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| XII.        | <a href="#">Role of Joint Advisors (Environment &amp; Plantation) posted at ROs w.r.t Enumeration of trees, Identification of Compensatory Afforestation areas, preparation of Feasibility Study Report, Evaluation of alternative alignment etc. and in preparation of reply to the Essential Details sought by Forest Departments.<br/><br/>(NHAI/Policy Guidelines/ Environment/2023- Policy Circular No.7.4.12/2023 dated 12th July, 2023)</a>                                                                                 |

## Tree Transplantation Guidelines-Standard Operating Protocol (SOP)



**भारतीय राष्ट्रीय राजमार्ग प्राधिकरण**  
(सड़क परिवहन और राजमार्ग मंत्रालय)  
**National Highways Authority of India**

दूरभाष / Phone : 91-11-25074100/25074200

(Ministry of Road Transport and Highways)  
जी-5 एवं 6, सेक्टर-10, द्वारका, नई दिल्ली - 110 075  
G-5 & 6, Sector-10, Dwarka, New Delhi-110075

NHAI/Policy Guidelines/ Environment/2022

Policy Circular No. 7.4.6/2022 dated 19<sup>th</sup> April, 2022

{Decision taken on E-Office File No. NHAI/GHD/02/02/32/2022/001 (Computer No: 139850)}

## Sub.: Tree Transplantation Guidelines - Standard Operating Protocol (SOP).

The Green Highways Policy, 2015 has provided transplantation of trees instead of felling them during Highways development. As you are aware that transplantation of trees often becomes essential despite all precautions to retain trees during the design and development of highways. The Ministry of Road Transport & Highways has requested to the Ministry of Environment, Forest and Climate Change to formulate the Tree Transplantation Policy as well as techniques for successful tree transplantation in the Country being the appropriate Ministry for this purpose so that the States and the Project Authorities may follow this policy. However, it is found that the State Forest Departments in many States or the Regional Offices of MoEF&CC while according the Environmental Clearance or the Forest Clearance put the condition of transplantation of trees in some projects. Hence, keeping in view the above condition imposed for EC/FC clearance of the highway projects, NHAI has prepared Tree Transplantation Guidelines - Standard Operating Protocol (SOP) to carry out the tree transplantation process which is enclosed herewith for implementation till the Tree Transplantation Policy as well as techniques for the successful Tree Transplantation is formulated by MoEF&CC.

2. It is further to bring to notice that tree transplantation is highly skilled and evolving process because the survival of the transplanted trees and keeping them in good aesthetic shape is a difficult task. In this background, transplantation of trees must be resorted after conducting the feasibility study by technical and experienced professionals where transplantation of trees is to be done.

3. This issues with the approval of Competent Authority.

Encl.: As above



(Lt Col Chandan Vatsa, Retd)  
Chief General Manager (Coord.)

To:

All Officers of NHAI HQ/ ROs/ PIUs/ CMUs/ Site Offices

Copy to:

1. Hindi Officer for translation in Hindi.
2. Library for hosting the circular on library site.
3. Web Admin for circulation.

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## Tree Transplantation Guidelines - Standard Operating Protocol (SOP)

National Highways Authority of India

Green Highways Division

## Tree Transplantation Guidelines - Standard Operating Protocol (SOP)

## 1. Introduction

Ministry of Road Transport and Highways (MORTH) realized that loss of vegetation is one of the inevitable consequences of highways development and obviously it is primary responsibility of the development agencies to offset this loss by way of developing tree cover on median and avenue land along the highways to enhance aesthetics of highway corridors. With this spirit, MORTH promulgated Green Highways (Plantation, Transplantation, Beautification and Maintenance) Policy-2015 with following objectives:

- To evolve a policy framework for plantation along National Highways;
- To reduce the impact of air pollution and dust as trees and shrubs are known to be natural sink for air pollutants;
- To provide much needed shade on glaring hot roads during summer;
- To reduce the impact of ever increasing noise pollution caused due to increase in number of vehicles;
- To arrest soil erosion at the embankment slopes;
- To prevent glare from the headlight of incoming vehicles;
- To moderate the effect of wind and incoming radiation;
- To create employment opportunities for local people;

Section-8 of the policy emphasizes that occasion may arise when a grown up tree has to be cut to make room for constructing a road, a building or other structure. It will be desirable to save this tree by transplanting it at a suitable site.

Trees on highways play a significant role in enhancing the well-being of its citizens by offering numerous benefits to travelers, communities, wildlife and environment. Green spaces help people to re-connect with nature, their neighbors and surroundings. Trees not only add character to the surroundings but perform vital biological functions like photosynthesis and prevent soil erosion by holding and absorbing water during intense rainfall. They improve the air quality by absorbing pollutants and by intercepting harmful particulates that are emitted by



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## Tree Transplantation Guidelines - Standard Operating Protocol (SOP)

vehicles and industries. Effective planning and implementation towards protecting the trees are of utmost importance to maintain sustainable green corridor along National Highways. Trees transplantation is important due to its close link to highways road network development where existing trees are invariably sacrificed during road construction. Due to increased consciousness about environmental issues, there is generally strong reaction from civil society if trees are felled despite extreme care of cost benefit analysis. Many times, High Courts and Supreme Court of India seize the matter suo motto. Transplantation of well grown healthy trees appears to be the way out to address the issue. The tree transplantation process is highly technical work and relatively expensive in which trees survival is difficult to maintain. The transplantation guidelines may work as Standard Operating Protocol (SOP) designed with a view to provide systematic steps in assessing the feasibility and suitability of transplanting trees on highways landscape.

## 2. Feasibility Study and Action Plan

The feasibility study of trees is most important exercise which may determine optimum utilization of resources and maximum rate of success. There are some important basic considerations for any transplantation exercise-

- There should be essentially a cost- benefit analysis of transplantation project considering possibilities of fresh tall trees planting as better sustainable alternative.
- Young nursery grown tall trees will resume growth much sooner than an old transplanted tree and will provide more long term benefits.
- The shrubs have better transplant tolerance than trees.
- Deciduous species have better chance to survive than evergreens.
- Young trees perform better after translocation than older ones.
- Shallow rooted species are easy and thrive relatively better than deep rooted species.
- Transplantations of very large size and very old trees should be avoided unless there is some specific cultural or historical value attached to the tree.
- The tree species which produce coppice shoots have better chances of survival after translocation.

### 2.2 Steps for Transplantation

There are following three major steps in tree transplantation operation which need to be carried out in project period of not less than two financial years giving favorable conditions of two monsoons to the transplanted trees.

**2.2.1 Pre-Transplantation Operation:** It includes engagement and orientation of skilled manpower, pruning, trench digging, treatment and conditioning, root ball wrapping with burlap,

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## Tree Transplantation Guidelines - Standard Operating Protocol (SOP)

mechanical support during conditioning at host site. This operation qualifies for 30% payment of project cost.

**2.2.2 Translocation Operation:** It is a sensitive exercise which requires appropriate machine/cranes and customized truck for lifting, loading and unloading and replanting of tree. This operation entitles for 20% payment of project cost. Pre-transplantation and translocation operations should be completed in 3-4 months of pre- monsoon and early monsoon period.

**2.2.3 Post – Transplantation Operation and Maintenance:** They include temporary support, treatments, watering and monitoring for appropriate intervention at receptor site to ensure survival and recovery for growth. This operation qualifies for 30% payment during maintenance and balance 20% after successful completion of the project.

Minimum 80% survival rate of transplanted trees is to be ensured out of the selected trees identified for transplanting after Feasibility Study. If the survival rate is less than prescribed, penalty is to be imposed at the rate of project cost per tree and no payment to be made for transplantation operation of the dead tree.

### 3. Tree Transplantation

Transplanting is the term used to describe the digging and replanting of a grown up tree from one location (the host site) to a new location (receptor site). Due to the wide extent and morphology of tree root system, transplanting of trees usually involves substantial removal of roots in a scientific manner. The whole transplanting process in particular for large trees is an engineering feat and requires substantial involvement of resources and time. The proposal to retain, fell or transplant the trees should be properly planned to ensure that sufficient piece of land and time for preparations is available for the trees transplantation.

Trees should be properly preserved and no tree should be unnecessarily removed while implementing development projects. Trees that are suitable for and worthy must be preferred for preservation by all possible designs and alignments.

### 4. General Health and form of the tree

Trees that are healthy and structurally sound, in particular native species need to be identified for transplanting. Digging a tree for transplanting can remove as much as 90 percent of the absorbing roots which causes a 'transplant shock' to the tree. A transplanted tree should be able to re-establish sufficient roots to sustain itself. If the tree has poor health, the rates of survival and recovery will be low. In addition, life span and health of trees after transplantation should be considered before transplanting to ensure that the operation is cost effective.

### 5. Size of trees

The size of trees that can be re-located is limited by logistical practicability and resource availability. As a general rule, transplanting a small tree can be more successful than the large

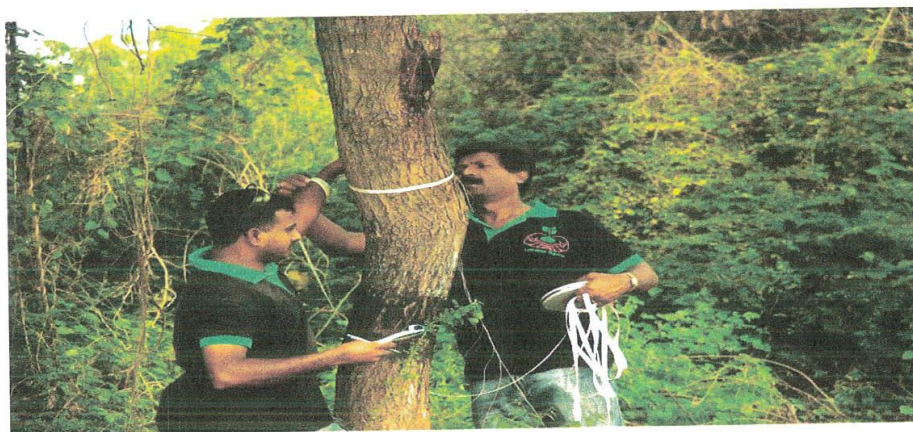


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## Tree Transplantation Guidelines - Standard Operating Protocol (SOP)

ones of the same species. The logistical requirements and the cost of moving also increase substantially with the tree size, especially for off-site transplanting. Survival rates depend on Girth at Breast Height (GBH) of transplanted trees-

- Tree size less than 60 cm GBH - good chance
- Tree size between 60-90 cm GBH- fair chances with transplantation friendly species.
- Trees size 90-120 cm GBH- some chance, needs consideration of cost-benefit of operation.
- Tree size more than 120 cm GBH – rare chances, to be tried only for trees selected on high value parameters.

**6. Species consideration**

Invasive or Exotic species that are not native to the region (Subabul, Eucalyptus, Prosopis etc.), shrubs and tree species that have proven unsuccessful in the past transplantation efforts can be avoided. Trees having particular significance and high conservation value should be preferred for transplanting.

Nccm, Peepal, Bargad, other Ficus species, Cotton tree (*Bombax ceiba*), Peltophorum, *Pongamia pinnata* (Karanj) and *Syzigium cuminii* (Jamun), *Dalbergia sissoo* (Shisham), *Cassia fistula* (Amaltas), *Holoptelea integrifolia* (Kanju), *Terminalia arjuna* (Arjun), *Delonix regia* (Gulmohar), *Phoenix sylvestris* (Khajoor) and *Albizia lebbek* (Siris) are some tree species which are reported to have successfully regenerated after transplantation. The transplantation is a subject with evolving technology and experience of best practices for successful scientific transplantation of various trees species in different agro-climatic conditions. Accordingly new species and transplantation parameters may be updated in standard operating protocol.



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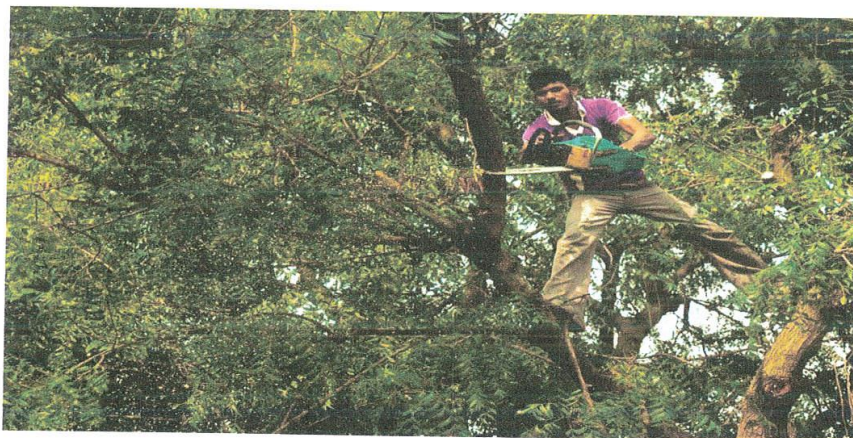
## Tree Transplantation Guidelines - Standard Operating Protocol (SOP)

**7. Timing of transplanting**

Monsoon is the right time for transplantation due to better growth conditions of favourable temperature and enough soil moisture. In temperate areas, spring season may be considered as optimal time.

**8. Process of Transplanting****8.1 Tree Crown Pruning**

Pruning of tree crown during transplanting may not be necessarily beneficial to the trees as thinning the crown can reduce the tree's capability in producing food and building up reserves. Excessive pruning can ruin the natural form of a tree and reduce photosynthesis. However, controlled pruning is necessary to reduce risk and inconvenience to public while transporting it from the host site to receptor site. In some cases, pruning may also be done to improve the tree health and structure by removing the pest infested branches or towards the general enhancement of its appearance.

**8.2 Manual Transplanting****8.2.1 Preparation of Root Ball**

- i. Root pruning is sometimes required before transplanting a tree. Sufficient time should be allowed between preparation and final lifting for development of new roots capable of sustaining and continuing the growth of the transplanted tree. The root system of a open-grown tree will normally be widespread. Lifting such trees without initial preparation of a root ball will result in much of the root system being left in the soil. After transplanting, the tree crown may then die back, or the tree may not be able to recover and will die eventually.
- ii. The root ball size varies depending on species, habit, location and specific attributes which



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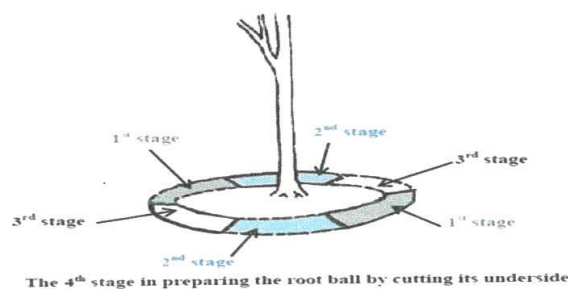
## Tree Transplantation Guidelines - Standard Operating Protocol (SOP)

shall be as large as practicable to maximize the potential of survival during and after transplanting while balancing other logistical and cost concerns. In general, the root ball diameter to tree diameter ranges from 8:1 to 10:1 according to international standards (except for palm which may require a smaller root ball). The root ball sizes should be of a diameter and depth to encompass enough of the root system as necessary for establishment. Normally the diameter of a root ball is larger than its depth which seldom exceeds 1 meter.

## iii. Stage digging

Root pruning to form a reasonable size of root ball is required and may be adjusted to suit specific tree species and project constraints. For large size mature trees, root pruning is usually required to be carried out at different stages with a minimum of 1 month allowed for root regeneration between cuts. Stage digging can be carried out in the following stages in situations if the locations and work programme are considered suitable. The four stages are:

- (a) 1st stage – Dig a trench on the outside of the marked circumference in only two opposing segments
- (b) 2nd stage – After a period of not less than 1 month since the 1st root pruning, dig a trench on the outside of the marked circumference in the adjacent two opposing segments;
- (c) 3rd stage – After another period of not less than 1 month since the 2nd root pruning, dig a trench on the outside of the marked circumference, in the remaining two opposing segments; and

**Stage Digging**

- (d) 4th stage – After a further period of not less than 1 month since the 3rd root pruning, prepare the root ball and cut the underside of the root ball, followed by uplifting and transplantation.

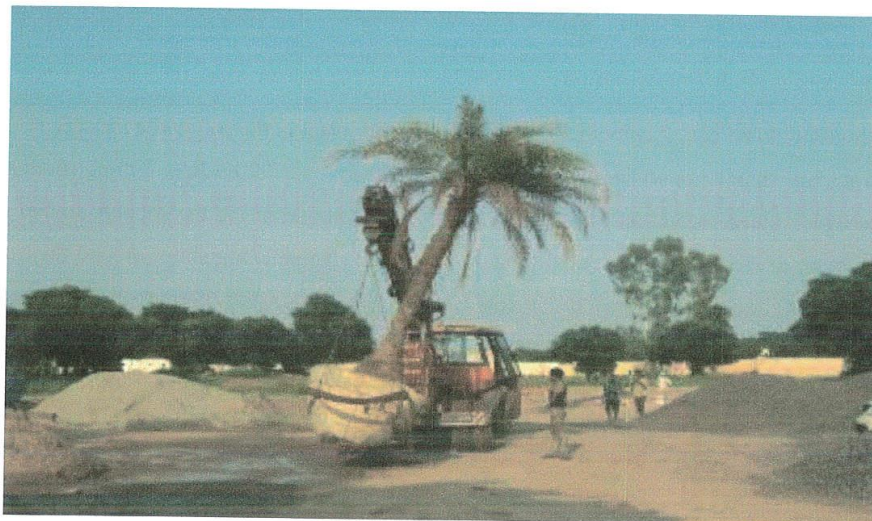
The width and depth of trench may vary for different trees and excavated trench shall be backfilled with amended soil mix with growth hormones to encourage the growth of the fibrous

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absorption roots at the region of the cut zone.



#### 8.2.2. Identification of Receptor Site

Once the tree is identified, the location ideal for the transplantation (receptor site) of it has to be fixed. Location of the receptor site should preferably be in proximity to the project site to reduce cost factors. This will also maximize the chances of re-generation as close proximity means similar soil composition and climatic conditions – factors that are essential for a successful regeneration. The soil at the receptor site will have to be nearly similar type, with similar drainage and sun exposure for the tree to thrive. Measures have to be taken to ensure availability of sufficient space to accommodate the tree and guarantee its future growth.

#### 8.2.3 Preparation of Receptor Site

Adequate time has to be allotted for seasoning of the receptor site and thereby making it ideal for tree growth. This begins with the pit digging at the receptor site. The depth of the planting pit should not exceed the depth of the root ball and the width should be minimum of 1.5 times the diameter of the root ball to suit the location. The pit should be dug one or two days before the identified tree is uprooted. It has to be watered well and let to cool-off for a minimum of 8-10 hours before transplantation. If the soil is extremely hard or compacted, the pit dug should be much larger to loosen the soil around the perimeter and to make it easier for the roots to spread when they begin to grow outward. The existing top soil ploughed from digging should be put aside for re-use in the pit mixed with soil from host site of transplanted trees. This may be helpful to avoid distinct interface of the tree with surrounding soil.



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## Tree Transplantation Guidelines - Standard Operating Protocol (SOP)

**8.2.4 Uprooting & Translocation**

The tree should be pulled up with most of the roots still intact in the soil while the soil around the root ball should not wither off. With the help of sharp ends of the JCB, Lifting should be done with padded protection for the tree, using a crane connected to the support around the main trunk of the tree. It is essential to make sure that self-tightening slings around the trunk do not bruise or rupture the bark else it could lead to tree death. Once lifted up, the tree should be tipped to a horizontal position on a trailer to be transported to the receptor site.

**8.2.5 Trees at Transit Nursery Site**

In some unforeseen situations, the trees may have to be uprooted without proper preparation at receptor site. Temporarily, trees should be kept at transit nursery with proper support during their stay at transit place. There should be arrangement of proper watering as part of regular maintenance to sustain partial recovery of the tree from dislocation stress.

**8.2.6 Replanting at Receptor Site**

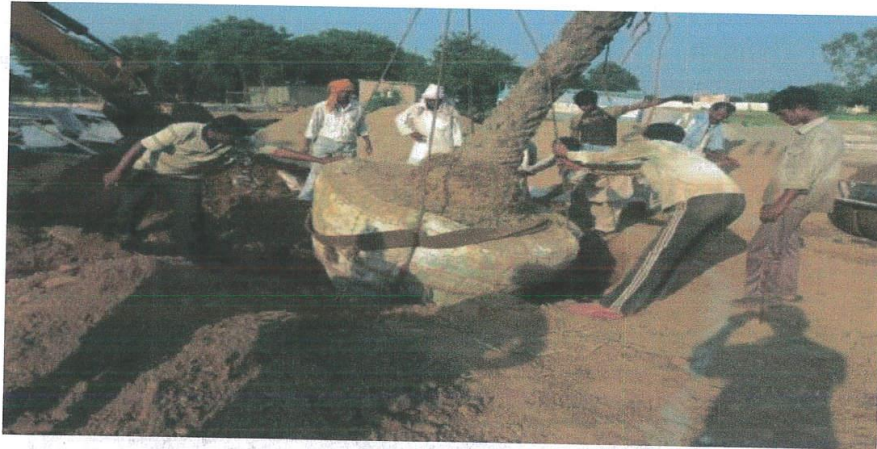
At the receptor site, the previously dug pits should be filled with one unit of native soil from the host site, mixed with coir peat, natural manure and set as layer from the bottom of the pit. This will avoid a distinct interface between the soil at the planting pit and the native soil from the host site. Trees will not tolerate highly compacted soil, which should be broken up, over as large an area of the site as possible. Planting pits should be provided with drainage to allow effective percolation of water.


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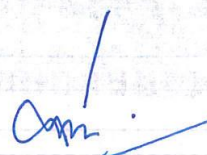
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## Tree Transplantation Guidelines - Standard Operating Protocol (SOP)

**8.3 Machine Transplantation**

Tree transplantation is laborious task as it includes mechanized power for relocation of large trees. This process includes encircling the tree, digging into the ground and then lifting the entire tree, including its roots and soil out of the ground and replanting or transplanting the whole tree in the designated area. There are heavy machinery equipments available for such laborious tasks such as Tree spade which is specialized tools for transplantation. Often it includes a vehicle with a tilting mechanism, lifting mechanism and digging apparatus. The digging tree to be removed and transported. Digging apparatus is comprised of a frame and a plurality of blades. A dual cylinder attached to each of the blades and to the frame. When tree spades are compared to JCB, it is found that the latter does not have specialized tools like tree spades [A typical machine consist of a number of blades (generally 3 or 4, but single or dual blade designs also exist)] while in JCB front and back attached shovel is specifically designed for digging the surface and for excavation purpose only. Its front mounted shovel can be used to hold the uprooted tree but horizontally and not vertically. Also JCB machines do not have such blades which can hold and grip the uprooted trees.

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## Tree Transplantation Guidelines - Standard Operating Protocol (SOP)

**9. Primary care at receptor site**

Before the tree is planted, the bruised branches due to crown pruning and transport damage should be smeared and covered with cow dung. After applying the dung, wet hessian sacks should be tied around the cut branches to avoid direct exposure to sunlight. This will prevent damage to vital tissues and encourages and fastens the re-generation of leaves from the cut area.

While planting, the tree should be placed in the same orientation from which they originated. The top surface of the root ball should not be below the surrounding soil. Once the tree is in position, the back-fill soil, that comprises of both native soil from host site and soil dug out from the pit at receptor site shall be reinstated and it shall not be compacted to a density that inhibits root growth. The back-fill soil should be tamped firmly around the base to stabilize the tree, but the rest of the soil should be tamped only lightly, or left to settle on its own. Water should be added to the root ball and the backfill to bring the root ball to field capacity.



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## Tree Transplantation Guidelines - Standard Operating Protocol (SOP)

**10. Post-planting care of trees**

All newly planted trees are subject to stress until a normal spreading root system starts developing. The primary objective of planning site preparation is to provide a quantity of back-fill soil that promotes rapid initial root development and does not restrict root spread beyond the planting hole. It would be necessary to ensure the tree is stable before its root system is fully recovered to give support. Proper care after transplanting will help assure survival and minimize stress and ensure a higher successful rate. Maintenance is a continuation of the transplanting process. Efforts and expenses will be wasted if trees are not given proper care after transplanting.

**11. Hay wrapping on transplanted trees**

In order to prevent exposure to excessive sunlight and to retain sufficient moisture, the transplanted, stressed tree should be wrapped from the top to the base part that is above the soil with hay bales that can be procured locally and manually strung into ropes to suit the purpose. Once wrapped, water should be sprayed all over to dampen the hay-covered area.

**12. Mulching**

Mulch can be used to conserve soil moisture by buffering soil temperature extremes, to control weed growth and other competing vegetation, and to replenish organic matters and nutrients in the soil. A mix of wood chips, coir peat and coconut shells or agriculture waste material, about 5 centimeters thick, can be used for the purpose. A well-established layer of mulch can hold more water than the soil itself, without decreasing soil aeration. The mulch used should be treated to make it free from pests and diseases. Moderate release of nutrients by decomposition of both mulch and organic matter added to back-fill soil may be sufficient during the initial period.



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## Tree Transplantation Guidelines - Standard Operating Protocol (SOP)

**13. Watering after Transplantation**

Sufficient and appropriate watering is important for the proper root growth. Provision should be made for watering, allowing for total wetting of the rooting volume to minimize stress and assure survival. Fertilization may be unnecessary unless nutrient deficiency is confirmed. Tree transplanting should be conducted in a controlled and safe manner. Workers who are involved in transplanting trees should be given adequate instructions, supervision and safety measures to ensure that tasks are completed in a safe manner. The sites should be inspected for possible hazards prior to beginning any transplanting procedure. The location of utilities and other obstructions both below and above ground shall be taken into consideration prior to transplanting any tree.

**14. Support to transplanted trees**

Staking may be useful to keep the tree in upright position until its stability with soil compaction and roots development to anchor the tree. The stakes and ties should be adjusted or replaced after inspection as and when necessary to ensure its effectiveness for serving the purpose. The support should be removed after tree establishment otherwise it will be counter-productive to the stabilization.

**15. Duties & Responsibilities and Transplantation Journal**

The Chief Transplantation Expert should be supported with adequate trained personnel for entire project period. The staff should be given proper directions to carry out assigned work and keeping record of activities for review and corrective measures. A transplantation journal should be maintained for every site as detailed record of all operations from beginning to the completion along with photographs captured at every stage of transplantation process and maintenance phase at receptor site.

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## Tree Transplantation Guidelines - Standard Operating Protocol (SOP)

**16. The Way Forward**

- National Highways are considered as integral part to the wealth, prosperity and rapid economic development. In the process, some damage is bound to be inflicted to the environment and ecology thus affecting ecosystem services. The transplantation is an option to be considered to avoid cutting as many trees as possible to save the green cover.
- Exploring alternative routes, considering better engineering designs, highways alignment & landscaping and advance preparedness for tall trees planting during road development projects may help maintain precious tree cover.
- The cost- benefit analysis of transplantation project should be done meticulously.
- The benchmark should be defined for tree survival rate for different species and agro climatic zones. It should be updated from time to time keeping scientific trends and data on successful transplantation.
- The repository should be maintained of all transplantation projects undertaken with geotagged data of trees, success rates of different projects, different species, different girth class, different transplantation agencies for analytical studies and updation of technical and general specifications in Standard Operating Protocol.




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Tree Transplantation Guidelines - Standard Operating Protocol (SOP)

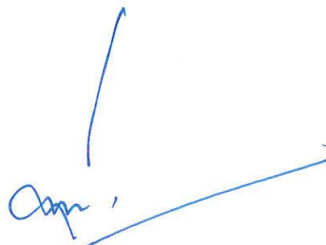
## 17. Abstract of Transplantation Operations

## A. Operational activities and their weightage (%)

| S.No. | Activities                                                                                                                                                | Weightage (%) |
|-------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| 1     | Feasibility Study                                                                                                                                         |               |
| 2     | Tree crown pruning                                                                                                                                        | 5             |
| 3     | Root ball preparation                                                                                                                                     | 30            |
| 4     | Receptor site preparation                                                                                                                                 | 10            |
| 5     | Uprooting & transportation                                                                                                                                | 15            |
| 6     | Replanting                                                                                                                                                | 5             |
| 7     | Post transplanting primary care<br>(Temporary support, hay wrapping, mulching etc.)                                                                       | 6             |
| 8     | Post planting care & maintenance<br>(Treatment with insecticides & growth hormones applications- 2%)<br>(Watering, protection & General maintenance- 20%) | 22            |
| 9     | Transplantation Journal<br>(Record keeping, photography, geo tagging)                                                                                     | 2             |
| 10    | Miscellaneous                                                                                                                                             | 5             |

## B. Payment Proportion of Project Cost for Transplanting Operations.

| S.No. | Operation                                     | Payment proportion in project period (%) |
|-------|-----------------------------------------------|------------------------------------------|
| 1     | Pre -Transplantation                          | 30                                       |
| 2     | Transplantation                               | 20                                       |
| 3     | Post -Transplantation Operation & Maintenance | 30                                       |
| 4     | Successful completion of project              | 20                                       |





## भारतीय राष्ट्रीय राजमार्ग प्राधिकरण

(सड़क परिवहन और राजमार्ग मंत्रालय)

## National Highways Authority of India

(Ministry of Road Transport and Highways)

जी-5 एवं 6, सेक्टर-10, द्वारका, नई दिल्ली-110075

G-5 & 6, Sector-10, Dwarka, New Delhi-110075

दूरभाष / Phone : 91-11-25074100/25074200

फैक्स / Fax : 91-11-25093507 / 25093514

**Date: 06.06.2022**

**File No: NHAI/GHD/02/02/23/2016/.118**

**To**

**All Regional Officers**

**National Highways Authority of India**

**Subject:** Circular for improvement of plantation project implementation by Concessionaires.

It is often observed that some of the Concessionaires are doing the plantations in summer months also for the sake of obtaining the PCOD. Even though the guidelines for taking up the plantations issued by the Competent Authority are very clear that the plantations should be taken up during the monsoon season only to make them successful, but it has come to the notice that in spite of advising the Concessionaires or their representatives by the Joint Advisors (Plantation), NHAI not to take up the fresh plantations during the summer months like February, March, April, May etc., they are still doing them. The plantations particularly the Avenue Plantations will be very difficult to survive in view of unfavorable weather conditions due to high temperatures and loss of humidity etc. Even the availability of sufficient water in most of the places during the summer months for frequent watering of the plants will be difficult. Hence, there would be lot of casualties of plants. Therefore, taking up the plantations just for the sake of PCOD is not advisable. The Concessionaires should be advised to take up the plantations during the monsoon season only.

However, if the PCOD becomes necessary to be considered even though the Concessionaire has not done the plantations, the estimated expenditure as per the State Government rates like Forest Department etc. may be retained from the bills of the Concessionaire for doing the plantations and their maintenance for five years as per IRC Guidelines in case of EPC contracts, with the consent of the Concessionaire and as per condition of the Contracts, to be released based on the progress of plantation work. Failing which the balance plantation work including its maintenance for 5 years may be awarded to some other agency as a single work at the risk and cost of the Concessionaire.

In case of other contracts like HAM, BOT (Annuity) and BOT (Toll) the work of Plantation may be entrusted to other agencies either government or private at the risk and cost of the Concessionaire at least for 5 years in accordance to the conditions of the contract, if he does not take up the plantation (Avenue and /or Median) in the next monsoon season even after getting the PCOD.

Moreover the Concessionaire is advised to keep the full stock of tall and healthy plants in the nursery near project site (road) for planting immediately after the first monsoon shower.

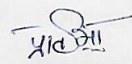
2. It has also come to the notice that in some cases after the completion of the road, its O&M is being entrusted to some other agency for a period of one year. Like this, every year a new agency is appointed for taking up the O&M work of road including plantations. In several cases, it has been found that the plantations done by the O&M Contractor have huge casualties. Even the plants which are surviving, are being browsed by the animals for want of proper protection measures.

Other operations like proper weeding and watering as per the prescriptions in IRC 21 guidelines are not being followed. The O&M Contractors are also not taking proper care of the plantations in several cases as they feel that they are there only for one year. So, due to change of O&M agencies every year, there is not much concentration on making the plantations successful. In such cases, it is advised that the plantations including the filling up the gaps and their maintenance for five years should be separated from the contract of O&M agency and entrusted to another agency – government or private so that the plantation can be taken care of for five years by the same agency which will be fully responsible for making it successful.

3. The Concessionaire/Contractor may appoint a Plantation Manager on each project having adequate experience who will be responsible for ensuring various plantation operations timely as per the prescriptions in IRC 21 guidelines which is exclusively meant for Landscaping and Tree Plantation. The CV of the Plantation Manager should be approved by the concerned Project Director of NHAI who can take the help of Joint Advisor (Plantation) or any other Plantation Expert while according its approval.

4. The plantation scheme and the species proposed on the ROW of Highways are generally approved by IE/AE. It has been observed that in many Agreements, the suitable species for the area including the spacing between plant to plant and row to row have not been adopted. Hence, the plantation scheme and species proposed on the Highway alignment should be approved by IE/AE in consultation with the Project Director, NHAI who can take the help of the Joint Advisor (Plantation) or any other plantation expert engaged by NHAI.

5. This issues with the approval of the Competent Authority.

  
(Pratima Gupta)  
General Manager (GHD & Env.)  
NHAI-HQ



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दूरभाष/Phone : 91-11-25074100 / 25074200



### NHAI/Policy Guidelines/ Environment/ 2022 Policy Circular No.7.4.7/2022 dated 12<sup>th</sup> July, 2022

{Decision taken on E-Office File No. NHAI/Modified Schedules for Plantation/2022 (Comp.No. 143718)}

#### Sub: Specification for Avenue and Median Plantations - Reg.

I. The Government has promulgated Green Highways (Plantation, Transplantation, Beautification and Maintenance) Policy-2015 to enhance the aesthetics of highways and IRC guidelines to regulate the plantation activities and post planting operations. In view of road safety concerns and conflicting provisions in different IRC guidelines, NHAI decided to tweak the provisions in all upcoming Concessionaire Agreement to ensure effective planning, implementation, monitoring and maintenance of plantation works as a part of road construction projects. Moreover there are some discrepancies between the provisions of IRC-SP:21 and Manual of specification & standards for 2/4/6 laning which call for clarification. Accordingly, the Plantation and landscaping related prescriptions in Schedule C and Schedule D of RFP and CA should be as follows:

#### (1) Schedule-C

The planting of number of trees/shrubs in avenue and median including their maintenance will be guided by the IRC-SP:21 provisions subject to the availability of ROW making allowance for recovery area.

#### (2) Schedule-D

The provision of IRC-SP:21 are to be followed except that the first row of Avenue plantation should be 14m away from the centre line of the extreme traffic lane to allow recovery area for road safety concerns. Following guidelines are to be adhered to:

##### (i) Site Preparation (Clause 11.14 of IRC-SP:21)

- Digging of pits as per standard pit size of 60 x 60 x 60 cm.
- Filling Farm Yard manure and Fertile Soil.

##### (ii) Planting of Saplings

- Detailed information provided in IRC-SP:21

##### (iii) Post-Planting Operations (Clause 11.20 of IRC-SP:21)

- Weeding & Hoeing, Watering, Maintenance, Fencing, Casualty Replacement etc.

Contd...2



-2-

(iv) Plantation Protection  
(Clause 11.15 of IRC-SP:21)

- a. Provision of chain link fencing, barbed wire fencing, iron fencing, individual iron trees guard fencing with wire mesh/ cement/ brick guard etc. as per the site requirement.

(v) Species-Matrix

(Annexure A to F of IRC-SP:21)

- a. Details of plant species prescribed according to Agro-Climatic Zones in IRC-SP:21-2009

(vi) Survival % of Plantation  
(Clause 11.14 of IRC-SP:21)

- a. 90% for 1<sup>st</sup> and 2<sup>nd</sup> Row
- b. 80% for last Row

(vii) Height of the saplings at the time of planting  
(Clause 11.14 of IRC-SP:21)

- a. Ornamental Plants (Except Last Row) : 1.5 m to 2 m
- b. Shade plants (Last Row) : More than 2 m

(viii) Avenue plantation  
(Clause 11.14 of IRC-SP:21)

- a. Spacing between rows: 3 m
- b. Spacing between plant to plant
  - i. 1<sup>st</sup> Row : 3 m
  - ii. 2<sup>nd</sup> Row : 3 m
  - iii. 3<sup>rd</sup> Row : 8-12 m

(ix) Median Plantation  
(Clause 11.19 of IRC-SP:21)

(x) Setback distance of trees

(Clause 11.2 of IRC-SP:84 & 87:2019)

- a. Distance from centre line of extreme traffic lane : 14 m
- b. Turfing of grass is recommended in sections where the median width is less than 3 m by filling good quality soil upto 45 cm.
- c. One row of shrubs is recommended where median width is more than 3 m.
- d. For two rows, the shrubs should be planted on 4.5 m to 5 m wide median at 3 m interval.
- e. There should be no plantation up to 1.5 m from the edge of median on both the sides.



Contd...3

-3-

(xi) Activities Schedule for Avenue and Median Plantation (As per IRC-SP:21, Table -5 at page no-52 &53)

| Year                 | Month       | Activities to be done |                                                                                                |
|----------------------|-------------|-----------------------|------------------------------------------------------------------------------------------------|
| 1 <sup>st</sup> year | Jan-March   | 1                     | Surveying & cleaning of the area                                                               |
|                      |             | 2                     | Digging of Pits                                                                                |
|                      |             | 3                     | Procurement of Angles iron and barbed wire (or other fencing material), and erecting the fence |
| 2 <sup>nd</sup> Year | April-June  | 1                     | Purchase of Farm yard manure                                                                   |
|                      |             | 2                     | Brick/iron etc. guard for 1 <sup>st</sup> row                                                  |
|                      |             | 3                     | Plantation along the Highway                                                                   |
|                      |             | 4                     | Filling up of pits with Farm Yard Manure and Soil                                              |
|                      | July-August | 1                     | Transportation of Plants                                                                       |
|                      |             | 2                     | Planting of Saplings                                                                           |
|                      |             | 3                     | Watering                                                                                       |
|                      |             | 4                     | Weeding and Hoeing                                                                             |
|                      | Sep-Nov     | 1                     | Weeding and Hoeing                                                                             |
|                      |             | 2                     | Watering 4 times a month                                                                       |
|                      | Dec-Feb     | 1                     | Weeding and Hoeing                                                                             |
|                      |             | 2                     | Maintenance                                                                                    |
|                      | March       | 1                     | Watering 4 times a month                                                                       |
| 3 <sup>rd</sup> Year | April-June  | 1                     | Watering 6 times a month                                                                       |
|                      | July-August | 1                     | Casualty Replacement (20% of the total plants)                                                 |
|                      |             | 2                     | Weeding                                                                                        |
|                      |             | 3                     | Maintenance by Mali                                                                            |
|                      | Sep-Nov     | 1                     | Watering 2 times a month                                                                       |
|                      |             | 2                     | Maintenance by Mali                                                                            |
|                      | Dec-Feb     | 1                     | Maintenance by Mali                                                                            |
|                      | March       | 1                     | Watering 4 times a month                                                                       |
|                      |             | 2                     | Maintenance by Mali                                                                            |
| 4 <sup>th</sup> Year | April-March | 1                     | Watering                                                                                       |
|                      |             | 2                     | Casualty Replacement (10% of the total plants)                                                 |
|                      |             | 3                     | Maintenance by Mali                                                                            |

(3) Any other activities/schedule of operations which are not covered in the annexure will be carried out as per specifications in IRC-SP:21.

(4) Avenue plantation for cross section with service road

- Plantation and pruning of trees to be done in view of road safety as prescribed in IRC-SP:21 guidelines.
- The concessionaire/ contractor shall appoint a Plantation Manager with adequate experience responsible for plantation. The CV of Plantation Manager shall be approved by the concerned Project Director.
- Plantation Scheme and Species proposed on the alignment shall be approved by the IE/AE in consultation with Project Director and Plantation Professionals engaged by NHAI.



Contd...4

-4-

II. In addition the following should also be taken care in Contract/Concession Agreement.

- a. The maintenance for plantation obligation should be part of every contract/ concession agreement.
- b. A suitable weightage should separately be assigned for landscaping and tree plantation wherever applicable and a suitable deduction should be made for non-compliance.

This issues with the approval of Competent Authority.

A handwritten signature in blue ink, appearing to be 'Sanjay Kumar Patel', is written over the date '12/07/22'.

(Sanjay Kumar Patel)  
General Manager (Coord.)

To:

All Officers of NHAI HQ/ ROs/ PIUs/ CMUs/ Site Offices

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दूरभाष/Phone : 91-11-25074100 / 25074200



NHAI/ Policy Guidelines/Environment/2022

Policy Circular No 7.4.8/2022 dated 06<sup>th</sup> October, 2022

[Decision taken on File No. NHAI/ModifiedSchedulesforPlantaion/2022 (Computer No: 143718)]

### CORRIGENDUM

Sub: Specification for Avenue and Median Plantations - reg.

In partial modification of NHAI Policy Circular No. 7.4.7/2022 dated 12th July, 2022 on Specification for Avenue and Median Plantations, the Clause (viii) of Schedule-D is amended as follows:

(2) Schedule-D

(viii) Avenue Plantation (Clause 11.14 and Fig. 8 & 9 of IRC-SP: 21:2009)

- a. Spacing between rows: 3m
- b. Spacing between plant to plant
  - i. 1<sup>st</sup> Row: 3m
  - ii. 2<sup>nd</sup> Row: 6m
  - iii. 3<sup>rd</sup> Row: 8-12m

2. The other text of the circular remains unchanged.
3. This issues with the approval of Competent Authority.



(Lt Col Chandan Vatsa, Retd)  
Chief General Manager (Coord.)

To:

All Officers of NHAI HQ/ ROs/ PIUs/ CMUs/ Site Offices

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दूरभाष/Phone : 91-11-25074100 / 25074200



### NHAI/Policy Guidelines/Environment/2023

Policy Circular No. 7.4.9 dated 15<sup>th</sup> March, 2023

(Decision taken on e-office file Comp. No. 46753)

#### Sub.: Delinking Avenue Plantations from EPC/HAM/BOT Toll Projects - reg.

The issue regarding delinking of Avenue Plantation from EPC/HAM/BOT Toll Projects was discussed in 550<sup>th</sup> EC Meeting held on 28.02.2023. Reference EC Agenda Item No. 550.01 (B)(iii)(a), the following decision has been taken regarding Median & Avenue Plantation:

#### A. For New Projects - Plantation work to be done as under:

- i. **Median Plantation** - To be done by contractor/concessionaire as it requires regular pruning and maintenance.
- ii. **Avenue Plantation** - (a) To be deleted from Scope of work in relevant Schedules of EPC/HAM/BOT(Toll) Agreements. Accordingly, proposed modifications in Schedules of EPC, HAM and BOT(Toll) projects are attached as **Annex I, II & III**.

#### B. For Ongoing Projects - Member Concerned to take decision on de-scoping of avenue plantation on case to case basis, considering the progress of plantation work at site.

(a) The cost of the plantation shall be worked out by the concerned AE/IE based on the Forest Schedule of Rates of the respective State.

(b) If the aforesaid cost of plantation is not agreed by the contractor/concessionaire, the same may be resolved amicably by referring the matter to a Sole Conciliator.

2. It has been decided to get the Avenue Plantation work executed either through Government Agencies like Forest Department/ Forest Development Corporations/ Urban bodies/ State Rural Livelihood Mission (SHGs)/ Nehru Yuva Kendra Sangathan etc. by entering MoUs **OR** through a Private Plantation Agency by inviting bids, whichever is the most effective for successful plantation. The following circulars/OMs issued by NHAI may be referred for implementing the same:

(i) NHAI Standard Operating Procedure (SOP) for implementation of Green Highways (Plantations, Transplantation, Beautification and Landscaping) Policy, 2015.

(ii) NHAI OM No. NHAI/GHD/Plantation/2021/005 dated 30.03.2021 on the subject 'Approval of Request for Proposal (RFP) for Plantation Projects on large NH Stretches & Delegation to RO to invite bid of NH length maximum 100 km or Rs. 10 Cr. estimated cost for one plantation project'.

(iii) NHAI Policy Circular No. 7.4.7/2022 dated 12.07.2022 on the subject 'Specification for Avenue and Median Plantations'.

*S. Isakashi*

Cont...2

-2-

(iv) NHAI Letter No. NHAI/GHD/02/02/23/184 (E-office 186767) dated 10.02.2023 on the subject 'Expression of Interest for Empanelment of Private Plantation Agencies for Green Highway Projects'.

3. It has also been decided that at the stage of appraisal & approval of the projects, the cost of plantation is to be estimated based on the Forest Schedule of Rates of respective State.

4. This issues with the approval of Competent Authority.

Encl.: As stated above

A handwritten signature in blue ink, reading 'S. Prakash', is written over a horizontal line.

(Sunil Prakash Bhardwaj)  
Chief General Manager (Coord.)

To:

All Officers of NHAI HQ/ ROs/ PIUs/ CMUs/ Site Offices

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## Annexure I

**A. Proposed Modifications in the Schedules of Standard EPC Agreement dated 05.03.2019**

| S. No. | Clause no.                                                             | Existing Clause                                                                                                                                               | Proposed Clause                                                                                                                                                                                                                  |
|--------|------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.     | Schedule - B,<br>Clause 10 -<br>Compulsory<br>Afforestation            | [Refer to the provision of relevant Manual and specify the number of trees which are required to be planted by the Contractor as compensatory afforestation.] | Clause 10 - Landscaping and Tree Plantation<br><br>Specifications for Landscaping and Tree Plantations (except avenue plantations) shall be followed as per IRC: SP-21 i.e. Guidelines on Landscaping and Tree Plantation        |
| 2.     | Schedule - C<br>Clause 1(d),                                           | Tree plantation                                                                                                                                               | Tree Plantation (except avenue plantation). However, specifications for plantations shall be followed as per IRC: SP-21 i.e. Guidelines on Landscaping and Tree Plantation                                                       |
| 3.     | Schedule - D,<br>Annex - I,<br>Clause 2- Deviations<br>from the manual | *Deviation to be inserted while inviting the bid                                                                                                              | The aforesaid Manual shall be applicable except for the provisions/ scope for avenue plantations. However, specifications for plantations shall be followed as per IRC: SP-21 i.e. Guidelines on Landscaping and Tree Plantation |
| 4.     | Schedule - H, Clause 1.2 - Other works                                 | (v)Road side plantation                                                                                                                                       | Tree Plantation (except avenue plantation)                                                                                                                                                                                       |
| 5.     | Schedule - H, Clause 1.3.4- Other works                                | (v)Roadside Plantation                                                                                                                                        | Tree Plantation (except avenue plantation)                                                                                                                                                                                       |

## Annexure II

## B. Proposed Modifications in the schedules of MCA of HAM dated 10.11.2020

| S. No. | Clause no.                                                    | Existing Clause                                                                    | Modified Clause                                                                                                                                                                                                                  |
|--------|---------------------------------------------------------------|------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.     | Schedule - C, Clause 1.1(d)                                   | Tree plantation                                                                    | Tree Plantation (except avenue plantation).<br><br>However, specifications for plantations shall be followed as per IRC: SP-21 i.e. Guidelines on Landscaping and Tree Plantation                                                |
| 2.     | Schedule - C, Annex- I, Clause 1(d)                           | Tree plantation                                                                    | Tree Plantation (except avenue plantation).<br><br>However, specifications for plantations shall be followed as per IRC: SP-21 i.e. Guidelines on Landscaping and Tree Plantation                                                |
| 3.     | Schedule - C, Annex- I, Clause 2(d)                           | Tree plantation<br><br>As stipulated in the Manual of Specifications and Standards | Tree Plantation (except avenue plantation).<br><br>However, specifications for plantations shall be followed as per IRC: SP-21 i.e. Guidelines on Landscaping and Tree Plantation                                                |
| 4.     | Schedule - D, Annex - I, Clause 2- Deviations from the manual | *Deviation to be inserted while inviting the bid                                   | The aforesaid Manual shall be applicable except for the provision/ scope of avenue plantations. However, specifications for plantations shall be followed as per IRC: SP-21, i.e., Guidelines on Landscaping and Tree Plantation |

## Annexure III

**c. Proposed Modifications in the Schedules of MCA of BOT (TOLL) dated 24.08.2020**

| S.No. | Clause no.                                                    | Existing Clause                                  | Modified Clause                                                                                                                                                                                                                  |
|-------|---------------------------------------------------------------|--------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.    | Schedule - C, Clause 1 (e)                                    | landscaping and tree plantation;                 | Landscaping and Tree Plantation (except avenue plantation).<br><br>However, specifications for plantations shall be followed as per IRC: SP-21 i.e. Guidelines on Landscaping and Tree Plantation                                |
| 2.    | Schedule - C, Annex - I, Clause 1 (e)                         | landscaping and tree plantation;                 | Landscaping and Tree Plantation (except avenue plantation).<br><br>However, specifications for plantations shall be followed as per IRC: SP-21 i.e. Guidelines on Landscaping and Tree Plantation                                |
| 3.    | Schedule - D, Annex - I, Clause 2- Deviations from the manual | *Deviation to be inserted while inviting the bid | The aforesaid Manual shall be applicable except for the provision/ scope of avenue plantations. However, specifications for plantations shall be followed as per IRC: SP-21, i.e., Guidelines on Landscaping and Tree Plantation |



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#### NHAI/Policy Guidelines/ Environment/ 2023

#### Policy Circular No.7.4.11/ 2023 dated 03<sup>rd</sup> July, 2023

{Decision taken on E-Office File No. NHAI/GHD/02/04/24/2016/197 (Comp. No. 196097)}

**Sub: Regarding Densification of Plantations including Planting of Bamboo, Initiating the Plantations in ROW from the Appointed date, Conservation of Existing Trees in ROW at the time of Initiating the Construction of Highway-reg.**

#### 1. Densification of Plantations including Planting of Bamboo

The plantation activities are being carried out on National Highways as per the SOP of NHAI and technical specifications of Indian Road Congress (IRC) guidelines. Presently, the specifications of spacing between plant to plant and row to row in the road side avenue plantations prescribed in IRC:SP:21:2009 are being followed. The spacing between row to row is 3 m and plant to plant in various rows are as follows:

- i. 1<sup>st</sup> Row: 3 m
- ii. 2<sup>nd</sup> Row: 6 m
- iii. 3<sup>rd</sup> Row: 8 to 12 m

These avenue plantation spacing were reviewed and discussed in VC meeting on 17.03.2023 and after thorough discussion, it was decided that spacing between plant to plant in all the rows should be reduced to 3 m for densification of the plantations which will help in faster greening of Highways. The spacing between row to row will remain to be 3 m but the spacing between plant to plant in various rows will be kept as follows:

- i. 1<sup>st</sup> row: 3 m
- ii. 2<sup>nd</sup> row: 3 m
- iii. 3<sup>rd</sup> row and subsequent rows: 3 m

The post planting operations like watering, weeding, casualty replacement and protection of plants etc. as prescribed in the IRC: SP: 21-2009 guidelines shall be followed without fail. The densification of plantations will be applicable to existing as well as future plantations.

It has also been decided that the bamboo plantations should be taken up during 2023-24 and subsequent years, wherever possible at the edge of the ROW of National Highways particularly in the Controlled-Access Highways at a spacing of 3 to 4 m between plant to plant where more than 2 rows of avenue plantations are possible in the ROW. Post planting operations like watering, weeding, casualty replacement and protection of plants etc. for the bamboo plants shall also be followed as prescribed in the IRC:SP:21-2009.



Contd...2/-

-2-

## 2. Initiating the Plantations in ROW from the Appointed date

Normally, the plantation activity particularly in the avenue plantation starts after completion of a stretch of the National Highway which sometimes takes 3 to 4 years. It is felt that we may advance the process of plantations with little care and meticulous planning so that by the time the construction of the Highway is completed, some tree growth will get established in the avenue plantations on both the sides of National Highways as per the availability of ROW lands. After the Appointed Date is given to Concessionaire/Contractor, he starts moving the men, machinery and material required for the construction of the Highway. During this time, there is lot of movement of vehicles and other machinery in the ROW land. It is advised that after about six months to one year from the Appointed Date, we may plan for taking up the plantations at least in the last row during the monsoon season in the avenue wherever possible as per the availability of ROW lands on both the sides of proposed Highway. For this purpose, the carriageways must be demarcated on the ROW and from the middle of the last carriageway towards the outer edge of ROW lands, the required space as per the prescribed norms should be marked from where the first row of plantation will start in future. In such land i.e. from the location of the first row of future plantations to the outer edge of ROW if the land is available, at least one row of avenue plantation can be taken up on the Highway wherever possible on the onset of monsoon with the trees which have bigger crown as per the suitability of soil and agro-climatic conditions as prescribed in IRC: SP: 21-2009. At certain places, certain structures would come up in future or the ROW land may be required at some places for some other purpose, so at such places we need not take up the plantation in the beginning as mentioned above. Such areas shall be planted in due course of time as per the availability of ROW after the completion of the particular stretch of the National Highway.

There are many traditional and indigenous tree species which were available in plenty in the past but slowly they are disappearing like Mahua (*Madhuca longifolia*), Bael (*Aegle marmelos*), Wood Apple (*Feronia elephantum*), Gular (*Ficus racemosa*) and many other such species in various agro-climatic zones. Some plants of such tree species should also be planted in ROW lands to conserve them for future as well as for a better bio-diversity.

## 3. Conservation of Existing Trees in ROW at the time of Initiating the Construction of Highway

IRC: SP: 21-2009 "Guidelines of Landscaping and Tree Plantation" emphasizes on conservation of existing features including landscapes and trees. It also emphasizes that while constructing the roads in forest areas, felling of trees should be kept to minimum. Of late many instances have come to the notice that while constructing new Highway or expanding the existing National Highway, the trees available in the ROW lands are mechanically felled without giving any due consideration to protect as many trees as possible from felling. It has been found that in some Regions, the Regional Officers have realised it, took proactive action and protected many trees in ROW lands from felling. Keeping in view the above, the following guidelines are issued in this regard:


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- i. DPR must contain clear design and measurements of ROW and Carriageways as per the prescribed norms.
  - ii. The ROW space should be clearly demarcated on the ground.
  - iii. All the trees in the ROW should be enumerated in a book.
  - iv. The permission for felling of the trees available in the project area as per the enumeration should be obtained from the Competent Authority as per the existing rules and procedure in force.
  - v. From the middle of the proposed last carriageway, the required space as per the prescribed norms should be marked towards the outer edge of ROW from where the first row of plantation will start in due course of time. So in the space between the proposed first row of plantation to the outer edge of ROW on both sides whatever the number of trees are available, their inventory shall be prepared and they will be marked with the paint for their easy identification for retaining them without felling. However, due to some reasons, if any tree or trees are required to be felled in future for construction of the highway, such tree or trees may be felled as per the need according to the felling permission already obtained from the Competent Authority. This way, we would be able to save at least some trees in ROWs.
  - vi. If such plants/trees require any maintenance in future, it may be included in the Concession Agreement.
4. This issues with the approval of Competent Authority.

A handwritten signature in blue ink, appearing to be 'Sanjay Kumar Patel', is written over the date '03/07/23'.

(Sanjay Kumar Patel)  
General Manager (Coord.)

To:

All Officers of NHAI HQ/ ROs/ PIUs/ CMUs/ Site Offices

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## भारतीय राष्ट्रीय राजमार्ग प्राधिकरण

(सड़क परिवहन और राजमार्ग मंत्रालय, भारत सरकार)

### National Highways Authority of India

(Ministry of Road Transport and Highways, Government of India)

जी-5 एवं 6, सेक्टर-10, द्वारका, नई दिल्ली - 110 075 • G-5 & 6, Sector-10, Dwarka, New Delhi-110075  
दूरभाष/Phone : 91-11-25074100 / 25074200



### NHAI/Policy Guidelines/ Environment /2023

#### Policy Circular No. 7.4.12/ 2023 dated 12<sup>th</sup> July, 2023

[Decision taken on E-Office File No. NHAI/Env./2023/OfficeOrder-JA/DPRConsultant (Comp. No. 204959)]

**Sub: Role of Joint Advisors (Environment & Plantation) posted at ROs w.r.t Enumeration of trees, Identification of Compensatory Afforestation areas, preparation of Feasibility Study Report, Evaluation of alternative alignment etc and in preparation of reply to the Essential Details Sought by Forest Departments.**

The DPR Consultant is expected to do the following activities:

- Work out appropriate plan for planting of trees, horticulture, floriculture on the surplus land of the Right of Way with a view to beautify the Highway and making the environment along the highway pleasing.
- To undertake the detailed environment and social impact assessment in accordance with the standards set by the Govt. of India/ Asian Development Bank/ World Bank.
- To identify the mitigation measures.
- To provide additional input in the areas of performance indicators and monitoring mechanisms for environmental components during construction and operational phase of the project.

However, it has been observed that the reports prepared/ submitted by DPR Consultants lack above details. In view of this, State Forest Departments and/or Integrated Regional Offices of Ministry of Environment, Forest & Climate Change (MoEFCC) seek various details from NHAI resulting into delays in project execution.

2. It has already been decided vide Office Order No. NHAI/11041/553/2021-Admn. (E-58850)/3396 dated 17.01.2023 that the Joint Advisors (Environment & Plantation) will also undertake the work of Monitoring & Evaluation for compliance review appraisal related to mitigation works undertaken w.r.t Forest, Wildlife, CRZ and Environment Clearance etc. besides supervision of plantation activities.

3. In order to avoid delays in project execution on account of various details sought by State Forest Departments, Regional Officers must ensure active coordination among Project Directors, Joint Advisors/Advisor (Environment & Plantation) and DPR Consultants.

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-2-

4. The scrutiny of all proposals pertaining to Forest Conservation Act, 1980; Wildlife Act, 1972; Environment (Protection) Act, 1986 and CRZ regulations of MoEF&CC shall be undertaken with the active involvement and participation of Joint Advisors/Advisor (Environment & Plantation) posted at Regional Offices besides providing requisite input/guidance to PIUs/DPR Consultants w.r.t. Enumeration of trees, Identification of Compensatory Afforestation (CA) areas, Feasibility Study Report, Evaluation of alignment alternatives etc. They shall also assist PIUs for preparing the requisite reply to the Essential Details Sought (EDS) sought by Forest Departments and oversee the quality of Environmental Impact Assessment (EIA) and Environment Management Plan (EMP) besides ensuring the implementation of EMP and uploading of its progress on MoEF&CC Portal.

5. This issues with the approval of Competent Authority.

Encl.: As stated above

  
(Sanjay Kumar Patel)  
General Manager (Coord.)

To:

1. All Officers of NHAI HQ/ ROs/ PIUs/ CMUs/ Site Offices
2. All Joint Advisor/ Advisor (Environment & Plantations)

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