$$\left\langle \sum \frac{\partial z_k}{\partial w_i}\frac{\partial}{\partial z_k},\ \sum \frac{\partial z_l}{\partial w_j}\frac{\partial}{\partial z_l}\right\rangle = \delta_{ij}$$

$$= \sum \frac{\partial z_k}{\partial w_i}\overline{\frac{\partial z_l}{\partial w_j}}\left\langle \frac{\partial}{\partial z_k}, \frac{\partial}{\partial z_l}\right\rangle = \sum \frac{\partial z_k}{\partial w_i}\overline{\frac{\partial z_l}{\partial w_j}}\, h_{kl}$$

let $\left(\frac{\partial z_k}{\partial w_i}\right) = b_{ki}$. $\Rightarrow$ $= \sum b_{ki}\,\overline{b_{lj}}\,h_{kl}$

$= \sum (b^t)_{ik}\, h_{kl}\,\overline{b_{lj}}$

$= (B^t h \overline{B})_{ij} = \delta_{ij}$

$\Rightarrow$ $B^t h \overline{B} = I$. $\qquad \frac{\partial w_i}{\partial z_j} = a_{ji}$

and $\frac{\partial w_i}{\partial w_j} = \delta_{ij} = \sum \frac{\partial w_i}{\partial z_k}\frac{\partial z_k}{\partial w_j} = \sum a_{ki} b_{kj}$

$= ({}^tAB)_{ij}$

$\Rightarrow$ ${}^tAB = I$. $\Rightarrow$ ${}^tA = B^{-1}$. $\Rightarrow$ $B = ({}^tA)^{-1}$.

$A^{-1} h\, {}^t\overline{A^{-1}} = I \quad \Rightarrow \quad h = A\,{}^t\overline{A}$

To get B, apply the Gram-Schmidt process to $\{\frac{\partial}{\partial z_i}|_{z_0}\}$ and get A.

Γ $h_{ij} = \sum_k \delta_{ij} + a_{ijk} z_k + a_{ij\bar{k}}\bar{z}_k + [/]$,

$h_{ij} = \overline{h_{ji}} \Rightarrow \delta_{ij} + a_{ijk} z_k + a_{ij\bar{k}}\bar{z}_k + [/] = \overline{\delta_{ji}} + \overline{a_{jik}}\,\bar{z}_k$
$+ \overline{a_{ji\bar{k}}}\, z_k + [/]$

$\Rightarrow \overline{a_{jik}} = a_{ij\bar{k}}$

$d\omega = 0 \Rightarrow \sum_{i,j,k} a_{ijk}\, dz_k + a_{ij\bar{k}}\, d\bar{z}_k + d[\cancel{2}]$ [20]

$= \sum_{i,j,k} a_{ijk}\, dz_k + a_{ij\bar{k}}\, d\bar{z}_k \quad \wedge \quad dz_i \wedge d\bar{z}_j = 0$

$\Rightarrow \sum_{i,j,k} a_{ijk}\, dz_k \wedge dz_i \wedge d\bar{z}_j = -\sum_{i,j,k} a_{ij\bar{k}}\, d\bar{z}_k \wedge dz_i \wedge d\bar{z}_j = 0$

$\Downarrow\ a_{ij\bar{k}} = a_{kj\bar{i}}$