REPUBLIC OF LEBANON
MINISTRY OF PUBLIC WORKS
AND TRANSPORT

COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

ROUTINE MAINTENANCE FOR BRIDGES AND STREETS IN BEIRUT

TENDER DOCUMENTS

VOLUME 4
TENDER DRAWINGS

REVISION 00
JUNE 2025

PART I
ROUTINE MAINTENANCE FOR BRIDGE EXPANSION JOINTS IN BEIRUT

ROUTINE MAINTENANCE FOR BRDGE EXPANSION JOINTS AND STREETS IN BEIRUT
LIST OF DRAWINGS

PART I - ROUTINE MAINTENANCE FOR BRIDGE EXPANSION JOINTS IN BEIRUT

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DWG BR 2-02	JOSEPH CHADER BRIDGE (BR-2) -SHEET 1 OF 1
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DWG ST-TD-02	MAINTENANCE OF ASPHALT PAVEMENT-SURFACE PATCHING WORKS -TYPICAL DETAILS
DWG ST-TD-03	MAINTENANCE OF ASPHALT PAVEMENT-DEEP PATCHING WORKS -TYPICAL DETAILS
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DWG ST-TD-10	ADJUSTING MANHOLE COVER & CLEANING PIPES
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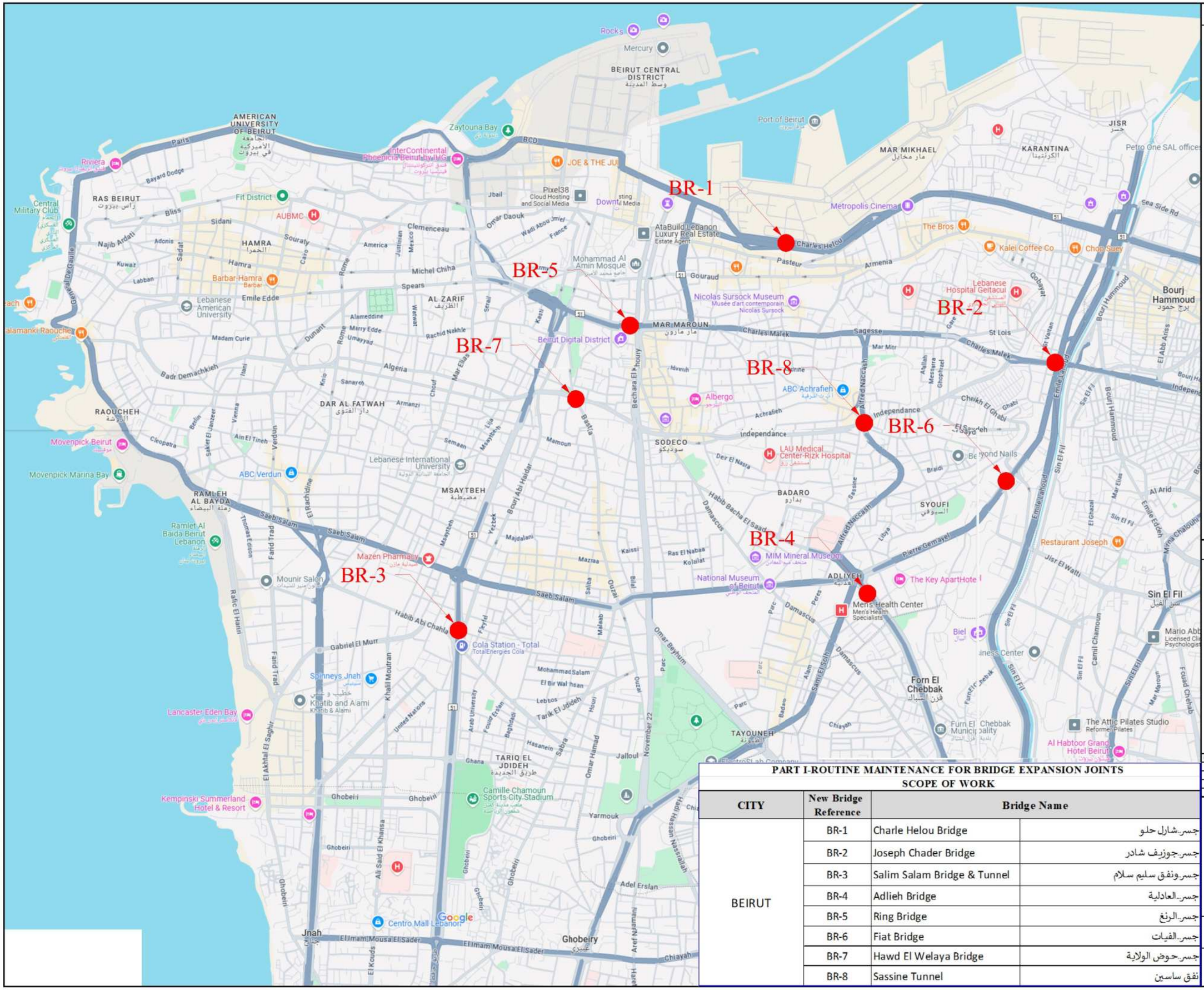
ROUTINE MAINTENANCE FOR BRIDGE EXPANSION JOINTS AND STREETS IN BEIRUT	STAGE : TENDER DOCUMENTS
	DATE JUNE 2025
	SCALE N.T.S.
LIST OF DRAWINGS (SHEET 1/1)	DRAWING No. DWG BR-GN-001 REV 00



NOTES

LEGEND

● BRIDGES UNDER SCOPE OF WORKS

PART I-ROUTINE MAINTENANCE FOR BRIDGE EXPANSION JOINTS
SCOPE OF WORK

CITY	New Bridge Reference	Bridge Name	
BEIRUT	BR-1	Charle Helou Bridge	جسر.شارل حلو
	BR-2	Joseph Chader Bridge	جسر.جوزيف شادر
	BR-3	Salim Salam Bridge & Tunnel	جسر.ونفق سليم سلام
	BR-4	Adlieh Bridge	جسر.العادلية
	BR-5	Ring Bridge	جسر.الرنغ
	BR-6	Fiat Bridge	جسر.الفيات
	BR-7	Hawd El Welaya Bridge	جسر.حوض الولاية
	BR-8	Sassine Tunnel	نفق ساسين

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ROUTINE MAINTENANCE FOR BRIDGE EXPANSION JOINTS AND STREETS IN BEIRUT

STAGE : TENDER DOCUMENTS
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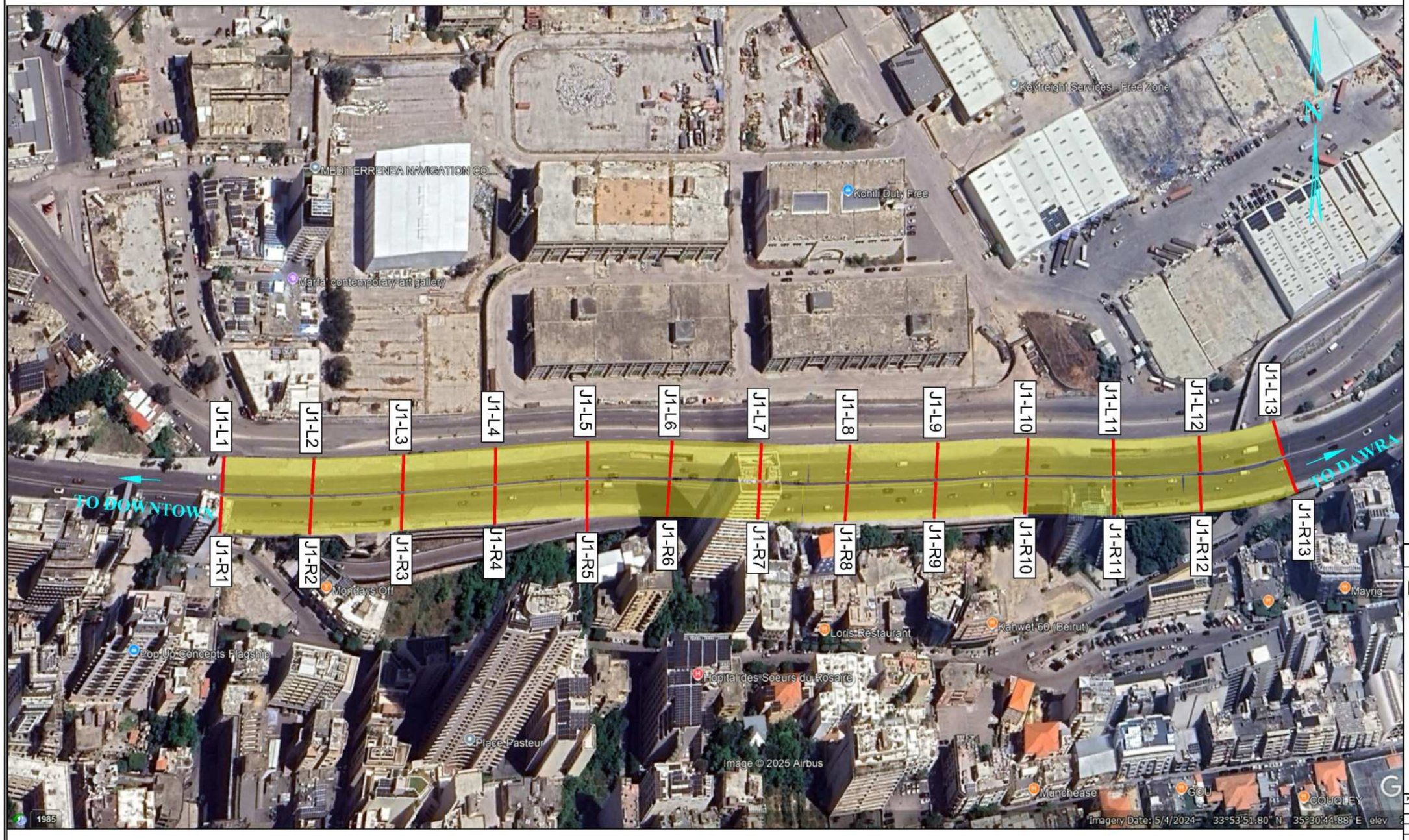
SCALE N.T.S

BRIDGE LOCATIONS PLAN

DRAWING No. DWG BR-GN-002
REV 00

CHARLE HELOU BRIDGE
(BR 1)



NOTES

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LEGEND

BRIDGE DECK AREA

BRIDGE EXPANSION JOINTS

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ROUTINE MAINTENANCE FOR BRIDGE EXPANSION JOINTS AND STREETS IN BEIRUT	STAGE : TENDER DOCUMENTS
	DATE JUNE 2025
BEIRUT CHARLE HELOU BRIDGE (BR 1) SHEET 1 OF 1	SCALE N.T.S
	DRAWING No. DWG BR 1-01 REV 00

JOSEPH CHADER BRIDGE
(BR 2)

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BRIDGE EXPANSION JOINTS

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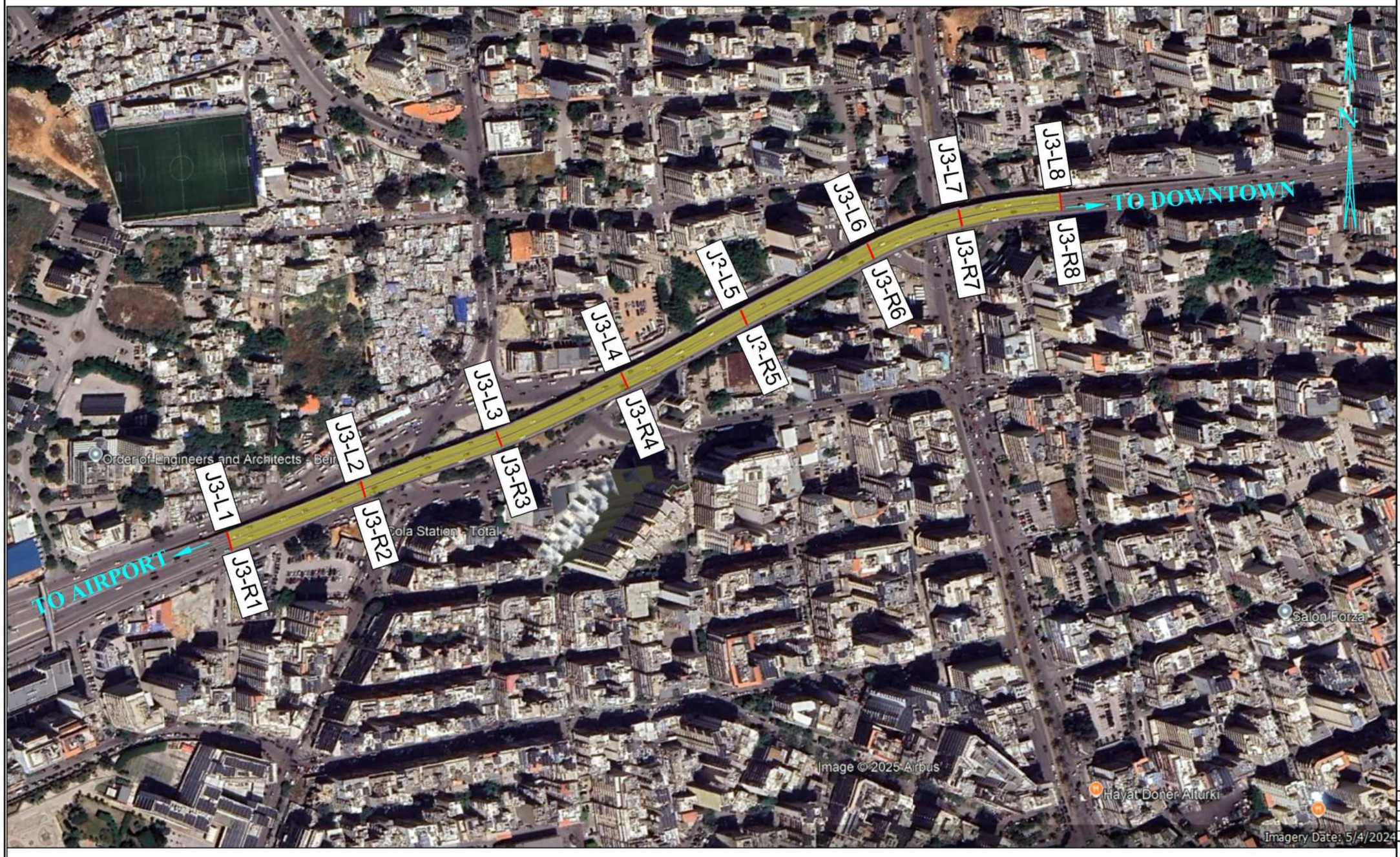
BEIRUT JOSEPH CHADER BRIDGE (BR 2) SHEET 1 OF 1	SCALE N.T.S
	DRAWING No. DWG BR 2-02 REV 00

SALIM SALAM BRIDGE
(BR 3)



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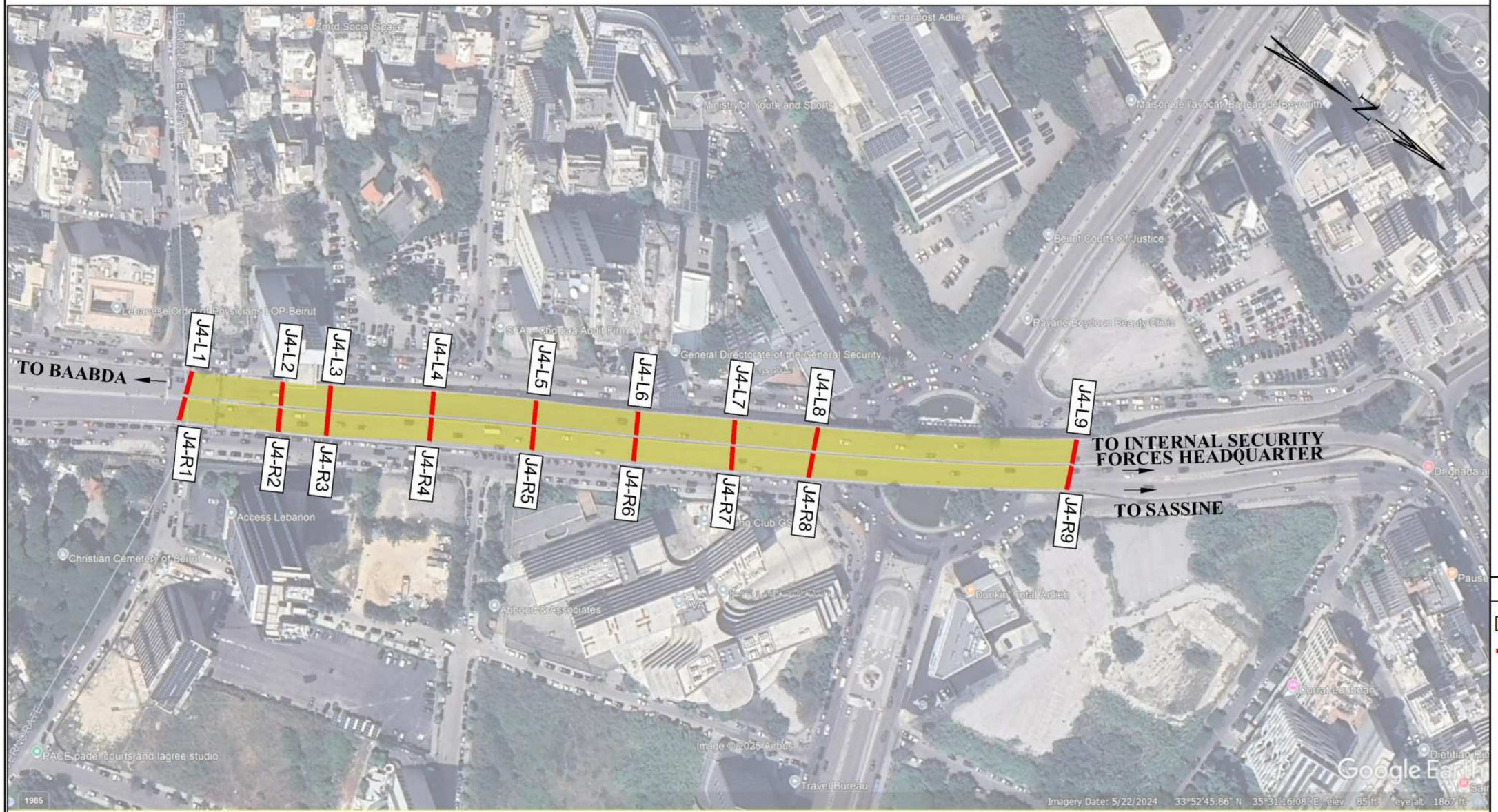
BEIRUT SALIM SALAM BRIDGE &TUNNEL (BR 3) SHEET 1 OF 1	SCALE N.T.S
	DRAWING No. DWG BR 3-03 REV 00

ADLIEH BRIDGE
(BR 4)



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BRIDGE DECK AREA

BRIDGE EXPANSION JOINTS

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ROUTINE MAINTENANCE FOR BRIDGE EXPANSION JOINTS AND STREETS IN BEIRUT

BEIRUT
ADLIEH BRIDGE
(BR 4)
SHEET 1 OF 1

STAGE : TENDER DOCUMENTS

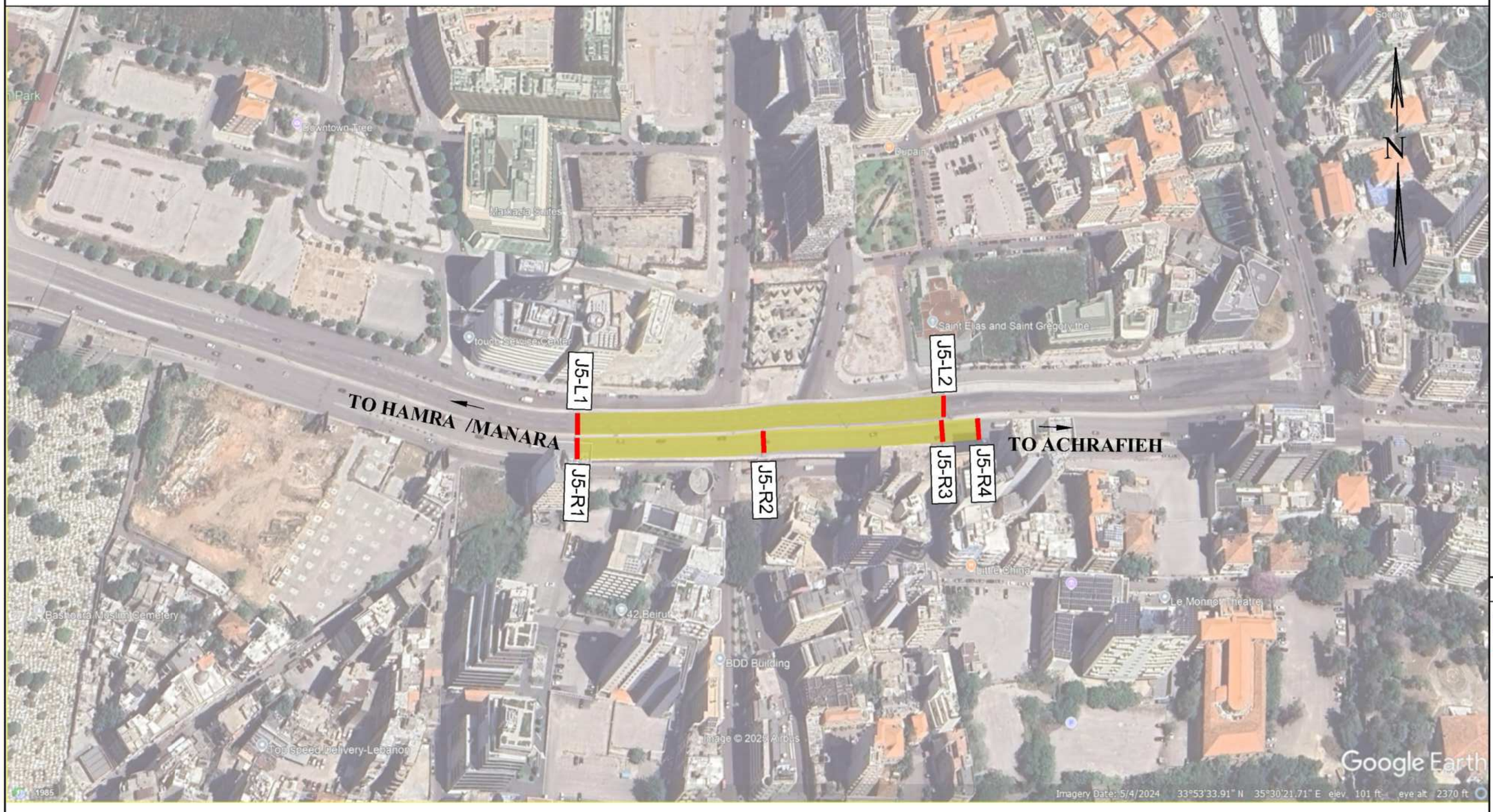
DATE JUNE 2025

SCALE N.T.S

DRAWING No. DWG BR 4-04

REV 00

RING BRIDGE
(BR 5)



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BRIDGE DECK AREA

BRIDGE EXPANSION JOINTS

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	DATE JUNE 2025
BEIRUT RING BRIDGE (BR 5) SHEET 1 OF 1	SCALE N.T.S
	DRAWING No. DWG BR 5-05 REV 00

FIAT BRIDGE
(BR 6)

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	DATE JUNE 2025
BEIRUT FIAT BRIDGE (BR 6) SHEET 1 OF 1	SCALE N.T.S
	DRAWING No. DWG BR 6-06 REV 00

HAWD EL WELAYA BRIDGE
(BR 7)

NOTES

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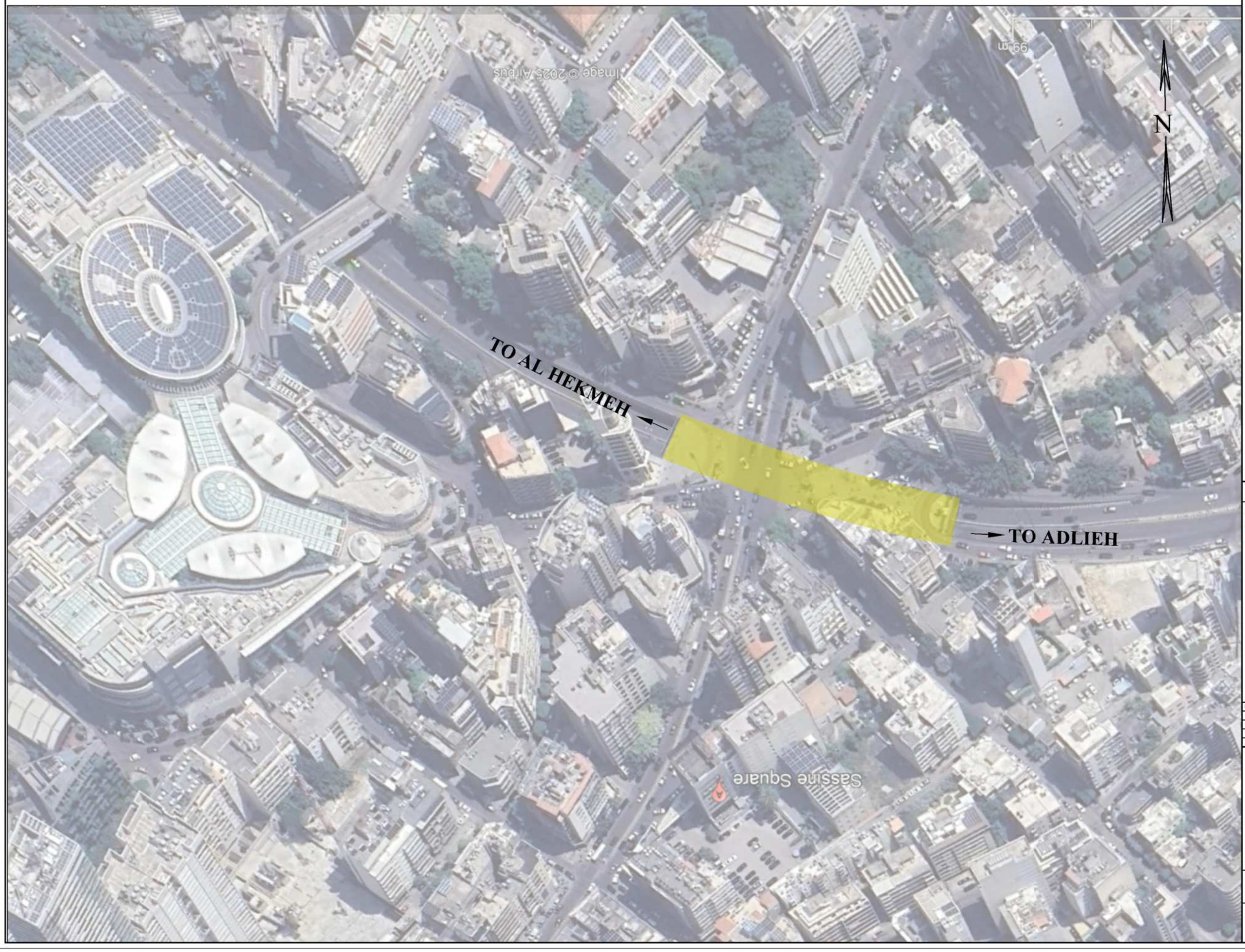
BEIRUT HAWD EL WELAYA BRIDGE (BR 7) SHEET 1 OF 1	SCALE N.T.S
	DRAWING No. DWG BR 7-07 REV 00

SASSINE TUNNEL
(BR 8)



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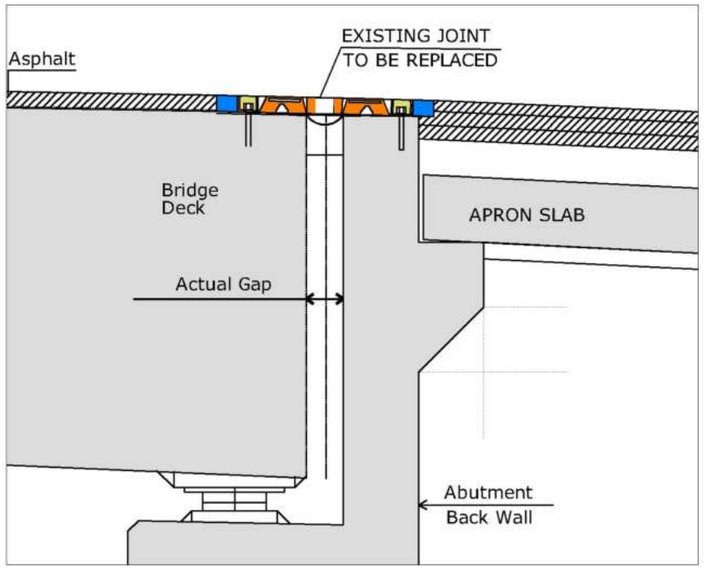
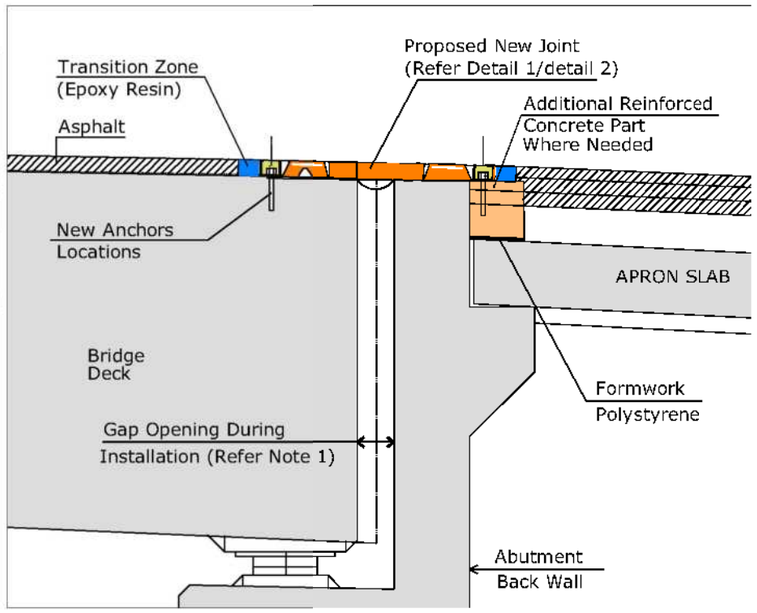
ROUTINE MAINTENANCE FOR BRIDGE EXPANSION JOINTS AND STREETS IN BEIRUT	STAGE : TENDER DOCUMENTS
	DATE JUNE 2025
BEIRUT SASSINE TUNNEL (BR 8) SHEET 1 OF 1	SCALE N.T.S
	DRAWING No. DWG BR 8-08 REV 00

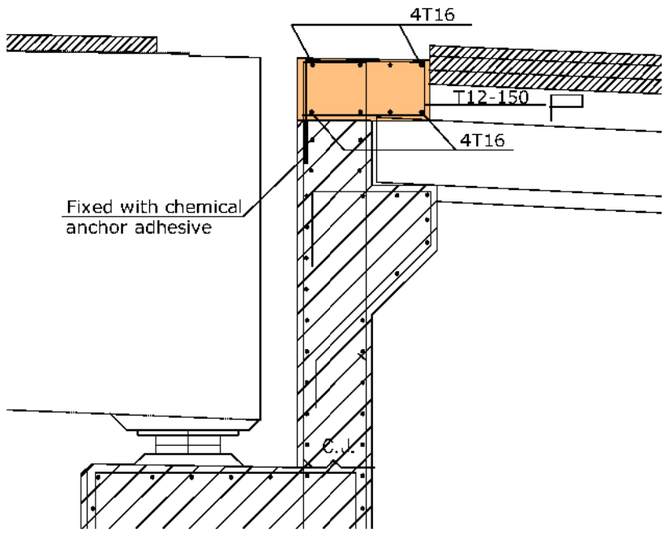
TYPICAL DETAILS FOR CONCRETE REPAIR AND BRIDGE EXPANSION JOINT REPLACEMENT



TYPICAL SECTION FOR THE EXISTING JOINT

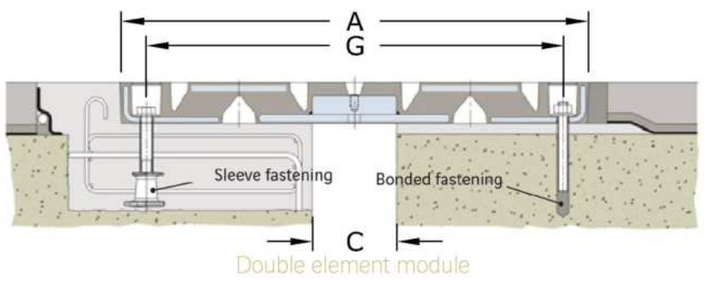


TYPICAL SECTION FOR THE PROPOSED NEW JOINT



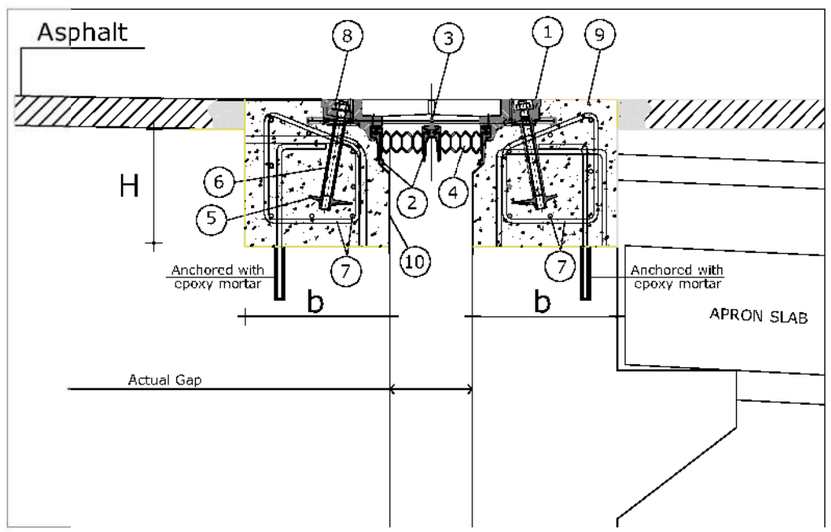
TYPICAL DETAILS FOR THE ADDITIONAL REINFORCEMENT (WHERE NEEDED IN BACKWALL)

TYPICAL DETAILS FOR THE REINFORCED ELASTOMERIC JOINTS



DETAIL 1

TYPICAL DETAIL STEEL FINGER JOINT SECTION



1-Moulded element

2-Extruded element

3-Elastomeric profile

4-Continuous elastomeric profile

5-Trefletic anchors

6-Prestressed tie-bolts

7-Additional rebars

8-Bituminous filling

9-Concrete filling

10-Concrete form

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ROUTINE MAINTENANCE FOR BRIDGE EXPANSION JOINTS AND STREETS IN BEIRUT	STAGE : TENDER DOCUMENTS
	DATE JUNE 2025
EXPANSION JOINTS REPAIR DETAILS TYPICAL DETAILS SHEET 1 OF 1	SCALE N.T.S.
	DRAWING No. DWG BR-TD-01 REV 00

EXECUTION PROCEDURE FOR THE REHABILITATION OF REINFORCED ECASTEMERIC JOINTS (SHHET 1 OF 2)

Step 1. Traffic Management Implementation

- Install the temporary signing and channelizing devices according to the approved TMP plan and TTCP drawings.

Step 2. Removal of Damaged/Defective Expansion Joints

- Dismantle the defective/damaged expansion joints and all related accessories by removing the grouting and undoing the nuts using a torque meter.
- Vertically cut the existing transition strips layer using a saw.
- Remove the transition strips by hand and, if required, use a hammer. Do not damage the structural concrete (refer to Photo 1).
- Thoroughly clean the concrete support and the joint gap by using heavy and energetic blowing across the full thickness (refer to Photo 2). Also, prevent small items from getting inside the gap.

Photo 1: Removing and restoring the concrete support.

Photo 2: Clean the concrete support and the joint gap.

Step 3. Base Joint Preparation

- Check the condition of the concrete support and submit proposed remedial measures for approval if the concrete faces are not sound.
- Record and verify the dimensions of the existing concrete support, pavement thickness (R), new joint thickness (C), and gap width (G) (refer to Figure 1). Submit the necessary remedial measures for engineer approval if any factors hinder the proper functioning of the joints.

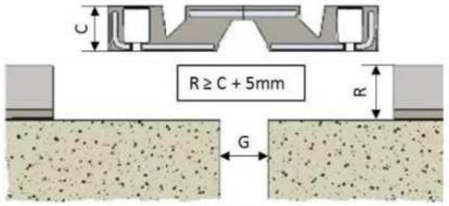

Figure 1

- Where necessary, demolish the weakened part of the concrete support and pour the required additional concrete elements to properly secure the joints. Utilize chemical anchors for fixing the additional reinforcement bars and pour high-performance concrete or micro-cement concrete, all as specified and subject to Engineer approval.

Step 4. Drain Installation and Waterproofing Closing

- Install the drain as shown in Figure 2 and according to the manufacturer's recommendations to facilitate the evacuation of any water within the pavement thickness.
- Connect the drain to the outlet evacuation system.

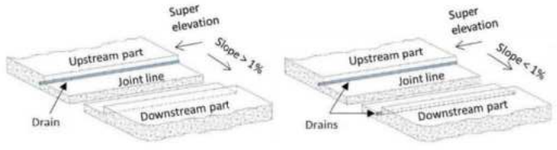

Figure 2 (Drain Installation)

Step 5. Preparing The Bedding Support

- Install a formwork of G thickness in polystyrene (a plywood-polystyrene-plywood sandwich for thickness over 65 mm) or in wood (Figure 3).
  If plywood is used, it must be coated with a form oil before being installed.
- Carefully cut the formwork slightly higher than the level of the road surface.

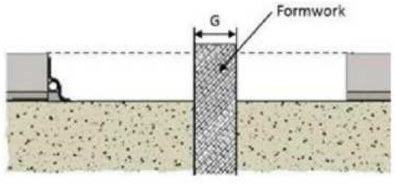

Figure 3: Formwork installation

- Adjust the bedding thickness by using a metallic or wooden jig (Figure 5) to position the elements between 0 and 2 mm below the road surface level (Figure 4).

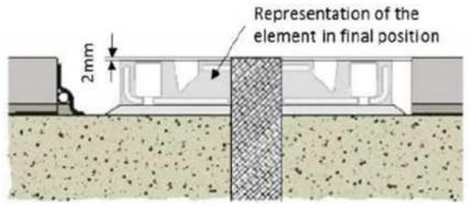

Figure 4

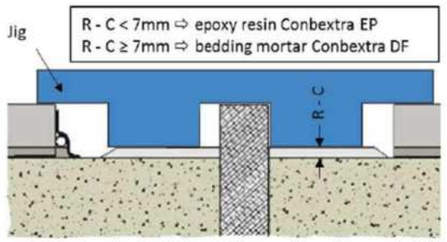

Figure 5: Setting the bedding thickness by using special Jig)

- Use as bedding support the following products depending on pavement thickness (R) and joint thickness (C) (Figure 5):
  - ✓ If (R – C) < 7mm: use epoxy resin (Conbextra EP or equivalent).
  - ✓ If (R – C) ≥ 7mm: use bedding mortar (Conbextra Bedding Mortar or equivalent).

Photo 3 Setting the bedding thickness by the JIG

Photo 4 Levelling of the elements

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ROUTINE MAINTENANCE FOR BRIDGE EXPANSION JOINTS AND STREETS IN BEIRUT	STAGE : TENDER DOCUMENTS
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EXECUTION PROCEDURE FOR THE REHABILITATION OF REINFORCED ECASTEMERIC JOINTS SHEET 1 OF 2	SCALE N.T.S.
	DRAWING No. DWG BR-TD-02 REV 00

EXECUTION PROCEDURE FOR THE REHABILITATION OF REINFORCED ECASTEMERIC JOINTS (SHHET 2 OF 2)

Step 6. Preparing sealing of the anchorages

- Install the joints elements to mark the location of the anchorages with paint or predrilling.
- Dismantle the joints elements.
- Wait the bedding support has reached minimum 35 MPa of mechanical resistance.
- Drill the holes to the required depth and diameter as per manufacturer's recommendation (Figure 6).

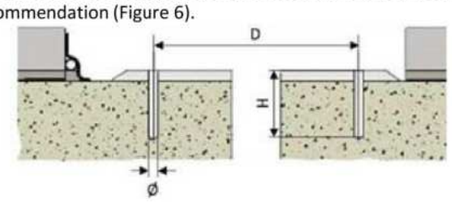


Figure 6: Anchorages sealing preparation

- Clean and dry the holes
- Fixing by approved chemical sealing as follow:
  - Insert the chemical bulbs inside the holes
  - Install the threaded rods to the bottom of the holes using a power drill (set on 750 rpm speed).
  - Wait until the chemical bulbs have hardened.

Step 7. Preparing the elements support surface

- Clean the concrete faces
- Coat them with epoxy resin or equivalent over a height of 80mm at least (Photo 6).
- Set the adequate membrane progressively by applying its rough face against the 80mm coated (Photos 5 &6; Figure 7).

Photo 5 Coating the concrete faces

Photo 6 Membrane installation

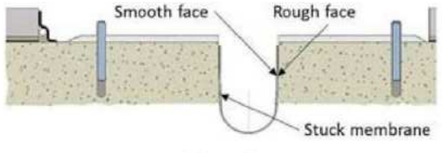


Figure 7

Step 8. Installing and Fixation the joints elements

- Use the appropriate tools recommended by the manufacturer to set the joint line.
- Proceed with the joint installation: Position the elements based on the pavement's shape, starting from the top for pavements with a roof shape and from the bottom for pavements with superelevation.

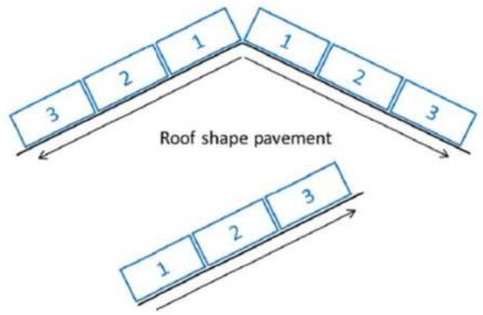


Figure 8: Installation order of the elements

Photo 7: Installation of joint elements

Step 9. Tensioning the anchorages

- Apply tension according to the chosen fastener type, starting from the middle anchorages of each element and finishing at the ends.
- Fasten bolts using a torque wrench calibrated according to manufacturer recommendations.
- Check the tightening torque and correct it if necessary.

Step 10. Protecting the anchorages

- Clean the area around the anchorages meticulously by blowing.
- To protect the anchors, pour approved epoxy resin into the anchorages recess.

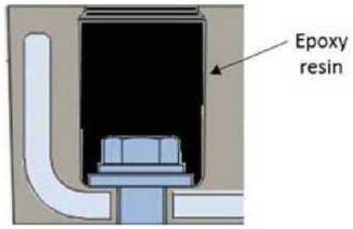


Figure 9: Anchorage heads protection

Step 11. Transition zone

- Clean the transition zone between the joint elements and the road surface thoroughly to remove any non-adherent particles.
- Protect the upper face of the surrounding elements (joint and pavement) with masking tape or other material to prevent them from becoming dirty.
- Fill in the transition zone (refer to Photo 8 and Figure 10) with approved epoxy resin (Fresyssiflex Sb or equivalent).

Photo 8: Filling in the transition zone

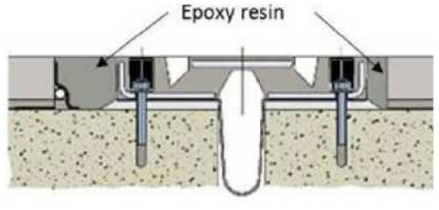


Figure 10 : Fill in the transition zone

NOTES

1-Prior to ordering and delivering the specified bridge expansion joints, the contractor must submit a comprehensive document for the Engineer's approval. This submittal should include the following:

a)Site survey and measurements for the bridge expansion joints to be replaced, based on the contractor's own site survey. This should encompass mainly the actual gap width, joint lengths, and details of the existing joints.

b)Detailed execution drawings, technical specifications,design calculation notes, dimensions and seize of the proposed joints. This should include any necessary site modifications to accommodate the new joints.

c)Structural assessment for the joint concrete supports and the proposed design and method for strength improvement (where required).

d)Method statement for the joint rehabilitation works.

LEGEND

No	DATE	REVISION	DESCRIPTION	CHECKED	P.MANAGER

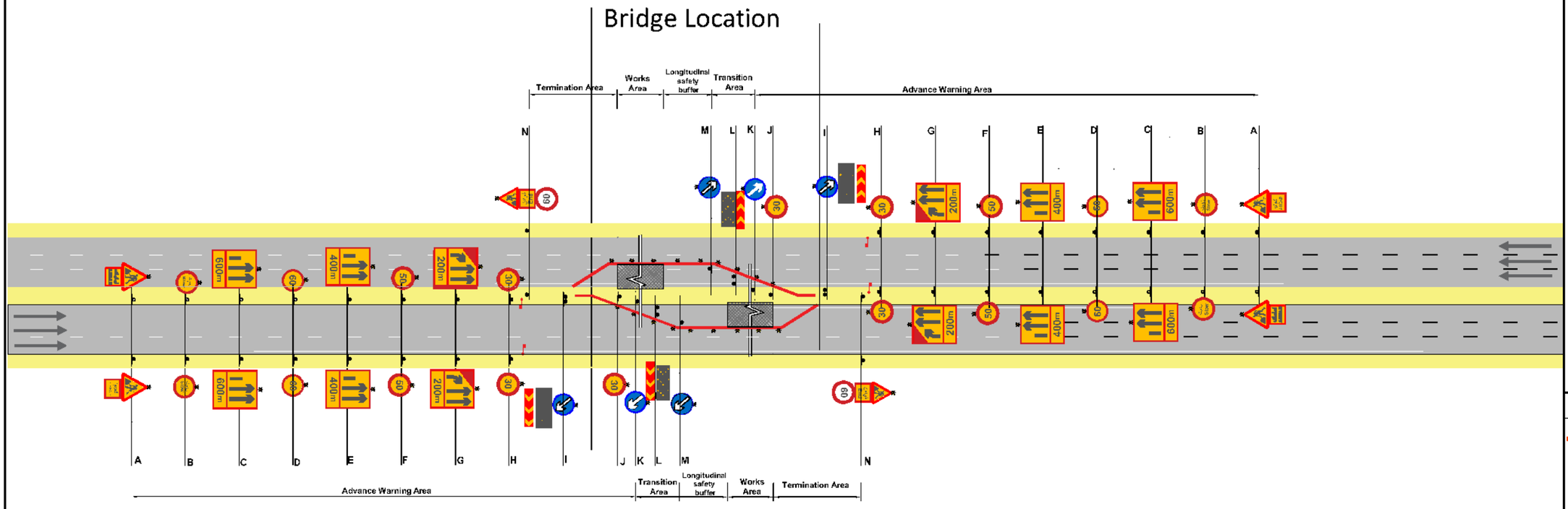
REPUBLIC OF LEBANON

MINISTRY OF PUBLIC WORKS AND TRANSPORT

COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

ROUTINE MAINTENANCE FOR BRIDGE EXPANSION JOINTS AND STREETS IN BEIRUT	STAGE : TENDER DOCUMENTS
	DATE JUNE 2025
EXECUTION PROCEDURE FOR THE REHABILITATION OF REINFORCED ECASTEMERIC JOINTS SHEET 2 OF 2	SCALE N.T.S.
	DRAWING No. DWG BR-TD-03 REV 00

Typical Traffic Control Plan (TCP)
Typical Left Hand Half Lanes Closure on Bridges From Each Direction
3 , or 2lanes in each Direction
Group I- Nighttime Works



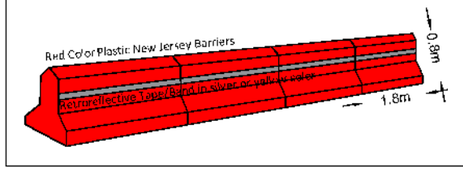
Sign locations, Types and Dimensions:

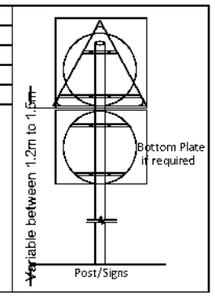
	Advance Warning Area										Transition Area 360m			Termination Area
	A	B	C	D	E	F	G	H	I	J	K	L	M	N
Permanent Speed Limit	Warning Sign Dim:1x1m	Regulatory Sign D:0.85 or 1m	Warning Sign Dim:1.2x1m	Regulatory Sign D:0.85 or 1m	Warning Sign Dim:1.2x1m	Regulatory Sign D:0.85 or 1m	Warning Sign Dim:1.2x1m	Regulatory Sign D:0.85 or 1m	Mandatory &Warning Sign	Regulatory Sign D:0.85 or 1m	Mandatory Sign D:0.85 or 1m	Warning Sign Dim:1.8x0.6m	Mandatory Sign D:0.85 or 1m	Warning Sign

All Signs shall be retroreflectorized by the application of retro reflective materials.
Advanced warning Area shall be increased at base of horizontal curves, and Crest/Sag points.
All Dimensions are in Meter unless otherwise indicated.
All used Speed Limits are in Km/h.
Do not Scale from the Drawing.

Legend and Details:

	Solar Flash Light on each sings and every 15m on the Working Zone.
	Flagman
	Work Zone.
	Post/Signs
	Traffic Direction
	Connected Plastic New Jersey Barriers filled by Water in red Color with Flashing Tape.





NOTES

- All dimensions are in meters unless otherwise indicated.
- Do not scale from the drawings.
- Connected plastic new jersey barriers filled (water &sand)in red colors with flashing Tape.
- This T.M.P .on bridges is indicative. The contractor shall prepare the updated T.C.P .based on ground conditions and shall be approved by the consultant prior to commencement of works.
- Advanced warning area shall be increased in case of horizontal curves and/or working during night.

LEGEND

Plastic New Jersey Barriers Filled (Water And Sand)

Solar Flash Light On Sings And Every 15m

No	DATE	REVISION	DESCRIPTION	CHECKED	P.MANAGER

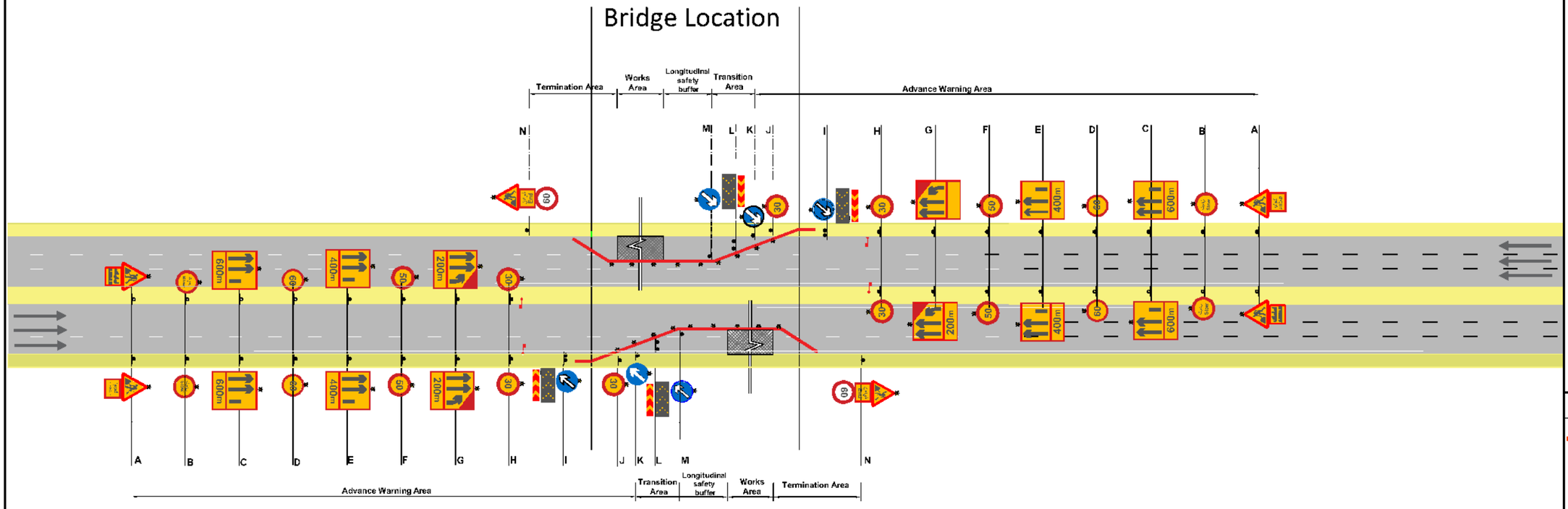
REPUBLIC OF LEBANON

MINISTRY OF PUBLIC WORKS AND TRANSPORT

COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

ROUTINE MAINTENANCE FOR BRIDGE EXPANSION JOINTS AND STREETS IN BEIRUT	STAGE : TENDER DOCUMENTS
	DATE JUNE 2025
TYPICAL TRAFFIC CONTROL PLAN SHEET 1 OF 4	SCALE N.T.S
	DRAWING No. DWG BR-TD-04 REV 00

Typical Traffic Control Plan (TCP)
Typical Right Hand Half Lanes Closure on Bridges From Each Direction
3 or 2lanes in each Direction
Group I- Nighttime Works



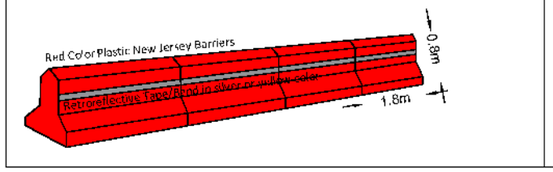
Sign locations, Types and Dimensions:

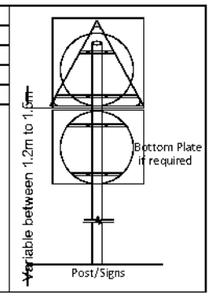
	Advance Warning Area										Transition Area 360m			Termination Area
	A	B	C	D	E	F	G	H	I	J	K	L	M	N
Permanent Speed Limit	Warning Sign Dim:1x1m	Regulatory Sign D:0.85 or 1m	Warning Sign Dim:1.2x1m	Regulatory Sign D:0.85 or 1m	Warning Sign Dim:1.2x1m	Regulatory Sign D:0.85 or 1m	Warning Sign Dim:1.2x1m	Regulatory Sign D:0.85 or 1m	Mandatory &Warning Sign	Regulatory Sign D:0.85 or 1m	Mandatory Sign D:0.85 or 1m	Warning Sign Dim:1.2x0.6m	Mandatory Sign D:0.85 or 1m	Warning Sign

All Signs shall be reflectorized by the application of retro reflective materials.
Advanced warning Area shall be increased in case of horizontal curves, and Crest/Sag points.
All Dimensions are in Meter unless otherwise indicated.
All used Speed Limits are in Km/h.
Do not Scale from the Drawing.

Legend and Details:

	Solar Flash Light on each sings and every 15m on the Working Zone.
	Flagman
	Work zone.
	Post/Signs
	Traffic Direction
	Connected Plastic New Jersey Barriers filled by Water in red Color with Flashing Tape.





NOTES

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- Connected plastic new jersey barriers filled (water &sand)in red colors with flashing Tape.
- This T.M.P .on bridges is indicative. The contractor shall prepare the updated T.C.P .based on ground conditions and shall be approved by the consultant prior to commencement of works.
- Advanced warning area shall be increased in case of horizontal curves and/or working during night.

LEGEND

Plastic New Jersey Barriers Filled (Water And Sand)

Solar Flash Light On Sings And Every 15m

No	DATE	REVISION	DESCRIPTION	CHECKED	P.MANAGER

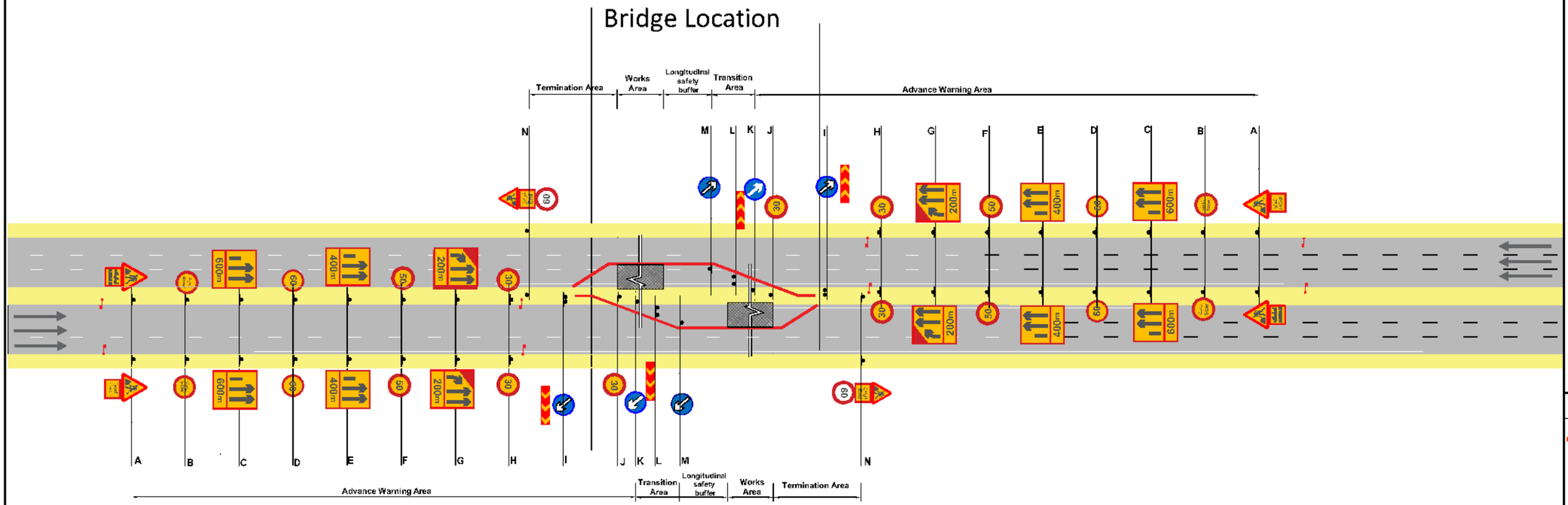
REPUBLIC OF LEBANON

MINISTRY OF PUBLIC WORKS AND TRANSPORT

COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

ROUTINE MAINTENANCE FOR BRIDGE EXPANSION JOINTS AND STREETS IN BEIRUT	STAGE : TENDER DOCUMENTS
	DATE JUNE 2025
TYPICAL TRAFFIC CONTROL PLAN SHEET 2 OF 4	SCALE N.T.S
	DRAWING No. DWG BR-TD-05 REV 00

Typical Traffic Control Plan (TCP)
Typical Left Hand Half Lanes Closure on Bridges From Each Direction
3 ,or 2lanes in each Direction
Group II- Daytime Works



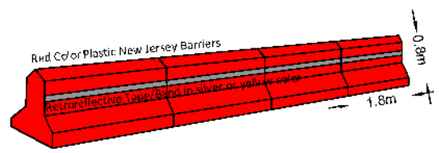
Sign locations, Types and Dimensions:

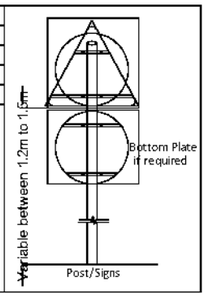
	Advance Warning Area										Transition Area 360m			Termination Area
	A	B	C	D	E	F	G	H	I	J	K	L	M	N
Permanent Speed Limit	Warning Sign Dim:1x1m	Regulatory Sign D:0.85 or 1m	Warning Sign Dim:1.2x1m	Regulatory Sign D:0.85 or 1m	Warning Sign D :1.2x1m	Regulatory Sign D:0.85 or 1m	Warning Sign D :1.2x1m	Regulatory Sign D:0.85 or 1m	Mandatory &Warning Sign	Regulatory Sign D:0.85 or 1m	Mandatory Sign D:0.85 or 1m	Warning Sign Dim: 3x0.6m	Mandatory Sign D:0.85 or 1m	Warning Sign

All Signs shall be retroreflectorized by the application of retro reflective materials.
Advanced warning Area shall be increased at base of horizontal curves, and Crest/Sag points.
All Dimensions are in Meter unless otherwise indicated.
All Used Speed Limits are in Km/h.
Do not Scale From the Drawing.

Legend and Details:

	Solar Flash Light.
	Flagman
	Work Zone.
	Post/Signs
	Traffic Direction
	Connected Plastic New Jersey Barriers filled by Water in red Color with Flashing Tape.





NOTES

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LEGEND

Plastic New Jersey Barriers Filled (Water And Sand)

Solar Flash Light On Sings And Every 15m

No	DATE	REVISION	DESCRIPTION	CHECKED	P.MANAGER

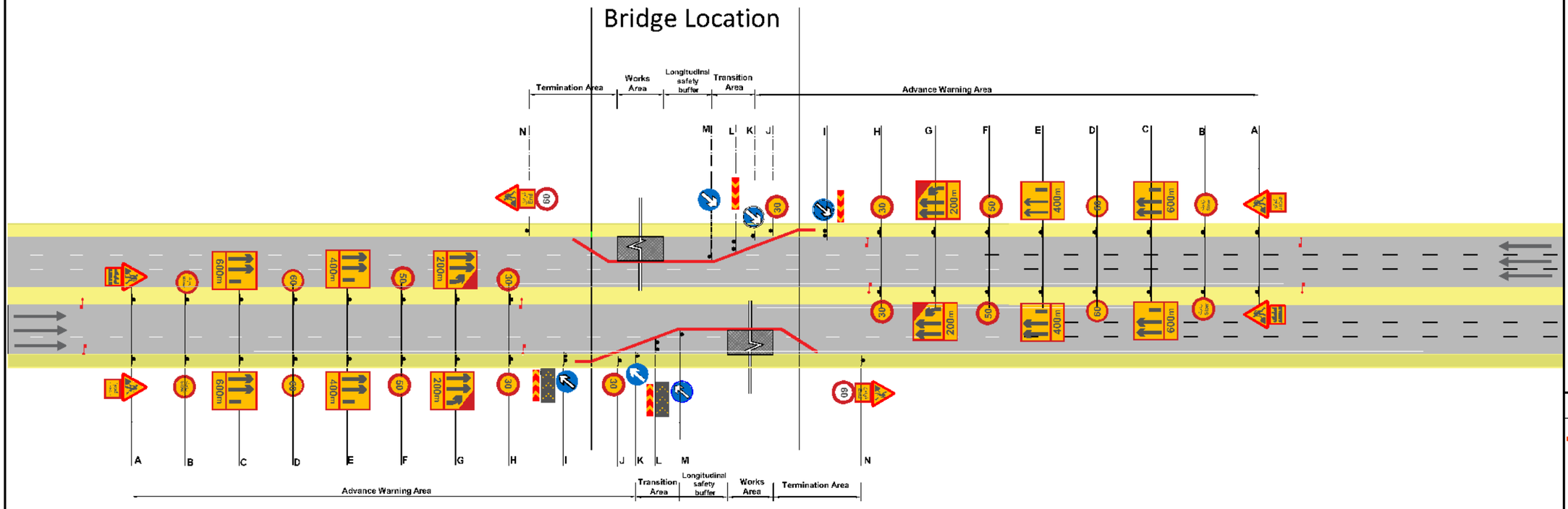
REPUBLIC OF LEBANON

MINISTRY OF PUBLIC WORKS AND TRANSPORT

COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

ROUTINE MAINTENANCE FOR BRIDGE EXPANSION JOINTS AND STREETS IN BEIRUT	STAGE : TENDER DOCUMENTS
	DATE JUNE 2025
	SCALE N.T.S
TYPICAL TRAFFIC CONTROL PLAN SHEET 3 OF 4	DRAWING No. DWG BR-TD-06 REV (0)

Typical Traffic Control Plan (TCP)
Typical Right Hand Half Lanes Closure on Bridges From Each Direction
3 ,or 2lanes in each Direction
Group II- Daytime Works



Sign locations, Types and Dimensions:

	Advance Warning Area										Transition Area 360m			Termination Area
	A	B	C	D	E	F	G	H	I	J	K	L	M	N
Permanent Speed Limit	Warning Sign Dim:1x1m	Regulatory Sign D:0.85 or 1m	Warning Sign Dim:1.2x1m	Regulatory Sign D:0.85 or 1m	Warning Sign Dim:1.2x1m	Regulatory Sign D:0.85 or 1m	Warning Sign Dim:1.2x1m	Regulatory Sign D:0.85 or 1m	Mandatory &Warning Sign	Regulatory Sign D:0.85 or 1m	Mandatory Sign D:0.85 or 1m	Warning Sign Dim:1.2x0.6m	Mandatory Sign D:0.85 or 1m	Warning Sign

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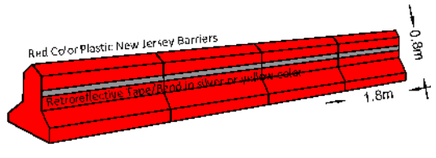
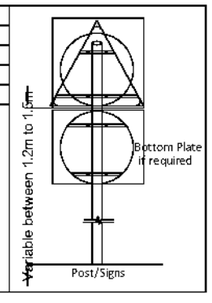
Advanced warning Area shall be increased in case of horizontal curves, and Crest/Sag points.
All Dimensions are in Meter unless otherwise indicated.
All used Speed Limits are in Km/h.
Do not Scale from the Drawing.

Legend and Details:

	Solar Flash Light.
	Flagman
	Work zone.
	Post/Signs
	Traffic Direction
	Connected Plastic New Jersey Barriers filled by Water in red Color with Flashing Tape.





NOTES

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LEGEND

Plastic New Jersey Barriers Filled (Water And Sand)

Solar Flash Light On Sings And Every 15m

No	DATE	REVISION	DESCRIPTION	CHECKED	P.MANAGER

REPUBLIC OF LEBANON

MINISTRY OF PUBLIC WORKS AND TRANSPORT

COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

ROUTINE MAINTENANCE FOR BRIDGE EXPANSION JOINTS AND STREETS IN BEIRUT	STAGE : TENDER DOCUMENTS
	DATE JUNE 2025
TYPICAL TRAFFIC CONTROL PLAN SHEET 4 OF 4	SCALE N.T.S
	DRAWING No. DWG BR-TD-07 REV 00

PART II
ROUTINE MAINTENANCE FOR STREETS IN BEIRUT

PART II-ROUTINE MAINTENANCE FOR STREETS IN BEIRUT STREETS UNDER SCOPE OF WORK			
CITY	**Street Reference**	**Street Name**	
BEIRUT	STREET S 1	Gouraud Street	شارع غورو
	STREET S 2	Jeanne Darc Street	شارع جان دارك
	STREET S 3	Ouzai Street (Optional)	شارع اوزاعي
	STREET S 4	Makdessi Street (Optional)	شارع مقدسي

NOTES

LEGEND

No	DATE	REVISION	DESCRIPTION	CHECKED	P.MANAGER

REPUBLIC OF LEBANON

MINISTRY OF PUBLIC WORKS AND TRANSPORT

COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

ROUTINE MAINTENANCE FOR BRIDGE EXPANSION JOINTS AND STREETS IN BEIRUT

STAGE : TENDER DOCUMENTS

DATE JUNE 2025

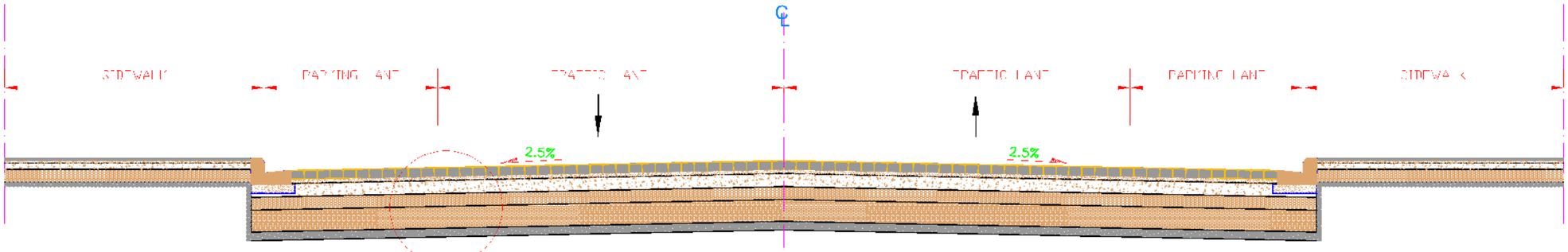
STREET LOCATIONS PLAN

SCALE N.T.S.

DRAWING No. DWG ST-GN-001

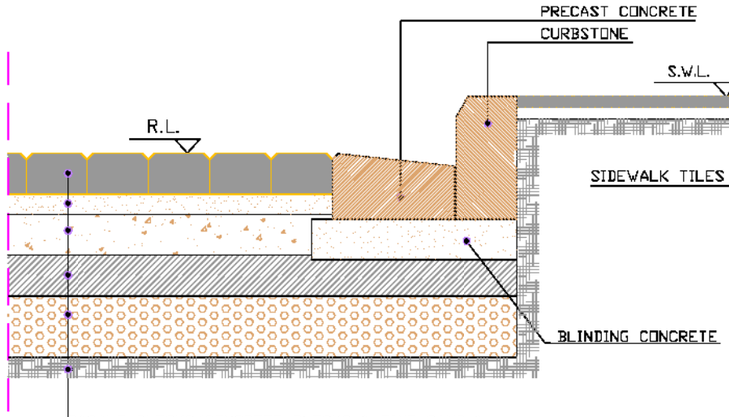
REV 00

REHABILITATION OF BLOCK PAVEMENT-TYPICAL DETAILS



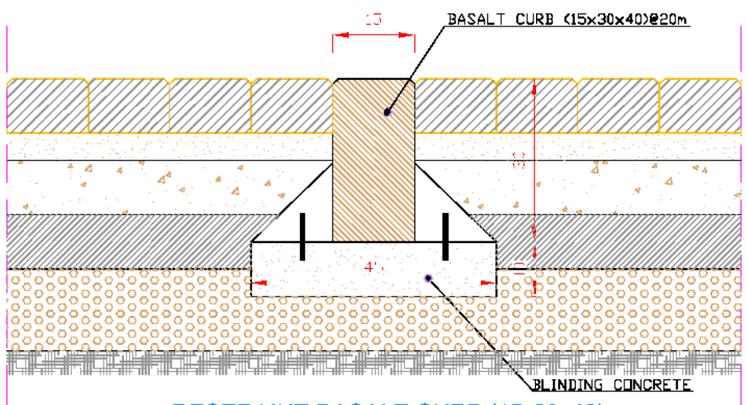
REFER PAVEMENT DETAIL (DETAIL 1)

TYPICAL CROSS SECTION FOR STREET

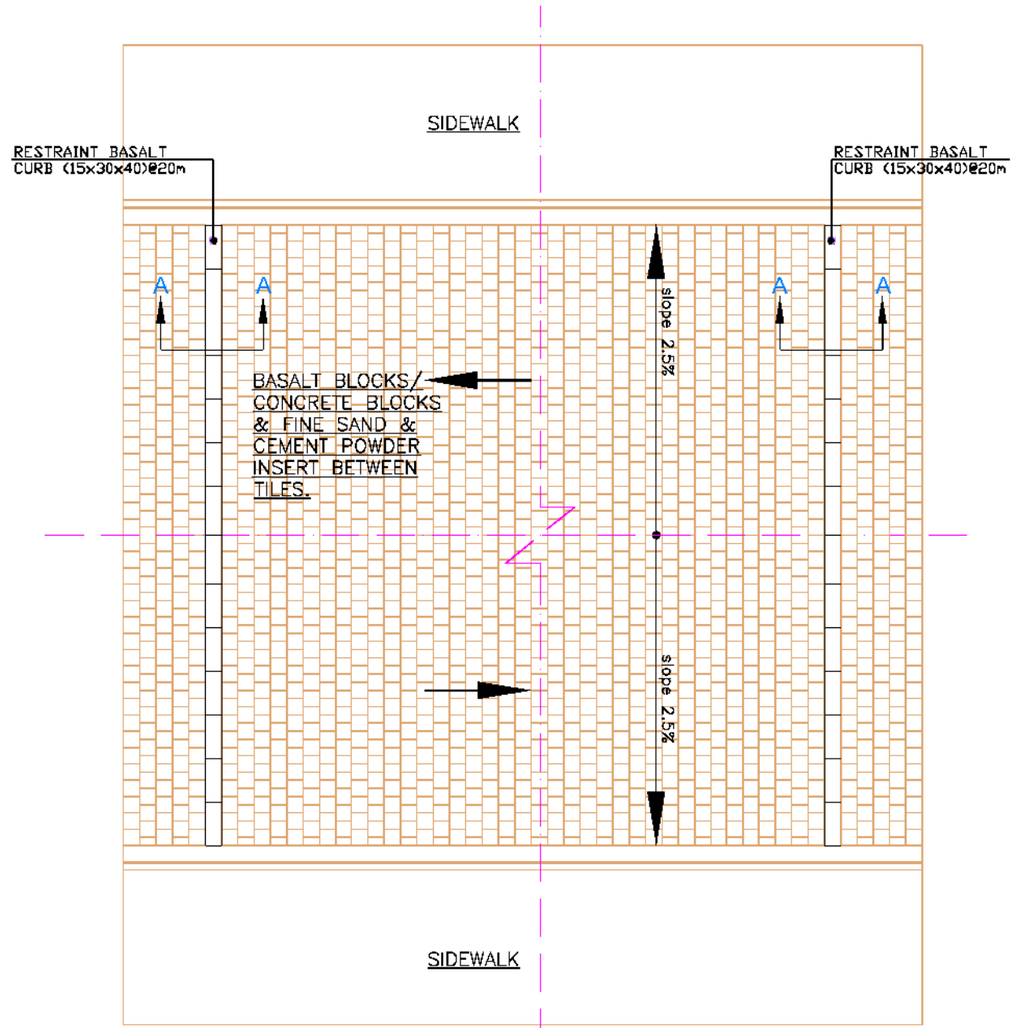


BASALT BLOCKS/CONCRETE BLOCKS & FINE SAND &
CEMENT POWDER INSERT BETWEEN TILES.
5cm FINE SAND
15 cm CEMENT TREATED BASE LAYER (LOW STRENGTH MATERIAL)
15 cm COMPACTED GRANULAR FILL
25 cm AGGREGATE BASE COURSE
SUBGRADE (CBR≥20%)

TYPICAL PAVEMENT DETAIL
DETAIL 1



RESTRAINT BASALT CURB (15x30x40)
SECTION A-A



TYPICAL PLAN STREET

NOTES

No	DATE	REVISION	DESCRIPTION	CHECKED	P.MANAGER

REPUBLIC OF LEBANON

MINISTRY OF PUBLIC WORKS AND TRANSPORT

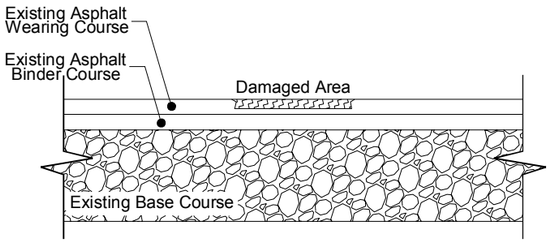
COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

ROUTINE MAINTENANCE FOR BRIDGE EXPANSION JOINTS AND STREETS IN BEIRUT	STAGE : TENDER DOCUMENTS
	DATE JUNE 2025
PAVEMENT REPAIR DETAILS REHABILITATION OF BLOCK PAVEMENTS TYPICAL DETAILS	SCALE N.T.S.
	DRAWING No. DWG ST-TD-01 REV. 00

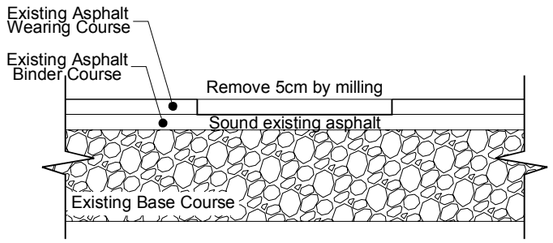
MAINTENANCE OF ASPHALT PAVEMENT:

Surface Patching Works
including milling, tack coat, asphalt wearing course (one layer 5cm)

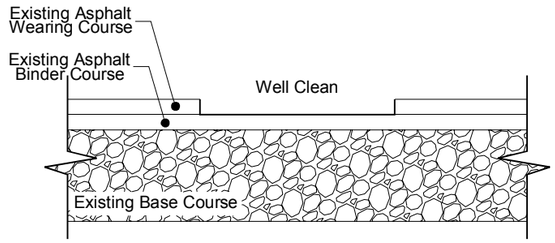
Step -1
Locate the damaged area



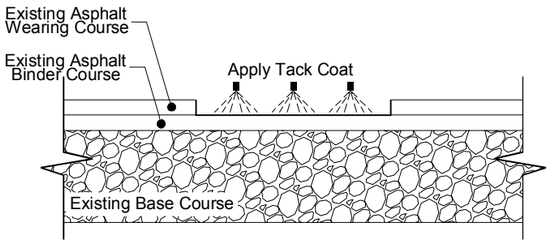
Step -2
Mill 5cm in slightly larger rectangular shapes parallel to the traffic direction



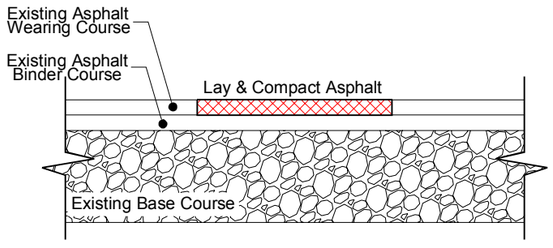
Step -3
Well clean and check the milled area if found damaged remove the full asphalt and proceed with shallow patching works



Step -4
Apply tack coat to surface and edges



Step -5
Lay and compact wearing course asphalt



NOTES

No	DATE	REVISION	DESCRIPTION	CHECKED	P.MANAGER

REPUBLIC OF LEBANON

MINISTRY OF PUBLIC WORKS AND TRANSPORT

COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

ROUTINE MAINTENANCE FOR BRIDGE EXPANSION JOINTS AND STREETS IN BEIRUT	STAGE : TENDER DOCUMENTS
	DATE JUNE 2025
PAVEMENT REPAIR DETAILS	SCALE N.T.S.
MAINTENANCE OF ASPHALT PAVEMENT SURFACE PATCHING WORKS-TYPICAL DETAILS	DRAWING No. DWG ST-TD-02 / REV 00

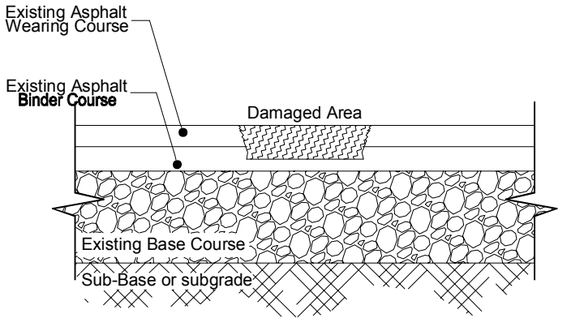
MAINTENANCE OF ASPHALT PAVEMENT

Deep Patching Works

including excavation, base course (30cm), prime coat, asphalt binder course (one layer 5cm), tack coat and asphalt wearing course (one layer 5cm)

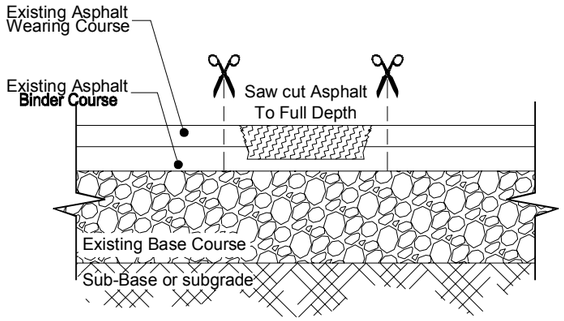
Step -1

Locate the damaged area



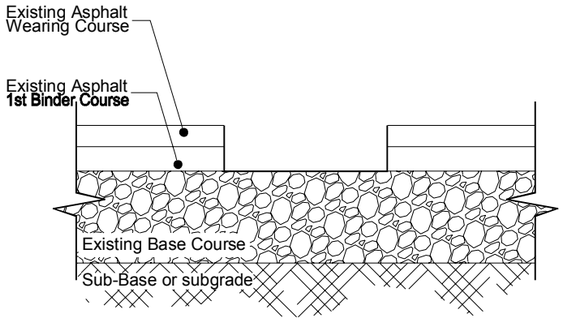
Step -2

Saw cut to full asphalt depth in slightly larger rectangular shapes parallel to road



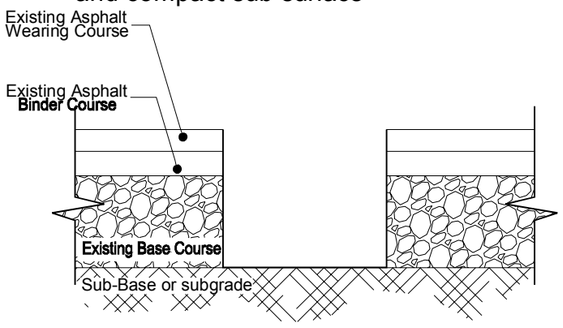
Step -3

Scrap-off all asphalt layers with care to not damage adjacent good asphalt



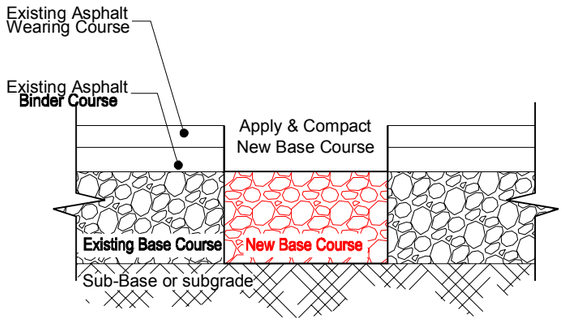
Step -4

Proceed with base course removal with care to not undermine adjacent asphalt and compact sub-surface



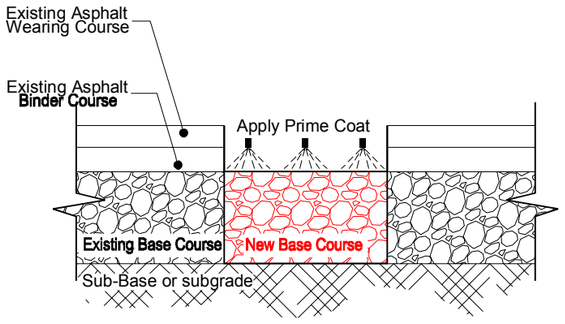
Step -5

Apply and well compact base course using new approved material



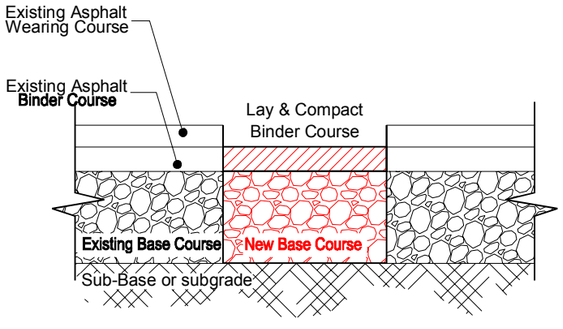
Step -6

Apply prime coat to area and edges



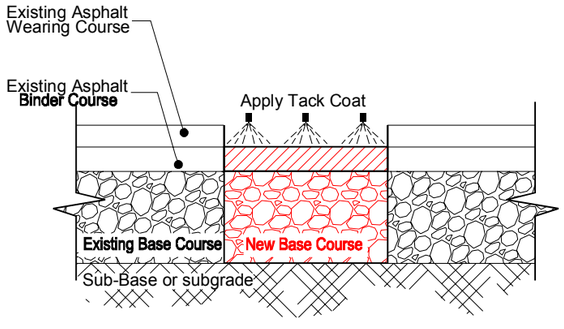
Step -7

Lay and compact binder course asphalt



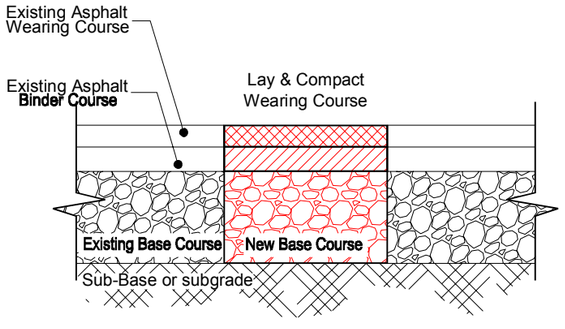
Step -8

Apply tack coat to area and edges



Step -9

Lay and compact wearing course asphalt



NOTES

No	DATE	REVISION	DESCRIPTION	CHECKED	P.MANAGER

REPUBLIC OF LEBANON

MINISTRY OF PUBLIC WORKS AND TRANSPORT

COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

ROUTINE MAINTENANCE FOR BRIDGE EXPANSION JOINTS AND STREETS IN BEIRUT

STAGE : TENDER DOCUMENTS

DATE JUNE 2025

PAVEMENT REPAIR DETAILS

MAINTENANCE OF ASPHALT PAVEMENT DEEP PATCHING WORKS-TYPICAL DETAILS

SCALE N.T.S.

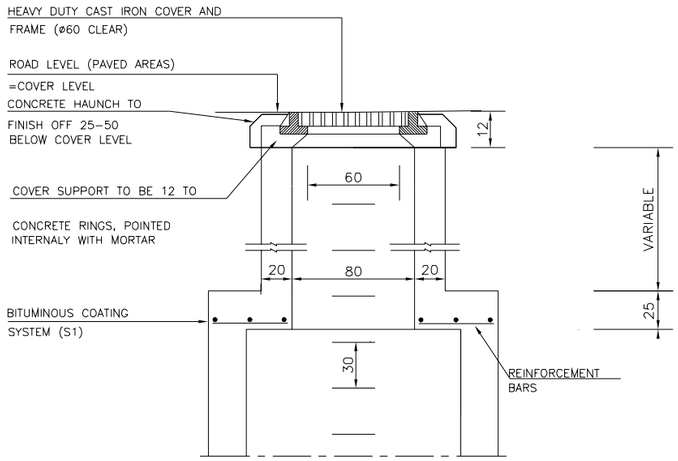
DRAWING No. DWG ST-TD-03

REV 00

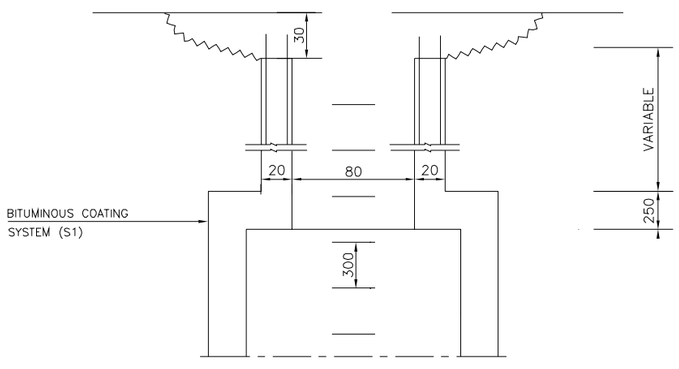
CONCRETE REPAIR WORKS:

Adjusting Manhole cover works:
including excavation, breaking deteriorated concrete, pouring concrete ring beam, fixing cover, structural mortar & finishing.

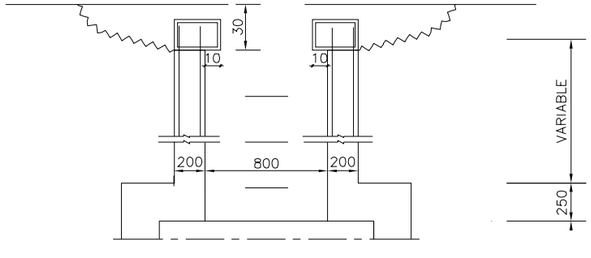
1-Typical Original Manhole Cover to be repaired.



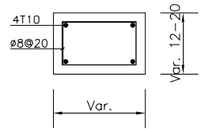
2-Remove the Cover, Excavate to expose the solid concrete manhole, but not less than 30cm.



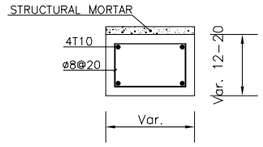
3-If the top ring is exposed completely then Remove the top ring and pour a new one as shown next.



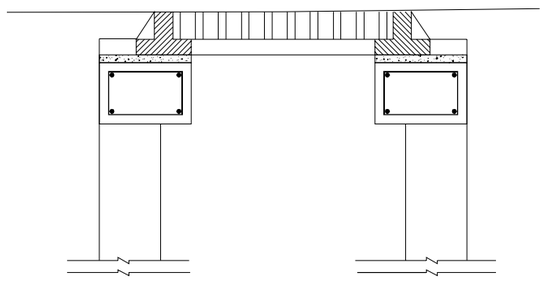
4-A typical top ring beam.
The height shall be between 12 and 20cm as convenient to fix the manhole cover in its precise level and position.



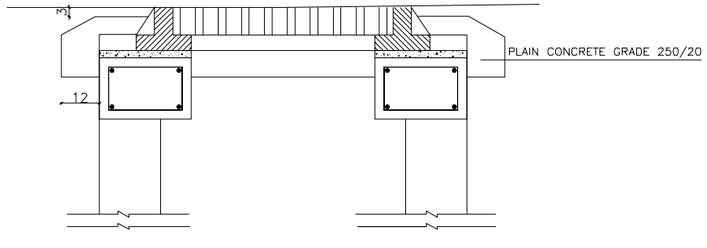
5-Fixing of Cover.
After pouring the top ring beam use proprietary make mortar as specified in section 5.21 to adjust the cover level and fix flush with the asphalt level.
This mortar shall not be thicker than 2.5cm. If thicker then the contractor shall consider a thicker top beam.



6-Fixing of Cover.
After pouring the top ring beam and fixing the cover frame in place pour plain concrete grade 250/20 as shown in the following figure.



7-Concreting around the Cover.
shall be as shown with 3cm lower than the cover level and chamfered at 30 to 45 degrees to receive the asphalt layers.



NOTES

- Do not scale from the drawing.
- All dimensions are in centimeters.
- All dimensions and levels to be verified on site by the contractor or his sub-contractor & approved by the engineer.
- The drawing should be read in conjunction with other relevant drawings and all relevant sections of specifications.

No	DATE	REVISION	DESCRIPTION	CHECKED	P.MANAGER

REPUBLIC OF LEBANON

MINISTRY OF PUBLIC WORKS AND TRANSPORT

COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

ROUTINE MAINTENANCE FOR BRIDGE EXPANSION JOINTS AND STREETS IN BEIRUT

STAGE : TENDER DOCUMENTS

DATE JUNE 2025

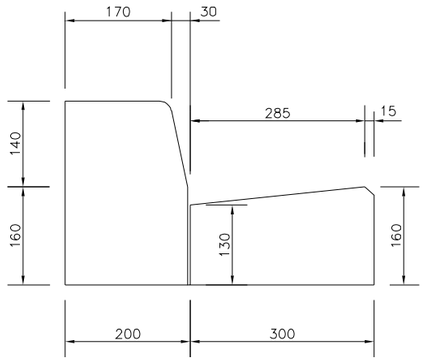
CONCRETE & INCIDENTAL REPAIR DETAILS

ADJUSTING MANHOLE COVER & CLEANING PIPES

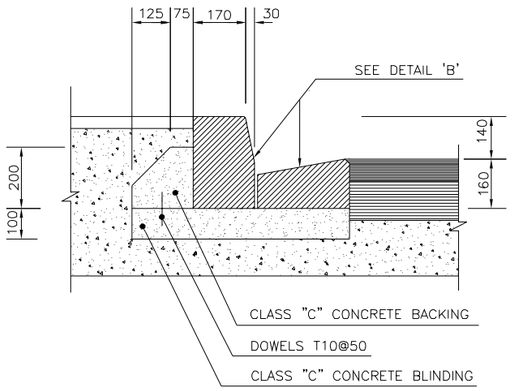
SCALE N.T.S.

DRAWING No. DWG ST-TD-10

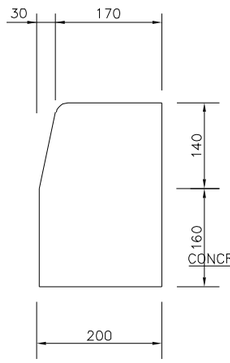
REV 00



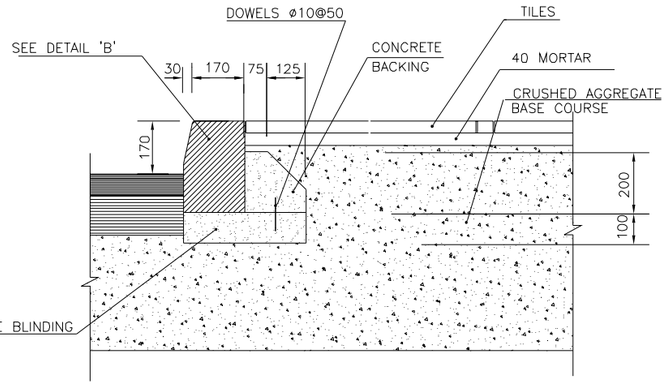
DETAIL 'A'
SCALE 1/5



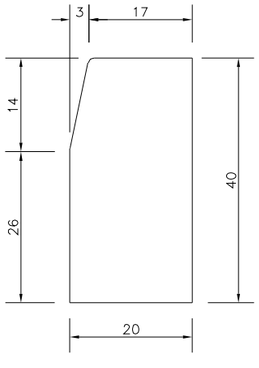
CURB & GUTTER DETAIL
SCALE 1/10



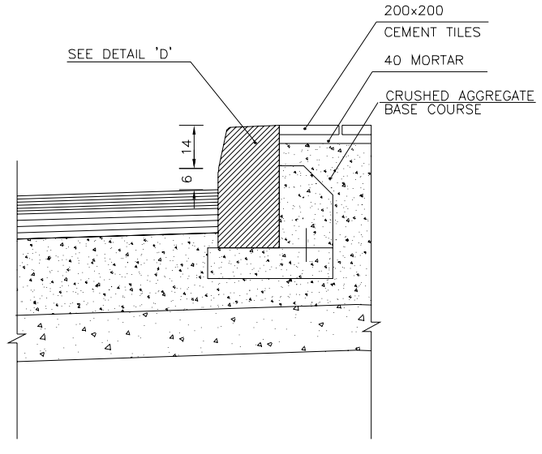
DETAIL 'B'
SCALE 1/5



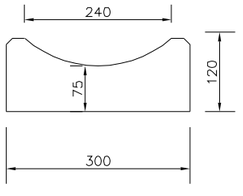
TILED SIDEWALK DETAIL
&
UPSTAND CURB DETAIL
SCALE 1/10



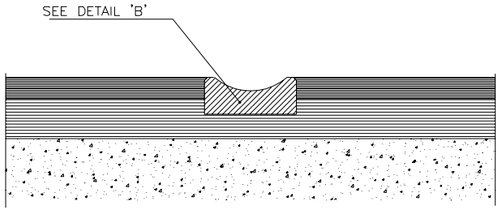
DETAIL 'C'
scale:1/5



MEDIAN UPSTAND CURB DETAIL AT CROSS-ROADS
scale:1/10



DETAIL 'D'
SCALE 1/5



GUTTER DETAIL
SCALE 1/10

NOTES

- Do not scale from the drawing.
- All dimensions are in millimeters.
- All dimensions and levels to be verified on site by the contractor or his sub-contractor & approved by the engineer.
- The drawing should be read in conjunction with other relevant drawings and all relevant sections of specifications.

No	DATE	REVISION	DESCRIPTION	CHECKED	P.MANAGER

REPUBLIC OF LEBANON

MINISTRY OF PUBLIC WORKS AND TRANSPORT

COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

ROUTINE MAINTENANCE FOR BRIDGE EXPANSION JOINTS AND STREETS IN BEIRUT

STAGE : TENDER DOCUMENTS

DATE JUNE 2025

CONCRETE & INCIDENTAL REPAIR DETAILS

CURBS & GUTTER DETAILS

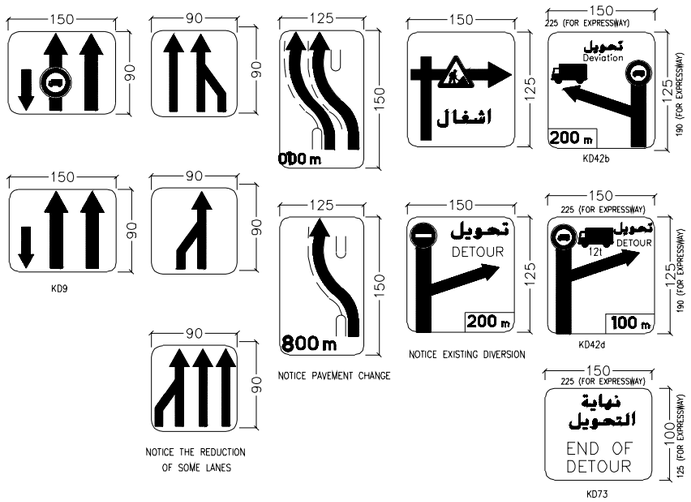
SCALE N.T.S.

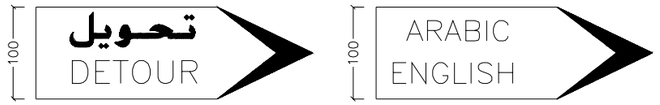
DRAWING No. DWG ST-TD-11

REV 00

GUIDE SIGNS TYPE KD

SUPPORT IS YELLOW AND SYMBOLS, LETTERS AND LISTEL ARE BLACK



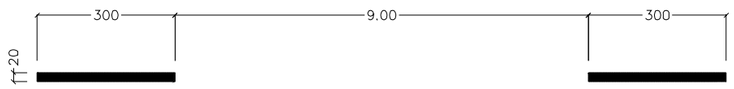


TEMPORARY MARKING

THESE LINES ARE YELLOW AND REFLECTORISING.
THEY CAN BE ERASED OR REMOVED WITHOUT ANY RESIDUAL TRACE.

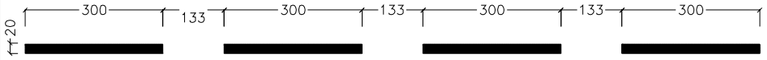
FOR CONTINUOUS EDGE LINE AND FOR SEPARATING THE TRAFFIC IN OPPOSITE DIRECTIONS

MR2 TEMPORARY



FOR SEPARATING THE TRAFFIC IN THE SAME DIRECTION

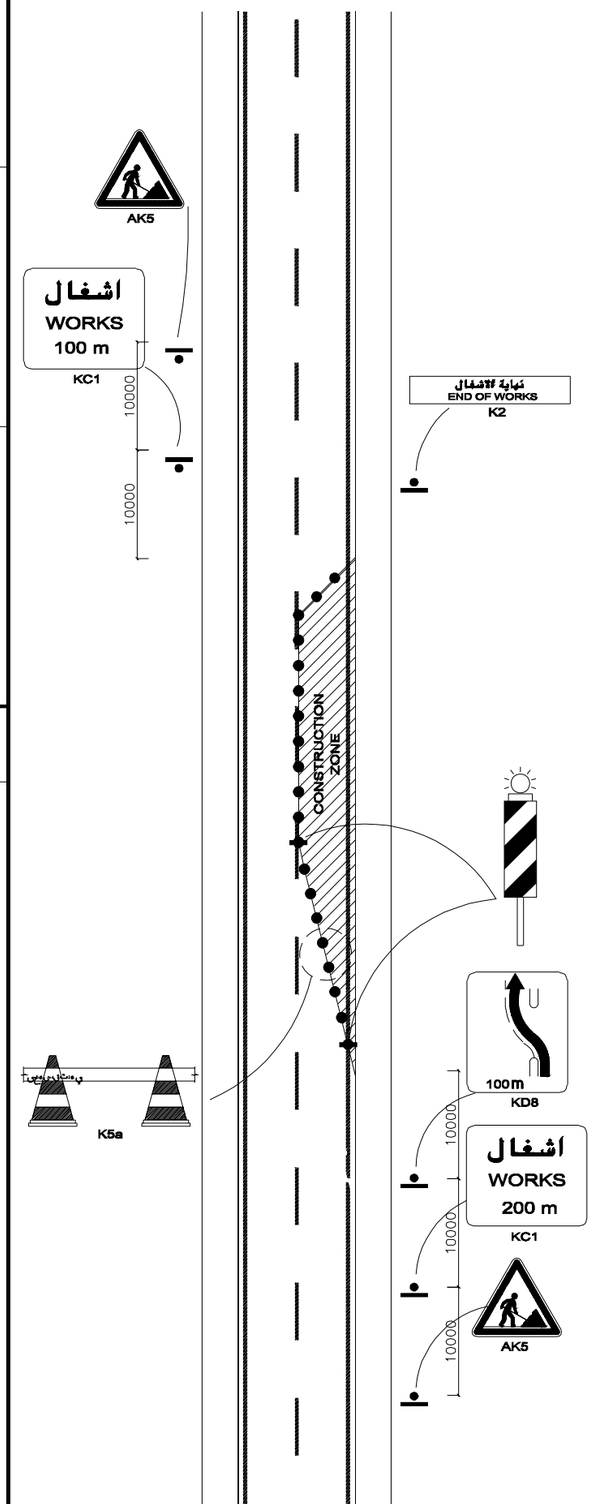
TYPE T1



FOR SEPARATING THE TRAFFIC IN THE SAME DIRECTION

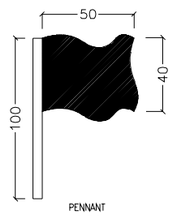
TYPE T3

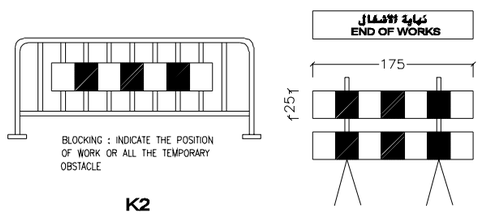
TEMPORARY ROAD CLOSURE

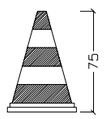


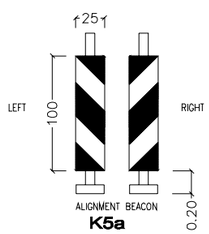
NOTES

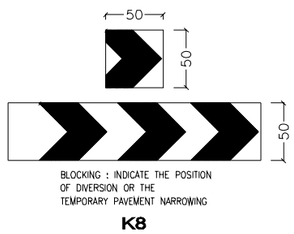
SIGNS TYPE K

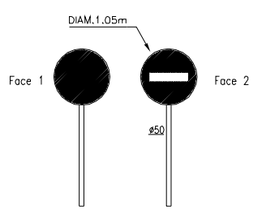


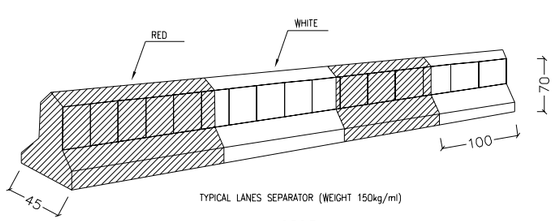






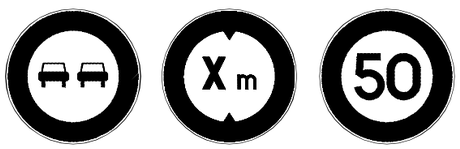


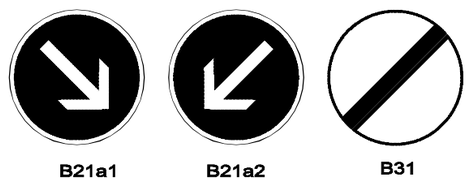




REGULATORY SIGNS TYPE B

DIAMETER 085m





No	DATE	REVISION	DESCRIPTION	CHECKED	P.MANAGER

REPUBLIC OF LEBANON

MINISTRY OF PUBLIC WORKS AND TRANSPORT

COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

ROUTINE MAINTENANCE FOR BRIDGE EXPANSION JOINTS AND STREETS IN BEIRUT

STAGE : TENDER DOCUMENTS

DATE JUNE 2025

TRAFFIC SAFETY & CONTROL DEVICES DETAILS

SIGNING & MARKING TYPICAL DETAILS TEMPORARY SIGNS (SHEET 1 OF 2)

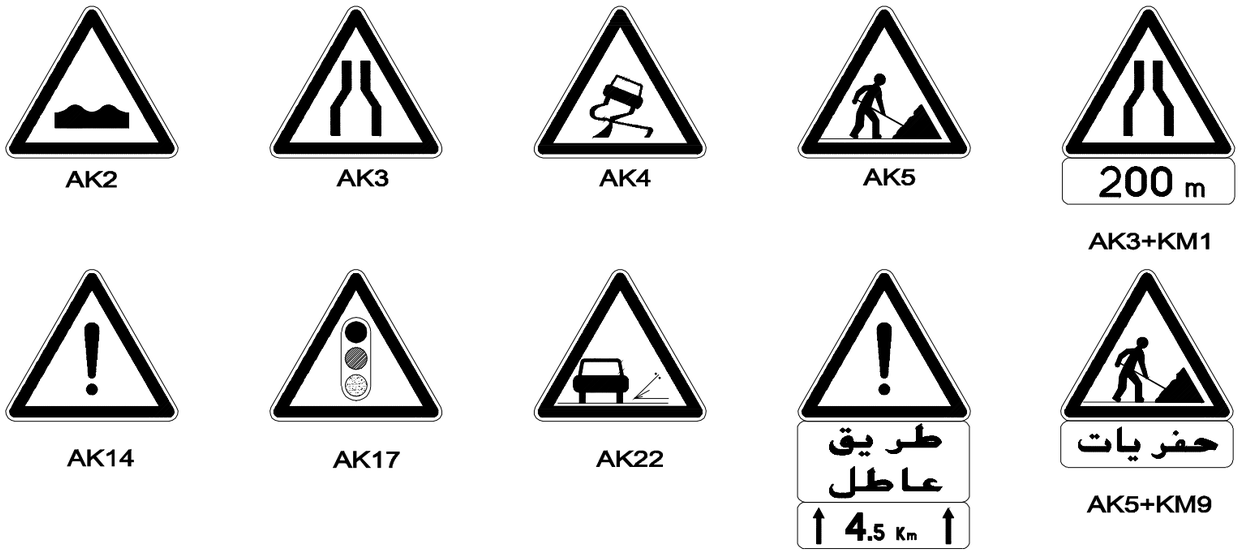
SCALE N.T.S.

DRAWING No. DWG ST-TD-20

REV 00

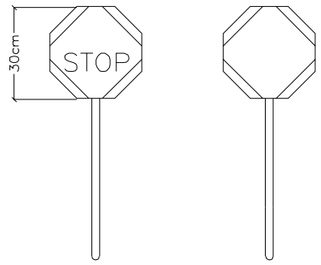
WARNING SIGNS TYPE AK

SIDE 0.70 m

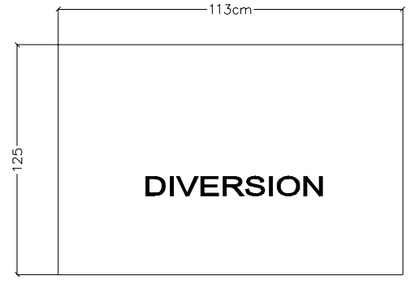


BY FLAGMEN

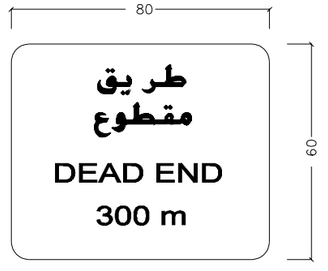
STANDARD SIGNS PADDLE



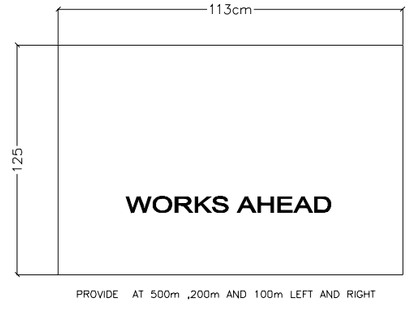
WARNING SIGNS TYPE KC



DIVERSION SIGN



DEAD END SIGN

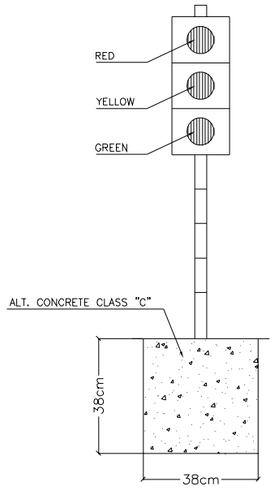


WORKS AHEAD SIGN

TEMPORARY LIGHTS

TEMPORARY TRAFFIC LIGHTS

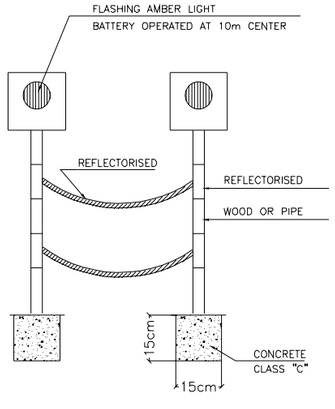
AT START AND AT END OF EVERY DIVERSION
OR TEMPORARY WORK
BATTERY OPERATED OR BY GENERATOR



TEMPORARY DELINEATORS

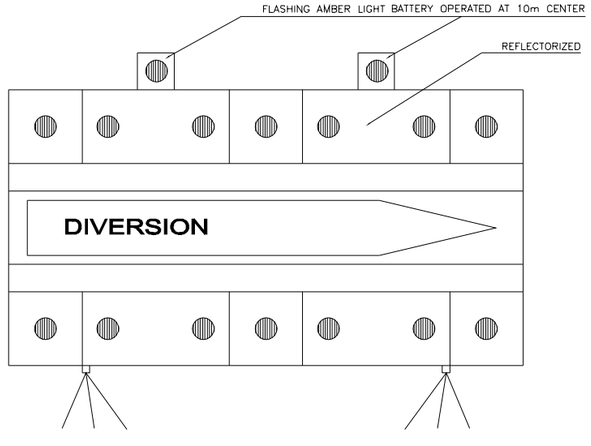
TO BE PLACED ALL THE LENGTH OF ANY
DIVERSION OR WHEREVER WORK ADJACENT

TO EXISTING ROAD OCCURS



BARRICADE

AT DIVERSION AT EACH SIDE



NOTES

- All dimensions are in centimeters unless otherwise indicated.
- Temporary signboards shall be conform with specifications
- The contractor shall prepare and submit the temporary detours drawings for approval by the engineer.

No	DATE	REVISION	DESCRIPTION	CHECKED	P.MANAGER

REPUBLIC OF LEBANON

MINISTRY OF PUBLIC WORKS AND TRANSPORT

COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

ROUTINE MAINTENANCE FOR BRIDGE EXPANSION JOINTS AND STREETS IN BEIRUT

STAGE : TENDER DOCUMENTS

DATE JUNE 2025

TRAFFIC SAFETY & CONTROL DEVICES DETAILS

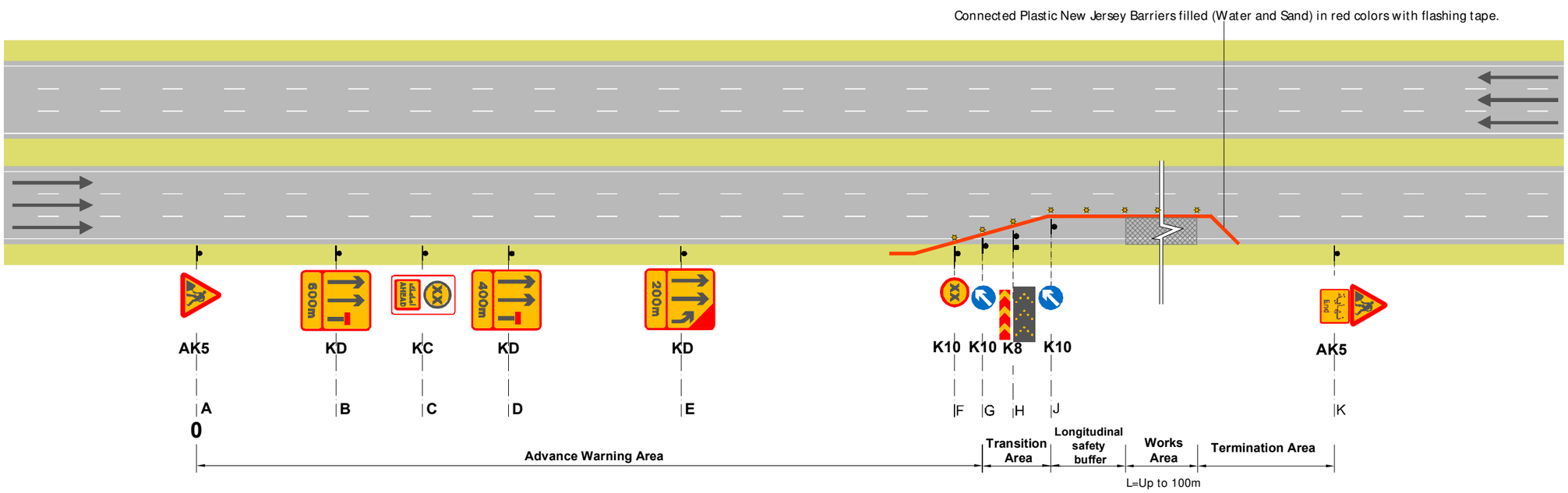
SIGNING & MARKING TYPICAL DETAILS
TEMPORARY SIGNS (SHEET 2 OF 2)

SCALE N.T.S.

DRAWING No. DWG ST-TD-21

REV 00

Typical Lane Closure on Right side



Sign locations

	Advance Warning Area						Transition Area			Termination Area
	A	B	C	D	E	F	G	H	J	K
Permanent Speed Limit		600m	AHEAD	400m	200m	XX				End

NOTES

- Do Not Scale From The Drawings.
- Connected=Plastic New Jersey Barriers Filled (Water And Sand) In Red Colors With Flashing Tape.
- This TMP Is Indicative. The Contractor Shall Prepare The Updated TMP Based On Ground Conditions And Shall Be Approved By The Cosultant Previous To Commencement Of Works.
- Advanced Warning Area Shall Be Increase In Case Of Horizontal Curves And/Or Working During Night.

Legend:

- Plastic New Jersey Barriers Filled (Water And Sand)
- Solar Flash Light On Sings And Every 15m

No	DATE	REVISION	DESCRIPTION	CHECKED	P.MANAGER

REPUBLIC OF LEBANON

MINISTRY OF PUBLIC WORKS AND TRANSPORT

COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

ROUTINE MAINTENANCE FOR BRIDGE EXPANSION JOINTS AND STREETS IN BEIRUT

STAGE : TENDER DOCUMENTS

DATE JUNE 2025

TRAFFIC MANAGEMENT PLAN ON HIGHWAY

TYPICAL LANE CLOSURE
RIGHT SIDE (1 OF 1)

SCALE N.T.S.

DRAWING No. DWG ST-TD-22

REV 00