



# ROADPAC'14

## **PROGRAM RP34**

Drawing of Longitudinal Profile

### ***User Guide***

**Release 25.05.2014**

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## 1. INTRODUCTION

The program RP34 - DRAWING OF LONGITUDINAL PROFILE forms part of the ROADPAC program system. It is used for the creation of the file containing the symbolic drawing of longitudinal profile. The file has the PLOTFILE type structure and is stored with the .034 extension. This file, similarly as all files of PLOTFILE type, can be interpreted on various graphic peripherals incl. the graphic displays of computers of the IBM PC compatible series. Before the program can start, the following files must exist (according to job type): Vertical alignment (.SNI), main points of horizontal alignment (.SHB), chainage (.SSS), existing terrain cross sections (.STR), corridor cross sections (.SPR) and longitudinal existing terrain profile (.SPP). The data of chainage and/or of ditch levels can be taken over either from the .SSS or .SPR file or they can be defined in the tables of input data definition. The data of the longitudinal existing terrain profile can be also obtained from two sources, Either from the .STR file or the .SPP file or from both files simultaneously.

### 1.1 Program Functions

The program has actually only one function, the creation of the file "road".034, which is the file containing the symbolic drawing of longitudinal profile of the road.

### 1.2 Processed Files

#### Input files:

- .V34 - Input data
- .SNI - Vertical alignment
- .SSS- Chainage
- .SHB - Main points of horizontal alignment
- .STR – existing terrain cross sections
- .SPP - Longitudinal existing terrain profile
- .SPR - Corridor cross sections

#### Output files:

- .L34 - Protocol on drawing computation
- .034 - Drawing of longitudinal profile

## 2. INPUT DATA

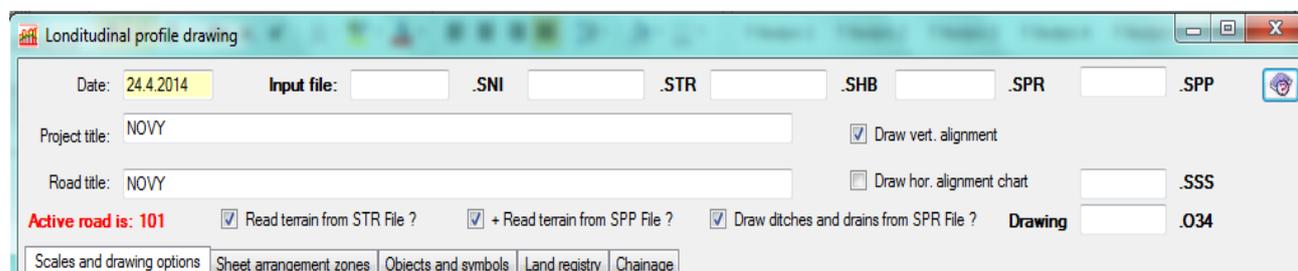
The input data are provided by filling and editing of tables or to click on control buttons placed on forms appearing on the computer display. Display operation is described in the manual. See chapter "Introduction".

The input data of the program RP34 DRAWING OF LONGITUDINAL PROFILE are prepared by means of 5 tabs placed on form. Each tab contains of one or several tables

appearing successively on the display. According to job type some tables may be omitted.

## 2.1 Blok řídicích dat

It appears after the selection of "INPUT DATA" in the preceding menu. On the next picture is control data with above mentioned tabs displayed.



The meaning of individual items:

**Date** is the date of input data entry.

**Project title** and **Road title** is an arbitrary texts printed in the headings of listings and in output files.

**Names of input files** need not be defined. If the files are processed in accordance with the requirements that follow and their names have not been defined, the program takes over the name of the file "active road" from the main menu. If the file name is defined in proper textboxes, then this name has preference over the name of "active road" given in main menu; the file name may have maximum 6 characters. In further text the files are named as "road" with extension. The name of "road" meaning either the name defined in the textbox or the name taken over from the main menu.

Drawing is the file containing the symbolic drawing in PLOTFILE structure. Each section (sheet) of the drawing is stored in a separate file, the **name** of which is derived from the file name "road".O34 as follows: The first section (sheet) of the file is stored in the file "road"1.O34, the second section (sheet) in the file "road"2.O34 etc. The drawing may be divided maximum into 9 sheets. The last possible section is then named "road"9.O34.

The meaning of next items:

**To draw vertical alignment:** /

- No drawing of vertical alignment is required
- The drawing of vertical alignment in the drawing of longitudinal profile is required. The data on the elevations of the individual points of vertical alignment are taken over from the file Vertical Alignment (.SNI).

**To draw horizontal alignment:** /

- The drawing of horizontal alignment is not required
- The horizontal alignment chart is to be drawn in the longitudinal profile drawing.

The data are taken over from the file Main points of horizontal alignment (.SHB).

**To read chainage from the file** : /✓

Chainage will not be read from type .SSS file. In case the chainage table will be needed in the course of the program run, it must be defined in the table of CHAINAGE (see tab CHAINAGE).

✓ The chainage table will be read from the type SSS file. At the same time chainage can be defined in the table of CHAINAGE on proper tab. In such a case the program will merge the chainage data from both sources and eliminate any duplicity.

**To read terrain data from file Existing Terrain Cross Sections:** /✓

The data of the terrain cross section from the file (.STR) will not be used.

✓ The terrain data in the cross sections file (.STR) will be used for the drawing of the longitudinal profile.

**To read terrain data from the file Longitudinal terrain profile SPP:** /✓

The file (.SPP) will not be used for the drawing of the longitudinal terrain profile.

✓ The file (.SPP) will be used for the drawing of the longitudinal terrain profile.

**Notes on Terrain definition:**

1) If the reading of terrain data from both the .STR file and the .SPP file has been required, the data on longitudinal terrain profile from both files are merged and ordered. If a chainage in both source files is identical, the elevation from the .SPP file (Longitudinal existing terrain profile) is used. The .SPP file can be used to supplement the longitudinal profile with information on the places between cross sections.

2) If the reading of one file (either the .STR or the .SPP file) is required, the longitudinal profile is drawn on the basis of information contained in the respective file. The data from the file will be ordered according to chainage.

3) If the reading of the file .STR or .SPP is not required, the longitudinal terrain profile will not be drawn.

4) In cases sub 1) and 2), if the chainage file (.SSS) is defined simultaneously, the program computes the elevations by linear interpolation for the chainage not contained in the file .STR or .SPP, but contained in the file .SSS.

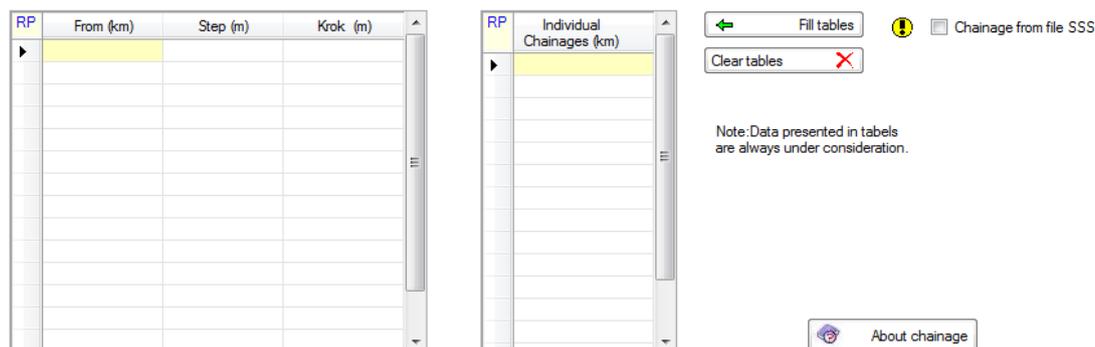
**To read ditch elevations from the file Cross sections:** /✓

The ditch elevations are not read from the file Corridor Cross sections

✓ The ditch elevations are read from the file Road Cross sections (.SPR).

## 2.2 Chainage Definition

It enables the definition of the chainage table in the form of two tables which are placed on tab CHAINAGE. The first table defines the CHAINAGE GIVEN BY STEP, the second the INDIVIDUAL CHAINAGE.



The table CHAINAGE GIVEN BY STEP may have any number of rows. One row defines one section with a regular step. The first item defines the beginning of chainage in km, the second the end of chainage in km, the third the step in meters with which the individual chainage between the beginning and end will be generated. The end of the section is used if it is a multiple of the step only. The table INDIVIDUAL CHAINAGE may have any number of rows. One row defines any chainage in km. The computer generates a chainage table in which both above mentioned tables are merged. Duplicity is eliminated.

Simultaneously also the chainage from the chainage file (.SSS) may be defined. In such a case the program reads the CHAINAGE file, the chainage tables defined on tab CHAINAGE and after merging all chainage data it will exclude duplicity. In any case the maximum number of chainage data is 8000.

**Write chainage to file:** /✓

✓ It means then table of chainage will be written in road .SSS file.

## 2.3 Drawing Parameters Block

It consists of 7 tables which are placed on 4 tabs. The tab SCALES AND DRAWING OPTIONS, see on next picture, contain table SCALES AND SHEET DIMENSIONS and the table DRAWING OPTIONS. The table SCALES AND SHEET DIMENSIONS describes general parameters for the drawing of all sections (sheets). The table contains one row on which all data must be specified.

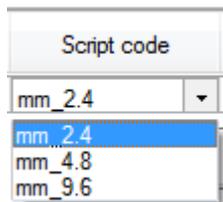
**They have the following meaning:**

**Horizontal Scale, Vertical scale** are defined by the scale figure for lengths (X axis direction and the scale figure for heights (Y axis direction).

**Length of sheet** determines the maximum section (sheet) length in mm. Should the next table placed on the next tab DIVISION INTO SECTIONS ... define longer sections (sheets), the program reduces the section (sheet) length to the specified length and the cut-off part will form part at the next sections (sheets) which will be formed in accordance with the defined length.

**Height of sheet** is the control item defining the height of the sheet. It is defined in mm and must be equal to sum of heights of individual zones from 1 up to 8 defined in the table of ALLOCATION OF ZONES placed on the next tab SHEET ARRANGEMENT ZONES

**Script code** allows user to select the font size. Available are three basic heights.



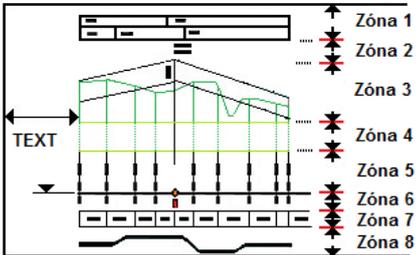
**Hectometer step** is an optional item defining the spacing of hectometer circles on the datum line in meters in the field. The smallest possible step equal 100 m, further integer-multiples of 100 m are also possible. If no value is defined, the program supplements the default value which is 100.

RP	Horizontal scale 1:	Vertical scale 1:	Length of sheet (mm)	Height of sheet (mm)	Script code	Step of hect. (m)
▶	1 000,000	100,000	1 900	297	mm_2.4	100

About scales

About drawing

About drawing options



RP	From (km)	To (km)	Profile	Existing prof.	Gradient marks	Cross sections	Hor. align. chart	Ditches and drains	Formation	Land registry	Objects	TEXT	Profile Style
▶	0,000000	4,695650	draw	omit_4zone	omit_4zone	draw	draw	draw_all	draw	draw	draw	draw	one_line

## 2.4 Drawing options

The table DIVISION INTO SECTION AND DRAWING OPTIONS is intended for the wrap of the drawing of the whole longitudinal profile according to the designers needs. The contents of the drawing in the individual sections may be changed by means of the codes C1 through C11. If the table DIVISION INTO ... is not used, the program forms the sections according to the data defined in the preceding table and the value of codes C1 through C11 is set to **draw** value. The table may contain maximally 9 rows. This enables the definition of maximally 9 sections. One section is defined by 13 items with the following meaning:

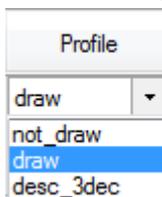
**Chainage** of the beginning of section, **chainage** of the end of section are the data in km defining the beginning and end of the section validity of options. If the section length is greater than the drawing length defined in the preceding table, further sections will be formed for the part exceeding the drawing length defined before. No definition of chainage items means that the beginning and end of chainage will be taken over from the file of CHAINAGE (.SSS) or from the tables placed on tab CHAINAGE see the first or the last value respectively.

**Drawing Codes C1 through C11 generally:**

1/draw            the option will be drawn  
0/not draw        the option will be omitted

Code	Meaning of codes
C1	Vertical alignment, lettering of vertical alignment elevations
C2	Terrain, description of terrain levels, verticals
C3	Gradient marks, description of vertical alignment conditions
C4	Distances of adjacent cross sections, tables
C5	Horizontal alignment conditions, schematic graphic presentation, description
C6	Ditches (hatched or continuous lines)
C7	Formation level (line parallel with vertical alignment)
C8	Cultures and cadastres (table and description)
C9	Objects and crossing signs
C10	Label placed to the left from the drawing
C11	Code of vertical alignment linetype.

Code C1 may acquire next values



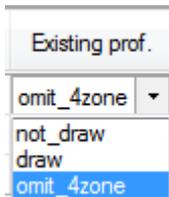
**Notes:** For C1=0/not draw means then vertical alignment will not be drawn

For C1=1/draw means then vertical alignment will be drawn with description on two decimal places.

For C1=3/desc\_3dec means then vertical alignment will be drawn with description on three decimal places.

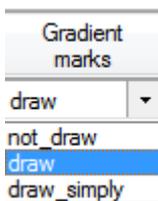
Codes C1 and C2 must not be defined as zeros simultaneously. Either vertical alignment or terrain or both simultaneously are drawn.

Code C2 may acquire next values

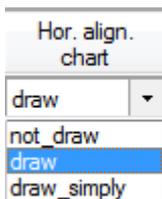


- Notes:**
- For C2=0/not draw means then existing terrain profile will not be drawn
  - For C2=1/draw means then existing terrain profile will be drawn
  - For C1=2/omit\_4zone means the verticals are not drawn across Zone 4, which makes space for one drawing of a longitudinal symbols.

Code C3 may acquire next values

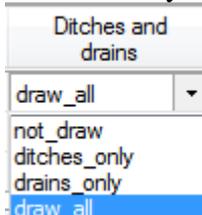


Code C5 may acquire next values



- Notes:**
- For C5=0/not draw means then horizontal alignment chart will not be drawn
  - For C5=1/draw means then horizontal alignment chart will be drawn
  - For C5=2/ draw simply means then simpler horizontal alignment chart will be drawn

Code C6 may acquire next values

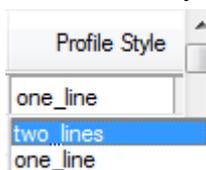


- Notes:**
- For C6=0/not draw means then drains and ditches chart will not be drawn
  - For C6=1/ditches only means then ditches chart will be drawn only
  - For C6=2/ drains only means then drains chart will be drawn only
  - For C6=3draw all means then drains and ditches chart will be drawn

Code C10 may acquire next values

- Notes:**
- For C10=0/not draw means then a strip 5 cm wide on the left from the drawing is not reserved for descriptive text.
  - For C10=1/ draw means then a strip 5 cm wide on the left from the drawing reserved for descriptive text.

Code C11 may acquire next values



**Notes:** For C11=1/one line means then vertical alignment profile will be drawn by one line

For C11=0/ two lines means then vertical alignment profile will be drawn by one line

The main axis (datum plane) with hectometers is drawn always. The chainage being drawn are taken from the file of CHAINAGE (.SSS) or from the tab CHAINAGE or from the merging of both sources.

The generated drawing of every section is stored in a special file "road"x.034, where x is the section number. In dependence on the values of codes K1 and K2 the file contains one or two pictures, i.e. the picture of the designed state (vertical alignment + horizontal conditions + ditches + structures) or the picture of the existing state (terrain + cultures) or both. In the graphic presentation of the file "road"x.034 both pictures can be drawn separately or in one drawing.

## 2.5 Drawing zones

The table ALLOCATE ZONES 1-8 IN DRAWING (mm) is placed on the tab SHEET ARRANGEMENT ZONES defines for each section or every group of sections the vertical division of the drawing into 8 zones independence on chainage. See picture:

RP	From (km)	To (km)	Z1	Z2	Z3 (mm)	Z4 (mm)	Z5	Z6	Z7	Z8
▶	0.000000	4.695650	mm_13	mm_40	132	40	mm_42	mm_13	mm_4	mm_13

RP	From (km)	To (km)	Datum level (asL/m)
▶			

RP	From (km)	To (km)	Pavement thickness (cm)
▶	0.000000	4.695650	0.600

One row defines one section. The table enables the definition of maximum 9 sections (9 rows). One section is defined by 10 items. The first two items mean the chainages of the beginning and end of the section in km. ( See page 6.)The remaining items pertain to the

heights of the individual zones which are defined in mm. The sum of the heights of all zones (Zones 1 through 8) must equal the drawing height. The zones are numbered consecutively from the top downwards and have the following meaning:

Zone No.	Meaning
Z1	Tables of land registry and cadasters
Z2	Gradient marks (reserve above vertical alignment description)
Z3	Drawing of vertical alignment and existing terrain
Z4	Objects (reserve below the drawing of vertical alignment and terrain)
Z5	Description of elevations
Z6	Datum plane and chainage
Z7	Table of distances of cross sections
Z8	Schematic chart of horizontal alignment conditions

**Notes:**

- 1) Zones 1, 2, 7 and 8 have the prescribed minimum height for the case that the respective drawing is required. If the respective drawing is not required, the zone height may be defined with zero or the zone may be reserved and the drawing filled-in additionally by hand. An increase of zone heights is possible.
- 2) The heights of Zones 3 and 4 must not be specified. Program will specify it automatically. When the datum plane is sought automatically, the program locates the drawing of vertical alignment and existing terrain in Zone 3 automatically too.
- 3) Zones 5 and 6 have prescribed fixed heights according to optioned test font height

Zone No.	Minimum height	Fixed height	For code
1	13 mm	-	K8 = 1
2	40 mm	-	K3 = 1
5	-	42 mm	-
6	-	13 mm	-
7	4 mm	-	K4 = 1
8	13 mm	-	K5 = 1

## 2.6 Datum levels

The table of FIXED DATUM LEVELS defines the section in which the elevation of the datum plane is defined. One row defines one section to which the datum plane applies. Maximum 20 sections (i.e. 20 rows) may be defined.

**One section is defined by three items:**

**Chainage of section beginning (km)** If the item is not defined, the program supplements the chainage of the beginning of the road.

**Chainage of section end in km** If the item is not defined, the program supplements the chainage of the beginning of the next road section. In case of the last section the program supplements the chainage of the end of the road.

**Elevation of datum plane** in meters must satisfy the requirement that the respective drawing must be accommodated in the area of Zones 2 through 4.

Note: If no section is defined in the table of FIXED DATUM LEVEL, the program constructs the reference plane automatically by placing the drawing to the lower edge of Zone 3 (with the tolerance of 2 mm).

## **2.7 Pavement thickness**

The table of PAVEMENT THICKNESS enables the drawing of the line which is parallel with the vertical alignment and determines the pavement thickness. On one line the pavement thickness is defined with three items. The maximum number of lines (sections) in the table is 10.

**The meaning of individual items:**

**Chainage of the beginning of the section in km;** If the item is not defined, the program supplements the chainage of the beginning of the road.

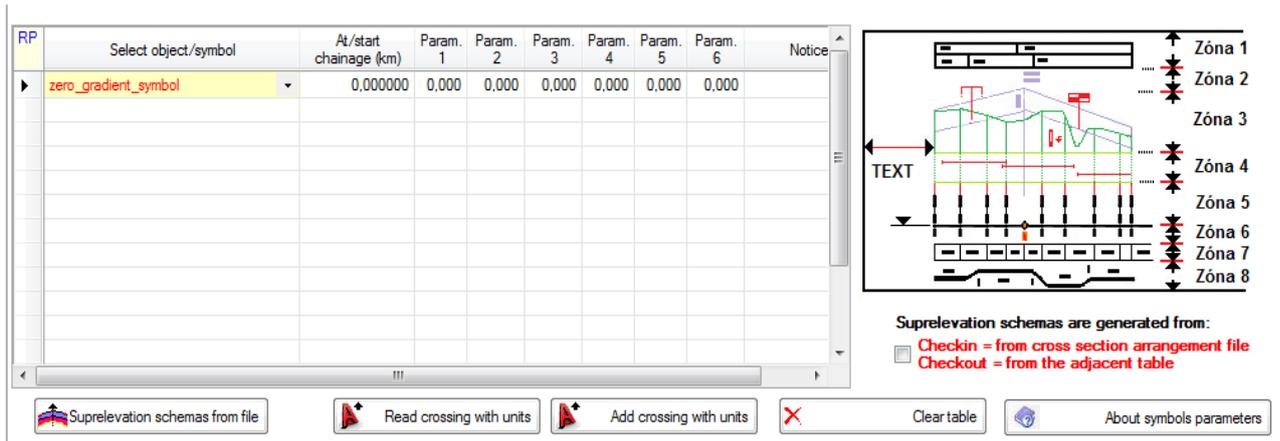
**Chainage of the end of the section in km;** If the item is not defined, the program supplements the chainage of the beginning of the next section. In case of the last section the program supplements the chainage of the end of the road.

**Pavement thickness** in meters

- Notes:**
- 1) Outside the defined section the lines are not drawn.
  - 2) The table need not be defined.

## **2.8 Object a symbols**

The table of SYMBOLS AND OBJECTS DEFINITION is intended for the specification of symbols and standard structures in the drawing. One row describes one symbol or one structure. The number of drawn symbols and structures is not practically limited. Table is placed on tab OBJECT AND SYMBOLS.



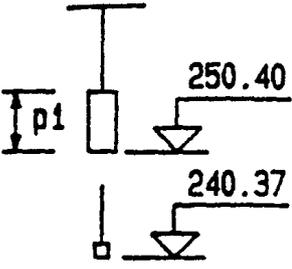
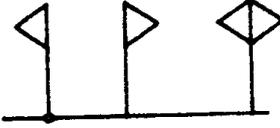
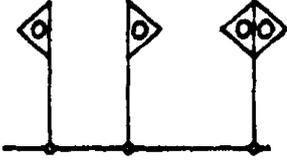
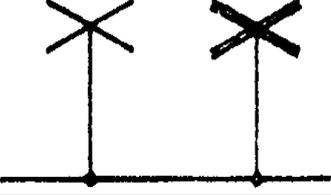
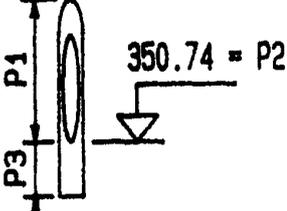
The symbols and structures are described on the row with 8 columns. The first item is the **text code** of the symbol, the second the chainage of the symbol in km. The last six items are the parameters of the symbol; according to symbol type the minimum number of items is zero, the maximum number is 6.

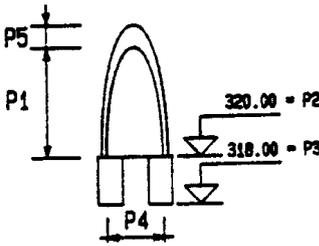
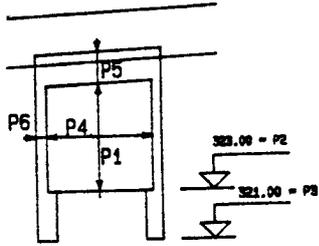
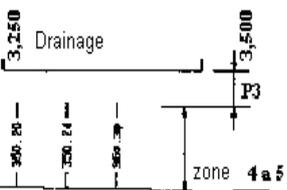
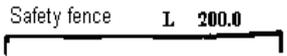
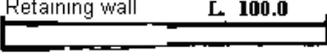
**Notes:**

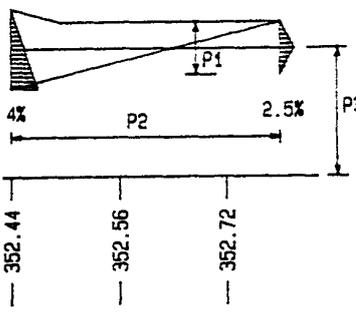
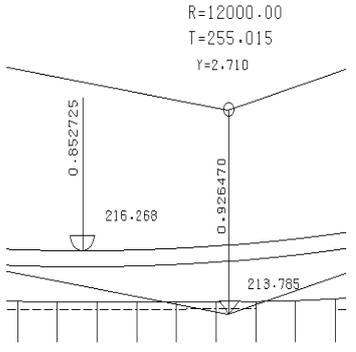
**This input method is the auxiliary respective outdated only. Objects and symbols are now drawn automatically or interactively in CAD application RoadCAD.**

The program can draw the symbols contained in the following table:

Code	Meaning	Symbol	Parameters
1	Crossing with overhead line		No parameters
2	Crossing with underground pipeline		P1 - profile (m) P2 - bottom elevation (m) (for P1=0 a ring is drawn )

3	Crossing with under ground collector		<p>P1 - height (m)                  P2 - bottom elevation (m)                  (for P1 = 0 a square is drawn)</p>
4	Access to fields		<p>P1 = 1 - on the left                  P2 = 2 - on the right                  P1 = 3 - on both sides</p>
5	Access to fields with culvert		<p>P1 = 1 - on the left                  P2 = 2 - on the right                  P1 = 3 - on both sides</p>
6	Intersection		<p>P1 = 1 - on the left                  P2 = 2 - on the right                  P1 = 3 - on both sides</p>
7	Railway crossing		<p>P1 = 1 - single track line                  P1 = 2 - double track line</p>
11	Pipe culvert		<p>P1- inside diameter (m)                  P2 - bottom elevation (m)                  P3 - foundation depth (m)</p>

<p>12</p>	<p>Arched culvert</p>		<p>P1 - clear height (m)                  P2- bottom elevation (m)                  P3 - foundation base elevation (m)                  P4 - clear span (m)                  P5-vault thickness (m)</p>
<p>13</p>	<p>Slab culvert or bridge (single span) of equal foundation base elevation</p>		<p>P1 - clear height(m)                  P2 - bottom elevation (m)                  P3 - foundation base elevation (m)                  P4 - clear span (m)                  P5 - slab thickness(m)                  P6 - abutment thickness(m)</p>
<p>21</p>	<p>Drainage (Chainage beginning defined)</p>	<p>of is</p> 	<p>P1=1 - on the left                  P1=2 - on the right                  P1=3 - on both sides                  P1=4 - in the median                  P2 - length (m)                  P3 - location in zone 4 (mm)</p>
<p>22</p>	<p>Safety fence (Chainage of beginning is defined)</p>		<p>Ditto as above</p>
<p>23</p>	<p>Gutter paved with gutter blocks</p>		<p>Ditto as above</p>
<p>24</p>	<p>Gutter paved with gutter blocks</p>		<p>Ditto as above</p>
<p>25</p>	<p>Retaining wall</p>		<p>Ditto as above but without P1=4</p>

<p>31</p>	<p>Change of Superelevation in spiral (chainage at the beginning of ascending line is defined)</p>		<p>P1 - basic width (mm)                  P2 - length (m)                  P3 - location in zone 4 (mm)                  P4 - crossfall at the beginning (%)                  P5 - crossfall at the end (%)                  to the left -                  to the right +                  to either side 0                  P6 - basic camber slope, only for P5=0 or P4=0</p>
<p>32</p>	<p>Zero gradient sign</p>		<p>No parameters</p>

**2.9 Land registry and cadastral data**

The table of LAND REGISTRY AND CADASTRAL DATA is intended for the definition of the names of administrative territories and land cultures shown in the upper part of the drawing. One row defines one item valid for the respective road section. Each item has its code. For the items concerning the culture of the land lot no text is given, unless special information on the culture is needed. In case of standard definition of culture the program supplements the name of the culture according to the table given below by two methods: Either the whole name of the culture is written or an abbreviation is used, depending on the area available on the drawing. The table may contain practically any number of rows.

One row contains four items with the following meaning:

**TEXT Code** indicating the item type (see the next table).

**Chainage** of the beginning of the section and Chainage of the end of the section in km define the applicability of the item. If the beginning of chainage is not defined it means the beginning of the road; if the end of chainage is not given, it means that the end of the section is taken over from the next row from the chainage of the beginning of the next section. If these rules are applied, the table must be ordered for the individual codes. For this reason no chainage is defined for them.

RP	Select land-usage or cadaster	From (km)	To (km)	Arbitrary text
	name_of_cadaster	0,000000	1,000000	aaa
	name_of_cadaster	1,000000	2,000000	bbb
	name_of_cadaster	2,000000	3,000000	ccc
	name_of_cadaster	3,000000	4,695650	ddd
	name_of_district	0,000000	0,000000	xxxxxxxx
	name_of_region	0,000000	0,000000	aaaaaaaaaaaaaaaa
	arable_soil	1,000000	2,000000	
	meadow	2,000000	3,000000	
	forest	3,000000	4,000000	
	vineyard	4,000000	4,695650	
	pond	0,000000	1,000000	

Arbitrary Text is an item which can have maximum 24 characters and may be used also for the indication of the culture which is not included in the table (no abbreviation is defined) or for the denomination of administrative areas (cadastre, district, region).

Internal Code	Meaning	Abbreviation
90	The name of cadastral area	
91	The name of district	
92	The name of region	
0	The name of culture not included in this table	
2	Arable soil	AR
3	Hop-garden	HO
4	Vineyard	VI
5	Garden	GA
6	Orchard	OR
7	Meadow	ME
8	Pasture	PA
10	Forest	FO
11	Pond	PO
12	Other water surfaces	WA
13	Built-up areas	BU
14	Other areas	OA

### 3. **DESCRIPTION OF OUTPUT LISTINGS**

The listing file is generated in the course of the program run in the file "road".L34. Its printing can be controlled from the main menu of the RoadPAC.

The listing contains the following information:

- 1) Protocol on used input files "road" .XXX, where XXX may be: SNI, .SSS, .SHB, .STR, .SPR, .SPP.
- 2) Protocol on the output file "road".O34 (symbolic drawing of PLOTFILE type).
- 3) For every section the following data are printed:
  - No. of section
  - Chainage of the beginning of section (km)
  - Chainage of the end of section (km)
  - Scale of lengths
  - Scale of heights
  - Height of drawing (mm)
  - Length of drawing (mm)
  - Elevation of datum plane (m)
  - Extent of applicability of datum plane (from chainage to chainage)
  - Reports on errors in input data with possible information on the reaction of the program to errors (use of default value for erroneous value, etc.)

### 4. **Warning messages**

The program differentiates between fatal errors, which usually cause program termination with unusable results and formal errors that are handled by alternate solution. Fatal errors are marked by \*\*\* in reports and formal errors are marked by \*\*. The following table contains list of warning messages and comments to alternate solution:

<b>Text of message</b>	<b>Alternate solution</b>
*** Leading line is missing * 34	
*** Inaccessible type of leading line * nnn	
** First line ignored	
*** Between leading data read no marked line *	
*** Premature data end	
*** Inaccessible function code number x= nn	
*** Incorrect code combination 2 and 3	
** Line 999 is missing	

** Inaccessible type of line nnn ignored	
** More than nnn detailed points, other ignored	
** Formal error, line ignored: (description of line)	
** More than nnn detailed points, ignored from km n.nnnnnn	
** km n.nnnn vertical alignment n.nnnn below zone	
** km nn.nnnnn vertical alignment n.nnnn above zone	
** During checking of terrain elevations was central point excluded	
** During elevation checking unsuitable points are:	
** Working file overflow, ignored ditches from km to km nn.nnn	
*** Number of points longitudinal terrain profile exceed nnn points	
** Removed duplicities terrain point in km nnnn Z= nnn.nn	
** km nnn terrain mmmmm below zone	
** km nnn terrain mmmmm above zone	
*** Error in file reading LONGITUDINAL TERRAIN PROFILE	
*** Error while writing LONGITUDINAL TERRAIN PROFILE	
*** Input data file has not been found (probably not created)	
*** Working file WORK1 overflow, ignored line(Line description)	
** Ending line 999 is missing	
*** Empty file of chainage	
*** Inacceptable line type: (Line description)	
** Permissible number exceeded nnn lines of type 34	
** Incorrect text size code nnn basic size is used	
*** Chainage of end < chainage of beginning	
*** Horizontal alignment must be specified	
*** Terrain must be specified	
** In section cannot be drawn layout scheme	
** In section cannot be drawn ditches	
*** Zones total nnn does not correspond with height nn in km nnnn	
*** Incorrect height zone number n in km nnnn	
*** Negative zone height	
*** Lines 346 are not expected	
*** Less than 1 line of type 34n	

** Section No nnn overlaps beginning of road: nn.nnnnnn	
** Section No nnn overlaps end of road: nn.nnnnnn	
** Section No nnn is overlapped by section No nnn	
** In beg. of road dimensions of zones are not specified	
** More than 10 sections, only 10 sections will draw	
*** Formal error in line: (Line description)	
*** Error while opening of working file WORK1	
*** Error while writing to working file WORK1	
*** Error while reading of working file WORK1	
*** Error in contents of working file WORK1	
*** Error while opening of working file WORK2	
*** Error while writing to working file WORK2	
*** Error while reading of working file WORK2	
** Section nnn trimmed at beginning in km nn.nnnnnn	
** Section nnn trimmed at the end in km km nn.nnnnnn	
** In section No nnn are not 2 points of terrain nnn drawing of terrain is ignored	
** In section No nnn is canceled drawing of vert. alignment	
** To zone 3 cannot be placed cross sections in km nnnnnn	
*** Neither vertical alignment nor terrain is drawn nn section will be canceled	
** More than 20 segments, rest of section is not drawn	