



*ALTERATIONS AND ADDITIONS TO AN EXISTING
DWELLING HOUSE AT ERF 2341, HOUT BAY,
SITUATED AT 27 SUNSET AVENUE, LLANDUDNO*

DRAFT CONSTRUCTION PHASE ENVIRONMENTAL
MANAGEMENT PROGRAMME: PREPARED FOR
BASIC ASSESSMENT APPLICATION AND LOCAL &
PROVINCIAL AUTHORITY REQUIREMENTS

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PLATE 1: THE EASTERN PORTION OF THE PROPERTY, VIEWED FROM THE SEAWARD/ NORTH-WEST BOUNDARY WALL, FACING SOUTH-EAST. THE PORTION OF GARDEN SEEN HERE WILL REMAIN UNAFFECTED BY THE WORKS AND WILL BE HOARDED OFF FROM THE CONSTRUCTION AREA.

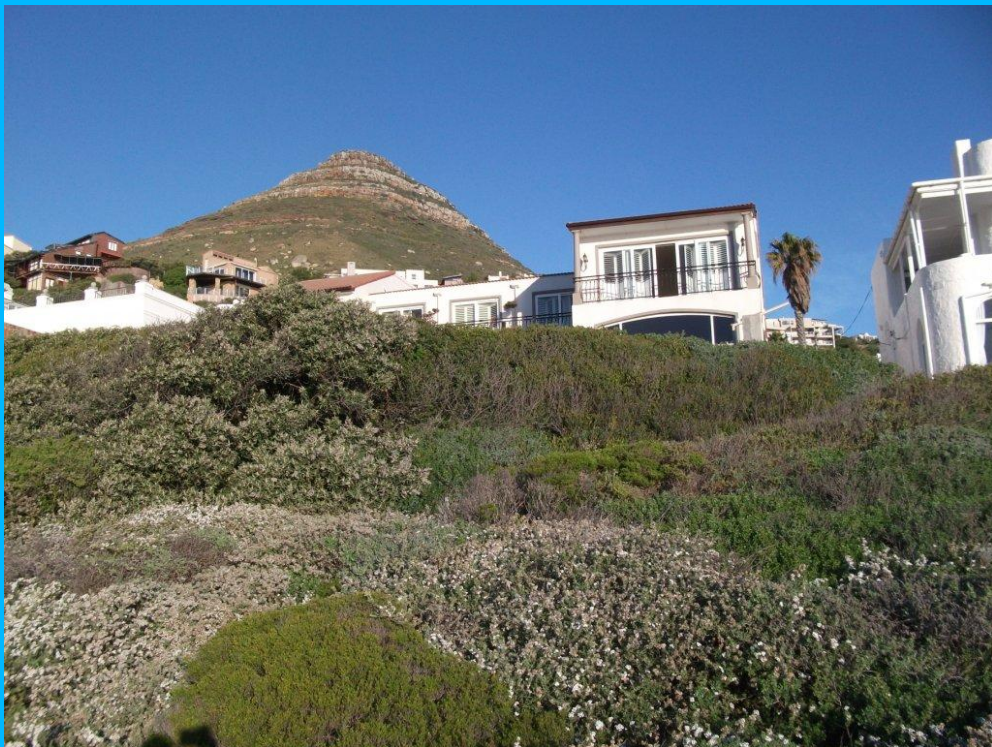


PLATE 2: THE EXISTING DWELLING HOUSE CAN BE SEEN IN THE BACKGROUND, WITH LITTLE LION'S HEAD FURTHER BEHIND, FACING SOUTH. DENSE COASTAL THICKET FYNBOS SEPARATES THE PROPERTY FROM THE ATLANTIC OCEAN AND FORMS PUBLIC OPEN SPACE. NO VEGETATION OR FEATURES WITHIN THIS AREA WILL BE AFFECTED IN ANY WAY.



PLATE 3: THE EXISTING DWELLING HOUSE CAN BE SEEN IN THE CENTRE OF THE IMAGE, WITH THE NEIGHBOURING DWELLING HOUSE ON THE RIGHT OF THE IMAGE AND LITTLE LION'S HEAD FURTHER BEHIND, FACING SOUTH-EAST. DENSE COASTAL THICKET FYNBOS SEPARATES THE PROPERTY FROM THE ATLANTIC OCEAN AND FORMS PUBLIC OPEN SPACE. NO VEGETATION OR FEATURES WITHIN THIS AREA WILL BE AFFECTED IN ANY WAY.



PLATE 4: THE EXISTING DWELLING HOUSE CAN BE SEEN IN THE CENTRE OF THE IMAGE, WITH THE DENSE COASTAL THICKET FYNBOS IN THE FOREGROUND AND WHICH FALLS OUTSIDE THE PROPERTY AND HAS NO BEARING ON THE WORKS BEING PROPOSED.

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DRAFT CONSTRUCTION PHASE ENVIRONMENTAL MANAGEMENT PROGRAMME (EMP)

Note: This document is prepared in the event that construction activities at Erf 2341, Hout Bay (situated in Llandudno) occur in future, should an Environmental Authorisation granting authorisation of the proposed alterations and additions on the property be received in response to a Basic Assessment application being carried out and to which this document forms an appendix. This EMP is presented as part of the Basic Assessment application so that the directives included below can be assessed within the ambit of the application process and in order to propose mitigation measures towards reducing construction-related and cumulative impacts which may be associated with future works on the property insofar as the proposal is concerned. The EMP therefore reasonably assumes for the sake of erring on the side of caution that construction activities are likely to occur on the property and makes provision for this.

1.1 GLOSSARY OF TERMS

City of Cape Town: The local authority and its successors in title or assigns, and which will oversee implementation by the contractor of this EMP.

Construction phase Environmental Management Plan (EMP): This document. The Contractor is required to implement this document as exhaustively and comprehensively as practicably possible for the entire duration of the construction contract. The Contractor is liable for non-compliance with this document and will be held accountable for non-compliance by his personnel and/ or the personnel of appointed sub-contractors on site.

Contractor: The civils and/ or building contractor appointed by the Owner to fulfil his duties in terms of the construction contract, an integral component of which shall incorporate compliance with and implementation of this EMP.

Department of Environmental Affairs & Development Planning (DEA&DP): The Provincial environmental authority whose mandate is to ensure that, inter alia, the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended and the Environmental Impact Assessment Regulations, 2010, are implemented adequately and that the conditions associated with an environmental authorisation authorising the works on the property are fully complied with.

Environment: All areas on and surrounding the site, as may reasonably be affected by the works on this project. This document refers to the protection and conservation of the built and natural environment, meaning that features such as vegetation, soil, air, water, animals and birds, public and private infrastructure (viz. Sunset Avenue, associated stormwater systems, verges etc., and abutting private properties) are to be conserved at all times. Areas on or

adjoining the site which require specific conservation must be hoarded off and considered 'no-go' areas at all times (see below).

Environmental Officer (EO): An official appointed by the City of Cape Town who will be responsible for overseeing the implementation by the Contractor of the EMP during the works.

Environmental Control Officer (ECO): An independent individual or company who/ which will be responsible for monitoring compliance with and the implementation of the EMP by the contractor. The ECO is directly appointed by the Owner and is responsible for advancing recommendations and providing observations to facilitate for improved environmental management on site, in terms of the EMP and in consultation with the relevant competent (local and provincial) authorities.

National Environmental Management Act, 1998 (Act No. 107 of 1998 (NEMA)), as amended: The Act by which this document is prepared, in order to ensure that the environment is conserved to the greatest possible degree during the works and to ensure that any environmental damage which is incurred is adequately rehabilitated.

'No-go' Areas: All areas specifically demarcated using adequate means (as required by the EMP and the ECO) such as cordons, hazard tape, signage, hoarding and etc. 'No-go' areas may not be accessed at any time by anyone other than those authorised to do so by either the EO, ECO or Site Agent. All areas beyond the site boundaries are deemed to be 'no-go' areas, except for the express purpose of collecting litter, refuse and spoil and/ or cleaning any areas outside the site which might be affected by the works. Such activities must be done under the close supervision of the EO, ECO and/ or Site Agent.

Owner: Ms. Elizabeth Sarah Dowie Westmore, being the registered title holder of Erf 2341, Hout Bay and who has commissioned the environmental assessment and preparation of this EMP.

Property: Erf 2341, Hout Bay, which refers to the entire property, some 1090m² in extent.

Sensitive Features: Conservation-worthy vegetation on and surrounding the site, soil strata and substrates, any animals or birds within the affected area, stormwater run-off/ catchment areas, possible groundwater sources, the coastal zone (a Marine Protected Area) below the property, the public road and associated reserve/ verge, and adjacent private property.

Site: All areas at which work associated with the project is envisaged.

Site Agent: An agent appointed by the Contractor to manage the construction contract. The Site Agent must reasonably be present on site at all times and must implement the EMP adequately, for the duration of the contract.

1.2 CONTACT DETAIL REQUIREMENTS

(Contractor and Site Agent contact details to be furnished at a later date)

1.3 COMMUNICATION CHANNELS

The ECO will communicate directly with the Site Agent verbally and/ or in writing (via e-mail) as necessary, as this relates to processes on site. Written communications will be in the form of e-mail unless requested otherwise. Where the ECO requires that the Contractor implement an action on site, he will recommend of the Site Agent and Project Agent that this action be taken. The Site Agent and/ or Project Agent will in turn instruct the Contractor accordingly. Recommendations made by the ECO and reports arising from site inspections will be copied to the EO for information and records. The ECO will have the right to call on the EO to assist in ensuring implementation of the EMP should the need arise.

2. BACKGROUND AND PHYSICAL DETAILS OF THE SITE

The owner of the property wishes to undertake alterations and additions to the existing Dwelling House in order to improve the amenity, utility, functionality and value of the property. The improvements envisaged by the proposal comprise the extension of the existing living room on the ground floor of the property and the addition of a gym on the eastern side of the existing Dwelling House. In addition, it is proposed to build a new double garage and to extend the existing bedroom, dressing room and balcony on the eastern side of the first floor. A suspended driveway is required to provide access from the public roadway (Sunset Avenue) to the proposed new double garage. More specifically, the proposal incorporates the following alterations and additions:

- The living room on the ground floor of the existing Dwelling House is to be extended towards the eastern common boundary;
- A new gym is to be added on at ground floor level, at the eastern side of the property;
- The existing bedroom and dressing room at the east of the building on the first floor of the Dwelling House, together with its north-facing external balcony, are to be extended;
- A new double garage is to be built at first floor level (level with the street; being Sunset Avenue);
- A suspended driveway is to be constructed between the street edge and the proposed new double garage.

The activities expected to be required during the course of construction of the proposed alterations and additions include:

- Site preparations and a degree of earthworks and excavations to revised site levels at the eastern portion of the property to accommodate the proposed extension of the living room and installation of the gym at ground floor level.
- Removal of the existing exotic lawn (refer to Plates 8 and 11) and a small number of indigenous and exotic trees along the eastern portion of the property to accommodate the above additions. The lawn comprises alien invasive kikuyu grass (*Pennisetum clandestinum*) and its removal would bear no significance in terms of horticultural, botanical or other environmental or cultural impacts. The loss of the planted trees within the work area would be offset by the planting of new indigenous trees and associated indigenous vegetation (shrubs and groundcovers) within the adjacent non-built-upon areas. An existing planter and retaining wall (refer to Plates 6 and 7) comprising, respectively, pockets of indigenous vegetation and natural granite rock will be largely retained and shifted somewhat to the north-east of their present location along the south-east property boundary. No other areas (apart from the east common boundary) of the property will be impacted by the proposal and all works are to be undertaken some distance from the seaward (north-west) property boundary and which is buffered by a large existing garden (to remain in unaffected condition) to ensure that no impacts on natural coastal vegetation (coastal thicket/ Strandveld Fynbos) which exists in profusion immediately beyond the north-west seaward property boundary is incurred. Any loss of indigenous vegetation associated with the shifting of the planter on the property itself would be offset by the planting of indigenous vegetation during the restoration activities following the proposed works.
- Earthworks and the use of fill material to create new site levels at the east of the property to accommodate the proposed extension of the bedroom, dressing room, external balcony, and the construction of the new garage and suspended driveway.
- The construction of the extension of the bedroom, dressing room and balcony, and the construction of the new garage and suspended driveway, all of which is to be undertaken at the east side of the property.
- Hard and soft landscaping, with the retention of the majority of existing conservation-worthy vegetation, and restoration of affected areas by way of planting of indigenous vegetation and appropriate hard landscaping.

The proposal seeks to retain intact the majority of the existing manicured garden on the property and will have no impact whatsoever on areas beyond the site boundaries, in turn eliminating any potential for impacts on the coastal/ Strandveld fynbos thicket (refer to Plates 2 and 4) growing in dense profusion along the coastal zone abutting the north-west (seaward) property boundary. This EMP accordingly emphasises the protection and conservation of the natural environment but similarly focuses on the need for consideration of socio-economic impacts associated with the works; being impacts such as noise, dust, visual, privacy and 'sense of place' impacts, security-related impacts, traffic-related impacts, restrictions on hours of work and so on.

Whereas it is the intention of the EMP to meet the requirements of the local (City of Cape Town) and provincial (Department of Environmental Affairs & Development Planning: DEA&DP)

authorities and in so doing, facilitate for a process by which the contractor undertaking the works will be obliged to carry out the activities appropriately and strictly in line with the EMP, so too is the document iterative and practical, and is designed to accommodate the practicalities of the work, whilst requiring specific actions towards protection of the environment. It is noteworthy that the document is also prepared in terms of Section 28 ('Duty of Care') of the National Environmental Management Act, 1998 (Act 107 of 1998), as amended, which requires that responsible and sufficient measures be implemented to prevent environmental pollution and degradation from occurring when an activity has been authorised but is likely to have a negative impact on the receiving environment. Hence, it will be the contractor's 'Duty of Care' to ensure adequate implementation of the EMP.

3. USE OF THE EMP & APPOINTMENT OF AN ENVIRONMENTAL CONTROL OFFICER (ECO)

In preparing this document, the appointment of an ECO is considered to be integral to the correct implementation of the document, with the ECO being an independent and suitably experienced environmentally-trained professional tasked with monitoring the activities of the contractor and appointed by the owner for such task. It is predicted that the City of Cape Town (when issuing final building plan approval) and DEA&DP (when issuing an Environmental Authorisation in response to the Basic Assessment application) will require the appointment of an ECO and the extent of the duties required of the ECO have been predicted drawing on the nature of the site and the works required. This notwithstanding, the frequency for ECO site visits is subject to the authorities' directives and may be updated once conditions associated with the various approvals have been issued. At this stage (Draft EMP), it is recommended that the site visitation frequency shall be:

- 8 ECO visits for the first two months of the works during which time site establishment, site preparations and earthworks will be underway (inclusive of at least one induction for site personnel) (refer to paragraph 4.11 below).
- 4 ECO visits per month thereafter (once construction itself begins and thereafter until project completion; including landscaping and rehabilitation/ restoration activities).

The visitation frequency may be increased at the request or approval of the City and/ or DEA&DP should the contractor be found to be consistently/ seriously non-compliant with this document, the provisions of NEMA (such as 'Duty of Care': Section 28) or with the relevant municipal by-laws.

The ECO is independent, having no role in the project other than that of the monitoring of the implementation of the EMP by the Contractor. The ECO on this project has yet to be appointed by the Owner but record of which appointment will be included at a later stage.

4. EMP DIRECTIVES

4.1 Noise

Given the property's location within a residential suburb enjoying natural beauty and a degree of peace and tranquillity, and the adjacent coastal thicket providing habitat to indigenous animals and bird-life; together with the fact that the site is bordered on its north-west boundary by a Marine Protected Area, and to east and south by immediately-abutting private properties improved by occupied dwellings, noise-related impacts associated with the works have the potential to be of high significance if not mitigated adequately and to the greatest possible extent within the ambit and practicalities of the construction process.

For all works contemplated on the site, it is imperative that the Contractor limit noise levels as far as practicably possible (e.g. by installing and maintaining silencers on machinery and plant). Appropriate directional and intensity settings are to be maintained on all hooters and sirens, the latter of which shall not be used in any instance other than an emergency or during the reversing of plant. No amplified music or related equipment such as radios will be allowed on site. Furthermore, and most importantly, regulations related to noise pollution must be strictly adhered to, in particular the requirements of SANS 10103 and SANS 1200: Regulation 4.1 as these apply to 'built-up'/ residential areas, and applicable municipal by-laws. The Contractor must be aware of these regulations and must implement them accordingly.

The ECO will be tasked with monitoring noise levels on site and must take strict and prompt action should excessive and unacceptable noise levels occur. Complaints from neighbouring residents and the public will be afforded serious consideration and action taken by the competent authority should noise impacts become unacceptable. It will be necessary for the Contractor to install signage along the M65 approaches to the property and along the site perimeters (on site hoarding) informing the public of construction activities and related potential nuisance and hazards. All signage on and approaching the site must conform to the requirements of the Occupational Health and Safety Regulations, promulgated in terms of the Occupational Health and Safety Act (OHSA), Act 85 of 1993, as amended.

In order to reduce noise impacts further, the contractor will be obliged to restrict his hours of work to those specified in paragraph 4.2 below.

4.2 Hours of Operation

As a result of the need to reduce impacts on neighbours, members of the public in the vicinity of the property and on the natural habitat in the area (which is home to indigenous animals and birds which may be deleteriously impacted by excessive noise), it is required that works on the site be restricted to prescribed working hours. Except in the case of an emergency situation*, the Contractor shall restrict work to the following hours:

Monday to Friday:	08h00 – 17h30
Saturday:	08h30 – 14h00
Sunday:	No work
Public Holidays:	No work

*In an emergency or extenuating situation in which works may be required outside the permitted hours, the contractor must immediately advise the ECO and provide substantive motivation for the need to conduct works outside permissible hours. The ECO must in turn consult with the City of Cape Town. Permission to conduct the work will be considered. Written permission must be obtained PRIOR to such works occurring.

4.3 Dust Control, Slope Stability and Groundwater Sources

The project will require site preparations and a degree of earthworks and excavations along the eastern common boundary and at the south-east corner of the property at which the elevated driveway and adjoining garage are to be installed. Given the limited nature of the additions and the fact that the majority of the works will occur on existing built-upon areas, earthworks will be relatively limited but will result in a reasonable volume of cut material arising. Site preparations will include the clearing of a small area of existing garden/ vegetation cover, primarily restricted to the removal of the kikuyu lawn along the eastern common boundary, but including removal and relocation of the large planter at the south-east corner, together with removal a small number of young olive trees planted by the owner a few years ago. As is recommended within the Basic Assessment Report, should any groundwater sources be uncovered during excavations, these are to be protected and groundwater is to be adequately managed using coffer-dams, berms and/ other measures required by the engineers. The recommendation includes the phased clearance of the existing vegetated area to retain as much soil-binding vegetation as possible prior to total clearance from the work area, in turn reducing the volume of exposed and loose materials prone to wind dispersal and run-off. The contractor must implement the recommendations of project engineers towards reducing possible impacts associated with soil, ground and groundwater conditions and ensuring that mitigation and remedial measures are implemented in the event of disturbance or pollution of groundwater sources.



PLATE 5: THE PRIMARY PORTION OF THE GARDEN ON ERF 2341, TOGETHER WITH THE SWIMMING POOL AND A LOW STONE BOUNDARY WALL ALONG THE SEAWARD/ NORTH-WEST BOUNDARY. NONE OF THE AREAS SEEN HERE ARE TO BE IMPACTED BY THE WORKS BEING PROPOSED, WHICH ARE RESTRICTED TO THE EAST BOUNDARY (LEFT OF IMAGE).



PLATE 6: THE EXISTING ENTRANCE (LEFT OF IMAGE) TO THE DWELLING HOUSE, TOGETHER WITH THE PAVED COURTYARD AND THE LARGE RETAINING WALL AND PLANTER SITUATED AT THE SOUTH-EAST CORNER OF THE PROPERTY. IT IS PROPOSED TO SHIFT THE PLANTER SOMEWHAT NORTH-EAST TO ALLOW FOR ITS RETENTION WITHIN THE AMBIT OF THE CONSTRUCTION OF THE SUSPENDED DRIVEWAY AND GARAGE OVER THE COURTYARD AREA. THE GRANITE BOULDERS AND AS MUCH VEGETATION AS POSSIBLE WILL BE RETAINED AND ANY PLANTS WHICH ARE REMOVED WILL BE REINSTATED USING INDIGENOUS PLANTING.

Dust and wind-borne material arising from the works, particularly during site clearance and excavations and during dry/ windy periods has significant potential to impact on neighbours and on the coastal zone below the property, albeit that the latter area is considerably buffered from the work area by existing garden, the property boundary walls and also by required hoarding to be erected by the contractor. Fill arising from excavations and digging works, product from cement-related works and wind-borne material from building sand, cement dust and topsoil must be adequately controlled to reduce dust and wind-borne particulates. In mitigating potential and actual impacts, the Contractor must take all reasonable measures to control the generation of dust by covering stockpiles using secured tarpaulin/ shade-netting and through the use of specific stabilisation measures where needed (such as securing recently-exposed areas using geofabric and/ or bidim) or as required by the ECO. It is noted that irrigation of stockpiles or exposed areas on a site using potable water is prohibited in terms of municipal by-laws as a measure by which water may be conserved. Particularly during windy conditions, the Contractor must implement measures required by the ECO to stabilise the site and reduce dust and wind-borne material. Should conditions reach a level of severity considered unacceptable by the ECO, works may be halted by the ECO until winds have subsided and/ or dust concerns have been suitably addressed.

4.4 Demarcation of the Site

As noted above, the property is located within an area of substantive biophysical and socio-economic sensitivity given the natural beauty which it enjoys, the residential nature of the suburb, the peace and tranquillity of the area and the frequent use of the nearby beaches and coastal areas by the public (a large percentage of which comprises tourists), making any construction activities a significant potential impact. Accordingly, it is imperative that the site

boundaries are comprehensively established during site establishment and are maintained as such throughout the contract in an attempt to reduce impacts which may otherwise be associated with builder's infrastructure and movement within and adjacent to the site.

As a significant mitigation measure to reduce construction-related impacts on the natural environment, neighbours and the public, the site boundaries must be suitably hoarded and managed prior to any earthworks or construction commencing. In so doing, all boundaries must be hoarded off using robust and well-secured 1.8m high 'Ready-Fencing' affixed with new and presentable green shade-cloth of 80 micron density and which must be maintained in a neat and robust condition throughout the contract. The larger portion of the garden which is to be retained on the property must be similarly hoarded off from the work area and afforded a strictly 'no touch'/ 'no go' status throughout the works, with no unauthorised entry to this area being permitted.

Any areas beyond the site boundaries are classified as 'no go' and no works may take place there nor may personnel enter these areas. Site access will be taken via the existing driveway and pedestrian stairway to the property and it is required that all site personnel be transported to and from the property by vehicle and prevented from leaving on foot. **All areas beyond the site boundaries are considered strictly 'no go' areas (refer to section 1 for definition) to all construction personnel and/ or unauthorised persons.**

It is required that all fencing/ hoarding be installed to the satisfaction of the ECO, in consultation with the City if required and that it be completed prior to any works commencing (including site clearing unless this is required to accommodate erection of fencing/ hoarding along the boundaries).

The intention of the fencing/ hoarding is to prevent dust, wind-borne litter and visual impacts and to confine all building activities and personnel within the site (i.e. prevention of creep and access by personnel). Adequate signage, which conforms to requirements of the Occupational Health and Safety Regulations, promulgated in terms of the Occupational Health and Safety Act, 1993 (OHSA), Act 85 of 1993, as amended, must be installed at appropriate/ visible locations on site fencing/ hoarding.

4.5 Site Camp, Storage, Material Handling and Cement Batching

4.5.1 Site Camp and Storage: It would appear that the most practicable and least impacting location for the site camp will be within the existing driveway at the property's south- western boundary, as this represents the only location accessible by vehicle, yet would still allow for access to the main residence by the occupants during the construction phase. Upon site handover, the contractor must immediately establish a comprehensively hoarded and screened camp (hoarding to be the same as that of the site itself) to provide an adequate consolidated area within which to manage deliveries, materials and staff activities. The camp must be equipped with an adequately proportioned waste skip capable of coping with fill, rubble and refuse associated with the works, an office/ store container, suitable ablution

facilities, functional and immediately accessible fire extinguishers, an approved bioremedial agent (ECO to be consulted with) capable of absorbing any potential oil or fuel spillages, a store for materials and equipment and a designated and clearly demarcated lockable store/compartment for hazardous substances such as fuels, oils, lubricants, paints and grease. The use of inappropriate building-related infrastructure, such as brightly-painted sheds and/ or containers, garish signage and exposed ablution facilities must be avoided and all such infrastructure neatly and appropriately painted and obstructed from view by hoarding.

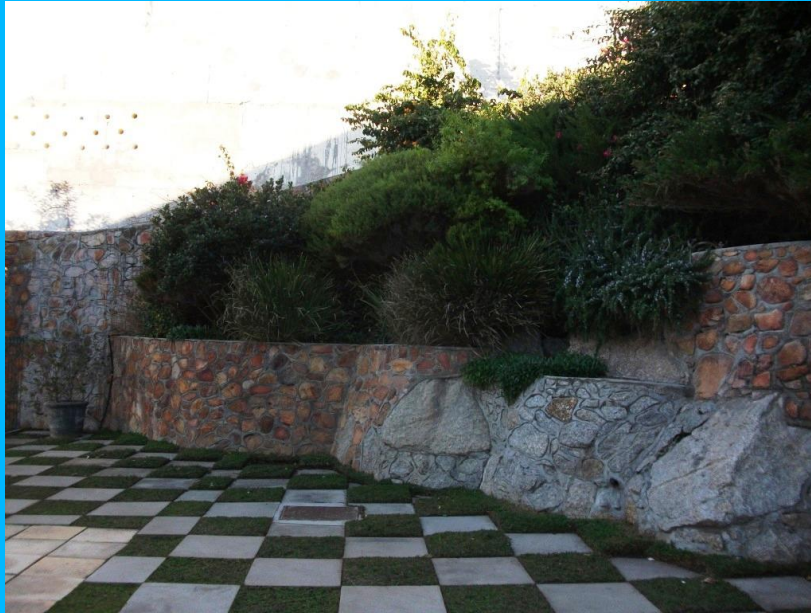


PLATE 7: A CLOSE-UP IMAGE OF THE RETAINING WALL AND PLANTER, BOTH OF WHICH ARE PROPOSED TO BE RETAINED BUT SHIFTED SOMEWHAT NORTH-EAST. THE GRANITE BOULDERS AND AS MUCH VEGETATION AS POSSIBLE WILL BE RETAINED AND ANY PLANTS WHICH ARE REMOVED WILL BE REINSTATED USING INDIGENOUS PLANTING.

Deliveries of sand and stone (and other materials) must be strictly managed, with compartments constructed within the site camp to confine materials and prevent spillage, spoiling, dispersion by wind and run-off. The store areas and compartments must be hoarded off with fencing and/ or shade-cloth when not in immediate use. No unnecessary stockpiling of materials may occur within the site camp or on the site itself, and materials and/ or equipment should be brought to the site camp for a day's use and removed thereafter. As above, a skip must be on hand, into which rubble and refuse must be disposed. The skip must be kept covered when not in use and must be emptied before it overtops. Refuse/ rubble from the skip must be disposed of at a registered landfill facility. It must be ensured by the contractor that the adjacent road surface along Sunset Avenue is swept clean on a daily basis and immediately any spoil or spillages arise. It must also be ensured that traffic controllers are stationed along either approach to safeguard personnel cleaning the road.

4.5.2 Material Handling: The site camp will be immediately accessible to trucks via Sunset Avenue for purposes of deliveries and removals of rubble and materials and as such, all trucks accessing the site must station themselves entirely within the property to prevent any obstruction to traffic. Materials at the site camp will then be transported a short way to specific work stations by hand, as required. The contractor will be held responsible for spoil arising from

activities of sub-contractors and for any damage to fencing, planting, kerbs, paving, stormwater system infrastructure and any other public or private infrastructure which may be incurred by the works.

4.5.3 Cement Batching and use: Significant volumes of cement and concrete product will be required during the casting of foundations for the additions, and for the construction process, and careful management of all cement/ concrete product will be required at all times. The use of 'Ready-Mix' cement/ concrete is preferred as it is generally less polluting and results in less wastage and wash-off. 'Ready-Mix' trucks are to station themselves within the existing driveway and must pump cement product to the site, which is well within reach of cement pump/ piping facilities. Direct pumping of cement product will reduce spillage which may otherwise occur by way of transport of product from trucks to work stations by wheel-barrow.

Where hand-batching of cement product is required, such as during brick-work and plastering activities, pockets of cement must be stored within the site camp in a designated and covered store area protected from the elements, and carried to the immediate work area as required for a day's work. Batching on site must be strictly managed, with the designated batching area (to be agreed on by ECO) being underlain by impermeable surfacing/ sheeting and having a bund constructed around it with a raised edge/ frame to contain cement-laden product and wash-off. The batching area must be installed on a flat platform distanced from the coastline below the property (i.e. situated near the southern boundary of the property), and run-off must be prevented from washing beyond the bund. It is imperative that no cement wash or water laden with cement be allowed to ingress the soil or garden area. Hardened cement product within the bunded area should be collected and discarded as rubble and may not be buried anywhere on site nor used as backfill or base-course. Any cement residue spilled on site must be raked up and the areas beyond the batching location entirely cleaned of all spillages. The bund should be constructed from wooden or metal sheeting underlain with durable plastic and run-off from the batching activities prevented using raised edges as a frame around the area. The cement/ concrete work station must be supplied with secured bins into which used cement bags must be disposed.

Personnel involved in wet-works and in particular plasterers must be instructed to work neatly and to clear away spilled cement/ dugga from the work area on an ongoing basis, and the ECO must emphasise this in the induction sessions. Cement which spills onto vegetation or exposed earth must be lifted and disposed of into the skip, and the affected areas thoroughly cleaned and restored to the satisfaction of the ECO. The contractor will be penalised (refer to section 4.1.4) should unreasonable, repetitive or significant pollution by cement spillages be incurred.

4.6 Waste Management during Construction

Cut material arising from earthworks and excavations must be carted off site immediately it occurs to prevent excessive stockpiling; unless the material is absolutely required for the activities (e.g. for backfilling or landscaping), in which case it must be neatly stockpiled in an

area approved by the ECO (at the southern portion of the property) and stockpiles must be of manageable size and kept covered against dispersal by wind and rain. No stockpiling along the north-west portion of the property will be permitted in order to prevent damage to the existing garden and reduce wind-blown debris from affecting the coastal zone. Rubble may not be stockpiled or buried within the work area and must be removed to the site camp on a daily basis for disposal to the skip, which must be collected frequently and emptied at a registered landfill facility. The site camp and site itself must be equipped with designated secured bins/ drums into which refuse must be disposed and these are to be equipped with lids and emptied daily/ prior to overtopping at a registered landfill facility.

It is imperative that litter and refuse is well managed on site and at the site camp to prevent dispersion by wind and resulting pollution. Daily clean-up's of the work locations must be implemented by designated personnel, and any litter or rubble noted on the site, within the property itself or in public areas abutting the property must be collected immediately. Access to 'no go' areas (outside the site boundaries) will be permitted in consultation with the ECO for the express purpose of collecting litter and with the proviso that the ECO is present to monitor these activities.

Water polluted by cement and/ or paint products and similar (turpentine, thinners, varnish etc.), may NOT be disposed of into the stormwater or sewage system, nor may it be thrown onto vegetation or open spaces, but must be directed to drums and disposed of at a hazardous waste landfill site. Painters and personnel involved in the wet-work trades must be informed of this requirement and the ECO must highlight the matter in the induction training talks given to site personnel (see section 4.11).

The Contractor must clean the site camp and the site itself on a daily basis, to the satisfaction of the ECO. No refuse or waste material will be disposed of by burying or burning. Furthermore, **no fires of any kind will be allowed.**

4.7 Construction Traffic

Vehicles and plant associated with the works and the site must be strictly managed to ensure that these do not park or slow down where they block the road or indeed hinder the sight-lines of passing/ approaching traffic. In particular, caution must be exercised by delivery/ truck drivers when egressing the property as the existing driveway is largely obscured from traffic approaching from the north-east. Accordingly, traffic controllers are to be stationed at the approaches along Sunset Avenue to warn road-users of potential hazards during deliveries to/ from site and adequate signage must be erected along the roadway informing road users of the works and of potential hazards. Traffic controllers must be suitably attired (reflective vests etc.), well trained and must have attended the induction course (see 4.11). All stationary vehicles, plant and machines must be underlain with drip trays lined with clean sand to catch any spillages which may arise, and no vehicles, plant or machinery may be serviced on site. Any such equipment which is seen to be leaking oil or fuel must be immediately removed from site.



PLATE 8: THE EASTERN PORTION OF THE PROPERTY, INCORPORATING A SMALL LAWN OF KIKUYU GRASS, WITH YOUNG INDIGENOUS TREES (OLEA CAPENSIS AND BRACHYLENA SPP.) PLANTED AT INTERVALS ALONGSIDE. THIS AREA IS TO BE ENTIRELY CONVERTED BY WAY OF THE ALTERATIONS AND ADDITIONS BEING PROPOSED. LOSS OF INDIGENOUS TREES WILL BE OFFSET BY PLANTING OF NEW INDIGENOUS TREES WITHIN THE UNAFFECTED PORTION OF THE GARDEN.

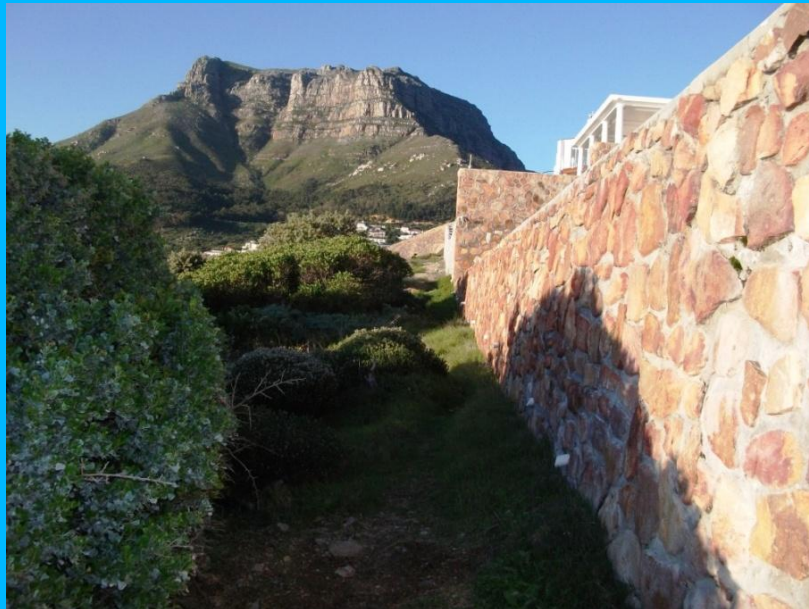


PLATE 9: A VIEW OF THE SEAWARD/ NORTH-WEST PROPERTY BOUNDARY, TAKEN FROM THE COASTAL ZONE (PUBLIC OPEN SPACE) ABUTTING THE PROPERTY AND FACING EAST TOWARDS THE REAR OF TABLE MOUNTAIN. NO AREAS SEEN HERE WILL BE IMPACTED BY THE WORKS.

4.8 Ablution facilities

The site camp must be equipped with flushable toilets and hand basins, both of which must be connected to the municipal sewer system, in favour of portable chemical toilets and in order to promote the sanitary provision of abluion facilities. All toilet facilities must be hoarded/ screened using 'Ready-Fencing' affixed with new and presentable green shade-cloth of 80 micron density, well secured against blowing over and adequately maintained. At least one toilet per 12 personnel is required and must be maintained in a clean and sanitary condition,

regularly cleaned and supplied with toilet paper. The ECO must monitor the provision and maintenance of ablution facilities, and any non-compliance must be rectified by the contractor to the ECO's satisfaction.

4.9 Stormwater/ run-off management and painting activities

The contractor will be required to ensure that stormwater and run-off onto and from the site is adequately managed and contained. In the unlikely eventuality that groundwater or subterranean deep-seated streams are found during excavations, works will need to be halted and detention areas/ coffer dams constructed into which water must be directed so that it can be managed and confined. Should sub-terranean water be found, it may be required for a geotechnical specialist to provide recommendations to ensure as low as possible an impact on groundwater/ streams and to extend ways in which excavated areas and cut banks may be adequately stabilised. It is not expected that such ground conditions will be experienced, but should the contractor discover such, the ECO must immediately be notified and works which pose a threat to the water source and/ or which are potentially a risk to slope stability must be halted until an expert has assessed the situation and mitigation measures have been implemented.

While the site is virtually flat, there is a slight gradient from the southern boundary (adjoining the roadway) to the northern boundary (adjoining the coastal zone). In order to prevent silt-laden run-off (during earthworks, site preparations etc.) from spilling into the garden, which is situated slightly downhill of the work area, a coffer dam (using sand-bags or similar) must be installed along the lower (northern) site boundary at the base of the site hoarding - this to be done in consultation with the ECO. All earthworks and excavations must be implemented to the approval of the engineer and Site Agent to ensure erosion prevention and the stabilisation of newly-exposed areas, particularly during or immediately following heavy rains. It is strongly recommended that the entire site is not cleared as a single exercise but that only those areas required to be worked in at a particular time are cleared (phased clearance).

Sunset Avenue and any stormwater gutters and catchpits must be kept free of silt-laden wash-off and debris and catchpits which may receive run-off during works on the new driveway must be lined with bidim or shade-cloth, which must be replaced once silted.

All personnel involved in paint-related activities must be instructed to manage their works in an adequate manner and must have attended the induction course held by the ECO and all painting works must be closely supervised. No washing of painting equipment may be done over exposed topsoil and all paint effluent must be directed to drums. Paint-related by-product and all drums filled with paint-effluent must be carted off site to the factory at which the paint was produced, at which the product will be recycled. A Method Statement to this effect must be prepared by the contractor and closely followed.

4.10 Protection of sensitive features (see also section 4.14: Penalties)

Conservation-worthy vegetation on and surrounding the property, any animals or birds within the coastal zone, topsoil and soil substrates, stormwater and possible groundwater sources, Public Open Space/ the coastal zone, the roadway and adjacent public and private property are all considered to be environmentally sensitive and requiring of specific conservation. In this sense, the area of garden which is to remain unaffected by the work must be hoarded off using 'Ready-Fencing' and afforded a strictly 'no go' status. In instances where any trees may be affected but are to be retained, hoarding is to be installed at a radius of at least 1.5m from the trunk of the tree to afford protection to its roots, and any roots exposed during excavations or trenching must be protected using plinths laid across the trenches (if deemed necessary by the ECO and/ or a landscape architect). Any animals or birds which may be discovered during the works may not be harmed and such discovery must immediately be reported to the ECO. The animal and its den/ burrow/ nest etc. must be relocated by the ECO or a suitably trained ecologist to an appropriate conservation area (see also Basic Assessment Report: Section E: 13).

The contractor will be held liable for damage to sensitive/ protected features and will be required to rehabilitate the damage to the satisfaction of the ECO, City of Cape Town and DEA&DP. Any damage to public infrastructure as a result of the works must be repaired to the satisfaction of the ECO, the City of Cape Town and DEA&DP prior to the contractor vacating site. If the public road or other public or private infrastructure deteriorates during the construction phase to a state where it is deemed a safety hazard as a direct result of construction work associated with the project, the road, verge or other infrastructure shall be restored to a suitable state of repair at the expense of the owner, to the satisfaction of the ECO, the City's Roads Department, the City's Environmental Management Department and DEA&DP. Any other damage to private or public infrastructure/ property as a direct result of construction work associated with the project must also be made good to the satisfaction of the owner of the affected property.

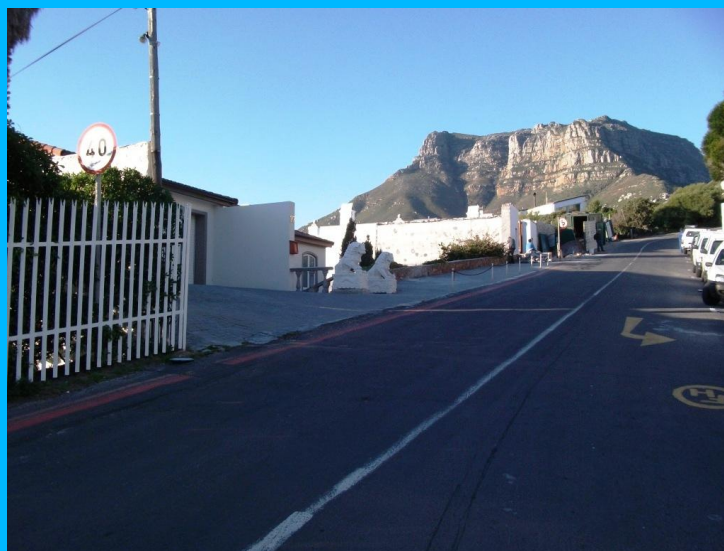


PLATE 10: A VIEW OF SUNSET AVENUE, THE PUBLIC ROADWAY WHICH ABUTS THE PROPERTY ON ITS SOUTH-EAST BOUNDARY, IN WHICH THE REAR OF TABLE MOUNTAIN CAN BE SEEN IN THE BACKGROUND. THE EXISTING DRIVEWAY SERVICING ERF 2341 IS VISIBLE BY WAY OF GREY PAVING ON THE LEFT OF THE IMAGE, WHILE THE PROPOSED NEW SUSPENDED DRIVEWAY IS TO BE INSTALLED FURTHER UP THE ROAD, NEAR THE NORTH-EAST CORNER OF THE PROPERTY. IT IS PROPOSED TO UTILISE TWO OF THE PUBLIC PARKING BAYS

RUNNING ALONG THE SOUTH-EAST (RIGHT OF IMAGE) SIDE OF SUNSET AVENUE FOR USE AS A SITE CAMP DURING THE CONSTRUCTION PHASE.



PLATE 11: THE EASTERN PORTION OF THE PROPERTY, INCORPORATING A SMALL LAWN OF KIKUYU GRASS, WITH INDIGENOUS TREES (OLEA CAPENSIS AND BRACHYLENA SPP.) PLANTED AT INTERVALS ALONGSIDE. THIS AREA IS TO BE ENTIRELY CONVERTED BY WAY OF THE ALTERATIONS AND ADDITIONS BEING PROPOSED. LOSS OF INDIGENOUS TREES WILL BE OFFSET BY PLANTING OF NEW INDIGENOUS TREES WITHIN THE UNAFFECTED PORTION OF THE GARDEN.

4.11 Environmental Induction

An environmental induction training session, to be attended by all personnel on site, will be held by the ECO prior to works commencing, with follow-up training talks held from time to time, as and when required (as new personnel come onto site or as issues of non-compliance arise). The Contractor will be required to allocate his personnel (and brief time slots) to the training talks. The induction will emphasise the need for protection of sensitive features on and surrounding the site and the need for compliance with this document.

4.12 Site Closure/ Area Rehabilitation

The site and the associated area (as affected by the works- being areas immediately abutting the site/ the property itself and those associated with the site camp) must be brought to a satisfactory condition from an environmental and infrastructural perspective, prior to departure of the contractor from site. Accordingly, all pollution associated with the building activities and site camp must be removed/ cleaned. As such, all rubble, refuse, debris, cement deposits/ residue/ dugga, effluent, wash-off, building materials, hoarding, builder's infrastructure, ablution facilities, signage, machinery and the like must be removed and the affected areas cleaned thoroughly. Any areas damaged or negatively affected by the works must be restored through cleaning, planting, re-surfacing etc. Rehabilitation and site cleaning must be undertaken to the satisfaction of the ECO, the City of Cape Town and DEA&DP. Only once satisfactory rehabilitation is reached, will the ECO be permitted to sign the site off and allow for project closure.

4.13 Method Statements

Method Statements are documents intended to describe and detail specific work activities to be undertaken by the Contractor on site, and which usually refer to aspects of the works which have the potential to impact the environment in a significantly negative way. As such, Method Statements must include the nature, extent, duration and methodology of the work to be carried out and the manner in which the potential impacts associated with the works will be mitigated. The Contractor will be required to furnish the ECO and/ or EO with Method Statements on request and within five (5) days of the intended works commencing. The ECO and/ or EO may call on the Contractor to prepare satisfactory Method Statements for any aspect of the works which are perceived to carry potential significant environmental risk. Upon approval of the Method Statement, the Contractor will be required to carry out all mitigation measures prescribed therein.

4.14 Penalties in respect of non-compliance with the EMP

Should the Contractor's activities be deemed by the ECO and/ or EO to be consistently and/ or substantially non-compliant with the requirements of this EMP, the ECO and/ or EO will have the right to implement fines of an appropriate monetary value against the Contractor. Where ongoing non-compliance occurs, or where actions on site have the potential to cause, or have caused significant environmental harm, the ECO will recommend implementation of a fine against the account of the Contractor, at a value appropriate to the cause, nature, extent, duration and severity of the non-compliant action (refer to 4.14.1 below identifying appropriate monetary values upon which penalties shall be based). All fines, once tallied on a monthly basis, will be paid over by the contractor to a non-profit organisation of the contractor's choice, at the approval of the ECO, City of Cape Town and DEA&DP. The ECO is to audit any deposit or contribution slips.

4.14.1 Monetary penalties to be levied by the ECO for specific non-compliant actions:

A	Any persons, vehicles, plant, or object related to the Contractors' operations within the designated boundaries of a "no-go" area.	R 1 000. 00- R 2000. 00
B	Any vehicle related to the Contractors' operations driving in excess of designated speed limits.	R 250. 00- R 500. 00
C	Any vehicle related to the Contractors' operations being driven, and items of plant or materials being parked or stored outside the demarcated boundaries of the site.	R 1 000. 00- R 1500. 00
D	Personnel walking outside the demarcated boundaries of the site/ site camp.	R250. 00- R500. 00
E	Inappropriate batching of cement/ concrete or similar product and resultant cement-laden wash-off from batch area.	R1 000.00 – R2 000. 00
F	Failure to maintain in a clean, undamaged and unobstructed	R1 000.00 - R2 000. 00

	order the adjacent public or private areas, such as the roadway and/ or verge.	
G	Persistent and un-repaired oil leaks from machinery/ plant and/ or persistent use of a leaking machine. The use of inappropriate methods of re-fuelling such as the use of a funnel rather than a pump.	R 1 000. 00- R 2000. 00
H	Unmanaged/ discarded litter/ refuse on or adjacent to the site.	R 1 000. 00
I	Deliberate lighting of illegal fires on or adjacent to the site.	R 2 500. 00
J	The eating of meals on site outside the defined eating area. Individual not making use of the site ablution facilities.	R 500. 00
K	Dust or excess noise on or emanating from site.	R 1 000. 00- R 1500. 00
L	Any person, vehicle, item or plant, or anything related to the Contractors' operations causing a public nuisance.	R 1 500. 00
M	Preventable/ mitigatable erosion/ slope instability	A penalty equivalent in value to the cost of rehabilitation plus 20%
N	Oil/ fuel/ paint (hazardous substance) spills	A penalty equivalent in value to the cost of clean-up operation plus 20%
O.	Damage to indigenous and/ or identified conservation-worthy vegetation.	A penalty to a maximum of R 5000. 00
P.	Damage to sensitive environments (as defined by the EMP)	A penalty to a maximum of R 5000. 00
Q.	Damage to cultural sites and/ or sites of heritage/ archaeological importance (as defined by the National Heritage Resources Act, 25 of 1999).	A penalty to a maximum of R 100 000 shall be paid for damage to any cultural/ historical site.
R.	Damage to trees/ vegetation identified for conservation/ retention on site.	A penalty to a maximum of R100 000 shall be paid for damage to any tree identified as being conservation-worthy (see table below for tree sizes).
S.	Damage to and/ or unreasonable disturbance of and/ or unauthorised removal of fauna and/ or birds and/ or their habitat/ den/ burrow/ nest etc.	A penalty to a maximum of R5 000. 00 for damage of or disturbance to/ removal of any indigenous and/

		or conservation-worthy animal/ bird/ fish.
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4.14.2 Monetary penalty criteria for damage to trees by tree girth

Girth of trunk (1m above un-worked ground level)	Replacement value per tree
0 – 15 mm	R100. 00
16 – 30 mm	R200. 00
31 – 50 mm	R500. 00
51 – 75 mm	R1 000. 00
76 – 100 mm	R2 500. 00
101 – 150 mm	R5 000. 00
150 – 300 mm	R10 000. 00
Larger than 300 mm	R15 000. 00 to R100 000. 00

5. REFERENCES

- i) *City of Cape Town: Site Environmental Management Plan (Generic template):* May 2008
- ii) *Site Plans (Architectural):* Ray Alexander Architects: February 2010
- iii) *Draft Basic Assessment Report: AVDS Environmental Consultants:* December 2010.

6. APPENDICES

APPENDIX A: Locality Map/ Aerial Photograph

APPENDIX B: SITE PLAN

APPENDIX C: HOARDING PLAN/ NOTATION TO EMP