

*Appendix 14*

*Field Investigation*

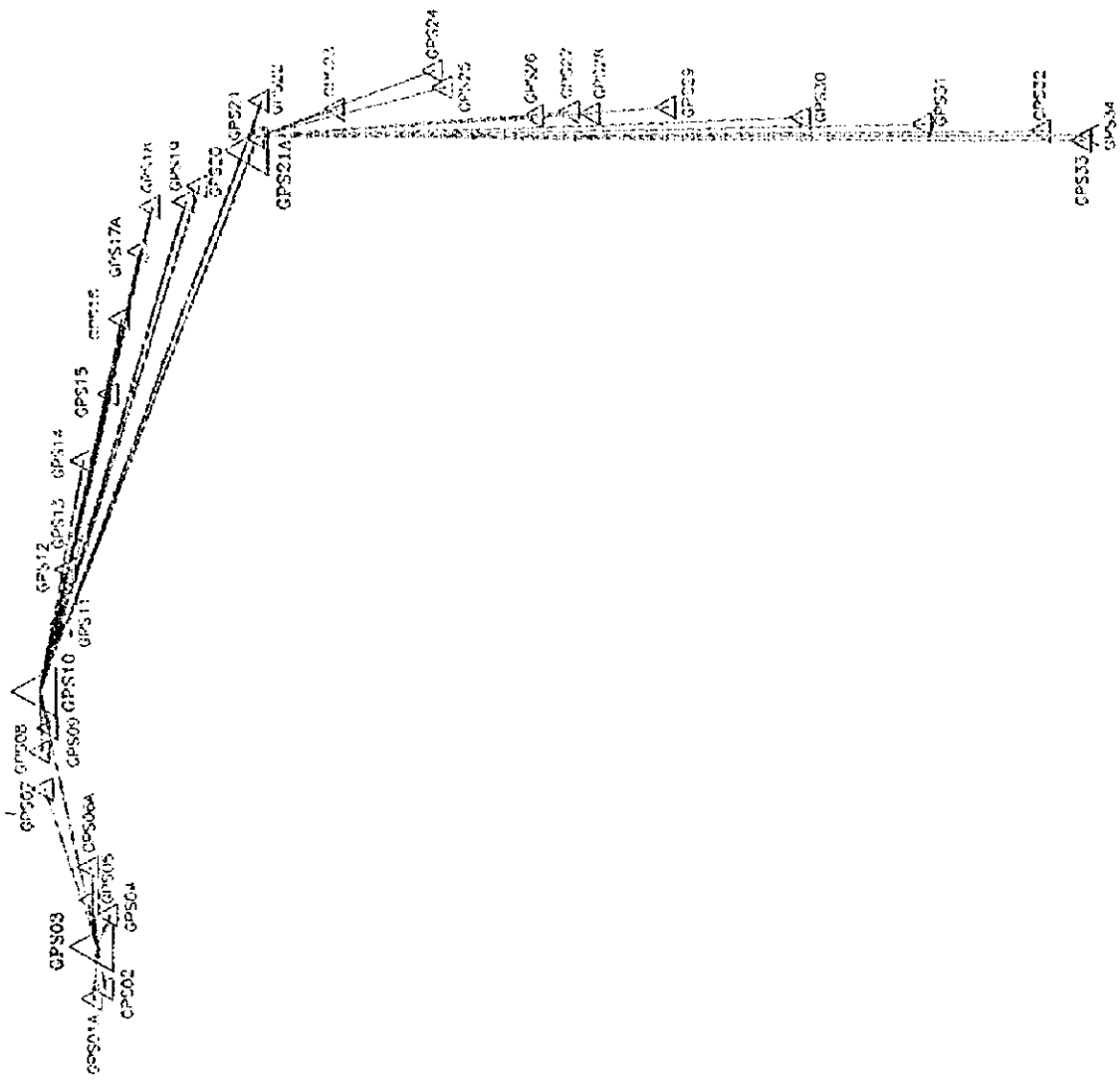
**A14-1**

***Survey Control Points in Bareilly Bypass***

**BAREILLY BYPASS SURVEY  
CONTROL STATIONS**

STATION NO.	EASTING	NORTHING	HEIGHT (Ellipsoidal meters)	HEIGHT (Orthometric meters.)
GPS01A	337718.6118	3146997.3620	93.6197	167.502
GPS02	337892.8102	3146807.6807	93.5963	167.520
GPS03	338581.2914	3146941.2226	93.2068	167.195
GPS04	339124.6095	3146728.7493	95.2336	169.238
GPS05	339373.9810	3147044.2783	93.9166	167.898
GPS06A	339929.2135	3147056.2999	95.2568	169.219
GPS07	341226.7006	3147804.6918	95.1810	169.143
GPS08	341854.3110	3147857.7709	95.8704	169.807
GPS09	342251.3399	3147721.5467	96.2901	170.259
GPS10	342863.3812	3147894.3407	97.2935	171.266
GPS11	344001.7370	3147502.9348	98.7360	172.759
GPS12	344919.9874	3147418.8676	97.9440	171.998
GPS13	345511.3071	3147184.1263	96.3617	170.427
GPS14	346751.5650	3147162.4467	99.2170	173.183
GPS15	347877.5183	3146695.8441	98.5157	172.673
GPS16	349138.4544	3146494.7601	99.3668	173.622
GPS17A	350275.0224	3146177.3617	101.5658	175.820
GPS18	351021.9215	3145968.2221	98.2762	172.538
GPS19	351108.6059	3145408.0782	96.7143	171.065
GPS20	351369.6701	3145194.0172	98.3757	172.732
GPS21	352199.4551	3144235.3576	99.1643	173.572
GPS21A	351967.6687	3144309.0745	98.2437	172.640
GPS22	352798.3903	3144147.9187	99.7501	174.169
GPS23	352660.5732	3142868.3435	97.6508	172.105
GPS24	353326.8463	3141206.1965	96.6294	171.156
GPS25	353050.9259	3141043.4277	96.3495	170.886
GPS26	352596.9659	3139530.0284	94.8171	169.377
GPS27	352674.5500	3138930.0090	95.2536	169.829
GPS28	352644.0806	3138578.2552	95.7541	170.294
GPS29	352763.5904	3137316.7819	95.1912	169.819
GPS30	352591.6107	3135048.3166	95.7836	170.458
GPS31	352500.6194	3133007.8810	92.9788	167.652
GPS32	352403.9794	3131016.0385	92.4399	167.169
GPS33	352245.2040	3130323.3026	92.5912	167.299
GPS34	352334.9029	3130181.9417	92.1948	166.888

**Note:** Orthometric heights are based on one Reference BM (RL 170.600 m) as provided by JICA Study Team.



BAREILLY BYPASS SURVEY GPS CONTROL STATIONS  
SCHEMATIC DIAGRAM

## BAREILLY BYPASS SURVEY DETAIL OF CONTROL POINTS

CONTROL POINT NUMBER:- GPS-1A

E = 337718.6118 metres      N = 3146997.3620 metres      RL = 167.502 metres

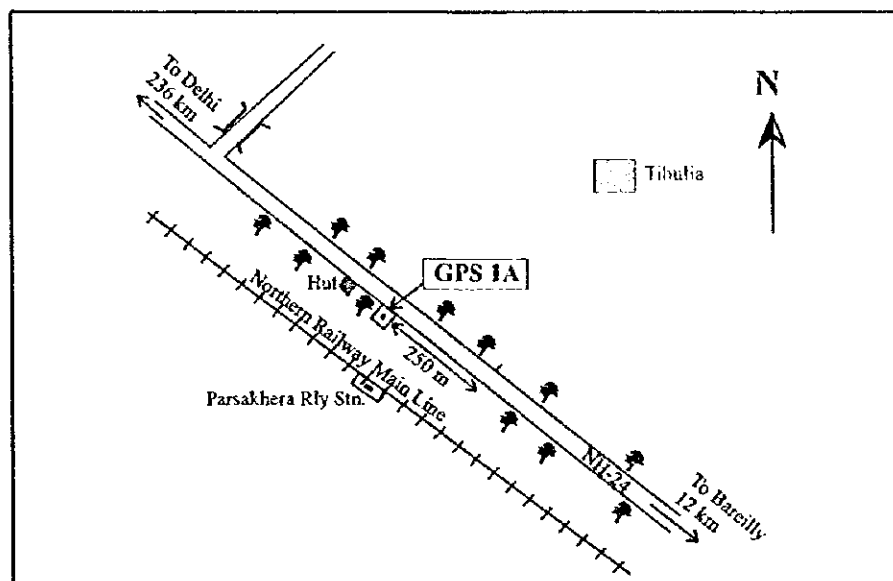
Northing & Easting based on GPS Survey WGS 84 and UTM coordinates (Zone 44)  
Reduced levels based on one reference BM value (170.600 m) situated near Parsakhera Railway Station, provided by JICA study team.



### DESCRIPTION OF GPS-1A

An Iron rod 10 mm dia in the centre of a cemented concrete pillar of 35 cm height, embedded in the ground. It exists on the south side of National Highway No.24, about 250 m, NW of km stone No.236 from N. Delhi, ½ km north of Parasakhera RS and about 10 m E of a temporary hut (shop). The control point is situated about 1½ km SW of village Tihulia.

### SKETCH OF GPS-1A (Not to Scale)



## BAREILLY BYPASS SURVEY DETAIL OF CONTROL POINTS

CONTROL POINT NUMBER:- GPS-2

E = 337892.8102 metres      N = 3146807.6804 metres      RL = 167.520 metres

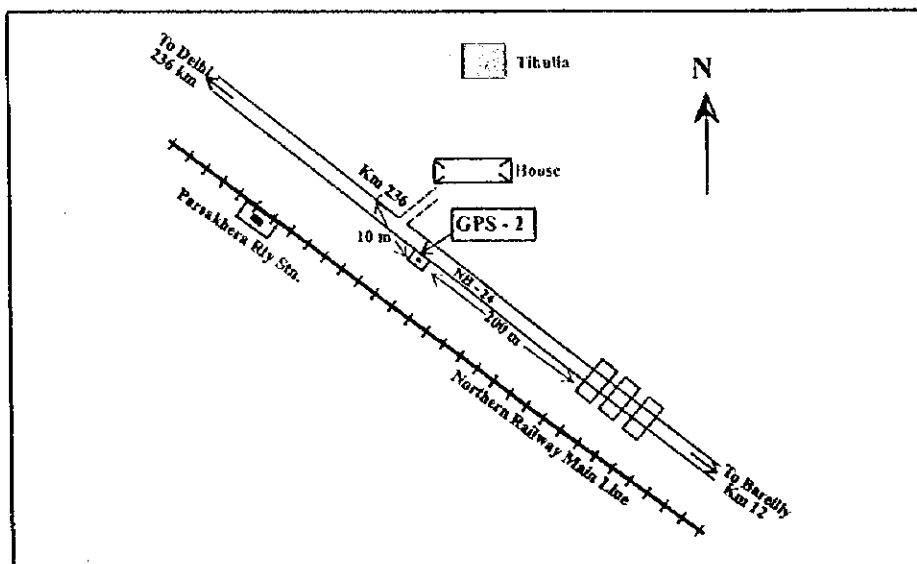
Northing & Easting based on GPS Survey WGS 84 and UTM coordinates (Zone 44)  
Reduced levels based on one reference BM value (170.600 m) situated near Parsakhera Railway Station, provided by JICA study team.



### DESCRIPTION OF GPS-2

An Iron rod 10 mm dia in the centre of a cemented concrete pillar of 35 cm height, embedded in the ground. It exists on south side of NH No.24, about 10 m south of km stone No.236 from New Delhi, 200 m NW of shops along NH 24. The control point is situated about ½ km from Parsakhera RS and 1½ km south of village Tehulia.

### SKETCH OF GPS-2 (Not to Scale )

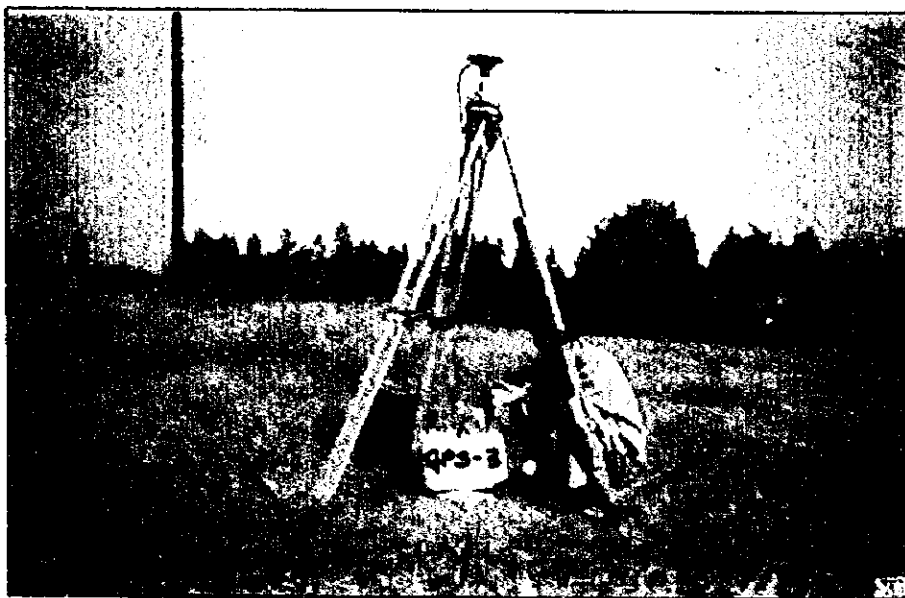


## BAREILLY BYPASS SURVEY DETAIL OF CONTROL POINTS

**CONTROL POINT NUMBER:- GPS-3**

E = 338581.2914 metres      N = 3146941.2226 metres      RL = 167.195 metres

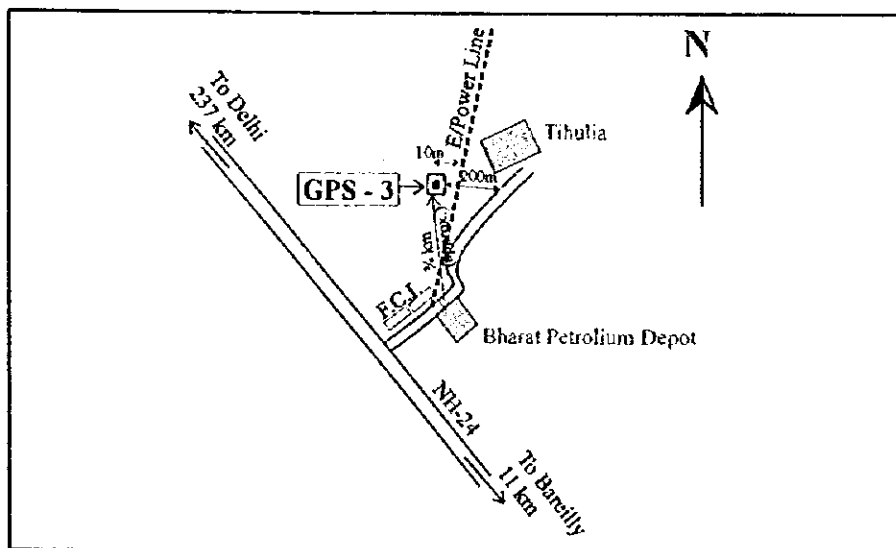
Northing & Easting based on GPS Survey WGS 84 and UTM coordinates (Zone 44)  
Reduced levels based on one reference BM value (170.600 m) situated near Parsakhera Railway Station, provided by JICA study team.



### DESCRIPTION OF GPS-3

An Iron rod 10 mm dia in the centre of a cemented concrete pillar of 35 cm height, embedded in the ground. It exists in an open field, in west side of an electric power line pole, about 10 m from electric line and 200 m west from a road leading from NH 24 to village Tihulia. The control point is situated about 1 km E of NH 24, 3/4 km north of Bharat Petroleum Depot and about 1/2 km west of village Tihulia.

### SKETCH OF GPS-3 (Not to Scale)



## BAREILLY BYPASS SURVEY DETAIL OF CONTROL POINTS

CONTROL POINT NUMBER:- GPS-4

E = 339124.6095 metres      N = 3146728.7493 metres      RL = 169.238 metres

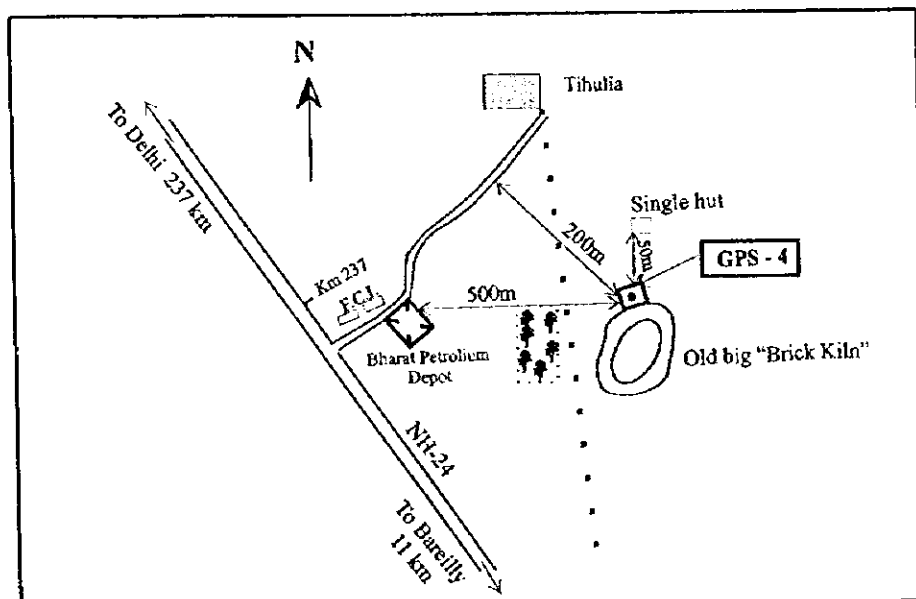
Northing & Easting based on GPS Survey WGS 84 and UTM coordinates (Zone 44)  
Reduced levels based on one reference BM value (170.600 m) situated near Parsakhera Railway Station, provided by JICA study team.



### DESCRIPTION OF GPS-4

An Iron rod 10 mm dia in the centre of a cemented concrete pillar of 35 cm height, embedded in the ground. It exists at the extreme edge of a big old "Brick Kiln", about 200 m east of a road leading from NH 24 to village Tihulia and about 50 m south of a single hut. The control point is situated about 3/4 km south of village Tihulia and 500 m east of Bharat Petroleum Depot. An electric power line is passing to the west side of the control point.

### SKETCH OF GPS-4 (Not to Scale)





## BAREILLY BYPASS SURVEY DETAIL OF CONTROL POINTS

**CONTROL POINT NUMBER:- GPS-5**

**E = 339373.9810 metres      N = 3147044.2783 metres      RL = 167.898 metres**

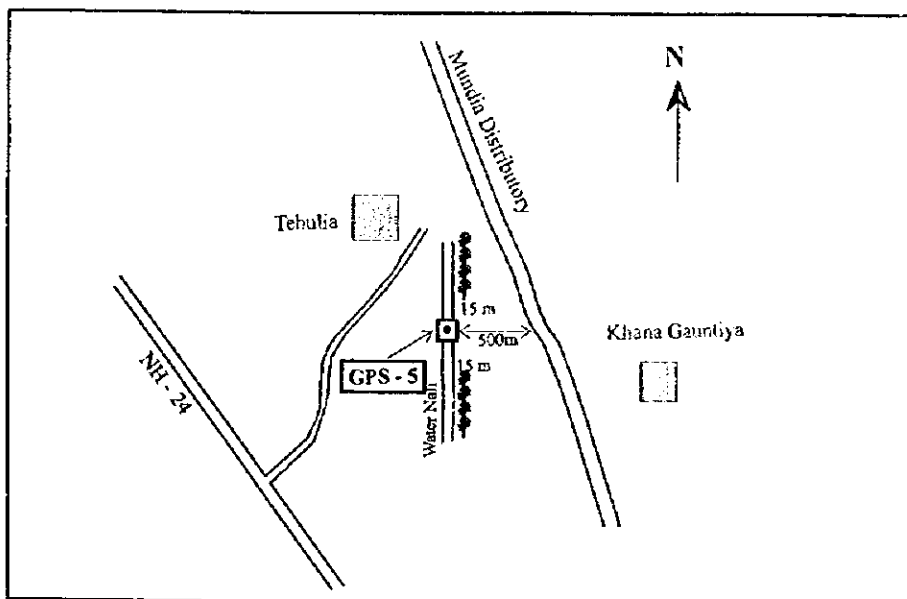
Northing & Easting based on GPS Survey WGS 84 and UTM coordinates (Zone 44)  
Reduced levels based on one reference BM value (170.600 m) situated near Parsakhera Railway Station, provided by JICA study team.



### DESCRIPTION OF GPS-5

An Iron rod 10 mm dia in the centre of a cemented concrete pillar of 35 cm height, embedded in the ground. It exists on a field bond of a small water nali about 15 m south of a line of trees. Another line of trees falls 15 m south of the control point. It is situated about 3/4 km south of village Tehulia, 500 m west of Mundia distributory and about 1½ km NW of village Khana Gauntia.

### SKETCH OF GPS-5 (Not to Scale)



## BAREILLY BYPASS SURVEY DETAIL OF CONTROL POINTS

CONTROL POINT NUMBER:- GPS-6A

E = 339929.2135 metres

N = 3147056.2999 metres

RL = 169.219 metres

Northing & Easting based on GPS Survey WGS 84 and UTM coordinates (Zone 44)

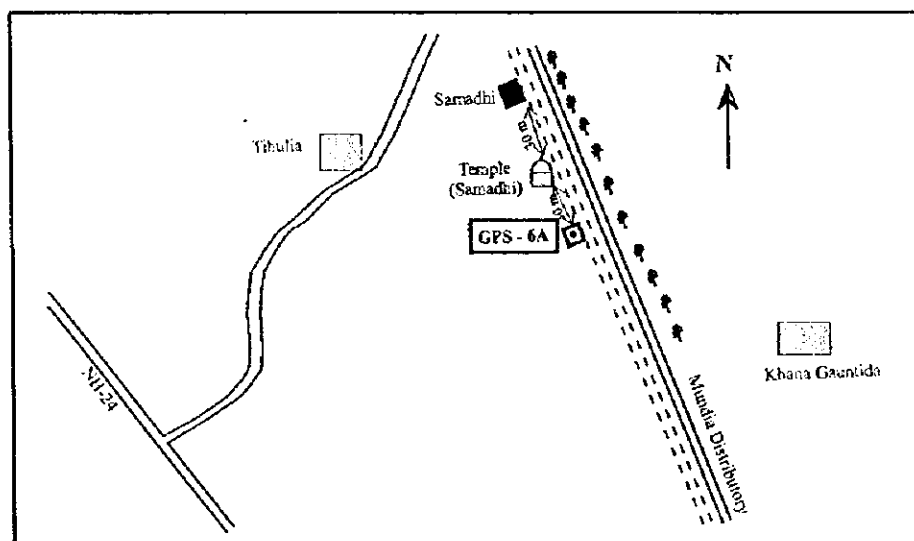
Reduced levels based on one reference BM value (170.600 m) situated near Parsakhera Railway Station, provided by JICA study team.



### DESCRIPTION OF GPS-6A

An Iron rod 10 mm dia in the centre of a cemented concrete pillar of 35 cm height, embedded in the ground. It exist on west side of a canal path and by the west side of a Kacha track, about 60 m south of a samadhi and 30 m south of a temple (samadhi). The control point is situated about 1¼ km SE of Tihulia village and about ¾ km NW of village Khana Gauntida.

### SKETCH OF GPS-6A (Not to Scale)



## BAREILLY BYPASS SURVEY DETAIL OF CONTROL POINTS

**CONTROL POINT NUMBER:- GPS-7**

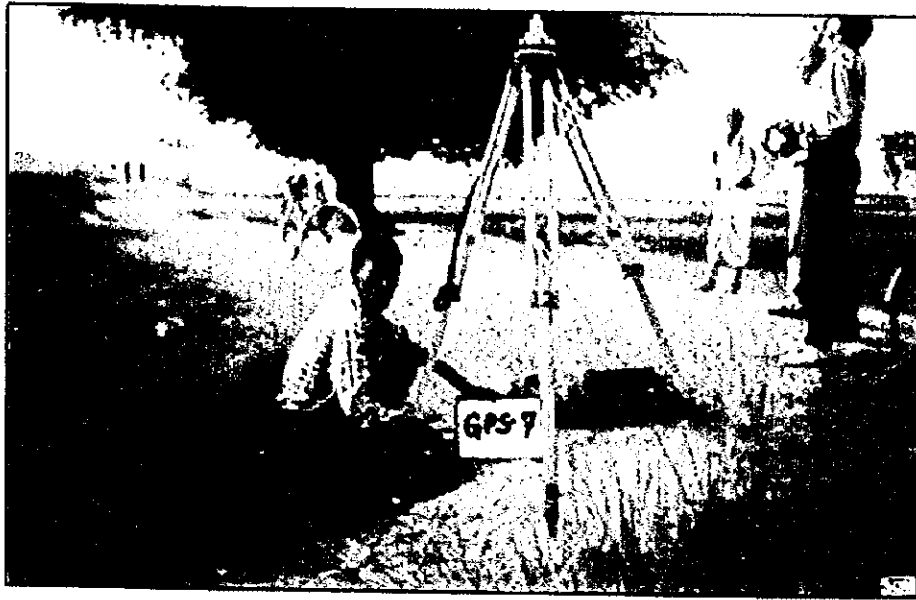
**E = 341226.7006 metres**

**N = 3147804.6918 metres**

**RL = 169.143 metres**

Northing & Easting based on GPS Survey WGS 84 and UTM coordinates (Zone 44)

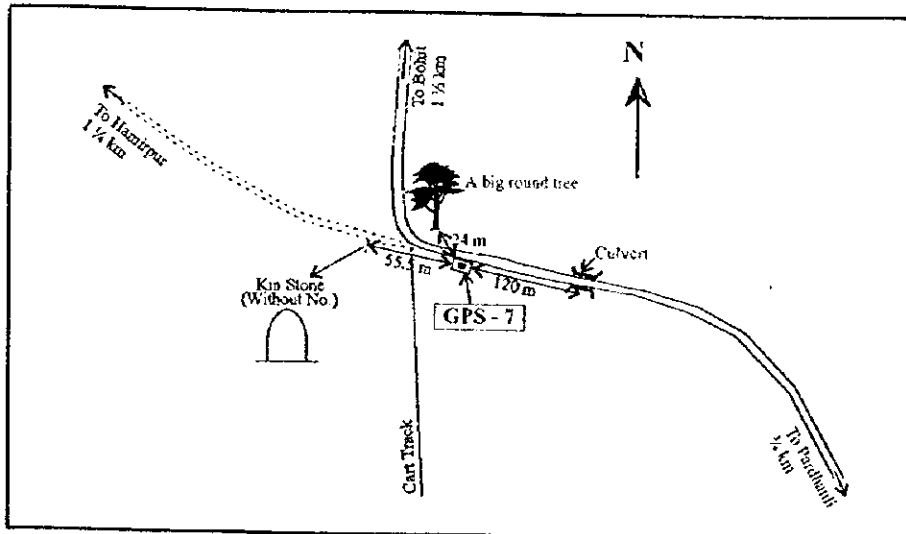
Reduced levels based on one reference BM value (170.600 m) situated near Parsakhera Railway Station, provided by JICA study team.



### DESCRIPTION OF GPS-7

An Iron rod 10 mm dia in the centre of a cemented concrete pillar of 35 cm height, embedded in the ground. It exists in south side of Pardhauli-Bohit road, 120 m west of a road-culvert, 55.5 m east of a km stone (with out number) and 24.0 m SE of a big round tree. The control point is situated about 1.5 km south of village Bohit, 1.25 km east of village Hamirpur and about 3/4 km NW of village Pardhauli.

### SKETCH OF GPS-7 (Not to Scale)



## BAREILLY BYPASS SURVEY DETAIL OF CONTROL POINTS

CONTROL POINT NUMBER:- GPS-8

E = 341854.3110 metres

N = 3147857.7709 metres

RL = 169.807 metres

Northing & Easting based on GPS Survey WGS 84 and UTM coordinates (Zone 44)

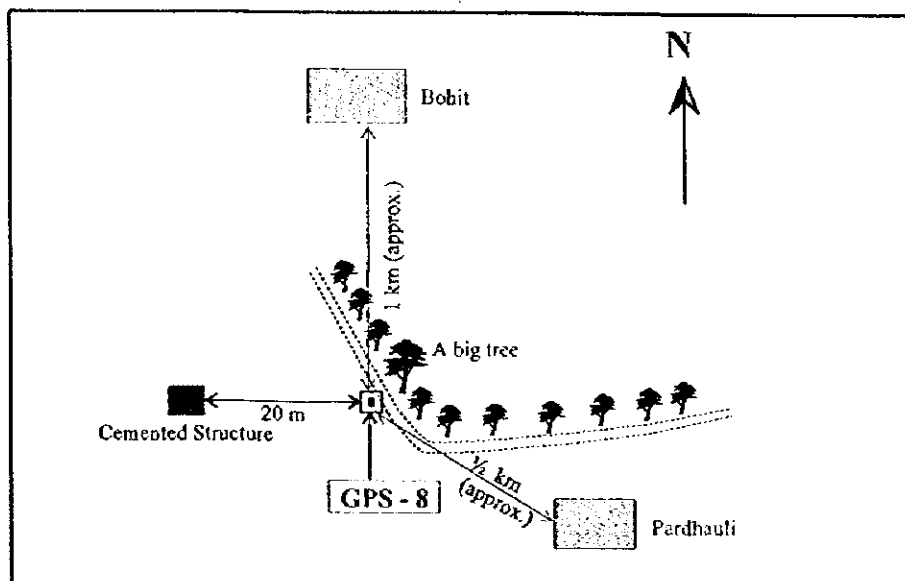
Reduced levels based on one reference BM value (170.600 m) situated near Parsakhera Railway Station, provided by JICA study team.



### DESCRIPTION OF GPS-8

An Iron rod 10 mm dia in the centre of a cemented concrete pillar of 35 cm height, embedded in the ground. It exists on the west side of a narrow path, about 20 m East of a cemented structure and very near to a big tree. The control point is situated about ½ km NW of village Pardhaulti and 1 km south of village Bohit.

### SKETCH OF GPS-8 (Not to Scale)



## BAREILLY BYPASS SURVEY DETAIL OF CONTROL POINTS

CONTROL POINT NUMBER:- GPS-9

E = 342251.3399 metres

N = 3147721.5467 metres

RL = 170.259 metres

Northing & Easting based on GPS Survey WGS 84 and UTM coordinates (Zone 44)

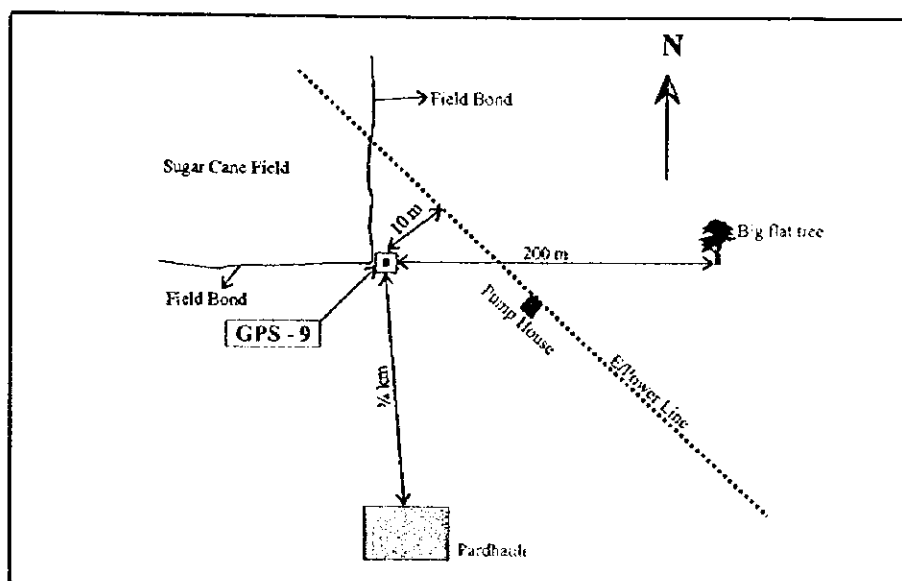
Reduced levels based on one reference BM value (170.600 m) situated near Parsakhera Railway Station, provided by JICA study team.



### DESCRIPTION OF GPS-9

An iron rod 10 mm dia in the centre of a cemented concrete pillar of 35 cm height, embedded in the ground. It exists on a sugarcane field bond corner, about 10 m West of an electric power line and about 200 m west of a big flat tree. The control point is situated about 3/4 km North of village Pardhauli.

### SKETCH OF GPS-9 (Not to Scale)



## BAREILLY BYPASS SURVEY DETAIL OF CONTROL POINTS

CONTROL POINT NUMBER:- GPS-10

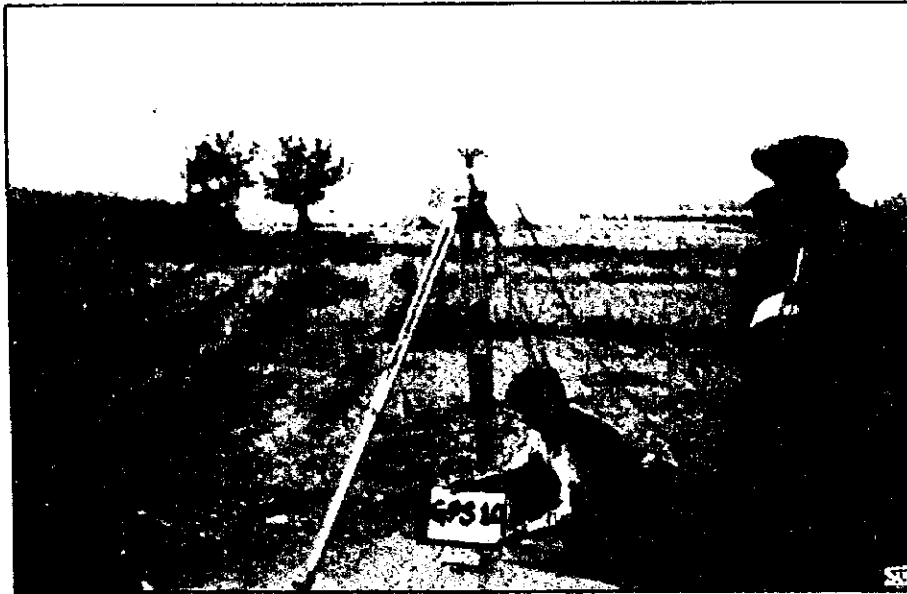
E = 342863.3812 metres

N = 3147894.3407 metres

RL = 171.266 metres

Northing & Easting based on GPS Survey WGS 84 and UTM coordinates (Zone 44)

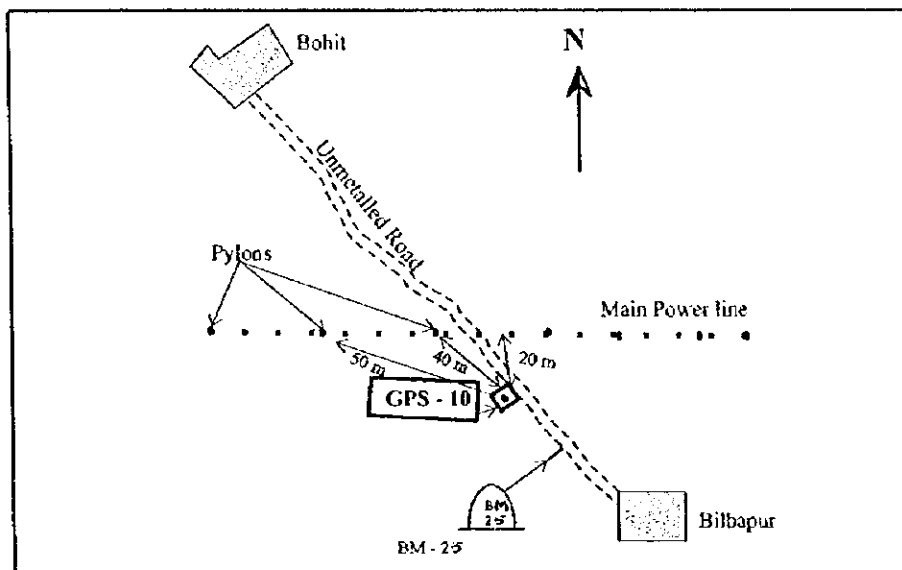
Reduced levels based on one reference BM value (170.600 m) situated near Parsakhera Railway Station, provided by JICA study team.



### DESCRIPTION OF GPS-10

An Iron rod 10 mm dia in the centre of a cemented concrete pillar of 35 cm height, embedded in the ground. It exists on west side of an unmetalled road leading from Bilbapur village to Bohit village. It is about 20 m South of a main power line. A round cemented pillar with "BM-25" marked on it, exists South of the control point. It is situated about ½ km NW of village Bilbapur and 2 km, SE, of village Bohit.

### SKETCH OF GPS-10 (Not to Scale)



**BAREILLY BYPASS SURVEY  
DETAIL OF CONTROL POINTS**

**CONTROL POINT NUMBER:- GPS-11**

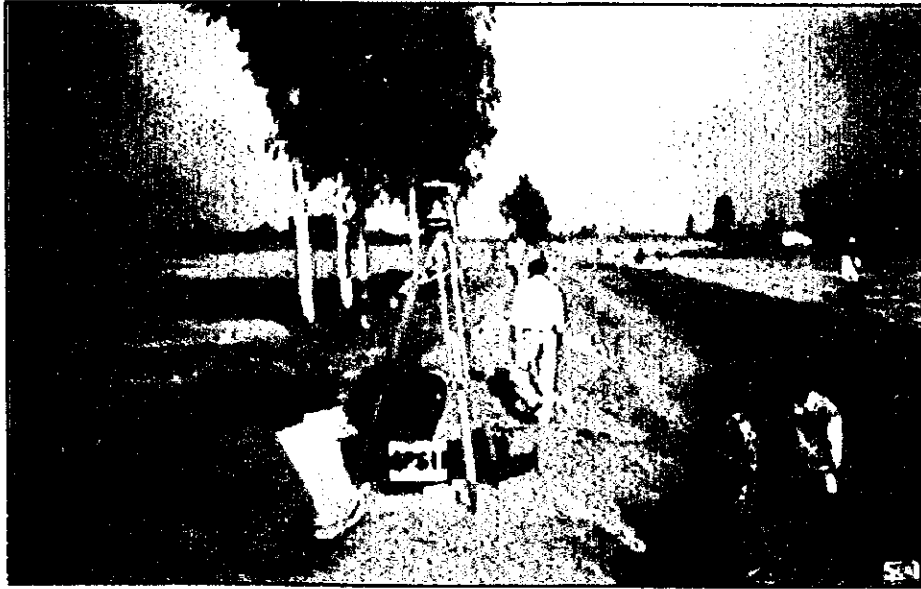
**E = 344001.7370 metres**

**N = 3147502.9348 metres**

**RL = 172.759 metres**

Northing & Easting based on GPS Survey WGS 84 and UTM coordinates (Zone 44)

Reduced levels based on one reference BM value (170.600 m) situated near Parsakhera Railway Station, provided by JICA study team.

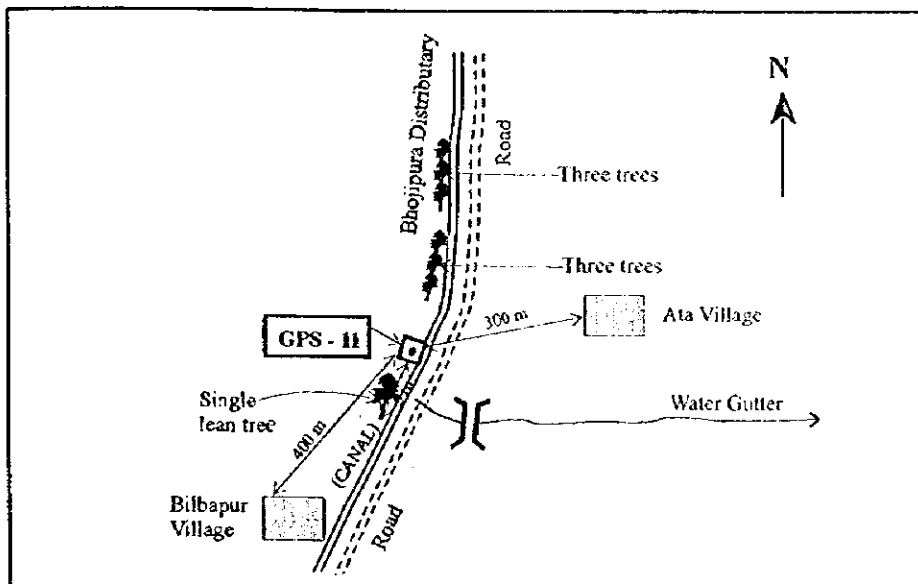


**DESCRIPTION OF GPS-11**

An Iron rod 10 mm dia in the centre of a cemented concrete pillar of 35 cm height, embedded in the ground.

It exists on west side of (canal bond) Bhojipura Distributary (canal), about 300 m SW of Ata village, 400 m, NE of village Bilbapur and about 5 m, North of a single lean tree on the same canal bond. Two groups of "three trees" each exists North of the control point.

**SKETCH OF GPS-11 (Not to Scale)**



**AREILLY BYPASS SURVEY  
DETAIL OF CONTROL POINTS**

**CONTROL POINT NUMBER:- GPS-12**

**E = 344919.9874 metres**

**N = 3147418.8676 metres**

**RL = 171.998 metres**

Northing & Easting based on GPS Survey WGS 84 and UTM coordinates (Zone 44)

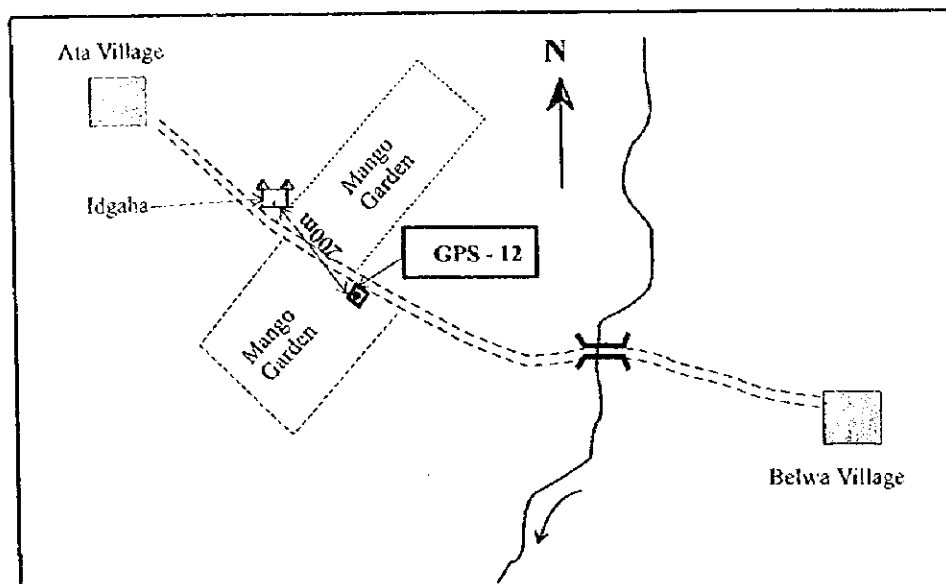
Reduced levels based on one reference BM value (170.600 m) situated near Parsakhera Railway Station, provided by JICA study team.



**DESCRIPTION OF GPS-12**

An iron rod 10 mm dia in the centre of a cemented concrete pillar of 35 cm height, embedded in the ground. It exists on SW side of an unmetalled road, leading from village Belwa to Ata. It is about 200 m south east of Idgah. The control point is situated in between two mango gardens, about ½ km SE of Ata village and about 1½ km NW of Belwa village.

**SKETCH OF GPS-12 (Not to Scale)**





**BAREILLY BYPASS SURVEY  
DETAIL OF CONTROL POINTS**

**CONTROL POINT NUMBER:- GPS-13**

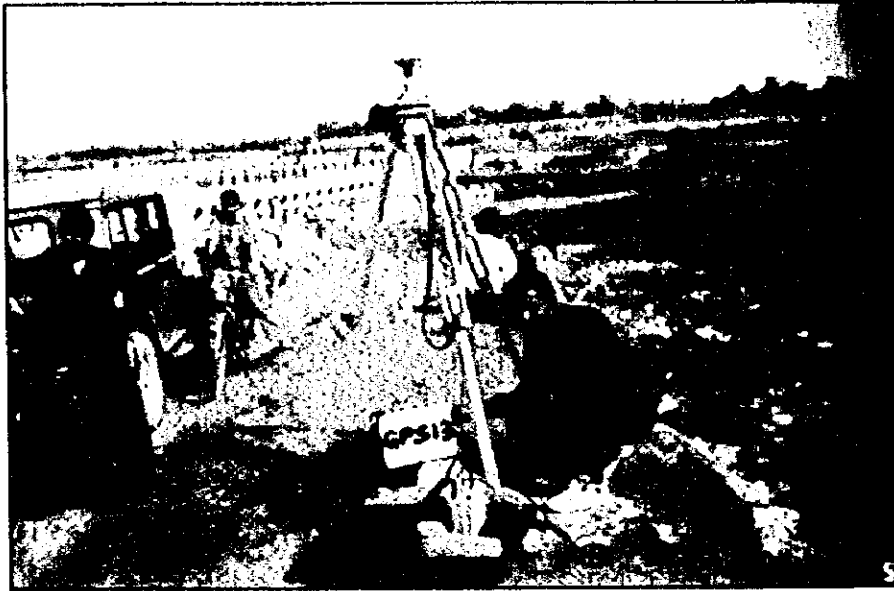
**E = 345511.3071 metres**

**N = 3147184.1268 metres**

**RL = 170.427 metres**

Northing & Easting based on GPS Survey WGS 84 and UTM coordinates (Zone 44)

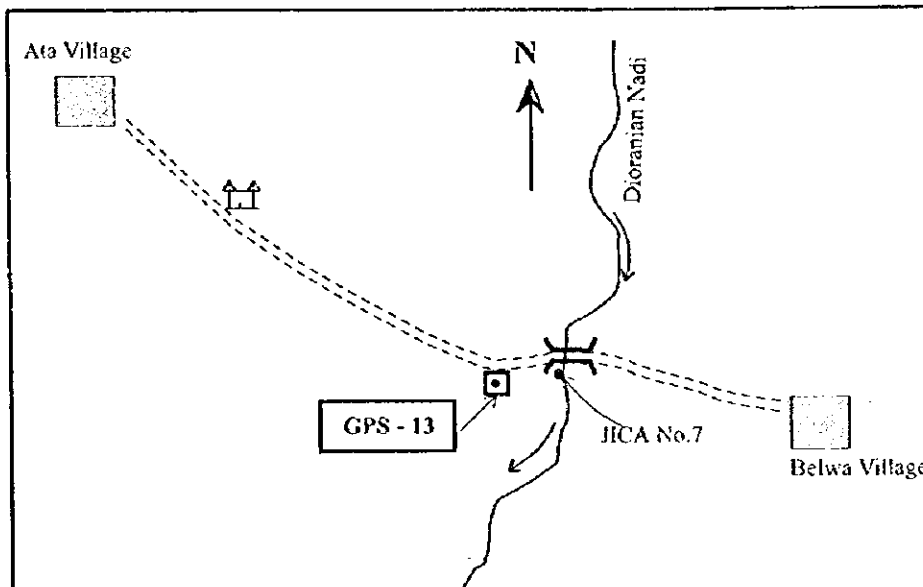
Reduced levels based on one reference BM value (170.600 m) situated near Parsakhera Railway Station, provided by JICA study team



**DESCRIPTION OF GPS-13**

An Iron rod 10 mm dia in the centre of a cemented concrete pillar of 35 cm height, embedded in the ground. It exists on south side of an unmetalled road leading from Belwa village to Ata village, very near to the road bridge on Dioranian Nadi. The control point is situated about 1 km west of village Belwa and about 1½ km SE of village Ata.

**SKETCH OF GPS-13 (Not to Scale)**



## BAREILLY BYPASS SURVEY DETAIL OF CONTROL POINTS

CONTROL POINT NUMBER:- GPS-14

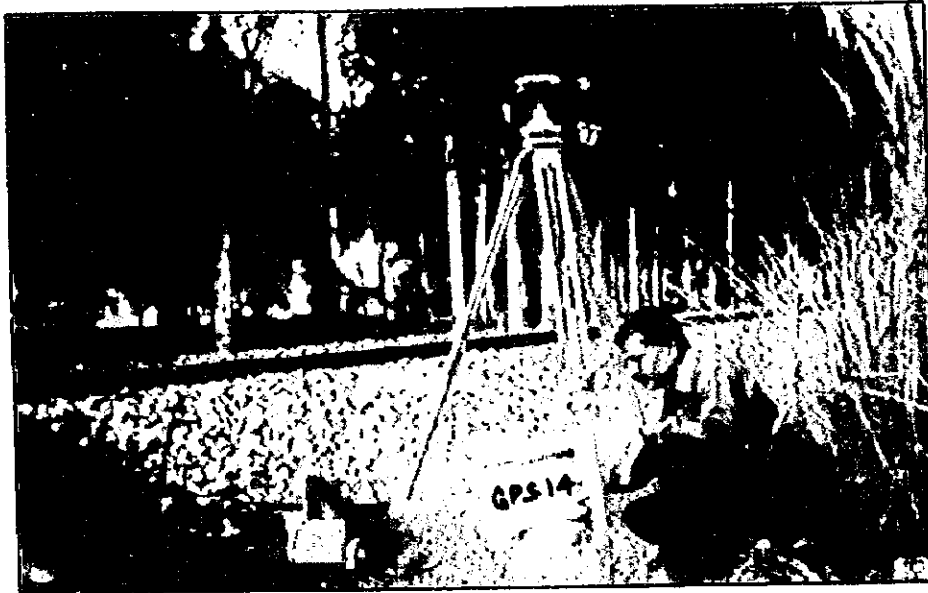
E = 346751.5650 metres

N = 3147162.4467 metres

RL = 173.183 metres

Northing & Easting based on GPS Survey WGS 84 and UTM coordinates (Zone 44)

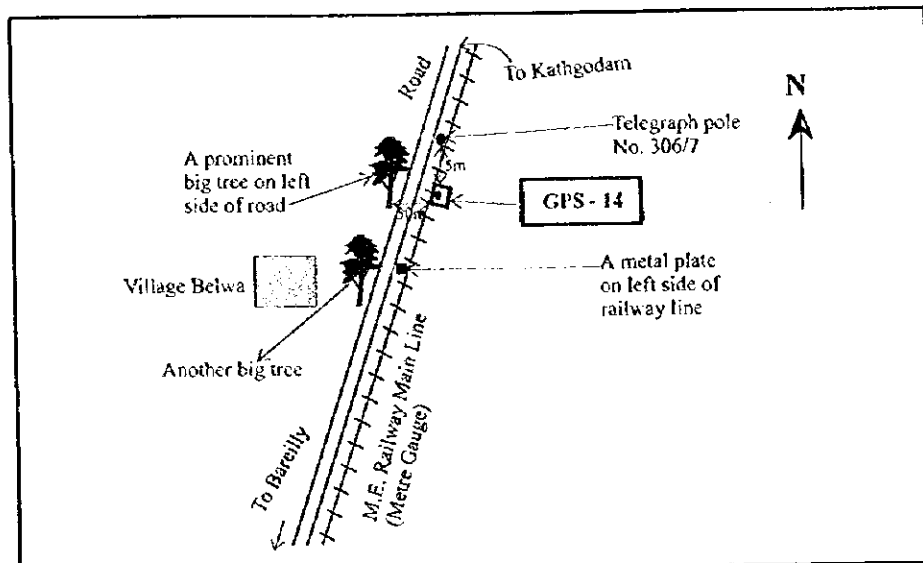
Reduced levels based on one reference BM value (170.600 m) situated near Parsakhera Railway Station, provided by JICA study team.



### DESCRIPTION OF GPS-14

An Iron rod 10 mm dia in the centre of a cemented concrete pillar of 35 cm height, embedded in the ground. It exists on east side of railway line, about 5 m south of a telegraph pole (No. 306/7) and about 50 m East of a very big tree which is on left side of Bareilly-Nanital road. Another very big tree exists on south west direction of the control point. It is situated about ½ km NE of village Belwa.

### SKETCH OF GPS-14 (Not to Scale)



## BAREILLY BYPASS SURVEY DETAIL OF CONTROL POINTS

CONTROL POINT NUMBER:- GPS-15

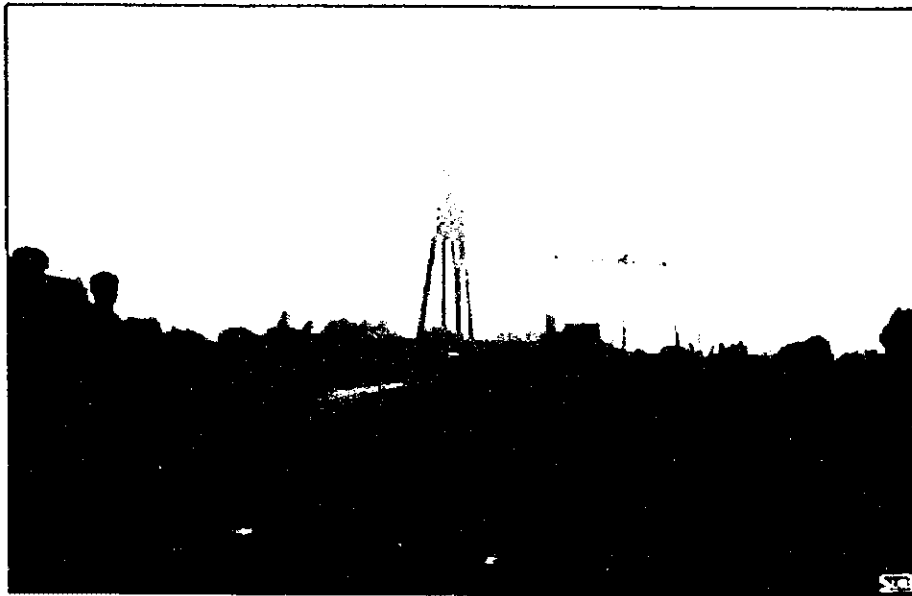
E = 347877.5183 metres

N = 3146695.8441 metres

RL = 172.673 metres

Northing & Easting based on GPS Survey WGS 84 and UTM coordinates (Zone 44)

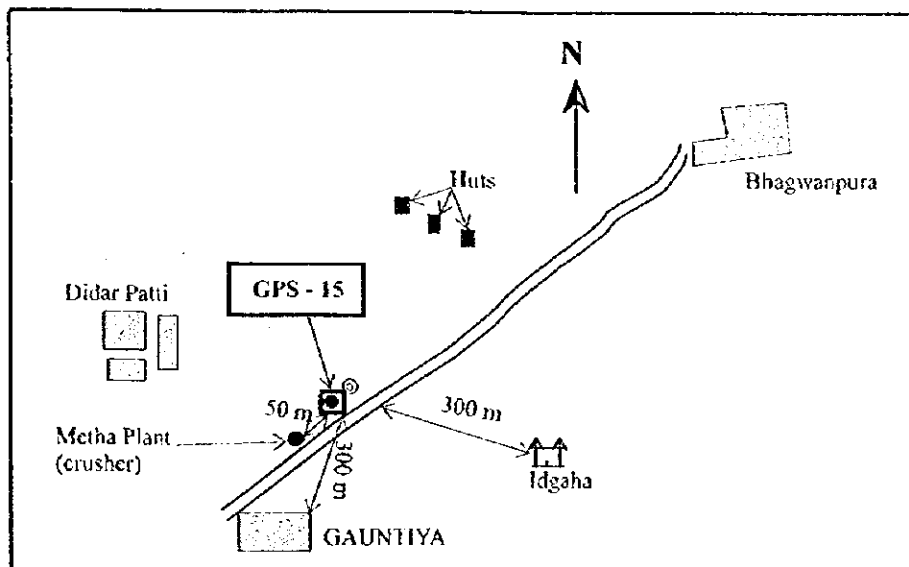
Reduced levels based on one reference BM value (170.600 m) situated near Parsakhera Railway Station, provided by JICA study team.



### DESCRIPTION OF GPS-15

An Iron rod 10 mm dia in the centre of a cemented concrete pillar of 35 cm height, embedded in the ground. It exists on west side of Gauntiya-Bhagwanpur road, about 50 metres NE of a "Metha Plant", and about 300 m West of a Idgah. The control point is situated about 300 m North of Gauntiya village and 350 East of village Didar Patti.

### SKETCH OF GPS-15 (Not to Scale)



## BAREILLY BYPASS SURVEY DETAIL OF CONTROL POINTS

CONTROL POINT NUMBER:- GPS-16

E = 349138.4544 metres

N = 3146494.7601 metres

RL = 173.622 metres

Northing & Easting based on GPS Survey WGS 84 and UTM coordinates (Zone 44)

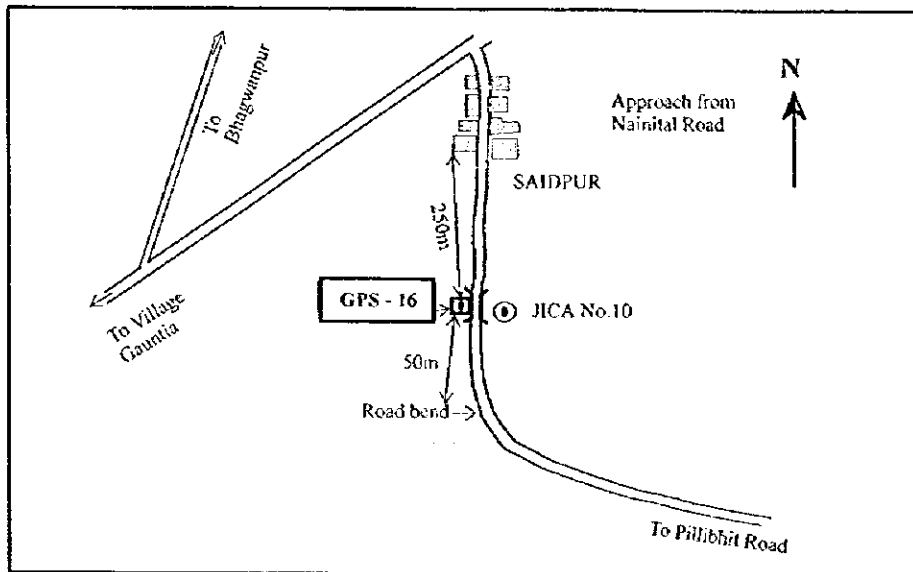
Reduced levels based on one reference BM value (170.600 m) situated near Parsakhera Railway Station, provided by JICA study team.



DESCRIPTION OF GPS-16

It exists on a road-culvert, on West side of the road leading from village Saidpur to Pillibhit road, about 50 m North of same road bend and about 250 m South of village Saidpur.

SKETCH OF GPS-16 (Not to Scale)



## BAREILLY BYPASS SURVEY DETAIL OF CONTROL POINTS

CONTROL POINT NUMBER:- GPS-17A

E = 350275.0223 metres

N = 3146177.2617 metres

RL = 175.820 metres

Northing & Easting based on GPS Survey WGS 84 and UTM coordinates (Zone 44)

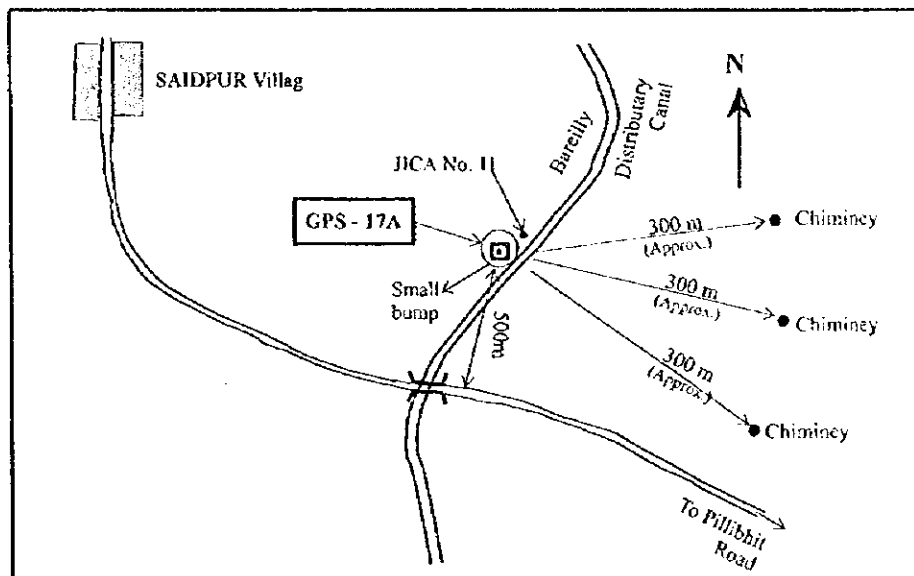
Reduced levels based on one reference BM value (170.600 m) situated near Parsakhera Railway Station, provided by JICA study team.



### DESCRIPTION OF GPS-17A

An Iron rod 10 mm dia in the centre of a cemented concrete pillar of 35 cm height, embedded in the ground. It exists on a small bump (Ht.1.5 m) inside the wasteland, on the west side of "Bareilly Distributory" (Canal), about 1 km SE of village Saidpur, and about 500 m North of Saidpur-Pilibhit road.

### SKETCH OF GPS-17A (Not to Scale)



## BAREILLY BYPASS SURVEY DETAIL OF CONTROL POINTS

**CONTROL POINT NUMBER:- GPS-18**

**E = 351021.9215 metres**

**N = 3145968.2221 metres**

**RL = 172.538 metres**

Northing & Easting based on GPS Survey WGS 84 and UTM coordinates (Zone 44)

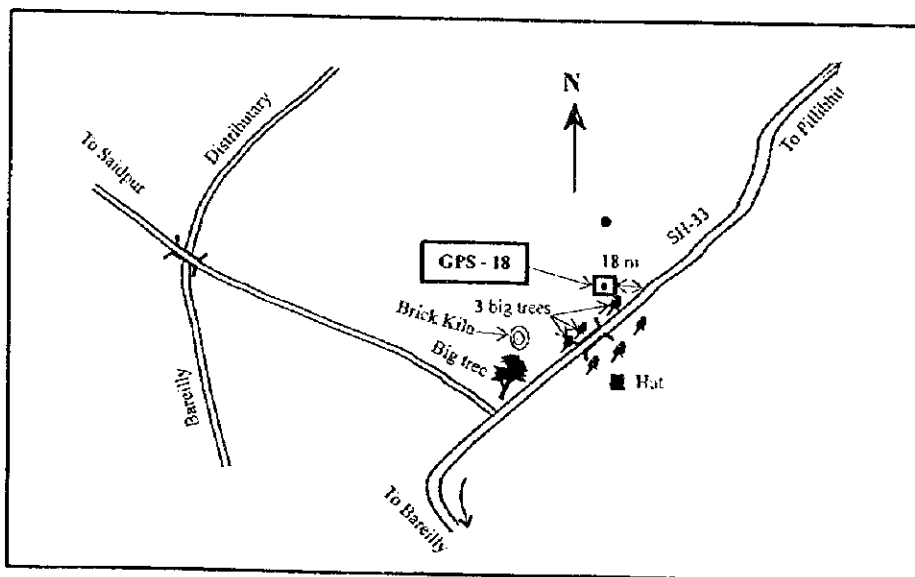
Reduced levels based on one reference BM value (170.600 m) situated near Parsakhera Railway Station, provided by JICA study team.



### DESCRIPTION OF GPS-18

An Iron rod 10 mm dia in the centre of a cemented concrete pillar of 35 cm height, embedded in the ground. It exists on a small heap of soil, on the West side of Bareilly-Pilibhit road, about 18 m west from the road. The control point is situated 2 km away in SE direction of village Saidpur and about ½ km north of Khera village. A brick Kiln, a big tree and a single and a single hut fall south of the control point.

### SKETCH OF GPS-18 (Not to Scale)



## BAREILLY BYPASS SURVEY DETAIL OF CONTROL POINTS

CONTROL POINT NUMBER:- GPS-19

E = 351108.6059 metres

N = 3145408.0782 metres

RL = 171.065 metres

Northing & Easting based on GPS Survey WGS 84 and UTM coordinates (Zone 44)

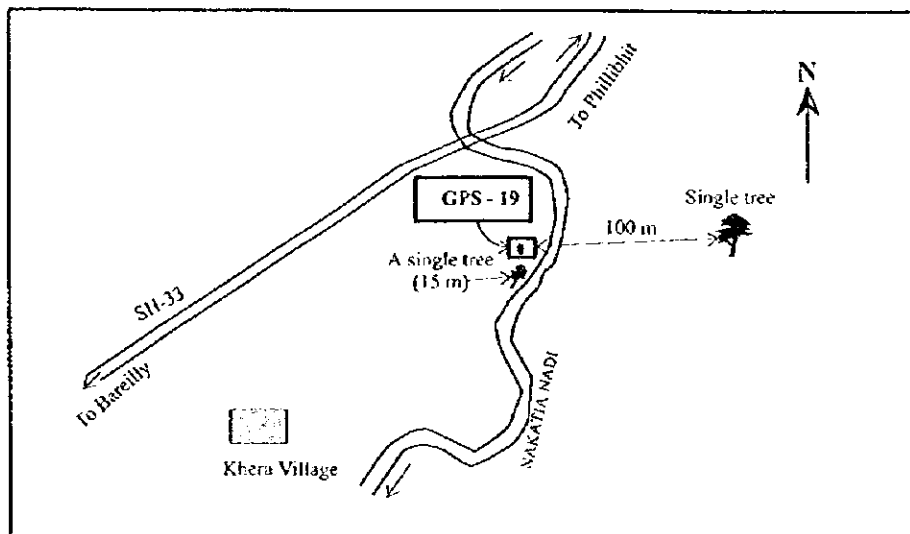
Reduced levels based on one reference BM value (170.600 m) situated near Parsakhera Railway Station, provided by JICA study team.



### DESCRIPTION OF GPS-19

An Iron rod 10 mm dia in the centre of a cemented concrete pillar of 35 cm height, embedded in the ground. It exists on west bank of Nakatia nadi, about ½ km East of Bareilly-Pilibhit road and about ½ km NE of Khera village. One small single tree exist 15 m South, and other single tree about 100 m East of the control point.

### SKETCH OF GPS-19 (Not to Scale)



## BAREILLY BYPASS SURVEY DETAIL OF CONTROL POINTS

CONTROL POINT NUMBER:- GPS-20

E = 351369.6701 metres

N = 3145194.0172 metres

RL = 172.732 metres

Northing & Easting based on GPS Survey WGS 84 and UTM coordinates (Zone 44)

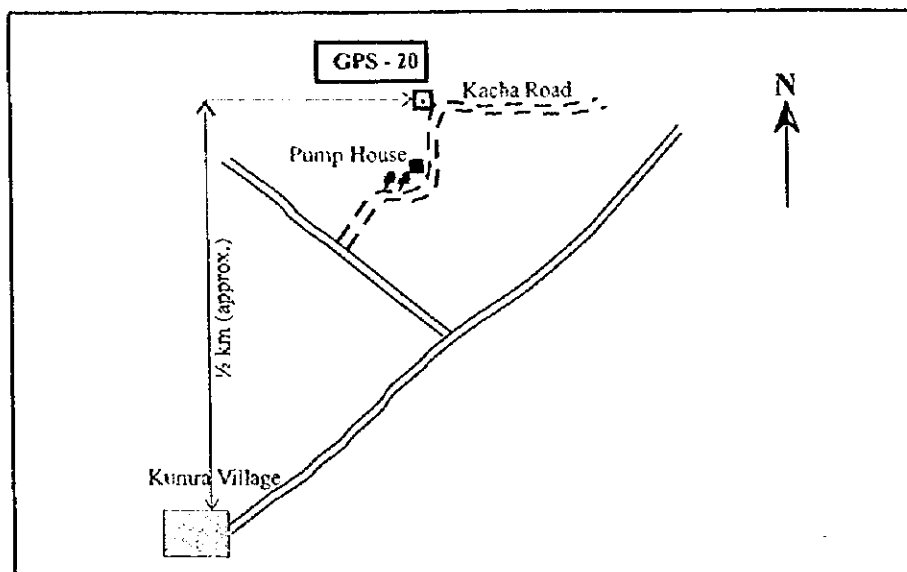
Reduced levels based on one reference BM value (170.600 m) situated near Parsakhera Railway Station, provided by JICA study team.



### DESCRIPTION OF GPS-20

An Iron rod 10 mm dia in the centre of a cemented concrete pillar of 35 cm height, embedded in the ground. It exists on a field bond at West side of a kacha road bend, very near to a pump house & a tree. It is situated about ½ km NE of village Kumra.

### SKETCH OF GPS-20 (Not to Scale)





## BAREILLY BYPASS SURVEY DETAIL OF CONTROL POINTS

**CONTROL POINT NUMBER:- GPS-21**

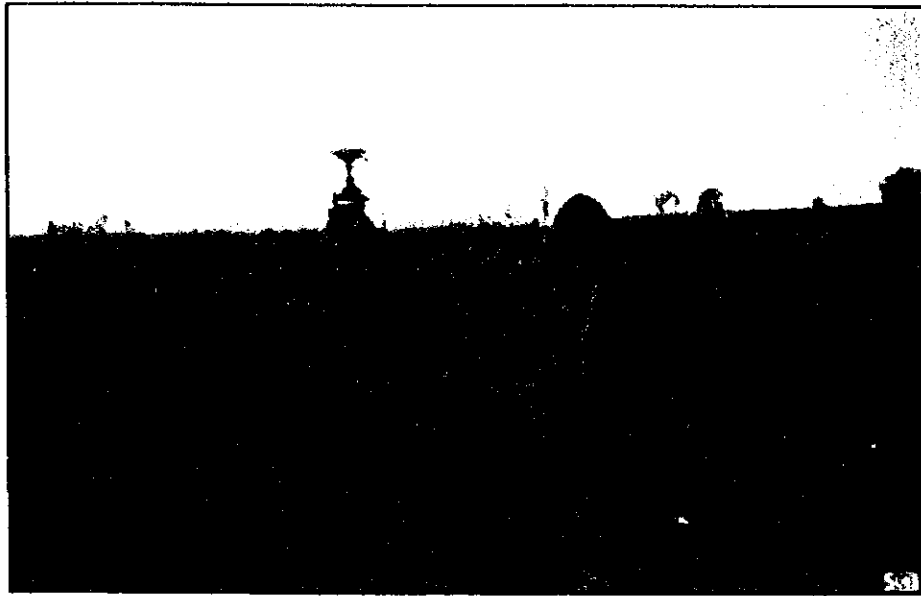
E = 352199.4551 metres

N = 3144235.3576 metres

RL = 173.572 metres

Northing & Easting based on GPS Survey WGS 84 and UTM coordinates (Zone 44)

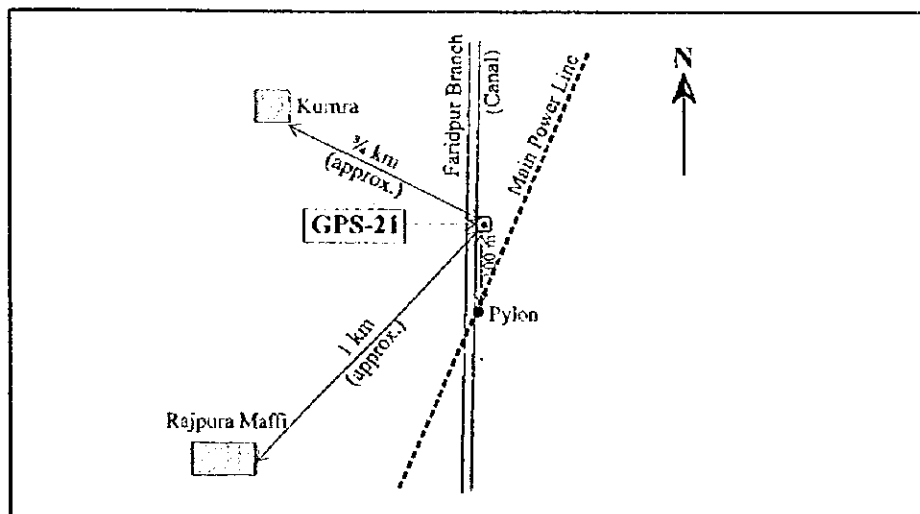
Reduced levels based on one reference BM value (170.600 m) situated near Parsakhera Railway Station, provided by JICA study team.



### DESCRIPTION OF GPS-21

An Iron rod 10 mm dia in the centre of a cemented concrete pillar of 35 cm height, embedded in the ground. It exists on East side of Faridpura Branch (canal), about 100 m north of a pylon of main power line. It is situated about 3/4 km SE of village Kumra and about 1 km NE of village Rejpura Maffi

### SKETCH OF GPS-21 (Not to Scale)



**BAREILLY BYPASS SURVEY  
DETAIL OF CONTROL POINTS**

**CONTROL POINT NUMBER:- GPS-21A**

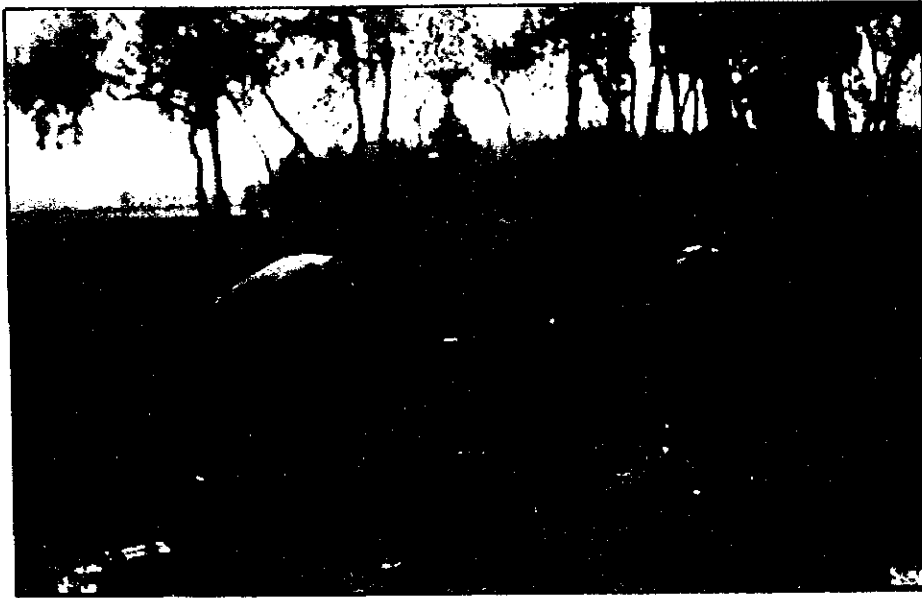
**E = 351967.6687 metres**

**N = 3144309.0745 metres**

**RL = 172.640 metres**

**Northing & Easting based on GPS Survey WGS 84 and UTM coordinates (Zone 44)**

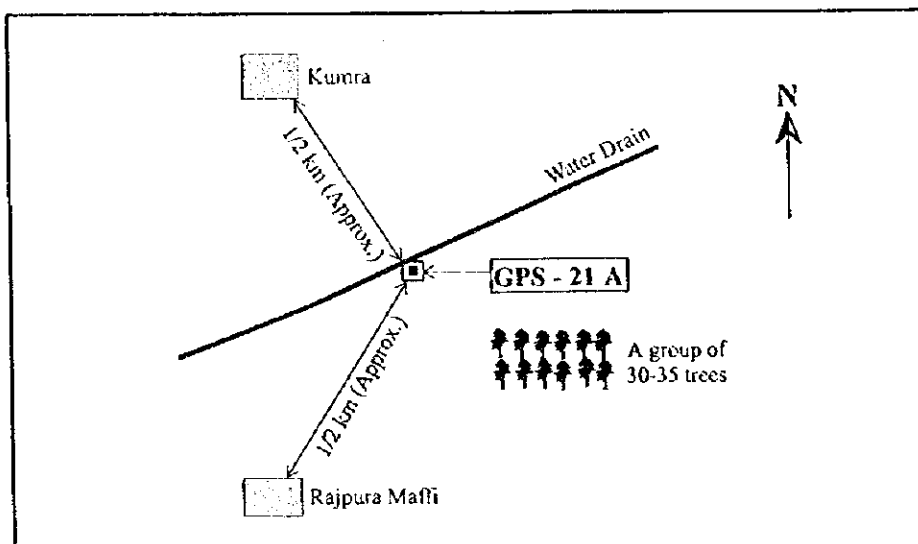
**Reduced levels based on one reference BM value (170.600 m) situated near Parsakhera Railway Station, provided by JICA study team.**



**DESCRIPTION OF GPS-21A**

An Iron rod 10 mm dia in the centre of a cemented concrete pillar of 35 cm height, embedded in the ground. It exists on South bond of a water drain. A group of 30-35 trees exists in the East side of the control point. The control point is situated about ½ km SE of village Kumra & about ½ km NE of village Rajpura Maffi.

**SKETCH OF GPS-21A (Not to Scale)**



## BAREILLY BYPASS SURVEY DETAIL OF CONTROL POINTS

CONTROL POINT NUMBER:- GPS-22

E = 352798.3903 metres

N = 3144147.9187 metres

RL = 174.169 metres

Northing & Easting based on GPS Survey WGS 84 and UTM coordinates (Zone 44)

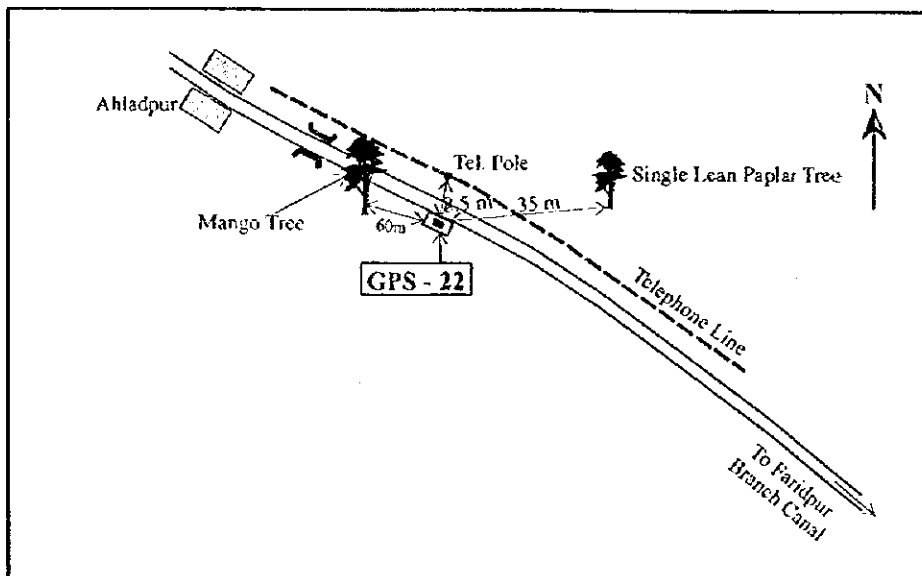
Reduced levels based on one reference BM value (170.600 m) situated near Parsakhera Railway Station, provided by JICA study team.



### DESCRIPTION OF GPS-22

An Iron rod 10 mm dia in the centre of a cemented concrete pillar of 35 cm height, embedded in the ground. It exists on south side of a road leading from village Ahladpur to Faridpur branch canal, 8.5 m South of a telephone pole, 35 metres West of a single lean, paplar tree and 60 m East of a mango tree. The control point is situated about 3/4 km SE of village Ahladpur.

### SKETCH OF GPS-22 (Not to Scale)



## BAREILLY BYPASS SURVEY DETAIL OF CONTROL POINTS

CONTROL POINT NUMBER:- GPS-23

E = 352660.5732 metres

N = 3142868.3435 metres

RL = 172.105 metres

Northing & Easting based on GPS Survey WGS 84 and UTM coordinates (Zone 44)

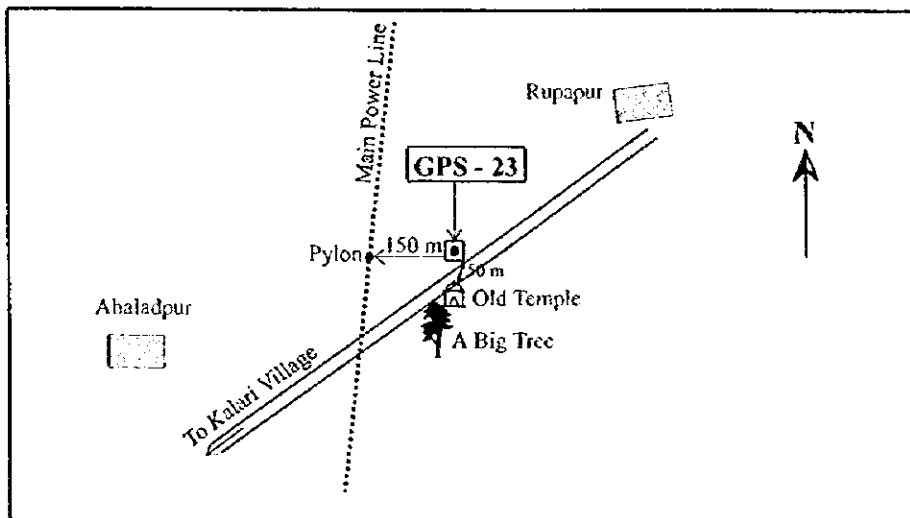
Reduced levels based on one reference BM value (170.600 m) situated near Parsakhera Railway Station, provided by JICA study team.



### DESCRIPTION OF GPS-23

An Iron rod 10 mm dia in the centre of a cemented concrete pillar of 35 cm height, embedded in the ground. It exists on west side of Kalari-Rupapur road, about 50 m North of an old temple and a big tree, and about 150 m, East of a main power line pylon. The control point exists about 1 km NE of village Ahaladpur and about 1 km SW of Rupapur.

### SKETCH OF GPS-23 (Not to Scale)



## BAREILLY BYPASS SURVEY DETAIL OF CONTROL POINTS

CONTROL POINT NUMBER:- GPS-24

E = 353326.8463 metres

N = 3141206.1965 metres

RL = 171.156 metres

Northing & Easting based on GPS Survey WGS 84 and UTM coordinates (Zone 44)

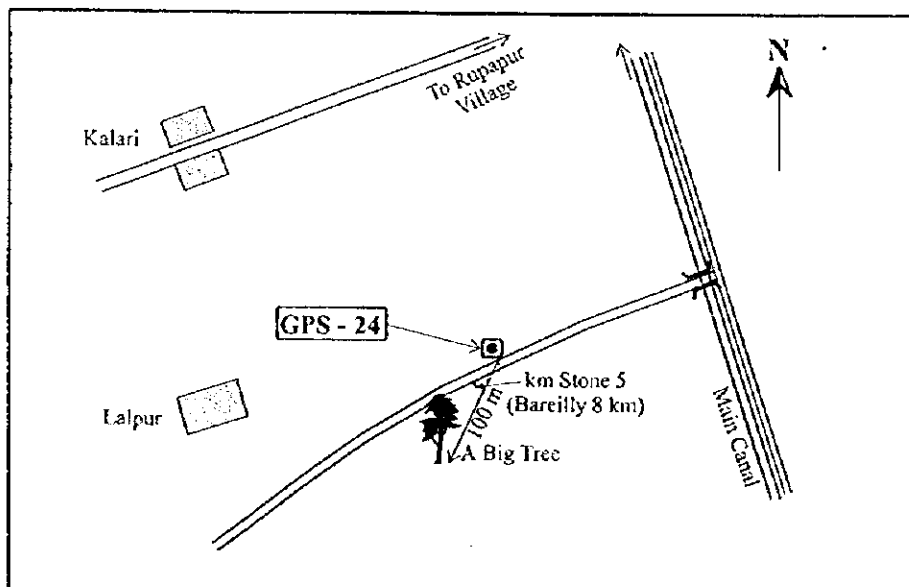
Reduced levels based on one reference BM value (170.600 m) situated near Parsakhera Railway Station, provided by JICA study team.



### DESCRIPTION OF GPS-24

An Iron rod 10 mm dia in the centre of a cemented concrete pillar of 35 cm height, embedded in the ground. It exists on west side of a road leading from Rupapur village, about 100 m North of a big tree. The control point is situated about 1 km SE of Kalari village and about 1 km NE of Lalpur village.

### SKETCH OF GPS-24 (Not to Scale)



## BAREILLY BYPASS SURVEY DETAIL OF CONTROL POINTS

CONTROL POINT NUMBER:- GPS-25

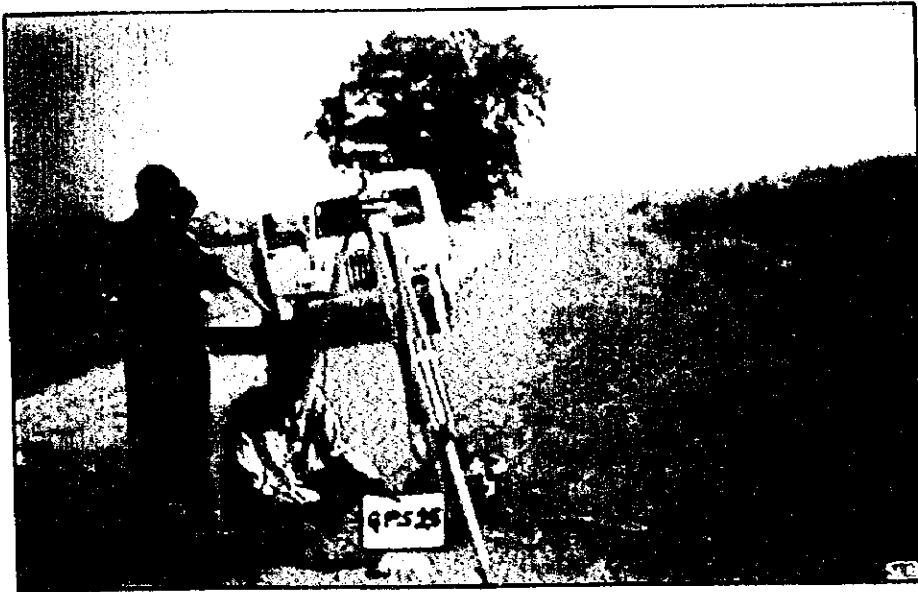
E = 353050.9259 metres

N = 3141043.4277 metres

RL = 170.886 metres

Northing & Easting based on GPS Survey WGS 84 and UTM coordinates (Zone 44)

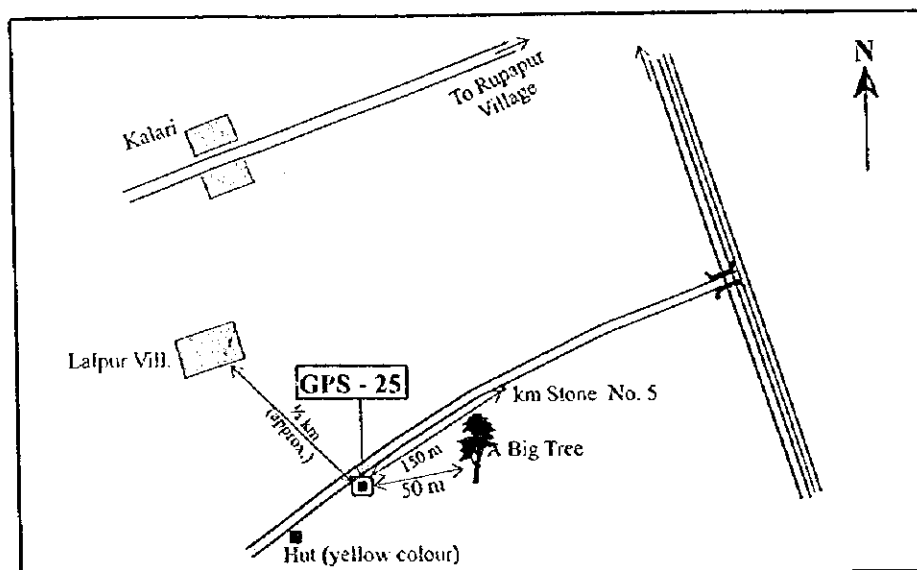
Reduced levels based on one reference BM value (170.600 m) situated near Parsakhera Railway Station, provided by JICA study team.



### DESCRIPTION OF GPS-25

An iron rod 10 mm dia in the centre of a cemented concrete pillar of 35 cm height, embedded in the ground. It exists on South side of a road leading from Rupapur village, about 50 m west of a big tree. The control point is situated about  $\frac{1}{2}$  km SE of village Lalpur and about 150 m SW of km stone No. 5.

### SKETCH OF GPS-25 (Not to Scale)



## BAREILLY BYPASS SURVEY DETAIL OF CONTROL POINTS

CONTROL POINT NUMBER:- GPS-26

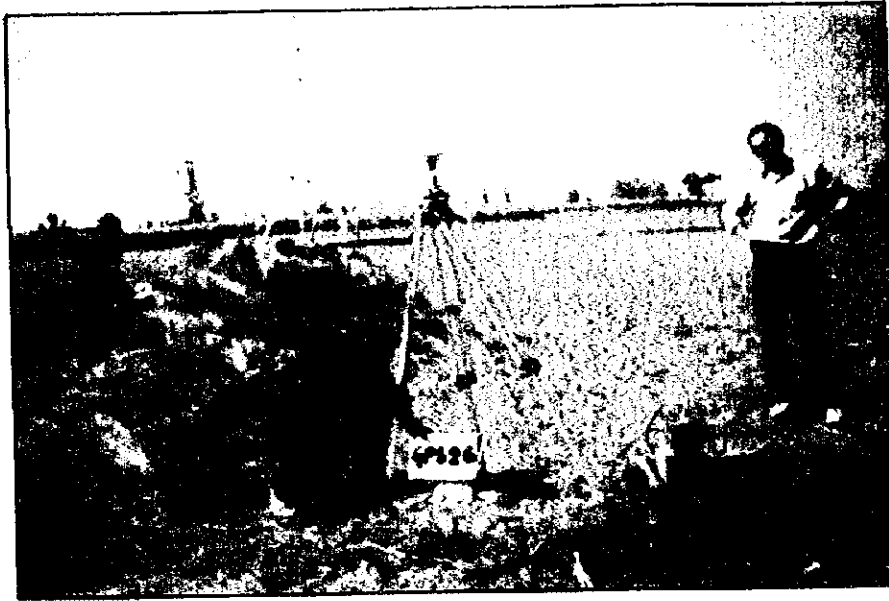
E = 352596.9659 metres

N = 3139530.0284 metres

RL = 169.377 metres

Northing & Easting based on GPS Survey WGS 84 and UTM coordinates (Zone 44)

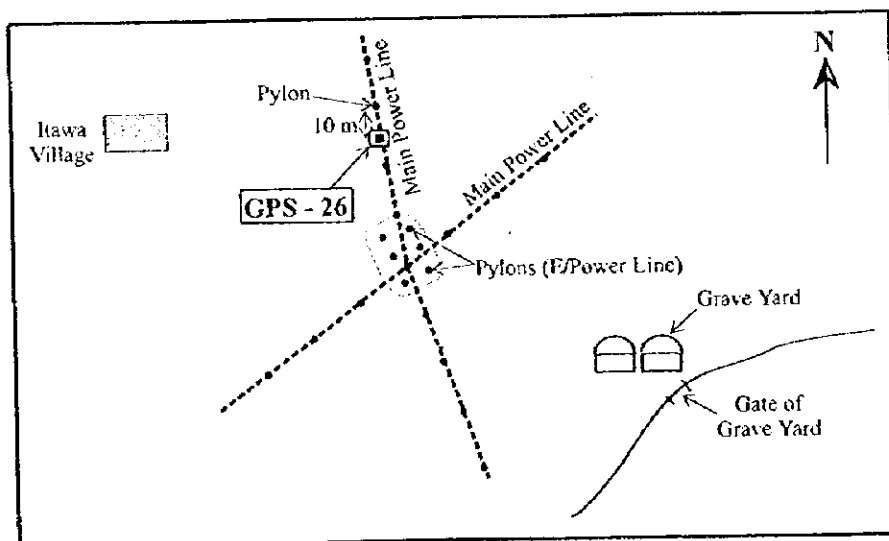
Reduced levels based on one reference BM value (170.600 m) situated near Parsakhhera Railway Station, provided by JICA study team.



### DESCRIPTION OF GPS-26

An Iron rod 10 mm dia in the centre of a cemented concrete pillar of 35 cm height, embedded in the ground. It exists on a field bond under a main power line, about 10 m South of the power line pylon. It is situated about ½ km, East of village Itawa and NW side of mazar (graveyard). Approach is from graveyard's gate.

### SKETCH OF GPS-26 (Not to Scale)



## BAREILLY BYPASS SURVEY DETAIL OF CONTROL POINTS

CONTROL POINT NUMBER:- GPS-27

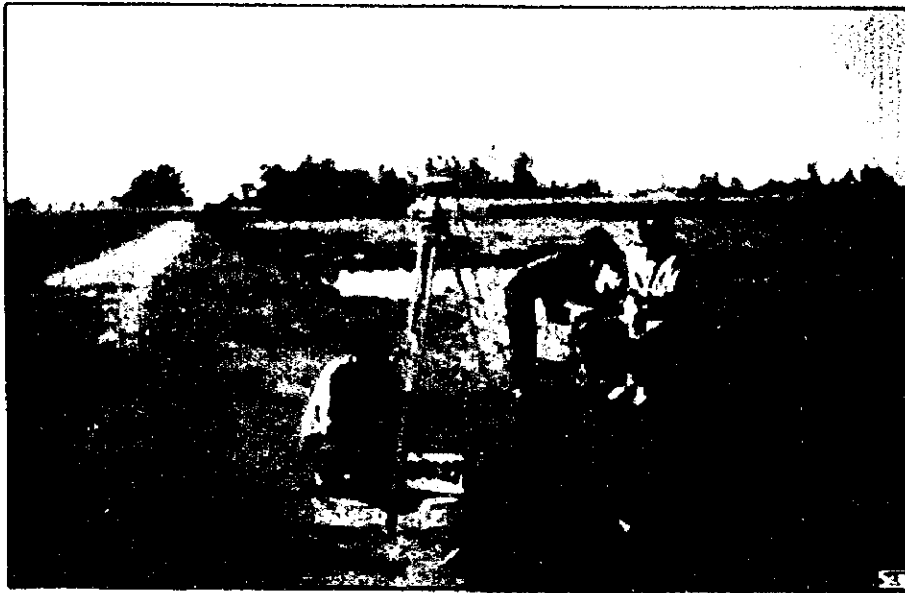
E = 352674.5499 metres

N = 3138930.0090 metres

RL = 169.829 metres

Northing & Easting based on GPS Survey WGS 84 and UTM coordinates (Zone 44)

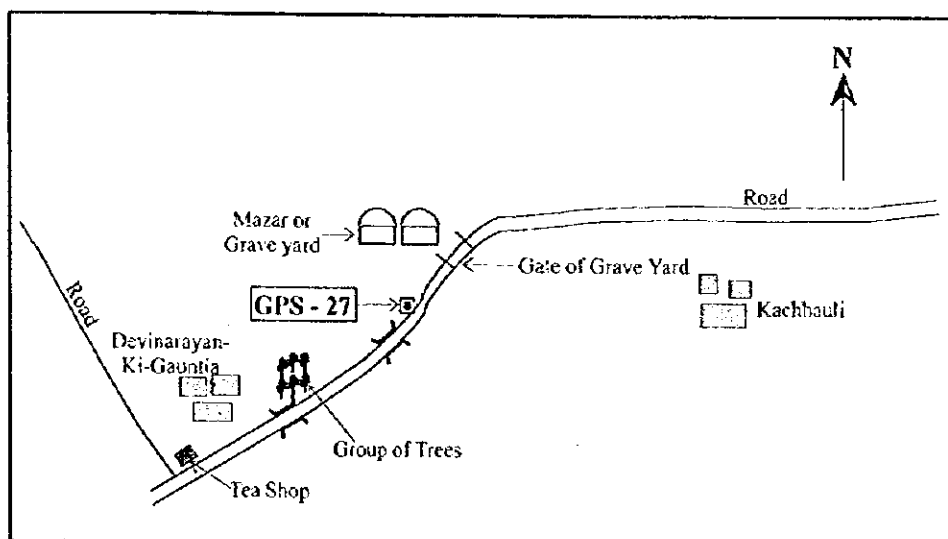
Reduced levels based on one reference BM value (170.600 m) situated near Parsakhera Railway Station, provided by JICA study team.



### DESCRIPTION OF GPS-27

An Iron rod 10 mm dia in the centre of a cemented concrete pillar of 35 cm height, embedded in the ground. It exists on west side of main road leading from Devinarayan-ki-Gauntia to Kachhauri village, just near the road culvert. A graveyard exists north of the control point. The control point is situated, about ½ km NE of village Devinarayan-ki-Gauntia and 1 km west of village Kachhauri.

### SKETCH OF GPS-27 (Not to Scale)





## BAREILLY BYPASS SURVEY DETAIL OF CONTROL POINTS

CONTROL POINT NUMBER:- GPS-28

E = 352644.0806 metres

N = 3138578.2552 metres

RL = 170.294 metres

Northing & Easting based on GPS Survey WGS 84 and UTM coordinates (Zone 44)

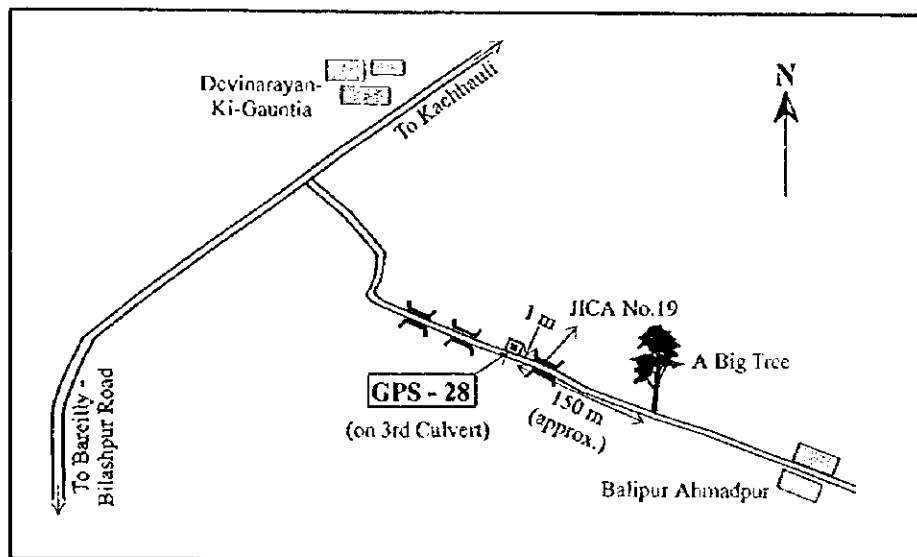
Reduced levels based on one reference BM value (170.600 m) situated near Parsakhera Railway Station, provided by JICA study team.



### DESCRIPTION OF GPS-28

An Iron rod 10 mm dia in the centre of a cemented concrete pillar of 35 cm height, embedded in the ground. It exists on north side of road leading to Balipur-Ahmadpur, about 1 m West of road culvert and about 150 m West of a big tree (on North side of the same road). The control point is situated about 3/4 km SE of village Devinarayan-ki-Gauntia and about 1 km West of village Balipur-Ahmadpur.

### SKETCH OF GPS-28 (Not to Scale)



## BAREILLY BYPASS SURVEY DETAIL OF CONTROL POINTS

CONTROL POINT NUMBER:- GPS-29

E = 352763.5904 metres

N = 3137316.7819 metres

RL = 169.819 metres

Northing & Easting based on GPS Survey WGS 84 and UTM coordinates (Zone 44)

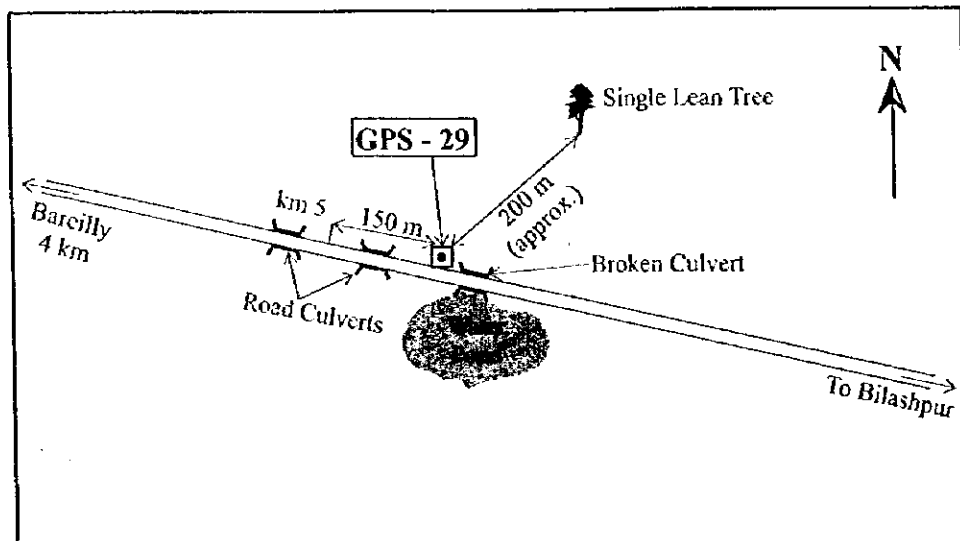
Reduced levels based on one reference BM value (170.600 m) situated near Parsakhera Railway Station, provided by JICA study team.



### DESCRIPTION OF GPS-29

An Iron rod 10 mm dia in the centre of a cemented concrete pillar of 35 cm height, embedded in the ground. It exists on North side of Bareilly-Bilashpur road, about 150 m ahead of km stone No. 5 (from Bareilly) and 1.5 m West of a broken culvert. A single lean tree is existing about 200 m NE of the control point.

### SKETCH OF GPS-29 (Not to Scale)



## BAREILLY BYPASS SURVEY DETAIL OF CONTROL POINTS

CONTROL POINT NUMBER:- GPS-30

E = 352591.6107 metres

N = 3135048.3166 metres

RL = 170.458 metres

Northing & Easting based on GPS Survey WGS 84 and UTM coordinates (Zone 44)

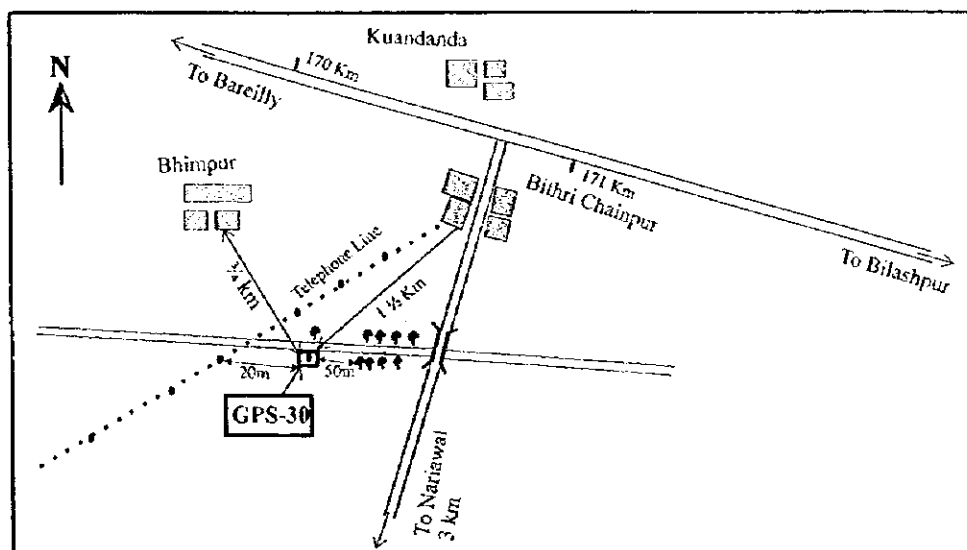
Reduced levels based on one reference BM value (170.600 m) situated near Parsakhera Railway Station, provided by JICA study team.



### DESCRIPTION OF GPS-30

An Iron rod 10 mm dia in the centre of a cemented concrete pillar of 35 cm height, embedded in the ground. It exists on South side of canal & West side of Kuandanda-Nariawal road, about 20 m East of a telephone line and about 50m West of a group of trees (4 trees). The control point is situated about 3/4 km SE of Bhimpur village and 1½ km SW of Bithri Chainpur village.

### SKETCH OF GPS-30 (Not to Scale)



## BAREILLY BYPASS SURVEY DETAIL OF CONTROL POINTS

CONTROL POINT NUMBER:- GPS-31

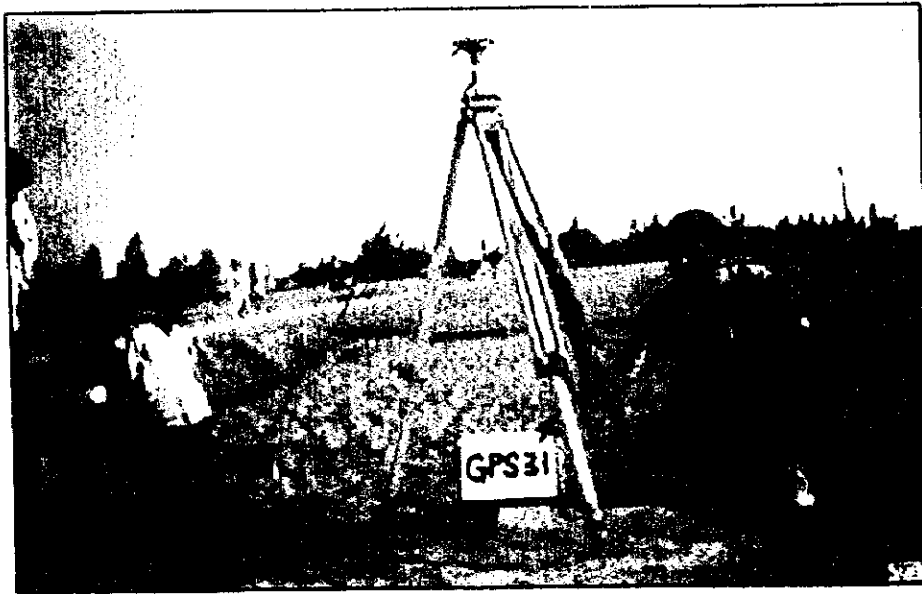
E = 352500.6194 metres

N = 3133007.8810 metres

RL = 167.652 metres

Northing & Easting based on GPS Survey WGS 84 and UTM coordinates (Zone 44)

Reduced levels based on one reference BM value (170.600 m) situated near Parsakhera Railway Station, provided by JICA study team.

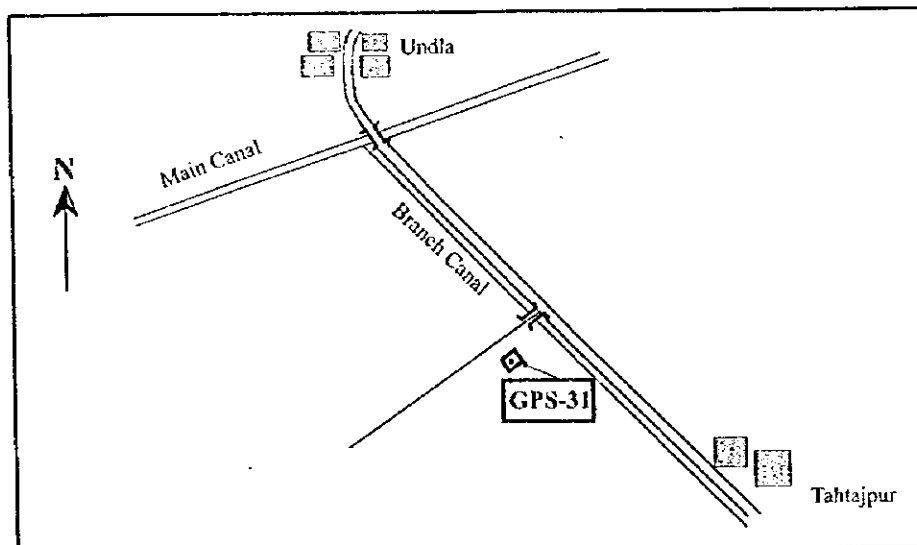


### DESCRIPTION OF GPS-31

An Iron rod 10 mm dia in the centre of a cemented concrete pillar of 35 cm height, embedded in the ground. It exists on South side of a village road and West of Undla-Tahtajpur road, very near to a culvert over a branch canal. The control point is situated about 1 km south of village Undla and about 1 km west of village Tahtajpur.

### SKETCH OF GPS-31 (Not to Scale)

c



## BAREILLY BYPASS SURVEY DETAIL OF CONTROL POINTS

**CONTROL POINT NUMBER:- GPS-32**

**E = 352403.9794 metres**

**N = 3131016.0385 metres**

**RL = 167.169 metres**

Northing & Easting based on GPS Survey WGS 84 and UTM coordinates (Zone 44)

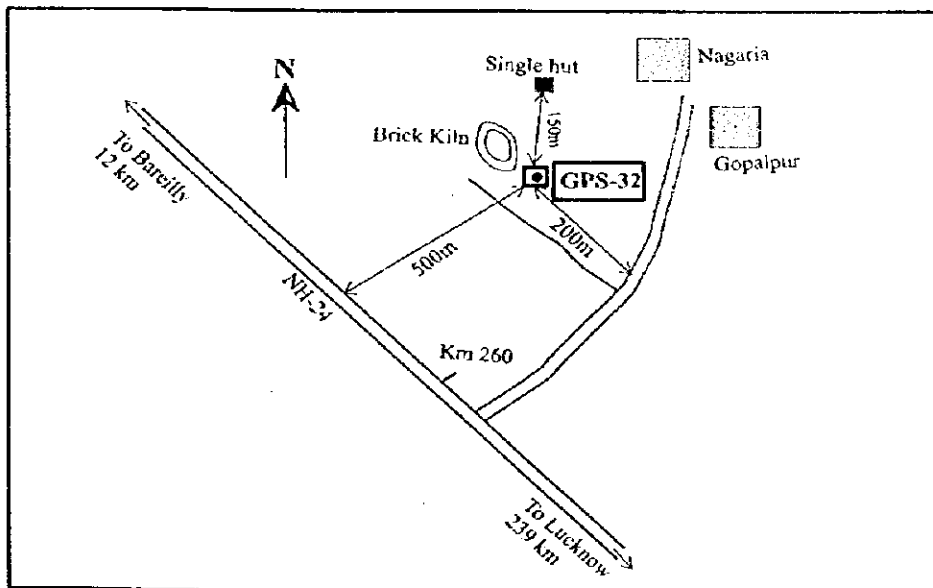
Reduced levels based on one reference BM value (170.600 m) situated near Parsakhera Railway Station, provided by JICA study team.



### DESCRIPTION OF GPS-32

An Iron rod 10 mm dia in the centre of a cemented concrete pillar of 35 cm height, embedded in the ground. It exists on a small elevated ground very near to a brick kiln, towards eastern side, about 150 m south of a single hut, 200 m west of a road leading from NH 24 to villages Gopalpur & Nagaria. It is situated about 1 km SW of Gopalpur and Nagaria villages and 500 m away from NH 24.

### SKETCH OF GPS-32 (Not to Scale)



**BAREILLY BYPASS SURVEY  
DETAIL OF CONTROL POINTS**

**CONTROL POINT NUMBER:- GPS-33**

**E = 352245.2040 metres**

**N = 3130323.3026 metres**

**RL = 167.299 metres**

Northing & Easting based on GPS Survey WGS 84 and UTM coordinates (Zone 44)

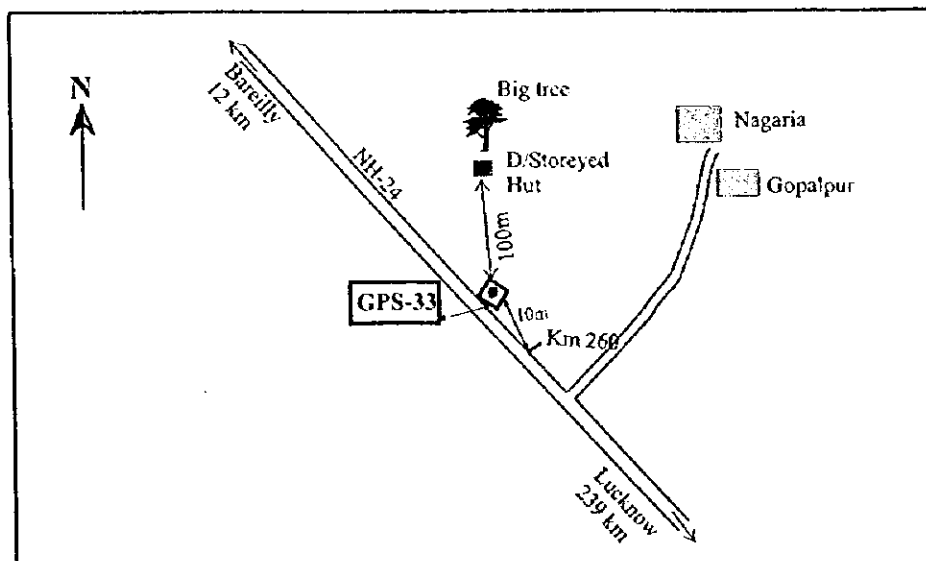
Reduced levels based on one reference BM value (170.600 m) situated near Parsakhera Railway Station, provided by JICA study team.



**DESCRIPTION OF GPS-33**

An Iron rod 10 mm dia in the centre of a cemented concrete pillar of 35 cm height, embedded in the ground. It exists on north side of NH No.24, about 10 m away from km stone No.260 from Delhi, and 100 m south of a double storied hut and single big tree, behind the hut. The control point is situated about 1 km south west of Nagaria-Gopalpur villages.

**SKETCH OF GPS-33 (Not to Scale)**



## BAREILLY BYPASS SURVEY DETAIL OF CONTROL POINTS

**CONTROL POINT NUMBER:- GPS-34**

**E = 352334.9029 metres**

**N = 3130181.9417 metres**

**RL = 166.888 metres**

Northing & Easting based on GPS Survey WGS 84 and UTM coordinates (Zone 44)

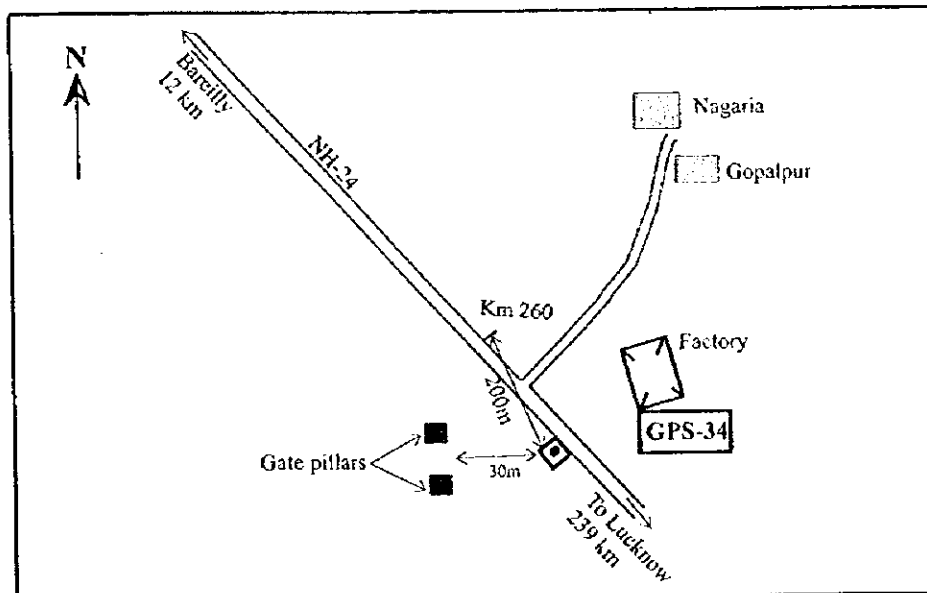
Reduced levels based on one reference BM value (170.600 m) situated near Parsakhera Railway Station, provided by JICA study team.



### DESCRIPTION OF GPS-34

An Iron rod 10 mm dia in the centre of a cemented concrete pillar of 35 cm height, embedded in the ground. It exists on south side of NH No.24, about 200m SE of km stone No.260 from Delhi, on NH 24 and 30 m E of two gate pillars. It is situated about 1 km south of villages - Nagaria and Gopalpur.

### SKETCH OF GPS-34 (Not to Scale)







**A14-2**

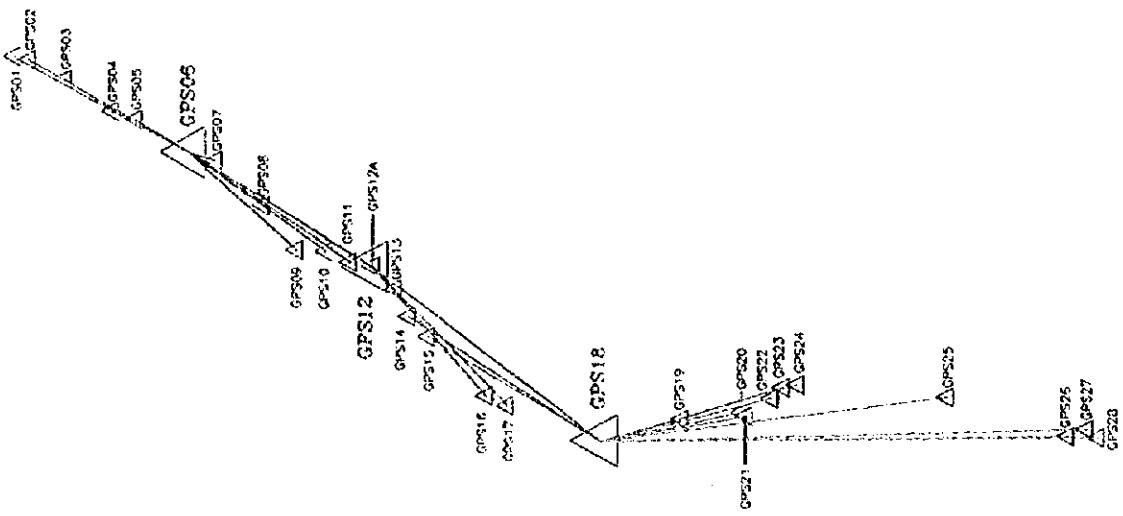
***Survey Control Points in Gwalior Bypass***



**GWALIOR BYPASS SURVEY  
CONTROL STATIONS**

STATION NO.	EASTING	NORTHING	HEIGHT (Ellipsoidal meters)	HEIGHT (Orthometric meters.)
GPS01	211883.9434	2914247.0691	127.4332	191.390
GPS02	211825.8533	2913935.9235	129.1125	193.056
GPS03	211434.9915	2913195.1501	130.2013	194.141
GPS04	210790.9187	2912216.2976	132.4109	196.304
GPS05	210626.7268	2911724.3284	132.9779	196.868
GPS06	209956.5035	2910597.9447	142.0003	205.887
GPS07	209798.9839	2910035.6986	141.0453	204.918
GPS08	208877.3117	2909093.2988	139.6429	203.502
GPS09	207970.9886	2908402.4779	140.9255	204.743
GPS10	207954.1555	2907799.7451	138.3818	202.184
GPS11	207732.8402	2907283.7122	144.4534	208.235
GPS12	207641.7614	2906858.9662	144.7154	208.556
GPS12A	207658.9136	2906831.5933	143.2761	207.128
GPS13	207200.1708	2906373.5035	161.9436	225.768
GPS14	206636.9415	2906094.6662	156.2496	220.115
GPS15	206231.8007	2905687.1189	155.1166	218.955
GPS16	205033.3416	2904478.8722	167.0106	230.688
GPS17	204837.3237	2904037.2039	168.5421	232.325
GPS18	204134.6323	2902112.9775	182.6455	246.376
GPS19	204600.4482	2900482.9874	211.9430	275.693
GPS20	204755.3909	2899230.2524	232.9080	296.681
GPS21	204677.6408	2899145.9613	233.5286	297.283
GPS22	205041.3415	2898625.2665	243.0252	306.810
GPS23	205279.0454	2898400.5231	247.7990	311.547
GPS24	205342.3289	2898113.2013	250.0606	313.758
GPS25	205121.8591	2895050.6887	230.3393	294.050
GPS26	204347.0411	2892567.8714	221.0594	284.529
GPS27	204496.0053	2892182.7501	226.0205	288.440
GPS28	204330.0774	2891955.1600	226.5510	290.169

**Note:** Orthometric heights are based on one Reference BM (RL 203.719 m) as provided by JICA Study Team.



GWALIOR BYPASS SURVEY GPS CONTROL STATIONS  
SCHEMATIC DIAGRAM

## GWALIOR BYPASS SURVEY DETAIL OF CONTROL POINTS

**CONTROL POINT NUMBER:- GPS-1**

**E = 211883.9434 metres**

**N = 2914247.0691 metres**

**RL = 191.390 metres**

Northing & Easting based on GPS Survey WGS 84 and UTM coordinates (Zone 44)

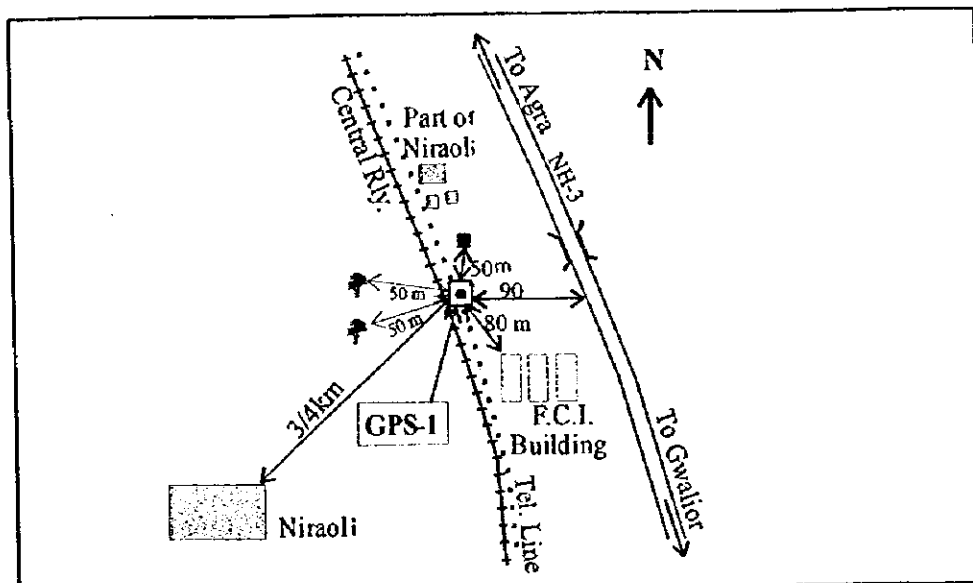
Reduced levels based on one reference BM value (203.719) situated on culvert on track connecting Kulaith & Purjabipura, approximately one km from Kulaith between GPS 9 and GPS 10



### DESCRIPTION OF GPS-1

An Iron rod 10 mm dia in the centre of a cemented concrete pillar of 35 cm height, embedded in the ground. It exists on East side of railway line, about 90 m West of NH-3, 50 m South of a single hut, 80 m NW of F.C.I.'s boundary wall, and 50 m East of two single trees. The control point is situated about 3/4 km NE of village Niraoli.

### SKETCH OF GPS-1 (Not to Scale)



**GWALIOR BYPASS SURVEY  
DETAIL OF CONTROL POINTS**

**CONTROL POINT NUMBER:- GPS-2**

**E = 211825.8533 metres**

**N = 2913935.9235 metres**

**RL = 193.056 metres**

Northing & Easting based on GPS Survey WGS 84 and UTM coordinates (Zone 44)

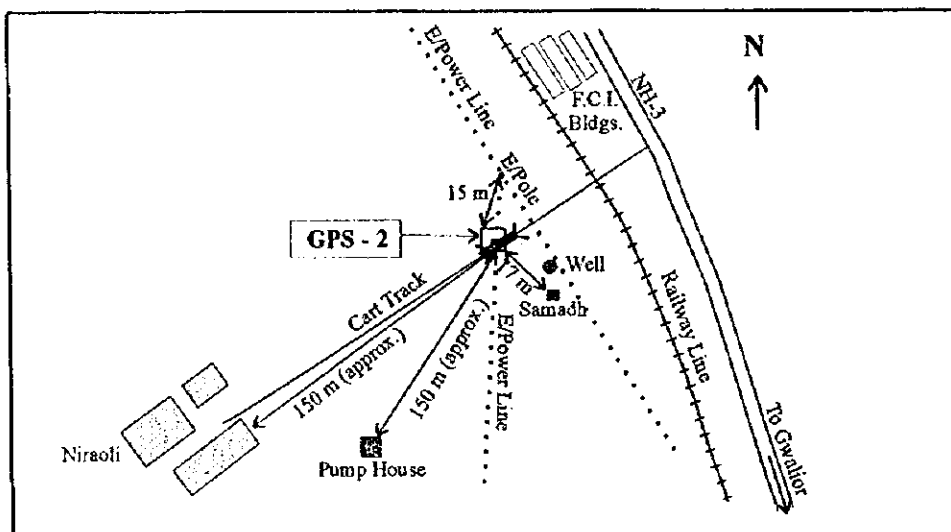
Reduced levels based on one reference BM value (203.719) situated on culvert on track connecting Kulaith & Pur jabipura, approximately one km from Kulaith between GPS 9 and GPS 10



**DESCRIPTION OF GPS-2**

It exists on top of North parapet of a culvert of cart track leading from NH-3 to village Niraoli, 15 m South of double E/pole, and 17 m NW of a samadhi. The control point is situated about 150 m East of village Niraoli.

**SKETCH OF GPS-2 (Not to Scale)**



## GWALIOR BYPASS SURVEY DETAIL OF CONTROL POINTS

**CONTROL POINT NUMBER:- GPS-3**

**E = 211434.9915 metres**

**N = 2913195.1501 metres**

**RL = 194.141 metres**

Northing & Easting based on GPS Survey WGS 84 and UTM coordinates (Zone 44)

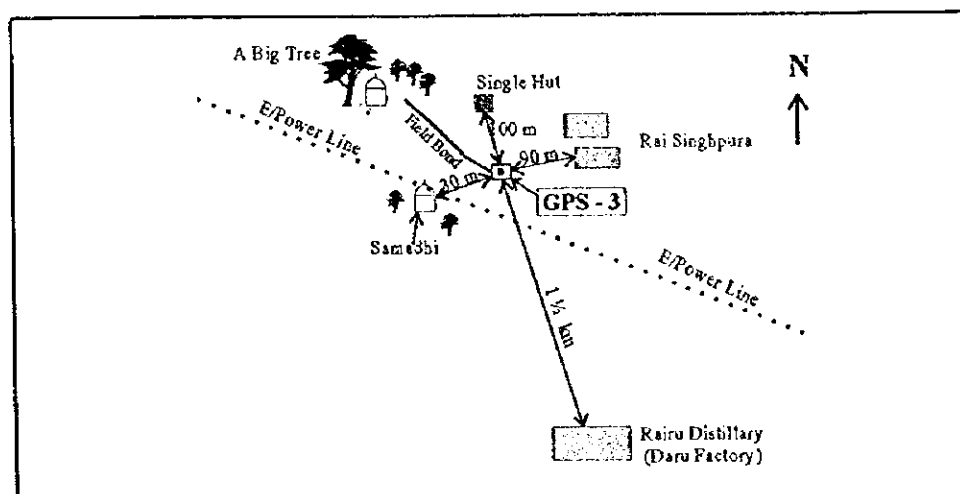
Reduced levels based on one reference BM value (203.719) situated on culvert on track connecting Kulaith & Purjabipura, approximately one km from Kulaith between GPS 9 and GPS 10



### DESCRIPTION OF GPS-3

An Iron rod 10 mm dia in the centre of a cemented concrete pillar of 35 cm height, embedded in the ground. It exists near the end point of a field bund, about 90 m West of Rai Singhpara, about 100 m South of a single hut and 30 m East of a samadhi. The control point is situated about 1½ km North of Rairu Distillery.

### SKETCH OF GPS-3 (Not to Scale)



## GWALIOR BYPASS SURVEY DETAIL OF CONTROL POINTS

**CONTROL POINT NUMBER:- GPS-4**

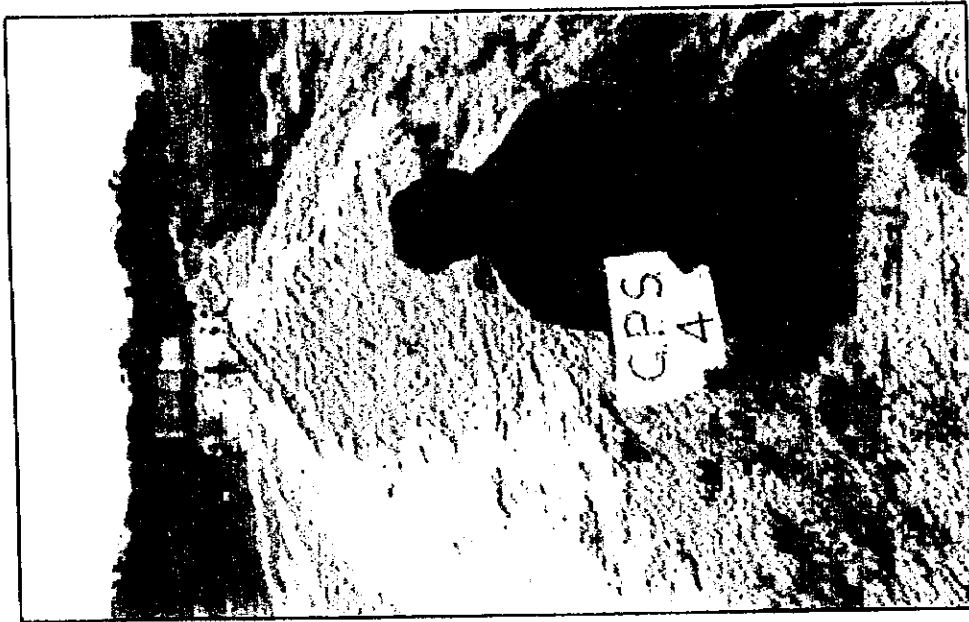
**E = 210790.9187 metres**

**N = 2912216.2976 metres**

**RL = 196.304 metres**

Northing & Easting based on GPS Survey WGS 84 and UTM coordinates (Zone 44)

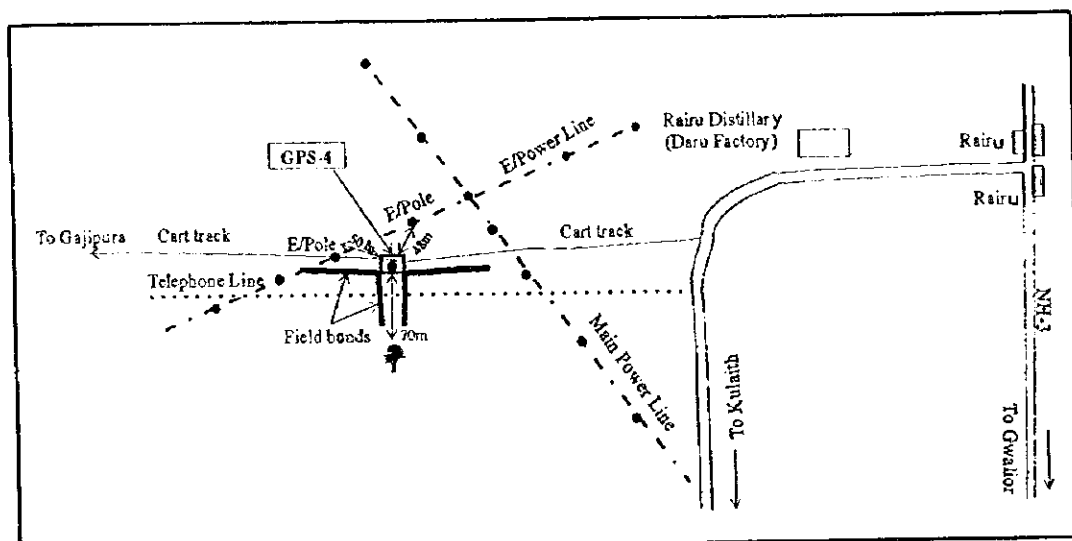
Reduced levels based on one reference BM value (203.719) situated on culvert on track connecting Kulaith & Punjabipura, approximately one km from Kulaith between GPS 9 and GPS 10



### DESCRIPTION OF GPS-4

An Iron rod 10 mm dia in the centre of a cemented concrete pillar of 35 cm height, embedded in the ground. It exists on top of a field bund turning, just South side of a cart track, leading from Rairu-Kulaith road to village Gajipura 48 m and 50 m from two E/poles and 70 m North of a single tree. The control point is situated about 250 m SW of Rairu Distillery.

### SKETCH OF GPS-4 (Not to Scale)





## GWALIOR BYPASS SURVEY DETAIL OF CONTROL POINTS

**CONTROL POINT NUMBER:-      GPS-5**

**E = 210626.7268 metres**

**N = 2911724.3284 metres**

**RL = 196.868 metres**

Northing & Easting based on GPS Survey WGS 84 and UTM coordinates (Zone 44)

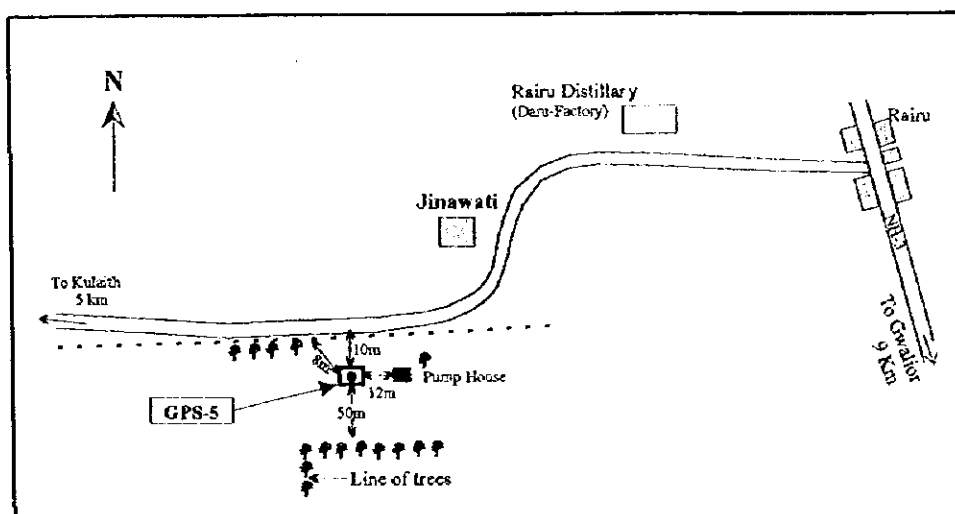
Reduced levels based on one reference BM value (203.719) situated on culvert on track connecting Kulaith & Pur jabipura, approximately one km from Kulaith between GPS 9 and GPS 10



### DESCRIPTION OF GPS-5

An Iron rod 10 mm dia in the centre of a cemented concrete pillar of 35 cm height, embedded in the ground. It exists 10 m south of Rairu-Kulaith road, 12 m West of a small hut (pump house), 8 m South East of a telephone pole and about 50 m North of a line of East trees. The control point is situated about ½ kms South West of village Jinawati, 1 km South West of Rairu Distillery (Daru factory) and about 2 km West of Rairu.

### SKETCH OF GPS-5 (Not to Scale)



## GWALIOR BYPASS SURVEY DETAIL OF CONTROL POINTS

**CONTROL POINT NUMBER:- GPS-6**

**E = 209956.5035 metres**

**N = 2910597.9447 metres**

**RL = 205.887 metres**

Northing & Easting based on GPS Survey **WGS 84** and **UTM** coordinates (Zone 44)

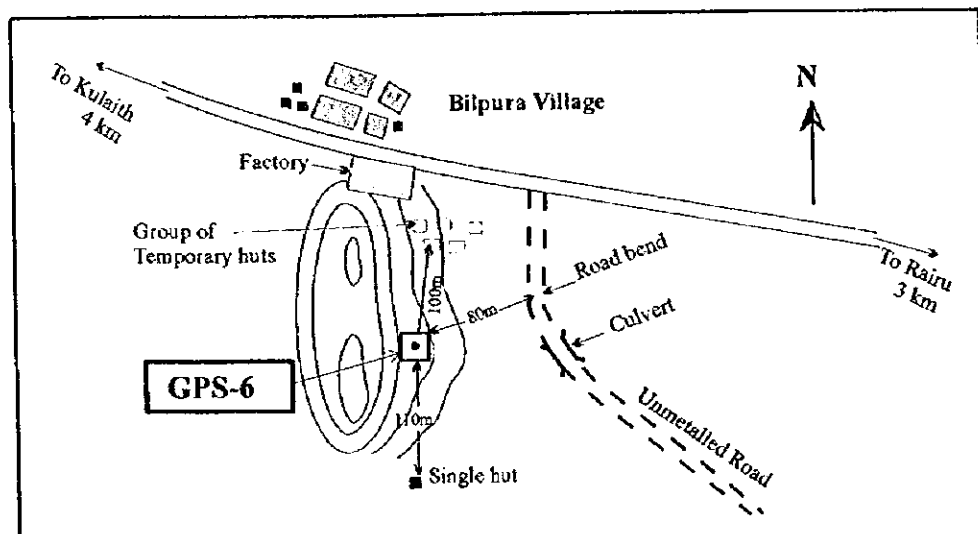
Reduced levels based on one reference BM value (203.719) situated on culvert on track connecting Kulaith & Purjabipura, approximately one km from Kulaith between GPS 9 and GPS 10



### DESCRIPTION OF GPS-6

An Iron rod 10 mm dia in the centre of a cemented concrete pillar of 35 cm height, embedded in the ground. It exist on slope of a long, North South hill, South of Rairu-Kulaith road, 80 m West of a unmetalled road bend and about 100 m South of a group of temporary huts of village Bilpura. The control point is situated about ½ km South of village Bilpura and about 3 km West of Rairu.

### SKETCH OF GPS-6 (Not to Scale)



## GWALIOR BYPASS SURVEY DETAIL OF CONTROL POINTS

**CONTROL POINT NUMBER:- GPS-7**

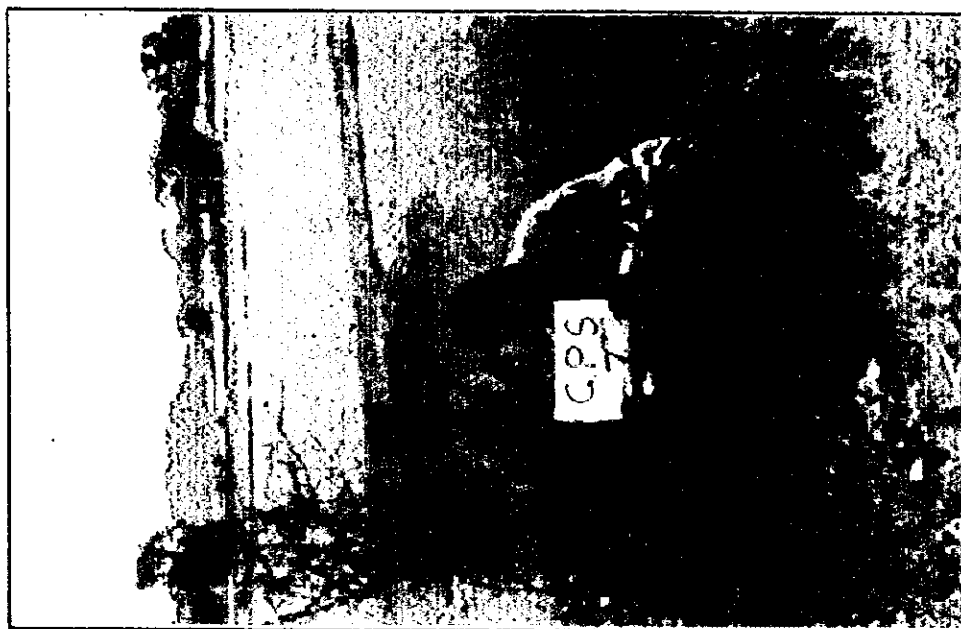
E = 209798.9839 metres

N = 2910035.6986 metres

RL = 204.918 metres

Nothing & Easting based on GPS Survey WGS 84 and UTM coordinates (Zone 44)

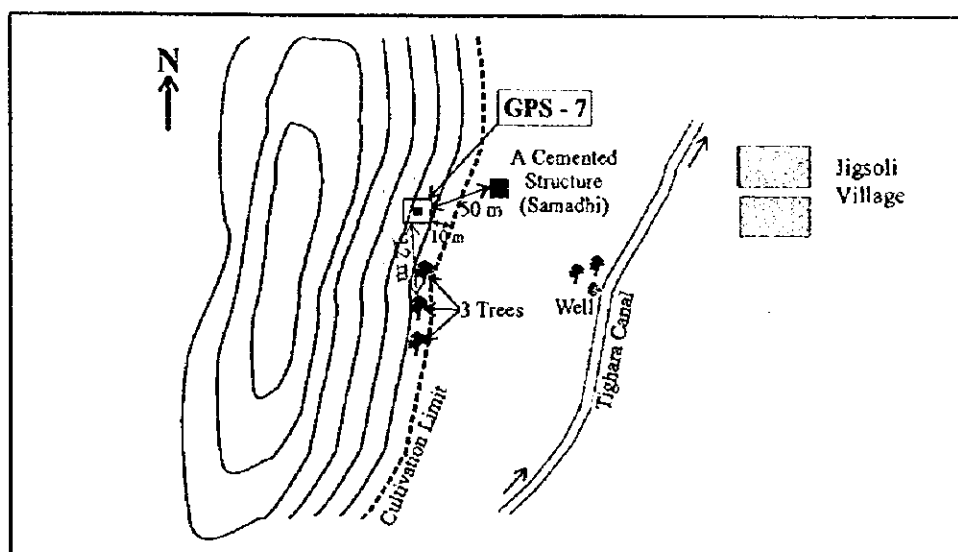
Reduced levels based on one reference BM value (203.719) situated on culvert on track connecting Kulaith & Purjabipura, approximately one km from Kulaith between GPS 9 and GPS 10



### DESCRIPTION OF GPS-7

An Iron rod 10 mm dia in the centre of a cemented concrete pillar of 35 cm height, embedded in the ground. It exists at the bottom of a North-South hill, just about (10 m) the cultivation limit and 12 m North of first tree (out of 3 trees). It is situated about 200 m West of Tighara canal and about ½ km West of village Jigsoli.

### SKETCH OF GPS-7 (Not to Scale)



## GWALIOR BYPASS SURVEY DETAIL OF CONTROL POINTS

**CONTROL POINT NUMBER:- GPS-8**

**E = 208877.3117 metres**

**N = 2909093.2988 metres**

**RL = 203.502 metres**

Northing & Easting based on GPS Survey WGS 84 and UTM coordinates (Zone 44)

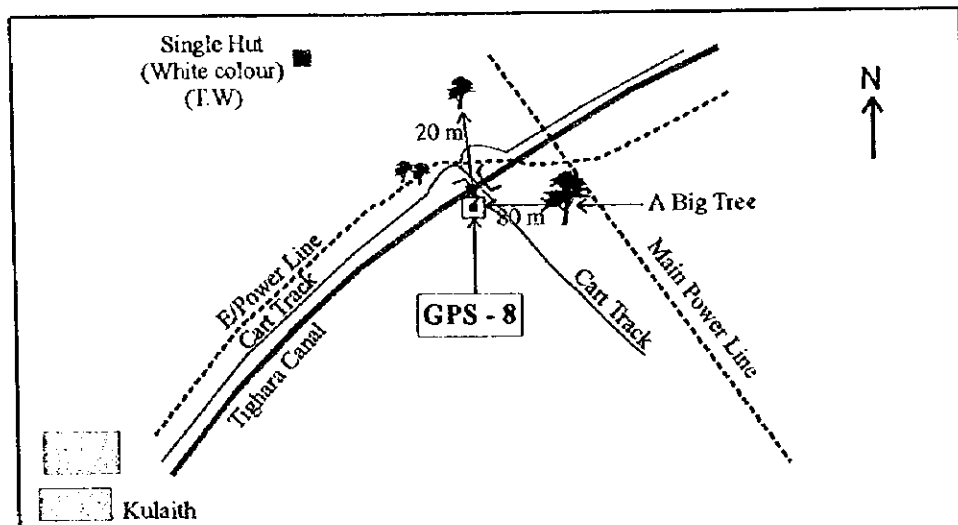
Reduced levels based on one reference BM value (203.719) situated on culvert on track connecting Kulaith & Punjabipura, approximately one km from Kulaith between GPS 9 and GPS 10



### DESCRIPTION OF GPS-8

It exists on the top of south portion of south parapet of a bridge over Tighara Canal, 20 m south of a single tree and about 80 West of a big tree. The control point is situated about 2 km NE of village Kulaith.

### SKETCH OF GPS-8 (Not to Scale)



## GWALIOR BYPASS SURVEY DETAIL OF CONTROL POINTS

**CONTROL POINT NUMBER:- GPS-9**

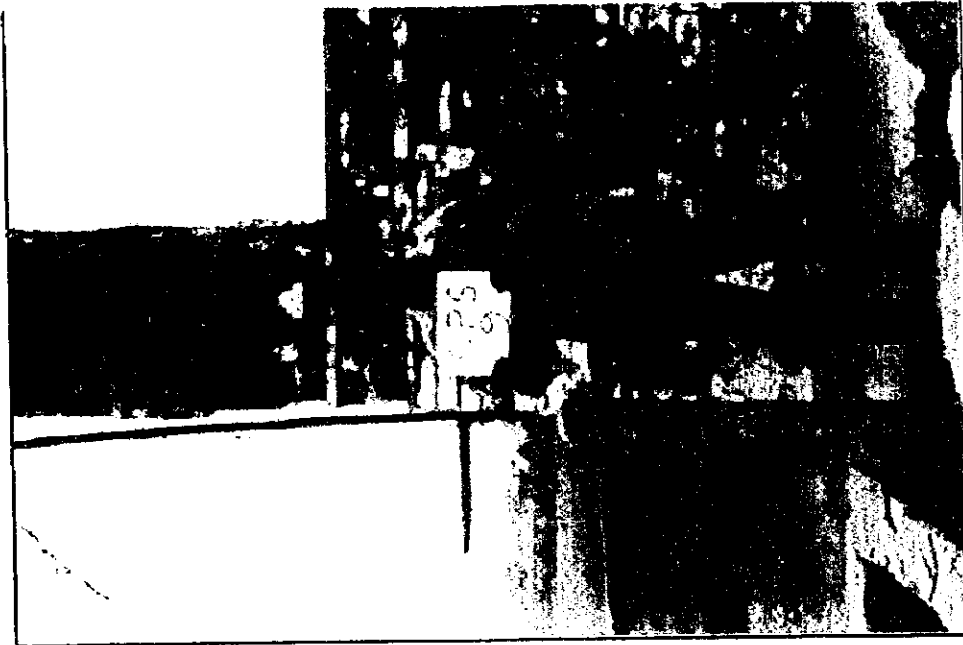
**E = 207970.9886 metres**

**N = 2908402.4779 metres**

**RL = 204.743 metres**

Northing & Easting based on GPS Survey WGS 84 and UTM coordinates (Zone 44)

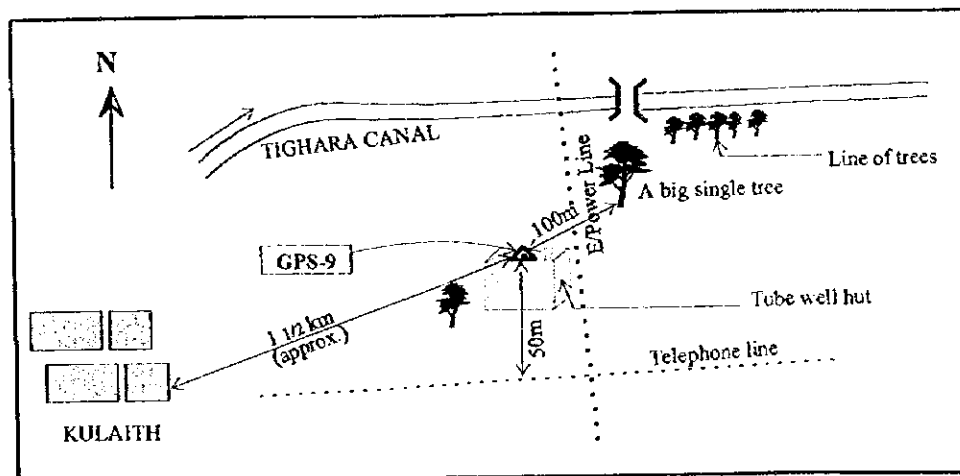
Reduced levels based on one reference BM value (203.719) situated on culvert on track connecting Kulaith & Punjabipura, approximately one km from Kulaith between GPS 9 and GPS 10



### DESCRIPTION OF GPS-9

It exists on top of a tube well hut (NW corner) (Pump House), about 50 m North of a telephone line and about 100 m SW of a very big tree. An electric power line passes just east side of the tube well hut. The control point is situated about 1½ km east of village Kulaith.

### SKETCH OF GPS-9 (Not to Scale)



## GWALIOR BYPASS SURVEY DETAIL OF CONTROL POINTS

**CONTROL POINT NUMBER:- GPS-10**

**E = 207954.1555 metres**

**N = 2907799.7451 metres**

**RL = 202.184 metres**

Northing & Easting based on GPS Survey WGS 84 and UTM coordinates (Zone 44)

Reduced levels based on one reference BM value (203.719) situated on culvert on track connecting Kulaith & Punjabipura, approximately one km from Kulaith between GPS 9 and GPS 10

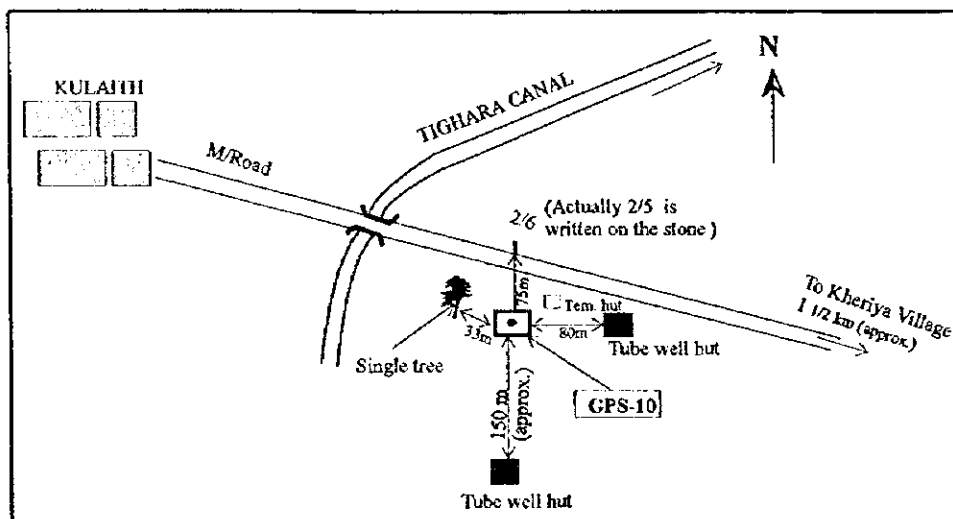


### DESCRIPTION OF GPS-10

An Iron rod 10 mm dia in the centre of a cemented concrete pillar of 35 cm height, embedded in the ground.

It exists 2.5 m West of a conical shaped temporary hut, about 75 m South of km stone No.2/6 (actually 2/5 is written on the stone) on Kulaith-Kheriya road, 33 m SE of a single tree and about 80 m West of a tube well hut. The control point is situated about 1/4 km SE of village Kulaith.

### SKETCH OF GPS-10 (Not to Scale)



**GWALIOR BYPASS SURVEY  
DETAIL OF CONTROL POINTS**

**CONTROL POINT NUMBER:- GPS-11**

**E = 207732.8402 metres**

**N = 2907283.7122 metres**

**RL = 208.235 metres**

Northing & Easting based on GPS Survey WGS 84 and UTM coordinates (Zone 44)

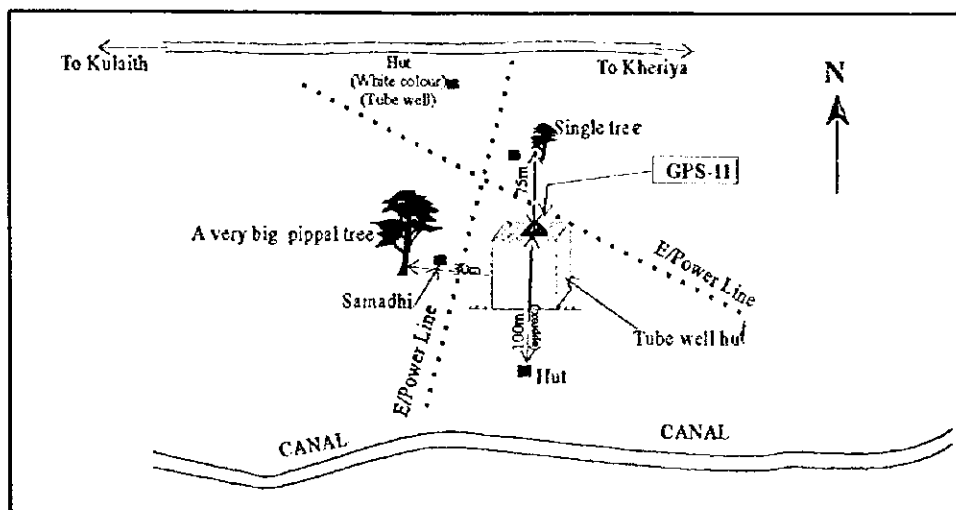
Reduced levels based on one reference BM value (203.719) situated on culvert on track connecting Kulaith & Punjabipura, approximately one km from Kulaith between GPS 9 and GPS 10



**DESCRIPTION OF GPS-11**

It exists on the top of a tube well hut (Pump House), south of Kulaith-Kheriya road, about 30 m East of a very big pipal tree and a samadhi, 75 m South of a single tree and about 100 m North of a hut. Two electric power lines are crossing each other at NW of the GPS point.

**SKETCH OF GPS-11 (Not to Scale)**



## GWALIOR BYPASS SURVEY DETAIL OF CONTROL POINTS

**CONTROL POINT NUMBER:- GPS-12**

**E = 207641.7614 metres**

**N = 2906858.9662 metres**

**RL = 208.556 metres**

Northing & Easting based on GPS Survey WGS 84 and UTM coordinates (Zone 44)

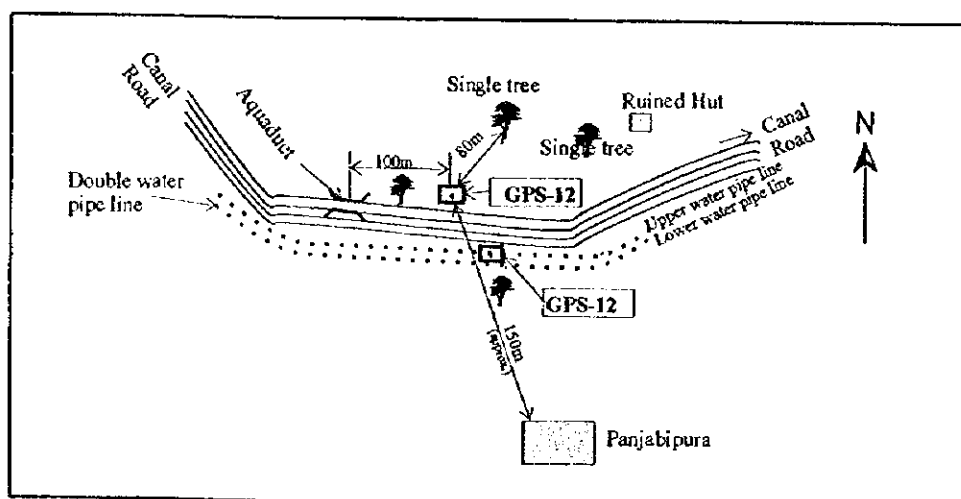
Reduced levels based on one reference BM value (203.719) situated on culvert on track connecting Kulaith & Panjabipura, approximately one km from Kulaith between GPS 9 and GPS 10



### DESCRIPTION OF GPS-12

An Iron rod 10 mm dia in the centre of a cemented concrete pillar of 35 cm height, embedded in the ground. It exists on left (North side) bund of a pakka canal, about 150 m NW of village Panjabipura, 80 m SW of a single tree and about 100 m East of an aqueduct. GPS 12-A is just opposite of GPS 12.

### SKETCH OF GPS-12 (Not to Scale)





## GWALIOR BYPASS SURVEY DETAIL OF CONTROL POINTS

**CONTROL POINT NUMBER:-      GPS-12A**

**E = 207658.9136 metres**

**N = 2906831.5933 metres**

**RL = 207.128 metres**

Northing & Easting based on GPS Survey WGS 84 and UTM coordinates (Zone 44)

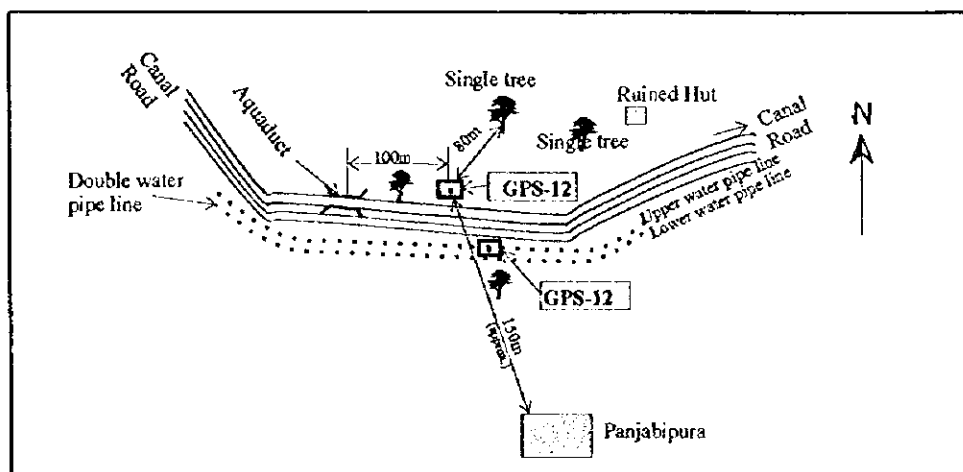
Reduced levels based on one reference BM value (203.719) situated on culvert on track connecting Kulaith & Punjabipura, approximately one km from Kulaith between GPS 9 and GPS 10



### DESCRIPTION OF GPS-12A

It exists on upper water pipe line, just opposite (i.e., South side) to GPS 12. The control point falls in South side of canal and road, and about 150 m NW of village Punjabipura.

### SKETCH OF GPS-12A (Not to Scale)



## GWALIOR BYPASS SURVEY DETAIL OF CONTROL POINTS

**CONTROL POINT NUMBER:- GPS-13**

**E = 207200.1708 metres**

**N = 2906373.5035 metres**

**RL = 225.768 metres**

Northing & Easting based on GPS Survey WGS 84 and UTM coordinates (Zone 44)

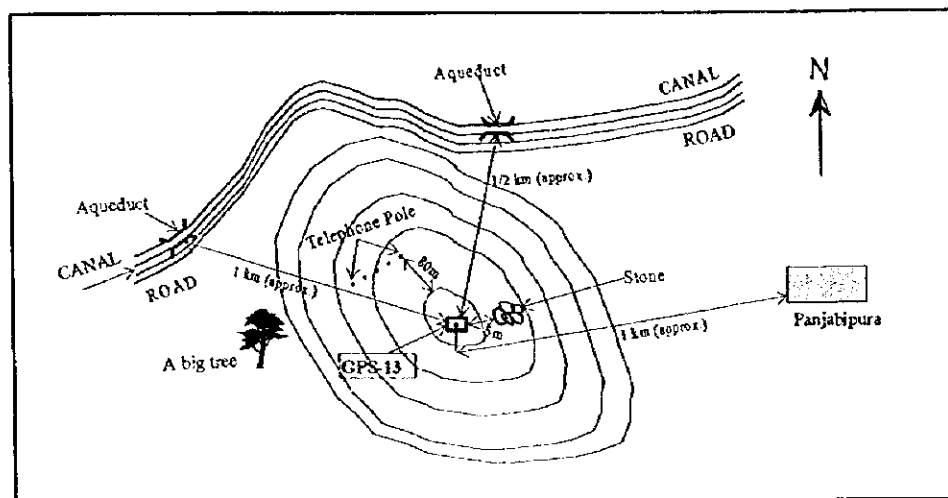
Reduced levels based on one reference BM value (203.719) situated on track connecting Kulaith & Panjabipura, approximately one km from Kulaith between GPS 9 and GPS 10



### DESCRIPTION OF GPS-13

An Iron rod 10 mm dia in the centre of a cemented concrete pillar of 35 cm height, embedded in the ground. It exists on the highest portion of a North South hill about 1 km West of Panjabipura village. The control point is situated 80 m South of a telephone pole, and 5 m West of a stone. Two aqueducts, one about ½ km North and other about 1 km NW direction are from the control point.

### SKETCH OF GPS-13 (Not to Scale)



## GWALIOR BYPASS SURVEY DETAIL OF CONTROL POINTS

**CONTROL POINT NUMBER:- GPS-14**

**E = 206636.9415 metres**

**N = 2906094.6662 metres**

**RL = 220.115 metres**

Northing & Easting based on GPS Survey WGS 84 and UTM coordinates (Zone 44)

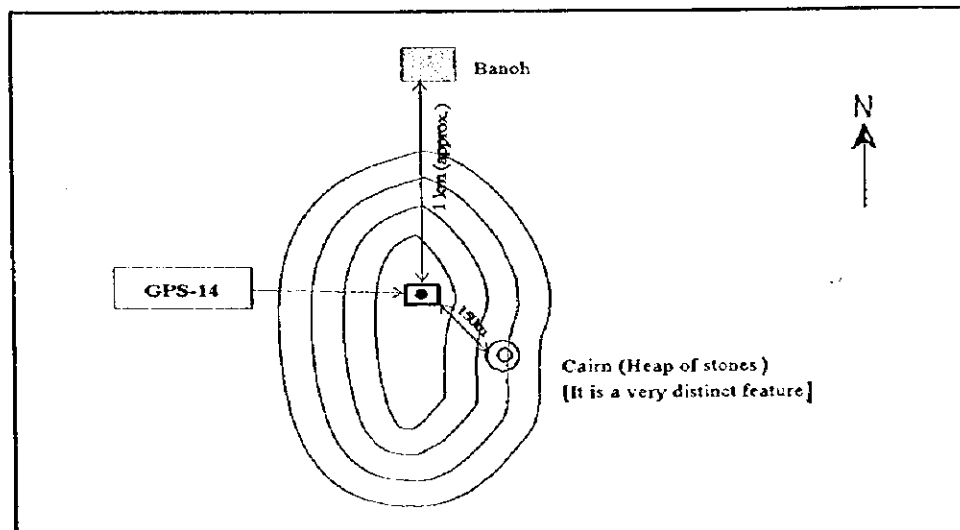
Reduced levels based on one reference BM value (203.719) situated on culvert on track connecting Kulaith & Punjabipura, approximately one km from Kulaith between GPS 9 and GPS 10



### DESCRIPTION OF GPS-14

An Iron rod 10 mm dia in the centre of a cemented concrete pillar of 35 cm height, embedded in the ground. It exists at the highest portion of a elevated ground about 1 km South of Banoh village and about 150 NW of a cairn (heap of stones)

### SKETCH OF GPS-14 (Not to Scale)



**GWALIOR BYPASS SURVEY  
DETAIL OF CONTROL POINTS**

**CONTROL POINT NUMBER:- GPS-15**

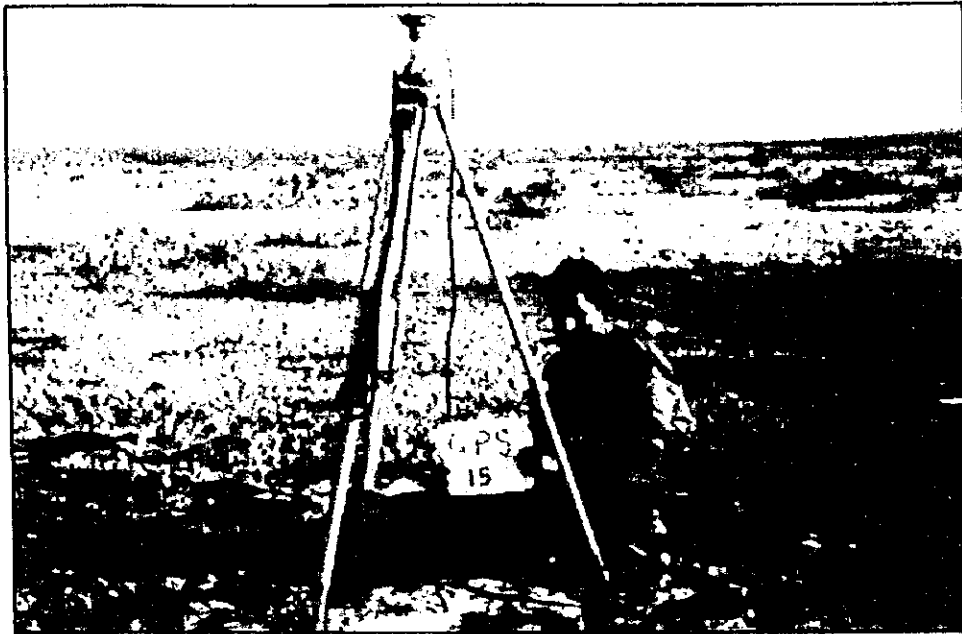
**E = 206231.8007 metres**

**N = 2905687.1189 metres**

**RL = 218.955 metres**

Nothing & Easting based on GPS Survey WGS 84 and UTM coordinates (Zone 44)

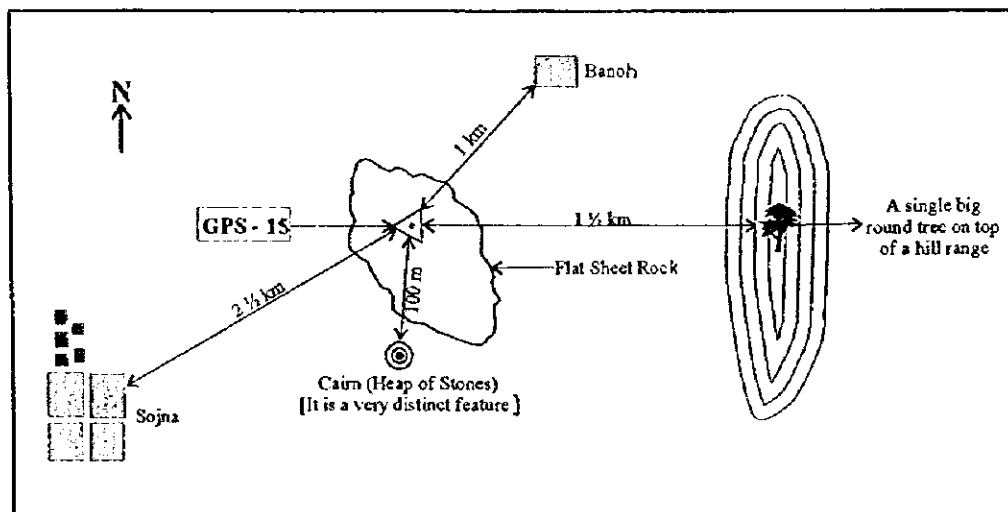
Reduced levels based on one reference BM value (203.719) situated on culvert on track connecting Kulaith & Punjabipura, approximately one km from Kulaith between GPS 9 and GPS 10



**DESCRIPTION OF GPS-15**

It is situated on a flat sheet rock, on a flat and open wasteland, which is about 2½ km NE of Sojna, and about 1 km South of village Banoh. The position of control point exists 100 m North of a cairn (heap of stones), which is a very distinct feature for better identification.

**SKETCH OF GPS-15 (Not to Scale)**



## GWALIOR BYPASS SURVEY DETAIL OF CONTROL POINTS

**CONTROL POINT NUMBER:- GPS-16**

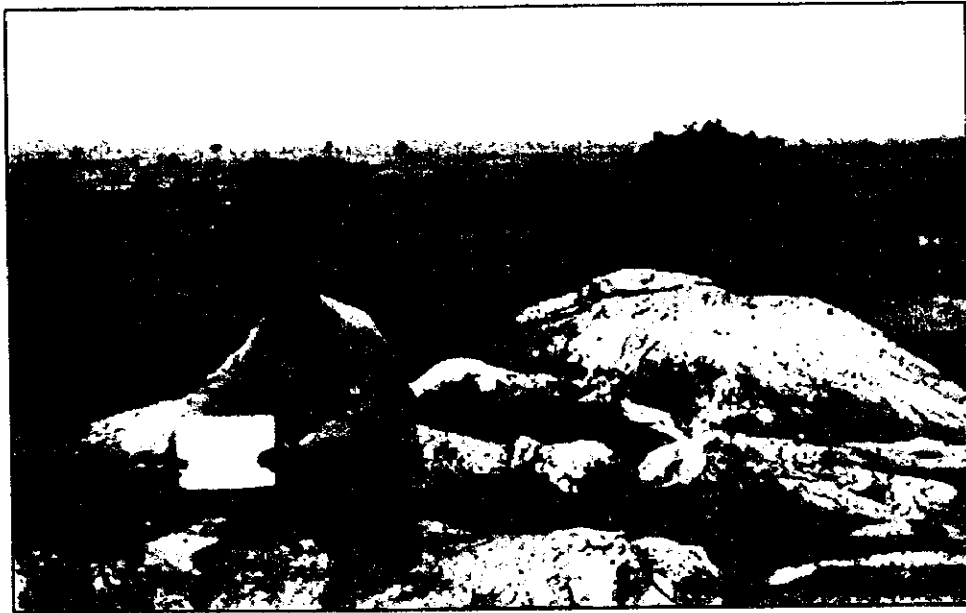
**E = 205033.3416 metres**

**N = 2904478.8722 metres**

**RL = 230.688 metres**

Northing & Easting based on GPS Survey WGS 84 and UTM coordinates (Zone 44)

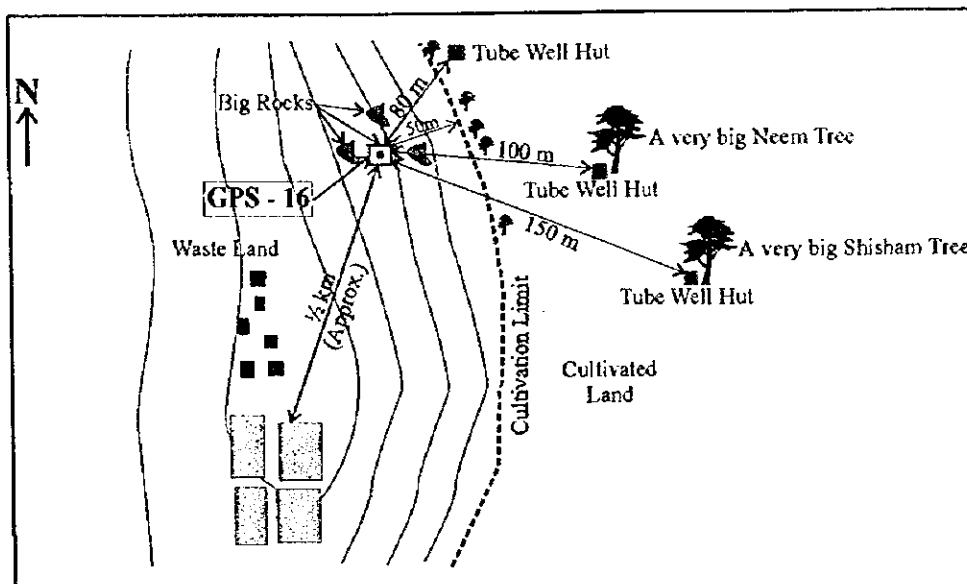
Reduced levels based on one reference BM value (203.719) situated on culvert on track connecting Kulaith & Punjabipura, approximately one km from Kulaith between GPS 9 and GPS 10



### DESCRIPTION OF GPS-16

An Iron rod 10 mm dia in the centre of a cemented concrete pillar of 35 cm height, embedded in the ground. It exists in between 3 groups of boulders (rocks), on the eastern slope of a North South running hill, about ½ km North East of Sojna village, 80 m SW of a tube well hut and 50 m West of cultivation limit.

### SKETCH OF GPS-16 (Not to Scale)



## GWALIOR BYPASS SURVEY DETAIL OF CONTROL POINTS

**CONTROL POINT NUMBER:- GPS-17**

**E = 204837.3237 metres**

**N = 2904037.2039 metres**

**RL = 232.325 metres**

Northing & Easting based on GPS Survey WGS 84 and UTM coordinates (Zone 44)

Reduced levels based on one reference BM value (203.719) situated on culvert on track connecting Kulaith & Punjabipura, approximately one km from Kulaith between GPS 9 and GPS 10

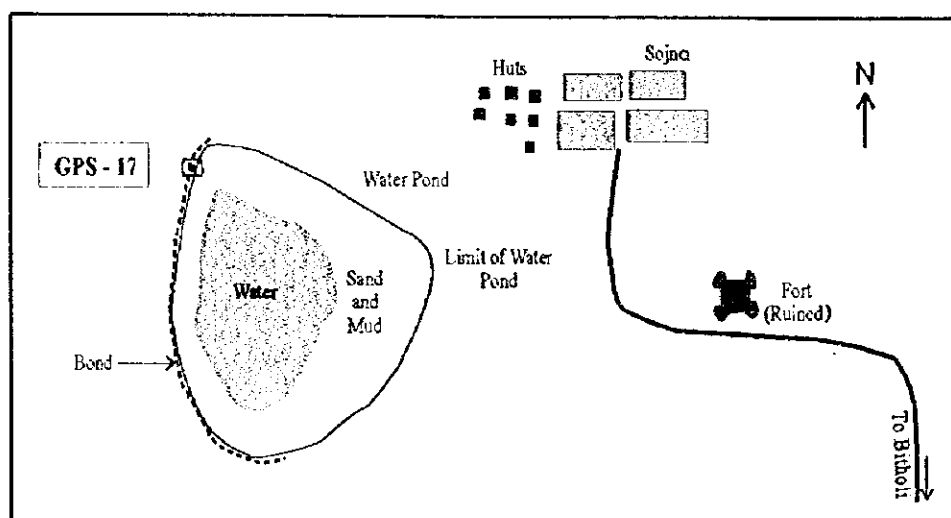


### DESCRIPTION OF GPS-17

An Iron rod 10 mm dia in the centre of a cemented concrete pillar of 35 cm height, embedded in the ground.

It exists at the North end of a bond of a water pond, about 300 m West of village Sojna. A ruined fort is a permanent and distinct feature in the East direction of the control point.

### SKETCH OF GPS-17 (Not to Scale)



## GWALIOR BYPASS SURVEY DETAIL OF CONTROL POINTS

**CONTROL POINT NUMBER:- GPS-18**

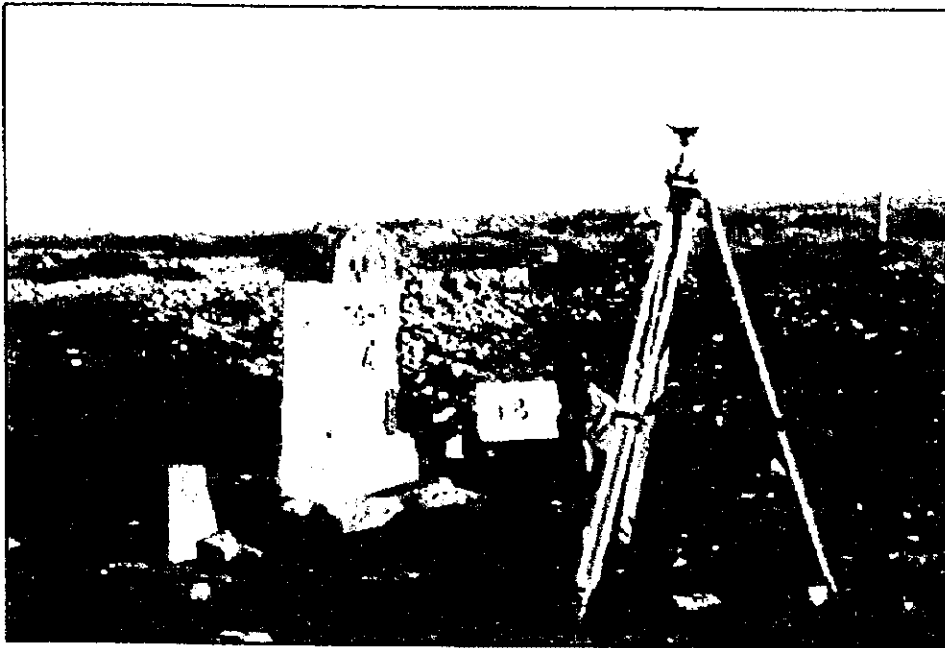
**E = 204134.6323 metres**

**N = 2902112.9775 metres**

**RL = 246.376 metres**

Northing & Easting based on GPS Survey WGS 84 and UTM coordinates (Zone 44)

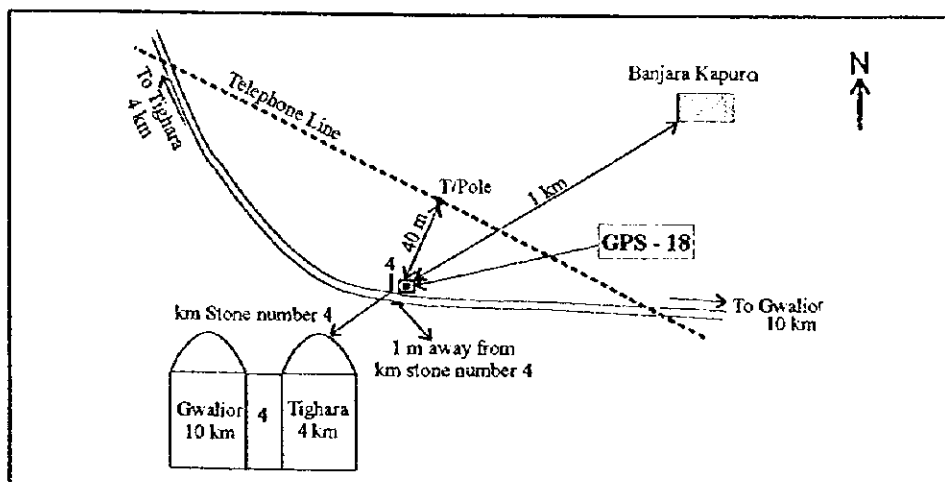
Reduced levels based on one reference BM value (203.719) situated on culvert on track connecting Kulaith & Punjabipura, approximately one km from Kulaith between GPS 9 and GPS 10



### DESCRIPTION OF GPS-18

An Iron rod 10 mm dia in the centre of a cemented concrete pillar of 35 cm height, embedded in the ground. It exists on North side of Gwalior-Tighara road, 1 metre away from km stone No.4 and about 40 m South of telephone pole. The control point is situated about 1 km SW of Banjara Ka Pura.

### SKETCH OF GPS-18 (Not to Scale)



## GWALIOR BYPASS SURVEY DETAIL OF CONTROL POINTS

**CONTROL POINT NUMBER:- GPS-19**

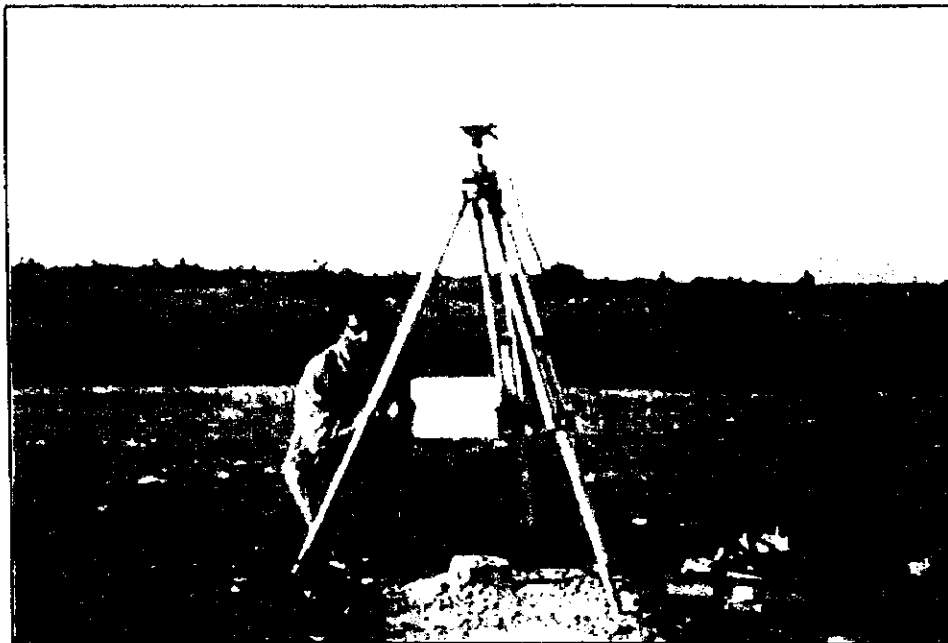
**E = 204600.4482 metres**

**N = 2900482.9874 metres**

**RL = 275.693 metres**

Northing & Easting based on GPS Survey **WGS 84** and UTM coordinates (Zone 44)

Reduced levels based on one reference BM value (203.719) situated on culvert on track connecting Kulaith & Panjabipura, approximately one km from Kulaith between GPS 9 and GPS 10



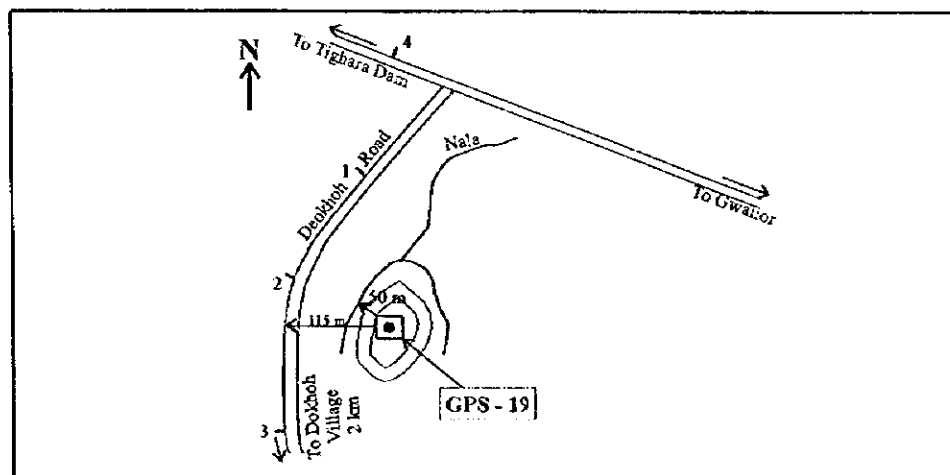
### DESCRIPTION OF GPS-19

An Iron rod 10 mm dia in the centre of a cemented concrete pillar of 35 cm height, embedded in the ground.

It exists on a elevated hillock, about 115 m East of Deokhoh road, and 50 m East of a small nala (depression).

The control point falls between km stones Nos 2 & 3 on Deokhoh road.

### SKETCH OF GPS-19 (Not to Scale)





## GWALIOR BYPASS SURVEY DETAIL OF CONTROL POINTS

**CONTROL POINT NUMBER:- GPS-20**

**E = 204755.3909 metres**

**N = 2899230.2524 metres**

**RL = 296.681 metres**

Northing & Easting based on GPS Survey WGS 84 and UTM coordinates (Zone 44)

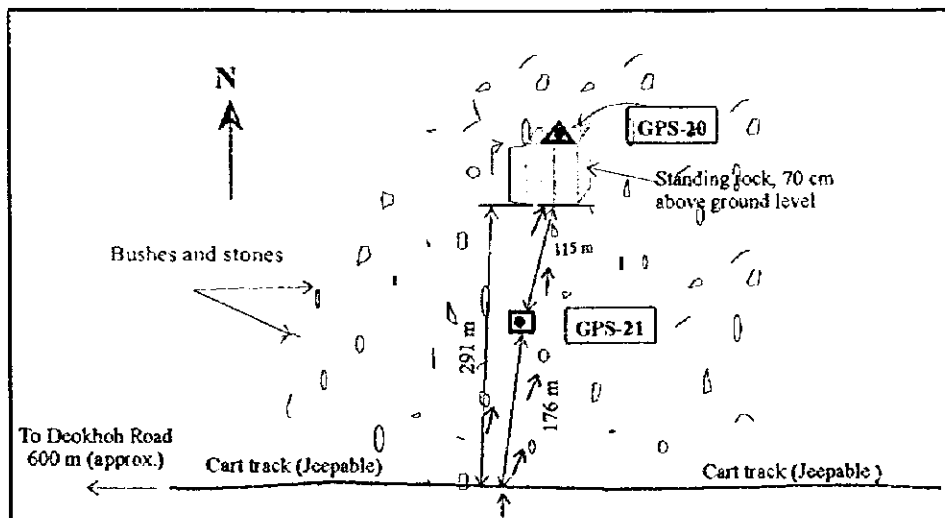
Reduced levels based on one reference BM value (203.719) situated on culvert on track connecting Kulaith & Punjabipura, approximately one km from Kulaith between GPS 9 and GPS 10



### DESCRIPTION OF GPS-20

It exists on the top of a standing rock (Ht-70 cm above ground level), on a flat ground, 291 m North of the cart track leading from Deokhoh road. The control point is situated about 600 m East of the Deokhoh road. Several arrows with red paint have been marked on stones from cart track to the control point for better identification.

### SKETCH OF GPS-20 (Not to Scale)



## GWALIOR BYPASS SURVEY DETAIL OF CONTROL POINTS

**CONTROL POINT NUMBER:-      GPS-21**

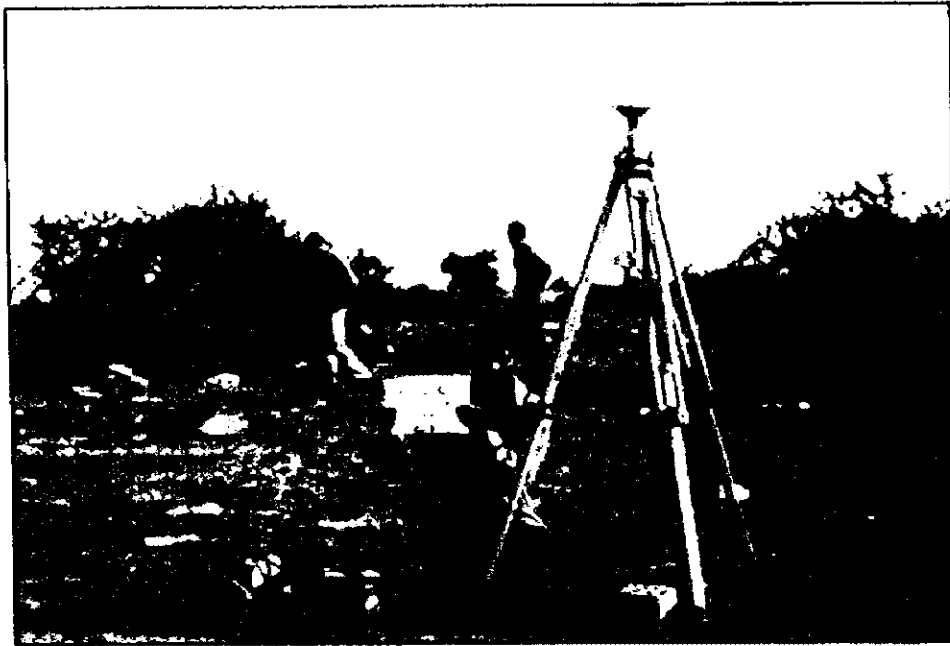
**E = 204677.6408 metres**

**N = 2899145.9613 metres**

**RL = 297.283 metres**

Northing & Easting based on GPS Survey WGS 84 and UTM coordinates (Zone 44)

Reduced levels based on one reference BM value (203.719) situated on culvert on track connecting Kulaith & Punjabipura, approximately one km from Kulaith between GPS 9 and GPS 10



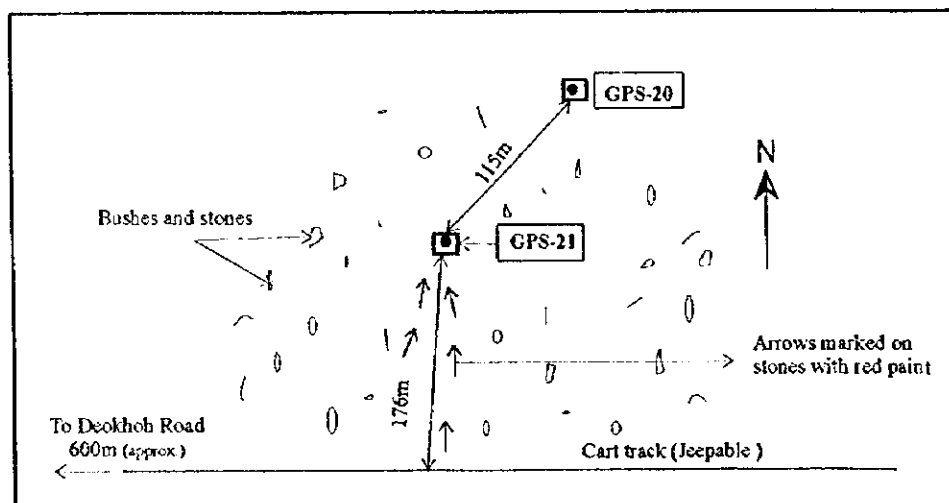
### DESCRIPTION OF GPS-21

An Iron rod 10 mm dia in the centre of a cemented concrete pillar of 35 cm height, embedded in the ground.

It exists on a flat ground 176 m North of a cart track (jeepable), leading from Deokhah road. It is situated about 600 m East of Deokhah road.

GPS 20 exists 115 m NE of GPS 21. Various arrows on stones, have been marked with red paint from cart track to the control point for better identification.

### SKETCH OF GPS-21 (Not to Scale)



## GWALIOR BYPASS SURVEY DETAIL OF CONTROL POINTS

**CONTROL POINT NUMBER:-      GPS-22**

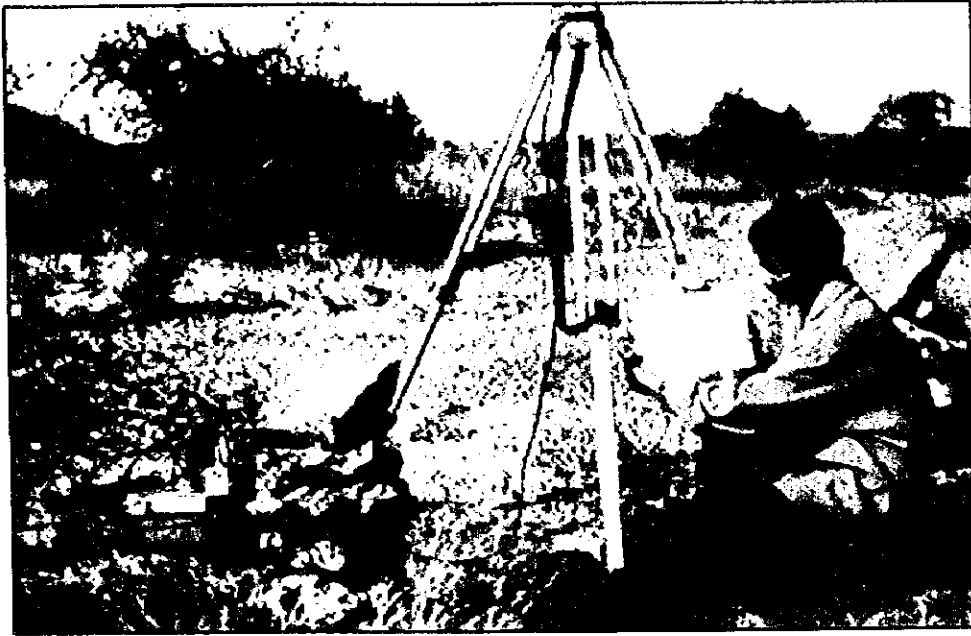
**E = 205041.3415 metres**

**N = 2898625.2665 metres**

**RL = 306.810 metres**

Northing & Easting based on GPS Survey WGS 84 and UTM coordinates (Zone 44)

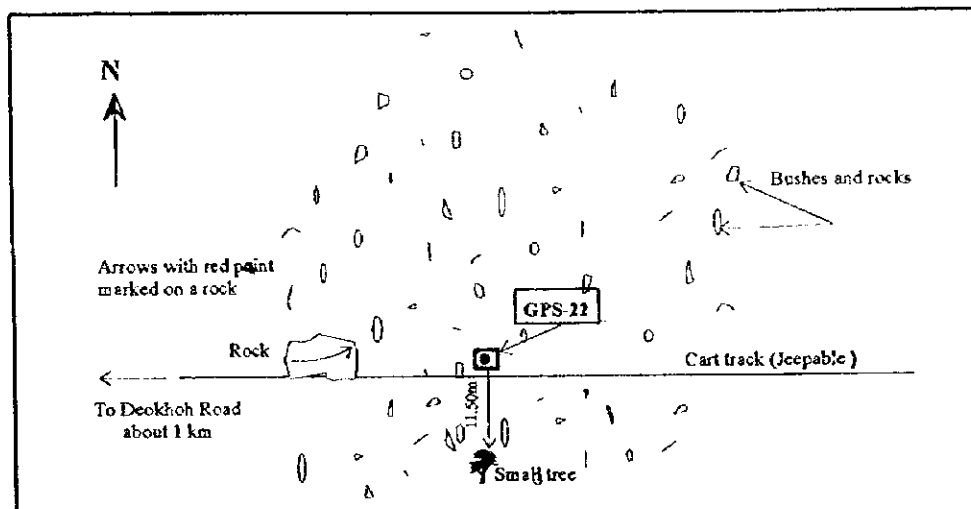
Reduced levels based on one reference BM value (203.719) situated on culvert on track connecting Kulaith & Punjabipura, approximately one km from Kulaith between GPS 9 and GPS 10



### DESCRIPTION OF GPS-22

An Iron rod 10 mm dia in the centre of a cemented concrete pillar of 35 cm height, embedded in the ground. It exists on flat ground, at North side of the cart track, leading from Deokhoh road and 11.50 m North of a small tree. The control point is situated about 1 km East of Deokhoh road. An arrow with red paint has been marked on a stone west side to the control point.

### SKETCH OF GPS-22 (Not to Scale)



## GWALIOR BYPASS SURVEY DETAIL OF CONTROL POINTS

**CONTROL POINT NUMBER:- GPS-23**

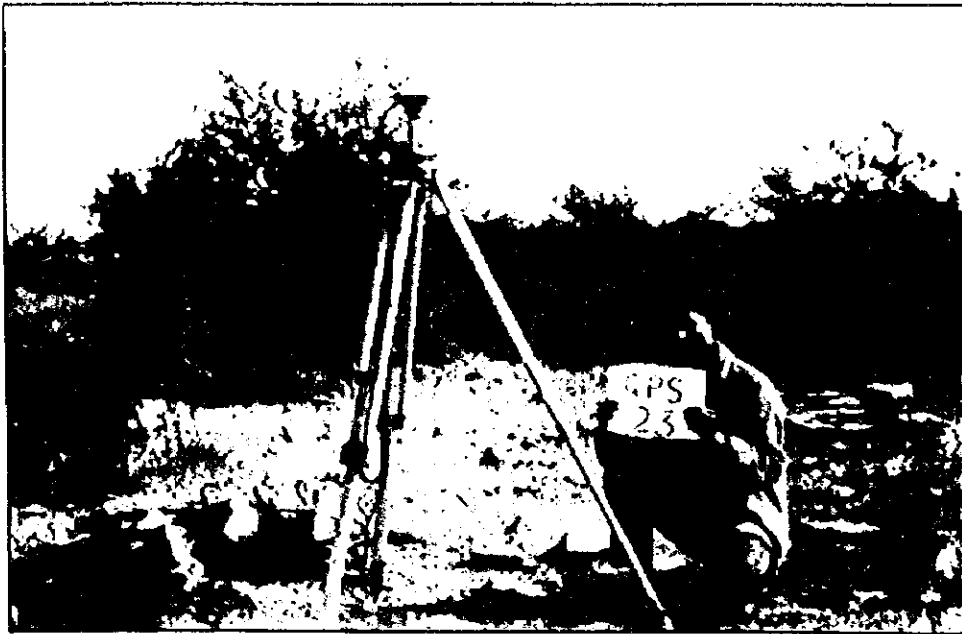
**E = 205279.0454 metres**

**N = 2898400.5231 metres**

**RL = 311.547 metres**

Northing & Easting based on GPS Survey WGS 84 and UTM coordinates (Zone 44)

Reduced levels based on one reference BM value (203.719) situated on culvert on track connecting Kulaith & Punjabipura, approximately one km from Kulaith between GPS 9 and GPS 10

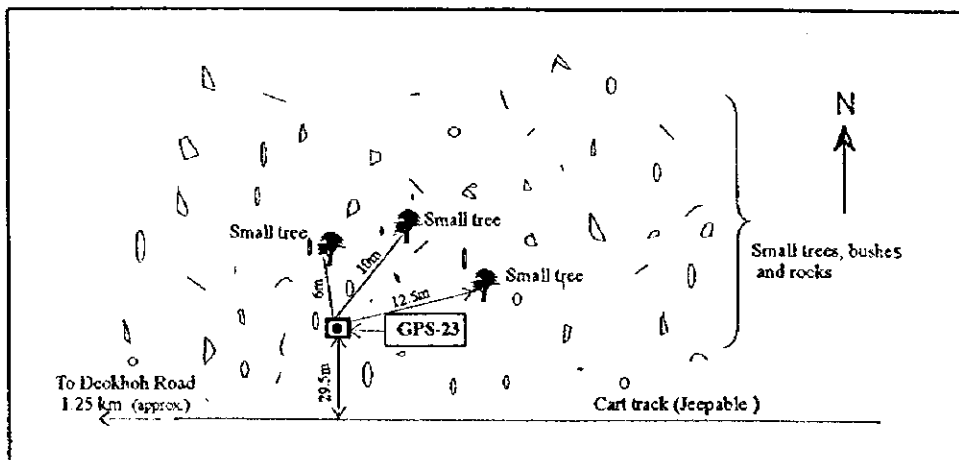


### DESCRIPTION OF GPS-23

It exists on a flat stone, at the gentle slope of the hill, 29.50 m North of a cart track leading from Deokhoh road. Other offset measurements are as under:

A small tree 6 m North, other 10 m NE and the 3<sup>rd</sup> tree 12.50 m East of the control point. The control point is situated about 1.250 km from Deokhoh road.

### SKETCH OF GPS-23 (Not to Scale)



**GWALIOR BYPASS SURVEY  
DETAIL OF CONTROL POINTS**

**CONTROL POINT NUMBER:- GPS-24**

**E = 205342.3289 metres**

**N = 2898113.2013 metres**

**RL = 313.758 metres**

Northing & Easting based on GPS Survey WGS 84 and UTM coordinates (Zone 44)

Reduced levels based on one reference BM value (203.719) situated on culvert on track connecting Kulaith & Punjabipura, approximately one km from Kulaith between GPS 9 and GPS 10

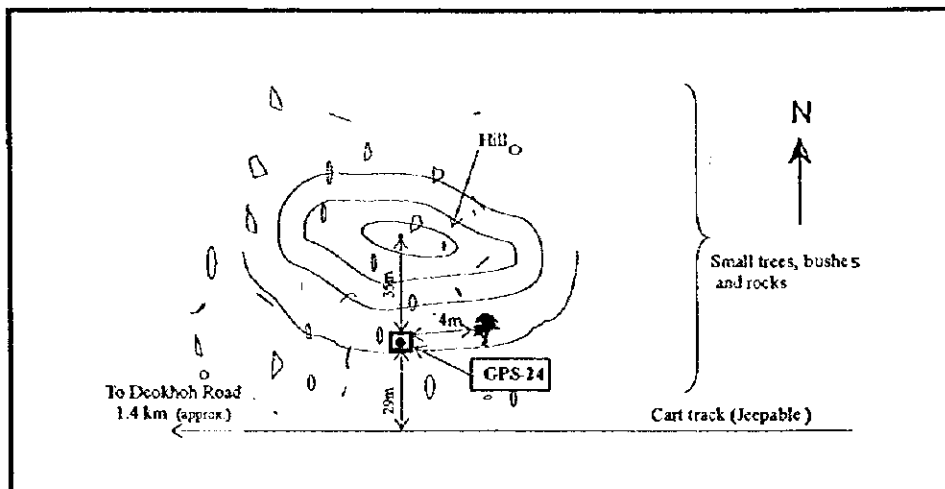


**DESCRIPTION OF GPS-24**

An Iron rod 10 mm dia in the centre of a cemented concrete pillar of 35 cm height, embedded in the ground. It exists at the hill slope about 1.4 km East of Deokhoh road and 29 m North of the cart track leading from Deokhoh road.

The highest portion of hill top is about 35 m North of GPS 24.

**SKETCH OF GPS-24 (Not to Scale)**



**GWALIOR BYPASS SURVEY  
DETAIL OF CONTROL POINTS**

**CONTROL POINT NUMBER:- GPS-25**

**E = 205121.8591 metres**

**N = 2895050.6887 metres**

**RL = 294.050 metres**

Northing & Easting based on GPS Survey WGS 84 and UTM coordinates (Zone 44)

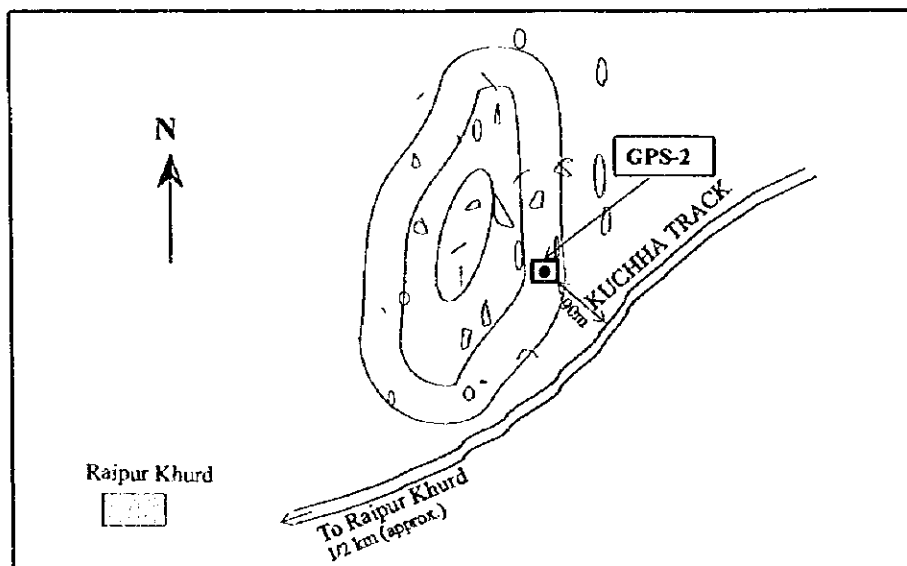
Reduced levels based on one reference BM value (203.719) situated on culvert on track connecting Kulaith & Punjabipura, approximately one km from Kulaith between GPS 9 and GPS 10



**DESCRIPTION OF GPS-25**

An Iron rod 10 mm dia in the centre of a cemented concrete pillar of 35 cm height, embedded in the ground. It exists at the bottom of a hill and about 90 m North of a kacha road leading to Raipur Khurd. The control point is situated about 1/2 km NE of village Raipur Khurd.

**SKETCH OF GPS-25 (Not to Scale)**



## GWALIOR BYPASS SURVEY DETAIL OF CONTROL POINTS

**CONTROL POINT NUMBER:- GPS-26**

**E = 204347.0411 metres**

**N = 2892567.8714 metres**

**RL = 284.529 metres**

Northing & Easting based on GPS Survey WGS 84 and UTM coordinates (Zone 44)

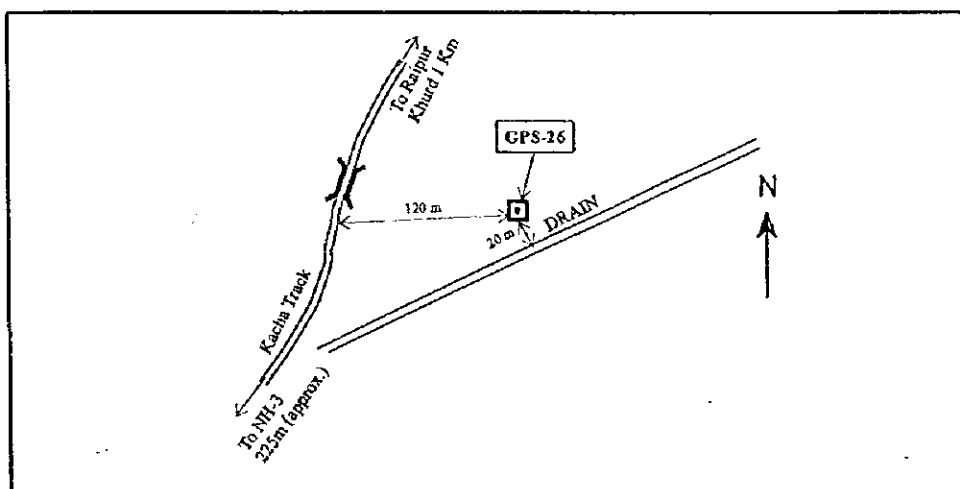
Reduced levels based on one reference BM value (203.719) situated on culvert on track connecting Kulaith & Punjabipura, approximately one km from Kulaith between GPS 9 and GPS 10



### DESCRIPTION OF GPS-26

An Iron rod 10 mm dia in the centre of a cemented concrete pillar of 35 cm height, embedded in the ground. It exists 20 m NW of a drain and 120 m East of a kacha track leading from NH 3 to Raipur Khurd. The control point is situated about 1 km South of Raipur Khurd and about 225 m North of NH 3.

### SKETCH OF GPS-26 (Not to Scale)



## GWALIOR BYPASS SURVEY DETAIL OF CONTROL POINTS

**CONTROL POINT NUMBER:-**      GPS-27

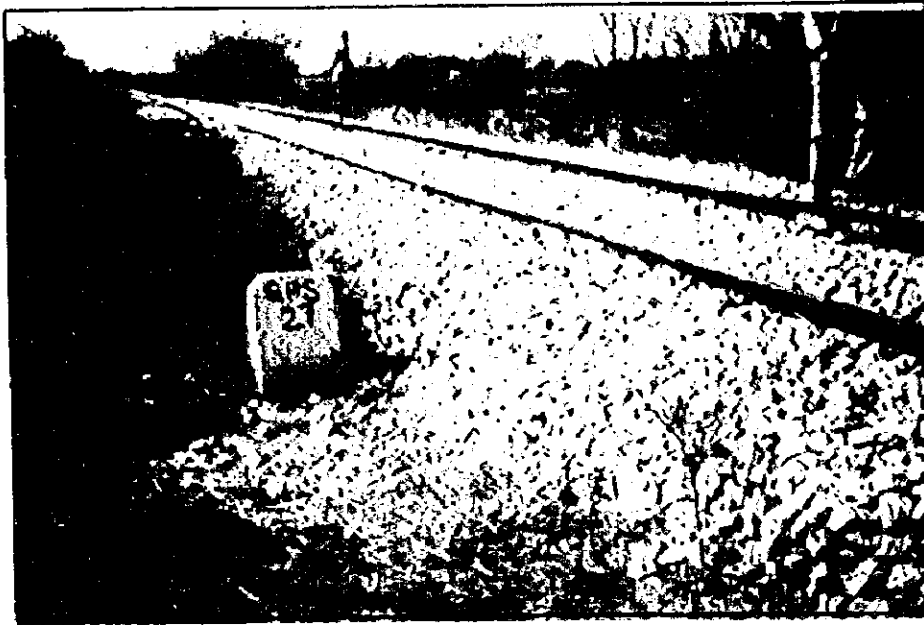
**E =** 204496.0053 metres

**N =** 2892182.7501 metres

**RL =** 288.440 metres

Northing & Easting based on GPS Survey WGS 84 and UTM coordinates (Zone 44)

Reduced levels based on one reference BM value (203.719) situated on culvert on track connecting Kulaith & Punjabipura, approximately one km from Kulaith between GPS 9 and GPS 10

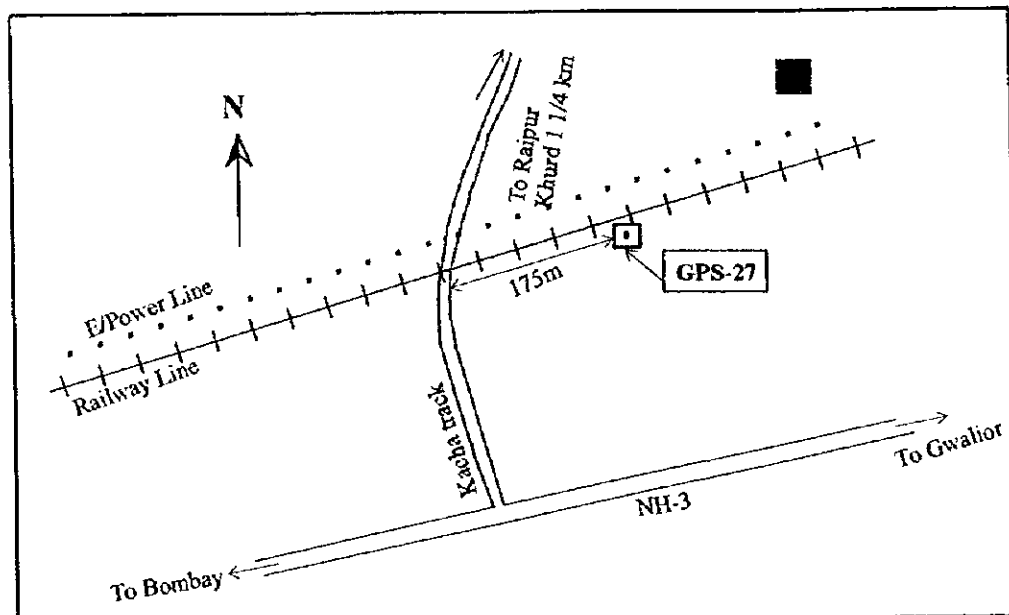


### DESCRIPTION OF GPS-27

A ▲ marked on cement concrete block along the railway track.

It exists by the South side of railway track and about 175 m East of a kacha track leading from NH 3 to Raipur Khurd village. The control point is situated about 1¼ km south of Raipur Khurd.

### SKETCH OF GPS-27 (Not to Scale)





## GWALIOR BYPASS SURVEY DETAIL OF CONTROL POINTS

**CONTROL POINT NUMBER:- GPS-28**

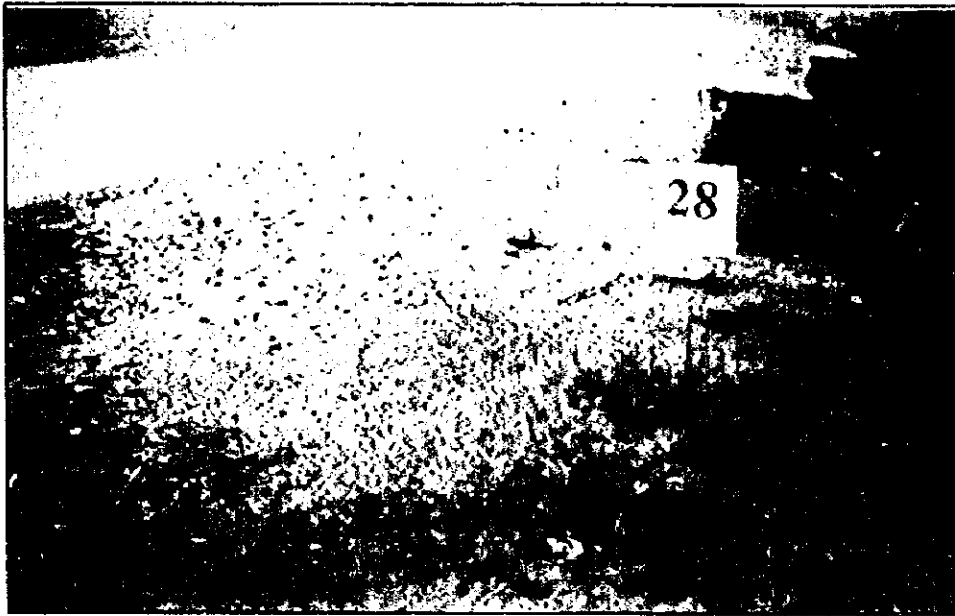
**E = 204330.0774 metres**

**N = 2891955.1600 metres**

**RL = 290.169 metres**

Northing & Easting based on GPS Survey WGS 84 and UTM coordinates (Zone 44)

Reduced levels based on one reference BM value (203.719) situated on culvert on track connecting Kulaith & Punjabipura, approximately one km from Kulaith between GPS 9 and GPS 10



### DESCRIPTION OF GPS-28

An Iron rod 10 mm dia in the centre of a cemented concrete pillar of 35 cm height, embedded in the ground. It exists 3 m North of NH 3, 20 m South of a telephone line, 150 m East of a road culvert No. CD-133/8, 30 m North of Brij Hotel and 150 m south of the railway line. The "Gwalior Bypass road" ends at this control point.

### SKETCH OF GPS-28 (Not to Scale)

