

**NOIDA METRO RAIL CORPORATION LTD.**

**Part Design & Construction of Elevated Viaduct and 10 nos. of Elevated Stations for Extension Projects of NMRC's Aqua Line from Botanical Garden to Noida Sec-142 (from Chainage (-) 383.959 to 12130.143) and from Depot Station to Boraki MMTH (Chainage 28678.253 to 31263.482).**

**E-Tender no. - NMRC/Projects/NGNECC/2026/457**

**ADDENDUM-2  
SUMMARY SHEET**

<b>Sr. No.</b>	<b>Volume</b>	<b>Document Name</b>	<b>Clause No./Item No.</b>		<b>Addendum/Corrigendum</b>	<b>Remarks</b>
1	Volume-1	NIT	1.1.3.2.A	11R	Modification in clause no. 1.1.3.2.A (c)	Replace NIT's Page 11R by 11R2.
2	Volume-3	Employer's Requirements- General	11.4 (i)	10	Additions of clause no. 11.4 (i) (d)	Replace ER-General's Page 10 by 10R
3	Volume-3	Employer's Requirements- Functional	2.1 (xi)	16	Deletion of clause no. 2.1 (xi)	Replace ER-Functional's Page 16 by 16R
4	Volume-3	Employer's Requirements- Functional	2.1 (xxx)	18	Modification of clause no. 2.1 (xxx)	Replace ER-Functional's Page 18 by 18R
5	Volume-3	Employer's Requirements- Functional	2.1.A.7	23	Modification of clause no. 2.1.A.7	Replace ER-Functional's Page 23 by 23R
6	Volume-3	Employer's Requirements- Design	5.1.1 (e)	40	Deletion of clause no. 5.1.1 (e)	Replace ER-Design's Page 40 by 40R
7	Volume-3	Employer's Requirements- Construction	8 (6)	57	Modification of clause no. 8 (6)	Replace ER-Design's Page 57 by 57R
8	Volume-3	Employer's Requirements- Appendices	Appendix-1	70	Modification in Appendix-1.	Replace ER-Appendices's Page 70 by 70R
9	Volume-3	Employer's Requirements- Appendices	Appendix-2B	72 to 74	Correction of Typographical Errors	Replace ER-Appendices's Page 72 to 74 by 72R to 74R
10	Volume-3	Employer's Requirements- Appendices	Appendix-2E		Addition of Appendix-2E	Add ER-Appendices's Page 76A and associated 03 drawings
11	Volume-4	Outline Construction Specifications	4.1	74	Correction of Typographical Error	Replace OCS's page 74 by 74R
12	Volume-4	Outline Construction Specifications	4.11	81	Correction of Typographical Error	Replace OCS's page 81 by 81R
13	Volume-4	Outline Construction Specifications	5.1	86	Correction of Typographical Error	Replace OCS's page 86 by 86R
14	Volume-4	Outline Construction Specifications	11.5	253	Modification in clause no. 11.5	Replace OCS's page 253 by 253R
15	Volume-4	Outline Construction Specifications	A.3.2	295	Modification in clause no. A.3.2	Replace OCS's page 295 by 295R

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16	Volume-4	Outline Design Specifications	10.1	23R	Modification in clause no. 10.1	Replace ODS's page 23R by 23R2
17	Volume-4	Outline Design Specifications		1R, 10R, 12R, 16R, 18R, 28R, 29R & 30R	Correction of word 'DBR' to 'ODS'	Replace ODS's pages 1R, 10R, 12R, 16R, 18R, 28R, 29R & 30R by 1R2, 10R2, 12R2, 16R2, 18R2, 28R2, 29R2 & 30R2.
18	Volume-5	Tender Drawings			Addition of New/Missing Tender Drawings	Refer Updated Tender Drawing Index (R1)
19	Volume-6	BOQ	Preamble	1 to 2	Correction of Typographical Errors	Replace Preamble's Page 1 to 2 by 1R to 2R
20	Volume-6	BOQ	item 8.9 of B1	30	Deletion of item no. 8.9 of B1	Replace BOQ's Page 30 by 30R
21	Volume-6	BOQ		9, 77, 78 & 99	Correction in the columns heading for clarity of extension project wise amounts for Boraki & Botanical	Replace BOQ's Page 9, 77, 78 & 99 by 9R, 77R, 78R & 99R
22	Volume-6	Reply to Pre-Bid Queries	Reply to Pre-Bid Queries is enclosed from page 01 to 39.			

- If the tenderer is a JV/Consortium having foreign partner(s) and above work(s) have been executed by the foreign partner of JV and the work(s) were done in the country of the foreign partner, then in addition to this the foreign partner must have executed works (which need not be similar in nature) of total put together of value INR 506.83 crores or more outside the country of the foreign partner.
- Individual Bidder or any substantial member of JV/Consortium should fulfil following conditions -
  - a. Bidder should have successfully completed minimum 6 km or more of Elevated Metro/RRTS/High Speed rail viaduct in a single awarded contract.
  - b. Bidder should have successfully completed minimum 4 nos. of Elevated Stations or more in Elevated Metro/RRTS/High Speed Rail in a single awarded contract.
  - c. Bidder should have successfully completed Architectural Finishing Work for minimum 04 nos. Elevated/ **Underground** stations or more in Elevated Metro/RRTS/High speed Rail in a single awarded contract.
  - d. Bidder should have successfully completed PEB structure work for minimum 04 nos. Elevated stations or more in Elevated Metro/RRTS/High speed Rail in a single awarded contract.
  - e. Further, in case the bid is submitted by a Joint Venture (JV)/Consortium, any member of the JV/Consortium shall meet and demonstrate the similar work experience as stipulated above; failing which, the bid shall be treated as non-responsive and shall be rejected.

Further, in case the bidder does not have required work experience for "Pre-Engineered Building (PEB) works & Architectural Finishing work" ~~for 04 nos. of Elevated Stations or more in Elevated Metro/RRTS/High Speed rail~~ in a single awarded contract and intends to engage a sub-contractor for this work, the sub-contractor must have executed work of "Pre-Engineered Building (PEB) works & Architectural Finishing work " for minimum 04 nos. of Elevated Stations **as mentioned above** in Elevated Metro/RRTS/High Speed rail in a single awarded contract.

Notes:

- a) Work experience of only substantial partner (partner with share of 26% or more in the JV / Consortium) shall be considered for evaluating of JV/Consortium.
- b) The tenderer shall submit details of works executed by them in the Performa of Appendix-17 & 17A of FOT for the works to be considered for qualification of work experience criteria. Documentary proof of completion certificates from client clearly indicating the nature/scope of work, actual completion cost and actual date of completion for such work should be submitted. The offers submitted without this documentary proof shall not be evaluated. In case the work is executed for private client, copy of work order, bill of quantities, bill wise details of payment received certified by C.A., T.D.S certificates for all payments received and copy of final/last bill paid by client shall also be submitted.
- c) Value of successfully completed portion of any ongoing work up to last day of the month

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Interfacing Contractors as soon as he has been notified by the Engineer that such Interfacing Contract has been awarded. In the case of utility agencies and other statutory boards, interface shall commence as soon as it is practicable. Where no design interface date has been established whether because the Interfacing Contractor(s) have not been identified or for whatever reason, the Contractor shall liaise with such Interfacing Contractor/s as soon as they have been awarded.

- (ii) The Contractor shall immediately upon award of the Contract gather all necessary information and develop his design to a level where meaningful interaction can take place as soon as the Interfacing Contracts are available. The Contractor shall submit together with each of his Design Submissions a joint statement from the Contractor and the relevant Interfacing Contractor confirming that design co-ordination has been completed and that they have jointly reviewed the appropriate document to ensure that a consistent design is being presented.
- (iii) The design interface is an iterative process requiring regular exchange and update of interfacing information. The Contractor shall ensure that the information he requires from the Interfacing Contractors is made known at the outset of each design interface and vice versa so that the information can be provided in time for the Contractor and the Interfacing Contractors to complete their design to meet their various design submission stages.

#### 11.4 Construction Interface

- (i) The contractor shall coordinate design/ activities/ making due care of complete integration of works –
  - a. Integration of Boraki Station and associated Viaduct falling in the DMIC-IITGNL's MMTH area with the upcoming Multi-Modal Transport Hub at Boraki MMTH in co-ordination with DMIC-IITGNL.
  - b. Integration of Existing Botanical Garden metro station on Blue Line of Delhi Metro in coordination with DMRC
  - c. Existing Noida Sec-142 metro station and Dead End at Depot Station on Aqua Line of Noida Metro
  - d. Crossing of alignment over operational metro alignments as per clause 8.8.1 & 8.8.2 of Employer's Requirements – Construction.**
- (ii) Construction interface will be necessary throughout the duration of the Works commencing from the time the Contractor mobilises to the Site to the completion of the Works. Construction interface will overlap design interface, involving cast-in and buried items such as pipes for electrical and mechanical services, supports, brackets, plinths, ducts, service buildings, openings, cableways, trenches etc. that are to be incorporated at the early stage of the construction up to provision of attendance during the testing and commissioning stage.
- (iii) The Contractor shall ensure that there is no interference with the Works of the Interfacing Contractors and shall maintain close co-ordination with them to ensure that his work progresses in a smooth and orderly manner. The Contractor shall carry out and complete the Works, or any part thereof, in such order as may be agreed by the Engineer or in such revised order as may be requested by the Engineer from time to time. The Contractor shall, unless otherwise provided, be liable for and shall indemnify the Employer against all costs, charges, expenses and the like resulting from failure of the

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paid in BOQ on item rate basis as described in clause 2.10.

The water supply arrangements for construction works shall be arranged by contractor at his own cost, in case borewell is to be done for construction works, the permission for the same is to be obtained before the borewell is done. The permanent water supply connections from local authorities and borewells along with its permission for all stations shall be arranged by Contractor at his own cost and relevant statutory permissions from concerned authorities shall also be arranged by contractor.

**2.1. LUMPSUM SCOPE OF WORK – (Viaduct, Viaduct in station excluding concourse portion)**

- (i) Detailed survey of entire alignment including Viaduct, Stations with Entry/Exit & FOB and MMI for execution of work.
- (ii) Geotechnical Investigation Work at every pier location for Viaduct and Station including Entry/Exit & FOB.
- (iii) Utility Investigation Work along the alignment for Viaduct as shown in the GAD.
- (iv) Design & construction of Pile foundation, Pile cap, Pier, Pier cap, all type of Piers including Cantilever & Portals, Pedestals, Cross Arm, Extended Pier cap, Cantilever Pier cap, Table top Pier cap, Portal Beams, standard Pier Cap, bearings, bearing pedestal & crash barrier, reflector tapes for Piers, Portal Pier, etc. for all spans.
- (v) Design & Construction of super structure of Standard U-Girder span and all other spans for Viaduct including Viaduct in station excluding the concourse portion .
- (vi) Design and construction of non-standard spans, I-Girder/T-Girder spans, spans at crossover location, spans for crossing existing structure and spans in sharper curvature wherever necessary or instructed by engineer.
- (vii) Design and construction of parapets. The shape shall be as per tender drawings.
- (viii) Design, construction & erection of special spans. Type of bridge and method of construction shall be approved by NMRC prior to execution of work. This includes all temporary works such as shoring, staging, any other related works. Apart from special spans indicated in GAD, there may be requirement of additional special spans as per the site conditions / NMRC or civic requirement, which is also included in lump-sum price.
- (ix) All Piers location, span arrangement for special/ obligatory spans have been shown in the alignment GAD drawings. These special spans / obligatory span lengths may have to be changed as per requirements of the concerned authorities.
- (x) Design & Construction of Spherical bearing and seismic restrainers for special spans approved by NMRC including GI brackets for cables laying, walkway, parapets & railing.
- (xi) ~~Design and construction of emergency siding line.~~ **Deleted**
- (xii) Standard spans for viaduct shall be 28m Twin U-Girder Spans except obligatory spans/ special spans shown in GAD, However, in case of sharper radius wide U-Girder may have to be used without any extra cost. The Span arrangements of Viaduct have to be decided in such a way that pier locations do not disturb the road geometry, ROW, clear carriageway width of roads, flow of nallah, utilities and traffic flow. The max. Cantilever permissible is 2.5 m.
- (xiii) All Viaduct foundation shall be on piles of minimum 1000 mm dia. with or without permanent liners as per site requirements except at location met with hard/rocky strata

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condition prior to the construction.

- (a) Demolition/dismantling of RCC/Framed/Steel structure buildings, masonry buildings, basement, ground and above floors as existing at site on the alignment and making provision of any utility infringing the pile cap area, without making damages to the adjacent structures/ utilities etc. including disposing off retrieved materials out of site.
- (b) Demolition/dismantling & restoration of existing FOB's, Bus Shelters, Signages.
- (c) Demolition/dismantling of road, footpath, RCC drain or any type of drain, kerbstone, pavers central verge, boundary wall, grill, kerb stone etc. and restoration of same with new material of similar specification. Tenderer must visit the site and ascertain actual magnitude of quantum of work involved for road, footpath, RCC Drain, kerbstone, pavers, overhead utilities & underground, central verge, boundary wall, signages, grill, bus shelters etc. and nothing shall be payable on this account. Retrieved materials obtained from demolition/dismantling shall be property of the contractor.
- (d) Damage of any horticulture, landscaping, green area during currency of contract and its restoration to its original condition. The pile cap level shall have to be kept below the drain wherever the same is fouling with drain and the drain demolished shall have to be restored back with similar specifications after casting the pile cap, till such time arrangement of temporary drainage shall also be made to ensure proper drainage of water.
- (xxx) Necessary permission/ NOC from the Railway/ Road/ Forest department/ **Irrigation Department** and other concerned regulatory authorities for block and working in such locations. NMRC will facilitate for getting them permission from concerned regulatory authorities for working in such locations.
- (xxxi) Making access to site at any location in alignment to facilitate movement of vehicles, cranes, machineries etc. and preparation of area for positioning of cranes and any other machinery to facilitate construction & execution including removal of any construction material and restoration of area to its original condition.
- (xxxii) During construction at road area required arrangements to be made to facilitate movement of vehicles, cranes, machineries etc. and preparation of area for positioning of cranes and any other machinery to facilitate construction & execution including removal of any construction material from the location and restoration of area to its original condition. Also, view cutter arrangement of sufficient height above barricading board to be made at this location.
- (xxxiii) Wall, curtain walls of varying heights, drainage system, grills on ramp. All MS structure to be painted with epoxy paint of approved colour.
- (xxxiv) Dynamic Integrity test on 100% piles and cross hole sonic integrity test on 25% of piles as per Outline Construction Specification (OCS).
- (xxxv) Design and Installation of temporary structures/ construction methodology for construction of Viaduct & Station and getting it approved from third party.
- (xxxvi) Providing & Fixing GI Brackets along both sides of track in Viaduct and Viaduct in station for electrical & signaling cables as per the site requirement and as instructed by Engineer-in-charge. Providing cutouts, concealed pipes, earthing, inserts, bolts. required for various services and systems as per co-ordinations with Employer and service providers and the other system contractors.
- (xxxvii) Traffic marshals to guide the road users and to avoid traffic congestion. The deployment of the Traffic marshals shall be as per the approved Traffic Diversion Plan.

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- 2.1.A.6 Any other item of work as may be required to be carried out for completing the necessary interfaces works with system Contractors and other contractors in all respects in accordance with the provisions of the Contract and to ensure the structural stability and safety during and after construction.
- 2.1.A.7 The shifting of the utility(s) would be undertaken only in exceptional circumstances where in the opinion of the Employer no other option is available. The utilities are to be diverted with proper liaising and approval of the utility owning agencies and **Charted Utilities are part of Lump Sum Scope & Un-charted** Utilities will be paid under Schedule-B of BOQ. For the utilities which are not to be diverted proper supporting shall be done to prevent any damage. No payment shall however be made for supporting and protecting the utilities during execution of the work. Cost of such utility shifting (i.e. permanent diversion) unless otherwise specified will be paid separately under relevant item of BOQ. No claim on account of delay in execution of utility diversion will be entertained. All temporary diversion of any utilities done to facilitate the construction activity shall be the part of the lump sum quoted price. No payment shall however be made for supporting the utilities, carriage of excavated earth during execution of work.
- 2.1.A.8 Inserts/bolts/Supports/Hangers for system contractors & other contractors. All system contractors' structures like OHE, Signalling etc. are excluded from the scope of the work, but civil works required for fixing these structures such as strengthening of structures and providing inserts, bolts, supports, hangers are included. These shall be finalized and provided in co-ordination with the System Contractors & other contractors and the Engineer. The necessary coordination with system contractors, other contractor and engineer shall form a part of the work.
- 2.1.A.9 All aspects of quality assurance, including testing of materials and other components of the work, as specified or as directed. Arranging & performance dynamic Integrity test on 100% piles and cross hole sonic integrity test on 25% of piles as per outline construction specification (OCS). Conducting initial and routine load tests on piles as per frequency given in outline construction specification (OCS) as per BIS-2911- Part IV.

**2.2 OTHER WORKS UNDER LUMP SUM**

**2.2.1 Interface Works**

**2.2.1.1 Co-ordination/co-operation with other Contractors & Agencies (External/Internal)**

- (i) In addition, the Contractor shall be required to carry out various miscellaneous works as per interfacing requirements. The contractor shall carry out necessary co-ordinations with various system contractors pertaining to lift, escalator, traction power supply, signaling, telecommunication, AFC , track & E&M contractor, etc. for keeping provisions pertaining to cut outs, shafts, raceways, concealed conduits, other conduits, fixtures, inserts, clearances etc. all complete for the scope of work. Temporary door with locking arrangements to be provided in all rooms in station building & Ancillary building.
- (ii) Earthing and lightening protection wherever required.
- (iii) The track supporting structure will support ballast less track (long welded rail) which will be laid later by a separate contractor. Arrangements of inserts/ dowels required for provision of such ballast less track will have to be incorporated in the deck in consultation with the Engineer where the ballast less track concrete is to be laid at the top of the deck slab by Track Contractor.

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- (d) the submission of proposed software
- (e) ~~the preliminary equipment layouts and details~~ **Deleted**
- (f) the preliminary maintenance analysis
- (g) the preliminary off site testing recommendation
- (h) Deleted
- (i) the submission of specifications proposed for the work
- (j) the identification of design codes and standards
- (k) the CAD procedures
- (l) Deleted
- (m) preliminary viaduct sizing
- (n) an alignment review
- (o) the preliminary construction methodology
- (p) the design submission programme (update)
- (q) the utility diversion plan
- (r) proposed site surveys and other field surveys
- (s) a review of permanent land requirement
- (t) the preliminary ground treatment and building protection proposal.
- (u) The preliminary reinstatement drawings.

## 5.2 DEFINITIVE DESIGN SUBMISSION

### 5.2.1 GENERAL

The Definitive Design Submission shall be a coherent and complete set of documents properly consolidated and indexed and shall fully describe the proposed Definitive Design. In particular, and where appropriate, it shall define:

- (a) the dimensions of all major features, structural elements and members;
- (b) all materials;
- (c) Potential forces and movements due to all possible loadings and actions on the structures, and their accommodation;
- (d) all second order effects;
- (e) the layout and typical details of reinforcement in structural concrete members;
- (f) the locations and nature of all relevant joints and connections and details thereof;
- (g) standard details;
- (h) location, geometry and setting-out of all main elements and features;
- (i) electrical and mechanical services and equipment and their interaction with the structures;
- (j) Provisions and proposals for construction interfacing with the Designated Contractors;

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- (4) The Contractor shall immediately inform the Engineer of any damage to structures, roads or other properties.

ACCESS

- (5) Alternative access shall be provided to all premises if interference with the existing access, public or private, is necessary to enable the Works to be carried out. The arrangements for the alternative access shall be as agreed by the Engineer and the concerned agency. Unless agreed otherwise, the permanent access shall be reinstated as soon as practicable after the work is complete and the alternative access shall be removed immediately as it is no longer required, and the ground surfaces reinstated to the satisfaction of the Engineer. Proper signage and guidance shall be provided for the traffic / users regarding diversions.

TREES

- (6) The felling of trees in the Noida/ Greater Noida/NCR Delhi is governed by the Uttar Pradesh Protection of Trees Act, 1976 and associated latest amendments. The Contractor is not permitted to cut any trees without the permission of the Employer. The Employer has assessed the number of trees existing within the right-of-way and contractor has to arrange permission from Forest Department cutting back or removal of trees which are deemed to be affected by the right of way (ie. within the limits of permanent works) construction works. The trees requiring to be felled will be removed from ground level up by the **Contractor upon approval & supervision of the** Forest Department/ Noida-Greater Noida Authorities. The Contractor will not be permitted to cut or remove any further trees. If for the purposes of the works additional trees are required to be cut/trimmed or removed, the Contractor must notify the Engineer of further tree felling requirements. Subject to compliance with the aforementioned act, arrangements for permission from Forest Department for tree felling/transplantation shall be done by the contractor. The payment of tree cutting, removal, transportation and transplantation required shall be paid in relevant schedule of BOQ.

REMOVAL OF GRAVES AND OTHER OBSTRUCTIONS

- (7) If any graves and other obstructions are required to be removed in order to execute the Works and such removal has not already been arranged for, the Contractor shall draw the Engineer's attention to them in good time to allow all necessary arrangements and authorisations for such removal, and it shall not itself remove them unless the Engineer has given consent.

PROTECTION OF THE ADJACENT STRUCTURES AND WORKS

- (8) The Contractor shall take all necessary precautions to protect the structures or works being carried out by others adjacent to and, for the time being, within the Site from the effects of vibrations, undermining and any other earth movements or the diversion of water flow arising from its work.

The Key Existing Structures falling along the alignment, but not limited to, are listed as below -

- 1) Crossing of Alignment over Delhi Metro's Blue Line & Magenta Line,
- 2) Crossing of Alignment over Noida Metro's Aqua Line and connection to existing Noida Sec-142 metro station.
- 3) Noida Authority's Flyover at Noida Sector-37, Under pass at Noida Sector-96, Flyover near Max Hospital & Bridge at Noida Sector-142,
- 4) Botanical Garden Bus Station at Noida Sector-37
- 5) Crossing over ROB-146 at Boraki

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## Employer's Requirement

### APPENDIX 1

#### DRAWING LIST

The Tender Documents contains a set of reference/Tender drawings that are applicable to the Contract Works. The Tenderer shall incorporate into the Tender only those drawings from that set which amplify aspects of the Contractor's Technical Proposals. General information drawings will not be included in the Contract. The dimensions mentioned in the tender drawings are indicative and may vary as per the design of the contractor.

**The soft copy of tender drawings in AutoCAD & KMZ file are being provided in good faith for reference purpose only and may be collected by email on [nmrcprojects@gmail.com](mailto:nmrcprojects@gmail.com). In case of any discrepancy, the uploaded tender drawing in Volume-5 shall prevail.**

The List of Drawings issued with the tender documents is stated in Volume-5

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**Employer's Requirement - Key Dates**

**Appendix-2B**

For complete Viaduct including Viaduct in station portion:

Key dates no	Description of stage	Time to achieve (weeks)	<u>Liquidated</u> Liquidity Damages for non-achieving the key dates
KD 1	Submission of construction programme	4	0.01% of total contract value per week of delay for the key date
KD 2	Commissioning of 1 <sup>st</sup> Batching Plant (production of 1 <sup>st</sup> batch of concrete)	10	0.01% of total contract value per week of delay for the key date
KD 3	Submission of Definitive Design	12	0.01% of total contract value per week of delay for the key date
	Commissioning of 2 <sup>nd</sup> Batching Plant (production of 2 <sup>nd</sup> batch of concrete)	14	
KD 4	Completion of 1 <sup>st</sup> Formwork for precast U – girder element of production line for Engineer's approval	14	0.01% of total contract value per week of delay for the key date
KD 5	Completion of 1 <sup>st</sup> working pile	16	0.01% of total contract value per week of delay for the key date
KD 6	Casting of 1 <sup>st</sup> U-Girder	18	0.01% of total contract value per week of delay for the key date
KD 7	Erection of 1 <sup>st</sup> U-Girder	28	0.01% of total contract value per week of delay for the key date
KD 8	(i) Partial Access of the Viaduct including in stations area (minimum 2.0 Km in one stretch) to Track contractor for laying track	68	0.01% of total contract value per week of delay for the key date
	(ii) Partial Access of the Viaduct including in stations area (minimum 2.0 Km in one stretch) to Track contractor for laying track	90	0.01% of total contract value per week of delay for the key date
	(iii) Full Access of the Viaduct including in stations area to Track contractor for laying track. (Note - In case of Launcher, the feeding point shall have to be changed to ensure the key dates & the temporary rails provided for carrying the U-Girder on viaduct shall have to be removed.)	122	0.01% of total contract value per week of delay for the key date
KD 9	Full Access to system contractors including G.I. Hangers for laying of cables, railings, expansion joint etc all balance civil work complete in all respect	130	0.01% of total contract value per week of delay for the key date

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For Stations:

Key dates no	Description of stage	Time to achieve (weeks)	<b>Liquidated</b> Liquidity Damages for non-achieving the key dates
KD 1	Completion of 1 <sup>st</sup> Pile	16	0.01% of total contract value per week of delay for the key date
KD 2	Completion of Casting of Slab for Concourse Level		
	i) For First Station	36	0.01% of total contract value per week of delay for the key date
	ii) For next three Stations	48	0.01% of total contract value per week of delay for the key date
	iii) For All Stations	64	0.01% of total contract value per week of delay for the key date
KD 2 3	Completion of Casting of Slab for Track Supporting Structure		
	i) For First Station	56	0.01% of total contract value per week of delay for the key date
	ii) For next three Stations	78	0.01% of total contract value per week of delay for the key date
	iii) For All Stations	94	0.01% of total contract value per week of delay for the key date
KD 5 4	Completion of all Architectural finishing works in following operational rooms and rooms & flooring with required cutting for raceways for fixing AFC, Signaling room, Telecommunication room, ASS room, Pump room & UPS room		
	i) For First Station	56	0.01% of total contract value per week of delay for the key date
	ii) For next three Stations	78	0.01% of total contract value per week of delay for the key date
	iii) For All Stations	94	0.01% of total contract value per week of delay for the key date
KD 6 5	Completion of all Architectural internal & external finishing works in entire station and rooms		
	i) For First Station	66	0.01% of total contract value per week of delay for the key date
	ii) For next three Stations	88	0.01% of total contract value per week of delay for the key date

**Part Design & Construction of Elevated Viaduct and 10 nos. of Elevated Stations for Extension Projects of NMRC's Aqua Line from Botanical Garden to Noida Sec-142 (from Chainage (-) 383.959 to 12130.143) and from Depot Station to Boraki MMTH (Chainage 28678.253 to 31263.482).**

	iii) For All Stations	104	0.01% of total contract value per week of delay for the key date
<b>KD 7 6</b>	Access to lift shaft & Escalator pits (Concourse to Platform)		
	i) For First Station	66	0.01% of total contract value per week of delay for the key date
	ii) For next three Stations	88	0.01% of total contract value per week of delay for the key date
	iii) For All Stations	104	0.01% of total contract value per week of delay for the key date
<b>KD 8 7</b>	Completion of structure works of one Entry/Exit (Ground to Concourse)		
	i) For First Station	70	0.01% of total contract value per week of delay for the key date
	ii) For next three Stations	92	0.01% of total contract value per week of delay for the key date
	iii) For All Stations	108	0.01% of total contract value per week of delay for the key date
<b>KD 9 8</b>	Delivery for all fabricated parts of roof and roof portals with purlins etc. complete, for:		
	i) For First Station	100	0.01% of total contract value per week of delay for the key date
	ii) For next three Stations	115	0.01% of total contract value per week of delay for the key date
	iii) For All Stations	135	0.01% of total contract value per week of delay for the key date
<b>KD 10 9</b>	Completion of structure work & roof sheeting, Complete		
	i) For First Station	120	0.01% of total contract value per week of delay for the key date
	ii) For next three Stations	135	0.01% of total contract value per week of delay for the key date
	iii) For All Stations	150	0.01% of total contract value per week of delay for the key date
<b>KD 11 10</b>	Completion of entire works including Finishing, etc. as per contract and all relevant works for testing & commissioning of the section at all stations.	150	0.01% of total contract value per week of delay for the key date
<b>KD 12 11</b>	Completion of all other outstanding works like re-instatements etc. that doesn't affect the testing of the stations.	156	0.01% of total contract value per week of delay for the key date

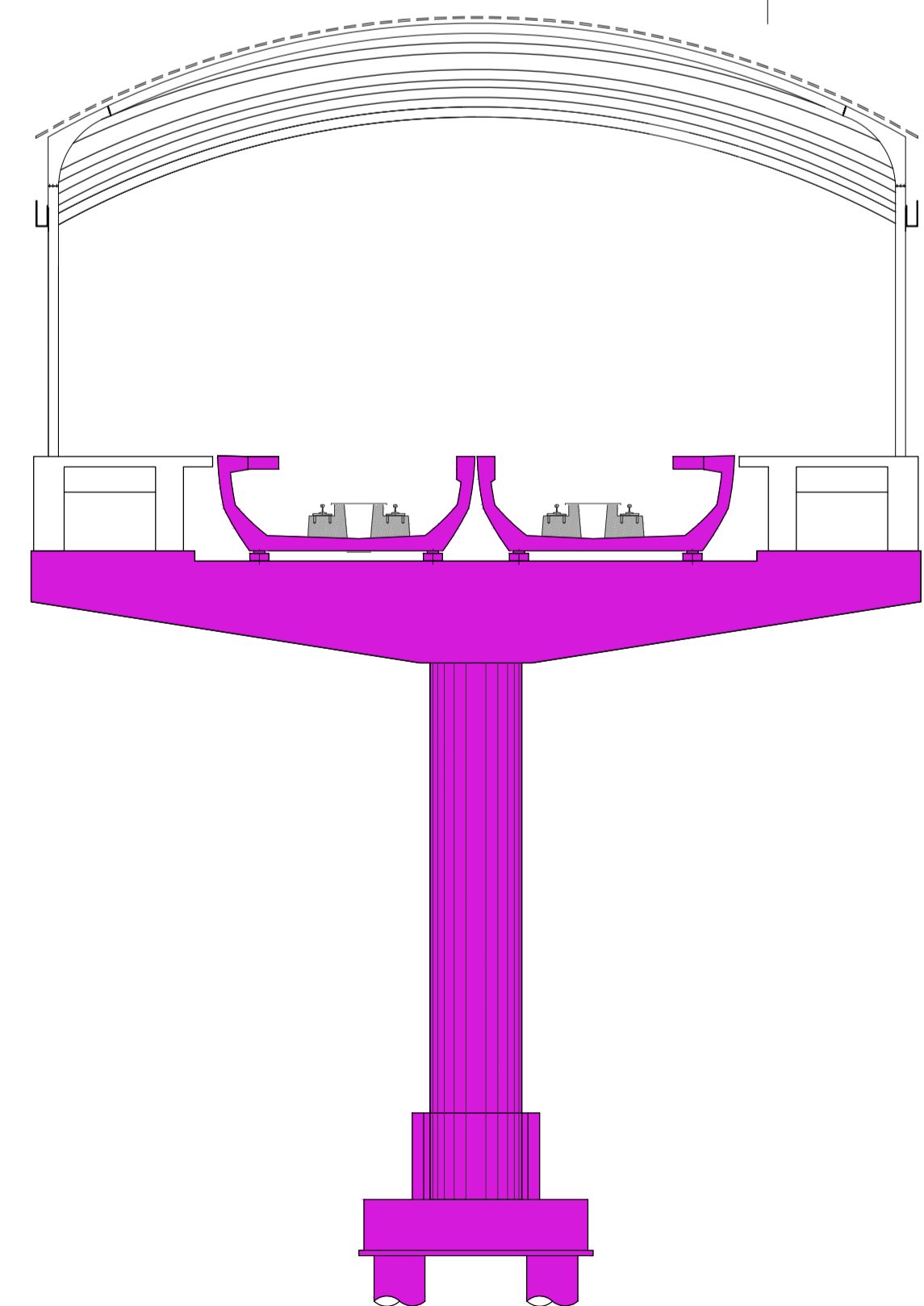
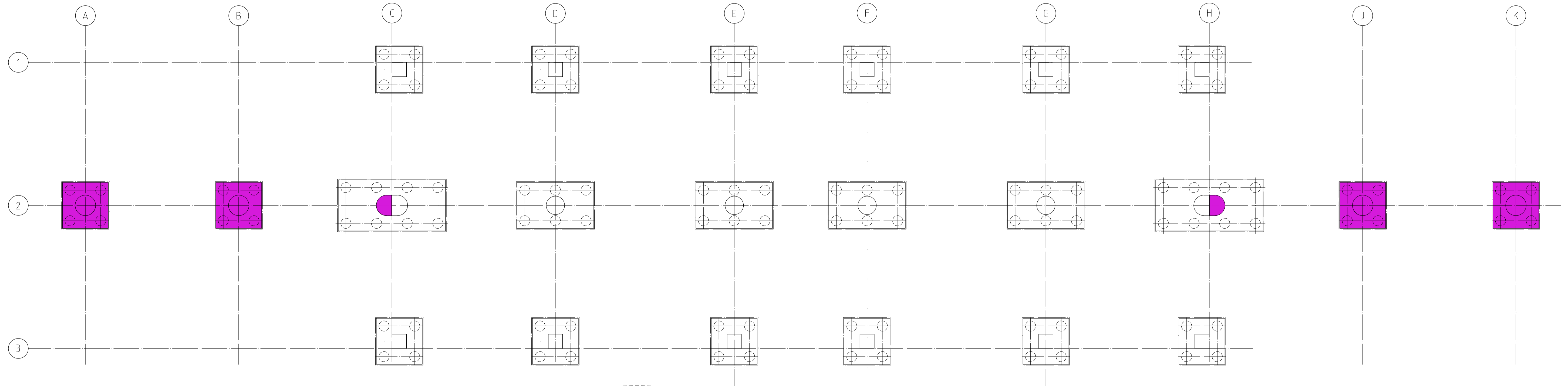
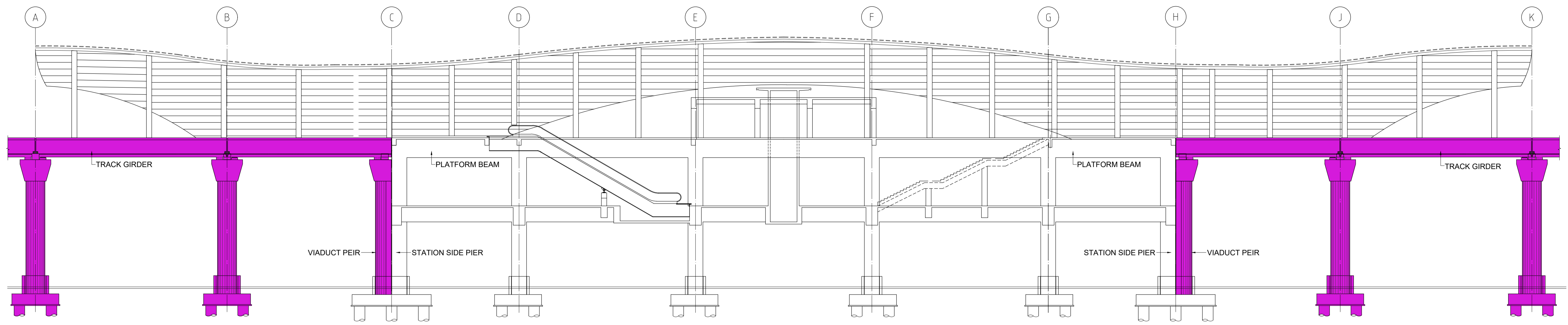
Part Design & Construction of Elevated Viaduct and 10 nos. of Elevated Stations for Extension Projects of NMRC's Aqua Line from Botanical Garden to Noida Sec-142 (from Chainage (-) 383.959 to 12130.143) and from Depot Station to Boraki MMTH (Chainage 28678.253 to 31263.482).

**Employer's Requirement APPENDIX-2E**

**INTERFACE BETWEEN LUMP SUM PORTION & ITEM RATE PORTION OF SCOPE**

The interface between lumpsum portion & item rate portion of scope of work is provided in the following indicative sketches from Page no. 1 to 3.

- Typical Station (08 nos.) - Page 01 of 03
- Boraki Station - Page 02 of 03
- Botanical Garden Station - Page 03 of 03

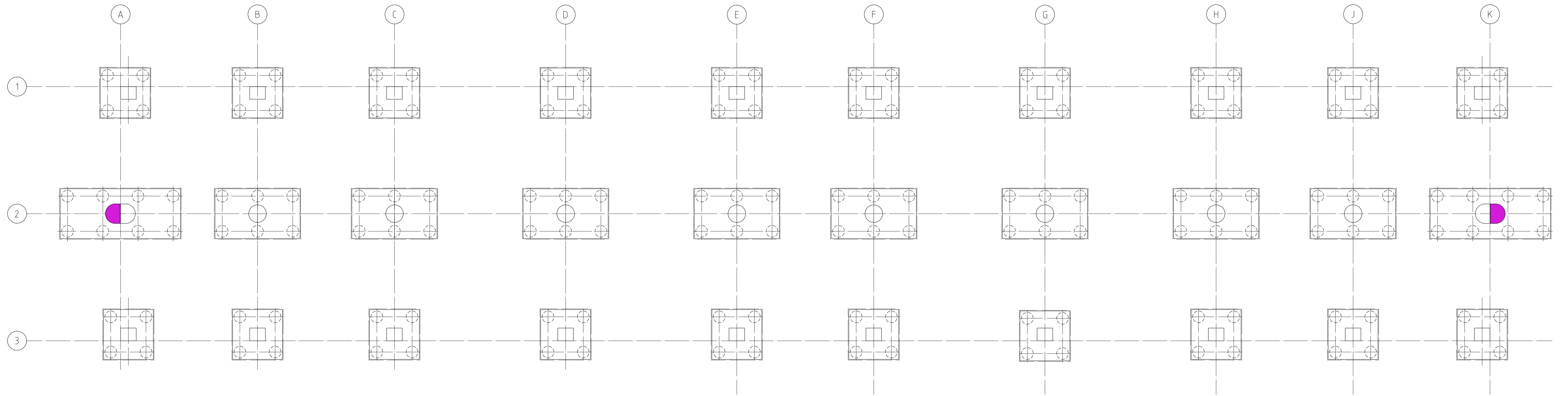
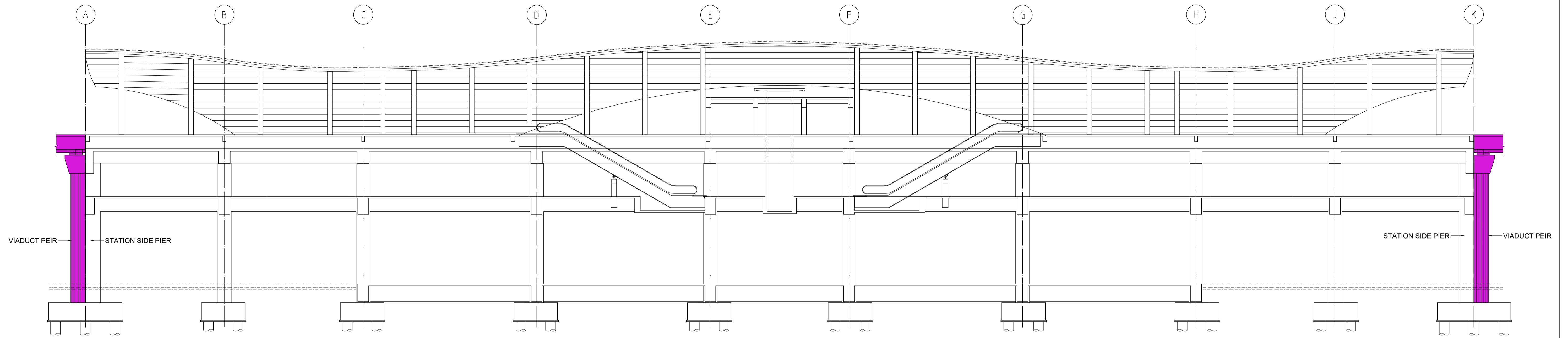


**TYPICAL STATION**

 INDICATES SCOPE OF LUMP SUM CONTRACT

FOUNDATION / COLUMN SHOWN ARE INDICATIVE

THIS SKETCH INDICATES LUMP SUM SCOPE OF WORK FOR STATION PART

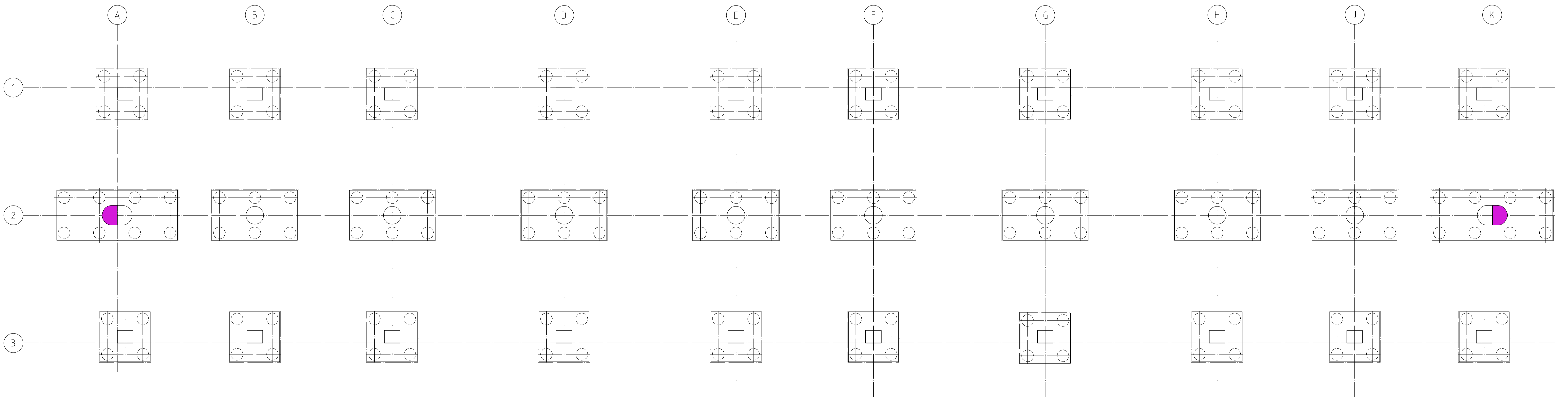
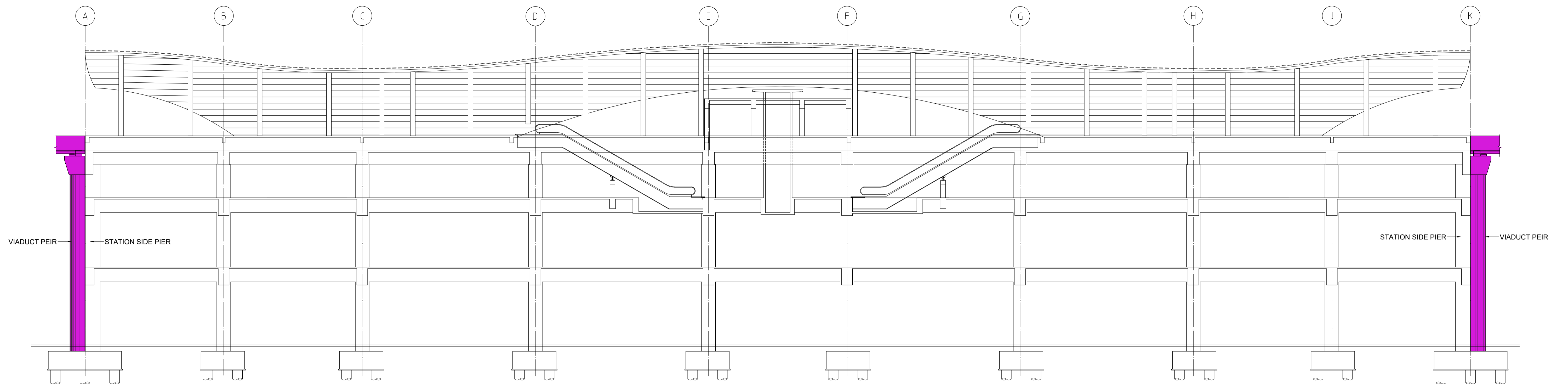


### BORAKI STATION

 INDICATES SCOPE OF LUMP SUM CONTRACT

FOUNDATION / COLUMN SHOWN ARE INDICATIVE

THIS SKETCH INDICATES LUMP SUM SCOPE OF WORK FOR STATION PART



### BOTANICAL GARDEN METRO STATION

 INDICATES SCOPE OF LUMP SUM CONTRACT

FOUNDATION / COLUMN SHOWN ARE INDICATIVE

THIS SKETCH INDICATES LUMP SUM SCOPE OF WORK FOR STATION PART

## SECTION – S.04

### FORM WORK

4.1 These specifications shall be read in conjunction with the latest edition CPWD specifications ~~1996/2002~~ with up-to-date correction slips, MORTH latest revision Specifications and other relevant specifications described in the section 1.1 of these specifications.

4.2 MATERIALS:

Formwork shall be of timber, plywood (including marine plywood), steel or any other suitable material capable of resisting damage to the contact faces under normal conditions of erecting forms, fixing steel and placing concrete. The selection of materials suitable for formwork shall be made by the Contractor based on the quality consistent with the specified finishes and safety. For designated areas prominently in public view like piers, piers caps, portals, viaduct (cast-in-situ or pre-cast), parapet etc., only steel shuttering shall be used. Steel material shall be in good condition. It should not be corroded. Condition of material shall be decided by engineer and If find not as per Indian standards or not as per requirement it shall be replaced. Number of uses for steel shuttering shall be between 50 and 100. Uses shall be decided by engineer as per the condition of steel shuttering. Special finishes like grooves, logos, floral designs, engraving in inset and outset shall be provided by fixing monolithic rubber forms fixed on entire surface of the formwork. The minimum shore hardness of rubber shall be A-55 to ensure strength, flexibility & elasticity. The contours, design and edges of rubber form should be smooth to ensure minimal deposition of grime or dust. The material shall be approved by the Engineer before erected at site. However, the entire responsibility of planning, designing, erection, dismantling, shifting and safety of false work lies with the contractor.

All formwork and formwork support (centering, props, scaffolds etc.) shall only be in structural steel and preferably of pipes conforming to IS:806, IS:1161, IS:1239, IS:2750. Wooden ballies shall not be permitted as props/formwork supports. All props shall be properly braced using x & k bracings.

Timber:

Timber used for formwork shall be easily workable with nails without splitting. It shall be stable and not liable to warp when exposed to sun and rain or wetted during concreting.

Plywood:

Plywood used for formwork shall be minimum 12 mm thick. Shuttering quality plywood complying with IS: 4990 and of make approved by the Engineer. Suitable stiffeners and walers shall be provided depending on the shuttering design.

Steel:

Steel formwork shall be made of minimum 4 mm thick black sheets stiffened with angle

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Finish U3: This is a trowelled finish and shall be used for tops of parapets, etc prominently exposed to view. When the floated surface has hardened sufficiently, steel trowelling shall be started. Steel trowelling on hardened, floated surface shall be performed with firm pressure to produce a dense uniform surface free from blemishes and trowel marks and having slightly glossy appearance. Surface irregularities shall not exceed 5mm.

Finish U4: This is a steel-trowelled finish, similar to finish U3, except that light surface pitting and light trowel marks such as obtained from the use of machine trowelling will be acceptable, provided that surface irregularities do not exceed the limits specified for finish U3.

Unformed surfaces which are nominally level shall be sloped for drainage as shown on drawings or as directed by Engineer unless the use of other slopes or level surface is indicated on drawings. Narrow surface such as tops of parapets, walls and kerbs shall be sloped approximately 1cm per 30cm of width. Broader surface such as roadways, platform and decks, shall be sloped approximately half centimeter per 30cm of width. Finishes of floor and roof slabs shall be sloped, if required, by the Engineer.

**4.10 EXPOSED CONCRETE WORK:**

Exposed concrete surfaces shall be smooth and even originally as stripped without any finishing or rendering. Where directed by the Engineer, the surface shall be rubbed with Carborundum stone immediately on striking the forms. The Contractor shall exercise special care and supervision of formwork and concreting to ensure that the cast members are made true to their sizes, shapes and positions and to produce the surface patterns desired. No honeycombing shall be allowed. Honeycombed parts of the concrete shall be removed by the Contractor as directed by the Engineer and fresh concrete placed without extra cost, as instructed by the Engineer. Contractor shall ensure that no air bubbles are formed on the exposed surface. Concrete pouring sequence, vibration methodology etc shall be planned to avoid air bubbles. All materials, sizes and layouts of formwork including the locations for their joints shall have prior approval of the Engineer.

**4.11 AGE OF CONCRETE AT REMOVAL OF FORMWORK:**

Age of Concrete at Removal of Formworks shall be in accordance with latest edition CPWD Specifications ~~96~~ or IS: 456. The Engineer may vary the periods specified if he considers it necessary. Immediately after the forms are removed, they shall be cleaned with a jet of water and a soft brush.

**4.12 STRIPPING OF FORMWORK:**

The work of form work removal should be planned and a definite scheme of

## SECTION S.05

### REINFORCEMENT

- 5.1** These specifications shall be read in conjunction with the latest edition CPWD specifications ~~1996/2002~~ with upto date correction slips, MORTH latest revision Specifications and other relevant specifications described in the section 1.1 of these specifications.

Any steel specified for reinforcement shall conform in every respect to the latest relevant Indian Standard Specifications and shall be of tested quality under the ISI Certification Scheme.

All reinforcement work shall be executed in conformity with the drawings supplied and instructions given by the Engineer and shall generally be carried out in accordance with the relevant Indian Standard Specifications IS: 2502- Bending and Fixing of Bars for Concrete Reinforcement.

The reinforcement steel shall only be from primary producers as per approved vendor list and no re-rolled steel shall be supplied.

- 5.1.1 Mechanical couplers of threaded type with enlargement at connection by cold forging maybe used at appropriate locations after prior approval of engineer

#### 5.1.2 Coupler Specifications

##### a) Introduction

Only cold-forged, standard parallel threaded mechanical coupler system are recommended. All mechanical couplers shall be of Type 2 (or Class H as specified in IS-16172) and should be simple to install and which can be confirmed by quick visual inspection to have been correctly installed and to have achieved the required full-strength connection. Any other types of mechanical coupler systems are not permitted provided the same meet the specification indicated below.

The couplers shall be of standard parallel thread type. Ends of the reinforcement bars, which are to be joined, shall be enlarged by cold forging/upsetting, threaded in such a way that root thread diameter is not lesser than the parent bar to be joined. The coupler shall be of TYPE – II and qualified/Certified as per UK CARES, IS code 16172, ACI 318, AC 133, ASME, Section III, and Div.2, Caltrans.

Couplers installed shall be strictly in accordance with the manufacturer's specifications complying to relevant codes. Couplers shall preferably be located away from high stress zones in the various structural elements and shall be staggered.

All the couplers shall be manufactured in a factory which is ISO 9001:2008 (or higher revision) certified for "Manufacturing of Mechanical Steel Rebar Couplers & Accessories" and also be certified for "Site Management of Threading &

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## 11.5 ORDER OF PRECEDENCE

Wherever Indian Standards do not cover some particular aspects of design/construction, relevant standards will be referred to.

In case of discrepancy among Standard codes of practice, CPWD Specifications, General and particular Specifications, and Bill of Quantities, the order of precedence will be as below:

- i. Bill of Quantities
- ii. Particular Specifications **Outline Design Specifications**
- iii. General Specifications **Outline Construction Specifications**
- iv. CPWD Specifications.
- v. Standard Codes of Practice.

In case of discrepancy among Standard Codes of Practice, the decision of Engineer will be final and binding.

## 11.6 APPLICABLE CODES

The summarized list of codes is applicable to structural and architectural works. This will not preclude the Engineers right to refer to any other code applicable for the satisfactory execution of the work.

## 11.7 DIMENSIONS

- i. Figured dimensions on drawings shall only be followed and drawings to a large scale shall take precedence over smaller scale drawings. All dimensions shall be checked on site prior to execution.

The dimensions where stated do not allow for waste, laps, joints, etc. but the Contractor shall provide at his own cost sufficient labour and materials to cover such waste, laps, joints, etc.

- ii. The levels, measurements and other information concerning the existing site as shown on the drawings are believed to be correct, but the Contractor should verify them for himself and also examine the nature of the ground as no claim or allowance whatsoever will be entertained on account of any errors or omissions in the levels or the description of the ground levels or starts turning out different from what was expected or shown on the drawings.

## 11.8 STEEL STRUCTURES

### 11.8.1 General

- 11.8.1.1 This section covers the general requirements of designing, preparing necessary drawings, and, providing, fabricating, painting, transporting, erecting, fixing in position structural steel

**Part Design & Construction of Elevated Viaduct and 10 nos. of Elevated Stations for Extension Projects of NMRC's Aqua Line from Botanical Garden to Noida Sec-142 (from Chainage (-) 383.959 to 12130.143) and from Depot Station to Boraki MMTH (Chainage 28678.253 to 31263.482).**

Only in absence of design criteria not available in mentioned IS codes, reference can be made to other international codes/manuals as applicable to PEB's and same shall be subject to approval of NMRC in case of deviation from IS codes.

A.0       LOADING

A.1       Dead Load

Self weights from all supported and supporting elements.

A.2       Live Load

A.2.1)   As per provisions of IS: 875 (Part – 2)

A.2.2)   Other Imposed loads -

Loads from suspended utilities, OHE fittings etc as per specific requirement of different buildings.

A.2.3)   Material Handling loads supported on structures like EOT cranes, under-slung cranes, all as per specific requirement of individual buildings.

A.2.4)   Solar Panels: 30 Kg/sqm in addition to (75 Kg/sqm and 150 Kg/sqm) for inaccessible and accessible roof respectively.

A.3       Wind Load

As The design of PEB's are mainly governed by Wind load, no increase in permissible stresses is allowed for wind load combinations as per IS:800.

Parameters

As per provision of IS: 875 (Part – 3), with the following parameters:

A.3.1) Basic wind speed:       As per IS: 875

A.3.2)   Value of k1, corresponding to mean probable design life of building of 120 **100** years : as per table –1 of IS: 875 (part-3).

A.3.3)   Value of k2, corresponding to Class – B/C structures as per Table –2 of IS: 875 (Part-3). Minimum value of k2 shall be = 1.0

A.3.4)   Value of k3, as per clause 5.3.3.1 of IS: 875 (Part-3)

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\*\* In case of Uniform compressive stress distribution in PSC structures, permissible stress shall not be more than  $0.3f_{ck}$ .

## II RCC Structures

Permissible stress in Concrete (triangular compressive stress distribution)	- $0.50f_{ck}$
Permissible stress in Concrete (Uniform compressive stress distribution)	- $0.38f_{ck}$
Permissible stress in Steel	- $0.75f_y$

### 8.2 ULS CHECK FOR PRESTRESSED CAST-IN SITU CONCRETE/COMPOSITE CONSTRUCTION

Clause-16.4.3 (Ultimate Limit State: Flexure) to Clause 16.4.6 (Longitudinal Shear) of IRS-CBC shall be applicable for cast-in situ Prestressed construction whereas for composite construction Clause-17.4 (Composite Concrete Construction) shall be used.

### 8.3 ULS CHECK FOR RCC STRUCTURE

Section Capacity check for RC beams (ULS) for the superstructure should be conforming to Clause-15.4 of IRS-CBC. The design of RCC slabs shall conform to Clause 15.5 of IRS-CBC. The design of column should conform to Clause-15.6 of IRS-CBC.

## 9 DESIGN CHECK FOR STEEL/COMPOSITE STRUCTURE

The design of steel structure shall be done by IRS Steel Bridge Code/IRS-Welded Bridge. In case of steel structure, IRS-steel bridge code shall be followed and Load combination G1 shall be used. While designing for composite action IRC :22 shall be referred with load combinations as given in table under clause 7.1.

## 10 DURABILITY & CRACK WIDTH

### 10.1 DURABILITY

Provision of Clause-5.4 of IRS-CBC shall be followed. The exposure condition of present corridor is Moderate and in case of Nallah crossing the exposure condition may be treated as "~~Severe~~". **"Extreme", for all underground elements and elements in contact with Nallah water.**

**Exposure conditions for all the foundation shall be considered as "Severe".**

### 10.2 CRACK WIDTH CHECK

For SLS Combination, Group - I, crack width in reinforced concrete members shall be calculated as per Clause-15.9.8.2.1 of IRS-CBC.

The allowable crack width should be as per Clause 10.2.1 (a) (CS-1-12/2014) based on the exposure condition defined in Clause 5.4.1 of IRS-CBC and table-10 of IRS-CBC.

For crack control in columns, clause 15.6.7 of IRS-CBC will be modified to the extent that actual axial load will be considered to act simultaneously.

## INTRODUCTION

This ODS pertains to Viaduct Portion of the Noida Metro Rail Corporation Extension.

### 1.1 SCOPE OF PROJECT

The Viaduct for Metro Project comprises of simply supported Precast Pre-tensioned twin U-girder (each U-girder supporting one track only)/Post tensioned Segmental Box Girder with RCC sub-structure and bored cast in situ pile /open foundation. The standard gauge of 1435 mm shall be followed. The Centre-to-Centre distance between two tracks shall be as per approved SOD of NMRC. However, PSC I-Girder / Balanced Cantilever / Steel Composite Girders have been proposed at sharp curves / special spans /crossover/ turnout / railway crossing / highway crossing.

#### 1.1.1 Scope of Design Basis Report (DBR) Outline Design Specification (ODS)

This ODS covers design basis with design parameters and assumptions to be adopted in design of foundations & substructures and superstructure of the Viaduct/Bridge based on Model DBR issued by RDSO.

The ODS shall be read in conjunction with the Outline Construction Specifications where appropriate.

#### 1.1.2 Site Particular

The project corridor is located in state of Uttar Pradesh.

- Maximum Temperature 47.8°C (as per Annexure-F of IRC 6)
- Minimum Temperature -0.4°C (as per Annexure-F of IRC 6)
- Rainfall season July-August
- Average Rainfall 800-1000mm
- Seismic Zone IV

#### 1.1.3 Units

The main units used for design shall be: [m], [mm], [t], [kN/m<sup>2</sup>], [MPa], [°C], [rad].

#### 1.1.4 Codes

All relevant codes as listed in DBR ODS shall be of latest revision including all amendments & corrections.

## 2 TRACK GEOMETRY, TRACK STRUCTURE AND ROLLING STOCK'

Track Geometry, Track Structure & Rolling Stock should be as per the approved SOD of NMRC. Summary of Important parameters are given below:

Gauge : Standard Gauge 1435 mm.

Track C/C distance: as per SoD

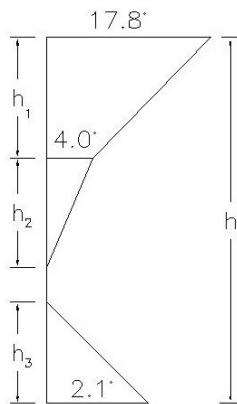
Rolling stock width: 2900mm.

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Temperature variation as per clause 215.2 of IRC 6 will be  $= (47.8 - (-0.4)) / 2 + 10 = \pm 34.1^\circ\text{C}$  say  $35^\circ\text{C}$ .

### B) Differential Temperature (DT)

The provision given in § 215.4 of IRC 6, shall be considered to compute effect of differential temperature gradient in absence of any provisions in IRS code. The differential gradient of temperature along depth of superstructure has been reproduced below for ready reference. Short term modulus of elasticity as per Table given under clause 5.1 of DBR **ODS** shall be used to calculate the effects.

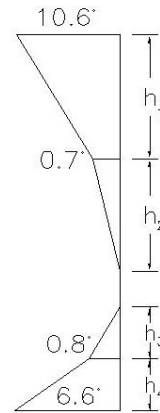


#### Positive Temperature Difference

$$h_1 = 0.3h < 0.15\text{m}$$

$$h_2 = 0.3h > 0.1\text{m} < 0.25\text{m}$$

$$h_3 = 0.3h < 0.15\text{m}$$



#### Negative Temperature Difference

$$h_1 = h_4 = 0.2h < 0.25\text{m}$$

$$h_2 = h_3 = 0.25h < 0.25\text{m}$$

*Note: For purpose of these calculations no reduction shall be made for presence of track plinths.*

Temperature Difference for Concrete Bridge Decks

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recommended values for track stiffness for ballasted tracks are 60kN/m and 20kN/m for loaded and unloaded track respectively and recommended values of track stiffness for ballast less tracks are 60kN/m and 40kN/m for loaded and unloaded tracks respectively. The elastic limit is 2 mm for ballasted tracks and 0.5 mm for ballast less tracks. No change in track stiffness is permitted on account of actual track behavior.

- b) The temperature variations, to be used for analysis, shall be taken as per provisions of cl. 3.2.8 Temperature Variations of "RDSO Guidelines for carrying out Rail-Structure Interaction studies on Metro System (version-2)". The following shall be used for analysis:

-The temperature of the bridge does not deviate from the reference temperature by more than  $\pm 35^{\circ}\text{C}$

-The temperature of the rail does not deviate by more than  $\pm 50^{\circ}\text{C}$ .

-The difference in temperature between deck and track does not exceed  $\pm 20^{\circ}\text{C}$ .

-The reference temperature is the temperature of the deck and the rail when the rail is fixed.

- c) Maximum additional stresses in rail in tension as well as compression on account of rail-structure interaction shall be within the permissible limits as prescribed in cl. 3.3.1 Additional Stresses in Rails of "RDSO Guidelines for carrying out Rail-Structure Interaction studies on Metro System (version-2)". The limit prescribed in the document shall be used as it is and no benefit on account of lesser axle load of actual rolling stock shall be permitted.
- d) The provisions of cl. 3.3.2 Displacements of Bridge Elements of "RDSO Guidelines for carrying out Rail-Structure Interaction studies on Metro System (version-2)" shall be adhered to.
- e) Checks must be performed for break in rail continuity due to unusual conditions such as fractures or for maintenance purposes. The provisions of cl. 4.8 "Rail Gap Analysis of RDSO Guidelines for carrying out Rail-Structure Interaction studies on Metro System (version-2)" shall be followed.
- f) Minimum (unfactored) LWR force of 1.6t/m of span length shall be considered for design irrespective of number of tracks.

2. Software and general methodology to be used for carrying out Rail Structure interaction analysis must be validated before adopting the same. A well-established document such as UIC 774-3R may be used for validation.

3. Representative stretches must be chosen for carrying out Rail-Structure interaction which shall include special spans. The same shall be got approved from the engineer.

4. LWR forces shall be considered in appropriate load combinations as specified in cl. 7.0 Load Combinations (Ground IIIb) of the DBR ODS.

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- Pier stiffness considering fixed base and free at deck location  $K = 3EI_{eff}/L^3$
- $I_{eff}=0.75I_g$ , as per clause 8.1 of IRS Seismic Code. In the calculation of fundamental time period, effective moment of inertia is considered.
- Flexibility of foundation soil system may be considered while calculating time period i.e. foundation and soil spring may be modelled while calculating time period.

The static stiffness of soil spring shall be calculated as per Table-3 of Annexure-C of IS 2911 Part-1 (Section 2). While calculating the static soil stiffness, soil shall be considered as dry granular soil (for time period calculation) with uniform N values of 25 throughout the depth or actual soil stiffness for all cases, whichever is critical. In liquefaction zone no soil spring shall be considered.

Only for calculating the time period, dynamic stiffness ( $K_{dynamic}$ ) shall be used and it shall be taken as 3.5 times the static stiffness ( $K_{static}$ ) i.e  $K_{dynamic}=3.5*K_{static}$ .

For calculating effect of seismic forces i.e. Axial load, BM, SF, Torsions etc. for design of members, the static value of soil springs as per clause 12.4.2 of the DBR **ODS** shall be used.

- Time period of more than 4s shall not be allowed in any case; section needs to be resized when it exceeds 4s.

#### 6.7.7 Direction Combinations

The seismic forces shall be assumed to come from any horizontal direction. For this purpose, two separate analyses shall be performed for design seismic forces acting along two orthogonal horizontal directions. The design seismic force resultant (that is axial force, bending moment, shear force and torsion) at any cross section of a bridge component resulting from the analysis in the two orthogonal horizontal directions shall be combined according to the expressions given below.

- a)  $\pm EL_x \pm 0.3 EL_y$
- b)  $\pm 0.3 EL_x \pm EL_y$

Where

$EL_x$  = Force resultant due to full seismic force along X direction, and

$EL_y$  = Force resultant due to full seismic force along Y direction

When vertical seismic forces are also considered, the design seismic force resultants at any cross-section of a bridge component shall be combined as below:

- a)  $\pm EL_x \pm 0.3 EL_y \pm 0.3 EL_z$
- b)  $\pm 0.3 EL_x \pm EL_y \pm 0.3 EL_z$
- c)  $\pm 0.3 EL_x \pm 0.3 EL_y \pm EL_z$

Where  $EL_x$  and  $EL_y$  are as defined above and  $EL_z$  is the force resultant due to full seismic force along vertical direction.

## 6.12 BUOYANCY LOADS

The design of the foundation shall be done considering design ground water table as referred in clause 5.5 of the DBR ODS.

In case of river bridges, stability check and calculation of base pressure, full buoyancy shall be considered on submerged portion of substructure and foundation up to HFL or LWL as the case may be, irrespective of the type of soil on which the foundation will rest.

Hydro dynamic forces will be considered as per clause 6 of IRS Seismic code.

## 6.13 WATER CURRENT FORCES

Water current force in submerged portion of substructure and foundation shall be calculated as per Clause 5.9 of IRS Bridge Substructure & Foundation Code

## 6.14 VEHICLE COLLISION LOAD (VCL)

The vehicle collision load on piers: as per Clause-222 of IRC: 6.

Rules specifying the loads for design of superstructure and sub-structure of bridges and for assessment of the strength of existing bridges should be done as per IRS: Bridge Rules.

All structures near railway track shall be checked for accidental impact from derailed trains as per clause 2.16.4 of IRS Bridge Rules as per Addendum & Corrigendum Slip No. 50 dated 06.12.2022.

## 6.15 GRADIENT EFFECT

The bearing shall be sandwiched between two true horizontal surfaces. Steel Wedge shall be provided to cater longitudinal slope of superstructure.

## 6.16 BUFFER LOAD

Provision of Buffers is contemplated at the end of temporary terminal stations during stage opening of the Corridors, at Pocket track ends and at the terminal stations of the corridors (at the end of turn back/stabling lines). Such buffers will be of friction type. These buffers will be designed to have stopping performance based on mass of fully loaded train and its deceleration to avoid damage to the train or buffer. Viaduct elements need to be designed for such Buffer load. The exact Buffer loads need to be interfaced and ascertained during the detailed design.

## 6.17 VIBRATION EFFECT

Effect of vibration due to movement of train on Viaduct structure will be taken into consideration. This will be checked in dynamic analysis.

purpose. Reactions in pile are calculated using Rivet theory. The various specific assumptions made for the pile and pile cap design are as follows:

- a) Bored-cast-in-situ multiple pile groups will be adopted.
- b) Minimum 1.0m diameter (unless specified otherwise in tender drawing) bored cast-in-situ vertical piles in soil/rock have been contemplated for the foundation of piers. Minimum number of pile in each pile cap shall not be less than 4.
- c) Open foundation have been contemplated for the pier location with rocky strata at shallow depth.
- d) For piles and pile caps, load combinations shall be considered as per IRS-CBC, Table-12. The various specific assumptions made for the pile and pile cap design including pile load testing shall be as per IS: 2911, IRC-78: Part 1 and IRS-Bridge Sub-structure and Foundation Code.
- e) For pile carrying capacity, all SLS Load combinations as per IRS-CBC will be considered.
- f) . Increase in vertical load capacity of pile shall be done as per Table-1 of IS 1893-Part-1.
- g) The lateral load capacity of pile shall be evaluated either by using empirical formulae given in IS: 2911 (Part-1/ section-2) or by soil structure interaction analysis using Winkler's Spring model by limiting the lateral deflection as 1% of Pile diameter as per Cl. 709.3.5.2 of IRC: 78-Part 1.
- h) Initial load tests (not on working pile) will be conducted as per IS: 2911 - Part IV. Initial test is proposed to be conducted for a load of 2.5 times as per the safe load based on static formula.
- i) The working load on pile for vertical and horizontal loads shall be verified through routine load tests during construction.
- j) In case of multiple pile system, spacing between the piles shall not be less than 3 times the diameter of pile in soil and 2.5 times the diameter when founded on rock.
- k) In general, the top of pile cap shall be kept about min 500mm below the existing ground level and weight of the earth cover will be applied on top of pile cap when unfavorable. The earth cover on pile cap for any favorable effect (stability, soil horizontal capacity.) will be neglected.
- l) The following limiting values shall not be exceeded for computation of safe load:
  - o Result of sub-structure investigation will be used for adopting the value of angle of internal friction " $\phi$ " and cohesion of soil "c" as per clause 5.7 of the **DBR ODS**.
  - o Angle of wall friction  $\delta$  shall be taken as equal to  $\phi$  deg.
  - o Co-efficient of earth pressure "K" shall be taken as 1.0.
  - o Maximum overburden pressure at bottom of pile for calculation of shaft resistance and bearing resistance shall be limited to 15 times the diameter of the pile. The maximum depth shall be considered from existing ground level.

**Part Design & Construction of Elevated Viaduct and 10 nos. of Elevated Stations for Extension Projects of NMRC's Aqua Line from Botanical Garden to Noida Sec-142 (from Chainage (-) 383.959 to 12130.143) and from Depot Station to Boraki MMTH (Chainage 28678.253 to 31263.482).**

- For calculating the pile capacities, the design ground water table as per clause 5.5 of the ~~DBR~~ **ODS** shall be considered.
  - Bulk density corresponding to 100% saturation shall be calculated and used for working out submerged density of soil.
  - In case of liquefiable strata, only submerged weight of soil shall be considered as overburden for vertical pile capacity calculation.
- m) While finalizing length of pile, Clause 705.4.1 of IRC: 78-Part 1 shall also be followed.
- n) Live load surcharge needs to be considered for pile group which is outside median and where live load is moving over pile cap. Normal Pile groups below median or where there is no live load over pile cap need not to be design for live load surcharge.
- o) In case of foundations near railway crossing effect of railway live load surcharge shall be considered if applicable

#### Structural Design

- a) Pile design shall be done according to § 15.6 of IRS CBC. However, for crack control in piles, § 15.6.7 of IRS CBC it will be clarified that actual axial load will be considered to act simultaneously.
- b) Where there is a risk of liquefaction, the lateral soil resistance of the liquefied layer will be taken as zero.
- c) Pile cap shall be designed based on § 15.8.3.1 of IRS –CBC 1997. No support from soil below pile cap shall be considered.
- d) The thickness of the pile cap shall be kept at a minimum 1.5 times diameter of the piles for multiple-pile group as per IRC 78.
- e) The structural design of the pile cap shall be carried out as per §10.2.2 & §15.4 and §15.8.3 of IRS CBC. Crack width shall be checked for load combination 1 as per §15.9.8.2 IRS CBC.
- f) Minimum reinforcement in pile caps at top shall be at least 0.12% in each direction in case of compression and in case of tension, it shall not be less than 0.2%.

#### 12.4.2 Soil Structure Analysis

When designing element forces or estimating displacements the soil stiffness and other parameters shall be assessed based on clause 5.7 of the ~~DBR~~ **ODS** considering the design ground water table as per clause 5.5 of the ~~DBR~~ **ODS**.

#### 12.4.3 Well Foundation & Open foundation

Well Foundation & Open foundation shall be designed as per IRS Bridge Substructure & Foundation Code/ IRC: 78-Part 1.

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### 13 CODAL PREFERENCE

The IRS Codes shall be followed in principle. Although main clauses have been mentioned in the DBR **ODS**, the other relevant clauses as available in the IRS codes shall also be followed, whenever applicable. If provisions are not available in IRS, the order of preference shall be as follows, unless specified otherwise:

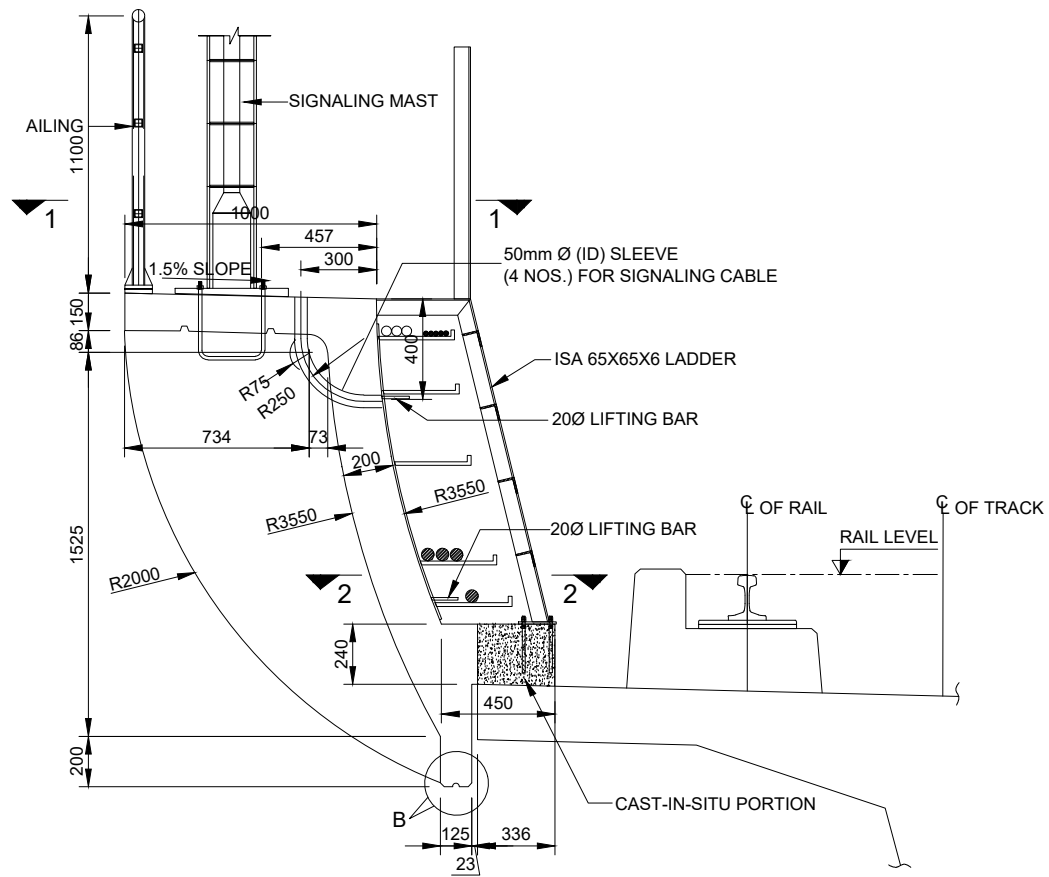
For railway loading related issues:

- i. UIC Codes
- ii. Euro Codes
- iii. Any other code, which covers railway loading.

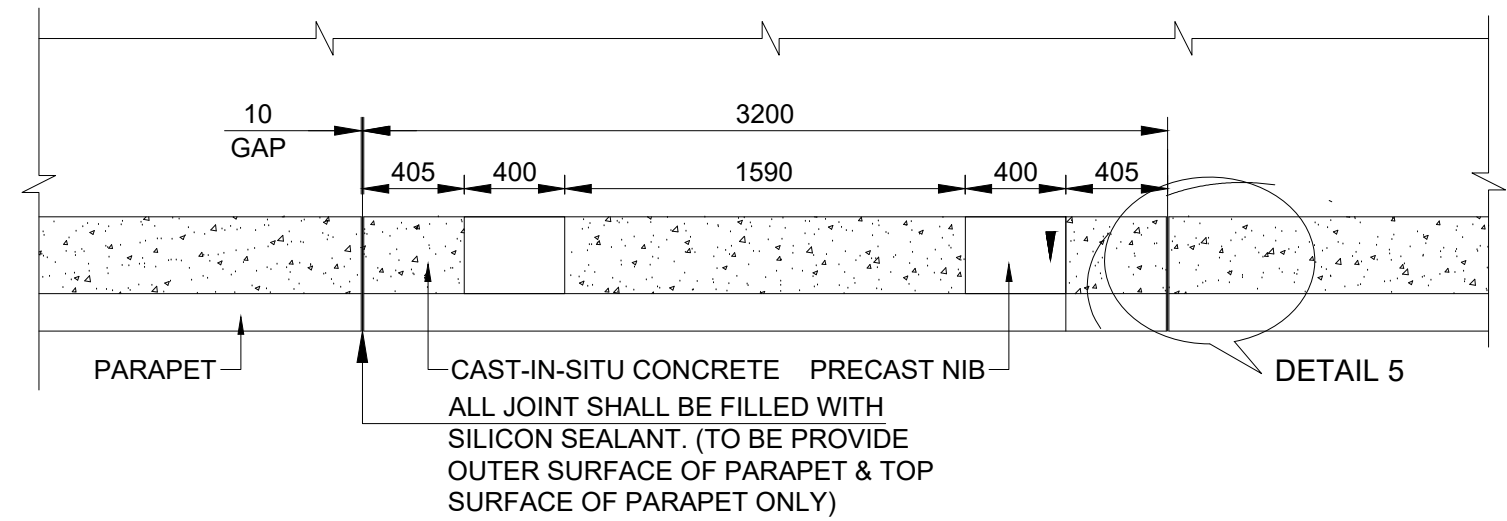
For other Design/ detailing related issues:

- i.IS
- ii.IRC
- iii.EURO
- iv.AASHTO
- v.Any international code with approval of NMRC.

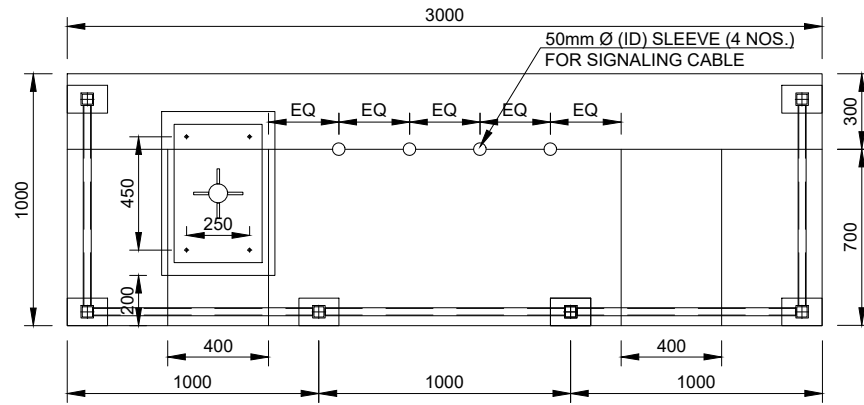
ARCHITECTURE DRAWING LIST				STRUCTURE DRAWING LIST				PLUMBING DRAWING LIST			
S.No.	Drawing Number	Drawing Title	Revision	S.No.	Drawing Number	Drawing Title	Rev.	S.No.	Drawing Number	Drawing Title	Rev.
1	NGNE-GEN-TED-ARP-10000-RO	DRAWING LIST		1	ALIGNMENT (CH:28678.25 TO 31263.482)	GENERAL ARRANGEMENT DRAWING PLAN AND PROFILE FROM CH: 28720m TO CH: 29400m	RO	1	NGNE-BRK-TED-PLB-10002	TYPICAL DETAIL & SECTION - PLUMBING LAYOUT	RO
2	NGNE-GEN-TED-ARP-10011-RO	FINISHING SCHEDULE	RO	1	NGNE-ALG-TED-STR-10001	GENERAL ARRANGEMENT DRAWING PLAN AND PROFILE FROM CH: 29400m TO CH: 30140m	RO	2	NGNE-BRK-TED-PLB-10003	TOILET DETAIL - PLUMBING LAYOUT	RO
3	NGNE-JUN-TED-ARP-11011-RO	GROUND LEVEL PLAN	RO	2	NGNE-ALG-TED-STR-10001	GENERAL ARRANGEMENT DRAWING PLAN AND PROFILE FROM CH: 30140m TO CH: 30800m	RO	3	NGNE-BRK-TED-PLB-10004	SCHEMATIC DIAGRAM FOR DRAINAGE SYSTEM	RO
4	NGNE-JUN-TED-ARP-11021-RO	CONCOURSE LEVEL PLAN	RO	3	NGNE-ALG-TED-STR-10001	GENERAL ARRANGEMENT DRAWING PLAN AND PROFILE FROM CH: 30800m TO CH: 31200m	RO	4	NGNE-BRK-TED-PLB-10005	SCHEMATIC DIAGRAM FOR SEWAGE SYSTEM	RO
5	NGNE-JUN-TED-ARP-11031-RO	PLATFORM LEVEL PLAN	RO	4	NGNE-ALG-TED-STR-10001	GENERAL ARRANGEMENT DRAWING PLAN AND PROFILE FROM CH: 30800m TO CH: 31200m	RO	5	NGNE-BRK-TED-PLB-10006	SCHEMATIC DIAGRAM FOR WATER SUPPLY SYSTEM	RO
6	NGNE-JUN-TED-ARP-11041-RO	ROOF LEVEL PLAN	RO	5	NGNE-VID-TED-STR-10101	TYPICAL PIER CAP WITH U-GIRDER	RO	6	NGNE-BRK-TED-PLB-12001	GROUND FLOOR PLAN - DRAINAGE & WATER SUPPLY LAYOUT	RO
7	NGNE-JUN-TED-ARP-13001-RO	CROSS SECTION - A	RO	1	NGNE-VID-TED-STR-10101	TYPICAL PIER CAP WITH U-GIRDER	RO	7	NGNE-BRK-TED-PLB-12001	PUMP ROOM - PLUMBING LAYOUT	RO
8	NGNE-JUN-TED-ARP-13002-RO	CROSS SECTION - C	RO	2	NGNE-VID-TED-STR-10101A	TYPICAL PIER CAP WITH SINGLE U-GIRDER	RO	8	NGNE-BRK-TED-PLB-13001	CONCOURSE LEVEL PLAN - DRAINAGE LAYOUT	RO
9	NGNE-BRK-TED-ARP-11011-RO	GROUND LEVEL PLAN	RO	3	NGNE-VID-TED-STR-10102	GENERAL ARRANGEMENT OF ECCENTRIC PIER CAP SUPPORTING U-GIRDERS	RO	9	NGNE-BRK-TED-PLB-13002	CONCOURSE LEVEL PLAN - WATER SUPPLY LAYOUT	RO
10	NGNE-BRK-TED-ARP-11021-RO	CONCOURSE LEVEL PLAN	RO	4	NGNE-VID-TED-STR-10103	TYPICAL GAP OF PORTAL PIERS TYPE - I WITH PRECAST PORTAL BEAM (U-GIRDER SUPPORTING)	RO	10	NGNE-BRK-TED-PLB-14001	PLATFORM LEVEL PLAN - DRAINAGE LAYOUT	RO
11	NGNE-BRK-TED-ARP-11031-RO	PLATFORM LEVEL PLAN	RO	5	NGNE-VID-TED-STR-10104	DETAILS OF SEM THROUGH STEEL GIRDERS FOR SPECIAL SPAN	RO	11	NGNE-BRK-TED-PLB-14002	PLATFORM LEVEL PLAN - WATER SUPPLY LAYOUT	RO
12	NGNE-BRK-TED-ARP-11041-RO	ROOF LEVEL PLAN	RO	6	NGNE-VID-TED-STR-10104	DETAILS OF SEM THROUGH STEEL GIRDERS FOR SPECIAL SPAN	RO	12	NGNE-BRK-TED-PLB-15001	ROOF LEVEL PLAN - DRAINAGE LAYOUT	RO
13	NGNE-BRK-TED-ARP-13001-RO	LONG SECTION - A	RO	7	NGNE-VID-TED-STR-10105	TYPICAL DETAILS OF EXPANSION JOINT AND UPSTAND FOR U-GIRDER	RO	13	NGNE-JUN-TED-PLB-10002	TYPICAL DETAIL & SECTION - PLUMBING LAYOUT	RO
14	NGNE-BRK-TED-ARP-13002-RO	CROSS SECTION - C	RO	8	NGNE-VID-TED-STR-10106	DETAILS OF CABLE BRACKET & SLEEVE OF U-GIRDER SPAN	RO	14	NGNE-JUN-TED-PLB-10003	TOILET DETAIL - PLUMBING LAYOUT	RO
15	NGNE-BGN-TED-ARP-11011-R1	GROUND LEVEL PLAN	R1	9	NGNE-VID-TED-STR-10106	DETAILS OF CABLE BRACKET & SLEEVE OF U-GIRDER SPAN	RO	15	NGNE-JUN-TED-PLB-10004	SCHEMATIC DIAGRAM FOR DRAINAGE SYSTEM	RO
16	NGNE-BGN-TED-ARP-11021-R1	CONCOURSE LEVEL PLAN	R1	10	NGNE-VID-TED-STR-10107	INTERMEDIATE LEVEL PLAN - DRAINAGE LAYOUT	RO	16	NGNE-JUN-TED-PLB-10005	SCHEMATIC DIAGRAM FOR SEWAGE SYSTEM	RO
17	NGNE-BGN-TED-ARP-11031-R1	PLATFORM LEVEL PLAN	R1	11	NGNE-VID-TED-STR-10107	CABLE BRACKET DETAILS OF U-GIRDER	RO	17	NGNE-JUN-TED-PLB-10006	SCHEMATIC DIAGRAM FOR WATER SUPPLY SYSTEM	RO
18	NGNE-BGN-TED-ARP-11041-R1	ROOF LEVEL PLAN	R1	12	NGNE-VID-TED-STR-10108	RO-SH-02	RO	18	NGNE-JUN-TED-PLB-11001	GROUND FLOOR PLAN - DRAINAGE & WATER SUPPLY LAYOUT	RO
19	NGNE-BGN-TED-ARP-11051-R1	SHORT ELEVATION - 2	R1	13	NGNE-VID-TED-STR-10108	RO-SH-01	RO	19	NGNE-JUN-TED-PLB-12001	PUMP ROOM - PLUMBING LAYOUT	RO
20	NGNE-BGN-TED-ARP-12001-R1	LONG SECTION - A	R1	14	NGNE-VID-TED-STR-10108	RO-SH-02	RO	20	NGNE-JUN-TED-PLB-13001	CONCOURSE LEVEL PLAN - DRAINAGE LAYOUT	RO
21	NGNE-BGN-TED-ARP-12002-R1	SHORT ELEVATION - 1	R1	15	NGNE-VID-TED-STR-10109	TRACK PLINTH STARTER BARS DETAILS OF U-GIRDER	RO	21	NGNE-JUN-TED-PLB-13002	CONCOURSE LEVEL PLAN - WATER SUPPLY LAYOUT	RO
22	NGNE-BGN-TED-ARP-13001-R1	LONG SECTION - A	R1	16	NGNE-VID-TED-STR-10110	REINFORCEMENT DETAIL OF UPSTAND NEAR RECESS	RO	22	NGNE-JUN-TED-PLB-14001	PLATFORM LEVEL PLAN - DRAINAGE LAYOUT	RO
23	NGNE-BGN-TED-ARP-13002-R1	CROSS SECTION - C	R1	17	NGNE-VID-TED-STR-10111	DETAILS OF BASE PLATE & SLEEVE OF U-GIRDER (OTHER THAN SIGNAL LOCATION)	RO	23	NGNE-JUN-TED-PLB-14002	PLATFORM LEVEL PLAN - WATER SUPPLY LAYOUT	RO
24	NGNE-S44-TED-ARP-11011-R1	GROUND LEVEL PLAN	R1	18	NGNE-VID-TED-STR-10112	DETAILS OF THE ONE MAST ANCHOR AND REINFORCEMENT OF WEB OF U-GIRDER	RO	24	NGNE-JUN-TED-PLB-15001	ROOF LEVEL PLAN - DRAINAGE LAYOUT	RO
25	NGNE-S44-TED-ARP-11021-R1	CONCOURSE LEVEL PLAN	R1	19	NGNE-VID-TED-STR-10113	DIMENSION & REINFORCEMENT DETAILS OF PIER PROTECTION RASH BARRIER AROUND CIRCULAR AND RECTANGULAR PIER	RO	25	NGNE-BGN-TED-PLB-10002	TYPICAL DETAIL & SECTION - PLUMBING LAYOUT	RO
26	NGNE-S44-TED-ARP-11031-R1	PLATFORM LEVEL PLAN	R1	20	NGNE-VID-TED-STR-10113	DETAILS OF TEMPORARY BARRICADE (2m HEIGHT)	RO	26	NGNE-BGN-TED-PLB-10003	TOILET DETAIL - PLUMBING LAYOUT	RO
27	NGNE-S44-TED-ARP-11041-R1	ROOF LEVEL PLAN	R1	21	NGNE-VID-TED-STR-10115	DETAILS OF TEMPORARY BARRICADE (2m HEIGHT)	RO	27	NGNE-BGN-TED-PLB-10004	SCHEMATIC DIAGRAM FOR DRAINAGE SYSTEM	RO
28	NGNE-S44-TED-ARP-12001-R1	LONG ELEVATION - 1	R1	22	NGNE-VID-TED-STR-10116	RAIN WATER HARVESTING PLAN AND SECTION	RO	28	NGNE-BGN-TED-PLB-10005	SCHEMATIC DIAGRAM FOR SEWAGE SYSTEM	RO
29	NGNE-S44-TED-ARP-12002-R1	SHORT ELEVATION - 2	R1	23	NGNE-VID-TED-STR-10116	RAIN WATER HARVESTING PLAN AND SECTION	RO	29	NGNE-BGN-TED-PLB-10006	SCHEMATIC DIAGRAM FOR WATER SUPPLY SYSTEM	RO
30	NGNE-S44-TED-ARP-13001-R1	CROSS SECTION - A	R1	24	NGNE-VID-TED-STR-10117	DRAINAGE DETAILS OF U-GIRDER SPANS	RO	30	NGNE-BGN-TED-PLB-11001	GROUND FLOOR PLAN - DRAINAGE & WATER SUPPLY LAYOUT	RO
31	NGNE-S44-TED-ARP-13002-R1	CROSS SECTION - C	R1	25	NGNE-VID-TED-STR-10117	DRAINAGE DETAILS OF U-GIRDER SPANS	RO	31	NGNE-BGN-TED-PLB-12001	PLUMBING LAYOUT	RO
32	NGNE-NOFC-TED-ARP-11011-R1	GROUND LEVEL PLAN	R1	26	NGNE-VID-TED-STR-10117	DRAINAGE DETAILS OF U-GIRDER SPANS	RO	32	NGNE-BGN-TED-PLB-13001	CONCOURSE LEVEL PLAN - DRAINAGE LAYOUT	RO
33	NGNE-NOFC-TED-ARP-11021-R1	CONCOURSE LEVEL PLAN	R1	27	NGNE-VID-TED-STR-10118	TYPICAL I-GIRDER DETAILS FOR SUPERSTRUCTURE	RO	33	NGNE-BGN-TED-PLB-13002	CONCOURSE LEVEL PLAN - WATER SUPPLY LAYOUT	RO
34	NGNE-NOFC-TED-ARP-11031-R1	PLATFORM LEVEL PLAN	R1	28	NGNE-VID-TED-STR-10118	TYPICAL I-GIRDER DETAILS FOR SUPERSTRUCTURE	RO	34	NGNE-BGN-TED-PLB-14001	INTERMEDIATE LEVEL PLAN - DRAINAGE LAYOUT	RO
35	NGNE-NOFC-TED-ARP-11041-R1	ROOF LEVEL PLAN	R1	29	NGNE-VID-TED-STR-10119	TYPICAL LAP JET DETAILS FOR GIRDER SPAN	RO	35	NGNE-BGN-TED-PLB-14002	INTERMEDIATE LEVEL PLAN - WATER SUPPLY LAYOUT	RO
36	NGNE-NOFC-TED-ARP-12001-R1	LONG ELEVATION - 1	R1	30	NGNE-VID-TED-STR-10120	GENERAL DETAILS OF RAILING AROUND SIGNALING POST	RO	36	NGNE-BGN-TED-PLB-15001	PLATFORM LEVEL PLAN - DRAINAGE LAYOUT	RO
37	NGNE-NOFC-TED-ARP-12002-R1	SHORT ELEVATION - 2	R1		ALIGNMENT (CH: 383.959 TO CH: 12130.143)		RO	37	NGNE-BGN-TED-PLB-15002	PLATFORM LEVEL PLAN - WATER SUPPLY LAYOUT	RO
38	NGNE-NOFC-TED-ARP-13001-R1	CROSS SECTION - A	R1	1	NGNE-ALG-TED-STR-10001-RO (SH-01)	GENERAL ARRANGEMENT DRAWING PLAN AND PROFILE FROM CH DN LINE: 380m TO CH: 340m	RO	38	NGNE-BGN-TED-PLB-16001	ROOF LEVEL PLAN - DRAINAGE LAYOUT	RO
39	NGNE-NOFC-TED-ARP-13002-R1	CROSS SECTION - C	R1	2	NGNE-ALG-TED-STR-10001-RO (SH-02)	GENERAL ARRANGEMENT DRAWING PLAN AND PROFILE FROM CH DN LINE: 320m TO CH: 1040m	RO	39	NGNE-NOFC-TED-PLB-10002	TYPICAL DETAIL & SECTION - PLUMBING LAYOUT	RO
40	NGNE-597-TED-ARP-11011-R1	GROUND LEVEL PLAN	R1	3	NGNE-ALG-TED-STR-10001-RO (SH-03)	GENERAL ARRANGEMENT DRAWING PLAN AND PROFILE FROM CH DN LINE: 1020m TO CH: 1740m	RO	40	NGNE-NOFC-TED-PLB-10003	TOILET DETAIL - PLUMBING LAYOUT	RO
41	NGNE-597-TED-ARP-11021-R1	CONCOURSE LEVEL PLAN	R1	4	NGNE-ALG-TED-STR-10001-RO (SH-04)	GENERAL ARRANGEMENT DRAWING PLAN AND PROFILE FROM CH DN LINE: 1720m TO CH: 2440m	RO	41	NGNE-NOFC-TED-PLB-10004	SCHEMATIC DIAGRAM FOR DRAINAGE SYSTEM	RO
42	NGNE-597-TED-ARP-11031-R1	PLATFORM LEVEL PLAN	R1	5	NGNE-ALG-TED-STR-10001-RO (SH-05)	GENERAL ARRANGEMENT DRAWING PLAN AND PROFILE FROM CH DN LINE: 2420m TO CH: 3140m	RO	42	NGNE-NOFC-TED-PLB-10005	SCHEMATIC DIAGRAM FOR SEWAGE SYSTEM	RO
43	NGNE-597-TED-ARP-11041-R1	ROOF LEVEL PLAN	R1	6	NGNE-ALG-TED-STR-10001-RO (SH-06)	GENERAL ARRANGEMENT DRAWING PLAN AND PROFILE FROM CH DN LINE: 3120m TO CH: 3840m	RO	43	NGNE-NOFC-TED-PLB-10006	SCHEMATIC DIAGRAM FOR WATER SUPPLY SYSTEM	RO
44	NGNE-597-TED-ARP-12001-R1	LONG ELEVATION - 1	R1	7	NGNE-ALG-TED-STR-10001-RO (SH-07)	GENERAL ARRANGEMENT DRAWING PLAN AND PROFILE FROM CH DN LINE: 3820m TO CH: 4540m	RO	44	NGNE-NOFC-TED-PLB-11001	GROUND FLOOR PLAN - DRAINAGE & WATER SUPPLY LAYOUT	RO
45	NGNE-597-TED-ARP-12002-R1	SHORT ELEVATION - 2	R1	8	NGNE-ALG-TED-STR-10001-RO (SH-08)	GENERAL ARRANGEMENT DRAWING PLAN AND PROFILE FROM CH DN LINE: 4520m TO CH: 5240m	RO	45	NGNE-NOFC-TED-PLB-12001	PUMP ROOM - PLUMBING LAYOUT	RO
46	NGNE-597-TED-ARP-13001-R1	CROSS SECTION - A	R1	9	NGNE-ALG-TED-STR-10001-RO (SH-09)	GENERAL ARRANGEMENT DRAWING PLAN AND PROFILE FROM CH DN LINE: 5220m TO CH: 5940m	RO	46	NGNE-NOFC-TED-PLB-13001	CONCOURSE LEVEL PLAN - DRAINAGE LAYOUT	RO
47	NGNE-597-TED-ARP-13002-R1	CROSS SECTION - C	R1	10	NGNE-ALG-TED-STR-10001-RO (SH-10)	GENERAL ARRANGEMENT DRAWING PLAN AND PROFILE FROM CH DN LINE: 5920m TO CH: 6640m	RO	47	NGNE-NOFC-TED-PLB-13002	CONCOURSE LEVEL PLAN - WATER SUPPLY LAYOUT	RO
48	NGNE-5105-TED-ARP-11011-R1	GROUND LEVEL PLAN	R1	11	NGNE-ALG-TED-STR-10001-RO (SH-11)	GENERAL ARRANGEMENT DRAWING PLAN AND PROFILE FROM CH DN LINE: 6620m TO CH: 7340m	RO	48	NGNE-NOFC-TED-PLB-14001	PLATFORM LEVEL PLAN - DRAINAGE LAYOUT	RO
49	NGNE-5105-TED-ARP-11021-R1	CONCOURSE LEVEL PLAN	R1	12	NGNE-ALG-TED-STR-10001-RO (SH-12)	GENERAL ARRANGEMENT DRAWING PLAN AND PROFILE FROM CH DN LINE: 7320m TO CH: 8040m	RO	49	NGNE-NOFC-TED-PLB-14002	PLATFORM LEVEL PLAN - WATER SUPPLY LAYOUT	RO
50	NGNE-5105-TED-ARP-11031-R1	PLATFORM LEVEL PLAN	R1	13	NGNE-ALG-TED-STR-10001-RO (SH-13)	GENERAL ARRANGEMENT DRAWING PLAN AND PROFILE FROM CH DN LINE: 8020m TO CH: 8740m	RO	50	NGNE-NOFC-TED-PLB-15001	ROOF LEVEL PLAN - DRAINAGE LAYOUT	RO
51	NGNE-5105-TED-ARP-11041-R1	ROOF LEVEL PLAN	R1	14	NGNE-ALG-TED-STR-10001-RO (SH-14)	GENERAL ARRANGEMENT DRAWING PLAN AND PROFILE FROM CH DN LINE: 8720m TO CH: 9440m	RO	51	NGNE-593-TED-PLB-10002	TYPICAL DETAIL & SECTION - PLUMBING LAYOUT	RO
52	NGNE-5105-TED-ARP-12001-R1	LONG ELEVATION - 1	R1	15	NGNE-ALG-TED-STR-10001-RO (SH-15)	GENERAL ARRANGEMENT DRAWING PLAN AND PROFILE FROM CH DN LINE: 9440m TO CH: 10160m	RO	52	NGNE-593-TED-PLB-10003	TOILET DETAIL - PLUMBING LAYOUT	RO
53	NGNE-5105-TED-ARP-12002-R1	SHORT ELEVATION - 2	R1	16	NGNE-ALG-TED-STR-10001-RO (SH-16)	GENERAL ARRANGEMENT DRAWING PLAN AND PROFILE FROM CH DN LINE: 10120m TO CH: 10840m	RO	53	NGNE-593-TED-PLB-10004	SCHEMATIC DIAGRAM FOR DRAINAGE SYSTEM	RO
54	NGNE-5105-TED-ARP-13001-R1	CROSS SECTION - A	R1	17	NGNE-ALG-TED-STR-10001-RO (SH-17)	GENERAL ARRANGEMENT DRAWING PLAN AND PROFILE FROM CH DN LINE: 10820m TO CH: 11540m	RO	54	NGNE-593-TED-PLB-10005	SCHEMATIC DIAGRAM FOR SEWAGE SYSTEM	RO
55	NGNE-5105-TED-ARP-13002-R1	CROSS SECTION - C	R1	18	NGNE-ALG-TED-STR-10001-RO (SH-18)	GENERAL ARRANGEMENT DRAWING PLAN AND PROFILE FROM CH DN LINE: 11520m TO CH: 11950m	RO	55	NGNE-593-TED-PLB-10006	SCHEMATIC DIAGRAM FOR WATER SUPPLY SYSTEM	RO
56	NGNE-5108-TED-ARP-11011-R1	GROUND LEVEL PLAN	R1	19	NGNE-ALG-TED-STR-10002-RO (SH-01)	GENERAL ARRANGEMENT DRAWING PLAN AND PROFILE FROM CH UP LINE: 380m TO CH: 340m	RO	56	NGNE-593-TED-PLB-11001	GROUND FLOOR PLAN - DRAINAGE & WATER SUPPLY LAYOUT	RO
57	NGNE-5108-TED-ARP-11021-R1	CONCOURSE LEVEL PLAN	R1	20	NGNE-ALG-TED-STR-10002-RO (SH-02)	GENERAL ARRANGEMENT DRAWING PLAN AND PROFILE FROM CH UP LINE: 320m TO CH: 1040m	RO	57	NGNE-593-TED-PLB-12001	PUMP ROOM - PLUMBING LAYOUT	RO
58	NGNE-5108-TED-ARP-11031-R1	PLATFORM LEVEL PLAN	R1	21	NGNE-ALG-TED-STR-10002-RO (SH-03)	GENERAL ARRANGEMENT DRAWING PLAN AND PROFILE FROM CH UP LINE: 1020m TO CH: 1740m	RO	58	NGNE-593-TED-PLB-13001	CONCOURSE LEVEL PLAN - DRAINAGE LAYOUT	RO
59	NGNE-5108-TED-ARP-11041-R1	ROOF LEVEL PLAN	R1	22	NGNE-ALG-TED-STR-10002-RO (SH-04)	GENERAL ARRANGEMENT DRAWING PLAN AND PROFILE FROM CH UP LINE: 1720m TO CH: 2440m	RO	59	NGNE-593-TED-PLB-13002	CONCOURSE LEVEL PLAN - WATER SUPPLY LAYOUT	RO
60	NGNE-5108-TED-ARP-12001-R1	LONG ELEVATION - 1	R1	23	NGNE-ALG-TED-STR-10002-RO (SH-05)	GENERAL ARRANGEMENT DRAWING PLAN AND PROFILE FROM CH UP LINE: 2420m TO CH: 3140m	RO	60	NGNE-593-TED-PLB-14001	PLATFORM LEVEL PLAN - DRAINAGE LAYOUT	RO
61	NGNE-5108-TED-ARP-12002-R1	SHORT ELEVATION - 2	R1	24	NGNE-ALG-TED-STR-10002-RO (SH-06)	GENERAL ARRANGEMENT DRAWING PLAN AND PROFILE FROM CH UP LINE: 3120m TO CH: 3840m	RO	61	NGNE-593-TED-PLB-14002	PLATFORM LEVEL PLAN - WATER SUPPLY LAYOUT	RO
62	NGNE-5108-TED-ARP-13001-R1	LONG SECTION - A	R1	25	NGNE-ALG-TED-STR-10002-RO (SH-07)	GENERAL ARRANGEMENT DRAWING PLAN AND PROFILE FROM CH UP LINE: 3820m TO CH: 4540m	RO	62	NGNE-593-TED-PLB-15001	ROOF LEVEL PLAN - DRAINAGE LAYOUT	RO
63	NGNE-5108-TED-ARP-13002-R1	CROSS SECTION - C	R1	26	NGNE-ALG-TED-STR-10002-RO (SH-08)	GENERAL ARRANGEMENT DRAWING PLAN AND PROFILE FROM CH UP LINE: 4520m TO CH: 5240m	RO	63	NGNE-5105-TED-PLB-10002	TYPICAL DETAIL & SECTION - PLUMBING LAYOUT	RO
64	NGNE-593-TED-ARP-11011-R1	GROUND LEVEL PLAN	R1	27	NGNE-ALG-TED-STR-10002-RO (SH-09)	GENERAL ARRANGEMENT DRAWING PLAN AND PROFILE FROM CH UP LINE: 5220m TO CH: 5940m	RO	64	NGNE-5105-TED-PLB-10003	TOILET DETAIL - PLUMBING LAYOUT	RO
65	NGNE-593-TED-ARP-11021-R1	CONCOURSE LEVEL PLAN	R1	28	NGNE-ALG-TED-STR-10002-RO (SH-10)	GENERAL ARRANGEMENT DRAWING PLAN AND PROFILE FROM CH UP LINE: 5920m TO CH: 6640m	RO	65	NGNE-5105-TED-PLB-10004	SCHEMATIC DIAGRAM FOR DRAINAGE SYSTEM	RO
66	NGNE-593-TED-ARP-11031-R1	PLATFORM LEVEL PLAN	R1	29	NGNE-ALG-TED-STR-10002-RO (SH-11)	GENERAL ARRANGEMENT DRAWING PLAN AND PROFILE FROM CH UP LINE: 6620m TO CH: 7340m	RO	66	NGNE-5105-TED-PLB-10005	SCHEMATIC DIAGRAM FOR SEWAGE SYSTEM	RO
67	NGNE-593-TED-ARP-11041-R1	ROOF LEVEL PLAN	R1	30	NGNE-ALG-TED-STR-10002-RO (SH-12)	GENERAL ARRANGEMENT DRAWING PLAN AND PROFILE FROM CH UP LINE: 7320m TO CH: 8040m	RO	67	NGNE-5105-TED-PLB-10006	SCHEMATIC DIAGRAM FOR WATER SUPPLY SYSTEM	RO
68	NGNE-593-TED-ARP-12001-R1	LONG ELEVATION - 1	R1	31	NGNE-ALG-TED-STR-10002-RO (SH-13)	GENERAL ARRANGEMENT DRAWING PLAN AND PROFILE FROM CH UP LINE: 8020m TO CH: 8740m	RO	68	NGNE-5105-TED-PLB-11001	GROUND FLOOR PLAN - DRAINAGE & WATER SUPPLY LAYOUT	RO
69	NGNE-593-TED-ARP-12002-R1	SHORT ELEVATION - 2	R1	32	NGNE-ALG-TED-STR-10002-RO (SH-14)	GENERAL ARRANGEMENT DRAWING PLAN AND PROFILE FROM CH UP LINE: 872					



**(TYP.) PARAPET WITH SIGNALING MAST**  
(SCALE 1:20)



**SECTION 2-2**  
(SCALE 1:30)



**SECTION 1-1**  
**(TYP.) PARAPET WITH SIGNALING MAST**  
(SCALE 1:20)

**TENDER DRAWING**

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**NOIDA METRO RAIL CORPORATION LTD.**  
Block-III, 3rd Floor, Ganga Shopping Complex, Sector-29, Noida -201301, District Gautam Budh Nagar, Uttar Pradesh, India

PROJECT: NGNECC-01: Part Design & Construction of Elevated Viaduct and 10 nos. of Elevated Stations for Extension Projects of NMRC's Aqua Line from Botanical Garden to Noida Sec-142 (from Chainage (-) 383.959 to 12130.143) and from Depot Station to Boraki MMTH (Chainage 28678.253 to 31263.482).

VIADUCT  
DRAWING TITLE: GENERAL DETAILS OF RAILING AROUND SIGNALING POST

NORTH	DRAWN BY: P. BISHT	CHECKED BY: D.S	VERIFIED BY: P. Kundu	APPROVED BY: P. Banerjee
DATE: 02-06-2026	REV: R0	SCALE: NTS	STATUS: TENDER	NGNEDDC
ORDER NO: P36-0022	DRAWING NUMBER: NGNE-VID-TED-STR-10120	SHEET NO: 01 OF 01	SHEET SIZE: A1	

- GENERAL NOTES:**
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  - ALL DIMENSIONS ARE TO BE READ AND NOT MEASURED.
  - ANY DISCREPANCY MUST BE BROUGHT TO THE NOTICE OF THE DMRC BEFORE EXECUTION OF WORK AT SITE.
  - THIS DRAWING MUST BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTURAL, STRUCTURAL, PLUMBING & FIRE FIGHTING, ELECTRICAL AND TRAFFIC MANAGEMENT DRAWINGS.
  - ALL DOOR/WINDOW GILL & LINTEL LEVELS ARE MEASURED FROM MAIN FLOOR FINISHED LEVELS.

**REFERENCE DRAWINGS**

REVISION	DESCRIPTION	DRAWING NO.

**REVISIONS**

REV.	DESCRIPTION	DATE	DRAWN BY	CHECKED BY
R0	INITIAL DRAWING	02-06-2026	PB	D.S

**APPROVAL OF NMRC OFFICIALS**

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Certified that this document has been designed and checked in accordance with DDC Quality Assurance Plan.

Authorised Signatory for DDC, NGNEDDC Project Manager

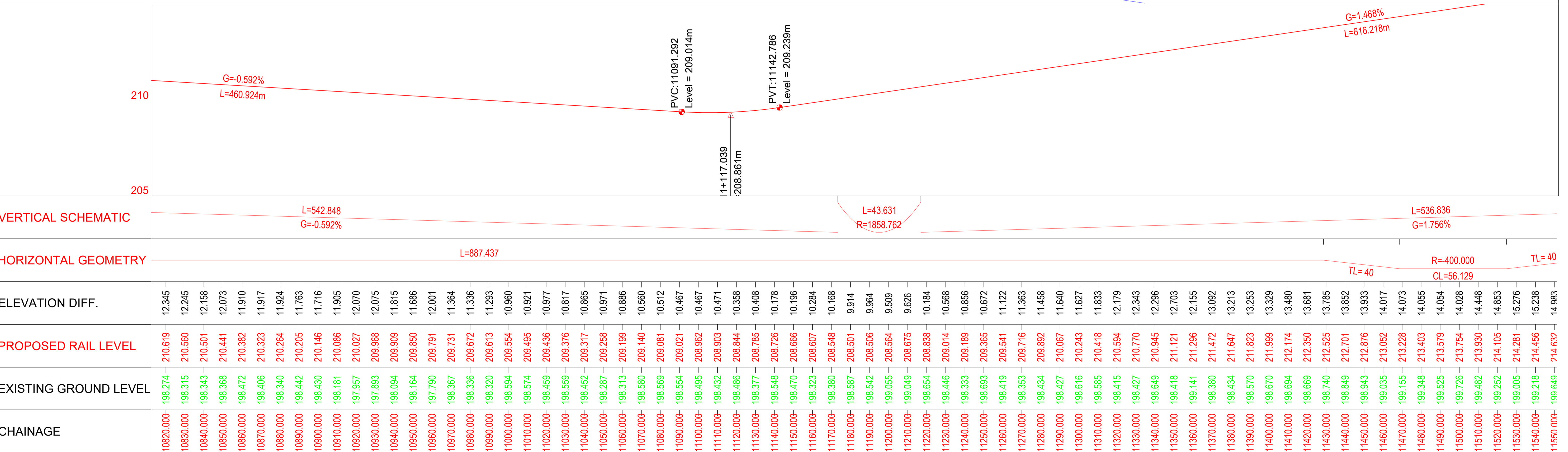
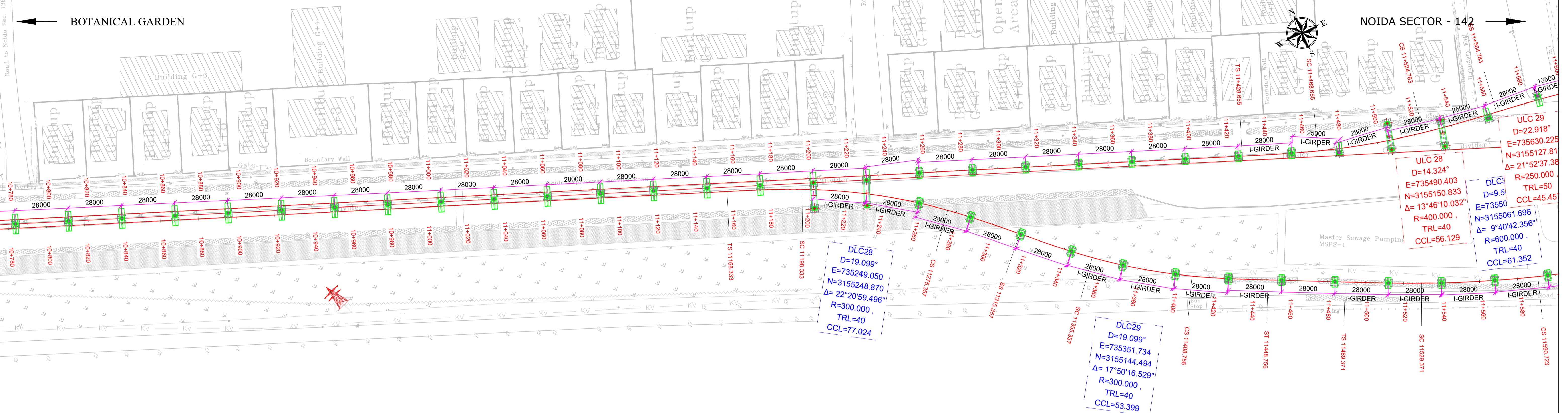
Architecture Design In-charge/ Coordinator  
Structure Design In-charge/ Coordinator  
E&M Design In-charge/ Coordinator

DETAIL DESIGN CONSULTANT :

**ayesa**  
Ayesa India Private Limited  
D 99, 3rd Floor, Sector 2, Noida -201301, Gautam Budh Nagar, Uttar Pradesh  
Tel.: +(91) 120 490 8800, Email: dcdd05@ayesa.com

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 Block-III, 3rd Floor, Sector 2, Noida -201301, Gautam  
 District Gautam Budh Nagar, Uttar Pradesh, India

PROJECT: NGNECC-01: Part Design & Construction of Elevated Viaduct and 10 nos. of Elevated Stations for Extension Projects of NMRC's Aqua Line from Botanical Garden to Noida Sec-142 (from Chainage (-) 383.959 to 12130.143) and from Depot Station to Boraki MMTH (Chainage 28678.253 to 31263.482).

VIADUCT  
 DRAWING TITLE: GENERAL ARRANGEMENT DRAWING PLAN AND PROFILE FROM CH UP LINE: 10820m TO CH: 11540m

NORTH	DRAWN BY: P. BISHT	CHECKED BY: D.S	VERIFIED BY: P. Kundu	APPROVED BY: P. Banerjee
DATE: 20.04.2026	REV: R0	SCALE: NTS	STATUS: TENDER	NGMEDC
ORDER N° P36-0022	DRAWING NUMBER: NGNE-ALG-TED-STR-10002	SHEET NO. 17 OF 18	SHEET SIZE A1	

**GENERAL NOTES:**

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- ALL DOOR/WINDOW CILL & LINTEL LEVELS ARE MEASURED FROM MAIN FLOOR FINISHED LEVELS.

**REVISIONS**

REV.	DESCRIPTION	DATE	DRAWN BY	CHECKED BY
R0	INITIAL DRAWING	20.04.2026	PB	D.S

**REFERENCE DRAWINGS**

REVISION	DESCRIPTION	DRAWING NO.

**APPROVAL OF NMRC OFFICIALS**

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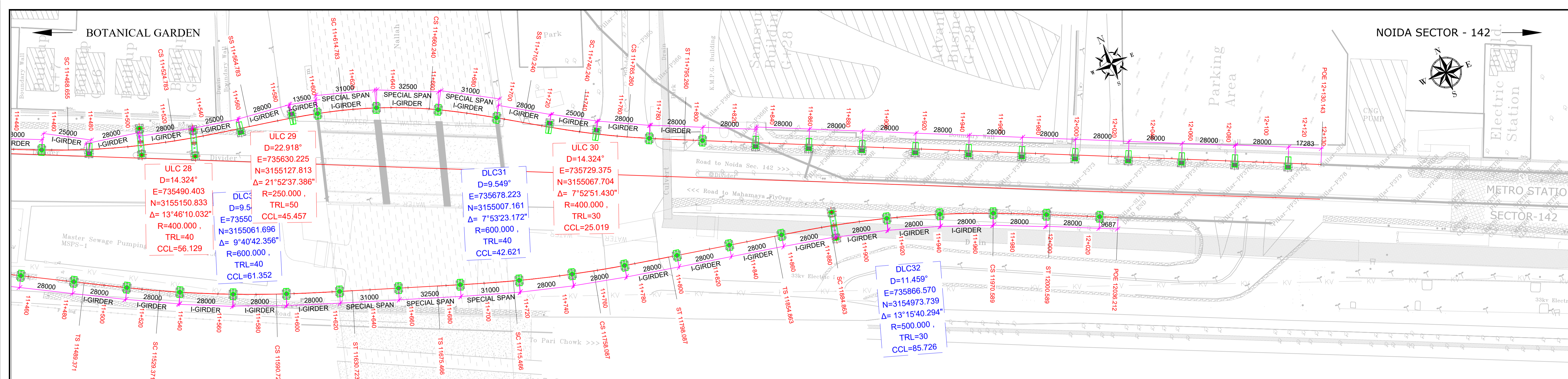
Architecture Design In-charge/ Coordinator: **ayesa**  
 Structure Design In-charge/ Coordinator: **ayesa**  
 E&M Design In-charge/ Coordinator: **ayesa**

Authorised Signatory for DDC, NGNEDDC Project Manager

DETAIL DESIGN CONSULTANT : **ayesa**

Ayesa India Private Limited  
 D 99, 3rd Floor, Sector 2, Noida -201301, Gautam  
 Budh Nagar, Uttar Pradesh  
 Tel.: +(91) 120 490 8800, Email: dcdd05@ayesa.com

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VERTICAL SCHEMATIC	PVI: 11+805.325 LVL = 218.966m		PVT: 1185 Level = 21		PVC: 11998.802 Level = 211.849m		PVT: 12055.821 Level = 210.800m	
	L=97.818 R=1800.000		G=-3.679% L=147.156m		L=57.020 R=1550.000		L=23.990 G=0.000%	
HORIZONTAL GEOMETRY	TL=40	TL=50	R=250.000 CL=45.457	TL=50	TL=30	R=400.000 CL=25.019	L=334.884	
ELEVATION DIFF.	14.853	15.276	15.238	14.983	15.073	15.157	15.245	15.555
PROPOSED RAIL LEVEL	214.105	214.281	214.456	214.632	214.808	214.983	215.159	215.334
EXISTING GROUND LEVEL	199.252	199.005	199.218	199.649	199.735	199.826	199.914	199.779
CHAINAGE	11520.000	11530.000	11540.000	11550.000	11560.000	11570.000	11580.000	11590.000

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PROJECT: NGNECC-01: Part Design & Construction of Elevated Viaduct and 10 nos. of Elevated Stations for Extension Projects of NMRC's Aqua Line from Botanical Garden to Noida Sec-142 (from Chainage (-) 383.959 to 12130.143) and from Depot Station to Boraki MMTH (Chainage 28678.253 to 31263.482).

VIADUCT  
DRAWING TITLE: GENERAL ARRANGEMENT DRAWING PLAN AND PROFILE FROM CH UP LINE: 11520m TO CH: 12100m

NORTH	DRAWN BY: P. BISHT	CHECKED BY: D.S	VERIFIED BY: P. Kundu	APPROVED BY: P. Banerjee
DATE: 20.04.2026	REV: R0	SCALE: NTS	STATUS: TENDER	SHEET NO. 18 OF 18
ORDER N° P36-0022	DRAWING NUMBER: NGNE-ALG-TED-STR-10002	SHEET NO. 18 OF 18	SHEET SIZE A1	NGNE/DC

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**REFERENCE DRAWINGS**

REVISION	DESCRIPTION	DRAWING NO.

**REVISIONS**

REV.	DESCRIPTION	DATE	DRAWN BY	CHECKED BY
R0	INITIAL DRAWING	20.04.2026	PB	D.S

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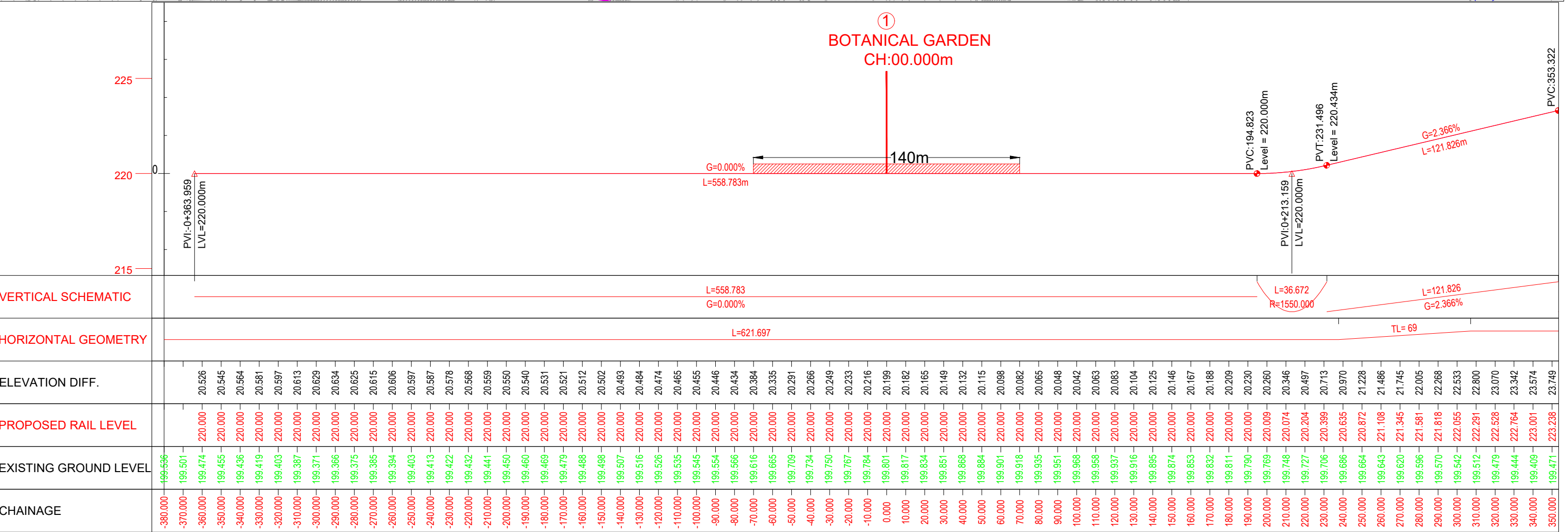
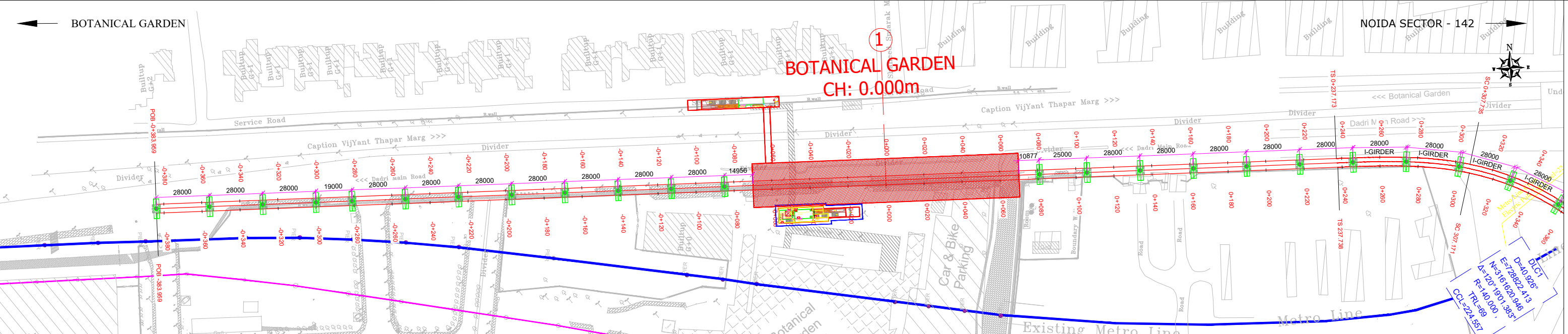
Architecture Design In-charge/ Coordinator: \_\_\_\_\_  
Structure Design In-charge/ Coordinator: \_\_\_\_\_  
E&M Design In-charge/ Coordinator: \_\_\_\_\_

Authorised Signatory for DDC, NGNE/DC Project Manager

DETAIL DESIGN CONSULTANT:

**ayesa**  
Ayesa India Private Limited  
D 99, 3rd Floor, Sector 2, Noida -201301, Gautam Budh Nagar, Uttar Pradesh  
Tel.: +(91) 120 490 8800, Email: dcdd05@ayesa.com

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Block-III, 3rd Floor, Sector 2, Noida -201301, District Gautam Budh Nagar, Uttar Pradesh, India

PROJECT: NGNECC-01: Part Design & Construction of Elevated Viaduct and 10 nos. of Elevated Stations for Extension Projects of NMRC's Aqua Line from Botanical Garden to Noida Sec-142 (from Chainage (-) 383.959 to 12130.143) and from Depot Station to Boraki MMTH (Chainage 28678.253 to 31263.482).

VIADUCT  
DRAWING TITLE: GENERAL ARRANGEMENT DRAWING PLAN AND PROFILE FROM CH DN LINE: -380m TO CH: 340m

NORTH	DRAWN BY: P. BISHT	CHECKED BY: D.S	VERIFIED BY: P. Kundu	APPROVED BY: P. Banerjee
	DATE: 01.06.2026	REV: R1	SCALE: NTS	STATUS: TENDER
ORDER N° P36-0022	DRAWING NUMBER: NGNE-ALG-TED-STR-10001	SHEET NO. 01 OF 18	SHEET SIZE A1	NGNE/DC

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**REFERENCE DRAWINGS**

REVISION	DESCRIPTION	DRAWING NO.

**REVISIONS**

REV.	DESCRIPTION	DATE	DRAWN BY	CHECKED BY
R0	INITIAL DRAWING	20.04.2026	PB	D.S
R1	G.L. MODIFIED	01.06.2026	PB	D.S

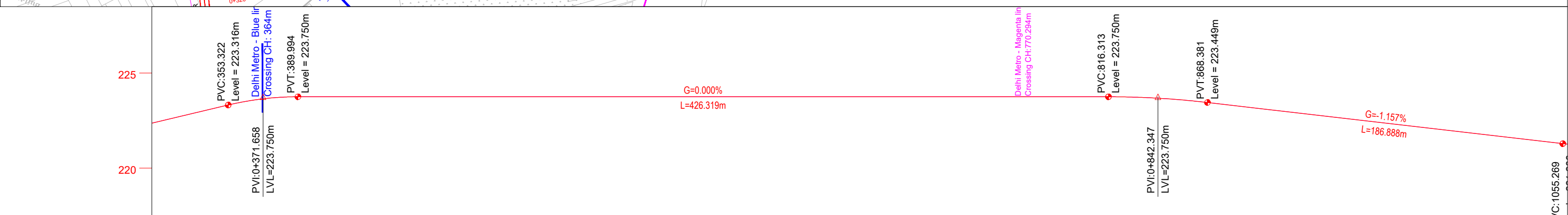
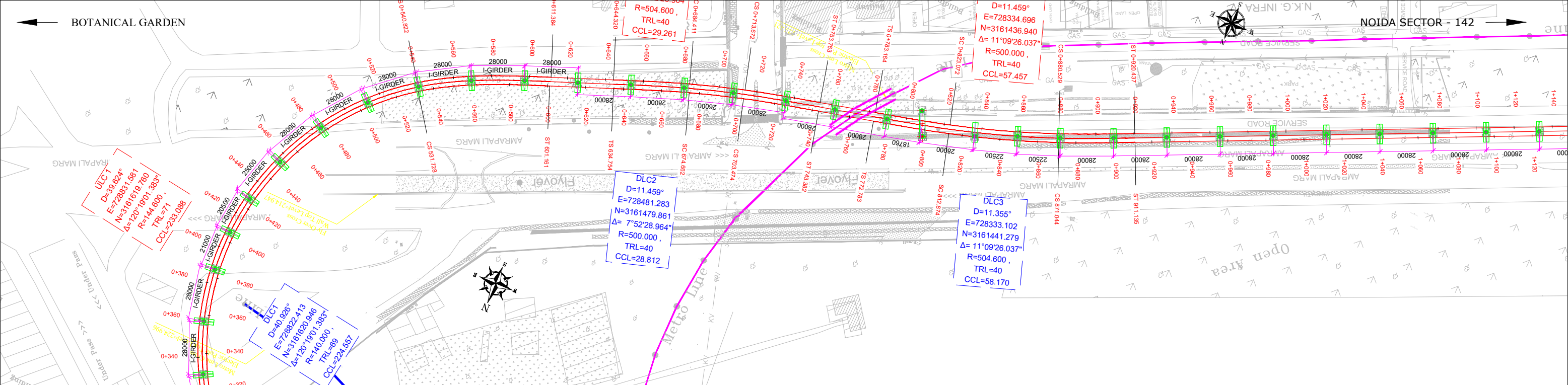
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Architecture Design In-charge/ Coordinator: **ayesa**  
Structure Design In-charge/ Coordinator: **ayesa**  
E&M Design In-charge/ Coordinator: **ayesa**

DETAIL DESIGN CONSULTANT : **ayesa**

Ayesa India Private Limited  
D 99, 3rd Floor, Sector 2, Noida -201301, Gautam Budh Nagar, Uttar Pradesh  
Tel.: +(91) 120 490 8800, Email: dcdd05@ayesa.com



VERTICAL SCHEMATIC	HORIZONTAL GEOMETRY	ELEVATION DIFF.	PROPOSED RAIL LEVEL	EXISTING GROUND LEVEL	CHAINAGE
L=36.672 R=1550.000	R=140.000 CL=224.557	23.070	222.528	199.479	320.000
L=426.319 G=0.000%	TL=69	23.342	222.764	199.444	330.000
L=52.068 R=4500.000	L=33.592	23.574	223.001	199.409	340.000
L=186.888 G=-1.157%	TL=40	23.749	223.238	199.471	350.000
	R=500.000 CL=28.812	23.909	223.460	199.533	360.000
	TL=40	24.008	223.621	199.595	370.000
	L=29.401	24.043	223.718	199.657	380.000
	R=504.600 CL=58.170	24.014	223.750	199.719	390.000
	TL=40	23.953	223.750	199.779	400.000
		23.894	223.750	199.839	410.000
		23.873	223.750	199.893	420.000
		23.902	223.750	199.865	430.000
		23.931	223.750	199.836	440.000
		23.960	223.750	199.807	450.000
		23.989	223.750	199.778	460.000
		24.018	223.750	199.749	470.000
		24.047	223.750	199.720	480.000
		24.076	223.750	199.691	490.000
		24.097	223.750	199.666	500.000
		24.114	223.750	199.636	510.000
		23.902	223.750	199.848	520.000
		23.998	223.750	199.752	530.000
		24.111	223.750	199.639	540.000
		24.229	223.750	199.521	550.000
		24.274	223.750	199.476	560.000
		24.366	223.750	199.384	570.000
		24.295	223.750	199.455	580.000
		24.263	223.750	199.487	590.000
		24.272	223.750	199.478	600.000
		24.370	223.750	199.380	610.000
		24.179	223.750	199.571	620.000
		24.227	223.750	199.523	630.000
		24.061	223.750	199.689	640.000
		24.132	223.750	199.618	650.000
		24.105	223.750	199.645	660.000
		24.243	223.750	199.507	670.000
		24.273	223.750	199.477	680.000
		24.186	223.750	199.564	690.000
		24.197	223.750	199.553	700.000
		24.325	223.750	199.425	710.000
		24.480	223.750	199.270	720.000
		24.559	223.750	199.191	730.000
		24.473	223.750	199.277	740.000
		24.343	223.750	199.407	750.000
		24.213	223.750	199.537	760.000
		24.100	223.750	199.650	770.000
		24.016	223.750	199.734	780.000
		23.932	223.750	199.818	790.000
		23.847	223.750	199.903	800.000
		23.762	223.750	199.988	810.000
		23.813	223.748	199.935	820.000
		23.868	223.729	199.861	830.000
		24.286	223.688	199.402	840.000
		24.225	223.624	199.399	850.000
		24.145	223.538	199.393	860.000
		24.046	223.430	199.384	870.000
		23.950	223.314	199.364	880.000
		23.853	223.199	199.346	890.000
		23.748	223.083	199.335	900.000
		23.561	222.967	199.406	910.000
		23.372	222.851	199.479	920.000
		23.185	222.736	199.551	930.000
		22.996	222.620	199.624	940.000
		22.807	222.504	199.697	950.000
		22.619	222.389	199.770	960.000
		22.490	222.273	199.783	970.000
		22.455	222.157	199.702	980.000
		22.421	222.042	199.621	990.000
		22.371	221.926	199.555	1000.000
		22.245	221.810	199.565	1010.000
		22.120	221.694	199.574	1020.000
		21.995	221.579	199.584	1030.000
		21.870	221.463	199.593	1040.000
		21.775	221.347	199.572	1050.000

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**NOIDA METRO RAIL CORPORATION LTD.**  
 Block-III, 3rd Floor, Ganga Shopping Complex, Sector-29, Noida -201301,  
 District Gautam Budh Nagar, Uttar Pradesh, India

PROJECT: NGNECC-01: Part Design & Construction of Elevated Viaduct and 10 nos. of Elevated Stations for Extension Projects of NMRC's Aqua Line from Botanical Garden to Noida Sec-142 (from Chainage (-) 383.959 to 12130.143) and from Depot Station to Boraki MMTH (Chainage 28678.253 to 31263.482).

VIADUCT  
 DRAWING TITLE: GENERAL ARRANGEMENT DRAWING PLAN AND PROFILE FROM CH DN LINE: 320m TO CH: 1040m

NORTH	DRAWN BY: P. BISHT	CHECKED BY: D.S	VERIFIED BY: P. Kundu	APPROVED BY: P. Banerjee
DATE: 01.06.2026	REV: R1	SCALE: NTS	STATUS: TENDER	NGNEDDC
ORDER N° P36-0022	DRAWING NUMBER: NGNE-ALG-TED-STR-10001	SHEET NO. 02 OF 18	SHEET SIZE A1	

**GENERAL NOTES:**

- ALL DIMENSIONS ARE IN MILLIMETER UNLESS MENTIONED.
- ALL DIMENSIONS ARE TO BE READ AND NOT MEASURED.
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- ALL DOOR/WINDOW CILL & LINTEL LEVELS ARE MEASURED FROM MAIN FLOOR FINISHED LEVELS.

**REFERENCE DRAWINGS**

REVISION	DESCRIPTION	DRAWING NO.

**REVISIONS**

REV.	DESCRIPTION	DATE	DRAWN BY	CHECKED BY
R0	INITIAL DRAWING	20.04.2026	PB	D.S
R1	G.L. MODIFIED	01.06.2026	PB	D.S

**APPROVAL OF NMRC OFFICIALS**

NAME	DESIGNATION	DATE

Certified that this document has been designed and checked in accordance with DDC Quality Assurance Plan.

Architecture: Design In-charge/ Coordinator  
 Structure: Design In-charge/ Coordinator  
 E&M: Design In-charge/ Coordinator

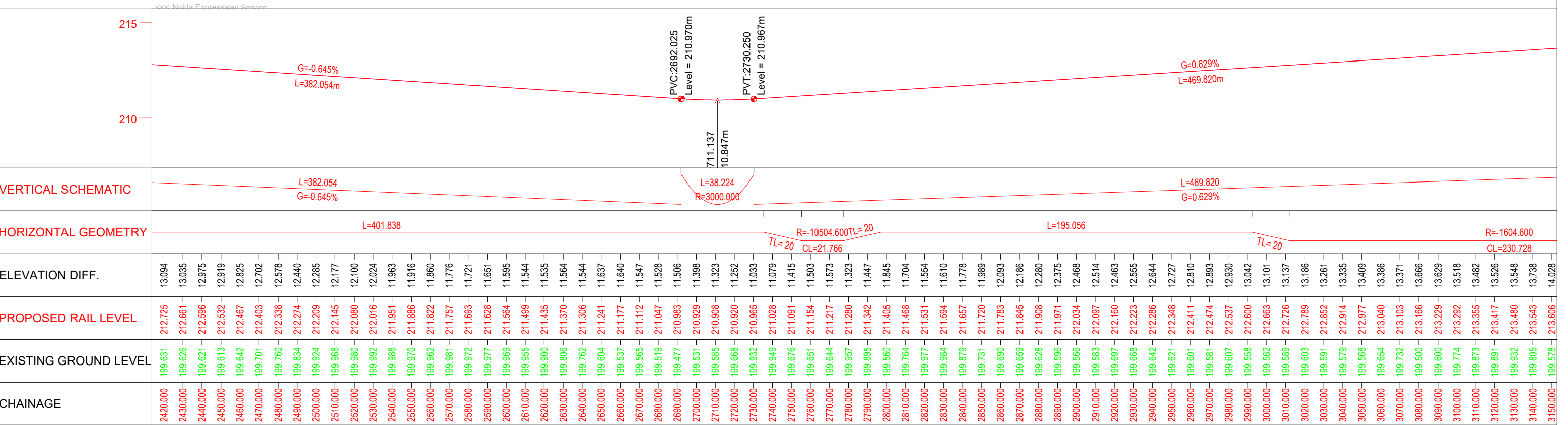
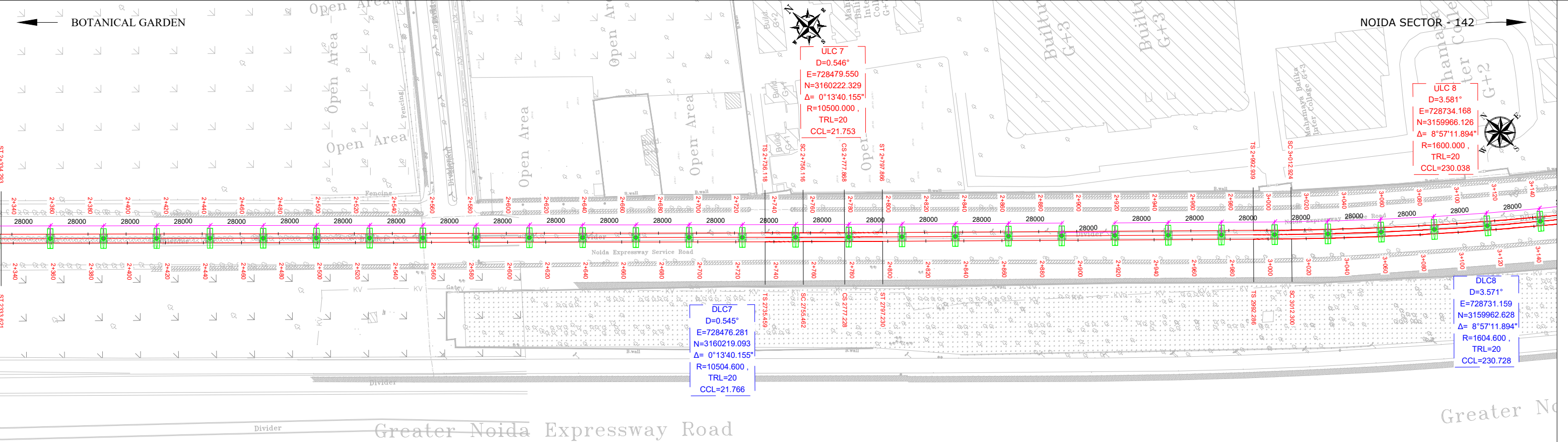
DETAIL DESIGN CONSULTANT:

**ayesa**  
 Ayesa India Private Limited  
 D 99, 3rd Floor, Sector 2, Noida -201301, Gautam Budh Nagar, Uttar Pradesh  
 Tel.: +(91) 120 490 8800, Email: dcdd05@ayesa.com

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**NOIDA METRO RAIL CORPORATION LTD.**  
 Block-III, 3rd Floor, Ganga Shopping Complex, Sector-29, Noida -201301,  
 District Gautam Budh Nagar, Uttar Pradesh, India

PROJECT: NGNECC-01: Part Design & Construction of Elevated Viaduct and 10 nos. of Elevated Stations for Extension Projects of NMRC's Aqua Line from Botanical Garden to Noida Sec-142 (from Chainage (-) 383.959 to 12130.143) and from Depot Station to Boraki MMTH (Chainage 28678.253 to 31263.482).

DRAWING TITLE: GENERAL ARRANGEMENT DRAWING PLAN AND PROFILE FROM CH DN LINE: 2420m TO CH: 3140m

NORTH	DRAWN BY: P. BISHT	CHECKED BY: D.S	VERIFIED BY: P. Kundu	APPROVED BY: P. Banerjee
DATE: 01.06.2026	REV: R1	SCALE: NTS	SHEET NO. 05 OF 18	SHEET SIZE A1
ORDER N° P36-0022	DRAWING NUMBER: NGNE-ALG-TED-STR-10001	STATUS: TENDER		

**GENERAL NOTES:**

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- ALL DOOR/WINDOW CILL & LINTEL LEVELS ARE MEASURED FROM MAIN FLOOR FINISHED LEVELS.

**REFERENCE DRAWINGS**

REVISION	DESCRIPTION	DRAWING NO.

**REVISIONS**

REV.	DESCRIPTION	DATE	DRAWN BY	CHECKED BY
R0	INITIAL DRAWING	20.04.2026	PB	D.S
R1	G.L. MODIFIED	01.06.2026	PB	D.S

**APPROVAL OF NMRC OFFICIALS**



Certified that this document has been designed and checked in accordance with DDC Quality Assurance Plan.

Architecture: Design In-charge/ Coordinator  
 Structure: Design In-charge/ Coordinator  
 E&M: Design In-charge/ Coordinator

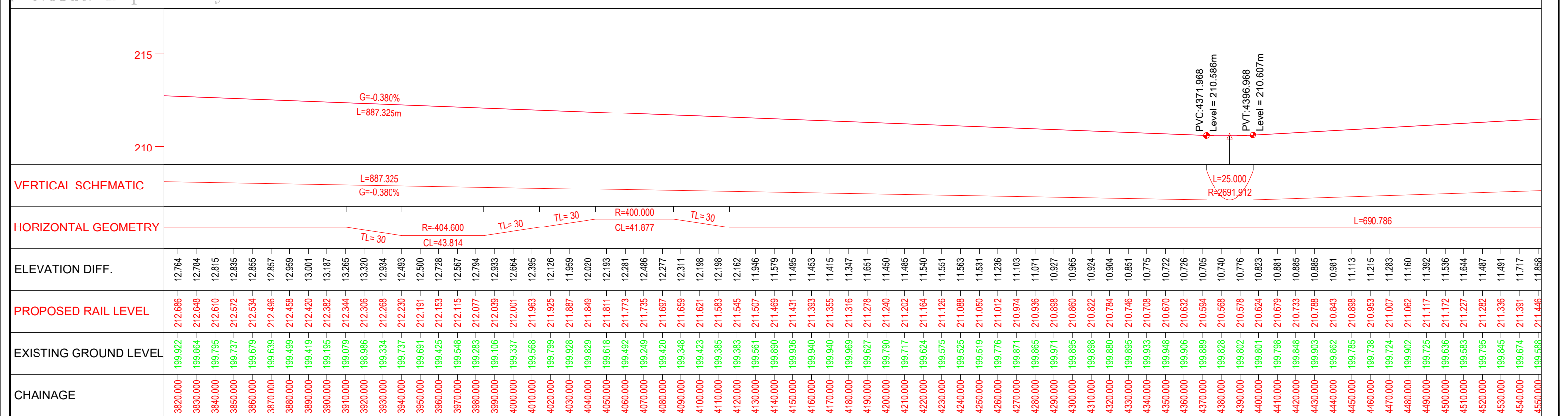
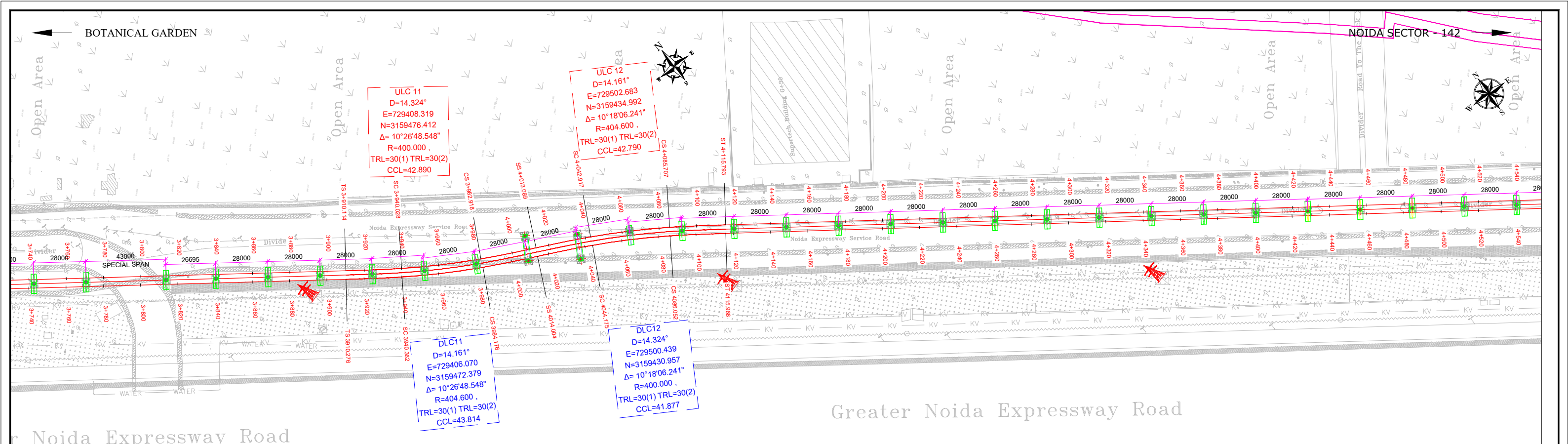
DETAIL DESIGN CONSULTANT:

**ayesa**  
 Ayesa India Private Limited  
 D 99, 3rd Floor, Sector 2, Noida -201301, Gautam Budh Nagar, Uttar Pradesh  
 Tel.: +(91) 120 490 8800, Email: dcd05@ayesa.com

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CHAINAGE	EXISTING GROUND LEVEL	PROPOSED RAIL LEVEL	ELEVATION DIFF.	HORIZONTAL GEOMETRY	VERTICAL SCHEMATIC
3820.000	199.922	212.686	12.764		
3830.000	199.864	212.648	12.784		
3840.000	199.795	212.610	12.815		
3850.000	199.737	212.572	12.835		
3860.000	199.679	212.534	12.855		
3870.000	199.639	212.496	12.857		
3880.000	199.499	212.458	12.959		
3890.000	199.419	212.420	13.001		
3900.000	199.195	212.382	13.187		
3910.000	199.079	212.344	13.265		
3920.000	198.986	212.306	13.320		
3930.000	199.334	212.268	12.934		
3940.000	199.737	212.230	12.493		
3950.000	199.691	212.191	12.500		
3960.000	199.425	212.153	12.728		
3970.000	199.548	212.115	12.567		
3980.000	199.283	212.077	12.794		
3990.000	199.106	212.039	12.933		
4000.000	199.337	212.001	12.664		
4010.000	199.568	211.963	12.395		
4020.000	199.799	211.925	12.126		
4030.000	199.928	211.887	11.959		
4040.000	199.829	211.849	12.020		
4050.000	199.618	211.811	12.193		
4060.000	199.492	211.773	12.281		
4070.000	199.249	211.735	12.486		
4080.000	199.420	211.697	12.277		
4090.000	199.348	211.659	12.311		
4100.000	199.423	211.621	12.198		
4110.000	199.385	211.583	12.198		
4120.000	199.383	211.545	12.162		
4130.000	199.561	211.507	11.946		
4140.000	199.890	211.469	11.579		
4150.000	199.936	211.431	11.495		
4160.000	199.940	211.393	11.453		
4170.000	199.940	211.355	11.415		
4180.000	199.969	211.316	11.347		
4190.000	199.627	211.278	11.651		
4200.000	199.790	211.240	11.450		
4210.000	199.717	211.202	11.485		
4220.000	199.624	211.164	11.540		
4230.000	199.575	211.126	11.551		
4240.000	199.525	211.088	11.563		
4250.000	199.519	211.050	11.531		
4260.000	199.776	211.012	11.236		
4270.000	199.871	210.974	11.103		
4280.000	199.865	210.936	11.071		
4290.000	199.971	210.898	10.927		
4300.000	199.895	210.860	10.965		
4310.000	199.898	210.822	10.924		
4320.000	199.880	210.784	10.904		
4330.000	199.895	210.746	10.851		
4340.000	199.933	210.708	10.775		
4350.000	199.948	210.670	10.722		
4360.000	199.906	210.632	10.726		
4370.000	199.889	210.594	10.705		
4380.000	199.828	210.568	10.740		
4390.000	199.802	210.578	10.776		
4400.000	199.801	210.624	10.823		
4410.000	199.798	210.679	10.881		
4420.000	199.848	210.733	10.885		
4430.000	199.903	210.788	10.885		
4440.000	199.862	210.843	10.981		
4450.000	199.785	210.898	11.113		
4460.000	199.738	210.953	11.215		
4470.000	199.724	211.007	11.283		
4480.000	199.902	211.062	11.160		
4490.000	199.725	211.117	11.392		
4500.000	199.636	211.172	11.536		
4510.000	199.583	211.227	11.644		
4520.000	199.795	211.282	11.487		
4530.000	199.845	211.336	11.491		
4540.000	199.674	211.391	11.717		
4550.000	199.588	211.446	11.858		

### TENDER DRAWING

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**NOIDA METRO RAIL CORPORATION LTD.**  
Block-III, 3rd Floor, Sector 2, Noida -201301, Gautam  
District Gautam Budh Nagar, Uttar Pradesh, India

PROJECT: NGNECC-01: Part Design & Construction of Elevated Viaduct and 10 nos. of Elevated Stations for Extension Projects of NMRC's Aqua Line from Botanical Garden to Noida Sec-142 (from Chainage (-) 383.959 to 12130.143) and from Depot Station to Boraki MMTH (Chainage 28678.253 to 31263.482).

VIADUCT  
DRAWING TITLE: GENERAL ARRANGEMENT DRAWING PLAN AND PROFILE FROM CH DN LINE: 3820m TO CH: 4540m

NORTH	DRAWN BY: P. BISHT	CHECKED BY: D.S	VERIFIED BY: P. Kundu	APPROVED BY: P. Banerjee
DATE: 01.06.2026	REV: R1	SCALE: NTS	SHEET NO: 07 OF 18	SHEET SIZE: A1
ORDER N° P36-0022	DRAWING NUMBER: NGNE-ALG-TED-STR-10001	STATUS: TENDER		

**GENERAL NOTES:**

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REVISION	DESCRIPTION	DRAWING NO.
R0	INITIAL DRAWING	
R1	G.L. MODIFIED	

REV.	DESCRIPTION	DATE	DRAWN BY	CHECKED BY
R0	INITIAL DRAWING	20.04.2026	PB	D.S
R1	G.L. MODIFIED	01.06.2026	PB	D.S

**APPROVAL OF NMRC OFFICIALS**


Certified that this document has been designed and checked in accordance with DDC Quality Assurance Plan.

Architecture Design In-charge/ Coordinator  
Structure Design In-charge/ Coordinator  
E&M Design In-charge/ Coordinator

DETAIL DESIGN CONSULTANT :

**ayesa**  
Ayesa India Private Limited  
D 99, 3rd Floor, Sector 2, Noida -201301, Gautam  
Budh Nagar, Uttar Pradesh  
Tel.: +(91) 120 490 8800, Email: dcdd05@ayesa.com

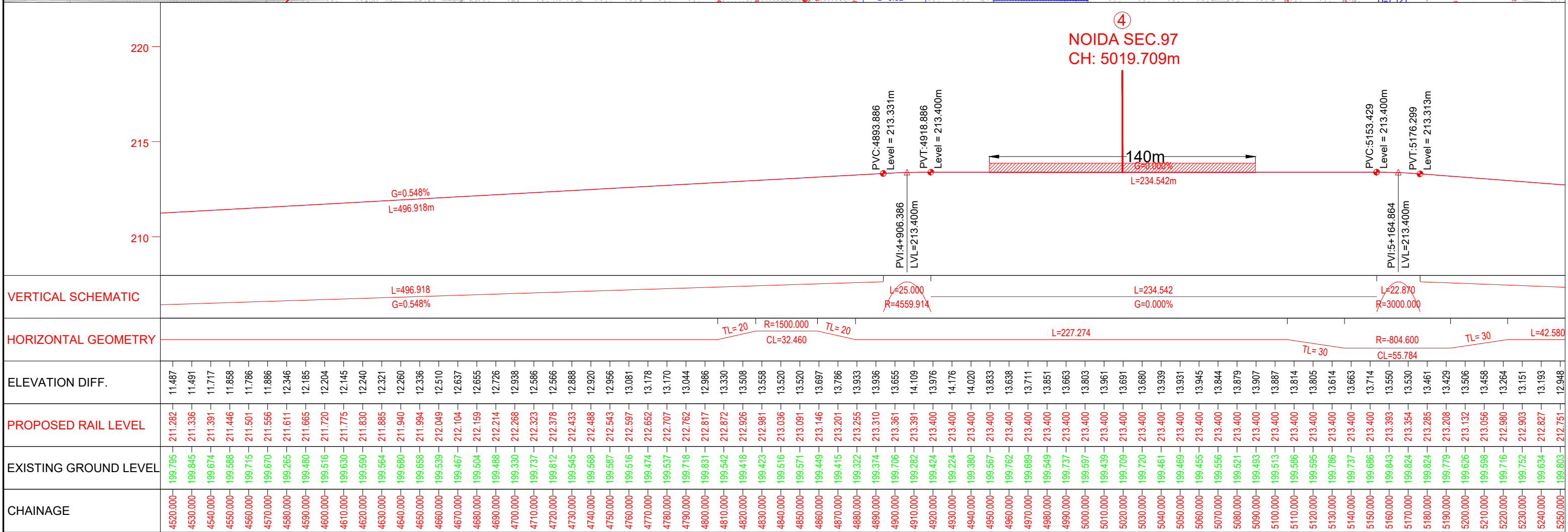
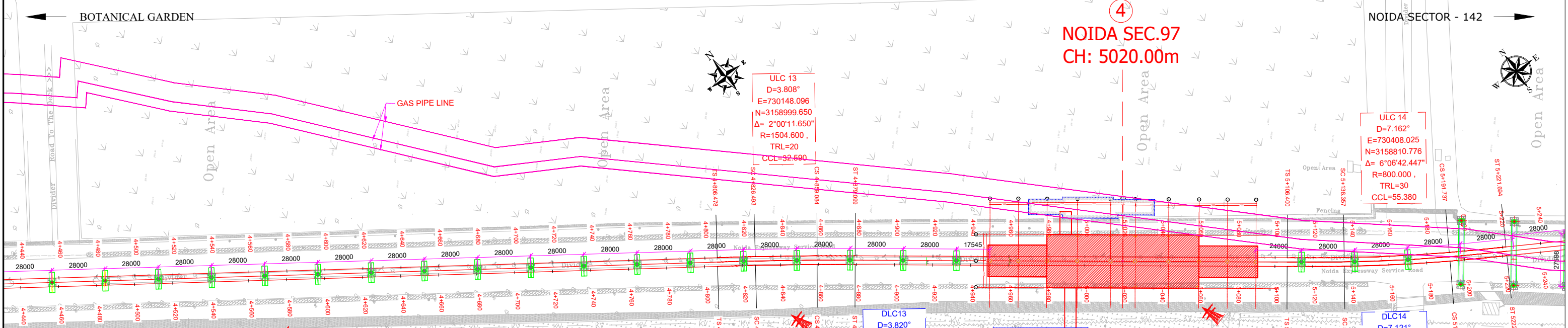
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NOIDA SEC.97  
CH: 5020.00m

NOIDA SEC.97  
CH: 5019.709m

ULC 13  
D=3.808"  
E=730148.096  
N=3158999.650  
Δ= 2°00'11.650"  
R=1504.600  
TRL=20  
CCL=32.690

ULC 14  
D=7.162"  
E=730408.025  
N=3158810.776  
Δ= 6°06'42.447"  
R=800.000  
TRL=30  
CCL=55.380



TENDER DRAWING

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**NOIDA METRO RAIL CORPORATION LTD.**  
Block-III, 3rd Floor, Ganga Shopping Complex, Sector-29, Noida -201301,  
District Gautam Budh Nagar, Uttar Pradesh, India

PROJECT: NGNECC-01: Part Design & Construction of Elevated Viaduct and 10 nos. of Elevated Stations for Extension Projects of NMRC's Aqua Line from Botanical Garden to Noida Sec-142 (from Chainage (-) 383.959 to 12130.143) and from Depot Station to Boraki MMTH (Chainage 28678.253 to 31263.482).

VIADUCT  
DRAWING TITLE: GENERAL ARRANGEMENT DRAWING PLAN AND PROFILE FROM CH DN LINE: 4520m TO CH: 5240m

NORTH	DRAWN BY: P. BISHT	CHECKED BY: D.S	VERIFIED BY: P. Kundu	APPROVED BY: P. Banerjee
DATE: 01.06.2026	REV: R1	SCALE: NTS	TENDER	STATUS: A1
ORDER N° P36-0022	DRAWING NUMBER: NGNE-ALG-TED-STR-10001	SHEET NO. 08 OF 18	SHEET SIZE	NGNE/DC

GENERAL NOTES:

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REVISION	DESCRIPTION	DRAWING NO.

REV.	DESCRIPTION	DATE	DRAWN BY	CHECKED BY
R0	INITIAL DRAWING	20.04.2026	PB	D.S
R1	G.L. MODIFIED	01.06.2026	PB	D.S

APPROVAL OF NMRC OFFICIALS				

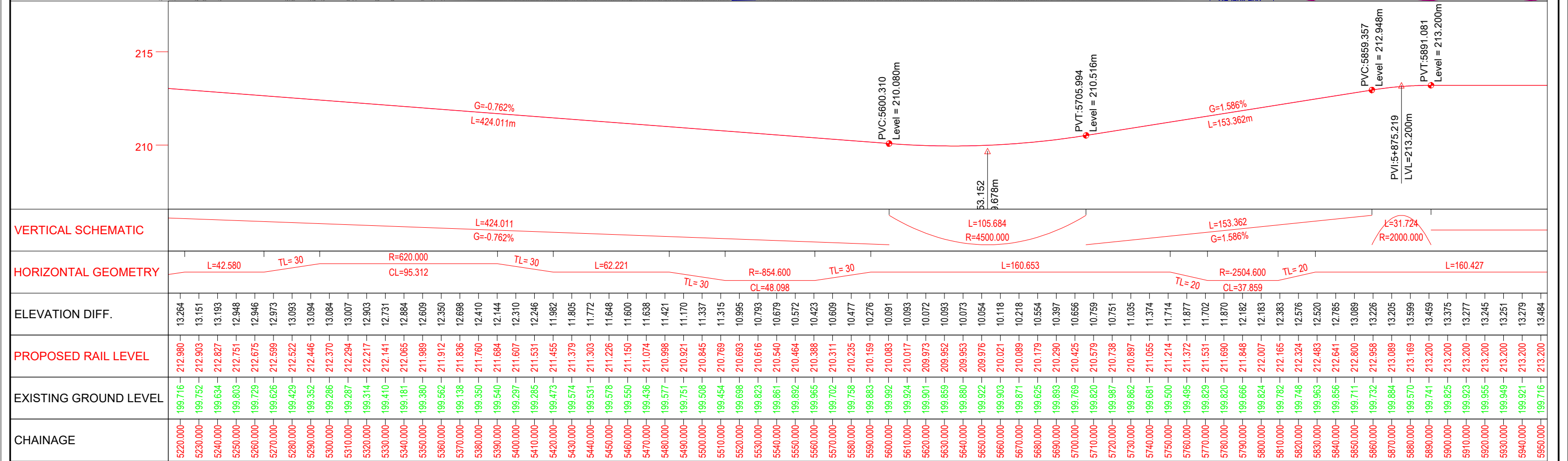
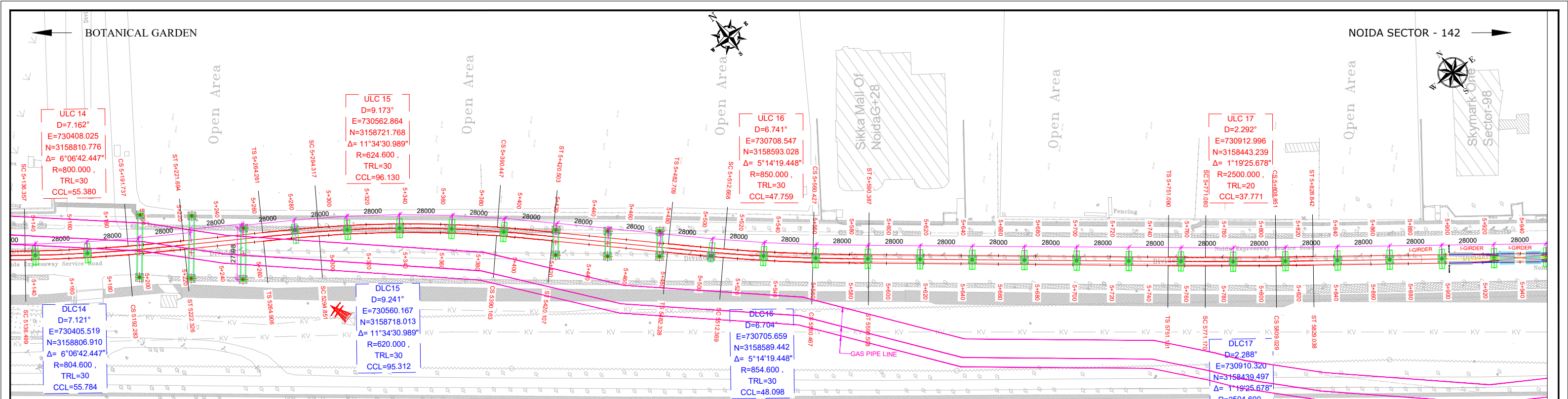
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Architecture Design In-charge/ Coordinator  
Structure Design In-charge/ Coordinator  
E&M Design In-charge/ Coordinator

DETAIL DESIGN CONSULTANT :

**ayesa**  
Ayesa India Private Limited  
D 99, 3rd Floor, Sector 2, Noida -201301, Gautam Budh Nagar, Uttar Pradesh  
Tel.: +(91) 120 490 8800, Email: dcdd05@ayesa.com

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CHAINAGE	EXISTING GROUND LEVEL	PROPOSED RAIL LEVEL	ELEVATION DIFF.	HORIZONTAL GEOMETRY	VERTICAL SCHEMATIC
5220.000	199.716	212.980	13.264	L=42.580 TL=30	G=-0.762% L=424.011m
5230.000	199.752	212.903	13.151		
5240.000	199.634	212.827	13.193		
5250.000	199.803	212.751	12.948		
5260.000	199.729	212.675	12.946		
5270.000	199.626	212.599	12.973		
5280.000	199.429	212.522	13.093		
5290.000	199.352	212.446	13.094		
5300.000	199.286	212.370	13.084		
5310.000	199.287	212.294	13.007		
5320.000	199.314	212.217	12.903		
5330.000	199.410	212.141	12.731		
5340.000	199.181	212.065	12.884		
5350.000	199.380	211.989	12.609		
5360.000	199.562	211.912	12.350		
5370.000	199.138	211.836	12.698		
5380.000	199.350	211.760	12.410		
5390.000	199.540	211.684	12.144		
5400.000	199.297	211.607	12.310		
5410.000	199.285	211.531	12.246		
5420.000	199.473	211.455	11.982		
5430.000	199.574	211.379	11.805		
5440.000	199.531	211.303	11.772		
5450.000	199.578	211.226	11.648		
5460.000	199.550	211.150	11.600		
5470.000	199.436	211.074	11.638		
5480.000	199.577	210.998	11.421		
5490.000	199.751	210.921	11.170		
5500.000	199.508	210.845	11.337		
5510.000	199.454	210.769	11.315		
5520.000	199.698	210.693	10.995		
5530.000	199.823	210.616	10.793		
5540.000	199.861	210.540	10.679		
5550.000	199.892	210.464	10.572		
5560.000	199.965	210.388	10.423		
5570.000	199.702	210.311	10.609		
5580.000	199.758	210.235	10.477		
5590.000	199.883	210.159	10.276		
5600.000	199.992	210.083	10.091		
5610.000	199.924	210.017	10.093		
5620.000	199.901	209.973	10.072		
5630.000	199.859	209.952	10.093		
5640.000	199.880	209.953	10.073		
5650.000	199.922	209.976	10.054		
5660.000	199.903	210.021	10.118		
5670.000	199.871	210.089	10.218		
5680.000	199.625	210.179	10.554		
5690.000	199.893	210.290	10.397		
5700.000	199.769	210.425	10.656		
5710.000	199.820	210.579	10.759		
5720.000	199.987	210.738	10.751		
5730.000	199.862	210.897	11.035		
5740.000	199.681	211.055	11.374		
5750.000	199.500	211.214	11.714		
5760.000	199.495	211.372	11.877		
5770.000	199.829	211.531	11.702		
5780.000	199.820	211.690	11.870		
5790.000	199.666	211.848	12.182		
5800.000	199.824	212.007	12.183		
5810.000	199.792	212.165	12.383		
5820.000	199.748	212.324	12.576		
5830.000	199.963	212.483	12.520		
5840.000	199.856	212.641	12.785		
5850.000	199.711	212.800	13.089		
5860.000	199.732	212.958	13.226		
5870.000	199.884	213.089	13.205		
5880.000	199.570	213.169	13.599		
5890.000	199.741	213.200	13.459		
5900.000	199.825	213.200	13.375		
5910.000	199.923	213.200	13.277		
5920.000	199.955	213.200	13.245		
5930.000	199.949	213.200	13.251		
5940.000	199.921	213.200	13.279		
5950.000	199.716	213.200	13.484		

**TENDER DRAWING**

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**NOIDA METRO RAIL CORPORATION LTD.**  
Block-III, 3rd Floor, Ganga Shopping Complex, Sector-29, Noida -201301,  
District Gautam Budh Nagar, Uttar Pradesh, India

PROJECT: NGNECC-01: Part Design & Construction of Elevated Viaduct and 10 nos. of Elevated Stations for Extension Projects of NMRC's Aqua Line from Botanical Garden to Noida Sec-142 (from Chainage (-) 383.959 to 12130.143) and from Depot Station to Boraki MMTH (Chainage 28678.253 to 31263.482).

VIADUCT  
DRAWING TITLE: GENERAL ARRANGEMENT DRAWING PLAN AND PROFILE FROM CH DN LINE: 5220m TO CH: 5940m

NORTH	DRAWN BY: P. BISHT	CHECKED BY: D.S	VERIFIED BY: P. Kundu	APPROVED BY: P. Banerjee
DATE: 01.06.2026	REV: R1	SCALE: NTS	STATUS: TENDER	NGNECC
ORDER N° P36-0022	DRAWING NUMBER: NGNE-ALG-TED-STR-10001	SHEET NO: 09 OF 18	SHEET SIZE: A1	

**GENERAL NOTES:**

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- ALL DOOR/WINDOW GILL & LINTEL LEVELS ARE MEASURED FROM MAIN FLOOR FINISHED LEVELS.

**REFERENCE DRAWINGS**

REVISION	DESCRIPTION	DRAWING NO.

**REVISIONS**

REV.	DESCRIPTION	DATE	DRAWN BY	CHECKED BY
R0	INITIAL DRAWING	20.04.2026	PB	D.S
R1	G.L. MODIFIED	01.06.2026	PB	D.S

**APPROVAL OF NMRC OFFICIALS**

NO.	NAME	DESIGNATION	DATE

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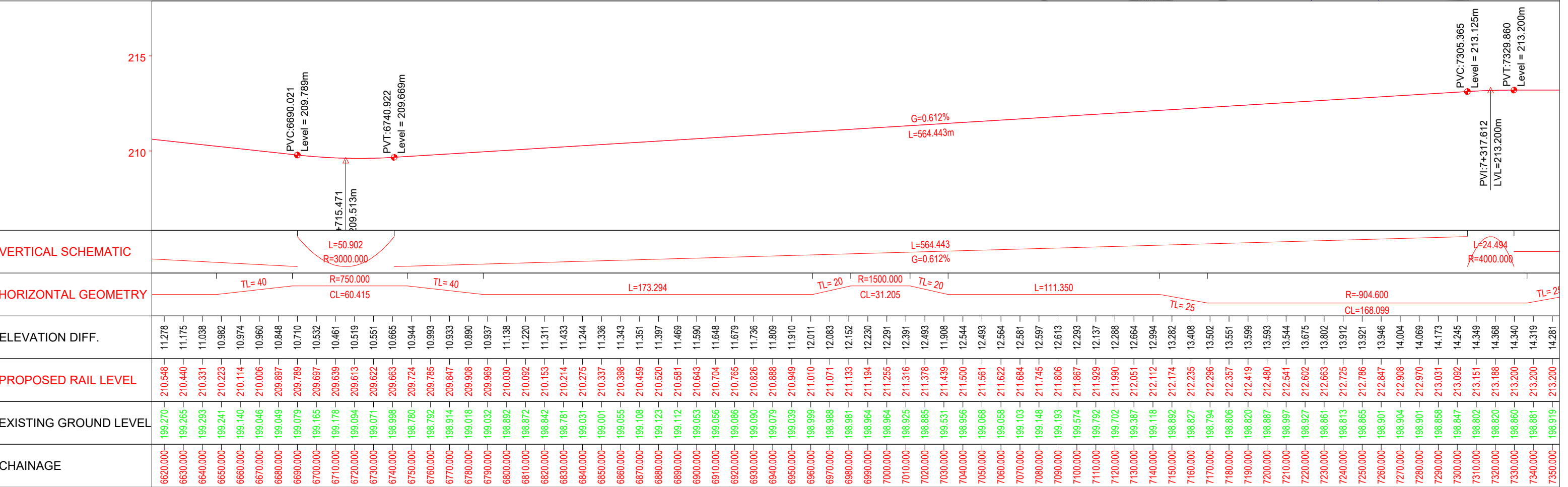
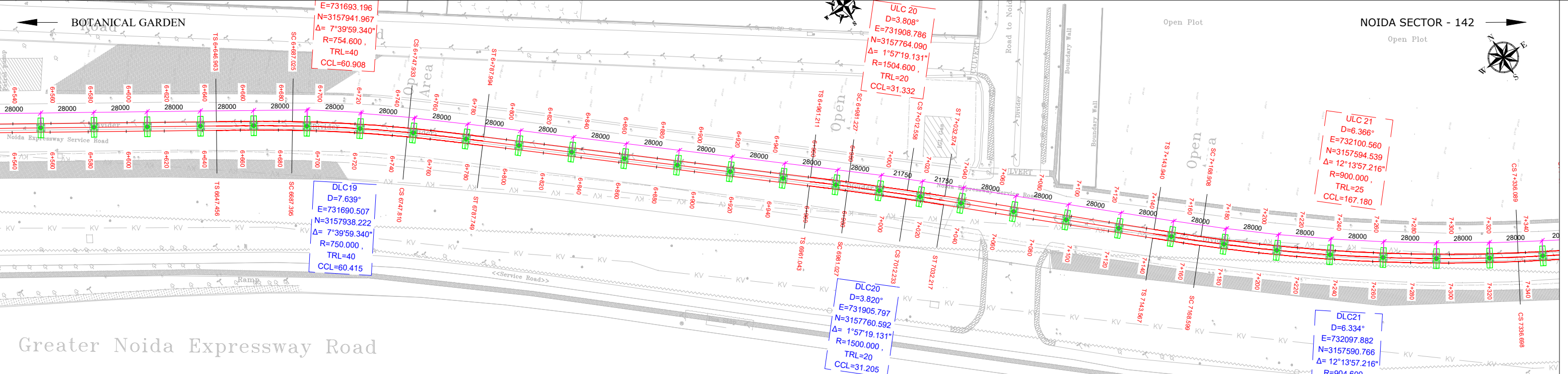
Architecture: Design In-charge/ Coordinator  
Structure: Design In-charge/ Coordinator  
E&M: Design In-charge/ Coordinator

DETAIL DESIGN CONSULTANT:

**ayesa**  
Ayesa India Private Limited  
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Tel.: +(91) 120 490 8800, Email: dcd05@ayesa.com

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VERTICAL SCHEMATIC		HORIZONTAL GEOMETRY		ELEVATION DIFF.		PROPOSED RAIL LEVEL		EXISTING GROUND LEVEL		CHAINAGE	
L=50.902 R=3000.000		TL=40 R=750.000 CL=60.415		11.278		210.548		199.270		6620.000	
L=564.443 G=0.612%		L=173.294 TL=20 R=1500.000 CL=31.205		11.175		210.440		199.265		6630.000	
L=24.494 R=4000.000		L=111.350 TL=25 R=904.600 CL=168.099		11.038		210.331		199.293		6640.000	
				10.982		210.223		199.241		6650.000	
				10.974		210.114		199.140		6660.000	
				10.960		210.006		199.046		6670.000	
				10.848		209.897		199.049		6680.000	
				10.710		209.789		199.079		6690.000	
				10.532		209.697		199.165		6700.000	
				10.461		209.639		199.178		6710.000	
				10.519		209.613		199.094		6720.000	
				10.551		209.622		199.071		6730.000	
				10.665		209.663		198.998		6740.000	
				10.944		209.724		198.780		6750.000	
				10.993		209.785		198.792		6760.000	
				10.933		209.847		198.914		6770.000	
				10.890		209.908		199.018		6780.000	
				10.937		209.969		199.032		6790.000	
				11.138		210.030		198.892		6800.000	
				11.220		210.092		198.872		6810.000	
				11.311		210.153		198.842		6820.000	
				11.433		210.214		198.781		6830.000	
				11.244		210.275		199.031		6840.000	
				11.336		210.337		199.001		6850.000	
				11.343		210.398		199.055		6860.000	
				11.351		210.459		199.108		6870.000	
				11.397		210.520		199.123		6880.000	
				11.469		210.581		199.112		6890.000	
				11.590		210.643		199.053		6900.000	
				11.648		210.704		199.056		6910.000	
				11.679		210.765		199.086		6920.000	
				11.736		210.826		199.090		6930.000	
				11.809		210.888		199.079		6940.000	
				11.910		210.949		199.039		6950.000	
				12.011		211.010		198.999		6960.000	
				12.083		211.071		198.988		6970.000	
				12.152		211.133		198.981		6980.000	
				12.230		211.194		198.964		6990.000	
				12.291		211.255		198.964		7000.000	
				12.391		211.316		198.925		7010.000	
				12.493		211.378		198.885		7020.000	
				11.908		211.439		199.531		7030.000	
				12.544		211.500		198.956		7040.000	
				12.493		211.561		199.068		7050.000	
				12.564		211.622		199.058		7060.000	
				12.581		211.684		199.103		7070.000	
				12.597		211.745		199.148		7080.000	
				12.613		211.806		199.193		7090.000	
				12.293		211.867		199.574		7100.000	
				12.137		211.929		199.792		7110.000	
				12.288		211.990		199.702		7120.000	
				12.664		212.051		199.387		7130.000	
				12.994		212.112		199.118		7140.000	
				13.282		212.174		198.892		7150.000	
				13.408		212.235		198.827		7160.000	
				13.502		212.296		198.794		7170.000	
				13.551		212.357		198.806		7180.000	
				13.599		212.419		198.820		7190.000	
				13.593		212.480		198.887		7200.000	
				13.544		212.541		198.997		7210.000	
				13.675		212.602		198.927		7220.000	
				13.802		212.663		198.861		7230.000	
				13.912		212.725		198.813		7240.000	
				13.921		212.786		198.865		7250.000	
				13.946		212.847		198.901		7260.000	
				14.004		212.908		198.904		7270.000	
				14.069		212.970		198.901		7280.000	
				14.173		213.031		198.858		7290.000	
				14.245		213.092		198.847		7300.000	
				14.349		213.151		198.802		7310.000	
				14.368		213.188		198.820		7320.000	
				14.340		213.200		198.860		7330.000	
				14.319		213.200		198.881		7340.000	
				14.281		213.200		198.919		7350.000	

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**NOIDA METRO RAIL CORPORATION LTD.**  
Block-III, 3rd Floor, Ganga Shopping Complex, Sector-29, Noida -201301,  
District Gautam Budh Nagar, Uttar Pradesh, India

PROJECT: NGNECC-01: Part Design & Construction of Elevated Viaduct and 10 nos. of Elevated Stations for Extension Projects of NMRC's Aqua Line from Botanical Garden to Noida Sec-142 (from Chainage (-) 383.959 to 12130.143) and from Depot Station to Boraki MMTH (Chainage 28678.253 to 31263.482).

VIADUCT  
DRAWING TITLE: GENERAL ARRANGEMENT DRAWING PLAN AND PROFILE FROM CH DN LINE: 6620m TO CH: 7340m

NORTH	DRAWN BY: P. BISHT	CHECKED BY: D.S	VERIFIED BY: P. Kundu	APPROVED BY: P. Banerjee
DATE: 01.06.2026	REV: R1	SCALE: NTS	SHEET NO: 11 OF 18	SHEET SIZE: A1
ORDER N° P36-0022	DRAWING NUMBER: NGNE-ALG-TED-STR-10001	STATUS: TENDER		

**GENERAL NOTES:**

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- ALL DOOR/WINDOW CILL & LINTEL LEVELS ARE MEASURED FROM MAIN FLOOR FINISHED LEVELS.

**REFERENCE DRAWINGS**

REVISION	DESCRIPTION	DRAWING NO.

**REVISIONS**

REV.	DESCRIPTION	DATE	DRAWN BY	CHECKED BY
R0	INITIAL DRAWING	20.04.2026	PB	D.S
R1	G.L. MODIFIED	01.06.2026	PB	D.S

**APPROVAL OF NMRC OFFICIALS**

NO.	NAME	DESIGNATION	DATE

Certified that this document has been designed and checked in accordance with DDC Quality Assurance Plan.

Architecture Design In-charge/ Coordinator  
Structure Design In-charge/ Coordinator  
E&M Design In-charge/ Coordinator

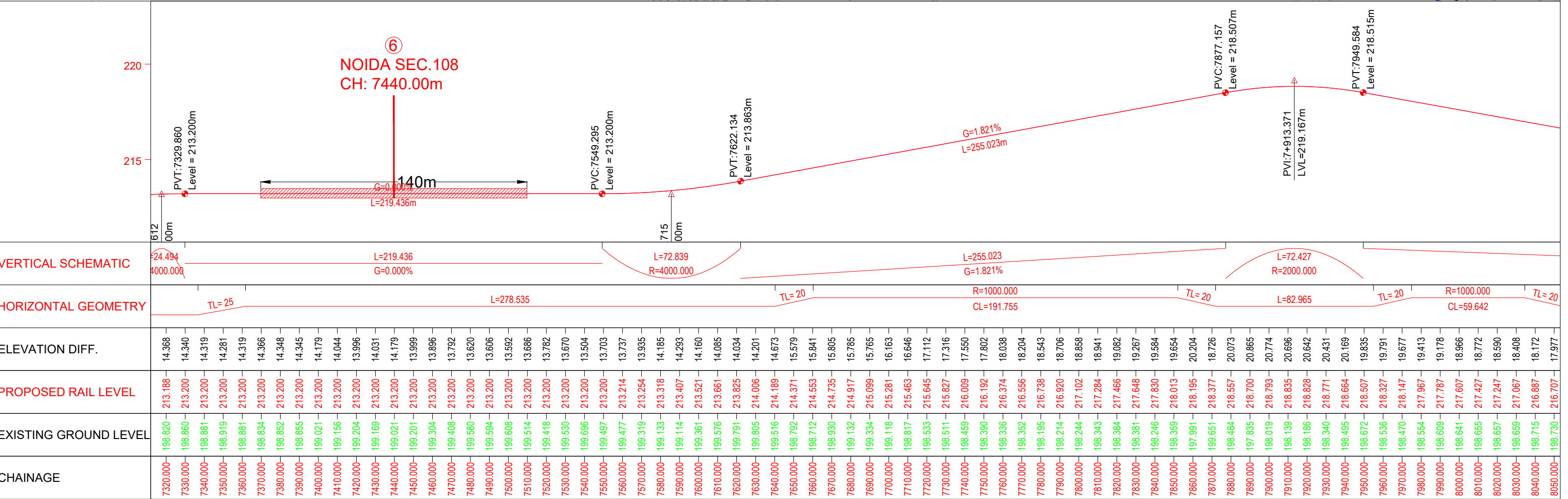
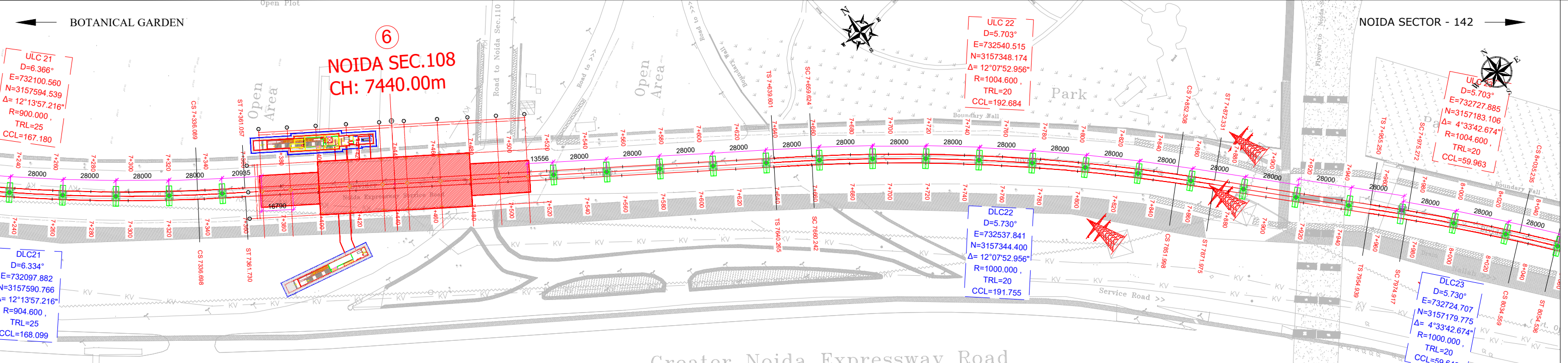
DETAIL DESIGN CONSULTANT:

**ayesa**  
Ayesa India Private Limited  
D 99, 3rd Floor, Sector 2, Noida -201301, Gautam Budh Nagar, Uttar Pradesh  
Tel.: +(91) 120 490 8800, Email: dcd05@ayesa.com

Authorised Signatory for DDC, NGNEDDC Project Manager

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VIADUCT  
DRAWING TITLE: GENERAL ARRANGEMENT DRAWING PLAN AND PROFILE FROM CH DN LINE: 7320m TO CH: 8040m

NORTH	DRAWN BY: P. BISHT	CHECKED BY: D.S	VERIFIED BY: P. Kundu	APPROVED BY: P. Banerjee
DATE: 01.06.2026	REV: R1	SCALE: NTS	STATUS: TENDER	NGNECC
ORDER N° P36-0022	DRAWING NUMBER: NGNE-ALG-TED-STR-10001	SHEET NO. 12 OF 18	SHEET SIZE A1	

**GENERAL NOTES:**

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**REFERENCE DRAWINGS**

REVISION	DESCRIPTION	DRAWING NO.

**REVISIONS**

REV.	DESCRIPTION	DATE	DRAWN BY	CHECKED BY
R0	INITIAL DRAWING	20.04.2026	PB	D.S
R1	G.L. MODIFIED	01.06.2026	PB	D.S

**APPROVAL OF NMRC OFFICIALS**

NO.	NAME	DESIGNATION	DATE

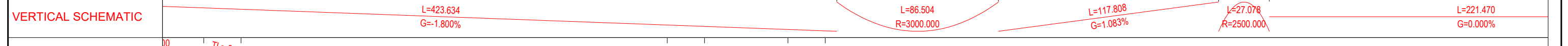
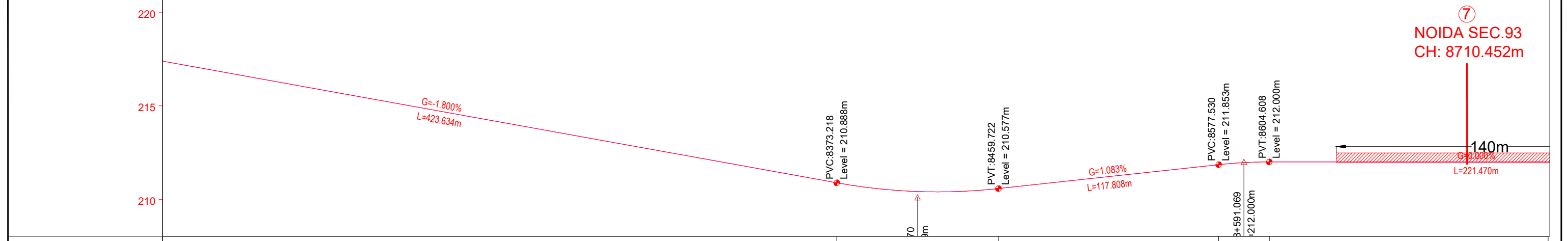
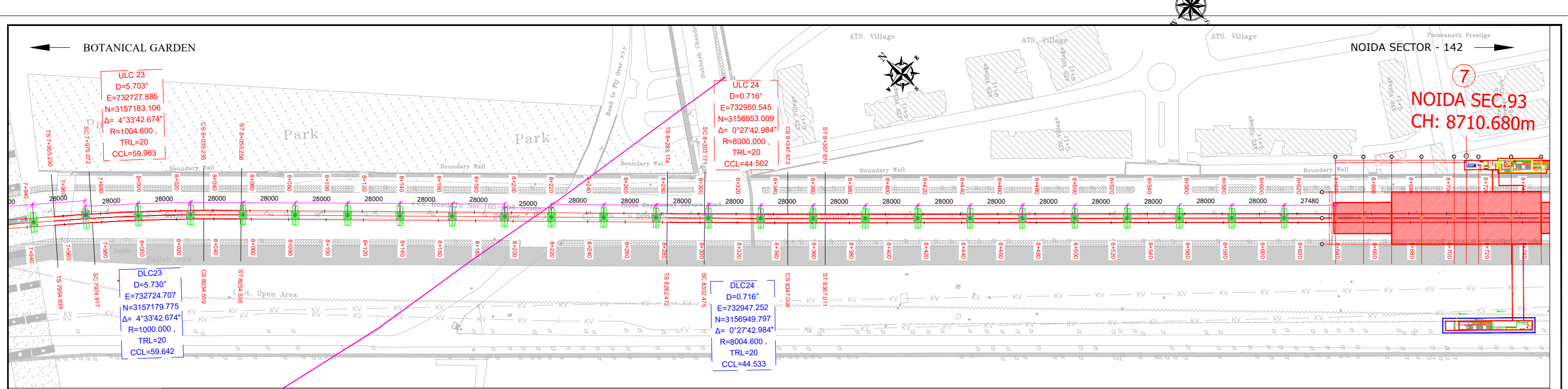
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Architecture: Design In-charge/ Coordinator  
 Structure: Design In-charge/ Coordinator  
 E&M: Design In-charge/ Coordinator

DETAIL DESIGN CONSULTANT:

**ayesa**  
Ayesa India Private Limited  
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Tel.: +(91) 120 490 8800, Email: dcdd05@ayesa.com

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CHAINAGE	EXISTING GROUND LEVEL	PROPOSED RAIL LEVEL	ELEVATION DIFF.
8020.000	198.657	217.247	18.590
8030.000	198.659	217.067	18.408
8040.000	198.715	216.887	18.172
8050.000	198.730	216.707	17.977
8060.000	198.755	216.527	17.772
8070.000	198.777	216.347	17.570
8080.000	198.745	216.167	17.422
8090.000	198.712	215.987	17.275
8100.000	198.661	215.807	17.146
8110.000	198.709	215.626	16.917
8120.000	198.732	215.446	16.714
8130.000	198.733	215.266	16.533
8140.000	198.735	215.086	16.351
8150.000	198.749	214.906	16.157
8160.000	198.752	214.726	15.974
8170.000	198.677	214.546	15.869
8180.000	198.743	214.366	15.623
8190.000	198.771	214.186	15.415
8200.000	199.054	214.006	14.952
8210.000	199.257	213.826	14.569
8220.000	198.854	213.646	14.792
8230.000	198.841	213.466	14.625
8240.000	198.936	213.286	14.350
8250.000	199.225	213.106	13.881
8260.000	198.803	212.926	14.123
8270.000	199.068	212.746	13.678
8280.000	199.488	212.566	13.078
8290.000	198.771	212.386	13.615
8300.000	198.801	212.206	13.405
8310.000	198.700	212.026	13.326
8320.000	198.723	211.846	13.123
8330.000	198.692	211.666	12.974
8340.000	199.038	211.486	12.448
8350.000	199.213	211.306	12.093
8360.000	198.874	211.126	12.252
8370.000	198.699	210.946	12.247
8380.000	198.756	210.773	12.017
8390.000	198.772	210.632	11.860
8400.000	198.774	210.525	11.751
8410.000	198.768	210.451	11.683
8420.000	198.814	210.410	11.596
8430.000	198.759	210.403	11.644
8440.000	198.815	210.429	11.614
8450.000	198.701	210.488	11.787
8460.000	198.642	210.580	11.938
8470.000	199.222	210.689	11.467
8480.000	198.742	210.797	12.055
8490.000	198.605	210.905	12.300
8500.000	198.576	211.014	12.438
8510.000	198.680	211.122	12.442
8520.000	198.718	211.230	12.512
8530.000	198.732	211.339	12.607
8540.000	198.679	211.447	12.768
8550.000	198.724	211.555	12.831
8560.000	198.713	211.663	12.950
8570.000	198.683	211.772	13.089
8580.000	198.609	211.879	13.270
8590.000	198.684	211.957	13.273
8600.000	198.702	211.996	13.294
8610.000	198.772	212.000	13.228
8620.000	198.772	212.000	13.228
8630.000	198.761	212.000	13.239
8640.000	198.753	212.000	13.247
8650.000	198.758	212.000	13.242
8660.000	198.770	212.000	13.230
8670.000	198.694	212.000	13.306
8680.000	198.577	212.000	13.423
8690.000	198.751	212.000	13.249
8700.000	198.709	212.000	13.291
8710.000	198.700	212.000	13.300
8720.000	198.711	212.000	13.289
8730.000	198.705	212.000	13.295
8740.000	198.696	212.000	13.304
8750.000	198.696	212.000	13.304

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**REVISIONS**

REV.	DESCRIPTION	DATE	DRAWN BY	CHECKED BY
R0	INITIAL DRAWING	20.04.2026	PB	D.S
R1	G.L. MODIFIED	01.06.2026	PB	D.S

**APPROVAL OF NMRC OFFICIALS**

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Architecture: Design In-charge/ Coordinator  
 Structure: Design In-charge/ Coordinator  
 E&M: Design In-charge/ Coordinator

DETAIL DESIGN CONSULTANT:

**ayesa**

Ayesa India Private Limited  
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 Budh Nagar, Uttar Pradesh  
 Tel.: +(91) 120 490 8800, Email: dcdd05@ayesa.com

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VIADUCT  
 DRAWING TITLE: GENERAL ARRANGEMENT DRAWING PLAN AND PROFILE FROM CH DN LINE: 8020m TO CH: 8740m

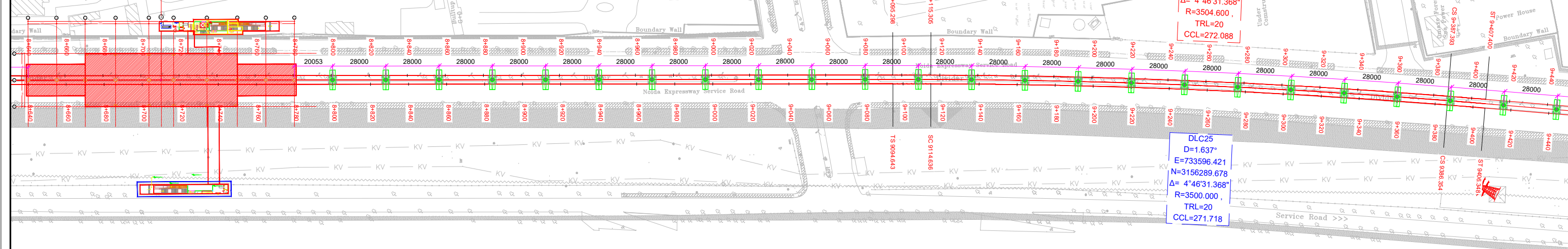
NORTH	DRAWN BY: P. BISHT	CHECKED BY: D.S	VERIFIED BY: P. Kundu	APPROVED BY: P. Banerjee
DATE: 01.06.2026	REV: R1	SCALE: NTS	STATUS: TENDER	NGNECC

ORDER NO: P36-0022    DRAWING NUMBER: NGNE-ALG-TED-STR-10001    SHEET NO: 13 OF 18    SHEET SIZE: A1

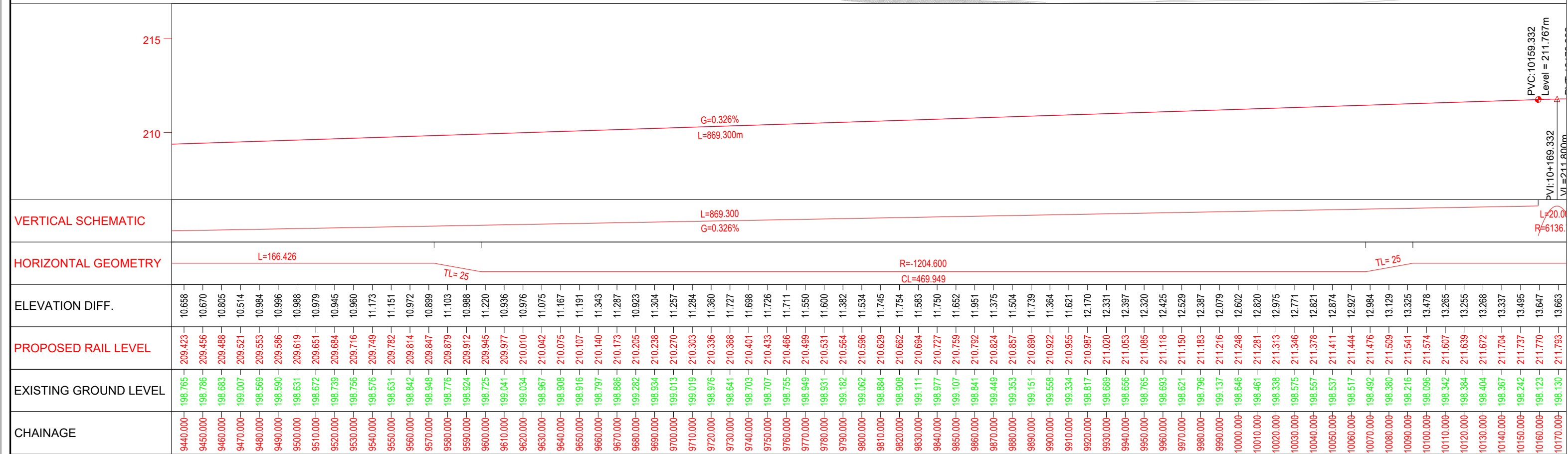
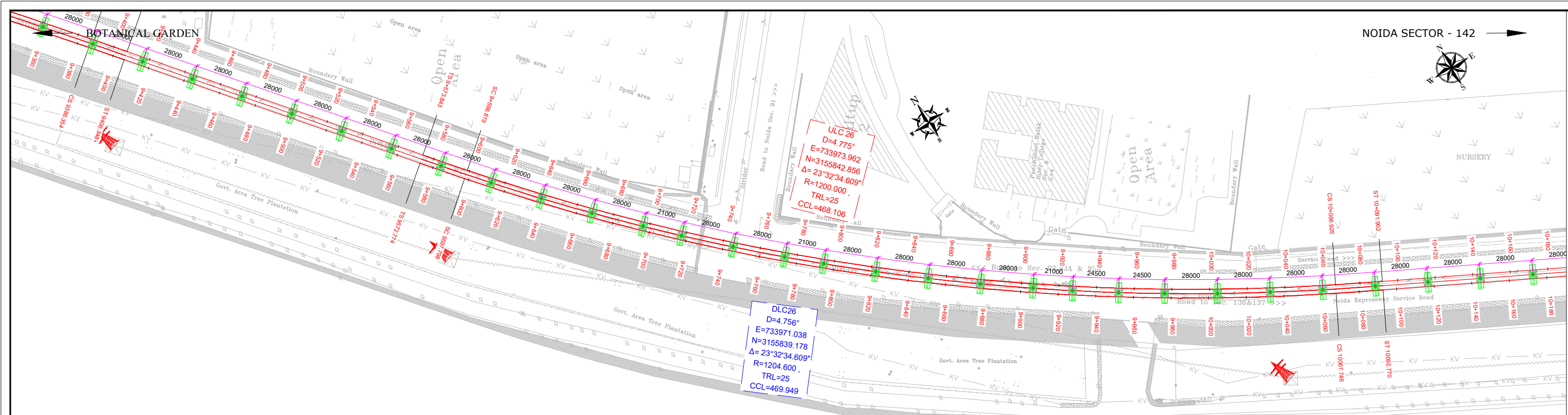
NOIDA SEC.93  
CH: 8710.680m

ULC 25  
D=1.635°  
E=733599.835  
N=3156292.767  
Δ= 4°46'31.368"  
R=3504.600  
TRL=20  
CCL=272.088

DLC25  
D=1.637°  
E=733596.421  
N=3156289.678  
Δ= 4°46'31.368"  
R=3500.000  
TRL=20  
CCL=271.718



VERTICAL SCHEMATIC	1.470 0.00%	L=17.723 R=2500.000	L=415.186 G=-0.709%	L=31.045 R=3000.000																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
HORIZONTAL GEOMETRY	L=727.632		TL=20	R=3500.000 CCL=271.718																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
ELEVATION DIFF.	13.289	13.295	13.304	13.304	13.331	13.398	13.354	13.312	13.238	13.451	13.486	13.403	13.288	13.156	13.083	13.007	12.985	12.806	12.639	12.483	12.511	12.710	12.704	12.524	11.718	12.354	11.487	11.766	11.366	11.604	12.076	12.059	11.884	11.660	11.660	11.628	11.664	11.660	11.126	11.293	11.180	10.914	11.164	11.043	10.570	10.872	10.772	10.734	10.704	10.651	10.578	10.505	10.434	10.390	10.290	10.172	10.140	10.059	10.143	10.086	10.366	10.001	10.427	10.413	10.520	10.617	10.333	10.489	10.633	10.733	10.697	10.815	10.777	10.658	10.670																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
PROPOSED RAIL LEVEL	212.000	212.000	212.000	212.000	212.000	212.000	212.000	212.000	212.000	212.000	212.000	211.997	211.961	211.893	211.822	211.751	211.681	211.610	211.539	211.468	211.397	211.326	211.255	211.184	211.113	211.043	210.972	210.901	210.830	210.759	210.688	210.617	210.546	210.475	210.404	210.334	210.263	210.192	210.121	210.050	209.979	209.908	209.837	209.766	209.696	209.625	209.554	209.483	209.412	209.341	209.270	209.199	209.128	209.057	208.987	208.916	208.845	208.774	208.703	208.632	208.561	208.490	208.419	208.348	208.277	208.206	208.135	208.064	207.993	207.922	207.851	207.780	207.709	207.638	207.567	207.496	207.425	207.354	207.283	207.212	207.141	207.070	207.000	206.929	206.858	206.787	206.716	206.645	206.574	206.503	206.432	206.361	206.290	206.219	206.148	206.077	206.006	205.935	205.864	205.793	205.722	205.651	205.580	205.509	205.438	205.367	205.296	205.225	205.154	205.083	205.012	204.941	204.870	204.799	204.728	204.657	204.586	204.515	204.444	204.373	204.302	204.231	204.160	204.089	204.018	203.947	203.876	203.805	203.734	203.663	203.592	203.521	203.450	203.379	203.308	203.237	203.166	203.095	203.024	202.953	202.882	202.811	202.740	202.669	202.598	202.527	202.456	202.385	202.314	202.243	202.172	202.101	202.030	201.959	201.888	201.817	201.746	201.675	201.604	201.533	201.462	201.391	201.320	201.249	201.178	201.107	201.036	200.965	200.894	200.823	200.752	200.681	200.610	200.539	200.468	200.397	200.326	200.255	200.184	200.113	200.042	199.971	199.900	199.829	199.758	199.687	199.616	199.545	199.474	199.403	199.332	199.261	199.190	199.119	199.048	198.977	198.906	198.835	198.764	198.693	198.622	198.551	198.480	198.409	198.338	198.267	198.196	198.125	198.054	197.983	197.912	197.841	197.770	197.699	197.628	197.557	197.486	197.415	197.344	197.273	197.202	197.131	197.060	196.989	196.918	196.847	196.776	196.705	196.634	196.563	196.492	196.421	196.350	196.279	196.208	196.137	196.066	195.995	195.924	195.853	195.782	195.711	195.640	195.569	195.498	195.427	195.356	195.285	195.214	195.143	195.072	195.001	194.930	194.859	194.788	194.717	194.646	194.575	194.504	194.433	194.362	194.291	194.220	194.149	194.078	194.007	193.936	193.865	193.794	193.723	193.652	193.581	193.510	193.439	193.368	193.297	193.226	193.155	193.084	193.013	192.942	192.871	192.800	192.729	192.658	192.587	192.516	192.445	192.374	192.303	192.232	192.161	192.090	192.019	191.948	191.877	191.806	191.735	191.664	191.593	191.522	191.451	191.380	191.309	191.238	191.167	191.096	191.025	190.954	190.883	190.812	190.741	190.670	190.599	190.528	190.457	190.386	190.315	190.244	190.173	190.102	190.031	189.960	189.889	189.818	189.747	189.676	189.605	189.534	189.463	189.392	189.321	189.250	189.179	189.108	189.037	188.966	188.895	188.824	188.753	188.682	188.611	188.540	188.469	188.398	188.327	188.256	188.185	188.114	188.043	187.972	187.901	187.830	187.759	187.688	187.617	187.546	187.475	187.404	187.333	187.262	187.191	187.120	187.049	186.978	186.907	186.836	186.765	186.694	186.623	186.552	186.481	186.410	186.339	186.268	186.197	186.126	186.055	185.984	185.913	185.842	185.771	185.700	185.629	185.558	185.487	185.416	185.345	185.274	185.203	185.132	185.061	184.990	184.919	184.848	184.777	184.706	184.635	184.564	184.493	184.422	184.351	184.280	184.209	184.138	184.067	183.996	183.925	183.854	183.783	183.712	183.641	183.570	183.499	183.428	183.357	183.286	183.215	183.144	183.073	183.002	182.931	182.860	182.789	182.718	182.647	182.576	182.505	182.434	182.363	182.292	182.221	182.150	182.079	182.008	181.937	181.866	181.795	181.724	181.653	181.582	181.511	181.440	181.369	181.298	181.227	181.156	181.085	181.014	180.943	180.872	180.801	180.730	180.659	180.588	180.517	180.446	180.375	180.304	180.233	180.162	180.091	180.020	179.949	179.878	179.807	179.736	179.665	179.594	179.523	179.452	179.381	179.310	179.239	179.168	179.097	179.026	178.955	178.884	178.813	178.742	178.671	178.600	178.529	178.458	178.387	178.316	178.245	178.174	178.103	178.032	177.961	177.890	177.819	177.748	177.677	177.606	177.535	177.464	177.393	177.322	177.251	177.180	177.109	177.038	176.967	176.896	176.825	176.754	176.683	176.612	176.541	176.470	176.399	176.328	176.257	176.186	176.115	176.044	175.973	175.902	175.831	175.760	175.689	175.618	175.547	175.476	175.405	175.334	175.263	175.192	175.121	175.050	174.979	174.908	174.837	174.766	174.695	174.624	174.553	174.482	174.411	174.340	174.269	174.198	174.127	174.056	173.985	173.914	173.843	173.772	173.701	173.630	173.559	173.488	173.417	173.346	173.275	173.204	173.133	173.062	172.991	172.920	172.849	172.778	172.707	172.636	172.565	172.494	172.423	172.352	172.281	172.210	172.139	172.068	171.997	171.926	171.855	171.784	171.713	171.642	171.571	171.500	171.429	171.358	171.287	171.216	171.145	171.074	171.003	170.932	170.861	170.790	170.719	170.648	170.577	170.506	170.435	170.364	170.293	170.222	170.151	170.080	169.999	169.928	169.857	169.786	169.715	169.644	169.573	169.502	169.431	169.360	169.289	169.218	169.147	169.076	169.005	168.934	168.863	168.792	168.721	168.650	168.579	168.508	168.437	168.366	168.295	168.224	168.153	168.082	168.011	167.940	167.869	167.798	167.727	167.656	167.585	167.514	167.443	167.372	167.301	167.230	167.159	167.088	167.017	166.946	166.875	166.804	166.733	166.662	166.591	166.520	166.449	166.378	166.307	166.236	166.165	166.094	166.023	165.952	165.881	165.810	165.739	165.668	165.597	165.526	165.455	165.384	165.313	165.242	165.171	165.100	165.029	164.958	164.887	164.816	164.745	164.674	164.603	164.532	164.461	164.390	164.319	164.248	164.177	164.106	164.035	163.964	163.893	163.822	163.751	163.680	163.609	163.538	163.467	163.396	163.325	163.254	163.183	163.112	163.041	162.970	162.899	162.828	162.757	162.686	162.615	162.544	162.473	162.402	162.331	162.260	162.189	162.118	162.047	161.976	161.905	161.834	161.763	161.692	161.621	161.550	161.479	161.408	161.337	161.266	161.195	161.124	161.053	160.982	160.911	160.840	160.769	160.698	160.627	160.556	160.485	160.414	160.343	160.272	160.201	160.130	160.059	159.988	159.917	159.846	159.775	159.704	159.633	159.562	159.491	159.420	159.349	159.278	159.207	159.136	159.065	158.994	158.923	158.852	158.781	158.710	158.639	158.568	158.497	158.426	158.355	158.284	158.213	158.142	158.071	157.999	157.928	157.857	157.786	157.715	157.644	157.573	157.502	157.431	157.360	157.289	157.218	157.147	157.076	157.005	156.934	156.863	156.792	156.721	156.650	156.579	156.508	156.437	156.366	156.295	156.224	156.153	156.082	156.011	155.940	155.869	155.798	155.727	155.656	155.585	155.514	155.443	155.372	155.301	155.230	155.159	155.088	155.017	154.946	154.875	154.804	154.733	154.662	154.591	154.520	154.449	154.378	154.307	154.236	154.165	154.094	154.023	153.952	153.881	153.810	153.739	153.668	153.597	153.526	153.455	153.384	153.313	153.242	153.171	153.100	153.029	152.958	152.887	152.816	152.745	152.674	152.603	152.532	152.461	152.390	152.319	152.248	152.177	152.106	152.035	151.964	151.893	151.822	151.751	151.680	151.609	151.538	151.467	151.396	151.325	151.254	151.183	151.112	151.041	150.970	150.899	150.828	150.757	150.686	150.615	150.544	150.473	150.402	150.331	150.260	150.189	150.118	150.047	149.976	149.905	149.834	149.763	149.692	149.621	149.550	149.479	149.408



ELEVATION DIFF.	PROPOSED RAIL LEVEL	EXISTING GROUND LEVEL	CHAINAGE
10.658	209.423	198.765	9440.000
10.670	209.456	198.786	9450.000
10.805	209.488	198.683	9460.000
10.514	209.521	199.007	9470.000
10.984	209.553	198.569	9480.000
10.996	209.586	198.590	9490.000
10.988	209.619	198.631	9500.000
10.979	209.651	198.672	9510.000
10.945	209.684	198.739	9520.000
10.960	209.716	198.756	9530.000
11.173	209.749	198.576	9540.000
11.151	209.782	198.631	9550.000
10.972	209.814	198.842	9560.000
10.899	209.847	198.948	9570.000
11.103	209.879	198.776	9580.000
10.988	209.912	198.924	9590.000
11.220	209.945	198.725	9600.000
10.936	209.977	199.041	9610.000
10.976	210.010	199.034	9620.000
11.075	210.042	198.967	9630.000
11.167	210.075	198.908	9640.000
11.191	210.107	198.916	9650.000
11.343	210.140	198.797	9660.000
11.287	210.173	198.886	9670.000
10.923	210.205	199.282	9680.000
11.304	210.238	198.934	9690.000
11.257	210.270	199.013	9700.000
11.284	210.303	199.019	9710.000
11.360	210.336	198.976	9720.000
11.727	210.368	198.641	9730.000
11.698	210.401	198.703	9740.000
11.726	210.433	198.707	9750.000
11.711	210.466	198.755	9760.000
11.550	210.499	198.949	9770.000
11.600	210.531	198.931	9780.000
11.382	210.564	199.182	9790.000
11.534	210.596	199.062	9800.000
11.745	210.629	198.884	9810.000
11.754	210.662	198.908	9820.000
11.583	210.694	199.111	9830.000
11.750	210.727	198.977	9840.000
11.652	210.759	199.107	9850.000
11.951	210.792	198.841	9860.000
11.375	210.824	199.449	9870.000
11.504	210.857	199.353	9880.000
11.739	210.890	199.151	9890.000
11.364	210.922	199.558	9900.000
11.621	210.955	199.334	9910.000
12.170	210.987	198.817	9920.000
12.331	211.020	198.689	9930.000
12.397	211.053	198.656	9940.000
12.320	211.085	198.765	9950.000
12.425	211.118	198.693	9960.000
12.529	211.150	198.621	9970.000
12.387	211.183	198.796	9980.000
12.079	211.216	199.137	9990.000
12.602	211.248	198.646	10000.000
12.820	211.281	198.461	10010.000
12.975	211.313	198.338	10020.000
12.771	211.346	198.575	10030.000
12.821	211.378	198.557	10040.000
12.874	211.411	198.537	10050.000
12.927	211.444	198.517	10060.000
12.984	211.476	198.492	10070.000
13.129	211.509	198.380	10080.000
13.325	211.541	198.216	10090.000
13.478	211.574	198.096	10100.000
13.265	211.607	198.342	10110.000
13.255	211.639	198.384	10120.000
13.268	211.672	198.404	10130.000
13.337	211.704	198.367	10140.000
13.495	211.737	198.242	10150.000
13.647	211.770	198.123	10160.000
13.663	211.793	198.130	10170.000

### TENDER DRAWING

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**NOIDA METRO RAIL CORPORATION LTD.**  
 Block-III, 3rd Floor, Ganga Shopping Complex, Sector-29, Noida -201301,  
 District Gautam Budh Nagar, Uttar Pradesh, India

PROJECT: NGNECC-01: Part Design & Construction of Elevated Viaduct and 10 nos. of Elevated Stations for Extension Projects of NMRC's Aqua Line from Botanical Garden to Noida Sec-142 (from Chainage (-) 383.959 to 12130.143) and from Depot Station to Boraki MMTH (Chainage 28678.253 to 31263.482).

VIADUCT  
 DRAWING TITLE: GENERAL ARRANGEMENT DRAWING PLAN AND PROFILE FROM CH DN LINE: 9440m TO CH: 10160m

NORTH	DRAWN BY: P. BISHT	CHECKED BY: D.S	VERIFIED BY: P. Kundu	APPROVED BY: P. Banerjee
DATE: 01.06.2026	REV: R1	SCALE: NTS	STATUS: TENDER	NGNECC
ORDER N° P36-0022	DRAWING NUMBER: NGNE-ALG-TED-STR-10001	SHEET NO. 15 OF 18	SHEET SIZE A1	

**GENERAL NOTES:**

- ALL DIMENSIONS ARE IN MILLIMETER UNLESS MENTIONED.
- ALL DIMENSIONS ARE TO BE READ AND NOT MEASURED.
- ANY DISCREPANCY MUST BE BROUGHT TO THE NOTICE OF THE DMRC BEFORE EXECUTION OF WORK AT SITE.
- THIS DRAWING MUST BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTURAL, STRUCTURAL, PLUMBING & FIRE FIGHTING, ELECTRICAL AND TRAFFIC MANAGEMENT DRAWINGS.
- ALL DOOR/WINDOW CILL & LINTEL LEVELS ARE MEASURED FROM MAIN FLOOR FINISHED LEVELS.

**REFERENCE DRAWINGS**

REVISION	DESCRIPTION	DRAWING NO.

REVISIONS					APPROVAL OF NMRC OFFICIALS				
REV.	DESCRIPTION	DATE	DRAWN BY	CHECKED BY					
R0	INITIAL DRAWING	20.04.2026	PB	D.S					
R1	G.L. MODIFIED	01.06.2026	PB	D.S					

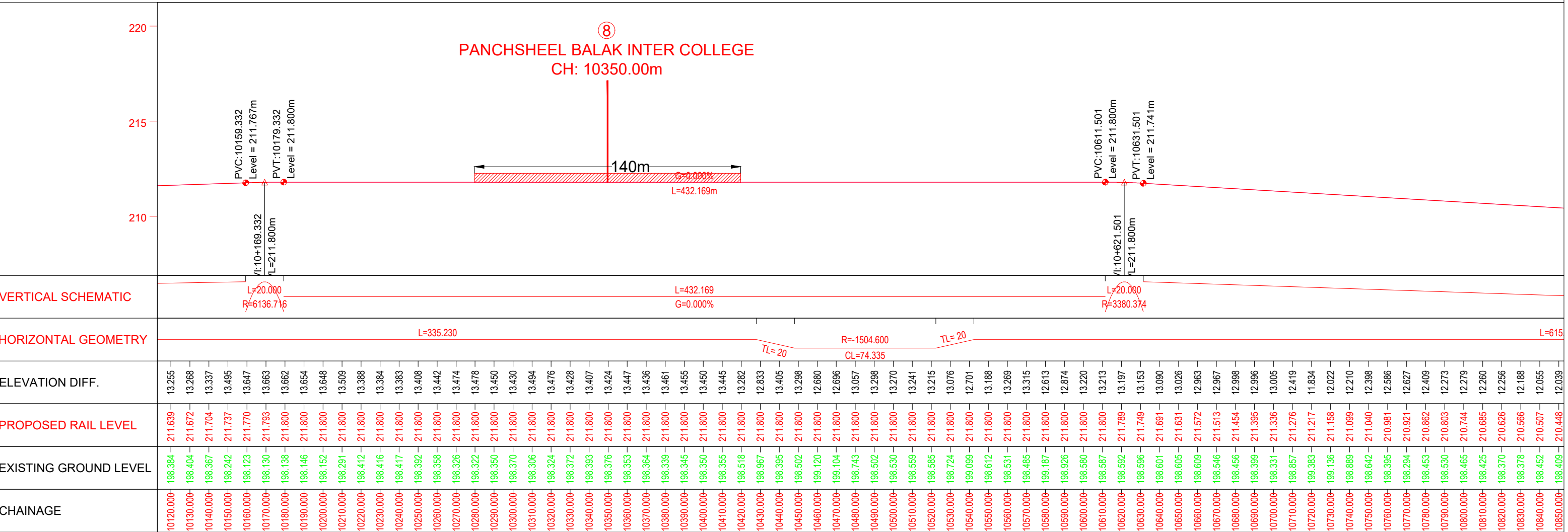
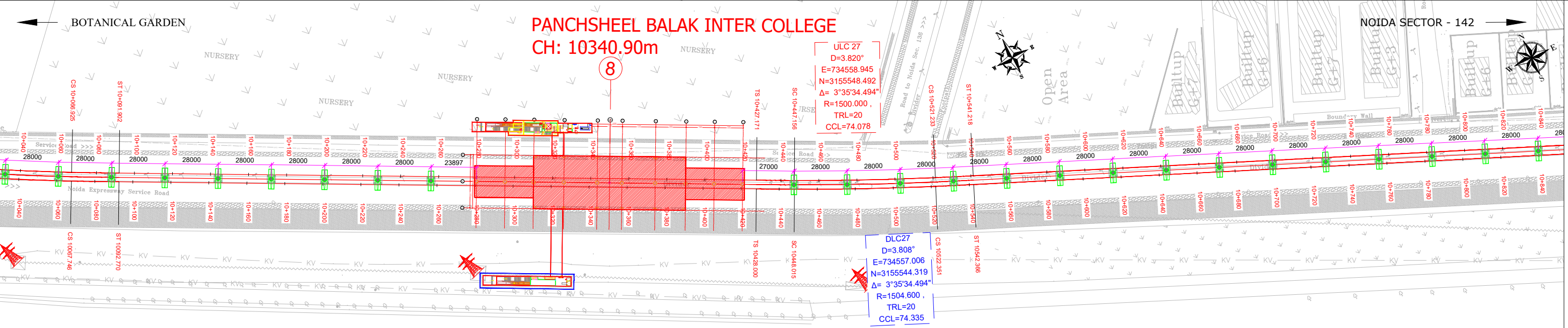
Certified that this document has been designed and checked in accordance with DDC Quality Assurance Plan.

Architecture Design In-charge/ Coordinator      Structure Design In-charge/ Coordinator      E&M Design In-charge/ Coordinator

DETAIL DESIGN CONSULTANT :

**ayesa**  
 Ayesa India Private Limited  
 D 99, 3rd Floor, Sector 2, Noida -201301, Gautam Budh Nagar, Uttar Pradesh  
 Tel.: +(91) 120 490 8800, Email: dcd05@ayesa.com

Authorised Signatory for DDC, NGNECC Project Manager



VERTICAL SCHEMATIC	HORIZONTAL GEOMETRY	ELEVATION DIFF.	PROPOSED RAIL LEVEL	EXISTING GROUND LEVEL	CHAINAGE
L=20.000 R=6136.716	L=335.230	13.255	211.639	198.384	10120.000
L=432.169 G=0.000%	TL=20	13.268	211.672	198.404	10130.000
L=20.000 R=3380.374	R=1504.600 CL=74.335	13.337	211.704	198.367	10140.000
	TL=20	13.395	211.737	198.242	10150.000
		13.647	211.770	198.123	10160.000
		13.663	211.793	198.130	10170.000
		13.662	211.800	198.138	10180.000
		13.654	211.800	198.146	10190.000
		13.648	211.800	198.152	10200.000
		13.509	211.800	198.291	10210.000
		13.388	211.800	198.412	10220.000
		13.384	211.800	198.416	10230.000
		13.383	211.800	198.417	10240.000
		13.408	211.800	198.392	10250.000
		13.442	211.800	198.358	10260.000
		13.474	211.800	198.326	10270.000
		13.478	211.800	198.322	10280.000
		13.450	211.800	198.350	10290.000
		13.430	211.800	198.370	10300.000
		13.494	211.800	198.306	10310.000
		13.476	211.800	198.324	10320.000
		13.428	211.800	198.372	10330.000
		13.407	211.800	198.393	10340.000
		13.424	211.800	198.376	10350.000
		13.447	211.800	198.353	10360.000
		13.436	211.800	198.364	10370.000
		13.461	211.800	198.339	10380.000
		13.455	211.800	198.345	10390.000
		13.450	211.800	198.350	10400.000
		13.445	211.800	198.355	10410.000
		13.282	211.800	198.518	10420.000
		12.833	211.800	198.967	10430.000
		13.405	211.800	198.395	10440.000
		13.298	211.800	198.502	10450.000
		12.680	211.800	199.120	10460.000
		12.696	211.800	199.104	10470.000
		13.057	211.800	198.743	10480.000
		13.298	211.800	198.502	10490.000
		13.270	211.800	198.530	10500.000
		13.241	211.800	198.559	10510.000
		13.215	211.800	198.585	10520.000
		13.076	211.800	198.724	10530.000
		12.701	211.800	199.099	10540.000
		13.188	211.800	198.612	10550.000
		13.269	211.800	198.551	10560.000
		13.315	211.800	198.485	10570.000
		12.613	211.800	199.187	10580.000
		12.874	211.800	198.926	10590.000
		13.220	211.800	198.580	10600.000
		13.213	211.800	198.587	10610.000
		13.197	211.789	198.592	10620.000
		13.153	211.749	198.596	10630.000
		13.090	211.691	198.601	10640.000
		13.026	211.631	198.605	10650.000
		12.963	211.572	198.609	10660.000
		12.967	211.513	198.546	10670.000
		12.998	211.454	198.456	10680.000
		12.996	211.395	198.399	10690.000
		13.005	211.336	198.331	10700.000
		12.419	211.276	198.857	10710.000
		11.834	211.217	199.383	10720.000
		12.022	211.158	199.136	10730.000
		12.210	211.099	198.889	10740.000
		12.398	211.040	198.642	10750.000
		12.586	210.981	198.395	10760.000
		12.627	210.921	198.294	10770.000
		12.409	210.862	198.453	10780.000
		12.273	210.803	198.530	10790.000
		12.279	210.744	198.465	10800.000
		12.260	210.685	198.425	10810.000
		12.256	210.626	198.370	10820.000
		12.188	210.566	198.378	10830.000
		12.055	210.507	198.452	10840.000
		12.039	210.448	198.409	10850.000

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Block-III, 3rd Floor, Ganga Shopping Complex, Sector-29, Noida -201301,  
District Gautam Budh Nagar, Uttar Pradesh, India

PROJECT: NGNECC-01: Part Design & Construction of Elevated Viaduct and 10 nos. of Elevated Stations for Extension Projects of NMRC's Aqua Line from Botanical Garden to Noida Sec-142 (from Chainage (-) 383.959 to 12130.143) and from Depot Station to Boraki MMTH (Chainage 28678.253 to 31263.482).

DRAWING TITLE: GENERAL ARRANGEMENT DRAWING PLAN AND PROFILE FROM CH DN LINE: 10120m TO CH: 10840m

NORTH	DRAWN BY: P. BISHT	CHECKED BY: D.S	VERIFIED BY: P. Kundu	APPROVED BY: P. Banerjee
DATE: 01.06.2026	REV: R1	SCALE: NTS	SHEET NO. 16 OF 18	SHEET SIZE A1
ORDER N° P36-0022	DRAWING NUMBER: NGNE-ALG-TED-STR-10001	STATUS: TENDER		

**GENERAL NOTES:**

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- ALL DOOR/WINDOW CILL & LINTEL LEVELS ARE MEASURED FROM MAIN FLOOR FINISHED LEVELS.

**REFERENCE DRAWINGS**

REVISION	DESCRIPTION	DRAWING NO.

**REVISIONS**

REV.	DESCRIPTION	DATE	DRAWN BY	CHECKED BY
R0	INITIAL DRAWING	20.04.2026	PB	D.S
R1	G.L. MODIFIED	01.06.2026	PB	D.S

**APPROVAL OF NMRC OFFICIALS**

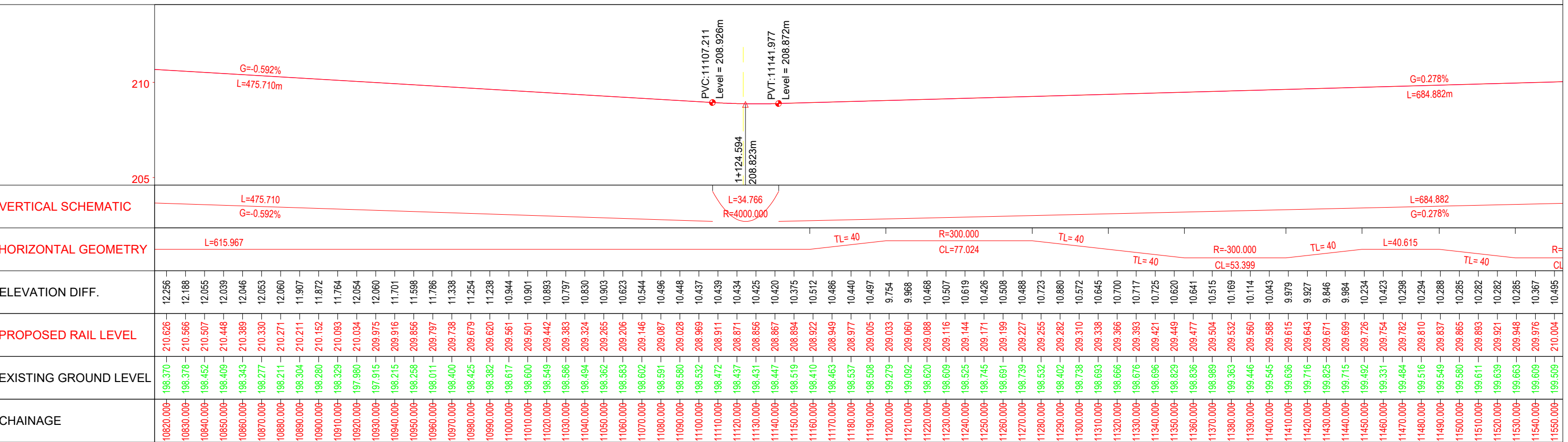
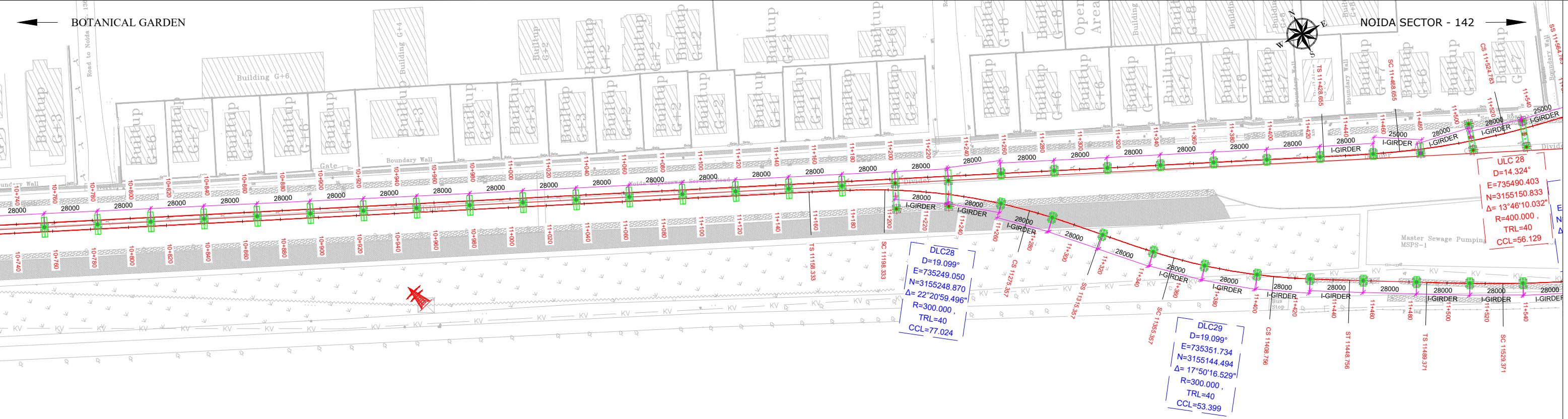

Certified that this document has been designed and checked in accordance with DDC Quality Assurance Plan.

Architecture: Design In-charge/ Coordinator  
Structure: Design In-charge/ Coordinator  
E&M: Design In-charge/ Coordinator

DETAIL DESIGN CONSULTANT:

**ayesa**  
Ayesa India Private Limited  
D 99, 3rd Floor, Sector 2, Noida -201301, Gautam Budh Nagar, Uttar Pradesh  
Tel.: +(91) 120 490 8800, Email: dcd05@ayesa.com

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ELEVATION DIFF.	PROPOSED RAIL LEVEL	EXISTING GROUND LEVEL	CHAINAGE
12.256	210.626	198.370	10820.000
12.188	210.566	198.378	10830.000
12.055	210.507	198.452	10840.000
12.039	210.448	198.409	10850.000
12.046	210.389	198.343	10860.000
12.053	210.330	198.277	10870.000
12.060	210.271	198.211	10880.000
11.907	210.211	198.304	10890.000
11.872	210.152	198.280	10900.000
11.764	210.093	198.329	10910.000
12.054	210.034	197.980	10920.000
12.060	209.975	197.915	10930.000
11.701	209.916	198.215	10940.000
11.598	209.856	198.258	10950.000
11.786	209.797	198.011	10960.000
11.338	209.738	198.400	10970.000
11.254	209.679	198.425	10980.000
11.238	209.620	198.382	10990.000
10.944	209.561	198.617	11000.000
10.901	209.501	198.600	11010.000
10.893	209.442	198.549	11020.000
10.797	209.383	198.586	11030.000
10.830	209.324	198.494	11040.000
10.903	209.265	198.362	11050.000
10.623	209.206	198.583	11060.000
10.544	209.146	198.602	11070.000
10.496	209.087	198.591	11080.000
10.448	209.028	198.580	11090.000
10.437	208.969	198.532	11100.000
10.439	208.911	198.472	11110.000
10.434	208.851	198.437	11120.000
10.425	208.792	198.431	11130.000
10.420	208.733	198.447	11140.000
10.375	208.674	198.519	11150.000
10.512	208.615	198.410	11160.000
10.486	208.556	198.463	11170.000
10.440	208.497	198.537	11180.000
10.497	208.438	198.508	11190.000
9.754	208.379	199.279	11200.000
9.968	208.320	199.092	11210.000
10.468	208.261	198.620	11220.000
10.507	208.202	198.609	11230.000
10.619	208.143	198.525	11240.000
10.426	208.084	198.745	11250.000
10.508	208.025	198.691	11260.000
10.488	207.966	198.739	11270.000
10.723	207.907	198.532	11280.000
10.880	207.848	198.402	11290.000
10.572	207.789	198.738	11300.000
10.645	207.730	198.693	11310.000
10.700	207.671	198.666	11320.000
10.717	207.612	198.676	11330.000
10.725	207.553	198.696	11340.000
10.620	207.494	198.829	11350.000
10.641	207.435	198.836	11360.000
10.515	207.376	198.989	11370.000
10.169	207.317	199.363	11380.000
10.114	207.258	199.446	11390.000
10.043	207.199	199.545	11400.000
9.979	207.140	199.636	11410.000
9.927	207.081	199.716	11420.000
9.846	207.022	199.825	11430.000
9.984	206.963	199.715	11440.000
10.234	206.904	199.492	11450.000
10.423	206.845	199.331	11460.000
10.298	206.786	199.484	11470.000
10.294	206.727	199.516	11480.000
10.288	206.668	199.549	11490.000
10.285	206.609	199.580	11500.000
10.282	206.550	199.611	11510.000
10.282	206.491	199.639	11520.000
10.285	206.432	199.663	11530.000
10.367	206.373	199.609	11540.000
10.495	206.314	199.509	11550.000

### TENDER DRAWING

This drawing must not be loaned, copied or otherwise reproduced in whole or in part or used for any purpose without the prior written permission of NMRC.

**NOIDA METRO RAIL CORPORATION LTD.**  
 Block-III, 3rd Floor, Ganga Shopping Complex, Sector-29, Noida -201301,  
 District Gautam Budh Nagar, Uttar Pradesh, India

PROJECT: NGNECC-01: Part Design & Construction of Elevated Viaduct and 10 nos. of Elevated Stations for Extension Projects of NMRC's Aqua Line from Botanical Garden to Noida Sec-142 (from Chainage (-) 383.959 to 12130.143) and from Depot Station to Boraki MMTH (Chainage 28678.253 to 31263.482).

VIADUCT  
 DRAWING TITLE: GENERAL ARRANGEMENT DRAWING PLAN AND PROFILE FROM CH DN LINE: 10820m TO CH: 11540m

NORTH	DRAWN BY: P. BISHT	CHECKED BY: D.S	VERIFIED BY: P. Kundu	APPROVED BY: P. Banerjee
DATE: 01.06.2026	REV: R1	SCALE: NTS	STATUS: TENDER	NGNECC
ORDER N° P36-0022	DRAWING NUMBER: NGNE-ALG-TED-STR-10001	SHEET NO. 17 OF 18	SHEET SIZE A1	

**GENERAL NOTES:**

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**REFERENCE DRAWINGS**

REVISION	DESCRIPTION	DRAWING NO.

**REVISIONS**

REV.	DESCRIPTION	DATE	DRAWN BY	CHECKED BY
R0	INITIAL DRAWING	20.04.2026	PB	D.S
R1	G.L. MODIFIED	01.06.2026	PB	D.S

**APPROVAL OF NMRC OFFICIALS**



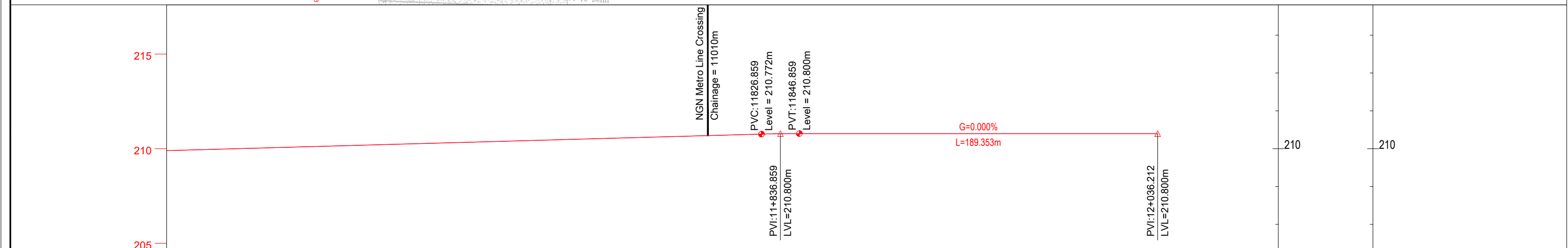
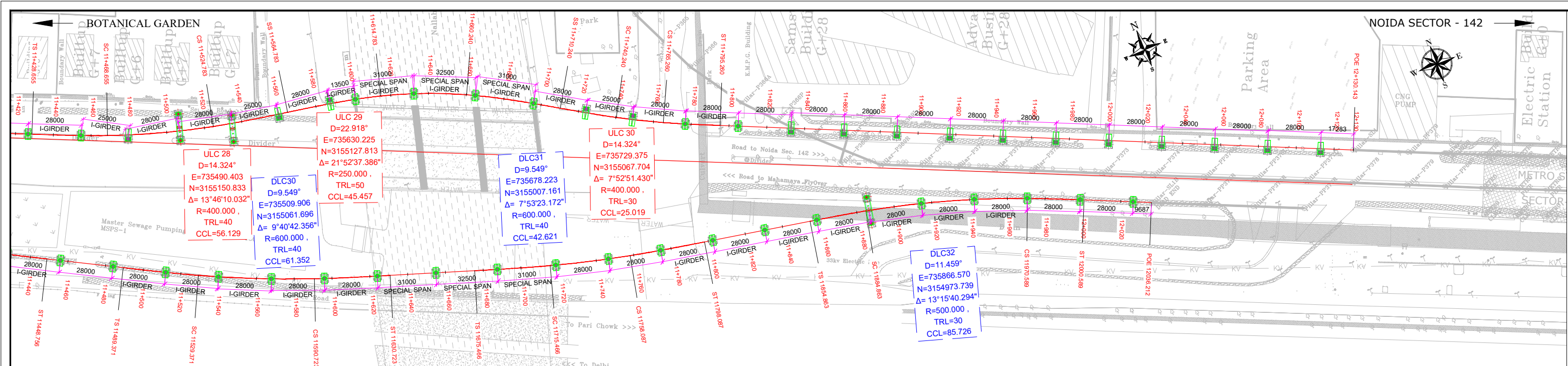
Certified that this document has been designed and checked in accordance with DDC Quality Assurance Plan.

Architecture Design In-charge/ Coordinator: \_\_\_\_\_  
 Structure Design In-charge/ Coordinator: \_\_\_\_\_  
 E&M Design In-charge/ Coordinator: \_\_\_\_\_

DETAIL DESIGN CONSULTANT:

**ayesa**  
 Ayesa India Private Limited  
 D 99, 3rd Floor, Sector 2, Noida -201301, Gautam Budh Nagar, Uttar Pradesh  
 Tel.: +(91) 120 490 8800, Email: dcdd05@ayesa.com

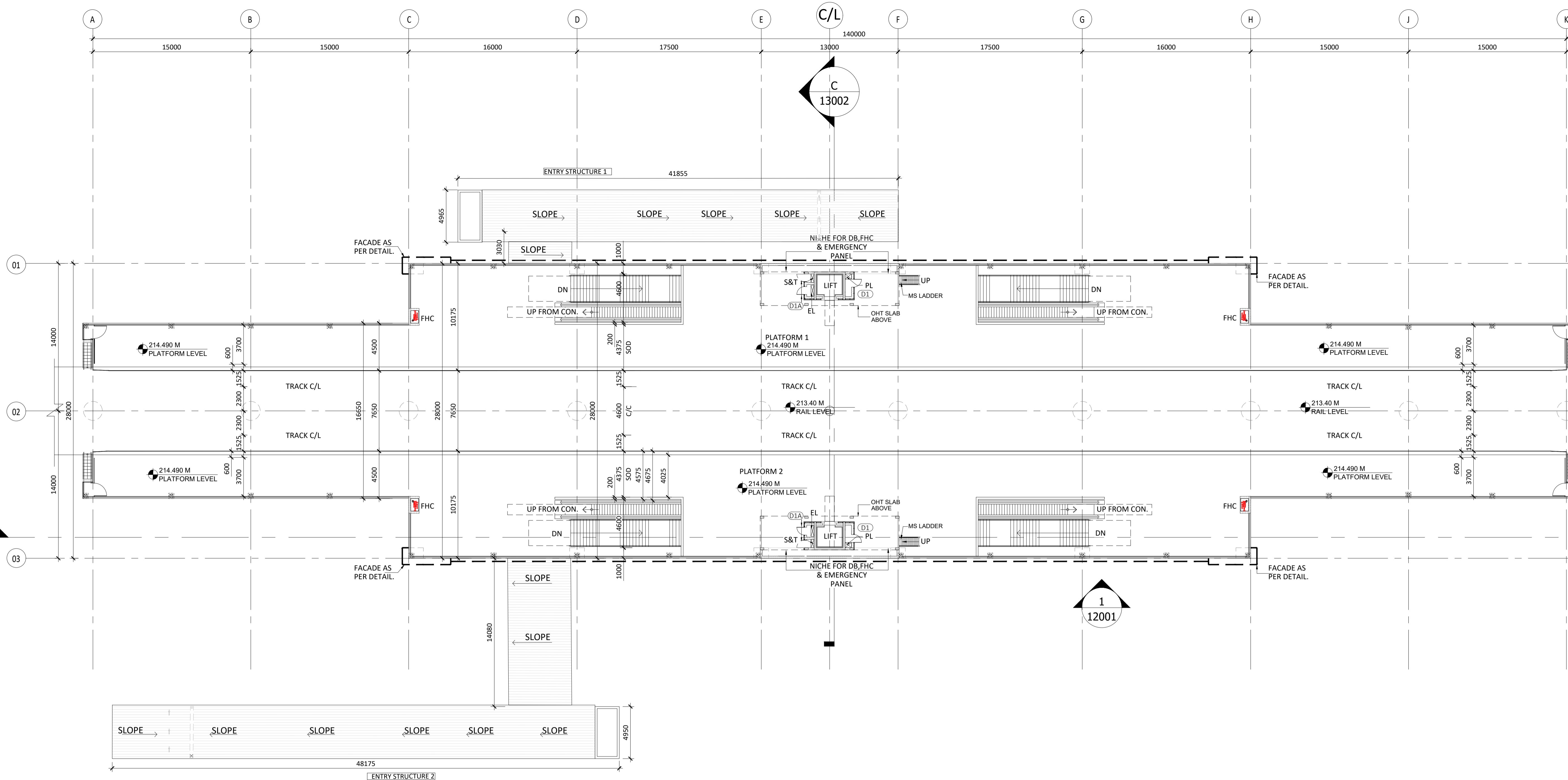
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VERTICAL SCHEMATIC	L=20.000 R=7207.149		L=189.353 G=0.000%																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
HORIZONTAL GEOMETRY	R=600.000 CL=61.352	TL=40	L=44.743	TL=40 CL=42.621	R=600.000 TL=40	L=56.775	TL=30	R=500.000 CL=85.726	TL=30	L=35.623																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
ELEVATION DIFF.	10.282	10.285	10.367	10.495	10.613	10.718	10.814	10.899	10.973	11.038	11.098	11.174	11.381	11.587	11.795	12.002	12.161	12.291	11.877	11.741	11.682	11.611	11.530	11.438	11.458	12.413	12.978	13.426	12.327	12.003	13.230	11.693	12.210	12.712	13.212	14.258	14.283	14.232	13.941	13.709	13.340	12.915	13.090	12.770	13.331	13.130	12.975	13.274	13.069	13.063	13.117	12.864																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
PROPOSED RAIL LEVEL	209.921	209.948	209.976	210.004	210.032	210.059	210.087	210.115	210.143	210.170	210.198	210.226	210.254	210.281	210.309	210.337	210.365	210.392	210.420	210.448	210.476	210.503	210.531	210.559	210.587	210.614	210.642	210.670	210.698	210.725	210.753	210.780	210.807	210.834	210.861	210.888	210.915	210.942	210.969	210.996	211.023	211.050	211.077	211.104	211.131	211.158	211.185	211.212	211.239	211.266	211.293	211.320	211.347	211.374	211.401	211.428	211.455	211.482	211.509	211.536	211.563	211.590	211.617	211.644	211.671	211.698	211.725	211.752	211.779	211.806	211.833	211.860	211.887	211.914	211.941	211.968	211.995	212.022	212.049	212.076	212.103	212.130	212.157	212.184	212.211	212.238	212.265	212.292	212.319	212.346	212.373	212.400	212.427	212.454	212.481	212.508	212.535	212.562	212.589	212.616	212.643	212.670	212.697	212.724	212.751	212.778	212.805	212.832	212.859	212.886	212.913	212.940	212.967	212.994	213.021	213.048	213.075	213.102	213.129	213.156	213.183	213.210	213.237	213.264	213.291	213.318	213.345	213.372	213.399	213.426	213.453	213.480	213.507	213.534	213.561	213.588	213.615	213.642	213.669	213.696	213.723	213.750	213.777	213.804	213.831	213.858	213.885	213.912	213.939	213.966	213.993	214.020	214.047	214.074	214.101	214.128	214.155	214.182	214.209	214.236	214.263	214.290	214.317	214.344	214.371	214.398	214.425	214.452	214.479	214.506	214.533	214.560	214.587	214.614	214.641	214.668	214.695	214.722	214.749	214.776	214.803	214.830	214.857	214.884	214.911	214.938	214.965	214.992	215.019	215.046	215.073	215.100	215.127	215.154	215.181	215.208	215.235	215.262	215.289	215.316	215.343	215.370	215.397	215.424	215.451	215.478	215.505	215.532	215.559	215.586	215.613	215.640	215.667	215.694	215.721	215.748	215.775	215.802	215.829	215.856	215.883	215.910	215.937	215.964	215.991	216.018	216.045	216.072	216.099	216.126	216.153	216.180	216.207	216.234	216.261	216.288	216.315	216.342	216.369	216.396	216.423	216.450	216.477	216.504	216.531	216.558	216.585	216.612	216.639	216.666	216.693	216.720	216.747	216.774	216.801	216.828	216.855	216.882	216.909	216.936	216.963	216.990	217.017	217.044	217.071	217.098	217.125	217.152	217.179	217.206	217.233	217.260	217.287	217.314	217.341	217.368	217.395	217.422	217.449	217.476	217.503	217.530	217.557	217.584	217.611	217.638	217.665	217.692	217.719	217.746	217.773	217.800	217.827	217.854	217.881	217.908	217.935	217.962	217.989	218.016	218.043	218.070	218.097	218.124	218.151	218.178	218.205	218.232	218.259	218.286	218.313	218.340	218.367	218.394	218.421	218.448	218.475	218.502	218.529	218.556	218.583	218.610	218.637	218.664	218.691	218.718	218.745	218.772	218.799	218.826	218.853	218.880	218.907	218.934	218.961	218.988	219.015	219.042	219.069	219.096	219.123	219.150	219.177	219.204	219.231	219.258	219.285	219.312	219.339	219.366	219.393	219.420	219.447	219.474	219.501	219.528	219.555	219.582	219.609	219.636	219.663	219.690	219.717	219.744	219.771	219.798	219.825	219.852	219.879	219.906	219.933	219.960	219.987	220.014	220.041	220.068	220.095	220.122	220.149	220.176	220.203	220.230	220.257	220.284	220.311	220.338	220.365	220.392	220.419	220.446	220.473	220.500	220.527	220.554	220.581	220.608	220.635	220.662	220.689	220.716	220.743	220.770	220.797	220.824	220.851	220.878	220.905	220.932	220.959	220.986	221.013	221.040	221.067	221.094	221.121	221.148	221.175	221.202	221.229	221.256	221.283	221.310	221.337	221.364	221.391	221.418	221.445	221.472	221.499	221.526	221.553	221.580	221.607	221.634	221.661	221.688	221.715	221.742	221.769	221.796	221.823	221.850	221.877	221.904	221.931	221.958	221.985	222.012	222.039	222.066	222.093	222.120	222.147	222.174	222.201	222.228	222.255	222.282	222.309	222.336	222.363	222.390	222.417	222.444	222.471	222.498	222.525	222.552	222.579	222.606	222.633	222.660	222.687	222.714	222.741	222.768	222.795	222.822	222.849	222.876	222.903	222.930	222.957	222.984	223.011	223.038	223.065	223.092	223.119	223.146	223.173	223.200	223.227	223.254	223.281	223.308	223.335	223.362	223.389	223.416	223.443	223.470	223.497	223.524	223.551	223.578	223.605	223.632	223.659	223.686	223.713	223.740	223.767	223.794	223.821	223.848	223.875	223.902	223.929	223.956	223.983	224.010	224.037	224.064	224.091	224.118	224.145	224.172	224.199	224.226	224.253	224.280	224.307	224.334	224.361	224.388	224.415	224.442	224.469	224.496	224.523	224.550	224.577	224.604	224.631	224.658	224.685	224.712	224.739	224.766	224.793	224.820	224.847	224.874	224.901	224.928	224.955	224.982	225.009	225.036	225.063	225.090	225.117	225.144	225.171	225.198	225.225	225.252	225.279	225.306	225.333	225.360	225.387	225.414	225.441	225.468	225.495	225.522	225.549	225.576	225.603	225.630	225.657	225.684	225.711	225.738	225.765	225.792	225.819	225.846	225.873	225.900	225.927	225.954	225.981	226.008	226.035	226.062	226.089	226.116	226.143	226.170	226.197	226.224	226.251	226.278	226.305	226.332	226.359	226.386	226.413	226.440	226.467	226.494	226.521	226.548	226.575	226.602	226.629	226.656	226.683	226.710	226.737	226.764	226.791	226.818	226.845	226.872	226.899	226.926	226.953	226.980	227.007	227.034	227.061	227.088	227.115	227.142	227.169	227.196	227.223	227.250	227.277	227.304	227.331	227.358	227.385	227.412	227.439	227.466	227.493	227.520	227.547	227.574	227.601	227.628	227.655	227.682	227.709	227.736	227.763	227.790	227.817	227.844	227.871	227.898	227.925	227.952	227.979	228.006	228.033	228.060	228.087	228.114	228.141	228.168	228.195	228.222	228.249	228.276	228.303	228.330	228.357	228.384	228.411	228.438	228.465	228.492	228.519	228.546	228.573	228.600	228.627	228.654	228.681	228.708	228.735	228.762	228.789	228.816	228.843	228.870	228.897	228.924	228.951	228.978	229.005	229.032	229.059	229.086	229.113	229.140	229.167	229.194	229.221	229.248	229.275	229.302	229.329	229.356	229.383	229.410	229.437	229.464	229.491	229.518	229.545	229.572	229.599	229.626	229.653	229.680	229.707	229.734	229.761	229.788	229.815	229.842	229.869	229.896	229.923	229.950	229.977	230.004	230.031	230.058	230.085	230.112	230.139	230.166	230.193	230.220	230.247	230.274	230.301	230.328	230.355	230.382	230.409	230.436	230.463	230.490	230.517	230.544	230.571	230.598	230.625	230.652	230.679	230.706	230.733	230.760	230.787	230.814	230.841	230.868	230.895	230.922	230.949	230.976	231.003	231.030	231.057	231.084	231.111	231.138	231.165	231.192	231.219	231.246	231.273	231.300	231.327	231.354	231.381	231.408	231.435	231.462	231.489	231.516	231.543	231.570	231.597	231.624	231.651	231.678	231.705	231.732	231.759	231.786	231.813	231.840	231.867	231.894	231.921	231.948	231.975	232.002	232.029	232.056	232.083	232.110	232.137	232.164	232.191	232.218	232.245	232.272	232.299	232.326	232.353	232.380	232.407	232.434	232.461	232.488	232.515	232.542	232.569	232.596	232.623	232.650	232.677	232.704	232.731	232.758	232.785	232.812	232.839	232.866	232.893	232.920	232.947	232.974	233.001	233.028	233.055	233.082	233.109	233.136	233.163	233.190	233.217	233.244	233.271	233.298	233.325	233.352	233.379	233.406	233.433	233.460	233.487	233.514	233.541	233.568	233.595	233.622	233.649	233.676	233.703	233.730	233.757	233.784	233.811	233.838	233.865	233.892	233.919	233.946	233.973	234.000	234.027	234.054	234.081	234.108	234.135	234.162	234.189	234.216	234.243	234.270</







**1 PLATFORM LEVEL PLAN**  
Scale: 1:200

S. NO.	DOOR TYPE	FIRE RATINGS (MIN)	WIDTH	HEIGHT
1	D1	90	750	2105
2	D1A	90	750	2105
3	D2	90	1000	2105
4	D2A	90	1000	2105
5	D2B	120	1000	2405
6	D3	90	1500	2105
7	D3A	90	1500	2405
8	D4B	120	2000	2405
9	GD1	NA	1000	2105
10	SD1	NA	1000	2105
11	RS01	NA	2400	3000
12	RS02	NA	3000	3000
13	RS03	NA	4150	3500
14	RS04	120	4000	3500
15	RS05	NA	4000	3000

REVISION LOG-R1  
DRAWINGS REVISED AS PER RECEIVED COMMENTS FROM CLIENT  
VIA MAIL DATED ON -08-04-2026

LEGEND	
	200 MM PRECAST CC SOLID BLOCK
	RCC COLUMNS/ MULLIONS
	PARAPET / TOE WALL
	FILLED FLOOR
	RAISED FLOOR

**SPECIAL NOTES:**  
ALL THE DIMENSIONS OF STRUCTURAL ELEMENTS ARE INDICATIVE. STRUCTURAL DIMENSIONS TO BE CONFIRMED BY STRUCTURAL DESIGN/DDC BEFORE EXECUTION  
**NOTE:-**  
1. GRID DIMENSIONS MAY VARY AS PER DESIGN  
2. STATUTORY CLEARANCE ABOVE ROAD SHALL BE PROVIDED AS PER IRC  
3. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS MENTIONED.  
4. ANY DISCREPANCY MUST BE BROUGHT TO THE NOTICE OF THE NMRC BEFORE EXECUTION OF WORK AT SITE.  
5. THIS DRAWING MUST BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTURAL, STRUCTURAL, PLUMBING & FIRE FIGHTING, ELECTRICAL AND TRAFFIC MANAGEMENT DRAWINGS.

**TENDER DESIGN**

**Noida Metro Rail Corporation Ltd.**  
Block-III, 3rd Floor, Ganga Shopping Complex, Sector-29, Noida -201301, District Gautam Budh Nagar, Uttar Pradesh, India

**PROJECT:** Contract NGNE-02: Design and Construction of Elevated Viaduct and 8 elevated stations from Botanical Garden to Noida Sector-142 of Noida-Greater Noida Metro Rail Project.

**STATION:** SECTOR -97 STATION  
**DRAWING TITLE:** PLATFORM LEVEL PLAN

NORTH	DRAWN BY: SS	CHECKED BY: ST	VERIFIED BY: SM	APPROVED BY: AP
	DATE: 21-04-2026	REV: R1	SCALE: 1:200	STATUS: TED
ORDER NO:	DRAWING NUMBER: NGNE-S97-TED-ARP-11031-R1	SHEET NO: 01 OF 01	SHEET SIZE: A-1	

GENERAL NOTES	
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2. ALL DIMENSIONS ARE TO BE READ AND NOT MEASURED.	
3. ANY DISCREPANCY MUST BE BROUGHT TO THE NOTICE OF THE DMRC BEFORE EXECUTION OF WORK AT SITE.	
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REV.	DESCRIPTION	DATE	DRAWN BY	CHECKED BY
R1	REVISED AS PER REVISION LOG	21-04-2026	SS	ST
R0	FIRST ISSUE	27-03-2026	SS	ST

APPROVAL OF NMRC OFFICIALS				

Certified that this document has been designed and checked in accordance with DDC Quality Assurance Plan.

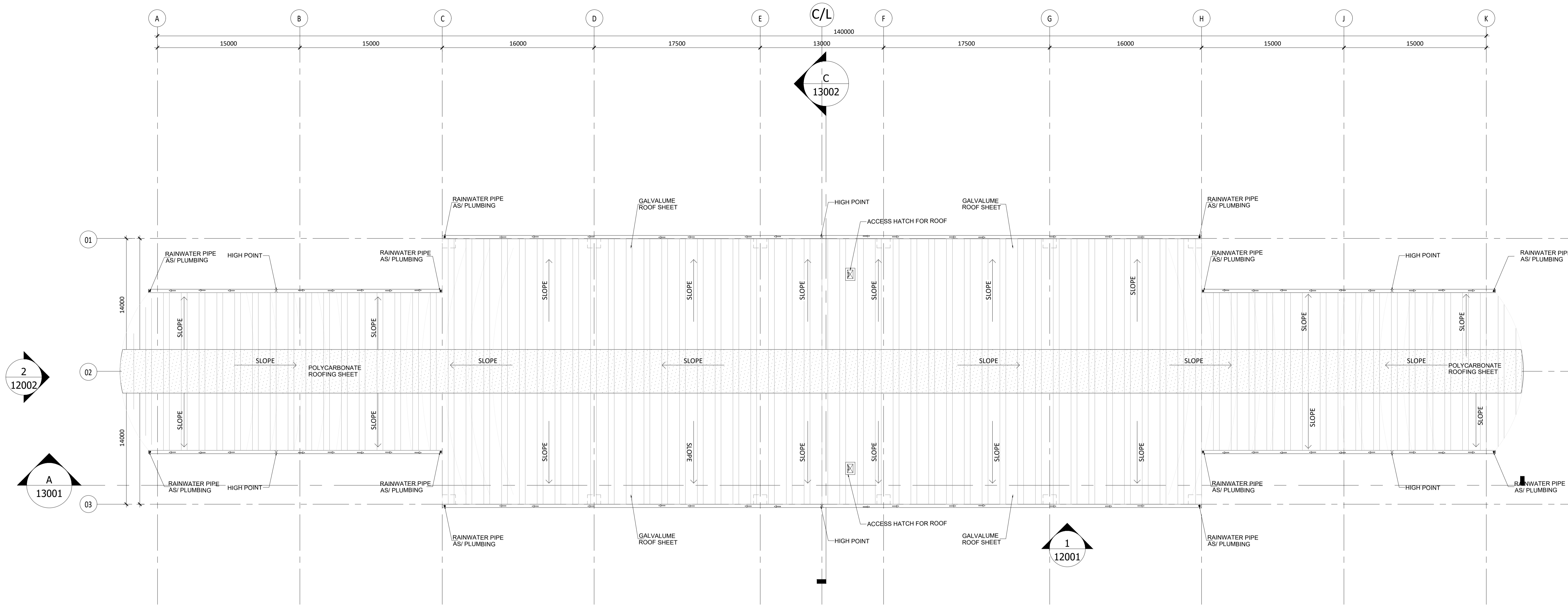
Authorised Signatory for DDC:  
NGNEDDC Project Manager

Architecture Design In-charge/ Coordinator      Structure Design In-charge/ Coordinator      E&M Design In-charge/ Coordinator

DETAIL DESIGN CONSULTANT :

**ayesa**  
Ayesa India Private Limited  
D 99, 3rd Floor, Sector 2, Noida -201301, Gautam Budh Nagar, Uttar Pradesh  
Tel.: +(91) 120 490 8800, Email: delhi@ayesa.com

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**1 ROOF LEVEL PLAN**  
Scale: 1:200

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**REVISION LOG-R1**  
 DRAWINGS REVISWED AS PER RECIEVED COMMENTS FROM CLIENT  
 VIA MAIL DATEDT ON -08-04-2026

REVISIONS				
REV.	DESCRIPTION	DATE	DRAWN BY	CHECKED BY
R1	REVISED AS PER REVISION LOG	21-04-2026	SS	ST
R0	FIRST ISSUE	27-03-2026	SS	ST

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Authorised Signatory for DDC:  
 NGNEDDC Project Manager

Architecture Design In-charge/ Coordinator      Structure Design In-charge/ Coordinator      E&M Design In-charge/ Coordinator

DETAIL DESIGN CONSULTANT :

**ayesa**  
 Ayesa India Private Limited  
 D 99, 3rd Floor, Sector 2, Noida -201301, Gautam Budh Nagar, Uttar Pradesh  
 Tel.: +(91) 120 490 8800, Email: delhi@ayesa.com

LEGEND	
	200 MM PRECAST CC SOLID BLOCK
	RCC COLUMNS/ MULLIONS
	PARAPET / TOE WALL
	FILLED FLOOR
	RAISED FLOOR

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**TENDER DESIGN**

**NOIDA METRO RAIL CORPORATION LTD.**  
 Block-III, 3rd Floor, Ganga Shopping Complex, Sector-29, Noida -201301, District Gautam Budh Nagar, Uttar Pradesh, India

**PROJECT:** Contract NGNE-02: Design and Construction of Elevated Viaduct and 8 elevated stations from Botanical Garden to Noida Sector-142 of Noida-Greater Noida Metro Rail Project.

**STATION:** SECTOR -97 STATION

**DRAWING TITLE:** ROOF LEVEL PLAN

NORTH	DRAWN BY : SS	CHECKED BY: ST	VERIFIED BY: SM	APPROVED BY: AP
	DATE: 21-04-2026	REV: R1	SCALE: 1:200	STATUS: TED
ORDER N°	DRAWING NUMBER: NGNE-S97-TED-ARP-11041-R1		SHEET NO. 01 OF 01	SHEET SIZE A-1

NGNEDDC

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