PROPONENTE
Repower Renewable Spa
Via Lavaredo, 44
30174 Mestre (VE)

PROJECT MANAGER : Dott.Giuseppe Caricato

PROGETTAZIONE

Progettista :
Ing. Filippo Bittante

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N° COMMESSA
1416

NUOVO PARCO EOLICO "SERRACAPRIOLA "
PROVINCIA DI FOGGIA E CAMPOBASSO
COMUNI DI SERRACAPRIOLA (FG) E ROTELLO (CB)

PROGETTO DEFINITIVO PER AUTORIZZAZIONE

ELABORATO ALLEGATO REPORT TRASPORTISTICO

CODICE ELABORATO
6.9

NOME FILE
1416-PD_A_6.9_REL_r00

REV.	DATA	DESCRIZIONE REVISIONE	REDATTO	VERIFICA	APPROVAZIONE
00	30/11/2020	PRIMA EMISSIONE	Geom. E. Cossalter	Geom. E. Cossalter	Ing. Filippo Bittante

Class I

Confidentiality Note: **Recipient's discretion**

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Executor: Vincenzo Castellano

Approver: Francesco Dragone

Customer: Elettrostudio energia srl

Transport Road Survey Report

Project: Serracapriola, Italy

History of this document

Doc. and Rev. no.:	Date:	Description of changes	Exec.	Appr.
MED TTT001	14-10-2020	First Issue	VINCAS	FRADR

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Table of Contents

Summary

According to Customer request it has been analyzed V150 – HH105 tower configuration transport feasibility to get to Serracapriola Wind Park Site.

Road Survey date: 23-09-2020

Transport Supervisor:

Attendants:

Transporter Representative: **Filippo Cardone (SAE S.r.l.)**

Customer Representative:

Specs Description

Project	**Serracapriola (FG)**
Country	Italy
Place	Serracapriola - Puglia
Scope	Planning Stage – Transport Logistic – Feasibility Study
Turbine	V150-HH105
MW	5.6MW
Transport Mode	x Standard □ Transshipment □ Blade Lifter □ Tower □ Nacelle
Start From	Port of Manfredonia (FG) Pugliese Industria Meccanica – Atessa (CH)

Weight and Dimensions

V150 4MW HH105m

Nacelle	length mm	width mm	height mm	Weight kgs
	12861	4004	3412	64938

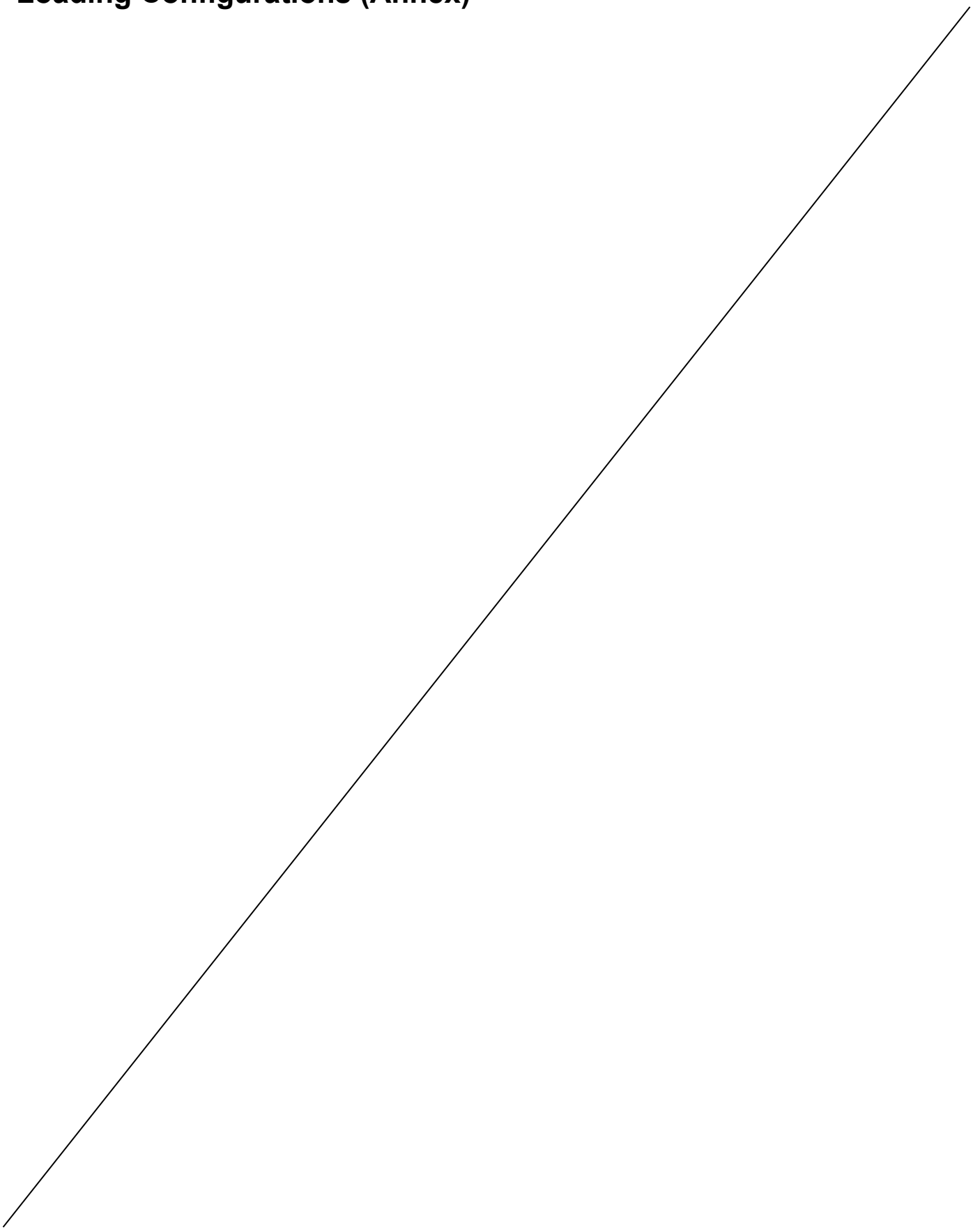
Single blade	length mm	width mm	height mm	Weight kgs
	73839	4083	2600	17000

Hub	length mm	width mm	height mm	Weight kgs
	5472	3784	3964	34196

Drive train	length mm	width mm	height mm	Weight kgs
	7230	3500	3200	61059

Tower	Bottom end mm.	top end mm.	length mm.	weight kgs.
Top section	3670	3258	33000	51000
Middle section 2	4028	3670	28840	67000
Middle section 1	4041	4028	24920	83000
Bottom section	4450	4041	15840	83000

Loading Configurations (Annex)

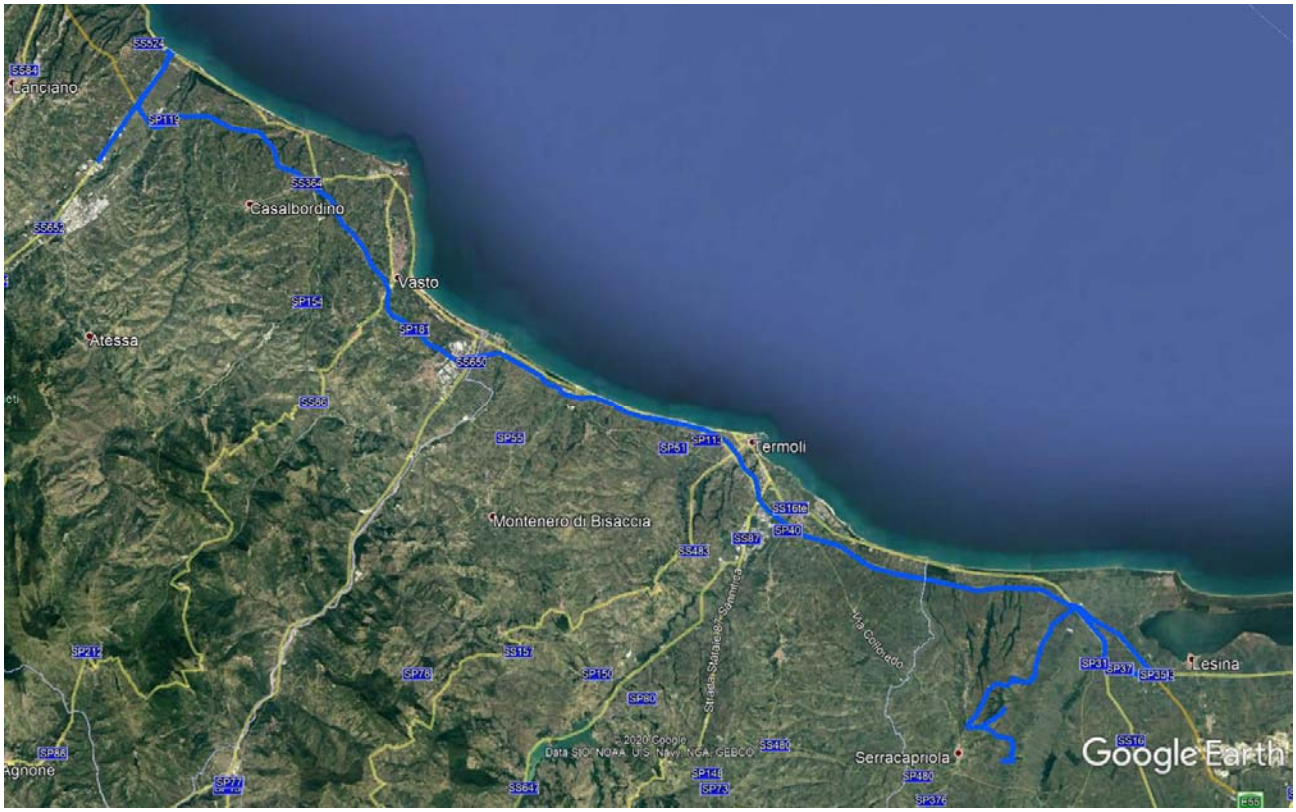


General Route Description 1st Option

WTG Route description from port of Manfredonia

- **SS 89 Appia**: from Port of Manfredonia to SS 673 dir;
- **SS 673 dir**: from SS 89 to SS 673;
- **SS 673**: from SS 673 dir to SS 16;
- **SS 16**: from SS 673 to SP 42 bis;
- **SP 42 bis**: from SS 16 to SP 41 bis:
- **SP 41 bis**: from SP 42 bis to SC Defensa;
- **SC Defensa**: from SP 41 bis to site accesses;
- **SC Defensa**: from SP 41 bis to SC Maddalena Ischia;
- **SC Maddalena Ischia**: from SC Defensa to site accesses

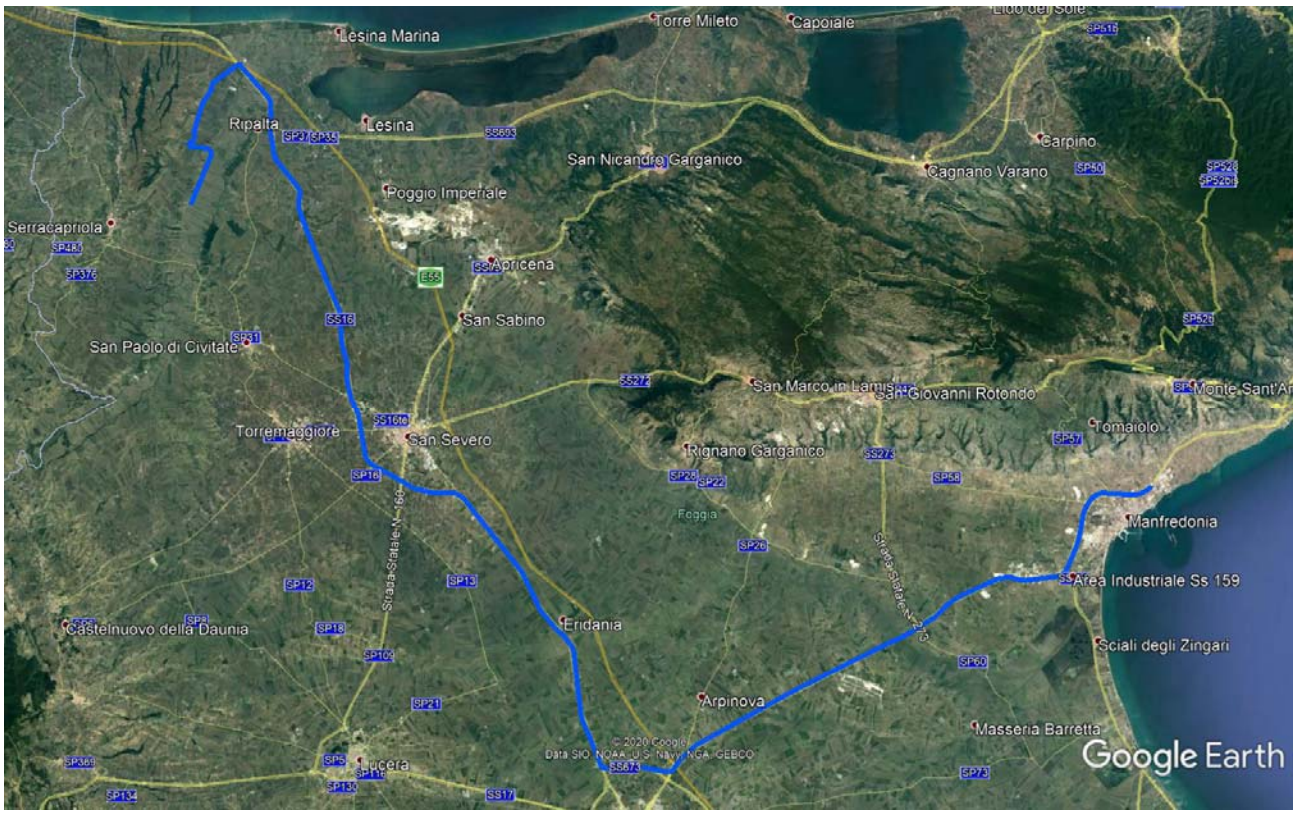
Towers Route description from Pugliese Industria Meccanica (CH)



- **Pugliese Industria Meccanica**: from loading area to SS 652;
- **SS 652**:from Pugliese Industria Meccanica to SS 16;
- **SS 16 in reverse:** from SS 652 to SS652;
- **SS 652**:from SS 16 to Highway A/14 Val di Sangro gate;
- **A14 HIGHWAY:** from Val di Sangro gate to Poggio Imperiale exit gate;
- **SS 693:** from A14 Poggio Imperiale exit gate to SP 35;
- **SP 35:** from SS 693 to SP 37;
- **SP 37:** from SP 35 to SS 16;
- **SS 16:** from SP 37 to SP 42 bis;
- **SP 42 bis**: from SS 16 to SP 41 bis:
- **SP 41 bis**: from SP 42 bis to SC Defensa;
- **SC Defensa**: from SP 41 bis to site accesses;
- **SC Defensa**: from SP 41 bis to SC Maddalena Ischia;
- **SC Maddalena Ischia**: from SC Defensa to site accesses

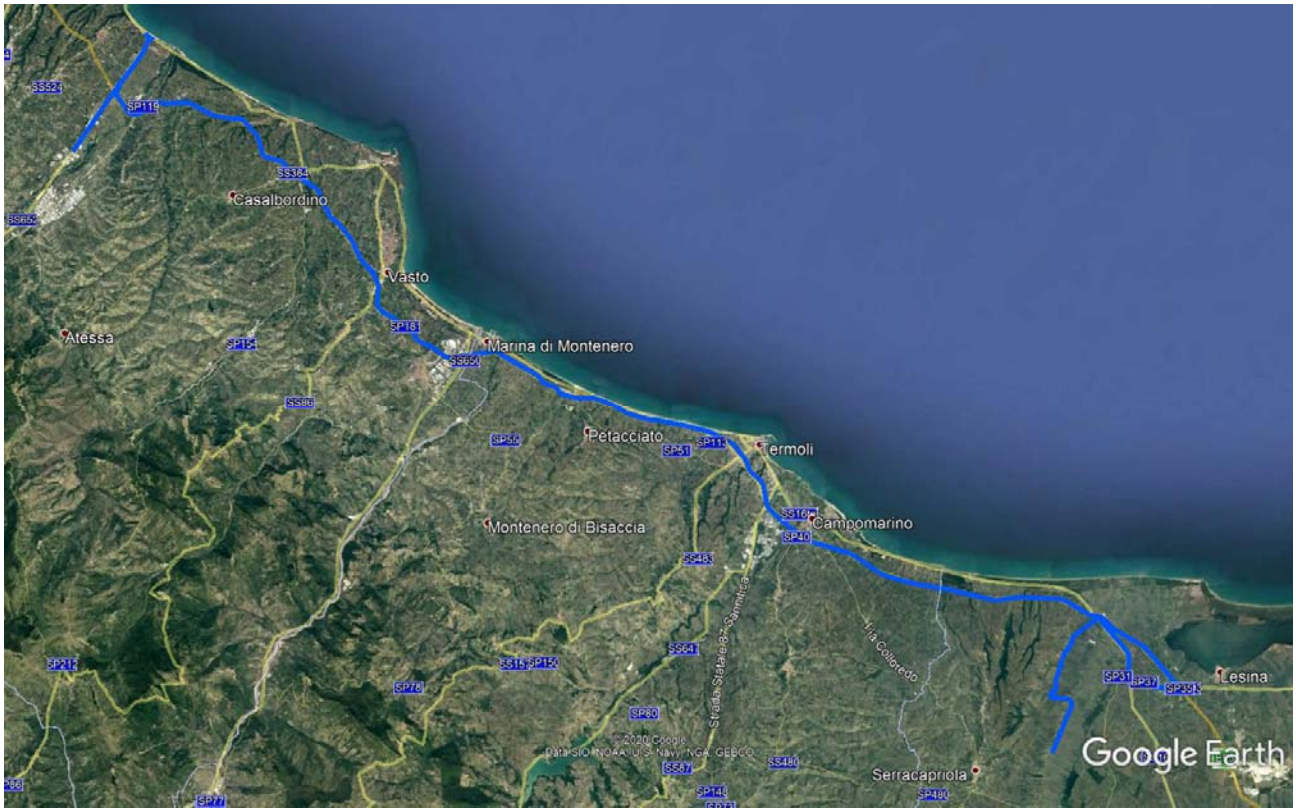
General Route Description 2nd Option

WTG Route description from port of Manfredonia



- **SS 89 Appia**: from Port of Manfredonia to SS 673 dir;
- **SS 673 dir**: from SS 89 to SS 673;
- **SS 673**: from SS 673 dir to SS 16;
- **SS 16**: from SS 673 to SP 42 bis;
- **SP 42 bis**: from SS 16 to SP 41 bis:
- **SP 41 bis**: from SP 42 bis to SP 42 bis;
- **SP 42 bis**: from SP 41 bis to site access.

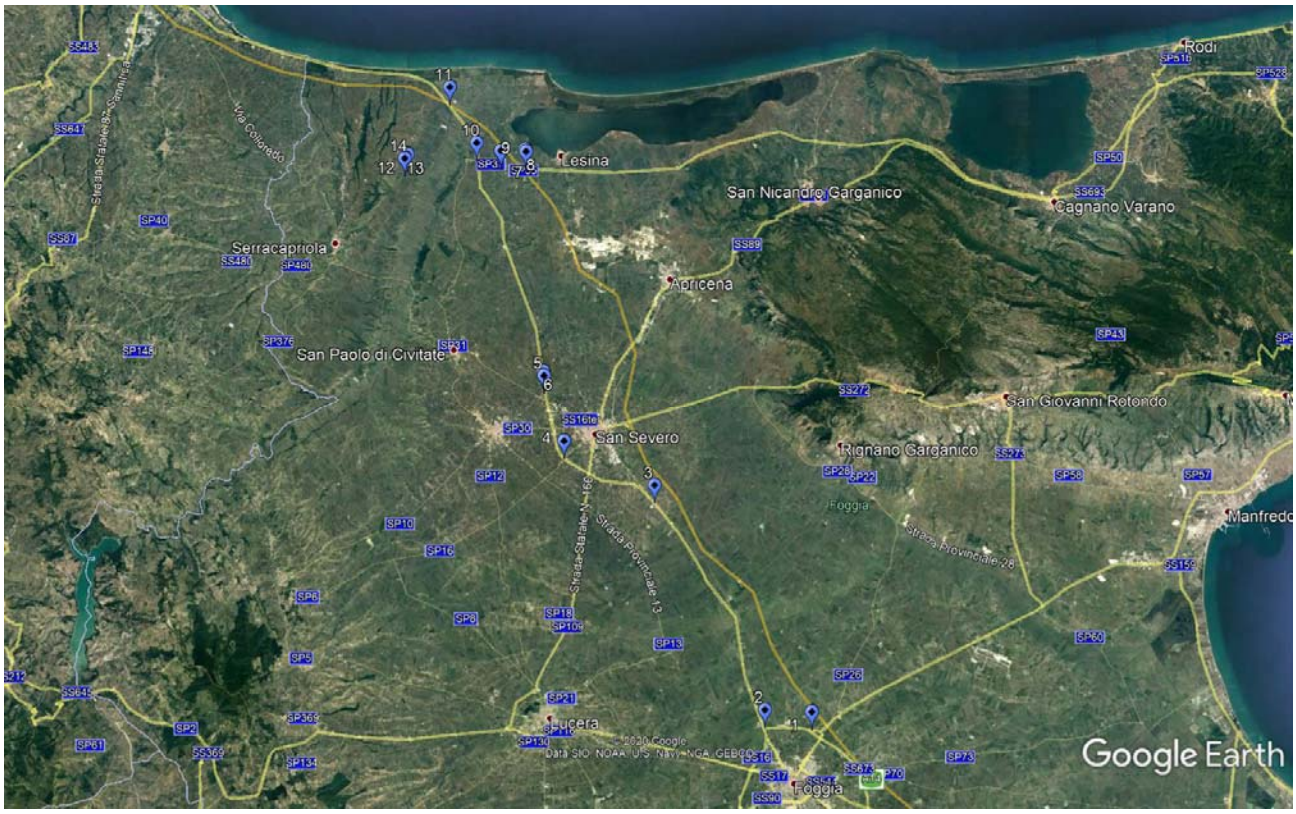
Towers Route description from Pugliese Industria Meccanica (CH)



- **Pugliese Industria Meccanica**: from loading area to SS 652;
- **SS 652**:from Pugliese Industria Meccanica to SS 16;
- **SS 16 in reverse:** from SS 652 to SS652;
- **SS 652**:from SS 16 to Highway A/14 Val di Sangro gate;
- **A14 HIGHWAY:** from Val di Sangro gate to Poggio Imperiale exit gate;
- **SS 693:** from A14 Poggio Imperiale exit gate to SP 35;
- **SP 35:** from SS 693 to SP 37;
- **SP 37:** from SP 35 to SS 16;
- **SS 16:** from SP 37 to SP 42 bis;
- **SP 42 bis**: from SS 16 to SP 41 bis:
- **SP 41 bis**: from SP 42 bis to SP 42 bis;
- **SP 42 bis**: from SP 41 bis to site access.

Observation Map Overview

From observation 1 to observation 14



From observation 15 to observation 40

From observation 41 to observation 52

From observation 53 to observation 57

Road Modifications

Route for Blades and Wtgs' from port of Manfredonia

Observation 1
Straight on SS 89 in the wrong direction.
N 41.496234° E 15.560447°

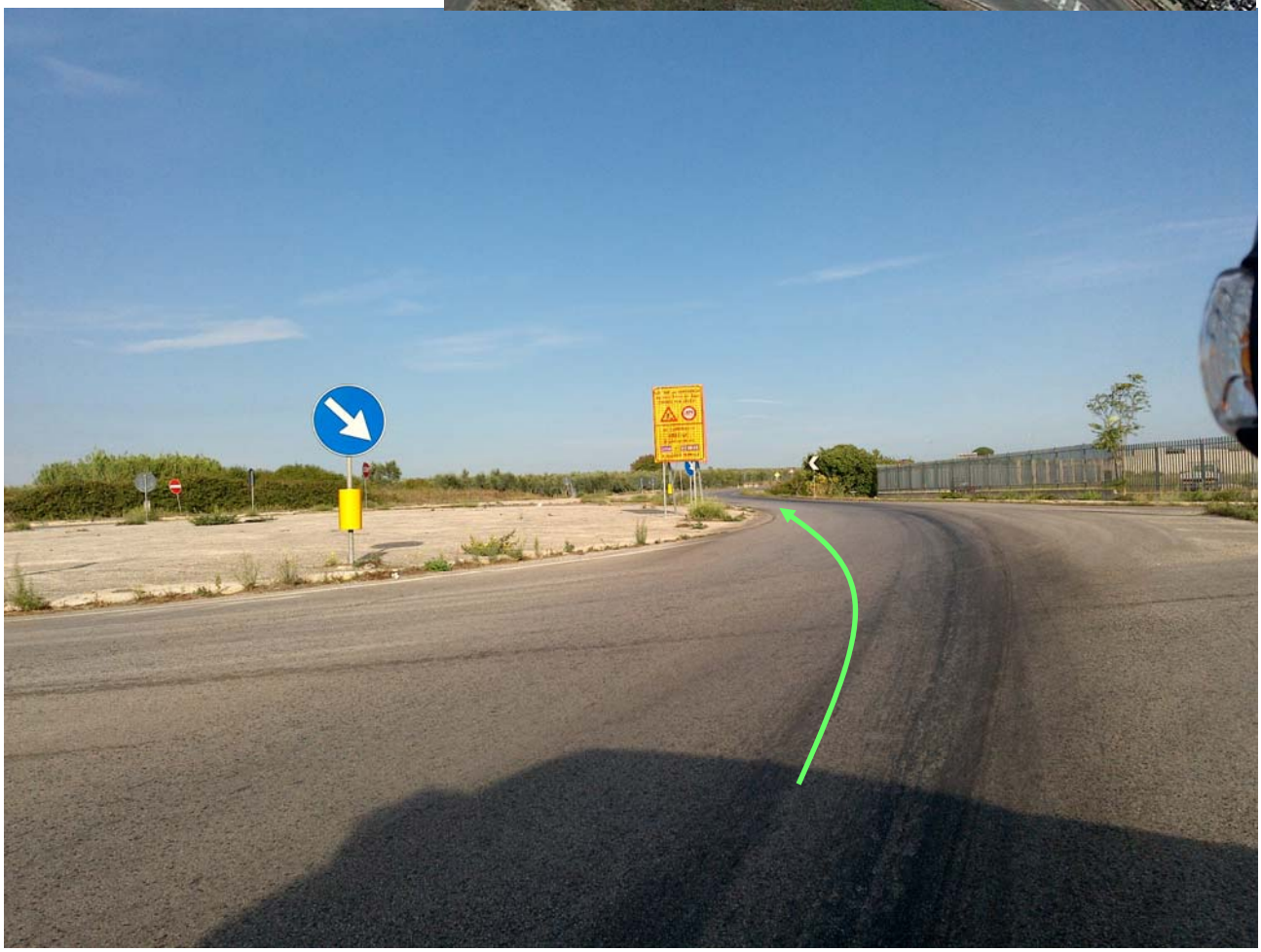
Observation 2

Make removable no. 2 road signals (one is not visible in the picture) on the right and cut the vegetation inside the bend in order to go forward SS 16.

N 41.497891° E 15.520689°

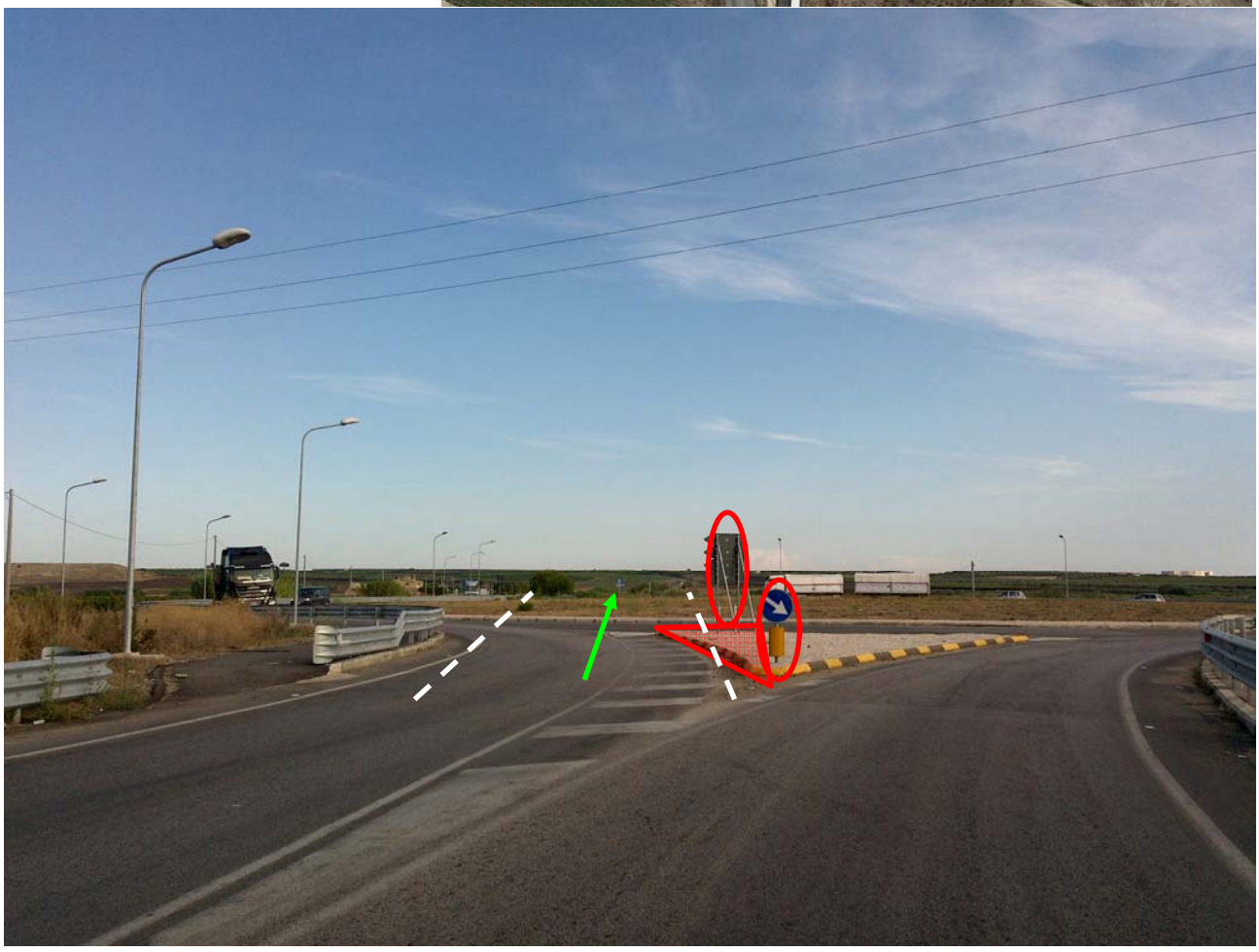
Observation 3
Make removable the road signal on the right.
Make practicable a half traffic island as on the picture.
Create a bypass through the roundabout according to Vestas Guidelines.
N 41.641291° E 15.429357°

Observation 4
Check the status of works in progress.
N 41.669963° E 15.352948°

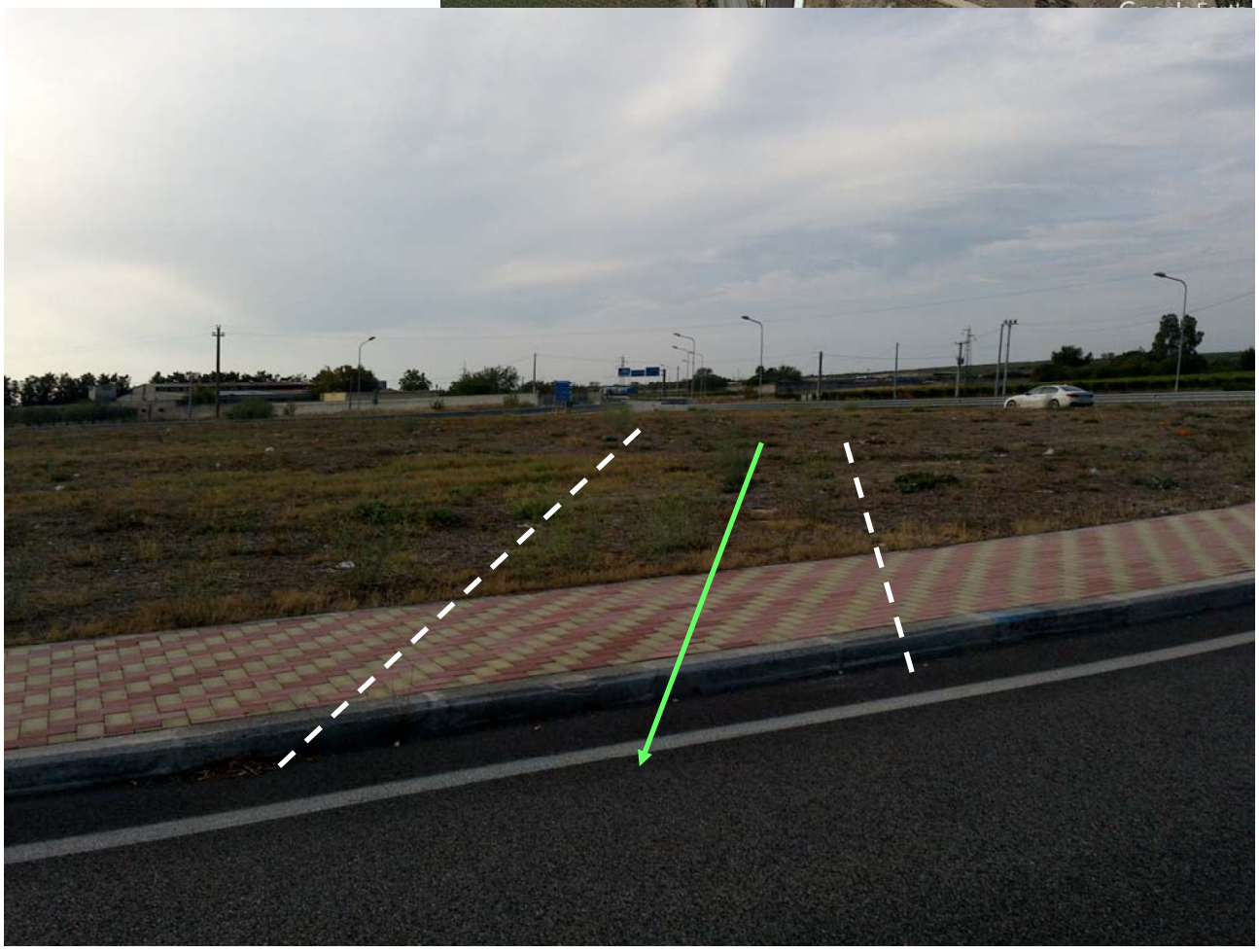


Observation 5
Create a bypass through the roundabout according to Vestas Guidelines.
Straight on in the wrong direction, make a half of the traffic island practicable and remove the road signs on it.
N 41.712012° E 15.336441°

Observation 6.01
Create a bypass through the roundabout according to Vestas Guidelines.
Straight on in the wrong direction, make a half of the traffic island practicable and remove the road signs on it.
N 41.714874° E 15.335913°



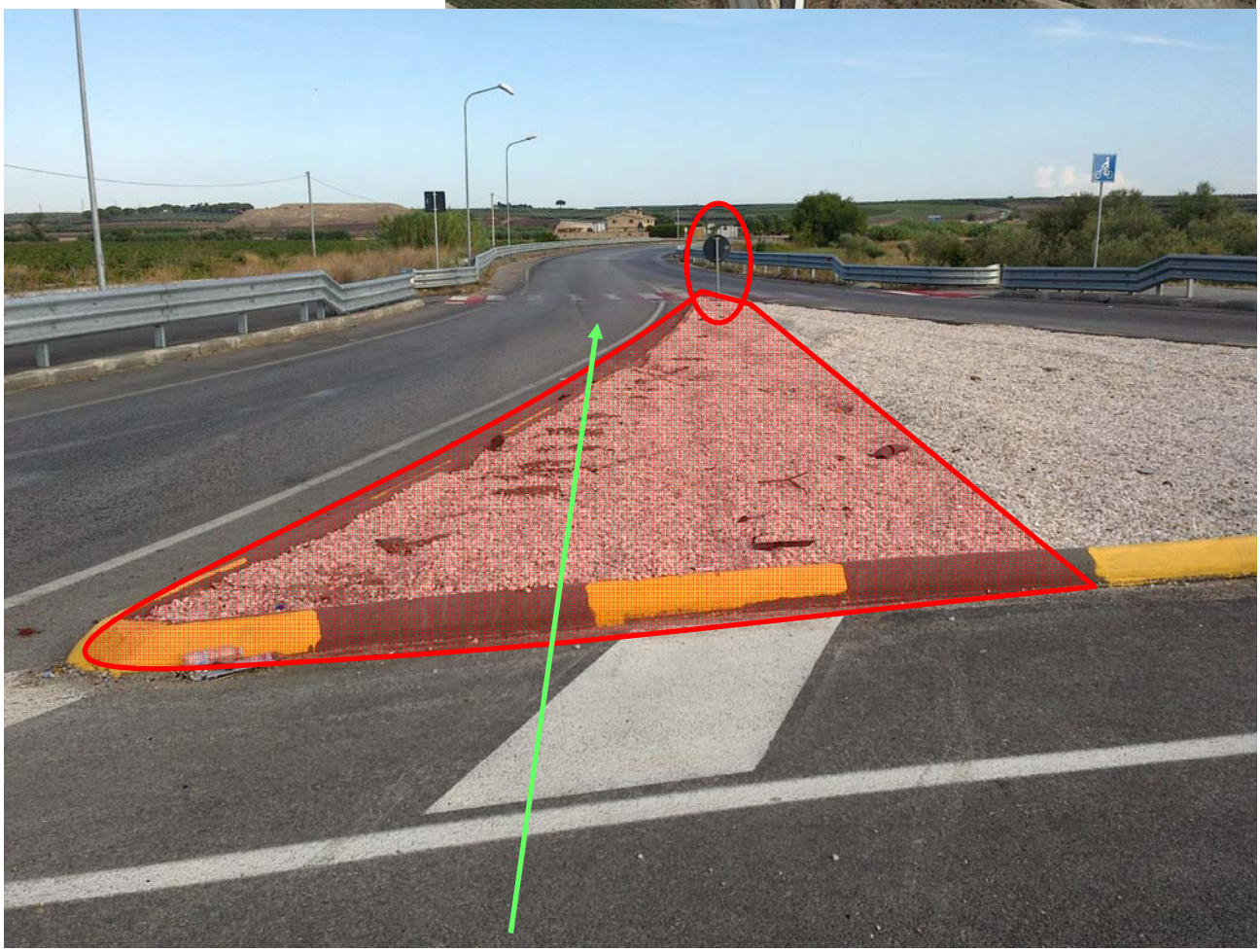
Observation 6.02
Create a bypass through the roundabout according to Vestas Guidelines. Straight on in the wrong direction.
N 41.714874° E 15.335913°



Observation 6.03

Create a bypass through the roundabout according to Vestas Guidelines. Straight on in the wrong direction, make a half of the traffic island practicable and remove the road signs on it.

N 41.715921° E 15.335727°



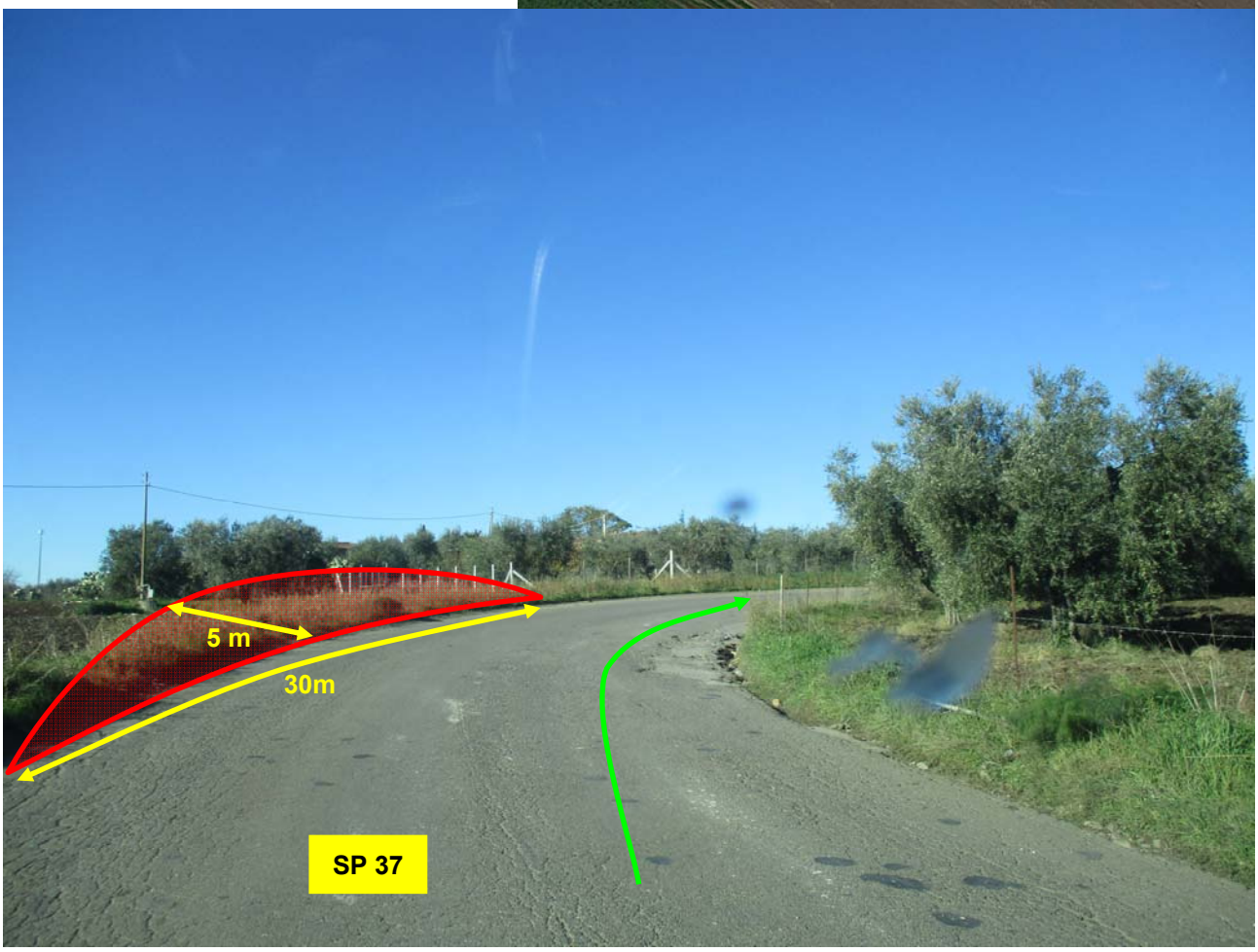
Route for Tower sections from Pugliese Industria Meccanica

Observation 7

A14 Poggio Imperiale exit gate.
Take the roundabout in the wrong direction.
N 41.855700° E 15.322168°

Observation 8
Remove the road sign on the left side.
N 41.854247° E 15.323111°

Observation 9
Widen and make road practicable on left side 30x5m.
N 41.854917° E 15.301617°



Common Route

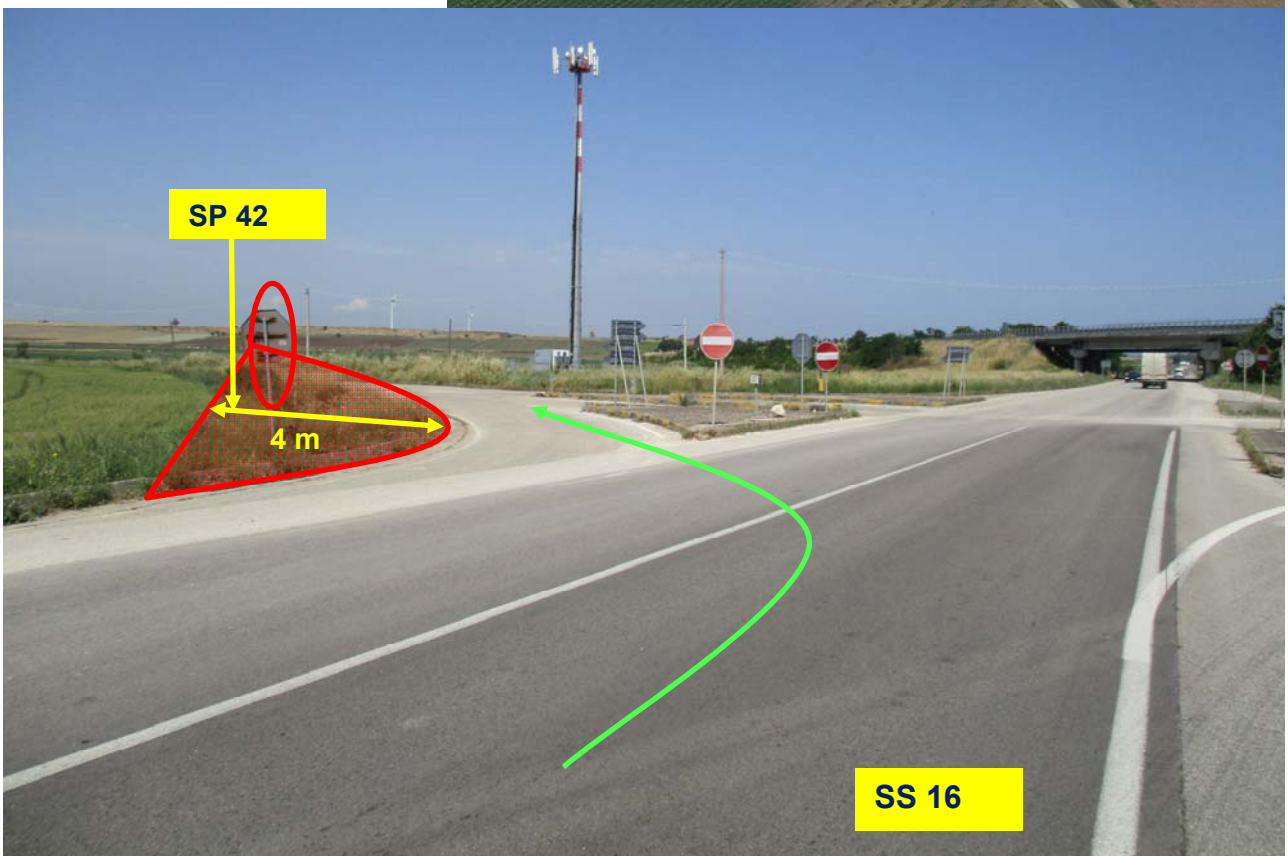
Observation 10

Meeting point for blades and tower sections.
Make the road signs on the traffic island removable.
N 41.860083° E 15.281067°

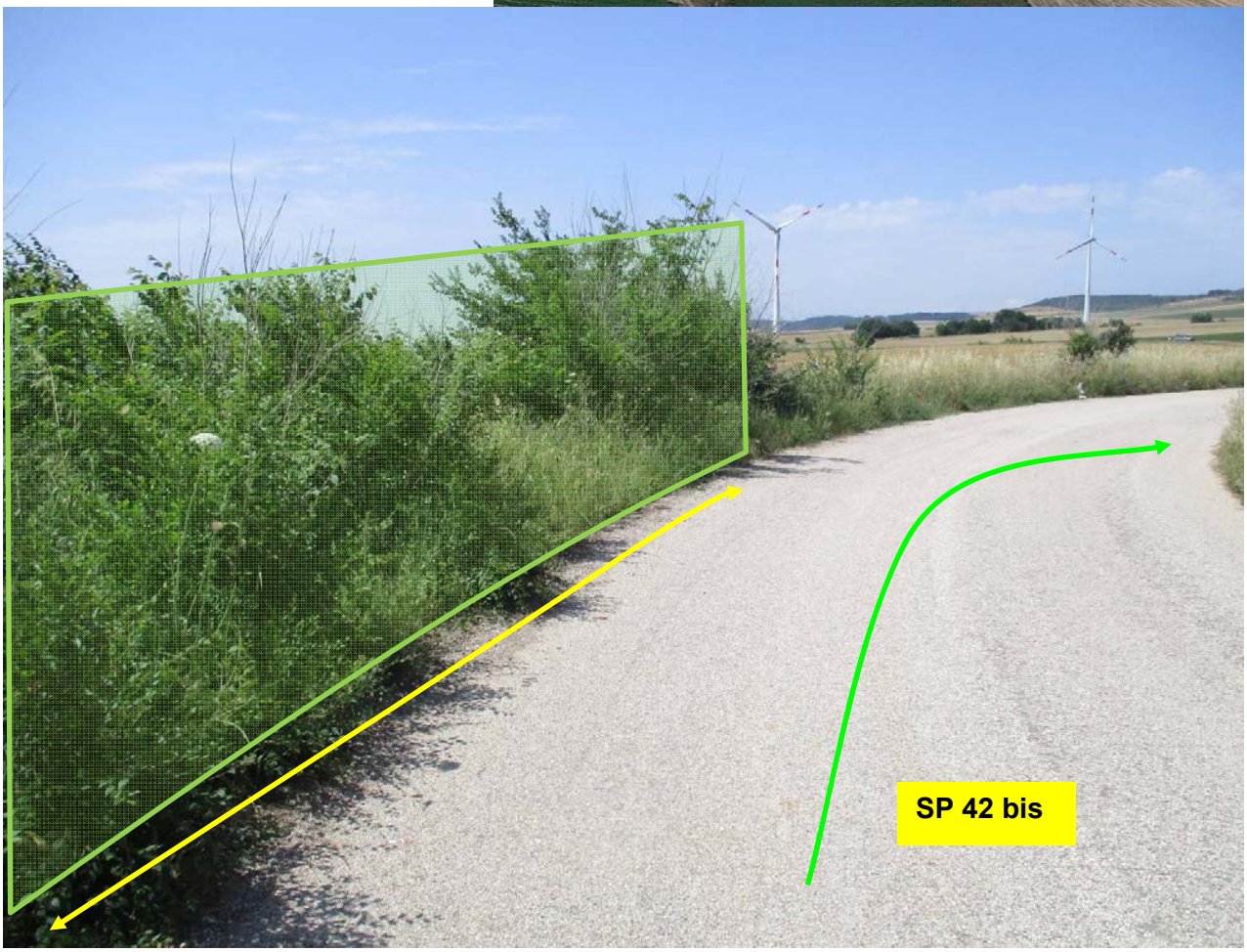
Observation 11

Take SP 42 in the wrong direction. Make removable no. 2 road signs on the left side(one is not visible) and widen and make road practicable 4 m in depth for all the bending radius.

N 41.895584° E 15.258613°

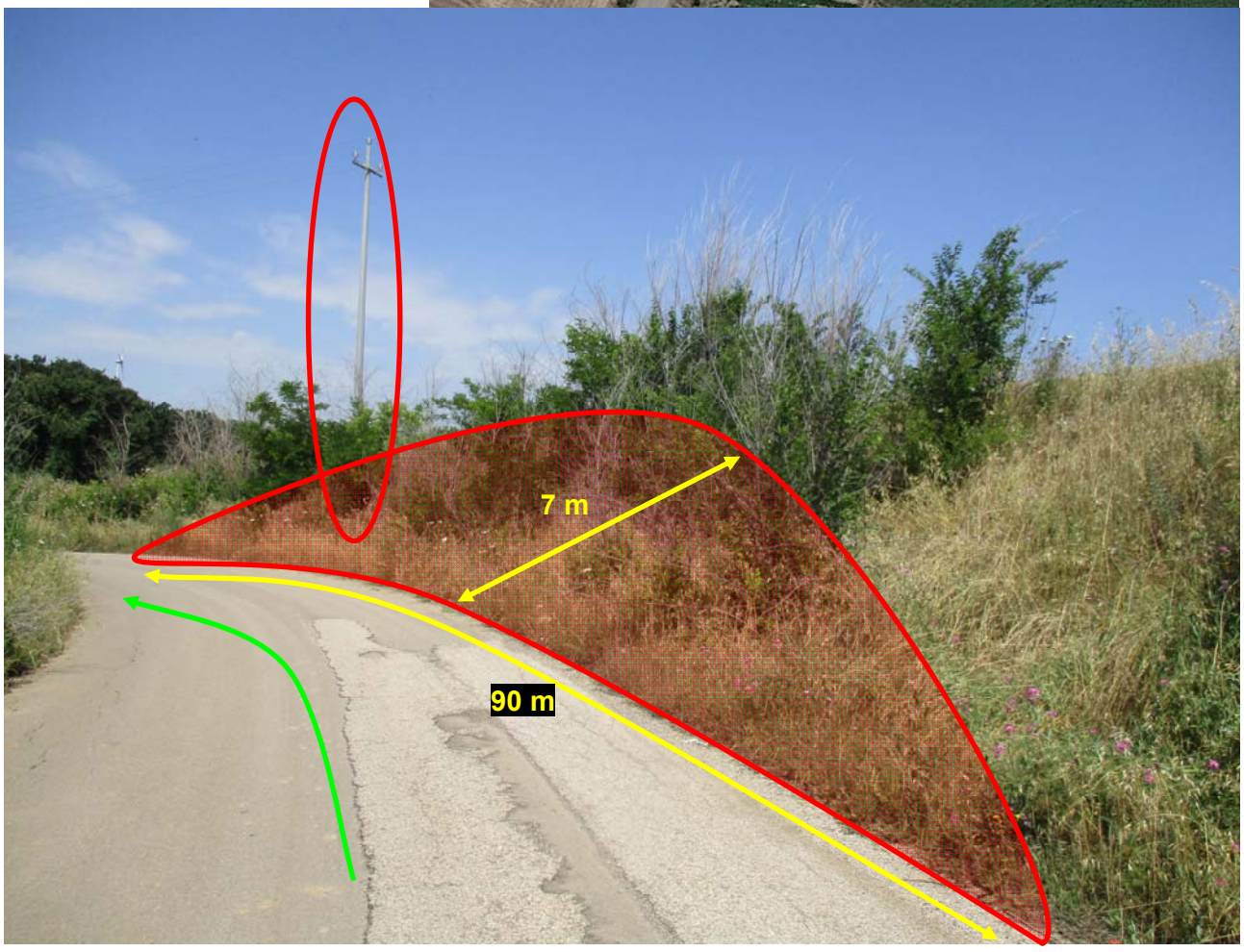


Observation 12.01
Cut vegetation on the left side for all the bending radius.
N 41.853167° E 15.222217°

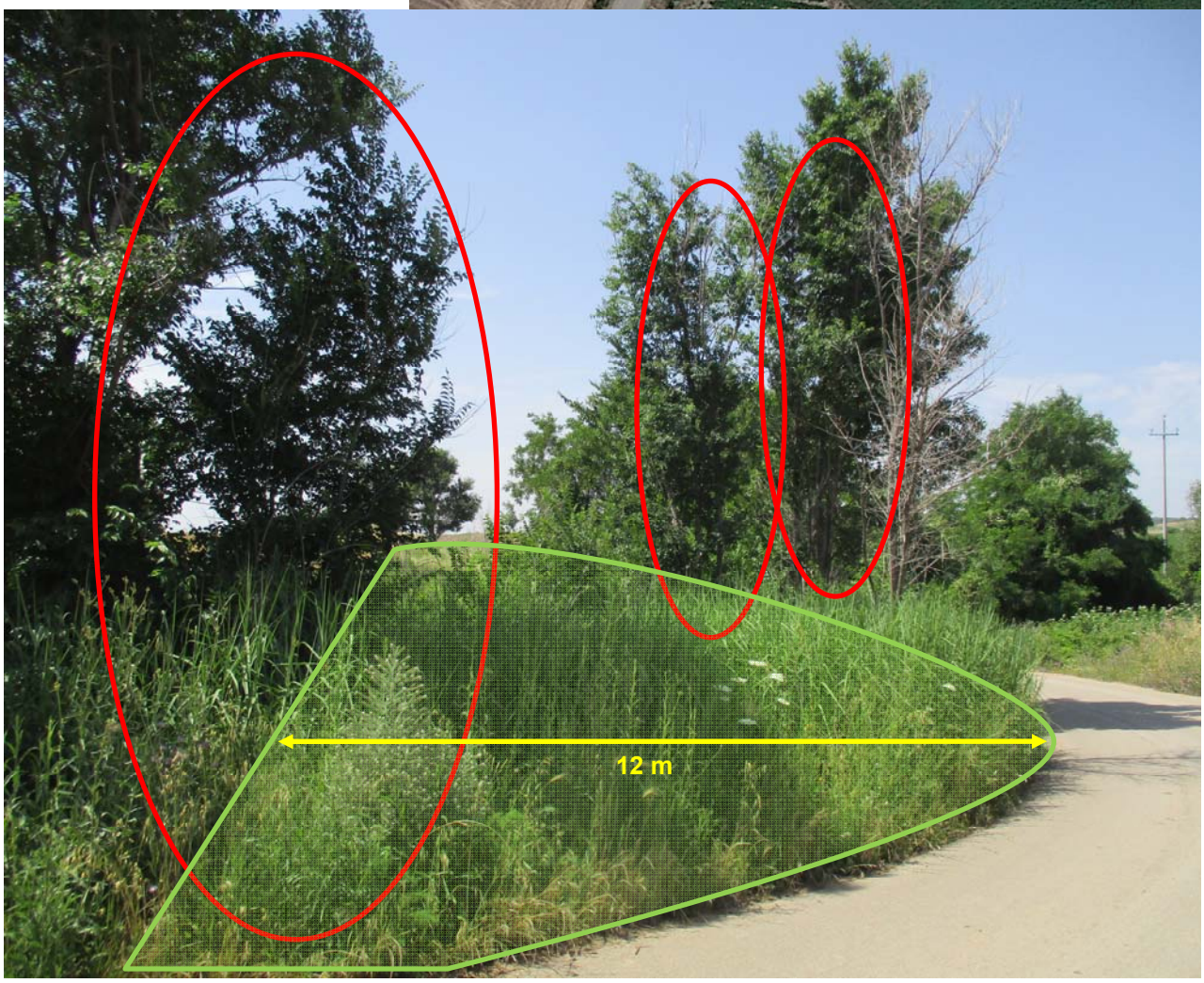


Observation 12.02
Widen and make road practicable on the right side 12 m in depth for all the bending radius.
Remove the trees on the left side.
N 41.853167° E 15.222217°

Observation 13.01
Widen and make road practicable on right side 7x90 mts and remove the electrical pole on the right and the tree on the left.
N 41.852967° E 15.220733°



Observation 13.02
Cut the trees and create a clearance area 12 mts in depth.
N 41.852967° E 15.220733°

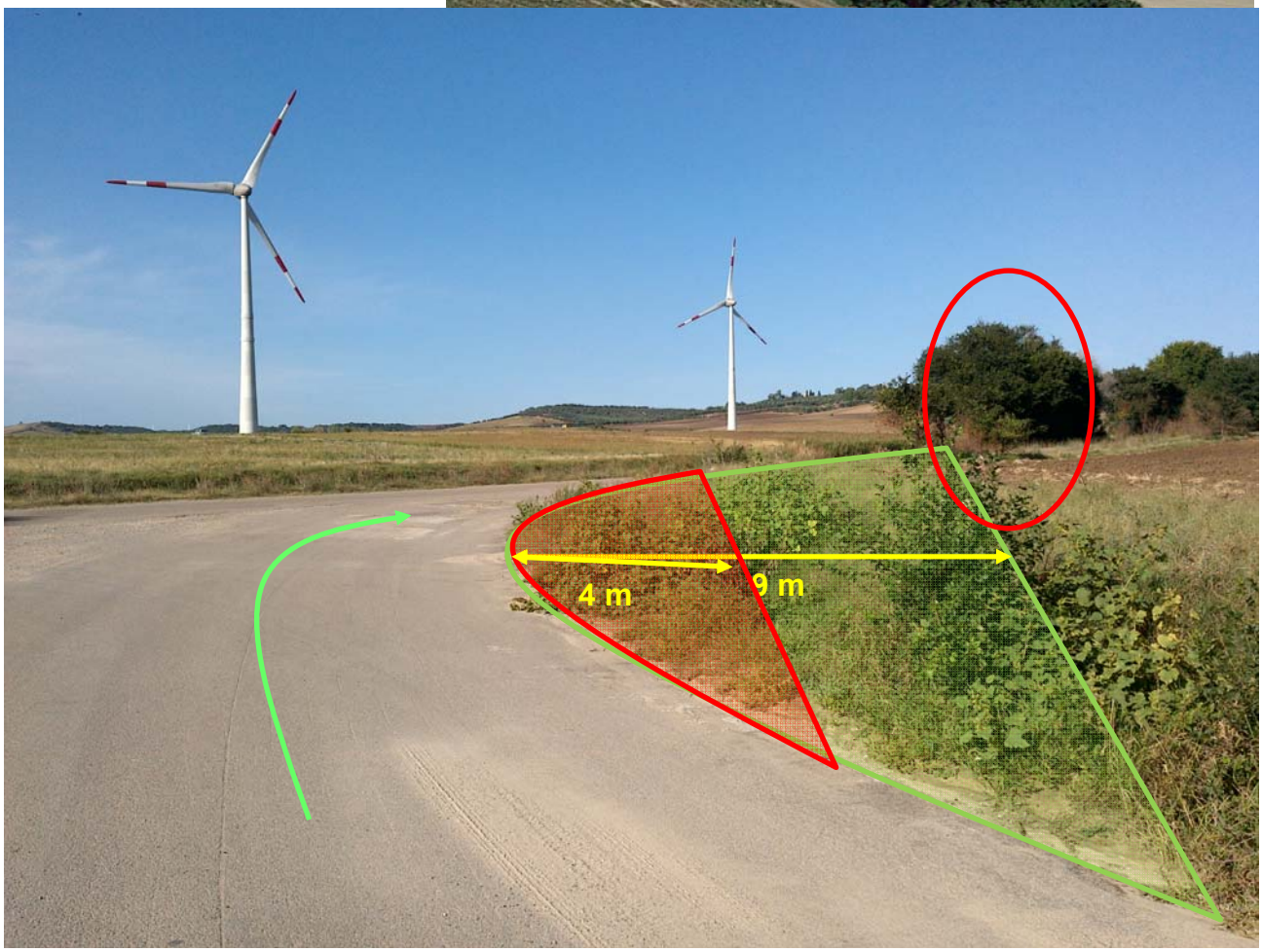


1st Route option

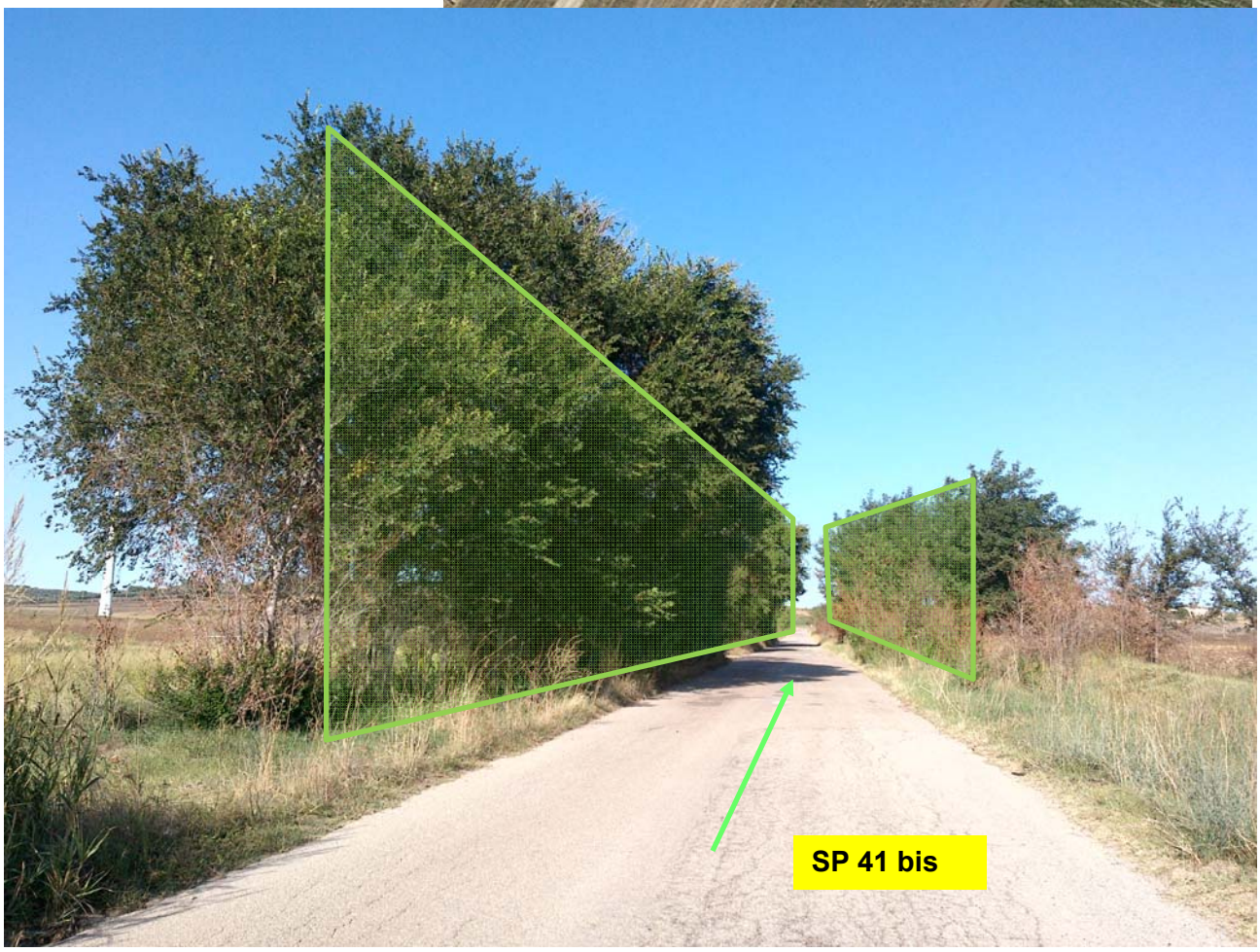
Observation 14

Widen and make road practicable on the right side 4 m in depth for all the bending radius. Create a clearance area on right side 9 m in depth for all the bending radius. Remove the tree on the right.

N 41.850700° E 15.219600°



Observation 15
Cut vegetation on both sides.
N 41.850527° E 15.217672°

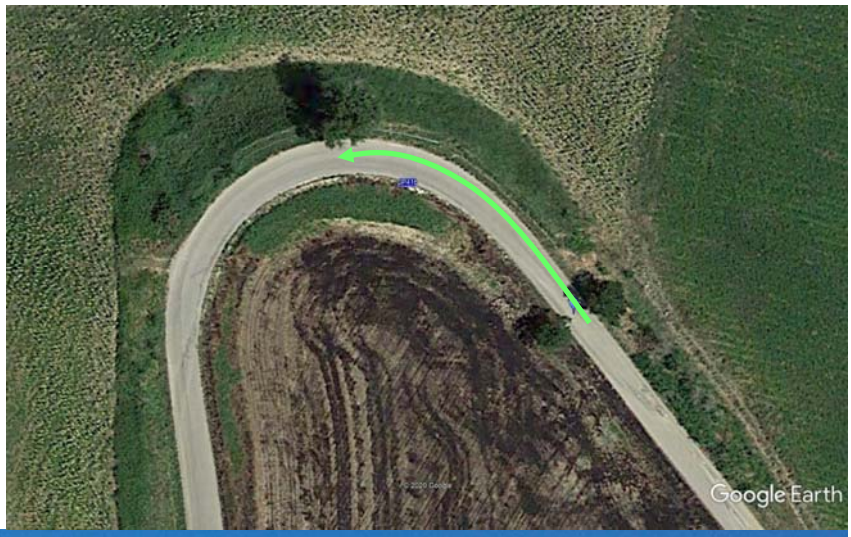


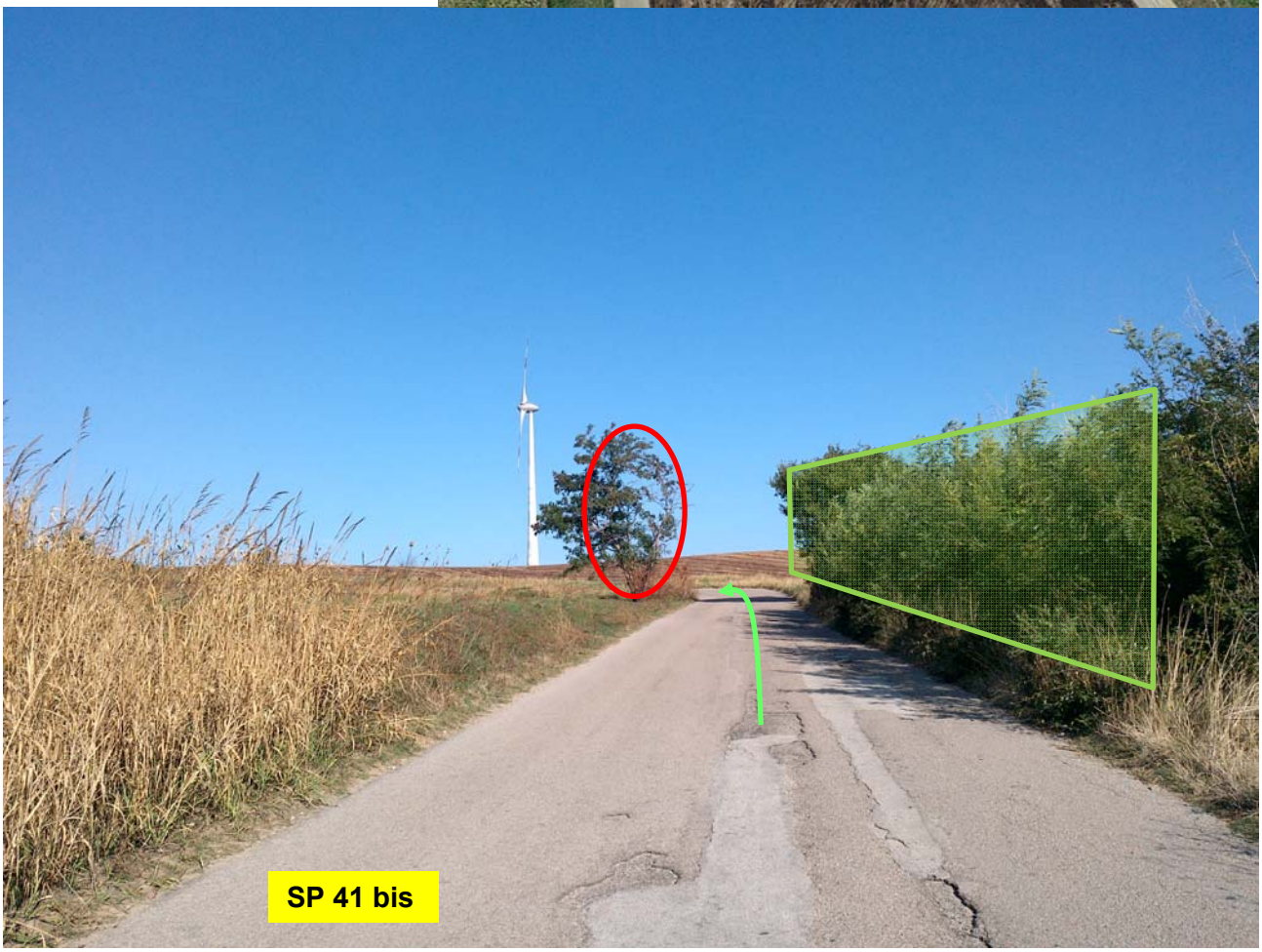
Observation 16

Cut vegetation on the left side and widen and make road practicable on the right side 3 m for all the bending radius.

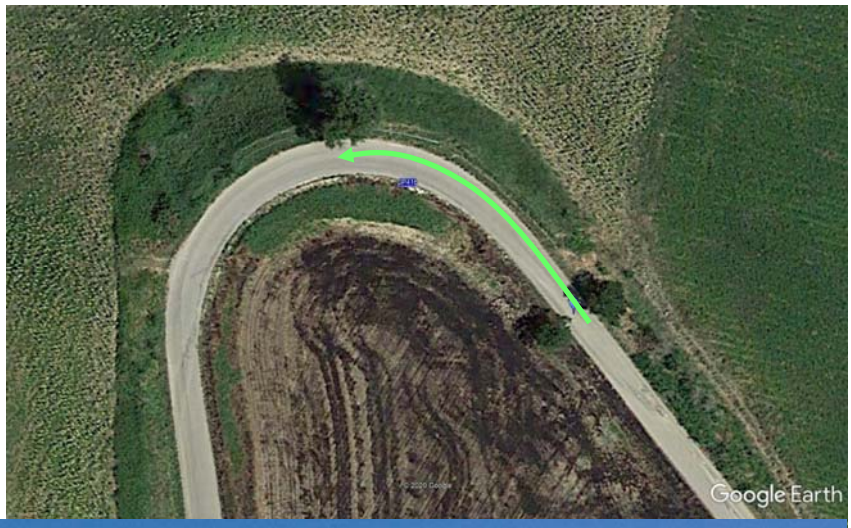
N 41.851629° E 15.208485°

Observation 17.01
Cut vegetation on the right side and remove the tree on the left side..
N 41.853572° E 15.206644°

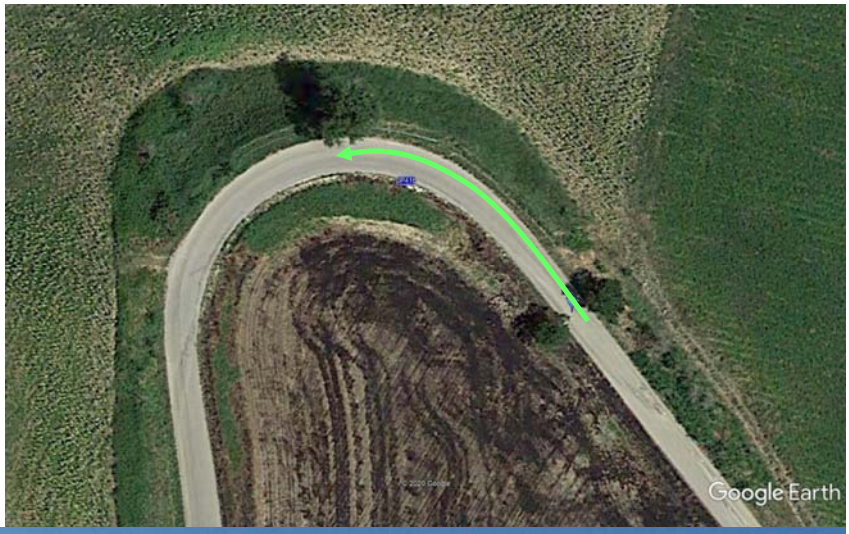




Observation 17.02
Widen and make road practicable on the left side 5 m for all the bending radius.
N 41.853572° E 15.206644°



Observation 17.03
Cut vegetation on the right side.
Create a clearance area on the left side for a depth of 20 m.
N 41.853572° E 15.206644°



Observation 18
Cut vegetation on the left side.
N 41.849521° E 15.201608°

Observation 19
Remove the guard rail on the left side and cut vegetation on both sides.
N 41.848922° E 15.200474°

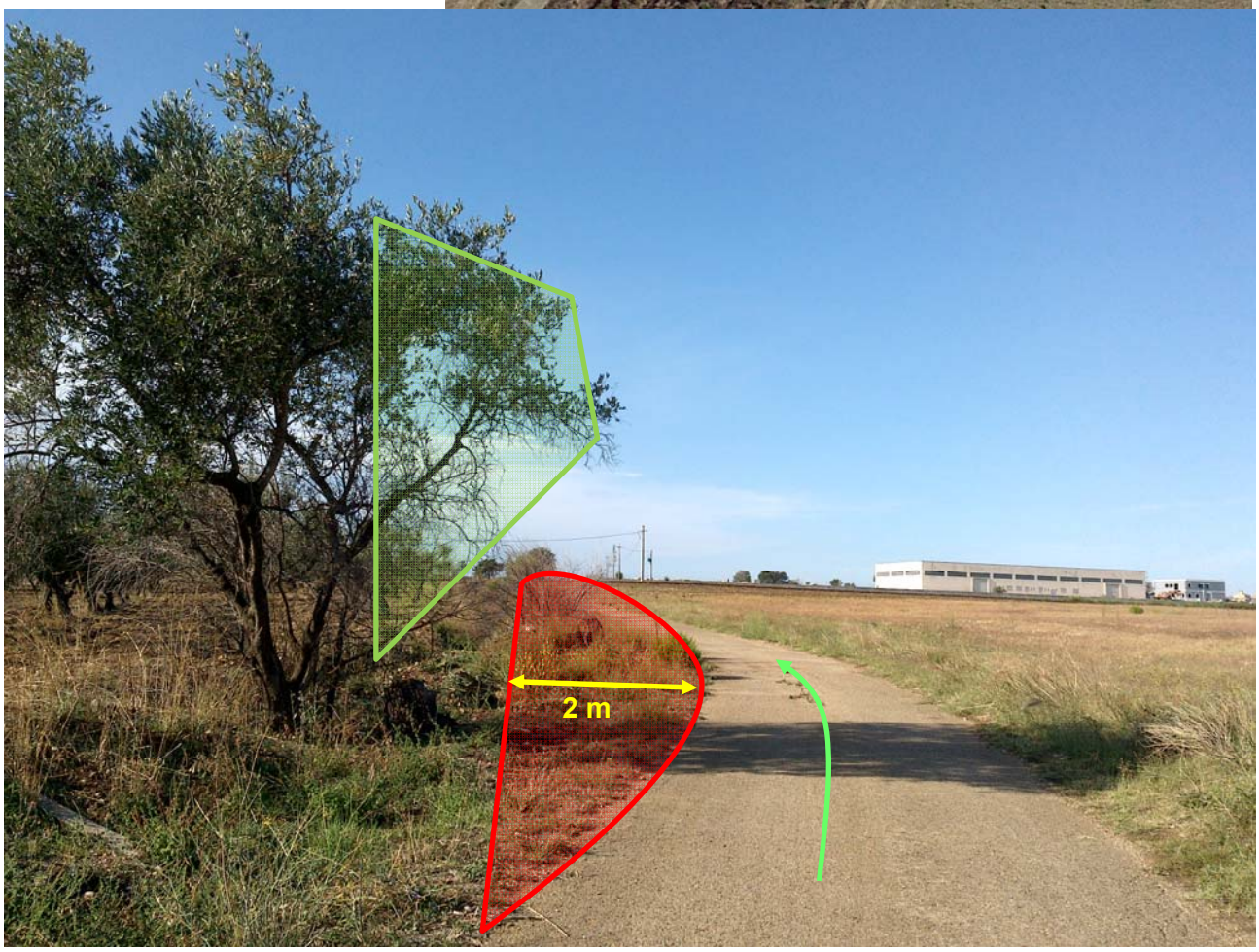
Observation 20
Cut vegetation on the left side.
N 41.850155° E 15.194906°

Observation 21
Widen and make road practicable on the left side 7 m in depth for all the bending radius.
Create a clearance area on the left side 12 m in depth and move the pole 3 m on the left.
N 41.850432° E 15.191406°

Observation 22

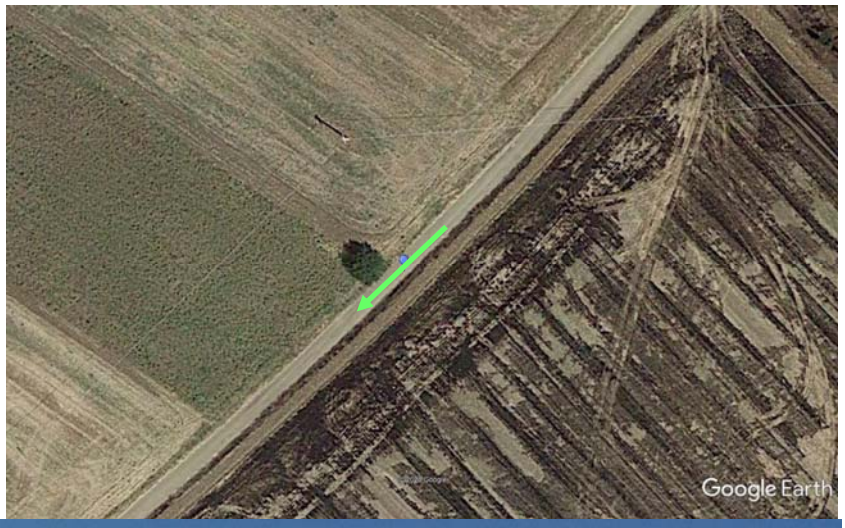
Widen and make road practicableon the left side 2m in depth; cut tree branches.

N 41.850092° E 15.190830°

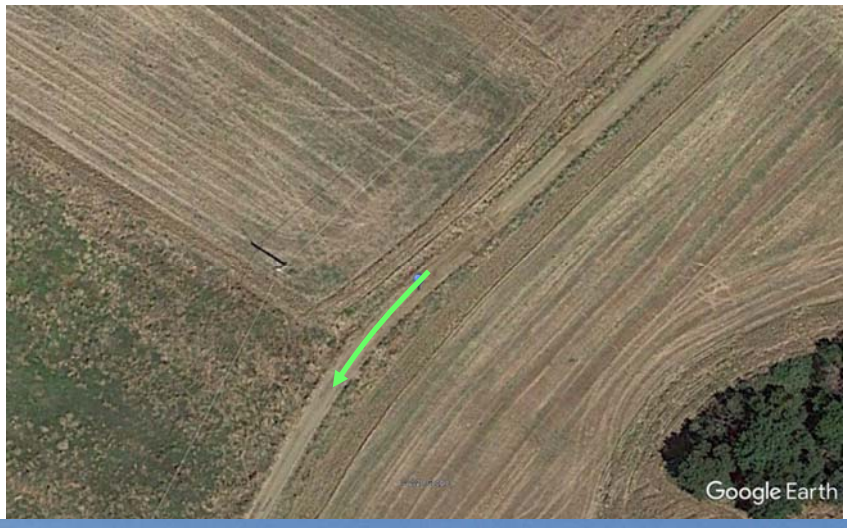


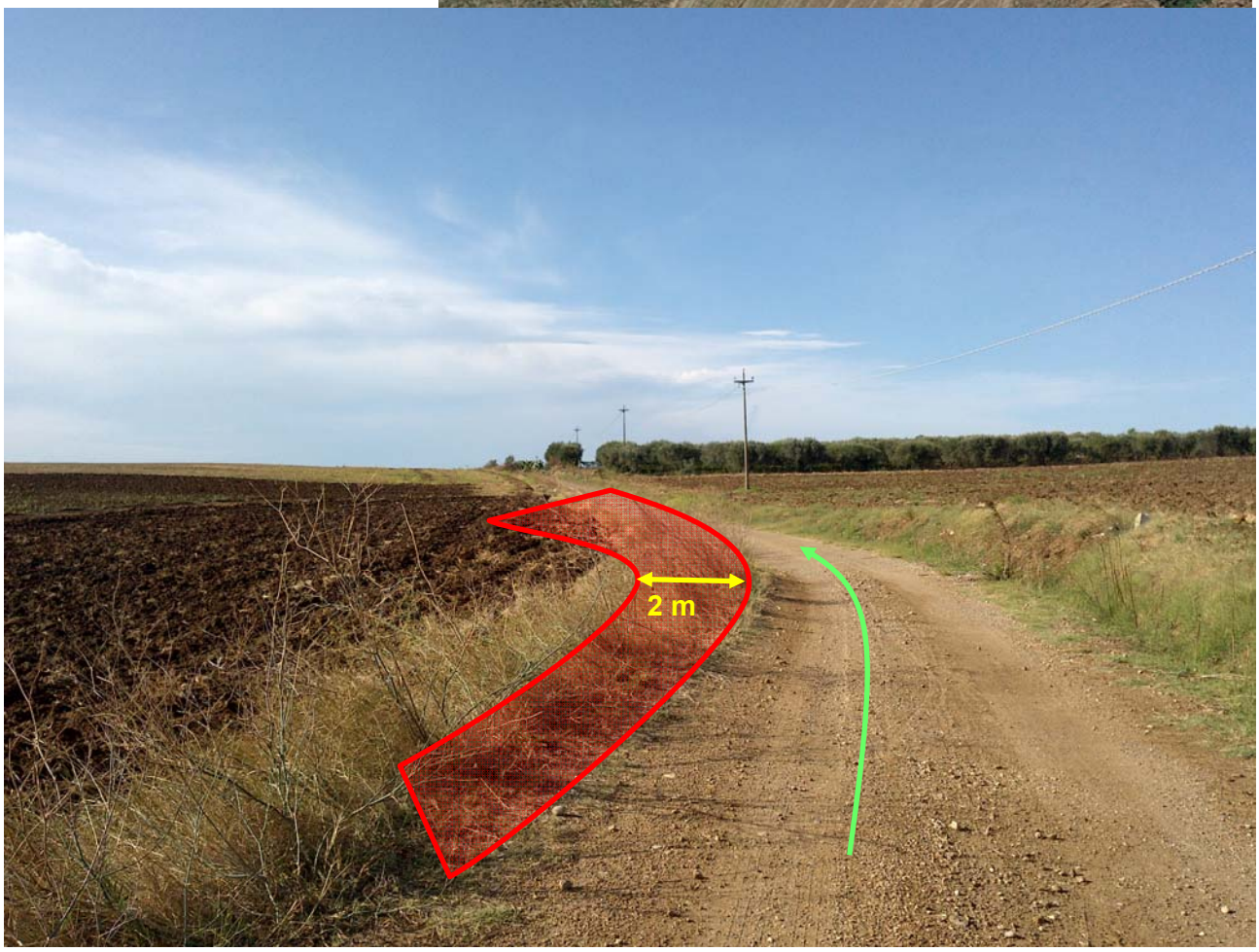
Observation 23
Cut tree branches on the left side.
N 41.849494° E 15.190030°

Observation 24
Cut tree branches on the right side.
N 41.848633° E 15.188998°

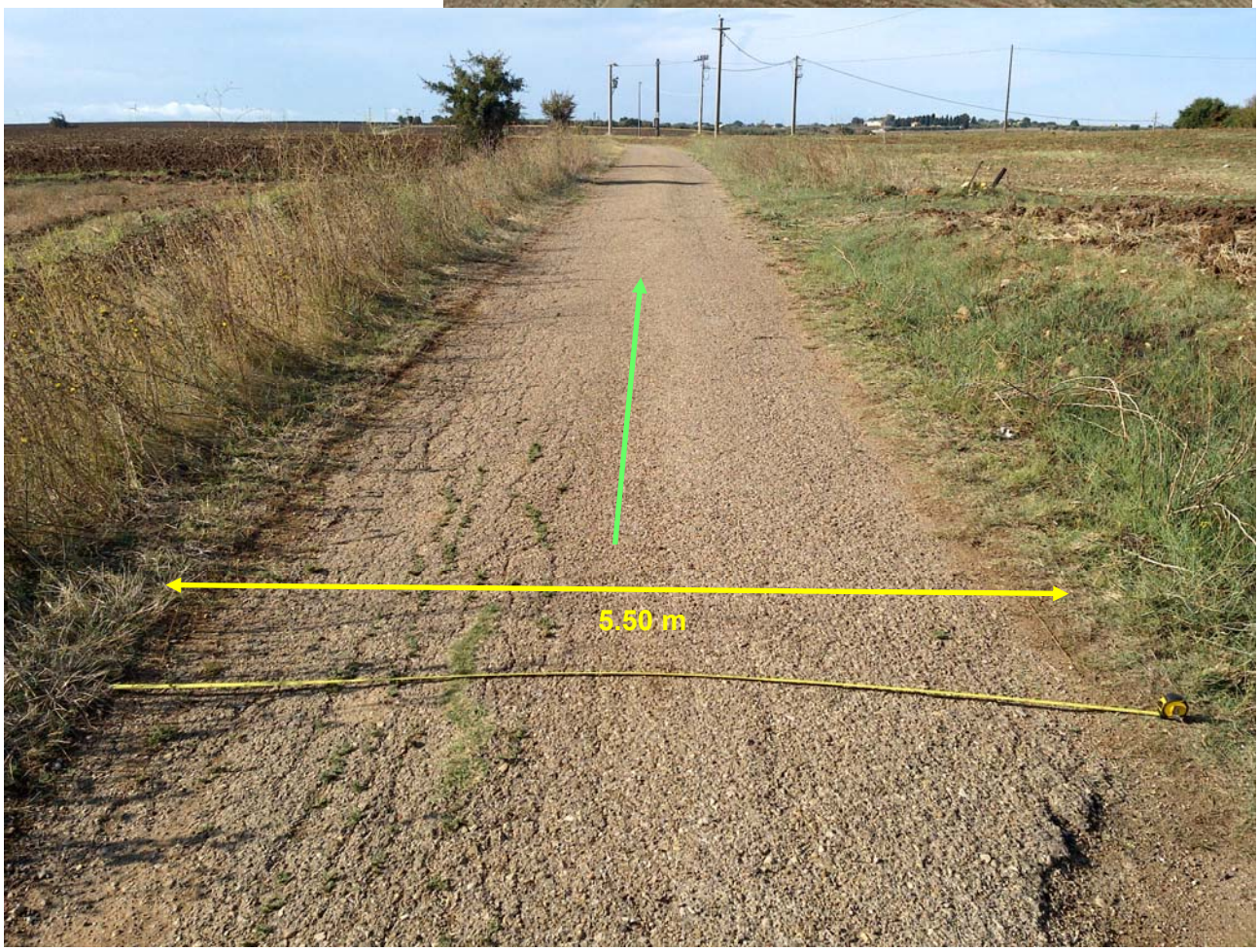


Observation 25
Widen and make road practicable on the left side 2 m in depth.
N 41.846112° E 15.185425°



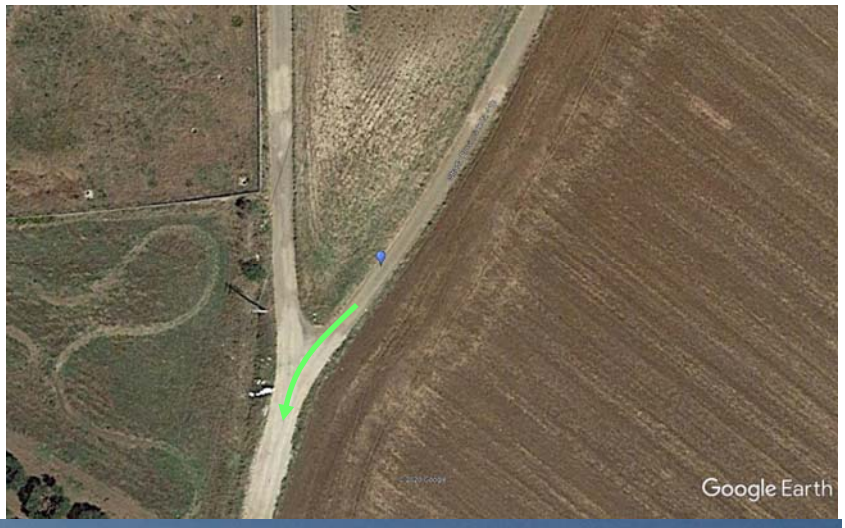


Observation 26
The entire road has to be widened up to 5.50m at least.
N 41.842874° E 15.183212°



Observation 27

Widen and make road practicable on the left side 3 m in depth for all the bending radius.
N 41.840853° E 15.181666°



Observation 28
Widen and make road practicable on the left side 3 m in depth for all the bending radius.
N 41.827973° E 15.170582°

Observation 29
Cut vegetation on both sides.
N 41.827436° E 15.169941°

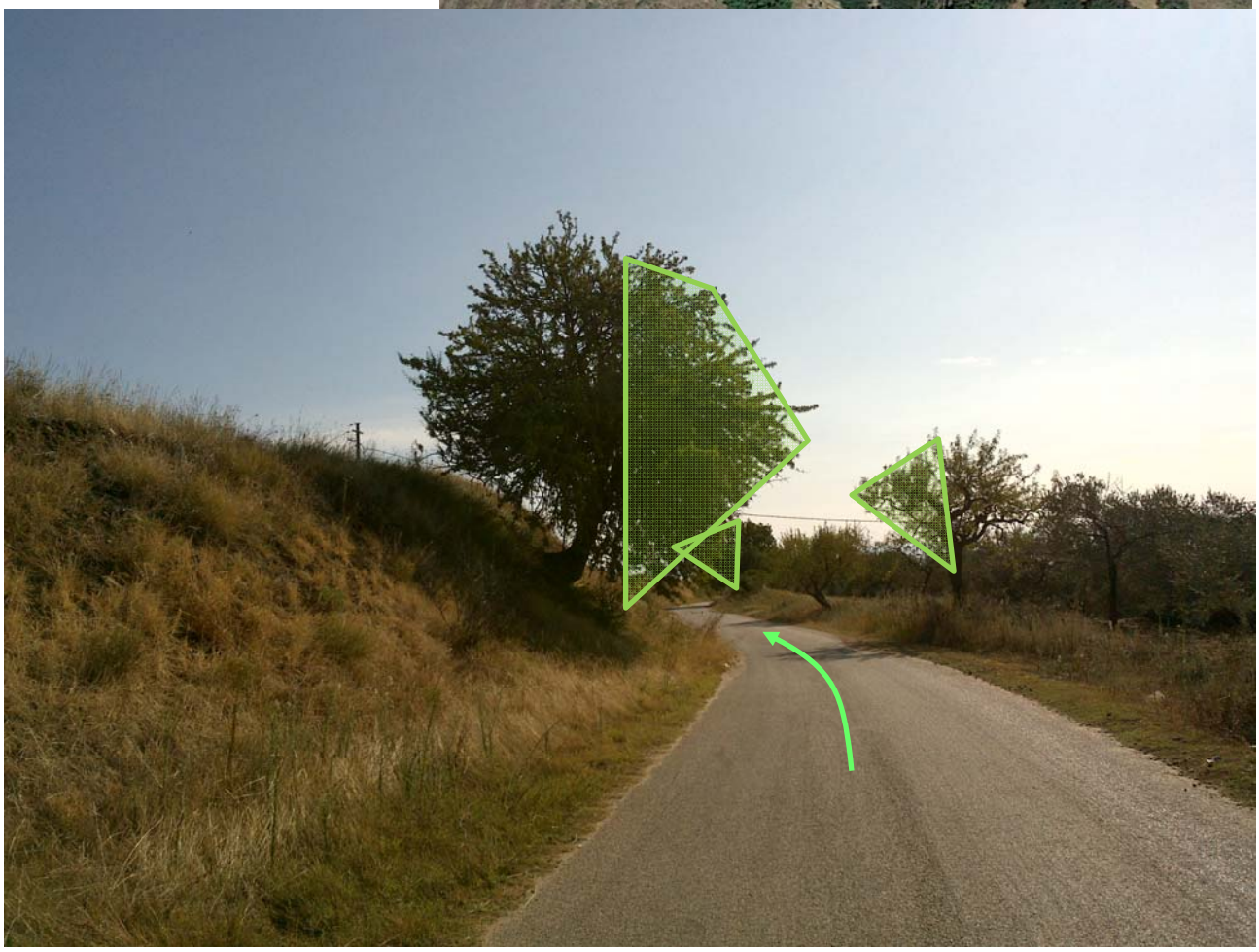
Observation 30

Create a by-pass according to Vestas guidelines.

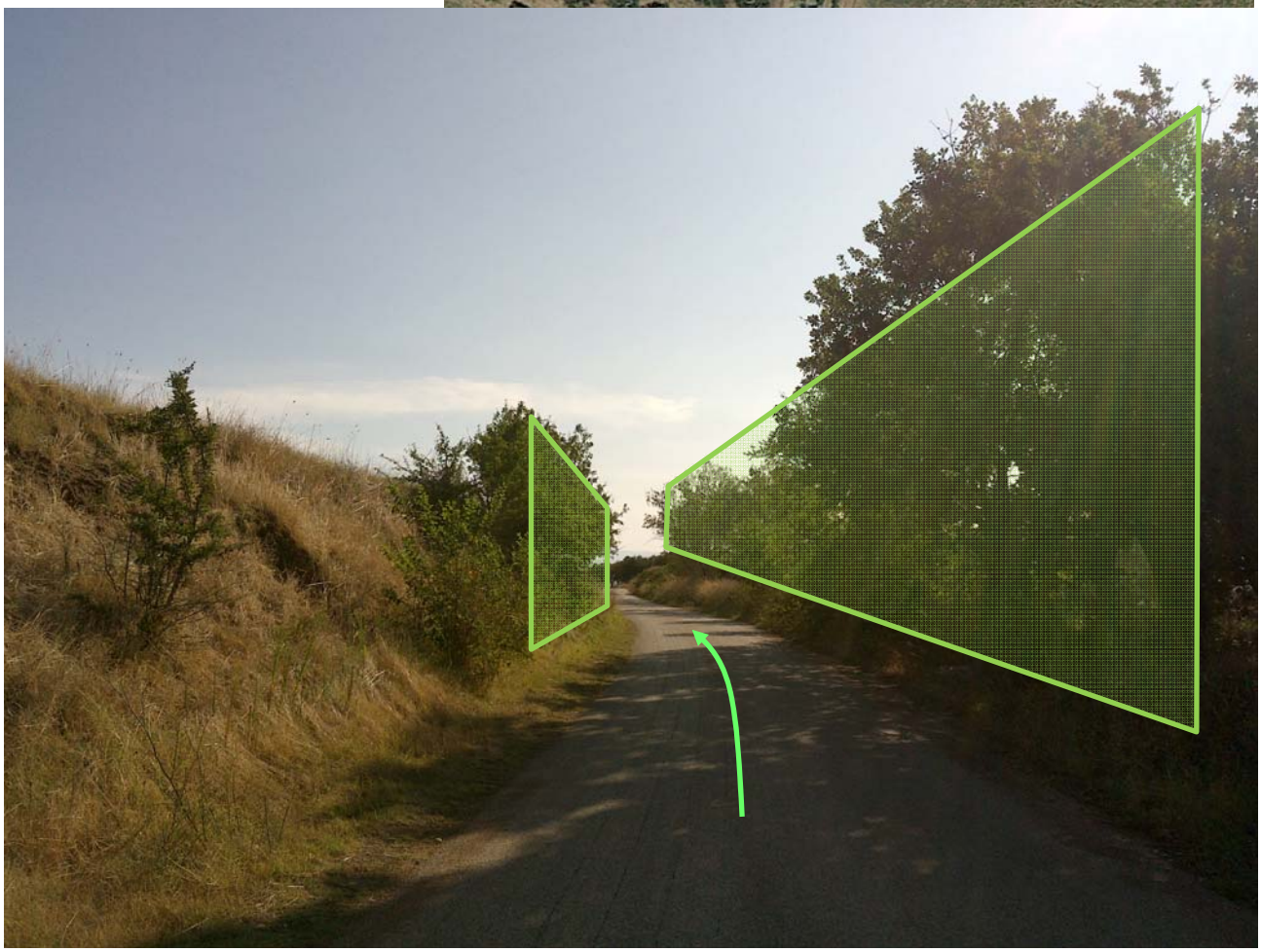
N 41.824487° E 15.167584°

Observation 31
End of by-pass.
N 41.824144° E 15.167685°

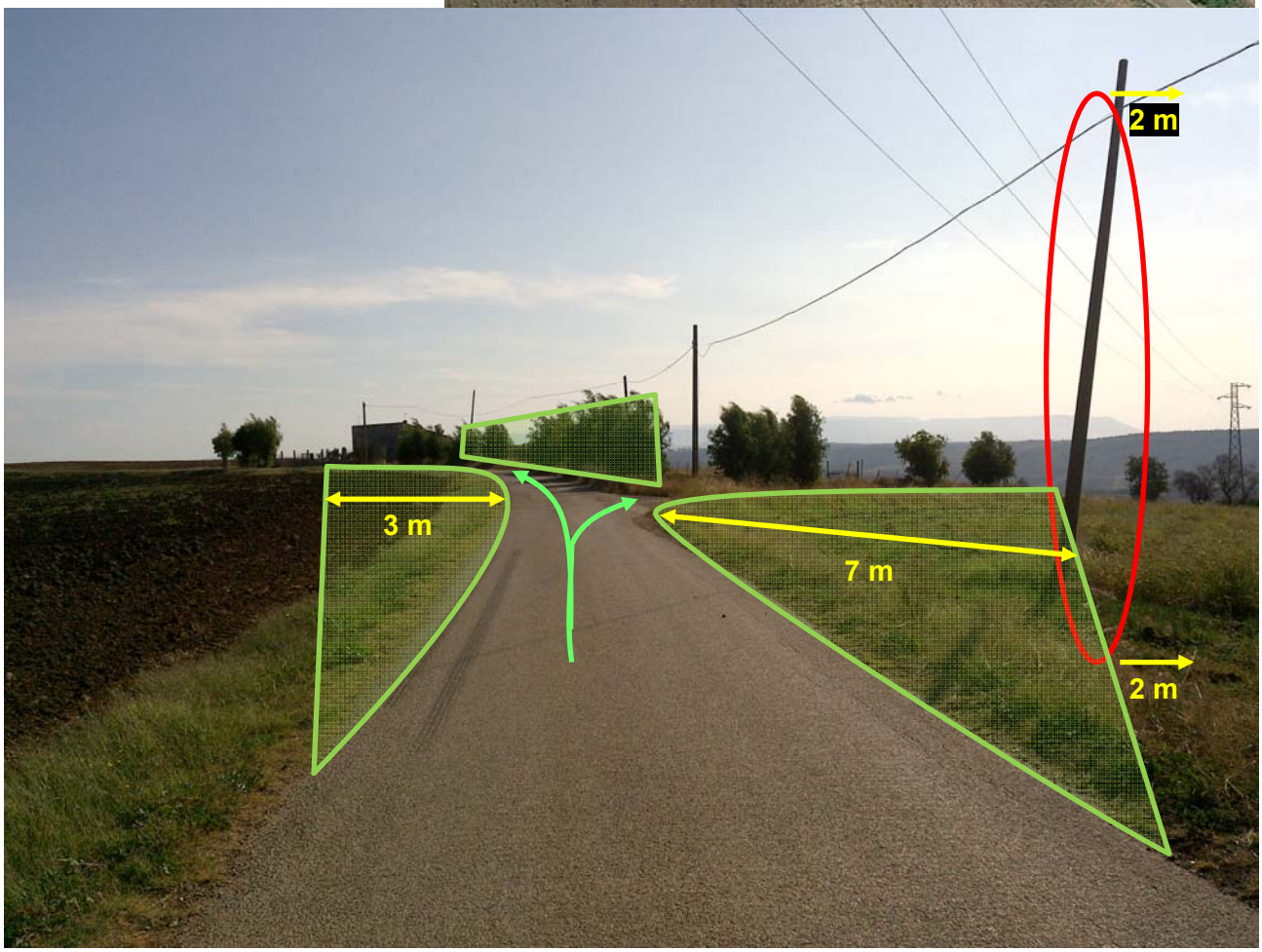
Observation 32
Cut vegetation on both sides.
N 41.824066° E 15.168537°



Observation 33
Cut vegetation on both sides.
N 41.823884° E 15.170821°



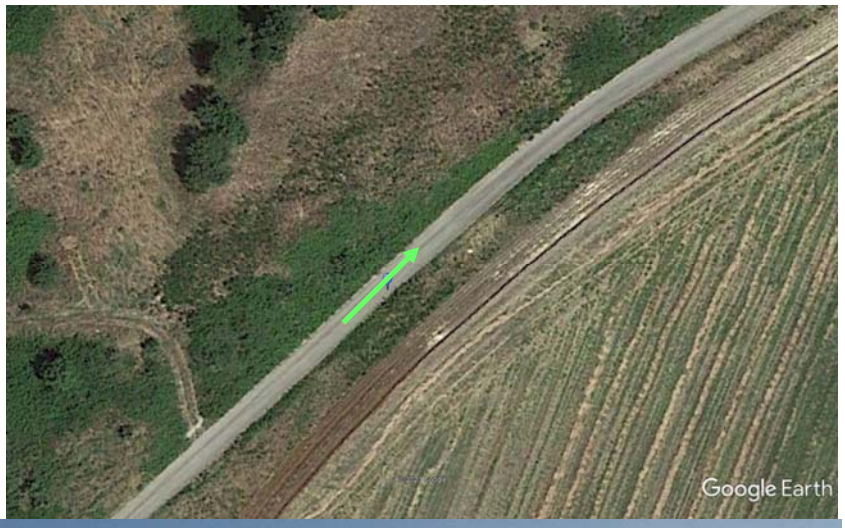
Observation 34
Go straight on to reach no.5 platforms; turn right to reach no. 4 platforms.
Create a clearance area on the left side 3 m in depth for all the bending raidus.
Create a clearance area on the right side 7 m in depth for all the bending radius.
Move the pole on the right side 2m inside.
Cut vegetation sticking out on the road.
N 41.824237° E 15.178805°



Observation 35
Widen and make road practicable on the left side 3 m in depth for all the bending raidus.
Cut vegetation on the right side.
N 41.824481° E 15.180505°

Observation 36
Cut vegetation on the left side.
N 41.829323° E 15.190004°

Observation 37
Cut vegetation on the left side.
N 41.830486° E 15.192026°

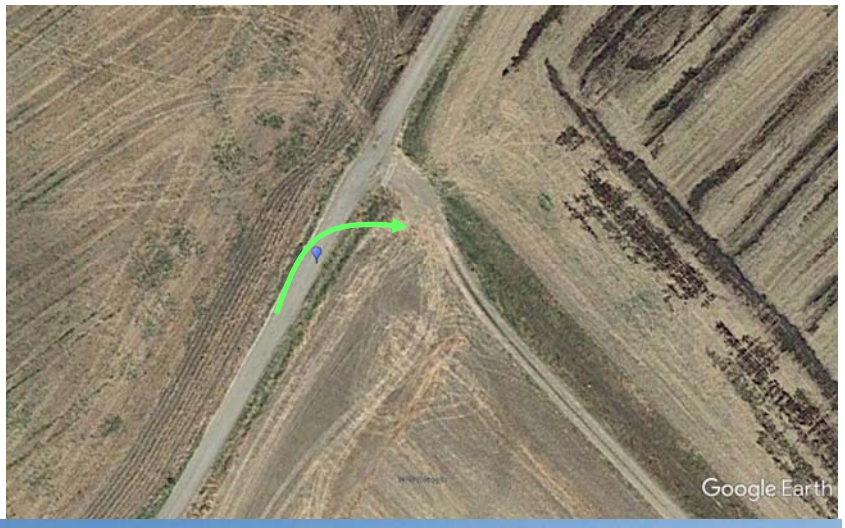


Observation 38

Create a clearance area for a depth of 4 m for all the bending radius.

N 41.832476° E 15.196112°

Observation 39
Site access for Wtgs' no. S3, S2, S4, S5.
N 41.833104° E 15.196746°



Observation 40
Site access for Wtgs' no. S1.
N 41.835929° E 15.198528°

Observation 41
From observation 29 turn right to reach wtgs' no. S6, S7, S9, S8.
Remove the tree on the right side.
N 41.823691° E 15.180283°

Observation 42
Site access for Wtg S6.
N 41.817972° E 15.193941°

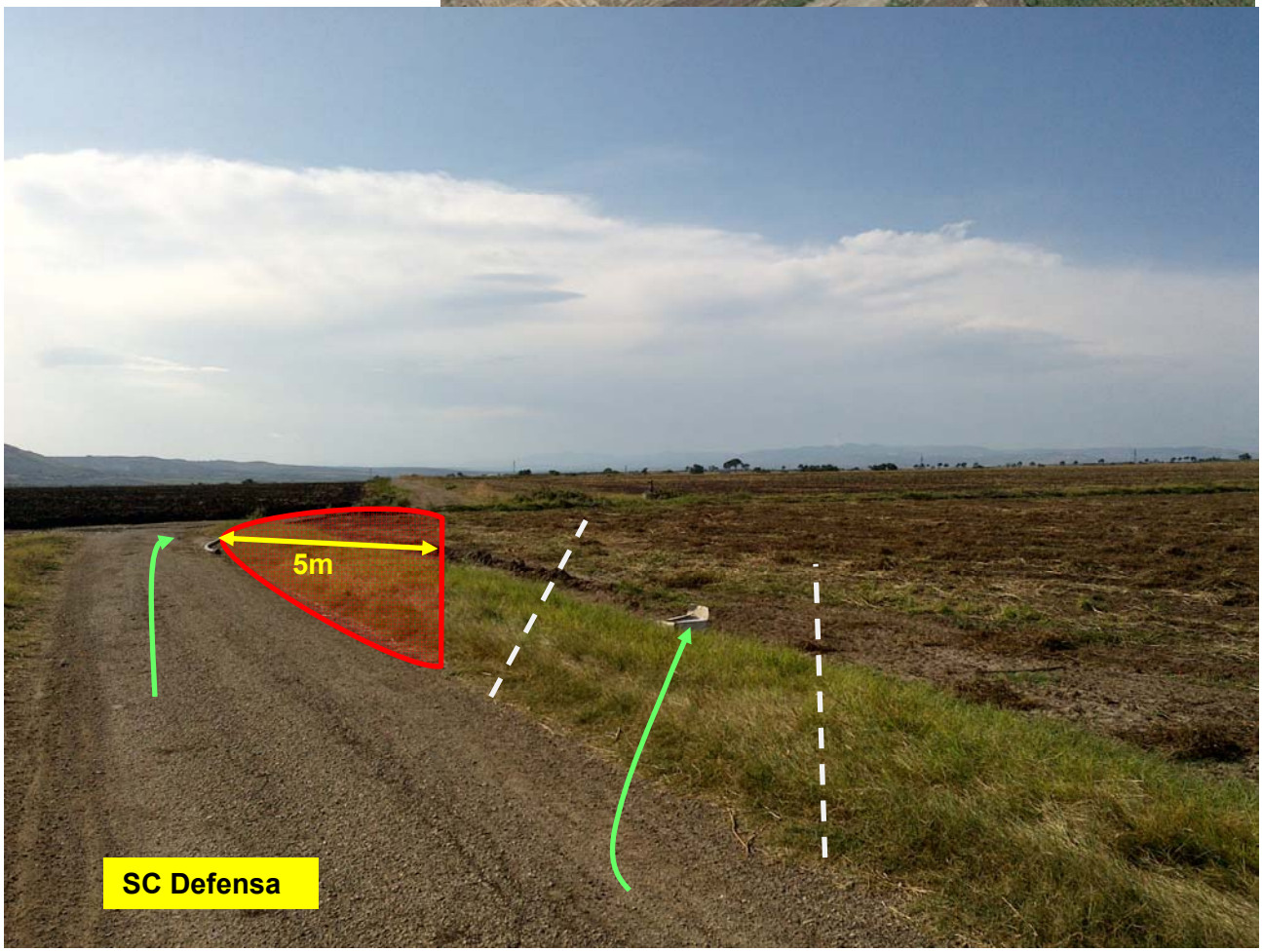
Observation 43
Create a by-pass according to Vestas guidelines.
N 41.817382° E 15.198658°

Observation 44
End of by-pass.
N 41.817453° E 15.201289°

Observation 45

Site access for Wtg. no. S7. Widen and make road practicable on the right side 5 m in depth for all the bending radius.

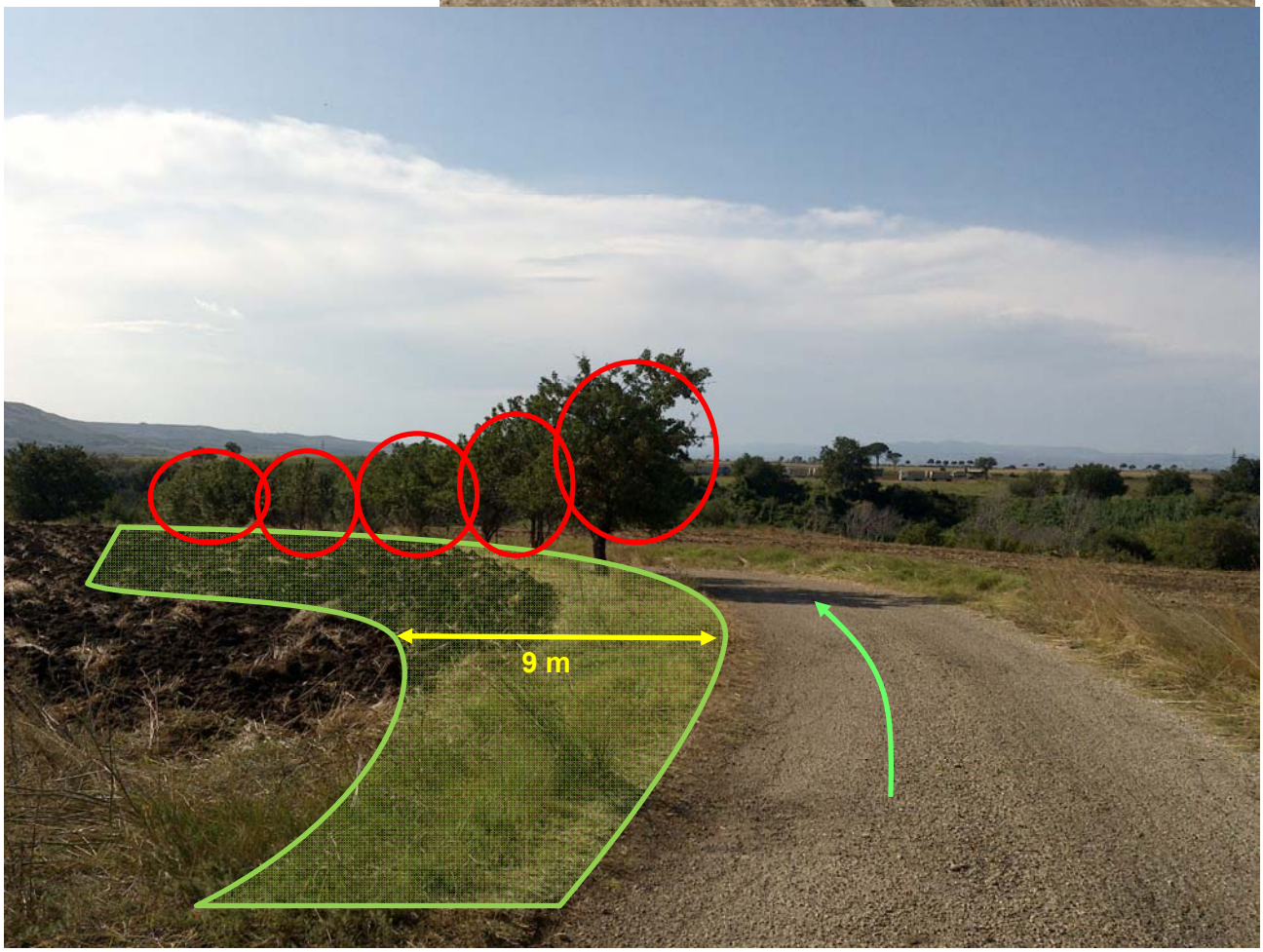
N 41.813716° E 15.204806°



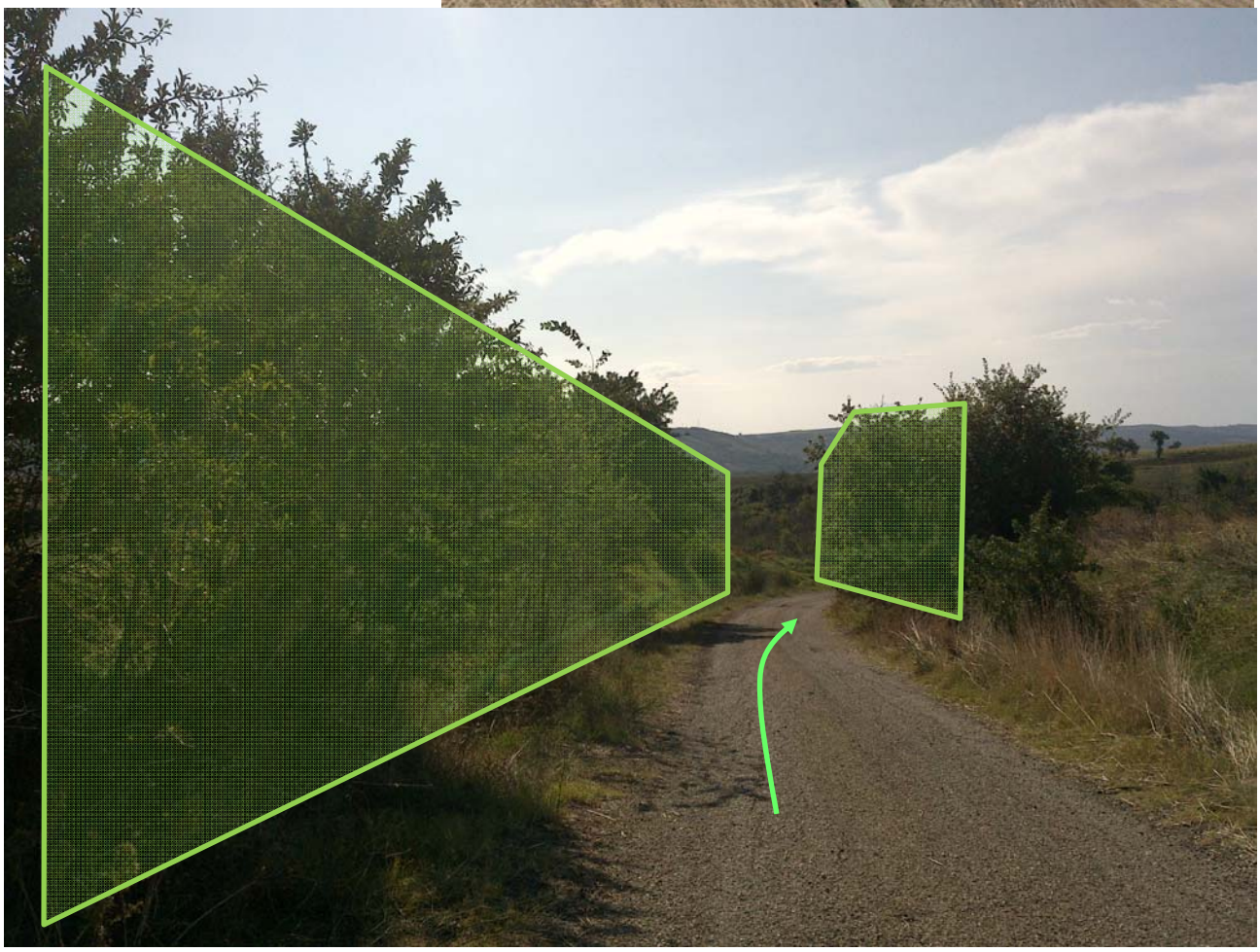
Observation 46.01

Create a clearance area on the left side 4 m for all the bending radius; remove also the trees.

N 41.807353° E 15.203373°



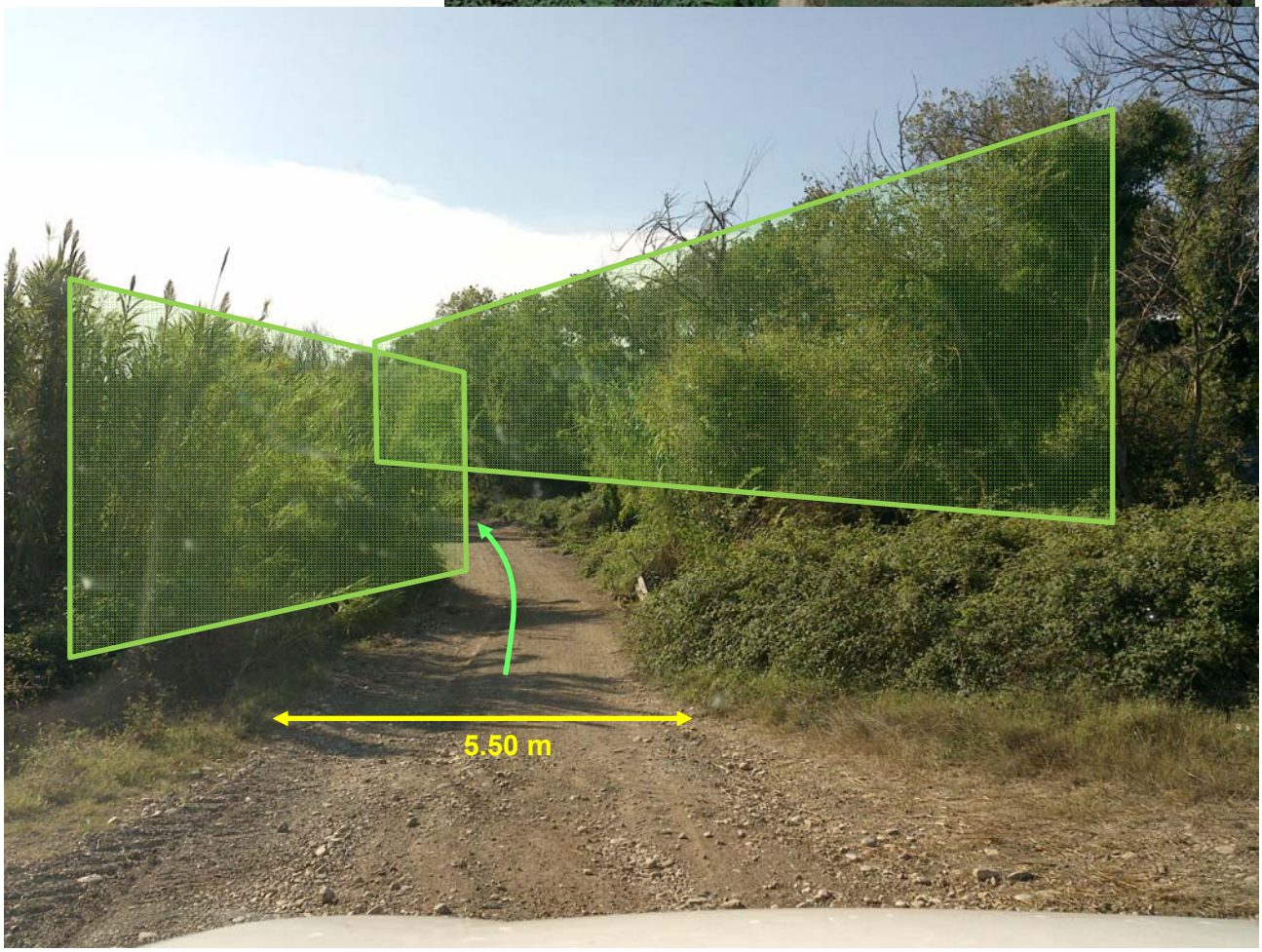
Observation 46.02
Rremove the trees on both sides.
N 41.807353° E 15.203373°



Observation 47.01

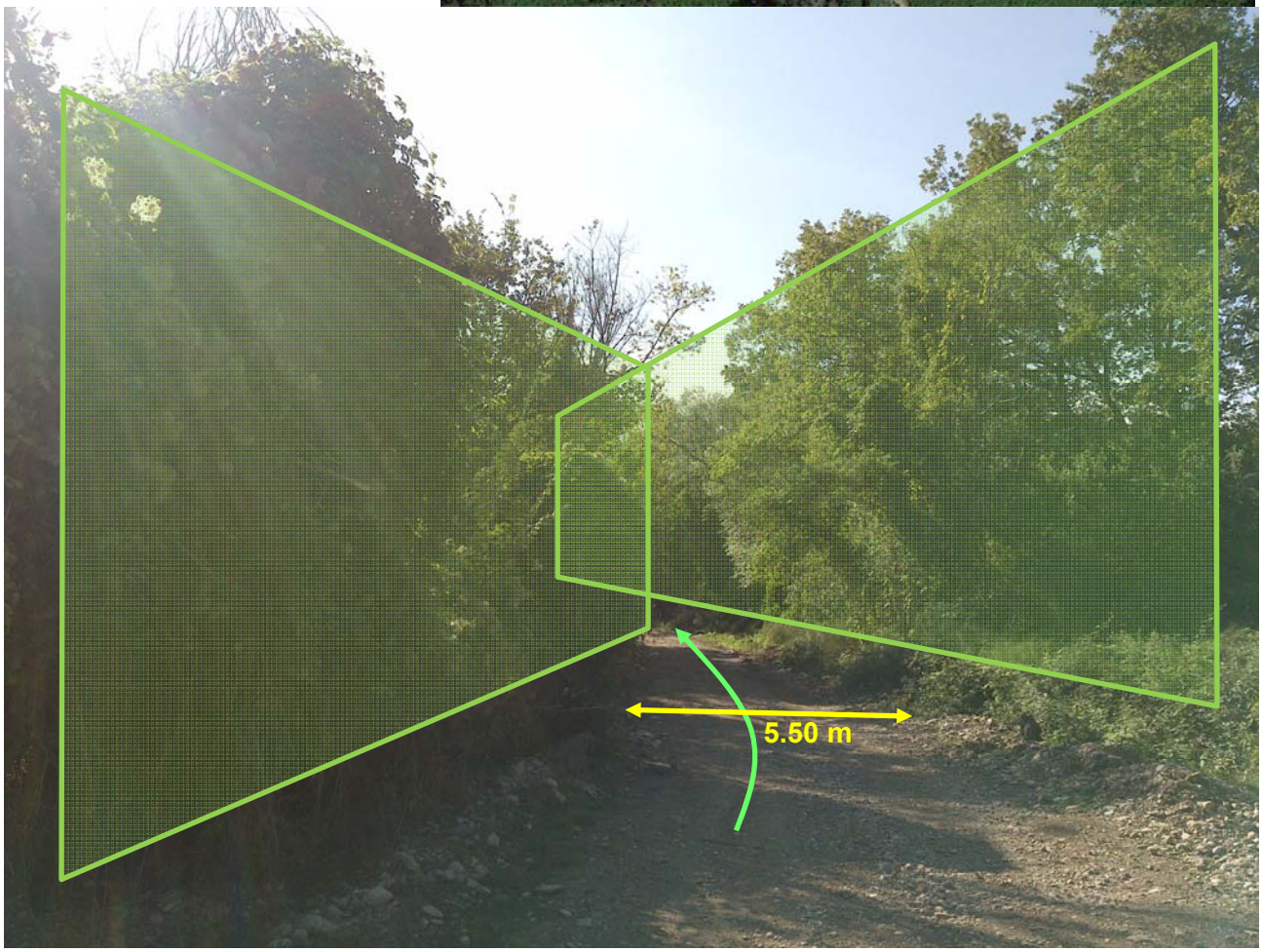
Rremove the vegetation on both sides. The road has to be made practicable, compacted, levelled and widened up to 5.50 m.

N 41.805818° E 15.203904°



Observation 47.02
The road has to be made practicable, compacted, levelled and widened up to 5.50 m.
Check the status of the bridge.
N 41.805818° E 15.203904°

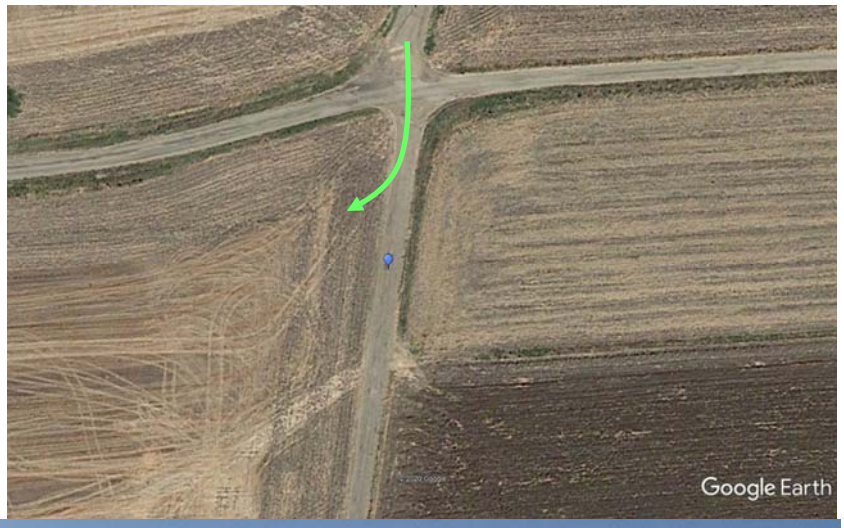
Observation 48
The road has to be made practicable, compacted, levelled and widened up to 5.50 m.
All the vegetation on both sides has to be cut.
N 41.805216° E 15.204006°



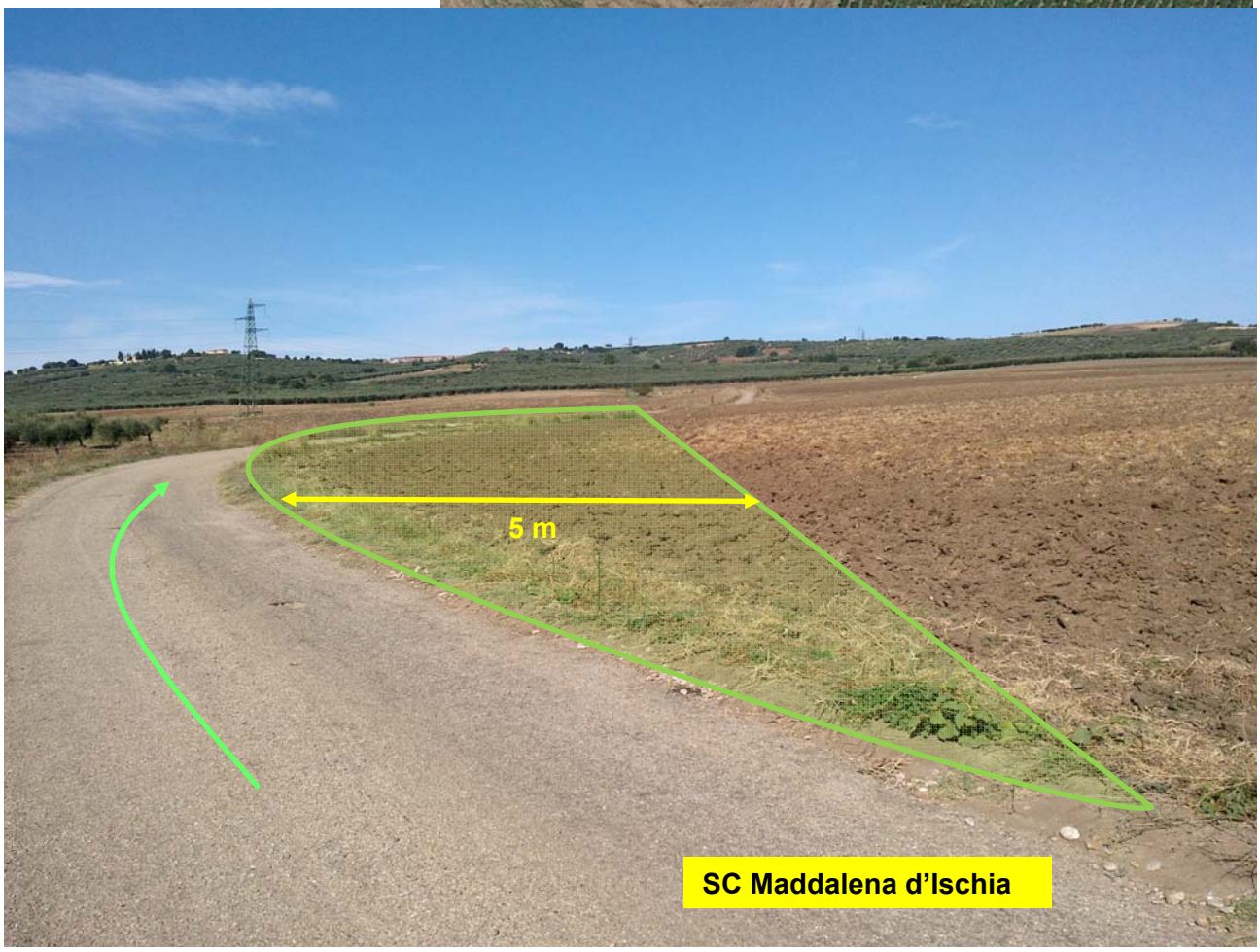
Observation 49

The road has to be made practicable, compacted, levelled and widened up to 5.50 m.
Go straight on to reach the site access for Wtg S9.
Create a clearance area on the right side 15 m in depth to turn right and reach Wtg S8.
N 41.803263° E 15.205131°

Observation 50
Site access for wtg no. S9.
N 41.802793° E 15.205030°



Observation 51
Create a clearance area 5 m in depth for all the bending radius.
N 41.803073° E 15.195726°



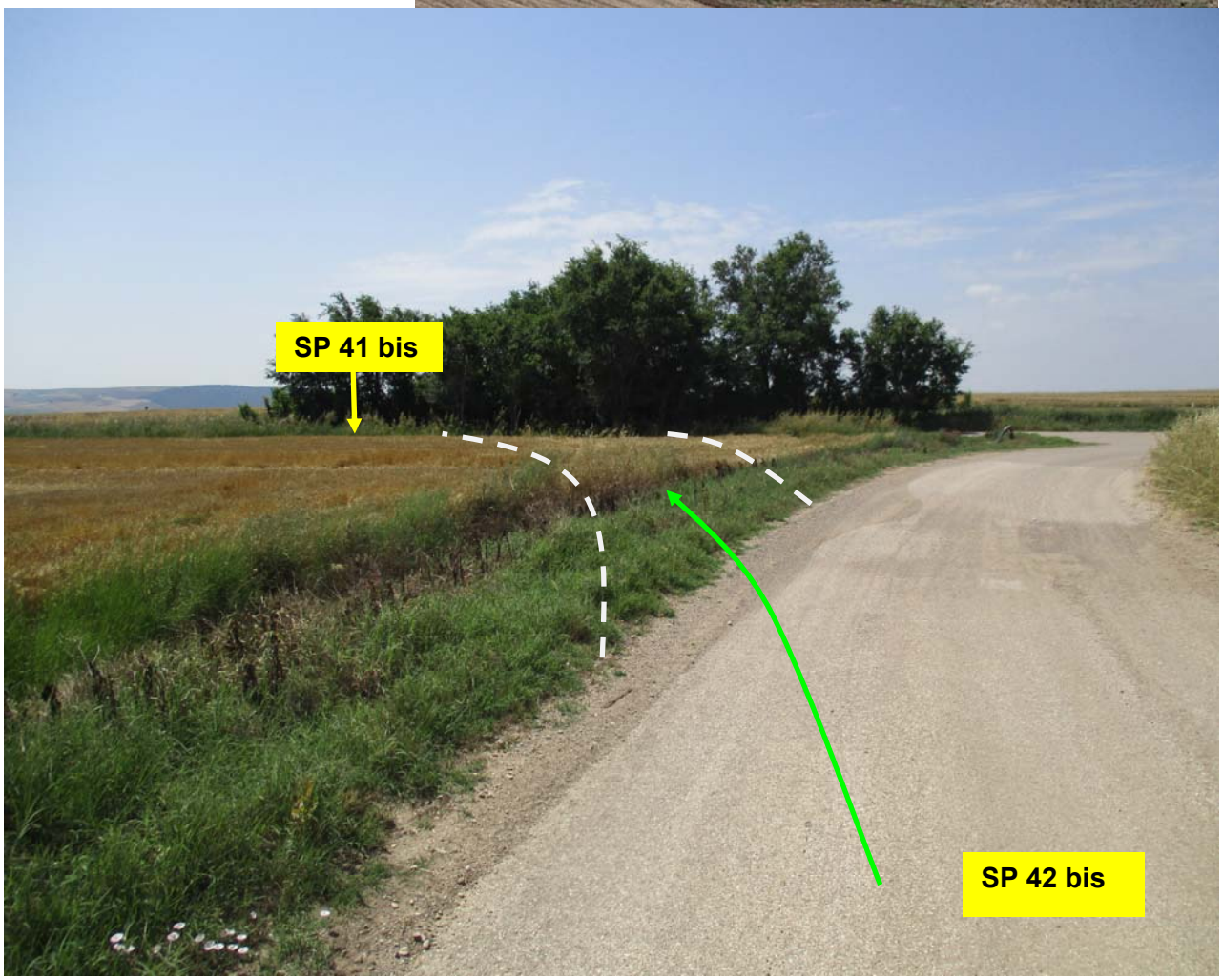
Observation 52
Site access for Wtg S8.
N 41.803401° E 15.194775°

2nd Route option

Observation 53

From observation 14 turn left. Create a by-pass according to Vestas guidelines.

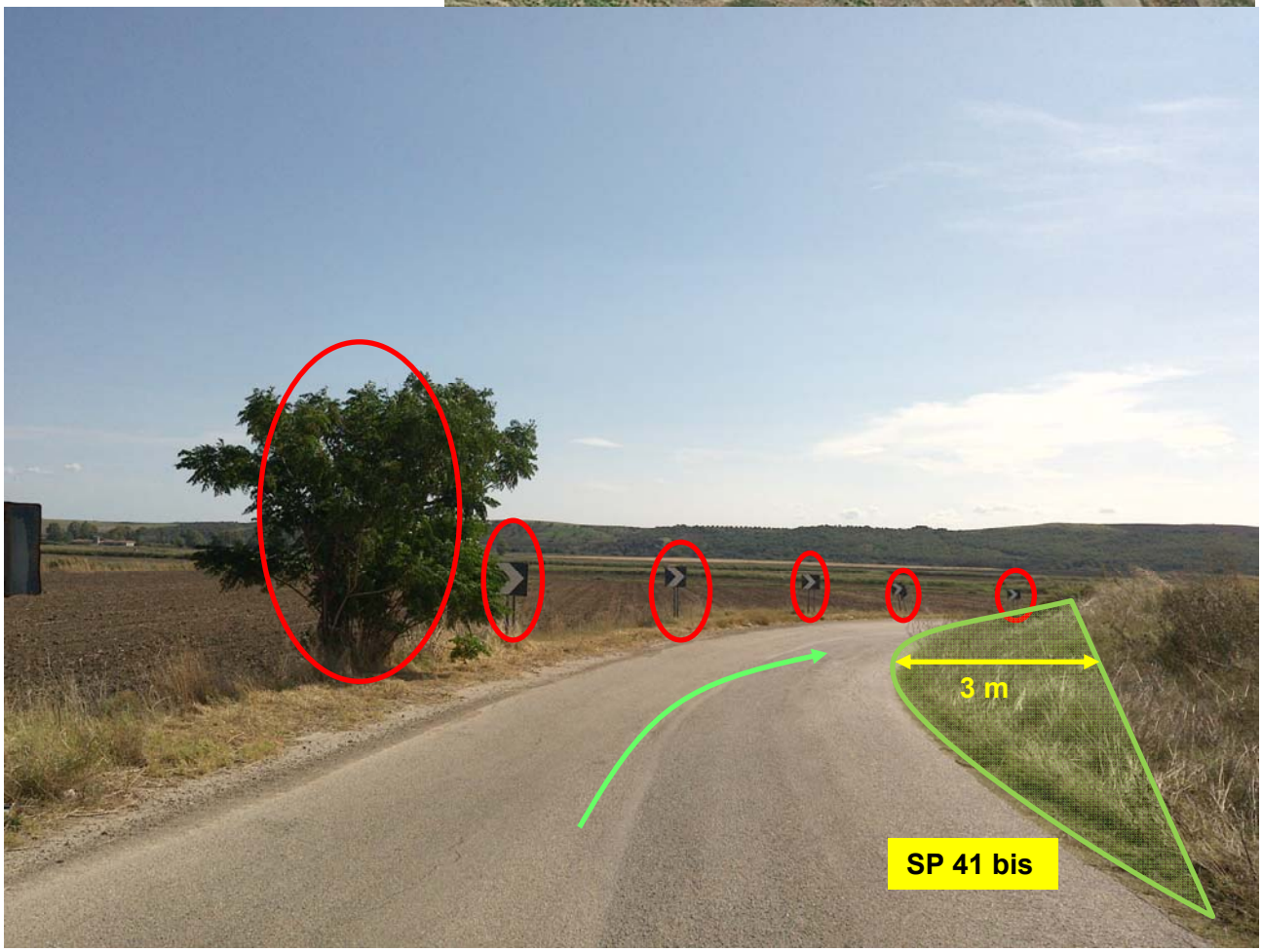
N 41.850700° E 15.219600°



Observation 54

Remove tree and road signs on the left side and create a clearance area on the right 3 m in depth for all the bending radius.

N 41.848953° E 15.234001°



Observation 55

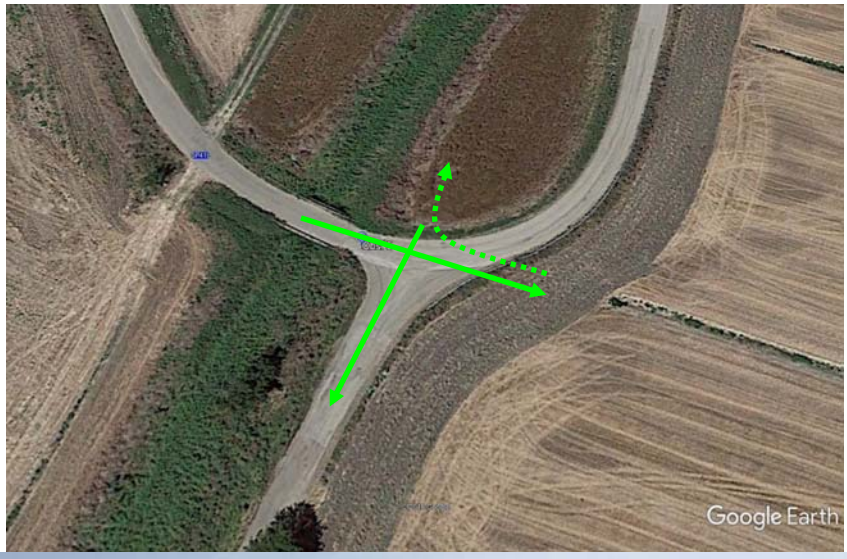
Widen and make road practicable on the right side 4x30 m

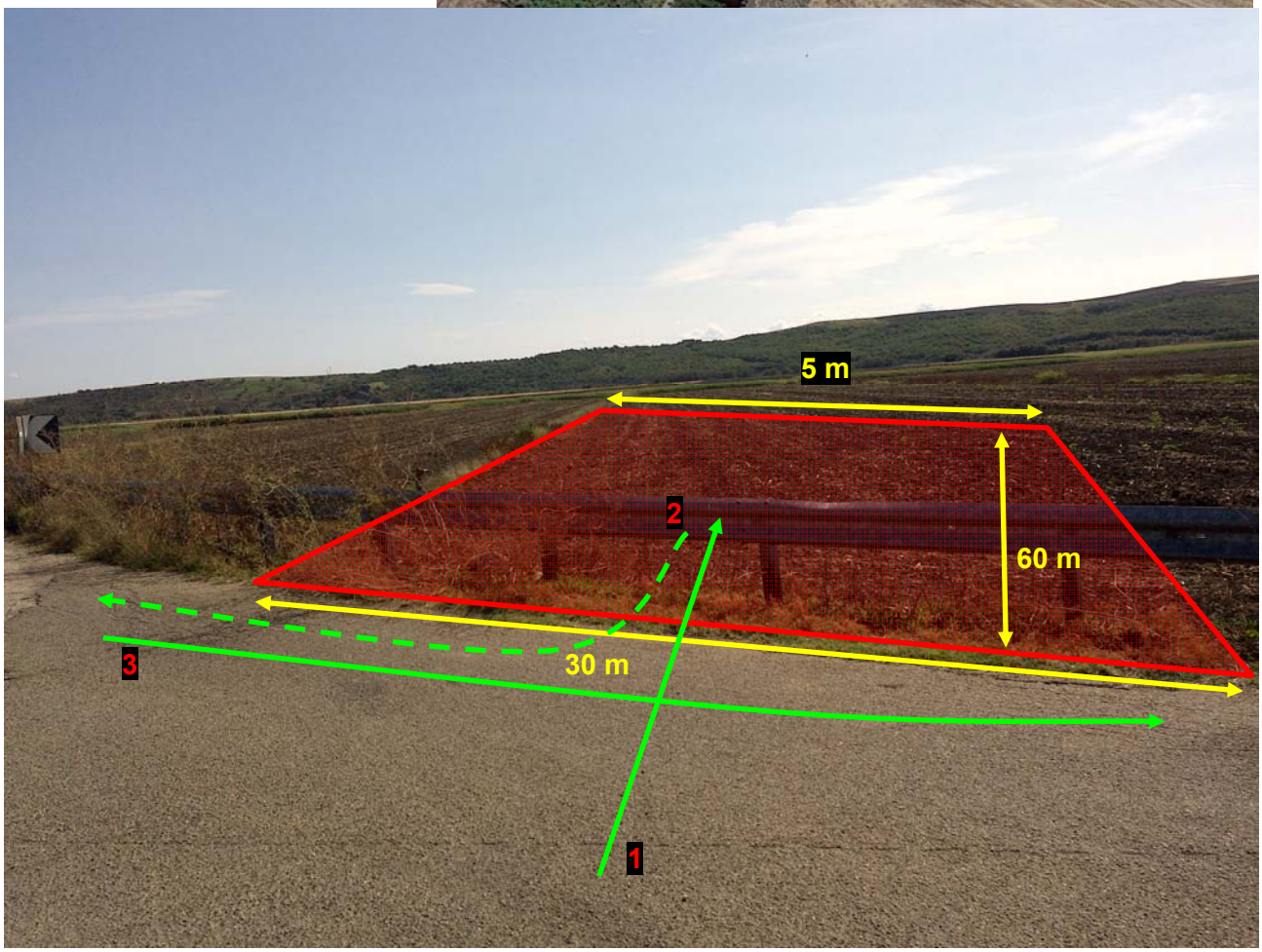
N 41.846575° E 15.236331°

Observation 56.01

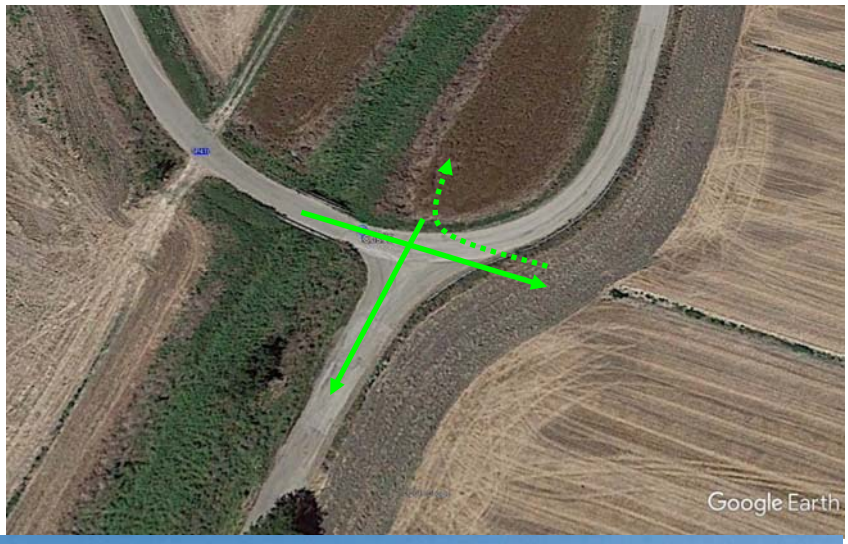
Create a manoeuvring area 60x30x5 according Vestas Guidelines in order to turn right.
1) straight on; 2) reverse; 3) straight on.

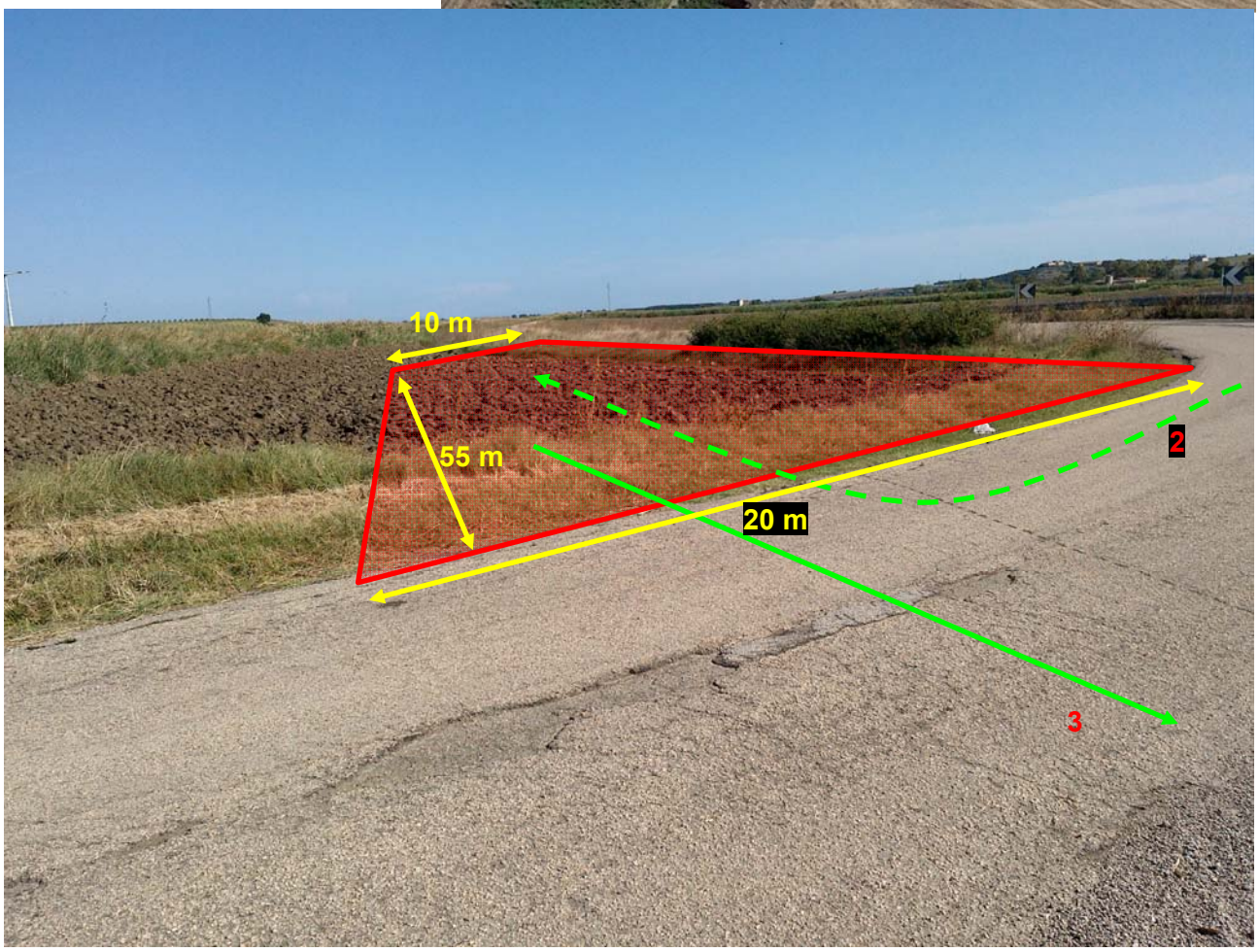
N 41.846290° E 15.236817°





Observation 56.02
Widen and make road practicable 20x10x55 mts to manoeuver.
N 41.846373° E 15.236728°





Observation 56.03
Cut trees branches along the way.
N 41.846373° E 15.236728°

Observation 57
Site access
N 41.817874° E 15.220193°

Conclusions and Highlighted

- Every branch jutting out on routing roads will have to be cut (6mt width for 5,5 meters)
- Keep flat every height difference according to Vestas guidelines as described as the “0054-6051- Windfarm Roads Requirements” on the complete road surveyed.
- Every air electric and phone cables have to be at least 5,5 mt high.
- The survey road report has been written up considering authorities go head for exceptional transport along every route analyzed.
- The road proposed by the transporter does not take into account the examination of the maximum weight capacity of the bridges/overpasses existing along the route.
- The feasibility studies and activities suppose owners availability for transiting and making civil works on their farmsteads.
- Site inland practicability, Wind Turbine Generators stocking area and its accesses roads have not taken into account.
- The survey road report has referred to the date 23/09/2020 therefore variations and/or changes of practicability state will be evaluated subsequently
- For transport activities related to site and new roads, refer to Vestas guidelines as described as the “0054-6051- Windfarm Roads Requirements”
- This report could be changed according to the final survey performed by Transport Company and/or issuing of transport permits by authorities
- The Buyer will have to use pull trailers able to tow up our trailers, in order to guarantee the passing on internal site roads in safety way when necessary
- In order to prove the route feasibility and delivery of all components on each installation position, the transporter suggests a further inspection and a test run should be performed before the transportation commencement.
- At the time of permits request, the combination of the trailer might change based on availability and/or weight restrictions.
- This report does not take into account activities which could be eventually requested by the private or public authorities on the Access Roads as a condition for the obtainment by the Supplier of any Permit under this Agreement (including but not limited to verification of bridges and performance of all activities necessary in order to get the “certificato di transitabilità”), therefore such activities, if any, shall be performed by the Buyer.