



**SIXTH SEMI-ANNUAL
ENVIRONMENTAL
MANAGEMENT REPORT**
01.01-30.06.2011

Environment Department OLYMPIA ODOS S.A.



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Introduction

Based on the Concession Agreement (article 11.2.2), OLYMPIA ODOS S.A. is obliged, throughout the entire Concession Period to deliver to the Service, a semester environmental report, within a period of a month since the final documentation. This is the sixth semi - annual Environmental Management Report and covers the period 01.01.2011 to 30.06.2011.

The above six-month and annual reports are be publicized in the internet site **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 of the Ministry of Environment, Energy and Climate Change, responsible for the environmental supervision of the OLYMPIA ODOS project and are available upon request.

Appendices

- APPENDIX 1 Section: Elefsina - Korinthos (excluding kakia skala)
- APPENDIX 2 Section: Ancient Korinthos I/C – K1 patra by-pass I/C
- APPENDIX 3 Section: Midilogli I/C - Amaliada
- APPENDIX 4 Section: Amaliada – Pyrgos - Tsakona
- APPENDIX 5 Archaeological investigations for Korinthos – Patras – Pyrgos - Tsakona
- APPENDIX 6 Quantitative data regarding environmental protection during construction and operation

Project's progress



Construction of the motorway

The work's progress of the Design-Construction Project contractual scope is notified to the Concessionaire, the Independent Engineer and the EYDE/MK/EPP through a Monthly Progress Reports, which are elaborated by APION KLEOS CJV as required by the contractual document. In Table 2 below is briefly presented the Project's works progress in the 1st half of 2011.

PROJECT'S WORKS PROGRESS IN THE 1ST HALF OF 2011

G.U.	ACTIVITY	PROGRESS
1-3 & 35	MOMC Building in G.U. 3	Concreting 1 st floor roof plate.
	Sound barriers.	Safety barrier construction in G.U. 1-3.
	Installation of lateral signs.	Foundation & installation of lateral signs in G.U.1-3.
	MSO-13 safety barrier construction.	Demolition and concreting works in G.U. 1-3.
	Drainage.	Construction of the west rain-water collector in G.U. 3
	Slope stability in Archaeologiko Tunnel	Tunnel's north front in G.U. 35.
	Movable joint repair.	Bridges EPP (G.U. 35).
	Asphalt paving in Glafkos I/C.	From 208+000-211+500 & 221+000-222+600.
	E/M works in Ovria I/C.	Installation of lighting in G.U. 35
	Installation of gantries and VMS.	Foundation & installation of lateral signs in G.U. 35.
4-15	Fencing (Restoration Works).	In progress.
	Construction of N.J. safety barriers.	In progress.
	Construction of SF 13 safety barriers.	Demolition and concreting works in G.U. 8 & 11.
	Isthmos Toll Station in G.U. 11.	Central reserve construction.
	Ag. Theodoroi lateral Toll Station in G.U. 19.	Asphalt paving. Toll Station construction phase B'.
	Parking Areas.	Works conclusion in G.U. 4, 9, 7, 11.
	Installation of Traffic Arrangement Instruments.	Excavation & installation works in G.U. 5, 7, 11, 12, 14, 15
	Construction of MSS infrastructure.	In progress in G.U. 4-15.
	Sound Barriers.	Construction of Safety Barriers in G.U. 6.
	Installation of lateral signs.	Foundation & installation of lateral signs.

16 - 17	Bridge B131 (K.P.19+320)	River arrangement. Construction of the structure's 2nd phase.
	Overpass A103 (K.P.1+083).	Construction of Side Road and curbs.
	Overpass A122 (K.P.14+379).	Construction A0.
	Overpass A137 (K.P.20+307).	Traffic Arrangement Preparation.
	Culvert L122.	Wall construction.
	Underpass K127 (K.P. 16+891)	CR Recovery.
	Underpass K129 (K.P. 18+288)	General excavation, bottom plate construction.

18 - 21	Construction of Box Culvert L244	Roof plate, sections I & II.
	Box Culvert L222.	Conclusion of Construction (Phase A).
	Construction of box culvert L244, L246	Construction of box culvert in progress.
	Permanent Lining in Escape Tunnel 8	Permanent Lining.
	Construction of Tholeros Bridge B209	Construction of Walls.
	Construction of Sytha Bridge B216	Installation of prefabricated piles.
	Construction of Phonissa Bridge B224	Installation of prefabricated piles.
	Underpass K231	Construction of Transitive embankment.
	Construction of retaining wall R045	Construction of piles.
	Construction of Skoupeiko Bridge B234	Construction of deck's plate.
	Construction of Skoupeiko Bridge B225 Side Road.	Installation of pre-fabricated & longitudinal piles.
	Construction of Derveniotis Bridge B239	Construction of pile cups.
Construction of retaining structure G236, 242, 244	Construction of Side Road in progress.	

22 - 25	West Front of Akrata Tunnel 13A.	Underground Works phase 1, progress 69%
	Escape Tunnel of Akrata Tunnel 13A.	Conclusion of West Front. Underground excavation 27.2%
	West Front of Mavra Litharia 11 (D +A Branch).	Underground Works, excavation conclusion.
	East Front Mavra Litharia Tunnel 11.	Conclusion of underground excavation for temporary retaining pile cup (D + A Branch).
	Akrata Tunnel 13B.	Tunnel conclusion: 100%
	Derveni Cemetery area Cover Layer K.P. 53+958.	Top plate conclusion: 95.5%
	Akrata Cover Layer at K.P. 58+345.	Total progress 47.45%.
	Platanos Cover Layer at K.P. 66+880.	Total Progress 45%.
	Box culvert.	Box culvert construction in progress.
	Retaining walls.	Construction of retaining walls in progress.
	Rozena Bridge - B245.	Conclusion of pile construction. Conclusion of deck plate. Total progress 98%.
	Krathis Bridge DK-B265.	Conclusion. Total progress of deck plate 82%.
	Krathis Bridge AL-B265.	Total progress of piles 8%.
Underpass K246 K.P. 55+514.	Piles construction conclusion. Bottom, top plate and walls conclusion. Top plate. Total progress 98%.	

22 - 25	Underpass K052 K.P. 54+379 Phase a.	Excavation. Total progress 87%.
	Underpass K243 K.P. 54+677 Phase a.	Excavation. Total progress 85%.
	Underpass K247 K.P. 57+975.	Excavation and piles construction. Total progress 21%.
	Underpass K267 K.P. 65+343.	Excavation and piles construction. Total progress 80%
	Overpass A268 K.P. 65+343.	Excavation and piles construction. Total progress 80%.

26 - 29	East Front of Platanos Tunnel (Right Branch)	Underground works Phase 2 Excavation of temporary retaining. Final Lining.
	East Front of Platanos Tunnel 15 (Left Branch)	Underground works Phase 2 Excavation of temporary retaining. Final Lining.
	West Front Platanos Tunnel 15 (Right Branch)	Underground works Phase 2 Excavation of temporary retaining. Final Lining.
	West Front Platanos Tunnel 15 (Left Branch)	Underground works Phase 2 Excavation of temporary retaining. Final Lining.
	Cover Layer (Temeni/Eliki)	Top plate. Pile and Pile cap works.
	Bridges & Underpass.	Ladopotamos Bridge B269 at K.P. 71+119. Right branch deck.
	Vouraikos Bridge B273 at K.P. 75+434.92	Access plate, Retaining Walls and re-embankment.
	Underpass K275 at K.P. 77+213.00.	Phase B bottom plate, lateral walls and top plate, retaining structures (Entrance - Exit).
	Underpass K276 at K.P. 78+927.00.	Phase A, access plates.
	Underpass K279 at K.P. 79+445.00.	Phase A, bottom plate, lateral walls and top plate.
	Underpass K282 at K.P. 82+544.00.	Phase A, excavation and piles.
	Underpass K298 at K.P. 75+499.00.	Phase A, access plates.
	Underpass K299 at K.P. 75+398.00.	Phase A, access plates.
Retaining Walls at G.U. 28.	Excavation, piles & pile caps, concreting of walls.	
Earthworks.	G.U. 28 at K.P. 80+480 - 81+030 embankment.	

30 - 34	Tunnel 24	Total Progress of West Front Excavation: 94m. Conclusion of East Front Works.
	Tunnel 25	Total Progress of east Front Excavation: 95m.
	Tunnel 26	Excavation of crest. Total excavation in the end of the month: 6338 ml. Number of Fronts in the end of the month: 4.
	Tunnel 26 West Fronts	Total Progress North-West Front: 894m. Total Progress South-West Front: 114m. Conclusion of X-crossings XP7, XP8, XP9, XP10.
	Tunnel 26 East Fronts	Total Progress North-East Front: 1120m. Total Progress South-East Front: 1133m. Conclusion of X-crossing XP3.
	Tunnel's Escape Exit T26	Total Progress South Front towards East: 929m. Total Progress South Front towards West: 685m.
	Ventilation adit:	Total Progress North-East Front: 601ml. Total Progress South-West Front: 588ml.
	Bed excavation	Total Progress North Tunnel: 1382 ml (conclusion 44%). Total Progress South Tunnel: 2009 ml (conclusion 50%).

36 - 38	Earthworks.	Construction of embankment's draining layer started along the section of G.U. 37 from K.P. 28+500 to K.P. 31+080 and is in progress. Embankment construction started along G.U. 37 from K.P. 28+500 to K.P. 31+080 and is in progress.
	Box culvert.	Construction of box culverts at G.U. 37-38.
	Bridge B878 of Kordeliaris River at K.P. 21+954	Total Progress 95,0%
	Motorway's Overpass A806 K.P. 22+161	Total Progress 93,5%
	Motorway's Overpass A807 K.P. 23+825	Total Progress 93,5%
	Motorway's Overpass A810 K.P. 28+320	Total Progress 93,5%
	Motorway's Overpass A811 K.P. 31+767	Total Progress 93,5%
	Motorway's Overpass A812 K.P. 33+037	Total Progress 93,5%
	Motorway's Underpass K808 K.P. 24+961	Total Progress 88,5%
	Motorway's Underpass K809 K.P. 27+047	Total Progress 91,5%
Motorway's Underpass K819 K.P. 40+278	Total Progress 40,0%	
38 - 41	Motorway's Overpass A842 (K.P. 58+910).	Proceed with Construction.
	Overpass A823 (K.P. 44+725).	Erection of scaffoldings – Preparation for Concreting.
	Overpass A824 (K.P. 46+016).	Pre-loading.
	Overpass A829 (K.P. 46+274).	Proceed with Construction – Top plate concreting.
	Overpass A 842 (K.P. 58+910).	Proceed with Construction - Top plate concreting.
	Overpass A 846 (K.P. 64+060).	Proceed with Construction.
	Underpass K843 (K.P. 60+588)	Proceed with Construction.
	Underpass K845 (K.P. 63+016)	Proceed with Construction.
	Bridge B882 (K.P. 62+940)	Construction of piles.
	Box culverts.	Construction of box culverts in progress.
Test embankments K.P. 50+060-50+220 & K.P. 49+140-49+340.	In progress.	
41 - 42	Alfios Bridge.	Piles Construction. Total Progress 27%.



Tunnel T11



Tunnels A13 East Portal



Tunnel T26



Concreting works for the MOMC in Nea Peramos



Parking area in Kakia Skala



Operation of the motorway

In the framework of the Concession Agreement for the Project of the Motorway Elefsina-Korinthos-Patra-Pyrgos-Tsakona (Act 3621/2007), the company "Olympia Odos Operation S.A." has undertaken since 6 August 2008 on behalf of the Concessionaire (Olympia Odos S.A.) in Phase A the Operation of the road section from Elefsina (Thiva I/C) until the end of Patras Bypass (Mintilogli), as it was received in its existing condition of total length 202 km.

This road section includes also the section of the (former) National Road from Korinthos to Patras, conventionally called in the Project "Korinthos-Patra NNR" of total length about 120 km.

More specifically, the Project during Operation Phase A includes:

28 interchanges
(7 of which semi-interchanges)

2 groups of tunnels
(Kakia Skala and Patras Wide Bypass)

4 mainline toll plazas
(Elefsina, Isthmos, Zevgolatio and Rio)

2 ramp toll stations
(one in Nea Peramos I/C and one in Agioi Theodoroi I/C)

Toll service/administration buildings

Tunnel service, control and power supply buildings

6 Motorist Service Stations (MSS):
Megara MSS (in both directions), Korinthos MSS (direction to Athens), Kiato MSS (in both directions), Akrata MSS (in both directions), Aigio MSS (in both directions), Rio MSS (direction to Athens)

45 parking and rest areas

Progress of the environmental agenda

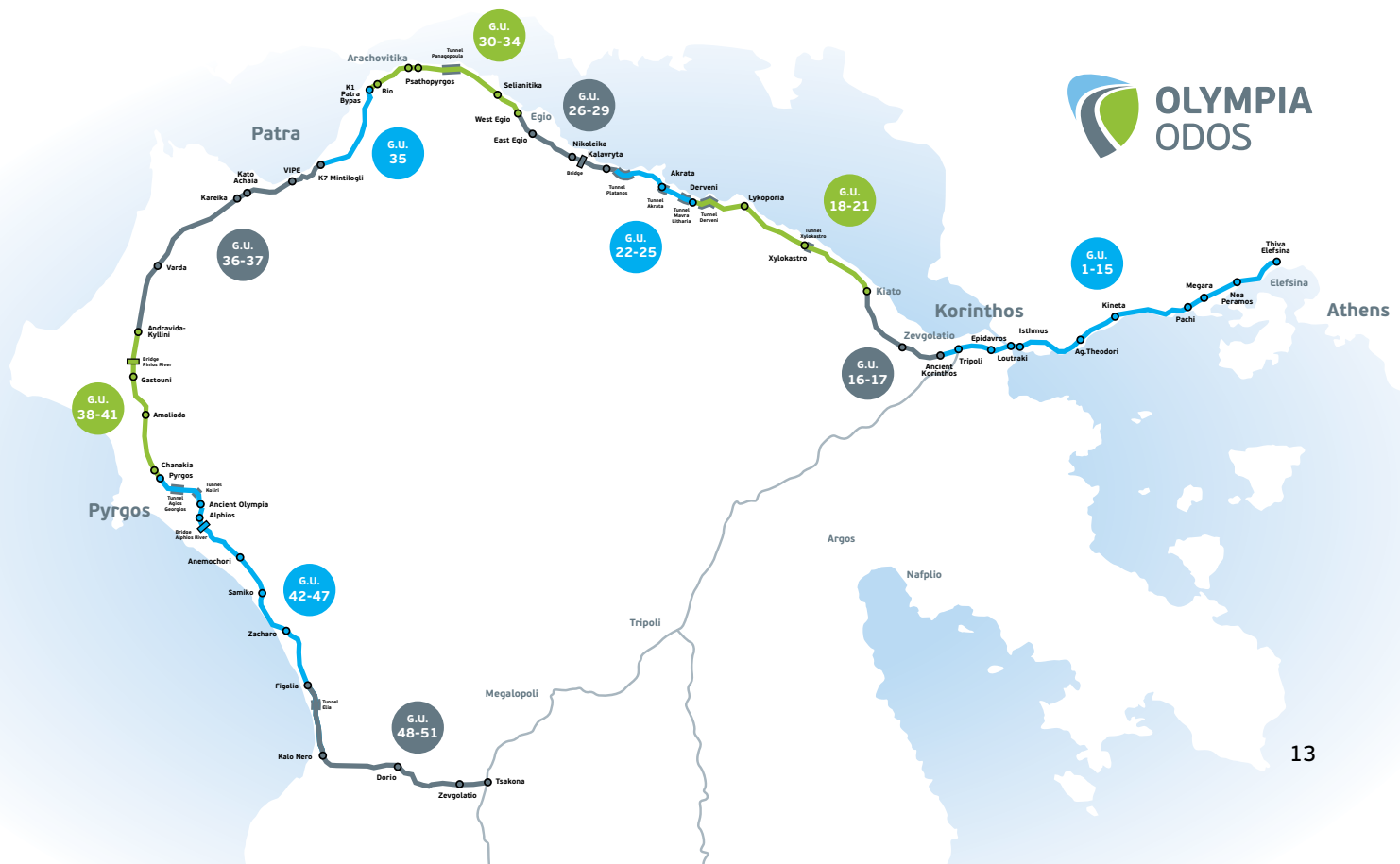
General

The course - progress of the Project's construction activities is submitted by APION KLEOS Construction JV to the Concessionaire via the design - construction monthly progress reports.

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:

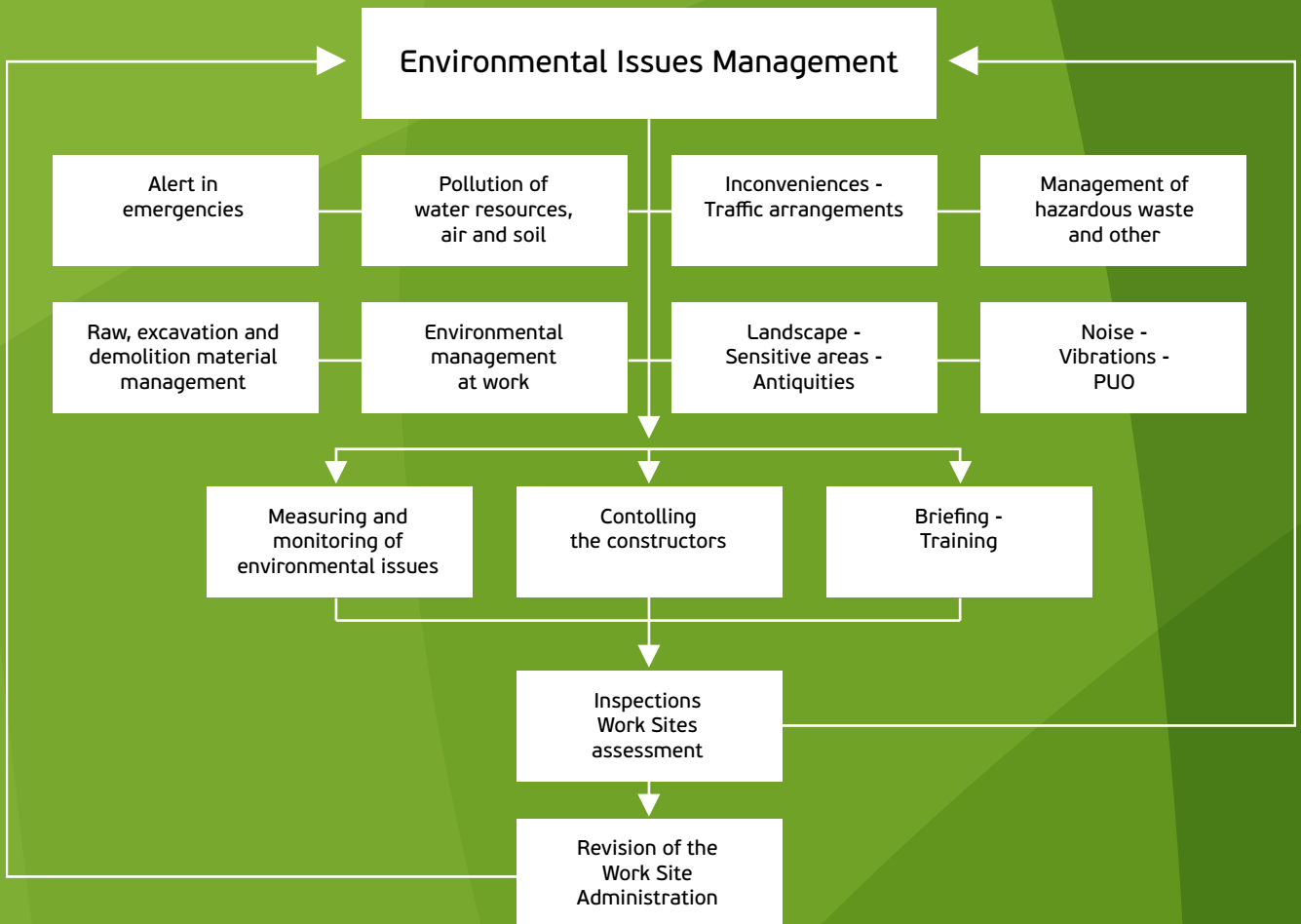
1	Law 2338/1995 Thiva I/C – Elefsina Toll Plaza
2	CMD 126393/16.02.2007 Elefsina – Korinthos (excluding Kakia Skala section)
3	CMD 108569/18.10.2006 Kakia Skala
4	CMD 92073/16.05.1994 Isthmos – Ancient Korinthos I/C
5	CMD 104892/16.06.2006 Ancient Korinthos I/C – Patra By-Pass K1 I/C
6	CMD 106321/28.07.2006 Patra By-Pass K1 I/C – Mydilogli Semi-I/C
7	CMD 102696/30.05.2006 Mydilogli I/C - Amaliada
8	CMD 100163/30.05.2006 Amaliada – Tsakona



In the construction as well as in 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.

In the frame of its contractual obligations, the construction JV has developed an Environmental Management System (EMS) in accordance with ISO 14001:2014

This EMS is available to all institutional parties related to the project.



The Operator in order to comply with the Project's environmental terms and the implementation of an Environmental Policy has developed and implements a **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 resources consumption



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 forest and archaeology related permits and official opinions to be issued.
- b. Special Technical Implementation Designs (STID) and when required, Technical Exploitation Designs for related works are compiled and submitted to EYPE/MEECC in order to obtain approval and permit. In herein 1, 2, 3 & 4 Appendices are presented in detail all the submitted/ approved studies in first semester of 2011.
- c. Cooperation is in progress with the Public Utility Organisations in order to relocate various networks located within the Project.
- d. Hydro geological Design (AQUATERRA – Ch. Kapopoulos - E. Psarropoulou & Co) has been submitted to the competent Public Service. The above pertains to the excavation of eleven (11) new water collection works, so as to cover the irrigation, fire fighting and other needs that shall arise in the Project's short-term parking areas.
- e. Hydraulic Designs have been developed (D. Sotiropoulos & Co, Hydro-Rationalising «L.S. Lazaridis & Co») with the aim to ensure the uninterrupted flow of surface water (e.g. rivers, streams etc) by constructing all necessary structures and taking into account a flood recurrence interval of at least 50 years.
- f. In the cases that new roads opening was considered necessary in order to have access the rock drills at the test boring areas, so as to verify the stratum quality in the tunneling area, the consent and the supervision of the local Fire Service and Forest Inspection was asked. On this purpose, «Forest Road Designs» were developed (NERCO - N. Chlykas & Co), which was submitted to the local Forest Services for approval.

These earthen roads shall be up to four meters (4m) wide and designed in such way, so as to be employed in the future as fire belt.

Environmental management, hazardous and non hazardous materials and waste management

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.

JV APION KLEOS in the frame of its Environmental Management Plan has developed procedures for the management of wastes. 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.

In the same direction, the Operator is applying the respective policies of its Environmental Management Plan.

During the construction and the operation of the project, 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.

In appendice 6 of the herein are presented briefly the Project management's results and environmental performance, such as material recycling, mineral oil, batteries, vehicle tyres, hazardous materials, polluting incidences, area restoration, excavation and demolition products etc management regarding the 1st half of 2011, related to the construction and operation of the project.



Metal materials for recycling



Collecting waste electrical equipment for recycling

Environmental parameters, monitoring programme (noise, traffic load vibrations, air quality, water)

Air quality management as well as noise obstruction minimization due to the motorway's construction are amongst the main objectives of the Project's Constructor and its Operator.

The Constructor, based on the relevant study, designs, elaborates and implements a programme for the Project's environmental monitoring and audit (ΣΣΕ & Περιβάλλον Α.Ε.), in order to ensure compliance with the Project's environmental requirements.

As for the construction phase the following apply:

Existing Sections

The Project's monitoring and control programme carried out during construction at the existing sections of «Elefsina - Korinthos» and «K1 Patra By-Pass I/C - Midilogli Semi-I/C» has already begun.

In these sections and in the framework of "Special Acoustic Design for sound barriers installation" was carried out a Complete Recording Programme of the daily hourly variation rate of the appropriate Road Traffic Noise rates. Moreover, a 24-hour acoustic measurement assessment of the exceeded rates was carried out in selected rates, located in proximity to the existing road sections, which are in a distance equivalent or smaller than 200m from the nearest edge of the approved land-use plan.

The above distance is calculated taking pavement's or structure's edge as starting point.

Besides the above, extra rates, which are considered acoustically sensitive, were explored, even though no complete monitoring record is held for the current acoustical environment conditions, as the those rates were not included in an approved urban design of a city or settlement.

Hourly rate analysis of traffic noise to the overall acoustical

measurements, in combination with the geometric and town planning features of the area, which is in direct proximity to the motorway, and traffic features were the calculation basis for the final detailed structural design pertaining to length - height - sort - density and materials for the sound barriers.

The construction/installation of the noise-barriers commenced and its completion is expected within 2011.

Moreover, an "Additional Special Acoustic Design for sound barriers installation & Noise-Barriers Implementation Special Acoustic Design" for "Elefsina -Korinthos section" has been submitted, pertaining to the protection of "Gefyra Isthmou" settlement in



Installation of sound barriers, in the Project's existing sections
(Zoodochos Pigi Abbey, Patra By-Pass)

the Mun. of Loutraki-Perachora, in Korinthia Prefecture. It has to be stressed that even though in the frameworks of the approved Acoustic Design the above residential area had been controlled regarding the RTN, it wasn't included in the immediate area of sound protection implementation, since it was included in the Project's related EIS and the Service of Korinthia Prefecture was not informed thereof during the Designer's research for establishing the city's and settlements' limits.

In conclusion, during the motorway's operation test sound measurements shall be conducted while at the same time monitoring the traffic load per six months or less.

Air-pollution & basic meteorological data monitoring

Technical Design (TT & Environment S.A.) describing the technical requirements and the position of the required monitoring stations at the Project's existing sections has been approved by EYPE/MEECC.

The positioning of the stations, which has been approved by the Project's Independent Engineer as well, was carried out by taking into account the results of the «Measurements Programme for vibrations and suspended particles assessment design» which was elaborated for the sections in issue.

The collection and assessment procedure for the technical and financial tenders, related to the supply/installation of the self-propelled air pollution station and meteorological data measurement station is provided to be concluded within 2011.



Pollutants monitoring motor station

New Sections

Along Motorway's new sections and within the framework of the «Special Final noise protection Design & Special Design for sound barrier application» were elaborated acoustical measurements in order to register the current traffic noise conditions (TT & Environment S.A.) for «Ancient Korinthos I/C - K1 Patra By-Pass I/C», «Midiligli I/C - Kato Achaia» and Rion - Antirion bridge access roads.

Measurements Programme for vibrations and suspended particles AS 2,5 & 10 is assigned (TT & Environment S.A.) not only for the motorways sections, which presented exceeded T.N.R.

(during the recent acoustical measurements programme), but also for the locations of operative working sites.

The elaboration of the programme is provided to begin within 2011.



Measurements register the current traffic noise conditions

During Project's construction are taken measures in order to minimize vibrations produced by construction activities in buildings and in sensitive rates within the Project's zone of influence.

For this purpose, apposite systems (EXORIXI S.A. or working sites privately owned equipment) were installed in critical locations, in order to measure and monitor all important variants of the phenomenon. A complete record of the collected data is kept in the local working sites.

Environmental parameters, monitoring programme (noise, traffic load vibrations, air quality, water)

Water resources management

Water resources are being managed according to the pertinent legislation and the restrictions/ limitations imposed by the approved environmental terms both for the Project's existing and the new sections.

In order to facilitate the efficient management of both surface and underground water resources, the respective "Water Resources Management Procedure" has been developed, documenting the existing legislative framework and the means/ instructions of their management.

Taking into account both the protection of surface and underground water during the construction period, the local working sites elaborate, when required, a water quality monitoring and assessment programme, maintaining at the same time a complete record of the reports/collected data. The areas and the specific locations where the measurements are carried out, they are established by the Environmental Terms and by how sensitive each ecosystem is.

The CJV by the enforcement of article 5 law 3010/2002 and in accordance with the provisions of article 11.2.1 of the Project's Concession Agreement 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. 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.

The respective process for Patra – Pyrgos section is also in progress.

Given that the two-month period (60 days) provided both by the Concession Agreement (art. 14.3) and the Memorandum of Understanding and Cooperation regarding the "implemented design" of Korinthos-Patra section, for the issuance of the related approvals for ratifying the established guide lines, the Constructor requested and received a certificate for "issuance of delineation deemed approval" by the EYPE/ML/EPP, which pertains to five (5) water streams.



Megaritits River
 Sampling locations



Samples

ΕΠΙΧΕΙΡΗΣΙΑΚΟ ΠΡΟΓΡΑΜΜΑ ΕΡΓΟΥ ΚΑΤΑΣΤΑΣΗ ΚΑΙ ΠΡΟΒΛΕΨΗ ΕΠΙΧΕΙΡΗΣΙΑΚΩΝ ΠΑΡΑΜΕΤΡΩΝ											
Α/Α	ΠΕΡΙΓΡΑΦΗ	ΜΕΤΡΗΣΗ	ΜΕΤΡΗΣΗ	ΜΕΤΡΗΣΗ	ΜΕΤΡΗΣΗ	ΜΕΤΡΗΣΗ	ΜΕΤΡΗΣΗ	ΜΕΤΡΗΣΗ	ΜΕΤΡΗΣΗ	ΜΕΤΡΗΣΗ	ΜΕΤΡΗΣΗ
1
2
3
4
5

Analysis Certificate

Environmental impact mitigation 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 is provided in order to swill the machinery in each of the construction sites.

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 black oils shall be in accordance with the provisions of PD 82/2-3-2004. By the PD is given priority to collect and dispose black 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 is 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 the least possible interventions are made.

c. Ecosystems - Vegetation

In the areas where the technical structures are constructed, and mostly in the areas where bridges are constructed, all the necessary precautions are taken in order to avoid any impact on the riverside and other 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. bentonite), which are used in order to add improved features to the boring effluents during the borings.

Especially during the dry period, in the 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 vegetable materials are cut and temporary 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.

Vegetation, planting and 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 approved by the project's Independent Engineer.

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

New Sections

In order to facilitate the fulfillment of the above mentioned obligations the CJV conducted a relevant tender in order to find the suitable designer (agronomist, landscape architect) for the development of Planting-Technical Design for Korinthos – Patra section.

The designer (Klea Volovini) undertook the project, the relevant agreement was made and the data collection commenced towards the development of the Planting-Technical Design for the surrounding area, the respective I/Cs, embankment/cut slopes as well as the sections of the existing national road which will not be included in the motorway. The process is in progress.



View of Elefsina-Korinthos section

Cleaning

During 1st semester of 2011, the Company'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).

The motorway is cleaned within the boundaries of the concession.

The Operator's 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.

Management of extraordinary incidents, environmental accident, green areas fires

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.



Patrol vehicles

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" and "Patra By-Pass K1 I/C – Midilogli Semi-I/C" sections.

- In the framework of road safety, Olympia Odos Operation S.A. 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 first semester of 2011:

- 2.192.768 (about 12.115 per day) kilometers of Patrols and Interventions were covered to supervise the road network
- 12.399 incidents were handled with the Company's assistance, such as: 7.003 immobilized vehicles (mechanical failure, flat tire, lack of fuel, abandonment), 3.782 obstacles on the pavement, 668 road accidents (30 with injured and 638 with material damage), 581 user problems (pedestrians, vehicles moving in the opposite direction, non authorized users, dangerous traffic violations), 100 traffic congestions and 265 other emergency incidents (fire, adverse weather conditions, etc.) out of which:
- 7.304 were handled immediately by the Company, since they were detected (located) by its own vehicles, or by its subcontractors' vehicles

- 5.095 incidents were handled within 11' in average by the Company, since they were otherwise detected (phone, cameras etc.), while regarding the response of the subcontractors respectively: 16' for light vehicles and 28' for heavy vehicles

The company'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 JV. 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 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.



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, CJV 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 are in progress.

Antiquities detailed data/activities are reported in the herein Appendix 5.



SIKYONA (MOULKI) K.P. 17+100 KO-PA section
Architectonical ruins excavation

Training – awareness raising and inspection

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.

CJV 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 CJV'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 elaborated 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 (environment engineers, foremen in sensitive areas) and the second one to the general environmental training of the whole staff. Table 8 describes the whole number of hours (persons x time) for environmental training during 01/01/2011 – 30/06/2011.

TRAINING TYPE	TIME (HRS)
SPECIALISED TRAINING	70
GENERAL TRAINING	30

Environmental visits are carried out in accordance with the project's works allocation for each Party (constructor) and for each Geographic Unit.

A report is elaborated after each environmental visit. The report assesses the following:

- a** the works and activities carried out in the facility, and
- b** the respective equipment and the suitability of the implemented environmental management.

The necessary solutions/ environmental management improvements shall be recommended, where required, by implementing the best and more environmental-friendly techniques/technologies.



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