



# उत्तर प्रदेश मेट्रो रेल कॉर्पोरेशन लि०

## UTTAR PRADESH METRO RAIL CORPORATION LTD.

(Formerly Known as Lucknow Metro Rail Corporation Ltd.)  
(भारत सरकार एवं उत्तर प्रदेश सरकार का एक संयुक्त उपक्रम)  
(A JOINT VENTURE OF GOVT. OF INDIA & GOVT. OF U.P.)

No. UPMRC/CE-Contract/KNPCC-12/2023-24

Date: 28.12.2023

### ADDENDUM-03

**Name of Work : Tender KNPCC-12:** Design and Construction of elevated viaduct and 5 Nos. elevated stations (viz. Agriculture University Station, Vijay Nagar Chauraha Station, Shastri Chowk Station, Barra-7 Station & Barra-8 Station) including Architectural Finishing, E&M work and special spans from end of ramp after Double Pulia Station to Barra-8 Station i.e., from chainage 3783.000m to 7528.566m and end of ramp in Depot to Agriculture University Station i.e., from chainage (-)297.460m to (-)855.339 on Corridor-2 of Kanpur MRTS Project at Kanpur, Uttar Pradesh, India.

Addendum-03 along with replies to pre-bid queries and excel file of BOQ is being uploaded on CPP Portal. Further, tender submission start date/ end date/ opening date shall remain unchanged as uploaded vide Addendum-2 i.e.

Tender Submission Start Date	02-01-2024 (11:00 hrs.)
Tender Submission End Date	11-01-2024 (15:00 hrs.)
Date and Time of Opening of Tender	12-01-2024 (15:00 hrs.)

For any further modifications/changes (if any), bidders are advised to stay updated on e-tendering portal (<https://etenders.gov.in/e procure/app>) for information please.

  
28/12/23  
CE/Contract

(AN ISO 9001:2015, ISO 14001:2015, OHSAS 18001:2007 Certified Company)

Administrative Building, Near Dr. Bhimrao Ambedkar Samajik Parivartan Sthal, Vipin Khand, Gomti Nagar, Lucknow 226010

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**Reply to Pre-bid queries : Tender KNPCC-12**

**Tender KNPCC-12: Design and Construction of elevated viaduct and 5 Nos. elevated stations (viz. Agriculture University Station, Vijay Nagar Chauraha Station, Shastri Chowk Station, Barra-7 Station & Barra-8 Station) including Architectural Finishing, E&M work and special spans from end of ramp after Double Pulia Station to Barra-8 Station i.e., from chainage 3783.000m to 7528.566m and end of ramp in Depot to Agriculture University Station i.e., from chainage (-)297.460m to (-)855.339 on Corridor-2 of Kanpur MRTS Project at Kanpur, Uttar Pradesh, India.**

Sl. No.	Reference Volume / Clause	Existing Clause	Queries	UPMRC's Reply
1	Clause 2.2 ,GCC & SCC	The Employer shall grant the Contractor right of access to, and / or possession of, the Site progressively for the completion of Works. Site access schedule will be consistent with the resettlement plan for the section.	Please specify the timelines within which the site shall be handed over. Apart from this also provide resettlement plan.	As per Tender Conditions. Please also refer Clause 2.2 of GCC/SCC.
2	Clause 11.1.3 of SCC,Pg. 83	(i) No adjustment in the contract price on account of inflation shall be done for E & M works.	Bidder request Employer to provide Price adjustment on E & M works.	As per Tender Conditions.
3	Clause 11.1.3 (ii) (c ) of SCC, Pg. 86	The price adjustment shall be applicable only beyond 2 percentage of variation of the contract price i.e. where the resultant increase is lower than two per cent of the contract price, no price adjustment will be made in favour of the Contractor. The price adjustment shall be applicable only beyond 2 percentage of variation of the contract price i.e. where the resultant increase is lower than two per cent of the contract price, no price adjustment will be made in favour of the contractor. However, in case the resultant increase is more than 2 percent of the contract price, then full price adjustment shall be payable.	Bidder request Employer to delete this provision.	As per Tender Conditions.
4	Clause 11.1.3 (ii) (d) of SCC, Pg. 87	The price adjustment shall be generally limited to 25 per cent of contract value (including variations in BOQ items). However, higher percentage may be considered on case to case basis.	Limiting the price variation will lead to the speculative bidding and Employer may not receive lowest competitive offer. Bidder request Employer to delete this provision.	As per Tender Conditions.
5	Clause 11.6 (a) of GCC, Pg. 47	After preliminary scrutiny and certification by the Engineer, payment of 80% of the certified interim amount shall be made by the Employer within 07 days. The amount certified shall account for all deductions, including statutory deductions, recoveries for Advances and any amounts due from the Contractor. The balance 20% shall be paid within 28 days, from the date of the preliminary certification of the bill by the Engineer.	The time period for issuance of interim payment certificate by Engineer is 21 days, 80% payment would be released after 7 days from certification. Thus, the total time for release of 80% of bill amount is 28 days. Bidder request Employer to release 80% of interim payment within 10 days from date of submission of application to maintain smooth cash flow at site.	As per Tender Conditions.
6	Clause 4.2.1 of GCC,Pg. 14	Within 30 days from date of issue of Letter of Acceptance, the successful Tenderer shall furnish Performance Security, for an amount of ten per cent of the Contract value in types and proportions of currencies in which the Contract Price is payable either in the form of a Bank Draft, FDR or in the form of a Bank Guarantee from a branch in India of a scheduled foreign bank or from a scheduled commercial bank in India acceptable to the Employer.	Bidder request Employer to reduce the amount of Performance Security to 3% of Contract Price as allowed by UPMRC in their other Metro Contracts and as per standard practice in Construction industry.	As per Tender Conditions.
7	General	-	In the event the Project Completion Date occurs prior to the Scheduled Completion Date, the Contractor shall be entitled to receive a payment of bonus being a standard practice in the construction industry. Bidder request Authority to introduce bonus clause in the contract agreement.	As per Tender Conditions.
8	Employer's Requirements/ Section-B/Functional – clause 1 (4), Pg. 18		UPMRC being the government Authority are in better position to take approval of from Public/Government/Local/Statutory or any agencies. Bidder request Employer to obtain all necessary approvals from the relevant Public/Government/Local/Statutory or any agencies for effective progress of work and avoid delays.	As per Tender Conditions.
9	Employer's Requirements/ Section-B/Functional – clause 2.1 (a) (vii), Pg. 17	Design and construction of special spans of 60 m at Railway Crossing at Kanpur- Delhi Line, 45 m at Railway Crossing at Kanpur -Jhansi Line, 45 m over Canal between Shastri Chowk and Vijaynagar, and 45 m over Kanpur-Jhansi National Highway(elevated) as shown in tender drawing. The type of bridge over railway crossing shall be as per requirement of Railway authorities.	Please confirm whether the GAD for spans at Railway crossing is approved from Railway Authority.	The GAD for 60m and 45 m railways span has been sent to Railways for their approval. However, Contractor shall submit final design and drawing of Railway Crossings for obtaining approval of the Railway Authority.
10	Employer's Requirements/General,Pg. 2 & Employer's Requirements/Section-B/Functional Part-1 Clause 2.10 (ii), Pg 48	Charted Utilities are the utilities (as defined above) which are shown on the tender drawing including all above ground utilities (shown or not shown in tender drawing) infringing with work site with their underground and above ground connection such as cables, pipes, transformers, poles, electric panels, substations, mast and manholes etc. shall also be deemed as charted utilities.  Payment for diversion of only uncharted utilities shall be made under relevant schedule of BOQ. Payment for diversion of charted utilities will be part of lumpsum schedule- A.	Since the cost of shifting of charted utilities to be included in contractor's lump sum price (Schedule A), the scope of shifting of charted utilities should be sacrosanct. Bidder request Employer to provide the list/ drawing of all charted utilities to be shifted/ diverted for carrying out the work or the cost of shifting of all utilities shall be paid under schedule B.	Please refer Tender Conditions. (List of drawings already included in tender documents.)
11	Employer's Requirements/ Section-B/Functional Part-1 Clause 2.10 (iii) ,Pg. 49	(h) NOC & Approval of schemes of Diversion of Utilities from the concerned regulatory/statutory/Local Authority is the responsibility of the Contractor & Nothing extra is payable on this account.	UPMRC being the government Authority are in better position to take approval of utility shifting from utility owing agencies. Bidder request Employer to obtain approvals for utility shifting from concern authorities to avoid delays.	As per Tender Conditions.
12	Employer's Requirements/Section-B/Functional Part-1 Clause 11,Pg. 51	The Station Site Plans are based on the urban planning design carried out by the Employer and specific land acquisition plans have been submitted to the concerned govt. authority and to the concerned land owning agencies of Govt. of India/ UP govt., for approval. The land acquisition initiated to date is therefore based on the entrance, ventilation shafts, ancillary buildings and redevelopment of the site areas as shown on the site plans.The Contractor must therefore, if revising the tender drawings for any reason, develop his layouts to suit the available land provided for the metro works.	Please provide the status of land acquisition for the project.	Land will be handed over to Contractor as per Clause 2.2 of GCC/SCC
13	Employer's Requirement/ Construction Trees,	The Employer has assessed the number of trees existing within the right-of-way and employer will 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.	Bidder request Employer to provide the list of trees required to be cut and the status of tree cutting permission from concerned Authority.	The permission of tree cutting is under process with forest deptt.

Sl. No.	Reference Volume / Clause	Existing Clause	Queries	UPMRC's Reply
14	EMPLOYER'S REQUIREMENTS APPENDIX 2A ,Pg. 93	For casting yard, batching plant and other activities a plot of land of approx. 5 hectares or as required for timely completion of work has to be arranged by the contractor at his own cost. The cost of the same is included in lump sum price of Schedule-A. This land shall be made good for such offsite activities as needed by the Contractor at no extra cost to the employer.	Bidder request Employer to provide land for casting yard as provided by UPMRCL in their offer.	As per Tender Conditions.
15	Clause 12.2.1 of GCC- Variation Proposals, Page 50	The Contractor shall provide his Variation proposal in a time limit prescribed by the Engineer. The Engineer's decision in this regard shall be communicated to the Contractor within a reasonable period of time. If by any reason, the time limit specified by the Engineer is exceeded, the proposal may not be considered. The decision of the Engineer in this regard shall be final and binding.	Bidder request Employer to specify the reasonable period of time taken by the Engineer to communicate its decisions regarding variation proposal.	As per Tender Conditions.
16	Clause 12.2.3 of GCC - Employer Review, Page 50	The Employer may in his sole discretion, accept or reject the Contractor's Variation or any part thereof and determine the estimated net saving in the construction cost. The Employer shall not be liable for delays or damages to the Contractor due to any failure of the Employer to accept or act upon any such Variation proposal submitted pursuant to this Clause.	Bidder request Employer to specify the time limit within which he will communicate its decision.	As per Tender Conditions.
17	Clause 12.3 of SCC - "Employer's Variation", Pg 88	(b) The Engineer shall determine the amount which should be added to or deducted from the fixed lump sum price as a result of the Variation and get it approved by the Employer.	Employer is requested to specify the time limit within which Engineer shall determine the variation amount and get it approved from Employer.	As per Tender Conditions.
18	Page 20	(xi) All 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 with adequate bearing capacity in which open / raft foundation may be provided duly anchored in rock. All piles shall be bored cast in-situ concrete driven by hydraulic rotary rig only. Use of bentonite is prohibited. (xii) Permanent liners, if required at any location.	Bidder understands that since the Project is on EPC lumpsum contract, Contractor is free to propose pile/open foundation suitable as per site condition. The approval of a particular foundation design shall not be unreasonably withheld by the Engineer. Please confirm.	As per Tender Conditions.
19	Drawing KNPAGDDC-01-TDR-ELV-VDC-DWG-06003		Please define the scope of Future station at Govind Nagar	Provision for future station are to be kept in foundation, substructure & superstructure. Also refer Addendum 3
20	VOLUME 4 OUTLINE CONSTRUCTION SPECIFICATIONS (OCS)	Appendix-1 SI No 46 Page No-249	There is only one approved vendor for bipolar admixture. To avoid the monopoly of vendor please revise the list with two or more vendors.	As per Tender Conditions.
21	Span Arrangement – Kanpur metro corridor-2 sheet 1	KNPAGDDC-01-TDR-ELV-VDC-DWG-06001	span mentioned as cross over span & non-U girder spans, shall be considered as PSC I girder span?	As per Tender conditions.
22	Span Arrangement – Kanpur metro corridor-2 sheet 1	KNPAGDDC-01-TDR-ELV-VDC-DWG-06002	According to the existing drawings there are many variations in U girder span length, explore the possibility of reducing the variations or providing a typical span.	As per Tender Conditions.
23	Geotechnical Capacities	Geotech report	Please conform if bidder has to bid as per the geotech report provided along with the Bid Documents.	Please refer Tender Condition Clause 2.4 of Employer's Requirement Section B, Functional Part 1.
24	General	General	Please confirm if pile capacities are to be calculated as per the 'water level given in geotech report' or 'with consideration of water table upto the ground level'	Please refer ODS (Clause 5.5).
25	Volume 3 – Employer's requirements	General	Please clarify the scope of future station development (Govind nagar station)	Provision for future station are to be kept in foundation, substructure & superstructure. Also refer Addendum 3.
26	Span Arrangement	General	Please confirm the span arrangement of special spans (ROB and highway crossing). If any changes in span and design during the design stage shall be payable to bidder?	Please refer Clause of 2.1.a (VII) of Employer's Requirement Section B, Functional part 1
27	Station Configuration	General	Please confirm if bidder has the sole discretion to select the type of station configuration (3 pier type or single pier type) during the detail design stage.	Please refer Clause. 2.1.b.1 (iii) of Employers Requirement Section B, Functional part 1.
28	General	-	We request you to kindly provide the Auto CAD drawings for this project please.	AutoCad version of all drawings are being provided on CPP Portal. However, in case of any discrepancy between soft copy and hard copy, hard copy attached with tender will prevail.
29	General	-	The drawings provided in the tender are not clear, since the same are scanned copies. Hence, we request you to kindly Provide the tender drawings clearly please.	AutoCad version of all drawings are being provided on CPP Portal. However, in case of any discrepancy between soft copy and hard copy, hard copy attached with tender will prevail.
30	General	-	We request you to kindly provide the latest Geotechnical report for this project please.	Already provided with tender docs.
31	General	-	Hindrance free site may please be handover before commencement of work - Please confirm.	As per Tender Conditions. Please also refer Clause 2.2 of GCC/SCC.
32	General	-	Please confirm any working hour's restriction is there for this project.	As per Tender Conditions. Please also refer Clause 6.5 of GCC.
33	General	-	We request to please provide the list of any approvals, clearances to be obtained by the Contractor.	As per Tender Conditions.
34	General	-	We request you to please provide the BOQ in editable excel format indicating complete description of items, since the provided BOQ is restricted for editing and some of the item descriptions are hidden beyond the boundary of the cell .	Revised BOQ is being uploaded on CPP Portal.

Sl. No.	Reference Volume / Clause	Existing Clause	Queries	UPMRC's Reply
35	General	-	We presume that, the Land for the Site offices for Employer and Contractor shall be provided free of cost by the Employer at designated site locations. Please confirm.	As per Tender Conditions.
36	General	-	What are the list of documents required to be submitted along with tender for the proposed Designer. Kindly clarify please.	As per Tender Conditions.
37	General	-	We presume that, the Design Verification/Proof checking/ Peer review for the permanent structures design will be in the scope of the Employer. Kindly confirm.	As per Tender Conditions.
38	General	-	We requesting you to please clarify for the Mullion column, Lintel beam, Sill concrete work is a part of Lumpsum or Claimed in Architecture item rate BOQ	Please refer Clause 2.1.b.1 (vi) of Employers Requirement Section B, Functional Part 1.
39	General	-	We requesting you to please clarify for the screed concrete work is a part of Lumpsum or Claimed in Architecture item rate BOQ	Please refer Clause 2.1.b.1 (vi) of Employers Requirement Section B, Functional Part 1.
40	General	-	We requesting you to please clarify the Station service road, Pedestrian walk way is a whose scope, If these are GC scope is a part of Lumpsum or Claimed in Architecture item rate BOQ	As per Tender Conditions.
41	General	-	We requesting you to please provide the Length of FOB & detail Auto cad drawing. Already given PDF drawing is not clarity	AutoCad version of all drawings are being provided on CPP Portal. However, in case of any discrepancy between soft copy and hard copy, hard copy attached with tender will prevail.
42	General	-	We requesting you to please clarify for the architectural façade, partition work structural support is a part of Lumpsum or Claimed in Architecture item rate BOQ	Architectural BOQ item.
43	General	-	We request the Employer to kindly provide the stage wise payments for the E&M works to maintain a smooth cash flow please. 1. Upon supply of Material at site - 75% 2. Upon Completion Installation - 20% 3. Upon Testing and Commissioning - 5%	As per Tender Conditions.
44	General	-	We request you to kindly consider precast walls for all the external walls of stations instead of masonry walls provided in the tender please.	As per Tender Conditions.
45	General	-	We request you to kindly consider Fire rated dry wall partitions for all the internal walls of stations instead of masonry walls provided in the tender please.	As per Tender Conditions.
46	KNPCC_12_Vol_2_GCC_SCC - Clause 2.2	The Employer shall grant the Contractor right of access to, and / or possession of, the Site progressively for the completion of Works.	We request you to please confirm that, For any such delay in handing over of site, Contractors will be entitled to reasonable extension of time and cost compensation.	As per Tender Conditions.
47	KNPCC_12_Vol_2_GCC_SCC - Clause 2.3	It shall be Contractor's exclusive responsibility to get approvals, permits or license required for the Contract. However, the Employer shall (where he is in a position to do so) provide reasonable assistance to Contractor at the request and cost of the Contractor in getting Permits, License or Approvals required during the Contract.	We request to please provide the List of Permits, License, etc., to be obtained by us for this project.	As per Tender Conditions.
48	KNPCC_12_Vol_2_GCC_SCC - Clause 4.12	The Employer will acquire and provide land for Permanent Works and right of way (within UPMRC's land) for access thereto over routes established by the Contractor.	We request you to provide the status of land acquisition and provide schedule of land handing over please.	As per Tender Conditions. Please also refer Clause 2.2 of GCC/SCC.
49	KNPCC_12_Vol_2_GCC_SCC - Clause 4.18	The Contractor shall be responsible for making his own arrangements at his own cost to obtain supply of water, electricity or gas for the Works. The Employer where feasible may at its discretion assist the Contractor in this respect.	We request to kindly provide the water & power for construction works at free of cost at casting yard please.	As per Tender Conditions.
50	KNPCC_12_Vol_2_GCC_SCC - Clause 4.18	The Contractor shall be responsible for making his own arrangements at his own cost to obtain supply of water, electricity or gas for the Works. The Employer where feasible may at its discretion assist the Contractor in this respect.	We request to kindly provide the water & power for construction works at free of cost within the project alignment please.	As per Tender Conditions.
51	KNPCC_12_Vol_2_GCC_SCC - Clause 11.1.3	No adjustment in the contract price on account of inflation shall be done for E & M works. (Schedule 'D' of BOQ)	We request you to please include the Adjustment in Contract Price clause for E & M works (i.e. Schedule D of BOQ) also.	As per Tender Conditions.
52	DRAWINGS	Schedule A - Existing Utilities Schedule B2 - Shifting of Unchartered Utilities	We are Requesting you to kindly share the Existing Utilities and Shifting Uncharted drawing for Civil, Electrical, Plumbing and Telecom works pertaining to the scope of this package please. Note: The same are provided for the KNPCC12 package by M/s. UPMRCL.	Drawings of chartered utility has already been provided.
53	Vol_03_ER_KNPCC_12 - EMPLOYER'S REQUIREMENTS - DESIGN	The Contractor shall establish an office for his core design team at the Site in (i). The core design team shall function from this office and all meetings and discussions relating to design shall be held in this office.	We request you to please confirm that, Only the Design coordinators shall be deployed at the site at Kanpur, all the other Key personnel's of Designer's shall operate from their respective design offices.	As per Tender Conditions. Please also refer Clause (1-iii) of Employer Requirements/ design.
54	Vol_04_OCS_ODS_SOD_KNPCC_12 - List of Approved Make	MV/LV switchboards	We presume that the Channel Partners of the authorized OEM manufactures can be considered as approved makes. Kindly confirm please.	As per Tender Conditions.
55	Vol_04_OCS_ODS_SOD_KNPCC_12 - List of Approved Make	Lightning Protection, Earthing system	Requesting you to please provide the Approved Make List for Lightning Protection, Earthing system. Can we consider the JMV, CAPE, DHEN and OBO Makes for Lightning Protection system? Please Confirm.	As per Tender Conditions.
56	Vol_04_OCS_ODS_SOD_KNPCC_12 - List of Approved Make	DG Set	Request you to please include KIRLOSKAR also as an equivalent make for DG Set.	As per Tender Conditions.
57	Vol_04_OCS_ODS_SOD_KNPCC_12 - List of Approved Make	HVAC System VRF/ VRV Units	Requesting you to please add the Make list for HVAC System VRF/ VRV Units, FCUs, LG, HITACHI (JCI), Makes also. Please confirm.	As per Tender Conditions.
58	Vol_6_Drawing_1- MV Switchgear	KNPAGDDC-TDR-ELV-ECS - DGM 63027	Panel incoming and outgoing breaker details are not visible properly in the drawing. Request you to please provide the clear visible drawing	Please find attached copy of legible Drawings.
59	BOQ - Schedule B2	-	We request you to please provide the Bill of quantities for the BOQ - Schedule B2 (i.e. Shifting of Uncharted Utilities) as only rates are mentioned.	As per Tender Conditions.
60	BOQ - Schedule D (E&M WORKS) & Vol_6 Drawing_1	KNPCC12-11718A-TDR-GKT-EL-FAS - 51204	Only schematic drawings for Fire alarm works provided in the tender. Requesting you to please provide each level fire alarm system drawing for further clarity.	Contractor to quote as per BOQ.

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61	BOQ - PART-A ELECTRICAL WORKS, E.01- MV Switchgear & Vol 04_OCS, ODS & SOD	PART-A ELECTRICAL WORKS , E.01- MV Switchgear & Specification SECTION: E.01, Page No: 491	As per specifications, All the MV Switchgear Panels are (TTA) Totally Type tested Assemblies as per IEC-61439. Please confirm	All panels shall be TTA. Please also refer Tender Conditions.
62	BOQ - Schedule D - Part F: BUILDING MANAGEMENT SYSTEM FOR STATION	BUILDING MANAGEMENT SYSTEM FOR STATION	Requesting you to kindly provide the Approved Makes and Technical specifications for BMS System please.	As per Tender Conditions.
63	BOQ - Schedule D - PART-A ELECTRICAL WORKS , E.02- Distribution Boards & Vol 04_OCS_ODS_SOD	BOQ - PART-A ELECTRICAL WORKS , E.02- Distribution Boards	Requesting you to please provide the Distribution Board schematic diagram for Lighting and Power circuit separately.	Contractor to quote as per BOQ.
64	BOQ - Schedule D - PART-A ELECTRICAL WORKS , E.04- Conduit Wiring	PART-A ELECTRICAL WORKS , E.04- Conduit Wiring - Point wiring - BOQ No: 1.1 to 1.6	Requesting you to please provide the Lighting and Power Layout (Auto Cad & Pdf) with circuit details for each level. Without drawings the actual average measurements per point in point wiring is not possible. Please Clarify.	Contractor to quote as per BOQ.
65	BOQ - Schedule D - PART-A ELECTRICAL WORKS , E.05- Indoor Lighting and Fans	PART-A ELECTRICAL WORKS , E.05- Indoor Lighting and Fans	Requesting you to please provide the Indoor Light Fixtures & Fans Drawing with Circuit details.	Contractor to quote as per BOQ.
66	BOQ - Schedule D - PART-A ELECTRICAL WORKS , E.06- PROTECTIVE EARTHING	PART-A ELECTRICAL WORKS , E.06- PROTECTIVE EARTHING	Requesting you to please provide the Earthing schematic Layout, EarthMat drawings and Typical details for Earthing System	Contractor to quote as per BOQ.
67	BOQ - Schedule D - PART-A ELECTRICAL WORKS , E.07- LIGHTNING PROTECTION	PART-A ELECTRICAL WORKS , E.07- LIGHTNING PROTECTION	Requesting you to please provide the Lightning Protection system drawings and Typical details.	Contractor to quote as per BOQ
68	BOQ - Schedule D - PART-A ELECTRICAL WORKS , E.08 - External Lighting	PART-A ELECTRICAL WORKS , E.08- External Lighting	Requesting you to please provide the External Lighting Layout drawings and Typical details.	Contractor to quote as per BOQ.
69	General	-	We request you to kindly extend the due date of submission of tender for one month from the date of receipt of reply to pre bid queries to enable us to get the competitive quotes from our various sub vendors and quote our tender competitively for this project.	Please refer Addendum for extension of bid submission uploaded on CPP Portal.
70	Vol I ,FORM OF PERFORMANCE SECURITY BANK, ITT, Pg 66	This Guarantee is valid till (The initial period for which this Guarantee will be valid must be for at least Six-months (Six months)	We seek that this Guarantee shall be valid till 28 days longer than the anticipated defects liability period.	As per Tender Conditions.
71	GCC and SCC 13 of 109 The Employer	2.2 Access to and Possession of the site [...] For any such delay in handing over of site, Contractors will be entitled to only reasonable extension of time and no monetary claims, whatsoever shall be paid or entertained on this account.	Bidder request for cost compensation in case of delay in access to site.	As per Tender Conditions.
72	GCC and SCC 19 of 109 The Contractor	If any act or omission of the Contractor whether directly or indirectly results in the delay in the execution of the Works of a Designated Contractor, the Contractor, in addition to his liability in respect of Liquidated Damages if they become due, shall pay to the Employer, or the Engineer may deduct from Interim Payment Certificates such amount as the Engineer shall have certified in respect of additional payments or costs to the Designated Contractor in respect of such delay.	Bidder request to delete this clause.	As per Tender Conditions.
73	GCC and SCC 22 of 109 The Contractor	4.12 Rights of Way and Facilities The Employer will acquire and provide land for Permanent Works and right of way (within UPMRC's land) for access thereto over routes established by the Contractor. The Contractor shall bear all cost and charges for special or temporary rights of way which he may require including those for access to the Site. The Contractor shall also obtain, at his risk and cost, any additional facility outside the Site which he may require for the purpose of the Works.	Bidder request to provide the status of land acquired.	As per Tender Conditions. Please also refer Clause 2.2 of GCC/SCC.
74	GCC and SCC 24 of 109 The Contractor	4.23 Unforeseeable Physical Conditions If, during the execution of the Works, the Contractor shall encounter physical conditions, which, in his opinion, could not have been reasonably foreseen by an experienced Contractor, the Contractor shall forthwith give written notice thereof to the Engineer and if, in the opinion of the Engineer, such conditions could not have been reasonably foreseen by an experienced Contractor, then the Engineer may certify and the Employer may pay reasonable additional cost to which the Contractor shall have been put by reason [...] The decision of the Engineer as to the additional cost shall be final and binding.	Bidder request to provide time for any delay in progress due to such unforeseeable physical conditions. Bidder request to delete "The decision of the Engineer as to the additional cost shall be final and binding"	As per Tender Conditions.
75	GCC and SCC 38 of 109 Time management	8.3 Delay Failure or delay by the Employer or the Engineer, to hand over to the Contractor the Site necessary for execution of Works, or any part of the Works, or to give necessary notice to commence the Works, or to provide necessary Drawings or instructions or clarifications or to supply any material, Plant or Machinery, which under the Contract, is the responsibility of the Employer, shall in no way affect or vitiate the Contract or alter the character thereof; or entitle the Contractor to damages or compensation thereof but in any such case, the Engineer shall extend the time period for the completion of the Contract, as in his opinion is/are reasonable.	Bidder request to provide cost compensation for delay due to Employer.	As per Tender Conditions.
76	GCC and SCC 39 of 109 Time management	8.4 Extension of time for completion [...] 8.4.1 (b) non-availability, or shortage of Contractor's equipment, labour, utility services, Plant and Materials, (c) inclement weather conditions, and [...]	Bidder request that In case of (i) Unforeseeable shortages in the availability of personnel or Goods due to epidemic or pandemic. (ii) Exceptionally adverse climatic conditions Contractor shall be entitled for extension of time.	As per Tender Conditions.

Sl. No.	Reference Volume / Clause	Existing Clause	Queries	UPMRC's Reply												
77	GCC and SCC 40 of 109 Time management	8.5 Liquidated damages for Delay The aforesaid Liquidated Damages do not, however, include the sums payable by the Employer to Designated Contractors on account of delay caused by the Contractor to Designated Contractors. Such sums shall be recoverable from the Contractor in addition to any Liquidated Damages payable under this clause, the total ceiling limit of which is 15% of the Contract value including Liquidated Damages levied under the provision of Appendix 1 to the Form of Tender. [...] The Employer may, without prejudice to any other method of recovery, deduct the amount of such damages from any sum due, or to become due, to the Contractor. In the event of an extension of time being granted under Sub- Clause 8.3 and the amount due under this Sub-clause shall be recalculated accordingly, if excess recovery has been done, same will be refunded.	Bidder request, the total ceiling limit shall be 10% of the contract value including Liquidated damages. Also, we request that the deducted amount shall be refunded once the subsequent milestone has been achieved.	As per Tender Conditions.												
78	GCC and SCC 41 of 109 Time management	8.8 Consequences of Suspension [...] <table border="1" data-bbox="737 461 1079 594"> <thead> <tr> <th>Suspension Period</th> <th>Extension of Time</th> <th>Compensation for the suspension period</th> <th>Remarks</th> </tr> </thead> <tbody> <tr> <td>Upto 14 days</td> <td>No</td> <td>No</td> <td>Engineer may, at his sole discretion, give extension of time in exceptional circumstances.</td> </tr> <tr> <td>15-30 days</td> <td>Yes</td> <td>No</td> <td>Extension of time as considered proper by the Engineer</td> </tr> </tbody> </table>	Suspension Period	Extension of Time	Compensation for the suspension period	Remarks	Upto 14 days	No	No	Engineer may, at his sole discretion, give extension of time in exceptional circumstances.	15-30 days	Yes	No	Extension of time as considered proper by the Engineer	We request to provide EOT and compensation during suspension upto 14 days and Compensation from 15 to 30 days.	As per Tender Conditions.
Suspension Period	Extension of Time	Compensation for the suspension period	Remarks													
Upto 14 days	No	No	Engineer may, at his sole discretion, give extension of time in exceptional circumstances.													
15-30 days	Yes	No	Extension of time as considered proper by the Engineer													
79	GCC and SCC 47 of 109 Contract price and payment	11.4 Application for Interim Payment Certificate 11.4.1 [...] The Contractor shall be entitled to submit to the Engineer requests for interim payments only upon the achievement of one or more of the Milestones described in the Cost Centre.	Bidder request that the bills may be submitted end of each month irrespective of milestones.	As per Tender Conditions. Please also refer Clause 11.4.2 of GCC.												
80	GCC and SCC 47 of 109 Contract price and payment	11.5 Issue of Interim Payment Certificates a. After preliminary scrutiny and certification by the Engineer, payment of 80% of the certified interim amount shall be made by the Employer within 07 days. The amount certified shall account for all deductions, including statutory deductions, recoveries for Advances and any amounts due from the Contractor. The balance 20% shall be paid within 28 days, from the date of the preliminary certification of the bill by the Engineer.	Bidder request for the duration of Preliminary scrutiny. We request that in case of Delayed payment Contractor shall be entitled for interest applicable at a rate SBI (MCLR) plus 3%.	As per Tender Conditions.												
81	GCC and SCC 51 of 109 Variations	12.2.1 Variation Proposals [...] The decision of the Engineer in this regard shall be final and binding.	Bidder request that the decision shall be upon mutual discussion.	As per Tender Conditions.												
82	GCC and SCC 52 of 109 Variations	12.5 Variation in the Bill of Quantities [...] (i) Schedules having items rates with quantities : c) In case of earth work, the aforesaid Variation limit of 25% shall apply to the gross quantity of earth work and Variation in the quantity of individual classifications of soil will not be subject to this limit where any Variation can take place. d) In case of foundation work, no Variation limit applies and Contractor shall carry out the Work, at the accepted rates of the Contract irrespective of any Variation. e) Variation in the quantity of items individually costing upto 1% of total Original Contract Value or `50 lakh, whichever is less, shall be payable at the accepted rates of the Contract, till the value of such individual item on account of Variation reaches upto 2% of the total Original Contract Value or `1 crore, whichever is less. Negotiation of rates for such items shall be conducted only for the exceeded quantity beyond 2% of the Original Contract Value or `1 crore, whichever is less.	We request for variation limit of +20% Also, request for variation limit of +20%	As per Tender Conditions.												
83	GCC and SCC 57 of 109 Termination of the Contract	13.3.4 Payment on Termination [...] a. The value of approved materials actually brought to the site and reasonably required to execute the Works during next three months, as per approved Programme, and b. Value of Work completed up to date by the Contractor at rates specified in the Contract, after taking into account any deductions, retentions, setoff, damages, compensation, loss payable to Employer etc. c. In addition, a sum not exceeding 2% (two percent) of the value of the work remaining incomplete on the date of Termination notice taking effect. The payment as above shall be the full compensation for termination under this Clause and the Contractor shall have no claim for damages or other entitlements whether under the Contract or otherwise.	We request that the Contractor shall be eligible for cost plus profit.	As per Tender Conditions.												
84	GCC and SCC 85 of 109 SCC	11.1.3 Adjust in Contract price (i) No adjustment in the contract price on account of inflation shall Be done for E & M works.	We request for Price adjustment for E&M works.	As per Tender Conditions.												
85	GCC and SCC 88 of 109 SCC	11.1.3 Adjust in Contract price [...] (ii) (c) Adjustment on Account of Price adjustment The price adjustment shall be applicable only beyond 2 percentage of variation of the contract price i.e. where the resultant increase is lower than two per cent of the contract price, no price adjustment will be made in favour of the contractor.	Bidder request that the price adjustment shall be at actuals.	As per Tender Conditions.												
86	GCC and SCC 88 of 109 SCC	11.1.3 Adjust in Contract price [...] (ii) (e) Price adjustment during Extended Period of Completion In case the indices fall below the indices applicable to a bill made on the last date of the original or extended period of completion, then the lower indices will be adopted for Price Adjustment for	We request to consider the indices as of project completion or extended project completion date.	As per Tender Conditions.												

Sl. No.	Reference Volume / Clause	Existing Clause	Queries	UPMRC's Reply
87	GCC and SCC 88 of 109 SCC	11.1.4 Change in taxes/Duty [...] (ii)Change in the rate of Good and Services Tax (GST) on Composite Works Contracts applicable on Metro Project as per GST Act.	Bidder request to include royalties and custom charges.	As per Tender Conditions.
88	GCC and SCC 89 of 109 SCC	11.1.4 Change in taxes/Duty [...] Any other changes (except on account of Clause (a) (i) above) in existing taxes/ new taxes on supply of materials/ services/ works etc. will not be considered and its impact shall be considered covered in the Price Variation Clause provided in the Contract and in Contract where Price Variation Clause is not provided, the impact on any other change (except on account of Clause (a) (i) above) in existing taxes/ new taxes on supply of materials/ services/ works etc. will be deemed to be included in the quoted contract price.	Bidder request that any changes in taxes / new taxes shall be adjusted to the Contract price.	As per Tender Conditions.Please also refer Clause 11.1.4 of GCC/SCC.
89	Vol I, NIT1.14, pg 18	Employer reserves the right to accept or reject any or all proposals without assigning any reasons. No tenderer shall have any cause of action or claim against the Employer for rejection of his proposal.	We request for deletion of the mentioned Clause	As per Tender Conditions.
90	Vol 2, GCC 2.2, Pg 12	The Employer shall grant the Contractor right of access to, and / or possession of, the Site progressively for the completion of Works.	We seek unhindered access to the Site and approvals for the Project will be on place on the date of issuance of LOA or date of signing of the Contract Agreement whichever is earlier.	As per Tender Conditions.
91	Vol 2, GCC 2.2, Pg 12	After receipt of such notice, the Engineer shall proceed to determine any extension of time to which the Contractor is entitled and shall notify the Contractor accordingly. For any such delay in handing over of site, Contractors will be entitled to only reasonable extension of time and no monetary claims, whatsoever shall be paid or entertained on this account	We seek that the Contractor shall be entitled to both Extension of Time and Additional cost for delay in handing over the possession of site to the Contractor.	As per Tender Conditions.
92	Vol 2, GCC 2.3, Pg 12	The rendering of such assistance by the Employer shall not be interpreted as a pretext by the Contractor as condoning of any delay or non-performance of any of the Contractors obligations. The following-up of all such applications shall be the responsibility of the Contractor	We seek deletion of the extracted portion.	As per Tender Conditions.
93	Vol 2, GCC 4.2.1, Pg 15	Shortfall amount, if any, shall be recovered by the Employer from monies due to the Contractor under the Contract including, without limitation, and the Employer shall have the power to recover any balance from monies due to the Contractor under any other Contract between the Employer and the Contractor.	We seek deletion of the extracted portion	As per Tender Conditions.
94	Vol 2, GCC 6.4, Pg 32	The decision of Engineer with regard to the merits of imposition of penalty, determination of non-compliance and amount of penalty shall be final and binding on Contractor.	We seek deletion of the extracted portion. The decision of the Engineer shall not be final and binding and the same can be referred to arbitration.	As per Tender Conditions.
95	Vol 2, GCC 6.13, Pg 33	On failure of the Contractor to repay the Employer any money paid or to be paid by it as aforesaid within seven days after the same shall be demanded, the Employer shall be entitled to recover the amount from any money due or accruing to the Contractor under this or any other Contract with the Employer.	We seek deletion of the following "or any other Contract"	As per Tender Conditions.
96	Vol 2, GCC 8.3, Pg 37	Failure or delay by the Employer or the Engineer, to hand over to the Contractor the Site necessary for execution of Works, or any part of the Works, or to give necessary notice to commence the Works, or to provide necessary Drawings or instructions or clarifications or to supply any material, Plant or Machinery, which under the Contract, is the responsibility of the Employer, shall in no way affect or vitiate the Contract or alter the character thereof; or entitle the Contractor to damages or compensation thereof but in any such case, the Engineer shall extend the time period for the completion of the Contract, as in his opinion is/are reasonable.	We seek that the contractor shall be entitled to damages or compensation in these cases.	As per Tender Conditions.
97	Vol 2, GCC 11.2.5, Pg 45	Should there be delay in the progress and completion of Work, as a result of which it is not possible to recover the Advances and	We seek that this clause shall be applicable only when such delay is caused due to Contractor's default.	As per Tender Conditions.
98		interest thereon, before the date of completion stipulated in the Contract, then the interest to be charged from the Contractor on the remaining portion of the Advances beyond the original completion date specified in the Contract, shall be equal to State Bank of India's Marginal Cost of fund based Lending Rate (MCLR) applicable for the tenure of 01 year prevailing on the original completion date specified in the Contract plus 3% Penal Interest per annum.		As per Tender Conditions.
99	Vol 2, GCC 11.17, Pg 49	Withholding and Lien for Sums Claimed	We seek deletion of this Clause.	As per Tender Conditions.
100	Vol 2, GCC 11.16, Pg 49	The Engineer's decision on the question of relevancy of any documents, information or returns shall be final and binding on the Parties.	We seek deletion of the extracted portion	As per Tender Conditions.
101	Vol 2, GCC 12.2.1, Pg 50	The Employer may in his sole discretion, accept or reject the contractor's variation or any part thereof and determine the estimated net saving in the construction cost. The Employer shall not be liable for delays or damages to the Contractor due to any failure of the Employer to accept or act upon any such variation proposal submitted pursuant to this Clause.	The following has to be deleted from the mentioned clause "The Employer shall not be liable for delays or damages to the Contractor due to any failure of the Employer to accept or act upon any such variation proposal submitted pursuant to this Clause"	As per Tender Conditions.
102	Vol 2, GCC 12.2.5, pg 51	The Contractor shall either accept or reject any proposed amendment/communication in writing executed by the Engineer pursuant to this section within 5 working days of its receipt date from the Employer.	We seek that "5 working days" has to be replaced with "14 working days"	As per Tender Conditions.
103	Vol 2, GCC 13.2.4, pg 54	However, if it is not possible to recover adjust the risk and cost amount from any on-account final bill of the Contractor under the Contract or any other Contract between the Employer and the Contractor, in that case, the risk and cost amount shall be recovered from the amount of Performance Security by forfeiting it to that extent.	We seek deletion of this Clause	As per Tender Conditions.
104	Vol 2, GCC 17.1, pg 61	If the Contractor fails to comply with this Sub-clause, he shall not be entitled to claim any additional payment.	We seek deletion of this Condition as it restricts contractor's right.	As per Tender Conditions.

Sl. No.	Reference Volume / Clause	Existing Clause	Queries	UPMRC's Reply
105	Vol 2, GCC 17.5, Pg 62	Disputes shall be settled through two stages: a. Conciliation procedures as established by "The Arbitration and Conciliation Act-1996" & amended by the Arbitration & Conciliation( Amendment) Act, 2019 and any statutory modification or re-enactment thereof and in accordance with this Clause. In the event, this procedure fails to resolve the Dispute then;	In order to expedite the dispute resolution process, it is preferable to directly invoke Arbitration. Thus, We request the Employer to delete this part of the mentioned clause.	As per Tender Conditions.
106	Vol 2, SCC 3, pg 68	The Employer's decision on the question of relevancy of any documents, information or returns shall be final and binding on the Parties.	We seek deletion of the extracted portion	As per Tender Conditions.
107	Vol 2, GCC 16.6, PG 60	In case of doubt or dispute, whether a particular occurrence should be considered an "event" as defined under this Clause, the decision of the Engineer shall be final and binding.	We seek deletion of the extracted portion	As per Tender Conditions.
108	Vol 2, SCC 12, pg 71	Site Data	We seek that iff any site or local conditions was not reasonably foreseeable/examinable/practicable for consideration by an experienced contractor before bid submission (taking account of cost of examination and time for bidding), then the Contractor shall be entitled to due extension of time and costs arising out of such conditions.	As per Tender Conditions.
109	Vol 2, SCC 29, PG 87	Change in Taxes/Duty	We seek that price variation due to any change in law shall be considered.	As per Tender Conditions. Please also refer Clause 11.1.4 of GCC/ SCC.
110	General	General	Kindly provide RMZ file of alignment and CAD Drawings	AutoCad version of all drawings are being provided on CPP Portal. However, in case of any discrepancy between soft copy and hard copy, hard copy attached with tender will prevail.
111	General	General	The alignment mostly passing through narrow roads and covered with trees. At the time of erection of spans, most of the area will be occupied by EOT cranes, due to if time consumed is more, then contractor will be entitled with cost and extension of time. Kindly confirm	As per Tender Conditions.
112	Vol-3 ER Cl 2.8 Pg 46	For casting yard, batching plant and other activities a plot of land of approx. 5 hectares or as required for timely completion of work has to be arranged by the contractor at his own cost.	We request employer to provide land free of cost	As per Tender Conditions. Please also refer Clause 2.2 of GCC/SCC.
113	Vol_04_OCS_ODS_SOD_KNPCC_12 / UPMRC/KNPCC-12/Vol-4/OCS/Part-2/Architectural & Plumbing. Page 160	23.3.9 Sludge Drying Bed or Disposal Arrangement	Bidder will terminate the sludge at the bottom flange of settling tank. Bidder suggest collecting sludge from all STP- and dispose in the common SDB which will be located outside the city., (Employer will make the necessary arrangement to dispose the sludge into sludge drying bed.) / Request Employer clarify the sludge disposal methodology.	As per Tender Conditions. Please also refer Clause 23.1.1 and 23.3 of OCS/Part-2/Architectural and Plumbing.
114	Vol_04_OCS_ODS_SODPart-2/Architectural & Plumbing.Pg 160	23.3.11 Treated Water Storage Tank	Kindly explain the application of STP treated water. Bidder understand that the Bidder's scope shall be as follows. Treated water shall be terminated at treated water storage tank. Also Please confirm Is there any further pumping work? If yes where we have to connect the line?	As per Tender Conditions. Please also refer Clause 23.1.1 and 23.3 of OCS/Part-2/Architectural and Plumbing.
115	Vol_04_OCS_ODS_SOD/OCS/Part-2/Architectural & Plumbing. Pg 160	General	Please confirm, whether all the five elevated stations has STP in each location.	Please refer Item No 15 of Schedule B2 OF BOQ and Clause 23.1.1 of OCS Part 2.
116	Vol_6_Drawing_1	General	Employer is requested to please share the below Ventilation & Airconditioning layouts. 1. Station wise Airflow schematic 2. Station wise VRF Schematic 3. Station wise Equipment schedule Station wise Ventilation and Airconditioning layouts	Contractor to quote as per BOQ.
117	Vol_04_OCS_ODS_SOD_KNPCC_12/E_01 MV Switchgear/8.3 Constructional features/8.6 Switch board bus bars/	The bus bar and interconnections shall be of electrolytic tinned copper and of rectangular cross sections suitable for full load current for phase bus bars and full rated current for neutral bus bar as specified in BOQ and shown on drawings and rated for a temperature rise over the ambient temperature specified as per IEC standards.	The specification specifies electrolytic tinned copper bus bar for the panels, whereas Tinned Aluminium busbars are considered in the SLD and BOQ. Bidder seeks confirmation on the bus bars details for the panels.	The bus bar shall be Aluminium. Please refer Addendum 3.
118	BOQ_186184/ Schedule D (E&M Work)/E.02 Distribution Boards Vol_6_Drawing_1/ Main Schematic diagram for Panels /Page No.01 & 02	1.1-Lighting distribution type-1/1.2- Lighting distribution board type-2/1.3-Lighting distribution board type-3/1.4-lighting distribution board type-4	Quantity of LDB's & kA Ratings are mismatch with SLD and BOQ. Bidder understands that the BOQ is definitive and will take precedence over all other tender documents. Kindly confirm.	Contractor to quote as per BOQ.
119	BOQ_186184/ Schedule D (E&M Work)	MV switchgear	The gas flooding system is only considered for AMF panels in the Electrical BOQ. Bidder seeks clarity on the gas flooding system requirements for MDB's.	Please refer BOQ S.No. F.06 for Clean Agent Based Panel Flooding system.
120	BOQ_186184	General	The UPS & batteries, and Emergency Power Panel (UPS) are not captured in the BOQ. Bidder understands that these items are not in the scope of works. Kindly confirm.	UPS & Batteries are not in Scope of this tender.
121	BOQ_186184/E.02 Distribution Boards. Vol_6 Drawing_1/Main Schematic diagram for Panels /Page No.01 & 02	General	Power distribution Board (PDB), UPS power DB, LDB For Façade (Artwork) quantities are not captured in BOQ & SLD. Kindly clarify.	Contractor to quote as per BOQ.
122	BOQ_186184/E.02 Distribution Boards BOQ_186184 /E.08 External Lighting /3.1 poles Vol_6 Drawing_1 / Main Schematic diagram for Panels /Page No.01 & 02	General	Feeder Pillars, poles for street lighting (high bays) are not captured in BOQ. Bidder seeks the requirements of the same. Kindly clarify	Contractor to quote as per BOQ.



Sl. No.	Reference Volume / Clause	Existing Clause	Queries	UPMRC's Reply
123	BOQ_186184/E.08 External Lighting	General	Viaduct Light fixtures quantities are not captured in BOQ. Kindly clarify	Viaduct light fixtures are not in scope of this tender.
124	BOQ_186184/Distribution Boards Vol_6_Drawing_1/MainSchematic diagram for Panels/Page No.01 &02	General	Viaduct small power socket DB's are not captured in BOQ and SLD. Bidder seeks that requirement of power sockets (maintenances sockets) for via duct.	Viaduct small power socket are not in scope of this tender.
125	BOQ_186184- E-01. 1. u & v	Cable supplying and laying from main LT panel to RTU panel to done by E&M contractor.Screened cable for SCADA connectivity to be laid inside main distribution board as well as from main panel to RTU Panel	Bidder seeks the scope of screened cable between the main panel and the RTU Panel. And the respective item is not captured in the Electrical BOQ.	As per Tender Conditions.
126	Vol_6_Drawing_1/Main Schematic diagram for Panels /Page No.01 & 02	Tie breaker	Bidder understands that, as per SLD 200A, a tiebreaker is considered between Busbar -1 and Busbar-2 for essential power panels, whereas the requirement is not captured in BOQ.	As per Tender Conditions.
127	VOL_6_Drawings	General	Request employer to provide BMS architecture for the stations below: 1. Agriculture University Station 2. Vijay Nagar Chauraha Station 3. Shastri Chowk Station 4. Barra-7 Station Barra-8 Station	Please find attached drawings.
128	VOL_6_Drawings	General	Request employer to provide BMS Tray layout for the stations below: 1. Agriculture University Station 2. Vijay Nagar Chauraha Station 3. Shastri Chowk Station 4. Barra-7 Station Barra-8 Station	Contractor to quote as per BOQ.
129	VOLUME 4, OCS & ODS & SOD	General	Request employer to provide technical specifications for Building Management System	Please refer Addendum 3.
130	VOLUME 4 OCS & ODS & SOD	Table – SCADA Signals	Request employer to provide IO list for the stations below: 1. Agriculture University Station 2. Vijay Nagar Chauraha Station 3. Shastri Chowk Station 4. Barra-7 Station & Barra-8 Stations	Please refer Addendum 3.
131	VOLUME 4, OCS & ODS & SOD	General	Request employer to provide Operational & Functional requirement for Building Management System	Please refer Addendum 3.
132	Vol_6_Drawing_1 to 6	General	The Drawings are not legible. Employer is requested to share the legible copy of all the services including architectural layouts preferably in AutoCAD format	AutoCad version of all drawings are being provided on CPP Portal. However, in case of any discrepancy between soft copy and hard copy, hard copy attached with tender will prevail.
133	UPMRC/KNPCC-12/Vol-1/NIT	<b>Date &amp; time of Submission of Tender online:</b> Tender submission start date: 16.12.2023 (11:00 hrs). Tender submission end date: 26.12.2023 (15:00 hrs).	Since the subject project is an amalgamation of various complex and long lead items, the employer is requested to extend the tender submission duration by at least 30 days more in order to submit the optimum bid.	Please refer Addendum for extension of bid submission uploaded on CPP Portal.
134	Vol-3/ Employer's Requirements/Section-B/Functional Part-1, 2.8 CASTING YARD & DUMPING AREA	For casting yard, batching plant and other activities a plot of land of approx. 5 Ha (approx) or as required for timely completion of work has to be arranged by the contractor at his own cost.	The employer is requested to amend relevant contractual provisions for arrangement of land for casting yard or offices/laboratories etc. near to site (of 5 hectares approx. area at one or more location) under its scope, in line with general MRTS industry practice which would be very difficult as well as time consuming task if arranged by any private organisation instead of Govt. organisation ( i.e. employer). Kindly consider our request while duly considering such stringent time schedule.	As per Tender Conditions.
135	Vol. 3/ Employer's Requirement (Appendix)/Appendix 2B	(I) VIADUCT - Key Date 1 (4 weeks) - Submission of Detailed Works programme including finishing and E&M work...	Employer is requested to review the key date description and change the same to initial outline work programme . Since this is design built contract as such site investigation work as per ER and BOQ, mobilisation of DDC/Executing agency may take few time as such it would not be possible for any construction agency to submit the detailed programme within such short duration subject to availability of sufficient GFC drawings and site details.Few more period may be added for DWP	As per Tender Conditions.
136	/Vol-3/ Employer's Requirements /Section-B/Functional Part-1,Clause: 2.1.A.3	No claim as regard to delay on account of execution of utility diversion will be entertained.	The contractor believes that extension of time pursuant to GCC sub-clause 8.4.1 shall be granted if execution of utility diversion is delayed by utility owing agency by any of unforeseen reasons. Kindly confirm the same.	As per Tender Conditions.
137	Vol-3/ Employer's Requirements/Section-B/Functional Part-1 Civil Clause: 1.4,Page No.: 25	The Contractor shall be responsible for obtaining all necessary approvals from the relevant Public/Government/Local/Statutory or any agencies in the design and construction of the works.	Employer is requested to provide status of already accorded statutory & working permissions for construction of AGCC.	As per Tender Conditions.
138	Volume-2/SCC Sl no. 28 Clause 11.1.3,Page -85	<b>c) Adjustment on Account of Price adjustment-</b> <i>*Adjustment on account of price variation may be positive (in which case extra amount shall be paid to the contractor), or negative (in which case amount of price variation shall be recovered from the contractor). Adjustment on account of price variation shall be calculated separately, for each period between two successive dates of measurements for bills and paid along with each bill or separately as claimed by the contractor.</i> <i>*The price adjustment shall be applicable only beyond 2 percentage of variation of the contract price i.e. where the resultant increase is lower than two per cent of the contract price, no price adjustment will be made in favour of the contractor. However, in case the resultant increase is more than 2 percent of the contract price, then full price adjustment shall be payable.</i>	*The employer is requested to waive off this clause of variation of plus or minus of 2 % as no ceiling limit is in practice for price adjustment in other MRTS projects.Kindly consider the request .	As per Tender Conditions.

Sl. No.	Reference Volume / Clause	Existing Clause	Queries	UPMRC's Reply
138	Vol-2/GCC Clause: 11.1.3 Page: 05 and 86 of document	<p>**As per 3rd para of this clause- <b>"Where stage payments are made after consideration of inflation , No price variation will be admissible on such portions of the price, after the dates of such payment."</b></p> <p>****Where deliveries are accepted beyond the scheduled delivery date subject to levy of liquidated damages as provided in the contract, the LD (if a percentage of the price) will be applicable on the price as varied by the operation of the PVC.</p>	<p>**In this clause(3rd para of clause) it has been stated that,"<b>Where stage payments are made after consideration of inflation , No price variation will be admissible on such portions of the price, after the dates of such payment ."</b> The Bidder understands that price variation will be applicable foreach stage percentage based payment of <b>BOQ of Schedule (A )having fixed rate and stage payment also</b>.Kindly confirm the same.</p> <p>****LD in applicable in case of default or delayed delivery in such case LD should be applicable on balance contract price .Applicability on contract price as well on PVC element will restrict sever cashflow and will affect work. As such employer is requested to put this clause on balance work aswell as on PVC of that portion.</p>	<p>As per Tender Conditions.</p> <p>As per Tender Conditions.</p>
139	VOL_02_GCC_SCC_KPNCC-12 GCC Clause: 4.12	<b>Rights of Way and facility</b> The Employer will acquire and provide land for Permanent Works and right of way (within UPMRC's land) for access thereto over routes established by the Contractor.	Employer is requested to provide availability status of clear work front for execution of works and priority stretches & stations	Workfront for the execution of the work will be provided as per Clause 2.2 of GCC/SCC and the Contractor has to complete the whole works including 5 stations and viaduct within stipulated time limit.
140	Vol-2 GCC Clause: 4.2.1	<b>Performance Security</b> (a) If variation amount on plus side exceeds 25% of the Original Contract Value either due to Employer's variation or due to Contractor's variation, the Contractor shall submit additional performance security equal to an amount of 10% of the variation amount exceeding 25% of the Original Contract Value.	Employer is requested to amend the subject clause as follows: " If variation amount on plus side exceeds 25% of the Original Contract Value either due to Employer's variation or due to Contractor's variation, the contractor shall submit Additional Performance Security <b>equal to an amount of 3% of the variation reduced by an amount equal to 1.5% of the work already certified as completed by the Engineer-in-Charge on the date of variation subject to a maximum limit of 3% of the variation amount.</b> "Infact additional10% performance security over excuted variation will doubly restrict cashflow of contractor as such kindly consider the same in interst of fast excution of such unrepresented variation.	As per Tender Conditions.
141	Vol-2/SCC SCC Clause: 11.1.3	<b>Adjustment in Contract Price</b> No adjustment in the contract price on account of inflation shall be done for E & M works.	The employer is requested to provide price adjustment/variation for E&M works as well. As the same has a high probability of rate fluctuations.	As per Tender Conditions.
142	VOL_02_GCC_SCC_AGCC_05 GCC Clause: 15.1	Professional Indemnity Insurance This insurance, which shall ensure the Contractor's liability by reason of professional negligence and errors in the design of the works, shall be valid from the date of commencement of Works, until 5 years after the date of issue of Performance Certificate.	As per standard practice to maintain contractor's cash flow Professional Idemnity Insurance shall be valid from date of commencement of works to project completion or at best up to DLP only. Kindly consider the same.	As per Tender Conditions.
143	Tender Drawings	<b>Tender Drawings</b>	The employer is requested to provide AutoCAD file of tender drawings & KMZ file of project alignment as the provided scanned copy is not clear.	AutoCad version of all drawings are being provided on CPP Portal. However, in case of any discrepancy between soft copy and hard copy, hard copy attached with tender will prevail.
144	VOL_02_GCC_SCC_AGCC_05 GCC Clause: 2.2	<b>Access to and Possession of the Site</b> The Employer shall grant the Contractor right of access to, and / or possession of, the Site progressively for the completion of Works.	1. The employer is requested to clarify the viaduct stretch which will be handed over in progressive manner as specified in contract agreement. 2. The employer is requested to specify the status of land availability, R&R issues and status of already obtained permissions if any, by it.	As per Tender Conditions. Please also refer Clause 2.2 of GCC/SCC.
145	UPMRC/KNPCC-12/Vol. 3/ Employer's Requirement (General) Clause no.: 10.5	<b>TRAINING</b> The Contractor shall provide training for the Employer's staff to enable the Employer to make proper use of any software( including BIM) and its new versions. In case Contractor fails or unable to provide training, the Engineer may ask for value engineering proposal.	The employer is requested to provide number of personnels for software training for submission of optimum bid as same is cost effective.	Approx 50 Nos.
146	Tender Drawing No. KNPAGDDC-01-TDR-TYP-STR-CRS-15010	Minimum clearance from Road Level: 5.6 meter	A conflict has been observed for minimum vertical clearance and thus employer is requested to provide minimum vertical clearance to be considered for design & execution purpose so that optimum bid can be submitted, accordingly.	Please refer Clause 3.1 of ODS.
147	Vol-3/ Employer's Requirements/ Section-B/Functional Part-1 Clause: 2.1.A (Note no. 04),Page No.: 22	Contractor has to maintain a minimum vertical clearance of 5.5m from road surface to bottom of any structure.		
148	Vol-3/ Employer's Requirements/Section-B/ Functional Part-1 ,Clause: 2.1.A (Note no. 14) Page No.: 23	Any change in rail level up to +/- 300mm from the tender drawing subject to fulfilment of the other tender conditions will be part of lump sum price and nothing will be paid/deducted for this variation.	The employer is requested to amend the subject clause as follows: "Any change in rail level from the tender drawing shall be payable on <b>pro-rata basis</b> " OR "Any change in rail level up to +/- <b>100mm</b> from the tender drawing subject to fulfilment of the other tender conditions will be part of lump sum price and nothing will be paid/deducted for this variation. Kindly consider our request.	As per Tender Conditions.
149	UPMRC/KNPCC-12-/Vol-3/ Employer's Requirements/Section- B/Functional Part-1, Clause: 2.1.B.4	Shifting/diversion cost of all the chartered utilities is included in Lump Sum price of Schedule-A.	The employer is requested to provide chartered & uncharted utility data for the purpose of optimum bid submission.At least chartered utility should be provided for optimisation of BID cost.	Drawings of chartered utility already provided.
150	VOL_02_GCC_SCC_AGCC_05 GCC Clause: 4.2.1 (ii) Page No.: 15 of 66	Performance Security in the form of two Bank Guarantees/FDRs, each for an amount of 5% of Contract Value with one Bank Guarantee/FDR valid up to 6 months beyond the date of completion of work and second Bank Guarantee/FDR valid up to 6 months beyond the Defect Liability Period.	The employer is requested to consider the effective DLP period from the date of taking over/partial taking over of project works by employer/Engineer. Kindly consider our request.	For DLP period, please refer Clause 10.1 of SCC.
151	Bill of Quantities	Schedule D: E&M Works	The quantities provided for majority of items is zero. Kindly provide tentative quantities for the estimation purpose & subsequent submission of optimum bid.	Contractor to quote as per BOQ.

Sl. No.	Reference Volume / Clause	Existing Clause	Queries	UPMRC's Reply
152	UPMRC/KNPCC-12-/Vol-3/ Employer's Requirements/Section- B/Functional Part-1 Clause no.: 2.1.A.3 (xxi)	Final carpeting of road (including base preparation wherever required) within barricading areas and outside the barricade i.e. overall width of road along the alignment as per technical specification of road owning agency shall be done before handing over to road owning agency.	The employer is requested to amend subject clause as follows, "Final carpeting of road (including base preparation wherever required) within barricading areas shall be done before handing over to road owning agency." Beyond barricading area binding over Bidder or execution agency is purely an unforeseen rather predicted road repair work which is totally as per sweetwill and desire of road authority. He may force to repair/ remodel as per own or latest specification and can not be predicted in advance. As such Employer is requested that the contractor's scope of work includes restoration/final carpeting of area falling within barricading only to be kept and same is standard practice of several MRTS project. Kindly consider our request.	As per Tender Conditions.
153	Clause 1.4.2 /Minimum Eligibility Criteria: A. Work Experience:	A. Work Experience: (i) The tenderers will be qualified only if they have successfully completed or substantially completed similar work(s) as a prime contractor / member of JV, completion date(s) of which (ailing during last seven years ending last day of the month previous to the month of tender submission end date as given below (Value shall be rounded off to two decimal places): At least one "similar work" * of value of INR 237.42 Crore or more. OR At least Two "similar works" * each of value of INR 148.39 Crore or more. OR At least Three "similar works" each of value of INR 118.71 Crore or more. " Similar Work/s" for this tender shall be "Construction of Viaduct (which may include station along with viaduct / Bridge / Flyover (excluding approaches & embankments) having a pre/post-stressed concrete super-structure".	We presume that (or similar work as mentioned herein if more than one bridges are executed in the single contract and which total value is equal or more than to required value of similar as applicable for one/ two/ three similar works as applicable such a project shall be considered for meeting the eligibility criteria as mentioned herein. For e.g.  Total Project Cost : 1000 Crores In its cost of Bridges are: Bridge A: 100 Crores Bridge B: 80 Crores Bridge C: 60 Crores In above scenario the project having total costs of Bridges of (Rs 240 Crores shall be considered for meeting eligibility criteria of " At least one "similar work" " of value of INR 237.42 Crore or more." Please Confirm.	As per Tender Conditions. Definition of Similar work is self explanatory.
154		Due Date Extension	We are keenly interested to participate in the above bid, but looking into the clarity required for participation in bid as requested above and looking into the size and complexity of project, we request the Authority we request the Authority to please extend the bid Due date of the Project by 4 weeks from the date of pre bid reply received from your end for submitting a comprehensive bid.	Please refer Addendum for extension of bid submission uploaded on CPP Portal.
155	General	-	Kindly inform the date of site survey with UPMRCL team.	Already informed during discussion in prebid meeting.
156	General	-	We request you to kindly keep the date of pre-bid queries submission after the site survey with UPMRCL team.	As per Tender Conditions.
157	General	-	Kindly provide the Alignment in AutoCAD file	AutoCad version of all drawing are being provided on CPP Portal. However, in case of any discrepancy between soft copy and hard copy, hard copy attached with tender will prevail.
158	General	-	Kindly clarify whether Tree cutting is in Contract scope or not.	Please refer Clause 2.1.a (xxix) of ER Functional Part 1/section B and para 6 of Emp Req./Construction.
159	General	-	Who will be responsible for arranging tree cutting permission from concerned authorities.	Please refer Clause 2.1.a (xxix) of ER Functional Part 1/section B and para 6 of Emp Req./Construction
160	General	-	Annexure no. 10 & 11 are not provided in the tender documents	Please refer Annexure 3 & 4 of ITT in place of Annexure 10 & 11.
161	Clause no 4.2.1 of Volume -2	Within 30 days from date of issue of Letter of Acceptance, the successful Tenderer shall furnish Performance Security, for an amount of ten per cent of the Contract value in types and proportions of currencies in which the Contract Price is payable either in the form of a Bank Draft, FDR or in the form of a Bank Guarantee from a branch in India of a scheduled foreign bank or from a scheduled commercial bank in India acceptable to the Employer.	Request you to change the PBG as 5 % (as per case before COVID) instead of 10 %.	As per Tender Conditions.
162	BOQ	-	In Excel BOQ the sheet B-1 (Annex A Civil), B-1 (Annex B Elect) and (Annex C Telecom) row of Quantity and Amount is hide and not able to unhide due to protected Sheet. Request you either unhide that row or upload the unprotected BOQ sheet.	Revised BOQ is being uploaded on CPP Portal.
163	NIT & SCC	NIT, Clause 1.2 Key Details: Approximate cost of work (NIT Value) Rs. 484.00 Crores (including GST) SCC, Clause 11.1.1 The Contract Price: (b) Goods and Services Tax (GST) is excluded in the contract price.	As per NIT the Project cost is Rs.484 Crore which is inclusive of GST, whereas in SCC Clause 11.1.1 (b) it is mentioned that Goods and Services Tax (GST) is excluded in the contract price. Both the clauses are contradictory, kindly clarify that the project cost Rs.484 Crore is inclusive of GST or exclusive of GST.	NIT value amounting to Rs. 484.00 Crore is inclusive of GST. However, bidder has to quote their rates in excel BOQ exclusive of GST in accordance with para 11.1.1 of SCC.

**Summary Sheet of Addendum No.03: KNPCC-12**

**Tender KNPCC-12: Design and Construction of elevated viaduct and 5 Nos. elevated stations (viz. Agriculture University Station, Vijay Nagar Chauraha Station, Shastri Chowk Station, Barra-7 Station & Barra-8 Station) including Architectural Finishing, E&M work and special spans from end of ramp after Double Pulia Station to Barra-8 Station and end of ramp in Depot to Agriculture University Station on Corridor-2 of Kanpur MRTS Project at Kanpur, Uttar Pradesh, India.**

S. No.	Reference Clause/ Page No.	Clause in Existing Tender Document	Revised Clause	Revised Clause placed as Annexure/ Pg. No.
1	Vol.3 E.R, Scope of Works, Page 18	Contract KNPCC-12: Design and Construction of elevated viaduct and 5 Nos. elevated stations (viz. Agriculture University Station, Vijay Nagar Chauraha Station, Shastri Chowk Station, Barra-7 Station & Barra-8 Station) including Architectural Finishing, E&M work and special spans from end of ramp after Double Pulia Station to Barra-8 Station (i.e. from chainage 3783.000 m to 7528.566 m including 4 no. station) and end of ramp in Depot to Agriculture University Station (i.e. from chainage (-)297.460 m to (-)855.339 m including 1 no. station) on Corridor-2 of Kanpur MRTS Project at Kanpur, Uttar Pradesh, India. The total length of viaduct including stations portion is 4303.445 Mtr.	Contract KNPCC-12: Design and Construction of elevated viaduct and 5 Nos. elevated stations (viz. Agriculture University Station, Vijay Nagar Chauraha Station, Shastri Chowk Station, Barra-7 Station & Barra-8 Station) including Architectural Finishing, E&M work and special spans from end of ramp after Double Pulia Station to Barra-8 Station (i.e. from chainage 3783.000 m to <del>7528.566</del> <u>7532.356</u> m including 4 no. station) and end of ramp in Depot to Agriculture University Station (i.e. from chainage (-)297.460 m to (-)855.339 m including 1 no. station) on Corridor-2 of Kanpur MRTS Project at Kanpur, Uttar Pradesh, India. The total length of viaduct including stations portion is <del>4303.445</del> <u>4307.235</u> Mtr.	Please refer Annexure 1 of Addendum-3 Page 18R
2	Vol.3 E.R, Scope of Works, 2.1.A, (vii) ,Page 19	Design and construction of special spans of 60 m at Railway Crossing at Kanpur- Delhi Line, 45 m at Railway Crossing at Kanpur -Jhansi Line, 45 m over Canal between Shastri Chowk and Vijaynagar, and 45 m over Kanpur-Jhansi National Highway(elevated) as shown in tender drawing. The type of bridge over railway crossing shall be as per requirement of Railway authorities. Also type of bridge and method of construction shall be approved by UPMRC prior to execution of work. Special span may vary +/- 10 mts. The same will be the part of lumpsum scope and nothing will be paid / deducted for this variation. This includes all temporary works such as Nosing arrangement, trussel, staging, any other related works. Apart from special spans indicated in GAD, there may be requirement of additional special spans (i.e. span more than 28 m upto 37 mts) as per the site conditions / UPMRC or civic requirement. No variation will be entertained on this account.	Design and construction of special spans of 60 m at Railway Crossing at Kanpur- Delhi Line, <del>45</del> <u>50</u> m at Railway Crossing at Kanpur -Jhansi Line, <del>45</del> <u>34</u> m over Canal between Shastri Chowk and Vijaynagar, and <del>45</del> <u>67.5</u> m over Kanpur-Jhansi National Highway(elevated) as shown in tender drawing. The type of bridge over railway crossing shall be as per requirement of Railway authorities. Also type of bridge and method of construction shall be approved by UPMRC prior to execution of work. Special span may vary +/- 10 mts. The same will be the part of lumpsum scope and nothing will be paid / deducted for this variation. This includes all temporary works such as Nosing arrangement, trussel, staging, any other related works. Apart from special spans indicated in GAD, there may be requirement of additional special spans (i.e. span more than 28 m upto 37 mts) as per the site conditions / UPMRC or civic requirement. No variation will be entertained on this account.	Please refer Annexure-2 of Addendum-3 Page 19R
3	Clause 2.1.B1, Vol-3 Employers Requirement, Functional Part-1, Page 29R	-	Govind Nagar Metro station is a future metro station, however all necessary arrangements as shown in drawings to make this station functional in future shall be included in Lump Sum	Please refer Annexure -3 of Addendum-3 Page 29R
4	Vol. 4, OCS , Clause E.00-3.2.3 - Technical Specification: Page 228	All bus bars shall be electrolytic copper with purity of 99.9% and rated for the incoming switch or breaker rating. Current density shall be 1.4 amp/sq. mm up to 500 amp and 1.2 amp/sqmm beyond 500 amp. The Bus Bar temperature rise over ambient shall be as per IS/IEC standards. The calculations for temperature rise should be furnished for approval	All bus bars shall be electrolytic copper with purity of 99.9% <u>Aluminium</u> and rated for the incoming switch or breaker rating. Current density shall be 1.4 amp/sq. mm up to 500 amp and <del>1.2</del> <u>1.2</u> amp/sqmm beyond 500 amp. <u>as per IEC or relevant standards</u> The Bus Bar temperature rise over ambient shall be as per IS/IEC standards. The calculations for temperature rise should be furnished for approval.	Please refer Annexure -4 of Addendum-2 Page 228R

S. No.	Reference Clause/ Page No.	Clause in Existing Tender Document	Revised Clause	Revised Clause placed as Annexure/ Pg. No.
5	Vol. 4, OCS , Clause EO1-8.6.1 Technical Specification: Page 250	The bus bar and interconnections shall be of electrolytic tinned copper and of rectangular cross sections suitable for full load current for phase bus bars and full rated current for neutral bus bar as specified in BOQ and shown on drawings and rated for a temperature rise over the ambient temperature specified as per IEC standards. based on insulated conductor rating and the maximum current density for copper shall be 1.4 amp per mm <sup>2</sup> for ratings up to 500 Amp and beyond 500 amp maximum current density shall be 1.2 amp per mm <sup>2</sup> . Bus bar supporting system shall be suitable to withstand the stresses of a 31 MVA sustained symmetrical fault level at 415 volts for 1 second or as per schedule of quantities.	The bus bar and interconnections shall be of electrolytic tinned copper <b>aluminium</b> and of rectangular cross sections suitable for full load current for phase bus bars and <u>full</u> rated current for neutral bus bar as specified <u>in BOQ</u> and shown on drawings and rated for a temperature rise over the ambient temperature specified as per IEC <b>61439</b> standards. based on insulated conductor rating and the maximum current density for copper shall be 1.4 amp per mm <sup>2</sup> for ratings up to 500 Amp and beyond 500 amp maximum current density shall be 1.2 amp per mm <sup>2</sup> . Bus bar supporting system shall be suitable to withstand the stresses of a 31 MVA <b>as per standard to</b> sustained symmetrical fault level at 415 volts <b>side</b> for 1 second or as per schedule of quantities.	Please refer Annexure -5 of Addendum-2 Page 250R
6	Vol. 4, OCS , Clause EO1-8.6.9, & EO1-8.8.1- Technical Specification: Page 251	Feeder connections shall be solid copper bars duly insulated with bimetallic clamps wherever required.  ' Instruments and indicating lamps shall not be mounted on the Circuit Breaker Compartment door. The current transformers for metering and for protection shall be mounted on the solid copper busbars with proper supports	Feeder connections shall be solid copper <b>Aluminium bus</b> bars duly insulated with bimetallic clamps wherever required.  Instruments and indicating lamps shall not be mounted on the Circuit Breaker Compartment door. The current transformers for metering and for protection shall be mounted on the solid copper <b>Aluminium</b> busbars with proper supports	Please refer Annexure 6 of Addendum-3 Page 251R
7	Vol. 4, OCS , Clause EO1-8.14.2 Technical Specification: Page 253	A main earth bar of copper shall be provided throughout the full length of the Switch Board to earth all switchgears with a provision to make connections to the sub-station earth's on both sides with double bi- metallic washers.	A main earth bar of copper <b>Aluminium</b> shall be provided throughout the full length of the Switch Board to earth all switchgears with a provision to make connections to the sub-station earth's on both sides with double bi- metallic washers	Please refer Annexure 7 of Addendum 3 Page 253R
8	Vol 4, OCS, E&M		BMS Specification have been added.	Please refer Annexure -8 of Addendum-3
9	Vol. 6 Drawings	Drawings	Drawings has been revised as per attached index (no. of sheets 2)	Please refer Annexure -9 of Addendum-3
10	Volume 5 BOQ	Revised excel sheet of BOQ has been uploaded on CPP Portal		

**KNPCC-12: Design and Construction of elevated viaduct and 5 Nos. elevated stations (viz. Agriculture University Station, Vijay Nagar Chauraha Station, Shastri Chowk Station, Barra-7 Station & Barra-8 Station) including Architectural Finishing, E&M work and special spans from end of ramp after Double Pulia Station to Barra-8 Station i.e., from chainage 3783.000m to 7528.566m and end of ramp in Depot to Agriculture University Station i.e., from chainage (-)297.460m to (-)855.339m on Corridor-2 of Kanpur MRTS Project at Kanpur, Uttar Pradesh, India.**

### **EMPLOYER'S REQUIREMENTS – FUNCTIONAL- Part1: Civil**

#### **OBJECTIVE**

The objective of the contract is the design, construction completion, testing and commissioning of the permanent works by the Contractor (including without limitation, the design, construction and removal of the Temporary Works) and the rectification of defects appearing in Permanent Works in the manner and to the standards and within the time stipulated by the Contract. In full recognition of this objective, and with full acceptance of the obligations, liabilities and risks which may be involved, the Contractor shall undertake the execution of the Works.

#### **1. GENERAL**

**1.1** The design and performance of the Permanent Works shall comply with the specific core requirements contained in these Employer's Requirements -Functional.

**1.2** The design of the Permanent Works shall be developed in accordance with these Employer's Requirements - Functional, the Contractor's Technical Proposals and the other requirements of the Contract.

**1.3** The Permanent Works shall be designed and constructed to the highest standards available using proven up-to-date good Engineering practices. The Specification shall in any case not specify standards which, in the Engineer's opinion, are less than or inferior to those described in the Outline Design Specifications (Design Criteria) and Outline Construction Specifications for Civil Works contained in the Tender Documents. Construction shall be carried out employing the procedures established by the Contractor in his Quality, Safety Health and Environmental management plans.

**1.4** The Contractor shall be responsible for obtaining all necessary approvals from the relevant Public/Government/Local/Statutory or any agencies in the design and construction of the works.

#### **2. SCOPE OF WORKS**

**Contract KNPCC-12: Design and Construction of elevated viaduct and 5 Nos. elevated stations (viz. Agriculture University Station, Vijay Nagar Chauraha Station, Shastri Chowk Station, Barra-7 Station & Barra-8 Station) including Architectural Finishing, E&M work and special spans from end of ramp after Double Pulia Station to Barra-8 Station (i.e. from chainage 3783.000 m to ~~7528.566~~ 7532.356 m including 4 no. station) and end of ramp in Depot to Agriculture University Station (i.e. from chainage (-)297.460 m to (-)855.339 m including 1 no. station) on Corridor-2 of Kanpur MRTS Project at Kanpur, Uttar Pradesh, India.**

**The total length of viaduct including stations portion is ~~4303.445~~ 4307.235 Mtr.**

#### **2.1 SCOPE UNDER LUMP SUM PRICE**

The scope of work in brief is given below but the scope includes all other requirements stipulated in various parts/volumes of the contract document including appendices and annexure thereto. Entire scope of work for Viaduct section and Viaduct in stations as shown in General Arrangement Drawing/ General Alignment Drawing (GAD), all structural works of stations as shown in tender drawing shall be included in Lump Sum price (Schedule A of BOQ). The detailed scope of work of viaduct & stations included in lump sum shall be as described in clause 2.1.A and 2.1.B respectively.

**KNPCC-12: Design and Construction of elevated viaduct and 5 Nos. elevated stations (viz. Agriculture University Station, Vijay Nagar Chauraha Station, Shastri Chowk Station, Barra-7 Station & Barra-8 Station) including Architectural Finishing, E&M work and special spans from end of ramp after Double Pulia Station to Barra-8 Station i.e., from chainage 3783.000m to 7528.566m and end of ramp in Depot to Agriculture University Station i.e., from chainage (-)297.460m to (-)855.339 on Corridor-2 of Kanpur MRTS Project at Kanpur, Uttar Pradesh, India.**

The Scope of work 2.1 to 2.9 including Notes 1) to 7) (applicable for viaduct & stations) & 3 to 14 unless otherwise specified shall be included in Lump sum quoted Price of contract i.e. Schedule-A of BOQ.

#### **2.1.A VIADUCT & VIADUCT IN STATION AS SHOWN IN GENERAL ARRANGEMENT DRAWING/ GENERAL ALIGNMENT DRAWING (GAD)**

- (i) Detailed survey of alignment for execution of work and optimising span configuration avoiding shifting of utilities as per contractor's design subject to the obligatory requirements as shown in the GAD.
- (ii) Design & construction of Pile foundation, Pile cap, Pier, all type of Piers including Cantilever & Portals, Pedestals, Cross Arm, Extended Pier cap, Cantilever Pier cap, Table top Pier cap, Portal Beams and other structures
- (iii) Construction of super structure of standard U-Girder span (28m) and all other spans upto 28 m for straight and for curves more than 300m radius, standard Pier cap, Bearing (Elastomeric) & crash barrier as per tender drawing. The design of standard span U-Girder and all other spans upto 28 m for straight and for curves more than 300m radius, standard Pier Cap, bearing (Elastomeric), bearing pedestal & crash barrier for these spans shall be provided by UPMRC. Also, the reinforcement in the U-Girder, standard Pier Cap & bearing pedestal shown in tender drawing is the minimum reinforcement to be provided. However, in case the contractor assesses that the reinforcement has to be increased then the same shall be provided after approval of UPMRC without any extra cost.
- (iv) Design and construction of non-standard spans, Pre-Tensioned T-Girder spans, spans at crossover location and spans in sharper curvature, pier caps, etc wherever necessary or instructed by engineer except as detailed in para (iii).
- (v) Design and construction of POT/PTFE bearings/ Spherical bearings/Elastomeric bearing/seismic restrainers etc including vertical stoppers as per design requirement except as detailed in para (iii).
- (vi) Design and construction of parapets. The shape shall be as per tender drawings.
- (vii) Design and construction of special spans of 60 m at Railway Crossing at Kanpur- Delhi Line, 45 50 m at Railway Crossing at Kanpur -Jhansi Line, 45 34 m over Canal between Shastri Chowk and Vijaynagar, and 45 67.5 m over Kanpur-Jhansi National Highway(elevated) as shown in tender drawing. The type of bridge over railway crossing shall be as per requirement of Railway authorities. Also type of bridge and method of construction shall be approved by UPMRC prior to execution of work. Special span may vary +/- 10 mts. The same will be the part of lumpsum scope and nothing will be paid / deducted for this variation. This includes all temporary works such as Nosing arrangement, trussel, staging, any other related works. Apart from special spans indicated in GAD, there may be requirement of additional special spans (i.e. span more than 28 m upto 37 mts) as per the site conditions / UPMRC or civic requirement. No variation will be entertained on this account.
- (viii) The method of construction shall be approved by UPMRC prior to execution of work. This includes all temporary works such as Nosing arrangement, trussel, staging, any other related works. Apart from special spans indicated in GAD or para (vii) above, there may be requirement of additional special spans (i.e. span more than 37 m) as per the site conditions / UPMRC or civic requirement. Any such additional special spans shall be designed and constructed by the contractor, the same will be paid extra after deducting the cost of normal viaduct shown in GAD.
- (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) Standard spans for viaduct shall be 28 m Twin U-Girder Spans except obligatory spans/

- (xxix) Design & Construction of temporary structures/ construction methodology and getting it approved from third party.
- (xxx) PEB Work:
- a) Designing, providing, fabricating, transporting, erecting and securing in position prefabricated structural steel roof work for Elevated stations building/Entry Exits complete-as per specifications, approved shop drawings. Work under this item would generally cover all structural steel work for roof in the stations, including roof portals, Purlins, runners gutters etc. in the station steel roof structure, down take pipes up to ground level along with provision for attachment Structural Supports for all fixing E&M and Signalling / Telecommunications equipments in the steel roof structure. Work to include all intermediate stages of activities not defined herein, but otherwise implied for total completion of work. Cost to include but not be limited to, all materials including wastage, all consumables, fasteners of all types for both temporary and permanent stages of work, all temporary stays, labour, temporary works including staging, scaffolding, tools, plant and equipment, and additional costs of all incidentals and necessary testing of material, workmanship etc including cost of painting as per specifications. PEB height/span may vary +/- 0.5 mts from the tender drawing. This variation including variation in sheeting will also be the part of lump sum scope and nothing will be paid / deducted for this variation
  - b) Providing and fixing single skin Hi-Rib (Crimp curved) profiled sheeting 1000-1020 mm cover width, 28-30 mm crests @200-250 mm c/c manufactured out of 0.50 mm TCT (Total coated thickness) Hi- tensile galvalume steel. The sheets shall have wide pans with 2-3 nos. stiffening ribs for effective water shedding and special male/female ends with full return legs on side laps for purlins support and anti- capillary flute in side lap. The sheets shall have a hot-dip metallic coating of ZINC and Aluminium (150 gms/sq.m. zinc/alum. Coating mass total on both sides. AZ-150 as per AS 1397), 330Mpa to 550 Mpa yield stress, providing PVDF coating of approved colour of total thickness of 35 microns comprising of 20 microns exterior coat of PVDF over 5 microns PU back coat over 5 micron primer coats on both surfaces including side and end laps and using 8mm galvalume hex self- drilling. Item to include curved sheets and crimping also. Rate shall include providing fasteners on each crest of sheets for connection with purlins and seam bolts etc.
  - c) Providing, supplying, erecting and fixing in position 3mm thick corrugated clear Polycarbonate sheets of approved make texture and colour for Sky light. The corrugation Profile shall match with the profile of roof sheets as listed out in item (b) above, including capping and fixing to roof sheets and steel girts by same fasteners as used by roof sheeting, minimum end laps of 200 mm sealing of laps with silicon sealant, water tight complete in all respects.
  - d) Provisioning in PEB structure for required hanger arrangement for E&M and Signalling / Telecommunications equipments. The supply of hangers and its fixing shall be done by the respective system contractors. However, supplying and fixing the hanging arrangement required for signage is in the scope of this contract. Work to include all intermediate stages of activities not defined herein, but otherwise implied for total completion of work.

**(xxxi) Govind Nagar Metro station is a future metro station, however all the necessary arrangements as shown in drawings to make this station functional in future shall be included in Lump Sum.**

- 2.1.B.2 There is possibility of some of the items not getting mentioned in the above list of works of station. Contractors are requested to go through the tender drawings also in details as the works mentioned above as well as indicated in the tender drawings would be considered inclusive in the scope of work under lump sum quoted price. Employer decision shall be final in this regard in case of dispute. Some of the major utilities cannot be diverted. Contractor shall take into consideration the existence of



KNPCC-12: Design and Construction of elevated viaduct and 5 Nos. elevated stations (viz. Agriculture University Station, Vijay Nagar Chauraha Station, Shastri Chowk Station, Barra-7 Station & Barra-8 Station) including Architectural Finishing, E&M work and special spans from end of ramp after Double Pulia Station to Barra-8 Station i.e., from chainage 3783.000m to 7528.566m and end of ramp in Depot to Agriculture University Station i.e., from chainage (-)297.460m to (-)855.339 on Corridor-2 of Kanpur MRTS Project at Kanpur, Uttar Pradesh, India.

- 3.1.7.2 Manufacturer drawings, catalogues, pamphlets and other documents submitted for approval shall be in two sets. Each item in each set shall be properly labeled, indicating the specific services for which material or equipment is to be used, giving reference to the governing section and clause number and clearly identifying in ink the items and the operating characteristics. Data of general nature shall not be accepted.
- 3.1.7.3 Approval of shop drawings shall not be considered as a guarantee of measurements or of building dimensions. Where drawings are approved, said approval does not mean that the drawings supercede the contract requirements, nor does it in any way relieve the contractor of the responsibility or requirement to furnish material and perform work as required by the contractor.
- 3.1.7.4 Where the contractor proposes to use an item of equipment, other than that specified or detailed on the drawings, which require any redesign of the structure, partitions, foundation, piping, wiring or any other part of the mechanical, electrical or architectural layouts; he shall inform the Employer well in advance and no delays resulting from such redesign shall be admissible. He shall also submit all related information as may be required for such redesign to the Employer.
- 3.1.7.5 Where the work of the contractor has to be installed in close proximity to, or will interfere with work of other trades, he shall assist in working out space conditions to make a satisfactory adjustment. If so directed by the Employer or his representative, the contractor shall prepare composite working drawings and sections at a suitable scale not less than 1:50 clearly showing how his work is to be installed in relation to the work of other trades. If the contractor installs his work before coordinating with other trades, or so as to cause any interference with work of other trades, he shall make all the necessary changes without extra cost to the owners.
- 3.1.7.6 After approval of all the relevant shop drawings, the contractor shall submit four copies of a comprehensive variation in quantity statement.
- 3.1.7.7 The contractor should also submit two copies of Catalogues, Manufacturer's drawings, equipment characteristics data, performance chart etc. as required by the Engineer.

**3.2 Switchboards**

- 3.2.1 All panels/boards shall be dead front, front operated, dust, vermin proof, extensible, top/bottom cable entry, compartmentalized made of CRCA sheet steel of thickness of 2.0mm & rigid supports for components and with lockable hinged doors
- 3.2.2 All components like, circuit breakers, switches, hook-up wiring etc. shall be compatible with the short-circuit levels. Bus bar supporting systems shall withstand without deflection or deformation, the short circuit forces due to the stated short circuits. All inter wiring shall be with suitable stranded copper conductor FR insulated wire
- 3.2.3 All bus bars shall be electrolytic copper with purity of 99.9% **aluminium** and rated for the incoming switch or breaker rating. Current density shall be ~~1.4 amp/sq. mm up to 500 amp and 1.2 amp/sqmm beyond 500 amp~~ **as per IEC or relevant standards**. The Bus Bar temperature rise over ambient shall be as per IS/IEC standards. The calculations for temperature rise should be furnished for approval

KNPCC-12: Design and Construction of elevated viaduct and 5 Nos. elevated stations (viz. Agriculture University Station, Vijay Nagar Chauraha Station, Shastri Chowk Station, Barra-7 Station & Barra-8 Station) including Architectural Finishing, E&M work and special spans from end of ramp after Double Pulia Station to Barra-8 Station i.e., from chainage 3783.000m to 7528.566m and end of ramp in Depot to Agriculture University Station i.e., from chainage (-)297.460m to (-)855.339 on Corridor-2 of Kanpur MRTS Project at Kanpur, Uttar Pradesh, India.

- 8.5.5** A horizontal wire way with screwed cover provided at the top to take interconnecting control wiring between vertical sections.
- 8.5.6** Separate cable compartments running the height of the Switch Board in the case of front access Boards provided for incoming and outgoing cables.
- 8.5.7** Cable compartments of adequate size for easy termination of all incoming and outgoing cables entering from bottom or top.
- 8.5.8** Adequate and proper support provided in cable compartments to support cables.
- 8.5.9** Inter-changeable feeder compartments for all identical feeders of same rating.
- 8.6** **Switch board bus bars**
- 8.6.1** The bus bar and interconnections shall be of ~~electrolytic tinned copper~~ **aluminium** and of rectangular cross sections suitable for full load current for phase bus bars and full rated current for neutral bus bar as specified in BOQ and shown on drawings and rated for a temperature rise over the ambient temperature specified as per IEC **61439** standards. ~~based on insulated conductor rating and the maximum current density for copper shall be 1.4 amp per mm<sup>2</sup> for ratings up to 500 Amp and beyond 500 amp maximum current density shall be 1.2 amp per mm<sup>2</sup>.~~ Bus bar supporting system shall be suitable to withstand the stresses of a ~~31 MVA~~ **as per standard to** sustained symmetrical fault level at 415 volts side for 1 second or as per schedule of quantities.
- 8.6.2** The bus bars shall be insulated with colour coded or heat shrinkable PVC Sleeves. Accessible bus bar joints shall be shrouded in an approved manner. Minimum clearances between phase to phase and between phases and neutral (including protruding nuts and bolts if any) shall be 25 mm. Minimum clearance between phases and earth (including protruding nuts and bolts if any) shall be 20 mm.
- 8.6.3** While providing the bus-bar section, the total load with 25% over load margin may be considered which may be transferred to an individual panel through the inter-connection between panels in the event of failure of incoming supply to the other panels. The diversity factor of various loads shall be taken as 1 for design purposes. The bus bar shall be designed for easy extension in future at either end.
- 8.6.4** An earthing bus made of Copper as approved shall be provided throughout the switchboard/panel with securely connected earthing bimetallic terminals at both ends and with double bimetallic washers.
- 8.6.5** Protective earthing shall be related to the incoming feeder as required.
- 8.6.6** In case of dissimilar materials the Protective Conductor shall be suitably sized for equal conductance.
- 8.6.7** All internal wiring, busbar metering etc. shall conform to IS: 5578 – 1984 with all amendments.

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- 8.6.8** All bus bar connections in Switch Boards shall be bolted with high tensile strength steel bolts and nuts. Additional cross section of bus bars shall be provided wherever holes are drilled in the bus, bars. No insulation tape shall be used in the busbars / interconnections.
- 8.6.9** Feeder connections shall be solid copper aluminium bus bars duly insulated with bimetallic clamps wherever required.
- 8.6.10** Shrouds for bus bar joints /tapping points shall be FRP only. Bus insulators shall be flame retardant, track resistant type with high creepage surface and non-hygroscopic material such as epoxy/SMC/. Busbars shall be supported and braced to withstand the stress due to max. short circuit current and also the thermal expansion
- 8.6.11** Maximum temperature rise of bus bars and connections shall be as per IEC 61439.
- 8.7** **Components installed in the assembly**
- 8.7.1** All components shall conform to respective Indian Standards or IEC specifications and shall be suitable for the particular requirements of rated current, voltage, service life, making and breaking capacity and short-circuit withstand strength. Co-ordination of component matching shall be observed. The Employer's Representative shall be empowered to choose compact component/ accessories as deemed fit out of the list of the approved makes.
- 8.7.2** Separate current transformers shall be provided for each protection device and for instrumentation.
- 8.7.3** All assemblies of switchgear and control gear shall comply with IEC 61439 or approved equivalent. The clearance in front, back and side of all assemblies of switchgear and control gear shall be not less than 1.2 metres or minimum specified in standards, while switchgear considered in the fully drawn out condition.
- 8.7.4** All push buttons shall be of the push to actuate type and provided with number of contacts as required.
- 8.7.5** Control & selector switch - Control & selector switches shall be rotary type having enclosed (in removable cover) contacts, stay put maintenance type, provided with escutcheon plates clearly marked to show the position.
- 8.7.6** Auxiliary contacts including push button contacts – All main as well as auxiliary contacts should be rated for 10A minimum.
- 8.8** **Instrument accommodation**
- 8.8.1** Instruments and indicating lamps shall not be mounted on the Circuit Breaker Compartment door. The current transformers for metering and for protection shall be mounted on the solid copper aluminium busbars with proper supports.

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- 8.11.3** A separate bunching & separate route shall be followed for AC& DC wiring.
- 8.11.4** The minimum size of copper conductor control wires for switch-boards shall be 1.5 mm<sup>2</sup>.
- 8.11.5** Wiring shall be terminated through cage clamps or using crimping lugs where former not feasible, without joints or Tee on their run. Wiring shall be run on sides of panels, neatly bunched, secured without affecting equipment mounting.
- 8.12 Cable terminations**
- 8.12.1** The Switch Boards shall be complete with supporting clamps and brackets etc for termination of 1100 volt grade aluminium/copper conductor PVC/PVCA cables, Knockout holes of appropriate size and number shall be provided in the Switch Board in conformity with the location of incoming and outgoing conduits/cables. Gland plates, gland-brackets and extension boxes shall be removable and shall be of adequate size for the particular cables to be terminated.
- 8.12.2** The cable terminations for the MCCB's shall be brought out to the rear in the case of rear access switchboards or in the cable compartment in the case of front access Switch-Boards. The Contractor shall co-ordinate the cable sizes and corresponding crimping type copper lugs for each Incomer and Outgoing feeders and correct size lugs shall be provided bolted up in the switchboard.
- 8.13 Space heaters** - The Switch Board shall have in each panel thermostatically controlled space heaters adjustable in the range of 30° C to 100° C with a controlling 15 amp 230 volt switch socket outlet to eliminate condensation.
- 8.14 Earthing**
- 8.14.1** All switch panels shall be provided with protective earthing as specified.
- 8.14.2** A main earth bar of ~~copper~~ **aluminium** shall be provided throughout the full length of the Switch Board to earth all switchgears with a provision to make connections to the sub-station earth's on both sides with double bi-metallic washers.
- 8.14.3** The frame of the Circuit Breaker shall be positively earthed when racked into the cubicle. Protective earthing of the switch-boards shall be connected to the building earth.
- 8.15 Sheet steel treatment and painting**
- 8.15.1** Sheet Steel materials used in the construction of these units should have undergone a rigorous rust proofing process comprising of alkaline degreasing, descaling in dilute sulfuric acid and a recognized phosphating process. The steel work shall then receive two dip-coats of oxide filler/ primer before final painting. Castings shall be scrupulously cleaned and fettled before receiving a similar oxide primer coat. The manufacturer is required to have 7 tank treatment facility for this.

**SECTION: E.09****BMS SPECIFICATION****BMS SPECIFICATION****1. Purpose and Scope**

- 1.1 This Specification describes the minimum standards of the Integrated Station Management System (BMS) for KANPUR Metro elevated stations. The Works to be executed under the Contract include the design, development, manufacture, verification, delivery, installation, testing, commissioning (including integrated testing and commissioning) and technical support for a complete BMS to fully integrate the control, monitoring, and supervision of Ventilation & Air Conditioning , Low Voltage Power & Distribution, Firefighting & Alarm System, Hydraulic System (water pumps & Bore Well Pumps etc.) and other nominated station Services including all DDC Equipment, , Modules, Sub Modules, Power Supplies, Local Control Panels, Local Area Network (LAN), Ethernet Hubs and Switches, Interface with electrical containment and wiring systems, and other components as required whether or not specified necessary to deliver the requirements of this Specification.
- 1.2 The BMS is to be detailed engineering, designed manufactured, supplied, installed, tested and commissioned by the Contractor and shall meet all performance and functional requirements as defined in the Specification. This specification contains a general description of the system concepts and major components, and sections covering definitions, requirements for interfaces with other contracts, general mechanical and electrical installation design/performance requirements, and testing requirements.
- 1.3 The emphasis is to explain the requirements of work, interfaces with other contractors for achieving an efficient & safe working system commensurate to the best international standards and practices. Every effort has been made to cite the requirements very clearly, however in this contract, the contractor shall follow acceptable standards & procedures similar to the best available in world Metros where this is not explicitly mentioned.
- 1.4 In this document the term "provide" shall mean "the detailed covering specifications, calculations, drawings for installations & maintenance, manufacture and factory testing or procurement, delivery, off-loading, installation, testing, commissioning, handover to UPMRC, UPMRC staff training including supply of O&M manuals & as-built drawings, interface and co-ordination with other contractors or arising out of concurrent works and warranties".
- 1.5 Submittals shall be in the form of reports, drawings, calculation sheets & schedules both in hard copy and on computer diskette. The contractor shall furnish backup materials such as codes / Standards / software programs free of cost for the Engineer use in understanding/evaluation of the submittals. The contractor will furnish a list and format of submittals for each area of work to the Engineer for consent covering the requirements given herein.

## 2. BMS For Elevated Station

2.1 The contractor shall Detail Engineering, Design, Supply, Installation, Testing and Commissioning of DDC based BMS system for all elevated stations. The system shall be IP (MODBUS/ BACNET etc.) based and Control and Monitor of the following equipment's at each elevated station. The contractor shall ensure that DDC to Main Switching network shall be through MODBUS TCP/IP Communication. Also shall ensure that all associated components as part of DDC system (specified under BOQ) shall be supplied without any variation to the contract.

- a) LV Distribution Board
- b) Public area Normal Lighting Control.
- c) Variable Refrigerant Volume (VRV) Controller and CRC temp control.
- d) Fire Alarm Control Panel (FACP)
- e) Fire Fighting (Main Electric Pump, Jockey Pump) & Domestic Water Pumps, Water Tank level indication etc.
- f) Lift and Escalator RMS
- g) DG Sets
- h) Other systems as per requirement.

## 2.2 HARDWARE & SOFTWARE FUNCTION SPECIFICATION

### 2.2.1 Workstation cum server

Standalone commercial grade industrial compatible Desktop workstation cum server , features Intel core I9 processor (should be latest processor) with 3.0 GHz or higher, 16GB RAM or higher, DVD R/RW, Dual LAN card, Video Accelerator, 2 Serial, 1 parallel, Windows 11 OS or latest based (64 bit) latest Desktop with standard MS office package, complete with one No. USB mouse, 2 Nos. spare USB ports, minimum 4 Nos. High speed parallel ports, one No. 2 TB hard disk drive, 101 keys keyboard having 30 programmable function keys, Latest Norton/MacAfee Anti-virus with lifetime validity vaccine suitable for operation on 230 volts A/C. 50 Hz.

The Dual colour monitor shall be minimum 32" diagonal nonglare flat LED screen high resolution with minimum HDMI resolution of 3840 pixels horizontal, 2160 lines vertical and minimum contrast ratio of 700:1. with minimum 16 based colour as per specifications etc. including dual monitor holder as required. Workstations shall include all accessories needed to comply to UL requirements. 1 Nos. Additional Programming terminal (Laptop) shall be provided to Facilitate O&M activities at each station.

### 2.3 A4 Colour Printer

- i. 02 Nos. full colour A4 page printer, shall be provided for creating paper copies of Workstation screen displays, reports, etc
- ii. For Elevated stations & Station level, Report printer (A4) shall be provided. Laser printers shall be like friendly maintenance and eco-friendly savings. Laser printer shall produce both black and white and colour prints.
- iii. The minimum requirements for Printer are as follows,

S.NO.	DESCRIPTION	REQUIREMENT
a.	Printer	A4 Color Printer
b.	Functions	Print, Copy, Scan
c.	Resolution	Min. 1200x1200 dpi for Black Upto. 4800x1200 dpi for Color
d.	Print Speed	Color: Min. 20 ppm Black: Min. 20 ppm
e.	Ports	USB & Ethernet
f.	Wireless Connectivity	Wi-Fi and Bluetooth
g.	Network Protocol	Modbus TCP/IP
h.	Duplex Printing	Automatic

## 2.4 DDC Controller

- 2.4.1 DDC Controllers shall be IP based and communicate with BMS System. Automation stations must be IP based, intelligent. Automation stations must be freely programmable and feature graphical programming optimized for building automation and control. The following functions must be available: Control, measure, signal at various priorities and by event, monitor, alarm, count, calculate, schedule, save trend values, and log.
- 2.4.2 At the heart of the DDC system shall be the Microprocessor based modules, which can be individually programmed according to the functional requirements.
- 2.4.3 The IP DDC controllers shall be selected from either a modular or compact type of unit to suit the most economic inclusion of all the data points specified. To facilitate this controller should come in various configurations to handle at least up to 250 I/O points. Each control module shall be capable of operating on a stand-alone basis without control from a central computer.
- 2.4.4 The IP DDC Controllers shall have onboard IO points and also shall support flexible I/O expansion modules (both hard points and soft points).
- 2.4.5 The DDC Controllers support protocols such as BACnet/IP, BACnet/MSTP, Modbus TCP IP, etc.,
- 2.4.6 The input/output connection to Modular controllers shall be via individual plug-in modules suitable for the particular peripheral device.
- 2.4.7 The DDC Controllers shall be used for Total Automation application with Trending availability at controller level.
- 2.4.8 It shall be possible to integrate both types of control module (compact and modular) onto the same BACnet communication network/MODBUS TCP IP network. Each controller performance shall be to 0.5% control accuracy with sample rates of less than one second.
- 2.4.9 The products used in constructing the BMS management and automation levels shall conform to BACnet protocol / MODBUS TCP/IP protocol for station automation and control networks.
- 2.4.10 DDC must be UL approved, must have real time clock and be suitable for PID control.
- 2.4.11 The Distributed direct digital control (DDC) system shall be designed with functions distributed both physically and functionally over the field controller.
- 2.4.12 The DDC's shall be true autonomous with peer-to-peer communication and shall have minimum the following features.
  - i. Optional connection to operator terminal, management station and via Web browser with Web server device.
  - ii. Freely Programmable



- iii. Universal inputs, which can be connected to passive and active sensor elements, or to binary volt-free contacts, for signalling functions.
- iv. Flash ROM, real time processing and multi tasking
- v. 32 bit processor system
- vi. Supply voltage AC 240V +/-20% 50/60 Hz
- vii. Event driven data transmission
- viii. Historical data memory storage
- ix. Software application stored in nonvolatile memory
- x. The system shall have the facility for a Web server to be added to allow full operation of all automation station control modules connected to the Lon Talk BACnet network via a standard thin client/web browser. Functions to include
  - xi. Process control & interlock functions.
  - xii. Alarm transmission via SMS and e-mail
  - xiii. Operation of all-time schedules, exception calendar and heating curves.
  - xiv. Reading of trend data with facility to export data to Microsoft Excel.
  - xv. Multi user level access protection
  - xvi. Ethernet or Modem connection
  - xvii. Runtime totalization.
  - xviii. Trend logging of specific data-points with transmission of the logged values to the management level
  - xix. Energy calculations

## 2.5 Communication

- 2.5.1 Contractor shall share the data communication between the Controller and BMS Server/Workstation through MODBUS TCP IP Communication. All third-party systems integration with BMS System through MODBUS TCP/IP communication only.

## 2.6 DDC Enclosure

- 2.6.1 Supply, Installation, Testing & Commissioning of Front operated front/back access cubicle type indoor duty floor/wall/recess/surface mounting, totally enclosed dust and vermin proof (minimum protection IP 54) Industrial type panels with Min 8 Fold Frame ,Colour shade of the panel shall have NONO from employer foamed-in PU gaskets, fabricated from 2mm thick CRCA sheets & gland plate min 3 mm, 7 Inches TFT display, etc. All the panel shall humidity & temp. monitoring facility.
- 2.6.2 Incorporating IP 54 protection, Free standing DDC enclosure equipment complete with Single ended TBs, SMPS, MCBs, etc including interconnections, labelling, earthing, associated foundation/ masonry work and all cable ducting, control wiring, fixing accessories, LV Power isolation indicator lamps, OFC Converter, LED's, fuses, circuit breakers, terminal rail, terminals, marker ferrules and all accessories as may be called for under the specifications.
  - i. The Switchboards shall be provided with detachable gland plates for entry of cables from the top/bottom as required.
  - ii. All accessories and supporting structures such as channels, base frame, mounting brackets, lifting lugs, panel heaters, ventilation arrangement etc as required.
  - iii. The makes of components and accessories shall be same for panels for uniformity, standardization and replaceability shall be applicable to all panels/boards under the scope of work
  - iv. Panel shall have additional 30% Space provision for future expansion. I/Os shall have additional 30% Spare provision for future expansion.

## 2.7 BMS Software

- 2.7.1 Proprietary software packages shall be used within the System, but it should be 2023-year version or latest version at the time of installation.
- 2.7.2 The Contractor shall submit the BMS software compactable certificate with DDC hardware.
- 2.7.3 All software shall be fully proven, including operation at maximum processing load. This feature shall be simulated during the Factory Acceptance Test.

- 2.7.4 The Operating system shall support multi-tasking, multi user, inter process communication and foreground/background processing with real time capabilities, virtual memory management and at least 32-bit virtual addressing scheme and GUI. It shall conform to standards for Open Systems. It shall also maintain a system activity log which shall be used for system recovery. It shall support all I/O devices used including high speed network protocol, TCP/IP, disk arrays, etc.
- 2.7.5 The BMS software shall be divided into the following basic functions:
- 2.7.6 Data base management: Maintenance of the primary database for real time and historical data, signal processing and calculations. The structure of the database shall accommodate easy access of data for use in other proprietary software packages.
- 2.7.7 Communications management: Support of communications protocols with comprehensive error detection and error correction facilities. Support of operating regimes, which optimize performance and operating costs on communication networks using, either dedicated or shared communications channels where operating costs can be either dependent or independent of traffic loading.
- 2.7.8 Alarm and event reporting: Detection of alarms and events, support of alarm reporting and acceptance procedures on the Workstations and generation of printed logs.
- 2.7.9 Peripheral management: Support of operator procedures on the keyboard and mouse units, construction of display page formats and printer page formats.
- 2.7.10 BMS System Control and Monitoring at operator workstations of equipment connected to the terminal units and manual control from the operator workstations or automatic control by pre-programmed sequences resident either in terminal units or designated operator workstations.
- 2.7.11 Fault Diagnosis and Maintenance: Self-diagnosis and fault reporting to replaceable module level, notification when software back-ups are due and general housekeeping to maintain optimum operation. 1 Nos. Additional Tablet with preloaded O&M manual shall be provided.

1. In BMS Development below Display Screens to be developed as minimum,
2. Station overview Display screen
3. E&M Overview Display Screen
4. Fire Alarm Display Screen
5. VAC Overview Display Screen
6. L&E Overview Display Screen
7. BMS System Station Architecture Display Screen
8. Energy Reading Display Screen for VAC panels and E&M Panels
9. Energy Dashboard display screen
10. Trends Display screen
11. Events and Alarm Display screen

All station BMS Equipment datasheets, warranty, etc., shall be available at BMS workstation for Operations and Maintenance procedures.

## INPUT/OUTPUT SCHEDULE

The BMS Contractor shall refer the Station IO Schedule.

Indicative Elevated Station Typical I/O list									
S.No.	Attribute Description	Equipment Location	Type	Signal Category	AI	AO	DI	DO	SOFT IO
1	<b>Sump pit level sensor</b>								
	Low level	pump room	HW	VFC			1		
	Midium level		HW	VFC			1		
	High level		HW	VFC			1		
	Sump Pump operation Logic		SW						1
2	<b>FIRE WATER TANKS LEVELS</b>								
	Fire Water Tank Low Level Alarm	pump room	HW	VFC			2		
	Fire Water Tank Medium Level		HW	VFC			2		
	Fire Water Tank HighLevel		HW	VFC			2		
	Water Inlet logic		SW						1
3	<b>Over head WATER TANKS LEVELS</b>								
	<b>OH</b> Water Tank Low Level Alarm	terrace level	HW	VFC			2		
	Treated Water Tank Medium Level		HW	VFC			2		
	OH Water Tank HighLevel		HW	VFC			2		
	Water Inlet logic		SW						2
4	<b>FACP</b>								
	FACP Integration to BMS (to mimic complete FACP on the BMS screen)		SW	<b>ModBus/RS 485</b>					120
5	<b>Centralised remote controller/VRV</b>								
	CRC integration (to provide complete control to BMS as available with the CRC such as scheduling, unit control, error code display, etc. Approx.Soft points are as follows )	SCR	SW	RS485/TCP-IP					3
	VRV On/Off Command		SW						3
	VRV Running feedback		SW						3
	VRV Local/Remote Position		SW						3
	VRV Current low/High alarm		SW						3
	VRV Trip alarm		SW						3
	VRV Refrigerant pressure Low/High Alarm		SW						3
	VRV Temperature High Alarm		SW						3
	Capacity Limited		SW						3
	Maximum Capacity		SW						3
	Run Enabled		SW						3
	Motor Current		SW						3
	Motor Running KW		SW						3
	COP		SW						3
	IKW/TR		SW						3
	Tonnage		SW					3	

S.No.	Attribute Description	Equipment Location	Type	Signal Category	AI	AO	DI	DO	SOFT IO
6	<b>Lifts</b>								
	Maintenance mode status		SW	MODBUS TCP/IP					4
	Run/Stop status		SW						4
	Power Available Status		SW						4
	Emergency Alarm Status		SW						4
	Lift Parking Status		SW						4
	Fault status		SW						4
	Homing command (parking/ un-parking )		SW						4
	Fire Mode Stop		SW						4
7	<b>Escalators (ESC)</b>								
	Power on/off status		SW	MODBUS TCP/IP					4
	UP & DN direction of travel status		SW						4
	Stop status		SW						4
	Local/Remote Status		SW						4
	Speed of the escalator status		SW						4
	Fault codes of escalator		SW						4
	Escalator fault status		SW						4
	Maintenance mode status		SW						4
	Stop Command		SW						4
	Start (UP ) Command		SW						4
	Start (DN) Command		SW						4
	Fault reset command		SW						4
	Override Command		SW						4
8	<b>Main Distribution Board (MDB) - Type - 1</b>								
	<b>TRANSFORMER - I INCOMING</b>								
	Auto/Manual status	ASS	HW				1		
	Circuit Breaker Open/Close Status		SW						1
	Circuit Breaker Trip Status		SW						1
	ESPB		HW	VFC			1		
	Control Supply Status		HW	VFC			1		
	<b>TRANSFORMER - II INCOMING</b>								
	Auto/Manual status	ASS	HW				1		
	Circuit Breaker Open/Close Status		SW						1
	Circuit Breaker Trip Status		SW						1
	ESPB		HW	VFC			1		
	Control Supply Status		HW	VFC			1		
	<b>BUS COUPLER &amp; BUSBAR</b>								
	Circuit Breaker Open/Close Status	ASS	SW						1
	Circuit Breaker Trip Status		SW						1
	Auto/Manual status		HW				1		
	<b>Metering (at Busbar)</b>								
	Line Voltage	ASS	SW	RS485					1
	Line Current		SW						1
	KW		SW						1
	KVA		SW						1



S.No.	Attribute Description	Equipment Location	Type	Signal Category	AI	AO	DI	DO	SOFT IO
	Line Voltage	ASS	SW	RS 485					1
	Line Current		SW						1
	KW		SW						1
	KVA		SW						1
	KWHr		SW						1
	KVAR		SW						1
	PF		SW						1
	Lift(4) + ACDB + S&T UPS + Spare								
	Line Voltage	ASS	SW	RS 485					7
	Line Current		SW						7
	KW		SW						7
	KVA		SW						7
	KWHr		SW						7
	KVAR		SW						7
	PF		SW						7
	Open/Close status		SW						7
	Trip status		SW						7
10	<b>AC Power Panel +Main lighting panel (ACPP+MLP)</b>								
	<b>INCOMER</b>								
	Open/Close status	ASS	HW			2			
	Trip status		SW						2
	Auto/manual Status		HW			1			
	ESPB		HW			1			
	<b>Metering (at Busbar)</b>								
	Line Voltage		SW	RS 485					1
	Line Current		SW						1
	KW		SW						1
	KVA		SW						1
	KWHr		SW						1
	KVAR		SW						1
	PF		SW						1
11	<b>Emergency lighting panel (EMLP)</b>								
	<b>INCOMER</b>								
	Open/Close status	ASS	HW			2			
	Trip status		SW						2
	Auto/manual Status		HW			1			
	ESPB		HW			1			
	<b>Metering (at Busbar)</b>								
	Line Voltage	ASS	SW	RS 485					1
	Line Current		SW						1
	KW		SW						1
	KVA		SW						1
	KWHr		SW						1
	KVAR		SW						1
	PF		SW						1





S.No.	Attribute Description	Equipment Location	Type	Signal Category	AI	AO	DI	DO	SOFT IO	
	Pump Running Feedback	PUMP ROOM	SW						2	
	A/M/R STATUS		HW				2			
	ON/OFF Command		HW					2		
	Pump Current		SW						2	
	Pump Running Hours		SW						2	
	<b>2 Nos. Inline Fan</b>									
	Local/Remote Status	PUMP ROOM	HW				2			
	Auto/Manual STATUS		HW				2			
	ON/OFF Command		HW					2		
	Trip status						2			
	On/OFF Status		HW				2			
	Running Hours	SW						2		
<b>13</b>	<b>PAP PANEL</b>									
	<b>INCOMER</b>									
	Open/Close status	ASS	HW				2			
	Trip status		SW						2	
	Auto/manual Status		HW				2			
	ESPB		HW				1			
	<b>BUSBAR</b>									
1	Metering (at Busbar)									
	Line Voltage	ASS	SW	RS 485					1	
	Line Current		SW							1
	KW		SW							1
	KVA		SW							1
	KWHr		SW							1
	KVAR		SW							1
	PF		SW							1
<b>14</b>	<b>DG AMF PANEL</b>									
	<b>INCOMER</b>									
	Auto/Manual Status		HW				1			
	Open/Close Status		SW						1	
	Trip Status		SW						1	
	ESPB		HW				1			
	Outgoing									
	Open/Close Status		SW						3	
	Trip Status		SW						3	
	<b>AMF-160/200/250KVA DG</b>									
	DG Local/Remote Status	DG ROOM	HW				1			
	DG Set / Engine Start Feedback		HW				1			
	DG common Fault Alarm		SW						1	
	DG Battery Voltage		SW						1	
	DG Output Voltage		SW						1	

S.No.	Attribute Description		Type	Signal Category	AI	AO	DI	DO	SOFT IO
	DG Output Frequency		SW						1
	DG set failed to start or tripped alarm		SW						1
	Hours of operation		SW						1
	Starter battery voltage alarm		SW						1
	DG Canopy open alarm		SW						1
	Low Lube Oil Pressure		SW						1
	High water tem Alarm		SW						1
	ESPB Alarm		HW				1		
	Over cranking alarm		HW						1
	DG radiator low level alarm		SW						1
	Fule consumption		SW						1
	DG fuel level indication		HW						1
	DG not run for 15 days		SW						1
15	LDB								
	Local/Remote status		HW				11		
	R PHASE								
	Open/Close status		HW				11		
	ON/OFF COMMAND		HW					11	
	Y PHASE								
	Open/Close status	Concourse ,Platform, DG ROOM, Viaduct	HW				11		
	ON/OFF COMMAND		HW					11	
	B PHASE								
	Open/Close status		HW				11		
	ON/OFF COMMAND		HW					11	
16	UDB								
	Local/Remote status		HW				5		
	UPS supply								
	Open/Close status	Concourse, Platform and DG Room	HW				5		
	ON/OFF COMMAND		HW					5	
					0	0	129	47	486

Note;- \* IO Summary Indicative only. 30 % IO's in addition for spare & Specified IO's scope shall be considered as scope within the contract .




8	TYPICAL DRAWINGS		
9	KNPAGDDC-01-TDR-ELV-VDC-DWG-12052	CONCRETE OUTLINES CRASH BARRIER & PRECAST PARAPET SHEET 1 OF 2	RO
10	KNPAGDDC-01-TDR-ELV-VDC-DWG-12053	POLYCARBONATE PARAPET FOR VIADUCT (AS AN ALTERNATIVE FOR PRECAST CONCRETE PARAPET) SHEET 2 OF 2	RO
11	KNPAGDDC-01-TDR-ELV-VDC-DWG-12054	GENERAL STANDARD U-GIRDER SPANS - DRAINAGE SYSTEM SHEET 1 OF 2	RO
12	KNPAGDDC-01-TDR-ELV-VDC-DWG-12055	GENERAL STANDARD U-GIRDER SPANS - DRAINAGE SYSTEM SHEET 2 OF 2	RO
13	KNPAGDDC-01-TDR-ELV-VDC-DWG-12056	GENERAL STANDARD SPANS - EARTHING ARRANGEMENT SHEET 1 OF 2	RO
14	KNPAGDDC-01-TDR-ELV-VDC-DWG-12057	GENERAL STANDARD SPANS - EARTHING ARRANGEMENTS SHEET 2 OF 2	RO
15	KNPAGDDC-01-TDR-ELV-VDC-DWG-12058	GENERAL BARRICADING DETAILS	RO
16	KNPAGDDC-01-TDR-ELV-VDC-DWG-12059	DETAILS OF S.S. WATERTIGHT EXPANSION JOINT U-GIRDER SPANS	RO
17	KNPAGDDC-01-TDR-ELV-VDC-DWG-12060	TRACK PLINTH STARTER BARS - U-GIRDER SPANS TYPICAL DETAIL & GENERAL ARRANGEMENT	RO
18	KNPAGDDC-01-TDR-ELV-VDC-DWG-12061	U-GIRDER - STANDARD & NON-STANDARD NOISE BARRIER DETAILS	RO
19	KNPAGDDC-01-TDR-ELV-VDC-DWG-12062	STANDARD PRECAST PIER CAP (TYPE-1) SUPPORTING U-GIRDER SPANS ON BOTH SIDE CONCRETE OUTLINES	RO
20	KNPAGDDC-01-TDR-ELV-VDC-DWG-12063	STANDARD PRECAST PIER CAP (TYPE-1) CONCRETE OUTLINES HOLE DETAILS FOR CONNECTION WITH PIER	RO
21	KNPAGDDC-01-TDR-ELV-VDC-DWG-12064	STANDARD PRECAST PIER CAP (TYPE-1) SUPPORTING U-GIRDER SPANS ON BOTH SIDE PRESTRESSING LAYOUT - SHEET 1 OF 2	RO
22	KNPAGDDC-01-TDR-ELV-VDC-DWG-12065	STANDARD PRECAST PIER CAP (TYPE-1) SUPPORTING U-GIRDER SPANS ON BOTH SIDE PRESTRESSING LAYOUT - SHEET 2 OF 2	RO
23	KNPAGDDC-01-TDR-ELV-VDC-DWG-12066	STANDARD PRECAST PIER CAP (TYPE-1) SUPPORTING U-GIRDER SPANS ON BOTH SIDE REINFORCEMENT DETAIL- SHEET 1 OF 7	RO
24	KNPAGDDC-01-TDR-ELV-VDC-DWG-12067	STANDARD PRECAST PIER CAP (TYPE-1) SUPPORTING U-GIRDER SPANS ON BOTH SIDE REINFORCEMENT DETAIL- SHEET 2 OF 7	RO
25	KNPAGDDC-01-TDR-ELV-VDC-DWG-12068	STANDARD PRECAST PIER CAP (TYPE-1) SUPPORTING U-GIRDER SPANS ON BOTH SIDE REINFORCEMENT DETAIL- SHEET 3 OF 7	RO
26	KNPAGDDC-01-TDR-ELV-VDC-DWG-12069	STANDARD PRECAST PIER CAP (TYPE-1) SUPPORTING U-GIRDER SPANS ON BOTH SIDE REINFORCEMENT DETAIL- SHEET 4 OF 7	RO
27	KNPAGDDC-01-TDR-ELV-VDC-DWG-12070	STANDARD PRECAST PIER CAP (TYPE-1) SUPPORTING U-GIRDER SPANS ON BOTH SIDE REINFORCEMENT DETAIL- SHEET 5 OF 7	RO
28	KNPAGDDC-01-TDR-ELV-VDC-DWG-12071	STANDARD PRECAST PIER CAP (TYPE-1) SUPPORTING U-GIRDER SPANS ON BOTH SIDE REINFORCEMENT DETAIL- SHEET 6 OF 7	RO
29	KNPAGDDC-01-TDR-ELV-VDC-DWG-12072	STANDARD PRECAST PIER CAP (TYPE-1) SUPPORTING U-GIRDER SPANS ON BOTH SIDE REINFORCEMENT DETAIL- SHEET 7 OF 7	RO
30	KNPAGDDC-01-TDR-ELV-VDC-DWG-12073	STANDARD PRECAST PIER CAP (TYPE-1) SUPPORTING U-GIRDER SPANS ON BOTH SIDE REINFORCEMENT - BAR BENDING SCHEDULE SHEET 1 OF 3	RO
31	KNPAGDDC-01-TDR-ELV-VDC-DWG-12074	STANDARD PRECAST PIER CAP (TYPE-1) SUPPORTING U-GIRDER SPANS ON BOTH SIDE REINFORCEMENT - BAR BENDING SCHEDULE SHEET 2 OF 3	RO
32	KNPAGDDC-01-TDR-ELV-VDC-DWG-12075	STANDARD PRECAST PIER CAP (TYPE-1) SUPPORTING U-GIRDER SPANS ON BOTH SIDE REINFORCEMENT - BAR BENDING SCHEDULE SHEET 3 OF 3	RO
33	KNPAGDDC-01-TDR-ELV-VDC-DWG-12077	TRANSITION PIER CAP CROSS OVER SPANS CONCRETE OUTLINES	RO
34	KNPAGDDC-01-TDR-ELV-VDC-DWG-12078	INTERMEDIATE PIER CAP CROSS OVER SPANS CONCRETE OUTLINES	RO
35	KNPAGDDC-01-TDR-ELV-VDC-DWG-13051	28M TYPICAL U-GIRDER STRAIGHT SPAN GAUGES AND CLEARANCES - FUNCTIONAL CROSS SECTION STANDARD U-GIRDER (TYPE-1)	RO
36	KNPAGDDC-01-TDR-ELV-VDC-DWG-13052	28M TYPICAL U-GIRDER SPAN WITH 752.30M RADIUS GAUGES AND CLEARANCES - FUNCTIONAL CROSS SECTION STANDARD U-GIRDER (TYPE-1)	RO
37	KNPAGDDC-01-TDR-ELV-VDC-DWG-13053	28M TYPICAL U-GIRDER SPAN WITH 652.30M RADIUS GAUGES AND CLEARANCES - FUNCTIONAL CROSS SECTION STANDARD U-GIRDER (TYPE-1)	RO
38	KNPAGDDC-01-TDR-ELV-VDC-DWG-13054	20M TYPICAL U-GIRDER SPAN WITH 452.30M RADIUS GAUGES AND CLEARANCES - FUNCTIONAL CROSS SECTION STANDARD U-GIRDER (TYPE-1)	RO
39	KNPAGDDC-01-TDR-ELV-VDC-DWG-13057	U-GIRDER (TYPE-1) STRAIGHT SPAN - 28.0M LENGTH CONCRETE OUTLINE - SHEET 1 OF 2	RO
40	KNPAGDDC-01-TDR-ELV-VDC-DWG-13058	U-GIRDER (TYPE-1) STRAIGHT SPAN - 28.0M LENGTH CONCRETE OUTLINE - SHEET 2 OF 2	RO
41	KNPAGDDC-01-TDR-ELV-VDC-DWG-13059	U-GIRDER (TYPE-1) CURVED SPAN - VARIOUS LENGTHS CONCRETE OUTLINE - SHEET 1 OF 2	RO
42	KNPAGDDC-01-TDR-ELV-VDC-DWG-13060	U-GIRDER (TYPE-1) CURVED SPAN - VARIOUS LENGTHS CONCRETE OUTLINE - SHEET 2 OF 2	RO
43	KNPAGDDC-01-TDR-ELV-VDC-DWG-13061	U-GIRDER (TYPE-1) CONCRETE OUTLINE - CROSS SECTION	RO
44	KNPAGDDC-01-TDR-ELV-VDC-DWG-13062	U-GIRDER (TYPE-1) PT RECESS DETAILING - SHEET 1 OF 2	RO
45	KNPAGDDC-01-TDR-ELV-VDC-DWG-13063	U-GIRDER (TYPE-1) PT RECESS DETAILING - SHEET 2 OF 2	RO
46	KNPAGDDC-01-TDR-ELV-VDC-DWG-13064	U-GIRDER (TYPE-1) 28M U-GIRDER SPAN PRESTRESSING LAYOUT	R1
47	KNPAGDDC-01-TDR-ELV-VDC-DWG-13065	U-GIRDER (TYPE-1) 28M U-GIRDER SPAN REINFORCEMENT - PLAN VIEW	RO
48	KNPAGDDC-01-TDR-ELV-VDC-DWG-13066	U-GIRDER (TYPE-1) 28M U-GIRDER SPAN REINFORCEMENT - ELEVATIONS	RO
49	KNPAGDDC-01-TDR-ELV-VDC-DWG-13067	U-GIRDER (TYPE-1) 28M U-GIRDER SPAN REINFORCEMENT - CROSS-SECTION A-A & B-B'	RO
50	KNPAGDDC-01-TDR-ELV-VDC-DWG-13068	U-GIRDER (TYPE-1) 28M U-GIRDER SPAN REINFORCEMENT - CROSS-SECTION B-B	RO
51	KNPAGDDC-01-TDR-ELV-VDC-DWG-13069	U-GIRDER (TYPE-1) 28M U-GIRDER SPAN REINFORCEMENT - CROSS-SECTION C-C	RO
52	KNPAGDDC-01-TDR-ELV-VDC-DWG-13070	U-GIRDER (TYPE-1) 28M U-GIRDER SPAN REINFORCEMENT - CROSS-SECTION D-D	RO
53	KNPAGDDC-01-TDR-ELV-VDC-DWG-13071	U-GIRDER (TYPE-1) 28M U-GIRDER SPAN REINFORCEMENT - DETAILS AT ENDS	RO
54	KNPAGDDC-01-TDR-ELV-VDC-DWG-13072	U-GIRDER (TYPE-1) 28M U-GIRDER SPAN SPECIAL REARRANGEMENT OF REBARS FOR LIFTING HOLE	RO
55	KNPAGDDC-01-TDR-ELV-VDC-DWG-13073	U-GIRDER (TYPE-1) 28M U-GIRDER SPAN REINFORCEMENT - BAR BENDING SCHEDULE SHEET 1 OF 3	RO
56	KNPAGDDC-01-TDR-ELV-VDC-DWG-13074	U-GIRDER (TYPE-1) 28M U-GIRDER SPAN REINFORCEMENT - BAR BENDING SCHEDULE SHEET 2 OF 3	RO
57	KNPAGDDC-01-TDR-ELV-VDC-DWG-13075	U-GIRDER (TYPE-1) 28M U-GIRDER SPAN REINFORCEMENT - BAR BENDING SCHEDULE SHEET 3 OF 3	RO
58	KNPAGDDC-01-TDR-ELV-VDC-DWG-13076	U-GIRDER (TYPE-1) 28M U-GIRDER SPAN REINFORCEMENT PRINCIPLE	RO
59	KNPAGDDC-01-TDR-ELV-VDC-DWG-13082	STATION U-GIRDER CURVED SPAN - VARIOUS LENGTHS CONCRETE OUTLINE	RO
60	KNPAGDDC-01-TDR-ELV-VDC-DWG-13084	U-GIRDER SPANS BEARING DIMENSION FOR STRAIGHT/CURVED SPANS	RO


L PIER COORDINATES			
1	KNPDD-01-TDR-CORRIDOR-2	PIER COORDINATES OF KANPUR ELEVATED CORRIDOR-02 SPAN ARRANGEMENT	R1
<b>MEP:-</b>			
S.No.	Drawing No.	Drawing Title	Revision
<b>M ELECTRICAL</b>			
1	KNPAGDDC-01-TDR-ELV-ECS-DGM-63027	KANPUR ELEVATED STATION (TYPICAL) /MAIN SCHEMATIC DIAGRAM FOR PANELS (SHEET 1 OF 2)	R1
2	KNPAGDDC-01-TDR-ELV-ECS-DGM-63028	KANPUR ELEVATED STATION (TYPICAL) /MAIN SCHEMATIC DIAGRAM FOR PANELS (SHEET 2 OF 2)	RO
3	KNPAGDDC-01-TDR-ELV-ECS-DGM-63029	KANPUR ELEVATED STATION/TYPICAL ELECTRICAL INSTALLATION DETAIL	RO
<b>N ECS</b>			
4	KNPAGDDC-01-TDR-TYP-BMS-VIEW-63402	KANPUR ELEVATED STATION (TYPICAL) BMS SCHEMATIC OVERVIEW	R1
5	KNPAGDDC-01-TDR-ELV-ECS-DGM-63510	KANPUR ELEVATED STATION ECS SCHEMATIC DIAGRAM	RO
6	KNPAGDDC-01-TDR-ELV-ECS-DET-63511	KANPUR ELEVATED STATION ECS-STANDARD DETAILS TYPICAL PIPING & EQUIPMENT INSTALLATION	RO
7	KNPAGDDC-01-TDR-ELV-ECS-PLN-63512	KANPUR ELEVATED STATION (TYPICAL TYPE -B) ECS- CONCOURSE LEVEL LAYOUT	RO
8	KNPAGDDC-01-TDR-ELV-ECS-PLN-63513	KANPUR ELEVATED STATION (TYPICAL TYPE -B ) ECS-ROOF LEVEL LAYOUT	RO
9	KNPAGDDC-01-TDR-ELV-ECS-PLN-63514	KANPUR ELEVATED STATION TYPICAL ECS-PUMP ROOM & DG ROOM LAYOUT	RO
10	KNPAGDDC-01-TDR-VJN-ECS-PLN-68510	VIJAY NAGAR CHAURAH (TYPICAL ELEVATED STATION) ECS SCHEMATIC DIAGRAM	RO
11	KNPAGDDC-01-TDR-VJN-ECS-DET-68511	VIJAY NAGAR CHAURAH (TYPICAL ELEVATED STATION) ECS-STANDARD DETAIL TYPICAL PIPING & EQUIPMENT INSTALLATION	RO
12	KNPAGDDC-01-TDR-VJN-ECS-PLN-68512	VIJAY NAGAR CHAURAH (TYPICAL ELEVATED STATION) ECS- CONCOURSE LEVEL LAYOUT	RO
13	KNPAGDDC-01-TDR-VJN-ECS-PLN-68513	VIJAY NAGAR CHAURAH (TYPICAL ELEVATED STATION) ECS-ROOF LEVEL LAYOUT	RO
14	KNPAGDDC-01-TDR-VJN-ECS-PLN-68514	VIJAY NAGAR CHAURAH (TYPICAL ELEVATED STATION) ECS-PUMP ROOM & DG ROOM LAYOUT	RO
<b>O FIRE FIGHTING</b>			
14	KNPAGDDC-01-TDR-TYP-FPS-DGM-63610	KANPUR ELEVATED STATION (TYPICAL)/SCHEMATIC DIAGRAM - FIRE FIGHTING SYSTEM	RO
15	KNPAGDDC-01-TDR-TYP-FPS-DET-63611	KANPUR ELEVATED STATION (TYPICAL)/TYPICAL PIPE SUPPORT/CLAMP DETAILS	RO
16	KNPAGDDC-01-TDR-VJN-FPS-PLN-68601	VIJAY NAGAR CHAURAH STATION GROUND LEVEL FIRE FIGHTING LAYOUT	RO
17	KNPAGDDC-01-TDR-VJN-FPS-PLN-68602	VIJAY NAGAR CHAURAH STATION CONCOURSE LEVEL FIRE FIGHTING LAYOUT	RO
18	KNPAGDDC-01-TDR-VJN-FPS-PLN-68603	VIJAY NAGAR CHAURAH STATION PLATFORM LEVEL FIRE FIGHTING LAYOUT	RO
19	KNPAGDDC-01-TDR-VJN-FPS-PLN-68604	VIJAY NAGAR CHAURAH STATION ANCILLARY BUILDING LEVEL FIRE FIGHTING LAYOUT	RO
<b>P FIRE ALARM</b>			
20	KNPAGDDC-01-TDR-TYP-FPS-DGM-63704	KANPUR ELEVATED STATIONS (TYPICAL) SCHEMATIC DIAGRAM- FIRE ALARM SYSTEM	RO
21	KNPAGDDC-01-TDR-TYP-FPS-DGM-68703	VIJAY NAGAR CHAURAH (TYPICAL ELEVATED STATION) FIRE ALARM SYSTEM SCHEMATIC DIAGRAM	RO
22	KNPAGDDC-01-TDR-TYP-FPS-DGM-68704	VIJAY NAGAR CHAURAH (TYPICAL ELEVATED STATION) FIRE ALARM LAYOUT GROUND LEVEL	RO
23	KNPAGDDC-01-TDR-TYP-FPS-DGM-68705	VIJAY NAGAR CHAURAH (TYPICAL ELEVATED STATION) FIRE ALARM LAYOUT CONCOURSE LEVEL	RO
24	KNPAGDDC-01-TDR-TYP-FPS-DGM-68706	VIJAY NAGAR CHAURAH (TYPICAL ELEVATED STATION) FIRE ALARM LAYOUT PLATFORM LEVEL	RO
<b>Q PLUMBING</b>			
25	KNPAGDDC-01-TDR-ELV-HPS-DGM-63220	KANPUR ELEVATED STATION (TYPICAL) /WATER SUPPLY SYSTEM - SCHEMATIC DIAGRAM	RO
26	KNPAGDDC-01-TDR-ELV-HPS-DGM-63221	KANPUR ELEVATED STATION (TYPICAL) /SEWAGE DRAINAGE SYSTEM - SCHEMATIC DIAGRAM	RO
27	KNPAGDDC-01-TDR-ELV-HPS-DGM-63222	KANPUR ELEVATED STATION (TYPICAL) /SEEPAGE DRAINAGE SYSTEM - SCHEMATIC DIAGRAM	RO
28	KNPAGDDC-01-TDR-ELV-HPS-DET-63351	KANPUR ELEVATED STATION (TYPICAL) /TYPICAL DETAIL OF RAIN WATER HARVESTING PIT	RO
29	KNPAGDDC-01-TDR-ELV-HPS-DET-63352	KANPUR ELEVATED STATION (TYPICAL)/TYPICAL DETAIL & SECTIONS	RO
<b>R LV DISTRIBUTION LAYOUT</b>			
30	KNPAGDDC-01-TDR-VJN-ELS-PLN-68116	VIJAY NAGAR CHAURAH (TYPICAL ELEVATED STATION) CABLE TRAY LAYOUT DG ROOM & PUMP ROOM	RO
31	KNPAGDDC-01-TDR-VJN-ELS-PLN-68117	VIJAY NAGAR CHAURAH (TYPICAL ELEVATED STATION) CABLE TRAY LAYOUT CONCOURSE LEVEL PLAN	RO
32	KNPAGDDC-01-TDR-VJN-ELS-PLN-68118	VIJAY NAGAR CHAURAH (TYPICAL ELEVATED STATION) CABLE TRAY LAYOUT PLATFORM LEVEL PLAN	RO
<b>S RAIN WATER HARVESTING</b>			
33	KNPAGDDC-01-TDR-TYP-RWH-PDS-01	RAIN WATER HARVESTING PIT DETAIL-VIADUCTS	RO
34	KNPAGDDC-01-TDR-TYP-RWH-PDS-02	RAIN WATER HARVESTING PIT DETAIL-STATIONS	RO

PARTICULARS	DRN.	CHD.	VER.	DATE

REFERENCE DRAWINGS	
Drawing Number	Description



UPMRCL




TYPISA - ITALFER

**Consortium of Tecnica y Proyectos, S.A. and Italfer S.P.A.**

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DETAIL DESIGN CONSULTANT



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PREPARED	NAME	SIGNATURE	DRAWING TITLE
DRAWN BY			
DESIGNED BY			
CHECKED BY			
APPROVED BY			

SCALE: AS SHOWN

DATE OF ISSUE:      STAGE: TENDER DRAWING

DRG NO: KNPDD-01-TDR-CORRIDOR-2-GEN-LIS-00001B

REV: R1

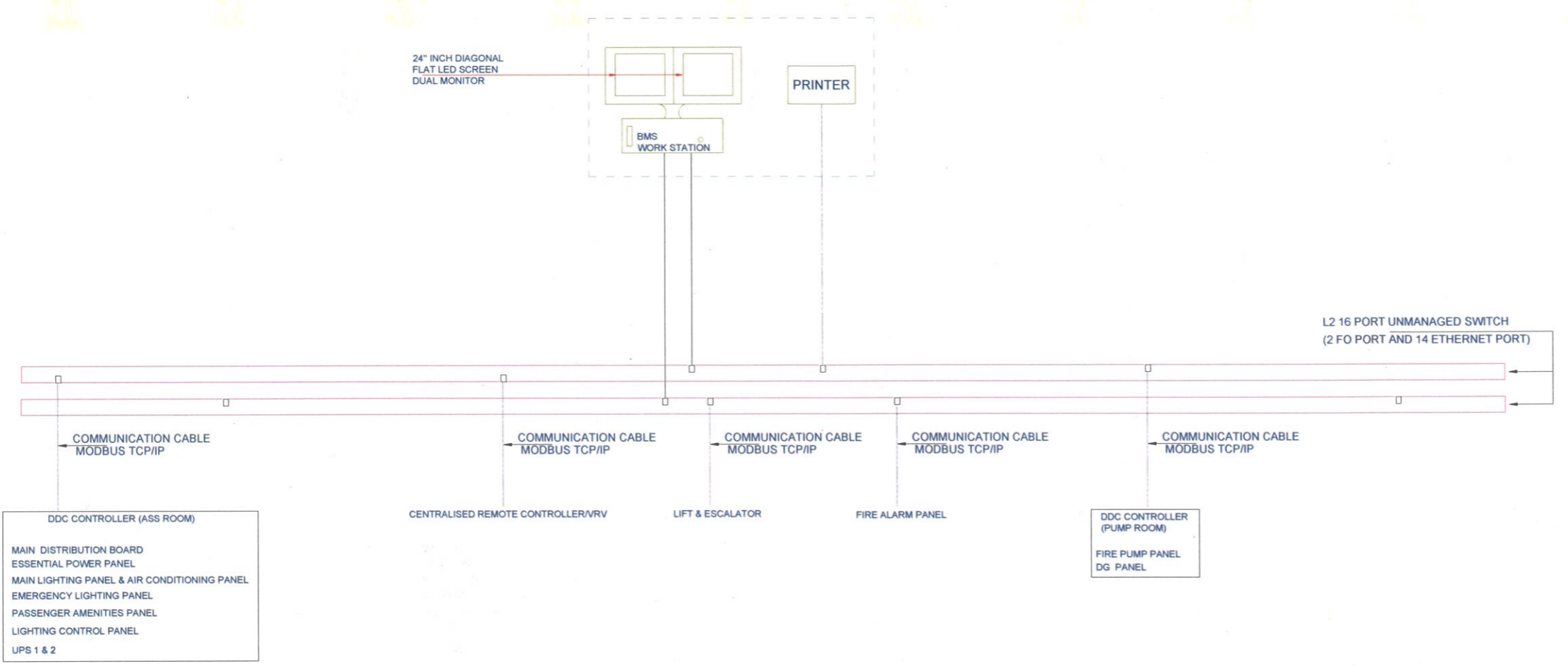
**NOTICE OF NO OBJECTIONS FROM EMPLOYER**

NOTICE OF NO OBJECTION FROM EMPLOYER IS BEING ACCORDED FOR DESIGN PRINCIPLES HOWEVER THE OVERALL RESPONSIBILITY FOR THE DESIGN ACCURACY LIES WITH THE DETAIL DESIGN CONSULTANT.

GC-REVIEW	DATE	SIGNATURE	APP. STATUS	UPMRCL-SIGN OFF	DATE	SIGNATURE
CA/ARCH-GC			<input type="checkbox"/> NOC	JT.CA-UPMRCL		
CE/STRU-GC			<input type="checkbox"/> NOWC	CE DESIGN-UPMRCL		
CE/EAM-GC			<input type="checkbox"/> RESUBMIT	Dy.CE CIVIL-UPMRCL		
DPD-GC				CPM-UPMRCL		

PROJECT TITLE  
**UTTAR PRADESH METRO RAIL CORPORATION LTD**  
(Formerly known as Lucknow Metro Rail Corporation Ltd.)  
KNPDD-AGRICULTURE UNIVERSITY-BARRA-8 CORRIDOR-2

Hemendra  
A/C



**ABBREVIATION**

ABBREVIATION	DESCRIPTION
DDC	DIRECT DIGITAL CONTROLLER
FACP	FIRE ALARM CONTROL PANEL
BMS	BUILDING MANAGEMENT SYSTEM
NS	NETWORK SWITCH
SCR	STATION CONTROL ROOM
MDB	MAIN DISTRIBUTION BOARD
RMS	REMOTE MONITORING SYSTEM
CLCP	CENTRAL LIGHTING CONTROL PANEL
VRV	VARIABLE REFRIGERANT VOLUME
UPS	UNINTERRUPTED POWER SUPPLY

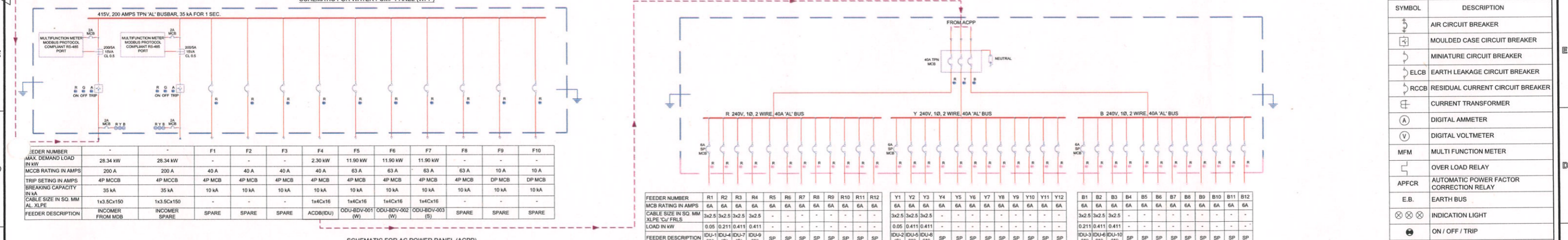
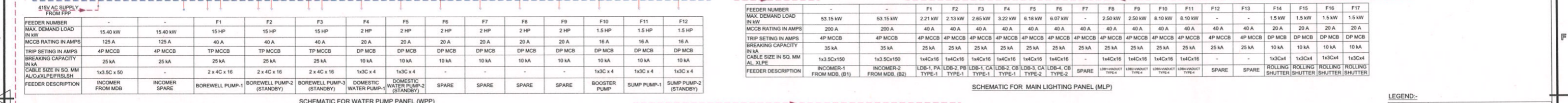
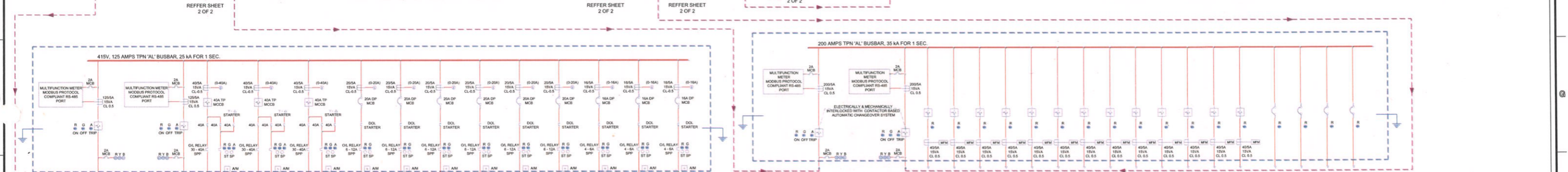
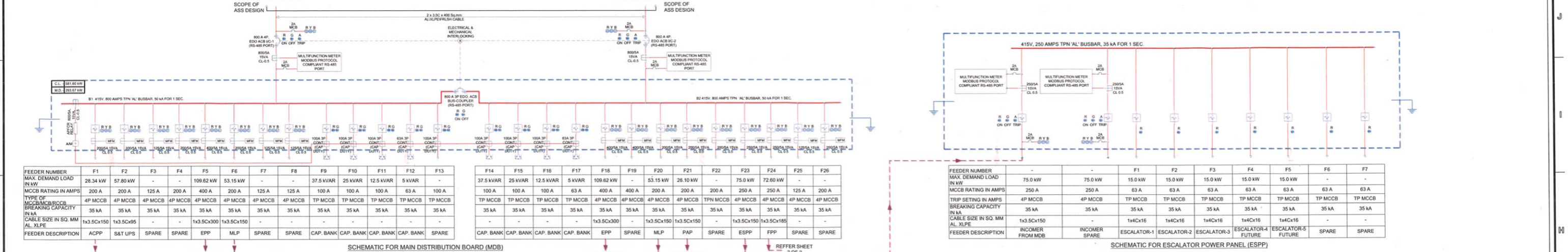
**NOTES:-**

- DDC PUMP ROOM SHALL BE LINKED TO THE CLOSEST SWITCH LOCATED IN THE SCR OR DDC ASS ROOM.
- DDC CONTROLLER WILL BE EVALUATED IN ACCORDANCE WITH THE SPECIFICATIONS AND TENTATIVE IO LIST.
- THIS SCHEMATIC IS TENTATIVE IN NATURE.



**TENDER DRAWING**

<b>GENERAL NOTES</b> 1. ALL DIMENSIONS ARE IN MILLIMETERS 2. ALL DIMENSIONS ARE TO BE READ AND NOT MEASURED 3. THIS DRAWING MUST BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTURAL, STRUCTURAL, PLUMBING, FIRE FIGHTING & ELECTRICAL DRAWINGS 4. ANY DISCREPANCIES MUST BE BROUGHT TO THE NOTICE OF THE CONSULTANT		THE RESPONSIBILITY OF CONTROL, CHECK & VERIFICATION OF ACCURACY, CORRECTNESS, COMPLETENESS, INTEGRATION & FULL COMPLIANCE OF THE CONTRACT / CODAL PROVISIONS IN RESPECT OF DESIGN, ANALYSIS AND DRAWINGS RESTS WITH THE DETAILED DESIGN CONSULTANT.		THIS DRAWING, DESIGN AND DETAILING HAVE BEEN PROOF CHECKED BY US AND IS SUITABLE FOR EXECUTION AND IS APPROVED.		PROJECT: <b>KANPUR METRO RAIL PROJECT</b> UTTAR PRADESH METRO RAIL CORPORATION LIMITED, ADMINISTRATIVE BUILDING, VIPIN KHAND, GOMATI NAGAR, LUCKNOW, UTTAR PRADESH-226010		OFFICE OF ORIGIN 	
DRAWN BY: KESHAV CHAKRABORTY DESIGN BY: RASHID HASSAN CHECKED BY: ARNAV CHAKRABORTY APPROVED BY: AMITAVA DAS		SIGN: <input checked="" type="checkbox"/> NOC <input type="checkbox"/> NOWC <input type="checkbox"/> RESUBMIT DATE: 07-12-2023 NAME: Chakravarty DESIGNATION: Chief VAC Expert		COUNTER SIGNED BY: UPMRCL DATE: 07-12-2023 SIGNATURE:		CLIENT: UP METRO RAIL CORPORATION LTD. TITLE: KANPUR ELEVATED STATIONS (TYPICAL) BMS SCHEMATIC OVERVIEW		REVISION NO: R0	
DRAWN BY: KESHAV CHAKRABORTY DESIGN BY: RASHID HASSAN CHECKED BY: ARNAV CHAKRABORTY APPROVED BY: AMITAVA DAS		REVIEWED BY: APPROVED BY:		GENERAL CONSULTANT:		CONSORTIUM OF TECHNICAL PROYECTOS, S.A. AND ITALFERR S.P.A. 710, 7th Floor, Cyber Heights Vishnu Khari, Gomti Nagar, Lucknow-226010		SCALE: As indicated DATE: 07-DEC-2023 STAGE: TENDER DESIGN DRG NO: KNPAGDDC-01-TDR-TYP-BMS-VEW-63402	
THE RESPONSIBILITY OF CONTROL, CHECK & VERIFICATION OF ACCURACY, CORRECTNESS, COMPLETENESS, INTEGRATION & FULL COMPLIANCE OF THE CONTRACT / CODAL PROVISIONS IN RESPECT OF DESIGN, ANALYSIS AND DRAWINGS RESTS WITH THE DETAILED DESIGN CONSULTANT.		THE RESPONSIBILITY OF CONTROL, CHECK & VERIFICATION OF ACCURACY, CORRECTNESS, COMPLETENESS, INTEGRATION & FULL COMPLIANCE OF THE CONTRACT / CODAL PROVISIONS IN RESPECT OF DESIGN, ANALYSIS AND DRAWINGS RESTS WITH THE DETAILED DESIGN CONSULTANT.		THE RESPONSIBILITY OF CONTROL, CHECK & VERIFICATION OF ACCURACY, CORRECTNESS, COMPLETENESS, INTEGRATION & FULL COMPLIANCE OF THE CONTRACT / CODAL PROVISIONS IN RESPECT OF DESIGN, ANALYSIS AND DRAWINGS RESTS WITH THE DETAILED DESIGN CONSULTANT.		THE RESPONSIBILITY OF CONTROL, CHECK & VERIFICATION OF ACCURACY, CORRECTNESS, COMPLETENESS, INTEGRATION & FULL COMPLIANCE OF THE CONTRACT / CODAL PROVISIONS IN RESPECT OF DESIGN, ANALYSIS AND DRAWINGS RESTS WITH THE DETAILED DESIGN CONSULTANT.		THE RESPONSIBILITY OF CONTROL, CHECK & VERIFICATION OF ACCURACY, CORRECTNESS, COMPLETENESS, INTEGRATION & FULL COMPLIANCE OF THE CONTRACT / CODAL PROVISIONS IN RESPECT OF DESIGN, ANALYSIS AND DRAWINGS RESTS WITH THE DETAILED DESIGN CONSULTANT.	



LEGEND:-

SYMBOL	DESCRIPTION
	AIR CIRCUIT BREAKER
	MOULDED CASE CIRCUIT BREAKER
	MINIATURE CIRCUIT BREAKER
	EARTH LEAKAGE CIRCUIT BREAKER
	RESIDUAL CURRENT CIRCUIT BREAKER
	CURRENT TRANSFORMER
	DIGITAL AMMETER
	DIGITAL VOLTMETER
	MULTI FUNCTION METER
	OVER LOAD RELAY
	AUTOMATIC POWER FACTOR CORRECTION RELAY
	EARTH BUS
	INDICATION LIGHT
	ON / OFF / TRIP
	START / STOP
	DG SET

- GENERAL NOTES:-
- INCOMER & BUS COUPLER SHALL BE ELECTRICALLY & MECHANICALLY INTERLOCKED SUCH THAT THEY ARE NOT PARALLEL TO EACH OTHER.
  - MAXIMUM DEMAND, CABLE SIZES, FEEDER RATINGS ETC. ARE TENTATIVE, MAY BE CHANGED DURING DETAIL DESIGN STAGE.
  - IN CASE OF POWER FAILURE THE D.G. SET HAS TO START AUTOMATICALLY. THIS WILL BE DONE BY AMF PANEL. NECESSARY RELAYS ETC. HAVE TO BE PROVIDED IN THE EMERGENCY PANEL TO SEND THE POWER FAILURE SIGNAL TO AMF PANEL OF D.G. SET.
  - ALL CABLES OF 16SQMM AND ABOVE ARE AL. CONDUCTOR UNLESS SPECIFIED OTHERWISE.



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- ALL DIMENSIONS ARE TO BE READ AND NOT MEASURED.
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- ANY DISCREPANCIES MUST BE BROUGHT TO THE NOTICE OF THE CONSULTANT.

REV NO	DATE	DESCRIPTION
RD	08 Aug 2023	TENDER DESIGN

THE RESPONSIBILITY OF CONTROL, CHECK & VERIFICATION OF ACCURACY, CORRECTNESS, COMPLETENESS, INTEGRATION & FULL COMPLIANCE OF THE CONTRACT / CODAL PROVISIONS IN RESPECT OF DESIGN, ANALYSIS AND DRAWINGS RESTS WITH THE DETAILED DESIGN CONSULTANT.

DDC / CONTRACTOR			
CHIRAN JIB DAS	ARPITA PANJA	ARNAV CHAKRABORTY	ASHISH KUMAR
DESIGNED BY	DESIGN BY	CHECKED BY	APPROVED BY

DETAIL DESIGN CONSULTANT

**SYSTRA**

SYSTRA MVA CONSULTING (INDIA) PVT. LTD.  
VATIKA MINDSCAPES, TOWER-B, 12/3, MATHURA ROAD, NH-2, SECTOR-27/D, FARIDABAD, HARYANA-121013  
PH: 0129 668 5600  
SUBSIDIARY OF:  
SYSTRA S.A. - 5 AVENUE DU COQ - PARIS 75009

THIS DRAWING, DESIGN AND DETAILING HAVE BEEN PROOF CHECKED BY US AND IS SUITABLE FOR EXECUTION AND IS APPROVED.

SIGN:	DATE:	DESIGNATION:
<input checked="" type="checkbox"/> MCC		
<input type="checkbox"/> NOWC		
<input type="checkbox"/> RESUBMIT		

SIGN:	DATE:	DESIGNATION:
CHIRAN JIB DAS		DESIGNED BY
ARPITA PANJA		DESIGN BY
ARNAV CHAKRABORTY		CHECKED BY
ASHISH KUMAR		APPROVED BY

GENERAL CONSULTANT

**TYPSA - ITALFERR**

Consortium of Tecnica y Proyectos, S.A. and Italferr S.P.A.  
710, 7th Floor, Cyber Heights Vibhuti Khand, Gomti Nagar, Lucknow-226010

MAIN SCHEMATIC DIAGRAM FOR PANELS (SHEET 1 OF 2)

SCALE - NTS

COUNTER SIGNED BY	DATE	SIGNATURE
UPMRC		
DY.CEE		<i>One</i>
CEE		
DY.CE/CIVIL		
CPM		

PROJECT: **KANPUR & AGRA METRO RAIL PROJECT : CORRIDOR-2**

UPMRC

CLIENT: **UP METRO RAIL CORPORATION LTD.**

TITLE: **KANPUR ELEVATED STATION (TYPICAL)**

MAIN SCHEMATIC DIAGRAM FOR PANELS (SHEET 1 OF 2)

SCALE:	DATE:	STAGE:
NTS	08 Aug 2023	DETAIL DESIGN

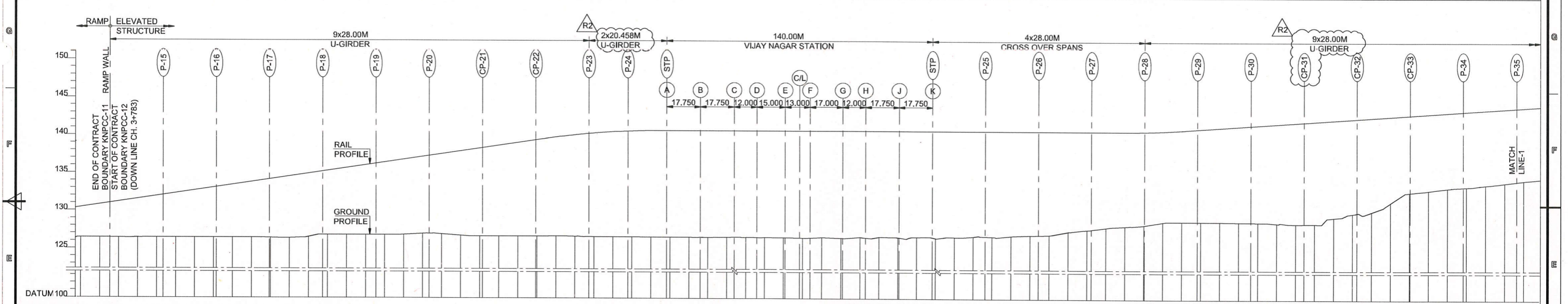
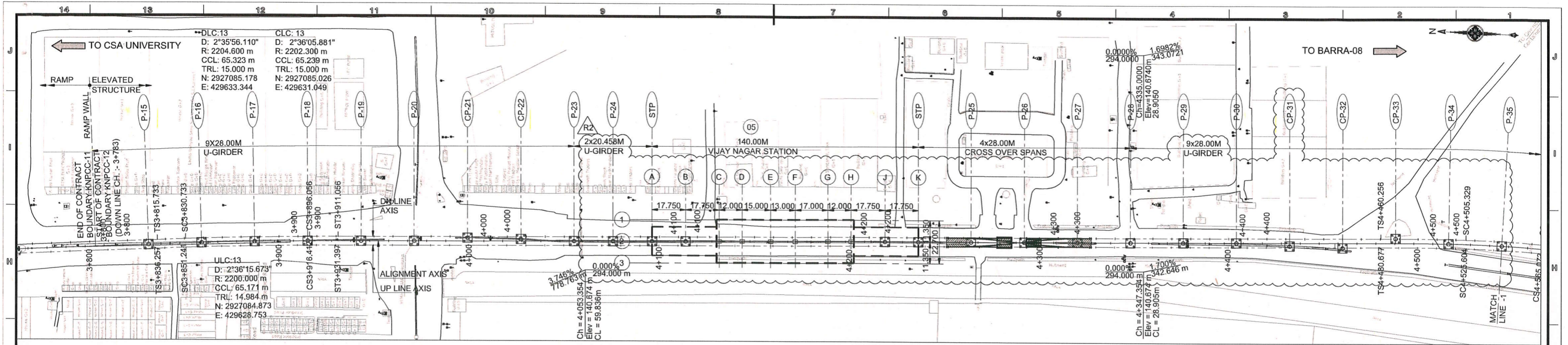
DRG NO: KNPAGDDC-01-TDR-ELV-ELS-DGM-63027

OFFICE OF ORIGIN

**SYSTRA**

REVISION NO:

**R1**



CHAINAGE (ALIGNMENT AXIS) (m)	GROUND LEVEL (m)	RAIL LEVELS (m)	DIFF. IN ELE. (m)
3780.0000	126.453	130.435	3.982
3790.0000	126.454	130.810	4.356
3800.0000	126.429	131.184	4.755
3810.0000	126.448	131.559	5.111
3820.0000	126.454	131.933	5.479
3830.0000	126.454	132.308	5.854
3840.0000	126.454	132.682	6.228
3850.0000	126.454	133.057	6.603
3860.0000	126.454	133.432	6.978
3870.0000	126.454	133.806	7.352
3880.0000	126.422	134.181	7.759
3890.0000	126.381	134.555	8.174
3900.0000	126.545	134.930	8.385
3910.0000	126.820	135.304	8.484
3920.0000	126.816	135.679	8.863
3930.0000	126.817	136.054	9.237
3940.0000	126.814	136.428	9.614
3950.0000	126.842	136.803	9.961
3960.0000	126.978	137.177	10.199
3970.0000	126.938	137.552	10.614
3980.0000	126.760	137.926	11.166
3990.0000	126.673	138.301	11.628
4000.0000	126.674	138.676	12.002
4010.0000	126.676	139.050	12.374
4020.0000	126.679	139.425	12.746
4030.0000	126.683	139.796	13.103
4040.0000	126.652	140.088	13.436
4050.0000	126.616	140.328	13.712
4060.0000	126.602	140.504	13.902
4070.0000	126.600	140.619	14.019
4080.0000	126.580	140.671	14.091
4090.0000	126.592	140.674	14.082
4100.0000	126.586	140.674	14.088
4110.0000	126.572	140.674	14.102
4120.0000	126.592	140.674	14.082
4130.0000	126.566	140.674	14.108
4140.0000	126.557	140.674	14.117
4150.0000	126.541	140.674	14.133
4160.0000	126.510	140.674	14.164
4170.0000	126.577	140.674	14.097
4180.0000	126.501	140.674	14.173
4190.0000	126.619	140.674	14.055
4200.0000	126.638	140.674	14.036
4210.0000	126.603	140.674	14.071
4220.0000	126.650	140.674	14.024
4230.0000	126.527	140.674	14.147
4240.0000	126.662	140.674	14.012
4250.0000	126.728	140.674	13.946
4260.0000	126.723	140.674	13.951
4270.0000	126.830	140.674	13.844
4280.0000	126.914	140.674	13.760
4290.0000	126.977	140.674	13.697
4300.0000	127.416	140.674	13.258
4310.0000	127.670	140.674	13.004
4320.0000	127.981	140.674	12.693
4330.0000	128.161	140.674	12.513
4340.0000	128.338	140.689	12.351
4350.0000	128.711	140.760	12.049
4360.0000	128.777	140.890	12.113
4370.0000	128.777	141.059	12.282
4380.0000	128.777	141.229	12.452
4390.0000	128.758	141.399	12.641
4400.0000	128.733	141.569	12.836
4410.0000	128.608	141.739	13.131
4420.0000	128.533	141.909	13.376
4430.0000	128.551	142.079	13.528
4440.0000	129.371	142.249	12.878
4450.0000	129.910	142.419	12.509
4460.0000	130.177	142.589	12.412
4470.0000	131.385	142.759	11.374
4480.0000	132.728	142.929	10.203
4490.0000	132.972	143.099	10.127
4500.0000	133.290	143.269	9.979
4510.0000	133.468	143.439	9.971
4520.0000	133.719	143.609	9.890
4530.0000	134.009	143.780	9.771
4540.0000	134.306	143.950	9.644

**SPECIAL NOTES:-**  
 1. PIER LOCATIONS ARE FOR REFERENCE PURPOSE ONLY.  
 2. FOUNDATION DETAILS ARE INDICATIVE.  
 3. NUMBER OF U-GIRDER SPANS MAY BE INCREASE / DECREASE AS PER TRACK AXIS.

REV NO	DATE	DESCRIPTION
R2	29-Dec-23	Updated As Per UPMRCL Comments
R1	19-Aug-23	Updated As Per GC/UPMRC Comments
R0	31-Jul-23	First Issue

THE RESPONSIBILITY OF CONTROL, CHECK & VERIFICATION OF ACCURACY, CORRECTNESS, COMPLETENESS, INTEGRATION & FULL COMPLIANCE OF THE CONTRACT / CODAL PROVISIONS IN RESPECT OF DESIGN, ANALYSIS AND DRAWINGS RESTS WITH THE DETAILED DESIGN CONSULTANT.

DDC / CONTRACTOR

**Vikram Singh** Digitally signed by Vikram Singh Date: 2023.12.20 20:02:54 +05'30'

**Divyanshu Tripathi** Digitally signed by Divyanshu Tripathi Date: 2023.12.20 20:06:19 +05'30'

**Santam Lokanatha Reddy** Digitally signed by Santam Lokanatha Reddy Date: 2023.12.20 20:08:25 +05'30'

**Amitava Das** Digitally signed by Amitava Das Date: 2023.12.20 20:10:39 +05'30'

DRAWN BY DESIGN BY CHECKED BY APPROVED BY

DETAIL DESIGN CONSULTANT

**SYSTRA**

SYSTRA MVA CONSULTING (INDIA) PVT. LTD.  
 VATIKA MINDSCAPES, TOWER-B, 12/3,  
 MATHURA ROAD, NH-2, SECTOR-27/D,  
 FARIDABAD, HARYANA-121013  
 PH: 0129 668 5600  
 SUBSIDIARY OF:  
 SYSTRA S.A. - 5 AVENUE DU COQ - PARIS 75009

THIS DRAWING, DESIGN AND DETAILING HAVE BEEN PROOF CHECKED BY US AND IS SUITABLE FOR EXECUTION AND IS APPROVED.

COUNTER SIGNED BY UPMRCL DATE SIGNATURE

GENERAL CONSULTANT

Consortium of Tecnica y Proyetcos, S.A. and Italferr S.P.A.  
 710, 7th Floor, Cyber Heights  
 Vibhuti Khand, Gomti Nagar,  
 Lucknow-226010

REVIEWED BY APPROVED BY VETTED BY

DESIGNATION: **RE** DESIGNATION: **SSE** DESIGNATION: **CSE**

DATE: **21.12.2023** DATE: **21.12.2023** DATE: **21.12.2023**

NAME: **SAK** NAME: **MSG** NAME: **ATD**

DESIGNATION: **RE** DESIGNATION: **SSE** DESIGNATION: **CSE**

REVIEWED BY APPROVED BY VETTED BY

DATE: **21.12.2023**

NAME: **SAK** NAME: **MSG** NAME: **ATD**

DESIGNATION: **RE** DESIGNATION: **SSE** DESIGNATION: **CSE**

PROJECT: **KANPUR & AGRA METRO RAIL PROJECT : CORRIDOR-2**

UPMRC

UTTAR PRADESH METRO RAIL CORPORATION LIMITED,  
 ADMINISTRATIVE BUILDING, VIPIN KHAND, GOMATI NAGAR,  
 LUCKNOW, UTTAR PRADESH-226010

CLIENT: **UP METRO RAIL CORPORATION LTD.**

TITLE: **SPAN ARRANGEMENT - KANPUR METRO CORRIDOR-2**

SHEET **2**

SCALE: AS SHOWN DATE: 31-Jul-23 STAGE: TENDER DESIGN

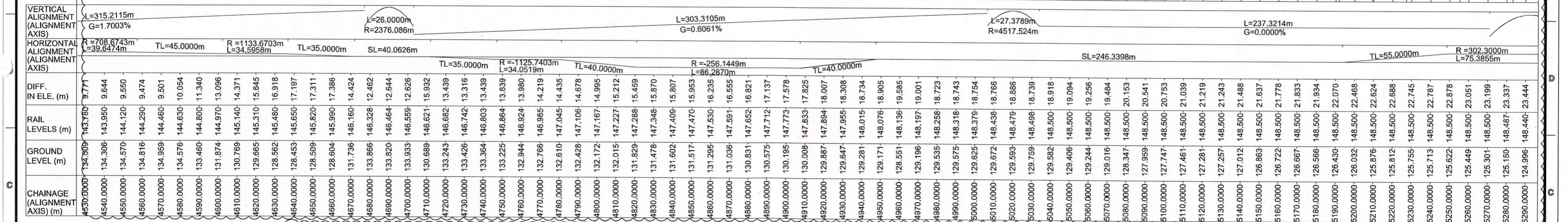
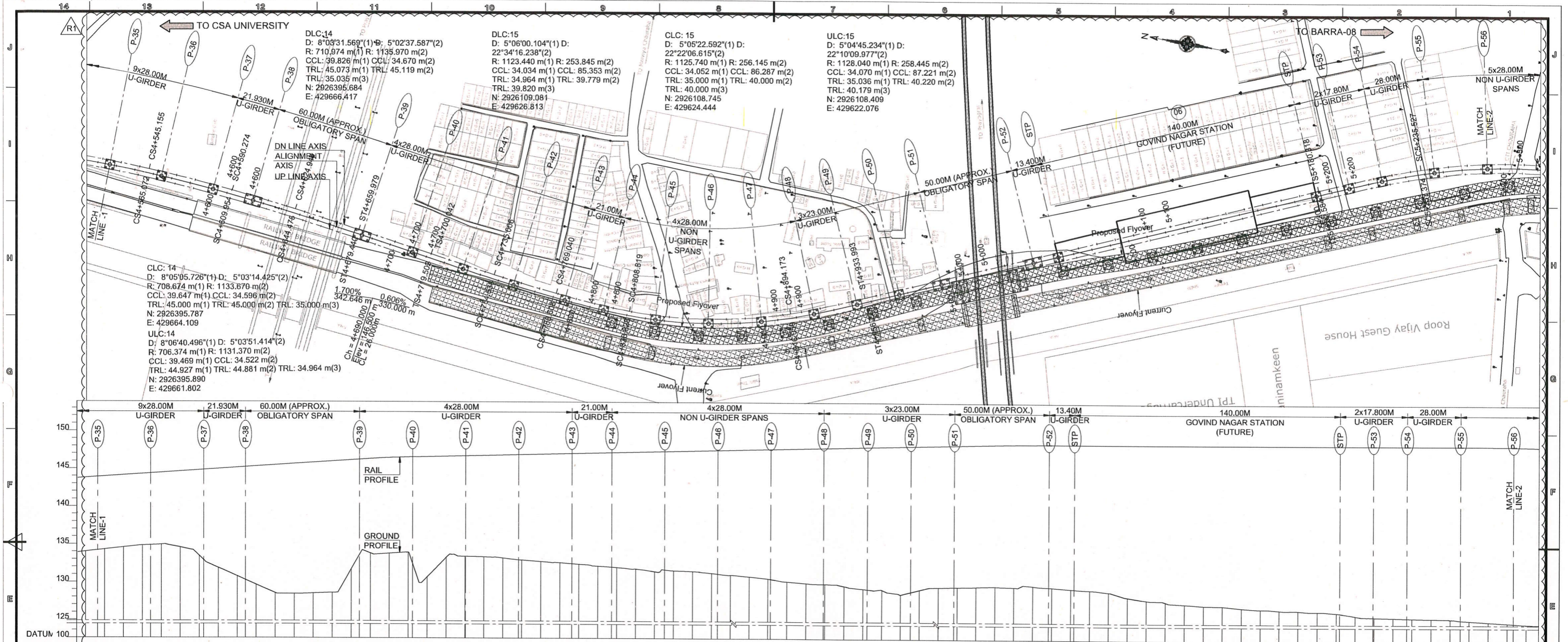
DRG NO: **KNPAGDDC-01-TDR-ELV-VDC-DWG-06002**

OFFICE OF ORIGIN

**SYSTRA**

REVISION NO: **R2**

TENDER DESIGN DRAWING



VERTICAL ALIGNMENT (ALIGNMENT AXIS)	HORIZONTAL ALIGNMENT (ALIGNMENT AXIS)	DIFF. IN ELE. (m)	RAIL LEVELS (m)	GROUND LEVEL (m)	CHAINAGE (ALIGNMENT AXIS) (m)
L=315.2115m G=1.7003%	R=708.6743m R=39.6474m	9.771	143.780	134.009	4830+000
	TL=45.000m	9.644	143.950	134.306	4840+000
	R=1133.6703m L=34.5958m	9.550	144.120	134.570	4850+000
	TL=35.000m	9.474	144.290	134.816	4860+000
	SL=40.0626m	9.501	144.460	134.959	4870+000
		10.054	144.630	134.576	4880+000
		11.340	144.800	133.460	4890+000
		13.096	144.970	131.874	4900+000
		14.371	145.140	130.769	4910+000
		15.645	145.310	129.665	4920+000
		16.918	145.480	128.562	4930+000
		17.197	145.650	128.453	4940+000
		17.311	145.820	128.509	4950+000
		17.386	145.990	128.604	4960+000
		14.424	146.160	131.736	4970+000
		12.462	146.328	133.866	4980+000
		12.644	146.464	133.820	4990+000
		12.626	146.559	133.933	5000+000
		15.932	146.621	130.689	5010+000
		13.439	146.682	133.243	5020+000
		13.316	146.742	133.426	5030+000
		13.439	146.803	133.364	5040+000
		13.639	146.864	133.225	5050+000
		13.980	146.924	132.944	5060+000
		14.219	146.985	132.766	5070+000
		14.435	147.045	132.610	5080+000
		14.678	147.106	132.428	5090+000
		14.995	147.167	132.172	5100+000
		15.212	147.227	132.015	5110+000
		15.459	147.288	131.829	5120+000
		15.870	147.348	131.478	5130+000
		15.807	147.409	131.602	5140+000
		15.953	147.470	131.517	5150+000
		16.235	147.530	131.295	5160+000
		16.555	147.591	131.036	5170+000
		16.821	147.652	130.831	5180+000
		17.137	147.712	130.575	5190+000
		17.578	147.773	130.195	5200+000
		17.825	147.833	130.008	5210+000
		18.007	147.894	129.887	5220+000
		18.308	147.955	129.647	5230+000
		18.794	148.015	129.281	5240+000
		18.905	148.076	129.171	5250+000
		19.585	148.136	128.551	5260+000
		19.001	148.197	129.196	5270+000
		18.723	148.258	129.535	5280+000
		18.743	148.318	129.575	5290+000
		18.754	148.379	129.625	5300+000
		18.766	148.438	129.672	5310+000
		18.866	148.479	129.593	5320+000
		18.739	148.498	129.759	5330+000
		18.918	148.500	129.582	5340+000
		19.094	148.500	129.406	5350+000
		19.256	148.500	129.244	5360+000
		19.484	148.500	129.016	5370+000
		20.153	148.500	128.347	5380+000
		20.541	148.500	127.959	5390+000
		20.753	148.500	127.747	5400+000
		21.039	148.500	127.461	5410+000
		21.219	148.500	127.281	5420+000
		21.243	148.500	127.257	5430+000
		21.488	148.500	127.012	5440+000
		21.637	148.500	126.863	5450+000
		21.778	148.500	126.722	5460+000
		21.833	148.500	126.667	5470+000
		21.934	148.500	126.566	5480+000
		22.070	148.500	126.430	5490+000
		22.468	148.500	126.032	5500+000
		22.624	148.500	125.876	5510+000
		22.688	148.500	125.812	5520+000
		22.745	148.500	125.755	5530+000
		22.787	148.500	125.713	5540+000
		22.878	148.500	125.622	5550+000
		23.051	148.500	125.449	5560+000
		23.199	148.500	125.301	5570+000
		23.337	148.487	125.150	5580+000
		23.444	148.440	124.996	5590+000

**SPECIAL NOTES:**

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- FOUNDATION DETAILS ARE INDICATIVE.
- NUMBER OF U-GIRDER SPANS MAY BE INCREASE / DECREASE AS PER TRACK AXIS.
- THE FOUNDATION/LAYOUT OF PROPOSED FLYOVER IS TENTATIVE AND INDICATIVE ONLY AND SHALL BE VERIFIED AT THE TIME OF EXECUTION. THE VIADUCT PIERS IN THE VICINITY OF THE PROPOSED FLYOVER MARKED P-41 TO P-61 ARE SUBJECT TO CHANGE BASED ON ACTUAL SITE CONDITION AT THE TIME OF EXECUTION.

**GENERAL NOTES:**

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**THE RESPONSIBILITY OF CONTROL, CHECK & VERIFICATION OF ACCURACY, CORRECTNESS, COMPLETENESS, INTEGRATION & FULL COMPLIANCE OF THE CONTRACT / CODAL PROVISIONS IN RESPECT OF DESIGN, ANALYSIS AND DRAWINGS RESTS WITH THE DETAILED DESIGN CONSULTANT.**

THIS DRAWING, DESIGN AND DETAILING HAVE BEEN PROOF CHECKED BY US AND IS SUITABLE FOR EXECUTION AND IS APPROVED.

NOC     NOWC     RESUBMIT

SIGN:	SIGN:	SIGN:
DATE: 21.12.2023	DATE: 21.12.2023	DATE: 21.12.2023
NAME: SAK	NAME: MSG	NAME: ATD
DESIGNATION: RE	DESIGNATION: SSE	DESIGNATION: CSE

COUNTER SIGNED BY UPMRCL    DATE    SIGNATURE

PROJECT: **KANPUR & AGRA METRO RAIL PROJECT : CORRIDOR-2**  
UTTAR PRADESH METRO RAIL CORPORATION LIMITED,  
ADMINISTRATIVE BUILDING, VIPIN KHAND, GOMATI NAGAR,  
LUCKNOW, UTTAR PRADESH-226010

CLIENT: **UP METRO RAIL CORPORATION LTD.**

TITLE: **SPAN ARRANGEMENT - KANPUR METRO CORRIDOR-2**  
SHEET 3

SCALE: AS SHOWN    DATE: 31-Jul-23    STAGE: TENDER DESIGN

DRG NO: KNPAGDDC-01-TDR-ELV-VDC-DWG-06003

OFFICE OF ORIGIN:

REVISION NO: R1

STRUCTURE

REV NO    DATE    DESCRIPTION

R1	28-Dec-23	Updated As Per UPMRCL Comments
R2	31-Jul-23	First Issue

SYSTRA

DDC / CONTRACTOR

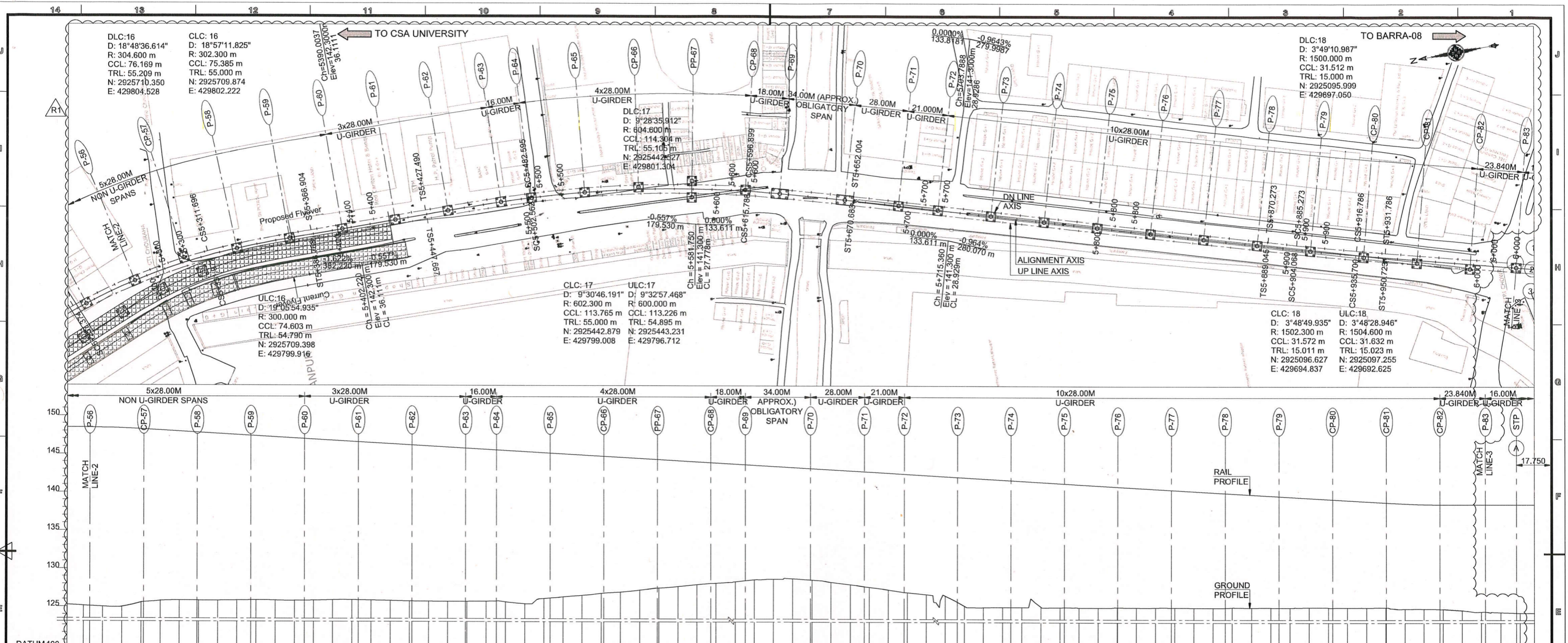
Vikram Singh    Divyanshu Tripathi    Santam Lokanatha Reddy    Amitava Das

DETAIL DESIGN CONSULTANT: SYSTRA MVA CONSULTING (INDIA) PVT. LTD. VATIKA MINDSCAPES, TOWER-B, 12/3, MATHURA ROAD, NH-2, SECTOR-27/D, FARIDABAD, HARYANA-121013. PH: 0129 868 5600. SUBSIDIARY OF: SYSTRA S.A. - 5 AVENUE DU COQ - PARIS 75009

GENERAL CONSULTANT: Consortium of Tecnica y Projectos, S.A. and Italferr S.P.A. 710, 7th Floor, Cyber Heights Vibhuti Khand, Gomti Nagar, Lucknow-226010

TPPSA - ITALFERR



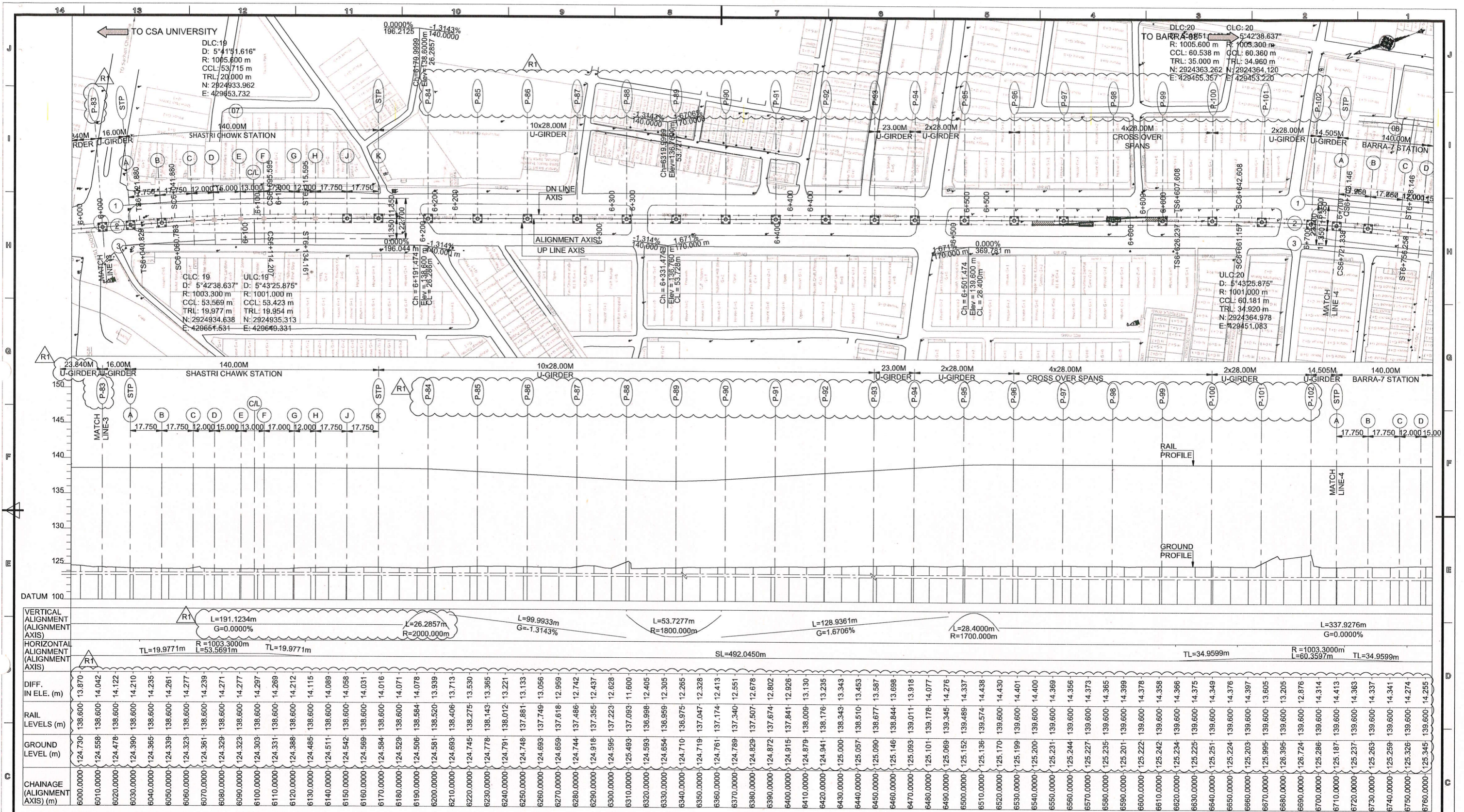


VERTICAL ALIGNMENT (ALIGNMENT AXIS)	HORIZONTAL ALIGNMENT (ALIGNMENT AXIS)	DIFF. IN ELE. (m)	RAIL LEVELS (m)	GROUND LEVEL (m)	CHAINAGE (ALIGNMENT AXIS) (m)
L=43.3058m R=2996.323m	R=302.300m L=75.385m	23.337	148.487	125.150	5280.0000
	TL=55.0000m	23.444	148.440	124.996	5290.0000
	SL=60.7421m	23.376	148.360	124.984	5300.0000
	TL=55.0000m	22.698	148.246	125.548	5310.0000
	R=602.300m L=113.7649m	22.303	148.105	125.802	5320.0000
	TL=55.0000m	22.107	147.960	125.853	5330.0000
	SL=218.3160m	21.974	147.816	125.842	5340.0000
	TL=15.0115m R=1502.3000m L=31.5723m	21.834	147.671	125.837	5350.0000
	SL=90.0998m	21.662	147.527	125.865	5360.0000
		21.487	147.382	125.895	5370.0000
		21.378	147.238	125.860	5380.0000
		21.259	147.093	125.834	5390.0000
		21.087	146.949	125.862	5400.0000
		20.886	146.804	125.918	5410.0000
		20.729	146.660	125.931	5420.0000
		20.619	146.515	125.896	5430.0000
		20.523	146.371	125.848	5440.0000
		20.440	146.226	125.786	5450.0000
		20.322	146.081	125.759	5460.0000
		20.198	145.937	125.739	5470.0000
		20.035	145.792	125.757	5480.0000
		19.869	145.648	125.779	5490.0000
		19.814	145.503	125.689	5500.0000
		19.921	145.359	125.438	5510.0000
		19.091	145.214	126.123	5520.0000
		18.723	145.070	126.347	5530.0000
		18.372	144.925	126.553	5540.0000
		17.981	144.781	126.800	5550.0000
		17.651	144.636	126.985	5560.0000
		17.249	144.492	127.243	5570.0000
		16.825	144.347	127.522	5580.0000
		16.474	144.203	127.729	5590.0000
		16.081	144.058	127.977	5600.0000
		15.728	143.914	128.186	5610.0000
		15.408	143.769	128.361	5620.0000
		15.006	143.624	128.618	5630.0000
		14.793	143.480	128.687	5640.0000
		14.572	143.335	128.763	5650.0000
		14.596	143.191	128.595	5660.0000
		14.739	143.046	128.307	5670.0000
		14.897	142.902	128.005	5680.0000
		15.102	142.757	127.655	5690.0000
		15.288	142.613	127.325	5700.0000
		15.489	142.468	126.979	5710.0000
		15.609	142.324	126.715	5720.0000
		15.642	142.179	126.537	5730.0000
		16.810	142.035	125.225	5740.0000
		16.859	141.890	125.031	5750.0000
		16.660	141.746	125.086	5760.0000
		16.514	141.601	125.087	5770.0000
		16.312	141.457	125.145	5780.0000
		16.262	141.312	125.050	5790.0000
		16.148	141.167	125.019	5800.0000
		16.004	141.023	125.019	5810.0000
		15.808	140.878	125.070	5820.0000
		15.699	140.734	125.035	5830.0000
		15.549	140.589	125.040	5840.0000
		15.402	140.445	125.043	5850.0000
		15.282	140.300	125.018	5860.0000
		15.137	140.156	125.019	5870.0000
		14.937	140.011	125.074	5880.0000
		14.824	139.867	125.043	5890.0000
		14.665	139.722	125.057	5900.0000
		14.535	139.578	125.043	5910.0000
		14.338	139.433	125.095	5920.0000
		14.214	139.289	125.075	5930.0000
		14.083	139.144	125.061	5940.0000
		13.920	139.000	125.080	5950.0000
		13.755	138.855	125.100	5960.0000
		13.821	138.719	124.898	5970.0000
		13.714	138.633	124.919	5980.0000
		13.713	138.600	124.887	5990.0000
		13.870	138.600	124.730	6000.0000
		14.042	138.600	124.558	6010.0000
		14.122	138.600	124.478	6020.0000
		14.210	138.600	124.390	6030.0000

**SPECIAL NOTES:-**

- PIER LOCATIONS ARE FOR REFERENCE PURPOSE ONLY.
- FOUNDATION DETAILS ARE INDICATIVE.
- NUMBER OF U-GIRDER SPANS MAY BE INCREASE / DECREASE AS PER TRACK AXIS.
- THE FOUNDATION/LAYOUT OF PROPOSED FLYOVER IS TENTATIVE AND INDICATIVE ONLY AND SHALL BE VERIFIED AT THE TIME OF EXECUTION. THE VIADUCT PIERS IN THE VICINITY OF THE PROPOSED FLYOVER MARKED P-41 TO P-61 ARE SUBJECT TO CHANGE BASED ON ACTUAL SITE CONDITION AT THE TIME OF EXECUTION.

<p><b>GENERAL NOTES:</b></p> <p>1. ALL DIMENSIONS ARE IN MILLIMETERS, UNLESS OTHERWISE SPECIFIED.</p> <p>2. ALL DIMENSIONS ARE TO BE READ AND NOT MEASURED.</p> <p>3. THIS DRAWING MUST BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTURAL, STRUCTURAL, PLUMBING &amp; FIRE FIGHTING, ELECTRICAL AND TRAFFIC MANAGEMENT DRAWINGS.</p> <p>4. ANY DISCREPANCIES MUST BE BROUGHT TO NOTICE OF THE CONSULTANT BEFORE EXECUTION.</p>		<p>THE RESPONSIBILITY OF CONTROL, CHECK &amp; VERIFICATION OF ACCURACY, CORRECTNESS, COMPLETENESS, INTEGRATION &amp; FULL COMPLIANCE OF THE CONTRACT / CODAL PROVISIONS IN RESPECT OF DESIGN, ANALYSIS AND DRAWINGS RESTS WITH THE DETAILED DESIGN CONSULTANT.</p>		<p>THIS DRAWING, DESIGN AND DETAILING HAVE BEEN PROOF CHECKED BY US AND IS SUITABLE FOR EXECUTION AND IS APPROVED.</p> <p><input checked="" type="checkbox"/> NOC <input type="checkbox"/> NOWC <input type="checkbox"/> RESUBMIT</p>		<p>COUNTER SIGNED BY UPMRC</p> <p>DATE</p> <p>SIGNATURE</p>		<p>PROJECT: <b>KANPUR &amp; AGRA METRO RAIL PROJECT : CORRIDOR-2</b></p> <p>UPMRC</p> <p>UTTAR PRADESH METRO RAIL CORPORATION LIMITED, ADMINISTRATIVE BUILDING, VIPIN KHAND, GOMATI NAGAR, LUCKNOW, UTTAR PRADESH-226010</p>		<p>OFFICE OF ORIGIN <b>SYSTRA</b></p>	
<p>DDC / CONTRACTOR</p> <p><b>Vikram Singh</b> Digitally signed by Vikram Singh Date: 2023.12.20 20:04:02 +05'30'</p> <p><b>Divyanshu Tripathi</b> Digitally signed by Divyanshu Tripathi Date: 2023.12.20 20:06:56 +05'30'</p> <p><b>Santam Lokanatha Reddy</b> Digitally signed by Santam Lokanatha Reddy Date: 2023.12.20 20:09:07 +05'30'</p> <p><b>Amitava Das</b> Digitally signed by Amitava Das Date: 2023.12.20 20:11:25 +05'30'</p>		<p>SIGN: [Signature]</p> <p>DATE: <b>21.12.2023</b></p> <p>NAME: <b>SAK</b></p> <p>DESIGNATION: <b>RE</b></p>		<p>SIGN: [Signature]</p> <p>DATE: <b>21.12.2023</b></p> <p>NAME: <b>MSG</b></p> <p>DESIGNATION: <b>SSE</b></p>		<p>SIGN: [Signature]</p> <p>DATE: <b>21.12.2023</b></p> <p>NAME: <b>ATD</b></p> <p>DESIGNATION: <b>CSE</b></p>		<p>CLIENT: <b>UP METRO RAIL CORPORATION LTD.</b></p> <p>TITLE: <b>SPAN ARRANGEMENT - KANPUR METRO CORRIDOR-2</b></p> <p>SHEET 4</p>		<p>REVISION NO: R1</p>	
<p>DRAWN BY</p> <p>DESIGN BY</p> <p>CHECKED BY</p> <p>APPROVED BY</p>		<p>REVIEWED BY</p> <p>APPROVED BY</p> <p>VETTED BY</p>		<p>GENERAL CONSULTANT</p> <p>Consortium of Tecnica y Proyectos, S.A. and Italfer S.P.A 710, 7th Floor, Cyber Heights Vibhuli Khand, Gomti Nagar, Lucknow-226010</p> <p><b>TPYSA - ITALFERR</b></p>		<p>DY.CE CIVIL</p> <p>CPM</p>		<p>SCALE: AS SHOWN</p> <p>DATE: 31-Jul-23</p> <p>STAGE: TENDER DESIGN</p> <p>DRG NO: KNPAGDDC-01-TDR-ELV-VDC-DWG-06004</p>		<p>STRUCTURE</p>	



CHAINAGE (ALIGNMENT AXIS) (m)	GROUND LEVEL (m)	RAIL LEVELS (m)	DIFF. IN ELE. (m)
6000.0000	124.730	138.600	13.870
6010.0000	124.558	138.600	14.042
6020.0000	124.478	138.600	14.122
6030.0000	124.390	138.600	14.210
6040.0000	124.365	138.600	14.235
6050.0000	124.339	138.600	14.261
6060.0000	124.323	138.600	14.277
6070.0000	124.361	138.600	14.239
6080.0000	124.329	138.600	14.271
6090.0000	124.323	138.600	14.277
6100.0000	124.303	138.600	14.297
6110.0000	124.331	138.600	14.269
6120.0000	124.388	138.600	14.212
6130.0000	124.485	138.600	14.115
6140.0000	124.511	138.600	14.089
6150.0000	124.542	138.600	14.058
6160.0000	124.569	138.600	14.031
6170.0000	124.584	138.600	14.016
6180.0000	124.529	138.600	14.071
6190.0000	124.506	138.584	14.078
6200.0000	124.581	138.520	13.939
6210.0000	124.683	138.406	13.713
6220.0000	124.745	138.275	13.530
6230.0000	124.778	138.143	13.365
6240.0000	124.791	138.012	13.221
6250.0000	124.748	137.881	13.133
6260.0000	124.693	137.749	13.056
6270.0000	124.669	137.618	12.959
6280.0000	124.744	137.486	12.742
6290.0000	124.918	137.355	12.437
6300.0000	124.595	137.223	12.628
6310.0000	125.493	137.093	11.600
6320.0000	124.593	136.998	12.405
6330.0000	124.654	136.959	12.305
6340.0000	124.710	136.975	12.265
6350.0000	124.719	137.047	12.328
6360.0000	124.761	137.174	12.413
6370.0000	124.789	137.340	12.551
6380.0000	124.829	137.507	12.678
6390.0000	124.872	137.674	12.802
6400.0000	124.915	137.841	12.926
6410.0000	124.879	138.009	13.130
6420.0000	124.941	138.176	13.235
6430.0000	125.000	138.343	13.343
6440.0000	125.057	138.510	13.453
6450.0000	125.090	138.677	13.587
6460.0000	125.146	138.844	13.698
6470.0000	125.093	139.011	13.918
6480.0000	125.101	139.178	14.077
6490.0000	125.069	139.345	14.276
6500.0000	125.152	139.489	14.337
6510.0000	125.136	139.574	14.438
6520.0000	125.170	139.600	14.430
6530.0000	125.199	139.600	14.401
6540.0000	125.200	139.600	14.400
6550.0000	125.231	139.600	14.369
6560.0000	125.244	139.600	14.356
6570.0000	125.227	139.600	14.373
6580.0000	125.235	139.600	14.365
6590.0000	125.201	139.600	14.399
6600.0000	125.222	139.600	14.378
6610.0000	125.242	139.600	14.358
6620.0000	125.234	139.600	14.366
6630.0000	125.225	139.600	14.375
6640.0000	125.251	139.600	14.349
6650.0000	125.224	139.600	14.376
6660.0000	125.203	139.600	14.397
6670.0000	125.995	139.600	13.605
6680.0000	126.395	139.600	13.205
6690.0000	126.724	139.600	12.876
6700.0000	125.286	139.600	14.314
6710.0000	125.187	139.600	14.413
6720.0000	125.237	139.600	14.363
6730.0000	125.263	139.600	14.337
6740.0000	125.259	139.600	14.341
6750.0000	125.326	139.600	14.274
6760.0000	125.345	139.600	14.255

**SPECIAL NOTES:-**  
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REV NO	DATE	DESCRIPTION
R1	26-Dec-23	Updated As Per UPMRCL Comments
R0	31-Jul-23	Final Issue

THE RESPONSIBILITY OF CONTROL, CHECK & VERIFICATION OF ACCURACY, CORRECTNESS, COMPLETENESS, INTEGRATION & FULL COMPLIANCE OF THE CONTRACT / CODAL PROVISIONS IN RESPECT OF DESIGN, ANALYSIS AND DRAWINGS RESTS WITH THE DETAILED DESIGN CONSULTANT.

DDC / CONTRACTOR

**Vikram Singh** Digitally signed by Vikram Singh Date: 2023.12.20 20:04:32 +05'30'

**Divyanshu u Tripathi** Digitally signed by Divyanshu Tripathi Date: 2023.12.20 20:07:16 +05'30'

**Santam Lokanatha Reddy** Digitally signed by Santam Lokanatha Reddy Date: 2023.12.20 20:09:26 +05'30'

**Amitava Das** Digitally signed by Amitava Das Date: 2023.12.20 20:11:45 +05'30'

DRAWN BY DESIGN BY CHECKED BY APPROVED BY

DETAIL DESIGN CONSULTANT

**SYSTRA**

SYSTRA MVA CONSULTING (INDIA) PVT. LTD. VATIKA MINDSCAPES, TOWER-B, 12/3, MATHURA ROAD, NH-2, SECTOR-27/D, FARIDABAD, HARYANA-121013 PH: 0129 668 5600 SUBSIDIARY OF: SYSTRA S.A. - 5 AVENUE DU COQ - PARIS 75009

THIS DRAWING, DESIGN AND DETAILING HAVE BEEN PROOF CHECKED BY US AND IS SUITABLE FOR EXECUTION AND IS APPROVED.

NOC  NOWC  RESUBMIT

SIGN: **SAK** DATE: 21.12.2023

SIGN: **MSG** DATE: 21.12.2023

SIGN: **ATD** DATE: 21.12.2023

DESIGNATION: **RE** DESIGNATION: **SSE** DESIGNATION: **CSE**

REVIEWED BY APPROVED BY VETTED BY

GENERAL CONSULTANT

**TPPSA - ITALFERR**

Consortium of Tecnica y Proyecetos, S.A. and Italferr S.P.A. 710, 7th Floor, Cyber Heights Vibhuti Khand, Gombi Nagar, Lucknow-226010

COUNTER SIGNED BY UPMRCL DATE SIGNATURE

DY.CE CIVIL

CPM

PROJECT: **KANPUR & AGRA METRO RAIL PROJECT : CORRIDOR-2**

UPMRCL

UTTAR PRADESH METRO RAIL CORPORATION LIMITED, ADMINISTRATIVE BUILDING, VIPIN KHAND, GOMATI NAGAR, LUCKNOW, UTTAR PRADESH-226010

CLIENT: **UP METRO RAIL CORPORATION LTD.**

TITLE: **SPAN ARRANGEMENT - KANPUR METRO CORRIDOR-2**

SHEET 5

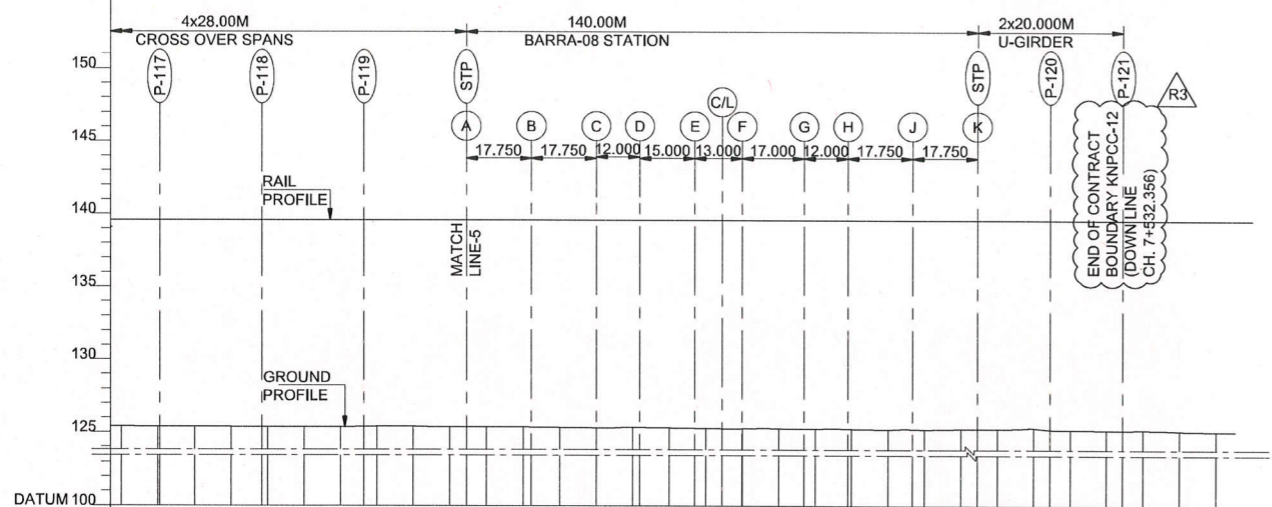
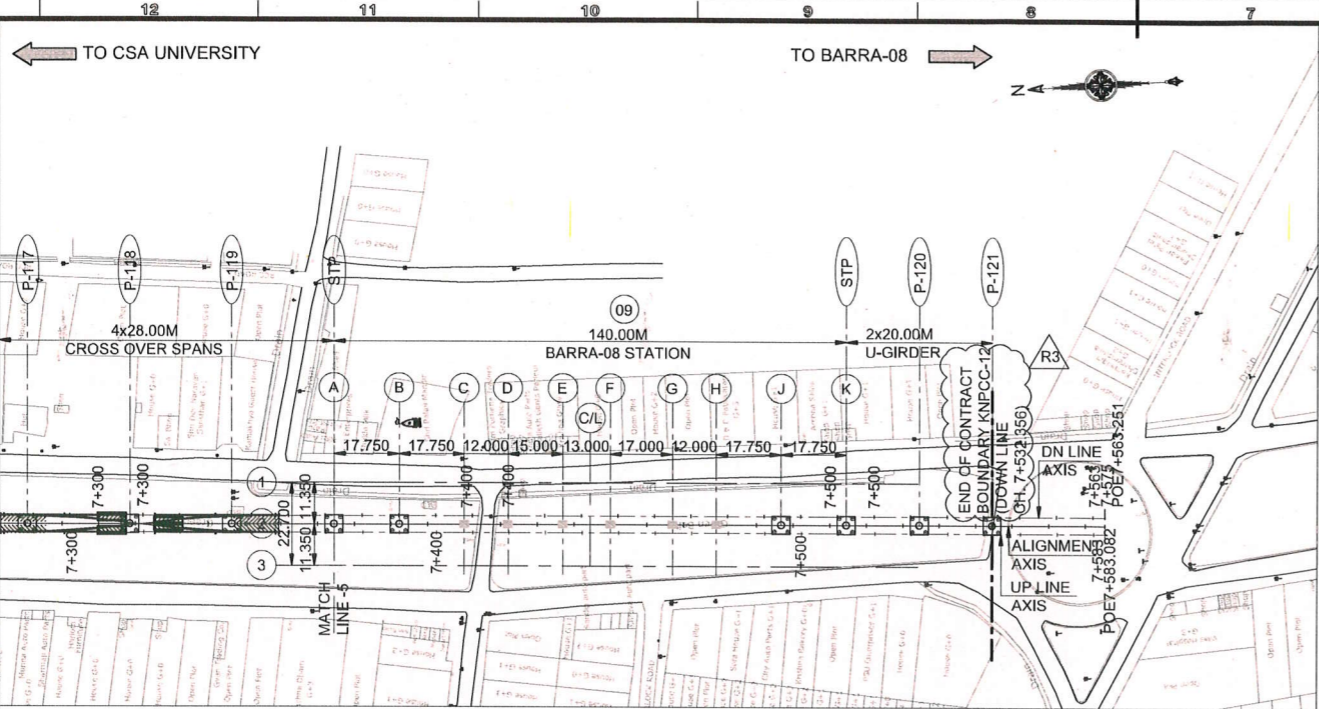
SCALE: AS SHOWN DATE: 31-Jul-23 STAGE: TENDER DESIGN

DRG NO: KNPAGDDC-01-TDR-ELV-VDC-DWG-06005

OFFICE OF ORIGIN **SYSTRA**

REVISION NO: R1





VERTICAL ALIGNMENT (ALIGNMENT AXIS)	L=966.7173m G=0.0000%	
HORIZONTAL ALIGNMENT (ALIGNMENT AXIS)	SL=338.3403m	
DIFF. IN ELE. (m)	14.198	14.221
RAIL LEVELS (m)	139.600	139.600
GROUND LEVEL (m)	125.402	125.379
CHAINAGE (ALIGNMENT AXIS) (m)	7270.0000	7280.0000

**SPECIAL NOTES:-**

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- ANY DISCREPANCIES MUST BE BROUGHT TO NOTICE OF THE CONSULTANT BEFORE EXECUTION.

REV NO	DATE	DESCRIPTION
R3	28-Dec-23	Updated As Per UPMRCL Comments
R2	19-Aug-23	Updated As Per GC/UPMRC Comments
R1	09-Aug-23	Updated As Per GC/UPMRC Comments
R0	31-Jul-23	First Issue

THE RESPONSIBILITY OF CONTROL, CHECK & VERIFICATION OF ACCURACY, CORRECTNESS, COMPLETENESS, INTEGRATION & FULL COMPLIANCE OF THE CONTRACT / CODAL PROVISIONS IN RESPECT OF DESIGN, ANALYSIS AND DRAWINGS RESTS WITH THE DETAIL DESIGN CONSULTANT.

DDC / CONTRACTOR

**Vikram Singh** Digitally signed by Vikram Singh Date: 2023.12.20 20:05:27 +05'30'

**Divyanshu u Tripathi** Digitally signed by Divyanshu u Tripathi Date: 2023.12.20 20:07:52 +05'30'

**Santam Lokanatha Reddy** Digitally signed by Santam Lokanatha Reddy Date: 2023.12.20 20:10:04 +05'30'

**Amitav a Das** Digitally signed by Amitav a Das Date: 2023.12.20 20:12:22 +05'30'

DRAWN BY DESIGN BY CHECKED BY APPROVED BY

DETAIL DESIGN CONSULTANT

**SYSTRA**

SYSTRA MVA CONSULTING (INDIA) PVT. LTD.  
VATIKA MINDSCAPES, TOWER-B, 12/3,  
MATHURA ROAD, NH-2, SECTOR-27/D,  
FARIDABAD, HARYANA-121013  
PH: 0129 668 5800  
SUBSIDIARY OF:  
SYSTRA S.A. - 5 AVENUE DU COQ - PARIS 75009

THIS DRAWING, DESIGN AND DETAILING HAVE BEEN PROOF CHECKED BY US AND IS SUITABLE FOR EXECUTION AND IS APPROVED.

NOC  NOWC  RESUBMIT

SIGN: **SAK** DATE: 21.12.2023

SIGN: **MSG** DATE: 21.12.2023

SIGN: **ATD** DATE: 21.12.2023

DESIGNATION: **RE** DESIGNATION: **SSE** DESIGNATION: **CSE**

REVIEWED BY APPROVED BY VETTED BY

GENERAL CONSULTANT

**TYPSA - ITALFERR**

Consortium of Tecnica y Proyetcos, S.A. and Italferr S.P.A  
710, 7th Floor, Cyber Heights  
Vibhuti Khand, Gomti Nagar,  
Lucknow-226010

COUNTER SIGNED BY	DATE	SIGNATURE
UPMRC		
DY.CE CIVIL		
CPM		

PROJECT: **KANPUR & AGRA METRO RAIL PROJECT : CORRIDOR-2**

UTTAH PRADESH METRO RAIL CORPORATION LIMITED,  
ADMINISTRATIVE BUILDING, VIPIN KHAND, GOMATI NAGAR,  
LUCKNOW, UTTAR PRADESH-226010

CLIENT: **UP METRO RAIL CORPORATION LTD.**

TITLE: **SPAN ARRANGEMENT - KANPUR METRO CORRIDOR-2**

SHEET 7

SCALE: AS SHOWN DATE: 31-Jul-23 STAGE: TENDER DESIGN

DRG NO. **KNPAGDDC-01-TDR-ELV-VDC-DWG-06007**

TENDER DESIGN DRAWING

OFFICE OF ORIGIN

**SYSTRA**

REVISION NO:

R3

21/12/2023

## PIER COORDINATES OF KANPUR ELEVATED CORRIDOR-2 (KNPCC12)

REMARKS	PIER NOS.	LEFT SPAN (m)	RIGHT SPAN (m)	EASTING (m)	NORTHING (m)	REMARKS	PIER NOS.	LEFT SPAN (m)	RIGHT SPAN (m)	EASTING (m)	NORTHING (m)	REMARKS	PIER NOS.	LEFT SPAN (m)	RIGHT SPAN (m)	EASTING (m)	NORTHING (m)
ELEVATED VIADUCT	P-01	-	28.0 UG	431893.459	2930247.879	CHANDRA-SHEKHAR AZAD AGRICULTURE UNIVERSITY STATION	P-42	28.0 UG	28.0 UG	429638.112	2926204.625	ELEVATED VIADUCT	P-88	28.0 UG	28.0 UG	429576.723	2924719.423
	PP-02 (UP LINE TRACK)	28.0 UG	28.0 UG	431865.085	2930250.108		P-43	28.0 UG	21.0 UG	429635.341	2926176.763		P-89	28.0 UG	28.0 UG	429567.530	2924692.975
	PP-02 (DN LINE TRACK)	28.0 UG	28.0 UG	431866.713	2930234.191		P-44	28.0 NUG	28.0 NUG	429633.940	2926155.812		P-90	28.0 UG	28.0 UG	429558.336	2924666.527
	STP_GRID-A	28.0 UG	28.0 SUG	431837.749	2930242.181		P-45	28.0 NUG	28.0 NUG	429634.123	2926127.825		P-91	28.0 UG	28.0 UG	429549.143	2924640.079
	STP_GRID-B	28.0 SUG	STATION BUILDING	431809.895	2930239.332		P-46	28.0 NUG	28.0 NUG	429637.327	2926100.023		P-92	28.0 UG	28.0 UG	429539.950	2924613.631
	STP_GRID-H	STATION BUILDING	18.5 SUG	431717.200	2930227.283		P-47	28.0 NUG	28.0 NUG	429643.545	2926072.736		P-93	28.0 UG	23.0 UG	429530.757	2924587.184
	STP_GRID-J	18.5 SUG	28.0 CROSS OVER SPAN	431698.993	2930224.002		P-48	28.0 NUG	23.0 UG	429652.680	2926046.282		P-94	23.0 UG	28.0 UG	429523.205	2924565.459
	P-03	28.0 CROSS OVER SPAN	28.0 CROSS OVER SPAN	431671.447	2930218.984		P-49	23.0 UG	23.0 UG	429661.714	2926025.132		P-95	28.0 UG	28.0 UG	429514.012	2924539.011
	P-04	28.0 CROSS OVER SPAN	28.0 CROSS OVER SPAN	431643.900	2930213.966		P-50	23.0 UG	23.0 UG	429671.075	2926004.123		P-96	28.0 UG	28.0 CROSS OVER SPAN	429504.819	2924512.563
	P-05	28.0 CROSS OVER SPAN	28.0 CROSS OVER SPAN	431616.353	2930208.948		P-51	23.0 UG	50.0 OBLIGATORY SPAN	429680.438	2925983.115		P-97	28.0 CROSS OVER SPAN	28.0 CROSS OVER SPAN	429495.625	2924486.115
ELEVATED VIADUCT	P-06	28.0 CROSS OVER SPAN	28.0 NUG	431588.807	2930203.929	P-52	50.0 OBLIGATORY SPAN	13.4 UG	429700.793	2925937.446	P-98	28.0 CROSS OVER SPAN	28.0 CROSS OVER SPAN	429486.432	2924459.668		
	P-07	28.0 NUG	28.0 NUG	431561.347	2930198.466	STP	13.4 UG	140.0 STATION	429706.248	2925925.206	P-99	28.0 CROSS OVER SPAN	28.0 CROSS OVER SPAN	429477.239	2924433.220		
	P-08	28.0 NUG	28.0 NUG	431534.404	2930190.894	STP	140.0 STATION	17.8 UG	429763.242	2925797.332	P-100	28.0 CROSS OVER SPAN	28.0 UG	429468.009	2924406.785		
	PP-09 (UP LINE TRACK)	28.0 NUG	28.0 NUG	431507.300	2930182.917	P-53	17.8 UG	17.8 UG	429770.450	2925781.057	P-101	28.0 UG	28.0 UG	429458.367	2924380.498		
	PP-09 (DN LINE TRACK)	28.0 NUG	28.0 NUG	431512.763	2930171.120	P-54	17.8 UG	28.0 UG	429777.382	2925764.664	P-102	28.0 UG	14.505 UG	429448.010	2924354.485		
	PP-10 (UP LINE TRACK)	28.0 NUG	28.0 NUG	431479.839	2930173.817	P-55	28.0 UG	28.0 NUG	429786.959	2925738.360	STP_GRID-A	14.505 UG	17.750 SUG	429442.360	2924341.127		
	PP-10 (DN LINE TRACK)	28.0 NUG	28.0 NUG	431486.528	2930162.670	P-56	28.0 NUG	28.0 NUG	429794.154	2925711.311	STP_GRID-B	17.750 SUG	17.750 SUG	429435.193	2924324.888		
	P-11	28.0 NUG	28.0 NUG	431460.487	2930151.750	CP-57	28.0 NUG	28.0 NUG	429801.299	2925684.014	STP_GRID-J	17.750 SUG	17.750 SUG	429391.720	2924229.860		
	P-12	28.0 NUG	28.0 UG	431439.063	2930133.740	P-58	28.0 NUG	28.0 NUG	429800.940	2925655.802	STP_GRID-K	17.750 UG	19.768 UG	429384.328	2924213.722		
	P-13	28.0 UG	28.0 UG	431418.900	2930114.314	P-59	28.0 NUG	28.0 NUG	429801.217	2925627.805	P-103	19.768 UG	28.0 UG	429376.088	2924195.733		
P-14	28.0 UG	27.431 UG	431398.935	2930094.683	P-60	28.0 NUG	28.0 UG	429800.897	2925599.807	P-104	28.0 UG	28.0 UG	429364.427	2924170.277			
UNDER GROUND PART						ELEVATED VIADUCT	P-61	28.0 UG	28.0 UG	429800.560	2925571.809	ELEVATED VIADUCT	P-105	28.0 UG	28.0 UG	429352.767	2924144.821
P-15	28.0 UG	28.0 UG	429626.637	2927137.197	P-62		28.0 UG	28.0 UG	429800.214	2925543.811	P-106		28.0 UG	28.0 UG	429341.140	2924119.349	
P-16	28.0 UG	28.0 UG	429628.936	2927109.291	P-63		28.0 UG	16.0 UG	429799.574	2925515.819	P-107		28.0 UG	67.50 OBLIGATORY SPAN	429330.081	2924093.627	
P-17	28.0 UG	28.0 UG	429630.918	2927081.362	P-64		16.0 UG	28.0 UG	429798.832	2925499.837	P-108		67.50 OBLIGATORY SPAN	28.0 UG	429307.403	2924030.075	
P-18	28.0 UG	28.0 UG	429632.545	2927053.409	P-65		28.0 UG	28.0 UG	429796.544	2925471.933	P-109		28.0 UG	28.0 UG	429299.684	2924003.161	
P-19	28.0 UG	28.0 UG	429633.907	2927025.442	CP-66		28.0 UG	28.0 UG	429794.167	2925443.981	P-110		28.0 UG	28.0 UG	429292.972	2923975.979	
P-20	28.0 UG	28.0 UG	429635.248	2926997.475	PP-67 UP LINE TRACK		28.0 UG	28.0 UG	429783.888	2925417.438	P-111		28.0 UG	28.0 UG	429287.277	2923948.566	
CP-21	28.0 UG	28.0 UG	429638.276	2926969.588	PP-67 DN LINE TRAC		28.0 UG	28.0 UG	429792.222	2925415.766	P-112		28.0 UG	28.0 UG	429282.605	2923920.960	
CP-22	28.0 UG	28.0 UG	429638.965	2926941.589	CP-68		28.0 UG	18.0 UG	429782.458	2925389.153	P-113		28.0 UG	17.768 UG	429278.964	2923893.200	
P-23	28.0 UG	20.458 UG	429639.273	2926913.571	P-69		18.0 UG	34.0 OBLIGATORY SPAN	429777.350	2925371.878	P-114		17.768 UG	17.768 UG	429277.190	2923875.521	
ELEVATED VIADUCT	P-24	20.458 UG	20.458 UG	429640.253	2926893.136	P-70	34.0 OBLIGATORY SPAN	28.0 UG	429767.827	2925339.239	P-115	17.768 UG	28.0 UG	429275.817	2923857.807		
	STP_GRID-A	20.458 UG	17.75 SUG	429641.233	2926872.702	P-71	28.0 UG	21.0 UG	429759.761	2925312.426	P-116	28.0 UG	28.0 CROSS OVER SPAN	429273.994	2923829.866		
	STP_GRID-B	17.75 SUG	17.75 SUG	429642.084	2926854.972	P-72	21.0 UG	28.0 UG	429753.711	2925292.316	P-117	28.0 CROSS OVER SPAN	28.0 CROSS OVER SPAN	429272.189	2923801.924		
	STP_GRID-J	17.75 SUG	17.75 SUG	429647.090	2926750.592	P-73	28.0 UG	28.0 UG	429745.644	2925265.504	P-118	28.0 CROSS OVER SPAN	28.0 CROSS OVER SPAN	429270.383	2923773.983		
	STP_GRID-K	17.75 SUG	28.0 CROSS OVER SPAN	429647.941	2926732.863	P-74	28.0 UG	28.0 UG	429737.578	2925238.691	P-119	28.0 CROSS OVER SPAN	28.0 CROSS OVER SPAN	429268.578	2923746.041		
	P-25	28.0 CROSS OVER SPAN	28.0 CROSS OVER SPAN	429649.282	2926704.895	P-75	28.0 UG	28.0 UG	429729.511	2925211.878	STP_GRID-A	28.0 CROSS OVER SPAN	17.75 SUG	429266.772	2923718.099		
	P-26	28.0 CROSS OVER SPAN	28.0 CROSS OVER SPAN	429650.624	2926676.927	P-76	28.0 UG	28.0 UG	429721.444	2925185.065	STP_GRID-B	17.75 SUG	17.75 SUG	429265.628	2923700.386		
	P-27	28.0 CROSS OVER SPAN	28.0 CROSS OVER SPAN	429651.965	2926648.959	P-77	28.0 UG	28.0 UG	429713.378	2925158.252	STP_GRID-J	17.75 SUG	17.75 SUG	429258.889	2923596.104		
	P-28	28.0 CROSS OVER SPAN	28.0 UG	429653.307	2926620.991	P-78	28.0 UG	28.0 UG	429705.311	2925131.439	STP_GRID-K	17.75 SUG	20.0 UG	429257.745	2923578.391		
	P-29	28.0 UG	28.0 UG	429654.648	2926593.023	P-79	28.0 UG	28.0 UG	429697.321	2925104.604	P-120	20.0 UG	20.0 UG	429256.455	2923558.432		
ELEVATED VIADUCT	P-30	28.0 UG	28.0 UG	429655.990	2926565.056	CP-80	28.0 UG	28.0 UG	429689.078	2925077.828	P-121	20.0 UG	-	429255.165	2923538.474		
	CP-31	28.0 UG	28.0 UG	429655.752	2926537.012	CP-81	28.0 UG	28.0 UG	429680.935	2925051.020							
	CP-32	28.0 UG	28.0 UG	429656.176	2926509.000	CP-82	28.0 UG	23.840 UG	429672.884	2925024.189							
	CP-33	28.0 UG	28.0 UG	429662.508	2926481.269	P-83	23.840 UG	16.0 UG	429669.142	2925000.512							
	P-34	28.0 UG	28.0 UG	429661.114	2926453.174	STP_GRID-A	16.0 UG	17.75 SUG	429665.010	2924985.055							
	P-35	28.0 UG	28.0 UG	429661.381	2926425.177	STP_GRID-B	17.75 SUG	17.75 SUG	429660.410	2924967.911							
	P-36	28.0 UG	28.0 UG	429660.539	2926397.192	STP_GRID-J	17.75 SUG	17.75 SUG	429628.517	2924868.427							
	P-37	28.0 UG	21.930 UG	429658.680	2926369.255	STP_GRID-K	17.75 SUG	28.0 UG	429622.689	2924851.661							
	P-38	21.930 UG	60.0 OBLIGATORY SPAN	429656.664	2926347.418	P-84	28.0 UG	28.0 UG	429613.496	2924825.214							
	P-39	60.0 OBLIGATORY SPAN	28.0 UG	429649.199	2926287.888	P-85	28.0 UG	28.0 UG	429604.302	2924798.766							
P-40	28.0 UG	28.0 UG	429645.366	2926260.151	P-86	28.0 UG	28.0 UG	429595.109	2924772.318								
P-41	28.0 UG	28.0 UG	429641.560	2926232.411	P-87	28.0 UG	28.0 UG	429585.916	2924745.870								

**LEGEND:-**

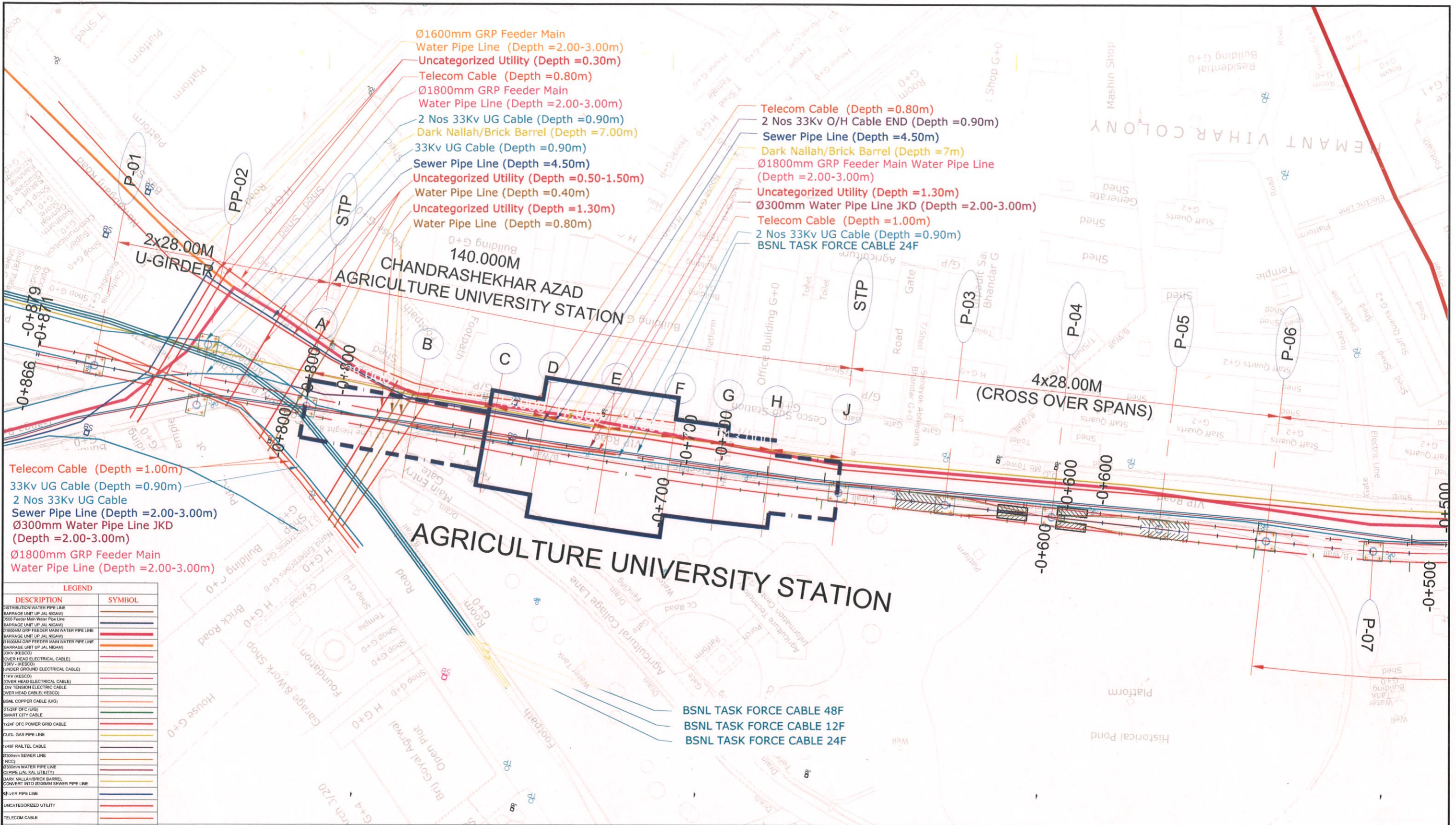
- UG - U-GIRDER SPAN
- NUG - NON U-GIRDER SPAN
- SUG - STATION U-GIRDER SPAN
- P - NORMAL PIER
- PP - PORTAL PIER
- CP - CANTILEVER PIER
- STP - STATION PIER

**NOTE:- COORDINATES OF OBLIGATORY SPANS PIERS, CANTILEVER PIERS, AND PORTAL PIERS SHALL NOT BE MODIFIED BY CONTRACTOR WITHOUT APPROVAL OF ENGINEER.**

<p><b>GENERAL NOTES:</b></p> <ol style="list-style-type: none"> <li>ALL DIMENSIONS ARE IN MILLIMETERS, UNLESS OTHERWISE SPECIFIED.</li> <li>ALL DIMENSIONS ARE TO BE READ AND NOT MEASURED.</li> <li>THIS DRAWING MUST BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTURAL, STRUCTURAL, PLUMBING &amp; FIRE FIGHTING, ELECTRICAL AND TRAFFIC MANAGEMENT DRAWINGS.</li> <li>ANY DISCREPANCIES MUST BE BROUGHT TO NOTICE OF THE CONSULTANT BEFORE EXECUTION.</li> </ol>	<p>THE RESPONSIBILITY OF CONTROL, CHECK &amp; VERIFICATION OF ACCURACY, CORRECTNESS, COMPLETENESS, INTEGRATION &amp; FULL COMPLIANCE OF THE CONTRACT / CODAL PROVISIONS IN RESPECT OF DESIGN, ANALYSIS AND DRAWINGS RESTS WITH THE DETAILED DESIGN CONSULTANT.</p> <p style="text-align: center;">DDC / CONTRACTOR</p> <table style="width: 100%; text-align: center;"> <tr> <td>Vikram Singh Digitally signed by Vikram Singh Date: 2023.12.20 20:05:51 +05'30'</td> <td>Divyanshu Tripathi Digitally signed by Divyanshu Tripathi Date: 2023.12.20 20:08:07 +05'30'</td> <td>Santam Lokanatha Reddy Digitally signed by Santam Lokanatha Reddy Date: 2023.12.20 20:10:18 +05'30'</td> <td>Amitava Das Digitally signed by Amitava Das Date: 2023.12.20 20:12:45 +05'30'</td> </tr> </table> <p>DRAWN BY: SYSTRA DESIGN BY: SYSTRA CHECKED BY: SYSTRA APPROVED BY: SYSTRA</p> <p>DETAIL DESIGN CONSULTANT: SYSTRA MVA CONSULTING (INDIA) PVT. LTD. VATIKA MINDSCAPES, TOWER-B, 12/3, MATHURA ROAD, NH-2, SECTOR-27/D, FARIDABAD, HARYANA-121013. PH: 0129 668 5600 SUBSIDIARY OF: SYSTRA S.A. - 5 AVENUE DU COQ - PARIS 75009</p>	Vikram Singh Digitally signed by Vikram Singh Date: 2023.12.20 20:05:51 +05'30'	Divyanshu Tripathi Digitally signed by Divyanshu Tripathi Date: 2023.12.20 20:08:07 +05'30'	Santam Lokanatha Reddy Digitally signed by Santam Lokanatha Reddy Date: 2023.12.20 20:10:18 +05'30'	Amitava Das Digitally signed by Amitava Das Date: 2023.12.20 20:12:45 +05'30'	<p>THIS DRAWING, DESIGN AND DETAILING HAVE BEEN PROOF CHECKED BY US AND IS SUITABLE FOR EXECUTION AND IS APPROVED.</p> <p style="text-align: center;">NO RESUBMIT</p> <table style="width: 100%; text-align: center;"> <tr> <td>SIGN: SAK DATE: 21.12.2023</td> <td>SIGN: MSG DATE: 21.12.2023</td> <td>SIGN: ATD DATE: 21.12.2023</td> </tr> <tr> <td>DESIGNATION: RE</td> <td>DESIGNATION: SSE</td> <td>DESIGNATION: CSE</td> </tr> </table> <p>REVIEWED BY: APPROVED BY: VETTED BY:</p> <p>GENERAL CONSULTANT: Consortium of Tecnica y Projectos, S.A. and Italferr S.P.A. 710, 7th Floor, Cyber Heights Vibhuti Khand, Gomti Nagar, Lucknow-226010</p>	SIGN: SAK DATE: 21.12.2023	SIGN: MSG DATE: 21.12.2023	SIGN: ATD DATE: 21.12.2023	DESIGNATION: RE	DESIGNATION: SSE	DESIGNATION: CSE	<p>COUNTER SIGNED BY: UPMRCL DATE: SIGNATURE:</p> <p>PROJECT: <b>KANPUR &amp; AGRA METRO RAIL PROJECT : CORRIDOR-2</b> UTTAR PRADESH METRO RAIL CORPORATION LIMITED, ADMINISTRATIVE BUILDING, VIPIN KHAND, GOMATI NAGAR, LUCKNOW, UTTAR PRADESH-22601</p>
Vikram Singh Digitally signed by Vikram Singh Date: 2023.12.20 20:05:51 +05'30'	Divyanshu Tripathi Digitally signed by Divyanshu Tripathi Date: 2023.12.20 20:08:07 +05'30'	Santam Lokanatha Reddy Digitally signed by Santam Lokanatha Reddy Date: 2023.12.20 20:10:18 +05'30'	Amitava Das Digitally signed by Amitava Das Date: 2023.12.20 20:12:45 +05'30'										
SIGN: SAK DATE: 21.12.2023	SIGN: MSG DATE: 21.12.2023	SIGN: ATD DATE: 21.12.2023											
DESIGNATION: RE	DESIGNATION: SSE	DESIGNATION: CSE											

# AGRICULTURE UNIVERSITY STATION

TOWARDS BARRA-8 >>>



Telecom Cable (Depth = 1.00m)  
 33Kv UG Cable (Depth = 0.90m)  
 2 Nos 33Kv UG Cable  
 Sewer Pipe Line (Depth = 2.00-3.00m)  
 Ø300mm Water Pipe Line JKD  
 (Depth = 2.00-3.00m)  
 Ø1800mm GRP Feeder Main  
 Water Pipe Line (Depth = 2.00-3.00m)

DESCRIPTION	SYMBOL
3500 BARREN WATER PIPE LINE	
BARRIAGE UNIT UP JAL NIGAM	
3500 Feeder Main Water Pipe Line	
BARRIAGE UNIT UP JAL NIGAM	
Ø1800mm GRP FEEDER MAIN WATER PIPE LINE	
BARRIAGE UNIT UP JAL NIGAM	
Ø1800mm GRP FEEDER MAIN WATER PIPE LINE	
BARRIAGE UNIT UP JAL NIGAM	
33KV (KESCO) OVER HEAD ELECTRICAL CABLE	
33KV (KESCO) UNDER GROUND ELECTRICAL CABLE	
11KV (KESCO) OVER HEAD ELECTRICAL CABLE	
11KV (KESCO) UNDER GROUND ELECTRICAL CABLE	
ØV TENSION ELECTRICAL CABLE OVER HEAD CABLE (KESCO)	
BSNL COPPER CABLE (UG)	
Ø122F OFC (UG)	
SMART CITY CABLE	
122F OFC POWER GRID CABLE	
ØUGL GAS PIPE LINE	
148F RABTEL CABLE	
Ø300mm SEWER LINE (RCC)	
Ø300mm WATER PIPE LINE (CIPPE UAL JAL UTILITY)	
DARK NALLAH/BRICK BARREL CONVERT INTO Ø300MM SEWER PIPE LINE	
SEWER PIPE LINE	
UNCATEGORIZED UTILITY	
TELECOM CABLE	
NAGAR NIGAM DARK NALLAH	
BSNL TASK FORCE CABLE	

Note- Depth shown here may vary by 2 to 3 mtr.

BSNL TASK FORCE CABLE 48F  
 BSNL TASK FORCE CABLE 12F  
 BSNL TASK FORCE CABLE 24F

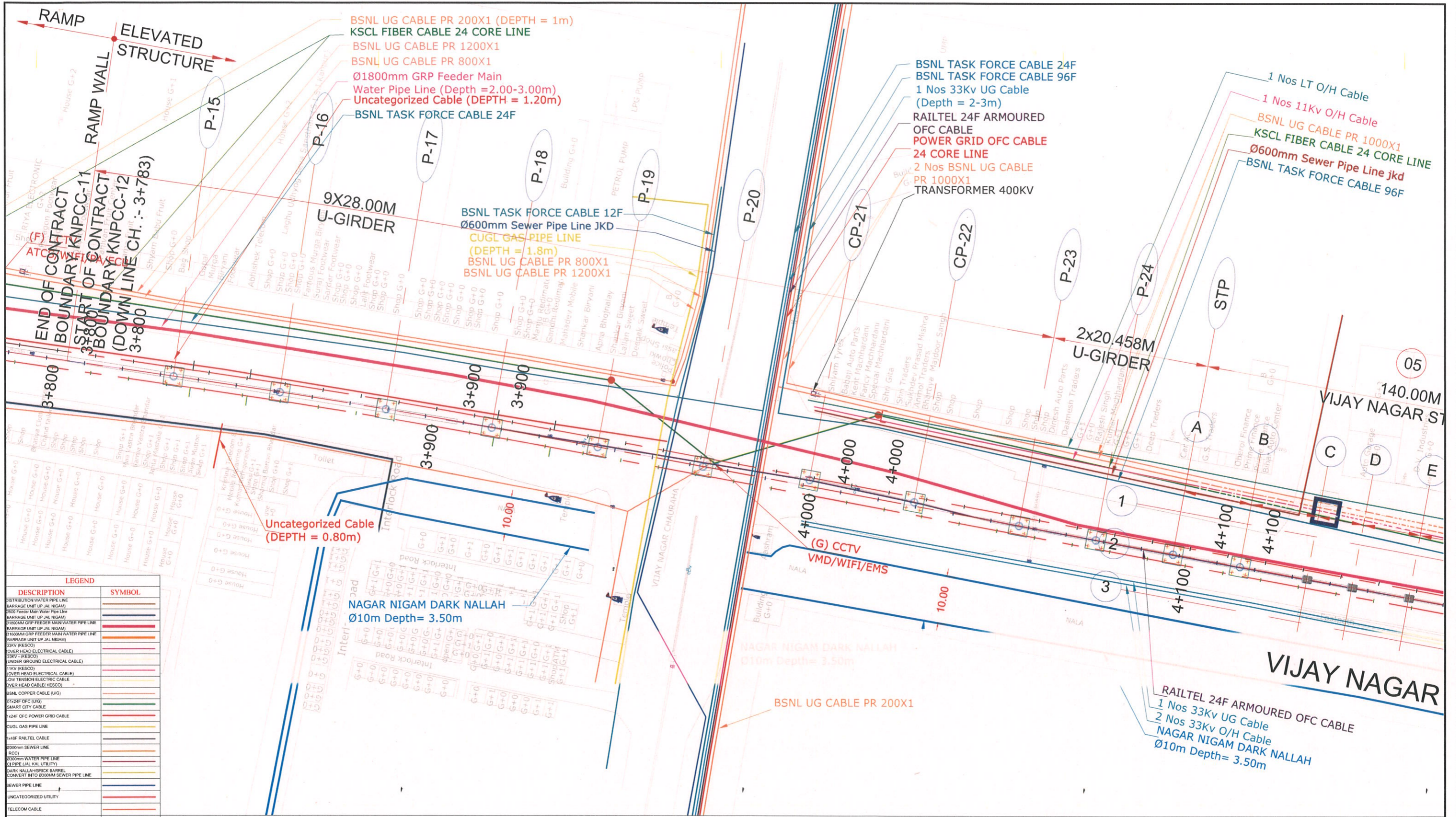
REV.	PARTICULARS	DRN.	CHD.	VER.	DATE



NOTICE OF 'NO OBJECTIONS' FROM EMPLOYER					
NOTICE OF NO OBJECTION FROM EMPLOYER IS BEING ACCORDED FOR DESIGN PRINCIPLES HOWEVER THE OVERALL RESPONSIBILITY FOR THE DESIGN ACCURACY LIES WITH THE DETAIL DESIGN CONSULTANT.					
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K2-GC			<input type="checkbox"/> RESUBMIT	CPM-UPMRC	

PROJECT TITLE			
UTTAR PRADESH METRO RAIL CORPORATION LTD (Formerly known as Lucknow Metro Rail Corporation Ltd.) KNPDD-AGRICULTURE UNIVERSITY-BARRA-8 CORRIDOR-2			
NAME	SIGNATURE	DRAWING TITLE	
		AGRICULTURE UNIVERSITY STATION	
		SCALE	AS SHOWN
		DATE OF ISSUE	STAGE
		DRG.NO.	KNPDD-01-TDR-KNPCC-12/UTILITY/SHEET - 01 OF 13
		REV.	R1





Note- Depth shown here may vary by 2 to 3 mtr.

PROJECT TITLE  
**UTTAR PRADESH METRO RAIL CORPORATION LTD**  
 (Formerly known as Lucknow Metro Rail Corporation Ltd.)  
 KNPDD-AGRICULTURE UNIVERSITY-BARRA-8 CORRIDOR-2

REV.	PARTICULARS	DRN.	CHD.	VER.	DATE

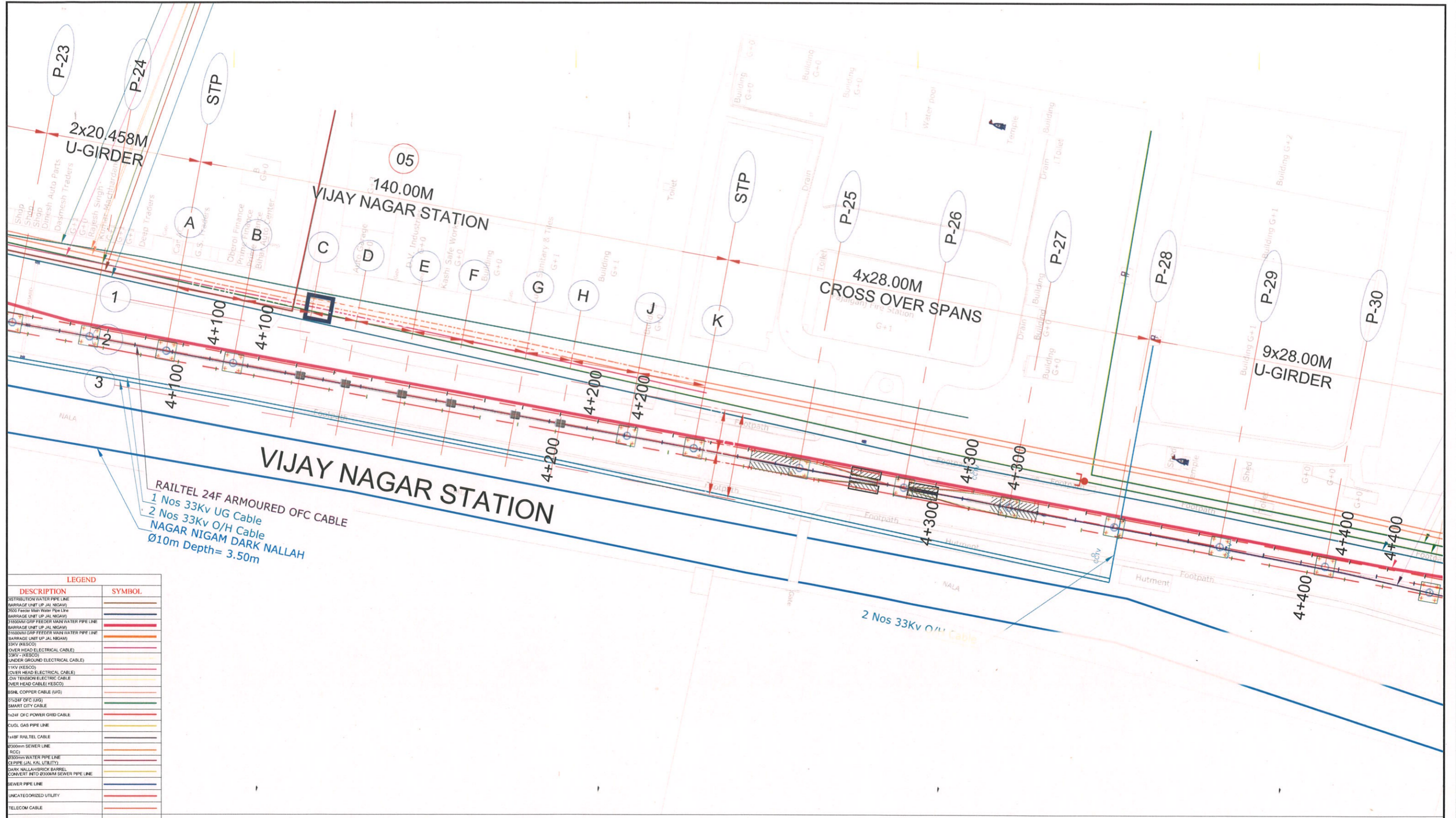


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 NOTICE OF NO OBJECTION FROM EMPLOYER IS BEING ACCORDED FOR DESIGN PRINCIPLES HOWEVER THE OVERALL RESPONSIBILITY FOR THE DESIGN ACCURACY LIES WITH THE DETAIL DESIGN CONSULTANT.

GC - REVIEW	DATE	SIGNATURE	APP. STATUS	UPMRCL-SIGN OFF	DATE	SIGNATURE
DPD-GC			<input type="checkbox"/> NOC <input type="checkbox"/> NOWC	DY.CE CIVIL - UPMRCL		
K2-GC			<input type="checkbox"/> RESUBMIT	CPM-UPMRCL		

PREPARED	NAME	SIGNATURE	DRAWING TITLE
			RAMP BEFORE VIJAY NAGAR CHAURAHA
DESIGNED BY			
CHECKED BY			
APPROVED BY			
SCALE	AS SHOWN	DATE OF ISSUE	STAGE
DRG.NO.	KNPDD-01-TDR-KNPCC-12/UTILITY/SHEET - 03 OF 13		REV. R1





RAILTEL 24F ARMoured OFC CABLE  
 1 Nos 33kV UG Cable  
 2 Nos 33kV O/H Cable  
 NAGAR NIGAM DARK NALLAH  
 Ø10m Depth= 3.50m

DESCRIPTION	SYMBOL
DISTRIBUTION WATER PIPE LINE	---
BARRAGE UNIT UP JAL NIGAM	---
3500 FEMER MAIN WATER PIPE LINE	---
BARRAGE UNIT UP JAL NIGAM	---
3100MM GRP FEEDER MAIN WATER PIPE LINE	---
BARRAGE UNIT UP JAL NIGAM	---
3100MM GRP FEEDER MAIN WATER PIPE LINE	---
BARRAGE UNIT UP JAL NIGAM	---
11KV (WESCO) (OVER HEAD ELECTRICAL CABLE)	---
33KV - (WESCO) (UNDER GROUND ELECTRICAL CABLE)	---
11KV (WESCO) (OVER HEAD ELECTRICAL CABLE)	---
0.6KV TENSION ELECTRIC CABLE	---
2XER HEAD CABLE (WESCO)	---
100% COPPER CABLE (UG)	---
ST24F OFC (UG)	---
SMART CITY CABLE	---
1024 OFC POWER GRID CABLE	---
CUGL GAS PIPE LINE	---
1x18F RAIL TEL CABLE	---
Ø300mm SEWER LINE (RCC)	---
Ø300mm WATER PIPE LINE (CI PIPE (JAL KAL UTILITY))	---
DARK NALLAH/BRICK BARREL CONVERT INTO Ø300MM SEWER PIPE LINE	---
SEWER PIPE LINE	---
UNCATEGORIZED UTILITY	---
TELECOM CABLE	---
NAGAR NIGAM DARK NALLAH	---
BSNL TASK FORCE CABLE	---

Note- Depth shown here may vary by 2 to 3 mtr.

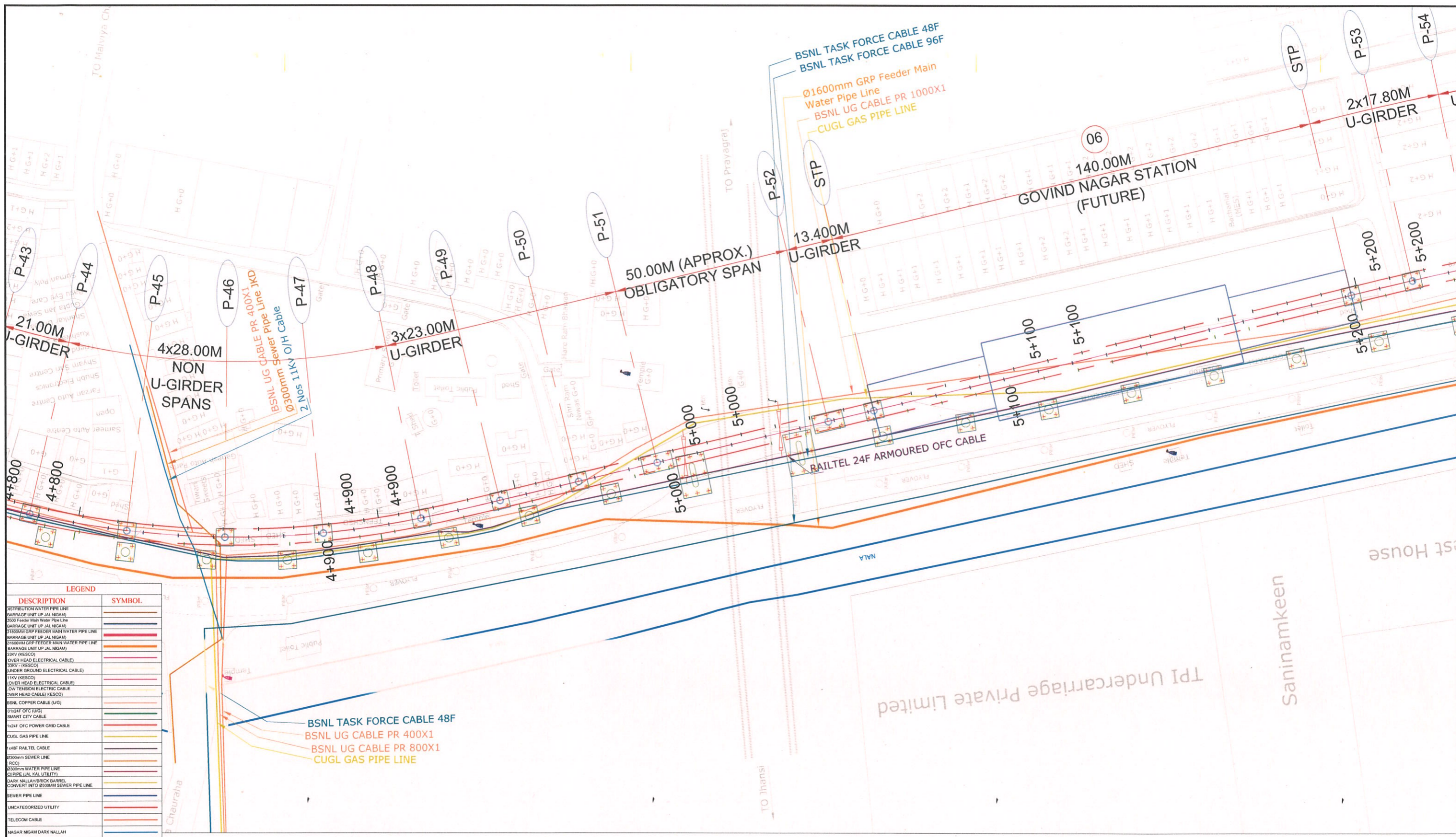
REV.	PARTICULARS	DRN.	CHD.	VER.	DATE



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GC - REVIEW	DATE	SIGNATURE	APP. STATUS	UPMRC-SIGN OFF	DATE
DPD-GC			<input type="checkbox"/> NOC	DY.CE CIVIL - UPMRC	
K2-GC			<input type="checkbox"/> NOWC	CPM-UPMRC	
			<input type="checkbox"/> RESUBMIT		

PROJECT TITLE		
UTTAR PRADESH METRO RAIL CORPORATION LTD (Formerly known as Lucknow Metro Rail Corporation Ltd.) KNPDD-AGRICULTURE UNIVERSITY-BARRA-8 CORRIDOR-2		
NAME	SIGNATURE	DRAWING TITLE
		VIJAY NAGAR STATION UTILITY DRAWINGS
SCALE	AS SHOWN	DATE OF ISSUE
DRG.NO.	KNPDD-01-TDR-KNPCC-12/UTILITY/SHEET - 04 OF 13	
REV.	R1	





DESCRIPTION	SYMBOL
RETRIBUTION WATER PIPE LINE	---
BARRAGE UNIT UP JAL (NGAM)	---
500 FEEDER MAIN WATER PIPE LINE	---
BARRAGE UNIT UP JAL (NGAM)	---
Ø1600MM GRP FEEDER MAIN WATER PIPE LINE	---
BARRAGE UNIT UP JAL (NGAM)	---
Ø1600MM GRP FEEDER MAIN WATER PIPE LINE	---
BARRAGE UNIT UP JAL (NGAM)	---
11KV (KESCO)	---
OVER HEAD ELECTRICAL CABLE	---
11KV (KESCO)	---
UNDER GROUND ELECTRICAL CABLE	---
11KV (KESCO)	---
OVER HEAD ELECTRICAL CABLE	---
0/1V TENSION ELECTRICAL CABLE	---
OVER HEAD CABLE (KESCO)	---
BSNL COPPER CABLE (UG)	---
11x24F OFC (UG)	---
SMART CITY CABLE	---
11x24F OFC POWER GRID CABLE	---
CUGL GAS PIPE LINE	---
148F RAILTEL CABLE	---
Ø300MM SEWER LINE	---
Ø300MM WATER PIPE LINE	---
CI PIPE (JAL KAL UTILITY)	---
DARK NALLAH/BROCK BARREL	---
CONVERT INTO Ø300MM SEWER PIPE LINE	---
SEWER PIPE LINE	---
UNCATEGORIZED UTILITY	---
TELECOM CABLE	---
NAGAR NGAM DARK NALLAH	---
BSNL TASK FORCE CABLE	---

Note- Depth shown here may vary by 2 to 3 mtr.

PROJECT TITLE		UTTAH PRADESH METRO RAIL CORPORATION LTD (Formerly known as Lucknow Metro Rail Corporation Ltd.) KNPDD-AGRICULTURE UNIVERSITY-BARRA-8 CORRIDOR-2	
NAME	SIGNATURE	DRAWING TITLE	
		NEAR KANPUR-JHANSI RAILWAY CROSSING	
SCALE	AS SHOWN	DATE OF ISSUE	STAGE
DRG.NO.	KNPDD-01-TDR-KNPCC-12/UTILITY/SHEET - 06 OF 13		REV. R1

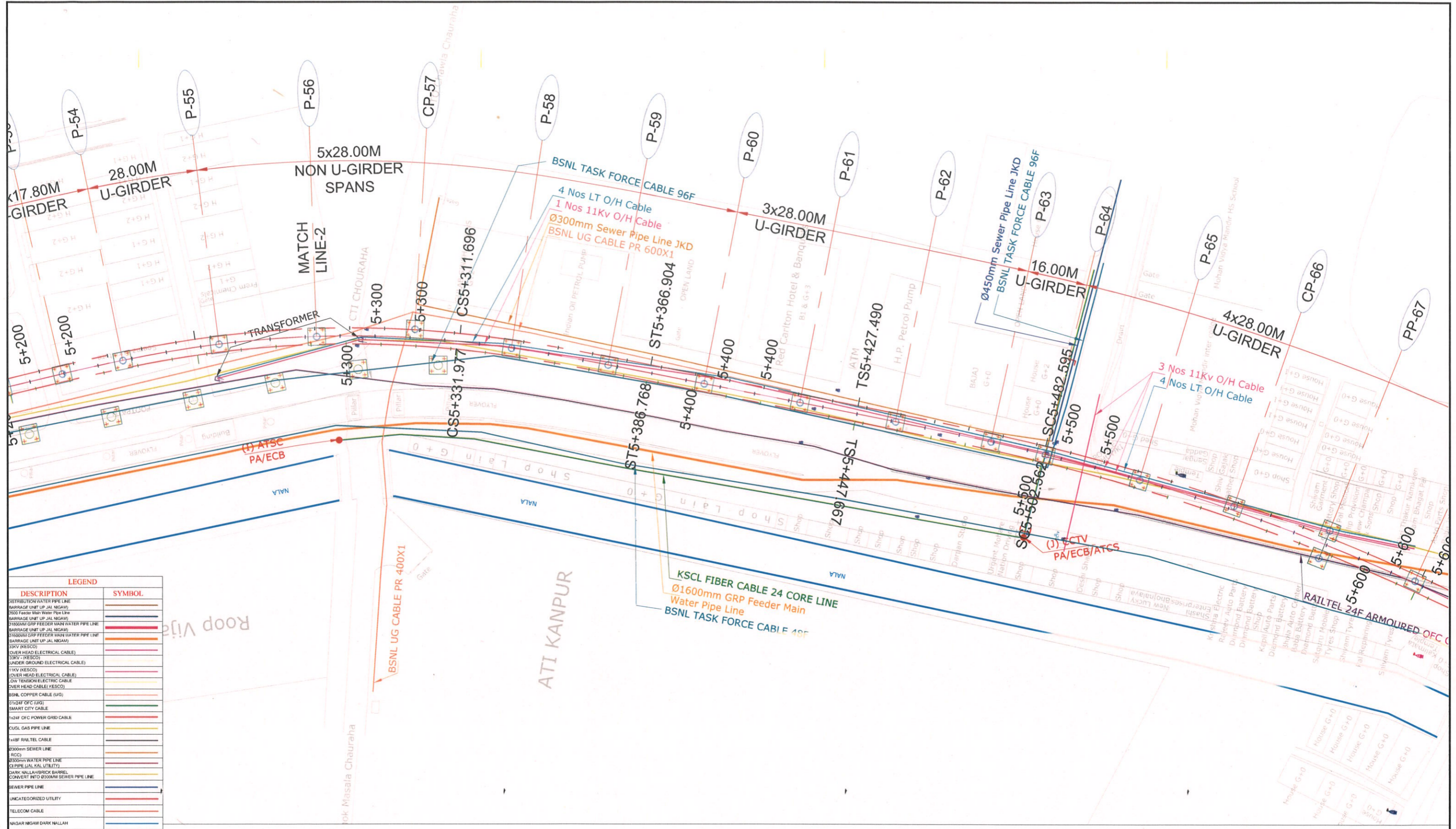
REV.	PARTICULARS	DRN.	CHD.	VER.	DATE



NOTICE OF 'NO OBJECTIONS' FROM EMPLOYER					
NOTICE OF NO OBJECTION FROM EMPLOYER IS BEING ACCORDED FOR DESIGN PRINCIPLES HOWEVER THE OVERALL RESPONSIBILITY FOR THE DESIGN ACCURACY LIES WITH THE DETAIL DESIGN CONSULTANT.					
GC - REVIEW	DATE	SIGNATURE	APP. STATUS	UPMRC-SIGN OFF	DATE
DPD-GC			<input type="checkbox"/> NOC <input type="checkbox"/> NOWC	DY.CE CIVIL - UPMRC	
K2-GC			<input type="checkbox"/> RESUBMIT	CPM-UPMRC	

PREPARED  
DRAWN BY  
DESIGNED BY  
CHECKED BY  
APPROVED BY

←←← TOWARDS AGRICULTURE UNIVERSITY VIJAY NAGAR TO SHASTRI CHOWK NEAR CTI CHAURAHA TOWARDS BARRA-8 →→→



DESCRIPTION	SYMBOL
RE-DISTRIBUTION WATER PIPE LINE	---
BARRAGE UNIT UP (JAL NIGAM)	---
5000 Trench Main Water Pipe Line	---
BARRAGE UNIT UP (JAL NIGAM)	---
1800MM GRP FEEDER MAIN WATER PIPE LINE	---
BARRAGE UNIT UP (JAL NIGAM)	---
1800MM GRP FEEDER MAIN WATER PIPE LINE	---
BARRAGE UNIT UP (JAL NIGAM)	---
15KV (KESCO)	---
(OVER HEAD ELECTRICAL CABLE)	---
11KV - (KESCO)	---
(UNDER GROUND ELECTRICAL CABLE)	---
11KV (KESCO)	---
(OVER HEAD ELECTRICAL CABLE)	---
04N THIRION ELECTRIC CABLE	---
(OVER HEAD CABLE) (KESCO)	---
BSNL COPPER CABLE (UG)	---
0124F OFC (UG)	---
SMART CITY CABLE	---
1124F OFC POWER GRD CABLE	---
CU/GI GAS PIPE LINE	---
148F RAIL TEL CABLE	---
0300mm SEWER LINE (KDC)	---
0300mm WATER PIPE LINE (CI PIPE) (JAL KAL UTILITY)	---
DARK NALLA/BRICK BARREL CONVEYER INTO 0300MM SEWER PIPE LINE	---
SEWER PIPE LINE	---
UNCATEGORIZED UTILITY	---
TELECOM CABLE	---
NAAGAR NIGAM DARK NALLAH	---
BSNL TASK FORCE CABLE	---

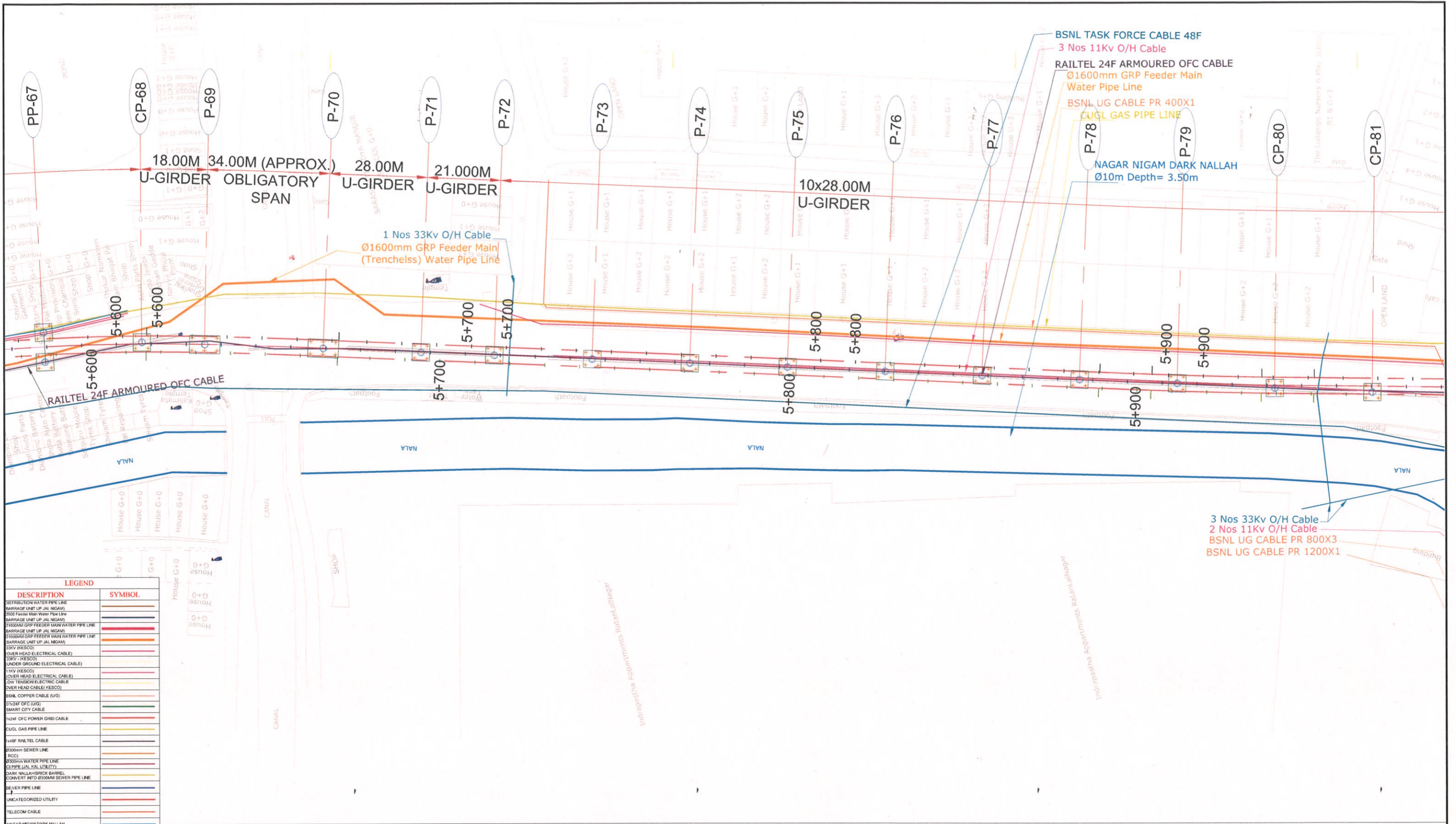
Note- Depth shown here may vary by 2 to 3 mtr.

PROJECT TITLE		UTTAR PRADESH METRO RAIL CORPORATION LTD (Formerly known as Lucknow Metro Rail Corporation Ltd.) KNPDD-AGRICULTURE UNIVERSITY-BARRA-8 CORRIDOR-2	
NAME	SIGNATURE	DRAWING TITLE	
		VIJAY NAGAR TO SHASTRI CHOWK NEAR CTI CHAURAHA	
SCALE	AS SHOWN	DATE OF ISSUE	STAGE
DRG.NO.	KNPDD-01-TDR-KNPCC-12/UTILITY/SHEET - 07 OF 13		REV. R1

NOTICE OF 'NO OBJECTIONS' FROM EMPLOYER						
NOTICE OF NO OBJECTION FROM EMPLOYER IS BEING ACCORDED FOR DESIGN PRINCIPLES HOWEVER THE OVERALL RESPONSIBILITY FOR THE DESIGN ACCURACY LIES WITH THE DETAIL DESIGN CONSULTANT.						
GC - REVIEW	DATE	SIGNATURE	APP. STATUS	UPMRC-SIGN OFF	DATE	SIGNATURE
DPD-GC			<input type="checkbox"/> NOC <input type="checkbox"/> NOWC	DY.CE CIVIL - UPMRCL		
K2-GC			<input type="checkbox"/> RESUBMIT	CPM-UPMRC		



←← TOWARDS AGRICULTURE UNIVERSITY VIJAY NAGAR TO SHASTRI CHOWK AFTER CANAL TOWARDS BARRA-8 →→



DESCRIPTION	SYMBOL
24F RAILTEL CABLE	[Symbol]
33KV O/H CABLE	[Symbol]
11KV O/H CABLE	[Symbol]
1600mm GRP FEEDER MAIN	[Symbol]
48F BSNL CABLE	[Symbol]
1224F OFC CABLE	[Symbol]
1224F O/C POWER GRD CABLE	[Symbol]
CU/GS GAS PIPE LINE	[Symbol]
3000mm SEWER LINE	[Symbol]
800mm WATER PIPE LINE	[Symbol]
1000mm WATER PIPE LINE	[Symbol]
DARK NALLAH/BRICK BARREL CONVERT INTO 800MM SEWER PIPE LINE	[Symbol]
SEWER PIPE LINE	[Symbol]
UNCATEGORIZED UTILITY	[Symbol]
TELECOM CABLE	[Symbol]
NAGAR NIGAM DARK NALLAH	[Symbol]
BSNL TASK FORCE CABLE	[Symbol]

Note- Depth shown here may vary by 2 to 3 mtr.

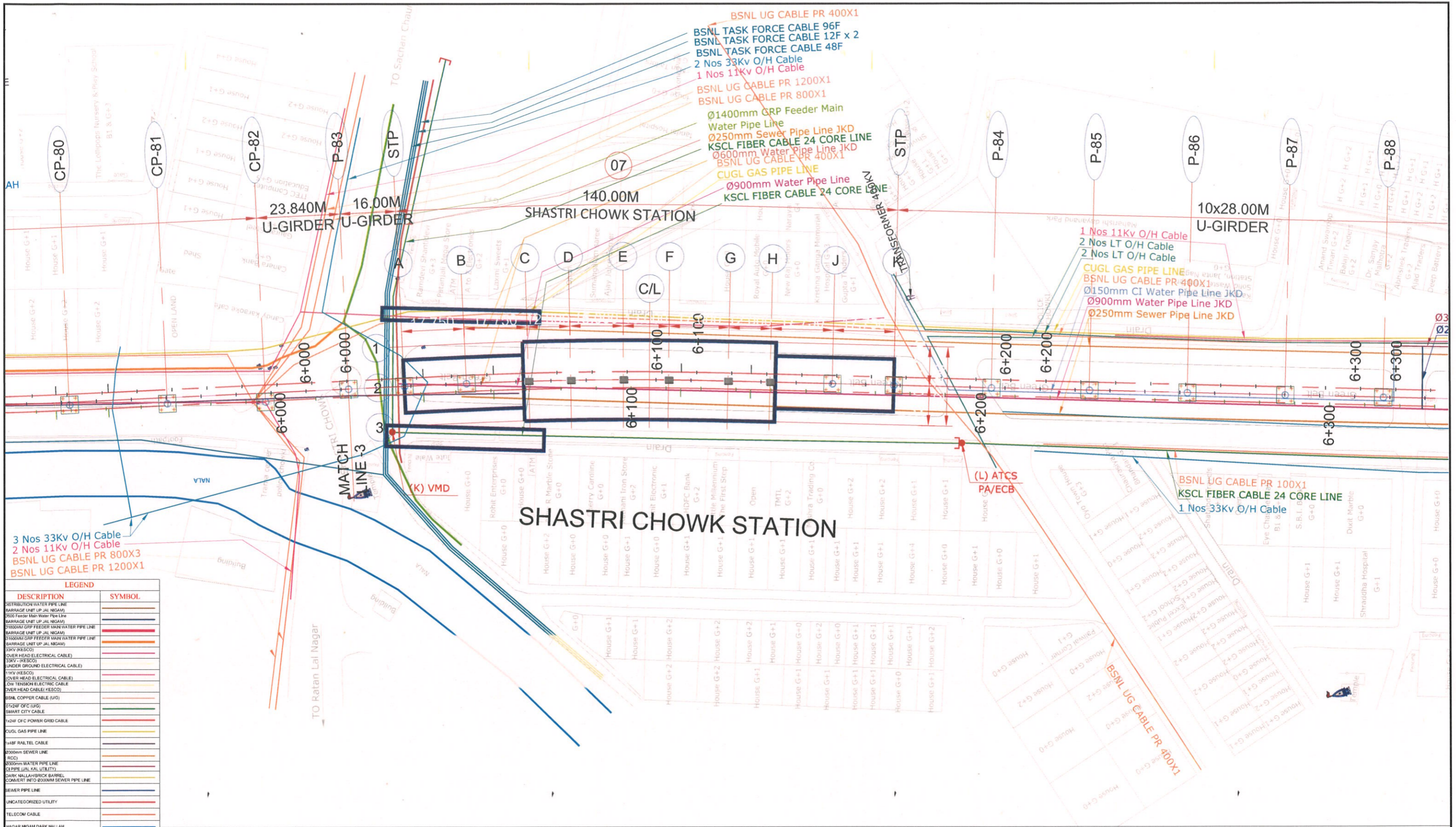
REV.	PARTICULARS	DRN.	CHD.	VER.	DATE



NOTICE OF 'NO OBJECTIONS' FROM EMPLOYER					
NOTICE OF NO OBJECTION FROM EMPLOYER IS BEING ACCORDED FOR DESIGN PRINCIPLES HOWEVER THE OVERALL RESPONSIBILITY FOR THE DESIGN ACCURACY LIES WITH THE DETAIL DESIGN CONSULTANT.					
GC - REVIEW	DATE	SIGNATURE	APP. STATUS	UPMRC-SIGN OFF	DATE
DPD-GC			<input type="checkbox"/> NOC <input type="checkbox"/> NOWC <input type="checkbox"/> RESUBMIT	DY.CE CIVIL - UPMRC	
K2-GC				CPM-UPMRC	

PREPARED	NAME	SIGNATURE	DRAWING TITLE
DRAWN BY			VIJAY NAGAR TO SHASTRI CHOWK AFTER CANAL
DESIGNED BY			
CHECKED BY			SCALE AS SHOWN DATE OF ISSUE STAGE
APPROVED BY			DRG.NO. KNPDD-01-TDR-KNPCC-12/UTILITY/SHEET - 08 OF 13 REV. R1

PROJECT TITLE  
**UTTAR PRADESH METRO RAIL CORPORATION LTD**  
 (Formerly known as Lucknow Metro Rail Corporation Ltd.)  
 KNPDD-AGRICULTURE UNIVERSITY-BARRA-8 CORRIDOR-2



**LEGEND**

DESCRIPTION	SYMBOL
3 Nos 33kV O/H Cable	
2 Nos 11kV O/H Cable	
BSNL UG CABLE PR 800X1	
BSNL UG CABLE PR 1200X1	
2500mm WATER PIPE LINE	
1500mm FEEDER MAIN WATER PIPE LINE	
1000mm GRP FEEDER MAIN WATER PIPE LINE	
750mm GRP FEEDER MAIN WATER PIPE LINE	
500mm GRP FEEDER MAIN WATER PIPE LINE	
300mm GRP FEEDER MAIN WATER PIPE LINE	
150mm GRP FEEDER MAIN WATER PIPE LINE	
100mm GRP FEEDER MAIN WATER PIPE LINE	
50mm GRP FEEDER MAIN WATER PIPE LINE	
15KV (KESCO) OVER HEAD ELECTRICAL CABLE	
11KV (KESCO) OVER HEAD ELECTRICAL CABLE	
0.75KV (KESCO) UNDER GROUND ELECTRICAL CABLE	
11KV (KESCO) UNDER GROUND ELECTRICAL CABLE	
0.75KV (KESCO) UNDER GROUND ELECTRICAL CABLE	
BSNL COPPER CABLE (UO)	
0.75KV OFC (UO)	
SMART CITY CABLE	
1124F OFC POWER GRID CABLE	
CUGL GAS PIPE LINE	
148F PA/TEL CABLE	
3000mm SEWER LINE (JKD)	
1500mm WATER PIPE LINE (JKD)	
750mm WATER PIPE LINE (JKD)	
500mm WATER PIPE LINE (JKD)	
300mm WATER PIPE LINE (JKD)	
150mm WATER PIPE LINE (JKD)	
75mm WATER PIPE LINE (JKD)	
300mm WATER PIPE LINE (JKD)	
150mm WATER PIPE LINE (JKD)	
75mm WATER PIPE LINE (JKD)	
SEWER PIPE LINE	
UNCATEGORIZED UTILITY	
TELECOM CABLE	
NAGAR NGAM DARK NALLAH	
BSNL TASK FORCE CABLE	

Note- Depth shown here may vary by 2 to 3 mtr.

REV.	PARTICULARS	DRN.	CHD.	VER.	DATE



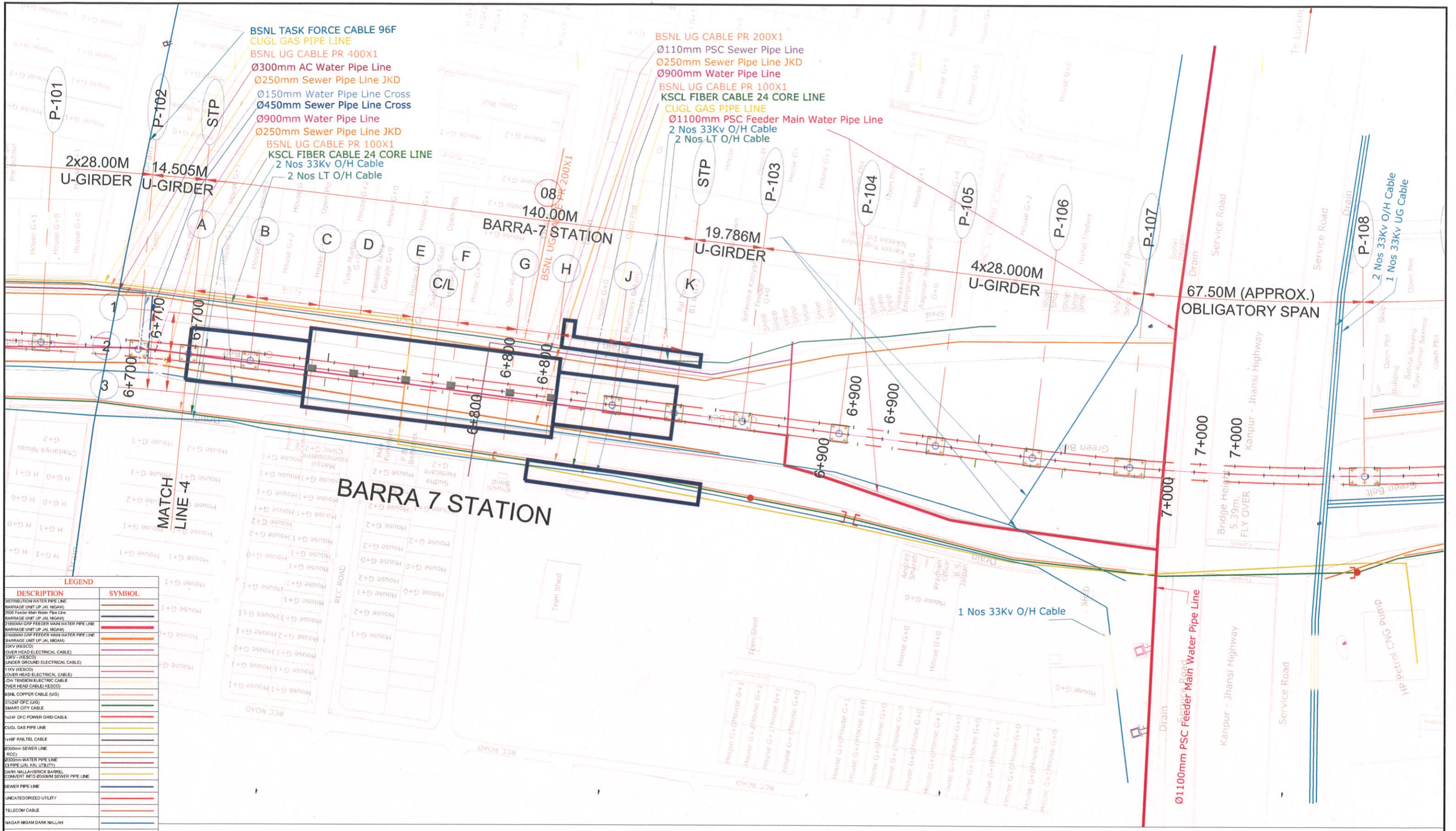
NOTICE OF 'NO OBJECTIONS' FROM EMPLOYER  
 NOTICE OF NO OBJECTION FROM EMPLOYER IS BEING ACCORDED FOR DESIGN PRINCIPLES HOWEVER THE OVERALL RESPONSIBILITY FOR THE DESIGN ACCURACY LIES WITH THE DETAIL DESIGN CONSULTANT.

GC - REVIEW	DATE	SIGNATURE	APP. STATUS	UPMRC-SIGN OFF	DATE	SIGNATURE
DPD-GC			<input type="checkbox"/> NOC <input type="checkbox"/> NOWC <input type="checkbox"/> RESUBMIT	DY.CE CIVIL - UPMRC		
K2-GC				CPM-UPMRC		

PREPARED	NAME	SIGNATURE
DRAWN BY		
DESIGNED BY		
CHECKED BY		
APPROVED BY		

PROJECT TITLE <b>UTTAR PRADESH METRO RAIL CORPORATION LTD</b> (Formerly known as Lucknow Metro Rail Corporation Ltd.) KNPDD-AGRICULTURE UNIVERSITY-BARRA-8 CORRIDOR-2		
NAME	SIGNATURE	DRAWING TITLE
		SHASTRI STATION
SCALE	AS SHOWN	DATE OF ISSUE
DRG.NO.	KNPDD-01-TDR-KNPCC-12/UTILITY/SHEET - 09 OF 13	STAGE
REV.	R1	





DESCRIPTION	SYMBOL
281242FC WATER PIPE LINE (BARRAGE UNIT UP JAL NIGAM)	[Symbol]
3500 Feeder Main Water Pipe Line (BARRAGE UNIT UP JAL NIGAM)	[Symbol]
31800M GRP FEEDER MAIN WATER PIPE LINE (BARRAGE UNIT UP JAL NIGAM)	[Symbol]
31800M GRP FEEDER MAIN WATER PIPE LINE (BARRAGE UNIT UP JAL NIGAM)	[Symbol]
33KV (WESCO) OVER HEAD ELECTRICAL CABLE	[Symbol]
33KV (WESCO) UNDER GROUND ELECTRICAL CABLE	[Symbol]
11KV (WESCO) OVER HEAD ELECTRICAL CABLE	[Symbol]
09 TENSION ELECTRIC CABLE (OVER HEAD CABLE) (WESCO)	[Symbol]
BSNL COPPER CABLE (UG)	[Symbol]
01242FC (UG) SMART CITY CABLE	[Symbol]
1x242 FC POWER GRID CABLE	[Symbol]
CUGL GAS PIPE LINE	[Symbol]
148F RAIL TEL CABLE	[Symbol]
Ø300mm SEWER LINE (RCC)	[Symbol]
Ø300mm WATER PIPE LINE (PIPE (JAL, SAL, UTILITY))	[Symbol]
340K HALLIBROOK BARREL CONVERT INTO Ø300MM SEWER PIPE LINE	[Symbol]
SEWER PIPE LINE	[Symbol]
UNCATEGORIZED UTILITY	[Symbol]
TELECOM CABLE	[Symbol]
NAGAR NIGAM DARK HALLAH	[Symbol]
BSNL TASK FORCE CABLE	[Symbol]

Note- Depth shown here may vary by 2 to 3 mtr.

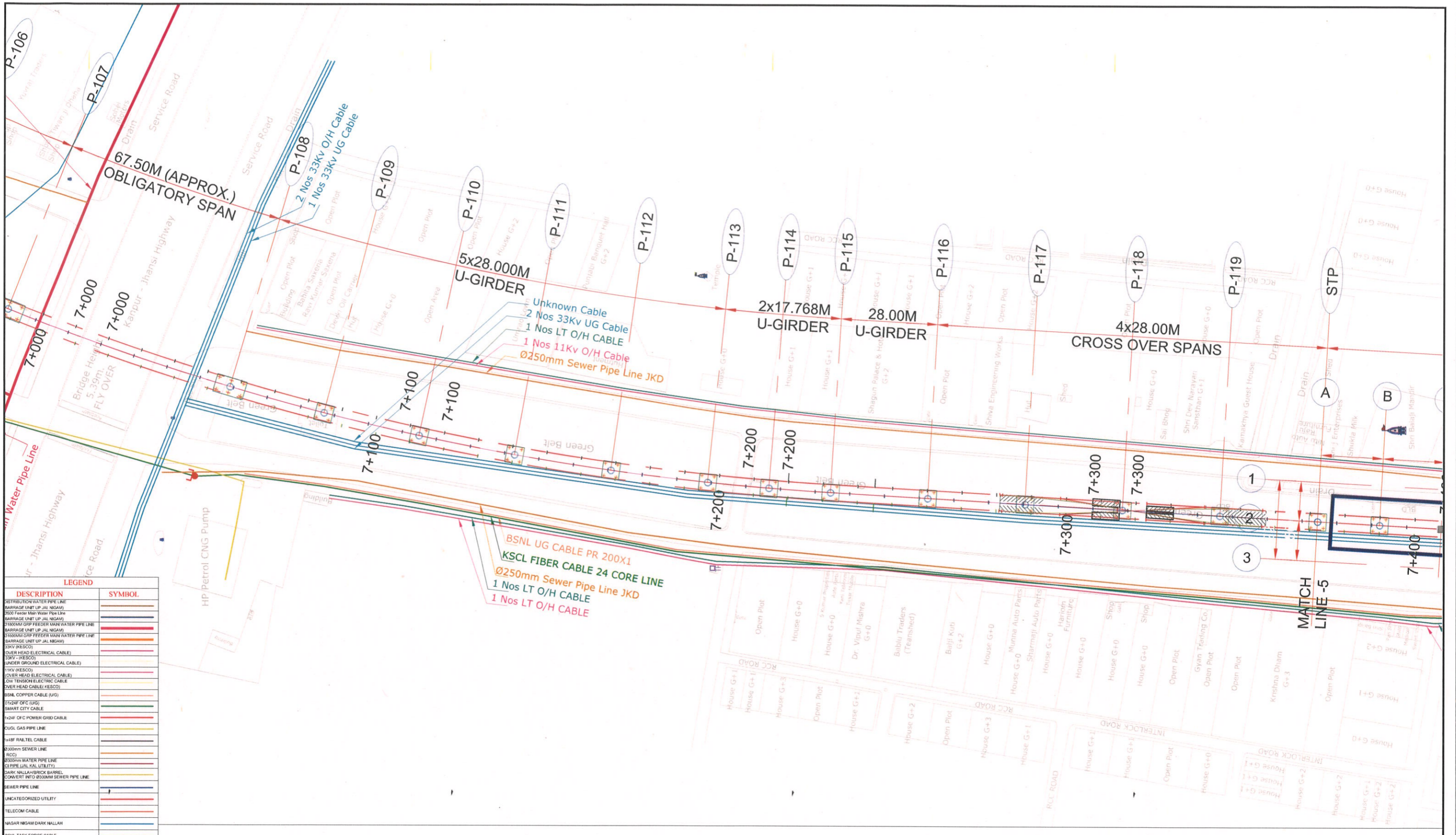
REV.	PARTICULARS	DRN.	CHD.	VER.	DATE



NOTICE OF 'NO OBJECTIONS' FROM EMPLOYER NOTICE OF NO OBJECTION FROM EMPLOYER IS BEING ACCORDED FOR DESIGN PRINCIPLES HOWEVER THE OVERALL RESPONSIBILITY FOR THE DESIGN ACCURACY LIES WITH THE DETAIL DESIGN CONSULTANT.						
GC - REVIEW	DATE	SIGNATURE	APP. STATUS	UPMRC-SIGN OFF	DATE	SIGNATURE
DPD-GC			<input type="checkbox"/> NOC <input type="checkbox"/> NOWC	DI.CE CIVIL - UPMRC		
K2- GC			<input type="checkbox"/> RESUBMIT	CPM-UPMRC		

PROJECT TITLE <b>UTTAR PRADESH METRO RAIL CORPORATION LTD</b> (Formerly known as Lucknow Metro Rail Corporation Ltd.) KNPDD-AGRICULTURE UNIVERSITY-BARRA-8 CORRIDOR-2		
PREPARED	NAME	SIGNATURE
DRAWN BY		
DESIGNED BY		
CHECKED BY		
APPROVED BY		
DRAWING TITLE <b>BARRA 07 STATION</b>		
SCALE	AS SHOWN	DATE OF ISSUE
STAGE		
DRG.NO.	<b>KNPDD-01-TDR-KNPCC-12/UTILITY/SHEET - 11 OF 13</b>	
REV.	R1	





DESCRIPTION	SYMBOL
RE-DISTRIBUTION WATER PIPE LINE	(Symbol)
BARRAGE UNIT (UP, JAL, NIGAM)	(Symbol)
3500 Feeder Main Water Pipe Line	(Symbol)
BARRAGE UNIT (UP, JAL, NIGAM)	(Symbol)
1500MM GRP FEEDER MAIN WATER PIPE LINE	(Symbol)
BARRAGE UNIT (UP, JAL, NIGAM)	(Symbol)
3100MM GRP FEEDER MAIN WATER PIPE LINE	(Symbol)
BARRAGE UNIT (UP, JAL, NIGAM)	(Symbol)
33KV (NESCO)	(Symbol)
OVER HEAD ELECTRICAL CABLE	(Symbol)
33KV (NESCO)	(Symbol)
UNDER GROUND ELECTRICAL CABLE	(Symbol)
11KV (NESCO)	(Symbol)
OVER HEAD ELECTRICAL CABLE	(Symbol)
ON TENSION ELECTRIC CABLE	(Symbol)
OVER HEAD CABLE (NESCO)	(Symbol)
33KV (NESCO)	(Symbol)
BSNL COPPER CABLE (UG)	(Symbol)
Ø124F DFC (UG)	(Symbol)
SMART CITY CABLE	(Symbol)
Ø124F DFC POWER GRID CABLE	(Symbol)
CVGL GAS PIPE LINE	(Symbol)
Ø48F RAIL TEL CABLE	(Symbol)
Ø300mm SEWER LINE (RCD)	(Symbol)
Ø300mm WATER PIPE LINE (CI PIPE (JAL, KAL, UTILITY))	(Symbol)
Ø150mm WATER PIPE LINE (CONVERT INTO Ø300mm SEWER PIPE LINE)	(Symbol)
SEWER PIPE LINE	(Symbol)
UNCATEGORIZED UTILITY	(Symbol)
TELECOM CABLE	(Symbol)
NAGAR NIGAM DARK NALLAH	(Symbol)
BSNL TASK FORCE CABLE	(Symbol)

Note- Depth shown here may vary by 2 to 3 mtr.

PROJECT TITLE		UTTAR PRADESH METRO RAIL CORPORATION LTD (Formerly known as Lucknow Metro Rail Corporation Ltd.) KNPDD-AGRICULTURE UNIVERSITY-BARRA-8 CORRIDOR-2	
NAME	SIGNATURE	DRAWING TITLE	
		BARRA - 07 TO BARRA - 08 STATION	
SCALE	AS SHOWN	DATE OF ISSUE	STAGE
DRG.NO.	KNPDD-01-TDR-KNPCC-12/UTILITY/SHEET - 12 OF 13		
REV.	R1		

NOTICE OF 'NO OBJECTIONS' FROM EMPLOYER					
NOTICE OF NO OBJECTION FROM EMPLOYER IS BEING ACCORDED FOR DESIGN PRINCIPLES HOWEVER THE OVERALL RESPONSIBILITY FOR THE DESIGN ACCURACY LIES WITH THE DETAIL DESIGN CONSULTANT.					
GC - REVIEW	DATE	SIGNATURE	APP. STATUS	UPMRC-SIGN OFF	DATE
DPD-GC			<input type="checkbox"/> NOC <input type="checkbox"/> NOWC	DY.CE CIVIL - UPMRCL	
K2- GC			<input type="checkbox"/> RESUBMIT	CPM-UPMRC	



