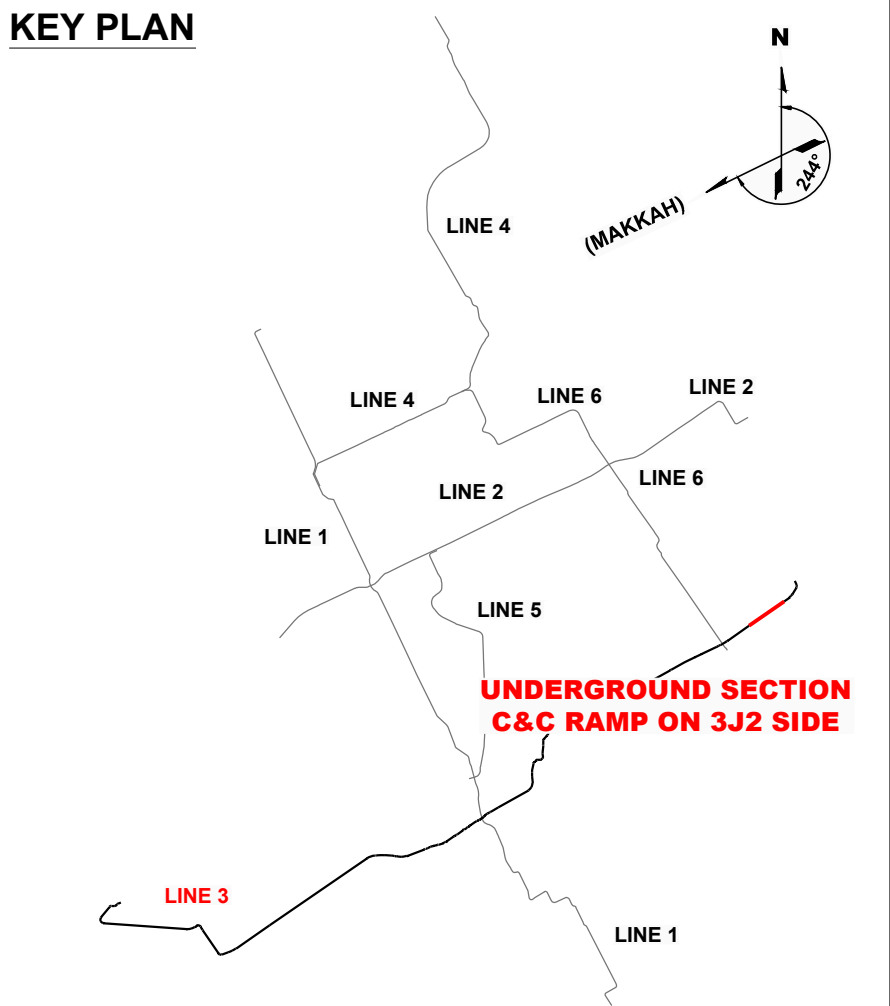
- PHASE II:**
- EXCAVATION TO REACH THE DEPTH CORRESPONDING TO 50CM UNDER THE FIRST ORDER OF ANCHORS
  - INSTALLATION OF THE FIRST ORDER OF ANCHORS



- PHASE III:**
- EXCAVATION TO UNDERSIDE THE BOTTOM OF THE EXISTING SEWAGE PIPE
  - CONSTRUCTION OF THE SECOND MICROPILE WALL (NEAREST RETAINING WALL)



- PHASE IV:**
- EXCAVATION TO UNDERSIDE THE BOTTOM OF THE BASE SLAB



- LEGEND**
- T.O.R. TOP OF RAIL
  - E.L. EXCAVATION LEVEL

- NOTES:**
- DIMENSIONS IN METERS
  - NO CONSTRUCTION LOADS ARE ALLOWED ON THE GROUND LEVEL AT ANY TIME

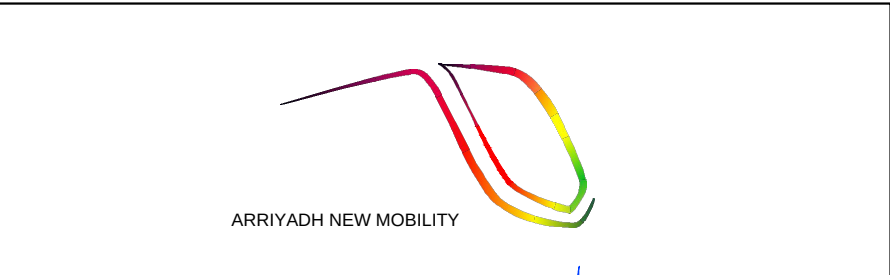
|      |            |                                           |        |
|------|------------|-------------------------------------------|--------|
|      |            |                                           |        |
|      |            |                                           |        |
|      |            |                                           |        |
|      |            |                                           |        |
|      |            |                                           |        |
| P1   | 01.04.2016 | INTRA AND INTER-DISCIPLINARY CHECKS (IDC) | R.R.L. |
| REV. | DATE       | DESCRIPTION                               | APP.   |

PROJECT

**RIYADH METRO PROJECT**

**PACKAGE 2**

**LINE 3**



|            |            |           |                  |
|------------|------------|-----------|------------------|
| ORIGINATOR | CHECK      | REVIEW    | APPROVAL         |
| M.G.N.     | P.P.M.     | R.R.L.    |                  |
| DATE       | APRIL 2016 | SCALES    | ORIGINAL SIZE A1 |
|            |            | A1= 1/200 |                  |
|            |            | A3= 1/400 |                  |
|            |            | 0 5 10m   |                  |

DRAWING

**UNDERGROUND SECTION**

**90% DETAILED DESIGN**

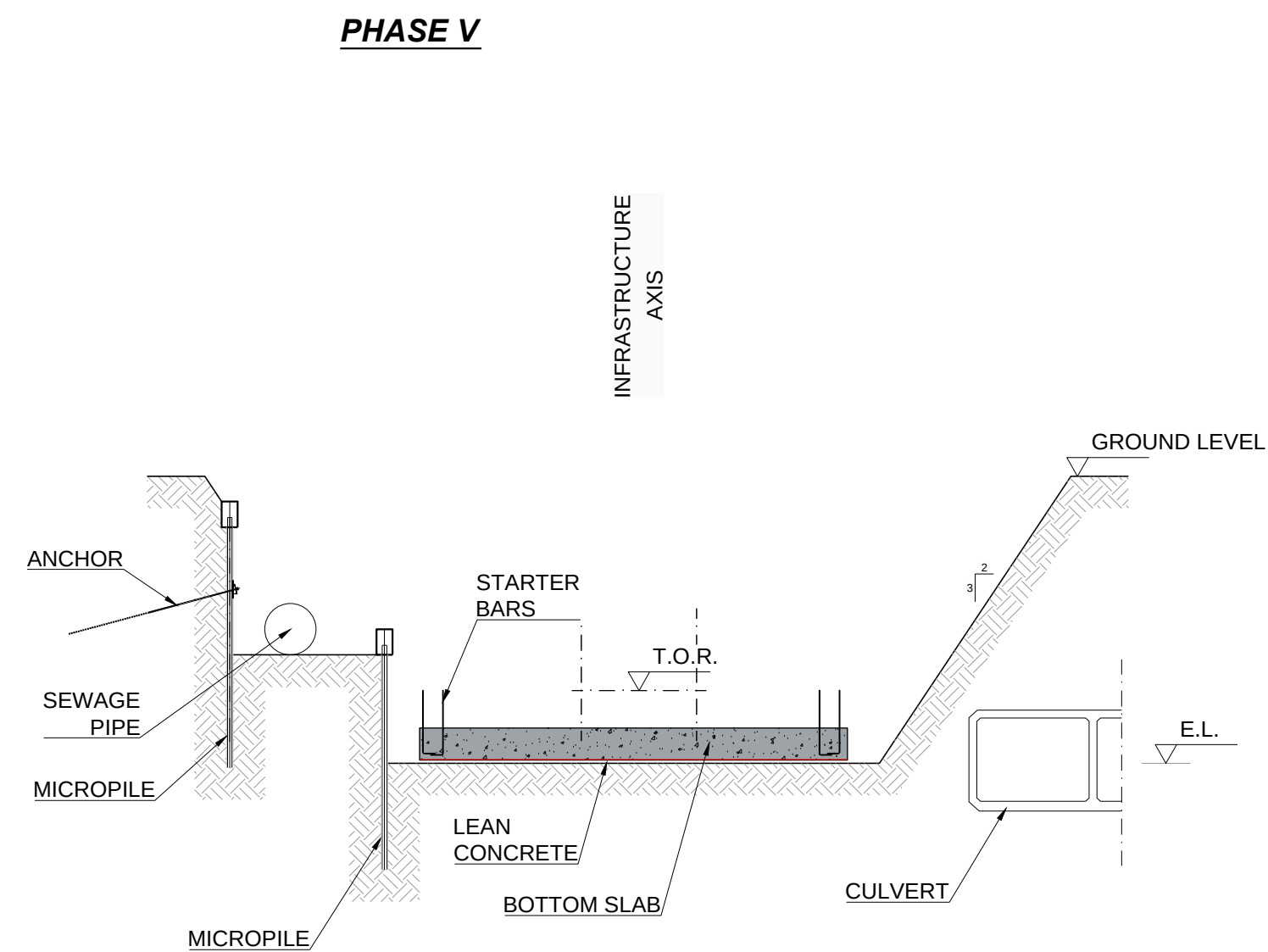
**CUT AND COVER RAMP ON 3J2 SIDE**

**CONSTRUCTION PROCESS OUTLINES**

|                              |          |         |
|------------------------------|----------|---------|
| ANM DRAWING NUMBER           | REVISION | SHEET   |
| M-ANM-3J1TU2-CTCC-EDR-200011 | P1       | 3 of 10 |
| ALTERNATE DOCUMENT NUMBER    | REVISION | SHEET   |
| M-ANM-3J1TU2-CTCC-EDR-200011 | P1       | 3 of 10 |

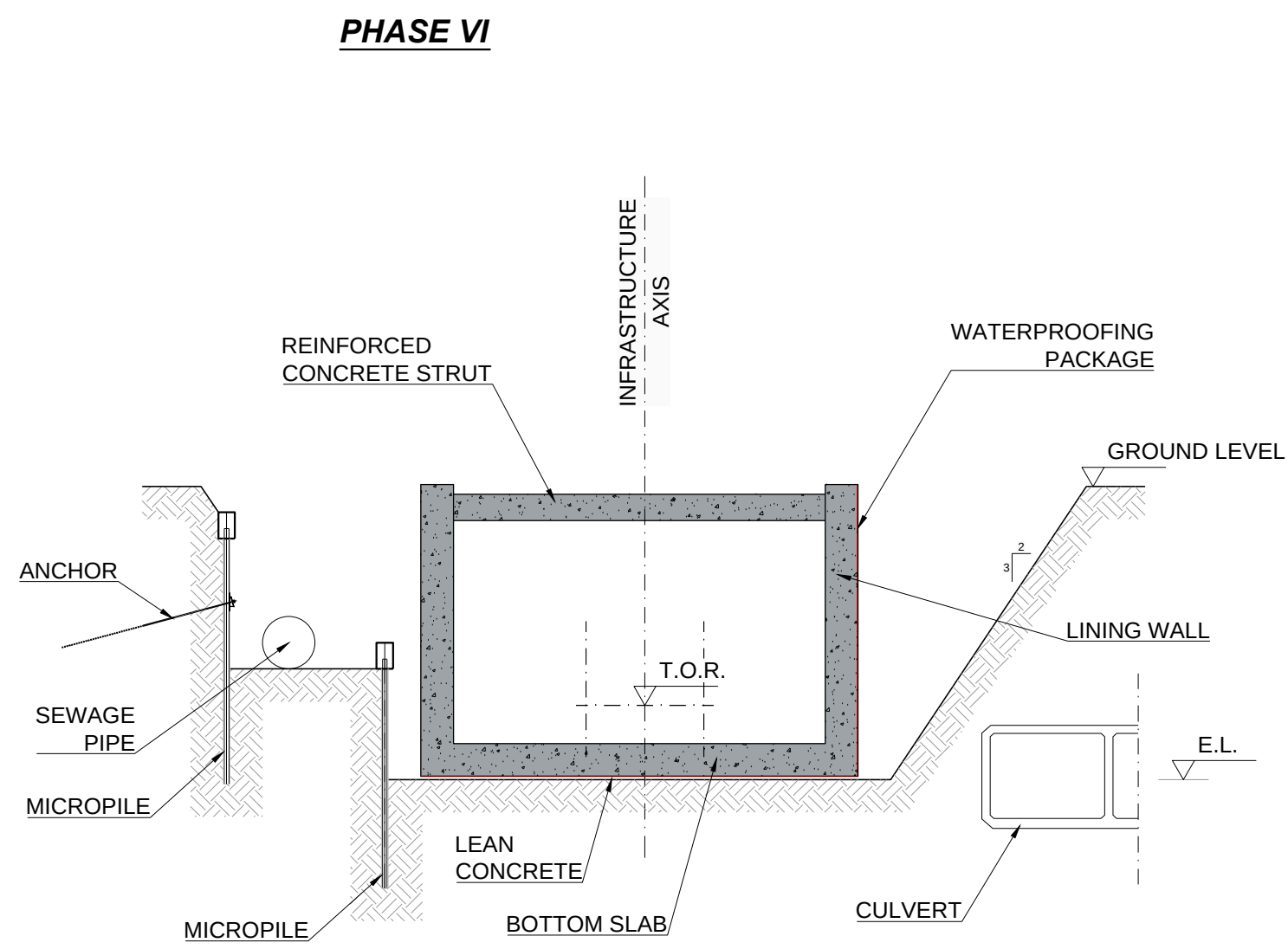


SEGMENTS 8 & 27



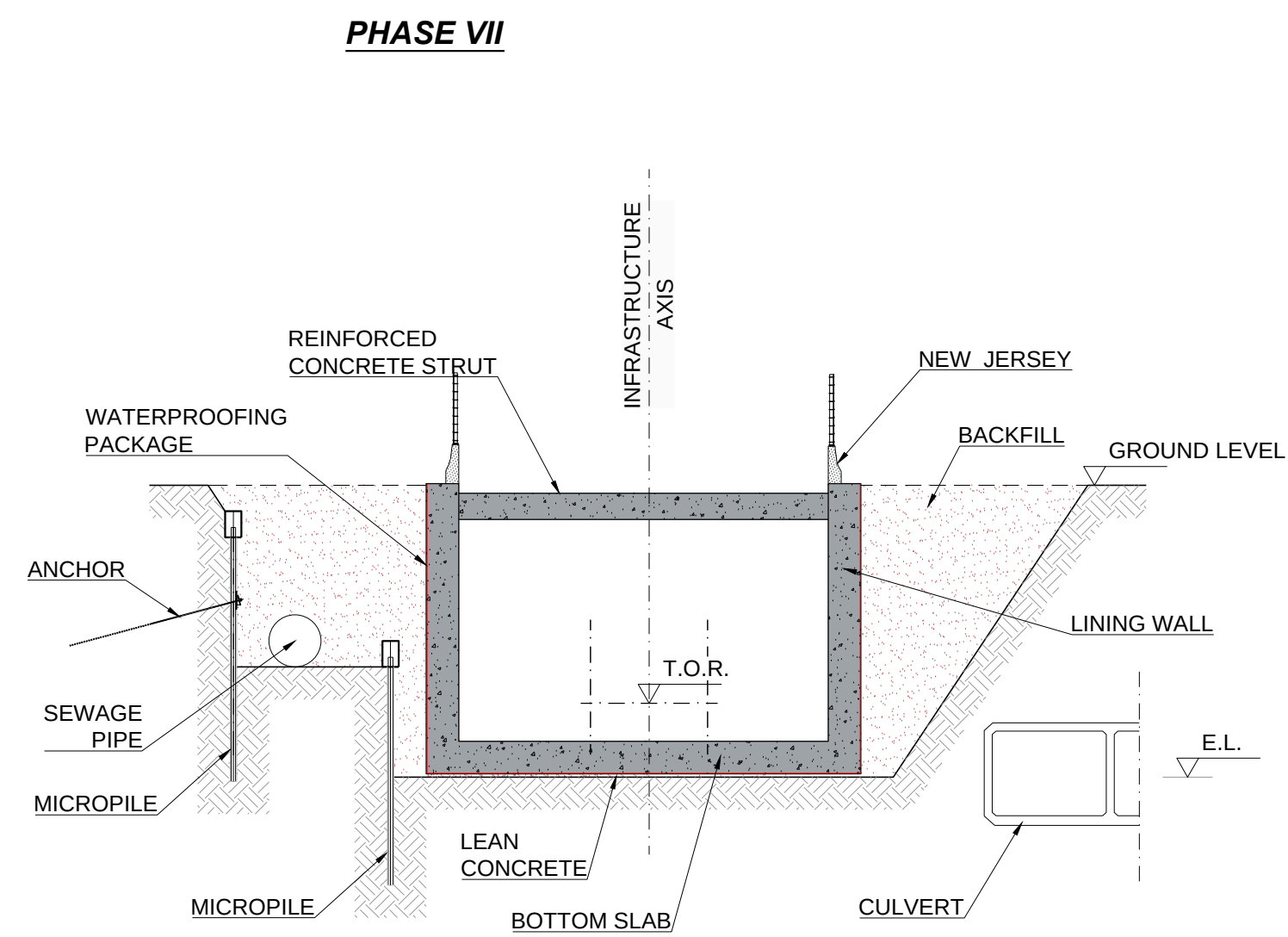
**PHASE V:**

- AT EXCAVATION LEVEL, PREPARATION OF THE SURFACE (LEAN CONCRETE)
- POSITIONING OF THE WATERPROOFING MEMBRANE ON THE EXTERNAL FACE OF BASE SLAB
- REINFORCING OF THE BASE SLAB, INCLUDING THE STARTER BARS OF THE LINING WALLS AND POURING OF THE BASE SLAB



**PHASE VI:**

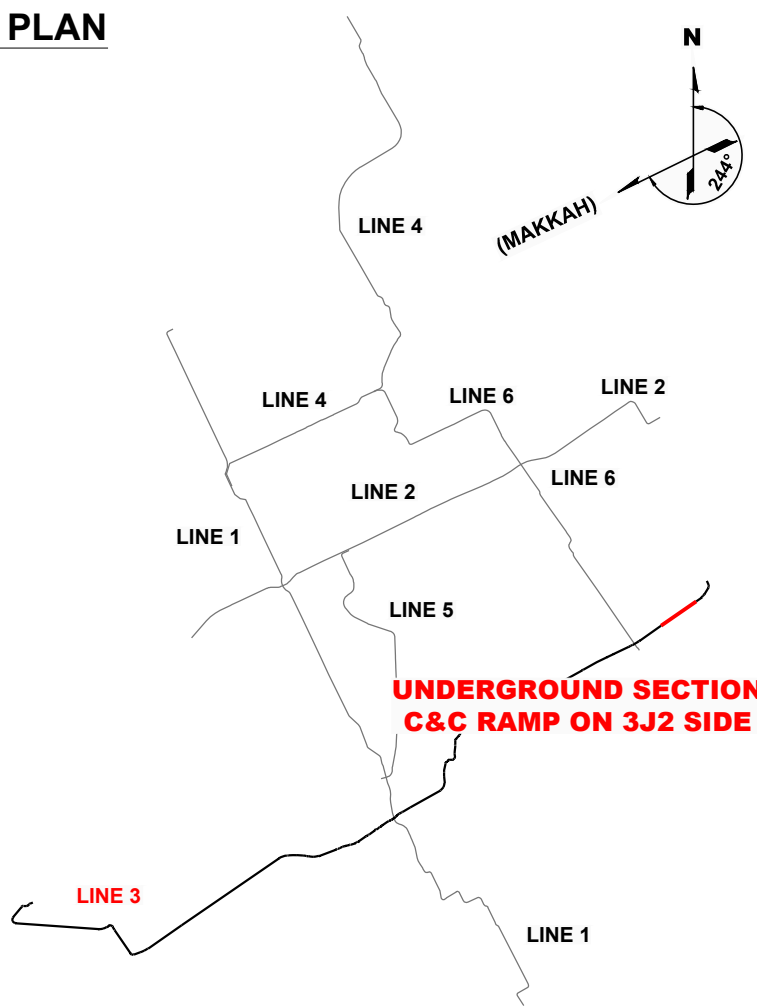
- ERECTION OF THE LINING WALLS UNTIL TOP LEVEL INCLUDING THE EXECUTION OF THE PERMANENT REINFORCED CONCRETE STRUTS
- POSITIONING OF THE WATERPROOFING MEMBRANE



**PHASE VII:**

- COMPLETION OF THE STRUCTURE
- BACKFILLING

KEY PLAN



LEGEND

T.O.R. TOP OF RAIL  
E.L. EXCAVATION LEVEL

NOTES:

- DIMENSIONS IN METERS
- NO CONSTRUCTION LOADS ARE ALLOWED ON THE GROUND LEVEL AT ANY TIME

| REV. | DATE       | DESCRIPTION                               | APP.   |
|------|------------|-------------------------------------------|--------|
| P1   | 01.04.2016 | INTRA AND INTER-DISCIPLINARY CHECKS (IDC) | R.R.L. |

PROJECT

**RIYADH METRO PROJECT**

**PACKAGE 2**

**LINE 3**



|            |            |                        |                  |
|------------|------------|------------------------|------------------|
| ORIGINATOR | CHECK      | REVIEW                 | APPROVAL         |
| M.G.N.     | P.P.M.     | R.R.L.                 |                  |
| DATE       | APRIL 2016 | SCALES                 | ORIGINAL SIZE A1 |
|            |            | A1= 1/200<br>A3= 1/400 |                  |
|            |            | 0 5 10m                |                  |

DRAWING

**UNDERGROUND SECTION**

**90% DETAILED DESIGN**

**CUT AND COVER RAMP ON 3J2 SIDE**

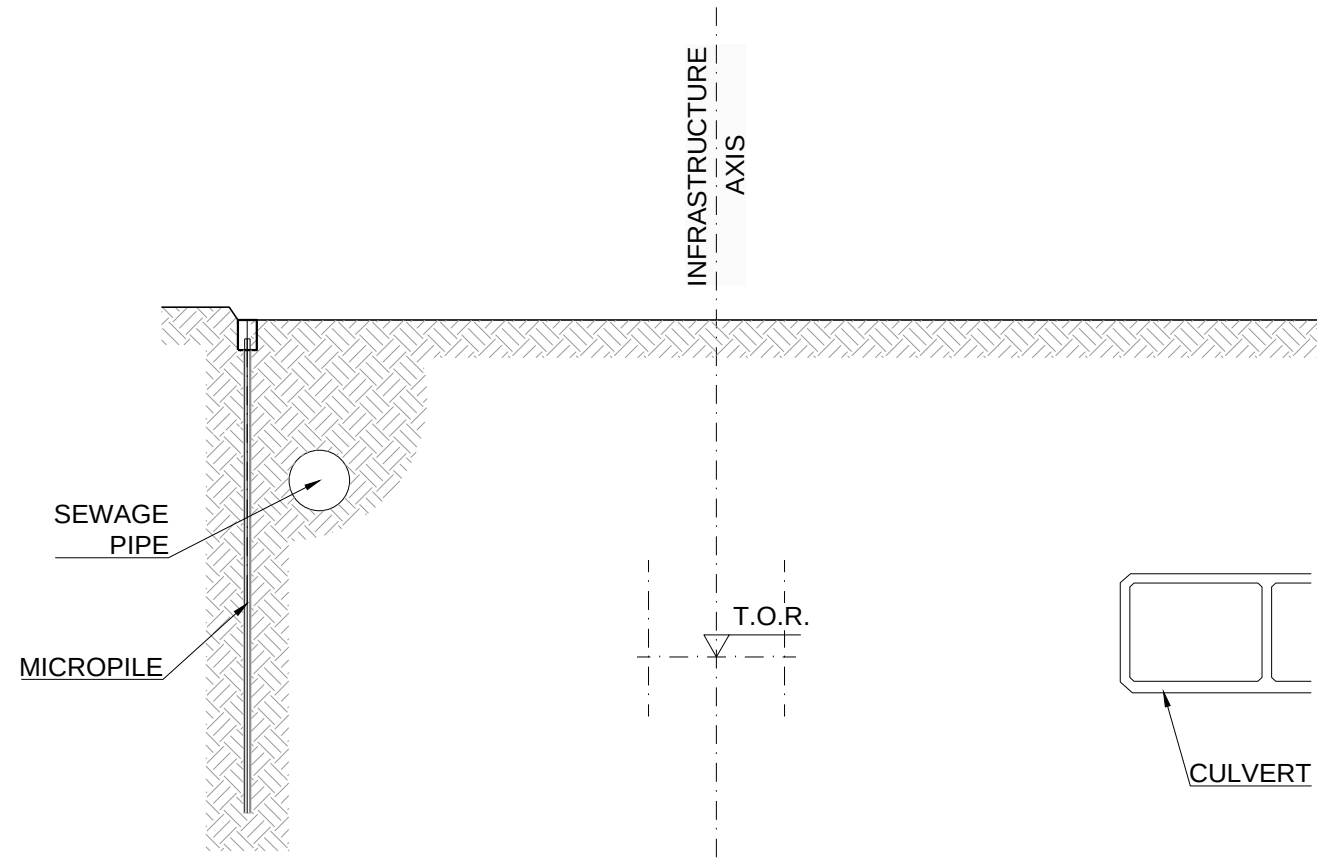
**CONSTRUCTION PROCESS OUTLINES**

|                              |          |         |
|------------------------------|----------|---------|
| ANM DRAWING NUMBER           | REVISION | SHEET   |
| M-ANM-3J1TU2-CTCC-EDR-200011 | P1       | 4 of 10 |
| ALTERNATE DOCUMENT NUMBER    | REVISION | SHEET   |
| M-ANM-3J1TU2-CTCC-EDR-200011 | P1       | 4 of 10 |



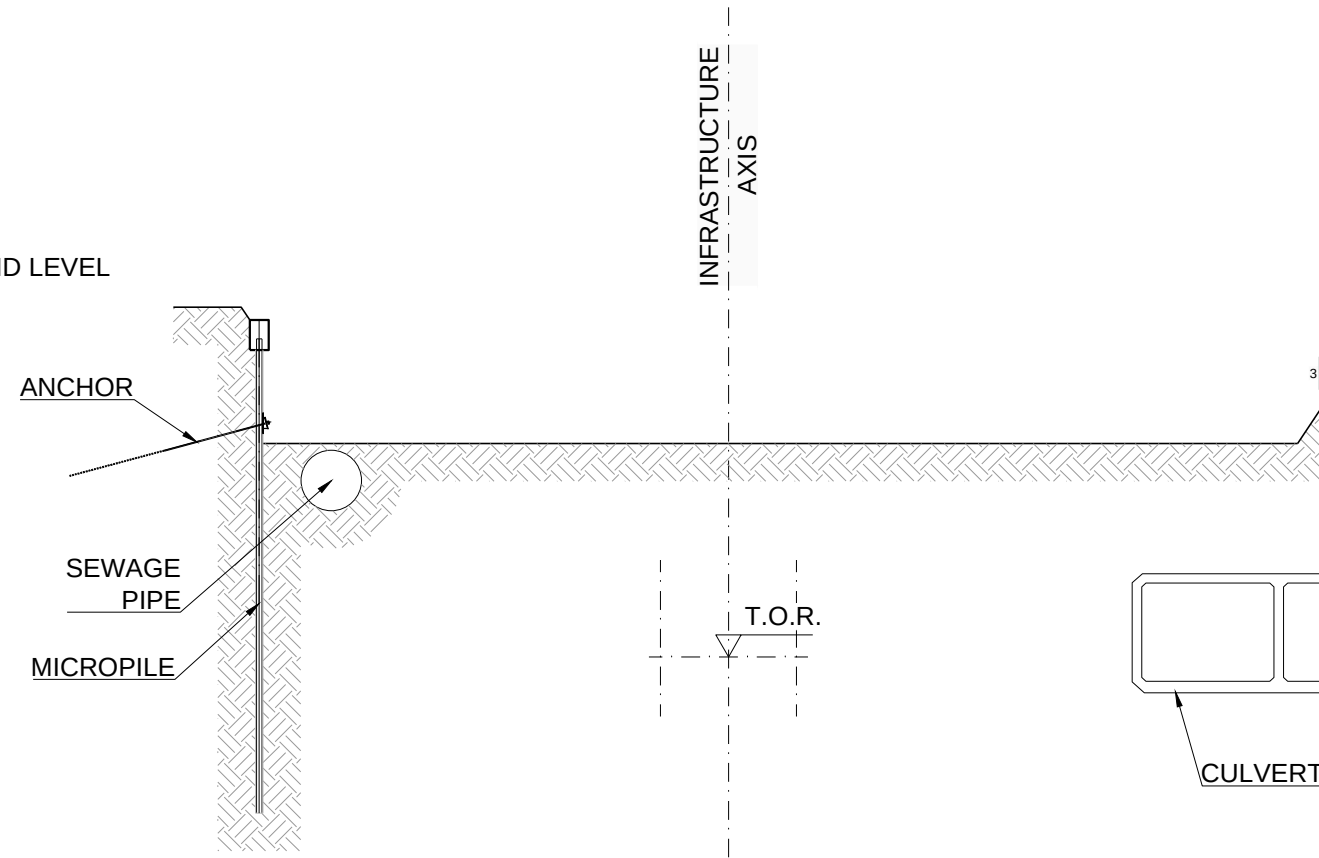
SEGMENTS 9+11 & 25+26

PHASE I



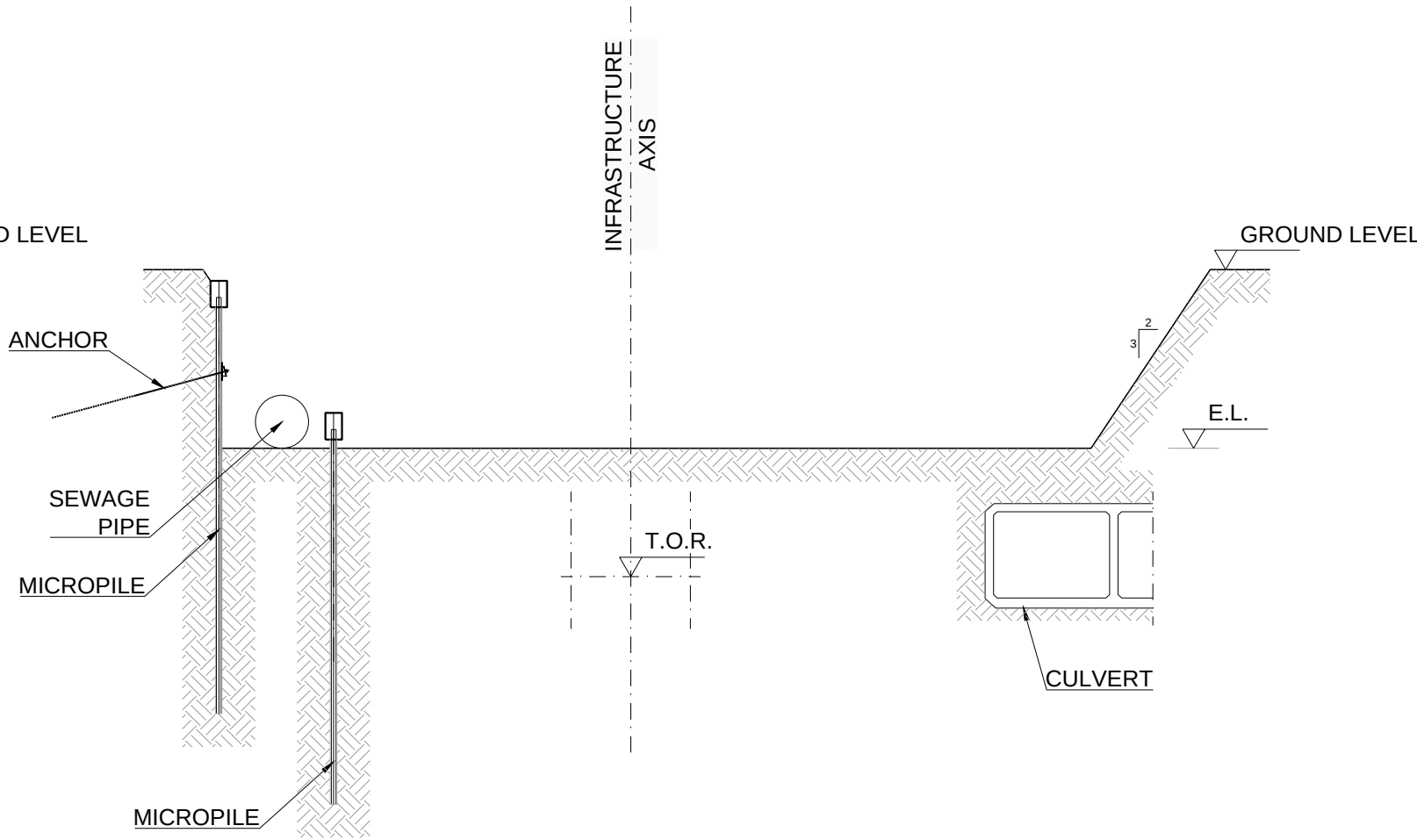
- PHASE I:**
- PREPARATION OF TRAFFIC MANAGEMENT AND WORKSITE AREA
  - PREPARATION OF THE WORKING LEVEL AT THE FORESEEN ELEVATION
  - CONSTRUCTION OF THE FIRST MICROPILE WALL

PHASE II



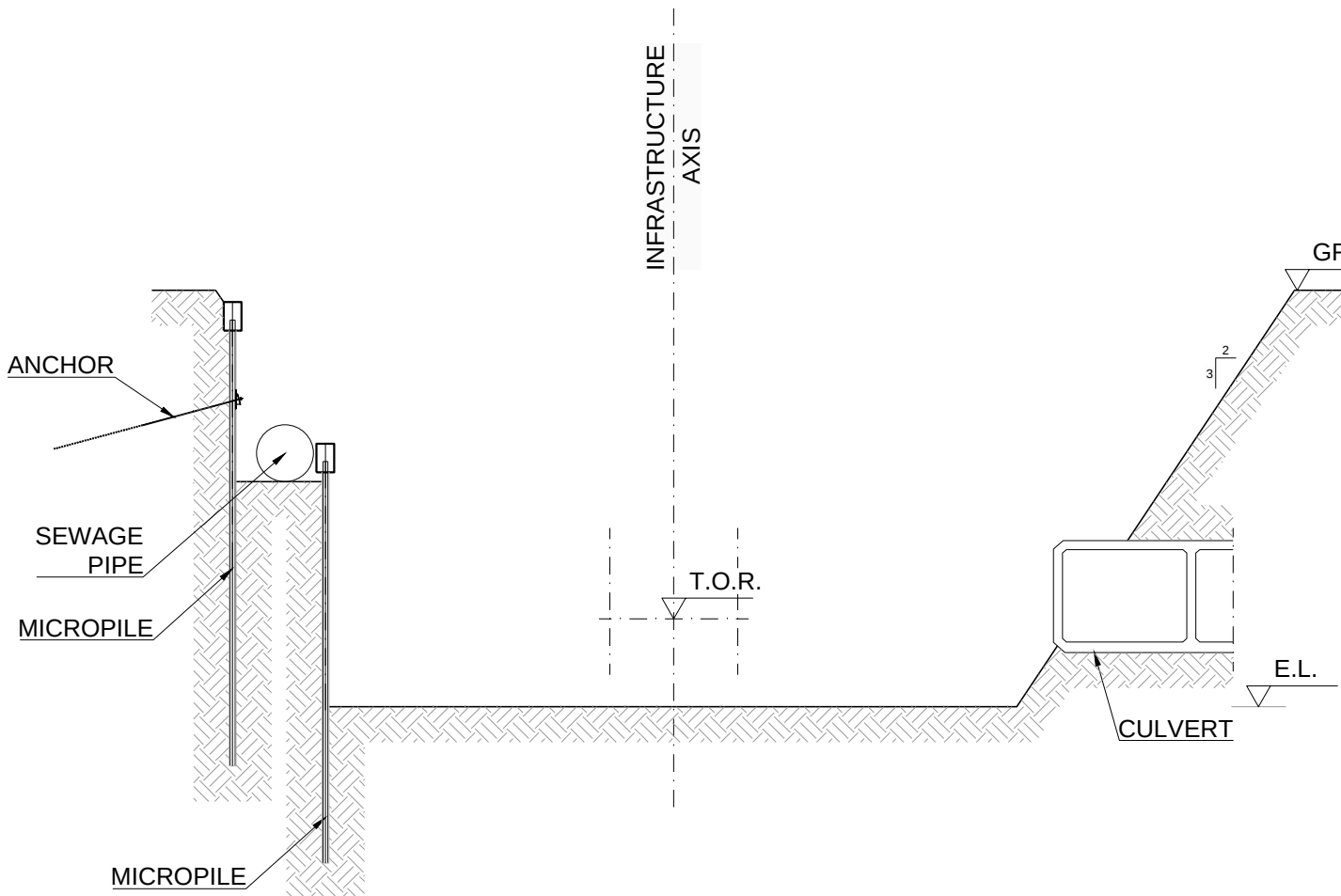
- PHASE II:**
- EXCAVATION TO REACH THE DEPTH CORRESPONDING TO 50CM UNDER THE FIRST ORDER OF ANCHORS
  - INSTALLATION OF THE FIRST ORDER OF ANCHORS

PHASE III



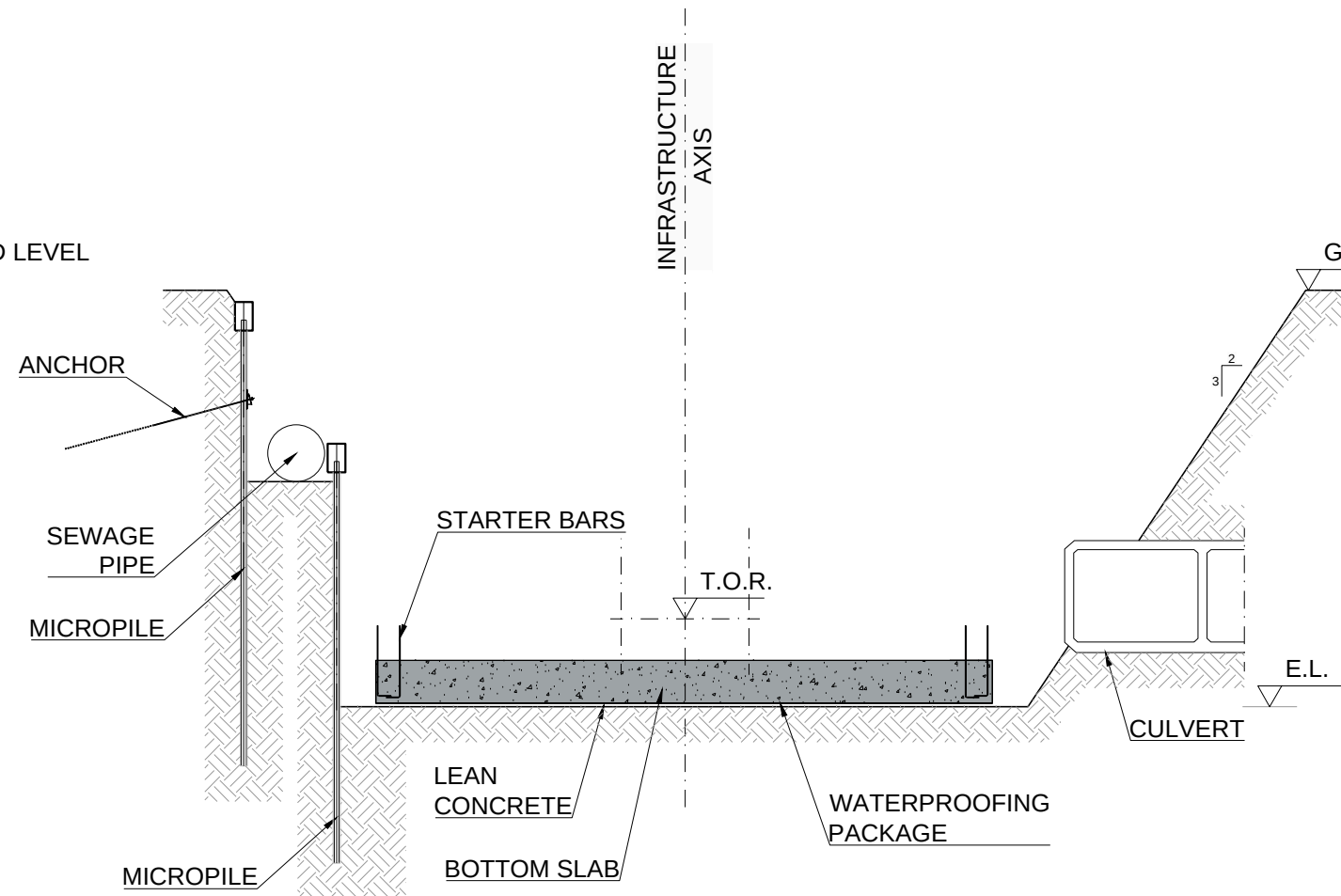
- PHASE III:**
- EXCAVATION TO UNDERSIDE THE BOTTOM OF THE EXISTING SEWAGE PIPE
  - CONSTRUCTION OF THE SECOND MICROPILE WALL (NEAREST RETAINING WALL)

PHASE IV



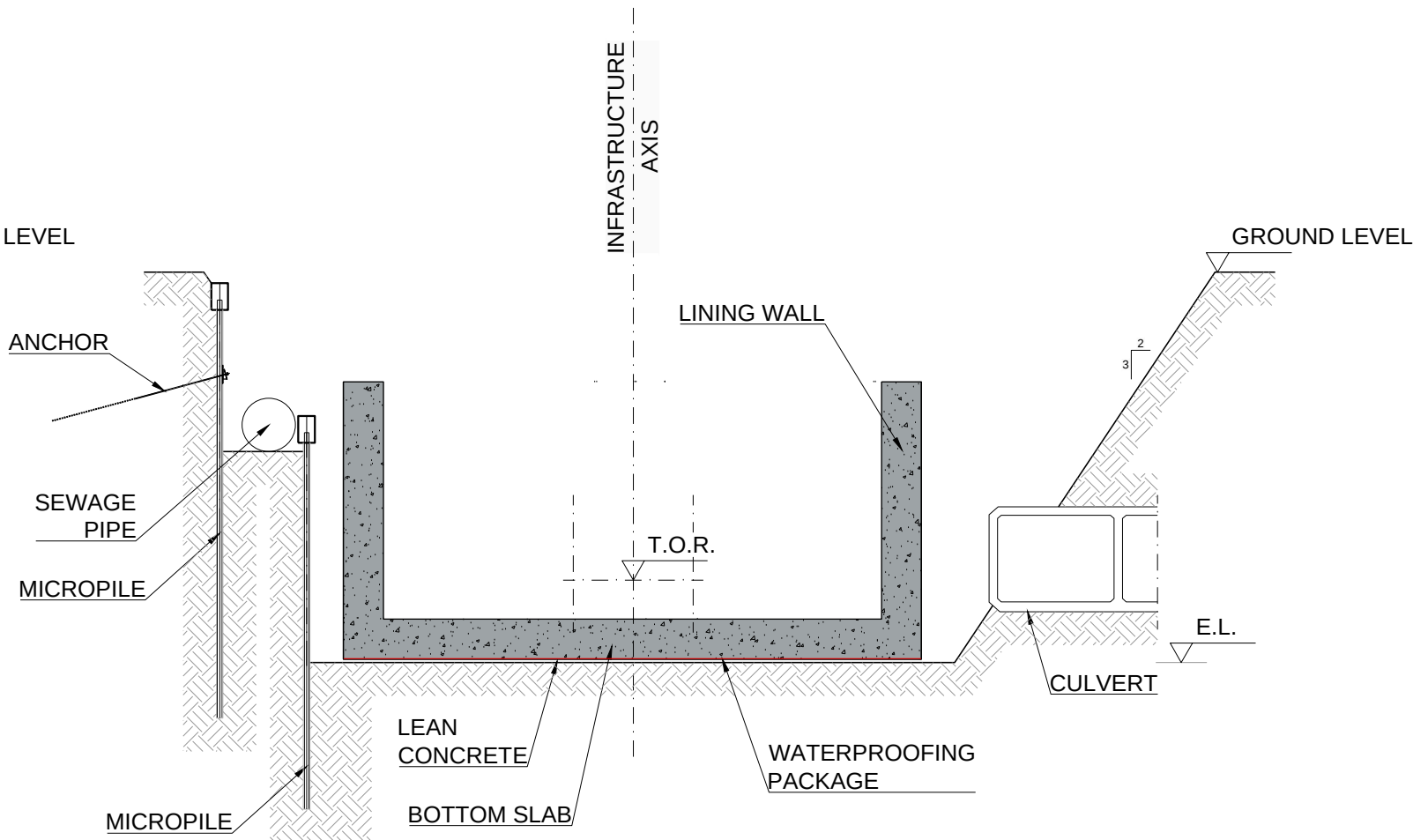
- PHASE IV:**
- EXCAVATION TO UNDERSIDE THE BOTTOM OF THE BASE SLAB

PHASE V



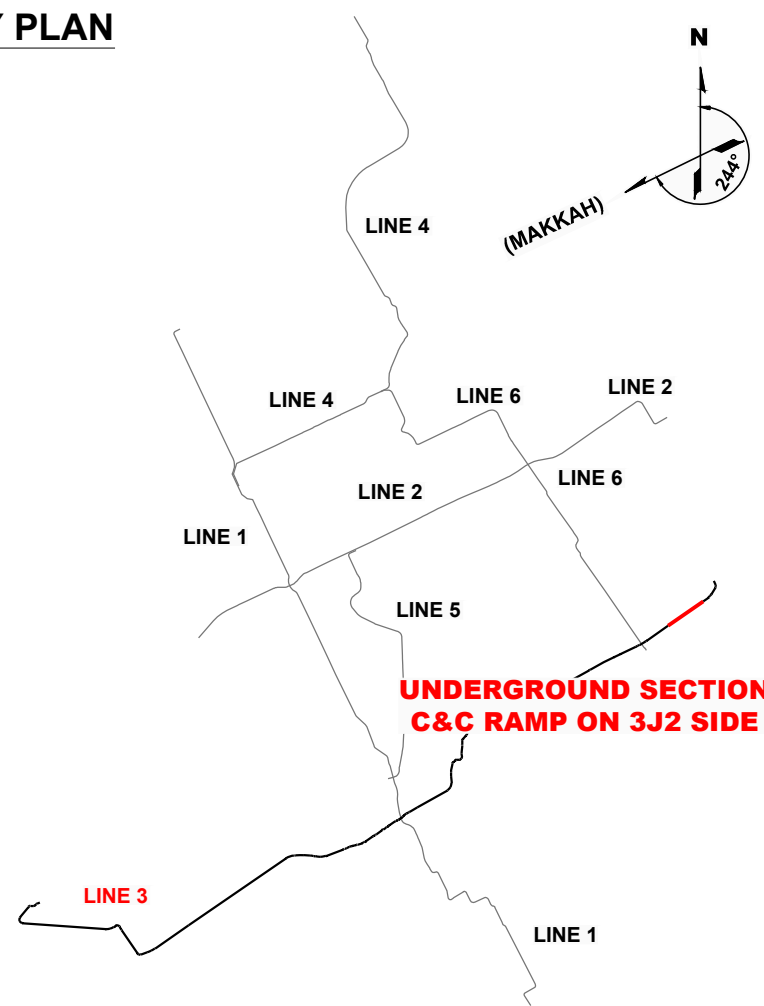
- PHASE V:**
- AT EXCAVATION LEVEL, PREPARATION OF THE SURFACE (LEAN CONCRETE)
  - POSITIONING OF THE WATERPROOFING MEMBRANE ON THE EXTERNAL FACE OF BASE SLAB
  - REINFORCING OF THE BASE SLAB, INCLUDING THE STARTER BARS OF THE LINING WALLS AND POURING OF THE BASE SLAB

PHASE VI



- PHASE VI:**
- ERECTION OF THE LINING WALLS

KEY PLAN



LEGEND

- T.O.R. TOP OF RAIL  
E.L. EXCAVATION LEVEL

NOTES:

- DIMENSIONS IN METERS
- NO CONSTRUCTION LOADS ARE ALLOWED ON THE GROUND LEVEL AT ANY TIME

| REV. | DATE       | DESCRIPTION                               | APP.   |
|------|------------|-------------------------------------------|--------|
| P1   | 01.04.2016 | INTRA AND INTER-DISCIPLINARY CHECKS (IDC) | R.R.L. |

PROJECT

RIYADH METRO PROJECT  
PACKAGE 2  
LINE 3



| ORIGINATOR | CHECK      | REVIEW                 | APPROVAL         |
|------------|------------|------------------------|------------------|
| M.G.N.     | P.P.M.     | R.R.L.                 |                  |
| DATE       | APRIL 2016 | SCALES                 | ORIGINAL SIZE A1 |
|            |            | A1= 1/200<br>A3= 1/400 |                  |
|            |            | 0 5 10m                |                  |

DRAWING

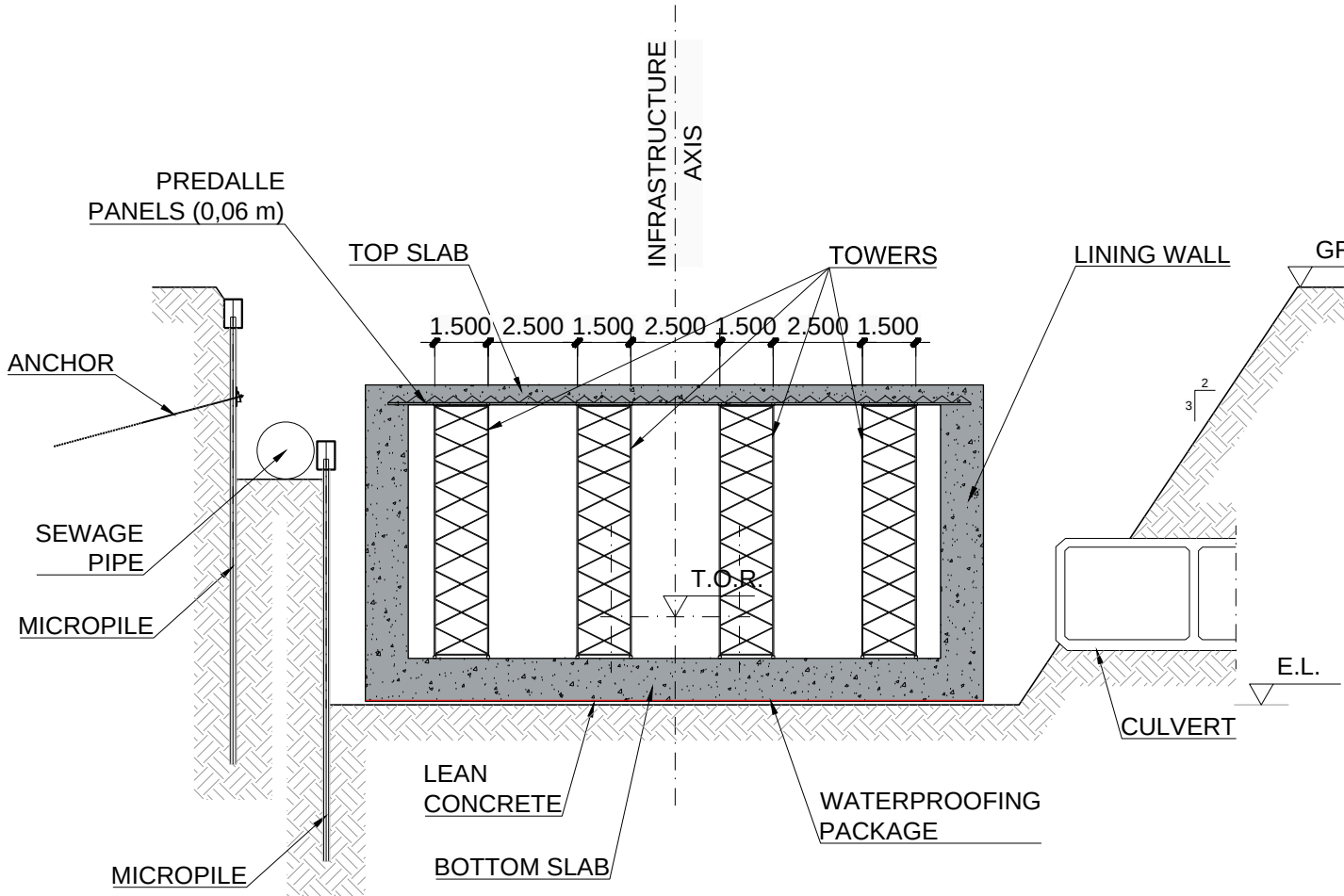
UNDERGROUND SECTION  
90% DETAILED DESIGN  
CUT AND COVER RAMP ON 3J2 SIDE  
CONSTRUCTION PROCESS OUTLINES

| ANM DRAWING NUMBER           | REVISION | SHEET   |
|------------------------------|----------|---------|
| M-ANM-3J1TU2-CTCC-EDR-200011 | P1       | 5 of 10 |
| ALTERNATE DOCUMENT NUMBER    | REVISION | SHEET   |
| M-ANM-3J1TU2-CTCC-EDR-200011 | P1       | 5 of 10 |



SEGMENTS 9+11 & 25+26

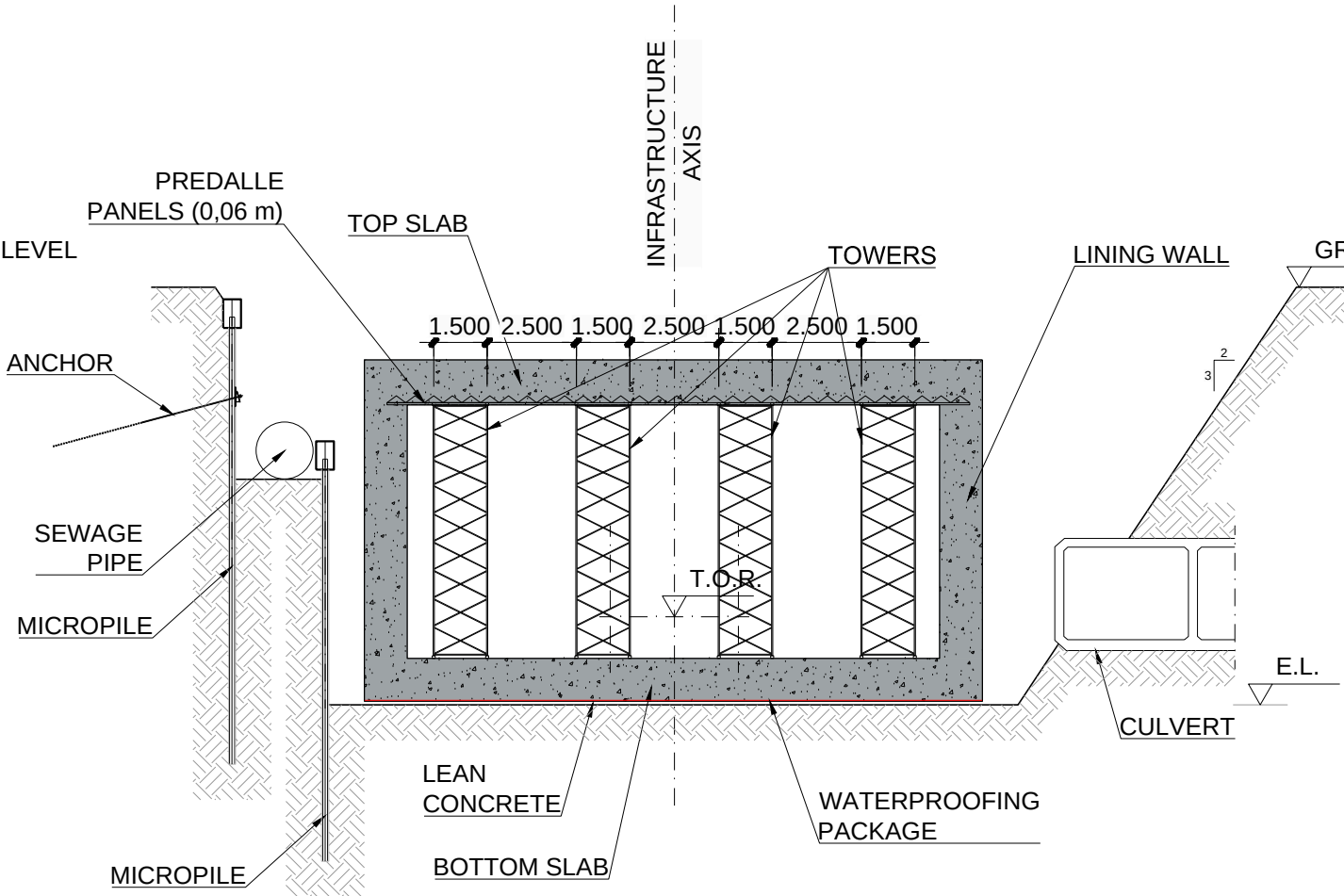
PHASE VII



**PHASE VII:**

- INSTALLATION OF SHORING TOWERS
- PREDALLE PRECAST SLAB PLACING SUPPORTED ON SHORING TOWERS; PREDALLE PANELS SHOULD BE HANGED WITH INTERMEDIATE AND EXTREME SUPPORTS LOCATED AS IN THE DEFINITIVE SITUATION
- FIRST 0.50 m CONCRETING OF CAST-IN-PLACE TOP SLAB

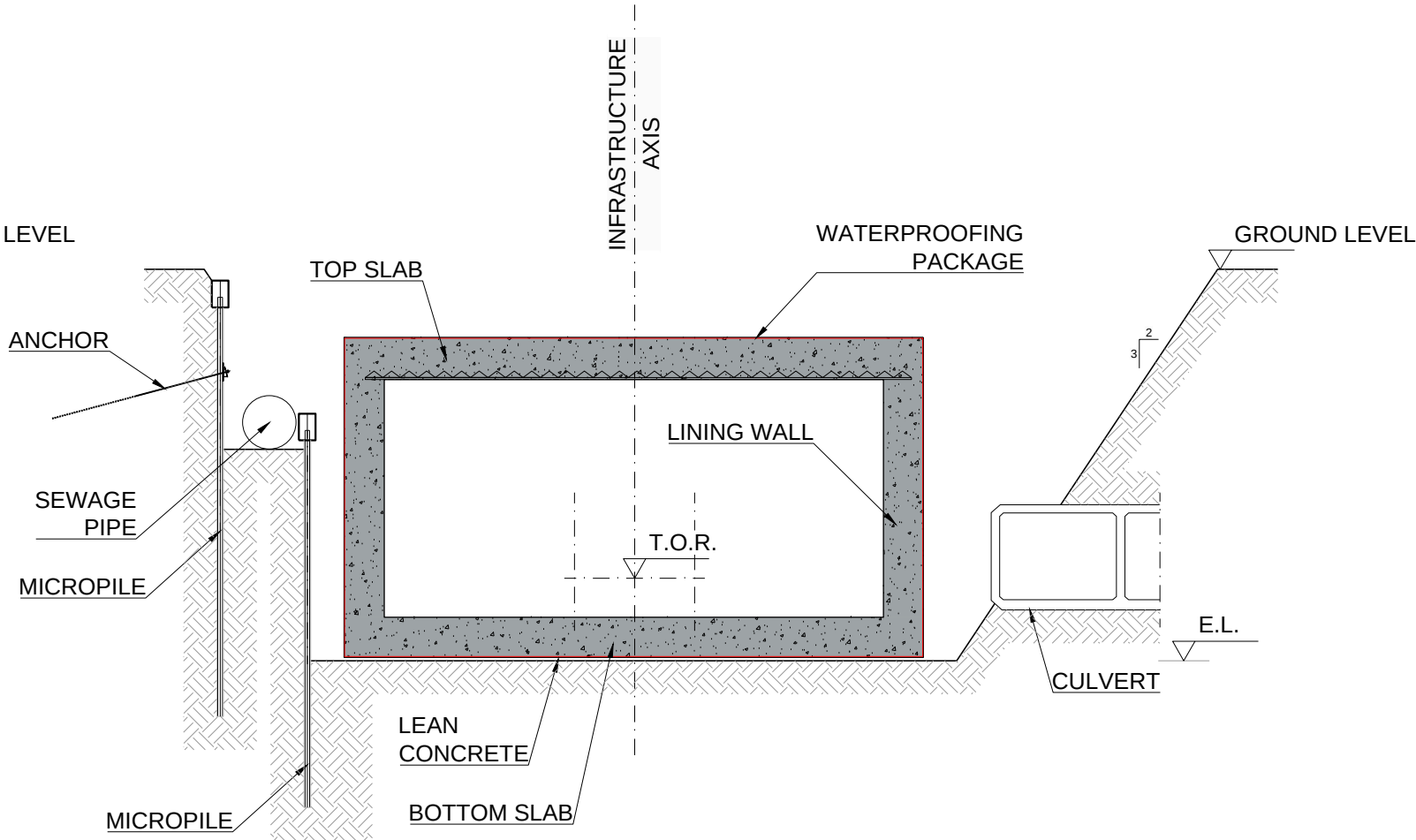
PHASE VIII



**PHASE VIII:**

- AFTER HARDENING FIRST 0.50 m OF CONCRETE SLAB, CONCRETING UP TO TOTAL TOP SLAB DEPTH

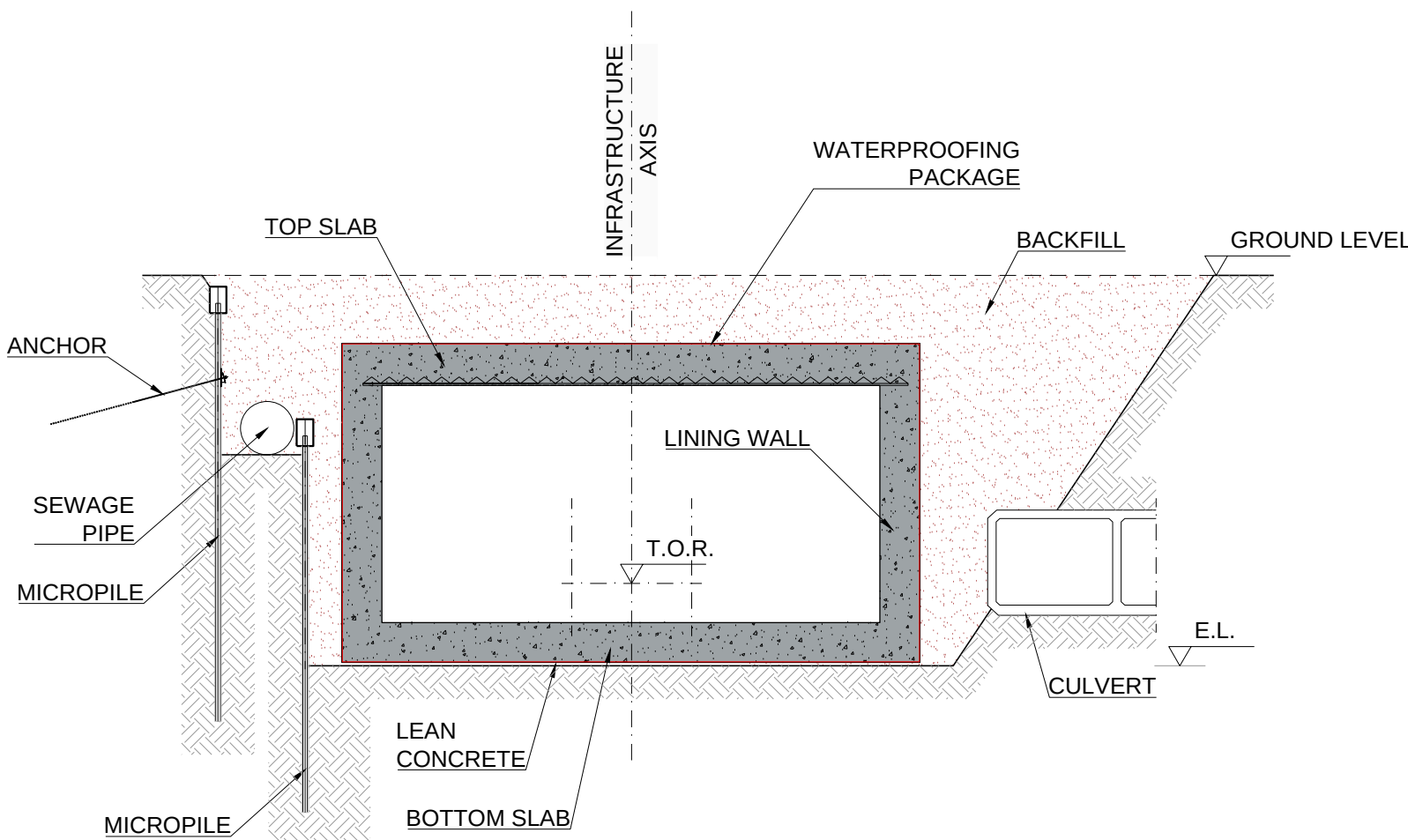
PHASE IX



**PHASE IX:**

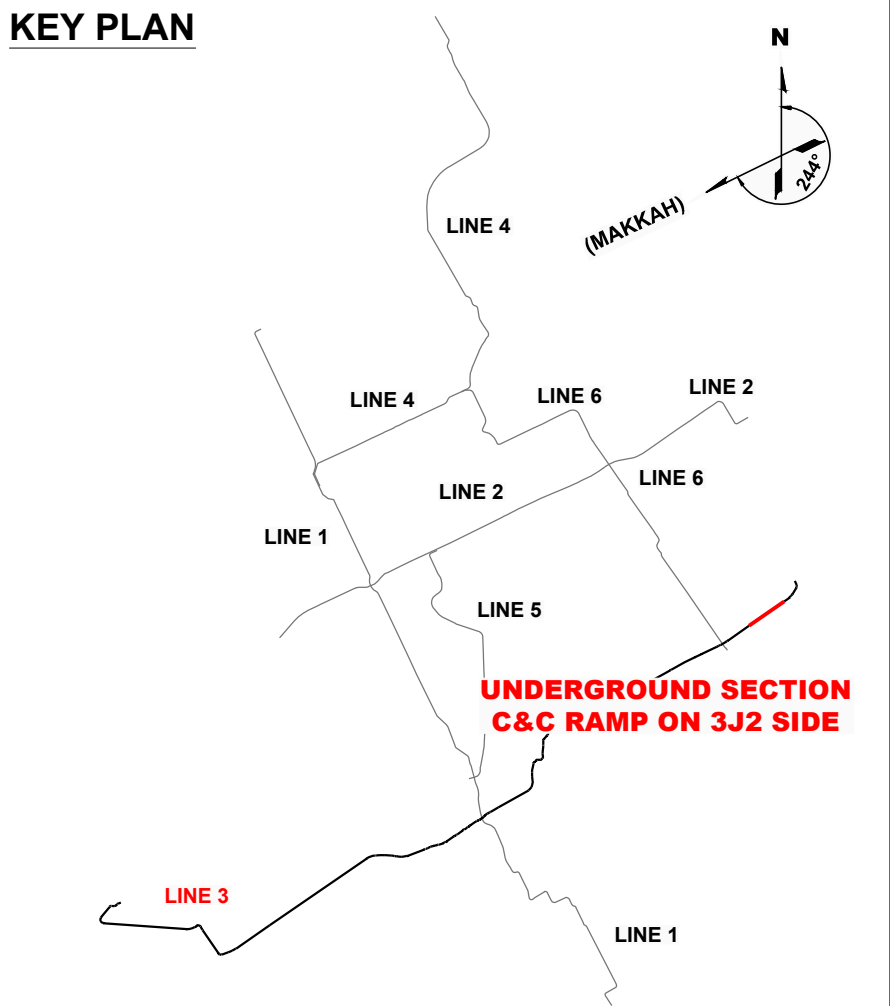
- REMOVAL OF PROPPING SYSTEM AFTER HARDENING OF TOP SLAB
- POSITIONING OF THE WATERPROOFING MEMBRANE ON THE EXTERNAL SIDE OF THE TOP SLAB AND LINING WALLS

PHASE X



**PHASE X:**

- BACKFILLING



| LEGEND |                  |
|--------|------------------|
| T.O.R. | TOP OF RAIL      |
| E.L.   | EXCAVATION LEVEL |

- NOTES:**
- DIMENSIONS IN METERS
  - NO CONSTRUCTION LOADS ARE ALLOWED ON THE GROUND LEVEL AT ANY TIME

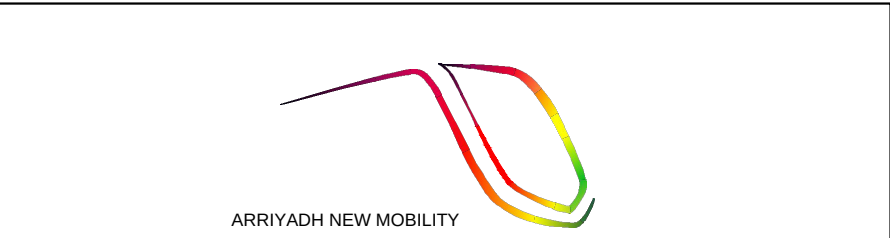
| REV. | DATE       | DESCRIPTION                               | APP.   |
|------|------------|-------------------------------------------|--------|
| P1   | 01.04.2016 | INTRA AND INTER-DISCIPLINARY CHECKS (IDC) | R.R.L. |

PROJECT

**RIYADH METRO PROJECT**

**PACKAGE 2**

**LINE 3**



|            |            |                  |          |
|------------|------------|------------------|----------|
| ORIGINATOR | CHECK      | REVIEW           | APPROVAL |
| M.G.N.     | P.P.M.     | R.R.L.           |          |
| DATE       | APRIL 2016 |                  |          |
| SCALES     |            | ORIGINAL SIZE A1 |          |
| A1= 1/200  |            |                  |          |
| A3= 1/400  |            |                  |          |
| 0          |            | 5 10m            |          |

DRAWING

**UNDERGROUND SECTION**

**90% DETAILED DESIGN**

**CUT AND COVER RAMP ON 3J2 SIDE**

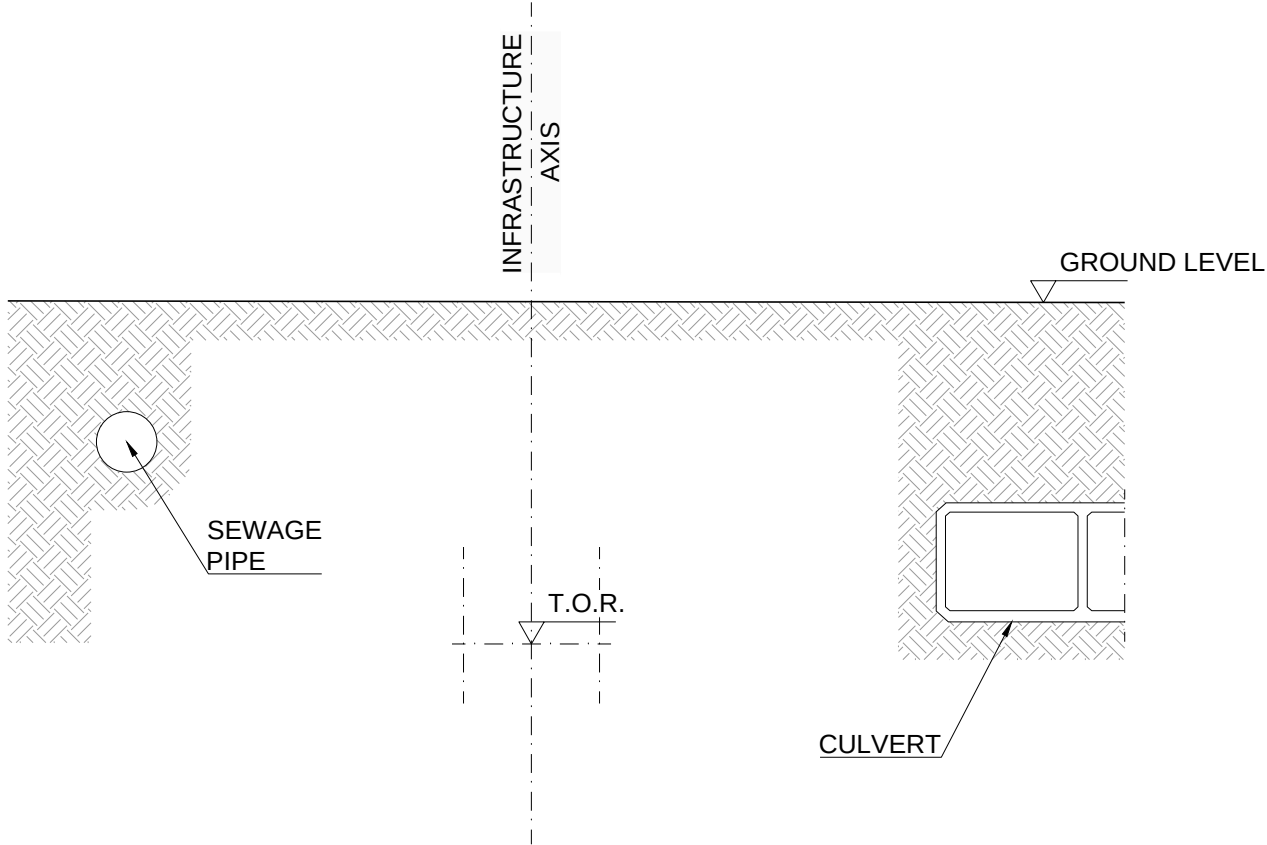
**CONSTRUCTION PROCESS OUTLINES**

|                              |          |         |
|------------------------------|----------|---------|
| ANM DRAWING NUMBER           | REVISION | SHEET   |
| M-ANM-3J1TU2-CTCC-EDR-200011 | P1       | 6 of 10 |
| ALTERNATE DOCUMENT NUMBER    | REVISION | SHEET   |
| M-ANM-3J1TU2-CTCC-EDR-200011 | P1       | 6 of 10 |



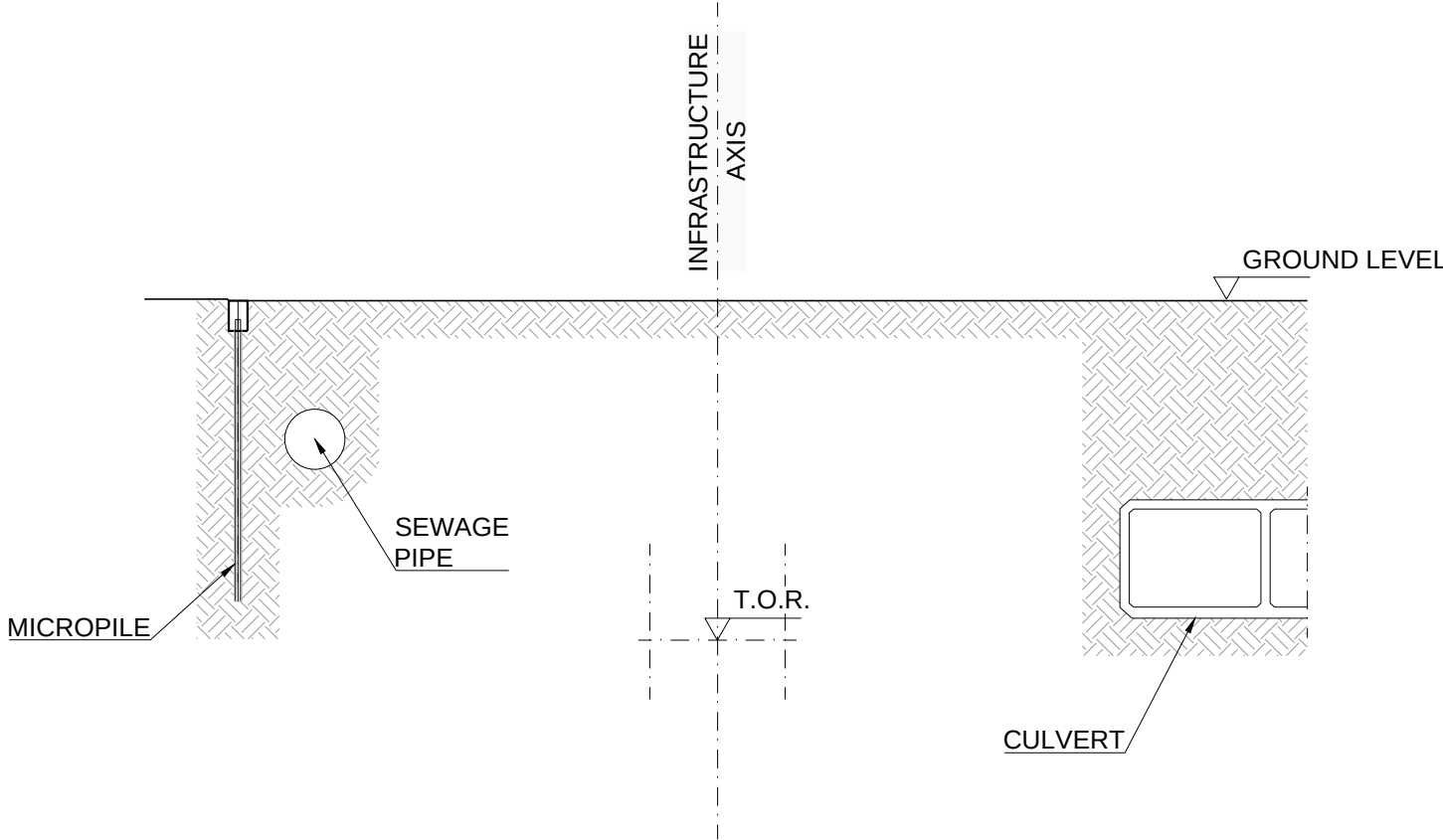
SEGMENTS 12÷18 & 19÷23

PHASE I



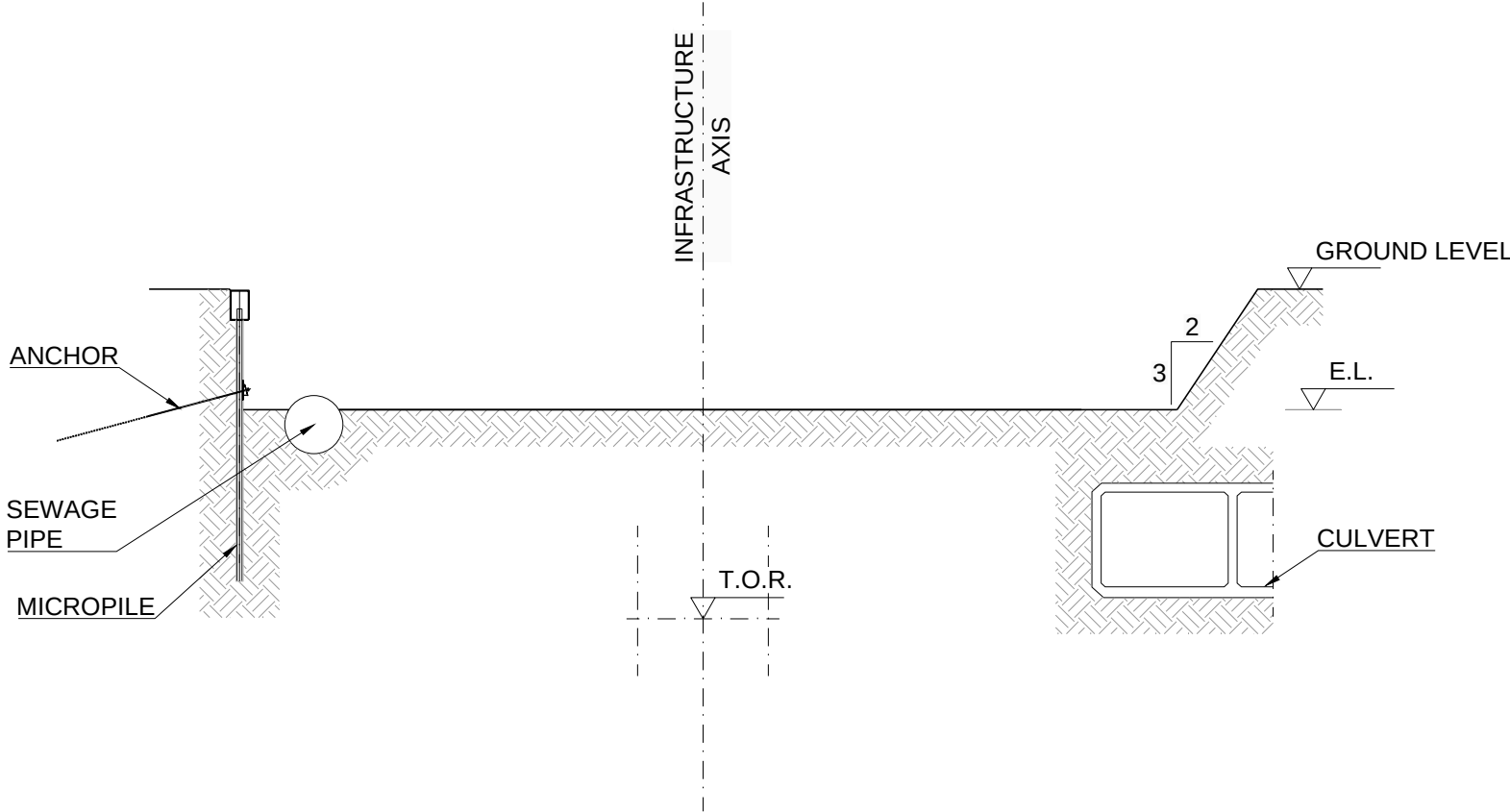
PHASE II:  
- PREPARATION OF TRAFFIC MANAGEMENT AND WORKSITE AREA  
- PREPARATION OF THE WORKING LEVEL AT THE FORESEEN ELEVATION

PHASE II



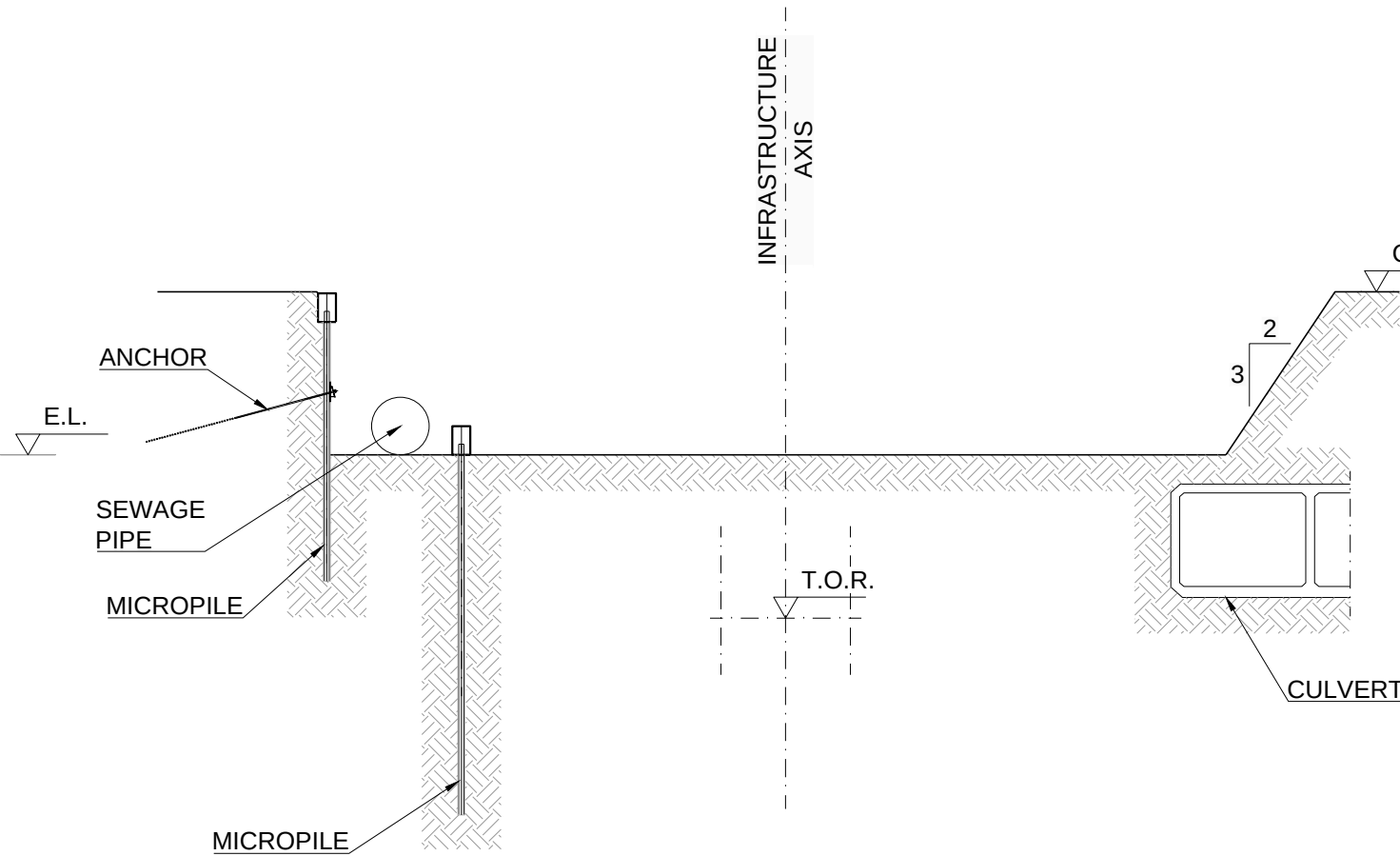
PHASE II:  
- CONSTRUCTION OF THE FIRST MICROPILS WALL

PHASE III



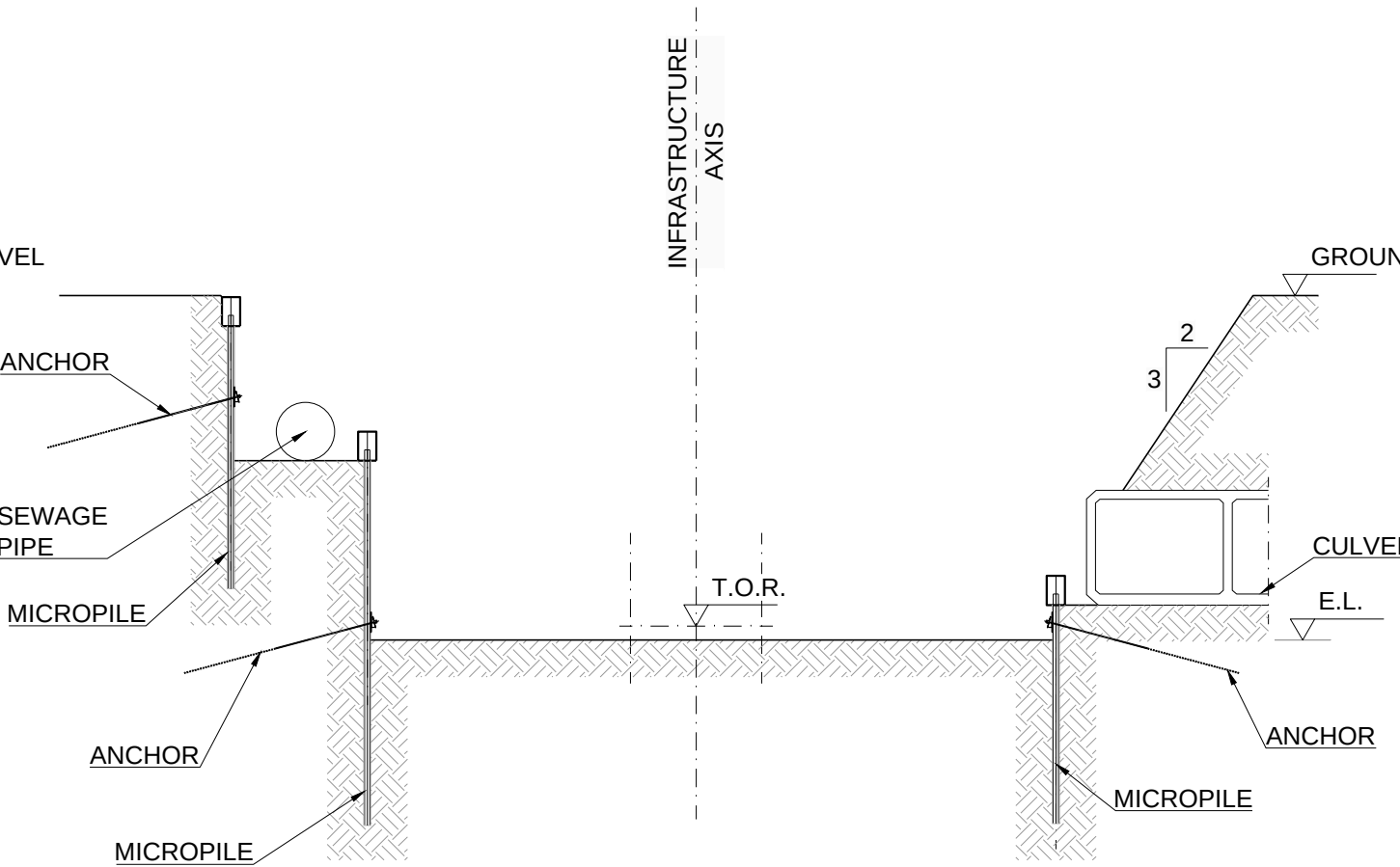
PHASE III:  
- EXCAVATION TO REACH THE DEPTH CORRESPONDING TO 50CM UNDER THE FIRST ORDER OF ANCHORS  
- INSTALLATION OF THE FIRST ORDER OF ANCHORS

PHASE IV



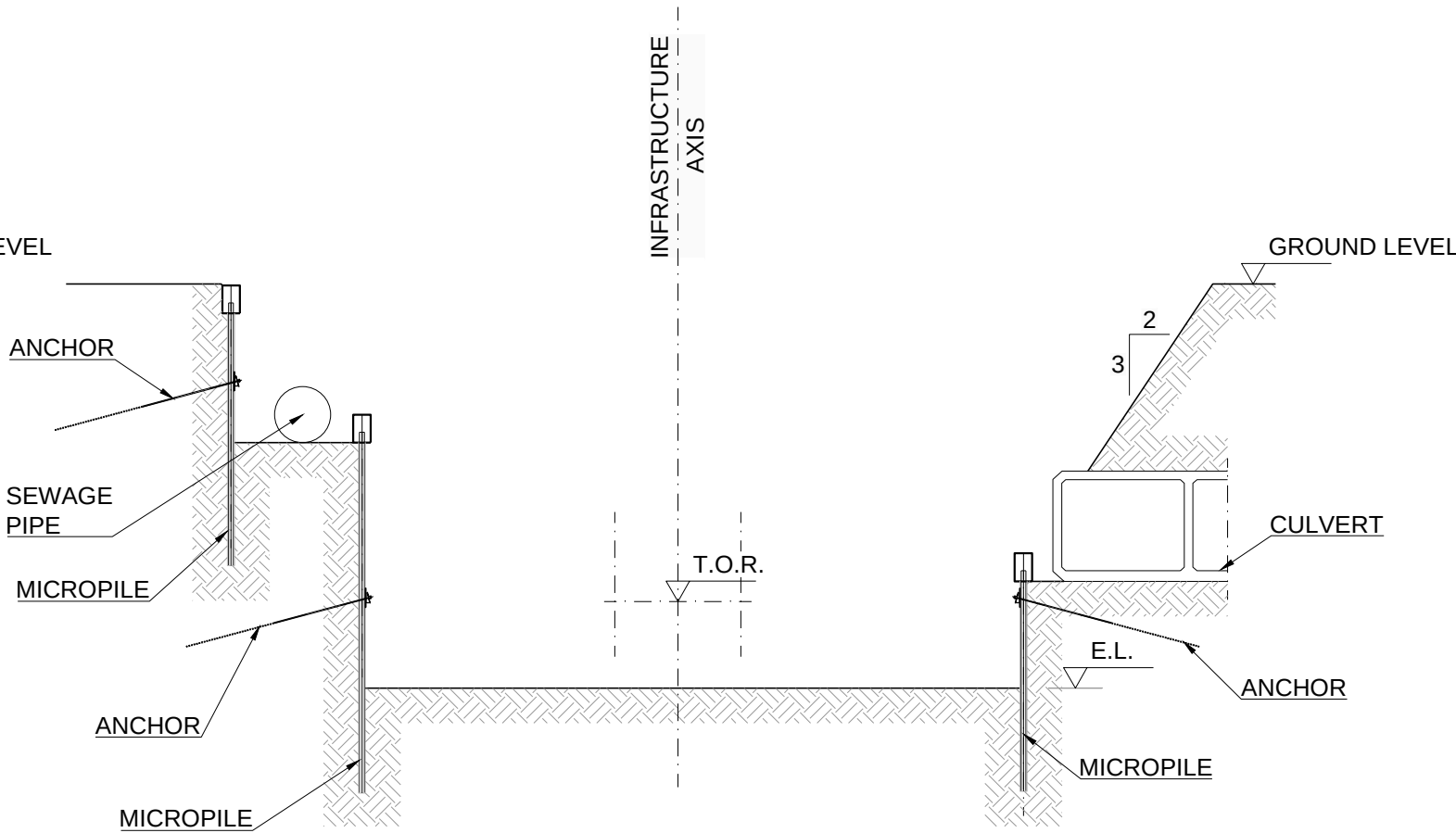
PHASE IV:  
- EXCAVATION TO UNDERSIDE THE BOTTOM OF THE EXISTING SEWAGE PIPE  
- CONSTRUCTION OF THE SECOND MICROPILE WALL (NEAREST MICROPILE WALL)

PHASE V



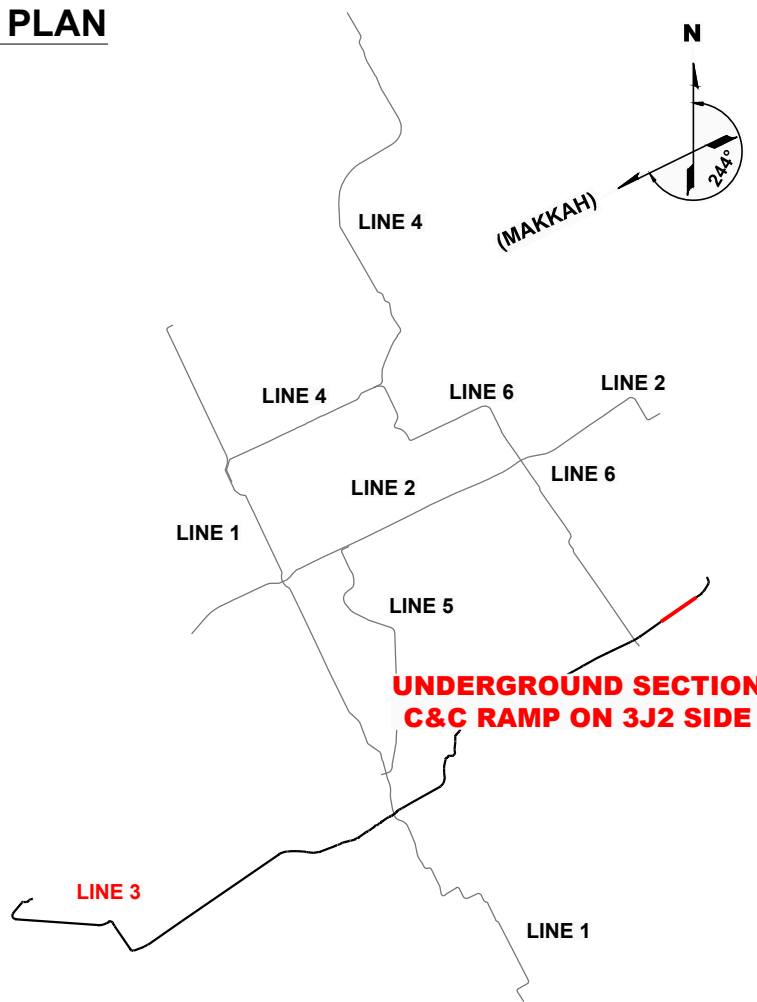
PHASE V:  
- EXCAVATION TO REACH THE DEPTH CORRESPONDING TO 50CM UNDER THE SECOND ORDER OF ANCHORS  
- CONSTRUCTION OF THE RIGHT SIDE MICROPILE WALL (CULVERT RETAINING WALL)  
- INSTALLATION OF THE SECOND ORDER OF ANCHORS

PHASE VI



PHASE VI:  
- EXCAVATION TO UNDERSIDE THE BOTTOM OF THE BASE SLAB

KEY PLAN



LEGEND

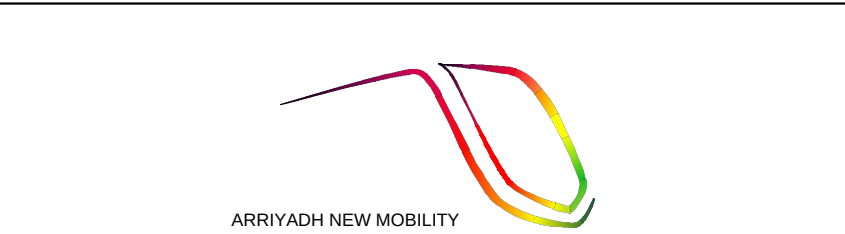
T.O.R. TOP OF RAIL  
E.L. EXCAVATION LEVEL

NOTES:

- DIMENSIONS IN METERS
- NO CONSTRUCTION LOADS ARE ALLOWED ON THE GROUND LEVEL AT ANY TIME

| REV. | DATE       | DESCRIPTION                               | APP.   |
|------|------------|-------------------------------------------|--------|
| P1   | 01.04.2016 | INTRA AND INTER-DISCIPLINARY CHECKS (IDC) | R.R.L. |

PROJECT  
**RIYADH METRO PROJECT**  
**PACKAGE 2**  
**LINE 3**



| ORIGINATOR | CHECK      | REVIEW                           | APPROVAL         |
|------------|------------|----------------------------------|------------------|
| M.G.N.     | P.P.M.     | R.R.L.                           |                  |
| DATE       | APRIL 2016 | SCALES<br>A1= 1/200<br>A3= 1/400 | ORIGINAL SIZE A1 |

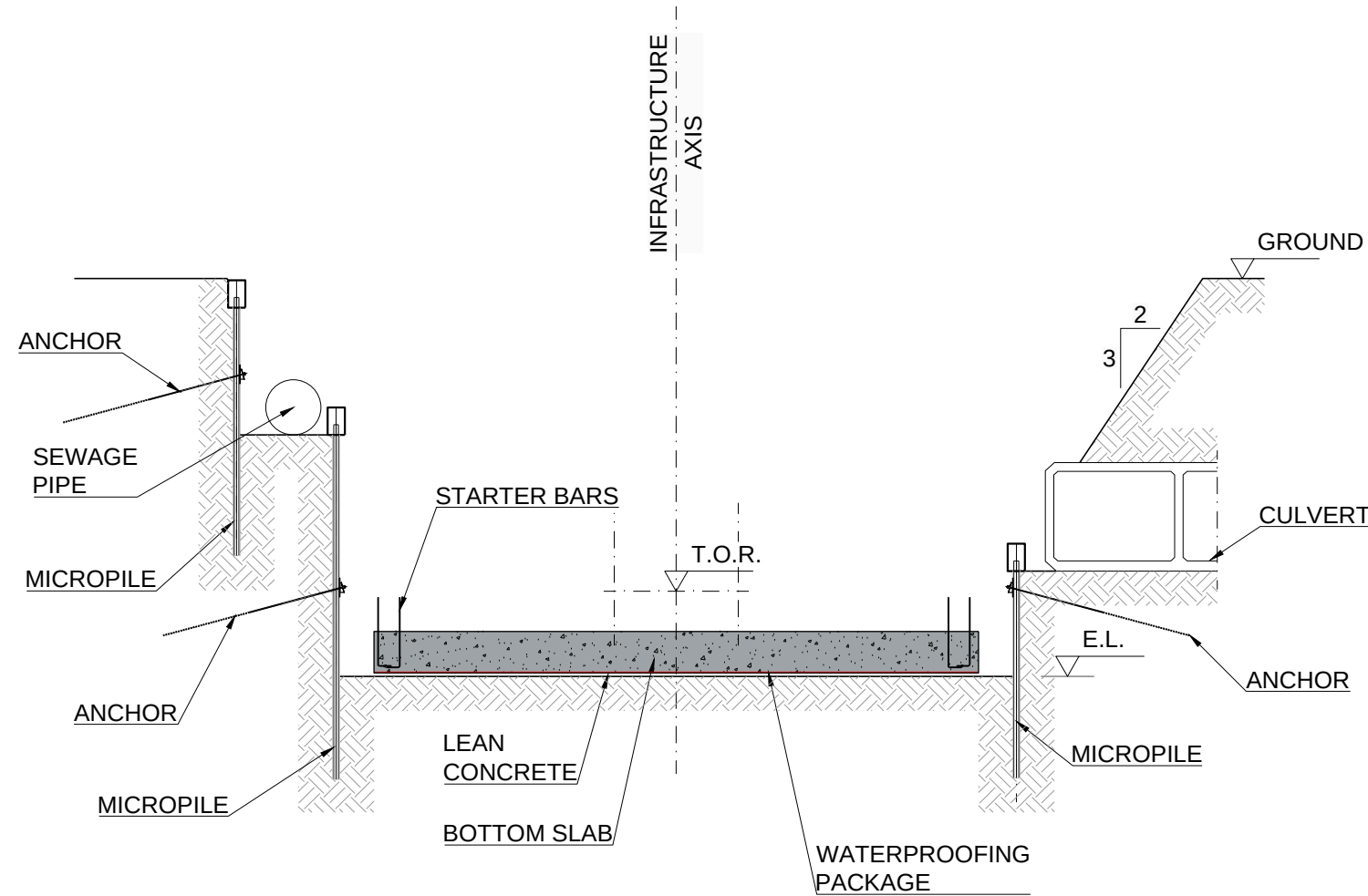
DRAWING  
**UNDERGROUND SECTION**  
**90% DETAILED DESIGN**  
**CUT AND COVER RAMP ON 3J2 SIDE**  
**CONSTRUCTION PROCESS OUTLINES**

| ANM DRAWING NUMBER           | REVISION | SHEET   |
|------------------------------|----------|---------|
| M-ANM-3J1TU2-CTCC-EDR-200011 | P1       | 7 of 10 |
| ALTERNATE DOCUMENT NUMBER    | REVISION | SHEET   |
| M-ANM-3J1TU2-CTCC-EDR-200011 | P1       | 7 of 10 |



SEGMENTS 12÷18 & 19÷23

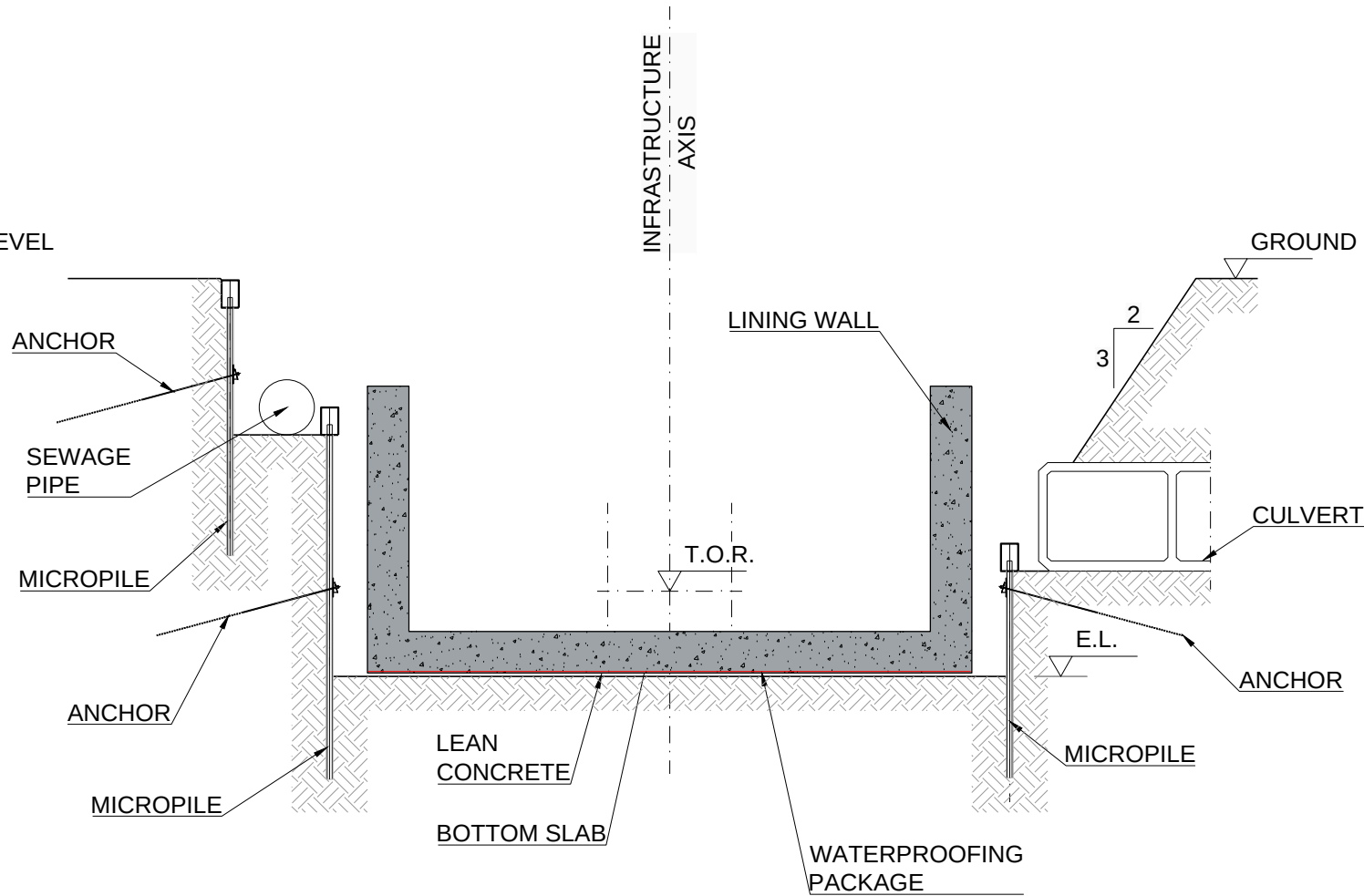
PHASE VII



**PHASE VII:**

- AT EXCAVATION LEVEL, PREPARATION OF THE SURFACE (LEAN CONCRETE)
- POSITIONING OF THE WATERPROOFING MEMBRANE ON THE EXTERNAL FACE OF BASE SLAB
- REINFORCING OF THE BASE SLAB, INCLUDING THE STARTER BARS OF THE LINING WALLS AND POURING OF THE BASE SLAB

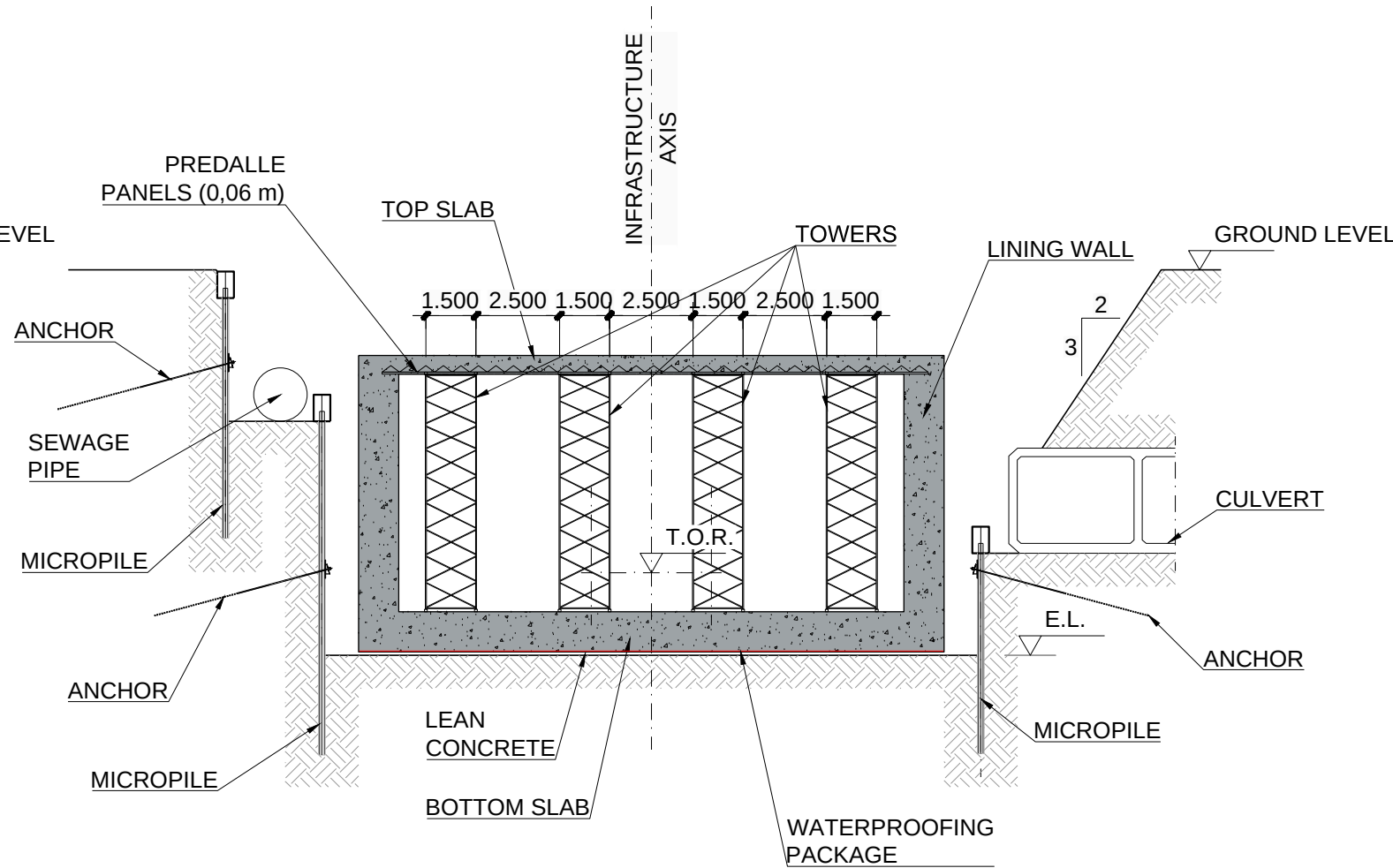
PHASE VIII



**PHASE VIII:**

- ERECTION OF THE LINING WALLS

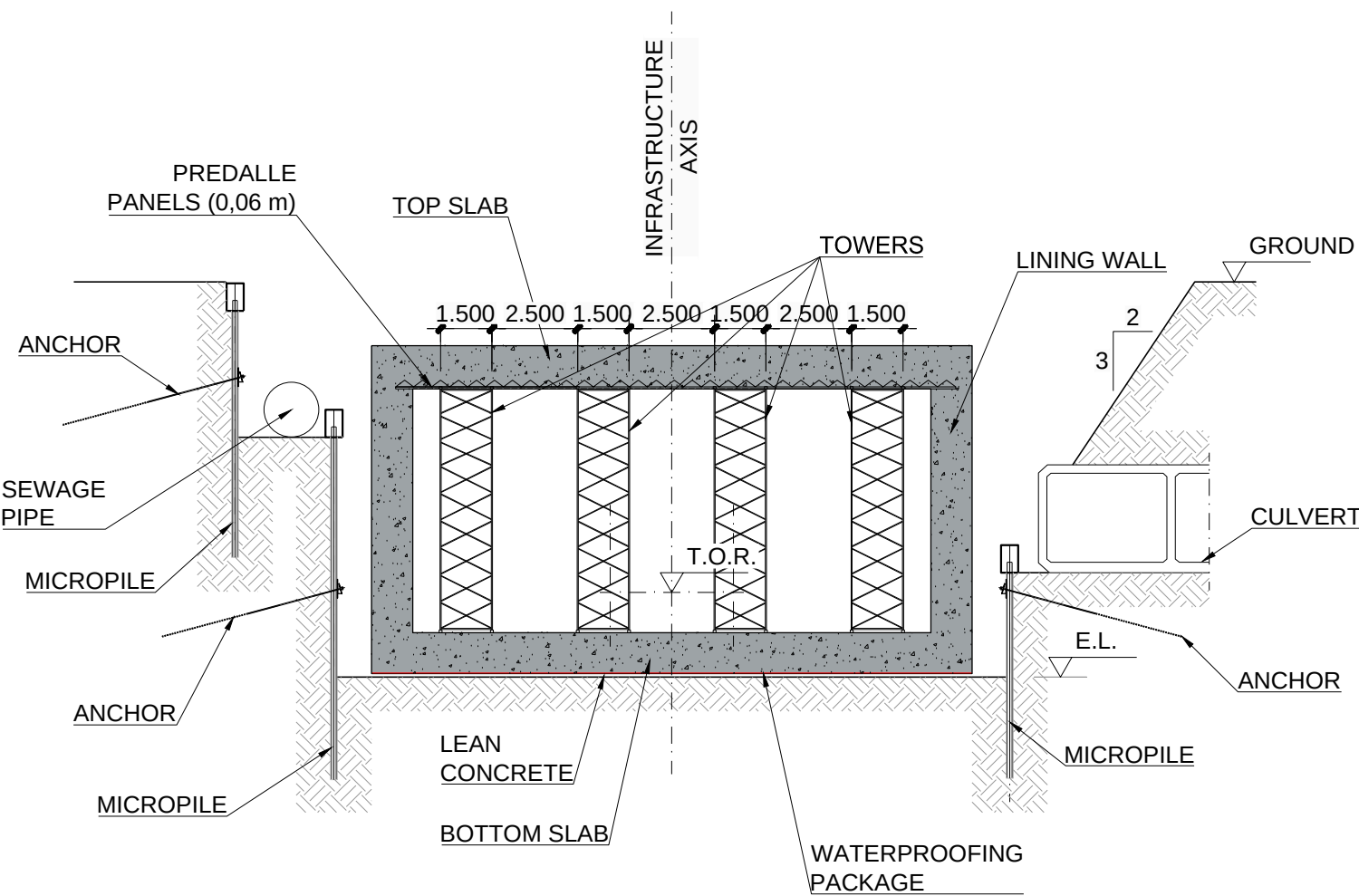
PHASE IX



**PHASE IX:**

- INSTALLATION OF SHORING TOWERS
- PREDALLE PRECAST SLAB PLACING SUPPORTED ON SHORING TOWERS; PREDALLE PANELS SHOULD BE HANGED WITH INTERMEDIATE AND EXTREME SUPPORTS LOCATED AS IN THE DEFINITIVE SITUATION
- FIRST 0,50 m CONCRETING OF CAST-IN-PLACE TOP SLAB

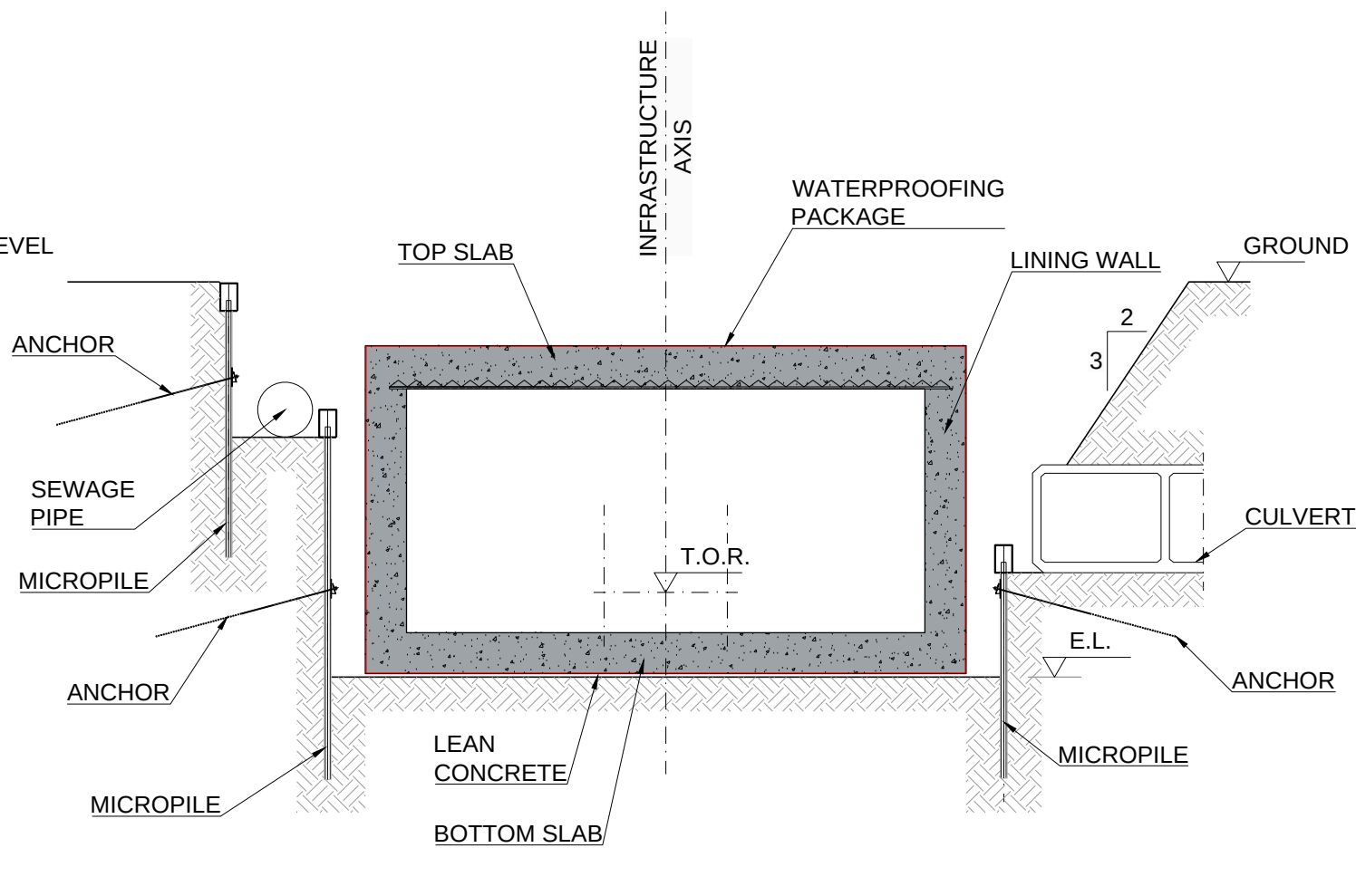
PHASE X



**PHASE X:**

- AFTER HARDENING FIRST 0,50 m OF CONCRETE SLAB, CONCRETING UP TO TOTAL TOP SLAB DEPTH

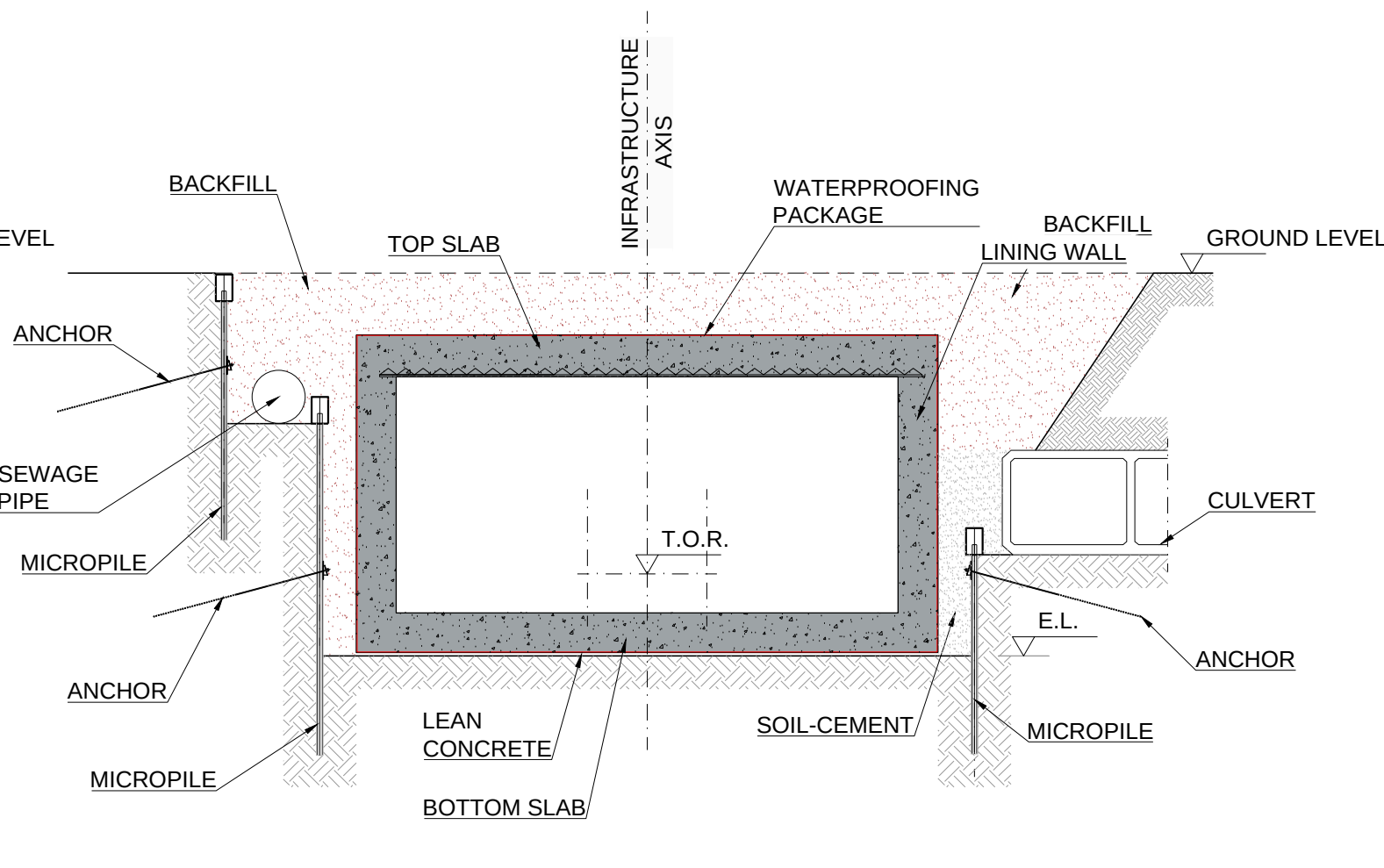
PHASE XI



**PHASE XI:**

- REMOVAL OF PROPPING SYSTEM AFTER HARDENING OF TOP SLAB
- POSITIONING OF THE WATERPROOFING MEMBRANE ON THE EXTERNAL SIDE OF THE LINING WALLS AND TOP SLAB

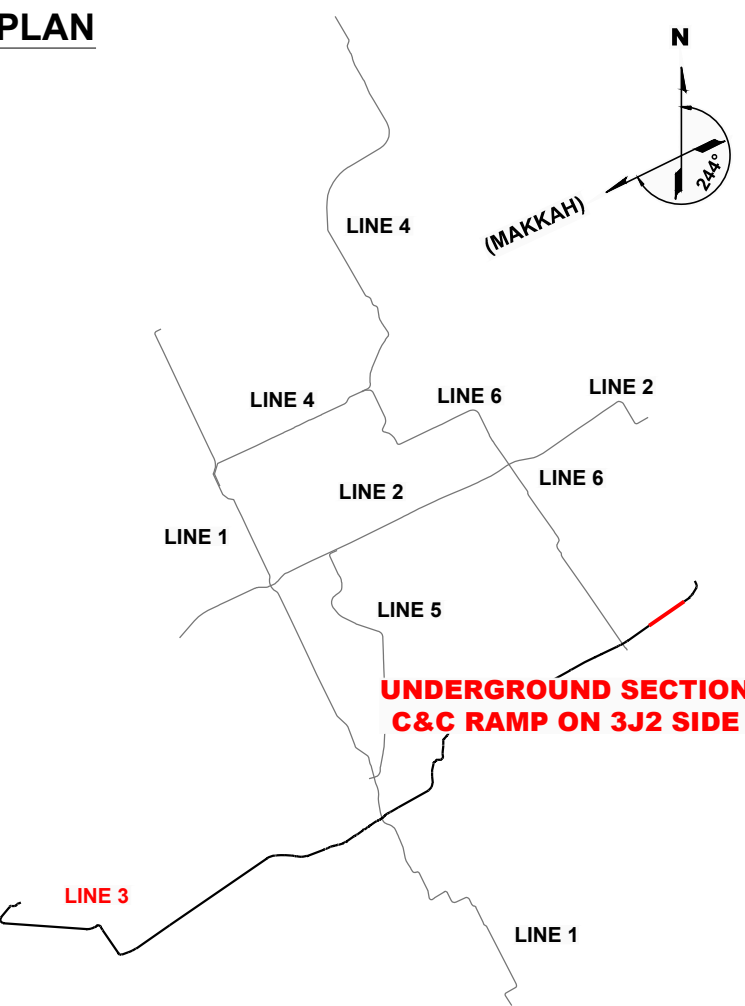
PHASE XII



**PHASE XII:**

- BACKFILLING; FILLING WITH STABILIZED SOIL (SOIL-CEMENT) UP TO THE TOP OF CULVERT, THEN COMPACTED BACKFILLING UP TO THE GROUND LEVEL

KEY PLAN



LEGEND

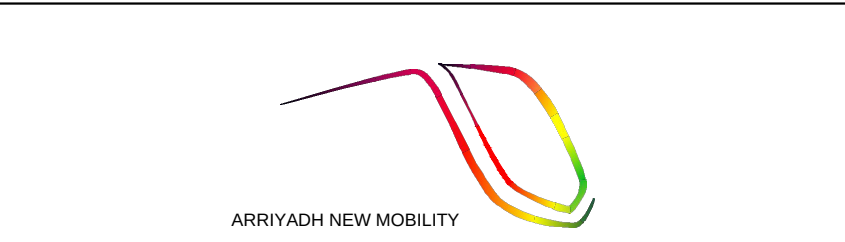
T.O.R. TOP OF RAIL  
E.L. EXCAVATION LEVEL

NOTES:

1. DIMENSIONS IN METERS
2. NO CONSTRUCTION LOADS ARE ALLOWED ON THE GROUND LEVEL AT ANY TIME

| REV. | DATE       | DESCRIPTION                               | APP.   |
|------|------------|-------------------------------------------|--------|
| P1   | 01.04.2016 | INTRA AND INTER-DISCIPLINARY CHECKS (IDC) | R.R.L. |

PROJECT  
RIYADH METRO PROJECT  
PACKAGE 2  
LINE 3



| ORIGINATOR | CHECK      | REVIEW                           | APPROVAL         |
|------------|------------|----------------------------------|------------------|
| M.G.N.     | P.P.M.     | R.R.L.                           |                  |
| DATE       | APRIL 2016 | SCALES<br>A1= 1/200<br>A3= 1/400 | ORIGINAL SIZE A1 |

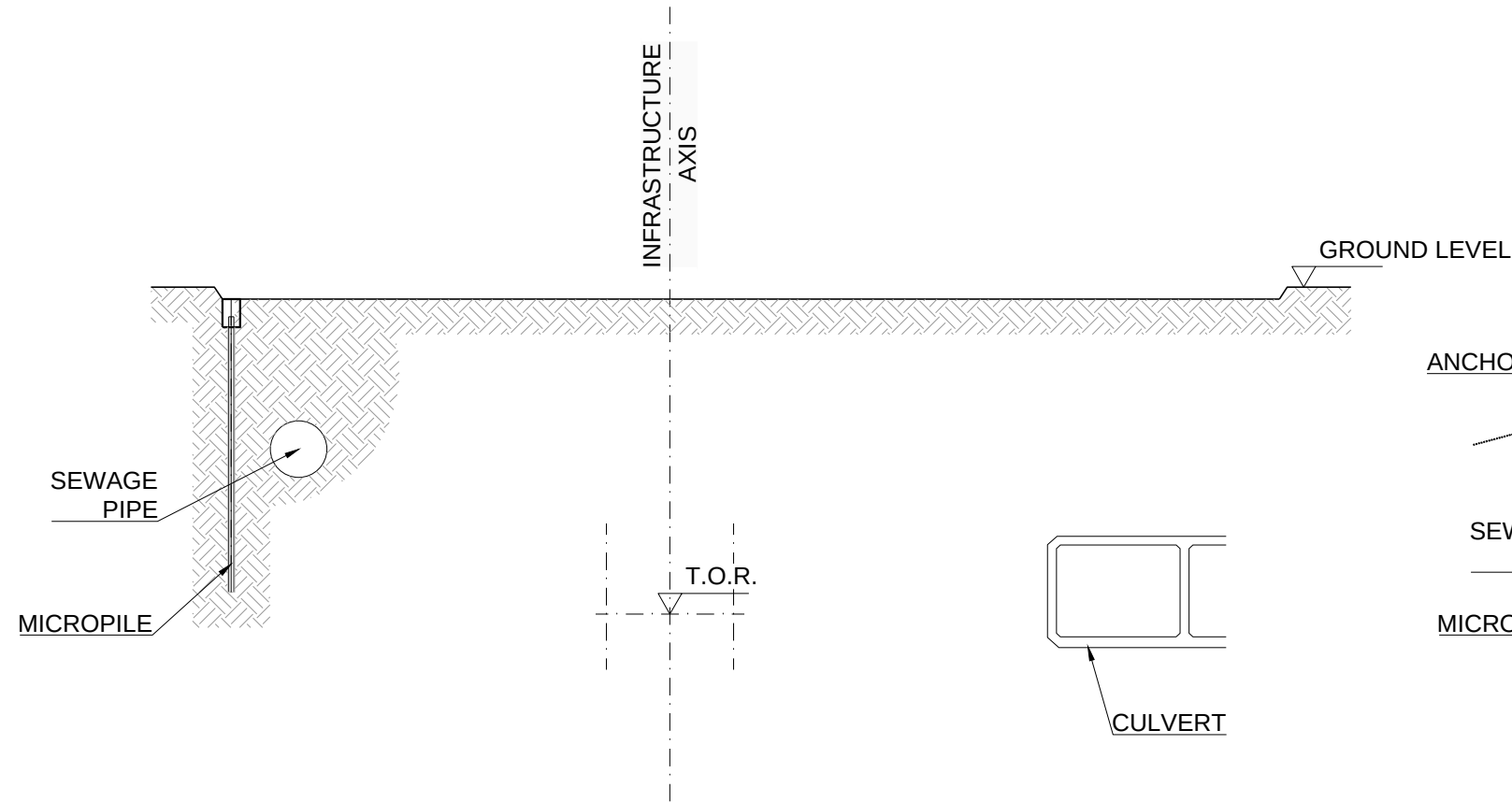
DRAWING  
UNDERGROUND SECTION  
90% DETAILED DESIGN  
CUT AND COVER RAMP ON 3J2 SIDE  
CONSTRUCTION PROCESS OUTLINES

| ANM DRAWING NUMBER           | REVISION | SHEET   |
|------------------------------|----------|---------|
| M-ANM-3J1TU2-CTCC-EDR-200011 | P1       | 8 of 10 |
| ALTERNATE DOCUMENT NUMBER    | REVISION | SHEET   |
| M-ANM-3J1TU2-CTCC-EDR-200011 | P1       | 8 of 10 |



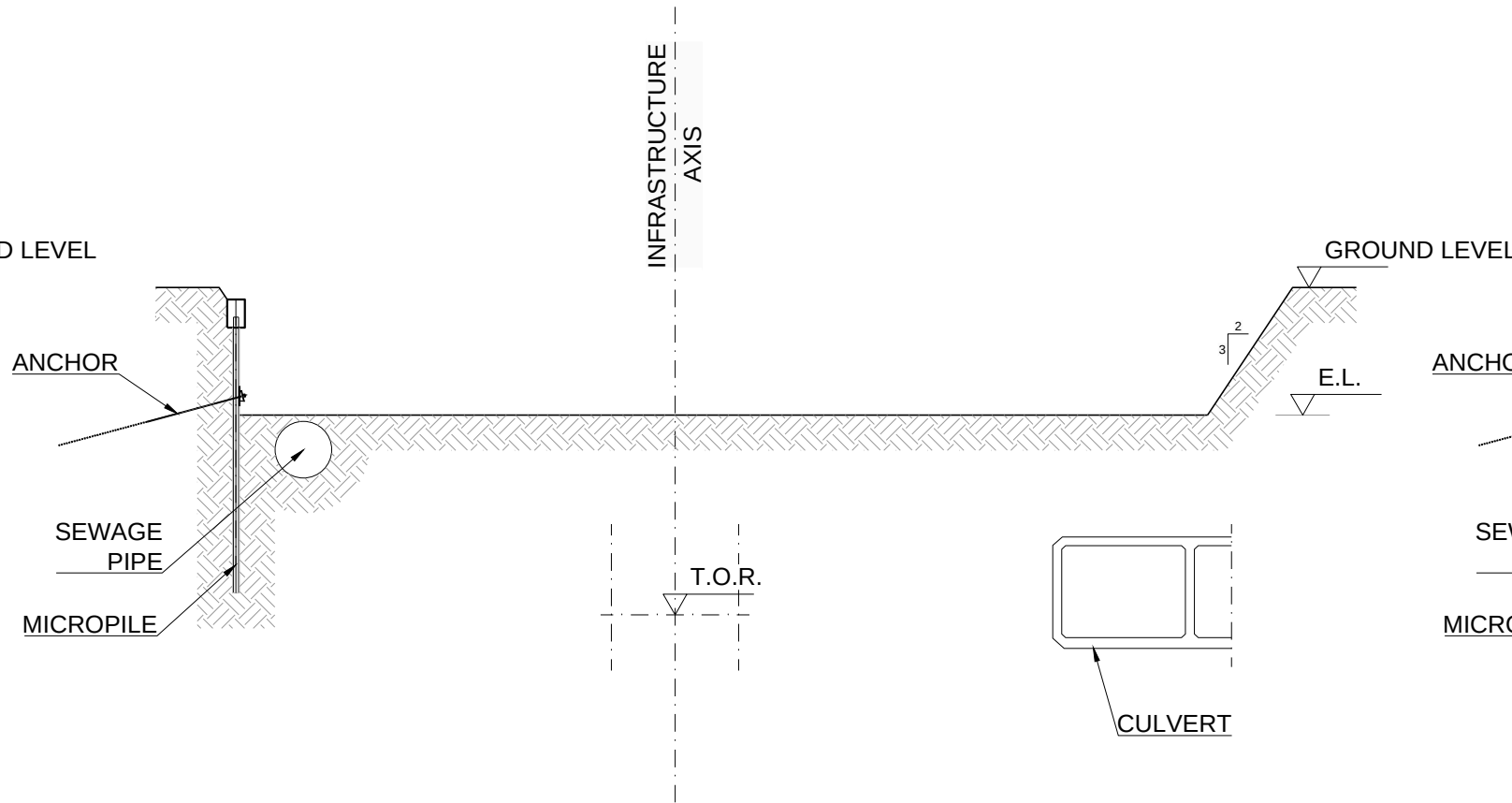
SEGMENT 24

PHASE I



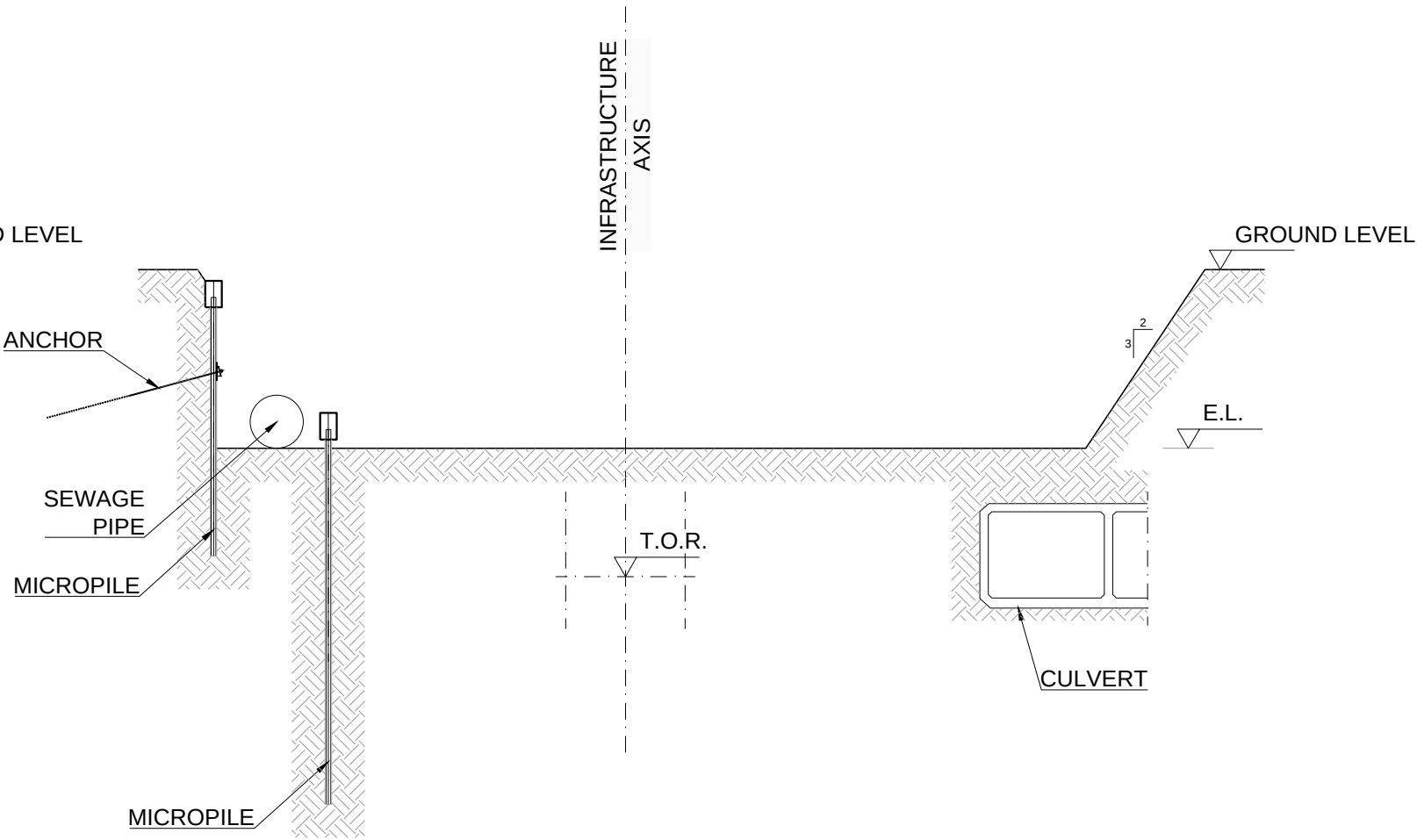
- PHASE I:**
- PREPARATION OF TRAFFIC MANAGEMENT AND WORKSITE AREA
  - PREPARATION OF THE WORKING LEVEL AT THE FORESEEN ELEVATION
  - CONSTRUCTION OF THE FIRST MICROPILE WALL

PHASE II



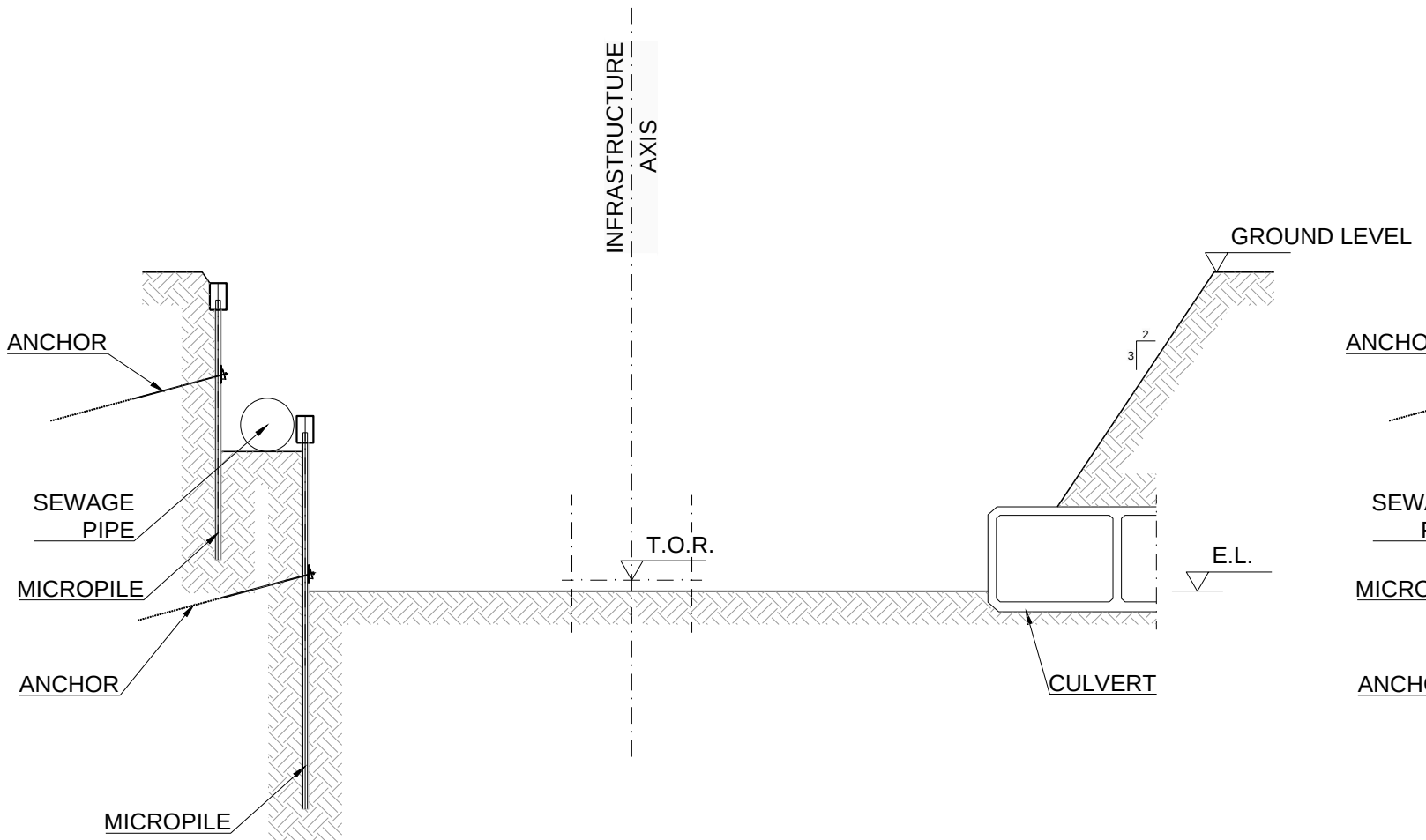
- PHASE II:**
- EXCAVATION TO REACH THE DEPTH CORRESPONDING TO 50CM UNDER THE FIRST ORDER OF ANCHORS
  - INSTALLATION OF THE FIRST ORDER OF ANCHORS

PHASE III



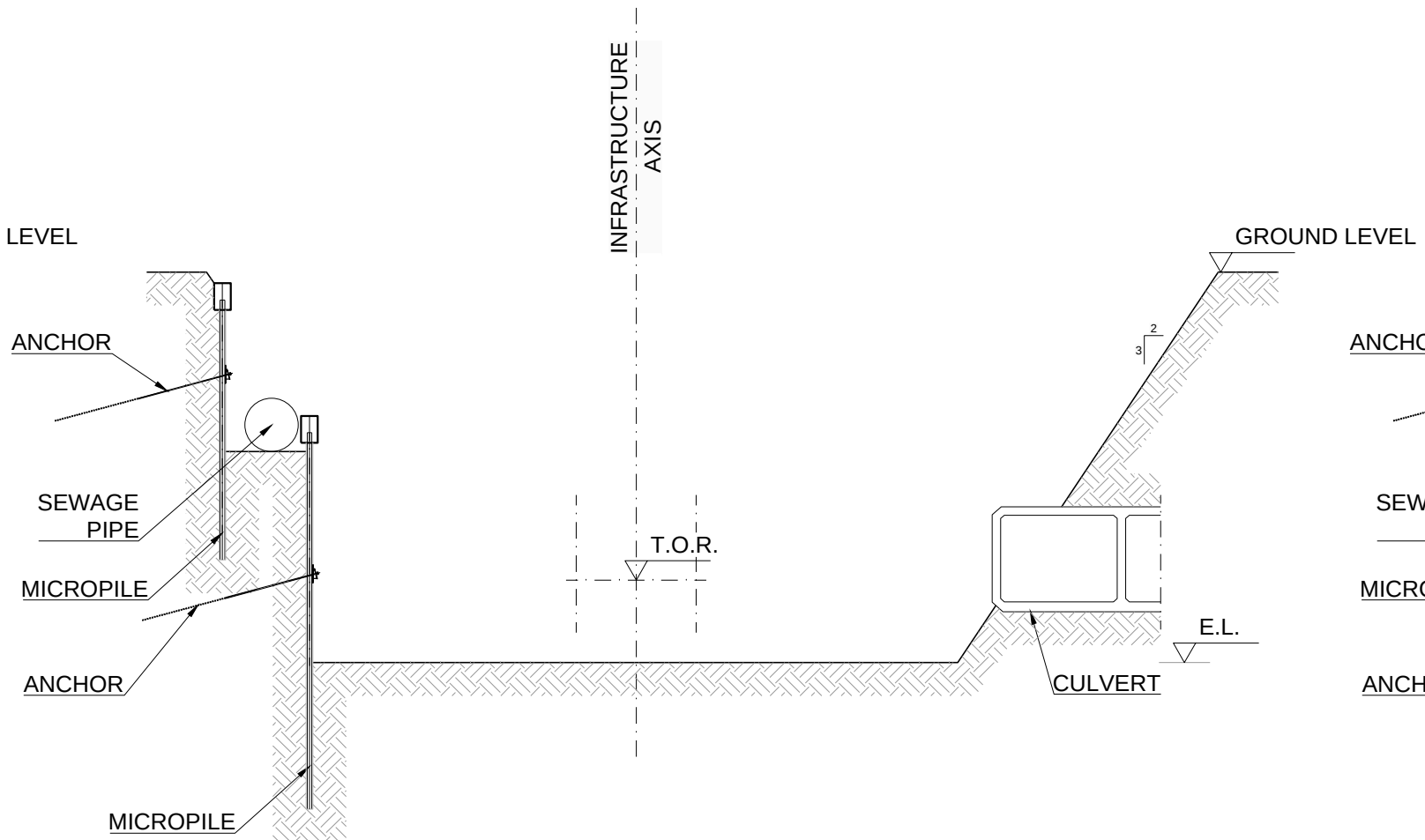
- PHASE III:**
- EXCAVATION TO UNDERSIDE THE BOTTOM OF THE EXISTING SEWAGE PIPE
  - CONSTRUCTION OF THE SECOND MICROPILE WALL (NEAREST RETAINING WALL)

PHASE IV



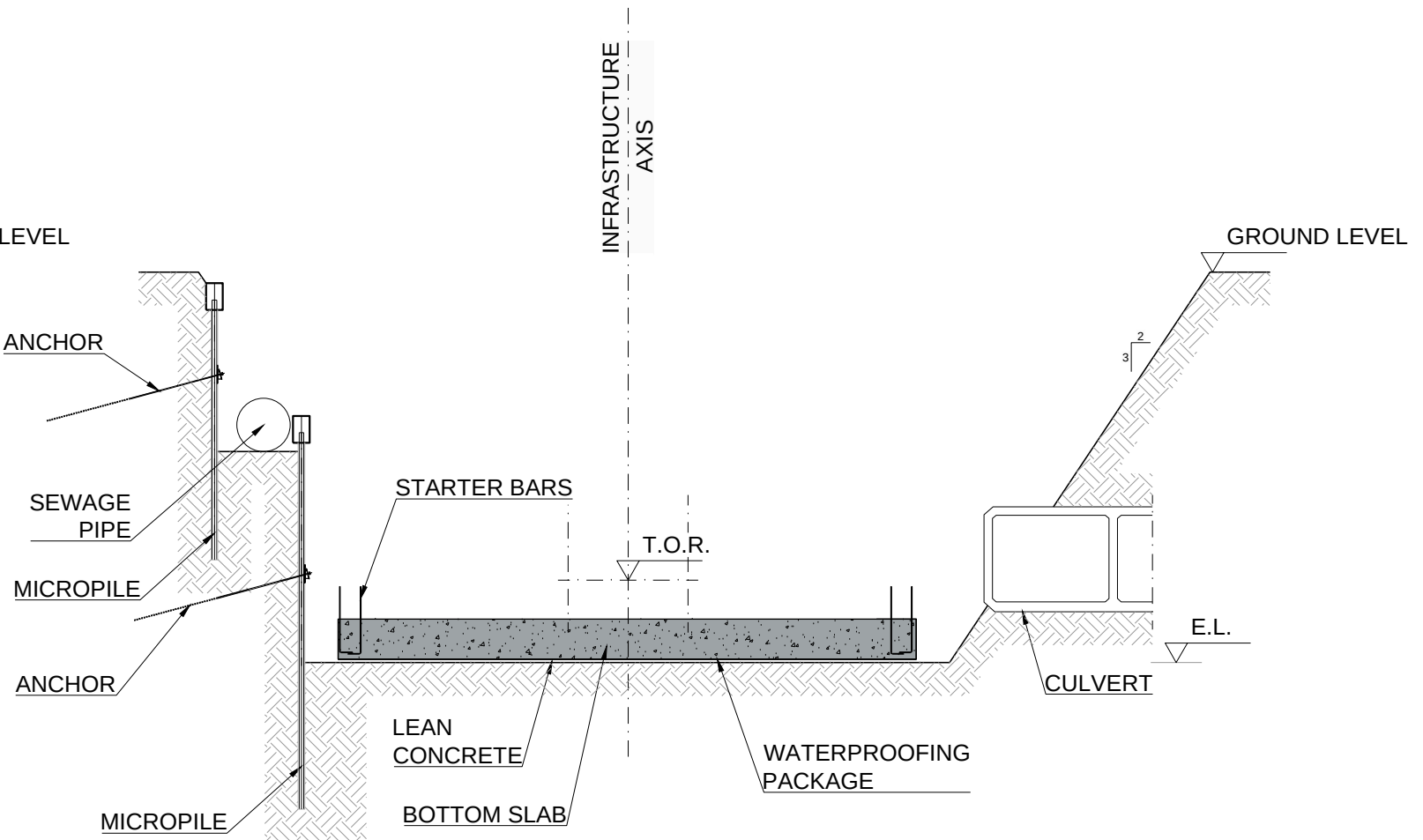
- PHASE IV:**
- EXCAVATION TO REACH THE DEPTH CORRESPONDING TO 50CM UNDER THE SECOND ORDER OF ANCHORS
  - INSTALLATION OF THE SECOND ORDER OF ANCHORS

PHASE V



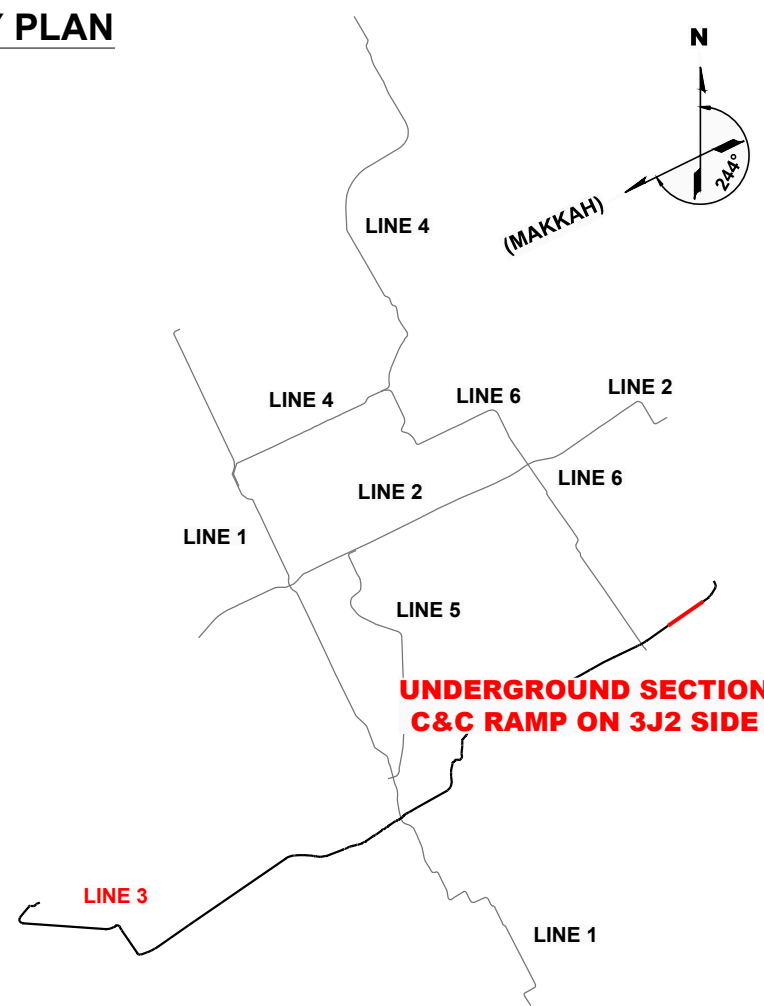
- PHASE V:**
- EXCAVATION TO UNDERSIDE THE BOTTOM OF THE BASE SLAB

PHASE VI



- PHASE VI:**
- AT EXCAVATION LEVEL, PREPARATION OF THE SURFACE (LEAN CONCRETE)
  - POSITIONING OF THE WATERPROOFING MEMBRANE ON THE EXTERNAL FACE OF BASE SLAB
  - REINFORCING OF THE BASE SLAB, INCLUDING THE STARTER BARS OF THE LINING WALLS AND POURING OF THE BASE SLAB

KEY PLAN



LEGEND

- T.O.R. TOP OF RAIL  
E.L. EXCAVATION LEVEL

NOTES:

1. DIMENSIONS IN METERS
2. NO CONSTRUCTION LOADS ARE ALLOWED ON THE GROUND LEVEL AT ANY TIME

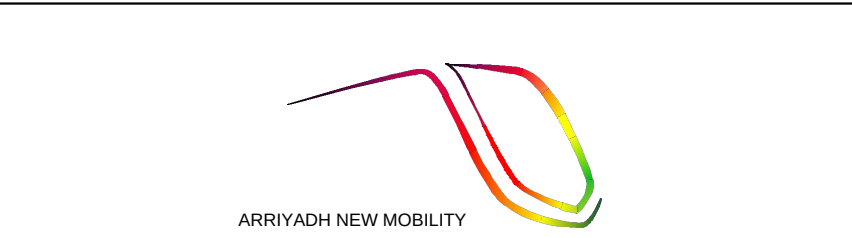
| REV. | DATE       | DESCRIPTION                               | APP.   |
|------|------------|-------------------------------------------|--------|
| P1   | 01.04.2016 | INTRA AND INTER-DISCIPLINARY CHECKS (IDC) | R.R.L. |

PROJECT

**RIYADH METRO PROJECT**

**PACKAGE 2**

**LINE 3**



| ORIGINATOR | CHECK      | REVIEW    | APPROVAL         |
|------------|------------|-----------|------------------|
| M.G.N.     | P.P.M.     | R.R.L.    |                  |
| DATE       | APRIL 2016 | SCALES    | ORIGINAL SIZE A1 |
|            |            | A1= 1/200 |                  |
|            |            | A3= 1/400 |                  |
|            |            | 0 5 10m   |                  |

DRAWING

**UNDERGROUND SECTION**

**90% DETAILED DESIGN**

**CUT AND COVER RAMP ON 3J2 SIDE**

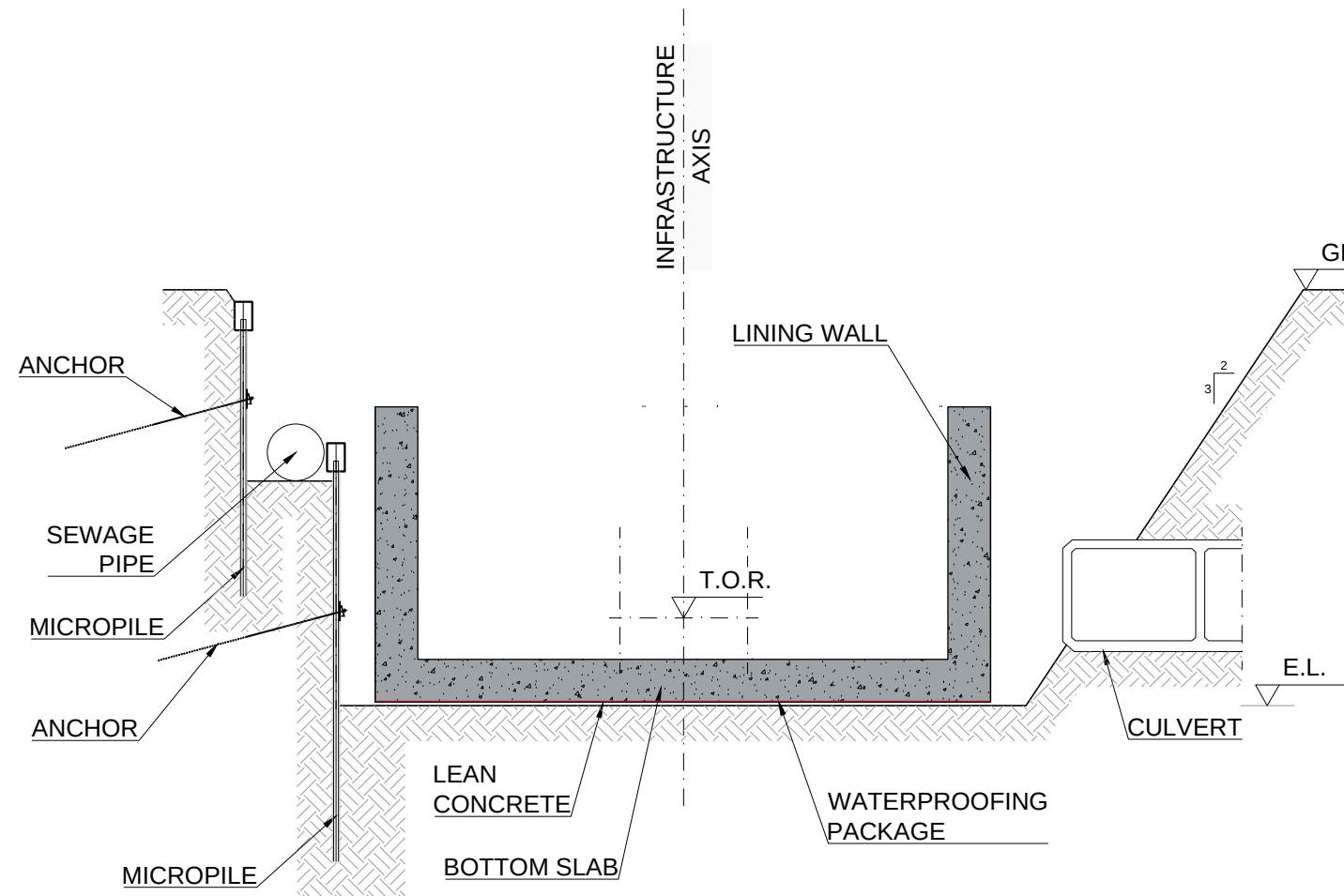
**CONSTRUCTION PROCESS OUTLINES**

| ANM DRAWING NUMBER           | REVISION | SHEET   |
|------------------------------|----------|---------|
| M-ANM-3J1TU2-CTCC-EDR-200011 | P1       | 9 of 10 |
| ALTERNATE DOCUMENT NUMBER    | REVISION | SHEET   |
| M-ANM-3J1TU2-CTCC-EDR-200011 | P1       | 9 of 10 |



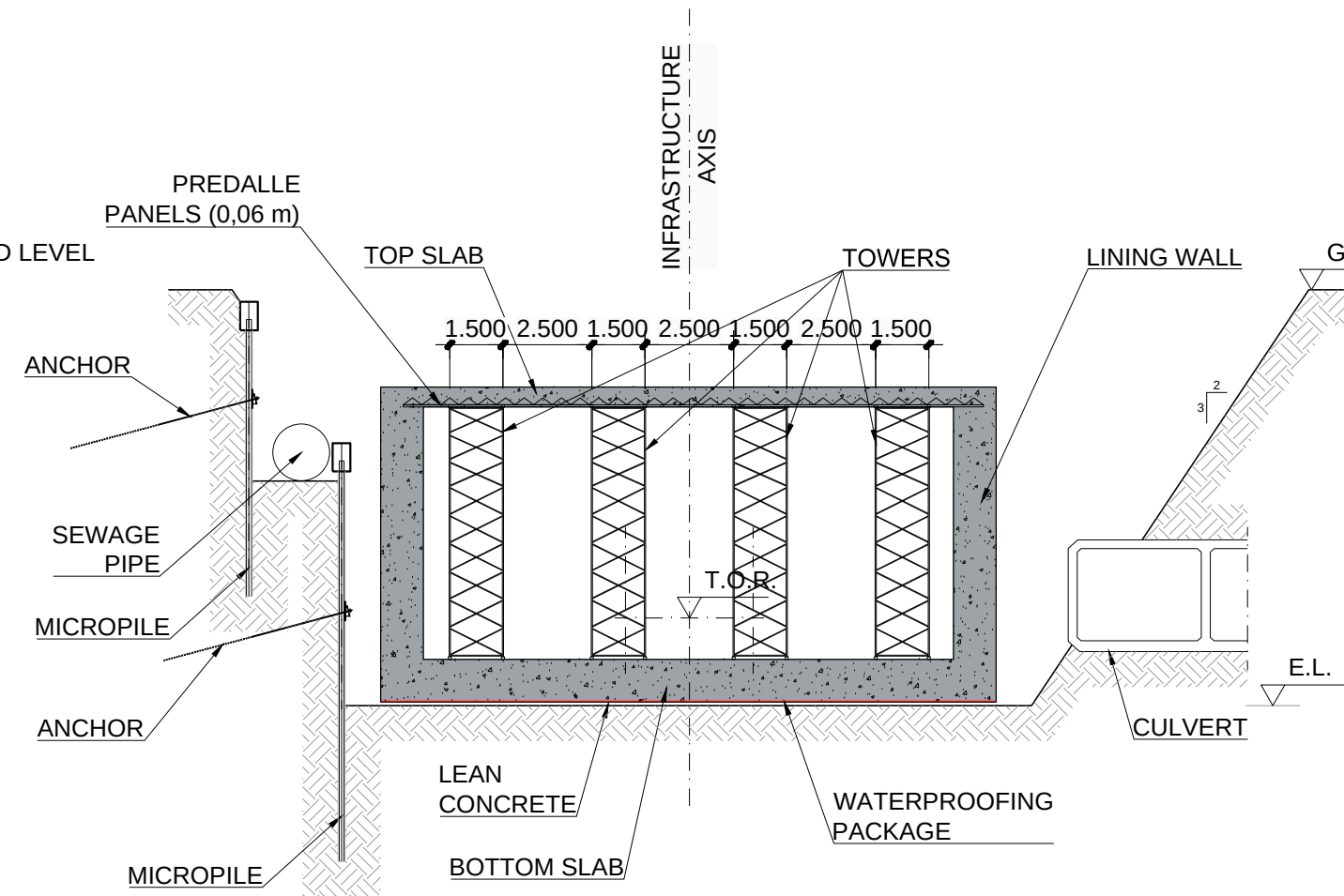
SEGMENTS 24

PHASE VII



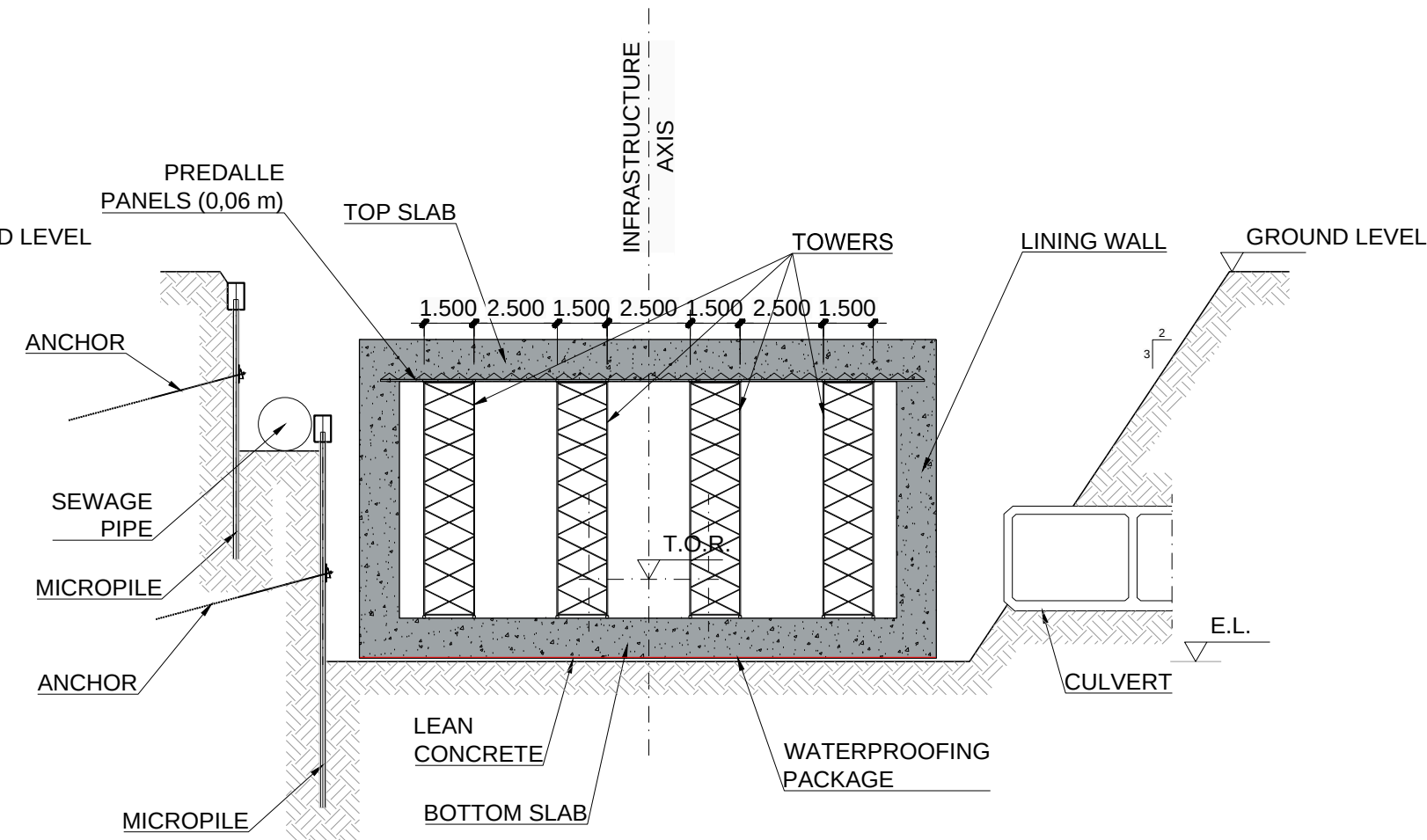
PHASE VII:  
- ERECTION OF THE LINING WALLS

PHASE VIII



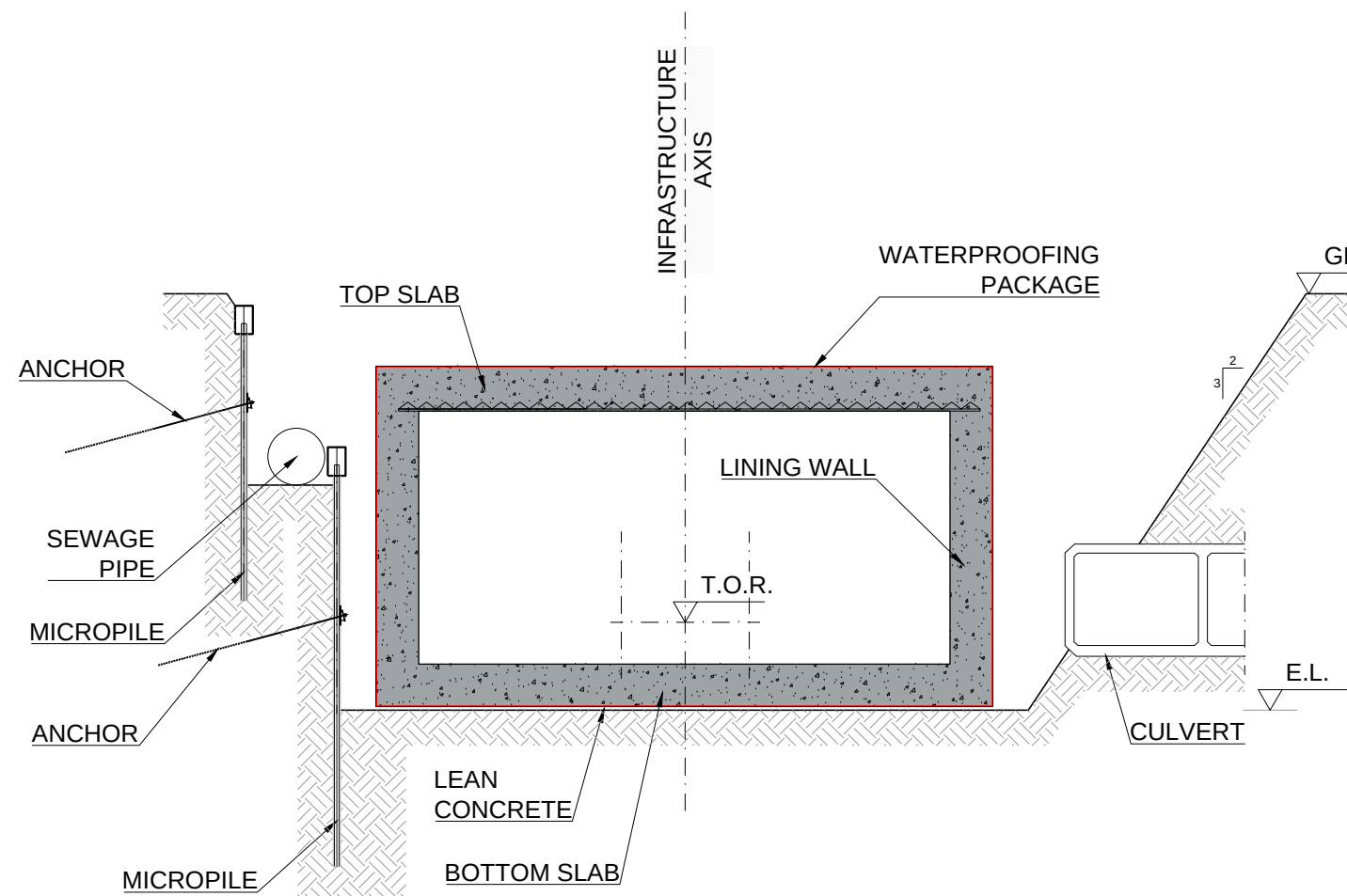
PHASE VIII:  
- INSTALLATION OF SHORING TOWERS  
- PREDALLE PRECAST SLAB PLACING SUPPORTED ON SHORING TOWERS;  
PREDALLE PANELS SHOULD BE HANGED WITH INTERMEDIATE AND  
EXTREME SUPPORTS LOCATED AS IN THE DEFINITIVE SITUATION  
- FIRST 0.50 m CONCRETING OF CAST-IN-PLACE TOP SLAB

PHASE IX



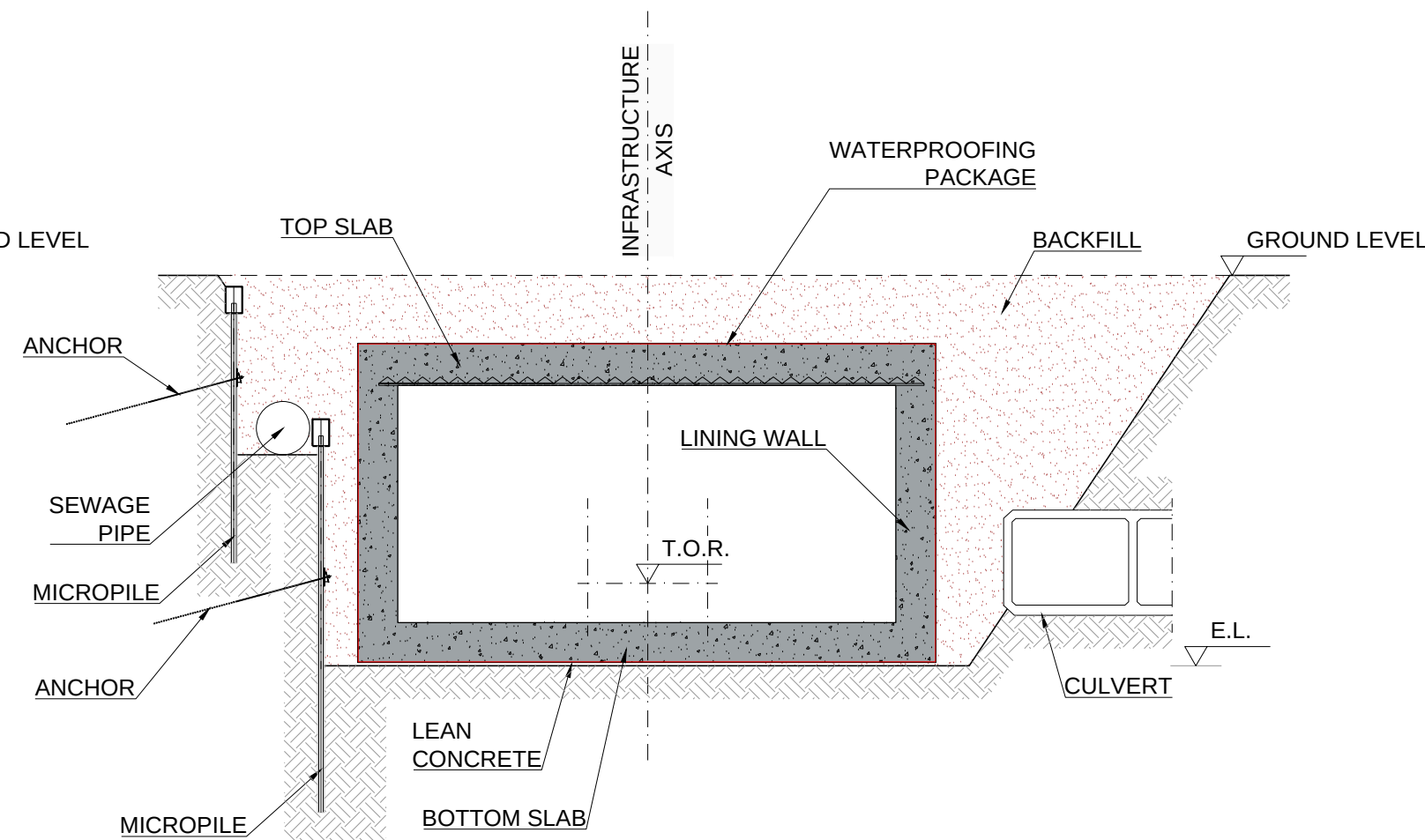
PHASE IX:  
- AFTER HARDENING FIRST 0.50 m OF CONCRETE SLAB, CONCRETING UP TO  
TOTAL TOP SLAB DEPTH

PHASE X



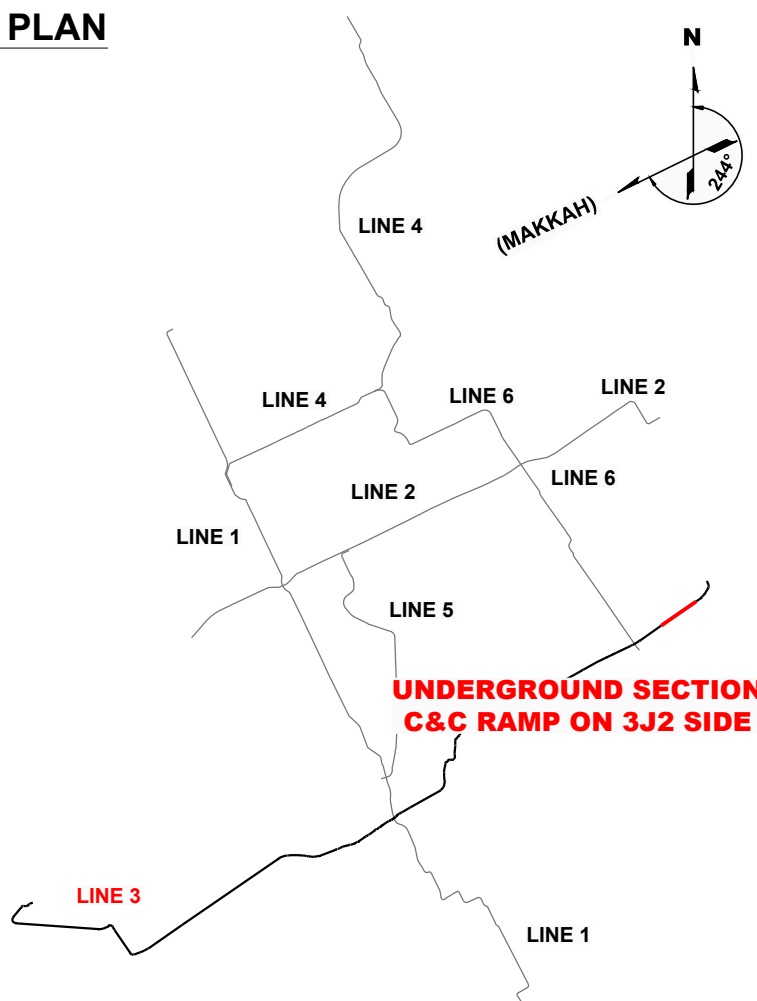
PHASE X:  
- REMOVAL OF PROPPING SYSTEM AFTER HARDENING OF TOP SLAB  
- POSITIONING OF THE WATERPROOFING MEMBRANE ON THE EXTERNAL  
SIDE OF THE TOP SLAB AND LINING WALLS

PHASE XI



PHASE XI:  
- BACKFILLING

KEY PLAN



LEGEND

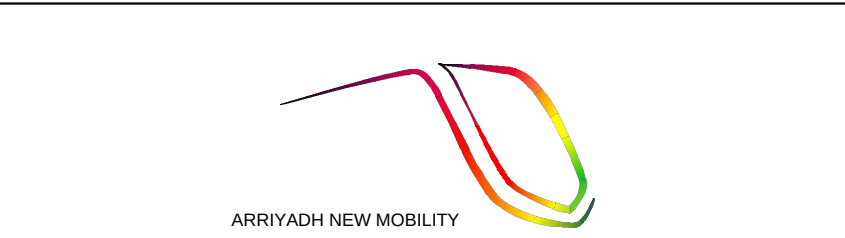
T.O.R. TOP OF RAIL  
E.L. EXCAVATION LEVEL

NOTES:

- DIMENSIONS IN METERS
- NO CONSTRUCTION LOADS ARE ALLOWED ON THE GROUND  
LEVEL AT ANY TIME

| REV. | DATE       | DESCRIPTION                               | APP.   |
|------|------------|-------------------------------------------|--------|
| P1   | 01.04.2016 | INTRA AND INTER-DISCIPLINARY CHECKS (IDC) | R.R.L. |

PROJECT  
RIYADH METRO PROJECT  
PACKAGE 2  
LINE 3



| ORIGINATOR | CHECK      | REVIEW                           | APPROVAL         |
|------------|------------|----------------------------------|------------------|
| M.G.N.     | P.P.M.     | R.R.L.                           |                  |
| DATE       | APRIL 2016 | SCALES<br>A1= 1/200<br>A3= 1/400 | ORIGINAL SIZE A1 |

DRAWING  
UNDERGROUND SECTION  
90% DETAILED DESIGN  
CUT AND COVER RAMP ON 3J2 SIDE  
CONSTRUCTION PROCESS OUTLINES

| ANM DRAWING NUMBER           | REVISION | SHEET    |
|------------------------------|----------|----------|
| M-ANM-3J1TU2-CTCC-EDR-200011 | P1       | 10 of 10 |
| ALTERNATE DOCUMENT NUMBER    | REVISION | SHEET    |
| M-ANM-3J1TU2-CTCC-EDR-200011 | P1       | 10 of 10 |