

REGIONAL OFFICE – GUWAHATI

National Highways & Infrastructure Development Corp.Ltd.

(Ministry of Road Transport & Highways, Government of India)

2nd Floor, Agnishanti Business Park, Opp. AGP Office, GNB Road,

Ambari, Guwahati, PIN -781001, Tel : +91-361-2730546,

Email: edpnhidclghy1@gmail.com or edpghy@nhidcl.com



A GOVT. OF INDIA ENTERPRISE

THROUGH e-MAIL ONLY

RO-GHY/D-L/Pkg-5/36+250/RCC Box Culverts/24-25/ 17699

Date: 24.05.2025

Invitation of Public Comments

Sub: “Widening/Improvement to 2-Lane Lane with Paved Shoulder from km 27+150 (Golai Goan) to km 47+682 (Ledo) on Dibrugarh to Ledo section with proposed Margherita & Ledo Bypass (Brownfield and Green Field) (2-Lane+PS) of NH-38 in Tinsukia District in the State of Assam on EPC mode. (Package-5)”: Issuance of NOC to Margherita Municipal Board for construction of RCC Box Culverts at Km 36+250 (Segunbari) and Km 44+550 (Ledo) on NH-315-Reg.

The Dy.GM(P), PMU-Dibrugarh vide Note#02 dated 29.03.2025 of e-File Computer No. 250966 has submitted a proposal along with recommendation to obtain NOC to Margherita Municipal Board for construction of RCC Box Culverts at Km 36+250 (Segunbari) and Km 44+550 (Ledo) on NH-315. The applicant, Margherita Municipal Board had submitted their proposal, through the Co-District Commissioner, Margherita, to the PMU vide their letter no. MRD.3/2003/PT-VI/82/348 dated 06.03.2025.

2. The subject cited NH Section is presently under construction and is being developed to a 2 Lane facility.

3. As per Ministry's circular no.RW/NH-33044/29/2015/S&R(R) dated 22.11.2016 and subsequent modifications dated 17.04.2023 and 24.04.2023, the Highway administrator will make available the subject proposal on the portal for 30 days seeking for public comments on ground of public interest.

4. In view of the above, the comments of the public are invited on the captioned proposal and the same should reach the below mentioned address till 30 (thirty) days from the date of public interest.

The Executive Director (Projects) cum Highway Administrator
National Highways & Infrastructure Development Corporation Limited (NHIDCL)
(Ministry of Road Transport & Highways, Government of India)

Regional Office, Guwahati
1st, 2nd & 4th Floor, Agnishanti Business Park, Opp. AGP Office, GNB Road,
Ambari, Guwahati, PIN- 781001,
Tel: +91-361-2730546, 2736404
Email: edpnhidclghy1@gmail.com

5. This issues with the approval of the Competent Authority.

Yours faithfully,

(Binayak Kumar)
General Manager (P)

Copy to:

1. The Senior Technical Director, NIC Ministry of Road Transport & Highways, Transport Bhawan New Delhi-110001: with a request for uploading on the Ministry's Website.
2. The Dy. GM (P), PMU-Dibrugarh: for information.


Almondz Global Infra-Consultant Limited

(A Subsidiary of AGSL)
Regd. & Corp. Office: F-33/3, Okhla Industrial Area,
Phase - II, New Delhi – 110020, India
Tel: +91 11 43500700/800
E mail: delhi@almondz.com

In JV with


Ayoleeza Consultants Private Limited

Head Office – B-901 | 9th Floor | Urbtech Trade Centre |
Sector-132 | NOIDA-201304 (DELHI NCR) | India

AGICL/NHDCL/AE/Tinsukia/Mar/2025/13

Dated: 26.03.2025

To

Deputy General Manager,
National Highways and Infrastructure Development Corporation Limited,
Project Monitoring Unit, Dibrugarh,
Opposite SBI ATM, Bylane-5,
Dibrugarh Railway Station Road, Banipur,
District Dibrugarh, Assam – 786003

Project: Strengthening/Improvement to 2-Lane with Paved Shoulder from km 16+900 (Bogapani) to km 27+150 (Golai Gaon) on existing Dibrugarh to Ledo section with proposed Digboi Bypass (Green Field and Brownfield) (2-Lane+PS) of NH-315 (Old NH-38) in Tinsukia District in the State of Assam on EPC mode (Package-05)-**Recommendation for construction of 2 nos. Box Culverts at Km:36+250 (Segunbari) and & Km:44+550 (Ledo) of NH-315–Reg.**

Ref:

1. CO-District Commissioner, Margherita Letter No. MRD.3/2003/Pt-VI/82/348 dated:06.03.2025
2. NHIDCL Letter No. NHIDCL/PMU-DBRG/BC-NOC/Ch:36+250 & 44+550/NH-315/2025/2190 dated:07.03.2025
3. Authority Engineer Letter No. AGICL/NHIDCL/AE/Tinsukia/Mar/2025/06 dated:10.03.2025
4. NHIDCL Letter No. NHIDCL/PMU-DBRG/BC-NOC/Ch:36+250 & 44+550/NH-315/2025/2202 dated:11.03.2025
5. Authority Engineer Letter No. AGICL/AE/PKG-05/2025/927 dated:21.03.2025
6. NHIDCL Letter No. NHIDCL/PMU-DBRG/BC-NOC/Ch:36+250 & 44+550/NH-315/2025/2247 dated:22.03.2025

Dear Sir,

With reference to the above cited subject matter, the Authority has submitted the revised drawings of Box Culverts at Km:36+250 (Segunbari) & Km:44+550 (Ledo) vide letter no. 2247 dated:22.03.2025 for our review/recommendation. In this regard, AE team has reviewed the drawings of Box Culverts at Km: 36+250 (Segunbari) & Km:44+550 (Ledo) and found in order as per Good Industry Practice and it is recommended for NOC to competent Authority for further necessary action please.

The following drawings number listed in table below have been reviewed:

Sl. No.	Chainage (Km)	Description of Documents	Sheets	Revision
1	36+250	General Arrangement Drawing of Box Culvert (Span arrangement)- 1x2x2	02	R0
2		Typical Reinforcement details of cast in situ Box Culvert (Span arrangement)- 1x2x2	01	R0
3	44+550	General Arrangement Drawing of Box Culvert (Span arrangement)- 1x2x2	02	R0
4		Typical Reinforcement details of cast in situ Box Culvert (Span arrangement)- 1x2x2	01	R0

Project - Site Office 1:C/O Pradip Borthakur, Back Side of BOI Bank, BorbilNo.1, Digboi, Tinsukia, Digboi, Assam – 786171
Project - Site Office 2:C/O Geeta Dey, Vill/Town Segunbari, T.E, P.S Margherita Sub-Divn., Dist. Tinsukia, Assam– 786181
Email id: aedigboi.pkg345@almondz.com



Thanking you and assuring our best services at all times.

Yours Sincerely,



(Sanjeet Ahlawat)

Authorised Signatory

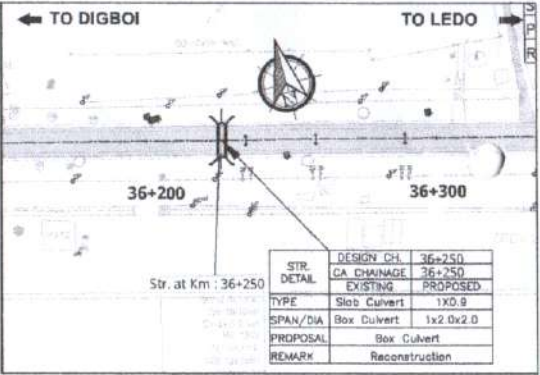
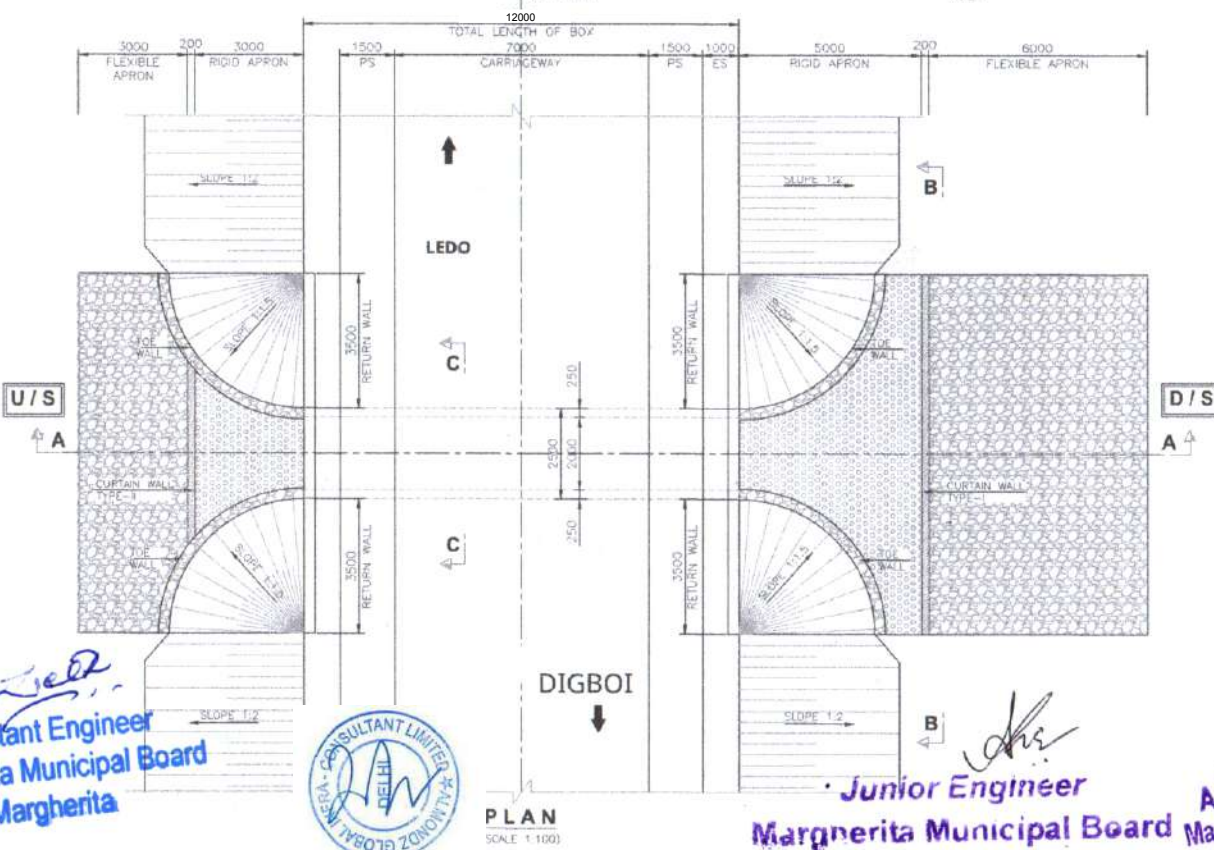
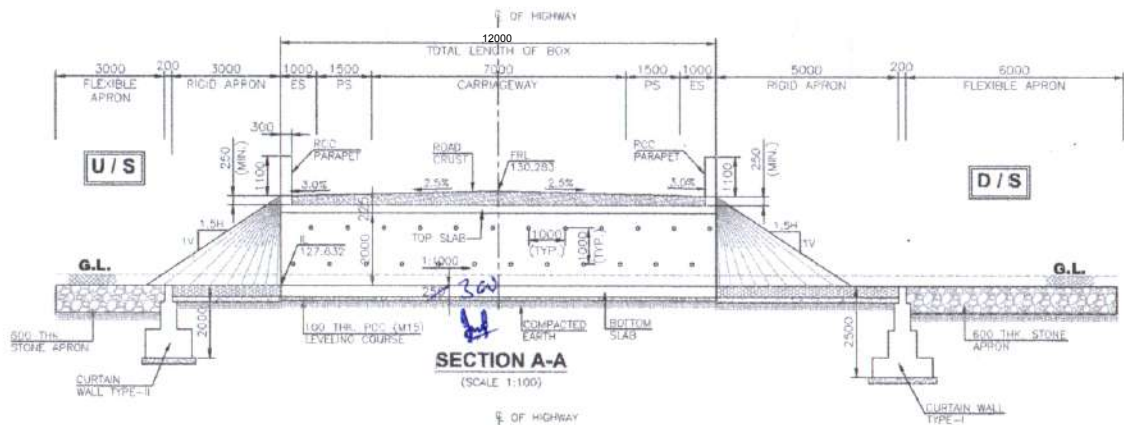
Almondz Global Infra-Consultant Limited

F-33/3, Okhla Industrial Area, Phase-II, New Delhi-110020

Encl: As above

Copy to:

1. Team Leader, Assam Project for your necessary action please.



STR. DETAIL	DESIGN CH.	36+250
TYPE	EXISTING	PROPOSED
SPAN/DIA	Box Culvert	1x2.0x2.0
PROPOSAL	Box Culvert	Reconstruction
REMARK		

LEGENDS:-	
U/S	UP STREAM
D/S	DOWN STREAM
G.L.	GROUND LEVEL
PS	PAVED SHOULDER
ES	EARthen SHOULDER
THK.	THICK

- NOTES:-**
1. ALL DIMENSION ARE IN MILLIMETERS, LEVELS IN METRES AND CHAINAGES IN KILOMETRES UNLESS OTHERWISE MENTIONED.
 2. DIMENSION ARE NOT TO BE SCALED, ONLY WRITTEN DIMENSION SHALL BE FOLLOWED.
 3. THE CARRIAGEWAY OF PROPOSED CULVERT IS DESIGNATED PER IRC: 6-2017.
 4. OVERLAY COURSES AS PER RNP.
 5. CONCRETE SHALL BE DESIGN MIX AND SHALL HAVE MINIMUM 28 DAYS CHARACTERISTIC STRENGTH ON 150mm CUBES FOR ALL ELEMENTS OF STRUCTURES AS INDICATED BELOW:
i) RCC BOX CELL ----M30
ii) RCC PARAPET WALL ----M30
iii) RCC LEVELLING COURSE ----M15
 6. REINFORCING STEEL SHALL BE OF THERMO MECHANICALLY TREATED (TMT) BARS (GRADE DESIGNATION Fe 500) CONFORMING TO IS:1785.
 7. CLEAR COVER TO OUTERMOST STEEL SHALL BE AS BELOW:-
a) TOP SLAB ----40mm
b) VERTICAL WALL (EARTH FACE) ----75mm
c) VERTICAL WALL (NON EARTH FACE) ----50mm
d) BOTTOM SLAB/FOUNDATION ----75mm
 8. SURFACE REINFORCEMENT OF 2.5 Kg/m² SHALL BE PROVIDED IN EACH DIRECTION IN RCC MEMBERS AS PER CLAUSE 710.1.1, IRC: 78-2014.
 9. 50mm THK. WEARING COURSE (BITUMINOUS CONCRETE) SHALL BE PROVIDED AS PER SECTION 2700 OF MORTH SPECIFICATION.
 10. 600 THICK FILTER MEDIA/200 COMPOSITE DRAIN SHALL BE PROVIDED BEHIND VERTICAL WALLS, AS PER "MORTH" SPECIFICATION.
 11. 1000 WEEP HOLES SPACED AT 1000mm c/c BOTH HORIZONTALLY AND VERTICALLY SHALL BE PROVIDED IN A STAGGERED MANNER IN VERTICAL WALLS.
 12. ALL DIMENSION & LEVELS TO BE VERIFIED AT SITE BEFORE EXECUTION OF WORK.
 13. LAYING COMPACTION AND EXTENT OF BACK FILL BEHIND EARTH RETAINING WALLS SHALL CONFORM TO SPECIFICATIONS IN APPENDIX 6 OF IRC: 78-2014.
 14. BED PROTECTION HAS BEEN PROVIDED AS PER IRC:SP-13-2004.
 15. SOIL DENSITY ON THE BACKFILL AND EARTH CUSHION SHOULD CONFORM TO CLAUSE 305.2.1.5 OF MORTH SPECIFICATION.
 16. SAFE BEARING CAPACITY OF 10.0 T/M² AT FOUNDING LEVEL OF BOX SHALL BE ASCERTAINED BEFORE EXECUTION OF FOUNDING WORK.
 17. THE DRAWING SHALL BE READ IN CONJUNCTION WITH RELEVANT APPROVED HIGHWAY DRAWINGS FOR STRUCTURE ORIENTATION, SKEW ANGLE, FRL & CAMBER/SUPERELEVATION ETC.
 18. CLEAR SPAN, HEIGHT & GROUND LEVEL SHALL BE VERIFIED BEFORE EXECUTION OF WORK. IN CASE OF VARIATION SAME SHALL BE BROUGHT TO THE NOTICE OF DESIGNER.

[Signature]
Executive Officer
Margherita Municipal Board
Margherita

[Signature]
Urban Technical Officer
Margherita Municipal Board
Margherita

[Signature]
Asst. Executive Engineer, P.W.D.
Margherita Territorial Road Sub-Division
Margherita

[Signature]
Junior Engineer
Margherita Municipal Board
Margherita

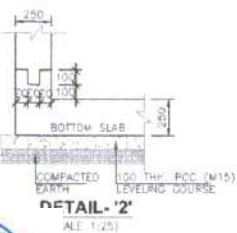
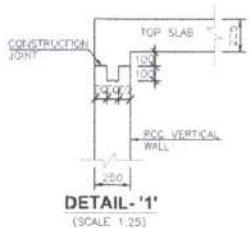
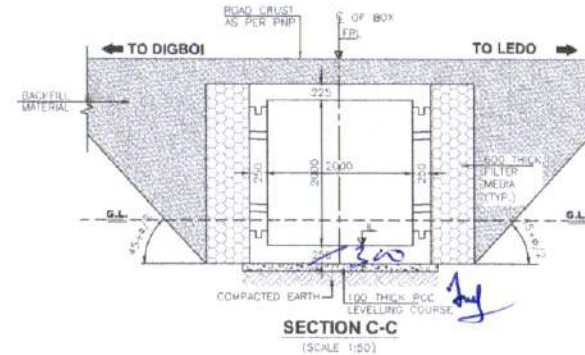
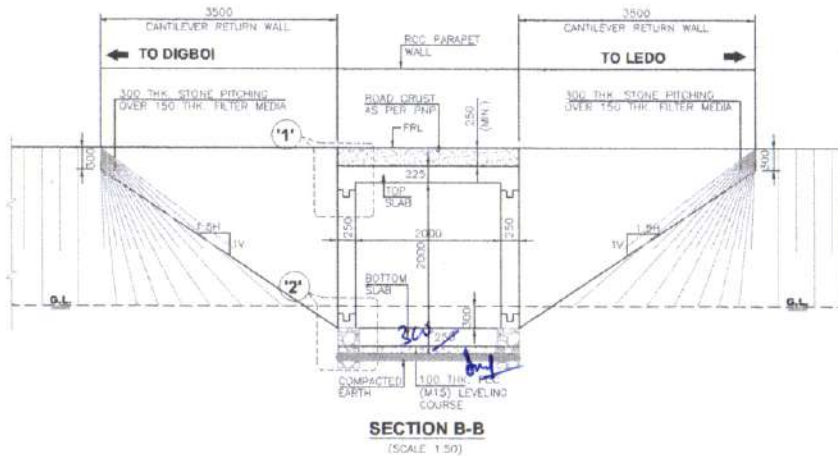
[Signature]
Assistant Engineer
Margherita Municipal Board
Margherita



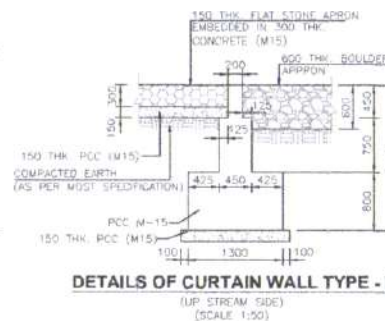
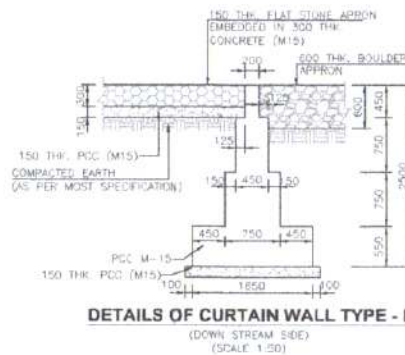
PLAN
SCALE 1:100

CLIENT:
MARGHERITA MUNICIPAL BOARD, MARGHERITA

PROJECT:	CONSTRUCTION OF BOX CULVERT AT THE CHAINAGE 36+250 AT SEGUNBARI, MARGHERITA, TINSUKIA ON NH-315(OLD NH-38)	DATE: 22-02-2025
TITLE:	GENERAL ARRANGEMENT DRAWING OF BOX CULVERT AT DESIGN CH. 36+250	SCALE: AS SHOWN
DRAWING NO:		SHEET: 01 OF 02
		FORMAT: A2 REV: R0



Z. C. C.
Assistant Engineer
Margherita Municipal Board
Margherita



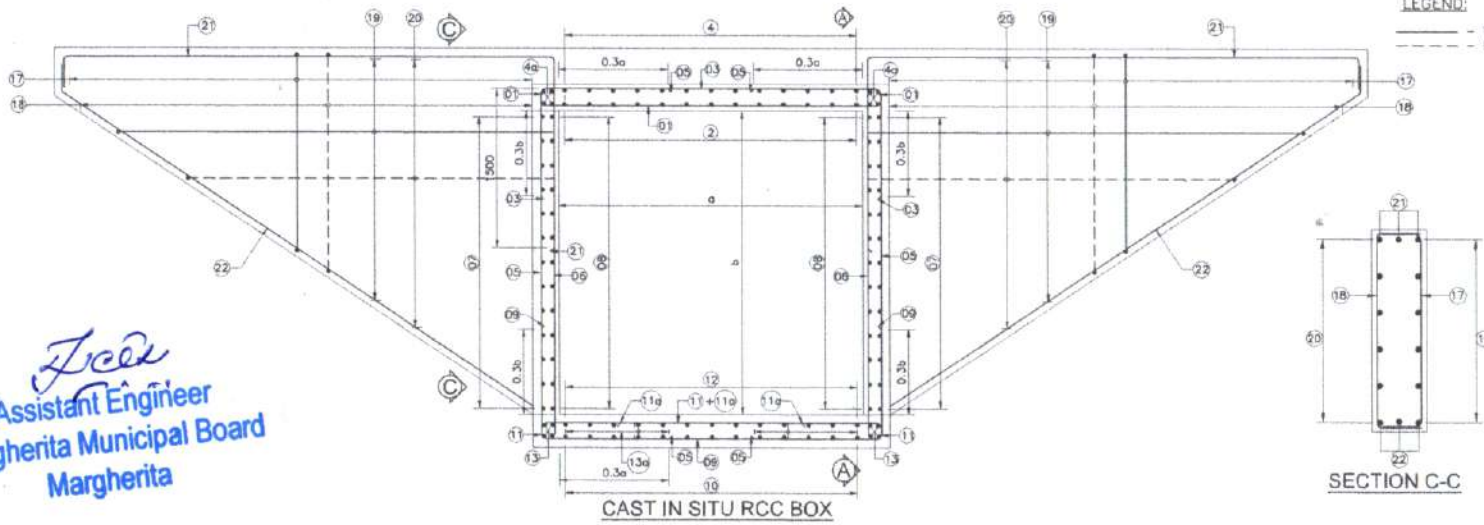
[Signature]
Executive Officer
Margherita Municipal Board
Margherita

[Signature]
Urban Technical Officer
Margherita Municipal Board
Margherita

[Signature]
Junior Engineer
Margherita Municipal Board
Margherita

[Signature]
Asst. Executive Engineer, P.W.D.
Margherita Territorial Road Sub-Division
Margherita

Ice
Assistant Engineer
Margherita Municipal Board
Margherita



LEGEND:

- TOP/NOE EARTH FACE BAR
- - - BOTTOM/EARTH FACE BAR

NOTES:-

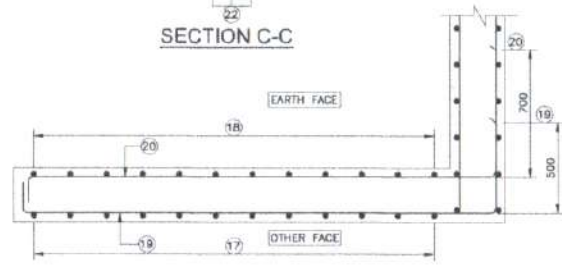
1. ALL DIMENSION ARE IN MILLIMETERS, LEVELS IN METRES AND CHANGES IN KILOMETRES UNLESS OTHERWISE MENTIONED.
2. DIMENSION ARE NOT TO BE SCALED, ONLY WRITTEN DIMENSION SHALL BE FOLLOWED.
3. REINFORCING STEEL SHALL BE OF THERMO MECHANICALLY TREATED (TMT) BARS (GRADE DESIGNATION Fe 500) CONFORMING TO IS:1786.
4. CLEAR COVER TO OUTERMOST STEEL SHALL BE AS BELOW:-
 - a) TOP SLAB -----40mm
 - b) VERTICAL WALL (EARTH FACE) -----75mm
 - c) VERTICAL WALL (NOE EARTH FACE) -----50mm
 - d) BOTTOM SLAB / FOUNDATION -----75mm
5. LAP LENGTH SHALL BE PROVIDED AS PER THE TABLE GIVEN BELOW:-

FAVORABLE BOND CONDITION	
LAP LENGTH	% LAP AT ANY SECTION IS
40d	<25%
46d	BETWEEN 25-33%
56d	BETWEEN 33-50%
60d	>50%

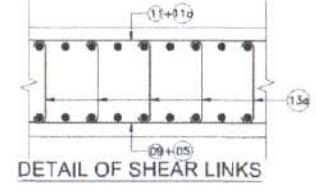
UNFAVORABLE BOND CONDITION	
LAP LENGTH	% LAP AT ANY SECTION IS
58d	<25%
66d	BETWEEN 25-33%
80d	BETWEEN 33-50%
88d	>50%

WHERE:
d = DIAMETER OF BAR.

SECTION C-C

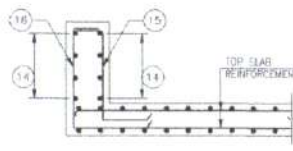


JUNCTION DETAIL OF RETURN WALL



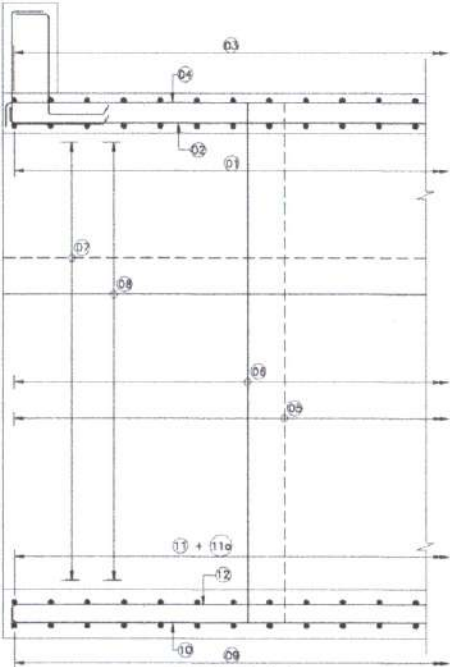
PARAPET REINF.

SCALE 1:35

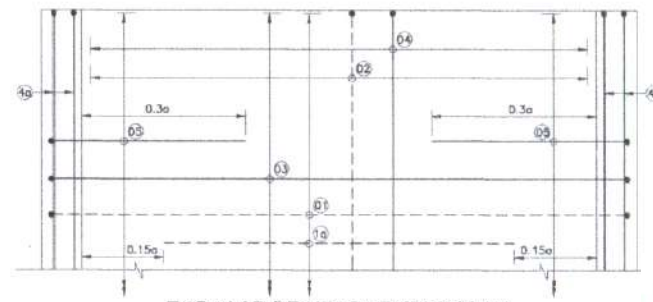


SCHEDULE OF REINFORCEMENT

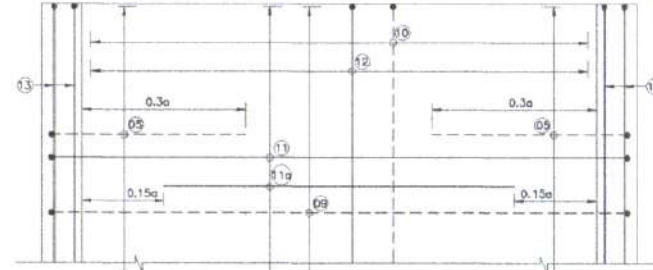
BAR MARK	SHAPE OF BARS (NOT TO SCALE)	BAR DIA IN mm	SPECING OR NO. OF BAR
TOP SLAB			
01		12	180
1a	NOT USED		
02		8	200
03		10	200
04		8	200
4a		10	2X4 NOS.
4b	NOT USED		
VERTICAL WALL			
05		12	200
06		10	200
07		8	200
08		8	200
BOTTOM SLAB			
09		10	200
10		8	200
11		12	200
11a		10	200
12		8	200
13		10	2X4 NOS.
13a		8	100 LONG, 100 TRANS.
PARAPET WALL			
14		10	200
15		12	100
16		12	100
RETURN WALL			
17		10	200
18		10	200
19		10	200
20		10	100
21		20	3 NOS.
22		10	3 NOS.



SECTION-A-A



TOP SLAB REINFORCEMENT PLAN
(HAUNCH BAR & SHEAR LINKS NOT SHOWN IN PLAN FOR CLARITY)



BOTTOM SLAB REINFORCEMENT PLAN
(HAUNCH BAR & SHEAR LINKS NOT SHOWN IN PLAN FOR CLARITY)

Dul C
Urban Technical Officer
Margherita Municipal Board
Margherita

Shi
Junior Engineer
Margherita Municipal Board
Margherita

CLIENT:
MARGHERITA MUNICIPAL BOARD, MARGHERITA

Asst. Executive Engineer
Executive Officer
Margherita Municipal Board
Margherita

Asst. Executive Engineer
Asst. Executive Engineer, P.W.D.
Margherita Territorial Road Sub-Division
Margherita

PROJECT:
CONSTRUCTION OF BOX CULVERT AT THE CHAINAGE 36+250 AT SEGUNBARI, MARGHERITA, TINSUKIA ON NH-315/OLD NH-38)
TITLE:
TYPICAL REINFORCEMENT DETAILS OF CAST-IN-SITU BOX CULVERT (1x2.0x2.0)

DATE: 22-02-2025
SCALE: AS SHOWN
SHEET: 01 OF 01
FORMAT: A2 REV: R0

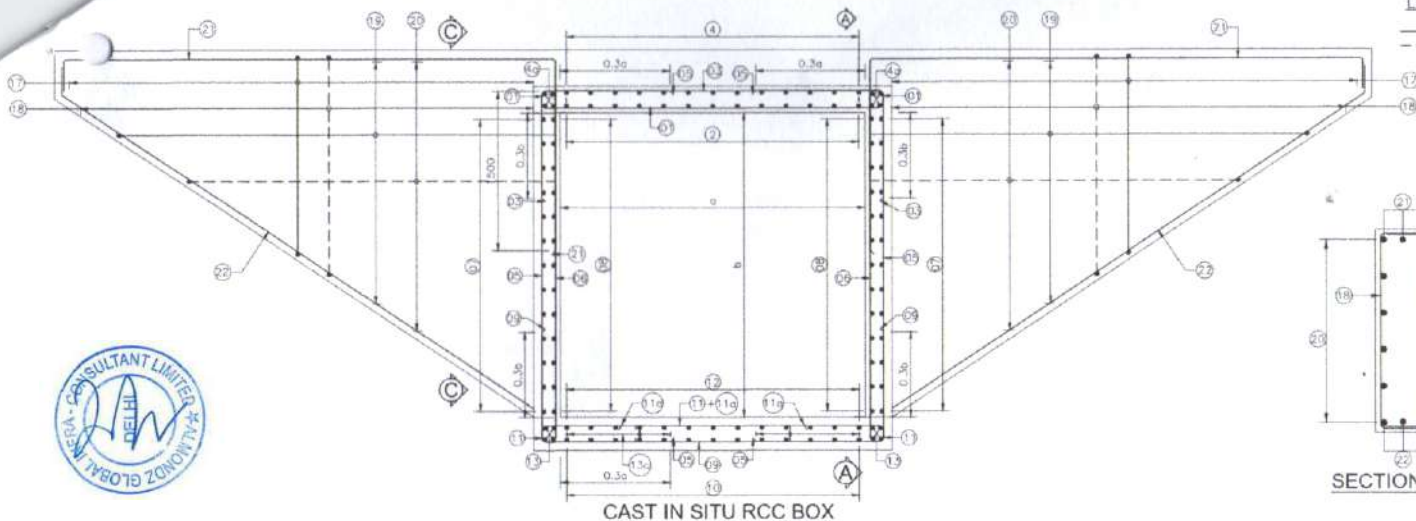




Asst. Executive Engineer, P.W.D.
Margherita Territorial Road Sub-Division
Margherita

22/3/2025
Asstt. Executive Engineer
Margherita Dev. Block

[illegible]



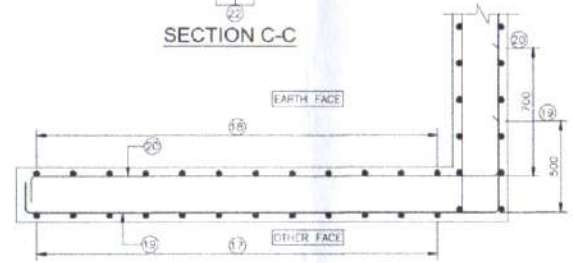
LEGEND:
— TOP/NON EARTH FACE BAR
--- BOTTOM/EARTH FACE BAR

- NOTES:-
1. ALL DIMENSION ARE IN MILLIMETERS, LEVELS IN METRES AND CHAINAGES IN KILOMETRES UNLESS OTHERWISE MENTIONED.
 2. DIMENSION ARE NOT TO BE SCALED, ONLY WRITTEN DIMENSION SHALL BE FOLLOWED.
 3. REINFORCING STEEL SHALL BE OF THERMO MECHANICALLY TREATED (TMT) BARS (GRADE DESIGNATION Fe 500) CONFORMING TO IS:1786.
 4. CLEAR COVER TO OUTERMOST STEEL SHALL BE AS BELOW -
a) TOP SLAB -----40mm
b) VERTICAL WALL (EARTH FACE) -----75mm
c) VERTICAL WALL (NON EARTH FACE) -----50mm
d) BOTTOM SLAB / FOUNDATION -----75mm
 5. LAP LENGTH SHALL BE PROVIDED AS PER THE TABLE GIVEN BELOW:-

FAVORABLE BOND CONDITION			UNFAVORABLE BOND CONDITION		
LAP LENGTH	% LAP AT ANY SECTION IS		LAP LENGTH	% LAP AT ANY SECTION IS	
40d	<25%		58d	<25%	
46d	BETWEEN 25-33%		66d	BETWEEN 25-33%	
56d	BETWEEN 33-50%		80d	BETWEEN 33-50%	
60d	>50%		86d	>50%	

WHERE:
d = DIAMETER OF BAR.

SECTION C-C



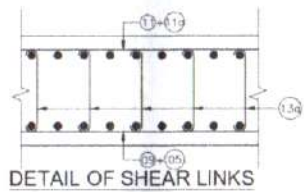
JUNCTION DETAIL OF RETURN WALL

SCHEDULE OF REINFORCEMENT

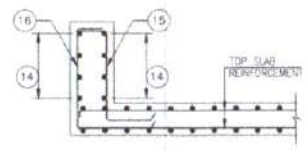
BAR MARK	SHAPE OF BARS (NOT TO SCALE)	BAR DIA IN mm	SPACING OR NO OF BAR
01	[Diagram]	12	180
1a	NOT USED		
02	[Diagram]	8	200
03	[Diagram]	10	200
04	[Diagram]	8	200
4a	[Diagram]	10	2x4 NOS.
4b	NOT USED		
05	[Diagram]	12	200
06	[Diagram]	10	200
07	[Diagram]	8	200
08	[Diagram]	8	200
09	[Diagram]	10	200
10	[Diagram]	8	200
11	[Diagram]	12	200
11a	[Diagram]	10	200
12	[Diagram]	8	200
13	[Diagram]	10	2x4 NOS.
13a	[Diagram]	8	300 LONG 100 TRANS.
14	[Diagram]	10	200
15	[Diagram]	12	100
16	[Diagram]	12	100
17	[Diagram]	10	200
18	[Diagram]	10	200
19	[Diagram]	10	200
20	[Diagram]	10	100
21	[Diagram]	20	3 NOS.
22	[Diagram]	10	3 NOS.

TOP SLAB REINFORCEMENT PLAN
(HAUNCH BAR & SHEAR LINKS NOT SHOWN IN PLAN FOR CLARITY)

BOTTOM SLAB REINFORCEMENT PLAN
(HAUNCH BAR & SHEAR LINKS NOT SHOWN IN PLAN FOR CLARITY)



DETAIL OF SHEAR LINKS



PARAPET REINF.
SCALE 1:25

Signature
Executive Engineer, P.W.D.
Territorial Road Sub-Division
Margherita

CLIENT
BLOCK DEVELOPMENT OFFICER, MARGHERITA DEVELOPMENT
BLOCK, MARGHERITA

Signature
Asstt. Executive Engineer
Margherita Dev. Block

PROJECT
CONSTRUCTION OF BOX CULVERT AT THE CHAINAGE 44+550 AT LEDO (NEAR
RAILWAY STATION), TINSUKIA ON NH-315 (OLD NH-38)

TITLE
TYPICAL REINFORCEMENT DETAILS
OF CAST-IN-SITU BOX CULVERT (1x2.0x2.0)

eh 44+550

DRAWING NO.

DATE: 22-02-2025
SCALE: AS SHOWN
SHEET: 01 OF 01
FORMAT: A2 REV: 0

National Highways & Infrastructure Development Cor. Ltd.
 (Ministry of Road Transport & Highways, Government of India)
 Project Monitoring Unit (PMU) - Dibrugarh
 Bye Lane- 5, Banipur,
 Dibrugarh Railway Station Road, Banipur
 Dist: Dibrugarh, Assam- 786003
Email: nhidclsodbr@gmail.com



A GOVT. OF INDIA ENTERPRISE

NHIDCL/PMU-DBRG/BC-NOC/Ch.36+250&44+550/NH-315/2025/2190

Date: 07.03.2025

To,

The Authorised Signatory,
 M/s Almondz Global Infra Consultant Ltd. in JV with
 M/s Ayoleeza Consultant Private Limited,
 F - 33/3, Okhla Industrial Area, Phase - II,
 New Delhi - 110002

Sub: Widening/Improvement to 2-Lane Lane with Paved Shoulder from km 27+150 (Golai Goan) to km 47+682 (Ledo) on Dibrugarh to Ledo section with proposed Margherita-Ledo Bypass (Brownfield and Green Field) (2-Lane+PS) of NH-38 in Tinsukia District in the State of Assam (Package 5): **Review of GAD for construction of 2 nos. Box Culverts at Km 36+250 (Segunbari) and Km 44+550 (Ledo) of NH-315 -Reg.**

Ref: Co-District Commissioner, Margherita letter no. MRD.3/2003/Pt-VI/82/348 dated 06.03.2025 (received in this office on 07.03.2025) (regarding issuance of NOC for construction of 2 nos. Box Culverts)

Sir,

This has reference to Co-District Commissioner, Margherita letter dated 06.03.2025 cited under ref. vide which a GAD for construction of 2 nos. Box Culverts at Km 36+250 (Segunbari) and Km 44+550 (Ledo) of NH-315 has been submitted to this office issuance of NOC.

2. In this regard, the Authority Engineer is requested to review the submitted GAD and convey your comments/ recommendation, expeditiously to this office so that the same can be processed for issuance of NOC to the Competent Authority of NHIDCL.

Encl.: As above.

Yours faithfully,

Bivek Joishi
 7/3/25
 (Bivek Joishi)

Dy. General Manager (P)
 NHIDCL, PMU-Dibrugarh

Copy to: The Co-District Commissioner, Margherita for kind information please.

Head Office: - 1st & 2nd Floor, Tower A, World Trade Centre, Nauroji Nagar, New Delhi - 110029



**OFFICE OF THE CO-DISTRICT COMMISSIONER
MARGHERITA**



Ph. No. 03751-272065

Email:-cdc-margherita@assam.gov.in

No. MRD.3/2003/PT-VI/82/348

Dated Margherita the 6th March'2025

To

✓ The Deputy General Manager (P)
NHIDCL, PMU
Dibrugarh

Sub: Submission of documents for obtaining NOC for construction of 2 box culverts in the NH stretch between Margherita town to Ledo Bazar.

Sir,

With this letter, I would like to forward the documents compiled for construction of 2(two) culverts in National Highway at Segunbari, Margherita Town area and Ledo Bazar area. These documents are forwarded for application of NOC clearance from NHIDCL for beginning the construction work. This shall be done at the earliest as there has been significant delay in the process of application for NOC for the aforesaid work, with deliberations happening since November 2024. It is requested that the GAD, traffic diversion plan, construction methodology etc, be also crosschecked by NHIDCL authority prior to filing for NOC. These have been already checked by the PWD Roads officials of the Govt of Assam. It is also requested that the License fee be waived off as discussed earlier. The application is handed over in hand along with the Executive Officer/Representative of Executive Officer, Margherita Municipal Board.

Yours faithfully

Co-District Commissioner
Margherita

Memo No. MRD.3/2003/PT-VI/82/348

-A,

Dated Margherita the 6th March'2025

Copy to:

1. The C.A. to the DC for kind appraisal of the District Commissioner, Tinsukia
2. The Representative of MLA for kind appraisal of the Hon'ble MLA, Margherita LAC.
3. The Chairman & Executive Officer, Margherita Municipal Board for information.
4. The AEE, PWD Roads, Margherita for information and necessary action.
5. The Block Development Officer, Margherita for information.

Co-District Commissioner
Margherita



GOVT. OF ASSAM
OFFICE OF THE BLOCK DEVELOPMENT OFFICER
MARGHERITA DEVELOPMENT BLOCK

NO.MDB/MISC/2024-25 /

Date :-04/03/2025

To

The Co-District Commissioner
Margherita Co-District

Sub :- Submission of documents for obtaining NOC

Sir,

With respect to the subject cited above, I have the honour to submit herewith the GAD, Traffic Diversion Plan, Geo-tagged photographs and other documents required for obtaining NOC from NHIDCL to construct a box culvert at Ledo Bazar.

This is for favour of your kind information.

Enclosed:- As stated above

Yours faithfully

Block Development Officer
Margherita Development Block
Margherita

CONSTRUCTION METHODOLOGY FOR BOX CULVERT : -

1. Preparation and Site Setup

- ❖ **Site Surveying:** Conduct a thorough survey to mark the boundaries, alignment, and levels for the box culvert construction. This ensures that the culvert will be positioned and constructed accurately as per the design.
- ❖ **Mobilization of Equipment and Materials:** Bring all necessary equipment such as excavators, cranes, formwork materials, reinforcement steel, and concrete mixers to the site. Set up a construction site office for administrative work, safety management, and storage of materials.
- ❖ **Safety Measures:** Install safety barriers and signs, and ensure workers are wearing PPE like helmets, gloves, and safety boots. Setup first aid kits and fire safety equipment.

2. Excavation

- ❖ **Excavation for Box Culvert:** Begin excavation according to the design depths and widths. Excavate the trench to the required depth and width for the 2x2 box culvert. The dimensions should be confirmed based on design specifications and allowances for construction.
- ❖ **Shoring and Bracing:** Use shoring and bracing techniques to prevent the sides of the excavation from collapsing, especially in deep excavations.
- ❖ **Dewatering:** If groundwater is encountered, use dewatering pumps to keep the excavation dry and manageable.
- ❖ **Excavation of Base:** After excavation, ensure the base is smooth and compacted to avoid settlement of the structure.

3. PCC (Plain Cement Concrete)

- ❖ **Subgrade Preparation:** Once the excavation is complete, prepare the subgrade by ensuring it is level and compacted.
- ❖ **Placing PCC:** Pour a layer of Plain Cement Concrete (PCC) to form a strong foundation and prevent direct contact of the box culvert with the soil. This layer should be approximately 100-150mm thick, depending on the design specifications.
- ❖ **Leveling and Compaction:** Ensure the PCC layer is leveled properly. Allow it to cure for 7-10 days to achieve strength before placing reinforcement.

4. Reinforcement Placement

The specific placement of reinforcement depends on the box culvert's design, but here are the general guidelines:

[Signature]
22/3/2025
Asst. Executive Engineer
Margherita Dev. Block

[Signature]
02/3/25
Asst. Executive Engineer, P.W.D.
Margherita Terminal Road Sub-Division
Margherita

❖ **Base Slab Reinforcement:**

Top Layer: A grid of rebar is placed at the top of the base slab to resist the compressive forces on the slab. It is typically placed near the bottom of the formwork but not in direct contact with the concrete.

Bottom Layer: A layer of rebar is placed on the bottom of the base slab to resist tensile forces. This reinforcement is often thicker or more densely placed near the midspan of the culvert.

❖ **Side Wall Reinforcement:**

Reinforcement is placed both horizontally and vertically within the formwork of the side walls. Horizontal reinforcement resists bending, while vertical bars handle shear forces.

The spacing and number of bars depend on the wall thickness and the expected loads.

❖ **Top Slab Reinforcement:**

Top Reinforcement: Horizontal rebar is placed at the top of the slab to resist the tensile forces. These bars may be arranged in a grid pattern or in continuous lengths across the top slab.

The top reinforcement usually overlaps with the reinforcement in the side walls to ensure continuity of strength

Reinforcement Detailing :-

- **Covering:** The reinforcement must be covered with an appropriate thickness of concrete to protect it from corrosion. The typical concrete cover is 50 mm to 75 mm, but this may vary depending on local conditions and design requirements.
- **Bar Bending Schedule:** A detailed bar bending schedule should be followed, listing the sizes, lengths, and bending details for each reinforcement bar.
- **Splicing:** Where bars need to be joined, splices should be made according to design standards to maintain the integrity of the reinforcement.

5. Formwork Installation

- ❖ **Preparing the Formwork:** Install wooden or steel formwork to shape the walls, base, and top slab of the box culvert. The formwork must be level, rigid, and capable of supporting the weight of the concrete during pouring.
- ❖ **Formwork Alignment and Securing:** Ensure the formwork is properly aligned with the design levels and dimensions. Secure it tightly so it does not move when concrete is poured.
- ❖ **Shuttering for Side Walls:** For 2x2 box culverts, the side walls will be formed using vertical shuttering, and the base will be formed using horizontal shuttering.

- ❖ **Oil the Formwork:** Apply a form release agent (oil) to the inside of the formwork to facilitate easy removal after concrete hardening.

6. Concrete Pouring

- ❖ **Ready-Mix Concrete:** Use high-strength concrete, typically with a grade of M25 or higher, as specified by the design. Ensure the concrete is mixed and delivered according to the required specifications.
- ❖ **Pouring the Concrete:** Begin pouring the concrete into the formwork, starting from one end. Pour the concrete in layers to avoid segregation and ensure proper compaction. Use vibrators to consolidate the concrete and remove air pockets.
- ❖ **Leveling and Finishing:** After pouring, level the concrete surface and finish it to the required smoothness. Ensure the concrete is compacted properly around the reinforcement.

7. Curing

- ❖ **Initial Curing:** Once the concrete is poured, cover the surface with wet burlap, plastic sheets, or other suitable materials to keep the surface moist. This helps prevent cracking and ensures proper hydration of the concrete.
- ❖ **Curing Duration:** Continue curing the concrete for a minimum of 7 days for ordinary Portland cement concrete. For harsher conditions, the curing period may be extended to 14 days.
- ❖ **Monitoring the Curing Process:** Regularly monitor the curing process to ensure the surface stays moist and does not dry out prematurely, which could lead to surface cracks.

8. Formwork Removal and Inspection

- ❖ **Removing Formwork:** After the concrete has cured adequately (7 days minimum), carefully remove the formwork. Inspect the concrete surface for any defects such as honeycombing or cracks.
- ❖ **Surface Finishing:** If necessary, perform surface finishing work to remove rough spots or to smooth the surface for any aesthetic or functional purposes.

9. Backfilling and Final Grading

- ❖ **Backfilling:** After curing, backfill around the culvert structure with suitable material, making sure the backfill is compacted in layers to avoid settlement.
- ❖ **Grading and Leveling:** Ensure the ground surrounding the culvert is properly graded and leveled to allow for proper water flow.

[Signature]
02/3/25

[Signature]
02/3/25
Asst. Executive Engineer, P.W.D.
Margherita Territorial Road Sub-Division
Margherita

10. Installing Return Walls and Aprons (if applicable)

- ❖ **Return Walls:** If the design includes wing walls, they are constructed next to the culvert to direct the flow of water and provide structural support.
- ❖ **Apron Construction:** Sometimes, a concrete apron is placed at the culvert's inlet and outlet to protect the structure from erosion caused by water flow.

11. Final Inspection

- ❖ **Quality Checks:** The culvert is inspected to ensure it meets all design specifications, including dimensions, reinforcement, and concrete quality.
- ❖ **Water Test (if applicable):** A water test may be performed to ensure there are no leaks or issues with the culvert's functionality.

12. Roadway or Embankment Construction

- ❖ **Roadway Restoration:** Once the culvert is in place, the road surface or embankment is restored, with proper compaction and resurfacing.
- ❖ **Drainage and Grading:** Ensuring that proper drainage slopes and grading are in place to prevent water buildup around the culvert.

13. Post-Construction Cleanup

- ❖ **Site Cleanup:** Remove any debris, excess material, and formwork from the site to ensure it is safe and clean.
- ❖ **Final Inspection and Approval:** A final inspection is done to ensure everything meets the required safety and design standards before the culvert is put into use.

Important Considerations :

- ✚ **Material Strength:** Concrete must meet the specified strength, and the reinforcement should comply with the design code.
- ✚ **Safety:** Always follow safety protocols, especially when working around deep excavations or heavy machinery.
- ✚ **Weather:** Weather conditions can affect the pouring and curing process. Cold or hot weather may require special considerations, such as curing methods or using specific additives in the concrete.

[Signature]
02/3/2025
Asst. Executive Engineer
Margherita Dev. Block

[Signature]
02/3/25
Asst. Executive Engineer, P.W.D.
Margherita Territorial Road Sub-Division
Margherita

TRAFFIC DIVERSION

Traffic diversion during the construction of a box culvert on a **2-lane National Highway (NH)** should adhere to the guidelines outlined in the **IRC:SP 73-2018 (Manual on Traffic Control Devices)** and **MORTH Specifications (Ministry of Road Transport and Highways)**, specifically **Section 800** (which pertains to traffic management during roadworks).

Key Points to Consider Based on **IRC:SP 73-2018 & MORTH Section 800**

1. General Traffic Control Guidelines

According to **IRC:SP 73-2018**, the overall objective during construction is to ensure:

- ✚ **Safety of Road Users:** This includes clear signage, controlled access, and protection from hazards.
- ✚ **Minimizing Disruption:** Ensure minimal delays to traffic flow and maintain accessibility where possible.
- ✚ **Effective Communication:** Keep motorists and pedestrians informed about changes, road closures, and alternative routes.

2. Traffic Diversion Types

✚ Full Lane Closure:

- In cases where the box culvert construction affects the entire road width, or if excavation work spans the entire width, full road closure may be required.
- The full closure is typically for short durations but may extend depending on the size of the culvert.
- IRC:SP 73-2018 requires the closure to be done safely with clearly defined detours for traffic.

✚ Partial Lane Closure (Single Lane):

- If only part of the road (one lane) is occupied for construction, **single-lane traffic** is maintained using temporary traffic signals or flagmen to alternate the flow of vehicles.
- **MORTH Section 800 specifies** that when only one lane is closed, both directions of traffic should be able to pass through the remaining lane, with appropriate traffic control.

16
02/03/2025
Asst. Executive Engineer
Margherita Dev. Block

Asst. Executive Engineer, P.W.D.
Margherita Territorial Road Sub-Division
Margherita

3. Key Steps for Implementing Traffic Diversion

Step 1: Preparation and Traffic Study

- **Traffic Survey:** Assess the volume, type of vehicles (heavy trucks, buses), and peak traffic hours.
- **Diversion Routes Identification:** Determine the most appropriate diversion routes based on traffic volume and road conditions. Ideally, diversion routes should be parallel roads or nearby highways capable of handling diverted traffic.

Step 2: Traffic Control Devices (TCDs)

According to **IRC:SP 73-2018**, and **MORTH Section 800**, the following devices should be used:

- **Advance Warning Signs:**
 - Place "**Road Work Ahead**" signs at least **150-200 meters** before the construction zone to inform drivers of upcoming changes.
 - "**Lane Closed Ahead**" or "**Detour Ahead**" signs should be placed **300-500 meters** before the construction area.
- **Road Closure or Detour Signs:**
 - Use "**Road Closed**" or "**Detour**" signs to guide traffic onto diversion routes.
 - Clearly indicate alternative routes for both light and heavy vehicles.
 - If the detour route is long, signage should provide **directions**.
- **Speed Restriction Signs:**
 - Lower speed limits in the work zone and on the diversion routes as per the ***IRC*** guidelines. For instance, **40 km/h** might be the recommended speed in construction zones.
 - **Speed limit signs** should be prominently displayed at the entry to the work zone.
- **Regulatory and Warning Signs:**

[Signature]
02/3/2025
Asst. Executive Engineer
Margherita Dev. Block

[Signature]
02/3/25
Asst. Executive Engineer, P.W.D.
Margherita Territorial Road Sub-Division
Margherita

- **"No Entry," "One-Way,"** and other regulatory signs, as needed, should be installed in and around the diversion routes.

- Use **"Flagman" or "Stop-Go"** signs where manual traffic control is required.

- Temporary Barriers and Cones:

- Use **reflective cones & barriers** to mark the construction zone and redirect traffic.

- Temporary traffic barriers should meet the specifications of **IRC:SP 73-2018** and should be positioned clearly to delineate the working space from the moving traffic lanes.

- Night-Time Visibility

- Use **reflective signage, lights, and high-intensity road cones** to ensure high visibility at night.

- **Warning lights** should be installed along the diverted route.

Step 3: Construction of Box Culvert (Work Zone Safety)

- Safety Barriers and Fencing:

- Install **barriers** around the excavation site and construction zone to protect workers and prevent vehicles from entering the active work area.

- **Safety barriers** should comply with **MORTH Section 800** and **IRC:SP 73-2018** standards.

- Pedestrian Safety:

- Ensure **safe pedestrian access** around the construction site.

- In case of road closure, provide temporary footpaths or diversion routes for pedestrians, ensuring they are well marked.

Step 4: Traffic Diversion Routes Design

Based on **IRC:SP 73-2018** and **MORTH Section 800**, the diversion routes should be:

- Clearly marked with **directional signs**.

- Safe for all vehicle types, including large trucks, buses, and emergency vehicles.

- If a diversion includes a **narrow or low clearance** route (e.g., a bridge or underpass), special **height, width, or weight restrictions** should be indicated.

- Detour Route Design:

- **Rural Diversions:** If detours pass through rural or smaller roads, ensure that the roads are in good condition and can handle diverted traffic. Diverting heavy vehicles through non-paved or narrow roads can create safety risks.

- **Urban Diversions:** If the diversion is through urban areas, ensure that intersections are wide enough for turning vehicles and provide adequate traffic signal controls.

Step 5: Temporary Traffic Management during Peak Hours

- **Flagmen and Manual Control:** In busy or high-density areas, consider deploying flagmen or manual traffic control during peak hours to control the flow of vehicles.

- **Peak Hour Monitoring:** If diversion routes are overwhelmed, it may be necessary to adjust diversion plans or temporarily reopen lanes during peak periods, ensuring that **alternative routes** are not too congested.

Step 6: Emergency Access

- Maintain **clear access for emergency vehicles** at all times. Ensure that **fire trucks, ambulances, and police vehicles** can reach the construction zone if needed.

- Signage for emergency vehicles should be placed along the diversion routes to ensure they can quickly pass through the construction zone.

Step 7: Ongoing Monitoring and Traffic Control Adjustments

- **Monitor Traffic Flow:** Constantly monitor traffic on diversion routes, especially during peak times, and adjust traffic signals or flagging as necessary.

- **Road Condition Updates:** If any damage occurs to the diversion route, promptly address it to avoid delays or accidents.

4. Post-Construction

- **Reinstating Normal Traffic Flow:** After the completion of the box culvert, remove all **traffic barriers, signage, and diversion routes**.

Bas
02/3/2025
Asst. Executive Engineer
Margherita Dev. Block

Asst. Executive Engineer
02/3/25
Asst. Executive Engineer, P.W.D.
Margherita Territorial Road Sub-Division
Margherita

- **Final Inspection:** Ensure that the road and culvert are fully operational and safe for regular traffic use.

- **Notification of Road Reopening:** Inform the public and stakeholders about the completion of work and the reopening of lanes via media and signs.


02/3/2025
Asst. Executive Engineer
Margherita Territorial Road Sub-Division


02/3/25
Asst. Executive Engineer, P.W.D.
Margherita Territorial Road Sub-Division
Margherita

PROPOSED SITE FOR LEDO (KACHA NALA) CULVERT







[Signature]
21/03/2025
Asst. Executive Engineer
Margherita Dev. Block


[Signature]
02/3/25
Asst. Executive Engineer, P.W.D.
Margherita Territorial Road Sub-Division
Margherita

GOOGLE MAP FOR LEDO(KACHA NALA) CULVERT

LEDO KACHA NALA RCC BOX CULVERT

Legend

-  27.294707,95.659107
-  AJANTA CAFE
-  Margherita College
-  Margherita wines

 27.292014,95.738745

PROPOSED SITE FOR RCC BOX CULVERT

Stilwell Rd

 Ledo

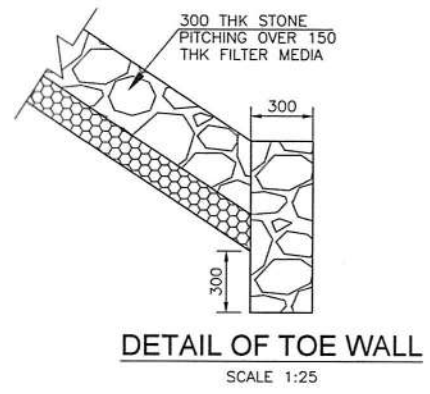
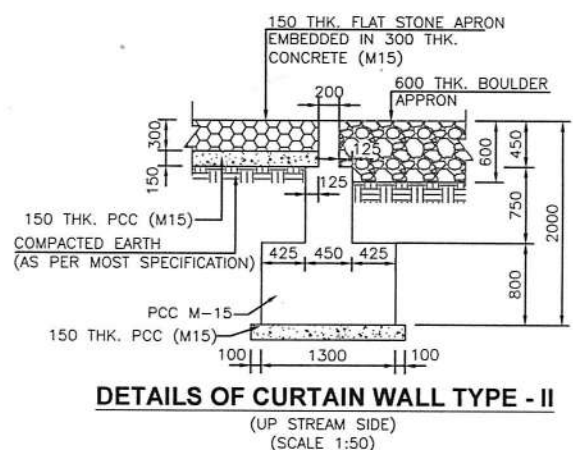
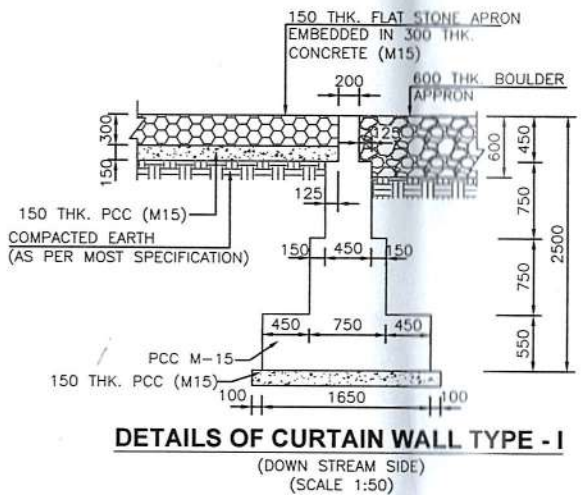
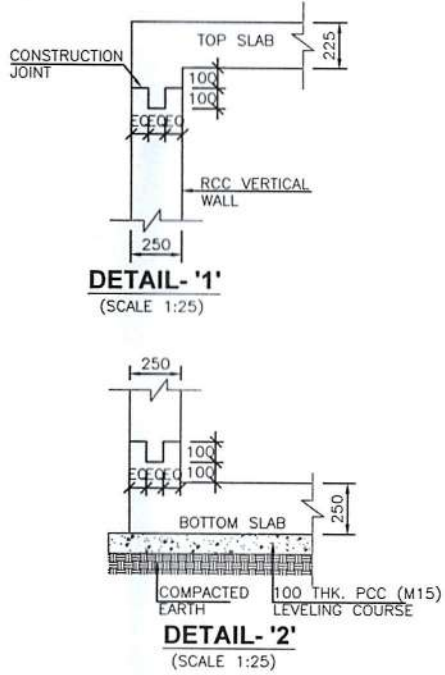
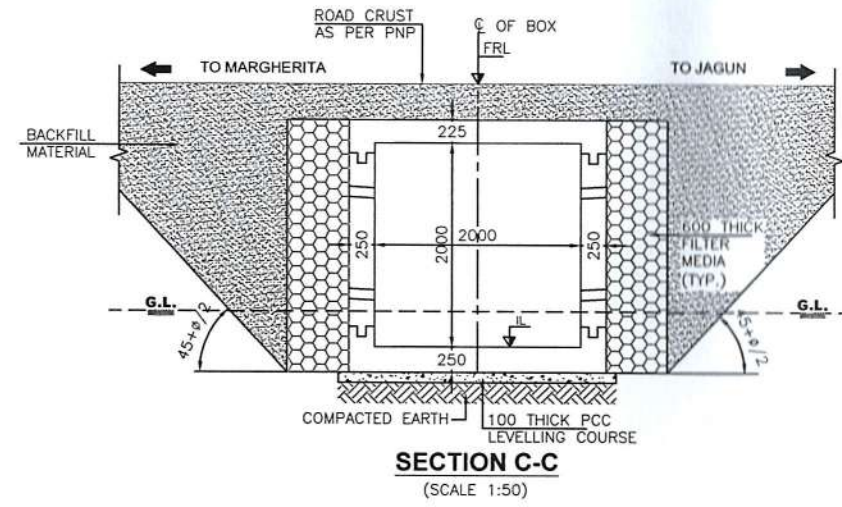
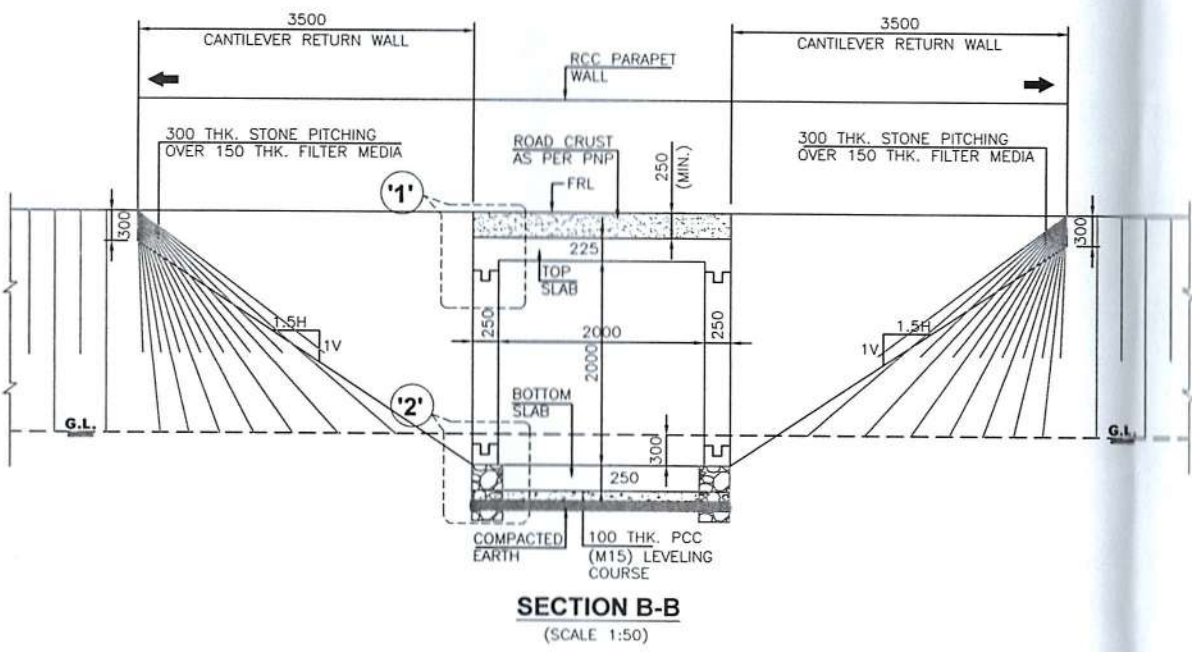
 SOUTHERN F

Google Earth



Handwritten signature
02/13/2025
Asstt. Executive Engineer
Margherita Division

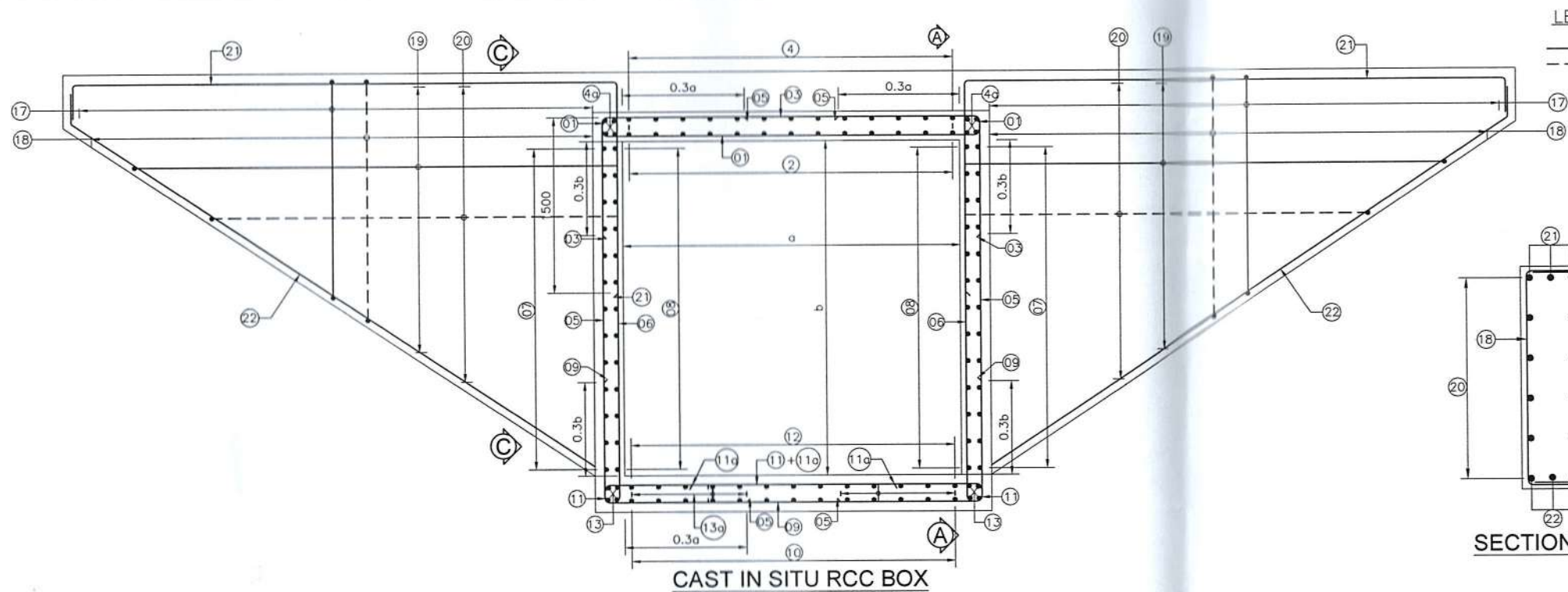
Handwritten signature
02/13/25
Asstt. Executive Engineer
Margherita Division



*Asst. Executive Engineer, P.W.D.
Margherita Territorial Road Sub-Division
Margherita*

*Asst. Executive Engineer
Margherita Dev. Block*

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--



LEGEND:

- TOP/NON EARTH FACE BAR
- - - - - BOTTOM/EARTH FACE BAR

NOTES:-

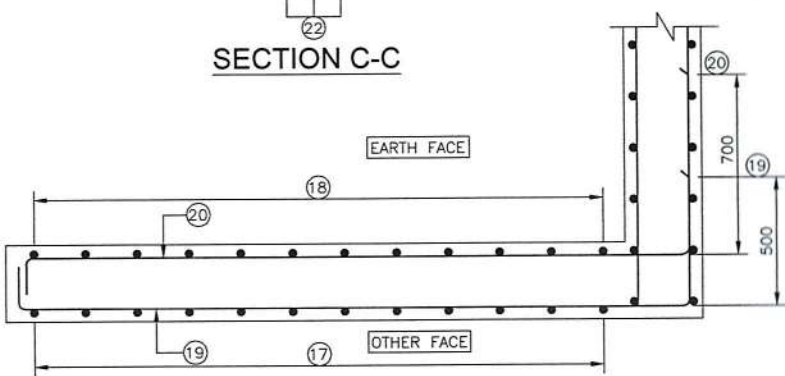
1. ALL DIMENSION ARE IN MILLIMETERS, LEVELS IN METRES AND CHAINAGES IN KILOMETRES UNLESS OTHERWISE MENTIONED.
2. DIMENSION ARE NOT TO BE SCALED, ONLY WRITTEN DIMENSION SHALL BE FOLLOWED.
3. REINFORCING STEEL SHALL BE OF THERMO MECHANICALLY TREATED (TMT) BARS. (GRADE DESIGNATION Fe 500) CONFORMING TO IS:1786.
4. CLEAR COVER TO OUTERMOST STEEL SHALL BE AS BELOW:-
 - a) TOP SLAB -----40mm
 - b) VERTICAL WALL (EARTH FACE) -----75mm
 - c) VERTICAL WALL (NON EARTH FACE) -----50mm
 - d) BOTTOM SLAB / FOUNDATION -----75mm
5. LAP LENGTH SHALL BE PROVIDED AS PER THE TABLE GIVEN BELOW:-

FAVORABLE BOND CONDITION	
LAP LENGTH	% LAP AT ANY SECTION IS
40d	<25%
46d	BETWEEN 25-33%
56d	BETWEEN 33-50%
60d	>50%

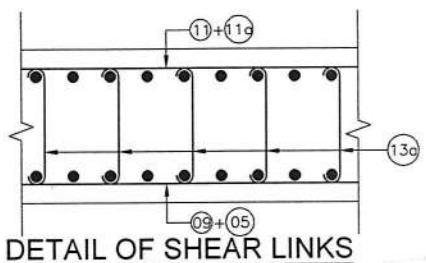
UNFAVORABLE BOND CONDITION	
LAP LENGTH	% LAP AT ANY SECTION IS
58d	<25%
66d	BETWEEN 25-33%
80d	BETWEEN 33-50%
86d	>50%

WHERE,
d = DIAMETER OF BAR.

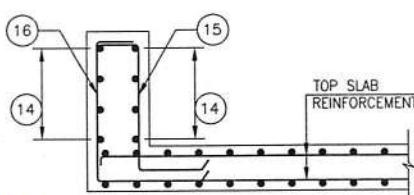
SECTION C-C



JUNCTION DETAIL OF RETURN WALL



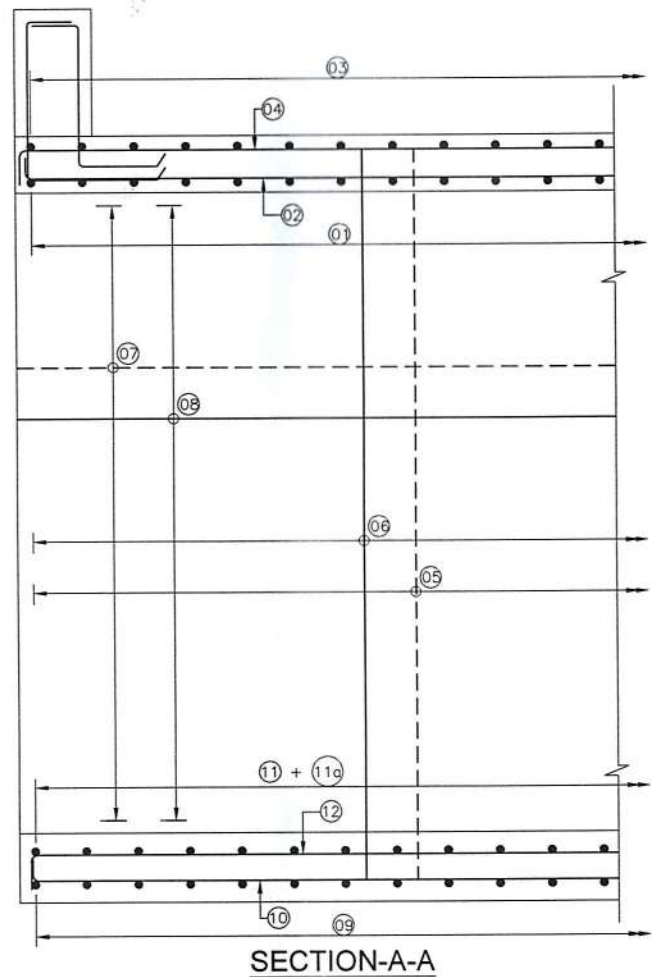
DETAIL OF SHEAR LINKS



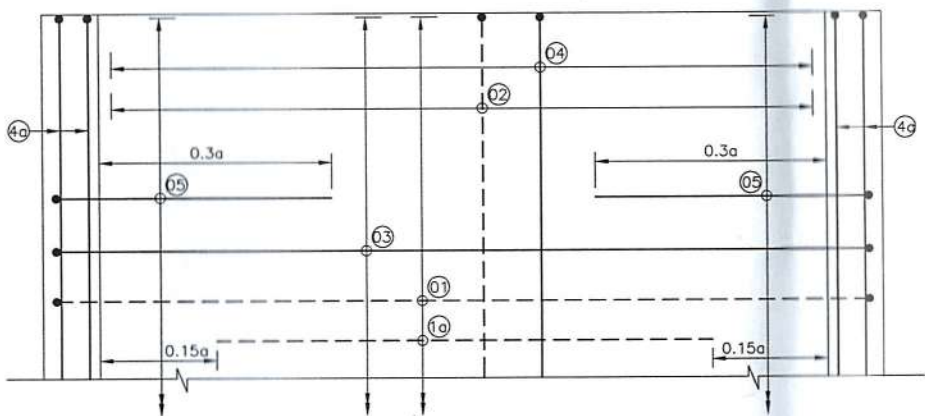
PARAPET REINF.
SCALE 1:25

SCHEDULE OF REINFORCEMENT

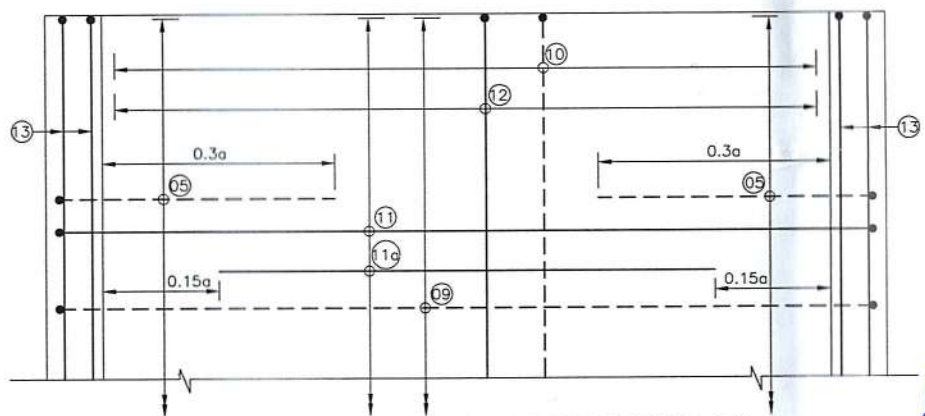
BAR MARK	SHAPE OF BARS (NOT TO SCALE)	BAR DIA IN mm	SPACING OR NO. OF BAR
TOP SLAB	01	12	180
	1a	NOT USED	
	02	8	200
	03	10	200
	04	8	200
	4a	10	2X4 NOS.
VERTICAL WALL	05	12	200
	06	10	200
	07	8	200
	08	8	200
BOTTOM SLAB	09	10	200
	10	8	200
	11	12	200
	11a	10	200
	12	8	200
	13	10	2X4 NOS.
PARAPET WALL	13a	8	100 LONG. 100 TRANS.
	14	10	200
RETURN WALL	15	12	100
	16	12	100
	17	10	200
	18	10	200
	19	10	200
	20	10	100
	21	20	3 NOS.
	22	10	3 NOS.



SECTION-A-A



TOP SLAB REINFORCEMENT PLAN
(HAUNCH BAR & SHEAR LINKS NOT SHOWN IN PLAN FOR CLARITY)



BOTTOM SLAB REINFORCEMENT PLAN
(HAUNCH BAR & SHEAR LINKS NOT SHOWN IN PLAN FOR CLARITY)

CLIENT:
BLOCK DEVELOPMENT OFFICER, MARGHERITA DEVELOPMENT
BLOCK, MARGHERITA

PROJECT:
CONSTRUCTION OF BOX CULVERT AT THE CHAINAGE 44+550 AT LEDO(NEAR
RAILWAY STATION), TINSUKIA ON NH-315(OLD NH-38)

TITLE:
TYPICAL REINFORCEMENT DETAILS
OF CAST-IN-SITU BOX CULVERT (1x2.0x2.0)

DRAWING NO

DATE: 22-02-2025

SCALE: AS SHOWN

SHEET 01 OF 01

FORMAT: A2 REV: R0



OFFICE OF THE CO-DISTRICT COMMISSIONER
MARGHERITA



Ph. No. 03751-272065

Email:-cde-margherita@assam.gov.in

No. MRD.3/2003/PT-VI/82/348

Dated Margherita the 6th March'2025

To

✓The Deputy General Manager (P)
NHIDCL, PMU
Dibrugarh

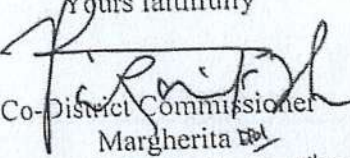
Sub:

Submission of documents for obtaining NOC for construction of 2 box culverts in the NH stretch between Margherita town to Ledo Bazar.

Sir,

With this letter, I would like to forward the documents compiled for construction of 2(two) culverts in National Highway at Segunbari, Margherita Town area and Ledo Bazar area. These documents are forwarded for application of NOC clearance from NHIDCL for beginning the construction work. This shall be done at the earliest as there has been significant delay in the process of application for NOC for the aforesaid work, with deliberations happening since November 2024. It is requested that the GAD, traffic diversion plan, construction methodology etc, be also crosschecked by NHIDCL authority prior to filing for NOC. These have been already checked by the PWD Roads officials of the Govt of Assam. It is also requested that the License fee be waived off as discussed earlier. The application is handed over in hand along with the Executive Officer/Representative of Executive Officer, Margherita Municipal Board.

Yours faithfully


Co-District Commissioner
Margherita

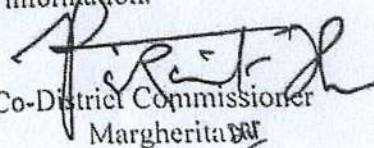
Memo No. MRD.3/2003/PT-VI/82/348

-A,

Dated Margherita the 6th March'2025

Copy to:

1. The C.A. to the DC for kind appraisal of the District Commissioner, Tinsukia
2. The Representative of MLA for kind appraisal of the Hon'ble MLA, Margherita LAC.
3. The Chairman & Executive Officer, Margherita Municipal Board for information.
4. The AEE, PWD Roads, Margherita for information and necessary action.
5. The Block Development Officer, Margherita for information.


Co-District Commissioner
Margherita



GOVT. OF ASSAM
OFFICE OF THE:: MARGHERITA :: MUNICIPAL BOARD
MARGHERITA

Website: - www.margheritamb.com

Email: margherita.towncom@gmail.com

No. Mrg.MB/CDC/ 4589

Dated Margherita, the 4th March 2025

Development

From : The Executive Officer,
Margherita Municipal Board,
Margherita.

To : The Co-District Commissioner
Margherita.

Sub : Submission of documents for application of NOC for construction of
box culvert in Segunbari.

Sir,

In reference to the subject mentioned above, I am submitting the GAD, route map, traffic diversion plan, and other necessary documents for applying for the NOC for the construction of a box culvert in Segunbari to address urban flooding issues in Margherita town.

Yours faithfully

Enclo: - Documents.

For, 
 Executive Officer
 Margherita Municipal Board
 Margherita

CONSTRUCTION METHODOLOGY FOR BOX CULVERT :-

1. Preparation and Site Setup

- ❖ **Site Surveying:** Conduct a thorough survey to mark the boundaries, alignment, and levels for the box culvert construction. This ensures that the culvert will be positioned and constructed accurately as per the design.
- ❖ **Mobilization of Equipment and Materials:** Bring all necessary equipment such as excavators, cranes, formwork materials, reinforcement steel, and concrete mixers to the site. Set up a construction site office for administrative work, safety management, and storage of materials.
- ❖ **Safety Measures:** Install safety barriers and signs, and ensure workers are wearing PPE like helmets, gloves, and safety boots. Setup first aid kits and fire safety equipment.

2. Excavation

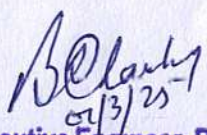
- ❖ **Excavation for Box Culvert:** Begin excavation according to the design depths and widths. Excavate the trench to the required depth and width for the 2x2 box culvert. The dimensions should be confirmed based on design specifications and allowances for construction.
- ❖ **Shoring and Bracing:** Use shoring and bracing techniques to prevent the sides of the excavation from collapsing, especially in deep excavations.
- ❖ **Dewatering:** If groundwater is encountered, use dewatering pumps to keep the excavation dry and manageable.
- ❖ **Excavation of Base:** After excavation, ensure the base is smooth and compacted to avoid settlement of the structure.

3. PCC (Plain Cement Concrete)

- ❖ **Subgrade Preparation:** Once the excavation is complete, prepare the subgrade by ensuring it is level and compacted.
- ❖ **Placing PCC:** Pour a layer of Plain Cement Concrete (PCC) to form a strong foundation and prevent direct contact of the box culvert with the soil. This layer should be approximately 100-150mm thick, depending on the design specifications.
- ❖ **Leveling and Compaction:** Ensure the PCC layer is leveled properly. Allow it to cure for 7-10 days to achieve strength before placing reinforcement.

4. Reinforcement Placement

The specific placement of reinforcement depends on the box culvert's design, but here are the general guidelines:


 Asst. Executive Engineer, P.W.D.
 Margherita Territorial Road Sub-Division
 Margherita


 Urban Technical Officer
 Margherita Municipal Board
 Margherita


 Assistant Engineer
 Margherita Municipal Board
 Margherita

❖ **Base Slab Reinforcement:**

Top Layer: A grid of rebar is placed at the top of the base slab to resist the compressive forces on the slab. It is typically placed near the bottom of the formwork but not in direct contact with the concrete.

Bottom Layer: A layer of rebar is placed on the bottom of the base slab to resist tensile forces. This reinforcement is often thicker or more densely placed near the midspan of the culvert.

❖ **Side Wall Reinforcement:**

Reinforcement is placed both horizontally and vertically within the formwork of the side walls. Horizontal reinforcement resists bending, while vertical bars handle shear forces.

The spacing and number of bars depend on the wall thickness and the expected loads.

❖ **Top Slab Reinforcement:**

Top Reinforcement: Horizontal rebar is placed at the top of the slab to resist the tensile forces. These bars may be arranged in a grid pattern or in continuous lengths across the top slab.

The top reinforcement usually overlaps with the reinforcement in the side walls to ensure continuity of strength

Reinforcement Detailing :-

- **Covering:** The reinforcement must be covered with an appropriate thickness of concrete to protect it from corrosion. The typical concrete cover is 50 mm to 75 mm, but this may vary depending on local conditions and design requirements.
- **Bar Bending Schedule:** A detailed bar bending schedule should be followed, listing the sizes, lengths, and bending details for each reinforcement bar.
- **Splicing:** Where bars need to be joined, splices should be made according to design standards to maintain the integrity of the reinforcement.

5. Formwork Installation

- ❖ **Preparing the Formwork:** Install wooden or steel formwork to shape the walls, base, and top slab of the box culvert. The formwork must be level, rigid, and capable of supporting the weight of the concrete during pouring.
- ❖ **Formwork Alignment and Securing:** Ensure the formwork is properly aligned with the design levels and dimensions. Secure it tightly so it does not move when concrete is poured.
- ❖ **Shuttering for Side Walls:** For 2x2 box culverts, the side walls will be formed using vertical shuttering, and the base will be formed using horizontal shuttering.

[Signature]
01/3/25
Asst. Executive Engineer, P.W.D.
Margherita Territorial Road Sub-Division
Margherita

[Signature]
Urban Technical Officer
Margherita Municipal Board
Margherita

[Signature]
Assistant Engineer
Margherita Municipal Board
Margherita

- ❖ **Oil the Formwork:** Apply a form release agent (oil) to the inside of the formwork to facilitate easy removal after concrete hardening.

6. Concrete Pouring

- ❖ **Ready-Mix Concrete:** Use high-strength concrete, typically with a grade of M25 or higher, as specified by the design. Ensure the concrete is mixed and delivered according to the required specifications.
- ❖ **Pouring the Concrete:** Begin pouring the concrete into the formwork, starting from one end. Pour the concrete in layers to avoid segregation and ensure proper compaction. Use vibrators to consolidate the concrete and remove air pockets.
- ❖ **Leveling and Finishing:** After pouring, level the concrete surface and finish it to the required smoothness. Ensure the concrete is compacted properly around the reinforcement.

7. Curing

- ❖ **Initial Curing:** Once the concrete is poured, cover the surface with wet burlap, plastic sheets, or other suitable materials to keep the surface moist. This helps prevent cracking and ensures proper hydration of the concrete.
- ❖ **Curing Duration:** Continue curing the concrete for a minimum of 7 days for ordinary Portland cement concrete. For harsher conditions, the curing period may be extended to 14 days.
- ❖ **Monitoring the Curing Process:** Regularly monitor the curing process to ensure the surface stays moist and does not dry out prematurely, which could lead to surface cracks.

8. Formwork Removal and Inspection

- ❖ **Removing Formwork:** After the concrete has cured adequately (7 days minimum), carefully remove the formwork. Inspect the concrete surface for any defects such as honeycombing or cracks.
- ❖ **Surface Finishing:** If necessary, perform surface finishing work to remove rough spots or to smooth the surface for any aesthetic or functional purposes.

9. Backfilling and Final Grading

- ❖ **Backfilling:** After curing, backfill around the culvert structure with suitable material, making sure the backfill is compacted in layers to avoid settlement.
- ❖ **Grading and Leveling:** Ensure the ground surrounding the culvert is properly graded and leveled to allow for proper water flow.

Asst. Executive Engineer, P.W.D.
Margherita Territorial Road Sub-Division
Margherita

Urban Technical Officer
Margherita Municipal Board
Margherita

Assistant Engineer
Margherita Municipal Board
Margherita

10. Installing Return Walls and Aprons (if applicable)

- ❖ **Return Walls:** If the design includes wing walls, they are constructed next to the culvert to direct the flow of water and provide structural support.
- ❖ **Apron Construction:** Sometimes, a concrete apron is placed at the culvert's inlet and outlet to protect the structure from erosion caused by water flow.

11. Final Inspection

- ❖ **Quality Checks:** The culvert is inspected to ensure it meets all design specifications, including dimensions, reinforcement, and concrete quality.
- ❖ **Water Test (if applicable):** A water test may be performed to ensure there are no leaks or issues with the culvert's functionality.

12. Roadway or Embankment Construction

- ❖ **Roadway Restoration:** Once the culvert is in place, the road surface or embankment is restored, with proper compaction and resurfacing.
- ❖ **Drainage and Grading:** Ensuring that proper drainage slopes and grading are in place to prevent water buildup around the culvert.

13. Post-Construction Cleanup

- ❖ **Site Cleanup:** Remove any debris, excess material, and formwork from the site to ensure it is safe and clean.
- ❖ **Final Inspection and Approval:** A final inspection is done to ensure everything meets the required safety and design standards before the culvert is put into use.

Important Considerations :

- ✦ **Material Strength:** Concrete must meet the specified strength, and the reinforcement should comply with the design code.
- ✦ **Safety:** Always follow safety protocols, especially when working around deep excavations or heavy machinery.
- ✦ **Weather:** Weather conditions can affect the pouring and curing process. Cold or hot weather may require special considerations, such as curing methods or using specific additives in the concrete.


Asst. Executive Engineer, P.W.D.
Margherita Territorial Road Sub-Division
Margherita


Urban Technical Officer
Margherita Municipal Board
Margherita


Assistant Engineer
Margherita Municipal Board
Margherita

Location of the Segunbari Culvert



[Signature]
Assistant Engineer
Margherita Municipal Board
Margherita

[Signature]
Urban Technical Officer
Margherita Municipal Board
Margherita

[Signature]
Junior Engineer
Margherita Municipal Board
Margherita

TRAFFIC DIVERSION

Traffic diversion during the construction of a box culvert on a **2-lane National Highway (NH)** should adhere to the guidelines outlined in the **IRC:SP 73-2018 (Manual on Traffic Control Devices)** and **MORTH Specifications (Ministry of Road Transport and Highways)**, specifically **Section 800** (which pertains to traffic management during roadworks).

Key Points to Consider Based on **IRC:SP 73-2018 & MORTH Section 800**

1. General Traffic Control Guidelines

According to **IRC:SP 73-2018**, the overall objective during construction is to ensure:

- ✚ **Safety of Road Users:** This includes clear signage, controlled access, and protection from hazards.
- ✚ **Minimizing Disruption:** Ensure minimal delays to traffic flow and maintain accessibility where possible.
- ✚ **Effective Communication:** Keep motorists and pedestrians informed about changes, road closures, and alternative routes.

2. Traffic Diversion Types

✚ Full Lane Closure:

- In cases where the box culvert construction affects the entire road width, or if excavation work spans the entire width, full road closure may be required.
- The full closure is typically for short durations but may extend depending on the size of the culvert.
- IRC:SP 73-2018 requires the closure to be done safely with clearly defined detours for traffic.

✚ Partial Lane Closure (Single Lane):

- If only part of the road (one lane) is occupied for construction, **single-lane traffic** is maintained using temporary traffic signals or flagmen to alternate the flow of vehicles.
- **MORTH Section 800 specifies** that when only one lane is closed, both directions of traffic should be able to pass through the remaining lane, with appropriate traffic control.

3. Key Steps for Implementing Traffic Diversion

Step 1: Preparation and Traffic Study

- **Traffic Survey:** Assess the volume, type of vehicles (heavy trucks, buses), and peak traffic hours.
- **Diversion Routes Identification:** Determine the most appropriate diversion routes based on traffic volume and road conditions. Ideally, diversion routes should be parallel roads or nearby highways capable of handling diverted traffic.

Step 2: Traffic Control Devices (TCDs)

According to **IRC:SP 73-2018**, and **MORTH Section 800**, the following devices should be used:

- Advance Warning Signs:

- Place "**Road Work Ahead**" signs at least **150-200 meters** before the construction zone to inform drivers of upcoming changes.
- "**Lane Closed Ahead**" or "**Detour Ahead**" signs should be placed **300-500 meters** before the construction area.

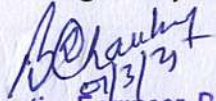
- Road Closure or Detour Signs:

- Use "**Road Closed**" or "**Detour**" signs to guide traffic onto diversion routes.
- Clearly indicate alternative routes for both light and heavy vehicles.
- If the detour route is long, signage should provide **directions**.

- Speed Restriction Signs:

- Lower speed limits in the work zone and on the diversion routes as per the ***IRC*** guidelines. For instance, **40 km/h** might be the recommended speed in construction zones.
- **Speed limit signs** should be prominently displayed at the entry to the work zone.

- Regulatory and Warning Signs:


Asst. Executive Engineer, P.W.D.
Margherita Territorial Road Sub-Division
Margherita


Urban Technical Officer
Margherita Municipal Board
Margherita


Assistant Engineer
Margherita Municipal Board
Margherita

- **"No Entry," "One-Way,"** and other regulatory signs, as needed, should be installed in and around the diversion routes.

- Use **"Flagman" or "Stop-Go"** signs where manual traffic control is required.

- Temporary Barriers and Cones:

- Use **reflective cones & barriers** to mark the construction zone and redirect traffic.

- Temporary traffic barriers should meet the specifications of **IRC:SP 73-2018** and should be positioned clearly to delineate the working space from the moving traffic lanes.

- Night-Time Visibility

- Use **reflective signage, lights, and high-intensity road cones** to ensure high visibility at night.

- **Warning lights** should be installed along the diverted route.

Step 3: Construction of Box Culvert (Work Zone Safety)

- Safety Barriers and Fencing:

- Install **barriers** around the excavation site and construction zone to protect workers and prevent vehicles from entering the active work area.

- **Safety barriers** should comply with **MORTH Section 800** and **IRC:SP 73-2018** standards.

- Pedestrian Safety:

- Ensure **safe pedestrian access** around the construction site.

- In case of road closure, provide temporary footpaths or diversion routes for pedestrians, ensuring they are well marked.

Step 4: Traffic Diversion Routes Design

Based on **IRC:SP 73-2018** and **MORTH Section 800**, the diversion routes should be:

- Clearly marked with **directional signs**.

- Safe for all vehicle types, including large trucks, buses, and emergency vehicles.

*Asst. Executive Engineer, P.W.D.
Margherita Territorial Road Sub-Division*
File No. NHIDCL/PMU/DBR/BC-NOC/Ch.36+250&44+550/NH-315/2025/ (Computer No. 250966)
Generated from eOffice by BINAYAK KUMAR, BK-GM-P, GENERAL MANAGER, NHIDCL on 24/05/2025 02:00 pm

Urban Technical Officer
Margherita Municipal Board

Assistant Engineer
Margherita Municipal Board
Margherita

- If a diversion includes a **narrow or low clearance** route (e.g., a bridge or underpass), special **height, width, or weight restrictions** should be indicated.

- Detour Route Design:

- **Rural Diversions:** If detours pass through rural or smaller roads, ensure that the roads are in good condition and can handle diverted traffic. Diverting heavy vehicles through non-paved or narrow roads can create safety risks.

- **Urban Diversions:** If the diversion is through urban areas, ensure that intersections are wide enough for turning vehicles and provide adequate traffic signal controls.

Step 5: Temporary Traffic Management during Peak Hours

- **Flagmen and Manual Control:** In busy or high-density areas, consider deploying flagmen or **manual traffic control** during peak hours to control the flow of vehicles.

- **Peak Hour Monitoring:** If diversion routes are overwhelmed, it may be necessary to adjust diversion plans or temporarily reopen lanes during peak periods, ensuring that **alternative routes** are not too congested.

Step 6: Emergency Access

- Maintain **clear access for emergency vehicles** at all times. Ensure that **fire trucks, ambulances, and police vehicles** can reach the construction zone if needed.

- Signage for emergency vehicles should be placed along the diversion routes to ensure they can quickly pass through the construction zone.

Step 7: Ongoing Monitoring and Traffic Control Adjustments

- **Monitor Traffic Flow:** Constantly monitor traffic on diversion routes, especially during peak times, and adjust traffic signals or flagging as necessary.

- **Road Condition Updates:** If any damage occurs to the diversion route, promptly address it to avoid delays or accidents.

4. Post-Construction

- **Reinstating Normal Traffic Flow:** After the completion of the box culvert, remove all traffic barriers, signage, and diversion routes.

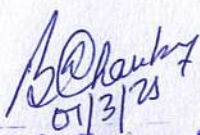
Asst. Executive Engineer, P.W.D.
Margherita Territorial Road Sub-Division
Margherita

Urban Technical Officer
Margherita Municipal Board
Margherita

Assistant Engineer
Margherita Municipal Board
Margherita

- **Final Inspection:** Ensure that the road and culvert are fully operational and safe for regular traffic use.

- **Notification of Road Reopening:** Inform the public and stakeholders about the completion of work and the reopening of lanes via media and signs.


01/3/25
Asst. Executive Engineer, P.W.D.
Margherita Territorial Road Sub-Division
Margherita


Urban Technical Officer
Margherita Municipal Board
Margherita


Assistant Engineer
Margherita Municipal Board
Margherita

Google map for Segunbari Box culvert

Longitude:- 95.6586066

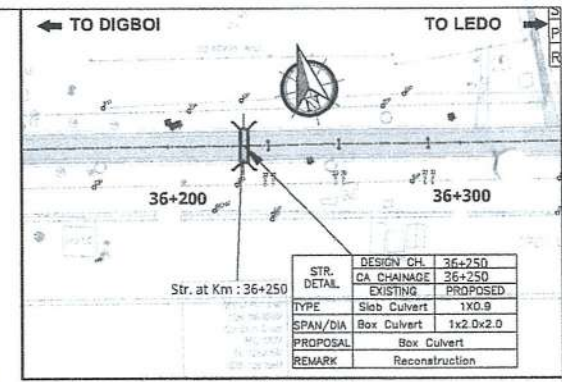
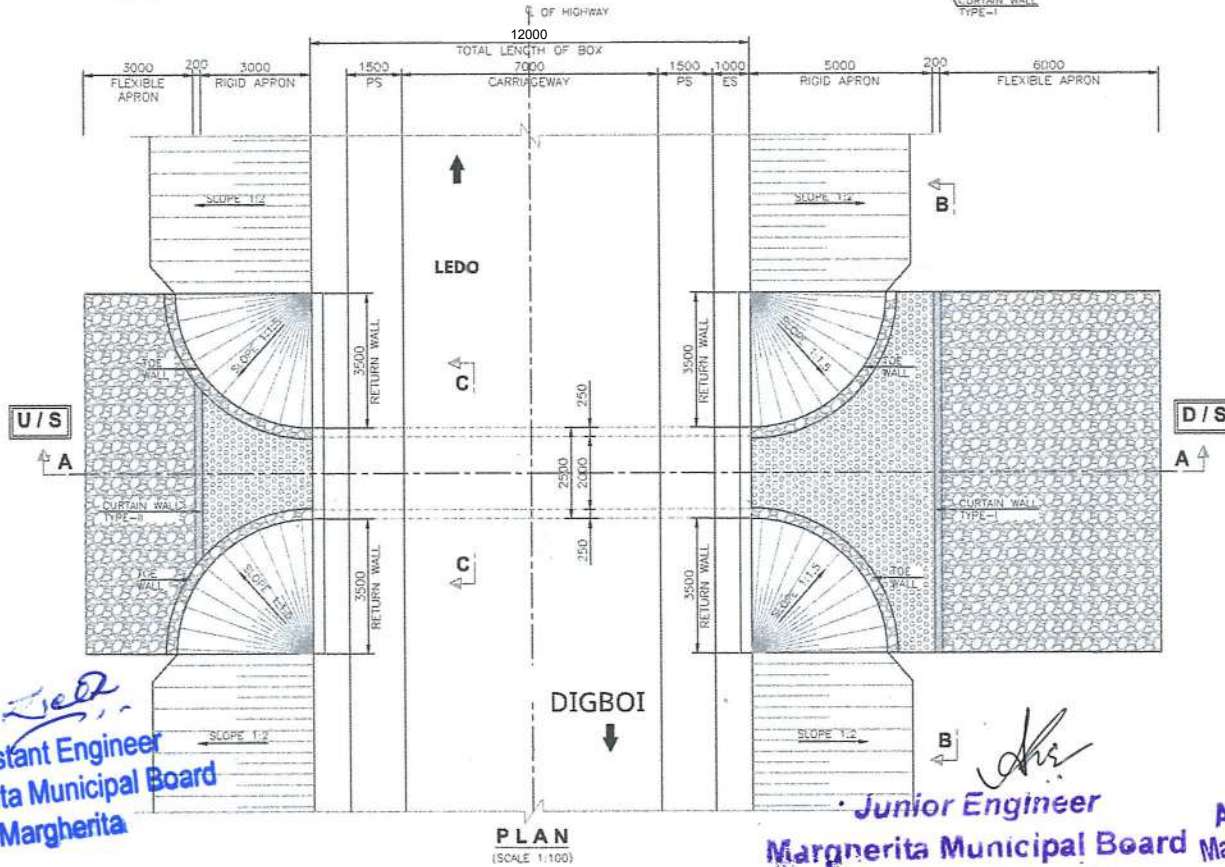
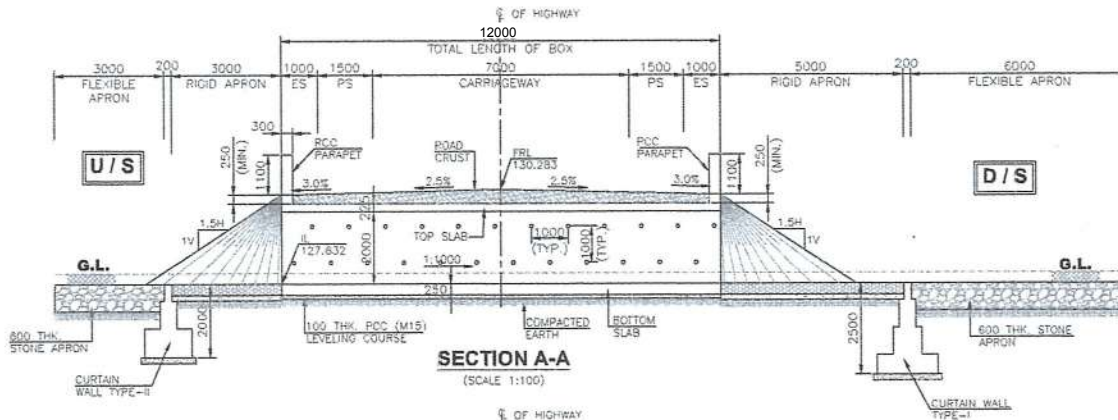
Latitude:- 27.2944898

[Signature]
Urban Technical Officer
Margherita Municipal Board
Margherita

[Signature]
Junior Engineer
Margherita Municipal Board
Margherita

[Signature]
Assistant Engineer
Margherita Municipal Board
Margherita





KEY PLAN	
(SCALE 1:1000)	
LEGENDS:-	
U/S	UP STREAM
D/S	DOWN STREAM
G.L.	GROUND LEVEL
PS	PAVED SHOULDER
ES	EARTHEN SHOULDER
THK.	THICK

- NOTES:-**
- ALL DIMENSION ARE IN MILLIMETERS, LEVELS IN METRES AND CHAINAGES IN KILOMETRES UNLESS OTHERWISE MENTIONED.
 - DIMENSION ARE NOT TO BE SCALED, ONLY WRITTEN DIMENSION SHALL BE FOLLOWED.
 - THE CARRIAGEWAY OF PROPOSED CULVERT IS DESIGNED AS PER IRC: 6-2017.
 - OVERLAY COURSES AS PER PNP.
 - CONCRETE SHALL BE DESIGN MIX AND SHALL HAVE MINIMUM 28 DAYS CHARACTERISTIC STRENGTH ON 150mm CUBES FOR ALL ELEMENTS OF STRUCTURES AS INDICATED BELOW:
 - i) RCC BOX CELL ---M30
 - ii) RCC PARAPET WALL ---M30
 - iii) RCC LEVELLING COURSE ---M15
 - REINFORCING STEEL SHALL BE OF THERMO MECHANICALLY TREATED (TMT) BARS, (GRADE DESIGNATION Fe 500) CONFORMING TO IS:1786.
 - CLEAR COVER TO OUTERMOST STEEL SHALL BE AS BELOW:-
 - a) TOP SLAB ---40mm
 - b) VERTICAL WALL (EARTH FACE) ---75mm
 - c) VERTICAL WALL (NON EARTH FACE) ---50mm
 - d) BOTTOM SLAB/FOUNDATION ---75mm
 - SURFACE REINFORCEMENT OF 2.5 Kg/m SHALL BE PROVIDED IN EACH DIRECTION IN PCC MEMBERS AS PER CLAUSE 710.1.1, IRC 78-2014.
 - 50mm THK. WEARING COURSE (BITUMINOUS CONCRETE) SHALL BE PROVIDED AS PER SECTION 2700 OF MORTH SPECIFICATIONS.
 - 600 THK. FILTER MEDIA/GEO COMPOSITE DRAIN SHALL BE PROVIDED BEHIND VERTICAL WALLS, AS PER "MORTH" SPECIFICATION.
 - 1000 WEEP HOLES SPACED AT 1000mm c/c BOTH HORIZONTALLY AND VERTICALLY SHALL BE PROVIDED IN A STAGGERED MANNER IN VERTICAL WALLS.
 - ALL DIMENSION & LEVELS TO BE VERIFIED AT SITE BEFORE EXECUTION OF WORK.
 - LAYING COMPACTION AND EXTENT OF BACK FILL BEHIND EARTH RETAINING WALLS SHALL CONFORM TO SPECIFICATIONS IN APPENDIX 6 OF IRC: 78-2014.
 - BED PROTECTION HAS BEEN PROVIDED AS PER IRC:SP:13-2004.
 - SOIL DENSITY ON THE BACKFILL AND EARTH CUSHION SHOULD CONFORM TO CLAUSE 305.2.1.5 OF MORTH SPECIFICATION.
 - SAFE BEARING CAPACITY OF 10.0 T/M² AT FOUNDING LEVEL OF BOX SHALL BE ASCERTAINED BEFORE EXECUTION OF FOUNDING WORK.
 - THE DRAWING SHALL BE READ IN CONJUNCTION WITH RELEVANT APPROVED HIGHWAY DRAWINGS FOR STRUCTURE ORIENTATION, SKEW ANGLE, FRL & CAMBER/SUPERELEVATION ETC.
 - CLEAR SPAN, HEIGHT & GROUND LEVEL SHALL BE VERIFIED BEFORE EXECUTION OF WORK, IN CASE OF VARIATION SAME SHALL BE BROUGHT TO THE NOTICE OF DESIGNER.

Assistant Engineer
Margherita Municipal Board
Margherita

Junior Engineer
Margherita Municipal Board
Margherita

Asst. Executive Engineer, P.W.D.
Margherita Territorial Road Sub-Division
Margherita

Executive Officer
Margherita Municipal Board
Margherita

Urban Technical Officer
Margherita Municipal Board
Margherita

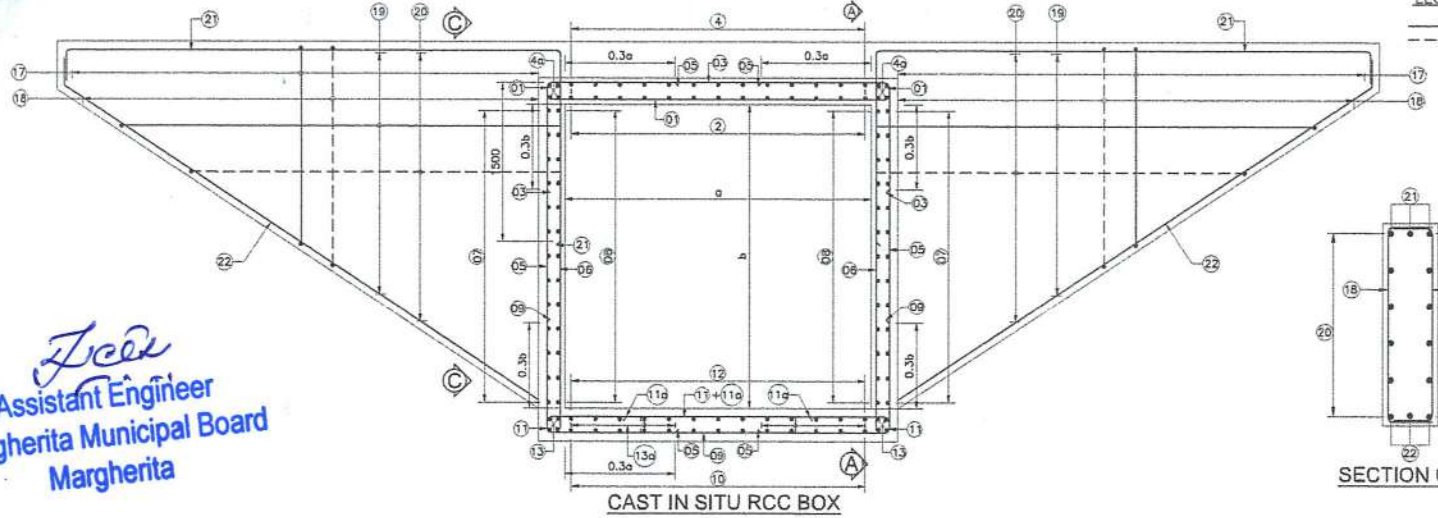
CLIENT:
MARGHERITA MUNICIPAL BOARD, MARGHERITA

PROJECT: CONSTRUCTION OF BOX CULVERT AT THE CHAINAGE 36+250 AT SEGUNBARI, MARGHERITA, TINSUKIA ON NH-315(OLD NH-38)	
TITLE: GENERAL ARRANGEMENT DRAWING OF BOX CULVERT AT DESIGN CH. 36+250	DATE: 22-02-2025
DRAWING NO:	SCALE: AS SHOWN
	SHEET: 01 OF 02
	FORMAT: A2
	REV: R0



		CLIENT		PROJECT	
		MARGHERITA MUNICIPAL BOARD, MARGHERITA		CONSTRUCTION OF BOX CULVERT AT THE CHAINAGE 36+250 AT SEGUNBARI, MARGHERITA, TINSUKIA ON NH-315(OLD NH-38)	
		40		TITLE	
				GENERAL ARRANGEMENT DRAWING OF BOX CULVERT AT AT DESIGN CH. 36+250	
				DATE: 22-02-2025	
				SCALE: AS SHOWN	
				SHEET: 02 OF 02	
				DRAWING NO.	
				FORMAT: A2 REV: R0	
R3 22-02-2025 INITIAL DRAWING NHIDCL/PMU-DBRG/BC-NOC/Ch.36+250&44+550/NH-315/2025/ (Computer No. 250966)					

Ice
Assistant Engineer
Margherita Municipal Board
Margherita



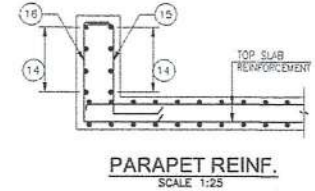
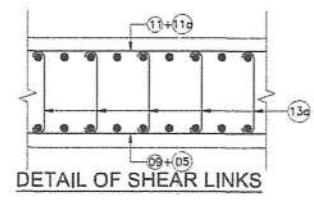
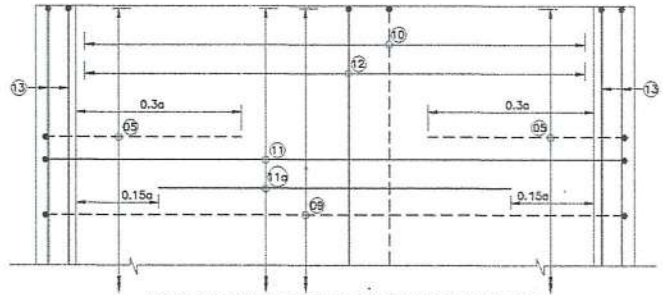
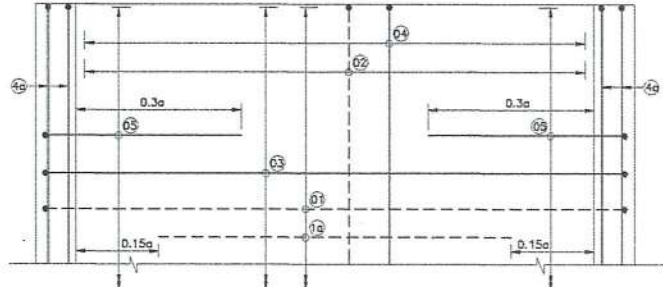
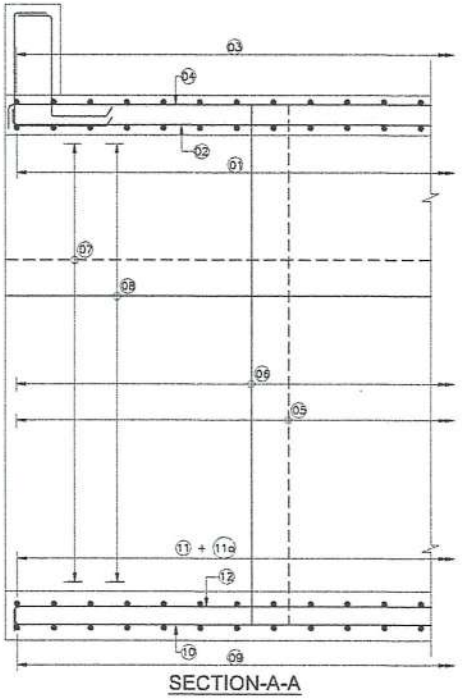
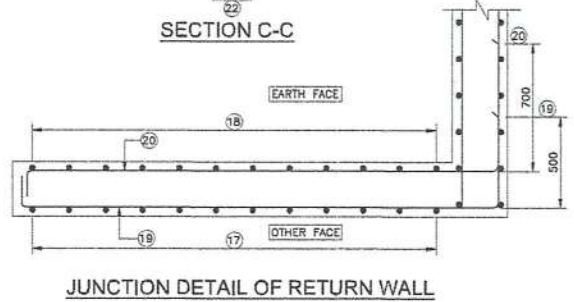
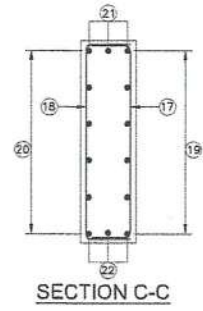
LEGEND:
--- TOP/NOH EARTH FACE BAR
--- BOTTOM/EARTH FACE BAR

- NOTES:-**
1. ALL DIMENSION ARE IN MILLIMETERS, LEVELS IN METRES AND CHAINAGES IN KILOMETRES UNLESS OTHERWISE MENTIONED.
 2. DIMENSION ARE NOT TO BE SCALED, ONLY WRITTEN DIMENSION SHALL BE FOLLOWED.
 3. REINFORCING STEEL SHALL BE OF THERMO MECHANICALLY TREATED (TMT) BARS. (GRADE DESIGNATION Fe 500) CONFORMING TO IS:1786.
 4. CLEAR COVER TO OUTERMOST STEEL SHALL BE AS BELOW:-
a) TOP SLAB ---40mm
b) VERTICAL WALL (EARTH FACE) ---75mm
c) VERTICAL WALL (NON EARTH FACE) ---50mm
d) BOTTOM SLAB / FOUNDATION ---75mm
 5. LAP LENGTH SHALL BE PROVIDED AS PER THE TABLE GIVEN BELOW:-

FAVORABLE BOND CONDITION	
LAP LENGTH	% LAP AT ANY SECTION IS
40d	<25%
48d	BETWEEN 25-33%
56d	BETWEEN 33-50%
60d	>50%

UNFAVORABLE BOND CONDITION	
LAP LENGTH	% LAP AT ANY SECTION IS
58d	<25%
66d	BETWEEN 25-33%
80d	BETWEEN 33-50%
88d	>50%

WHERE,
d = DIAMETER OF BAR.



SCHEDULE OF REINFORCEMENT

BAR MARK	SHAPE OF BARS (NOT TO SCALE)	BAR DIA 8mm	SPACING OR NO. OF BAR
TOP SLAB	01	12	180
	1a	NOT USED	
	02	8	200
	03	10	200
	04	8	200
	4a	10	2X4 NOS.
VERTICAL WALL	05	12	200
	06	10	200
	07	8	200
	08	8	200
BOTTOM SLAB	09	10	200
	10	8	200
	11	12	200
	11a	10	200
	12	8	200
	13	10	2X4 NOS.
	13a	8	100 LONG, 100 TRANS.
PARAPET WALL	14	10	200
	15	12	100
	16	12	100
RETURN WALL	17	10	200
	18	10	200
	19	10	200
	20	10	100
	21	20	3 NOS.
	22	10	3 NOS.

Dual Cite
Urban Technical Officer
Margherita Municipal Board
Margherita

Ar
Junior Engineer
Margherita Municipal Board
Margherita

Ar
Executive Officer
Margherita Municipal Board
Margherita

Asst. Executive Engineer, P.W.D.
Margherita Territorial Road Sub-Division
Margherita

PROJECT:
CONSTRUCTION OF BOX CULVERT AT THE CHAINAGE 36+250 AT SEGUNBARI, MARGHERITA, TINSUKIA ON NH-315(OLD NH-38)
TITLE:
TYPICAL REINFORCEMENT DETAILS OF CAST-IN-SITU BOX CULVERT (1x2.0x2.0)
DATE: 22-02-2025
SCALE: AS SHOWN
SHEET: 01 OF 01
FORMAT: A2
REV: R0