



# 16 TH SEMI ANNUAL ENVIRONMENTAL MANAGEMENT REPORT 01.01-30.06.2016

Environment Department OLYMPIA ODOS S.A.



## CONTENTS

|  |           |
|--|-----------|
| <b>A</b>   |           |
| <b>INTRODUCTION.....</b>   | <b>4</b>  |
| <b>TABLE 1 - PROJECT'S WORKS PROGRESS IN THE 1<sup>st</sup> HALF OF 2016.....</b>  | <b>5</b>  |
| <b>B PROGRESS OF THE ENVIRONMENTAL AGENDA.....</b>   | <b>13</b> |
| <b>1 GENERAL.....</b>  | <b>13</b> |
| <b>2 PERMITS - DESIGNS RELATED TO COSNSTRUCTION.....</b>   | <b>16</b> |
| <b>3 ENVIRONMENTAL MANAGEMENT, WASTE MANAGEMENT, HAZARDOUS AND NON HAZARDOUS MATERIALS.....</b>                            | <b>20</b> |
| <b>4 ENVIRONMENTAL PARAMETERS MONITORING PROGRAMME (NOISE MONITORING TRAFFIC LOAD VIBRATIONS, AIR QUALITY, WATER).....</b> | <b>22</b> |
| <b>5 ENVIRONMENTAL IMPACT RESPONSE MEASURES DURING CONSTRUCTION.....</b>   | <b>32</b> |
| <b>6 VEGETATION - PLANTING - ROAD CLEANING.....</b>  | <b>36</b> |
| <b>7 MANAGEMENT OF EXTRAORDINARY INCIDENTS, ENVIRONMENTAL ACCIDENT, GREEN AREAS FIRE.....</b>                              | <b>36</b> |
| <b>8 ANTIQUITIES.....</b>  | <b>38</b> |
| <b>9 TRAINING - AWARENESS RAISING.....</b>   | <b>39</b> |

## APPENDICES

APPENDIX 1 COMPATIBILITY WITH ENVIRONMENTAL TERMS SECTION: ELEFSINA - KORINTHOS (EXCLUDING KAKIA SKALA)

APPENDIX 2 COMPATIBILITY WITH ENVIRONMENTAL TERMS SECTION: ANCIENT KORINTHOS I/C - K1 PATRA BY-PASS I/C

APPENDIX 3 KORINTHOS - PATRA ARCHAEOLOGICAL INVESTIGATIONS

APPENDIX 4 QUANTITY DATA RELATED TO THE ENVIRONMENTAL PROTECTION MEASURES DURING CONSTRUCTION AND OPERATION

APPENDIX 5 AIR QUALITY REPORT

APPENDIX 6 EFFECTIVENESS EVALUATION OF NOISE BARRIERS ALONG EL-KO SECTION

APPENDIX 7 EFFECTIVENESS EVALUATION OF NOISE BARRIERS ALONG ISTHMIA

## A. INTRODUCTION

Based on the Concession Agreement (article 11.2.2& 16.2), as amended and applied with L. 4219/2013 (Gov. Gaz. 269/A/11-12-2013), OLYMPIA ODOS S.A. is obliged, throughout the entire Concession Period to deliver to the Service, a semi annual environmental report. In addition to that, an annual environmental report incorporating the data of the two semi annual reports is submitted to EYPE/MEPPW. This is the sixteenth Semi Annual Environmental Management Report and covers the period 01.01.2016 to 30.06.2016.



The above mentioned semi annual reports as well as the annual reports are publicized on the internet site <http://www.olympiaodos.gr> created and maintained by the Concessionaire, in accordance with the Concession Agreement.

During the motorway's construction and operation, both the constructor as well as the operator comply with all pertinent provisions, as they are recorded in the Greek Legislation, ensuring the same for their contractors and subcontractors.

**Note:** all appendices of the present report have been submitted to the Special Environment Service (DIPA) of the Ministry of Reconstruction of Production, Environment and Energy, responsible for the environmental supervision of the OLYMPIA ODOS project and are available upon request.



The works' progress of the Design-Construction Project contractual scope is notified to the Concessionaire, to the Independent Engineer and to EYDE/MK/EPP through Monthly Progress Reports, which are developed by APION KLEOS CJV as required by the contractual document. Table 1 below briefly present the Project's works progress during the first semester of 2016.



**TABLE 1 – PROJECT’S WORKS PROGRESS IN THE FIRST HALF OF 2016**

| G.U.     | SECTION     | ACTIVITY  | PROGRESS            |
|----------|-------------|---|---------------------|
| 1-3 & 35 | EL-KO & PBP | Irrigation system installation.                             | In progress.        |
|          |             | Signing installation.                                       | In progress.        |
|          |             | Steel barriers installation.                                | In progress.        |
|          |             | Anti-skidding layer at Thiva I/C.                           | Completed.          |
|          |             | Finishings in MOMC building.                                | In progress.        |
| 4-15     | EL-KO       | Traffic Management.   | Continuous process. |
|          |             | Works at Toll Stations (N. Peramos, Pachi, Ag. Theodoroi)   | In progress.        |
|          |             | Works at parking areas (Kineta, N. Peramos, Ag. Theodoroi). | In progress.        |
|          |             | Safety barriers installation.                               | Completed.          |
|          |             | Irrigation system installation.                             | In progress.        |

|       |       |  |                     |
|-------|-------|--|---------------------|
|       |       | H/M works at the motorway's open sections.   | In progress.        |
|       |       | Planting.  | In progress.        |
|       |       | Slope stability and restoration works.   | In progress.        |
|       |       | Asphalt restoration works.   | In progress.        |
|       |       | Works at EL-KO Administration building.  | Completed.          |
| 16-17 | KO-PA | Traffic Management.  | Continuous process. |
|       |       | Storm-protection works: Box culverts construction (L115, L120, etc).<br>Drainage construction (8+500 – 8+800, 14+250 – 14+950, etc). | In progress.        |
|       |       | Retaining walls construction (R291, G110, G288 etc).   | In progress.        |
|       |       | Bridges, Over-Passes, Under-Passes construction (A123, A133, A223, A232, K119, K121, K124, K125, B120, B126, B225, etc).             | In progress.        |
|       |       | Toll Stations: Construction of Zevgolatio FTS building (Toll Administration Building, Tunnel. Canopy, FTS Plaza), 18+800.            | Completed.          |
|       |       | Pavement works : PST-CDF layers construction (7+700 – 10+500, 15+100 – 15+900, 18+430 – 19+600, etc).                                | In progress.        |
|       |       | Asphalt works: 1+600 – 6+500, 7+700-10+700, 18+400-19+000.   | In progress.        |
|       |       | E/M works at G.U. 16-17.   | In progress.        |
| 18-21 | KO-PA | Traffic Management.  | Continuous process. |
|       |       | Retaining walls construction (R274, R221, R222, G213, G224, G226, G242, G244, etc).  | In progress.        |
|       |       | Storm-protection works: Box culverts construction (L204, L207, L208, L213, L220, L209, L226, L259, etc).                             | In progress.        |
|       |       | Bridges, Over-Passes, Under-Passes construction (K201, K202, K237, B204, B209, B210, B239, etc).                                     | In progress.        |
|       |       | Melissi & Xylokastro Lane Cover.   | In progress.        |
|       |       | East Derveni Lane Cover C004.  | In progress.        |
|       |       | T7 & T8 Derveni tunnels.   | In progress.        |
|       |       | Sykia service building.  | In progress.        |
|       |       | Pavement works (PST-CDF layers construction & asphalt works)   | In progress.        |
|       |       | Concrete barriers construction (N.J.)  | In progress.        |
| 22-25 | KO-PA | Traffic Management.  | Continuous          |

|              |   |   |              |
|--------------|---|---|--------------|
|              |   | process.  |              |
|              | Earthworks / embankments at G.U. 22-25.   | In progress.  |              |
|              | Retaining walls construction<br>(G323, G309, G321, G591, R535, R539, R548, R560, R589, etc).  | In progress.  |              |
|              | Bridges, Over-Passes, Under-Passes construction<br>(K244, K247, K264, K243, K507, A513, K341, K502, K514, etc).   | In progress.  |              |
|              | Mavra Litharia Tunnel: Left & right branch final lining.  | In progress.  |              |
|              | Akrata Tunnel: Phase B' completion, final lining.   | In progress.  |              |
|              | E/M building at Akrata Tunnel.  | In progress.  |              |
|              | E/M works at G.U. 22-25.  | In progress.  |              |
|              | Traffic Management.   | Continuous process.   |              |
|              | South & North frontal of T015 Tunnel – water drainage, if need be.  | Continuous process.   |              |
|              | Daily monitoring of convergences displacement conducted by electronic topographical equipment in comparison with the referenced values and the warning and alarm levels at Platanos Tunnel 15 (South & North portal). | Continuous process.   |              |
|              | Geo-mechanical and structural monitoring of Platanos village.   | Continuous process.   |              |
|              | Storm-protection works: Box culverts construction (L401, L402, L411, L412, L415, L416, etc).  | In progress.  |              |
|              | Retaining walls construction (G407, G409, G412, G416, G418, G420, R406, R408, etc). Gabion walls, friction plates.  | In progress.  |              |
| <b>26-29</b> | <b>KO-PA</b>  | Tunnels: T015 left, Excavation Phase A', Excavation Phase B', East portal lining, west portal lining.                       | In progress. |
|              |   | Tunnels: T015 right, Excavation Phase A', Excavation Phase B', East portal lining, west portal lining.                      | In progress. |
|              |   | Lane Covers construction (Platanos, Temeni, Eliki, etc).  | In progress. |
|              |   | Bridges, Over-Passes, Under-Passes construction<br>(B269, B278, A296, A297, K270, K271, K299, K298, K277, K279, K283, etc). | In progress. |
|              |   | Pavement works : PST-CDF layers construction (80+580-80+990, 79+460-79+950, 89+990-90+100, etc).                            | In progress. |
|              |   | Asphalt works: 76+640-77+000, 80+000-80+160, etc.   | In progress. |
|              |   | E/M works: 81+015-81+156, etc.  | In progress. |

|              |   |                     |
|--------------|---|---------------------|
|              | Traffic Management.   | Continuous process. |
|              | Daily monitoring of convergences displacement conducted by electronic topographical equipment in comparison with the referenced values and the warning and alarm levels at Tunnel 26. | Continuous process. |
|              | T26 Panagopoula tunnel: Southwest, Northwest, Southeast, ventilation tunnel, Tunnels T24, T25.  | In progress.        |
|              | Embankments / Cuts: 90+100 - 91+300, 98+000 – 100+000, 102+500 – 109+500, 90+100-91+300, 93+300-94+100, etc).   | In progress.        |
| <b>30-34</b> | <b>KO-PA</b>  |                     |
|              | Storm-protection works: Box culverts construction (L504, L571, L573, L518, L583, L532, etc).  | In progress.        |
|              | Retaining walls construction (R504, R506, R070, G510, G512, G515, G519, etc). Slope stability.  | In progress.        |
|              | Bridges, Over-Passes, Under-Passes construction (B303, B304, K306, K307, K309, K310, K311, K313, K337, K327, etc).  | In progress.        |
|              | Pavement works : PST-CDF layers construction (90+100-91+300, 93+300-94+100, 98+000-100+000, etc).   | In progress.        |
|              | Asphalt works: 90+100-91+300, etc.  | In progress.        |
|              | E/M works: 90+100-95+500, etc   | In progress.        |

The photos below, present the progress of the project's works :





*WC Buildings – Finishing works*



*MOMC main building at Nea Peramos*



*Tunnel Platanos/North Bore – Installation of E/M infrastructures*



*MOMC Building & Surrounding area*



*Tunnel Platanos/ East Portal – Construction of final lining*



*B278– Installation of expansion joints*



*Pavement works at Nikoleika Toll Station k.p. 78+050 to 78+250*



*A293 – Installation of safety guardrails*



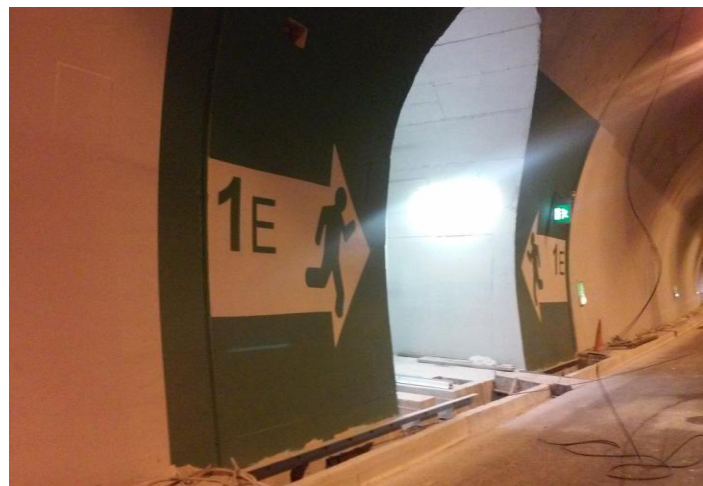
*B269 – Construction of left backwall*



*B322 – Construction of M3-M4*



*Tunnel Akrata 13A – Ventilation system*



*Tunnel Akrata 13A – Exit route*



*Mavra Litharia – East Portals*



*Front Toll Station at Rio*



*Underpass K221 – Deck waterproofing*



*Asphalt works/AS20 at k.p. 34+350 to 34+600*



*Installation of metal frame at Salt Shed (Y169) of Kiato Technical Base*



*Construction of Customer Service Center*



*Construction of drainage at k.p. 7+900 to 9+500*



*Installation of Information sign*

## B PROGRESS OF THE ENVIRONMENTAL AGENDA

### 1. GENERAL



Appendix A of Annex 2 of the Concession Agreement states the Common Ministerial Decisions (CMD) and the Law comprising the Project's environmental licensing and forming the main framework for the monitoring of the progress of the Project's environmental issues.

More specifically:

1. Law 2338/1995, Thiva I/C - Elefsina Toll Station
2. CMD 126393/16.02.2007, as amended and currently applies via Decision 171503/04.11.2013 (ΑΔΑ: ΒΛ1Ψ0-Α3Γ) Elefsina - Korinthos (excluding Kakia Skala section)
3. CMD 108569/18.10.2006, Kakia Skala
4. CMD 92073/16.05.1994, as amended and currently applies via Decision 168168/15.05.2013 (ΑΔΑ: ΒΕΝΔ0-ΖΦ1), Isthmos - Ancient Korinthos I/C
5. CMD 104892/16.06.2006, as amended and currently applies via CMD 172996/03.06.2014 (ΑΔΑ: ΒΙΥ10Α56) and then Decision No 151752/08.09.2015 (ΑΔΑ: ΒΜΙ8465ΦΘΗ-ΓΦΙ), Ancient Korinthos I/C - Patra By-Pass K1 I/C
6. CMD 16049/12.08.2013, as amended and currently applies, Patra By-Pass

Please note that the Environmental Study submitted by the Project's Owner (EYDE/KESP/P&VE) on the Amendment of the Environmental Terms Approval Decision (ETAD) of the project: "Korinthos-Patra road axis" to acquire environmental licensing both of the small-scale technical modifications which arose during the preparation of the motorway's final design as well as of the accompanying works necessary for its operation, has been approved by the Secr. Gen. for Environmental Policy of YPAPEN by virtue of Decision No 151752/08.09.2015 (ΑΔΑ: ΒΜΙ8465ΦΘΗ-ΓΦΙ).

Compliance with the environmental terms deriving from the above mentioned decisions are presented as Appendix 1 and 2 of this report.

In the construction as well as in the operation phase, the procedures and directives for the works' environmental management are implemented by the Constructor, aiming at the in compliance with the terms and constraints of the above decisions.

APION KLEOS submits to OLYMPIA ODOS S.A. monthly reports regarding the progress of the construction related works.



Within the framework of the contractual obligations, the Constructor has developed an Environmental Management

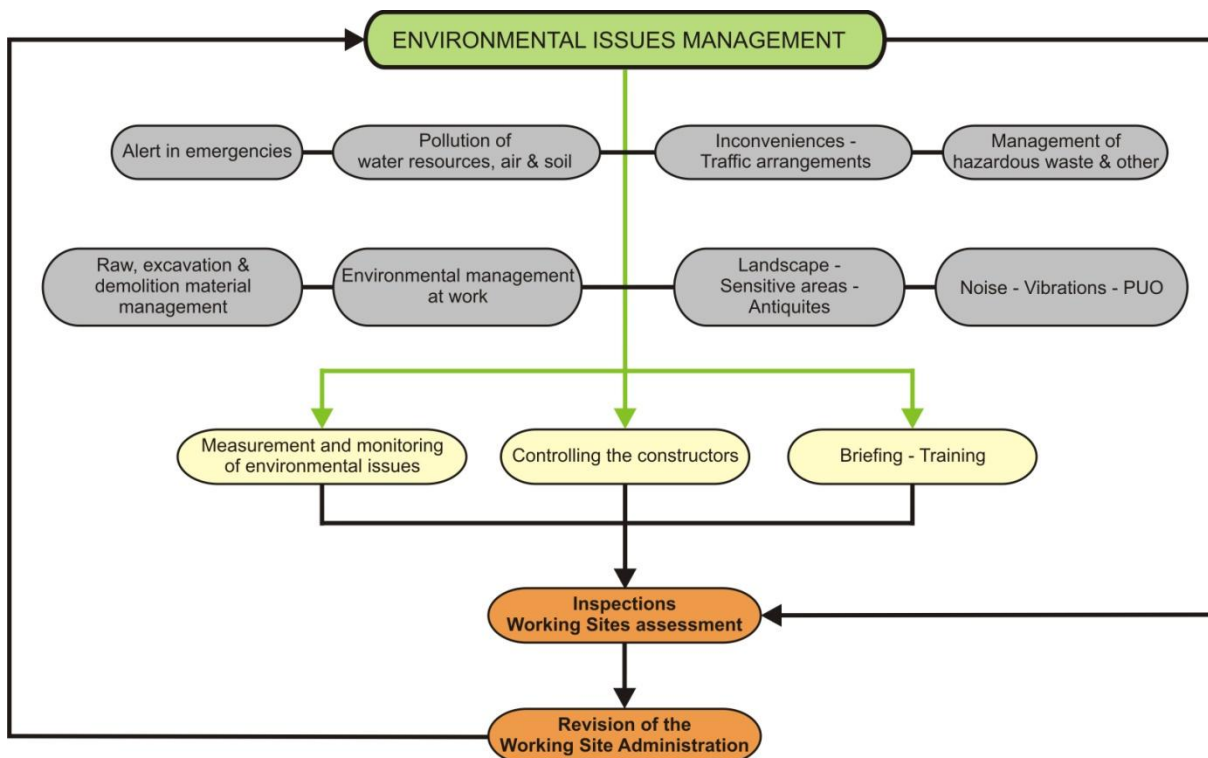
Plan (EMP) for the Project in accordance with ISO 14001:2004.

The EMP includes the organizational structure, planning actions, duties allocation, technical methods, procedures as well as processes for the development, implementation, achievement, revision and support of the Constructor’s environmental policy as well as the compliance with the Project’s environmental terms.

The EMP constitutes the basic and general framework for the management of environmental issues, whereas the procedures and directives area tool for the rational handling/ management of each environmental issue, taking into account the pertinent legislation and the decisions applicable to each case.

The advantages from implementing the EMP pertain to the following:

- saving natural resources (reduced consumption of raw materials, energy, water etc),
- reducing the waste and by-products process and disposal cost, minimizing fines due to law violations,
- reducing insurance costs by reducing uthe potential risks and having contingency plans and finally
- improving the bussiness’s public image, since it can effectively establish its environmental reliability



The EMP as well as the environmental management procedures/ directives are at the disposal of the competent authorities involved in the Project.

The Operator in order to comply with the Project's environmental terms and the implementation of an Environmental Policy has developed an Environmental Management Plan for:

- controlling, monitoring and dealing with the environment impact of the project
- optimum management of liquid and solid waste of the Project
- promotion of optimum practices to reduce energy and natural resources consumption

## 2 PERMITS - DESIGNS RELATED TO CONSTRUCTION

In the framework of complying with the Concession Agreement environmental requirements, the approved environmental terms and the required environmental permits:

- a. requests are submitted, when required, in order for forest and archaeology related permits and official opinions to be issued.
- b. Environmental Impact Study (EIS) was developed and submitted to EYPE/MEECC (acc. to L.4014/2011) in order to obtain Environmental Approval for the requested Borrow-pits - Quarries & Deposit-pits for the completion of the KO-PA section's construction. The approval process was completed with the issuance of a new ETAD (ADA : BIY10-A56) titled : *“Korinthos-Patra road axis, upgrading the existing road into a motorway”*, regarding the additional quarries and borrow-pits sites in Korinthia and Achaia Pref. for the motorway's construction requirements.

Please note that :

1. For the above lands and where required, the development of the Technical Exploitation Designs is under way,
2. Geotechnical reports have been prepared confirming that there are no disturbed areas among the proposed sand-extraction locations,
3. The respective delineation designs have been prepared for the proposed sand-extraction locations and
4. Based on DCC article 21.3, the Concessionaire asked EYDE/MK/EPP to deliver to the Constructor the Vacant Possession and relevant Rights of Way of the above approved additional lands.

Based on the above, during 2015 the Peloponnese-W. Greece-Ionion Decentralised Administration granted four (4) permits for sand extraction from Krathis, Foinikas, Meganitis and Selinountas rivers. Also, the Technical Study was approved for the Operation of aggregates quarry in “Agrilitzes”, Mun. of Korinthos.

- c. Cooperation is in progress with the Public Utility Organisations in order to relocate various networks located within the Project.
- d. Requests have been submitted to the competent Water Public Services pertaining to the permit for the excavation/use of water drilling works, so as to cover the irrigation, fire fighting and other needs that shall arise in the Project's short-term



parking areas along KO-PA section. To that end, a hydro-geological design has been prepared (AQUATERRA - Ch. Kapopoulos - E. Psarropoulou & Co).

| s/n | Name    | K.P.    |
|-----|---------|---------|
| 1   | EL-KO 1 | 13+750  |
| 2   | KO-PA 2 | 28+750  |
| 3   | KO-PA 3 | 39+150  |
| 4   | KO-PA 4 | 62+700  |
| 5   | KO-PA 5 | 87+300  |
| 6   | KO-PA 6 | 111+100 |



The following studies were submitted to DIPA/YPAPEN (either directly or through EYDE/KESP/P&VE) for environmental licensing:

- For the operation of Pollution Retention Tanks along KO-PA.
- For the installation and operation of steel reinforcement process worksite in Akrata
- For the installation and operation of infrastructure and support worksite at “Chondra Litharia”, Mun. of Xylokastro - Evrostini
- For the operation of three (3) borrow-pits at “Zorzi”, “Desi or Souri” and “Vamvakies”
- For the organisation and operation of infrastructure and support worksite at “Potami” Aigialia

f. EYPE/MEECC (now DIPA/MEECC) approved the following Designs (TED, EIS):

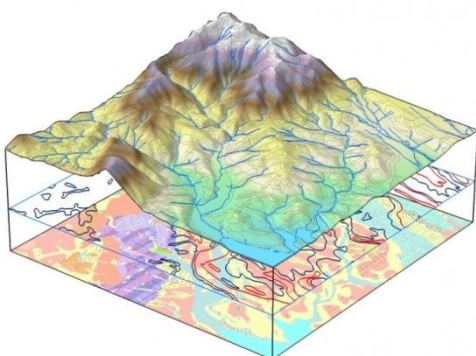
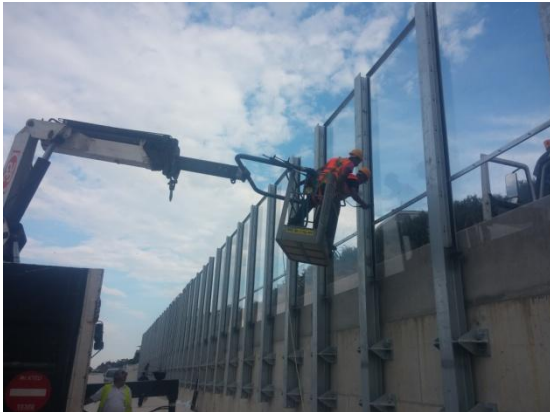
- For the operation of three (3) mobile process machineries at “Chatzis”, “K. Mavriki” and around K.P. 77+000 of KO-PA (No 100479/25-1-2016],
- EIS for installation and operation of borrow-pit at “Soussana”, Athikia, Korinthos (No 20298/18-4-2016],
- TED for the exploitation of aggregates quarry (borrow-pit) at “Zorzi”, Sikyonies (No ΔΛΜΑΥ-Β/Φ.28.30/172179/546/24-5-2016]

g. In cooperation with TTA & E S.A., the locations along KO-PA section where noise-barriers must be promptly installed were updated leading to the respective

amendment of the Final Special Acoustic Designs for the Calculation and Implementation of noise barriers.

| TABLE 3:<br>POINTS OF NOISE-BARRIERS IMMEDIATE INSTALLATION |          |                  |                |                      |
|---|----------|------------------|----------------|----------------------|
| NOISE-BARRIER   |          | BRANCH           | MINIMUM LENGTH | SOUND-BARRIER HEIGHT |
| from K.P.   | to K.P.  |                  |                |                      |
| 39+776,5  | 39+834,1 | to Korinthos     | 58             | 3,5                  |
| 40+074,2  | 40+160,3 | to Korinthos     | 86             | 4,0                  |
| 59+152,0  | 59+192,0 | to Patra (south) | 40             | 4,5                  |
| 59+180,1  | 59+241,8 | to Patra (south) | 62             | 4,5                  |
| 59+379,9  | 59+535,3 | to Patra (south) | 156            | 4,5                  |
| 59+535,3  | 59+607,2 | to Patra (south) | 72             | 3,5                  |

Please note that the noise barriers proposed in the Designs will be of the same type which have already been approved via EYPE/MEECC's document No 122052/8-3-2010 and constructed along "Elefsina-Korinthos" and "Patra By-Pass" sections.



Towards enforcing article 5 law 3010/2002 (as amended via L. 4258/2014 and currently applies) and in accordance with the provisions of article 11.2.1 of the Project's Concession Agreement, the CJV proceeded in the elaboration of stream delineation designs (*D. Sotiropoulos & Co, L.S. Lazaridis & Co*) for the stream's section extended

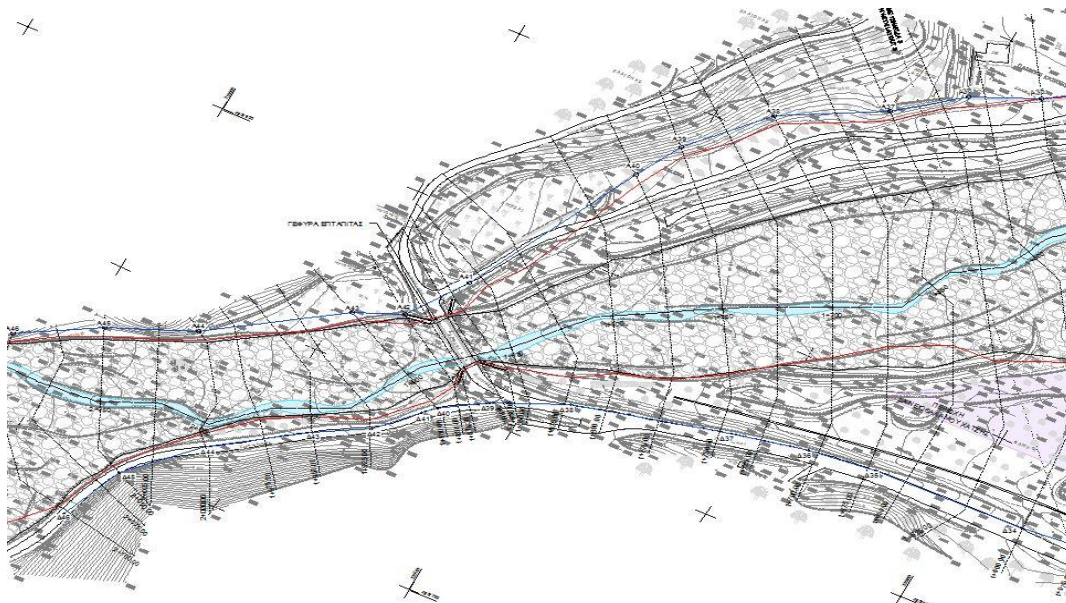
along the Projects construction zone or abutted to it and along Korinthos - Patras section for five hundred meters downstream excluding the cases where downstream to the Road Project and up to 500m. HSRL/OSE structures exist or another delimitation is in place. The designs have been submitted to the Technical Services of the local Prefectural Administrations for approval and any other administrative act necessary in order to be rendered fully effective.

In the 1<sup>st</sup> Semester of 2015 the following Gazette Sheet was issued ratifying the delineation determination along KO-PA section:

1. Meganitis “Chatzis” river Gov. Gazette 120/Δ/6-5-2015 (sand extraction).
2. Selinountas “K. Mavriki” river Gov. Gazette 132/Δ/28-5-2015 (sand extraction).

Please also note the Deemed Issuance of Krathis & Foinikas rivers partial Delimitation (sand extraction points) by EYDE/KESP/P&VE via documents No ΕΠΠ/Π1/Φ.4/8301/27-10-2014 and ΕΠΠ/Π1/Φ.4/8302/27-10-2014 respectively.

The delineation designs for the rest KO-PA section’s streams are under way.



### 3 ENVIRONMENTAL MANAGEMENT, WASTE MANAGEMENT, HAZARDOUS AND NON HAZARDOUS MATERIALS

During the motorway’s construction and operation, both the constructor and the operator as well as the cooperating contractors and sub-contractors comply with all pertinent provisions, according to the Greek Legislation. Joint Venture APION KLEOS in the frame of its Environmental Management Plan has developed procedures for the management of waste.



The respective “Hazardous Materials Selection and Procurement Procedure” has been prepared describing all the constructor’s actions contributing to the prevention of the uncontrollable use of hazardous materials during the Project’s construction period.

The Constructor’s environmental policy prioritises the measures and actions towards an effective and rational waste management for the sustainable use of resources and the prevention of downgrading or the restoration, preservation or improvement of the environment.

Waste management is primarily based on hierarching waste (prevention, re-use, recycle, recover, final disposal) and their environmentally proper management. The ultimate goal is an more effective management of natural resources and waste by reducing the produced waste, re-using it, recycling and recovering it and managing it environmentally properly thereby reducing as much as possible the risk to human health and the environment.

Waste of any nature is managed based on the pertinent legislation and the constraints/ requirements imposed by the approved environmental terms, both for the project’s existing and new sections.



The respective “Waste Management Procedure” has been prepared for the management of waste, documenting the existing legislative framework and the means/ directives for their management.

The respective “Water Resources Management Procedure” has been prepared for the management of water resources, presenting in detail all the constructor’s actions contributing to the minimization of the adverse impact the construction has on the adjacent water resources.





**Nea Peramos OMC**



**Nea Peramos OMC**



**Kiatio TB**



**Akrata TB**



**Patras OMC**

The results of the Project's environmental performance, such as material recycling, mineral oil, batteries, vehicle tyres, hazardous materials, polluting substances, area restoration, excavation and demolition products etc management are presented in Appendix 4 of this Report.



#### 4 ENVIRONMENTAL PARAMETERS MONITORING PROGRAMME (NOISE MONITORING, TRAFFIC LOAD VIBRATIONS, AIR QUALITY, WATER)

An Environmental Monitoring Program is established in order to evaluate the environmental parameters of the project and the on going compliance with the environmental obligations

By this programme, environmental factors as noise, water and air pollution, waste, social disturbance, natural wealth, sensitive areas etc. are monitored.

##### A. TRAFFIC NOISE MONITORING

###### - Existing Sections (EL-KO & PBP)

*Sound barriers:* Following the “Special Acoustic sound barriers design” approved by EYPE/MEECC via document No 122052/8.3.2010 and KAPA Dir./Noise, Vibrations & Radiation Dep. document No 110987/6-5-2015 which also determined the barrier type to be used, the barriers’ installation along EL-KO section was completed. Subsequently, measurements were conducted and the relevant reports were prepared regarding the effectiveness of the applied noise barriers (along EL-KO and “Isthmos Bridge” village) which were approved (No 51820/22-12-2015 and 3006/09-02-2016) by KAPA Dir./ Dep. for Noise, Vibrations & Radiation.

According to the evaluation of the effectiveness of the sound barriers installed along the EL KO section, based on the 24 hours values, we can assume that there is full compliance with the exception of “location 38” k.p. 74+292 towards Athens, where the excessive use of the side road is the unique reason for the excess that has been monitored. All other excesses observed are not systematic and are due either to the side road traffic or are related to locations where the installation of sound barriers is not required under the provisions of the current legislation.

According to the evaluation of the effectiveness of the sound barriers installed in Isthmia, based on the 24 hours values, we can assume that there is full compliance with the limits set by the current legislation.

The analytical information is provided as Appendix 6 and 7 of this Report.



*Noise Barriers locations at PbP*

Along PbP section, most of the noise barriers have been installed and the works will be completed within the EPD set by the C.A.

More specifically, taking into account the aesthetic/architectural requirements and the restrictions imposed by the constructions' static adequacy and road safety elements, the barrier surfaces created with transparent sheets used as much as possible are obviously not making the residents of the areas behind them feel "caged".

The barriers' formulation was based on the following architectural design principals:



- Selection of the proper dimensions for the vertical walls and combination with the transparent panels they support so as to achieve the best possible proportion of transparent and non-transparent parts of the overall barrier superstructure.
- Use of horizontal scotias on the narrow walls (they facilitate the wall's visual integration into the natural environment by breaking up its surface while also being compatible with the vehicles' horizontal direction).
- Alternation of walls and transparent panels so as to avoid - to the extent possible - a monotonous repetition of one single pattern.
- The reinforced concrete non-transparent panels have been placed with proper width variation so as to give a sense of varying degrees of density. This is done in an attempt to distract the viewer from any single part of the construction and make him/her see the whole picture.

Please also note that protective measures have been taken to prevent birds from crashing on the barrier's transparent parts. To that end, suitable bird images have been stuck on the panels following the successful methods used in other similar cases.

Stickers are the most widespread method in Europe since it requires no a priori selection of potential sections to paint. Rather, one can a posteriori apply the stickers on the locations where birds are establish to fly and hence there is a risk of them crashing on the panel.



#### - New Sections (KO-PA)

**Soundbarriers:** After KAPA Dir./ Dep. for Noise, Vibration & Radiation approved the Special Calculation & Implementation Acoustic Designs for “Korinthos-Patra Motorway”, which cover the full update and detailed calculation for mapping the environmental traffic noise under EU Guideline 2002/49/EK and CMD No 211773/2012, the construction/installation has already been completed of 3700 m<sup>2</sup> of noise barriers in the following sections of “Korinthos-Patra”:



| s/n | From K.P. | To K.P. | Branch    |
|-----|-----------|---------|-----------|
| 1   | 7+822     | 7+956   | Patra     |
| 2   | 26+524    | 26+705  | Korinthos |
| 3   | 40+070    | 40+174  | Patra     |
| 4   | 53+702    | 53+880  | Patra     |
| 5   | 96+955    | 97+017  | Korinthos |
| 6   | 97+104    | 97+254  | Korinthos |
| 7   | 98+710    | 98+797  | Korinthos |
| 8   | 107+843   | 107+990 | Korinthos |
| 9   | 115+353   | 115+429 | Korinthos |
| 10  | 115+676   | 115+839 | Korinthos |

The noise barriers proposed in the above Designs are of the same type as the ones already approved and constructed for “Elefsina-Korinthos” and “Patra By-Pass”.



#### B. AIR QUALITY AND METEOROLOGICAL MONITORING

Complying with the Concession’s Agreement environmental requirements, two (2) permanent Air Quality & Meteorological Data measurement stations have been installed and monitor the impact of the motorway on the wider region.



The above stations coordinates are as follows:

| Location         | Latitude      | Longitude     |
|------------------|---------------|---------------|
| TROPOLI SEMI-I/C | 37°55'6.49"B  | 22°54'28.38"A |
| GLAFKOS I/C      | 38°12'13.34"B | 21°46'16.88"A |

- The station at Glafkos I/C along PBP has been completed and set in operation in December 2014. The point at the south end of the PBP receives all pollution from road usage and seems to be a good indication of the pollution caused by the motorway while also reflecting the pollution from the motorway accesses.
- The station at Tripoli Semi-I/C is completed and was set in operation in February 2015 with the aim of monitoring the impact upon the town of Corinthos by the operation of the new motorway.

Please see below the Glafkos I/C and Tripoli Semi-I/C stations' pollution values:

| Station   | Suspended particles<br>PM10 &<br>PM2.5 | CO | NO<br>NO2<br>NOx | SO2 | O3 | BTEX |
|-----------|--|----|------------------|-----|----|------|
| Korinthos | x                                      | x  | x                | x   | x  | x    |
| Glafkos   | x                                      | x  | x                | x   | x  | x    |

The following meteorological parameters are also cited:

- Wind direction and speed
- Atmospheric temperature and relevant humidity
- Sunshine
- Precipitation

According to the Air Quality Report provided as Appendix 5 , regarding the limit values of the pollutants measured, the following must be mentioned:

- The maximum 8-hour ozone value, of  $120\mu\text{g}/\text{m}^3$ , was exceeded only once in both station. This value should not be exceeded more than 25 days per calendar year on average every three years.
- Maximum daily average  $\text{PM}_{10}$  value was exceeded 6 times in Patra and ten (10) in Korinthos. The limit value should not be exceeded more than 35 times a year. It is noted that exceedances for Patra were observed the following dates: 17/2/2016, 29/2/2016, 7/4/2016, 8/4/2016, 14/4/2016 and 12/5/2016. According to the Air Pollution Levels Report of Region of Western Greece respective exceedances were observed both in stations in Patra, while the exceedance were related to the African dust phenomenon in three occurrences (17/2/2016, 29/2/2016 and 12/5/2016). In Korinthos the exceedances were observed the following dates: 23/3/2016, 8/4/2016, 14-16/4/2016, 18-20/4/2016 and 23-25/5/2016. Both in Korinthos the March and April occurrences were related with the African dust phenomenon.

In addition, as part of the Motorway's Management & Communications System, two (2) meteorological stations were installed, one after Elefsina Toll Station, at K.P. 28+145 (to Patra) and the other in Kakia Skala, at K.P. 48+315 in the median reserve between "Skyrona" and "Thisea" tunnels (to Elefsina).

The meteorological stations include suitable sensors and update Motorway's Management & Communications System, to which they are connected, of the following:

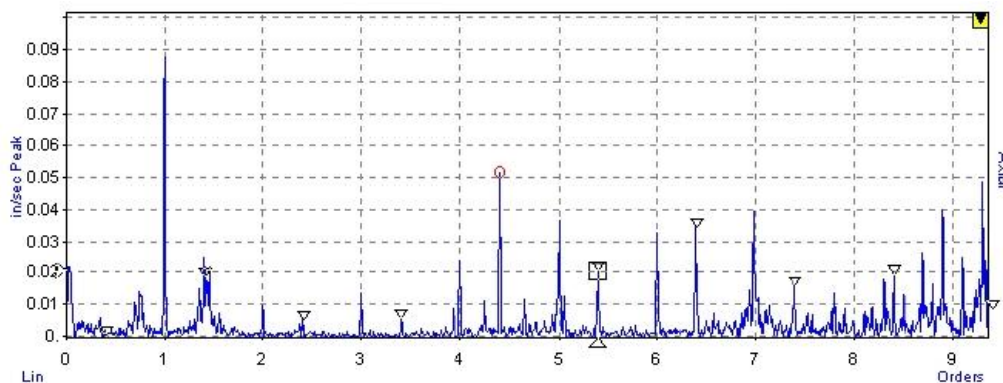
- Asphalt state - temperature/ water
- Wind direction and speed
- Humidity
- Visibility
- Precipitation - rainfall levels.

The meteorological stations are parametrised and the software that controls them is located at N. Peramos MOMC. The stations' data are constantly registered digitally.



### C. VIBRATIONS AND DUST EMISSIONS

- During the Project's execution, due care is given to minimise vibrations caused by the construction activities to buildings and sensitive locations within the Project's zone of influence.



To that end, the installation is foreseen - at critical points - of measurement and recording systems of all significant variables of the phenomenon (soil movement,

speed and acceleration). The local working sites will keep complete records of the recorded data.

In parallel, the Operator carries out traffic counts at the Project's toll plazas. More specifically, each month the company drafts an operation report, including precise traffic data, i.e. number of vehicles passing through all toll plazas and the traffic composition; said report is duly submitted to the competent supervising Services of the Ministry of Infrastructures, Transport and Networks. The company has at its disposal both the primary and the processed traffic data.

During the Project's execution aerial pollutants are released and especially dust from the working sites. Depending on the distances from the nearest buildings (e.g. residencies) they could have adverse implications. This dust release is dealt with (by the local Working Sites) with great success by use of the following measures.



Control of the dust release is affected through simple management methods and the impact level greatly depends on the control measures applied at the source as follows:

- Sprinkling and often - effective clearing of routes within the site and the excavation areas,
- Interventions at the work surface - front where necessary, focusing on the excavations,
- Rain-water run-off to prevent particles from re-entering the atmosphere,
- Maximum speed limits along all non-asphalt-paved surfaces,
- Along the routes of the road building vehicle, the usual control methods are applies in the case of non-asphalt-paved routes ie, asphalt paving where feasible, stabelised pavement infrastructure, water soaking and traffic regulations (*aiming to reduce dust in the dry season and traffic-indiced erosion in the wet season*),
- Sprinkling during transfer and deposit of sand, aggregates or/and excavation materials significantly reduces released dust,
- According to greek law, all trucks transferring loose materials (e.g. excavation products) are covered. The vehicles entering or leaving the working site are clean.
- It is forbidden for the trucks to pass through settlements during quiet hours,
- Liquid rather than dry concrete is used in the mixing and preparation,
- All machinery and equipment used in works are in good condition and fulfill the manufacturer's specifications, thus minimising dust release.



Combined, the above measures comprise the so-called Best Management Practises. Given that:

- it is a linear project with many construction activities being conducted in parallel and now fast-track under the extremely tight completion time-schedule,
- the water resources available along the Project during summer season are limited,

any impact after the above measures are deemed slightly negative with a very short-term effect and can be dealt with.



The benefits from the project's timely completion will reach the residents of the areas temporarily "affected" as well as all other used (visitors, tourists etc) and will positively influence all financial parameters and activities in the areas (road safety, accessibility, faster transportation of people and goods, reduced transportation costs etc).

In any event, the local Working Units are conducting PM10 Dust Measurements under standardized ELOT EN 12341 method, with a certified sampler, by a certified firm.

During the measurements, the motorway's construction activities are conducted normally. Each measurement lasts 24 hours and runs through one calendar day so that the findings can be directly compared to the maximum rates / target aims set by the current legislation.

Atmospheric PM10 measurements are covered by the current Official Implementation Field of Certification (No 329-3). The methodology to estimate suspended particles has a certified accuracy measurement and it provides a full depiction of the pollution's changes over time along with a good mapping of an area's pollution levels.

The measurements findings reports can be found at the local Working Units' offices while they have also been copied to the Project's Independent Engineer.

## D. WATER RESOURCES MANAGEMENT

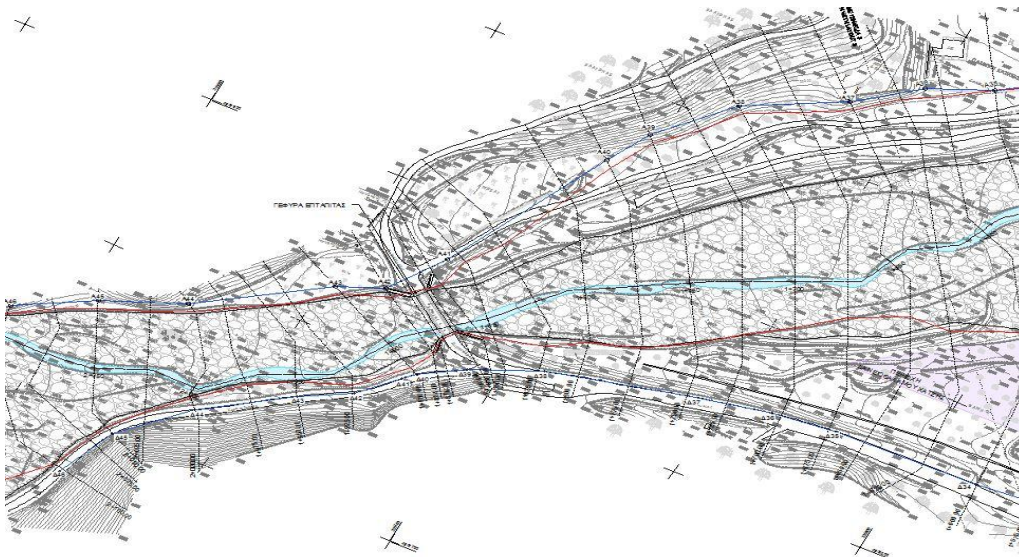
Towards enforcing article 5 law 3010/2002 (as amended via L. 4258/2014 and currently applies) and in accordance with the provisions of article 11.2.1 of the Project's Concession Agreement, the CJV proceeded in the elaboration of stream delineation designs (*D. Sotiropoulos & Co*) for the stream's section extended along the Projects construction zone or abutted to it and along Korinthos - Patras section for five hundred meters downstream. The designs are being submitted to the Technical Services of the local Prefectural Administrations for approval and any other administrative act necessary in order to be rendered fully effective.

In the 1<sup>st</sup> Semester of 2015 the following Gazette Sheet was issued ratifying the delineation determination along KO-PA section:

1. Meganitis "Chatzis" river Gov. Gazette 120/Δ/6-5-2015 (sand extraction).
2. Selinountas "K. Mavriki" river Gov. Gazette 132/Δ/28-5-2015 (sand extraction).

Please also note the Deemed Issuance of Krathis & Foinikas rivers partial Delimitation (sand extraction points) by EYDE/KESP/P&VE via documents No ΕΠΠ/Π1/Φ.4/8301/27-10-2014 and ΕΠΠ/Π1/Φ.4/8302/27-10-2014 respectively.

The delineation designs for the rest KO-PA section's streams are under way.



Hydro geological Designs have been submitted to the competent Water Public Service pertaining to the permit for the excavation/use of water drilling works, so as to cover the irrigation, fire fighting and other needs that shall arise in the Project's short-term parking areas along KO-PA section. (*AQUATERRA - Ch. Kapopoulos - E. Psarropoulou & Co*)

## 5 ENVIRONMENTAL IMPACT RESPONSE MEASURES DURING CONSTRUCTION

### a. Geomorphology - Soil



In order to protect the soil from fuel leaks etc special areas with sealed floor and graded collection drain that ends in a sedimentation basin are provided in order to swill the machinery.

In the machinery maintenance or in other suitable and safe area, used oils from black oils change are temporarily stored. The management of the used oils is in accordance with the provisions of PD 82/2-3-2004. By the PD is given priority to collect and dispose used oils for regeneration treatment.

All necessary measures are taken in order to avoid erosion or filtration at the slopes during the tunnel construction and the water and clay supply to the final acceptor. The sediment before being disposed is being treated in apposite sedimentation tanks.

### b. Geology

Special attention shall be paid during construction of sections passing by geologically sensitive zones, as in those areas stability problems might emerge at the formations. In those sections shall intervene as little as possible.

### c. Ecosystems - Vegetation

In the areas where the technical structures are constructed, and mostly in the areas where bridges are constructed, all the necessary precaution are taken in order to avoid any impact on the riverside ecosystems. All possible efforts are made in order to use the fewer possible quantity of concrete. Where possible the use of gabions is preferred and the proper application/use of additives (e.g. betonite), which are used in order to add improved features to the boring effluents during the borings.

Especially during the dry period, in the construction phase, all the necessary measures are taken in order to avoid dust emissions (infusion of earth materials, trucks' load covered with nets).

In some case the cleared vegetation originated materials are cut and temporarily stored in mounds in order to create organic fertilizer for future use in planting technical activities. After clearance, excavation, collection and temporary disposal of the superficial fertile soil layer follows.





## 6 VEGETATION - PLANTING - ROAD CLEANING

The vegetation and planting pertain to the environmental integration and protection of the areas adjacent to the project.

### - Existing Sections

In order to facilitate the fulfillment of the above obligations, a Final Planting Design (*S. Voutsinos & Co*) for the surrounding areas, the respective I/Cs, slopes and median strips was elaborated for Elefsina - Korinthos section. This design was submitted for approval to the project's Independent Engineer. The planting process is foreseen to be completed according to the approved works time-schedule.

The planting of Patra By-Pass is in very good shape due to the "recent" construction and maintenance for the last period of time.



*Current state of PBP*

### - New Sections

The Planting Design focuses on the aesthetic incorporation of the new Korinthos-Patra Motorway and the secondary Local Road Network works into the wider natural environmental of the area they are passing through.

During the first semester of 2016, 9 Final Planting Design studies have been submitted and approved by the Independent Engineer, covering 64 kms .

These studies aim at describing the prevailing conditions on site and the nature of the problems which have arisen due to the road's construction. The proposed planting interventions aim to the best possible restoration of the damages caused to the landscape by the Motorway's construction.

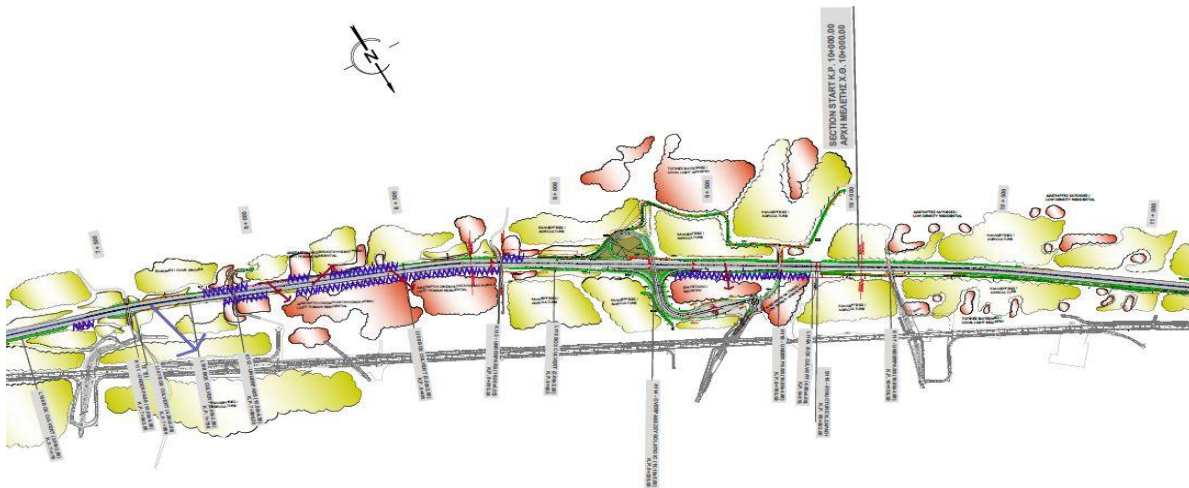
The planting is designed with the main target of adjusting the new plants to the existing vegetation. Trees and bushes are planted taking into account the volume they will take at the final stage of their development.

The proposed planting takes into account the following fundamental principles:

- Traffic safety
- Planting - landscape relationship
- Road equipment

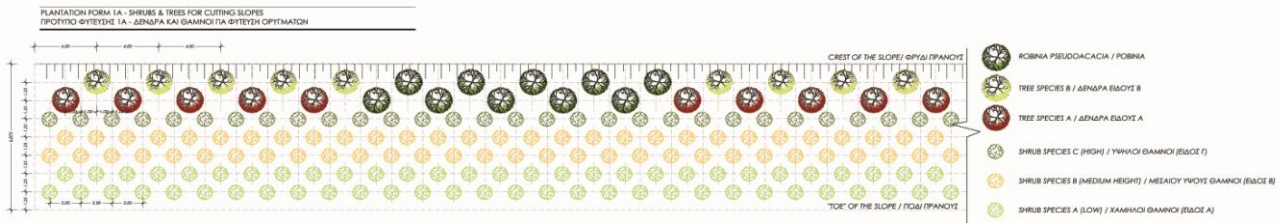
During the arrangement of the various greenery (medium, high) to be planted, the following is taken into account:

- ensuring the area's unobstructed function
- the area's general and specific ecological conditions
- the area's aesthetic requirements
- creating natural continuity of the area's flora.

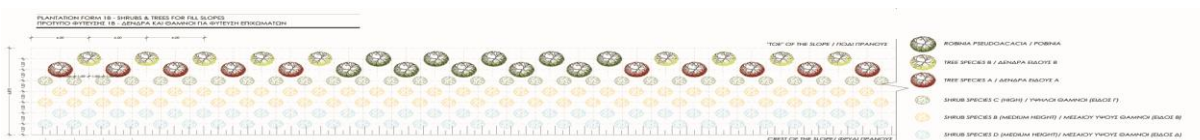


The species to be planted are selected based on the following:

- Their properties (final dimensions, τάσεις, hardwood, evergreen, flowering season, flowers colour etc.)
- The area's ecological data
- The functional aim they are intended to fulfill (decoration, soil retention, groups, growth etc.)
- The local micro-climate
- Ensuring aesthetic harmony and biological equilibrium between the species comprising the groups, growths etc.
- The dimensions of the area and each separate location
- The species' market availability
- The species' locality and that they represent the surrounding area.



### Cut & embankment planting standards



The OLYMPIA ODOS OPERATION S.A. (Operator) personnel and the competent subcontractors carried out regular trimming, weeding and cleaning works for the most part of the project, and specifically of 97 km of central reserve, 402 km of shoulders and of the 28 interchanges and their branches, as well as of the 45 parking areas.

In the frame of the maintenance of the green areas the Operator is responsible for the irrigation in the Project, which is carried out either through the installed irrigation network (today it covers only a part of the project) or through water trucks. The water is from the irrigation network of Attiki Odos, from the municipal network of Nea Peramos and from four water drills (1 in N. Peramos I/C, 1 in Anc. Korinthos I/C and 2 in the area of PBP).

For the maintenance of the green areas the Operator has entered into contract with the following subcontractors:

- TOMI (District 1)
- J&P AVAX (District 2)

#### Cleaning

During the 1<sup>st</sup> semester of 2016, the Operator's personnel in collaboration with external subcontractors carried out and still does regular cleaning works along the entire project (202 km), in the 28 interchanges, the toll stations (lanes, booths, pavement, surrounding area, buildings), in the tunnels and in the 45 parking areas (washing, sweeping, waste removal from bins and surrounding areas).

It is noted that cleaning pertains to the entire cross section until the expropriation limits.

## 7 MANAGEMENT OF EXTRAORDINARY INCIDENTS, ENVIRONMENTAL ACCIDENT, GREEN AREAS FIRE



During the operation of the working sites, all fire prevention measures are taken in order to prevent fire coming potentially from working machinery, working teams, transportation of explosives and to minimize the danger of fire being expanded to adjacent areas. The way according which the fire belt is organised, was controlled and approved by the competent Fire Service before the beginning of the works.

More specifically, fire management measures are taken in order to protect forest areas on both sides of the road.



Within the framework of elaborating the fire hoses designs along the EKPPT motorway, maps were prepared depicting the forest land for “Elefsina - Korinthos”, “Ancient Korinthos I/C - Patra By-Pass K1 I/C”.

In order to assess the condition of the vegetation and the validity of the antiforest fire measures undertaken, OLYMPIA ODOS S.A. this year contracted again a study to an expert forester. From this study is clear that the interventions made last year as well as the regular green maintenance routine carried out by OLYMPIA ODOS OPERATION S.A., in combination with the extended works in progress along the road, have minimized the forest fire risk along the forested areas from which the project passes through.

In the framework of road safety, the Operator has Patrollers and Intervention Teams patrolling the Project with specially marked vehicles dealing with incidents (immobilized vehicles, accidents, traffic problems etc.) by implementing temporary signage to safely arrange traffic and assist the emergency services (Police, Fire Brigade and Paramedics). In this framework, during the 1<sup>st</sup> semester of 2016:

- 2,232,095 (about 12,264 per day) km were travelled by Patrols and Interventions teams for supervising the road network,
- 11,800 incidents were managed with the Company's assistance, as indicatively: 5,373 immobilized vehicles (mechanical failure, flat tyre, out of fuel, abandoned), 5,223 obstacles on the pavement, 589 accidents (23 with victims and 566 with material damages, 310 user problems (pedestrians, vehicles moving in the opposite direction, non authorized users, dangerous traffic violations), 75 traffic congestions and 230 other emergency incidents (fire, adverse weather conditions, etc.), out of which:

- 7,023 were dealt with immediately by the Company, as they were detected by company or subcontractors vehicles.
- 4,777 incidents were handled within 12' in average by the Company, since they were otherwise detected (phone, cameras etc.), while regarding the response of the subcontractors respectively: 19' for light vehicles and 34' for heavy vehicles



### Patrol vehicles

The Operator's competent personnel (Intervention Teams) implement on a daily basis temporary signage for incidents and for the safe execution of works carried out on the road either by the Operation Company or the Construction Joint Venture. Regarding Korinthos-Patra NNR special attention is paid due to it features (no central reserve) and the sections with steep turns and limited visibility.

The Operator has action plans related to the protection of the environment either within routine maintenance or emergency and abnormal situations.

- B.1 Congestion
- B.2 Road Accident
- B.3 Immobilized vehicle
- B.4 Problem on the pavement
- B.5 Problem on infrastructure or equipment
- B.6 Problem with user
- B.7 Other emergency incidents
- B.8 Adverse weather conditions
- B.9 Large scale incident in tunnel
- B.10 Incident on Korinthos-Patra NNR

The Constructor shall work and cooperate closely with the Environmental Service and other departments of OLYMPIA ODOS S.A. in the application of the procedures - directives for the management of such issues.

## 8 ANTIQUITIES



Under the principle that cultural heritage and antiquities along the motorway shall be protected, a principle that constitutes prerequisite for the construction of the road, the Constructor has direct contact and collaboration with the competent archaeological services. According to the Concession Agreement and the Design - Construction Contract, Construction Joint Venture is responsible for the execution of archaeological investigations pursuing a recommendation by the pertinent archaeological service.

Works in the positions indicated in the Concession Agreement (article 13.1) and where there is a great potential of Antiquities being revealed have commenced.



*Archaeological site Ag. Georgios or Brouma (Kerynia)*

Appendix 3 herein presents detailed information / actions taken to protect antiquities.

## 9 TRAINING - AWARENESS RAISING



Environmental training aims to reinforce knowledge and raise awareness about the environment, to develop the necessary skills, to form the right behaviour, to activate and make informed decisions and responsible actions.

Audit/ inspection is a tool of the environmental management system, including the systematic, substantiated, periodic and objective assessment of the performance of the working sites, the environmental protection management system and processes.

The Construction Joint Venture is organizing training and briefing seminars whereas all internal inspections are accompanied by the training and briefing of all competent persons at working sites regarding issues and developments pertaining to the environment.

Each working site's environmental engineers are regularly organising meetings with all parties involved in the Project's construction, providing them with the suitable training and briefing.

The Construction Joint Venture's Environmental Department in cooperation with the project engineers conduct regular inspections, give the necessary instructions or directions pursuant to the Project's EMP regarding any arising environmental issue. To fulfill that goal, special reports are developed documenting the test results, proposing measures to deal with any environmental issues identified and accompanied by a complete photographic survey.

Environmental training during the Project’s construction is divided in 2 categories. The first one pertains to the specialized environmental training of the staff related to the Project’s environmental management (environmental engineers, foremen in sensitive areas) and the second one to the general environmental training of the whole staff. Table 3 describes the whole number of hours (persons x time) for environmental training during 01/01/2016 - 30/06/2016.

| TABLE 3              |                       |
|----------------------|-----------------------|
| TRAINING TYPE        | TRAINING TIME (HOURS) |
| SPECIALISED TRAINING | 35                    |
| GENERAL TRAINING     | 20                    |

**ΜΟΛΥΝΣΗ ΕΔΑΦΟΥΣ ΚΑΙ ΥΠΕΔΑΦΟΥΣ ΛΟΓΩ ΑΤΥΧΗΜΑΤΟΣ**

**1) Τι είναι μόλυνση εδάφους και υπεδάφους λόγω ατυχήματος;**  
 Η μόλυνση του εδάφους ή των υδάτων ως αποτέλεσμα περιόδου συμβάντος πέραν ανθρώπινου ελέγχου. Παράδειγμα: Ρίξη των οχημάτων σε μονάδα παρασκευής, διαρροή καυσίμου νιζάκι κατά την πλήρωση φορτηγού οχήματος, ανατροπή κώδου...

**2) Πώς μπορεί να αποτραπεί η μόλυνση λόγω ατυχήματος;**  
 Εξασφαλίστε ότι οι απαιτητικοί χώροι τήραίν τις προϋποθέσεις (μη διαπραρτή επιφάνεια, δοχεία συλλογής). Φροντίστε για την τακτική απομάκρυνση του πλεονάζοντος πετρελίου από ποιοποιημένο φορέα συλλογής απορριμάτων. Μην πετάτε άδεια δοχεία στο έδαφος ή σε ποτάμια. Έχετε απορροφητικά υλικά κοντά σε επικίνδυνες περιοχές.

**3) Σε περίπτωση διαρροής λόγω ατυχήματος**  
 α) Σε ποτάμια  
 Χρησιμοποιήστε τα κιβώτια διαχείρισης διαρροής τα οποία περιλαμβάνουν:  
 • Απορροφητικά χημικά, διαφόρων μεγεθών (για την απορρόφηση διαρροών χημικών και υδραυλικών ελαίων,  
 • Χημικά φράγματα (για την δημιουργία στεγανής ζώνης στο νερό);

1) Φοράτε γάντια  
 2) Απομονώστε τις κηλίδες (με χημικά φράγματα εάν αυτό απαιτείται)  
 3) Χρησιμοποιείτε απορροφητικά χημικά  
 4) Καθαρίστε  
 5) Τοποθετήστε τα απόβλητα σε αναλώσιμους σάκους  
 6) Πεταίστε τα γάντια και τους σάκους σε δοχεία επικίνδυνων απορριμάτων.  
 β) Σε μη διαπραρτή επιφάνεια (πλήρως εγκαταρπού, πλήρως ακυρωθέντα...)  
 Χρησιμοποιήστε τα κιβώτια διαχείρισης διαρροής ή απορροφητικό σκόνη ή κόκκους, υλικά τα οποία πρέπει να απολυθούν απευθείας σε όλη την επιφάνεια διαρροής. Η διαδικασία χρήσης τους είναι η ίδια με την περιγραφόμενη παραπάνω.  
 γ) Σε διαπραρτή επιφάνεια  
 Φροντίστε το μολυσμένο έδαφος και απομακρύνετε το σε δοχεία επικίνδυνων απορριμάτων.

**4) Σύνταξη αναφοράς περιβαλλοντικού συμβάντος**  
 Συμπληρώστε το έγγραφο βελτίωσης ενεργειών (βλέπε έντυπο "Αναφορά Συμβάντος", AKFG03001)

Quality Environment Safety  
 Ref.: INE.GGX ENV XXXX AKF G 02016 A

**ΟΔΗΓΙΕΣ ΠΡΟΣ ΚΑΤΑΣΚΕΥΑΣΤΕΣ & ΥΠΕΡΓΟΛΑΒΟΥΣ**

**1** Ο Υπεργολάβος οφείλει να αντιμετωπίζει τα μηχανήματα που προσαρμόζονται για εργασία στους εργατοενοικιαζόμενους χώρους σύμφωνα με τις οδηγίες του κατασκευαστή, προκειμένου να αποφευχθεί η υπερβολική κατανάλωση και πιθανές διαρροές καυσίμου και λιπαντικών και η εκπομπή καυσαερίων να διατηρείται στα χαμηλότερα δυνατά επίπεδα.

**2** Ο Υπεργολάβος οφείλει να διατηρεί σε άριστη κατάσταση τις διατάξεις και συσκευές μείωσης του θορύβου λειτουργίας των μηχανημάτων και επιπλέον να επισκευάζει την προσοχή των χειριστών στην αποφυγή της άσκοπης χρήσης των συσκευών ηχητικής προειδοποίησης (σφυρίνες, κρόνες).

**3** Κατά την διάρκεια των εργασιών εκκαθάρισης, φόρτωσης, εκφόρτωσης και οδοστρωσίας, θα καταβάλλεται κάθε δυνατή προσπάθεια από τους χειριστές των αποστολιζόμενων μηχανημάτων και τους οδηγούς των φορτηγών, προκειμένου να ελαττωθεί η παραγωγή σκόνης.

**4** Τα φορτηγά του Υπεργολάβου που χρησιμοποιούνται για την μεταφορά προϊόντων εκκαθαρών και καθαριστών, πρέπει να είναι εφοδιασμένα με κατάλληλα καλύμματα καρότσας, τα οποία θα χρησιμοποιούνται για τον περιορισμό της ρύπανσης από σκόνη κατά την κίνησή τους.

**5** Οι διαδρομές που θα χρησιμοποιούνται για την κίνηση των φορτηγών και των μηχανημάτων του Υπεργολάβου για τις ανάγκες του Έργου - κυρίως εκτός εργασιμών χώρων - θα επιλέγονται με γνώμονα την ελαχιστοποίηση της αόλησης της κυκλοφορίας και των περιοικών της περιοχής που γεννιάζει με τους χώρους αυτούς.

**6** Η απόρριψη των προϊόντων εκκαθαρών και καθαριστών θα γίνεται (κατόπιν συνεννόησης με την Εταιρεία) σε οδοδομημένους κατάλληλους χώρους και θα λαμβάνεται από τον Υπεργολάβο μέριμνα, για την επαρκή τακτοποίηση της τήρησης της ενδεδειγμένης διαδικασίας.

**7** Ο Υπεργολάβος θα λάβει μέτρα ιδιαίτερα μέριμνα όπως τα υλικά, ο εξοπλισμός και οι μεθοδολογίες που θα χρησιμοποιήσει κατά τις εργασίες που θα πραγματοποιήσει να επιβαρύνουν το περιβάλλον το λιγότερο δυνατό.

Quality Environment Safety  
 Ref.: INE.GGX ENV XXXX AKF G 02017 A