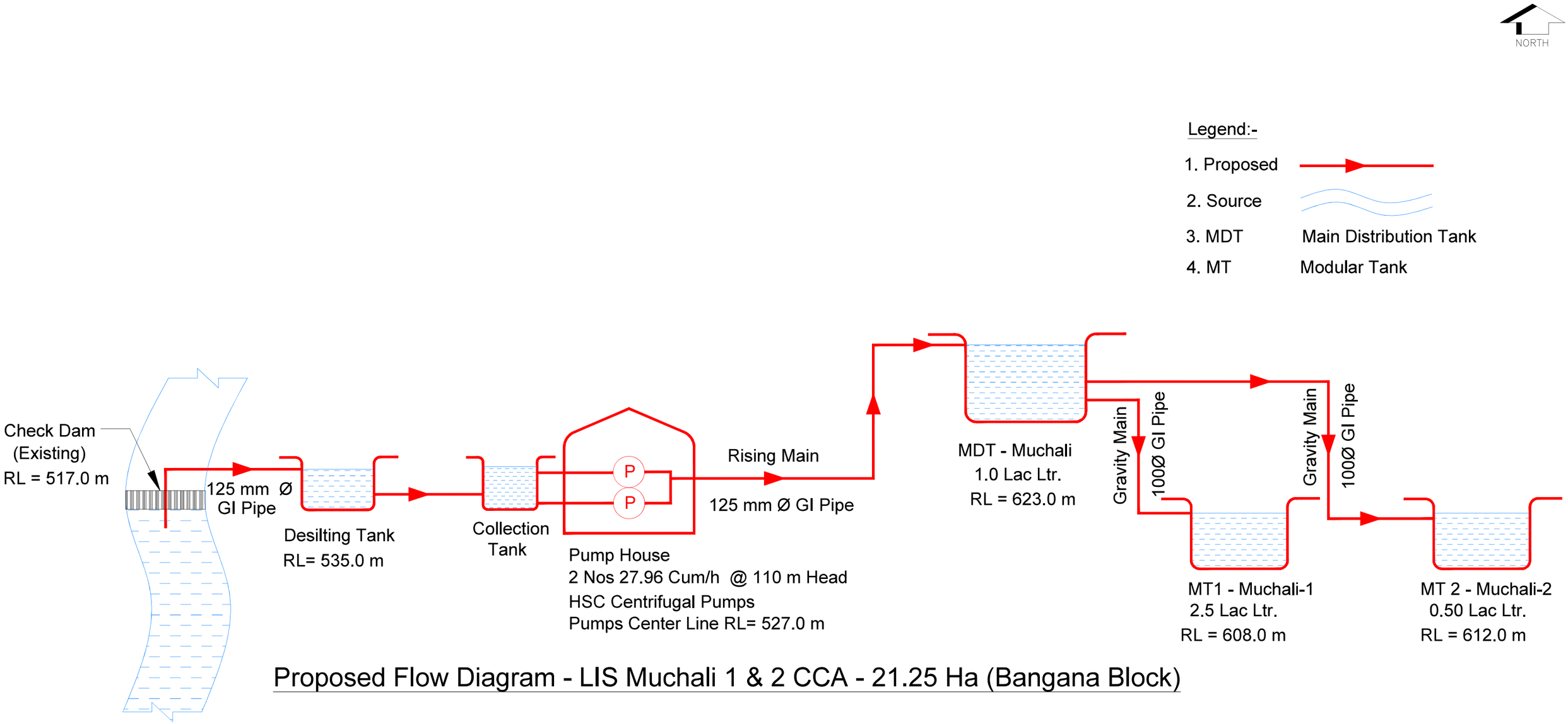

Proposed Flow Diagram - LIS Muchali 1 & 2 CCA - 21.25 Ha (Bangana Block)

P1	SIGN.													27-05-2022
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	REVISIONS	AS PER CLIENT REQUIREMENT												
P0	SIGN.													16-04-2022
	INITIALS	BSN	DG	DVB							MK	DK		
	REVISIONS													
ISSUE		DRN	DSN	CHD	CV	EL	IC	ME			PE/PM	APPD	DATE (dd-mm-yyyy)	
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FILE NAME 12503A–CV–30049–Rev–P1

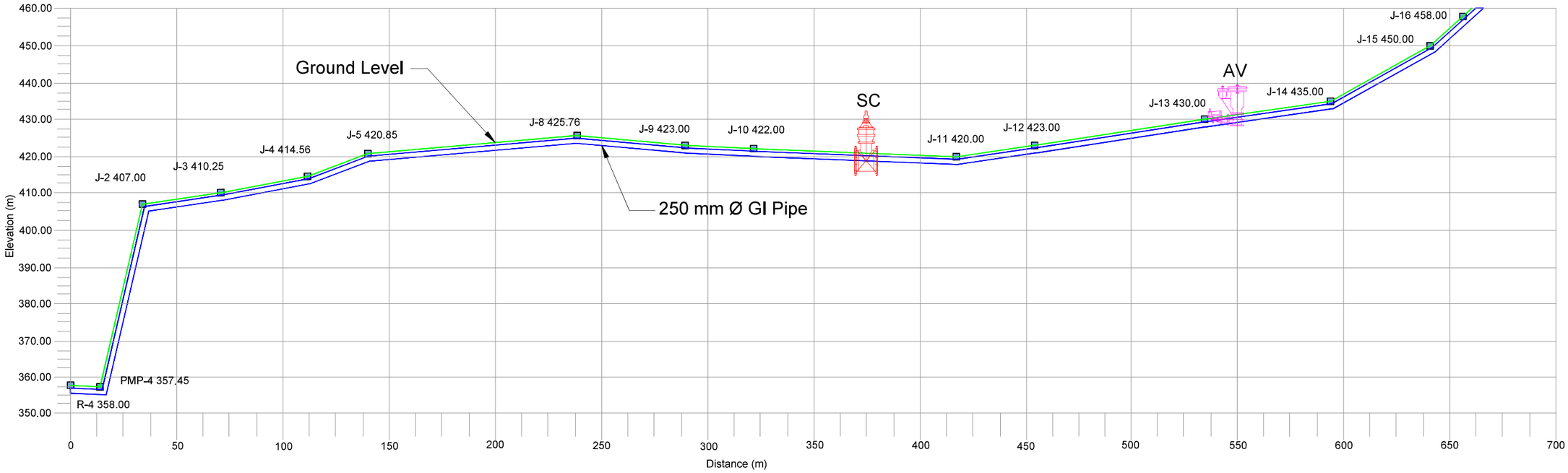
DETAILED DESIGN CONSULTANCY, HP–SHIVA (PACKAGE CS09)

IRRIGATION, HORTICULTURE, ORCHARDS AND VALUE CHAIN DEVELOPMENT

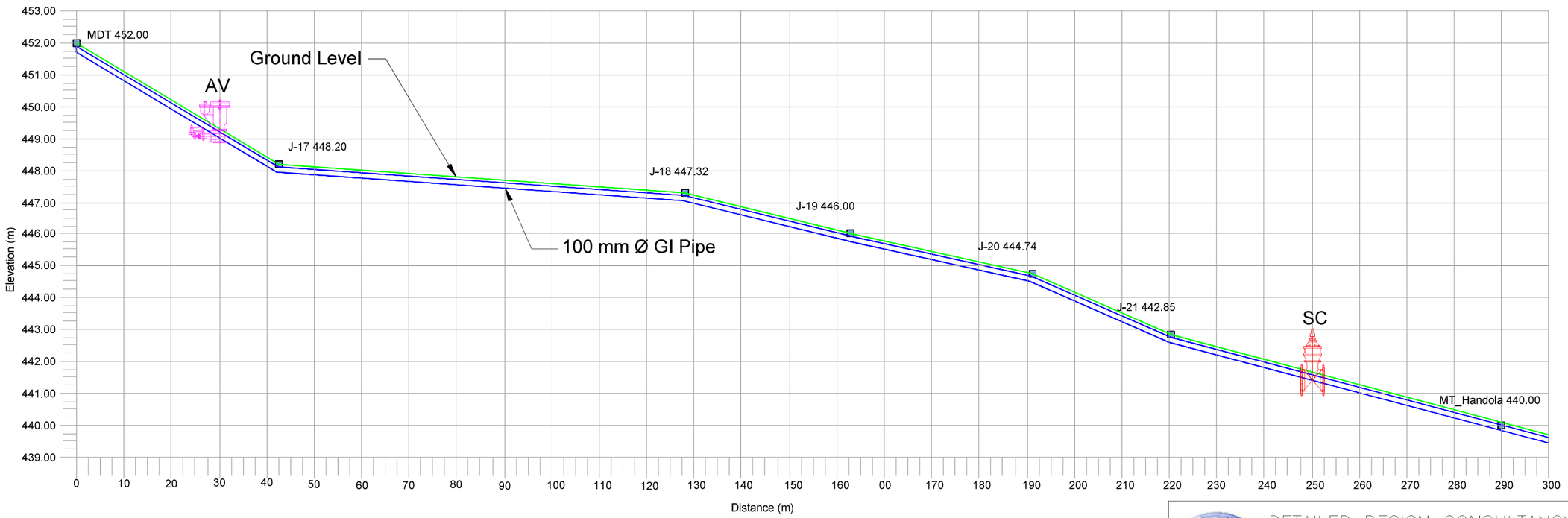
FLOW DIAGRAM OF PROPOSED LIS MUCHALI 1 & 2
BANGANA BLOCK, UNA DISTRICT

TATA CONSULTING ENGINEERS LIMITED
MUMBAI

SCALE : NTS	DWG NO. TCE.12503A–CV–3082–FD–30049	ISSUE P1
DC & DISC: DEL–CV		



Proposed L-Section for LIS Handola (Rising Main)



Proposed L-Section for LIS Handola (Gravity Main)

Lengend :-

1. Ground Level
2. Rising Main
3. Junction
4. Air Valve
5. Scour Valve

Note:-
These are Tentative Arrangements. Based on Actual Site Condition size, Quantity and Location of Proposed Valves May Vary.

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	REVISIONS												
P0	SIGN.												16-04-2022
	INITIALS	BSN	DG	DVB							MK	DK	
	REVISIONS												
ISSUE		DRN	DSN	CHD	CV	EL	IC	ME			PE/PM	APPD	DATE (dd-mm-yyyy)
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FILE NAME 12503A-CV-30650-Rev-P1

DETAILED DESIGN CONSULTANCY, HP-SHIVA (PACKAGE CS09)

IRRIGATION, HORTICULTURE, ORCHARDS AND VALUE CHAIN DEVELOPMENT

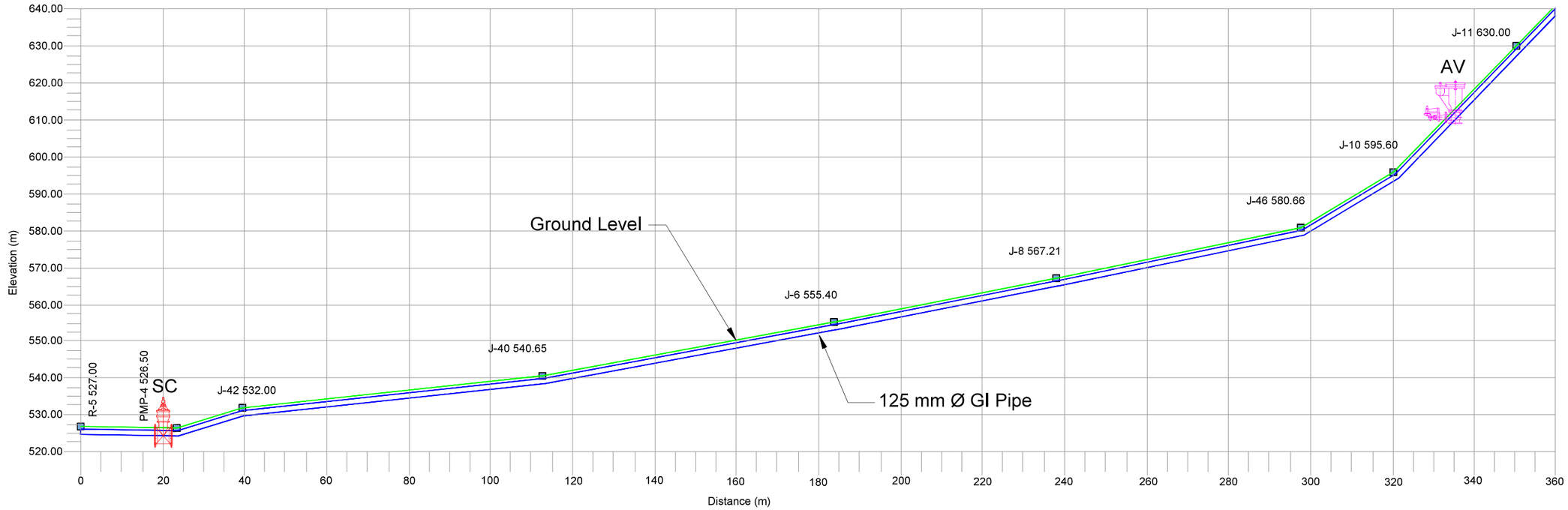
PROPOSED L-SECTION FOR LIS HANDOLA
BANGANA BLOCK, UNA DISTRICT

TATA CONSULTING ENGINEERS LIMITED
MUMBAI

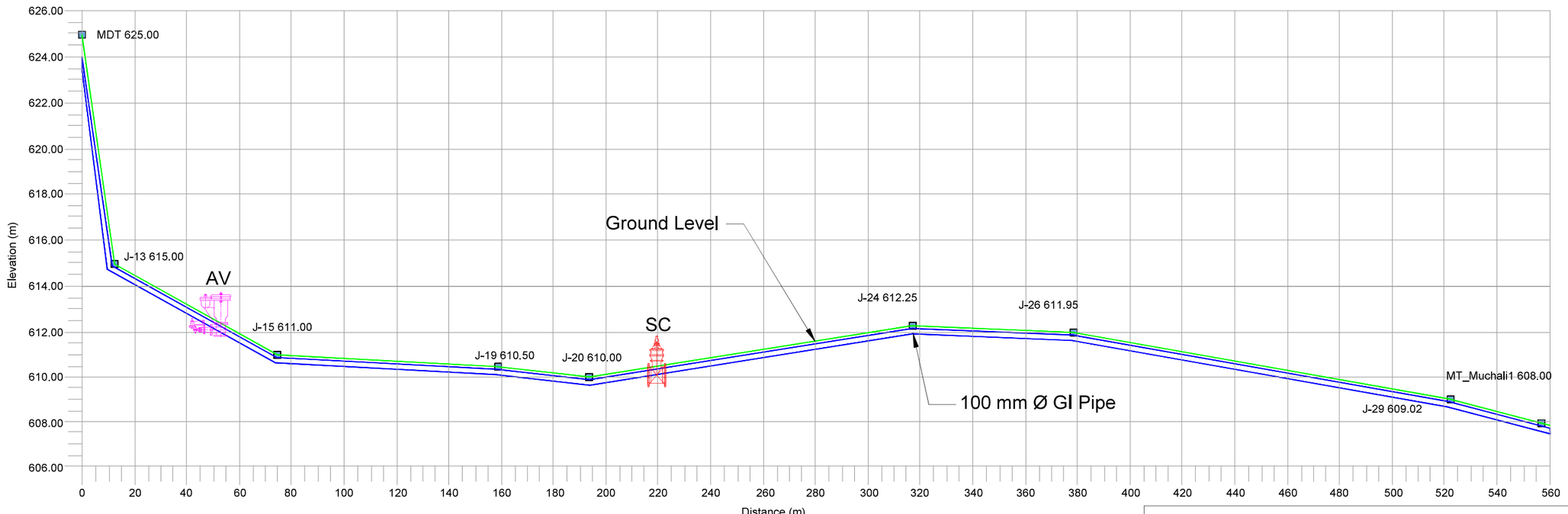
SCALE : NTS
DC & DISC: DEL-CV

DWG NO. TCE-12503A-CV-3082-WS-30650

ISSUE P1



Proposed L-Section for LIS Muchali -1 & 2 (Rising Main)



Proposed L-Section for LIS Muchali -1 & 2 (Gravity Main)

Lengend :-

1. Ground Level
2. Rising Main
3. Junction
4. Air Valve
5. Scour Valve

Note:-
These are Tentative Arrangements. Based on Actual Site Condition size, Quantity and Location of Proposed Valves May Vary.

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	REVISIONS													
P0	SIGN.													16-04-2022
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ISSUE		DRN	DSN	CHD	CV	EL	IC	ME			PE/PM	APPD	DATE (dd-mm-yyyy)	
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FILE NAME 12503A-CV-30651-Rev-P1

DETAILED DESIGN CONSULTANCY, HP-SHIVA (PACKAGE CS09)

IRRIGATION, HORTICULTURE, ORCHARDS AND VALUE CHAIN DEVELOPMENT

PROPOSED L-SECTION FOR LIS MUCHAL-1 & 2
BANGANA BLOCK, UNA DISTRICT

TATA CONSULTING ENGINEERS LIMITED
MUMBAI

SCALE : NTS

DC & DISC: DEL-CV

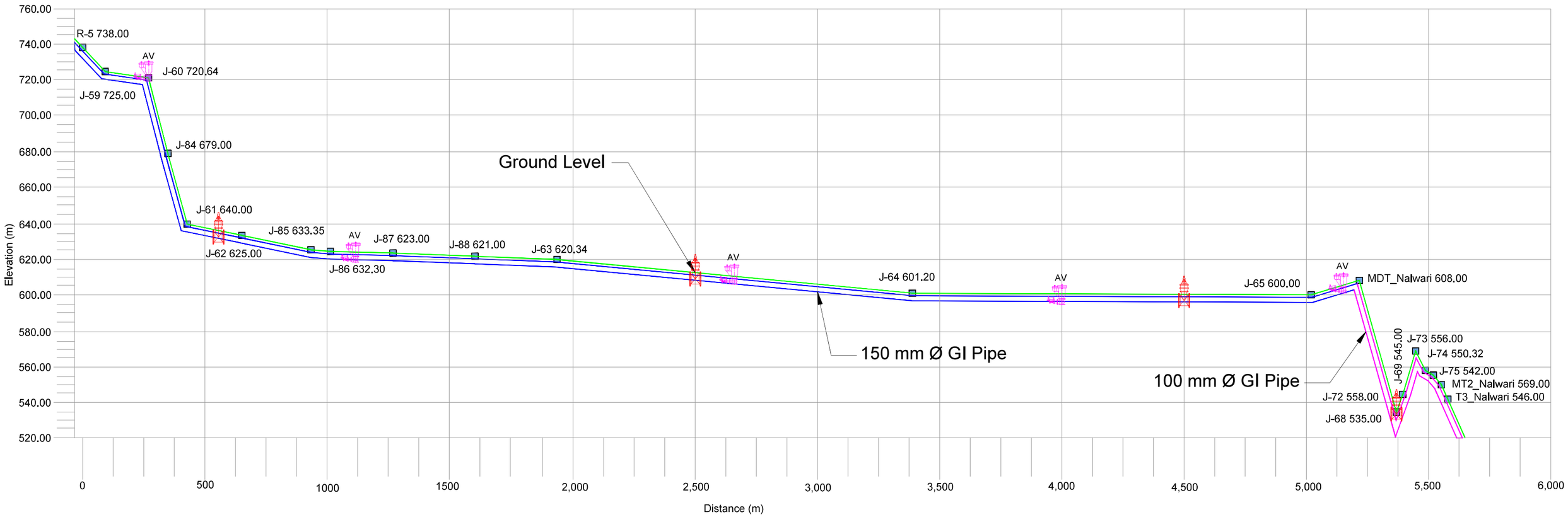
DWG NO. 12503A-CV-3082-WS-30651

ISSUE P1

Lengend :-

Lengend :-

1. Ground Level
2. Rising Main
3. Junction
4. Air Valve
5. Scour Valve



Note:-
These are Tentative Arrangements.
Based on Actual Site Condition size,
Quantity and Location of Proposed
Valves May Vary.

DETAILED DESIGN CONSULTANCY, HP–SHIVA (PACKAGE CS09)

IRRIGATION, HORTICULTURE, ORCHARDS AND VALUE CHAIN DEVELOPMENT

PROPOSED L–SECTION FOR LIS NALWARI
BANGANA BLOCK, UNA DISTRICT

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P1	SIGN.												27-05-2022	'P' (PRELIMINARY) ISSUES ARE NOT TO BE USED FOR CONSTRUCTION / FABRICATION BUT ARE ISSUED FOR LIMITED PURPOSES ONLY AS INDICATED IN THE SMALL BLOCK ABOVE THIS BLOCK.
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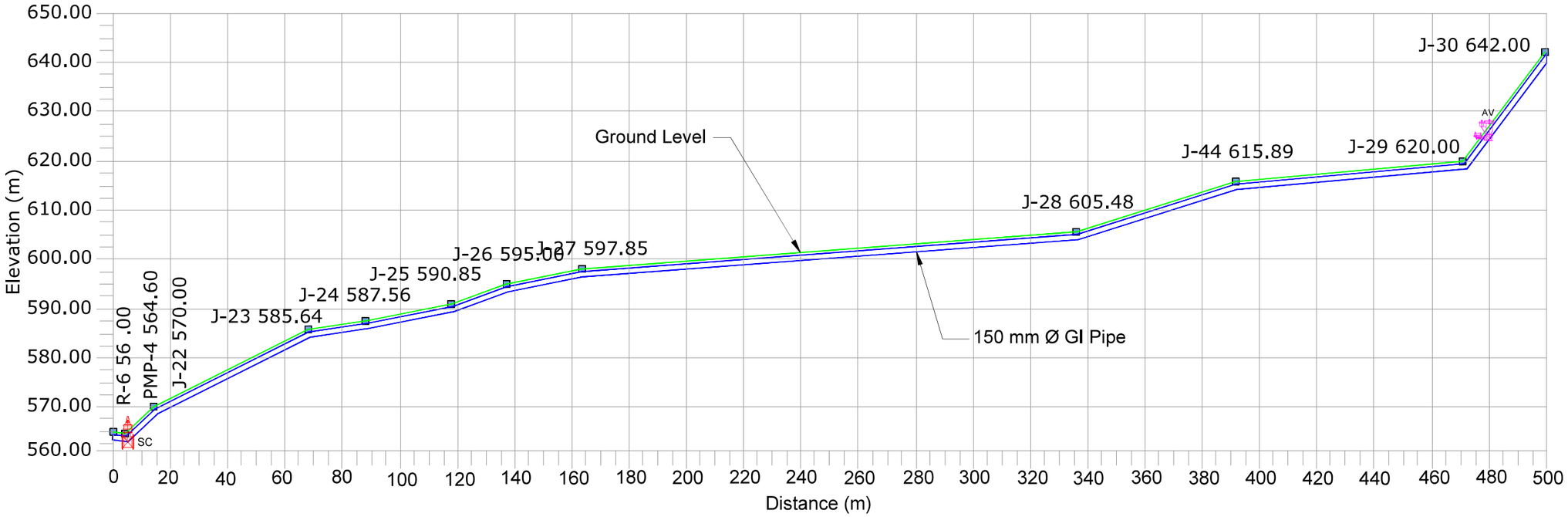
FILE NAME 12503A–CV–30652–Rev–P1

SCALE : NTS

DC & DISC : DEL–CV

DWG NO. TCE–12503A–CV–3082–WS–30652

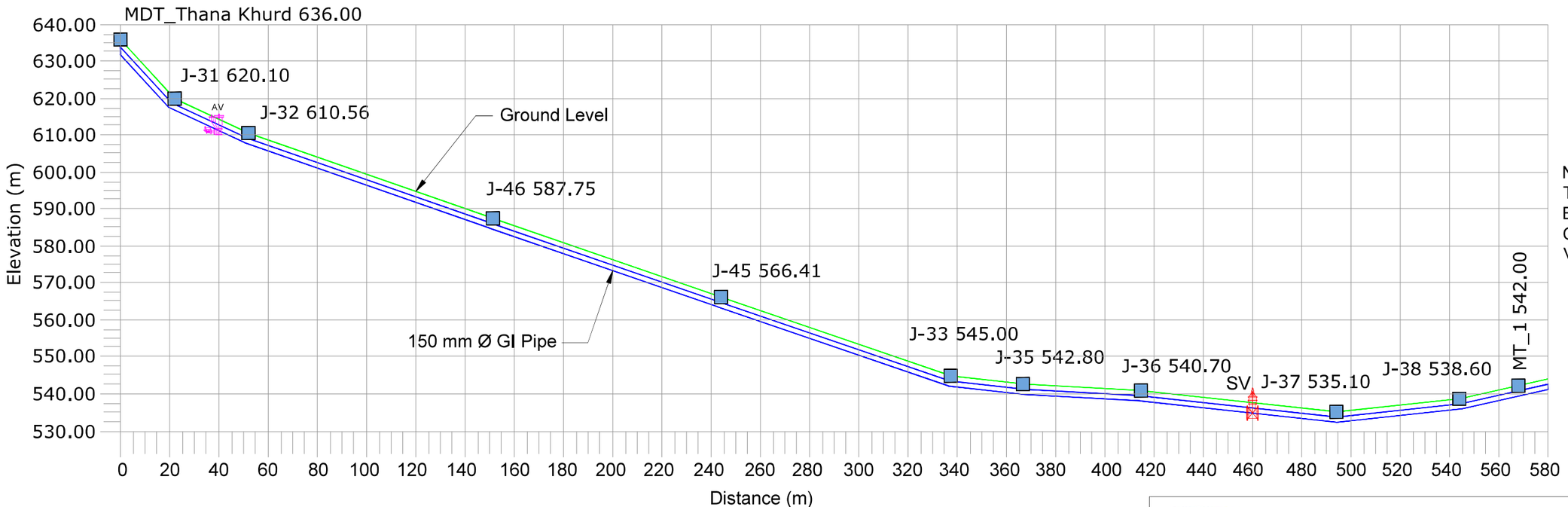
ISSUE P1



Proposed L-Section for LIS Thana Khurd (Rising Main)

Lengend :-

1. Ground Level
2. Rising Main
3. Junction
4. Air Valve
5. Scour Valve



Proposed L-Section for LIS Thana Khurd (Gravity Main)

Note:-
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	REVISIONS													
P0	SIGN.													16-04-2022
	INITIALS	BSN	DG	DVB							MK	DK		
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DETAILED DESIGN CONSULTANCY, HP–SHIVA (PACKAGE CS09)

IRRIGATION, HORTICULTURE, ORCHARDS AND VALUE CHAIN DEVELOPMENT

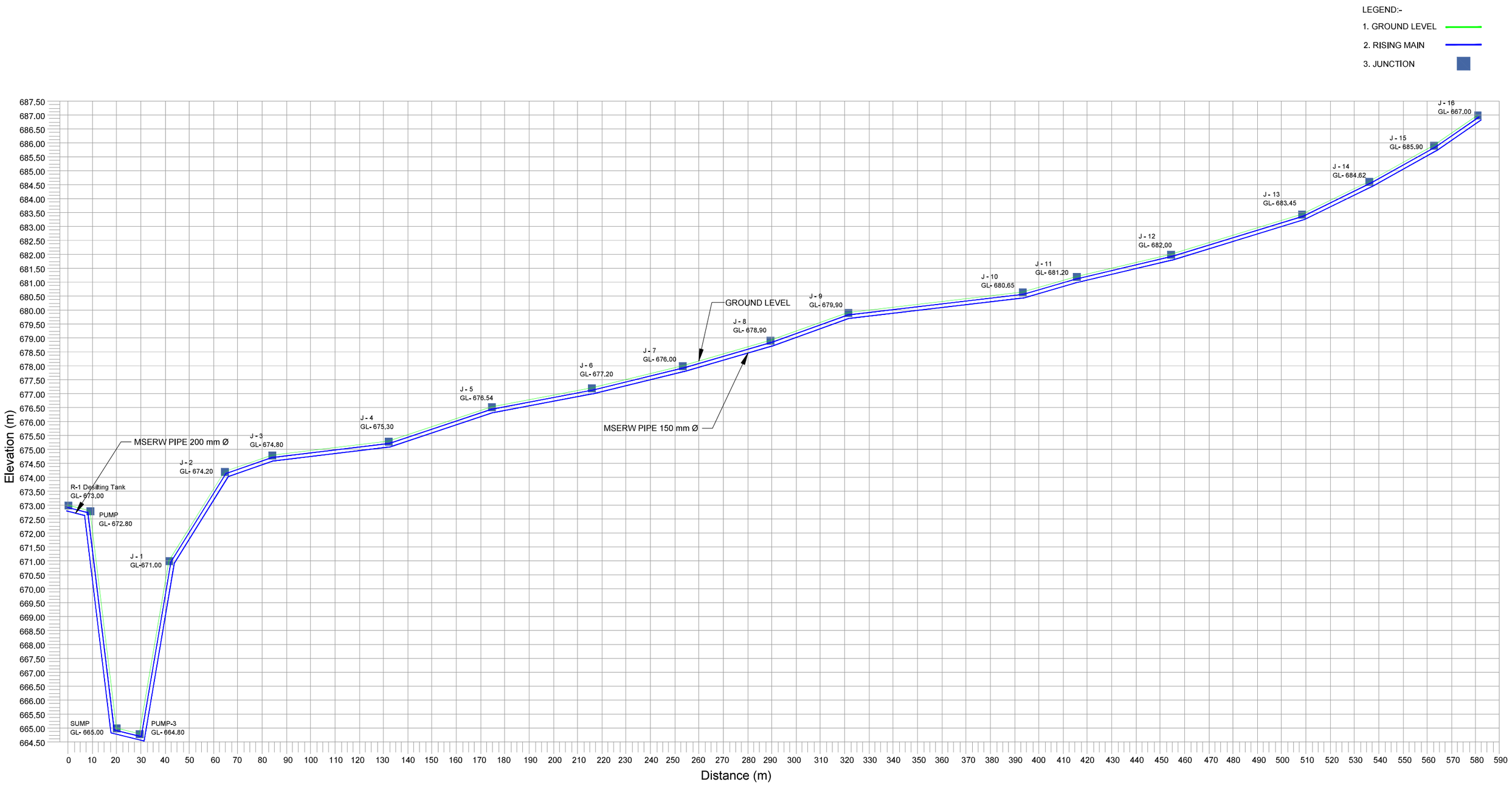
PROPOSED L–SECTION FOR LIS THANA KHURD

BANGANA BLOCK, UNA DISTRICT

TATA CONSULTING ENGINEERS LIMITED

MUMBAI

SCALE : NTS	DWG NO. TCE–12503A–CV–3082–WS–30653		ISSUE P1
DC & DISC: DEL–CV			



DETAILED DESIGN CONSULTANCY, HP–SHIVA (PACKAGE CS09)

IRRIGATION, HORTICULTURE, ORCHARDS AND VALUE CHAIN DEVELOPMENT

PROPOSED L–SECTION FOR LIS TURETA

BANGANA BLOCK, UNA DISTRICT

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	REVISIONS													
P0	SIGN.													
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ISSUE		DRN	DSN	CHD	CV	EL	IC	ME			PE/PM	APPD	DATE (dd–mm–yyyy)	
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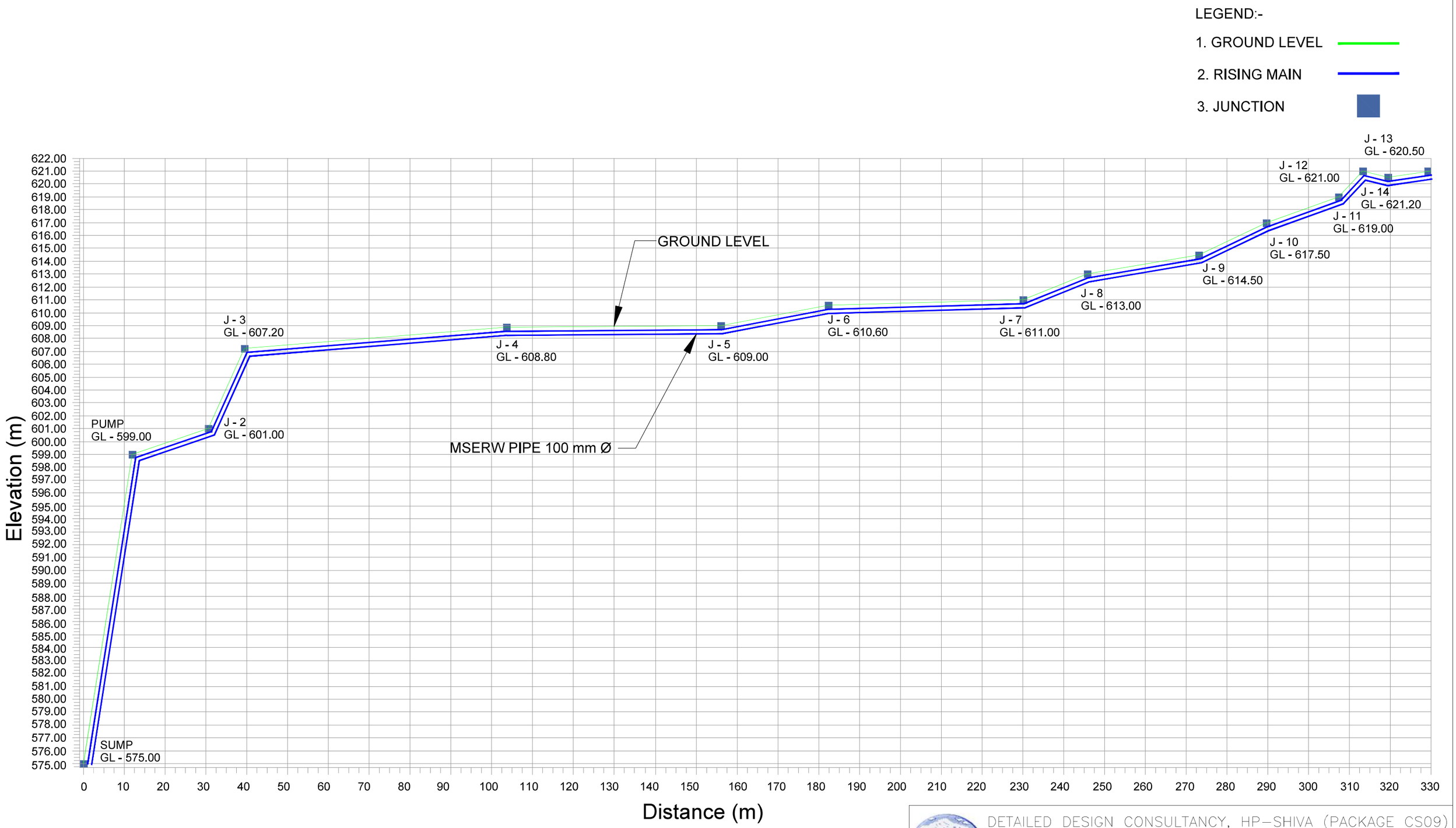

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ISSUE		DRN	DSN	CHD	CV	EL	IC	ME			PE/PM	APPD	DATE (dd-mm-yyyy)	
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FILE NAME 12503A-CV-30655-Rev-P0

DETAILED DESIGN CONSULTANCY, HP-SHIVA (PACKAGE CS09)

IRRIGATION, HORTICULTURE, ORCHARDS AND VALUE CHAIN DEVELOPMENT

PROPOSED L-SECTION FOR LIS HALTI

BANGANA BLOCK, UNA DISTRICT

TATA CONSULTING ENGINEERS LIMITED

MUMBAI

SCALE : NTS	DWG NO. TCE-12503A-CV-3082-WS-30655		ISSUE P0
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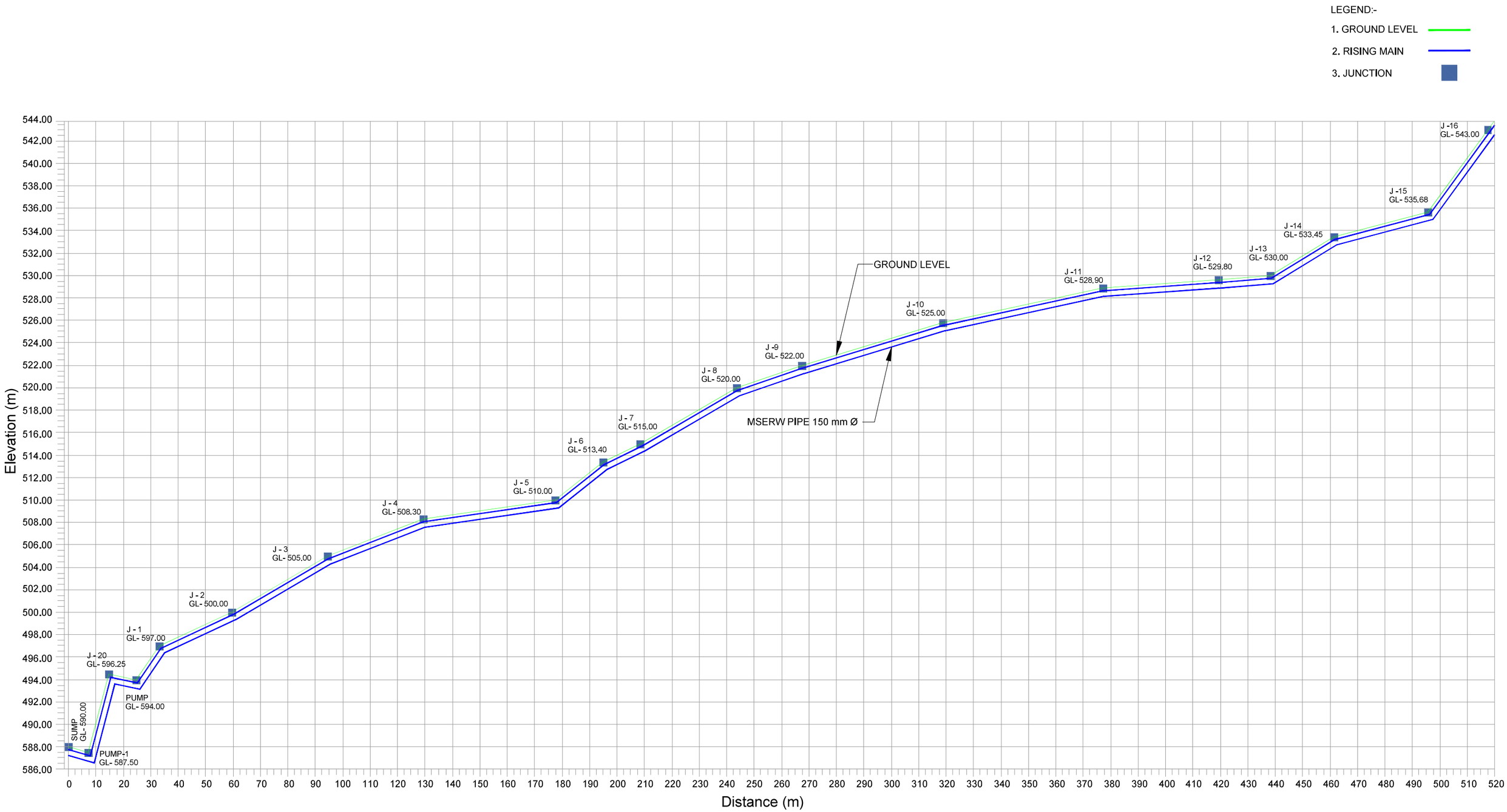

	SIGN.												
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	REVISIONS												
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DETAILED DESIGN CONSULTANCY, HP-SHIVA (PACKAGE CS09)

IRRIGATION, HORTICULTURE, ORCHARDS AND VALUE CHAIN DEVELOPMENT

PROPOSED L-SECTION FOR LIS KATHOH

BANGANA BLOCK, UNA DISTRICT

TATA CONSULTING ENGINEERS LIMITED

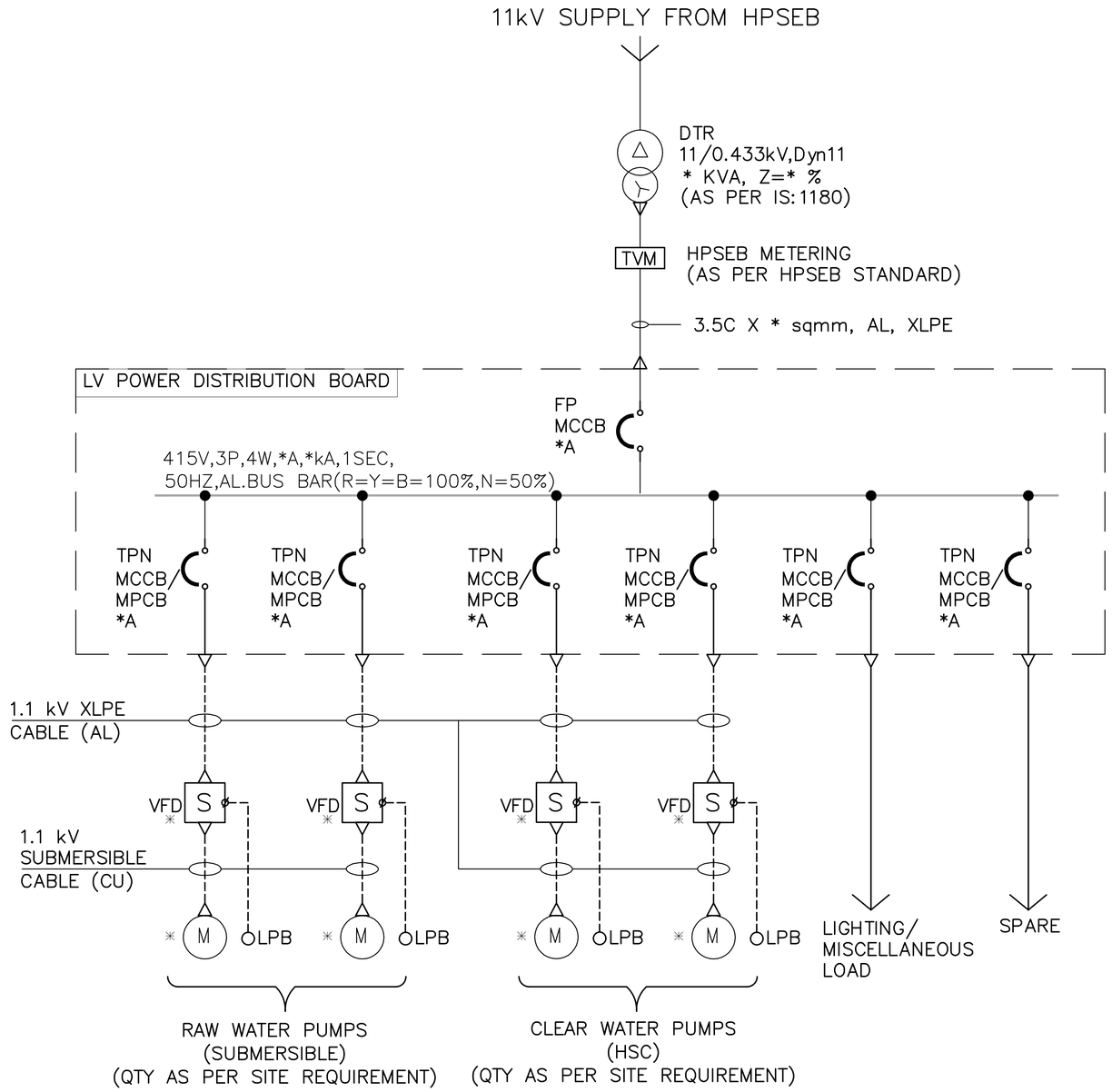
MUMBAI

SCALE : NTS

DC & DISC: DEL-CV

DWG NO. TCE-12503A-CV-3082-WS-30656

ISSUE P0



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IRRIGATION, HORTICULTURE, ORCHARDS AND VALUE CHAIN DEVELOPMENT

TYPICAL SLD FOR LIS PUMPING STATION WITH 1W+1S UNITS & LT METERING

SIGN. OF CLIENT:-

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	SIGN.													
	INITIALS													
	REVISIONS													
P0	SIGN.													
	INITIALS	KKS	ASB	ASB							MK	DK	18-04-2022
	REVISIONS													
ISSUE		DRN	DSN	CHD	CV	EL	IC	ME			PE/PM	APPD	DATE (dd-mm-yyyy)
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FILE NAME: F-093-Rev-R1.DWG

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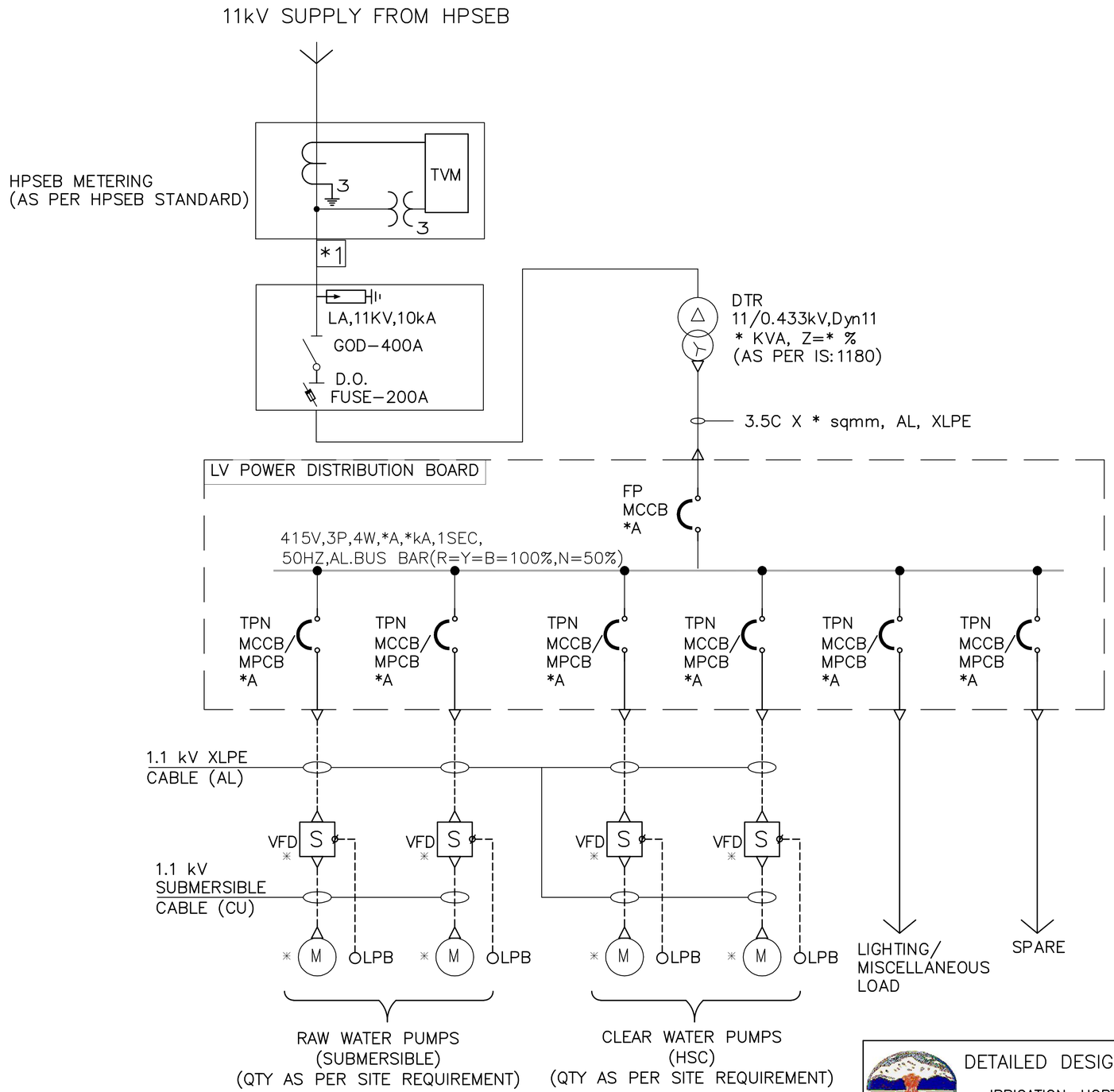

DETAILED DESIGN CONSULTANCY, HP-SHIVA (PACKAGE CS09)

IRRIGATION, HORTICULTURE, ORCHARDS AND VALUE CHAIN DEVELOPMENT

TYPICAL SLD FOR LIS PUMPING STATION WITH 1W+1S UNITS & HT METERING

SIGN. OF CLIENT:-

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ISSUE		DRN	DSN	CHD	CV	EL	IC	ME			PE/PM	APPD	DATE (dd-mm-yyyy)
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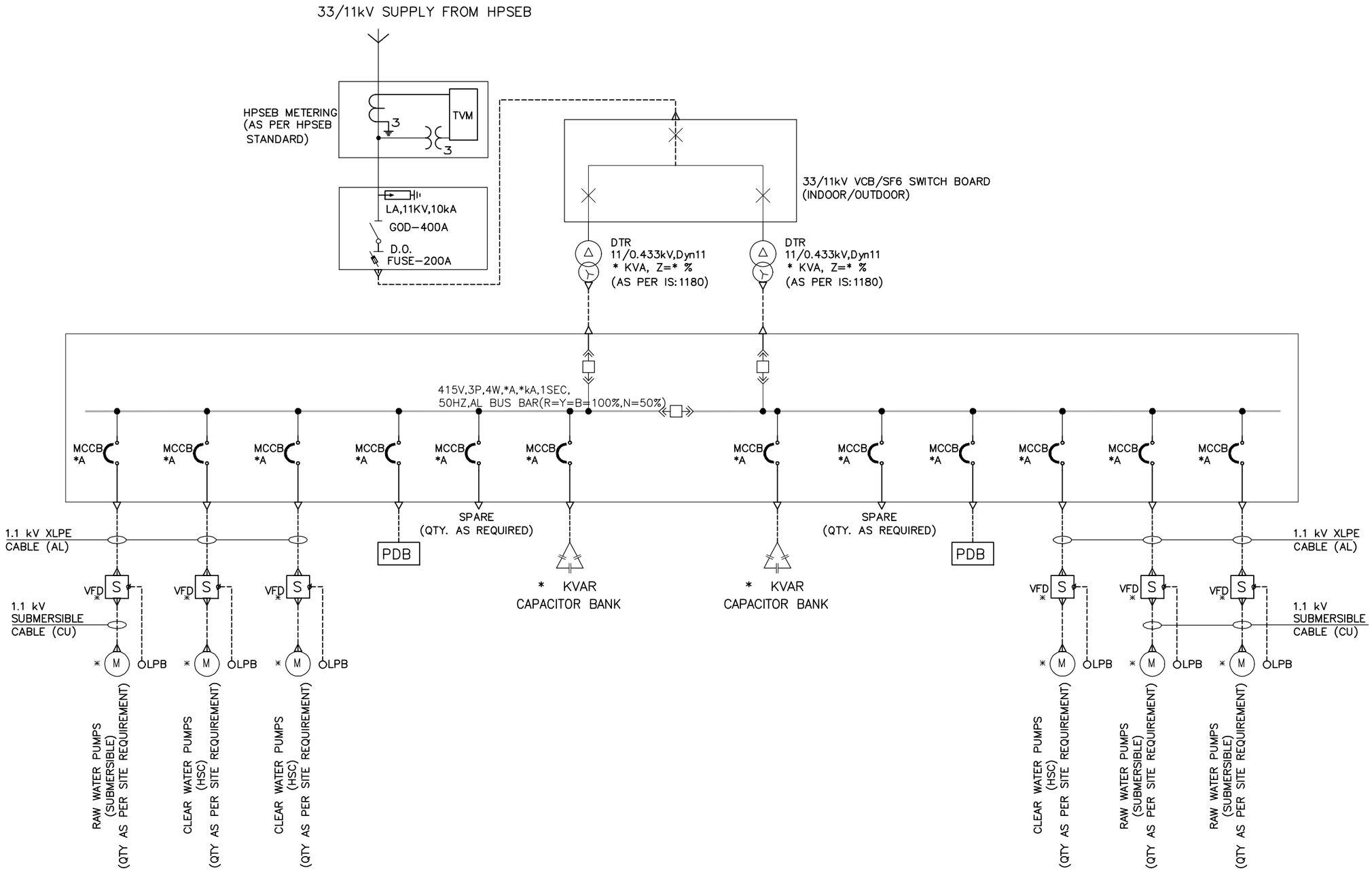

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TYPICAL SLD FOR LIS PUMPING STATION WITH 2W+1S UNITS & HT METERING

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FILE NAME: F-093-Rev-R1.DWG

TCE FORM NO. 093 R1

GENERAL NOTES:

1. THIS SLD SHOWS THE SCHEME FOR DISTRIBUTION OF THE POWER WITHIN THE PROJECT BATTERY LIMIT & SHALL be READ IN CONJUNCTION WITH ALL OTHER RELEVANT DRGS. RATINGS, SIZES & QUANTITIES OF EQUIPMENTS MARKED AS '*' NEED TO BE CALCULATED / PROVIDED BASED ON SYSTEM REQUIREMENT AS TENDER SPECIFICATIONS. CONTRACTOR SHALL SUBMIT THE EQUIPMENT SIZING CALCULATIONS & CORRESPONDING SWITCH GEAR RATING ALONG WITH THE BID.

2. THE CONTRACTOR HAS TO DO DETAIL ENGINEERING OF HV & LV SYSTEM AND WORK OUT THE RATING OF EACH COMPONENT AS PER DESIGN CRITERIA GIVEN IN TENDER & EQUIPMENT SIZING CALCULATIONS AS APPROVED BY ENGINEER–IN –CHARGE.

3. HV SYSTEM:
a) INTER TRIPPING & CLOSING INTERLOCK SHALL BE PROVIDED BETWEEN TRANSFORMER FEEDER (11KV) AND LT PANEL INCOMER (0.415KV) SIDE.
b) CT /PT UNIT FOR HT METERING AND TVM SHALL BE AS PER DISCOM.

4. LV SYSTEM:
a) ACB
– 415V SWITCHBOARD INCOMER/ BUS COUPLER ACB SHALL BE FP, EDO TYPE WITH MICROPROCESSOR–BASED O/C, S/C & INBUILT E/F AND UV RELEASES.
– ALL OUTGOING ACBS SHALL BE TP, EDO TYPE WITH MICROPROCESSOR–BASED O/C, S/C & INBUILT E/F RELEASES EXCEPT FOR APFC WHICH SHALL BE MDO TYPE WITH THERMAL MAGNETIC RELEASES.
– IN ALL LT SWITCHBOARDS, CURRENT RATING ABOVE 630A SHALL HAVE ACBs.
– –ALL ACBS SHALL BE WITH ICS=ICU=ICW=100%.
b) MCCB
– 415V SWITCHBOARD INCOMER/ BUSCOUPLER MCCB (>=250A) SHALL BE FP FIXED TYPE WITH MICROPROCESSOR BASED O/C, S/C & E/F RELEASES AND OUTGOING MCCB (>=250A) SHALL BE TP FIXED TYPE WITH MICROPROCESSOR BASED O/C, S/C & E/F RELEASES EXCEPT FOR APFC AND WHICH SHALL HAVE TM BASED O/C, S/C & E/F RELEASES WITH EXTERNAL E/F MODULE. ALL INCOMER/ OUTGOING MCCB (<250A) SHALL HAVE TM BASED O/C, S/C & E/F RELEASES WITH EXTERNAL E/F MODULE.
– ALL MCCB SHALL BE WITH Ics=Icu=100%.

5. ALL INDICATIONS, SHUNT TRIP/CLOSING COILS OF HT/ LT BREAKERS (VCBS/ ACBS) WILL BE ON 30/110V DC CONTROL SUPPLY. SPRING CHARGING MOTORS OF ALL BREAKERS WILL BE ON 230V AC SUPPLY. IF, DC SUPPLY IS NOT AVAILABLE FROM EXTERNAL SOURCE, IT SHALL BE DERIVED FROM INBUILT DC POWER PACK SUITABLE FOR ACCEPTING 230V AC SUPPLY FROM EXTERNAL SOURCE.
6. IN MCC, ALL MOTOR STARTER COMPONENTS RATING SHALL BE SELECTED AS PER MANUFACTURER'S TYPE–2 CO–ORDINATION CHART. MOTOR STARTERS SHALL BE COMPLETE WITH SINGLE PHASING PREVENTER. AMMETERS IN MOTOR FEEDERS SHALL BE PROVIDED WITH SUPPRESSED SCALE UP TO 6 TIMES FULL LOAD CURRENT FOR INDICATING STARTING CURRENT. ALL MOTOR FEEDERS UP TO OR EQUAL TO 5.5 KW SHALL HAVE DIRECT CONNECTED AMMETERS IN Y PHASE & MOTORS GREATER THAN 5.5KW WILL BE PROVIDED WITH ONE CT & AMMETER.

7. THE ON, OFF AND TRIP POSITION OF MCCB/ MPCB SHALL BE CLEARLY INDICATED. ROTARY OPERATING HANDLE FOR MCCBs/ MPCBs WITH THE DOOR CLOSED INTERLOCK SHALL BE PROVIDED. ALL MCCB/ MPCB FEEDERS ON ALL PANELS SHALL BE PROVIDED WITH ON/OFF/TRIP INDICATING LAMPS THROUGH AUXILIARY CONTACTS. WHEREVER STARTER FEEDER PROVIDED WITH MPCB BUT WITHOUT OVERLOAD RELAY, MPCB SHALL HAVE INBUILT OVERLOAD PROTECTION FEATURE.

8. 110 OR 220V AC CONTROL SUPPLY FOR LT PCC/ MCC SHALL BE DERIVED FROM CONTROL TRANSFORMER(S) OF ADEQUATE RATING. INTERLOCKING BETWEEN TWO CONTROL SUPPLIES SHALL BE PROVIDED SUCH THAT ENERGIZED SECTION CATERS FOR THE NEED OF THE PCC/ MCC PANEL.

9. MCCB & MPCB TERMINALS SHALL BE SHROUDED AND SHALL BE DESIGNED TO RECEIVE CABLE LUGS FOR RELEVANT CABLE SIZES.

10. ALL INDICATING LAMPS SHALL BE MULTICHIP LED TYPE.

11. MULTIFUNCTION METER FOR MEASURING ALL POWER & ENERGY PARAMETERS SHALL HAVE AN ACCURACY CLASS OF 1.0 OR BETTER, WITH RS 485 COMM PORT.

12. ALL CONTACTORS / TIMERS SHALL BE DIN RAIL MOUNTED.

13. UNDER STEADY STATE CONDITIONS, VOLTAGE DROP IN VARIOUS SECTIONS OF ELECTRICAL SYSTEM SHALL BE LIMITED TO A) CABLES BETWEEN TRANSFORMER SECONDARY TO PMCC – 2 % AND B) CABLES BETWEEN PMCC TO MOTOR– 3%. UNDER MOTOR STARTING CONDITIONS, THE CORRESPONDING VOLTAGE DROP SHALL NOT AFFECT THE OPERATION OF THE MOTOR CONTROLS OR THE ABILITY OF THE MOTOR TO START AND RUN EFFECTIVELY AND IN ANY EVENT SHALL NOT EXCEED 15%. FAULT CLEARING TIME TO BE CONSIDERED WHILE SIZING OF CABLES SHALL BE AS A) PCC INCOMER – 1 SEC AND B) TRANSFORMER PRIMARY: 0.16 SEC.

14. UNLESS SPECIFIED, ALL SWITCHBOARDS SHALL BE FREE STANDING, COMPARTMENTALIZED, EXTENSIBLE ON BOTH SIDES WITH HEIGHT NOT EXCEEDING 2300MM. ENCLOSURE PROTECTION OF SWITCHBOARDS SHALL BE AS PER TENDER.

15. WHEREVER APPLICABLE, SEPARATE PANEL FOR HVAC, FIRE AND PLUMPING PUMP WILL BE PART OF RESPECTIVE BOQ.

16. WHEREVER APPLICABLE, PROVISION OF ONE–WAY NET METERING SHALL BE PROPOSED IN THE SLD FOR INTEGRATION OF THE SOLAR WITH THE DISTRIBUTION SYSTEM. THIS METHODOLOGY NEEDS TO BE VERIFIED WITH THE STATE ELECTRICITY BOARD AND THE SOLAR VENDORS. SOLAR POWER SUPPLY WILL NOT BE ON WHEN DG IS ON.

17. WHEN TWO DG'S ARE OPERATING IN PARALLEL THEN PROVISION OF NEUTRAL CONTRACTOR INTERLOCKING SHOULD BE SUCH THAT ONLY ONE DG WILL BE EARTHED.

18. MCB USED FOR STANDARD NETWORK SHALL HAVE 'C' CHARACTERISTIC CURVE.

19. EACH TYPE & RATING OF OUTGOING FEEDER SHALL HAVE 10% SPARE OR MINIMUM ONE NUMBER.

LEGEND:

	LIGHTNING ARRESTER	R	RELAYING
	ISOLATER WITH EARTH SWITCH	I	INSTRUMENTATION
	ISOLATER WITH D.O. FUSE	25	SYNCHRONIZING RELAY
		27/59	UNDER/OVER VOLTAGE RELAY
	CIRCUIT BREAKER(ACB/VCB) DRAW–OUT TYPE	81	UNDERFREQUENCY RELAY
		50	INST. O/C PROTECTION
	CIRCUIT BREAKER(ACB/VCB) NON DRAW–OUT TYPE	50N	INST. E/F PROTECTION
		51	IDMT. O/C PROTECTION
	MCCB	95	TRIP SUPERVISION RELAY
	MPCB	49W	WINDING TEMP. HIGH INDICATOR WITH ALARM & TRIP CONTACTS
	MCB	49O	OIL TEMP. HIGH INDICATOR WITH ALARM & TRIP CONTACTS
	CABLE GLAND	63 X	PRESSURE RELIEF DEVICE
	INDICATING LAMP	63 T	BUCHHOLZ RELAY
	PUSH BUTTON	OSR	OIL SURGE RELAY
	CURRENT TRANSFORMER (CT) (FIGURE INDICATES NO. OF CT's)	MOG	MAGNETIC OIL GAUGE
		86	LOCK OUT RELAY
	POTENTIAL TRANSFORMER	SC	SPRING CHARGED
		TCH	TRIP CIRCUIT HEALTHY
	TRANSFORMER	SP	SERVICE POSITION
		TP	TEST POSITION
TVM	TRI VECTOR METER		ELECTRICAL CABINET
	CHOKE	MFM	MULTIFUNCTION METER
AS	AMMETER SELECTOR SWITCH		
A	ANALOG AMMETER	NET METER	NET ENERGY METER
VS	VOLTMETER SELECTOR SWITCH		
V	ANALOG VOLTMETER	TNC	TRIP–NEUTRAL–CLOSE SWITCH (KEY OPERATED)
	PUSH BUTTON STATION		
E.M.I.	ELECTRICAL– MECHANICAL INTERLOCK	ETPB	EMERGENCY TRIP PUSH BUTTON
R G A	TWO MOMENTARY CONTACT PB WITH THREE INDICATING LAMPS (R = RED, G = GREEN, A = AMBER)		CONTACTOR
		NC	NORMALLY CLOSED
L–R	LOCAL REMOTE SELECTOR SWITCH	NO	NORMALLY OPEN

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