



Hrvatsko asfaltno društvo



Croatian asphalt association

How smart performance approach is a win win strategy?

Illustrated examples

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Međunarodni seminar ASFALJNI KOLNICI 2018
International seminar ASPHALT PAVEMENTS 2018



WE OPEN THE WAY

0. CONTENT

1. Why dealing & asking about performances?
2. Clear rules are existing,
3. Example 1: A380 runway, army vehicles, TGV platform, private logistic platform...
4. Brake the barriers to progress: first existing proposals & benchmark
5. Conclusion

I. WHY DEALING & ASKING ABOUT PERFORMANCES?





**PUBLIC
MONEY...**



ANSWER TO FUNCTIONNAL NEEDS





ENVIRONMENTAL ISSUES...





NEW STRESSES...



PERFORMANCE (*AND COST EFFICIENT*) ORIENTED NORMS AND RULES



C €

DELAYS REDUCTION

Déviation

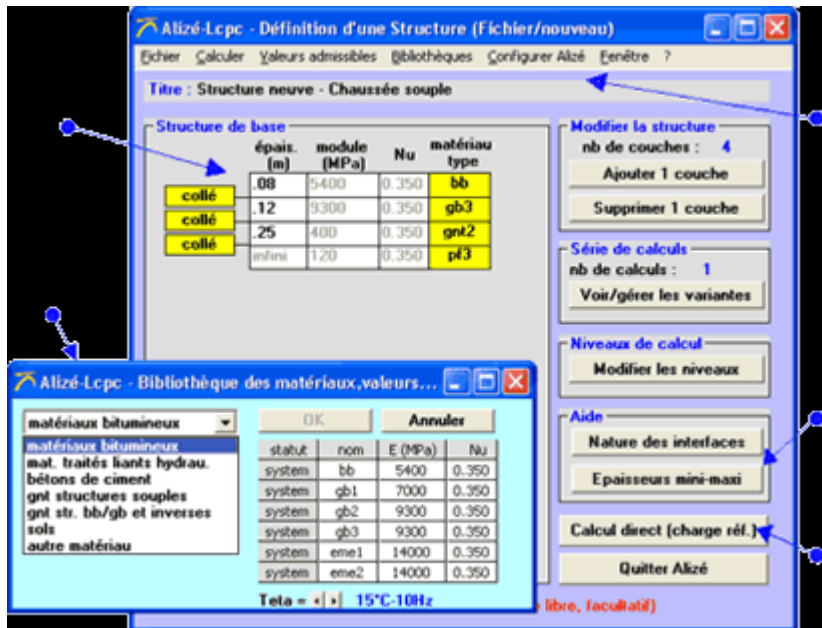
PROJECT OPTIMIZATION...



II. RULES ARE CLEARED AND KNOWN !



CLEAR RULES AND METHODS, VERIFIED



Laboratoire Central
des Ponts et Chaussées



Cerema



IFSTTAR

ALYZE DESIGN TOOL USED IN MORE THAN 110
COUNTRIES, AND RECOGNIZED BY COURTS & EXPERTS

COLAS

WE OPEN THE WAY

... SHARED IN THE WHOLE WORLD

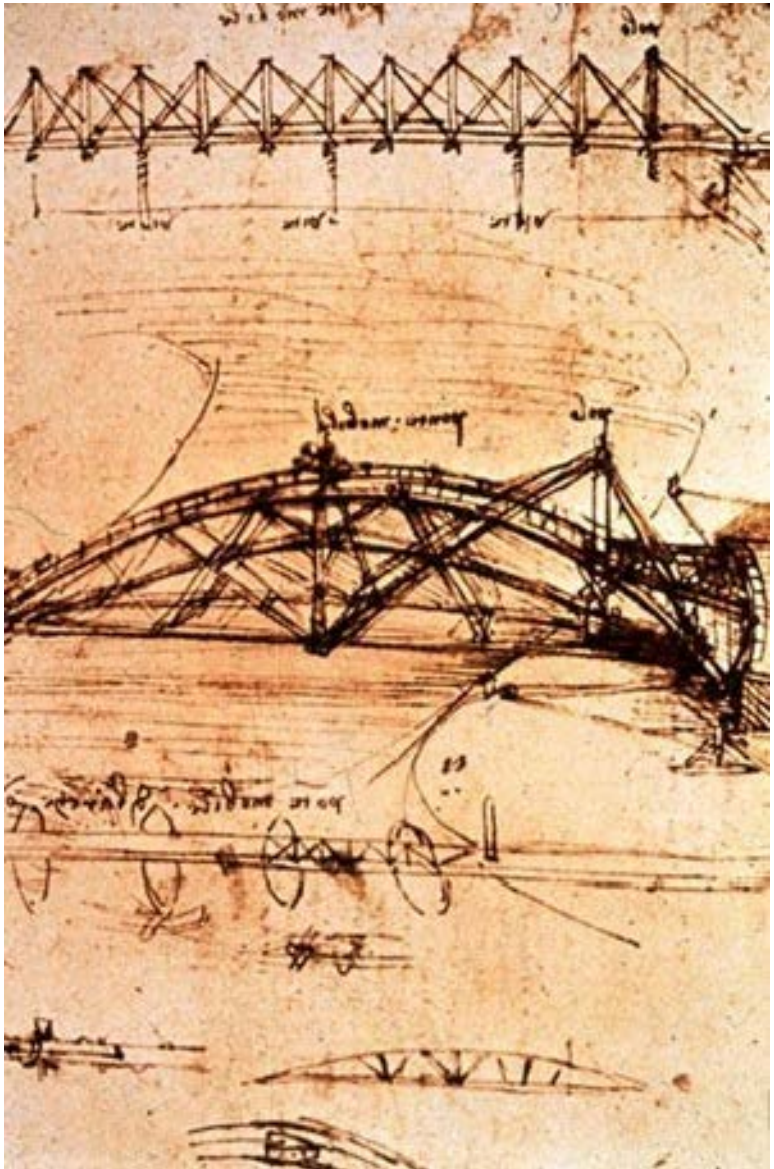


US Army Corps
of Engineers®



,etc.





SOME OWNERS ARE USED TO, FOR LONG...



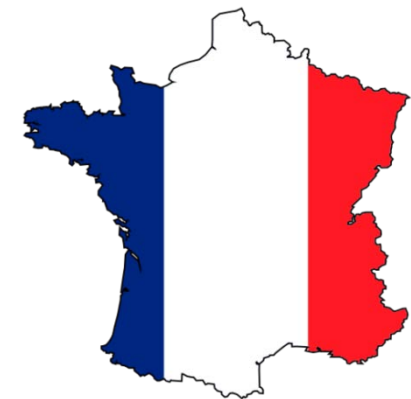
Alternative techniques to promote maintenance

Alternative authorized by default

Savings sharing



International Federation of Consulting Engineers (FIDIC)





III. EXAMPLE IN FRANCE, DIR CENTRE NATIONAL ROAD 80 UPGRADE









N 80 2x2 lanes + emergency lanes : 21 m Width,
 10 KM LONG,
 1352 TrUCK/day/way

Basic design

BBTM 0/10 Classe 1	2.5	cm
BBSG3 0/10	6	cm
EME2 0/14	9	cm
EME2 0/14	10	cm
PF3 (EV2 \geq 120 Mpa)		
27.5 cm		

Alternative solution

BBTM 0/10 Classe 1	2.5	cm
Bétoflex® 0/10	6	cm
GB3 0/14	9	cm
OPTIBASE® 0/14	9	cm
PF3 (EV2 \geq 120 Mpa)		
26.5 cm		



Alternative solution

BBTM 0/10 Classe 1	2.5	cm
Bétoflex® 0/10	6	cm
GB3 0/14	9	cm
OPTIBASE® 0/14	9	cm
PF3 (EV2 \geq 120 Mpa)		
26.5 cm		

- **Same wearing course** : very thin asphalt (BBTM)
- **binder course: BETOFLEX** (AC10 with PMB, giving better performance)
- **base course:**
 - standard AC14,
 - and **OPTIBASE** (AC base which allows us to propose a good price for a little decrease of performance)



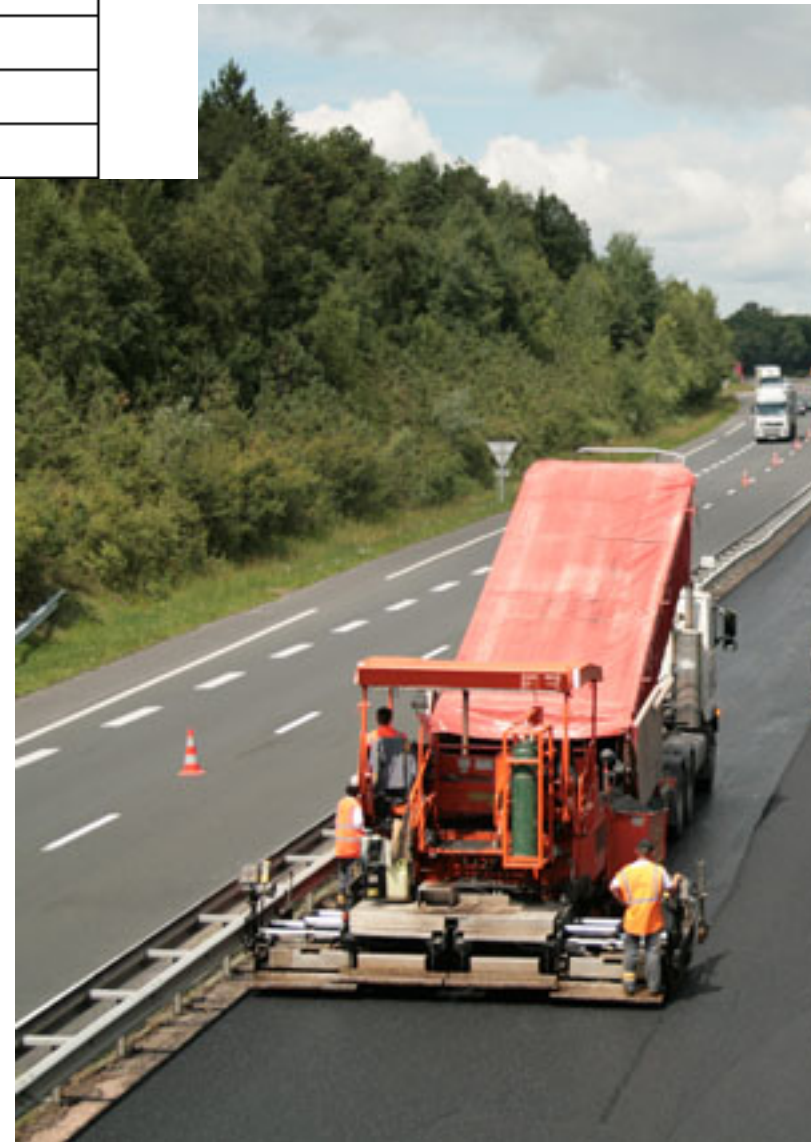
Technical choice & strategy

	E (MPa)	ν	ϵ_6 (μdef)
BBTM *	3 000	0.35	-
BBSG 3*	5 400	0.35	-
Bétoflex® **	11 000	0.35	-
GB 3*	9 300	0.35	90
EME 2*	14 000	0.35	130
OPTIBASE®**	12 500	0.35	110

BETOFLEX = * 2 better stiffness modulus

Decrease of perf. With use of base course...

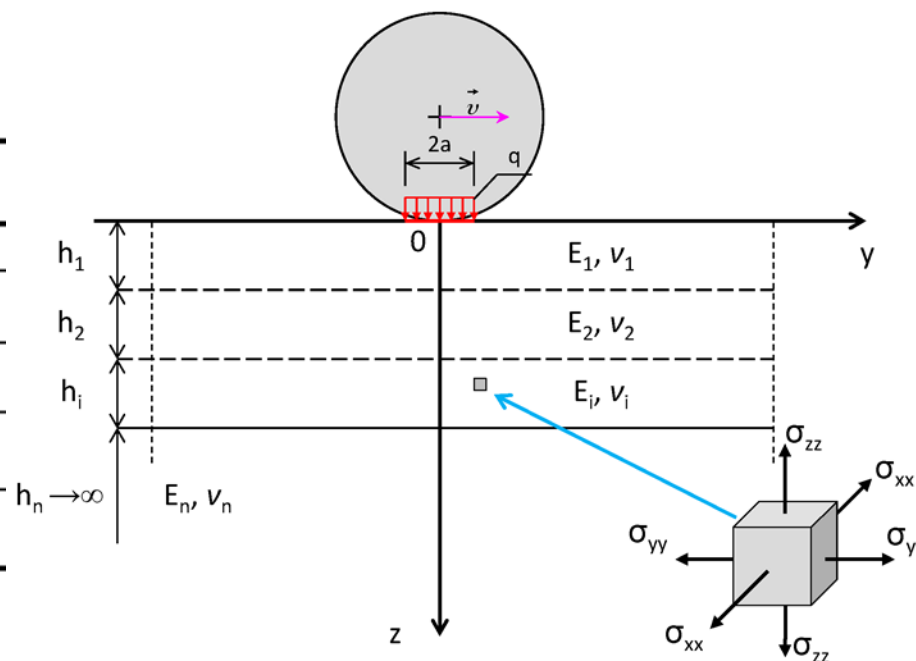
BUT global pavement performance obtained, with smaller thickness



Design method calculation

The results below show that the transversal and vertical deformation are under the allowed limits

Sollicitations dimensionnantes	Sollicitations de service		Sollicitations admissibles
-	-		-
-	-		-
-	-		-
$\epsilon_t (\mu\text{def})$	57.4	\leq	61.6
$\epsilon_z (\mu\text{def})$	186.4	\leq	272.1





Alternative solution

- Tender criteria: **price (90%) & delay (10%)**
- **Price gap: -6%**
- **Delay: -5 days**
- **Long terms perf. : same**
- **Maintenance : easier**
(more basic products)

**I gonna make
you an offer you
can't refuse**

**IV. EXAMPLE 2, IN
PRIVATE MARKET**



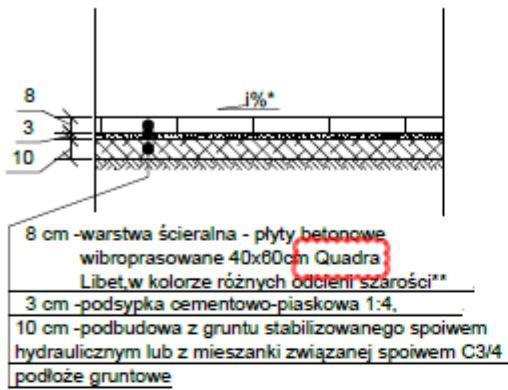
PROJEKT WYKONAWCZY, A****, PL



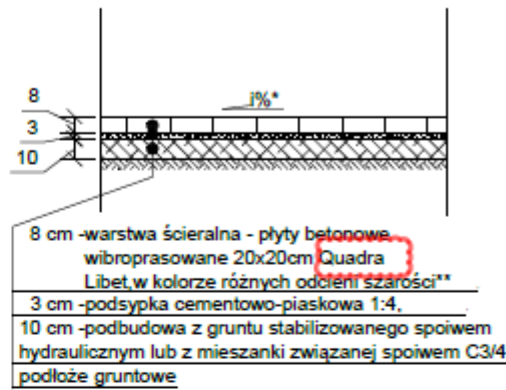
Project conditions:

- **Work for B*****S (GC),**
- **Helped him at his tender phase,**
- **Rehabilitation works, 1,5 M euros road works (envelop),**
- **Site built on mine fill (sensitive to water).**

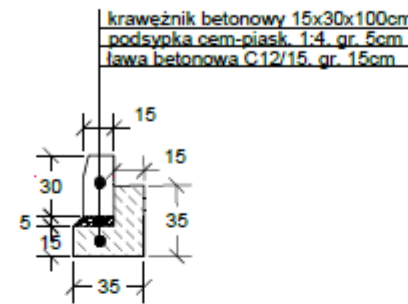
SZCZEGÓŁ NR2
konstrukcja nawierzchni chodnika



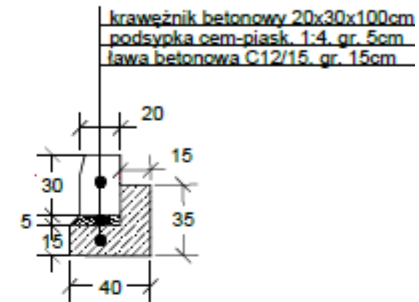
SZCZEGÓŁ NR2a
konstrukcja nawierzchni chodnika



SZCZEGÓŁ NR3a
krawężnik betonowy 15x30cm
na ławie betonowej z oporem



SZCZEGÓŁ NR3b
krawężnik betonowy 20x30cm
na ławie betonowej z oporem



Basic solution, rigid!

- 5 road types (traffic wise),
- 8*8*8 to 15*15*10 concrete tiles,
- On cement gravel base..

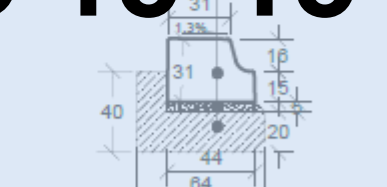
SZCZEGÓŁ NR3b
opornik betonowy
na ławie bet. z oporem

opornik betonowy 12x25x100cm
podsypka cem-piask. 1:4, gr. 3cm
ława betonowa C12/15, gr. 15cm
konstrukcja naw.



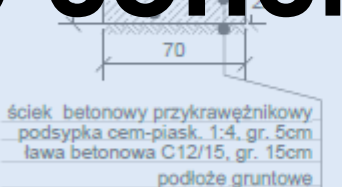
SZCZEGÓŁ NR3c
krawężnik perłowy 31x43 cm
na ławie betonowej z oporem

krawężnik betonowy 31x43,5x10cm
podsypka cem-piask. 1:4, gr. 5cm
ława betonowa C12/15, gr. 20cm



SZCZEGÓŁ NR3f
ściek przykrawężnikowy
z prefabrykatu betonowego
na ławie betonowej

ściek betonowy przykrawężnikowy
podsypka cem-piask. 1:4, gr. 5cm
ława betonowa C12/15, gr. 15cm
podłoże gruntowe



SZCZEGÓŁ NR4b
ściek nawierzchniowy z kostki bet.
na ławie betonowej

SZCZEGÓŁ NR4
obrzeże bet. na podsypce
cementowo-piaskowej

Procedura 2

NAZWA PROJEKTU / TITLE OF THE PROJECT
ROZBUDOWA CENTRUM HANDLOWEGO PLATAN WRAZ Z BUDOWĄ ŚCIANY ODDZIelenIA POŻAROWEGO.

ADRES INWESTYCJI / PROJECT ADDRESS
AL. JERZYZOŁOWSKIEJ 1
00-403 WARSZAWA

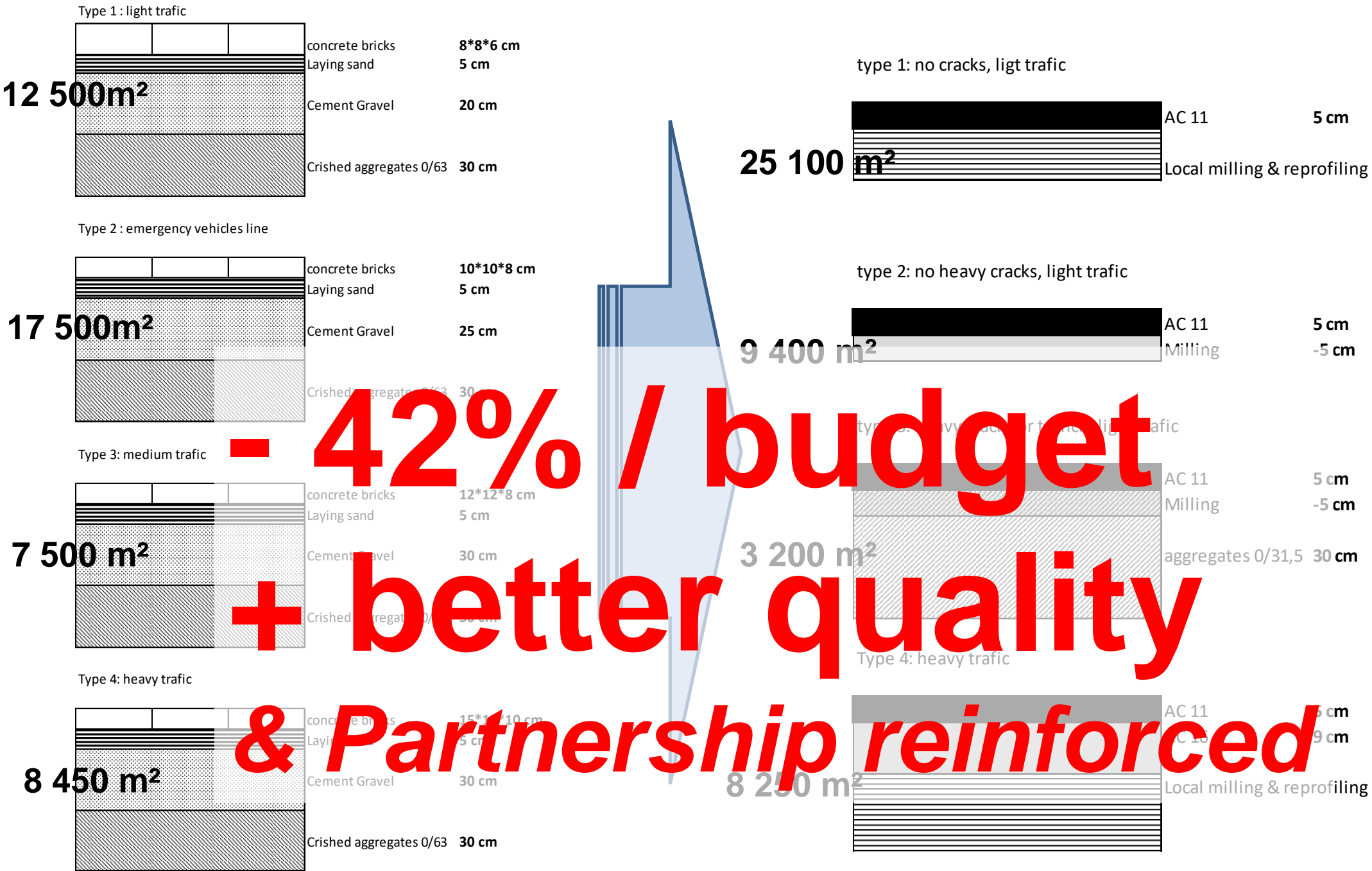
INWESTOR/CLIENT
Platan
PLATAN PROPERTY sp. z o.o.
Al. JERZYZOŁOWSKIEJ 1
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JEDNOSTKA PROJEKTUJĄCA/DESIGN OFFICE
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00-854 Warszawa
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Colas alternative solution:

- **Geotechnical investigation** & proposal,
- Lab visual + **deflexion tests**,
- **Flexible pavement** proposed (*DEC design*),
- Quantities re-check + adaptations.
- Direct costs of tests: **350 euros**
- Duration of offer: **3 days**



V. CONCLUSION

- ✓ **Open** to alternative solutions,
 - ✓ Act as a **smart, responsible & educated owner**,
 - ✓ With **clear rules (existing)**, given to bidders & contractors,
-
- ✓ **Design says...**
 - ✓ **Prices & technical conditions conclude**,
-
- ✓ **Money for value**,
 - ✓ Time to consider **all impacts and efficient solutions**.



THANK YOU

Philippe CHIFFLET



WE OPEN THE WAY