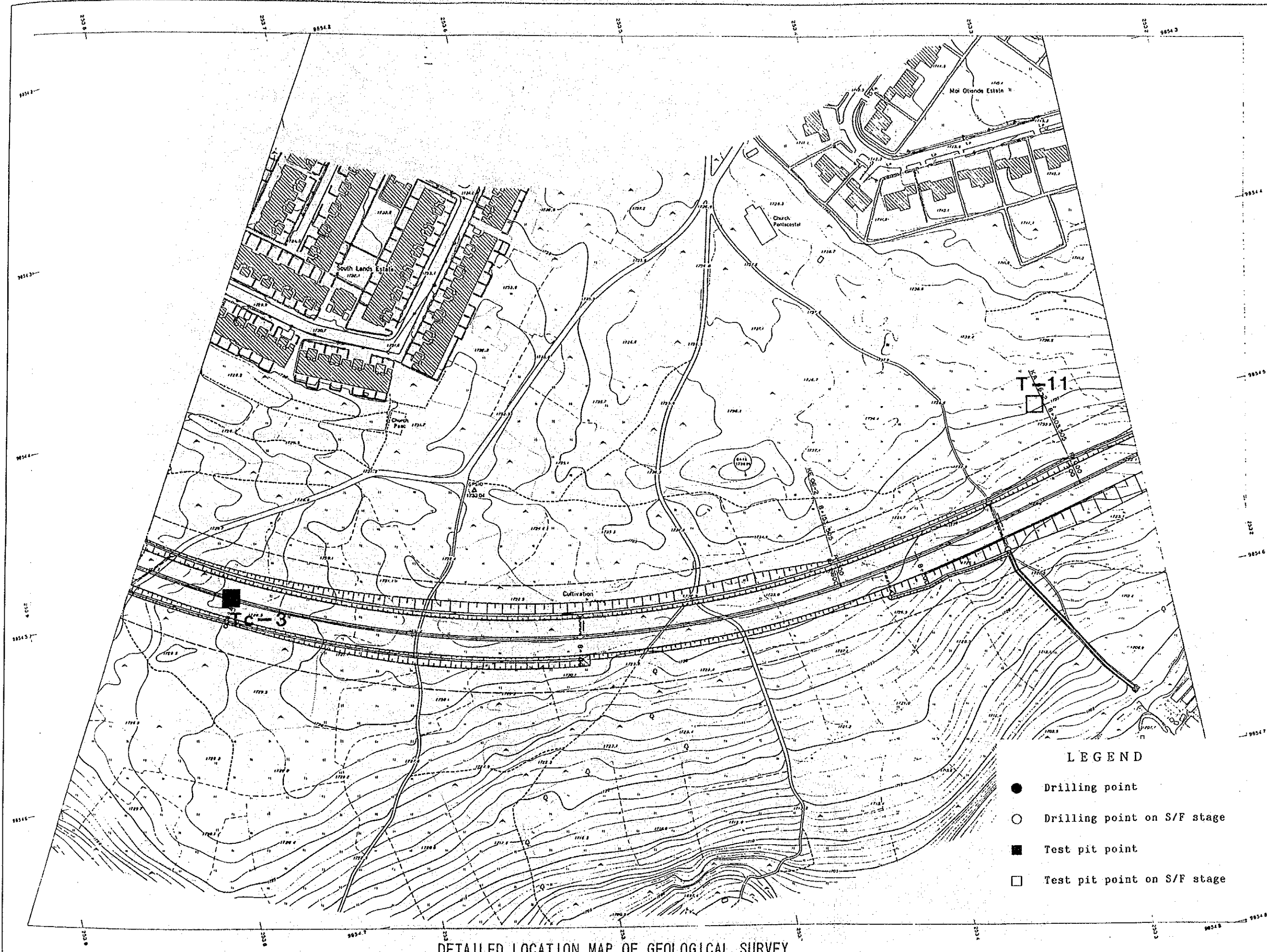


# THE DETAILED DESIGN STUDY ON THE NAIROBI BYPASS PROJECT

SHEET NO. 13

INDEX TO ADJOINING SHEETS



Scale 1:2,000  
HEIGHTS IN METERS

**LEGEND**

- △ GIS Point
- Traverse Point
- Bench Mark
- 1234.5 Direct Leveling Height
- 1234.5 Spot Height
- Contours (V.I.m)
- Outcrop (Rock)
- ▨ Building, Permanent
- ▨ Building, Others
- ▨ Bituminous Road
- ▨ Road
- ▨ Track
- ▨ Railway
- ▨ Bridge, Culvert
- ▨ River
- ▨ Stream
- ▨ Dam
- ▨ Pond
- ▨ Water Tank
- ▨ Power Line
- ▨ Telephone Line
- ▨ Fence, Gate
- ▨ Hedge
- ▨ Stone Wall
- ▨ Dump or Mound
- ▨ Quarry, Pit
- ▨ Cutting
- ▨ Embankment
- ▨ Cultivated Lands
- ▨ Orchard or Permanent C
- ▨ Plantation
- ▨ Grassland
- ▨ Bush
- ▨ Forest
- ▨ Swamp
- ▨ Vegetation Boundary
- ▨ Planting Partition

HORIZONTAL DATUM: UTM ZONE 37  
CLARKE 1866 SPHER

VERTICAL DATUM: OCEAN SEA LEV.

AERIAL PHOTOGRAPHED BY: J  
Japan International Cooperation Agency  
December

GROUND CONTROL SURVEYED BY: J  
December

STEREO PLOTTED BY: J  
MARCH

CARTOGRAPHED BY: J  
JULY

**LEGEND**

- Drilling point
- Drilling point on S/F stage
- Test pit point
- Test pit point on S/F stage

CHECKED BY:

CHIEF ENGINEER (DR) DATE / /

CHIEF SUPT ENG (DE) DATE / /

SEN SUPT ENG (DE) DATE / /

SUPT ENGINEER (DR) DATE / /

PROJECT ENGINEER DATE / /

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JICA TOKYO, JAPAN

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DETAILED LOCATION MAP OF GEOLOGICAL SURVEY

# THE DETAILED DESIGN STUDY ON THE NAIROBI BYPASS PROJECT

SHEET NO. 14



INDEX TO ADJOINING SHEETS



Scale 1:112,000  
HEIGHTS IN METERS

**LEGEND**

- △ GPS Point
- Traverse Point
- ⊕ Bench Mark
- 1234.5 Direct Leveling Height
- 1234.5 Spot Height
- Contours (V.E. Int)
- Outcrop (Rock)
- ▭ Building, Permanent
- ▭ Building, Others
- ▭ Bituminous Road
- ▭ Road
- ▭ Track
- ▭ Railway
- ▭ Bridge, Culvert
- ▭ River
- ▭ Stream
- ▭ Dam
- ▭ Pond
- Water Tank
- ▭ Power Line
- ▭ Telephone Line
- ▭ Fence, Gate
- ▭ Hedge
- ▭ Stone Wall
- ▭ Dump or Mound
- ▭ Quarry, In
- ▭ Cutting
- ▭ Embankment
- ▭ Cultivated Lands
- ▭ Orchard or Permanent Cr
- ▭ Plantation
- ▭ Grassland
- ▭ Bush
- ▭ Forest
- ▭ Swamp
- ▭ Vegetation Boundary
- ▭ Planting Partition

HORIZONTAL DATUM: UTM ZONE 37  
CLARKE 1866 SPHER

VERTICAL DATUM: MEAN SEA LEVEL

AERIAL PHOTOGRAPHED BY: JICA  
Japan International Cooperation Agency  
December

GROUND CONTROL SURVEYED BY: JICA  
December

STEREO PLOTTED BY: JICA  
MARCH

CARTOGRAPHED BY: JICA  
JULY

**LEGEND**

- Drilling point
- Drilling point on S/F stage
- Test pit point
- Test pit point on S/F stage

CHECKED BY:

CHIEF ENGINEER (RD) DATE: / /

CHIEF SUPT. ENG. (DES) DATE: / /

SEN. SUPT. ENG. (DES) DATE: / /

SUPT. ENGINEER (DC) DATE: / /

PROJECT ENGINEER DATE: / /

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JICA TOKYO, JAPAN

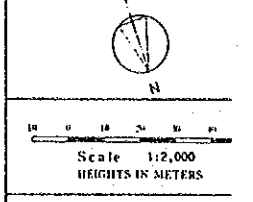
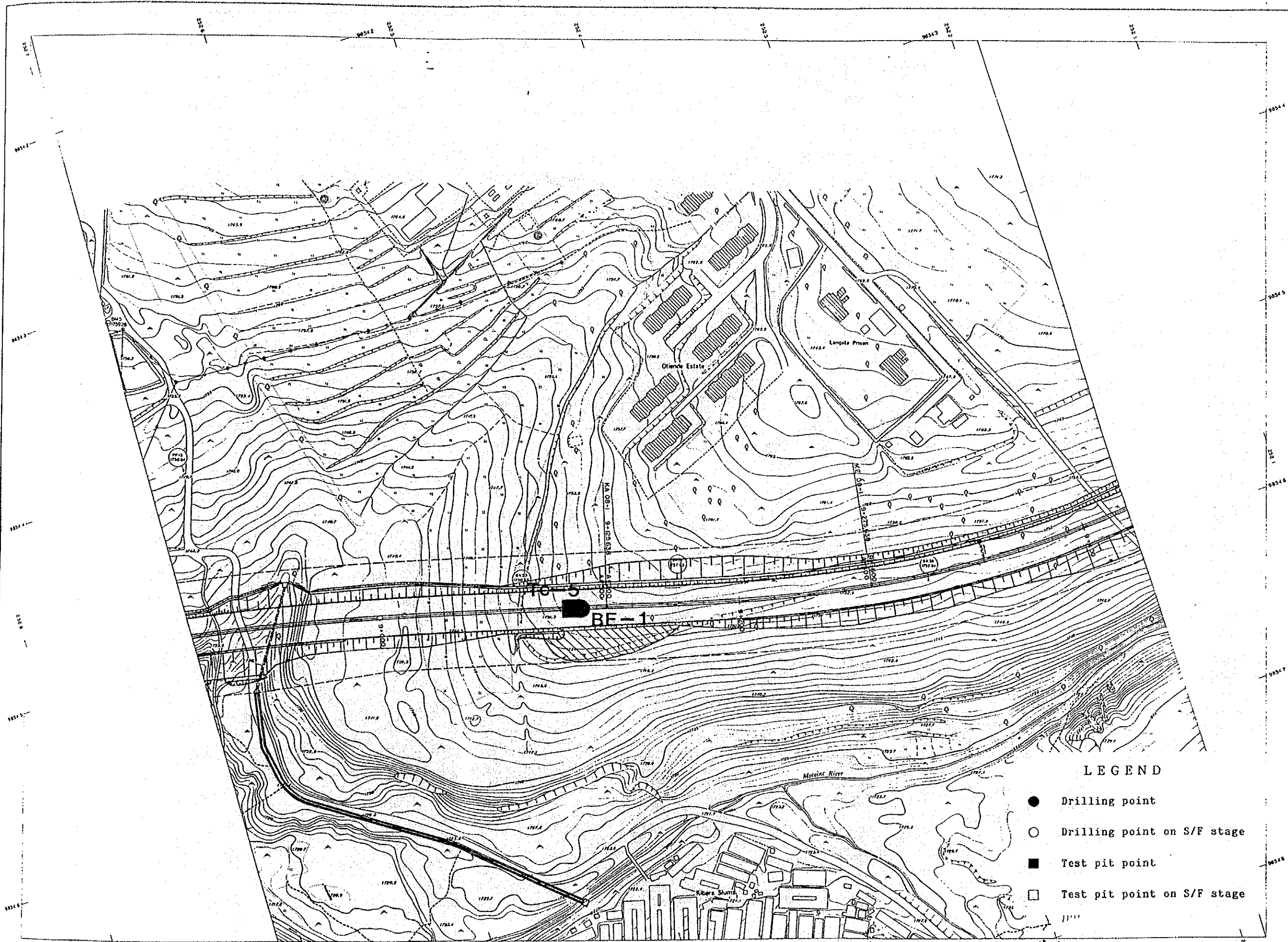
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DETAILED LOCATION MAP OF GEOLOGICAL SURVEY

# THE DETAILED DESIGN STUDY ON THE NAIROBI BYPASS PROJECT

SHEET NO. 15

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**LEGEND**

- △ GPS Point
- Traversed Point
- ⊕ Bench Mark
- 1234.5 Direct Leveling Height
- 234.5 Spot Height
- Contours (V.L. 1m)
- Outcrop (Rock)
- ▭ Building, Permanent
- ▭ Building, Others
- ▭ Bituminised Road
- ▭ Road
- ▭ Track
- ▭ Railway
- ▭ Bridge, Culvert
- ▭ River
- ▭ Stream
- ▭ Dam
- ▭ Pond
- ▭ Water Tank
- ▭ Power Line
- ▭ Telephone Line
- ▭ Fence, Gate
- ▭ Hedge
- ▭ Stone Wall
- ▭ Dump or Mound
- ▭ Quarry, Pit
- ▭ Cutting
- ▭ Embankment
- ▭ Cultivated Lands
- ▭ Orchard or Permanent Plantation
- ▭ Grassland
- ▭ Bush
- ▭ Forest
- ▭ Swamp
- ▭ Vegetation Boundary
- ▭ Planting Partition

HORIZONTAL DATUM: UTM ZONE 32  
CLARKE 1880 SPH

VERTICAL DATUM: MEAN SEA LEVEL

AERIAL PHOTOGRAPHY BY:  
Japan International Cooperation Agency  
Decemb

GROUND CONTROL SURVEYED BY:  
Decemb

STEREO PLOTTED BY:  
MARC

CARTOGRAPHY BY:  
JUL

CHECKED BY:

CHIEF ENGINEER: / /  
DATE: / /

CHIEF SUPT. ENG.: / /  
DATE: / /

SEN. SUPT. ENG.: / /  
DATE: / /

SUPT. ENGINEER: / /  
DATE: / /

PROJECT ENGINEER: / /  
DATE: / /

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JICA TOKYO, JAPAN

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**LEGEND**

- Drilling point
- Drilling point on S/F stage
- Test pit point
- Test pit point on S/F stage

DETAILED LOCATION MAP OF GEOLOGICAL SURVEY

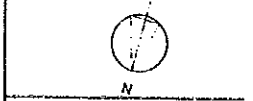
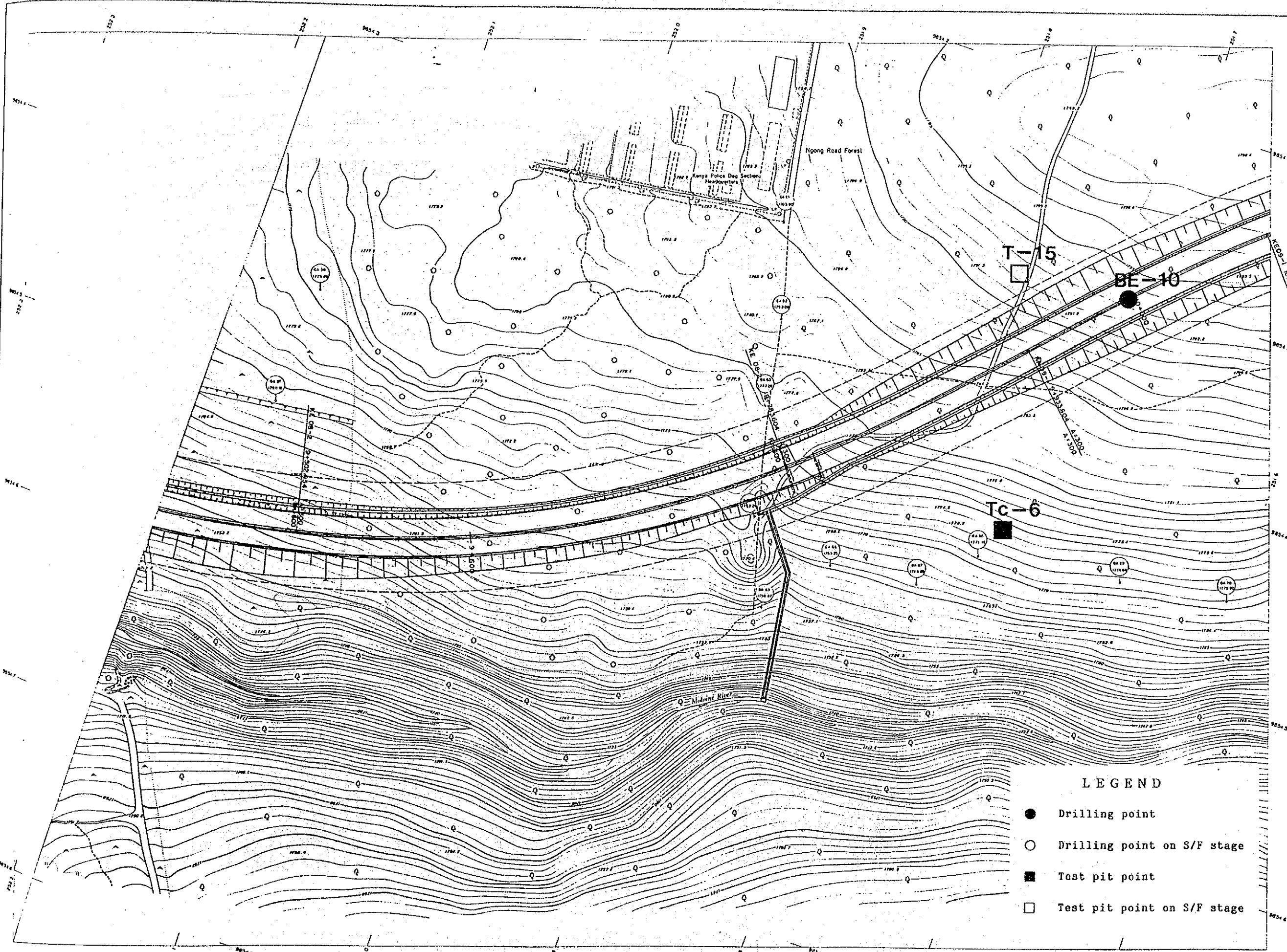


# THE DETAILED DESIGN STUDY ON THE NAIROBI BYPASS PROJECT

SHEET NO. 16

16 17

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Scale 1:112,000  
HEIGHTS IN METERS

- LEGEND**
- △ GIS Point
  - ⊕ Traverse Point
  - ⊙ Bench Mark
  - 1234.5 Direct Leveling Height
  - 1234.5 Spot Height
  - Contours (V.L. Int)
  - Outcrop (Rock)
  - ▭ Building, Farmhouse
  - ▭ Building, Others
  - ▭ Bituminous Road
  - ▭ Road
  - ▭ Track
  - ▭ Railway
  - ▭ Bridge, Culvert
  - ▭ River
  - ▭ Stream
  - ▭ Dam
  - ▭ Pond
  - ▭ Water Tank
  - ▭ Power Line
  - ▭ Telephone Line
  - ▭ Fence, Gate
  - ▭ Hedge
  - ▭ Stone Wall
  - ▭ Damp or Mound
  - ▭ Quarry, Pit
  - ▭ Cutting
  - ▭ Embankment
  - ▭ Cultivated Lands
  - ▭ Orchard or Permanent
  - ▭ Plantation
  - ▭ Grassland
  - ▭ Bush
  - ▭ Forest
  - ▭ Swamp
  - ▭ Vegetation Boundary
  - ▭ Planting Partition

HORIZONTAL DATUM: UTM ZONE 37  
K. CLARKE 1960 SPHEROID

VERTICAL DATUM: MEAN SEA LEVEL

AERIAL PHOTOGRAPHY BY:  
Japco International Cooperation  
Decem/

GROUND CONTROL SURVEYED BY:  
Decem/

STEREO PLOTTED BY:  
MAR/

CARTOGRAPHY BY:  
JL/

CHECKED BY:	CHIEF ENGINEER	DATE: / /
	CHIEF Supt. Eng.	DATE: / /
	SEN. Supt. Eng.	DATE: / /
	Supt. Engineer	DATE: / /
	PROJECT ENGINEER	DATE: / /

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JICA TOKYO, JAP.

SHEET 16 OF 46

- LEGEND**
- Drilling point
  - Drilling point on S/F stage
  - Test pit point
  - Test pit point on S/F stage

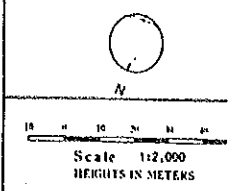
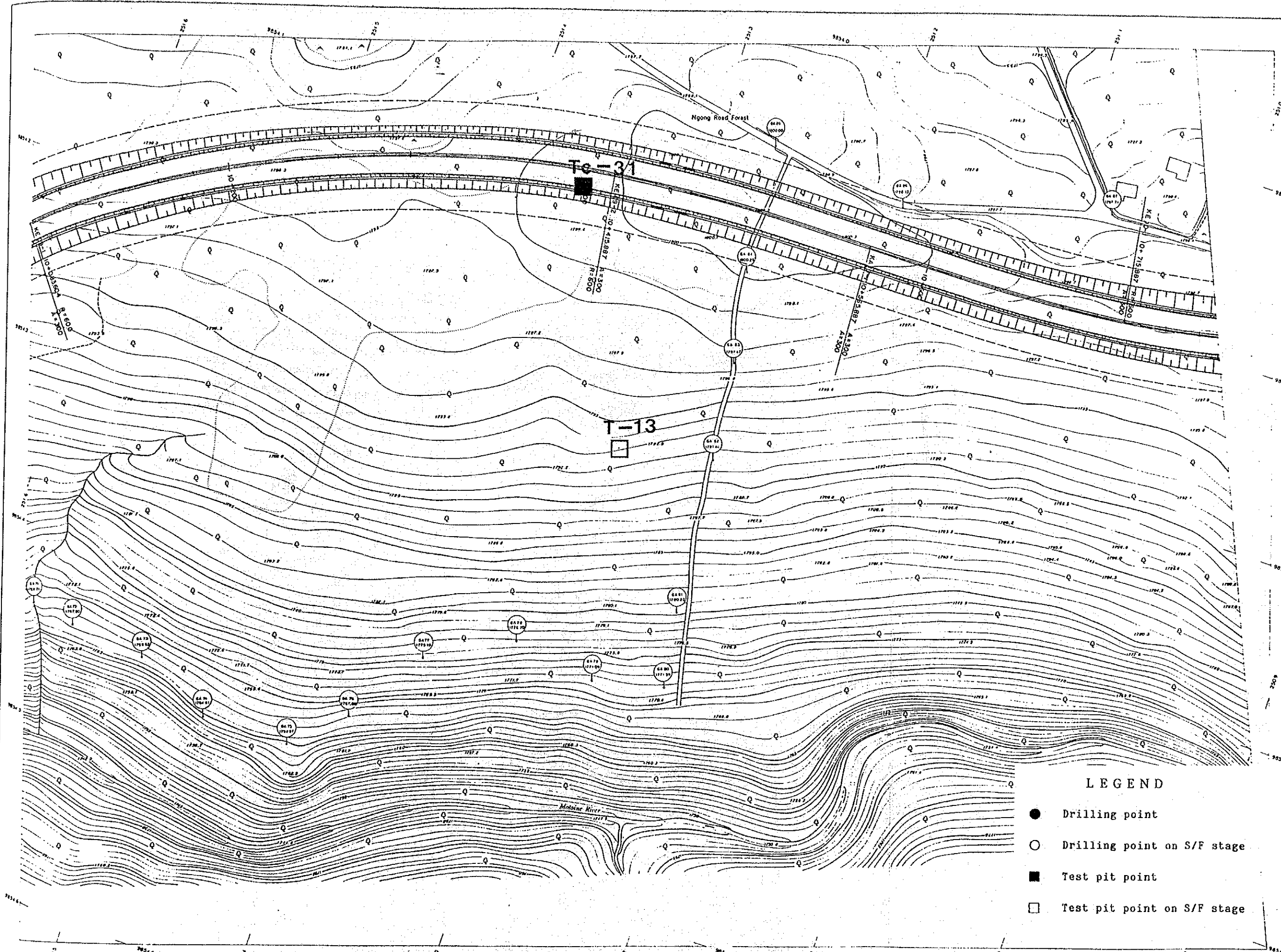
DETAILED LOCATION MAP OF GEOLOGICAL SURVEY

# THE DETAILED DESIGN STUDY ON THE NAIROBI BYPASS PROJECT

SHEET NO. 17

16 17 18

INDEX TO ADJOINING SHEET:



**LEGEND**

	GPS Point
	Traverse Point
	Bench Mark
	Direct Leveling Height
	Spot Height
	Contours (V.L. Lm)
	Outcrop (Rock)
	Building (Farmstead)
	Building (Others)
	Bituminous Road
	Road
	Track
	Railway
	Ridge, Culvert
	River
	Stream
	Dam
	Flood
	Water Tank
	Power Line
	Telephone Line
	Fence, Gate
	Hedge
	Stone Wall
	Dump or Mound
	Quarry Pit
	Cutting
	Embankment
	Cultivated Lands
	Orchard or Permanent C.
	Mantion
	Grassland
	Bush
	Forest
	Swamp
	Vegetation Boundary
	Planning Partition

HORIZONTAL DATUM: UTM ZONE 37  
 (CLARKE 1866 SPIEGEL)

VERTICAL DATUM: MEAN SEA LEVEL

AERIAL PHOTOGRAPHY BY: J  
 (Japan International Cooperation Agency)  
 December

GROUND CONTROL SURVEYED BY: J  
 December

STEREO PLOTTED BY: J  
 MARCH

CARTOGRAPHY BY: J  
 JULY

**LEGEND**

	Drilling point
	Drilling point on S/F stage
	Test pit point
	Test pit point on S/F stage

CHIEF ENGINEER (RD)  
 DATE

CHIEF SUPT. ENG. (DE)  
 DATE

CHECKED BY: SEN SUPT. ENG. (DE)  
 DATE

PROJECT ENGINEER (DE)  
 DATE

PROJECT ENGINEER (DE)  
 DATE

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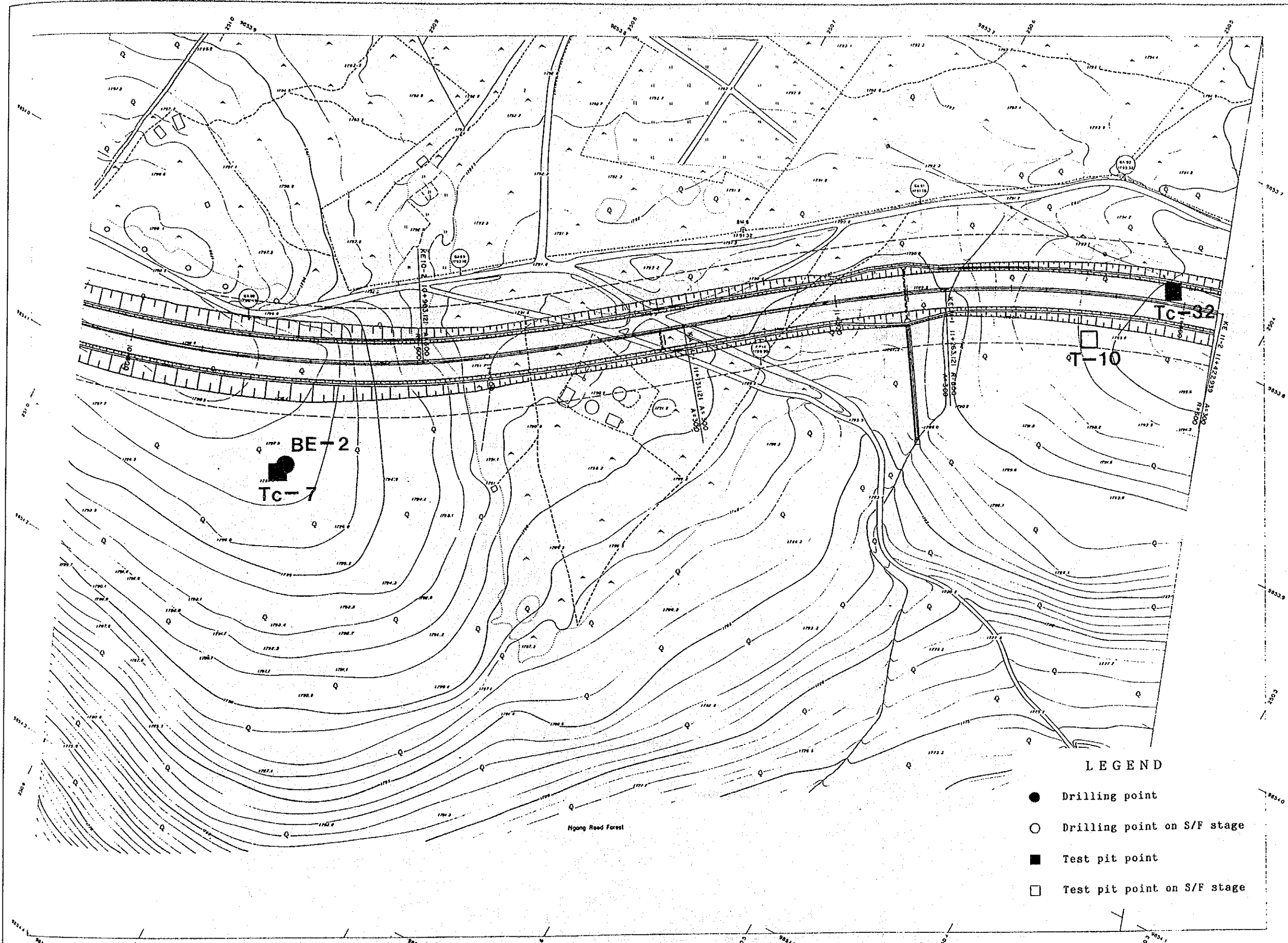
DETAILED LOCATION MAP OF GEOLOGICAL SURVEY

# THE DETAILED DESIGN STUDY ON THE NAIROBI BYPASS PROJECT

SHEET NO. 18

17 18 19

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Scale 1:12,000  
HEIGHTS IN METERS

LEGEND	
	GIS Point
	Traverse Point
	Bench Mark
	Direct Leveling Height
	Spot Height
	Contours (V.L. 1m)
	Outcrop (Rock)
	Building (Permanent)
	Building (Others)
	Bituminous Road
	Road
	Track
	Railway
	Ridge/Culvert
	River
	Stream
	Dam
	Water Tank
	Power Line
	Telephone Line
	Fence/Gate
	Hedge
	Stone Wall
	Dump or Blund
	Quarry (In)
	Cutting
	Embankment
	Cultivated Lands
	Orchard or Permanent
	Plantation
	Grassland
	Bush
	Forest
	Swamp
	Vegetation Boundary
	Plotting Partition

HORIZONTAL DATUM: UTM ZONE 32  
CLARKE 1866 SPHEROID

VERTICAL DATUM: MEAN SEA LEVEL

AERIAL PHOTOGRAPHY BY:  
Japan International Cooperation Agency  
December

GROUND CONTROL SURVEYED BY:  
December

STEREO PLOTTED BY:  
MARK

CARTOGRAPHY BY:  
JICA

CHIEF ENGINEER  
DATE: / /

CHIEF SUPT. ENG.  
DATE: / /

CHECKED BY: SEN. SUPT. ENG.  
DATE: / /

SUPT. ENGINEER  
DATE: / /

PROJECT ENGINEER  
DATE: / /

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JICA TOKYO, JAPAN

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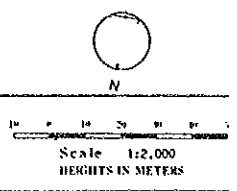
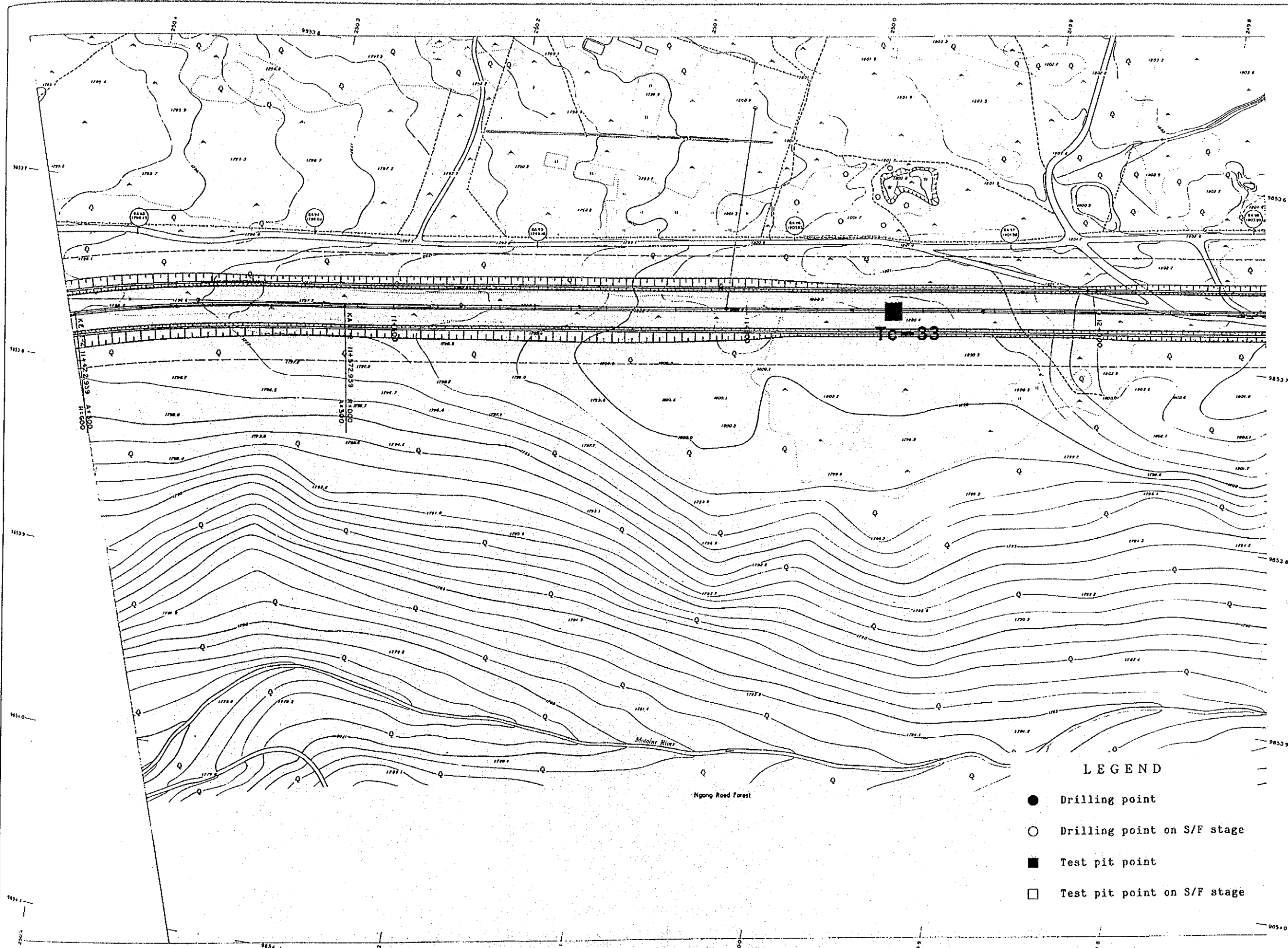
LEGEND	
	Drilling point
	Drilling point on S/F stage
	Test pit point
	Test pit point on S/F stage

DETAILED LOCATION MAP OF GEOLOGICAL SURVEY

# THE DETAILED DESIGN STUDY ON THE NAIROBI BYPASS PROJECT

SHEET NO. 19

18 19 20  
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**LEGEND**

- △ GNS Point
- Traversé Point
- ⊙ Bench Mark
- 1234.5 Direct Leveling Height
- 1234.5 Spot Height
- Contours (V.L. Int)
- Outcrop (Rock)
- Building, Farmstead
- Building, Others
- Illuminated Road
- Road
- Track
- Railway
- Bridge, Culvert
- River
- Stream
- Dam
- Pond
- Water Tank
- Power Line
- Telephone Line
- Fence, Gate
- Hedge
- Stone Wall
- Dump or Mound
- Quarry, Pit
- Culting
- Embankment
- Cultivated Lands
- Orchard or Permanent L.
- Plantation
- Grassland
- Bush
- Forest
- Swamp
- Vegetation Boundary
- Planning Partition

HORIZONTAL DATUM: UTM ZONE 37  
CLARKE 1866 SPHER

VERTICAL DATUM: MEAN SEA LEVEL

AERIAL PHOTOGRAPHED BY: JI  
Japan International Co-operation 30  
December

GROUND CONTROL SURVEYED BY: JI  
December

STEREO PLOTTED BY: JI  
MARCH

CARTOGRAPHED BY: JI  
JULY

CHIEF ENGINEER: 1980  
DATE: / /

CHIEF SUPT. ENG.: 1982  
DATE: / /

CHECKED BY: SEN SUPT. ENG.: 1982  
DATE: / /

SUPT. ENGINEER: 1982  
DATE: / /

PROJECT ENGINEER: / /  
DATE: / /

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JICA TOKYO, JAPAN

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**LEGEND**

- Drilling point
- Drilling point on S/F stage
- Test pit point
- Test pit point on S/F stage

DETAILED LOCATION MAP OF GEOLOGICAL SURVEY

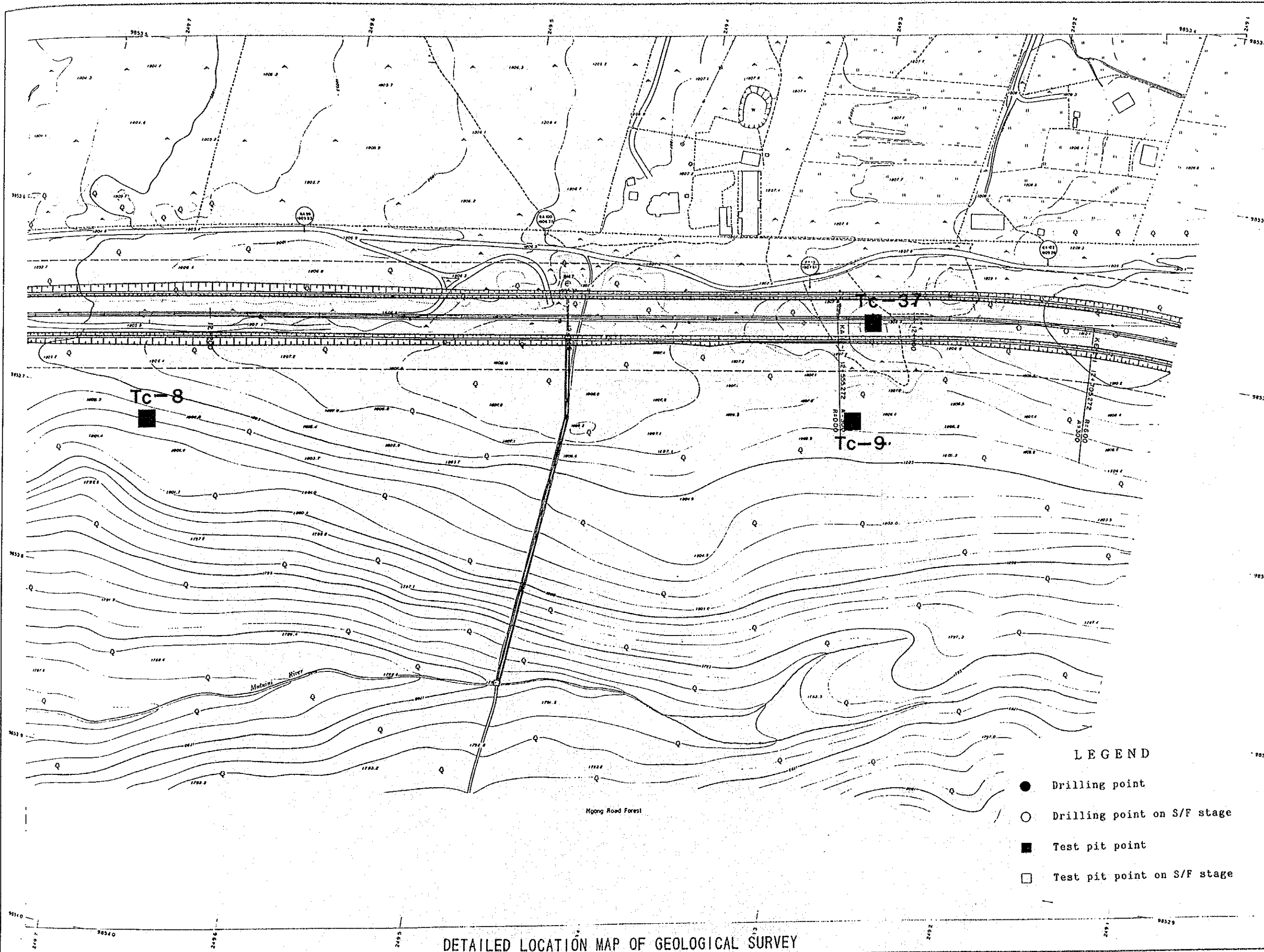


# THE DETAILED DESIGN STUDY ON THE NAIROBI BYPASS PROJECT

SHEET NO. 20

19 20 21

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Scale 1:12,000  
HEIGHTS IN METERS

**LEGEND**

- △ GTS Point
- Traverse Point
- ⊙ Bench Mark
- 1234.5 Direct Leveling Height
- 1234.5 Spot Height
- 1234.5 Contours (V.L. Int)
- ⊠ Outcrop (Rock)
- ▭ Building, Permanent
- ▭ Building, Others
- ▭ Bituminous Road
- ▭ Road
- ▭ Track
- ▭ Railway
- ▭ Bridge, Culvert
- ▭ River
- ▭ Stream
- ▭ Dam
- ▭ Pond
- ▭ Water Tank
- ▭ Power Line
- ▭ Telephone Line
- ▭ Fence, Gate
- ▭ Hedge
- ▭ Stone Wall
- ▭ Dump or Mound
- ▭ Quarry, Pit
- ▭ Cutting
- ▭ Embankment
- ▭ Cultivated Lands
- ▭ Orchard or Permanent C.
- ▭ Plantation
- ▭ Grassland
- ▭ Bush
- ▭ Forest
- ▭ Swamp
- ▭ Vegetation Boundary
- ▭ Planting Partition

HORIZONTAL DATUM: UTM ZONE 32  
CLARKE 1866 SPHER

VERTICAL DATUM: MEAN SEA LEVEL

AERIAL PHOTOGRAPHY BY: JICA International Cooperation Agency  
December

GROUND CONTROL SURVEY BY: JICA  
December

STEREO PLOTTED BY: JICA  
MARCH

CARTOGRAPHY BY: JICA  
JULY

CHECKED BY: SEN SUPT. ENG. [DATE]

SUPT. ENGINEER [DATE]

PROJECT ENGINEER [DATE]

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OFFICE OF ORIGIN  
JICA TOKYO, JAPAN

SHEET 20 OF 46

**LEGEND**

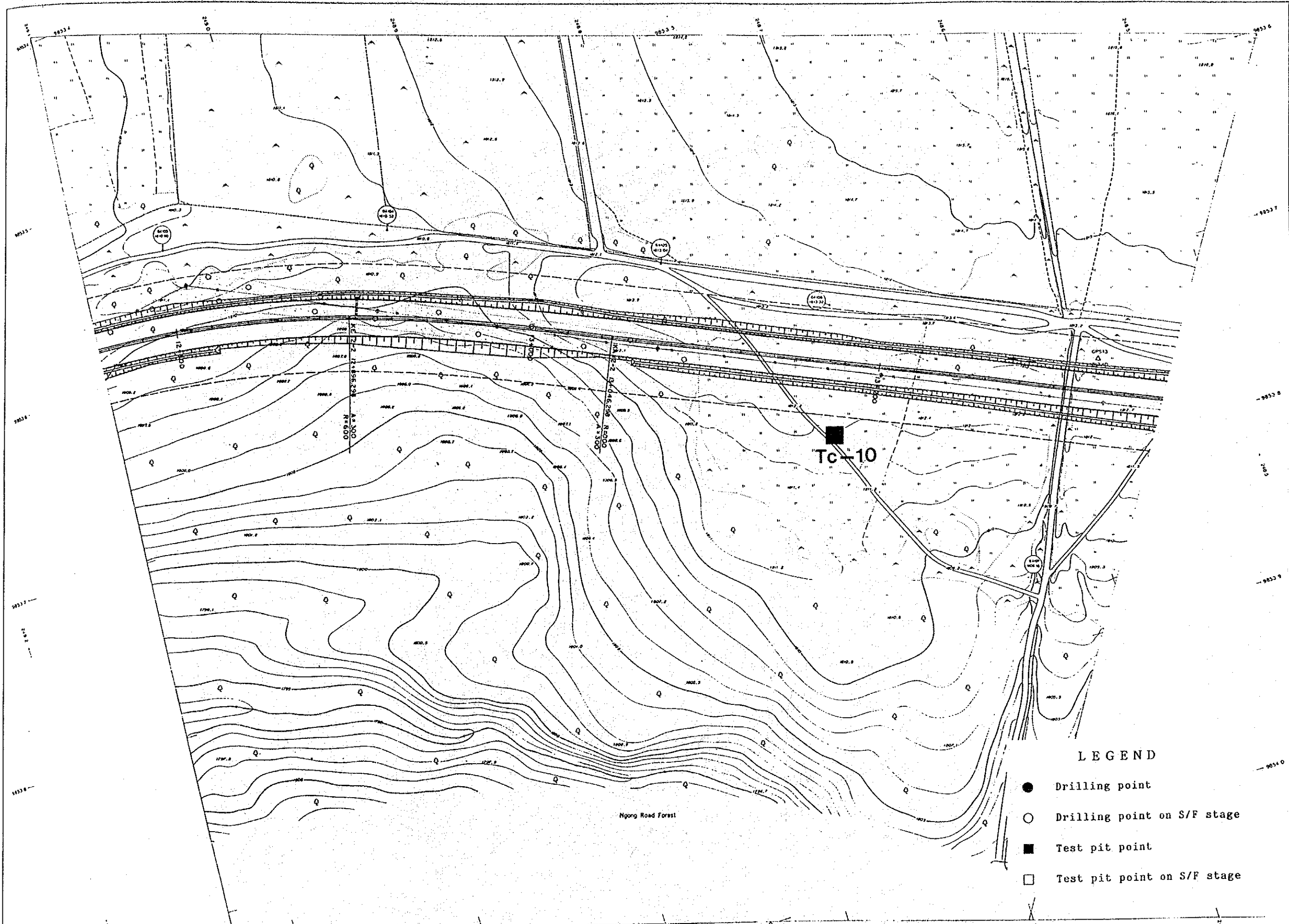
- Drilling point
- Drilling point on S/F stage
- Test pit point
- Test pit point on S/F stage

DETAILED LOCATION MAP OF GEOLOGICAL SURVEY



# THE DETAILED DESIGN STUDY ON THE NAIROBI BYPASS PROJECT

SHEET NO. 21



Scale 1:12,000  
HEIGHTS IN METERS

**LEGEND**

- △ GPS Point
- Traverse Point
- ⊕ Bench Mark
- 1234.5 Direct Leveling Height
- 1234.5 Spot Height
- Contours (V.L. Int)
- Outcrop (Rock)
- ▭ Building, Farmhouse
- ▭ Building Others
- ▭ Bituminous Road
- ▭ Road
- ▭ Track
- ▭ Railway
- ▭ Bridge, Culvert
- ▭ River
- ▭ Stream
- ▭ Dam
- ▭ Pond
- ▭ Water Tank
- ▭ Power Line
- ▭ Telephone Line
- ▭ Fence, Gate
- ▭ Hedge
- ▭ Stone Wall
- ▭ Dump of Material
- ▭ Quarry, Pit
- ▭ Cutting
- ▭ Embankment
- ▭ Cultivated Lands
- ▭ Orchard or Permanent
- ▭ Pasture
- ▭ Grassland
- ▭ Bush
- ▭ Forest
- ▭ Swamp
- ▭ Vegetation Boundary
- ▭ Planting Partition

HORIZONTAL DATUM: UTM ZONE 37  
CLARKE 1866 SPIEGEL

VERTICAL DATUM: MEAN SEA LEVEL

AERIAL PHOTOGRAPHY BY: J  
Japan International Cooperation Agency  
December

GROUND CONTROL SURVEYED BY: J  
December

STEREO PLOTTED BY: MARCI

CARTOGRAPHY BY: JI'S

**LEGEND**

- Drilling point
- Drilling point on S/F stage
- Test pit point
- Test pit point on S/F stage

CHECKED BY:

CHIEF ENGINEER (SR)  
DATE / /

CHIEF SFT. ENG. (SR)  
DATE / /

SEN. SFT. ENG. (SR)  
DATE / /

SFT. ENGINEER (SR)  
DATE / /

PROJECT ENGINEER  
DATE / /

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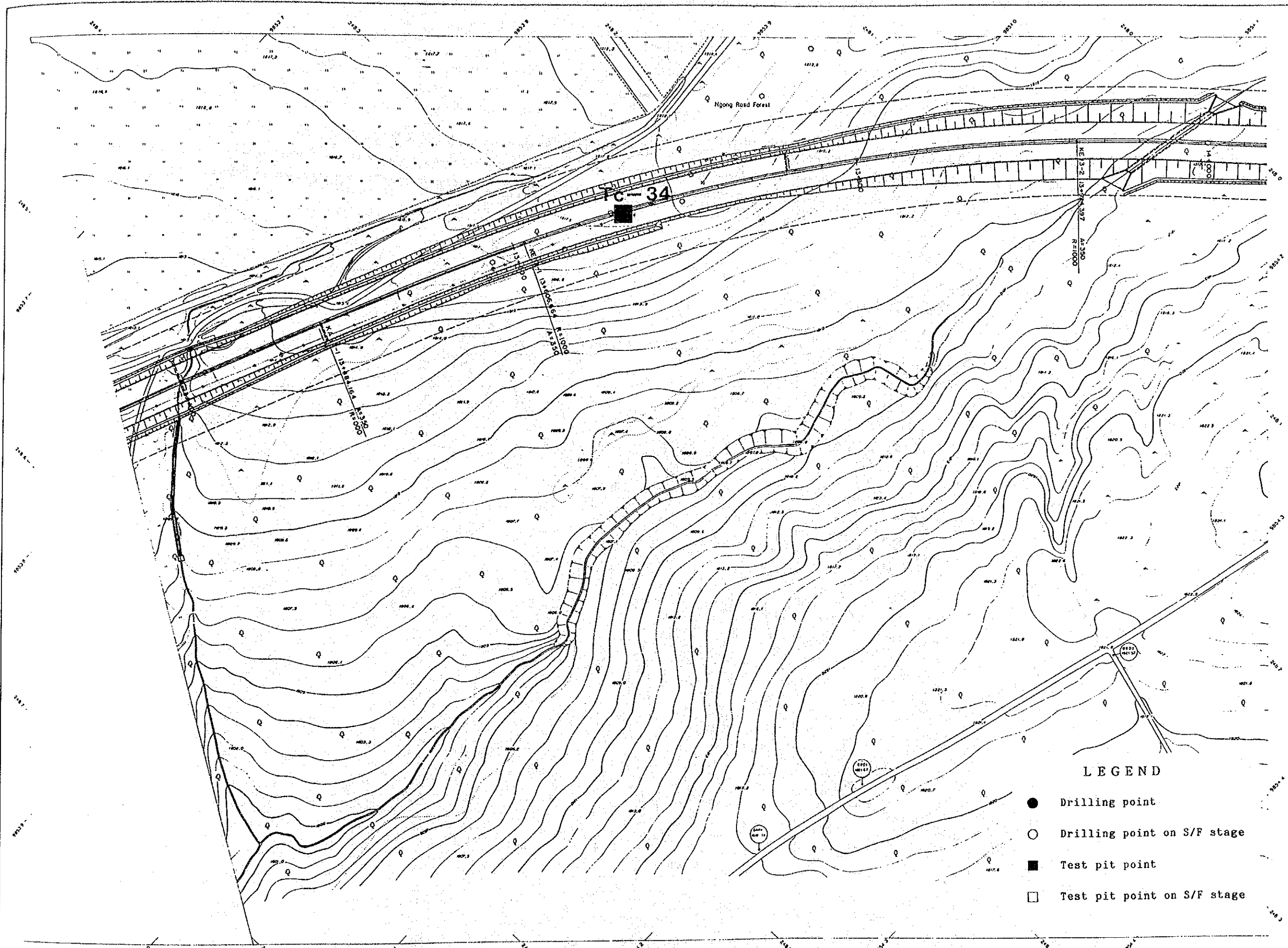
DETAILED LOCATION MAP OF GEOLOGICAL SURVEY

# THE DETAILED DESIGN STUDY ON THE NAIROBI BYPASS PROJECT

SHEET NO. 22

21 22 23

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Scale 1:2,000  
HEIGHTS IN METERS

LEGEND	
	GPS Point
	Traverse Point
	Bench Mark
	Direct Leveling Height
	Spot Height
	Contours (V.L. Line)
	Outcrop (Rocks)
	Building (Permanent)
	Building (Others)
	Bituminous Road
	Road
	Track
	Railway
	Bridge/Culvert
	River
	Stream
	Dam
	Pond
	Water Tank
	Power Line
	Telephone Line
	Fence/Gate
	Hedge
	Stone Wall
	Dump of Mud
	Quarry (In)
	Cutting
	Embankment
	Cultivated Land
<td>Orchard or Permanent Cr.</td>	Orchard or Permanent Cr.
	Plantation
	Grassland
	Bush
	Forest
	Swamp
	Vegetation Boundary
	Planting Partition

HORIZONTAL DATUM: UTM ZONE 2  
CLARKE 1866 SPHEROID

VERTICAL DATUM: MEAN SEA LEVEL

AERIAL PHOTOGRAPHY BY: JICA  
Japan International Cooperation Agency  
December

GROUND CONTROL SURVEYED BY: JICA  
December

STEREO PLOTTED BY: JICA  
MARCH

CARTOGRAPHED BY: JICA  
JULY

CHIEF ENGINEER (CR)  
DATE: / /

CHIEF SURV. ENG. (CR)  
DATE: / /

CHECKED BY: SEN. SURV. ENG. (CR)  
DATE: / /

SURV. ENGINEER (CR)  
DATE: / /

PROJECT ENGINEER  
DATE: / /

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JICA TOKYO, JAPAN

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LEGEND	
	Drilling point
	Drilling point on S/F stage
	Test pit point
	Test pit point on S/F stage

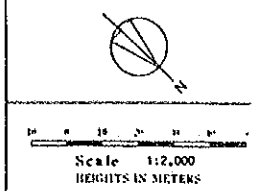
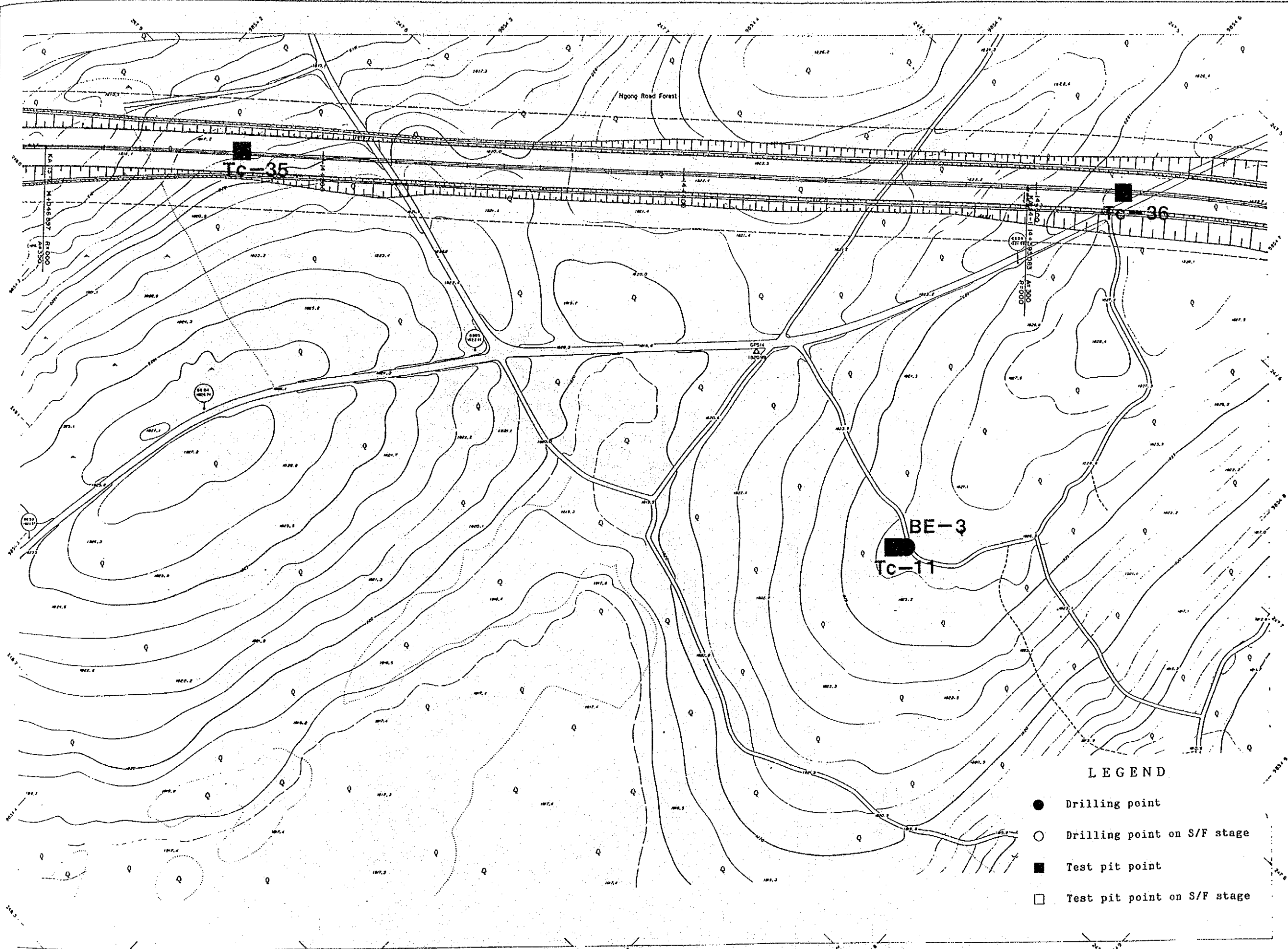
DETAILED LOCATION MAP OF GEOLOGICAL SURVEY

# THE DETAILED DESIGN STUDY ON THE NAIROBI BYPASS PROJECT

SHEET NO. 23

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**LEGEND**

- GNS Iron
- Traverse Iron
- Bench Mark
- Direct Leveling Height
- Spot Height
- Contours (V.L.I.m)
- Outcrop (Rock)
- Building, Permanent
- Building, Ethers
- Bituminous Road
- Road
- Track
- Railway
- Bridge, Culvert
- River
- Stream
- Dam
- Pond
- Water Tank
- Power Line
- Telephone Line
- Fence, Gate
- Hedge
- Stone Wall
- Damp or Mound
- Quarry, Pit
- Cutting
- Embankment
- Cultivated Lands
- Decid or Permanent C
- Plantation
- Grassland
- Bush
- Forest
- Swamp
- Vegetation Boundary
- Planning Partition

HORIZONTAL DATUM: UTM ZONE 37  
CLARKE 1866 Spheroid

VERTICAL DATUM: MEAN SEA LEVEL

AERIAL PHOTOGRAPHED BY: JI  
(Japan International Cooperation Agency) December

GROUND CONTROL SURVEYED BY: JI  
December

STEREO PLOTTED BY: JI  
MARCH

CARTOGRAPHED BY: JI  
JULY

**LEGEND**

- Drilling point
- Drilling point on S/F stage
- Test pit point
- Test pit point on S/F stage

CHECKED BY:

CHIEF ENGINEER	(S)
DATE:	/ /
CHIEF SUPT. ENG.	(S)
DATE:	/ /
SEN SUPT. ENG.	(S)
DATE:	/ /
SUPT. ENGINEER	(S)
DATE:	/ /
PROJECT ENGINEER	(S)
DATE:	/ /

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JICA TOKYO, JAPAN

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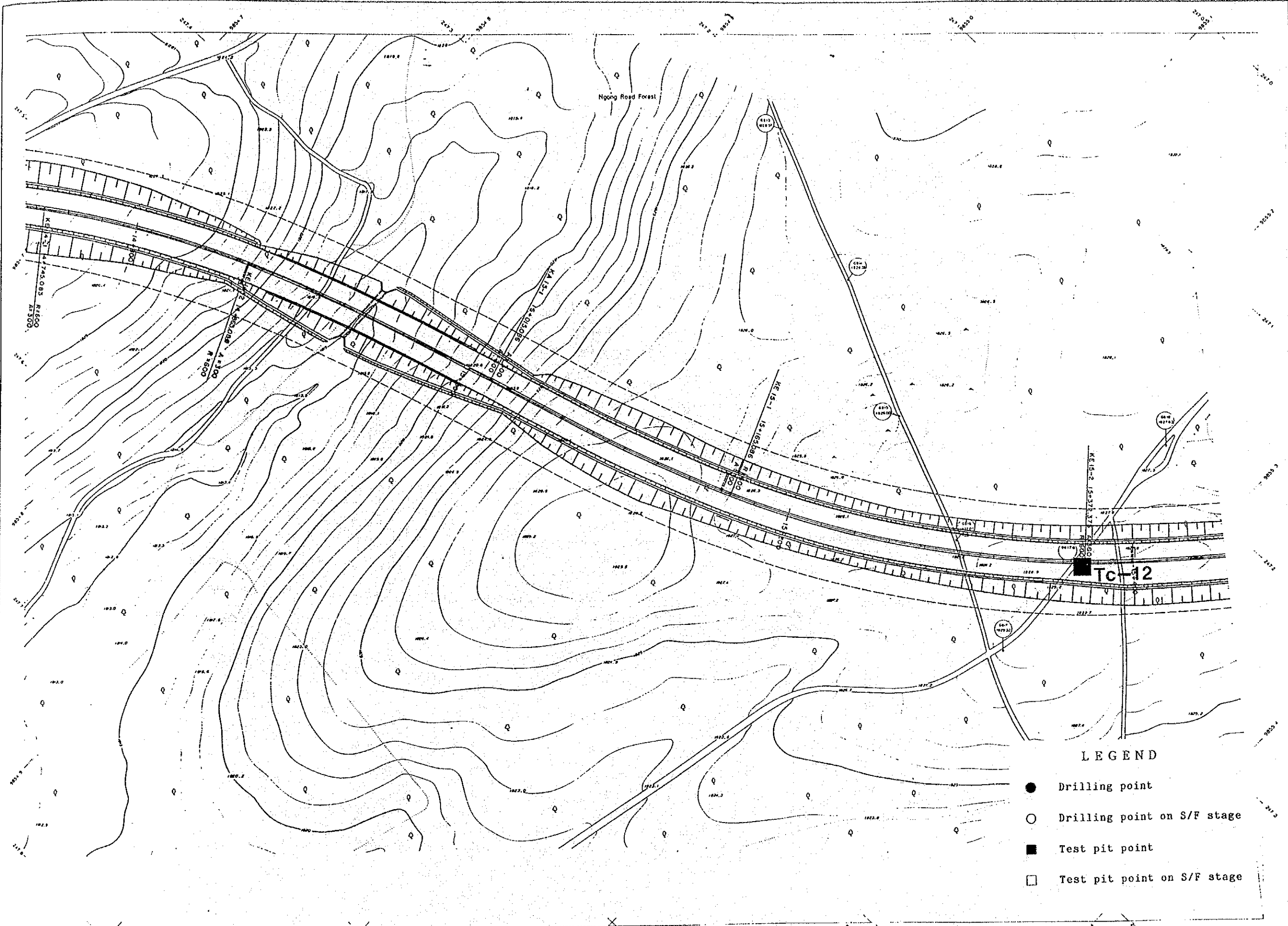
DETAILED LOCATION MAP OF GEOLOGICAL SURVEY

# THE DETAILED DESIGN STUDY ON THE NAIROBI BYPASS PROJECT

SHEET NO. 24

23 24 25  
25-1

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Scale 1: 1:2,000  
HEIGHTS IN METERS

**LEGEND**

- △ GPS Point
- Traverse Point
- Bench Mark
- 1224.5 Direct Leveling Height
- 1224.8 Spot Height
- 1224.8 Contours (V.L. 1m)
- Outcrop (Rock)
- Building, Permanent
- Building, Others
- Bituminous Road
- Road
- Track
- Railway
- Bridge, Culvert
- River
- Stream
- Dam
- Dred
- Water Tank
- Power Line
- Telephone Line
- Fence, Gate
- Hedge
- Stone Wall
- Dump or Mound
- Quarry, Pit
- Cutting
- Embankment
- Cultivated Lands
- Orchard or Permanent C.
- Plantation
- Grassland
- Bush
- Forest
- Swamp
- Vegetation Boundary
- Planting Partition

HORIZONTAL DATUM: UTM ZONE 37  
CLARKE 1866 SPHER

VERTICAL DATUM: MEAN SEA LEVEL

AERIAL PHOTOGRAPHED BY: JICA  
Japan International Co-operation Agency  
December

GROUND CONTROL SURVEYED BY: JICA  
December

STEREO PLOTTED BY: JICA  
MARCH

CARTOGRAPHED BY: JICA  
JULY

**LEGEND**

- Drilling point
- Drilling point on S/F stage
- Test pit point
- Test pit point on S/F stage

CHECKED BY:

CHIEF ENGINEER	08/0
DATE:	/ /
CHIEF SVPT. ENG.	08/5
DATE:	/ /
SEN. SVPT. ENG.	08/5
DATE:	/ /
SVPT. ENGINEER	08/2
DATE:	/ /
PROJECT ENGINEER	08/2
DATE:	/ /

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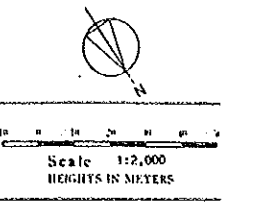
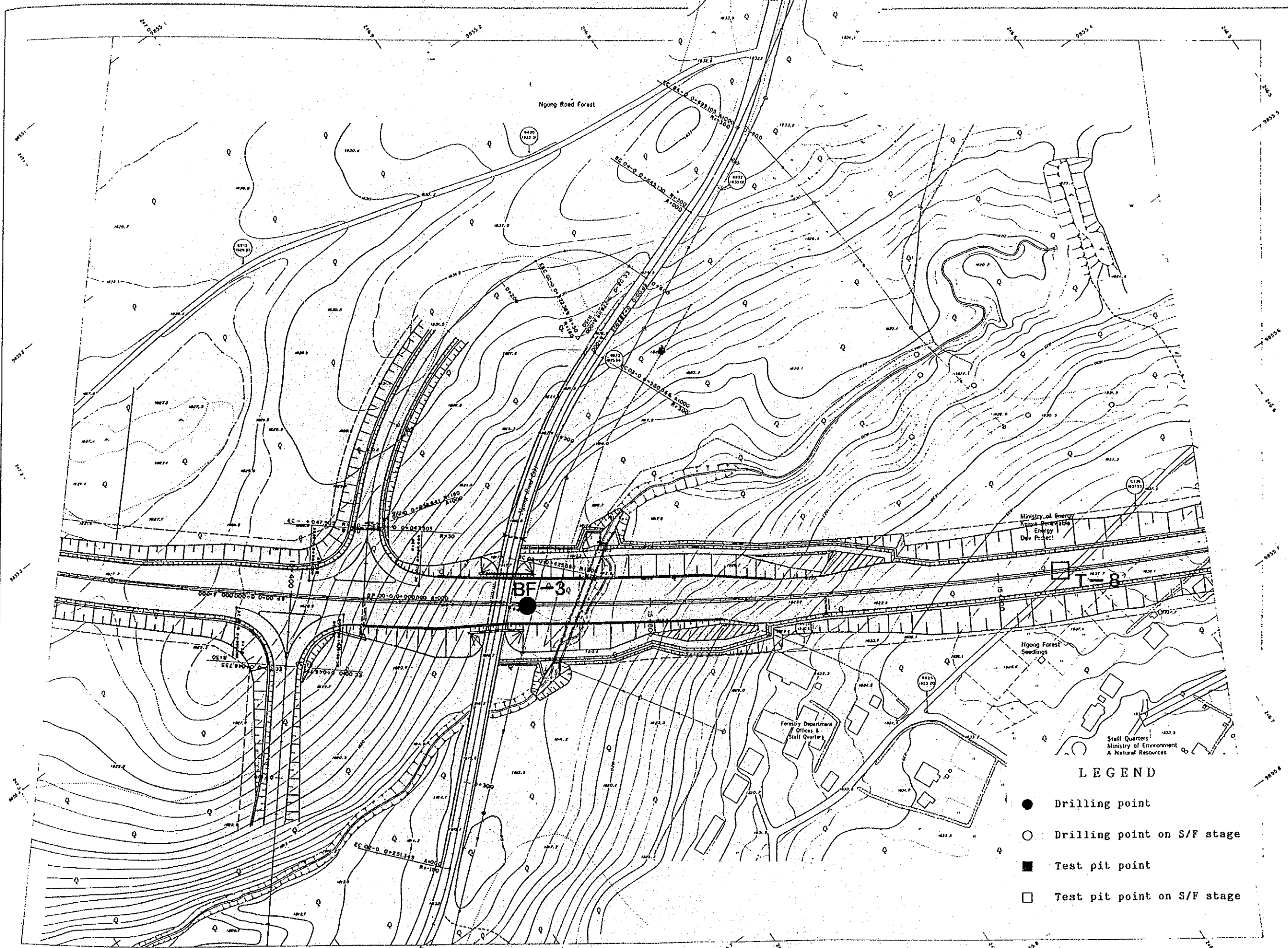
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DETAILED LOCATION MAP OF GEOLOGICAL SURVEY





**LEGEND**

- △ GPS Point
- ⊙ Traverse Point
- ⊕ Bench Mark
- 1234.5 Direct Leveling Height
- Spot Height
- Contours (V.L. Int)
- Outer-⊙ (Rock)
- Building, Permanent
- Building, Other
- Bituminised Road
- Road
- Track
- Railway
- Bridge, Culvert
- River
- Stream
- Dam
- Flood
- Water Tank
- Power Line
- Telephone Line
- Fence, Gate
- Hedge
- Stone Wall
- Dump or Mound
- Quarry, Pit
- Cutting
- Embankment
- Cultivated Lands
- Orchard or Permanent Cr.
- Plantation
- Grassland
- Bush
- Forest
- Swamp
- Vegetation Boundary
- Planting Partition

HORIZONTAL DATUM: UTM ZONE 32  
(CLARKE 1866 SPIER)

VERTICAL DATUM: MEAN SEA LEVEL

AERIAL PHOTOGRAPHY BY: JICA  
Japan International Cooperation Agency  
December 1

GROUND CONTROL SURVEYED BY: JICA  
December 1

STEREO PLOTTED BY: JICA  
MARCH 1

CARTOGRAPHY BY: JICA  
JULY 1

CHIEF ENGINEER: (SIGNED)  
DATE: \_\_\_\_\_

CHIEF SUPT. ENG. (SIGNED)  
DATE: \_\_\_\_\_

CHECKED BY: SEN. SUPT. ENG. (SIGNED)  
DATE: \_\_\_\_\_

SUPT. ENGINEER (SIGNED)  
DATE: \_\_\_\_\_

PROJECT ENGINEER  
DATE: \_\_\_\_\_

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JICA TOKYO, JAPAN

**LEGEND**

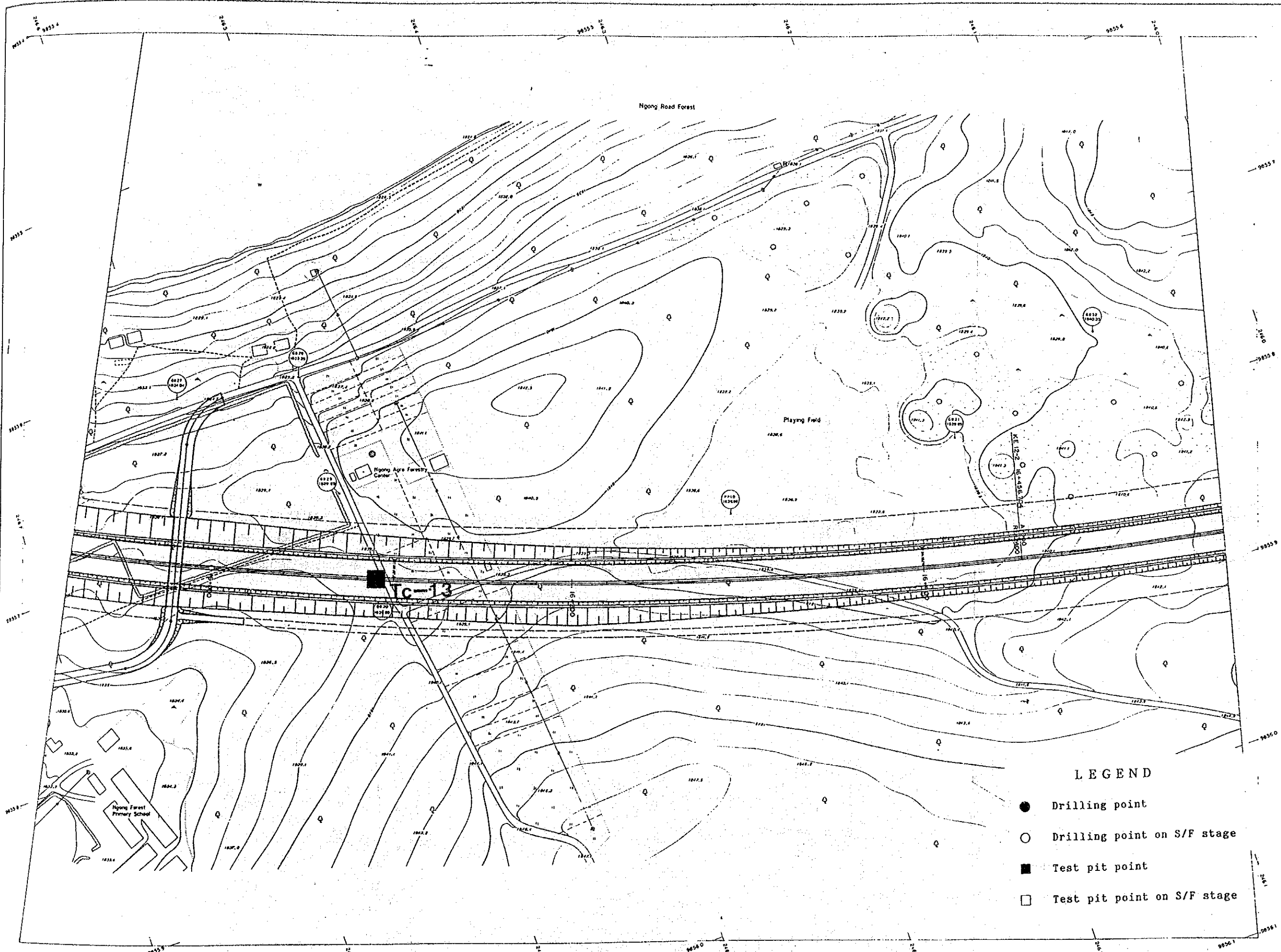
- Drilling point
- Drilling point on S/F stage
- Test pit point
- Test pit point on S/F stage

DETAILED LOCATION MAP OF GEOLOGICAL SURVEY

# THE DETAILED DESIGN STUDY ON THE NAIROBI BYPASS PROJECT

SHEET NO. 26

25 26 27  
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Scale 1:2,000  
HEIGHTS IN METERS

- LEGEND**
- △ GPS Point
  - Traverse Point
  - ⊕ Bench Mark
  - 1234.5 Direct Leveling Height
  - 1234.5 Spot Height
  - Contours (V.I. Int)
  - Outcrop (Rock)
  - ▭ Building, Permanent
  - ▭ Building, Others
  - ▭ Bituminous Road
  - ▭ Road
  - Track
  - Railway
  - Bridge, Culvert
  - River
  - Stream
  - Dam
  - Pond
  - Water Tank
  - Power Line
  - Telephone Line
  - Fence, Gate
  - Hedge
  - Stone Wall
  - Dump or Shand
  - Quarry, Pit
  - Cutting
  - Embankment
  - Cultivated Land
  - Orchard or Permanent Cr
  - Plantation
  - Grassland
  - Bush
  - Forest
  - Swamp
  - Vegetation Boundary
  - Planting Particles

HORIZONTAL DATUM: UTM ZONE 37  
CLARKE 1866 SPHERE

VERTICAL DATUM: MEAN SEA LEVEL

AERIAL PHOTOGRAPHED BY: JP  
Japan International Cooperation Agency  
December

GROUND CONTROL SURVEYED BY: JP  
December

STEREO PLOTTED BY: JP  
MARCH

CARTOGRAPHED BY: JP  
JULY

- LEGEND**
- Drilling point
  - Drilling point on S/F stage
  - Test pit point
  - Test pit point on S/F stage

CHIEF ENGINEER: (10) / /  
DATE: / /

CHIEF SUPT. ENG: (10) / /  
DATE: / /

CHECKED BY: SEN SUPT. ENG: (10) / /  
DATE: / /

SUPT. ENGINEER: (10) / /  
DATE: / /

PROJECT ENGINEER: / /  
DATE: / /

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JICA - TOKYO, JAPAN

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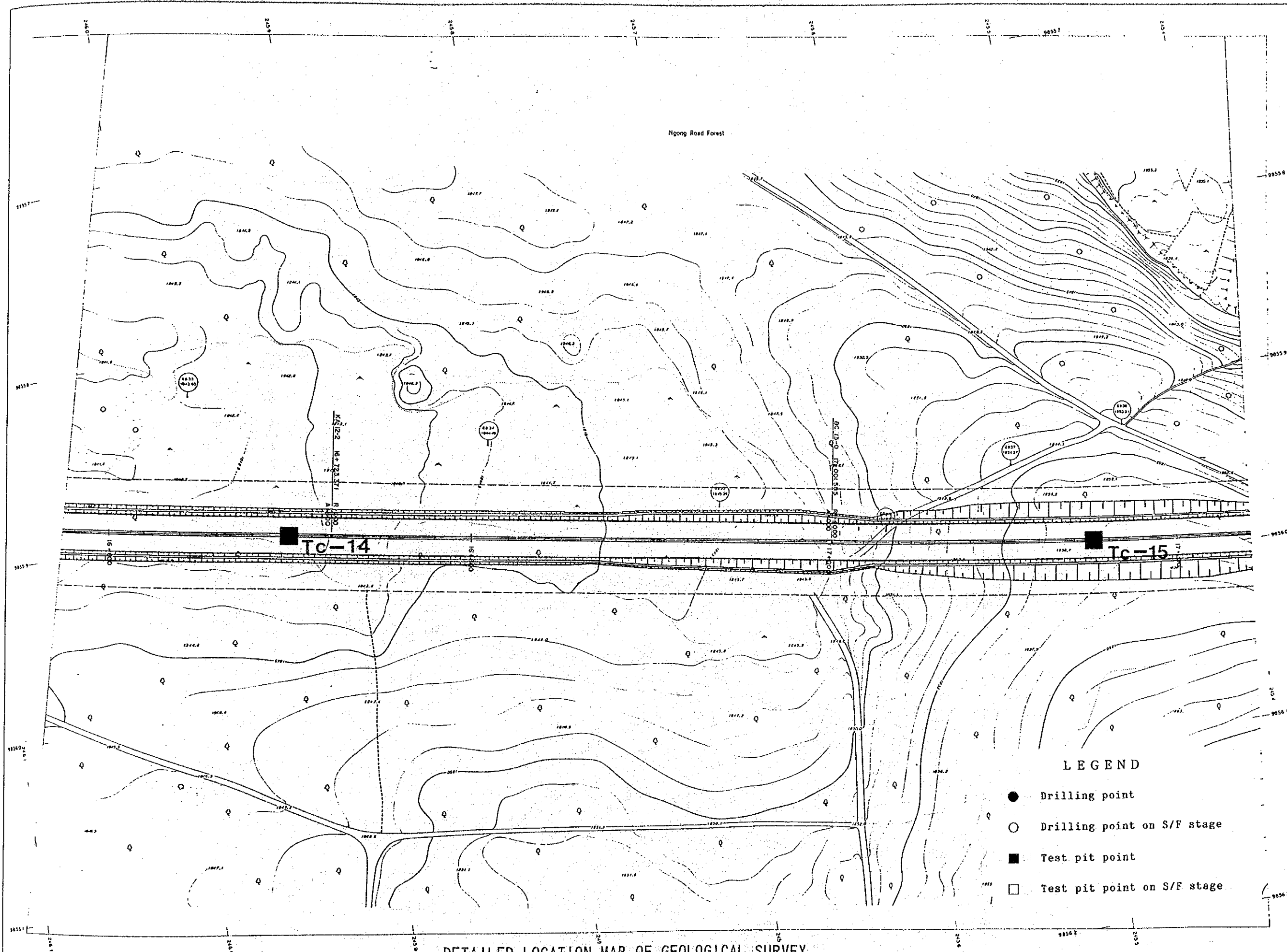
DETAILED LOCATION MAP OF GEOLOGICAL SURVEY

# THE DETAILED DESIGN STUDY ON THE NAIROBI BYPASS PROJECT

SHEET NO. 27

26 27 28

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Scale 1:2,000  
HEIGHTS IN METERS

**LEGEND**

- △ GPS Point
- Travers Point
- ⊕ Bench Mark
- 1274.5 Direct Leveling Height
- 2274.5 Spot Height
- 1272.5 Contours (V.I.M)
- Outcrop (Rock)
- ▨ Building Permanent
- ▩ Building Others
- ▧ Bituminous Road
- ▬ Road
- ▬ Track
- ▬ Railway
- ▬ Hedge, Culvert
- ▬ River
- ▬ Stream
- ▬ Dam
- ▬ Pond
- Water Tank
- ▬ Power Line
- ▬ Telephone Line
- ▬ Fence, Gate
- ▬ Hedge
- ▬ Stone Wall
- ▬ Dump or Mound
- ▬ Quarry, Pit
- ▬ Cutting
- ▬ Embankment
- ▬ Cultivated Lands
- ▬ Orchard or Permanent C
- ▬ Plantation
- ▬ Grassland
- Bush
- Forest
- ▬ Swamp
- ▬ Vegetation Boundary
- ▬ Planting Partition

HORIZONTAL DATUM: UTM ZONE 2  
CLANKE 1000 SPHER

VERTICAL DATUM: MEAN SEA LEVEL

AERIAL PHOTOGRAPHY BY: JI  
Japan International Cooperation Agency  
December

GROUND CONTROL SURVEYED BY: JI  
December

STEREO PLOTTED BY: JI  
MARCH

CARTOGRAPHED BY: JI  
JULY

CHIEF ENGINEER: JI  
DATE: / /

CHIEF Supt. Eng. JI  
DATE: / /

CHECKED BY: SEN. Supt. Eng. JI  
DATE: / /

Supt. Engineer JI  
DATE: / /

PROJECT ENGINEER JI  
DATE: / /

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JICA TOKYO, JAPAN

SHEET 27 OF 46

**LEGEND**

- Drilling point
- Drilling point on S/F stage
- Test pit point
- Test pit point on S/F stage

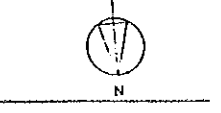
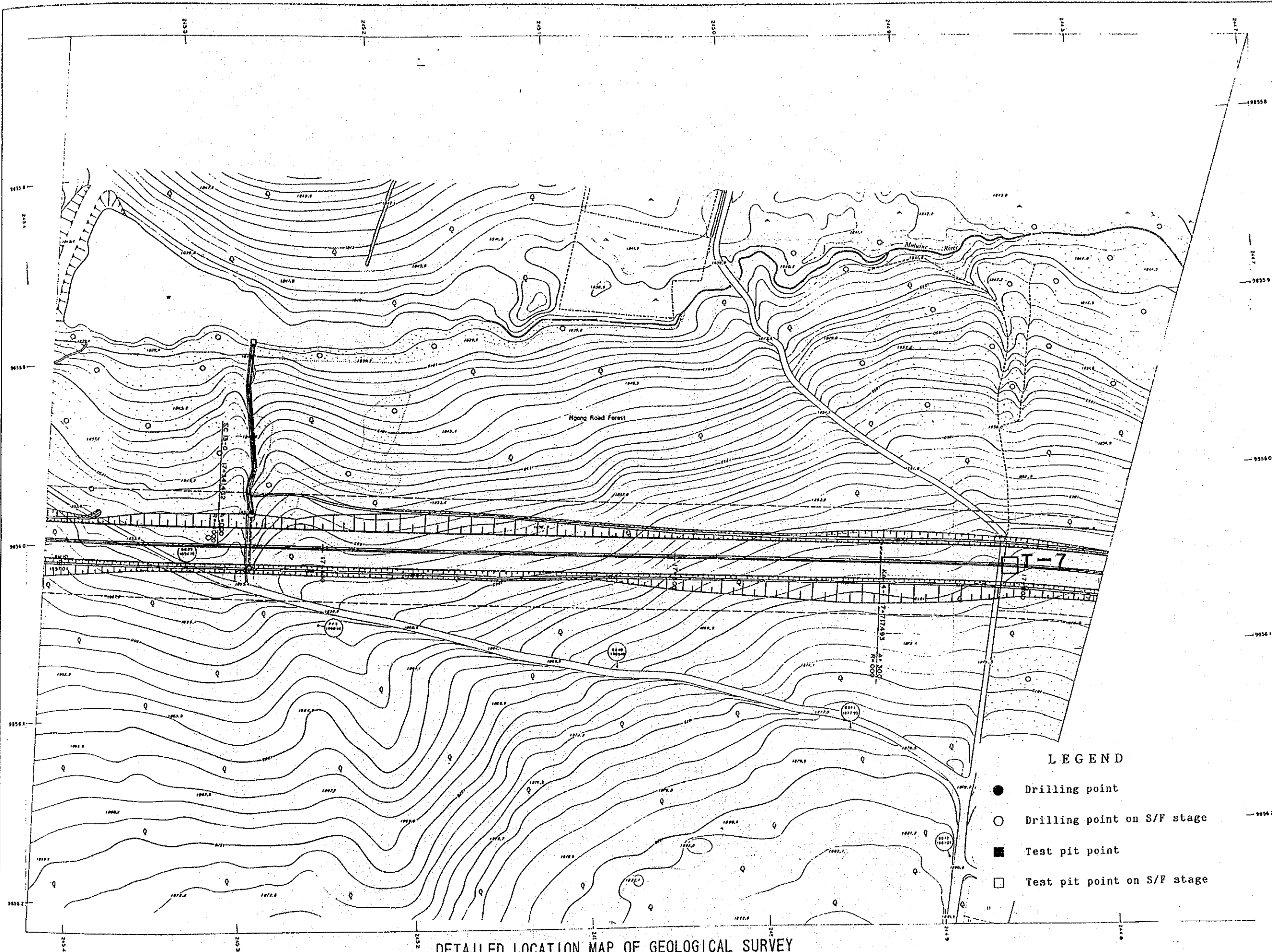
DETAILED LOCATION MAP OF GEOLOGICAL SURVEY

# THE DETAILED DESIGN STUDY ON THE NAIROBI BYPASS PROJECT

SHEET NO. 28

27 28

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Scale 1:2,000  
HEIGHTS IN METERS

- LEGEND**
- △ GPS Point
  - Travers Point
  - ⊕ Bench Mark
  - 1234.5 Direct Leveling Height
  - Spot Height
  - Contours (V.L.I.m)
  - Outcrop (Rock)
  - Building, Permanent
  - Building, Others
  - Bituminous Road
  - Road
  - Track
  - Railway
  - Bridge, Culvert
  - River
  - Stream
  - Dam
  - Pond
  - Water Tank
  - Power Line
  - Telephone Line
  - Fence, Gate
  - Hedge
  - Stone Wall
  - Dump or Mound
  - Quarry, Pit
  - Cutting
  - Embankment
  - Cultivated Land
  - Orchard or Permanent
  - Plantation
  - Grassland
  - Bush
  - Fences
  - Swamp
  - Vegetation Boundary
  - Planting Partition

HORIZONTAL DATUM UTM ZONE 3  
CLARKE 1866 SPH

VERTICAL DATUM MEAN SEA LEVEL

AERIAL PHOTOGRAPHY BY  
Japan International Cooperation Agency  
Decem

GROUND CONTROL SURVEYED BY  
Decem

STEREO PLOTTED BY  
MAR

CARTOGRAPHED BY:  
JU

CHIEF ENGINEER  
DATE: / /

CHIEF SUPT. ENG.  
DATE: / /

CHECKED BY: SEN. SUPT. ENG.  
DATE: / /

SUPT. ENGINEER  
DATE: / /

PROJECT ENGINEER  
DATE: / /

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SHEET 28 OF 46

- LEGEND**
- Drilling point
  - Drilling point on S/F stage
  - Test pit point
  - Test pit point on S/F stage

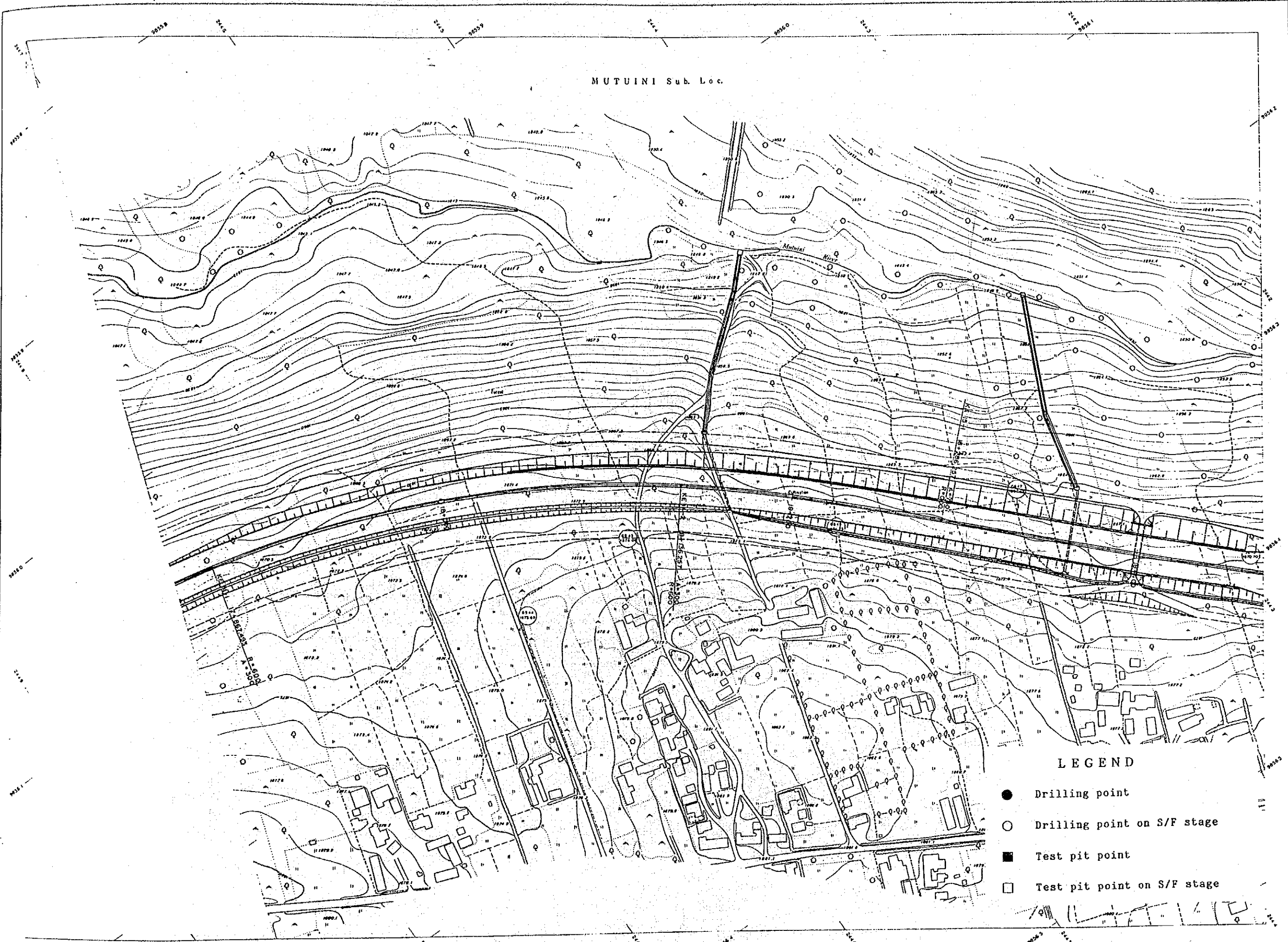
DETAILED LOCATION MAP OF GEOLOGICAL SURVEY



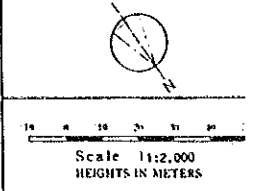
# THE DETAILED DESIGN STUDY ON THE NAIROBI BYPASS PROJECT

SHEET NO. 29

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MUTUINI Sub. Loc.



**LEGEND**

- GPS Point
- Traverse Point
- Bench Mark
- Direct Leveling Height
- Spot Height
- Contours (V.L. Lim)
- Outcrop (Rock)
- Building, Permanent
- Building, Others
- Bituminous Road
- Road
- Track
- Railway
- Bridge, Culvert
- River
- Stream
- Dam
- Pond
- Water Tank
- Power Line
- Telephone Line
- Fence, Gate
- Hedge
- Stone Wall
- Dump or Mound
- Quarry, Pit
- Cutting
- Embankment
- Cultivated Lands
- Orchard or Permanent C. Land
- Plantation
- Grassland
- Bush
- Forest
- Swamp
- Vegetation Boundary
- Planting Partition

HORIZONTAL DATUM: UTM ZONE 37  
CLARKE 1866 SPHEROID

VERTICAL DATUM: MEAN SEA LEVEL

AERIAL PHOTOGRAPHY BY: JICA  
Japan International Cooperation Agency  
December

GROUND CONTROL SURVEYED BY: JICA  
December

STEREO PLOTTED BY: JICA  
MARCH

CARTOGRAPHED BY: JICA  
JULY

**LEGEND**

- Drilling point
- Drilling point on S/F stage
- Test pit point
- Test pit point on S/F stage

CHECKED BY: SEN. SUPT. ENG. [ ] DATE: [ ]

SUPT. ENGINEER [ ] DATE: [ ]

PROJECT ENGINEER [ ] DATE: [ ]

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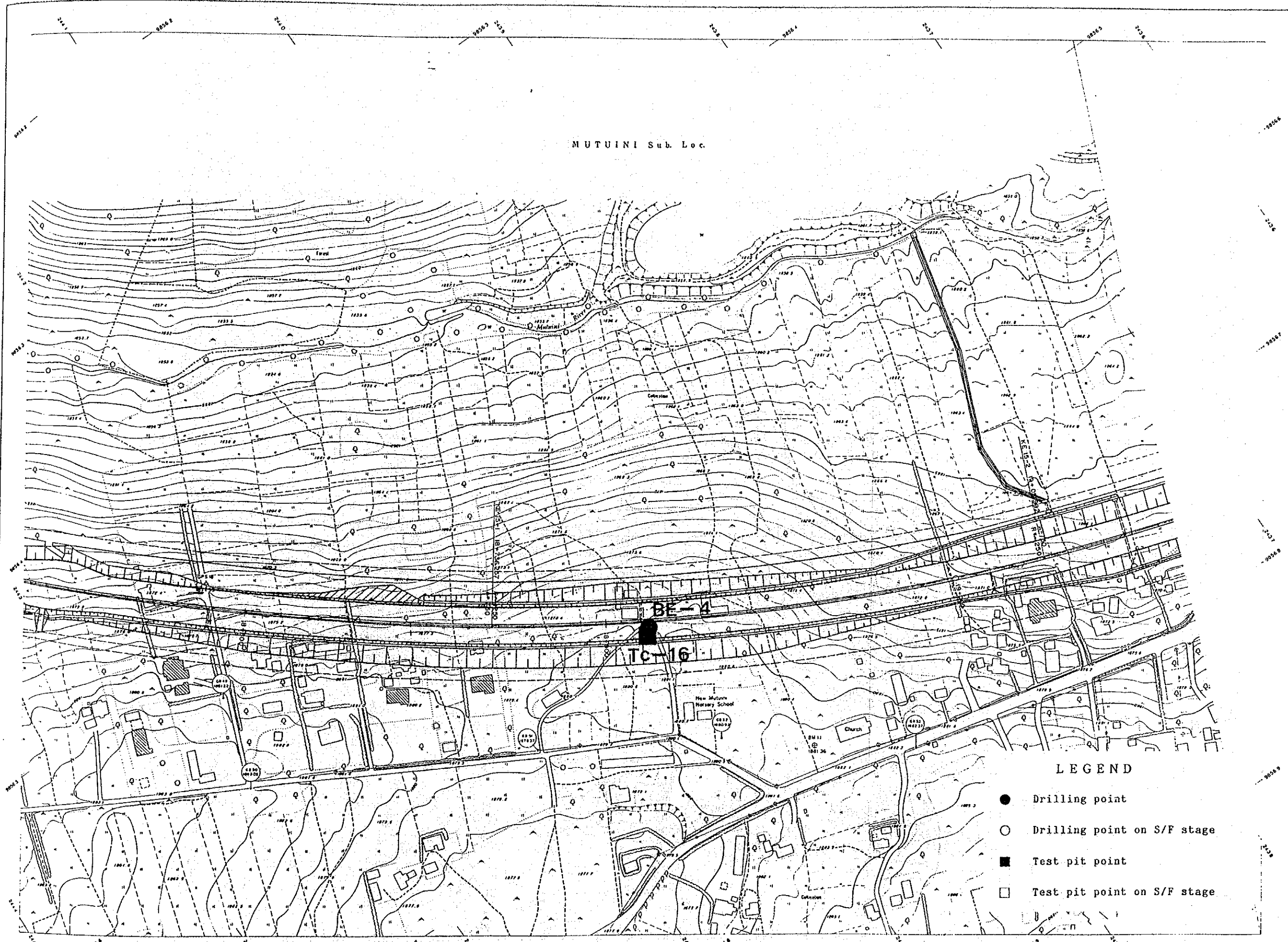
DETAILED LOCATION MAP OF GEOLOGICAL SURVEY

# THE DETAILED DESIGN STUDY ON THE NAIROBI BYPASS PROJECT

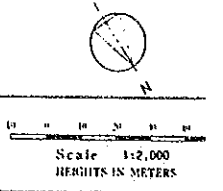
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29 30 31

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DETAILED LOCATION MAP OF GEOLOGICAL SURVEY



**LEGEND**

	GNS Point
	Traverse Point
	Bench Mark
	Direct Leveling Hey
	Spot Height
	Contours (V.L. 1m)
	Outcrop (Rock)
	Building, Permanent
	Building, Others
	Bituminised Road
	Road
	Track
	Railway
	Bridge, Culvert
	River
	Stream
	Dam
	Pond
	Water Tank
	Power Line
	Telephone Line
	Fence, Gate
	Hedge
	Stone Wall
	Dump or Shourd
	Quarry, Pit
	Cutting
	Embankment
	Cultivated Lands
	Orchard or Permanent
	Plantation
	Grassland
	Bush
	Forest
	Swamp
	Vegetation Boundary
	Planting Partition

HORIZONTAL DATUM: UTM ZONE 34  
(CLARKE 1866 SPHEROID)

VERTICAL DATUM: MEAN SEA LEVEL

AERIAL PHOTOGRAPHY BY:  
Japan International Cooperation Agency

GROUND CONTROL SURVEYED BY:  
JICA

STEREO PLOTTED BY: MARC

CARTOGRAPHY BY: JICA

**LEGEND**

	Drilling point
	Drilling point on S/F stage
	Test pit point
	Test pit point on S/F stage

CHECKED BY:

CHIEF ENGINEER	DATE
CHIEF SUPT ENG	DATE
SEN. SUPT ENG	DATE
SUPT ENGINEER	DATE
PROJECT ENGINEER	DATE

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JICA TOKYO, JAPAN

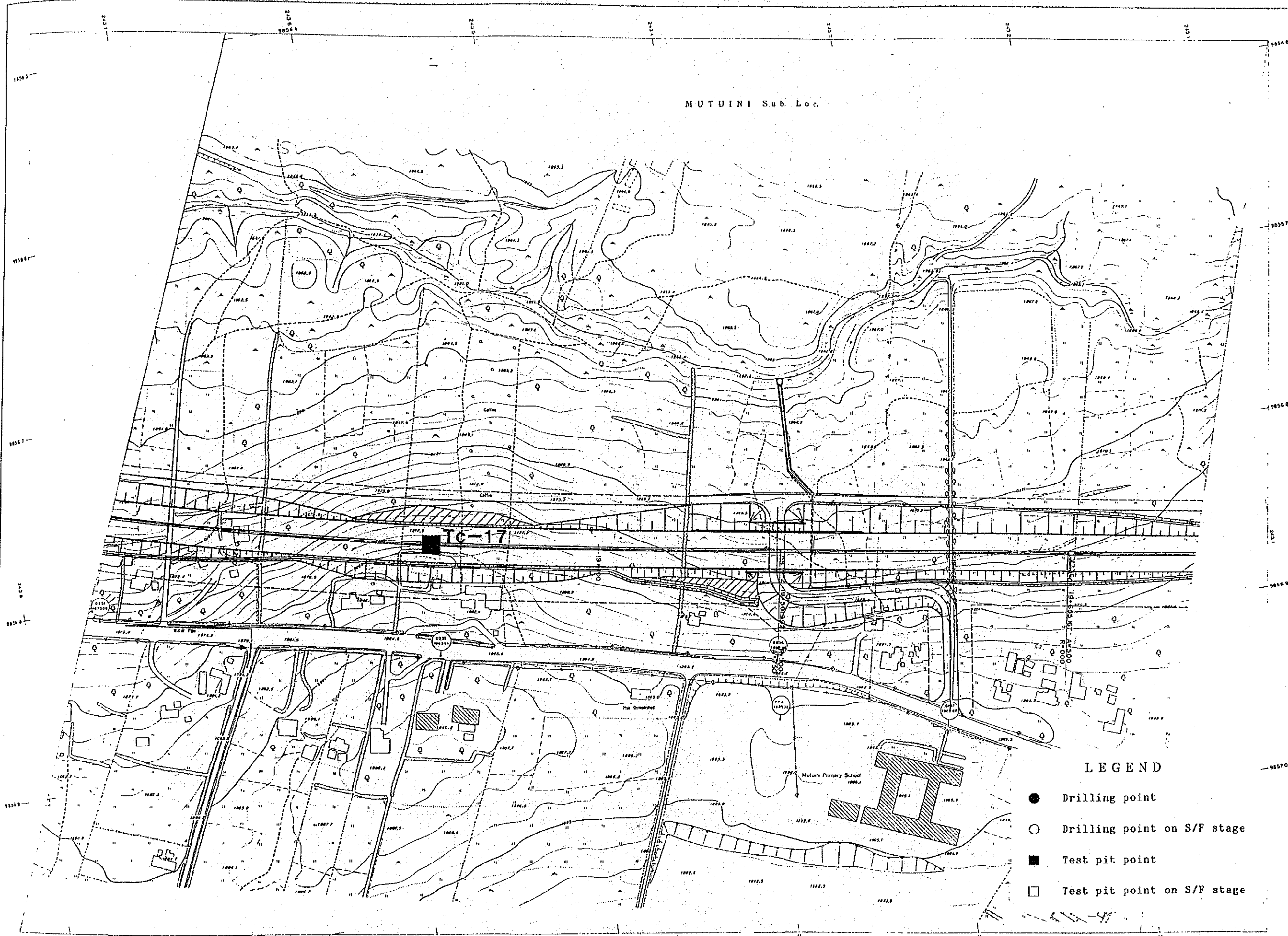
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# THE DETAILED DESIGN STUDY ON THE NAIROBI BYPASS PROJECT

SHEET NO. 31

30 31 32

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Scale 1:2,000  
HEIGHTS IN METERS

**LEGEND**

- △ GPS Point
- Traverse Point
- ⊕ Bench Mark
- 1234.5 Direct Leveling Height
- 123.4 Spot Height
- 123.4 Contours (V.L.M)
- ⊠ Outcrop (Rock)
- ▭ Building, Permanent
- ▭ Building, Others
- ▭ Bituminous Road
- ▭ Road
- ▭ Track
- ▭ Railway
- ▭ Bridge, Culvert
- ▭ River
- ▭ Stream
- ▭ Dam
- ▭ Pond
- ▭ Water-Tank
- ▭ Power Line
- ▭ Telephone Line
- ▭ Fence, Gate
- ▭ Hedge
- ▭ Stone Wall
- ▭ Dump or Mound
- ▭ Quarry, Pit
- ▭ Cutting
- ▭ Embankment
- ▭ Cultivated Lands
- ▭ Orchard or Permanent Plantation
- ▭ Grassland
- ▭ Bush
- ▭ Forest
- ▭ Swamp
- ▭ Vegetation Boundary
- ▭ Planning Partition

HORIZONTAL DATUM: UTM ZONE 32  
CLARKE 1866 SPIII

VERTICAL DATUM: MEAN SEA LEVEL

AERIAL PHOTOGRAPHY BY:  
Japan International Cooperation Agency

GROUND CONTROL SURVEYED BY:  
JICA

STEREO PLOTTED BY:  
MARK

CARTOGRAPHED BY:  
JICA

**LEGEND**

- Drilling point
- Drilling point on S/F stage
- Test pit point
- Test pit point on S/F stage

CHIEF ENGINEER: [ ] DATE: [ ]

CHIEF SUPT ENG: [ ] DATE: [ ]

CHECKED BY: SEN SUPT ENG: [ ] DATE: [ ]

SUPT ENGINEER: [ ] DATE: [ ]

PROJECT ENGINEER: [ ] DATE: [ ]

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JICA TOKYO, JAPAN

SHEET 31 OF 46

DETAILED LOCATION MAP OF GEOLOGICAL SURVEY