DETAILED PROJECT REPORT FOR RESERVOIR & ASH DYKE OF NORTH KARANPURA SUPER THERMAL POWER PROJECT (3X660MW) IN DISTRICT CHATRA, JHARKHAND.

1.00.00 BACKGROUND

North Karanpura Super Thermal Power Project (3x660 MW), a pit head coal based thermal power project, is located in Chatra district of Jharkhand State. Basic inputs i.e. coal, water and land have already been tied up. The project is proposed for the benefits of States and UTs of Northern and Western Regions and the State of Jharkhand. The capacity of the project is 1980 MW comprising of three (3) units of 660 MW each. The forest clearance for the proposed project has already been accorded earlier.

The present proposal is for a portion of additional land of 10.242 Ha required for the construction of reservoir & Ash dyke to meet the project requirement. This additional land was earlier identified for Garhi dam reservoir scheme of WRD, GoJh but now the same has been allocated to NTPC for NKSTPP.

1.01.00 Location and Approach

The project is located near Tandwa town in Chatra districts in the state of Jharkhand on Hazaribagh-Chatra State highway at a distance of about 50 kms from Hazaribagh city. The nearest commercial airport is Ranchi at a distance of 100 kms from project site. The nearest railhead Khalari Railway Station on Ranchi-Garhwa section of Eastern Railways is about 25 kms from project site. The nearest airport at Ranchi is located at a distance of approximately 100 kms. from the project site.

1.02.00 Reservoir

The topography of the proposed Raw Water Reservoir area is undulating terrain with levels varying from RL 434.0 to RL 458.0. Total area available for the reservoir is 723 Acre approximately. Storage area of the raw water reservoir consists of 3 Nos. separate lagoons. The height of reservoir dyke to be constructed with earth is varying from 0m to about 20m. Construction of spillways is also envisaged for discharging excess rain water from storage area to the existing drainage. The work also involves providing & laying HDPE liner, Non-woven Geo-textile and PCC M20 on entire inside area of the reservoir including the bed and the sides and construction of sand chimney, sand blanket as well as rock toe, toe drain and rip rap for downstream slope protection works of dyke embankment. Construction of peripheral bituminous inspection lane all along the periphery of the reservoir is also envisaged. The Work involved is mainly related to the following:

i. Preparation of work areas / clearing site / jungle clearance/ dismantling existing structures/facilities.

ii. Ground stripping.

सुहैल खलीक खान / SUHAIL KHALIQ KHAN
उप महाप्रबन्धक (सिविल)/ DGM (CCD)
एनटीपीसी लिमिटेड / NTPC LIMITED
एन.के.एस.टी.पी.पी. / NKSTPP
टण्डवा / Tandwa

iii. Excavation & stacking in all type of soils, rocks etc.

iv. Back filling & compaction with excavated earth

v. Foundation preparation along with formation of steps and key pockets on sloping ground and steep gradient respectively.

vi. Filling cut off trench

vii. Filling low laying area

viii. Formation of the reservoir dyke section with earth.

ix. Formation of sand chimney, sand blanket and sand filter.

x. Construction of dyke rock toe, rip rap and filters for forming toe drain.

xi. Area filling required for Intake water system facilities area near river side.

xii. Filled-up area and embankment outer slope protection with riprap.

xiii. HDPE liner shall be provided for the entire inside area of the reservoir including the bed and the sides. HDPE liner shall be protected with 75 thick PCC M20. A non-woven geo-textile layer shall be underlying of PCC M20 for better grip & protection of the HDPE liner during installation.

xiv. Construction of dyke slope drains, kerb wall &, Steps on Downstream Slopes.

xv. Construction of RCC works for inter connecting ducts, Hume pipe cross drainage for bituminous inspection lane & RCC Spillways.

xvi. Laying and embedding RCC pipes.

xvii. Supply & installation of Sluice gates.

xviii. Supply, fabrication & erection of steel works.

xix. Supply, welding & erection of MS pipes including making bends.

1.03.00 The proposed ash dyke area is adjacent to the plant boundary. The scheme for ash disposal envisages two storage lagoon with sedimentation basin for disposal of fly ash and a smaller storage lagoons & an over flow lagoon for the disposal of separate bottom ash in the ash disposal areas. The topography of the proposed ash dyke areas is undulating. Ground level is varying from RL 432M to 458M for Ash. The total length of the starter for both the dykes is estimated to be about 8350M. Construction of well type water escape structure with flexible opening is also envisaged for decanting water from storage lagoons to over flow lagoon/sedimentation basin. Decanted water from storage lagoons through RCC well will be collected into over flow lagoon (OFL). Construction of spillways is also envisaged for discharging excess rain water from storage lagoons to OFL/RCC perimeter drain and from OFL to the existing drainage. Scope of work also involves construction of rock toe, toe drain and rip rap for downstream slope protection works of dyke embankment. Impervious lining to bed of bottom ash storage lagoon and OFL with bentonite blended soil is also envisaged under scope of this package. Construction of bituminous inspection road and RCC perimeter drain all around the periphery of the dykes is also under the scope of this package. The package also include preparation of earthen bed by excavation for nallah diversion. All construction works shall be carried out based on the drawings

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which are released by the owner for construction. The Work involved is mainly related, but not limited, to the following:

i. Preparation of work areas / clearing site / jungle clearance.
ii. Ground stripping.
iii. Excavation.
iv. Foundation preparation.
v. Formation of the dyke section as per drawings.
vi. Formation of sand chimney, sand blanket and filter as per drawings.
vii. Construction of dyke rock toe, rip rap (with geotextile) and filters for forming toe drain.
viii. Dyke outer slope protection with turfing.
ix. Dyke inner slope protection with dry brick packing confined within brick masonry panel walls and with rip rap.
x. Construction of dyke slope drains/ stair steps.
xi. Construction of RCC works for water escape structures & Spillways.
xii. Laying and embedding RCC/MS pipes.
xiii. Earthen channel near toe drain for guiding excess rainwater - runoff.
xiv. Bituminous Road works (over dyke top & Inspection road along periphery of dyke).
xv. Installation of instruments for monitoring purpose.
xvi. Diversion and training of existing nallah.

1.04.00 **COST ESTIMATE**

The total estimated cost of Reservoir & Ash Dyke for North Karanpura Super Thermal Power Project (3x660 MW) is as detailed below –

Sl.no.	Head of work	Cost of works (in Rs.)
01.	Reservoir	349,74,63,005
02.	Ash Dyke	126,24,15,002
	Net Total -	**475,98,78,007**
	Indian Rupees Four Hundred Seventy Five Crores Ninety Eight lacs Seventy Eight thousand and seven only.	

1.05.00 **MANPOWER DEPLOYMENT**

(i) During Construction phase –

Approx. manpower required – 350nos. for 18months – approx. 15lac man hours.

(ii) During O&M phase –

Approx. manpower required –

1.	Supervisor	6 nos.
2.	Helpers	30 nos.
	Total -	**36 nos.**

1.06.00 **LIST OF REFERENCE DRAWINGS**

(i) 4410-301A-POC-C-101 – Layout of Reservoir

(ii) 4410-301A-POC-C-102 – Reservoir – Leveling & Grading

(iii) 4410-331R-POC-C-001-SH1 of 2 – Layout of Ash Dyke

(iv) 4410-331R-POC-C-001-SH1 of 2 – Layout of Ash Dyke

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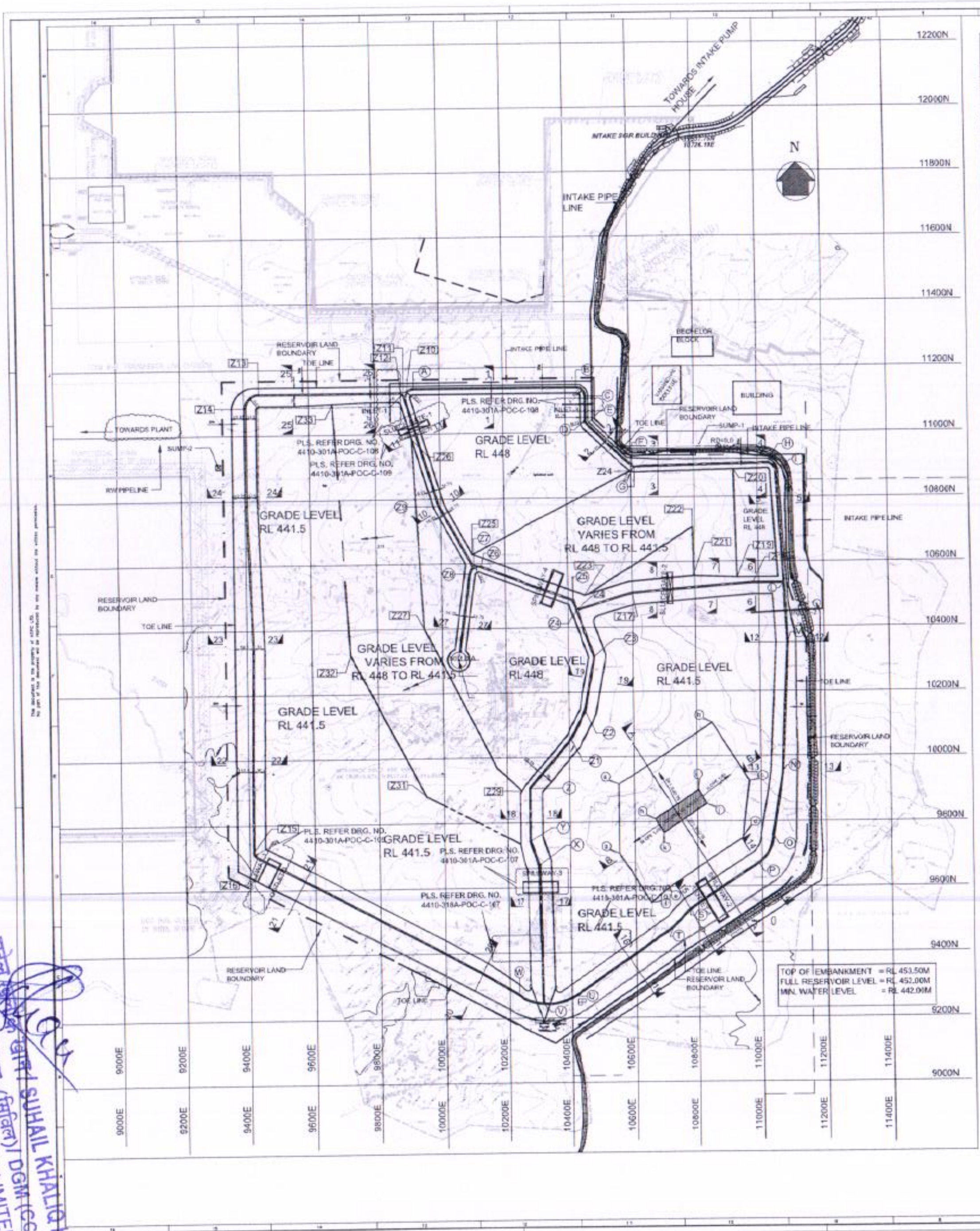

TABLE-1

S.L.NO.	MARKED	CO-ORDINATE * NORTH	CO-ORDINATE * EAST
1.	A	11137.60	9915.97
2.	B	11137.60	10435.48
3.	C	11116.85	10462.23
4.	D	11037.28	10462.23
5.	E	11023.39	10468.27
6.	F	10996.19	10604.67
7.	G	10993.50	10611.49
8.	H	10902.42	11031.739
9.	I	10675.00	11054.41
10.	J		
11.	K		
12.	L	10534.17	11074.89
13.	M	10349.21	11084.69
14.	N	9949.06	11065.68
15.	O	9756.43	11034.61
16.	P	9676.72	10998.41
17.	Q		
18.	R		
19.	S	9530.67	10772.09
20.	T	9478.99	10720.68
21.	U	9266.79	10410.14
22.	V	9244.35	10311.24
23.	W	9270.89	10232.51
24.	X	9067.98	10303.42
25.	Y	9742.54	10278.62
26.	Z	9604.90	10278.04
27.	Z1	10054.87	10435.78
28.	Z2	10141.73	10450.12
29.	Z3	10308.80	10480.97
30.	Z4	10454.07	10427.66
31.	Z5	10483.65	10416.81
32.	Z6	10589.31	10124.87
33.	Z7	10586.85	10101.80
34.	Z8	10567.90	10089.28
35.	Z9	10777.28	9994.16
36.	Z10	11103.02	9894.39
37.	Z11	11116.53	9889.54
38.	Z12	11125.60	9880.08
39.	Z13	11125.60	9447.21
40.	Z14	11084.51	9404.86
41.	Z15	9718.98	9415.11
42.	Z16	9701.22	9425.87
43.	Z17	10504.76	10608.36
44.	Z18	10534.18	10982.00
45.	Z19	10550.93	10933.95
46.	Z20	10885.06	10926.45
47.	Z21	10555.92	10795.67
48.	Z22	10707.12	10792.24
49.	Z23	10499.25	10453.77
50.	Z24	10479.34	10599.73
51.	Z25	10628.20	10097.50
52.	Z26	10985.26	9912.94
53.	Z27	10400.06	9944.34
54.	Z28	9567.98	10168.32
55.	Z29	9895.85	10248.32
56.	Z30	9736.20	10248.91
57.	Z31	9882.45	9944.82
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59.	Z33	11093.91	9670.47

*- CO-ORDINATES MARKED ALONG THE RESERVOIR EMBANKMENT PERIPHERY ARE OF THE CENTER LINE OF TOP WIDTH OF RESERVOIR EMBANKMENT.
ALL CO-ORDINATE SHALL BE VERIFIED AT SITE AND ESTABLISHED W.R.T THE PLANT GRID SYSTEM AS MARKED IN THIS DRAWING AS PER DIRECTION OF ENGINEER IN CHARGE.
INCASE ANY MISMATCH SAME SHALL BE INFORMED IMMEDIATELY.

TABLE :- 1

SL. NO.	MARK	CO - ORDINATE EAST	CO - ORDINATE NORTH
1	a	10664.03	9815.79
2	b	10668.75	10103.67
3	c	10694.55	9902.80
4	d	10642.45	9747.80
5	e	10712.64	9846.17
6	f	10648.86	9850.56
7	g	10654.03	9702.50
8	h	10604.83	9808.47
9	i	10693.44	9896.82
10	j	10629.21	9852.78
10	k	10691.08	9703.59

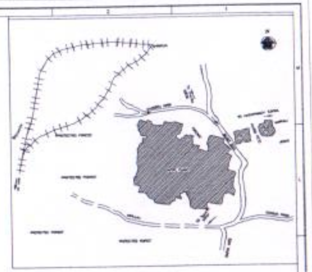
N

LEGEND

SL.NO.	DESCRIPTION	SYMBOL
1.	Agricultural Land Shown As.	
2.	Boundary Wall Shown As.	
3.	Brick Road Shown As.	
4.	Building Shown As.	
5.	Coconut Tree Shown As.	
6.	Contour Line Shown As.	
7.	Thick Contour Line Shown As.	
8.	Date Tree Shown As.	
9.	Electric Post Shown As.	
10.	Fence Line Shown As.	
11.	Gate Shown As.	
12.	GPS Station Shown As.	
13.	Hoarding Pole Shown As.	
14.	Katcha House Shown As.	
15.	Kilometre Post Shown As.	
16.	Katcha / Moorum Road Shown As.	
17.	Nala Shown As.	
18.	OFC Shown As.	
19.	Open Rock Shown As.	
20.	Palm Tree Shown As.	
21.	Existing Old Pillar Shown As.	
22.	Plantation Line Shown As.	
23.	Surveyed Tree Girth above (0.3m/0.6m/0.9m/1.8m & above) Shown As.	/ / /
24.	Pucca Road Shown As.	
25.	River Edge Shown As.	
26.	Semi Pucca Structure Shown As.	
27.	Sub Traverse Station Shown As.	
28.	TBM Shown As.	
29.	Telephone Pole Shown As.	
30.	Tube Well Shown As.	
31.	Village Boundary Shown As.	
32.	Water Edge Shown As.	

NOTES ON SURVEY DATA :-

1. ALL DIMENSIONS ARE IN METRE UNLESS OTHERWISE STATED.
2. LEVEL VALUES OF THIS SHEET REFERS TO THE CMDIL BM PILLAR NO. MGD-1, SITUATED NEAR THE CIDPA VILLAGE. THE VALUE OF THIS PILLAR IS 501.589M.
3. GRID LINES ARE ORIENTED TO TRUE NORTH.
4. REFERENCE CO-ORDINATES OF GPS STATION GPS-01 IS CONSIDERED AS N 10000, E 10000. SITUATED AT THE SOUTH WEST SIDE OF BANANCHAL COLLEGE, TANDWA, ABOUT 50.0M. FROM COLLEGE CORNER AND WESTERN SIDE OF PLAY GROUND.
5. SPOT HEIGHTS ARE TAKEN AT AN INTERVAL OF 25M IN BOTH DIRECTIONS AND CLOSER WHEREVER NECESSARY.
6. CONTOUR LINES ARE DRAWN AT AN INTERVAL OF 2M.
7. UNDER GROUND PERMANENT BENCH MARK PILLAR HAVE BEEN ESTABLISHED AT THE EAST SIDE OF NTPC OFFICE BUILDING TANDWA. THE VALUE OF THIS BM IS RL=453.869M. AND CO-ORDINATE IS N10267.489, E1011.884.
8. BEFORE STARTING THE WORK AGENCY SHOULD VERIFY THESE SPOT LEVELS/CONTOUR.



KEY PLAN

REF. DRG.

1. 4410-999-POC-F-002 .... NKSTPP- AREA PLAN.
2. 4410-301A-POC-C-102 .... Raw Water Reservoir Levelling & Grading.

OTHER NOTES:-

1. ALL DIMENSIONS AND LEVELS ARE IN METER UNLESS OTHERWISE MENTIONED.
2. SITE SHALL BE CLEARED OF ALL VEGETATION, BUSHES ETC PRESENT ALONG THE ENTIRE RESERVOIR LAND BOUNDARY AREA AND PROPOSED SWITCHGEAR BUILDING AREA.
3. THIS DRAWING SHALL BE READ IN CONJUCTION WITH TECH SPEC AND SCHEDULE OF ITEMS.
4. LOCATION OF INLET, OUTLET AND SPILLWAY STRUCTURES ARE AS INDICATED IN THE DRG.
5. APPROACH RAMP IN EACH COMPARTMENT WITH LONGITUDINAL SLOPE OD 1:10 (MINIMUM) SHALL BE PROVIDED. THE LOCATION OF RAMP MAY BE DECIDED AS PER SITE CONDITIONS. HUME PIPE SHALL BE PROVIDED BELOW THE RAMP TO AVOID OBSTRUCTION OF TOE DRAIN WATER.
6. FOR EMBANKMENT SECTIONS REFER DWG NO. 4410-318A-POC-C-104 (SH-1 TO SH-8) TITLED "RAW WATER RESERVOIR-PLAN AND SECTIONS".
7. NET STORAGE CAPACITY OF RESERVOIR (EXCLUDING THE CAPACITY DUE VARIOUS LOSSES) SHALL BE ABOUT 155 - 180 LAC CUM AND CAN BE UTILIZED FOR APPROX. 310 DAYS OF OPERATION FOR (3X800 MW) CAPACITY.
8. THE EXCAVATION IN THE BED AREA SHALL BE VARIES BETWEEN RL(+)448.0M TO 441.50M. WHEREVER ROCK IS ENCOUNTERED, THE EXTRUSION LEFT, AFTER EXCAVATION UPTO RL(+)448.0M - RL 441.50M (AS PER DRAWING), SHOULD NOT BE MORE THAN 250MM.
9. EXTRA CARE SHALL BE TAKEN WHILE CUTTING NEAR EMBANKMENT, HOWEVER, ADDITIONAL CUTTING IN EMBANKMENT SHALL BE AVOIDED. ENTIRE AREA OF EMBANKMENT FOUNDATION INCLUDING 2.0M WIDE STRIP BEYOND AND CONTIGUOUS WITH EMBANKMENT FOUNDATION SHALL BE STRIPPED TO A SUFFICIENT DEPTH TO REMOVE ALL UNSUITABLE MATERIAL AND AS DIRECTED BY ENGINEER.
10. EXCAVATED MATERIAL OF APPROVED QUALITY SHALL BE STACKED NEAR TO THE RESERVOIR AREA FOR REUSING IN EMBANKMENT/BED FILLING. UNUSED MATERIALS SHALL BE DISPOSED OF SUITABLY AS PER DIRECTIONS OF ENGINEER IN CHARGE.
11. AFTER EXCAVATION & FILLING AT BED OF RESERVOIR, A LAYER OF 300MM COMPACTED SOIL COVER AS PER SPECIFICATION SHALL BE LAID AT THE BED OF RESERVOIR OVER ROCK SURFACE ENCOUNTERED AFTER EXCAVATION.
12. INSIDE THE RESERVOIR AREA, WHEREVER LOW LYING AREA IS ENCOUNTERED AND FILLING IS REQUIRED FOR LEVELING THE RESERVOIR BED SHALL BE STRIPPED BEFORE FILLING THE MATERIAL FOR FILLING SHALL BE EXCAVATED SOIL FROM PLANT/RESERVOIR AREA OF APPROVED QUALITY AS PER SPECIFICATION.

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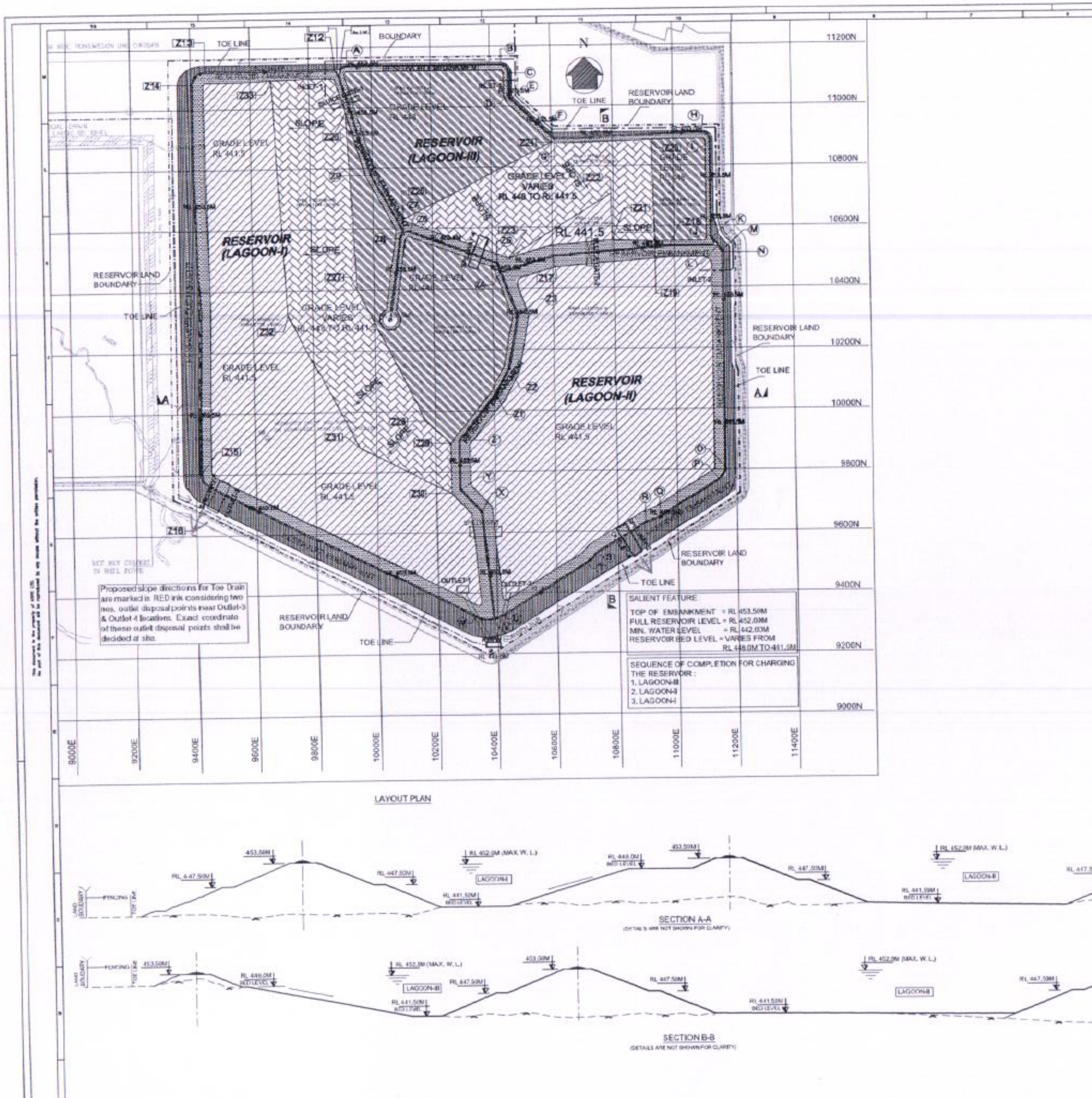

REF. DRG.:-

1. 4410-301A-POC-C-001.................Layout of Raw Water Reservoir
2. 4410-301A-POC-C-104-SH1 TO SH-9.................Raw Water Reservoir Plan & Section

NOTES:-

1. DIMENSIONS SHALL NOT BE SCALED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
2. ALL DIMENSIONS AND LEVELS ARE METER UNLESS OTHERWISE MENTIONED.
3. ADJUSTMENT IN THE ALIGNMENT AS REQUIRED MAY BE CARRIED OUT BY SITE AT BENDS AFTER INFORMING TO ENGINEERING TO HAVE SPECIFIED CLEARANCE FROM THE LAND ACQUISITION / AVAILABLE BOUNDARY. (LAND BOUNDARY IS INDICATIVE ONLY, TO BE IDENTIFIED AT SITE AS PER ACTUAL LAND ACQUISITION DETAILS OR AVAILABILITY).
4. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH TECH. SPEC AND SCHEDULE OF ITEMS. 5. THE FOUNDING LEVEL OF THE EMBANKMENT SHALL BE ATLEAST 300MM BELOW NATURAL GROUND LEVEL.
6. MATERIALS TO BE USED FOR THE CONSTRUCTION OF EMBANKMENT SHALL BE EXCAVATED SOIL AS PER SPECIFICATION AND SHALL BE FREE FROM SHINGLE, SALTS, ORGANIC MATERIALS, ROOTS AND EXCESSIVE AMOUNT OF SOD, LUMPS, AND OTHER FOREIGN SUBSTANCES.
7. EMBANKMENTS FOR THE RESERVOIR SHALL BE COMPACTED IN LAYERS OF 300MM THK BY MECHANICAL MEANS AT AN OPTIMUM MOISTURE CONTENT TO ACHIEVE A DRY DENSITY OF NOT LESS THAN 95% (STANDARD PROCTOR) OF MAXIMUM DRY DENSITY.
8. HDPE FILM SHALL BE MINIMUM 1MM THICK AND DENSITY, MELT FLOW INDEX, TENSILE STRESS, TEAR STRENGTH PUNCTURE RESISTANCE ETC SHALL CONFORM TO THE SPECIFICATION. MINIMUM WIDTH OF HDPE LINER SHALL BE 5.0M.
9. NON OVEN GEOTEXTILE TO BE LAID OVER HDPE FILM AND SHALL BE CONFORM TO THE SPECIFICATIONS.
10. 75MM THK PCC M20 LINER TO BE LAID OVER NON OVEN GEOTEXTILE AND SHALL BE CONFORM TO THE SPECIFICATIONS.
11. END OF HDPE LINER & NON-WOOVEN GEOTEXTILE SHALL BE SUITABLY ANCHORED IN THE COMMON TRENCH ON TOP OF EMBANKMENT.
12. AT THE TRANSITION POINT, WHERE ONE SECTION IS MEETING WITH OTHER I.E. EMBANKMENT HEIGHT IS VARYING FROM LESS THAN 10M TO MORE THAN 10M, PROPER GRADATION AND OTHER REQUIRED MEASURES AS PER SPECIFICATION SHALL BE TAKEN UP TO ACHIEVE SUFFICIENT BONDING BETWEEN THE TWO SECTIONS.
13. THE RESERVOIR BOTTOM LEVEL AS INDICATED SHALL BE ACHIEVED BY EXCAVATION/ FILLING SUCH THAT THE FINAL BED OBTAINED AT A MIN. STANDARD PROCTOR DENSITY OF 95% AT OMC. FILLING IN SIDE THE RESERVOIR BED AREA SHALL BE CARRIED OUT AFTER REMOVAL OF ALL ORGANIC AND VEGETABLE MATTERS ON ORIGINAL GROUND. FILL SHALL BE PLACED IN HORIZONTAL LAYERS NOT TO EXCEED 300 MM IN COMPACTED THICKNESS. EACH LAYER SHALL BE COMPACTED TO A MIN. 95% OF MAX. DRY DENSITY (STANDARD PROCTER AS SPECIFIED)
14. LEVELING AND GRADING SHALL BE DONE IN HATCHED AREA.

TABLE-1

S.L.NO.	MARKED	CO- ORDINATE* NORTH	EAST
1.	A	11137.80	9019.97
2.	B	11137.80	10435.48
3.	C	11110.85	10462.23
4.	D	11037.28	10462.23
5.	E	11023.35	10468.27
6.	F	10886.19	10604.67
7.	G	10893.50	10611.49
8.	H	10805.70	11096.37
9.	I	10878.25	11123.12
10.	J	10564.52	11123.12
11.	K	10558.13	11125.43
12.	L	10534.18	11145.30
13.	M	10517.85	11158.85
14.	N	10511.47	1161.16
15.	O	9807.51	11160.75
16.	P	9768.23	11138.66
17.	Q	9645.93	10937.56
18.	R	9627.45	10889.86
19.	S	9532.55	10733.83
20.	T	9499.06	10701.86
21.	U	9329.01	10420.62
22.	V	9315.41	10388.33
23.	W	9324.13	10323.71
24.	X	9667.96	10352.87
25.	Y	9742.54	10278.62
26.	Z	9804.90	10278.04
27.	Z1	10054.87	10405.78
28.	Z2	10141.73	10459.12
29.	Z3	10306.80	10489.97
30.	Z4	10454.87	10427.66
31.	Z5	10483.85	10416.81
32.	Z6	10049.31	10124.67
33.	Z7	10586.85	10101.60
34.	Z8	10587.80	10089.29
35.	Z9	10777.28	9994.15
36.	Z10	11103.02	9694.39
37.	Z11	11118.53	9689.84
38.	Z12	11125.60	9990.08
39.	Z13	11125.60	9447.21
40.	Z14	11084.51	9404.86
41.	Z15	9804.66	9415.11
42.	Z16	9763.57	9440.43
43.	Z17	10504.76	10609.34
44.	Z18	10534.18	10982.08
45.	Z19	10550.59	10933.95
46.	Z20	10885.06	10979.45
47.	Z21	10555.92	10795.67
48.	Z22	10707.12	10792.24
49.	Z23	10499.25	10453.77
50.	Z24	10675.04	10590.73
51.	Z25	10628.20	10097.50
52.	Z26	10980.28	9912.84
53.	Z27	10400.00	9944.34
54.	Z28	9967.08	10168.32
55.	Z29	9895.85	10248.32
56.	Z30	9730.20	10248.91
57.	Z31	9882.45	9944.82
58.	Z32	10320.54	9717.87
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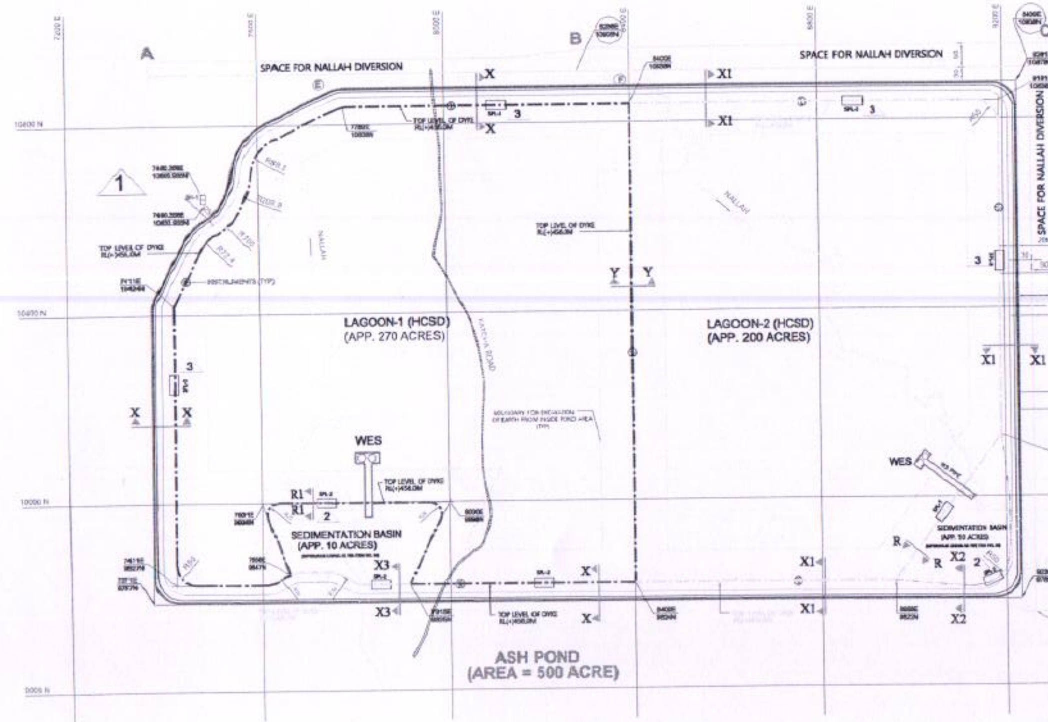
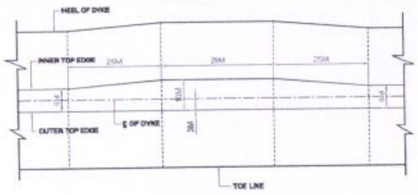
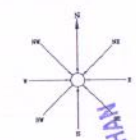


LAYOUT OF STARTER ASH DYKE



DETAILS FOR OVERTAKING SPACE ON DYKE TOP



NOTES:

1. DIMENSIONS SHALL NOT BE SCALED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
2. ALL DIMENSIONS ARE IN MILLIMETRE AND ALL LEVELS ARE IN METRE UNLESS NOTED OTHERWISE.
3. ADJUSTMENT IN THE ALIGNMENT AS REQUIRED MAY BE CARRIED OUT BY SITE AT BENDS AFTER INFORMING TO ENGINEERING TO HAVE SPECIFIED CLEARANCE FROM THE LAND ACQUISITION / AVAILABLE BOUNDARY. (LAND BOUNDARY IS INDICATIVE ONLY, TO BE IDENTIFIED AT SITE AS PER ACTUAL LAND ACQUISITION DETAILS OR AVAILABILITY).
4. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH FOLLOWING DRAWINGS:
   - DRG. NO. - 4410-331-POC-C-001, SH 2 OF 2 FOR "LAYOUT OF DYKE WITH GROUND LEVELS".
   - DRG. NO. - 4410-331-POC-C-002, SH 1 OF 2 & SH 2 OF 2, FOR " SECTION & ALLIED DETAILS OF ASH DYKE".
   - DRG. NO. - 4410-331-POC-C-003, FOR "DETAILS OF WATER ESCAPE STRUCTURE".
   - DRG. NO. - 4410-331-POC-C-004, FOR "DETAILS OF SPILLWAY & MS PIPE EMBEDMENTS".
   - DRG. NO. - 4410-331-POC-C-005, SH 1 OF 2 & 2 OF 2, FOR "DETAILS OF RCC BOX CULVERT".
   - DRG. NO. - 4410-331-POC-C-006, FOR "WORK SCHEDULE".
5. AT EACH LOCATION MARKED AS ③, A SET OF INSTRUMENT AS SHOWN IN THE SECTION SHALL BE PROVIDED (2 NOS. PIEZOMETER & 1 NO. SETTLEMENT MARKER).
6. RCC ENCASEMENT AND CUT-OFF COLLARS FOR THE MS PIPE IN OVERFLOW DYKE SHALL BE DONE BY THE CONTRACTOR AS PER THE DETAILS SHOWN FOR RCC PIPE. FOR LEVELS AND LOCATION REFER SCHEME DRAWINGS FOR ASH WATER RECIRCULATION SYSTEM.
7. FOR DETAILS OF WATER ESCAPE STRUCTURE, TRENCH FOR PIPE LAYING, RCC PIPE LINING, CUT-OFF TRENCH ETC. REFER DRG. NO. 4410-331-POC-C-004 & 005
8. 20.0M(MIN) SPACE BETWEEN LAND BOUNDARY AND TOE LINE OF DYKE SHALL BE LEFT ALL AROUND THE PERIPHERY OF DYKE.
9. LAYOUT OF ASH DYKE IS PREPARED AS PER THE LAND ACQUISITION BOUNDARY COORDINATES RECEIVED FROM SITE AT THE TIME OF PREPARATION OF DRAWING.
10. FOR EXCAVATION OF DYKE MATERIAL FROM INSIDE THE LAGOONS, A MINIMUM 50.0M DISTANCE (5.0 TIMES OF HT. OF DYKE) FROM THE HEEL OF THE DYKE SHALL BE LEFT ALL AROUND THE DYKE.
11. FOR CONSTRUCTION OF DYKE EMBANKMENT OVER ANY EXISTING NALLAH, THE SLUSHY / MUDDY SOIL OF NALLAH SHALL BE FIRST REMOVED BY BOX CUTTING AND REFILLED WITH EARTH AS PER SPECIFICATION UPTO GROUND LEVEL BEFORE PLACING THE SAND BLANKET LAYER.
12. OVERTAKING SPACE AT TOP OF DYKE SHALL BE PROVIDED @ 1500M C/C DISTANCE AS PER DETAILS GIVEN IN THIS DRAWING.
13. PROVISION OF TWO APPROACH RAMP (ENTRY & EXIT) SHALL BE MADE FOR EVERY LAGOON DYKE-2 HCSD DYKE-1 GRADIENT 1 IN 10 TO 12, DEPENDING UPON SPACE AND SITE CONDITIONS. IT SHALL PREFERABLY BE ALONG THE LENGTH OF DYKE EMBANKMENT.
14. IF ANY WELL IS ENCOUNTERED WITHIN THE DYKE EMBANKMENT, THE SAME SHALL BE FILLED WITH SAND UPTO BOTTOM OF SAND BLANKET AND WELL INSIDE STORAGE AREA SHALL BE FILLED WITH SOIL AS PER SOQ ITEM NO. 5(a).

SEQUENCE OF CONSTRUCTION:
15. WORK SHALL BE STARTED FROM LAGOON-2, LAGOON-3 & OFL SO THAT LAGOON-2, LAGOON -3 & OFL SHALL BE READY FIRST FOR CHARGING THE ASH SLURRY.

16. RCC DRAIN ALL ALONG THE PERIMETER AS MARKED IN DRAWING SHALL BE CONSTRUCTED TO GUIDE THE WATER TO NEAREST FOR DETAILS OF CROSS SECTION & REINFORCEMENTS REFER DRAWING NO. 4410-331-POC-C-002
17. DYKE CONSTRUCTION SHALL BE STARTED WITH REFERENCE TO THE CO-ORDINATE OF CENTER LINE, CONSIDERING TO KEEP MINIMUM CORRIDOR WIDTH (AS PER DRAWING) BETWEEN LAND BOUNDARY AND TOE LINE. TOE LINE & HEEL LINE SHALL BE FIXED AS PER THE HEIGHT OF DYKE BASED ON THE NATURAL GROUND LEVEL AND SIDE SLOPE AS PER SECTIONAL DETAILS.
18. D/S SLOPE OF DYKE EMBANKMENT TOWARDS ABADI VILLAGE AND NALLAH SIDE SHALL BE PROTECTED WITH PROVISION OF ROCK RIP-RAP UPTO 3.0M ABOVE THE ROCK TOE.

IMPORTANT NOTE:
19. TYPE OF FILL MATERIAL FOR DYKE EMBANKMENT SHALL BE AS PER THE TECHNICAL SPECIFICATION.

SPECIAL NOTE:
2 20. SEDIMENTATION BASIN OF LAGOON-I & II, SHALL BE LINED WITH IMPERVIOUS LINER AS PER S.O.Q. ITEM NO. 30 & TECHNICAL SPECIFICATION BEFORE CHARGING.

21. DIFFERENT TOP LEVEL OF DYKE SHALL BE CONNECTED BY PROVISION OF RAMP WITH PROVISION OF WBM ROAD. PREFERABLY RAMP SHALL BE PROVIDED.
22. TOE DRAIN ALL ALONG THE PERIMETER OF ASH DYKE SHALL BE CONSTRUCTED IN SUCH MANNER THAT THE SLOPE OF TOE DRAIN SHALL BE TOWARDS NEAREST DISCHARGE POINT/ EXIT POINT (B) TOWARDS RCC HUME PIPE CROSSING OR RCC DIVERSION DRAIN FOR EASY DRAIN OUT OF SEEPAGE / RAIN WATER FROM THE ASH DYKE.
23. PERIMETER RCC DRAIN SHALL BE EXCAVATED ALL ALONG THE PERIMETER OF ASH DYKE. TOE DRAIN SHALL BE CONNECTED SUITABLY WITH PROVISION OF RCC HUME PIPE AT SPECIFIED INTERVAL AT 100-200M.
24. 2NOS. CROSS DRAINAGE SHALL BE PROVIDED AT EVERY 1000M C/C ON BITUMINOUS INSPECTION ROAD BY PROVIDING RCC HUME PIPE OF 1000 DIA. AS PER SITE REQUIREMENT.
25. EXISTING NALLAH PARALLEL TO ASH DYKE LAND BOUNDARY MAY BE MODIFIED TO MAINTAIN THE ALIGNMENT OF DYKE SMOOTH WITHIN DYKE LAND BOUNDARY IF REQUIRED.
26. EARTHEN DRAIN SHALL BE EXCAVATED FROM POINT A-B (AS MARKED IN THE LAYOUT) TO GUIDE THE STORM WATER UPTO DISCHARGE DRAIN.
27. BED PREPARATION FOR EXCAVATION OF DISCHARGE DRAIN (EARTHEN DRAIN) FROM POINT B-C-D (AS MARKED IN THE LAYOUT) UPTO DESIRED LEVEL SHALL BE UNDER THE SCOPE OF ASH DYKE PACKAGE. HOWEVER, CONSTRUCTION OF DISCHARGE DRAIN IS NOT THE SCOPE OF ASH DYKE PACKAGE.
28. RCC PERIMETER DRAIN ALL ALONG THE PERIPHERY OF ASH DYKE SHALL BE UNDER THE SCOPE OF ASH DYKE PACKAGE EXCEPT FOR THE STRETCH E-F (AS MARKED IN THE LAYOUT) WHICH IS UNDER THE SCOPE OF OTHER PACKAGE.

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उप महाप्रबंधक (सिविल) / DGM (CCD)
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एन.के.एस.टी.पी.पी. / NKSTPP
टण्डवा / Tandwa

REFERENCE DRAWINGS:

NOTES:

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