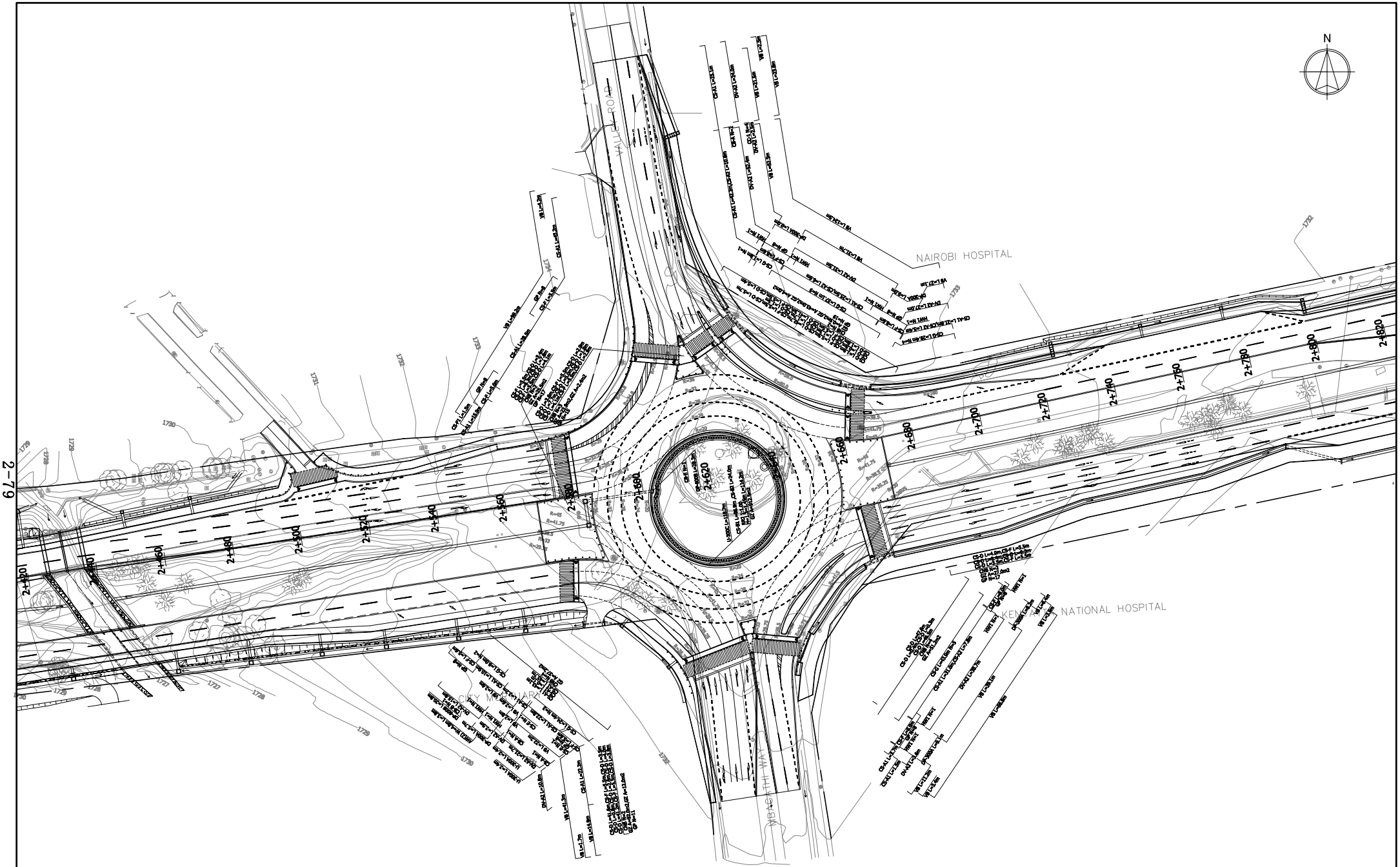

2-79

KENYA URBAN ROAD AUTHORITY CITY COUNCIL OF NAIROBI MINISTRY OF LOCAL GOVERNMENT MINISTRY OF ROADS	JAPAN INTERNATIONAL COOPERATATION AGENCY KATAHIRA & ENGINEERS INTERNATIONAL	THE PREPARATORY SURVEY ON THE PROJECT FOR DUALLING OF NAIROBI-DAGORETI CORNER ROAD C60/C61	TITLE : INTER SECTION PLAN(4) City Mortuary Round About	Drawing No.	IS-5
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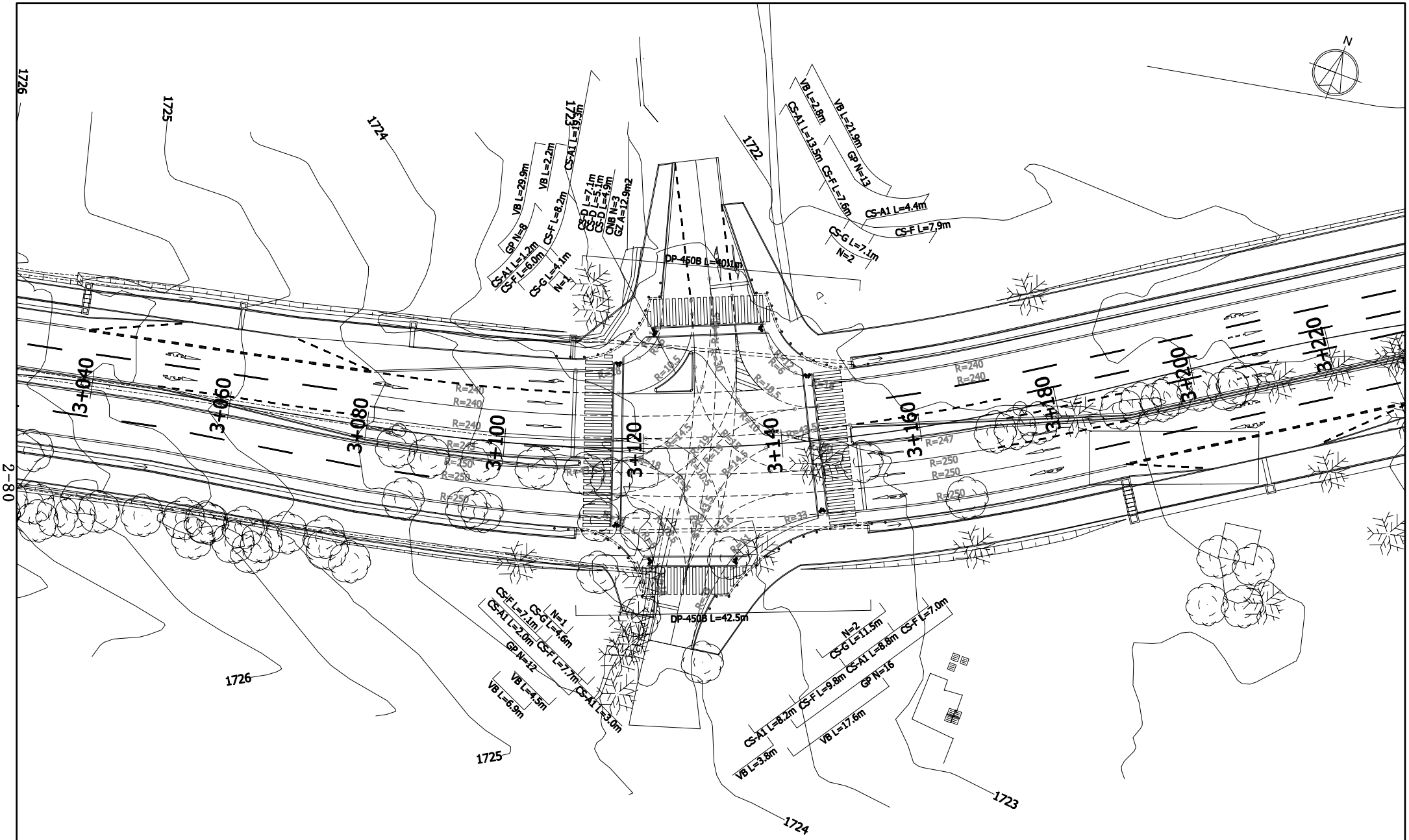

KENYA URBAN ROAD AUTHORITY CITY COUNCIL OF NAIROBI MINISTRY OF LOCAL GOVERNMENT MINISTRY OF ROADS	JAPAN INTERNATIONAL COOPERATATION AGENCY KATAHIRA & ENGINEERS INTERNATIONAL	THE PREPARATORY SURVEY ON THE PROJECT FOR DUALLING OF NAIROBI-DAGORETI CORNER ROAD C60/C61	TITLE : INTER SECTION PLAN(5) Police Road Inter Section	Drawing No.	IS-6
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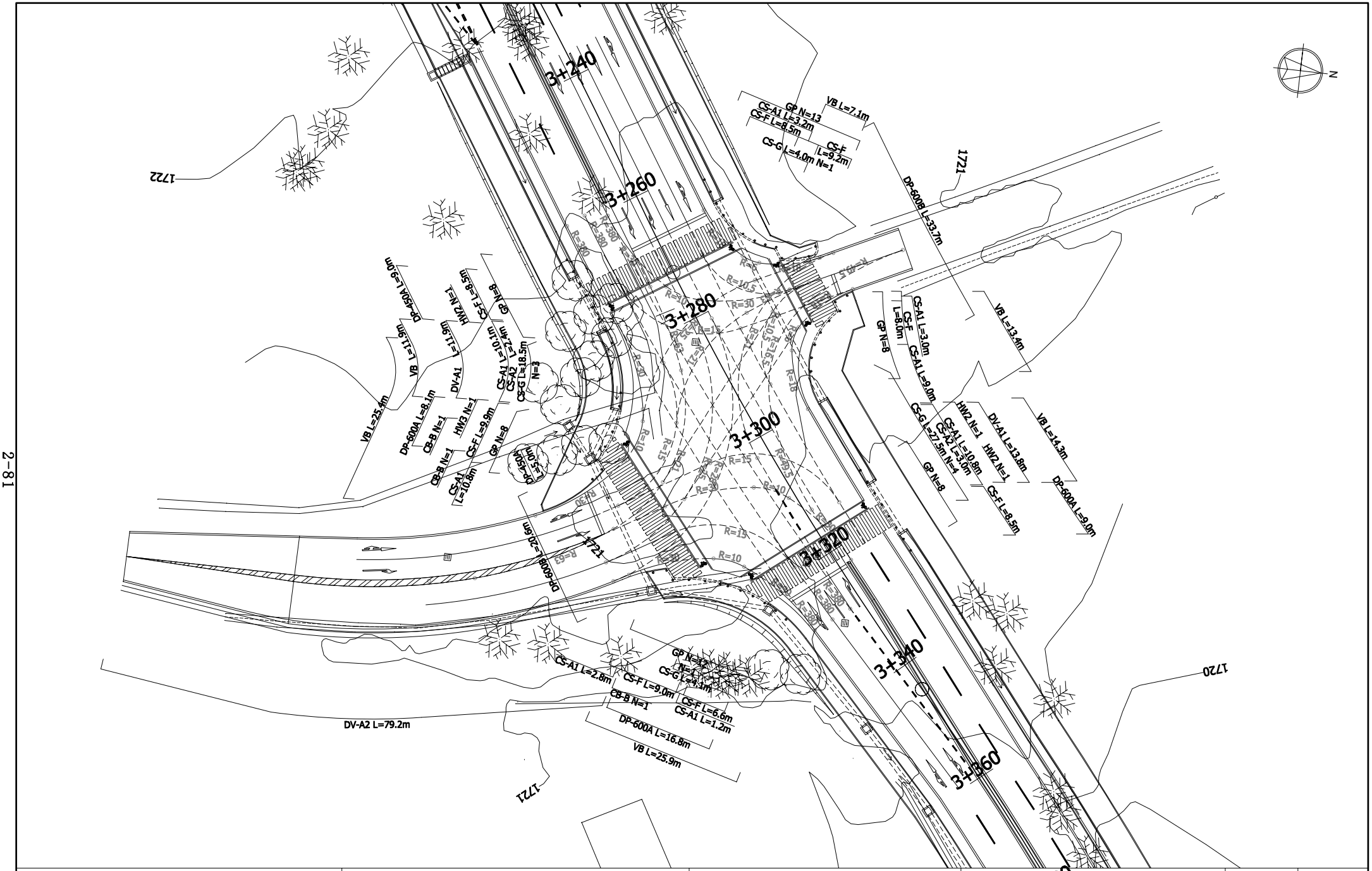

KENYA URBAN ROAD AUTHORITY CITY COUNCIL OF NAIROBI MINISTRY OF LOCAL GOVERNMENT MINISTRY OF ROADS	JAPAN INTERNATIONAL COOPERATATION AGENCY KATAHIRA & ENGINEERS INTERNATIONAL	THE PREPARATORY SURVEY ON THE PROJECT FOR DUALLING OF NAIROBI-DAGORETI CORNER ROAD C60/C61	TITLE : INTER SECTION PLAN(6) Hospital road Inter Section	Drawing No.	IS-7
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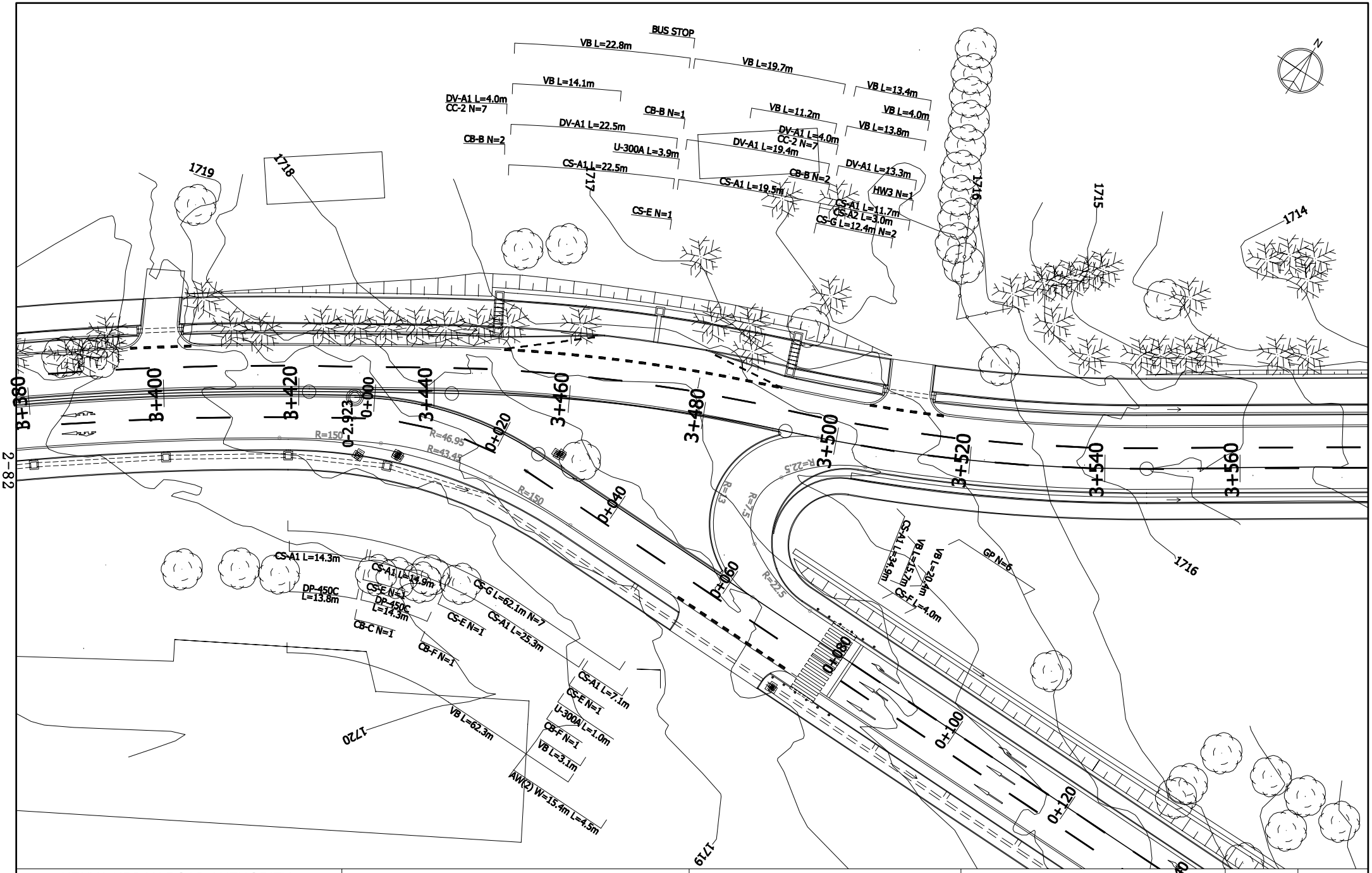
				DATE	



KENYA URBAN ROAD AUTHORITY CITY COUNCIL OF NAIROBI MINISTRY OF LOCAL GOVERNMENT MINISTRY OF ROADS	JAPAN INTERNATIONAL COOPERATATION AGENCY KATAHIRA & ENGINEERS INTERNATIONAL	THE PREPARATORY SURVEY ON THE PROJECT FOR DUALLING OF NAIROBI-DAGORETI CORNER ROAD C60/C61	TITLE : INTER SECTION PLAN(7) National Library Inter Section A	Drawing No.	IS-8
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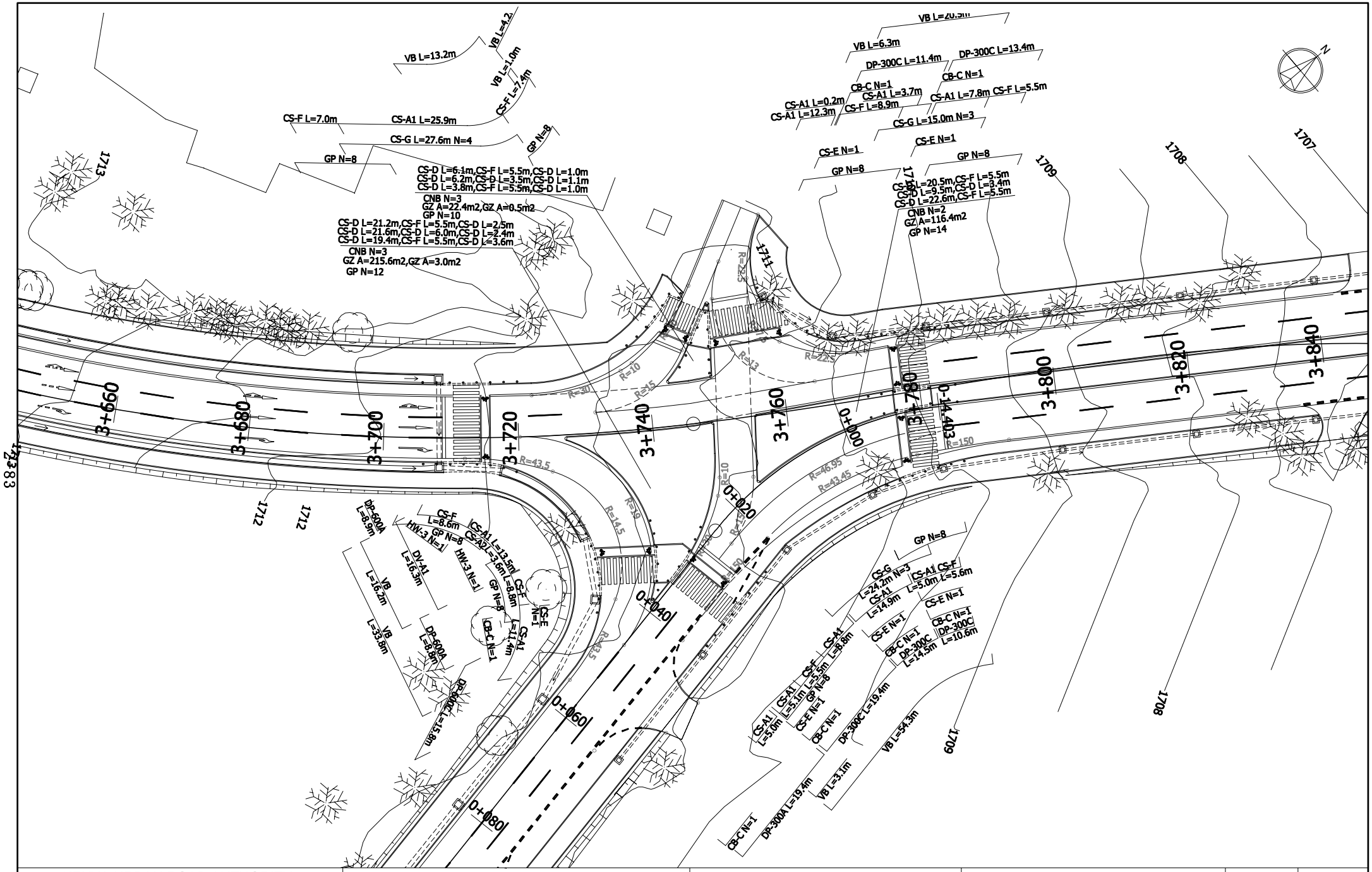

KENYA URBAN ROAD AUTHORITY CITY COUNCIL OF NAIROBI MINISTRY OF LOCAL GOVERNMENT MINISTRY OF ROADS	JAPAN INTERNATIONAL COOPERATATION AGENCY KATAHIRA & ENGINEERS INTERNATIONAL	THE PREPARATORY SURVEY ON THE PROJECT FOR DUALLING OF NAIROBI-DAGORETI CORNER ROAD C60/C61	TITLE : INTER SECTION PLAN(8) National Library Inter Section B	Drawing No.	IS-9
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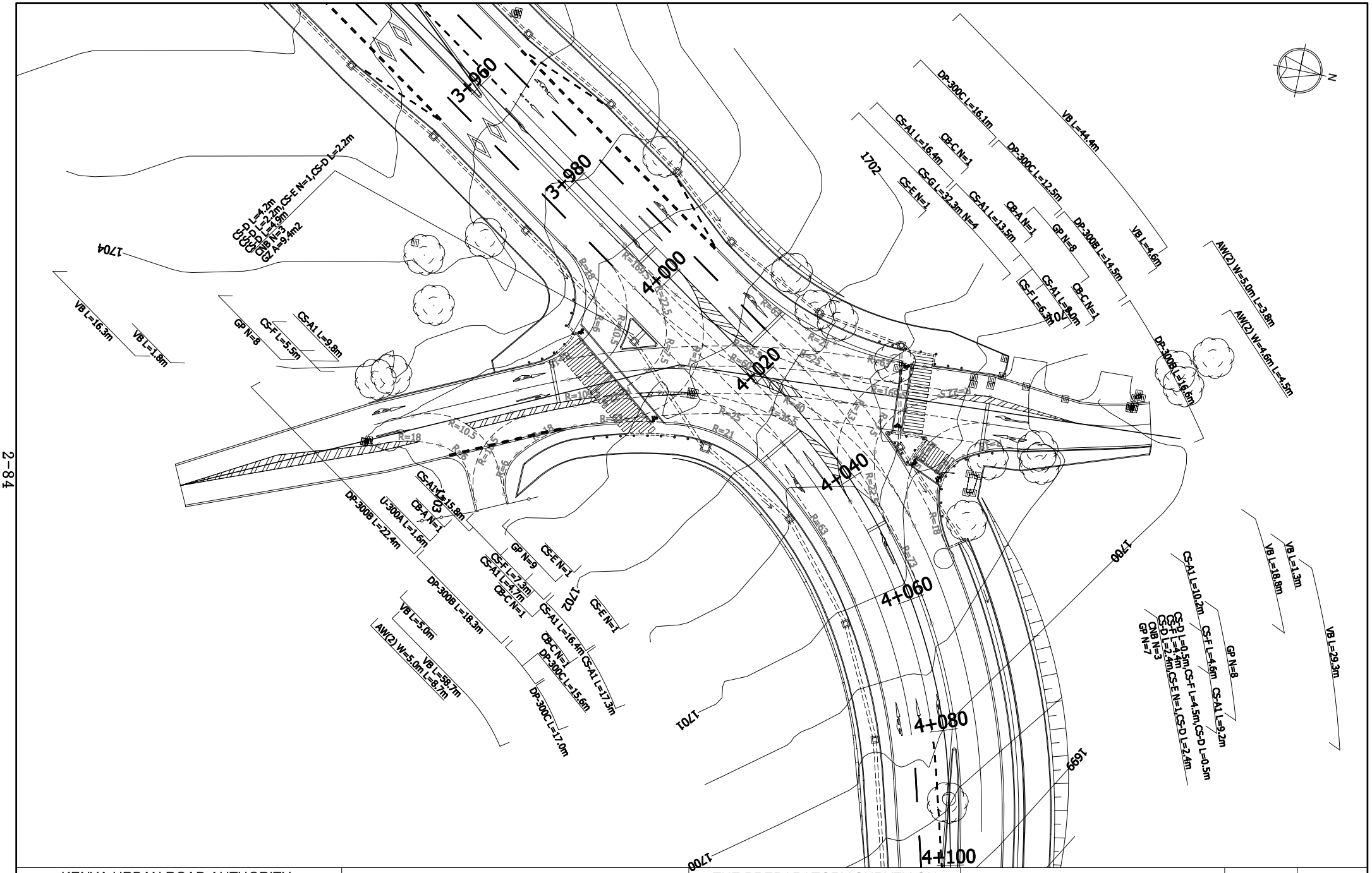

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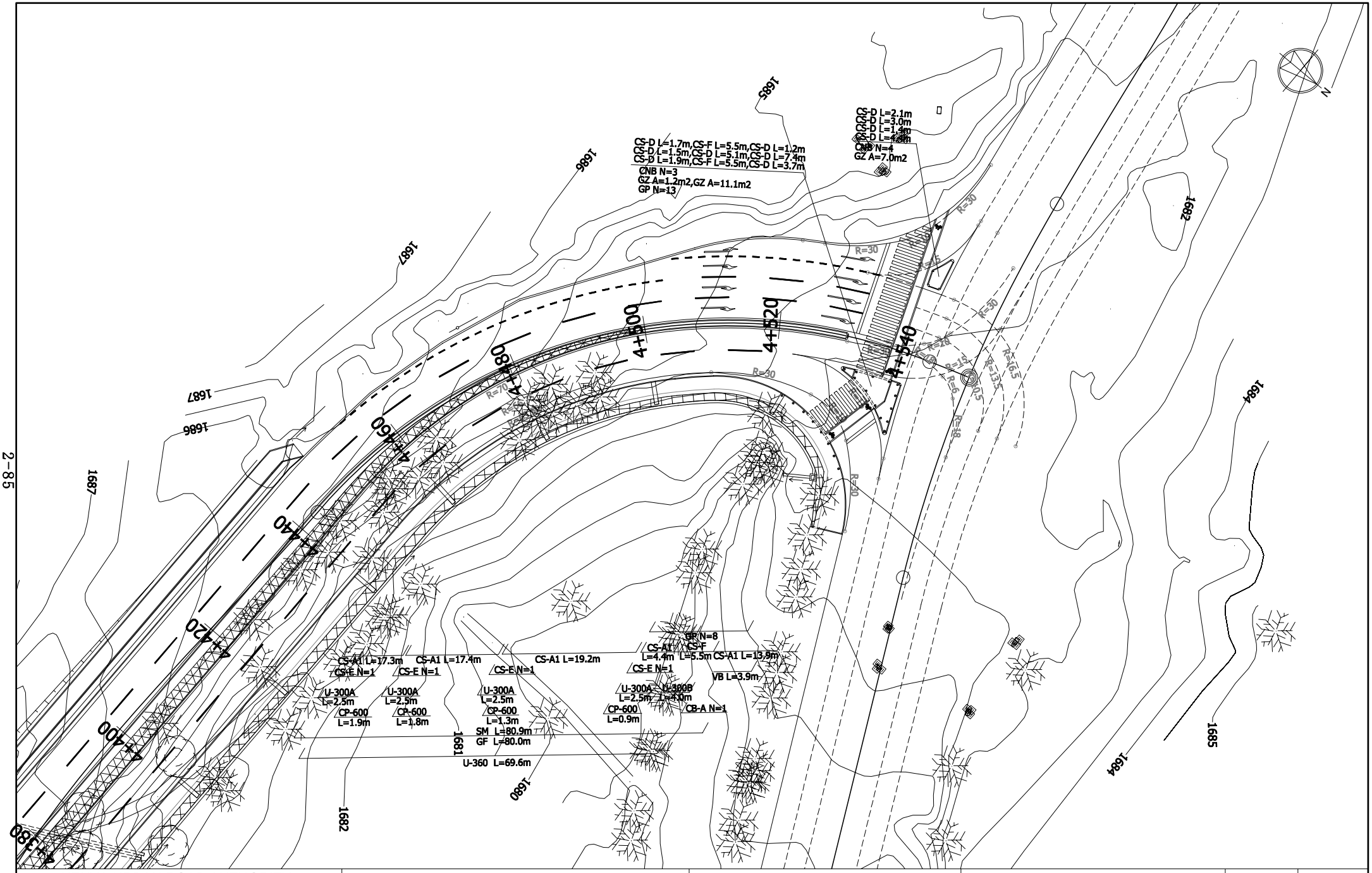

KENYA URBAN ROAD AUTHORITY CITY COUNCIL OF NAIROBI MINISTRY OF LOCAL GOVERNMENT MINISTRY OF ROADS	JAPAN INTERNATIONAL COOPERATATION AGENCY KATAHIRA & ENGINEERS INTERNATIONAL	THE PREPARATORY SURVEY ON THE PROJECT FOR DUALLING OF NAIROBI-DAGORETI CORNER ROAD C60/C61	TITLE : INTER SECTION PLAN(10) All Saints Inter Section	Drawing No.	IS-11
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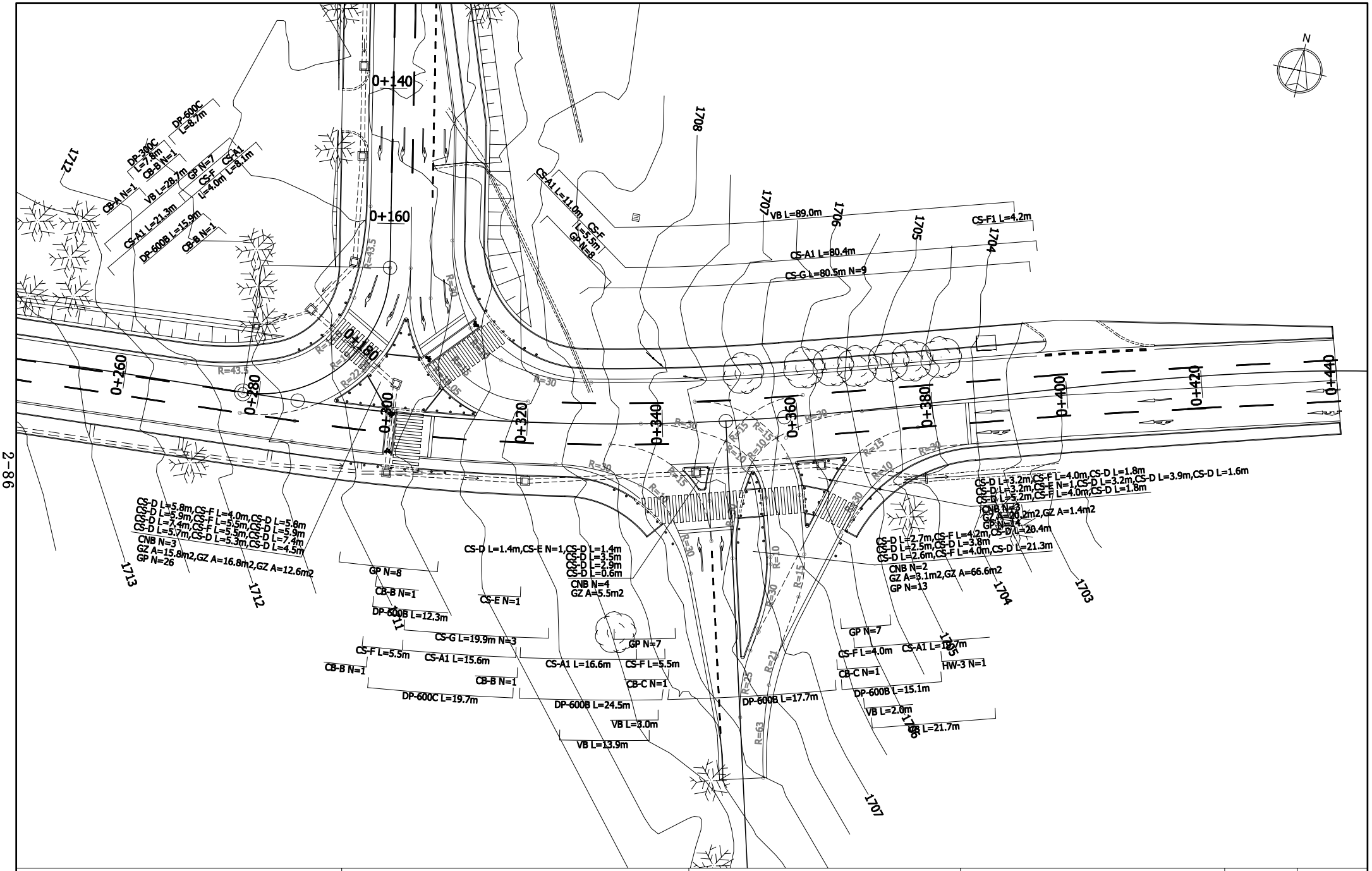

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KENYA URBAN ROAD AUTHORITY CITY COUNCIL OF NAIROBI MINISTRY OF LOCAL GOVERNMENT MINISTRY OF ROADS	JAPAN INTERNATIONAL COOPERATATION AGENCY KATAHIRA & ENGINEERS INTERNATIONAL	THE PREPARATORY SURVEY ON THE PROJECT FOR DUALLING OF NAIROBI-DAGORETI CORNER ROAD C60/C61	TITLE : INTER SECTION PLAN(9) National Library Inter Section C	Drawing No.	IS-12
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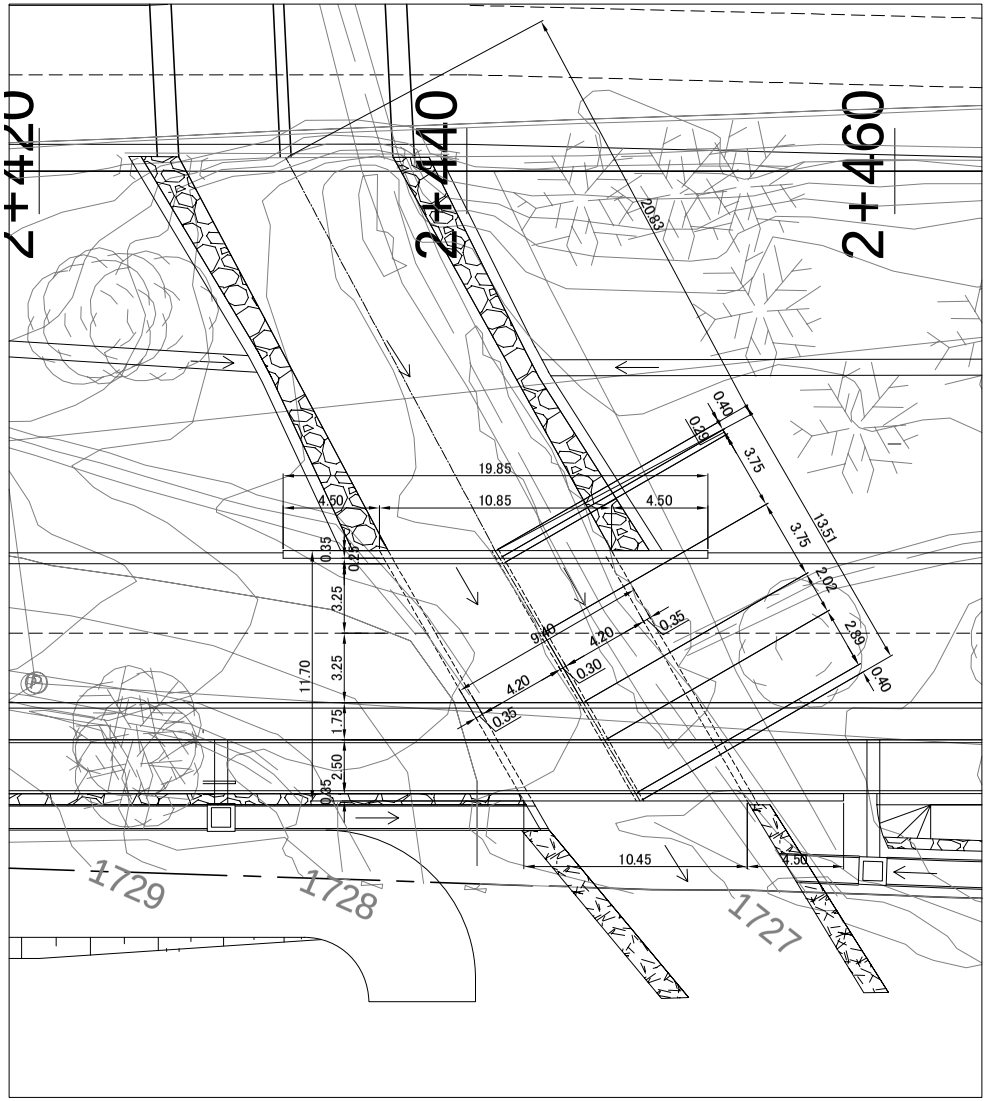

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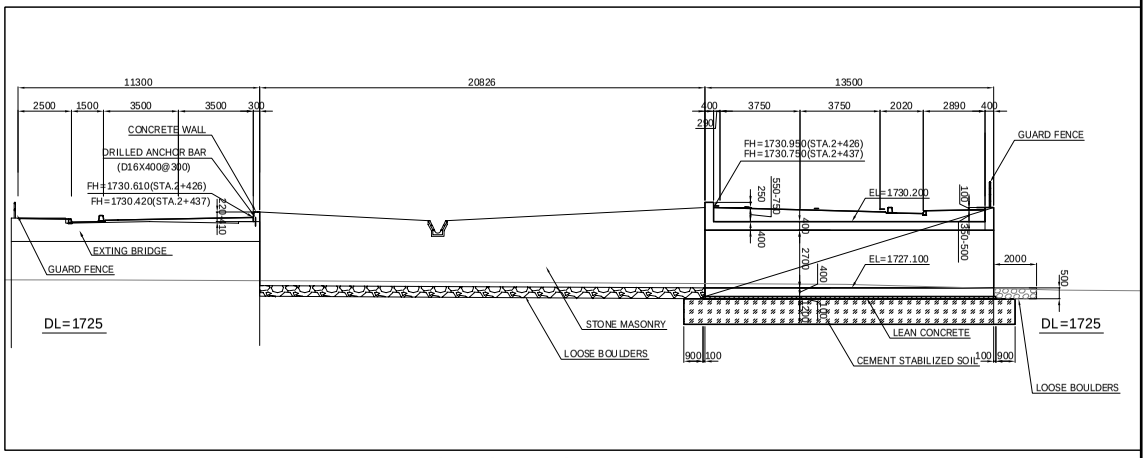

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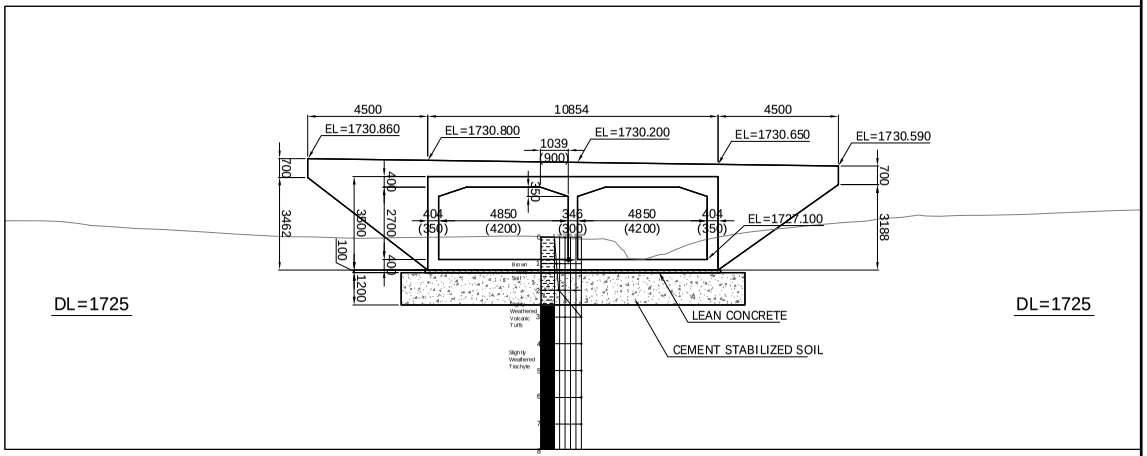

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2-87

KENYA URBAN ROAD AUTHORITY CITY COUNCIL OF NAIROBI MINISTRY OF LOCAL GOVERNMENT MINISTRY OF ROADS	JAPAN INTERNATIONAL COOPERATATION AGENCY KATAHIRA & ENGINEERS INTERNATIONAL	THE PREPARATORY SURVEY ON THE PROJECT FOR DUALLING OF NAIROBI-DAGORETI CORNER ROAD C60/C61	TITLE : NGONG RIVER BRIDGE	Drawing No.	BR-1
				SCALE	AS SHOWN
				DATE	

2-2-4 Implementation Plan

2-2-4-1 Implementation Policy

The basic concepts for implementation of the Project are as follows;

On reaching an agreement and signing the exchange of note by both Governments of Japan and Kenya, the Project will be implemented in accordance with the guideline of Japan's Grant Aid.
The Ministry of Roads (MoR) and Kenya Urban Road Authority (KURA) of Government of Kenya (GoK) are responsible for the Project implementation.
Assistance in tendering and construction supervision will be undertaken by a Japanese consulting firm in accordance with a contract between the MoR and the consultant.
A Japanese pre-qualified tenderer who has been awarded the contract by the MoR will undertake the implementation of the Project.

Main concepts for the implementation are as follows;

Materials and labor for the project are procured in Kenya as many as possible. If required qualities and capacities are not enough, materials and labor can be procured effectively from third countries and/or Japan.
Implementation method and schedule for the Project shall be planned on the basis of local meteorological, topographic and geological conditions as well as any natural conditions affected by the construction works.
General and easy method without specific equipment and technology shall be planned.
Appropriate standards and specifications for construction shall be proposed, and site organizations of both the contractor and consultant shall be arranged to comply abovementioned standards and specifications.
Facilities to strictly secure safety for construction staff and third parties shall be installed. Especially, educative training on environment and anti-AID/HIV shall be carried out.
Protection against water pollution and flooding by the implementation and installation and operation of asphalt plants, quarry sites and borrow pits shall be done in order to preserve environment. Construction waste shall be treated and/or dumped in a proper site specified by the Government of Kenya.

2-2-4-2 Implementation Conditions

Construction plan and method shall be prepared in order to secure the safety of the construction staff and the third parties first of all, and they shall be selected to consider preservation of environment for the road users and the road side residents.

Present Road Conditions

The project road's condition is damaged due to increase traffic volume by a growth of economic. This subject road is main road for connecting Nairobi City to west side area, and caused sever traffic jams especially during the peak hours in the morning and evening, and commuters to office, school, and/or clinic are suffering from such conditions every day.

Therefore, safety and traffic management for road users and mitigation measures of environment for road side residents shall be considered in line with the construction planning.

Present Road Side Facility Conditions

The project is intending to construct urban collector road, which is going to connect both local streets and arterials that are important for citizens in the City of Nairobi. Right of way of the proposed roads is secured since long time ago to minimize adverse impacts, such as massive land acquisitions, in the established residential and commercial areas.

Therefore, complete road blocks shall be avoided during the construction stage by providing necessary accessibilities to all road users and residents as a first priority.

Climate and Natural Conditions

City of Nairobi is located at elevation of around 1,700 m above sea level, and there are two seasons; relatively cool dry season (December to February and June to October) and relatively warm rainy season (March to May and November).

Terrain is composed from the plateau made by basalt rock as base rock and some weathered rocks as well as soft soils, such as laterite and black cotton soil.

Implementation shall be concentrated during the total 8 months long dry seasons. Especially pavement works shall be implemented with enough spans, because the works will be troubled by the rain.

Safety Management for Road Side Residents, Road Users, and Construction Personnel

During the construction stage, carriageway and sidewalk will be provided within the right-of-way to secure smooth traffic flows on the roads under construction at particular important segments.

i. Safety for Road Side Residents;

Construction yards will be clearly separated and off-limited from general public by using security facilities such as fences, barricades, safety cones, lighting signs, construction signboard, traffic control signboards, detour routes indication boards, and so on as well as traffic controllers

Prevention measures to the heavy machine drivers and operators shall be carried out through periodical traffic and construction safety educations

ii. Safety Management to Construction Personnel;

Guard persons will be provided to avoid collision between heavy machines and ordinary vehicles, pedestrians, and bicycles

iii. Consideration for Environment

Debris and waste from removal of the existing pavement and bridges shall be done in proper manner to mitigate the environmental adverse impacts

Selection of borrow pits will be made with consultation of the relevant authorities, and at the location with the least negative impacts to the environment

Construction methods causing vibration and noise shall be avoided during early morning and night time

Dust control measures shall be carried by spraying water promptly

Provision of information and educative training on labour safety, public health (malaria, sex related disease, AIDS/HIV, etc), natural environment preservation measures shall be conducted for the construction work forces

2-2-4-3 Scope of Works

Undertakings of both Governments of Japan and Kenya are listed in Table 2-2-4-1.

Table 2-2-4-1 Undertakings of the Both Governments

Items	Contents	Undertaken by		Remarks
		Japan	Kenya	
Procurement of Materials & Equipments	Procurement & Transportation	√		
Preparation Works	Lands & Right of Way Acquisitions		√	Including Spaces for Site Office, Stock Yard, Work Shop, etc.
	Relocation of Encroached Kiosks and Other Facilities		√	
	Provision of Borrow Pits and Quarry Sites		√	
	Provision of Waste Disposal Areas		√	
	Other Works	√		
Relocation & Removal of Various Obstacles	Relocation of Underground & Aerial Obstacles		√	Including Electric Poles & Wires, Telephone Poles & Cables, Water Pipes, Sewer Pipes, Optical Fibre Cables, Billboards & Signboards, etc.
	Removal of Existing Trees		√	
Main Works	Road & Intersection Improvement Works	√		
Supplemental Works	Traffic Signal Installation Works	√	√	
	Underground Utility Ducts Installation Works		√	Except Hand Holes for Traffic Signals around Intersections
	Traffic Safety Facilities Installation	√		
	Other Works	√		

2-2-4-4 Consultant Supervision

A Japanese consultant will carry out detailed design, assistance in tendering and construction supervision in accordance with the consultant contract agreed by both Government of Kenya and the Consultant.

(1) Detailed Design Services

The following services shall be carried out as the Detailed Design Services by the Consultant;

To confirm the contents of the Project with the Implementing Agencies in Kenya through discussions, detailed designs, and field investigations
To review the detailed design and drawings, wherever necessary
To review the procurement plan and project cost estimate, wherever necessary

Period for the Detailed Design Service will be as follows;

- ✓ 3.0 months from verification of agreement of detailed design.

(2) Tender Related Services

The following services shall be carried out as the Tender Related Services in the period from tender notice to construction contract by the Consultant;

Preparation of Tender Documents (shall be done in line with above-mentioned Detailed Design Services)
Tender Notice
Pre-Qualification
Tendering
Tender Evaluation
Contract Facilitation

Period for the Tender Related Services will be as follows;

- ✓ 3.0 months from verification of agreement of detailed design.

(3) Construction Supervision Services

The following services shall be carried out as the Construction Supervision Services of the construction to be executed by the Contractor according to the contract and implementation plan by the Consultant. Major items are as follows;

Inspections and Approvals of the Site Surveys
Inspections and Approvals of the Construction Plans
Quality Control
Progress Control
Measurement of the Works
Inspection of the Safety Aspects
Final Inspection and Delivery

The Consultant will provide a Permanent Supervising Engineer and an assistant Engineer. During the construction, the Consultant will coordinate with the officer-in-charge for work safety management of the Contractor to prevent any accidents at the site in advance.

2-2-4-5 Quality Control Plan

Quality control plans for concrete works and earth & pavement works are shown in Table 2-2-4-2 and Table 2-2-4-3, respectively;

Table 2-2-4-2 Quality Control Plan for Concrete Works

Item	Test Item	Test Method (Specification)	Frequency of Tests
Cement	Physical Property Test	AASHTO M85	Once before trail mix; thence once in every 500m^3 of concrete or when material is changed
Fine Aggregate	Physical Property Test	AASHTO M6	Once before trail mix; thence once in every 500m^3 or when material source is changed*
	Sieve Analysis	AASHTO T27	Once a month
Course Aggregate	Physical Property Test	AASHTO M80	Once before trail mix; thence once in every 500m^3 or when material source is changed*
	Sieve Analysis	AASHTO T27	Once a month
Water	Quality Test	AASHTO T26	Once before trail mix
Concrete	Slump Test	AASHTO T119	Twice a day
	Air Content Test	AASHTO T121	Twice a day
	Compressive Strength Test	AASHTO T22	6 specimens in each concreting. In case of large amount in each concreting, 6 specimens in every 75 m^3 (3 for 7-day strength and 3 for 28-day strength)
	Temperature Test	—	Twice a day
	Salinity Test	—	Twice a day

Table 2-2-4-3 Quality Control Plan for Earth & Pavement Works

Item	Test Item	Test Method (Specification)	Frequency of Tests
Embankment	Field Density Test	AASHTO T191	Once every 500 m^3
Subgrade & Base Course	Filed Compaction Test	AASHTO T180	Before trial execution, and when material is changed
	Modified CBR	AASHTO T193	Once before trial execution, and when material is changed
	Field Density Test	AASHTO T191	Twice every 1,000 m^2
Asphalt Concrete (Surface & Binder Course)	Sieve Analysis of Aggregate	AASHTO T27	Once before trial execution, and when material is changed
	Abrasion Test of Aggregate	AASHTO T96	Once before trial execution, and when material is changed
	Density Test of Asphalt Mixture	AASHTO T166	Once every 1,000 m^2
	Temperature of Asphalt Mixture	Temperatures while Carrying, Coating and Rolling	Once every 1 Truck

2-2-4-6 Procurement Plan

(1) Construction Materials Procurement Plan

All construction materials necessary for the Project such as asphalt mixtures, sands, aggregates, crushed stones, ready-mixed concretes (including site production) and lumbers are usually available in Kenyan markets either locally or through imports.

The procurement policies for major materials are as follows;

Procurement in Kenya when materials are available in domestic markets,
Procurement by importing from Japan and/or third countries when materials are not available in Kenya. The exporting countries will be decided by taking quality, price, availability and supply period into consideration.
Procurement plan for major materials is shown in Table 2-2-4-4.

Table 2-2-4-4 Procurement Plan for Major Materials

Item	Procured from			Remarks
	Kenya	Japan	Third Country	
Materials for Structures				
Crushed Stone (including for Footing)	√			
Cement	√			
Sand (for Concrete)	√			
Subgrade Material	√			
Ready Mixed Concrete	√			
Crushed Stone (for Asphalt Mixture)	√			
Asphalt Mixture	√			
Re-bar ; D9 ~ D32 mm	√			
Rubble (for Wet Masonry)	√			
PVC Pipe ; D = 150 ~ 200 mm	√			
RC Pipe ; D = 300 ~ 600 mm	√			
Plywood (for Form / without Waterproof)	√			
Timber (for Support) & Log (for Scaffold)	√			
Electric Welding Rod	√			
Fuel & Lubrication	√			
Oxygen & Acetylene	√			
Gas Cutter	√			
Street Lights and Traffic Signal	√		√	South Africa

(2) Equipment

Procurement policies for equipments are as follows;

Equipment required for the Project will be available in Kenya
Equipment owned by local contractors will be hired or leased.
Procurement plan for major equipments is shown in Table 2-2-4-5.

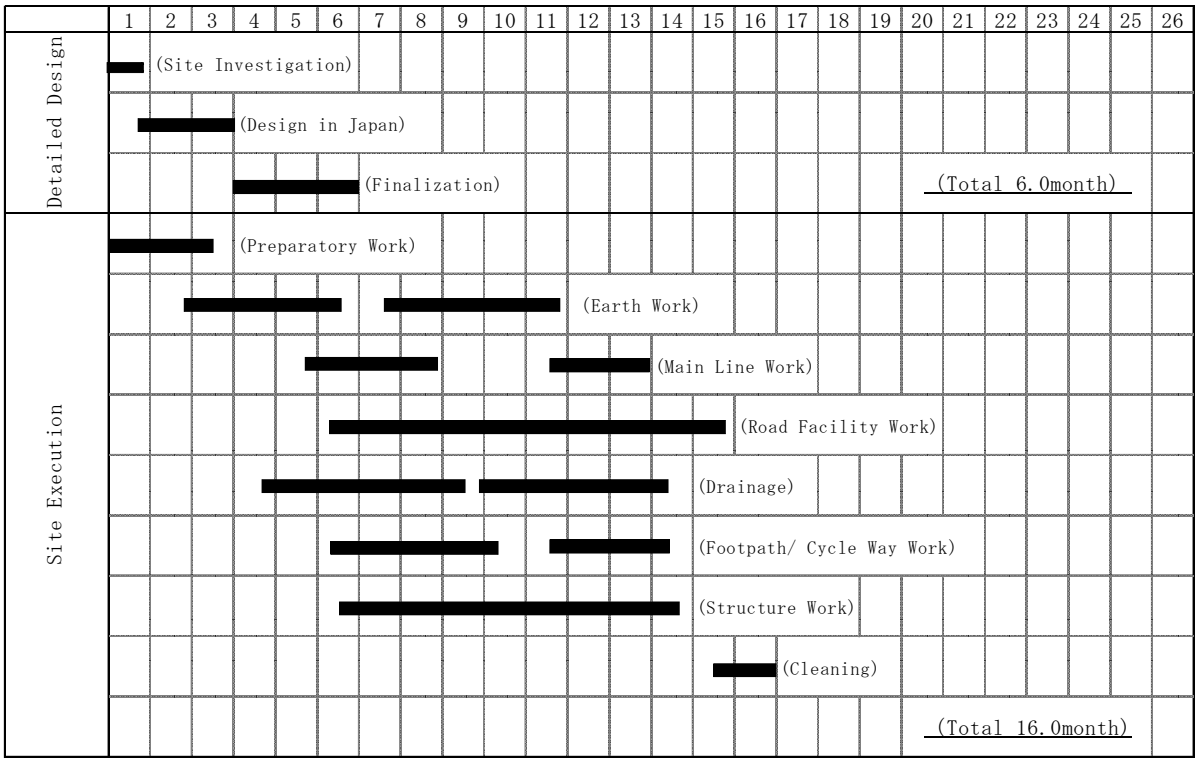
Table 2-2-4-5 Procurement Plan for Major Equipments

Equipment	Size	Lease / Procurement	Procured from			Reason of Procurement	Transport Route
			Kenya	Japan	Third Country		
Backhoe	0.2m^3	Lease	√				
Backhoe	0.35m^3	Lease	√				
Backhoe	0.6m^3	Lease	√				
Bulldozer	15t	Lease	√				
Bulldozer	21t	Lease	√				
Motor Grader	3.7m	Lease	√				
Road Roller	10-12t	Lease	√				
Tire Roller	8-20t	Lease	√				
Vibration Roller	3-5t	Lease	√				
Wheel Loader	2.4m^3	Lease	√				
Wheel Loader	3.1m^3	Lease	√				
Asphalt Finisher	2.4-6.0m	Lease	√				
Sprinkler Truck	6.0kl	Lease	√				
Dump Truck	10t	Lease	√				
Truck Crane	20t	Lease	√				
Trailer Truck	20t	Lease	√				
Trailer Truck	30t	Lease	√				
Generator	15kVA	Lease	√				
Generator	35kVA	Lease	√				
Generator	100kVA	Lease	√				
Generator	250kVA	Lease	√				
Submersible Pump	150mm	Lease	√				
Submersible Pump	100mm	Lease	√				
Compressor	5m^3/min	Lease	√				
Concrete Mixer	0.4-0.6m^3	Lease	√				

2-2-4-7 Implementation Schedule

Implementation schedule for detailed design, tender arrangement, and execution of the Project is shown in Table 2-2-4-6.

Table 2-2-4-6 Implementation Schedule



2-3 Obligations of Recipient Country

The Government of Kenya will undertake the following measures on condition that the Grant Aid by the Government of Japan is extended to the Project;

- ✓ To provide data and information necessary for the Project
- ✓ To secure the land necessary for the execution of the Project, such as the land for construction works, stock yards, work shops, field offices, and others
- ✓ To provide borrow pits, quarry sites and waste disposal areas
- ✓ To bear commissions to the bank in Japan for its banking service in connection with the Project
- ✓ To ensure prompt tax exemption, customs clearance, and effective inland transportations of materials and equipments
- ✓ To exempt Japanese nationals engaged in the Project from any customs duties for the supply of products and services necessary for the project.
- ✓ To accord Japanese nationals necessary legal rights for their entry and stay in Kenya.
- ✓ To provide all necessary permission, licenses and certificates in connection with environmental issues and earthwork for the Project (EIA approval, construction permission, traffic control permission, detour permission, construction permission in river, earthwork permission etc.)
- ✓ To relocate all obstruction structures such as electric poles & wires, telephone poles & cables, water pipes, sewer pipes, optical fibre cables, billboards & signboards, etc. in the project road
- ✓ To arrange proper use and effective maintenance of the road after the completion of the project
- ✓ To coordinate and solve any issues related to the Project that may be raised from residents and/or third parties
- ✓ To bear all the expenses, other than covered by the Japanese Grant Aid, agreed and necessary for the Project
- ✓ To secure safety of the construction site

2-4 Project Operation Plan

(1) Organization for Road Management and Maintenance

Road management and maintenance after the Project is under the responsibility of Kenya Urban Road Authority (KURA). The KURA was officially established in July 2009, and they do not have actual implementation of the road management and maintenance works yet, therefore, their capabilities are still unknown.

However, most of their technical staffs are transferred from road related departments of the Ministry of Roads, Ministry of Local Government, and City Council of Nairobi. Execution of road projects and management and maintenance works have been carried out by those technical staffs before transformation without any particular problems, they will have reasonable capability for the road management and maintenance requirements, once the organization start working properly.

(2) Road Maintenance Plan

Necessary road maintenance works are as follows;

Periodical Maintenance

- ✓ Routine inspection and cleaning of side ditches, culverts, supplemental facilities, etc

Ad-hoc Maintenance

- ✓ Repair for damaged parts, such as ceiling & patching pavement, repainting pavement marking, and any other damaged parts

(3) Present Road Maintenance Conditions and Recommendations

Recent road management & maintenance conditions observed are as follows;

- ✓ Road surfaces have been relatively repaired regularly
- ✓ Road side ditches and inlets have not been well maintained periodically. For instance, cleaning works of road surfaces and drainages are observed at various places in the City, on the other hand, long time clogged drainage pipes and inlets as well as submerged points are also observed at several segments in the City

To achieve effective results of the Project and sustain good conditions of the road facilities, it is important to manage and maintain road facilities adequately by keeping in good condition of the pavements and other supplemental facilities and extending their life spans, so the following recommendations are proposed;

- ✓ To check facilities regularly for controlling their conditions
- ✓ To clean facilities up, especially drainage
- ✓ To secure necessary budget for maintenance

2-5 Project Cost Estimation

2-5-1 Initial Cost Estimation

(1) Cost borne by the Government of the Republic of Kenya

✓	Total Cost	:	109.1 Million Kenya Shillings (Approx. 133.1 Million Yen)
✓	Land Acquisition Cost	:	50.0 M. KSH (Approx. 61.0 M. Yen)
✓	Social Cost for Relocation of Person	:	3.0 M. KSH (Approx. 3.7 M. Yen)
✓	Utility Relocation Cost	:	47.0 M. KSH (Approx. 57.3 M. Yen)
✓	Environmental Monitoring Cost	:	8.2 M. KSH (Approx. 10.0 M. Yen)
✓	Bank Commission	:	0.9 M. KSH (Approx. 1.1 M. Yen)

(2) Conditions in Cost Estimate

✓	Time of Cost Estimate	: June 2010
✓	Exchange Rate	: 1 United States Dollar = 92.12 Yen
✓	Construction Period	: As shown in the Implementation Schedule
✓	Other Conditions	: Cost estimate is implemented in accordance with the guideline of Japan's Grant Aid

2-5-2 Operation and Maintenance Cost

Kenya Urban Road Authority is in charge of maintenance for the road rehabilitated by the Project.

Annual maintenance cost necessary for the road is estimated at 6,651.2 thousand Kenya Shillings (Approximately US$ 88,086). Details are shown in Table 2-5-1.

Table 2-5-1 Maintenance Work and Annual Cost

✓ Routine Inspection (unit: Kenya Shilling)

Facility	Inspection Item	Frequency	No. of Staff	Equipment	Quantity	Unit Price	Cost
Pavement Shoulder/slope Road marking Drainage	Crack, deformation, pothole, etc. Rainwater erosion & collapse, etc.	12 times a year 1 day each time	4 persons	Scoop, hammer, sickle, barricade,	48 man-day / year	3,000 /day	144,000
	Injury, deformation, stain, splitting Damage and obstruction			pick-up truck	12 veh-day/ year =96 hours/year (8 hours/day)	6,000 /hour	576,000
						Total	720,000

✓ Daily Maintenance Work (unit: Kenya Shilling)

Facility	Inspection Item	Frequency	No. of Staff	Equipment	Quantity	Unit Price	Cost
Cleaning Drainage Pavement Shoulder Road marking	Cleaning soil, obstacles Cleaning Cutting grass, cleaning Cleaning	4 times a year 4 days each time	10 persons	Scoop, hammer, sickle, barricade,	160 man-day / year	7,050 /day	1,128,000
				Pick-up truck (2 units)	20 veh-day/ year (10 hours/day)	6,250 /day	1,250,000
						Total	2,378,000
							3,098,000

✓ Repair (unit: Kenya Shilling)

Facility	Repair Item	Frequency	Unit Price (per Year, per km)	Road length
Pavement	Patching pothole	1 times / 5 years	174,000	4.7 km(4-Lane) 9.4 km(2-Lane)
Shoulder/slope	Repairing damaged part	1 times / 5 years	24,000	
Drainage	Repairing damaged part	1 times / 2 years	144,000	
Road attached facilities	Repairing damaged part	1 times / 5 years	12,000	
Structure	Repairing damaged part	1 times / 10 years	24,000	
		Total	378,000	3,553,200
				6,651,200

2-6 Other Relevant Issues

It is mention in item 2-2-4-3 and 2-3 for undertaking of Kenya side. The item will be influenced for execution of the project, it is necessary to complete demolishment and / or resettlement of Project Affected Persons (PAPs) in Right of Way area by Resettlement Action Plan (RAP) before the beginning of site construction.

CHAPTER3 PROJECT EVALUATION AND RECOMMENDATION

3-1 Project Effect

The direct and indirect effects brought by the project are tabulated in the table 3-1-1.

Table 3-1-1 Direct/Indirect Effect by the Implementation of the Project

Current Status and Challenges	Countermeasures in the project	Direct effect / Improvement	Indirect effect / Improvement
The numbers of traffic lane is 2-lanes. Traffic volume is over capacity, so Traffic congestion has occurred. The condition of no sidewalk lead to difficulties for commuter by walking and bicycle.	Widening of road (The numbers of traffic lane should be expanded from 2 to 4-lane).	● Travel time at peak hour will be reduced from present level of 29 minutes to 9 minutes on 4.69 km. ● The Matatu fare to Nairobi City center will be reduced from 100 Kenya shillings to 40 Kenya shillings for cancel of traffic jam fee.	● The measure of effective traffic and physical distribution will be offered, access of infrastructure for inhabitance life will be improved, so the activation of social and economic action will be contributed. ● The number of maintenance route for public bus and mini-bus will be increased, so the comfortable way will be improved and the frequency of service will be increased, therefore the mobility of inhabitant will be improved. ● The drainage facilities will be maintained, so the rainwater will be drained quickly on the road, and the time of pavement damage will be restrained. ● The reaction time of emergency traffic will be shorted for improvement of subject routes, and the security of region will be contributed for improvement of street lights.

3-2 Recommendations

To fully secure and sustain the Project effects, Kenyan side shall execute the following issues.

(1) Maintenance should be well carried out. Cleaning of drainage facilities is very critical so as to prevent early deterioration of the road. The maintenance for pipe drain is not enough in the present conditions, cleaning for pipe drain should be done in particular.

(2) Road maintenance budget should be secured in accordance with the long-run program for operation and maintenance. In addition, capacity development should be carried out as well.