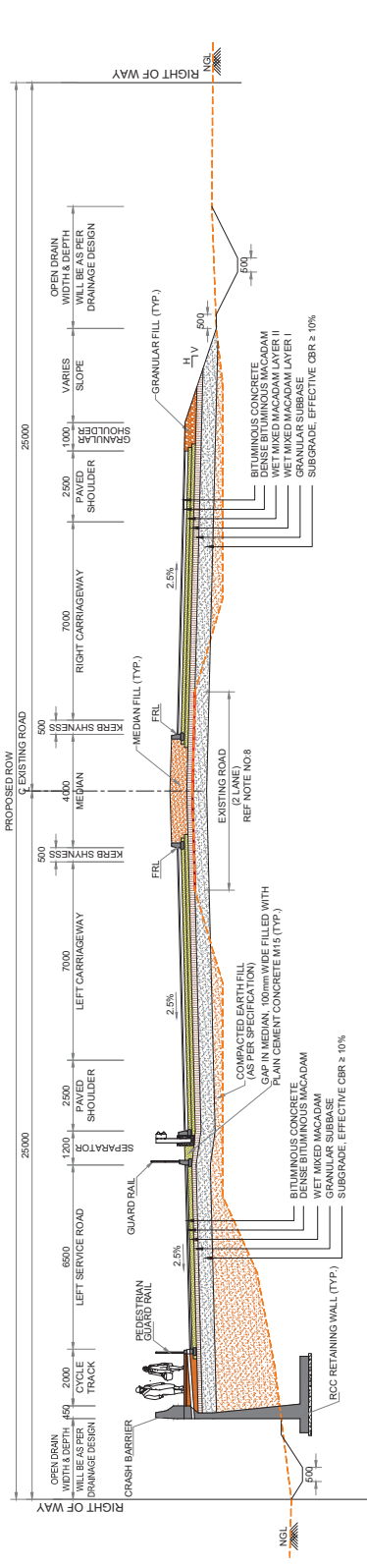
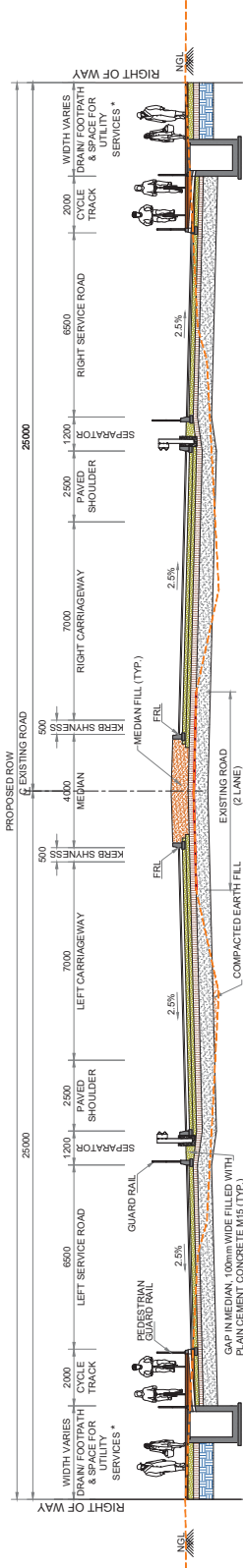
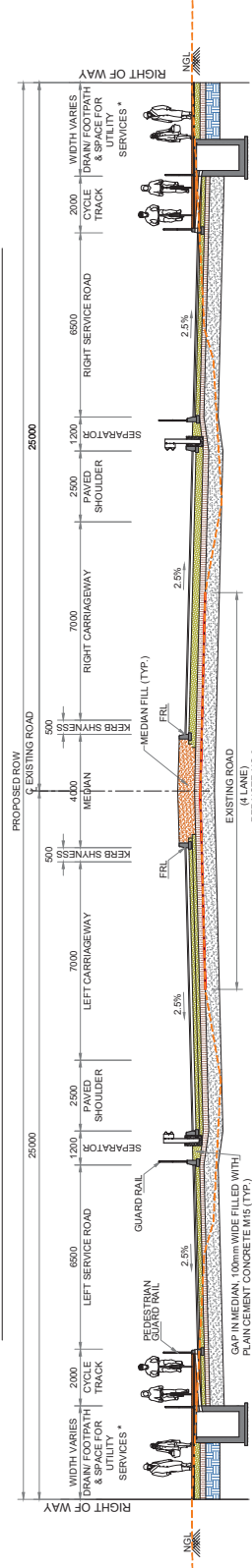




TYPE-4: TYPICAL CROSS SECTION FOR 4 LANE DIVIDED CARRIAGEWAY - CONCENTRIC WIDENING OF EXISTING 2 LANE AND SERVICE ROAD ON LHS ONLY



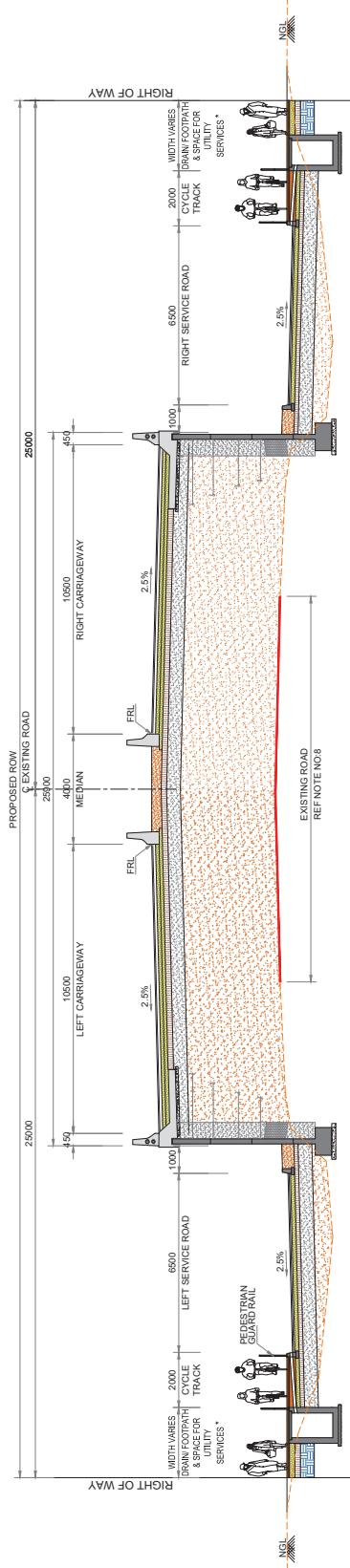
TYPE-5: TYPICAL CROSS SECTION FOR 4 LANE DIVIDED CARRIAGEWAY WITH SERVICE ROAD - CONCENTRIC WIDENING OF EXISTING 2 LANE



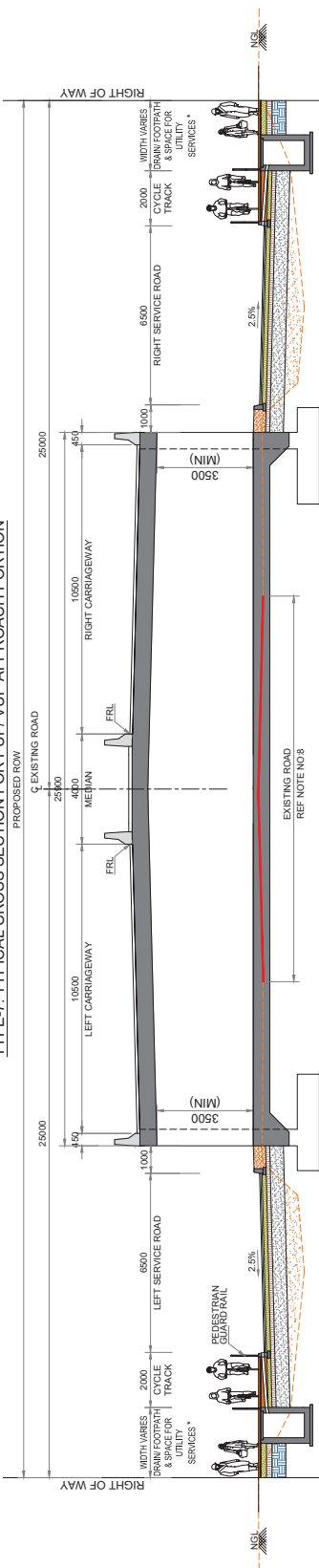
TYPE-6: TYPICAL CROSS SECTION FOR 4 LANE DIVIDED CARRIAGEWAY WITH SERVICE ROAD - CONCENTRIC WIDENING OF EXISTING 4 LANE

NOTES:
1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE INDICATED.
2. THE WIDTH OF FOOTPATH SPACE INCLUDING CYCLE TRACK VARIES WHERE RIGHT OF WAY IS CONSTRAINED

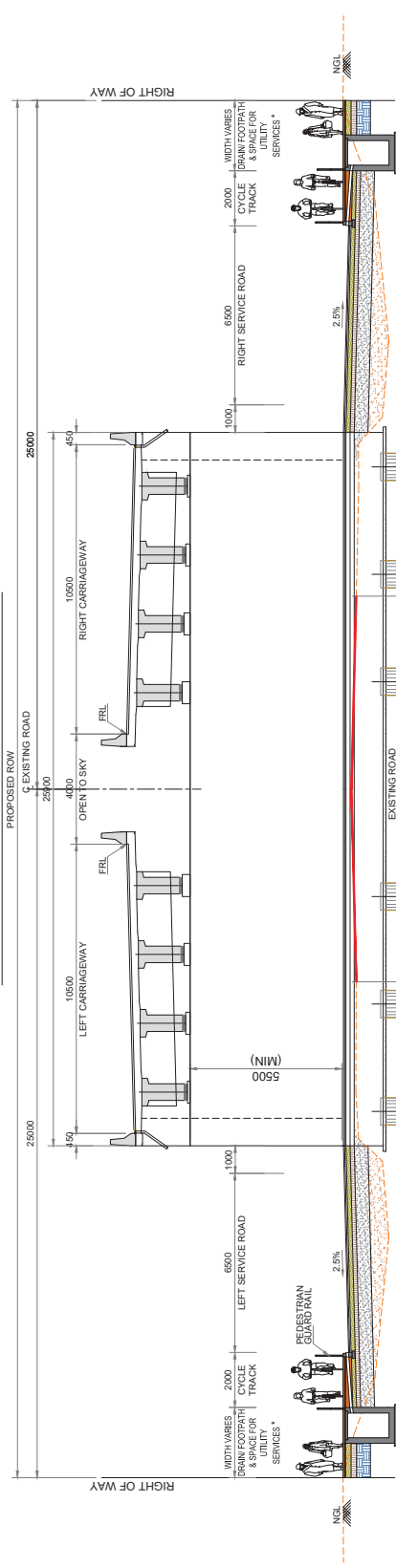
EMPLOYER	PROJECT	DESIGN CONSULTANTS				Drawing Name	Scale:	Date:
		Joint Venture of epitisa EPTISA Servicios De Ingenieria Madrid, Spain STUP STUP Consultants Private Limited Kokkatta, India	Designed By Mr. Ncc.No.	Signature	Signature			
Government of Nepal Ministry of Physical Infrastructure and Transport Department of Roads Development Cooperation Implementation Division	Strategic Road Connectivity & Trade Improvement Project (SRCTIP) Detailed Design of Upgradation of Kamala-Dhakleba-Pathahya Road Section (130 KM) of Mahendra Highway and Bridges	In Association With Udaya Consultancy, Geocom International, Sunder Krti Consultant and Rays Consultant Private Limited	Checked By Mr. Ncc.No.	Signature	Signature	TYPICAL CROSS SECTION TYPE-4 TO TYPE-6 Reference Drawings 1. TYPICAL HORIZONTAL CURVE & ATTAINMENT 2. TYPICAL HORIZONTAL CURVE & ATTAINMENT 3. TYPICAL HORIZONTAL CURVE & ATTAINMENT 4. TYPICAL HORIZONTAL CURVE & ATTAINMENT 5. TYPICAL HORIZONTAL CURVE & ATTAINMENT 6. TYPICAL HORIZONTAL CURVE & ATTAINMENT 7. TYPICAL HORIZONTAL CURVE & ATTAINMENT 8. TYPICAL HORIZONTAL CURVE & ATTAINMENT 9. TYPICAL HORIZONTAL CURVE & ATTAINMENT 10. TYPICAL HORIZONTAL CURVE & ATTAINMENT 11. TYPICAL HORIZONTAL CURVE & ATTAINMENT 12. 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TYPICAL HORIZONTAL CURVE & ATTAINMENT	Chainage: KOPDRHIGHWAY/CS/003 REV R(0) KOPDRHIGHWAY/CS/003 REV R(1) KOPDRHIGHWAY/CS/003 REV R(2) KOPDRHIGHWAY/CS/003 REV R(3) KOPDRHIGHWAY/CS/003 REV R(4) KOPDRHIGHWAY/CS/003 REV R(5) KOPDRHIGHWAY/CS/003 REV R(6) KOPDRHIGHWAY/CS/003 REV R(7) KOPDRHIGHWAY/CS/003 REV R(8) KOPDRHIGHWAY/CS/003 REV R(9) KOPDRHIGHWAY/CS/003 REV R(10) KOPDRHIGHWAY/CS/003 REV R(11) KOPDRHIGHWAY/CS/003 REV R(12) KOPDRHIGHWAY/CS/003 REV R(13) KOPDRHIGHWAY/CS/003 REV R(14) KOPDRHIGHWAY/CS/003 REV R(15) KOPDRHIGHWAY/CS/003 REV R(16) KOPDRHIGHWAY/CS/003 REV R(17) KOPDRHIGHWAY/CS/003 REV R(18) KOPDRHIGHWAY/CS/003 REV R(19) KOPDRHIGHWAY/CS/003 REV R(20) KOPDRHIGHWAY/CS/003 REV R(21) KOPDRHIGHWAY/CS/003 REV R(22) KOPDRHIGHWAY/CS/003 REV R(23) KOPDRHIGHWAY/CS/003 REV R(24) KOPDRHIGHWAY/CS/003 REV R(25) KOPDRHIGHWAY/CS/003 REV R(26) KOPDRHIGHWAY/CS/003 REV R(27) KOPDRHIGHWAY/CS/003 REV R(28) KOPDRHIGHWAY/CS/003 REV R(29) KOPDRHIGHWAY/CS/003 REV R(30) KOPDRHIGHWAY/CS/003 REV R(31) KOPDRHIGHWAY/CS/003 REV R(32) KOPDRHIGHWAY/CS/003 REV R(33) KOPDRHIGHWAY/CS/003 REV R(34) KOPDRHIGHWAY/CS/003 REV R(35) KOPDRHIGHWAY/CS/003 REV R(36) KOPDRHIGHWAY/CS/003 REV R(37) KOPDRHIGHWAY/CS/003 REV R(38) KOPDRHIGHWAY/CS/003 REV R(39) KOPDRHIGHWAY/CS/003 REV R(40) KOPDRHIGHWAY/CS/003 REV R(41) KOPDRHIGHWAY/CS/003 REV R(42) KOPDRHIGHWAY/CS/003 REV R(43) KOPDRHIGHWAY/CS/003 REV R(44) KOPDRHIGHWAY/CS/003 REV R(45) KOPDRHIGHWAY/CS/003 REV R(46) KOPDRHIGHWAY/CS/003 REV R(47) KOPDRHIGHWAY/CS/003 REV R(48) KOPDRHIGHWAY/CS/003 REV R(49) KOPDRHIGHWAY/CS/003 REV R(50) KOPDRHIGHWAY/CS/003 REV R(51) KOPDRHIGHWAY/CS/003 REV R(52) KOPDRHIGHWAY/CS/003 REV R(53) KOPDRHIGHWAY/CS/003 REV R(54) KOPDRHIGHWAY/CS/003 REV R(55) KOPDRHIGHWAY/CS/003 REV R(56) KOPDRHIGHWAY/CS/003 REV R(57) KOPDRHIGHWAY/CS/003 REV R(58) KOPDRHIGHWAY/CS/003 REV R(59) KOPDRHIGHWAY/CS/003 REV R(60) KOPDRHIGHWAY/CS/003 REV R(61) KOPDRHIGHWAY/CS/003 REV R(62) KOPDRHIGHWAY/CS/003 REV R(63) KOPDRHIGHWAY/CS/003 REV R(64) KOPDRHIGHWAY/CS/003 REV R(65) KOPDRHIGHWAY/CS/003 REV R(66) KOPDRHIGHWAY/CS/003 REV R(67) KOPDRHIGHWAY/CS/003 REV R(68) KOPDRHIGHWAY/CS/003 REV R(69) KOPDRHIGHWAY/CS/003 REV R(70) KOPDRHIGHWAY/CS/003 REV R(71) KOPDRHIGHWAY/CS/003 REV R(72) KOPDRHIGHWAY/CS/003 REV R(73) KOPDRHIGHWAY/CS/003 REV R(74) KOPDRHIGHWAY/CS/003 REV R(75) KOPDRHIGHWAY/CS/003 REV R(76) KOPDRHIGHWAY/CS/003 REV R(77) KOPDRHIGHWAY/CS/003 REV R(78) KOPDRHIGHWAY/CS/003 REV R(79) KOPDRHIGHWAY/CS/003 REV R(80) KOPDRHIGHWAY/CS/003 REV R(81) KOPDRHIGHWAY/CS/003 REV R(82) KOPDRHIGHWAY/CS/003 REV R(83) KOPDRHIGHWAY/CS/003 REV R(84) KOPDRHIGHWAY/CS/003 REV R(85) KOPDRHIGHWAY/CS/003 REV R(86) KOPDRHIGHWAY/CS/003 REV R(87) KOPDRHIGHWAY/CS/003 REV R(88) KOPDRHIGHWAY/CS/003 REV R(89) KOPDRHIGHWAY/CS/003 REV R(90) KOPDRHIGHWAY/CS/003 REV R(91) KOPDRHIGHWAY/CS/003 REV R(92) KOPDRHIGHWAY/CS/003 REV R(93) KOPDRHIGHWAY/CS/003 REV R(94) KOPDRHIGHWAY/CS/003 REV R(95) KOPDRHIGHWAY/CS/003 REV R(96) KOPDRHIGHWAY/CS/003 REV R(97) KOPDRHIGHWAY/CS/003 REV R(98) KOPDRHIGHWAY/CS/003 REV R(99) KOPDRHIGHWAY/CS/003 REV R(100)	Sheet No.
			Approved By Mr. Ncc.No.	Signature	Signature			
			Mr. Ncc.No.	Signature	Signature			



TYPE-7: TYPICAL CROSS SECTION FOR PUP/VUP APPROACH PORTION



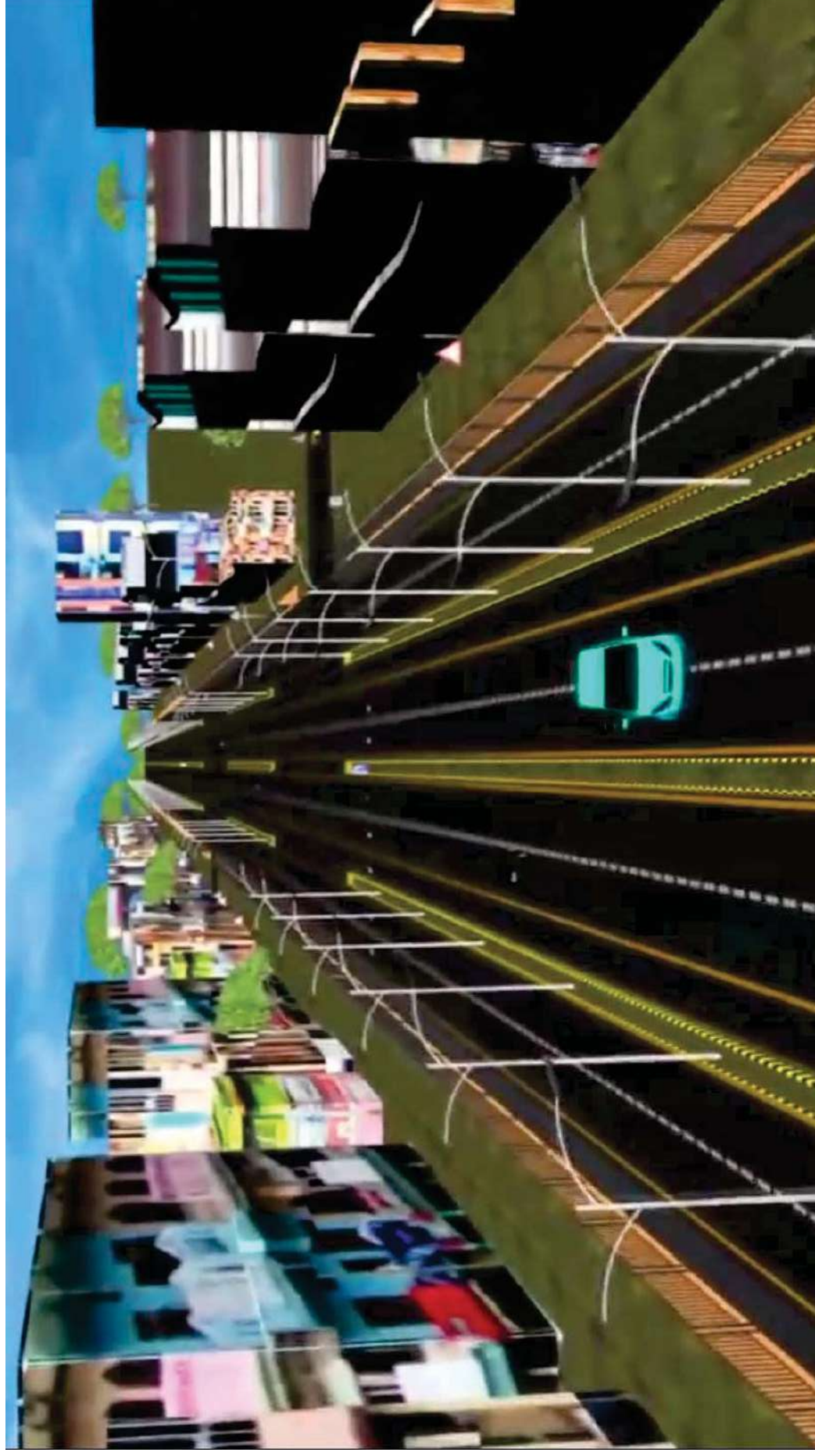
TYPE-8: TYPICAL CROSS SECTION OF PUP SECTION



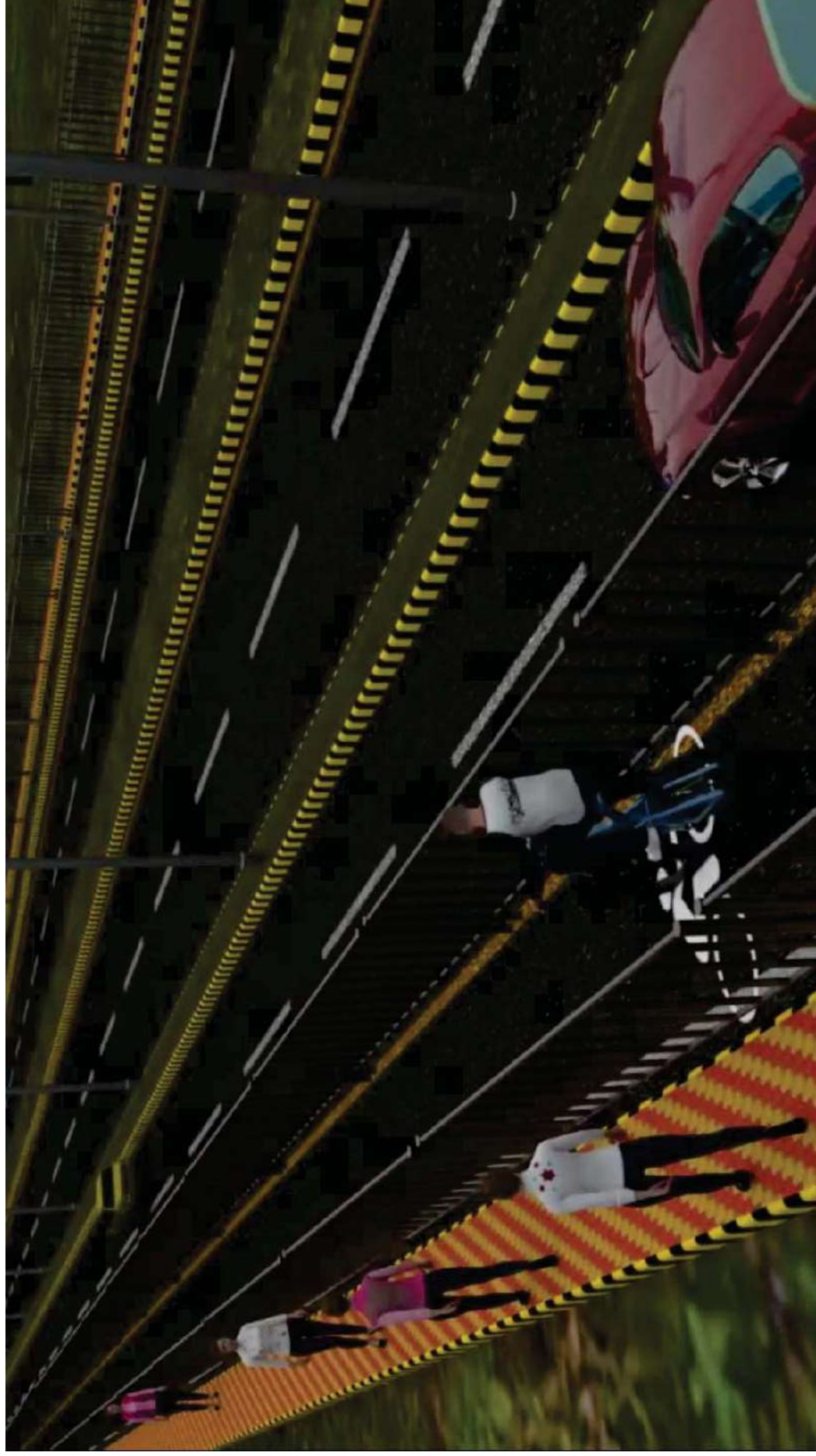
TYPE-9: TYPICAL CROSS SECTION FOR VUP STRUCTURE PORTION

NOTES:
1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE INDICATED.
2. THE WIDTH OF FOOTPATH SPACE INCLUDING CYCLE TRACK VARIES WHERE RIGHT OF WAY IS CONSTRAINED

EMPLOYER		PROJECT		DESIGN CONSULTANTS				DRAWING NAME		Scale:	Date:
 Government of Nepal Ministry of Physical Infrastructure and Transport Department of Roads Development Cooperation Implementation Division		Strategic Road Connectivity & Trade Improvement Project (SRCTIP) Detailed Design of Upgradation of Kamala-Dhalekebar-Pathalya Road Section (130 Km) of Mahendra Highway and Bridges		Joint Venture of  EPTISA Servicios De Ingenieria Madrid, Spain  STUP Consultants Private Limited Kolkata, India				TYPICAL CROSS SECTION TYPE-7 TO TYPE-9		Scale: 1:100	NOVEMBER 2022
				In Association With Udaya Consultancy, Geocom International, Sundar Knti Consultant and Rays Consultant Private Limited				Reference Drawings 1. TYPICAL HORIZONTAL CURVE & ATTAINMENT 2. PLAN AND PROFILE		Chaining:	Drawing No.
				Checked By Approved By				Signature			KOPDDB/HIGHWAY/CS/004 (REV R/0)
				Mr. Nec. No. Mr. Nec. No. Mr. Nec. No. Mr. Nec. No.				Signature			Sheet No.



Road in Urban Section



Road in Urban section with footpath, cycle lane, service road, main highway and median



Road in Rural/Forest section

Annex 4: Detail List of Bridges

Table: List of Bridges Associated with KDP

SN	Bridge Name	Chainage (Center of Bridge)	Existing Bridge		Proposed					Type of River	Nature (Siltation)
			Span Length (m)	Total Length (m)	Span Length (m)	Total Length (m)	LBL (m)	HFL (m)	Vertical Clearance (m)		
1	Kamala	237.022	24*26.65	639.6	114+206+206+114	640	100.81	106.12	8.349	Perennial	Aggrading
2	Kamala Canal	237.812	5*14.2	71	45	45	104.057	106.057	5.415		
3	Charnath	241.185	15*21.4	321	15*21.4	321	122.05	123.79	2.940	Ephemeral	Aggrading
4	Baluwa	244.825	7*16	112	32+32+32+16	112	134.04	136.53	3.830	Ephemeral	Aggrading
5	Jagadav Branch	250.492	26.6	26.6	20	20	161.66	162.44	1.780	Ephemeral	Aggrading
6	Jagadav	250.817	2*21.5 + 2*26.5	96	2*20.6	53.2	159.11	159.92	3.238	Ephemeral	Aggrading
7	Jalad	252.472	10*26.6	266	10*20.6	266	153.68	155.44	5.107	Ephemeral	Aggrading
8	Aurahi	254.605	12*26.6	319.2	12*26.6	319.2	163.9	165.38	3.700	Ephemeral	Aggrading
9	Basai	256.142	2*26.5 + 2*21.5	96	21.4+2*26.6+21.4	96	164.18	165.65	3.833	Ephemeral	Aggrading
10	Sukhajor	258.631	2*22	44	2*22	44	171.82	174.34	4.830	Ephemeral	Aggrading
11	Badahari	260.957	2*23.5+28	75	23.5+28+23.5	75	183.18	185.12	3.845	Ephemeral	Aggrading
12	Ratu	265.312	2*38.5+4*33+5*2.95	223.75	41+4*36+41	226	216.41	219.06	6.679	Ephemeral	Aggrading
13	Ratu Chahara	266.108	2*9.4	18.8	2*6	12	224.16	225.32	1.841	Ephemeral	Aggrading
14	Bhapsi	268.134	4*12.5	50	3*25	75	206.37	209.54	4.370	Ephemeral	Aggrading
15	Atabbe	269.363	3*9.5	28.5	28.5	28.5	205.65	207.15	2.910	Ephemeral	Aggrading
16	Janga Pul-1	270.717	6*12.5	75	5*25	125	207.56	210.01	3.650	Perennial	Stable
17	Janga Pul-2	270.993	3*12.55	37.65	3*6	18	206.32	207.82	5.728	Ephemeral	Aggrading
18	Gadhanta	271.36	5*12.5	62.5	3*25	75	209.65	211.53	3.000	Ephemeral	Aggrading
19	Belgachhi (Dhungre Khola)	274.798	4*9.5	38	2*20	40	195.21	197.32	3.110	Ephemeral	Aggrading
20	Tuteshwor- 1	275.494	2*9.5	19	20	20	188.67	190.9	3.230	Ephemeral	Degrading
21	Tuteshwor- 2	276.903	2*9.5	19	20	20	187.03	188.23	4.553	Ephemeral	Aggrading
22	Maraha	277.004	15+2*18+2*15+2*18+15	132	5*33	165	188.21	190.651	3.941	Ephemeral	Aggrading
23	Maraha Kholisi Pul	278.219	2*9.45	18.9	3*6	18	187.79	189.36	3.174	Ephemeral	Aggrading
24	Dholan	278.783	4*9.5	38	38	38	187.35	189.4	3.050	Ephemeral	Aggrading
25	Jarlahi (Kholisi Pul)	280.453	2*9.5	19	20	20	184.98	186.71	2.730	Ephemeral	Aggrading
26	Batuwa	281.883	3*9.5	28.5	28.5	28.5	177.3	179.77	3.470	Ephemeral	Aggrading
27	Bankhe	282.73	15+4*18+15	102	33+36+33	102	177.92	180.14	3.420	Ephemeral	Aggrading
28	Amuwa	285.648	2*9.2	18.4	25	25	164.06	167.09	4.030	Ephemeral	Aggrading

SN	Bridge Name	Chainage (Center of Bridge)	Existing Bridge		Proposed					Type of River	Nature (Siltation)
			Span Length (m)	Total Length (m)	Span Length (m)	Total Length (m)	LBL (m)	HFL (m)	Vertical Clearance (m)		
29	Phuljor	290.223	7*12.5	87.5	5*25	125	156.76	159.56	4.000	Ephemeral	Aggrading
30	Kalinjor - 1	291.893	3*9.5	28.5	28.5	28.5	155.19	156.52	6.500	Ephemeral	Aggrading
31	Kalinjor - 2	292.761	3*21.1	63.3	3*22	66	150.97	154.23	5.273	Perennial	Stable
32	Betini	294.155	2*6	12	2*6	12	146.97	148.25	2.293	Ephemeral	Degrading
33	Dumdume	295.388	2*9.45	18.9	25	25	139.71	142.32	3.610	Perennial	Stable
34	Bastipur	296.328	2*9.5	19	3*6	18	140.22	141.19	2.091	Ephemeral	Aggrading
35	Lakhandei	300.671	15+4*18+2*15+4*18+15	204	33+36+2*33+36+33	204	136.39	138.81	3.920	Ephemeral	Aggrading
36	Chapani	301.712	3*22	66	3*22	66	136.62	139.94	4.520	Perennial	Aggrading
37	Bastol	302.553	2*10.35	20.7	6	6	141.92	142.76	2.214		
38	Sukhapokhari	305.624	2*9.5	19	3*6	18	136.88	137.51	2.342	Ephemeral	Aggrading
39	Rai Bridge	307.663	4*9.5	38	38	38	130.87	135.12	5.450	Perennial	Degrading
40	Dumajor	309.914	4*9.45	37.8	2*20	40	127.7	130.99	4.290	Ephemeral	Aggrading
41	Godari	311.444	2*9.45	18.9	20	20	128.45	130.79	3.340	Ephemeral	Aggrading
42	Bagmati East	312.07	11.3	11.3	25	25	126.12	128.12	5.560		
43	Bagmati	312.941	11*33.045	363.495	99+165+99	363	122.88	131.26	10.675	Perennial	Aggrading
44	Bagmati West	313.615	11.57	11.57	25	25	125.546	127.546	5.143		
45	Gairi	313.99	3*11.4	34.2	35	35	126.92	129.36	3.440	Ephemeral	Aggrading
46	Gairi Khola	314.83	11.5	11.5	3	3	137.15	137.87	1.666	Ephemeral	Partial Aggrading
47	Paurahi	317.792	3*22.17	66.51	3*22	66	121.25	124.11	4.060	Ephemeral	Stable
48	Lachkan	319.13	2*11.25	22.5	20	20	125.87	127.45	2.580	Ephemeral	Aggrading
49	Katha Ko Pul	323.567	4*11.4	45.6	25	25	121.91	123.42	2.510	Ephemeral	Aggrading
50	Chandi	325.262	5*32.95	164.75	5*33	165	119.81	122.61	6.263	Perennial	Aggrading
51	Dhou	327.332	2*11.25	2*11.25	3	3	132.56	132.96	1.511	Ephemeral	Aggrading
52	Jungle Tole	328.136	3*11.39	34.17	20	20	134.89	135.7	1.810	Ephemeral	Stable
53	Amu - 1	329.666	3*11.34	34.02	25	25	139.97	140.79	6.500	Ephemeral	Stable
54	Amu - 2	330.895	2*11.35	22.7	3*6	18	142.88	144.22	4.543	Ephemeral	Stable
55	Kathi	332.717	5*11.35	56.75	30	30	144.15	145.08	1.930	Ephemeral	Aggrading
56	Lamaha	333.842	2*33	66	2*33	66	134.21	137.82	7.519	Perennial	Stable
57	Kali Khola	334.396	3*11.3	33.9	33	33	133.81	136.3	4.349	Perennial	Degrading
58	Dhansar	339.381	8*20.5	164	4*41	164	145.3	147.35	6.500	Ephemeral	Aggrading
59	Lamopul	342.172	4*11.3	45.2	25	25	148.02	148.95	1.930	Ephemeral	Stable

SN	Bridge Name	Chainage (Center of Bridge)	Existing Bridge		Proposed					Type of River	Nature (Siltation)
			Span Length (m)	Total Length (m)	Span Length (m)	Total Length (m)	LBL (m)	HFL (m)	Vertical Clearance (m)		
60	Bhamara	343.395	32.89	32.89	33	33	145.97	151.63	8.121	Ephemeral	Aggrading
61	Rampul	343.99	2*11.3	22.6	20	20	149.85	151.78	2.930	Ephemeral	Aggrading
62	Bakeya	347.272	16*22.2	355.2	82.5+165+82.5	330	148.84	153.22	6.896	Perennial	Aggrading
63	Unasi	348.934	8*11.2	89.6	35	35	149.58	152.62	4.185	Ephemeral	Aggrading Degrading
64	Terhakilo	353.612	4*11.4	45.6	41	41	146.48	149.12	6.500	Ephemeral	Aggrading
65	Barahakilo	354.656	3*11.25	33.75	35	35	139.17	141.56	3.390	Ephemeral	Stable
66	Pasaha	357.337	5*33	165	5*33	165	139.2	141.63	6.500	Perennial	Aggrading
67	Pasaha Branch	357.46	2*11.1	22.2	3*6	18	142.53	143.64	4.322	Ephemeral	Stable
68	Bangandi	358.581	10*11.36	113.6	35	35	142.87	144.22	2.350	Ephemeral	Aggrading
69	Balganga	361.003	3*22.36	67.08	3*22	66	147.55	149.53	6.500	Ephemeral	Aggrading
70	Baijura	362.952	4*11.52	46.08	2*23	46	152.75	154.61	3.604	Ephemeral	Aggrading
71	Dudhaura	363.687	2*45.2465	90.493	2*45.25	90.5				Ephemeral	Aggrading
72	Dhungre - 1	364.553	11.2+11.6	22.8	3*6	18	159.58	160.59	2.598	Ephemeral	Aggrading
73	Dhungre - 2	364.776	11.2+11.4	22.6	3*6	18	157.09	159.01	4.797	Ephemeral	Stable
74	Tin Number	365.866	11.6+11.6+10.4	33.6	35	35	159.65	161.45	2.800	Ephemeral	Stable
75	Dui Number	366.391	2*11.6	23.2	3*6	18	160.96	161.92	3.565	Ephemeral	Stable
76	Ek Number	366.61	11.45	11.45	2*6	12	162.88	163.62	1.696	Ephemeral	Aggrading

Source: Detail Design Report 2023

Possible Impacts/Issues Related with Bridges

S.N	Bridge Name	Possible Impacts/Issues
1	Kamala	• This is perennial river so construction works can impact on aquatic life. The river is aggrading and hence there can be siltation problem. • Disturbance to cattle crossing during construction • Disturbance during crop harvesting and transportation • Blockage in access to river bank for religious activities (temples, cremation, taking holy bath) • Existing extraction of river bed materials may have risk in bridge foundation
2	Kamala Canal	• Deterioration of Irrigation water quality • Open canal can be risk to children
3	Charnath	• Ephemeral river with aggrading nature hence siltation problem • Disturbance to cattle crossing during construction • Disturbance during crop harvesting and transportation • River bank cutting
4	Baluwa	• Ephemeral river with aggrading nature hence siltation problem • Disturbance to cattle crossing during construction • Disturbance during crop harvesting and transportation • River bank cutting
5	Jagadav Branch	• Ephemeral river with aggrading nature hence siltation problem
6	Jagadav	• Ephemeral river with aggrading nature hence siltation problem • River bank cutting
7	Jalad	• Ephemeral river with aggrading nature hence siltation problem • Disturbance to cattle crossing during construction • Disturbance during crop harvesting and transportation • River bank cutting
8	Aurahi	• Ephemeral river with aggrading nature hence siltation problem • Disturbance to cattle crossing during construction • Disturbance during crop harvesting and transportation • River bank cutting
9	Basai	• Ephemeral river with aggrading nature hence siltation problem • Disturbance to cattle crossing during construction

S.N	Bridge Name	Possible Impacts/Issues
		• Disturbance during crop harvesting and transportation • River bank cutting
10	Sukhajor	• Ephemeral river with aggrading nature hence siltation problem • Disturbance to cattle crossing during construction • Disturbance during crop harvesting and transportation
11	Badahari	• Ephemeral river with aggrading nature hence siltation problem • Disturbance to cattle crossing during construction • Disturbance during crop harvesting and transportation
12	Ratu	• Ephemeral river with aggrading nature hence siltation problem • Disturbance to cattle crossing during construction • Disturbance during crop harvesting and transportation • Existing extraction of river bed materials may have risk in bridge foundation • River bank cutting
13	Ratu Chahara	• Ephemeral river with aggrading nature hence siltation problem • Existing bridge to be dismantled so issue regarding diversion
14	Bhapsi	• Ephemeral river with aggrading nature hence siltation problem • Disturbance to cattle crossing during construction • Existing extraction of river bed materials may have risk in bridge foundation • Disturbance during crop harvesting and transportation
15	Atabbe	• Ephemeral river with aggrading nature hence siltation problem
16	Janga Pul-1	• This is perennial river so construction works can impact on aquatic life.
17	Janga Pul-2	• Ephemeral river with aggrading nature hence siltation problem
18	Gadhanta	• Ephemeral river with aggrading nature hence siltation problem • Disturbance to wildlife movement • River bank cutting
19	Belgachhi (Dhungre Khola)	• Ephemeral river with aggrading nature hence siltation problem • Disturbance to wildlife movement • Existing bridge to be dismantled so issue regarding diversion
20	Tuteshwor - 1	• Ephemeral river but degrading in nature • Disturbance to wildlife movement

S.N	Bridge Name	Possible Impacts/Issues
21	Tuteshwar - 2	• Ephemeral river with aggrading nature hence siltation problem
22	Maraha	• Ephemeral river with aggrading nature hence siltation problem • Disturbance to wildlife movement
23	Maraha Kholsi Pul	• Ephemeral river with aggrading nature hence siltation problem
24	Dholan	• Ephemeral river with aggrading nature hence siltation problem • Disturbance to wildlife movement
25	Jarlahi (Kholsi Pul)	• Ephemeral river with aggrading nature hence siltation problem
26	Batuwa	• Ephemeral river with aggrading nature hence siltation problem
27	Bankhe	• Ephemeral river with aggrading nature hence siltation problem • Disturbance to wildlife movement
28	Amuwa	• Ephemeral river with aggrading nature hence siltation problem • Disturbance to wildlife movement
29	Phuljor	• Ephemeral river with aggrading nature hence siltation problem • Disturbance to cattle crossing during construction • Disturbance during crop harvesting and transportation
30	Kalinjor - 1	• Ephemeral river with aggrading nature hence siltation problem • Disturbance to cattle crossing during construction • Disturbance during crop harvesting and transportation
31	Kalinjor - 2	• This is perennial river so construction works can impact on aquatic life. • Disturbance to wildlife movement
32	Betini	• Ephemeral river but degrading in nature • Existing bridge to be dismantled so issue regarding diversion
33	Dumdume	• This is perennial river so construction works can impact on aquatic life
34	Bastipur	• Ephemeral river with aggrading nature hence siltation problem • Existing bridge to be dismantled so issue regarding diversion
35	Lakhandei	• Ephemeral river with aggrading nature hence siltation problem • Disturbance to cattle crossing during construction • Disturbance during crop harvesting and transportation • Existing extraction of river bed materials may have risk in bridge foundation • River bank cutting

S.N	Bridge Name	Possible Impacts/Issues
36	Chapani	- This is perennial river so construction works can impact on aquatic life. - Perennial river but aggrading nature hence siltation problem - River bank cutting
37	Bastol	Ephemeral river with aggrading nature hence siltation problem
38	Sukhapokhari	- Ephemeral river with aggrading nature hence siltation problem - Existing bridge to be dismantled so issue regarding diversion
39	Rai Bridge	- This is perennial river so construction works can impact on aquatic life. - Disturbance to cattle crossing during construction - Disturbance during crop harvesting and transportation
40	Dumajor	Ephemeral river with aggrading nature hence siltation problem
41	Godari	- Ephemeral river with aggrading nature hence siltation problem - Existing bridge to be dismantled so issue regarding diversion
42	Bagmati East	- Deterioration of Irrigation water quality - Open canal can be risk to children
43	Bagmati	- This is perennial river so construction works can impact on aquatic life. - Perennial river but aggrading nature hence siltation problem - Blockage in access to river bank for religious activities (temples, cremation, taking holy bath) - Existing extraction of river bed materials may have risk in bridge foundation - Removal of religious trees
44	Bagmati West	- Deterioration of Irrigation water quality - Open canal can be risk to children
45	Gairi	Ephemeral river with aggrading nature hence siltation problem
46	Gairi Khola	Ephemeral river with aggrading nature hence siltation problem
47	Paurahi	- Ephemeral river but stable in nature - Disturbance to wildlife movement
48	Lachkan	Ephemeral river with aggrading nature hence siltation problem
49	Katha Ko Pul	Ephemeral river with aggrading nature hence siltation problem
50	Chandi	- Ephemeral river with aggrading nature hence siltation problem - Disturbance to cattle crossing during construction - Disturbance during crop harvesting and transportation

S.N	Bridge Name	Possible Impacts/Issues
		- Existing extraction of river bed materials may have risk in bridge foundation - River bank cutting
51	Dhou	- Ephemeral river with aggrading nature hence siltation problem - Existing bridge to be dismantled so issue regarding diversion
52	Jungle Tole	Ephemeral river but stable in nature
53	Amu - 1	- Ephemeral river but stable in nature - Disturbance to wildlife movement - Existing bridge to be dismantled so issue regarding diversion
54	Amu - 2	- Ephemeral river but stable in nature - Existing bridge to be dismantled so issue regarding diversion
55	Kathi	Ephemeral river with aggrading nature hence siltation problem
56	Lamaha	- This is perennial river so construction works can impact on aquatic life. The river is aggrading and hence there can be siltation problem. - Disturbance to wildlife movement
57	Kali Khola	This is perennial river so construction works can impact on aquatic life.
58	Dhansar	Ephemeral river with aggrading nature hence siltation problem
59	Lamopul	Ephemeral river but stable in nature
60	Bhamara	- Ephemeral river with aggrading nature hence siltation problem - Disturbance to cattle crossing during construction - Disturbance during crop harvesting and transportation
61	Rampul	- Ephemeral river with aggrading nature hence siltation problem - Disturbance to cattle crossing during construction - Disturbance during crop harvesting and transportation
62	Bakeya	- This is perennial river so construction works can impact on aquatic life. Perennial river but aggrading nature hence siltation problem - Blockage in access to river bank for religious activities (temples, cremation) - Existing extraction of river bed materials may have risk in bridge foundation
63	Unasi	Ephemeral river, sometimes aggrading and sometimes degrading
64	Terhakilo	- Ephemeral river with aggrading nature hence siltation problem - Disturbance to wildlife movement

S.N	Bridge Name	Possible Impacts/Issues
		Existing bridge to be dismantled so issue regarding diversion
65	Barahakilo	Ephemeral river but stable in nature
66	Pasaha	- This is perennial river so construction works can impact on aquatic life. - Perennial river but aggrading nature hence siltation problem - Disturbance to wildlife movement
67	Pasaha Branch	Ephemeral river but stable in nature
68	Bangandi	- Ephemeral river with aggrading nature hence siltation problem - Disturbance to wildlife movement
69	Balganga	- Ephemeral river with aggrading nature hence siltation problem - Disturbance to wildlife movement
70	Baijura	Ephemeral river with aggrading nature hence siltation problem
71	Dudhaura	- Ephemeral river with aggrading nature hence siltation problem - Disturbance to wildlife movement
72	Dhungre - 1	Ephemeral river with aggrading nature hence siltation problem
73	Dhungre - 2	Ephemeral river but stable in nature
74	Tin Number	Ephemeral river but stable in nature
75	Dui Number	Ephemeral river but stable in nature
76	Ek Number	Ephemeral river with aggrading nature hence siltation problem

Source: Field Observation 2022

Annex 5: Maps related to Project

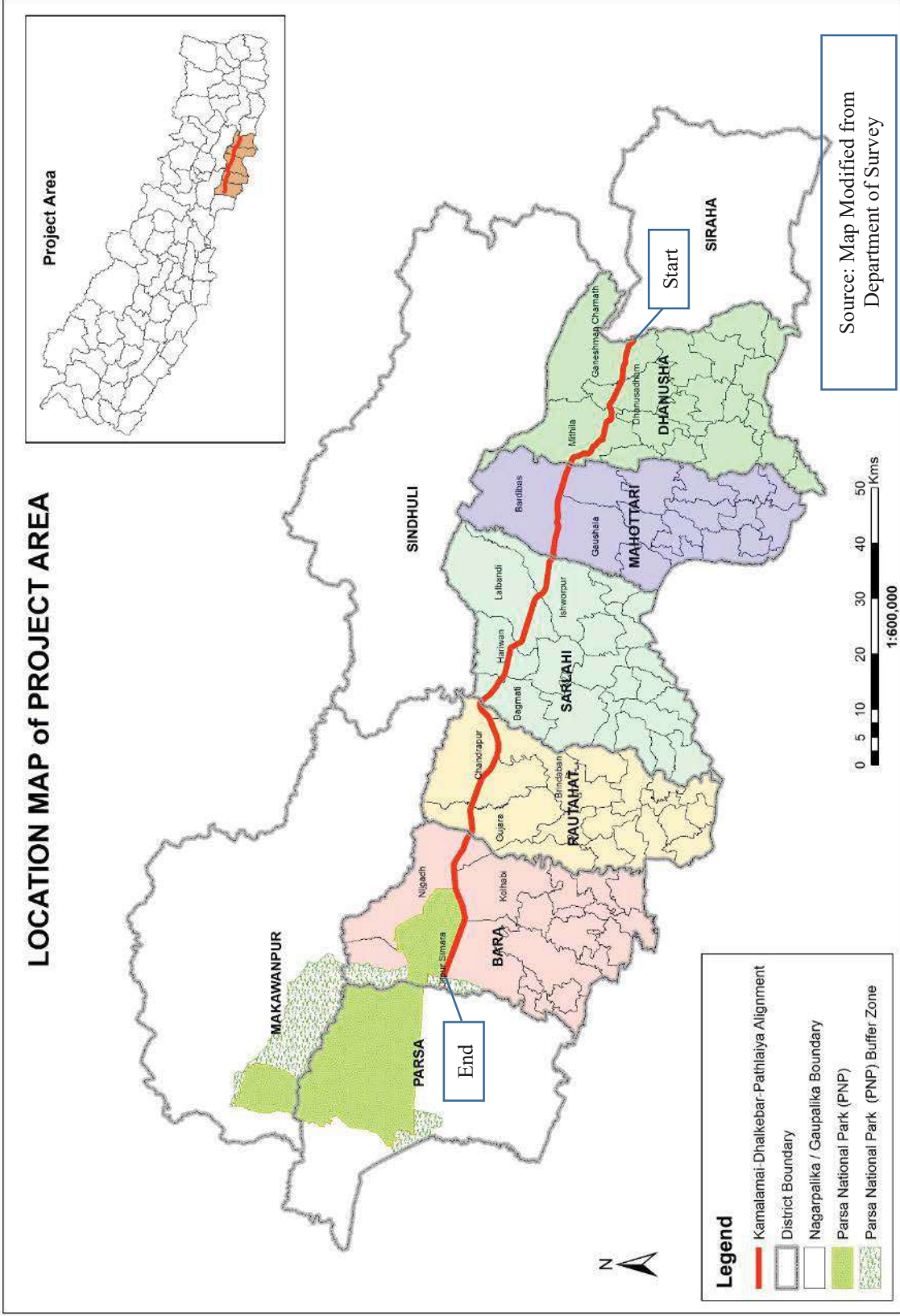


Figure: Proposed Road Alignment in Map of Nepal

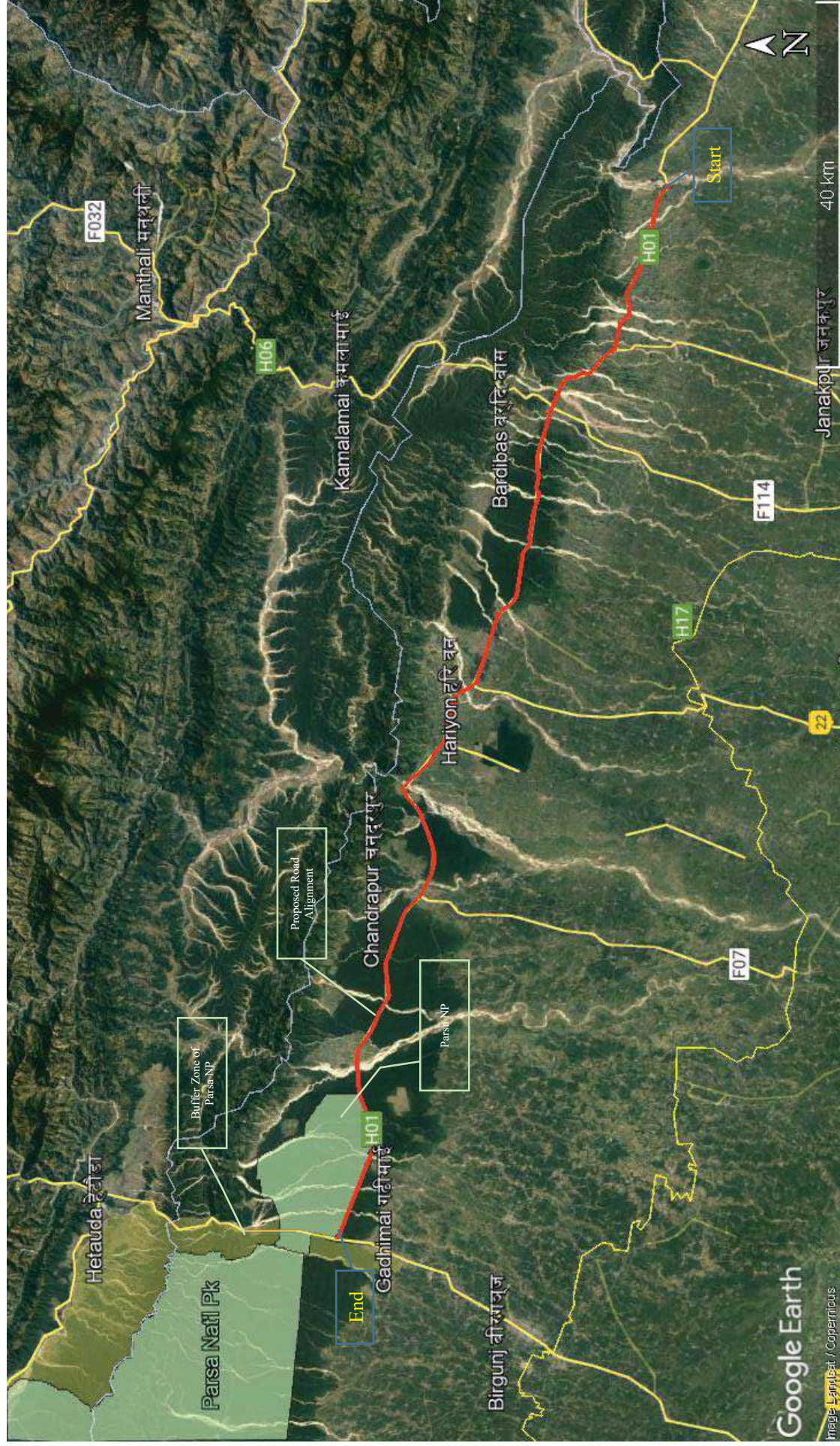


Figure: Proposed Road Alignment in Google Earth (retrieved on March 2, 2022)

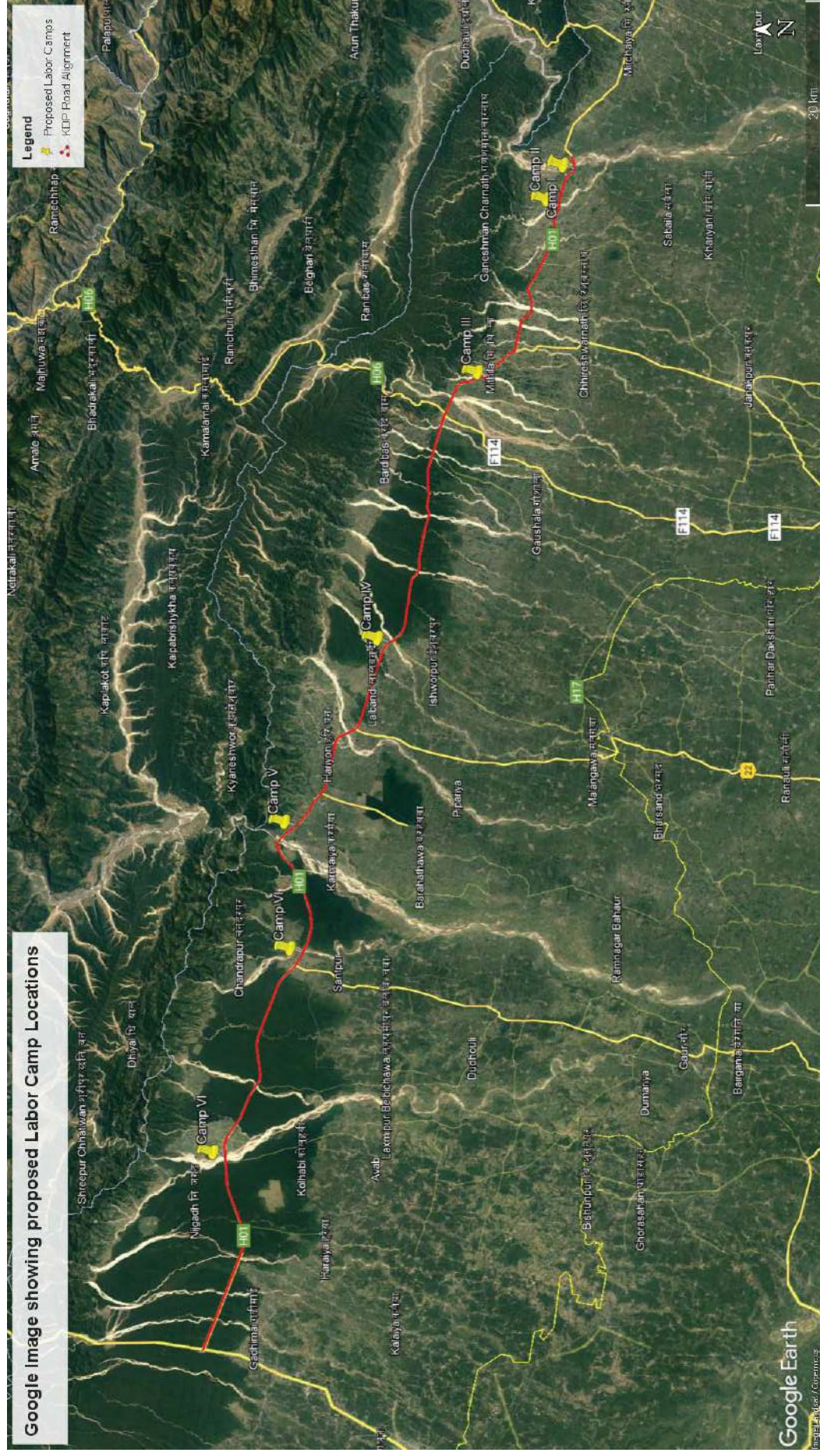
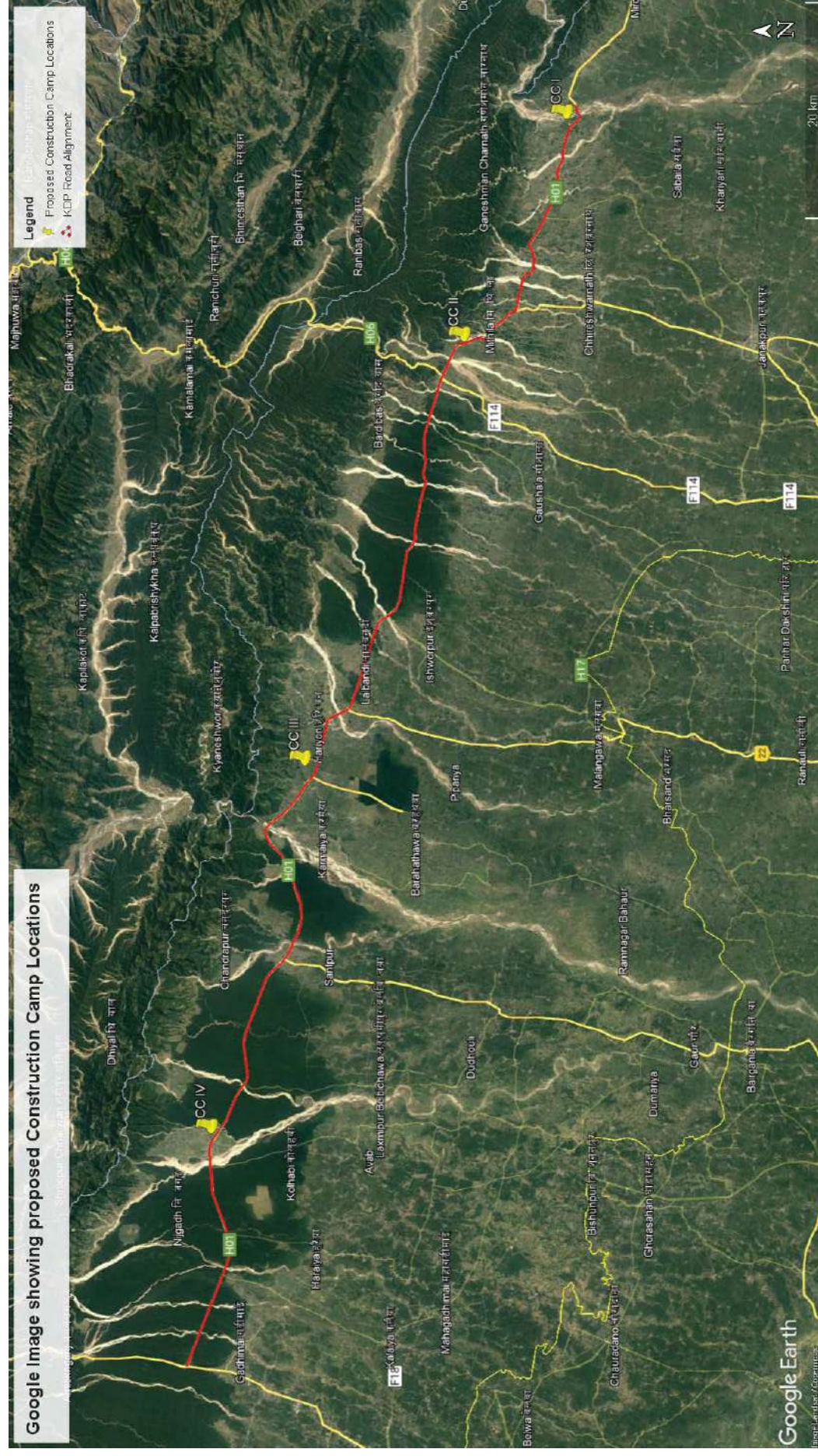


Figure: Proposed Road Alignment in Google Earth with Proposed Labour Camp (retrieved on October 10, 2023)



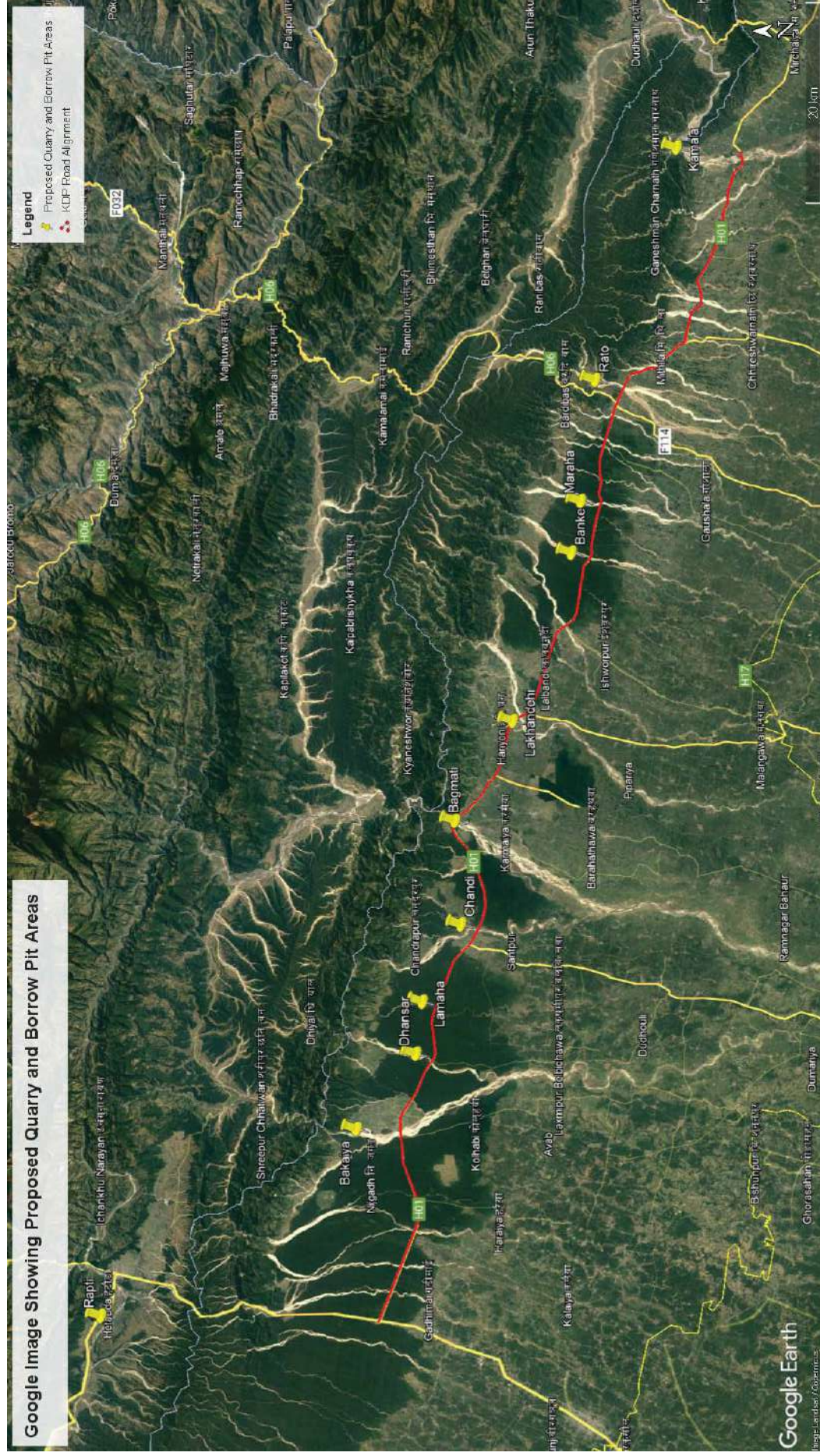


Figure: Proposed Road Alignment in Google Earth with Proposed Quarry and Borrow Pits (retrieved on October 10, 2023)