

# **BIODIVERSITY IMPACT ASSESSMENT**

Ministry of Environment, Forests & Climate Change, as per Office Memorandum No. 1-20/2014/WL (Pt) Dated: 01.05.2015; Office Memorandum F.No. J-11013/41/2006-IA.II (I) (Part) Dated: 30.03.2015 & Office Memorandum No. J-11013/41/2006-IA.II (I) Dated: 02.12.2009, directed that *“While granting environmental clearance to projects involving forest land, wildlife habitat & or located within 10 km from National Park/ Wildlife Sanctuary, a specific condition shall be stipulated that environmental clearance is subject to their obtaining prior clearance from forestry and wildlife angle including clearance from the standing committee of the National Board for Wildlife as applicable.”*

M/s. Four Star Granites Company proposes to obtain recommendation of Standing Committee of NBWL / SBWL for the above mine from Ministry of Environment, Forests & Climate Change (MoEF& CC), Govt. of India, New Delhi as the project falls at an distance of 5.70 km from Peechi – Vazhani Wildlife Sanctuary.

## **Details of the project & Identification of Project Proponent**

Address of the Project proponent: M/s Four Star Granite Pvt Ltd  
917/A, Mangalath, Veluthoor Road  
Cherur, Thrissur, Kerala 680008  
Phone : 0487-2970178, 09388353321  
E mail: [graniteindiatcr@gmail.com](mailto:graniteindiatcr@gmail.com)

Address of the quarry : M/S Four Star granite Pvt Ltd.  
Sy No. 1255 part, Ollukkara Village  
Thrissur Taluk, Thrissur District

## **Project Nature, Size and**

### **Location : Nature :**

The project is mining of Granite Building Stone in the sanctioned lease area of 3.5658 Ha. The method of mining is semi mechanized open cast mining method for the production of Granite Building Stone.

### **Size :**

The proposed production of mine is 23500 tonnes per annum of Granite Building Stone. The anticipated life of mine will be 4 years as per targeted production.

### **Location :**

The mining area is located in Ollukkara Village of Thrissur Taluk & District, Kerala. The mine lease area falls under the Toposheet No. 58B/6 bearing Toposheet details.

### **Geo-Coordinates:**

BP 1	N 10 <sup>0</sup> 35' 29.25''	E 76 <sup>0</sup> 18' 13.69''
BP 2	N 10 <sup>0</sup> 35' 28.22''	E 76 <sup>0</sup> 18' 10.20''
BP 3	N 10 <sup>0</sup> 35' 27.28''	E 76 <sup>0</sup> 18' 9.61''
BP 4	N 10 <sup>0</sup> 35' 28.17''	E 76 <sup>0</sup> 18' 7.22''
BP 5	N 10 <sup>0</sup> 35' 27.76''	E 76 <sup>0</sup> 18' 6.44''
BP 6	N 10 <sup>0</sup> 35' 27.46''	E 76 <sup>0</sup> 18' 6.06''
BP 7	N 10 <sup>0</sup> 35' 26.25''	E 76 <sup>0</sup> 18' 5.40''
BP 8	N 10 <sup>0</sup> 35' 27.47''	E 76 <sup>0</sup> 18' 4.72''
BP 9	N 10 <sup>0</sup> 35' 26.48''	E 76 <sup>0</sup> 18' 3.58''
BP 10	N 10 <sup>0</sup> 35' 26.10''	E 76 <sup>0</sup> 18' 3.66''
BP 11	N 10 <sup>0</sup> 35' 25.44''	E 76 <sup>0</sup> 18' 1.82''
BP 12	N 10 <sup>0</sup> 35' 27.85''	E 76 <sup>0</sup> 18' 2.21''
BP 13	N 10 <sup>0</sup> 35' 29.05''	E 76 <sup>0</sup> 18' 2.44''
BP 14	N 10 <sup>0</sup> 35' 29.58''	E 76 <sup>0</sup> 18' 4.68''
BP 15	N 10 <sup>0</sup> 35' 29.92''	E 76 <sup>0</sup> 18' 5.37''
BP 16	N 10 <sup>0</sup> 35' 30.26''	E 76 <sup>0</sup> 18' 5.19''
BP 17	N 10 <sup>0</sup> 35' 31.07''	E 76 <sup>0</sup> 18' 7.07''
BP 18	N 10 <sup>0</sup> 35' 32.36''	E 76 <sup>0</sup> 18' 8.59''
BP 19	N 10 <sup>0</sup> 35' 32.38''	E 76 <sup>0</sup> 18' 11.57''
BP 20	N 10 <sup>0</sup> 35' 30.14''	E 76 <sup>0</sup> 18' 13.15''

## **EXISTING BIOLOGICAL ENVIRONMENT**

Study of biological environment is one of the important aspects in Environmental Impact Assessment in view of the need for conservation of Environmental quality. A detailed enumeration of species was carried out. Occurrences of flora at various locations were observed and typical plant species were collected. The visual observations of plants were recorded with a view to obtaining some idea about the relative density of certain species and their predominance. The proposed quarry site is a slightly elevated small sloppy land with some vegetation and two permanent waterbodies. Human habitation and public roads were far away from the site. Ecological survey for the flora and fauna was made during 12<sup>th</sup> of December 2014.

## **FLORAL ASPECTS**

The proposed quarry site is a medium sized hilly area lying around an existing quarry. The proposed area and the existing quarry are situated at Ollukkara Village, Thrissur Taluk, Thrissur District. Vegetation of the project area comprises of mixed natural vegetation and a few plantation crops like rubber, teak etc.

**Table1 List of Trees and Treesaplings**

Sl. No.	Botanical Name	Vernacular/ English Name	Family
1	<i>Bombaxceiba</i> L.	Elavu	Bombacace ae
2	<i>Cassia fistula</i> L.	Kanikkonna	Caesalpiniacea e
3	<i>Coccosnucifera</i> L.	Thengu / Coconut	Arecaceae
4	<i>Heveabrasiliensis</i> (Willd. Ex Juss.) Muell.- Arg.	Rubber	Euphorbiaceae
5	<i>Ficus exasperate</i> Vahl.	Parakam	Moraceae
6	<i>Lanneacoromandelica</i>	Uthi/Karayam	Anacardiaceae
7	<i>Mangiferaindica</i> L.	Mavu	Anacardiaceae
8	<i>Tectonagrandis</i> L.f.	Thekku	Verbenaceae
9	<i>Terminalia paniculata</i> Roth	Maruth	Combretaceae
10	<i>Tremaorientalis</i> (L. )Bl.	Pottaama	Ulmaceae
11	<i>Xyliaxylocarpa</i> (Roxb.)Taub.	Irul	Mimosaceae
12	<i>AlstoniaScholaris</i>	Ezhillampala	Euphorbeaceae
13	<i>Macaranyapeltata</i>	Vatta	Euphorbeaceae

**Table1.2. List of Shrubs**

Sl. No	Botanical Name	Vernacular / English Name	Family
1	<i>Acacia pennata</i> (L.) Willd	Karincha	Leguminoae
2	<i>Canthiumrheedii</i> DC.	Edalimaram	Rubiaceae
3	<i>Chromolaenaodorata</i> (L.) R.M. King & H. Rob.	Communist- pacha	Compositae
4	<i>Helicteresisora</i> L.	Edampiri- Valampiri	Sterculiaceae
5	<i>Hyptissuaveolens</i> (L.) Poit.	Nattapoochedi	Lamiaceae
6	<i>Lantana camara</i> L.	Kongini	Verbenaceae
7	<i>Sidaacuta</i> Burm.f.	Malamkurunthotti/ Malatanni/ Kurunthotti	Malvaceae
8	<i>Urenalobata</i> L.	Uram	Malvaceae
9	<i>Ziziphusoenoplia</i>	Thudaly	<i>Rhamnaceae</i>

**Table 1.3 List of Herbs**

Sl. No	Botanical Name	Vernacular / English Name	Family
1	<i>Ageratum conyzoides</i> L.	Appa	Compositae
2	<i>Alysicarpus vaginalis</i> var. <i>Vaginalis</i>	Nila-orila	Leguminosae
3	<i>Asystasia dalzelliana</i> Sant.	Violet Asystasia	Acanthaceae
4	<i>Biophytum sensitivum</i> (L.) DC.	Theendavadi/Mukkutti	Oxalidaceae
5	<i>Cyperus iria</i> L.	Iria flatsedge	Cyperaceae
6	<i>Dactyloctenium aegyptium</i> (L.) Willd.	Kakkalanpulu	Poaceae
7	<i>Desmodium triflorum</i> (L.) DC.	Nilamparanda/ Cherupalladi	Leguminosae
8	<i>Microstachys chamaelea</i> (L.) Müll. Arg.	Kodiyavannakku	Euphorbiaceae
9	<i>Mimosa pudica</i> L.	Thottavadi	Leguminosae
10	<i>Murdannia semiteres</i> (Dalzell) Santapau	Panicled Dewflower	Commelinaceae
11	<i>Oldenlandia corymbosa</i> L.		Rubiaceae
12	<i>Pennisetum orientale</i> Rich.	Oriental fountain grass	Poaceae
13	<i>Phyllanthus niruri</i> L.	Keezharenelli	Phyllanthaceae
14	<i>Pouzolzia indica</i> (L.) Gaudich.	Kallurukki	Urticaceae
15	<i>Scoparia dulcis</i> L.	Kallurukki	Plantaginaceae
16	<i>Spermacoce latifolia</i> Aubert	Vellatharu	Rubiaceae

		Tharavu	
17	<i>Vigna umbellate</i> (Thunb) Ohwl & H. Ohashi	Kattuzhunn u	Leguminosae

**Table 1.4 List of Climbers**

Sl. No	Botanical Name	Vernacular / English Name	Family
1	<i>Cardiospermum halicacabum</i> L.	Uzhinja	Sapindaceae
2	<i>Dioscorea alata</i>	Kachil	Dioscoreaceae
3	<i>Ipomoea obscura</i> (L.) Ker-Gawl.	Thiruthali / Cherutali / Tirutali	Convolvulaceae
4	<i>Ichnocarpus frutescens</i> (L.) R.Br.	Palvalli	Apocynaceae
5	<i>Pueraria phaseoloides</i> (Roxb.) Benth.	Thottapayar	Leguminosae
6	<i>Hemidesmus indicus</i> R. Br.	Nannaari / Naruneendi	Asclepiadaceae

## **Faunal Diversity**

Regarding the conservation status of the fauna, none of the animal species identified from the site belonged to the threatened categories identified by the International Union for Conservation of the Nature and Natural Resources (IUCN). Most of them are common and widely distributed and the range of occurrence extended to wide geographical area. However, one species of butterfly *ie.* Southern Birdwing (*Troides minos*) reported from the site is endemic to W.Ghats.

The following lists of faunal elements were observed from the site:

<b>Birds</b>	<b>:</b>	<b>23 species</b>
<b>Mammals</b>	<b>:</b>	<b>5 species</b>
<b>Butterflies</b>	<b>:</b>	<b>17 species</b>
<b>Odonates</b>	<b>:</b>	<b>7 species</b>
<b>Amphibians</b>	<b>:</b>	<b>6 species</b>
<b>Reptiles</b>	<b>:</b>	<b>6 species</b>

### **List of Mammals (In and around the project site)**

<b>Sl No.</b>	<b>Common Name</b>	<b>Scientific Name</b>	<b>IUCN Status</b>	<b>IW(P)A (Schedule)</b>
1	Indian Hare	<i>Lepus nigricollis</i>	Least Concern	IV
2	Indian grey mongoose	<i>Herpestes Edwardsii</i>	Least Concern	III

3	Jungle striped squirrel	<i>Funambulus tristriatus</i>	Least Concern	-
4	Greater Short-nosed Fruit Bat	<i>Cynopterus sphinx</i>	Least Concern	V
5	Pig Rat	<i>Bandicota indica</i>	Least Concern	V

\* IW(P)A -The Indian Wildlife (Protection) Act,1972.

### **List of Reptiles**

<b>Sl No.</b>	<b>Scientific Name</b>	<b>Common Name</b>	<b>IUCN Status</b>
1	<i>Varanus bengalensis</i>	Common Indian monitor	Least Concern
2	<i>Naja naja</i>	Asian cobra	Least Concern
3	<i>Dendrelaphis tristis</i>	Common Bronzeback Tree Snake	Least Concern
4	<i>Ptyas mucosa</i>	Oriental Rat Snake	Least Concern
5	<i>Calotes versicolor</i>	Oriental Garden Lizard	Least Concern
6	<i>Hemidactylus mabouia</i>	House gecko	Least Concern

## List of Birds

Sl No.	Scientific Name	Common Name	IUCN Status
1	<i>Acrocephalus dumetorum</i>	Blyth's Reed Warbler	Least Concern
2	<i>Spilornis cheela</i>	Crested Serpent-Eagle	Least Concern
3	<i>Accipiter badius</i>	Shikra	Least Concern
4	<i>Phylloscopus trochiloides</i>	Greenish Warbler	Least Concern
5	<i>Centropus sinensis</i>	Greater coucal	Least Concern
6	<i>Oriolus xanthornus</i>	Black headed oriole	Least Concern
7	<i>Corvus culminatus</i>	Indian Jungle Crow	Least Concern
8	<i>Dicaeum erythrorhynchus</i>	Pale billed Flowerpecker	Least Concern
9	<i>Megalaima viridis</i>	White Cheeked Barbet	Least Concern
10	<i>Dinopium benghalense</i>	Black-rumped Flameback	Least Concern
11	<i>Spilopelia chinensis</i>	Spotted Dove	Least Concern
12	<i>Glaucidium radiatum</i>	Jungle Owlet	Least Concern
13	<i>Artamus leucorhynchus</i>	Ashy woodswallow	Least Concern
14	<i>Pycnonotus cafer</i>	Red vented Bulbul	Least Concern
15	<i>Lanius cristatus</i>	Brown shrike	Least Concern
16	<i>Pavocristatus</i>	Indian Peacock	Least Concern
17	<i>Hierococcyx varius</i>	Common Hawk Cuckoo	Least Concern
18	<i>Nectarinia zeylonica</i>	Purple-rumped Sunbird	Least Concern
19	<i>Merops orientalis</i>	Small Green Bee Eater	Least Concern
20	<i>Loriculus vernalis</i>	Indian Hanging Parrot	Least Concern
21	<i>Turdoides affinis</i>	Yellow-billed Babbler	Least Concern
22	<i>Gallus sonneratii</i>	Grey Junglefowl	Least Concern
23	<i>Treron affinis</i>	Grey-fronted Green Pigeon	Least Concern

### List of Amphibians

Sl No.	Scientific Name	Common Name	IUCN Status
1	<i>Rhacophorus malabaricus</i>	Malabar gliding frog	Least Concern
2	<i>Duttaphrynus melanostictus</i>	Indian common toad	Least Concern
3	<i>Pseudophilautus sp.</i>	Bush Frog	Least Concern
4	<i>Clinotarsus curtipes</i>	Bicolored Frog	Near Threatened
5	<i>Hoplobatrachus tigerinus</i>	Indian bullfrog	Least Concern
6	<i>Polypedates sp.</i>	Tree Frog	

### List of Odonates

Sl No.	Scientific Name	Common Name
1	<i>Orthetrum sabina</i>	Green Marsh Hawk
2	<i>Bradinopyga geminata</i>	Granite Ghost
3	<i>Neurothemis fulvia</i>	Fulvous Forest Skimmer
4	<i>Trithemis aurora</i>	Crimson Marsh Glider
5	<i>Gynacantha dravida</i>	Brown Darner
6	<i>Potamarcha congener</i>	Yellow-Tailed Ashy Skimmer
7	<i>Ceriagrion cerinorubellum</i>	Orange-Tailed Marsh Dart

## List of Butterflies

Sl. No.	Common Name	Scientific Name	Status
	<b>Papilionidae</b>		
1	Southern Birdwing	<i>Troidesminos</i> Cramer	Endemic to W.Ghats
2	Paris Peacock	<i>Papilioparis</i> Linnaeus	
3	Red helen	<i>Papiliohelenus</i>	
	<b>Pieridae</b>		
4	Psyche	<i>Leptosianina</i> Fabricius	
5	Common Emigrant.	<i>Catopsilia</i> Fabricius	
6	Common Grass Yellow	<i>Euremahecabe</i> Linnaeus	
	<b>Nymphalidae</b>		
7	Common Nawab	<i>Polyura athamas</i>	
8	Tawny Coster	<i>Acraea violae</i> Fabricius	
9	Chocolate Pansy	<i>Junoniaiphita</i> Cramer	
10	Common Four- ring	<i>Ypthimahuebneri</i> Kirby	
11	Common Bushbrown	<i>Mycalesisperseus</i> Fabricius	
12	Great Eggfly	<i>Hypolimnasbolina</i> Linnaeus	
13	Common Crow	<i>Euploea core</i> Stoll	
	<b>Lycaenidae</b>		
14	Common Cerulean	<i>Jamidesceleno</i> Cramer	
15	Red Pierrot	<i>Talicaadanyseus</i> Guerin-Meneville	
	<b>Hesperidae</b>		
16	Chestnut Bob	<i>Iambrixsalsala</i> Moore	
17	Bush Hopper	<i>Ampittiadioscorides</i> Fabricius	

## Recommendations

The following recommendations were made for the sustainable development of the project so as to protect the biodiversity of the area. The following species of native plants can be planted in the area earmarked for green zone and also during mine closure.

Sl No.	Trees	Shrubs
1	<i>Schleicheraoleosa</i>	<i>Dendrocalamusstrictus</i>
2	<i>Bombaxceiba</i>	<i>Bambusabambos</i>
3	<i>Santalum album</i>	<i>Helicteresisora</i>
4	<i>Wrightiatinctoria</i>	<i>Sidarhombifolia</i>
5	<i>Terminalia paniculata</i>	<i>Cycascircinalis</i>
6	<i>Tabernaemontana alternifolia</i>	<i>Justiciaadhatoda</i>
7	<i>Tectonagrandis</i>	<i>Mussaendafrondosa</i>
8	<i>Vitexaltissima</i>	<i>Ochlandra sp.</i>
9	<i>Olea dioica</i>	<i>Bambusa vulgaris</i>
10	<i>Ficushispida</i>	<i>Ixoracoccinea</i>
11	<i>Dalbergialatifolia</i>	<i>Pseudarthriaviscida</i>
12	<i>Lanneacoromandelica</i>	<i>Clerodendruminfortunatum</i>
13	<i>Grewiatiliifolia</i>	<i>Capparisrheedii</i>
14	<i>Xyliaxylocarpa</i>	<i>Canthiumrheedii</i>

## Compensatory Mass Plantation Programme

An area equivalent to about 10 % of the area proposed for quarrying is reserved in the area owned by the project proponent outside the proposed quarry for compensatory mass plantation. The area selected is such that there is enough depth of top soil and overburden and the quarrying in this area is not proposed in future.