i;koj.kfo"k;d tkghj luko.kh djhrk
dk;dkjh lkjk'k

e- fo”kk[kk ekbUl vkf.k feujYl

[kknyk ykbeLVku ekbu ¼16-57 g-½

xV u- 63] xko&[kknyk

rgfly&o.kh] ftYgk&;orekG

egkjk"V

¼e 2012½

1-0 çLrkouk

e- fo"kk[kk ekbUl vkf.k feujYl] [kknyk ykbeLVku ekbu ¼16-57 gDVj½ ;kpk ykbeLVku @ 3]00]000 Vu çrh o'k [kuu dj.;kpk çLrko xV u- 63] xko & [kknyk] rgfly&o.kh] ft- ;orekG ;Fk ;kthyk vkg- çLrkfor [kk.kh e/ku fu?kkyYkk ykbeLVku vklikIP;k fleV] fLVy o puk diU;kuk ijfo.;kr ;by-

çLrkfor [kuu çdYi dfæ; "kklukP;k ou vkf.k i;koj.k e=ky;kulkj 'c' çdkjkr ofxdr dj.;kr vkyk vkg vkf.k çdYikyk SEAC o SEIAA, egkjk'V "kklu ;kp dMu ,U0gkjkeVy fDyvjUl vko";d vkg- SEAC, egkjk'V "kklu ;kP;k 30 lIVcj 2010 yk >kyY;k fefVx ulkj Ve vkQ jQjUl (TOR) n.;kr vkyyk vkg-

R;kulkj vFkdvj yCl çk- fy- ukxij ;kuh çLrkfor çdYikP;k 10 fdeh f=tP;k vH;kl ifjljkr lk;koj.kh; lo{k.k 2011 ikLV ekUlu dkGkr dyy vkg vkf.k ekMy Ve vkQ jQjUl ulkj lk;koj.kh; çHkko eY;kdu vgoky r;kj dyk vkg- ;k vgokykp of"k'V lf{kIr :ikr i<hy Hkkxkr n.;kr vkyy vkg-

2-0 [kk.khph tkxk

çLrkfor [kk.k] vklkM o ljdkjh tehuhoj vlu [kk.khp Hkkxkfyd LFkku mÙkjl 19°55'04.70889" r 19°55'22.31877" vkf.k iol 78°59'26.67929" r 78°59'44.91816" P;k njE;ku vkg- Hkkxkfydjhr;k ifjljkrhy tehu likV vkg o 230 MSL oj vkg-

çLrkfor [kk.khiklu 0-8 fdeh vrjkoj b"kkU; fn"kyk [kknyk xko lokr toGhy xko vkg rj o.kh "kgj 14 fdeh vrjkoj mÙkj&ok;0; fn"kyk vkg-

[kk.khP;k 10 fd-eh- f=tP;k ifjljkr dk.krgh lk;koj.kh; lonu"khy Mkxj] jk'Vh; m|ku] oU;tho vHk;kj.;] ,frgkfld Lekjd] lj{kk nykP;k Nko.;k ;kpk leko"k ukgh- lphe/; ulyy ikjMh fj>0g QkjLV çLrkfor ekbu iklu 21 fdeh io fn"kyk vkg-

vH;kl ifjljkr tyçokg gk vkXu; fn"kyk vlu o/kk unh ekbuP;k io fn"kyk vlu rh lekrj j'kr 9-8 fdeh vrjkoj vkg- rlp fujxMk ukyk mÙkj b"kkU; fn"kyk vlu rk lekrj j'kr 5-0 fdeh vrjkoj vkg-

fc vk; ,l 2000 l>fed >ku ei Qkj bfM;k ulkj ekbupk ifjlj >ku II e/; ;r vlY;keG vH;kl{k=kl Hkdikpk /kkdk lHkfor ukgh-

çLrkfor [kk.khp dke cn >kY;kurj 10-0 gDVj tkxk ik.kh lkBfo.;kP;k rG;kr rlp jkM lkBh mi;kxkr vk.kY;k tkby- 5-61 gDVj tkxk fgjoGhr iVVk fodlhr dj.;klkBh vkf.k 0-06 gDVj tkxk lj{kdjhrk mi;kxkr vk.kyh tkby-

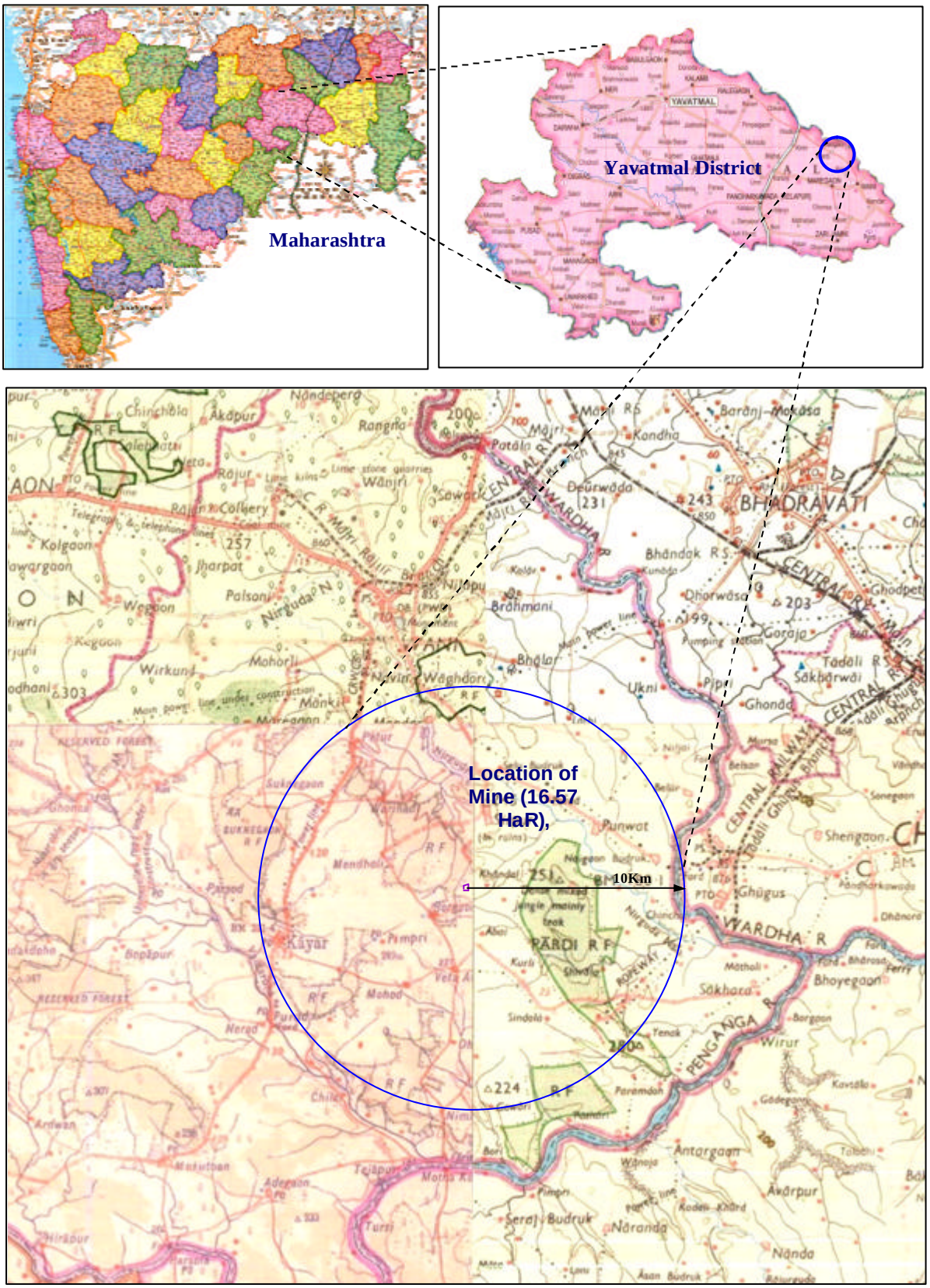
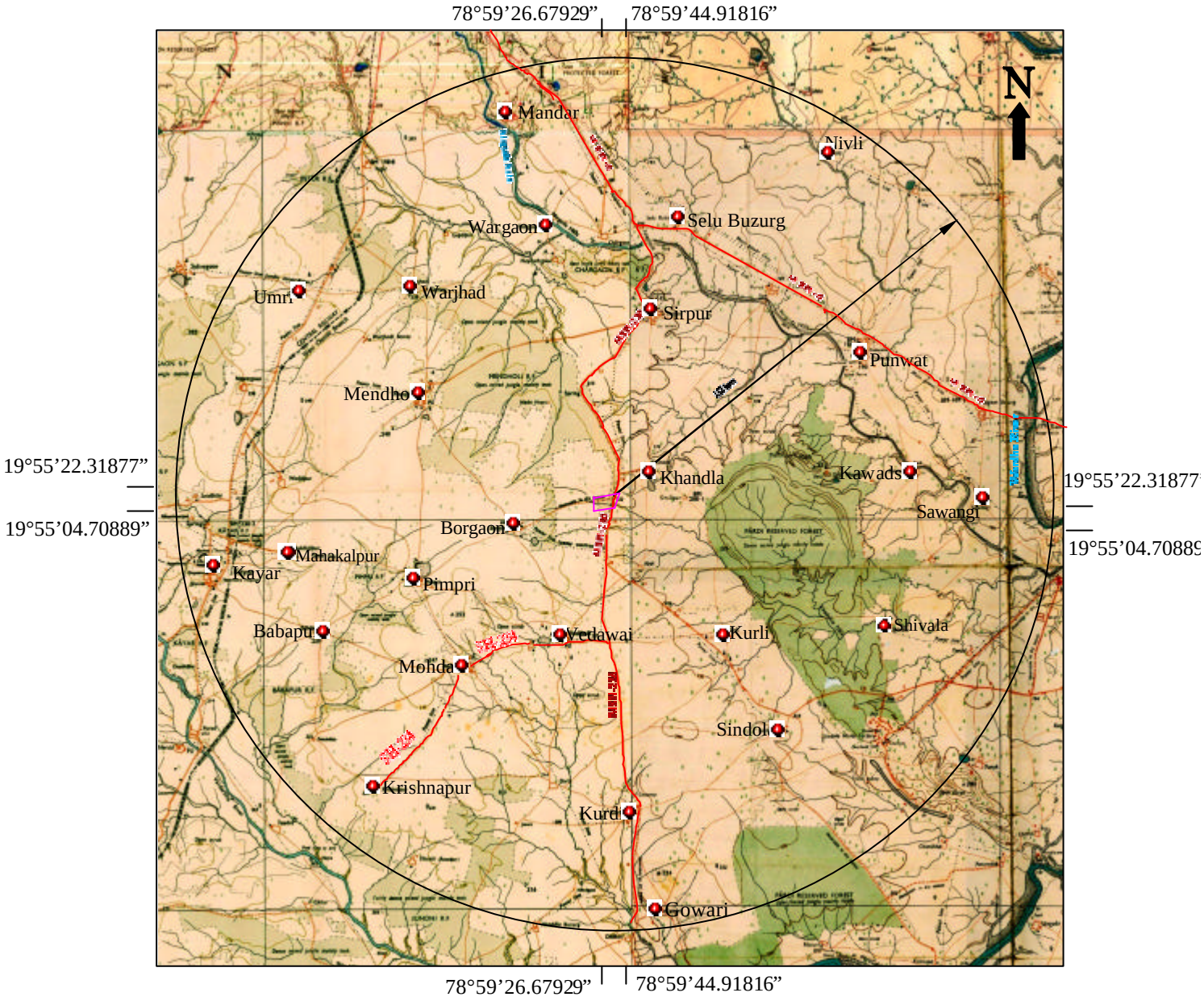


FIG . : LOCATION MAP OF MINE (16.57 HaR)



Toposheet No. 55 L/16, 55 P/4, 56 M/1 & 56 I/13

Legend :

Mining Area **River** **Road** **Forest**

Village **Contour** **Railway**

FIG : MAP OF 10 KM RADIUS STUDY AREA SHOWING TOPOGRAPHIC FEATURE

3-0 [kk.khph ekghrh

3-1 [kk.khp of"k'V %

çLrkfor [kk.khph tkxk 16-57 gDVj vlu ,du lkBk 62-13 yk[k Vu vuekuhr vkg- R;krhy miyC/k [kuht dk<.;k;kX; lkBk 33-73 yk[k Vu vkg- çLrkfor mR[kuukpk nj 3]30]000 Vu çfr o'k vly- R;krhy 3]00]000 çfr o'k oxhdr ykbeLVkuph mRiknu {kerk vly- [kk.khp ,d.k HkkMoy :- 200 yk[k vkg- [kk.khP;k mR[kuuklkBh ,du 55 0;fDr dkekyk ykxrhy R;kr rkf=d] ç"kklfd; o dkexkjkpk leko"k vly- ukdjhe/; LFkkfud ykdkuk çFke çk/kkU; n.;kr ;by-

3-1 mR[kuukph i/nr- %

Lknj vkiu dkLV ekbfux g leh edukbTM i/nrhp vly vkf.k [kk.khe/; dke QDr ,dkp f"k¶V e/; dY;k tkby- fMy dj.;kdjhrk dkEil ,vj vkijVM oxu@fMVh,p td gej fMypk okij dj.;kr ;by-

uku byDVhd dUVky CykfLVx nikjh 12 r 2 P;k oGl dj.;kr ;by- CykfLVx ioh vyke 0nkj lpuk n.;kr ;by- CykfLVxP;k oGh ifjljkr dk.krgh çk.kh o etj jkg.kkj ukgh ;kph [kk=h dj.;kr ;by-

mR[kuhr ROM ;k=hd in/krhu dk<.;kr ;by- dkgh oGl fuoM.k o lkbf>x dj.k gh dke eU;vyh dY;k tkby- fjtDV eVfjvy] tflch o VDVj 0nkj [kk.khP;k pkjgh cktyk lj{k.k fHkr r;kj dj.;klkBh LFkkukrjhr dY;k tkby- gjhriVVk fodlhr dj.;kdjhrk [kk.khru fu?kkyY;k v[k.khtkP;k f<xkÚ;koj ik.kh Qokj.kh dyh tkby-

ekbue/ku dk<yyk ykbeLVku ;kf=dh lgk¸;ku o tlhch vkf.k VDLk o fVlij 0nkj fleV] fLVy o puk di.;kuk ikBfo.;kr ;by- okgrdhP;k jLR;koj ik.kh Qokj.;kr ;by-

4-0 lk;koj.kh; lo{k.k ekghrh %

lk;koj.kh; lo{k.k vH;kl ekbu lHkkrkyP;k 10 fd eh- f=tP;k ifjljkr 2011 P;k ikLV ekUlu dkGkr dyk xyk vkg- ;k vH;klpk rif"ky [kkyhy Hkkxkr fnyk vkg-

4-1 Hkeh lk;koj.k

vH;kl{k=krhy tkxph Hkkxkfyd ifjfLFkrh] YkUM;t iVu] tehuhph ir] gkuhdkjd o ?kkrd ?kVd bR;knh ckcr Hkeh lk;koj.kkvrxr ekghrh xkGk dj.;kr vkyh-

vH;kl{k=krhy ifjlj gk likV vlu ekBÓk VdM;k o nÚ;k ukghr- BIS 2000 l>fed >ku ei Qkj bfM;k ulkj ekbupk ifjlj >ku II e/; ;r vlY;keG vH;kl{k=kr Hkdikpk /kkdk lHkfor ukgh-

HkxHk"kkL=h; vH;klkulkj vH;kl{k=ke/; MkykekbV] ykbeLVku] yky Hkjk o tkeuh "ky gk fo/;;u cukoVhp rlp ryfpj "ky cjkdj lUMLVku [kMd dkeBh "ky o lUMLVku g;k xkMokuk cukoVhp vk<Grkr-

çLrkfor [kk.khp nxM g i[kky xip] iuxxk cMp ykbeLVku vkgr-

Hki'B o tehu okij ;kpk vH;kl lnj lo{k.k 0nkj dj.;kr vkyk] lnj vH;kl {k=ke/; "krh[kkyh ;.kkjh tehu 69-79 VDd vkg- rlp ?kunkV txyk[kkyh ;.kkj {k= 6-35 VDd vlu vkiu txy 8-97 VDd vkg- ifMr tehuh[kkyhy {k= 12-13 VDd vlu oLrh vlyy {k= 0-64 VDd vkg-

enk ifj{k.kklkBh ekrhp lkr fBdk.kp ueu vH;kl {k=kru ?k.;kr vky- ekrhpk ikr gk yeh vlu ekrh e/; ik"kd rRokph derjrk vk<Gu vkyyh vkg-

4-2 ltho l'Vh i;koj.k

ltho l'Vhpk vH;kl dj.;klkBh 13 xkokru ekghrh xkGk dj.;kr vkyh- ekghrh xkGk dj.;kdjhrk LFkkfud xkodÚ;k"kh ppk o txy Hke.k dj.;kr vky- e[;Ro d:u ckHkG] dMfyc] iGl] fioGk xyekgj] lckHkG] fppfHkykb] djt] lkx] ckj] ekg bR;knh çdkjp >kM vk<Gyh- NkVîk >kMke/; :b] rxj] c"kje] ?kujh] rGl] fuyxMh] iVkjh] Hkkjrh] jku ckHkG rlp vk'k/kh ouLirh e/; rjkVk] fioGk /kk=k] dcjekMh] lnkQyh bR;knh vkf.k e[; xorke/; nok] xktj xor] Vi xor vk<Gy-

vH;kl {k=kr dk.kR;kgh çdkjp jk'Vh; m|ku] vHk;kj.;] vf/klfpr txy o lonuf"ky Hkkx vk<Gy ukgh- ,p- ft- pEih;u o ,l- d- lB ;kP;k Hkkjrh; txykp çdkj o R;kp l"kk/khr lo{k.kkulkj;kP;k Hkkjrkrhy txykp çdkj l"kkf/kr lo{k.kkulkj vH;kl{k=krhy txykp ofxdj.k 5A /C_3 ;k çdkjkr dyy vkg- o R;kp ukedj.k "k'd feJhr iku>Mh txy vl dyy vkg-

vf/klfpr jk[kho rkMkck vHk;kj.; 48 fdeh vlu r io b"kkU; fn"kyk vkg-

lLru çk.;ke/; e[;Rod:u mfnj] oVok?kG] exl g xkoke/; vk<Grkr-

i{kke/; e[;r% fpeuh] dkGheuk] Hklj euk] ?kjxrh fpe.kh] ,fl;u euk] ygku cxGk] ikiV o cycy rlp mHk;pj çk.;ke/; cMd] rj typj çk.;ke/; e[;Ro jkg vkf.k ok?kG ekl vk<Grkr-

vH;kl{k=ke/; dk.kR;kgh çdkjp nfeG] eY;0kku o vfLrRo /kkD;kr vlyyh >kM vFkok çk.kh ukghr-

4-3 ok; i;koj.k %

ok; i;koj.kkpk vH;kl dj.;kdjhrk 8 xkoke/; vH;kl dj.;kr vkyk-vH;klkulkj ikLV ekUlu 2011 e/; okjk if"pe&ok;0; o mÙkj&ok;0; ;k fn"ku okgr ;r gkrk rj vkDVkcj 2011 e/; okjk mÙkj&ok;0; ;k fn"ku okgr ;r gkrk-

vH;kl {k=ke/; vH;klknjE;ku vl vkBGu vky fd ih,e_{10} p çek.k ljkljh 29-83-48.23 $\mu g/m^3$ rj tkLrhr tkLr çek.k 40-50-70.60 $\mu g/m^3$ g;k njE;ku vk<Gu vky- rj ih,e_{25} p ljkljh çek.k 22.39-26-84 $\mu g/m^3$ rj tkLrhr tkLr çek.k 24-70-35.90 $\mu g/m^3$ g;k njE;ku vk<Gu vky- lYQj Mk; vkDlkbMp ljkljh çek.k 10.32-14.02 $\mu g/m^3$ rj tkLrhr tkLr çek.k 13-70-18.30 $\mu g/m^3$ g;k njE;ku rj uk;Vktu Mk; vkDlkbMp ljkljh çek.k 12.62-16.43 $\mu g/m^3$ rj tkLrhr tkLr çek.k 16-80-23.90 $\mu g/m^3$ g;k njE;ku vk<Gu vky-

lHkkrkyP;k gorhy ok; çn"k.kkp çek.k g dæh; çn"k.k fu;=.k eMGku jfgokslh rlp xkeh.k Hkkxkslkh Bjou fnyY;k çek.kkP;k vkr vkBGu vky vkg-

4-4 /ouh i;koj.k

vH;kl{k=ke/; jfgokslh Hkkxkr 2011 P;k ikLV ekUlu e/; 10 fdeh f=tP;k ifjljkr /ouh i;koj.kpk vH;kl dj.;kr vkyk-

/ouh i;koj.k vH;klkr vl vk<Gu vky fd /ofuph ikrGh ckt kjiB {k=kr fnolk 48.9 r 56.3 ¼dBA½ fMch, rj jghokslh {k=kr 43.9 r 48.5 ¼dBA½ fMch, njE;ku vk<Gu vkyh- rlp /ofuph ikrGh jk=h ckt kjiB {k=kr 35.2 r 45.9 ¼dBA½ fMch, rj jghokslh {k=kr 34.2 r 36.8 ¼dBA½ fMch, njE;ku vk<Gu vkyh-

vH;kl{k=kr /ouh çn"k.kkp çek.k g dæh; çn"k.k fu;=.k eMGku jfgokslh rlp 0;kikjh {k=klkBh Bjou fnyY;k çek.kkP;k vkr vk<Gu vky vkg-

4-5 ty lk;koj.k

[kk.khP;k ifjljkr HkxHkkrhy ik.;kph ikrGh 15 eh [kky vlu R;keG ekbup dke l: vlrkuk ik.;kP;k ikrGhyk dk.kR;kgh çdkjpk /kkdk gk.kkj ukgh-

vH;kl {k=kr miu|kp tkG MUMhVhd çdkjp vlu r e/;e ?kurp vkg- o/kk unh o fujxMk ukyk g ik.;kp e[; L=kr vlu R;kpk dkgh Hkkx vH;kl {k=kru okgr tkrk-

vH;kl{k=kr Hktykpk mi;kx fi.;klkBh o "krhdjhrk dj.;kr ;rk- Hktykpk milk e[;r% foghjh o fo/ku foghjh 0nkj dj.;kr ;rk-

çLrkfor [kk.kh lkBh ,d.k ik.;kph vko";drk @ 27 m³/day vlu fi.;klkBh @ 4.0 m³/day rj okgrdhP;k jLR;koj Qokj.kh lkBh @ 12 m³/day vkf.k gjhriVVk fodflr dj.;klkBh @ 5.0 m³/day vly ,d.k ykx.kkÚ;k ik.;kph miyC/krk vfLrRokr vlyY;k fo/ku fogjhru o ikolkp tek dyY;k ik.;kru dj.;kr ;by-

vH;kl {k=ke/; ty lk;koj.kkoj gk.kkÚ;k ifj.kkekph ekghrh xkGk dj.;klkBh 10 fdeh ifjljkrhy ik.;kP;k ue.;kp ifj{k.k dj.;kr vky- R;k e/; tehuh ojhy rlp tehuh [kkyhy ik.;kp ueu ?k.;kr vky-

tehuh ojhy ik.;ke/; fi,p p çek.k 8-35 r 8-61 gÓk d{kr vk<Gu vky o r {kkj;Dr vkg vl n"kfor- ,du foj?kGyY;k ?kVdkp ¼fVfM,l½ p çek.k 191-7&377-0 feyh xe çrh fyVj ,du tMrk ¼VkVy gkMul½ çek.k 131-0&220-8 feyh xe çrh fyVj ,o< vk<Gy-

HkxHkkrhy ik.;ke/; fi,p p çek.k 6-71 r 8-35] gÓk njE;ku vk<Gy o r fi.;k;kX; ik.kh vkg vl n"kfor- ,d.k foj?kGyY;k ?kVdkp ¼fVfM,l½ çek.k 74-0 r 968-0 feyh xe çrh fyVj] ,d.k tMrk ¼VkVy gkMul½ p çek.k 18-0 r 529-2 feyh xe çrh fyVj vlu r çek.k l/nk e;knP;k vkr vkg- /kkr?kVd tl vkjlfud] exuht] yM] dkij] dMfeve] f>d] fudy vkf.k Økfevep çek.k l/nk e;knP;k vkr vkg-

;ko:u vl vk<Gu vky fd vH;kl {k=krhy tehuhojhy o tehuh[kkyhy ik.kh fi.;k;kX; rlp "krhlkBh ;kX; vkg-

4-6 vkfFkd o lkekftd i;koj.k

vH;kl{k=krhy ykdkp jkg.kheku] 0;olk;] f"k{k.k] o|fd; lfo/kk o brj ?kVdkpk l/;fLFkrhpk vH;kl 10 fdeh f=tP;k {k=kr dj.;kr vkyk- ;k {k=kr ;orekG ftYgÓkrhy o.kh rkyD;kpk leko"k gkrk-

lu 2001 P;k tux.kuulkj vH;kl{k=kr toGikl 64 xko ;rkr R;k e/; 8 xko oLrhfojghr vkg- R;k loxkokph ,d.k ykdl[;k 55]544 brdh vlu R;k e/; 51-43 VDd i:'k o 48-38 VDd fL=;k vkgr- ?kjxrh dke dj.kkÚ;kph l[;k 12330 vlu ykdl[kph ?kurk 4-5 0;Drh çrh ?kj vkg-

vH;kl {k=kr 0;kolkf;djhR;k ikgrk i.k ykdl[;idh 45-38% ykd e[; dkexkjkP;k {k=ke/; ;rkr] 7-95 % fdjdkG Lo:ikp o 46-67 % dke u dj.kkj ykdkp çek.k vkg-

5-0 i;koj.kh; çHkkokp eY;kdu @eY;ekiu

5-1 Hkeh i;koj.k

[kk.khe/; dk.kR;kgh çdkjp gkuhdkjd o ?kkrd ?kVd vfLrRokr ukghr- rlp [kk.kdkek njE;ku dk.kR;kgh çdkjp gkuhdkjd o ?kkrd ?kVd jkg.kkj ukghr-

[k.ku çfd;eG ekbu fyt Hkkxkru ekrhpk ojpk Fkj vkf.k [kMd@e:e ckgj fu?ky o R;kpk mi;kx [kk.khP;k pkjgh ckty lj{k.k fHkr r;kj dj.;klkBh gkby- dkykrjku gÓk tkxoj >kM o xor yko.;kr ;by- [k.ku dY;kurj tk [kkyxV Hkkx r;kj gkby R;kpk ;kX; foLrkj d:u ik.kh lkBo.;kdjhrk ulfxd rG Eg.ku mi;kx dyk tkby-

lk;koj.kkph x.koÙkk l/kkj.;kdjhrk o R;k tkxp lknÓhdj.k dj.;kdjhrk dfæ; çn"k.k fu;=.k eMGkP;k fu;ekulkj [kk.k{k=kP;k [kY;k tkxr fgjoG iVVk fodflr dj.;kr ;by- R;keG Hkeh lk;koj.kkoj foijhr ijh.kke gk.kkj ukgh-

5-2 ltho l'Vh i;koj.k

dfæ; çn"k.k fu;=.k eMGkP;k fu;ekulkj [kk.k{k=kP;k [kY;k tkxr fgjoG iVVk fodflr dj.;kr ;by] tud:u ulfxd lkn; dk;e jkghy-

[kk.khph tehu fg iMhr tehu vlu ;Fk dk.kR;kgh çdkjp çk.kh vk<Gr ukgh o R;keG çLrkfor [kk.kheG çk.;kuk /kkdk ikgp.;kpk ç"u mnHkor ukgh-

[kk.k dke cn gkbi;r 5-61 gDVj gjhriVVk fodflr dyk tkby- ;ke/; çFke o'kh 1400 >kM yko.;kr ;by rj njo'kh 1400 >kMkph jki yko.;kr ;by- gjhriVVk fodflr dj.;klkBh tek dyy ikolkP;k ik.;kpk mi;kx dj.;kr ;by- gjhriVîke/; yko.;kr ;.kkÚ;k çtkrhe/; e[;r% vtu] v"kkdk] cdy] /kkrjk] ,jMh] ?kujh] fgoj] dUgj] djt] [kj] dVh] fue] fujxMh] iGl] fiiG] lnkQyh] llri.kh] "keh] f"kle] rxj] ryl h o ckHkG bR;knh yko.;kr ;by-

R;keG ltho i;koj.kkoj foijhr ijh.kke gk.kkj ukgh-

5-3 ok; i;koj.k

ykbeLVku] ekrh] [kMd@e:e ;kph okgrd djrkuk okguke/; ulfxd b/ku tGy o R;kru /kj fu?ky- ;k djhrk lo okgukph ;kX; çdkj n[kHkky dj.;kr ;by t.kd:u okgukru fu?k.kkÚ;k /kjkp çek.k fu;=.kk e/; Bork ;by-

[k.ku dkekr Nn dj.k] foLQkV dj.k] [kkndke dj.k] okgrd dj.k bR;knh dke djrkuk R;k Hkkxkr fu?k.kkj /kGhp çek.k fu;=.kkr Bo.;kdjhrk vk/kfud ;=.kpk mi;kx dyk tkby- rlp jLR;koj ik.kh f"kiMy tkby- ekrhp iDd jLr r;kj dj.;kr ;by o Vd rlp fVlij yk okgrdhP;k oGl i.k vkPNknu dj.;kr ;by-

lHkfor ih,e$_{10}$ /kGhpk çHkko [kk.khiklu 7-23 µg/m^3 gk nf{k.k vkXu; fn"kyk 2-23 fdehyk jkghy- R;kpçek.k ih,e$_{10}$ p çek.k flnkyk xkokr 56-6 µg/m^3 o:u 62-

62 µg/m³ tkLrhr tkLr ,[kkn oGl ok<.;kph “kD;rk jkghy- gh ok< vYi çek.kkr vkg o dæh; çn"k.k fu;=.k eMGkP;k ekudkulkj e;knr vkg-

;ko:u vl vk<Gu vky fd [k.ku dkeP;k oGl okrkoj.kkr goPkh x.koÙkoj foijhr ifj.kkr gk.kkj ukgh-

5-4 /ouh lk;koj.k

[kk.khp dke fnolkru QDr ,dkp ikGh e/; dY;k tkby o okgrd QDr fnolkyk dj.;kr ;by- vkokoktkph frork fu;f=r Bo.;kdjhrk foLQkV fu;=.kke/; dj.;kr ;by- ;=koj dke dj.kkÚ;k dkexkjkuk bvj lYkx@bvj e¶l pk mi;kx lDrhu dj.;kr ;by- [k.ku dke djrkuk DGMS fu;ekp ikyu dkVdkj i.k dj.;kr ;by-

[kk.kh iklu [kknyk xko lokr toG vlu r 0-8 fd eh b”kkU; fn”kyk vkg- ;k xkokr fnolkyk jghoklh {k=kr 45-3 ¼dBA½ fMch, /ouh frork vk<Gu vkyh-

[k.ku dke i.kfjR;k pky vlrkuk [kknyk xkokr lHkkfor /0kuhph frork jghoklh {k=kr 45-8 ¼dBA½ fMch, jkg.;kph “kD;rk vkg- [k.ku çfd;urj l/nk fg /ouhph frork ekudkP;k e;knr jkghy-

lHkkfor /ofuph frork deh jk[k.;klkBh e”khujhtyk >kd.k yko.;kr ;rhy o mPp çrhph e”khujht fuoM.;kr ;by

/ouhpk çHkko deh dj.;klkBh nkV >kM yko.;kr ;rhy-

;ko:u vl Eg.krk ;by fd [k.ku dkeP;k oGl okrkoj.kkr /ouhP;k x.koÙkoj foijhr ifj.kkr gk.kkj ukgh-

5-5 ty lk;koj.k

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EXECUTIVE SUMMARY

of

ENVIRONMENTAL IMPACT ASSESSMENT

for

PUBLIC HEARING

of

M/s VISHAKHA MINES & MINERALS
Khandala Limestone Mine (16.57 HaR)

Gat No. 63, Village – Khandala,
Taluka -Wani, Dist.- Yavatmal
Maharashtra

May , 2012

Executive Summary

of

Environmental Impact Assessment Report

1.0 Introduction

M/s. Vishakha Mines & Minerals, Khandala Limestone Mine (16.57 Ha) has planned to mine out Limestone @ 3,00,000 TPA (ROM @ 3,30,000 TPA) at Gat. No. 63, Village - Khandala, Tahsil – Wani, Dist. - Yavatmal. The limestone will be supplied to cement plants, steel plants, limekilns etc.

The proposed mining project is listed in EIA Notification, 2006 & Amendments there off under Sr. No. 1(a) as category B project and requires Environmental Clearance from SEAC & SEIAA, Govt. of Maharashtra. In the 34th SEAC Meeting held on 30th September 2010, Terms of References has been granted as Item No. 39 c of the minutes for carrying out EIA and then to conduct a public hearing.

Earthcare Labs Pvt. Ltd., Nagpur has collected environmental baseline data in 10 km radius study area and prepared detailed EIA report as per model TOR. The summarized details of EIA are given in subsequent sections.

2.0 Mine site

The mine lease area is barren, non forest, government revenue land. The mine lease area lies between latitude 19°55'04.70889" N to 19°55'22.31877" N and longitude 78°59'26.67929" E to 78°59'44.91816" E. Topography of the mine area is flat with an elevation 230 m above MSL.

The nearest village, Khandala is located at a crow fly distance of 0.8 km in NE direction from mine site. The nearest town, Wani is located at a crow fly distance of about 14 km in NNW direction.

There are no National Parks, Wildlife Sanctuary, Notified Forests, Mountains, Hill Stations, Historical Monuments, Defense Installation etc. in the study area of 10 Km radius of the proposed mine. The nearest non notified Pardi reserve forest is about 2.1 km towards East direction as crow flies.

The general drainage pattern is towards SE direction. Nearest river Wardha is 9.8 km away as crow flies in East direction. Nearest Nirguda Nalla is about 5.0 km towards NNE direction as crow flies.

Study area comes under Zone II of the Bureau of Indian Standards (BIS) 2000 Seismic Zone Map for India. Zone II is defined to be seismologically least to moderately active, thus, study area is seismologically safe.

At the closure of mine, about 10.0 Ha area will be converted to water storage ponds & approach roads to ponds, 5.61 Ha area will be developed as green belt and 0.06 Ha will be utilized as facilities for security.

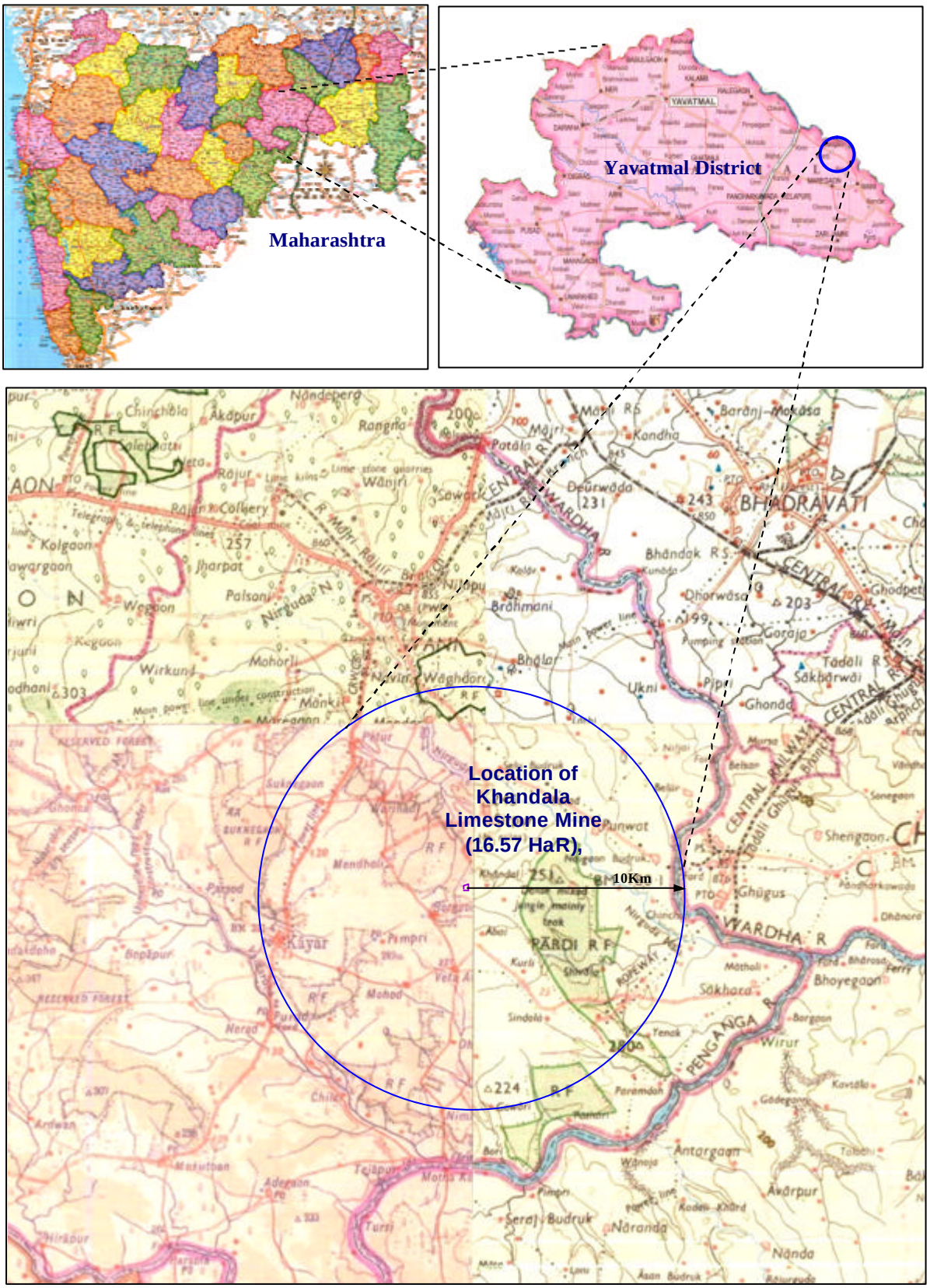
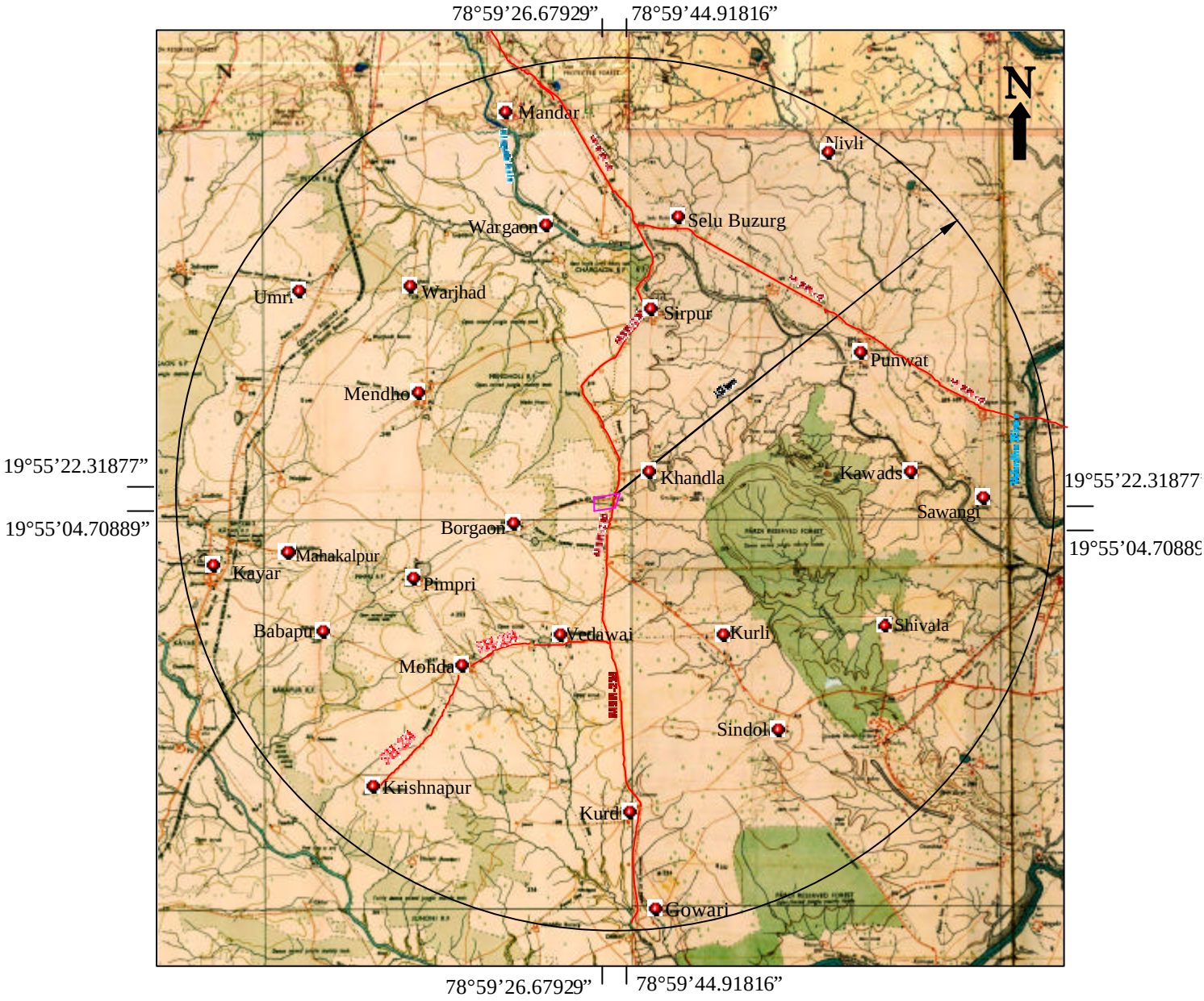


FIG . : LOCATION MAP OF MINE (16.57 HaR)



Toposheet No. 55 L/16, 55 P/4, 56 M/1 & 56 I/13

Legend :

Mining Area **River** **Road** **Forest**

Village **Contour** **Railway**

FIG : MAP OF 10 KM RADIUS STUDY AREA SHOWING TOPOGRAPHIC FEATURE

3.0 Mining Details

3.1 Salient Features of the Mine

In the mining lease area of 16.57 Ha, total mineral resources are estimated to 62.13 lac tones, out of which available mineable reserves are estimated to 33.73 lac tones.

The proposed production capacity of mine will be Limestone @ 3,00,000 TPA (ROM @ 3,30,000 TPA). The capital investment of the project is estimated as Rs. 200 Lakh. During development & operation of mine, about 55 persons including technical, administrative and skilled & semi-skilled staff will get direct and indirect employment. Local people will be given priority in employment.

3.2 Mining Method

The mining operation will be on single shift basis, opencast & semi-mechanized type. Drilling will be carried out by mainly by compressed air operated Wagon/DTH drills and sometimes by Jack Hammer Drills. Non electric controlled blasting will be carried out during specified time between 12 noon to 2 pm. Alarm will be given before blasting and it will be ensured that no manpower or animals are near to blasting area

The blasted ROM will be removed mechanically. Sometimes, minor quantity of limestione may be sorted & sized to less than 100 mm manually. Reject material will be shifted mechanically using excavator cum loader or JCB & tractor combination to the dumpling site to be developed all along the boundary of the mine pit. Water will be sprayed on the dumps and compacted with development of green belt.

Limestone will be loaded mechanically using excavator cum loader or JCB to trucks and tippers of 10 to 30 tonnes capacity. The limestone after loading in trucks/tippers will be transported outside the mine to cement, steel and lime manufacturing industries and other associated industries. The water will be sprayed on haulage roads during transportation.

4.0 Baseline Environmental Status

The baseline environmental status of the study area covering 10 km radius around the mine site with reference to the prominent environmental attributes has been carried out in the post monsoon season of 2011. The salient features of various environmental components are given hereunder.

4.1 Land Environment

Land environment baseline studies have been carried out to establish physiography, geology, land use pattern, solid & hazardous waste status and soil quality.

Topography of the study area is relatively plain having no hills or valley in the immediate vicinity of mine site. Seismologically, the study area comes under Zone II of the Bureau of Indian Standards (BIS) 2000.

Geologically, the study area comprises older rocks of Pakhal group like Dolomitic limestones, red brown and purple shales of Vindhyan formation. It also comprises of Talchir Shales, Barakar Sandstones and Kamthi Shales & Sandstones of Gondwana formation. The younger rocks like Lameta beds, Deccan Basalts, Alluvium and conglomerate occurs in the study area. The proposed mine lease area rocks comprises limestone of Penganga beds of Pakhal group and these rocks are covered with 0.3 m thick top soil.

The Landuse and land cover analysis of study area carried out using satellite imagery delineate that agriculture land covers 69.79 % area, which is the dominant land use category in the study area. Built up area cover 0.64 %, River includes Wardha River and Nirguda river basin covers 0.57 % area. Forest land includes dense forest area 6.35 %, open forest area 8.97 %, proposed Limestone Mine site covers only 0.05 % area, where as waste land covers 12.13 % area.

Soil sample were collected from seven sampling locations in the study area. The soil texture in the study area is predominantly loam. The cultivable soils are spread over in the study area which as per the soil quality analysis shows nutrient deficiency.

4.2 Biological Environment

The primary field surveys (field studies, interaction with villagers & forest visits) at thirteen locations and analysis of secondary data has been carried out to assess the biological environment of the study area.

Dominant trees observed and reported by villagers during primary survey in the study area were Babhul, Kaduneem, Palas, Piwla Gulmohor, Subabhul, Vilayti Chinch, Karanj, Chinch, Sagwan, Bor, Mohu etc. The dominant shrubs in study area were Rui, Tagar, Beshram, Ghaneri, Tulsi, Nirgudi, Petari, Bharati, Jangli Babhul etc. The common herbs found and reported by villagers in the study area were Tarota, Piwla Dhotra, Dhotra, Kambarmodi, Sadaphuli etc. The dominant grasses observed and reported in the study area were Durva and Gajar Gavat. Bhesram and Tape grass were commonly observed in near the banks of rivers and around the seasonal ponds.

There is no National Park, Wildlife Sanctuary, Notified Forests, eco-sensitive areas falls in the study area. As per revised survey of the Forest types of India by H. G. Champion & S.K. Seth, the type of forests in study area are classified as $5A/C_3$ namely Southern dry mixed deciduous forests. The notified Tadoba Reserved Forest is about 48 km (from buffer zone boundary) towards ENE direction.

The dominant mammals observed and reported during primary survey were mongoose, common mouse, common house rat and fruit bat.

Aves dominantly observed and reported during primary survey were Tree Sparrow, Balck Mayna, Grey Myna, House Sparrow, Asian koel, Little Erget, Parrot and Bulbul. Common frog, Rohu and Waghur were observed and reported in the aquatic environment.

No rare, endangered, endemic floral & faunal species were observed and reported in the study area.

4.3 Air Environment

Air environment baseline status of the study area has been monitored at eight sampling locations & micrometeorological data has been collected.

Wind Rose of Post-monsoon Season 2011 indicates that the wind pattern has prevailing winds from WNW & NNW directions. Wind Rose of October 2011 indicates that the wind pattern has prevailing winds from NNW direction.

The arithmetic mean and maximum concentration of PM_{10} have been observed to be varying in the range of 29.83-48.20 µg/m³ and 40.50-70.60 µg/m³ respectively. The arithmetic mean and maximum concentrations of $PM_{2.5}$ have been observed to be varying in the range of 22.39-26.84 µg/m³ and 24.70-35.90 µg/m³ . The arithmetic mean and maximum values of SO_2 were observed to be in the range of 10.32-14.02 µg/m³ and 13.70-18.30 µg/m³. The

arithmetic averages of observed NO_2 values at different AAQM stations ranged between 12.62-16.43 µg/m³ while maximum values varied between 16.80-23.90 µg/m³ .

At all the stations, the maximum concentration of these parameters are observed to be within the ambient air quality standards promulgated by CPCB for residential/rural area.

4.4 Noise Environment

During Post monsoon season, 2011 background noise levels (Leq) have been monitored in the human settlements within the study area of 10 km radius.

From the monitoring survey of noise levels it was observed that the day time noise levels were observed in the range of 48.9 dB (A) to 56.3 dB (A) in the commercial area and in the range of 43.9 dB (A) to 48.5 dB (A) in the residential area. The day time noise shows the values confirming to the standards. The night time noise levels were observed in the range of 35.2 dB (A) to 45.9 dB (A) in the commercial area and in the range of 34.2 dB (A) to 36.8 dB (A) in the residential area. The values are found to be within the night time standards prescribed for commercial & residential zone.

4.5 Water Environment

Water table in the mine lease area is below 15 m and water table will not be intercepted during proposed limestone mining activity.

Drainage pattern is dendritic type with moderate drainage density. Wardha and Nirguda are the major rivers in the study area. Part of these rivers flow through the study area.

In the study area, normally ground water is used for domestic and agricultural purposes. The ground water in this region is extracted through dugwells and borewells

Total water requirement is estimated to be @ 27.0 m^3/day. Water requirement for domestic purposes @ 4.0 m^3/day, for spraying on haulage roads @ 12.0 m^3/day & for processing @ 6.0 m^3/day and green belt purposes @ 5.0 m^3/day. Water requirement will be met from existing hand pump and rainwater harvesting pits. Domestic effluent generation will be 3.2 m^3/day and industrial effluent generation will be nil.

For assessing the water quality in the study area and to evaluate the anticipated impacts of the mine, selected water quality parameters of surface as well as ground water samples from in the study area have been collected & analysed.

In surface water samples, pH is found between 8.35 and 8.61 which indicate its alkaline nature. Total dissolved solids are found to vary between 191.7-377.0 mg/l and total hardness is found to vary between 131.0-220.8 mg/l.

In ground water samples, pH is found in the range of 6.71-8.35, indicating desirable range required for potability. Total dissolved solids are in the range of 74.0-968.0 mg/l. Total hardness is found in the range of 18.6-529.2 mg/l. The total hardness is found within the permissible limit. The metals analyzed namely Arsenic, Manganese, Lead, Copper, Cadmium, Zinc, Nickel and Chromium are found below the permissible limit.

However, water samples from surface as well as groundwater sources are found to be bacteriologically unfit for drinking purposes after bacteriological analysis.

Thus, it can be concluded that surface & ground water quality in the study area is physico–chemically fit for drinking purposes. However, bacteriological treatment is required prior to its use for drinking purposes.

4.5 Socio-economic Environment

Baseline data such as demographic pattern, occupational status, educational, health,

infrastructure and other amenities as existing in the study area have been studied.

The study area includes 10 km radial area which covers Dist.- Yavatmal. Villages covering the study area fall under Wani Tahsil (Dist.- Yavatmal).

The study area covers 64 villages, including 8 uninhabited villages. Total population of the study area is 55544 in of which males constitute 51.43% and females constitute 48.57% of the population. There are 12330 households in the study area and density of the people is around 4.5 persons per hours as per the 2001 primary census.

Occupational pattern of the study area shows that only 45.38% of the total population comes under the main workers category. Other categories are marginal workers about 7.95% and non workers about 46.67%.

5.0 Environmental Impact Assessment

5.1 Land Environment

There will be no toxic and hazardous element present in the waste material and there will not be any hazardous wastes generation from mining activity.

The mining will generate top soil and mining rejects which will be used for development of dump along mine periphery. At the closure of mine, part of the pits will be backfilled by reject material and leveled by top soil. The reclaimed area will be stabilized by green belt. At the closure of mine, the remaining excavated pit will be developed as natural water reservoir.

Mine boundary will be developed with barrier wall of reject material and after stabilization; same will be gradually stabilized using suitable plant species and grasses.

The dumps of rejects waste will be scientifically developed. On waste dumps, green belt will be developed to check the erosion in rainy season and leaching of rainwater into subsurface from dumping site.

Thick green belt around mining area & internal road will also be developed before closure of mine.

Thus**,** land environment would not be adversely affected.

5.2 Biological Environment

A well planned green belt as per CPCB guidelines will be developed on the open land available for the purpose of improving the environmental quality as well as visual aesthetics of the lease area.

As the mine site is barren and without habitation of the faunal species, there is no issue of destruction of any habitat and adverse impact on the faunal species. Lessee will have a program for creating public awareness towards importance of trees and protection of existing wild animals.

About 5.61 Ha of land will be progressively developed into green belt till mine closure. Under afforestation programs it is proposed to have plantation of 1400 saplings during the rainy season of first operation year over the non-use areas to improve the vegetation status and subsequently about 1400 saplings will be planted every year. The harvested rain water will be used for green belt development. Species to be planted are Arjun , Ashoka , Bakul , Dhotra , Erandi , Ghaneri , Hewar , Kanhera , Karanj , Khair , Kunti , Neem , Nirgudi , Palas, Pipal, Sadaphuli, Saptparni, Shami, Sisam, Tagar, Tulsi, Vedibabhul etc.

Thus with implementation of the planned mitigation measures & EMP, biological environment will not be affected due to the mining activities.

5.3 Air Environment

In the mining operations, emissions from combustion of fossil fuels will be during transportation of limestone and rejects only. The diesel will be consumed in the mining machinery. All the machinery will be maintained in good condition to minimize emissions and improve average.

Fugitive dust emissions from mining operations as drilling, blasting, excavation, transportation etc, will be controlled by use of advanced machinery, water sprinkling, compaction of haulage roads, covering of trucks/tippers.

The maximum ground level concentration of PM_{10} for air pollution sources due to proposed mining outside the mining lease area is predicted to be 7.23 µg/m³ at a distance of 2.23 km in SSE direction from the mine site. The second highest ground level concentration of PM_{10} for air pollution sources due to proposed mining outside the mining lease area is predicted to be 6.02 µg/m³ at a distance of 7.61 km in SSE direction from the mine site. Maximum concentration of PM_{10} observed at Sindola (6.3 km in SE direction) was 56.6 $\mu g/m^3$ which may increase to 62.62 $\mu g/m^3$ in worst condition during operational phase of proposed mining.

Wet drilling, controlled blasting techniques will be used. Scientific development of dumps will be carried out. All the machinery will be maintained in good condition. A system will be developed for effective implementation of air pollution control measures.

Thus, limestone mining operations will not have adverse impact on air environment.

5.4 Noise Environment

All the mining operations will be carried out in single shift during day time only. Vehicular traffic will be regulated and allowed during day time only. Controlled blasting has been planned to ensure low noise & vibration during mining operations. Use of ear plugs/ear muffs will be made compulsory to workers using heavy machinery. DGMS Rules will be strictly followed during mining.

Nearest village Khandala village is about 0.8 km in NE direction from mine site. The measured noise levels (Leq) during day time in residential area is 45.3 dB(A).

The mining operations will be carried out during day time in single shift. The expected maximum noise level during day time at Khandala Village considering the impact of mining and transportation activities on residential area will be 45.8 dB(A). Thus, ambient noise quality of the study area will meet the norms.

Mitigation measures for control of noise & ground vibration include prevention at source, attenuation in transmission path, protective measures in work environment. Wet drilling will be carried out to minimize the noise level and also to arrest the fugitive dust.

Noise should be best abated at source by choosing machines/equipments suitably by proper mounting of equipment & ventilation systems and by providing noise insulating enclosures or padding where practicable.

For noise attenuation in transmission path, measures suggested are: planting of bushy trees of rich canopy and trees of different heights in and around the mining lease area to intercept noise transmission.

For preventive measures in the work environment, earmuffs/earplugs will be provided for those exposed to high noise levels. Blasting parameters will be suitably set to minimize ground vibration within safety limits. Provision of insulating caps and machinery aids will be made. Shock absorbing techniques will be adopted to reduce impact energy.

5.5 Water Environment

At the mine lease area, water table is below 15 m and during mining it will not be intercepted. Storm water of the mine lease area will be diverted through garland drains.

At full mining capacity, domestic effluent generation will be @ 3.2 m^3/day and it will be treated in septic tanks and soak pits.

Industrial effluent generation will be nil and clear water collected in mine pit will be utilized for mining operations and allied activities like dust suppression, wet drilling and greenbelt development in the lease area. If required, harvested water will be supplied to villagers for agriculture purpose in the surroundings during scarcity.

Rainwater harvesting will be implemented at proposed mine to conserve storm water. Rainwater of the mine lease area will be diverted to a non working mine pit(s). The collected water in the non working pits will be utilized for mine operation as well as green belt development.

Thus, there will be no negative impacts on water environment due to mining activity.

5.6 Socio-Economic Environment

Agriculture is the main income source of the people in the study area. Poultry and cattle rearing are other sources of income of the people in the study area. Employment & income generation opportunities are minimal in the region.

Though the size of this mine is not big, maximum number of locals will be given employment as per skills and qualifications.

The mine management will take part in community welfare activities related to sanitation, social harmony, environmental awareness programmes, health checkup camps etc. Tree plantation programmes will be organized in the nearby villages.

Evaluation of Socioeconomic profile of the study area as well as socio-economic survey of the region has revealed that the mining activities will result in: (i) generation of direct employment to certain extent and indirect employment to local people, (ii) increase opportunities for auxiliary & ancillary business, (iii) increase in revenue to the State Government.

It can be concluded that due to the proposed mine even though the social impact will be of marginal level, the impact will be positive and it will further improve the socio-economic status of the study area to a certain extent.

Hence, it can be concluded that the development of the proposed mine will have a positive impact on the environment if the recommended environmental monitoring and mitigation measures are fully implemented.

6.0 Environmental Monitoring Programme

Effectiveness of pollution control measures adopted for mining will be regularly checked under Environmental Monitoring Programme. The location of sampling, frequency & analysis of environmental attributes will be as per the guidelines of CPCB/MPCB. A recurring budget of Rs 0.5 lakh per annum has been allocated for EMP.

7.0 Additional Studies

As per EIA Notification, 2006, the points raised during public consultation towards their compliance will be incorporated in the final EIA report.

Risk assessment has been undertaken to identify major failure scenarios to evaluate consequences and to examine the associated risk levels. In the mining activities, blasting will be the only source of risk factor. However, controlled blasting will be carried out through experienced manpower which reduces the risk significantly.

Explosive will be made available from contractor as and when required. All DGMS Rules will be followed to ensure safety of workers and material along with control of noise and ground vibration.

In case of emergency, Disaster Management Plan has been prepared to organise and co-ordinate all activities prior to, during and after occurrence of an emergency till normalcy is restored. First aid medical facilities, fire fighting facilities, transport vehicle, communication facilities will be available at mine site. Lessee has planned to handle effectively any possible emergency.

Occupational Health and Safety Schedule will be followed to avoid/minimize any occupational hazard .The workers will be provided with dust masks, ear muffs/ ear plugs, shoes etc. Drinking water, sanitary facilities will be provided. Periodical training programme about safe working practices will be undertaken. Occupational health check up will be carried out and records will be maintained.

Social impacts assessment studies revealed that there will be no land acquisition, resettlement, rehabilitation and compensation in the proposed mining project, there will be not any major changes in the occupation structure of the area, there will be no traffic congestion. It is anticipated that the project would bring benefits to the people of the proposed mine surrounding villages.

Mine management will take part in community welfare activities related to health, hygiene and sanitation improvement, water conservation program i.e. rain water harvesting pits, community capacity building, education books & aids distribution and distribution of seeds.

8.0 Project Benefits

Proposed limestone mining will help to fulfill the demand of this material to certain extent. The major benefit in terms of employment generation in the study area will increase, also nearby grampanchayats will start getting the regular tax from the mine. The mine will produce an opportunity of reliable and constant source of income. The mining activity will help to improve the standard of living of the people in the nearby areas.

9.0 EMP Execution Cell

The experienced personnel in environmental management and pollution control will be appointed on contractual basis and environmental monitoring activities will be carried out through MoEF approved laboratory.

The EMP Execution Cell will be headed by the Mine Co-ordinator and he will be assisted by the personnel from different levels. Mine Manager, Mine Engineer, Foreman, Geologist, Environmental Consultant, HR Manager, Plantation staff will be integral part of the EMP execution cell and will be responsible for the effective implementation.