

EPC PACKAGE FOR LARA SUPER THERMAL POWER PROJECT, STAGE-II (2x800 MW)
Amendment No. 02 to Technical Specifications Section-VI of Bidding Document No.: CS-9587-001R-2

S. No.	SPECIFICATION REFERENCE				Instead of	Read as
	Section / Part	Sub-Section	Clause No.	Page No.		
D2-01	VI/A	IID	2.03.00	8 OF 8	DEVELOPMENT OF LAYDOWN AREA Bidder shall use a lay down area as shown in GLP. One area marked in GLP totalling 75 acres(approx.) are identified as laydown/preassembly area. Further, bidder to note that this 75 acres of land shall be converted into reservoir. Fencing of the laydown area in the area marked for laydown is in Owner's Scope. Construction of wire fencing in the proposed laydown area shall be completed withing 4 months from NOA. Contractor can do the site preparation work parallely	DEVELOPMENT OF LAYDOWN AREA Bidder shall use a lay down area as shown in GLP. One area marked in GLP totalling 75 acres(approx.) are identified as laydown/preassembly area. Further, bidder to note that this 75 acres of land shall be converted into reservoir by bidder. Fencing of the laydown area in the area marked for laydown is also in Bidder's Scope.
D2-02	VI/A	D-1-5	5.23.01	66 OF 86	Track hopper..... The structural arrangement to be adopted for the design and construction of underground portion of track hopper and machinery hatches shall be as shown in tender drawing. It essentially consists of RCC frames spaced at approx. 3.0M centers with RCC wall panels on the sides and RCC raft/ raft and beam arrangement at the bottom, fixed to the frames. The top	Track hopper..... It essentially consists of RCC frames spaced at approx. 3.0M centers with RCC wall panels on the sides and RCC raft/ raft and beam arrangement at the bottom, fixed to the frames. The top beam of the RCC frame supports the rail supporting beams and the coal hopper. Minimum thickness of RCC raft at bottom shall be 600 mm. Minimum thickness of RCC side walls shall be 600 mm at bottom and 300 mm at top.....

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					beam of the RCC frame supports the rail supporting beams and the coal hopper. Minimum thickness of RCC raft at bottom shall be 600 mm. Minimum thickness of RCC side walls shall be 600 mm at bottom and 300 mm at top.....	
D2-03	VI/B	D-1-5	5.23.18	76 OF 86	Internal and external water supply... The scope..... All buildings (including transfer houses, crusher house, MCC rooms, pump house etc.) shall be provided with open surface brick drains of minimum size of 300 mm width and 300 mm depth with removable steel gratings all around the periphery. All drains excepting the peripheral drains around the transfer points, crusher house, control / MCC. buildings, pumps house etc., shall be of RCC construction. All open RCC drains shall have removable steel gratings designed for loads as specified under loading clause. Minimum size of main bar of steel grating (Galvanised	Internal and external water supply... The scope..... All buildings (including transfer houses, MCC rooms, pump house etc.) shall be provided with open surface RCC drains of minimum size of 300 mm width and 300 mm depth with removable steel gratings all around the periphery. For stock pile area and succeeding drains minimum 850 mm Width and 600 mm depth RCC drain shall be provided. For Crusher house area and succeeding drains upto Coal slurry settling pond(CSSP), minimum 850 mm Width RCC drain shall be provided. All open RCC drains shall have removable steel gratings designed for loads as specified under loading clause. Minimum size of main bar of steel grating (Galvanised to 610 gm/m²) shall be 25 mm x 5mm and cross bars 6mm. At all entry or road/rail crossing

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					to 610 gm/m2) shall be 25 mm x 5mm and cross bars 6mm. At all entry or road/rail crossing point's RCC box/pipe culvert shall be provided. The opening size of grating shall not be more than 90 mm x 35 mm. All drains as well as pre - cast covers shall be provided with edge protection angles and lifting hooks.	point's RCC box/pipe culvert shall be provided. The opening size of grating shall not be more than 90 mm x 35 mm. All drains as well as pre - cast covers shall be provided with edge protection angles and lifting hooks.....
D2-04	VI/B	D-1-5	5.34.00	85 OF 86	Bio-Toilet shall be provided near all the modular worker's sheds/accommodation, the makeup water pump house building, CHP building outside the plant boundary. Besides these areas, any toilet block provided in area far from plant boundary shall be a Bio toilet.	Bio-Toilet shall be provided near all the modular worker's sheds/accommodation, the makeup water pump house building, CHP building outside the plant boundary. Besides these areas, any toilet block provided in area far from plant boundary shall be a Bio toilet
D2-05	VI/B	D-1-6	6.02.09 (I)	7 OF 25	New clause added	Loads for solar installations over roof to be taken not less than 1 KN/sqm. Roof slab to be design for local effect due to wind load at support location for installations.
D2-06	VI/B	D-1-6	6.03.03	8 OF 25	Design of steel structures shall be done by the working stress method. Design shall be as per provisions of	Design of steel structures shall be done as per provisions of IS:800: 2007 (Limit state design) and other relevant IS standards including National Building Code(2016). For design of

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					IS:800:1984 and other relevant IS standards. For design of coal bins and loading hopper IS:9178 (part I to III) shall be followed.	coal bins and loading hopper IS:9178 (part I to III) shall be followed.																												
D2-07	VI/B	D-1-6	6.04.01(C)	22 OF 25	All steel structures shall be designed by following basic design criteria in ISO 12944 Part 3. Minimum thickness of metal for any structural steel elements shall be not less than 6 mm where steel is fully accessible for cleaning and repainting and where it is feasible to follow design criteria given in ISO 12944 part 3. However, where steel surfaces are inaccessible for cleaning and repainting or where it is not feasible to follow design criteria given in ISO 12944 part 3, corrosion allowance of 1.5 mm shall be kept in thickness (over the design thickness or 6mm, whichever is more). Minimum thickness of tubular/ hollow steel sections conforming to IS 4923 shall be 4.0 mm, provided the ends of such steel sections are effectively sealed unless higher thickness is specified elsewhere for specific structure.	All steel structures shall be designed by following basic design considerations in ISO 12944 Part 3. Where steel is fully accessible for cleaning and repainting and where it is feasible to follow design criteria given in ISO 12944 part 3, minimum thicknesses of structural members shall be as follows <table><tr><th>Structural Sections</th><th>Minimum thickness</th><th>Minimum Flange thickness</th><th>Minimum Web thickness</th></tr><tr><td>Plates</td><td>6</td><td></td><td></td></tr><tr><td>Built up Sections</td><td></td><td>6</td><td>6</td></tr><tr><td>Angle sections</td><td>6</td><td></td><td></td></tr><tr><td>ISMB / ISMC</td><td></td><td>6</td><td>4.5</td></tr><tr><td>NPB/ WPB</td><td></td><td>6</td><td>4.5</td></tr><tr><td>RHS/SHS/ Tubular Sections</td><td>4</td><td></td><td></td></tr></table> All dimensions in mm Where steel surfaces are inaccessible for cleaning and repainting (such as back to back sections, lap joints etc.) or where it is not feasible to follow design criteria given in ISO 12944 part 3, corrosion allowance of 1.5 mm shall be kept in thickness (over the design thickness or minimum thickness specified above, whichever is more).	Structural Sections	Minimum thickness	Minimum Flange thickness	Minimum Web thickness	Plates	6			Built up Sections		6	6	Angle sections	6			ISMB / ISMC		6	4.5	NPB/ WPB		6	4.5	RHS/SHS/ Tubular Sections	4		
Structural Sections	Minimum thickness	Minimum Flange thickness	Minimum Web thickness																															
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						The minimum thickness consideration shall apply for both web and flange. However minimum gusset plate thicknesses shall be followed as mentioned else where in the specification and minimum angle section to be used is ISA 50x50x6. Ends of tubular sections to be effectively sealed at both ends. For tubular handrail, thickness shall be as specified elsewhere in the specification.
D2-08	VI/B	D-1-8	8.01.02.29	3 OF 19	Interlocking concrete block , kerb blocks or concrete block specified for various uses shall be precast blocks made of alkali-activated concrete /Geopolymer concrete as per IS:17452-2020.	Interlocking concrete block confirming to IS:15658, kerb blocks or concrete block specified for various uses shall be precast blocks made of alkali-activated concrete /Geopolymer concrete as per IS:17452- 2020.
D2-09	VI/B	D-1-8	8.02.01	5 OF 19	Concrete..... Concrete design mix of M50 grade concrete for TG top deck and substructure shall be carried out as per IS 10262 satisfying following conditions /Specification:.... vi) Fly ash conforming to IS 3812 part 1 shall be used as pozzolana (mineral admixture) considering approx 15%-30% (mass) replacement of total cementitious materials.	Concrete..... Concrete design mix of M50 grade concrete for TG top deck shall be carried out as per IS 10262 satisfying following conditions/Specification:..... vi) Fly ash shall be not be used as replacement of total cementitious materials..

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D2-10	VI/B	D-1-8	8.02.03 b)		Admixture: Plasticizer /super plasticizer admixture shall generally be added to the concrete for promoting workability. In addition, plasticizer/super plasticizer-cum-retarder shall be added to retard the setting time for mass concreting work as required. In case of pumping, suitable pumping additive shall also be added to avoid segregation and increase flowability. The slump shall generally be in the range given below: Top decks of TG & BFP - 150 mm to 180 mm Block foundations - 100 mm to 150 mm TG Column - 100 mm to 150 mm	Plasticizer /super plasticizer admixture shall generally be added to the concrete for promoting workability. In addition, plasticizer/super plasticizer-cum-retarder shall be added to retard the setting time for mass concreting work as required. In case of pumping, suitable pumping additive shall also be added to avoid segregation and increase flowability. The slump shall generally be in the range given below: Top decks of TG & BFP - 150 mm to 180 mm Block foundations - 100 mm to 150 mm TG Column - 100 mm to 150 mm Admixtures in concrete for promoting workability, retarding setting, reduction in permeability, facilitating pumping of concrete, etc., shall be used as per the approved mix design after approval from the Engineer. Admixtures shall conform to clause 5.5 of IS: 456. These shall be free from injurious amount of chloride, etc. Addition of admixtures should not reduce the specified strength or durability of concrete and should not have detrimental effect on reinforcement. The admixtures shall conform to IS: 9103 or ASTM C-494 and shall be proven performance record make and from a reputed manufacturer. Calcium chloride as accelerating admixture is not permitted to be used.

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						Admixtures shall either be naphthalene based or any other material approved by the Engineer. Ligno-sulphonate based materials shall not be used. Admixtures shall be used in liquid form only, quantity of which shall be as per manufacturer's recommendation and approved mix design.
D2-11	VI/B	D-1-8	8.06.00	9 OF 19	GRATING All grating shall be electroforged types. Minimum thickness of the grating shall be 40mm for indoor installation and 32mm for outdoor installation. The opening size shall not be more than 30mmX100mm. The minimum thickness of the main bearing bar shall be 5mm or as per design requirement whichever is higher. All grating shall be hot dip galvanized at the rate of 610g per sqm. After surface preparation by means of shot blasting or cleaned by acid pickling	GRATING All grating shall be electroforged types. Minimum thickness of the grating shall be 40mm. The opening size shall not be more than 30mmX100mm. The minimum thickness of the main bearing bar shall be 5mm or as per design requirement whichever is higher. All grating shall be hot dip galvanized at the rate of 610g per sqm. After surface preparation by means of shot blasting or cleaned by acid pickling
D2-12	VI/B	D-1-9	9.04.02	3 OF 30	All toilets shall have sunken slab to accommodate sanitary pipes and the finish level of floor shall match with general floor finish level. Sunken slabs shall be made watertight by suitable water proofing treatment.	All toilets shall have sunken slab to accommodate sanitary pipes and the finish level of floor shall match with general floor finish level. Sunken slabs shall be made watertight by suitable water proofing treatment. Water proofing treatment in sunken portion of WCs, bathroom, kitchen, pantry etc., shall be done in two (2) coats by applying cement slurry

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						mixed with water proofing cement compound (confirming to IS 2645). The First layer shall be of slurry of cement @ 0.488 kg/sqm mixed with water proofing cement compound @ 0.253 kg/ sqm. This layer shall be allowed to air cure for 4 hours. The Second layer shall be of slurry of cement @ 0.242 kg/sqm mixed with water proofing cement compound @ 0.126 kg/sqm. This layer will be allowed to air cure for 4 hours followed with water curing for 48 hours. The water proofing shall be done for the entire sunken area.
D2-13	VI/B	D-1-9	9.11.11	14 OF 30	Electrically operated, self operable/closing, aluminium framed with tinted glass, sliding doors shall be provided at the entrance of all common control rooms, entrance lobby of facility building. At the entrance of all common control rooms in MPH G.I. framed with fire resistant glass, sliding doors shall be provided. The other doors in common control rooms in MPH shall be G.I. framed 	At the entrance of all common control rooms in MPH, G.I. framed with fire resistant glass, sliding doors shall be provided. The other doors in common control rooms in MPH shall be G.I. framed with fire resistant glass as per fire zoning. Fire Resistant Glazed Door System (Swing / Sliding) shall be of uniform GI profile 50X50 mm with 14mm EI 20 GLASS for Interior Application. Fire Resistant Glazed Door System shall have 120 minutes of integrity and radiation control (EW 120) with symmetrical (Bi-Directional) fire protection. The frames shall be cold rolled profiles as per EN standard EN 10327/ Indian Standard IS 513 . The door frames are cold rolled from 1.5 mm steel sheet to form a profile of 50

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					The door shall also be subjected to durability tests as per EN 12400 for C5 classification (200,000 cycles). The doors shall also be tested for class 5 of impact resistance when tested as per EN 13049. The doors & partition shall also be tested for class 4 level of Mechanical strength when tested as per EN13115. The door shall have water tightness level of 8A when tested as per EN 1027. Fire Rated Door shall be of Makes- Saint Gobain, Acodor , IGI, Matrix.	mm x 50 mm on all sides. The door shutter shall have the top rail, side rail and bottom rail dimensions of 50 mm x 50 mm. The overall door opening shall be as per tested evidence and tested as per EN 1634-1/ ISO 834- 1 / ISO 3009 /(Indian Standard) IS 16947:2018 in an accredited laboratory. The glass must be minimum 14mm clear (MADE IN INDIA)120 min fire rated for Integrity, Radiation control (EW 120) and partially insulation (EI 20) Non Wired Toughened Interlayered glass with a light transmission of 86% and a sound reduction of 38 dB and manufactured in UL & TUV audited Facility and including UL-EU Certification and compliant to class 1(B)1 category of Impact Resistance as per EN 12600. The glass shall be tested and certified for no formation of bubbles or yellowing after 5000 hours of exposure to UV radiation by TUV Rheinland as per EN 12543-4.The base glass and finished glass must made in India. The shutters shall be fixed to the frame using Weld-on hinges of dimensions 179mm X 20mm. The profiles shall have grooves to incorporate Fire Resistant gaskets. The glass shall be held in its place with the help of 1.5 mm cold rolled steel beading and Kerafix 2000 ceramic tape with cross section of 4 x 15 mm as per the test evidence. Beading shall be clipped on using

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						Stainless Steel self-tapping screws fixed at a distance of 70 mm from the edges and 150 mm c/c henceforth. The glass panes are to be supported on non-combustible 6 mm Calcium Silicate setting blocks. The door shall be fitted with offset pull handle and door closer of Dorma (TS 73V, TS 83V, TS93V), Geze (TS 2000NV) or equivalent. The inactive leaf (in case of double leaf only)shall be fixed to the frame using a tower bolt at meeting edge at top or as per the tested evidence. The doors shall be manufactured in a TUV audited facility. The maximum glazing size shall be as per the test certification. The profile has to be fixed to the supporting construction by means of M10 or bigger steel bolts at every 150 mm from the edges and every 500 mm (approx.) c/c. The doors shall offer C4 level of wind resistance when tested as per EN12211 and shall provide class 4 level of air permeability as per EN 1026. The door shall also be subjected to durability tests as per EN 12400 for C5 classification (200,000 cycles). The doors shall also be tested for class 5 of impact resistance when tested as per EN 13049. The doors & partition shall also be tested for class 4 level of Mechanical strength when tested as per EN13115. The door shall have water tightness level of 8A when tested as per EN 1027. The sliding door system shall be connected to the surrounding construction by means of

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						interlocking labyrinths lined with intumescent tapes as per the test evidence and connected to the sliding mechanism at the top. The sliding mechanism shall be as mentioned in the tested evidence or Assessment and shall have steel rollers. The glass should be held in its place with the help of 1.5 mm cold rolled steel beading and Kerafix 2000 ceramic tape with cross section of 4 x 15 mm as per the test evidence. Beading shall be clipped on using Stainless Steel self-tapping screws fixed at a distance of 70 mm from the edges and 150 mm c/c henceforth. The glass panes are to be supported on non-combustible 6 mm Calcium Silicate setting blocks. The sliding mechanism shall be fixed to adequate supporting construction (MS channel / Reinforced concrete) to ensure proper support for the door. Fire Rated Door (swing / sliding) shall be of Makes- Saint Gobain, Acodur, IGI, Matrix.
D2-14	VI/B	D-1-9	9.17.00 TABLE A&B	19 TO 30	Table A and B	Table A and B revised and attached as Annexure D2-C
D2-15	VI/B		ANNEXURE H		Indicative arrangement of Coal Stock Pile	Indicative arrangement of Coal Stock Pile revised and attached as Annexure D2-D
D2-16	VI/E				9587-999-POC-F-001-Rev-0	9587-999-POC-F-001-Rev-A

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			TENDER DRAWINGS		9587-999-POC-F-002-Rev-0 Sheet 1	9587-999-POC-F-002-Rev-A Sheet 1
					9587-999-POC-F-002-Rev-0 Sheet 2 9587-001-POC-A-003-Rev-0	9587-999-POC-A-002-Rev-A Sheet 2 9587-001-POC-A-003-Rev-A
					9587-001-POC-A-004-Rev-0	9587-001-POC-A-004-Rev-A
					9587-001-POC-A-005-Rev-0	9587-001-POC-A-005-Rev-A
					9587-001-POC-A-006-Rev-0	9587-001-POC-A-006-Rev-A
					9587-001-POC-A-007-Rev-0	9587-001-POC-A-007-Rev-B
D2-17					New Annexures added	Annexure D2-A: Global coordinates showing NTPC Land outside plant boundary of Lara STPP Annexure D2-B: Global Coordinates showing approach road to NTPC land boundary of Lara STPP
D2-18	VI/A	IID	1.00.00 S.NO.26	5 OF 8	Civil Works associated with fire detection and fire protection system Civil, structural, architectural works for fire water tank foundation, fire water pump house including Switchgear/MCC & Control room , fire water booster pump house & control room, foam system including foam system shed & control room, deluge valve housing, pedestals for pipes, concrete encasement of pylon	Civil Works associated with fire detection and fire protection system Civil, structural, architectural works for fire water booster pump house & control room, foam system including foam system shed & control room, deluge valve housing, pedestals for pipes, concrete encasement of pylon pipes (within filled up gravel portion) used for HVW spray system for protection of transformers, rail/road crossing of fire water trench etc, civil works associated with buried pipes & crossing etc.

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					pipes (within filled up gravel portion) used for HVW spray system for protection of transformers, rail/road crossing of fire water trench etc, civil works associated with buried pipes & crossing etc.	
D2-19	VI/A	IID	2.01.00 a)	6 OF 8	Development of Bidders temporary staff colony and labour colony along with toilets & fencing etc. Bidder may use green belt area on west side for Labour Colony. For safety of labour, bidder to provide separate approach road for their movement, as per site conditions, which shall be completely isolated from material movement road/path. No material movement shall be allowed on approach road meant for Labour colony.	Development of Bidders temporary staff colony and labour colony along with toilets & fencing etc. For safety of labour, bidder to provide separate approach road for their movement, as per site conditions, which shall be completely isolated from material movement road/path. No material movement shall be allowed on approach road meant for Labour colony.
D2-20	VI/A	D-1-10	10.01.00 b)	1 OF 4	TG foundation top deck/ Substructure	TG foundation top deck

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D2-21	Technical amendment D-1-01	D-1-7 at Annexure	7.04.03	3 OF 7	Backfilling in Power House & Boiler Area: Backfilling around foundations, trenches, sumps, pits, plinths, etc. shall be carried out with sand in layers not exceeding 300 mm compacted thickness and each layer shall be compacted to minimum 80% of relative density.	Backfilling in Power House & Boiler Area: Backfilling around foundations, trenches, sumps, pits, plinths, etc. shall be carried out with natural sand/ manufactured sand confirming to IS 383 in layers not exceeding 300 mm compacted thickness and each layer shall be compacted to minimum 80% of relative density.

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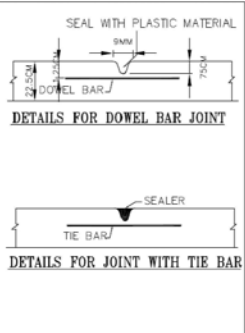
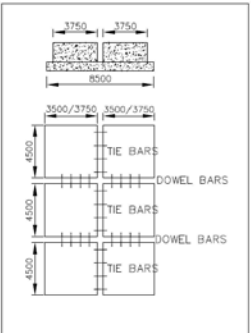
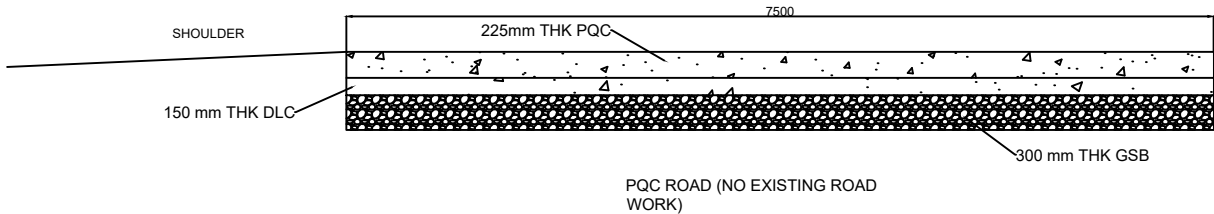
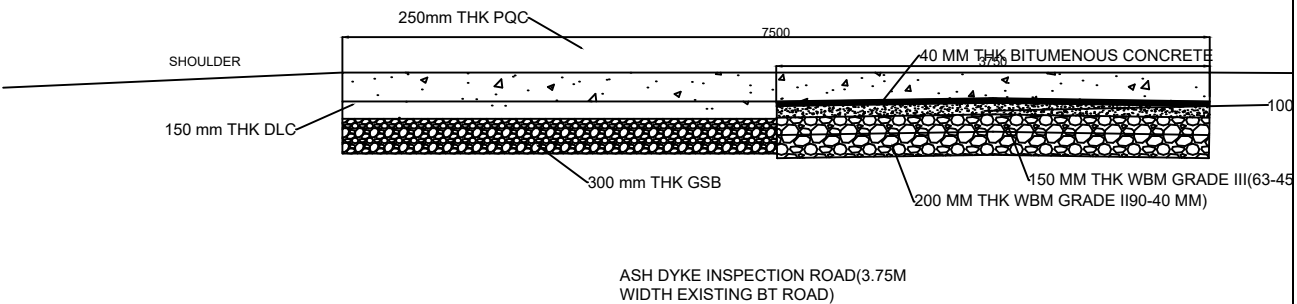
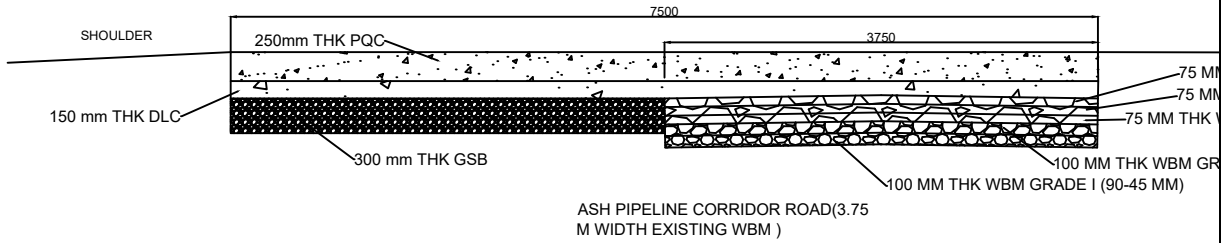
Global Coordinates showing NTPC Land outside plant boundary of LARA STPP

12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2

H
G
F
E
D
C
B
A

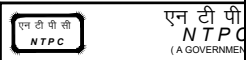


PQC Road layout from
Plant boundary
to 280 acre land
at Village Lara



	DIAMETER	SPACING	LENGTH
DOWEL BAR	25MM	250MM	500MM
TIE BAR (WITH DEFORMED BAR)	12MM	900MM	700MM

REV. NO.	DESCRIPTION	DRAWN	DESIGN	CHKD.	M	E	C	C&I	ARCH.	APPD.	DATE	SIZE	SCALE	ORG. NO.
												A1	N.T.S.	



PROJECT: LARA SUPER
TITLE: PQC ROAD FROM

Global Coordinates showing Approach road to
NTPC Land outside plant boundary of LARA STPP

TABLE –A INTERIOR FINISHING SCHEDULE				
S.N O.	DESCRIPTION OF AREA	FLOOR FINISH	WALL FINISH	CEILING FINISH
1.	Main power house Building.			
	a) Unloading Bay	Cement concrete with Metallic hardener topping	Acrylic distemper	Acrylic distemper (except metal deck area)
	b) Cable vault	Cement concrete with Metallic hardener topping	Acrylic distemper	Acrylic distemper (except metal deck area)
	c) Balance area including passage	Cement concrete with Metallic hardener topping	Acrylic distemper	Acrylic distemper (except metal deck area)
	d) SWAS Room	Matt Finished Vitrified ceramic tiles.	Aluminium composite panel cladding on walls and columns upto false ceiling level	Alluminium false ceiling in combination with GRG plaster board border in column depth or as per approved design
	e) Equipment Area, ESP SWGR/ ACP Room/ UAF Room	Cement concrete with Metallic hardener topping	Acrylic distemper.	Acrylic distemper (except metal deck area)
	f) UPS Battery charger room	Matt finished Vitrified ceramic tiles.	Aluminium composite panel cladding on walls and columns upto false ceiling level	Alluminium false ceiling in combination with GRG plaster board border in column depth or as per approved design
	g) Deaerator floor	Cement concrete with Metallic hardener topping.		-

TABLE –A
INTERIOR FINISHING SCHEDULE

S.N O.	DESCRIPTION OF AREA	FLOOR FINISH	WALL FINISH	CEILING FINISH
	h) Operating Floor	20 mm thick heavy duty anti skid full body vitrified tile in TG Hall. Rubber flooring at TG deck.	Colour coated Metal cladding on A-Row& Gable end, up to crane girder level.	Metal deck roofing (bottom of sheeting with RAL 9002 finish)
	i) General circulation and movement areas	20 mm thick heavy duty anti skid full body vitrified tile		Acrylic distemper (except metal deck area).
	j) Switchgear room	Cement concrete with Metallic hardener topping.	Acrylic distemper	Acrylic distemper (except metal deck area)
	k)MCC Room	Cement concrete with Metallic hardener topping.	Acrylic distemper	Acrylic distemper (except metal deck area)
	l) Control room area including control room	Matt Finish Vitrified ceramic tiles flooring of size 1000 x1000 mm	Partition in fire rated glass with fire rated frames with 2 hr fire rating & Aluminium composite panel cladding for columns and walls	Alluminium false ceiling in combination with GRG plaster board border in column depth or as per approved design

TABLE –A INTERIOR FINISHING SCHEDULE				
S.N O.	DESCRIPTION OF AREA	FLOOR FINISH	WALL FINISH	CEILING FINISH
	m) control equipment room,	Matt finish Vitrified ceramic tiles.	Partition in fire rated glass with fire rated frames with 2 hr fire rating & Aluminium composite panel cladding for columns and walls	Alluminium false ceiling in combination with GRG plaster board border in column depth or as per approved design
	n)Conference room, senior executive room., Computer Room	Matt finish Vitrified ceramic tiles	Partition in fire rated glass with fire rated frames with 2 hr fire rating & Aluminium composite panel cladding for columns and walls	Alluminium false ceiling in combination with GRG plaster board border in column depth or as per approved design
	o)Record room	ceramic tiles	Acrylic distemper.	Alluminium false ceiling in combination with GRG plaster board border in column depth or as per approved design
	p)Locker room	Ceramic Tiles	Acrylic Emulsion Paint	Alluminium false ceiling in combination with GRG plaster board border in column depth or as per approved design
	q)Toilet area	ceramic tiles	Digitally glazed ceramic wall tiles up to False Ceiling Height	Alluminium False ceiling in size 600x 600

TABLE –A INTERIOR FINISHING SCHEDULE				
S.N O.	DESCRIPTION OF AREA	FLOOR FINISH	WALL FINISH	CEILING FINISH
	r) Office Room, Staff Room	Matt Finished Vitrified ceramic tiles.	Partition in fire rated glass with fire rated frames with 2 hr fire rating & Aluminium composite panel cladding for columns and walls	Alluminium false ceiling in combination with GRG plaster board border in column depth or as per approved design
	s)Laboratory area	Vitrified Ceramic / Acid/alkali resistant tiles.	Designer ceramic wall tiles up to False Ceiling Height/ Aluminium composite panel cladding for columns and walls in case of A.C Panel	Alluminium false ceiling in combination with GRG plaster board border in column depth or as per approved design
	t) RCC Stair case	18mm thick Granite (Polished and honed Finished) stone	Polished Granite Stone up to 1.2m. ht. & Acrylic Distemper Paint over wall putty finish for balance height.	Acrylic Distemper
	u) Lift and Staircase Lobby	18mm thick polished granite stone as pattern.	18mm thick polished granite & glass mosaic tile cladding up to False Ceiling Height	Alluminium false ceiling in combination with GRG plaster board border in column depth or as per approved design
	v) Passages and general circulation areas.	Deleted	Deleted	Deleted

TABLE –A INTERIOR FINISHING SCHEDULE				
S.N O.	DESCRIPTION OF AREA	FLOOR FINISH	WALL FINISH	CEILING FINISH
	w) Battery Room	Acid and alkali resistant tile.	Acid and alkali resistant tile up to 1.2m height and chemical resistant paint for balance height	Chemical Resistant paint except in locations where Metal deck has been provided
	x) Oil canal, oil room, oil purification Tank and other areas where oil spillage is likely to occur.	Oil resistant paint (epoxy based) 150 micron over primer.	As above except oil canal Oil resistant Paint	As above except oil canal.
	y) Pathways including roof area.	22mm thick concrete chequered tiles.	-	-
2	ESP control building/Air compressor house / Safety Control room			
	a) Operating/Maintenance areas	Cement concrete with Metallic hardener topping	Pre color coated metal panel cladding.	Acrylic distemper (except metal deck area)
	b) Office Room, Staff Room	Digitally glazed Vitrified ceramic tiles.	Aluminium composite panel cladding on walls and columns	Mineral fiber Board False Ceiling

TABLE –A INTERIOR FINISHING SCHEDULE				
S.N O.	DESCRIPTION OF AREA	FLOOR FINISH	WALL FINISH	CEILING FINISH
	c) Control Room	Digitally glazed Vitrified ceramic tiles.	Aluminium composite panel cladding on walls and columns in ESP Control Room Building	Alluminium false ceiling in combination with GRG plaster board border in column depth or as per approved design
	d) MCC Room	Cement concrete with Metallic hardener topping.	Acrylic distemper	Acrylic distemper (except metal deck area)
	e) RCC Stair case	18mm thick Granite (Polished and Honed Finished) stone	Polished Granite stone up to 1.2m.ht. & Acrylic Distemper	Acrylic Distemper (except metal deck area)
	f) Battery Room	Acid, Alkali resistant tile	Acid, Alkali resistant tile 1.2m height / chemical resistant paint above dado	Chemical resistant paint (except metal deck area)
	g) AHU/ AC Plant room/ Cable vault	Cement concrete with Metallic hardener topping	Acrylic Distemper	Acrylic Distemper (except metal deck area)
	h) Toilets	ceramic tiles.	Designer ceramic wall tiles dado up to false ceiling level.	Calcium silicate false ceiling.
3.	Mill & Bunker building/ T.P.s / Conveyor Galleries	Cement concrete with Metallic hardener topping	Acrylic distemper on masonry walls/ color coated Metal panel cladding	color coated Metal panel cladding

TABLE –A INTERIOR FINISHING SCHEDULE				
S.N O.	DESCRIPTION OF AREA	FLOOR FINISH	WALL FINISH	CEILING FINISH
4.	Fire water Pump house / Fire Water booster pump house.			
	a) Maintenance /Pump floor/PLC	Cement concrete with Metallic hardener topping	Acrylic distemper	Acrylic distemper (except metal deck area)
	b) Control room /PLC.	Matt Finished Vitrified Ceramic Tiles	Acrylic emulsion paint.	Mineral fiber board false ceiling.
	Toilet area	ceramic tiles.	Digitally glazed ceramic wall tiles dado up to false ceiling level.	Acrylic distemper
5.	Ash slurry pump house/ Ash water pump house / Silo Area Utility Building / Ash Water recirculation Pump House/ Transport air compressor house/ HCSD pump house/Fuel Oil Unloading Pump House with switchgear building& control room /H2 generation Building/ Miscellaneous Switchgear room CW Pump house, Switchgear room, control room/ RW Pump house, Switchgear room, control room/ FGD buildings / Any other Building.			
	Operating/Maintenance areas/ MCC room	Cement concrete with Metallic hardener topping	Acrylic distemper	Acrylic distemper (except metal deck area)

TABLE –A INTERIOR FINISHING SCHEDULE				
S.N O.	DESCRIPTION OF AREA	FLOOR FINISH	WALL FINISH	CEILING FINISH
	Control room /PLC/ Office Area / Entrance / corridor.	Matt Finished Vitrified Ceramic Tiles	Acrylic emulsion paint.	Mineral fiber board false ceiling.
	a) Toilet area	ceramic tiles.	Digitally glazed ceramic wall tiles dado up to false ceiling level.	Acrylic distemper
6.	O&M store building/Dozer Shed			
	a) Stores/dozer shed	Cement concrete with Metallic hardener topping.	Acrylic distemper/ color coated Metal panel cladding	Acrylic distemper (except metal deck area)
	b)Office Room, Staff Room/ Electronic Store	Matt Finished Vitrified ceramic tiles.	Acrylic emulsion paint.	Acrylic Emulsion Paint. / Mineral Fibre Board False Ceiling in A.C area
	c)Passages	Matt Finished Vitrified Ceramic Tiles	Acrylic distemper	Acrylic distemper
	d) RCC Staircase	18mm thick polished Marble stone finish.	Marble stone up to 1.2m.ht. & Acrylic Distemper above.	Acrylic Distemper

TABLE –A INTERIOR FINISHING SCHEDULE				
S.N O.	DESCRIPTION OF AREA	FLOOR FINISH	WALL FINISH	CEILING FINISH
	e) Toilets	ceramic tiles.	Designer ceramic wall tiles dado up to 2.1 m Height from FFL.	Acrylic distemper
7	Rest Room for O&M Workers			
	Rest room	Cement concrete with Metallic hardener topping.	Acrylic distemper	Metal roof
	Toilets	ceramic tiles.	Digitally glazed ceramic wall tiles dado up to 2100 high, Acrylic Distemper paint above	Metal roof
8	Occupational Health Centre with Crèche Facilities			
	a) Waiting Lobby cum Reception/ Doctor's Chamber /First Aid Room/ Patient Room	Matt finish vitrified tiles	Acrylic Emulsion paint	Acrylic Emulsion paint
	b) Driver's Room	Digitally Glazed vitrified tiles	Acrylic Emulsion paint	Acrylic Emulsion paint

TABLE –A INTERIOR FINISHING SCHEDULE				
S.N O.	DESCRIPTION OF AREA	FLOOR FINISH	WALL FINISH	CEILING FINISH
	c)Toilet area	ceramic tiles.	Digitally glazed ceramic wall tiles dado up to false ceiling level.	Calcium Silicate False Ceiling
	d) Creche	5 mm thick vinyl flooring	Glass mosaic tiles in murals & patterns and Acrylic Emulsion Paint	Acrylic Emulsion paint
	Porch		Acrylic distemper	Acrylic distemper
9	Car Parking			
	Covered Parking	Concrete Blocks	Acrylic distemper	Acrylic distemper
10	Parking Shed			
		Concrete Blocks		

Note : 1. All wall above false ceiling shall be plastered.

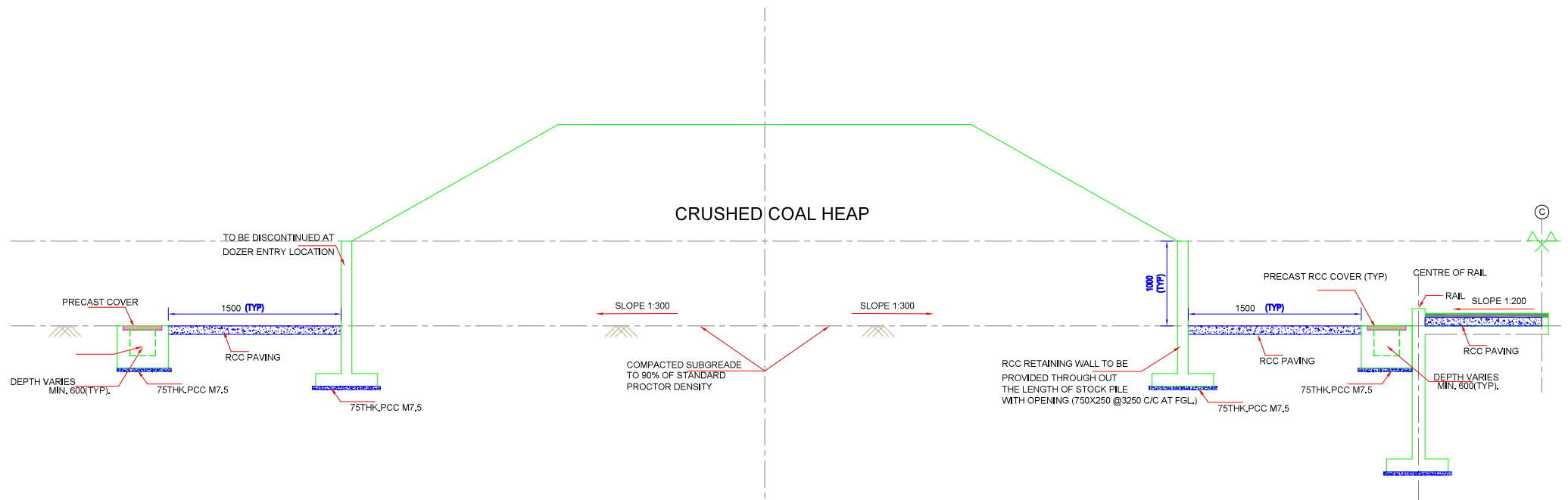
2. The colour and pattern of finish shall be as per approved details.

3. All materials shall be of reputed and established brand approved by Engineer-in-charge.

4. Wherever alternative materials are specified, the final selection rests with Engineer-in-charge.
5. This finishing schedule shall also be applicable to similar functional areas for all other buildings and facilities.
6. All the finishing materials shall be applied/provided as per manufacturer specification and guidelines under the supervision & guidelines of manufacturer.
7. Requirement given above are suggestive and minimum. Bidder is welcome to suggest alternative scheme conforming to design functional requirement subject to approval of the Engineer-in-charge.

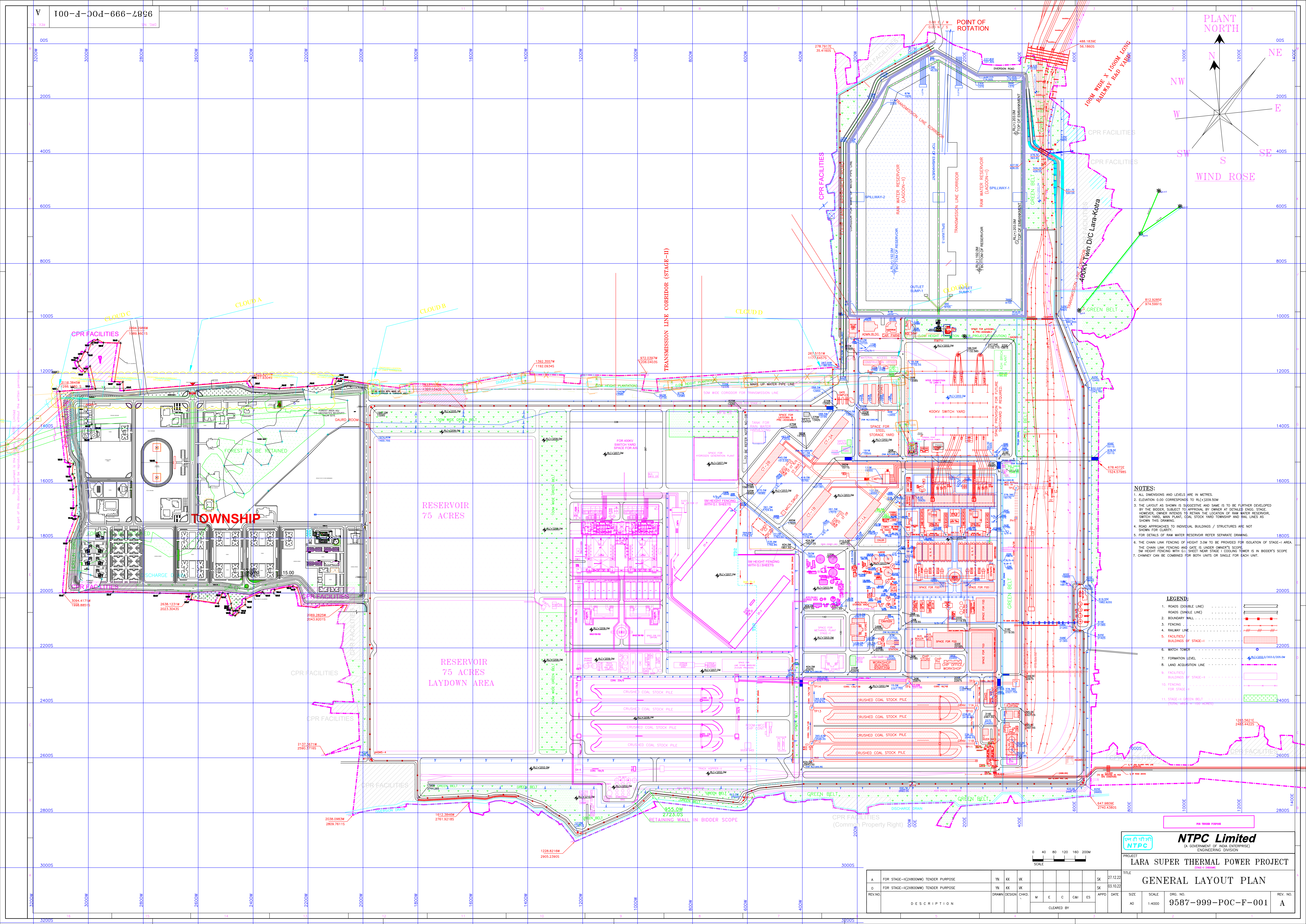
TABLE –B
EXTERIOR FINISHES SCHEDULE

S.No.	DESCRIPTION OF AREA	WALL AND PROJECTIONS	SOFFIT OF PROJECTIONS
1.	Auxiliary building in steel framed structure.	Premium Acrylic Smooth exterior paint with silicon additives over suitable primer of Water Proof Cement Paint over plastered surface/ colour combination of colour coated metal cladding.	Premium Acrylic Smooth exterior paint with silicon additives over suitable primer of Water Proof Cement Paint over plastered surface Approved colour/ colour combination of colour coated metal cladding
2.	Building with concrete frame work, etc.	Premium Acrylic Smooth exterior paint with silicon additives over suitable primer of Water Proof Cement Paint over plastered surface	Premium Acrylic Smooth exterior paint with silicon additives over suitable primer of Water Proof Cement Paint over plastered surface
3.	Steel Structure, trestles, etc.	High performance Paint of approved specification and shade.	
NOTE : 1. The colour and pattern of finish shall be as finalized by Engineer. 2. All materials shall be of reputed and established brand approved by Engineer.			



Annexure H

INDICATIVE ARRANDEMENT OF COAL STOCK PILE
ALL DIMENSIONS ARE IN MM



NOTES:

1. ALL DIMENSIONS AND LEVELS ARE IN METRES.
2. ELEVATION 0.00 CORRESPONDS TO RL(+209.50M).
3. THE LAYOUT AS SHOWN IS SUGGESTIVE AND SAME IS TO BE FURTHER DEVELOPED BY THE BIDDERS. SUBJECT TO APPROVAL BY OWNER AT DETAILS ENDS. STAGE HOWEVER, OWNER INTENDS TO RETAIN THE LOCATION OF RAW WATER RESERVOIR, SWITCH YARD, MAIN PLANT, COAL STOCK YARD TOWNSHIP AND RAIL LINES AS SHOWN THIS DRAWING.
4. ROAD APPROACHES TO INDIVIDUAL BUILDINGS / STRUCTURES ARE NOT SHOWN FOR CLARITY.
5. FOR DETAILS OF RAW WATER RESERVOIR REFER SEPARATE DRAWING.
6. THE CHAIN LINK FENCING OF HEIGHT 3.0M TO BE PROVIDED FOR ISOLATION OF STAGE-I AREA. THE CHAIN LINK FENCING AND GATE IS UNDER BIDDER'S SCOPE. 5M HEIGHT FENCING WITH G.I. SHEET NEAR STAGE-I COOLING TOWER IS IN BIDDER'S SCOPE.
7. CHIMNEY CAN BE COMBINED FOR BOTH UNITS OR SINGLE FOR EACH UNIT.

LEGEND:

1. ROADS (DOUBLE LINE)	---
2. ROADS (SINGLE LINE)	----
3. BOUNDARY WALL	---
4. RAILWAY LINE	---
5. FACILITIES/ BUILDINGS OF STAGE-I	---
6. WATCH TOWER	---
7. FORMATION LEVEL	---
8. LAND ACQUISITION LINE	---
9. FACILITIES/ BUILDINGS OF STAGE-II	---
10. FENCING	---
11. STAGE-II GREEN BELT	---

**NTPC Limited**
(A GOVERNMENT OF INDIA ENTERPRISE)
ENGINEERING DIVISION

PROJECT
LARA SUPER THERMAL POWER PROJECT

TITLE
GENERAL LAYOUT PLAN

SIZE	SCALE	DRG. NO.	REV. NO.
AD	1:4000	9587-999-POC-F-001	A

REV. NO.	DESCRIPTION	DRAWN	DESIGN	CHKD.	APPD.	DATE
A	FOR STAGE-II(2X800MW) TENDER PURPOSE	YN	KK	VK	SK	27.12.22
0	FOR STAGE-II(2X800MW) TENDER PURPOSE	YN	KK	VK	SK	03.10.22

DESCRIPTION

DRAWN

DESIGN

CHKD.

APPD.

DATE

M

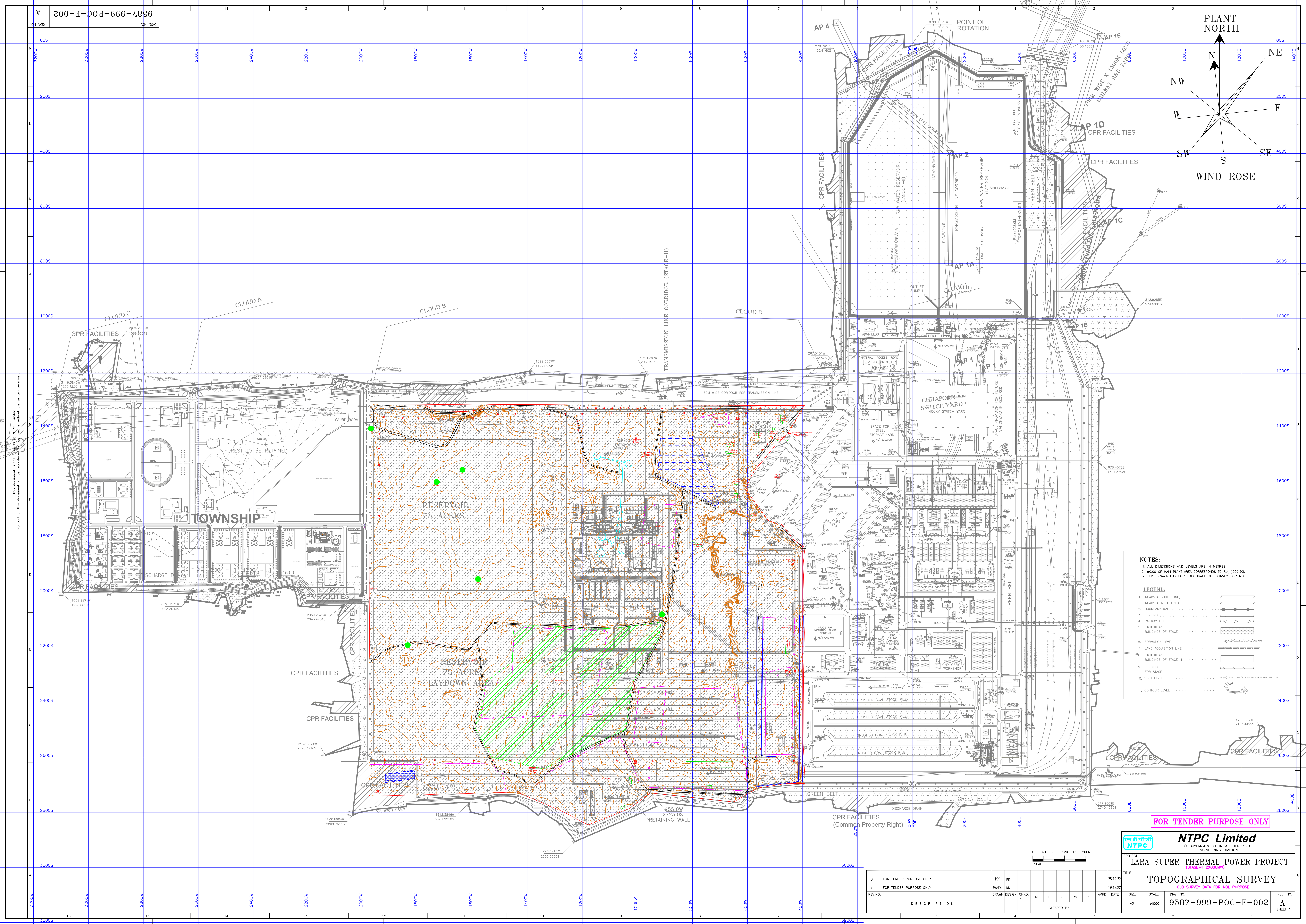
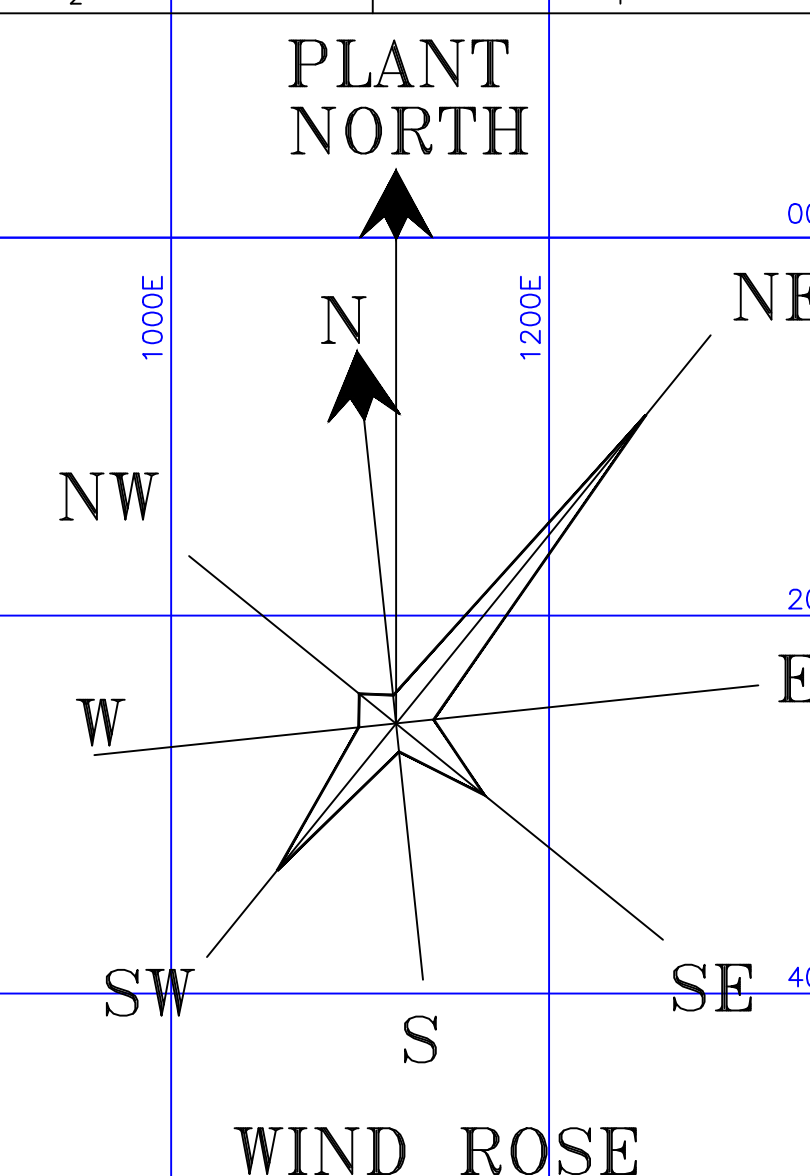
E

C

CAI

ES

CLEARED BY



NOTES:

1. ALL DIMENSIONS AND LEVELS ARE IN METRES.
2. ± 0.00 OF MAIN PLANT AREA CORRESPONDS TO RL(+209.50M).
3. THIS DRAWING IS FOR TOPOGRAPHICAL SURVEY FOR NOL.

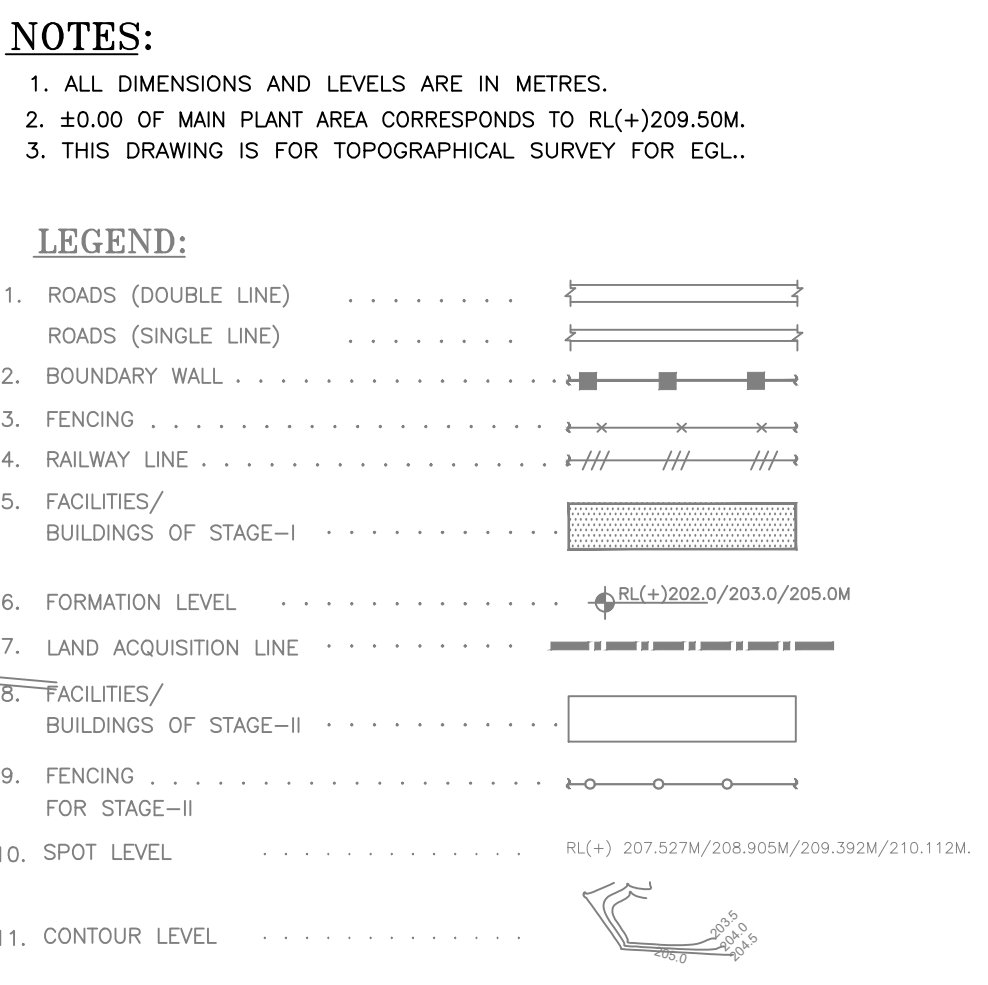
LEGEND:

1. ROADS (DOUBLE LINE)	
2. ROADS (SINGLE LINE)	
3. BOUNDARY WALL	
4. FENCING	
5. RAILWAY LINE	
6. FACILITIES/ BUILDINGS OF STAGE-I	
7. FORMATION LEVEL	
8. LAND ACQUISITION LINE	
9. FACILITIES/ BUILDINGS OF STAGE-II	
10. FENCING	
11. SPOT LEVEL	
12. CONTOUR LEVEL	

FOR TENDER PURPOSE ONLY

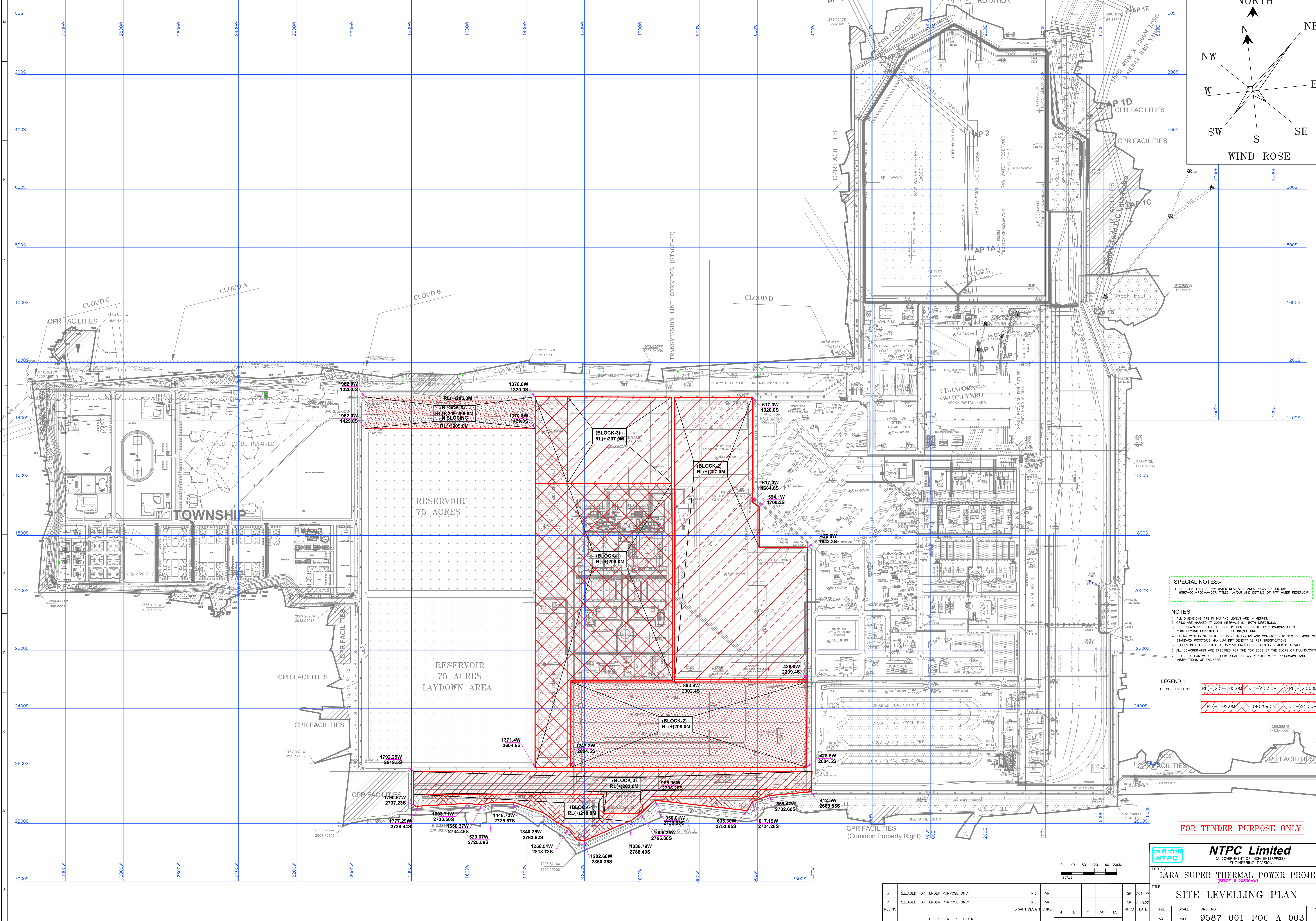
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PROJECT		LARA SUPER THERMAL POWER PROJECT	
TITLE		(STAGE-II) ZBX00MM	
TOPOGRAPHICAL SURVEY		OLD SURVEY DATA FOR NSL PURPOSE	
SIZE	SCALE	DWG. NO.	REV. NO.
A0	1:40000	9587-999-POC-F-002	A
		SHEET 1	

A	FOR TENDER PURPOSE ONLY	TSY	KK								28.12
O	FOR TENDER PURPOSE ONLY	MANUJ	KK								19.12
REV.NO	DESCRIPTION	DRAWN	DESIGN	CHKD.	M	E	C	G&I	ES	APPD	DATE
		CLEARED By									



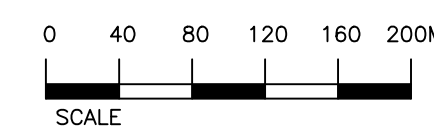
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PROJECT		LARA SUPER THERMAL POWER PROJECT (STAGE-II 2X80MW)	
TITLE		TOPOGRAPHICAL SURVEY (EXISTING GROUND LEVEL)	
SIZE	SCALE	DWG. NO.	REV. NO.
A0	1:40000	9587-999-POC-F-002	A
			SHEET 2

A	FOR TENDER PURPOSE ONLY		KK	WK							SK	28.12.20
O	FOR TENDER PURPOSE ONLY		KK	WK							SK	19.12.20
REV.NO.		DRAWN	DESIGN	CHKD.	M	E	C	Cd	ES	APPD	DATE	
	DESCRIPTION				CLEARED BY							



	NTPC Limited (A GOVERNMENT OF INDIA ENTERPRISE) ENGINEERING DIVISION			
PROJECT	LARA SUPER THERMAL POWER PROJECT (STAGE-II 2380MW)			
TITLE	SITE LEVELLING PLAN			
8.12.22				
5.09.22				
DATE	SIZE	SCALE	DRG. NO.	REV. NO.
	AO	1:4000	9587-01-POC-A-003	A

A	RELEASED FOR TENDER PURPOSE ONLY		KK	VK						SK	28.12.22	TITLE SITE LEVELLING PLAN				
O	RELEASED FOR TENDER PURPOSE ONLY		KK	VK						SK	05.09.22					
REV. NO.	DESCRIPTION	DRAWN	DESIGN	CHKD.	M	E	C	O&I	ES	APPD	DATE					
					CLEARED BY							AO	1:4000	9587-001-POC-A-003	A	



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NTPC

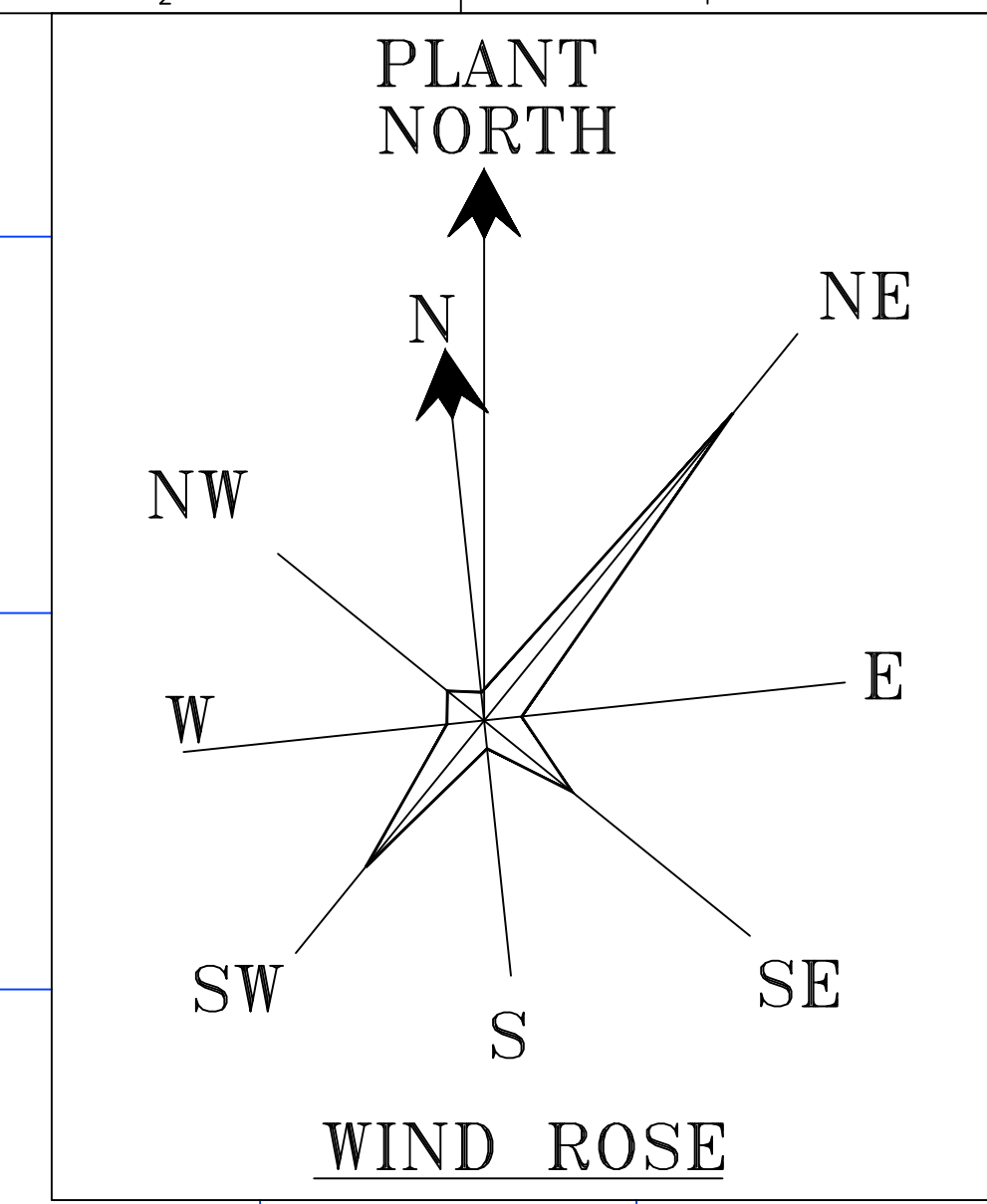
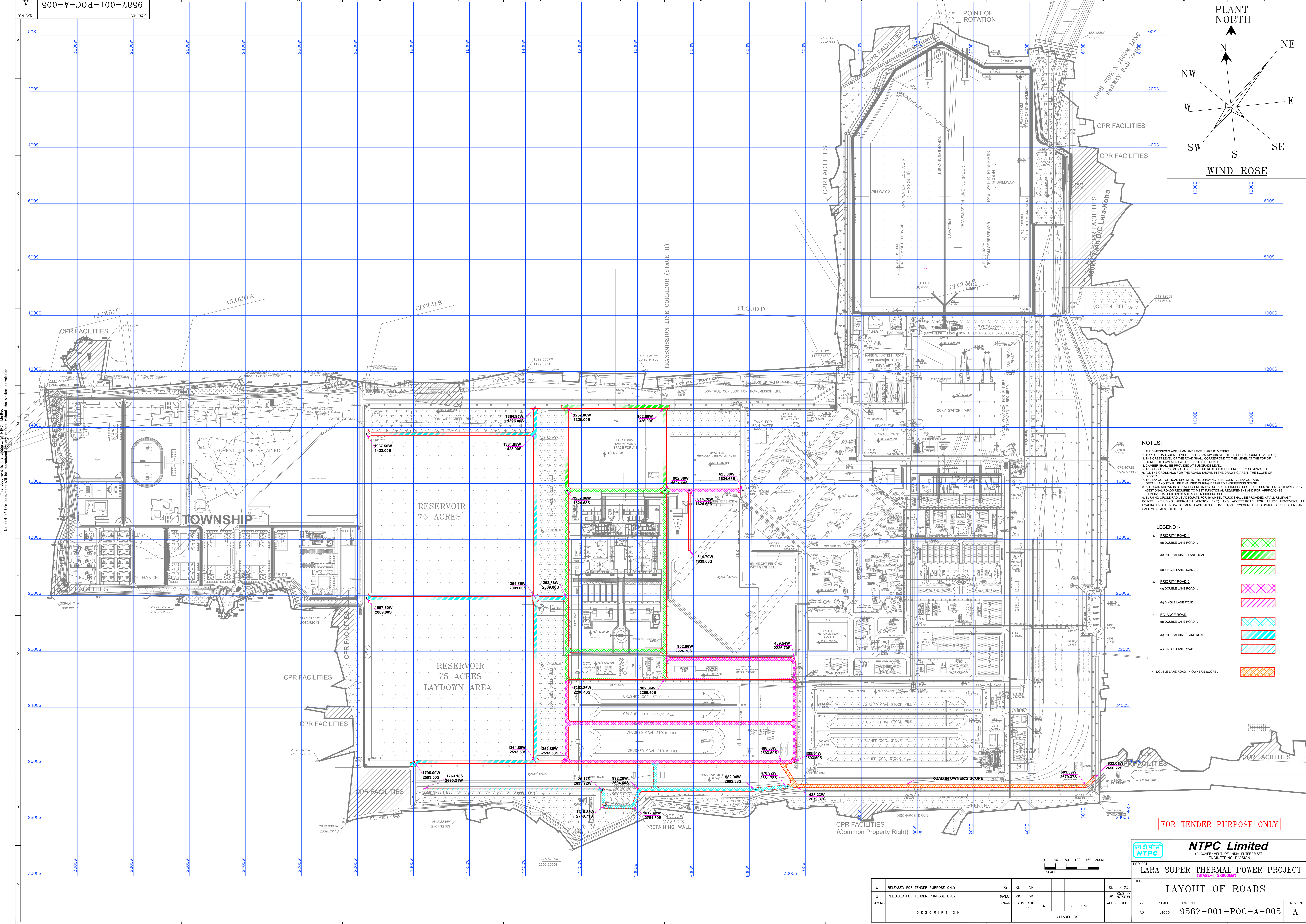
NTPC Limited
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LAYOUT OF DRAIN'S

LAYOUT OF DRAIN'S

0	RELEASED FOR TENDER PURPOSE ONLY	TSY	KK	YK						SK	28.12.22
0	RELEASED FOR TENDER PURPOSE ONLY	MANUJ	KK	YK						SK	19.12.22
REV.NO.	DESCRIPTION	DRAWN	DESIGN	CHKD.	M	E	C	C&I	ES	APPD	DATE
					CLEARED BY						

SCALE	DRG. NO.	REV. #
1:4000	9587-001-POC-A-004	A



- NOTES:**
1. ALL DIMENSIONS ARE IN MM AND LEVELS ARE IN METERS.
 2. TOP OF ROAD CREST LEVEL SHALL BE 30MM ABOVE THE FINISHED GROUND LEVEL (FGL).
 3. THE CREST LEVEL OF THE ROAD SHALL CORRESPOND TO THE LEVEL AT THE TOP OF CONCRETE PAVEMENT AT THE CENTER OF ROAD.
 4. CAMBER SHALL BE PROVIDED AT SUBGRADE LEVEL.
 5. THE SHOULDERS ON BOTH SIDES OF THE ROAD SHALL BE PROPERLY COMPACTED.
 6. ALL THE CROSSINGS FOR THE ROADS SHOWN IN THE DRAWING ARE IN THE SCOPE OF BIDDER.
 7. THE LAYOUT OF ROAD SHOWN IN THE DRAWING IS SUGGESTIVE LAYOUT AND DETAIL LAYOUT WILL BE FINALISED DURING DETAILED ENGINEERING STAGE.
 8. ALL ROAD SHOWN IN BELOW LEGEND IN LAYOUT ARE IN BIDDERS SCOPE UNLESS NOTED OTHERWISE ANY ADDITIONAL ROADS REQUIRED TO MEET FUNCTIONAL REQUIREMENT AND FOR APPROACHES TO INDIVIDUAL BUILDINGS ARE ALSO IN BIDDERS SCOPE.
 9. TURNING CIRCULAR RADIUS ADEQUATE FOR 18 WHEEL TRUCK SHALL BE PROVIDED AT ALL RELEVANT POINTS INCLUDING APPROACH (ENTRY/ EXIT) AND ACCESS ROAD FOR TRUCK MOVEMENT AT LOADING/UNLOADING/WEIGHMENT FACILITIES OF LIME STONE, GYPSUM, ASH, BIOMASS FOR EFFICIENT AND SAFE MOVEMENT OF TRUCK.

- LEGEND :-**
1. **PRIORITY ROAD-1**
 - (a) DOUBLE LANE ROAD ...
 - (b) INTERMEDIATE LANE ROAD ...
 - (c) SINGLE LANE ROAD ...
 2. **PRIORITY ROAD-2**
 - (a) DOUBLE LANE ROAD ...
 - (b) SINGLE LANE ROAD ...
 3. **BALANCE ROAD**
 - (a) DOUBLE LANE ROAD ...
 - (b) INTERMEDIATE LANE ROAD ...
 - (c) SINGLE LANE ROAD ...
 4. **DOUBLE LANE ROAD IN OWNERS SCOPE ...**

FOR TENDER PURPOSE ONLY



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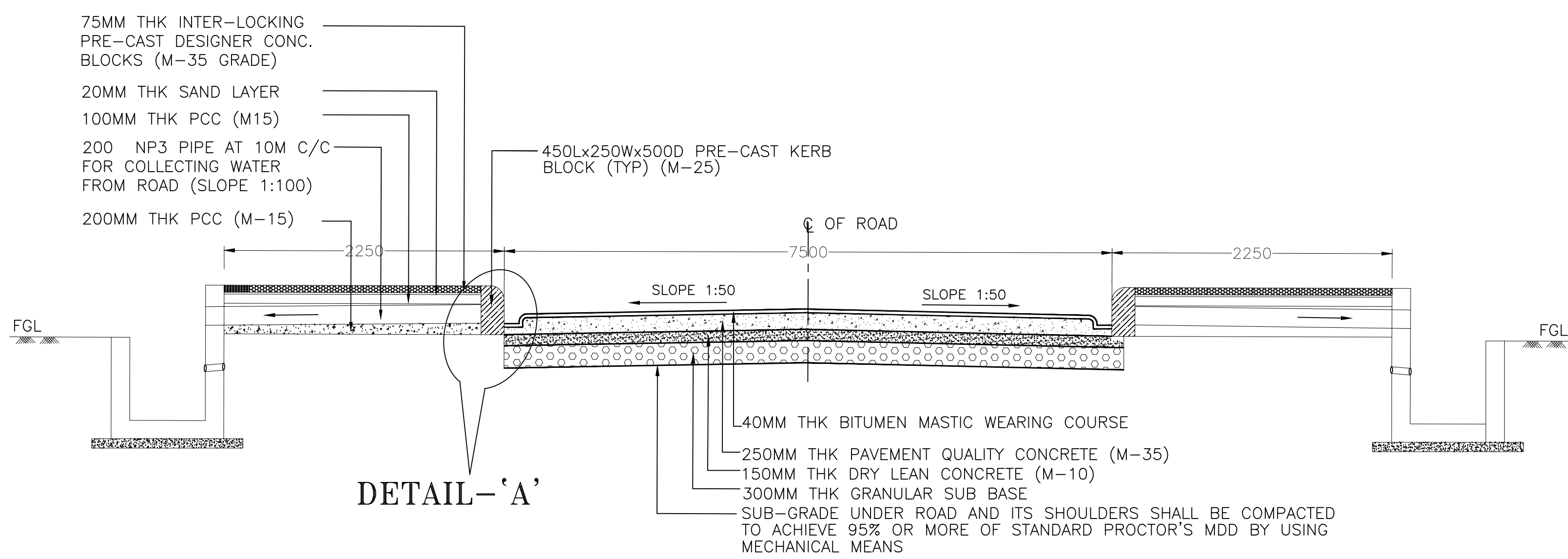
PROJECT
LARA SUPER THERMAL POWER PROJECT
(STAGE-II - 2800MW)

TITLE
LAYOUT OF ROADS

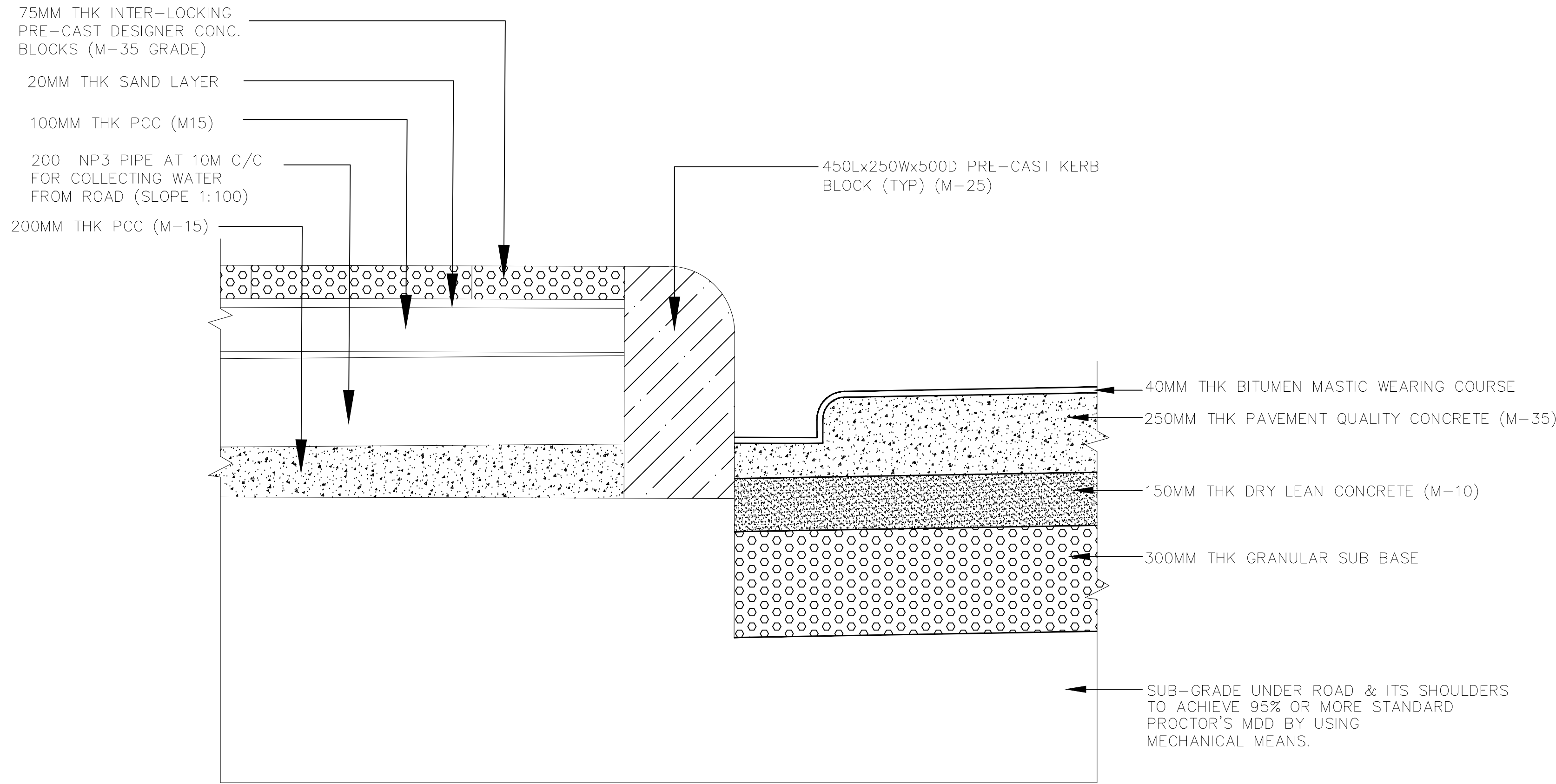
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REV. NO.	SIZE	SCALE	DRG. NO.	REV. NO.
AD	1:4000		9587-001-POC-A-005	A

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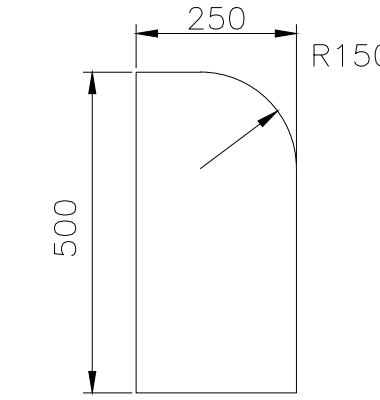


TYPICAL CROSS SECTION OF DOUBLE LANE ROAD
(WITH RAISED SHOULDERS)

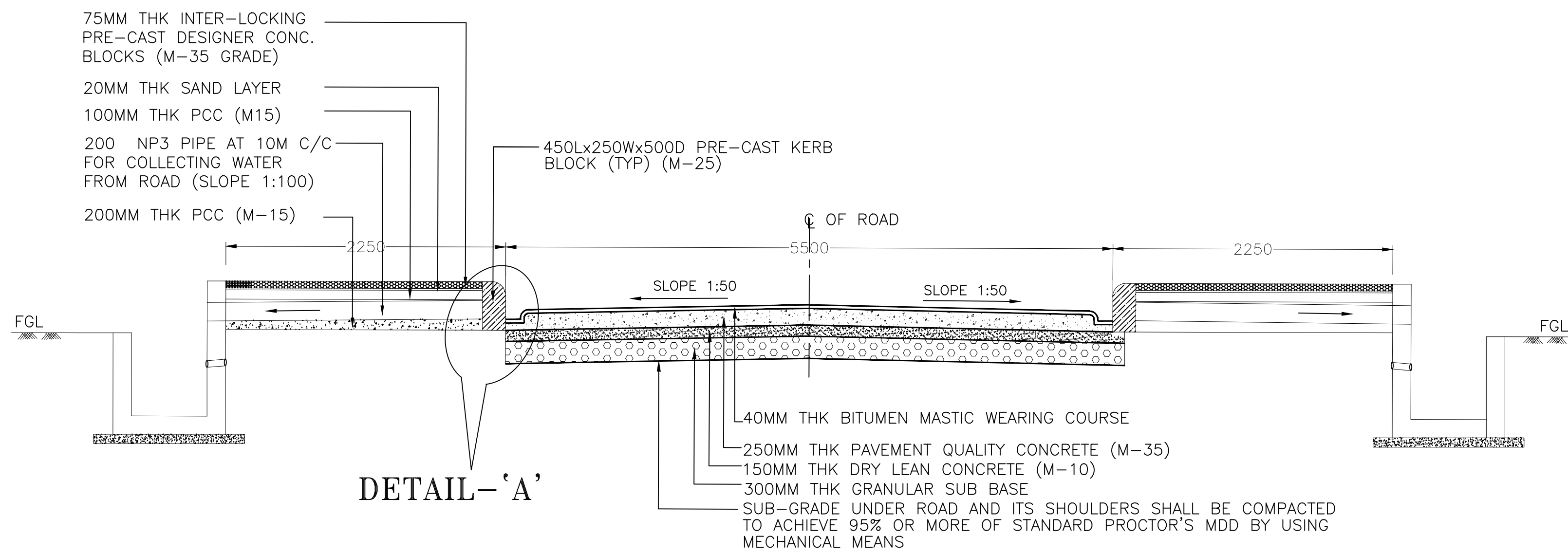


DETAIL-'A'

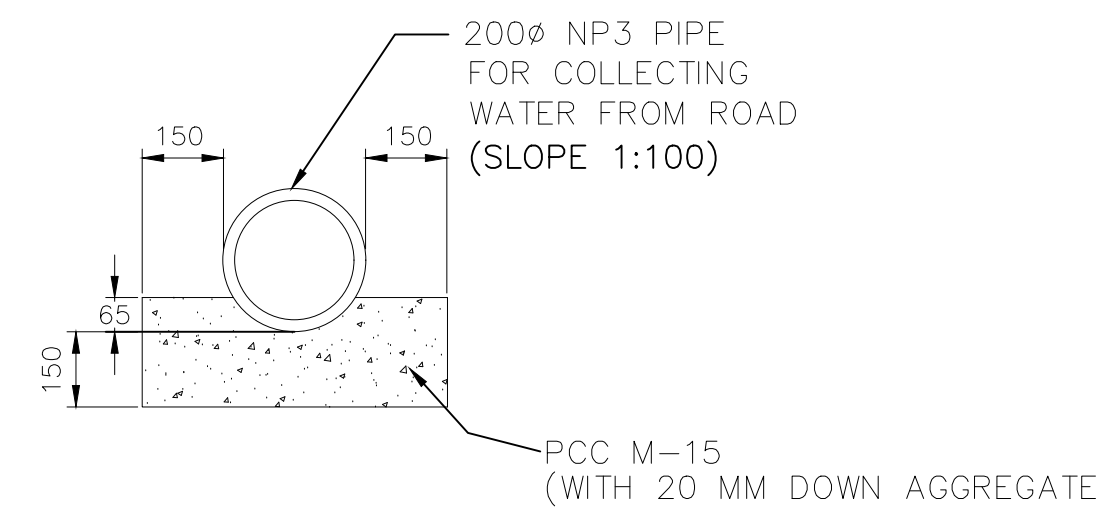
ISOMETRIC VIEW OF
KERB BLOCK



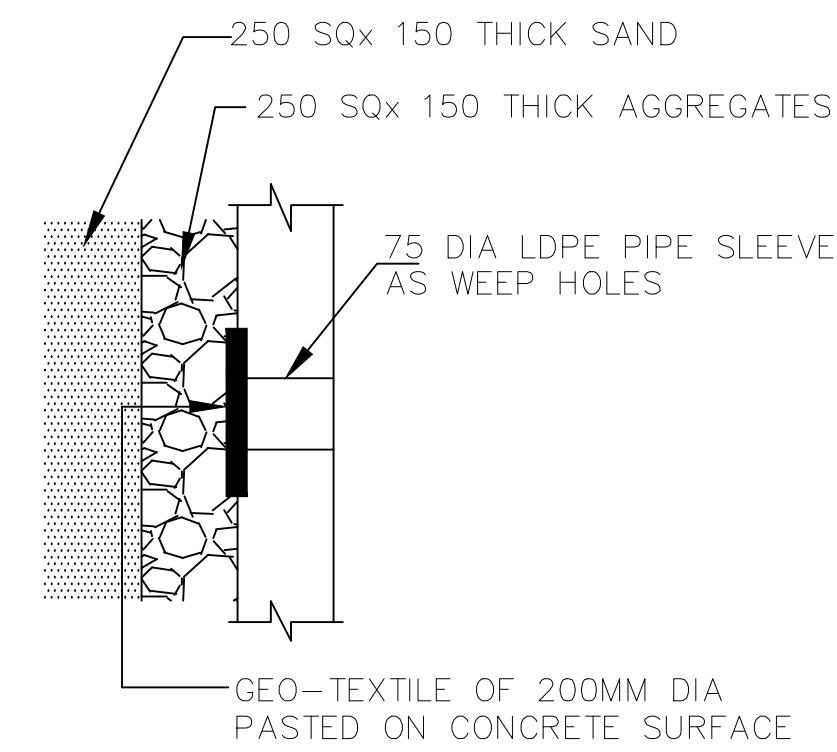
DETAILS OF
KERB BLOCK



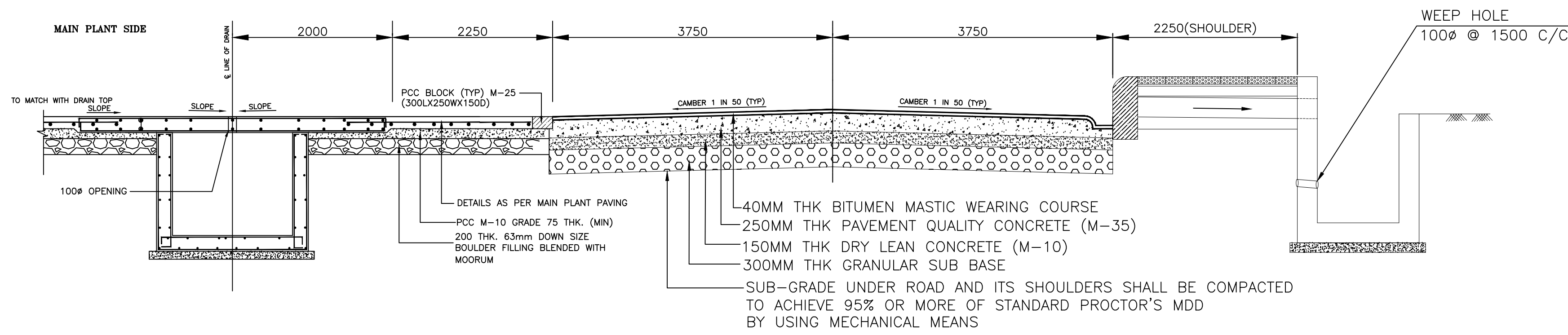
TYPICAL CROSS SECTION OF INTERMEDIATE LANE ROAD
(WITH RAISED SHOULDERS)



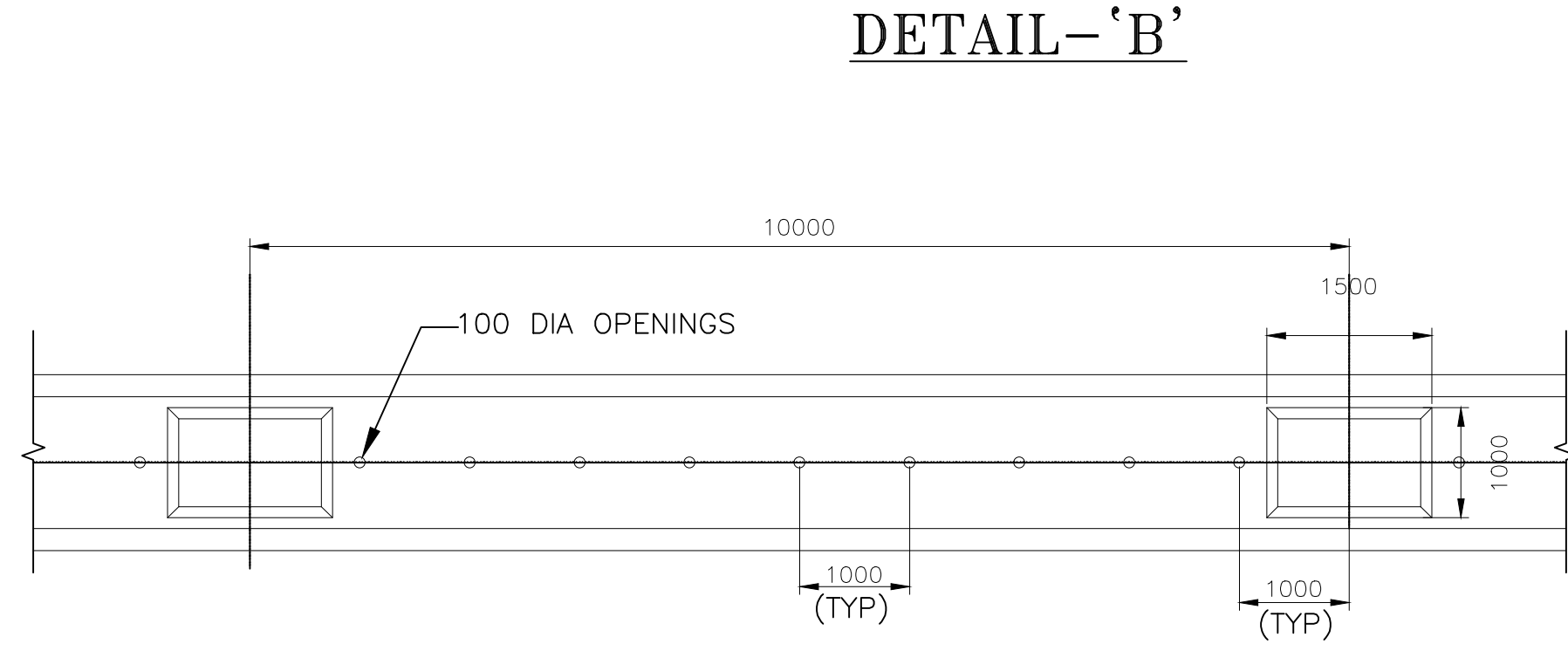
SECTION B
DETAILS OF 200 DIA NP3
PIPES LAYING AT 10M C/C
(CONTINUOUS GRADE BEDDING)



DETAILS OF
WEEP HOLES



TYPICAL CROSS SECTION OF DOUBLE LANE
SURROUNDING MAIN POWER HOUSE



MANHOLE/DRAIN COVER LAYOUT PLAN
IN MAIN PLANT AREA (TYPICAL)

NOTES

1. ALL DIMENSIONS ARE IN MM AND LEVELS ARE IN METRES.
2. TOP OF ROAD CREST LEVEL SHALL BE 350MM ABOVE THE FINISHED GROUND LEVEL(FGL).
3. THE CREST LEVEL OF THE ROAD SHALL CORRESPOND TO THE LEVEL AT THE TOP OF CONCRETE PAVEMENT AT THE CENTRE OF ROAD.
4. CAMBER SHALL BE PROVIDED AT SUBGRADE LEVEL.
5. ALL EXCAVATION WORK, BACK FILLING, LAYING OF VARIOUS LAYERS OF ROAD CONSTRUCTION SHALL BE AS PER TECHNICAL SPECIFICATIONS.
6. NO MATERIAL WITH CBR VALUE LESS THAN 100% SHOULD BE USED IN BASE CONSTRUCTION.
7. THE SHOULDERS ON BOTH SIDES OF THE ROAD SHALL BE PROPERLY COMPACTED.
8. ROAD CONSTRUCTION SHALL BE DONE AS PER DETAIL DRAWING OF ROAD.
9. CONCRETE SHALL BE OF GRADE M25 FOR DRAINS AND CULVERTS AS PER IS: 456-2000.
10. CONCRETE MENTIONED IN ROAD PAVEMENT SHALL BE READ AS GEO-POLYMER CONCRETE

REFERENCE DRAWING

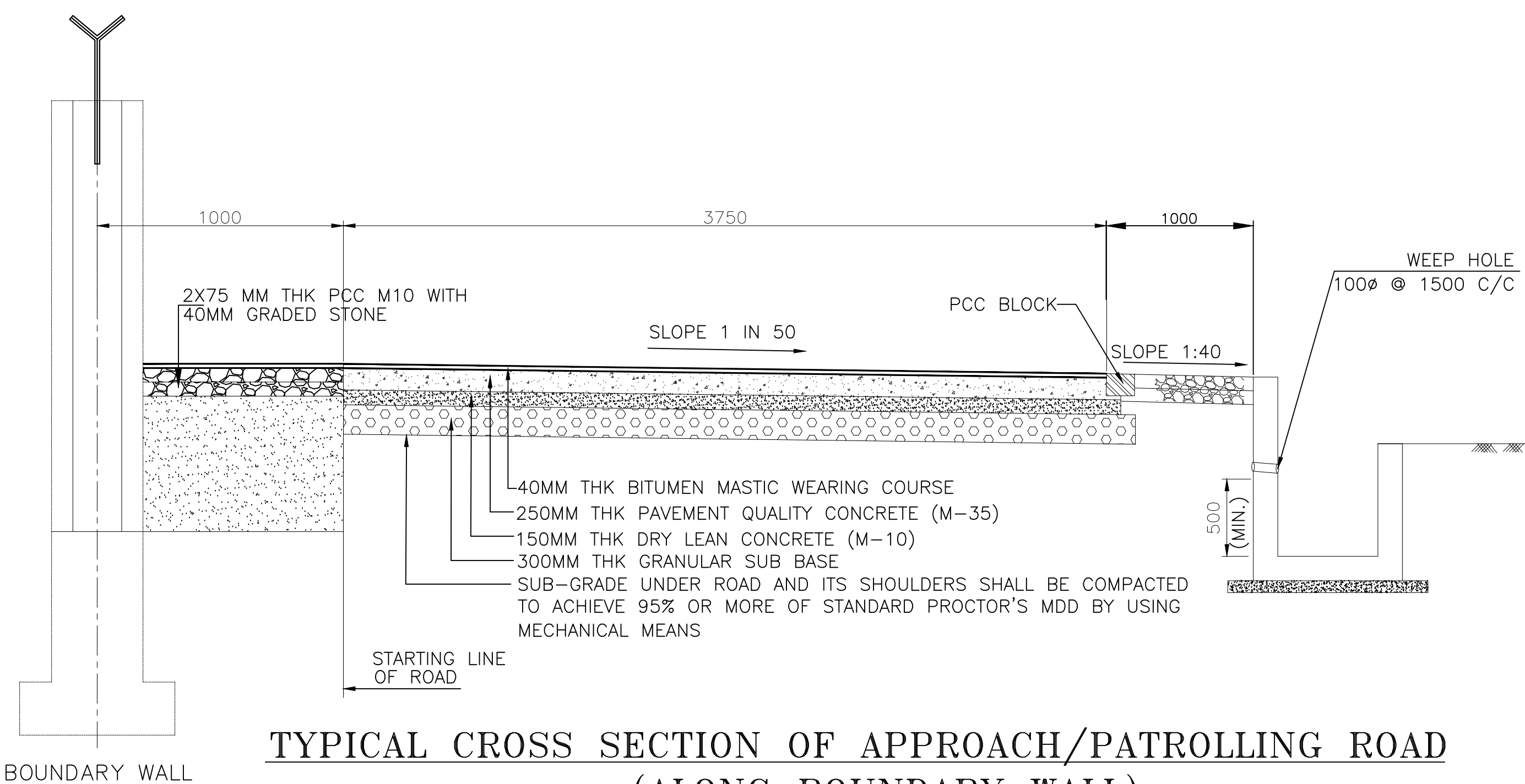
1. 9587-999-POC-F-001 TITLED 'GENERAL LAYOUT PLAN'
2. 9587-001-POC-A-005 TITLED 'LAYOUT OF ROADS'

FOR TENDER PURPOSE ONLY

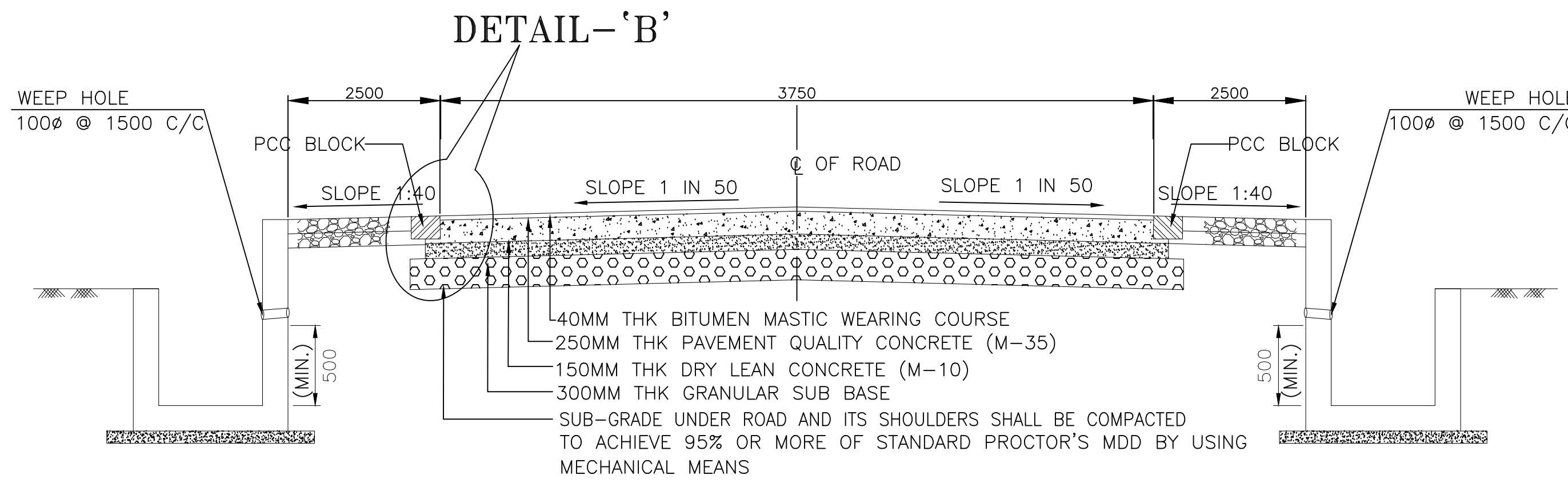
NTPC Limited (A GOVERNMENT OF INDIA ENTERPRISE) ENGINEERING DIVISION	
PROJECT LARA SUPER THERMAL POWER PROJECT (STAGE-II 2X800MW)	
PACKAGE	
TITLE DETAIL'S OF ROADS	
SIZE A1	SCALE NTS
DRG. NO. 9587-001-POC-A-06	REV. NO. A

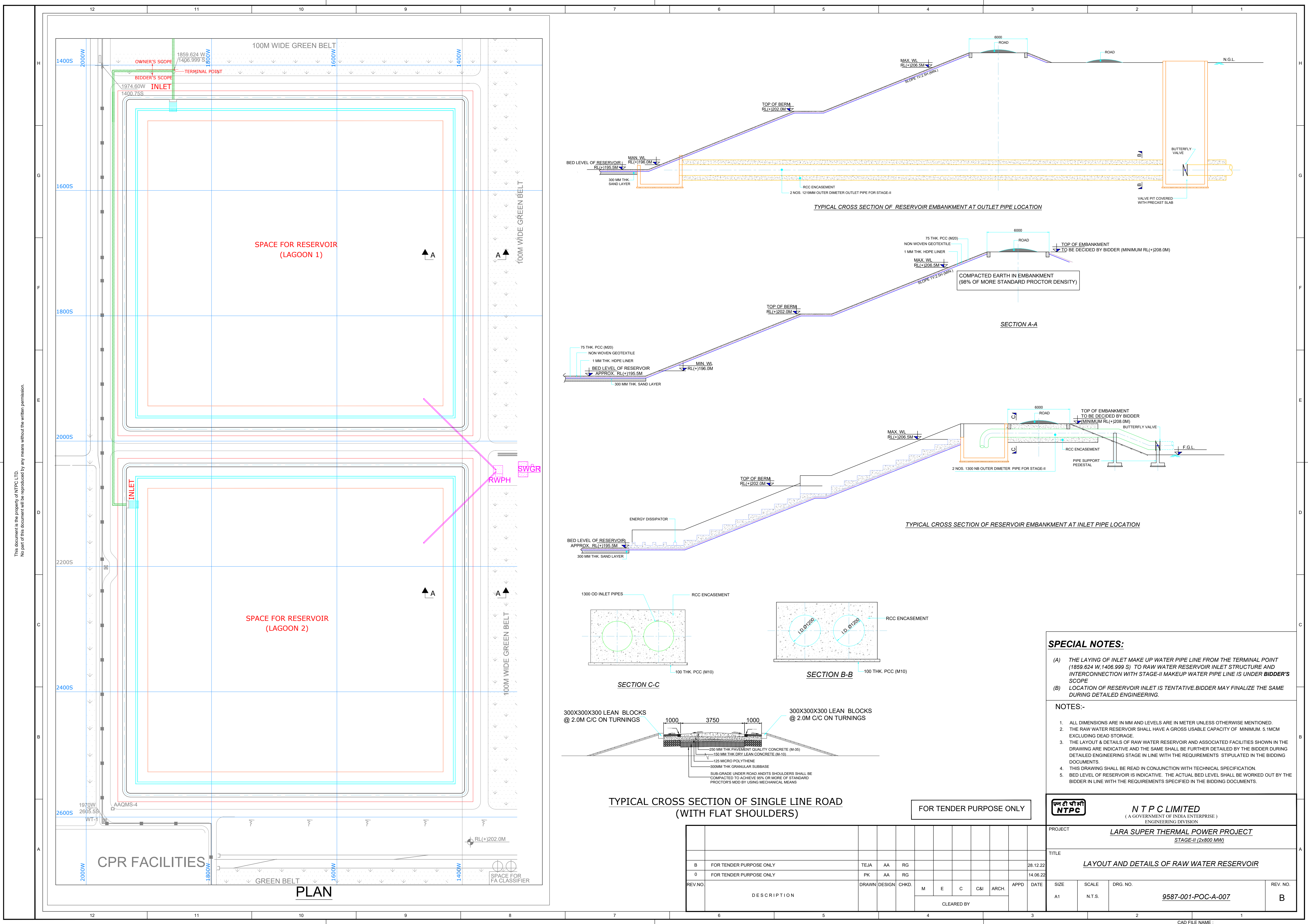
0	FOR TENDER PURPOSE ONLY	TSY	KK	VK	-	-	-	-	28.12.22
0	FOR TENDER PURPOSE ONLY	MANOJ	KK	-	-	-	-	-	24.08.22
REV.NO.	DESCRIPTION	DRN	DESIGN	CHKD.	M	E	C	C&I	ES
CLEARED BY					APPD	DATE			

TYPICAL CROSS SECTION OF APPROACH/PATROLLING ROAD
(ALONG BOUNDARY WALL)



TYPICAL CROSS SECTION OF SINGLE LANE ROAD
(WITH FLAT SHOULDERS)





SPACE FOR RESERVOIR
(LAGOON 1)

SPACE FOR RESERVOIR
(LAGOON 2)

PLAN

TYPICAL CROSS SECTION OF RESERVOIR EMBANKMENT AT OUTLET PIPE LOCATION

SECTION A-A

TYPICAL CROSS SECTION OF RESERVOIR EMBANKMENT AT INLET PIPE LOCATION

SECTION C-C

SECTION B-B

TYPICAL CROSS SECTION OF SINGLE LINE ROAD
(WITH FLAT SHOULDERS)

FOR TENDER PURPOSE ONLY

SPECIAL NOTES:

- (A) THE LAYING OF INLET MAKE UP WATER PIPE LINE FROM THE TERMINAL POINT (1859.624 W, 1406.999 S) TO RAW WATER RESERVOIR INLET STRUCTURE AND INTERCONNECTION WITH STAGE-II MAKEUP WATER PIPE LINE IS UNDER BIDDER'S SCOPE
- (B) LOCATION OF RESERVOIR INLET IS TENTATIVE. BIDDER MAY FINALIZE THE SAME DURING DETAILED ENGINEERING.

NOTES:-

1. ALL DIMENSIONS ARE IN MM AND LEVELS ARE IN METER UNLESS OTHERWISE MENTIONED.
2. THE RAW WATER RESERVOIR SHALL HAVE A GROSS USABLE CAPACITY OF MINIMUM 5.1MCM EXCLUDING DEAD STORAGE.
3. THE LAYOUT & DETAILS OF RAW WATER RESERVOIR AND ASSOCIATED FACILITIES SHOWN IN THE DRAWING ARE INDICATIVE AND THE SAME SHALL BE FURTHER DETAILED BY THE BIDDER DURING DETAILED ENGINEERING STAGE IN LINE WITH THE REQUIREMENTS STIPULATED IN THE BIDDING DOCUMENTS.
4. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH TECHNICAL SPECIFICATION.
5. BED LEVEL OF RESERVOIR IS INDICATIVE. THE ACTUAL BED LEVEL SHALL BE WORKED OUT BY THE BIDDER IN LINE WITH THE REQUIREMENTS SPECIFIED IN THE BIDDING DOCUMENTS.



NTPC LIMITED
(A GOVERNMENT OF INDIA ENTERPRISE)
ENGINEERING DIVISION

PROJECT LARA SUPER THERMAL POWER PROJECT
STAGE-II (2x800 MW)

TITLE LAYOUT AND DETAILS OF RAW WATER RESERVOIR

REV. NO.	DESCRIPTION	DRAWN	DESIGN	CHKD.	M	E	C	C&I	ARCH.	APPO	DATE
B	FOR TENDER PURPOSE ONLY	TEJA	AA	RG							28.12.22
0	FOR TENDER PURPOSE ONLY	PK	AA	RG							14.06.22
CLEARED BY											

EPC PACKAGE FOR LARA SUPER THERMAL POWER PROJECT, STAGE-II (2x800 MW)
Amendment No. 02 to Technical Specifications Section-VI of Bidding Document No.: CS-9587-001R-2

SG1

S. No.	SPECIFICATION REFERENCE				Instead of	Read as
	Section / Part	Sub-Section	Clause No.	Page No.		
SG1-01	VI/ Part-B	A-02	8.07.00	63 OF 66	Acoustic 3D Level Scanner Based Level Monitoring System for each ESP Hopper in the First Field shall be provided complying with requirements indicated in Sub-Section-IIIC-03	Acoustic 3D Level Scanner Based Level Monitoring System for each ESP Hopper in the First Three Fields shall be provided complying with requirements indicated in Sub-Section-IIIC-03
SG1-02	Section-VI, Part A	SUB-SECTION-IIA-04 FGD SYSTEM	4.01.04	PAGE 3 OF 6	Motorized isolation gates at Absorber gas inlet, Absorber gas outlet and FGD bypass in the main duct to Chimney along with 2x100 seal air fans for each gate and 2x100 heaters for absorber outlet gate & bypass gate. A bi-plane bypass damper along with 2x100 seal air & 2x100 heaters shall also be provided in the bypass duct.	Motorized isolation gates at Absorber gas inlet, Absorber gas outlet and FGD bypass in the main duct to Chimney along with 2x100 seal air fans for each gate and 2x100 heaters for absorber outlet gate & bypass gate. A bi-plane bypass damper along with 2x100 seal air & 2x100 heaters shall also be provided in the bypass duct.
SG1-03	Section-VI, Part A	SUB-SECTION-IIA-04 FGD SYSTEM	2.04.01	PAGE 2 OF 6	 For this purpose Contractor shall provide Motorized Guillotine type gates at (i) hot gas inlet to Absorber, (ii) cold gas outlet from Absorber. The Gates shall be provided with 2x100% seal air fans. Gates at outlet to Absorber and in the bypass duct shall also be provided with 2x100 electrical heaters. Further, Quick opening Biplane motorized/ pneumatic damper along with 2x100% seal air fans & 2x100 electrical heaters shall also be provided by the Contractor in the by-pass duct.	 For this purpose Contractor shall provide Motorized Guillotine type gates at (i) hot gas inlet to Absorber, (ii) cold gas outlet from Absorber. The Gates shall be provided with 2x100% seal air fans. Gates at outlet to Absorber and in the bypass duct shall also be provided with 2x100 electrical heaters. Further, Quick opening Biplane motorized/ pneumatic damper along with 2x100% seal air fans & 2x100 electrical heaters shall also be provided by the Contractor in the by-pass duct.
SG1-04	VI / B	A-05	7.07.06	16 OF 26	The Waste water collection tank shall be of Steel construction with rubber lining.	The wastewater collection tank shall be of Steel construction with rubber lining or Vinyl Ester based flake glass lining of minimum 3 mm thickness.
SG1-05	VI / A	IIA-04	5.05.01	04 OF 06	The under flow from the secondary hydro-cyclone shall be taken to the filtrate water tank. The overflow from the secondary hydro-cyclone shall be taken	The under flow from the secondary hydro-cyclone shall be taken to the filtrate water tank. The overflow from the secondary hydro-cyclone shall be taken or any other area with suitable treatment so as to suit/not to disturb the destination fluid quality.
SG1-06	VI / B	A-05	7.08.03	17 OF 26	Agitation shall be provided to prevent settlement of slurry by sufficient no. of Top entry agitators with emergency flush start system.	Agitation shall be provided to prevent settlement of slurry by sufficient no. of Top entry agitators or side entry agitators (as per proven practice of bidder) with emergency flush start system.

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EPC PACKAGE FOR LARA SUPER THERMAL POWER PROJECT, STAGE-II (2x800 MW)
Amendment No. 02 to Technical Specifications Section-VI of Bidding Document No.: CS-9587-001R-2

S. No.	SPECIFICATION REFERENCE				Instead of	Read as																																																
	Section / Part	Sub-Section	Clause No.	Page No.																																																		
SG1-07	VI / A	IV	1.01.01	04 OF 76	Limestone Consumption rate: Bids with lime-stone consumption higher than 9440 kg/hr shall not be accepted and no evaluation credit shall be given for lower consumption rate.	Limestone Consumption rate: Bids with lime-stone consumption higher than 9440 8700 kg/hr shall not be accepted and no evaluation credit shall be given for lower consumption rate.																																																
SG1-08	VI / A	IB	-	18 OF 22	ANNEXURE-IV-1 HIGH SPEED DIESEL OIL CHARACTERISTICS [AS PER IS 1460-2005 (BS-II)] 6. CONTAMINANTS <table><tr><td>a. Ash</td><td>ppm (wt.)</td><td>100 (max)</td></tr><tr><td>b. Sediments</td><td>% wt</td><td>0.05</td></tr><tr><td>c. Total Sulphur</td><td>% wt</td><td>(max)</td></tr><tr><td>d. Water Content</td><td>% volume</td><td>0.05</td></tr><tr><td>e. Trace Metals</td><td></td><td>(max)</td></tr></table>	a. Ash	ppm (wt.)	100 (max)	b. Sediments	% wt	0.05	c. Total Sulphur	% wt	(max)	d. Water Content	% volume	0.05	e. Trace Metals		(max)	ANNEXURE-IV-3 HIGH SPEED DIESEL OIL CHARACTERISTICS [AS PER IS 1460-2005 (BS-II)] 6. CONTAMINANTS <table><tr><td colspan="2">CONTAMINANTS</td><td></td></tr><tr><td>a. Ash</td><td>ppm (wt.)</td><td>100 (max)</td></tr><tr><td>b. Sediments</td><td>% wt</td><td>0.05 (max)</td></tr><tr><td>c. Total Sulphur</td><td>% wt</td><td>0.05 (max)</td></tr><tr><td>d. Water Content</td><td>% volume</td><td>0.05 (max)</td></tr><tr><td>e. Trace Metals</td><td></td><td></td></tr><tr><td>- Na + K</td><td>ppm (wt)</td><td>0.30 (max)</td></tr><tr><td>- Vanadium</td><td>ppm (wt)</td><td>0.50 (max)</td></tr><tr><td>- Lead</td><td>ppm (wt)</td><td>0.50 (max)</td></tr><tr><td>- Calcium</td><td>ppm (wt)</td><td>2.0</td></tr><tr><td>- Ni + Zn</td><td>ppm (wt)</td><td>Nil</td></tr></table>	CONTAMINANTS			a. Ash	ppm (wt.)	100 (max)	b. Sediments	% wt	0.05 (max)	c. Total Sulphur	% wt	0.05 (max)	d. Water Content	% volume	0.05 (max)	e. Trace Metals			- Na + K	ppm (wt)	0.30 (max)	- Vanadium	ppm (wt)	0.50 (max)	- Lead	ppm (wt)	0.50 (max)	- Calcium	ppm (wt)	2.0	- Ni + Zn	ppm (wt)	Nil
a. Ash	ppm (wt.)	100 (max)																																																				
b. Sediments	% wt	0.05																																																				
c. Total Sulphur	% wt	(max)																																																				
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- Calcium	ppm (wt)	2.0																																																				
- Ni + Zn	ppm (wt)	Nil																																																				
SG1-09	VI / A	IV	1.03.02 (VI)	30 OF 76	Water wall corrosion/erosion rate: The contractor shall demonstrate that the average thinning in the water wall tubes in the furnace due to corrosion, erosion etc. does not exceed the specified value as per Sub section-A-02, Part-B (Mechanical), of Technical specifications. The same shall be demonstrated by calculating the average thinning in the water wall tubes in the furnace by measuring the tube thicknesses between two overhauls at about 1500 locations arranged in a grid around the furnace. The areas to be covered under the grid shall include burner zone extended upto the OFA Nozzle location.	Water wall corrosion/erosion rate: The contractor shall demonstrate that the average thinning in the water wall tubes in the furnace due to corrosion, erosion etc. does not exceed the specified value as per Sub section-A-03, Part-B (Mechanical), of Technical specifications. The same shall be demonstrated by calculating the average thinning in the water wall tubes in the furnace by measuring the tube thicknesses prior/during commissioning and next overhauling unit shutdown or 8000 hours whichever is later at about 1500 locations arranged in a grid around the furnace. The areas to be covered under the grid shall include burner zone extended upto the Separated over fire air nozzle location. Soot bower operation impacted zone shall be excluded. The measured value of average thinning measured shall be divided by a time factor . The time factor shall be calculated arrived at by dividing the number of unit operation hours between the two measurements by 8000. For accurately locating the measurements points, the Bidder may mark the measurement points with the																																																

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EPC PACKAGE FOR LARA SUPER THERMAL POWER PROJECT, STAGE-II (2x800 MW)
Amendment No. 02 to Technical Specifications Section-VI of Bidding Document No.: CS-9587-001R-2

S. No.	SPECIFICATION REFERENCE				Instead of	Read as
	Section / Part	Sub-Section	Clause No.	Page No.		
						help of punch marks on the membrane wall fins or any other method considered suitable by the Bidder.
SG1-10	VI/B	A-02	17.01.18	54 OF 66	...Bidder shall include in his proposal platform area of 19,000 m2 (clear of all intervening pipes, columns, actuators, instrument enclosures, racks etc. and excluding area covered by stairways)	...Bidder shall include in his proposal platform area of 20,000 m2 (clear of all intervening pipes, columns, actuators, instrument enclosures, racks etc. and excluding area covered by stairways & landings and excluding platforms required for ESP & FGD)
SG1-11	VI/A	II A-01	2.16.05	16 OF 28	Flue gas duct from economizer outlet to each SCR reactor inlet, from each SCR reactor outlet to each RAPH (Bi-sector or Trisector, as applicable) inlet ducts, SCR bypass ducts and from RAPHs (Bi-sector or Trisector, as applicable) outlet to ESP inlets.....	Flue gas duct from economizer outlet to each SCR reactor inlet up to Economiser Bypass Gate including blanking plate, blanking plate with connecting projected duct at APH inlet (SCR Outlet side). Refer Typical SCR Sketch at Annex-I (Annexure-SG-04, Sub-section-IIA-02A, part-A) for scope details. from each SCR reactor outlet to each RAPH (Bi-sector or Trisector, as applicable) inlet ducts, SCR bypass ducts and from RAPHs (Bi-sector or Trisector, as applicable) outlet to ESP inlets.....
SG1-12	VI/B	A-02	13.02.01, (H)	42 OF 66	DAMPERS (h) At each SCR inlet duct, each SCR outlet duct & each SCR bypass duct.	DAMPERS (h) NA At each SCR inlet duct, each SCR outlet duct & each SCR bypass duct.
SG1-13	VI/A	IV FUNCTIONAL GUARANTEE S & LIQUIDATED DAMAGES	1.01.05.01	16 OF 76	The performance test on electrostatic precipitator will commence after a minimum period of three thousand (3000) hours of cumulative operation after completion of initial operation.	The performance test on electrostatic precipitator will commence after a minimum period of three thousand (3000) hours of cumulative operation after completion of initial operation. be conducted soon after completion of trial operation or along with Boiler PG test whichever is earlier.
SG1-14	VI/B	A-01	1.05.22.01	39 OF 101	CHIMNEYFor Titanium/C-276 lining, the top flue liner above the roof slab shall be made of solid C276 (ASTM B575, UNS N10276) / Titanium (Grade 2 as per ASME SB265) of minimum 10 mm thickness. For Borosilicate lining, the top flue	CHIMNEY For Titanium/C-276 lining, the top flue liner above the roof slab shall be made of solid C276 (ASTM B575, UNS N10276) / Titanium (Grade 2 as per ASME SB265) of minimum 10 mm thickness. For Borosilicate lining, the top flue liner above the roof slab shall be made of C276 (ASTM B575, UNS N10276) / Titanium (Grade 2 as per ASME

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EPC PACKAGE FOR LARA SUPER THERMAL POWER PROJECT, STAGE-II (2x800 MW)
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S. No.	SPECIFICATION REFERENCE				Instead of	Read as
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					liner above the roof slab shall be made of C276 (ASTM B575, UNS N10276) / Titanium (Grade 2 as per ASME SB265) of minimum 8 mm thickness with Borosilicate Glass Block Lining of minimum 38 mm thickness. The minimum length of flue liner projecting over the chimney roof shall be atleast equal to diameter of flue liner. For Titanium/C-276 lining, external surface of chimney flue liner projecting over the chimney roof shall be wrapped with 2 mm thick Titanium / C-276 sheet over insulation. For Borosilicate lining, top portion of the flue can shall be fitted with stop bar of 8 mm thick capping of Titanium / C-276 sheet to avoid any damage in between flue can and borosilicate lining. The minimum length of the capping inside the chimney shall be atleast equal to 1/4th diameter of flue liner. The stack shall be designed as per the latest guidelines of EPRI Wet Stack Design Guide.....	SB265) of minimum 8 mm thickness with Borosilicate Glass Block Lining of minimum 38 mm thickness. For Borosilicate lining, top portion of the flue can shall be fitted with stop bar of 8 mm thick capping of Titanium / C-276 sheet to avoid any damage in between flue can and borosilicate lining. The minimum length of the capping inside the chimney shall be atleast equal to 150mm diameter of flue liner. The minimum length of flue liner projecting over the chimney roof shall be atleast equal to diameter of flue liner. For Titanium/C-276 lining, and external surface of chimney flue liner projecting over the chimney roof shall be wrapped with 2 mm thick Titanium / C-276 sheet over insulation. For Borosilicate lining, top portion of the flue can shall be fitted with stop bar of 8 mm thick capping of Titanium / C-276 sheet to avoid any damage in between flue can and borosilicate lining. The minimum length of the capping inside the chimney shall be atleast equal to 1/4th diameter of flue liner. The stack shall be designed as per the latest guidelines of EPRI Wet Stack Design Guide.....
SG1-15	SECTION- VI, PART- B	SUB-SECTION G-07 MDL			MDL List	MDL List Documents related to auxiliary boiler stands deleted
SG1-16	SECTION- VI, PART- B	A-02		7.01.01 (c)	Heating surfaces arrangements (a) Completely..... (b) ----seamless tubes. (c) Ensure even temperature distribution at gas and steam side by criss - crossing the steam paths between LHS and RHS.	Heating surfaces arrangements (a) Completely..... (b) ----seamless tubes. (c) Ensure even temperature distribution at gas and steam side by criss - crossing the steam paths between LHS and RHS. In case the contractor is able to limit the steam temperature imbalance between LHS and RHS to within 10°C by employing suitable furnace/ burner configuration like twin furnace, the

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S. No.	SPECIFICATION REFERENCE				Instead of	Read as
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						contractor may not provide the criss-crossing arrangement. Bidder shall however submit the information relating to performance of reference steam generators to the Employer to substantiate such a decision. The contractor shall demonstrate steam temperature imbalance across two paths (LHS and RHS) to be within 10°C during commissioning. In case temperature difference between the two paths of more than 10°C is observed beyond reasonable extent, the contractor shall provide criss-cross arrangement along with other suitable measures (as required) without any extra cost implication to NTPC. All necessary provisioning for installation of criss-crossing or any other measures (as required) including space/ hanger provision/ header tapping points etc. shall be made by the contractor so that same can be installed if the operational experience warrants the same.
SG1-17	SECTION-VI, PART-B	SUB SECTION-A-02 STEAM GENERATOR & AUXILIARIES INCLUDING ESP	5.01.00 (b)	10 of 66	Steam Separator construction shall have: (b) Fusion welded construction with welded hemispherical dished ends.	Steam Separator construction shall have: (b) Fusion welded/ forged construction with welded hemispherical dished ends....
SG1-18	SECTION-VI, PART-B	SUB SECTION-A-02 STEAM GENERATOR & AUXILIARIES INCLUDING ESP	15.21.00	49 of 66	While deciding coverage of LRSBs the maximum coverage of LRSB shall not be considered more than 2m.	While deciding coverage of LRSBs the maximum coverage of LRSB shall not be considered more than 2m of blowing radius .

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EPC PACKAGE FOR LARA SUPER THERMAL POWER PROJECT, STAGE-II (2x800 MW)
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S. No.	SPECIFICATION REFERENCE				Instead of	Read as
	Section / Part	Sub-Section	Clause No.	Page No.		
SG1-19	SECTION-VI, PART-B	SUB-SECTION-A-05	5.03.02	565 of 1046	Margin on Head 10% margin on the higher value of above conditions.	Margin on Head 10% margin on the higher value of above conditions.
SG1-20	SECTION-VI, PART-B	SUB SECTION-A-02 STEAM GENERATOR & AUXILIARIES INCLUDING ESP	1.01.02	2 of 66	(a) Description of Fuel Oil Unloading & Storage System The fuel oil requirements for steam generator shall be drawn from the LDO tanks to be provided by the contractor. The fuel oil pressurizing and firing system shall be in the scope of contractor. Bidder shall include all required piping, valves, fittings, instrumentation etc. unto the terminal point.	(a) Description of Fuel Oil Unloading & Storage System The fuel oil requirements for steam generator shall be drawn from the LDO tanks to be provided by the contractor. The fuel oil pressurizing and firing system shall be in the scope of contractor. Bidder shall include all required piping, valves, fittings, instrumentation etc. unto the terminal point.
SG1-21	SECTION VI, PART-B	SUB SECTION-A-02 STEAM GENERATOR & AUXILIARIES INCLUDING ESP	9.02.02	20 of 66	Condensate from SCAPH shall lead to atmospheric flash tank in the boiler area.	Condensate from SCAPH, through SCAPH tank , shall lead to atmospheric flash tank in the boiler area.
SG1-22	SECTION-VI, PART-B	SUB-SECTION-A-02, STEAM GENERATOR & AUX. INCLUDING ESP	14.01.01	45 of 66	Safety valves and relief valves shall have minimum discharge capacities as under:	Safety valves and relief valves shall have minimum discharge capacities as under: ... Note: Number of safety valves shown on the piping (refer corresponding tender drawing) is indicative only. This shall be as per specification/manufacture's standard practice. However, at least two numbers of spring loaded and one ERV in each SH outlet and HRH outlet pipeline shall be provided.
SG1-23	VI/B	SUB SECTION-A-01	1.05.20	37 of 101	Nil	New clause added: (B) The Electrostatic Precipitator System shall also be designed to achieve ODB emission of less than 30 mg/Nm ³ (6% O ₂ dry) for the range of loads at different operating conditions and for range of coals as specified with no electrical field out of operation.

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